

SOIL EXCAVATION WORK PLAN
TECHNICAL SPECIFICATIONS FOR REMOVAL ACTION

*Wampus Milford Associates Site
80 Wampus Lane
Milford, Connecticut*

July 2007

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List of Acronyms

ARARs	Applicable or Relevant and Appropriate Requirements
bg	Below Grade
CGS	Connecticut General Statutes
CSM	Conceptual Site Model
CT DEP	Connecticut Department of Environmental Protection
CT DEP IWRD	Connecticut Department of Environmental Protection Inland Water Resources Division
CT DEP OLISP	Department of Environmental Protection Office of Long Island Sound Program
CT DEP PERD	Connecticut Department of Environmental Protection Permitting Enforcement and Remediation Division
ECAF	Environmental Condition Assessment Form
ELUR	Environmental Land Use Restriction
EPA	United States Environmental Protection Agency
EPRB	Emergency Planning and Response Branch
ERM	Environmental Resources Management, Inc.
ETPH	Extractable Total Petroleum Hydrocarbons
FCI	FCI USA, Inc.
HASP	Health and Safety Plan
HRP	HRP Associates, Inc.
I/C DEC	Industrial/Commercial Direct Exposure Criteria
MOH	Metal Hydroxide
NCP	National Contingency Plan
PAHs	Polynuclear Aromatic Hydrocarbons
PA/SI	Preliminary Assessment/Site Investigation
PCBs	Polychlorinated Biphenyls
PVC	Polyvinyl Chloride
RCP	Reasonable Confidence Protocol
RCRA	Resource Conservation and Recovery Act
RSRs	Remediation Standard Regulations
SEH	Significant Environmental Hazard
START	Superfund Technical Assessment & Response Team
TPH	Total Petroleum Hydrocarbons
VOCs	Volatile Organic Compounds
WMA	Wampus Milford Associates

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EXECUTIVE SUMMARY

The Soil Excavation Work Plan (Work Plan) presented herein was prepared by HRP Associates, Inc. on behalf of FCI USA, Inc. The Work Plan details the scope of a time-critical Removal Action to be performed on a portion of the Wampus Milford Associates Site located at 80 Wampus Lane in Milford, Connecticut. Following a site evaluation, the US Environmental Protection Agency determined that a time-critical Removal Action was necessary to mitigate imminent health hazards associated with contaminated surface soil and sediment exposed within a drainage swale located on Lot 2 of the property. The Work Plan describes the goals, strategy, and methods to address exposure risks associated with the drainage swale.

The primary objective of the Removal Action is to mitigate soil and sediment impacts within and immediately adjacent to the drainage swale that are potentially subjected to erosion and may represent an imminent hazard to human health and the environment. Excavation, combined with off-site disposal of contaminated soil at a licensed disposal facility will be utilized to address the identified hazard. Primary project tasks include clearing of site vegetation to provide access, installation of a temporary haul road, dewatering, excavation and disposal of contaminated soil, and diversion of stormwater. During construction, Health and Safety Monitoring and Perimeter Air Monitoring will be implemented to maintain safe conditions and document air quality during site operations. Following excavation, the drainage swale will be re-constructed and wetland area impacted by the Removal Action activities will be restored in accordance with a Wetland Restoration Plan.

A site-specific approach, using three tiers of Removal Action Clean-Up Standards, will be applied to determine and document the completeness of the Removal Action. The tiered Removal Action Clean-Up Standards apply stringent compliance criteria to surface and shallow soil in order to eliminate imminent hazards and be protective of human health and the environment. The applicable criteria increase with depth reflecting the lower potential for direct human contact.

1.0 INTRODUCTION

This Soil Excavation Work Plan (Work Plan) identifies the scope of a time-critical Removal Action to be performed by FCI USA, INC (FCI) on the Wampus Milford Associates (WMA) Site located at 80 Wampus Lane in Milford, Connecticut (Figure 1). The Work Plan expands upon and provides additional detail to the following documents, which describe the conceptual approach and goals of this Removal Action.

1. Conceptual Approach to Removal Action, HRP Associates, Inc. (HRP), May 2, 2007.
2. Conceptual Approach to Removal Action (Comments), U.S. Environmental Protection Agency (EPA), May 10, 2007.
3. Response to EPA Comments, HRP, May 25, 2007.
4. Addendum, Conceptual Approach to Removal Action, HRP, June 12, 2007.

EPA documented concurrence with this approach in correspondence dated June 18, 2007. Copies of these documents and latest correspondence by EPA are attached in Appendix A.

1.1 Overview

In October 2006, the RCRA Corrective Action Section of EPA recommended preliminary assessment and site investigation (PA/SI) of a drainage swale located on the northern portion of the property (Figure 2) due to the lack of progress by WMA to investigate and remediate the area. Based upon the results of the PA/SI, the Emergency Response and Removal Section II conducted a Removal Site Evaluation in March 2007. In accordance with § 300.415 of the National Contingency Plan (NCP), EPA determined that a Removal Action was necessary on the basis of two basic conditions.

- 1 The potential for the migration of exposed contaminants due to erosion within the swale channel, and
- 2 The presence of a potential source of significant contact exposure to human and wildlife receptors, due to exposed contaminants and unrestricted access to the site.

FCI and WMA, the respective former and current owners of the Site, initially received from EPA notification concerning potential liability associated with the Removal Action in March 2007. Following negotiations with EPA, FCI agreed to implement the Removal Action in accordance with the requirements and schedule presented in the Administrative Settlement Agreement and Order On Consent For Removal Action (Settlement Agreement). WMA was unresponsive to EPA correspondence concerning the potential liability.

A copy of the Settlement Agreement can be obtained from HRP. The proposed schedule for the Removal Action is provided in Section 5.2 of this Work Plan.

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1.2 Purpose

The Work Plan, prepared by HRP Associates, Inc (HRP) on behalf of FCI, describes a mitigation strategy for addressing imminent human health risks associated with soil and sediment impacts previously detected within the drainage swale located in the northern portion of the WMA Site. The mitigation strategy generally consists of excavation and off-site disposal of contaminated soil and sediment.

1.3 Activities to be Performed

The basic approach for the Removal Action addresses soil and sediment impacts within and immediately surrounding the drainage swale and includes the following elements:

- Clearing of vegetation within the affected area.
- Construction of erosion controls and haul roads to access the drainage swale.
- Installation and operation of an excavation dewatering system, as necessary.
- Temporary diversion of the existing stormwater discharge currently routed to the swale.
- Implementation of dust monitoring and suppression system(s) during construction/removal activities.
- Excavation of contaminated soil and sediment within and immediately adjacent to the distinct drainage swale that presents a human health hazard as defined by the goals of the Removal Action.
- Collection and analysis of post-excavation confirmatory soil samples to evaluate and demonstrate compliance with Removal Action clean-up standards.
- Backfill, compaction, and restoration of the affected areas.
- Characterization, transportation, and disposal of contaminated soil at a licensed off-site facility.

A summary report will be prepared following completion of the Removal Action.

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2.0 SITE DESCRIPTION AND BACKGROUND

The WMA Site is a 24-acre parcel located at 80 Wampus Lane in Milford, Connecticut (Figure 1). The Site consists of two lots (Lot 1 and Lot 2). Lot 1 is occupied by a large industrial/commercial building. The Removal Action involves Lot 2, which is characterized by a man-made, earthen drainage swale. The drainage swale, located in the northern portion of the Site (Figure 2), is approximately 240-feet long by 12-feet wide, with a ponding area located upstream of a concrete weir. The drainage swale reportedly received treated plating wastewater discharges and stormwater run-off between 1965 and 1991. The drainage swale received only stormwater run-off after 1991. The swale channeled flow to Stubby Plain Brook, a tributary of the Indian River. Previous site investigations of the drainage swale and surrounding soils revealed elevated concentrations of certain contaminants, including, but not limited to, cadmium, copper, beryllium, total petroleum hydrocarbons (TPH) and polynuclear aromatic hydrocarbons (PAHs).

2.1 Site History

The site was formerly owned and operated by the Burndy Corporation, beginning in 1956, for the manufacture of electrical components and accessories. Processes included rubber and plastic molding, operation of power presses, screw machining, degreasing, plating, wastewater treatment, soldering, assembly, and shipping. Treatment of electroplating wastes generated metal hydroxide (MOH) sludge, which was accumulated in two on-site surface impoundments and disposed in an on-site landfill. The MOH sludge has since been removed from the Site under CT DEP supervision.

Framatome Connectors International purchased all outstanding stock of the Burndy Corporation in 1989. In 1993, all operations at the facility ceased. In 1995, the company name was changed from the Burndy Corporation to Framatome Connectors USA. In 1999, Site ownership was transferred to the partners of the Wampus Milford Association (WMA). In accordance with the 1999 sale agreement, WMA retained environmental liability of the site and responsibility for site remediation in conformance with the Connecticut Property Transfer Act requirements.

2.2 Previous Investigations

Prior to the 1999 transaction, FCI had performed significant environmental investigations and remediation at the site, including, but not limited to, closure of the two MOH sludge lagoons, periodic post-closure groundwater monitoring, excavation and disposal of the major portions of an historical MOH sludge landfill, and comprehensive site-wide RCRA Facility Investigations (RFI) that were conducted under the Voluntary RCRA Corrective Action program. The RFI conducted by HRP on behalf of FCI in 1998 and 1999 revealed elevated levels of metals and polynuclear aromatic hydrocarbons (PAHs) in swale drainage soil and sediments that exceeded the RSR industrial/commercial Direct Exposure Criteria (I/C DEC). These metals include, but are not limited to, lead and cadmium.

Including sampling conducted during the RFI, comprehensive testing of soil and

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sediment in the area of the swale has been conducted by HRP, Environmental Resources Management (ERM), and the US Environmental Protection Agency (EPA). In total, more than 190 samples have been collected from the shallow soils and sediments. Figure 2 provides the general location of prior sample locations. Laboratory testing of swale sediments and soil have detected elevated levels of metals (beryllium, cadmium, chromium, copper, lead, nickel, zinc), PAHs, and/or TPH that exceeded the I/C DEC for one or more compounds at locations within the swale, Stubby Plain Brook, and surrounding soils. The most pervasive compounds that exceeded I/C DEC included beryllium and benzo(a)pyrene. Figure 2 highlights the locations of known exceedances of the I/C DEC.

Subsequent to the 1999 property transaction, ERM on behalf of WMA also conducted significant investigations of potential release areas on the developed portion of the Site (Lot 1). The results of this testing do not have direct bearing on the scope of the Removal Action and are not summarized in this Work Plan.

