

UNIVERSE TECHNOLOGIES, INC.
Engineering and Scientific Solutions

905

WORK PLAN

Excavation, Transportation and Disposal Services, Site 9 Old Firefighting Training Area

**Naval Station Newport
Newport, Rhode Island**

29 April 2004
Revised 10 June 2004
Revised 20 August 2004

PREPARED FOR:
Naval Facilities Engineering Command
Engineering Field Activity, Northeast Division
10 Industrial Highway
Lester, Pennsylvania 19113-2090
Contract Number N62472-01-D-0806-0007

PREPARED BY:
Universe Technologies, Inc.
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Frederick, MD 21701

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EXCAVATION, TRANSPORTATION AND DISPOSAL SERVICES SITE 09 OLD FIREFIGHTING TRAINING AREA

**NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND**

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1.0 INTRODUCTION

The purpose of this document is to present Universe Technologies, Inc.'s (UNITEC's) WORK PLAN to perform the Scope of Work (SOW) for Excavation, Transportation and Disposal Services at Installation Restoration Site 09 – Old Fire Fighting Training Area (OFFTA), Naval Station Newport, Newport, Rhode Island, under Contract Number N62472-01-D-0806-0007. This plan describes the manner in which materials will be removed from the mounds, staged, tested and transported for off-site disposal.

Under this SOW, three mounds of soil, fill and debris at the OFFTA will be excavated and removed from the site. The removal areas will be graded and seeded to the base grade elevation that is present across the remaining portions of the site. Some of the excavations areas are adjacent to Narragansett Bay; therefore, this scope of work requires that erosion controls be designed, constructed and maintained in accordance with Rhode Island Coastal Management Council requirements.

Removal of the mounds is required to achieve the preliminary Remediation Goals, (PRGs) for this Site and to allow access to contaminated soils beneath the mounds that will be remediated under future projects.

1.1 Background

The OFFTA was used as a fire training ground between 1940 and 1972. In 1972, the training area was demolished. In 1974, three mounds of soil, believed to be soil and demolition debris from the demolition of fire training structures and buildings, were constructed into the landscape at the OFFTA. One to two feet of topsoil was believed added to the Site and from 1974 through 1998, the OFFTA was used as a recreational area.

It has been determined that the soils and the debris in the mound all exceed project action limits. The Navy has committed to removal the soils and debris that exceed project action limits. Execution of this work plan will result in the safe and legal excavation, transportation and disposal of the mounds at the OFFTA.

1.2 Site Description

Naval Station Newport (NAVSTA) is located in Newport, Rhode Island. The OFFTA is located at the northern section of Coasters Harbor Island.

Bridge 669 and Bridge 668 connect Coastal Harbors Island to the Newport mainland. Bridge 669 has a posted weight restriction of 15 tons. Bridge 668 (Gate 1) has a live load rating of AASHTO HS20. Major transportation arteries are State Routes 138 and 114.

The OFFTA Site is located approximately one half mile north of Gate 1 at NAVSTA. The OFFTA Site occupies approximately 5.5 acres. The surface of the site is grass and trees, with a temporary gravel parking area located in the central section of the site.

Three mounds of soil and debris occupy the OFFTA. The remainder of the site slopes gently from a high elevation of 11 feet mean sea level (MSL) at the southern end of the site, towards the top of the shoreline bank at approximately 8 feet MSL.

Three mounds are located on the Site: The Central Mound is 20 feet high, steeply sloped with a volume of approximately 9,000 Cubic Yards, (CY). Mound No. 1 is located next to the west shore of the north end of the island, is 4 to 6 feet high with a volume of approximately 1,100 CY. Mound No. 2 between the Central Mound and Mound No.1 is 9 feet high with a volume of approximately 5,000 CY. The west and northwest sides of Mounds No. 1 and 2 have been eroded by wave action.

The Site is underlain by layers of fill consisting of construction debris and sand and gravel; silty sand and gravel; sand and gravel; peat; silt; and glacial till consisting of silt sand and gravel. Overburden depths range from 6 to 27 feet below the 8-foot elevation.

The main Site contaminants of concern are petroleum compounds and metals. The past use of the Site resulted in releases of petroleum based fuels and combustion by-products.

2.0 FIELD ACTIVITIES

Field activities at the OFFTA are expected to begin in August 2004 and persist, until completion on or before 15 May 2005. Daily, on-site, working hours shall be from 6:30 am to 5:00 pm.

Field activities associated with the OFFTA shall consist of the following:

- Acquiring the permits / certifications,
- Mobilizing to the Site,
- Preparing the OFFTA, including installing erosion control measures,
- Excavating the mounds, segregating soil/debris into stockpiles,
- Characterizing the stockpiles,
- Loading, transporting and disposing of the stockpiles,
- Restoring the Site (grading and seeding) and
- Preparing the Project Closeout Report.

2.1 Permits and Certifications

UNITEC will provide and complete documents required for the acquisition of permits from State, Local and Federal agencies, including a Coastal Zone Consistency Determination for construction work near the shoreline. NAVSTA will provide a representative to sign and submit permit applications and interact with the Rhode Island Coastal Resource Management Council, Rhode Island Department of Environmental Protection and Newport Conservation Commission for working adjacent to and within 100 feet of the coastal wetland resource areas.

Disposal facility certifications will be provided to the Contracting Officer, prior to mobilization to the site.

UNITEC will ensure that haulers carry permits required for transportation of materials.

A copy of each permit will be provided to the Contracting Officer prior to the commencement of related work.

Prior to mobilization, UNITEC will submit Health and Safety Medical Surveillance, and Training Records for all on-site workers, as required. Training records shall include OSHA HAZWOPER training records (original and refresher) for all site workers. Certificates of supervisory training for the site superintendent, as required by OSHA and by 29 CFR 1910.120 for a CERCLA NPL site will be submitted to the Contracting Officer, or the Resident Officer in Charge of Construction (ROICC).

2.2 Preparation

Preparation of the OFFTA shall include the construction of erosion controls, removal of trees and stumps, and repositioning of fencing. UNITEC will obtain Dig Safe and utility clearance from NAVSTA prior to repositioning fences or removing trees.

2.2.1 Mobilization

A full time Superintendent will initiate mobilization activities. The Superintendent will act as the single point of contact for the project to communicate and interact with Navy personnel and their representatives. The Superintendent will direct representatives from the US EPA, and Rhode Island Department of Environmental Management (RIDEM) or other regulatory agencies to the ROICC and will immediately notify the ROICC of the arrival of personnel from regulatory agencies on site.

Upon notification to proceed from the Navy, UNITEC will mobilize to the OFFTA and establish a staging area, decontamination area, and appropriate entrances and exits to the Site.

The temporary gravel parking area is will be used to as the staging area. This area has been selected for two reasons. It has a stable surface that will allow operation of vehicles and equipment and will minimize dust or mud. It is of sufficient size to accommodate staging activities.

A job site trailer, truck and equipment entrance, calibrated scale and exit with truck wash and water collection will be placed along the southern side of the gravel area. The scale will document the tare weight of trucks entering and the loaded weight of trucks exiting. The truck wash will be used to remove dirt and dust from vehicles leaving the Site.

Stockpiles of segregated materials will be located within the northern side of the gravel area. The maximum size of stockpiles will be 500 cubic yards, (CY). A 500 CY stockpile approximately trapezoidal in shape with base dimensions of 40 by 50 feet and top dimensions of 20 by 30 feet with a height of 10.5 feet provides 505 CY of volume. Four to six such stockpiles with 10 feet between stockpile base edges could be placed within the staging area without impeding excavation activities.

Equipment such as water trucks, excavators and loaders will be stored overnight in the center of the gravel area. Equipment mobilized and stored within the staging area include the following:

- Job Site Trailers;
- Pickup Trucks;
- Excavators;
- Loaders;
- Water Trucks; and,
- Bobcats.

The staging area will remain within the edges of the temporary gravel parking area as shown on the Excavation Site Plan attached to this Work Plan.

2.2.2 Spill Prevention and Discharge Control Plan

Spill and discharge control measures will be instituted upon mobilization to the Site. Potential spills and discharges of concern include:

- Discharge of water and sediments into nearby water bodies via rain and storm water runoff,
- Discharge of soils onto nearby land and surface water via air born dust,
- Discharge of sediments into nearby water bodies via wave action or storm surge,
- Spills of equipment fuels and maintenance materials within the Site,
- Spills of water used to decontaminate personnel or equipment,
- Spills of materials during trucking off site.

The Discharges of sediments and dust will be minimized and avoided through the erosion control measures described in the Erosion Control Plan in Section 2.2.3.

Spills of equipment fuels and maintenance materials will be minimized through the following: More than 55 gallons of fuels will not be stored on site. The fuel will be stored in a sealed and vented 55-gallon drum in a location away from passing vehicular traffic, on a stable platform and secured against wind loads. Equipment will be fueled via a local vendor and fuel delivery truck. During fueling operations the equipment operator will be present and standing by with absorbent towels and material. Both the equipment operator and fuel delivery truck operator will observe the fueling.

Spills of water used for decontamination will be minimized and avoided through the following practices: Water from decontamination procedures will be stored in sealed 55-gallon drums. The drums will be stored away from passing vehicular traffic and secured against wind loads. The full drums will be removed from the Site as soon as practicable. No more than (4) 55-gallon drums of rinse water will be stored on Site.

Spills of material from trucks during offsite trucking will be minimized and avoided through the use of drivers commercially licensed to haul hazardous wastes, the use of trucks in good conditions with internal liners and top covers, and the use of a truck wash to remove visible dust and dirt from the exterior of vehicles before they leave the Site.

UNITEC will maintain the following equipment on-site at all times:

- Fire Extinguisher,
- Absorbent material,
- Shovels,
- Grommeted Tarps and stakes,
- Polyethylene liner,
- Hay bales and stakes,
- Jersey barriers,
- Geotextile filter fabric and stakes,
- DOT-certified 55-gallon drums,
- Pump and tubing,
- A vac truck will be available by phone call to a local vendor.

UNITEC will conduct the following activities in the event of a spill or discharge:

- Mitigate spill immediately with available spill control material and equipment:
- Notify the NAVSTA Fire Department,
- Isolate hazardous spill areas,
- Monitor entry into spill area,
- Evacuate personnel immediately downwind of spill area to safer areas,
- Isolate combustibles from the spill area,
- Use institutional measures to control vapors,
- Document clean up of spilled material through confirmation sampling of affected area.

UNITEC will document details of the spill or discharge within 48-hours of such an event. The report will include the following:

- Description of material spilled, quantity, and copy of waste disposal manifest,
- Time and date of spill,

Location of spill,
Response procedures followed,
Summary of communication with NAVSTA.

Measures to prevent and minimize spills of equipment fuels and maintenance materials include good housekeeping practices described in the Erosion Control Plan (following section) and the Site Health and Safety Plan in Appendix C.

Contingency measures to address spills are documented in the UNITEC Site Health and Safety Plan and are maintained on-site by the Site Safety Officer.

2.2.3 Erosion Control Plan

UNITEC will construct erosion prevention controls within the limit of work to prevent runoff or erosion of soil or debris from excavated soil, stockpiled soil, and worked surfaces arising from the execution of this SOW. Structural controls will be implemented prior to disturbance of existing soil surfaces. Grass will be planted immediately upon completion of excavation of each Mound. Erosion controls will be designed to protect against erosion from rain and storm water runoff, wind and air born dust, storm surge and wave erosion as follows:

Storm surge and wave erosion:

Pre cast "Jersey" barriers will be placed along the shoreline north of Mound No.1 and Mound No. 2 prior to excavation of soils. The barriers will be removed upon completion of the contract, or as directed by the Navy. Refer to the detail on the Excavation Site Plan.

Permanent Vegetative Cover for "General Purpose Lawn" as described on pages 4-2, 3 and 4 of the Rhode Island Soil Erosion and Sediment Control Handbook shall be installed immediately upon completion of excavation and restoration of each mound. Refer to the excerpt attached in Appendix B.

Wind and air born dust:

The entire work area will be monitored for dust as described in the Site Health and Safety Plan. A water truck will moisten exposed and dust prone surfaces whenever dust is visible as described on page 5-7 of the Rhode Island Soil Erosion and Sediment Control Handbook. Refer to the excerpt attached in Appendix B.

Stockpiles will be covered with water and wind resistant tarpaulins equipped with grommets so that the tarps may be tied down and anchored as shown in the Stockpile and Cover detail on the Site Excavation Plan.

Permanent Vegetative Cover for "General Purpose Lawn" as described on pages 4-2, 3 and 4 of the Rhode Island Soil Erosion and Sediment Control Handbook shall be installed immediately upon completion of excavation and restoration of each mound. Refer to the excerpt attached in Appendix B.

Rain and storm water runoff:

Temporary Erosion Control Hay Bale Barriers will be installed prior to excavation of soils. See the detail on the Excavation Site Plan. These barriers will be installed as described for "Perimeter Sediment Barriers" on pages 5-12, 13 and 14 of the Rhode Island Soil Erosion and Sediment Control Handbook. Refer to the excerpt in Appendix B.

The two catch basins located adjacent to Mound 2 will be protected by securing two layers of geotextile filter fabric beneath a minimum of six (6) to 12 inches of stone.

Permanent Vegetative Cover for "General Purpose Lawn" as described on pages 4-2, 3 and 4 of the Rhode Island Soil Erosion and Sediment Control Handbook shall be installed immediately upon completion of excavation and restoration of each mound. Refer to the excerpt attached in Appendix B.

Erosion controls will be maintained until 15 May 2005 or until the Contracting Officer grants permission for the removal of erosion controls.

Post Construction Conditions:

Once vegetation is well established post construction conditions will be less prone to erosion than pre construction conditions. Slopes are flatter; generally 1 to 3% across the entire site and no additional buffer strips or velocity reduction devices are specified.

Off-site Vehicle Tracking of Sediments:

The construction entrance and exit will be stabilized to reduce vehicle tracking of sediments. A truck wash will be maintained at the Site exit to remove dirt from truck sides and tires. Paved areas will be swept daily to remove excess mud, dirt, or rock tracked from the site.

Waste Disposal:

Solid waste will be collected and stored in a secure and lidded metal dumpster. The dumpster will meet all local and state solid waste management regulations. The dumpster will be emptied as need and the trash will be hauled to a stat approved landfill. All personnel will be instructed regarding the correct procedure for waste disposal. The construction superintendent will post notices stating these practices at the construction site. The individual who manages the day-to-day operations will be responsible for seeing that these procedures are followed.

Spill Prevention:

Construction personnel will call Naval Station Newport's Fire Department at 401-841-3333 when spills occur. The construction superintendent will post notices stating this practice at the

construction site. The individual who manages the day-to-day operations will be responsible for seeing that these procedures are followed. Please refer to Appendix C, Site Health and Safety Plan where emergency procedures are described.

Good Housekeeping:

The superintendent will maintain a clean and orderly work environment. This will include maintenance of industrial machinery; material storage practices; material inventory controls; routine and regular clean up; maintaining well organized work areas; and educational programs for employees regarding these practices. Material storage piles, such as stockpiles of dry materials, topsoil, spoils piles, gravel, sand, compost, sawdust, wood chips, and building materials will be covered.

Maintenance and Inspections:

Erosion controls on the site will be inspected at least once every day and within twenty four hours after a rain event that generates 0.25 inches of rain in a twenty four hour period using a written inspection form. The individual who manages the day-to-day operations will complete inspections. Upon completion of the project, the inspection forms will be submitted to Naval Station's Environmental Office (401-841-7561). Based on the results of the inspections the permit will be revised no case later than seven (7) calendar days following the inspection. A copy of an Erosion Control Inspection Form is included in Appendix B

2.2.4 Removal of Trees and Stumps

UNITEC will remove trees and stumps within the work area, and any other areas necessary to complete this SOW. Cut trees shall be removed from the OFFTA entirely, either by chipping or whole. Stumps and root balls will be segregated and handled in the same manner as the other excavated debris.

2.2.5 Repositioning of Fences

UNITEC shall realign fencing as needed for completion of the work described in the SOW. Specifically, 150 linear feet (LF) of existing fencing that runs from Taylor Drive through Soil Mound No. 2 (Center Mound) to the shoreline, will be removed. New fencing will be provided to extend the original fence line running along Taylor Drive to continue west along Taylor Drive 300 LF down to the high water mark of Narragansett Bay southwest of Mound No. 1 (Left Mound), while allowing enough space to properly remove Mound No. 1 without damaging the fence. The extended fence will be placed so as not to disrupt the current existing parking along Taylor Drive, south of Mounds No. 1 and No. 2. The exact position of the extended fencing shall be at the direction of the Contracting Officer and / or the ROICC.

2.2.6 Site Security

Site security shall be maintained to restrict and protect the integrity of conditions at the project site. Given the location and characteristics of Site 09, site security is maintained by general Navy restrictions. Access to the NAVSTA is limited for unauthorized personnel by a security fence along the base perimeter and by military security personnel permanently positioned at designated checkpoints. Site security of the work site is not anticipated to be an issue in execution of the project objectives.

UNITEC shall provide secure access control to the OFFTA by gating off the site where existing fence gating is currently missing or by providing other secure barriers.

2.5 EXCAVATION

UNITEC will excavate the mounds to a depth of one foot below base grade.

Any debris or structure protruding from the target excavation depth (one foot below base grade) will be cut off or removed as directed by the ROICC.

