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FINAL DECISION DOCUMENT FOR STUDY AREA 55 WITH TRANSMITTAL LETTER NTC
ORLANDO FL
6/1/2004
TETRA TECH



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0604-A057

June 29, 2004

Commander, Southern Division
Naval Facilities Engineering Command
ATTN: Ms. Barbara Nwokike, Code ES33
P.O. Box 190010
2155 Eagle Drive
North Charleston, SC 29419-9010

Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0332

Subject: Final Decision Document – Study Area 55
Naval Training Center, Orlando

Dear Ms. Nwokike:

Enclosed is the Final Decision Document for Study Area 55. The report includes revisions based on comments received from FDEP.

If you have any questions, please contact me at (865) 220-4730.

Sincerely,

A handwritten signature in black ink that reads "Steven B. McCoy".

Steven B. McCoy, P.E.
Task Order Manager

SBM:ckf

Enclosures

c: Ms. Barbara Nwokike, Southern Division (Orlando Office)
Ms. Hope Oaks, Southern Division
Mr. David Grabka, FDEP
Mr. Gregory Fraley, USEPA Region 4
Mr. Steve Tsangaris, CH2M Hill
Ms. Teresa Grayson, Tetra Tech NUS
Mr. Mark Perry, Tetra Tech NUS
Ms. Debra M. Humbert, Tetra Tech NUS (cover letter only)
File/db

DECISION DOCUMENT

STUDY AREA 55

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

**Contract No. N62467-94-D-0888
Contract Task Order 0332**

Prepared by:

**Tetra Tech NUS, Inc.
Foster Plaza 7
661 Andersen Drive
Pittsburgh, Pennsylvania 15220-2745**

Prepared for:

**Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29419**

June 2004

Introduction

An environmental investigation and interim remedial action have been completed at Study Area (SA) 55 at Area C at the former Naval Training Center (NTC) Orlando, Florida. The results of the investigation and the action selected by the Orlando Partnering Team (OPT) to clean up environmental contamination associated with the site are described in this Final Decision. The OPT, which was assembled to address environmental issues at NTC Orlando, consists of representatives from the Navy and its contractors, the Florida Department of Environmental Protection (FDEP), and the United States Environmental Protection Agency (USEPA). The Navy will transfer SA 55 to the City of Orlando for unrestricted use.

Site Background

Area C is one of four facilities that comprised the former NTC Orlando (Figure 1). The other three facilities are the Main Base, McCoy Annex, and Herndon Annex. Area C is located approximately 0.5 miles west of the former Main Base. To the north of Area C is an apartment complex, to the northwest is Lake Druid, to the east is an office complex, and to the south are residential and commercial properties.

Construction of Area C began in 1942 to provide support services for the Army Air Corps Orlando Air Base. Prior to that time, the property was undeveloped. A railroad system was used for material transport at Area C until 1957. From 1957, salvageable materials were shipped by truck to the supply warehouses and salvage yard located at Area C. The area continued to be used to provide support

