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NAS CECIL FIELD
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PUBLIC MEETING SESSION SLIDES FOR WORK PLAN APPROACH AND RATIONALE
OPERABLE UNITS 3, 4, 5 AND 6 NAS CECIL FIELD FL
6/2/1994
NAS CECIL FIELD

Work Plan Approach and Rationale
Operable Units 3, 4, 5, & 6
Naval Air Station
Cecil Field
Jacksonville, FL

June 2, 1994

Meeting Objectives

- **Update Project Status**
- **Present Work Plan Approach and Rationale**
- **Evaluate Continuance of Initial Sampling**

Status Update

- **Initial field sampling began April 11**
 - **Groundwater field screening at Site 7**
- **Draft Work Plan submitted May 16**
- **Comment/review period through July 22**

Site 7 Groundwater Screening

- Aquaprobe groundwater screening
- Preliminary results:
 - naphthalene 60 $\mu\text{g/l}$
 - xylene 1050 $\mu\text{g/l}$
 - ethyl benzene 60 $\mu\text{g/l}$

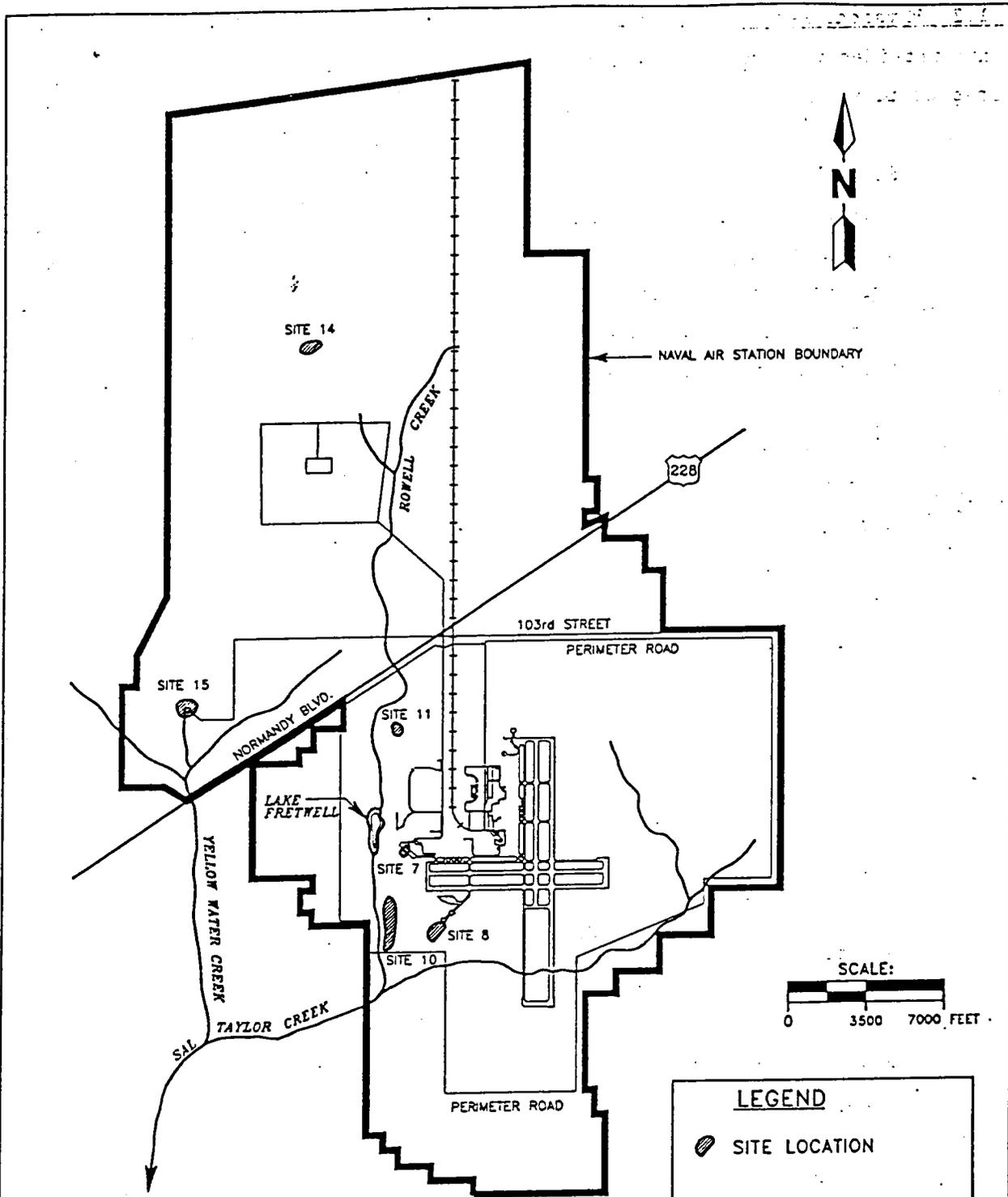
Operable Units/Sites

OU3 Site 7 - Old Firefighting Training Area
Site 8 - Firefighting Training Area,
Boresite Test Range, and
Hazardous Waste Storage Area

OU4 Site 10 - Rubble Disposal Area

OU5 Site 14 - Blue 5 Ordnance Disposal Area
Site 15 - Blue 10 Ordnance Disposal Area

OU6 Site 11 - Pesticide Disposal Area



SOURCE: ADAPTED FROM ENVIRODYNE ENGINEERS, 1985

LEGEND

● SITE LOCATION

SITE LOCATION MAP

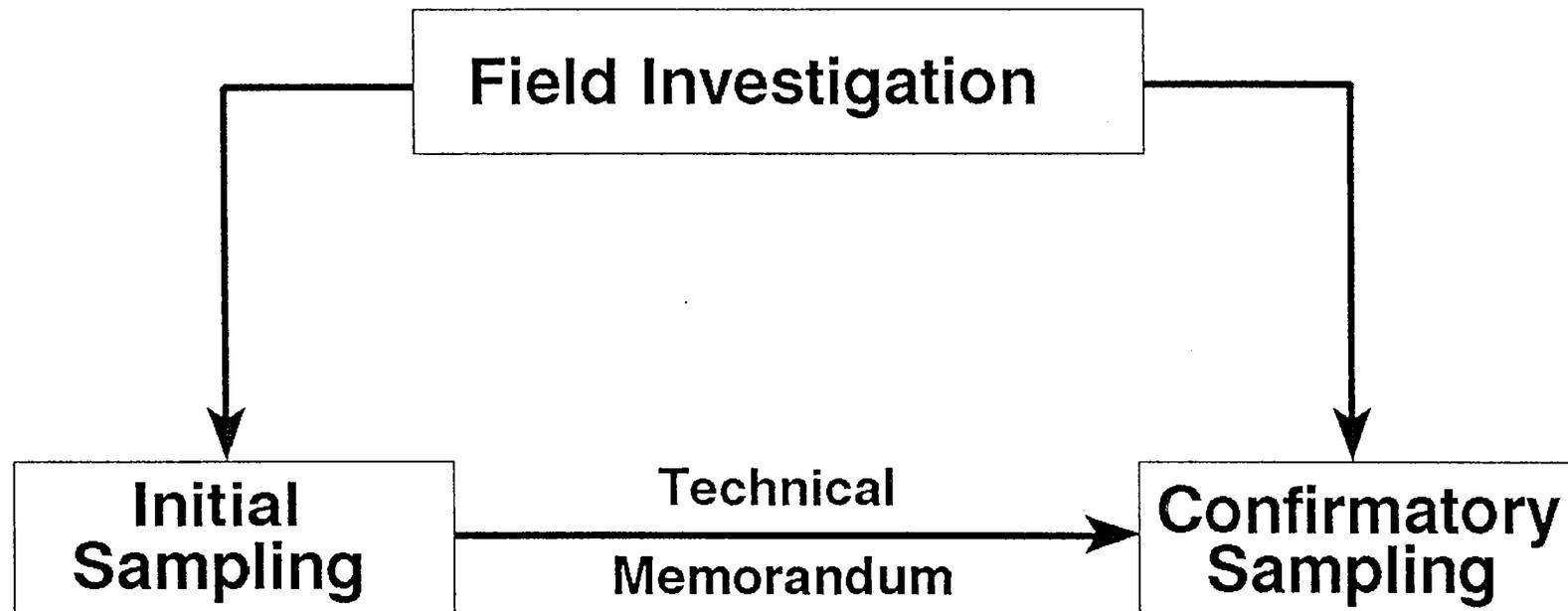


**REMEDIAL INVESTIGATION/
FEASIBILITY STUDY WORKPLAN
OPERABLE UNITS 3,4,5, AND 6**

**NAS CECIL FIELD
JACKSONVILLE, FLORIDA**

CDM/FIG2-2/5-12-94

Work Plan Approach



TIME (Million years ago)	STRATIGRAPHIC UNITS	APPROXIMATE ELEVATION (Feet, Mean Sea Level)
1.8	UNDIFFERENTIATED PLEISTOCENE AND RECENT SEDIMENTS	50
5	Nashua Formation	
	HAWTHORN Coosawatchie Formation (Charlton Member)	20 (20 to -10)
	Marks Head Formation Penny Farms Formation	-110 -200
24		
	OCALA Limestone AVON PARK Formation OLDSMAR Formation	-350 -700 < -1000
55		
	CEDAR KEY	< -1200
62		-1700