It is anticipated that material to be excavated will consist of soil, root balls, demolition debris, rebar, brick, wood, metal, asphalt and building rubble. Should foreign material (drums, tanks, compressed gas cylinders, asbestos materials, etc.) be encountered, work will stop and the ROICC will be contacted for direction on how to proceed.

All material excavated will leave the Site and be disposed according to project requirements and state and federal regulations.

Excavation activity will begin with the complete excavation of the Central Mound, before starting the excavation of Mound No. 1 and Mound No. 2.

Dust emissions will be minimized by moistening exposed surfaces using a water truck and directional spraying such that no visible emissions of dust occur. Dust Control procedures are described in the Erosion Control Plan in Section 2.2.3. Dust Monitoring procedures are described in the Site Health and Safety Plan in Appendix C.

2.6 SEGREGATION OF MATERIALS

Based upon pre construction soil borings and testing, some soils in the above grade mounds are expected to exceed RIDEM Residential Direct Exposure Criteria and certain CERCLA risk based values. This criterion is used to determine whether or not under Rhode Island regulations soils may remain in situ on properties with potential residential use. (Higher concentrations are allowed to remain on commercial properties.)

The concentration of petroleum contamination was gauged in pre construction testing using three tests: Volatile Organic Compounds, (VOCs), Semi volatile Organic Compounds, (SVOCs), and Total Petroleum Hydrocarbons, (TPH). SVOCs exceeding residential criteria were detected in some samples. The maximum concentration of TPH listed in a summary of pre construction testing was 760 mg/kg, which is 1.5 times the PRG concentration of 500 mg/kg and 30% of 2,500 mg/kg.

Pre construction testing was also conducted for PCBs. PCBs were not detected at concentrations requiring remediation.

The scope of work for this project directs materials to be segregated for disposal at different facilities.

Two types of segregation will be ongoing during excavation:

1. Visual differentiation between types of materials, e.g. concrete will be stockpiled separately from steel, and
2. Visual differentiation between levels of petroleum contamination as relatively low or high, e.g. soils that appear to be able to meet RCRA Subtitle D facility acceptance criteria would be stockpiled separately from soils that do not.

It is not practical to field screen soils for various concentrations between the mound and placement into a stockpile. The segregation and staging of soils and debris on site in stockpiles shall be accomplished based on the material type or anticipated disposal facility.

If necessary, materials encountered during excavation will be crushed into manageable sizes for transportation and disposal purposes.

2.7 STOCKPILE MANAGEMENT

UNITEC shall excavate the material that make up the mounds in 500 CY increments such that the material may be staged, tested and disposed of, off-site, in an organized manner without mixing the staged material after it has been tested. Stockpiles shall not exceed 500 CY each.

Stockpiles shall be located within the staging area and shall be separated by a minimum lateral distance of 10 feet to prevent co-mingling of individual stockpiles.

Stockpiles will be covered at the end of each day to prevent the intrusion of rain, and to prevent erosion by precipitation and rain. For soils suspected of, or exhibiting potential contamination, a lined surface underneath the stockpile shall be constructed to prevent cross contamination of soils beneath the staging area. Covering systems shall remain intact at all time that work is not affecting specific stockpiles. Refer to the Erosion Control Plan in section 2.2.3 and the detail on the Excavation Site Plan for descriptions of the stockpile cover.

The location of each stockpile shall be identified on a site plan map. Each stockpile shall be given a numeric designation. The designation shall reference the mound from which the stockpile originated (01, 02, or 03), and a specific stockpile number (0001, 0002, 0003, etc.). Site drawings shall record the stockpiles designations as "02-0001", for example.

2.8 CHARACTERIZING STOCKPILES

UNITEC will collect and analyze samples from each stockpile as required by the scope of work and disposal facilities.

Sample collection:

UNITEC will collect one (1) eight-point composite sample from each stockpile. The composite sample will be collected by visually dividing each stockpile into quadrants. A sub-sample will be collected from two areas within each quadrant. Each sub-sample will be taken from soils visually similar to the majority of the soil within that quadrant. If no one type of soil clearly dominates the volume of that quadrant then the sub-samples shall be taken from soils of apparent maximum contamination. All eight representative sub samples from the four quadrants shall then be composited into a single sample to represent the entire stockpile.

Collect composite samples as follows:

1. A dry spade will be used to remove 6 inches of soil from the surface of the stockpile. A scoop will remove soil from the expose surface and place it in a dry, visibly clean stainless steel mixing bowl.
2. All eight sub-samples will be placed in the mixing bowl and then the contents will be mixed using the scoop until homogenous. A sample will then be scooped using the sample jar to be sent to the lab.
3. Label the sample and place it immediately into a cooled container.
4. Decontaminate the spade, scoop and mixing bowl between stockpiles.

Collect grab samples as follows:

1. A dry spade will be used to remove 6 inches of soil from the surface of the stockpile. A clean scoop will remove soil from the exposed surface and place it in the sample jar to be sent to the lab.
2. Label the sample and place it immediately into a cooled container.
3. Decontaminate the spade, scoop and mixing bowl between samples.

The sampler shall wear disposable gloves and change the gloves between each sample. The spade, scoop and bowl shall be dedicated to obtaining samples only, shall not be plated and shall be stainless steel.

Sample labels shall refer to the stockpile number followed by a specific sample number. For example, the first sample from the fifth stockpile generated from the second mound shall be designated sample number "02-0005-0001". This convention will allow for the documentation of sample collection and analytical records such that analysis may be traced back to each stockpile prior to disposal.

Before the end of each day that samples are collected, the sampler shall complete a chain of custody for samples taken that day and confirm delivery of the sample to the testing lab. Due to the rapid turn around time required for characterization testing, samples shall be delivered to the following lab within 24 hours of sampling:

Analysis:

Samples shall be collected for disposal purposes only and may vary according to disposal facility requirements. At this time, the following sampling shall take place: One sample from each stockpile will be analyzed for Volatile Organic Compounds (VOCs), Total Petroleum Hydrocarbons (Total C9-C36 Hydrocarbons), Polychlorinated Biphenyls (PCBs), Toxicity Characteristics Leaching Procedure (TCLP) Metals, and other analyses as required for disposal purposes. The following table indicates the sampling and testing parameters for the above tests on soils:

Analysis	Container	Preservative	Holding Time
VOCs Method 8260	4-8 oz. Wide-mouthed glass jar with Teflon lined lid	Keep cool at 4 degrees C and HCl	14 days
TPH Method 8100	same as above	same as above	same as above
PCBs	same as above	same as above	same as above
TCLP Metals Except:	Plastic or glass	Keep cool at 4 degrees C and HNO ₃ to pH < 2	6 months
Chromium VI	4-8 oz. Wide-mouthed glass jar with Teflon lined lid	Keep cool at 4 degrees C	As soon as possible
Mercury	4-8 oz. Wide-mouthed glass jar with Teflon lined lid	Keep cool at 4 degrees C and HNO ₃ to pH < 2	28 days

The following table indicates the analytes and standard minimum detection limits. Please note that samples that require dilution in the lab will have higher detection limits than those listed below.

Test Analyte Standard Minimum Detection Limit

VOCs via method 8260:

Chloromethane	50 ug/kg
Vinyl Chloride	50 ug/kg
Bromomethane	50 ug/kg
Chloroethane	50 ug/kg
Acetone	250 ug/kg
1,1-Dichloroethene	50 ug/kg
Carbon Disulfide	50 ug/kg
Methylene Chloride	50 ug/kg
Tert-Butyl methyl ether	50 ug/kg
Trans-1,2 Dichloroethane	50 ug/kg
1,1-Dichloroethane	50 ug/kg
2-Butanone	150 ug/kg
2,2-Dichloropropane	50 ug/kg
cis-1,2-Dichloroethene	50 ug/kg
Chloroform	50 ug/kg
Bromochloromethane	50 ug/kg
1,1,1-Trichloromethane	50 ug/kg
1,1-Dichloropropene	50 ug/kg
Carbon Tetrachloride	50 ug/kg
Benzene	50 ug/kg
1,2-Dichloroethane	50 ug/kg
Trichloroethene	50 ug/kg
1,2-Dichloropropane	50 ug/kg
Bromodichloromethane	50 ug/kg
Dibromomethane	50 ug/kg
4-Methyl - 2-pentanone	250 ug/kg
Toluene	50 ug/kg
1,1,2-Trichloroethane	50 ug/kg
2-Hexanone	50 ug/kg
Terachloroethene	50 ug/kg
Chlorodibromomethane	50 ug/kg
Chlorobenzene	50 ug/kg
1,1,2-Terachloroethane	50 ug/kg
Ethylbenzene	50 ug/kg
M&p-Xylene	100 ug/kg
O-Xylene	50 ug/kg
Styrene	50 ug/kg
Bromoform	50 ug/kg
1,2,3-Tetrachloroethane	50 ug/kg

<u>Test</u>	<u>Analyte</u>	<u>Standard Minimum Detection Limit</u>
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VOCs via method 8260 (Continued):

	Bromobenzene	50 ug/kg
	1,2,3-Trichloropropane	50 ug/kg
	n-Propylbenzene	50 ug/kg
	20Chlorotoluene	50 ug/kg
	1,3,5-Trimethylbenzene	50 ug/kg
	4-Chlorotoluene	50 ug/kg
	tert-Butylbenzene	50 ug/kg
	1,2,4-Trimethylbenzene	50 ug/kg
	sec-Butylbenzene	50 ug/kg
	p-Isopropyltoluene	50 ug/kg
	1,3-Dichlorobenzene	50 ug/kg
	1,4-Dichlorobenzene	50 ug/kg
	n-Butylbenzene	50 ug/kg
	1,2-Dichlorobenzene	50 ug/kg
	1,2,4-Trichlorobenzene	50 ug/kg
	Hexachlorobutadiene	50 ug/kg
	Napthalene	50 ug/kg
	1,2,3-Trichlorobenzene	50 ug/kg

<u>Test</u>	<u>Analyte</u>	<u>Standard Minimum Detection Limit</u>
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	TPH via method 8100 for Diesel Range Organics	10 mg/lg
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<u>Test</u>	<u>Analyte</u>	<u>Standard Minimum Detection Limit</u>
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PCBs:

	1016	100 ug/kg
	1221	100 ug/kg
	1232	100 ug/kg
	1242	100 ug/kg
	1248	100 ug/kg
	1254	100 ug/kg
	1260	100 ug/kg

<u>Test</u>	<u>Analyte</u>	<u>Standard Minimum Detection Limit</u>
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TCLP Metals:

	Arsenic	0.1 mg/l
	Barium	0.02
	Cadmium	0.01
	Chromium	0.02

Test Analyte Standard Minimum Detection Limit

TCLP Metals (Continued):

Lead	0.1 mg/l
Mercury	0.001 mg/l
Selenium	0.1 mg/l
Silver	0.02 mg/l

If asbestos is suspected in excavating building debris, analysis for Asbestos Containing Material (ACM) shall be performed as directed by the ROICC.

Laboratory analyses of the samples will be provided to the ROICC within five days of sample collection, or as soon as available depending upon the duration required for sample analysis. Copies of all sample analyses shall remain on site for the duration of the project.

The Lab selected for use on this project is:

ESS Laboratory
185 Frances Avenue
Cranston, RI

2.9 TRANSPORTATION AND DISPOSAL OF MATERIALS

Approximately 26,000 tons (15,100 CY of bank measured volume) of soil, concrete, and debris will be transported off-site and disposed of in an approved landfill based upon test results. Material will be transported from NAVSTA by truck. Tare and loaded weights will be recorded via the on-site scales, which will be operated by UNITEC.

2.9.1 Drivers and Trucks

Drivers of off-site haul trucks shall not come into physical contact with the contaminated material at any time during the transportation process.

All off-site disposal trucks shall be equipped with tarps that are in good condition and capable of containing soil for disposal. All loads will be covered prior to departure from the staging area. Liners will be required if truck beds do not properly seal when closed. This process will ensure that the vehicles are not leaking or releasing any waste, until off-loading at the disposal facility.

To assure that soil and debris is not tracked beyond the designated work area, all haul trucks shall be decontaminated prior to exit from the Site. All visible soil and debris will be removed from the haul trucks in the decontamination area. Each Truck shall be brushed with a wet long handled brush to remove visible dust and dirt from its exterior sides, and wheels. Decontamination fluids and solids shall be captured daily, stored on site, characterized, and disposed of in accordance with Federal, State and Local requirements.

2.9.2 Truck Routes

Off-site disposal trucks will be provided to ensure that disposal activities are completed according to the schedule. The shipping schedule shall correspond to the site work hours, which are daily from 6:30 am to 5:00 pm. Trucks shall not enter NAVSTA prior to 6:30 am and shall depart NAVSTA prior to 5:00 pm.

Empty trucks shall enter NAVSTA through Gate 10. Trucks carrying loads shall enter and exit NAVSTA through Gate 1.

The proposed truck route from NAVSTA shall be as follows:

Proceed North on Route 114 for approximately eight (8) miles to Route 138;

Proceed East on Route 138 for approximately nine (9) miles to Route 195; and,

Proceed West on Route 195 for approximately six (6) miles to Dexter Road (Pond View Facility), East Providence.

Please refer to the Truck Route Figure in Appendix A, Figures and Plans

2.9.3 Documentation

Waste manifests, bills of lading, placards, labels, markings, licensing and any other transportation/disposal documentation, as required by law, shall be provided and carried by waste haulers. A representative of the Contracting Officer will sign completed shipping manifests and bills of lading. The Contracting Officer shall be provided with a minimum of 48 hours of notice, prior to the shipment of waste materials from the site.

2.9.4 Disposal Facilities

Three disposal facilities will be utilized to manage the various types of soil and debris identified in the SOW.

All certified RCRA Subtitle D cover material, RCRA Subtitle D non-hazardous waste, recyclable material; scrap metal and concrete debris generated during the execution of excavation activities at Site 09 will be disposed of at the disposal facility identified below. If an alternative facility is identified, the facility information will be submitted for Navy approval:

Pond View Recycling Corporation
East Providence, Rhode Island
401-438-3000

All certified RCRA Subtitle C material generated during the execution of excavation activities at Site 09 will be disposed of at the disposal facility identified below. If an alternative facility is identified, the facility information will be submitted for Navy approval:

MAX Environmental Technologies
Yukon, Pennsylvania
800-851-7845

All certified ACM material generated during the execution of excavation activities at Site 09 will be disposed of at the disposal facility identified below. If an alternative facility is identified the facility information will be submitted for Navy approval:

Waste Management – Turnkey Facility
Rochester, New Hampshire

Prior to the removal of any soil or debris from the NAVSTA, manifests for the waste stream will be submitted for review, approval and signature by the Contracting Officer, or Contracting Officer Representative.

2.10 Site Restoration

Upon the completion of the excavation of the mounds, the excavated area will be restored to base grade. Geotextile fabric will be placed on the excavated areas and shall be covered with select fill material. Topsoil will be placed above the select fill and covered with grass as described in the Erosion Control Plan in section 2.2.3 for the Permanent Vegetative Cover. The area will be watered and fertilized sufficiently to establish the grass, which shall then be mowed per RI Soil Erosion and Control Handbook. Refer to the excerpt in Appendix B.

2.10.1 Materials

All of the material used for the restoration of excavated areas shall be obtained from off-site sources. Material specifications and test results will be submitted to the Navy's site representative for approval, prior to delivery of the material to the site. All soils brought to the site shall be certified as clean materials, with contaminant concentrations not exceeding RIDEM Direct Exposure Criteria for residential use soils (DEM DSR-01-93, Amended February 2004, Section 8.02). In addition, offsite soils shall contain less than 100 ppm total petroleum hydrocarbons (TPH) (EPA Method SW-846 Method 8015M) and less than 10 ppm of the sum of benzene, toluene, ethylbenzene and xylenes (BTEX) (EPA Method SW-846 Method 5030/8020). Materials shall not be brought on site until the Navy's Site Representative approves test results.

Geotextile

The Geotextile material shall be permeable material that prevents fines in the topsoil/fill material from migrating into the subsurface and provides for free drainage of the topsoil/fill material. Geotextile shall be resistant to fuel oil petroleum products and suitable for maintaining separation of the soils for a period of up to ten (10) years. Geotextile shall be ProPex 4553 (Amoco Fabrics and Fibers Company) or equivalent.

Select Fill

Select fill shall be sandy gravel, free of organic material, loam, wood, trash, snow, ice, frozen soil, and other foreign or deleterious material and shall have the following gradation:

Sieve Size	Percent Finer by Weight
4-in	100
No. 4	20 - 70
No. 40	5 - 35
No. 200	0 - 7

Topsoil

Topsoil shall conform to the applicable requirement of Section M.18.02 Plantable Soil; Landscaping Material of the Rhode Island Department of Transportation (RIDOT) Standard Specifications for Road and Bridge Construction.

Seed Mixture

Seed mixture shall conform to the applicable requirement of "Permanent Vegetative Cover Mix" for General Purpose Lawn in accordance with the Rhode Island Soil and Erosion Sediment Control Handbook. The grass will be installed and maintained per pages 4-2,3, and 4 in the RI Soil Erosion and Control Handbook. Refer to the excerpt in Appendix B.

Lime, Fertilizer and Water

Lime, fertilizer, mulch and water shall conform to the applicable requirement of Section M.18; Landscaping Material of the RIDOT Standard Specifications for Road and Bridge Construction.

