

01.09-11/1/85-00678

PRELIMINARY WORK AND SAFETY PLAN



*Comments
given to R. Bowen
11/1/85*

CONFIRMATION STUDY TO DETERMINE POSSIBLE DISPERSION AND MIGRATION OF SPECIFIC CHEMICALS

U.S. NAVAL COMPLEX, PUERTO RICO
Contract No. N62470-85B-7972

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
Gainesville, Florida

NOVEMBER 1985

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CP -
Didn't we have
separate reports, papers
etc for each of the
business sites?
Call it U.S. Naval
Facilities
Warren
MS&E Summary
if we didn't!
We have two
pep's

+ Vieques

November 1985

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*? Well specs?
pls include*

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11/04/85

1.0 INTRODUCTION

This report presents the Preliminary Work and Safety/Contingency Plans for the Confirmation Study at the U.S. Naval Complex, Puerto Rico, including Naval Station (NAVSTA) Roosevelt Roads, Puerto Rico, Naval Ammunition Facility (NAF), Vieques, and Naval Security Group Activity (NAVSECGRUACT) (NSGA), Sabana Seca, Puerto Rico. The Work Plan addresses only the Verification Step (Step IA) of the Confirmation Study, whereas the Safety/Contingency Plan applies to all phases of the study. These plans will be finalized during the plan of action and milestones (POA&M) development meetings to be held at NSGA Sabana Seca on November 13, 1985, and NAVSTA Roosevelt Roads on November 14, 1985. In addition, these plans may be modified during the onsite investigations, as onsite conditions become more clearly defined or as warranted by unforeseen considerations.

The objective of the Verification Step is to determine whether specific toxic and hazardous materials identified in the Initial Assessment Study (IAS), and possibly other contaminants, are present in concentrations considered to be hazardous. Efforts will include the installation of ground water monitor wells and sampling of ground water, surface water, soil, and sediment. The result of the Verification Step will be a general evaluation of contamination found, including geohydrological, health, safety, and regulatory aspects, and a recommendation as to whether or not to proceed with the Characterization Step of the Confirmation Study.

Read one
 30 minutes
 rounds, to go, pls
 et plain
 5/2/85

Not true!
 met need to
 change for
 further on-site
 work!!

2.0 WORK PLAN

The Work Plan consists of a task-by-task description of the plan of action for completing the Verification Step of the Confirmation Study at U.S. Naval Complex, Puerto Rico. Also included is a project schedule and a brief discussion of the project organization that was developed to assure successful project completion. Specific components of the Work Plan are presented below.

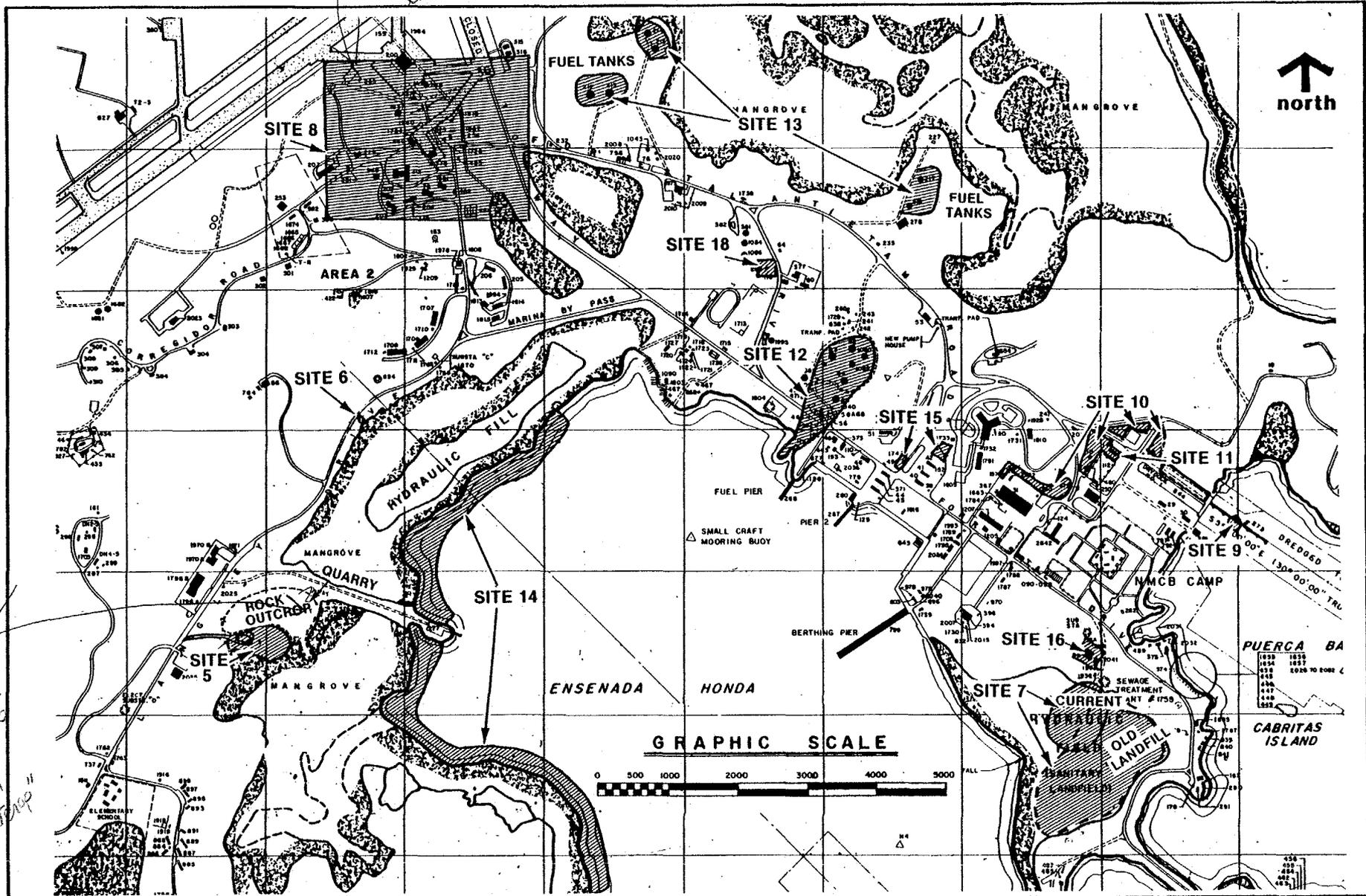
2.1 PLAN OF ACTION

The plan of action was developed based on a thorough review of the scope of work detailed in the contract (Contract No. N62470-85-B-7972) and the IAS Reports for NAVSTA Roosevelt Roads, Puerto Rico, and the NSGA Sabana Seca and Naval Communications Station, Puerto Rico [Naval Energy and Environmental Support Activity (NEESA) Report Nos. NEESA 13-051 and 13-053, September 1984]. In addition, information obtained and reviewed during the onsite inspection of the sites of potential contamination at NAVSTA Roosevelt Roads, Puerto Rico, NAF Vieques, and NSGA Sabana Seca, Puerto Rico, on July 1 through 3, 1985, was utilized in preparing the plan of action.

This plan of action will be finalized during the POA&M development meetings to be conducted at NSGA Sabana Seca on November 13, 1985, and NAVSTA Roosevelt Roads on November 14, 1985.

The plan of action covers the investigation of 18 sites of potential contamination which are listed below and shown in Figures 2-1, 2-2, and 2-3.

✓
should we include scope of work per appendix A?
Both have a for all other safety plans



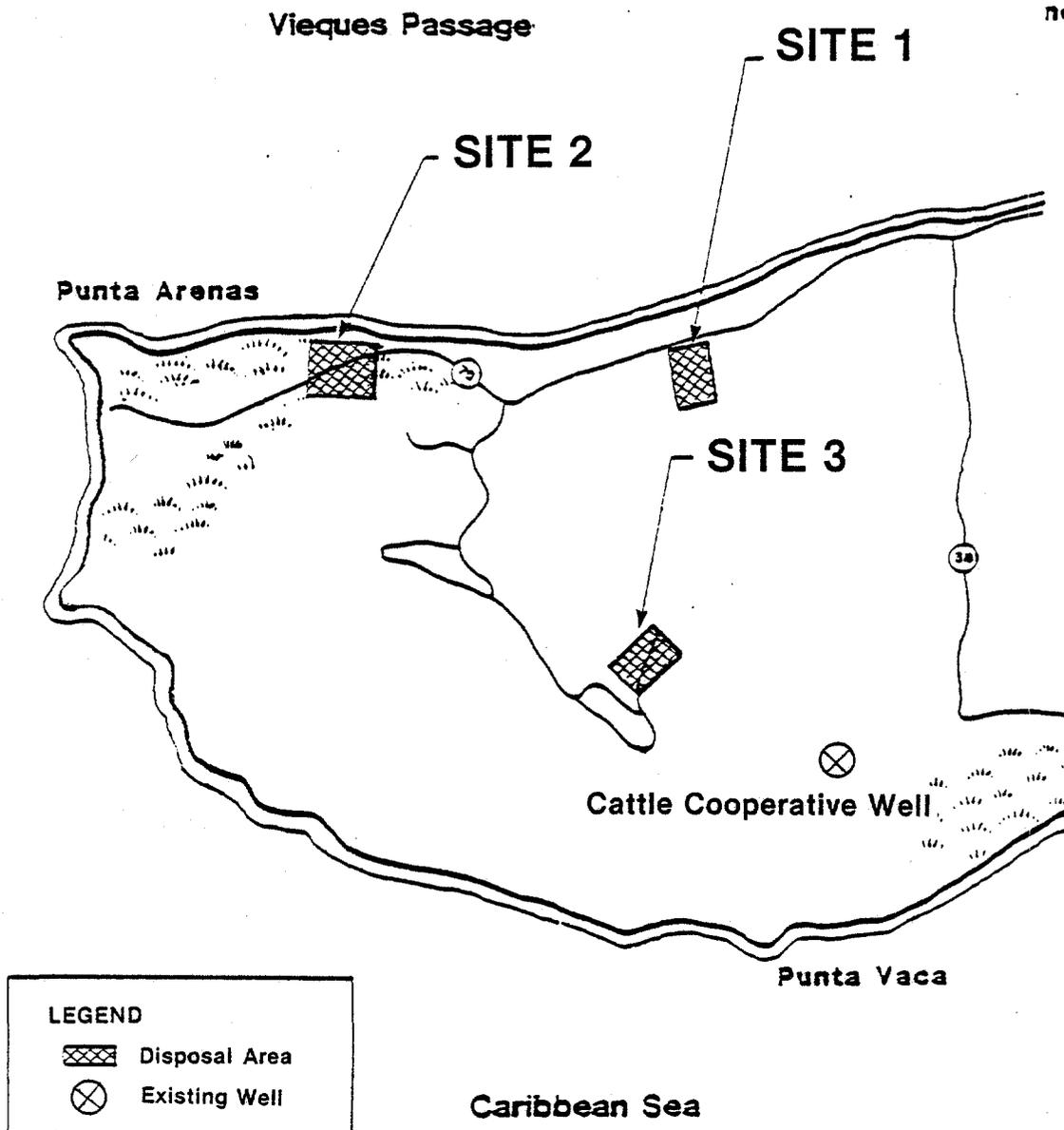
2-2

where is quarry can't be same as rock outcrop

Figure 2-1
SITE MAP SHOWING LOCATIONS OF SITES
OF POTENTIAL CONTAMINATION AT NAVAL
STATION ROOSEVELT ROADS, PUERTO RICO



CONFIRMATION STUDY
U.S. NAVAL COMPLEX
PUERTO RICO

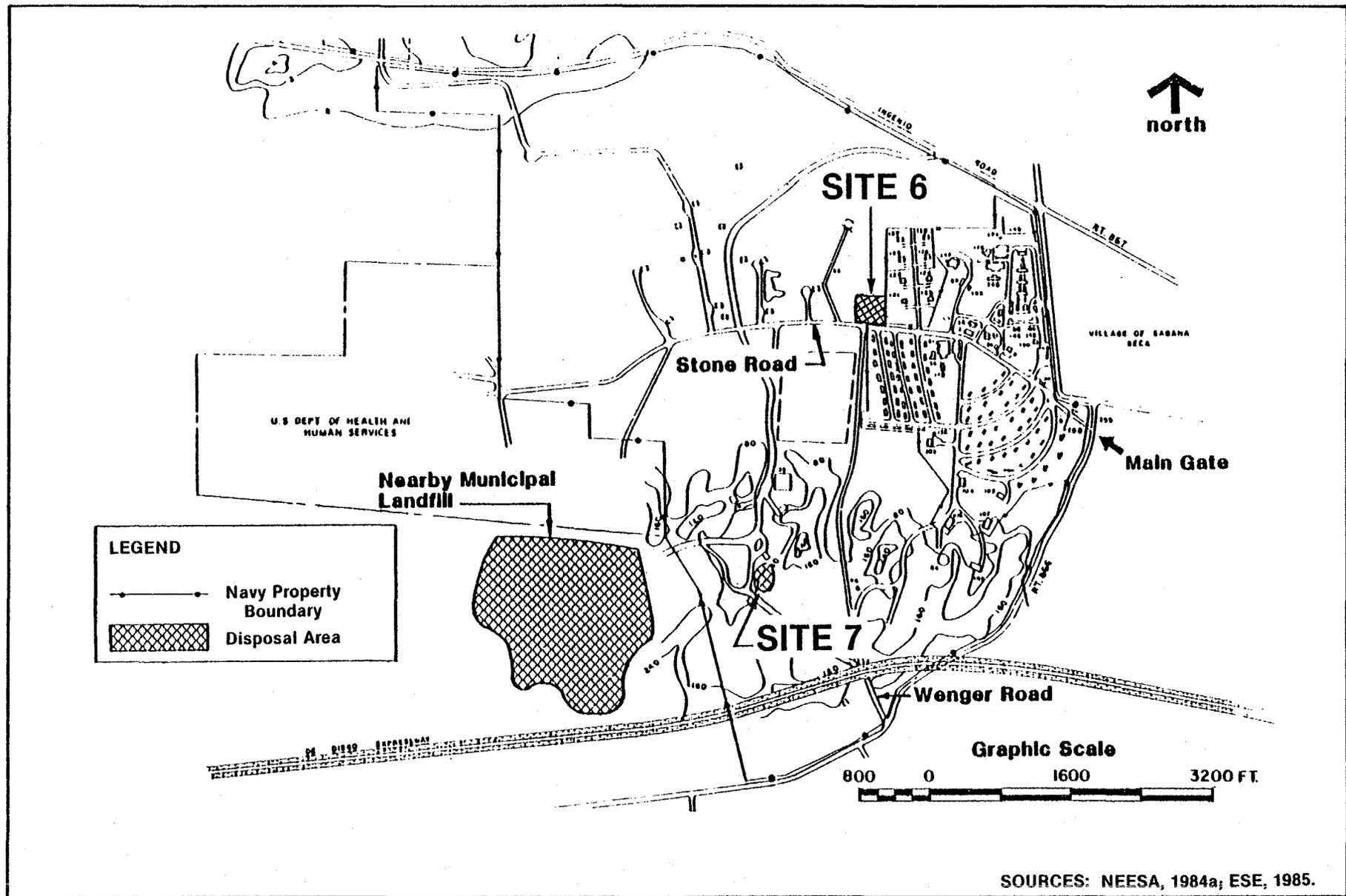


SOURCES: NEESA, 1984b; ESE, 1985.

Figure 2-2
SITE MAP SHOWING LOCATIONS OF SITES
OF POTENTIAL CONTAMINATION AT NAVAL
AMMUNITION FACILITY, VIEQUES



CONFIRMATION STUDY
U.S. NAVAL COMPLEX
PUERTO RICO



2-4

SOURCES: NEESA, 1984a; ESE, 1985.

Figure 2-3
SITE MAP SHOWING LOCATIONS OF SITES OF POTENTIAL CONTAMINATION
AT NAVAL SECURITY GROUP ACTIVITY, SABANA SECA



CONFIRMATION STUDY
U.S. NAVAL COMPLEX
PUERTO RICO

NAVSTA ROOSEVELT ROADS AND NAF VIEQUES (see Figures 2-1 and 2-2)

<u>Site Number</u>	<u>Name</u>
1	Quebrada Disposal Site, Vieques
2	Mangrove Disposal Site, Vieques
3	IRFNA/MAF-4 Disposal Site, Vieques
5	Army Cremator Disposal Area
6	Langley Drive Disposal Site
7	Station Landfill
8	Drone Washdown
9	PCB Disposal, Dry Dock Area
10	Building 25 Storage Area
11	Building 145
12	Two Way Roads Fuels Farm
13	Tanks 210 to 217
14	Ensenada Honda Shoreline and Mangroves
15	Substation 2
16	Old Power Plant, Building 38
18	Pest Control Shop and Surrounding Area

Note: PCB = polychlorinated biphenyl.

NSGA SABANA SECA (see Figure 2-3)

<u>Site Number</u>	<u>Name</u>
6	Former Pest Control Shop
7	Leachate Ponding Area

A task-by-task description of the plan of action for performing the Verification Step of the Confirmation Study at these 18 sites follows.

