ACTION MEMORANDUM

DATE: 7/18/2008

FROM: CAPT William F. Cords
Naval Air Systems Command
Director of Infrastructure Business Operations

SUBJECT: Non-Time Critical Removal Action
Site 2- Fire Training Area
Naval Weapons Industrial Reserve Plant
Calverton, New York

1. PURPOSE

The purpose of this Action Memorandum is to document the decision by the United States Navy (Navy) to conduct a non-time-critical removal action (NTCRA) to remove petroleum-contaminated soil at Site 2, Naval Weapons Industrial Reserve Plant (NWIRP), Calverton, New York (Attachment A, Figure 1).

This action is to be taken to reduce potential risks to the public health, welfare and the environment posed by contaminants in the soils resulting from fire training exercises using virgin and waste petroleum product in an unlined pit between the 1950s and 1982. Shallow petroleum-contaminated soil will be excavated and disposed of off-site in this action. This action is an interim action because petroleum contaminated soil will remain at the groundwater table and limited groundwater contamination will remain.

This NTCRA is being conducted by the Navy under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the New York State Department of Environmental Conservation (NYSDEC) for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations).

2. NWIRP CALVERTON BACKGROUND

NWIRP Calverton has been owned by the Navy since the early 1950's. At that time, the property was purchased from a number of private owners. The facility was expanded in 1958 through additional purchases of privately-owned land. Northrop Grumman Corporation (previously Grumman Corporation) operated the facility since its construction.

NWIRP Calverton was used in the development, assembly, testing, refitting, and retrofitting of Naval combat aircraft. Northrop Grumman has been the sole operator of the facility, which is known as a Government-Owned-Contractor-Operated (GOCO) installation. The facility supports aircraft design and production at nearby NWIRP Bethpage, which is also operated by Northrop Grumman.

Northrop Grumman operations at the facility ended in February 1996. In September 1998, the majority of the land within the developed section of the facility was transferred to the Town of Riverhead for redevelopment. Because of the need for additional environmental investigation and the potential need for remediation, the Navy retained four parcels of land within the developed section. The four parcels and associated Navy Installation Restoration (IR) Sites are presented in Attachment A, Figure 2, (Site 1 and Site 9, Site 2, Site 6A/Site 10B/SA, and Site 7/Site 10A). Approximately 3,000 acres of undeveloped land outside of the fenced areas was transferred to the Veterans Administration and the NYSDEC in 1999. In 2007, with the completion of remedial actions, Site 1 and Site 9, and Site 10A were transferred to the Town of Riverhead.

3. SITE DESCRIPTION

This section presents an assessment of the environmental conditions at the site. The site conditions have been evaluated through performance of a several investigations conducted by the Navy.

a. Background.

Site 2 – Fire Training Area is located on the eastern side of a 9-acre clearing in the south-central portion of the NWIRP Calverton facility, see Attachment A, Figure 2. Site 2 was used by Northrop Grumman and Navy crash rescue crews as a training area since 1955, and possibly as early as 1952. According to the Initial Assessment Study (IAS), soil disturbances in the area were continuously evident in historical photographs. Before 1982, activities at the site consisted of clearing an area up to 100 feet or more in diameter and enclosing it with an earthen berm. A layer of water was then placed within the bermed area. Waste fuels, oils, and waste solvents were floated on the water and ignited. The IAS reported that during the training operations up to 450 gallons of waste solvent were mixed with up to 2,100 gallons of waste fuel per year. Aircraft sections were sometimes placed in the area to simulate actual crash conditions. After 1975, waste solvents were reportedly no longer mixed with the waste fuels and oils to be ignited.

A 6,000-gallon partially above ground storage tank (AST) formerly located north of the fire training ring was used for an unknown period of time prior to 1982 to store waste fuels and solvents at the site. An unknown quantity of liquid was released from the tank in August 1982. The concrete pit was constructed after the spill cleanup to prevent further soil contamination by waste fuels. The pit is approximately 80 feet in diameter and is located approximately 500 feet north and 800 feet west of the facilities western south gate. A 1,000-gallon AST was installed to replace the 6,000-gallon storage tank (Attachment A, Figure 3 – Concrete Steel and Structure). Removal activities associated with the 6,000 gallon tank is undocumented, but it is no longer at the site. A second spill of approximately 300 gallons of waste No. 2 fuel oil occurred in 1983. The spill emanated from a leak in the piping associated with the 1,000 gallon AST.

b. Removal Site Evaluation.

During a Resource Compensation and Recovery Act (RCRA) Facility Investigation (RFI) in 1994 and 1995, several volatile organic compounds (VOCs) were detected in Site 2 soils and included solvent-type chemicals consisting of 1,1,1-trichloroethene (9,900 micrograms per kilogram [µg/kg]), dichlorobenzene (900 µg/kg), and tetrachloroethene (470 µg/kg). Fuel-related chemicals were also detected and included ethylbenzene (3,700 µg/kg), toluene (6,100 µg/kg), and xylenes (85,000 µg/kg) (HNUS 1995a and HNUS 1995b).

Polychlorinated biphenyls (PCBs) (3,640 µg/kg), pesticides (less than 100 µg/kg), and semi-volatile organic compounds (SVOCs), including polycyclic aromatic hydrocarbons (PAHs) and phthalates, were detected in several soil samples. Typical PCB standards for industrial use and residential use are 10,000 µg/kg and 1,000 µg/kg, respectively (HNUS 1995a and HNUS 1995b).

Metals including antimony [7.9 milligrams per kilogram (mg/kg)], lead (390 mg/kg), and selenium (0.89 mg/kg) were detected in soil at concentrations greater than background levels.

One drum was found on the surface of the site during this investigation. The drum was placed in an overpack container during RFI field activities and was removed as a separate interim action. Despite an extensive geophysical survey of the site and test pit program, no other drums were found at Site 2. It appears that widespread drum disposal or burial did not occur at Site 2.

Groundwater testing was also conducted during the initial RFI. The following VOCs and maximum concentrations were detected above federal Maximum Contaminant Levels (MCLs) or New York drinking water or groundwater quality standards: chloroethane (1,100 micrograms per liter [µg/L]), 1,1-dichloroethane (1,200 µg/L), toluene (320 µg/L), 1,1,1-trichloroethane (140 µg/L), and xylenes (230 µg/L). By January 2008, the maximum detected chlorinated VOC concentration was 55 µg/L (1,1-dichloroethane) and the maximum detected fuel-related concentration was 170 µg/L (xylenes). The area of these detections was addressed by the pilot-scale AS/SVE system that operated between 1995 and 2000. The state groundwater standard for most VOCs is 5 µg/L. PCBs (18 µg/L), PAHs (3 µg/L), and lead (30.8 µg/L) were detected at concentrations above federal MCLs or state groundwater quality

standards during the initial RFI. Phthalates and pesticides were also detected at concentrations below these standards in several monitoring well samples. Based on the similarity between chemicals found in Site 2 soil and groundwater, it is likely that soil contaminants and residual petroleum product have affected groundwater. Also, the residual petroleum product is continuing to degrade and impact groundwater.