2.3 Conceptual Site Model

A conceptual site model (CSM) describing the swale area is provided below. The CSM summarizes the site setting, pertinent contaminant information and provides a description of perceived interactions between identified pollution within the swale and the surrounding environment. The components of the CSM can be utilized to assess potential risks to identified receptors and provide a basis of understanding to identify, evaluate, develop, and implement potential remedies to address environmental impacts. As indicated, the objective of the proposed Removal Action is to address potential imminent hazards associated with the contaminants present within the subject swale, and to remove or otherwise mitigate the materials within the swale channel (and below) which potentially may migrate downstream and act as a continued source of contamination.

2.3.1 Environmental Setting

The Site is located in the Western Uplands geographic region of Connecticut within a coastal area between the Wepawaug and Indian Rivers (Figure 1). The property is characterized by low-lying and relatively flat topography, lying at an elevation of approximately 10 feet above mean sea level. Site topography gently slopes to the north and northeast towards Stubby Plain Brook, with little vertical relief.

The parcel is located in the Indian River surface water drainage basin (Basin No. 5306) along the southern bank of Stubby Plain Brook. The Indian River Drainage Basin is a member of the South Central Coastal Regional Complex that comprises a portion of the South Central Coast Major Basin. Stubby Plain Brook flows to the east and discharges to the Indian River, which in turn flows south, ultimately discharging to Gulf Pond and the Gulf portion of Long Island Sound. CT DEP designated the water quality of these watercourses as Class A (Stubby Plain Brook), Class SB/SC (Indian River and Gulf Pond), and Class SB (The Gulf). CT DEP has identified designated uses and compatible discharges for

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surface water that are based upon the water quality classification. The designated uses and compatible discharges of the watercourses listed above are summarized in the following table.

Watercourse and Classification	Designated Uses	Compatible Discharges
Stubby Plain Brook Class A	Potential drinking water supply; fish and wildlife habitat; recreational use; agricultural and industrial supply and other legitimate uses including navigation.	Discharges from public or private drinking water treatment systems, dredging and dewatering, emergency and clean water discharges.
Indian River and Gulf Pond Class SB/SC	One or more of the following designated uses may not be met. The state has a goal to achieve the following uses including marine fish, shellfish and wildlife habitat, shellfish harvesting for transfer to approved areas for purification prior to human consumption, recreation, industrial and other legitimate uses including navigation.	Same as allowed for class A and cooling waters, discharges from industrial and municipal wastewater treatment facilities (providing Best Available Treatment and Best Management Practices are applied), and other discharges subject to the provisions of section 22a-430 CGS.
The Gulf Class SB	Marine fish, shellfish and wildlife habitat, shellfish harvesting for transfer to approved areas for purification prior to human consumption, recreation, industrial and other legitimate uses including navigation.	Same as allowed for class A, and cooling waters, discharges from industrial and municipal wastewater treatment facilities (providing Best Available Treatment and Best Management Practices are applied), and other discharges subject to the provisions of section 22a-430 CGS.

The geologic setting of the Western Uplands region is characterized by the lapetos (Oceanic) Terrane comprised of marine sediments that have undergone intense metamorphic alteration. Bedrock beneath the property is depicted on the Bedrock Geologic Map of the Milford Quadrangle as the Oronoque Member of the Derby Hill Schist, a slabby to thinly laminated greenish gray albitic paragneiss

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with phyllitic to schistose partings. The geologic structure of the area is characterized by the Wepawaug syncline, a large complex fold that plunges to the north-northeast.

The site surficial geology consists of post-glacial materials including glacial outwash, swamp deposits, and artificial fill, according to the State Geological and Natural History Survey of Connecticut. Glacial outwash sediments (95% sand and 5% rounded pebbles), deposited during retreat of the continental glacier through the area, are nearly planar, but exhibit foreset laminae that slope gently (8 feet/foot) down valley to the south. Surface water drainages subsequently dissected these valley train deposits, locally depositing swamp deposits along Stubby Plain Brook in the northern portion of the site and along the Indian River to the east. Artificial fill was placed in the southern, developed portions of the site.

The hydrogeology of the region reflects local topography with shallow ground water flowing from higher elevations and discharging into major stream valleys, such as Stubby Plain Brook and the Indian River. In the vicinity of the drainage swale, ground water occurs at depths ranging from approximately 0.1 feet (ft) to 1.7 ft below grade (bg) and is noted to flow towards stubby Plain Brook. CT DEP has designated the quality of ground water in the area as class GB. A GB quality classification denotes ground water within a historically urbanized area or an area of intense industrial activity where public water supply service is typically available. No areas of contribution to a public water supply well are depicted on the Water Quality Classifications for the Connecticut River and South Central Coastal Basins Map within a mile of the subject site.

2.3.2 Ecological Setting

On behalf of WMA, ERM, previously characterized ecological habitats as part of prior swale area investigations. The study revealed the 5 habitats listed below.

1. Upland deciduous forest,
2. Palustrine forested wetland,
3. Palustrine emergent wetland,
4. Isolated emergent wetland, and
5. Tidal wetland.

A functions and values assessment indicated that the swale and surrounding wetland perform ecological functions and provide quality habitat. The functions performed by this area potentially included ground water recharge and discharge, flood flow alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal, shoreline stabilization, and wildlife habitat. These areas were not found to provide educational/scientific value, uniqueness/ heritage value, visual quality/aesthetic value, endangered species habitat or recreational uses. The habitats immediately associated with the swale include the upland deciduous forest, palustrine forested wetland, and palustrine emergent wetland, which are described below. Given the prior ERM study establishing the presence of

functional, quality wetlands in the subject area, mitigation measures have been designed to minimize disturbance and/or long-term impact to these features.

Upland Deciduous Forest

Approximately 3.3 acres of upland forest was found along the periphery of the forested wetland areas in the northern and eastern portions of the property. Dominated by red maple, the upland deciduous forest was described as moderately densely vegetated with 90% covered by trees. Poison ivy, Virginia creeper, and Bittersweet dominated the herb layer, which also covered about 90% of the area. Two soil types, Udorthents and the Deerfield fine sandy loam, were identified in the area.

Palustrine Forested Wetland

The palustrine forested wetland covered approximately 8.4 acres and was generally unaffected by site activities. Dominant vegetation included Skunk Cabbage, Sensitive Fern, Smooth and Speckled Alder, Poison Ivy, Red Maple, High Bush Blueberry, and Black Gum. The soil type was dominated by the Walpole sandy loam.

Palustrine Emergent Wetland

Approximately 1 acre of land at the confluence of the swale and Stubby Plain Brook comprise the palustrine emergent wetland. Wood Nettle, Reed Canary Grass, and Jewelweed dominate this densely vegetated area. Soil in this area is described as the Walpole sandy loam.

2.3.3 Constituents of Concern

Potential contaminants associated with the historic treated plating wastewater include the constituents of concern listed below.

- Metals (beryllium, cadmium, chromium (hexavalent), copper, lead, nickel, silver, tin, zinc)
- Volatile organic compounds (VOCs)
- Cyanide
- Polynuclear aromatic hydrocarbons (PAHs)
- Total petroleum hydrocarbons (TPH)

2.3.4 Release and Transport Mechanism

The primary sources for the constituents of concern detected within the swale are likely the historical treated plating wastewater discharges, with negligible contribution from stormwater runoff that was (and is) directed to this drainage feature. Contaminants, adhered to particulate matter potentially suspended within the discharges, may have been deposited as sediment within the swale, as the flow velocity of the discharge dissipated along the length of the swale.

The primary transport mechanism for impacted sediments in the swale is affected

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by the longitudinal slope and cross-sectional profile of the swale drainage. It appears that stormwater flow through the swale normally occurs in a relatively narrow, incised water-bearing channel, which is typically on the order of 2 feet in width. Over the majority of the swale's length, this channel is located at the base of a wider man-made drainage feature, which in some locations is more than 15 feet wide¹ and is roughly 1 to 3 feet deep. Downstream, the wider man-made drainage feature disappears as the swale emerges from the woodlands and extends the last 25 feet through low lying, reed bearing wetlands to the confluence with Stubby Plain Brook.

The dynamics of flow in the swale system creates various areas for potential erosion and deposition. Contaminated sediment, exposed along the base of the 2-foot wide channel, could be mobilized as bed load during certain flow events that scour or erode the narrow water bearing channel, especially for the portion of the channel within the larger man-made drainage structure (which confines lateral dispersion of flow). Deposition may occur in the bottom of the man-made drainage bordering the narrow channel during periods of rain when the swale bottom is flooded, but flow velocities remain low.

Without the confines of the manmade drainage, the potential for channel erosion is much lower due to the lateral spreading of water flow. As a result, potential deposition along the flanks of the channel may be greater in the last 25 feet of the swale, as the flow emerges from the woodland and enters the low lying area at the confluence of the swale and Stubby Plain Brook.

¹ Measured "top of bank" to "top of bank"

3.0 IDENTIFICATION OF REMOVAL ACTION GOALS AND OBJECTIVES

This section presents the goal of the Removal Action, applicable regulatory criteria, and the remedial alternatives considered.

3.1 Project Goal

The site-specific objectives concerning the Removal Action for the swale area have been developed in consideration of 1) the EPA criteria utilized to support the Removal Action, 2) previous sampling results obtained throughout the swale and immediately adjacent soil, 3) specific EPA requests made in various correspondence, and 4) transfer agreements executed between WMA and FCI at the time of the 1999 property sales transaction, as well as numerous Form III Transfer Act filing certifications made to CT DEP by WMA and/or their officers/representatives. The objectives are stated as follows:

1. Remove or otherwise mitigate the contaminant source materials within and up to 4 feet below the swale channel, which could potentially be transported to downstream receptors,
2. Remove or otherwise mitigate the contaminant source materials within the upper 2 feet of the bottom and margins of the manmade drainage feature, which exceeds applicable industrial/commercial Direct Exposure Criteria (I/C DEC),
3. Eliminate imminent hazards to human health and the environment consistent with the intent of the Removal Action,
4. Minimize disturbance to wetland and tidal wetland areas, and
5. Stabilize the condition of the swale channel and restore the area.

3.2 Applicable or Relevant and Appropriate Requirements and Criteria

The development of site-specific ARARs for the Removal Action was coordinated directly with the U.S. EPA and CT DEP. Two important categories of ARARs were discussed: Permitting and Applicable Removal Action Clean-up Standards.

