



THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

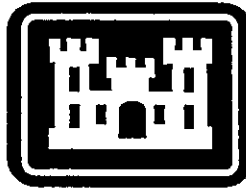
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DRAFT FINAL

Basis for NFA Recommendations

The Memphis Depot Memphis, Tennessee

PREPARED FOR



U.S. Army Engineering and Support Center

Huntsville, Alabama

Contract No. DACA87-94-D-0009
Delivery Order 0011

PREPARED BY
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TECHNICAL MEMORANDUM**CH2MHILL**

PREPARED FOR: Memphis Depot Caretaker Division
U.S. Environmental Protection Agency, Region IV
Tennessee Department of Environment and Conservation
U.S. Army Engineering and Support Center

PREPARED BY: CH2M HILL

DATE: September 14, 1999

SUBJECT: Main Installation-Sites Proposed for NFA as of September 1998

Executive Summary

The Memphis Depot was a major field installation of the Defense Logistics Agency (DLA), U.S. Department of Defense (DOD). Its primary mission was to provide material support to all U.S. military services and some civil agencies. The Memphis Depot was engaged in a variety of operations dealing with hazardous substance transportation, shipment, and disposal.

As a result of past practices and environmental contamination, the Memphis Depot was placed on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priorities List (NPL) on October 14, 1992 (199 *Federal Register* 47180). This action followed the issuance of a Resource Conservation and Recovery Act (RCRA) Part B Permit (No. TN4 210 020 570) to the facility on September 28, 1990. As an enforcement activity of the RCRA permit, a RCRA Facility Assessment (RFA) was conducted in January 1990 by the U.S. Environmental Protection Agency (EPA) (A. T. Kearney, Subcontractor). Other activities conducted under regulatory jurisdiction include the following:

Activity	Company	Dates
PCP Dip Vat Remediation	O. H. Materials	February 1996
Remedial Investigation	Law Environmental	August 1990
Feasibility Study	Law Environmental	September 1990
Groundwater Removal	Engineering Science, Inc.	July 1994
Engineering Report		
Groundwater Removal	Engineering Science, Inc.	August 1993
Engineering Assessment		
Screening Sites Investigation	CH2M HILL	March 1998
Remedial Investigation/Feasibility Study	CH2M HILL	May 1998-present

During the above-mentioned investigations and enforcement activities, individual sites that pose no threat to human health and the environment were identified by operable unit (OU). This technical memorandum (TM) describes the sites identified in OUs-2, 3, and 4 within the Main Installation of the Memphis Depot that pose no environmental threats based on the investigations conducted as of September 1998. Table ES-1 presents a summary of the sites proposed for no further action (NFA). This decision is the only remedial action identified for the sites.

Additional TMs documenting other sites that qualified for NFA after September 1998 will be provided in the future. The additional TMs will discuss the screening sites that were sampled previously during the Screening Sites Investigation, but for which additional sampling was required to further characterize the site and to provide sufficient data to support the proposed NFA status for the site. Furthermore, upon completion of the Remedial Investigation/Feasibility Study (RI/FS), historical RI sites probably could be proposed for NFA.

TABLE ES-1
Sites Recommended for No Further Action
Memphis Depot Main Installation NFA

Site No.	Description	Document Supporting NFA Recommendation
30	Paint Spray Booths	1
40	Safety Kleen Locations	1
41	Satellite Drum Accumulation Areas	1
44	Former WWTU Area	1
45	Former Contaminated Soil Staging Area	1, 2
47	Former Contaminated Soil Drum Staging Area	1, 2
49	Expired Medical Supplies Storage Area	1
53	X-25 Flammable Solvents Storage Area	1
69	Flamethrower Liquid Fuel	3
74	Flammables and Toxics	3
76	Unknown Wastes Near Building 690	3
81	Building 765, Fuel Oil AST	3

Notes:

Supporting documents are as follows:

- 1-RCRA Facility Assessment conducted by A. T. Kearney (January 1990)
- 2-Dip Vat Remediation Report by O. H. Materials (February 1986)
- 3-Screening Sites Letter Report, CH2M HILL (March 1998)

On the basis of the information provided in this report, it was determined that the proposed NFA remedy for the 12 identified sites is protective of human health and the environment and that no unacceptable short-term risks are caused. Therefore, the selected remedial alternative for the sites is intended to be NFA. This alternative will consist of leaving the sites as they are. No additional sampling or monitoring will be necessary (under CERCLA), because the conditions at the sites are protective of human health and the environment. This remedial alternative will have no remedial action or assessment costs associated with it.

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Acronyms

AOC	Area of concern
AST	Aboveground storage tank
BCT	BRAC Cleanup Team
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	<i>Code of Federal Regulations</i>
DLA	Defense Logistics Agency
DOD	Department of Defense
DRMO	Defense Reutilization and Marketing Organization
EPA	U.S. Environmental Protection Agency
FFA	Federal Facilities Agreement
FOSL	Finding of Suitability to Lease
FOST	Finding of Suitability to Transfer
FR	<i>Federal Register</i>
ft	Feet
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Pollution Contingency Plan
NFA	No Further Action
NPL	National Priorities List
OU	Operable unit
PAH	Polycyclic aromatic hydrocarbon
PCP	Pentachlorophenol
POL	Petroleum, oil, and lubricants
POTW	Publicly owned treatment works
PRE	Preliminary risk evaluation
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SWMU	Solid waste management unit
TDEC	Tennessee Department of Environment and Conservation
TM	Technical memorandum
USAESCH	U.S. Army Engineering and Support Center
WWTU	Wastewater treatment unit

1.0 Introduction

This technical memorandum (TM) has been prepared to propose a list of sites in the Main Installation of the Memphis Depot that do not present a significant risk to human health or the environment. This document is not intended to provide a formal Record of Decision (ROD) for these sites, although it does provide most of the necessary information for developing a ROD. The information and recommendations documented herein formalize the intention of the Memphis Depot Base Realignment and Closure (BRAC) Cleanup Team (BCT) that these sites will not require further action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The sites will be formally proposed for no further action (NFA) status under CERCLA during the proposed planning and ROD processes, which include public review and comment, at a later date.

The proposed NFA recommendation is made for these sites because the sites are already in a protective state, meaning that they do not pose a current or potential threat to human health or the environment. Preliminary assessments and site investigations were conducted at some of the sites by the U.S. Environmental Protection Agency (EPA) and Law Environmental in 1990 and by CH2M HILL from 1996 through 1997; the investigations concluded that no remedial actions were necessary at the sites herein proposed for NFA. It is intended that other TMs will be provided for additional sites intended for NFA as additional data and the results of risk-based analyses become available.

In cases where environmental sampling was performed at proposed NFA sites, the NFA recommendations in this document are based on the results of soil, surface water, and sediment analyses. The NFA recommendation does not include the potential for groundwater contamination below the NFA-candidate sites, either from the site itself or from upgradient sources of groundwater contamination. Groundwater contamination from the site itself is unlikely, considering the lack of evidence of a contaminant release to the environment from the proposed NFA sites. Groundwater contamination from upgradient sources is being evaluated under the site-wide groundwater monitoring program currently ongoing in Operable Unit (OU)-4 (*Operable Unit 4 Field Sampling Plan*, U.S. Army Engineering and Support Center [USAESCH], September 1995) and the CH2M HILL Remedial Investigation/Feasibility Study (RI/F). NFA recommendations within this document are based on an evaluation of the surface soil, surface water, and sediment environmental pathways. Groundwater evaluation is ongoing and will be reported in the Main Installation RI Report. The ongoing evaluation of subsurface soil data has not identified potential subsurface sources to groundwater contamination.

1.1 Facility Description and History

This subsection describes the location and characteristics of the Memphis Depot facility and the history of CERCLA activities at the Memphis Depot.

1.1.1 Memphis Depot Facility Description and Location

The Memphis Depot covers 642 acres of land in Memphis, Tennessee (Shelby County), in the extreme southwestern portion of the state. The installation contains approximately 118 buildings, 26 miles of railroad track, and 28 miles of paved streets, the majority of which lie within the Main Installation. Approximately 5.5 million square feet (ft) are covered storage space and approximately 6.0 million square ft are open storage space. The land and buildings are owned by the U.S. Army and were leased by the Defense Logistics Agency (DLA).

The DLA, an agency of the U.S. Department of Defense (DOD), provides logistics support to military services. The Memphis Depot is a major field installation of the DLA. The former duties of the Memphis Depot were to receive, warehouse, and distribute supplies common to all U.S. military services and some civil agencies located primarily in the southeastern United States, Puerto Rico, and Panama. Supplies for storage and distribution included food, clothing, electronic equipment, petroleum products, construction materials, and industrial, medical, and general supplies. Figure 1-1 presents the facility location map.

The Memphis Depot is located approximately 5 miles east of the Mississippi River and just northeast of the Interstate 240–Interstate 55 junction. The Memphis Depot is in the south-central section of Memphis, approximately 4 miles southeast of the Central Business District and 1 mile northwest of Memphis International Airport. Airways Boulevard borders the Memphis Depot on the east and provides primary access to the installation. Dunn Avenue, Ball Road, and Perry Road serve as the northern, southern, and western boundaries, respectively.

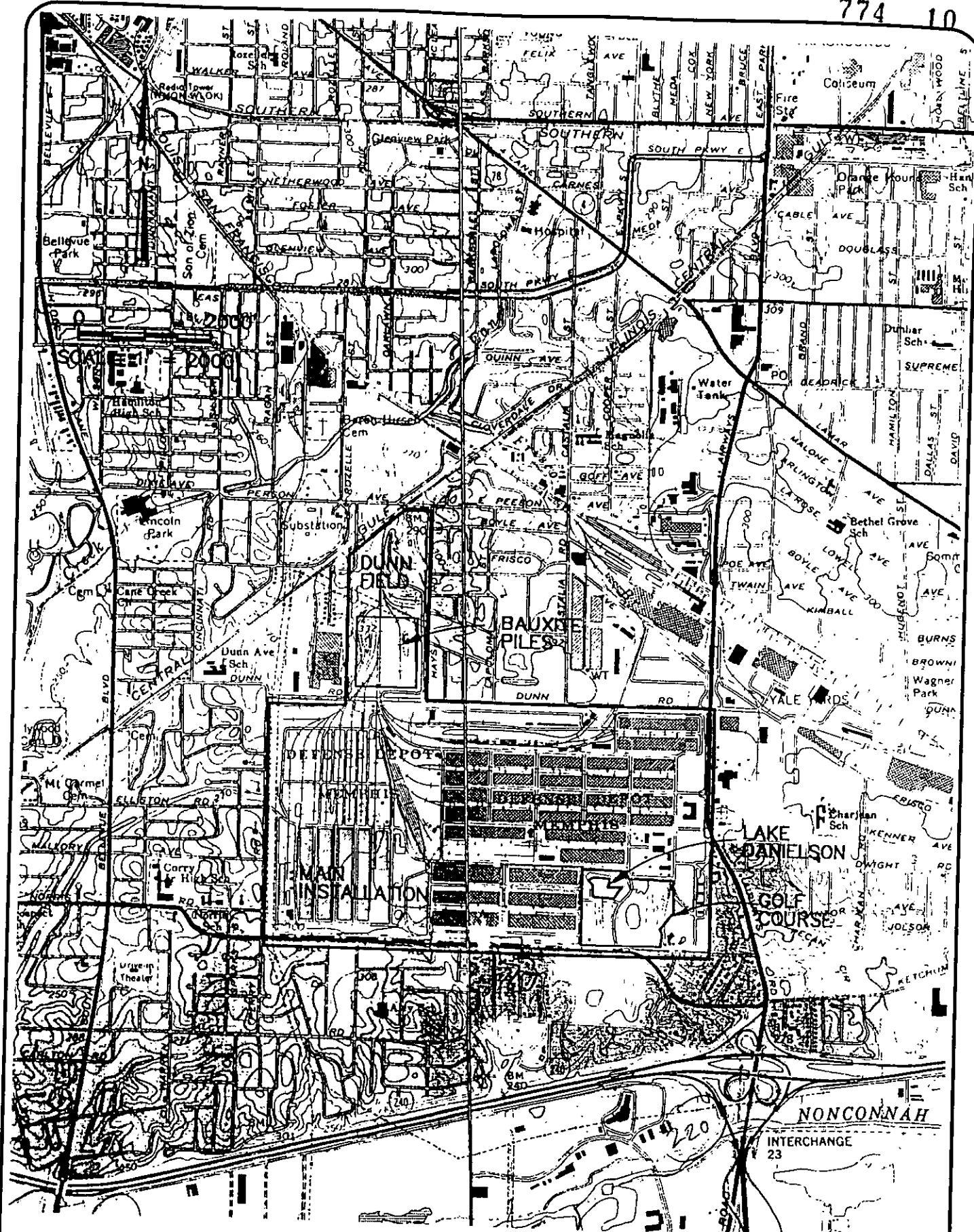
The Memphis Depot is divided into four OUs for CERCLA evaluation purposes. Dunn Field is designated as OU-1 and the Main Installation consists of OUs-2, 3, and 4. Again, this TM only focuses on the proposed NFA sites in OUs-2, 3, and 4 (the Main Installation) as of September 1998. Sites within OU-1 will be evaluated for NFA after RIs in Dunn Field are complete.

1.1.2 Facility Characteristics

1.1.2.1 Physiography and Climatology

The Memphis Depot and eastern Memphis are situated within the Gulf Coastal Plain Subdivision of the Atlantic Coastal Plain Physiographic Province. This area is characterized by dissected loess-covered uplands and generally lacks distinct features. The erosion-controlled land surface appears nearly level with local slopes, ranging from level to approximately 10 percent.

The Main Installation consists primarily of highly developed, urban land that has been graded, paved, and built on, with the major exception of the facility's golf course. Undeveloped areas are used for open storage of equipment.



Source:: USGS 7.5 Series Topographic
Quadrangle Maps - South West
Memphis Tenn. - Ark. and South-
east Memphis, Tenn.,

FIGURE 1-1
FACILITY LOCATION MAP
MEMPHIS DEPOT MAIN INSTALLATION NFA

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The Memphis Depot is located in the West Tennessee Climatic Division, with a typical climate of humid, warm summers and cold winters. The annual mean temperature is 62 degrees Fahrenheit; the daily mean temperature ranges from approximately 40 degrees in January to 82 degrees Fahrenheit in July. The area receives an average of 50 inches of precipitation a year, with the heaviest periods during the winter and early spring; thunderstorms are typical during late spring and early summer. The net annual precipitation (rainfall-evaporation) estimated for the Memphis area is 9 inches. Prevailing winds are from the south at less than 11 miles per hour.