2.1.1 PRESITE ACTIVITIES

1. Development of Quality Assurance/Quality Control Plan: Develop Quality Assurance/Quality Control (QA/QC) Plan for laboratory analysis of environmental samples to be collected during the onsite investigation. Forward the QA/QC Plan to the Mitre Corporation and Engineer-in-Charge (EIC) for approval. Analyze proficiency test sample, provided by the Mitre Corporation, and provide required assistance to the Mitre Corporation in their audit of the Environmental Science and Engineering, Inc. (ESE) laboratory for laboratory approval.
2. Development of Work Plan: Review existing records and IAS Reports, conduct site reconnaissance, and meet with EIC and NAVSTA Roosevelt Roads and NSGA Sabana Seca personnel to discuss POA&M. Prepare Work Plan and forward to EIC.
3. Development of Safety/Contingency Plan: Assess potential risks associated with field investigations and laboratory analyses and coordinate with NAVSTA Roosevelt Roads and NSGA Sabana Seca safety personnel to establish a Safety/Contingency Plan. Plan will address safety precautions to be taken by contractor, subcontractor, and Naval personnel, to include protective clothing and training and emergency response procedures.
4. Well Drilling Specifications: Prepare specifications and subcontract for well drilling subcontractor.
5. Training: In accordance with the Safety Plan, an indoctrination of NAVSTA Roosevelt Roads and NSGA Sabana Seca personnel on all aspects of the contractor's safety requirements, including equipment, will be conducted. An onsite review of site-specific safety requirements for subcontractor personnel will be performed by the designated ESE Site Safety Officer.

*Inver
got one.
Am I getting
copies of all
this correspondence?*

2.1.2 ONSITE INVESTIGATION

1. Setup of Equipment Storage: Upon arrival of the field team at NAVSTA Roosevelt Roads and NSGA Sabana Seca, secure locations for storage of equipment and field supplies will be identified and utilized.
2. Drilling and Boring: Drilling and boring will be required for monitor well installation and for subsurface soil sampling. Table 2-1 presents the number of wells to be installed, the total number of ground water samples, surface water samples, sediment samples, and soil samples to be collected at each site, and the analytical constituents to be tested. Proposed well, soil, and sediment sample locations for each specific site are presented in Figures 2-4 through 2-21. Information pertaining to the number of soil borings, the number of soil samples to be collected from each boring, and the identification of existing wells to be sampled is presented in Table 2-2. In order to maximize field time efficiency, two drill rigs will be used during the verification study. Initially, both rigs will begin monitor well installation at Site 10 at NAVSTA Roosevelt Roads and progress to Sites 7, 12, 13, and 5 after the wells are installed at Site 10. In addition to the monitor well installation at Site 12, one drill rig will also be used for the 20 soil borings to be performed at this site. During the monitor well installation at Site 13 or 5, at NAVSTA Roosevelt Roads, one of the drill rigs will travel to NAF Vieques to install monitor wells at Site 1 and perform soil borings at Site 2. Upon completing all drilling at NAVSTA Roosevelt Roads and NAF Vieques, one rig will perform monitor well installation at Site 7 at NSGA Sabana Seca. The locations of wells and borings, as well as the installation itinerary, may be modified by the senior ESE field geologist, based on site-specific requirements. Due to the lack of site-specific hydrogeologic information at Site 1 NAF Vieques, Sites 12 and 13 NAVSTA Roosevelt Roads, and Site 7 NSGA Sabana

Each rig will be attended by an ESE geologist who will log hole & ensure compliance w/ H&S plan.

*Are well completion reports required by P.R.?
to be completed by NAVSTA engineering for R. Roacho Sabana Seca?*

Table 2-1. Summary Table of Step IA Verification, Puerto Rico Confirmation Study

Site Number	Wells to be Installed	Ground Water Samples	Surface Water Samples	Sediment Samples	Soil Samples	Analytical Constituents ^a
<u>NAVSTA Roosevelt Roads</u>						
1	3	3	0	3	6	pH, oil and grease, VOA, xylene, MEK, MIBK, EDB, Cr (total and hexavalent), Pb
2	0	0	5	5	8	pH, Cr (total and hexavalent), Pb, VOA, xylene, MEK, MIBK
3	0	1	0	0	0	pH, Priority Pollutant scan
5	5	5	5	5	0	pH, Priority Pollutant scan, Cr hexavalent, xylene, MEK, MIBK, EDB
6	0	0	3	3	15	pH, Priority Pollutant scan, Cr hexavalent, xylene, MEK, MIBK, EDB
7	8	8	0	0	0	pH, Priority Pollutant scan, Cr hexavalent
	0	0	0	0	2	Oil and grease, VOA, xylene, MEK, MIBK, EDB
8	0	0	3	3	1	Oil and grease, Pb, VOA, xylene, MEK, MIBK, EDB
9	0	0	4	30	0	PCBs
10	8	8	0	0	0	pH, Priority Pollutant scan, Cr hexavalent, xylene, MEK, MIBK, EDB

Table 2-1. Summary Table of Step IA Verification, Puerto Rico Confirmation Study (Continued, Page 2 of 2)

Site Number	Wells to be Installed	Ground Water Samples	Surface Water Samples	Sediment Samples	Soil Samples	Analytical Constituents ^a
11	0	0	0	0	0	--
12	6	6	1	1	20 ^b	pH, VOA, EDB, xylene, oil and grease, Pb
13	11	11	6	6	0	<i>2</i> EP tox metals pH, VOA, Pb, oil and grease, EDB, xylene
14	0	0	12	12	0	pH, VOA, Pb, EDB, xylene, MEK, MIBK, oil and grease
15	0	0	0	0	16	PCBs
16	0	0	0	0	9	PCBs, oil and grease, VOA, Pb, EDB, xylene, MEK, MIBK
18	0	0	2	2	15	Pesticides
<u>NSGA Sabana Seca</u>						
6	0	0	0	<i>5</i> 2	34	Pesticides
7	4	6	1	1	0	pH, Priority Pollutants scan

-- = not applicable.

^a = Key to Constituent Abbreviations:

Cr = chromium.

Pb = lead.

VOA = volatile organic analysis.

PCBs = polychlorinated biphenyls.

EDB = ethylene dibromide.

MEK = methyl ethyl ketone.

MIBK = methyl isobutyl ketone.

^b = no analyses. Only visual inspection for oil and measurement of thickness of oil layer, if found.

Source: ESE, 1985.

define Priority Pollutants?

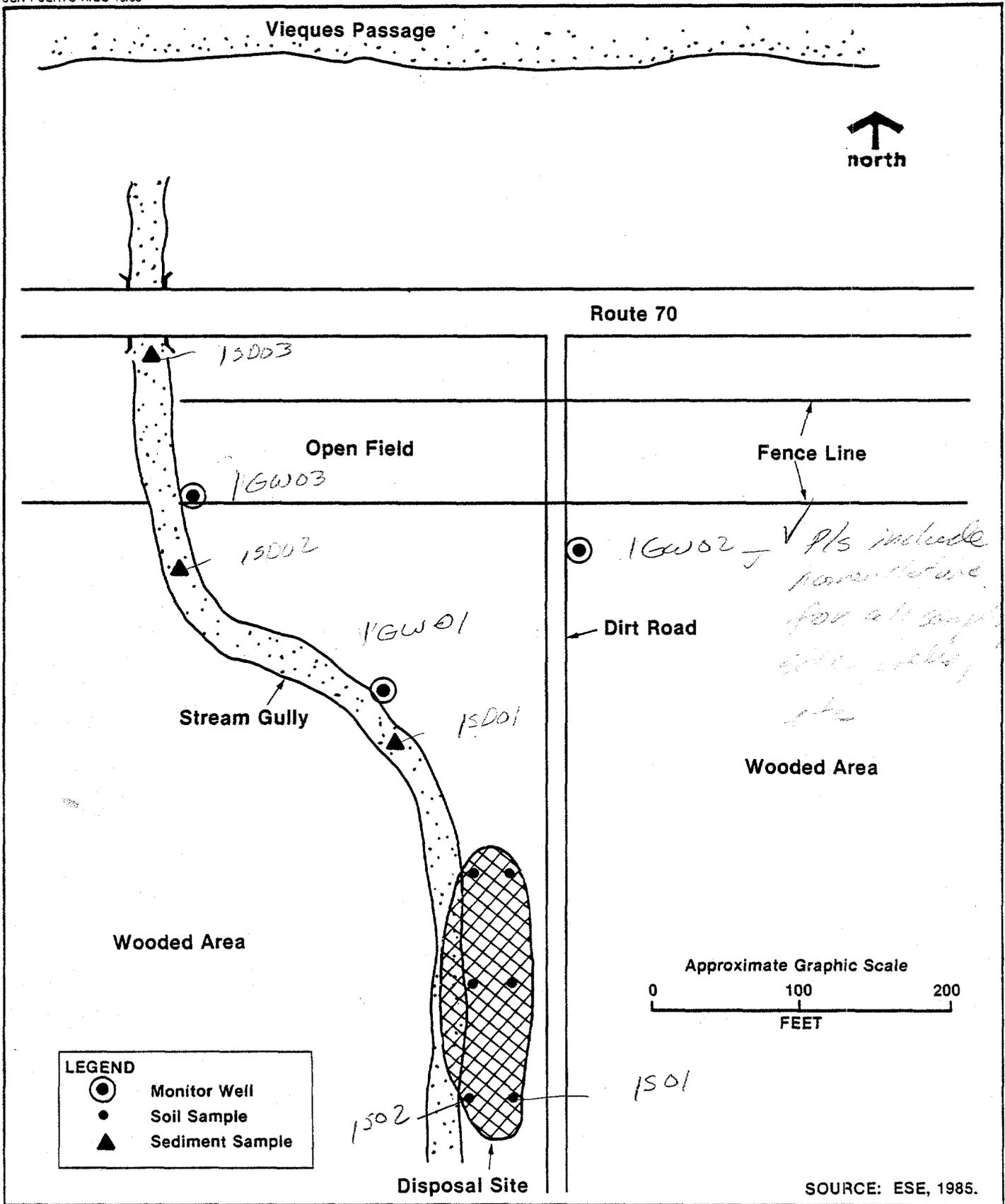
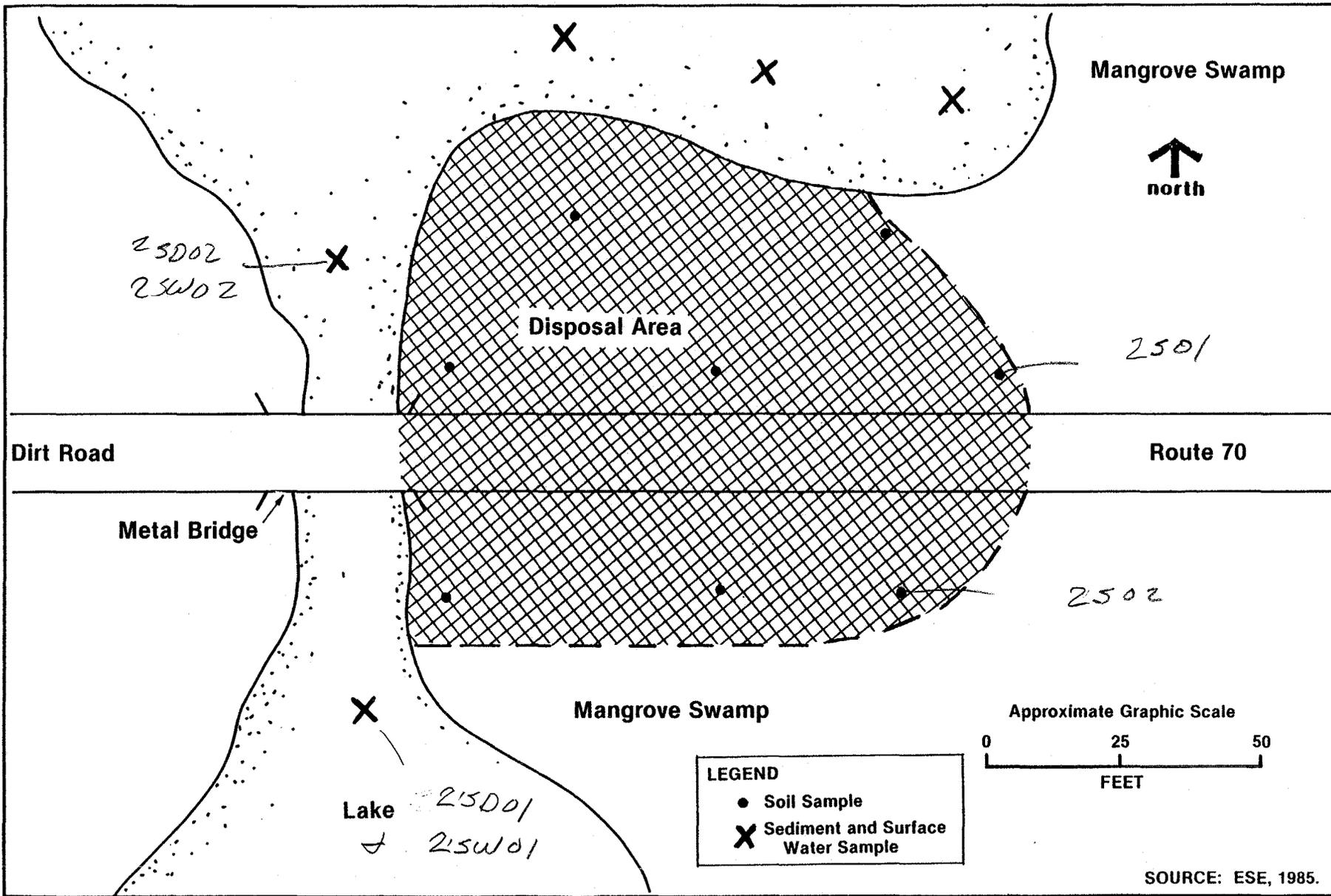


Figure 2-4
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 1, QUEBRADA DISPOSAL SITE, VIEQUES

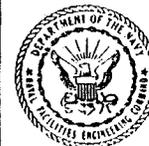


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U.S. NAVAL COMPLEX
PUERTO RICO



2-11

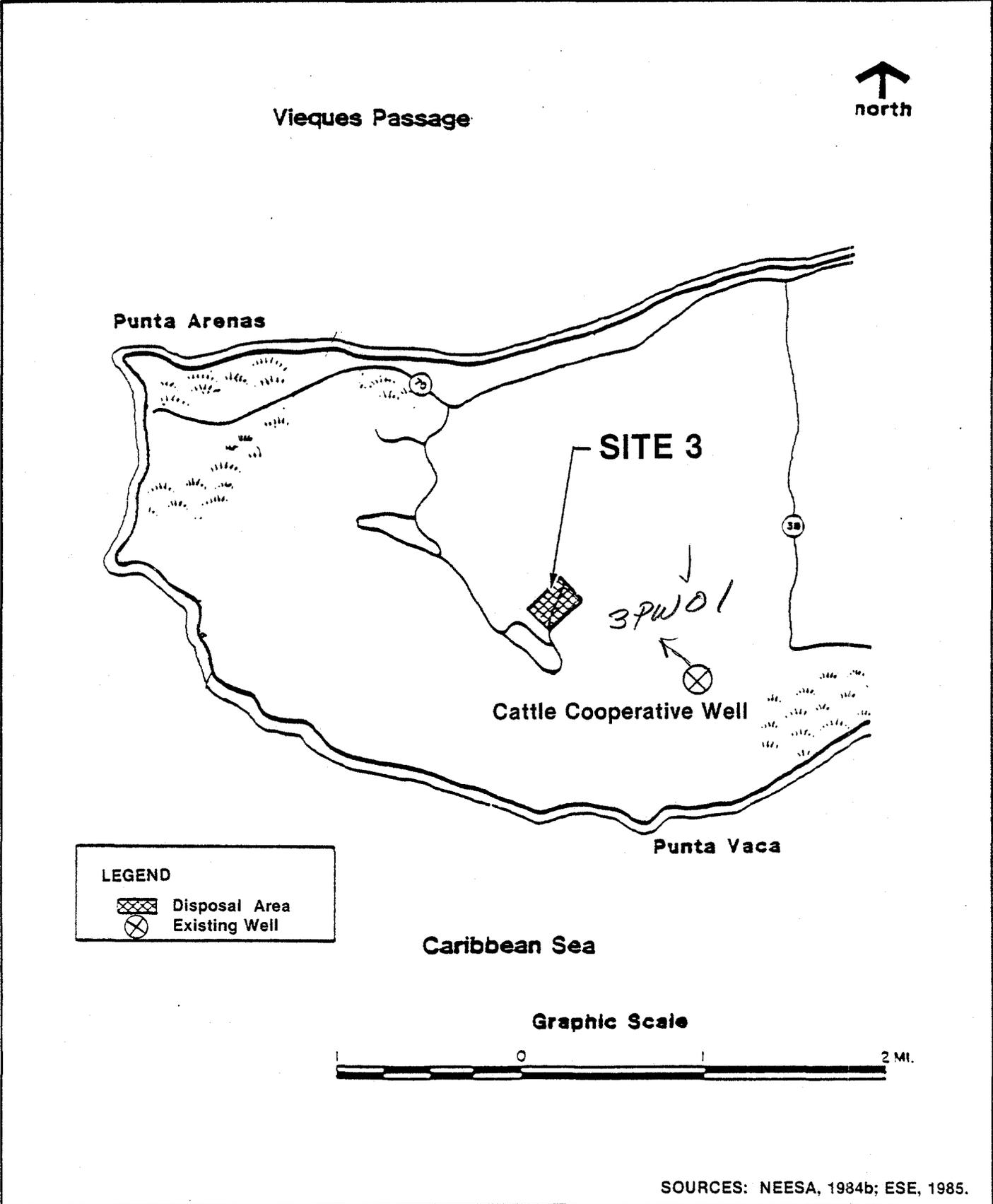
Figure 2-5
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 2, MANGROVE DISPOSAL SITE, VIEQUES



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SOURCE: ESE, 1985.

