

**Remedial Action Work Plan for  
Ponagansett Avenue Remediation Project  
67 Melissa Street  
Providence, Rhode Island**

*Prepared for*

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FINAL  
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## 1. INTRODUCTION

On behalf of The Trust for Public Land, EA Engineering, Science, and Technology, Inc. has prepared this Remedial Action Work Plan (RAWP) for the Ponagansett Avenue Remediation Project in Providence, Rhode Island. This RAWP has been prepared to satisfy Section 9.0 of the Rhode Island Department of Environmental Management (RIDEM) Remediation Regulations.

The former Ponagansett Avenue Landfill is located at 67 Melissa Street in Providence, Rhode Island. The site is located on approximately 2.0 acres of land adjacent to the Woonasquatucket River in the Hartford section of Providence, designated on the City of Providence Tax Assessor's Map as Plat 113, Lot 440. The site also consists of a small segment of the Providence Turner's property, which abuts Lot 440. Figure 1 in Appendix A provides a Site Location Map.

The site encompasses a former landfill with a lateral extent of approximately 80,000 ft<sup>2</sup>. Refuse has been deposited to approximately 10-15 ft below existing ground surface over most of the landfill area, with a greater thickness at the center. The volume of debris is estimated to be 30,000 yd<sup>3</sup> and includes household, industrial, institutional, and commercial waste. At this time, the landfill is not capped in accordance with RIDEM standards. Figure 2 in Appendix A depicts the current site conditions.

The capping of the 67 Melissa Street site represents an important step in the further development of Providence's Woonasquatucket River Greenway and bike trail project. Completion of the Greenway project will help restore the Woonasquatucket River to its former grandeur and revitalize the neighborhoods of Olneyville, Hartford, and Manton. The project's main goals are to: increase the recreational and green space available to local residents, promote river conservation and environmental action, stimulate economic development, and increase awareness of local history and river ecology. Future use of the site may also include a City of Providence tree nursery and one or more new residential lots, both on the southwestern portion of Lot 440.

In the northwestern corner of the former landfill, the topography drops steeply downward to the banks of the Woonasquatucket River. It is assumed that the northwestern corner of the landfill terminates somewhere between the top of the slope and the toe of the downward slope. Groundwater beneath the site is classified as GB, which is presumed not suitable for human consumption without treatment. The groundwater elevation at the site ranges from approximately 15 to 20 ft below ground surface (bgs).

The primary concern at the site is the presence of elevated total petroleum hydrocarbon concentrations previously observed in soil samples throughout the site. Soil samples from 15 test pits exhibited total petroleum hydrocarbon levels that exceed RIDEM's Method 1 Direct Exposure Criteria (RDEC) for soil in a residential area of 500 mg/kg. Exceedances of the RDEC for arsenic, beryllium, lead, and mercury were also found in some soil samples. Low levels of volatile organic compounds (VOCs) are also present in the landfill soil, but below the threshold levels established by RIDEM.

This RAWP includes details on the remedial objectives and proposed remedy for the former Ponagansett Avenue Landfill. The implementation and completion of the remedial actions proposed in this RAWP will bring the site into compliance with the RIDEM Remediation Regulations.

## 2. REMEDIAL OBJECTIVES

### 2.1 SOIL

The long-term remedial objective for soil is to prevent direct exposure to fill material containing contaminant levels above the RIDEM RDEC. The construction of an engineered cap will achieve this objective. The Soil Management Plan (SMP), provided in Appendix B, details the protocol to be followed during all future activities on the site, including construction and future site development. The SMP will be incorporated into the Environmental Land Usage Restriction (ELUR) for the site following completion of the remediation activities.

The short-term remedial objective for soil is to minimize direct contact with the subsurface fill materials during remedial and construction activities. The Safety, Health, and Emergency Response Plan (SHERP), provided in Appendix C, describes personal protection standards and mandatory safety practices, procedures, and contingencies to be followed while performing field activities at the site. The SHERP defines actions to be taken with respect to personal safety during work activities associated with the development project. Work activities may include material excavation and grading, trenching, and test pitting. One copy of the SHERP will be maintained onsite for use during the scheduled construction activities and made available for site use/employee review. Persons who enter the site are required to read and understand the SHERP and sign the SHERP Review Record. The SHERP addresses the following regulations and guidance documents:

- Occupational Safety and Health Administration (OSHA) Standards for General Industry, 29 CFR 1910
- OSHA Standards for Construction Industry, 29 CFR 1926
- National Institute of Occupational Safety and Health, OSHA, U.S. Environmental Protection Agency, and U.S. Coast Guard *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, October 1985.

### 2.2 GROUNDWATER

Groundwater at the site is classified as GB by RIDEM. Groundwater at the site has been found to be in compliance with the RIDEM GB Groundwater Objectives through the sampling of the existing monitoring wells during previous investigation activities. There are no long-term remedial objectives for groundwater.

No contact with site groundwater is expected during construction activities, and groundwater will not be used for any purpose during construction activities. Dewatering operations will not be necessary during remedial activities. Therefore, there are no short-term remedial objectives for groundwater. All groundwater monitoring wells that are located on the TPL property will be abandoned during remedial activities in accordance with RIDEM regulations.

## **2.3 SURFACE WATER AND SEDIMENT OBJECTIVES**

No long-term surface water or sediment remedial objectives are proposed for the site. In the short-term, stringent erosion, sediment, and dust control measures will be implemented during construction to prevent silt from entering surface waters, drainage swales, and adjoining properties. All remedial activities at the site will be conducted in accordance with the Stormwater Pollution Prevention Plan (SWPPP) that will be submitted to the RIDEM Office of Water Resources under separate cover. Upon completion of remedial activities and redevelopment of the site, stormwater will be managed in accordance with all applicable local, state, and federal regulations.

## **2.4 AIR OBJECTIVES**

Ten shallow soil gas samples have been collected from various locations throughout the site and analyzed for VOCs. None of the samples reflected any VOC concentrations over reporting limits of 1.0 µg/L. Therefore, there is no long-term goal established for remediating the soil gas.

In the short-term, environmental oversight of the cap construction may include periodic monitoring with a photoionization detector, as detailed in the SHERP, to ensure that VOCs are not present at levels that have the potential to place site personnel at risk. Proper dust control measures, including water application to exposed soils, will be employed at the site during all remedial activities.

### **3. PROPOSED REMEDY**

The existing condition that needs to be addressed at this site is the soil contamination consisting of total petroleum hydrocarbons, beryllium, arsenic, lead, and mercury. The engineered landfill cap will eliminate hazards to site users and adequately fulfill the long-term remedial objectives. Site users will have no contact with impacted soil following construction of the engineered cap. All intrusive remedial activities covered under this RAWP will be conducted in accordance with the SMP, SHERP, and SWPPP. All remedial activities will be conducted in accordance with all applicable local, state, and federal rules and regulations.

#### **3.1 LANDFILL CAP**

The engineered cap components will consist of the following layers:

- Closure cap subgrade
- Geosynthetic fabric filter layer
- Protective cover soil
- Vegetative cover.

These layers are more fully described below, in order of ascendance above the waste material.

##### **3.1.1 Closure Cap Subgrade**

Prior to the start of remediation activities at the site, pre-construction test pitting operations will be conducted to confirm the lateral extent of the landfill along the southern border. Following clearing and grubbing to be performed south of the future bike path alignment, a closure cap subgrade will be prepared from the existing site grade that will create adequate stormwater drainage for the site and serve as a suitable base for the components of the closure cap system. Excess fill material will be regraded to fill voids in the existing grade, and help to protect the fabric filter layer from potential damage associated with protruding waste material.

##### **3.1.2 Geosynthetic Fabric Filter Layer**

A geosynthetic fabric filter layer will be placed above the closure cap subgrade and below a protective soil cover to prevent human exposure to impacted soil at the site while allowing precipitation to infiltrate. Geosynthetic fabric filter materials are currently the standard of practice in landfill design systems, and are recommended by most designers and the regulatory community. The fabric filter will be orange, and will be installed so that the seams overlap to prevent the underlying impacted soil from mixing with the clean soil. Technical specifications for the fabric filter are included as Appendix D.

##### **3.1.3 Protective Cover Soil Layer/Vegetative Cover**

The protective cover soil layer of the closure cap system, also commonly termed the vegetative support soil layer, will consist of a minimum of 18 in. of certified clean fill material placed over the entire landfill extending to the designated boundaries of the closure cap. The vegetative support soil layer is designed to provide for root growth while buffering the underlying layers from damage due to the effects of frost penetration, root penetration, and loading of the finished surface of the landfill closure cap. The upper 6 in. of this soil layer will be specified as an organic topsoil having characteristics to promote adequate vegetation, stability, and erosion resistance.

This fill material will meet the RDEC and GB Leachability Criteria, and will be sampled for arsenic at a frequency of one sample per 500 tons. One-quarter of the total number of compliance samples of clean fill will be sampled for VOCs, Total Priority Pollutant (PP13) Metals, and TPH. Laboratory results will be forwarded to RIDEM upon receipt.

### **3.1.4 Riparian Buffer Restoration**

The Trust for Public Land has received funding from the Natural Resources Conservation Service to create/restore a buffer adjacent to the Woonasquatucket River along the river side of the future bike path alignment. This riparian restoration opportunity involves regrading of the existing buffer north of the future bike path alignment during site closure activities to enhance infiltration, accommodate stormwater runoff, and create micro-habitat diversity.

This restoration area is located adjacent to the Woonasquatucket River, and will enhance and encourage the wildlife habitat that currently frequents the surrounding area. The majority of the area subject to this restoration is located within the 100-year flood plain. In order to provide this riparian buffer zone, existing conditions in an area adjacent to the Woonasquatucket River will be maintained during construction to the extent possible. This area encompasses approximately 0.8 acres and is depicted on Figure 3. Disturbance in this area will be limited to activities necessary to remove identified surficial debris and regrade isolated areas to promote positive drainage. Maintaining current conditions will provide an aesthetic value as discussed, in addition, the existing root mass will help stabilize the slope to avoid excessive erosion during and following construction. Following debris removal and limited regrading, a minimum of 12-in of organic loam material will be placed on the slope, and the riparian buffer zone planting will be implemented to stabilize the slope as depicted on Figures 4 and 5. This restoration area will remain undeveloped as part of the redevelopment plan for the site, and will be subject to all of the requirements of the sitewide ELUR that will be placed on the property following remedial activities.

### **3.1.5 Environmental Land Usage Restriction**

An ELUR documenting the required maintenance and annual inspection of the engineered cap will be recorded in the land evidence records for the property following remedial action activities. This ELUR will include the SMP to provide protocol for future intrusive activities.



## **4. POINTS OF COMPLIANCE**

### **4.1 SOIL**

During all construction activities, the site will be inspected on a daily basis and daily logs of the remedial activities, including photographs and field notes, will be maintained to ensure that the remedial design specifications are adhered to. The impacted soil at the site will be considered to be in compliance once it has been completely capped as proposed in this RAWP, and the ELUR has been placed on the property following construction and final closure activities.

## 5. PROPOSED SCHEDULE FOR REMEDIATION

A proposed schedule for the remediation project is provided below.

<b>Project Task</b>	<b>Approximate Start Date</b>	<b>Approximate Completion Date</b>
1. RAWP Submittal to RIDEM	14 July 2004	-
2. RIDEM Review Period	14 July 2004	11 August 2004
3. Subcontractor Procurement	11 August 2004	25 August 2004
4. Subcontractor Selection	1 September 2004	-
5. Pre-Construction Meeting	8 September 2004	-
6. Construction Oversight	13 September 2004	22 October 2004
7. Closure Report	11 October 2004	27 October 2004

## **6. CONTRACTORS AND CONSULTANTS**

The complete list of contractors and consultants to be involved with this project remains to be determined. Following approval of the landfill cap design, a complete list of consultants and contractors will be provided to RIDEM.

## **7. DESIGN STANDARDS AND TECHNICAL SPECIFICATIONS**

The design drawings and specifications for the engineered cap are included on Figure 4 in Appendix A. The figures included in Appendix A are listed below:

- Figure 1: Site Locus Map
- Figure 2: Existing Conditions
- Figure 3: Erosion and Sediment Control Plan
- Figure 4: Sections and Details
- Figure 5: Proposed Redevelopment Plan.

## **8. SAFETY, HEALTH, AND EMERGENCY RESPONSE PLAN**

The SHERP for the site has been included in Appendix C.

## **9. SECURITY PROCEDURES**

With the exception of the riverbank, the site is completely secured with fences, which will be locked during off-work hours. During construction activities, all grading areas will be securely fenced to prevent trespassers from coming into contact with the temporarily exposed fill material.

## **10. INSTITUTIONAL CONTROLS**

An ELUR will be recorded in the land evidence records for the site at Providence City Hall following implementation of this remedial action.

## **11. COMPLIANCE DETERMINATION**

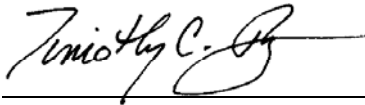
Compliance with the soil remedial objective will be demonstrated following the construction of the engineered cap and the recording of the ELUR in the City of Providence land evidence records.

Documentation of the cap, including inspection logs and photographs, will be provided to RIDEM in the Remedial Action Closure Report. A copy of the recorded ELUR will also be provided.



## 12. CERTIFICATIONS

The undersigned certify that this RAWP is a complete and accurate representation of the contaminated site and contains all known facts to the best of their knowledge.



14 July 2004

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Timothy C. Regan, P.E.  
Senior Engineer  
EA Engineering, Science, and Technology, Inc.