1.1.2.2 Soils and Stratigraphy

The predominant surface soil association found in the Memphis Depot site before its development was the Memphis-Granda-Loring Association, characterized by yellow-brown to dark brown color. The association is generally sloping, well-drained to moderately well-drained, and has silt deposits varying in thickness from 6 to 8 inches. Construction of the facility resulted in an altering of the surface soil to a type classified as graded land with silty materials. Exceptions include the northeastern corner of Dunn Field and the southeastern corner of the golf course.

The facility is located in the north-central part of the Mississippi embayment, which is a broad trough or geosyncline. The axis of the trough roughly parallels the Mississippi River and plunges to the south. The sediments in the study area are primarily Tertiary and Quaternary unconsolidated sands, silts, and clays, with minor amounts of lignite. The uppermost geologic unit is loess. Loess is an eolian deposit consisting of silt, silty clay, sand, or a mixture of the materials. The deposits at the Memphis Depot range from 6 to 40 ft.

Quaternary and possibly Tertiary-age fluvial deposits underlie the loess throughout the facility beneath the upland areas and the valley slopes. The deposits consist primarily of sand and gravel, with lenses of clay. The fluvial deposits range in thickness from approximately 45 ft to 98 ft at the Memphis Depot.

The Jackson formation and the upper part of the Claiborne Group lie beneath the fluvial deposits. These units consist primarily of clay, silt, and fine sands, with minor lenses of lignite. The clays are primarily montmorillonitic. The Jackson formation and the upper Claiborne Group form a regionally significant confining unit for the underlying Memphis Sand, which is an important drinking water aquifer in the region.

1.1.2.3 Groundwater

The facility is underlain by a layer of loess that varies in thickness. Terrace deposits underlie the loess. The lower, saturated portion of the terrace deposits is referred to as the fluvial aquifer, which is the uppermost aquifer beneath the installation. Perched groundwater also exists in the terrace deposits above small clay lenses at elevations above the fluvial aquifer. However, these perched water zones are temporal and are not considered part of the fluvial aquifer. The fluvial aquifer is not used as a drinking water source within the City of Memphis. The Memphis Sand Aquifer underlies the fluvial aquifer and is the primary source of drinking water for the City of Memphis. Additional discussions of groundwater flow and the extent of contamination are provided in the *Groundwater Monitoring Report* (USAESCH, March 1998).

1.1.2.4 Surface Water

Most of the facility is level with or above the surrounding terrain, and therefore, receives little or no runoff from adjacent properties. Stormwater drainage from Dunn Field is mainly through overland flow to the north and west or through a concrete-lined storm sewer (which also conveys stormwater from an adjacent, upgradient residential neighborhood) that directs flow northward to Cane Creek, a tributary of the Nonconnah Creek. The Main Installation's drainage is through overland flow into a storm drainage system. The system directs flow into several outfalls to one perennial and two intermittent streams that drain to Nonconnah Creek (0.75 mile south). Nonconnah Creek, in turn, discharges into McKellar Lake (approximately 4 miles from the creek), which empties directly into the Mississippi River.

In addition, there are two permanent surface waters at the Memphis Depot-Lake Danielson and the Golf Course Pond. Lake Danielson is a 4-acre lake that receives a significant amount of stormwater runoff. The lake overflows intermittently through a concrete-lined channel at the dam and, as with the overflow from the Golf Course Pond, is directed through an unnamed tributary to Nonconnah Creek. Conversations with facility personnel indicate that overflows occur when net precipitation is above normal.

No surface water intakes are located within 15 miles downstream of the facility; however, the streams and lake are used for recreational purposes. The facility is not located in the 100-year floodplain and no portions are subject to flooding.

1.2 History of CERCLA Activities at the Memphis Depot

As a result of past practices and environmental contamination, the Memphis Depot was placed on the CERCLA National Priorities List (NPL) on October 14, 1992 (199 *Federal Register* [FR] 47180). Moreover, CERCLA NPL sites must undergo necessary corrective action processes to protect human health and the environment. The Memphis Depot has entered into a Federal Facilities Agreement (FFA) under CERCLA that provides the basis for implementing corrective action processes at the Memphis Depot. As established in the National Oil and Hazardous Pollution Contingency Plan (NCP) (40 *Code of Federal Regulations* [CFR] Part 300.120), the DOD is the lead agency at NPL sites involving federal facilities. Accordingly, EPA and the Tennessee Department of Environment and Conservation (TDEC) have been identified as support agencies in this process. This subsection further describes the designation of the Memphis Depot as an NPL site, the FFA that governs corrective actions at The Memphis Depot, and the NFA site classification process.

1.2.1 RCRA Part B Permit and Designation as an NPL Site

In 1989 and 1990, as a part of the DOD Installation Restoration Program (IRP), The Memphis Depot initiated an RI/FS of several known and suspected sources of contamination. This study was performed by Law Environmental through a contract with the USAESCH. The final work plan for this effort was provided to EPA in April 1989. The study was performed in two phases, referred to as Phase I (primarily activities in 1989) and Phase II (primarily activities in 1990). The final *Remedial Investigation Report* was provided to EPA in August 1990, and the final *Feasibility Study Report* was submitted in September 1990. The Memphis

Depot was issued a Resource Conservation and Recovery Act (RCRA) Part B permit (No. TN4 210 020 570) by EPA, Region IV, and TDEC on September 28, 1990. Subsequently, EPA added the Memphis Depot to the NPL by publication in the *Federal Register*, 199 FR 47180, on October 14, 1992.

1.2.2 Federal Facilities Agreement

The Memphis Depot entered into an FFA among the DLA of the DOD, EPA, and TDEC on March 6, 1995. The agreement establishes a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions at the Memphis Depot in accordance with existing regulations and with achieving RCRA/CERCLA integration. Because of the Memphis Depot's status as an NPL site, it was agreed that the investigation of all applicable sites (those requiring RI) would proceed under the CERCLA process for remediation (which includes RI, FS, proposed plan and ROD, remedial design, and remedial action) and that this process would meet RCRA requirements.

For NFA sites—those sites in which no action is required to protect human health and the environment from past activities—the FFA integrates both CERCLA and RCRA and requires that adequate written documentation be submitted by DLA to support NFA decisions. Sections 2, 3, and 4 of this TM present this information for the OUs-2, 3, and 4 proposed NFA sites, respectively.

1.2.3 Base Realignment and Closure

The decision to close the Memphis Depot was made as part of the Base Realignment and Closure Act of 1995 (BRAC 95, subsequently referred to as BRAC). The facility was closed as of September 17, 1997. As part of the BRAC process, the equipment and supplies, including the material stockpiles, have been removed from the Memphis Depot.

The facility was divided into 35 parcels based on the environmental condition of the property. The properties defined as BRAC parcels are being transferred from government control to other private- and public-sector uses. Data and information gathered from the CERCLA-governed screening sites and RIs have been organized and presented by BRAC parcel to support parcel leasing. The facility must complete the investigations and cleanup under CERCLA and other environmental programs before the facilities can be transferred to new owners. Early risk-based evaluation of BRAC parcel and CERCLA site environmental data is needed to establish a Finding of Suitability to Lease (FOSL) or Finding of Suitability to Transfer (FOST), which permits the lease or transfer of parcels and buildings. The decision for NFA, when final, means that no further action under CERCLA is necessary for the identified sites. However, there may be other sites that require further action within a parcel or other compliance actions necessary to complete the BRAC process for a parcel.

1.2.4 Site Classification to NFA

Several reports document the sites where past waste disposal activities have occurred at the Memphis Depot. The RCRA Facility Assessment (RFA), which was performed by EPA in 1990, identified 49 solid waste management units (SWMUs) and 8 areas of concern (AOCs) at the Memphis Depot. The RFA was performed subsequent to the Memphis Depot's application for a RCRA Part B permit. Upon completion, the RFA specified the level of additional investigation necessary for each SWMU and AOC (for example, NFA, RCRA

Facility Investigation [RFI], and Preliminary RFI/Confirmatory Sampling). Eight sites were identified in 1990 during the RFA that posed no threat to human health and the environment; subsequently, these sites were identified and recommended as NFA sites. The eight sites are listed in Table 1-1.

TABLE 1-1

Proposed NFA Sites Identified During the 1990 RFA
Memphis Depot Main Installation NFA

Site 30--Paint Spray Booths	Site 45--Former Contaminated Soil Staging Area
Site 40--Safety-Kleen Locations	Site 47--Former Contaminated Soil Drum Area
Site 41--Satellite Drum Accumulation Areas	Site 49--Expired Medical Supplies Storage Area
Site 44--Former WWTU Area	Site 53--X-25 Flammable Solvents Storage Area

In 1990, an RI conducted by Law Environmental, Inc., identified 75 sites of potential contamination and some general storage sites. In 1995, CH2M HILL began planning for another RI to investigate the sites that were not investigated previously and to fill data gaps at sites previously investigated by Law Environmental. The sites with known releases were identified as RI sites and those sites where hazardous materials may have been managed and a release had been suspected, but not confirmed, were classified as screening sites. The 1997 CH2M HILL investigations at screening sites resulted either in the site being elevated to RI status or being proposed for NFA status.

Soil, surface water, and sediment environmental sampling to support RI and screening site characterization was performed between December 5, 1996, and January 23, 1997. Additional soil samples were taken with BRAC parcels from October 15 through October 19, 1996, to evaluate the environmental condition of the parcel; however, these data points are not associated with sites defined under CERCLA.

Summary reports were prepared to present the data and the rationale for further RI/FS activities, if needed (*Screening Sites Letter Reports*, CH2M HILL, March 1998; *Remedial Investigation Letter Reports*, CH2M HILL, May 1998; and *BRAC Parcel Summary Reports*, CH2M HILL, April, 1998). Data collected for both the CERCLA and BRAC programs were reviewed by the BCT during meetings in July, August, and October 1997. A preliminary risk evaluation (PRE) also was performed using the data from the CH2M HILL field investigations to evaluate potential risks posed by contaminants that have been found in soil, surface water, and sediment within each BRAC parcel and CERCLA site. As a result of this data evaluation and preliminary risk assessment, four screening sites were identified and recommended as NFA sites, as shown in Table 1-2.

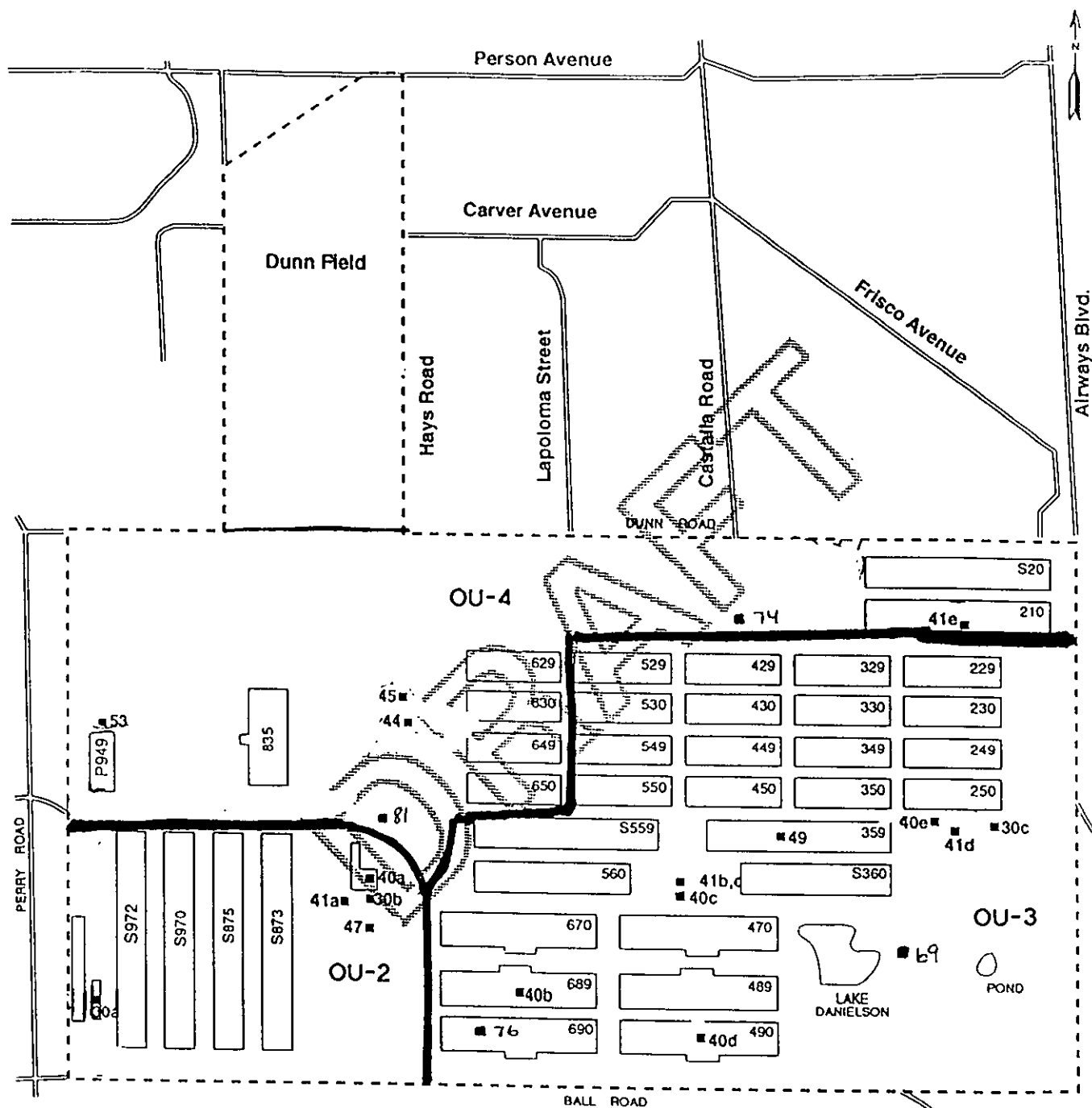
TABLE 1-2

Proposed NFA Sites Identified During the Screening Sites Investigation, 1996 through 1997
Memphis Depot Main Installation NFA

Site 74—Flammables and Toxics Storage	Site 69—Flamethrower Liquid Fuel
Site 81—Fuel Oil Building 765	Site 76—Unknown Wastes near Building 690

The following sections provide a description for each proposed NFA site by OU and discuss the rationale for designating the sites for NFA. In some cases, the proposed NFA site consists of a number of buildings that perform the same types of operations. As a result, the site is located in more than one OU. In such cases, the site will be discussed in all OUs that contain a building listed under that site.

