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SAMPLING AND ANALYSIS PLAN FOR ZONE E BUILDING 177 ABOVE GROUND STORAGE
TANK 177 WITH TRANSMITTAL CNC CHARLESTON SC
10/1/2000
J A JONES ENVIRONMENTAL SERVICES

**SAMPLING AND ANALYSIS PLAN
FOR
ZONE E/ BUILDING 177
ABOVE GROUND STORAGE TANK 177**

**Charleston Naval Complex
Charleston, South Carolina**

**SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND**

Contract Number N62467-99-C-0960

October 2000

**SAMPLING AND ANALYSIS PLAN
FOR
ZONE E/ BUILDING NH-177
ABOVE GROUND STORAGE TANK 177**

**Charleston Naval Complex
Charleston, South Carolina**

**Submitted to:
Southern Division
Naval Facilities Engineering Command
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Charleston, South Carolina 29406**



Submitted by:



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October 2000

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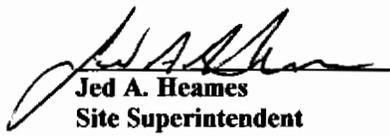

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ACRONYMS AND ABBREVIATIONS

AST	Aboveground Storage Tank
bls	below land surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene Isomers
CNC	Charleston Naval Complex
EISOPQAM	Environmental Investigations Standard Operating Procedures and Quality Assurance Manual
EPA	Environmental Protection Agency
ft	foot
mg/kg	microgram per kilogram
mg/L	microgram per liter
OVA	Organic Vapor Analyzer
QA	Quality Assurance
QC	Quality Control
RBSL	Risk-Based Screening Level
RDA	Redevelopment Authority
SAP	Sampling and Analysis Plan
SCDHEC	South Carolina Department of Health and Environmental Control
SOUTHDIV	Southern Division Naval Facilities Engineering Command
SSTL	Site-Specific Target Level
TTNUS	Tetra Tech NUS
UST	Underground Storage Tank

1.0 INTRODUCTION

This Sampling and Analysis Plan (SAP) has been prepared by CH2M-JONES, LLC. The plan is designed for Zone E/ Building 177; Aboveground Storage Tank (AST) 177 located at the Charleston Naval Complex (CNC), Charleston, South Carolina.

This SAP provides methods to further evaluate the applicability of removal as a corrective action for AST 177 in accordance with SCDHEC Corrective Action Guidance, June 1997 if needed.

1.1 General Site Description

The CNC is located in the city of North Charleston, on the west bank of the Cooper River in Charleston County, South Carolina as shown in Figure 1. This installation consists of two major areas: an undeveloped dredge materials area on the east bank of the Cooper River on Daniel Island in Berkley County, and a developed area on the west bank of the Cooper River. The developed portion of the base is on the peninsula bounded on the west by the Ashley River and on the east by the Cooper River. The site is located within the developed portion of the base.

The area surrounding CNC is "mature urban", having long been developed with commercial, industrial, and residential land use. Commercial areas are primarily west of CNC; industrial areas are primarily to the north of the base along Shipyard Creek.

1.2 Objective

This SAP presents a soil monitoring plan in order to define the contamination (if any) of the immediate area surrounding AST 177.

2.0 PROPOSED REMEDIATION TECHNOLOGY

AST 177 is a portable AST located on the edge of a concrete slab. There is no visual evidence that a petroleum release has occurred from this AST. Healthy vegetation is growing in the soil adjacent to the tank. The proposed monitoring program will consist of sampling two soil borings directly beneath AST 177 (see Figure 2 in Section 4.0 for proposed soil boring locations). One soil boring will be taken directly beneath the control valve of AST 177 and the other soil boring will be taken from the area immediately beneath AST 177. The soil samples will be collected using hand auger techniques as described in the EISOPQAM. The proposed soil-sampling program is described in detail in Sections 3.0 and 4.0 of this SAP.

All materials contained inside of AST 177 will be drained and properly disposed. The tank outlet valve will be secured and tagged as "Tank secured; Contact SOUTHDIV at 843-820-7307". After draining and securing the AST, CH2M-Jones, LLC will move the portable AST from its present location for future use or disposal for the Navy. The soil samples will then be obtained from the two locations (for more information on sampling techniques see Section 3.0 and 4.0).

