Table 6-5. Disposal Sites at Camp Lejeune Complex* (Continued Page 3 of 5)

Site No.	Site Description	Dates Used	Material Deposited	Public Works Development Map Sheet and Coordinates
33	Onslow Beach Road	Unknown	Waste oil and cinders for dust control	19, G11-12/H11-12/ I12-13/J12-13
34	Ocean Drive	Unknown	Waste oil	19, L16-17/M15-16 N14-15/O13-14 P12-13/Q10-12
35**	Camp Geiger Area Fuel Farm	1957-1958	Mogas (spill)	12, C11
36**	Camp Geiger Area Dump	Late 1940s-late 1950s	Mixed industrial and municipal solid waste	12, D13/E13
37	Camp Geiger Area Surface Dump	1950-1951	Motor parts, garbage, wood	12, D11-12
38	Camp Geiger Construction Dump	Present	Construction debris, branches	12 B10
39	Camp Geiger Construction Slab Dump	Unknown	Concrete slabs	12, B9-10/C9-10
40	Camp Geiger Area Borrow Pit	1969-	Auto parts, metal	13, D4
41**	Camp Geiger Dump	Approx. 1946-1970	Mixed industrial and municipal wastes, POL, solvents, old batteries, Mirex, ordnance	13, E2-3
42	Bldg. 705, BOO Dump	1950-1960	Trees, tree stumps, boards	23, D10
43	Agan Street Borrow Pit	Unknown	Boards, trash, WTP sludge, fiberglass	23, H6-7/I6-7
44	Jones Street Dump	1950s	Debris, cloth, boards, old paint cans	23, L6-7/M6-7
45**	Campbell Street Underground Avgas Storage and Adjacent JP Fuel Farm at Air Station	1978	Avgas, JP-4 and JP-5	23, O13-14/P13-14
46	MCAS Main Gate Dump	1958-1962	Construction and demolition debris	23, Q8-9
47	MCAS Rip-Rap Near Stick Creek	Unknown	Construction and demolition debris	23, B11

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Table 6-5. Disposal Sites at Camp Lejeune Complex* (Continued Page 4 of 5)

Site No.	Site Description	Dates Used	Material Deposited	Public Works Development Map Sheet and Coordinates
48**	MCAS Mercury Dumpsite	1956-1966	Dumping of approximately 1 gal. mercury yearly for approximately 10 years	23, D17/E17
49	MCAS Suspected Minor Dump	Unknown	Paint cans	23, C18-19
50	MCAS Small-Craft Berthing Rip-Rap	Unknown	Demolition debris, asphalt, concrete	23, A19-20/B19-20
51	MCAS Football Field	Approx. 1967-1968	Paint cans, hydraulic fluid cans	23, C21-22/D21-22
52	MCAS Direct Refuel Depot	1971	Aviation fuel spill, JP fuels	23, L19-20/M19-20
53	MCAS Warehouse Building Area. Oiled Roads	1970-1975	Crankcase, waste oils, JP fuels, paint thinners	23, H-Q23-26
54**	Crash Crew Fire Training Burn Pit	1950s-Present	Contaminated fuels, oil spills	23, O24-25/P24-25
55	Air Station East Perimeter Dump	1950s-1960	Barrels, tires, trash, metal planking, telephone poles	23, C29-30
56	MCAS Oiled Roads to Marina	1975-	Crankcase and waste oils, contaminated fuels	23, C28-30
57	Runway 36 Dump	Unknown	Debris	23, E-G30-32
58	MCAS Tank Training Area	Unknown	Tank parts, miscellaneous trash	23, D-G33-39
59	MCAS Infantry Training Area	1950s	Stumps	23, P-T26-30
60	Explosive Ordnance Disposal K-326 Range	1974-Present	Burn pits for explosives	15, O9
61	Rhodes Point Road Dump	Unknown	Bivouac waste	15, I9
62	Race Course Area Dump	Unknown	Bivouac waste	14, D8
63	Vernon Road Dump	Unknown	Bivouac wastes	14, H5
64	Marines Road-Sneads Ferry Road - Mogas Spill	1978	Mogas spill Feb. 28, 1975	17, I15/J15

Table 6-5. Disposal Sites at Camp Lejeune Complex* (Continued Page 5 of 5)

Site No.	Site Description	Dates Used	Material Deposited	Public Works Development Map Sheet and Coordinates
65	Engineer Area Dump	Pre-1958 to 1972	Burn area dump, construction debris	17, K16
66	AMTRAC Landing Site and Storage Area	1950s-Present	Oil spills, POL, battery acid	17, J8
67	Engineers TNT Burn Site	1951	TNT disposal	23, A19-20/B19-20
68**	Rifle Range Dump	1942-1972	Solvents, construction materials, WTP sludge	16, H6-8/I6-7
69**	Rifle Range Chemical Dump	Mid 1950s-1976	Chemical agent test kits, Malathion, DDT, PCBs	16, L14-15/M14-15
70	Oak Grove Field Surface Dump	1940s-1950s	Mess hall wastes, cans, bottles, old paint cans	24, H2/I2
71	Oak Grove Buried Dump	1940s-1950s	Garbage, cans and bottles	24, L1
72	Oak Grove Coal Pile	1940s	Coal storage use for heating living quarters	24, F6
73**	Courthouse Bay Liquids Disposal Area	Late 1940s-mid-1970s	Waste battery acid, POL	17, I11-12
74**	Mess Hall Grease Disposal Area	1950-early 1960s	Pesticides, PCBs	5, N13/O14
75**	MCAS Basketball Court Site	Early 1950s	Training agents (CN, CNC, CNB, and/or CNS)	23, O8-9/P8-9
76**	MCAS Curtis Road Site	1949	Training agents (CN, CNC, CNB, and/or CNS)	23, L10/M10/N10

* Site Nos. 1-69 and 73-76 are shown on Figure 2-1; Site Nos. 70-72 are shown on Figure 6-36.
** Sites recommended for Confirmation Studies.

Source: WAR, 1982.

Site No.: 1

Name: French Creek Liquids Disposal Area.

Location: PWDM Coordinates 11, C7/D7; on both sides of Main Service Road at the western portion of the Gun Park Area and Force Troops Complex.

Figures and Photos: 2-1, 6-2, 6-3

Size: Area estimated at 7 to 8 acres (total) for both areas

Previously Reported: No

Activity: These two areas were used for disposal of vehicle fluids.

Materials Involved: Waste motor oil, waste hydraulic fluid, and used battery acid

Quantity: One estimate for oil and hydraulic fluids was 5,000 to 20,000 gallons; for used battery acid, 1,000 to 10,000 gallons. See comments below.

When: Late 1940s to mid-1970s

Comments: This area has been used by many different Marine organizations over three decades. These groups included motor transportation, armored personnel carriers, tank battalions, and self-propelled guns. Liquids waste disposal at this site was similar to practices at Courthouse Bay (Site No. 73). The transient nature of the units assigned to this area make it difficult to more accurately estimate waste quantities. Based on Courthouse Bay data, estimated POL quantity is probably low if the estimated waste acid volume is in the correct range. A potable water well is located within about 100 yards and between these disposal areas.

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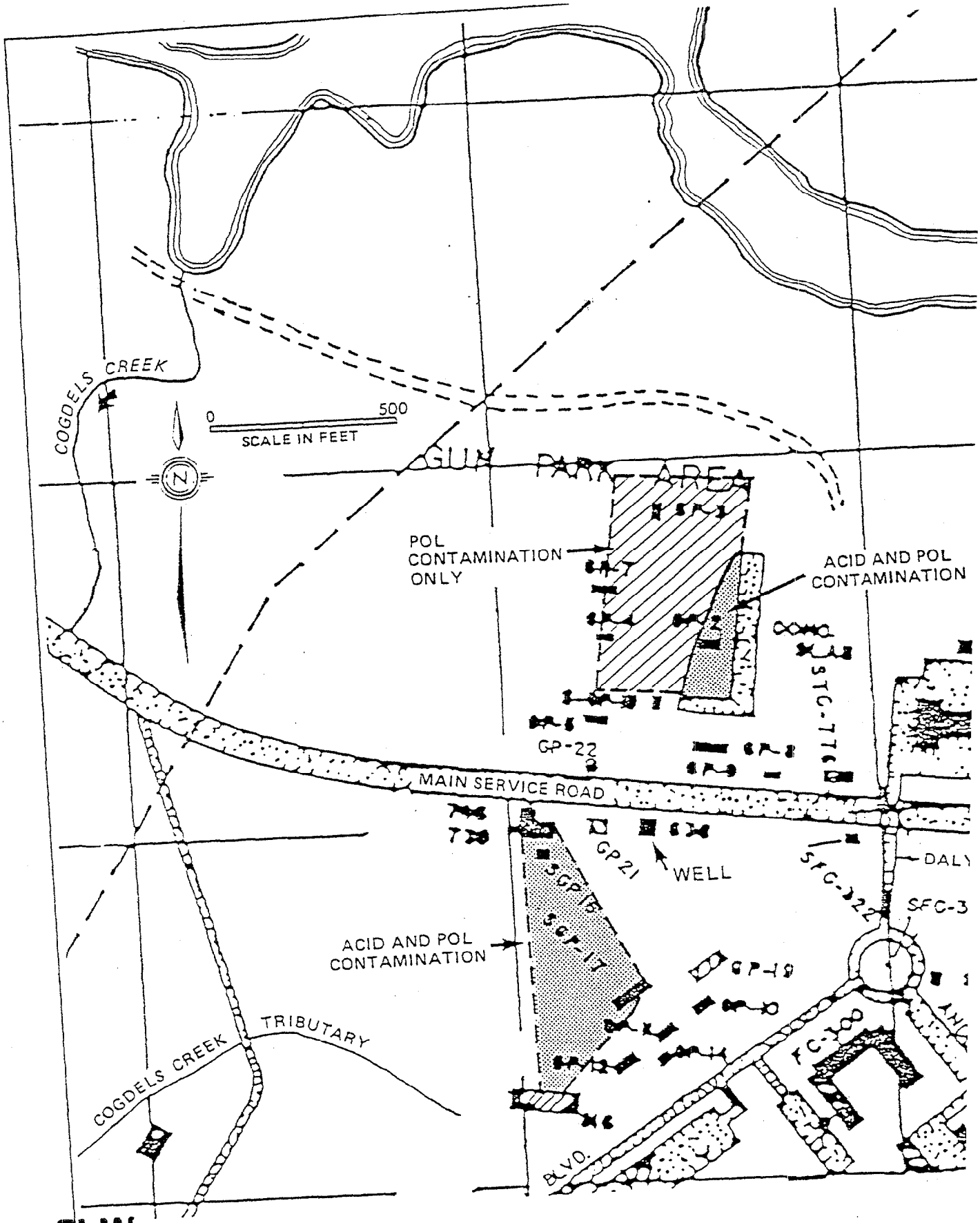

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FIGURE 6–2
Detail of Site No. 1, French Creek Liquids Disposal Area

SOURCE: BASE PUBLIC WORKS DEVELOP!
SHEET 11 OF 24, JUNE 30, 1979

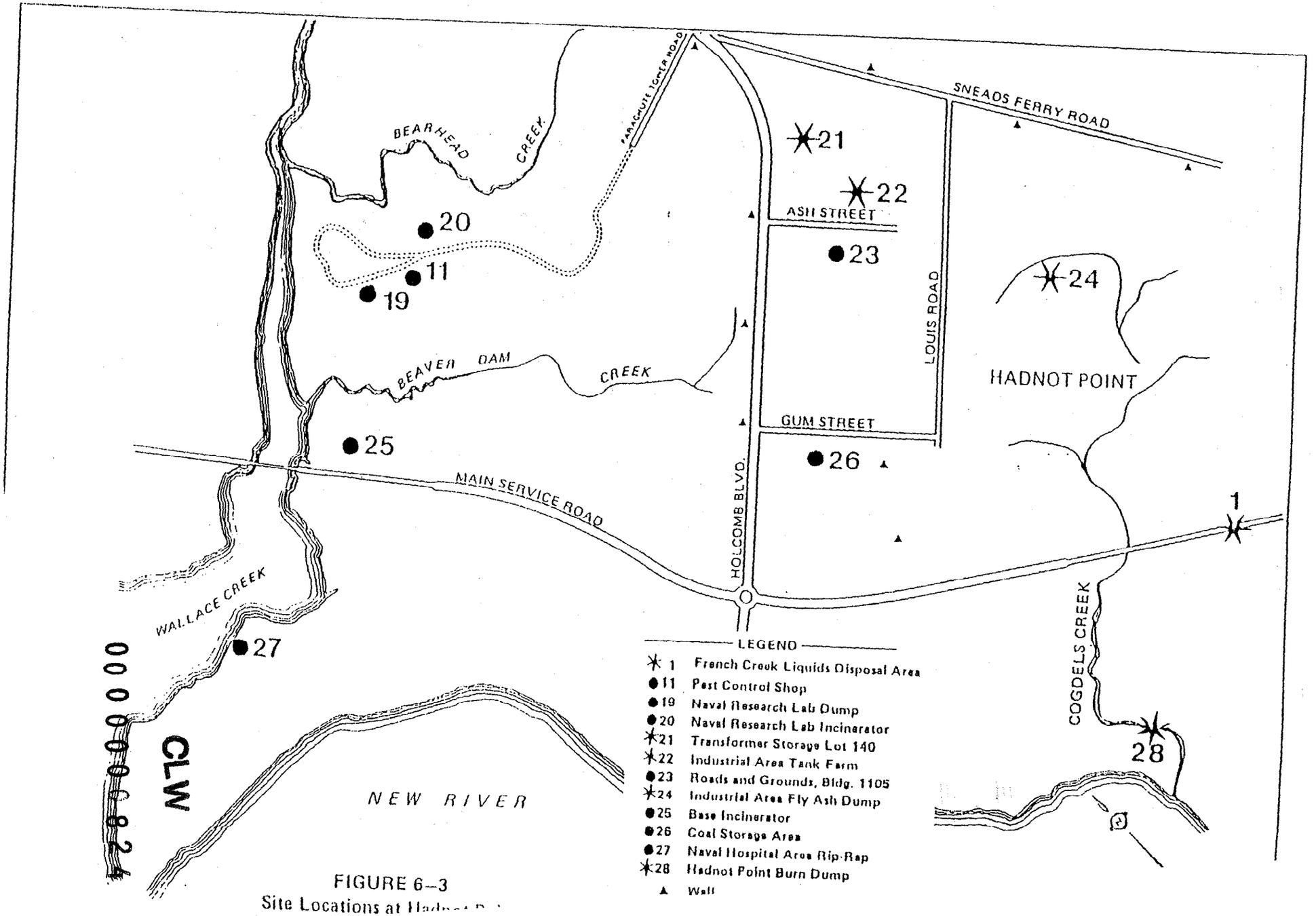

FIGURE 6–3
Site Locations at Hadnot P

Site No.: 2

Name: Former Nursery/Day-Care Center*

Location: PWDM Coordinates 5, K10; Building 712 on Holcomb Boulevard at Brewster Boulevard.

Figures and Photos: 2-1, 6-4, 6-5, 6-6

Size: See comments section.

Previously Reported: No

Activity: Building 712 first was used for pesticide storage and mixing; later as a children's day-care center.

Materials Involved: Chlordane, DDT, Diazinon, Dieldrin, Lindane, Malathion, 2,4-D, 2,4,5-T, Silvex, Dalapon

Quantity: Contamination would have occurred as a result of small spills, washout, and excess disposal. During 15-year use, it is reasonable to assume several gallons per year were involved. Therefore, estimated quantity involved is on the order of 100 to 500 gallons of various strength liquids. Solid residues in cracks and crevasses may total 1 to 5 pounds. Caution: Quantity estimates are not based on reliable data and are provided for order of magnitude guidance only. Disposal to creek is undocumented.

When: 1945 to 1958

Comments: In late 1957 or 1958, pesticide storage and mixing were moved to Building 1105. Chemical use is reported to have been: Chlordane--100 gallons of 40-percent powder per year; DDT--750 to 1,000 gallons per day of 5- to 15-percent material; Diazinon--25 gallons per month; Dieldrin--less than 100 pounds per year; Lindane--less than 10 gallons of 1-percent material per year; Malathion--100 gallons per year; Silvex (2,4,5-TP)--stored but not used; 2,4,5-T--50 gallons per year--used for 1 year only. The contaminated areas are the fenced playground, approximately 6,300 square feet; the mixing pad covering approximately 100 square feet; the wash pad, approximately 225 square feet; and possibly, the railroad tracks drainage ditch that is a tributary of Overs Creek. Contamination of groundwater or movement of pesticides in groundwater or surface water is as yet undefined.

* Since the IAS team on-site visit, the Nursery/Day-Care Center has been relocated. Table 2-1 shows soil pesticide levels around Building 712. Sampling locations are indicated on Figure 6-4. More testing has been performed at this site.

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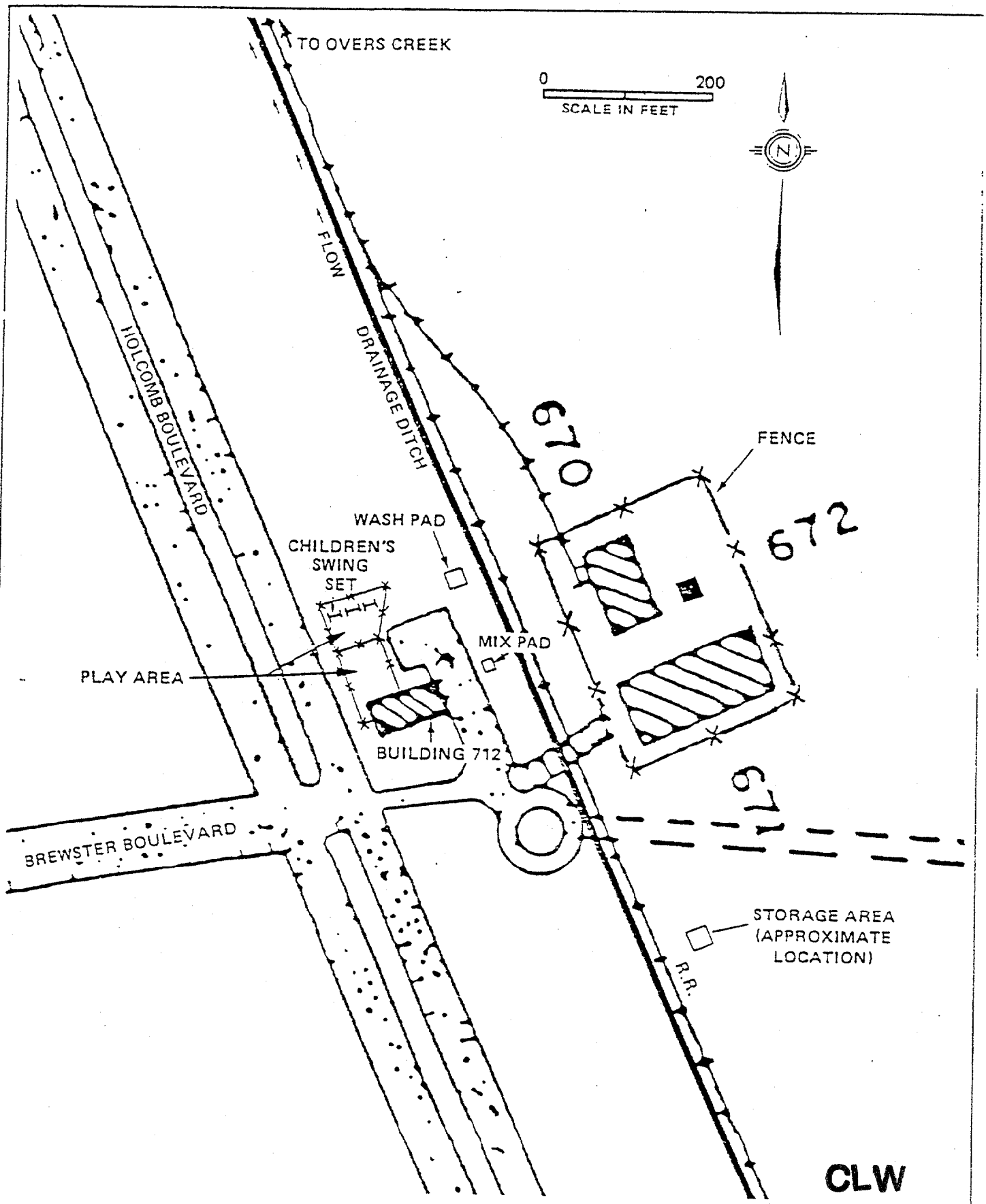

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FIGURE 6—4
Detail of Site No. 2, Former Nursery/Day Care Center

SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 5 OF 24, JUNE 30, 1979.

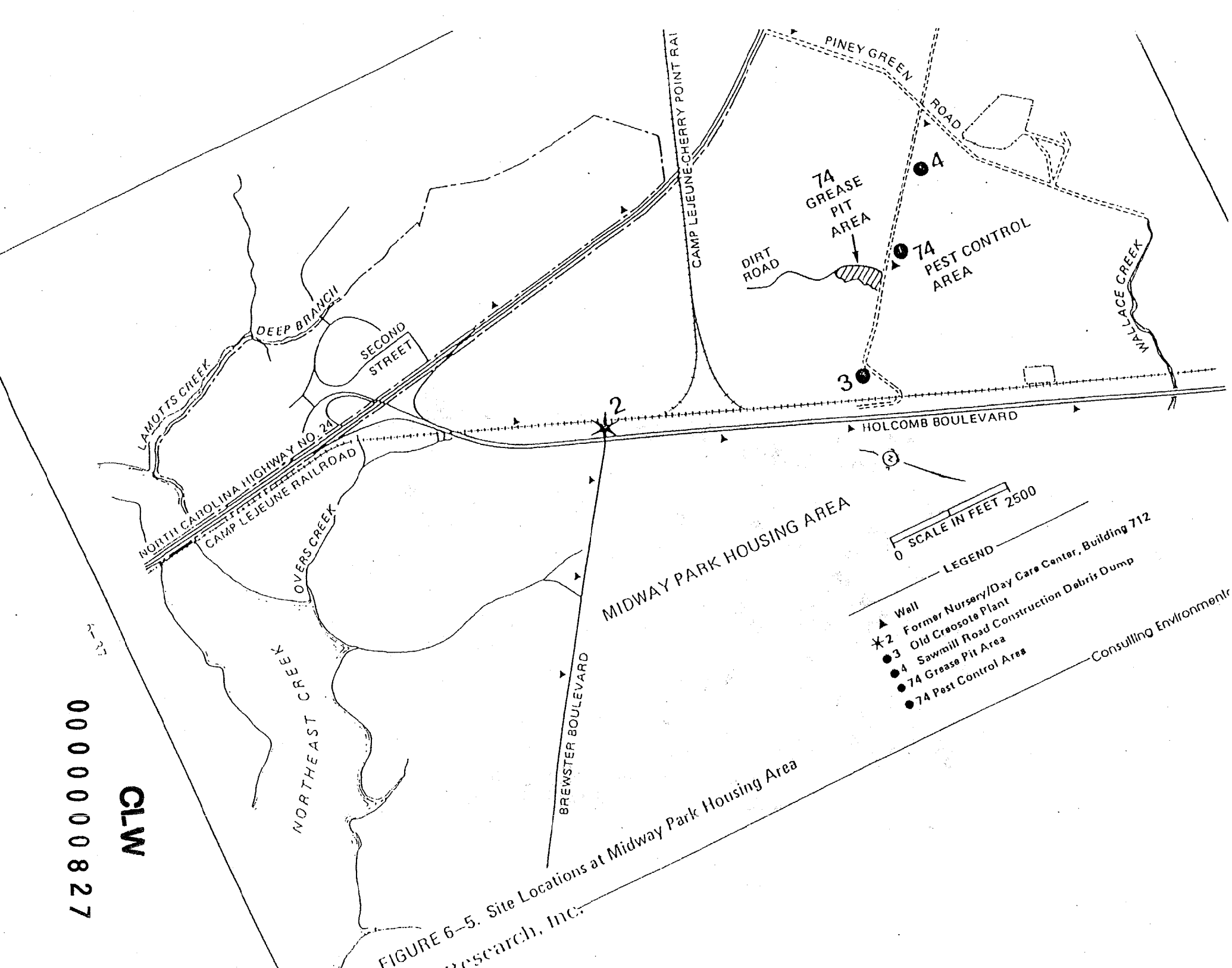

FIGURE 6–5. Site Locations at Midway Park Housing Area

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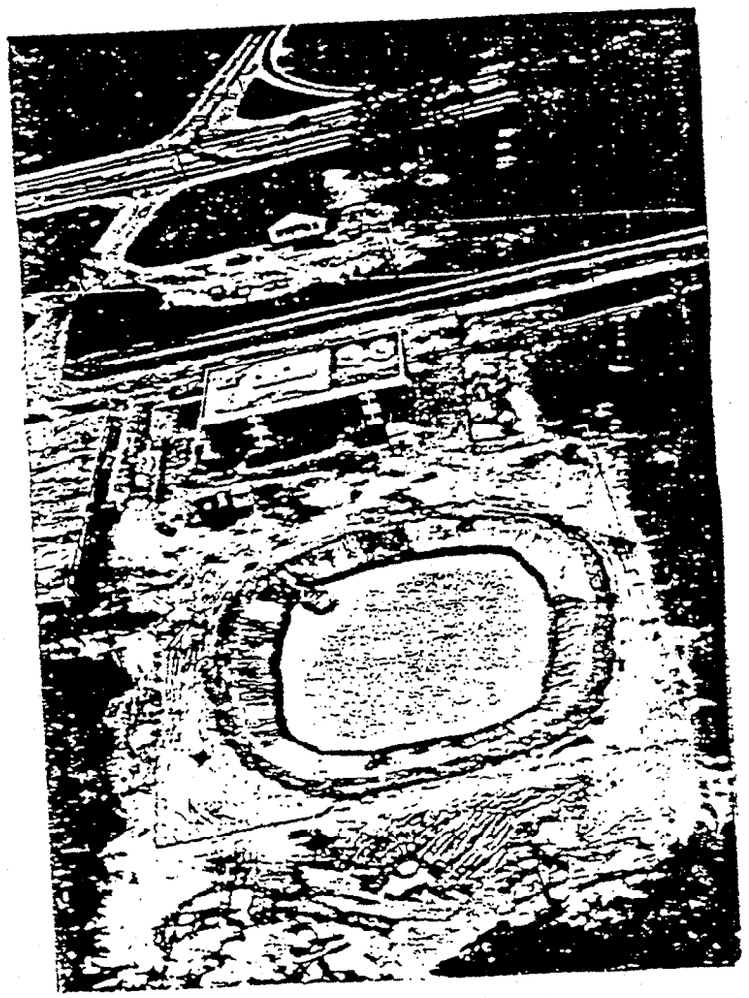

FIGURE 6—6
Site No. 2 – Former Nursery/Day Care Center at Building 712
Water Treatment Plant in Foreground

Site No.: 6

Name: Storage Lots 201 and 203

Location: PWDM Coordinates 6, F3-4/G3-4/H2-4/I2-4/J3; on Holcomb Boulevard between Wallace and Bearhead Creeks.