The proposed NFA sites as of September 1998 are shown on Figure 1-2 by OU.



Notes

- Proposed No Further Action Site
- Site 30 has 3 Locations - 30a, 30c
- Site 40 has 5 Locations - 40a to 40e
- Site 41 has 5 Locations - 41a to 41e

Source: Corps of Engineers/Huntsville Division

FIGURE 1-2
SITE LOCATIONS-MAP (BY OU)
 MEMPHIS DEPOT MAIN INSTALLATION NFA

2.0 OU-2 Proposed NFA Soil Sites

OU-2 is located in the southwestern quadrant of the Main Installation at the Memphis Depot and consists of about 108 acres. It is bounded by G Street on the north, 6th Street on the east, Ball Road on the south (installation boundary), and Perry Road on the west (installation boundary). OU-2 is characterized as an industrial area where maintenance and repair activities have taken place (see Figure 1-2 for the location of OU-2).

Sites in OU-2 proposed for NFA status as of September 1998 include Sites 30, 40, 41, and 47. These sites were designated as NFA sites during the 1990 RFA. The following subsections describe the sites in OU-2 that have been designated for NFA and provide supporting information.

2.1 NFA Summary for Site 30—Paint Spray Booths

2.1.1 Site Name, Location, and Description

Site 30 consisted of three Paint Spray Booths located in Buildings 1086 (OU-2), 770 (OU-2), and 260 (OU-3) (see Figure 2-1 for the site locations). Emissions from the areas were controlled by filters located on the back or side walls of the booths, which range in size from 8 ft x 10 ft to 24 ft x 10 ft. Paint from spraying operations passed through the filters as a fan, located on the opposite side of the filter, and forced air into a vent system.

2.1.2 Site History and Enforcement Activities

A variety of paints have been used in the Paint Spray Booths, which have been used for an unknown period of time. Discarded filters are placed in dumpsters and disposed as nonhazardous waste. No evidence of release has been identified at the sites of the paint booths.

The site was evaluated during the RFA conducted in 1990, with the results indicating that the potential for release from all release pathways was low. During the RFA, there was no evidence of leaks or spills noted, and the site was designated for NFA. Additionally, the site has been designated for NFA in the FFA.

There are no analytical data associated with Site 30.

2.1.3 Summary of Site 30 Risks

Because of the pollution control equipment used at the site (filters) and the lack of hazardous or toxic materials released at the site, there appears to be no significant risk to human health or the environment from the site. Therefore, it is concluded that no remedial actions are necessary for the protection of human health or the environment.

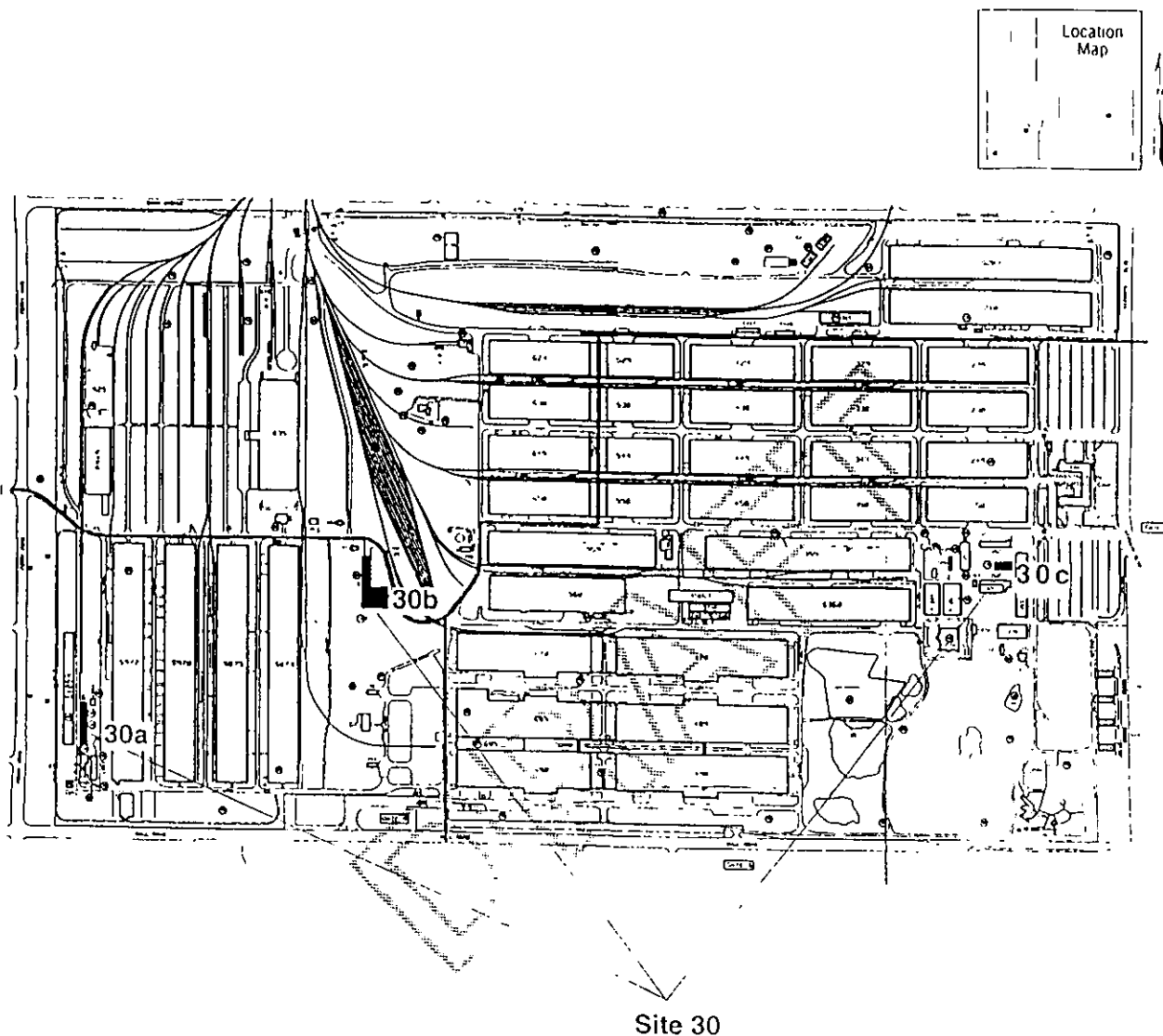


FIGURE 2-1
SITE 30, PAINT SPRAY BOOTHS
 MEMPHIS DEPOT MAIN INSTALLATION NFA

2.2 NFA Summary for Site 40–Safety Kleen Locations

2.2.1 Site Name, Location, and Description

Site 40 was comprised of nine locations where Safety-Kleen solvent parts cleaning stations were located. The units consist of steel holding tanks supported by steel legs, ranging in size from 20 to 40 gallons. The units were located in buildings and were self-contained. Five units were located in Building 770 (OU-2) and one unit was located in each of Buildings 689 (OU-3), 490 (OU-3), 253 (OU-3), and 469 (OU-3) (see Figure 2-2 for the site locations).

The Safety-Kleen units were used for carburetor and cold parts cleaning. New cleaning material contained 11.9 percent cresylic acids, 31.7 percent methylene chloride, and 81.3 percent ortho-di-chlorobenzene. Used material generally was contaminated with various oils and greases from the parts themselves. A vendor, Safety-Kleen, supplied the units, brought in the cleaning solutions, periodically returned to remove the used material, and provided new solution. Safety-Kleen handled the manifesting, transporting, and recycling of the material. Unusual material, by loss or gain of volume, color or odor change, or other physical change, was noted and investigated by Safety-Kleen.

2.2.2 Site History and Enforcement Activities

Safety-Kleen Corporation leased and maintained the units, which were used since 1985 in various locations within the Main Installation.

The site was evaluated during the RFA conducted in 1990, with the results indicating that the potential for release from all pathways was low. There was no history or evidence of uncontrolled leaks or spills, the units appeared to be in good condition, and the site was designated for NFA. Additionally, the FFA designates this site as an NFA site.

There are no analytical data available for Site 40.

2.2.3 Summary of Site 40 Risks

A minimal level of risk exists because hazardous materials were handled in these units. These risks were controlled through the design and handling criteria regulated under RCRA. Because of the equipment design and procedural controls, there is no significant risk to human health or the environment.

2.3 NFA Summary for Site 41–Satellite Drum Accumulation Areas

2.3.1 Site Name, Location, and Description

Five satellite drum storage areas made up Site 41, the Satellite Drum Accumulation Areas. The areas had been used since 1985 to store drums of waste materials. The units varied in the number and size of drums they contained, but all of the units were located on concrete floors near Buildings 770 (OU-2), 210 (OU-4), 260 (OU-3), and 469 (OU-3) (see Figure 2-3 for site locations).