Grading

All permits, tests, labor, materials, and equipment to restore the mound excavation areas and other disturbed areas to base grade elevation with compacted select fill, topsoil and turf in accordance with the final grading plan shall be accomplished. This effort shall include:

1. Grading the excavated areas to the proper sub grade elevation (1-foot below the base grade elevation);
2. Placing geotextile fabric, in accordance with manufacturers instructions, on surface of excavation areas sub grade to provide separation of the topsoil/fill material layers from existing subsurface soils (delivery included);
3. Placing select fill in loose lifts and compacting to an 8-inch thick layer (delivery included)
4. Placing topsoil a 4-inch thick minimum layer (delivery included) to indicated finished grade (Base Grade Elevation, as described in this Work Plan);
5. Restoring, to original condition, turf areas that have been disturbed and damaged (ruts or scarring in the soil) during mound excavation using topsoil; and,
6. Topsoil shall be spread and dressed to finished grade leaving no irregularities or depressions and so as to promote positive drainage.

2.10.2 Re-Vegetation

Areas disturbed during the excavation process shall be restored. Seeding shall occur within 24 hours of topsoil placement. Re-vegetated areas shall be protected from pedestrian and vehicular traffic using signs and/or temporary barriers. The maintenance or installation of new appropriate erosion and sediment control measures will be accomplished as necessary.

The area to be re-vegetated will be prepared, limed, fertilized, seeded, mulched and watered as a Type 1 (General Highway Seeding) area in conformance with Section L.02 Seeding of the RIDOT Standard Specifications for Road and Bridge Construction.

Seeding shall be provided at a minimum rate of 150 lbs per acre, through hydroseeding or mechanical means, with mulch and fertilizer added as necessary. Fertilization shall be provided at no more than 850 lbs per acre.

The Contractor shall water all seeded areas immediately upon placement of the seed. The contractor shall also provide a second watering approximately 72 hours after the first. Water shall be applied at a controlled rate and in such a manner to insure that the water reaches to root zone. Water operations shall not flood adjacent areas, erode soil, seed, mulch or fertilizer, or cause damage to the seeded areas.

Seeding shall be completed no later than October 15, 2004.

Mowing shall be conducted one time after grass has obtained a height of four inches.

Minimum coverage of new sown seed shall be 85% of the area seeded, to a mown height of 4 inches.

3.0 REPORTING AND DOCUMENTATION

During construction activities, daily documentation shall be provided to the ROICC, or Contracting Officer Representative as requested by the Navy. Documentation will include daily summary reports, analytical reports, waste disposal documentation, and certificates/treatment of disposal.

Daily Reports

Daily summary reports detailing the quantities, types, and classifications of material removed from the Site shall be submitted to the Contracting Officer, or Contracting Officer Representative on the following business day, via e-mail. Daily reports shall include totaled departure tonnage from the on-site scale tickets. The report shall include manifest number, transporter, and disposal facility where the material was disposed.

Analytical Reports

Two hard copies of laboratory analysis data reports shall be faxed to the Contracting Officer, or Contracting Officer Representative, for each sample or sample group – within five (5) days of sample collection. An additional copy of all laboratory analysis data reports shall be kept on site until the completion of the project.

Waste Disposal Documentation

Following transportation, manifests or bills of lading that have been signed by the disposal facility, along with certified weight slips, shall be submitted to the Contracting Officer within ten (10) days of waste delivery. Weight slips shall contain the gross truck weight, truck tare weight, the net weight of material, cumulative daily rate, date of delivery, facility name, signature of person receiving the load of material, and the numerical load number for the day. Weight slips

shall also contain the transportation company name, and plate numbers for both the tractor and the trailer, if applicable. Copies of any discrepancy reports or exception reports shall also be submitted.

Certificates/Treatment of Disposal

Certificates of Treatment/Disposal from the final disposal facility shall be submitted. If the material is accepted at one facility and disposed of at another, the certificates shall be from the final disposal facility. If waste is treated at one facility and the remains of the waste are sent to a second facility, the Contracting Officer shall receive a Certificate of Treatment from the first facility and a Certificate of Disposal from the final facility. Certificates of Treatment/Disposal shall include the number of the manifest, date when the manifest was transported off-site, and a description of the waste as reported on the manifest. Certificates will be submitted within ten (10) days of final waste disposal. The Certificates will be submitted separately.

Closeout Report

Upon completion of all site activities, UNITEC will prepare a Closeout Reports. The Close-Out Report will include the following:

- A statement that the work was conducted in accordance with the work plan, with any exceptions noted;
- A summary of volumes of material shipped;
- A summary of volumes of material disposed of and the final disposal location;
- Copies of analytical reports from characterization of stockpiled materials (an electronic deliverable of analytical results in database of excel format);
- Copies of the manifests, bills of lading, and weight slips for all shipping and transfer facilities and final disposal facilities; and,
- Copies of treatment/disposal certificates.

4.0 PROJECT SCHEDULE

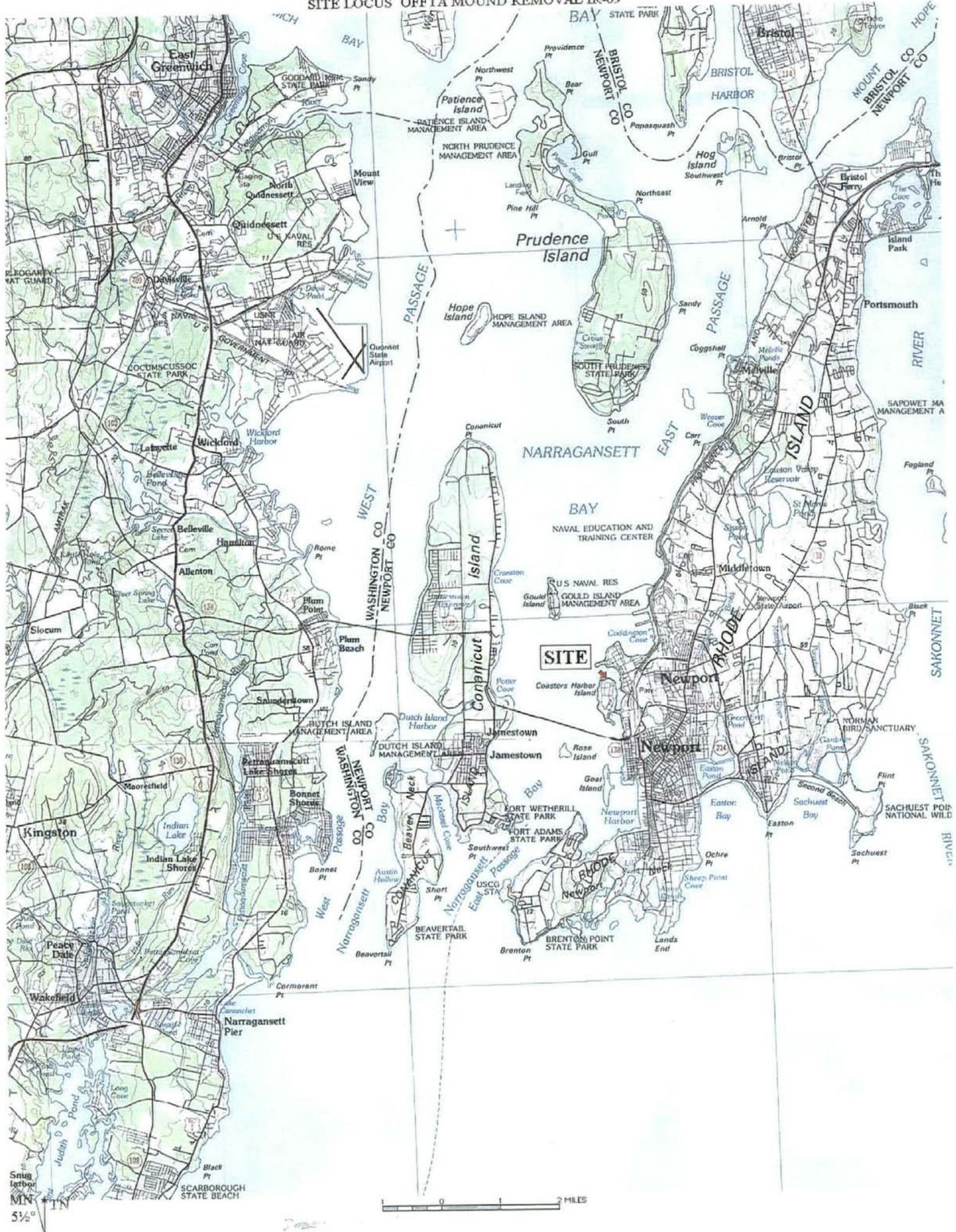
Task	Deadline
Task Award	31 March 2004
Submit Internal Draft Work Plans	30 April 2004
Obtain Government Review	31 May 2004
Submit Draft Work Plans	15 June 2004
Obtain Government Review	30 July 2004
Submit Final Work Plans	8 August 2004
Mobilize to Site 09	15 August 2004
Erect Erosion Controls	16 August 2004
Initiate Excavation / Disposal Activities	17 August 2004
Complete Excavation / Disposal Activities	30 September 2004
Initiate Site Restoration Activities	1 September 2004
Complete Site Restoration Activities	15 October 2005
Demobilize	22 October 2005
Submit Closeout Report	15 May 2005

Note: The schedule is based on no change in scope

END

APPENDIX A
FIGURES AND PLANS
FOR
WORK PLAN
AT
OFFTA IR SITE 09
NAVAL STATION NEWPORT

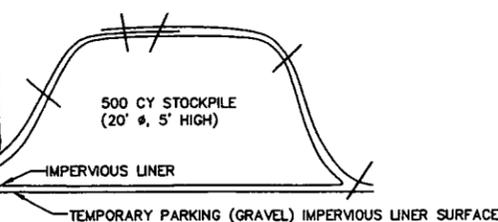
SITE LOCUS OFF LA MOUND REMOVAL TRUSS



STOCKPILE AND ANCHORED COVER

NOT TO SCALE

WIND AND WATER RESISTANT TARPULIN WITH GROMMETS - OVERLAP A MINIMUM OF 5' STAKE THROUGH GROMMETS OR TIE GROMMETS TO FIRMLY PLACED STAKES



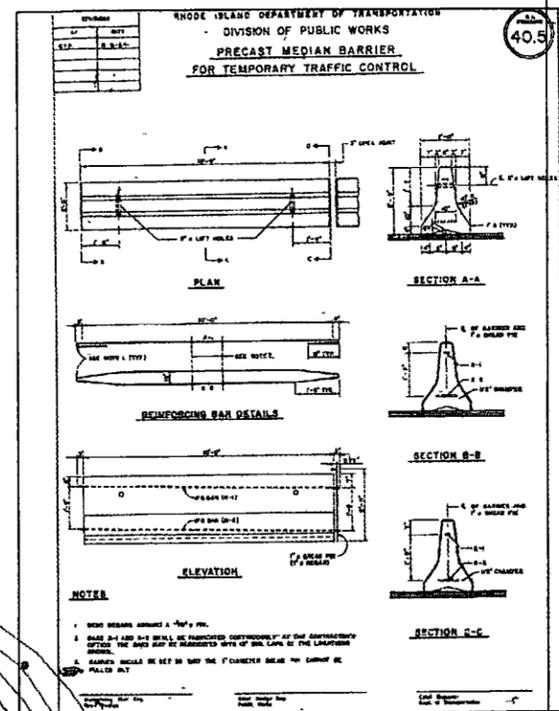
PLACE ADDITIONAL STAKES AND SMOOTH WEIGHTS AT CHANGES OF SLOPE AND EVERY 10' ON CENTER TO PREVENT WIND FROM LIFTING TARP

24" RCP OUTFALL #093

EROSION CONTROL

JERSEY BARRIER

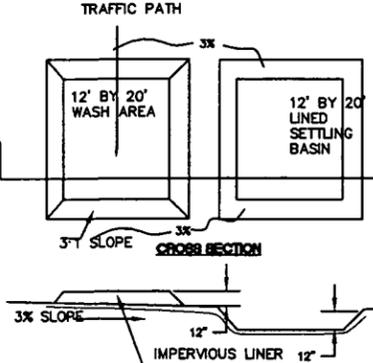
NOT TO SCALE



TEMPORARY TRUCK WASH

NOT TO SCALE

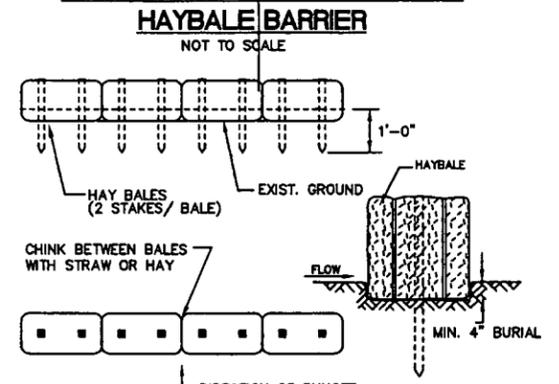
TRAFFIC PATH



RAISED GRAVEL WASH AREA. PROVIDE DRAINAGE INTO SETTLING BASIN. PUMP BASIN AS NECESSARY INTO 55 g DRUM FOR DISPOSAL

TEMPORARY EROSION CONTROL HAYBALE BARRIER

NOT TO SCALE



NOTES AND REFERENCES:

- DRAWING COMPILED FROM A DRAWING ENTITLED "BASE MAP OLD FIRE FIGHTING TRAINING AREA", NETC, NEWPORT, RHODE ISLAND, JULY 1997, PROJ. NO. 7578 CTO: 288, BY BROWN & ROOT ENVIRONMENTAL, SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., DATED NOVEMBER 10, 1997, AND THE ADDITION OF FIELD MEASURED FEATURES, BY LOUIS FEDERICI AND ASSOCIATES 3/16/99, PRESENTED ON A DRAWING ENTITLED "KADY FIELD, TOPOGRAPHIC, SOIL SAMPLE LOCATION, AND SITE SURVEY AT THE OLD FIRE FIGHTING TRAINING AREA", NAVAL STATION NEWPORT IN NEWPORT, RHODE ISLAND FOR TETRA TECH NUS, INC., LOUIS FEDERICI & ASSOCIATES, 3/16/99, DWG NO. 990205-01 AND "TOPOGRAPHIC SURVEY AND SOIL BORING LOCATION", LOUIS FEDERICI AND ASSOCIATES DATED: 1/16/04, DWG NO.: 19990205-02.
- HORIZONTAL DATUM BASE ON THE RI STATE PLANE COORDINATE SYSTEM NAD 1927 VERTICAL DATUM BASED ON NAVAL BASE MEAN LOW WATER.
- ALL LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.
- PLAN NOT TO BE USED FOR DESIGN.

LEGEND

■	CATCH BASIN	---	INTERPRETED BASE OF MOUND AND APPROXIMATE AREA OF EXCAVATION
---	FENCE	---	APPROXIMATE LOCATION OF TEMPORARY EROSION CONTROL BARRIER
---	EXISTING CONTOUR	---	INSTALL TEMPORARY EROSION CONTROL JERSEY BARRIER
●	SOIL BORING LOCATION WHERE SURFACE AND SUBSURFACE SOIL SAMPLES WERE COLLECTED	---	INSTALL/REALIGN CHAIN LINK FENCE TO MATCH EXISTING
○	MONITORING WELL LOCATION WHERE SURFACE AND SUBSURFACE SOIL SAMPLES WERE COLLECTED	---	INSTALL TEMPORARY EROSION CONTROL HAYBALE BARRIER
---	STORM DRAIN LINE	---	500 CY STOCKPILE PLACED ON LINER AND COVERED WITH WIND AND WATER RESISTANT ANCHORED LINER (500 CY ± 40' x 50' BASE, 20' BY 30' TOP AND 10.5' HIGH) SPACE STOCKPILES MINIMUM OF 10' APART
TP-10	TEST PIT LOCATION WHERE SUBSURFACE SOIL SAMPLE(S) WERE COLLECTED (B&RE, 6/97)		
TP-1C	TEST PIT LOCATION WHERE SUBSURFACE SOIL SAMPLE(S) WERE COLLECTED (TRC, 1/94)		
SB400	SOIL BORING AND IDENTIFIER		

SOIL EROSION AND SEDIMENT CONTROL NOTES

- PLACE PERMANENT EROSION CONTROL JERSEY BARRIERS.
- REMOVE, REALIGN AND INSTALL CHAIN LINK FENCING TO MATCH EXISTING
- LOCATE AND STAKE THE LIMIT OF WORK WITH TEMPORARY EROSION CONTROL HAY BALE BARRIER AS PER RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK LATEST EDITION.
- LOCATE TREES TO REMAIN AND SURROUND WITH CONSTRUCTION FENCING.
- REMOVE AND DISPOSE OF TREES AND STUMPS NOT TO REMAIN.
- FURNISH, INSTALL AND IMPLEMENT A TRUCK WASH TO REMOVE SOILS AND DUST FROM EQUIPMENT LEAVING THE SITE.
- WHEREEVER POSSIBLE EXISTING VEGETATION TO REMAIN SHALL REMAIN UNDISTURBED.