Date

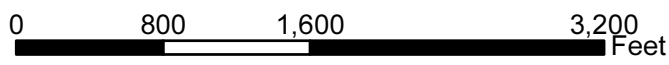
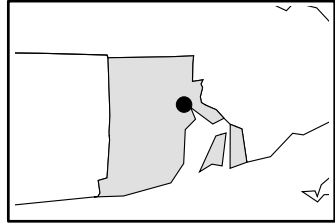
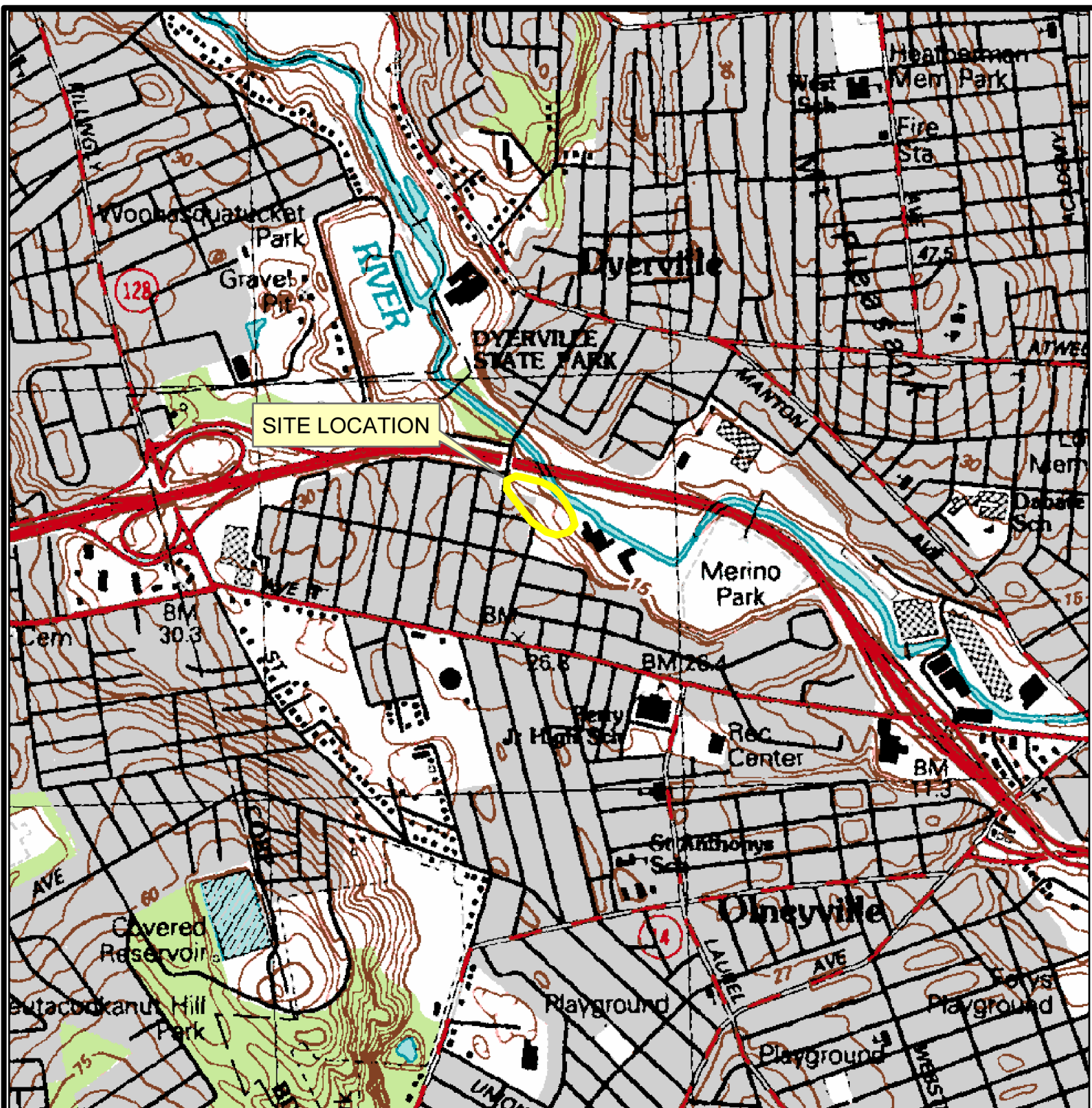
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Nancy Kafka  
Urban Program Director  
The Trust for Public Land

Date

# **Appendix A**

## **Site Figures**



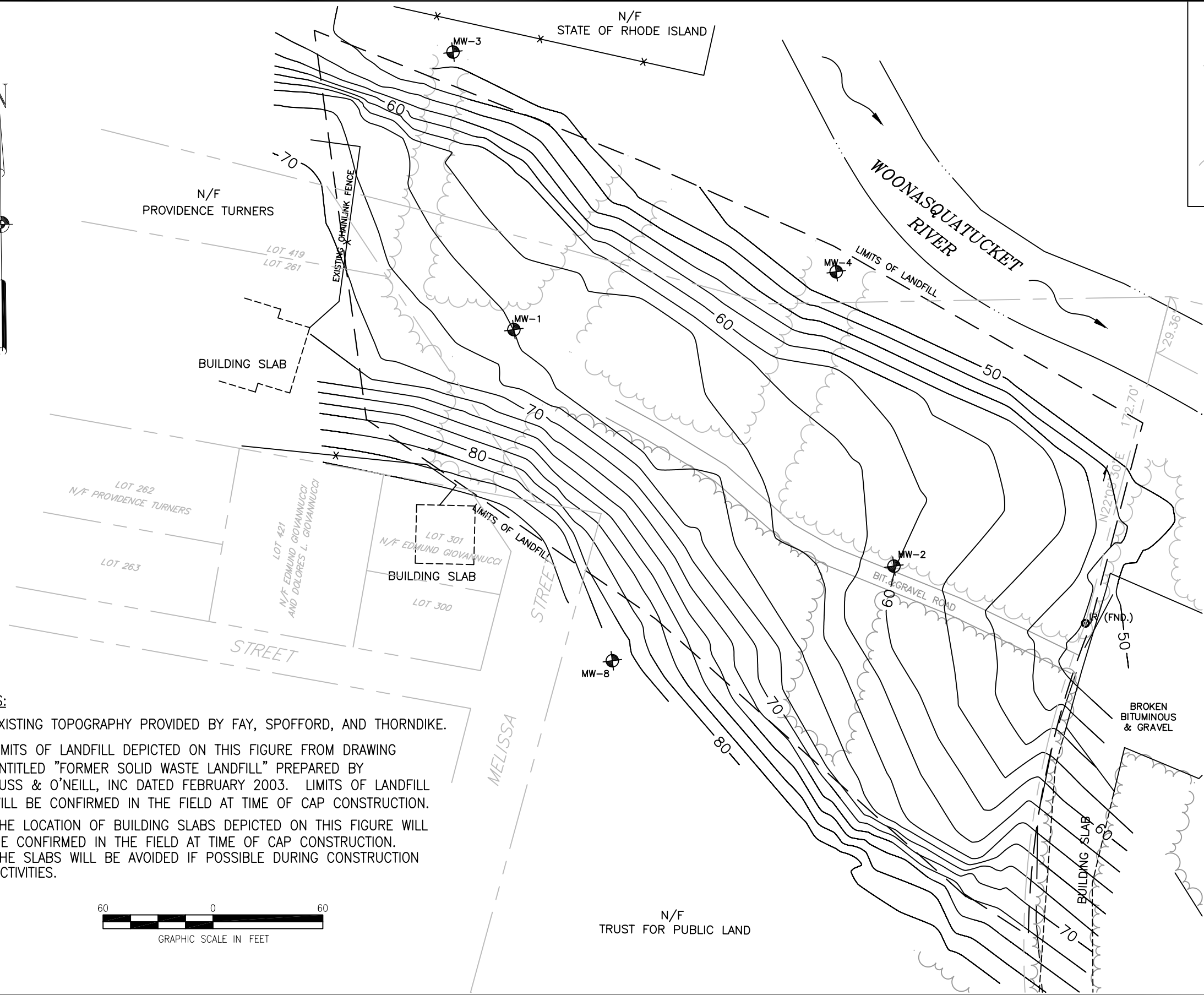
THE TRUST FOR PUBLIC LAND  
 PONAGANSETT AVENUE REMEDIATION PROJECT  
 67 MELISSA STREET  
 PROVIDENCE, RHODE ISLAND

FIGURE 1  
 SITE LOCATION MAP

PROJECT MGR: TR	DESIGNED BY: DC	CREATED BY: DC	CHECKED BY: JP	SCALE: AS SHOWN	DATE: 28 APRIL 2004	PROJECT NO: 6184601	FILE NO: I:\RIFIG1 TFPL_PROV.MXD
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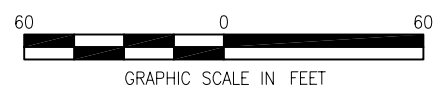


LEGEND	
—50—	EXISTING CONTOUR
✕	EXISTING FENCELINE
⊕	EXISTING MONITORING WELL
—•••—	EDGE OF WATER
⌒	EXISTING TREELINE
- - -	PROPERTY LINE



**NOTES:**

1. EXISTING TOPOGRAPHY PROVIDED BY FAY, SPOFFORD, AND THORNDIKE.
2. LIMITS OF LANDFILL DEPICTED ON THIS FIGURE FROM DRAWING ENTITLED "FORMER SOLID WASTE LANDFILL" PREPARED BY FUSS & O'NEILL, INC DATED FEBRUARY 2003. LIMITS OF LANDFILL WILL BE CONFIRMED IN THE FIELD AT TIME OF CAP CONSTRUCTION.
3. THE LOCATION OF BUILDING SLABS DEPICTED ON THIS FIGURE WILL BE CONFIRMED IN THE FIELD AT TIME OF CAP CONSTRUCTION. THE SLABS WILL BE AVOIDED IF POSSIBLE DURING CONSTRUCTION ACTIVITIES.



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 PONAGANSETT AVENUE REMEDIATION PROJECT  
 67 MELISSA STREET  
 PROVIDENCE, RHODE ISLAND

FIGURE 2  
 EXISTING CONDITIONS PLAN

PROJECT MGR:  
 TR

DRAWN BY:  
 BMS

CHECKED BY:  
 DWE

DATE:  
 JUNE 2004

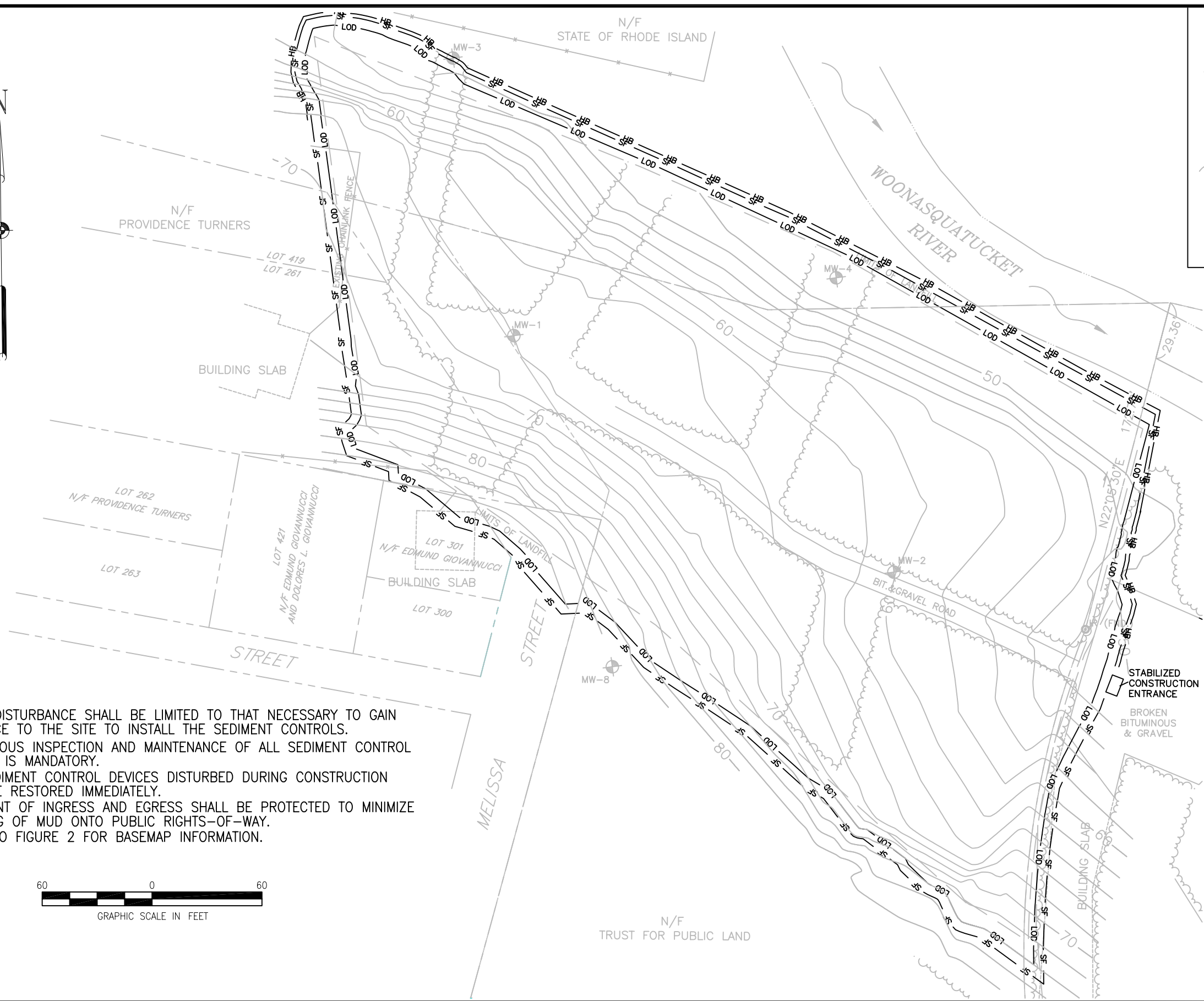
SCALE:  
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PROJECT NO:  
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 FIG2\_EXISTINGCOND.DWG

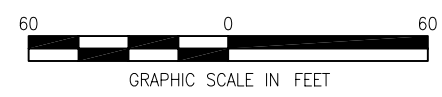


LEGEND	
—50—	EXISTING CONTOUR
—X—	EXISTING FENCELINE
⊕	EXISTING MONITORING WELL
—•••—	EDGE OF WATER
—( )—	EXISTING TREELINE
— - - -	PROPERTY LINE
—SF—	SILT FENCE
—HB—	HAY BALES
—LOD—	LIMIT OF DISTURBANCE



**NOTES**

1. INITIAL DISTURBANCE SHALL BE LIMITED TO THAT NECESSARY TO GAIN ENTRANCE TO THE SITE TO INSTALL THE SEDIMENT CONTROLS.
2. CONTINUOUS INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL DEVICES IS MANDATORY.
3. ANY SEDIMENT CONTROL DEVICES DISTURBED DURING CONSTRUCTION MUST BE RESTORED IMMEDIATELY.
4. ALL POINT OF INGRESS AND EGRESS SHALL BE PROTECTED TO MINIMIZE TRACKING OF MUD ONTO PUBLIC RIGHTS-OF-WAY.
5. REFER TO FIGURE 2 FOR BASEMAP INFORMATION.