3.2.1 Permits

Correspondence received from CT DEP "Office of Long Island Sound Programs" (OLISP) indicated two specific permits that could be required under certain conditions, subject to further review of an actual work plan, if the work is to be conducted by the property owner. In addition, Town Wetland permits and CT DEP remediation wastewater discharge permits were also identified in the list of ARARs provided by CT DEP (Appendix A). Permits potentially required from OLISP, CT DEP, and local municipalities are tabulated below. The Army Corps of Engineers would also be contacted for potential permit requirements prior to project initiation. Due to the time critical nature of the Removal Action, the

permits will not be obtained, as authorized by EPA. However, site activities will be conducted in a manner that complies with the substantive requirements of these permits.

Permits Potentially Required	Condition
OLISP Permits	
Structures, Dredging and Fill and Tidal Wetlands Permit (CGS § 22a-361 and 220-32)	Actions undertaken waterward of the high tide line in tidal, coastal or navigable waters of the State and/or within the bounds of tidal wetlands requires OLISP authorization
Water Quality Certificate (§ 401, Federal Clean Water Act)	Proposed activities subject to requirements of federal consistency, 15 CFR Part 930 Subpart C, as determined by OLISP
Additional CTDEP Permits	
General Permit for Discharge of Remediation Wastewater Directly to Surface Water (DEP-PERD-GP-020)	Applies to discharges of groundwater remediation wastewater generated during the process of investigating and remediating groundwater and soil, and other related wastewaters, directly to a surface water (CGS §22a-430)
General Permit for Diversion of Remediation Groundwater (DEP-IWRD-GP-009)	Any diversion of remediation groundwater greater than 50,000 gallons during any 24 hour period that is diverted or withdrawn to prevent/intercept suspected contamination plume, or well point de-watering as part of soil remediation activities, provided that a site with a discharge from the diversion of remediation groundwater has a valid permit in effect pursuant to Section 22a-430 or 22a-430b of the Connecticut General Statutes (CGS), or a temporary or emergency authorization issued pursuant to CGS Section 22a-6k.
City of Milford Permits	
Permit for Regulated Activity in Wetlands, Watercourses and Regulated Areas	Activity in wetland regulated by City of Milford

3.2.2 Removal Action Clean-Up Standards

A three-tier approach to clean-up standards will be used to determine the completeness of the Removal Action. In general, the tiered clean-up standards apply stringent standards to the surface and shallow soil in order to eliminate imminent hazards and be protective of human health. The applicable standard increases with depth reflecting the lower potential for direct human or wildlife contact.

The three standards and description of the applicability are listed below.

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1. **Industrial/Commercial Direct Exposure Criteria (I/C DEC)**

Applicable I/C DEC (Appendix B) will be applied to surface soil and soils at depths less than 2 feet below grade. Excavation of contaminated soils at depths less than 2 feet below grade will continue laterally in areas immediately adjacent to the swale channel until sidewall test results demonstrate compliance with this standard. If for any reason material is not removed to a depth of 2 feet below grade, bottom samples will also be compared to the I/C DEC to confirm compliance.

2. **½ Significant Environmental Hazard Notification Thresholds (½SEH)**

Soil at depths between 2 and 4 feet below grade will be compared to ½ of the applicable SEH (the same as 15X the I/C DEC – Appendix B). Soils exceeding these thresholds will be excavated to a maximum depth of 4 feet below grade.

3. **Inaccessible Soil**

Contaminated soil at depths of 4 feet and greater, which exceed I/C DEC, will be considered inaccessible and will not be excavated as part of the Removal Action.

Residual soil impacts that exceed RSR soil criteria following Removal Action and/or require an Environmental Land Use Restriction (ELUR) to bring the site into compliance with the Connecticut Remediation Standard Regulation (RSR) will be addressed by the current and/or future property owners and/or other Connecticut Transfer Act Certifying Parties with CT DEP.

4.0 EVALUATION OF REMOVAL ACTION ALTERNATIVES

This section presents the evaluation of the alternatives considered for the Removal Action at the Site.

4.1 Evaluation Basis

Several remedial alternatives were considered during the preparation of this Work Plan. Each alternative was judged to meet an initial consideration of effectiveness, feasibility, and cost. A qualitative evaluation was performed to assess the nine evaluation criteria, set forth in the NCP, to address the statutory requirements and the technical and policy considerations proven to be important for selection of a remedial alternative. The evaluation criteria are as follows:

- Overall protection of human health and the environment
- Compliance with ARARs
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility and volume
- Short-term effectiveness
- Implementability
- Cost
- State Acceptance
- Community Acceptance

4.2 Removal Action Alternatives

The general response actions deemed appropriate for further analysis on this project include: 1) no action, 2) institutional controls, 3) containment, and 4) removal (i.e. excavation). "No action" was included as required by the NCP. These general response actions were assembled into the following alternatives suitable for use at the WMA Site.

1. No Action
2. Institutional Controls (restricted access and land use controls)
3. Capping
4. Excavation and Disposal

No Action. The no action alternative was retained throughout this evaluation as required by the NCP. This alternative provided a comparative baseline against which other alternatives can be evaluated. Under this alternative, no remedial action would be taken. In the no action alternative, the materials are considered to be left "as is," without implementation of any institutional action or containment, removal, treatment, or other mitigating actions.

Institutional Controls. This alternative includes application of physical controls (such as fencing or other barriers) to limit access to areas with high contaminant concentrations. Fencing or other barriers would be combined with land use controls such as an ELUR to minimize contact with contaminated soils.

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Capping. This containment response action utilizes engineering controls to prevent contact with the contaminated soil and minimize migration of the contamination. A single-layered asphalt cap (or similar) could be used to control erosion and infiltration of runoff from precipitation. The cap prevents physical contact by humans or ecological receptors.

Excavation and Disposal. In this alternative contaminated soil would be removed via excavation and transported to a proper disposal facility. The excavation would be backfilled with clean soil and compacted. This alternative removes the most significant mass of contamination from the site, and restores the swale as well as the wetland areas to their original pre-excavation condition.

4.3 Evaluation of Alternatives

No Action. This alternative does not meet short-term or long-term effectiveness criteria because the potential contaminant erosion and exposure risks to both human and ecological receptors are not addressed. The “No Action” alternative is not protective of human health and does not meet most of the other evaluation criteria, with the exception of cost.

Institutional Controls. Application of physical barriers and institutional controls would meet the protection of human health criteria as long as the barriers remained in good repair. This alternative would also comply with short- and long-term effectiveness, implementability and cost criteria. However, use of institutional controls would not meet ARARs and would not reduce toxicity, mobility, and contaminant volume. While superior to the “No Action” alternative, it is unlikely that the Institutional Control alternative would be acceptable to state regulatory agencies or the local community.

Capping. Installation of an asphalt or similar engineered cap would provide an effective barrier to physical contact with contaminated soil and sediment within the swale area. This alternative is judged to meet all the evaluation criteria with the exception of reduction of toxicity, mobility and volume. It is also likely that this alternative would not be acceptable to state regulatory agencies and the local community.

Excavation and Disposal. Removing the contaminated soil within the swale area will reduce the exposure to the contamination and eliminate contaminant migration due to erosion. In addition, this remedial alternative best meets the nine criteria listed above, with the exception of not necessarily meeting the cost criteria. However, costs associated with this alternative are judged to fall within the range expected for a site of this size and complexity.

Therefore, the “Excavation and Disposal” alternative best meets the evaluation criteria and is selected for this Site.

5.0 PROJECT ORGANIZATION AND SCHEDULING

Project team member and schedule requirements are included in this section.

5.1 Project Team Members

HRP has assembled a team of experienced professionals to implement the Removal Action. The relationships between the team members are shown on the chart at the end of this section. The role and responsibilities of the team members are described below.

5.1.1 Project Manager/Project Coordinator

Brian Washburn, HRP's Project Manager and Project Coordinator has overall responsibility for management of the project to ensure the Removal Action complies with the associated work plans and satisfies the established goals. As Project Coordinator, Brian shall interface with EPA's On-Scene Coordinator and administer FCI's actions identified in the Settlement Agreement. As Project Manager, he will also provide technical review of project deliverables and will report the status of project activities to FCI USA, INC, US EPA, and CT DEP.

5.1.2 Senior Project Geologist/Remediation Supervisor

HRP Senior Project Geologist Douglas S. Allen will be responsible for implementation of the Removal Action. He will supervise the field activities, interface with EPA's On-Scene Coordinator, direct the remediation contractor, and monitor site health & safety. Doug will also prepare the Removal Action Completion Report.

5.1.3 Project Geologist/Remediation Supervisor

HRP Project Geologist Jennifer Cooper will be the designated alternate individual responsible for implementation of the Removal Action. She will supervise the field activities, interface with EPA's On-Scene Coordinator, direct the remediation contractor, and monitor site health & safety. Jennifer will also prepare the Removal Action Completion Report.

5.1.4 Data Validator

Validation of site analytical and screening data will be performed by HRP's Project Geologist, Leslie White. Leslie will review laboratory data packages in accordance to protocols established in the QAPP (Appendix C). She will document the results of the validation in the Removal Program After Action Report and immediately report any factors that may affect data usability to the Project Manager/Project Coordinator so that corrective measure can be

implemented if necessary.

5.1.5 Office Support

General office/field support to the project will also be provided by additional office staff responsible for management of data collected from the field. This will include tracking of laboratory samples, contacting the testing laboratory to ensure prompt delivery of analytical data, initial data reviews to assure receipt of requested analytical test results, tabulation of site data for comparison to established Removal Action clean-up criteria and initial data evaluation, drafting of site plans, and compilation of project records.

5.1.6 Subcontractors

Four subcontractors will be retained as part of this project. HRP has worked extensively with each of the subcontractors on numerous projects throughout Connecticut and New England, and is confident of their abilities to perform their corresponding services.

Excavation Technologies, Inc (ETI) will be retained as the primary remediation contractor responsible for conducting the Removal Action construction activities. ETI's Foreman will report directly to the Remediation Supervisor.

Griffin Dewatering (Griffin) will be retained as a dewatering specialist for the project. Griffin will install the dewatering wells and associated piping. Griffin personnel will report to the Remediation Supervisor.

Con-test Analytical Laboratory (Con-test) will provide analytical testing services for environmental samples collected as part of the Removal Action. Con-test maintains state certifications in Connecticut, Massachusetts, New York, New Hampshire, Rhode Island, and Vermont, and is also accredited by the National Environmental Laboratory Accreditation Program (NELAP). Laboratory certifications and accreditations are provided in Appendix D.

Edward Pawlak with Connecticut Ecosystems, LLC will be retained as a certified soil scientist for the project. Ed will be responsible for preparation of the Wetland Restoration Plan (Appendix E), which will be implemented following removal of the targeted contaminant impacts.