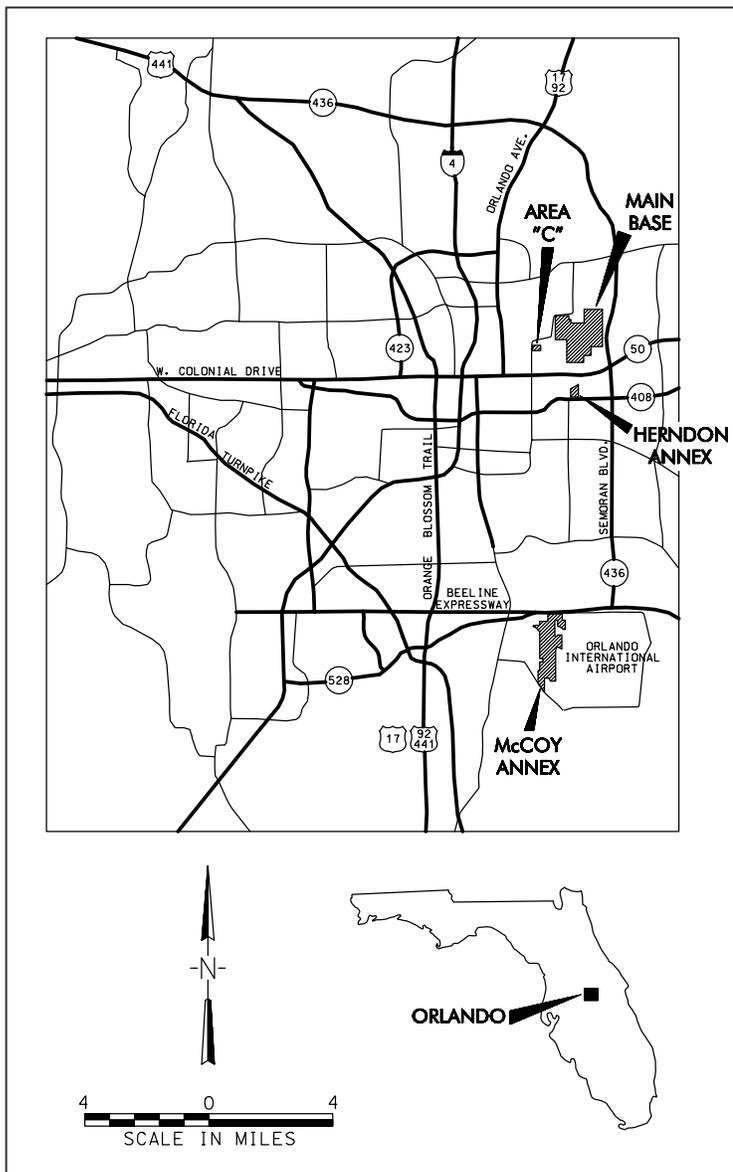


Figure 1. Area C Location

services and warehousing for NTC Orlando from the time the Navy acquired the property on July 1, 1968 until NTC Orlando was closed in April 1999 as part of the Defense Base Realignment and Closure (BRAC) Act of 1990.

SA 55 is located in the southwestern portion of Area C and includes Building 1104 and the surrounding grassy and asphalt areas (Figure 2). Building 1104 was built in 1982 for storage of oil containing polychlorinated biphenyls (PCBs) and other waste and hazardous materials. Building 1104 is 12 feet by 12 feet and is constructed of painted cinderblock on a sealed concrete slab with a 6-inch continuous curb around the perimeter of the floor. The northern side of the building abuts the asphalt-paved parking area south of Sea Bee Street. The areas adjacent to the southern, eastern, and western sides of the building are maintained lawn.