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 67 MELISSA STREET  
 PROVIDENCE, RHODE ISLAND

FIGURE 3  
 EROSION AND SEDIMENT CONTROL PLAN

PROJECT MGR:  
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DRAWN BY:  
 BMS

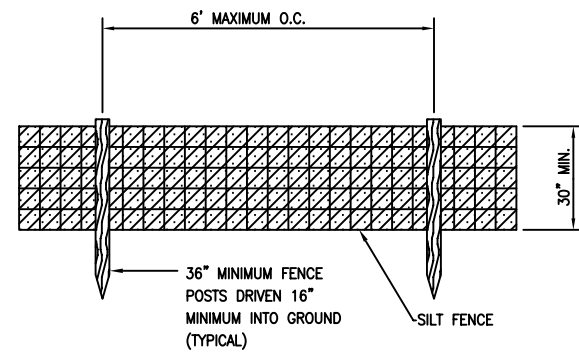
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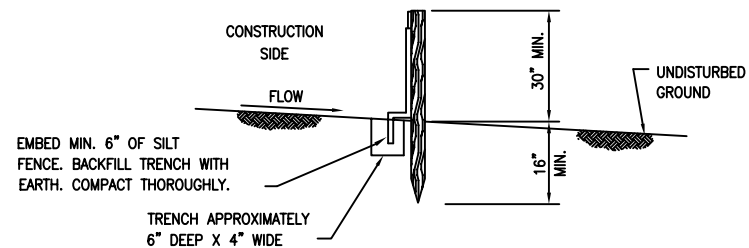
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 FIG3\_SEDIMENT.DWG



FRONT VIEW



SIDE VIEW

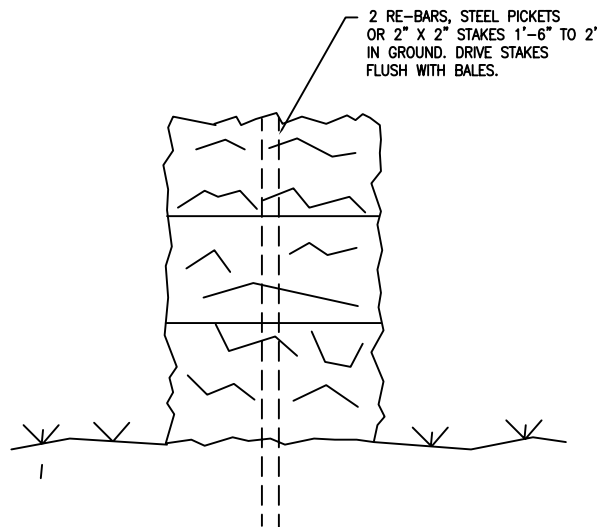
TEMPORARY SILT FENCE DETAIL 1  
NOT TO SCALE 3 | 4

**NOTES:**

- PERFORM MAINTENANCE AS NEEDED IN ACCORDANCE WITH THE SWPPP.
- REMOVE SILT FENCE AFTER FINAL GRADING IS COMPLETED AND VEGETATION IS ESTABLISHED.

**MATERIALS:**

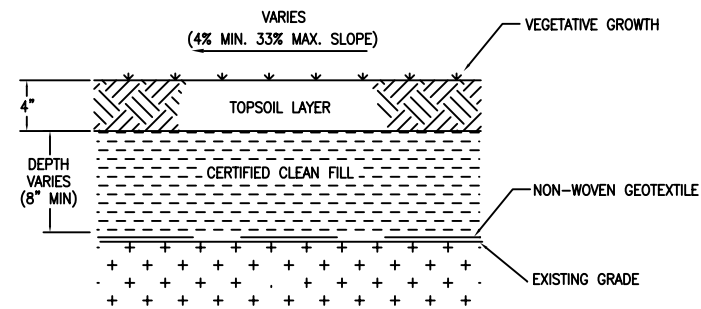
- POSTS:**  
STEEL EITHER T OR U TYPE OR 2" HARDWOOD
- SILT FENCE:**  
AMOCO 2132 OR APPROVED EQUAL



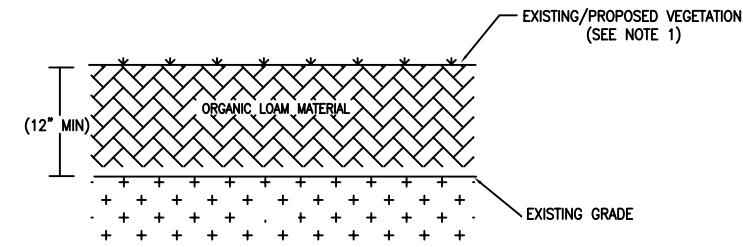
TEMPORARY STRAW BALE DIKE DETAIL 2  
NOT TO SCALE 3 | 4

**NOTES:**

- BALES SHALL BE PLACED WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
- BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
- BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.



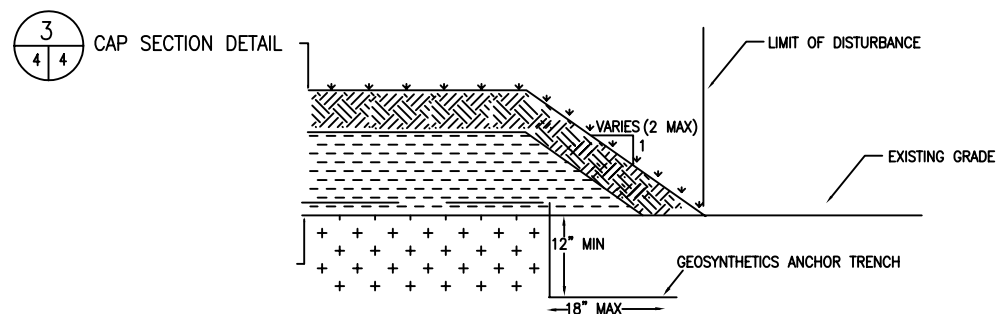
TYPICAL CAP SECTION DETAIL 3  
NOT TO SCALE 4 | 4



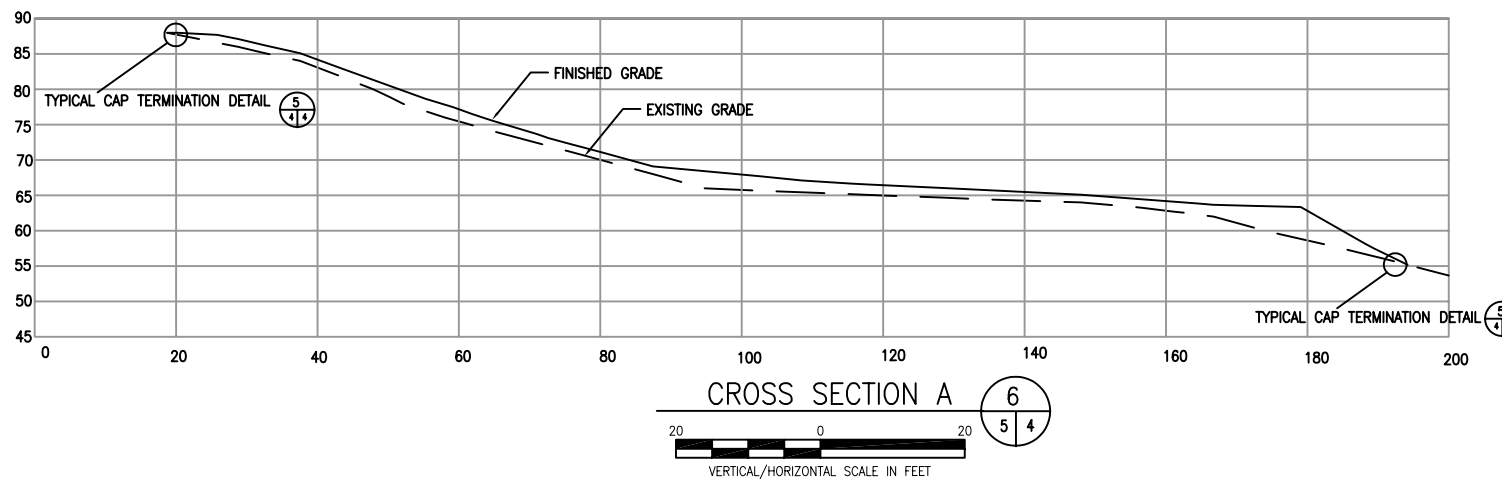
TYPICAL RIPARIAN RESTORATION CAP DETAIL 4  
NOT TO SCALE 4 | 4

**NOTES:**

- HEALTHY, MATURE TREES WILL BE MAINTAINED. ADDITIONAL VEGETATION TO BE PLANTED WILL BE DETERMINED BY OTHERS.



TYPICAL CAP TERMINATION DETAIL 5  
NOT TO SCALE 4 | 4



CROSS SECTION A 6  
VERTICAL/HORIZONTAL SCALE IN FEET 5 | 4



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PROVIDENCE, RHODE ISLAND

FIGURE 4  
SECTION AND DETAILS

PROJECT MGR:  
TR

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BMS

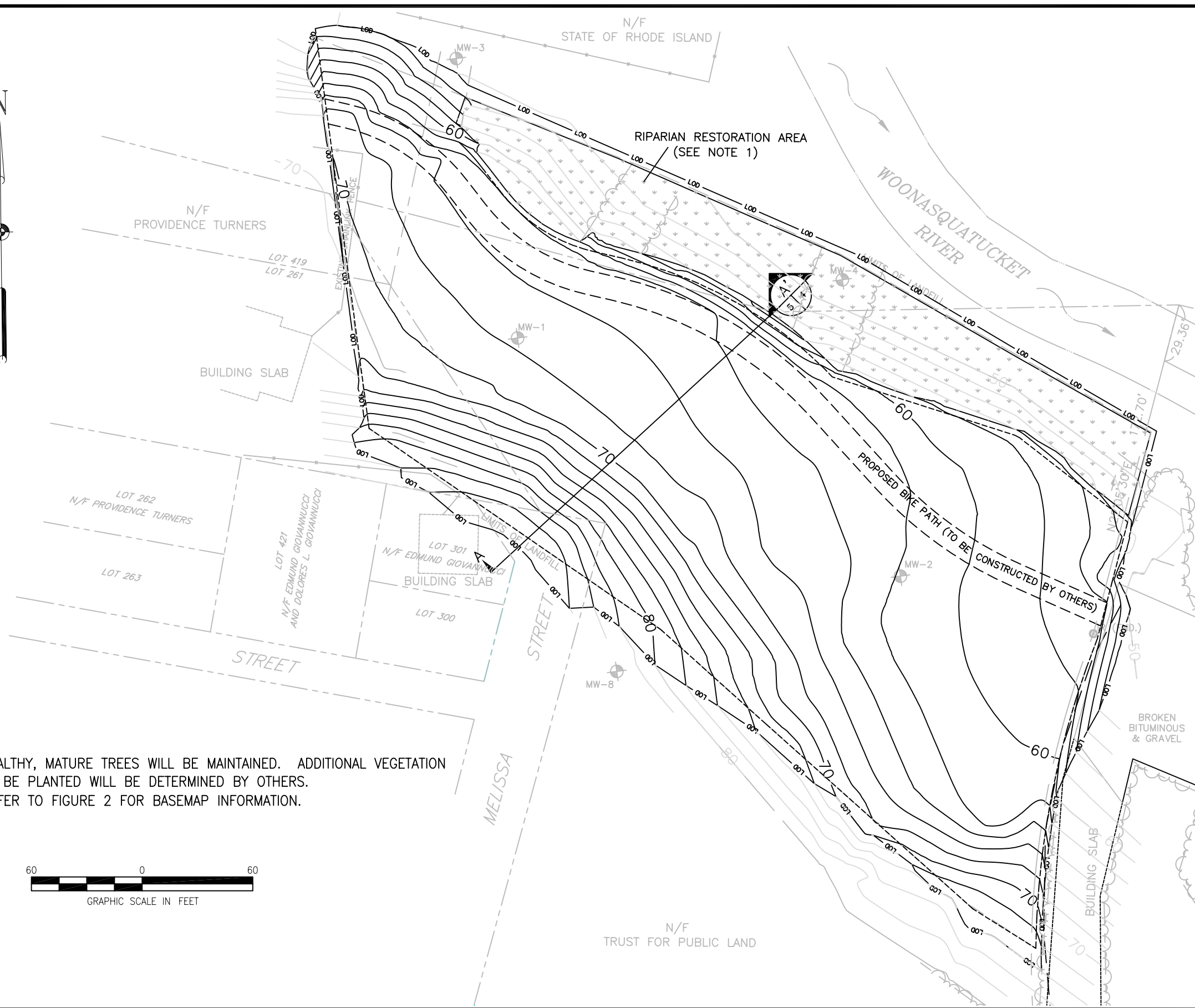
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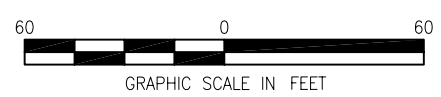
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FIG4\_SECTIONANDDET.DWG



LEGEND	
—50—	EXISTING CONTOUR
—X—	EXISTING FENCELINE
⊕	EXISTING MONITORING WELL
---	EDGE OF WATER
~	EXISTING TREELINE
---	PROPERTY LINE
-LOD-	LIMIT OF DISTURBANCE
—50—	PROPOSED CONTOUR
---	PROPOSED INTERMEDIATE CONTOUR
---	PROPOSED GRADE BREAK

- NOTES:**
- HEALTHY, MATURE TREES WILL BE MAINTAINED. ADDITIONAL VEGETATION TO BE PLANTED WILL BE DETERMINED BY OTHERS.
  - REFER TO FIGURE 2 FOR BASEMAP INFORMATION.