Additional subcontractors may be retained as necessary in order to implement the intended scope of work. HRP shall provide EPA notification concerning subcontractors within the time constraints and requirements of the Administrative Settlement Agreement and Order on Consent.

5.2 Project Schedule

The schedule for the Removal Action is based upon the execution date of the Administrative Settlement Agreement and Order on Consent For Removal Action (Settlement Agreement) entered between EPA and FCI and deadlines for critical

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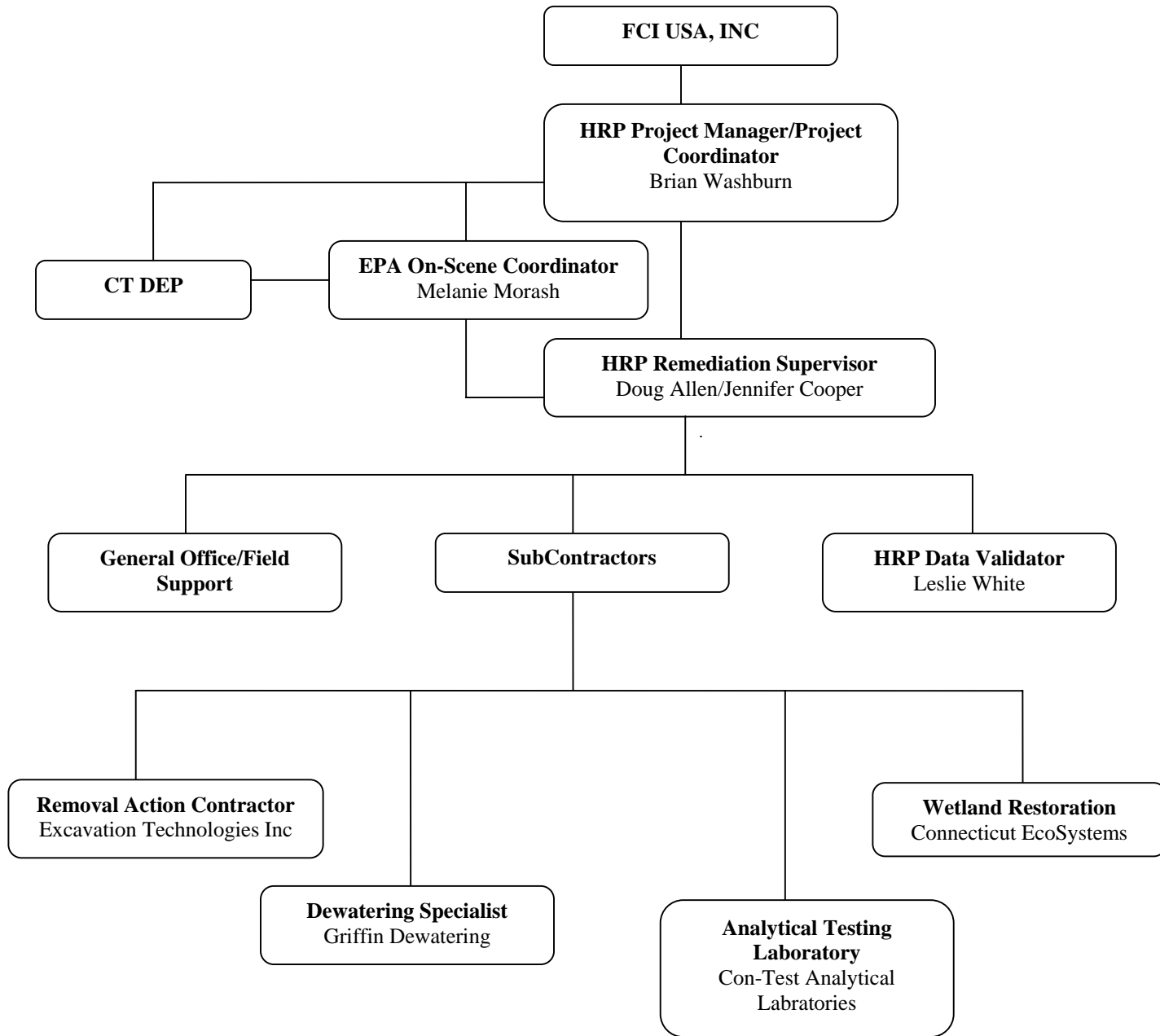
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milestones identified in the Scope of Work (Appendix A of the Settlement Agreement). The schedule for the Removal Action activities is depicted on Figure 3.



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6.0 REMOVAL ACTION SCOPE OF WORK

The Removal Action associated with the swale includes three primary categories of work tasks: completed support activities, pre-excavation activities, and excavation activities. This section summarizes the construction work tasks that are associated with each category. Table 1 lists the work tasks associated with each category and identifies any applicable technical construction specification. General descriptions of each work task are provided below. Technical specifications are referenced with the corresponding work task and are provided in Appendix F. The Removal Action will comply with environmental guidelines, as detailed in technical specification *Section 01100 – Environmental Compliance* (Appendix F).

6.1 Completed Support Activities

Topographic surveys of the swale and immediate vicinity were completed during the development of this Work Plan in order to obtain data necessary to prepare engineering design plans or otherwise support the Work Plan. The survey, performed by a licensed Connecticut Land Surveyor, identified the location and depth of the incised swale channel along with the location and elevation of Weston (EPA Contractor) soil/sediment samples that were collected in October 2006. This information is depicted on engineering design plans provided as part of the Work Plan and will later be used in order to restore swale elevation and grades to original conditions following soil excavation.

6.2 Pre-Excavation Activities

Prior to the soil removal, the area will be prepared for excavation. Site preparation for this project shall be conducted within and adjacent to a wetland area. Hence, all activities shall be performed in a manner intended to minimize long-term impacts to that setting. Area preparation includes clearing of trees and brush, installation of temporary fencing to restrict access into the work area, construction of a haul road and an excavator work platform on the south-southeastern edge of the swale, drilling of excavation dewatering wells, and temporary redirection of the existing stormwater run-off in the swale. Sedimentation and erosion controls will also be installed around the work area and between the swale and Stubby Plain Brook prior to the onset of site work. Description of these pre-excavation activities are provided below

6.2.1 Site and Utility Clearance

The boundary of the work area shall be demarcated with white paint and/or white painted stakes, as appropriate. HRP shall contact “Call Before You Dig” to identify buried public utility locations, as required by law.

6.2.2 Mobilization

Personnel, equipment, materials, and temporary facilities necessary to execute

the project will be mobilized as needed. Receipt and inspection of equipment and material will be documented on daily project logs. Additional mobilization details are provided in *Section 01300 – Mobilization and Demobilization* (Appendix F). Mobilization and demobilization of heavy equipment and related construction materials shall adhere to protocols summarized in the Traffic Control Plan ([Section 7](#)).

6.2.3 Erosion and Sedimentation Controls

Prior to clearing, erosion control measures (silt fence) shall be installed in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*. Silt fence shall be placed surrounding the perimeter of the Work Area (Figure 4) and constructed as detailed on Figure 5. Construction specifications for the Erosion and Sediment Control methods are provided in *Section 02100 – Erosion and Sedimentation Control* included in Appendix F.

6.2.4 Clearing of Trees and Brush

The designated swale removal action area is partially wooded and overgrown with brush. Prior to excavation, this vegetation shall be cleared from the area depicted on Figure 4. Given the shallow depth of the contaminated materials, grubbing operations shall be conducted in a way that limits the disturbance of soils. Some coarse woody debris shall be stored adjacent to the cleared area for later reuse during wetland restoration. Remaining woody vegetation will be chipped. Brush and chipped vegetation shall be removed from the site. Vegetation that cannot be segregated from soils upon removal, such as root systems, will be left in-place to facilitate the future restoration of the area. Transportation of vegetation or contaminated materials for off-site disposal shall follow procedures outlined in the Traffic Control Plan ([Section 7](#)). Additional details are provided in *Section 01200 – Clearing* in Appendix F.

6.2.5 Installation of Temporary Fencing

Site controls will be established to protect the public from construction hazards (i.e., heavy equipment and open excavations) and otherwise restrict access to the work area. Temporary chain-link fencing (8-ft in height) shall be installed to enclose the work area and soil staging area as shown on Figure 4. Locked, gated entrances shall be installed across the haul road (Figure 4). The gate shall remain locked during non-working hours to secure the area. Orange mesh construction fence shall be installed along the haul road connecting the swale work area to the soil staging area (Figure 4). Technical specifications regarding the temporary fencing are provided in *Section 01300 – Mobilization and Demobilization* (Appendix F).

6.2.6 Construction of Haul Road and Soil Staging Area

Primary access to the work area for excavation related equipment shall be a 12-foot wide temporary gravel road installed on the southeast side of the swale (Figure 4). This haul road shall be used to provide equipment access from the paved areas of the Site to excavation areas along the entire length on the swale. The width of the haul road shall be kept to a minimum (single lane) in order to minimize disturbance to the wetland setting. Haul road details are provided on Figure 5 and in *Section 01300 – Mobilization and Demobilization* (Appendix F).

The soil staging cell will be located outside the wetland set-back limit, in the paved portion of Lot 2 (Figure 4) in order to minimize disruption of the wetland. The soil staging cell shall be a 30-foot by 100-foot (or similar) bermed storage cell that is constructed of hay bales covered by a 10-mil, polyvinyl chloride (PVC) liner and sloped (minimum 5%) such that free liquid will drain. Free draining liquids will be collected and treated prior to discharge to Stubby Plain Brook. Further details of the soil staging cell are provided on Figure 5 and the technical specification entitled, *Section 02060 – Excavation, Handling and Disposal of Contaminated Soil and Sediment* (Appendix F). Except during active working periods, the staged soil shall remain covered with a PVC liner (or equivalent) and secured with tires or sand bags.

6.2.7 Installation of Dewatering Wells

A series of well points for the purpose of excavation dewatering shall be installed at the locations shown on figure 4. The wells shall be installed to a total depth of approximately 10-ft below grade and constructed of PVC with slotted well screen. Temporary piping will be used to connect a manifold of the drive points to a suction lift pump that is staged in an appropriate area on the haul road adjacent to the swale. The suction lift pump will pump extracted ground water to a ground water treatment system that shall be located in the enclosed area adjacent to the soil staging cell (Figure 4). Treatment requirements are describe in Section 6.3.2.

HRP shall provide for the installation of the well points.