Figures and Photos: 2-1, 6-7, 6-8a

Size: Lots 201 and 203 are estimated at 25 and 46 acres, respectively.

Previously Reported: Yes EPA Form 8900-1 MC Bul 6280

Activity: The site was and still is used to store hazardous materials. DDT is reported to have been disposed of at Lot 203 when it served as a waste disposal area in the 1940s. There has been long-term storage of DDT and transformers containing PCB. No spills or leaks of PCB have been reported, but reports of white powder (DDT) were noted.

Materials Involved: Pesticides and building debris

Quantity: Inspection of the DDT disposal area reveals no clues to areal extent of disposal. Trees are not disturbed and no ground depressions or mounds can been seen. Reports of disposal activities are vague; no indication of types of containers disposed of, e.g., aerosol cans versus 55-gallon drums. It is reasonable to assume more than 1 or 2 pounds were involved. However, there is no basis for assuming massive quantities were involved. Therefore, for purposes of indicating the perceived magnitude of importance of site, several hundreds of pounds of DDT are assumed to have been disposed of. No physical or other reliable evidence is available to indicate size of contaminated area. However, because some assessment of size is needed to guide any further actions (if any), assume that an area within, say, an 80- to 100-foot radius is involved.

Regarding PCB and DDT spills near storage areas: Minimal information has been discovered during site investigations. No amount of judgment by environmental and public health professionals can yield reliable estimates of spill quantities

(Continued)

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Site No.: 6 (continued)

because conditions are so variable. Guidance for assessing magnitude may be obtained as follows: No direct evidence of PCB spills was found. Therefore, assume no PCBs are involved. Inferences of DDT spills come from reports of white powder on ground. No recollection of size of powdered area is available. Assume that around storage pallets, DDT was spilled in a 1- or 2-foot band. This suggests pounds, not hundreds of pounds, were involved. Over time, quantities may be added. Therefore, assume 100 to 200 pounds of DDT involved.

Caution: Estimates of quantities are not based on reliable data and are provided as order of magnitude guidance only.

When: Lots in a variety of uses from 1940s to present

Comments: These areas have a long history of various uses, including disposal and storage. Area is flat, unpaved, and surface soils have been moved about substantially due to regrading and equipment movement. There is no direct physical evidence of hazardous material contamination.

There are 4 areas at the 2 sites which have highest likelihood of DDT contamination, if any contamination exists. These are identified on Figure 6-7. Representative photo is given in Figure 6-8a.

Disturbance of trees is not evident; however, age of trees is estimated at 10 to 20 years. Therefore, trees are more recent than disposal activities and cannot be used as clues to define the disposal area.

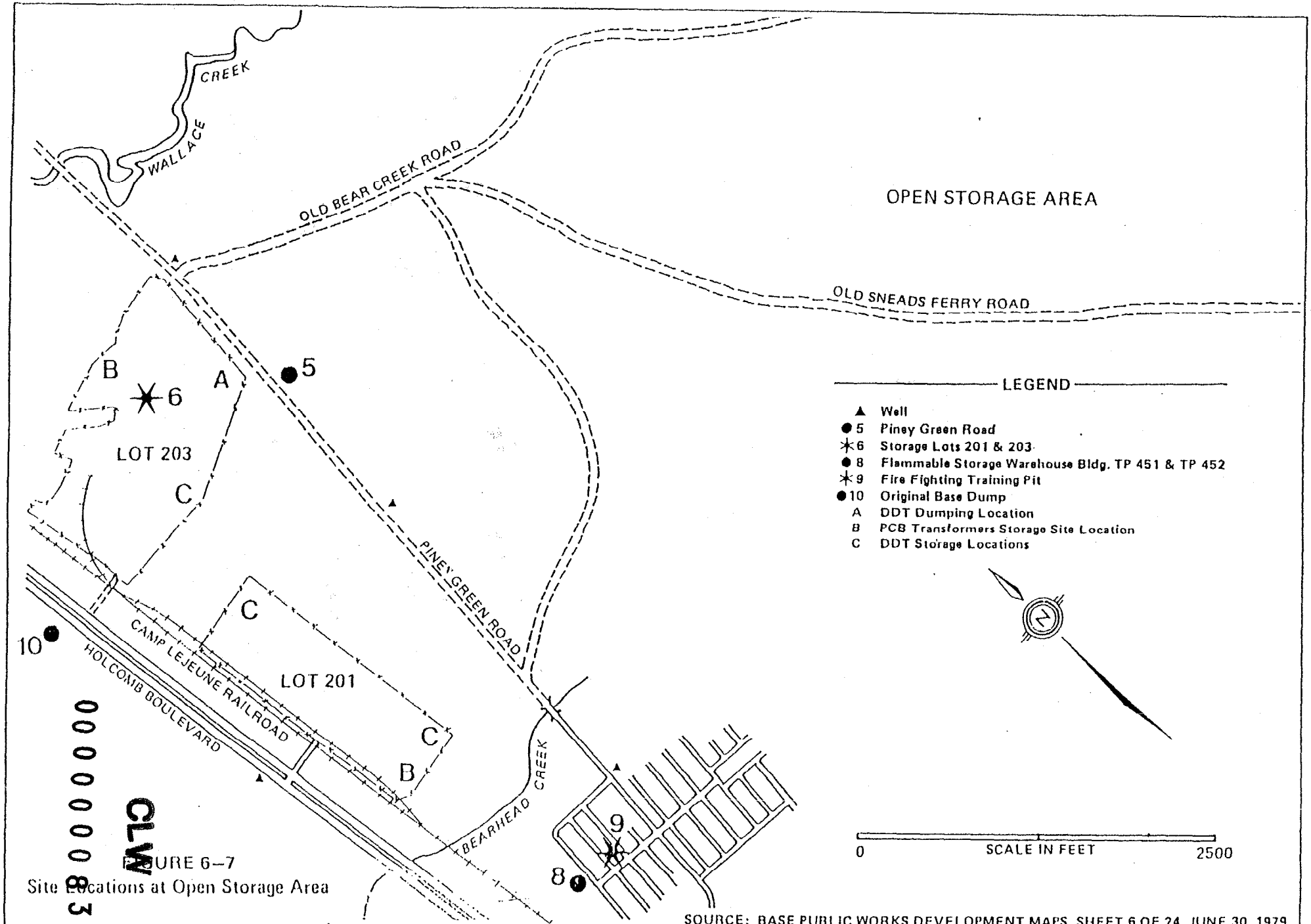

FIGURE 6–7
Site Locations at Open Storage Area

SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAPS, SHEET 6 OF 24, JUNE 30, 1979.

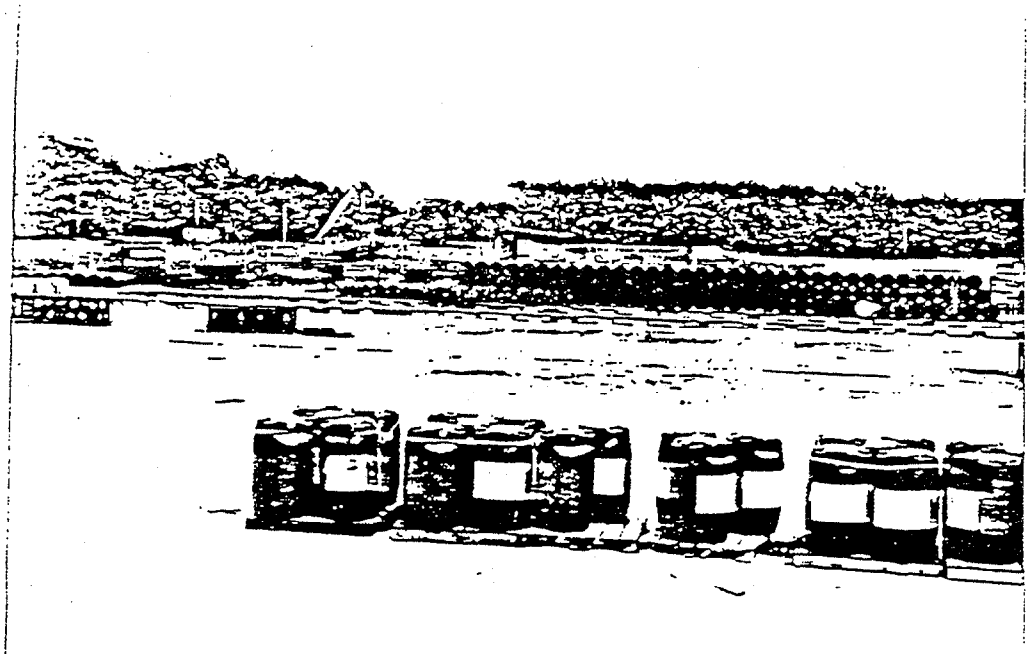

FIGURE 6–8a
Site No. 6 – Storage Lots 201-203

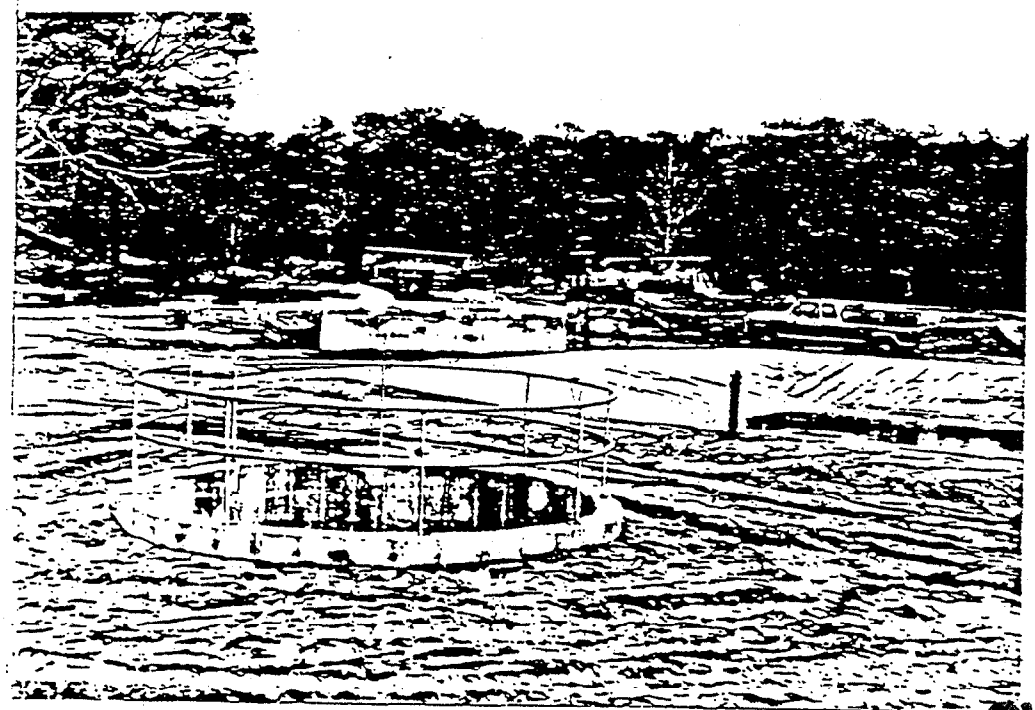

FIGURE 6–8b
Site No. 9 – Fire Fighting Training Pit near Piney Green Road.
Oil Water Separation Pit in Foreground

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Site No.: 9

Name: Fire Fighting Training Pit at Piney Green Road

Location: PWDM Coordinates 6, K3/L3; near Building S-TP-454, between Piney Geen Road and Holcomb Boulevard, south of Bearhead Creek.

Figures and Photos: 2-1, 6-7, 6-8b

Size: Estimated area is approximately 2 acres.

Previously Reported: Yes EPA Form 8900-1 MC Bul 6280

Activity: Fire fighting training carried out in an unlined pit. Flammable liquids burned in pit. No pollution control equipment such as oil-water separators.

Materials Involved: Used oil, solvents, contaminated fuels

Quantity: Approximately 30,000 gallons per year (mostly JP-4 and JP-5).

When: 1960s to present

Comments: Training began after 1961. The pit was unlined until 1981. No leaded fuels were burned. Pit is presently used and an oil-water separator has been installed.

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Site No.: 16

Name: Montford Point Burn Dump (1958-1972)

Location: PWDM Coordinates 2, N11-12; between Wilson Drive and Northeast Creek, about 900 feet east of intersection of Coolidge and Harding Roads.

Figures and Photos: 2-1, 6-9, 6-10, 6-11

Size: Area affected is about 3.5 to 4 acres.

Previously Reported: No

Activity: Burn dump for debris, garbage, and minor quantities of oil

Materials Involved: Building debris, including asbestos, garbage, tires, waste oils

Quantity: Amount of asbestos visible on the surface is estimated to be less than 1 cubic yard. Quantity of waste oil is believed to be very small.

When: Approximately 1958 to 1972. Site now closed.

Comments: Mitigation has been undertaken. Site has been used occasionally for unauthorized disposal of debris since 1972.

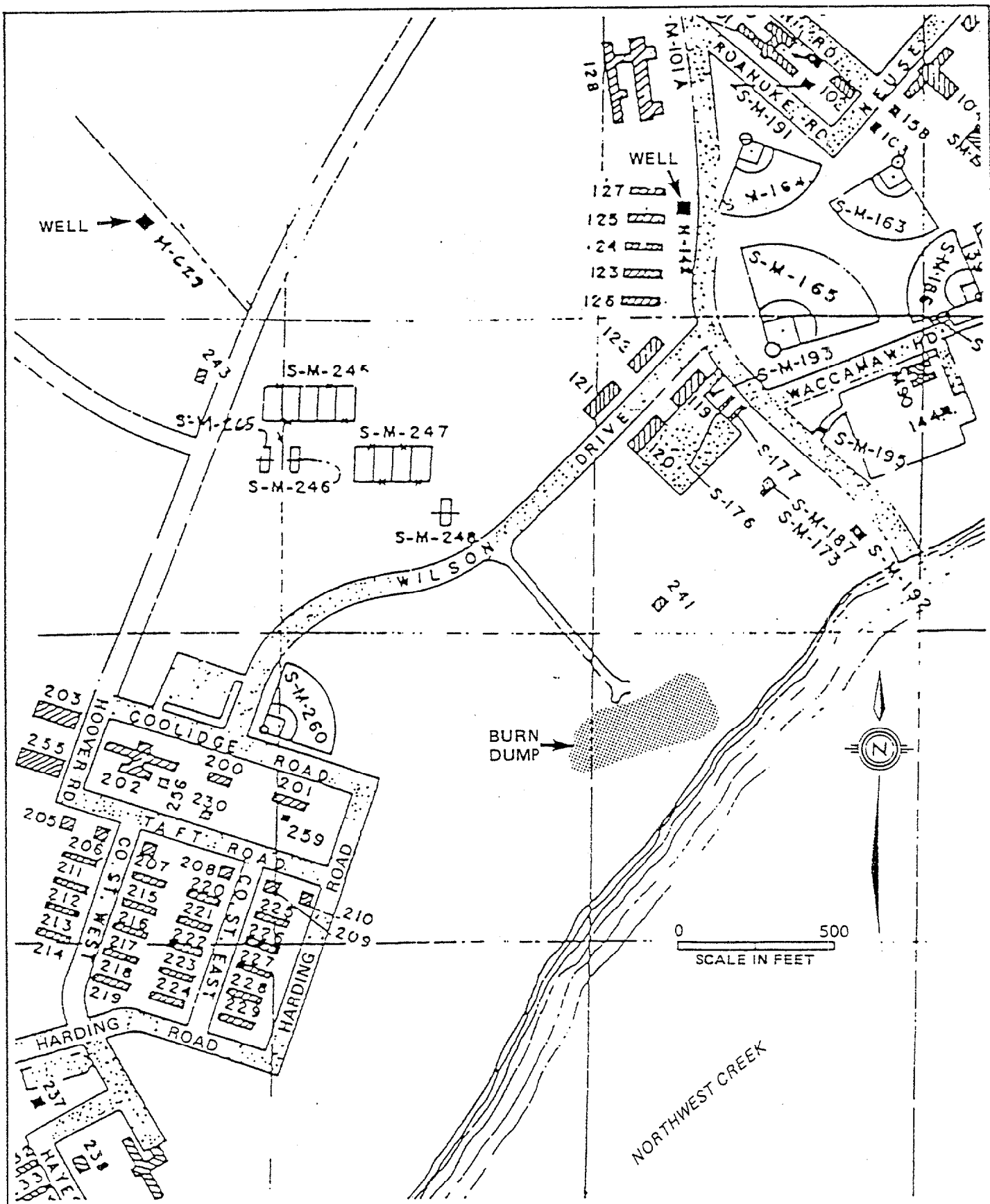

FIGURE 6–9
Detail of Site No. 16, Montford Point Burn Dump

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SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 2 OF 24, JUNE 30, 1979.

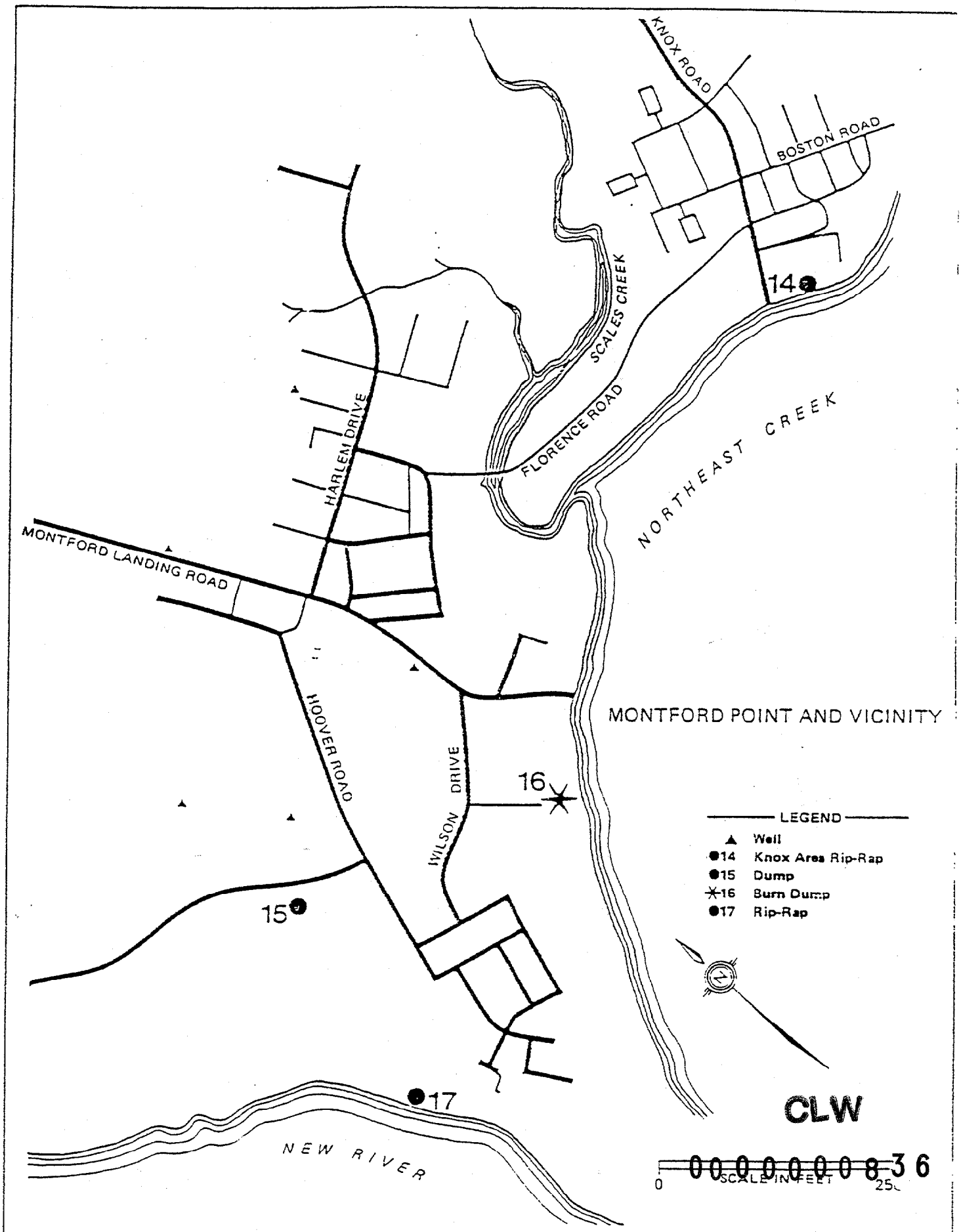

FIGURE 6—10. Site Locations at Montford Point and Vicinity

FIGURE 6–11
Site No. 16 – Montford Point Burn Dump
Showing Asbestos Pipe Insulation

Site No.: 21

Name: Transformer Storage Lot 140

Location: PWDM Coordinates 10, I15; between Ash Street and Sneads Ferry Road on Center Road; transformer oil pit located at the northeastern end of Lot 140, across railroad tracks from Building 702 and about 50 to 60 feet from railroad tracks.

Figures and Photos: 2-1, 6-3, 6-12

Size: Lot 140, approximately 220 feet by 890 feet (almost rectangular); pit, about 25 to 30 feet long by 6 feet wide by 8 feet deep.

Previously Reported: Lot 140, yes (as PCB contamination site only) EPA Form 8900-1, MC Bul 6280; pit, no.

Activity: Lot 140 was used for pesticide mixing and as cleaning site for pesticide application equipment. A pit at this site received oil from transformers.

Materials Involved: Lot 140--Chlordane (dust), DDT (dust), Diazinon, Lindane, Malathion (46-percent solution), Mirex, 2,4-D, Silvex, Dalpon, and Dursban; PCB in small quantities (see below). Pit--transformer oil, probably containing PCBs.

Quantity: Pesticide contamination would have resulted from small spills, washout, and excess disposal. In 1977, before this activity moved to Building PT37, washout was estimated to be 350 gallons per week of overland discharge. At that time, the procedure was to save for reuse any excess pesticide solution. It is reasonable to assume that at least several gallons per year were involved. Therefore, over 20 years, the quantity involved is estimated to be on the order of 100 to 1,000 gallons of various strength liquids.

Transformer oil was drained into pit over about a 1-year period. Sand was occasionally placed in pit by heavy equipment when oil was found standing in pit bottom. The quantity involved is unknown. Assuming the pit received (over 1 year)

(Continued)

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Site No.: 21 (continued)

enough oil to fill the pit to between 1 and 8 vertical feet, the estimated quantity would be on the order of 1,300 to 11,000 gallons.

Caution: Quantity estimates are not based on reliable data and are provided for order of magnitude guidance only.

When: Early 1958 to 1977 for pest control activities; 1950-51 for transformer oil pit usage

Comments: Lot 140 was a multi-purpose area when the Pest Control Shop used it. (Before this, pesticide storage and mixing were at Building 712. Practices there, probably similar to those at Lot 140, resulted in soil contamination (see Table 2-1). For a more detailed listing of quantities involved at Building 712, see Site No. 2 of this section.) The mixing area for pesticides was described as the "southeast corner" of Lot 140. According to MC Bul 6280 for the site, soil in this area is "highly disturbed." There is a possibility that surface soil consists of fill material used for lot leveling. Any soils sampled should be those layers existing at the site in the 1960s (i.e., not fill material).

According to MC Bul 6280, the upper 4 inches of soil in Lot 140 was sampled for PCBs in October 1980. PCB levels of 1 ppm or less were found. No reference to an oil disposal pit was made in MC Bul 6280.

Lot 140 is bounded on its longer sides by dirt roads. An adjacent railroad drainage ditch is a possible off-site and off-base migration route for pesticide-contaminated water and sediment.

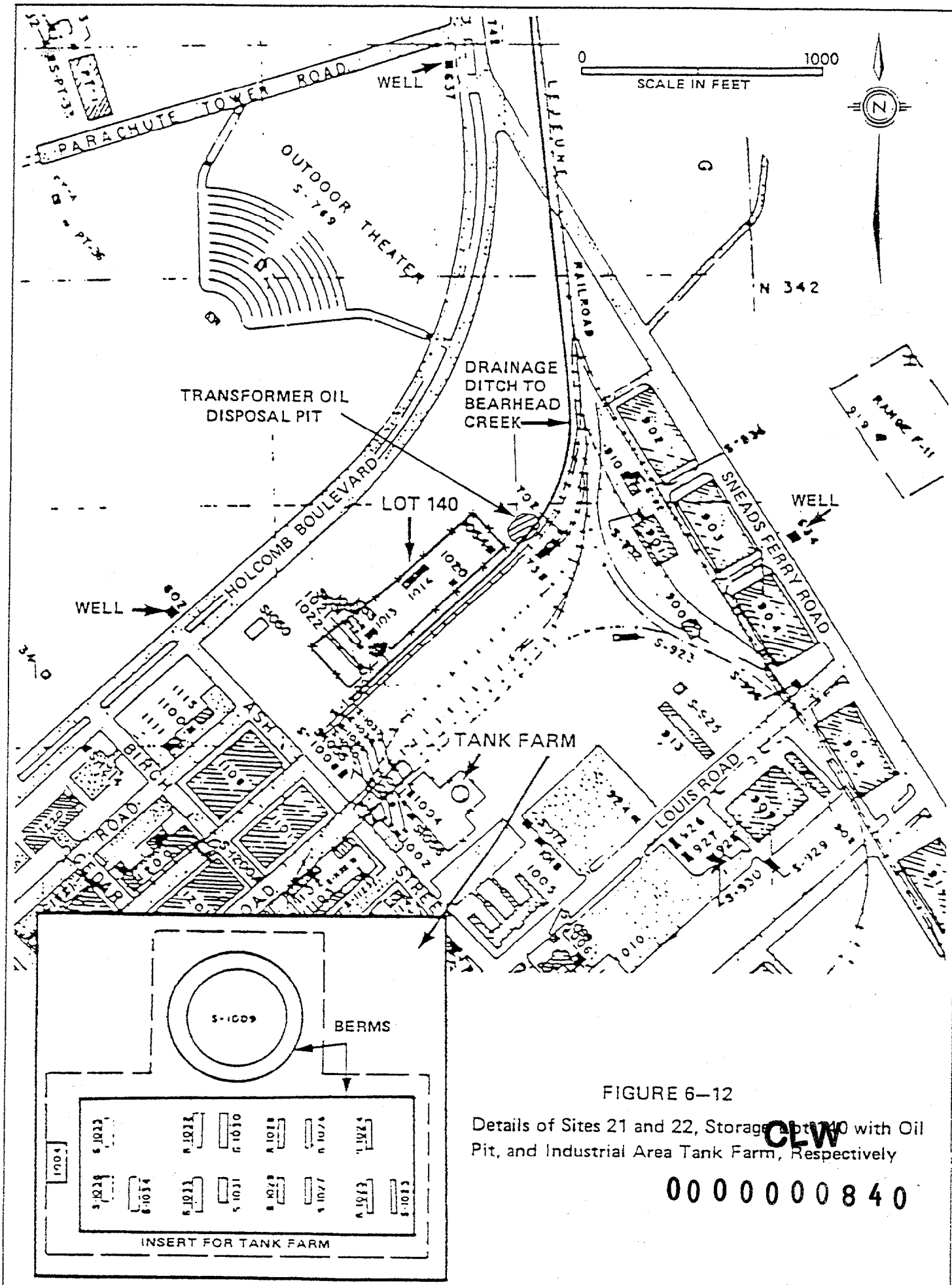

FIGURE 6—12

Details of Sites 21 and 22, Storage Lot 140 with Oil Pit, and Industrial Area Tank Farm, Respectively

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Site No.: 22

Name: Industrial Area Tank Farm

Location: PWDM Coordinates 10, J15; east of intersection of Cribb Road and Ash Street.