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FIGURE 5  
PROPOSED REDEVELOPMENT PLAN

PROJECT MGR:  
TR

DRAWN BY:  
BMS

CHECKED BY:  
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DATE:  
JUNE 2004

SCALE:  
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FIG5\_REDEVELOPMENT.DWG

**Appendix B**

**Soil Management Plan**



## **APPENDIX B SOIL MANAGEMENT PLAN**

### **B.1 PURPOSE**

The purpose of this Soil Management Plan (SMP) is to develop a strategy for managing impacted soil encountered during implementation of the Ponagansett Avenue Remediation Project. A copy of this SMP will be provided to the General Contractor overseeing the proposed development activities. It is important that all personnel responsible for working with soil on the site (including equipment operators) are familiar with this SMP.

### **B.2 GOAL**

The goal of this SMP is to ensure that all impacted soil excavated, temporarily stockpiled, graded, or moved during and after construction activities is managed properly and handled in a safe manner. To prevent exposure, all impacted soil at the site will be capped beneath a minimum of 1 ft of clean fill placed over a geosynthetic fabric filter or asphalt pavement (consisting of at least 1 ft of clean base material).

This SMP will be included as an attachment to the final Environmental Land Usage Restriction for the site. Any future intrusive activities conducted at the site will be subject to the procedures contained in the Environmental Land Usage Restriction and this SMP.

### **B.3 ENGINEERED CAP CONSTRUCTION**

The engineered cap will consist of a minimum of 1 ft of clean fill over a geosynthetic fabric filter. The cap construction will be conducted in accordance with the Safety, Health, and Emergency Response Plan. Grading will be the first step in cap construction, where the impacted soil is prepared for the cap. Large debris will be removed from the grade and either crushed for reuse or disposed of as solid waste. Soil stockpiles will be isolated using hay bales to prevent contaminated runoff from impacting the rest of the site. At the end of each workday, soil stockpiles will be covered with polyethylene sheeting weighed down by sandbags. During this phase, machines will be kept upwind of the work area in order to reduce the risk of dust inhalation. The actual placement of the cap will require no special soil handling protocol except for Level D personal protective equipment. The certified clean fill, to serve as the top layer of the cap, will require no special handling procedures.

### **B.4 DOCUMENTATION**

During the remedial action, the site will be inspected on a daily basis and daily logs of the remedial activities, including photographs and field notes, will be maintained. Once the remedial action is complete, the daily inspection logs will be used to support the preparation of a Remedial Action Summary Report, as required by the Rhode Island Department of Environmental Management.

## **B.5 HEALTH AND SAFETY**

Direct contact with any impacted material during implementation of the remedial activities will be minimized with the use of Level D PPE including gloves, steel toe boots, long sleeve shirts, and safety glasses. Best soil management practices will be employed at all times. Strict dust control measures will also be kept in place to prevent soils from becoming airborne. Based upon decreased visibility, if dust becomes a nuisance during excavation operations, soils will be wetted. This dust control method will also be used to control nuisance odors should they occur. Dust and odor are not expected to be an issue at the site, due to the high water table and nature of contamination.

## **B.6 FUTURE DEVELOPMENT**

During all future operations on the site, the integrity of the engineered cap should be maintained. Landscaping and regrading activities should not disturb the geosynthetic fabric filter and must also keep a minimum of 1 ft of clean soil above the cap. Operations that require the temporary removal of the cap may be permissible in accordance with Rhode Island Department of Environmental Management approval of a work plan. If these operations are performed, the cap must be replaced within 30 days of the start of site work.

Any operations that may require contact with capped, impacted soil, such as utility trenching, must follow the same procedures listed above, including those detailed in the Safety, Health, and Emergency Response Plan. If the cap is disturbed, it must be replaced with the appropriate layer of clean fill. Any impacted soil below the cap must be handled properly and the use of Level D personal protective equipment would be required.

## **Appendix C**

### **Safety, Health, and Emergency Response Plan**

**Safety, Health, and Emergency Response Plan  
for Ponagansett Avenue Remediation Project  
Providence, Rhode Island**

*Prepared for*

The Trust for Public Land  
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Boston, Massachusetts 02108

*Prepared by*

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FINAL  
EA Project No.: 61846.01

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<u>Number</u>	<u>Title</u>
1	Site location map.
2	Current site conditions.

**LIST OF TABLES**

<u>Number</u>	<u>Title</u>
1	Emergency telephone numbers.
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## 1. INTRODUCTION

### 1.1 PURPOSE

The purpose of this Safety, Health, and Emergency Response Plan (SHERP) is to provide personnel with protection standards and mandatory safety practices, procedures, and contingencies to be followed while performing field activities at the Ponagansett Avenue Remediation Project, Providence, Rhode Island. This SHERP, as developed, defines actions to be taken with respect to personal safety during work activities associated with construction and testing activities at the site, as described in the Remedial Action Work Plan. Work activities include earth moving operations, regrading, and engineered cap construction. One copy of this SHERP will be maintained onsite for use during the scheduled field effort and made available for site use/employee review. All persons who enter the site are required to read and understand this SHERP and sign the SHERP Review Record (Attachment A). This SHERP addresses the following regulations and guidance documents:

- Occupational Safety and Health Administration (OSHA) Standards for General Industry, 29 CFR 1910
- OSHA Standards for Construction Industry, 29 CFR 1926
- National Institute of Occupational Safety and Health, OSHA, U.S. Environmental Protection Agency, and U.S. Coast Guard *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, October 1985.

### 1.2 BACKGROUND

#### 1.2.1 Site History

The former Ponagansett Avenue Landfill is located at 67 Melissa Street in Providence, Rhode Island. The site is located on approximately 2.0 acres of land adjacent to the Woonasquatucket River in the Hartford section of Providence, designated on the City of Providence Tax Assessor's Map as Plat 113, Lot 440. The site also consists of a small segment of the Providence Turner's property, which abuts Lot 440. Figure 1 provides a site location map.

The site encompasses a former landfill with a lateral extent of approximately 80,000 ft<sup>2</sup>. Refuse has been deposited to approximately 10-15 ft below existing ground surface over most of the landfill area, with a greater thickness at the center. The volume of debris is estimated to be 30,000 yd<sup>3</sup> and includes household, industrial, institutional, and commercial waste. At this time, the landfill is not capped in accordance with Rhode Island Department of Environmental Management standards. Figure 2 depicts the current site conditions.

In the northwestern corner of the former landfill, the topography drops steeply downward to the

banks of the Woonasquatucket River. It is assumed that the northwestern corner of the landfill terminates at the toe of the downward slope. Groundwater beneath the site is classified as GB, which is presumed not suitable for human consumption without treatment. The groundwater elevation at the site is approximately 15-20 ft below ground surface.

### **1.2.2 Scope of Work**

The scope of work activities described in the Remedial Action Work Plan consists of construction activities associated with the installation of an engineered cap. The scope of this SHERP includes, but is not limited to, safety and health hazards anticipated for field activities during construction, including:

- Earth moving
- Site regrading
- Engineered cap installation.

The scope of this SHERP also includes all post-remedy soil disturbance activities and is intended to be used in conjunction with the Soil Management Plan and Environmental Land Usage Restriction for this site.

### **1.2.3 Potential Chemicals of Concern**

The primary concern at the site is the presence of elevated total petroleum hydrocarbon concentrations previously observed in soil samples throughout the site. Soil samples from 15 test pits exhibited total petroleum hydrocarbon levels that exceed Rhode Island Department of Environmental Management's Method 1 Direct Exposure Criteria for soil in a residential area (Residential Direct Exposure Criteria) of 500 mg/kg. Exceedances of the Residential Direct Exposure Criteria for arsenic, beryllium, lead, and mercury were also found in some soil samples. Low levels of volatile organic compounds (VOCs) are also present in the landfill soil, but below the threshold levels established by Rhode Island Department of Environmental Management.

## **1.3 SAFETY, HEALTH, AND EMERGENCY RESPONSE PLAN ORGANIZATION**

This SHERP presents the overall approach to safety during execution of the project activities conducted at the Ponagansett Avenue Remediation Project. This section presents an introduction and outlines the report organization. Section 2 summarizes the project management team. Section 3 outlines the hazard communications and environmental monitoring during field operations. Section 4 presents the required employee training. Section 5 details personal protective equipment (PPE). Section 6 summarizes emergency response reactions to site contingencies. Section 7 outlines site controls and work zones. Attachment A contains a copy of the SHERP Review Record. Attachment B provides the Site Entry and Exit Log. Attachment C provides an Accident/Loss and Incident Report form. Attachment D provides directions to Roger Williams Hospital.

## 2. PROJECT MANAGEMENT

### 2.1 KEY PERSONNEL

The following table, and further detailed in Table 1, contain information on key project personnel:

Position	Name	Work Phone	Home Phone
Project Manager	Timothy Regan	(401) 736-3440	(401) 241-5461
Program Safety and Health Officer	Kris Hoiem	(410) 771-4950	(410) 357-5485
Field Manager	Jill Ann Parrett	(401) 736-3440	(401) 465-7138
Site Safety and Health Officer/ Emergency Coordinator	Jill Ann Parrett	(401) 736-3440	(401) 465-7138

### 2.2 RESPONSIBILITIES

Clear lines of authority will be established for enforcing compliance with the safety, health, and contingency procedures consistent with industry policies and procedures.

Designated EA personnel are responsible for implementation of the SHERP during field activities. This includes field supervision; implementing and directing emergency operations; coordinating with onsite and offsite emergency responders; enforcing safe work practices and decontamination procedures (if needed); ensuring proper use of PPE; communicating site safety program modifications and requirements to site personnel; proper reporting of injuries, illnesses, and incidents to the appropriate internal and external organizations; and containing and controlling the loss of potentially hazardous materials to soil, air, and surface/groundwater during all phases of construction operations.

In the event of an onsite injury, occupational illness, near-miss, or environmental contamination incident, the following organizations/individuals will be notified as appropriate:

- Field Manager
- Site Safety and Health Officer/Emergency Coordinator
- Program Safety and Health Officer
- Project Manager.

#### 2.2.1 Project Manager

The **Project Manager** has overall responsibility for site activities and will be the primary contact during work activities. Specific responsibilities of the Project Manager include: approving the SHERP and its amendments, providing overall supervisory control for safety and health protocols in effect for the project, assuring adequate resources are available for health and safety, and coordinating all site occupational health and safety issues with the Program Safety and Health Officer. The Project Manager will also notify the site owner of any incidents that occur

in the field.

### **2.2.2 Program Safety and Health Officer (or Designee)**

The *Program Safety and Health Officer* has overall project responsibility for the development of this SHERP and will provide technical safety and health guidance, as needed.

### **2.2.3 Site Safety and Health Officer/Emergency Coordinator**

The *Site Safety and Health Officer/Emergency Coordinator* is responsible for coordination of onsite contingency operations, as well as the Site Safety and Health Program. The Site Safety and Health Officer/Emergency Coordinator will be onsite throughout the project and will be responsible for daily compliance with site safety and health requirements. Specific responsibilities of the Site Safety and Health Officer include daily site inspections, stopping work when an imminent health and safety risk exists, implementing the usage of forms presented as attachments to this SHERP, providing an initial health and safety briefing to all site workers, supervising the use of proper PPE and investigating and preparing incident reports as necessary.

During an emergency, the Field Manager and Site Safety and Health Officer/Emergency Coordinator will be responsible for initiating and coordinating emergency responses/contingency operations.

The Program Safety and Health Officer, Field Manager, and Site Safety and Health Officer/Emergency Coordinator will have the authority to make on-the-spot corrections concerning safety, health, and environmental pollution infractions.

### **2.2.4 Field Manager**

The *Field Manager's* responsibilities include, but are not limited to, providing technical support to the Site Safety and Health Officer/Emergency Coordinator, evaluating onsite environmental monitoring results and report to the Project Manager and Program Safety and Health Officer, initiating evacuation of the work site when needed, communicating with offsite emergency responders, and coordinating activities of onsite and offsite emergency responders.

### **2.2.5 Employee Responsibilities**

EA and subcontractor employees are responsible for reading, understanding, and meeting the safety and health requirements contained in this SHERP. A Review Record sign-off sheet is provided in Attachment A. Employees are required to implement these procedures when conducting daily operations. This will also include receiving appropriate training and medical monitoring and utilization of safety and health equipment (to include PPE) to safely conduct site operations. This will also include maintaining appropriate grooming standards (removal or proper trimming of beards, mustaches, and sideburns) to ensure the proper fit of respiratory protection. Employees will review each task prior to commencement to consider the potential

safety and health hazards, and the measures to be taken in the event of an emergency. Employees should know where material safety data sheets, first aid supplies, and emergency equipment are maintained. The Field Manager and Site Safety and Health Officer/Emergency Coordinator should be notified of potential safety and health hazards, near-miss conditions, or incidents present on the job site or unusual effects believed to be related to hazardous chemical exposures. Failure to follow established safety and health procedures could result in immediate dismissal from the site.

### **2.2.6 Subcontractors**

Responsibilities of EA and subcontractor personnel include: following the SHERP and applicable safety and health rules, regulations, and procedures; using required controls, procedures, and safety devices, including PPE; notifying his/her supervisor of identified or suspected emergencies, safety, or health hazards; and complying with training and medical requirements.