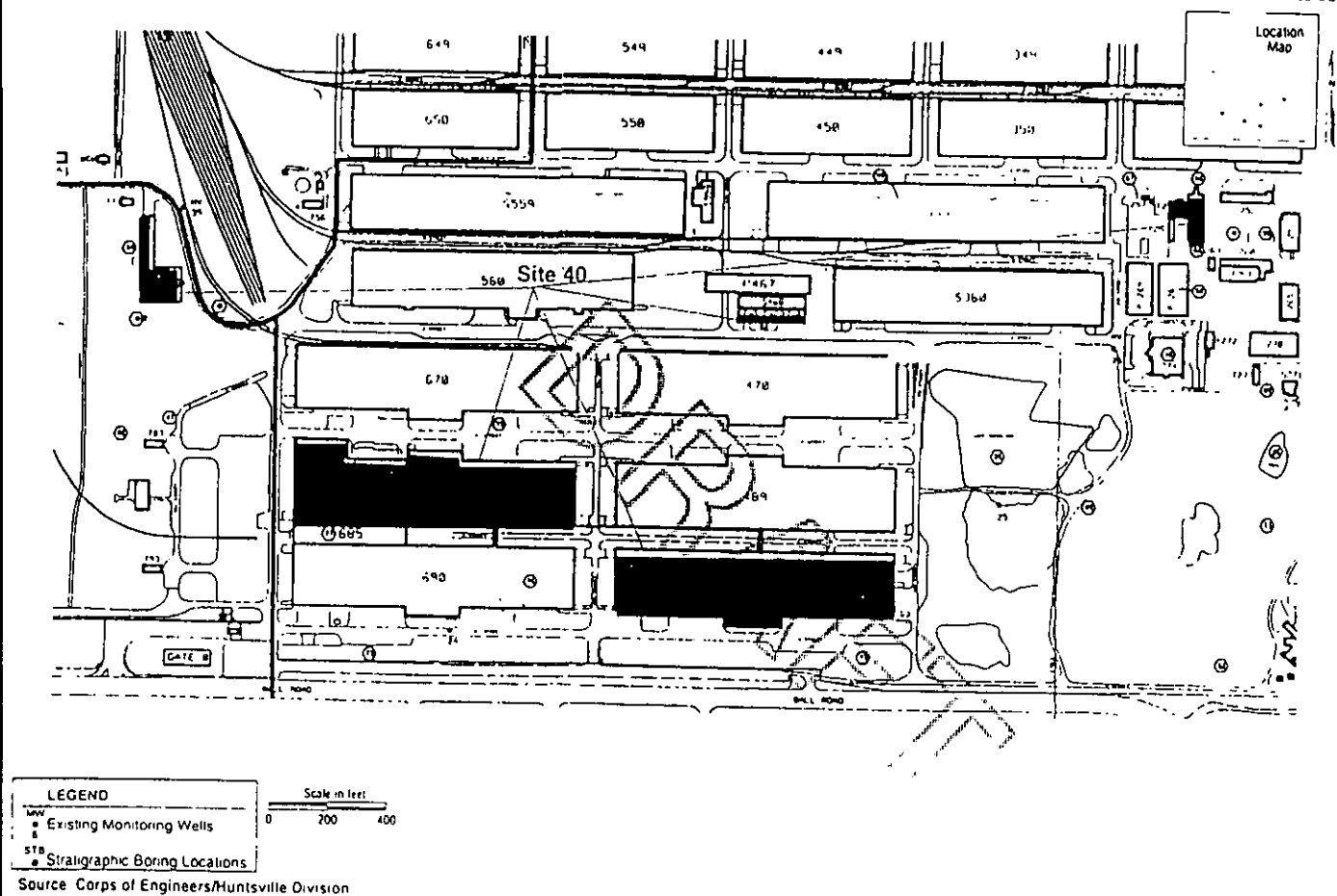


FIGURE 2-2
SITE 40, SAFETY KLEEN LOCATIONS
 MEMPHIS DEPOT MAIN INSTALLATION NFA

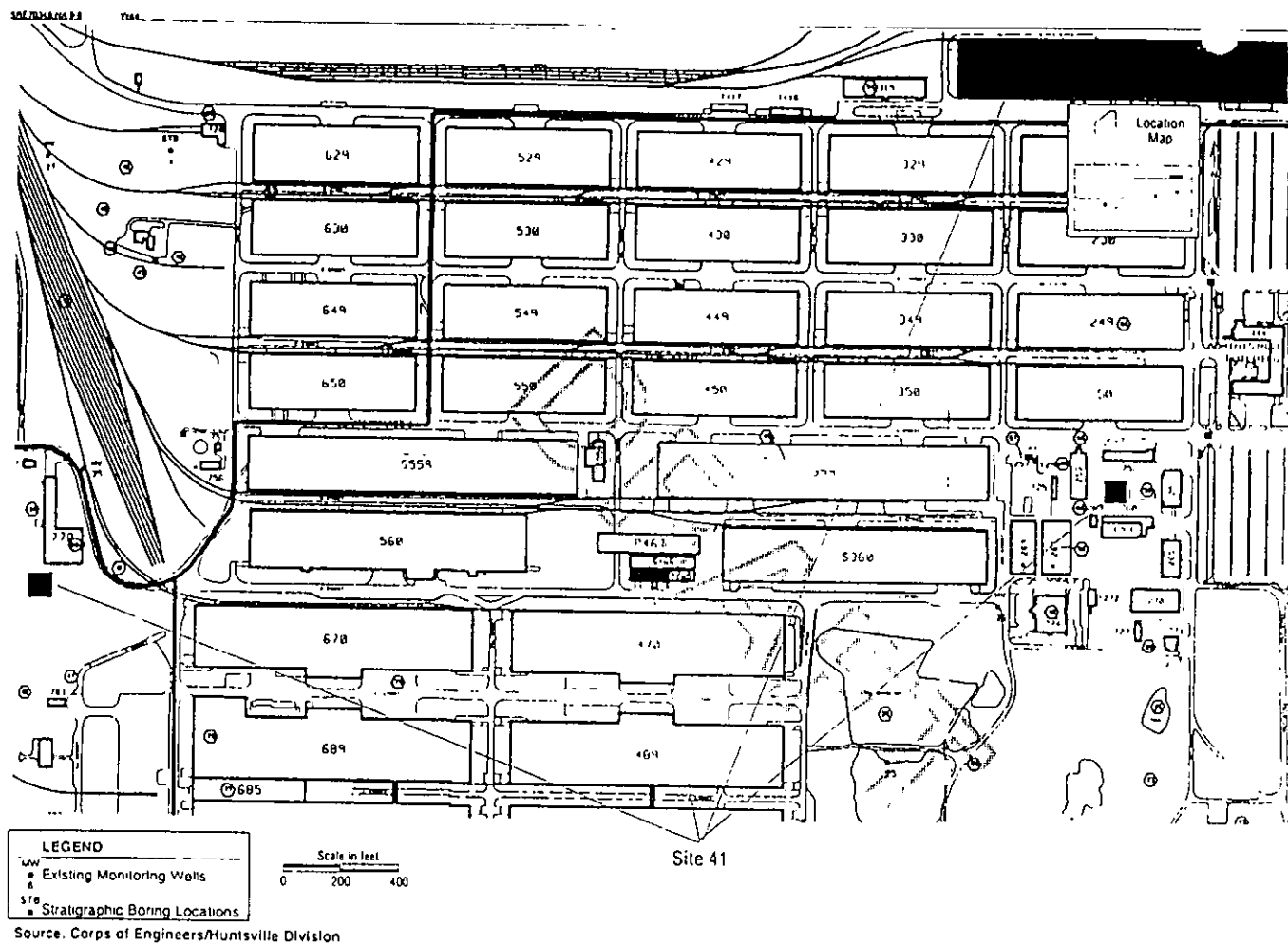


FIGURE 2-3
SITE 41, SATELLITE DRUM ACCUMULATION AREA
 MEMPHIS DEPOT MAIN INSTALLATION NFA

The drums and areas were maintained in good condition and were regulated. All wastes collected in these areas were transported to the Defense Reutilization and Marketing Office (DRMO) before off-site disposal.

2.3.2 Site History and Enforcement Activities

The areas had been used since 1985 to store drums of waste materials.

The site was evaluated during the RFA conducted in 1990, with the results indicating that the potential for release from all pathways was low. There was no history or evidence of uncontrolled leaks or spills, the units appeared to be in good condition, and the site was designated for NFA in the RFA.

No analytical data are available for this site.

2.3.3 Summary of Site 41 Risks

A minimal level of risk existed from the handling of hazardous materials in these units. During the operation of the drum storage area, releases to the environment were prevented through the design and handling criteria regulated under RCRA. Because of the design and procedural controls governing the operation of the facility, there is no significant risk to human health or the environment. Therefore, it is concluded that no remedial actions are necessary for the protection of human health or the environment.

2.4 NFA Summary for Site 47–Contaminated Soil Drum Storage Area

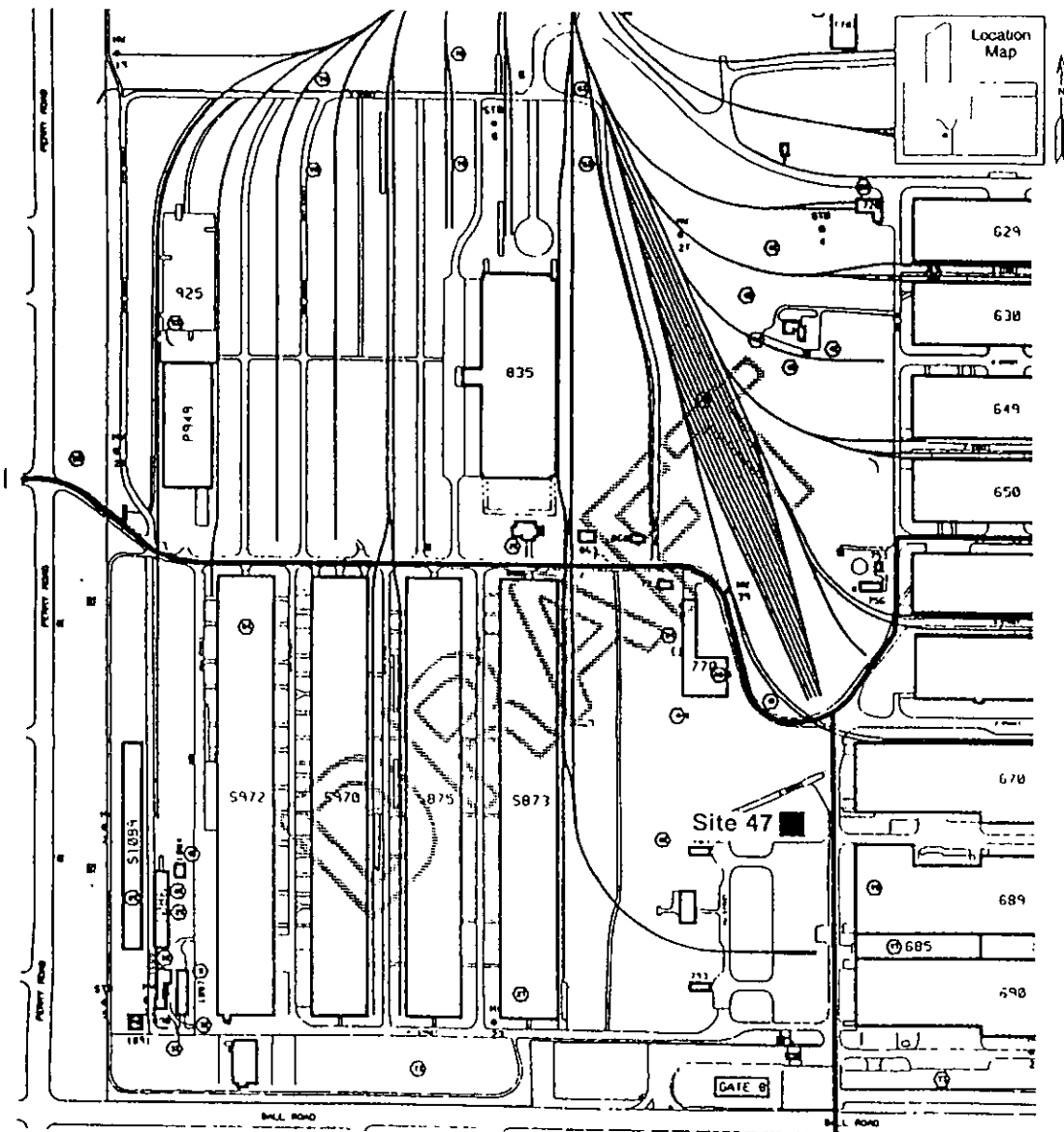
2.4.1 Site Name, Location, and Description

Site 47, the Former Contaminated Soil Drum Storage Area, was a temporary drum storage/staging area. The unit is located in the southwestern part of the Main Installation, approximately 300 ft west of Building 689. Figure 2-4 presents the site location.

The site was used to store approximately 800 drums of various materials. Most of the drums were filled with material from remedial activities from Sites 42, 43, and the associated treatment units. This material included contaminated soil (containing pentachlorophenol [PCP], dioxin, and furan), sludge from the bottom of the vat and storage tank, and contaminated carbon from a temporary treatment unit (Site 44) before shipment to an off-site facility for final disposal.

2.4.2 Site History and Enforcement Activities

The former contaminated soil drum storage area was a temporary drum storage/staging area used from 1986 to the spring of 1988 to hold materials from the remedial activities at Sites 42 and 43. The unit consisted of a dirt-covered, concrete igloo building normally used for explosives storage. The igloo has a concrete floor and all drainage exits were sealed.



LEGEND	
MW	Existing Monitoring Wells
STB	Stratigraphic Boring Locations

Source: Corps of Engineers/Huntsville Division

Scale in feet
0 200 400

FIGURE 2-4
SITE 47, FORMER CONTAMINATED
SOIL DRUM STAGING AREA
 MEMPHIS DEPOT MAIN INSTALLATION NFA

The site was evaluated during the RFA conducted in 1990, with the results indicating that the potential for release from all pathways was low. There was no history or evidence of uncontrolled leaks or spills, the units appeared to be in good condition, and the site was designated for NFA. In addition, this site has been listed for NFA under the FFA.

2.4.3 Summary of Site 47 Risks

Although contaminated materials were stored in Site 47, there is no evidence that a release occurred or the building containment was otherwise compromised. On the basis of the lack of a potential source or contaminants released to the environmental media, there is no risk to human health and the environment from this site. Therefore, it is concluded that no remedial actions are necessary for the protection of human health or the environment.

3.0 OU-3 Proposed NFA Soil Sites

OU-3 consists of approximately 320 acres and is located in the southeastern quadrant of the Main Installation at the Memphis Depot. It is bounded by C Street on the north, 5th and 6th Streets on the west, Ball Road on the south (installation boundary), and Airways Boulevard on the east (installation boundary) (see Figure 1-2 for the location of OU-3).

Sites in OU-3 currently proposed as NFA are Sites 30, 40, 41, 49, 69, and 76. Sites 30 through 49 were identified as NFA sites during the 1990 RFA. Sites 69 and 76 were proposed as NFA from the screening site investigation. The following subsections describe each one of the sites in OU-3 that has been proposed for NFA and provides supporting information. Note that descriptions and supporting information for NFA Sites in OU-3 that have buildings located in OU-2 are discussed in Section 2.

3.1 NFA Summary for Site 30—Paint Spray Booths

3.1.1 Site Name, Location, and Description

Site 30 consisted of three Paint Spray Booths located in Buildings 1086 (OU-2), 770 (OU-2), and 260 (OU-3). Detailed information about this site is provided in Section 2.1.1 through 2.1.3 (see Figure 3-1 for site locations).

3.1.2 Site History and Enforcement Activities

See Section 2.1.2.

3.1.3 Summary of Site 30 Risks

See Section 2.1.3.

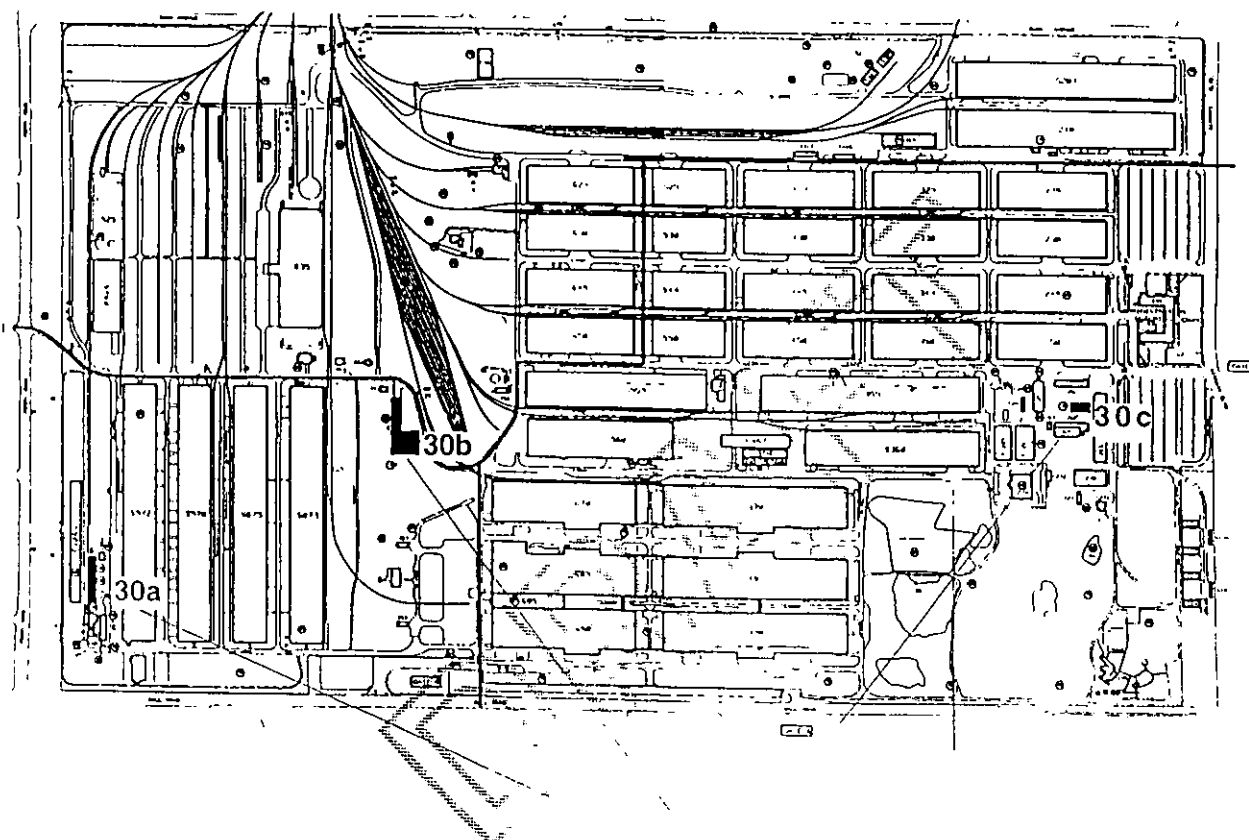
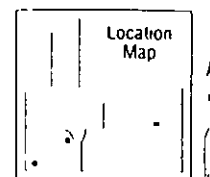
3.2 NFA Summary for Site 40—Safety Kleen Locations

3.2.1 Site Name, Location, and Description

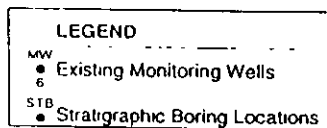
Site 40 is comprised of nine locations where Safety-Kleen solvent parts cleaning stations were located. The units consisted of steel holding tanks supported by steel legs, ranging in size from 20 to 40 gallons. The units were located in buildings and are self-contained. Five units are located in Building 770 (OU-2), and one unit is located in each of Buildings 689 (OU-3), 490 (OU-3), 253 (OU-3), and 469 (OU-3). Detailed information about this site is provided in Sections 2.2.1 through 2.2.3 (see Figure 3-2 for site locations).