SOURCE: FLORIDA GEOLOGIC SURVEY. Special Publication No. 32, 1991; and Scott, ~1989

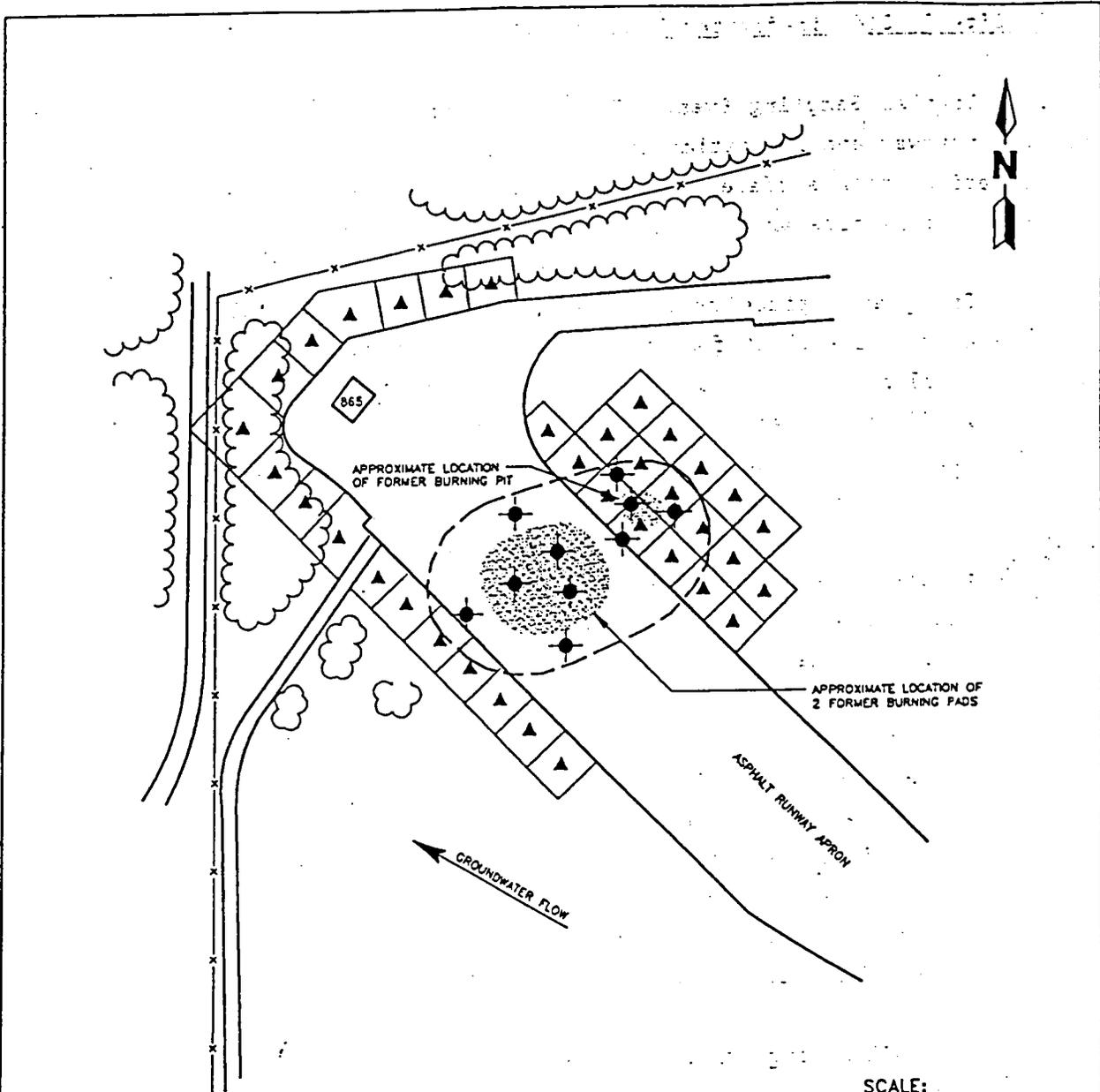
**GENERAL STRATIGRAPHY
AT NAS CECIL FIELD**



**REMEDIAL INVESTIGATION/
FEASIBILITY STUDY WORKPLAN
OPERABLE UNITS 3,4,5, AND 6**

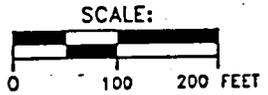
**NAS CECIL FIELD
JACKSONVILLE, FLORIDA**

CDM/FIC2-14/5-12-94



LEGEND

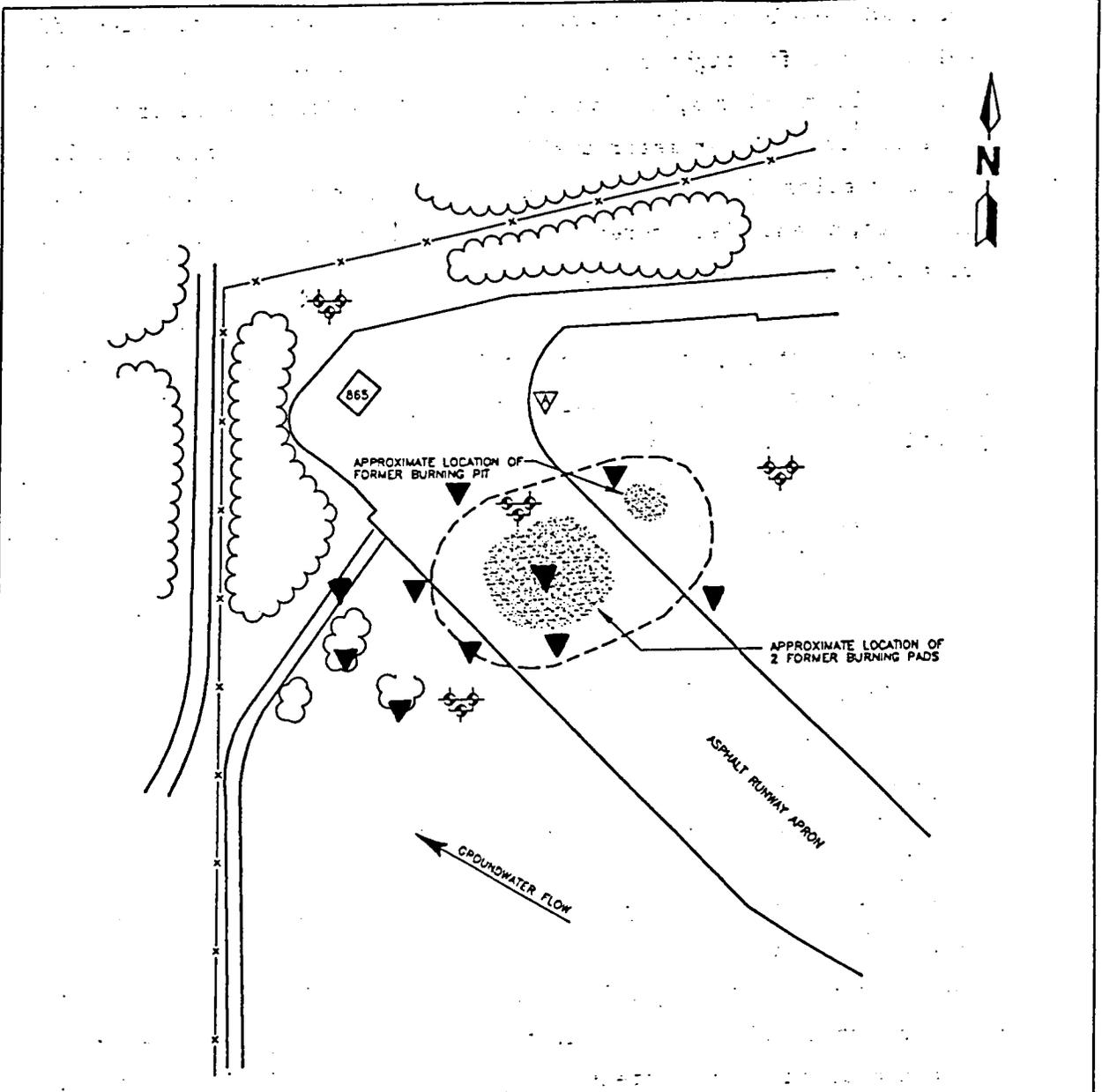
- ▲ PROPOSED SURFACE SOIL SAMPLE LOCATION
- ⊙ PROPOSED SOIL BORING LOCATION
- - - APPROXIMATE SITE BOUNDARY
- ☁ TREELINE
- x- FENCE