### **3. ENVIRONMENTAL MONITORING DURING FIELD OPERATIONS**

#### **3.1 CHEMICAL HAZARDS**

##### **3.1.1 Area of Concern Chemical Hazards**

Assumptions regarding potential chemical constituents were made by reviewing information on past activities conducted at Ponagansett Avenue Remediation Project. Concerns identified suggest that the chemical of primary concern is total petroleum hydrocarbon. Auxiliary contaminants of concern include arsenic, beryllium, lead, mercury, and polycyclic aromatic hydrocarbons.

Table 2 provides a list of potential site chemical hazards and symptoms of overexposure.

##### **3.1.2 Chemicals for Equipment Calibrations and Operations**

The following chemicals are typically supplied by the primary investigation team:

- Isopropyl alcohol
- Isobutylene calibration gas

These chemicals will be used for environmental monitoring equipment calibration and operation. The quantities to be used will not exceed 0.5-L quantities, and will be used under controlled environments. Chemicals used during the field activities will be properly contained and labeled. Occupational exposures will be negligible.

#### **3.2 PHYSICAL HAZARDS**

Physical hazards can potentially be present during field activities. These physical hazards may include, but not be limited to:

- Fire/explosion hazards
- Heat/cold stress
- Equipment hazards
- Slips, trips, and falls
- Noise hazards
- Electrical hazards
- Utilities
- Weather hazards.

The Ponagansett Avenue Remediation Project site will be visually inspected for the presence of general safety hazards (e.g., trip/slip hazards, unstable surfaces or steep grades, and sharp objects) prior to beginning work. If hazards are present, these hazards will be recorded and precautionary measures taken to prevent injury.

### **3.2.1 Fire/Explosion Hazards**

The potential for fire and/or explosion emergencies is always present. Workers must continuously monitor the work area for combustible or explosive gases. Employees should always be alert for unexpected events, such as ignition of chemicals or sudden release of materials under pressure, and be prepared to act in these emergencies.

Field vehicles will be equipped with a fire extinguisher. Employees must be trained in the proper use of fire suppression equipment. However, large fires that cannot be controlled with a fire extinguisher should be handled by professionals. The proper authorities should be notified in these instances.

### **3.2.2 Heat Stress and Heat-Related Illness**

Effects of heat stress and illness are possible during the performance of field activities at the Ponagansett Avenue Remediation Project site. Injury from excess exposure to high temperatures may occur to persons working outdoors. This is a major concern when personnel are working in PPE clothing. The body's principal means of cooling is through the evaporation of sweat. When personnel are working in PPE, sweat is trapped inside the clothing and cannot evaporate, thus raising the body's core temperature and resulting in a heat-related illness.

The symptoms of heat-related illness include painful muscle spasms, dizziness, slurred speech, confusion, fainting, and cool, clammy skin. Site personnel should be familiar with these symptoms of heat-related illness and be prepared to administer first aid or to contact the appropriate emergency personnel.

### **3.2.3 Effects of Cold Exposure**

Effects of cold exposure are possible during the performance of field activities at the Ponagansett Avenue Remediation Project site. Injury from cold exposure may occur in persons working outdoors during a period when temperatures average below freezing. The extremities, such as fingers, toes, and ears, are the most susceptible to frostbite.

Symptoms of cold stress include shivering, pain in the extremities, numbness, drowsiness, white or grayish skin, confusion, or fainting. To prevent cold stress, personnel should wear layers of loose-fitting clothing and head covering. Protection of the hands, feet, and head is particularly important because these are the areas most likely to be injured first by the cold. Bare skin contact with cold surfaces must be avoided.

### **3.2.4 Heavy Equipment Hazards**

The use of heavy equipment (e.g., drill rigs, excavators, graders, generators, etc.) may pose safety hazards to site workers. Heavy equipment work must be conducted only by trained, experienced personnel. Proper protective gear (hard-hats and steel-toed boots) will be worn onsite. If possible, personnel must remain outside the turning radius of large, moving equipment, with particular attention given to remaining within the line of sight of the operator and maintaining eye contact with the operator. Personnel will not approach the machines until they have stopped moving and have received the attention of the operator. Excavated materials will be kept at least 2 ft away from the excavation. There will be no entering a trench more than 4 ft deep. At a minimum, personnel must maintain visual contact with the equipment operator. No guards, safety appliances, or other devices may be removed or made ineffective unless repairs or maintenance are required; and then, only after power has been shut off, tagged, and locked out. Safety devices must be replaced once repair or maintenance is complete. Exhaust from equipment must be directed so that it does not endanger workers or obstruct the view of the operator. When not operational, equipment must be set and locked so that it cannot be activated, released, dropped, etc. No personnel will work beneath loads handled by lifting or digging equipment.

### **3.2.5 Noise Hazards**

Work around large equipment often creates excessive noise. Noise can cause workers to be startled, annoyed, or distracted; can cause physical damage to the ear, pain, and temporary and/or permanent hearing loss; and can interfere with communication. If workers are subjected to noise exceeding an 8-hour time-weighted average sound level of 85 dBA (decibels on the A-weighted scale), hearing protection will be selected with an appropriate noise reduction rating to comply with 29 CFR 1910.95 and to reduce noise levels to or below the permissible values. During the field activities where workers are using heavy equipment, such as drill rigs and excavators, hearing protection should be utilized at these times.

### **3.2.6 Electrical Hazards**

Overhead power lines, electrical wiring, electrical equipment (electrical generators), and buried cables pose risks to workers of electric shock, burns, muscle twitches, heart fibrillation, and other physical injuries, as well as fire and explosion hazards. Workers will take appropriate protective measures when working near live electrical parts, including inspection of the work area, to identify potential spark sources, maintenance of a safe distance, proper illumination of the work areas, provision of barriers to prevent inadvertent contact, and use of nonconductive equipment. If overhead lines cannot be de-energized prior to the start of work, a 10-ft distance must be maintained between overhead energized power lines with a voltage of 50 kV and elevated equipment parts. This distance will be increased 4 in. for every 10 kV greater than 50 kV. For example, workers should maintain a distance of 11.7 ft from energized power lines with a voltage of 100 kV.



### **3.3.7 Utilities**

Underground utilities pose hazards to workers involved in drilling and other invasive operations. These hazards include electrical hazards, explosion, and asphyxiation, as well as costly and annoying hazards associated with damaging communication, sewer, and water lines. Prior to commencement of invasive operations, Rhode Island Dig Safe will be contacted to inspect and flag the area of investigation. Dig Safe's telephone number in Rhode Island is (888) 344-7233 and requires 3 days' notice prior to intrusive activities on the site.

Personnel should be aware that although an area may be cleared, it does not mean that unanticipated hazards will not appear. Workers should always be alert for unanticipated events such as snapping cables, drilling into unmarked underground utilities, and drilling into a heavily contaminated zone. Such occurrences should promptly involved individuals to halt work immediately and take appropriate corrective measures to gain control of the situation. A careful walkover inspection of the project area should be performed where trenching and excavations will take place, being particularly careful to look for surface indicators of additional and unmarked utilities.

### **3.2.8 Weather Hazards**

Weather conditions should always be taken into consideration. Heavy rains or snowfall, electrical storms, high winds, and extreme temperatures, for example, may create extremely dangerous situations for employees. Equipment performance may also be impaired because of inclement weather. Whenever unfavorable conditions arise, the Site Safety and Health Officer/Emergency Coordinator will evaluate both the safety hazards and ability of the employees to effectively perform given tasks under such conditions. Activities may be halted at their discretion.

Wind direction should be accounted for when positioning equipment at sampling locations. If exposure to organic vapors or dust emissions is anticipated, workers should locate upwind of sampling point. Wind direction often changes abruptly and without warning, so personnel should always be prepared to reposition, if necessary.

### **3.2.9 Biological Hazards**

During site activities, attention will be paid to biological hazards such as ticks, mosquitoes, and other biting insects. Personnel will have commercial bug spray onsite to use if necessary.

Attention will also be paid to the presence of irritant plants such as poison ivy, oak, and sumac. If exposed, personnel should flush the area with soap and water.

### **3.3 SAFE WORK PRACTICES**

#### **3.3.1 Site-Specific Work Practices**

Safe work practices that must be followed by site workers, include:

- Eat, drink, and smoke only in those areas designated by the Site Safety and Health Officer/Emergency Coordinator. These activities will not take place within any work zone.
- In the event the potential for chemical contamination exists onsite, employees will wash and conduct appropriate decontamination activities.
- Defective PPE must be repaired or replaced immediately.
- Each employee required to take prescription drugs will notify the Field Manager and/or Site Safety and Health Officer/Emergency Coordinator prior to the start of work. Controlled or unauthorized drugs will **not** be permitted onsite at any time.

### **3.4 ENVIRONMENTAL MONITORING**

For the intrusive work conducted onsite, the environmental monitoring for toxic and flammable/combustible gases will be performed continuously during onsite construction activities using a photoionization detector. Instruments will only be used by employees who have been trained in the proper operation, use limitations, and calibration of the monitoring equipment. Monitoring will be conducted at intervals not greater than once every 30 minutes. Instrument calibration and measurements taken will be logged in the field notebook.

Environmental monitoring will include sufficient monitoring of air quality in work zones during intrusive field operations to assess levels of employee exposure and to verify that the level of PPE being worn by personnel is adequate. Monitoring will be conducted to ensure that contaminants are not migrating offsite to minimize the exposure to nearby populations and/or workers. Table 3 summarizes the monitoring requirements for the project.

If visible dust is emitted in the breathing zone, dust suppression will be implemented. If dust cannot be suppressed, environmental sampling for dust will be implemented and action levels established.

#### **3.4.1 Calibration and Maintenance**

Direct-reading instruments will be calibrated on a daily basis and prior to use with a known concentration of calibration gas (isobutylene for use with the photoionization detector) following the instrument manufacturer's guidance. Instructions in the manufacturer's operations manual regarding storage, cleaning, and maintenance of the instruments will be followed. Calibration

will be properly recorded in the field logbook to show the date, calibration material type and concentration, and the actual reading obtained. Equipment failing to meet the manufacturer's standards for accuracy and repeatability will be considered suspect and replaced with an alternate, properly functioning piece of equipment.

## 4. EMPLOYEE TRAINING

### 4.1 SITE WORKERS

Personnel who will be performing construction-related non-hazardous waste operations are not required to have been trained according to U.S. Department of Labor OSHA Standard, 29 CFR 1926.65 *Hazardous Waste Operations and Emergency Response*. These workers will have appropriate safety and health training based upon their specific job tasks and activities.

The Site Safety and Health Officer/Emergency Coordinator and personnel conducting the field sampling and monitoring for site gases and vapors during intrusive operations (e.g., Geoprobe) will be trained as required to meet the U.S. Department of Labor OSHA Standard, 29 CFR 1926.65, *Hazardous Waste Operations and Emergency Response* to qualify as hazardous waste site workers and supervisor. Training will include:

- A minimum of 40 hours of initial offsite instruction
- A minimum of 3 days of actual field experience under the direct supervision of a trained, experienced supervisor
- An 8-hour “refresher” training period annually
- Additional training that addresses unique or special hazards/operational requirements.

Onsite supervisors who are directly responsible for or who supervise employees will receive at least 8 additional hours of hazardous waste operations training for supervisors. Copies of training certificates and dates of attendance will be provided to the Site Safety and Health Officer/Emergency Coordinator prior to the commencement of field activities, and will be available through the Site Safety and Health Officer/Emergency Coordinator upon request.

#### 4.1.1 Subcontractor Training

The Project Manager will obtain a written list of subcontractor personnel to be onsite for intrusive site activities only. The subcontractor will provide written certification from subcontractor management that these workers meet the training requirements for their assigned tasks to conduct intrusive activities, such as excavation or drilling.

#### 4.1.2 Pre-Entry Orientation Session

Prior to entering the site, personnel will attend a pre-entry orientation session presented by the Site Safety and Health Officer/Emergency Coordinator. Personnel will verify attendance of this meeting by signing the SHERP Review Record provided in Attachment A. Visitors entering designated work areas will be subject to applicable safety and health regulations during field

operations at the site. The Field Manager and/or Site Safety and Health Officer/Emergency Coordinator is responsible for briefing the personnel onsite of potential hazards that may be encountered on the site, the presence and location of the site SHERP, and emergency response procedures. Visitors will be under the direct supervision of the Field Manager and/or Site Safety and Health Officer/Emergency Coordinator or his/her representative.

At a minimum, the pre-entry orientation session will discuss the contents of this SHERP, PPE, potential hazards, health effects of hazards associated with onsite activities, and the potential hazards presented by unearthing unidentified hazardous materials. Personnel will be instructed in the emergency procedures to include onsite communications and implementation of the site-specific contingency plans.

#### **4.2 MEDICAL SURVEILLANCE**

Non-hazardous waste site workers will be medically examined to meet OSHA requirements specific to their job. Hazardous waste site workers must have satisfactorily completed a comprehensive medical examination by a licensed physician within 12 months (or 24 months pending physician's approval) prior to the start of site operations. Subcontractors will provide this information in writing to the Project Manager for their workers prior to mobilization onsite. Copies of this information will be kept onsite by the Site Safety and Health Officer/Emergency Coordinator. Medical surveillance protocol and examination results will be reviewed by a licensed physician who is certified in Occupational Medicine by the American Board of Preventative Medicine. Medical surveillance protocols will comply with 29 CFR 1910.120. The content of medical examinations will be determined by the attending physician and will be based upon the guidelines in the *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*. Medical examinations and consultations will be provided for employees covered by this program on the following schedule:

- Prior to field work assignment
- At least annually (or every other year with the approval of the occupational physician) for employees covered by the program
- At termination of employment or reassignment to an area where the employee would not be covered if the employee has not been examined within the past 6 months
- As soon as possible upon the development of signs or symptoms that may indicate an overexposure to hazardous substances or other health hazards, or that an unprotected person has been exposed in an emergency situation
- More frequently if the physician deems such examination necessary to maintain employee health.