In May 2005, the Navy conducted a soil investigation at Site 2 to better define subsurface conditions. This field effort supplemented previous investigations that had identified an area of shallow petroleum contaminated soils (1 to 5 feet below ground surface) located underneath and south of the fire training ring and floating free product located near the water table (approximately 14 feet below ground surface) south and east of the fire training ring (Attachment A, Figures 3 and 4).

During this soil investigation, field observations and photo ionization detector (PID) readings were used to characterize the subsurface soils. Soil samples were also collected and analyzed for VOCs, PAHs, PCBs, pesticides, metals, and total petroleum hydrocarbons (TPH) - diesel range organics (DRO) and gasoline range organics (GRO). Several surface and subsurface soil samples contained PAHs and two samples contained PCBs (2.0 mg/kg) at concentrations greater than New York State Technical and Administrative Guidance Memorandum (TAGM) 4046 and/or the more recent New York State Guidance (NYCRR Part 375-6.8[b] Soil Cleanup Objectives [SCOs]). Although most of the samples had detectable concentrations of TPH, metals, PAHs, pesticides, and/or VOCs, most of the detections were not at concentrations greater than TAGMs or SCOs goals.

Based on site data and potential remedial options, the waste/contaminated materials at Site 2 – Fire Training Area are divided into five categories, as follows:

- Shallow petroleum-contaminated soil contains TPH-DRO average concentrations of 3,100 mg/kg and maximum concentrations of 11,000 mg/kg. The highest PCB concentration was 1.8 mg/kg and PAHs were detected at concentrations greater than TAGM 4046 values in 5 out of 7 samples.

- Deep petroleum-contaminated soil contains TPH-DRO average concentrations of 8,100 mg/kg and maximum concentrations of 13,000 mg/kg.

- Contaminated surface soil (coal) contains TPH-DRO average concentrations of 360 mg/kg and maximum concentrations of 1,100 mg/kg. The highest PCB concentration contains 2.03 mg/kg and PAHs were detected at concentrations greater than TAGM 4046 values in 2 out of 5 samples.

- Other contaminated subsurface soil contains TPH-DRO average concentrations of 620 mg/kg and maximum concentrations of 3,000 mg/kg. The highest PCB concentration contains 0.17 mg/kg and PAHs were detected at concentrations greater than TAGM 4046 values in 2 out of 8 samples, but were less than SCOs.

- Debris (e.g. concrete, steel, and plastic) is mixed in with the contaminated soil and has not been analyzed.

c. <u>Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant</u>.

The site contains an estimated 6,863 cubic yards of contaminated soil and debris: which includes, shallow petroleum-contaminated soil 4,300 cubic yards, deep petroleum-contaminated soil 920 cubic yards, contaminated surface soil (coal) 1,500 cubic yards, other contaminated subsurface soil 8 cubic yards, and debris (e.g. concrete, steel, and plastic) 135 cubic yards.

d. <u>National Priorities List (NPL) Status</u>.

This site is not a Federal NPL site, but is listed under New York State Superfund Sites.

4. OTHER ACTIONS TO DATE

a. Previous Actions.

In 1982, 327 cubic yards of petroleum-contaminated soil were removed to address a spill from the 6,000-gallon storage tank. In addition, four groundwater monitoring wells were installed in the spill area. Following a second spill of approximately 300 gallons in 1983, seven additional monitoring wells were installed to monitor potential contamination resulting from the spills.

A groundwater and free product (oil) recovery system was installed in December 1987. The active recovery system was shut down in 1993. Passive free product recovery continued until 1996. As of December 1996, approximately 325 gallons of petroleum product had been removed from this site. Because only minimal free product remained at the site, no significant free product removal occurred after that time.

A pilot-scale air sparging/soil vapor extraction (AS/SVE) system was installed in 1995 and operated seasonally through 2000. As of 2000, approximately 80 pounds of target VOCs had been removed. In addition, an estimated 30,000 pounds of organics had been destroyed through biodegradation. VOC concentrations in deep soil and groundwater had been reduced by approximately 70 to 95 percent.

In 2000, the Navy proceeded with passive free product recovery using adsorbent media and restarted the AS/SVE system at Site 2. Minimal free product was recovered and operation of the system was discontinued in 2001.

b. Investigations and Assessments:

Several investigations have been conducted at the site and are described in the following reports:

Initial Assessment Study of NWIRP Bethpage and NWIRP Calverton, New York. Naval Energy and Environmental Support Activity (NEESA) 13-100, Rogers, Golden, & Halpern, Philadelphia, PA. December 1986.

Final Site Investigation for Naval Weapons Industrial Reserve Plant, Calverton, New York. Halliburton NUS. April 1992.

RCRA Facility Investigation for Naval Weapons Industrial Reserve Plant, Calverton, New York. Halliburton NUS. August 1995.

Final RCRA Facility Investigation for Naval Weapons Industrial Reserve Plant, Calverton, New York. Halliburton NUS. September 1995.

Summary Results Report for Pilot Study Air Sparging/Vapor Extraction System, Naval Weapons Industrial Reserve Plant, Calverton, New York. King of Prussia, Pennsylvania. C.F. Braun. June 1996.

Phase 2 Air Sparging/Soil Vapor Extraction Pilot Study, Naval Weapons Industrial Reserve Plant, Calverton, New York. King of Prussia, Pennsylvania. C.F. Braun. July 1996.

Draft Phase 2 RCRA Facility Investigation for Sites 1, 2, and 7 at the Naval Weapons Industrial Reserve Plant, Calverton, New York. C.F. Braun. January, 1998.

Engineering Evaluation/Cost Analysis for Sites 2, 6A, 7, and 10B, Naval Weapons Industrial Reserve Plant, Calverton, New York. Prepared for Northern Division, Naval Facilities Engineering Command, Lester, Pennsylvania. Tetra Tech NUS, Inc. September, 1998.