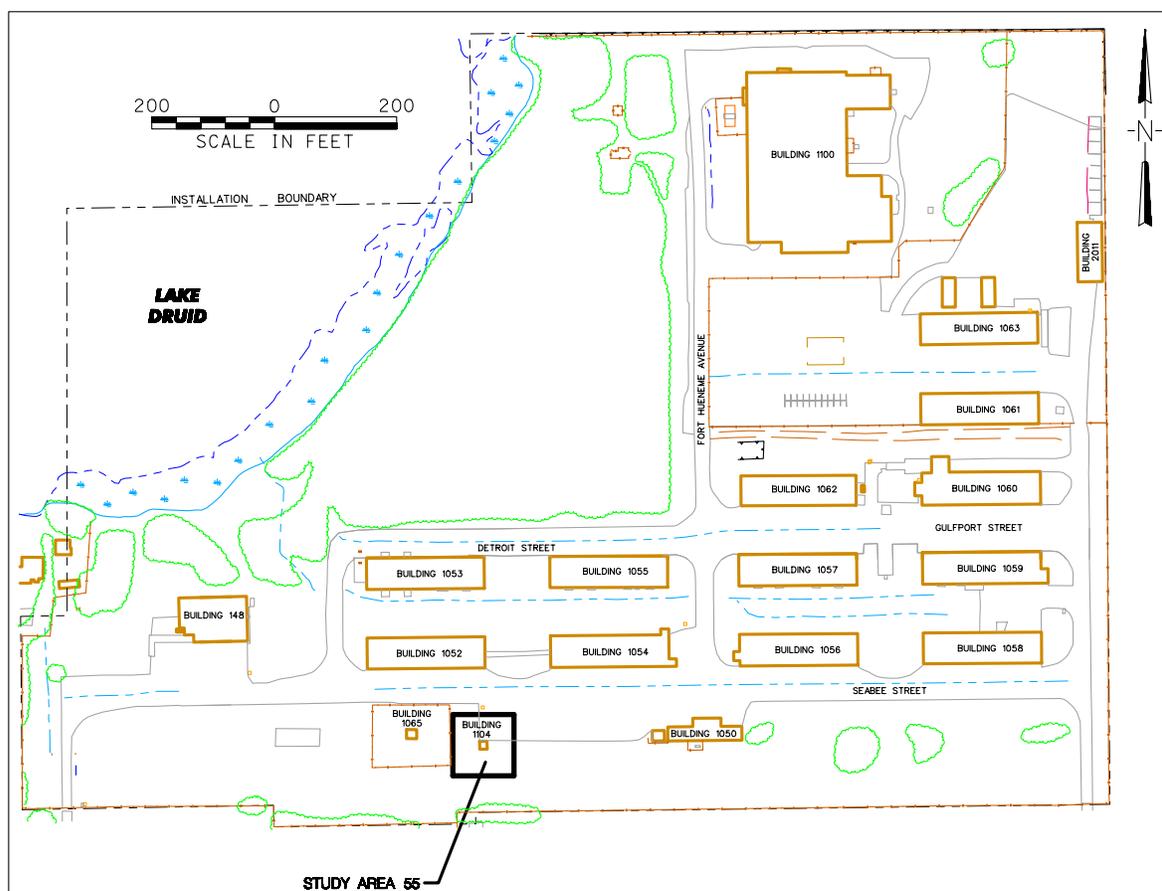


Figure 2. Study Area 55

Investigation Summary

Site Screening - Soil. Site investigation activities performed in August 1998 identified arsenic and the polynuclear aromatic hydrocarbon (PAH) benzo(a)pyrene (BaP) in surface soil at concentrations greater than their respectively residential Soil Cleanup Target Levels (SCTLs) but lower than their industrial SCTLs. Three surface soil samples were submitted for laboratory analysis. Arsenic concentrations in the samples ranged from 0.96 to 2.3 milligrams per kilogram (mg/kg). The residential SCTL for arsenic in

surface soil is 0.8 mg/kg and the industrial SCTL is 3.7 mg/kg. Estimated BaP concentrations detected in surface soil ranged between 88 and 240 micrograms per kilogram ($\mu\text{g}/\text{kg}$). The residential SCTL for BaP in surface soil is 100 $\mu\text{g}/\text{kg}$ and the industrial SCTL is 500 $\mu\text{g}/\text{kg}$.

Because the use of the property at the time of the investigation and the projected future use of the property were industrial, and because no contaminant concentrations exceeded their respective industrial SCTLs, no further investigation or cleanup of surface soil was planned at the time.

Site Screening - Groundwater. One shallow monitoring well, OLD-55-01, was installed to the northwest of Building 1104 during site screening activities. A groundwater sample collected using the low-flow sampling method was submitted to an approved laboratory for full suite Contract Laboratory Program Target Analyte List metals and Target Compound List volatile organic compounds and semivolatiles organic compounds plus pesticides and PCBs. No contaminants were detected at concentrations greater than their respective Florida groundwater cleanup target levels. The results of the site screening investigation are documented in the *Base Realignment and Closure Environmental Site Screening Report* (HLA, 1999¹).

Additional Site Investigation. In order to support the proposed residential reuse of the property, additional investigation activities were performed at SA 55 from April through July 2003. The objective of the investigation was to delineate the extent of PAH exceedances in surface soil and to determine the volume of soil to be removed from the study area to meet the requirements for residential reuse. The results of the investigation are documented in the *Site Investigation Report for Study Area 55, Naval Training Center, Orlando, Florida* (TtNUS, 2004²) and are summarized below.