An accurate record of the medical surveillance will be maintained for each EA employee for a period of no less than 30 years after the termination of employment. Records will be managed and maintained per recordkeeping provisions of EA's *Safety and Health Program Manual* (SHP-001). Records must include at least the following information about the employee:

- Name and social security number
- Physician's written opinions, recommendations, limitations, and test results
- Employee medical complaints related to hazardous waste operations
- Information provided to the physician by the employee concerning possible exposures, accidents, etc.

### **4.3 HAZARD COMMUNICATION PROGRAM**

#### **4.3.1 Hazard Communication**

The Site Safety and Health Officer/Emergency Coordinator will conduct regularly scheduled safety meetings with site workers to discuss the planned activities, since these activities and workers may change over the duration of the project. The objective of instituting a Hazard Communication Program is to ensure that hazards associated with the site and with chemicals brought onsite by EA or subcontractors are evaluated, and that information concerning these hazards is transmitted to site employees. Site personnel include EA and subcontractor employees, manufacturer's representatives, or local agency employees, and other workers who observe or perform services onsite. Employee awareness of chemical identities, health and physical hazards, properties, and characteristics is essential to safely handle chemicals and to minimize potential hazards. The Hazard Communication Program must follow OSHA requirements listed in 29 CFR 1926.59.

#### **4.3.2 Hazard Communication Labeling**

The Site Safety and Health Officer/Emergency Coordinator will ensure that containers are properly labeled and that workers know the contents of containers. Container labels will contain, at a minimum, information on name of product on container, chemical(s) in product, manufacturer's name and address, protective equipment required for the safe handling of the product, and first aid procedures in case of overexposure to product contents.

#### **4.3.3 Material Safety Data Sheets**

The Site Safety and Health Officer/Emergency Coordinator will maintain a current alphabetical file of complete material safety data sheets for each hazardous substance stored or used at the work site. The file must be easily accessible to employees. Subcontractors and visitors to the workplace will be informed of the existence and location of this file. Workers and visitors will

be instructed on how to read and understand the information shown on the material safety data sheets. Subcontractors must inform the Site Safety and Health Officer/Emergency Coordinator about hazardous substances which they bring onsite and provide material safety data sheets.

#### **4.3.4 Hazard Communication Training**

Site workers and visitors will be informed of the Hazard Communication Program, their legal rights under the program, the location of the chemical inventory, and the location of the material safety data sheets file. Prior to site work or potential exposure to hazardous substances, the Site Safety and Health Officer/Emergency Coordinator will describe hazardous substances routinely used and provide information regarding:

- Nature of potential chemical hazards
- Appropriate work practices
- Appropriate control programs
- Appropriate protective measures
- Methods to detect presence or release of hazardous substances
- Emergency procedures.

## 5. PERSONAL PROTECTIVE EQUIPMENT

### 5.1 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Based upon currently available information, the site will require Level D protection for anticipated conditions and intrusive activities. In the event that potential chemical hazards are identified, the level of protection may be upgraded appropriately to the potential hazard conditions. Only those personnel identified and qualified for hazardous waste work as defined in 29 CFR 1926.65 will be allowed to upgrade beyond Level D or provide support of hazardous material/substance contingency operations. Only the Site Safety and Health Officer/Emergency Coordinator, in conjunction with the Program Safety and Health Officer, will be allowed to approve PPE upgrade beyond Level D and site re-entry for the purpose of hazardous conditions assessment.

The following is a list of the Level D PPE components for the minimum level of protection authorized for use during this project:

- Coveralls or appropriate work clothes
- Steel-toe, steel-shank safety boots/shoes
- Hard hats (with overhead activities such as drilling, excavation, and other heavy equipment operation)
- Chemical resistant gloves (nitrile) as appropriate to prevent contact with contaminated media during excavation activities
- Leather work gloves (as needed)
- Safety glasses with side shields and face shield (as needed) or impact-resistant chemical goggles; safety glasses, goggles, and face shields will meet American National Standards Institute requirements for impact resistance and safety
- Hearing protection (as needed).

The following is a list of the Level C PPE components for the maximum levels of protection authorized for use during this project:

- Full facepiece, air purifying respirator equipped with combination organic vapor high efficiency particulate cartridges



- Poly-coated Tyvek coveralls
- Steel-toe, steel-shank safety boots/shoes
- Chemical-resistant boot covers
- Hard hat
- Hearing protectors
- Chemical resistant gloves (neoprene or nitrile) as appropriate to prevent contact with contaminated media during excavation activities.

## 6. EMERGENCY RESPONSE AND REACTION TO SITE CONTINGENCIES

### 6.1 EMERGENCY RECOGNITION

Prior to work startup, personnel must be familiar with emergency condition identification, notification, and response procedures. The emergency telephone numbers for local emergency response and reporting organizations and directions to the nearest hospital are provided in Table 1. The Field Manager, as well as the Site Safety and Health Officer/Emergency Coordinator, will rehearse/review emergency procedures and/or applicable site contingencies initially during site orientation and as part of the ongoing site safety program with EA and subcontractor personnel. Onsite emergencies will ultimately be handled by offsite emergency personnel. Initial response and first-aid treatment, however, will be provided onsite.

Person(s) identifying an accident, injury, emergency condition, or scenario requiring implementation of a response in support of this SHERP will immediately take actions to report the situation to the Field Manager and Site Safety and Health Officer/Emergency Coordinator. Notification may take place by runner, hand-held radio, or telephone. The Field Manager and Site Safety and Health Officer/Emergency Coordinator will initiate the required response based upon the type of incident, following the procedures contained in this SHERP. Chain-of-command and sign-in sheets for personnel on the site will be established at the beginning of each work day to ensure personnel are accounted for and who will take control should the Field Manager and/or Site Safety and Health Officer/Emergency Coordinator become injured. The following items constitute those site conditions requiring an emergency response or contingency action in accordance with this SHERP:

- Fire/explosion
- Heavy equipment accident
- Natural disaster
- Medical emergency
- Discovery of unanticipated hazards (e.g., unmarked utility lines, heavily contaminated material).

Follow-on operations to evaluate and control the source of fire, explosions, and hazardous materials incidents will occur only after discussion with the Project Manager, Field Manager, and/or Site Safety and Health Officer/Emergency Coordinator. The Field Manager and/or Site Safety and Health Officer/Emergency Coordinator will act as the Emergency Coordinator at the site to coordinate onsite activities and contingencies with outside response organizations. If the Field Manager is unable to act as the emergency coordinator, then the authority to take action will be transferred to the Site Safety and Health Officer/Emergency Coordinator, or other designee, as indicated in the daily updated chain-of-command.

## 6.2 OPERATIONS SHUTDOWN

Operations shutdown may be mandated by the Ponagansett Avenue Remediation Project Site Safety and Health Officer/Emergency Coordinator or the Project Manager. Conditions warranting work stoppage will include (but are not limited to):

- Uncontrolled fire
- Explosion
- Uncovering potentially dangerous buried hazardous materials
- Conditions immediately dangerous to life and health or the environment
- Potential for electrical storms
- Treacherous weather-related conditions
- Limited visibility
- Air contaminant concentrations in excess of the action levels contained in Table 3.

## 6.3 PROCEDURES FOR HANDLING EMERGENCY INCIDENTS

In the event of an emergency, the information available at that time must be properly evaluated and the appropriate steps taken to implement the emergency response plan. The Site Safety and Health Officer/Emergency Coordinator will assume command of the situation. He/she will alert the emergency management system per Table 2, and evacuate personnel to the pre-designated evacuation location. The Site Safety and Health Officer/Emergency Coordinator will make required notifications to include, but not be limited to the EA Project Manager and EA Regional Safety and Health Officer, as defined in this SHERP and Table 1, and the appropriate federal and state agencies.

Site personnel will have the capability of notifying emergency responders directly from the site using the phone in the company vehicle or in the site support office.

The Project Manager will complete and submit to a Trust for Public Land-appointed representative an Accident/Loss and Incident Report using the format contained in Attachment C. The following information will be provided when reporting an emergency:

1. Name and location of person reporting
2. Location of accident/incident
3. Name and affiliation of injured party
4. Description of injuries, fire, spill, or explosion
5. Status of medical aid and/or other emergency control efforts
6. Details of chemicals involved
7. Summary of accident, including suspected cause and time it occurred
8. Temporary control measures taken to minimize further risk.

This information is not to be released under any circumstances to parties other than those listed in this section and emergency response team members. Once emergency response agencies have been notified, the Project Manager will be immediately notified.

## 6.4 MEDICAL EMERGENCIES

Personnel should always be alert for signs and symptoms of illnesses related to chemical, physical, and onsite health hazards. Severe injuries resulting from accidents must be recognized as emergencies and treated as such. At least one person currently trained in first aid/ cardiopulmonary resuscitation must be present onsite at all times. This will normally be the Site Safety and Health Officer/Emergency Coordinator.

In a medical emergency, the Site Safety and Health Officer/Emergency Coordinator must sound the emergency alarm, upon which work must stop and personnel must move to the predesignated evacuation location. **If the emergency situation cannot be conveyed by word of mouth, a whistle or other horn will be sounded. Three short blasts, separated by a 2-second silence, will be used as the emergency signal.** Personnel currently trained in first aid will evaluate the nature of the injury, decontaminate the victim (if necessary), and initiate first aid assistance immediately and transport if appropriate. First aid will be administered only to limit further injury and stabilize the victim. The local Emergency Medical Services must be notified immediately if needed.

Although not anticipated, victims who are heavily contaminated with toxic or dangerous materials must be decontaminated before being transported from the site. Since no hazardous materials are anticipated, a formal decontamination station will not be available, however; there is an emergency eyewash station in each of the EA vehicles. Decontamination will consist of removal of contaminated coveralls/clothing, and wrapping the victim in a sheet or other clothlike material. No persons will re-enter the site of injury/illness until the cause of the injury or symptoms has been determined and controlled. At no time will personnel transport victims to emergency medical facilities unless the injury does not pose an immediate threat to life and transport to the emergency medical facility can be accomplished without the risk of further injury. Emergency Medical Services will be used to transport serious injuries offsite unless deemed otherwise by the Site Safety and Health Officer/Emergency Coordinator.

The Site Safety and Health Officer/Emergency Coordinator must complete an Accident/Loss and Incident Report (Attachment C) and submit it to the Project Manager within 24 hours of the following types of incidents:

- Job-related injuries and illnesses
- Accidents resulting in loss or damage to property

- Accidents involving vehicles and/or vessels, whether or not they result in damage to property or personnel
- Accidents in which there may have been no injury or property damage, but which have a high probability of recurring with at least a moderate risk to personnel or property
- Near-miss incidents that could have resulted in any of the conditions defined above.

An accident that results in a fatality or the hospitalization of three or more employees must be reported within 8 hours to the U.S. Department of Labor through the Project Manager. Subcontractors are responsible for their reporting.

In order to support onsite medical emergencies, first aid/emergency medical equipment will be available at the following locations:

- First-aid kit: Company vehicle
- Eyewash: Company vehicle
- Emergency alarm: Horn on the company vehicle
- Copy of the SHERP: Company vehicle
- Telephone: Company vehicle.

The eyewash kit must be portable and capable of supplying at least a 15-minute supply of potable water to the eyes.

## **6.5 FIRE/EXPLOSION EMERGENCIES**

Fire and explosion must be immediately recognized as an emergency. The Site Safety and Health Officer/Emergency Coordinator must sound an emergency signal, and personnel must be decontaminated (if necessary) and evacuated to the pre-designated evacuation location. Only persons properly trained in fire suppression and other emergency response procedures will support control activities. Control activities will consist of the use of onsite portable fire extinguishers for limited fire suppression and employee evacuation. Upon sounding the emergency alarm, personnel will evacuate the hazard location and assemble at the designated site meeting area. Only the Site Safety and Health Officer/Emergency Coordinator, or those site personnel trained in the use of portable fire extinguisher use will attempt to suppress a site fire. Small, multi-purpose dry chemical extinguishers will be maintained in each EA vehicle onsite. Fires not able to be extinguished using onsite extinguishers will require the support of the local Fire Department. The Site Safety and Health Officer/Emergency Coordinator should take measures to reduce injury and illness by evacuating personnel from the hazard location as quickly as possible. The Site Safety and Health Officer/Emergency Coordinator must then notify the local Fire Department. The Site Safety and Health Officer/Emergency Coordinator will determine proper followup actions. Site personnel will not resume work during or after a

fire/explosion incident until the Emergency Coordinator has directed that the incident is over and work may resume. During the incident, site personnel will remain outside the incident area and obey the instructions of the Emergency Coordinator.

## **6.6 EMERGENCY TELEPHONE NUMBERS**

Communications will be by telephones located in the EA vehicle onsite and the field personnel will have access to this telephone to directly contact offsite emergency response organizations. Refer to Table 1 for a listing of emergency telephone numbers.

## **6.7 CONTROL OF SITE PRODUCED AMBIENT NOISE LEVELS**

In order to maintain ambient noise levels within acceptable standards, site activities can only take place between 0700 and 1900 hours each work day. Complaints by local inhabitants received by the Site Safety and Health Officer/Emergency Coordinator will prompt sound level reduction measures as needed.

## 7. SITE CONTROL AND WORK ZONES

The following work zones will be established during implementation of the Ponagansett Avenue Remediation Project work as a means of site control.

### 7.1 WORK ZONES

Work zones will be established in accordance with the following:

- **Exclusion Zone (EZ)**—The EZ at the Ponagansett Avenue Remediation Project site will be designated prior to intrusive activities. For this investigation, the entire site will be considered as the EZ. Personnel entering the EZ must wear the prescribed level of protective equipment. Unauthorized personnel will not be allowed in this area. This area has either known or potential contamination and has the highest potential for exposure to chemicals onsite.

Persons who enter the EZ must wear the appropriate level of PPE for the degree and types of hazards present at the site. If the EZ is subdivided, different levels of PPE may be appropriate. Each sub-area of the EZ should be clearly marked to identify hazards and required level of PPE.

- **Contamination Reduction Zone (CRZ)**—One access point from the CRZ to the EZ will be designated by the Site Safety and Health Officer/Emergency Coordinator. The purpose of the CRZ is to reduce the possibility that the Support Zone (SZ) will become contaminated or affected by the site hazards. Because of both distance and decontamination procedures, the degree of contamination in the CRZ generally will decrease as one moves from the hotline to the SZ.

The CRZ will be established outside the areas of known or potential contamination. Contamination Reduction Corridors, which are access control points between the EZ and CRZ, should be established for both personnel and heavy equipment. These corridors should consist of an appropriate number of decontamination stations necessary to address the contaminants of the particular site (see National Institute of Occupational Safety and Health/OSHA/U.S. Coast Guard/U.S. Environmental Protection Agency *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, October 1985 for information on decontamination procedures and work zones).

- **Support Zone**— The SZ is the uncontaminated area where workers are unlikely to be exposed to hazardous substances or dangerous conditions. The SZ is the appropriate location for the command post, equipment and supply center, field laboratory, vehicles, and other administrative or support functions that are necessary to keep site operations running efficiently.  
Potentially contaminated clothing, equipment, and samples must remain outside the SZ

until decontaminated. However, personnel located in the SZ must receive instruction in proper evacuation procedures in case of a hazardous substance emergency. The SZ should be upwind and as far from the EZ as practicable.

## **7.2 PERSONAL PROTECTIVE EQUIPMENT IN WORK ZONES**

The level of PPE will depend upon the type of work performed and site monitoring data. Level D will be the minimum protection in the EZ. The CRZ will require a minimum Level D. No specific PPE requirements are needed in the SZ, as contaminated materials are prohibited from being stored in this area. Only authorized personnel will be permitted in the EZ and CRZ. Entering these zones will require donning the required PPE prior to entry. These zones will be established prior to beginning the field activities. Exiting the EZ will require going through decontamination in the CRZ.

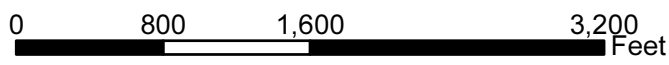
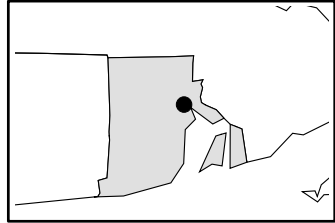
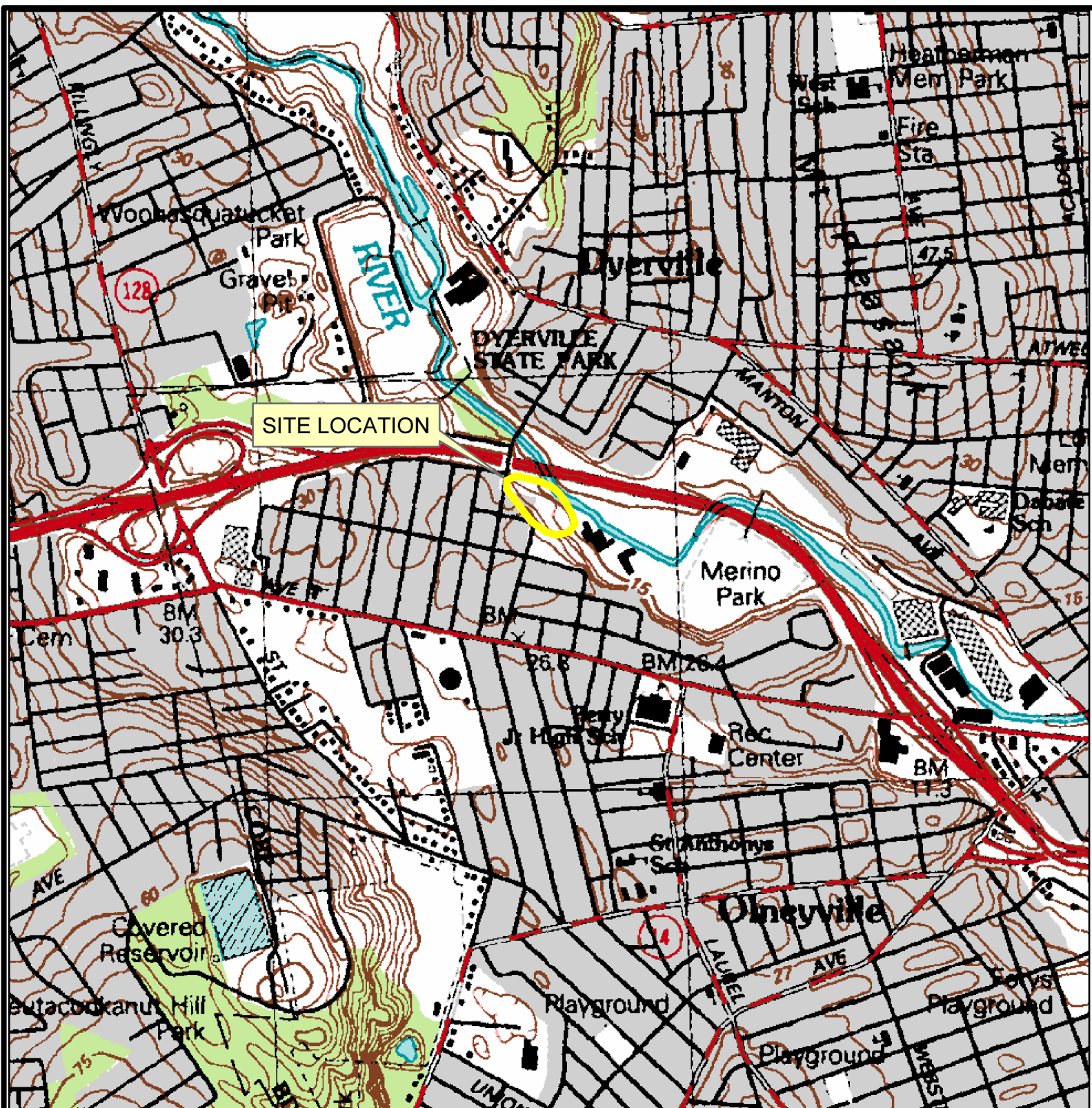
## **7.3 SAFE WORK PRACTICES IN WORK ZONES**

Safe work practices to be followed by site workers include:

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited in the EZ and CRZ.
- Hands and face must be thoroughly washed upon leaving the work area.
- Prescription drugs must not be taken by personnel unless specifically approved by a licensed physician who is familiar with the issues of worker exposure to hazardous materials.
- When respirators are required, facial hair that interferes with the face-to-facepiece fit of the respirator will not be permitted.
- Personnel onsite must use the buddy system; visual contact must be maintained between team members at all times.
- Work is allowed during daylight hours only.
- If dust is being visually generated in the EZ, the Site Safety and Health Officer/ Emergency Coordinator will advise on procedures for misting or wetting the soil to prevent possible exposure from inhalation of soil contaminants.
- Possessing, using, purchasing, distributing, selling, or having controlled substances in your system during the work day, including meal or break periods onsite, is strictly prohibited.
- The use or possession of alcoholic beverages onsite is prohibited. Similarly, reporting to work or performing one's job assignments with excessive levels of alcohol in one's



system will not be permitted.



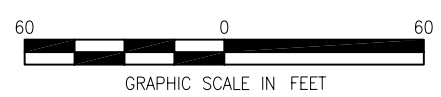
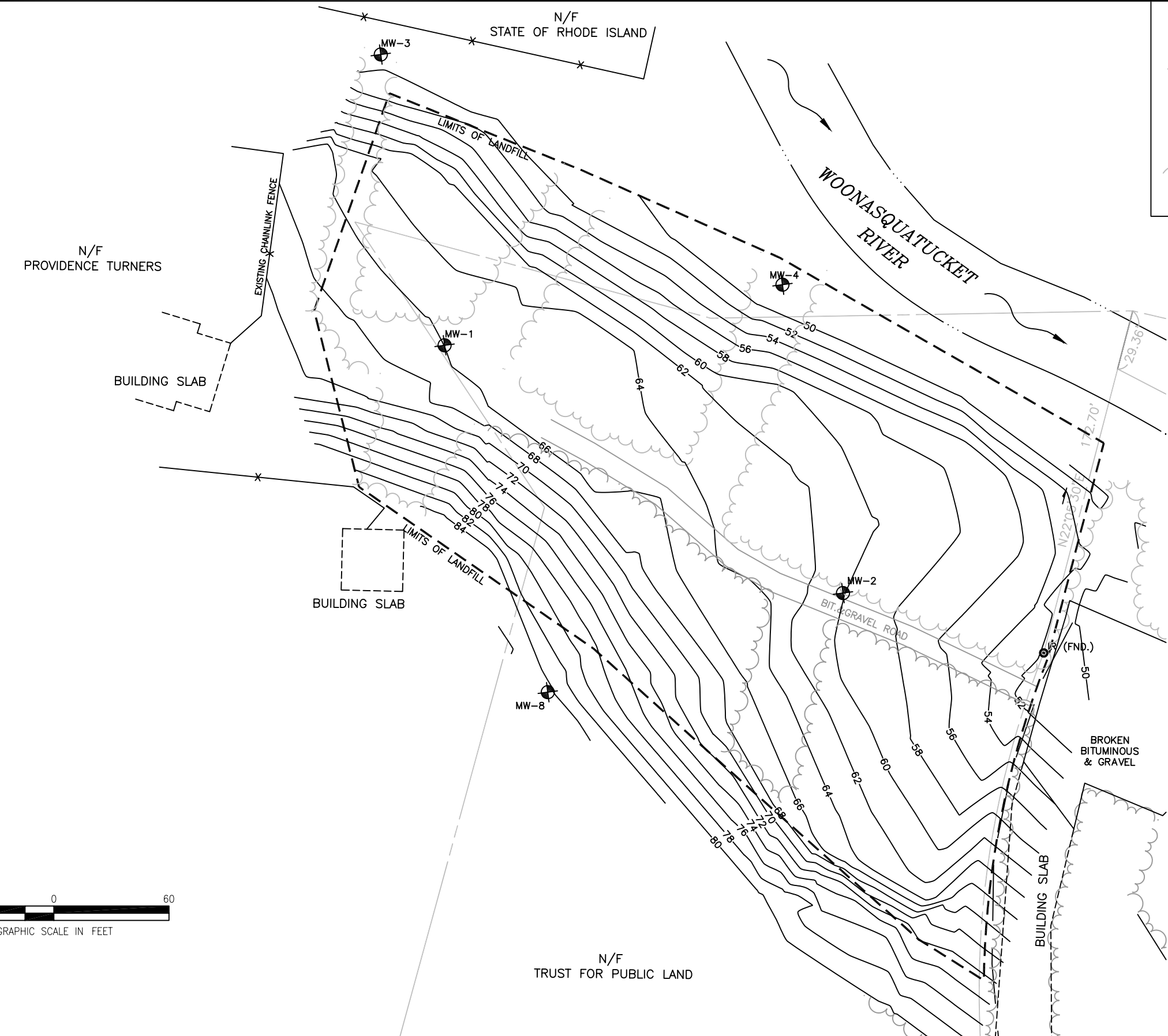
THE TRUST FOR PUBLIC LAND  
 PONAGANSETT AVENUE REMEDIATION PROJECT  
 67 MELISSA STREET  
 PROVIDENCE, RHODE ISLAND

FIGURE 1  
 SITE LOCATION MAP

PROJECT MGR: TR	DESIGNED BY: DC	CREATED BY: DC	CHECKED BY: JP	SCALE: AS SHOWN	DATE: 28 APRIL 2004	PROJECT NO: 6184601	FILE NO: I:\RIFIG1 TFPL_PROV.MXD
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LEGEND	
—50—	EXISTING CONTOUR
—X—	EXISTING FENCELINE
⊕	EXISTING MONITORING WELL
—...—	EDGE OF WATER
⌒	EXISTING TREELINE
- - - -	PROPERTY LINE



THE TRUST FOR PUBLIC LAND  
 PONAGANSETT AVENUE REMEDIATION PROJECT  
 67 MELISSA STREET  
 PROVIDENCE, RHODE ISLAND

FIGURE 2  
 EXISTING CONDITIONS PLAN

PROJECT MGR:  
 TR

DRAWN BY:  
 BMS

CHECKED BY:  
 DWE

DATE:  
 MAY 2004

SCALE:  
 AS SHOWN

PROJECT NO:  
 6184601

FILE NO:  
 I:\Rhode\_Island\_projects\  
 TPL\  
 FIG2\_EXISTINGCOND.DWG

TABLE 1 EMERGENCY TELEPHONE NUMBERS

Title	Name	Telephone No.
<b>OFFSITE EMERGENCY NUMBERS</b>		
Police	Providence Police Department	911
Fire	Providence Fire Department	911
Ambulance	General emergency 911	911
Hospital	Our Lady of Fatima Hospital 200 High Service Road North Providence, RI 02904	(401) 456-3000
Directions to Hospital: Go north on Melissa Street towards Mattie Street. Turn LEFT onto MATTIE STREET. Turn RIGHT onto GLENBRIDGE AVENUE. Turn LEFT onto MANTON AVENUE. Turn RIGHT onto FRUIT HILL AVENUE. Turn LEFT onto SMITH STREET (RI 44). Turn LEFT onto HIGH SERVICE AVENUE. Hospital is 0.1 mi at 200 HIGH SERVICE AVENUE. Driving time: 11 minutes Distance: 3.3 mi		
<b>EA Emergency Numbers</b>		
Project Manager	Timothy Regan	(401) 736-3440 (401) 241-5461
Program Safety and Health Officer	Kris Hoiem	(410) 329-5149
Field Manager	Jill Ann Parrett	(401) 465-7138
Site Safety and Health Officer/Emergency Coordinator	Jill Ann Parrett	(401) 465-7138
<b>Environmental Emergency Numbers</b>		
Rhode Island Department of Environmental Management Spill Reporting	---	(401) 222-3070
Chemical Emergency Center (significant chemical leak or spill)	---	(800) 424-9300

TABLE 2 POTENTIALLY PRESENT COMPOUNDS OR SUBSTANCES

Compound	PEL/TLV <sup>(a)</sup>	Signs and Symptoms of Exposure
<b>POTENTIAL SITE CONTAMINANTS OF CONCERN</b>		
Arsenic	0.01 mg/m <sup>3</sup>	Overexposure may cause vomiting, ulceration of the nasal septum, hoarse voice, sore throat, numbness in extremities, respiratory irritation, and skin/eye irritation.
Lead	0.05 mg/m <sup>3</sup>	Overexposure may cause irritation to the nose, throat, and respiratory tract. Metallic taste may occur. Also may cause discoloration of skin and hair.
Mercury	0.025 mg/m <sup>3</sup>	Overexposure may cause headaches, drowsiness or insomnia, weakness, and pink skin on hands and feet.
Beryllium	0.002 mg/m <sup>3</sup>	Overexposure may cause respiratory symptoms, weakness, and fatigue.
Polycyclic aromatic hydrocarbon	0.2 mg/m <sup>3</sup>	Regulated based on effects of respiratory tract and skin irritation. Also, eye irritation and nervous system disturbances. Acute exposures cause difficulty breathing, skin/eye irritation, and burns.
<b>DECONTAMINATION FLUIDS</b>		
Isopropyl alcohol	400 ppm	This product is an irritant of the eyes, nose, and throat. Overexposure can cause drowsiness and headache.
(a) Permissible Exposure Limit (PEL) (Occupational Safety and Health Administration) or Threshold Limit Value (TLV) American Conference of Governmental Industrial Hygienists for time-weighted average exposure for an 8-hour workday or 40-hour work week. When both Permissible Exposure Limits and Threshold Limit Values are available for a chemical, the lowest (i.e., most conservative) value is presented.		