3.2.2 Site History and Enforcement Activities

See Section 2.2.2.



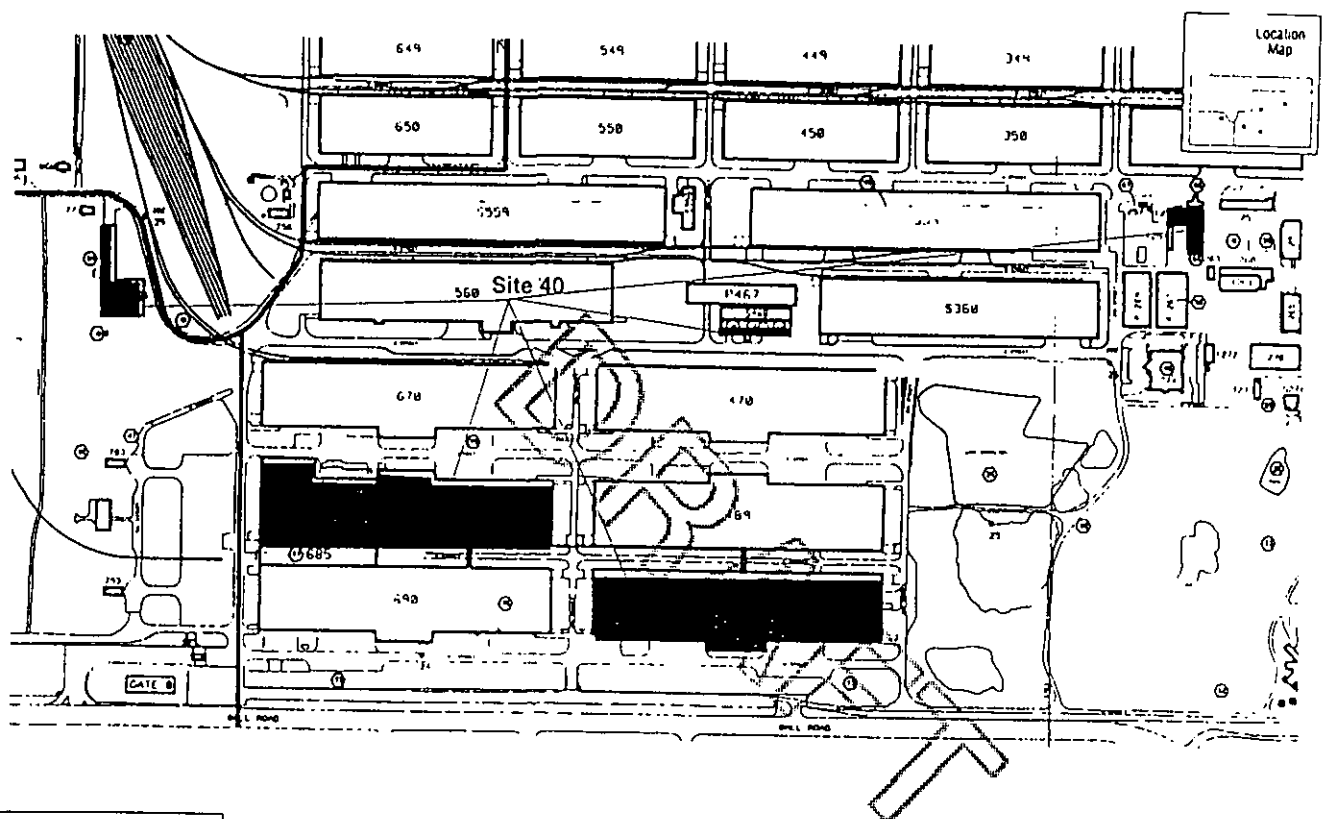
Site 30



Scale in feet
0 400 800

Source: Corps of Engineers/Huntsville Division

FIGURE 3-1
SITE 30, PAINT SPRAY BOOTHS
MEMPHIS DEPOT MAIN INSTALLATION NFA



LEGEND

• Existing Monitoring Wells

• Stratigraphic Boring Locations

Scale in feet

0 200 400

Source: Corps of Engineers/Huntsville Division

FIGURE 3-2
SITE 40, SAFETY KLEEN LOCATIONS
 MEMPHIS DEPOT MAIN INSTALLATION NFA

3.2.3 Summary of Site 40 Risks

See Section 2.2.3.

3.3 NFA Summary for Site 41–Satellite Drum Accumulation Areas

3.3.1 Site Name, Location, and Description

Five satellite drum storage areas made up Site 41, Satellite Drum Accumulation Areas. The areas have been used since 1985 to store drums of waste materials. The units vary in the number and size of drums they contain, but all units are located on concrete floors within Buildings 770 (OU-2), 210 (OU-4), 260 (OU-3), and 469 (OU-3). Detailed information about this site is provided in Sections 2.3.1 through 2.3.3 (see Figure 3-3 for site locations).

3.3.2 Site History and Enforcement Activities

See Section 2.3.2.

3.3.3 Summary of Site 41 Risks

See Section 2.3.3.

3.4 NFA Summary for Site 49–Expired Medical Supplies Storage Area

3.4.1 Site Name, Location, and Description

The Expired Medical Supplies Storage Area is a warehouse storage area. The unit is located near the center of Building 359 and consists of a concrete-floored storage bay (approximately 50 ft by 30 ft) (see Figure 3-4). Materials are stored in the manufacturer's containers, on pallets or shelves throughout the unit, until transported or disposed.

3.4.2 Site History and Enforcement Activities

The Expired Medical Supplies Storage Area is a warehouse storage area that was used from an unknown date through the base closure for medical supplies with an expired shelf life.

The site was evaluated during the RFA conducted in 1990, with the results indicating that the potential for release from all pathways was low. There was no history or evidence of uncontrolled leaks or spills, the units appeared to be in good condition, and the site was designated for NFA. In addition, this site has been listed for NFA under the FFA.

No analytical data are available for Site 49.

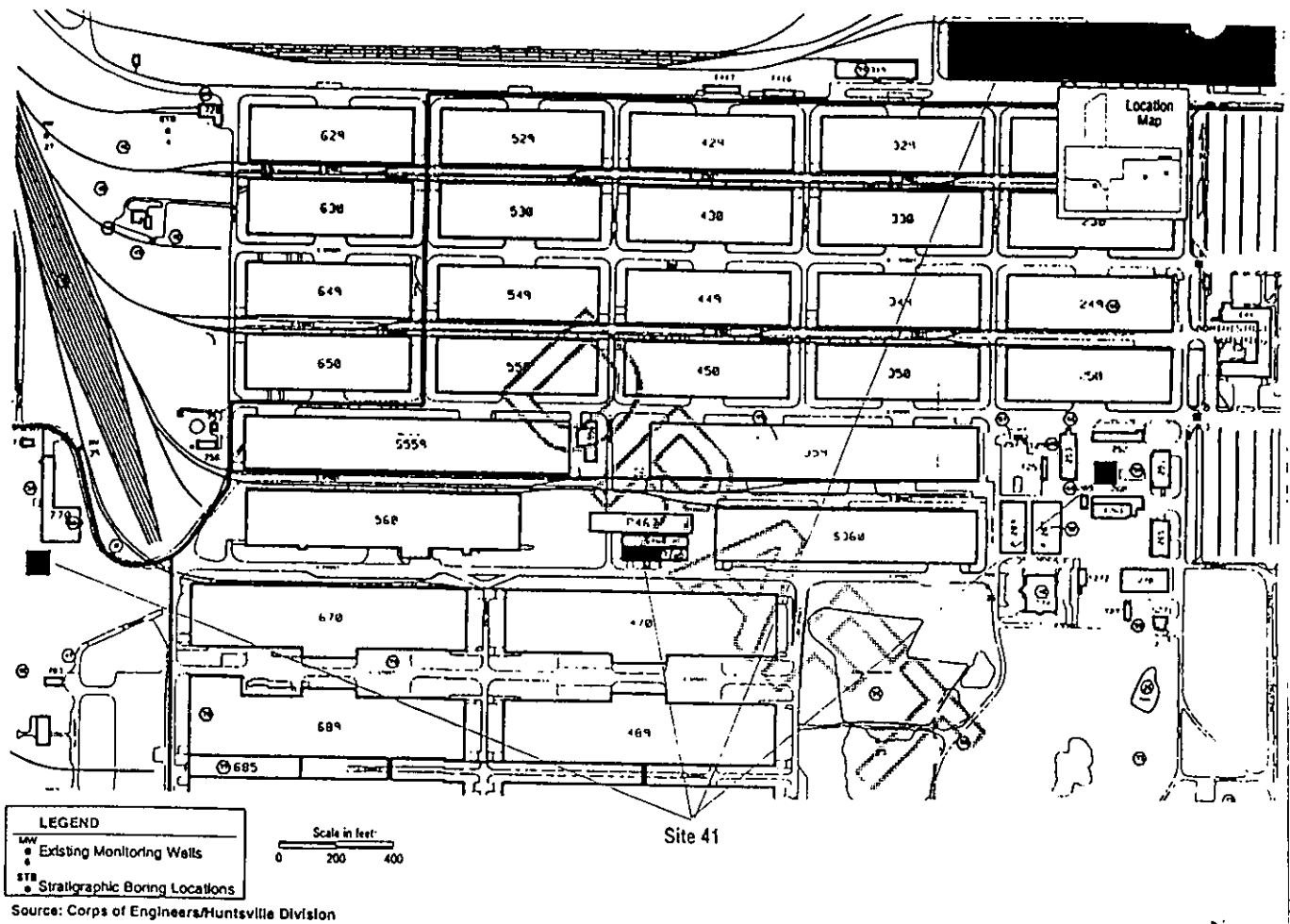
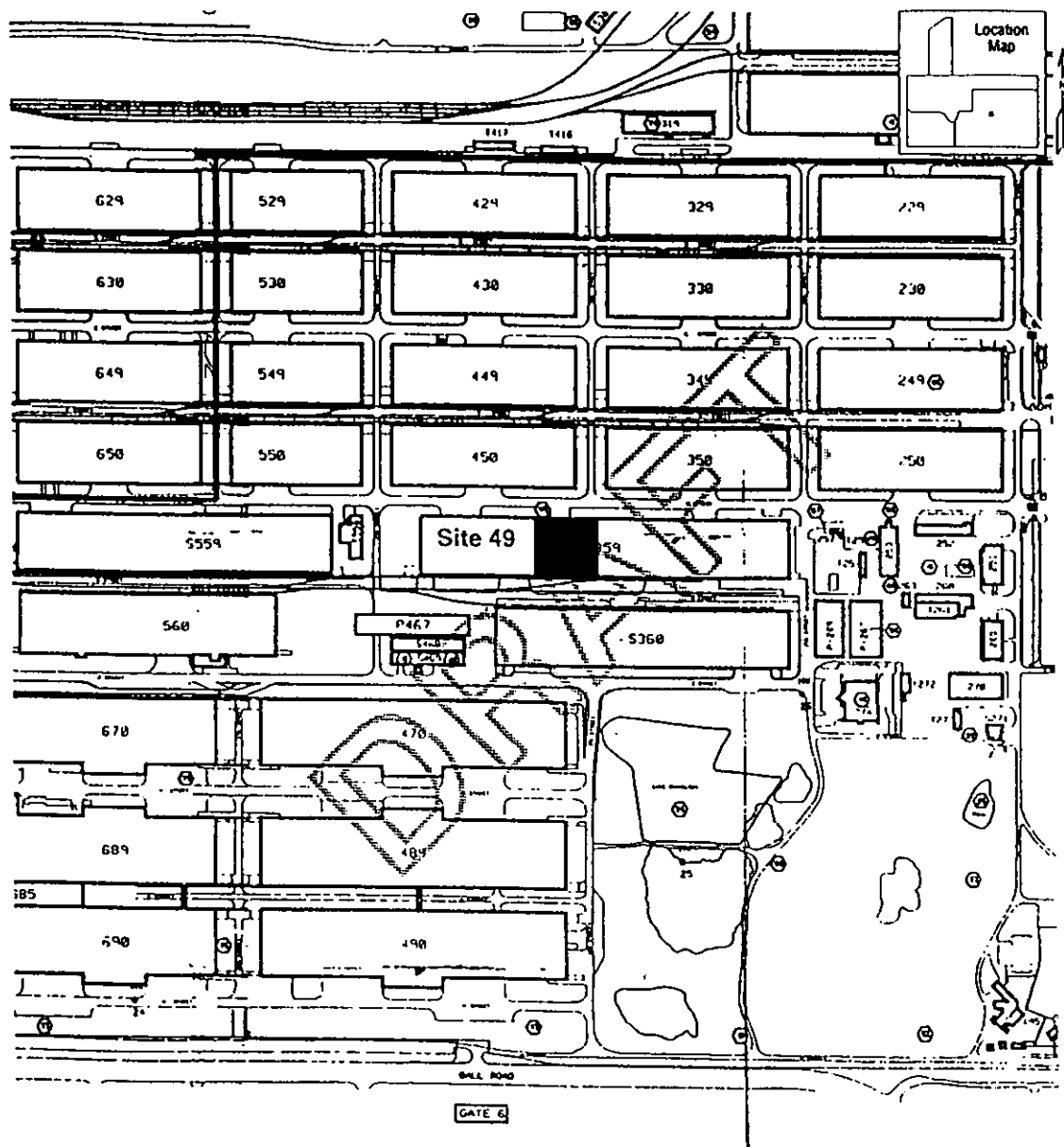


FIGURE 3-3
SITE 41, SATELLITE DRUM
ACCUMULATION AREA
 MEMPHIS DEPOT MAIN INSTALLATION NFA



LEGEND

MW
● Existing Monitoring Wells

STB
● Stratigraphic Boring Locations

Source: Corps of Engineers/Huntsville Division

FIGURE 3-4
SITE 49, EXPIRED MEDICAL
SUPPLIES STORAGE AREA
 MEMPHIS DEPOT MAIN INSTALLATION NFA

3.4.3 Summary of Site 49 Risks

Because of the lack of hazardous or toxic materials disposed or released at the site, there is no source area of contamination at the site. On the basis of the lack of a potential source or contaminants in a media, there is no risk to human health and the environment from this site. Therefore, it is concluded that no remedial actions are necessary for the protection of human health or the environment.