Figures and Photos: 2-1, 6-3, 6-12, 6-13a

Size: Area estimated at 3.5 to 4 acres.

Previously Reported: No

Activity: Site is a fuel storage and dispensing area for vehicles. Leakage has occurred from fuel lines.

Materials Involved: Diesel, unleaded and possibly leaded gasoline

Quantity: 20,000 to 50,000 gallons from an underground line near the tank truck loading facility

When: 1979

Comments: Fuel farm installed in 1940s. There have been problems with leaks. The latest was a 100-gallon leak of diesel fuel in 1981. In 1979, a fuel leak of an estimated 20,000 to 30,000 gallons occurred. The leak was in an underground line slightly to the rear of the tank truck loading facility and between the building and the large aboveground fuel tank. Fuel has been lost through pinhole leaks in the underground lines. There is no evidence of extensive corrosion in the system. Control is maintained by an established fuel audit system.

FIGURE 6–13a
Site No. 22 – Industrial Area Tank Farm

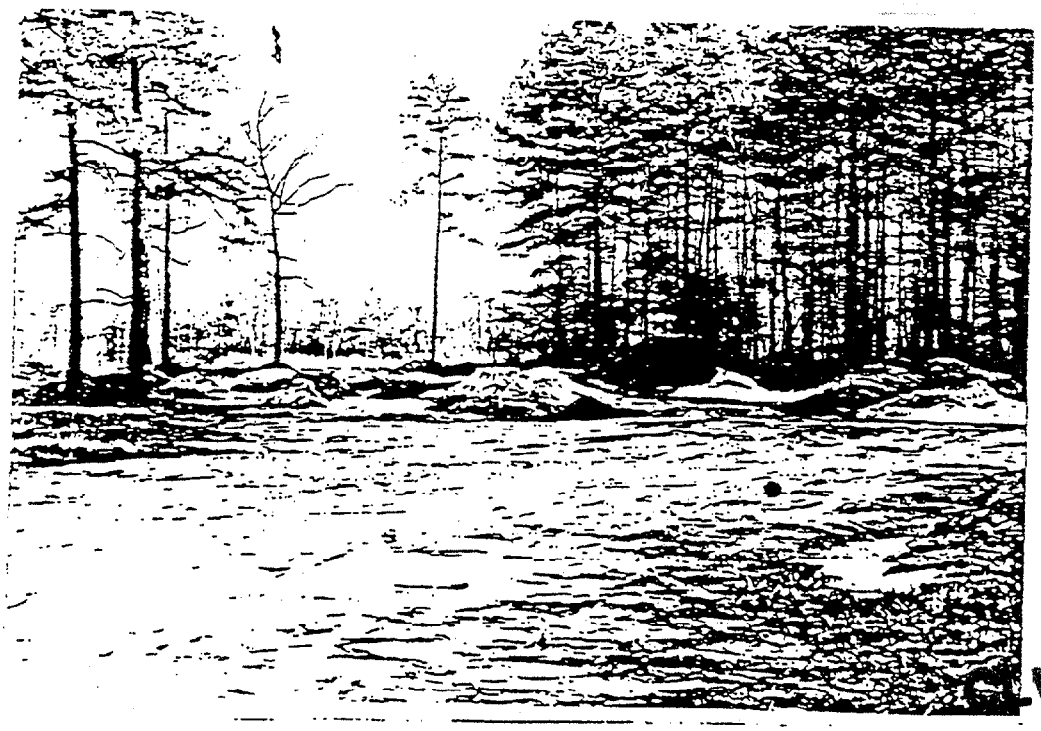

FIGURE 6–13b
Site No. 24 – Industrial Area Fly Ash Dump

Site No.: 24

Name: Industrial Area Fly Ash Dump

Location: PWDM Coordinates 10, L16-17/M16-17; South of intersection of Birch and Duncan Streets.

Figures and Photos: 2-1, 6-3, 6-13b, 6-14

Size: Area is about 20 to 25 acres.

Previously Reported: No

Activity: Fly ash and cinders dumped on ground surface. Solvents used to clean out boilers were poured on fly ash and cinder piles. During 1960s, construction rubble dumped here. Sludges from WTP and STP also placed here. Furniture stripping wastes also dumped between 1972 and 1979.

Materials Involved: Fly ash, cinders, and solvent from central heating plant, WTP spiractor sludge and sludge from the sewage treatment plant. Limited quantities of furniture lacquers and varnish.

Quantity: The amount of fly ash is estimated at 31,500 tons based on a 10-percent ash content and a usage of 45,000 tons per year of coal over 7 years. The estimate of furniture stripping compounds dumped here is about 45,000 gallons over 7 years. This estimate is based on assuming that one vat of fluids per month was disposed. A vat contains approximately 500 to 550 gallons. The quantity of cleaning solvents which reached this site is not known but is considered to be small.

When: Late 1940s to approximately 1980

Comments: Sandy soil conducive to migration. The eastern boundary of this site is a tributary of Cogdels Creek. Drainage is probably to the east, south and west toward Cogdels Creek and its tributaries. Creek has been rerouted. Old creek channel is now part of fill area.

(Continued)

Site No.: 24 (continued)

Site includes four areas of potential contamination which are designated on Figure 6-15: (1) the main fly ash dump, (2) a small area to the northeast containing spiractor sludge which has been disturbed since the early 1950s, (3) a denuded area west which has existed since the early 1950s which is a borrow area at which dumping may have occurred, and (4) a smaller denuded area farther west which has existed since before 1949 and at which dumping may have occurred.

Fly ash and bottom ash contain heavy metals that may be mobilized by dissolution in rain water. No thorough mixing of the various solid wastes disposed of at this site is believed to have occurred. Insufficient data exists to try to speculate on possible chemical interactions between these various wastes or to try to define which wastes went to which of the four areas.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

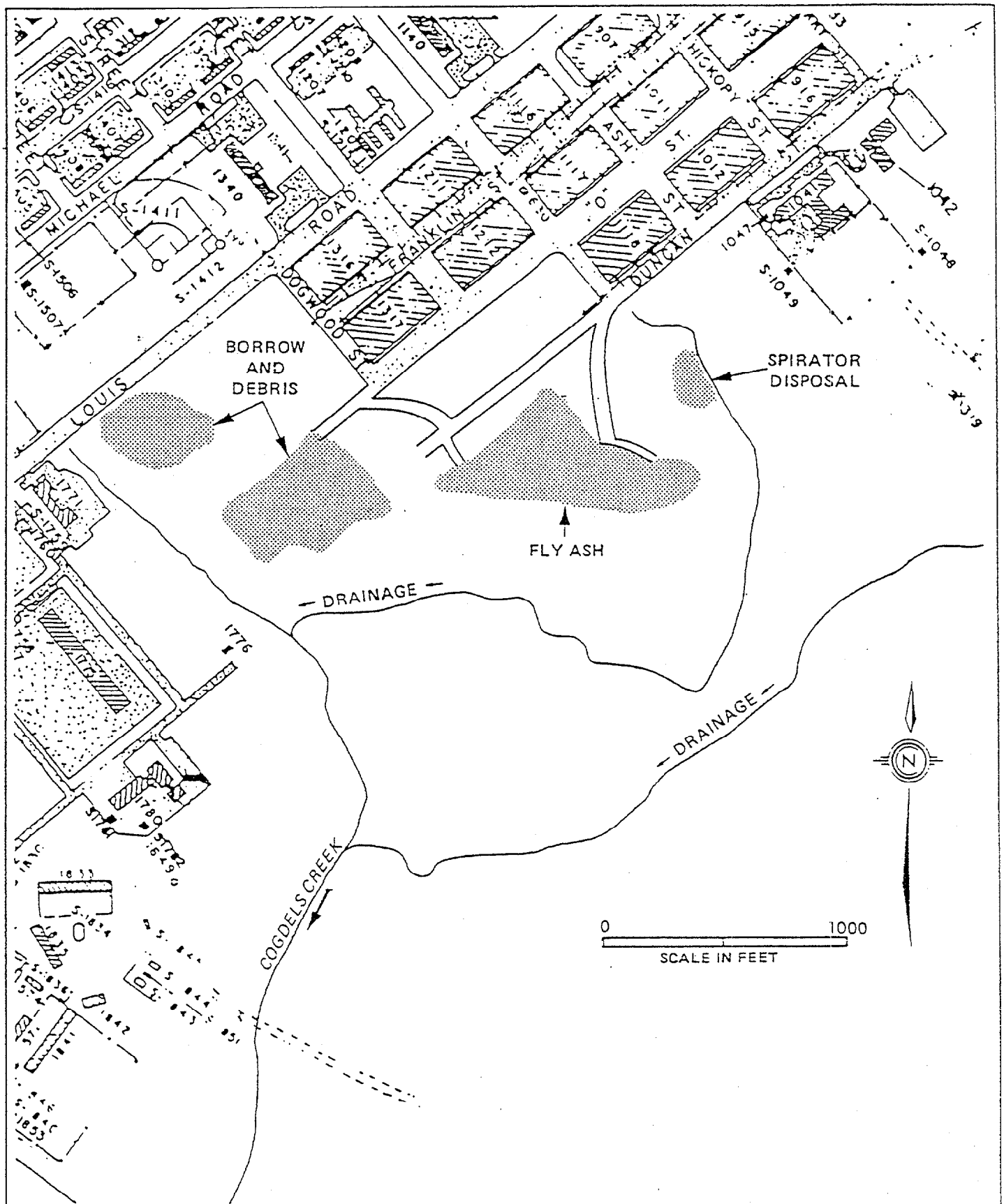

FIGURE 6–14
Detail of Site No. 24, Industrial Area Fly Ash Dump

SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 10 OF 24, JUNE 30, 1979.

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Site No.: 28

Name: Hadnot Point Burn Dump

Location: PWDM Coordinates 10, Q13-14/R13-14; east of Mainside Sewage Treatment Plant on both sides of Cogdels Creek.

Figures and Photos: 2-1, 6-3, 6-15, 6-16a

Size: Area is approximately 23 acres.

Previously Reported: Yes EPA Form 8900-1 MC Bul 6280

Activity: This large disposal area received a variety of solid waste. The site is now closed. The surface has been graded, grass has been planted and is now a recreational area with fishing pond. When site was active, wastes were burned and covered with dirt.

Materials Involved: Mixed industrial type waste, refuse, trash, oil-based paint, garbage

Quantity: Volume of fill is estimated at 185,000 to 370,000 cubic yards. The volume of waste is based on a surface area of 23 acres and a depth ranging from 5 to 10 feet. Because waste was burned, no approximation of remaining amount of specific substances can be reasonably made. However, approximate size of the site provides order of magnitude guidance.

When: Approximately 1946 to 1971

Comments: Reports of leachate and oily seepage to Cogdels Creek. Site is on a former wetland.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

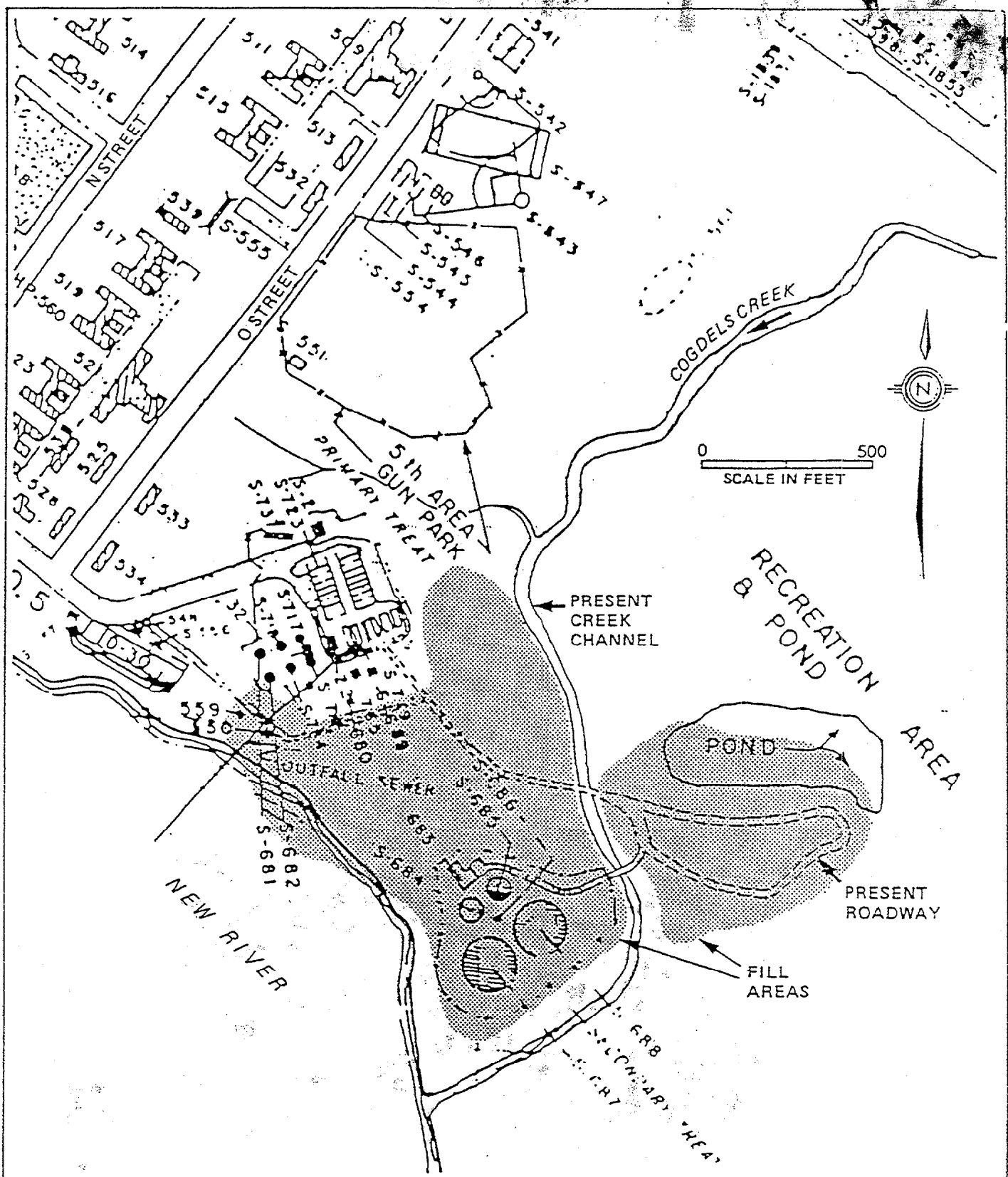

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FIGURE 6–15
Detail of Site No. 28, Hadnot Point Burn Dump

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SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 10 OF 24, JUNE 30, 1979.

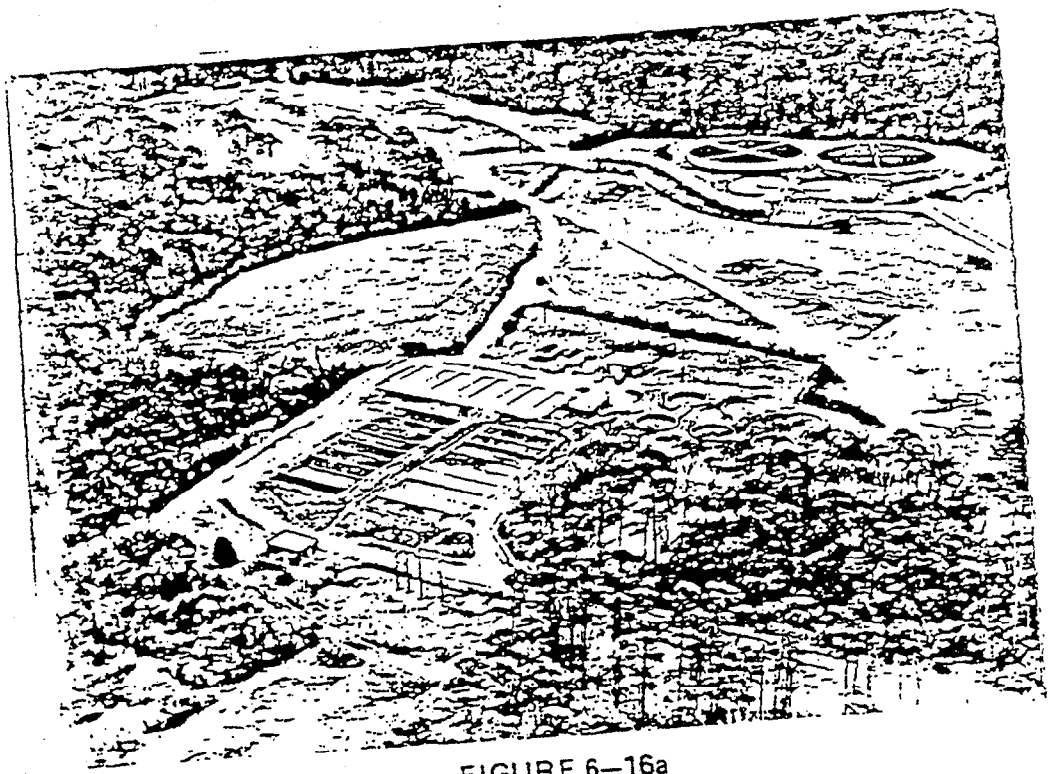

FIGURE 6–16a
Site No. 28 – Hadnot Point Burn Dump

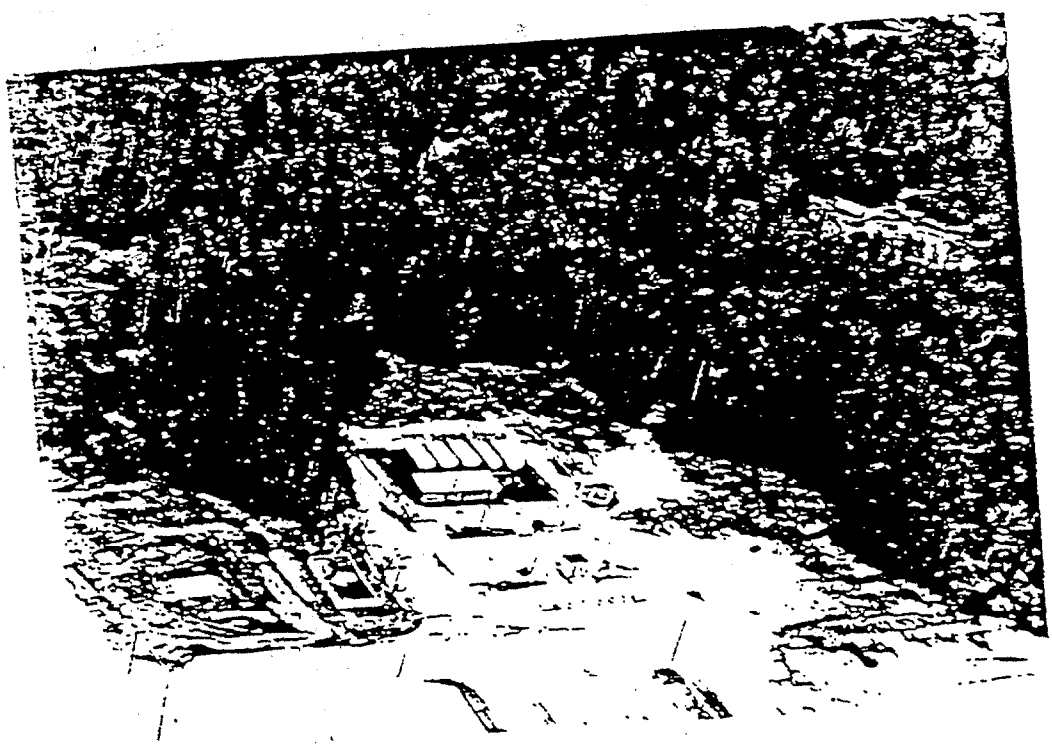

FIGURE 6–16b
Site No. 35 – Camp Geiger Area Fuel Farm

Site No.: 30

Name: Sneads Ferry Road--Fuel Tank Sludge Area

Location: PWDM Coordinates 18, G12; along a tank trail which intersects Sneads Ferry Road from west, about 6,000 feet south of intersection with Marines Road.

Figures and Photos: 2-1, 6-17

Size: Exact location along trail unknown. See comments below.

Previously Reported: No

Activity: One-time disposal of sludge pumped from fuel tank storing leaded gasoline

Materials Involved: Sludge from fuel storage tank, especially tetraethyl lead and related compounds; tank washout waters.

Quantity: About 600 gallons of tank bottom deposits. See comments below.

When: 1970

Comments: Soils conducive to migration. The hydraulic gradient in the water table aquifer is toward French Creek. A private contractor disposed of the sludge along the tank trail as an expedient measure. Trail alignment is parallel to groundwater gradient.

As yet no records (including contract documents) have been found to indicate amount of sludge disposed of at this site. Two 12,000-gallon tanks were involved. Tanks were pumped out while changing the type of fuel stored. Based on knowledge of tank capacity below tank outlfow ports, about 600 gallons of sludge or tank bottoms were dumped. Additional washout water may have been present. There is additional information to suggest that the site has been used for similar wastes from other tanks. Therefore the 600 gallon amount must be considered a minimum. Composition of sludge and/or washout is unknown and may vary from containing substantial amounts of tetraethyl lead to containing mostly cleaning compounds.

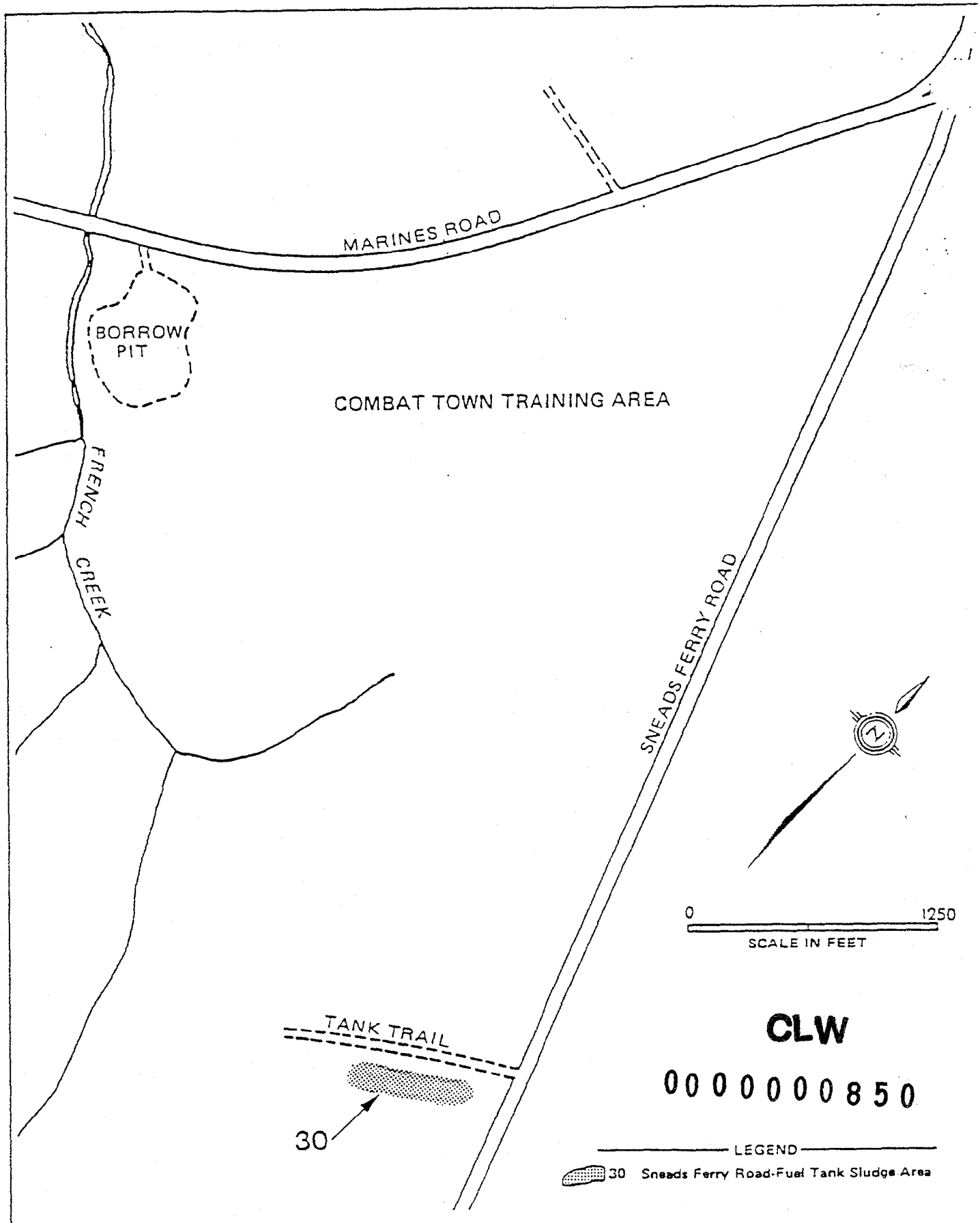

FIGURE 6—17
Location of Site No. 30 at Combat Town Training Area

Site No.: 35

Name: Camp Geiger Area Fuel Farm

Location: PWDM Coordinates 12, C11; north of intersection of G and Fourth Streets.