Use the GDM



LEGEND

 Disposal Area

 Existing Well

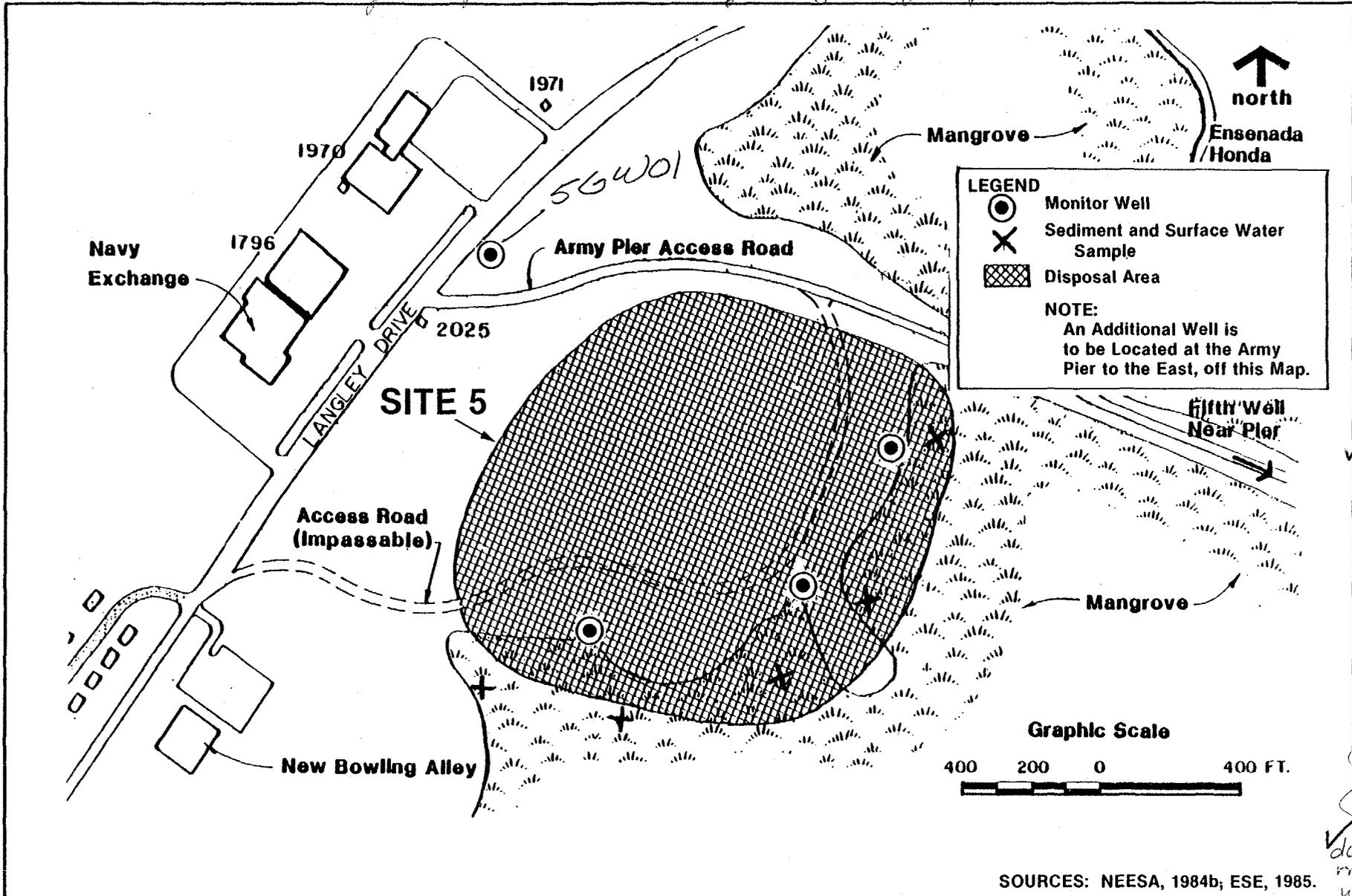
SOURCES: NEESA, 1984b; ESE, 1985.

Figure 2-6
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 3, IRFNA/MAF-4 DISPOSAL SITE,
VIEQUES



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- archaeological site
 - endangered species (to be investigated by Wentzel) ✓



USN PUERTO RICO 10/85

2-13

Figure 2-7
 PROPOSED SAMPLING LOCATIONS AT SITE
 NO. 5, ARMY CREMATOR DISPOSAL AREA



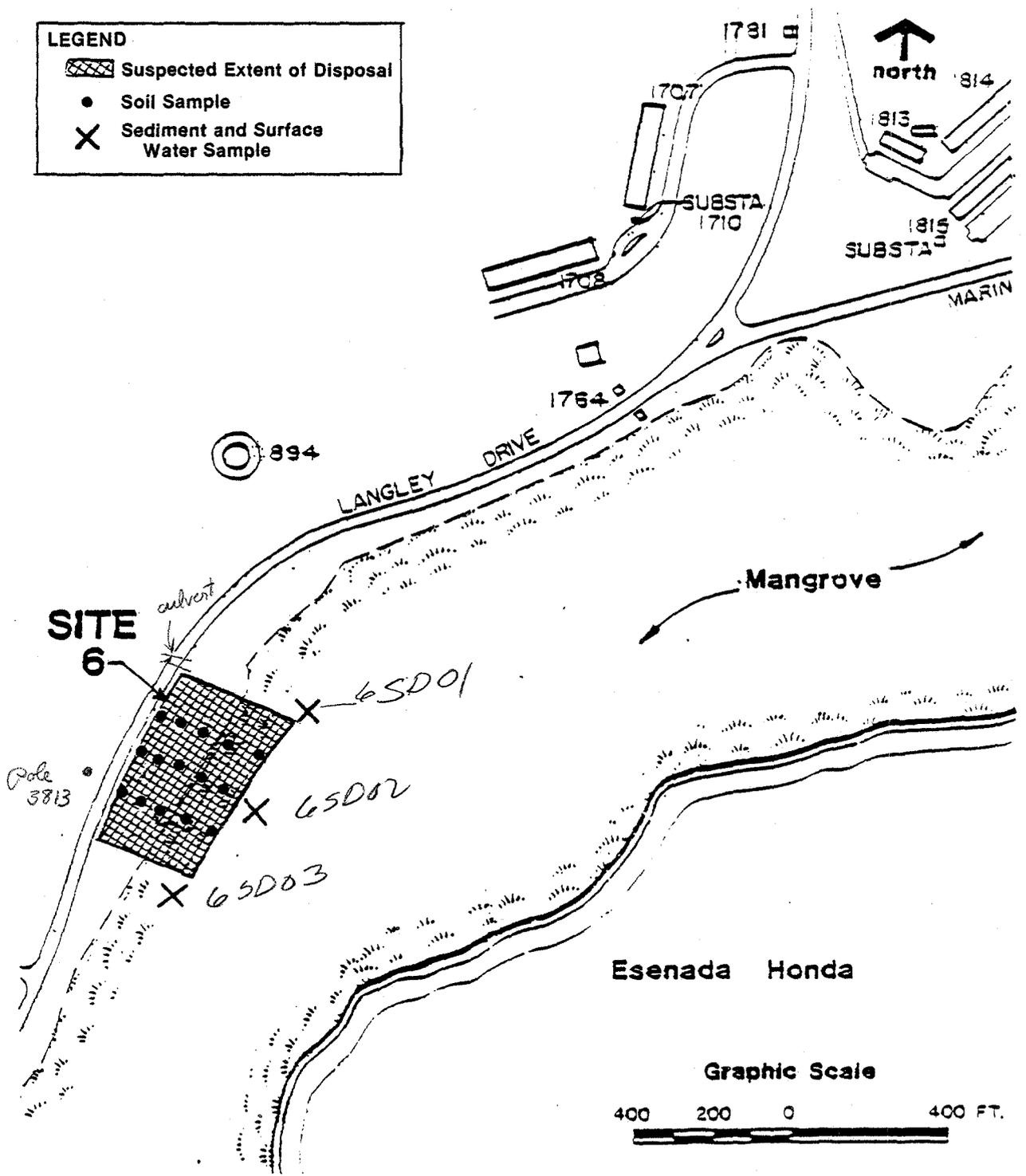
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SOURCES: NEESA, 1984b; ESE, 1985.

*clues to locate site?
pole nos? ✓
culvert?*

LEGEND

-  Suspected Extent of Disposal
-  Soil Sample
-  Sediment and Surface Water Sample



SOURCES: NEESA, 1984b; ESE, 1985.

Figure 2-8
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 6, LANGLEY DRIVE DISPOSAL SITE



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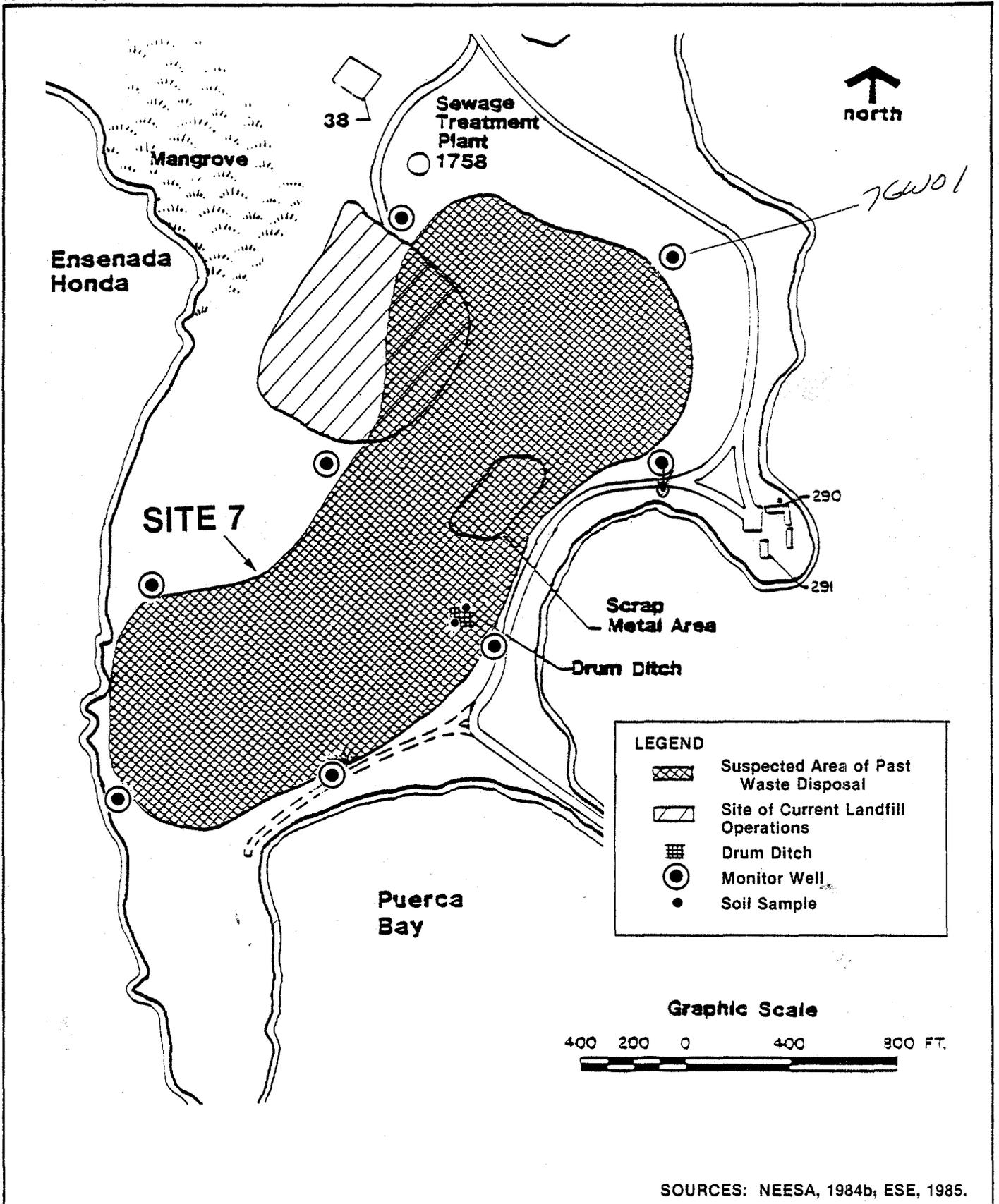
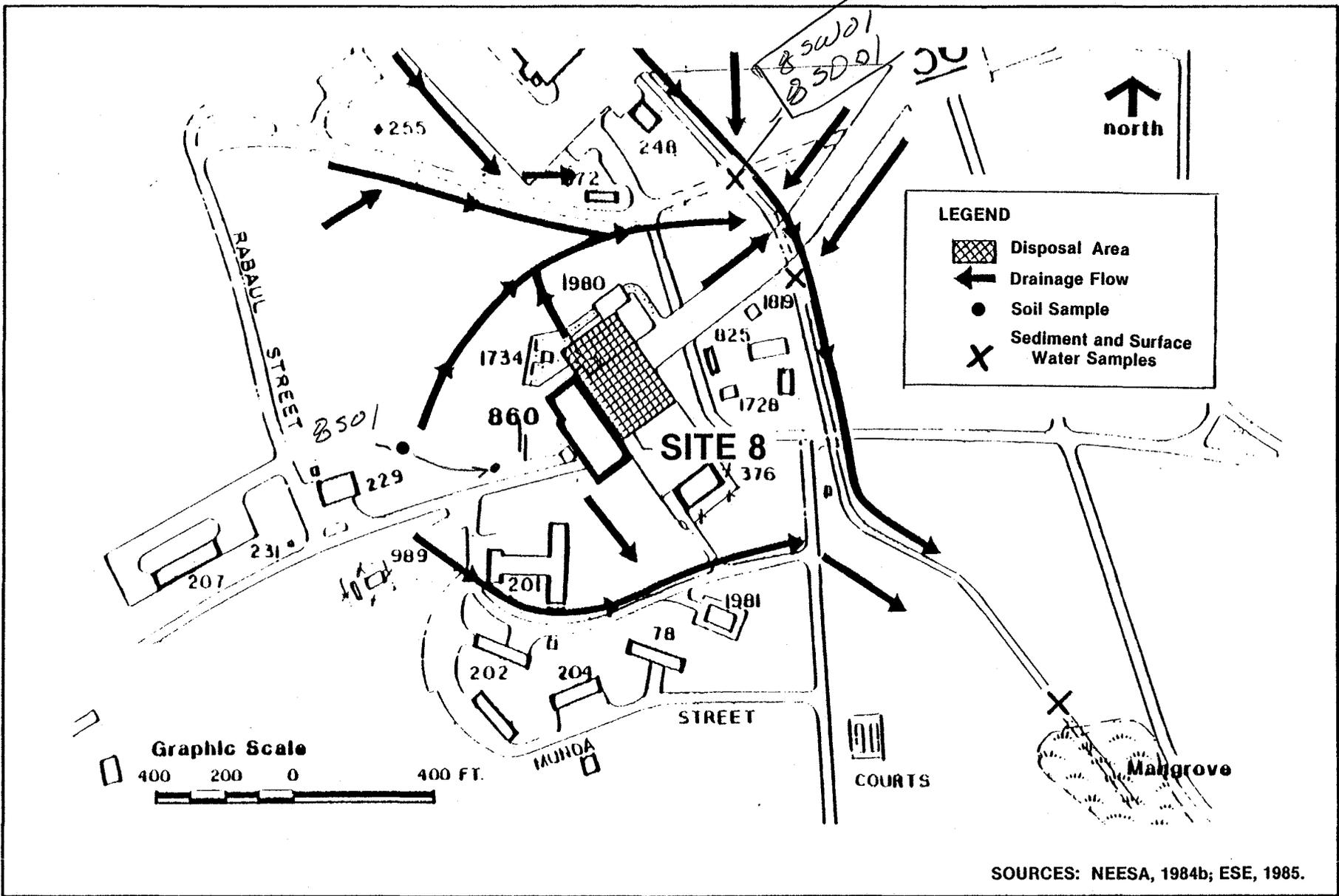


Figure 2-9
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 7, STATION LANDFILL



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2-16

again, does not correspond to area shown in Fig. 2-1

SOURCES: NEESA, 1984b; ESE, 1985.