3.5 NFA Summary for Site 69–Flamethrower Liquid Fuel

3.5.1 Site Name, Location, and Description

Screening Site 69–Flamethrower Liquid Fuel Application is located within Parcel 3 on the eastern side of the installation, approximately 100 ft east of Lake Danielson (see Figure 3-5). The site currently is used as a golf course.

3.5.2 Site History and Enforcement Activities

Screening Site 69 primarily was used to test flamethrower fuels. Flamethrowers were tested using diesel fuel. Fire fighting techniques also were practiced at this site after surface ignition of the fuel. The site currently comprises part of the Memphis Depot golf course.

Site 69 previously was investigated as a screening site. According to the March 1998 *Screening Sites Letter Reports* (CH2M HILL), the pesticide dieldrin and the polycyclic aromatic hydrocarbon (PAH) benzo(a)pyrene were found in surface soil at concentrations similar to those observed across the Main Installation, resulting from the facility-wide application of pesticides and PAH residual from the railroad tracks. The risks from these contaminants are being addressed on a facility-wide basis.

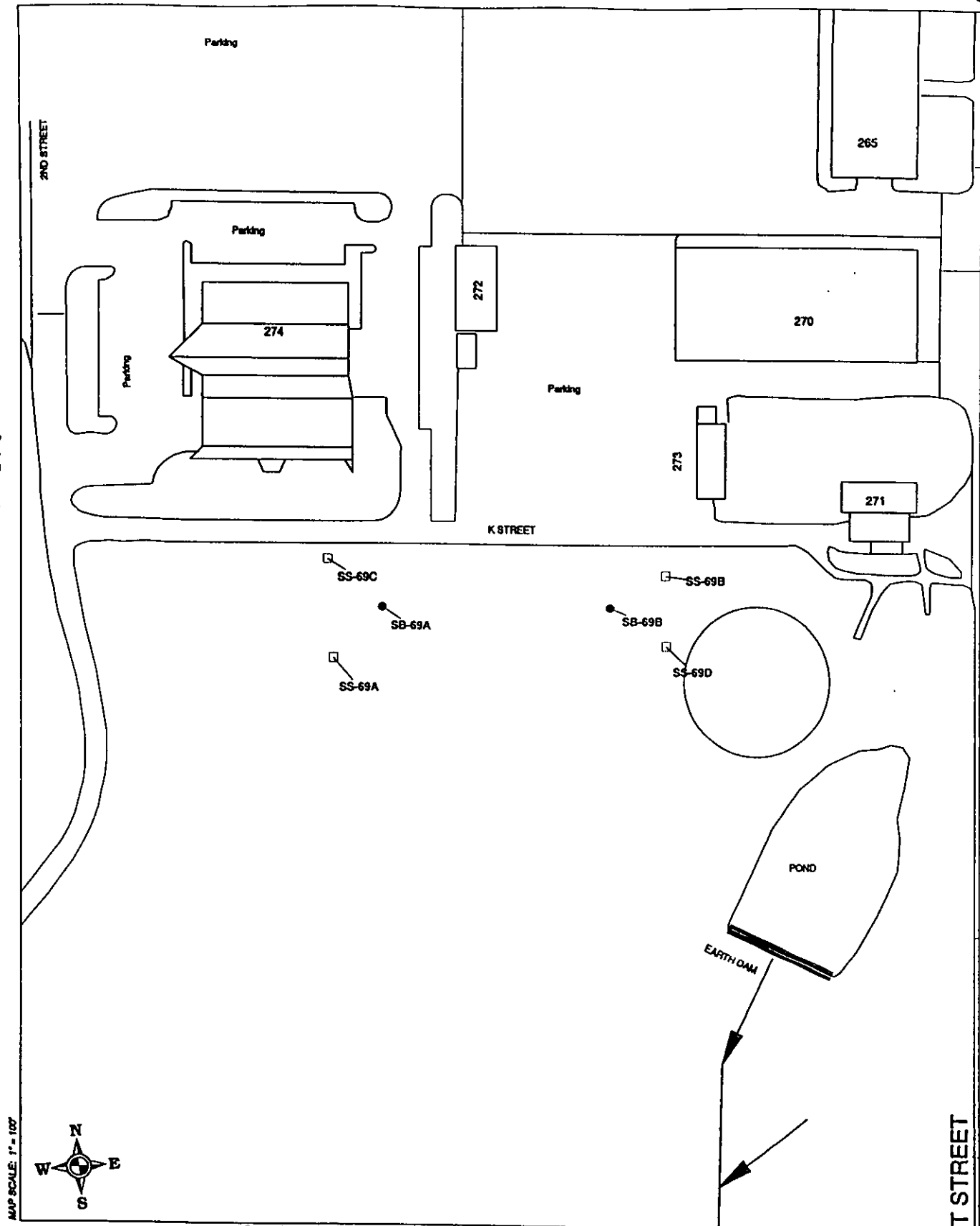
3.5.3 Summary of Site 69 Risks

There do not appear to be risks associated with Screening Site 6, and NFA is proposed. However, dieldrin and benzo(a)pyrene were found in surface site soil and risks are being addressed on a facility-wide basis. Because of the absence of any other contaminant levels above background, no risks or systemic toxicity ratios were estimated (USAESCH, 1998). Therefore, NFA is recommended at this site.

3.6 NFA Summary for Site 76–Unknown Wastes Near Building 690

3.6.1 Site Name, Location, and Description

Screening Site 76, Building 690, was used to store hazardous materials before shipment. The building was constructed in 1953 and includes 218,000 square ft of space. The building is located in the southwestern portion of OU-3, near 5th and M Streets (see Figure 3-6 for the site location). Building 690 is used to store material-handling equipment and materials awaiting shipment.

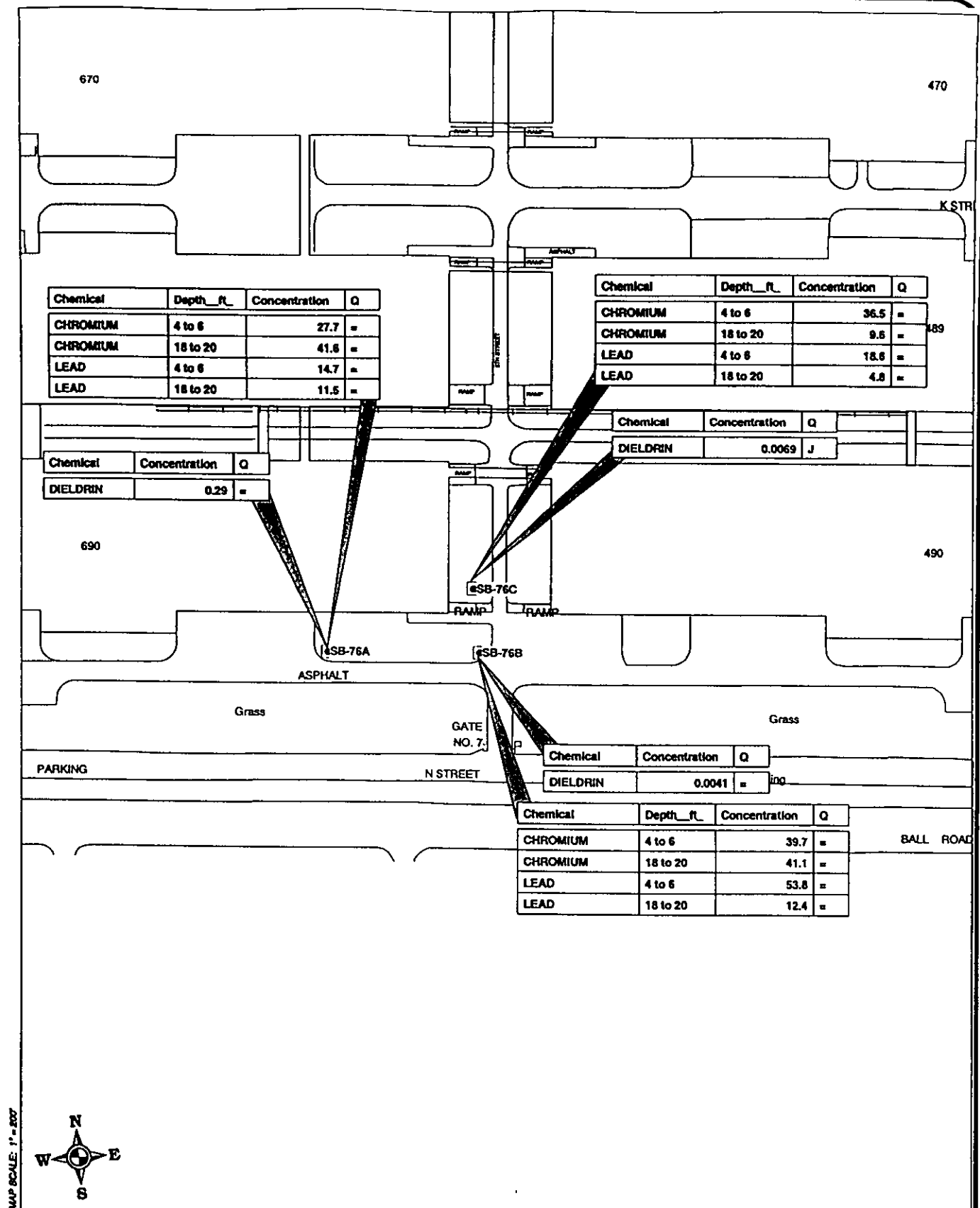


LEGEND

- Surface Soil Sampling Location (mg/kg)
- Soil Boring Sampling Location (mg/kg)

Sampling locations without data boxes had no constituents exceeding risk-based criteria

FIGURE 3-5
SITE 69, FLAME-THROWER
LIQUID FUEL APPLICATION
CONSTITUENTS EXCEEDING
RISK-BASED CRITERIA
 MEMPHIS DEPOT MAIN INSTALLATION NFA



3.6.2 Site History and Enforcement Activities

At times in the past, unknown wastes and vehicle maintenance supplies were stored in the warehouse. No enforcement activities have taken place at this site.

Site 76 previously was investigated as a screening site. According to the March 1998 *Screening Sites Letter Reports* (CH2M HILL), dieldrin was detected at an elevated concentration in surface soil, and lead and chromium were detected at elevated concentrations in the subsurface soil. Risks from dieldrin are being addressed on a facility-wide basis. The levels of lead and chromium are representative of natural conditions.

3.6.3 Summary of Site 76 Risks

There do not appear to be risks associated with Screening Site 76, and NFA is proposed. However, dieldrin was found in surface site soil and risks are being addressed on a facility-wide basis. In accordance with the PRE, there are no human health risks of concern for this site (USAESCH, 1998).

4.0 OU-4 Proposed NFA Soil Sites

OU-4 consists of approximately 168 acres and is located in the north-central section of the Main Installation at the Memphis Depot (see Figure 1-2 for its location). OU-4 includes former and current hazardous materials storage buildings and the DRMO buildings and stock yards. The former PCP Dip Vat area sites also are located in OU-4.

Sites in OU-4 currently proposed for NFA status are Sites 41, 44, 45, 53, 74, and 81. Sites 41, 44, 45, and 53 were identified as NFA sites during the 1990 RFA. Sites 74 and 81 were proposed as NFA sites after the screening site investigation. The following subsections describe those sites in OU-4 that have been proposed for NFA and provide supporting information. Note that descriptions and supporting information for proposed NFA sites in OU-4 that have buildings located in OU-2 are discussed in Section 2.

4.1 NFA Summary for Site 41–Satellite Drum Accumulation Areas

4.1.1 Site Name, Location, and Description

Five satellite drum storage areas make up Site 41, Satellite Drum Accumulation Areas. The areas have been used since 1985 to store drums of waste materials. The units vary in the number and size of drums they contain, but all units are located on concrete floors within Buildings 770 (OU-2), 210 (OU-4), 260 (OU-3), and 469 (OU-3). Detailed information about this site is provided in Sections 2.3.1 through 2.3.3 (see Figure 4-1 for the site locations).

4.1.2 Site History and Enforcement Activities

See Section 2.3.2.

4.1.3 Summary of Site 41 Risks

See Section 2.3.3.

4.2 NFA Summary for Site 44–Former Wastewater Treatment Unit

4.2.1 Site Name, Location, and Description

The former Wastewater Treatment Unit (WWTU) Area was the location of a temporary wastewater treatment unit used in the remediation of Sites 42 and 43 in 1986. The unit was located just west of Building S-737. The sump, located adjacent to the pesticide storage building, was used as a holding basin until enough wastewater was retained for treatment. Figure 4-2 illustrates the site location. The WWTU consisted of a 12,000-gallon portable pool with vinyl liner, pumps, medium capacity carbon cell, and associated piping on a concrete pad.