**PROPOSED SITE 7
SOIL SAMPLING LOCATIONS**

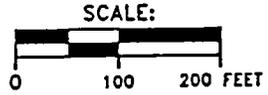


**REMEDIAL INVESTIGATION/
FEASIBILITY STUDY WORKPLAN
OPERABLE UNITS 3,4,5, AND 6
NAS CECIL FIELD
JACKSONVILLE, FLORIDA**



LEGEND

- ⊕ PROPOSED MONITORING WELL LOCATION
- ▼ AQUAPROBE LOCATION
- APPROXIMATE SITE BOUNDARY
- ☁ TREELINE
- x— FENCE



PROPOSED SITE 7 GROUNDWATER SAMPLING LOCATIONS



**REMEDIAL INVESTIGATION/
FEASIBILITY STUDY WORKPLAN
OPERABLE UNITS 3,4,5, AND 6
NAS CECIL FIELD
JACKSONVILLE, FLORIDA**

CDM/FIG4-2/5-12-94

Sampling and Analysis Program Summary for Site 7

Remedial Investigation/Feasibility Study Workplan
Operable Units 3, 4, 5, and 6
NAS Cecil Field, Jacksonville, Florida

INITIAL SAMPLING EVENT

Sample Descriptor	No. of Samples	DQO Level	Chemical Analysis						
			TCL Parameters	TAL Parameters	Onsite Analysis for PAHs (USEPA Method 8270)	Onsite Analysis for VOCs and Naphthalene (USEPA Methods 8010 and 8020 modified)	Onsite Analysis for TPH (USEPA Method 418.1)	Offsite Analysis for Lead (USEPA Method 6010)	
Surface Soil	45	III			✓			✓	✓
Surface Soil	7	IV	✓	✓				✓	✓
Subsurface Soil	30 ¹	III			✓		✓	✓	✓
Subsurface Soil	25 ²	IV	✓	✓					
Aquaprobe™	10 ²	III					✓	✓	
Groundwater	12	IV	✓	✓					

¹ Estimated based on three subsurface soil samples per borehole.

² Assumes all soil boring samples sent to the offsite lab will be subsurface soil samples.

³ Initial estimate only based on five Aquaprobe™ sampling locations and five samples each. Other Aquaprobe™ samples may be collected, as necessary, to preliminarily define the extent of groundwater contamination.

Notes: DQO = Data Quality Objective.

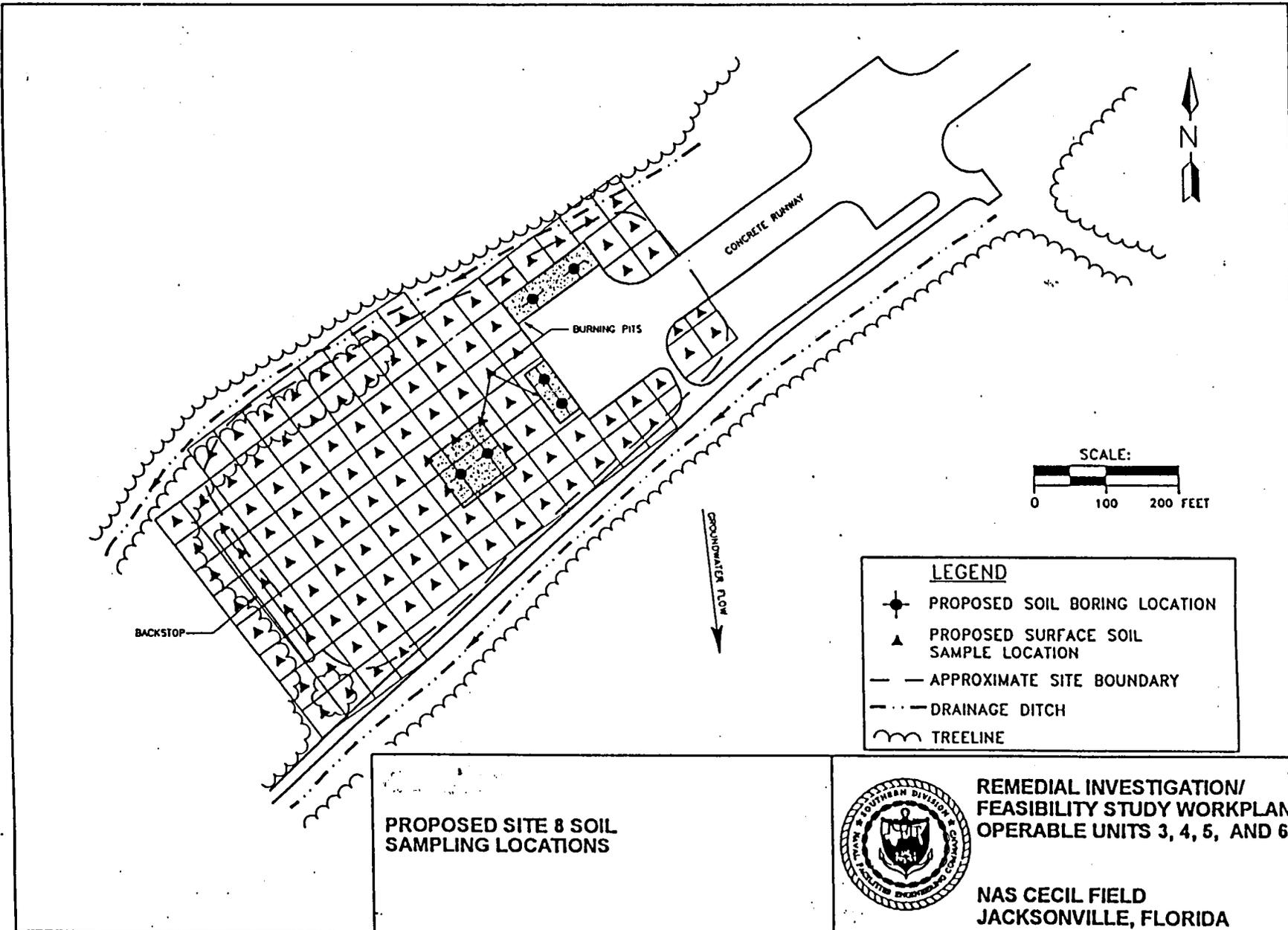
TCL = Target Compound List (includes volatile organics, extractable organics, pesticides, and polychlorinated biphenyls [PCBs]).

TAL = Target Analyte List (includes metals).

PAH = polyaromatic hydrocarbon.

VOC = volatile organic compound.

USEPA = U.S. Environmental Protection Agency.