Data Summary Report for Site 2 – Fire Training Area, Naval Weapons Industrial Reserve Plant, Calverton, New York. Prepared for Northern Division, Naval Facilities Engineering Command, Lester, Pennsylvania. Tetra Tech NUS, Inc. September, 2005.

Engineering Evaluation/Cost Analysis (EE/CA) Site 2 – Fire Training Area, Naval Weapons Industrial Reserve Plant, Calverton, New York. Prepared for Engineering Field Activity Northeast, Naval Facilities Engineering Command. Tetra Tech NUS, Inc. April 2008.

Data Summary Report for Groundwater Investigation at Site 2 – Fire Training Area, Naval Weapons Industrial Reserve Plant, Calverton, New York. Prepared for Naval Facilities Engineering Command, Mid-Atlantic, May 2008.

c. Current Actions.

The Navy has initiated contracting actions to implement excavation of the shallow petroleum-contaminated soil and surface soil at Site 2 with disposal at an off-site landfill. A total of approximately 5,943 cubic yards (9,800 tons) of soil would be excavated and disposed off site (of which, 4,300 cubic yards are shallow petroleum-contaminated soil).

Upon award of this project, construction could begin in the winter of 2008. Construction time is estimated to take 4 months. Post-construction documents could be completed within another 4 months. Therefore, the project could be implemented within approximately 1 year from the award date.

5. STATE AND LOCAL AUTHORITIES ROLE

a. State and Local Actions to Date.

The site is located on property held by the Navy, and as such the Navy holds responsibility for removal actions, risk reduction and remediation of the site as needed. The site was incorporated into the Installation Restoration (IR) Program for NWIRP between 1986 and 1991. State and local authorities have not undertaken any removal actions at the site. The State provides oversight of actions and review of documents for sites under the IR Program. The local community provides input on the Navy's action through participation in the Restoration Advisory Board (RAB), which is a group of community members who meet with Navy representatives periodically to discuss progress and provide input on IR Program sites.

b. Potential for Continued State and Local Response.

Ownership of the land at the site is anticipated to be transferred to the Town of Riverhead for economic redevelopment after removal actions have been completed. The State of New York will continue to oversee the investigations and removal actions and the local community will continue to provide input on actions conducted at the site through the RAB until the transfer of land is complete.

6. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Potential threats to public health, welfare or the environment posed by site contaminants, and statutory and regulatory authorities that apply to the site are discussed in this section.

a. Threats to Public Health or Welfare.

Under current conditions, access to the site and contaminated soils is limited by fencing and locked gates. In addition, the majority of contamination at the site is located in subsurface soils. PAHs are present in site soils at concentrations greater than criteria for a limited exposure scenario (industrial use), indicating that there is a potential risk to human health from direct exposure. In addition, the petroleum in the subsurface soil is continuing to degrade and release VOCs to groundwater. Groundwater at the site

and in the immediate down gradient area is not used as a source of drinking water. However, site groundwater is classified as a potential source of potable water.

b. Threats to the Environment.

A formal ecological risk assessment has not been conducted for the site, but concentrations of TPH-DRO present in the surface soil may contribute risk to ecological receptors through transfer of TPH-DRO through food chain and by incidental ingestion of soil by ecological receptors feeding in the area. It is presumed that the excavation and enhanced bioremediation in soil would eliminate any possible risk to ecological receptors from this or other constituents in the soil from the solvents.

c. Regulatory Authorities.

NWIRP Calverton, Site 2 is being addressed under the Navy's IR Program. New York State Department of Environmental Conservation (NYSDEC) provides regulatory oversight through the Corrective Action portion of the RCRA Permit (Section 373) and the State Superfund Program (Section 373). In addition, the United States Environmental Protection Agency (USEPA) reviews documents prepared for the site.

TPH-DRO is not regulated by NYSDEC as a chemical, but is regulated based on free product formation and odor. PAHs and PCBs in soils are addressed by TAGM 4046 and the SCOs. TAGM 4046 criteria are based on a residential exposure scenario. The SCOs identify restricted and unrestricted residential use, commercial use, and industrial use scenarios, as well as protection of ecological receptors and protection of groundwater. Future use of the site is anticipated to be non-residential, under either a commercial or industrial use scenario.

7. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous and petroleum substances from this site, if not addressed by implementing the response action selected in this Action Memorandum, would present an elevated risk of endangerment to public health, or welfare, or the environment. The Navy has determined that this threat can be eliminated by undertaking the removal action posed in this action memorandum.

8. PROPOSED ACTIONS AND ESTIMATED COSTS

This section describes the proposed removal action to mitigate the conditions cited in Section 6, above.

a. Proposed Action.

The proposed soil removal action consists of the excavation, transportation and off-site disposal of contaminated soil, coal, and debris, enhanced bioremediation of residual petroleum contamination, and interim groundwater monitoring (Attachment A, Figure 5). Following excavation, the removal areas will be backfilled, graded to the previous elevation present across the Site and reseeded.

The excavation and offsite disposal was proposed to the public on May 21, 2008. Attachment B presents the Public Notice in the Suffolk Life Newspaper. A 30-day public comment period was conducted for the Engineering Evaluation/Cost Analysis (EE/CA) starting May 21, 2008 and ended on June 20, 2008. Several comments were received from Suffolk County Department of Health Services (See Attachment C). These comments were in support of the removal action, but recommended additional investigation and excavation be conducted. No comments on the proposed removal action were received from the USEPA, NYSDEC, NYSDOH, or from the public within the 30 day comment period.

The major components of the proposed removal action and the basis for the proposal are provided below. Details of the actions and methods to perform the soil removal action will be described in a Removal Action Work Plan, and a specification for construction. These documents will be made available to the public through the RAB and to the regulatory parties for review and comment. The following elements will be conducted under the removal action.

- Removal Action Work Plan
- Erosion Control Plan
- Structure Decontamination, Demolition, Transportation and Disposal (135 cubic yards)
- Well Abandonment
- Excavation and Off-Site Disposal of Shallow Petroleum Contaminated Soil and Surface Soil, (5,808 cubic yards), Attachment 1 Figure 5.
- Enhanced aerobic remediation of residual petroleum contamination
- Post Excavation Confirmation Sampling
- Site Restoration

b. Contribution to Remedial Performance.

This removal is anticipated to constitute the final remedy for shallow and surface soils at the site. Deep soils and groundwater requirements remain to be determined. If conditions are found during the excavation that warrant continued removal from the site, those actions will be addressed as needed. By removing soil exceeding direct exposure criteria, the risk posed by the contaminants present will be addressed.

c. Alternative Actions Considered.