3.0 PROPOSED SOIL MONITORING PROGRAM

3.1 Monitoring Frequency and Reporting

Sampling date or (Quarter)	Soil borings	Field Measures	Laboratory Analytical
Forth quarter ¹ 2000 or as soon as DHEC approval	SB-177-001 & SB-177-002 both borings will be sampled at 0-2 ft bls and 2-4 ft bls.	Organic Vapor Analyzer (OVA) at each interval.	Naphthalene 8260 BTEX 8260 PAH 8270

1. Forth quarter is defined as October, November, and December.

- **Frequency:** Only one round of soil sampling will be performed at this site unless contamination is found. In the event that contamination is found in the soil, additional sampling will be performed with conditional approval of SCDHEC.

3.2 Schedule:

1. Temporarily remove and secure the tank onsite.
2. Establish the contaminated soil area by sampling soil borings SB-177-001 and SB-177-002 (See Figure 2 in Section 4.0).
3. Properly dispose of any liquids found in the tank.

The following constituents will be analyzed for each soil sample:

- Naphthalene using method 8260
- BTEX using method 8260
- PAH using method 8270

3.3 Field Measurements

The following parameters will be sampled in the field:

- N/A

Field measurements will be recorded in the field book and in field forms.

3.4 Sample Handling

Field procedures and groundwater analysis will follow standard procedures found in the approved Corrective Action Sampling and Analysis Plan (CSAP) portion of the RFI Work Plan (Ensafe, Inc./ Allen & Hoshall, 1996). The CSAP outlines all monitoring procedures to be performed in during the investigation in order to characterize the environmental setting, source, and releases of hazardous constituents. In addition, the

CSAP includes the Quality Assurance plan and Data Management Plan to verify that all information and data are valid and properly documented. Unless otherwise noted, the sampling strategy and procedures will be performed in accordance with the EPA Environmental Services Division

Sample Handling will be conducted in accordance with the following references:

EPA EISOPQAM (EPA May, 1996)

Corrective Action Sampling and Analysis Plan (Ensafe, Inc./ Allen & Hoshall 1996).

3.5 Sample Packing and Shipping

The following forms will be completed to complete the packing/shipping process:

- Sample labels
- Chain-of-custody labels
- Appropriate labels applied to shipping coolers
- Chain-of-custody forms
- Federal express air bills

3.6 Control Limits

Analysis	Control Parameter	Control Limit	Corrective Action
N/A			

3.7 Record keeping

In addition to records kept in logbooks, forms will be kept on log sheets for soil and groundwater.

3.8 Site Management and Base Support

Throughout the investigation activities, work on the CNC will be coordinated through SOUTHDIV and SCDHEC.

The primary contacts for each are as follows:

1. SOUTHDIV point of contact
Gabe Magwood
Southern Division Engineering Command
2155 Eagle Drive
North Charleston, SC 29406
(843) 820-7307

2. SOUTHDIV point of contact
Tony Hunt
Southern Division Engineering Command
2155 Eagle Drive
North Charleston, SC 29406
(843) 820-5525

3. SCDHEC point of contact
Paul Bristol
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201
(843) 898-3559

REFERENCES

Ensafe, Inc./ Allen & Hoshall. July 30, 1996. Corrective Action Sampling and Analysis Plan.