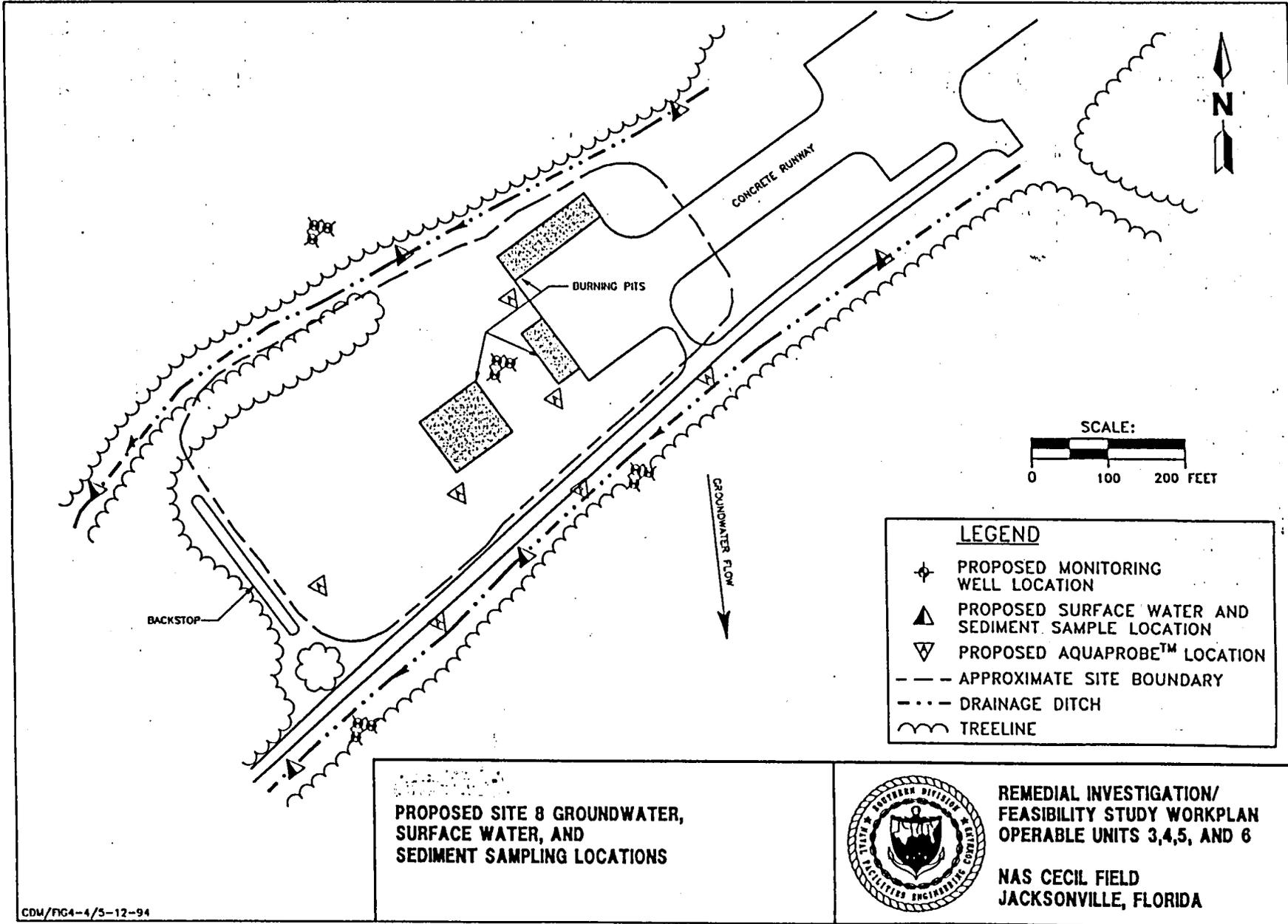


PROPOSED SITE & SOIL SAMPLING LOCATIONS



**REMEDIAL INVESTIGATION/
FEASIBILITY STUDY WORKPLAN
OPERABLE UNITS 3, 4, 5, AND 6**

**NAS CECIL FIELD
JACKSONVILLE, FLORIDA**



CDM/FG4-4/5-12-94

Slide 13

Sampling and Analysis Program Summary for Site 8

Remedial Investigation/Feasibility Study Workplan
Operable Units 3, 4, 5, and 6
NAS Cecil Field, Jacksonville, Florida

INITIAL SAMPLING EVENT

Sample Descriptor	No. of Samples	DQO Level	Chemical Analysis					
			TCL Parameters	TAL Parameters	Onsite Analysis for PAHs (USEPA Method 8270)	Onsite Analysis for VOCs and Naphthalene (modified USEPA Methods 8010 and 8020)	Onsite Analysis for TPH (USEPA Method 418.1)	Offsite Analysis for Lead (USEPA Method 6010)
Surface Soil	117	III			✓		✓	✓
Surface Soil	22	IV	✓	✓				
Shallow Subsurface Soil	10	IV	✓	✓				
Subsurface Soil	18 ¹	III			✓	✓	✓	✓
Subsurface Soil	6 ²	IV	✓	✓				
Surface Water	6	IV	✓	✓				
Sediment	6	IV	✓	✓				
Aquaprobe	35 ³	III				✓	✓	
Groundwater	12	IV	✓	✓				

¹ Estimated based on three subsurface soil samples per borehole.

² Assumes all soil borings sent to the offsite lab will be subsurface soil samples.

³ Initial estimate only based on seven Aquaprobe™ sampling locations and five samples each. Other Aquaprobe™ samples may be collected, as necessary, to preliminarily define the extent of groundwater contamination.

Notes: DQO = Data Quality Objective.

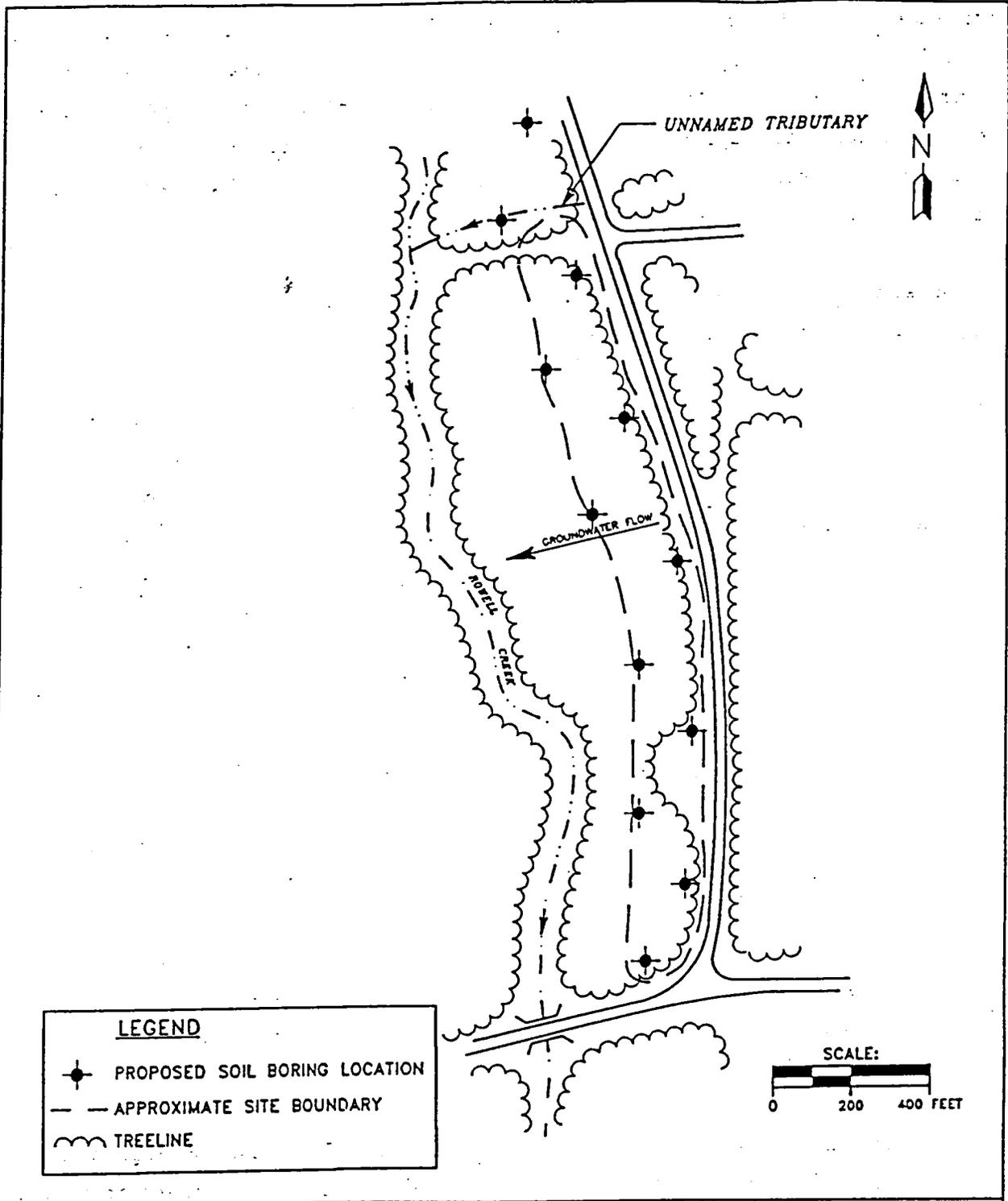
TCL = Target Compound List (includes volatile organics, extractable organics, pesticides, and polychlorinated biphenyls [PCBs]).