6.2.8 Anti-Tracking Pads

Operations shall be conducted in a manner that minimizes tracking of contaminated materials into non-contaminated areas. Excavation equipment that is utilized in the swale work area or soil staging area will remain in the restricted access work area (enclosed by temporary fencing) until project completion, as is possible. Contaminated materials will be removed/cleaned from the excavation equipment prior to leaving these work areas. All non-essential vehicles and equipment will be prohibited from entering these areas,

as is possible. Anti-tracking pads, consisting of a layer of geotextile fabric overlain with crushed stone, will be constructed within the secure, enclosed work areas at the access gates (Figure 4 and 5). Two anti-tracking pad materials will be disposed as contaminated materials at the completion of the Removal Action. Additional details are provided on the Work Plan drawings and in *Section 01300 – Mobilization and Demobilization* in Appendix F.

6.2.9 Decontamination Area

A decontamination area for equipment will be set up in the location shown on Figure 4. A water source and water-collection area will be located in the decontamination area. Equipment will be decontaminated prior to demobilizing from the site. Tires or treads of equipment shall be cleaned prior to exiting the work area. At the end of each workday, wastes from decontamination activities will be stored in a designated storage area (Figure 4) until final disposal. At the conclusion of the project decontamination water will be treated and discharged to Stubby Plain Brook or disposed in accordance with state and federal regulations.

6.2.10 Redirection of Existing Stormwater Discharges

In order to minimize potential erosion and transport of contaminants during excavation activities, and also to reduce waste water generated during excavation activities, the stormwater discharge to the swale will be temporarily redirected. A temporary collection area will be constructed at the head of the swale (Figures 4 and 5). Stormwater will be pumped from this area to prevent stormwater from entering the existing swale. Stormwater will be temporarily diverted into Stubby Plain Brook at a point downstream of the swale (figure 4). Upon completion of the Removal Action, stormwater discharge will be returned to the restored swale.

During the course of the removal action, no sampling or testing of the diverted stormwater is proposed. The justification and rationale supporting this course of action is provided in Section 11.2 of this work plan.

6.3 Excavation Activities

Site excavation activities include the construction processes associated with the physical removal of contaminated soil and sediment from the drainage swale. These processes include excavation of contaminated soil and sediment, excavation dewatering, transportation and disposal of contaminated soil, backfill and restoration of the swale area, equipment decontamination, and demobilization of equipment.

6.3.1 Excavation of Contaminated Soil and Sediment

An estimated 425 cubic yards of contaminated soil and sediment shall be excavated from the two following areas associated with the drainage swale.

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1. The incised water bearing channel within the swale shall be removed to the lateral "*Channel Excavation Limits*" depicted on Figure 6. The *Channel Excavation Limits* shall have a minimum width of 4 feet and shall include the incised water-bearing channel and 1 foot on either side of the channel. The vertical depth of the Channel Excavation shall be 4 feet below the bottom of the incised water-bearing channel.
2. Shallow contaminated soil located immediately adjacent to the *Channel Excavation Limits*, which exceeds the applicable I/C DEC in the upper 2 feet of soil shall also be excavated for disposal. The lateral limits of this "*Shallow Excavation*" are depicted on Figure 6. The depth of the shallow excavation shall be 2 feet below grade. Lateral excavation will continue until test results of sidewall samples, collected from the upper 2 feet of soil or less, demonstrate compliance with the I/C DEC. Excavation to depths greater than 2 feet may be necessary if bottom samples collected at depths of at least 2 feet or more exceed $\frac{1}{2}$ the SEH (same as 15X I/C DEC). The excavation depth shall not exceed 4 feet below grade; the depth at which the soil contaminants are considered inaccessible. Successful excavation to accomplish these goals is expected to result in an excavation profile depicted on Figure 7.

Contaminated soil and sediment shall be excavated from the drainage swale using a track mounted excavator and loaded directly into dump trucks for on-site transport to the soil staging area (Section 6.2.6). Staged soil shall remain covered during non-working hours or when inactive. Excavation shall proceed in a manner that minimizes disturbance to the wetland. In order to reduce dewatering flow rates and maintain reasonably dry working conditions, the excavation will be conducted in two stages. In the first stage, contaminated material shall be excavated initially from the *Shallow Excavation* (Section 6.3.1) in order to prepare for the installation of the dewatering wells (Figure 4). Soil from the *Channel Excavation Limits* (Section 6.3.1) will be removed in the second stage. Excavation of the *Channel Excavation Limits* will then proceed in sections. Each section would measure approximately 20-40 feet in length and about 15-feet in width (Figure 6). The *Channel Excavation Limits* shall be backfilled to a depth above the water table prior to proceeding to the next excavation section. A temporary earthen berm will be utilized in section 6 to prevent the in-flow of water from Stubby Plain Brook into the excavation. *Section 02060 – Excavation, Handling and disposal of Contaminated Soil and Sediment* (Appendix F) provides technical specifications concerning excavation of the contaminated soil and sediment.

HRP shall collect all post-excavation confirmatory soil samples for laboratory analysis. Details concerning the sampling locations, methods, and analytical parameters for post-excavation confirmatory samples are described in the Sampling and Analysis Plan ([Section 11](#)).

6.3.2 Dewatering

Excavation dewatering shall be accomplished through pumping of ground water from a series of well points installed adjacent to the *Channel Excavation Limits* (Section 6.2.6), pumping of ground water directly from the excavation, or both. Ground water shall be pumped at a rate sufficient to lower the water table to a depth of approximately 4-5 feet below grade or maintain reasonable working conditions in the deeper portions of the excavation, whichever is less. Based on available hydraulic conductivity and proximity of Stubby Plain Brook, combined pumping rates up to 100 gallons per minute (gpm) may be necessary.

Extracted ground water shall be treated via settling for removal of particulates, filtration for removal of suspended solids, and also treated for dissolved contaminants including volatile organics, metals, and/or petroleum constituents. Treatment of dissolved contaminants shall be accomplished using air stripping and/or carbon adsorption, as necessary to comply with acceptable discharge limits (Appendix G) identified in the *General Permit for Discharge of Groundwater Remediation Wastewater to Surface Water (General Permit)*. The ground water treatment system shall be located adjacent to the soil staging area (Figure 4). Treated effluent will be discharged to Stubby Plain Brook at a location downstream of the swale (Figure 4).

Additional dewatering details are provided in *Section 02040 – Pumping, Handling and Disposal of Dewatering Fluids* (Appendix F).

HRP shall collect all water samples for laboratory analysis to evaluate substantive compliance with the General Permit. Details concerning the sampling locations, methods, and analytical parameters for dewatering effluent sampling are described in the Sampling and Analysis Plan ([Section 11](#)).

6.3.3 Dust Control

During all site construction activities that create or may create fugitive dust emissions, water mist spray shall be used for dust control as needed. The water source for dust control shall be from a clean potable source provided by the construction contractor. Specifications concerning dust control measures are provided in *Section 02200 – Backfill* (Appendix F).

HRP shall implement a dust monitoring program to ensure dust and potential off-site migration of fugitive dust emissions is reduced. The Perimeter Air Monitoring Plan ([Section 9.2](#)) describes the details of the air quality monitoring program.

6.3.4 Contaminated Soil Transportation and Disposal

Contaminated soil and sediment shall be transported to and be disposed at a licensed facility in accordance with state and federal regulations. The materials shall be disposed at one or more of the following facilities, pending receipt of

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acceptable waste characterization test results, facility authorization, and approval by the EPA On-Scene Coordinator.

Consolidated Edison Energy Landfill (RCRA ID # MAD000844589)
15 Agawam Avenue
West Springfield, MA 01089
(413) 734-3688

TLR III Refuse Disposal Facility (Turnkey, RCRA ID # NHD980914634)
30 Rochester Neck Road
Rochester, NH 03839
(800) 379-2783

Holyoke Sanitary Landfill (WMI, RCRA ID # MAD985278282)
11 New Ludlow Road
Granby, MA 01033
(413) 539-9036

Ted Ondrick Company LLC
58 Industry Road
Chicopee, MA 01020
(413) 592-2081

EQ Northeast, Inc (RCRA ID # MAD084814136)
185 Industrial Road
Wrentham, MA 02093
(508) 384-6151

The soil shall be placed in appropriately lined trucks and/or roll-off containers for off-site disposal in conformance with technical specification *Section 02060 – Excavation, Handling and Disposal of Contaminated Soil and Sediment* (Appendix F). Transportation of contaminated materials to the disposal facility shall conform to protocols presented in the Traffic Control Plan ([Section 7](#)).

HRP shall collect all waste characterization samples for laboratory analysis in order to profile the waste for disposal purposes. Details concerning the sampling locations, methods, and analytical parameters for waste characterization sampling are described in the Sampling and Analysis Plan ([Section 11](#)).

6.3.5 Excavation Backfill and Reconstruction of Swale

The swale excavation and work area will be backfilled, compacted, and reconstructed as follows:

- All excavated areas will be backfilled to pre-excavation elevation grades with clean fill and compacted. Backfill material will be used from a certified clean source. A certification letter or laboratory test results from the borrow source indicating that the soil is free of contamination will be included in the

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Removal Action Completion Report. Delivery of clean backfill materials shall conform to protocols presented in the Traffic Control Plan ([Section 7](#)). Upon arrival to the site, backfill will be visually inspected and screened with a PID, as deemed necessary. Backfill exhibiting indications of contamination (elevated PID reading, odor, staining, etc.) will be rejected for use on the Site. Backfill will be placed in lifts and compacted in accordance to technical specification *Section 02200 – Backfill* (Appendix F).

- The water-bearing channel will be reconstructed as a distinct channel extending from the former ponding area to Stubby Plain Brook using erosion resistant materials (Figure 8) in accordance with the Wetland Restoration Plan (Appendix E). The existing open drainage feature recently excavated by WMA in place of the former discharge pipe will not be excavated or modified by the proposed action.
- All fill, liners, haul road, staging base materials, and other materials used in the excavation and staging of materials shall be removed and appropriately disposed. During removal of the haul road within the delineated wetland, the soil shall be loosened to minimize affects of compacted soil caused by construction equipment on restoration, as recommended in the Wetland Restoration Plan (Appendix E). Remnants of the haul road that are located outside the limits of the wetland and/or outside the wetland set-back limits may remain on-site if the gravel is free of visible soil impacts.
- No topsoil will be placed on the surface of the disturbed area or in backfilled areas in order to maintain existing grades in the wetland area and provide erosion resistant material in the swale. Backfill materials in the swale excavation shall be replaced to existing conditions and re-worked (graded) to minimize erosion. The banks of the swale excavation (Figure 8) shall be re-seeded using New England Wet Mix (or approved equivalent) for soil stabilization in accordance with the Wetland Restoration Plan (Appendix E).
- Outside of the swale excavation limits, where woody vegetation within the forested wetland was cleared for site access (Figure 8), in-kind herbs (tussock sedge, soft rush, etc.), shrubs (e.g., high bush blueberry, northern arrow wood, etc.) and tree saplings (e.g., red maple, green ash, etc.) shall be planted in accordance with the Wetland Restoration Plan (Appendix E). Restoration of this area will also be supplemented with reseeding using the New England Wet Mix. Coarse woody debris, stored on-site during clearing activities (Section 6.2.4), will be dispersed throughout approximately 4% of this area, as described in the Wetland Restoration Plan (Appendix E).
- A degradable erosion control mat (or equivalent) will be installed on the banks of the swale and within the wetland area that was cleared of vegetation (Figure 8) in order to stabilize the area and minimize erosion during restoration.
- Finish grades shall match original elevations where possible and practicable. The Erosion Control system will remain in-place for a period up to one growing season following completion of the Removal Action.