Alternative technologies were evaluated in detail in the EE/CA Site 2-Fire Training Area Report (TtNUS, 2008) and included No Action, use of a permeable cover, and removal of surface and shallow petroleum contaminated soil. Because of the depth of the remaining petroleum contamination (greater than 14 feet) and the presence of this contamination at and below the water table, removal of the deep petroleum contamination was not considered in the EE/CA. If required, deep petroleum contamination would be addressed via an insitu technology as part of a final remedy.

The no action alternative (Alternative 1) was not effective because potential risk to receptors would not be addressed and shallow petroleum contaminated soil would continue to impact groundwater. The permeable cover (Alternative 2) would eliminate the potential risk to receptors but would not address continuing impacts to groundwater. The selected removal action removal of surface soil and shallow petroleum contaminated soil (Alternative 3) would address both these concerns. Groundwater at the site is currently being monitored on an annual basis. Pending completion of the removal action and approximately two years of monitoring, sufficient data will be collected to complete the RFI, and prepare a Corrective Measures Study and Statement of Basis for Remedy Selection.

d. Applicable or Relevant and Appropriate Requirements (ARARs).

The removal action complies with the following federal and state ARARs:

- Reference Doses, USEPA Office of Research and Development - To be considered requirement in the public health assessment.
- Carcinogenic Potency Factors, USEPA Environmental Criteria and Assessment Office; USEPA Carcinogen Assessment Group - To be considered requirement in the public health assessment.
- RCRA Hazardous Waste Regulations [40 (Code of Federal Regulations) CFR Part 261 to 268]
- OSHA Requirements (29 CFR Parts 1910, 1926, and 1904).
- DOT Rules for Hazardous Materials Transport (40 CFR Parts 107, 171-179).
- New York Technical and Administrative Guidance Memorandum on Determination of Soil Cleanup Objectives and Cleanup Levels (TAGM 4046).

- NYCRR 373, Hazardous Waste Management Facilities (RCRA Permit)
- NYCRR 375, Environmental Remediation Programs (State Superfund)

e. Project Schedule.

All construction of erosion control structures, waste excavation and disposal activities, and site restoration activities, will be completed no later than 1 September 2009. Start date will be considered the date of the contract award.

f. Estimated Costs.

The cost for the proposed removal action is currently estimated at approximately $2,300,000. The cost for Interim groundwater monitoring is not included with this removal action. A final remedy for this site has not been determined.

9. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the removal action is not conducted, the contaminant concentrations in the soil will remain, possibly posing a risk of exposure to trespassers on the property and continue impact to groundwater. Contaminant concentrations will only slowly decrease over time.

10. OUTSTANDING POLICY ISSUES

None identified at this time.

11. ENFORCEMENT

The accelerated action is being undertaken voluntarily by the Navy. Regulatory agencies are anticipated to remain in an oversight role for the duration of the removal action, reviewing design documents, work plans and completion reports to assure compliance with regulations under the IR Program.

12. RECOMMENDATION

The removal of the contaminated soil and debris will eliminate the risk of exposure to petroleum present in the soil and significantly reduce continuing impacts to groundwater at the site. Therefore, the Navy recommends the implementation of the proposed removal action.

Approvals:

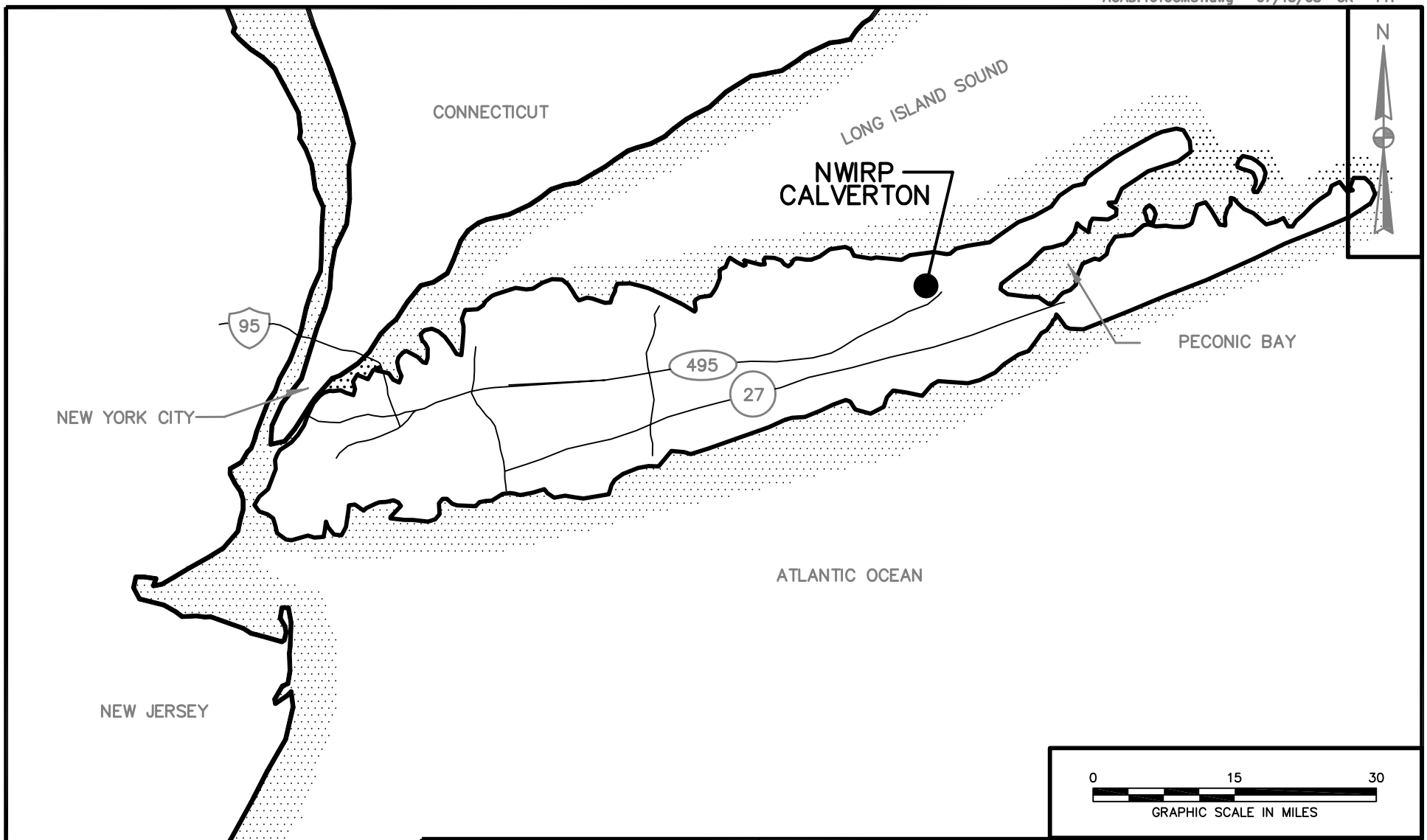
CAPT William F. Cords
Naval Air Systems Command
Director of Infrastructure Business Operations