EXCAVATION SITE PLAN

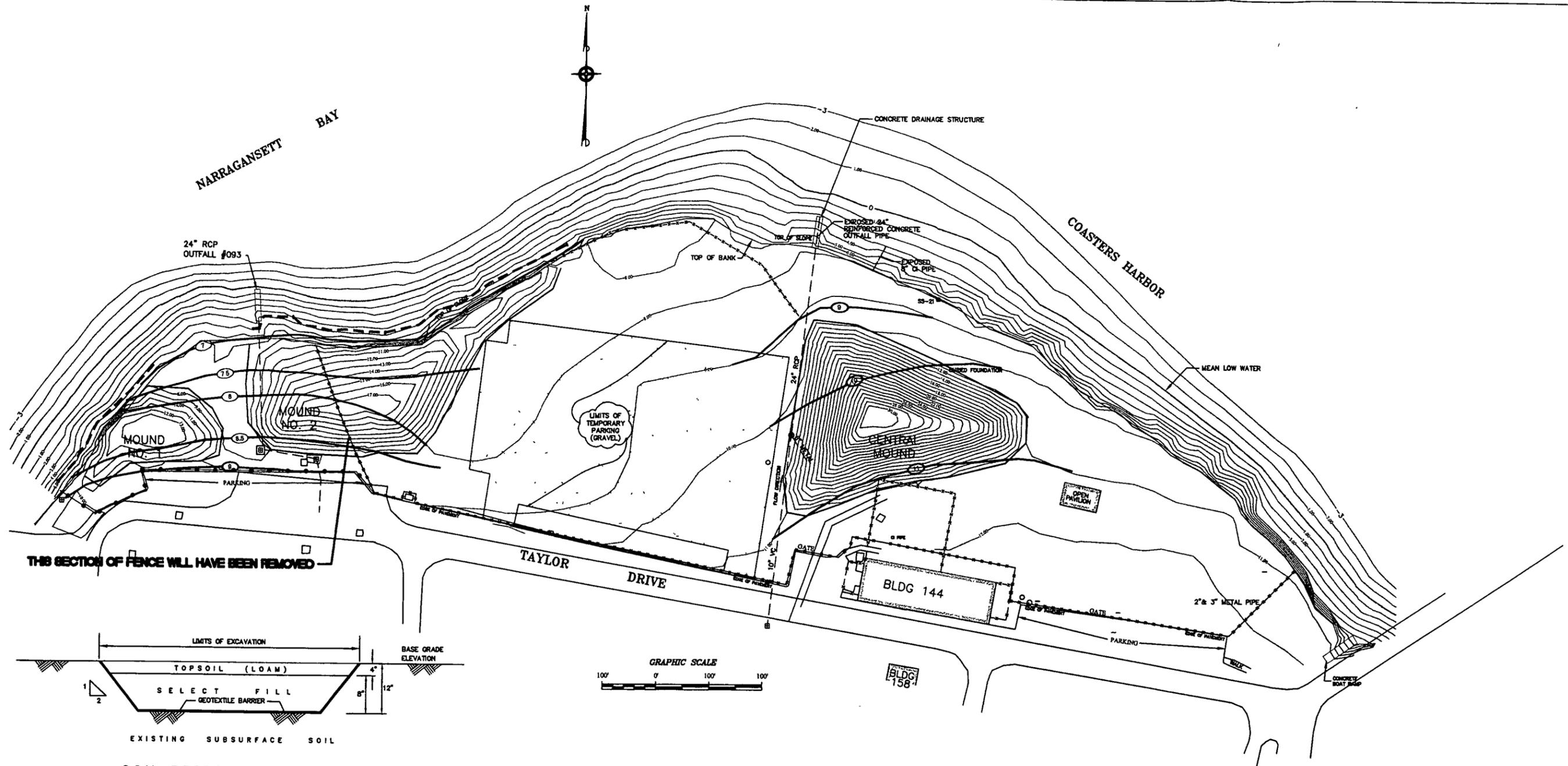
PLAN REVISED BY UNITEC FOR USE IN WORK PLAN FOR OFFTA MOUND REMOVAL IR-09

UNITEC **UNIVERSE TECHNOLOGIES, INC.**
Engineering and Scientific Solutions

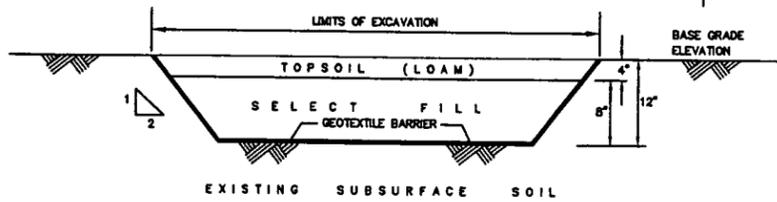
DRAWN BY: D.W.M. / R.G.D.	TITLE: SOIL BORING LOCATIONS
PREPARED BY: D. HARTIGAN	PRE-DESIGN INVESTIGATION, SOIL REMOVAL
CHECKED BY: S. PARKER	OLD FIRE FIGHTING TRAINING AREA
	NAVAL STATION NEWPORT, RHODE ISLAND
	SOURCE: BASE PLAN BY SEE NOTES.
	SCALE: AS SHOWN
	DATE: FEBRUARY 23, 2004
	PROJ. NO: 4152
PROJECT MANAGER: S. PARKER	DRAWING NO: FIGURE 4-1
PROGRAM MANAGER: J. TREPANOWSKI	ACFILE NAME: DWG\4152\1401\PRG_4-1A.DWG
	REV: 0

TETRA TECH NUS, INC.
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899

* REVISIONS AUGUST 20, 2004 BY UNITEC



THIS SECTION OF FENCE WILL HAVE BEEN REMOVED



SOIL RESTORATION DETAIL

NOT TO SCALE
GEOTEXTILE IS TO BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS

LEGEND

- ☐ CATCH BASIN
- FENCE
- INTERPRETED BASE OF MOUND
- FINAL GRADING PROPOSED CONTOUR
- EXISTING TOPOGRAPHIC CONTOUR LINE (1' H. INTERVAL)
- STORM DRAIN LINE
- PERMANENT EROSION CONTROL, GRASSY BANK*
- ORIMULATED CURB LINE FENCE TO MARK EXISTING*

* REVISIONS JUNE 10, 2004 BY UNITEC

NOTES AND REFERENCES:

1. DRAWING COMPILED FROM A DRAWING ENTITLED "BASE MAP OLD FIRE FIGHTING TRAINING AREA", NETC, NEWPORT, RHODE ISLAND, JULY 1997, PROJ. NO. 7578 CTO: 288, BY BROWN & ROOT ENVIRONMENTAL. SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., DATED NOVEMBER 10, 1997, AND THE ADDITION OF FIELD MEASURED FEATURES, BY LOUIS FEDERICI AND ASSOCIATES 3/18/99, PRESENTED ON A DRAWING ENTITLED "KADY FIELD, TOPOGRAPHIC, SOIL SAMPLE LOCATION, AND SITE SURVEY AT THE OLD FIRE FIGHTING TRAINING AREA", NAVAL STATION NEWPORT IN NEWPORT, RHODE ISLAND FOR TETRA TECH NUS, INC., LOUIS FEDERICI & ASSOCIATES, 3/18/99, DWG NO 990205-01 AND "TOPOGRAPHIC SURVEY AND SOIL BORING LOCATION", LOUIS FEDERICI AND ASSOCIATES, DATED: 1/16/04, DWG NO.: 19990205-02.
2. HORIZONTAL DATUM BASE ON THE RI STATE PLANE COORDINATE SYSTEM NAD 1927. VERTICAL DATUM BASED ON NAVAL BASE MEAN LOW WATER.
3. ALL LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.
4. PLAN NOT TO BE USED FOR DESIGN.

RESTORATION SITE PLAN PLAN REVISED BY UNITEC FOR USE IN WORK PLAN FOR OFTA MOUND REMOVAL IR-09

UNITEC **UNIVERSE TECHNOLOGIES, INC**
Engineering and Scientific Solutions

DRAWN BY: R.G. DEWSNAP
PREPARED BY: J. FORRELLI
CHECKED BY: S. PARKER

PROJECT MANAGER: S. PARKER
PROGRAM MANAGER: J. TREPANOWSKI

TITLE: FINAL GRADING PLAN
SOIL / DEBRIS MOUND REMOVAL
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, RHODE ISLAND

SOURCE: BASE PLAN BY SEE NOTES.

SCALE: AS SHOWN DATE: FEBRUARY 23, 2004 PROJ. NO: 4152

DRAWING NO. FIGURE 1 ACFILE NAME: DWG\4152\1401\FR_1.DWG REV: 0

TETRA TECH NUS, INC.

55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899

APPENDIX B

**EXCERPTS FROM
RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL
HANDBOOK**

FOR

WORK PLAN

AT

OFFTA IR SITE 09

NAVAL STATION NEWPORT

Section C DUST CONTROL (DC)

DEFINITION

The control of dust on construction sites and roads.

PURPOSE

To prevent blowing and movement of dust from exposed soil surfaces, and reduce the presence of dust which may cause off-site damage, be a health hazard to humans, wildlife and plant life, or traffic safety hazard.

APPLICABILITY

This measure is applicable to areas subject to dust blowing and soil movement where on- and off-site damage is likely to occur if preventive measures are not taken.

PLANNING CONSIDERATIONS

Use traffic control to restrict traffic to predetermined routes. Maintain as much natural vegetation as is practicable. Use phasing of construction to reduce the area of land disturbed at any one time. The use of temporary mulching, permanent mulching, temporary vegetative

cover, permanent vegetative cover or sodding will reduce the need for dust control. Use mechanical sweepers on paved surfaces where necessary to prevent dust build up. Stationary sources of dust; for example, rock crushers, should use fine water sprays to control dust.

INSTALLATION REQUIREMENTS

A. **Water** The exposed soil surface should be moistened periodically with adequate water to control dust.

B. **Calcium Chloride** Should be either loose dry granules or flakes fine enough to feed through a spreader at a rate that will keep surface moist but not cause pollution or plant damage. Because of environmental concerns associated with this method, it should be used only when others are not feasible. Use of calcium chloride in the watersheds or recharge zones of water supply reservoirs or aquifers is not recommended.

C. **Stone** Cover surface with crushed stone or coarse gravel. In areas adjacent to waterways use chemically stable aggregate.

MAINTENANCE

When temporary measures are used, repetitive treatments should be applied as needed to control dust.

Section F PERIMETER SEDIMENT BARRIERS (ST)

DEFINITION

A temporary soil erosion control measure which impedes the movement of soil or sediment, under sheet flow conditions.

PURPOSE

To intercept and retain small amounts of sediment from disturbed or unprotected areas of limited extent.

APPLICABILITY

The sediment barrier is used where:

- a. Sedimentation can pollute or degrade adjacent wetlands and/or watercourses.
- b. Sedimentation will reduce the capacity of storm drainage systems or adversely affect adjacent areas.
- c. Contributing drainage area is less than 1 acre and the length of slope above the barrier is less than 150 feet. If the slope length is greater, other measures such as diversions may be necessary to reduce slope length.

PLANNING CONSIDERATIONS

Sediment barriers may consist of filter fence, straw or hay bales, stone berms, or other filter materials. Planned lifespan of sediment barriers varies. Straw or hay bales should only be used as a temporary barrier for no longer than 60 days. Synthetic filter fences can be used for 60 days or longer depending on ultraviolet stability and manufacturer's recommendations. Stone barriers can be used for longer periods of time. Straw or hay bales, sediment fences, silt curtains and snow fences may be used in combination to provide adequate control.

DESIGN CRITERIA

A. Straw/Hay Bales

1. Sheet Flow Applications

- Bales should be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abut-

ting one another.

- All bales should be either wire-bound or string-tied. Bales should be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales to prevent deterioration of the bindings.
 - The barrier should be entrenched and backfilled. A trench should be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. After the bales are staked and chinked, the excavated soil should be backfilled against the barrier. Backfill soil should conform to the ground level on the downhill side and should be built up to 4 inches against the uphill side of the barrier. Ideally bales should be placed 6 feet away from the toe of slope to provide sediment storage (Figure 5-3).
 - Each bale should be securely anchored by at least two stakes driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together. Stakes should be driven deep enough into the ground to securely anchor the bales.
 - The gaps between bales should be chinked (filled by wedging) with straw to prevent water from escaping between the bales. (Loose straw scattered over the area immediately uphill from a straw bale barrier tends to increase barrier efficiency).
 - In sloping areas where surface flow follows the bale line, perpendicular bale checks shall be installed at appropriate intervals (100 feet maximum).
 - Inspection should be frequent and repair or replacement should be made promptly as needed.
 - Bale barriers should be removed when they have served their usefulness, but not before the upslope areas have been permanently stabilized.
- #### 2. Maintenance
- Inspection should be made after each storm event and repair or replacement should be made promptly as needed.
 - Cleanout of accumulated sediment behind the bales is necessary if 1/2 of the original height of the bales becomes filled in with sediment.

B. Filter Fences

i. Materials

a. Synthetic Filter Fabric Synthetic filter fabric should be a pervious sheet of propylene, nylon, polyester or ethylene filaments and should be certified by the manufacturer or supplier as conforming to the following requirements:

PHYSICAL PROPERTY	MINIMUM REQUIREMENTS
Filtering Efficiency	75%
Tensile Strength at 20% (Maximum)	Extra Strength- 50 lbs/linear inch
Elongation	Standard Strength- 30 lbs/linear inch
Flow Rate	0.3 gal/ft ² /min

b. Non-synthetic Filter Fabric Requirements Burlap shall be 10 ounce per square yard fabric.

c. Filter Fabric Support Requirements Posts or stakes for filter fences should be of sufficient size and strength to support the fabric. Steel posts should have projections for fastening wire to them.

Wire fence reinforcement for silt fences using standard strength filter cloth should be a minimum of 36 inches in height, a minimum of 14 gauge and a maximum mesh spacing of 6 inches.

Some silt fences do not require a wire backing. Consult manufacturer's instructions for proper installation requirements.

2. Installation Requirements This sediment barrier util-

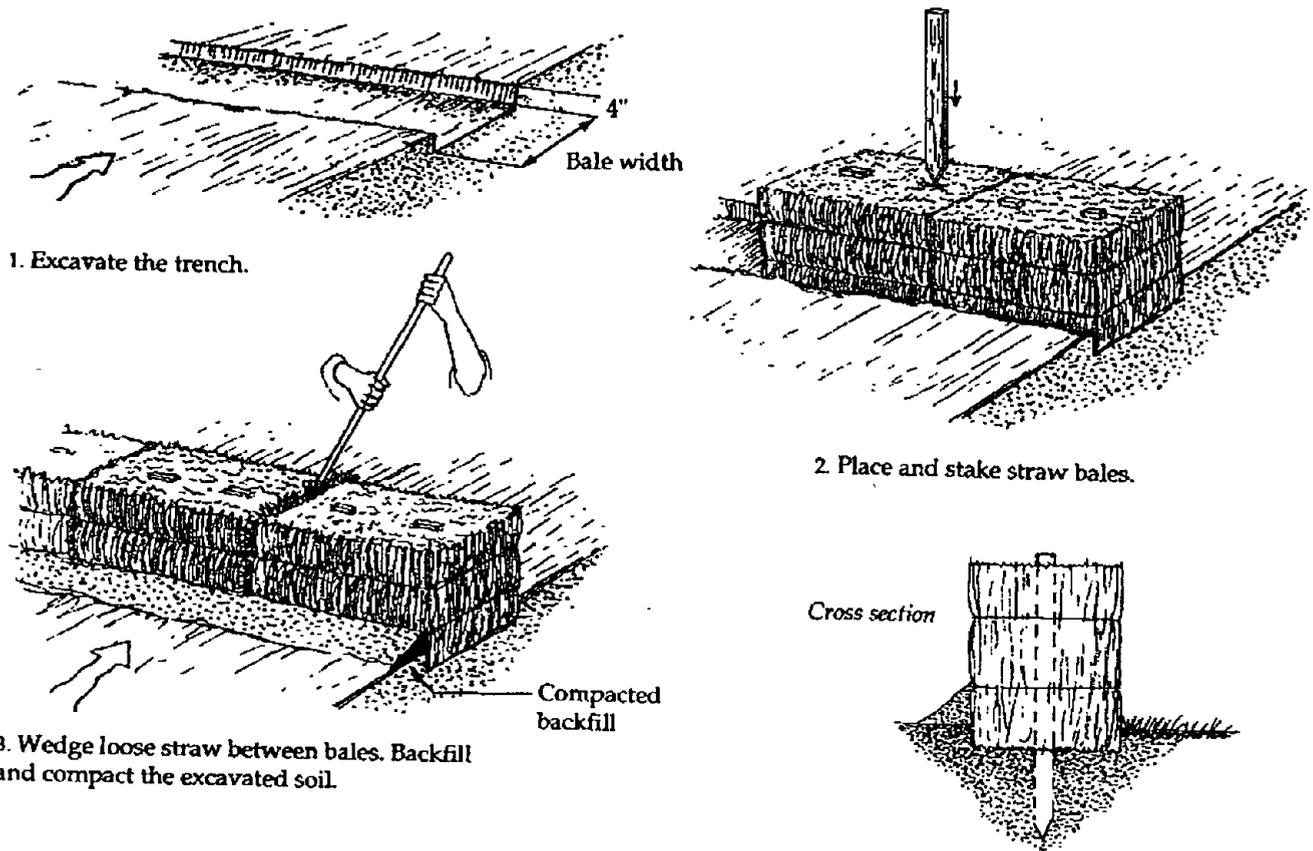


Figure 5-3 Placement and Construction of a Straw Bale Barrier
 Adapted from: U.S. Department of Agriculture, Soil Conservation Service, Storrs, Connecticut

Section B PERMANENT VEGETATIVE COVER (PV)

DEFINITION

Establishment of permanent vegetative cover on exposed soils where perennial vegetation is needed for long term protection.