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HRP's licensed Connecticut land surveyor shall survey the finish grades to confirm the restoration of swale topography to original grade. This information shall be presented in the Removal Action Completion Report.

6.3.6 Demobilization

Demobilization will begin with any necessary decontamination of all equipment, tools and supplies. Following decontamination, all equipment, tools, supplies, containers, traffic control devices, signage, and debris shall be removed from the site. Additional details are provided in *Section 01300 – Mobilization and Demobilization* (Appendix F). Demobilization of equipment and materials shall conform to the Traffic Control Plan ([Section 7](#)).

7.0 TRAFFIC CONTROL PLAN

A traffic control plan will be implemented during the Removal Action in order to minimize disruption to normal traffic flow resulting from equipment and supplies arriving and departing the Site. The traffic control plan will affect:

1. Mobilization and demobilization of heavy equipment to or from the Site.
2. Delivery of clean fill or other materials to the Site.
3. Departure of trucks transporting contaminated waste materials to the appropriate disposal facilities.
4. Transportation routes along local roads.

7.1 Arrival and Departure Times

Arrival and departure times to and from the Site will be coordinated to avoid periods of heavy traffic, school bus traffic, and local congested commuter traffic. As a result, heavy equipment mobilization/demobilization, delivery of clean fill or other materials for disposal will be scheduled to avoid arrival or departure between 8:30-10:00 a.m. or after 2:30 p.m. during normal working days. This delivery/departure schedule will not apply to on-site workers during their daily commute to and from the site.

In the event work is conducted during weekends or holidays, any affected delivery/departure will be scheduled to avoid the time period before 8:00 a.m. or after 5:00 p.m.

7.2 Local Traffic Routes

In order to minimize truck traffic along local roads, deliveries and departures of heavy equipment, clean fill or other materials, and trucks carrying contaminated materials will follow local roads that minimize the distance through residential neighborhoods to local highways and interstates. Routes through residential neighborhoods will be avoided if possible. The proposed traffic route will follow local roads including Wampus Lane, Old Buckingham Avenue, Gulf Street, Cherry Street and Boston Post Road from the site to Interstate 95. In order to alleviate potential traffic congestion, transportation of contaminated soil or other activities involving large numbers of trucks will be coordinated with the Milford Police Department to provide traffic direction at the intersection of Gulf Street and Cherry Street. All contractors arriving and departing the site shall obey local traffic signs and posted speed limits.

7.3 Contaminated Soil Tracking Prevention

All excavation related equipment in contact with contaminated soil will remain in the work area during the removal action, limiting the opportunity for contaminated soil to be tracked out of the work zone. Trucks exiting the work area shall pass through decontamination and cross anti-tracking pads prior to entering local roads.

8.0 SITE SECURITY CONTROL AND COMMUNICATION PLAN

Site security measures will be implemented in order to control and restrict access to the potential contaminated work areas. A plan to improve on-site communications throughout the project has also been prepared.

8.1 Site Security

The site shall be maintained in a secure manner throughout the Removal Action in order to prevent unauthorized access to the work areas, site equipment, and contaminated soil stockpile. Site security will be achieved using two types of fencing, restricted access, and security patrols.

8.1.1 Fences

As described in section 10.1, the exclusion and decontamination zones will be surrounded by temporary fencing. The exclusion zone consists of the excavation work area, the soil stockpile, equipment staging area and haul road between the work area and the soil staging area. The decontamination zone will be positioned adjacent to the soil staging area and exit to the exclusion zone. Two types of fences will be utilized depending upon the activities that are being performed in the protected area and potential for contamination. Appropriate signage will be posted every 60-ft along all fences used to enclose the excavation work area, soil staging area, and haul road.

Excavation and Soil Staging Work Areas

Temporary chain-link fence will be utilized to enclose sensitive work areas where unauthorized entry could present the greatest risk for contaminant contact. Contaminated materials will be worked, excavated, handled, and stored in the excavation and soil staging work areas, creating the greatest potential for contaminant contact. Construction equipment used to excavate, transport and re-work contaminated materials will also be stored in these areas. Chain-link fences with gate entrances will enclose these high-risk areas (Figure 4).

Temporary fencing around the excavation work area and staging area shall consist of an 8-foot temporary chain-link fence that will be secured and maintained throughout the Removal Action. Gates will be located at the access points to the work area and staging areas. These gates will be locked after hours.

Haul Road Connecting Excavation and Soil Staging Work Area

The haul road will be utilized only for the on-site transport of contaminated soil from the swale excavation area to the soil staging area. No equipment or contaminated materials will be stored in this area. On-site trucks, hauling contaminated materials to the staging area, will be loaded while residing on a constructed, gravel platform. The trucks will transport the soil to the paved, on-site staging area via the temporary gravel haul road. Using this gravel loading

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platform and haul road, the tires of the trucks will not come in contact with contaminated surface soil. To minimize contaminated soil migration further, the trucks will pass over an anti-tracking pad (Figure 4) at the exit of the swale excavation area in order to remove any potential soil trapped in the tire treads before accessing the haul road. Using these precautions, the on-site transportation of the contaminated soil on the haul road is anticipated to be a relatively clean operation with a low risk for potential contaminant contact in the event of unauthorized entry.

Temporary fencing in the form of construction fencing will be placed along the haul road (Figure 4) to discourage access to this low risk area. The fence shall be a plastic or fabric mesh and 5-ft in height.

8.1.2 Restricted Access

During working hours, all visitors (except in instance of an emergency) shall be required to sign a visitor log maintained within the field office. In order to enter the enclosed work areas, visitors must provide evidence of current OSHA HAZWOPER training and current medical clearances. Visitors will also be required to review the site HASP and don appropriate personal protective equipment (at a minimum hard hat, safety glasses, steel toe shoes) prior to entry into the work areas.

8.1.3 Security Patrols

During non-working hours and weekends, security at the site will consist of on-site monitoring by a security service in addition to any routine patrols that can be coordinated with the Milford Police Department. Evening hours during the work week (Monday through Thursday, 4pm-midnight) are anticipated to represent a low security risk. Local police have been requested to conduct routine patrols of the parking lot area during these low risk time periods.

The weekends are expected to represent a higher risk with regard to site security. During weekends, a local, licensed security service will be utilized to monitor and secure the work areas. A security guard shall be posted at the field office trailer that is located adjacent to soil staging area. The guard shall be present on-site during the hours listed below.

- Friday 4:00pm – Midnight
- Saturday 8:00am – Midnight
- Sunday 8:00am – Midnight

On-site construction contractor laborers may be used to replace security service personnel during precipitation events or at other times during which the contractor presence may be beneficial to the overall completion of the project.

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8.1.4 Unauthorized Access

In the event of unauthorized access to the swale excavation or soil staging areas, site security personnel will promptly notify local police. If local law enforcement or other Milford emergency personnel must enter the swale excavation or soil staging area due to an unauthorized entry into the secured areas, personnel should wear adequate protection including disposable boots, gloves, and tyvek suits. Spare protective gear shall be maintained in the field office trailer. Local police and the security service will be provided keys to the trailer and gates in order to obtain access to these areas. The personnel decontamination area will be maintained during evening hours for use as necessary.

In the event trespasser(s) entering into the locked secure work areas are apprehended, the local Fire Department will be contacted immediately and a response by the HAZMAT team will be requested in order to decontaminate the trespasser(s). If warranted, the trespasser will be transported to a local hospital for medical examination.

Once the situation has been controlled, the following contacts will be promptly notified.

OSC Melanie Morash, EPA: (617) 571-5666 (cell)

Chief Environmental Health Division Laura Pagliaro, Milford Health Department: (203) 783-3319

Project Coordinator Brian Washburn, HRP: (860) 989-9539 (cell)

8.2 Site Communication

Activities conducted in the restricted access areas will be performed in accordance with this work plan, the site-specific Health & Safety Plan, or standard operating procedures. All activities in these areas will be implemented using the buddy system. An air horn will be used to signal a site health & safety emergency, as indicated in the Health & Safety Plan. Portable radios will be used to maintain communications between the contractors and remediation supervisor, as needed.

9.0 DISPOSAL OF SOIL AND OTHER WASTE

9.1 Waste Categories

9.1.1 Soil

Soil shall be transported to and disposed at an EPA-approved off-site facility permitted to receive the material. HRP shall collect soil samples for waste disposal characterization at the frequency required by the disposal facility. The samples will be tested for the analytical parameters and by the methods required by the disposal facility in accordance with the Sampling and Analysis Plan ([Section 11](#)). Copies of analytical test results will be provided to the disposal facility as required to obtain disposal authorization.

Bulk carriers shall transport the soil off-site to the licensed disposal facility. The carriers shall be owned and operated by a transporter that is licensed and permitted to transport the waste soil. The waste soil shall be transported under bill-of-lading or Uniform Hazardous Waste Manifest, if required. Additional details are provided in *Section 02060 – Excavation, Handling and Disposal of Contaminated Soil and Sediment* (Appendix F).

9.1.2 Liquids

Liquid wastes generated during the soil removal activities may include rinse waters from decontamination activities and water pumped from the excavation. Decontamination liquids will be collected and stored in drums or portable tanks and transferred directly to a vacuum truck or trailer for transport to a disposal facility, or treated and discharged to Stubby Plain Brook in accordance with regulatory requirements. HRP shall collect waste characterization samples or treated effluent samples in accordance with the Sampling and Analysis Plan ([Section 11](#)), depending upon the approved disposition of the waste.

Excavation dewatering wastewater shall be treated and discharged to Stubby Plain Brook as described in Section 6.3.2.

9.1.3 Debris and Miscellaneous Waste

Debris consisting of non-hazardous wastes resulting from clearing and grubbing will be disposed off-site according to applicable Federal, State, and local requirements. Miscellaneous waste such as construction debris, polyethylene sheeting, and general trash, will be reused, recycled or disposed as non-hazardous waste at an approved off-site landfill or recycling facility.