TAL = Target Analyte List (includes metals).

PAH = polyaromatic hydrocarbon.

VOC = volatile organic compound.

USEPA = U.S. Environmental Protection Agency.



LEGEND

- PROPOSED SOIL BORING LOCATION
- - - APPROXIMATE SITE BOUNDARY
- ~ TREELINE

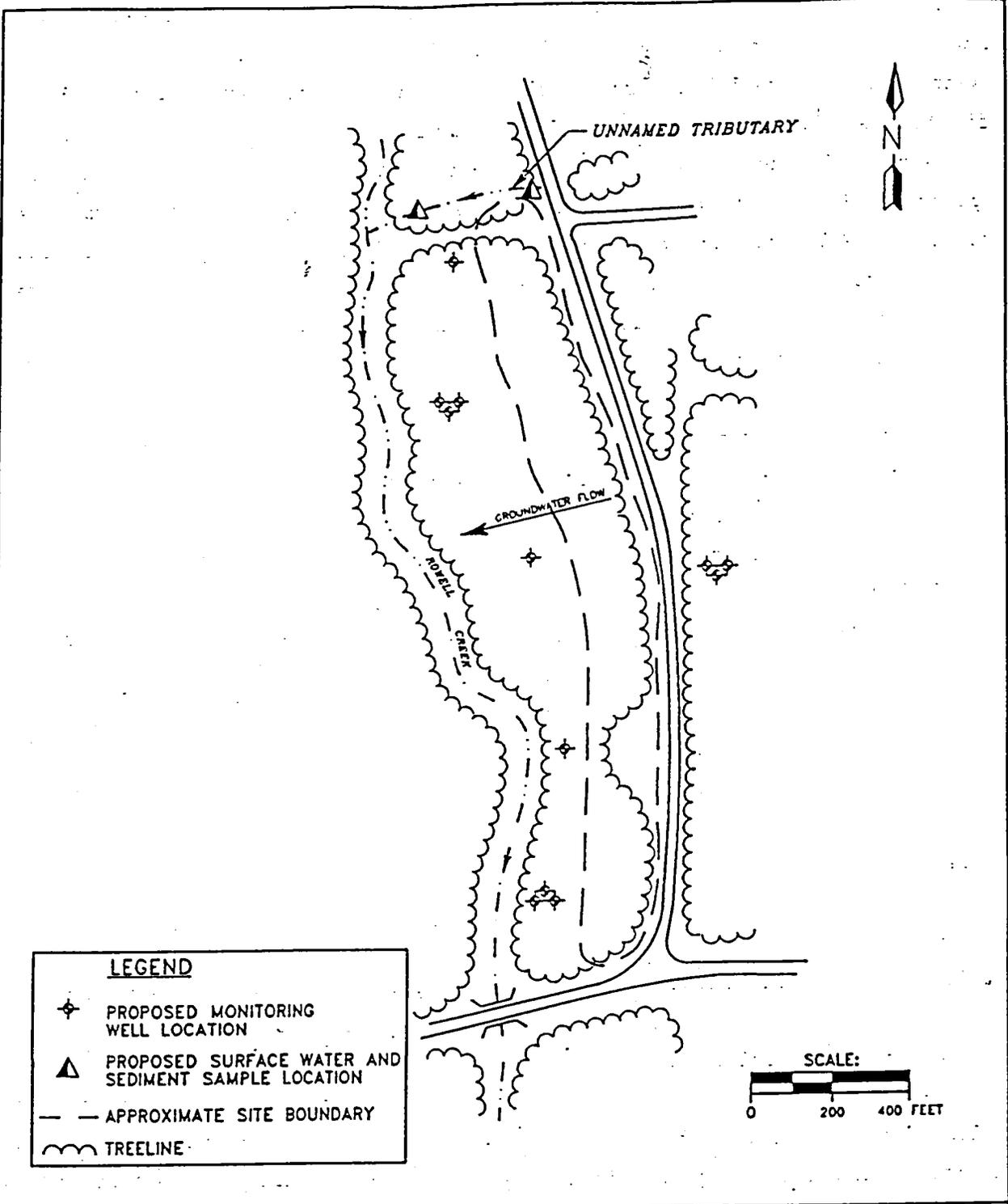
SCALE:
0 200 400 FEET

PROPOSED SITE 10 SOIL SAMPLING LOCATIONS



**REMEDIAL INVESTIGATION/
FEASIBILITY STUDY WORKPLAN
OPERABLE UNITS 3, 4, 5, AND 6**

**NAS CECIL FIELD
JACKSONVILLE, FLORIDA**



**PROPOSED SITE 10 GROUNDWATER,
SURFACE WATER, AND SEDIMENT
SAMPLING LOCATIONS**



**REMEDIAL INVESTIGATION/
FEASIBILITY STUDY WORKPLAN
OPERABLE UNITS 3, 4, 5, AND 6**

**NAS CECIL FIELD
JACKSONVILLE, FLORIDA**

Sampling and Analysis Program Summary for Site 10

Remedial Investigation/Feasibility Study Workplan
Operable Units 3, 4, 5, and 6
NAS Cecil Field, Jacksonville, Florida

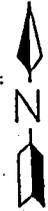
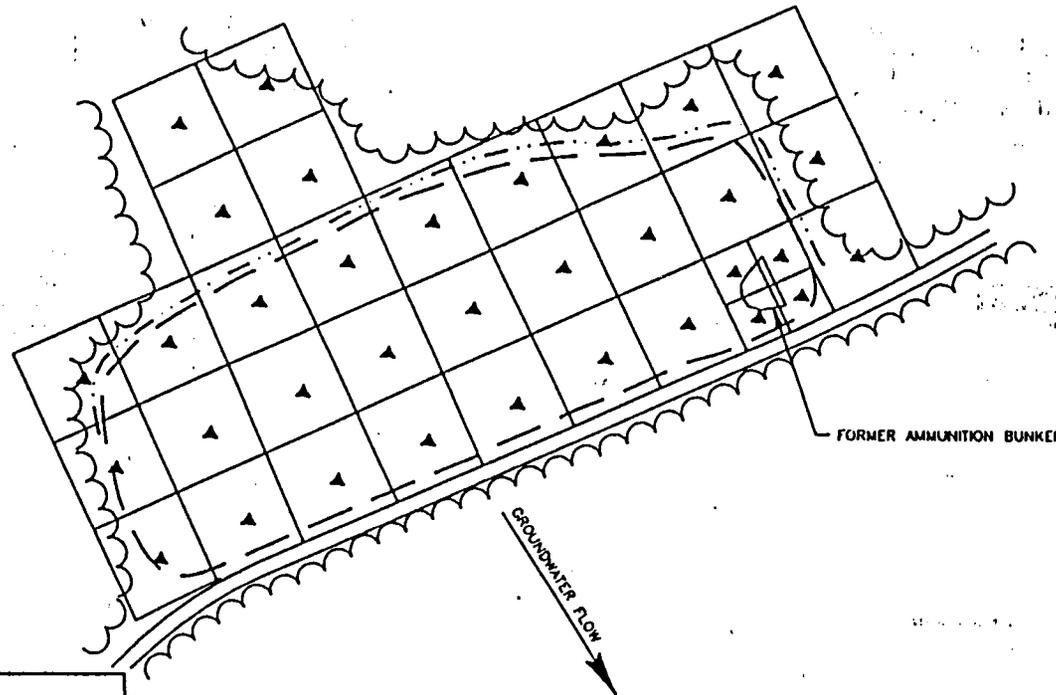
INITIAL SAMPLING EVENT

Sample Descriptor	Number of Samples	DQO Level	Chemical Analysis	
			TCL Parameters	TAL Parameters
Surface Soil	12	IV	✓	✓
Subsurface Soil	12	IV	✓	✓
Surface Water	2	IV	✓	✓
Sediment	2	IV	✓	✓
Groundwater	12	IV	✓	✓

Notes: DQO = Data Quality Objective.