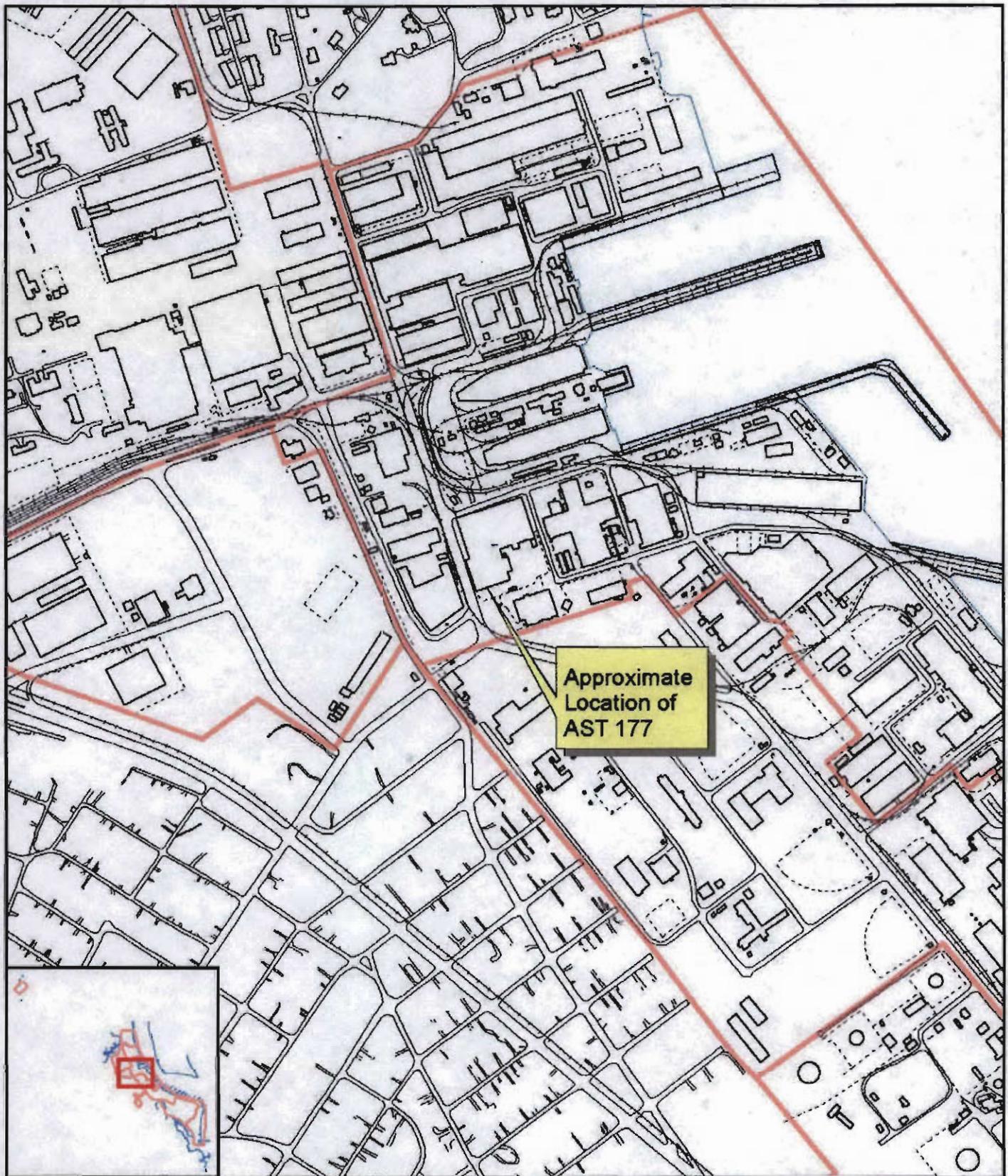
South Carolina Department of Health and Environmental Control. 1997. Corrective Action Guidance.

Tetra Tech NUS, Inc.; 1999 Rapid Assessment for Site 34 (Building 1137), Charleston, South Carolina.

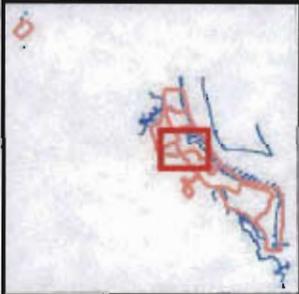
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Approximate
Location of
AST 177