Figure 2-10
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 8, DRONE WASHDOWN



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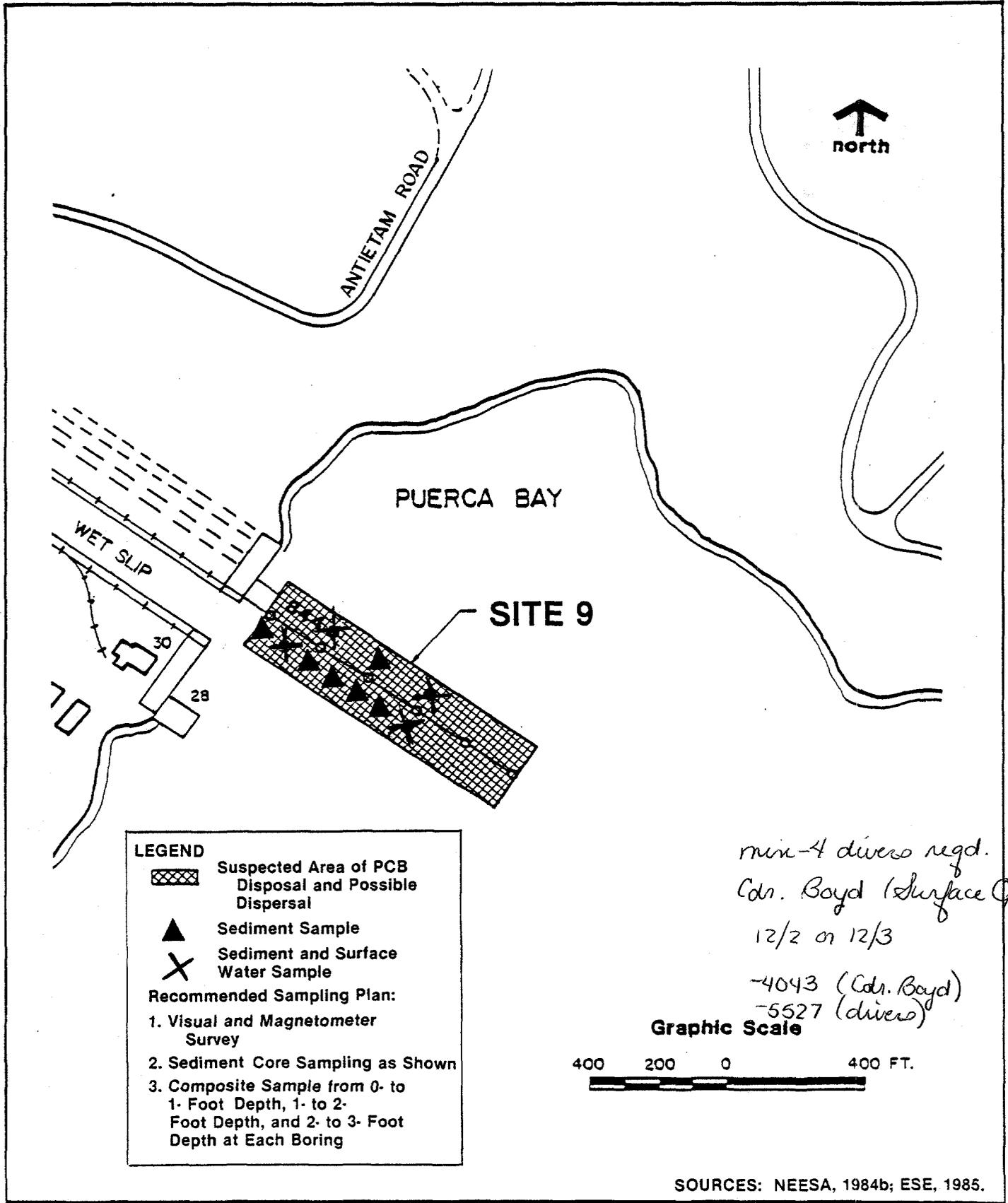
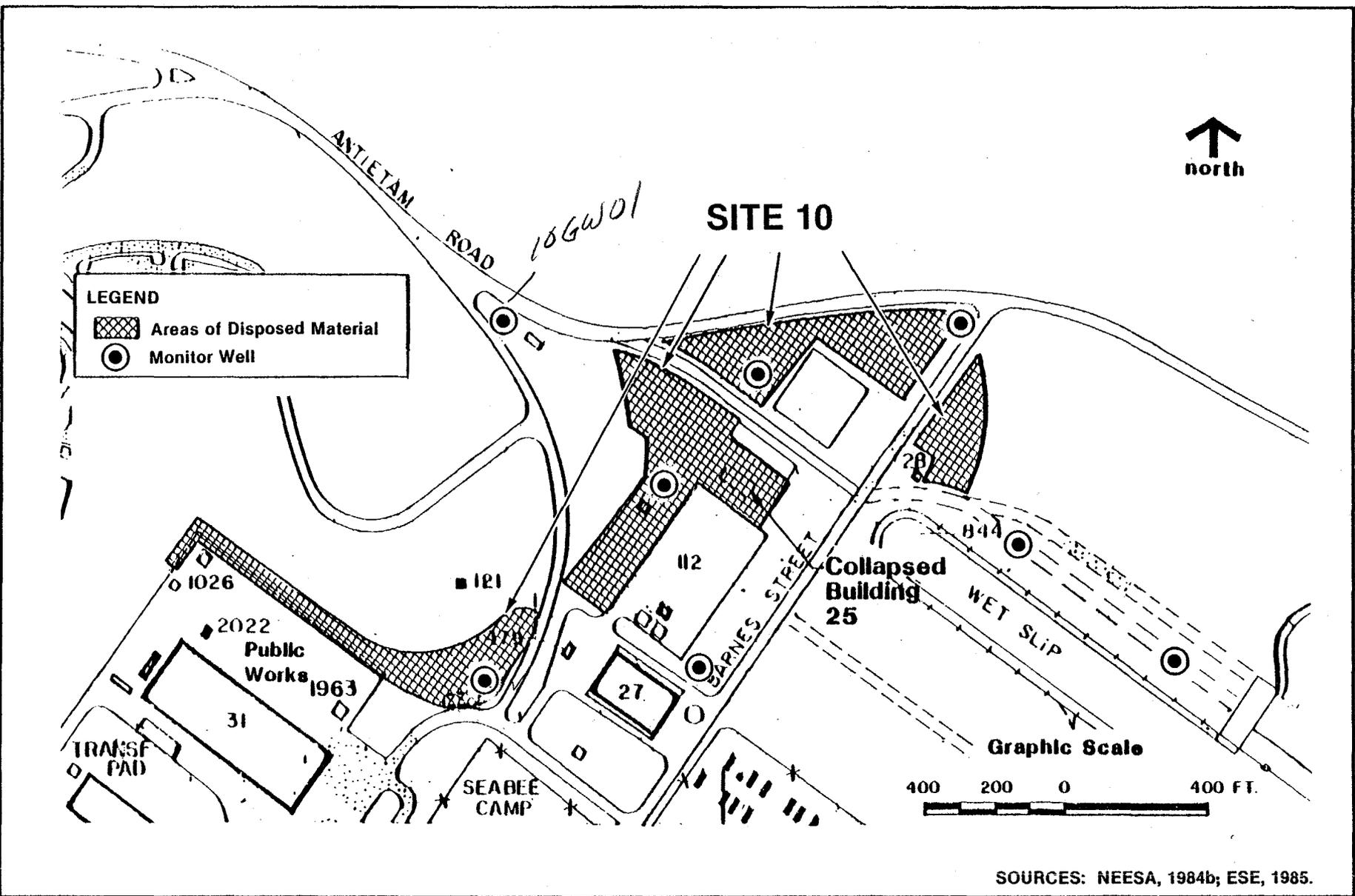


Figure 2-11
 PROPOSED SAMPLING LOCATIONS AT SITE
 NO. 9, PCB DISPOSAL, DRY DOCK AREA



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2-18

Figure 2-12
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 10, BUILDING 25 STORAGE AREA



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*also - hand-augered
soil sample for
85 TOX*

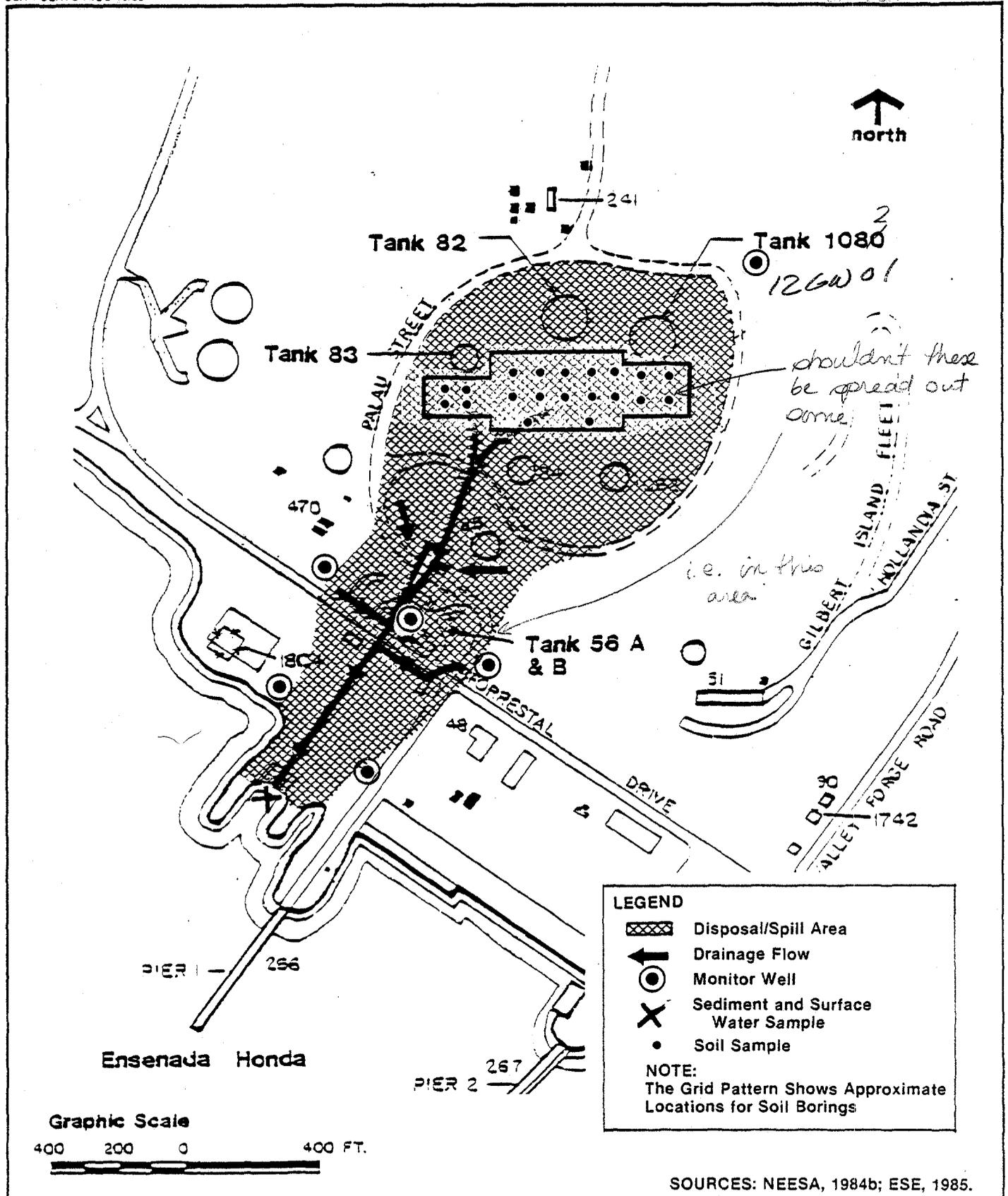
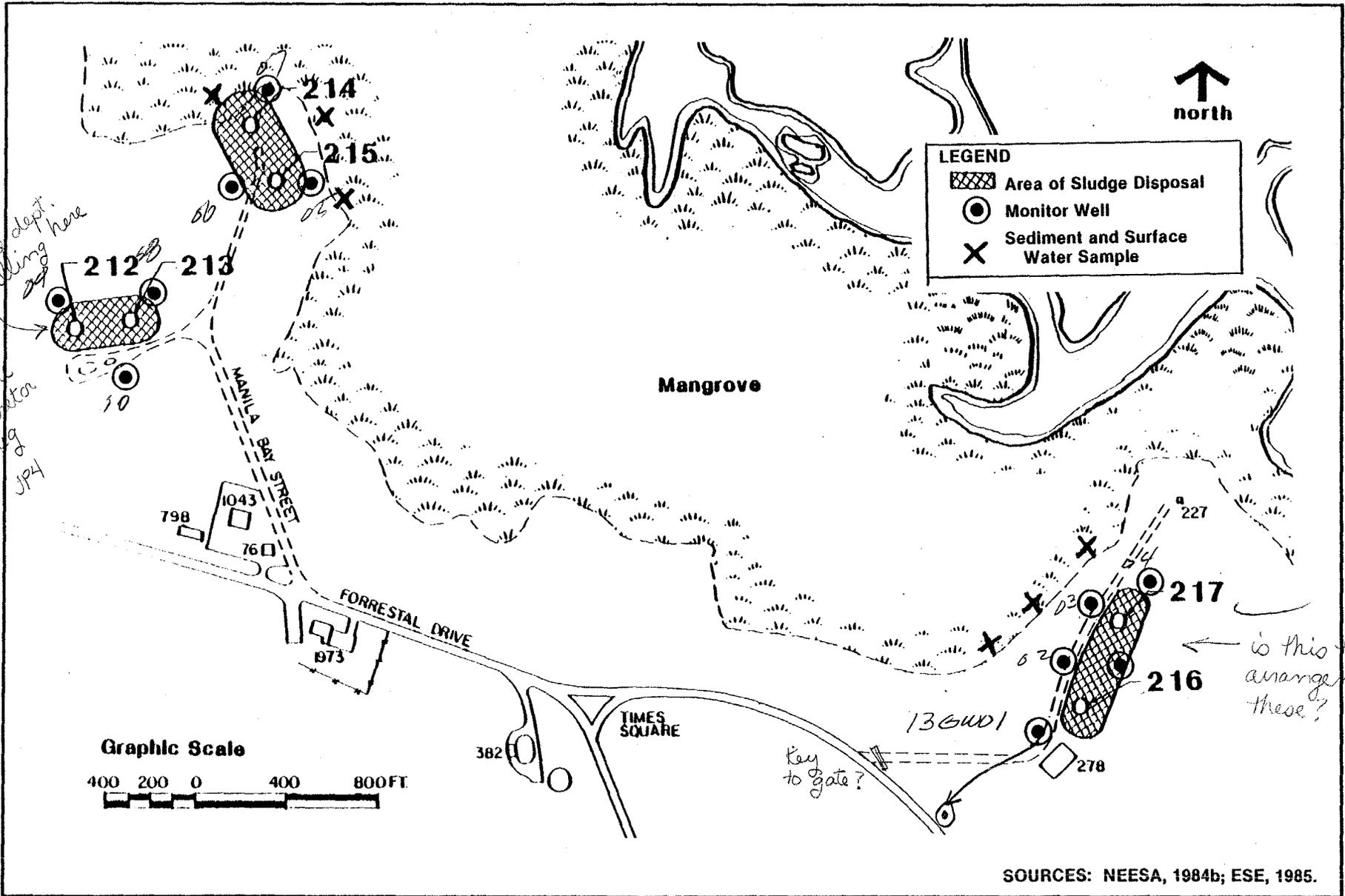


Figure 2-13
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 12, TWO WAY ROAD FUELS FARM



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notify the dept. before building here

backfill containment on rd JP4

is this the best arrangement of these?

key to gate?