Figures and Photos: 2-1, 6-16b, 6-18, 6-19

Size: Area estimated at about 2,500 square feet.

Previously Reported: No

Activity: Area used for storing and pumping fuel. Mogas released to soil through a leak or leaks in underground line near above-ground storage tank and tank pad.

Materials Involved: Mogas

Quantity: The amount of fuel is estimated by Chief Padgett, Camp Lejeune Fire Department, to be in the thousands of gallons. Exact estimates cannot be made as these records were destroyed.

When: 1957 to 1958

Comments: Spill reported to have migrated east and northeast toward and into creek. Spilled fuel at the surface of the shallow aquifer was disposed of by digging holes near the leak and igniting the gas. Fuel that contaminated Brinson Creek was also burned off near the leak.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

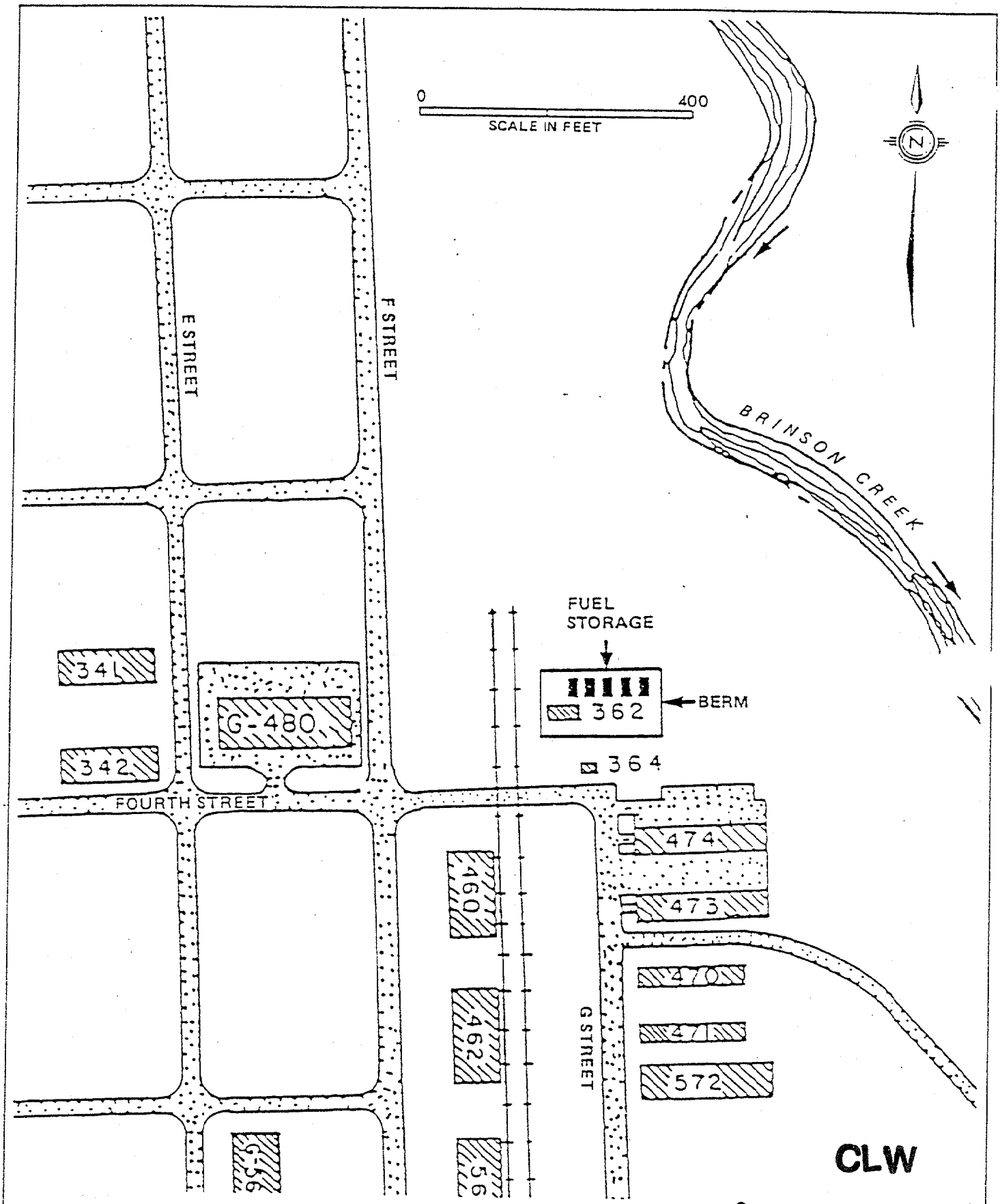

FIGURE 6–18
Detail of Site No. 35, Camp Geiger Area Fuel Farm

SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 12 OF 24, JUNE 30, 1979

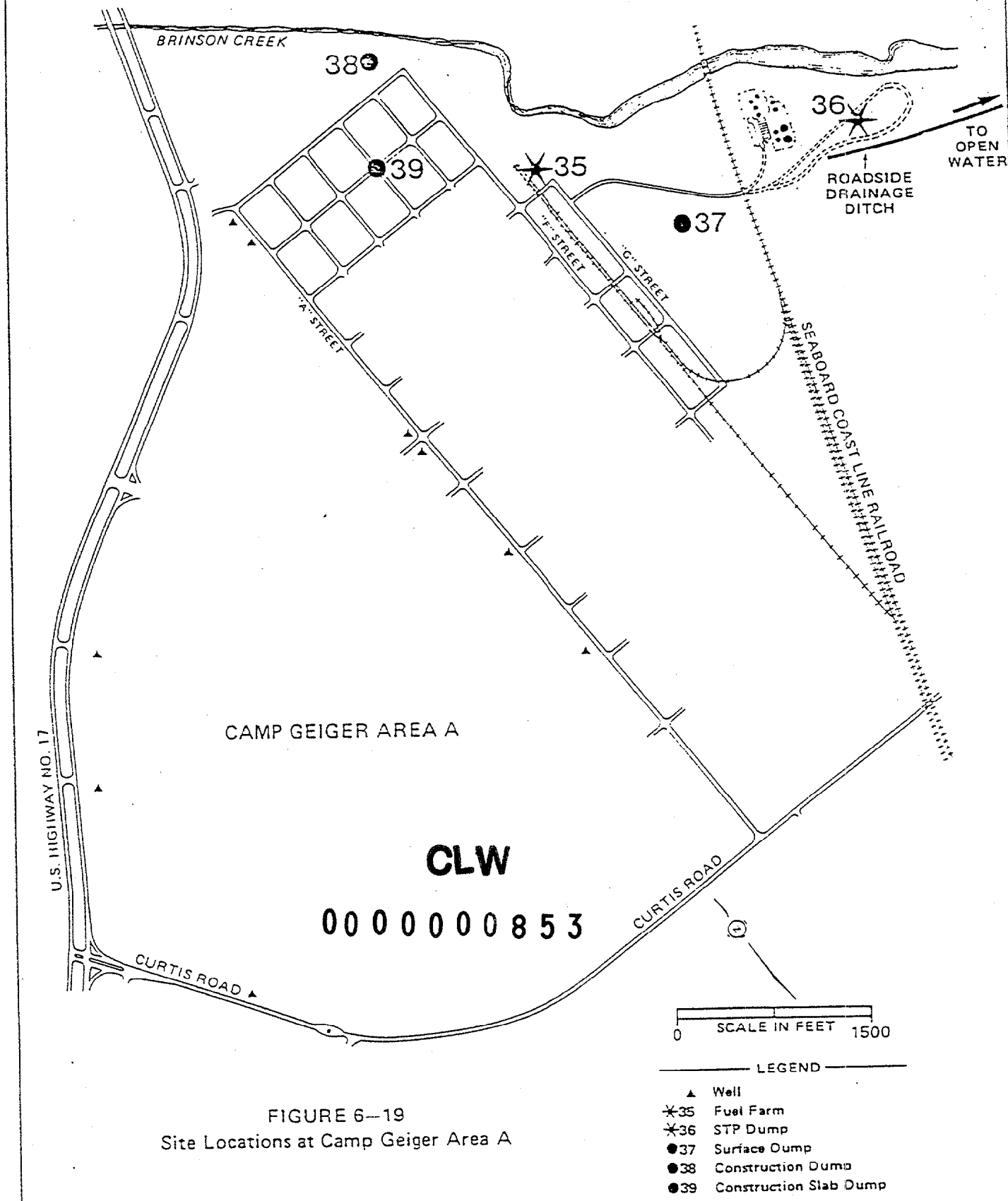

FIGURE 6–19
Site Locations at Camp Geiger Area A

Site No.: 36

Name: Camp Geiger Area Dump

Location: PWDM Coordinates 12, D13, E13; east of Camp Geiger Area Sewage Treatment Plant on south side of Brinson Creek

Figures and Photos: 2-1, 6-19, 6-20

Size: Area is about 25,000 square feet.

Previously Reported: No

Activity: Site was used for disposal of municipal wastes and mixed industrial waste from the air station. Most material was burned and buried, but some unburned material was buried.

Materials Involved: Garbage, trash, waste oils, solvents, hydraulic fluids

Quantity: According to interviews, less than 5 percent of all hydrocarbons used at the air station were disposed of in dumps. The rest was used for dust control on roads or went directly into storm drains. Based on interviews, a conservative estimate is that 700 to 1,000 gallons per week were used on roads. A smaller but undetermined amount was washed into the storm drains. Using a 5-percent estimate for dumping over 9 years, about 25,000 gallons of material could have been dumped into storm drains. Assuming this amount was split between this site and the trailer park dump (Site No. 41), an estimated 10,000 to 15,000 gallons of solvent and oil were placed here. Most probably were burned.

When: Late 1940s to late 1950s

Comments: Movement of contaminants via water table aquifer and surface runoff will be toward Brinson Creek or roadside drainage ditch south of dump. The site covers about 25,000 square feet and rises 10 to 12 feet above grade. Estimated volume is 14,000 cubic yards, based on an average depth of fill of 15 feet.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

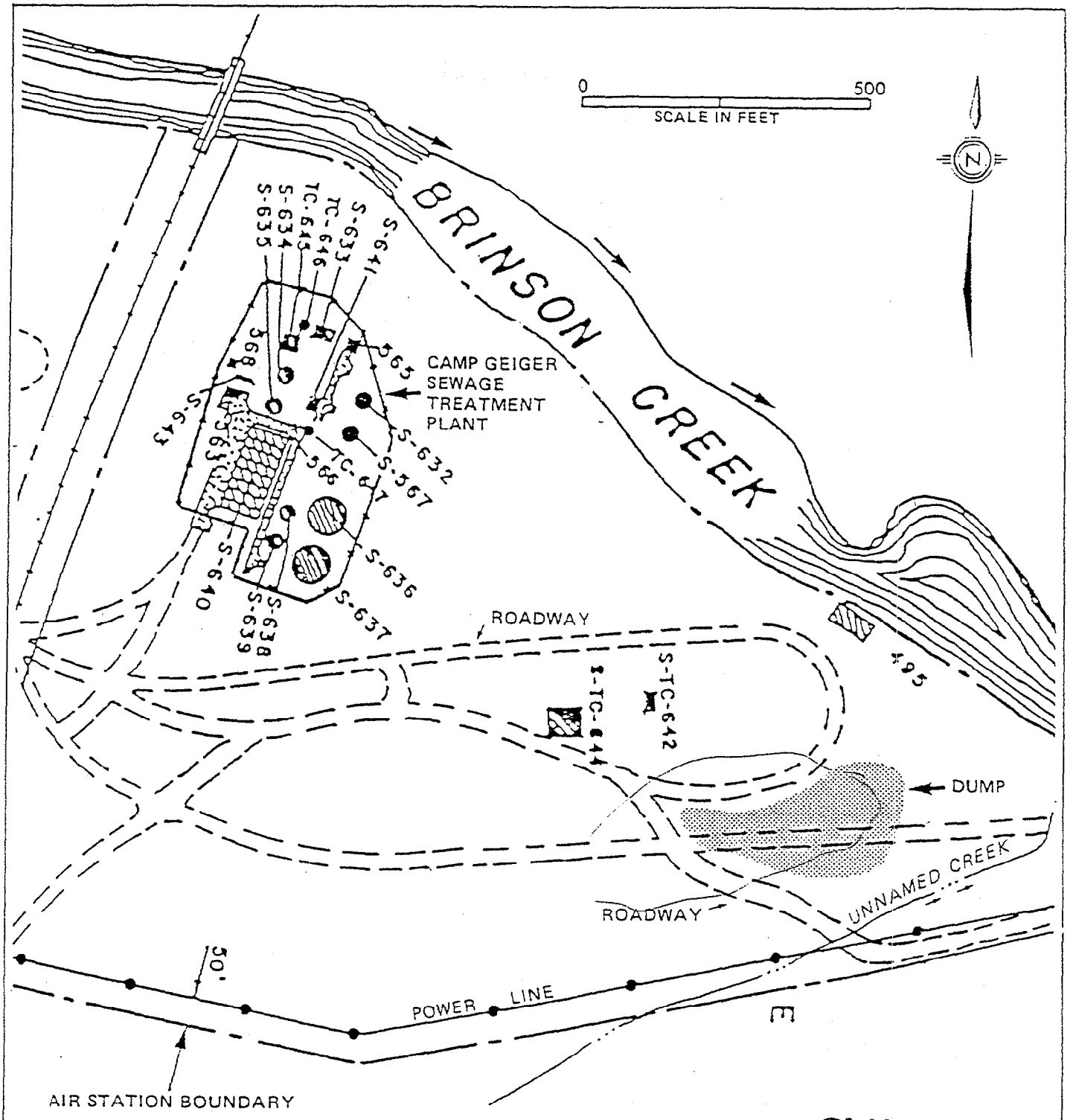

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FIGURE 6–20
Detail of Site No. 36, Camp Geiger Area Dump (near STP)

SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 12 OF 24, JUNE 30, 1979.

Site No.: 41

Name: Camp Geiger Dump

Location: PWDM Coordinates 13, E2-3; south of end of Robert L. Wilson Boulevard, Camp Geiger Trailer Park (abandoned).

Figures and Photos: 2-1, 6-21, 6-22, 6-23a

Size: Area is approximately 30 acres.

Previously Reported: Yes EPA Form 8900-1 MC Bul 6280

Activity: Site was used as an open dump. It received industrial and municipal wastes, as well as construction debris.

Materials Involved: Waste oils, solvents from air station, garbage, aspnalt, concrete, old batteries, Mirex, ordnance

Quantity: 10,000 to 15,000 gallons of waste POL and solvents are estimated to have been disposed of (refer to Site No. 36). Most probably were burned. Number of old batteries is believed to be very small. Tons of Mirex in bags. Ordnance was estimated to include thousands of mortar shells; at least one case of grenades and one 105mm cannon shell were also reported.

When: Approximately 1946 to 1970; Mirex in 1964.

Comments: Site was operated as a burn dump. Based on an estimated fill depth of 5 feet, total volume of the site is about 110,000 cubic yards.

In the mid-1960s over a 1- to 2-year period, at least two waste disposal incidents occurred, during which two truckloads of drummed wastes were unloaded. At such times, a fire truck was present. These wastes were described as being similar to those disposed of at the Rifle Range Chemical Landfill (see Site No. 69). No better information regarding drum contents was obtained.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

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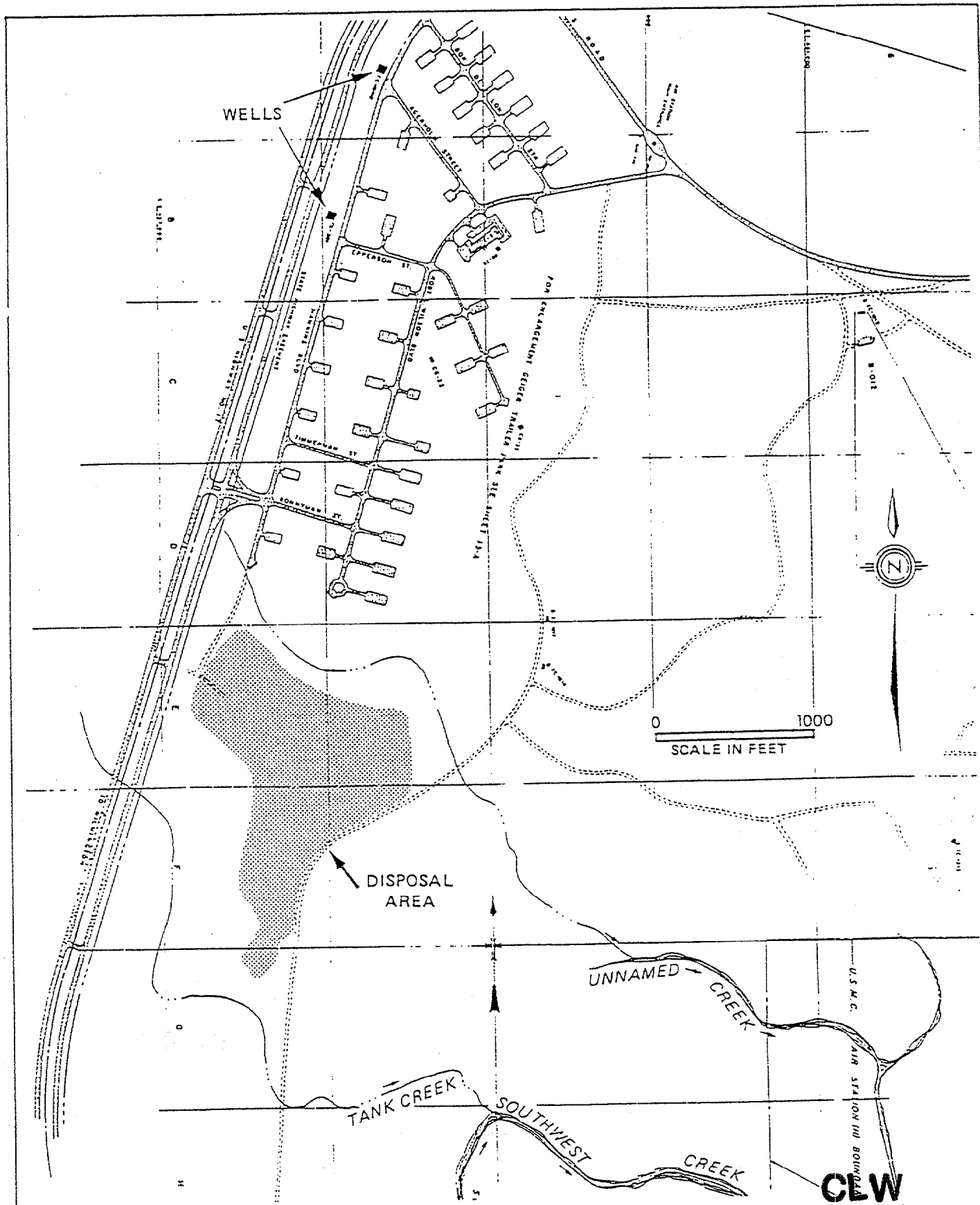

FIGURE 6–21
Detail of Site No. 41, Camp Geiger Dump
(near former trailer park)

0000000857

SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 13 OF 24, JUNE 30, 1979 AND CAMP LEJEUNE, SPECIAL MAP, STOCK NO. V742SCP LEJEUNE, 5th Ed., SEPT. 24, 1976.

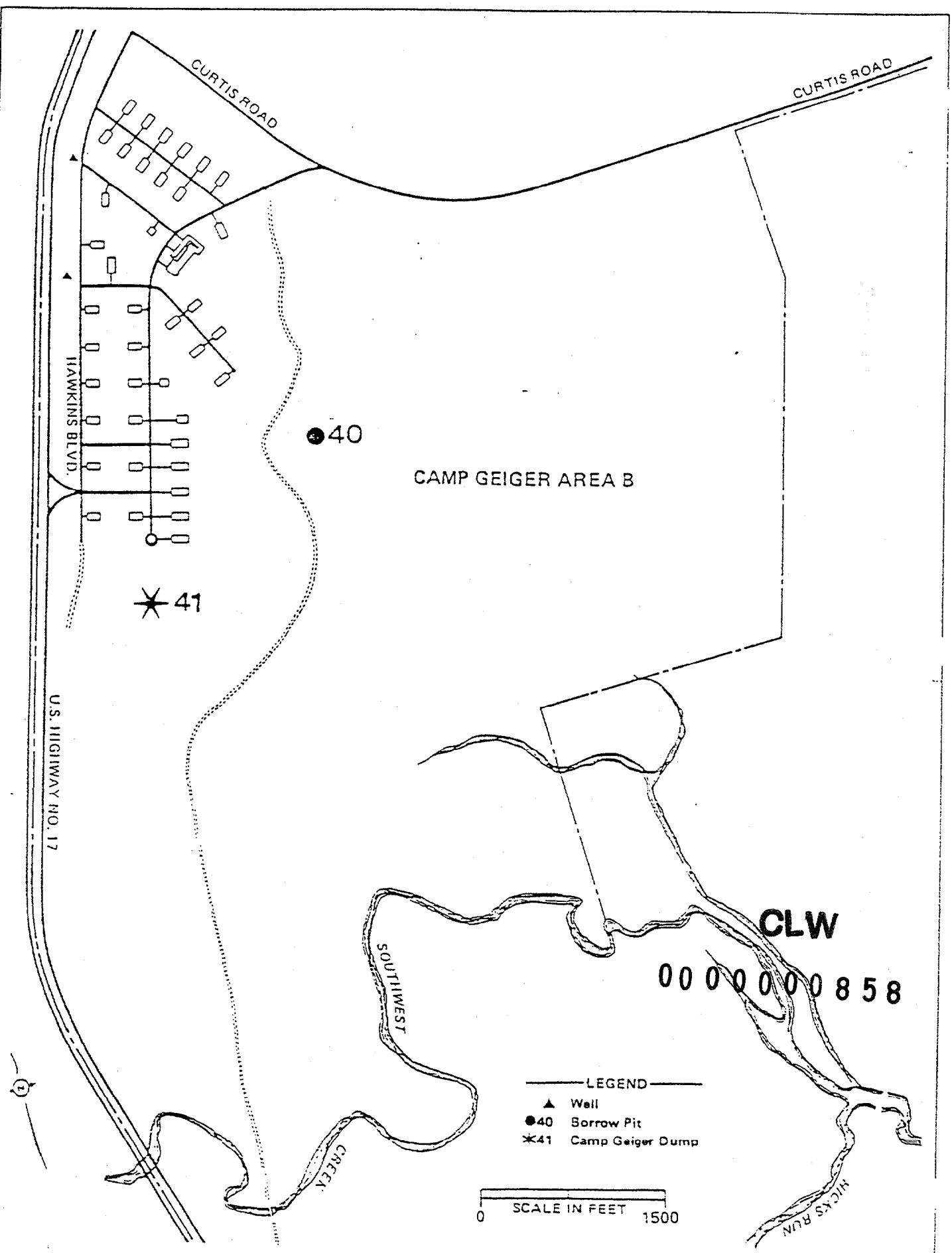

FIGURE 6—22. Site Locations at Camp Geiger Area B

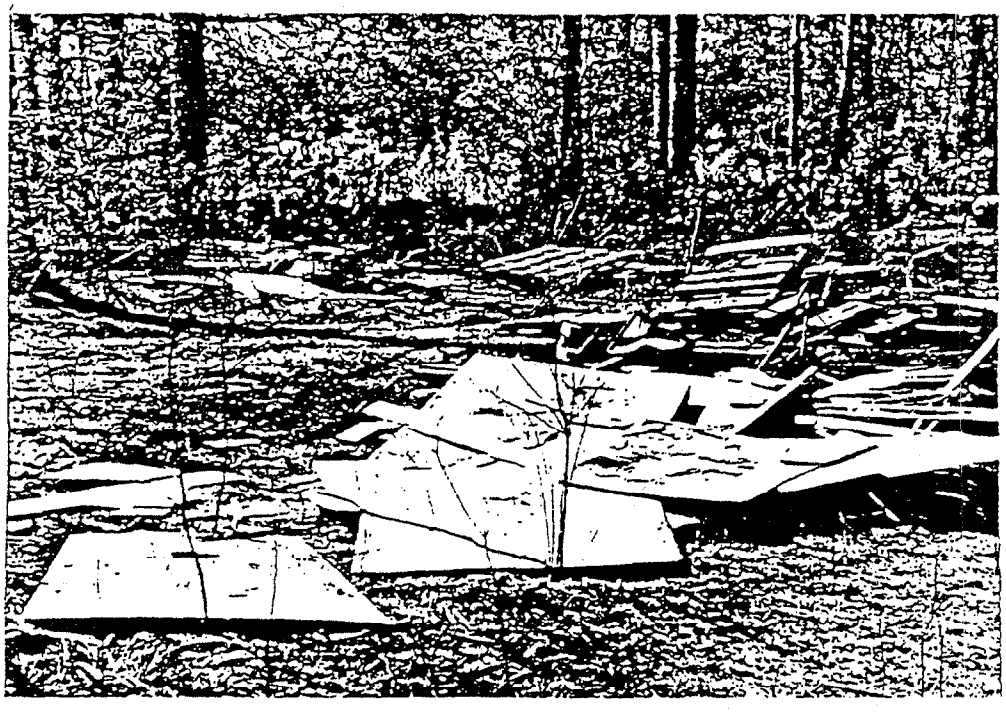

FIGURE 6–23a
Site No. 41 – Camp Geiger Dump Near the Trailer Park

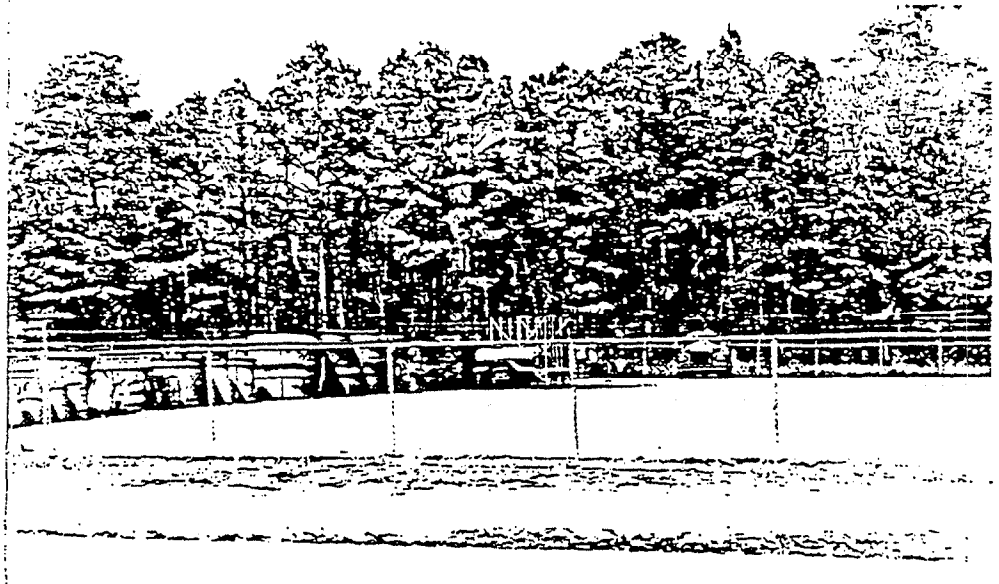

FIGURE 6–23b
Site No. 45 – Campbell Street Underground Fuel Storage Area

Site No.: 45

Name: Campbell Street Underground Avgas Storage and Adjacent JP Fuel Farm at Air Station

Location: PWDM Coordinates 23, 013-14/P13-14; Campbell Street at White Street (JP Fuel Farm) and approximately 250 feet east of White Street (Avgas).