Date: 7/21/08

Attachment A – Figures

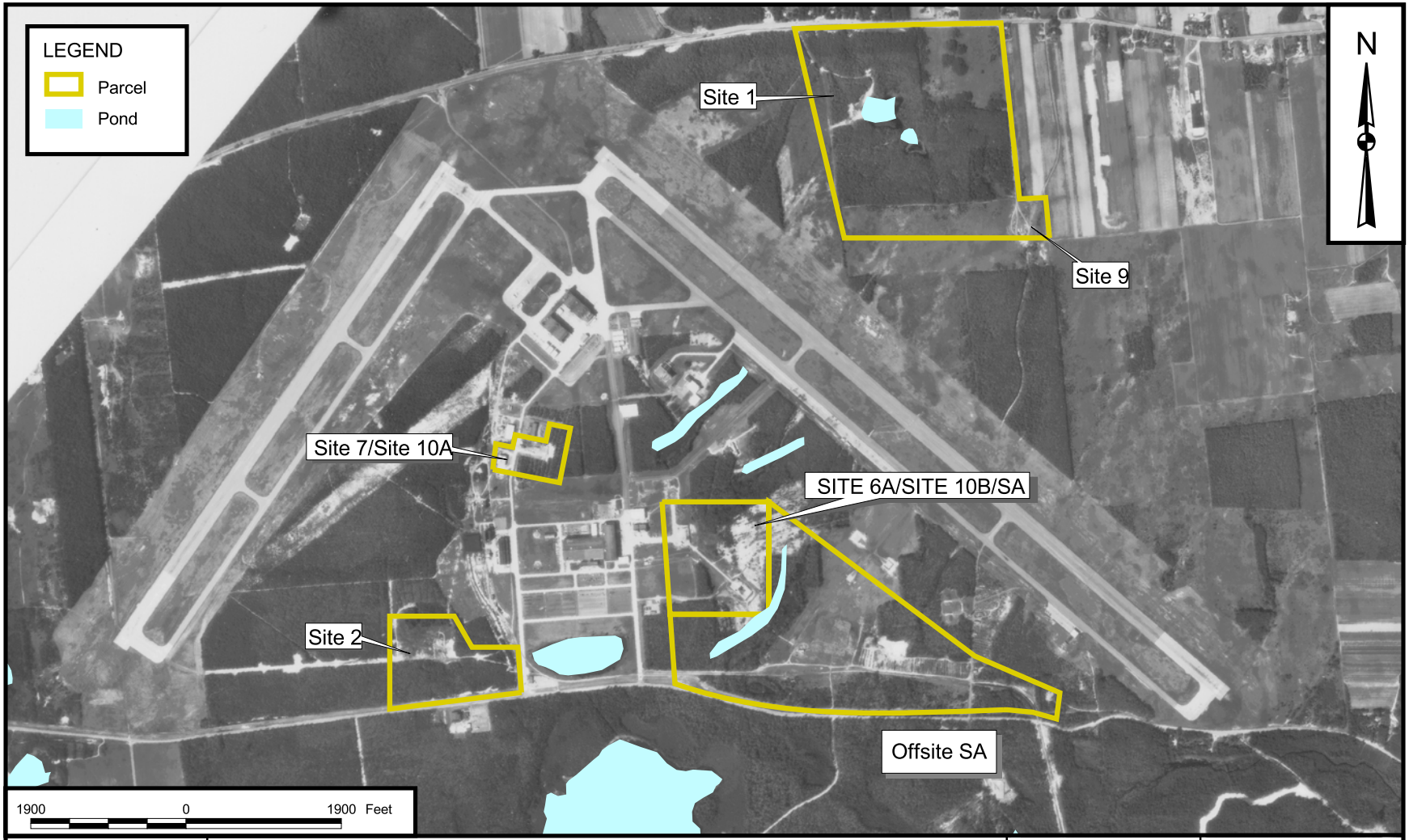
Figure 1 – General Location Map
Figure 2 – Site Location Map
Figure 3 – Existing Conditions and Cross Section Location Map
Figure 4 – Cross section A – A'
Figure 5 – Alternative 3 – Excavation and Off-Site Disposal