Figure 2-14
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 13, TANKS 212 TO 217



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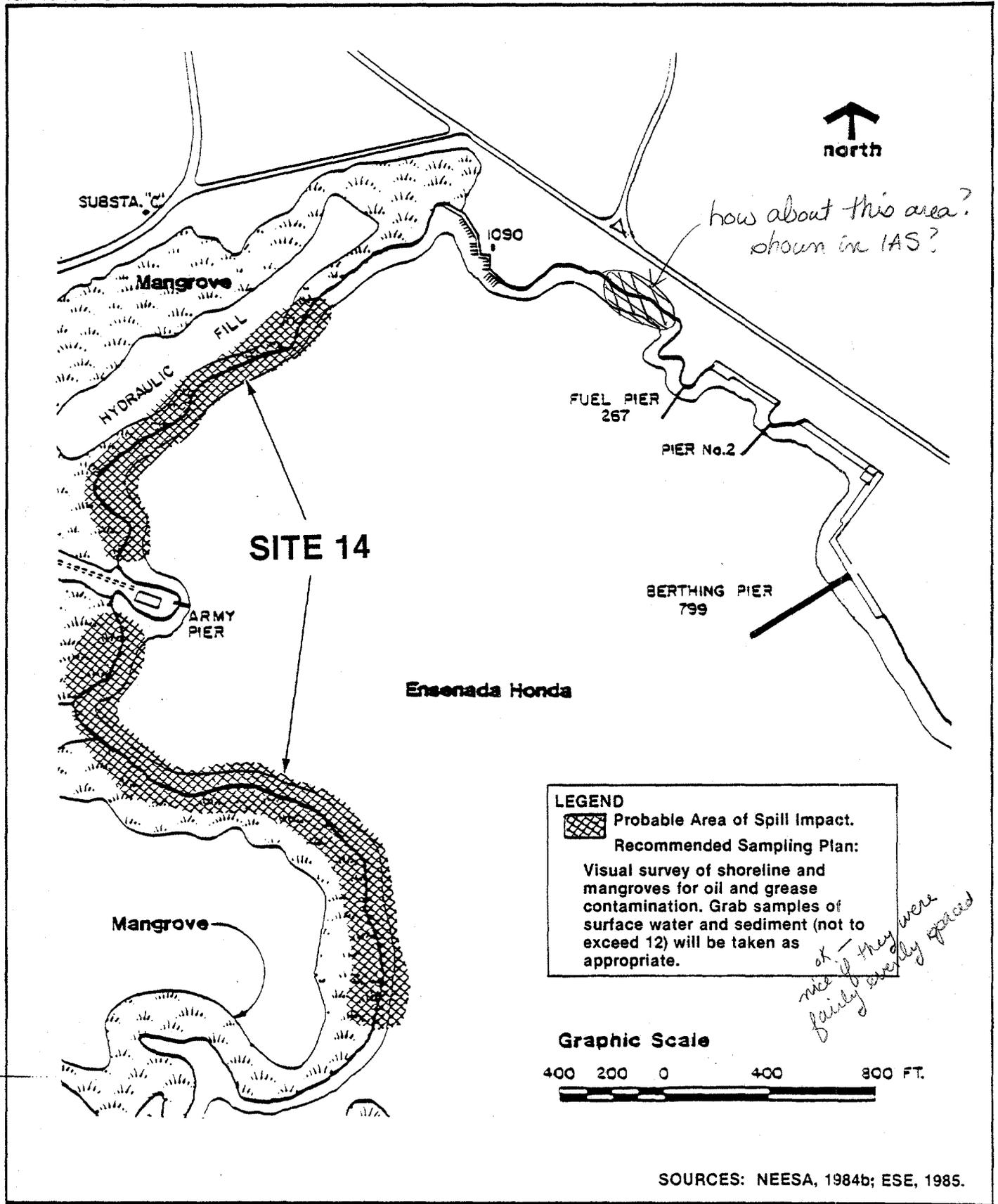
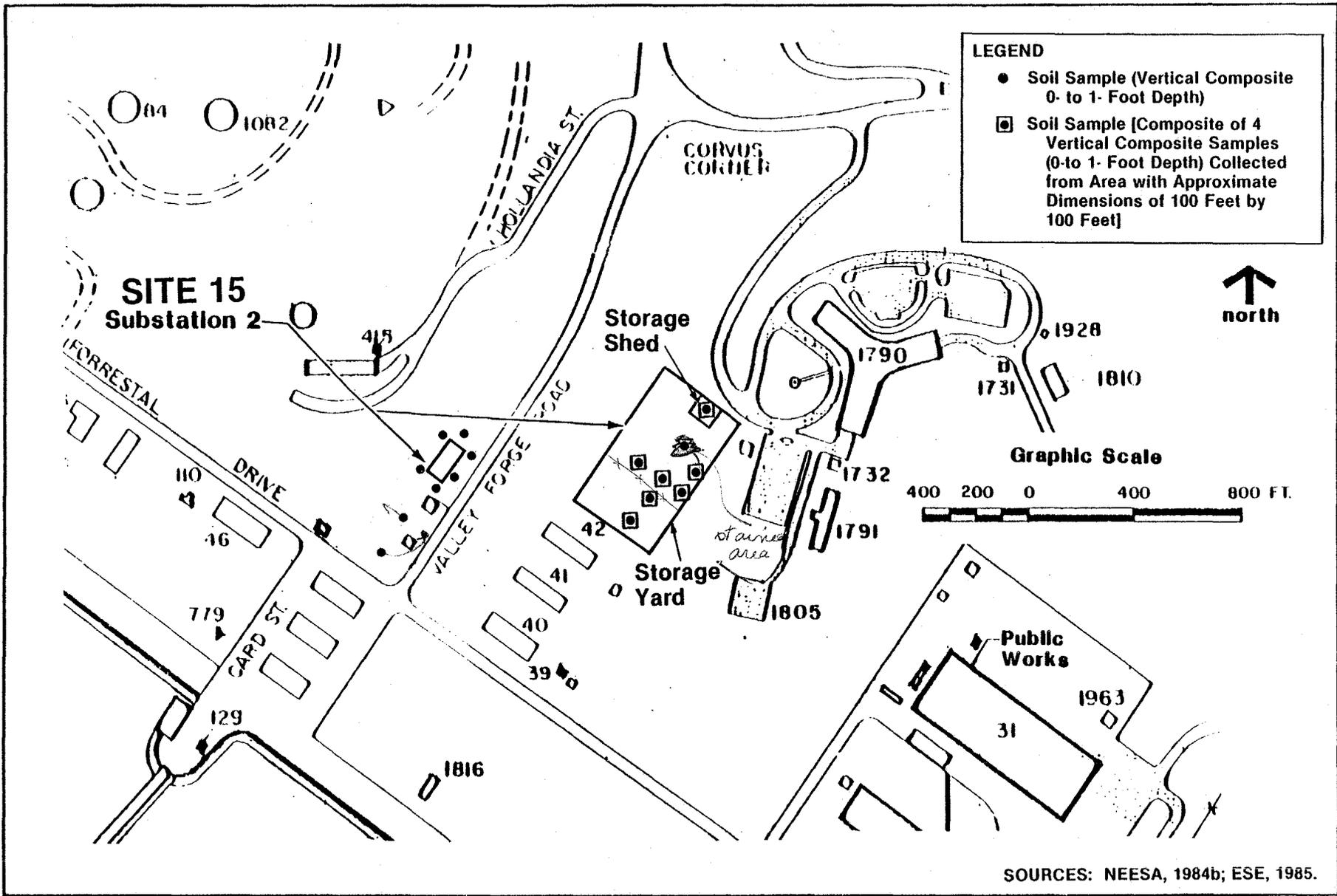


Figure 2-15
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 14, ENSENADA HONDA SHORELINE AND
MANGROVES



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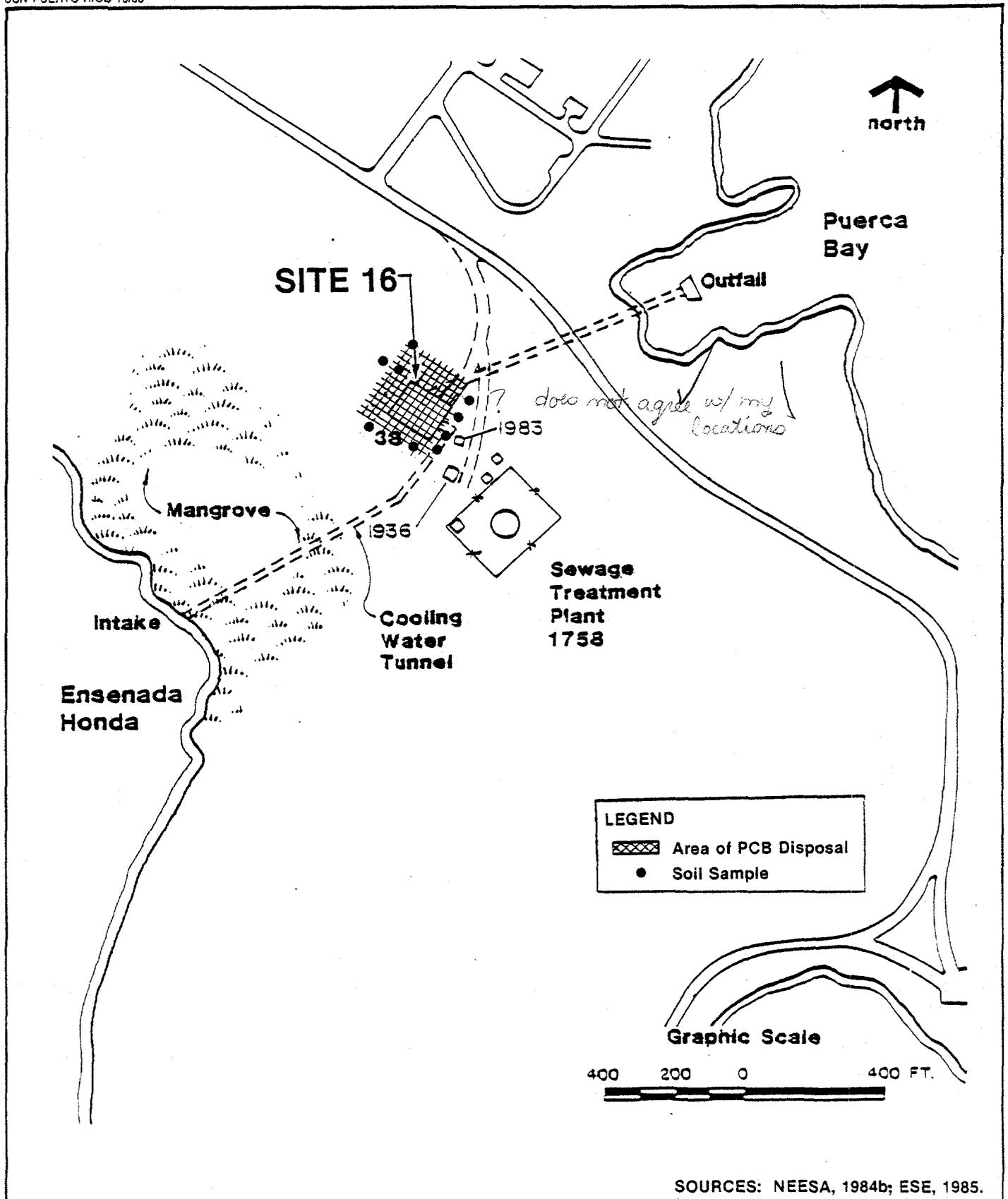


2-22

Figure 2-16
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 15, SUBSTATION 2



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SOURCES: NEESA, 1984b; ESE, 1985.

Figure 2-17
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 16, OLD POWER PLANT, BUILDING 38



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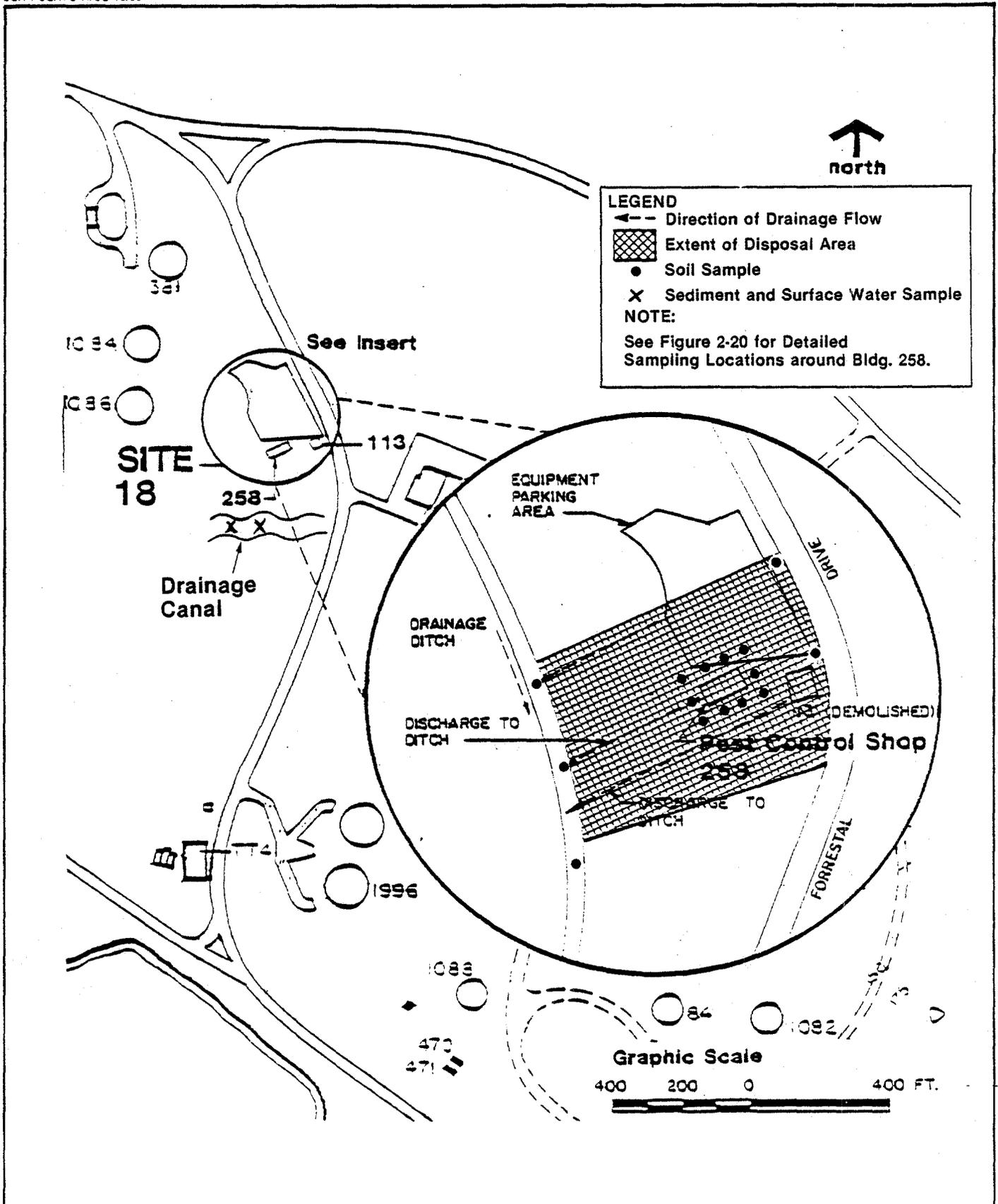
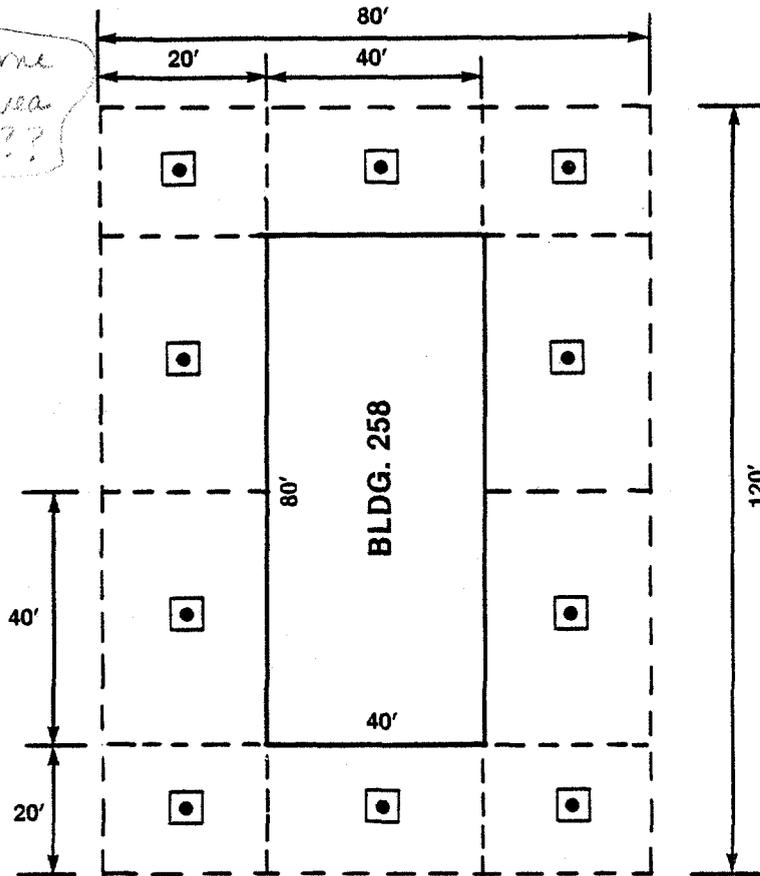


Figure 2-18
PROPOSED SAMPLING LOCATIONS AT SITE
NO. 18, PEST CONTROL SHOP AND
SURROUNDING AREA



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✓
Was some
of this area
paved??



Not to Scale

LEGEND
□ Composite Sample over
Approximate Area

SOURCE: ESE, 1985.