Figures and Photos: 2-1, 6-23b, 6-24, 6-25

Size: The underground storage area is approximately 40,000 square feet. The JP Fuel Farm covers approximately 6 acres.

Previously Reported: No

Activity: Underground tank (or tanks) leaked at the fuel storage area during 1978. At the JP Fuel Farm, extensive leakage from underground connecting lines was discovered in about 1981. Southeastern one-third of area (i.e., approximately 2 acres) is generally affected.

Materials Involved: Avgas and JP fuel

Quantity: 200 to 300 gallons of Avgas. Assuming soils overlying groundwater are generally saturated with oil over about 2 acres, about 600,000 gallons of oil may be involved (i.e., using 20-percent porosity and 5 feet to groundwater). Therefore, estimates are that more than 100,000 gallons of JP fuel have leaked.

When: 1978

Comments: These two storage areas are close together and are considered as one site. Most recent leaks were JP-4 and JP-5 from underground pipes. These pipes have been replaced by an above-ground system in which leaks can be readily detected. An oil-water separator has been installed on the south boundary of the fuel farm, which now shows a substantial amount of oil. Drainage ditch and canal parallel Campbell Street, then flow southward.

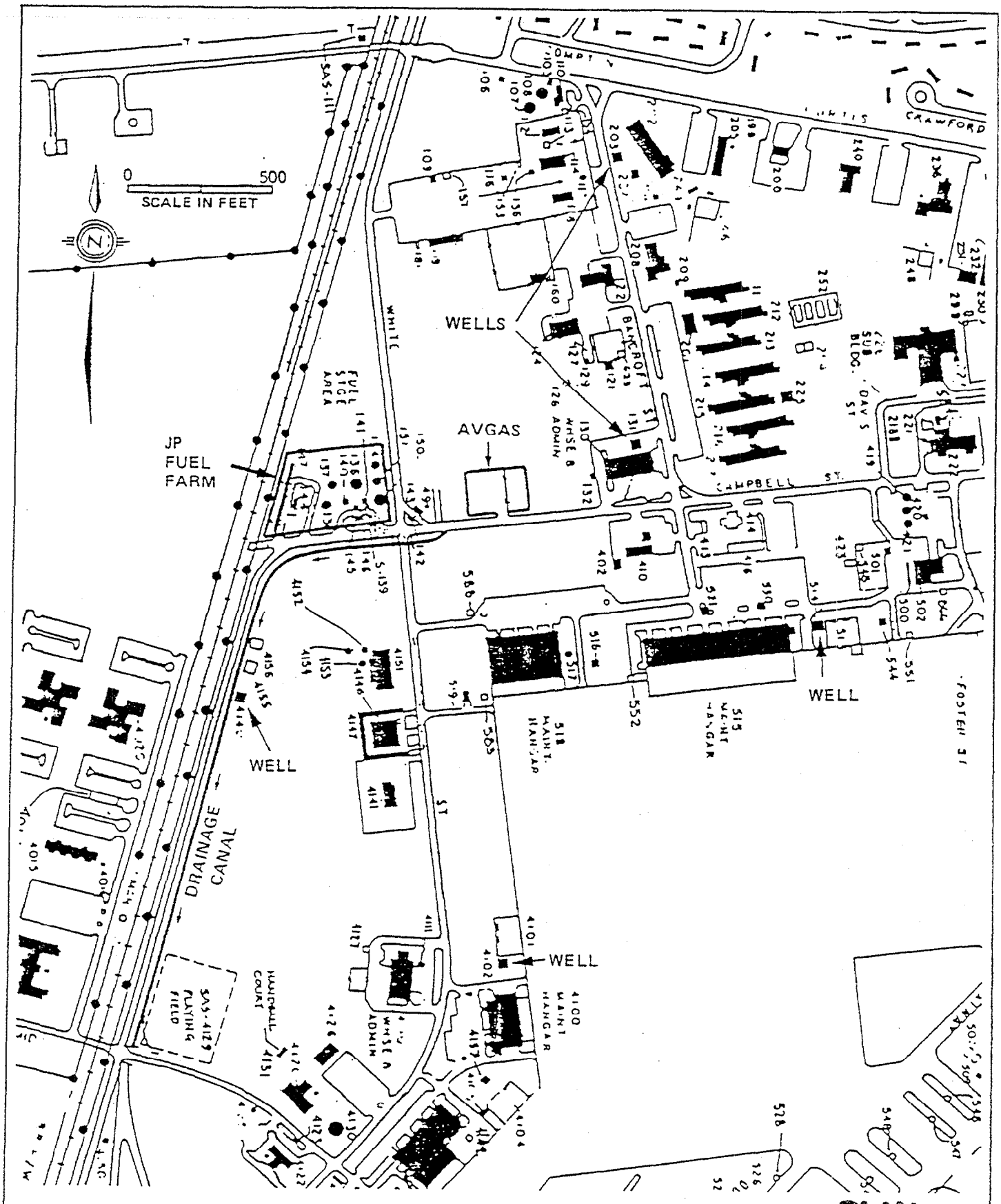

FIGURE 6–24

Detail of Site No. 45, Campbell Street Underground Avgas Storage and Adjacent JP Fuel Farm

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SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 23 OF 24, JUNE 30, 1979.

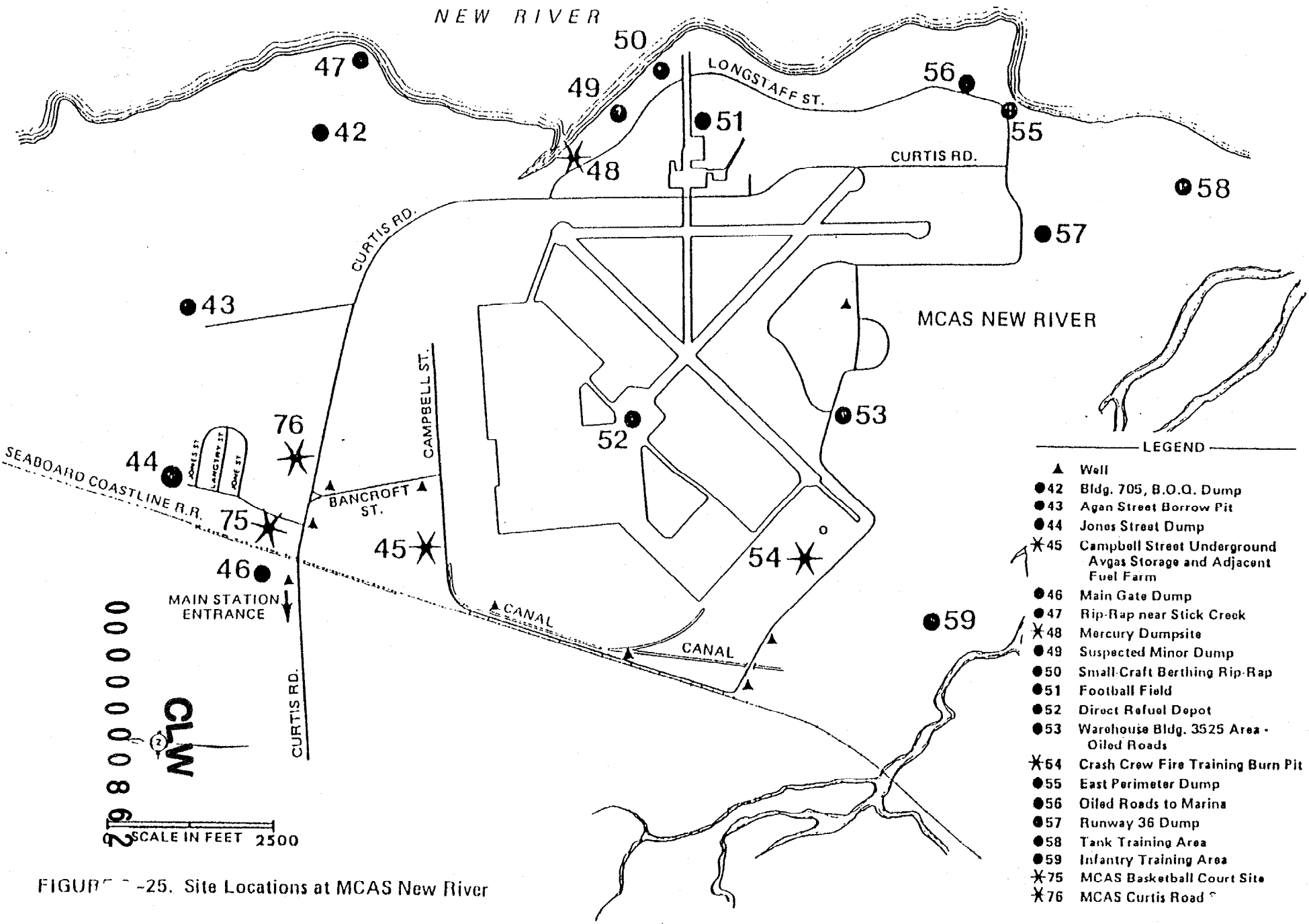

FIGURE 2-25. Site Locations at MCAS New River

Site No.: 48

Name: MCAS New River Mercury Dump Site

Location: PWDM Coordinates 23, D17/E17; Building 804 on Longstaff Road

Figures and Photos: 2-1, 6-26

Size: The disposal area is in a 100- x 200-foot corridor extending from the rear of Buiding 804 to the river.

Previously Reported: No

Activity: Mercury was drained from radar units periodically and disposed in woods near photo lab (Building 804).

Materials Involved: Metallic mercury

Quantity: Approximately 1 gallon per year over 10 years, i.e., more than 1,000 pounds total.

When: 1956 to 1966

Comments: Best information indicates that material was carried by hand, probably to area between building and river, and dumped or buried in small quantities at randomly selected spots. The solubility of metallic mercury is about 25 ppb, at 25°C, although this may increase due to chloride or hydride complex formation under the proper environmental conditions. The biological transformations of mercury in the aquatic environment (water and sediment) are complex and can enhance bioaccumulation in the food chain. The EPA drinking water standard for mercury is 2 ppb. One thousand pounds (454 kg) of mercury could contaminate about 184,000 acre-feet (227×10^6 m^3) of water to this level.

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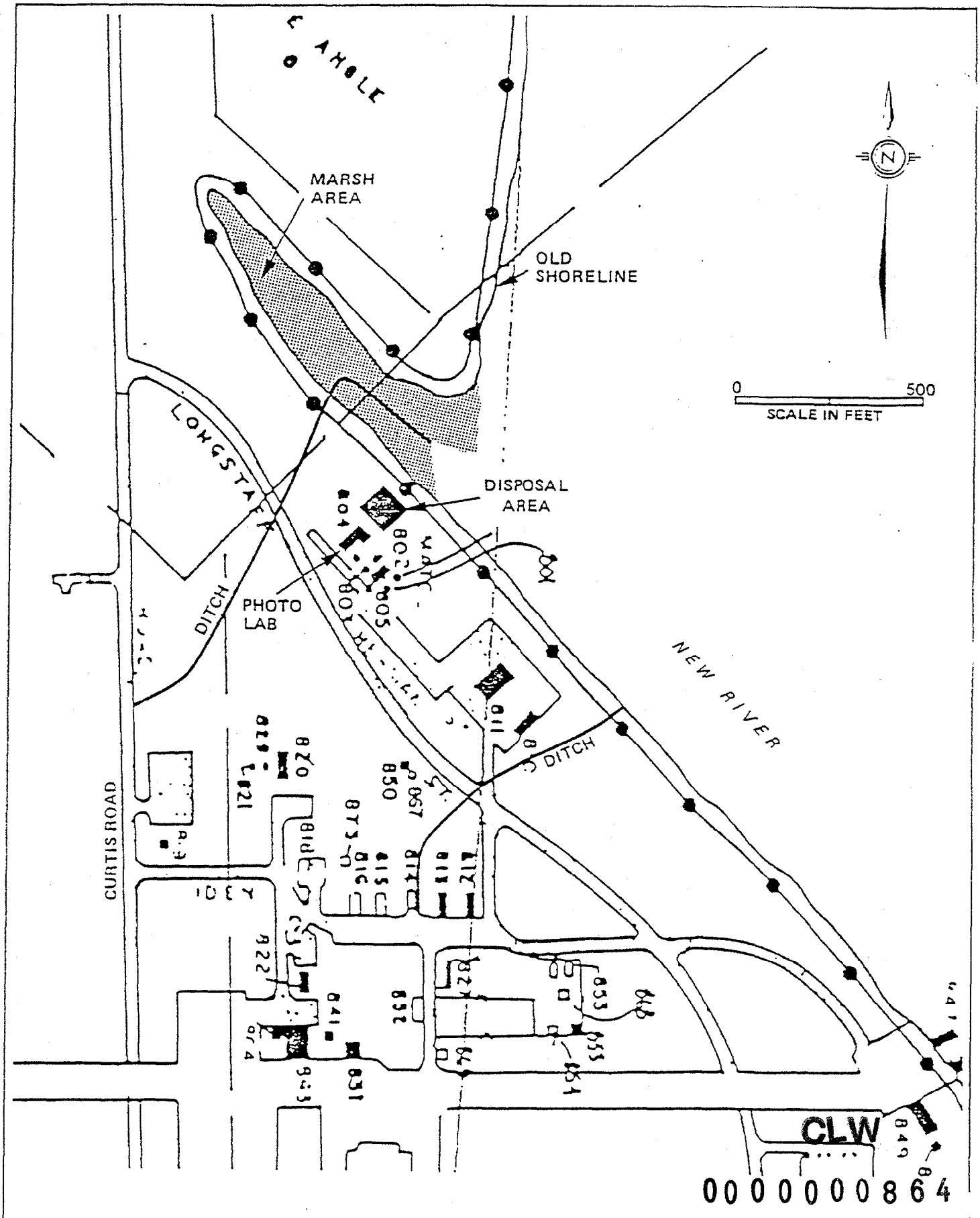

FIGURE 6–26
Detail of Site No. 48, MCAS New River Mercury Dump Site

SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 23 OF 24, JUNE 30, 1979.

Site No.: 54

Name: Crash Crew Fire Training Burn Pit at Air Station

Location: PWDM Coordinates 23, 024-25/P24-25; adjacent to southwest end of Runway 5-23 near Building 3614.

Figures and Photos: 2-1, 6-27, 6-28

Size: Affected area is approximately 1.5 acres.

Previously Reported: Yes EPA Form 8900-1 MC Bul 6280

Activity: Pit used in crash crew training at air station. Waste oils and solvents were burned.

Materials Involved: Contaminated fuels (principally JP-type, although leaded fuel may also have been used), waste solvents

Quantity: Based on present usage of 15,000 gallons of POL annually, nearly 1/2 million gallons of these compounds have been used at this site. If only 1 percent of solvents and POL soaked into ground before lining, then 3,000 to 4,000 gallons would have entered the soils. Caution: Reliable data have not been found from which to quantify soil contamination. The above estimating procedure is used to provide order of magnitude guidance only.

When: First use is believed to have been in mid-1950s.

Comments: Burn pit was lined around 1975. According to some reports, site was used unlined a number of years before this. However, 1964 aerial photographs reveal a very "clean" looking area; no large fuel stains are apparent.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

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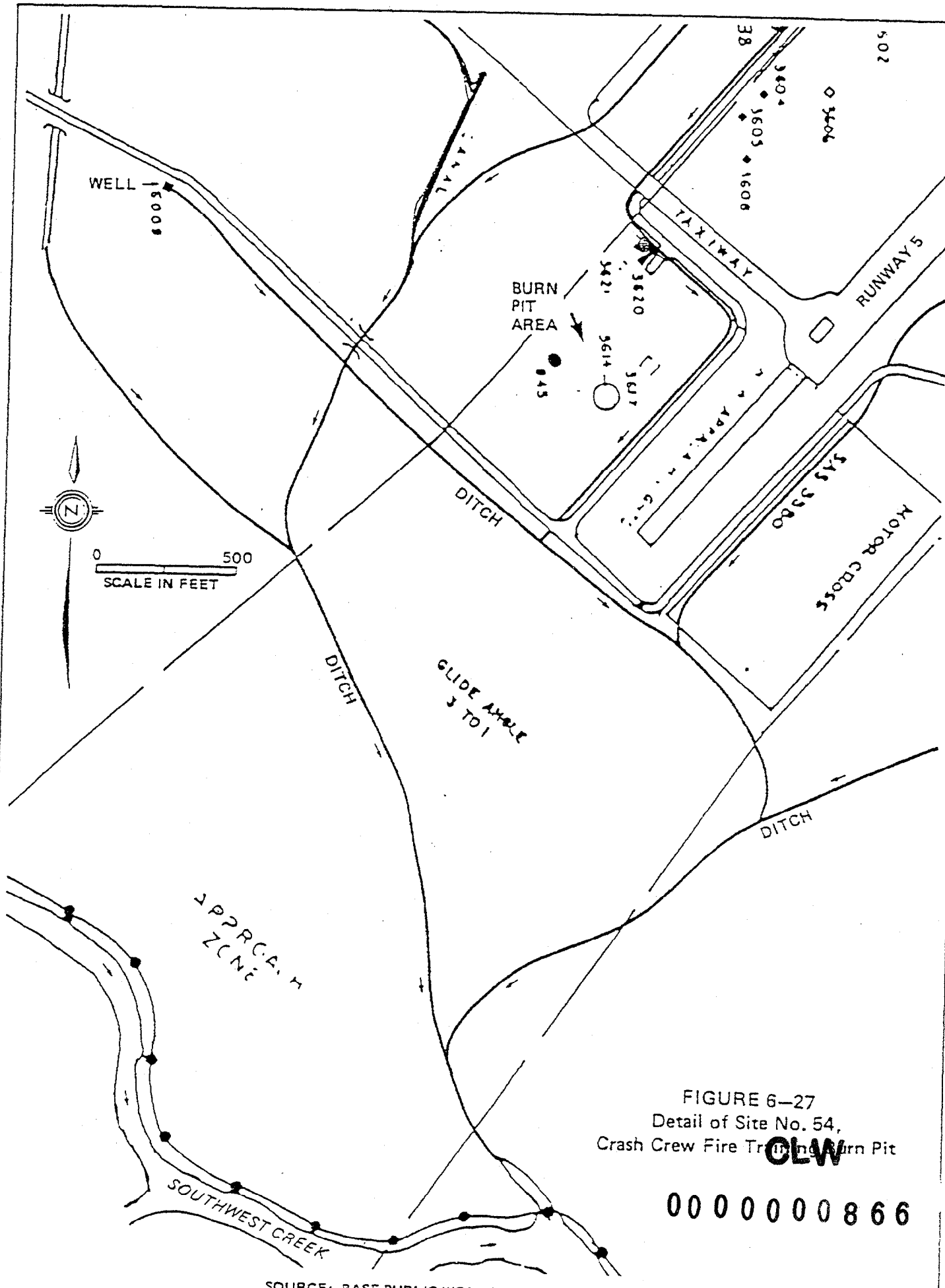

FIGURE 6–27
Detail of Site No. 54,
Crash Crew Fire Training Burn Pit

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SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 23 OF 24, JUNE 30, 1979 AND MCAS DRAINAGE – PUBLIC WORKS DRAWING 12277

FIGURE 6–28
Site No. 54 – Crash Crew Fire Training Burn Pit

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Site No.: 68

Name: Rifle Range Dump

Location: PWDM Coordinates 16, H6-8/I6-7; west of Range Road, about 2,000 feet west of Rifle Range water treatment, about 800 feet east of Stone Creek.

Figures and Photos: 2-1, 6-29, 6-30, 6-31

Size: Estimated area is 3 to 4 acres of primary disposal area within an originally disturbed area of approximately 35 to 40 acres.

Previously Reported: No

Activity: Operated as a dump for materials from Rifle Range activities

Materials Involved: Construction debris, WTP sludge, solvents (see comments below)

Quantity: Using 3 to 4 acres as area and assuming 10 feet of fill, volume is estimated at 50,000 cubic yards. Solvent amounts are estimated to be 1,000 to 2,000 gallons, based on period of use and quantities noted in comments (below).

When: 1942 to 1972

Comments: Sandy soils in area make site favorable for migration of contaminants. Although site is downgradient from Potable Well Nos. RR-47 and RR-97, heavy pumping may allow contaminants to move upgradient and cause the contamination found in these wells. However, this dump may not be the source of the contamination because total amounts of solvents in the dump cannot be accurately determined.

The report of solvent waste being disposed at the Rifle Range Dump has not been substantiated by follow-up interviews. Although the number of personnel qualifying with weapons at the rifle range apparently has decreased to 20,000 to 30,000 per year (range use has been higher during war years), weapon cleaning practices are probably unchanged for at least the last 20 years. Typically, weapon cleaning occurs at the "parent organization" and does not occur in the rifle range area except for the relatively small number of people working there. Dry cleaning solvent waste used for weapon cleaning does not exceed 20 to 30 gallons per year. Some discrepancy exists as to whether or not "bore cleaner" is presently used, but if it is, quantities used are expected to be similar to the amounts of dry cleaning solvents. No other unusual or specialized activity that uses solvents has been identified in this area.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

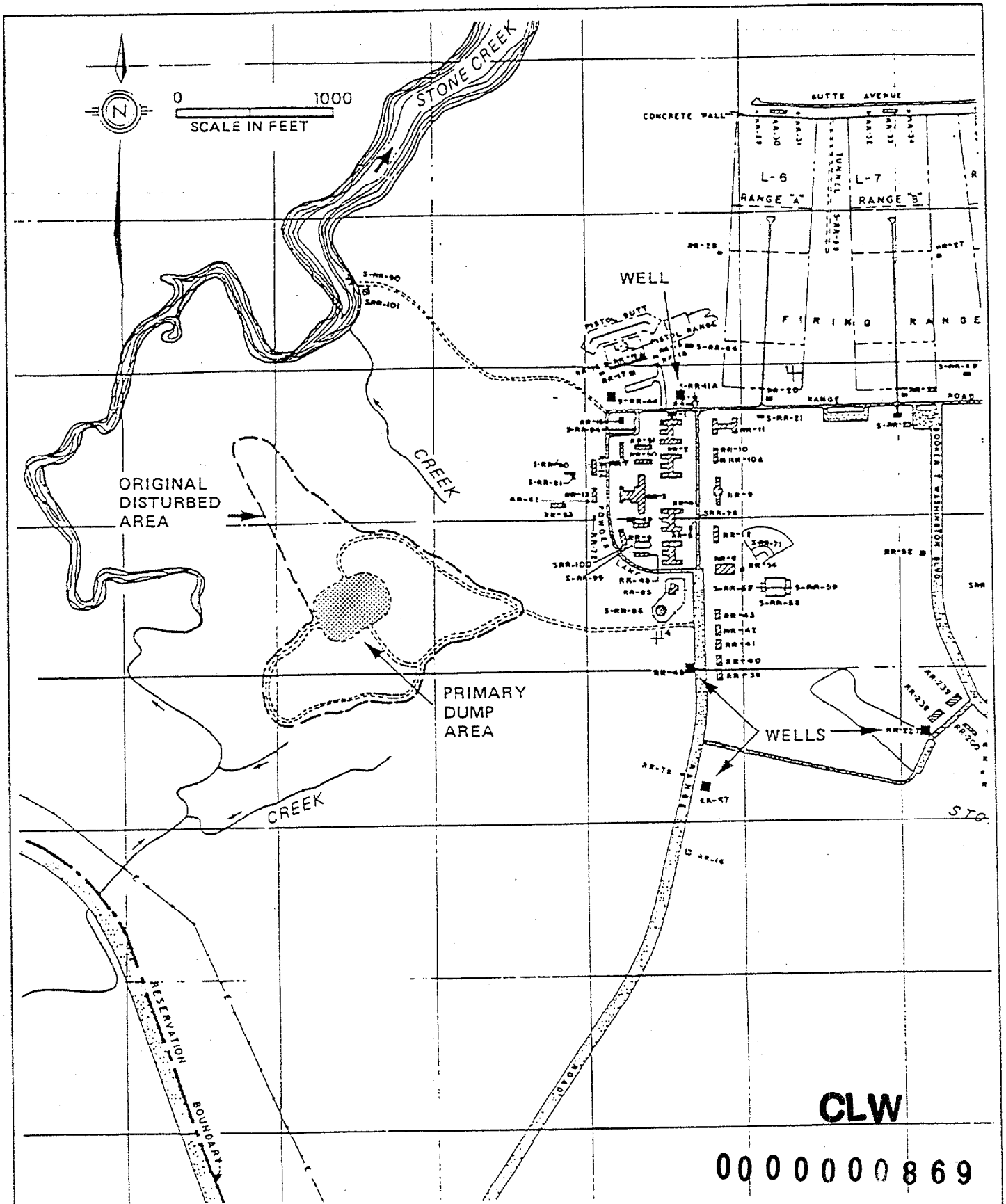

FIGURE 6–29
Detail of Site No. 68, Rifle Range Dump

SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 16 OF 24, JUNE 30, 1979.