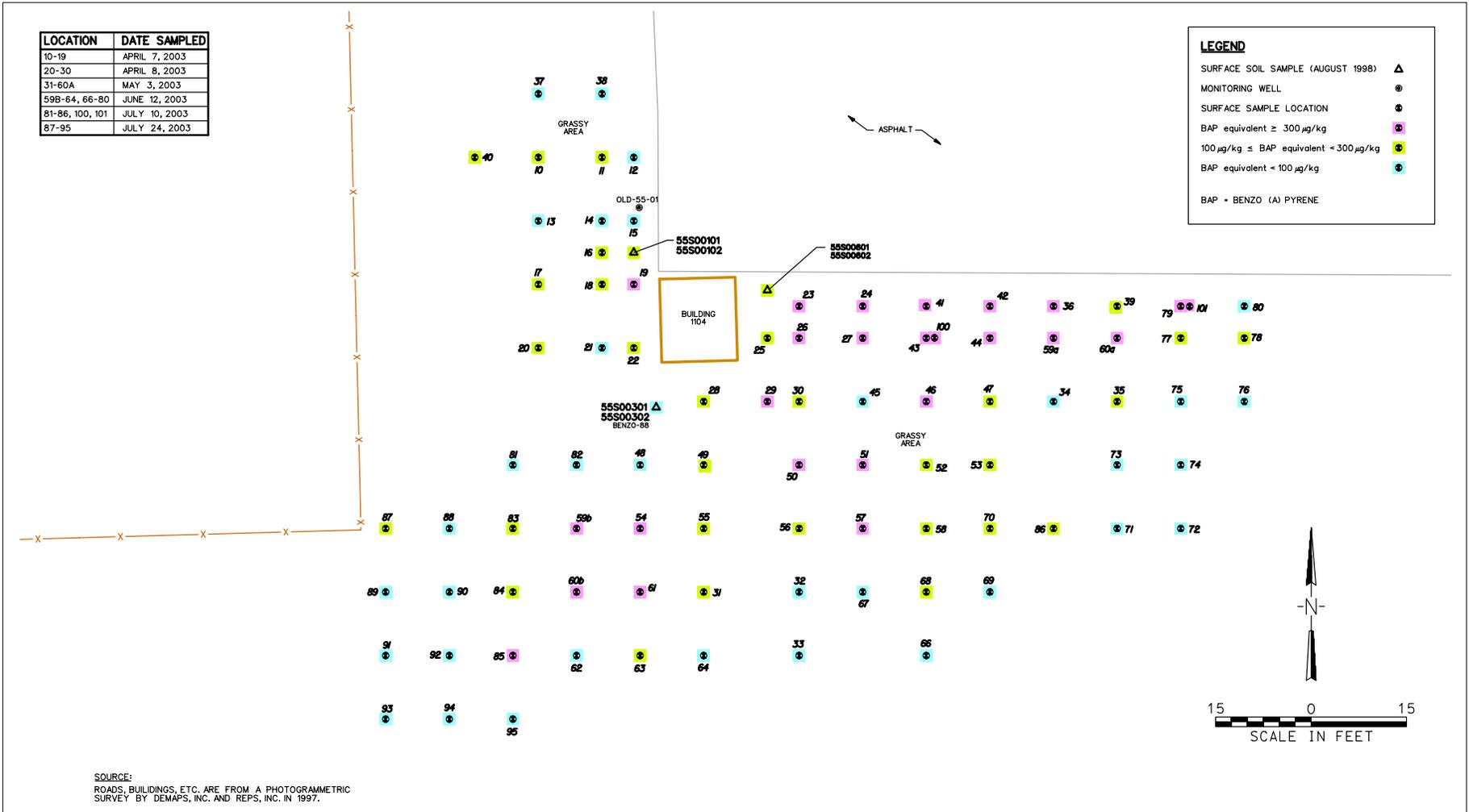
Extent of Soil Contamination. Soil samples were collected and analyzed in six phases from a total of 89 locations between April and July 2003 (Figure 3). The first 21 surface soil samples were analyzed for arsenic and PAHs. The remaining samples were analyzed only for PAHs because no arsenic concentrations were detected greater than the residential Florida SCTL for arsenic in surface soil during the first two phases of investigation. Arsenic concentrations ranged from 0.29 to 0.66 mg/kg, lower than the established background screening level at NTC Orlando for arsenic of 1 mg/kg and lower than the Florida residential SCTL of 0.8 mg/kg.

¹ HLA (Harding Lawson Associates), 1999. *Base Realignment and Closure Environmental Site Screening Report, Study Area 55, Naval Training Center in Orlando, Florida*, January.

² TtNUS (Tetra Tech NUS, Inc.), 2004. *Site Investigation Report, Study Area 55, Naval Training Center, Orlando, Florida*, June.