PURPOSE

To permanently stabilize the soil, to reduce damages from sediment and runoff and to enhance the environment.

APPLICABILITY

On exposed soils that have a potential for producing sediment and causing on- or off-site damages.

PLANNING CONSIDERATIONS

Provisions should be made for surface and subsurface drainage, as needed, and for disposal of runoff without causing erosion. Facilities may include diversions, grade stabilization structures, streambank stabilization or waterways. Where appropriate, permanent vegetative cover should be established in phases, that is, as work is completed on upslope areas, vegetation is established to stabilize these areas. An example of phased seeding is the establishment of vegetation on cut and fill slopes every 15 feet vertically or 30 feet horizontally.

INSTALLATION REQUIREMENTS FOR SEED MIXTURES

A. Site Preparation

1. Install needed erosion control measures such as diversions, grade stabilization structures, sediment basins and grassed waterways.
2. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application and anchoring, and maintenance. All grading should be done in accordance with the guidelines for land grading as discussed in Chapter 3.

B. Seedbed Preparation

1. Apply limestone and fertilizer according to soil tests such as those offered by the University of Rhode Island Soil Testing Laboratory. Soil sample mailers are available from the local Cooperative Extension Service Office. If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 500 pounds per acre or 11.5 pounds per 1,000 square feet using 10-20-20 or equivalent. Apply ground limestone (equivalent to 50 percent calcium plus magnesium oxide) as follows:

SOIL TEXTURE	TONS/ACRE	LBS/1000 FT ²
Clay, clay loam and high organic soil	4	180
Sandy loam, loam, silt loam	3	135
Loamy sand, sand	2	90

Refer to the *Soil Survey of Rhode Island* (USDA SCS, 1981) for soil textures at the site.

2. Fertilizer is not required in buffer areas adjacent to wetland areas or in wetland areas when the recommended seed mix of ladino clover and reed canarygrass is used (Table 4-2). Leguminous plants such as ladino clover are nitrogen fixers which make nitrogen available for uptake by other plants. In general, it is desirable to minimize the use of fertilizers in areas adjacent to surface waters so as to prevent the eutrophication of these waters.
3. With the exception of hydroseeding, work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, spring tooth harrow or other suitable equipment. The final harrowing or discing operation should be on the general contour. Continue tillage until a reasonably uniform, fine seedbed is prepared. All but clay or silty soils and coarse sands should be rolled to firm the seedbed wherever feasible.
4. Remove from the surface all stones two inches or larger in any dimension. Remove all other debris, such as wire, cable, tree roots, pieces of concrete, clods, or lumps.
5. Inspect seedbed just before seeding. If traffic has left the soil compacted, the area must be retilled and firmed as above.

c. Seeding Dates Early spring or late summer seeding is recommended; mid-summer seeding is not recommended. Spring seedings of all seed mixes with legumes is recommended, however late summer seedings prior to September 1 can be made. The recommended seeding dates are: April 1 through June 15 and August 15 through September 30.

The final seeding date may be extended 15 days in Newport County.

d. Seeding:

1. Select a mixture from Table 4-2 or use a mixture recommended by the Soil Conservation Service. Where relatively small areas are to be seeded with a premix, that is, less than 2 acres and where the purchase of large volumes of seed are unnecessary, Improved URI Number 2 lawn seed mix is recommended. Inoculate all legume seed with the correct type and amount of inoculant.

TABLE 4-2

Permanent Seedings

■ **LAWNS**

For sun or shade; moderate management suggested (Improved URI Number 2 lawn seed mixture).

	lbs/acre	lbs/1000 ft ²
Red fescue	40	.90
Kentucky bluegrass*	40	.90
Perennial ryegrass**	20	.45

* 50% (20 lbs/acre) must be a named or improved variety, such as America Kentucky bluegrass.

** Must be a named or improved variety, such as Yorktown II Perennial ryegrass

For more information: URI Cooperative Extension Circular 185, Kingston, RI

■ **SOD WATERWAYS, DRAINAGE DITCHES, DETENTION BASINS, ETC.**

	lbs/acre	lbs/1000 ft ²
Creeeping red fescue	20	.45
Tall fescue or Reed canarygrass*	20	.45

* Use Reed canarygrass where mowing is not required.

Source: USDA, Soil Conservation Service

■ **SAND DUNES, BLOWING SAND**

	no./acre	no./1000 ft ²
'Cape' American beachgrass culms	58,500	1,345

■ **GENERAL PURPOSE LAWN**

Minimum maintenance; mowed.

	lbs/acre	lbs/1000 ft ²
Red fescue	75	1.75
Kentucky bluegrass	15	.35
Colonial bentgrass	5	.11
Perennial ryegrass	5	.11

Source: URI Agricultural Experiment Station Bulletin 432, Kingston, RI (RI Dept. of Transportation 'Park' seed mixture)

■ **GENERAL PURPOSE**

Minimum maintenance; unmowed or infrequently mowed.

	lbs/acre	lbs/1000 ft ²
Red fescue	75	1.75
Colonial bentgrass, 'Exeter'	5	.11
Perennial ryegrass	5	.11
Birdsfoot Trefoil, 'Empire'*	15	.35

* Use inoculated seed; may include 20% hard seed.

Source: URI Agricultural Experiment Station Bulletin 432, Kingston, RI (RI Dept. of Transportation 'Slope' seed mixture).

■ **BUFFER ZONES ADJACENT TO WETLANDS OR SURFACE WATERS AND WETLAND AREAS**

	lbs/acre	lbs/1000 ft ²
Reed canarygrass	20	.45
Ladino clover*	1	.02

* Use inoculated seed.

2. Apply seed uniformly by hand, cyclone seeder, drill, cultipacker type seeder, or hydroseeder (slurry including seed and fertilizer). Normal seeding depth is from 1/4 to 1/2 inch. Hydroseedings which are mulched may be left on the soil surface.

3. Where feasible, except where either a cultipacker type seeder or hydroseeder is used, the seedbed should be firmed following seeding operations with a roller, or light drag. Seeding operations should be on the contour.

4. Frost crack seeding can be used to improve the density of permanent seeding. Frost crack seeding must be done in late winter or early spring. Suitable weather conditions are freezing nights and thawing days with little or no snow cover.

5. Hydraulic application (hydroseeding) is a suitable method except on severely steep slopes. When hydroseeding, a seedbed is prepared in the conventional way or by hand raking to loosen and smooth the soil and to remove surface stones larger than two inches in diameter. Generally, slopes greater than 2:1 are not recommended. Where slopes exceeding 2:1 are unavoidable, supplemental mulch, matting and/or structural erosion controls are recommended.

Lime should be applied and thoroughly incorporated into the soil prior to seeding. Fertilizer may be applied simultaneously with the seed. Use of straw mulch held with adhesive materials or 500 lbs per acre of wood fiber mulch is recommended for protection from soil erosion. Whole wood mulch is recommended. The recommended rate for hydromulch is 1,500 lbs per acre on flats and 3,000 lbs per acre on slopes. Seeding rates must be increased 10% when hydroseeding.

6. Apply mulch according to the Temporary Mulching measure.

7. If seeding cannot be done within the seeding dates, use the Temporary Mulching measure to protect the site and delay seeding until the next recommended seeding period.

MAINTENANCE FOR PERMANENT SEEDINGS

a. Lime according to a soil test or at a minimum every 2 to 3 years using a rate of one ton per acre (50 lbs per 1,000 sq. ft.).

b. Where grasses predominate, fertilize according to a soil test or biennially broadcast 500 lbs of 10-6-4 (lawn fertilizer) or equivalent per acre (12.5 lbs per 1,000 sq. ft.). At least 30% of the fertilizer's available nitrogen must be in a slow releasing form.

c. Where legumes predominate, fertilize according to a soil test or every three years, broadcast 300 lbs of 0-20-20 or equivalent per acre (7.5 lbs per 1,000 sq. ft.).

INSTALLATION REQUIREMENTS FOR BEACH GRASS CULMS

A. Site Preparation

1. Fencing is needed in areas planted with beach grass to collect sand and build up dune, and to protect the newly planted area from foot traffic. A 4 foot high snow fence should be erected at right angles to the shoreline and in front of the dune area at right angles to the predominate wind direction (i.e. parallel to the shore). Snow fence should be securely attached to 8 foot long posts or pipes driven 4 feet into the ground (Figure 4-1). Fencing should be removed during mid-May to September to establish an equilibrium in sand dispersal. New plantings, however, may require prolonged use of fencing.

2. Where necessary to encourage proper growth and stabilization, fertilizer may be applied at a rate of 600-800 lbs per acre using 10-10-10 or equivalent. Best results may be obtained by applying the fertilizer in early April for the first two years.

b. **Planting Dates** Planting should be done during late fall and early spring to insure the culms' best chance for survival.

c. Planting:

1. American Beach Grass plants are commercially available.

2. The beach grass culms should be planted 12 to 18 inches apart and to a depth of 9 inches. Three to five stems per transplant is the recommended planting density.

3. Beach grass should be planted on all disturbed and eroding areas; it should be planted within snow fencing and on the ocean side of the structures, up to and including the dune itself.

4. Access to dunes should be restricted by establishing paths and walkways over areas of thinnest growth.

APPENDIX C

SITE HEALTH AND SAFETY PLAN

FOR

WORK PLAN

AT

OFFTA IR SITE 09

NAVAL STATION NEWPORT

HEALTH AND SAFETY PLAN

OLD FIREFIGHTING TRAINING AREA
MOUND REMOVAL
INSTALLATION RESTORATION SITE 09
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND

Prepared for:
Engineering Field Activity, Northeast
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop 82
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29 April 2004
Revised June 10, 2004

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APPENDIX B ROUTE TO HOSPITAL

Appendix C Tree Diagram of Project Personnel

1.0 Project Identification

This Health and Safety Plan (HASP) is applicable to the removal activities to be performed by Universe Technologies, Inc. (UNITEC) and its subcontractors at Site 09, The Naval Station Newport, Newport, RI.

This HASP documents the policies and procedures that protect workers and the public from potential hazards posed by work at this site and is the key component of UNITEC's corporate Health and Safety Program. UNITEC considers safety the highest priority during work at a site containing potentially hazardous materials and has established a goal of zero incidents for all projects. All projects will be conducted in a manner that minimizes the probability of near misses, equipment/property damage or personal injury. This HASP is a key element in the proper planning of project work that is necessary to assure the goal of zero incidents is achieved.

The project was authorized by the Engineering Field Activity Northeast Division, Lester, PA in its EMAC contract between EFA Northeast and UNITEC. The project consists of removal activity involving soil and demolition debris located at the Site 09, The Naval Weapons Station Newport, Newport, RI.

The purpose of this site specific HASP is to assign responsibilities, establish personnel protection standards, establish safety practices and procedures, and provide for contingencies that may arise while removal activities are being conducted at the site.

2.0 Staff Organization

Participants in the field activities associated with this project include personnel from UNITEC and its excavation and transportation subcontractors: Fleet Environmental Services (Fleet) and Mill City Environmental (Mill City).

One field team will be mobilized. The field team will include a site superintendent and work crew including heavy equipment operators from Fleet and Mill City. The site superintendent will serve as the Site Safety Officer for the crew site assignments.

2.1 Project Manager (PM)

The PM has the overall responsibility for the project and to assure that the requirements of the contract are attained in a manner consistent with the HASP requirements. The PM will coordinate with the Site Supervisor (SS) and the Site Safety Officer (SSO) to assure that the work is completed in a manner consistent with the HASP. The PM reports to the Program Manager and is responsible for the following:

- Managing and coordinating all contractual/administrative and technical activities for this project.
- Coordinate all activities with on-site personnel, Federal and Local Agencies.

- Investigating and reporting findings for all first-aid and OSHA recordable incidents and implementing corrective action.

2.2 Site Supervisor (SS)

The site supervisor is responsible for field implementation of the HASP. The SS will be the main contact in any on-site emergency situation and will insure off-site emergency agencies have been contacted prior to the start of work. The SS will act as the SSO when the assigned SSO is not on the project site. The SS will conduct periodic inspections of the work site to confirm compliance with all health and safety requirements. The SS is also responsible for coordinating remedial actions for all deficiencies. Specific responsibilities include:

- Direct on-site investigation and operational efforts.
- Ensure that appropriate personal protective equipment and monitoring equipment are available and properly used by on-site personnel.
- Ensure that on-site personnel and subcontractors have received a copy of the site-specific HASP, have attended the site safety briefing, are aware of the potential hazards associated with the site operations, are instructed in safe work practices and are familiar with planned emergency procedures.
- Ensure that on-site personnel and subcontractors have the proper health and safety training, medical certifications and declarations that qualify them to work at hazardous sites, and have completed the proper acceptance and feedback forms.
- Monitor the safety performance of subcontractor on-site personnel to ensure that the required work practices are employed.
- Correct any work practices or conditions that may result in personal injury, exposure to hazardous substances, or a release of hazardous materials to the environment.
- Review and confirm any accident/incident reports and ensure the affected party has completed the same.

2.3 Site Safety Officer (SSO)

The SSO is authorized to administer the HASP. The SSO's primary operational responsibilities include personal and environmental monitoring, coordination of job safety analyses, selection and care of personal protective equipment (PPE), assignment of protection levels, review of work permits and observation of work activities. The SSO will review the essential safety requirements with all on-site personnel and will facilitate the daily safety meetings. Specific responsibilities also include:

- Implement the site-specific HASP, conduct and document the site safety briefing and assure all acceptance forms are properly filled out, signed, and forwarded to the Project Manager.
- Report to the Project Manager deviations from the anticipated conditions described in the plan and authorize cessation of work, if necessary.
- Report to the Project Manager work practices or conditions that may result in personal injury, exposure to hazardous substances, or a release of hazardous materials to the environment.

- Calibrate all monitoring equipment on a daily basis and record results on the Equipment Calibration Log Form (in Appendix A). Ensure that all monitoring equipment is operating correctly according to the manufacturer's instructions and provide maintenance if it is not.
- Strictly enforce the provisions of the site-specific HASP.
- Prepare any accident/incident reports and ensure the affected party has completed the same.
- Evaluate the monitoring data or otherwise be aware of potentially hazardous conditions and enforce the Protective Measures as defined by the Action Levels discussed in the hazard assessment. Stop work and evacuate work site if an immediate hazard is present.
- Monitor work parties for signs of intoxication, contaminant exposure, heat stress, cold exposure, fatigue and other conditions detrimental to health or safety.
- Assure that on-site personnel and subcontractors are properly trained and are properly using Personal Protective Equipment.
- Ensure that the necessary equipment and materials are present to provide the proper decontamination, that the decontamination reduction corridor is properly established, and that all personnel leaving the exclusion zone follow the established decontamination procedures.
- Determine the closest hospital and route for emergency treatment.
- Coordinate emergency medical care and notify, when necessary, local public emergency officials.
- Establish work zone boundaries and maintain site control.

2.4 Employees and Subcontractor Personnel

Each employee and subcontractor is responsible for personal safety as well as the safety of others in the work area. The employee will use all equipment provided in a safe and responsible manner as directed by the SS. Site personnel concerned with any aspect of health and safety shall bring it to the attention of the SS/SSO. If not satisfied, they should contact the Corporate Health and Safety Officer (CHSO). All project personnel have the authority to stop work if in their judgment serious injury could result from continued activity. The SS and the SSO shall be notified immediately if this becomes necessary. To protect the health and safety of all personnel, employees that knowingly disregard safety policies/procedures may be subject to disciplinary actions. Specific responsibilities include:

- Take all reasonable precautions to prevent injury or exposure to themselves and to the other site personnel.
- Perform only those tasks assigned and those they believe they can perform safely.
- Observe for signs of stress, exposure, unsafe conditions or accidents and immediately report to the Site Safety Officer.
- Comply with the site-specific HASP.
- Notify the Project Manager or the Site Safety Officer of any special medical problems (e.g. allergies) or medications and ensure that all on-site personnel are aware of any such problems.

Staffing assignments will be identified in the Final Site Health and Safety Plan. A tree Diagram of UNITEC and NAVY Personnel is provided in Appendix C.

3.0 Site Information

3.1 Introduction

UNITEC is currently under contract with the Engineering Field Activity, Northeast, Lester, PA. The project consists of a removal action involving soil, concrete and metal debris located at Site 09, the Old Firefighting Training Area, Naval Weapons Station Newport, Newport, RI.

3.2 Historical Background

The OFFTA was used as a fire training ground between 1940 and 1972. In 1972, the training area was demolished. In 1974, three mounds of soil, believed to be soil and demolition debris from the demolition of fire training structures and buildings, were constructed into the landscape at the OFFTA. From 1974 through 1998, the OFFTA was used as a recreational area.

It has been determined that the soils and the debris in the mound all exceed project action limits. The Navy has committed to removal the soils and debris that exceed project action limits. Execution of this work plan will result in the safe and legal excavation, transportation and disposal of the mounds at the OFFTA.

The purpose of the remedial activities at Site 009 is to remove and excavate three mounds of soil, fill, and debris at the Old Firefighting Training Area at Naval Weapons Station Newport, Newport, RI.