Figure 2-19
PROPOSED SAMPLING LOCATIONS AT
SITE NO. 18, ADJACENT TO BUILDING 258
PEST CONTROL SHOP



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U.S. NAVAL COMPLEX
PUERTO RICO

Not to Scale

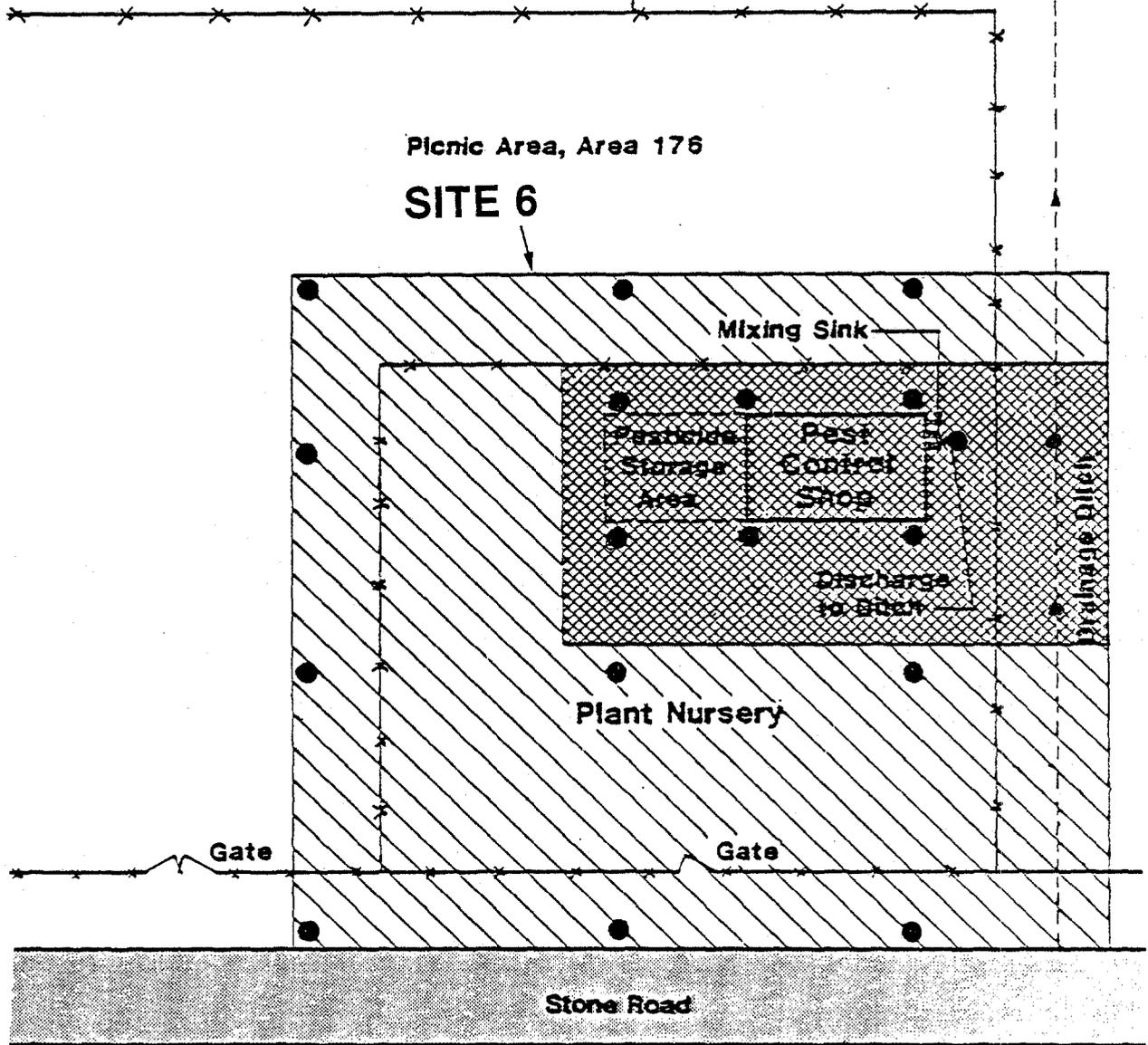
LEGEND

- Fence
- Pesticide Spill or Disposal Area
- Pesticide Drift Area
- Soil Sample

*Don't show
39 samples
?!*



north



SOURCES: NEESA, 1984a; ESE, 1985.

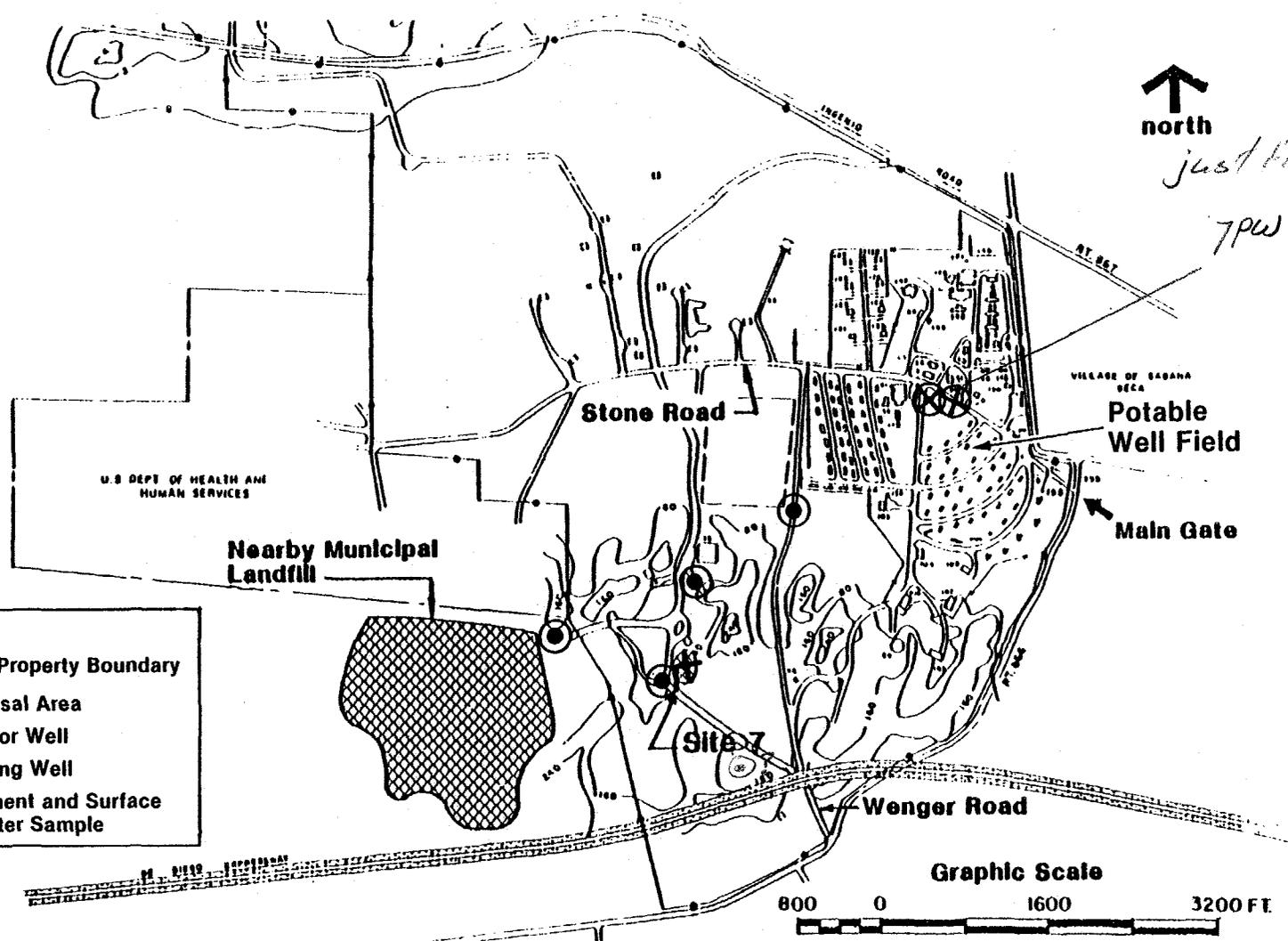
Figure 2-20
PROPOSED SAMPLING LOCATIONS AT
SITE NO. 6, FORMER PEST CONTROL
SHOP, SABANA SECA



CONFIRMATION STUDY
U.S. NAVAL COMPLEX
PUERTO RICO



just file for concept
7pw01



LEGEND

- Navy Property Boundary
- Disposal Area
- Monitor Well
- Existing Well
- Sediment and Surface Water Sample

SOURCES: NEESA, 1984a, ESE, 1985.

Figure 2-21
PROPOSED SAMPLING LOCATIONS AT SITE NO. 7,
LEACHATE PONDING AREA, SABANA SECA



**CONFIRMATION STUDY
U.S. NAVAL COMPLEX
PUERTO RICO**

Table 2-2. Soil Borings and Monitoring of Existing Wells

Site Number	Number of Soil Borings	Number of Samples per Boring	Total Number of Soil Samples	Number of Existing Wells to be Sampled
<u>Roosevelt Roads</u>				
1	6	1a	6	0
2	8	1b	8	0
3	0	0	0	1 (Ranch)
6	15	1a	15	0
7	2	1b	2	0
8	1	1a	1	0
12	20	0c	0	0
15	16	1d	16	0
16	9	1a	9	0
18	15	1e	15	0
<u>Sabana Seca</u>				
6	17	2f	34	0
7	0	0	0	2 (Buildings 10 and 22)

- a = Composite sample from 0- to 1-foot depth.
b = Composite sample from ground surface to depth at which undisturbed soil is encountered (total depth of waste burial) with aliquots collected at 2-foot intervals.
c = No laboratory analyses. Only visual inspection for oil contamination, and measurement of thickness of oil layer, if present. *approx. depth??*
d = Composite sample from 0- to 1-foot depth. In addition, seven of the soil samples will be composites of depth composited samples taken from specific areas in storage yard (see Figure 2-16).
e = Composite sample from 0- to 1-foot depth. In addition, 10 of the samples will be composites of depth composited samples taken from specific areas adjacent to Building 258 (see Figure 2-19).
f = Composite sample from 0- to 1-foot depth, and 1- to 2-foot depth.

Source: ESE, 1985.

Seca, the first boring will be exploratory to confirm the existence of the water table below the site of interest.

- 3. Geophysical Investigation: A magnetometer survey will be performed at Sites 1, 5, and 7 prior to drilling or boring at these sites. To avoid puncturing any buried material during monitor well installation, a geophysical investigation will be conducted at each of these sites to locate buried debris or drums. *How about site 9? ✓*

dispose on site!

- 4. Well Development: Following the installation of ground water monitor wells, each well will be developed by vigorous pumping until the water is clear and free from sediment. Proper well development will assure the collection of representative ground water samples during the subsequent sampling activities.

- 5. Surveying: Surveying will be performed to provide approximate vertical and horizontal locations of all monitor wells and borings and to determine ground water elevations in each well. Elevation data will be related to a common reference datum where possible. In the absence of a common reference datum, the site wells will be related to a relative datum established at the site. Elevations of wells will be reported at the top of the well casing, with the cap off. All well and boring locations will be plotted on existing base maps and described relative to fixed landmarks. *benchmark?*

- 6. Soil Boring/Sampling: Soil boring and sampling will be conducted at Sites 1 and 2, NAF Vieques; and at Sites 6, 7, 8, 12, 15, 16, and 18, NAVSTA Roosevelt Roads. Soil boring and sampling will also be conducted at Site 6, NSGA Sabana Seca. Table 2-2 shows the number of soil cores to be augered at each of the sites and the number of samples to be collected from each. Figures 2-4, 5, 8, 9, 10, 13, 16, 17, 18, 19, and 20 show the proposed soil sample locations.

differentiate btwn. sites 1 & 12 (to be collected w/ drill rig) & rest, some sampling dates will vary

- 7. ^{Ground & Surface} Water Quality/Sediment Sampling: Ground water, surface water, and sediment samples will be collected and analyzed. The number and the types of samples to be collected from each site,

and the analytical constituents for each are presented in Table 2-1. The ground water, surface water, and/or sediment sampling locations are shown in Figures 2-4 through 15, 18, and 21. Surface water and sediment sampling at Site 14 will consist of a visual inspection of the shoreline, with subsequent sampling if any areas of contamination are encountered.

8. Remedial Action Plan Site Reconnaissance: As part of the ^{drums appear to be deteriorated} Verification effort, site reconnaissance of Sites 5, 6, 7, 10, and 11 at NAVSTA Roosevelt Roads will be conducted specifically to develop a performance work statement (PWS) and QA Plans for remedial action at these sites. The objective of the reconnaissance of these sites is to gather information concerning site access, general site conditions (vegetation, hydrology, topography, etc.), waste characteristics, and potential pathways for contaminant migration.

also check site 16 for gas cylinders

2.1.3 EVALUATION AND REPORTS

1. Monthly Progress Reports: A brief progress report will be submitted to the EIC by the 15th day of each calendar month for the duration of the contract.
2. Evaluation and Presentation of Results: All laboratory analytical results and field investigation data will be evaluated and presented to the EIC as part of the monthly progress reports. The evaluation will consist of a comparison of the analytical data with existing water quality criteria to determine if water quality criteria are being violated. If the analytical data indicates the presence of an imminent hazard to human health or the environment, ESE will immediately notify the EIC. *also a recommendation for round, two, cleanup, etc.*
3. Remedial Actions PWS and QA Plan: A PWS and QA Plan will be prepared for Sites 5, 6, 7, 10, and 11 at NAVSTA Roosevelt Roads to include site access; waste container staging, segregation, and overpacking; ~~sampling and analysis;~~

Note: I want all the results in one report.

not only the but saw health advisor in Puerto Rico surface water standards, guidelines etc. All criteria etc. must be available

sampling and analysis; decontamination procedures and equipment; offsite disposal of wastes; and a site safety/contingency plan. *+ procedures for assuring quality control during remedial measures.*

2.2 PROJECT SCHEDULE

The project schedule for each task is presented in Figure 2-22. Throughout the course of the project, ESE will routinely contact the EIC to report the project status and any adjustments to the schedule.

2.3 PROJECT ORGANIZATION

2.3.1 ESE

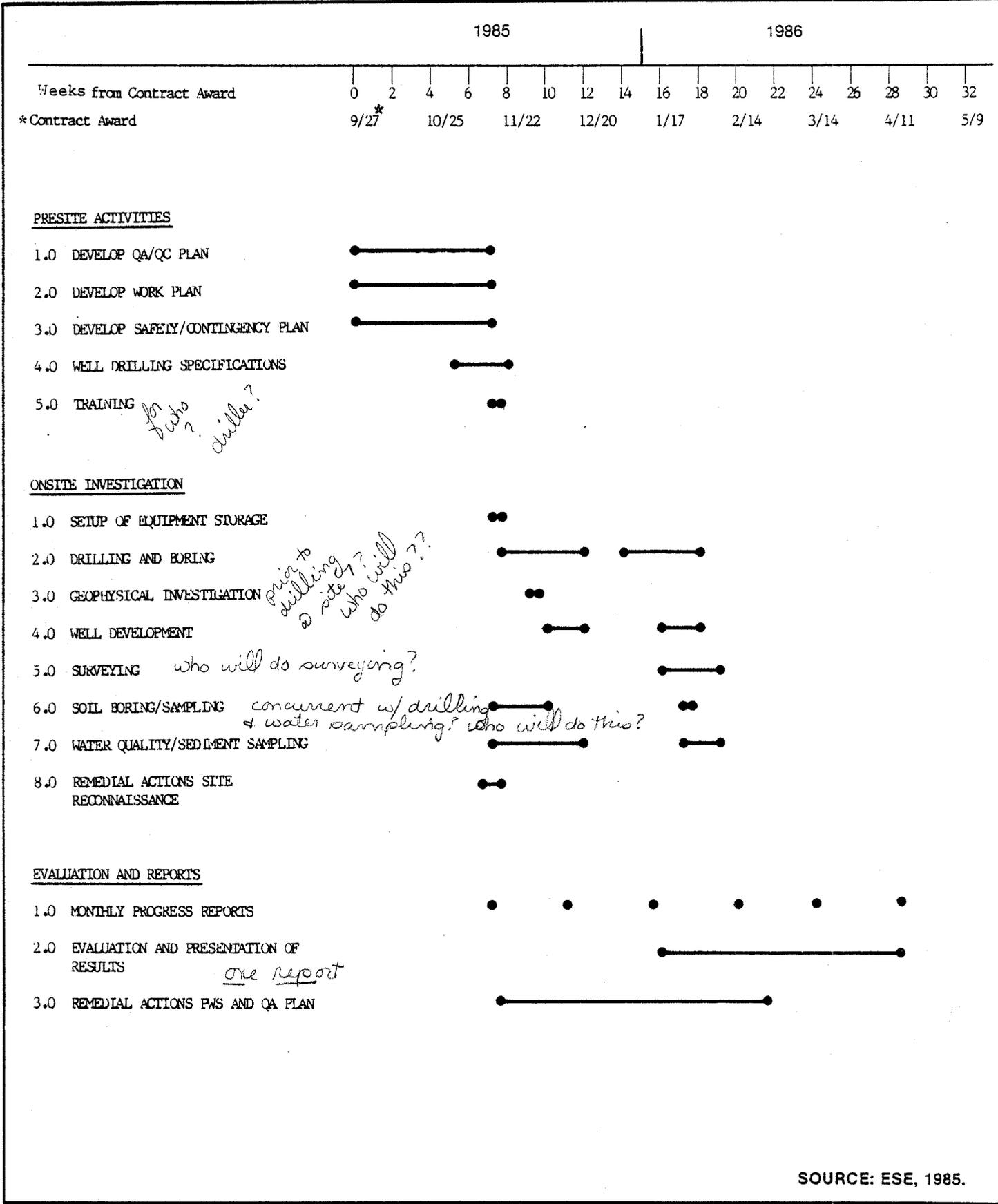
ESE will be responsible for providing all personnel, material, and equipment necessary to complete the study. Persons in responsible positions on the project staff have extensive experience and expertise in their area(s) of involvement, which include geohydrologic investigations, contamination assessments, remedial engineering, and site safety for hazardous waste disposal sites. ESE's responsibilities include the development of and adherence to an appropriate safety/contingency plan to protect contractor and Government personnel. Key ESE project personnel are listed in Table 2-3, along with pertinent identification information.

2.3.2 CARIBBEAN SOIL TESTING COMPANY, INC. (CST)

*did you
? why switch
drillers?*

As a subcontractor to ESE, CST will be responsible for performing all drilling operations associated with the installation of ground water monitor wells. CST personnel will be required to adhere to the Safety ^{Health} Contingency Plan, as directed by the ESE Onsite Investigation Task Manager. CST personnel assigned to this project are listed in Table 2-4, along with pertinent identification information.

and will be provided on-site training in the key aspects of the safety & health plan.



SOURCE: ESE, 1985.

Figure 2-22
U.S. NAVAL COMPLEX, PUERTO RICO
CONFIRMATION STUDY SCHEDULE



CONFIRMATION STUDY
U.S. NAVAL COMPLEX
PUERTO RICO

Table 2-3. ESE Project Personnel

Name	Title	Frequency On Site	Date of Birth	Social Security No.	Telephone No. (U.S. Naval Complex Puerto Rico)	Medical Examination (Within the Last Year)
Michael A. Keirn	Project Director	Never? Periodic			904/332-3318 (809/865-2507)	Yes ? Felix - please identify
Russell V. Bowen	Project Manager	Periodic	10/24/51	265-13-9004	904/332-3318 (809/865-2507)	Yes
	<i>what does this entail?</i>					
<i>don't you need two geologists?</i> Gabrielle B. Gravengaard	Onsite Investigator/ Task Manager	Daily	11/14/60	266-45-1969	904/332-3318 (809/865-2507)	Yes
Gary D. Runnells	Geologist/Field Team Leader	Daily	02/11/59	226-94-5495	904/332-3318 (809/865-2507)	Yes
Henry A. Dihm	Engineer	Periodic	05/29/59	419-94-6116	305/274-1215 (809/865-2507)	Yes
Becky M. McKay	Engineer	Periodic	03/02/61	265-39-2661	904/332-3318 (809/865-2507)	Yes
J. Perry Brake	Technician	Periodic	12/30/54	223-82-0333	904/332-3318 (809/865-2507)	Yes

* Verification of medical records is on file with: Personnel Office
Environmental Science and Engineering, Inc.
P.O. Box ESE
Gainesville, Fla. 32602
904/332-3318

Source: ESE, 1985.

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Table 2-4. CSF Project Personnel

Name	Title	Frequency On Site	Date of Birth	Social Security No.	Telephone No. U.S. Naval Complex, Puerto Rico	Medical Examination (Within the Last Year)
					(809/865-2507)	???

* Verification of medical records on file with: Caribbean Soil Testing Company, Inc.
P.O. Box 3967
San Juan, Puerto Rico 00936
809/753-0147

Source: ESE, 1985.

2.3.3 U.S. NAVAL COMPLEX, PUERTO RICO PERSONNEL

Primary contacts at Naval Facilities Engineering Command, Atlantic Division (LANTNAVFACENCOM) and U.S. Naval Complex, Puerto Rico, involved in this project are listed below.

<u>Name</u>	<u>Title</u>	<u>Involvement</u>	<u>Telephone No.</u>
Cheryl Barnett	Environmental Engineer	EIC	804/444-9566 <i>will change</i>
Felix Mestey	Environmental Engineer	NAVSTA Roosevelt Roads--Environmental Engineer	809/865-2507

Additional contacts are listed in Appendix A.

*You forgot Gabriela Seca!!
and Vieques POCs?
Pls address site by site
coordinators if necessary w/primary
Have the proposed drilling sites been
cleared by PWD for utility lines?
Pls address*

3.0 SAFETY PLAN

3.1 PROJECT DESCRIPTION

ESE will provide sampling and analytical services to determine the extent of contamination that may have resulted from past disposal operations, spills, or leaks at the U.S. Naval Complex, Puerto Rico including Naval Station (NAVSTA) Roosevelt Roads, Puerto Rico; Naval Ammunition Facility (NAF), Vieques; and Naval Security Group Activity (NSGA) Sabana Seca, Puerto Rico.

Ground water monitor wells will be installed, and sampling will include soil, sediments, ground water, and surface water to confirm or refute the presence of contamination. If contamination is detected, additional sampling and analysis will be conducted to further define the extent of contamination. Once evaluations based on the site investigation are completed, recommendations on future remedial action at U.S. Naval Complex, Puerto Rico, will be made.

3.2 RESPONSIBILITY AND ORGANIZATION

The purpose of the Safety Plan is to protect all personnel and the surrounding environment during investigative activities at U.S. Naval Complex, Puerto Rico and to satisfy Occupational Safety and Health Administration (OSHA) requirements. The plan includes procedures and preventive measures that will protect human health and the environment from the hazards of metal, acid, and toxic organic compound exposure and from fire, explosion, and mechanical hazards which may exist during field and laboratory activities.

The corporate safety policy of ESE requires that a safety plan be implemented at U.S. Naval Complex, Puerto Rico, to protect all individuals and the environment. It is the responsibility of each member of the investigative team, including all subcontractor personnel,

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to conform to and comply with all aspects of this safety program. All personnel must regard and conduct themselves as members of the "safety team" and adhere to the prescribed site Safety Plan. The senior ESE person onsite is responsible for enforcing strict adherence to the plan.

The "buddy system" is a key element of this plan and requires that all activities at the site be conducted using a minimum of 2-person teams.

Overall responsibility for safety during the site investigation and laboratory activities rests with the Project Manager, R.V. Bowen, P.E. His responsibilities include:

1. Preparing an effective site safety plan for the project, that satisfies OSHA requirements;
2. Categorizing and identifying the project staff as to the levels of potential exposure to dangerous levels of hazardous materials;
3. Assuring that adequate and appropriate safety training and equipment are available for project personnel;
4. Arranging for medical examinations for specified project personnel; and
5. Designating a Site Safety Officer.

The responsibilities of the Site Safety Officer, Gabrielle Gravengaard, include:

1. Implementing all safety procedures and operations onsite;
2. Updating equipment or procedures based upon new information gathered during site inspections and monitoring;
3. Upgrading or downgrading (with approval of the Project Manager) the levels of personnel protection based upon site observations;
4. Determining and posting locations and routes to medical facilities (see Appendix B for Emergency Medical Facilities),

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- including poison control centers, and arranging emergency transportation to medical facilities (as required);
5. Notifying (as required) local public emergency officers (i.e., police and fire departments) of the nature of the team's operations, and making emergency telephone numbers available to all team members;
 6. Observing work party members for symptoms of exposure or stress; and
 7. Arranging for the availability of emergency medical care and first aid onsite, as necessary.

The Site Safety Officer has the ultimate responsibility to stop any operation that threatens the health and safety of the team or surrounding populace or causes significant adverse impact to the environment.

In the absence of Gabrielle Gravengaard during the onsite investigation, the Field Team Leader, Joseph P. Brake, will serve as the Site Safety Officer. In the absence of Ms. Gravengaard and Mr. Brake, Gary Runnells becomes the acting Site Safety Officer.

It is the responsibility of all other onsite personnel:

1. To comply with all aspects of the Project Safety Plan, including strict adherence to the "buddy system;"
2. To obey the orders of the Site Safety Officer; and
3. To notify the Site Safety Officer of hazardous or potentially hazardous incidents or working situations.

3.3 GENERAL SAFETY RULES

3.3.1 ONSITE SAFETY

In addition to the specific requirements of the Project Safety Plan, common sense should prevail at all times. The following general safety rules will be in effect at the site.

1. Each sample must be treated as though it were toxic and hazardous;
2. Unauthorized personnel are not permitted at the work sites or within 50 feet of drilling equipment, and Base Security will be asked to remove violators upon failure to heed a verbal request to vacate the site;
3. To reduce contact between the hands and mouth, all smoking, eating, and drinking will be strictly prohibited in the work area;
4. Persons with beards or other facial hair that interferes with respirator fit are not permitted within the site boundaries when conditions require respiratory protection;
5. Persons with long hair and/or loose fitting clothing which could become entangled in drilling equipment are not permitted in the work area;
6. All personnel should avoid unnecessary contact with contaminated soil and water;
7. All personnel should avoid any contact between their hands and mouths until they are thoroughly decontaminated;
8. Horseplay is prohibited;
9. Use of alcohol, narcotics, or controlled substances while working is prohibited;
10. Firearms, ammunition, fireworks, and explosives are prohibited; and
11. Approved and appropriate safety equipment, as specified in the Project Safety Plan, such as eye protection, hardhats, foot protection, and respirators, must be worn in areas where required by the Safety Plan. In addition, eye protection must be worn when handling acidic, caustic, or other hazardous liquids, such as analytical preservatives. gloves?
protective
clothing
?

The Site Safety Officer will have the authority to modify the site safety rules when necessitated by onsite conditions.

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3.3.2 LABORATORY SAFETY

Samples collected from U.S. Naval Complex, Puerto Rico, and shipped to the ESE laboratory for analysis may present a potential for exposure of laboratory personnel to dangerous levels of metals, pesticides, or PCBs. Potentially hazardous samples will be identified as such by the Field Team Leader and appropriately labeled prior to shipment to the laboratory. It is important that the laboratory implement an effective safety plan for handling these materials.

Handling procedures must protect personnel from skin contact with the hazardous materials and offer respiratory protection from airborne concentrations of hazardous samples. At a minimum, all laboratory personnel having direct contact with the hazardous samples must be equipped with:

1. Safety glasses or a face shield to protect from splashes,
2. Impervious gloves, and
3. Rubberized aprons and other chemical protective garments.

Respiratory protection in the form of air-purifying cartridge respirators for acids and dust may be required by the Laboratory Coordinator, M. Tom Park, if airborne exposure to hazardous samples is likely. All operations conducted with raw hazardous materials must be performed where there is adequate ventilation? *define*

Due to possibly high concentrations of toxic materials in the contaminated water and soil samples, all laboratory personnel handling these samples:

1. Must not smoke, eat, chew gum, or drink, to avoid contact between their hands and mouths while carrying out laboratory activities;
2. Must thoroughly wash their hands and other potentially exposed skin upon completion of laboratory work; and
3. Must keep the work area and equipment as clean as possible to avoid contamination.

All appropriate safety precautions described in the ESE Laboratory Safety Manual must be followed during laboratory work.

3.4 SITE CHARACTERIZATION AND SITE SAFETY PLAN

A characterization of each site of potential contamination was performed, based on a thorough evaluation of the IAS of NAVSTA Roosevelt Roads (NEESA 13-051, September 1984) and NSGA Sabana Seca (NEESA 13-053, September 1984) and an assessment of the potential hazards at each site. Based on the site characterization, a Site Safety Plan was prepared to describe various procedures and precautions that will be followed to assure preservation of health and safety during all site activities.

3.4.1 SITE CHARACTERIZATION

The IASs (NEESA 13-051 and 13-053, September 1984) identified 18 sites (13 sites at NAVSTA Roosevelt Roads; 3 sites at NAF Vieques; 2 sites at NSGA Sabana Seca) that may pose a potential threat to human health or the environment due to contamination resulting from past hazardous materials operations. A thorough review of the information presented in the IASs regarding type and estimated quantities of hazardous materials disposed of at each site was conducted to identify the potential hazards that exist in performing the confirmation study. Information contained in the IAS reports indicates that many different compounds have been spilled, leaked, or disposed of at the various sites of potential contamination. Possible PCB contamination has been identified at several sites, which could pose a skin absorption problem or an inhalation problem when present in dust particles. Possible pesticide and herbicide contamination has also been identified at several sites. These compounds affect the nervous system, and many are absorbed through intact skin. Both solutions and dusts containing these compounds are potentially hazardous. Solvents such as trichloroethylene, methyl ethyl ketone, and methyl isobutyl ketone have been reported as possible water contaminants and may be present in drums in a relatively pure state. Skin contact should be avoided, but inhalation is the greatest hazard. Explosives are an obvious hazard to drilling and sampling activities and

I agree with Tom either side of potential hazards or fields of info on chemicals

*explosives??
where??*

*Identify
which and
1st hazardous
site b75/c*

may be present at some of the sites. Additionally, underground fuel leaks have occurred at some of the sites and could pose a fire and/or explosion hazard during drilling activities.

The following Site Safety Plan presents procedures and precautions that will be followed to ensure the protection of human health and the environment during confirmation study activities.

3.4.2 SITE SAFETY/CONTINGENCY PLAN

The Site Safety/Contingency Plan outlines procedures to be used during investigations at uncontrolled hazardous waste sites to minimize the risk of injury or illness resulting from onsite activities. The specific health and safety concerns in this plan deal with chemical and physical hazard exposure during the various phases of the site investigation. The intent is to carry out these duties to the degree that injuries, occupational illnesses, and unwarranted property losses are prevented, while at the same time ensuring compliance with applicable laws and regulations. Emphasis will be placed on individual awareness, personal protective equipment, and emergency response. In this project, it is expected that the work currently identified will be conducting geophysical studies, installing ground water monitor wells, and collecting samples of water, leachate, and soil from locations of suspected hazardous conditions.

Site Safety Plan

The Site Safety Plan is comprised of the following major sections:

- * Personal Protective Clothing and Equipment
- * Medical Monitoring
- * Site Entry Procedures
- * Decontamination Procedures
- * Investigation-Derived Material Disposal

Personal Protective Clothing and Equipment--Personnel must wear protective equipment when response activities involve known or suspected

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atmospheric contamination, when vapors, gases, or particulates may be generated, or when direct contact with skin-affecting substances may occur. Respirators can protect lungs, gastrointestinal tract, and eyes against air toxicants. Chemical-resistant clothing can protect the

skin from contact with skin-destructive and absorbable chemicals. Good personal hygiene limits or prevents ingestion of material.

Equipment to protect the body against contact with known or anticipated chemical hazards has been divided into four categories according to the degree of protection afforded:

- Level A: Should be worn when the highest level of respiratory, skin, and eye protection is needed.
- Level B: Should be selected when the highest level of respiratory protection, but a lesser level of skin protection, is needed. Level B protection is the minimum level recommended on initial site entries until the hazards have been further defined by onsite studies and appropriate personnel protection utilized.
- Level C: Should be selected when the types of airborne substances are known, the concentrations measured, and the criteria for using air-purifying respirators are met.
- Level D: Should not be worn on any site with respiratory or skin hazards. Is primarily a work uniform providing minimal protection.

The level of protection selected should be based primarily on:

- Types and measured concentrations of chemical substances in the ambient atmosphere and their toxicity.
- Potential or measured exposure to substances in air, splashes of liquids, or other direct contact with material due to work being performed.

In situations where the types of chemicals, their concentrations, and possibilities of contact are not known, the appropriate level of protection must be selected based on professional experience and

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judgment until the hazards can be better characterized. Additional guidance for selecting level of protection utilizing air monitoring equipment is presented later in this section.

The specifications of protective clothing and equipment associated with each level of protection identified above are listed below:

Level A Protection

Personal Protective Equipment:

- Pressure-demand, self-contained breathing apparatus, approved by the Mine Safety and Health Administration (MSHA) and National Institute of Occupational Safety and Health (NIOSH)
- Fully encapsulating chemical-resistant suit
- Coveralls*
- Long cotton underwear*
- Gloves (outer), chemical-resistant
- Gloves (inner), chemical-resistant
- Boots, chemical-resistant, steel toe and shank (depending on suit construction, worn over or under suit boot)
- Hardhat* (under suit)
- Disposable protective suit, gloves, and boots* (worn over fully encapsulating suit)
- 2-way radio communications

*Optional

Criteria for Selection: Meeting any of these criteria warrants use of Level A protection:

- The chemical substances have been identified and require the highest level of protection for skin, eyes, and the respiratory system based on:
 - Measured (or potential for) high concentrations of atmospheric vapors, gases, or particulates, or

- Site operations and work functions involving high potential for splash, immersion, or exposure to unexpected vapors, gases, or particulates
- Extremely hazardous substances (for example: dioxin, cyanide compounds, concentrated pesticides, Department of Transportation Poison "A" materials, suspected carcinogens, and infectious substances) are known or suspected to be present, and skin contact is possible.
- The potential exists for contact with substances that destroy skin.
- Operations must be conducted in confined, poorly ventilated areas until the absence of hazards requiring Level A protection is demonstrated.
- Total atmospheric readings on the Century OVA System, HNU Photionizer, and similar instruments indicate 500 to 1,000 parts per million (ppm) of unidentified substances.