LOCATION	DATE SAMPLED
10-19	APRIL 7, 2003
20-30	APRIL 8, 2003
31-60A	MAY 3, 2003
59B-64, 66-80	JUNE 12, 2003
81-86, 100, 101	JULY 10, 2003
87-95	JULY 24, 2003

LEGEND	
SURFACE SOIL SAMPLE (AUGUST 1998)	▲
MONITORING WELL	⊙
SURFACE SAMPLE LOCATION	⊙
BAP equivalent $\geq 300 \mu\text{g}/\text{kg}$	⊙
$100 \mu\text{g}/\text{kg} \leq \text{BAP equivalent} < 300 \mu\text{g}/\text{kg}$	⊙
BAP equivalent $< 100 \mu\text{g}/\text{kg}$	⊙
BAP = BENZO (A) PYRENE	



SOURCE:
ROADS, BUILDINGS, ETC. ARE FROM A PHOTOGRAMMETRIC
SURVEY BY DEMAPS, INC. AND REPS, INC. IN 1997.

Figure 3. Soil Sample Locations

Concentrations of BaP in surface soil exceeded the residential SCTL of 100 µg/kg at 49 sample locations with exceedances ranging from 101 to 5,210 µg/kg (Figure 4). Dibenzo(a,h)anthracene concentrations exceeded the residential SCTL of 100 µg/kg in six locations with concentrations ranging from 111 to

1,100 µg/kg. Benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene concentrations exceeded their residential SCTLs of 1,400 µg/kg, 1,400 µg/kg, and 1,500 µg/kg, respectively, at two sample locations.

Two subsurface soil samples were collected and analyzed for PAHs to investigate the potential vertical migration of contamination. These samples were collected beneath locations of high surface soil contamination. Chemical concentrations in these samples did not exceed their respective residential SCTLs.

Based on the results of this investigation, the horizontal and vertical extent of PAH contamination in the surface soil exceeding residential SCTLs was delineated at SA 55. In order to define the limits of soil requiring excavation, a BaP equivalent concentration was determined for each sample location. BaP equivalent concentrations were calculated for soil samples collected over an area of approximately 1/3 acre. Because of the uncertainty associated with estimating the average concentration at a site, the 95 percent Upper Confidence Limit (UCL) of the arithmetic mean was selected as the exposure point concentration (EPC). The Orlando Partnering Team determined that to be protective of human health and the environment, soil sample locations having a BaP equivalent greater than three times the residential SCTL for BaP (300 µg/kg) required excavation. Additional details regarding BaP equivalent calculations and the use of the 95 percent UCL are provided in the Site Investigation Report, Study Area 55 (TiNUS, 2004²).

Soil Removal

In February 2004, CH2M Hill excavated three areas of contaminated surface soil at SA 55 where the BaP equivalent was greater than three times the residential SCTL. The approximate boundaries of the three excavation areas are shown in Figure 5. The soil was excavated to a depth of 2 feet and replaced with clean fill. A total of approximately 372 tons of soil were removed and transported to a licensed off-site disposal site. Details of the soil remediation are documented in the *Technical Memorandum, Summary of Soil Removal Activities and Results, Study Area 55, Naval Training Center Orlando, Florida* (AGVIQ-CH2M Hill, 2004³).

³ AGVIQ-CH2M Hill (AGVIQ-CH2M Hill Constructors, Inc., Joint Venture II), 2004. *Technical Memorandum, Summary of Soil Removal Activities and Results, Study Area 55, Naval Training Center Orlando, Florida*, April.