4.0 Work Activities

This site-specific HASP covers work to be performed at Site 09. The principal tasks to be conducted under this task are listed below:

- Excavation of three mounds, segregating the soil and debris into no larger than 500-cubic yard stockpiles or smaller of like material
- Characterization of each stockpile
- Loading, transporting, and disposal of each stockpile
- Site cleanup
- Site restoration (grading and seeding)

These activities have been analyzed for potential hazards for which control measures are provided in Section 5.0.

5.0 Hazard Assessment

5.1 Overview

The primary health and safety concerns for this project are hazards associated with use of heavy equipment (track excavator, track loader, wood chipper, and small ditch witch).

Physical hazards are those typical of outdoor construction work sites: mechanical equipment, electrical sources, noise, temperature, and biological hazards.

Chemical hazards to field personnel will be inhalation and/or dermal contact with potentially contaminated soil.

The specific tasks covered by this plan are referred to in the previous section 4.0. This HASP does not provide for worker protection in confined spaces, in places with limited egress, or work involving buildings (since no work in those situations are anticipated at this site).

5.2 Hazard Summary

5.2.1 Chemical Hazards

Previous investigations in the project area indicate that the soils and groundwater may be contaminated with low levels of polynuclear aromatic hydrocarbons (PAHs), and metals. Table 5-1 lists contaminants of concern and soil concentrations as documented to date in borings 406, 406, 411, 412, 415, 416, 418, and 433.

Table 5-1: Contaminants of Concern

Contaminant of Concern and (Preliminary Remediation Goal)	Maximum documented Concentration	Boring Sample and (depth below grade)	Boring Location
Semi Volatile Organics / PAHs			
Benzo(a) Anthracene (900)	3,600 ug/kg	OFF-SB-411 (14-16)	Central Mound
Benzo(a)pyrene (400)	2,900 ug/kg	OFF-SB-411 (14-16)	Central Mound
Benzo(b)flouranthene (900)	3,300 ug/kg	OFF-SB-411 (14-16)	Central Mound
Benzo(g,h,i)perylene (800)	1,700 ug/kg	OFF-SB-411 (14-16)	Central Mound
Benzo(k)flouranthene (900)	1,400 ug/kg	OFF-SB-411 (14-16)	Central Mound
Chrysene (400)	3,300 ug/kg	OFF-SB-411 (14-16)	Central Mound
Dibenzo(a)anthracene (400)	600 ug.kg	OFF-SB-411 (14-16)	Central Mound
Indeno(1,2,3-cd)pyrene (900)	1,500 ug/kg	OFF-SB-411 (14-16)	Central Mound

Contaminant of Concern and (Preliminary Remediation Goal)	Maximum documented Concentration	Boring Sample and (depth below grade)	Boring Location
Metals			
Antimony (10)	21.2 mg/kg	OFF-SB-412 (10-12)	Central Mound
Arsenic ((6.2)	11.6 mg/kg	OFF-SB-412 (10-12)	Central Mound
Berylium (0.4)	0.64 mg/kg	OFF-SB-418 (0-2)	Mound 2
Lead (150)	559 mg/kg	OFF-SB-411 (14-16)	Central Mound
Manganese (390)	574 mg/kg	OFF-SB-412 (6-8)	Central Mound
Total Petroleum Hydrocarbons (500)	760 mg/kg	OFF-SB-412 (10-12)	Central Mound

Table 5-2 lists contaminants identified in the February 2004 Mound Summary Report (Tetra Tech NUS, Inc.), which may pose an occupational health threat. For each contaminant, the following information is summarized for quick reference.

- Applicable Exposure Limits
- Ionization Potential
- Levels immediately dangerous to life and health (IDLH).

Table 5-2: List of Potential Contaminants

Contaminant	Exposure Limit (ppm)	Ionization Potential (eV)	IDLH (ppm)
ORGANICS			
Polynuclear Aromatic Hydrocarbons	PEL: 0.2/mg/m ³ TLV: 0.2 mg/m ³	N/A	700; carcinogen
Benzo(a) Anthraene (900)	NE	NA	
Benzo(a)pyrene (400)	0.2	Vary	
Benzo(b)flouranthene (900)	0.2	NA	
Benzo(g,h,i)perylene (800)			
Benzo(k)flouranthene (900)	0.2	NA	
Chrysene (400)	0.2	Vary	
Dibenzo(a)anthracene (400)			
Indeno(1,2,3-cd)pyrene (900)	0.2	NA	

Contaminant	Exposure Limit (ppm)	Ionization Potential (eV)	IDHL (ppm)
INORGANICS			
Lead	PEL: 0.05 (as Lead) TLV: 0.15 (as Lead)	N/A	100
Respirable dust	PEL: 5.0		NA

NA Not Available
NE Not Established

The exposure limits listed in this Section are time-weighted averages, based on exposures for eight hours per day and forty hours per week, unless otherwise noted. Exposure limits and ionization potential were obtained from the following sources:

- National Institute of Occupational Safety and Health (NIOSH) Publications
- Dangerous Properties of Industrial Materials (Sax and Lewis, 1989)
- Chemical dictionaries
- American Conference of Governmental Industrial Hygienists publications

Occupational exposure limits are based on experimental and epidemiological studies and are promulgated by the Occupational Safety and Health Administration (OSHA), the American Conference of Governmental Industrial Hygienists (ACGIH), and the National Institute of Occupational Safety and Health (NIOSH). Each organization assigns a different term to its exposure limit: OSHA establishes permissible exposure limits (PELs), the ACGIH develops threshold limit values (TLVs), and NIOSH publishes recommended exposure limits (RELs). A central concept in the development of occupational exposure limits is the dose-response relationship between a given substance and the health effects associated with exposure to the substance. This relationship is assumed to be gradual, such that an exposure below a certain level will not produce deleterious effects. However, exposure limits do not guarantee a discrete, fixed threshold boundary between "safe" and "unhealthful" level. The effect of a given substance varies with individual differences in susceptibility and with environmental conditions such as temperature, humidity, and the presence of other substances.

The PEL, TLV, and REL for each substance are not interchangeable or equivalent. Of the three, only the PEL is legally enforceable; the TLV and REL are guides which recommend limits below which the ACGIH and NIOSH believe nearly all workers may be exposed to repeatedly, eight hours per day and forty hours per week, without adverse effect. Although TLVs and RELs are not enforceable themselves, they frequently are incorporated into codes, regulations, and standards, and become legally enforceable.

Table 5-3 summarizes the symptoms of exposure for each contaminant identified as a potential health hazard.

TABLE 5-3: Symptoms And Effects Of Potential Project Contaminants

Contaminant	Symptoms
ORGANICS	
PAH	Inhalation may cause lung irritation; contact may cause dermatitis. Several PAH's are known or suspected human carcinogens.
INORGANICS	
Contaminant	
Lead	Lost appetite; anemia; malaise; insomnia; eye irritant; headache; irritability; constipation, muscle/joint pains, tremors; hallucinations; hypotension; muscle weakness; liver damage cerebral edema; poison by ingestion, toxic by inhalation.

The following general symptoms and conditions may indicate exposure to a hazardous chemical. Personnel will be removed from the work site and provided immediate medical attention if any of the following symptoms occur:

- Dizziness or stupor
- Nausea, headaches, or cramps
- Irritation of the eyes, nose, or throat
- Euphoria
- Chest pains and coughing
- Rashes or burns
- Strong odors

5.2.2 Physical Hazards

The following section discusses general physical hazards that may be encountered during the project. Table 5-4 summarizes potential physical hazards and engineering or administrative controls for each.

Table 5-4. Potential Physical Hazards And Engineering/Administrative Controls

Hazard	Engineering or Administrative Controls
Flying debris/objects	Provide shielding and personal protective equipment
Noise > 85 dBA	Ear protection and noise monitoring required
Heavy Equipment Operations	Make certain equipment is properly maintained and operated. Make eye contact with operators. Avoid equipment swing areas. Restrict entry to heavy equipment work areas.
Suspended loads	Work not permitted under suspended loads
Electrical sources	Heavy equipment to remain at least 15 feet from overhead power lines (for power lines of 50kV or less). For each kV > 50 kV, increase distance by 1/2 foot. Underground utilities must be located and marked prior to excavation
Drowning	All workers within 5 feet or over the water's edge shall wear Coast guard approved Type II lifejackets.
Moving vehicles	Backup alarm required for heavy equipment. Observer remains in contact with operator and signals safe backup. Personnel wear high visibility vests and remain outside of turning radius.
Respirable dust and lead dust	Water truck to be used to eliminate visible dust

Equipment

Heavy equipment, such as the excavator, is under the direct control of the subcontractor performing the work. The subcontractor is responsible for maintaining the equipment in good working order and operating it safely. All heavy equipment must have audible backup-up alarms in working condition. UNITEC personnel shall not work near equipment that they judge to be unsafe because of deterioration, missing parts, obvious defects, or improper operation. UNITEC personnel shall report these conditions to the SSO.

The subcontractor shall be responsible for making provisions to ensure the safety of the equipment operator and other personnel in the areas having steep embankments or unstable ground. Operation of heavy equipment in such areas should be avoided whenever possible.

Excavating, for the purposes of soil remediation, involves a number of hazards including, but not limited to, the following: injuries from flying debris, being caught up in machinery, hydraulic failures, unguarded points of operation, airborne particulates, equipment rollover, and other hazards associated with the transportation and use of heavy equipment. The following procedures will be followed:

- The supplier of the mechanical equipment shall ensure equipment is well maintained, meets existing OSHA safety requirements, and is inspected regularly and before being released to new projects.
- The equipment operator shall be qualified to operate the equipment in their care including ability to identify pending equipment failures. The operator shall not replace the full time onsite superintendent.
- A person with a commercial license shall transport heavy equipment to the work site.
- To the extent possible, the terrain should be level and the condition of the ground such that unexpected movement of the equipment will be unlikely.
- Employees involved in remedial operations shall wear appropriate personal protective equipment (PPE), including steel-toed footwear. Employees shall not wear any hanging jewelry, loose or ill-fitting clothing, or long hair, which could get caught in any exposed moving machinery.
- Prior to excavating, contact DIG SAFE and the onbase engineering department and utility locators to mark utilities (gas, water, electric, sewer, etc.).

Illumination

All field activities will be performed in daylight. No sources of intense light (e.g., infrared or ultraviolet) are planned.

Confined Space Entry

Planned field activities do not include entry into areas that could be considered confined spaces.

Trenches

Trenching is not anticipated; however, should trenching be required, the depth of trenches will be limited to less than four feet below the adjacent grade. This will limit the hazard due to sloughing of trench walls and will avoid the exposure of workers to confined space type areas.

Electrical

Above ground utility lines may pose a hazard to team members during field activities, especially during excavation. At least 15 feet from overhead utility lines must be maintained at all times. Below ground utility lines shall be marked prior to any excavation and location markers shall be maintained in a readily visible condition throughout the duration of the project.

Noise

The equipment will be direct sources of noise. Hearing protection will be available for personnel working in the vicinity of the equipment.

Heat Stress and Cold Exposure

Heat stress is the aggregate of environmental and physical work factors that make up the total heat load imposed on the body. The environmental factors of heat stress include air temperature, humidity, radiant heat exchange, wind, and water vapor pressure (relates to humidity). Physical work contributes to the total heat stress by producing metabolic heat in the body proportional to the intensity of work. Wearing protective clothes and other equipment (hard hat, respirators, boots, etc.) can significantly increase heat stress on the worker. Heavy physical labor greatly increase the likelihood of heat fatigue, heat exhaustion, and heat stroke. The common type of heat-related hazard that affects field personnel is heat stress. Under this condition, the body's physiological processes fail to maintain a normal body temperature because of excessive heat. A number of physical reactions can occur from this condition ranging from mild reaction such as fatigue, irritability, anxiety, and decreased concentration, dexterity, or movement, to a severe reaction, which may be fatal. The following are examples of heat-related stress that may be encountered.

- **Heat Rash:** caused by continuous exposure to heat and humid air and aggravated by chafing clothes. symptoms include a decreased ability to tolerate heat.
- **Heat Cramps:** caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially electrolytes). Signs: muscle spasms and pain in the extremities and abdomen.
- **Heat Exhaustion:** caused by increased stress on various organs to meet increased demands to cool the body. Signs: shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.
- **Heat Stroke:** life threatening; the most severe form of heat stress. Body must be cooled immediately to prevent severe injury and/or death. Signs and symptoms are: red, hot, dry skin no perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

Below are the preventive measures that will be followed to avoid heat stress related illnesses:

- Workers will be encouraged to drink 18 ounces of water before beginning work, such as in the morning or after lunch. Urge workers to drink 1-2 cups of water every 20 minutes for a total of 1-2 gallons per day.
- Workers will be monitored for signs of heat stress.
- Workers will be acclimated to site work conditions by slowly increasing workloads, i.e., do not begin site work activities with extremely demanding activities.
- To the extent possible, in hot weather, field activities will be conducted in the early morning or evening.

The following measures will be taken to reduce the risk of cold exposure:

- All personnel will be required to wear adequate and appropriate clothing; this will include headgear (thermal liners for hard hats if hard hats are required)
- Provide a readily available warm shelter near each work zone
- Carefully schedule work/rest periods to account for the ambient temperature and wind velocity conditions
- Monitor work-patterns and physical condition of workers and rotate personnel, as necessary.

5.2.3 Biological Hazards

Biological hazards such as poison oak, poison ivy, or ticks may be encountered on Site. Ticks may carry Lyme Disease. Trousers tucked into socks and long sleeve shirts will afford protection where ticks or poison ivy are observed.

5.3 Task Specific Job Safety Analysis

This section of the Site--Safety HASP provides a breakdown of the hazards and control measures for each principal task. These Job Safety Analyses are general in nature and must be made project specific by the Site Supervisor prior to each task. The Job Safety Analyses will be field checked by the supervisor on an ongoing basis and revised as necessary. All revisions will be communicated to the work crew. Table 5-5 provides a task specific breakdown of potential hazards.

6.0 General Health And Safety Requirements

6.1 Medical Surveillance

All employees involved in field activities shall be active participants in the UNITEC medical surveillance program or equivalent. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, preferably an occupational physician. The examination shall include the tests, procedures, and frequencies that comply with the requirements of 29 CFR 1910.120.

6.2 Safety Training

Employees shall not participate in field activities until they have been trained to a level required by their job function and responsibility. Trainers shall have received a level of training higher than and including the subject matter of the level of instruction they are providing. All training and field experience shall be documented. The required documentation for personnel assigned to this project shall be maintained at the employee's place of business and made available to regulatory agents within 24 hours of their request. Training requirements are discussed below.

6.2.1 40-Hour Basic Training

All field employees must have completed the 40-hour basic health and safety training required under 29 CFR 1910.120 and received an 8-hour annual refresher training thereafter.

6.2.2 Onsite Supervisor

The onsite supervisor (Task Manager) must have completed the basic 40-hour training course.

6.2.3 Site Safety Officer (SSO)

The Site Safety Officer must have completed the 40-hour training.

6.2.4 Site-Specific Safety Orientation Meeting

A site-specific safety orientation meeting shall be conducted for all employees, including subcontractors, prior to commencement of field activities. After this initial meeting, site safety briefings shall be conducted as needed. The following topics will be discussed at this meeting:

- Names of health and safety personnel and alternates responsible for site health and safety
- Health and safety organization
- Motor Vehicle Safety
- Hazards at the site
- Exposure risk
- Personal protective equipment to be used
- Personnel and equipment decontamination procedures
- Air monitoring
- Emergency procedures

Briefings will be used to update field personnel when changes occur in the scope of work and to address any infractions of the procedures described in the HASP.

All field personnel must be provided with and must read a copy of this HASP. At the end of the meeting, attendees should be informally quizzed to assess their understanding of the health and safety requirements.

If a new employee is assigned to the site who has not gone through the site-specific safety orientation meeting, the SSO must present a similar briefing to the new employee before he/she participates in any field activities.

6.3 Accident/Incident Reporting

In the event of an accident or incident, the SSO will **immediately** notify the UNITEC project manager. Types of accidents or incidents that are considered reportable are as follows:

- Illness resulting from chemical exposure or unknown causes
- Physical injury
- Fire, explosions, and flashes resulting from activities performed by UNITEC or its subcontractors
- Infractions of safety rules and requirements
- Unexpected chemical exposures

Work will be suspended to correct the cause of the accident/incident and to modify this plan as necessary.

A UNITEC Health and Safety Incident Report form (Appendix A) must be submitted to the Project Manager (PM) within 24 hours of occurrence. The PM will be responsible for informing the Corporate Health and Safety officer of any accidents/incidents reported by site personnel.

The ROICC will be notified as soon as practicable after the after to incident not to exceed 4 hours under any circumstances. Additionally, an accident report will be submitted to the ROICC office on the forms provided in this HASP.

6.4 Visitor Clearances

Visitors shall not enter site work zones without prior coordination with UNITEC. All visitors entering the contamination reduction zone and exclusion zone at the site will be required to read and verify compliance with the provisions of this HASP. In addition, visitors will be expected to comply with relevant OSHA requirements such as medical monitoring and training. Visitors will provide their own respirators, safety glasses and safety boots. Other protective equipment will be available onsite. Documentation of site visitors will be maintained in field books.

In the event that a visitor does not adhere to the provisions of the HASP, he/she will be requested to leave the work area. All nonconformance incidents will be recorded on the Project Safety Log form.

6.5 Buddy System

At no time will an individual enter or leave an exclusion zone alone. Before entering an exclusion zone each individual will identify his/her "buddy."