-  Railroads
-  Roads
-  Zone Boundary

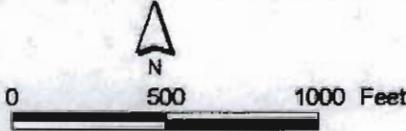
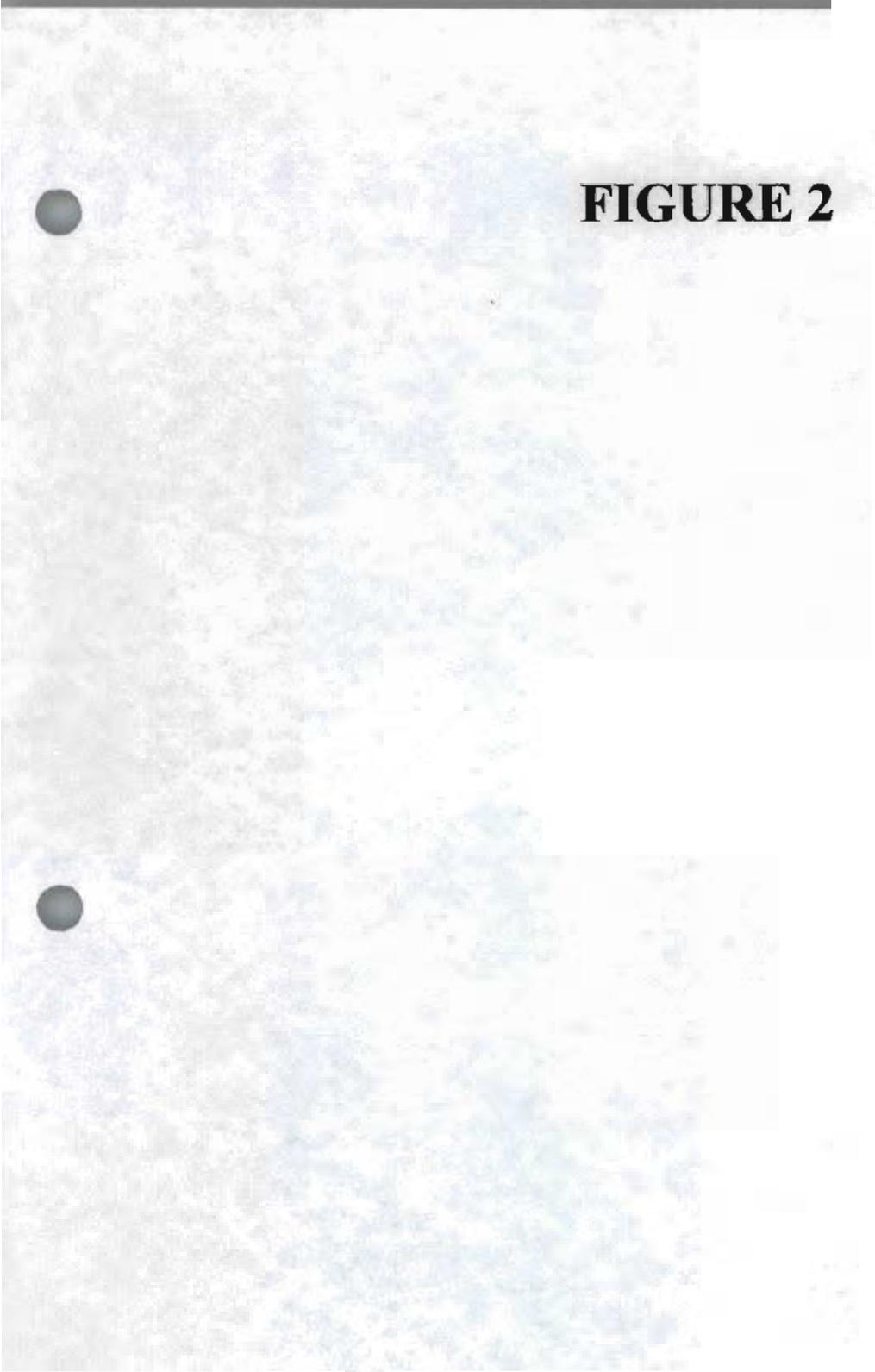
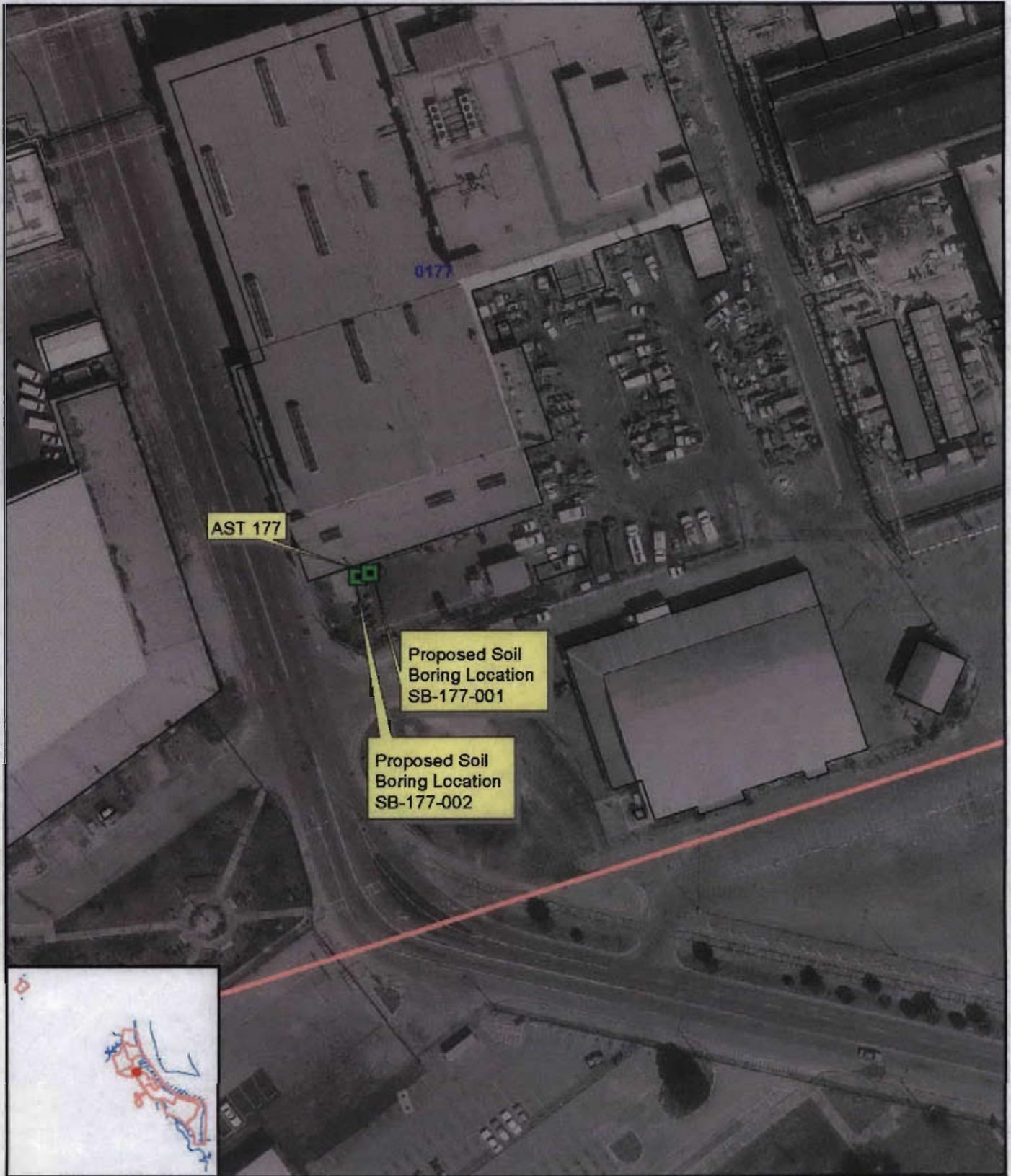