9.2 Labeling of Waste Containers

A label shall be immediately attached to any container holding waste material. The

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container shall be stored upright with the label placed on the side of the container in the upper third section (not on the top). A waterproof ink pen shall be used on the label to clearly mark the contents of the container and the initial date of accumulation. Labels shall be clearly marked and visible for inspection on each container. "Accumulation" begins when waste is first added to the container, even if it is not filled.

9.3 Handling Drums and Containers

The handling of drums and containers shall be kept to a minimum and site activities shall be managed to minimize the amount of drum or container movement. Where drum movement is required, it will be done by mechanical means (forklift, truck lift gate, etc.) or by approved manual means (drum dolly, etc.).

9.4 Waste Manifest Procedures

The contractor shall obtain and complete all waste manifests as required for materials disposed off-site. If a return copy of the manifest is not received from the disposal facility within 30 days, the contractor shall contact the transporter and disposal facility to assess the status of the waste. If the manifest copy has not been received in 45 days, a report shall be filed with CT DEP and the EPA On-Scene Coordinator.

9.5 Transporters and Disposal Sites

The contaminated soil will be transported to an appropriate licensed facility that is approved by the EPA On-Scene Coordinator. Additional details are provided in *Section 02040 – Pumping, Handling and Disposal of Dewatering Fluids* and *Section 02060 – Excavation, Handling and Disposal of Contaminated Soil and Sediment* (Appendix F).

10.0 SAFETY AND MONITORING PLANS

HRP will implement a Health and Safety Plan (HASP) and Perimeter Air Monitoring Plan (PAMP) during all disruptive phases of the Removal Action where the potential exists for exposure to contaminants or fugitive dust emissions. The HASP and PAMP shall be protective of on-site personnel and monitor potential off-site airborne impacts at the perimeter of the work area.

10.1 Health and Safety Plan

The HASP provided in Appendix H summarizes the potential hazard analysis and describes the work areas and related air monitoring programs, and anticipated personal protective equipment (PPE), as well as air quality monitoring methods and action levels. The exclusion zone shall be synonymous to the work areas and shall be defined by the temporary fence enclosure depicted on Figure 4. This will include:

1. soil excavation areas
2. haul roads bordering excavation areas and extending to soil staging areas and decontamination areas
3. stormwater collection area for diversion
4. excavation dewatering wells, piping, treatment and discharge equipment
5. contaminated soil staging areas and stabilization area, as necessary.

The decontamination zone shall be designated at the exit gate from the work area. The decontamination area (Figure 6) shall be positioned within the secured working area and shall consist of:

1. tracking pads to minimize migration of soils outside of the work area that is trapped on vehicle tire treads
2. decontamination wash water collection basins and wastewater storage areas.

Temporary fencing surrounding the designated work area, exclusion zone and decontamination zone shall be maintained to secure these areas and restrict access throughout the Removal Action. Access and egress shall be permitted through gates along the haul road. During non-working hours, the gate shall be locked to prevent unauthorized entry to the area.

The equipment support zone will be positioned outside the fenced area. A temporary office trailer and port-o-let facilities will be maintained in this area (Figure 4).

10.2 Perimeter Air Monitoring Plan

A perimeter air monitoring program will be implemented to monitor the effectiveness of dust suppression systems and potential off-site migration of airborne contaminants. The

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plan utilizes a combination of continuous air monitoring instrumentation and confirmatory testing. The procedures of the program are described in detail in the Perimeter Air Monitoring Plan (Appendix I).

11.0 SAMPLING AND ANALYSIS PLAN

A number of environmental samples will be collected as part of the Removal Action including wastewater discharge samples, post-excavation confirmatory soil samples, and waste characterization samples. The samples will be submitted for laboratory analysis in order to demonstrate compliance with Removal Action clean-up standards, document compliance with permit requirements, and profile wastes for appropriate off-site disposal.

11.1 Quality Assurance Project Plan (QAPP)

The QAPP defines the data quality objectives, quality assurance goals, and sampling protocols necessary to achieve the desired objectives. Environmental samples collected as part of the Removal Action will include:

1. Excavation dewatering wastewater samples that are collected and analyzed to assess compliance with discharge limits to Stubby Plain Brook.
2. Post-excavation confirmatory soil samples, which are tested to demonstrate compliance with Removal Action clean-up standards.
3. Waste characterization samples that are analyzed to determine and obtain appropriate disposal authorizations.
4. Confirmatory air samples that will be tested to verify air quality as part of the Perimeter Air Monitoring Plan.

The sample collection protocols, data and quality use objectives, quality controls, field documentation requirements, and laboratory testing methods are provided in the QAPP attached as Appendix C.

11.2 Collection and Analysis of Environmental Samples

Environmental samples collected during the proposed Removal Action include

- Excavation dewatering wastewater samples
- Post-excavation confirmatory soil samples
- Waste characterization samples, and
- Confirmatory air samples.

Sampling of diverted stormwater is not proposed as part of this plan. Further explanation of the stormwater and sampling processes for the environmental samples are provided below.

11.2.1 Rationale for Excluding Stormwater Sampling

Stormwater, collected by a number of catch basins located within the paved parking lot on the north side of the site building on Lot 1, is discharged to the

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drainage swale that is the subject of this Removal Action. Surface water samples were previously collected from 5 locations along Stubby Plain Brook and the drainage swale. The results of the sampling indicated that the quality of surface water in the swale was comparable to the surface water quality identified in Stubby Plain Brook. In addition, based upon evaluation of sediment data obtained by ERM and documented in "Response to EPA Comments" (HRP, May 25, 2007 – Appendix A) the storm water discharge is believed to contribute negligible impact (if any) to the contamination observed in the swale soil and sediment. As a result, no sampling of the diverted storm water is proposed as part of this project.

11.2.2 Excavation Dewatering Wastewater Samples

HRP shall collect excavation wastewater samples in accordance with substantive requirements identified in the *General Permit for Discharge of Groundwater Remediation Wastewater to Surface Water* (Appendix A). This shall include collection of Screening Analysis and Effluent Monitoring Samples as referenced in the General Permit. The samples shall be submitted for laboratory analysis and test results shall be recorded and maintained on the appropriate Reporting Forms provided in the General Permit.

All soil samples shall be collected in appropriate containers (glass, plastic, vials, etc.) and stored on ice under chain-of-custody prior to submission to an independent Connecticut-certified laboratory. Details concerning sample collection, documentation, recordkeeping, handling, and analytical protocols are provided in the QAPP (Appendix C).

Screening Analysis

A Screening Analysis Sample shall be collected from untreated ground water obtained prior to treatment or discharge to Stubby Plain Brook. The sample shall be tested for the parameters indicated below.

Volatile organic compounds (VOCs including MTBE) via EPA Method 624
Total Petroleum Hydrocarbons (TPH) via EPA Method 418.1 or TPH 1664
Total metals (beryllium, cadmium, chromium, copper, lead, nickel, silver, tin, zinc, mercury, iron)
PAHs via EPA Method 8270C
pH
Settable Solids
Total Suspended Solids

Effluent Monitoring

Effluent Monitoring Samples shall be collected from the treated discharge on the first day of discharge, every other day for the first two weeks, and weekly

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for the next month throughout the period of active dewatering operation. The sample shall be collected as a grab sample at the point of discharge in a manner that prevents collection of water from Stubby Plain Brook. Effluent Monitoring Samples shall be tested for the same parameters as the Screening Analysis Sample listed above.

Since the duration of the discharge is anticipated to be less than 90-days, testing for acute toxicity will not be performed.

Additional Requirements for Discharge

If the discharge continues for a period exceeding one month, Ongoing Sampling Screening and Effluent Monitoring will continue in accordance with the frequency provided in the General Permit. Ongoing Screening samples will be collected annually if daily discharge flow is less than 5,000 gallons per day (GPD) or twice per year if the maximum daily flow exceeds 5,000 GPD. Effluent Monitoring samples will be collected quarterly if the maximum daily flow is less than 5,000 GPD or monthly if the maximum daily flow is greater than 5,000 GPD. The screening and monitoring samples will be tested for the parameters indicated above. If the discharge continues for a period in excess of 90-days, acute toxicity samples will also be collected from the treated effluent at a frequency of 2-4 times per year, depending on the maximum daily flow.

11.2.3 Post-Excavation Confirmatory Soil Sampling

Post-excavation confirmation soil samples shall be collected from 4 general locations listed below and shown on Figure 7:

1. At the bottom of the *Channel Excavation Limits* (Section 6.3.1) at a depth of approximately 4-feet,
2. Along the sidewalls of the *Channel Excavation Limits* (Section 6.3.1) at a depth of 3 feet below grade,
3. At the bottom of the *Shallow Excavation* (Section 6.3.1) at depths of approximately 2-feet, and
4. Along the sidewalls of the *Shallow Excavation* (Section 6.3.1) at a depth of 0-6 inches below grade.

Confirmatory soil sampling will consist of a minimum of seven (7) sets of samples collected at 20-foot intervals along the length of the excavation for a total of approximately 84 samples. A typical excavation profile illustrating the sampling locations is provided on Figure 7. A plan view of the sampling locations is shown on figure 6.

HRP shall collect all confirmatory samples as discrete samples using dedicated sampling equipment. Sampling locations and soil shall be

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inspected for visual evidence of contaminant impact, described on a field log, and screened in the field for volatile organic contamination with a PID.

Each confirmatory sample will be analyzed for the parameters listed below.

- Total metals (beryllium, cadmium, chromium, copper, lead, nickel, silver, tin, zinc) via EPA Methods 3050B/6010B/7471/SW846
- PAHs using EPA Method 8270C, and
- Extractable total petroleum hydrocarbons (ETPH).

Eight duplicate samples shall be collected for laboratory analysis. The duplicate samples shall be tested for the parameters indicated above.

All soil samples will be collected in appropriate containers (glass, plastic, vials, etc.) and stored on ice under chain-of-custody prior to submission to an independent Connecticut-certified laboratory. Details concerning sample collection, documentation, recordkeeping, handling, and analytical protocols are provided in the QAPP (Appendix C).

11.2.4 Waste Characterization Samples

HRP shall collect all waste characterization samples for the proposed Removal Action. Anticipated waste types include contaminated soil and sediment, decontamination rinsewater, and miscellaneous personal protective equipment and refuse.

Contaminated Soil and Sediment

Samples of waste soil shall be collected using dedicated sampling equipment at sufficient frequency to satisfy the requirements of the receiving facility. Samples collected for VOC analysis shall be collected as discrete samples using field preservation methods EPA 5035. Samples collected for analysis of non-volatile waste characterization parameters shall be composite samples comprised of discrete samples that each represent approximately 100-cubic yards of the stockpiled material.