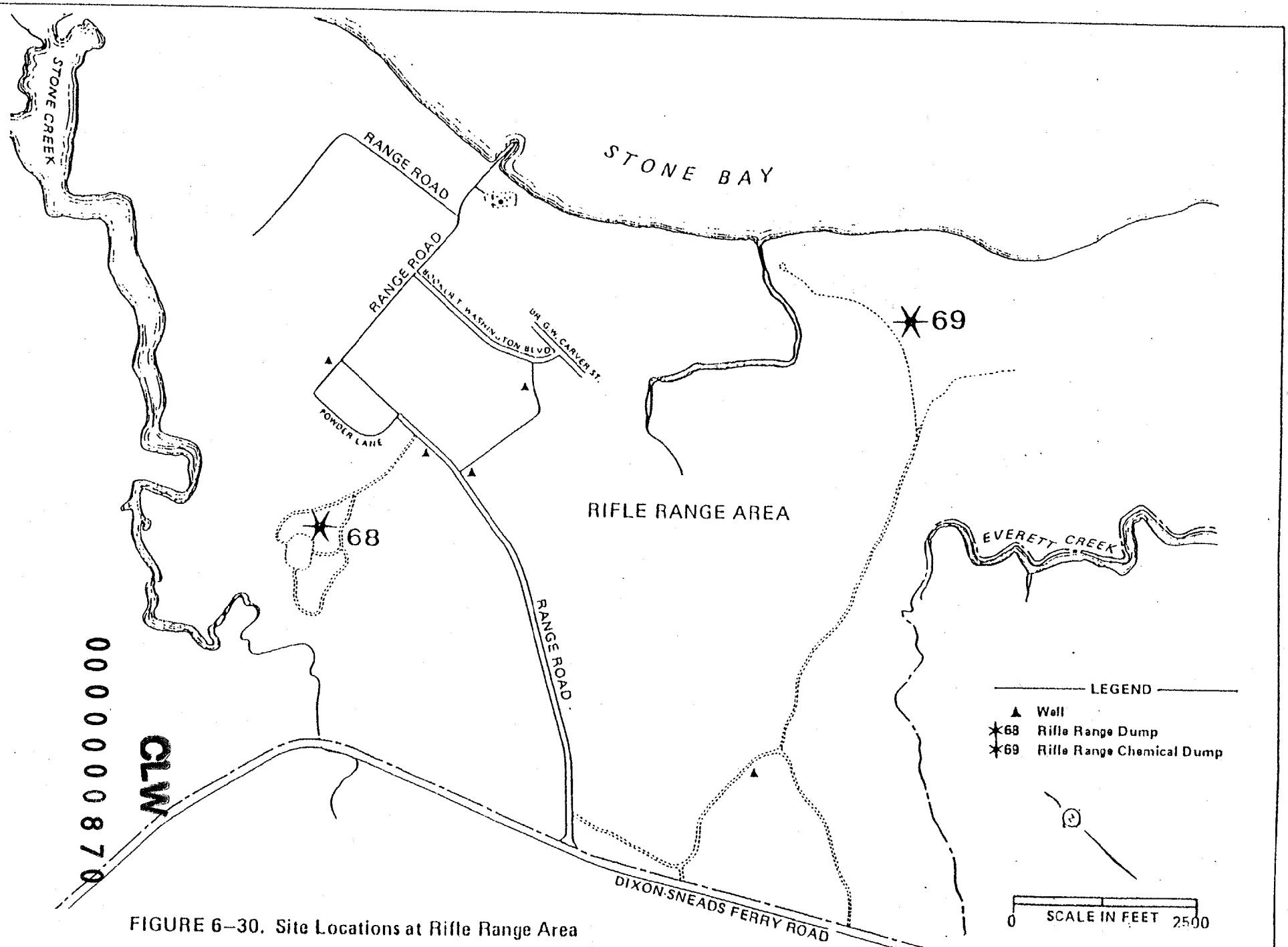

FIGURE 6–30. Site Locations at Rifle Range Area

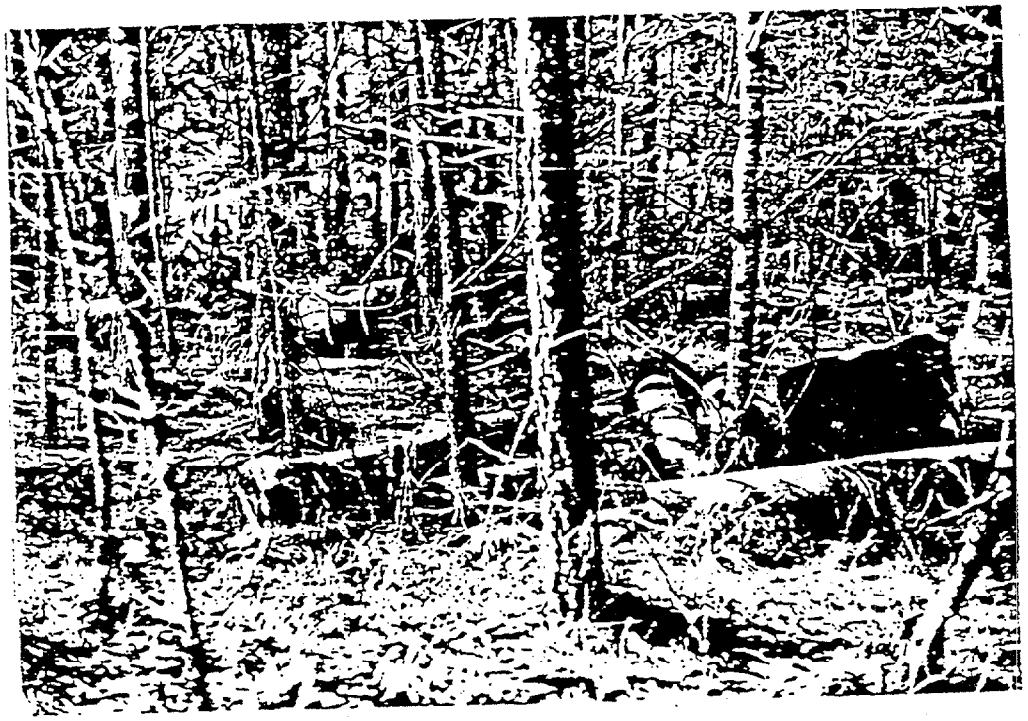

FIGURE 6–31
Site No. 68 – Rifle Range Dump

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Site No.: 69

Name: Rifle Range Chemical Dump

Location: PWDM Coordinates 16, L14-15/M14-15; about 8,000 to 9,000 feet due east of intersection of Range and Sneads Ferry Roads, north of Everett Creek.

Figures and Photos: 2-1, 6-30, 6-32, 6-33

Size: Estimated area is about 6 acres.

Previously Reported: Yes EPA Form 8900-1 MC Bul 6280

Activity: Former site for chemical wastes, including various pesticides, PCBs, fire retardants

Materials Involved: Pentachlorophenol, DDT, TCE, Malathion, Diazinon, Lindane, gas cylinders, HTH, PCBs, drums of "gas" that were probably a training agent containing chloroacetophenone (CN), all other hazardous materials generated or used on base, chemical agent test kits for chemical warfare, which contain no agent substances. See Table 2-3 for reported contaminant levels in surface and groundwater at or near this site.

Quantity: Overall volume may be 93,000 cubic yards. This is based on an area of approximately 6 acres and an assumed depth of 10 feet.

When: Approximately 1950 to about 1976

Comments: The former base safety officer prepared a list of what and where chemicals were buried in the landfill. This list has been lost, but some information is known from an interview.

Disposal was in pits/trenches between 6 to 20 feet deep. At least 12 different dumpings have been documented.

(Continued)

Site No.: 69 (Continued)

This site is at a higher elevation than surrounding terrain. Subsurface contaminant migration could be in many directions. Groundwater seeps were observed in the surrounding area.

Two reports of atmospheric emissions were noted. One incident occurred possibly as a result of meteorological conditions; the second incident was caused by accidental disturbance of the ground at the site by grading/disking machinery.

Some PCBs, sealed in cement septic tanks, are reported to be buried here.

Both fired and unfired blank rifle cartridges were found on the ground within the boundaries of this site. The presence of these cartridges indicate that troop training exercises may have extended into this area, possibly at night when warning signs might not have been seen.

The chemical agent test kits were a type called "Kit, Chemical Agent Detector, M9" for detecting mustards, nitrogen mustards, arsenicals and phosgene. The following is a contents listing of the kit from the kits' "General Directions."

1 Kit Carrier with Carrying Strap
1 Air Sampling Pump, with Flashlight
36 Mustards Detector Tubes
20 Nitrogen Mustards Detector Tubes
20 Arsenicals Detector Tubes
20 Phosgene Detector Tubes
20 Sampling Tubes
2 Aluminum Bottles of Liquid Reagent
1 Blue Bottle of Liquid Reagent
1 Red Bottle of Liquid Reagent
1 Aluminum Vial of Solid Reagent
1 Protective Cover
1 Set of General Directions for Use of Kit, Chemical Agent Detector, M9
1 Pack of Envelopes and Report Forms
1 Pencil

One disposal incident occurred in 1953 or 1954. About 50 drums of what is believed to be training agent were delivered on rubber padded trucks and were buried in two trenches (see Figure 6-32). The drums were described as being "not nearly as heavy as if filled with oil". These drums were placed in the pit one at a time and laid side by side. These two pits were up to 20 feet deep and the drums were stacked so

(Continued)

Site No.: 69 (Continued)

that the top layer was five or six feet below ground level when the drums were covered. Gas masks with some type of absorption cannister and other protective clothing were worn by those people present. The heavy equipment operator reported that he itched after working at this site. The drums were light blue or bluish-green and unmarked.

In 1970, another burial incident took place during which 5-gallon cans and 55-gallon drums of DDT, trichloroethylene (TCE), and calcium hypochlorite were placed together in a common pit. When earth was being placed over the containers, an explosion and fire occurred which caused a forest fire and blew drums from the pit into the forest about 40 yards from the pit. A fire truck and base safety personnel were present. Some of those present possessed gas masks.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

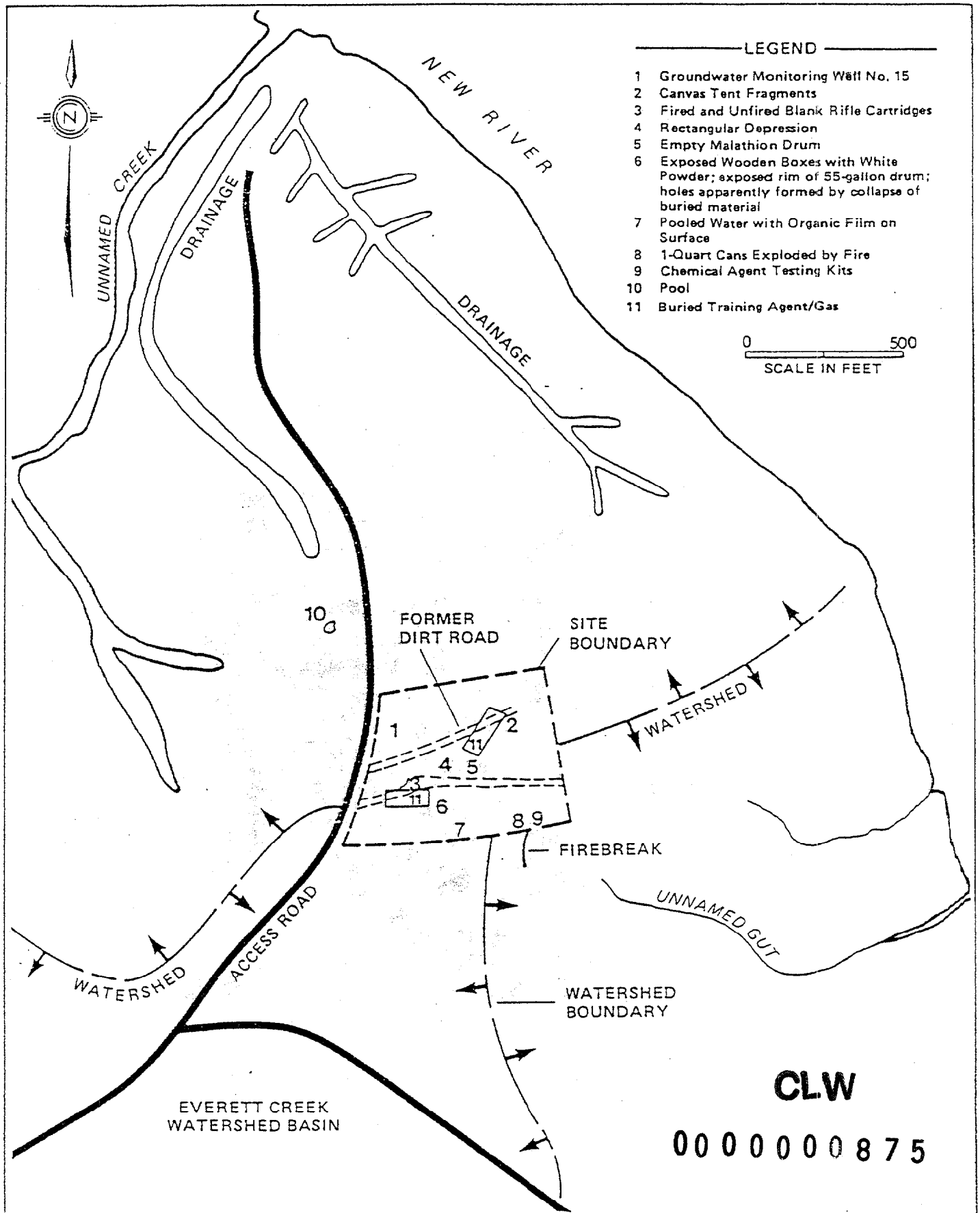

FIGURE 6–32
Physical Features and Locator Map For Site No. 69

SOURCE: USGS, 7.5 MINUTE SERIES, SNEADS FERRY, N.C., 1971.
VARIOUS AERIAL PHOTOGRAPHS, PERSONAL OBSERVATIONS, 1982.

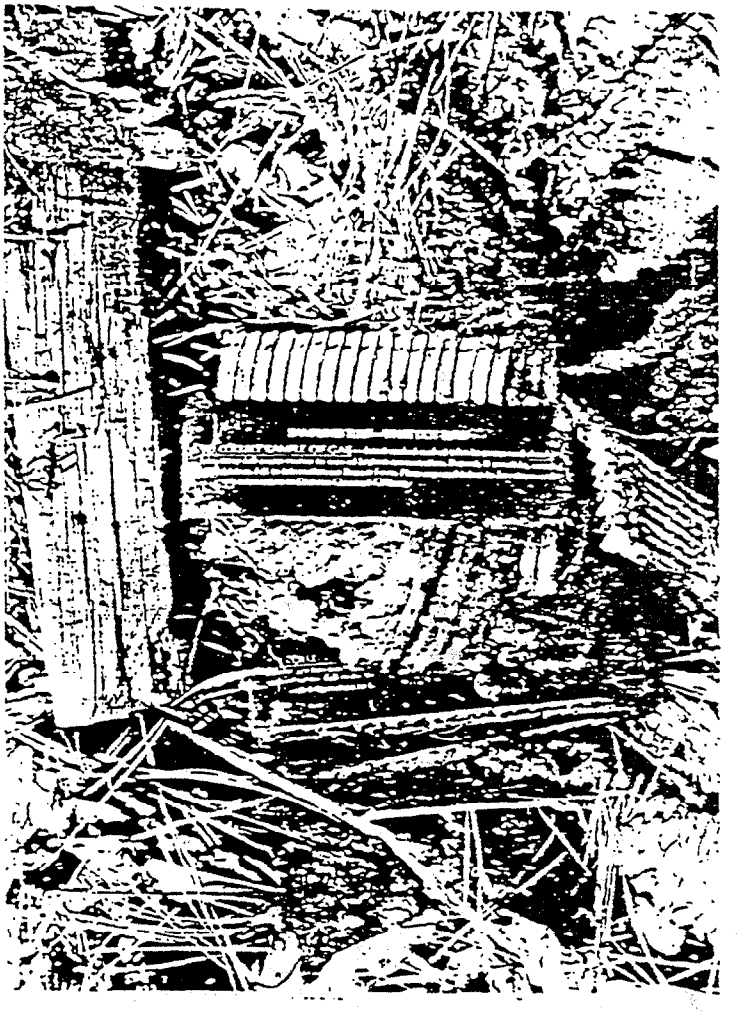

FIGURE 6–33
Site No. 69 – Rifle Range Chemical Dump
Showing Discarded Gas Detection Kits

Site No.: 73

Name: Courthouse Bay Liquid Disposal Area

Location: PWDM 17, I11-12; area surrounding Buildings A2, A3, A8, and A9, and surrounding the southern one-third of Courthouse Road

Figures and Photos: 2-1, 6-34, 6-35

Size: Acid and POL disposal area is about 1 acre. Disposal area for POL exclusively is about 12 acres.

Previously Reported: Yes Sanitary Engineering Survey FY77

Activity: Waste battery acid and motor oil were drained onto soil.

Materials Involved: Used vehicle battery acid containing sulfuric acid, lead, and possibly antimony; waste motor oil possibly containing phenol, barium, cadmium, chromium, copper, lead, nickel, silver, and zinc

Quantity: About 10,000 to 20,000 gallons of used battery acid were poured out at this site at an estimated rate of 60 gallons per month for a minimum of 27 years. The amount of lead dissolved in the used acid is expected to be small. (The solubility constant for lead sulfate is 2×10^{-8}; new battery acid is about 12 normal sulfuric acid); however, lead sulfate debris may have been suspended in the acid. Antimony sulfate or dissolved antimony may be present in used acid. The acid content of fresh battery acid is about 6 molar sulfuric acid. Using fresh acid molarity, between 60,000 and 120,000 moles of sulfuric acid was dumped at this site. This amount of sulfuric acid would consume about 13 tons of calcium carbonate during neutralization. Over a 32-year period, as much as 400,000 gallons of waste motor oil has been disposed of at this site. Presently, the 208 amphibious vehicles at this site require four oil changes of 15 gallons each per year. If the constituent concentrations listed in Table 6-4 are representative of this waste oil, the following amounts of material would be present in the soil or ground water: lead, 1,300 pounds; zinc, 1,600 pounds; and phenol, 70 pounds.

When: 1946 to 1977

Comments: Acid disposal occurred periodically by manually digging small holes in the ground, pouring in battery wastes, and then replacing soil. Oil wastes were disposed of by driving vehicle into wooded area, draining oil onto ground, replacing it with new oil, and driving away. Acid was disposed of by hand-carrying the battery or acid from the maintenance area, so the disposal area for acid is smaller than for the oil.

The acid disposal area is approximately 200 feet from Courthouse Bay. The disposal area for POL only is within just tens of feet from the shoreline.

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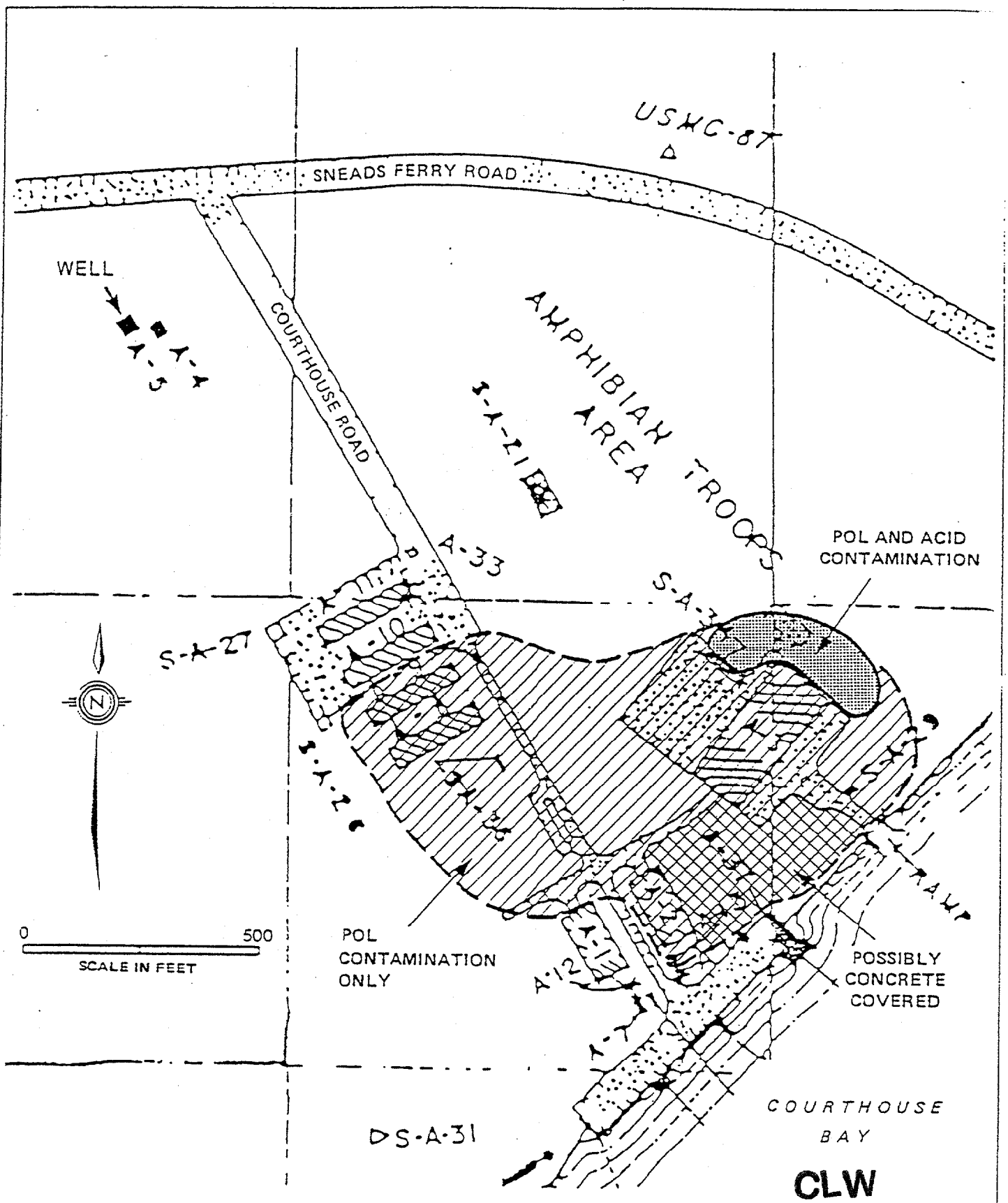

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FIGURE 6–34
Detail of Site No. 73, Courthouse Bay Liquid Disposal Area

SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAPS, SHEET 17 OF 24, JANUARY 1, 1977.

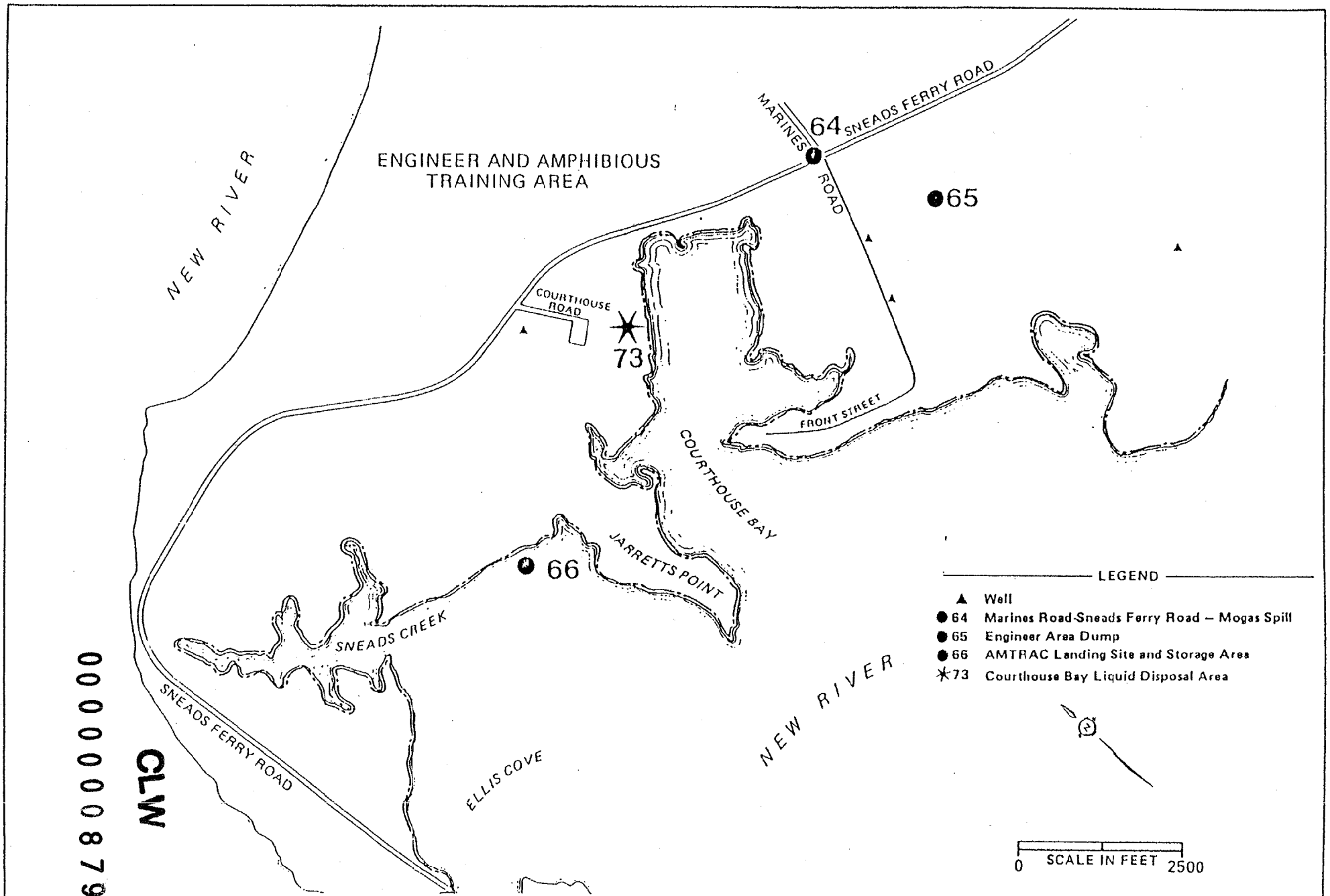

FIGURE 6–35. Site Locations at Engineer and Amphibious Training Area

Site No.: 74

Name: Mess Hall Grease Pit Area

Location: PWDM Coordinates 5, N13/014; grease pit located 0.4 miles east of railroad tracks - road intersection (at old sawmill site, Site No. 3) and north of dirt road; pest control usage area was 20-50 yards south of dirt road and about 75 yards east of Building 617.