ACAD:1610CM31.dwg 07/15/08 CK PIT



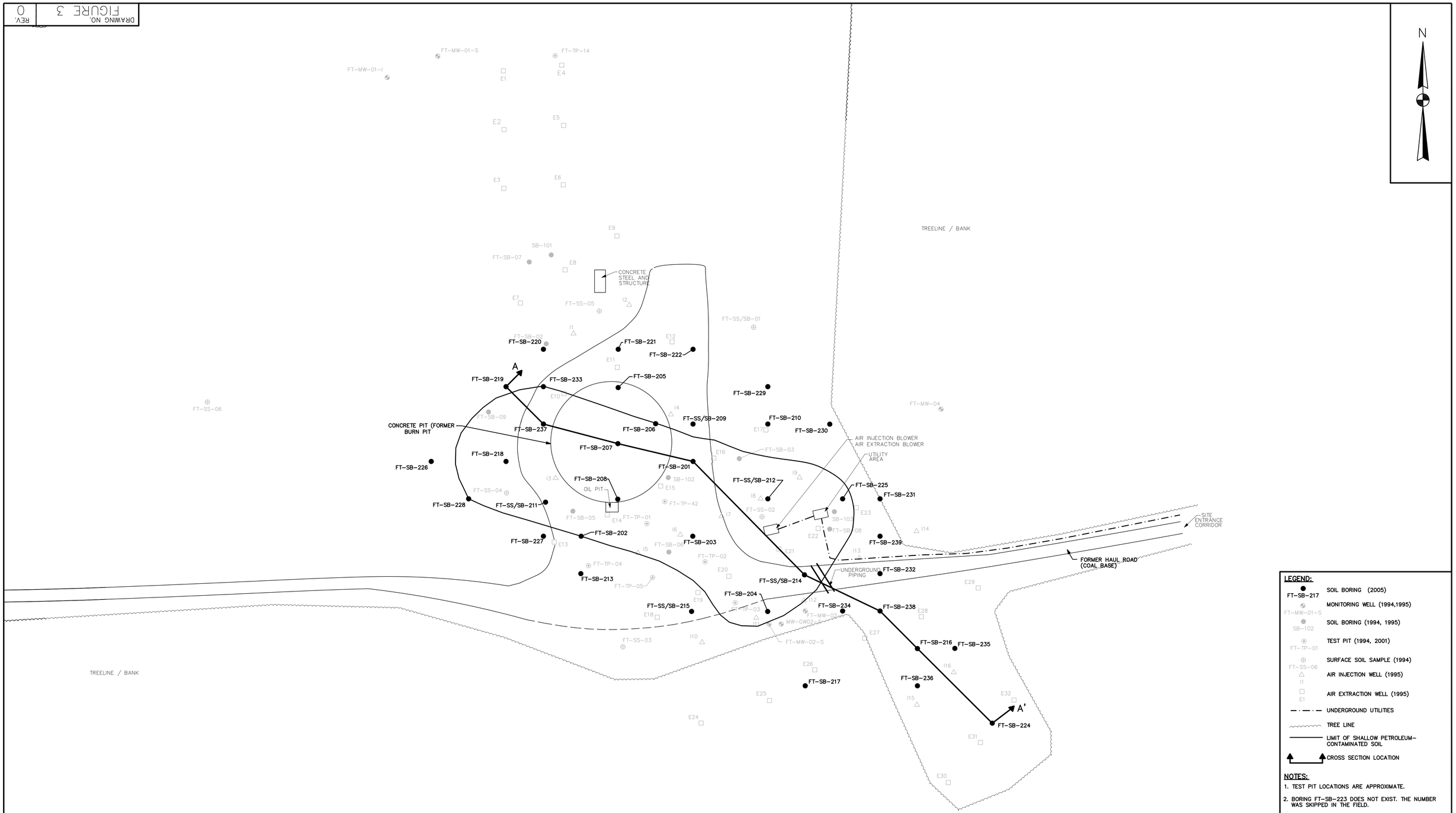
DRAWN BY CK DATE 7/15/08	Tetra Tech NUS, Inc.	GENERAL LOCATION MAP NWIRP CALVERTON, NEW YORK	CONTRACT NO. 0804
CHECKED BY DATE			OWNER NO.
REVISED BY DATE			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1 / REV. 0

FORM CADD NO. TTNUS-AH.DWG - REV 1 -9/10/98



DRAWN BY J. LAMEY	DATE 11/22/99	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7398 / OWNER NUMBER 0270
CHECKED BY ____	DATE ____	SITE LOCATION MAP NWIRP CALVERTON, NEW YORK	APPROVED BY ___ / DATE ___
COST/SCHEDULE-AREA			APPROVED BY ___ / DATE ___
SCALE AS NOTED			DRAWING NO. FIGURE 2 / REV 0

P:\GIS\NWIRP_CALVERTON\SURFACE_WATER_HYDROLOGY.APR SITE LOCATION MAP 07/14/08 SS



LEGEND:

- FT-SB-217 — SOIL BORING (2005)
- FT-MW-01-S — MONITORING WELL (1994,1995)
- SB-102 — SOIL BORING (1994, 1995)
- FT-TP-01 — TEST PIT (1994, 2001)
- FT-SS-06 — SURFACE SOIL SAMPLE (1994)
- I1 — AIR INJECTION WELL (1995)
- E1 — AIR EXTRACTION WELL (1995)
- UNDERGROUND UTILITIES
- TREE LINE
- LIMIT OF SHALLOW PETROLEUM-CONTAMINATED SOIL
- CROSS SECTION LOCATION

NOTES:

1. TEST PIT LOCATIONS ARE APPROXIMATE.
2. BORING FT-SB-223 DOES NOT EXIST. THE NUMBER WAS SKIPPED IN THE FIELD.
3. LOCATION OF SITE STRUCTURES/AIR INJECTION WELLS/AIR EXTRACTION WELLS ARE OFFSET FROM MONITORING WELL LOCATIONS BY FIVE FEET. USE SITE STRUCTURES /AIR INJECTION WELLS/ AIR EXTRACTION WELLS AS REFERENCE POINTS.

0 30 60
GRAPHIC SCALE IN FEET

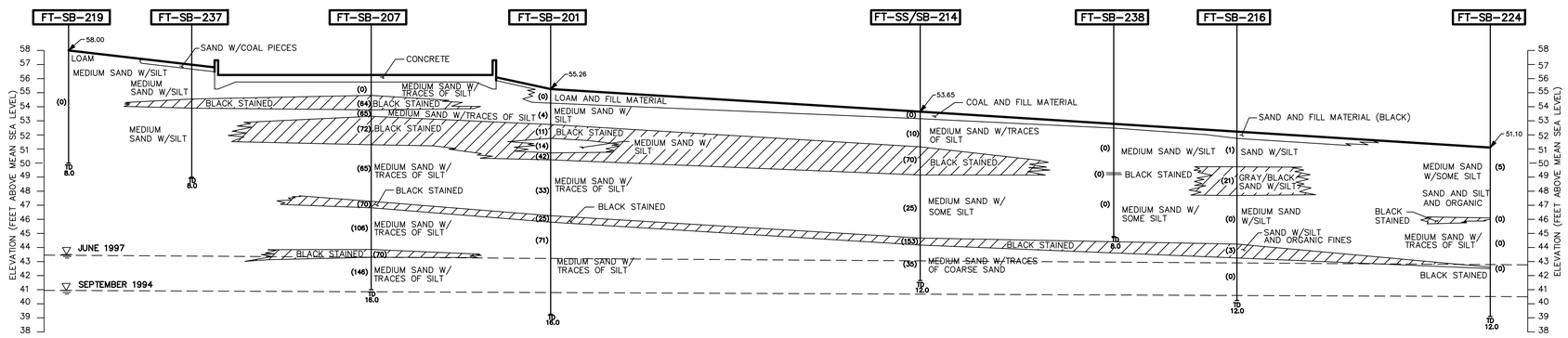
DRAWN BY CK	DATE 7/15/08	Tetra Tech NUS, Inc.	EXISTING CONDITIONS AND CROSS SECTION LOCATION MAP SITE 2 – FIRE TRAINING AREA NWIRP CALVERTON, NEW YORK
CHECKED BY	DATE		
REVISED BY	DATE		
SCALE AS NOTED			