- Air will be monitored periodically.

Level B Protection

Personal Protective Equipment:

- Pressure-demand, self-contained breathing apparatus (MSHA/NIOSH approved)
- Chemical-resistant clothing (overalls and long-sleeved jacket; coveralls; hooded, one or two-piece chemical-splash suit; disposable chemical-resistant coveralls)
- Coveralls*
- Gloves (outer), chemical-resistant
- Gloves (inner), chemical-resistant
- Boots (outer), chemical-resistant, steel toe and shank
- Boots (outer), chemical-resistant (disposable*)
- Hardhat (face shield*)
- 2-way radio communications

*Optional

Criteria for Selection: Meeting any one of these criteria warrants use of Level B protection:

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- The types and atmospheric concentrations of toxic substances have been identified and require the highest level of respiratory protection, but a lower level of skin and eye protection. These would be atmospheres:
 - With concentrations Immediately Dangerous to Life and Health (IDLH), or
 - Exceeding limits of protection afforded by a full-face, air-purifying mask, or
 - Containing substances for which air-purifying canisters do not exist or have low removal efficiency, or
 - Containing substances requiring air-supplied equipment, but substances and/or concentrations do not represent a serious skin hazard.
- The atmosphere contains less than 19.5 percent oxygen.
- Site operations make it highly unlikely that the small, unprotected area of the head or neck will be contacted by splashes of extremely hazardous substances.
- Total atmospheric concentrations of unidentified vapors or gases range from 5 ppm to 500 ppm on instruments such as the Century OVA or HNU Photoionizer, and vapors are not suspected of containing high levels of chemicals toxic to skin.

- Air will be monitored periodically.
Level C Protection

Personal Protective Equipment:

- Full-face, air-purifying, canister-equipped respirator (MSHA/NIOSH approved)
- Chemical-resistant clothing (coveralls; hooded, two-piece chemical splash suit; chemical-resistant hood and apron; disposable chemical-resistant coveralls)
- Coveralls*
- Gloves (outer), chemical-resistant
- Gloves (inner), chemical-resistant*
- Boots (outer), chemical-resistant, steel toe and shank*
- Boots (outer), chemical-resistant (disposable*)
- Hardhat (face shield*)

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- 2-way radio communications

***Optional**

Criteria for Selection: Meeting all of these criteria permits use of Level C protection:

- Measured air concentrations of identified substances will be reached by the respirator at or below the substance's exposure limit, and the concentration is within the service limit stated on the canister.
- Atmospheric contaminant concentrations do not exceed IDLH levels.
- Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect the small area of skin left unprotected by chemical-resistant clothing.
- Job functions have been determined not to require self-contained breathing apparatus.
- Total vapor readings register between background and 5 ppm above background on instruments such as the HNU Photoionizer and Century OVA.
- Air will be monitored periodically.

Level D Protection

Personal Protection Equipment:

- Coveralls
- Gloves*
- Boots/shoes, leather or chemical-resistant, steel toe and shank
- Boots (outer), chemical-resistant (disposable*)
- Safety glasses or chemical splash goggles*
- Hardhat (face shield*)
- Escape mask**

** Optional*

**Optional, but should remain onsite for quick access in an emergency.

Criteria for Selection: Meeting any of these criteria allows use of Level D protection:

- No hazardous air pollutants have been measured.

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- Work functions preclude splashes, immersion, or potential for unexpected inhalation of any chemicals.

Guidance on Selection Criteria: Level D protection is primarily a work uniform. It can be worn in areas where: (1) only boots can be contaminated, or (2) there are no inhalable toxic substances.

Surveys conducted on - July 1985

Based on the site characterization, personnel involved in the drilling operations during the investigation will wear Level D protection at the 16 sites at NAVSTA Roosevelt Roads and the 2 sites at NSGA Sabana Seca, which will include:

- o Saranex® or uncoated Tyvek® coveralls (based on site history),
- o Steel-toed neoprene boots,
- o Disposable boot covers,
- o Disposable gloves (geologist),
- o Impervious inner gloves and outer drilling gloves (drillers),
- o Hardhats,
- o Faceshields (drillers), and
- o Respirators (full-face, with organic vapor/pesticide cartridges)*.

*Not regularly worn in Level D but must be available for use if air monitoring indicates the need.

Saranex®-coated Tyvek® coveralls will be substituted for uncoated coveralls during all drilling programs at sites known or suspected to contain explosives, solvents, PCBs, or pesticides.

which sites are these ??

As mentioned earlier, air monitoring will be conducted during all phases of drilling operations to assess the need for upgrading personnel protection. The criteria described above for each level for protection will be used in decision making regarding the appropriate level of personal protection. The ESE Site Safety Officer will be responsible for air monitoring and assessment of the need for upgrading the level of personal protection. Air monitoring will be performed at each drilling location using an HNU, with a 10.2-electron volt (eV) lamp or the

Foxboro OVA. Full-face, air-purifying respirators with organic vapor/pesticide cartridges will be available and will be used if air monitoring instruments show readings above background levels. Respirators will also be used if visible dusting occurs in the vicinity of the drilling operation at pesticide or PCB sites.

Prior to drilling operations at some of the sites, geophysical surveys will be performed to screen potential drilling locations to prevent drilling into buried objects such as ordnance, gas cylinders, and drums. Techniques to be utilized include: resistivity, magnetometer, and metal detector surveys. Personnel involved in these activities will wear Level D equipment:

- o Tyvek® coveralls,
- o Steel-toed neoprene boots,
- o Disposable boot covers, and
- o Two pairs of disposable gloves.

The same equipment listed above for drilling operations, with the exception of hardhats and faceshields, will be used by personnel involved in the collection of surface and ground water, sediment, and soil samples.

In addition to the protective clothing and equipment specified above for conditions normally anticipated for this investigation, an emergency egress pack will be available for each field team member in the event of a major release of toxic gas, vapor, or dust emission. The emergency egress pack will allow field personnel to quickly vacate the area affected by the sudden release.

Medical Monitoring--Medical monitoring of all field personnel involved in this investigation is required to identify potential adverse effects that may result from exposure to toxic substances. The medical monitoring program consists of a baseline medical examination and

periodically scheduled surveillance examination. The surveillance examinations are at the discretion of the Site Safety Officer.

The baseline physical examinations shall provide a history of previous exposure and general health status and will serve as a baseline for comparative purposes.

The baseline examinations include the following:

1. Self-administered health history questionnaire as an aid in diagnosis.
2. General physical examination to assess the individual's overall health and current heart and neurological conditions. Specific tests which will be given in this regard include:
 - Chest X-ray
 - Electrocardiogram
 - Stress test
3. Laboratory hematologic analysis to determine liver and blood functions. These clinical tests include a complete blood count with differential, VDRL, thyroid hormone, albumin, alkaline phosphatase, bilirubin-total and iron-serum, lactic acid dehydrogenase, phosphorus, potassium, protein-total, sodium, SGOT, SGPT, triglycerides, urea nitrogen (BUN) and uric acid, hemoglobin, methemoglobin, heavy metals, and pesticide residues.
4. Urinalysis for urine characterization.
5. Pulmonary functions to be measured for determining lung condition. These specific tests include: forced vital capacity, forced volume, max-mid exploratory flow, maximum voluntary ventilation, functional residual volume, residual volume, and total lung capacity.
6. Hearing abilities will be determined through audiometric testing.

Periodic examinations will be performed annually for all personnel participating in the medical monitoring program. Periodic monitoring provides a continuous record of health status and also assists in the early identification of advanced health effects. Periodic surveillance examinations shall include those items which are considered good indicators of acute toxicity. Specifically, these involve the clinical tests listed above for kidney, liver, and blood functions.

Copies of medical records will be kept in personnel files at the office of the person's employer.

Site Entry Procedures--Field personnel should enter sites where drilling operations are underway from an upwind direction, if possible. This practice will avoid obvious contamination and lessen the risk of exposure.

Decontamination Procedures--A portable steam cleaning unit will be used to decontaminate the drill rigs to be used in the investigation. Waste rinse water will be disposed of at the site of potential contamination. Likewise, wash and rinse water generated by the cleaning of contaminated boots, gloves, other protective clothing, and sampling equipment will be disposed of onsite. Due to the number of sites to be investigated in a short time frame, decontamination stations must be easily mobile and simple (wash-and-rinse basins, heavy duty trash bags for disposable clothing).

Investigation-Derived Material Disposal--Contaminated disposable clothing must be labeled and stored onsite in heavy plastic bags or drums. Disposition of this contaminated material will be determined by the Site Safety Officer. *most likely to be land fill/dump*

Contingency Plan

The Contingency Plan is comprised of two major sections: (1) Emergency Communications, and (2) Medical Support. These sections provide critical

information required for emergency response related to the following:

- Fire or explosion requiring fire department response
- Serious injury requiring immediate attention
- Any other serious incident requiring rescue, police, fire, or security support from U.S. Naval Complex, Puerto Rico.

Emergency Communications--In the event of emergency, the appropriate U.S. Naval Complex, Puerto Rico, response resources must be contacted. Pertinent emergency response activities and telephone numbers are listed below:

NAVSTA Roosevelt Roads:

Ambulance	865-4144 (4144 on base)
Hospital	865-4133 (4133 on base)
Police	865-4123 (4123 on base)
Fire Department	865-4333 (4333 on base)
Explosives Unit	865-4333 (4333 on base)

Safety Manager (M. Santiago) 809/865-2000 ext. 3010 or 5564.

Vieques:

Ambulance	741-2156	<i>Captain 5395 @ Vieques</i>
Hospital	741-2341	
Police	741-2020	
Fire Department	741-2111	

NSGA Sabana Seca:

Ambulance	795-8755 (290, 291, 292 on base)
Hospital	795-8755 (290, 291, 292 on base)
Police	795-2255 (226 on base)
Fire Department	795-2255 (298, 333 on base)
Explosives Unit	795-2255 (333 on base)

Safety Manager (G. Ramon) 809/795-2255.

In addition, the following emergency contacts are available to lend information and support:

1. Charles Haury, ESE (Industrial Hygiene Manager), 904/332-3318
2. Felix Mestey (Environmental Coordinator, NAVSTA Roosevelt Roads), 809/865-2507

3 NSGA ? ? d. Vieques ?

All field team members should acquaint themselves with the location of the nearest telephone to each site prior to initiation of work. This will help minimize response time in the event of an emergency. In addition, if working at remote areas, a hand-held radio will be used for emergency communications.

In the event of a medical emergency, the U.S. Naval Hospital (NAVSTA Roosevelt Roads), the Medical Clinic (NSGA Sabana Seca), or the Vieques Municipal Hospital (Vieques), will provide medical attention required for stabilizing the injured person prior to transferring to an offpost medical facility. The U.S. Naval Hospital at NAVSTA Roosevelt Roads is located in Building 1790 (see Figure B-1). The Medical Clinic at NSGA Sabana Seca is a branch of the NAVSTA Roosevelt Roads Naval Hospital and is located in Building 145 (see Figure B-2). For major medical services, the Veterans' Administration Hospital in Rio Piedras is located approximately 12 miles east of NAVSTA Roosevelt Roads.

map
showing
location
of Vieques
hospital?

APPENDIX A
ADDITIONAL U.S. NAVAL COMPLEX, PUERTO RICO, CONTACTS

APPENDIX A
ADDITIONAL U.S. NAVAL COMPLEX, PUERTO RICO, CONTACTS

<u>Activity</u>	<u>Telephone No.</u>
NAVSTA ROOSEVELT ROADS	
Executive Officer	809/865-6550
Commanding Officer	809/865-4141
Command Master Chief	809/865-5378
Chief Ward Officer	809/865-4310
Quarter Deck-Officer of the Day (all hours)	809/865-4311, 4108, 4352
Environmental Coordinator	809/865-2507
Public Works Department	809/865-3104, 3105
NSGA SABANA SECA	
Executive Officer	809/795-2255, ext. 201
Commanding Officer	809/795-2255, ext. 200
Command Master Chief	809/795-2255, ext. 203
Chief Ward Officer	809/795-2255, ext. 210
Quarter Deck-Officer of the Day (all hours)	809/795-2255
Facilities Engineer	809/795-2255, ext. 236
Public Works Department	809/795-2255, ext. 230

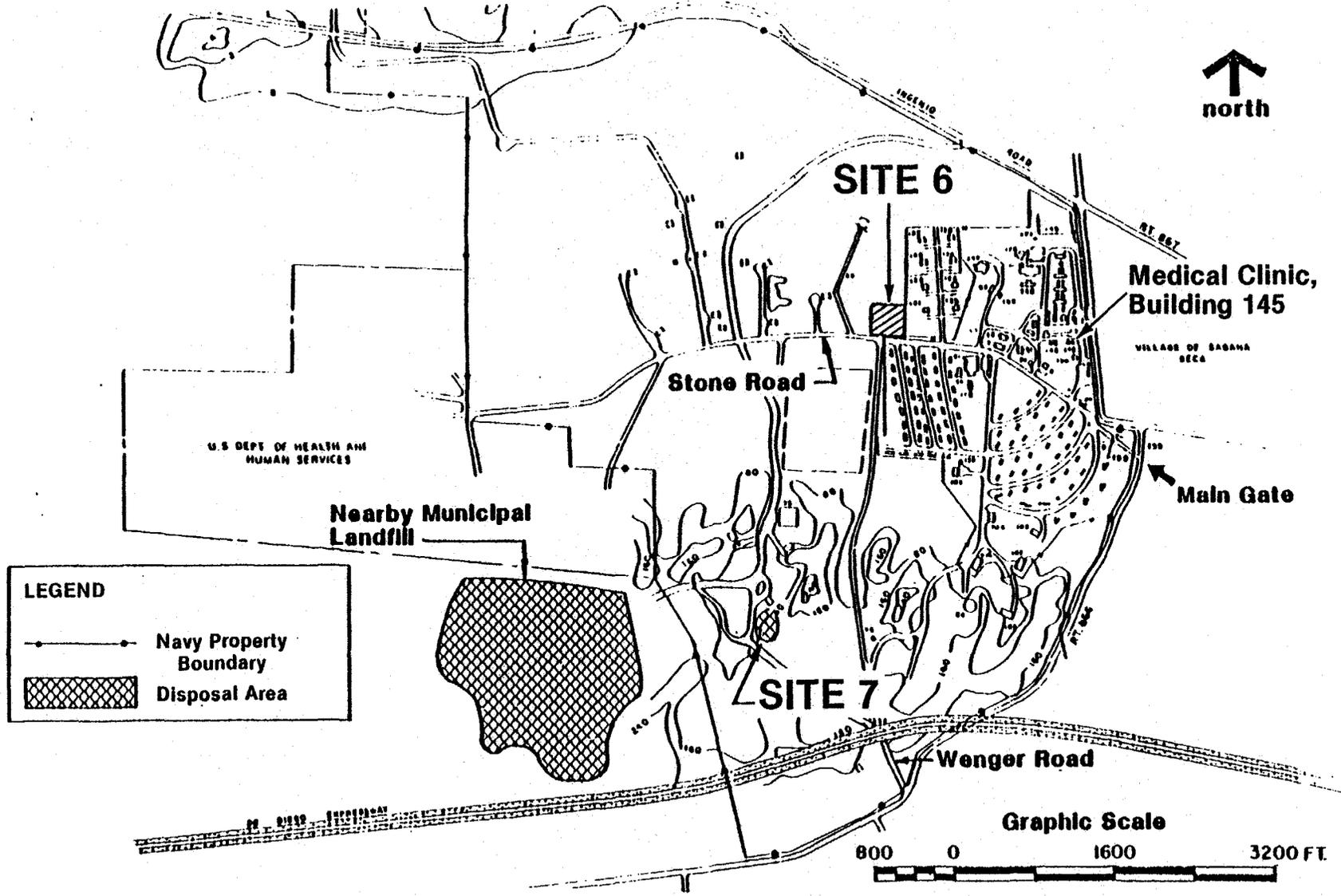
Names
?
who, specifically,
will you
need to
contact
during
course of
study?

base security
?
(how can they
remove
unauthorized
persons if
you don't know
their phone no.?)

NAF Vieques

APPENDIX B

MAPS SHOWING U.S. NAVAL COMPLEX,
PUERTO RICO, EMERGENCY MEDICAL FACILITIES



B-2

SOURCES: NEESA, 1984a; ESE, 1985.

Figure B-2
SITE MAP SHOWING LOCATION OF EMERGENCY
MEDICAL FACILITY (MEDICAL CLINIC), NSGA
SEBANA SECA



CONFIRMATION STUDY
U.S. NAVAL COMPLEX
PUERTO RICO