Waste characterization samples will be tested for the following parameters.

VOCs including MTBE via EPA Method 8260B

PAHs via EPA Method 8270C

Reactive sulfide

Reactive cyanide

PCBs via EPA Method 8082

Flashpoint

pH

Metals (arsenic, barium, cadmium, total chromium, lead, mercury, selenium,

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silver) via EPA Methods 3050B/6010B/7471/SW846 and mass analysis and TCLP extraction methods

TPH via EPA Method 418.1 of TPH 1662

Additional parameters that may be requested by the disposal facility

All soil samples will be collected in appropriate containers (glass, plastic, vials, etc.) and stored on ice under chain-of-custody prior to submission to an independent Connecticut-certified laboratory. Details concerning sample collection, documentation, recordkeeping, handling, and analytical protocols are provided in the QAPP (Appendix C).

Decontamination Rinsewater

Samples of decontamination rinsewater shall be collected using dedicated sampling equipment at sufficient frequency to satisfy the requirements of the receiving facility. Samples collected for VOC analysis shall be collected as a discrete sample from the container exhibiting the highest PID reading. Samples collected for analysis of non-volatile waste characterization parameters shall be composite samples comprised of discrete samples that each represent one container of rinsewater.

Waste characterization samples will be tested for the following parameters.

VOCs including MTBE via EPA Method 624

PAHs via EPA Method 8270C

Reactive sulfide

Reactive cyanide

PCBs via EPA Method 8082

Flashpoint

pH

Metals (arsenic, barium, cadmium, total chromium, lead, mercury, selenium, silver) via EPA Methods 3050B/6010B/7471/SW846

TPH via EPA Method 418.1 or TPH 1662

Additional parameters that may be requested by the disposal facility

All samples will be collected in appropriate containers (glass, plastic, vials, etc.) and stored on ice under chain-of-custody prior to submission to an independent Connecticut-certified laboratory. Details concerning sample collection, documentation, recordkeeping, handling, and analytical protocols are provided in the QAPP (Appendix C).

Miscellaneous Protective Equipment and General Refuse

Miscellaneous protective equipment and general refuse shall not be specifically tested prior to disposal unless obvious indications of contamination residues are noted.

11.2.5 Confirmatory Air Samples

HRP shall collect two confirmatory air samples from the air monitoring stations in accordance with the Perimeter Air Monitoring Plan (Appendix I). The confirmatory samples will be collected over an 8-hour period using appropriate containers obtained from the testing laboratory. HRP shall inspect the condition of the sampling equipment and record initial vacuum levels (as necessary) prior to deployment.

The samples will be submitted to the testing laboratory for analysis for the following parameters.

VOCs via EPA Method TO-15
Semi-volatile organic compounds via EPA Method TO-13, and
TSP metals

Details concerning sample collection, documentation, recordkeeping, handling, and analytical protocols are provided in the QAPP (Appendix C) and Perimeter Air Monitoring Plan (Appendix I).

11.3 Demonstration of Compliance With ARARs

The Removal Action will be implemented in such a manner as to comply with the ARARs identified in Section 3. Methods to demonstrate compliance with project ARARs are presented below.

11.3.1 Permits

Although no permits will be obtained for the project, the Removal Action activities shall conform to the substantive requirements of the following permit programs.

- Structures, Dredging, and Fill and Tidal Wetlands Permit (Office of Long Island Sound Programs, OLISP)
- Permit for Regulated Activity in Wetlands, Watercourses and Regulated Areas (Town of Milford)
- General Permit For Diversion of Remediation Groundwater (DEP-IWRD-009)
- General Permit For Discharge of Groundwater Remediation Wastewater Directly to Surface Water (DEP-PERD-GP-20)

OLISP and Town of Milford Wetland Permits

The substantive requirements of the OLISP and Town Wetland permits will be achieved using methods to minimize disturbance to wetlands during removal operations and restoration of the wetland setting at the completion of the project.

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Wetland disturbance will be minimized in the following manner.

- Vegetation clearing shall be limited to only those areas necessary to address contaminant impacts and obtain access to the excavation area.
- Temporary haul roads will be limited to a single lane with a single route of entrance/egress to the impacted area.
- Contaminated soil staging areas and excavation dewatering treatment equipment will be positioned outside the wetland area and wetland set-back distances.
- Erosion and sediment controls will be used as described in Section 6.2.3 to control runoff and minimize erosion impacts.
- Upon backfill of the swale excavation, the wetland area will be restored in accordance with the Wetland Restoration Plan provided in Appendix E.

Diversion and Discharge of Groundwater Remediation Wastewater

The substantive requirements of these General Permits will be fulfilled by maintaining discharge records of the treatment system and collection of treated effluent samples in accordance with the schedule identified in the permit instructions. These sampling and reporting requirements are outlined in Section 10.2.1.

11.3.2 Removal Clean-up Standards

The excavation of contaminated soil and sediment will be considered complete when the post-excavation confirmatory soil samples, collected from the *Channel Excavation Limits* and *Shallow Excavation* (Section 6.3.1) comply with the Removal Clean-up Standards detailed in Section 3.2.2. These Removal Clean-Up Standards will be applied as indicated below.

1. Bottom samples collected from the *Channel Excavation Limits* (Section 6.3.1) shall be compared to the applicable I/C DEC (Appendix B). Residual contaminants detected at this depth (> 4 ft below grade) will be considered inaccessible. These sample results can be used by the current or future property owner(s) to determine if an Environmental Land Use Restriction (ELUR) would be appropriate at a later date to preclude future disturbance of any remaining inaccessible contaminated materials and associated overlying 4 foot zone of clean backfill material, in order to comply with the Connecticut Remediation Standard Regulation.
2. Sidewall samples collected from the *Channel Excavation Limits* (Section 6.3.1) shall be compared to the applicable ½ SEH (Section 3.2.2). Lateral excavation of the *Channel Excavation Limits* shall continue until these sidewall samples comply with this standard (Appendix B).

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3. Bottom samples collected from the *Shallow Excavation* (Section 6.3.1) shall be compared to the applicable $\frac{1}{2}$ SEH (Section 3.2.2). The depth of the *Shallow Excavation* (Section 6.3.1) shall be extended beyond 2-feet (as necessary) until compliance with this standard can be demonstrated (Appendix B).
4. Sidewall samples shall be collected from the *Shallow Excavation* (Section 6.3.1) and compared to the applicable I/C DEC (Appendix B). Lateral excavation of the *Shallow Excavation* (Section 6.3.1) shall continue beyond the limits noted in Figure 6 (as necessary) until compliance with this standard can be demonstrated.

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12.0 REMOVAL ACTION COMPLETION REPORT

Upon completion of the Removal Action, a final report will be prepared, and will include, at a minimum, the following:

- A summary of actions undertaken within the swale area to mitigate identified environmental hazards;
- Excavation volumes and contaminated soil disposal records;
- Photographic documentation of the removal efforts;
- Site plans depicting the post-excavation confirmatory sample locations, limits of excavation, and restoration grade of the swale; and
- Tables summarizing post-excavation confirmatory sampling results.

Copies of waste manifests, laboratory reports, and photographs collected during the Removal Action will be appended to the report.

13.0 POST-REMOVAL SITE CONTROL

Following completion of the Removal Action, HRP will initiate post-removal site control for a period equivalent to one growing season. The goal of this site control is to ensure the effectiveness and integrity of the removal action.

As part of Post-Removal Site Control, HRP shall maintain erosion control and inspect the swale area on a quarterly basis. EPA will be notified of inspection events 5-days prior to inspection. HRP will monitor the condition of the restored swale and excavation area, as well as the condition of the re-vegetated areas (Figure 8) at the time of each inspection. In the event of a severe storm or hurricane, additional site inspections may be conducted shortly after the storm event. Any identified deviations from the anticipated post-removal site conditions, will be immediately reported to the EPA On-Scene Coordinator.

The performance criteria to release the site following restoration of wetlands will be based upon

- The hydrological conditions established in the swale area,
- The success standards referenced in the Wetland Restoration Plan (Appendix E), and
- Erosion/sedimentation goals identified for the restored area.

Since the wetland restoration occurs within an area of established wetland hydrology, the performance criteria will consist of the vegetation and erosion/sedimentation goals listed below.

Vegetation Goals

1. Woody plants (trees and shrubs) shall be healthy at a density of at least 500 trees and shrubs per acre and at least 18 inches tall in the planned woody zones.
2. Planned re-vegetation areas shall have at least 80% areal vegetative cover by non-invasive plant species, excluding planned open water areas.
3. Emergent wetland area at the confluence of the swale and Stubby Plain Brook shall have a minimum of 80% cover by non-invasive hydrophytic plant species.
4. Planned Woody Plant (trees and shrubs) area shall have at least 60% cover by non-invasive hydrophytes, of which at least 15% are woody species.

Erosion/Sedimentation Goals

1. The swale excavation area shall be free of erosion or sedimentation that may compromise the overall intent of the removal action, expose buried soil contaminants that may remain on-site, or result in the migration of buried soil/sediment contaminated by historical site operations.

SOIL EXCAVATION WORK PLAN

TECHNICAL SPECIFICATIONS FOR REMOVAL ACTION

Wampus Milford Associates Site

80 Wampus Lane

Milford, Connecticut

Date: 8/25/2007

Revision No: 1

Table 1: Summary of Construction Work Tasks and Technical Specifications

Work Task	Technical Specification
Pre-Excavation Activities	
Mobilization	Section 01300 Mobilization and Demobilization
Erosion and Sedimentation Controls	Section 01300 Mobilization and Demobilization Section 02100 Erosion and Sedimentation Control
Clearing of Brush and Trees	Section 01300 Mobilization and Demobilization Section 01200 Clearing
Installation of Temporary Fencing	Section 01300 Mobilization and Demobilization
Construction of Haul Road and Soil Staging Area	Section 01300 Mobilization and Demobilization Section 02060 Excavation, Handling, and Disposal of Contaminated Soil and Sediment
Anti-Tracking Pads	Section 01300 Mobilization and Demobilization
Excavation Activities	
Excavation of Contaminated Soil and Sediment	Section 02060 Excavation, Handling, and Disposal of Contaminated Soil and Sediment
Dewatering	Section 02040 Pumping, Handling and Disposal of Dewatering Fluids
Contaminated Soil Transportation and Disposal	Section 02060 Excavation, Handling, and Disposal of Contaminated Soil and Sediment
Excavation Backfill and Reconstruction of Swale	Section 02200 Backfill
Demobilization	Section 01300 Mobilization and Demobilization