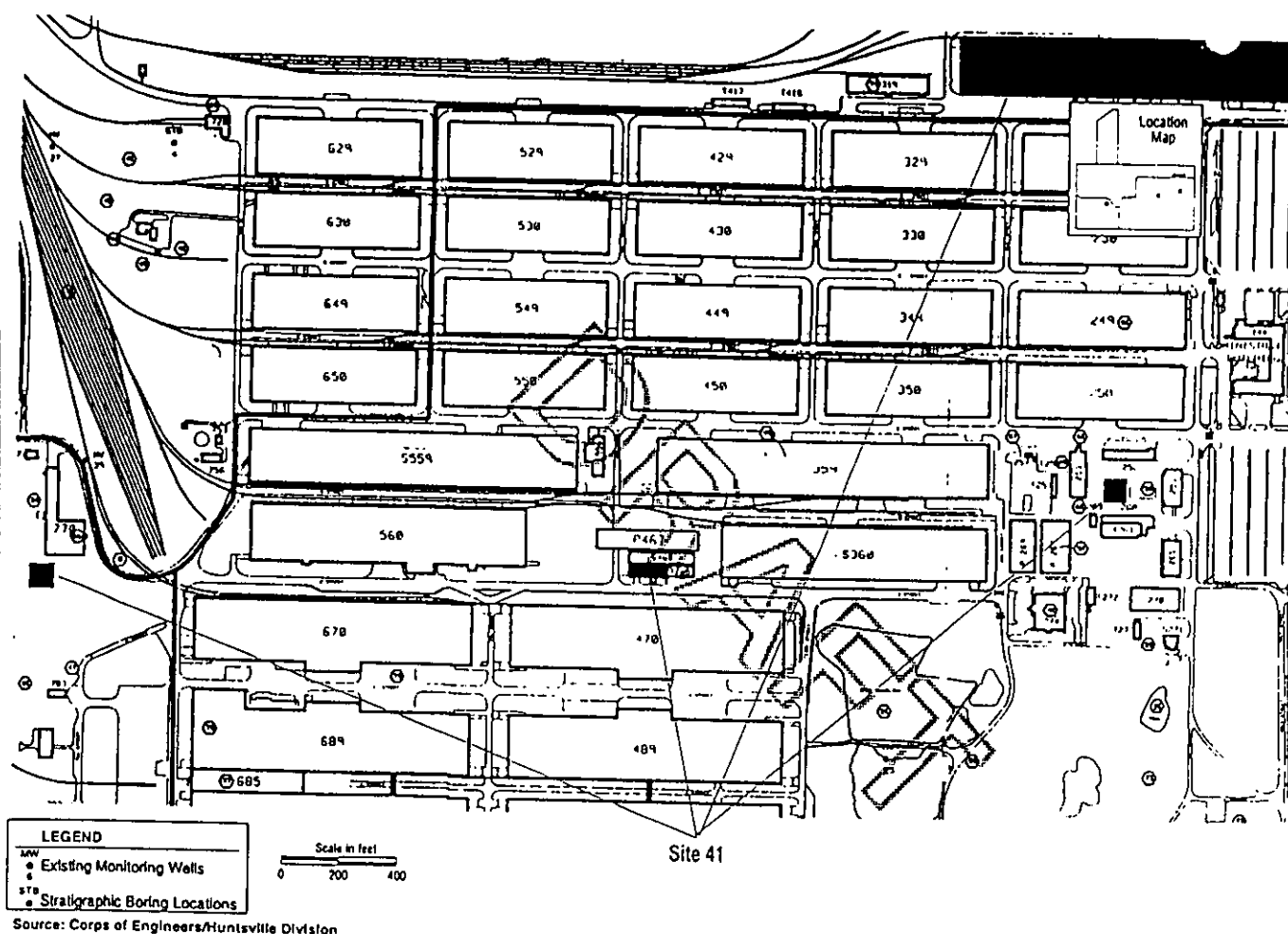


FIGURE 4-1
SITE 41, SATELLITE DRUM
ACCUMULATION AREA
 MEMPHIS DEPOT MAIN INSTALLATION NFA

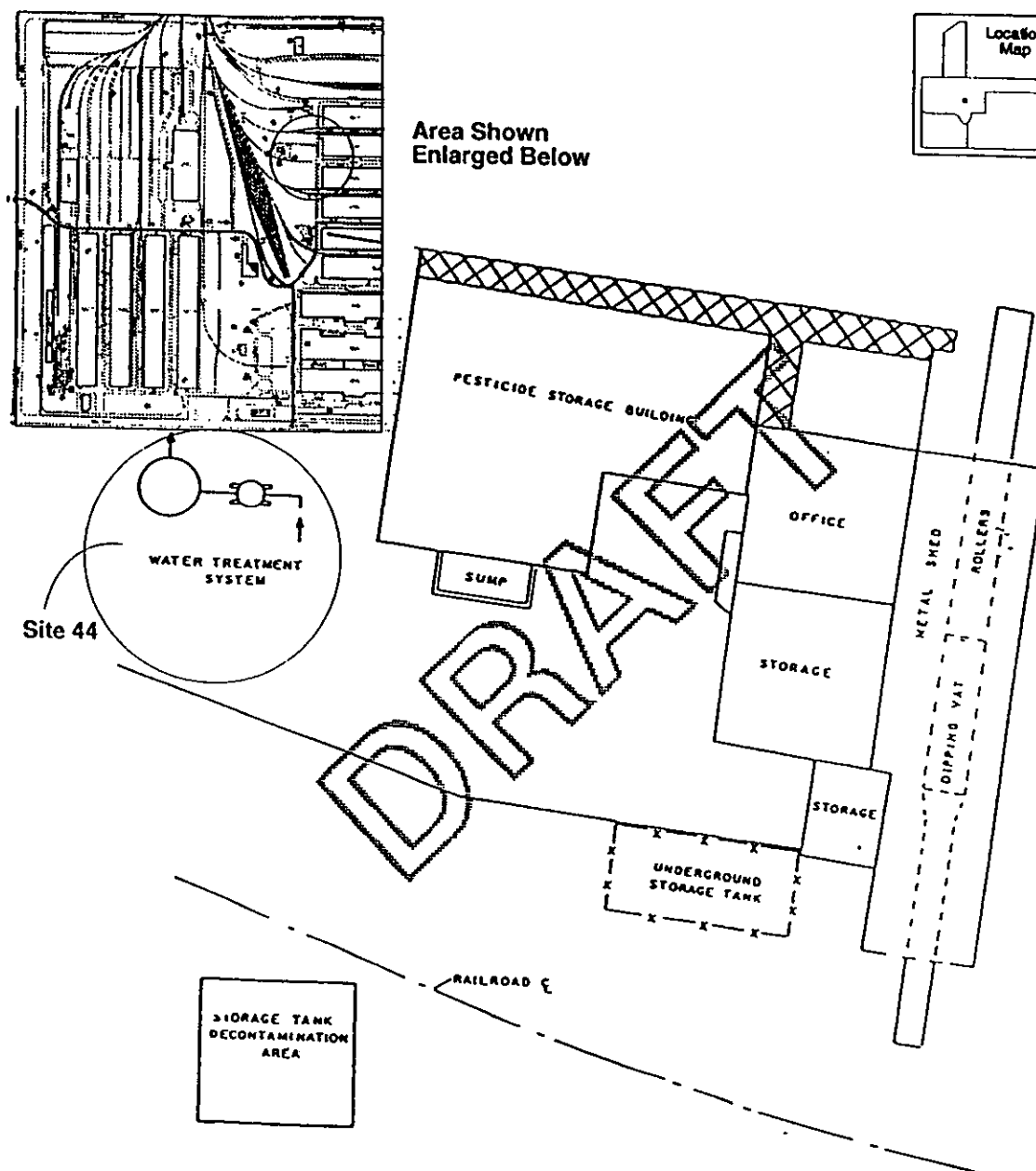


FIGURE 4-2
SITE 44, FORMER WWTU AREA
 MEMPHIS DEPOT MAIN INSTALLATION NFA

4.2.2 Site History and Enforcement Activities

The WWTU was used to treat rainwater mixed with PCP-contaminated oil and rinse waters from equipment decontamination during remedial actions and cleanup operations of the pesticide shop. Sample results of the treated wastewater held in the portable pool were below allowable levels for sewer discharge, and 8,000 gallons of water was discharged to the publicly owned treatment works (POTW) operated by the City of Memphis Public Works Department. Upon completion of the water treatment, 27 drums of contaminated carbon were removed. After treatment was completed, the unit was dismantled and removed.

The site was evaluated during the RFA conducted in 1990, with the results indicating that the potential for release to all environmental pathways was low. There was no history or evidence of uncontrolled leaks or spills, the units appeared to be in good condition, and the site was designated for NFA.

4.2.3 Summary of Site 44 Risks

Because of the lack of hazardous or toxic materials disposed or released at the site, there is no source area or contamination at the site to cause releases to the environment. Therefore, there is no risk to human health and the environment from Site 44.

4.3 NFA Summary for Site 45–Contaminated Soil Staging Area

4.3.1 Site Name, Location, and Description

The former Contaminated Soil Staging Area was a temporary storage area used from 1986 through 1988 to hold waste from the PCP tank and vat area remediation while it awaited off-site transportation and disposal. The location was a gravel area to the northwest of Building S-737 that measured approximately 200 ft by 100 ft. Figure 4-3 presents the site location.

Roll-off containers were stored in the area. The containers were prepared to receive contaminated soil by having the seams filled with a foam material and being lined with plastic. After each container was filled with contaminated soil, it was covered with plastic.

4.3.2 Site History and Enforcement Activities

Up to 39 roll-off containers, each with a capacity of 24 to 30 cubic yards, were placed in the area. The containers were filled with contaminated soil (containing PCP, dioxin, and furan) from Sites 42 and 43 before shipment to a final off-site disposal facility.

The site was evaluated during the RFA conducted in 1990, with the results indicating that the potential for release from all pathways was low. There was no history or evidence of uncontrolled leaks or spills, the units appeared to be in good condition, and the site was designated for NFA.

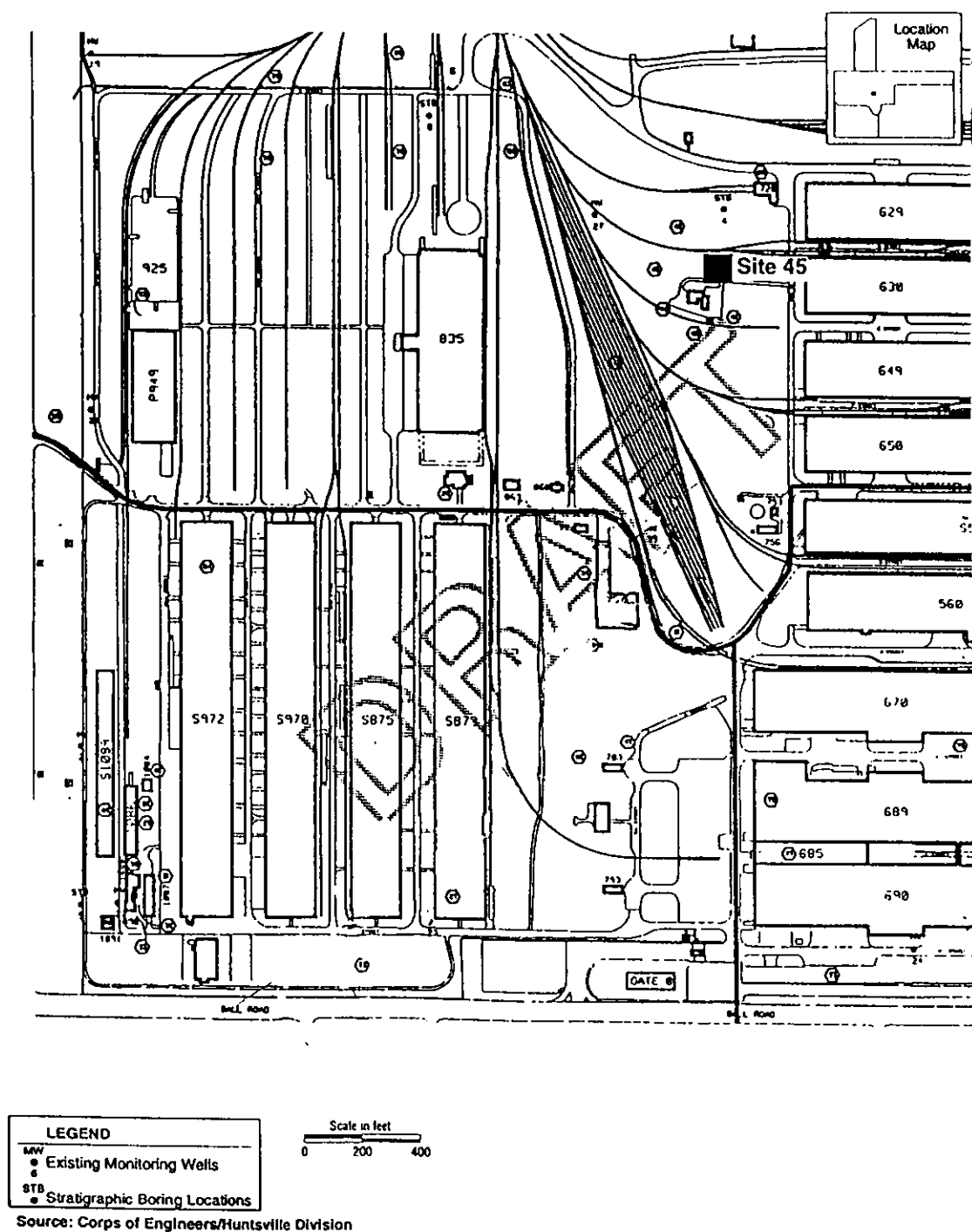


FIGURE 4-3
SITE 45, FORMER CONTAMINATED
SOIL STAGING AREA
 MEMPHIS DEPOT MAIN INSTALLATION NFA

4.3.3 Summary of Site 45 Risks

Because of the lack of hazardous or toxic materials disposed or released at the site, there is no source area or contamination at the site to cause releases to the environment. Therefore, there is no risk to human health or the environment from Site 45.

4.4 NFA Summary for Site 53–Flammable Solvents Storage Area

4.4.1 Site Name, Location, and Description

The X-25 Flammable Solvents Storage Area Site is the result of a product storage area spill. The spill occurred in the northernmost petroleum, oil, and lubricants (POL) concrete-bermed storage area, located in the northwestern section of the Main Installation. The area measures approximately 175 ft by 125 ft. The unit is designed with a concrete floor that slopes to the south to retain material. The site location is illustrated on Figure 4-4.

The containment unit was designed specifically to contain spills from the operational units in the storage area. The spill was cleaned up, with material recovered as soon as possible, at the time it occurred.