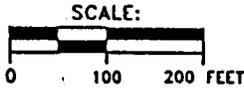
TCL = Target Compound List (includes volatile organics, extractable organics, pesticides, and polychlorinated biphenyls [PCBs]).

TAL = Target Analyte List (includes metals).



LEGEND

- ▲ PROPOSED SURFACE SOIL SAMPLE LOCATION
- - - APPROXIMATE SITE BOUNDARY
- · - · - DRAINAGE DITCH
- ~~~~~ TREELINE

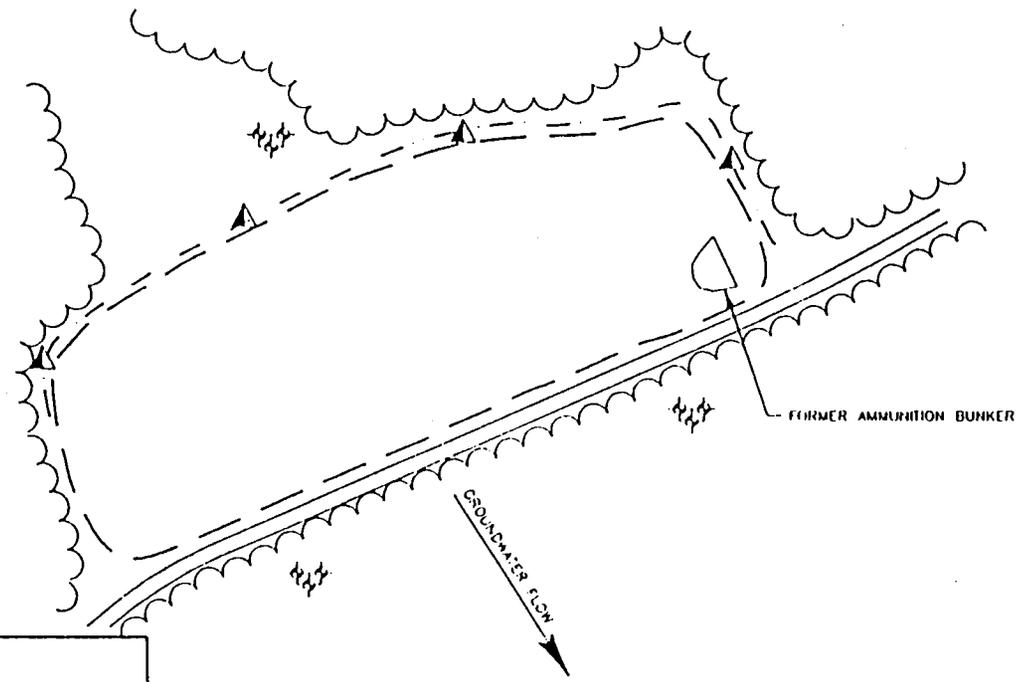
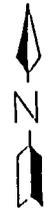


PROPOSED SITE 14 SOIL SAMPLING LOCATIONS



**REMEDIAL INVESTIGATION/
FEASIBILITY STUDY WORKPLAN
OPERABLE UNITS 3, 4, 5, AND 6**

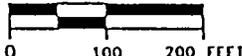
**NAS CECIL FIELD
JACKSONVILLE, FLORIDA**



LEGEND

-  PROPOSED MONITORING WELL LOCATION
-  PROPOSED SURFACE WATER AND SEDIMENT SAMPLE LOCATION
-  APPROXIMATE SITE BOUNDARY
-  DRAINAGE DITCH
-  TREELINE

SCALE:



PROPOSED SITE 14 GROUNDWATER,
SURFACE WATER, AND SEDIMENT
SAMPLING LOCATIONS



REMEDIAL INVESTIGATION/
FEASIBILITY STUDY WORKPLAN
OPERABLE UNITS 3, 4, 5, AND 6

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

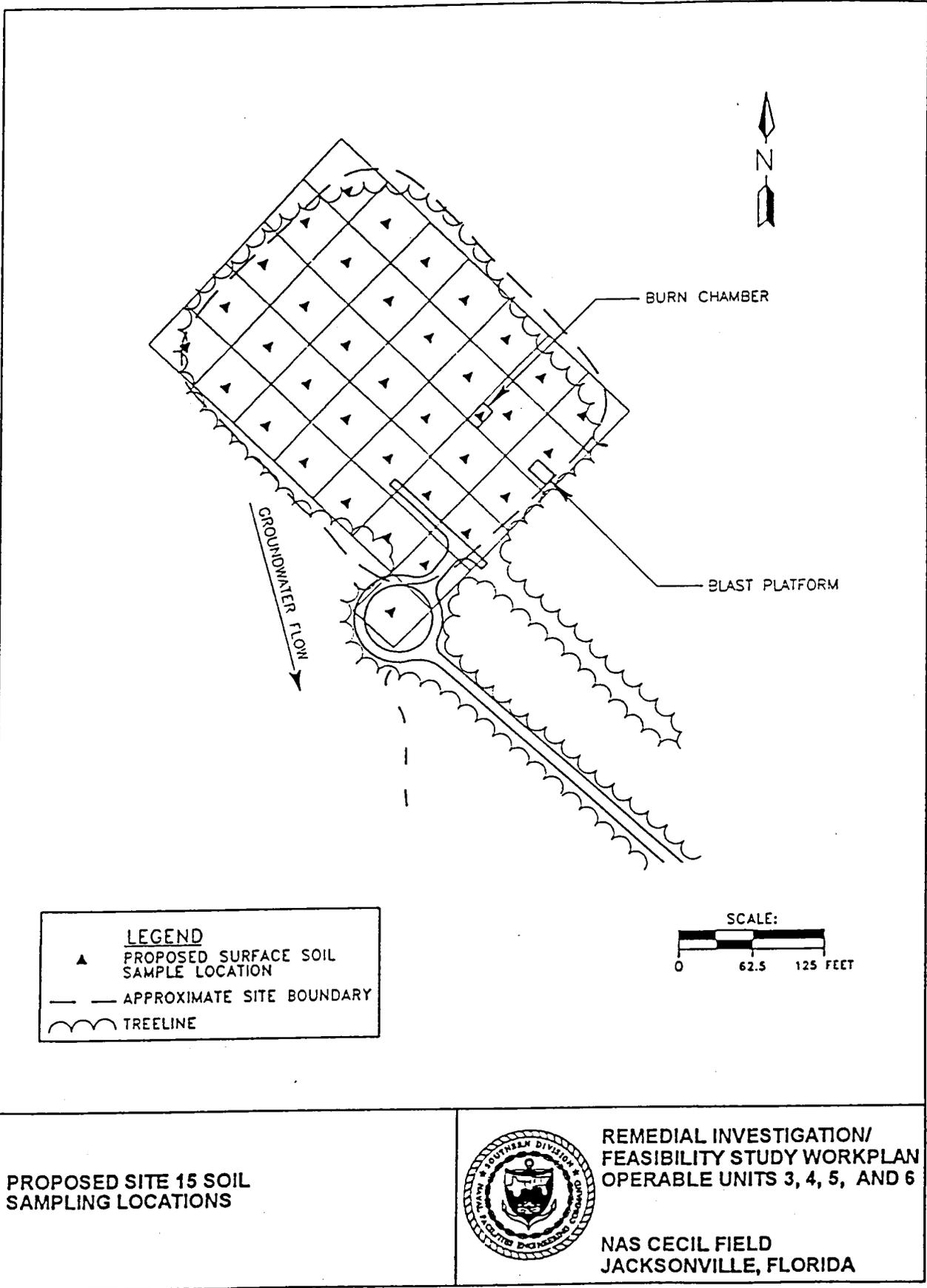
Sampling and Analysis Program Summary for Site 14

Remedial Investigation/Feasibility Study Workplan
Operable Units 3, 4, 5, and 6
NAS Cecil Field, Jacksonville, Florida

INITIAL SAMPLING EVENT

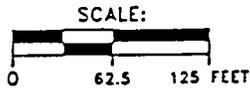
Sample Descriptor	Number of Samples	DOQ Level	Chemical Analysis		
			TCL Parameters	TAL Parameters	Nitroaromatics (USEPA Method 8330)
Surface Soil	34	IV	✓	✓	✓
Surface Water	4	IV	✓	✓	✓
Sediment	4	IV	✓	✓	✓
Groundwater	9	IV	✓	✓	✓

Notes: DOQ = Data Quality Objective.
TCL = Target Compound List (includes volatile organics, extractable organics, pesticides, and polychlorinated biphenyls [PCBs]).
TAL = Target Analyte List (includes metals).



LEGEND

- ▲ PROPOSED SURFACE SOIL SAMPLE LOCATION
- - - APPROXIMATE SITE BOUNDARY
- ~~~~ TREELINE