Figure 1
Site Location Map
Building 177 and AST 177 - Zone E
Charleston Naval Complex

FIGURE 2





AST 177

0177

Proposed Soil Boring Location SB-177-001

Proposed Soil Boring Location SB-177-002



-  Buildings
-  Zone Boundary



0 70 140 Feet

Figure 2
 Proposed Soil Boring Locations
 Zone E - Building 177 and AST 177
 Charleston Naval Complex

CH2MHILL

FIGURE 3



AST 177 adjacent to Building 177 on the Charleston Naval Complex

FIGURE 4



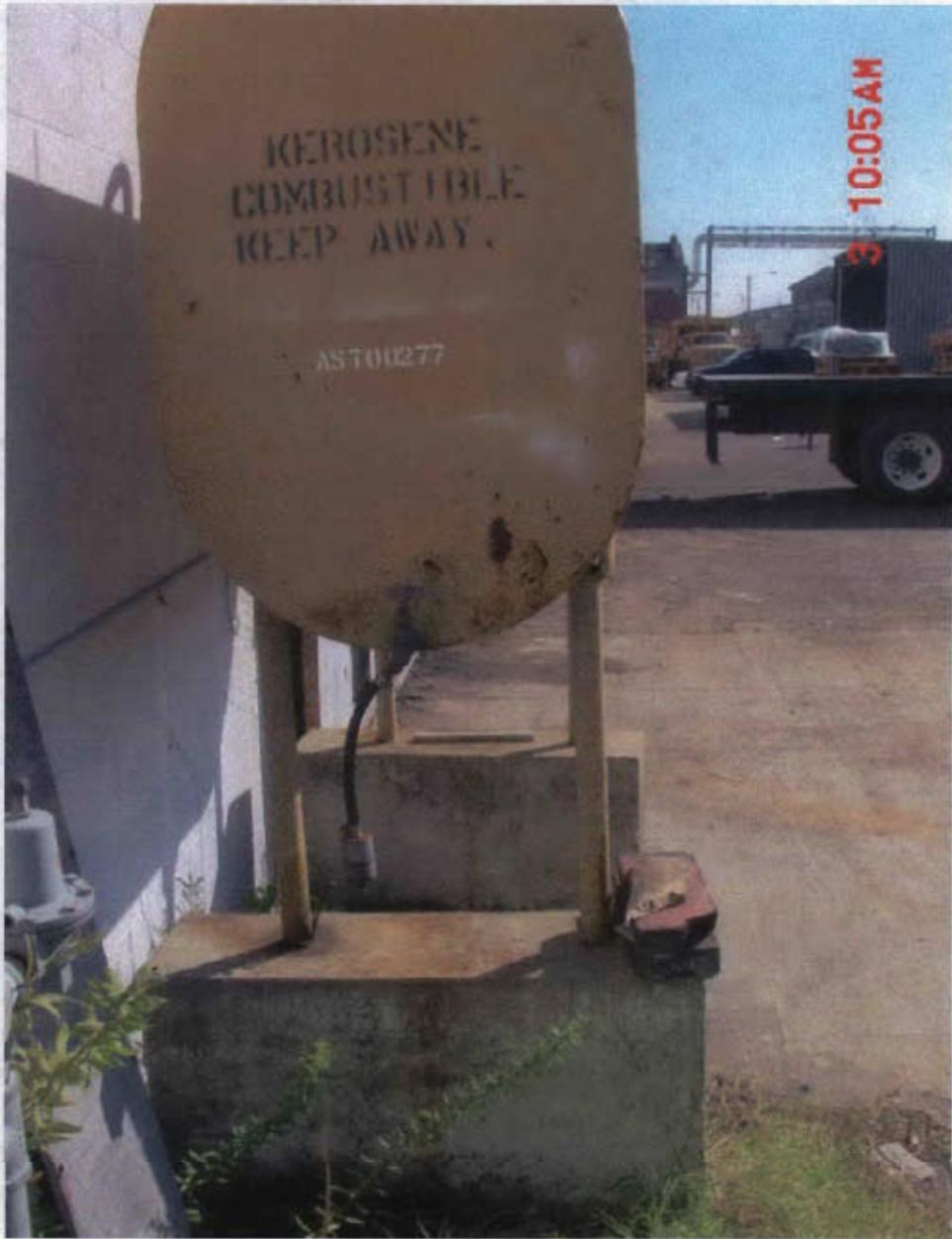
Frontal view of AST 177

FIGURE 5



Ground surface view of AST 177

FIGURE 6



AST 177, showing valve dispenser