6.6 Project Safety Information

The project Safety Information shall be maintained in field books by the SSO throughout the project. Recorded information may include:

- Any changes in the operation
- Names of all UNITEC and subcontract personnel working at the site each day
- Types of air monitoring equipment being used and how calibrated
- Air monitoring results
- Level of personal protective equipment being worn
- Accidents and injuries
- Description of any unusual occurrences or physical complaints
- Summary of telephone conversations regarding health and safety
- All other significant health and safety items

6.7 Controlled Area

A controlled area is defined as an area within which all entry and activities are regulated by UNITEC because of intrusive activities underway in that area. Rationale for establishment of a controlled area would include the need to control exposure of UNITEC and non-UNITEC personnel to any operational upset, and to protect UNITEC personnel from the consequences of non-UNITEC operations at the site.

6.8 Work Zones

Field personnel may establish three work zones around an intrusive activity if Level C conditions are encountered: the exclusion zone, (EZ) the contamination reduction zone (CRZ), and the support zone, (SZ). These work zones are subject to variation based on the presence of chemical exposure hazard as determined by the SSO.

6.8.1 Exclusion Zone (EZ)

The exclusion zone is the area where contaminants could or do occur. All individuals entering this area must be approved by the SSO and must wear prescribed levels of protection. An entry and exit check point must be established at the periphery of the exclusion zone to regulate the flow of personnel and equipment in and out of the zone. The EZ for this project will include the area of each mound before during and after excavation and the soil stockpile areas.

6.8.2 Contamination Reduction Zone (CRZ)

The CRZ is established outside the exclusion zone to minimize the migration of contaminants from the exclusion zone to clean or support areas and to reduce the exposure potential of individuals leaving the exclusion zone. At the boundary between the exclusion and contamination reduction zones, decontamination stations are established. Exit from the exclusion zone is through a contamination reduction zone station.

6.8.3 Support Zone

The support zone is located in a clean area, preferably upwind and immediately outside of the CRZ, or in the on-site vehicles. Supplies, emergency equipment, and support personnel are located in the support zone or in the on-site vehicles.

6.9 Field Activities

6.9.1 Personnel Requirements/Prohibitions

- No running or horseplay.
- The required level of personal protective equipment must be worn by all onsite personnel.
- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in the exclusion zone and the CRZ. Drinking of water, Gatorade, or equivalent fluids may occur in the CRZ at the discretion of the SSO.
- Smoking, carrying lighters and/or matches is prohibited in the exclusion zone and in the contamination reduction zone.
- No contact lenses may be worn by personnel engaged in field work requiring respirators.
- No jewelry may be worn by personnel engaged in field work, except for watches, which will be disposed of if they become contaminated.
- No facial hair which interferes with a satisfactory fit of the mask-to-face seal is allowed on personnel required to wear respirators or SCBAs.
- Medicine and alcohol can potentate the effects from exposure to toxic chemicals. Thus, alcoholic beverage intake will not be allowed during work or breaks. **PRESCRIBED DRUGS SHOULD NOT BE TAKEN BY PERSONNEL ON OPERATIONS WHERE THE POTENTIAL FOR ABSORPTION, INHALATION, OR INGESTION OF TOXIC SUBSTANCES EXISTS UNLESS SPECIFICALLY APPROVED BY A QUALIFIED PHYSICIAN.**
- **NO PERSON WILL ENTER THE EXCLUSION ZONE ALONE.**
- Safety devices on equipment must be left intact and used as designed.
- Equipment and tools will be kept clean and in good repair and used only for their intended purpose.
- Eye protection should be worn when any hammering or pounding is performed that may produce flying particles or slivers.
- Leather gloves should be worn when handling objects that may product slivers (e.g., driving wood stakes).

6.9.2 Contamination/Exposure Prevention

Ways in which on-site personnel may become contaminated include the following:

- Being splashed by contaminated liquids while sampling or handling liquids
- Coming in contact with contaminated solids or liquids
- Walking through contaminated materials, either in solid or liquid state
- Being in contact with contaminated equipment
- Being in contact with contaminated solid substances in waste piles or on the soil surface
- Sitting or kneeling on the ground

Onsite team members will avoid becoming contaminated as much as possible.

Onsite personnel will avoid exposure to hazardous chemicals by strictly adhering to the required personal protection equipment and decontamination procedures.

Care will be taken to prevent equipment contamination as much as possible. Sampling and monitoring equipment will not be laid on contaminated surfaces. Monitoring equipment that cannot be decontaminated easily will be bagged, and the bag taped and secured around the instrument. Openings will be made in the bag for sample intake and exhaust ports.

6.9.3 Housekeeping

Housekeeping is a very important aspect of a remediation program and will be strongly stressed in all aspects of fieldwork. Good housekeeping plays a key role in occupational health protection and is a way of preventing dispersion of dangerous contaminants. All work areas will be kept as clean as possible at all time and spills will be cleaned up immediately. Housekeeping will be the responsibility of all employees.

UNITEC will implement a housekeeping program for the field activities to minimize the spread of contamination beyond the work site. The program will include:

- Daily scheduling to police the area of debris including paper products, cans, and other materials brought on site.
- Changing of wash and rinse water for hands, face, and equipment as needed.
- Periodic (daily minimum) removal of all garbage bags and containers used to dispose of food products, plastic inner gloves, and contaminated disposable clothing.

6.10 Personal Protective Equipment (PPE)

The level of personal protective equipment (PPE) required for each of the tasks will be continually reevaluated as field work progresses. It is expected that there will be increases or decreases in the level of PPE equipment required for particular tasks. PPE requirements for specific operations shall be agreed upon beforehand by the PM and the SSO, and a document to that effect will be drawn up, dated, and signed by the PM and SSO. Specific PPE requirements are discussed in Section 7.2. The SSO shall inform workers of the requirements and announce changes and justification for those changes at a site safety meeting.

The SSO will publish a change to this plan if PPE changes are permanent and if the SSO considers the change substantive.

6.11 Emergency Equipment

The following emergency equipment will be available at each site of intrusive activity:

- First aid kit
- Emergency eye wash unit that satisfies ANSI Z358.1 requirements.
- Potable water
- Fire extinguisher (10-lb ABC)

6.12 Personnel Decontamination Procedures

The SSO will be responsible for overseeing personnel decontamination. Gross contamination from these sites is not anticipated.

The contamination reduction zone (CRZ) will be located immediately outside the exclusion zone. In this area workers will:

- wash and rinse outer gloves
- wash and rinse outer boots or rubber boots
- remove outer boots
- remove outer gloves
- remove tyvek (if required)
- remove respiratory protection (if required)
- remove inner gloves
- wash and rinse hands and face

Disposable personal protective equipment will be disposed of in plastic garbage bags within the CRZ. Procedures may vary depending on the degree of contamination present and level of PPE required. Variations will be made at the discretion of the SSO in conjunction with the PHSO.

Equipment and boots shall be brushed clean of particulate matter. Equipment and boots shall be washed with water and Alconox (or equivalent) solution. All wash water shall be contained and disposed of properly.

6.12.1 Boots

Boots may be protected by "booties" during field operations, and cleaned during personnel decontamination. Should boot covers become grossly contaminated during fieldwork, they should be cleaned using a high pressure cleaner (at the equipment decontamination station) before proceeding to the CRZ. If the boot covers cannot be decontaminated they will be disposed of on site with other contaminated material. The same procedures will apply when steel-toed rubber boots are used.

6.12.2 Respirators

Personnel are trained, fitted, and issued personal respirators. Each individual is responsible for cleaning, inspecting, maintaining, and storing their own respirator. Respirators are washed and rinsed as part of the contamination reduction process. They are then sanitized and rinsed in a dedicated area, wiped dry and stored in a clean plastic bag in an uncontaminated area until the next use.

6.13 Equipment Decontamination

Equipment is to be decontaminated prior to leaving the site. The decontamination procedure will consist of washing exposed and contaminated surfaces with soapy water and a long handled brush and then rinsing with deionized water. Wash and rinse water will be captured, contained in 55 gallon drums and appropriately disposed

6.14 Air Quality And Personnel Exposure Monitoring

Based upon previous investigations, no hazardous emissions of organic vapors are expected given the nature of the contaminants of concern. Air quality monitoring for organic vapors will not be conducted at this site unless there are odors or suspect soil and liquids in the excavations. is visible dust. Dust and lead sampling will be conducted as described in Section 7.3. Visual identification of excessive dust will precipitate the use of respirators. If conditions warrant dust suppression will be utilized as necessary to prevent visible dust at the work site.

6.15 Work/Rest Schedule

To ensure operational and personal safety of workers wearing full impermeable protective clothing and equipment, the following table should be observed for the maximum time of wearing such clothing.

<u>TEMPERATURE</u>	<u>MAXIMUM WEARING TIME (HOURS)</u>
Above 90°	1/4 hour
85-90°	1/2 hour
80-85°	1 hour
70-80°	1 1/2 hour
60-70°	2 hours
50-60°	3 hours
30-50°	5 hours
Below 30°	8 hours

6.16 Work During Darkness

No fieldwork is anticipated during darkness.

6.17 Confined Space Work

No work in confined spaces or places with limited egress is anticipated during this project.

6.18 Hot Work

No hot work (use of torches, welders, open flames) is anticipated to be necessary for the scope of work covered by this plan.

7.0 Site Specific Health And Safety Requirements

7.1 Introduction

Table 7-1 summarizes the protection levels have been established for the site work activities based on a review of historical information regarding the level of contaminants and the scope of work. Results of air monitoring and visual inspection for the work activities may indicate the need for changes in PPE.

Table 7-1: Anticipated Project Protection Levels

Task	Initial PPE Level	Upgrade PPE Level	Skin Protection	Respiratory Protection	Other PPE
Site Setup Remove/Replace Concrete, Backfilling	Level D	--	None	None	Hard-hat, Steel Toe work boots, safety eyewear and hearing protection >85 dBA

7.2 Personal Protective Equipment

The following are descriptions of the levels of personal protective equipment (PPE) that may be required for the tasks at Site 009. Work will be initiated at Level D unless Level C is required predicated on monitoring. Upgrades or downgrades of levels of PPE are possible as more knowledge of site conditions is gained. Changes in levels of PPE may be initiated by the SSO in consultation with the PM.

7.2.1 Level D

Level D may be used when the atmosphere contains no known hazard and when work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with, hazardous levels of any chemical substance. Level D consists of:

- Safety glasses with side shields
- Steel-toed work boots
- Hardhat
- Work clothing as prescribed by weather
- Hearing protection >85 dBA

7.2.2 Modified Level D

Modified Level D may be used in areas that can normally qualify for Level D, but where a potential hazard requiring a minor upgrade in the level of protection, may exist. Modified Level D consists of:

- Safety glasses with side shields
- Steel-toed work boots
- Hardhat
- Work clothing as prescribed by weather
- Hearing protection >85 dBA
- Rubber, nitrile or chemical resistant boot covers
- Gloves (nitrile, neoprene, latex)
- Face shield (when projectiles or splashes pose a hazard)
- Tyvek coverall (Polyethylen-coated Tyveks required when workers have a potential to be exposed to contaminated liquids or sludges).

7.2.3 Level C

Level C protection must be used when the atmosphere contains hazardous levels of contaminants based on testing described under monitoring. Level C protection includes the following:

Recommended:

- Hooded Tyvek coverall (Polyethylen-coated Tyveks required when workers have a potential to be exposed to contaminated liquids or sludges)
- Rubber boots; chemical resistant with steel-toe and shank or boots with steel toe and shank covered by disposable chemical resistant rubber boot covers.
- Full face air purifying respirator with appropriate cartridges for organic vapors and dust.
- Rubber, nitrile or chemical resistant boot covers
- Gloves (nitrile, neoprene, latex)
- Face shield (when projectiles or splashes pose a hazard)

- Hearing protection >85 dBA

No Level C work is anticipated at this site. However, site personnel shall be prepared to upgrade to Level C.

7.3 Monitoring

Air monitoring will not be necessary at this site initially for benzene and semi-volatile organics since the chemical hazards identified have low volatilities and are relatively immobile unless excessive quantities of dust are produced or odors or visibly stained soil is noted.

Chemical	Action Level Exposure Limit (PEL)	Type of Monitoring/Frequency	Action
Benzene or Semi-volatile organic compounds	10 ppm	Monitoring with PID while in areas with odors or visible staining of soil.	If action levels are exceeded by field or laboratory measurement than personal protection requirements will be upgraded to level C.
Lead	50 ug/m ³	Weekly if visible dust generated during project OSHA Personnel Monitoring While in areas of concern	If action levels are exceeded by field or laboratory measurement than personal protection requirements will be upgraded to level C.
Respirable dust	5 ppm	Daily Monitoring with direct read Dust meter such as Dustrax or RAM	- If action levels are exceeded by field or laboratory measurement than personal protection requirements will be upgraded to level C.

Note (ppm – parts per million ug/m³ – micrograms per cubic meter)

OSHA Personnel monitoring will be conducted specifically for inorganic contaminants listed in site characterizations when dust control measures are determined to be ineffective by the ROICC using low volume air sample pumps and 37mm² air sampling cassettes with Mixed Cellulose Ester (MCE) collection filters NIOSH Method 7105.

8.0 EMERGENCY RESPONSE PROCEDURES

8.1 Emergency Information

To obtain emergency medical treatment and ambulance service at the subject property, call **9- 911**.

The closest accessible telephone during all working hours will be identified by the SSO prior to commencing field activities. The following list of emergency telephone numbers will be posted in the UNITEC field vehicle and will be available from the SSO:

LOCAL POLICE: 9-911 and 841 – 3241

LOCAL FIRE: 9-911 and 841 - 3333

LOCAL RESCUE: 9-911 and 841 – 2222

DIGSAFE 1-888-DIGSAFE

LOCAL HOSPITAL: (401) 846-6400

Newport Hospital
11 Friendship Place
Newport, RI 02840

MAPS AND DIRECTIONS FOR THIS HOSPITAL ARE PROVIDED IN APPENDIX B.

PROJECT MANAGER: Rick Ramuglia (781) 815-1127 (Office)

Excavation and Transportation Contractor Fleet Environmental (781) 727-2869

SITE MANAGERS: : Name and onsite trailer number will be inserted prior to start of work

ROICC: Bob Krivinskas (401) 841 – 1761

Also Immediately contact the SSHO

Notification of all applicable regulatory agencies of any spills on the site or at related facilities will be performed through the ROICC by the Project Manager. Consequently it is imperative that the Project Manager and the ROICC be notified as quickly as possible of a spill or release in order to comply with possible two hour notification periods.

RI DEM Spill reporting number: (401) 222 - 4700

8.2 Emergency Response Procedures

8.2.1 Physical Injury

In the event of physical injury, the following steps shall be taken:

- Evaluate the extent of injuries
- Summon emergency help (Dial 911) as deemed necessary by the SSO
- Apply first aid or CPR until emergency help arrives

EMERGENCY LIFE SAVING TECHNIQUES SHALL BE PERFORMED PRIOR TO DECONTAMINATION

If minor injuries occur, decontaminate and transport the individual to the nearest hospital. Medical attention must be sought regardless of how minor the injuries appear to be.

8.2.2 Injury Due to Chemical Exposure

If it is suspect that a person has suffered chemical exposure, the following procedure shall be taken:

- Skin Contact: Flush with water. Remove clothing, if necessary. Wash/rinse affected area for at least 15 minutes. Decontaminate exposed skin areas with a mild detergent or soap and provide appropriate medical attention.
- Inhalation: Move person away from area; administer CPR as needed. Decontaminate, transport by ambulance to the hospital for medical attention.
- Ingestion: Decontaminate, transport to hospital (by ambulance) for medical attention.
- Eye Contact: Irrigate with water for at least 15 minutes. Decontaminate, transport to hospital by ambulance for medical attention.

8.3 SPILL PROCEDURES AND EMERGENCY NOTIFICATION AND ACTIONS

NAVSTA NEWPORT SPILL PROCEDURES EMERGENCY NOTIFICATION AND ACTIONS DISCOVERER/SPILLER

ANY INDIVIDUAL CAUSING OR DISCOVERING A SPILL, OR A SITUATION THAT MAY LEAD TO A SPILL OF OIL, HAZARDOUS SUBSTANCES, OR HAZARDOUS WASTES SHALL IMMEDIATELY TAKE THE FOLLOWING ACTION. THE ORDER OF THESE ACTIONS WILL DEPEND ON EXISTING CONDITIONS.

- o **PROVIDE** information and assistance as instructed.
- o **EVACUATE** area to a safe distance upwind and updrift from the spill.
- o **PASS** the word to adjacent spaces.
- o **INFORM** your supervisor or the nearest supervisor of nearest facility.
- o **REPORT** spill immediately to:

**NAVSTA Fire Department
PHONE: 841-3333 (24 hrs)**

- o **WHENEVER POSSIBLE**, give the following information if known or can reasonably be determined. **DO NOT** wait until ALL information on the spill is available.
 - o Your name and telephone number.
 - o Location of the spill.
 - o Number and type of injuries.
 - o Identity or type and estimated amount of spilled material.
 - o Source of spill (e.g., tank, container).
 - o Behavior of spill (e.g., reactions, leak, spill, fire).
 - o Anticipated movement of spill and actions being taken.
 - o Time when spill occurred.
- o **DO NOT** allow unauthorized persons to enter the spill area.
- o **RESTRICT** all sources of ignition-smoking, combustible engines, open flames.
- o **WAIT** for and direct the emergency response personnel to the spill.
- o **PROVIDE** information and assistance as instructed.