CONTRACT NO. 1610
OWNER NO. 004
APPROVED BY DATE
DRAWING NO. FIGURE 3
REV. 0

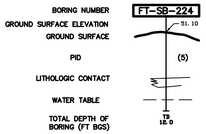
DRAWING NO. FIGURE 3 REV. 0

FORM CADD NO. TTNUS-D-STD.DWG - REV 1 - 9/11/98

ACAD:1610CP92.dwg 07/15/08 CK PIT



LEGEND:



NOTES:

1. PHOTO IONIZATION DETECTOR (PID) READINGS (IN PARENTHESES) ARE THE MAXIMUM DETECTED WITHIN A GIVEN MATERIAL ENCOUNTERED.
2. WATER TABLE INFORMATION TAKEN FROM MEASUREMENTS AT FT-MW-02-S AND PROVIDED IN THE 1995 RCRA FACILITY INVESTIGATION (HALIBURTON) AND THE 2001 PHASE 2 REMEDIAL INVESTIGATION (TtNUS).

0 20 40
HORIZONTAL SCALE IN FEET

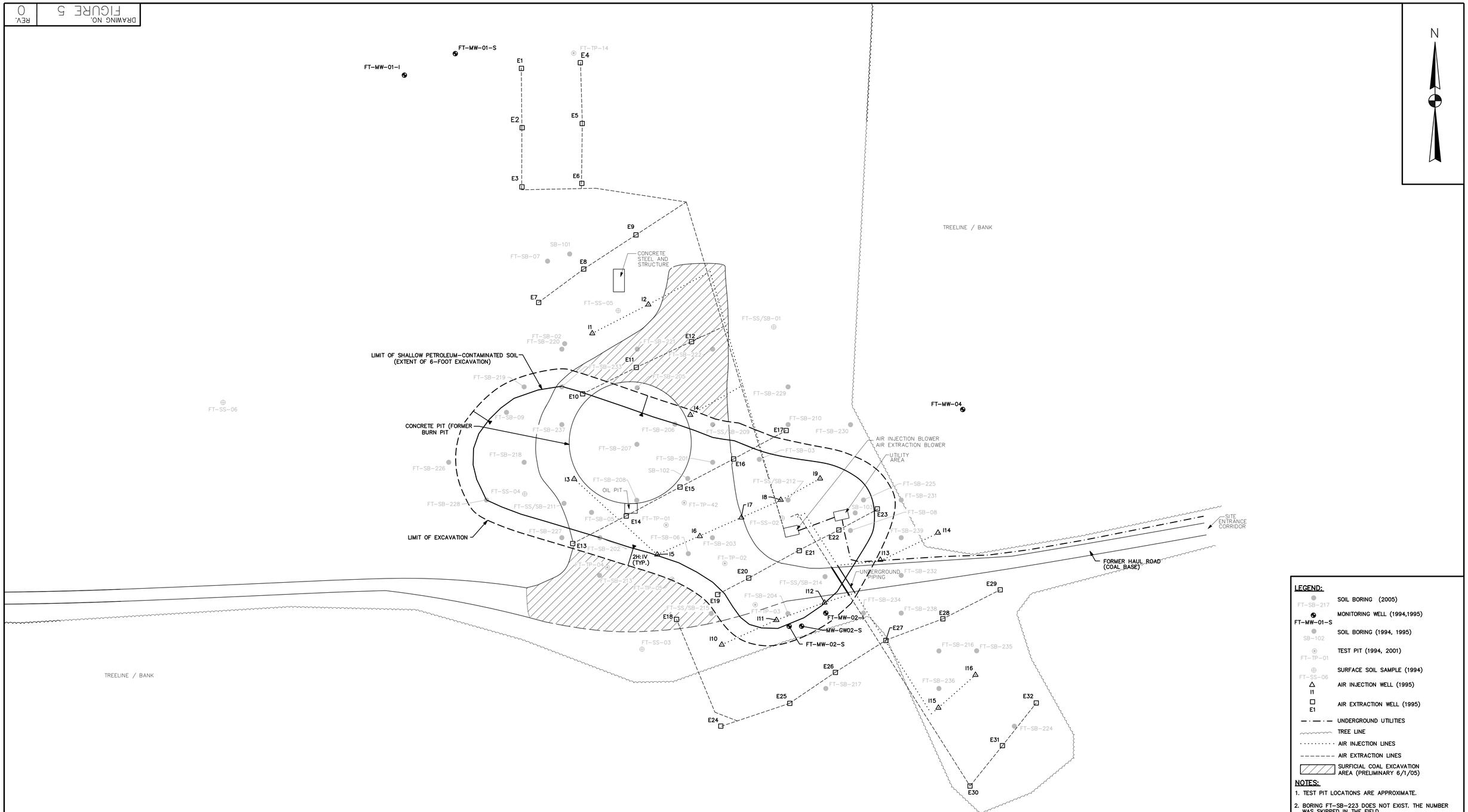
0 5 10
VERTICAL SCALE IN FEET

DRAWN BY CK DATE 7/15/08	Tetra Tech NUS, Inc.	CROSS SECTION A–A' SITE 2 – FIRE TRAINING CENTER NWIRP CALVERTON, NEW YORK	CONTRACT NO. 1610
CHECKED BY DATE			OWNER NO. 004
REVISED BY DATE			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 4 REV. 0

DRAWING NO. FIGURE 4 REV. 0

FORM CADD NO. TTNUS-D-STD.DWG - REV 1 - 9/11/98

ACAD:1610CX16.dwg 07/15/08 CK PIT



LEGEND:

- FT-SB-217 — SOIL BORING (2005)
- FT-MW-01-S — MONITORING WELL (1994,1995)
- SB-102 — SOIL BORING (1994, 1995)
- FT-TP-01 — TEST PIT (1994, 2001)
- FT-SS-06 — SURFACE SOIL SAMPLE (1994)
- I1 — AIR INJECTION WELL (1995)
- E1 — AIR EXTRACTION WELL (1995)
- UNDERGROUND UTILITIES
- TREE LINE
- AIR INJECTION LINES
- AIR EXTRACTION LINES
- SURFICIAL COAL EXCAVATION AREA (PRELIMINARY 6/1/05)

NOTES:

1. TEST PIT LOCATIONS ARE APPROXIMATE.
2. BORING FT-SB-223 DOES NOT EXIST. THE NUMBER WAS SKIPPED IN THE FIELD.
3. LOCATION OF SITE STRUCTURES/AIR INJECTION WELLS/AIR EXTRACTION WELLS ARE OFFSET FROM MONITORING WELL LOCATIONS BY FIVE FEET. USE SITE STRUCTURES /AIR INJECTION WELLS/ AIR EXTRACTION WELLS AS REFERENCE POINTS.