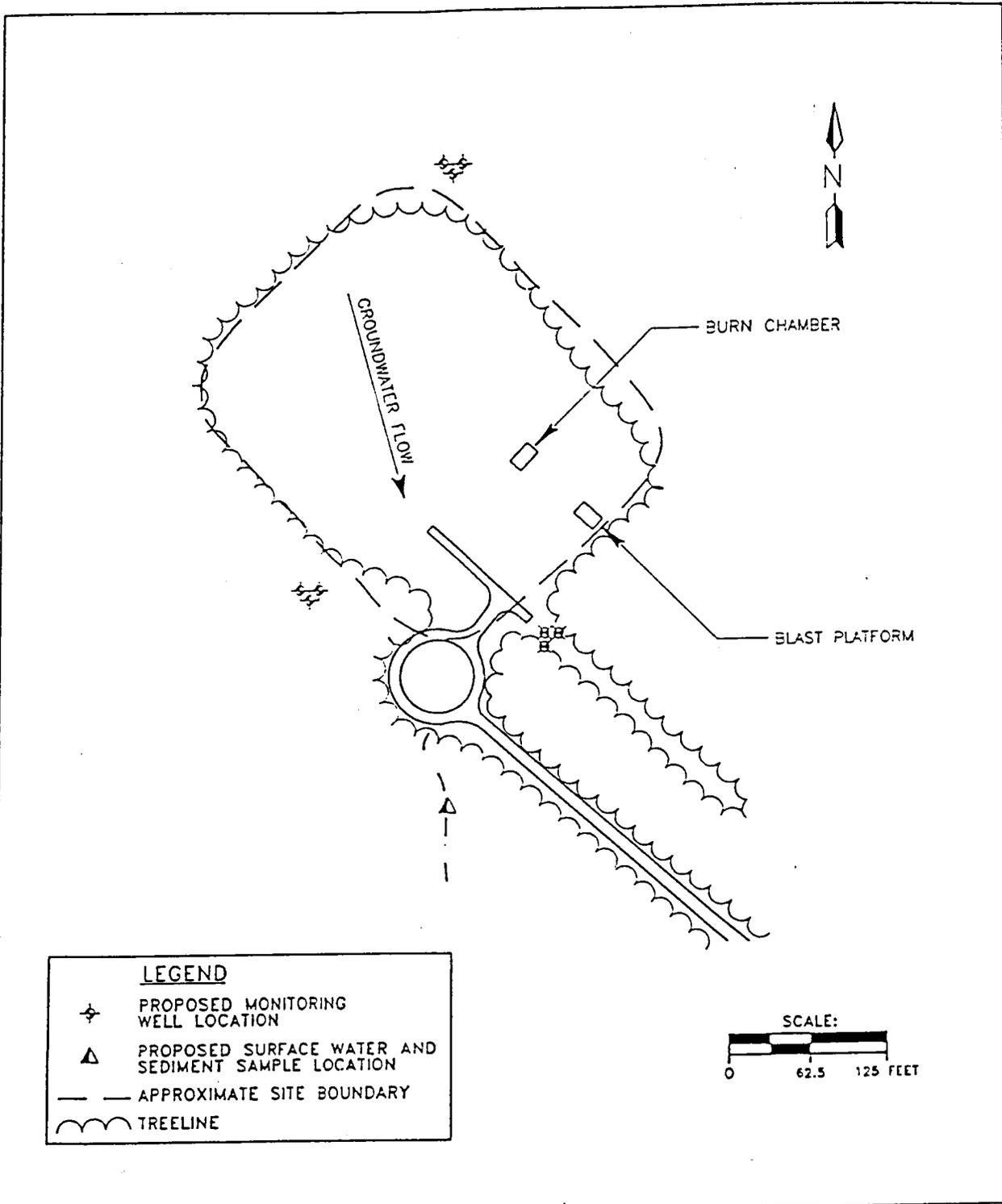


PROPOSED SITE 15 SOIL SAMPLING LOCATIONS



REMEDIAL INVESTIGATION/
FEASIBILITY STUDY WORKPLAN
OPERABLE UNITS 3, 4, 5, AND 6

NAS CECIL FIELD
JACKSONVILLE, FLORIDA



**PROPOSED SITE 15 GROUNDWATER,
SURFACE WATER, AND SEDIMENT
SAMPLING LOCATIONS**



**REMEDIAL INVESTIGATION/
FEASIBILITY STUDY WORKPLAN
OPERABLE UNITS 3, 4, 5, AND 6**

**NAS CECIL FIELD
JACKSONVILLE, FLORIDA**

Sampling and Analysis Program Summary for Site 15

Remedial Investigation/Feasibility Study Workplan
Operable Units 3, 4, 5, and 6
NAS Cecil Field, Jacksonville, Florida