Figures and Photos: 2-1, 6-5

Size: Grease pit 100-135 feet long by 30 feet wide by 10-12 feet deep; assume each drum burial pit was 30 feet long by 6 feet wide - total area north of dirt road approximately 2-3 acres; pest control area of about 100 feet by 100 feet is assumed.

Previously Reported: No

Activity: Three separate activities occurred in this area:

1. Grease from mess halls was deposited in a large pit;
2. Burials of 55-gallon drums, possibly containing PCB transformer oil and pesticides occurred near the grease pit; and
3. Burlap bags of sawdust were soaked in a DDT solution and then later deposited in wetland areas for mosquito control.

Materials Involved: PCBs, DDT, possibly other pesticides and drummed wastes.

Quantity: Pesticide contamination from pest control activities would have resulted from dripping sawdust bags, small spills, washout and excess disposal. It is reasonable to assume that at least several gallons per year were released. Therefore, over about 10 years, the quantity involved is estimated on the order of 50 to 500 gallons.

One or more truck loads of pesticides in 55-gallon drums were disposed of at this site. Assuming two truck loads of 20 full drums each, a quantity of 2,200 gallons of pesticides was buried here.

About 20 drums of PCB containing transformer oil, or 1,100 gallons, are buried here.

Mess hall grease at this site will not be considered a waste of concern (see Comments below).

CLW

Other wastes: See comment section below.

(Continued)

Site No.: 74 (Continued)

When: Sawdust bag soakings: 1950-1958; Pesticide drum burial: early 1950s; PCB burial: about 1963; grease pit activities: early 1950s.

Comments: The grease pit was used in the early 1950s as a disposal site for mess hall grease and some food wastes. At least one unsuccessful attempt to burn the grease using more flammable material failed. In 1954 Hurricane Hazel passed through the area and washed/floated the grease from the pit; pit use was then discontinued.

Drum burials occurred near but not in the grease pit. Detailed information regarding drum contents is not available because most data were provided by equipment operators involved only with burial and not with transportation or custody of the drums.

Some drums may have been left over from a burial/disposal incident at the Rifle Range Chemical Landfill (Site No. 69).

Aerial photographs show extensive activity at the grease pit area in 1956 with evidence of perhaps four separate burial trenches. Some activity is evident in 1949 and this area remained partially denuded as late as 1970. It is likely that other waste disposal events took place at this site although no other evidence or reports were discovered during the course of this study.

A sand mining site was used in the Sawmill-Grease Pit area concurrently with the grease pit operations.

Site No.: 75

Name: MCAS Basketball Court Site

Location: PWDM Coordinates 23, 08-9/P8-9; north of Curtis Road to the vicinity of the basketball court (Structure No. 1005) and between railroad tracks and housing area.

Figures and Photos: 2-1, 6-25, 6-36

Size: Pit was oval shaped, 90 feet long by 70 feet wide, at least 6 feet deep.

Previously Reported: No

Activity: Burial of drums occurred at this location.

Materials Involved: Material was called "gas" by personnel who unloaded it and is believed to be CN tear compound in solution. Solvents might include any one or more of the following: chloroform, carbon tetrachloride, benzene, and chloropicrin (PS).

Quantity: 75 to 100 55-gallon drums or 4,100 to 5,500 gallons

When: Early 1950s

Comments: Some conflicting data from former heavy equipment operators exist about this site. At least one disposal operation took place during which 75 to 100 55-gallon drums were buried. A crane was used to dig an oval hole about 70 feet by 90 feet and deep enough to cut into the groundwater table. The drum contents were called "gas" by the people delivering and unloading it but this was not intended to indicate automotive or airplane fuels. No fire department equipment or personnel were present. The drums may have contained a yellow or brown liquid. Tops of the drums may have had 8 feet of earth covering them.

There are three potable wells within 1,000 feet. No basements or shallow wells are known to exist in the vicinity. Recycled filter backwash water is pumped through a buried pipe between the water treatment plant and a storage pond north of the site. This pipe runs north-south immediately west of the site. Relatively high permeability fill surrounding the pipe may provide an opportunity for groundwater movement from the site to and into the pond.

CLW

Aerial photographs for years 1949, 1954, 1956 and 1964 did not reveal a conclusive location for this site.

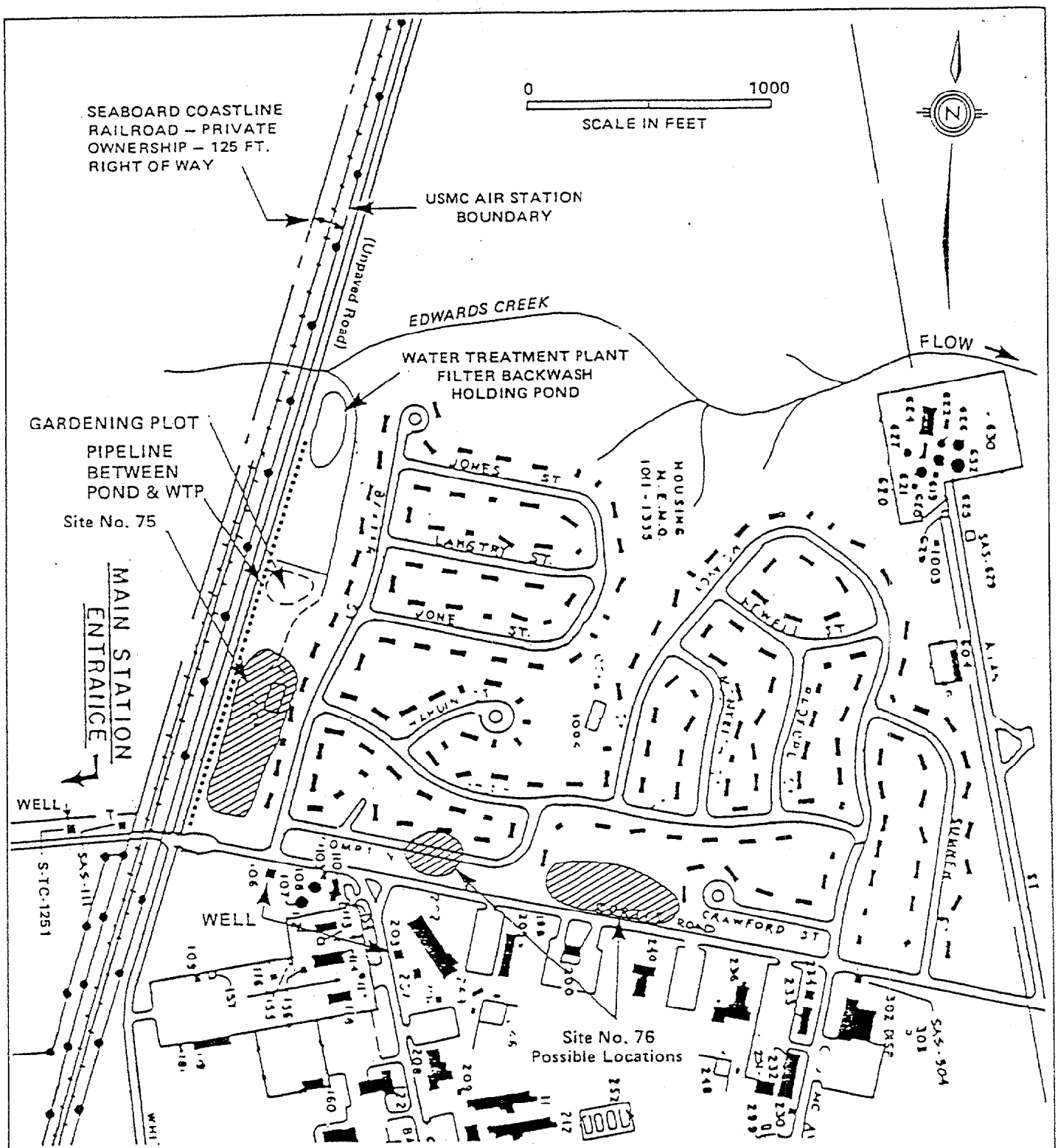

FIGURE 6–36
Detail of Site No.s 75 and 76, MCAS Basketball Court Site and MCAS Curtis Road Site, Respectively

CLW

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SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 23 OF 24, JUNE 30, 1979.

Site No.: 76

Name: MCAS Curtis Road Site

Location: PWDM Coordinates 23, L10/M10/N10; adjacent to and north of Curtis Road and west of terminus circle of Crawford Street. Precise location cannot be ascertained (see Comments below).

Figures and Photos: 2-1, 6-25, 6-36

Size: Probably about 1/4 acre; assuming two 50 feet by 100 feet areas placed beside each other.

Previously Reported: No

Activity: Burial of drums occurred here on two separate occasions.

Materials Involved: Possibly chloroacetophenone (CN) tear compound/ training agent because similar transporting and unloading procedures as those used at the MCAS Basketball Court Site (Site No. 75) were followed. Chloroform, carbon tetrachloride and benzene may be present as solvents and also chloropicrin (PS).

Quantity: At least 25 and possibly as many as 75 55-gallon drums, i.e., 1,400 to 4,100 gallons.

When: 1949

Comments: Material was delivered to the burial site on a padded truck and was unloaded by people who wore some protective clothing (perhaps only rubber gloves).

In 1949, this area was relatively undeveloped and lacked permanent landmarks. A large pecan tree cited as a landmark could not be located during the site visit. Features on a 22 October 1949 aerial photo indicate that the disposal site might be located 200 to 300 yards west of the area identified during the interview with a former heavy equipment operator. Since neither data source was considered unquestionable both areas are indicated on Figure 6-36. The exact site cannot be conclusively located at either one or the other of these two suggested locations. However, these sites are the most probable based on available data.

This site is different and distinct from the MCAS Basketball Court Site (Site No. 75).

CLW

6.7.3 Sites Not Requiring Confirmation. The majority of identified waste disposal sites have been judged not to require further assessment. This is because the potential for adverse impact to public health and/or the environment is relatively small. These sites are described in this section.

Site No.: 3

Name: Old Creosote Plant

Location: PWDM Coordinates 5, N11-12/O11-12

Figures and Photos: 2-1. 6-5

Size: Several acres

Activity: Lumber cutting and creosoting when railroad was being built

Materials and Quantity Involved: Trash and general debris

When: 1951 to 1952

Comments: Creosote plant operated only a few months when railroad was being built. The other operation was as a sawmill which made railroad ties and rough cut lumber. Plant later sold and removed.

Site No.: 4

Name: Sawmill Road Construction Debris Dump

Location: PWDM Coordinates 5, N14-15/O14-15

Figures and Photos: 2-1, 6-5

Size: Along roadway about 0.3 miles in length

Activity: General surface disposal area for construction debris

Materials and Quantity Involved: Asphalt, old bricks, and cement

CLW

When: Unknown

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Comments: Distance to nearest well is about 100 feet (Well Building 641). No hazardous wastes involved.

Site No.: 5

Name: Piney Green Road

Location: PWDM Coordinates 6, G4/H4

Figures and Photos: 2-1, 6-7

Size: Presumably along entire length of road which is about a mile

Activity: Waste oil from central heating plant was put on crushed clinkers and spread on road.

Materials and Quantity Involved: Waste oil for dust control

When: Unknown

Comments: Minor contamination potential

Site No.: 7

Name: Tarawa Terrace Dump

Location: PWDM Coordinates 3, F4

Figures and Photos: 2-1

Size: A few acres

Activity: Disposal site for waste material

Materials and Quantity Involved: Construction debris, STP filter sand, and household trash

When: 1972 (this is date closed)

Comments: No hazardous waste involved.

CLW

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Site No.: 8

Name: Flammable Storage Warehouse Bldg TP-451 and TP-452

Location: PWDM Coordinates 6, K3

Figures and Photos: 2-1, 6-7

Size: About 1 acre

Activity: Storage facilities for flammable materials

Materials and Quantity Involved: Assorted flammables.

When: Current

Comments: Building TP-452 burned in 1977

Site No.: 10

Name: Original Base Dump

Location: PWDM Coordinates 6, G2/H2

Figures and Photos: 2-1, 6-7

Size: 5 to 10 acres

Activity: Waste disposal landfill

Materials and Quantity Involved: Construction debris

When: Pre-1950

Comments: First dump on base. Received mainly construction debris. Also a burn dump.

CLW

Site No.: 11

Name: Pest Control Shop

Location: PWDM Coordinates 10, F10

Figures and Photos: 2-1, 6-3

Size: A few acres

Activity: Formerly used as a Naval Research Laboratory where metabolic studies using Iodine 131 occurred; presently the Pest Control Shop

Materials and Quantity Involved: Pesticide storage (current), beta buttons (previously dissolved and removed), animal carcasses contaminated with low-level radioactive materials

When: 1976 to 1982

Comments: Previously reported as a site by base environmental personnel and cleaned. Residual radioactivity low due to short half-life of Iodine 131

Site No.: 12

Name: EOD (G-4)

Location: PWDM coordinates 20, G8-10/H8-10/I8-10

Figures and Photos: 2-1

Size: About 300 acres

Activity: Ordnance is disposed of by burning or exploding when found to be inert, unserviceable or defective

Materials and Quantity Involved: Ordnance, burned or exploded, colored smokes, and white phosphorus

When: Early 1960s

Comments: Any undestroyed residues are typically less than 1 pound.

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Site No.: 13

Name: Golf Course Construction Dump Site

Location: PWDM Coordinates 7, G12-13

Figures and Photos: 2-1

Size: About 10 acres

Activity: Surface disposal of materials

Materials and Quantity Involved: Clippings, branches, and some asphalt

When: 1944

Comments: No hazardous wastes involved

Site No.: 14

Name: Knox Area Rip-Rap

Location: PWDM Coordinates 2, L16-17/M16-17

Figures and Photos: 2-1, 6-10

Size: Along about 700 feet of shoreline

Activity: Shoreline stabilization

Materials and Quantity Involved: Broken concrete and asphalt

When: 1973

Comments: No hazardous wastes involved

Site No.: 15

Name: Montford Point Dump Site (1948-1958)

Location: PWDM Coordinates 2, M9-10

Figures and Photos: 2-1, 6-10

Size: About 4 acres

Activity: Disposal area for trash and construction debris

Materials and Quantity Involved: Litter, asphalt, STP sludge, and sand

When: 1948 to 1958

Comments: No hazardous wastes involved

Site No.: 17

Name: Montford Point Area Rip-Rap

Location: PWDM Coordinates 2, N9/09

Figures and Photos: 2-1, 6-10

Size: Along about 800 feet of shoreline

Activity: Shoreline stabilization

Materials and Quantity Involved: Concrete rubble

When: 1968 to Unknown

Comments: No hazardous wastes involved

Site No.: 18

Name: Watkins Village (E) Site

Location: PWDM Coordinates 7, L21

Figures and Photos: 2-1

Size: 0.5 to 1 acre

Activity: Landfill burial of debris

Materials and Quantity Involved: Construction materials and debris

When: 1976 to 1978

Comments: No hazardous wastes involved

Site No.: 19

Name: Naval Research Lab Dump

Location: PWDM Coordinates 10, E10/F10

Figures and Photos: 2-1, 6-3

Size: About 2 to 3 acres

Activity: Waste disposal site for Naval Research Laboratory

Materials and Quantity Involved: Radioactive contaminated animals, empty tanks, and scrap metals

When: 1956 to 1960

Comments: Animal bodies were buried in deep pits. No residuals detected due to short half-life of Iodine 131.

CLW

Site No.: 20

Name: Naval Research Lab Incinerator

Location: PWDM Coordinates 10, F10

Figures and Photos: 2-1, 6-3

Size: Less than 0.5 acre

Activity: Incineration of burnable wastes

Materials and Ouantity Involved: Some ash and debris

When: 1956 to 1960

Comments: Minor quantities of wastes and residuals

Site No.: 23

Name: Roads and Grounds, Building 1105

Location: PWDM Coordinates 10, J15

Figures and Photos: 2-1, 6-3

Size: 4,400 square feet

Activity: Formerly administration and storage area for Pest Control Shop

Materials and Ouantity Involved: Pesticide and herbicide storage

When: 1957 to 1977

Comments: Site of former pesticide and herbicide storage and handling. Storage Lot 140 (Site No. 21) at that time was used for pesticide mixing. No spills reported.

CLW

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Site No.: 25

Name: Base Incinerator

Location: PWDM Coordinates 10, G8

Figures and Photos: 2-1, 6-3

Size: Less than 0.5 acres

Activity: Waste incineration, classified material incineration

Materials and Quantity Involved: Burned trash and melted glass

When: 1940 to 1960

Comments: No hazardous wastes involved

Site No.: 26

Name: Coal Storage Area

Location: PWDM Coordinates 10, L12

Figures and Photos: 2-1, 6-3

Size: About 3 acres

Activity: Fuel storage for Central Heating Plant

Materials and Quantity Involved: Coal storage runoff

When: Present

Comments: Runoff control should be considered for this site.

Site No.: 27

Name: Naval Hospital Area Rip-Rap

Location: PWDM Coordinates 10, H5

Figures and Photos: 2-1, 6-3

Size: About 500 feet of shoreline

Activity: Shoreline stablization

Materials and Quantity Involved: Concrete, granite rip-rap

When: 1970 to Unknown

Comments: No hazardous wastes involved

Site No.: 29

Name: Base Sanitary Landfill

Location: PWDM Coordinates 11, A12/B12-13/C12-13/D13

Figures and Photos: 2-1

Size: About 30 acres

Activity: Sanitary waste disposal

Materials and Quantity Involved: Garbage, construction debris, and general trash

When: 1972 to present

Comments: Previously reported by base environmental personnel. However, this site is a current site and permitted.

CLW

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Site No.: 31

Name: Engineering Stockade--G4 Range Road

Location: PWDM Coordinates 20, G7-8/H3-8/I1-7/J1-5

Figures and Photos: 2-1

Size: About 1.5 miles of roadway

Activity: Dust control

Materials and Quantity Involved: Waste oils

When: 1950 to early 1970s

Comments: Minor amounts of wastes involved

Site No.: 32

Name: Frenchs Creek

Location: PWDM Coordinates 11, F3/G3-4/H4

Figures and Photos: 2-1

Size: About 2,300 feet of shoreline

Activity: Shoreline stablization

Materials and Quantity Involved: Rip-rap dumped

When: 1973 to 1979

Comments: No hazardous wastes involved

Site No.: 33

Name: Onslow Beach Road

Location: PWDM Coordinates 19, G11-12/H11-12/I12-13/J12-13

Figures and Photos: 2-1

Size: Approximately 1/2 mile

Activity: Dust control

Materials and Quantity Involved: Waste oil and cinders for dust control

When: Unknown

Comments: Minor quantities of wastes involved

Site No.: 34

Name: Ocean Drive

Location: PWDM Coordinates 19, L16-17/M15-16/N14-15/O13-14/P12-13 Q10-12

Figures and Photos: 2-1

Size: About 2.5 miles of roadway

Activity: Dust control

Materials and Quantity Involved: Waste oil

When: Unknown

Comments: Minor quantities of wastes involved

Site No.: 37

Name: Camp Geiger Area Surface Dump

Location: PWDM Coordinates 12, D11-12

Figures and Photos: 2-1, 6-19

Size: About 4 acres

Activity: Surface disposal of wastes

Materials and Quantity Involved: Motor parts, garbage, wood

When: 1950 to 1951

Comments: No hazardous wastes involved

Site No.: 38

Name: Camp Geiger Construction Dump

Location: PWDM Coordinates 12, B10

Figures and Photos: 2-1, 6-19

Size: Less than 0.5 acre

Activity: Surface disposal of waste materials

Materials and Quantity Involved: Construction debris, branches

When: Present

Comments: Appeared to be a recent dumping of materials. No known hazardous wastes involved.

CLW

Site No.: 39

Name: Camp Geiger Construction Slab Dump

Location: PWDM Coordinates 12, B9-10/C9-10

Figures and Photos: 2-1, 6-19

Size: 1 to 2 acres

Activity: Bulldozing of building foundations, etc.

Materials and Quantity Involved: Concrete slabs

When: Unknown

Comments: No hazardous wastes involved

Site No.: 40

Name: Camp Geiger Area Borrow Pit

Location: PWDM Coordinates 13, D4

Figures and Photos: 2-1, 6-22

Size: 4 to 5 acres

Activity: Waste disposal

Materials and Quantity Involved: Auto parts, metal

When: 1969 to Unknown

Comments: No hazardous wastes involved

Site No.: 42

Name: Building 705, BOQ Dump

Location: PWDM Coordinates 23, D10

Figures and Photos: 2-1, 6-25

Size: Several acres

Activity: Surface disposal of material

Materials and Quantity Involved: Trees, tree stumps, boards

When: 1950 to 1960

Comments: No hazardous wastes involved

Site No.: 43

Name: Agan Street Dump

Location: PWDM Coordinates 23, H6-7/I6-7

Figures and Photos: 2-1, 6-25

Size: About 20 acres

Activity: Surface disposal of materials

Materials and Quantity Involved: Boards, trash, WTP sludge, fiberglass

When: Unknown

Comments: Mostly inert material

Site No.: 44

Name: Jones Street Dump

Location: PWDM Coordinates 23, L6-7/M6-7

Figures and Photos: 2-1, 6-25

Size: Several acres

Activity: Waste disposal

Materials and Quantity Involved: Debris, cloth, boards, old paint cans

When: 1950s

Comments: Minor quantities of potentially hazardous wastes

Site No.: 46

Name: MCAS Main Gate Dump

Location: PWDM Coordinates 23, Q8-9

Figures and Photos: 2-1, 6-25

Size: Less than 1 acre

Activity: Waste disposal

Materials and Quantity Involved: Construction and demolition debris

When: 1958 to 1962

Comments: No present evidence of dump site. No hazardous wastes involved.

CLW

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Site No.: 47

Name: MCAS Rip-Rap Near Stick Creek

Location: PWDM Coordinates 23, B11

Figures and Photos: 2-1, 6-25

Size: About 1,000 feet of shoreline

Activity: Shoreline stablization

Materials and Quantity Involved: Construction and demolition debris

When: Unknown

Comments: No hazardous wastes involved

Site No.: 49

Name: MCAS Suspected Minor Dump

Location: PWDM Coordinates 23, C18-19

Figures and Photos: 2-1, 6-25

Size: About 800 feet of shoreline

Activity: Possible waste disposal

Materials and Quantity Involved: Paint cans

When: Unknown

Comments: Minor quantities of potential hazardous wastes

CLW

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Site No.: 50

Name: MCAS Small-Craft Berthing Rip-Rap

Location: PWDM Coordinates 23, A19-20/B19-20

Figures and Photos: 2-1, 6-25

Size: About 1,000 feet of shoreline

Activity: Shoreline stablization

Materials and Quantity Involved: Demolition debris, asphalt, concrete

When: Unknown

Comments: No hazardous wastes involved

Site No.: 51

Name: MCAS Football Field

Location: PWDM Coordinates 23, C21-22/D21-22

Figures and Photos: 2-1, 6-25

Size: 20 to 30 acres

Activity: Empty container disposal site

Materials and Quantity Involved: Paint cans, hydraulic fluid cans

When: Approximately 1967 to 1968

Comments: Minor quantities of hazardous materials

Site No.: 52

Name: MCAS Direct Refuel Depot

Location: PWDM Coordinates 23, L19-20/M19-20

Figures and Photos: 2-1, 6-25

Size: About 25 acres

Activity: Refueling of military aircraft for about 1 year

Materials and Quantity Involved: Aviation fuel spill, JP fuels

When: 1971

Comments: Only used 1 year. Quantities minor.

Site No.: 53

Name: MCAS Warehouse Building 3525 area. Oiled roads.

Location: PWDM Coordinates 23, H-Q23-26

Figures and Photos: 2-1, 6-25

Size: About 3 miles of roadway

Activity: Dust control

Materials and Quantity Involved: Crankcase waste oils, JP fuels, paint thinners

When: 1970 to 1975

Comments: Minor quantities of residuals expected

Site No.: 55

Name: Air Station East Perimeter Dump

Location: PWDM Coordinates 23, C29-30

Figures and Photos: 2-1, 6-25

Size: Several acres

Activity: Site presently used as a marina and recreation area by MCAS

Materials and Quantity Involved: Barrels, tires, trash, metal planking, and telephone poles

When: 1950s to 1960

Comments: No hazardous wastes involved

Site No.: 56

Name: MCAS Oiled Roads to Marina

Location: PWDM Coordinates 23, C28-30

Figures and Photos: 2-1, 6-25

Size: About 1,500 feet of roadway

Activity: Dust control

Materials and Quantity Involved: Crankcase and waste oils and contaminated fuels

When: 1975 to unknown

Comments: Roads oiled with listed materials for dust control

Site No.: 57

Name: Runway 36 Dump

Location: PWDM Coordinates 23, E-G/30-32

Figures and Photos: 2-1, 6-25

Size: About 40 to 50 acres

Activity: Possible disposal site for material removed for runway construction

Materials and Quantity Involved: Debris

When: Unknown

Comments: No hazardous wastes involved

Site No.: 58

Name: MCAS Tank Training Area

Location: PWDM Coordinates 23, D33-39/G33-39

Figures and Photos: 2-1, 6-25

Size: About 50 acres

Activity: Training exercises for tanks and other armored vehicles

Materials and Quantity Involved: Tank parts and miscellaneous trash

When: Unknown

Comments: No hazardous wastes involved

Site No.: 59

Name: MCAS Infantry Training Area

Location: PWDM Coordinates 23, P-T/26-30

Figures and Photos: 2-1, 6-25

Size: About 70 acres

Activity: Land clearing debris disposal

Materials and Quantity Involved: Stumps

When: 1950s

Comments: No hazardous waste involved

Site No.: 60

Name: EOD K-326 Range

Location: PWDM Coordinates 15, 09

Figures and Photos: 2-1

Size: 2 to 4 acres

Activity: Burning or detonation of live ordnance for disposal purposes

Materials and Quantity Involved: Burn pits for explosives

When: 1974 to present

Comments: Site located 500 meters north of Rhodes Point Road, adjacent to New River. Minor amounts of residuals only.