0 30 60
GRAPHIC SCALE IN FEET

DRAWN BY CK	DATE 7/15/08	Tetra Tech NUS, Inc.	ALTERNATIVE 3 – EXCAVATION AND OFF-SITE DISPOSAL SITE 2 – FIRE TRAINING AREA NWIRP CALVERTON, NEW YORK
CHECKED BY	DATE		CONTRACT NO. 1610
REVISED BY	DATE		OWNER NO. 004
SCALE AS NOTED			APPROVED BY / DATE
			DRAWING NO. FIGURE 5 / REV. 0

FORM CADD NO. TTNUS-D-STD.DWG - REV 1 - 9/11/98

ACAD:1610CP91.dwg 07/15/08 CK PIT

DRAWING NO. FIGURE 5 REV. 0

Attachment B

Public Notice

PUBLIC NOTICE

NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP)
CALVERTON, NEW YORK

announces the availability of and the start of the public comment period on the ENGINEERING EVALUTION/COST ANALYSIS FOR A NON TIME CRITICAL REMOVAL ACTION AT SITE 2 - FIRE TRAINING AREA

This notice is being provided to inform interested parties that the Department of Navy (Navy) prepared an Engineering Evaluation/Cost Analysis (EE/CA) for a non-time critical removal action at the former Naval Weapons Industrial Reserve Plant (NWIRP) at Calverton, New York. This action is an interim remedy to address soils that are continuing to impact groundwater.

Site 2 - Fire Training Area was used to train base personnel to extinguish fires associated with jet aircraft. The training was conducted from the 1950s to 1995. Prior to 1982, this training was conducted in unlined pits and resulted in the release of petroleum to underlying soil and groundwater. Solvents were also mixed with the petroleum to burn in these pits. From the late 1980s to 1996, free product recovery operations were conducted at the site. By 1996, only minimal amounts of recoverable free product were present. From 1995 to 2000, an air sparging/soil vapor extraction system was used to treat soil and groundwater at the site. This operation resulted in a significant decrease in petroleum and solvent contamination at the site. However, post-treatment evaluation identified a shallow (1 to 6 feet deep) layer of petroleum-contaminated soil that had not been addressed by previous site activities and was continuing to impact site groundwater. To address this contamination, an EE/CA was prepared. The EE/CA evaluated two action alternatives, Alternative 2 - Permeable Cover and Alternative 3 - Excavation and Offsite Disposal. The Navy is proposing to implement Alternative 3 that includes excavation of petroleum-contaminated soils and offsite disposal, enhanced bioremediation of residual petroleum contamination, and interim groundwater monitoring. A final remedy for the site has not been determined.

Copies of the EE/CA have been distributed to the New York State Department of Environmental Conservation (NYSDEC), New York State Department of Health (NYSDOH), Suffolk County Department of Health Services (SCDHS), and members of the Calverton Restoration Advisory Board (RAB) who have all been informed of the proposed remedy selection and will also be reviewing these documents and providing comments. A copy of the document has been placed in the Navy's Information Repository located at the Reference Desk of the Riverhead Free Library, 330 Court Street, Riverhead, New York, 11901. Hours of operation are Monday through Friday from 9:00 am to 9:00 pm; Saturday from 9:00 am to 5:00 pm, and Sunday from 1:00 pm to 5:00 pm. (October through May). Please note that the library copy is for review only and may not be removed from the library.

A 30-day public comment period has been established for review of the document starting **May 21, 2008** and ending **June 20, 2008**.

All public comments on the EE/CA must be returned to the address provided below on or before (postmark by) June 20, 2008 to be considered, addressed, and documented in the administrative record. Parties interested in obtaining a copy of this document can write to the address below or call the Public Affairs Officer at (757) 445-8732 x3096.

Public Affairs Officer, Code 09PA
Naval Facilities Engineering Command Mid-Atlantic
9742 Maryland Ave., Bldg. A-81
Norfolk, Va. 23511

ATTACHMENT C

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY
ENGINEERING EVALUATION/COST ANALYSIS (SITE 2 – FIRE TRAINING AREA, APRIL 2008)
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT, CALVERTON NY

1. **Comment:** There was a general comment that the removal action will not address all of the contamination at the site, including deep soil petroleum contamination and potential sources of groundwater contamination.

Response: The site is in the RCRA Facility Investigation (RFI) stage, meaning that additional investigation is needed, cleanup goals established, and a final remedy selected and implemented for the site. Because of the depth of the remaining petroleum contamination (greater than 14 feet) and the presence of this contamination at and below the water table, removal of the deep petroleum contamination was not considered in the EE/CA. If required, deep petroleum contamination and groundwater would be addressed in a future action.

The need for an interim action is based on previous testing conducted at the site. Between 1995 and 2000, pilot scale testing of aerobic insitu biological coupled with air sparging and soil vapor extraction treatment was found to be relatively successful at treating deep petroleum contaminated soil and groundwater. However, shallow contaminated soil did not respond to the insitu biological treatment. Subsequent testing at the site found that the shallow petroleum contaminated soil was a finer grained material and contained sufficient petroleum product to reduce permeability necessary for soil vapor extraction and biological treatment, and therefore could not be effectively treated via insitu treatment. The soil identified as shallow contaminated soil can be readily removed by conventional excavation techniques and therefore an alternative interim remedy for this material was pursued, and is the subject of this removal action.

2. **Comment:** The extent of the proposed excavation did not include all of the soil contamination above stated goals.

Response: During EE/CA process, one soil sample was identified that exceeded the stated goals. Based on the absence of contamination around it and the marginal exceedance of the goal, this area was excluded from the planned excavation. In addition, the soil sample was at depth (3 to 5 feet below ground surface) and did not represent a potential threat to human health. Upon revaluation of the data, it is decided to include this area in the planned excavation.

3. **Comment:** The EE/CA uses New York State Technical Assistance Guidance Memorandum (TAGM) goals as a cleanup goal. These goals are being replaced by Soil Cleanup Objectives (SCOs).

Response: The New York State SCOs will be used in evaluating confirmation samples collected following excavation. The SCOs are more stringent than the

TAGMs under the residential use scenario and less stringent that the TAGMs under the industrial use scenario. The confirmation data results will be compared with all three sets of potential criteria and the New York State Department of Environmental Conservation will be consulted of the results prior to backfill.