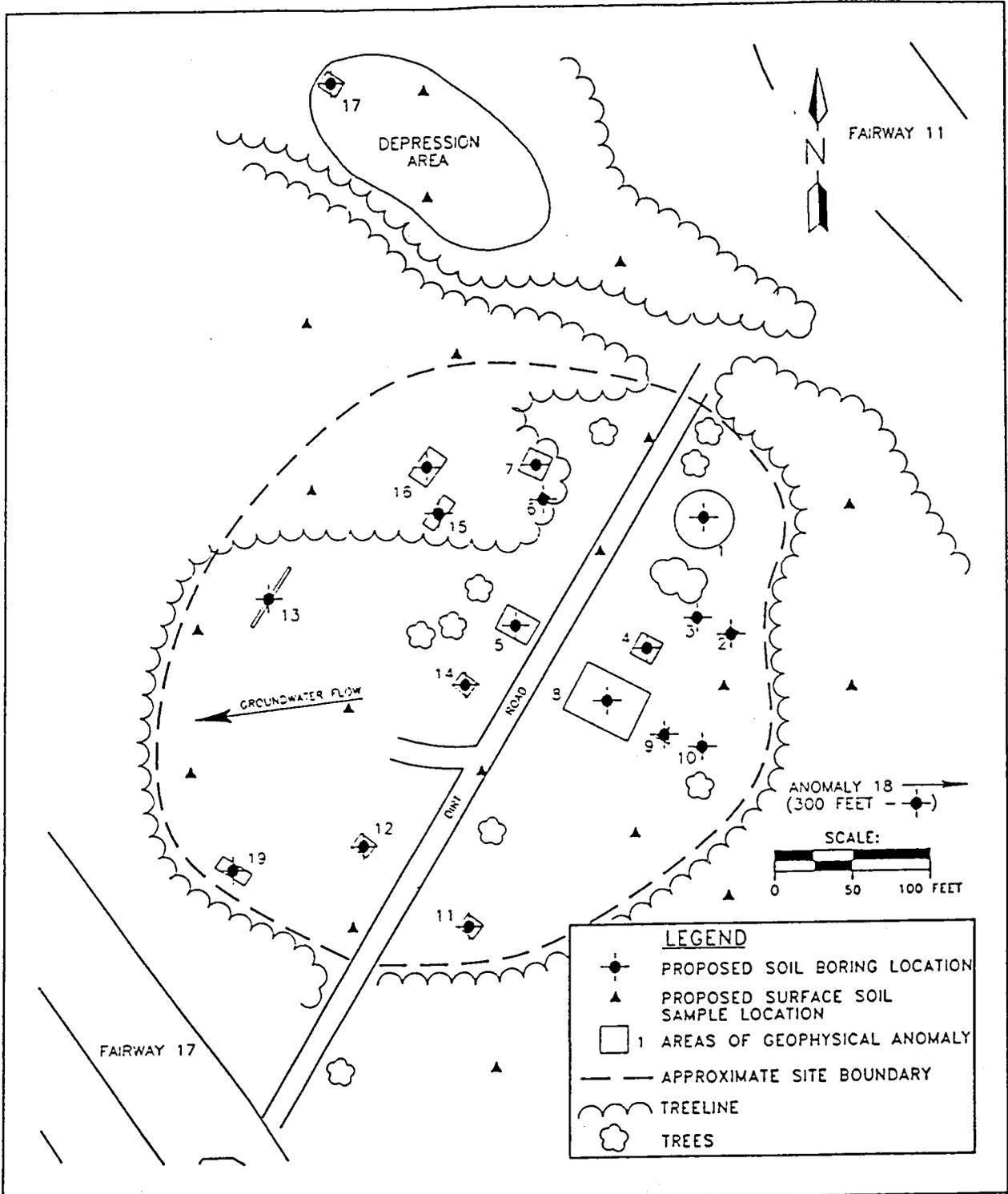
INITIAL SAMPLING EVENT

Sample Descriptor	Number of Samples	DQO Level	Chemical Analysis		
			TCL Parameters	TAL Parameters	Nitroaromatics (USEPA Method 8330)
Surface Soil	37	IV	✓	✓	✓
Surface Water	1	IV	✓	✓	✓
Sediment	1	IV	✓	✓	✓
Groundwater	9	IV	✓	✓	✓

Notes: DQO = Data Quality Objective.

TCL = Target Compound List (includes volatile organics, extractable organics, pesticides, and polychlorinated biphenyls [PCBs]).

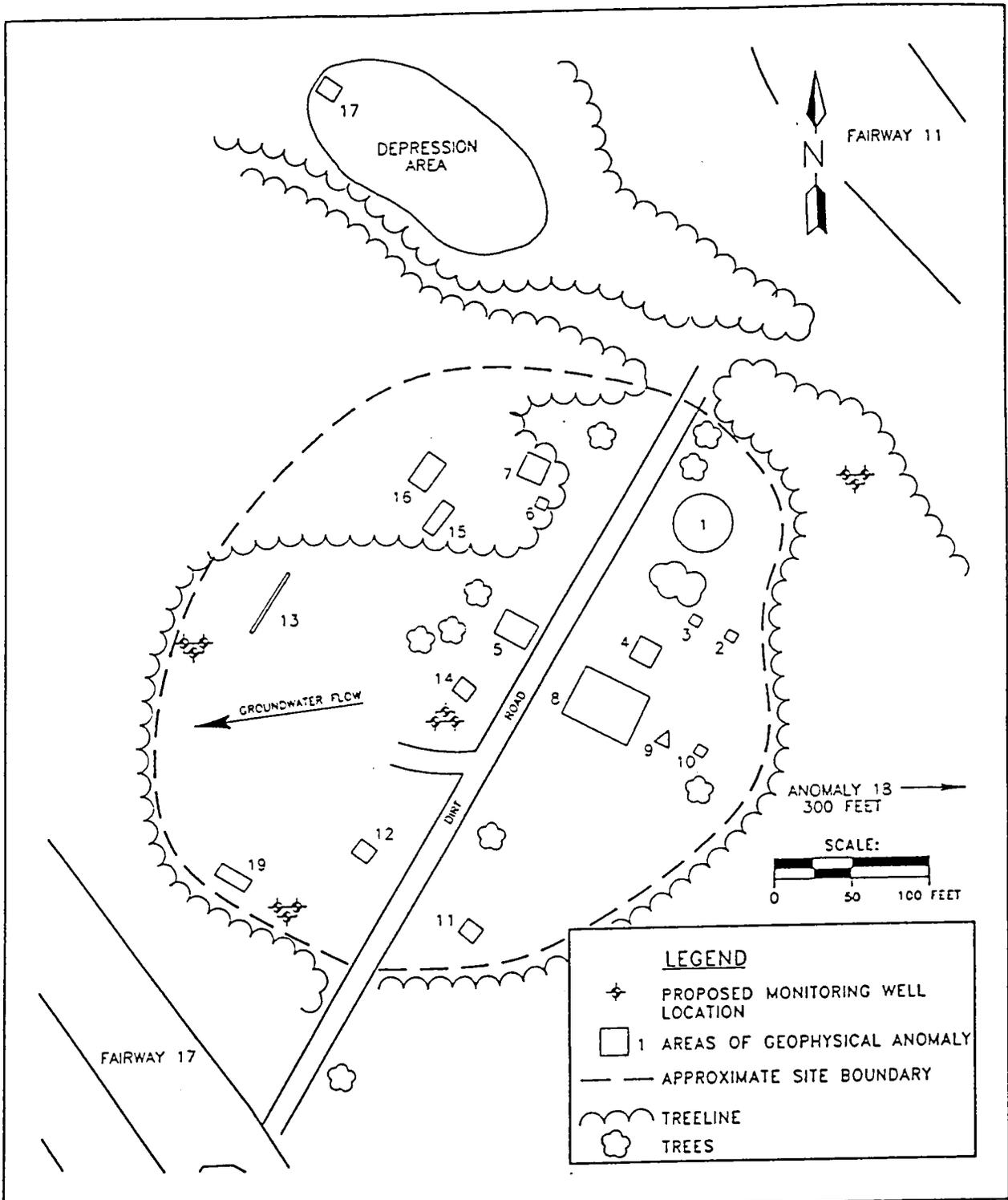
TAL = Target Analyte List (includes metals).



PROPOSED SITE 11 SOIL SAMPLING LOCATIONS



REMEDIAL INVESTIGATION/
 FEASIBILITY STUDY WORKPLAN
 OPERABLE UNITS 3, 4, 5, AND 6
 NAS CECIL FIELD
 JACKSONVILLE, FLORIDA



PROPOSED SITE 11 GROUNDWATER SAMPLING LOCATIONS



**REMEDIAL INVESTIGATION/
FEASIBILITY STUDY WORKPLAN
OPERABLE UNITS 3, 4, 5, AND 6**

**NAS CECIL FIELD
JACKSONVILLE, FLORIDA**

Sampling and Analysis Program Summary for Site 11

Remedial Investigation/Feasibility Study Workplan
Operable Units 3, 4, 5, and 6
NAS Cecil Field, Jacksonville, Florida

INITIAL SAMPLING EVENT

Sample Descriptor	Number of Samples	DQO Level	Chemical Analysis		
			TCL Parameters	TAL Parameters	Other Pesticides and Herbicides (USEPA Methods 8140, 8150, and 1,2-dibromo-3-chloropropane)
Surface Soil	38	IV	✓	✓	✓
Subsurface Soil	19	IV	✓	✓	✓
Groundwater	12	IV	✓	✓	✓

Notes: DQO = Data Quality Objective.
 TCL = Target Compound List (includes volatile organics, extractable organics, pesticides, and polychlorinated biphenyls [PCBs]).
 TAL = Target Analyte List (includes metals).
 USEPA = U.S. Environmental Protection Agency.

■ **Explosives:** TNT, RDX, HMX, Ammonium Picrate

■ **Associated Compounds:**

2, 4-dinitrotoluene	1,2,3-trinitrobenzene	dibenzofuran
2, 6-dinitrotoluene	1-nitropyrene	diphenylamine
2-nitronaphthalene	naphthalene	pyridene
phenol	benz-(a)-anthracene	
N-nitrosodiphenylamine		

■ **Associated Metals:**

arsenic	chromium	selenium
barium	lead	silver
cadmium	mercury	

Site 14 - Surface Soil Sampling and Analysis

- **Current Work Plan proposal**
34 full scan and nitroaromatics approximately: \$68,000

- **Using TNT and RDX immunoassay field screening kits with 20% full scan and nitroaromatic confirmation of "hot spots"**
 - 34 TNT and RDX test kits approximately: \$ 1,500
 - 20% (7) full scan and nitroaromatics approximately:

<u>\$14,000</u>
\$15,500

- **Cost Savings: \$68,000 - \$15,500 = \$52,500**

Site 15 - Surface Soil Sampling and Analysis

- **Current Work Plan proposal:**
37 full scan and nitroaromatics approximately: \$74,000

- **Using PAH and Pb field screening:**
 - **37 samples for PAH and Pb analyses approximately: \$ 5,000**
 - **20% (8) full scan and nitroaromatics approximately: \$16,000**

\$21,000

- **Cost Savings: $\$74,000 - \$21,000 = \$53,000$**