CLW

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Site No.: 61

Name: Rhodes Point Road Dump

Location: PWDM Coordinates 15, I9

Figures and Photos: 2-1

Size: 8 to 10 acres

Activity: Disposal site for wastes generated during bivouac exercise

Materials and Quantity Involved: Bivouac waste

When: Unknown

Comments: Area restricted due to war games. No hazardous wastes involved.

Site No.: 62

Name: Race Course Area Dump

Location: PWDM Coordinates 14, D8

Figures and Photos: 2-1

Size: 1 to 2 acres

Activity: Disposal site for wastes generated during bivouac exercise

Materials and Quantity Involved: Bivouac waste

When: Unknown

Comments: Area restricted due to war games. No hazardous wastes involved.

CLW

Site No.: 63

Name: Vernon Road Dump

Location: PWDM Coordinates 14, H5

Figures and Photos: 2-1

Size: 3 to 4 acres

Activity: Disposal site for wastes generated during bivouac exercises

Materials and Quantity Involved: Bivouac waste

When: Unknown

Comments: Area restricted due to war games. No hazardous wastes involved.

Site No.: 64

Name: Marines Road--Sneads Ferry Road Mogas Spill

Location: PWDM Coordinates 17, I15/J15

Figures and Photos: 2-1, 6-35

Size: 1 acre

Activity: Fuel spilled in roadside ditch after vehicle accident

Materials and Quantity Involved: Mogas (spillage removed)

When: February 28, 1975

Comments: Spill immediately remediated

Site No.: 65

Name: Engineer Area Dump

Location: PWDM Coordinates 17, K16

Figures and Photos: 2-1, 6-35

Size: 4 to 5 acres

Activity: Burn dump

Materials and Quantity Involved: Burn area dump construction debris

When: Pre-1958 to 1972

Comments: No hazardous wastes involved

Site No.: 66

Name: AMTRAC Landing Site and Storage Area

Location: PWDM Coordinates 17, IM/611

Figures and Photos: 2-1, 6-35

Size: About 1 square mile

Activity: Vehicle maintenance during training exercises

Materials and Quantity Involved: Oil spill, POL, and battery acid

When: 1950s to present

Comments: Minor amounts of wastes

Site No.: 67

Name: Engineers TNT Burn Site

Location: PWDM Coordinates 23, A19-20/B19-20; located approximately 200 meters southeast of Building SBB-159 and about 50 feet from the water.

Figures and Photos: 2-1

Size: Less than 1 acre

Activity: TNT burning

Materials and Quantity Involved: TNT disposal

When: 1951

Comments: 2- to 3-foot pits were dug and unwanted TNT was opened and burned. Complete consumption of all TNT was reported during these procedures.

Site No.: 70

Name: Oak Grove Field--Surface Dump

Location: PWDM Coordinates 24, H2/I2, approximately 1400 ft. northwest of the western end of Runway 9-27

Figures and Photos: 2-1, 6-37

Size: About 3 acres

Activity: General dumping of all sorts of garbage

Materials and Quantity Involved: Cans, bottles, drums (i.e., paint thinner cans, brake fluid cans, cleaning compound)

When: Early to mid-1940s

Comments: No hazardous wastes involved

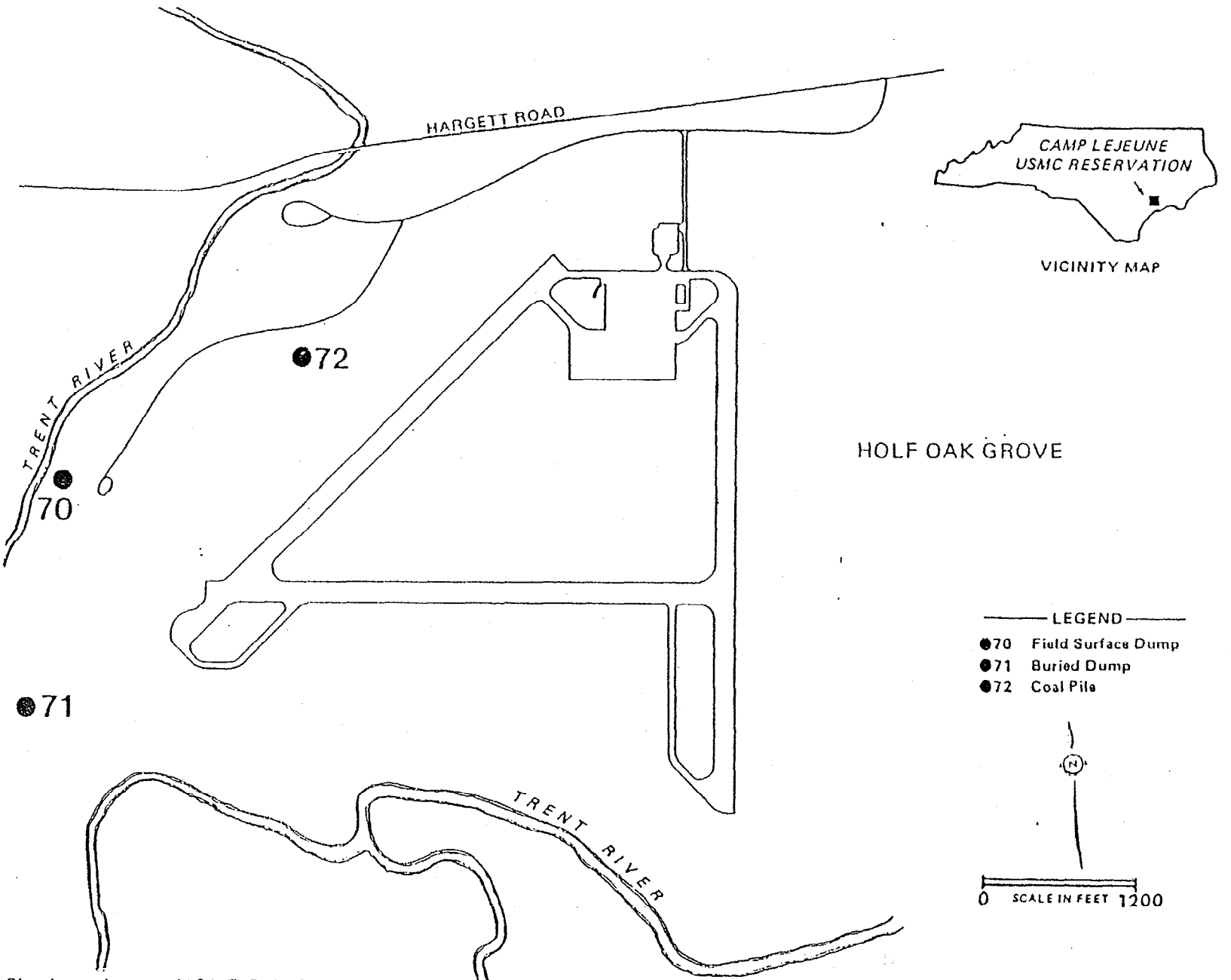

FIGURE 6–37. Site Locations at HOLF Oak Grove

Site No.: 71

Name: Oak Grove Buried Dump

Location: PWDM Coordinates 24, L1; about 1600 feet west/southwest of the southwest end of Runway 5-23

Figures and Photos: 2-1, 6-37

Size: 5 to 10 acres

Activity: Disposal site for all municipal and industrial type wastes

Materials and Quantity Involved: Paint thinner, brake fluid and cleaning compound cans, bottles, and drums

When: 1940s to 1950s

Comments: Site also apparently used as a war game training area. Various cartridge casings found on-site. Minor quantities of potentially hazardous wastes involved.

Site No.: 72

Name: Oak Grove Coal Pile

Location: PWDM Coordinates 24, F6

Figures and Photos: 2-1, 6-37

Size: About 1 acre

Activity: Coal storage for heating purposes

Materials and Quantity Involved: Coal

When: 1940

Comments: Insignificant potential residuals

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APPENDIXES

APPENDIX A

MONITORING-WELL CONSTRUCTION

APPENDIX A--MONITORING WELL CONSTRUCTION

A-1. RECOMMENDATIONS FOR GROUNDWATER MONITORING

A-1.1 Monitoring Well Inventory. Wells that have been improperly abandoned or that have been out of service for a long period are potential conduits for contamination from the water table aquifer to those deeper. Many of the wells at Camp Lejeune have been abandoned or are no longer in service, but there is not a complete inventory of the location or abandonment procedure.

It is recommended that the status of wells at the installation be clarified by determining the location of all the wells that have ever been drilled at the base. A comparison of the complete list of wells with the wells now in use will show those that have been abandoned or that are out of service. If these wells are close to and downgradient of a confirmed hazardous waste site, a further assessment of the wells' status should be made. This assessment should include the reason for abandonment or nonuse, the date when the well was last used, how it was abandoned (if applicable), future plans for the well (if not yet abandoned), and a review of any chemical/physical data available.

A satisfactory abandonment procedure involves filling the well and gravel pack with grout so that contaminants cannot migrate between aquifers.

A-1.2 Monitoring Well Installation. Each monitoring-well should be constructed so that it has both an efficient hydraulic connection to the surrounding water table aquifer and an effective seal against the migration of surface waters into the borehole.

The following techniques and materials are recommended to accomplish these two aims (Figure A-1):

1. Drill an 8-inch borehole to 10 feet below the water table, as noted during drilling. Collect representative lithologic samples every 5 feet during drilling for preparation of the lithologic log.
2. Install a string of threaded, flush-joint, 2-inch, schedule 40 PVC well casing and well screen. Set the top of a 10-foot length of PVC well screen at the water table if the water table is within approximately 5 feet of land surface. If the water table is encountered at greater depths, some portion of the well screen should be set above the water table. The recommended well-screen slot size is 0.010 inch. The top of the casing should extend approximately 12 to 18 inches above ground level.
3. After the well casing and screen have been installed in the borehole, place a filter pack of fine- to medium-grained quartz sand in the annular space from the bottom of the hole to approximately 2 feet above the top of the screen.

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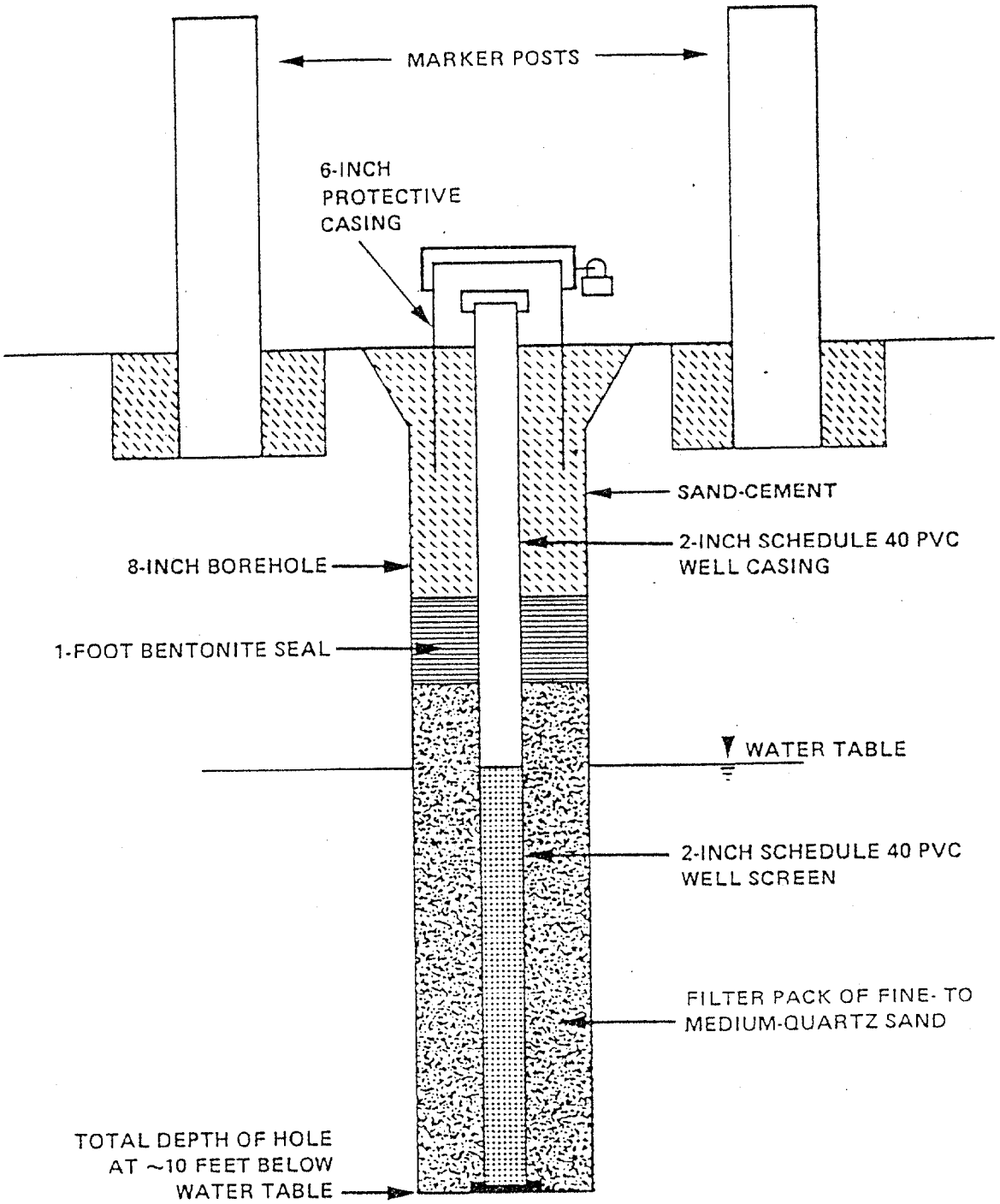

FIGURE A–1. Recommended Monitoring-Well Construction

4. Place a 1-foot seal of bentonite pellets in the annular space on top of the filter pack.
5. Fill the remainder of annular space with a sand-cement grout composed of two parts dry weight of sand to one part of cement with not more than 6 gallons of clean water per bag of cement (94 pounds or 1 cubic foot).
6. Install a 5-foot-long, 6-inch diameter, steel protective casing 3 feet into the grout. The protective casing should have a lockable steel cap and a padlock. The above-ground portions of both the protective casing and the PVC well casing should be vented with a 1/8-inch hole to permit the water in the well to fluctuate freely.
7. Install two 8-foot-long, 4-inch diameter, black steel marker posts adjacent to each well. Bury each marker post 3 feet and set it in sand-cement. Paint the upper 2 feet of each marker post day-glo orange.
8. Establish the vertical elevation and horizontal coordinates of the top of the casing (cap removed) to second order accuracy.

It may be necessary to vary the placement of the top of the screen and the thickness of the bentonite seal and the sand-cement grout if the water table is less than 5 feet below land surface.

APPENDIX B

ABBREVIATIONS LIST

APPENDIX B--ABBREVIATIONS LIST

Abbreviation	Term
AID	Accident Incident Data Bank
AMTRAC(s)	Amphibious Tractor(s)
BAT	Best Available Technology
BT	Bombing Target
CIA	Controlled Industrial Area
CMC	Commandant Marine Corps
COD	Chemical Oxygen Demand
CNO	Chief of Naval Operations
CSRS	Confirmation Study Ranking System
DPDO	Defense Property Disposal Office
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
FMF	Fleet Marine Force
FSSG	Force Services Support Group
GWCI	Ground Water Contamination Indicators
HOLF(s)	Helicopter Outlying Landing Field(s)
IAS	Initial Assessment Study
IWTP	Industrial Waste Treatment Plant
LANTNAVFACENGCOM	Atlantic Division, Naval Facilities Engineering Command
MACS	Marine Air Control Squadron
MAG	Marine Aircraft Group
MCALF	Marine Corps Auxiliary Landing Field
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MC Bul	Marine Corps Bulletin
MCOLF	Marine Corps Outlying Landing Field
MEK	Methyl Ethyl Ketone
NACIP	Navy Assessment and Control of Installation Pollutants
NAVAIREWORKFAC	Naval Air Rework Facility
NAVFACENGCOM	Naval Facilities Engineering Command
NBC	Nuclear, Biological, Chemical
NCBC	Naval Construction Battalion Center
NEESA	Naval Energy and Environmental Support Activity
NCIC	National Cartographic Information Center
NREA	Natural Resources and Environmental Affairs
NSWC	Naval Surface Weapons Center
OESO	Ordnance Environmental Support Office
OLF(s)	Outlying Landing Fields
POL	Petroleum, Oil, Lubricant(s)
PWDM	Public Works Development Map
RCRA	Resource Conservation Recovery Act
SAFEORD	Safety Ordnance File
STP	Sewage Treatment Plant
TCE	Trichloroethylene
THM	Trihalomethane(s)
WAR	Water and Air Research, Inc.
WTP	Waste Treatment Plant
2d FSSG	Second Force Service Support Group

APPENDIX C

LOGS OF WELL NOS. HP-613 and HP-616

Carl

25 June 1993 11:30 AM

UNDERGROUND STORAGE TANK GUIDANCE FOR FILLING OUT RMIS SITE DATA SHEETS

Tanks may come into the system via:

- annual testing
- tank inventory

If tank is leaking, either shut down and remove or repair the tank. If tank is repaired, tank will not be entered into RMIS.

If tank is removed, it needs to go into RMIS (DERA funded, BRAC funded).

After removal, there is a summary report (Tank Removal Summary Report), which includes results of samples taken where tank was removed. If samples are dirty, a Remedial Investigation (RI) Plan or a soil sampling and ground water plan (could be same plan) needs to be completed and signed off by regulatory agency.

Then the RI Plan is implemented and a Corrective Action Plan is done based on the results of the RI.

The last step is implementation of the Corrective Action Plan which is basically the soil and groundwater cleanup.

RMIS Phase	Data Dictionary	UST People
PA 2	Initial Site Characterization or Tank Inventory	Tank Removal/ Tank Removal Summary Report
Start Date:	For Abandoned or Active Tanks-- Contract award date for removal or abandoned in place. (tank closure)	Start Date of Phase 4 could be within timeframe of Phase 2
End Date:	regulatory buyoff of report	
RI/FS 4	Investigation for Soil and Groundwater Cleanup/Corrective Action Plan	RI Plan; Implement RI Plan; Corrective Action Plan.
Start Date:	Contract award date to do plans for investigation	
End Date:	Regulatory buyoff of Corrective Action Plan	

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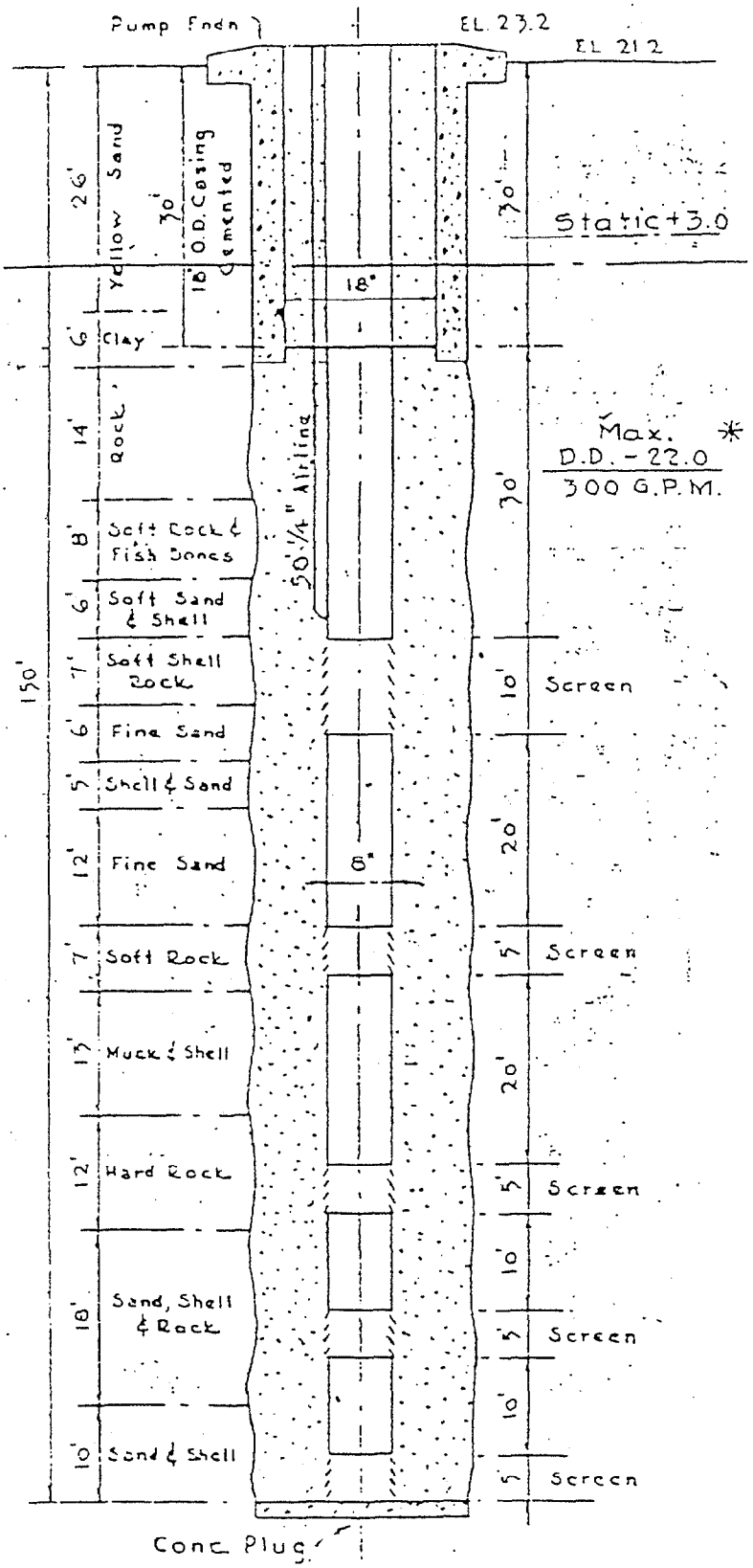
UNDERGROUND STORAGE TANK GUIDANCE
FOR FILLING OUT RMIS SITE DATA SHEETS

	CORRECTIVE ACTION PLAN	CORRECTIVE ACTION PLAN
RD 5	Put in Phase 5, RD if Design needed. Start Date: Contract Award date End Date: Date of Design Report (No regulatory buyoff needed) (At WESTDIV)	
RA 6	IMPLEMENT CORRECTIVE ACTION PLAN	IMPLEMENT CORRECTIVE ACTION PLAN
	Start Date: Contract award date to Implement Corrective Action Plan End Date: Last date of Field Work Remedy Information Section will deal with regulatory concurrence and Site Close-out.	



HP–613

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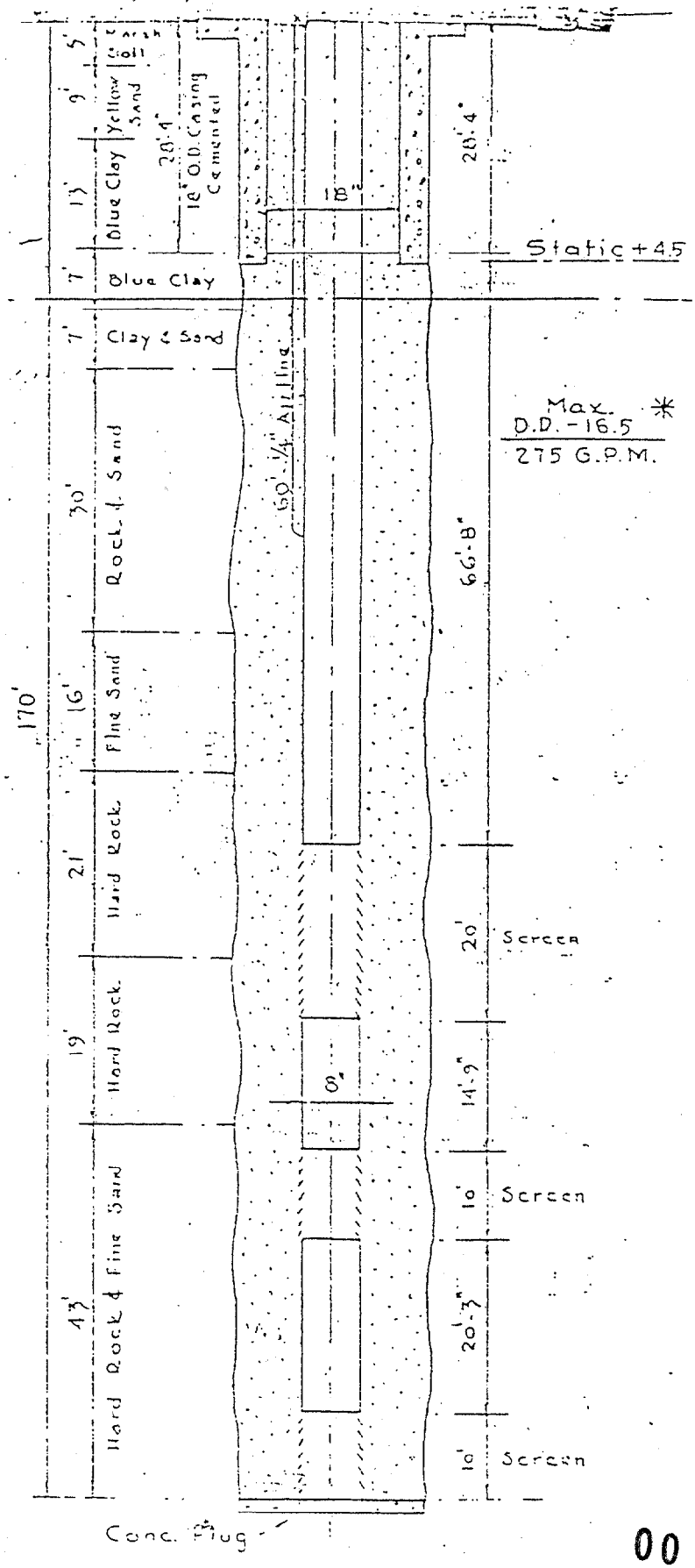

Armco Iron Screen Used In This Well

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