**TABLE 3 SITE CONTAMINANT MONITORING REQUIREMENTS**

Task	Instrument	Frequency and Location	Action Levels <sup>(a)</sup>	Required Response
Intrusive work	PID	Initially during intrusive work and when excavation is started; every 30 minutes in the breathing zone	Background	Continue work.
			>Background to 5 ppm	Evacuate to a safe upwind location and wait for levels to dissipate. Retest the area after 15 minutes. If levels have not dissipated, upgrade to Level C. Continue work in Level C personal protective equipment or retest in another 15 minutes.
			>5 ppm	Evacuate to a safe upwind location immediately. Retest area after 15 minutes wearing Level C personal protective equipment. If sampling results defined by the PID have not dissipated in 30 minutes, contact the Program Safety and Health Officer and Project Manager for further guidance.
<p>(a) Action levels for PID are based upon unknown concentrations and measurements taken above background concentrations when background concentration is less than 1 ppm. When background concentrations exceed 1 ppm total volatile hydrocarbons, PID or FID action levels will be inclusive of background concentrations and so noted on the environmental monitoring record.</p> <p>NOTE: PID = Photoionization detector.                      FID = Flame ionization detector.</p>				









**ACCIDENT/LOSS REPORT**

THIS REPORT MUST BE COMPLETED BY THE INJURED EMPLOYEE OR SUPERVISOR AND FAXED TO EA CORPORATE HUMAN RESOURCES WITHIN 24 HOURS OF ANY ACCIDENT. THE FAX NUMBER IS (410) 771-1780.

**\*NOTE\*** WHENEVER AN EMPLOYEE IS SENT FOR MEDICAL TREATMENT FOR A WORK RELATED INJURY OR ILLNESS, PAGE 4 OF THIS REPORT MUST ACCOMPANY THAT INDIVIDUAL TO ENSURE THAT ALL INVOICES/BILLS/CORRESPONDENCE ARE SENT TO HUMAN RESOURCES FOR TIMELY RESPONSE.

**A. DEMOGRAPHIC INFORMATION:**

NAME OF INJURED EMPLOYEE: \_\_\_\_\_  
HOME ADDRESS: \_\_\_\_\_  
HOME PHONE: \_\_\_\_\_ DATE OF BIRTH: \_\_\_\_\_  
AGE: \_\_\_\_\_ SEX: M F  
MARITAL STATUS: \_\_\_\_\_ NAME OF SPOUSE (if applicable) \_\_\_\_\_  
SOCIAL SECURITY NUMBER: \_\_\_\_\_ DATE OF HIRE: \_\_\_\_\_  
NUMBER OF DEPENDENTS: \_\_\_\_\_  
EMPLOYEE'S JOB TITLE: \_\_\_\_\_  
DEPT. REGULARLY EMPLOYED: \_\_\_\_\_  
WAS THE EMPLOYEE INJURED ON THE JOB: Y N  
PRIMARY LANGUAGE OF THE EMPLOYEE: \_\_\_\_\_

**B. ACCIDENT/INCIDENT INFORMATION:**

DATE OF ACCIDENT: \_\_\_\_\_ TIME OF ACCIDENT: \_\_\_\_\_  
REPORTED TO WHOM: \_\_\_\_\_ NAME OF  
SUPERVISOR \_\_\_\_\_

EXACT LOCATION WHERE ACCIDENT OCCURRED (including street, city, state and County):

\_\_\_\_\_

EXPLAIN WHAT HAPPENED (include what the employee was doing at the time of the accident and how the accident occurred): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DESCRIBE THE INJURY AND THE SPECIFIC PART OF THE BODY AFFECTED (i.e. laceration, right hand, third finger):

\_\_\_\_\_

\_\_\_\_\_

OBJECT OR SUBSTANCE THAT DIRECTLY INJURED EMPLOYEE: \_\_\_\_\_

NUMBER OF DAYS AND HOURS EMPLOYEE USUALLY WORKS PER WEEK: \_\_\_\_\_

IS THE EMPLOYEE EXPECTED TO LOSE AT LEAST ONE FULL DAY OF WORK? \_\_\_\_\_

DOES THE EMPLOYEE HAVE A PREVIOUS CLAIM? Y N if yes, STATUS Open Closed

WAS THE EMPLOYEE ASSIGNED TO RESTRICTED DUTY? \_\_\_\_\_

**C. ACCIDENT INVESTIGATION INFORMATION**

WAS SAFETY EQUIPMENT PROVIDED? Y N If yes, was it used? Y N

WAS AN UNSAFE ACT BEING FORMED ? Y N If yes, describe \_\_\_\_\_

WAS A MACHINE PART INVOLVED? Y N If yes, describe \_\_\_\_\_

WAS THE MACHINE PART DEFECTIVE? Y N If yes, in what way \_\_\_\_\_

WAS A 3<sup>RD</sup> PARTY RESPONSIBLE FOR THE ACCIDENT/INCIDENT? Y N

If yes, list Name, address and phone number \_\_\_\_\_

WAS THE ACCIDENT/INCIDENT WITNESSED? Y N

If yes, list Name, address and phone number: \_\_\_\_\_

**D. PROVIDER INFORMATION**

WAS FIRST AID GIVEN ON SITE? Y N

If yes, what type of medical treatment was given \_\_\_\_\_

PHYSICIAN INFORMATION (if medical attention was administered)

NAME: \_\_\_\_\_

ADDRESS (incl. City, state and zip): \_\_\_\_\_

PHONE: \_\_\_\_\_

HOSPITAL ADDRESS (incl. Name, address, city, state, zip code & phone)

\_\_\_\_\_

WAS THE EMPLOYEE HOSPITALIZED? Y N If yes, on what date \_\_\_\_\_

WAS THE EMPLOYEE TREATED AS AN OUTPATIENT, RECEIVE EMERGENCY  
TREATMENT OR AMBULANCE SERVICE? \_\_\_\_\_

PLEASE ATTACH THE PHYSICIANS WRITTEN RETURN TO WORK SLIP

**\*NOTE\* A PHYSICIANS RETURN TO WORK SLIP IS REQUIRED PRIOR TO ALLOWING  
THE WORKER TO RETURN TO WORK**

**E. AUTOMOBILE ACCIDENT INFORMATION (complete if applicable)**

AUTHORITY CONTACTED AND REPORT # \_\_\_\_\_

EA EMPLOYEE VEHICLE YEAR, MAKE AND MODEL \_\_\_\_\_

V.I.N. \_\_\_\_\_ PLATE/TAG # \_\_\_\_\_

OWNER'S NAME AND ADDRESS: \_\_\_\_\_

DRIVER'S NAME AND ADDRESS: \_\_\_\_\_

RELATION TO INSURED: \_\_\_\_\_ DRIVER'S LICENSE # \_\_\_\_\_

DESCRIBE DAMAGE TO YOUR PROPERTY: \_\_\_\_\_

DESCRIBE DAMAGE TO OTHER VEHICLE OR PROPERTY: \_\_\_\_\_

OTHER DRIVER'S NAME AND ADDRESS: \_\_\_\_\_

OTHER DRIVER'S PHONE: \_\_\_\_\_

OTHER DRIVER'S INSURANCE COMPANY AND PHONE: \_\_\_\_\_

LOCATION OF OTHER VEHICLE: \_\_\_\_\_

NAME, ADDRESS AND PHONE OF OTHER INJURED PARTIES: \_\_\_\_\_

**WITNESSES**

NAME: \_\_\_\_\_ PHONE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

STATEMENT: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

NAME: \_\_\_\_\_ PHONE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

STATEMENT: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

**F. ACKNOWLEDGEMENT**

NAME OF SUPERVISOR: \_\_\_\_\_

DATE OF THIS REPORT: \_\_\_\_\_ REPORT PREPARED BY: \_\_\_\_\_

I have read this report and the contents as to how the accident/loss occurred is accurate to the best of my knowledge.

Signature: \_\_\_\_\_

Injured Employee

Date: \_\_\_\_\_



I am seeking medical treatment for a work related injury/illness.

Please forward all bills/invoices/correspondence to:

**EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.**

**11019 McCORMICK ROAD**

**HUNT VALLEY, MD 21031**

**ATTENTION: Michele Bailey  
HUMAN RESOURCES**

**(410) 584-7000**



## INCIDENT REPORT

THIS REPORT IS TO BE COMPLETED WHEN A NEAR MISS OCCURS THAT COULD HAVE POTENTIALLY RESULTED IN SERIOUS PHYSICAL HARM. PLEASE FAX THIS FORM TO EA HUMAN RESOURCES DEPARTMENT AT **(410) 771-1780**.

EXPLAIN WHAT HAPPENED (include what the employee was doing at the time the near miss and how it occurred:)

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REPORT PREPARED BY: \_\_\_\_\_

DATE:\_\_\_\_\_

## **Appendix D**

### **Technical Specifications for Fabric Filter**



# HIGHLY UV STABLE AASHTO CLASS 1 AND CLASS 2 GEOTEXTILES

**UV RESISTANCE**  
**95% @ 500 Hours**



Technical Data

PROPERTY	TEST METHODS	UNITS	MINIMUM AVERAGE		TEST FREQUENCY
			ROLL VALUE <sup>1</sup>		
PHYSICAL			AASHTO CLASS 1	AASHTO CLASS 2	
♦ Color			Orange	Orange	
<b>Mechanical<sup>2</sup></b>					
<b>Durability</b>	ASTM G 154	U.V. Resistance (500 hrs)	95 %	95 %	Every Formulation
♦ Serviceability Class	AASHTO M-288	lbs (N)	1	2	
♦ Grab Strength	ASTM D 4632	lbs (N)	202 (900)	157 (700)	100,000 sf
♦ Tear Strength	ASTM D 4533	lbs (N)	79 (350)	56 (250)	100,000 sf
♦ Puncture Resistance	ASTM D 4833	lbs (N)	79 (350)	56 (250)	100,000 sf
♦ CBR Puncture Strength	ASTM D 6241	lbs (N)	449 (2000)	346 (1540)	100,000 sf
<b>Hydraulic<sup>2</sup></b>					
♦ Permittivity	ASTM D 4491	sec <sup>-1</sup>	0.5	0.5	500,000 sf
♦ AOS <sup>3</sup>	ASTM D 4751	Sieve size (mm)	80 (0.18)	70 (0.212)	500,000 sf
<b>Packaging</b>			<b>Typical Dimensions</b>		
♦ Roll width	Direct Measure	ft (m)	15 (4.57)	15 (4.57)	
♦ Roll length	Direct Measure	ft (m)	300 (91.4)	300 (91.4)	
♦ Roll area	Direct Measure	yd <sup>2</sup> (m <sup>2</sup> )	500 (418)	500 (418)	
♦ Roll weight	Direct Measure	lb (kg)	-	197 (89)	
♦ Roll diameter	Direct Measure	in	20	17	
♦ Core ID	Direct Measure	in	4.25	4.25	
♦ Labeling	Product code, roll dimensions, finished product lot and roll number.				

<sup>1</sup> VALUES IN WEAKER PRINCIPLE DIRECTION. UNLESS NOTED OTHERWISE, THESE VALUES REPRESENT MINIMUM AVERAGE ROLL VALUES (I.E., CALCULATED AS THE TYPICAL MINUS TWO STANDARD DEVIATIONS STATISTICALLY YIELDING A 97.5% DEGREE OF CONFIDENCE THAT ANY SAMPLE TAKEN DURING QUALITY ASSURANCE TESTING WILL EXCEED THE VALUE REPORTED.)  
<sup>2</sup> GEOTEXTILE MEETS AASHTO STANDARD SPECIFICATION M 288-00 STRENGTH REQUIREMENTS OF CLASS 2 AND THE HIGHEST FILTER REQUIREMENTS.  
<sup>3</sup> SMALLER SIEVE SIZE NUMBER REPRESENTS THE MAXIMUM AVERAGE ROLL VALUE.  
<sup>\*</sup> DETERMINED AT TIME OF MANUFACTURING. STORAGE AND HANDLING CONDITIONS THAT DIFFER FROM THOSE FOUND IN ASTM D 4873-88 MAY INFLUENCE THESE PROPERTIES.



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