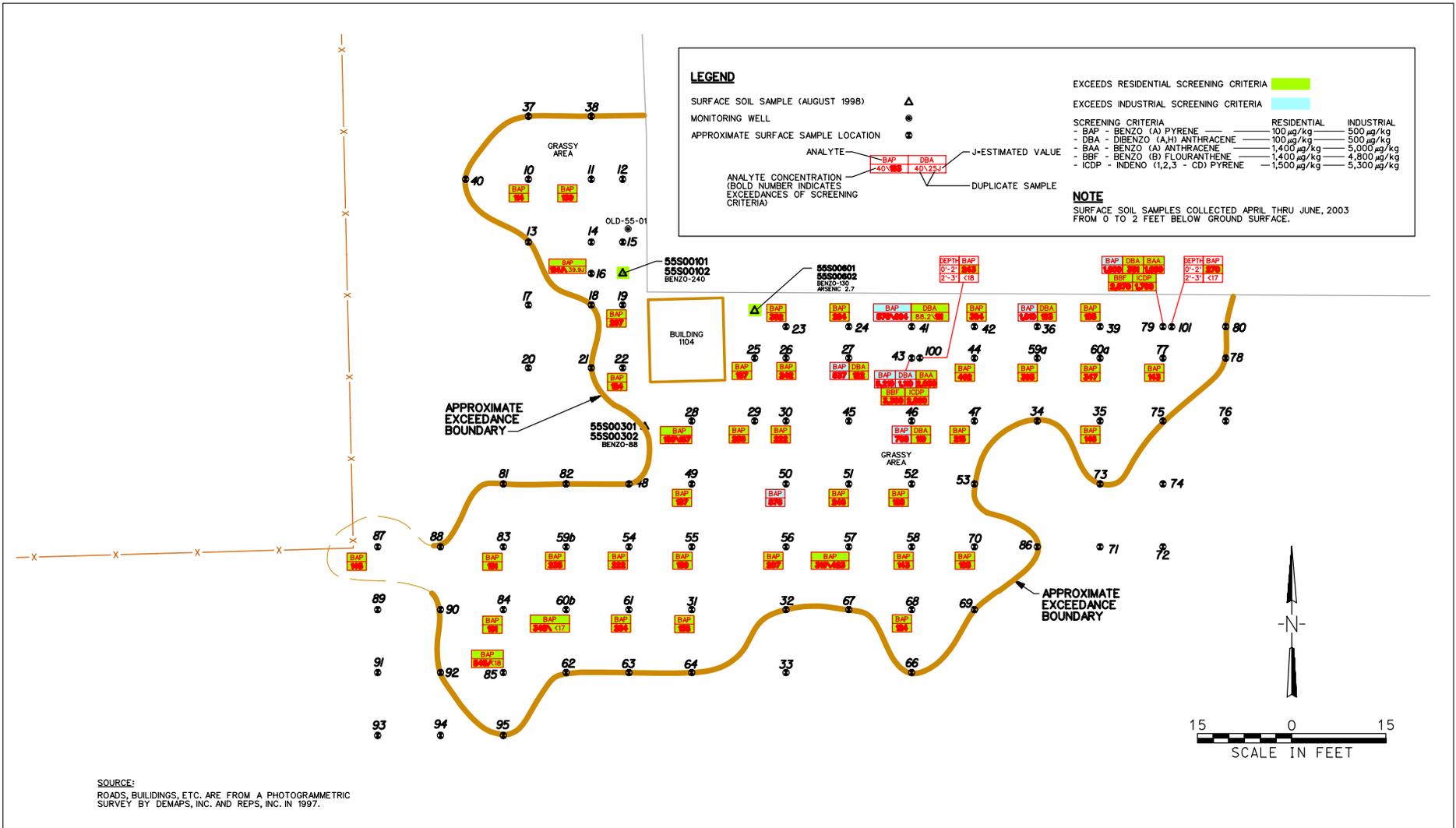


Figure 4. Sample Locations with Exceedances

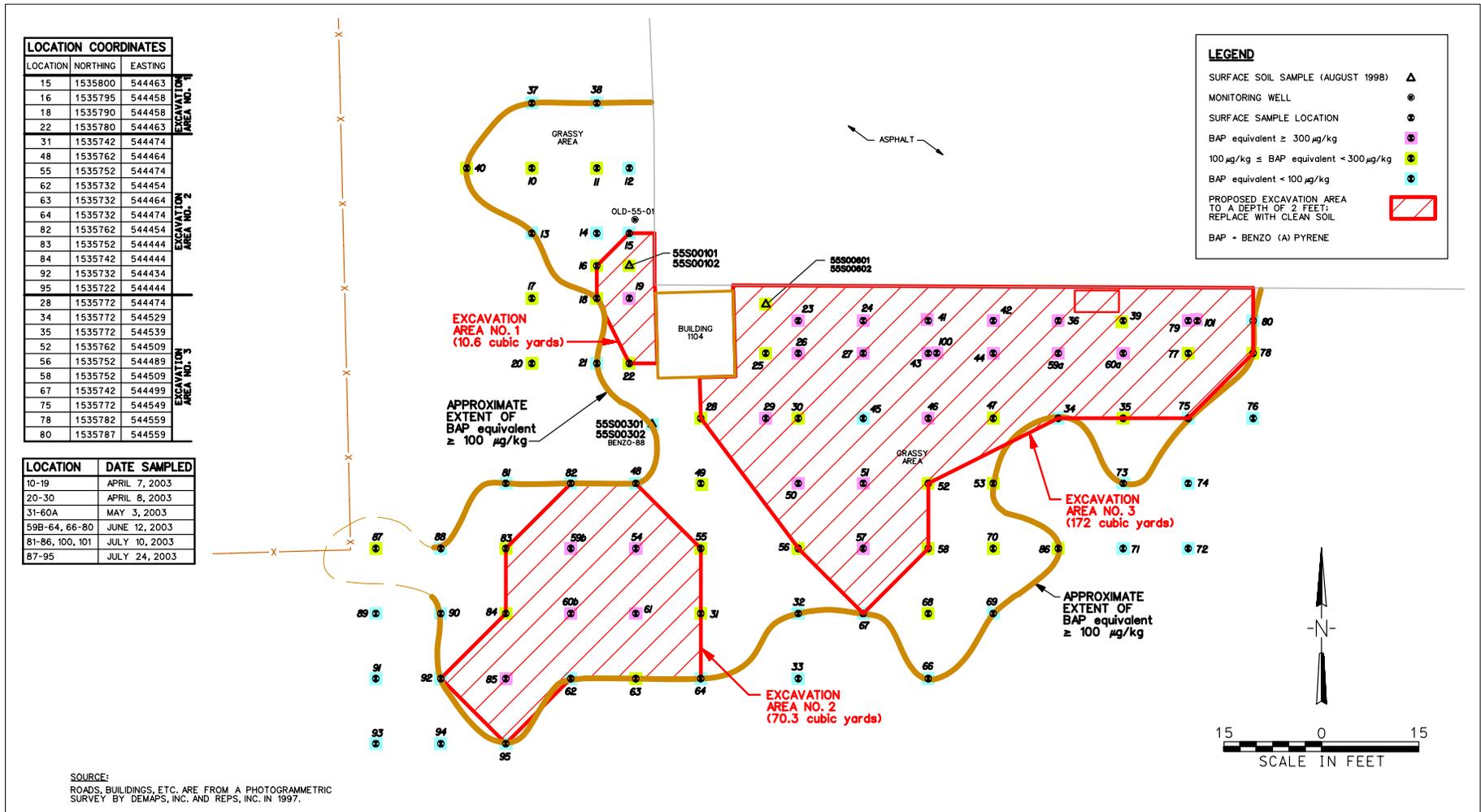


Figure 5. Excavation Areas

Selected Remedy

Surface Soil. Following the soil removal actions completed in February 2004, the surface soil at SA 55 now meets Florida residential soil cleanup levels. No additional soil remediation is required.

Groundwater. Contamination was not detected in groundwater at the study area. The potential risk for leaching of PAHs into the groundwater was evaluated and determined not to be significant; therefore, restrictions on groundwater use are not required.

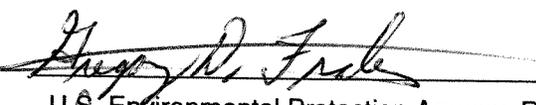
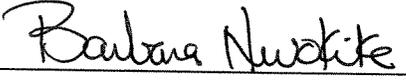
SA 55 is now suitable for transfer for unrestricted use. The Base Realignment and Closure (BRAC) Color Code for SA 55 is 4/Dark Green indicating an area where release, disposal, and/or migration of hazardous substances has occurred, and all remedial actions necessary to protect human health and the environment have been taken.

Community Acceptance

Community acceptance of the selected remedy for SA 55 was evaluated during meetings of the facility's Restoration Advisory Board (RAB). RAB meetings are open to the public and are publicized in *The Orlando Sentinel*. The public was given an opportunity to comment during presentations that discussed remedial options and gave status updates for NTC sites, and during annual reviews of the BRAC Business Plan. Comments and questions from the RAB and the general public about the SA 55 remedy were addressed at the RAB meetings.

Declaration

Based on the administrative record compiled for this corrective action, the Navy has determined that the remedy selected for SA 55 is appropriate and protective of human health and the environment and complies with Federal and State regulatory requirements. The OPT concurs with the selected remedy.

STUDY AREA 55	
 U.S. Environmental Protection Agency, Region 4	<u>8 November 2004</u> Date
 Florida Department of Environmental Protection	<u>20 August 2004</u> Date
 U.S. Department of the Navy	<u>AUGUST 11, 2004</u> Date