See Appendix A for copies of this checklist

9.0 Logs, Reports, And Record Keeping

9.1 General

Records shall be kept documenting the site safety program. Logs and records will be kept for training, safety meetings, injury/exposure, and air monitoring data.

9.2 Personnel Records

Records shall be kept on each onsite individual. Records include a medical clearance statement from a qualified physician, fit test, and training documentation. When site safety meetings are conducted, an attendance sheet must be kept.

10.0 Forms

The following forms will be provided to the SSO during final preparations for departure to the job site:

- Spill Emergency Notification and Actions Checklist
- Equipment Calibration Log
- Project Safety Log
- Compliance Agreement Form
- UNITEC Health and Safety Incident Report
- Site Safety Briefing Form

The SSO will be responsible for completing the Equipment Calibration Log, the Project Safety Log, the UNITEC Health and Safety Incident Report and the Site Safety Briefing Form. The SSO will also ensure that all UNITEC and their subcontract personnel working on the site complete the Compliance Agreement Form.

All completed forms will be returned to the office of the PM.

Copies of the forms are provided in Appendix A.

11.0 BIBLIOGRAPHY

1. American Conference of Governmental Industrial Hygienists (ACGIH) 1990-1991, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.
2. U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health (NIOSH), Pocket Guide to Chemical Hazards, June, 1990.
3. Dangerous Properties of Industrial Materials (Sax and Lewis, 1989).
4. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, October 1985.

END

**APPENDIX A
PROJECT FORMS**

Emergency Spill Notification and and Actions Checklist
Equipment Calibration Log
Project Safety Log
Compliance Agreement Form
UNITEC Health and Safety Incident Report
Site Safety Briefing Form

**NAVSTA NEWPORT SPILL PROCEDURES
EMERGENCY NOTIFICATION AND ACTIONS
DISCOVERER/SPILLER**

ANY INDIVIDUAL CAUSING OR DISCOVERING A SPILL, OR A SITUATION THAT MAY LEAD TO A SPILL OF OIL, HAZARDOUS SUBSTANCES, OR HAZARDOUS WASTES SHALL IMMEDIATELY TAKE THE FOLLOWING ACTION. THE ORDER OF THESE ACTIONS WILL DEPEND ON EXISTING CONDITIONS.

- o **PROVIDE** information and assistance as instructed.
- o **EVACUATE** area to a safe distance upwind and upgrade from the spill.
- o **PASS** the word to adjacent spaces.
- o **INFORM** your supervisor or the nearest supervisor of nearest facility.
- o **REPORT** spill immediately to:

**NAVSTA Fire Department
PHONE: 841-3333 (24 hrs)**

- o **WHENEVER POSSIBLE**, give the following information if known or can reasonably be determined. **DO NOT** wait until **ALL** information on the spill is available.
 - o Your name and telephone number.
 - o Location of the spill.
 - o Number and type of injuries.
 - o Identity or type and estimated amount of spilled material.
 - o Source of spill (e.g., tank, container).
 - o Behavior of spill (e.g., reactions, leak, spill, fire).
 - o Anticipated movement of spill and actions being taken.
 - o Time when spill occurred.
- o **DO NOT** allow unauthorized persons to enter the spill area.
- o **RESTRICT** all sources of ignition-smoking, combustible engines, open flames.
- o **WAIT** for and direct the emergency response personnel to the spill.
- o **PROVIDE** information and assistance as instructed.

PROJECT SAFETY LOG

Project: _____

Date: _____ Logged by:

Weather:

Field Tasks: __

UNITEC Personnel (or subs) working on site (name and affiliation):

UNITEC Personnel (or subs) working in restricted zone:

Site Visitors:

Air Quality Monitoring Measurements:

<u>Time</u>	<u>Instrument</u>	<u>Parameter</u>	<u>Concentration</u>	<u>Locations</u>
-------------	-------------------	------------------	----------------------	------------------

Background: __

Exclusion zone: _____

Level of PPE: _

Comments on other safety-related matters:

HEALTH AND SAFETY INCIDENT REPORT

Date:

Employee's Name:

Sex:

Project Location:

INCIDENT:

Type: Possible Exposure ___ Exposure ___ Physical Injury

Date of Incident: Time of Incident:

Person to Whom Incident Was Reported:

Weather Conditions:

Description of Incident:

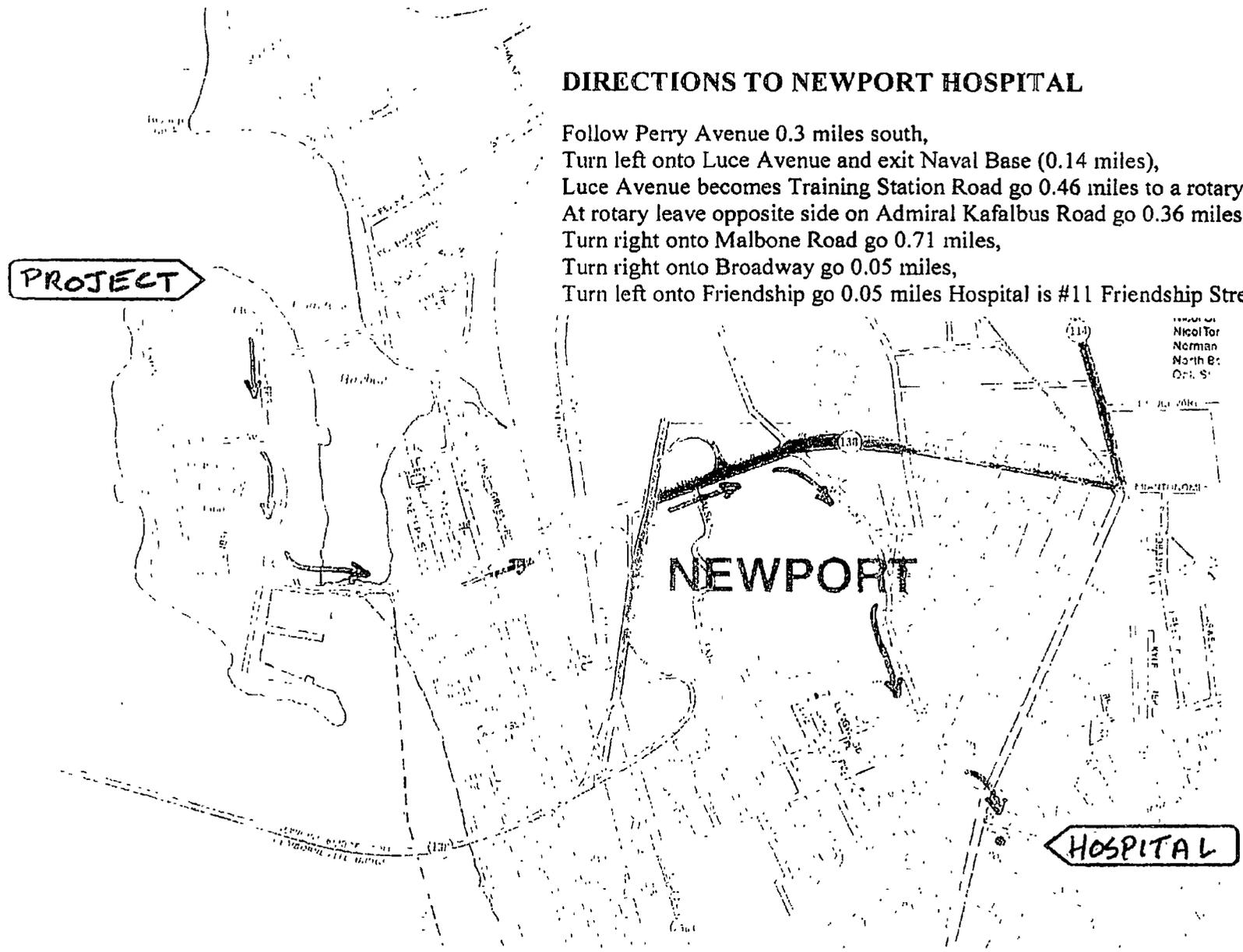
Nature of Exposure/Injury:

Other Information:

APPENDIX B
Route to Hospital

APPENDIX C

Tree Diagram of Project Personnel



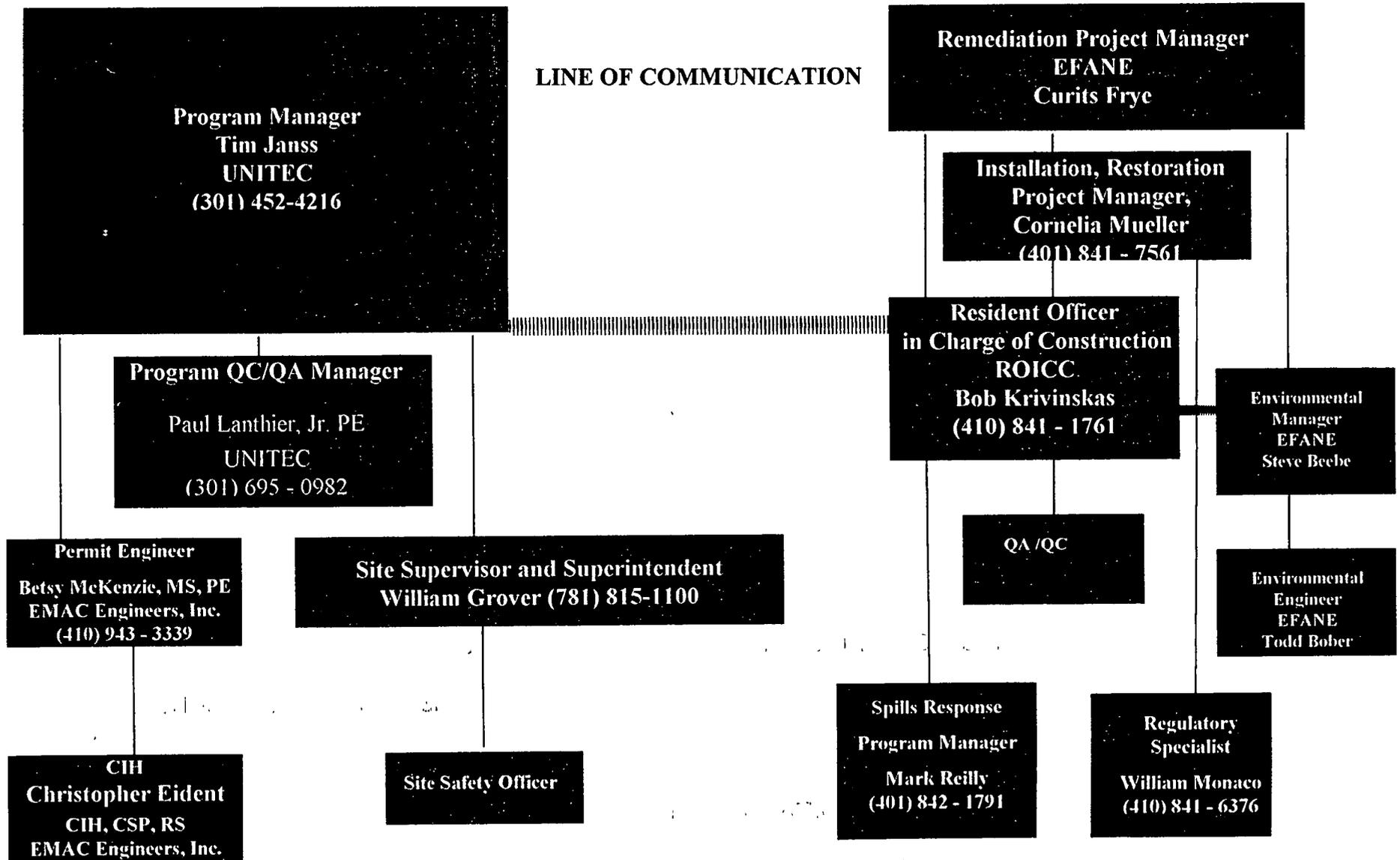
DIRECTIONS TO NEWPORT HOSPITAL

Follow Perry Avenue 0.3 miles south,
Turn left onto Luce Avenue and exit Naval Base (0.14 miles),
Luce Avenue becomes Training Station Road go 0.46 miles to a rotary,
At rotary leave opposite side on Admiral Kafalbus Road go 0.36 miles,
Turn right onto Malbone Road go 0.71 miles,
Turn right onto Broadway go 0.05 miles,
Turn left onto Friendship go 0.05 miles Hospital is #11 Friendship Street.

CONSTRUCTION PROJECT PERSONNEL DIAGRAM

CONTRACTOR PERSONNEL

NAVY PERSONNEL



APPENDIX D

COASTAL ZONE CONSISTENCY DETERMINATION

FOR

WORK PLAN

AT

OFFTA IR SITE 09

NAVAL STATION NEWPORT



DEPARTMENT OF THE NAVY

NAVAL STATION NEWPORT
690 PEARY STREET
NEWPORT, RI 02841-1322

IN REPLY REFER TO
5090
Ser N8N/1022
JUL 03 2004

Mr. Ken Anderson
State of Rhode Island
Coastal Resources Management Council
Oliver H. Stedman Government Center
Tower Hill Road
Wakefield, RI 02879

Dear Mr. Anderson:

We are providing a Consistency Determination to remove soil mounds at Katy Field on Coasters Harbor Island in Newport, Rhode Island. The project is scheduled to start in August 2004. Based upon the attached consistency determination, which was performed in accordance with Title 15 of the Code of Federal Regulations, Part 930 Subpart C, Consistency for Federal Activities, we have determined this action is consistent to the maximum extent practicable with the Rhode Island Coastal Resources Management Plan.

The project will include removal of three mounds of soil and construction debris that occupy the Old Fire Fighter Training Area. The Central Mound is 20 feet high, steeply sloped with a volume of approximately 7,000 cubic yards (CY). Mound Number 1 is on the northwest side of the island. The mound is 4-6 feet high with approximately 600 CY of soil. Mound Number 2 between the Central Mound and Mound Number 1 is 9 feet high with a volume of 3,500 CY of soil. Both Mounds Number 1 and 2 are within 5 feet of a coastal feature. The contaminants of concern on the site are petroleum compounds and metals. Project work plan is enclosed. Erosion control measures discussed via phone conversation April 2004 are included in the work plan.

If you have any questions or require additional information, please contact Mr. William Monaco at (401) 841-6376.

Sincerely,

D. D. DOROCZ
Environmental Department Head
By direction of the
Commanding Officer

Enclosures: (1) Consistency Determination
(2) Project Work Plan

Copy to:
NAVSTA (Code N324) (w/o encls)

**COASTAL MANAGEMENT CONSISTENCY REVIEW
NAVAL STATION NEWPORT
NEWPORT, R.I.
MOUND REMOVAL KATY FIELD**

PROJECT DESCRIPTION

The Navy is planning to remove soil mounds at Katy Field on Coasters Harbor Island in Newport, Rhode Island. The project is scheduled to start in August 2004 and will include removal of three mounds of soil and construction debris that occupy the Old Fire Fighter Training Area. The Central Mound is 20 feet high, steeply sloped with a volume of approximately 7,000 cubic yards (CY). Mound Number 1 is on the northwest side of the island. The mound is 4-6 feet high with approximately 600 CY of soil. Mound Number 2 between the Central Mound and Mound Number 1 is 9 feet high with a volume of 3,500 CY of soil. Both Mounds Number 1 and 2 are within 5 feet of a coastal feature. The contaminants of concern on the site are petroleum compounds and metals. Project work plan is enclosed. Erosion control measures discussed via phone conversation April 2004 are included in the work plan.

APPLICABLE SECTIONS

The project is located on Coasters Harbor Island. This area is shown on the Prudence Island Quadrangle Map and discharges into Type 4 waters. The project is within 5 feet of a shoreline feature.

The applicable sections for the water use and project type are addressed in detail as follows.

Section 200.4: Type 4 Multipurpose Waters

Policies;

1. The proposed project will not deter from the many diverse activities that traditionally occur in Type 4 Waters. Also, the project will not degrade the ecological system of the Type 4 waters.
2. The proposed project will not have any detrimental impact on the fishing grounds or fishing habitats.
3. Not applicable to this project.
4. Erosion control measures will be in place during construction to prevent degrading of water quality or loss

of the shoreline. Upon completion the area will be graded and seeded.

Section 210: Shoreline Features

General;

Various types of shoreline features are in proximity to the removal action. Erosion control measures will be used in these locations to protect all of these shoreline features.

Section 300.2: Filling, Removing, or Grading of Shoreline Features

General;

The project will involve reseeded to match existing surface. Erosion control measures will be used within shoreline features to protect them. These control measures will be left in place until the vegetation has been reestablished. None of the prohibitions of the CRMP will be violated. All excess material will be removed from the site and will not be disposed of in tidal waters or on a coastal feature.

Section 330: Guidelines for the Protection and Enhancement of the Scenic Value of the Coastal Region

General;

The proposed project will not degrade scenic, wildlife or plant habitat values or adversely impact the water quality or natural shoreline types. Project will meet council's primary goal of restoring the scenic value of the coastal region. Disruption of natural landforms and vegetation will be minimized.

DETERMINATION

The project will not alter future development of Rhode Island's coastal resources. In accordance with 15 CFR 930 Subpart C, Consistency for Federal Activities, we have determined this action is consistent to the maximum extent practicable with the RI Coastal Resources Management Plan.