4.4.2 Site History and Enforcement Activities

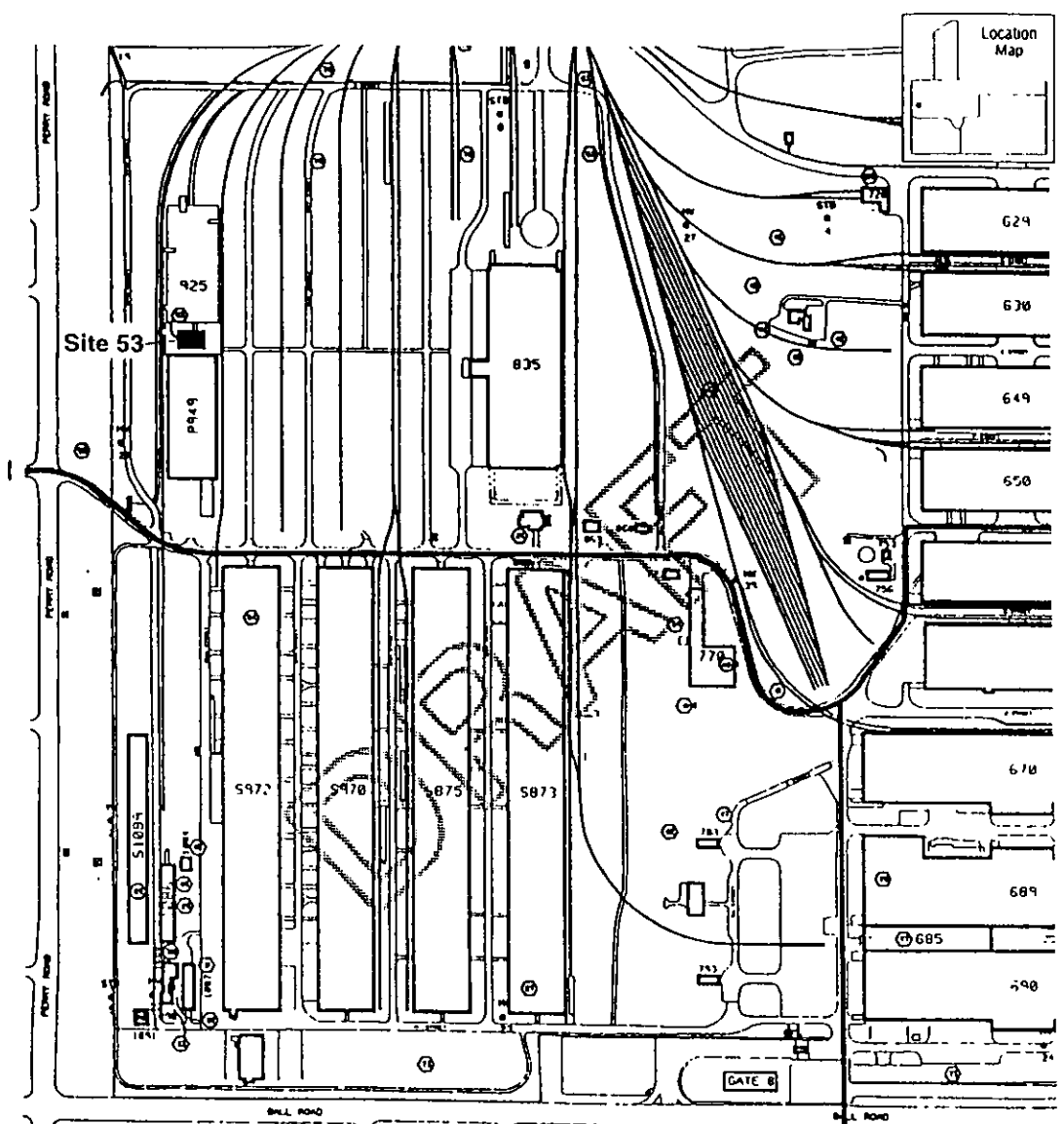
The 36,000-gallon spill occurred on January 19, 1988. The spill occurred inside the containment unit and consisted of a mixture of highly flammable solvents, including xylene and toluene. The spill was cleaned up, with material recovered as soon as possible, at the time it occurred.

The site was evaluated during the RFA conducted in 1990, with the results indicating that the potential for release from all pathways was low. At the time of the site visit, the unit appeared to be in good condition with no evidence of soil staining or stressed vegetation near the unit. On the basis of the response action and the recorded history, the site was designated for NFA.

No analytical data are available for this site.

4.4.3 Summary of Site 53 Risks

Because the release was in a unit designed to contain such a release and the proper response actions were taken at the time of the release to recover and remove the material, there is no indication of a release to the environment. Therefore, there is no risk to human health or the environment from this site.



LEGEND	
MW	Existing Monitoring Wells
SB	Stratigraphic Boring Locations

Source: Corps of Engineers/Huntsville Division

Scale in feet
0 200 400

FIGURE 4-4
SITE 53, FLAMMABLE SOLVENTS
STORAGE AREA -
MEMPHIS DEPOT MAIN INSTALLATION NFA

4.5 NFA Summary for Site 74–Flammables and Toxics

4.5.1 Site Name, Location, and Description

Screening Site 74, the Flammables and Toxics Area, is located on the western end of Building 319, off of C Street (see Figure 4-5). Screening Site 74 was used for the storage of flammable and toxic materials.

4.5.2 Site History and Enforcement Activities

Site 74 previously was investigated as a screening site. According to the March 1998 *Screening Sites Letter Reports* (CH2M HILL), lead and chromium were detected in the subsurface soil. However, the concentrations were representative of natural conditions.

No enforcement activities have taken place at this site.

4.5.3 Summary of Site 74 Risks

Lead and chromium were detected in the subsurface soil at Site 74 at concentrations above the groundwater protection values. However, the detected levels appear to be naturally occurring at these depths across the Memphis Depot. There were no other chemicals detected at Screening Site 74 above the background levels. Because the site is free of any measurable contamination, NFA is recommended for this site.

4.6 NFA Summary for Site 81–Building 765, Fuel Oil AST

4.6.1 Site Name, Location, and Description

Screening Site 81, Building 765, is approximately 2,200 ft east of the western boundary and 1,350 ft south of the northern boundary of the installation (shown on Figure 4-6).

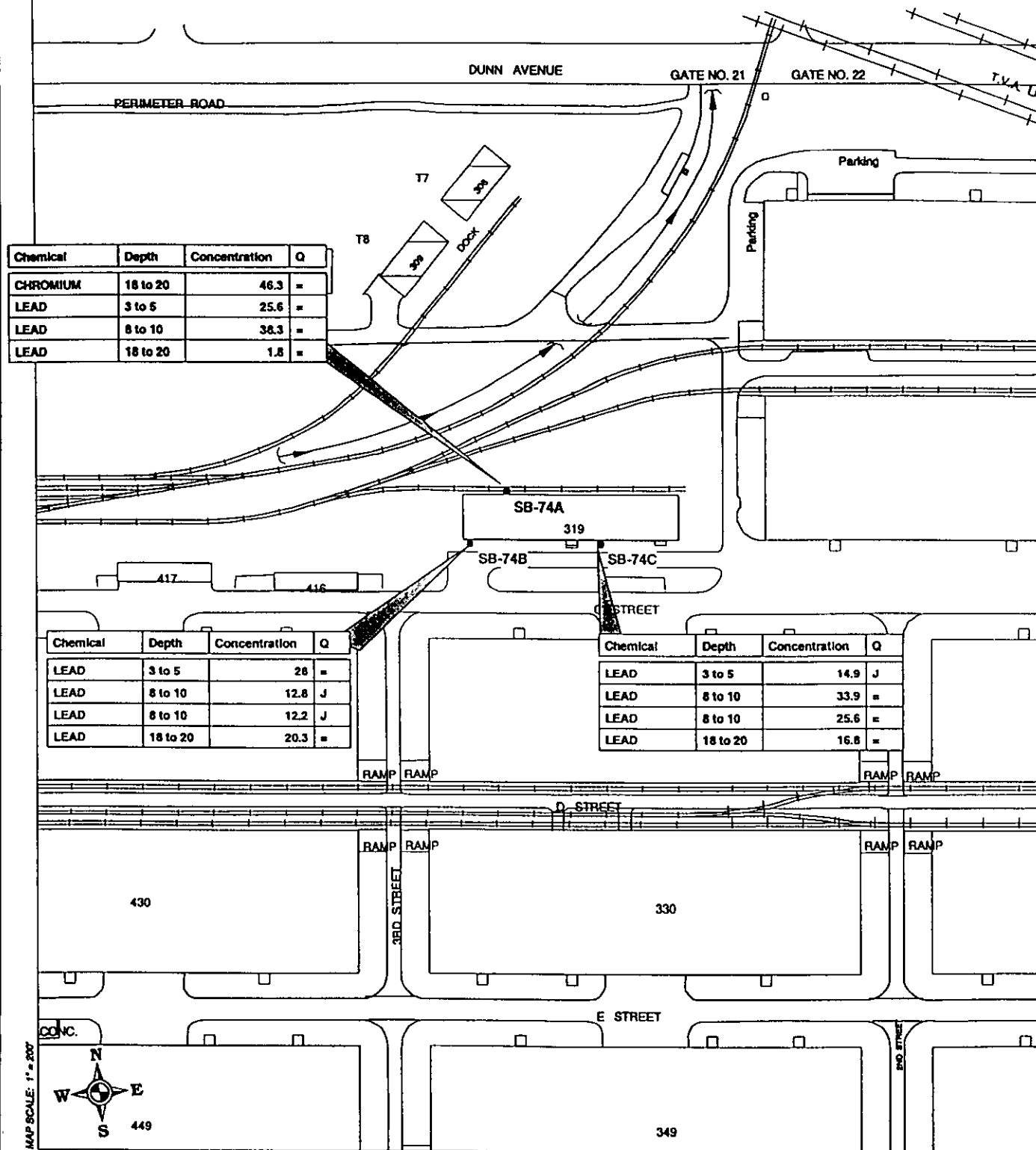
Building 765 contained an aboveground fuel oil storage tank. Building 765 and the aboveground storage tank (AST) have been removed.

4.6.2 Site History and Enforcement Activities

Site 81 previously was investigated as a screening site; according to the March 1998 *Screening Sites Letter Reports* (CH2M HILL), PAH compounds were found in surface soil. The risks from these contaminants are associated with railroad operations and will be addressed on a facility-wide basis. There were no other contaminants detected at Site 81 above background levels.

4.6.3 Summary of Site 81 Risks

There were no contaminants detected at Site 81 that are attributable to the site. The PRE risk ratios at the site were below risk levels for both the residential and industrial scenario, because none of the chemicals exceeded background (USAESCH, 1998). Therefore, NFA is recommended at this site.



Sampling locations without data boxes had no constituents exceeding risk-based criteria

LEGEND

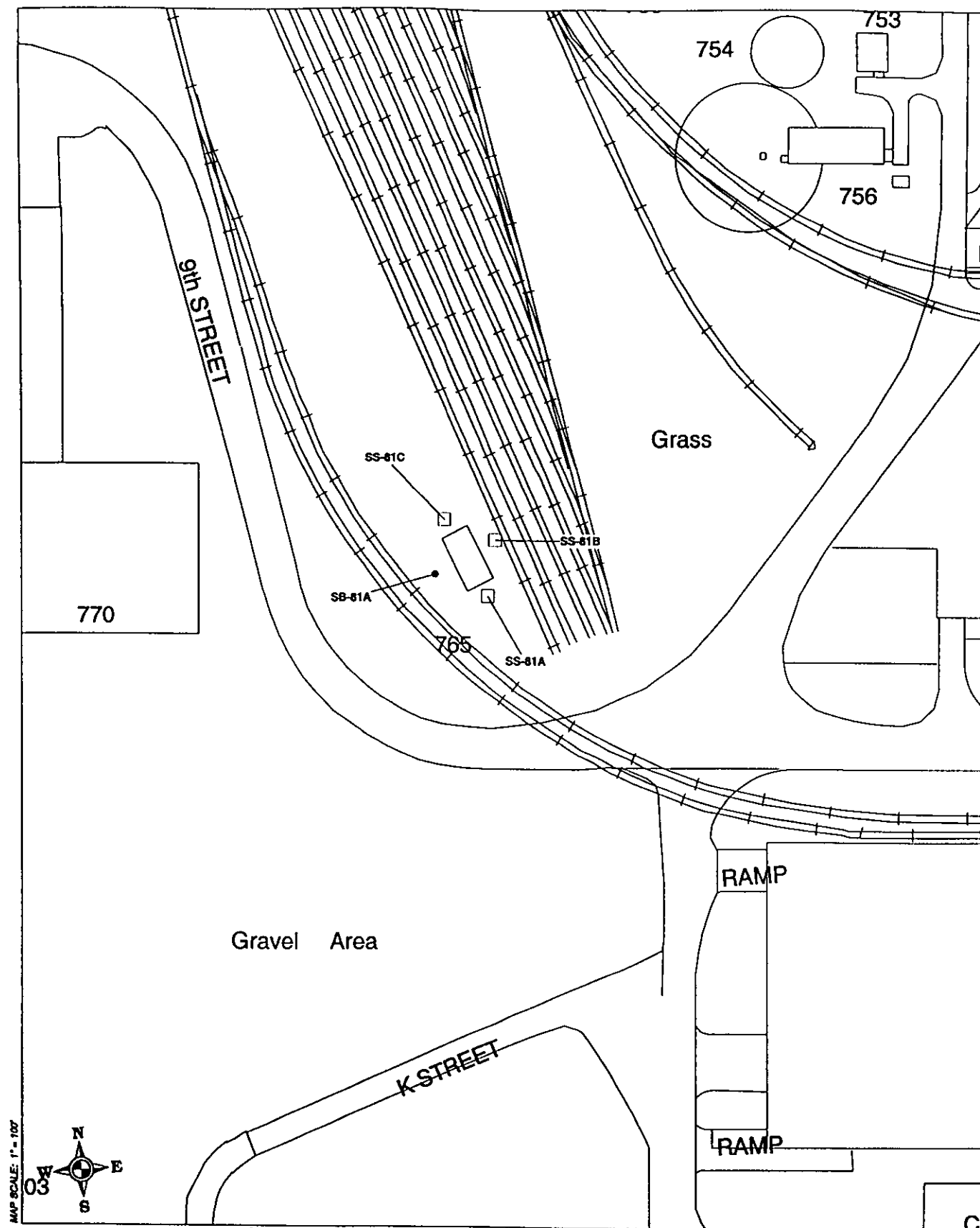
- Soil Boring Sampling Location (mg/kg)

(Q) Qualifier Definitions

= - Indicates unqualified detection

J - Indicates estimated value above detection limit, but below reporting limit.

FIGURE 4-5
SITE 74, WEST ENDING
BUILDING 319 CONSTITUENTS
EXCEEDING RISK-BASED CRITERIA
MEMPHIS DEPOT MAIN INSTALLATION NFA



Sampling locations without data boxes had no constituents exceeding risk-based criteria

LEGEND

- Surface Soil Sampling Location (mg/kg)
- Soil Boring Sampling Location (mg/kg)

2717_89 (boarder/title)

FIGURE 4-6
SITE 81, FUEL OIL BUILDING 765
SAMPLING LOCATIONS
 MEMPHIS DEPOT MAIN INSTALLATION NFA

CH2MHILL 4-10

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FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE