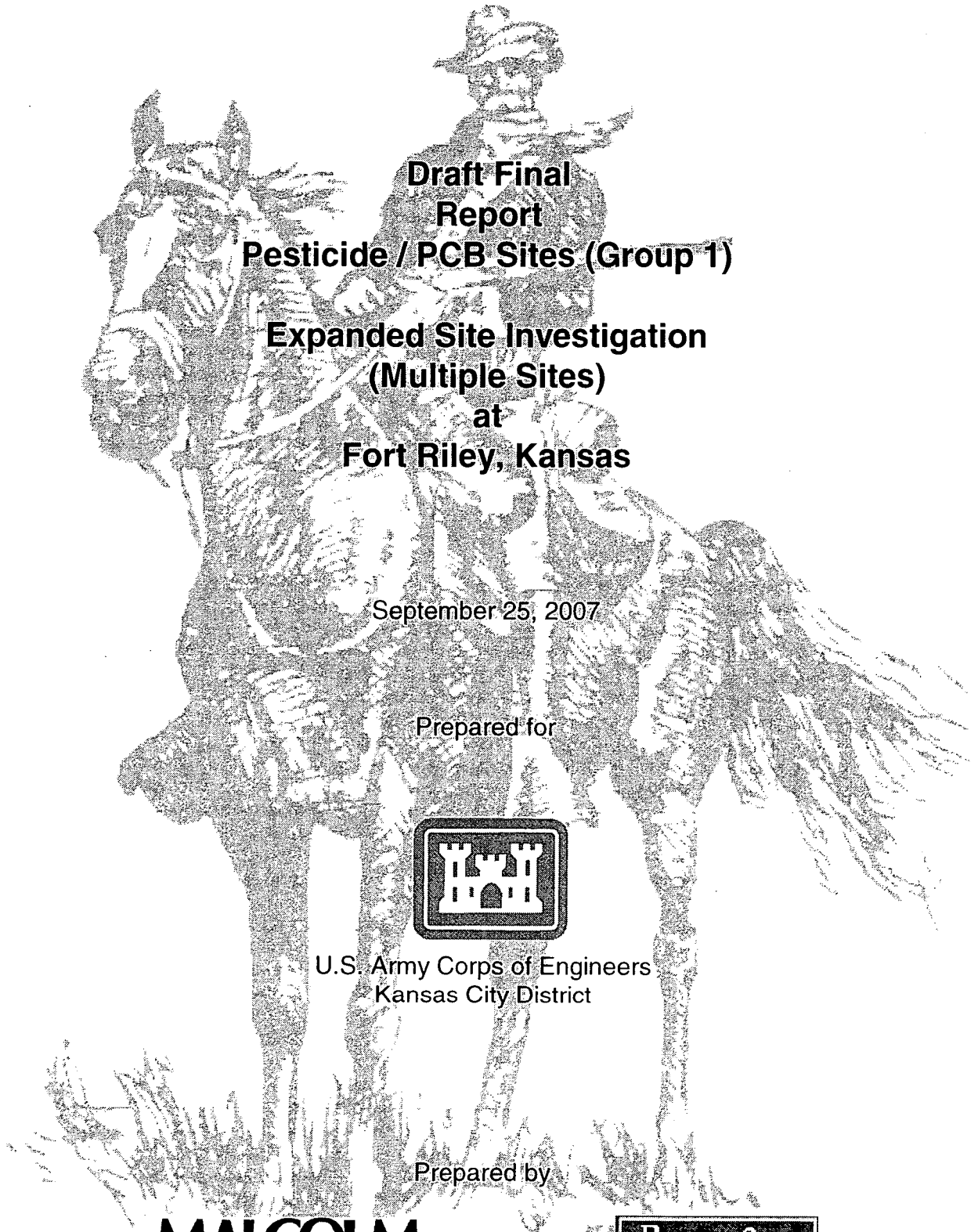

Draft Final Report
Pesticide / PCB Sites (Group 1)

Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas

September 25, 2007

Prepared for

U.S. Army Corps of Engineers
Kansas City District

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TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

AEHA	Army Environmental Health Activity
bgs	below ground surface
BMcD	Burns & McDonnell Engineering Company, Inc.
BTEX	Benzene, Ethylbenzene, Toluene, and Xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm^2	centimeters squared
DA	United States Department of the Army
DAF	Dilution Attenuation Factor
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltri-chloroethane
DEH	Directorate of Environmental Health
DRMO	Defense Reutilization Marketing Office
ESI	Expanded Site Investigation
FFA	Federal Facility Agreement
ft	feet
GRO	Gasoline Range Organics
HCH	Hexachlorocyclohexane
HRS	Hazard Ranking System
IDWPA	*Investigative-Derived Waste Management Plan Addendum, Expanded Site Investigation at Fort Riley, Kansas*
in.	inches
IRP	Installation Restoration Program
IT	International Technology
IW-IDW	*Installation-Wide Investigation-Derived Waste*
IWSA	*Installation-Wide Site Assessment for Fort Riley, Kansas*
IW-SAP	*Installation-Wide Sampling and Analysis Plan for Environmental Investigation at Fort Riley, Kansas*
IW-SHP	*Installation-Wide Site Safety and Health Plan for Environmental Investigations at Rot Riley, Kansas*
KDHE	Kansas Department of Health and Environment
KPL	Kansas Power & Light
LBA	Louis Berger and Associates
MAAF	Marshall Army Airfield
MCL	Maximum Contaminant Level
mg/kg	milligram per kilogram
mg/L	milligrams per liter

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

MP	Malcolm Pirnie, Inc.
msl	mean sea level
NCP	National Contingency Plan
NPL	National Priorities List
PA	Preliminary Assessment
PAOC	Potential Areas of Concern
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
PID	Photoionization Detector
POL	Petroleum, Oil, and Lubricants
ppb	parts per billion
PRG	Preliminary Remediation Goal
PW	Public Works
PWE	Fort Riley Directorate of Public Works – Environmental Division
QCSR	Quality Control Summary Report
RCRA	Resource Conservation and Recovery Act
RSK	Risk-Based Standards for Kansas
SAP	*Installation-Wide Sampling and Analysis Plan for Environmental Investigations at Fort Riley, Kansas*
SI	Site Investigation
SSHP	*Site-Specific Safety and Health Plan, Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas*
SVOC	Semivolatile Organic Compound
TPH	Total Petroleum Hydrocarbons
TRPH	Total Recoverable Petroleum Hydrocarbons
TSCA	Toxic Substances Control Act
µg /cm^2	micrograms per squared centimeter
µg /kg	micrograms per kilogram
µg/L	micrograms per liter
UPRR	Union Pacific Railroad
USACE	United States Army Corps of Engineers
USATHMA	United States Army Toxic and Hazardous Materials Agency
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WTC	World Trade Center

* * * * *

1.0 INTRODUCTION

1.1 PURPOSE OF EXPANDED SITE INVESTIGATION (ESI) REPORT

The Fort Riley Directorate of Public Works – Environmental Division (PWE) is performing the Installation Restoration Program (IRP) at Fort Riley, Kansas. This program, designed to identify and address potential threats to human health and the environment, has been underway for several years at the post. Numerous investigations, pilot studies, and environmental sampling events have been conducted by the United States Army Corps of Engineers (USACE) at several sites on the post to support the IRP effort.

Upon review of the public record, Fort Riley has determined that multiple potentially contaminated sites identified during previous investigations have not had a formal decision on their regulatory status signed by the parties to the Federal Facilities Agreement (FFA). These multiple sites have been organized into five groups based on similar site characteristics or contaminants as indicated below:

- Pesticide / Polychlorinated Biphenyl (PCB) Sites
- Wastewater Sites
- Petroleum / Volatile Organic Compounds (VOC) Sites
- Former Landfill / Incinerator Sites
- Former Vehicle Maintenance Shops / Gas Stations / Petroleum Dispensing Stations (collectively referred to as the Former Petroleum, Oil, and Lubricant [POL] Sites)

Table 1-1 presents a summary of the regulatory history for all of the sites investigated by group and includes the recommendation made for closed status. Any proposal for additional sampling is also presented, if applicable.

This ESI report presents the field results and recommendations for the following Pesticide / PCB Sites (Figure 1-1):

- DRMO Storage Area 1 (FTRI-006)
- PCB Storage Building 343 (FTRI-007)
- PCB Storage Conex 348 (FTRI-008)
- Pesticide UST at Camp Funston (FTRI-010)
- DRMO Storage Area 3 (FTRI-012)
- DRMO Storage Area 2 (FTRI-015)

- Former Livestock Dipping Facility (FTRI-047)
- Former Pesticide Facilities (FTRI-048)
- Mercury Contamination Areas (FTRI-049)
- PCB Transformer Sites (FTRI-050)
- Milford Campground / Marina (FTRI-055)

This includes a summary of all previous investigative work conducted at each of the Pesticide / PCB Sites, as well as the results of field work completed as part of the ESI. The evaluation includes a critical analysis of the new data with respect to the historical data. The analysis considers whether or not the new data is consistent with the historical data and includes possible explanations for any variance observed. A recommendation on the determination of the future status of each of the Pesticide / PCB Sites is made.

Malcolm Pirnie, Inc. (MP) has a contract with the USACE to conduct this investigation. MP has subcontracted Burns & McDonnell Engineering Company, Inc. (BMcD) to prepare work plan documents, execute the field work, and prepare the ESI Reports.

The following installation-wide documents provided general guidance for conducting ESI field activities during the summer of 2006:

- *Installation-Wide Sampling and Analysis Plan for Environmental Investigations at Fort Riley, Kansas* (IW-SAP) (MP-BMcD, 2004a), which consists of the following two volumes:
    - *Volume I, Installation-Wide Field Sampling Plan*
    - *Volume II, Installation-Wide Quality Assurance Project Plan*
- *Installation-Wide Site Safety and Health Plan for Environmental Investigations at Fort Riley, Kansas* (IW-SHP) (MP-BMcD,2004b)
- *Installation-Wide Investigative-Derived Waste Management Plan for Environmental Investigations, Fort Riley, Kansas* (IW-IDW) (BMcD, 2003a)

The following project specific plan addenda were prepared specifically to support ESI field activities and data validation:

- *Sampling and Analysis Plan Addendum, Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas* (SAP) (MP-BMcD, 2005a), which consists of the following two volumes:

- *Volume I, Field Sampling Plan Addendum*
- *Volume II, Quality Assurance Project Plan*

- *Site-Specific Safety and Health Plan, Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas* (SSHP) (MP-BMcD,2005b)

- *Investigative-Derived Waste Management Plan Addendum, Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas* (IDWPA) (MP-BMcD, 2005c)

1.2 SITE DESCRIPTION

General site conditions, including the physical setting, surface features, ecology, geology and hydrogeology, and climate have been summarized in the Installation-Wide Field Sampling Plan. Conditions specific to each ESI site are addressed in the individual site discussions.

1.3 REGULATORY HISTORY

Fort Riley was established in 1853 and has been owned and operated by the United States Department of the Army (DA) since that time. Environmental investigations and sampling events were performed at Fort Riley during the 1970s and 1980s. These investigations identified activities and facilities where hazardous substances had been released or had the potential to be released to the environment. Potential sources of contamination include a variety of landfills; printing, dry cleaning, and furniture shops; POL sites; and pesticide storage facilities. On July 14, 1989, the United States Environmental Protection Agency (USEPA) proposed inclusion of Fort Riley on the National Priorities List (NPL), and listed the installation on the USEPA NPL in August 1990, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The DA – Fort Riley, the Kansas Department of Health and the Environment (KDHE) and the USEPA entered into a FFA, to address environmental releases subject to Resource Compensation and Recovery Act (RCRA) and CERCLA or CERCLA alone.

The FFA, which became effective in June 1991, required Fort Riley to conduct a systematic site assessment to identify all potential areas of concern (PAOCs) at Fort Riley. The systematic site assessment was performed in 1992, with the results presented in the *Installation-Wide Site Assessment for Fort Riley, Kansas* (IWSA) dated 07 December 1992 and revised on 16 February 1993 (Louis Berger and Associates [LBA], 1993). The IWSA summarized existing data and identified 25 groups of PAOCs, with 23 sites being identified for further site investigation. Contaminants associated with these sites vary greatly from potential lead-contaminated soils at old firing ranges to potential releases of solvents due to practices at furniture repair shops. The IWSA was conducted consistent with the USEPA requirements

for Preliminary Assessments (PA) under CERCLA. Based on USEPA's PA methodology, potential risk posed by PAOCs was estimated using the Hazard Ranking System (HRS). The IWSA identified PAOCs subject to RCRA corrective actions and/or CERCLA where a release of hazardous substances to the environment has occurred or is considered likely, migration pathways from the site exist, and potential receptors are known to exist. Specifically, 23 PAOCs were identified and evaluated using the HRS PA score methodology. As outlined in the National Contingency Plan (NCP), the results of the PA were used to identify sites requiring further investigation.

These PAOCs were addressed under a Multiple Site Investigations project which was further broken down into these groupings: the Sensitive Receptor Lead Sites; "High Priority" Sites; and "Other Sites". The Sensitive Receptor Lead Sites investigation was expedited due to the accessibility of the areas to the general public (especially children). Only one area near the Coyler Manor Family Housing Area was identified as having elevated levels of lead in the soils, and a removal action involving excavation and off-site disposal of soil was performed. The High Priority Sites field investigations were completed in November, 1993. The "Other Sites" grouping consisted of 14 sites which had very low PA HRS scores and had a low potential for release of contaminants to the environment. Field work for these "Other" sites was performed in the spring and summer of 1994. Site investigations for seven POL/underground storage tank (UST) sites were conducted from 1992 to 1995.

Fort Riley has a RCRA Part B permit that became effective October 1, 1998 and expires October 1, 2008. Part I of the permit allows Fort Riley to operate as a storage facility for hazardous waste. Part II of the permit defers corrective action requirements to those conditions specified in the Fort Riley FFA.

The permit states that the Installation-Wide Site Assessment and subsequent modifications thereto, shall constitute the identification of all known past and present sites/solid waste management units (SWMUs), effective with the issuance of Part II of the permit. Table 2.2 of the permit lists sites/SWMUs covered under the FFA and their current status (revised October 2000). The current status of the ESI sites/groupings listed in the permit are determined to not have the potential to pose a risk to human health or the environment. Although the RCRA permit states these sites pose no potential risk, the regulatory status under CERCLA is currently open; i.e. ,the sites have not received regulatory concurrence to terminate further response activities or to initiate a removal or to proceed to the next phase under CERCLA for a remedial investigation, if warranted.

1.4 RATIONALE AND TECHNICAL APPROACH

The objective of this ESI was to provide a defensible rationale for ending environmental investigations at some or all of the identified ESI sites, if that decision was supported by data. In the event that site closure was not indicated by the data, then future work required to affect closure was proposed. This was accomplished using a three step process:

- Documents were reviewed in late 2005 to determine if existing data were sufficient to support a recommendation for the future status of a site. If not sufficient, then data gaps were identified and additional fieldwork was planned. ESI sampling parameters were selected by Fort Riley.

- Additional field sampling was conducted during the summer of 2006. Samples collected included surface and subsurface soil samples, groundwater samples, debris samples, and wipe samples. All results were validated and a Quality Control Summary Report (QCSR) was issued (MP-BMcD, 2006).

- The data was evaluated and an ESI Report was prepared. Data collected as part of the ESI was compared to existing risk-based screening criteria. This process is described in the following section. See Section 1.6 for a description of the ESI Report organization.

1.5 RISK-BASED SCREENING CRITERIA

Field data was screened against existing risk-based screening criteria in order to determine if contaminants detected in soil or groundwater present a hazard to potential receptors. No effort was made to perform a formal risk assessment for any of the ESI sites. The screening process is described in the following bullets:

- Data was screened initially against USEPA Region 9 Preliminary Remediation Goals (PRGs) (USEPA, 2004a). These are risk-based standards and are more stringent than other alternatives available. For soil, the USEPA Region 9 Residential PRGs were used initially. For groundwater, the tap water PRGs were applied. If leaching to groundwater appeared to be a potential issue, then the soil data would be screened against the Dilution Attenuation Factor (DAF) 20 standards for "migration to groundwater."

- If soil at a site failed screening against the USEPA Region 9 Residential PRGs, then the industrial PRGs were applied, assuming their use can be justified base on current and/or future use of the site.

- If groundwater at a site failed screening against the tap water PRGs, then the USEPA Maximum Contaminant Levels (MCLs) (USEPA, 2004b) were applied.

- If soil failed screening against both residential and industrial PRGs, then the KDHE Risk-Based Standards for Kansas (RSK) screening standards (KDHE, 2003) were applied.

- If soil and/or groundwater failed screening against all regulatory standards, then an effort was made to justify closure based on the lack of completed pathways to potential receptors. This was a qualitative assessment; no formal risk assessment was performed.

In the event that a recommendation for site closure could not be made, then recommendations were made for additional work at that location.

1.6 ESI REPORT ORGANIZATION

Each section of this ESI Report (Sections 2 through 12) consists of individual, stand alone descriptions of each site. Each discussion includes the following elements:

- Location and Setting – a brief description of the physical location of the site, including the nature of the surrounding area. A description of geology and hydrogeology is included. Any protected or special ecological and cultural features observed or known to occur at or near the site is described. Any significant receptors, especially water supply wells, are also described.

- Site Background and Previous Sampling Results – This section will include a brief history of the site. Also discussed are any previous site investigation activities and a discussion of analytical results from those activities.

- ESI Field Activities and Analytical Results – Significant observations which drove the sampling rationale are listed. The field activities are described in detail. A figure and table are provided showing the locations where samples were collected and listing the sampling media and analytes.

- Discussion and Recommendations – This section provides a discussion of both previous and ESI sampling results. Any anomalies in the data sets are described and explained, if possible. Based on a comparison of analytical data to screening criteria, a recommendation on site closure was made. If closure is not indicated, then a recommendation for additional work was made.

This ESI Report, which addresses only the Pesticide / PCB Sites, is organized as follows:

- Section 1.0 Introduction
- Section 2.0 DRMO Storage Area 1 (FTRI-006)
- Section 3.0 PCB Storage Building 343 (FTRI-007)
- Section 4.0 PCB Storage Conex 348 (FTRI-008)
- Section 5.0 Pesticide UST at Camp Funston (FTRI-010)
- Section 6.0 DRMO Storage Area 3 (FTRI-012)
- Section 7.0 DRMO Storage Area 2 (FTRI-015)
- Section 8.0 Former Livestock Dipping Facility (FTRI-047)
- Section 9.0 Former Pesticide Facilities (FTRI-048)
- Section 10.0 Mercury Contamination Areas (FTRI-049)
- Section 11.0 PCB Transformer Sites (FTRI-050)
- Section 12.0 Milford Campground / Marina (FTRI-055)
- Section 13.0 References

Subsequent reports will address the other four groups of ESI sites. Figure 1-1 depicts the location of the Pesticide / PCB Sites.

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2.0 DRMO STORAGE AREA 1 (FTRI-006)

2.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

Defense Reutilization Marketing Office (DRMO) Storage Area 1 (FTRI-006) is located at Camp Funston. DRMO Storage Area 1 (FTRI-006), is approximately 22 acres in size, and is bounded by L Street to the west, 4th Street to the north, a levee on the east, and 7th Street on the south (see Figures 1-1 and 2-1). DRMO Storage Area 1 (FTRI-006), has been active from 1978 to the present. The west side of the Area 1 (FTRI-006), yard is paved, and the east side is covered with compacted gravel. The elevation is approximately 1,050 feet (ft) above mean sea level (msl) throughout. The area handles materials such as used vehicle batteries, excess vehicles, used household appliances, and solvent waste received from the oil test laboratory in Building 8100. Area 1 (FTRI-006), previously hosted the Fort Riley RCRA storage facility. These activities were subsequently moved to another location at Camp Funston (LBA, 1993 & 1995).

DRMO Storage Area 1 (FTRI-006), is located within the historical floodplain of the Kansas River. This part of Camp Funston is protected by a levee designed for a 100-year flood. The area is flat with a very slight southeast slope towards the river. The native soil at the DRMO Storage Area 1 (FTRI-006), consists of clayey silt, silt, and clay. The area is overlain with paved roads, loose gravel over bare soils, buildings, concrete, and some grass. Several surface drainages surround and traverse Area 1 (FTRI-006). These include ditches along the northern edge, the western edge, and portions of the southern edge; one crossing the center of the area from north to south; and one in the southwest corner of the yard.

Geologic materials underlying the DRMO Storage Area 1 (FTRI-006), consist of unconsolidated alluvial clay, silt, sand, and gravel that may range in total thickness from 60 to 80 ft; bedrock consists of limestone and shale. Approximate depths to groundwater in this area range from 17 to 23 ft. Groundwater flow in this area is generally to the east, conforming to flow in the Kansas River alluvial plain. Changes in groundwater flow direction should be expected during flood stages of the Kansas River.

The areas surrounding the DRMO Storage Area 1 (FTRI-006), have been relatively unused; however, construction activity at Camp Funston has increased over the last two years as the Army prepares to increase the active duty complement at Fort Riley.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site.

2.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

DRMO is a support agency within Fort Riley that acts as a collection point for used, surplus, or discarded materials that still have some economic value. These materials can be sold to recover some value or can be re-used by the army. The DRMO on Fort Riley has been located in three different areas. For the purposes of the ESI, these three areas are identified as Area 1 (FTRI-006), Area 2 (FTRI-015), and Area 3 (FTRI-012), with Area 1 (FTRI-006) being the current, active location and Area 3 (FTRI-012) being the oldest. Area 2 (FTRI -015) and Area 3 (FTRI-012) are former DRMO storage sites and are no longer used. The locations are shown on Figure 1-1. Area 1 (FTRI-006), will be addressed here in Section 2.0, while Areas 2 and 3 will be addressed below in Sections 7.0 and 6.0, respectively.

The DRMO has historically managed many materials that are potential contaminants. These include PCBs, waste oil, and various potential hazardous wastes. The concern at the DRMO Storage Area 1 (FTRI-006), is from the handling of the hazardous materials. If hazardous materials were handled in such a way as to spill or leak PCBs, solvents, or POLs, the soils in the area could become contaminated. Additionally, the contaminants could migrate off the site into the groundwater or surface water.

A site investigation (SI) was completed at the DRMO Storage Area 1 (FTRI-006), in 1994 (LBA, 1995). Field sampling included a soil-gas survey for VOCs; soil and sediment sampling for VOCs, semi-volatile organic compounds (SVOCs), PCBs, and RCRA metals; and groundwater screening for VOCs. A summary of significant results follows:

- Elevated levels of benzene, ethylbenzene, toluene, and xylenes (BTEX) were detected in soil gas samples. Most of these detections were in a contiguous area along the north fence in the northeast corner of the DRMO Storage Area 1 (FTRI-006), yard (Figure 2-2).

- There were no detections of VOCs in surface soil samples.

- SVOCs and PCBs were detected in one surface soil sample each. A surface soil sample collected near the northwest corner of Building 1950 had a positive detection of fluoranthene at 1,100 micrograms per kilogram (µg/kg). Another surface soil sample, collected from the ditch in the southeast corner of the yard, contained the PCB isomer Aroclor-1260 at a concentration of 4,700 µg/kg (Figure 2-3; Sample Location 10). All other surface soil samples were non-detect for SVOCs and PCBs.

- Metals detected in surface soil samples included arsenic, barium, cadmium, chromium, lead, and silver. Only arsenic exceeded USEPA risk-based guidelines (Table 2-1).

- Groundwater screening samples collected had no detections of VOCs. However, a groundwater sample collected from a monitoring well just east of Buildings 1952 and 1953 (DAIGS4-4; see Figure 2-2) for off-site laboratory analysis had a detection of toluene at a concentration of 2.8 micrograms per liter (µg/L), which was below the USEPA MCL of 1,000 µg/L.

Additional soil sampling for PCBs was performed in August 1996. Surface soil samples were collected from the drainage running south from the DRMO Storage Area 1 (FTRI-006), compound (Figure 2-4). The only PCB detections were of the isomer Aroclor-1260. Aroclor-1260 was detected in 19 of the 25 soil samples at concentrations ranging from 0.088 to 14 milligrams per kilogram (mg/kg) (and 16 and 24 mg/kg in two duplicate samples) (LBA, 1998).

2.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Surface and subsurface soil, and groundwater samples were collected at the DRMO Storage Area 1 (FTRI-006), compound as part of the ESI field activities during the summer of 2006. Surface soil samples were collected on June 26, 2006. Subsurface soil and groundwater samples were collected on June 29 and July 6, 2006.

Five surface soil samples (S01 through S05) were collected along the drainage extending south from the DRMO Storage Area 1 (FTRI-006), compound (Figure 2-1). These were sent to an off-site laboratory and analyzed for PCBs (USEPA Method 8082). Surface soil samples were collected at a depth not to exceed six inches (in.) bgs and were all located within the center of the drainage swale. All planned surface soil samples were collected at this site.

Four direct-push borings were advanced within or adjacent to the DRMO Storage Area 1 (FTRI-006), yard. Three direct-push borings (DP01, DP02, and DP03) were advanced in the vicinity of the north perimeter fence, in the northeast corner of the yard. One direct-push boring (DP04) was advanced to the east of Buildings 1952 and 1953, and south of the perimeter fence (see Figure 2-1). These direct-push borings were continuously sampled from the ground surface to the depth where groundwater was encountered using a 2-in. Macrocore™ sampler. Three soil samples were collected from each direct-push boring at depth intervals of 0 to 2 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs. The field geologist prepared a lithologic log of each direct-push boring and screened soil samples using a photoionization detector (PID) (Boring logs are included in Appendix A). The field geologist used PID screening results and best

judgment in selecting where to collect soil samples within the three designated sampling intervals. Soil samples were collected and sent to an off-site laboratory for VOCs (USEPA Method 8260), total petroleum hydrocarbons – gasoline range organics (TPH-GRO) (USEPA Method 8015), and RCRA metals (USEPA Method 6010/7000) analysis. The probe was then advanced to the water table, and groundwater samples were collected and sent to an off-site laboratory for VOCs (USEPA Method 8260), TPH-GRO (USEPA Method 8015), and RCRA metals (USEPA Method 6010/7000; both filtered and unfiltered). No soil samples were collected below a depth of 12 ft bgs. All planned subsurface soil and groundwater samples were collected at this site.

Following the completion of field activities at this site, all surface soil sampling and direct-push boring locations were surveyed. The survey data is included in Appendix B.

Surface and subsurface soil analytical results for DRMO Storage Area 1 (FTRI-006), are presented in Table 2-2. The only PCB isomer detected in surface soil samples was Aroclor-1260. Four of the five surface soil samples (S02, S03, S04, and S05) had detections of Aroclor-1260, with concentrations ranging from 0.87 to 5.1 mg/kg. These detections all exceeded the USEPA Region 9 PRG (industrial) of 0.74 mg/kg; however, all detections were below the KDHE RSK (industrial) of 9.5 mg/kg.

Subsurface soil collected from the direct push borings had detections of xylenes, TPH-OA1, arsenic, barium, cadmium, chromium, and lead. Only arsenic exceeded the USEPA Region 9 PRG (industrial) of 1.6 mg/kg. Exceedences of arsenic were present in all four direct-push borings, with concentrations ranging from 1.8 mg/kg (DP04; 4 to 8 ft bgs) to 5.8 mg/kg (DP01; 8 to 12 ft bgs). However, all detections of arsenic were below the KDHE Residential RSK of 11 mg/kg. Those soil detections which exceeded USEPA Region 9 PRGs (industrial) are presented on Figure 2-5. There were no exceedences of residential screening levels (either PRGs or RSKs) for the soil to groundwater protection pathway.

Groundwater analytical results for DRMO Storage Area 1 (FTRI-006), are presented in Table 2-3. VOCs detected in groundwater included benzene, ethylbenzene, xylene, toluene, and trichloromethane. All of these compounds, with the exception of trichloromethane, were detected at concentrations exceeding both USEPA Region 9 PRGs (tap water) and USEPA MCLs. Benzene was detected in groundwater samples from Direct-Push Borings DP01, DP02, and DP03 at concentrations of 21,000, 152, and 54.2 µg/L, respectively. In addition, ethylbenzene, total xylenes, and toluene were detected in Direct-Push Boring DP01 at concentrations of 6,900, 13,000, and 6,720 µg/L, respectively.

Arsenic, barium, cadmium, chromium, lead, mercury, and selenium were detected in unfiltered groundwater samples taken from the direct-push borings at DRMO Storage Area 1(FTRI-006). These

total metal concentrations generally exceeded screening criteria due to excessive sample turbidity. Only arsenic and barium were detected in filtered groundwater samples taken at this site. These two metals exceeded USEPA MCLs only in the groundwater sample taken from Direct-Push Boring DP01. Arsenic and barium were detected at concentrations of 0.014 and 2.14 milligrams per liter (mg/L), respectively.

Those groundwater detections which exceeded USEPA Region 9 PRGs (tap water) are presented on Figure 2-6.

2.4 DISCUSSION AND RECOMMENDATIONS

Historical and ESI sampling results can be summarized as follows:

- Groundwater analytical results are, in general, consistent with the historical sampling data. Significantly elevated concentrations of BTEX compounds in groundwater collected from Direct-Push Borings DP01, DP02, and DP03 are consistent with the elevated soil gas concentrations detected in this area. For PCB soil samples there was a decrease from the mid-1990 sampling (6.7 ppm average) to the 2006 sampling (3.6 ppm average). ESI surface soil results for PCBs were comparable to historical samples collected along the drainage extending south from the DRMO Storage Area 1 (FTRI-006).

- Aroclor-1260 was detected in ESI surface soil samples at concentrations which exceeded the USEPA Region 9 PRG, but were below the KDHE RSK (industrial).

- Only arsenic, in ESI subsurface soil samples, exceeded the USEPA Region 9 PRG (industrial). However, all detection of arsenic were below the KDHE Residential RSK.

- There were no exceedences of residential screening levels (either PRGs or RSKs) for the soil to groundwater protection pathway.

- BTEX exceeded both USEPA Region 9 PRGs and MCLs in ESI groundwater samples. The source for this contamination is the former POL 1245 storage facility located on the north side of Fourth Street. The most recent investigation of the former POL 1245 storage facility in 2006 revealed groundwater contamination in the same area as the direct-push samples collected during the ESI, southeast of the former POL storage facility. This area is currently undergoing additional site investigations and is scheduled for future remediation including product extraction and soil vapor extraction.

- Arsenic and barium in ESI groundwater samples exceeded USEPA MCLs. However, these results are consistent with elevated levels of arsenic and barium present in groundwater samples collected in this area. In addition, there are no direct pathways to receptors for groundwater in this area, as no supply wells are present locally.

The northern portion of the DRMO Storage Area 1 (FTRI-006) will be transferred to the Former Building 1245 Dispensing Station Site. FTRI-006 is recommended for closure.

* * * * *

3.0 PCB STORAGE BUILDING 343 (FTRI-007)

3.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

Building 343 is located within the Public Works (PW) maintenance compound at the Main Post cantonment area (Figures 1-1 and 3-1). The PW maintenance compound is located south of Dickman Avenue and north of the Union Pacific Railroad (UPRR) grade. Building 343 is located at the eastern portion of this area. It is a wood frame and metal building, approximately 150 ft by 40 ft in size, and open to the south. The eastern portion of the building is enclosed and has a cement floor (25 ft by 40 ft).

The area around Building 343 is an industrial area, with large open areas of gravel and asphalt. The entire PW maintenance compound sits on an ancient alluvial terrace, which consists of unconsolidated clay, silt, and sand. These terrace deposits overlie shale and/or limestone bedrock, and are approximately 35 ft thick at the Building 343 location. Groundwater is present at a depth of approximately 30 ft bgs, and flows to the south, towards the Kansas River alluvial aquifer. Surface drainage at this location will also be to the south.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site.

Due to the limited mobility of PCBs, contamination of groundwater should not be an issue. The main environmental hazard associated with PCBs is from the ingestion or inhalation of PCB in dust.

3.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

Building 343 was put in use in 1988 and has been used for the temporary storage of PCB equipment awaiting pickup and off-site disposal. The storage of PCB equipment at Building 343 ceased in October 2002. In the Army Environmental Health Activity (AEHA) report, it was noted that oil stains were observed at this location, and the report indicated that Fort Riley – Directorate of Environmental Health (DEH) had plans to address the spills. Fort Riley has conducted cleanup of this facility, and the oil stains, although tested to be non-PCB contaminated, were removed (AEHA, 1988).

No previous sampling data was available. However, the IWSA indicated that materials tested during removal of soil stains at this site were not contaminated with PCBs (LBA, 1993). During the IWSA in 1993, no oily stains were observed in Building 343. Steel secondary containment trays were used and should have prevented releases of PCBs onto the concrete floor. There are no records of any spill in either Fort Riley or KDHE's spill records.

3.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Six debris/surface samples were collected from the enclosed, eastern portion of Building 343 on June 26, 2006. This area consisted of a concrete, slab floor. The field geologist divided the floor into six zones of equal surface area, which correspond to the sampling locations depicted on Figure 3-1. He then collected surface debris from these zones to provide sufficient sample for laboratory analysis. These samples were analyzed for PCBs (USEPA Method 8082).

Analytical results (positive hits only) for the PCB Storage Building 343 are presented in Table 3-1. The PCB isomers Aroclor-1242 and Aroclor-1260 were detected in surface debris samples. Aroclor-1242 was detected in four of the six samples collected, at concentrations ranging from 0.08J to 0.34J mg/kg. Only one debris sample (S05) had a detection of Aroclor-1260 at a concentration of 0.05 mg/kg. Although two of these samples exceeded the USEPA Region 9 Residential PRG of 0.22 mg/kg, none exceeded the Region 9 PRG (industrial) of 0.74 mg/kg.

3.4 DISCUSSION AND RECOMMENDATIONS

Although Aroclor-1242 and -1260 were detected at this site, none of the detections exceeded the USEPA Region 9 PRG (industrial) of 0.74 mg/kg. However, the debris/surface samples consisted of dirt and gravel dust, which are not representative of evidence of any release of PCB contamination. A concrete sample should be collected in the area where PCB containing materials/equipment were stored inside the testing and storage area to determine residual concentrations of PCBs, if any, in the concrete. In addition, since the concrete floor slopes to the southeast and the PCB materials were stored prior to testing in the southeast quadrant of the building, two representative samples will be collected (using direct-push equipment) from soil near the southeast corner outside the building. Soil samples will be collected from the surface soil and at 5 ft bgs, and analyzed for PCBs to support the recommendation for site closure.

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4.0 PCB STORAGE CONEX 348 (FTRI-008)

4.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

The former Building 348 was located within the PW maintenance compound at the Main Post cantonment area (Figures 1-1 and 3-1). The PW maintenance compound is located south of Dickman Avenue and north of the UPRR. The former Building 348 was located at the eastern portion of this area. This building has been demolished; although, the foundation for the structure is still in place. Conex containers which were used for the storage of PCB-containing electrical equipment were located just to the east of the former Building 348. Each conex container was approximately 6 ft by 8 ft in size and had a removable steel pan with a 6-inch high steel curbing around the four sides of the pan. Hazardous waste was stored in the northwest corner of Building 348 from 1980 to 1983. The building had a concrete floor and was bermed.

The area around the former Building 348 is an industrial area, with large open areas of gravel and asphalt. The entire PW maintenance compound sits on an ancient alluvial terrace, which consists of unconsolidated clay, silt, and sand. These terrace deposits overlie shale and/or limestone bedrock, and are approximately 30 ft thick at the Building 343 location. Groundwater is present at a depth of approximately 25 ft, and flows to the south, towards the Kansas River alluvial aquifer. Surface drainage at this location is also to the south.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site.

Due to the limited mobility of PCBs, contamination of groundwater should not be an issue. The main environmental hazard associated with PCBs is from the ingestion or inhalation of PCB in dust.

4.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

In the AEHA report (1988), oil stains were observed in the adjacent gravel surface, and the report indicated that Fort Riley had plans to address the spills. Fort Riley has conducted cleanup of this facility, and the oil stains, and the conex containers have been closed and approved as closed by the State of Kansas. The state of Kansas accepted this site as closed in December 1990 in accordance with the RCRA closure performance standards in 40 CFR 165.112. Analytical data confirmed the structures were adequately decontaminated with wastewater collection provisions. The RCRA closure plan documented that there were no spills or leaks during the active life of the facilities so no soil sampling or groundwater

monitoring was required during closure. After proper decontamination and closure of the hazardous waste facilities, no use restrictions of the property were imposed and no post-closure care was required (40 CFR 265.117). During the IWSA, no oily stains were observed at this location (LBA, 1993).

No previous sampling data is available.

4.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

One surface soil sample was collected off the southeastern edge of the former Building 348 foundation on June 26, 2006 (Figure 3-1). This sample was sent to an off-site laboratory for PCBs (USEPA Method 8082).

There were no detections of PCBs in this soil sample.

4.4 DISCUSSION AND RECOMMENDATIONS

The PCB Storage Conex 348 (FTRI-008) is recommended for closure since there were no detections of PCBs in the soil sample collected at this site.

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5.0 PESTICIDE UST AT CAMP FUNSTON (FTRI-010)

5.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

The Pesticide UST at Camp Funston (FTRI-010) was located in the northwestern portion of Camp Funston. This area is east of A Street and north of the UPRR grade (Figures 1-1 and 5-1). This site originally consisted of a POL station, which had four 4,000-gallon steel USTs. Each tank was approximately 7 ft in diameter and 14 ft long. The bases of these tanks were located at a depth of approximately 8.5 ft bgs (AEHA, 1988).

The area around the Site is flat and covered with grass, which is kept mowed by the post. There are no structures in the immediate vicinity of the Site; however, the area to the south of the UPRR grade is built up. This area is on the flood plain of the Kansas River and a levee provides protection from 100-year flood events. The Site is underlain by unconsolidated alluvial deposits, which consist of clay, silt, sand, and some gravel. Groundwater is encountered at approximately 40 ft bgs. Groundwater flow in vicinity of the Site is in an easterly direction (United States Geological Survey [USGS], 2005).

No protected or special ecological or cultural features were observed or are known to occur at or near this Site.

There are no water supply wells in the immediate vicinity of the Pesticide UST. The well field for the community of Ogden is located approximately two miles northeast of the Site.

5.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

These four tanks were installed in 1955, as part of a service station, and were originally used for gasoline storage. They were subsequently used for the storage of herbicide. In 1989, the herbicide was removed from the tanks and destroyed by incineration. In the fall of 1991, International Technology (IT) Corporation closed and removed the four tanks (IT, 1992). Soil sampling was performed as part of this effort (results are briefly discussed in the following paragraph). Four groundwater monitoring wells were installed at the Site in 1992. Three of the four wells were subsequently abandoned; only Monitoring Well 1915CF92-03 remains.

As part of the tank removal and site closure conducted in the fall of 1991, eight soil borings were advanced in the vicinity of the Site to evaluate the nature and extent of possible contamination from the tanks (Figure 5-2). Six supplemental soil borings were also advanced and four monitoring wells were installed for the sampling of groundwater (Figure 5-3). Soil samples collected from the initial eight

borings had detections of 2,4-dichlorophenoxy acetic acid (2,4-D) in only a single sample. This soil sample was collected from the boring to the north of the tank basin at a depth of 21 ft bgs, and had a concentration of 4,400 µg/kg of 2,4-D. There were also detections of VOCs (including toluene, ethylbenzene, benzene, xylenes, and acetone), SVOCs, and lead from other soil samples from these borings. These soil samples were analyzed for pesticides, but there were no detections (Table 5-1). Soil samples collected from the six supplemental borings had detections of 4,4-dichlorodiphenyl-dichloroethylene (4,4-DDE), total recoverable petroleum hydrocarbons (TRPH), and lead. 4,4-DDE was reported at a concentration of 8.9 µg/kg. Lead results ranged from 4.3 to 22 mg/kg, which were considered to be at background levels. These soil samples were analyzed for herbicides, but there were no detections (Table 5-2). Groundwater results indicated no levels of VOCs, pesticides, herbicides, or PCB compounds above detection limits. Lead was detected in groundwater at concentrations which did not exceed the USEPA action level for lead of 0.015 mg/L (IT, 1992).

In summary, the residual VOC concentrations in soil were orders of magnitude below risk-based guidelines; although, TRPH was detected in several samples above the then existing KDHE standard of 100 mg/kg. The only SVOC detected was di-n-butyl phthalate (DBN). Concentrations of DBN were below the risk based guideline for residential soil. DBN was detected in many of the blank samples as well. The closure report concluded that results from the boring samples indicated that there was not wide-spread contamination at this site and a groundwater monitoring system was not required. Therefore, pesticides were identified as the only contaminants of concern in 2006.

5.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

One direct-push boring was advanced within the Pesticide Storage UST area on July 6, 2006. The direct-push boring was located approximately 80 ft northwest of Monitoring Well 1915CF92-03-03 (Figure 5-1) in the former tank hold area. This direct-push boring was continuously sampled from the ground surface to the depth where groundwater is encountered using a 2-in. Macrocore™ sampler. Three (3) soil samples were collected from this direct-push boring at depth intervals of 8 to 12 ft bgs, 16 to 20 ft bgs, and 20 to 24 ft bgs. The field geologist prepared a lithologic log of the direct-push boring (boring logs are included in Appendix A). Soil samples were sent to an off-site laboratory for herbicides 2,4-D and 2,4,5-T (USEPA Method 8151). The boring was then advanced to the water table (at a depth of approximately 40 ft bgs), and a groundwater sample was collected and sent to an off-site laboratory for herbicides 2,4-D and 2,4,5-T (USEPA Method 8151). All planned soil and groundwater samples were collected at this site.

Following the completion of field activities at this site, the direct-push boring location was surveyed. The survey data is included in Appendix B.

There were no detections of herbicides in either soil or groundwater in these samples.

5.4 DISCUSSION AND RECOMMENDATIONS

Based on the lack of detections of herbicides in either soil or groundwater samples collected at this Site, the Pesticide UST (FTRI-010) is recommended for closure.

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6.0 DRMO STORAGE AREA 3 (FTRI-012)

6.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

DRMO Area 3 (FTRI-012) is approximately 2.5 acres in size. It is bound by 4th Street on the north, K Street on the east, I Street on the west, and 5th Street on the south (Figures 1-1 and 6-1). It was active from 1972 through 1975. The yard is covered with mixed grass and gravel, and the elevation is approximately 1,050 ft above msl. There are no buildings on the Site. There is no surface drainage across the area, although there are ditches adjacent to the area.

DRMO Area 3 is located within the historical floodplain of the Kansas River. This part of Camp Funston is protected by a levee designed for a 100-year flood. The area is flat with a very slight southeast slope towards the river. The native soil at the DRMO Area 3 consists of clayey silt, silt, and clay. Underlying geologic materials in the vicinity of DRMO Area 3 consist of unconsolidated alluvial clay, silt, sand, and gravel that lie on limestone and/or shale bedrock. These unconsolidated deposits may range in total thickness from 60 to 80 ft. Approximate depths to groundwater in this area range from 15 to 20 ft. Groundwater flow in this area is to the southeast, with changes in groundwater flow direction expected during flood stages of the Kansas River (USGS, 2005).

No protected or special ecological or cultural features were observed or are known to occur at or near this Site.

The Kansas River alluvial aquifer is a source of drinking water. Fort Riley has no water supply wells located at Camp Funston. The nearest supply wells are those for the community of Ogden, which are located approximately two miles to the northeast of the site. There are no other public supply wells within 4 miles of the site. There are no identifiable overland migration pathways from the site to the river.

6.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

General site background on the DRMO areas was presented in Section 2.0. DRMO Area 3 was an active part of the Fort Riley DRMO from 1972 to 1975.

A SI was completed at the DRMO Area 3 in 1994 (LBA, 1995). Field sampling included a soil-gas survey for VOCs, soil sampling for PCBs, and groundwater screening for VOCs. Results are presented in the following bullets:

- There were no detections of VOCs in soil-gas samples.

- There were no detections of PCBs in surface soil samples.

- Groundwater sample results indicated that the groundwater beneath DRMO Area 3 had positive detections for m- and/or p-xylene (2.1 µg/L) and toluene (2.2 µg/L). These samples were collected along the south fence in the southeast corner of the yard (Figure 6-1).

6.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

No ESI field activities were conducted at DRMO Storage Area 3.

6.4 DISCUSSION AND RECOMMENDATIONS

The results of historical sampling at DRMO Storage Area 3 indicated that no PCBs were present in surface soil above detection limits. Xylenes and toluene were present in groundwater, but at concentrations well below current USEPA screening criteria. Based on these results, DRMO Storage Area 3 (FTRI-012) is recommended for closure.

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7.0 DRMO STORAGE AREA 2 (FTRI-015)

7.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

DRMO Area 2 (FTRI-015) is approximately three acres in size. It is bound by K Street on the west, L Street on the east, 9th Street on the north, and 12th Street on the south (Figures 1-1 and 7-1). It was active from 1975 through 1978. The yard is covered with compacted gravel and the elevation is approximately 1,050 ft above msl. There are no buildings on the Site, and the area is currently used for the storage of shipping containers. There is no surface drainage across the area, although there are ditches adjacent to the area.

DRMO Area 2 is located within the historical floodplain of the Kansas River. This part of Camp Funston is protected by a levee designed for a 100-year flood. The area is flat with a very slight southeast slope towards the river. The native soil at sampling points at the DRMO Area 2 consists of clayey silt, silt, and clay. Underlying geologic materials in the vicinity of DRMO Area 2 consist of unconsolidated alluvial clay, silt, sand, and gravel that lie on limestone and/or shale bedrock. These unconsolidated deposits may range in total thickness from 60 to 80 ft. Approximate depths to groundwater in this area range from 15 to 20 ft. Groundwater flow in this area is to the southeast, with changes in groundwater flow direction expected during flood stages of the Kansas River (USGS, 2005).

No protected or special ecological or cultural features were observed or are known to occur at or near this Site.

The Kansas River alluvial aquifer is a source of drinking water. Fort Riley has no water supply wells located at Camp Funston. The nearest supply wells are those for the community of Ogden, which are located approximately two miles to the northeast of the site. There are no other public supply wells within four miles of the site. There are no identifiable overland migration pathways from the site to the river.

7.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

General site background on the DRMO areas was presented in Section 2.0 DRMO Area 2 was an active part of the Fort Riley DRMO from 1975 to 1978.

A SI was completed at the DRMO Area 2 in 1994 (LBA, 1995). Field sampling included a soil-gas survey for VOCs, soil sampling for PCBs, and groundwater screening for VOCs. Results are presented in the following bullets:

- There were no detections of VOCs in soil-gas samples.
- There were no detections of PCBs in surface soil samples.
- VOCs were detected from a single groundwater sample collected along the southern perimeter fence at the DRMO Storage Area 2 yard (Figure 7-2). VOCs detected included tetrachloroethene (PCE) (6.2 µg/L), benzene (0.4 µg/L), m- and/or p-xylene (0.9 µg/L), and toluene (3.7 µg/L). PCE exceeded the MCL of 5.0 µg/L for that compound. All other groundwater samples collected had no detections of VOCs.

7.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Three direct-push borings (DP01, DP02, and DP03) were advanced within the DRMO Area 2 on June 30, 2006 (Figure 7-1). These direct-push borings were continuously sampled from the ground surface to the depth where groundwater was encountered using a 2-in. Macrocore™ sampler. Three soil samples were collected from each direct-push boring at depth intervals of 0 to 2 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs. The field geologist prepared a lithologic log of each direct-push boring and screened the soil core using a PID. Boring logs are included in Appendix A. Soil samples were collected and sent to an off-site laboratory for VOCs (USEPA Method 8260). The direct-push boring was then advanced to the water table, and groundwater samples were collected and sent to an off-site laboratory for VOCs (USEPA Method 8260). All planned subsurface soil and groundwater samples were collected at this site. It was not possible to advance Direct-Push Boring DP02 at the planned location because of large numbers of shipping containers stored at the eastern end of the DRMO Storage Area 2 site. This direct-push boring was relocated approximately 250 ft to the southwest.

Following the completion of field activities at this location, all direct-push boring locations were surveyed. The survey data is included in Appendix B.

There were no detections of VOCs in subsurface soils at the DRMO Storage Area 2.

Groundwater analytical results (positive hits only) for DRMO Storage Area 2 are presented in Table 7-1. VOCs detected in groundwater included ethylbenzene, xylenes, and toluene, which were all present at concentrations below 5 µg/L. These concentrations were all below their respective USEPA Region 9 PRGs for tap water.

7.4 DISCUSSION AND RECOMMENDATIONS

ESI groundwater analytical results are consistent with the historical sampling data, with the exception that PCE was not detected in the recent sampling. BTEX compounds were detected at concentrations below USEPA Region 9 PRGs (tap water). No VOCs were detected in subsurface soil samples, which was also consistent with historical data. Based on these results, a recommendation is made for closure of DRMO Storage Area 2 (FTRI-015).

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8.0 FORMER LIVESTOCK DIPPING FACILITY (FTRI-047)

8.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

The Former Livestock Dipping Facility (FTRI-047) is located at the eastern margin of the Main Post cantonment area. It is located east of the PW maintenance compound, north of the UPRR grade, and south of Dickman Avenue (Figure 1-1). The facility has been demolished and only foundation elements remain. These consist of foundations of the mixing building, draining pen, and a long continuous concrete trough associated with the dipping pit (Figure 8-1). These are partially exposed and are covered in places with soil and/or vegetation. The site is covered mostly with deciduous trees and bushes, and the ground is covered with leaf litter. Part of the area is covered with grass. The Former Livestock Dipping Facility lies approximately 35 ft above the Kansas River. It is not within the 100-year flood plain, and there are no wetlands on or adjacent to the site. The Kansas River is located approximately 2,000 ft east of the facility (LBA, 1995).

The Site sits on an ancient alluvial terrace, which consists of unconsolidated clay, silt, and sand. These terrace deposits overlie shale and/or limestone bedrock. The depth to bedrock is approximately 15 to 24 ft, based on ESI boring data. Depth to groundwater was approximately 14 to 24 ft, again based on ESI boring data.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site.

There are no water supply wells in the vicinity of this Site. The well field for Fort Riley is located approximately two miles to the west upgradient of the Site on the floodplain of the Republican River.

8.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

The Former Livestock Dipping Facility (FTRI-047) was used to remove and kill parasites to prevent the spread of disease among the livestock used at Fort Riley. This facility was probably used until the cavalry and pack animals were no longer a part of the active Army force. It is likely that the Former Livestock Dipping Facility was shut down by the late 1940s. It is unknown what chemicals were used at the Former Livestock Dipping Facility; however, based on information from the agriculture extension specialist and the extension entomologist collected during the RI of the Pesticide Storage Facility, dichlorodiphenyltri-chloroethane (DDT), lindane (gamma-hexachlorocyclohexane [HCH]), and hot lime (a mixture of calcium oxide and lime sulfur) are all possibilities.

A SI was completed at the Former Livestock Dipping Facility in 1994. As part of the SI, numerous soil samples were collected by hand auger and were analyzed for pesticides and RCRA metals (LBA, 1995). Results area presented in the following bullets:

- The highest concentrations of metals and pesticides were from the old mixing pit, which was located in the mixing building. Lead was detected at 670 mg/kg and mercury at 8.3 mg/kg; the lead detection exceeded the KDHE Standards for Soils of 500 mg/kg. Arsenic (8 mg/kg) and chromium (180 mg/kg) were also significantly elevated at this sampling location. Dichlorodiphenyldichloroethane (4,4-DDD) was detected at a concentration of 960 µg/kg; 4,4-DDE at a concentration of 3,600 µg/kg; and 4,4-DDT at a concentration of 4,000 µg/kg (Figure 8-2).

- Elevated concentrations of mercury, 4,4-DDE, and 4,4-DDT were found in soil samples collected along the dipping pit and the draining pen area. These concentrations did not exceed regulatory standards (Figure 8-2).

- Surface soil samples collected from the swale to the west of the site did not contain pesticides or metal concentrations above regulatory guidelines. These samples were located downslope from the Former Livestock Dipping Facility and indicate that contaminant migration is not occurring as a result of surface water runoff.

- Since no groundwater samples were collected as part of the SI, it is not known whether contamination migrated to groundwater.

8.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Five direct-push borings were advanced within the Former Livestock Dipping Facility (FTRI-047) on July 12, 2006, at the locations indicated on Figure 8-1. These direct-push borings were continuously sampled from the ground surface to the depth where groundwater was encountered using a 2-in. Macrocore™ sampler. Three soil samples were collected from each direct-push boring at depth intervals of 2 to 4 ft bgs, 6 to 8 ft bgs, and 10 to 12 ft bgs. The field geologist prepared a lithologic log of each direct-push boring. Boring logs are included in Appendix A. These soil samples were sent to an off-site laboratory for pesticides (USEPA Method 8081A) and lead (USEPA Method 7421). The direct-push borings were then advanced to the water table in order to attempt collection of groundwater samples. However, all five direct-push borings were dry at the depth of refusal; therefore, temporary piezometers were installed in these borings. On July 18, 2006 these were checked by the field geologist and two temporary piezometers (DP01 and DP02) had sufficient groundwater for sample collection. DP01 only

had sufficient groundwater for analysis of pesticides (USEPA Method 8081A). There was enough sample volume at DP02 for analysis of pesticides and lead (USEPA Method 7421; both filtered and unfiltered groundwater samples were collected).

Four surface soil samples were collected within the Former Livestock Dipping Facility on June 26, 2006. Three of these samples were collected within the former dipping pit and one was collected in the former mixing pit (Figure 8-3). These samples were sent to an off-site laboratory for mercury (USEPA Method 7471A). All surface soil samples were collected at a depth not to exceed six in. bgs.

Not all planned samples were collected at this location. Groundwater was collected only from Direct-Push Borings DP01 and DP02. The other direct-push borings were dry. All planned soil samples were collected.

Following the completion of field activities at this site, all surface soil sampling and direct-push boring locations were surveyed. The survey data is included in Appendix B.

Surface and subsurface soil analytical results (positive hits only) for the Former Livestock Dipping Facility are presented in Table 8-1. There were no detections of pesticides in either surface or subsurface soil samples. Lead (total) was detected in all 15 subsurface soil samples, at concentrations ranging from 5.0 to 47 mg/kg. All of these detections were below the KDHE Residential RSK for lead of 400 mg/kg. Only one of the four surface soil samples collected (S03) had a detection of mercury. This was at a concentration of 2.0 mg/kg, which was at the KDHE Residential RSK for mercury of 2.0 mg/kg. This detection was below the RSK (industrial) of 20 mg/kg.

Groundwater analytical results (positive hits only) for the Former Livestock Dipping Facility are presented in Table 8-2. Only one direct-push boring, DP02, was sampled for lead in groundwater. Lead (total) was detected at a concentration of 0.132 mg/L, while lead was not detected in the filtered groundwater sample. Total lead results were not screened against regulatory standards because of the high turbidity of these samples.

8.4 DISCUSSION AND RECOMMENDATIONS

Historical and ESI sampling results can be summarized as follows:

- Pesticides, lead, and mercury were detected in soil samples taken at the Site during the SI. Lead concentrations exceeded the KDHE standards of 500 mg/kg.

- There were no detections of pesticides in either soil or groundwater samples collected for the ESI.

- Lead in soil collected as part of the ESI did not exceed either USEPA Region 9 or KDHE residential screening standards. One soil sample had mercury detected at a concentration equal to the KDHE Residential RSK of 2 mg/kg.

- There were no detections of lead in filtered groundwater samples collected for the ESI. Lead was detected in the unfiltered groundwater sample at a concentration of 0.132 mg/L; however, this result was not evaluated against regulatory standards because the sample was turbid.

Based on these results, the Former Livestock Dipping Facility (FTRI-047) is recommended for closure.

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9.0 FORMER PESTICIDE FACILITIES (FTRI-048)

9.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

Three facilities are grouped as the Former Pesticides Facilities (FTRI-048). Two of these facilities are located at the golf course at the Custer Hill cantonment area. The third facility was located at the Camp Whitside cantonment area (Figures 1-1, 9-1, 9-2, and 9-3).

Former Building 6426 and Building 5207 are located at the golf course on Custer Hill. The golf course is located to the north of Normandy Drive and west of First Division Road. The site of former Building 6426 is located on the west side of the golf course, just to the east of the fenced satcom compound (Figure 9-1). Building 5207 is located at the south side of the golf course and is part of the current maintenance compound for that facility (Figure 9-2). The facility is enclosed by a chain-link fence limiting any foot traffic through the area to those personnel employed by the golf course. The fenced area has a gravel and sand cover. Surrounding land uses to the north, east and west include the golf course and associated facilities, and the south include the family housing and shopping/support areas. The general area is landscaped with grass and trees. The surface drainage at both sites is to the north and east, towards Forsyth Creek.

Former Building 6426 and Building 5207 are located in the upland area of Fort Riley, and are underlain by bedrock (interbedded limestone and shale), covered by thin deposits of unconsolidated material. This unconsolidated soil consists of residual soil and possibly loess. The depth to bedrock in the vicinity of these sites is not known. Groundwater in this area may occur at the interface between bedrock and the unconsolidated material, and within voids and fractures in the bedrock. Based on the local topography, groundwater would be expected to flow to the north and east, towards the Forsyth Creek drainage. The golf course is located on a tributary of Forsyth Creek, which is a perennial stream. Overland flow from the golf course would also enter this tributary. Forsyth Creek is tributary to Threemile Creek, which discharges to the Kansas River approximately six miles downstream from the golf course (LBA, 1993).

No protected or special ecological or cultural features were observed or are known to occur at or near Former Buildings 6426 or 5207.

The Fort Riley well field is located approximately two miles south-southwest of the Site, in the floodplain of the Republican River. The well field for the community of Ogden is located approximately five miles east of the Site, in the floodplain of the Kansas River. Aquifers in the upland area of Fort Riley do not

have sufficient yield to support large capacity supply wells. There are no water supply wells located in the vicinity of the golf course.

The Camp Whitside Pesticide Site is located south of the intersection of E and 4th Streets (Figure 9-3). This location is on the extreme northwest margin of the floodplain of the Kansas River. The area is flat and covered with mowed grass. There are no structures in the immediate vicinity of this Site. The Kansas River is located approximately 2,000 ft southeast of this Site.

The Camp Whitside Pesticide Site is probably underlain by either alluvial deposits and/or older terrace deposits of the Kansas River. Being at the north margin of the floodplain, these deposits are probably not very thick, and should consist of unconsolidated clay, silt, and sand. The depth to groundwater is unknown. The direction of groundwater flow is probably towards the southeast, towards the Kansas River. Surface drainage is also towards the southeast.

No protected or special ecological or cultural features were observed or are known to occur at or near the Camp Whitside Pesticide Site.

There are no water supply wells in the immediate vicinity of this location. The well field for the community of Ogden is located approximately three miles northeast of the Site.

9.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

The Custer Hill Golf Course was built in the 1950s. Pesticides and herbicides have been applied to maintain the conditions of the golfing greens. A pesticide management facility was established to store the small amounts of pesticides, herbicides, insecticides, fungicides, and fertilizers used at the golf course. Two pesticide storage and management facilities have been associated with the golf course.

The first pesticide facility was originally located in Building 6426. Building 6426 was demolished in the mid-1980s. A concrete pad, observed south of the building in historic aerial photographs, was most likely the washdown pad for the pesticide application and mixing equipment. The location of the building was determined by aerial photographs and confirmed by golf course employees. Currently, there is no evidence of the former building and washdown pad; the site is an open grassy area on the fringes of the golf course. A jogging path now runs between the former locations of the building and washdown pad.

Building 5207 is the current, active pesticide storage and management facility for the golf course. Based on investigations completed under the IWSA, no spills or releases were reported from the pesticide management facilities. However, the building is equipped with an underground collection tank connected

to floor drains in the storage room should any spills occur. A 30 x 25-ft concrete washdown pad is located 50 ft to the northwest of Building 5207. All washing and rinsing of application vehicles and equipment is conducted here. The pad is stained; dead or discolored grass is located northeast of the pad in the direction of surface runoff, extending over a distance of approximately 10 ft from the pad with a width ranging from one foot to a few inches.

In December 1983, the United States Army Toxic and Hazardous Materials Agency (USATHMA) conducted a site visit and reported the inventory of pesticides and herbicides in the building. Additionally, no spills or releases were reported from the pesticide management facilities in the IWSA (LBA, 1993).

A SI was completed at the two golf course pesticides facilities in 1994. As part of the SI, numerous soil samples were collected with hand augers and were analyzed for pesticides and herbicides. No pesticides or herbicides were detected in any of the samples (LBA, 1995).

There is virtually no information on the Camp Whitside Pesticide Site, including either the history of the facility or previous sampling which might have been conducted.

9.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Soil samples were collected from the three Pesticide Facility locations (FTRI-048) on June 30, 2006. One direct-push boring was advanced at each of these locations (see Figures 9-1, 9-2, and 9-3). These direct-push borings were continuously sampled from the ground surface to a depth of approximately 5 ft using a 2-in. Macrocore™ sampler. Two soil samples were collected from each direct-push boring at depth intervals of 0 to 0.5 ft and 4 to 5 ft bgs. The field geologist prepared a lithologic log of each direct-push boring (Boring logs are included in Appendix A). Soil samples collected for off-site laboratory analysis were analyzed for pesticides (USEPA Method 8081A). All planned soil samples were collected at these three locations.

Following the completion of field activities at these sites, all direct-push boring locations were surveyed. The survey data is included in Appendix B.

There were no detections of pesticides in any of these soil samples.

9.4 DISCUSSION AND RECOMMENDATIONS

ESI sampling results are consistent with historical sampling results at the two golf course pesticide facilities. No pesticides were detected in soil samples collected at these three sites. Based on these results, all three of the Former Pesticide Facilities (FTRI-048) are recommended for closure.

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10.0 MERCURY CONTAMINATION AREAS (FTRI-049)

10.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

Mercury was used on Fort Riley in metering equipment associated with water pump and control stations. The four facilities included under the Mercury Contamination Areas (FTRI-049) include:

- Building 198 Pump Station, which is located to the west of the Main Post cantonment area.
- Building 2598 Pump Station, located to the west of Trooper Drive at Camp Forsyth.
- Building 5200 Water Tower Control Station, located north of Normandy Drive on Custer Hill.
- Building 734 Water Tower Control Station, located north of Ray Road at Marshall Army Airfield (MAAF).

The locations for these four facilities are shown on Figure 1-1. The control stations for Buildings 5200 and 734 are both underground vaults, which are located immediately below each water tower. The vaults are concrete structures with dimensions of 5 ft by 5 ft and have concrete floors. The Building 198 Pump Station and the Building 5200 Water Tower Control Station are both still active facilities. The Building 2598 Pump Station and the Building 734 Water Tower Control Station are not currently in use (LBA,1993).

Mercury presents essentially an indoor contact hazard. It is possible that very small amounts of mercury could possibly have escaped the Building 5200 or 734 control vaults through cracks in the concrete floor; however, the primary receptors would be personnel working inside of these facilities. Therefore, no detailed site background (setting, hydrology, hydrogeology, etc) will be presented for these four locations.

No protected or special ecological or cultural features were observed or are known to occur at or near any of the Mercury Contamination Areas.

10.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

Mercury was used in metering equipment (for example, manometers) at the water pump and control stations. All mercury-containing equipment has been removed from these locations; however, there were

documented releases of mercury at several of these locations. Each site will be addressed individually below.

In late 1991 and early 1992, mercury surveys were made of both Buildings 198 and 2598. The survey included visual and ambient air sampling. No mercury contamination was detected in either building using a Jerome Mercury Air Sampler.

Buildings 5200 and 734 were surveyed for mercury contamination in late 1991 and/or early 1992. The survey included visual and ambient air sampling. Both of these structures showed mercury contamination, and the contamination was within the confines of the concrete pit areas. The amount of mercury visible within the buildings was described as "several teaspoons". Several attempts were made to manually remove mercury from Buildings 734 and 5200. This included removal of contaminated soil (less than one pound) from the bottom of the vault at Building 5200. Water pumped from the vaults at Buildings 5200 and 734 contained low levels of mercury. Both vaults were retrofitted with a positive, pressure-vented air system, which reduced mercury vapors within the vaults to a safe level for maintenance personnel (LBA, 1993)

10.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Two surface wipe samples were collected from each of the four facilities. Each wipe sample covered approximately 100 squared centimeters (cm^2) of surface area. The wipe samples were sent to an off-site laboratory for mercury (USEPA Method 7471). An effort was made to determine where mercury-containing pressure measurement equipment might have been located at each location. Wipe samples were collected from the following locations at each site:

- At Building 198, wipe samples were collected from the interior of the northeast wall and the floor. Wipe W01 was collected from a location approximately 5 ft from the east corner and 3 ft off the floor. Wipe W02 was collected off the floor immediately below the location where the wall sample was taken.

- At Building 2598, both wipe samples were collected from the interior floor of the building. Wipe W03 was collected off the floor at the base of the southern wall, approximately 2.5 ft from the southwest corner of the room. Wipe W04 was collected off the floor at the base of the eastern wall, approximately four ft south of the door.

- At Building 734, wipe samples were collected from the walls of the vault. No samples were taken from the floor because of standing water. Wipe W05 was collected from the

northwest wall of the vault, approximately 2.5 ft below the vault ceiling. Wipe W06 was collected from the northeast wall of the vault, approximately 3.5 ft below the vault ceiling.

- At Building 5200, wipe samples were collected from the walls of the vault. No samples were taken from the floor because of standing water. Wipe W07 was collected from the northeast wall of the vault, approximately five ft below the vault ceiling. Wipe W08 was collected from the southeast wall of the vault, approximately five ft below the vault ceiling.

All planned wipe samples were collected.

Wipe analytical results (positive detections only) for the Mercury Contamination Areas are presented in Table 10-1. Mercury was detected in all eight wipe samples collected.

- At Building 198, Wipes W01 and W02 had detections of mercury at concentrations of 0.25 micrograms per 100 square centimeters (µg/100 cm^2) and 0.16 µg/100 cm^2, respectively.
- At Building 2598, Wipes W03 and W04 had detections of mercury at concentrations of 0.66 µg/100 cm^2 and 0.91J µg/100 cm^2, respectively.
- At Building 734, Wipes W05 and W06 had detections of mercury at concentrations of 11.5 µg/100 cm^2 and 8.9 µg/100 cm^2, respectively.
- At Building 5200, Wipes W07 and W08 had detections of mercury at concentrations of 0.65 µg/100 cm^2 and 0.57 µg/100 cm^2, respectively.

These wipe results were screened against a value of 1.57 µg/100 cm^2 for mercury. This value was calculated by the World Trade Center (WTC) Indoor Air Task Force Working Group as part of their evaluation of airborne dust hazards following the destruction of the WTC (WTC, 2003). None of the wipe results for samples collected at Buildings 198, 2598, and 5200 exceeded this screening value. However, both wipe samples collected at Building 734 did exceed the screening value.

10.4 DISCUSSION AND RECOMMENDATIONS

None of the wipe samples collected at Buildings 198, 2598, and 5200 exceeded the screening value of 1.57 µg/100 cm^2 for mercury. The wipe samples collected at Building 734 did exceed this screening

value. However, this vault is no longer in use. It is locked up and no path exists to potential receptors. Based on these results, all four of the Mercury Contamination Areas (FTRI-049) are recommended for closed status.

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11.0 PCB TRANSFORMER SITES (FTRI-050)

11.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

Five former substation sites are grouped into the PCB Transformer Sites (FTRI-050). These five sites are:

- The former Camp Forsyth Substation (Figure 1-1 and 11-1);
- The former Wherry Substation at Camp Forsyth (Figures 1-1 and 11-2);
- The former KPL Laundry Substation at Main Post (Figures 1-1 and 11-3);
- The former Camp Whitside Substation (Figures 1-1 and 11-4); and
- The former Camp Funston Substation (Figures 1-1 and 11-5).

A brief summary of the location and setting for each of these sites follows.

The former Camp Forsyth Substation lies just east of the intersection of McCormick Road and Trooper Drive (Figure 11-1). This area lies on the floodplain of the Republican River, but is protected from 100-year flood events by a levee. The area is covered with mowed grass. No buildings are located in the immediate vicinity of this Site; however, family housing units are located approximately 1,500 ft to the northeast.

The former Wherry Substation is located just south of the intersection of McCormick Road and King Avenue (Figure 11-2). This area lies on the floodplain of the Republican River, but is protected from 100-year flood events by a levee. The immediate area is currently occupied by natural gas pipeline equipment, and is covered with grass and some gravel. A family housing area is located just north of this Site, across McCormick Road.

The former Kansas Power & Light (KPL) Laundry Substation is located at Main Post, just west of the former location of the Dry Cleaning Facility (Buildings 180/181) (Figure 11-3). The site is just south of Custer Road, and lies on an ancient alluvial terrace of the Kansas River and above the modern Kansas River floodplain. There are no buildings located in the immediate vicinity of this Site; however, family housing units are located approximately 1,000 ft to the northeast of the area.

The former Camp Whitside Substation is located just west of the intersections of Huebner Road and Third Street, at Camp Whitside (Figure 11-4). This area lies on an ancient alluvial terrace of the Kansas River, and is underlain by unconsolidated clay, silt, and sand. The area is landscaped with grass and evergreen trees, and is well maintained. Building 602 is located approximately 150 ft to the west; however, no family housing is located in the immediate area. Camp Whitside housing is located about ½ mile to the west.

The former Camp Funston Substation is located just north of the intersection of Huebner Road and Campbell Hill Road, at Camp Funston (Figure 11-5). This area is at the extreme northern margin of the Kansas River valley and probably represents an ancient alluvial terrace of the Kansas River. This site is covered with un-maintained grass and some trees. There are no structures in the immediate vicinity of the Site and the nearest family housing is located off the post, in the community of Ogden, about one mile to the east.

No protected or special ecological or cultural features were observed or are known to occur at or near these Sites.

Due to the limited mobility of PCBs, contamination of groundwater should not be a significant issue. The major environmental hazard associated with PCBs would be from the ingestion or inhalation of PCBs in dust or soil. Potential receptors would be groundskeepers or construction personnel working at or near these locations, or children from nearby housing areas (if present) playing in these areas.

11.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

Surface and near-surface soil samples were collected from all five former substation locations during the 1990s (Unknown, 1998). These investigations focused on identifying where soil contamination existed in and around the former substations from spills or leaks of PCB-containing, dielectric fluids from the transformers. These sites were active when PCBs were widely used and not well characterized, and they had not been previously tested during routine electrical maintenance operations. At each site, 10 to12 soil samples were collected at depths ranging from the surface to three ft bgs at locations within and around each site. There were no detections of PCBs in the soil samples from Former Camp Funston and Camp Forsyth substations. Samples from six locations at the Former Wherry substation had detections ranging from 460 to 40,000 µg/kg (Figure 11-6). All concentrations were less than the 50,000 µg/kg level for PCB waste regulation under the USEPA Toxic Substances Control Act (TSCA) (Unknown, 1998). One sample from the Former KPL Laundry substation had a detection at 60.6 mg/kg at a depth of 1-3 ft (Figure 11-7). Samples from two locations at the Former Camp Whitside substation had detections of

PCBs of 70.1 and 73.8 µg/kg at depths of 0 to1 ft (Figure 11-8). These concentrations were below the USEPA risk-based guideline of 340 µg/kg.

11.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Five surface soil samples were collected from each of the five facilities on June 27, 2006. The soil samples were collected from a depth no greater than one ft bgs and were sent to an off-site laboratory for PCBs (USEPA Method 8082). Samples were collected from the locations depicted on Figures 11-1 through 11-5. All planned samples were collected; however, resampling was required at the Former KPL Laundry Substation Site. The original set of surface soil samples were collected just east of the former substation footprint. A second set of samples were collected on November 7, 2006 and submitted for off-site laboratory analysis. Analytical results for the resampling are included in Table 11-1.

Following the completion of field activities at these sites, all surface soil sampling locations were surveyed. The survey data is included in Appendix B.

Surface soil analytical results (detections only) for the PCB Transformer Sites are presented in Table 11-1. Analytical results are summarized in the following bullets:

- There were no detections of PCBs at the Former Camp Forsyth Substation.
- The PCB isomer Aroclor-1254 was detected in all five surface soil samples collected at the Former Wherry Substation site (Figure 11-9). Concentrations ranged from 2.6 mg/kg (S08) to 0.4 mg/kg (S07). Detections of Aroclor-1254 at four of the five sampling locations exceed the USEPA Region 9 Residential PRGs of 0.22 mg/kg and 0.74 mg/kg (industrial) for soil. However, all detections were below the KDHE Residential RSK of 4.3 mg/kg for soil.
- Aroclor-1254 was detected in two of the five surface soil samples collected at the Former KPL Laundry Substation site. Concentrations ranged from 0.13J mg/kg (S13) to 0.10J mg/kg (S12). Since the chromatographic pattern for these results was not typical for Aroclor-1254, these results are flagged as estimated. These detections were below the USEPA Region 9 PRG of 0.22 mg/kg for Aroclor-1254.
- Aroclor-1254 was detected in four of the five surface soil samples collected at the Former Camp Whitside Substation (Figure 11-10). Concentrations ranged from 0.56 mg/kg (S17) to 0.06 mg/kg (S19). Detections of Aroclor-1254 at two of the sampling

locations exceed the USEPA Region 9 Residential PRG of 0.22 mg/kg for soil. However, all detections were below the USEPA Industrial PRG of 0.74 mg/kg for soil.

- There was a questionable detection of Aroclor-1268 at a concentration of 0.27 mg/kg in one surface soil sample (S25) collected at the Former Camp Funston Substation. Because Aroclor-1268 was not on the analyte list and it was not detected in the duplicate sample taken at this sampling point, this detection was rejected during data validation. There were no other detections of any other PCBs at the Former Camp Funston Substation.

11.4 DISCUSSION AND RECOMMENDATIONS

Discussion and recommendations for each of the PCB Transformer Sites follows:

- There were no detections of PCBs in surface soil samples at the Former Camp Forsyth Substation in either historical or ESI sample results. The Former Camp Forsyth Substation is recommended for closure.

- Aroclor-1254 was detected in all five surface soil samples collected at the Former Wherry Substation as part of the ESI. Maximum detections were an order of magnitude less than previous sampling results at this location. Four of five samples did exceed both the industrial and residential PRGs for Aroclor-1254; however, all were below the KDHE Residential RSK for this compound. Based on these results, the Former Wherry Substation is recommended for closure.

- Aroclor-1254 was detected in two of five surface soil samples collected at the Former KPL Laundry Substation. These results are comparable to those obtained during previous investigations at this location. Concentrations were below the USEPA Region 9 Residential PRG. Based on these results, the Former KPL Laundry Substation is recommended for closure.

- Aroclor-1254 was detected in four of five surface soil samples collected at the Former Camp Whitside Substation as part of the ESI. Maximum detections exceeded historical detections by an order of magnitude. Although two ESI soil samples exceeded the Region 9 Residential PRG, none exceeded the industrial PRG. Based on these results, the Former Camp Whitside Substation is recommended for closure.

- There were no detections of PCBs in surface soil samples at the Former Camp Funston Substation in either historical or ESI sample results. The Former Camp Funston Substation is recommended for closure.

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12.0 MILFORD CAMPGROUND / MARINA (FTRI-055)

12.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

The former Milford Lake Recreation Center is located in the northwestern portion of Fort Riley, along Milford Lake (Figures 1-1 and 12-1). The site consists of a former recreational campground for the public located on the north shore of Milford Lake. The site is located west of U.S. Route 77 and south of Kansas Route 82, and is bounded on the west by the Riley/Clay county line, on the east by an unnamed drainage, on the north by Highway 82, and on the south by Milford Lake.

The site is located in an upland area of Fort Riley, and is underlain by bedrock (interbedded limestone and shale), covered by unconsolidated material. Based on subsurface log data collected during the SI, this unconsolidated material can have a thickness of approximately 35 ft in areas. Groundwater is present at a depth of approximately 30 to 40 ft in this area. The direction of groundwater flow is anticipated to be to the south, towards Milford Lake (LBA, 1995).

No public water supply wells are located within a mile of the former Milford Lake Recreation Center.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site.

12.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

The Milford Lake Recreation Area was operated as a public campground and marina. Based on interviews conducted during prior investigations, small quantities of cleaners, solvents, and paints were stored at the site. These were transferred to the Custer Hill Golf Course when the Milford Lake Recreation Area closed in 1989. There was no indication that pesticides were stored at the site. Following closure, the center was demolished.

Three groundwater wells (Wells 9441, 9420, and 9435) were located at the campground and marina to serve troops and recreational users at the site (Figure 12-1). During an Army Health and Environmental Agency (AHEA) investigation in 1988, one of the water supply wells at the recreation area was found to contain elevated levels of two forms of lindane (gamma-HCH, commonly known as lindane, and alpha-HCH [a non-active isomer of gamma-HCH]). There is some ambiguity as whether the detection occurred in Well 9435 or Well 9441. Gamma-HCH was detected at a concentration of 0.37 ug/L and alpha-HCH was detected at a concentration of 0.31 ug/L. Before any additional groundwater sampling could be performed, the campground was closed, and all three supply wells were abandoned (LBA, 1995).

In 1994, an SI was performed at the site, the primary objective of which was to determine if pesticides were present in groundwater. KDHE declared that this site was of concern (based on the MCL for lindane in water being lowered to 0.2 ug/L) and that additional investigation would be required to determine the possible extent of lindane contamination in groundwater. Two monitoring wells (MLW94-1 and MLW94-02) were installed, and groundwater samples were collected and analyzed for pesticides. There were no detections of pesticides from either well (LBA, 1995). These two monitoring wells were subsequently abandoned.

12.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

No ESI field activities were conducted at the Milford Campground / Marina.

12.4 DISCUSSION AND RECOMMENDATIONS

The results of the 1988 AEHA groundwater sampling indicated that lindane was present in groundwater at concentrations exceeding the current USEPA MCL of 0.02 ug/L for gamma-HCH. These detections also exceeded the current USEPA Region 9 PRGs for tap water of 0.052 ug/L for gamma-HCH and 0.011 ug/L for alpha-HCH. However, there were no detections of pesticides in groundwater samples collected from monitoring wells installed in 1994.

Based on the historical sampling results for groundwater, this site is recommended for closure.

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13.0 REFERENCES

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Tables

Table 1-1
ESI Site Summary
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Site Name		RCRA Regulatory History		CERCLA Regulatory History			
Pesticide / PCB Sites (Group 1)		**RCRA Part A: Interim Status** **Nov 1980-Sept 1998**	**RCRA Part B, Part II HSWA-defers to CERCLA** **Oct 1, 1998 to Oct 1, 2008**	**NPL August 1990/ FFA June 1991** **PA/PAOC**	**SI Reports**	**ESI 2006-2007**	**ESI 2006-2007, Actions Taken/Recommended**
DRMO Storage Area 1	FTRI- 006	Hazardous Waste Storage Facility AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 Elevated POL contamination in NW corner - Deferred to UST Program No PCB detects above 50 ppm in soil	Confirm SI conclusion of no threat to HH & E against new PCB RSK of 4.3 ppm in soil	No actions are necessary to protect HH & E Transfer northern portion of site to Former Bldg 1245 Dispensing Station - FTRI-066; Closed Status
PCB Storage Building 343	FTRI- 007	AEHA, 1988 SWMU-Proposed environmental sampling				Confirm no threat to HH & E	**Sample concrete floor and exterior soil for PCBs** If sampling results show levels are protective of HH & E request Closed Status
PCB Storage Conexes 348	FTRI- 008	Hazardous Waste Storage Facility - Clean Closed 1990 AEHA, 1988 SWMU-Proposed environmental sampling				Confirm no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Pesticide UST at Camp Funston	FTRI- 010	AEHA, 1988 SWMU-Proposed environmental sampling Tank removed and clean closed in 1991				Confirm no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
DRMO Storage Area 3	FTRI- 012	AEHA, 1988 SWMU-Proposed environmental sampling	HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 No potential risk to HH & E	No ESI field activities conducted.	No actions are necessary to protect HH & E; Closed Status
DRMO Storage Area 2	FTRI- 015	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 One PCE GW result above MCL No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Former Livestock Dipping Facility	FTRI- 047		HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 Elevated levels of metals and pesticides in mixing pit No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Former Pesticides Facilities	FTRI- 048		HSWA, 1998 No potential risk to HH & E based on site visit of building 1022 and Camp Whitside HSWA, 1998 No potential risk to HH & E based on SI for Custer Hill Golf Course Pesticide Facility	IWSA (LBA, 1993) Recommended No Further Action	LBA, 1995 No potential risk to HH & E for Golf Course Pesticide Facility	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Mercury Contamination Areas	FTRI- 049		HSWA, 1998 No potential risk to HH & E based on site visit	Mercury removal in 1991/1992 IWSA (LBA, 1993) Identified for Further Evaluation Vaults retrofitted with air	LBA, 1995 No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status

Table 1-1
ESI Site Summary
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Site Name		RCRA Regulatory History		CERCLA Regulatory History			
PCB Transformer Sites	FTRI- 050		HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Recommended No Further Action	LBA, 1995 No PCB detects above 50 ppm in soil No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Milford Campground / Marina	FTRI- 055		HSWA, 1998 No potential risk to HH & E based on SI		LBA, 1995 No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status

AEHA - Army Environmental Hygiene Agency
AST - Aboveground Storage Tank
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
DRMO - Defense Reutilization Marketing Office
ESI - Expanded Site Investigation
FFA - Federal Facility Agreement
HH&E - Human Health & Environment
HSWA - Hazardous and Solid Waste Amendment
IACH - Irwin Army Community Hospital
IWSA - Installation Wide Site Assessment
KDHE - Kansas Department of Health and Environment
LBA - Louis Berger and Associates
MCL - Maximum Contaminant Level
NPL - National Priorities List
PA - Preliminary Assessment
PAOC - Potential Area of Concern
PCB - Polychlorinated Biphenyl
PCE - Tetrachloroethene
POL - Petroleum, Oil, and Lubricant
PPM - Parts per Million
RCRA - Resource Conservation and Recovery Act
SI - Site Investigation
SWMU - Solid Waste Management Unit
TPH - Total Petroleum Hydrocarbons
UST - Underground Storage Tank
WWTP - Wastewater Treatment Plant

Table 1-1
ESI Site Summary
Wastewater Sites
Expanded Site Investigation
Fort Riley, Kansas

Site Name		RCRA Regulatory History		CERCLA Regulatory History			
Wastewater Sites (Group 2)		**RCRA Part A: Interim Status** **Nov 1980-Sept 1998**	**RCRA Part B, Part II HSWA-defers to CERCLA** **Oct 1, 1998 to Oct 1, 2008**	**NPL August 1990/ FFA June 1991** **PA/PAOC**	**SI Reports**	**ESI 2006-2007**	**ESI 2006-2007, Actions Taken/Recommended**
Industrial Wastewater System Custer Hill	FTRI- 020	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (Clean Water Act)	IWSA (LBA, 1993) East and West Ponds Identified for Further Evaluation Central Vehicle Wash Facility Recommended No Further Action	LBA, 1994 No CERCLA contaminants East Pond Free Product in GW West Pond No threat to HH & E Central Vehicle Wash Facility found POL in sediment	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Camp Funston WWTP Sludge Drying Beds	FTRI- 022	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (Clean Water Act)	IWSA (LBA, 1993) Recommended No Further Action		Confirm PA/PAOC conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Custer Hill WWTP Sludge Drying Beds	FTRI- 023	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (Clean Water Act)	IWSA (LBA, 1993) Recommended No Further Action		Confirm PA/PAOC conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Camp Forsyth WWTP Sludge Drying Beds	FTRI- 024	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (Clean Water Act)	IWSA (LBA, 1993) Recommended No Further Action		Confirm PA/PAOC conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Main Post WWTP Sludge Drying Beds	FTRI- 025	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (Clean Water Act)	IWSA (LBA, 1993) Recommended No Further Action		Confirm PA/PAOC conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Range Complex Wastewater Lagoons	FTRI- 026	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (Clean Water Act)	IWSA (LBA, 1993) Recommended No Further Action		Confirm evidence of no release	No actions are necessary to protect HH & E; Closed Status

AEHA - Army Environmental Hygiene Agency
AST - Aboveground Storage Tank
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
DRMO - Defense Reutilization Marketing Office
ESI - Expanded Site Investigation
FFA - Federal Facility Agreement
HH&E - Human Health & Environment
HSWA - Hazardous and Solid Waste Amendment
IACH - Irwin Army Community Hospital
IWSA - Installation Wide Site Assessment
KDHE - Kansas Department of Health and Environment
LBA - Louis Berger and Associates
MCL - Maximum Contaminant Level
NPL - National Priorities List
PA - Preliminary Assessment
PAOC - Potential Area of Concern
PCB - Polychlorinated Biphenyl
PCE - Tetrachloroethene
POL - Petroleum, Oil, and Lubricant
PPM - Parts per Million
RCRA - Resource Conservation and Recovery Act
SI - Site Investigation
SWMU - Solid Waste Management Unit
TPH - Total Petroleum Hydrocarbons
UST - Underground Storage Tank
WWTP - Wastewater Treatment Plant

Table 1-1
ESI Site Summary
Petroleum / VOC Sites
Expanded Site Investigation
Fort Riley, Kansas

Site Name		RCRA Regulatory History		CERCLA Regulatory History			
Petroleum / VOC Sites (Group 3)		**RCRA Part A: Interim Status** **Nov 1980-Sept 1998**	**RCRA Part B, Part II HSWA-defers to CERCLA** **Oct 1, 1998 to Oct 1, 2008**	**NPL August 1990/ FFA June 1991** **PA/PAOC**	**SI Reports**	**ESI 2006-2007**	**ESI 2006-2007, Actions Taken/Recommended**
Abandoned VOC Tanks - IACH	FTRI- 013	AEHA, 1988 SWMU-Proposed environmental sampling		Tanks removed in September 1990 Field test showed 110 ppm TPH in soil		Confirm conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Waste Oil AST, 3rd Battery	FTRI- 016	AEHA, 1988 SWMU-No evidence of release		After 1988, AST decommissioned and removed		Site visit to confirm evidence of no release	No actions are necessary to protect HH & E; Closed Status
Waste Oil AST, 4th Battery	FTRI- 017	AEHA, 1988 SWMU-No evidence of release		After 1988, AST decommissioned and removed		Site visit to confirm evidence of no release	No actions are necessary to protect HH & E; Closed Status
Fire Training Area Facility 892	FTRI- 018	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 Recommends investigation, review, or remediation	IWSA (LBA, 1993) Recommended No Further Action	USTs removed 1996 with clean closure Ground-water contamination above MCLs for 1,2-DCA, benzene, and toluene in 1999	Confirm no threat to HH & E	**Sample soil and goundwater for VOCs.** If sampling results show levels are protective of HH & E request Closed Status
Fire Training Area, Camp Funston	FTRI- 028	1982 soil removal AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E based on site visit	IWSA (LBA, 1993) Recommended No Further Action Site investigated as part of Southwest Funston Landfill	Vinyl chloride above MCL in 2004 Below MCL in 2006 and 2007 in SFL wells	No ESI field activities	No actions are necessary to protect HH & E; Closed Status
Consolidated Maintenance Facility Building 8100	FTRI- 039			IWSA (LBA, 1993) Identified for Further Evaluation	All USTs and ASTs removed in 1994 with clean closure	Confirm no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Former Oil Testing Lab Building 1022	FTRI- 040		HSWA, 1998 No potential risk to HH & E based on site visit	IWSA (LBA, 1993) Recommended No Further Action		Confirm evidence of no release	No actions are necessary to protect HH & E; Closed Status
Furniture Repair Shops	FTRI- 041		HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation Building 1605 soil removed in 1993	LBA, 1994 Buildings 1301 & 1605 No evidence of releases LBA, 1995 Building 319 No threat to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Print and Publications Shop Building 263	FTRI- 045		HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Recommended No Further Action	LBA, 1995 No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Building 727 Waste Pit	FTRI- 051		HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	**Sample groundwater for lead and arsenic** If sampling results show levels are protective of HH & E, request Closed Status.

AEHA - Army Environmental Hygiene Agency
AST - Aboveground Storage Tank
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
DRMO - Defense Reutilization Marketing Office
NPL - National Priorities List
PA - Preliminary Assessment
PAOC - Potential Area of Concern
PCB - Polychlorinated Biphenyl

Table 1-1
ESI Site Summary
Petroleum / VOC Sites
Expanded Site Investigation
Fort Riley, Kansas

Site Name		RCRA Regulatory History	CERCLA Regulatory History	

ESI - Expanded Site Investigation
FFA - Federal Facility Agreement
HH&E - Human Health & Environment
HSWA - Hazardous and Solid Waste Amendment
IACH - Irwin Army Community Hospital
IWSA - Installation Wide Site Assessment
KDHE - Kansas Department of Health and Environment
LBA - Louis Berger and Associates
MCL - Maximum Contaminant Level
PCE - Tetrachloroethene
POL - Petroleum, Oil, and Lubricant
PPM - Parts per Million
RCRA - Resource Conservation and Recovery Act
SI - Site Investigation
SWMU - Solid Waste Management Unit
TPH - Total Petroleum Hydrocarbons
UST - Underground Storage Tank
WWTP - Wastewater Treatment Plant

Table 1-1
ESI Site Summary
Former Landfill / Incinerator Sites
Expanded Site Investigation
Fort Riley, Kansas

Site Name		RCRA Regulatory History		CERCLA Regulatory History			
Former Landfill/Incinerator Sites (Group 4)		**RCRA Part A: Interim Status** **Nov 1980-Sept 1998**	**RCRA Part B, Part II HSWA-defers to CERCLA** **Oct 1, 1998 to Oct 1, 2008**	**NPL August 1990/ FFA June 1991** **PA/PAOC**	**SI Reports**	**ESI 2006-2007**	**ESI 2006-2007, Actions Taken/Recommended**
Whitside C/D Landfill	FTRI- 002	AEHA, 1988 SWMU-Proposed environmental sampling	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (RCRA Subtitle D)	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 No potential risk to HH & E	Confirm no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Main Post Landfill	FTRI- 004	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Custer Hill Rubble Dump	FTRI- 005	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E based on site visit	IWSA (LBA, 1993) Recommended No Further Action		Confirm evidence of no release of hazardous substances and no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Hospital Incinerator - IACH	FTRI- 014	AEHA, 1988 SWMU-No evidence of release				Confirm evidence of no release of hazardous substances and no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Southeast Funston Landfill Incinerator	FTRI- 029	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 Recommends investigation, review, or remediation	IWSA (LBA, 1993) Recommended No Further Action	LBA, 1995 Detected lead in soil Removed impacted soil in 1999	Confirm no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Southeast Funston Landfill	FTRI- 036		HSWA, 1998 Recommends investigation, review, or remediation	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 Detected lead, antimony & VC above MCL in GW	Confirm no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Old Whitside Incinerator	FTRI- 037		HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Recommended No Further Action	LBA, 1995 No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Inactive Landfills - Camp Whitside	FTRI- 052		HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status

AEHA - Army Environmental Hygiene Agency
AST - Aboveground Storage Tank
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
DRMO - Defense Reutilization Marketing Office
ESI - Expanded Site Investigation
FFA - Federal Facility Agreement
HH&E - Human Health & Environment
HSWA - Hazardous and Solid Waste Amendment
IACH - Irwin Army Community Hospital
IWSA - Installation Wide Site Assessment
KDHE - Kansas Department of Health and Environment
LBA - Louis Berger and Associates
MCL - Maximum Contaminant Level
NPL - National Priorities List
PA - Preliminary Assessment
PAOC - Potential Area of Concern
PCB - Polychlorinated Biphenyl
PCE - Tetrachloroethene
POL - Petroleum, Oil, and Lubricant
PPM - Parts per Million
RCRA - Resource Conservation and Recovery Act
SI - Site Investigation
SWMU - Solid Waste Management Unit
TPH - Total Petroleum Hydrocarbons
UST - Underground Storage Tank
WWTP - Wastewater Treatment Plant

Table 1-1
ESI Site Summary
POL Sites
Expanded Site Investigation
Fort Riley, Kansas

Site Name		RCRA Regulatory History		CERCLA Regulatory History			
POL Sites (Group 5)		**RCRA Part A: Interim Status** **Nov 1980-Sept 1998**	**RCRA Part B, Part II HSWA-defers to CERCLA** **Oct 1, 1998 to Oct 1, 2008**	**NPL August 1990/ FFA June 1991** **PA/PAOC**	**SI Reports**	**ESI 2006-2007**	**ESI 2006-2007, Actions Taken/Recommended**
Tactical Vehicle Maintenance Shops	FTRI- 042		HSWA, 1998 No potential risk to HH & E based on site visit	IWSA (LBA, 1993) Recommended No Further Action - Deferred to UST Program		Site visits to confirm evidence of no release	No actions are necessary to protect HH & E; Closed Status
Former Gas Stations/Garages	FTRI- 043		HSWA, 1998 No potential risk to HH & E based on site visit	IWSA (LBA, 1993) Recommended No Further Action - Deferred to UST Program		Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status except at Camp Forsyth I & 7th Streets location. **Collect subsurface soil samples for VOCs.**
6200 Area Fuel Oil Line	FTRI- 057				POL-contaminated soil removed in 1997 No potential risk to HH & E	Confirm conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Underground Storage Tanks	FTRI- 059	AEHA, 1988 SWMU-No evidence of release under obsolete FTRI-015	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (RCRA Subtitle I)	IWSA (LBA, 1993) Recommended No Further Action - Deferred to UST Program	USTs removed in 1990s Residual POL contamination of soil and ground water No potential risk to HH & E	Confirm conclusion of no threat to HH & E	No actions are necessary to protect HH & E for Closed Sites (See Table 5-1) Request Administrative Closure for Tanks 7903a & b and 7923 from KDHE, North Central District Office

AEHA - Army Environmental Hygiene Agency
AST - Aboveground Storage Tank
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
DRMO - Defense Reutilization Marketing Office
ESI - Expanded Site Investigation
FFA - Federal Facility Agreement
HH&E - Human Health & Environment
HSWA - Hazardous and Solid Waste Amendment
IACH - Irwin Army Community Hospital
IWSA - Installation Wide Site Assessment
KDHE - Kansas Department of Health and Environment
LBA - Louis Berger and Associates
MCL - Maximum Contaminant Level
NPL - National Priorities List
PA - Preliminary Assessment
PAOC - Potential Area of Concern
PCB - Polychlorinated Biphenyl
PCE - Tetrachloroethene
POL - Petroleum, Oil, and Lubricant
PPM - Parts per Million
RCRA - Resource Conservation and Recovery Act
SI - Site Investigation
SWMU - Solid Waste Management Unit
TPH - Total Petroleum Hydrocarbons
UST - Underground Storage Tank
WWTP - Wastewater Treatment Plant

Table 2-1
Surface Soil Detections (LBA 1995)
DRMO Storage Area 1 (FTRI-006)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

	Sample ID All samples have prefix DA1SS1-											Kansas Department of Health & Environment Standards[c]	EPA Risk-Based Guidelines[d]
Analyte	1	11[b]	2	3	4	5	6	7	8	9	10		
Semi-Volatiles: (micrograms per kilogram - µg/kg)													
Fluoranthene	<800	<800	<800	<700	<4000	<800	1100	<800	<800	<800	<800	NAv	10,000,000-41,000,000
PCBs: (micrograms per kilogram - µg/kg)													
PCBs	<54	<53	<54	<48	<50	<52	<49	<52	<55	<56	4700	NAv	80-8000
Metals: (milligrams per kilogram - mg/kg)													
Arsenic	3[λ]	3[λ]	3[λ]	2[λ]	2[λ]	3[λ]	3[λ]	4[ϕ]	2[λ]	3[λ]	3[λ]	NAv	0.4-310
Barium	120	98	110	77	110	72	52	84	140	120	88	NAv	20,000-100,000
Cadmium	0.7	<0.6	<0.6	<0.5	<0.6	<0.6	<0.6	1.3	<0.6	<0.6	2.1	NAv	100-1000
Chromium	12	10	7	7	15	11	9	17	10	10	16	200[e]-400[f]	5100-1,000,000
Lead	70	46	13	8	40	72	91	130	10	25	88	500	400[g]-1000[h]
Silver	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	NAv	1000-10,000

NAv: Not available.
λ: Sample concentration exceeded EPA Regions III and X (10^{-6}) Risk-Based Guideline for Arsenic as a carcinogen.
ϕ: Sample concentration exceeded EPA Regions III, IX and X (10^{-6}) Risk-Based Guideline for Arsenic as a carcinogen.
a: Appendix F contains an explanation of detection limits for these samples.
b: Duplicate of DA1SS1-1.
c: Kansas Department of Health and Environment Bureau of Environmental Remediation, Interim Soil Clean-up Standards, August 1993.
d: Risk-Based Guideline concentrations are based on a range to represent EPA Regions III, IX, and X from the following citations: Region II Risk-Based Concentration Table, 2nd quarter 1994, Roy L. Smith, Senior toxicologist - Technical Support Section; Region IX Regional Toxicologist; and Region X-Appendix II-Human Health Risk-Based Preliminary Remediation Goals for Water and Soil, October 1992.
e: Hexavalent Chromium, residential/recreational areas.
f: Hexavalent Chromium, other areas.
g: EPA Directive # OSWER 9355.4-12, Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities.
h: EPA Directive Number OSWER 9355.4-02, Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites.

Table from Draft Final Site Investigation Report for "Other Sites" at Fort Riley, Kansas (LBA, 1995)

Table 2-2
Soil Detections
DRMO Storage Area 1 (FTRI-006)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: Date Sampled: Sample Depth: Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	006-DP01/SB01 6/29/2006 0 - 2 ft 06062640	006-DP01/SB02 6/29/2006 4 - 8 ft 06062641	006-DP01/SB03 6/29/2006 8 - 12 ft 06062642	006-DP01/SB03 6/29/2006 8 - 12 ft 06062642R Reanalysis
Volatiles	UNITS						
m,p-Xylene	ug/kg	2.7E5 / 4.2E5	7.0E5 / 7.0E5	11.1 U	***85.3***	10.8 U	NA
o-Xylene	ug/kg	2.7E5 / 4.2E5	7.0E5 / 7.0E5	5.6 U	***10***	5.4 U	NA
Polychlorinated Biphenyls	UNITS						
Aroclor-1260	mg/kg	0.22 / 0.74	4.3 / 9.5	NA	NA	NA	NA
Miscellaneous Analyses	UNITS						
Total Purgeable Hydrocarbon	ug/kg	NA	2.2E5 / 4.5E5	110 U	***590***	110 U	NA
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	***3.6***	***4.5***	***5.3***	NA
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	***100***	***140***	***84 J***	***90 J***
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.6 U	0.6 U	1.1 U	NA
Chromium, Total	mg/kg	210 / 450	390 / 4,000	***14***	***11***	***13***	NA
Lead, Total	mg/kg	400 / 800	400 / 1,000	***9.8***	***5.6***	***8.5***	NA

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

Table 2-2
Soil Detections
DRMO Storage Area 1 (FTRI-006)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	006-DP01/SB33 6/29/2006 8 - 12 ft 06062643 Duplicate	006-DP02/SB01 7/6/2006 0 - 2 ft 06070154	006-DP02/SB02 7/6/2006 4 - 8 ft 06070158	006-DP02/SB03 7/6/2006 8 - 12 ft 06070159
Volatiles	UNITS						
m,p-Xylene	ug/kg	2.7E5 / 4.2E5	7.0E5 / 7.0E5	10.9 U	11.1 U	11.2 U	11.1 U
o-Xylene	ug/kg	2.7E5 / 4.2E5	7.0E5 / 7.0E5	5.4 U	5.6 U	5.6 U	5.6 U
Polychlorinated Biphenyls	UNITS						
Aroclor-1260	mg/kg	0.22 / 0.74	4.3 / 9.5	NA	NA	NA	NA
Miscellaneous Analyses	UNITS						
Total Purgeable Hydrocarbon	ug/kg	NA	2.2E5 / 4.5E5	110 U	110 U	110 U	110 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	***5.8***	***4.5***	***3.7***	***2.9***
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	***74***	***89***	***140***	***120***
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	2.7 U	***0.9***	0.6 U	0.6 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	***14***	***15***	***12***	***10***
Lead, Total	mg/kg	400 / 800	400 / 1,000	***10***	***15***	***6.6***	***5.7***

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

Table 2-2
Soil Detections
DRMO Storage Area 1 (FTRI-006)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	006-DP02/SB33 7/6/2006 8 - 12 ft 06070160 Duplicate	006-DP03/SB01 7/6/2006 0 - 2 ft 06070161	006-DP03/SB02 7/6/2006 4 - 8 ft 06070162	006-DP03/SB03 7/6/2006 8 - 12 ft 06070163
Volatiles	UNITS						
m,p-Xylene	ug/kg	2.7E5 / 4.2E5	7.0E5 / 7.0E5	11.4 U	11.1 U	11.7 U	11.4 U
o-Xylene	ug/kg	2.7E5 / 4.2E5	7.0E5 / 7.0E5	5.7 U	5.6 U	5.9 U	5.7 U
Polychlorinated Biphenyls	UNITS						
Aroclor-1260	mg/kg	0.22 / 0.74	4.3 / 9.5	NA	NA	NA	NA
Miscellaneous Analyses	UNITS						
Total Purgeable Hydrocarbon	ug/kg	NA	2.2E5 / 4.5E5	110 U	110 U	120 U	110 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	***3.3***	***3.9***	***5.1***	***2.9***
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	***140***	***96***	***160***	***120***
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.6 U	0.6 U	0.6 U	0.6 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	***11***	***13***	***16***	***9.5***
Lead, Total	mg/kg	400 / 800	400 / 1,000	***5.7***	***10***	***7.2***	***5.4***

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

Table 2-2
Soil Detections
DRMO Storage Area 1 (FTRI-006)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	006-DP04/SB01 6/29/2006 0 - 2 ft 06062635	006-DP04/SB02 6/29/2006 4 - 8 ft 06062636	006-DP04/SB03 6/29/2006 8 - 12 ft 06062638	006-DP04/SB22 6/29/2006 4 - 8 ft 06062637 Duplicate
Volatiles	UNITS						
m,p-Xylene	ug/kg	2.7E5 / 4.2E5	7.0E5 / 7.0E5	10.5 U	10.7 U	10.7 U	10.7 U
o-Xylene	ug/kg	2.7E5 / 4.2E5	7.0E5 / 7.0E5	5.2 U	5.4 U	5.4 U	5.3 U
Polychlorinated Biphenyls	UNITS						
Aroclor-1260	mg/kg	0.22 / 0.74	4.3 / 9.5	NA	NA	NA	NA
Miscellaneous Analyses	UNITS						
Total Purgeable Hydrocarbon	ug/kg	NA	2.2E5 / 4.5E5	100 U	110 U	110 U	110 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	***2***	***1.8***	***1.3***	***1.8***
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	***97***	***79***	***42***	***75***
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.5 U	0.5 U	0.5 U	0.5 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	***7.6***	***7.2***	***2.3***	***6.9***
Lead, Total	mg/kg	400 / 800	400 / 1,000	***4.1***	***3.8***	***2***	***3.7***

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

Table 2-2
Soil Detections
DRMO Storage Area 1 (FTRI-006)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: Date Sampled: Sample Depth: Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	006-S01/SS01 6/26/2006 Surface 06062032	006-S02/SS01 6/26/2006 Surface 06062033	006-S02/SS11 6/26/2006 Surface 06062034 Duplicate	006-S03/SS01 6/26/2006 Surface 06062037
Volatiles	UNITS						
m,p-Xylene	ug/kg	2.7E5 / 4.2E5	7.0E5 / 7.0E5	NA	NA	NA	NA
o-Xylene	ug/kg	2.7E5 / 4.2E5	7.0E5 / 7.0E5	NA	NA	NA	NA
Polychlorinated Biphenyls	UNITS						
Aroclor-1260	mg/kg	0.22 / 0.74	4.3 / 9.5	0.06 U	***5.1***	***4.3***	***0.87***
Miscellaneous Analyses	UNITS						
Total Purgeable Hydrocarbon	ug/kg	NA	2.2E5 / 4.5E5	NA	NA	NA	NA
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	NA	NA	NA	NA
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	NA	NA	NA	NA
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	NA	NA	NA	NA
Chromium, Total	mg/kg	210 / 450	390 / 4,000	NA	NA	NA	NA
Lead, Total	mg/kg	400 / 800	400 / 1,000	NA	NA	NA	NA

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

Table 2-2
Soil Detections
DRMO Storage Area 1 (FTRI-006)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	006-S04/SS01 6/26/2006 Surface 06062035	006-S05/SS01 6/26/2006 Surface 06062036
Volatiles	UNITS				
m,p-Xylene	ug/kg	2.7E5 / 4.2E5	7.0E5 / 7.0E5	NA	NA
o-Xylene	ug/kg	2.7E5 / 4.2E5	7.0E5 / 7.0E5	NA	NA
Polychlorinated Biphenyls	UNITS				
Aroclor-1260	mg/kg	0.22 / 0.74	4.3 / 9.5	***3.9***	***4.4***
Miscellaneous Analyses	UNITS				
Total Purgeable Hydrocarbon	ug/kg	NA	2.2E5 / 4.5E5	NA	NA
Metals, Total	UNITS				
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	NA	NA
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	NA	NA
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	NA	NA
Chromium, Total	mg/kg	210 / 450	390 / 4,000	NA	NA
Lead, Total	mg/kg	400 / 800	400 / 1,000	NA	NA

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

Table 2-3
Groundwater Detections
DRMO Storage Area 1 (FTRI-006)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: Date Sampled: Laboratory Number:		USEPA Region 9 PRGs (tap water)	USEPA MCLs	006-DP01/GW01 6/29/2006 06062644	006-DP02/GW01 7/6/2006 06070155	006-DP02/GW01 7/6/2006 06070155R Reanalysis	006-DP02/GW11 7/6/2006 06070156 Duplicate
Volatiles	UNITS						
Benzene	ug/L	0.35	5	***21000 J***	***152***	***130***	***104***
Ethylbenzene	ug/L	1,300	700	***6900 J***	4 UR	1 U	4 UR
m,p-Xylene	ug/L	210 (Total)	10,000 (Total)	***10600 J***	***6***	***5.5 R***	***4 R***
o-Xylene	ug/L	210 (Total)	10,000 (Total)	***2400 J***	3 UR	1 U	3 UR
Toluene	ug/L	720	1,000	***6720 J***	2 UR	0.8 U	2 UR
Trichloromethane	ug/L	0.17	80	200 UJ	3 UR	1 U	3 UR
Miscellaneous Analyses	UNITS						
Total Purgeable Hydrocarbon	ug/L	NA	NA	***96000 J***	***770***	NA	***830***
Metals, Total	UNITS						
Arsenic, Total	mg/L	NA	NA	***0.115***	***0.047***	NA	***0.038***
Barium, Total	mg/L	NA	NA	***6.48***	***5.76***	NA	***4.78***
Cadmium, Total	mg/L	NA	NA	***0.014***	***0.011***	NA	***0.009***
Chromium, Total	mg/L	NA	NA	***0.453***	***0.419***	NA	***0.344***
Lead, Total	mg/L	NA	NA	***0.295***	***0.242***	NA	***0.197***
Mercury, Total	mg/L	NA	NA	0.0002 U	***0.0007***	NA	0.0002 U
Selenium, Total	mg/L	NA	NA	0.01 U	0.01 U	NA	0.01 U
Metals, Dissolved	UNITS						
Arsenic, Dissolved	mg/L	0.000045	0.01	***0.014***	0.01 U	NA	0.01 U
Barium, Dissolved	mg/L	2.6	2	***2.14***	***1.51***	NA	***1.46***

Notes:

1. All data screened against the USEPA Region 9 PRGs (tap water). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

USEPA MCLs - U.S. Environmental Protection Agency Maximum Contaminant Levels

NA - not applicable / not analyzed

ug/L - micrograms per liter

mg/L - milligrams per liter

J - qualified as estimated during the QC evaluation

R - data was rejected

U - compound was not detected

Table 2-3
Groundwater Detections
DRMO Storage Area 1 (FTRI-006)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Laboratory Number:		USEPA Region 9 PRGs (tap water)	USEPA MCLs	006-DP02/GW11 7/6/2006 06070156R Dup. Reanalysis	006-DP03/GW01 7/6/2006 06070157	006-DP03/GW01 7/6/2006 06070157R Reanalysis	006-DP04/GW01 6/29/2006 06062639
Volatiles	UNITS						
Benzene	ug/L	0.35	5	***Overcal***	***54.2***	NA	0.4 UJ
Ethylbenzene	ug/L	1,300	700	***1***	***0.9***	NA	0.7 UJ
m,p-Xylene	ug/L	210 (Total)	10,000 (Total)	***8.8***	0.6 U	NA	0.6 UJ
o-Xylene	ug/L	210 (Total)	10,000 (Total)	1 U	0.6 U	NA	0.6 UJ
Toluene	ug/L	720	1,000	***0.9***	***0.8***	NA	0.4 UJ
Trichloromethane	ug/L	0.17	80	1 U	0.5 U	NA	***1.2 J***
Miscellaneous Analyses	UNITS						
Total Purgeable Hydrocarbon	ug/L	NA	NA	NA	***270***	NA	100 UJ
Metals, Total	UNITS						
Arsenic, Total	mg/L	NA	NA	NA	***0.012***	NA	***0.091***
Barium, Total	mg/L	NA	NA	NA	***1.65***	NA	***8.02***
Cadmium, Total	mg/L	NA	NA	NA	0.003 U	NA	***0.031***
Chromium, Total	mg/L	NA	NA	NA	***0.337***	NA	***0.684***
Lead, Total	mg/L	NA	NA	NA	***0.007***	NA	***0.636***
Mercury, Total	mg/L	NA	NA	NA	0.0002 U	NA	0.0002 U
Selenium, Total	mg/L	NA	NA	NA	0.01 U	NA	***0.122***
Metals, Dissolved	UNITS						
Arsenic, Dissolved	mg/L	0.000045	0.01	NA	0.01 U	NA	0.01 U
Barium, Dissolved	mg/L	2.6	2	NA	***1.46 R***	***1.49***	***0.36***

Notes:

1. All data screened against the USEPA Region 9 PRGs (tap water). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

USEPA MCLs - U.S. Environmental Protection Agency Maximum Contaminant Levels

NA - not applicable / not analyzed

ug/L - micrograms per liter

mg/L - milligrams per liter

J - qualified as estimated during the QC evaluation

R - data was rejected

U - compound was not detected

Overcal - Sample exceeded laboratory calibration range

Table 2-3
Groundwater Detections
DRMO Storage Area 1 (FTRI-006)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Laboratory Number:		USEPA Region 9 PRGs (tap water)	USEPA MCLs	006-ERB01/GW01 6/29/2006 06062645
Volatiles	UNITS			
Benzene	ug/L	0.35	5	0.4 U
Ethylbenzene	ug/L	1,300	700	0.7 U
m,p-Xylene	ug/L	210 (Total)	10,000 (Total)	0.6 U
o-Xylene	ug/L	210 (Total)	10,000 (Total)	0.6 U
Toluene	ug/L	720	1,000	0.4 U
Trichloromethane	ug/L	0.17	80	0.5 U
Miscellaneous Analyses	UNITS			
Total Purgeable Hydrocarbon	ug/L	NA	NA	100 U
Metals, Total	UNITS			
Arsenic, Total	mg/L	NA	NA	0.01 U
Barium, Total	mg/L	NA	NA	0.1 U
Cadmium, Total	mg/L	NA	NA	0.003 U
Chromium, Total	mg/L	NA	NA	0.005 U
Lead, Total	mg/L	NA	NA	0.005 U
Mercury, Total	mg/L	NA	NA	0.0002 U
Selenium, Total	mg/L	NA	NA	0.01 U
Metals, Dissolved	UNITS			
Arsenic, Dissolved	mg/L	0.000045	0.01	0.01 U
Barium, Dissolved	mg/L	2.6	2	0.1 U

Notes:

1. All data screened against the USEPA Region 9 PRGs (tap water). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

USEPA MCLs - U.S. Environmental Protection Agency Maximum Contaminant Levels

NA - not applicable / not analyzed

ug/L - micrograms per liter

mg/L - milligrams per liter

J - qualified as estimated during the QC evaluation

R - data was rejected

U - compound was not detected

Table 3-1
Surface Debris Detections
PCB Storage Building 343 (FTRI-007)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: Date Sampled: Sample Depth: Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	007-S01/SS01 6/26/2006 Surface 06062023	007-S02/SS01 6/26/2006 Surface 06062024	007-S03/SS01 6/26/2006 Surface 06062022	007-S04/SS01 6/26/2006 Surface 06062025
Polychlorinated Biphenyls	UNITS						
Aroclor-1242	mg/kg	0.22 / 0.74	4.3 / 9.5	0.05 U	***0.09 J***	***0.08 J***	0.05 U
Aroclor-1260	mg/kg	0.22 / 0.74	4.3 / 9.5	0.05 U	0.05 U	0.05 U	0.05 U

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

Table 3-1
Surface Debris Detections
PCB Storage Building 343 (FTRI-007)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	007-S05/SS01 6/26/2006 Surface 06062021	007-S06/SS01 6/26/2006 Surface 06062026
Polychlorinated Biphenyls	UNITS				
Aroclor-1242	mg/kg	0.22 / 0.74	4.3 / 9.5	***0.25 J***	***0.34 J***
Aroclor-1260	mg/kg	0.22 / 0.74	4.3 / 9.5	***0.05***	0.05 U

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

Table 5-1
Soil Boring Sampling Results (IT, 1992)
Pesticide UST at Camp Funston (FTRI-010)
Pesticide / UST Sites
Expanded Site Investigation
Fort Riley, Kansas

Boring No.	Location	Sample Depth, ft.	Sample No.	Volatile Organics, ug/kg	Semivolatile Organics, ug/kg	Herbicides, ug/kg	Pesticides, ug/kg	Total Lead, Lead, ug/g
1	Background	6	621-1-SB01		DNB 570(B)	ND	ND	7.4
		9	621-2-SB01		DNB 410(B)	ND	ND	8.1
		12	621-3-SB01		DNB 590(B)	ND	ND	12.0
		15	621-4-SB01		DNB 670(B)	ND	ND	11.8
		18	621-5-SB01		DNB 510(B)	2,4-D 480	ND	8.9
		21	621-6-SB01		DNB 700(B)	ND	ND	21.2
2	North of Excavation	6	623-10-SB02	MC 19	ND	ND	ND	6.3
		6	623-11-SB02*	MC 16	ND	ND	ND	ND
		9	623-12-SB02	MC 17	ND	ND	ND	7.5
				1,1,1-TCE 12				
		12	623-13-SB02	MC 78(B)	ND	ND	ND	ND
		15	623-14-SB02	MC 22	ND	ND	ND	6.6
		18	623-15-SB02	MC 18	ND	ND	ND	ND
		21	623-16-SB02	MC 20	ND	ND	ND	ND
		24	623-17-SB02	MC 23	DNB 2300	ND	ND	ND
		27	623-18-SB02	MC 29	ND	ND	ND	7.3
				Acetone 26				
		30	623-19-SB02	MC 30	ND	ND	ND	ND
				CD 8				
		33	623-20-SB02	MC 90(B)	ND	ND	ND	ND
		36	623-21-SB02	MC 91(B)	ND	ND	ND	7.0
				Acetone 54				
				CD 480				
3	North of Excavation	6	623-1-SB03	MC 19	ND	ND	ND	ND
		9	623-2-SB03	MC 20	ND	ND	ND	ND
		12	623-3-SB03	MC 20	ND	ND	ND	7.0
		15	623-4-SB03	MC 20	ND	ND	ND	8.6
				Acetone 58				
		18	623-5-SB03	MC 20	ND	ND	ND	ND
		18	623-6-SB03*	MC 18	ND	ND	ND	5.4
				Tot. Xylenes 16				
		21	623-7-SB03	MC 20	ND	2,4-D 4400	ND	ND
				Tot. Xylenes 10				
		24	623-8-SB03	MC 19	ND	ND	ND	ND
				CD 23				
				Toluene 14				
				Ethylbenzene 59				
				Tot. Xylenes 190				
		27	623-9-SB03	MC 33(B)	ND	ND	ND	ND
				Acetone 37(B)				
				CD 38				
				1,2-DCE 8				
				Benzene 13				
				Toluene 13				
				Ethylbenzene 270				
				Tot. Xylenes 770				

INTERNATIONAL TECHNOLOGY CORPORATION

Table from Project Closeout Report, Building 1915 UST Removal (IT, 1992)

Table 5-1
Soil Boring Sampling Results (IT, 1992)
Pesticide UST at Camp Funston (FTRI-010)
Pesticide / UST Sites
Expanded Site Investigation
Fort Riley, Kansas

Boring No.	Location	Sample Depth, ft.	Sample No.	Volatile Organics, ug/kg	Semivolatile Organics, ug/kg	Herbicides, ug/kg	Pesticides, ug/kg	Total Lead, Lead, ug/g
4	East of Excavation	6	622-16-SB04	ND	DNB 480	ND	ND	8.3
		6	622-17-SB04*	ND	ND	ND	ND	ND
		9	622-18-SB04	ND	DNB 730	ND	ND	ND
		12	622-19-SB04	ND	ND	ND	ND	9.0
		12	622-20-SB04*	ND	DNB 700	ND	ND	8.3
		15	622-21-SB04	ND	DNB 580	ND	ND	ND
		18	622-22-SB04	ND	DNB 630	ND	ND	ND
		21	622-23-SB04	ND	DNB 560	ND	ND	ND
		21	622-24-SB04*	ND	DNB 710	ND	ND	ND
		24	622-25-SB04	ND	DNB 740	ND	ND	14.0
		28	622-26-SB04	ND	DNB 1000	ND	ND	8.5
5	East of Excavation	6	622-8-SB05	ND	ND	ND	ND	9.0
		9	622-9-SB05	ND	ND	ND	ND	8.8
		12	622-10-SB05	ND	ND	ND	ND	11.0
		15	622-11-SB05	ND	ND	ND	ND	ND
		18	622-12-SB05	ND	ND	ND	ND	ND
		21	622-13-SB05	ND	ND	ND	ND	8.4
		24	622-14-SB05	ND	ND	ND	ND	12.0
		28	622-15-SB05	ND	ND	ND	ND	ND
6	South of Excavation	6	621-7-SB06	ND	DNB 680	ND	ND	ND
		9	621-8-SB06	ND	DNB 700	ND	ND	7.7
		12	621-9-SB06	ND	DNB 770	ND	ND	9.3
		15	621-10-SB06	ND	DNB 730(B)	ND	ND	ND
		18	621-11-SB06	ND	DNB 680(B)	ND	ND	ND
		21	621-12-SB06	ND	DNB 790(B)	ND	ND	9.5
		23	621-13-SB06	Toluene 8.6	DNB 840(B)	ND	ND	12.0
		25	621-14-SB06	Toluene 11	DNB 600(B)	ND	ND	13.0
7	South of Excavation	6	622-1-SB07	ND	ND	ND	ND	ND
		9	622-2-SB07	ND	ND	ND	ND	ND
		12	622-3-SB07	ND	ND	ND	ND	ND
		15	622-4-SB07	ND	ND	ND	ND	ND
		18	622-5-SB07	ND	ND	ND	ND	9.1
		21	622-6-SB07	ND	ND	ND	ND	ND
		24	622-7-SB07	ND	ND	ND	ND	ND
8	West of Excavation	6	624-1-SB08	MC 16	DNB 640	ND	ND	ND
		9	624-2-SB08	MC 17	ND	ND	ND	ND
		12	624-3-SB08	MC 70(B)	ND	ND	ND	9.2
		15	624-4-SB08	MC 68(B)	ND	ND	ND	ND
		18	624-5-SB08	MC 66(B)	ND	ND	ND	ND
		21	624-6-SB08	MC 67(B), Chloroform 19	ND	ND	ND	ND
		24	624-7-SB08	MC 69(B), Chloroform 25	ND	ND	ND	9.8
		27	624-8-SB08	MC 81(B), CD 15	ND	ND	ND	ND

Table from Project Closeout Report, Building 1915 UST Removal (IT, 1992)

Table 5-1
Soil Boring Sampling Results (IT, 1992)
Pesticide UST at Camp Funston (FTRI-010)
Pesticide / UST Sites
Expanded Site Investigation
Fort Riley, Kansas

Boring No.	Location	Sample Depth, ft.	Sample No.	Volatile Organics, ug/kg		Semivolatile Organics, ug/kg		Herbicides, ug/kg	Pesticides, ug/kg	Total Lead, Lead, ug/g
9	West of Excavation	6	623-22-SB09	MC 78(B)		ND		ND	ND	ND
		9	623-23-SB09	MC 69(B)		ND		ND	ND	7.7
		12	623-24-SB09	MC 66(B)	DNB		2600	ND	ND	6.2
		12	623-25-SB09*	MC 80(B)	DNB		2600	ND	ND	ND
		15	623-26-SB09	MC 89(B)		ND		ND	ND	ND
		18	623-27-SB09	MC 17		ND		ND	ND	ND
		21	623-28-SB09	MC 16		ND		ND	ND	ND
		24	623-29-SB09	MC 17	DNB		2100	ND	ND	7.2
		27	623-30-SB09	MC 17		ND		ND	ND	ND

NOTES:

MC--Methylene Chloride, CD--Carbon Disulfide, DNB--Di-n-butyl phthalate, 1,1,1-TCE--1,1,1-Trichloroethane, 1,2-DCE--1,2-Dichloroethane

*--Indicates QC Duplicate Sample.
ND--Analyte was not found in the sample or extract.
(B)--Analyte is found in the blank as well as in the sample.

Table from Project Closeout Report, Building 1915 UST Removal (IT, 1992)

Table 5-2
Supplemental Soil Sampling Results (IT, 1992)
Pesticide UST at Camp Funston (FTRI-010)
Pesticide / UST Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Number	Boring Number	Depth	Pesticides ug/kg	Herbicides ug/kg	TRPH mg/kg	Lead ug/g
10-21-1-SB10	SB10	3'	ND	ND	ND	8.4
10-21-2-SB10	SB10	6'	ND	ND	29	8.4
10-21-3-SB10	SB10	9'	ND	ND	ND	7.9
10-21-4-SB10	SB10	12'	ND	ND	ND	8.1
10-21-5-SB10	SB10	15'	ND	ND	37	7.8
10-21-6-SB10	SB10	18'	ND	ND	ND	7.4
10-21-7-SB10	SB10	21'	ND	ND	51	6.5
10-21-8-SB10	SB10	24'	ND	ND	32	11
10-21-9-SB10	SB10	27'	ND	ND	ND	5
10-21-10-SB11	SB11	3'	ND	ND	114	15
10-21-11-SB11	SB11	6'	ND	ND	27	6.6
10-21-12-SB11	SB11	9'	ND	ND	ND	8.8
10-21-13-SB11	SB11	12'	ND	ND	28	11
10-21-14-SB11	SB11	15'	ND	ND	ND	6.2
10-21-15-SB11	SB11	18'	ND	ND	ND	7.5
10-21-16-SB11	SB11	21'	ND	ND	ND	6.5
10-21-17-SB11	SB11	24'	ND	ND	ND	5.4
10-21-18-SB11	SB11	27'	ND	ND	160	5.7
10-21-19-SB12	SB12	3'	ND	ND	ND	12
10-21-20-SB12	SB12	6'	ND	ND	ND(ND)	11
10-21-21-SB12	SB12	9'	ND	ND	ND	8.7
10-21-22-SB12	SB12	12'	ND	ND	ND	12
10-21-23-SB12	SB12	15'	ND	ND	ND	10
10-21-24-SB12	SB12	18'	ND	ND	ND	8.9

INTERNATIONAL TECHNOLOGY CORPORATION

Table from Project Closeout Report, Building 1915 UST Removal (IT, 1992)

Table 5-2
Supplemental Soil Sampling Results (IT, 1992)
Pesticide UST at Camp Funston (FTRI-010)
Pesticide / UST Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Number	Boring Number	Depth	Pesticides ug/kg	Herbicides ug/kg	TRPH mg/kg	Lead ug/g
10-21-26-SB12	SB12	24'	ND	ND	ND	7.5
10-21-27-SB12	SB12	27'	ND	ND	ND(ND)	12
10-22-1-SB13	SB13	3'	ND	ND	78	22
10-22-2-SB13	SB13	6'	ND	ND	ND	5.8
10-22-3-SB13	SB13	9'	ND(ND)	ND(ND)	ND(ND)	8.6
10-22-4-SB13	SB13	12'	ND	ND	ND	8.7
10-22-5-SB13	SB13	15'	ND	ND	ND	7.7
10-22-6-SB13	SB13	18'	ND	ND	ND	5.4
10-22-7-SB13	SB13	21'	ND	ND	ND	11
10-22-8-SB13	SB13	24'	ND	ND	ND	10
10-22-9-SB13	SB13	27'	ND	ND	ND	9.7
10-22-10-SB14	SB14	3'	8.9 (DDE)	8.9	69	16
10-22-11-SB14	SB14	6'	ND	ND	ND	8.4
10-22-12-SB14	SB14	9'	ND	ND	ND	10
10-22-13-SB14	SB14	12'	ND	ND	ND	11
10-22-14-SB14	SB14	15'	ND	ND	ND	7.7
10-22-15-SB14	SB14	18'	ND(ND)	ND(ND)	ND(ND)	7.6
10-22-16-SB14	SB14	21'	ND	ND	ND	12
10-22-17-SB14	SB14	24'	ND	ND	ND	6.8
10-22-18-SB14	SB14	27'	ND	ND	ND	7
10-22-19-SB15	SB15	3'	ND	ND	350	14
10-22-20-SB15	SB15	6'	ND	ND	ND	7.6
10-22-21-SB15	SB15	9'	ND	ND	ND	10

Table from Project Closeout Report, Building 1915 UST Removal (IT, 1992)

Table 5-2
Supplemental Soil Sampling Results (IT, 1992)
Pesticide UST at Camp Funston (FTRI-010)
Pesticide / UST Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Number	Boring Number	Depth	Pesticides ug/kg	Herbicides ug/kg	TRPH mg/kg	Lead ug/g
10-22-23-SB15	SB15	15'	ND	ND	ND	7.8
10-22-24-SB15	SB15	18'	ND	ND	ND	8.9
10-22-25-SB15	SB15	21'	ND	ND	ND	8.1
10-22-26-SB15	SB15	24'	ND	ND	ND	4.3
10-22-27-SB15	SB15	27'	ND	ND	ND(ND)	6.7
ND iNot Detected						
( ) Split sampie result						

Table from Project Closeout Report, Building 1915 UST Removal (IT, 1992)

Table 7-1
Groundwater Detections
DRMO Storage Area 2 (FTRI-015)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: Date Sampled: Laboratory Number:		USEPA Region 9 PRGs (tap water)	USEPA MCLs	015-DP01/GW01 6/30/2006 06062914	015-DP02/GW01 6/30/2006 06062913	015-DP03/GW01 6/30/2006 06062912	015-DP03/GW01 6/30/2006 06062912R Reanalysis
Volatiles	UNITS						
Ethylbenzene	ug/L	1,300	700	***2***	***0.9 J***	0.7 UJ	0.7 UJ
m,p-Xylene	ug/L	210 (Total)	10,000 (Total)	***3.1***	0.6 UJ	0.6 UJ	0.6 UJ
o-Xylene	ug/L	210 (Total)	10,000 (Total)	***1.3***	0.6 UJ	0.6 UJ	0.6 UJ
Toluene	ug/L	720	1,000	***1.3***	***0.7 J***	***0.5 J***	***0.5 J***

Notes:

1. All data screened against the USEPA Region 9 PRGs (tap water). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

USEPA MCLs - U.S. Environmental Protection Agency Maximum Contaminant Levels

ug/L - micrograms per liter

J - qualified as estimated during the QC evaluation

U - compound was not detected

Table 8-1
Soil Detections
Former Livestock Dipping Facility (FTRI-047)
Pesticide /PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	047-DP01/SB01 7/12/2006 3 - 4 ft 06070474	047-DP01/SB02 7/12/2006 7 - 8 ft 06070475	047-DP01/SB03 7/12/2006 10 - 12 ft 06070476	047-DP01/SB33 7/12/2006 10 - 12 ft 06070477 Duplicate
Metals, Total	UNITS						
Lead, Total	mg/kg	400 / 800	400 / 1,000	***47***	***5.3***	***5.9***	***6.5***
Mercury, Total	mg/kg	23 / 310	2 / 20	NA	NA	NA	NA

Notes:

1. All data screened against the KDHE RSKs (residential). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

mg/kg - milligrams per kilogram

U - compound was not detected

Table 8-1
Soil Detections
Former Livestock Dipping Facility (FTRI-047)
Pesticide /PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	047-DP02/SB01 7/12/2006 2 - 3 ft 06070478	047-DP02/SB02 7/12/2006 6 - 8 ft 06070479	047-DP02/SB03 7/12/2006 10 - 11 ft 06070480	047-DP03/SB01 7/12/2006 2 - 3 ft 06070481
Metals, Total	UNITS						
Lead, Total	mg/kg	400 / 800	400 / 1,000	***17***	***7.6***	***7.7***	***7.8***
Mercury, Total	mg/kg	23 / 310	2 / 20	NA	NA	NA	NA

Notes:
1. All data screened against the KDHE RSKs (residential). All exceedances are shaded.
USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals
KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards
res/ind - residential / industrial
ft - feet
NA - not applicable / not analyzed
mg/kg - milligrams per kilogram
U - compound was not detected

Table 8-1
Soil Detections
Former Livestock Dipping Facility (FTRI-047)
Pesticide /PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	047-DP03/SB02 7/12/2006 6 - 7 ft 06070482	047-DP03/SB03 7/12/2006 11 - 12 ft 06070483	047-DP04/SB01 7/12/2006 2 - 3 ft 06070470	047-DP04/SB02 7/12/2006 6 - 8 ft 06070471
Metals, Total	UNITS						
Lead, Total	mg/kg	400 / 800	400 / 1,000	***5.3***	***5.3***	***5.1***	***6.5***
Mercury, Total	mg/kg	23 / 310	2 / 20	NA	NA	NA	NA

Notes:

1. All data screened against the KDHE RSKs (residential). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

mg/kg - milligrams per kilogram

U - compound was not detected

Table 8-1
Soil Detections
Former Livestock Dipping Facility (FTRI-047)
Pesticide /PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	047-DP04/SB22 7/12/2006 6 - 8 ft 06070472 Duplicate	047-DP04/SB03 7/12/2006 11 - 12 ft 06070473	047-DP05/SB01 7/12/2006 2 - 3 ft 06070467	047-DP05/SB02 7/12/2006 6 - 7 ft 06070468
Metals, Total	UNITS						
Lead, Total	mg/kg	400 / 800	400 / 1,000	***5.4***	***6.4***	***5.2***	***5.4***
Mercury, Total	mg/kg	23 / 310	2 / 20	NA	NA	NA	NA

Notes:

1. All data screened against the KDHE RSKs (residential). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

mg/kg - milligrams per kilogram

U - compound was not detected

Table 8-1
Soil Detections
Former Livestock Dipping Facility (FTRI-047)
Pesticide /PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	047-DP05/SB03 7/12/2006 11 - 12 ft 06070469	047-S01/SS01 6/26/2006 Surface 06062027	047-S02/SS01 6/26/2006 Surface 06062028	047-S02/SS11 6/26/2006 Surface 06062029 Duplicate
Metals, Total	UNITS						
Lead, Total	mg/kg	400 / 800	400 / 1,000	***5***	NA	NA	NA
Mercury, Total	mg/kg	23 / 310	2 / 20	NA	0.1 U	0.1 U	0.1 U

Notes:

1. All data screened against the KDHE RSKs (residential). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

mg/kg - milligrams per kilogram

U - compound was not detected

Table 8-1
Soil Detections
Former Livestock Dipping Facility (FTRI-047)
Pesticide /PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	047-S03/SS01 6/26/2006 Surface 06062031	047-S04/SS01 6/26/2006 Surface 06062030
Metals, Total	UNITS				
Lead, Total	mg/kg	400 / 800	400 / 1,000	NA	NA
Mercury, Total	mg/kg	23 / 310	2 / 20	2	0.1 U

Notes:

1. All data screened against the KDHE RSKs (residential). All exceedances are shaded.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

mg/kg - milligrams per kilogram

U - compound was not detected

Table 8-2
Groundwater Detections
Former Livestock Dipping Facility (FTRI-047)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: Date Sampled: Laboratory Number:		USEPA Region 9 PRGs (tap water)	USEPA MCLs	047-DP01/GW01 7/18/2006 06071104	047-DP02/GW01 7/18/2006 06071101	047-DP02/GW11 7/18/2006 06071102 Duplicate
Metals, Total	UNITS					
Lead, Total	mg/L	NA	NA	NA	***0.122***	***0.132***

Notes:

1. Total lead was not screened against regulatory standards due to high turbidity associated with these samples.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals

USEPA MCLs - U.S. Environmental Protection Agency Maximum Contaminant Levels

NA - not applicable / not analyzed

mg/L - milligrams per liter

Table 10-1
Wipe Detections
Mercury Contamination Areas (FTRI-049)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point:		049-W01/WP01	049-W02/WP01	049-W02/WP01	049-W03/WP01	049-W04/WP01
Date Sampled:		6/28/2006	6/28/2006	6/28/2006	6/28/2006	6/28/2006
Sample Depth:		WIPE	WIPE	WIPE	WIPE	WIPE
Laboratory Number:		06062621	06062622	06062623 Duplicate	06062626	06062627
Metals, Total	UNITS					
Mercury, Total	ug/100 cm^2	***0.25***	***0.16***	***0.06***	***0.66***	***0.91 J***

Table 10-1
Wipe Detections
Mercury Contamination Areas (FTRI-049)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

		Sample Point:	049-W05/WP01	049-W06/WP01	049-W07/WP01	049-W08/WP01
		Date Sampled:	6/28/2006	6/28/2006	6/28/2006	6/28/2006
		Sample Depth:	WIPE	WIPE	WIPE	WIPE
		Laboratory Number:	06062619	06062620	06062624	06062625
Metals, Total	UNITS					
Mercury, Total	ug/100 cm^2		***11.5***	***8.9***	***0.65***	***0.57***

Table 11-1
Soil Detections
PCB Transformer Sites (FTRI-050)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	050-S01/SS01 6/27/2006 Surface 06062156	050-S02/SS01 6/27/2006 Surface 06062146	050-S02/SS11 6/27/2006 Surface 06062147 Duplicate	050-S03/SS01 6/27/2006 Surface 06062148
Polychlorinated Biphenyls	UNITS						
Aroclor-1254	mg/kg	0.22 / 0.74	4.3 / 9.5	0.06 U	0.06 U	0.06 U	0.06 U
Aroclor-1268	mg/kg	NA	NA	NA	NA	NA	NA

Notes:

1. All data screened against the USEPA Region 9 PRGs (residential). All exceedances are shaded.
2. Points 050-S11A - 050-S15A were resampled on 11/07/06. Original samples were taken east of the former transformer station footprint. Data for these locations has not been validated.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals
KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards
res/ind - residential / industrial
NA - not applicable / not analyzed
mg/kg - milligrams per kilogram
J - qualified as estimated during QC evaluation
R - data was rejected
U - compound was not detected

Table 11-1
Soil Detections
PCB Transformer Sites (FTRI-050)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	050-S04/SS01 6/27/2006 Surface 06062149	050-S05/SS01 6/27/2006 Surface 06062150	050-S06/SS01 6/27/2006 Surface 06062155	050-S06/SS01 6/27/2006 Surface 06062155R Reanalysis
Polychlorinated Biphenyls	UNITS						
Aroclor-1254	mg/kg	0.22 / 0.74	4.3 / 9.5	0.06 U	0.06 U	***1.4***	***0.82 R***
Aroclor-1268	mg/kg	NA	NA	NA	NA	NA	NA

Notes:

1. All data screened against the USEPA Region 9 PRGs (residential). All exceedances are shaded.
2. Points 050-S11A - 050-S15A were resampled on 11/07/06. Original samples were taken east of the former transformer station footprint. Data for these locations has not been validated.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals
KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards
res/ind - residential / industrial
NA - not applicable / not analyzed
mg/kg - milligrams per kilogram
J - qualified as estimated during QC evaluation
R - data was rejected
U - compound was not detected

Table 11-1
Soil Detections
PCB Transformer Sites (FTRI-050)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	050-S07/SS01 6/27/2006 Surface 06062154	050-S08/SS01 6/27/2006 Surface 06062152	050-S09/SS01 6/27/2006 Surface 06062153	050-S10/SS01 6/27/2006 Surface 06062151
Polychlorinated Biphenyls	UNITS						
Aroclor-1254	mg/kg	0.22 / 0.74	4.3 / 9.5	***0.4***	***2.6***	***1***	***2.2***
Aroclor-1268	mg/kg	NA	NA	NA	NA	NA	NA

Notes:

1. All data screened against the USEPA Region 9 PRGs (residential). All exceedances are shaded.
2. Points 050-S11A - 050-S15A were resampled on 11/07/06. Original samples were taken east of the former transformer station footprint. Data for these locations has not been validated.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals
KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards
res/ind - residential / industrial
NA - not applicable / not analyzed
mg/kg - milligrams per kilogram
J - qualified as estimated during QC evaluation
R - data was rejected
U - compound was not detected

Table 11-1
Soil Detections
PCB Transformer Sites (FTRI-050)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: Date Sampled: Sample Depth: Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	050-S11A/SS01 11/07/2006 Surface 06110466 (Note 2)	050-S12A/SS01 11/07/2006 Surface 06110467 (Note 2)	050-S12A/SS11 11/07/2006 Surface 06110468 Duplicate (Note 2)	050-S13A/SS11 11/07/2006 Surface 06110465 (Note 2)
Polychlorinated Biphenyls	UNITS						
Aroclor-1254	mg/kg	0.22 / 0.74	4.3 / 9.5	0.06 U	***0.10 J***	***0.10 J***	***0.13 J***
Aroclor-1268	mg/kg	NA	NA	NA	NA	NA	NA

Notes:

1. All data screened against the USEPA Region 9 PRGs (residential). All exceedances are shaded.
2. Points 050-S11A - 050-S15A were resampled on 11/07/06. Original samples were taken east of the former transformer station footprint. Data for these locations has not been validated.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals
KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards
res/ind - residential / industrial
NA - not applicable / not analyzed
mg/kg - milligrams per kilogram
J - qualified as estimated during QC evaluation
R - data was rejected
U - compound was not detected

Table 11-1
Soil Detections
PCB Transformer Sites (FTRI-050)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	050-S14A/SS01 11/07/2006 Surface 06110464 (Note 2)	050-S15A/SS01 11/07/2006 Surface 06110463 (Note 2)	050-S16/SS01 6/27/2006 Surface 06062139	050-S17/SS01 6/27/2006 Surface 06062135
Polychlorinated Biphenyls	UNITS						
Aroclor-1254	mg/kg	0.22 / 0.74	4.3 / 9.5	0.06 U	0.06 U	***0.16***	***0.56***
Aroclor-1268	mg/kg	NA	NA	NA	NA	NA	NA

Notes:

1. All data screened against the USEPA Region 9 PRGs (residential). All exceedances are shaded.
2. Points 050-S11A - 050-S15A were resampled on 11/07/06. Original samples were taken east of the former transformer station footprint. Data for these locations has not been validated.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals
KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards
res/ind - residential / industrial
NA - not applicable / not analyzed
mg/kg - milligrams per kilogram
J - qualified as estimated during QC evaluation
R - data was rejected
U - compound was not detected

Table 11-1
Soil Detections
PCB Transformer Sites (FTRI-050)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	050-S18/SS01 6/27/2006 Surface 06062136	050-S19/SS01 6/27/2006 Surface 06062138	050-S20/SS01 6/27/2006 Surface 06062137	050-S21/SS01 6/27/2006 Surface 06062131
Polychlorinated Biphenyls	UNITS						
Aroclor-1254	mg/kg	0.22 / 0.74	4.3 / 9.5	0.05 U	***0.06***	***0.31***	0.05 U
Aroclor-1268	mg/kg	NA	NA	NA	NA	NA	NA

Notes:

1. All data screened against the USEPA Region 9 PRGs (residential). All exceedances are shaded.
2. Points 050-S11A - 050-S15A were resampled on 11/07/06. Original samples were taken east of the former transformer station footprint. Data for these locations has not been validated.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals
KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards
res/ind - residential / industrial
NA - not applicable / not analyzed
mg/kg - milligrams per kilogram
J - qualified as estimated during QC evaluation
R - data was rejected
U - compound was not detected

Table 11-1
Soil Detections
PCB Transformer Sites (FTRI-050)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: / Date Sampled: / Sample Depth: / Laboratory Number:		USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	050-S22/SS01 6/27/2006 Surface 06062132	050-S23/SS01 6/27/2006 Surface 06062130	050-S24/SS01 6/27/2006 Surface 06062129	050-S25/SS01 6/27/2006 Surface 06062133
Polychlorinated Biphenyls	UNITS						
Aroclor-1254	mg/kg	0.22 / 0.74	4.3 / 9.5	0.05 U	0.06 U	0.06 U	0.06 U
Aroclor-1268	mg/kg	NA	NA	NA	NA	NA	***0.27 R***

Notes:

1. All data screened against the USEPA Region 9 PRGs (residential). All exceedances are shaded.
2. Points 050-S11A - 050-S15A were resampled on 11/07/06. Original samples were taken east of the former transformer station footprint. Data for these locations has not been validated.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals
KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards
res/ind - residential / industrial
NA - not applicable / not analyzed
mg/kg - milligrams per kilogram
J - qualified as estimated during QC evaluation
R - data was rejected
U - compound was not detected

Table 11-1
Soil Detections
PCB Transformer Sites (FTRI-050)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

		Sample Point:	USEPA Region	KDHE RSKs	050-S25/SS11
		Date Sampled:	9 PRGs (res/ind)	(res/ind)	6/27/2006
		Sample Depth:			Surface
		Laboratory Number:			06062134
					Duplicate
Polychlorinated Biphenyls	UNITS				
Aroclor-1254	mg/kg		0.22 / 0.74	4.3 / 9.5	0.06 U
Aroclor-1268	mg/kg		NA	NA	NA

Notes:

1. All data screened against the USEPA Region 9 PRGs (residential). All exceedances are shaded.
2. Points 050-S11A - 050-S15A were resampled on 11/07/06. Original samples were taken east of the former transformer station footprint. Data for these locations has not been validated.

USEPA Region 9 PRGs - U.S. Environmental Protection Agency Region 9 Preliminary Remediation Goals
KDHE RSKs - Kansas Dept of Health and Environment Risk-Based Standards
res/ind - residential / industrial
NA - not applicable / not analyzed

mg/kg - milligrams per kilogram
J - qualified as estimated during QC evaluation
R - data was rejected
U - compound was not detected

Table 10-1
Wipe Detections
Mercury Contamination Areas (FTRI-049)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

Sample Point: Date Sampled: Sample Depth: Laboratory Number:		Screening Criteria (See Notes)	049-W01/WP01 6/28/2006 WIPE 06062621	049-W02/WP01 6/28/2006 WIPE 06062622	049-W02/WP01 6/28/2006 WIPE 06062623 Duplicate	049-W03/WP01 6/28/2006 WIPE 06062626	049-W04/WP01 6/28/2006 WIPE 06062627
Metals, Total	UNITS						
Mercury, Total	ug/100 cm^2	1.57 ug/100cm^2	***0.25***	***0.16***	***0.06***	***0.66***	***0.91 J***

Notes:
Screening criteria for mercury is based on an evaluation performed by the World Trade Center Indoor Air Task Force Working Group (2003).
All exceedances are shaded.

ug/100cm^2 - micrograms per 100 square centimeters
J - qualified as estimated during the QC evaluation

Table 10-1
Wipe Detections
Mercury Contamination Areas (FTRI-049)
Pesticide / PCB Sites
Expanded Site Investigation
Fort Riley, Kansas

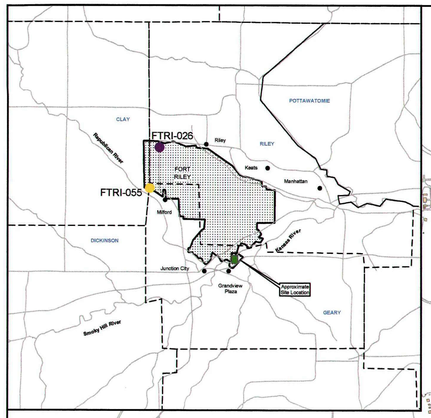
	Sample Point: Date Sampled: Sample Depth: Laboratory Number:	Screening Criteria (See Notes)	049-W05/WP01 6/28/2006 WIPE 06062619	049-W06/WP01 6/28/2006 WIPE 06062620	049-W07/WP01 6/28/2006 WIPE 06062624	049-W08/WP01 6/28/2006 WIPE 06062625
Metals, Total	UNITS					
Mercury, Total	ug/100 cm^2	1.57 ug/100cm^2	***11.5***	***8.9***	***0.65***	***0.57***

Notes:

Screening criteria for mercury is based on an evaluation performed b
World Trade Center Indoor Air Task Force Working Group (2003).
All exceedances are shaded.

ug/100cm^2 - micrograms per 100 square centimeters
J - qualified as estimated during the QC evaluation

Figures



FTRI-020
FTRI-020
FTRI-020
FTRI-017
FTRI-016
FTRI-039
FTRI-023
FTRI-048
FTRI-048
FTRI-049
FTRI-005
FTRI-057
FTRI-002
FTRI-052
FTRI-043
FTRI-048
FTRI-037
FTRI-013
FTRI-050
FTRI-043
FTRI-014
FTRI-049
FTRI-050
FTRI-050
FTRI-049
FTRI-024
FTRI-043
FTRI-043
FTRI-045
FTRI-025
FTRI-047
FTRI-041
FTRI-007/008
FTRI-004
FTRI-049
FTRI-051
FTRI-018
FTRI-050
FTRI-048
FTRI-010
FTRI-006
FTRI-012
FTRI-041
FTRI-015
FTRI-022
FTRI-036
FTRI-029
FTRI-028
I-1
N-1
M02-02
R02-02
Private Wells
Public Supply Well
CUSTER HILL
CAMP WHITSIDE
MAIN POST
CAMP FORSYTH
CAMP FUNSTON
MARSHALL ARMY AIRFIELD
TOWN OF OGDEN
SOUTHEAST FUNSTON LANDFILL
WATERFOWL MANAGEMENT AREA
1ST DIVISION ROAD
KITTY DRIVE
REPENNINES DRIVE
NORMANDY DRIVE
TROOPER DRIVE
THOMAS AVENUE
HAMPTON PLACE
WILLISTON POINT ROAD
CARSON HILL ROAD
FORSYTH HOUSING COMPLEX
RIFLE RANGE ROAD
McCORMICK ROAD
HUEBNER ROAD
CUSTER ROAD
GRANT AVENUE
STUART AVENUE
DICKMAN AVENUE
MARSHALL AVENUE
RAY ROAD
HENRY DRIVE
MARSHALL DRIVE
INTERSTATE 70
UNION PACIFIC RAILROAD
CAMPBELL HILL ROAD
SUMMER HILL ROAD
FOURTH STREET EXTENSION
THREE MILE CREEK
FORSYTH CREEK
WELL HOUSE ROAD
KANSAS HIGHWAY 18
FIRST STREET
SECOND STREET
THIRD STREET
FOURTH STREET
SEVENTH STREET
TENTH STREET
TWELFTH STREET
A STREET
E STREET
F STREET
G STREET
K STREET
L STREET
LEVEE
OXBOW LAKE
KANSAS RIVER
REPUBLICAN RIVER
SMOKY HILL RIVER
3RD STREET
4TH STREET
5TH STREET
6TH STREET
7TH STREET

LEGEND

- Pesticide/PCB Sites
- Wastewater Sites
- Petroleum/VOC Sites
- Former Landfills/Incinerators
- Petroleum, Oil & Lubricant Sites
- Well (Private/Public Supply)
- Buildings
- Railroad
- Roads

1,000 0 2,000
SCALE IN FEET

NORTH

Burns & McDonnell

Figure 1
ESI Site Map

ESI Report
Fort Riley, Kansas

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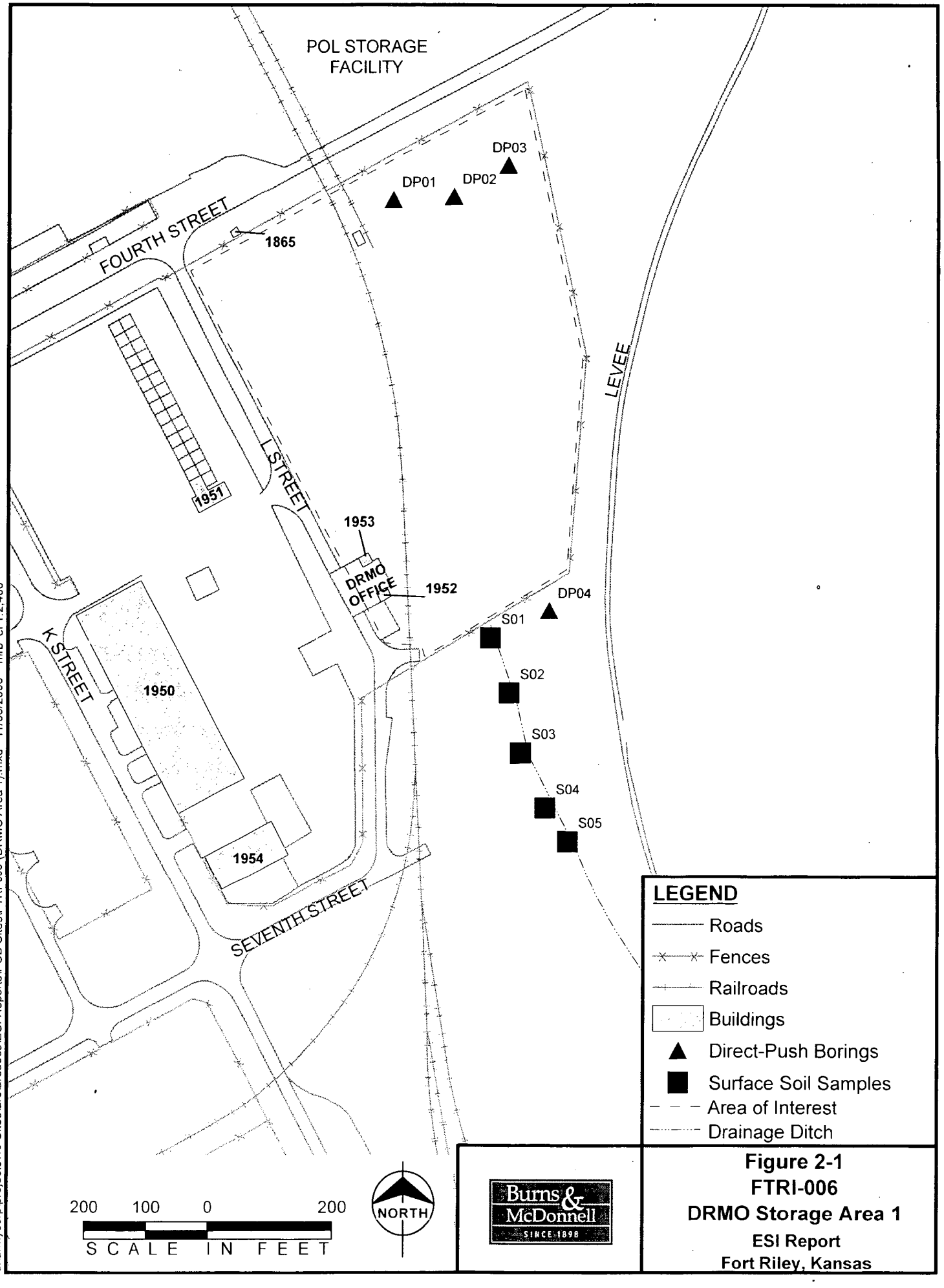
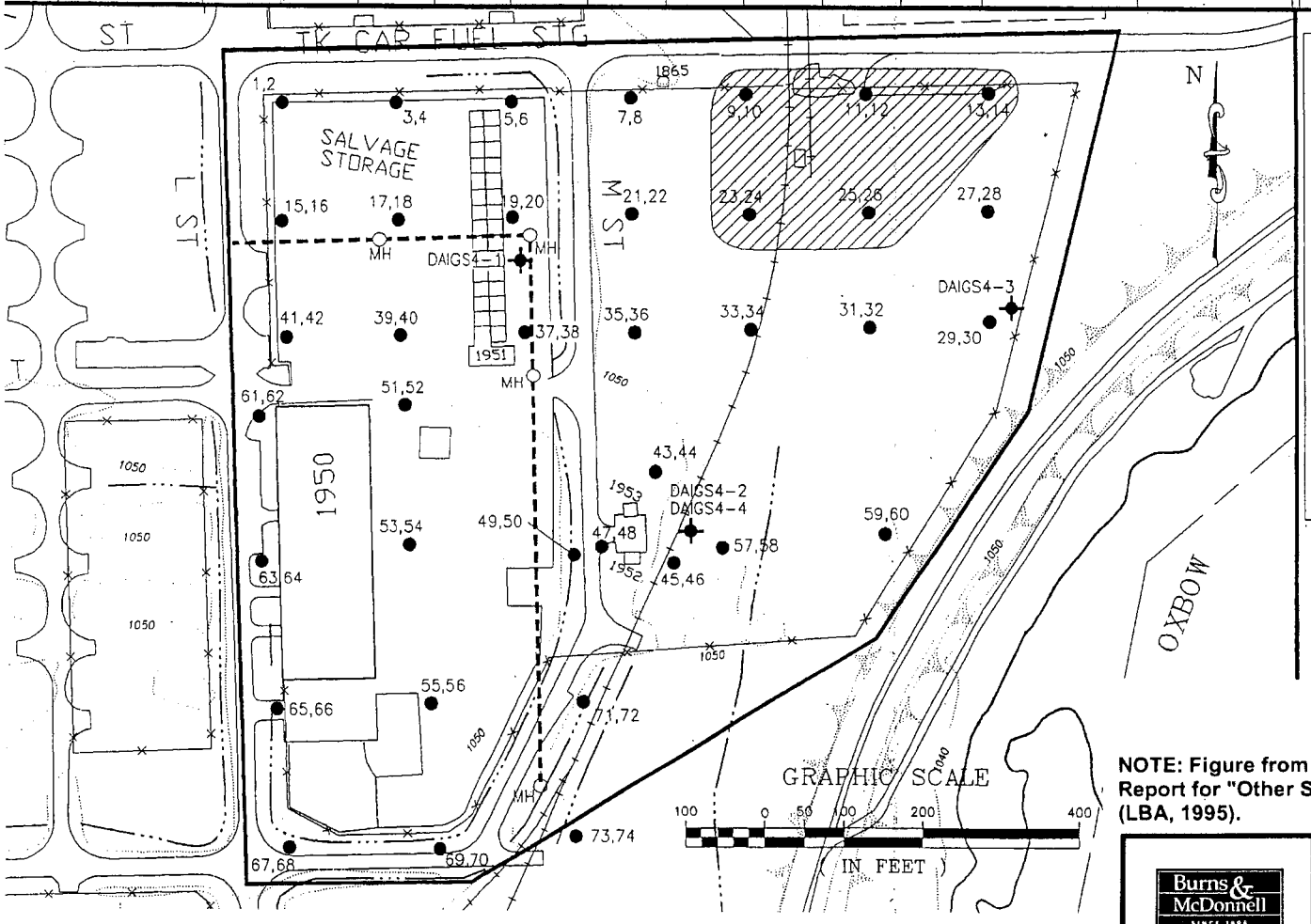

POL STORAGE FACILITY
DP03
DP01
DP02
FOURTH STREET
1865
LEVEE
L STREET
1951
1953
DRMO OFFICE
1952
DP04
S01
K STREET
1950
S02
S03
S04
S05
1954
SEVENTH STREET
LEGEND
Roads
Fences
Railroads
Buildings
Direct-Push Borings
Surface Soil Samples
Area of Interest
Drainage Ditch
200 100 0 200
SCALE IN FEET
NORTH
Burns & McDonnell
SINCE 1898
Figure 2-1
FTRI-006
DRMO Storage Area 1
ESI Report
Fort Riley, Kansas
u:\armycorp\projects\49 Sites\arc\arcdocs\ESI Reports\PCB Sites\FTRI-006 (DRMO Area 1).mxd 11/06/2006 mrb el 1:2,400

ANALYTES IN ug/L — SOIL GAS LOCATION (DEPTH)	6 (12')	9 (4')	10 (10')	11 (4')	12 (12')	13 (4')	14 (12')	15 (4')	24 (12')	26 (12')
BENZENE	–	44.0	1170.0	47.0	248.0	8.0	4.0	5.0	65.0	79.0
TOLUENE	–	–	450.0	19.0	234.0	9.0	5.0	6.0	2.0	–
ETHYLBENZENE	–	–	157.0	–	26.0	–	–	–	–	–
XYLENES	–	–	257.0	–	83.0	–	–	–	–	–
CHLOROFORM	–	–	–	–	–	–	–	–	–	5.0
PCE	0.2	–	–	–	–	0.3	–	–	–	–
1,1,1 TCA	–	–	–	–	0.2	–	–	–	–	–
BTEX (TOTAL FID)	–	44	2039	67	591	17	9	11	67	79

ALL OTHER SAMPLES HAD NO SOIL GAS DETECTIONS.

ANALYTES IN ug/L — LOCATION (DAIGS4–)	4
TOLUENE	2.8

THERE WERE NO OTHER GROUNDWATER SCREENING DETECTIONS.



LEGEND

- GROUNDWATER SCREENING SAMPLE
- SOIL GAS (4 & 12')
- PETROLEUM DETECTIONS EXCEEDED SAP THRESHOLDS
- ELEVATION CONTOUR
- DRAINAGE
- BUILDING
- AREA OF CONCERN
- ROAD
- RAIL LINE
- FENCE LINE
- LEVEE
- SEWER LINE
- MH MANHOLE

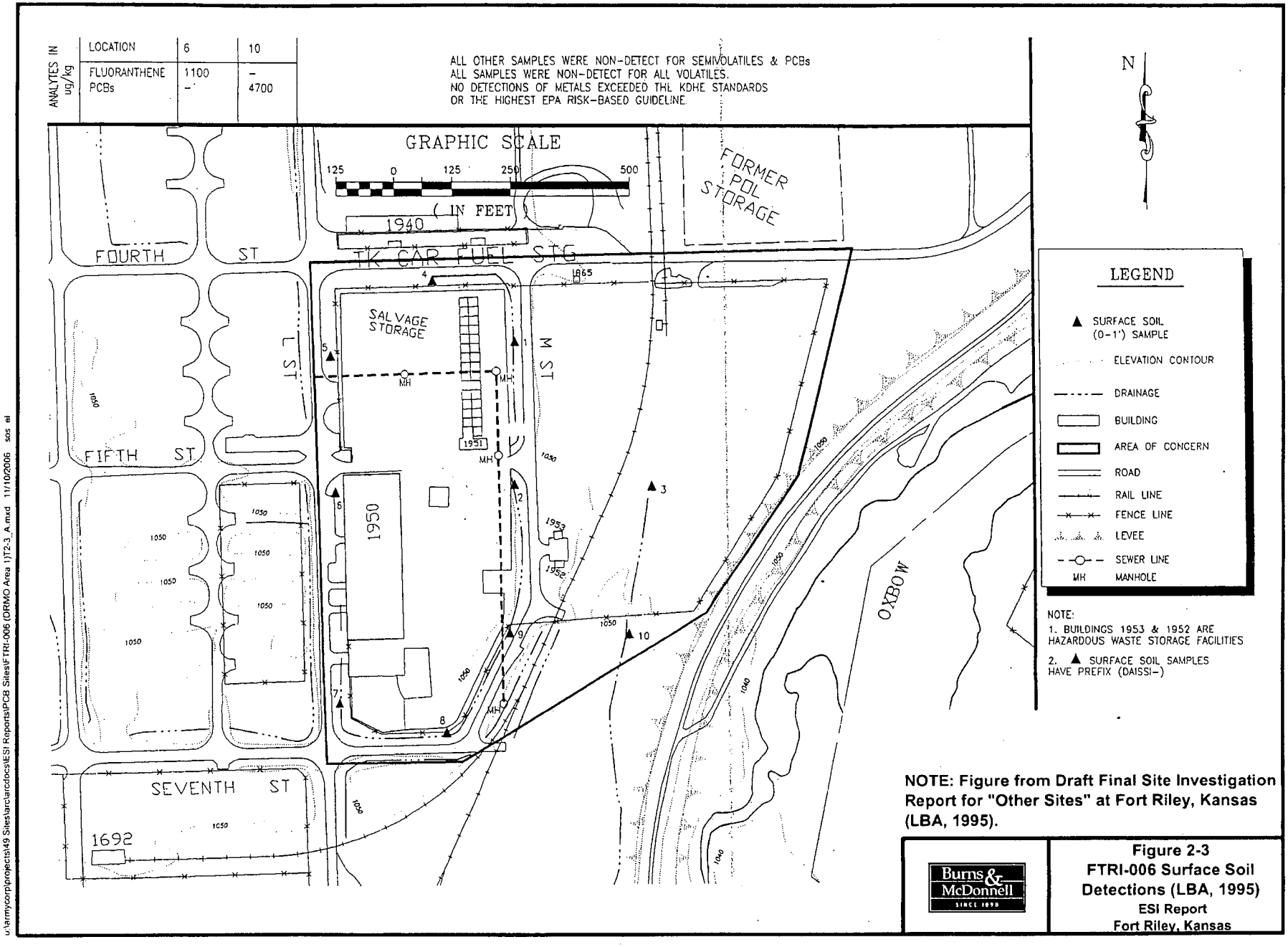
NOTE:
1. BUILDINGS 1953 & 1952 ARE HAZARDOUS WASTE STORAGE FACILITY
2. ● SOIL GAS SAMPLES HAVE PREFIX (DAISGI–)

NOTE: Figure from Draft Final Site Investigation Report for "Other Sites" at Fort Riley, Kansas (LBA, 1995).

Burns & McDonnell SINCE 1898

Figure 2-2
FTRI-006 Soil Gas & Groundwater Screening Detections (LBA, 1995)
ESI Report
Fort Riley, Kansas

u:\armycorp\projects\49 Sites\arclacdocs\ESI Reports\PCB Sites\FTRI-006 (DRMO Area 1)\T2-2.mxd 11/10/2006 sos el

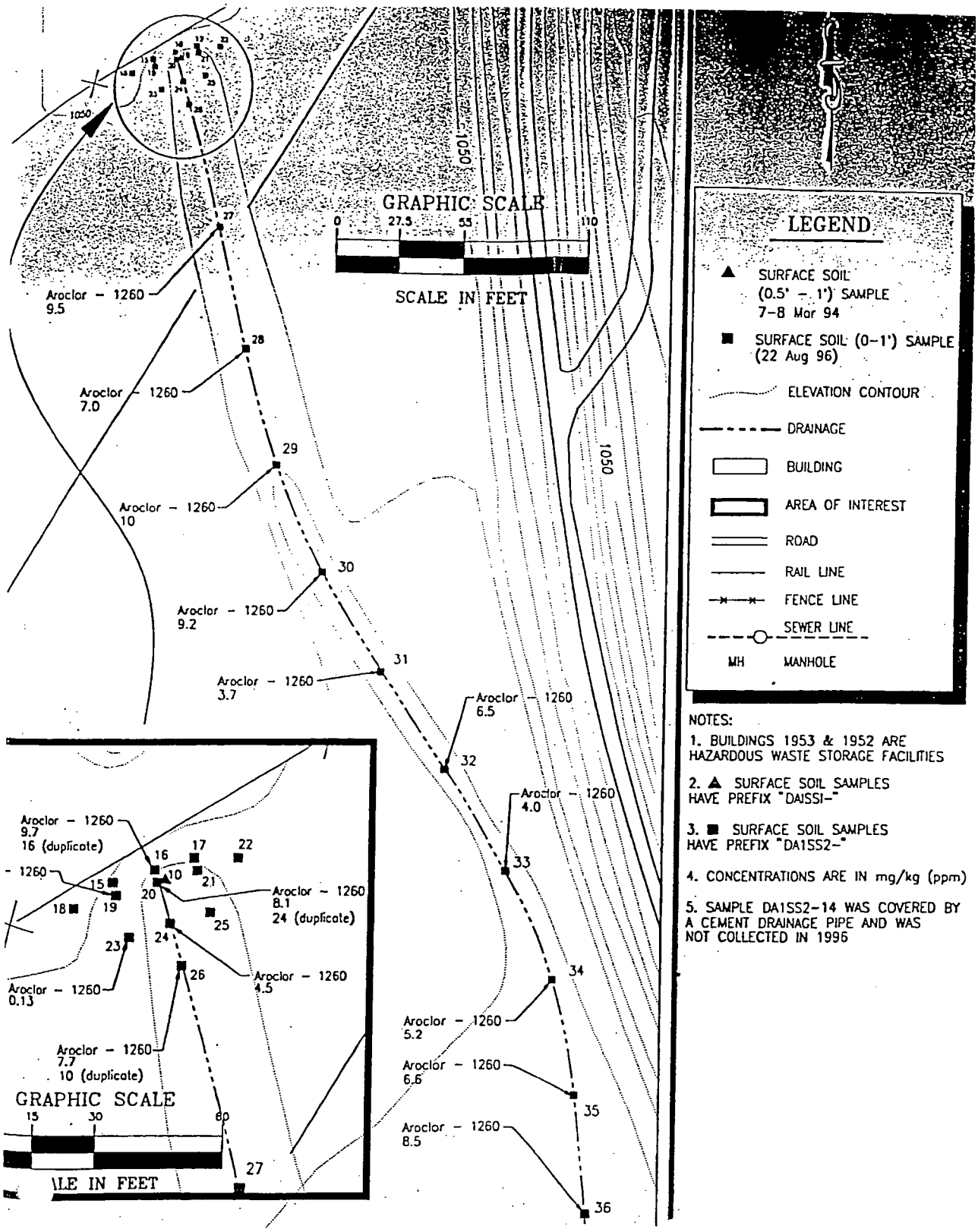


NOTE: Figure from Draft Final Site Investigation Report for "Other Sites" at Fort Riley, Kansas (LBA, 1995).

Burns & McDonnell SINCE 1898

Figure 2-3
FTRI-006 Surface Soil Detections (LBA, 1995)
ESI Report
Fort Riley, Kansas

u:\armycorp\projects\49 Sitestarc\arcdocs\ESI Reports\PCB Sites\FTRI-006 (DRMO Area 1)\T2-3_A.mxd 11/10/2006 sos el



NOTES:

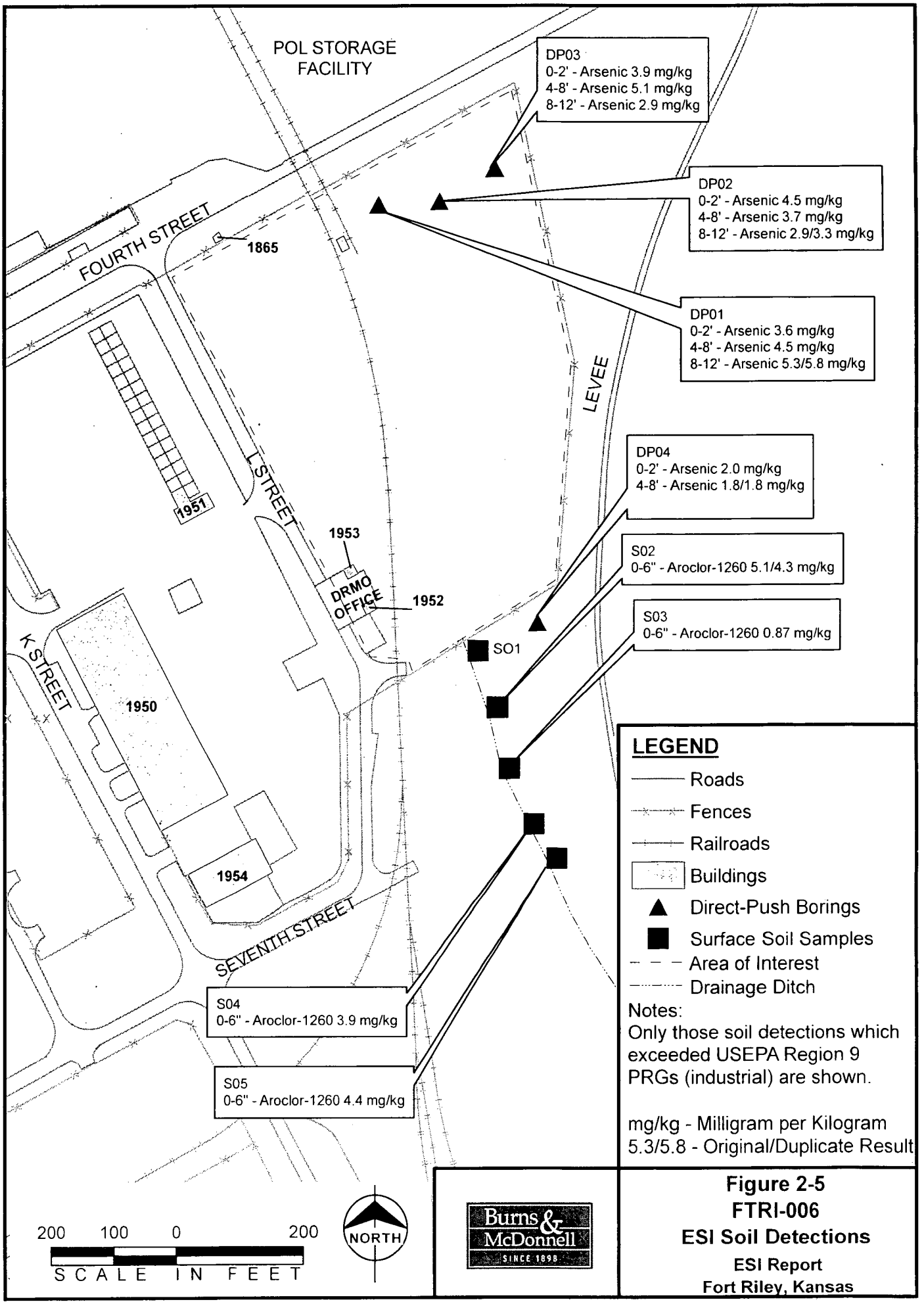
1. BUILDINGS 1953 & 1952 ARE HAZARDOUS WASTE STORAGE FACILITIES
2. ▲ SURFACE SOIL SAMPLES HAVE PREFIX "DA1SS1-"
3. ■ SURFACE SOIL SAMPLES HAVE PREFIX "DA1SS2-"
4. CONCENTRATIONS ARE IN mg/kg (ppm)
5. SAMPLE DA1SS2-14 WAS COVERED BY A CEMENT DRAINAGE PIPE AND WAS NOT COLLECTED IN 1996

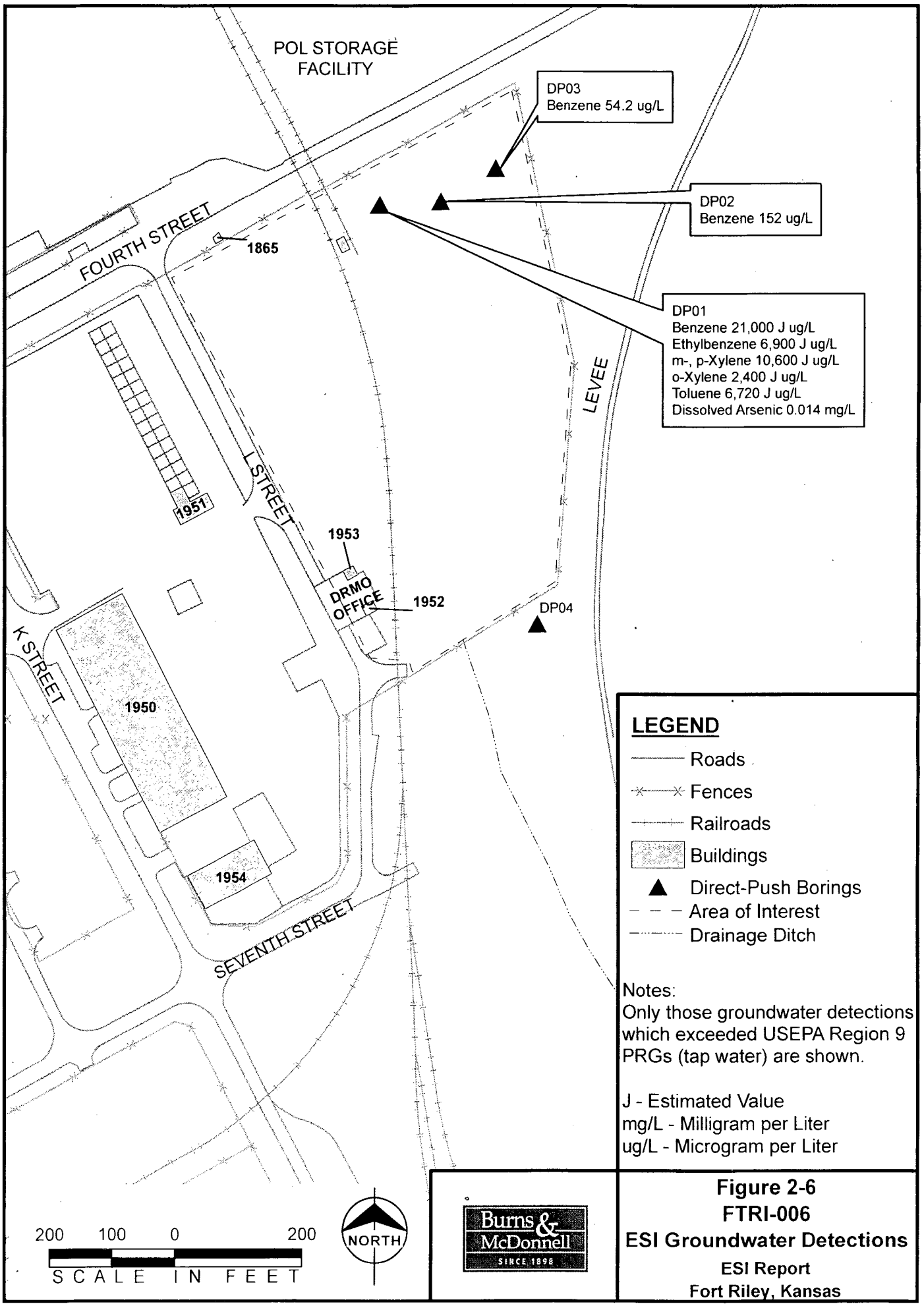
NOTE:Figure from Decision Memorandum for DRMO Storage Area 1 at Fort Riley, Kansas (LBA, 1998)

Burns & McDonnell SINCE 1898

Figure 2-4
FTRI-006 Surface Soil Detections (LBA, 1998)
ESI Report
Fort Riley, Kansas

u:\armycorp\projects\49 Sites\arc\arcdocs\ESI Reports\PCB Sites\FTRI-006 (DRMO Area 1)T2-4_A.mxd 2/28/2007 mrb sos el


POL STORAGE FACILITY
DP03
0-2' - Arsenic 3.9 mg/kg
4-8' - Arsenic 5.1 mg/kg
8-12' - Arsenic 2.9 mg/kg
DP02
0-2' - Arsenic 4.5 mg/kg
4-8' - Arsenic 3.7 mg/kg
8-12' - Arsenic 2.9/3.3 mg/kg
DP01
0-2' - Arsenic 3.6 mg/kg
4-8' - Arsenic 4.5 mg/kg
8-12' - Arsenic 5.3/5.8 mg/kg
DP04
0-2' - Arsenic 2.0 mg/kg
4-8' - Arsenic 1.8/1.8 mg/kg
S02
0-6" - Aroclor-1260 5.1/4.3 mg/kg
S03
0-6" - Aroclor-1260 0.87 mg/kg
SO1
S04
0-6" - Aroclor-1260 3.9 mg/kg
S05
0-6" - Aroclor-1260 4.4 mg/kg
FOURTH STREET
L STREET
K STREET
SEVENTH STREET
LEVEE
1865
1951
1953
1952
1950
1954
DRMO OFFICE
LEGEND
Roads
Fences
Railroads
Buildings
Direct-Push Borings
Surface Soil Samples
Area of Interest
Drainage Ditch
Notes:
Only those soil detections which exceeded USEPA Region 9 PRGs (industrial) are shown.
mg/kg - Milligram per Kilogram
5.3/5.8 - Original/Duplicate Result
200 100 0 200
SCALE IN FEET
NORTH
Burns & McDonnell
SINCE 1898
Figure 2-5
FTRI-006
ESI Soil Detections
ESI Report
Fort Riley, Kansas
u:\armycorp\projects\49 Sites\arcdocs\ESI Reports\PCB Sites\FTRI-006 (DRMO Area 1)soil_A.mxd 12/05/2006 mrb el 1:2,400



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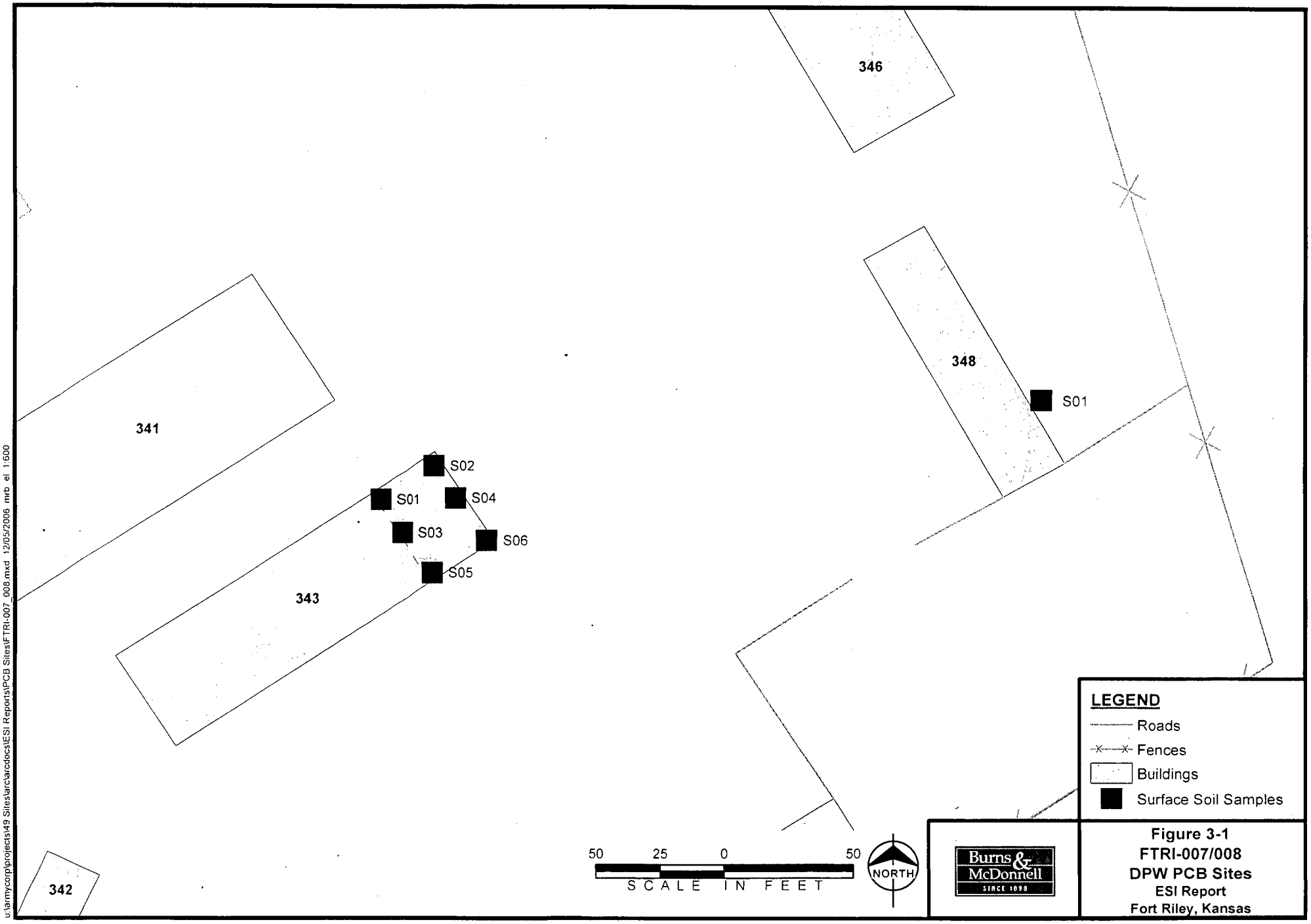

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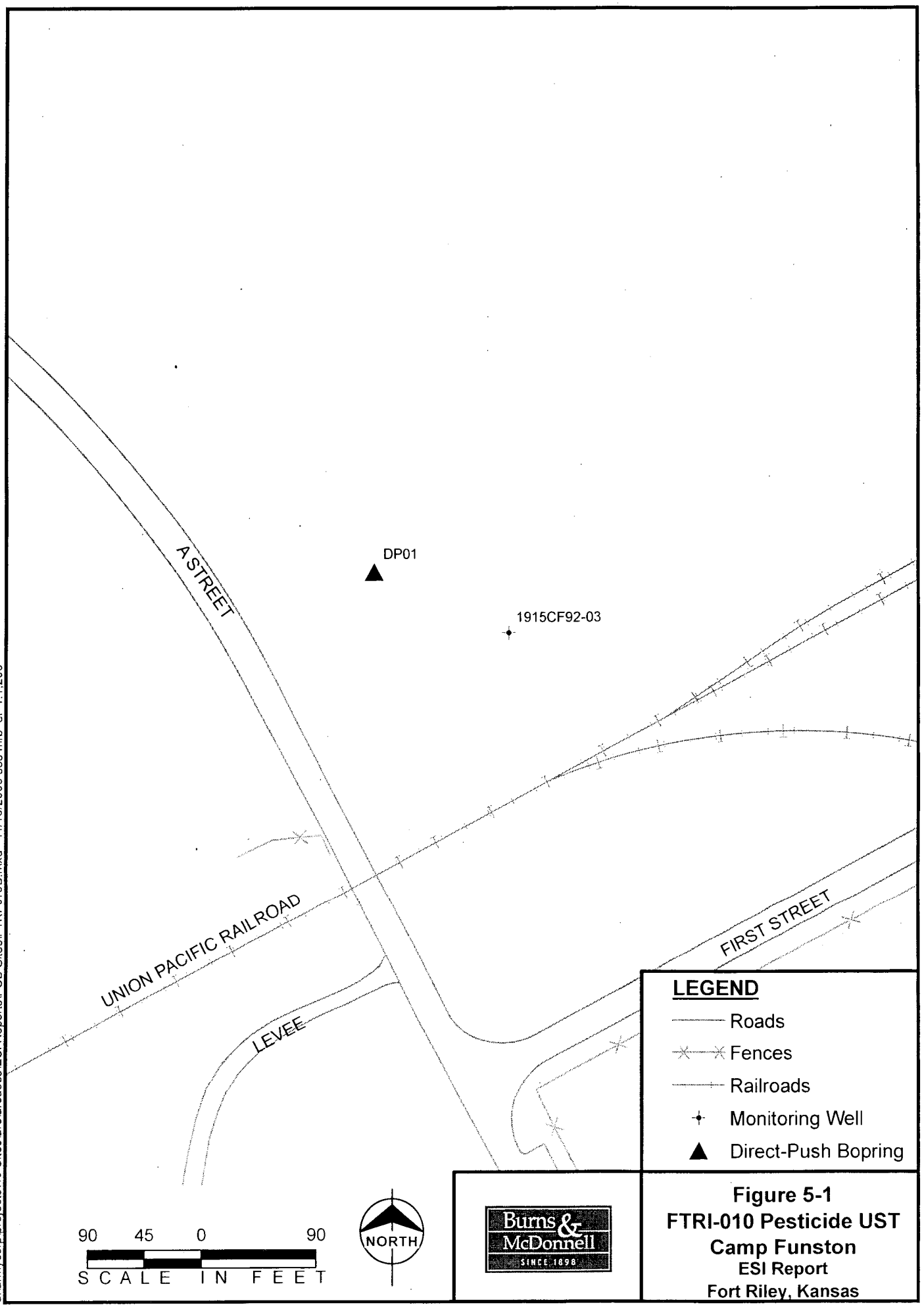
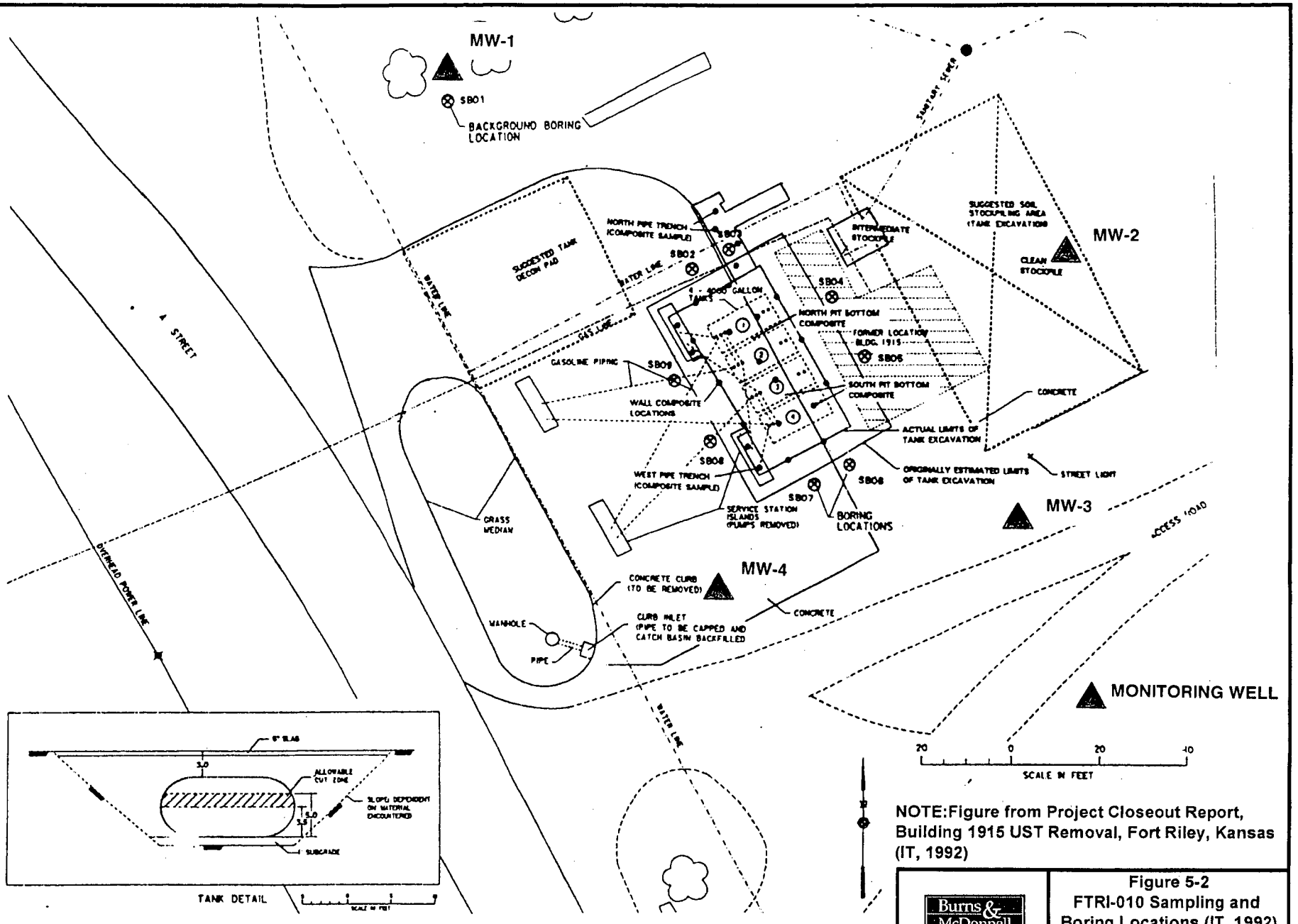

A STREET
DP01
1915CF92-03
UNION PACIFIC RAILROAD
FIRST STREET
LEVEE
LEGEND
Roads
Fences
Railroads
Monitoring Well
Direct-Push Bopring
90 45 0 90
SCALE IN FEET
NORTH
Burns & McDonnell
SINCE 1898
Figure 5-1
FTRI-010 Pesticide UST
Camp Funston
ESI Report
Fort Riley, Kansas
u:\armycorp\projects\49 Sites\arc\arcdocs\ESI Reports\PCB Sites\FTRI-010B.mxd 11/15/2006 sos mrb el 1:1,200

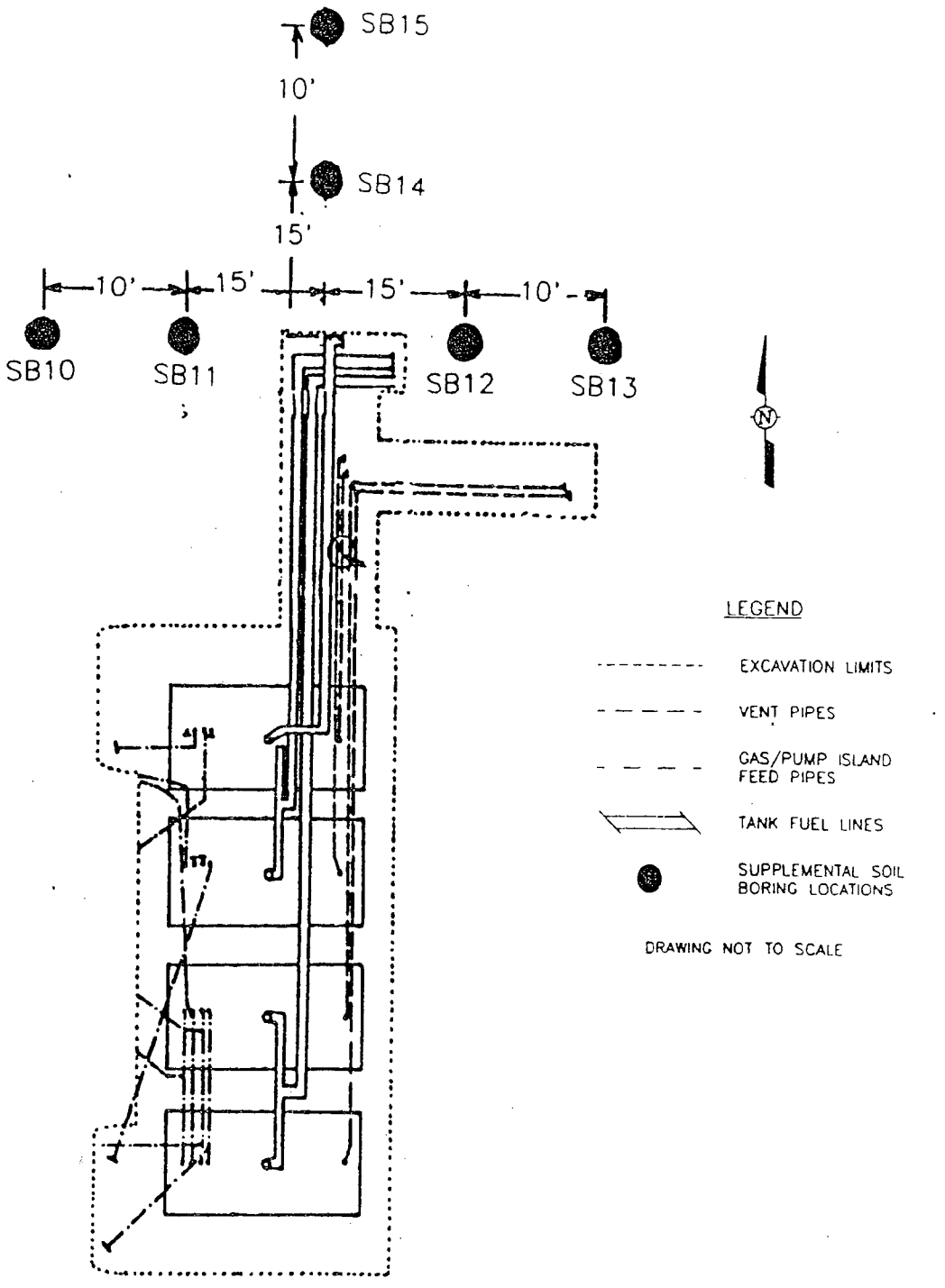


NOTE:Figure from Project Closeout Report, Building 1915 UST Removal, Fort Riley, Kansas (IT, 1992)

Burns & McDonnell
SINCE 1898

Figure 5-2
FTRI-010 Sampling and Boring Locations (IT, 1992)
ESI Report
Fort Riley, Kansas

u:\armycorp\projects\49 Sites\arc\arcdocs\ESI Reports\PCB Sites\FTRI-010 Sampling_BonngLocation.mxd 11/17/2006 sos el

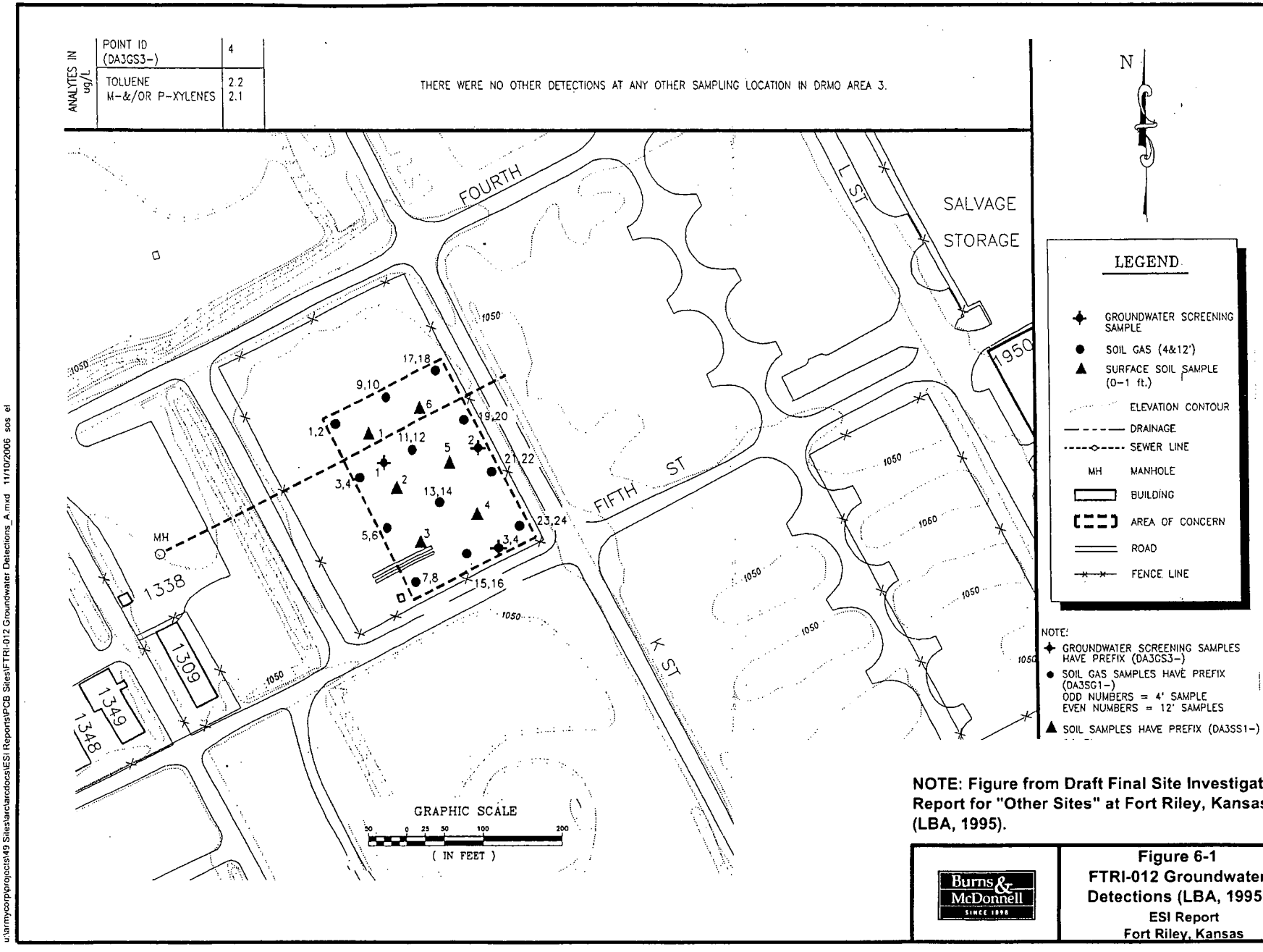


NOTE:Figure from Project Closeout Report, Building 1915 UST Removal, Fort Riley, Kansas (IT, 1992)

Burns & McDonnell SINCE 1898

Figure 5-3
FTRI-010 Supplemental Boring Locations (IT, 1992)
ESI Report
Fort Riley, Kansas

u:\armycorp\projects\49 Sites\arc\arcdocs\ESI Reports\PCB Sites\FTRI-010_SupplementalBoringLocation.mxd 11/14/2006 sos el



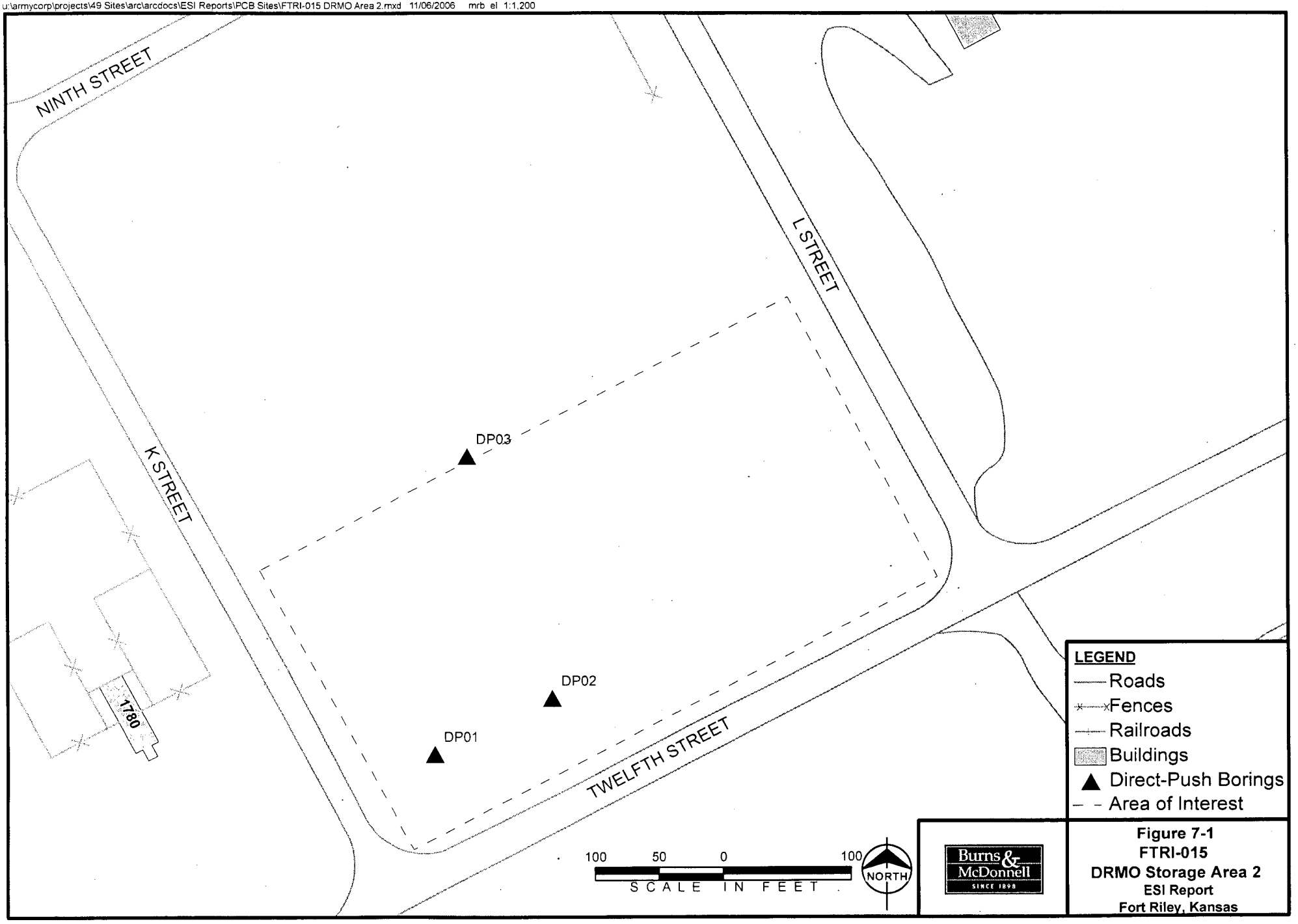
NOTE: Figure from Draft Final Site Investigation Report for "Other Sites" at Fort Riley, Kansas (LBA, 1995).

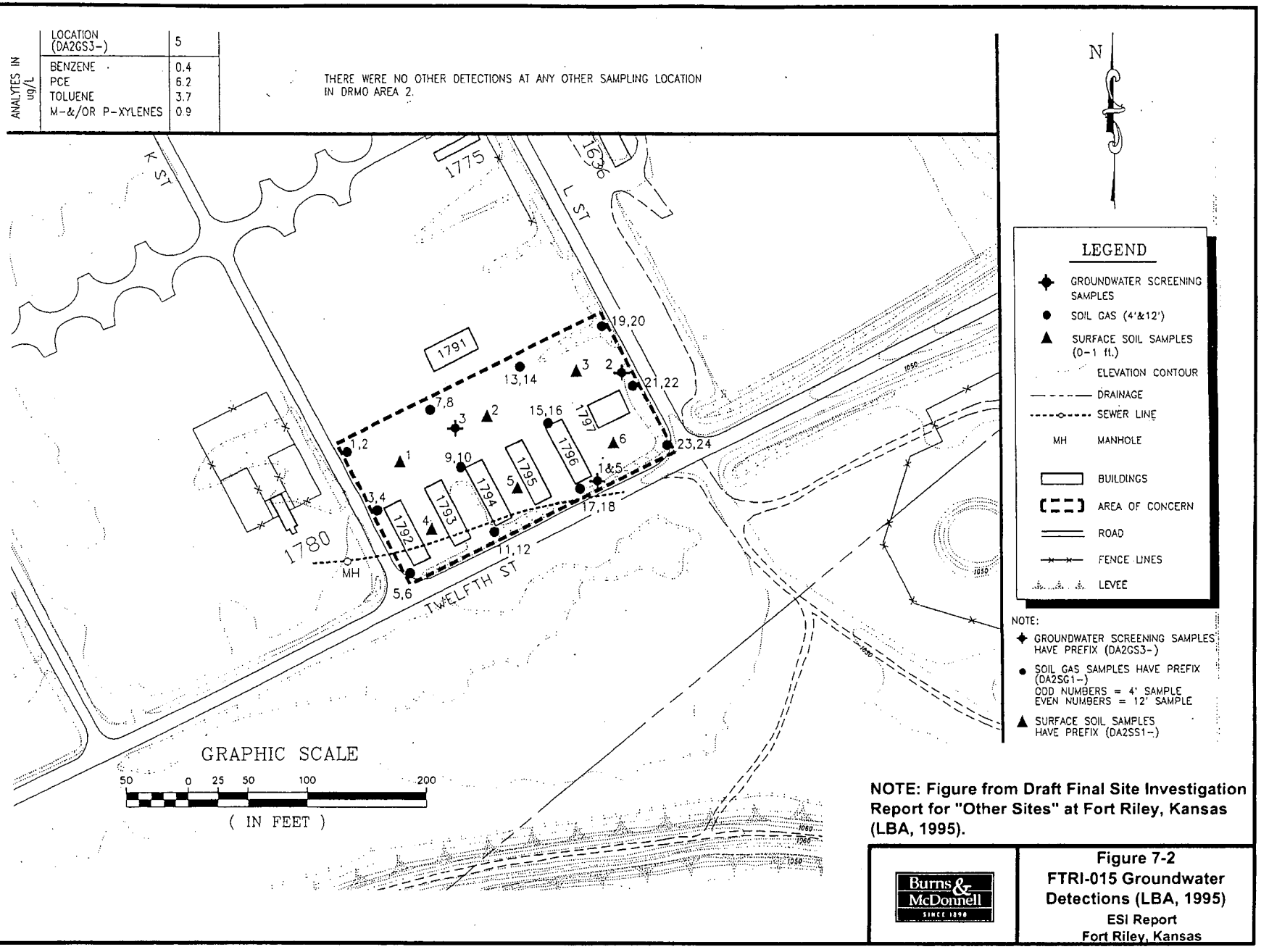
Burns & McDonnell SINCE 1898

Figure 6-1
FTRI-012 Groundwater Detections (LBA, 1995)
ESI Report
Fort Riley, Kansas

u:\armycorp\projects\49 Sites\arlarcdocs\ESI Reports\PCB Sites\FTRI-012 Groundwater Detections_A.mxd 11/10/2006 sos el

u:\armycorp\projects\49 Sites\arc\arcdocs\ESI Reports\PCB Sites\FTRI-015 DRMO Area 2.mxd 11/06/2006 mrb el 1:1,200





NOTE: Figure from Draft Final Site Investigation Report for "Other Sites" at Fort Riley, Kansas (LBA, 1995).

Burns & McDonnell SINCE 1898

Figure 7-2
FTRI-015 Groundwater Detections (LBA, 1995)
ESI Report
Fort Riley, Kansas

u:\armycorp\projects\49 Sites\arcdocs\ESI Reports\PCB Sites\FTRI-015 Groundwater Detections_A.mxd 11/10/2006 sos el

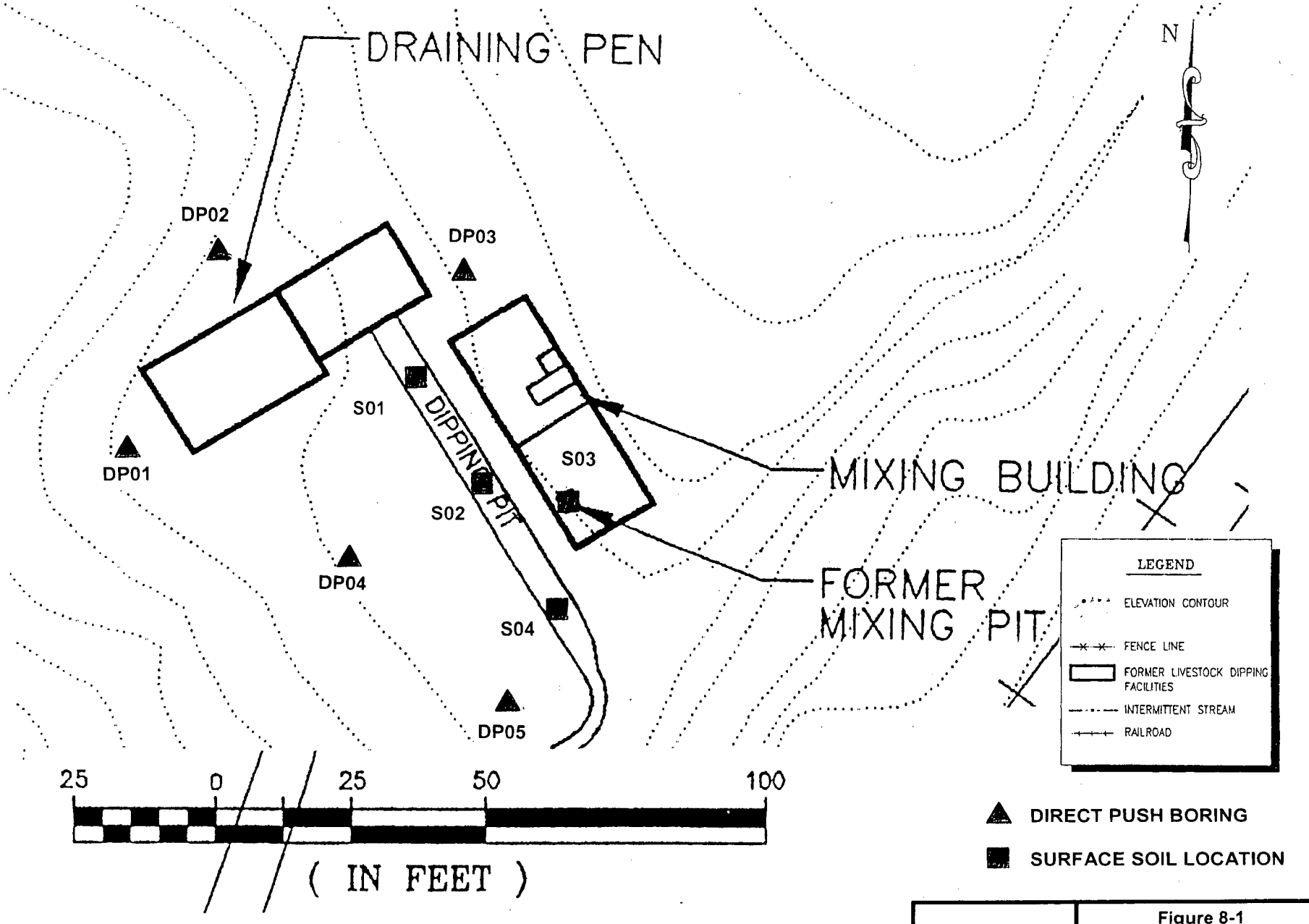
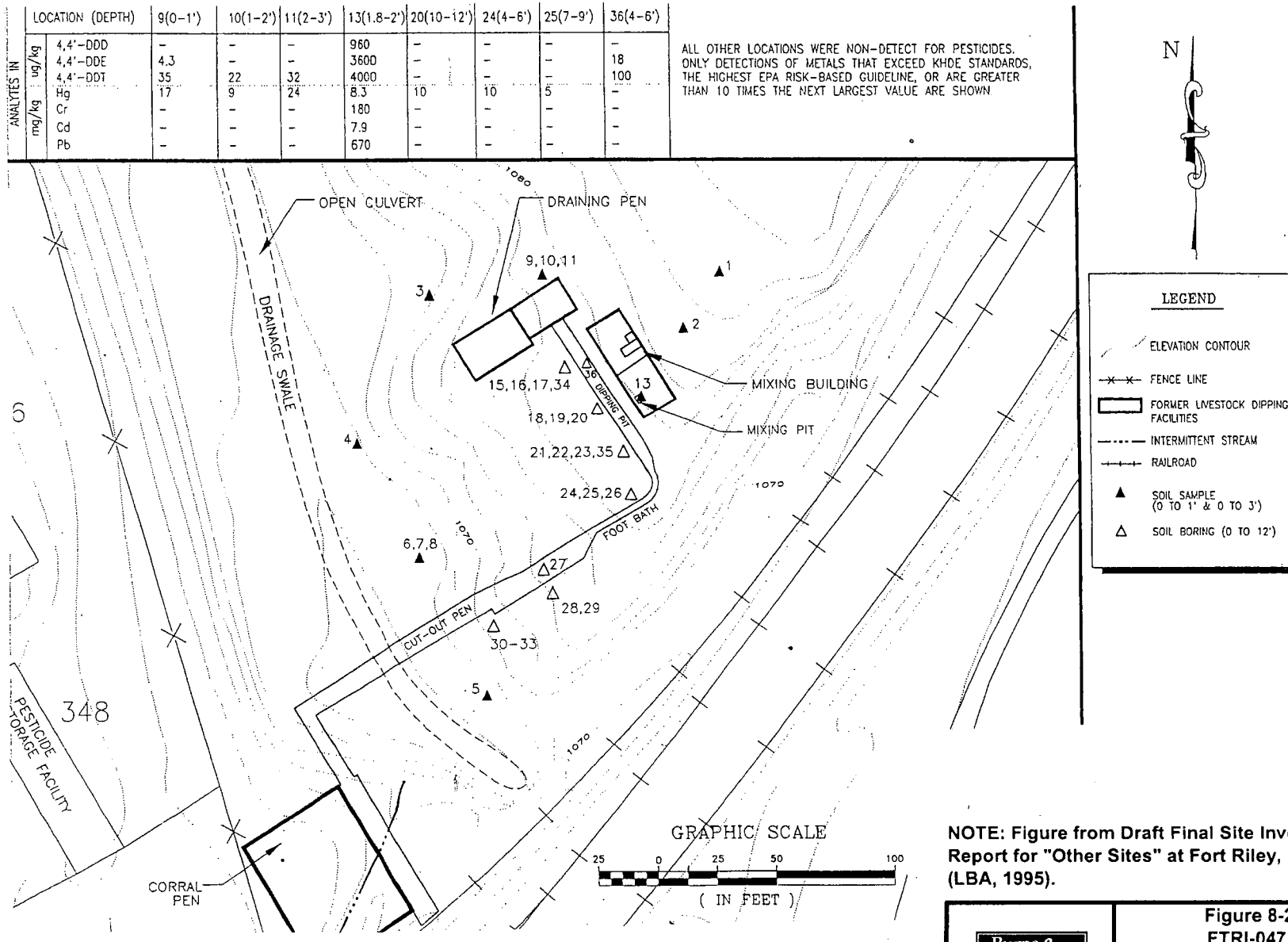


Figure 8-1
FTRI-047
Former Livestock Dipping Facility
ESI Report
Fort Riley, Kansas

ANALYTES IN	LOCATION (DEPTH)	9(0-1')	10(1-2')	11(2-3')	13(1.8-2')	20(10-12')	24(4-6')	25(7-9')	36(4-6')
ug/kg	4,4'-DDD	-	-	-	960	-	-	-	-
	4,4'-DDE	4.3	-	-	3600	-	-	-	18
	4,4'-DDT	35	22	32	4000	-	-	-	100
mg/kg	Hg	17	9	24	8.3	10	10	5	-
	Cr	-	-	-	180	-	-	-	-
	Cd	-	-	-	7.9	-	-	-	-
	Pb	-	-	-	670	-	-	-	-

ALL OTHER LOCATIONS WERE NON-DETECT FOR PESTICIDES. ONLY DETECTIONS OF METALS THAT EXCEED KHDE STANDARDS, THE HIGHEST EPA RISK-BASED GUIDELINE, OR ARE GREATER THAN 10 TIMES THE NEXT LARGEST VALUE ARE SHOWN



NOTE: Figure from Draft Final Site Investigation Report for "Other Sites" at Fort Riley, Kansas (LBA, 1995).

Burns & McDonnell SINCE 1898

Figure 8-2
FTRI-047
Soil Detections (LBA, 1995)
ESI Report
Fort Riley, Kansas

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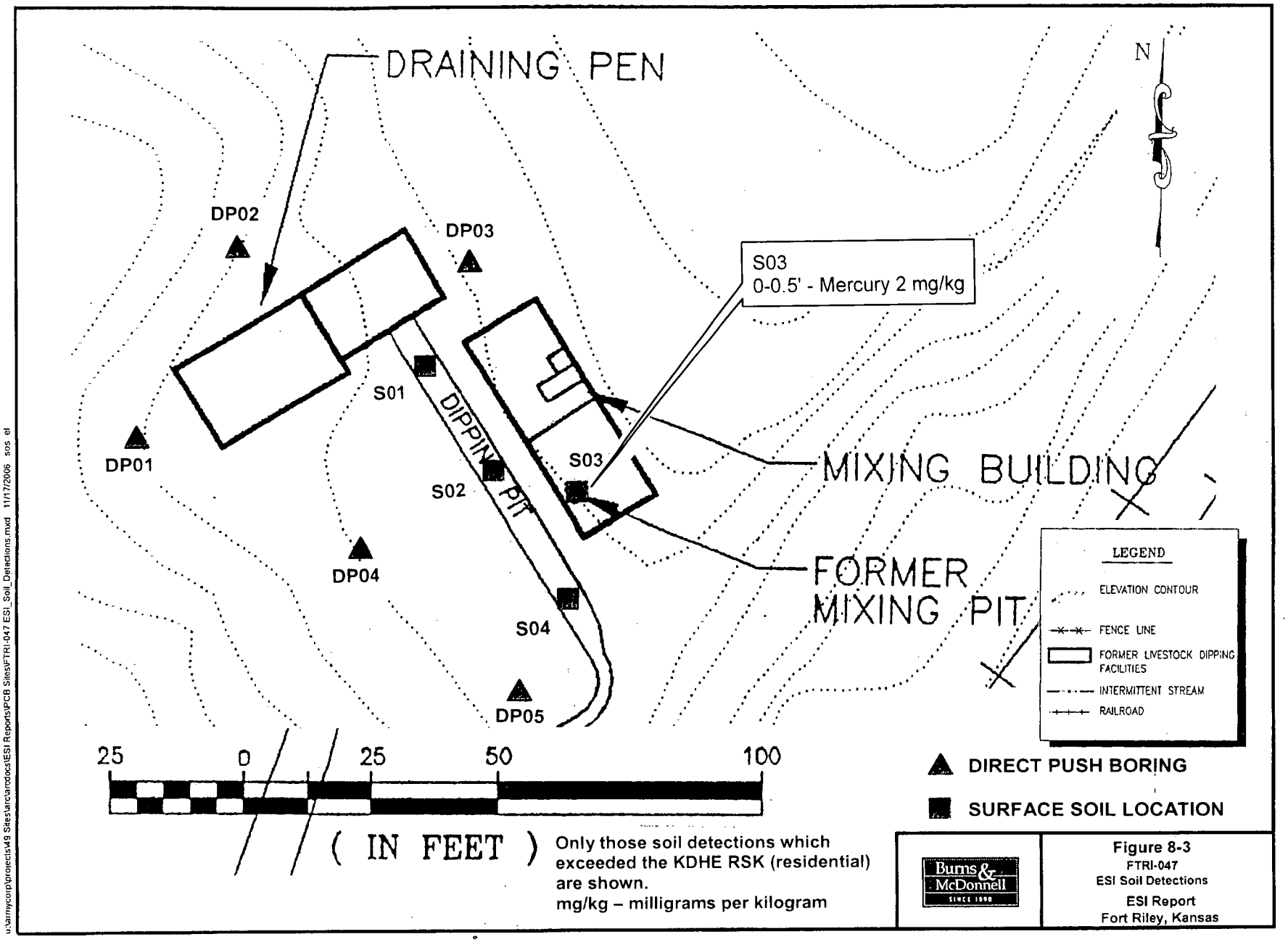

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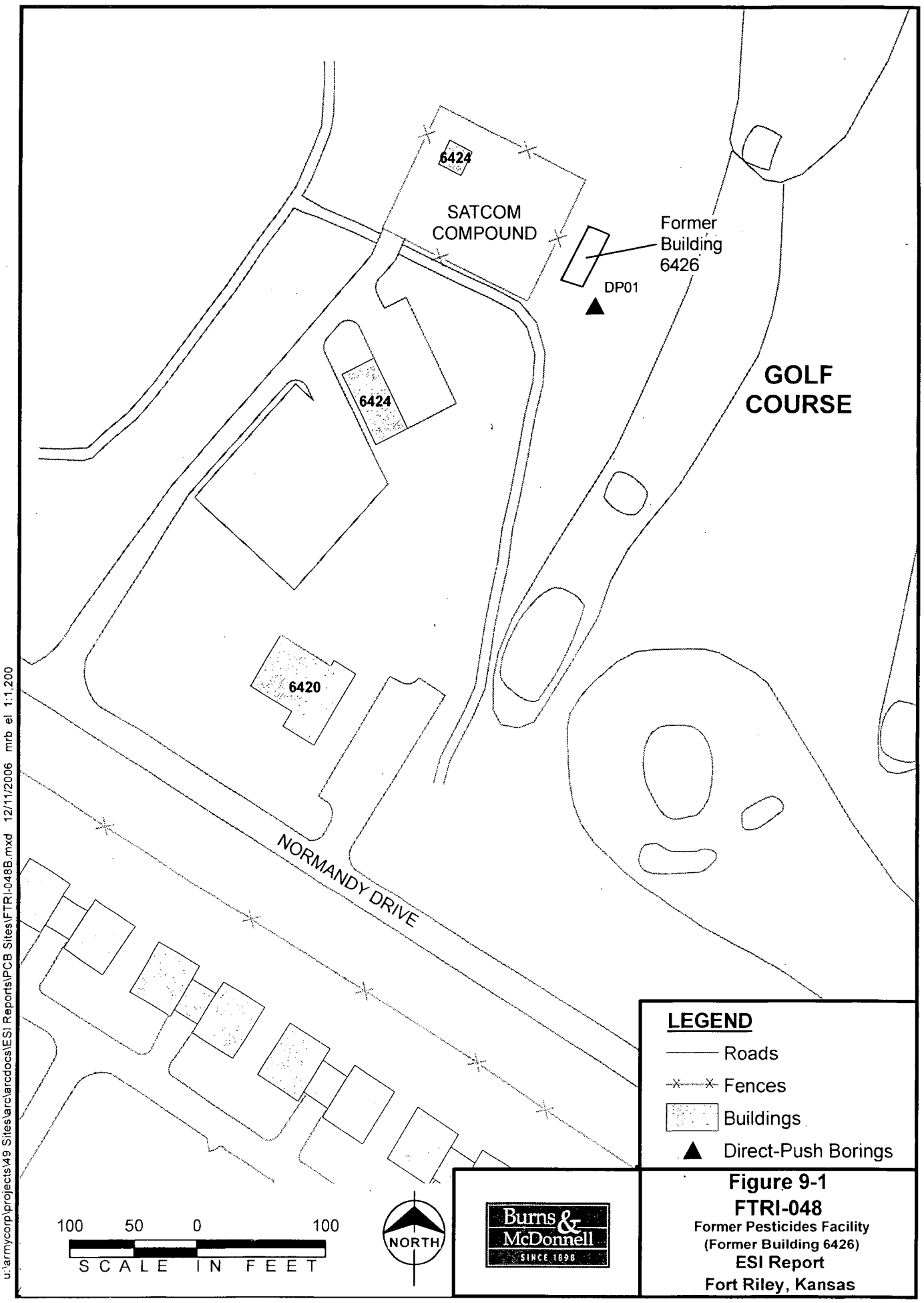

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Figure 9-1
FTRI-048
Former Pesticides Facility
(Former Building 6426)
ESI Report
Fort Riley, Kansas

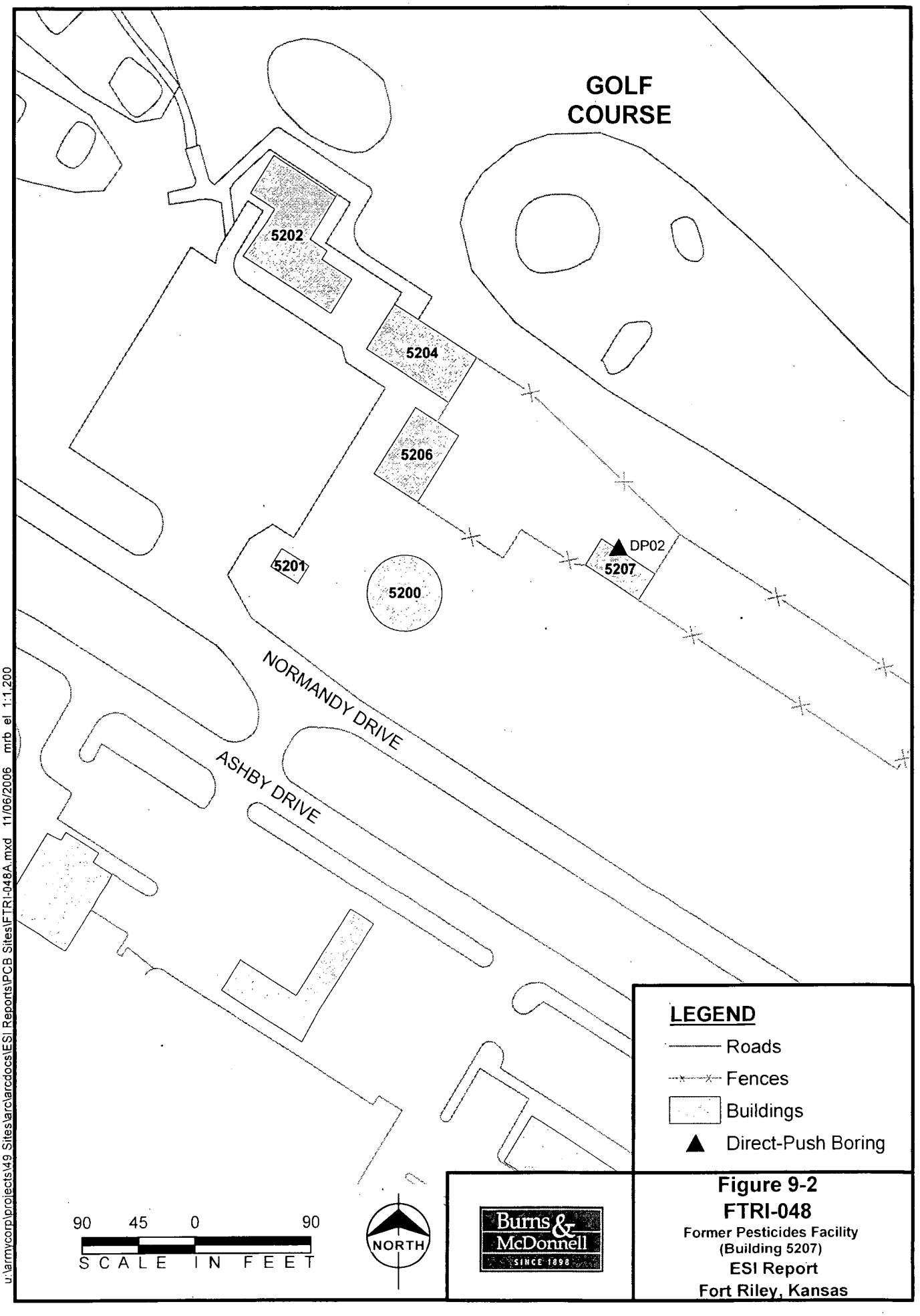

Figure 9-2
FTRI-048
Former Pesticides Facility
(Building 5207)
ESI Report
Fort Riley, Kansas

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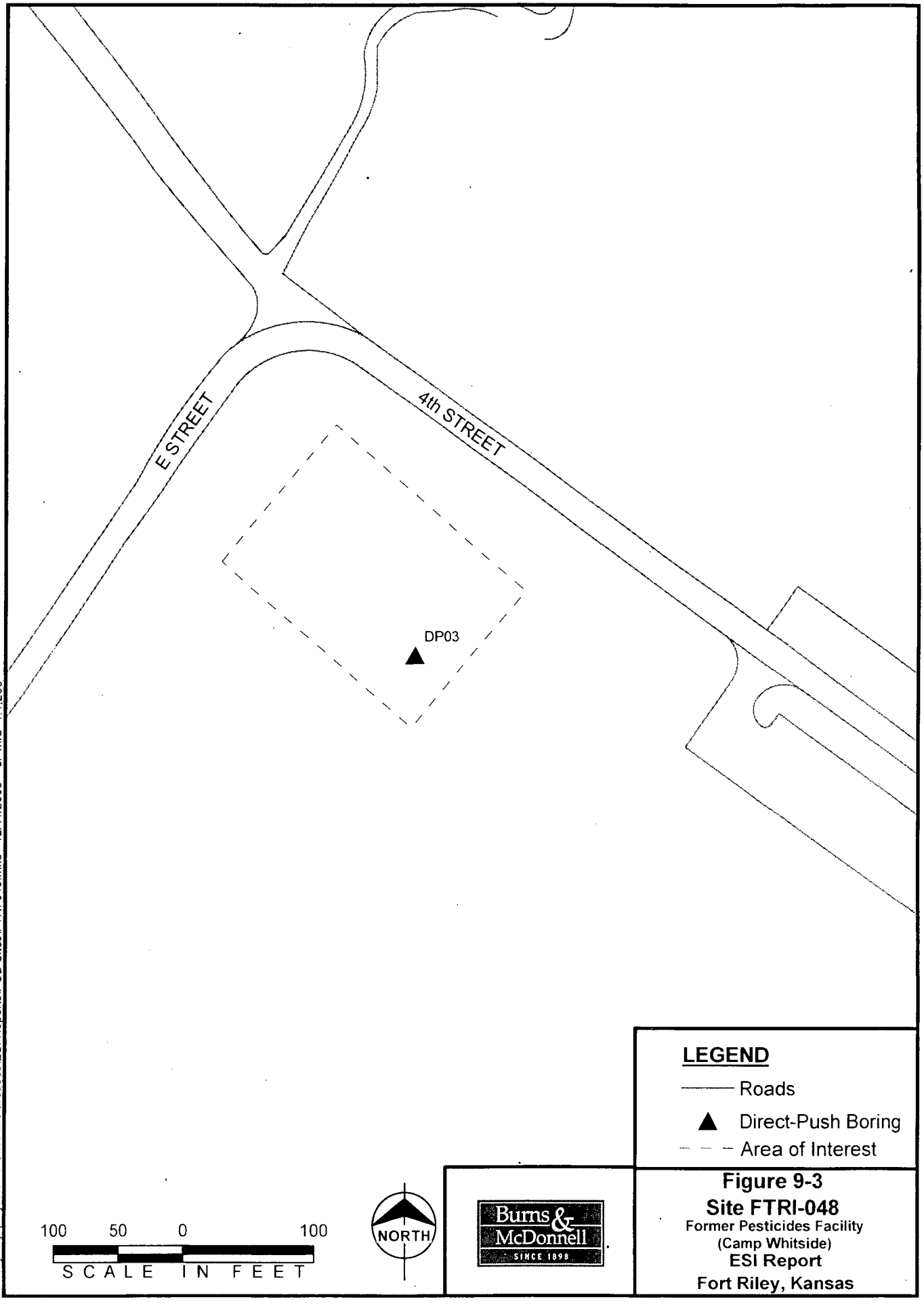
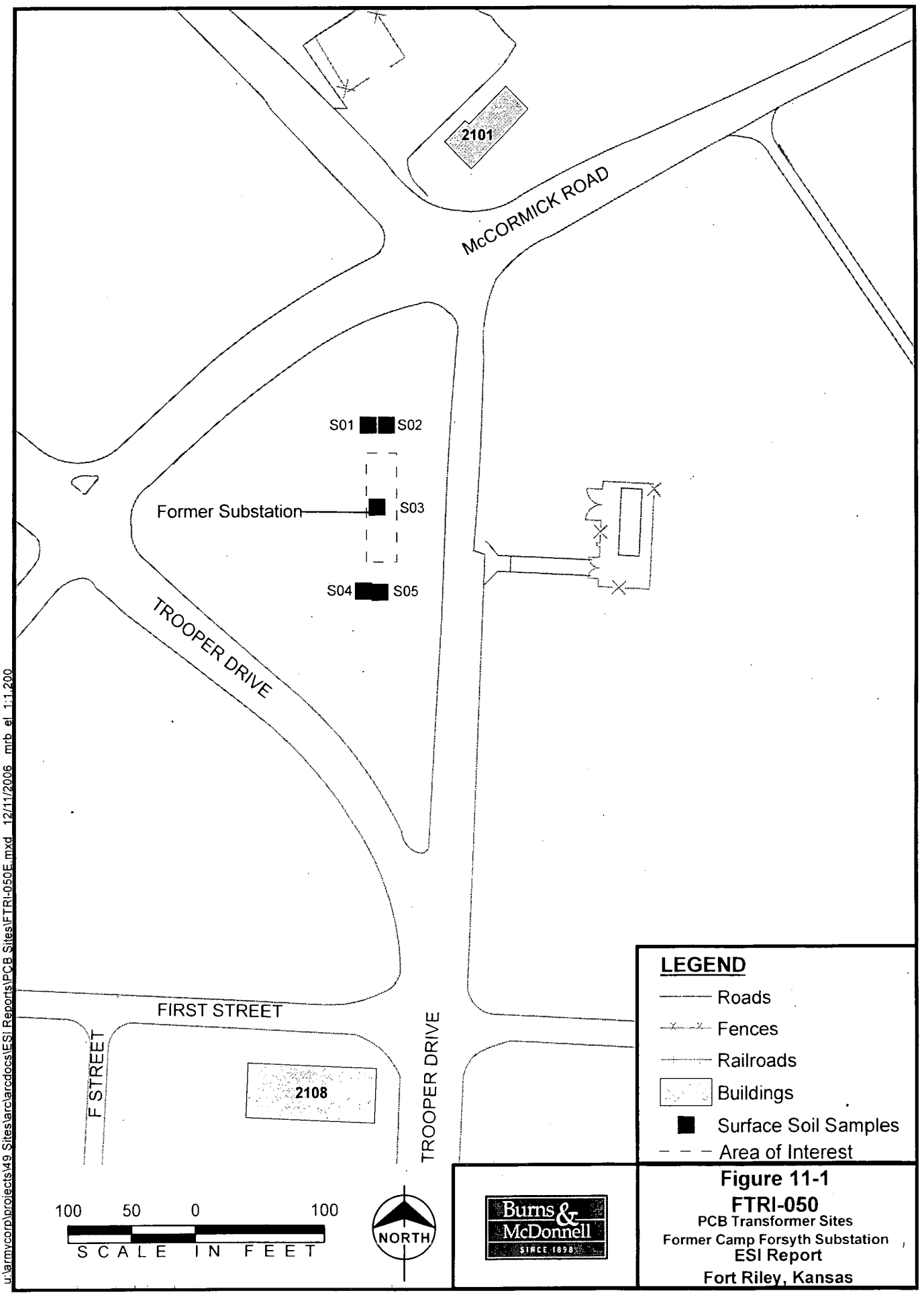
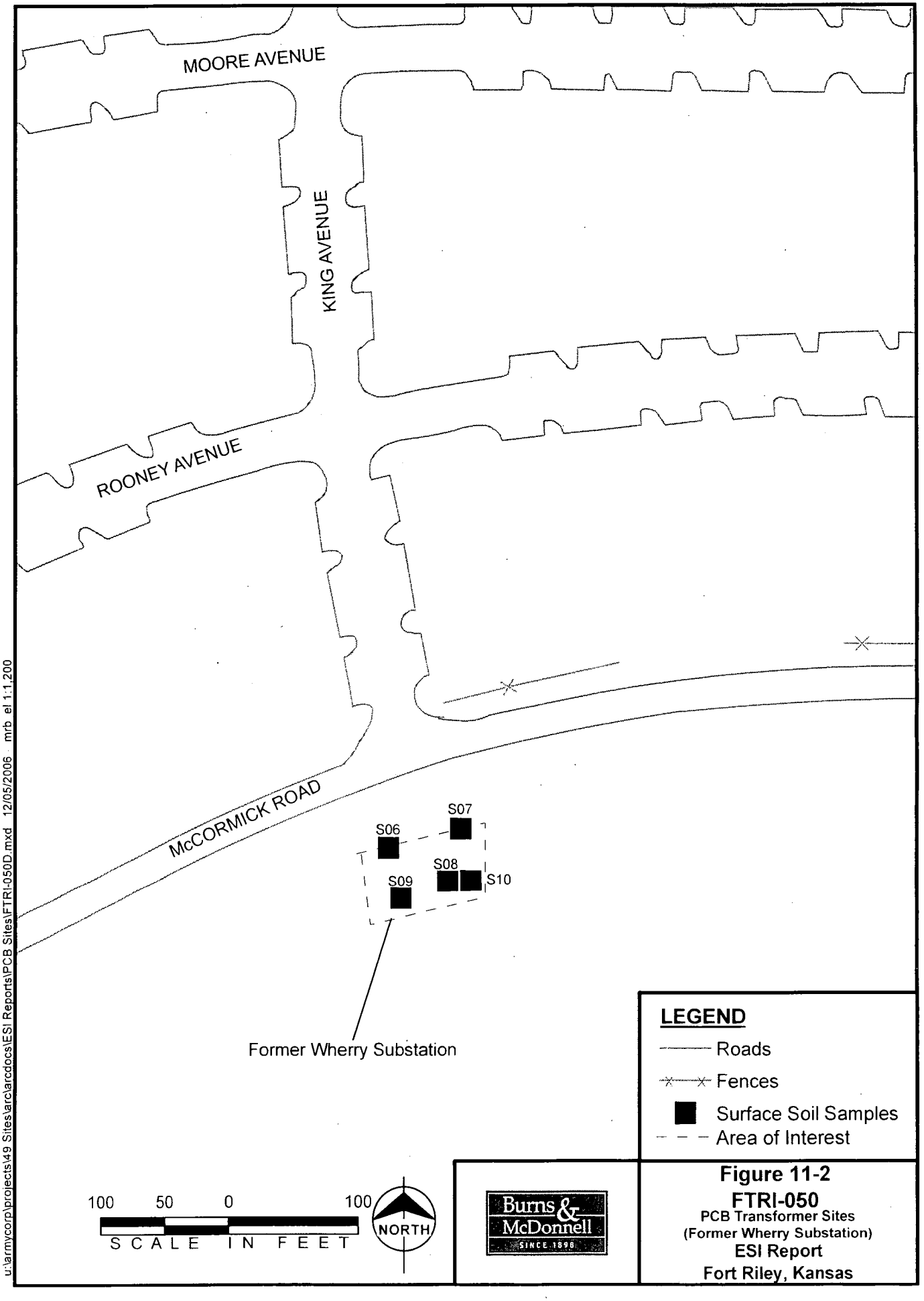

E STREET
4th STREET
DP03
LEGEND
Roads
Direct-Push Boring
Area of Interest
100 50 0 100
SCALE IN FEET
NORTH
Burns & McDonnell
SINCE 1898
Figure 9-3
Site FTRI-048
Former Pesticides Facility
(Camp Whitside)
ESI Report
Fort Riley, Kansas
u:\armycorp\projects\49 Sites\arclarcdocs\ESI Reports\PCB Sites\FTRI-048.mxd 12/11/2006 el mrb 1:1,200


2101
McCORMICK ROAD
S01
S02
Former Substation
S03
S04
S05
TROOPER DRIVE
FIRST STREET
F STREET
2108
TROOPER DRIVE
LEGEND
Roads
Fences
Railroads
Buildings
Surface Soil Samples
Area of Interest
100 50 0 100
SCALE IN FEET
NORTH
Burns & McDonnell
SINCE 1898
Figure 11-1
FTRI-050
PCB Transformer Sites
Former Camp Forsyth Substation
ESI Report
Fort Riley, Kansas
u:\armycorp\projects\49_Sites\arc\arcdocs\ESI Reports\PCB_Sites\FTRI-050E.mxd 12/11/2006 mrb el 1:1,200


MOORE AVENUE
KING AVENUE
ROONEY AVENUE
McCORMICK ROAD
S06
S07
S08
S09
S10
Former Wherry Substation
LEGEND
Roads
Fences
Surface Soil Samples
Area of Interest
100 50 0 100
SCALE IN FEET
NORTH
Burns & McDonnell
SINCE 1898
Figure 11-2
FTRI-050
PCB Transformer Sites
(Former Wherry Substation)
ESI Report
Fort Riley, Kansas
u:\armycorp\projects\49 Sites\arcdocs\ESI Reports\PCB Sites\FTRI-050D.mxd 12/05/2006 mrb el 1:1,200

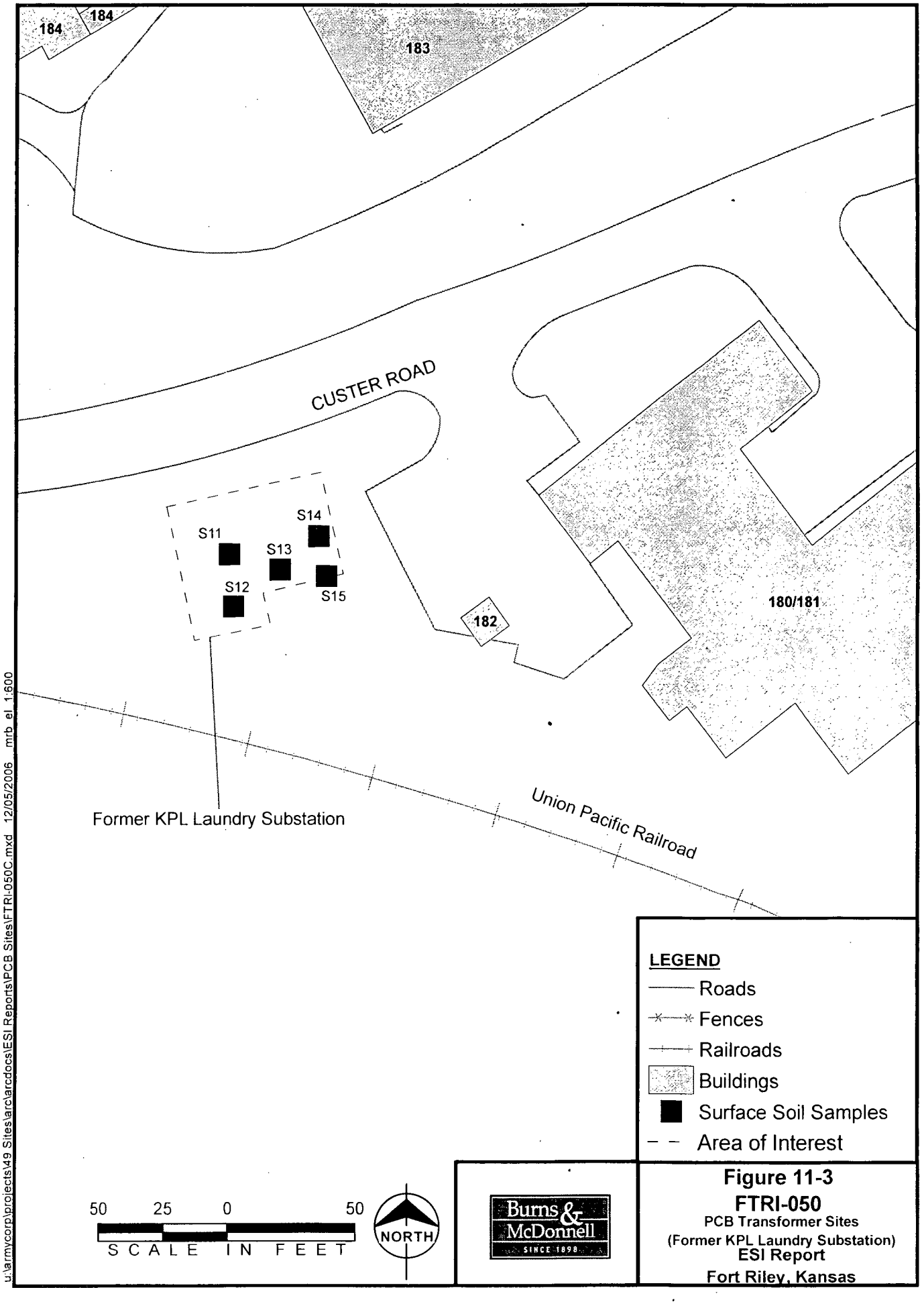
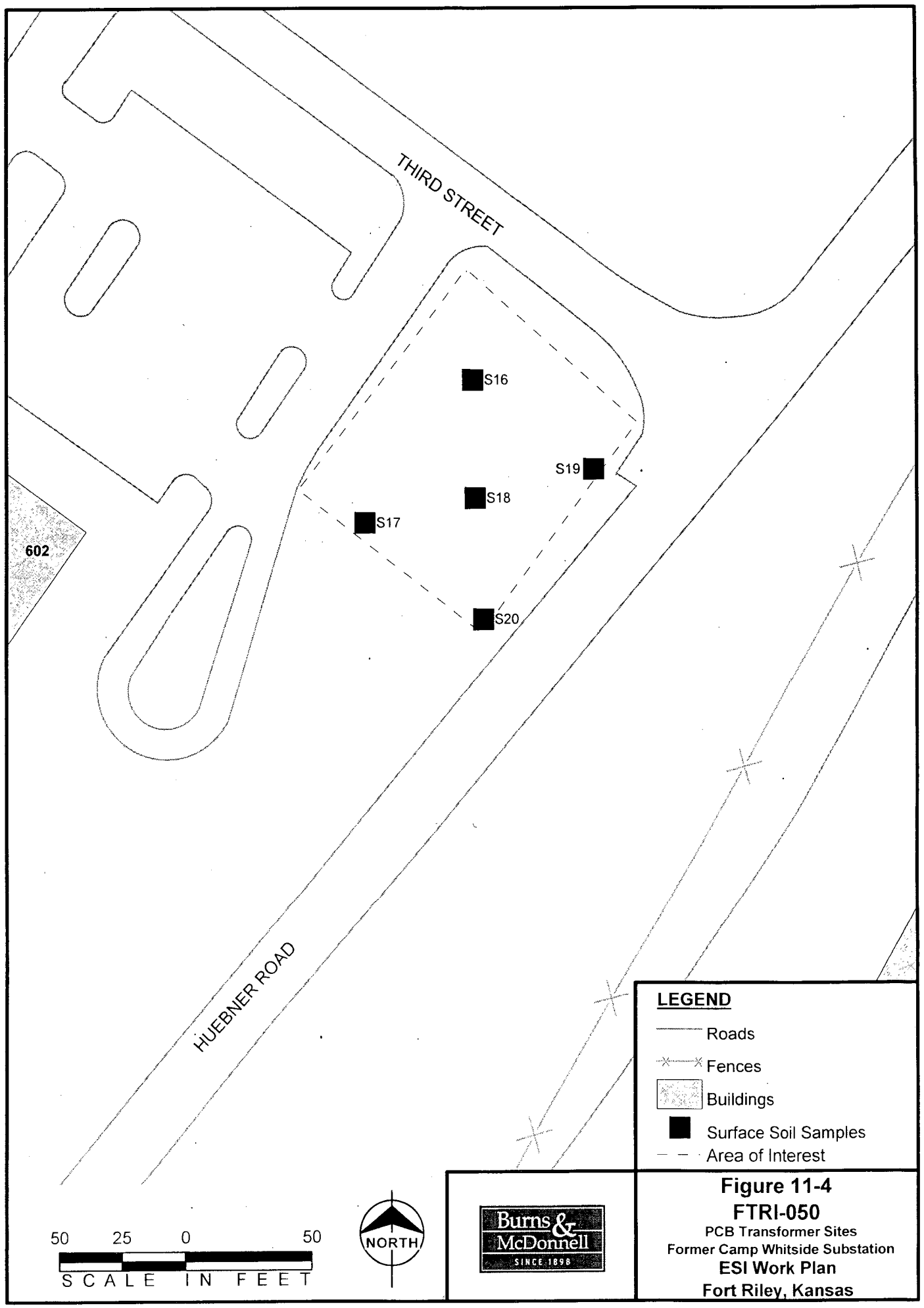


Figure 11-3
FTRI-050
PCB Transformer Sites
(Former KPL Laundry Substation)
ESI Report
Fort Riley, Kansas


THIRD STREET
S16
S19
S18
S17
602
S20
HUEBNER ROAD
LEGEND
Roads
Fences
Buildings
Surface Soil Samples
Area of Interest
50 25 0 50
SCALE IN FEET
NORTH
Burns & McDonnell
SINCE 1898
Figure 11-4
FTRI-050
PCB Transformer Sites
Former Camp Whitside Substation
ESI Work Plan
Fort Riley, Kansas
u:\armycorp\projects\49 Sites\arcdocs\ESI Reports\PCB Sites\FTRI-050B.mxd 12/11/2006 mrb el 1:600

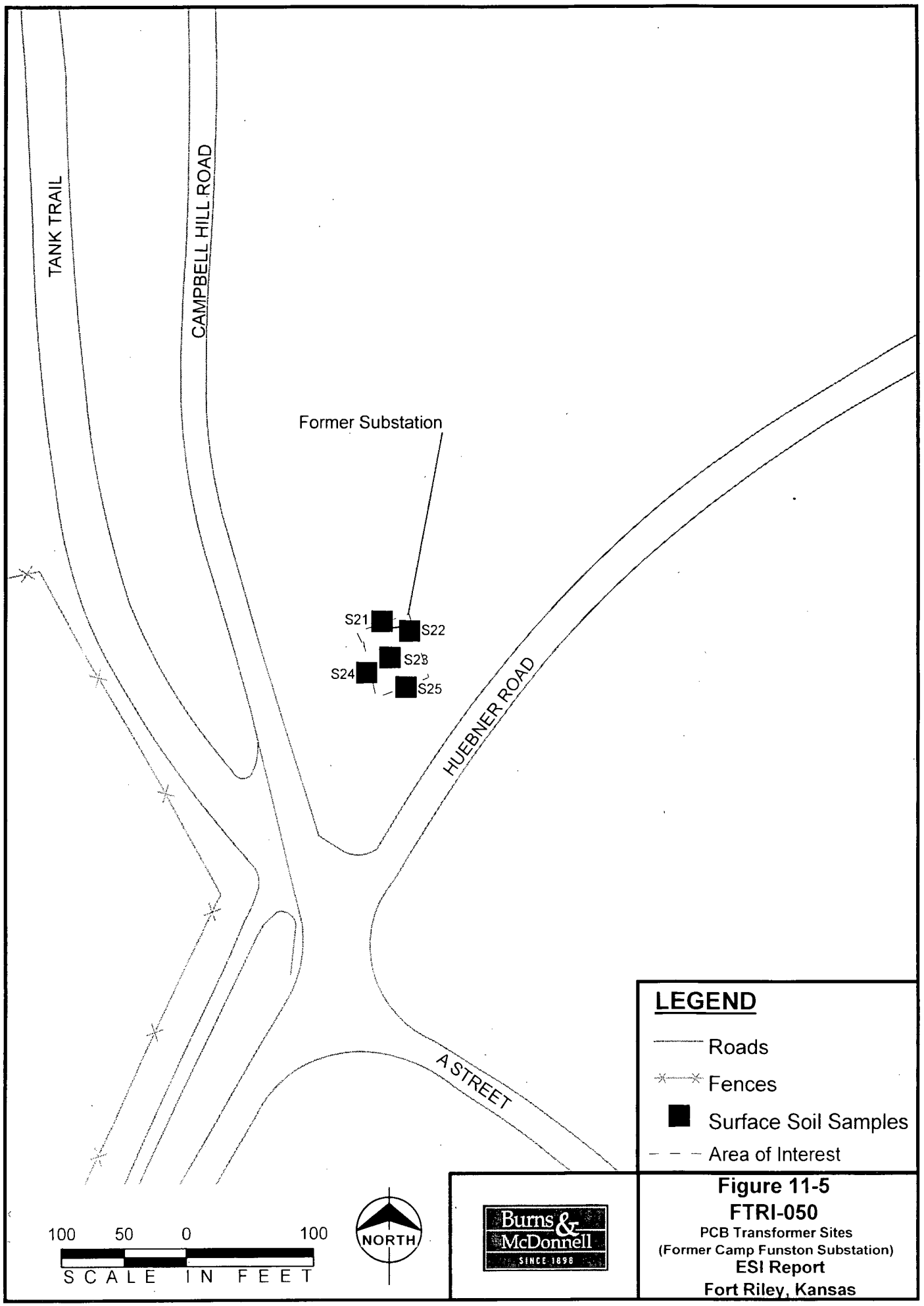


Figure 11-5
FTRI-050
PCB Transformer Sites
(Former Camp Funston Substation)
ESI Report
Fort Riley, Kansas

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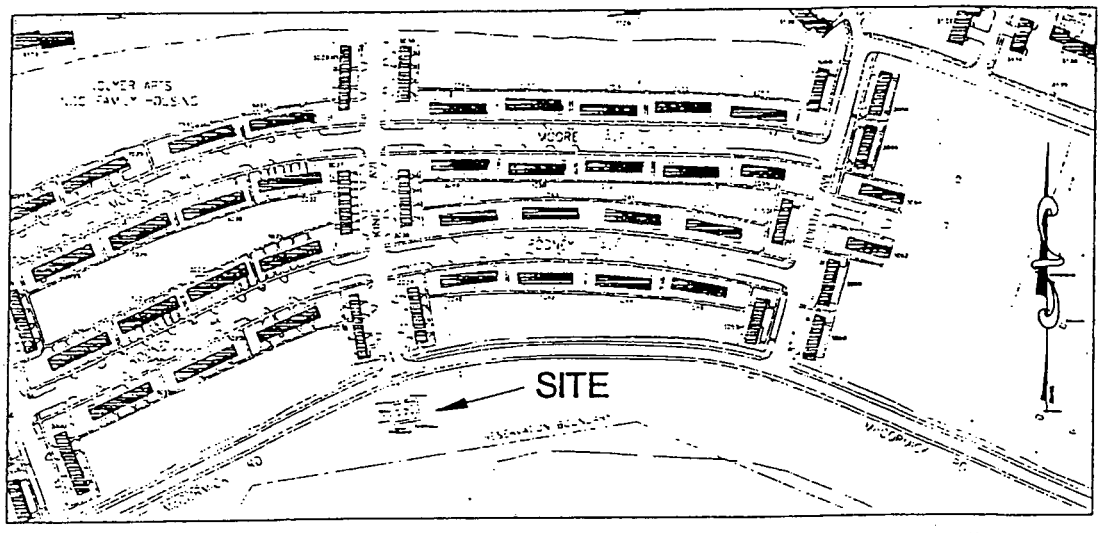
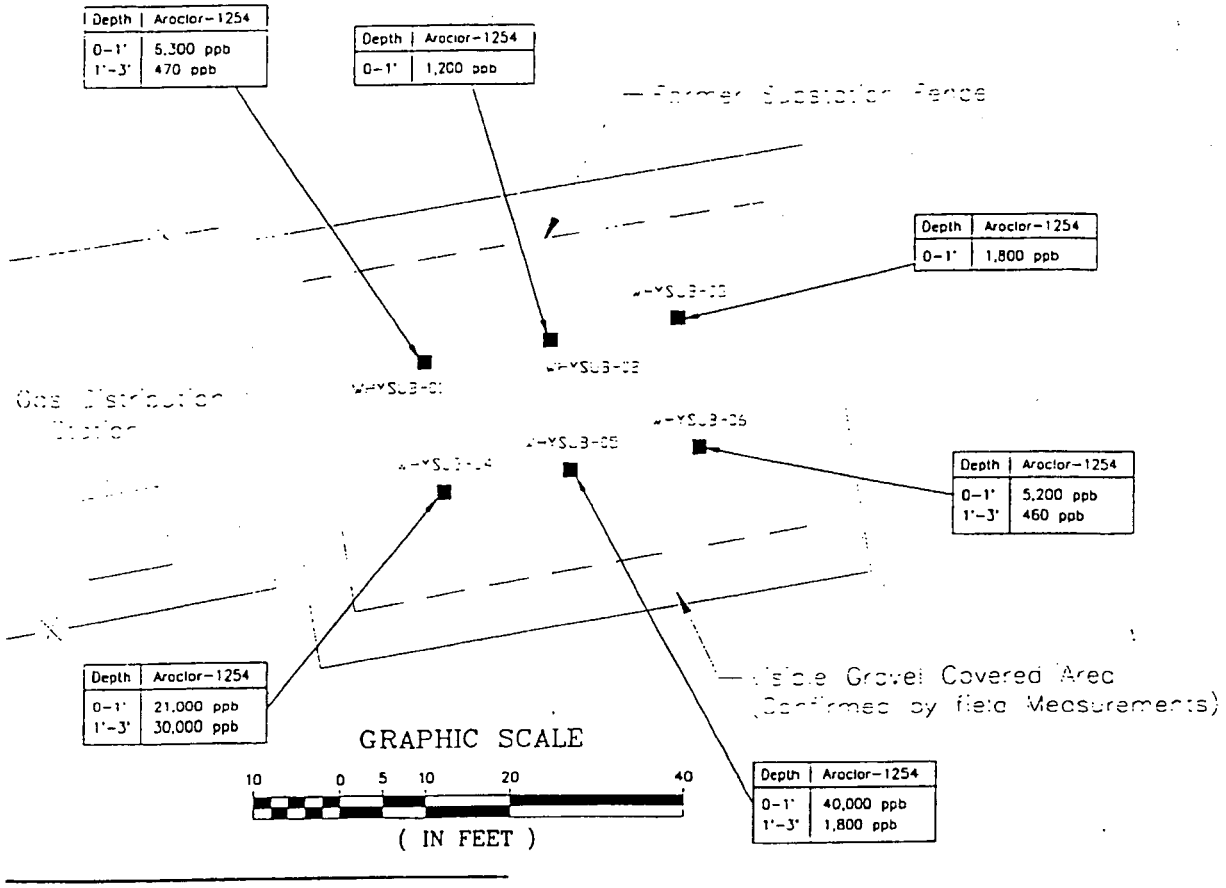


LOCATION MAP - CAMP FORSYTH



■ PROPOSED SOIL SAMPLE LOCATION

BUILDING

—X— FENCE

NOTE:Figure from Proposed Decision Document Multiple Sites. Fort Riley, Kansas (Unknown, 1998)

Burns & McDonnell SINCE 1898

Figure 11-6
FTRI-050 Soil Detections (Former Wherry Substation) (Unknown, 1998)

ESI Report
Fort Riley, Kansas

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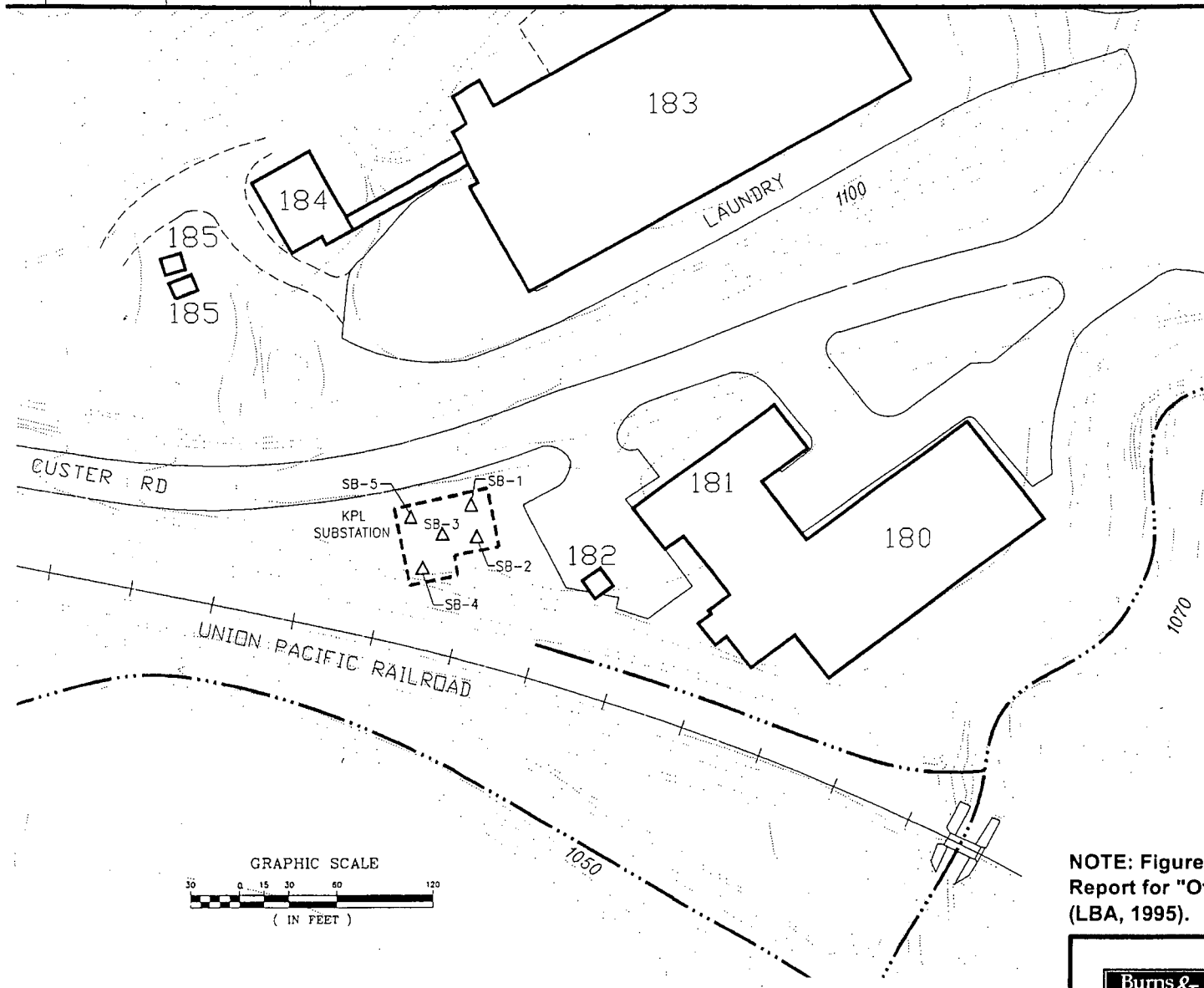
ANALYTES IN mg/kg	LOCATION (BORING DEPTH)	KPLSB-10 SB5(1-3')
	PCBs	60.6

ALL OTHER SAMPLES WERE NON-DETECT FOR PCBs



N

LEGEND

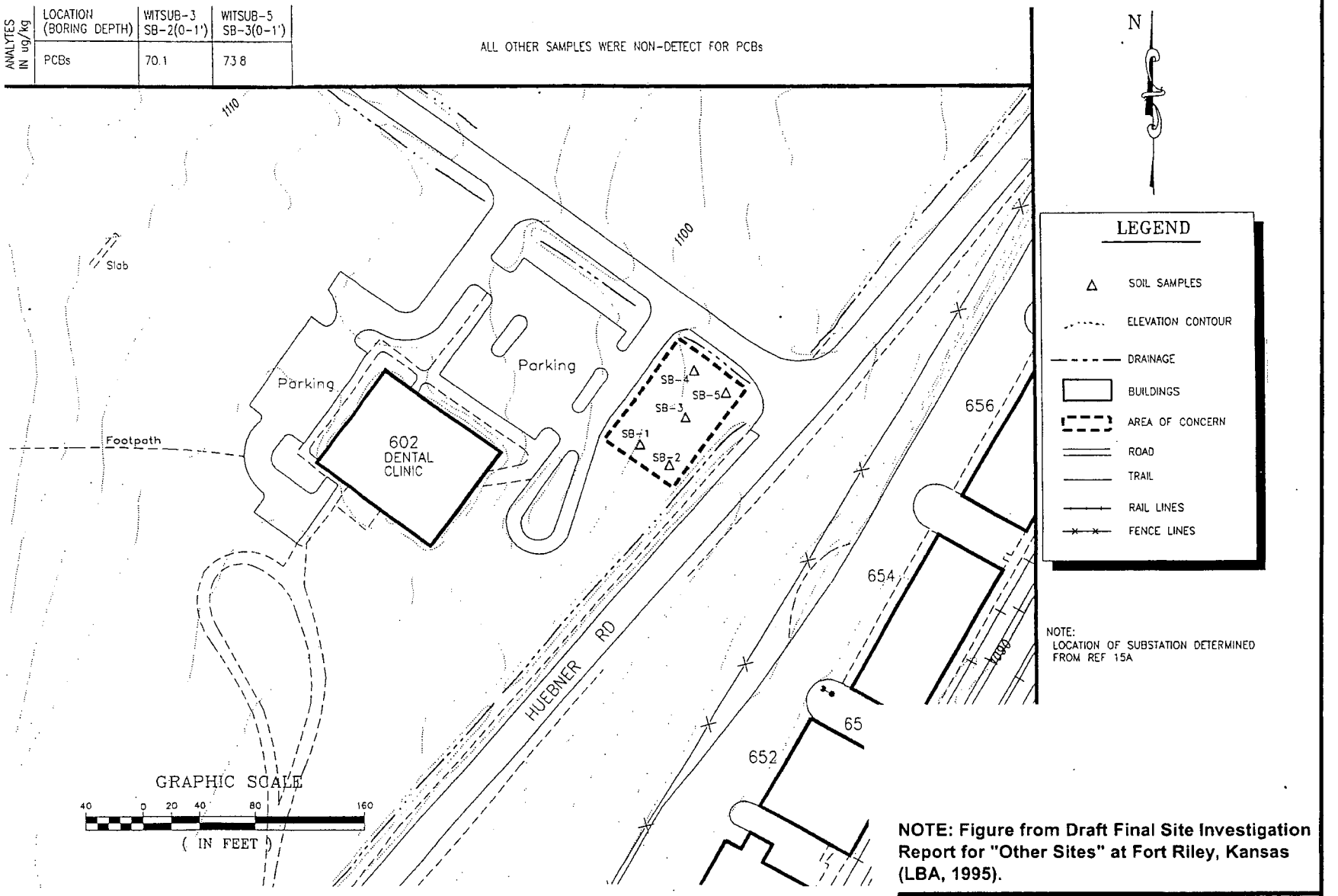
- SOIL SAMPLE
- DRAINAGE
- ELEVATION CONTOUR
- AREA OF CONCERN
- BUILDING
- ROAD
- RAIL LINE
- FENCE LINE

NOTE:
LOCATION OF SUBSTATION DETERMINED FROM IWSA MAP APPENDIX, PAGE 43

NOTE: Figure from Draft Final Site Investigation Report for "Other Sites" at Fort Riley, Kansas (LBA, 1995).

Burns & McDonnell SINCE 1898

Figure 11-7
FTRI-050 Soil Detections (Former KPL Laundry Substation) (LBA, 1995)
ESI Report
Fort Riley, Kansas



NOTE: Figure from Draft Final Site Investigation Report for "Other Sites" at Fort Riley, Kansas (LBA, 1995).

Burns & McDonnell SINCE 1898

Figure 11-8
FTRI-050 Soil Detections (Former Camp Whitside Substation) (LBA, 1995)
ESI Report
Fort Riley, Kansas

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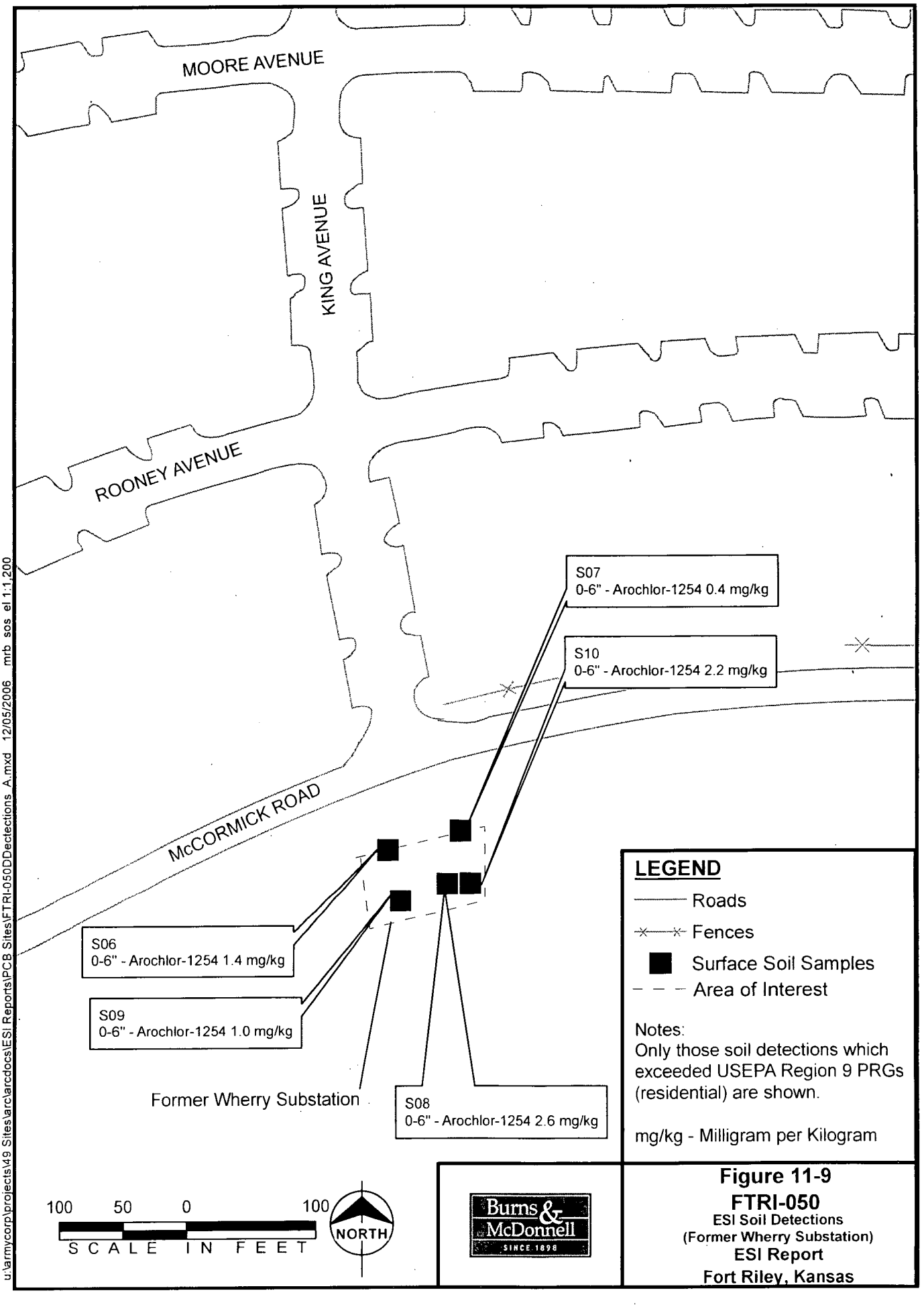
MOORE AVENUE
KING AVENUE
ROONEY AVENUE
McCORMICK ROAD
S07
0-6" - Arochlor-1254 0.4 mg/kg
S10
0-6" - Arochlor-1254 2.2 mg/kg
S06
0-6" - Arochlor-1254 1.4 mg/kg
S09
0-6" - Arochlor-1254 1.0 mg/kg
S08
0-6" - Arochlor-1254 2.6 mg/kg
Former Wherry Substation
LEGEND
Roads
Fences
Surface Soil Samples
Area of Interest
Notes:
Only those soil detections which exceeded USEPA Region 9 PRGs (residential) are shown.
mg/kg - Milligram per Kilogram
100 50 0 100
SCALE IN FEET
NORTH
Burns & McDonnell
SINCE 1898
Figure 11-9
FTRI-050
ESI Soil Detections
(Former Wherry Substation)
ESI Report
Fort Riley, Kansas
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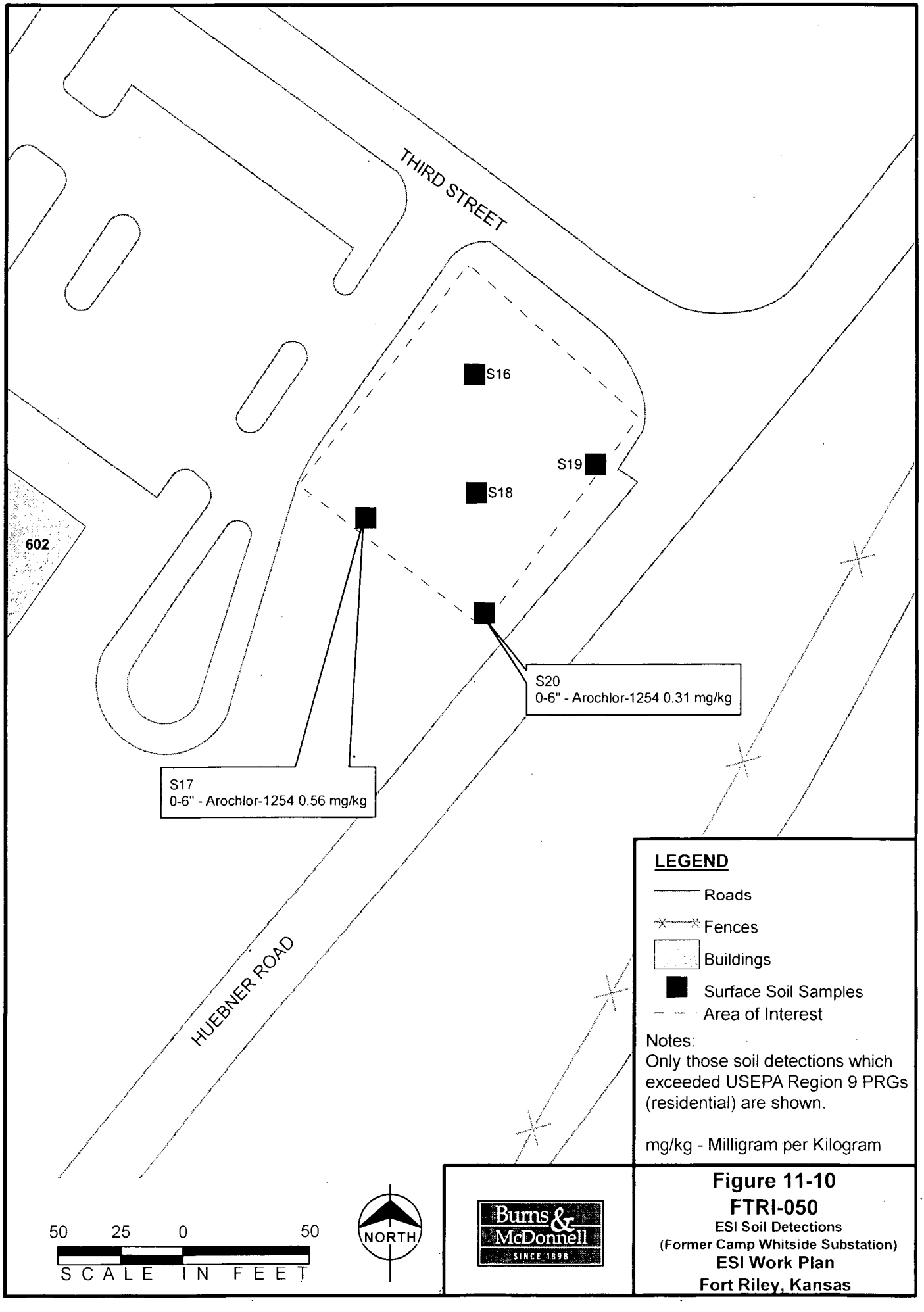

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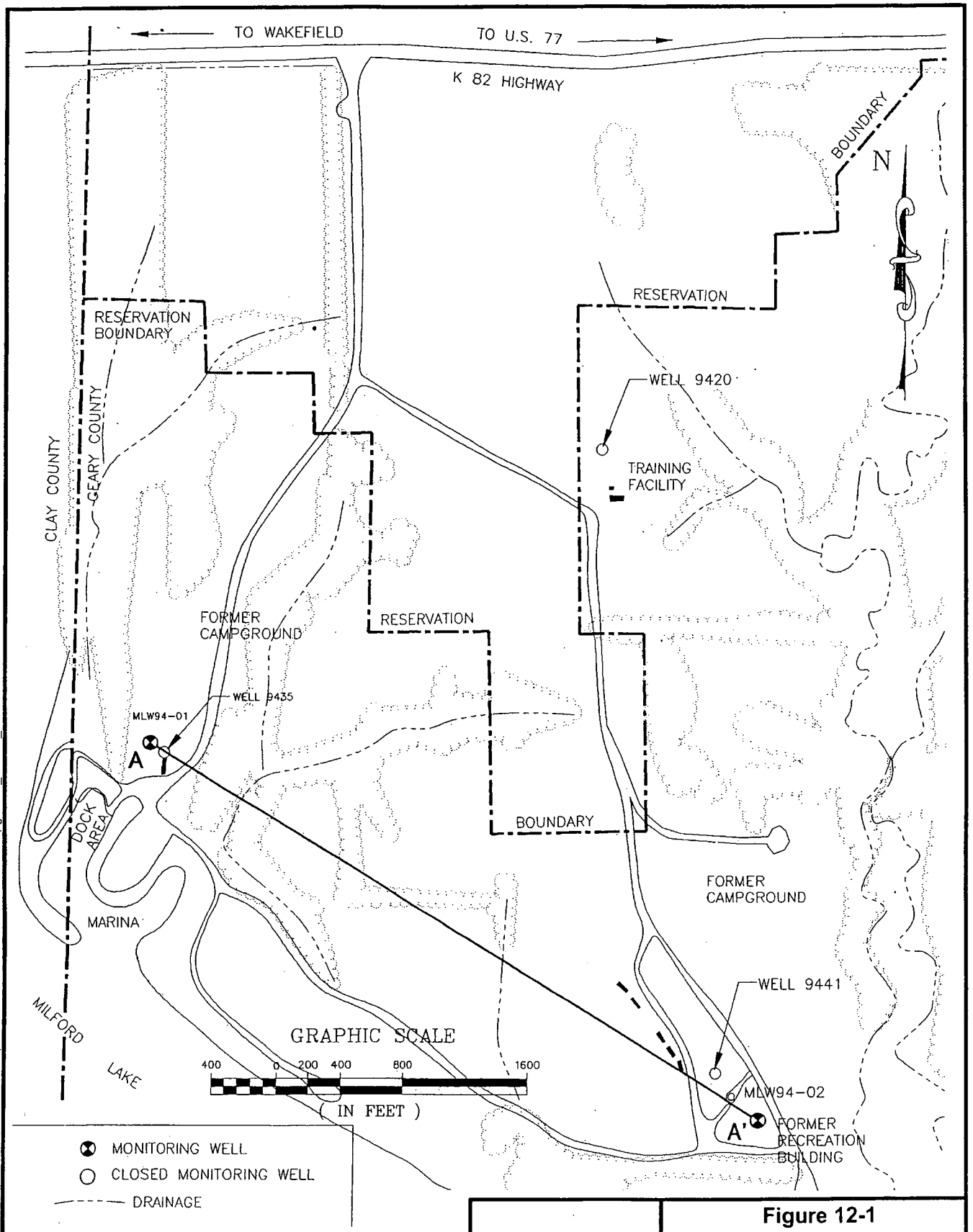

NOTE: Figure from Draft Final Site Investigation Report for "Other Sites" at Fort Riley, Kansas (LBA, 1995).

Burns & McDonnell SINCE 1898

Figure 12-1
FTRI-055
Milford Campground Marina
ESI Report
Fort Riley, Kansas

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Appendix A
Boring Logs

Boring Logs
DRMO Storage Area 1 (FTRI-006)

HTW DRILLING LOG

HOLE NO. FTRI-006 DP01

1. COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: EPS
SHEET 1 OF 3 SHEETS	
3. PROJECT: 40747 ESI- 49 sites	4. LOCATION: Fort Riley
5. NAME OF DRILLER: Dennis Eller	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 4200; 4' macrocore	8. HOLE LOCATION: NA
	9. SURFACE ELEVATION: NA
	10. DATE STARTED: 6/29/06 — 11. DATE COMPLETED: 6/29/06
12. OVERBURDEN THICKNESS: N/A	15. DEPTH GROUNDWATER ENCOUNTERED: 21'
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
14. TOTAL DEPTH OF HOLE: 24'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
9	3	3	3 OA-1			

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	Bentonite	NA	NA	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
		Fill clay					
		CLAY, brown (10YR 3/3) medium, damp, non-plastic, trace sand	•				
	1		0	3.7 / 4	SB01		
	2		8.8				Petroleum odor
	3		10.7				
	4		12.2				1300
		SILTY SAND, light brownish gray (10YR 6/2) loose, damp, fine grained	20.7	4/4	SB02		
	5						

HTW DRILLING LOG

HOLE NO. FTRI-006 DP01

PROJECT ESI-49 sites

INSPECTOR Justin Coker

SHEET 2 OF 4 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	6	SILTY SAND, light brownish (10YR) gray (6/2) loose, damp, fine grained, poorly sorted	37.8				
			38.9				
			45.7				
	7		71.3				
	8						1305
			71.1		S1303		
	9			2/4			
			68.3				
	10		62.4				
	11	SAND, brown (10YR 5/3) damp loose fine grained, trace silt	63.7				
			50.1				1315
	12		35.8				
			38.9	3.6/4			
	13		42.1				
	14						

PROJECT 40747

HOLE NO. FTRI-006 DP01

051601
Form MRK-55-2

HTW DRILLING LOG

HOLE NO: FTRI-006 DP01

PROJECT: ESI - 49 sites

INSPECTOR: Justin Carter

SHEET 3 OF 4 SHEETS

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	15	SAME as Above	65.2	4/4			
			72.1				
	16						1330
			75.1				
	17			3.6/4			
			77.8				
	18	SAND, dark yellowish brown (10YR 4/6) damp, loose, fine-medium grained					
	19		82.3				
	20						1340
			80.1	4/4			
	21	wet					@ water
			72.7				
	22						
	23						

HTW DRILLING LOG

HOLE NO: FTR-006 DP01

PROJECT: ESI - 49 sites

INSPECTOR: Justin Carter

SHEET 6 4 OF 4 SHEETS

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
		SAME As Above					
	24	Bottom of Hole					

PROJECT 40747

HOLE NO. FTR-006 DP01

051601
Form MRK-55-2

HTW DRILLING LOG

HOLE NO: FTRI-006 DP02

1 COMPANY NAME: Burns + McDonnell	2 DRILLING SUBCONTRACTOR: EPS
SHEET 1 OF 4 SHEETS	
3 PROJECT: 40747 ESI 49 sites	4 LOCATION: Fort Riley
5 NAME OF DRILLER: Dennis Eller	6 MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push
7 SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 4200; 4' macrocore	8 HOLE LOCATION: NA
	9 SURFACE ELEVATION: NA
	10 DATE STARTED: 7/6/06 — 11 DATE COMPLETED: 7/6/06
12 OVERBURDEN THICKNESS: NA	15 DEPTH GROUNDWATER ENCOUNTERED: 20.7
13 DEPTH DRILLED INTO ROCK: NA	16 DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
14 TOTAL DEPTH OF HOLE: 24	17 OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA

18 GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19 TOTAL NUMBER OF CORE BOXES
0	0	0	0

20 SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21 TOTAL CORE RECOVERY %
9	3	3	3 TPH OA-1	—	—	

22 DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23 SIGNATURE OF INSPECTOR
NA	Bentonite	NA	NA	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	0	fill clay					
		CLAY, brown (7/3 10YR) soft, damp, medium plasticity trace sand, trace silt	0				
	1		0	3/4	SB01		
			0				
	2		0				
			0				
	3		0				
			0				
	4	SILTY SAND, light brownish gray (6/2 10YR) loose, damp, fine grained, trace clay					1055
			0				
	5						

HTW DRILLING LOG

HOLE NO. FTRI-006 DP02

PROJECT 40747 ESI 49 sites

INSPECTOR [illegible]

SHEET 2 OF 4 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	6	SAME As Above	0	4/4			
			0		SB02		
	7		0				
			0				
	8						1100
			0				
	9		0	3.7/4			
			0				
	10				SB03		
		SAND, brown (5/3 10YR) damp, loose, fine-medium grained	0				
	11		0				
							1105
	12		0	3.2/4			
			0				
	13						
	14						

HTW DRILLING LOG

HOLE NO. FTRI-006 DP02

PROJECT 40747 ESI 49 sites

INSPECTOR [signature]

SHEET 3 OF 4 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	15	SAME As Above	0				
			0				
	16						1110
			0	3.1/4			
	17						
		SAND, yellowish brown (5/4 10YR) damp, loose fine-medium grained	0				
	18		0				
			0				
	19						
			0				
	20						1120
			10.7	2.6/4			
		wet					▼water
	21		20.6				
	22		20.8				
			20.9				
	23						

HTW DRILLING LOG

HOLE NO: FTRI-006 DP02

PROJECT: 40747 ESI 49 sites

INSPECTOR: [illegible]

SHEET 4 OF 4 SHEETS

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME As Above	21.2				1130
	24	Bottom of hole					

HTW DRILLING LOG

HOLE NO. FTRI-006 DP03

1 COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: EPS
SHEET 1 OF 3 SHEETS	
3 PROJECT: 40747 ESI 49 sites	4. LOCATION: Fort Riley
5. NAME OF DRILLER: Dennis Eller	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 4200; 4' macrocore	8. HOLE LOCATION: NA
	9. SURFACE ELEVATION: NA
	10. DATE STARTED: 7/6/06 — 11. DATE COMPLETED: 7/6/06
12 OVERBURDEN THICKNESS: NA	15. DEPTH GROUNDWATER ENCOUNTERED: 17.2
13 DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
14 TOTAL DEPTH OF HOLE: 20	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
9	3	3	TPH OA-1-3	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
NA	Bentonite	NA	NA	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	0	Fill clay	0				
	1	CLAY, brown (3/3 10YR) soft damp; medium plastic, trace sand, with silt	0	3.7 / 4	5B01		
	2		0				
	3	SILTY SAND, light brownish gray (6/2 10YR) loose, damp, fine grained, trace clay	0				
	4		0				1250
	5		0				

HTW DRILLING LOG

HOLE NO. FTRI-006 DP03

PROJECT 40747 ESI 49 sites

INSPECTOR [signature]

SHEET 2 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	6	SAME As Above	0	3.6/4	SB02		
	7		0				
	8		0				1255
	9		0	4/4	SB03		
	10		0				
	11	SAND, brown (5/3 10YR) damp, loose, fine - medium grained,	0				
	12						1300
	13		0	3.7/4			
	14		0				

HTW DRILLING LOG

HOLE NO. FTRI-006 DP03

PROJECT 40747 ESI 49 sites

INSPECTOR [illegible]

SHEET 03 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
		SAME As Above	0				
	15		0				
		SAND, dark yellowish brown (4/4 10YR) damp, loose, fine - medium grained	0				1310
	16		0	2-7 / 4			
	17	wet					water
			0				
	18						
			0				
	19						
			0				
	20						1320
		Bottom of hole					

HTW DRILLING LOG

HOLE NO: FTRI-006 DP04

1. COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: EPS
SHEET 1 OF 4 SHEETS	
3. PROJECT: 40747 ESI-49 Sites	4. LOCATION: Fort Riley, KS
5. NAME OF DRILLER: Dennis Ellerd	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 4200; 4' macrocore	8. HOLE LOCATION: NA
	9. SURFACE ELEVATION: NA
	10. DATE STARTED: 6/29/06 — 11. DATE COMPLETED: 6/29/06
12. OVERBURDEN THICKNESS: NA	15. DEPTH GROUNDWATER ENCOUNTERED: 23'
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
14. TOTAL DEPTH OF HOLE: 24'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
9	3	3	3 OA-1			

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	Bentonite	NA	NA	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. / Recovery	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	0	Top soil & fill w gravel grayish brown (5/2)(10YR)					
		SAND, light gray (7/2)(10YR), soft, dry, loose	0		5801		
	1			2.6/4			
			0				
	2						
			0				
	3						
							0900
	4		0				
	5						

HTW DRILLING LOG

HOLE NO. FTRI-006 DP04

PROJECT ESI - 49 sites

INSPECTOR [illegible]

SHEET 1 OF 2 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO Recovery	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	6	SAME as above					
			0	4/4	SB02		
	7		0				
		damp					
	8						0905
			0				
	9	SAND light yellowish brown (10YR 6/4) damp, loose, fine grain		4/4			
			0				
	10				SB03		
	11		0				
		SAND, brown (5/3) damp loose, fine grained					
	12						0910
			0				
				3.7/4			
	13						
			0				
	14						

PROJECT 40747

HOLE NO. FTRI-006 DP04

051601
Form MRK-55-2

HTW DRILLING LOG

HOLE NO. FTRI-006 DPOH

PROJECT ESI 49 sites | INSPECTOR [illegible] | SHEET # 3 OF 84 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. Recovery	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	15	SAME as Above	0				
	16						0915
	17		0	3.6/4			
	18		0				
	19		0				
	20	SAND, dark yellowish brown (4/6) (10YR) damp, loose, poorly graded					0920
	21	SAND, brown (5/3) damp, loose, fine grained	0	3.8/4			
	22		0				
	23	wet					▽ water

PROJECT 40747 | HOLE NO. FTRI-006 DPOH

051601
Form MRK-55-2

HTW DRILLING LOG

HOLE NO. FTR1-006 DP04

PROJECT ESI - 49 sites

INSPECTOR Justin Carter

SHEET # 4 OF 4 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME as Above					
	24	Bottom of hole					

Boring Log
Pesticide UST at Camp Funston (FTRI-010)

HTW DRILLING LOG

HOLE NO. 010 FTRI-~~006~~ DP01

1. COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: EPS
SHEET 1 OF 6 SHEETS	
3. PROJECT: 40747 ESI 49 sites	4. LOCATION: Fort Riley
5. NAME OF DRILLER: Dennis Eller	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 4200; 4' macrocore	8. HOLE LOCATION: NA
	9. SURFACE ELEVATION: NA
	10. DATE STARTED: 7/6/06 — 11. DATE COMPLETED: 7/6/06
12. OVERBURDEN THICKNESS: NA	15. DEPTH GROUNDWATER ENCOUNTERED: 39.8
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
14. TOTAL DEPTH OF HOLE: 48.8	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
3	—	—	2,4-D 3	2,4,5-T 3	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
NA	Bentonite	—	—	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	0	CLAY; very dark brown (10YR 2/2) damp, high plasticity, medium, grass roots	0				
	1	CLAY, yellowish brown (10YR 5/6) dry, non plastic, very ~~hard~~ stiff trace roots	0	3.2 / 4			
	2	Gravel fill w/ clay	0				
	3	CLAY; brown (10YR 4/3) stiff, dry, non plastic	0				
	4						0820
	5		0				

HTW DRILLING LOG

HOLE NO. FIRI-010 DP01

PROJECT 40747

INSPECTOR Justin Cox

SHEET 02 OF 6 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	6	SAME As Above	0	3.6/4			
			0				
	7		0				
			0				
	8						0825
		CLAY, dark brown (10YR 3/3) medium; trace plasticity damp	0				
	9			3.9/4	S1301		
			0				
	10		0				
	11		0				
			0				
	12						0830
			0	3.1/4	~~S1302~~		
	13		0				
			0				
	14						

HTW DRILLING LOG

HOLE NO. FTRI-010 DP01

PROJECT 40747 ESI 49sites

INSPECTOR [illegible]

SHEET 3 OF 6 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	15	CLAY, dark yellowish brown 10YR 3/4, soft, damp, high plasticity, trace silt	0				
			0				
	16		0				0835
		SILT, yellowish brown (10YR 5/4) soft, damp, trace plasticity	0				
	17		0	4/4	SB02		
	18		0				
			0				
	19		0				
	20		0				0840
			0	4/4	SB03		
	21		0				
	22	SILT, yellowish brown (10YR 5/4) soft, damp, high plasticity	0				
	23						

HTW DRILLING LOG

HOLE NO. FTRI-010 DP01

PROJECT 40747 ESI 49 sites

INSPECTOR [signature]

SHEET # 4 OF 4 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME As Above	0				
	24						0850
			0				
	25		0	4/4			
		SILT, brown, (10YR 5/3) soft, high plasticity, w/ clay, damp					
	26		0				
			0				
	27						
			0				
		CLAY, brown (10YR 4/3) medium, high plasticity w/silt, damp					0900
	28		0	4/4			
	27		0				
		SILT, brown (10YR 4/3) soft high Plasticity, w/clay. damp	0				
	30						
			0				
	31						
			0				
	32						0920

PROJECT 40747

HOLE NO. FTRI-010 DP01

051601
Form MRK-55-2

HTW DRILLING LOG

HOLE NO. FTRI-010 DP01

PROJECT 40747 ESI 49 Sites

INSPECTOR [illegible]

SHEET # 5 OF 6 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	33	SAME As Above	0				
			0	4/4			
	34	CLAY, brown (5/3 10YR) medium, high plasticity trace silt, damp	0				
			0				
	35						
		CLAY, dark grayish brown (4/2 10YR) medium, medium plasticity, w/ silt, damp iron banding	0				
	36						0930
			0				
		CLAY, very dark gray (3/1 10YR) soft, high plasticity w/ silt, trace sand		3.8/4			
	37		0				
	38		0				
	39		0				
							▼ water
	40	SAND, very dark gray (3/1 10YR) well graded fine - medium grained, well rounded,	0				0945
	41						

HTW DRILLING LOG

HOLE NO. FTRI-010 DP01

PROJECT 40747 ESI 49 sites

INSPECTOR [illegible]

SHEET 06 OF SHEETS

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME As Above	0				
	42		0	3/4			
			0				
	43	SAND, dark yellowish brown (4/4 10YR) fine - medium grained; trace silt, well graded, rounded, wet	0				
	44		0				1000
			0				
	45	SAND, light yellowish brown (6/4 10YR), fine grained poorly graded	0	3.7/4			
	46		0				
		SAND, very dark brown (2/2 10YR) fine - medium grained	0				
	47						
		SAND, yellowish brown (5/6 10YR) fine - medium grained well rounded	0				1015
	48		0	0.6/0.8			1030
	49	Refusal					

PROJECT

HOLE NO.

051601
Form MRK-55-2

Boring Logs
DRMO Storage Area 2 (FTRI-015)

HTW DRILLING LOG

HOLE NO. FTRI-015 DP01

1. COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: EPS
SHEET 1 OF 3 SHEETS	
3. PROJECT: 40747 ESI 49 sites	4. LOCATION: Fort Riley
5. NAME OF DRILLER: DENNIS ELLER	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 4200 / Direct Push	8. HOLE LOCATION: NA
	9. SURFACE ELEVATION: NA
	10. DATE STARTED: 6/30/06 — 11. DATE COMPLETED: 6/30/06
12. OVERBURDEN THICKNESS: NA	15. DEPTH GROUNDWATER ENCOUNTERED: 19.1
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
14. TOTAL DEPTH OF HOLE: 20	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
3	3	—	—	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	Bentonite	NA	NA	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	0	Fill, clay					
		CLAY, dark brown (10YR 3/3) dry, non plastic, some gravel	0	4/4	SB01		
	1		0				
	2		0				
	3	SAND, pale brown (10YR 6/3) dry, loose, fine grained	0				
	4		0				1125
	5		0				

HTW DRILLING LOG

HOLE NO. FTRI-015 DP01

PROJECT 40747 ESI 49 sites

INSPECTOR

SHEET 2 OF 3 SHEETS

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME As Above					
			0	3.1/4			
	6				SB02		
		SAND, pale brown (10YR 6/3) damp, loose, fine-medium grained	0				
	7						
			0				
	8						1130
			0				
	9			4/4			
			0		SB03		
	10		0				
	11		0				
		SAND, yellowish brown (10YR 5/4) damp; fine-medium grained, loose	0				1146
	12						
			0	3.7/4			
	13						
			0				
	14						

HTW DRILLING LOG

HOLE NO. FTRI-015 DP01

PROJECT 40747 ESI 49 sites

INSPECTOR

SHEET # 3 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME As Above					
		SAND, brownish yellow (10YR 6/6) damp, poorly graded, fine - medium grained,	0				
	15		0				
	16						1145
			0	3.8 / 4			
	17						
		SAND, light yellowish brown (10YR 6/6) medium grained	0				
	18						
			0				
	19						▼ water
		wet					
			0				
	20						1155
	21						
	22						
	23						

HTW DRILLING LOG

HOLE NO. FTRI-DIS DP02

1. COMPANY NAME: Burns + McDonnell	2. DRILLING SUBCONTRACTOR: EPS
	SHEET 1 OF 5 SHEETS
3. PROJECT: 40747 ESI-49sites	4 LOCATION: Fort Riley
5. NAME OF DRILLER: Dennis Eller	6 MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 4200; 4' macrocore	8. HOLE LOCATION: NA
	9. SURFACE ELEVATION: NA
	10. DATE STARTED: 6/30/06 — 11. DATE COMPLETED: 6/30/06
12. OVERBURDEN THICKNESS: NA	15. DEPTH GROUNDWATER ENCOUNTERED: ~ 19.2
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
14. TOTAL DEPTH OF HOLE: 20	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19 TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21 TOTAL CORE RECOVERY %
3	3	0	0	0	0	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23 SIGNATURE OF INSPECTOR
	Bentonite	NA	NA	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	0	CLAY Fill					
		CLAY, dark brown (10YR 3/3)	0		SB01		
	1	dry, non plastic, some gravel		3.1			
			0	4			
	2						
			0				
	3						
			0				
		SAND, pale brown (10YR 6/3)					
	4	dry, loose, fine grained					1020
				4/4			
			0				
	5						

PROJECT | HOLE NO

MRK FORM JUN 89 55

HTW DRILLING LOG

HOLE NO. FTRI-015 DP02

PROJECT 40747 EST 49 sites

INSPECTOR

SHEET # 2 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	6	SAME As Above	0				
		SAND, pale brown (10YR 6/3) damp, loose, fine-medium grained	0		SB02		
	7		0				
	8						1030
	9		0	4/4			
			0				
	10	SAND, yellowish brown (10YR 5/4), damp, fine-medium grain			SC03		
	11		0				
	12						1040
	13		0	3.6/4			
			0				
	14						

HTW DRILLING LOG

HOLE NO. FTRI-015 DP02

PROJECT 40747 ESI 49 sites

INSPECTOR [illegible]

SHEET 3 OF 3 SHEETS

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	15	SAND, brownish yellow (10YR 6/6) damp, poorly graded fine - medium grain	0				
			0				
	16						1045
			0				
	17						
		SAND, light yellowish brown (10YR 6/6) medium grained loose	0	4/4			
	18		0				
	19						@ water
			0				
	20						1050
	21						
	22						
	23						

HTW DRILLING LOG

HOLE NO. 015
FTRI-~~006~~ DP03

1. COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: EPS	SHEET 1 OF 3 SHEETS
3. PROJECT: 40749 ESI-49 sites	4 LOCATION: Fort Riley	
5. NAME OF DRILLER: Dennis Eller	6 MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 4200; 4" macrocore	8 HOLE LOCATION: NA	
	9 SURFACE ELEVATION: NA	
	10. DATE STARTED: 6/30/06	11. DATE COMPLETED: 6/30/06
12. OVERBURDEN THICKNESS: NA	15. DEPTH GROUNDWATER ENCOUNTERED: ~~NA~~ 19.5	
13. DEPTH DRILLED INTO ROCK: NA	16 DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA	
14. TOTAL DEPTH OF HOLE: 20	17 OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA	

18 GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20 SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
3	3	—	—	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	Bentonite	NA	NA	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	0	Fill clay					
	1	(10YR) CLAY, dark brown (3/3), dry, non plastic, w/ gravel	0	22, 1/4	SB01		
	2		0				
	3	(10YR) SAND, pale brown (6/3) dry loose, fine grained	0				
	4		0	4/4	SB02		0900
	5						

HTW DRILLING LOG

HOLE NO: FTRI-015 DP03

PROJECT: 40747 ESI 49 sites

INSPECTOR:

SHEET 02 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	6	CLAY, dark brown (3/3) (10YR) trace plastic, medium	0				
	7	SAND, pale brown (10YR) (6/3) dry loose, fine grained	0				
	8		0				0905
	9		0	4/4	SB03		
	10	SAND, yellowish brown (10YR) (5/4) damp, fine grained	0				
	11		0				
	12		0				0910
	13	SAND, brownish yellow (10YR) poorly graded, damp, fine - medium grain	0	3.8/4			
	14						

HTW DRILLING LOG

HOLE NO. FTRI-015 DP03

PROJECT 40747 ESI 49 sites

INSPECTOR

SHEET 03 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	15		0				
			0				
	16						0915
		SAND, light yellowish brown (6/6) medium grained, loose Quartz & feldspar	0	3.2/4			
	17						
			0				
	18						
			0				
	19						
		SAND, yellowish brown (5/4) medium grained, poorly graded wet					water
			0				
	20						0929
	21						
	22						
	23						

Boring Logs
Former Livestock Dipping Facility (FTRI-047)

HTW DRILLING LOG

HOLE NO. FTRI-017 DP01

1. COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: EPS	SHEET 1 OF 3 SHEETS
3. PROJECT: 40747 ESI 49 sites	4. LOCATION: Fort Riley	
5. NAME OF DRILLER: Eric Marhoff / Scott Miller	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / 6620 DT Direct Push	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 6620 DT; 5' macrocore	8. HOLE LOCATION: NA	
	9. SURFACE ELEVATION: NA	
	10. DATE STARTED: 7/12/06	11. DATE COMPLETED: 7/12/06
12. OVERBURDEN THICKNESS: 15'	15. DEPTH GROUNDWATER ENCOUNTERED: 14	
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA	
14. TOTAL DEPTH OF HOLE: 15'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
3	—	3 Pb	Pesticides 3	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
NA	Bentonite	Temporary Piezometer	NA	

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	0	Top soil + Leaf Litter					
		SILT, dark grayish brown (4/2 10YR) soft, non plastic trace sand, damp	0				
	1		0				
			0	3.1 / 4			
	2						
		SILT, brown (4/3 10YR), damp soft, non plastic, w/ sand	0				
	3		0		SB01 3-4		
	4						
			0				
	5						1050

HTW DRILLING LOG

HOLE NO. FTRI-047 DP01

PROJECT 40747 Est 49 sites

INSPECTOR

SHEET # 2 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME As Above					
			0				
	6			3/5			
			0				
	7		0				
					SB02 7-8		
		sand, very dark, grayish brown, ~~dry~~ (3/2 10YR) damp loose					
	8		0				
		CLAY, dark brown 3/3 10YR stiff, damp, highly plastic trace silt					
			0				
	9						
			0				
	10						1055
		SAND, dark brown (3/3 10YR) loose, damp,	0				
	11		0	5/5	SB03 10-12		
		SILT, dark grayish brown (4/2 10YR) soft, medium plasticity, damp, w/clay					
	12		0				
			0				
	13	CLAY, brown (4/3 10YR), medium, highly Plastic w/sand, trace silt	0				
	14	wet					@ Water

PROJECT 40747

HOLE NO. FTRI-047 DP01

051601
Form MRK-55-2

HTW DRILLING LOG

HOLE NO: FTRI-047 DP01

PROJECT: 40747 ESI 49 sites

INSPECTOR: [illegible]

SHEET # 3 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME As Above	0				1100
	15	Refusal Set temporary piezometer					

PROJECT: 40747

HOLE NO.: FTRI-047 DP01

051601
Form MRK-55-2

HTW DRILLING LOG

HOLE NO. FTRI-047 DP02

1. COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: EPS
SHEET 1 OF 3 SHEETS	
3. PROJECT: 40247 ESI 49 sites	4. LOCATION: Fort Riley
5. NAME OF DRILLER: Eric Merhoff / Scott Miller	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 6620 DT; 5' macrocore	8. HOLE LOCATION: NA
	9. SURFACE ELEVATION: NA
	10. DATE STARTED: 7/12/06 — 11. DATE COMPLETED: 7/12/06
12. OVERBURDEN THICKNESS: 16.5'	15. DEPTH GROUNDWATER ENCOUNTERED: 16.2'
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
14. TOTAL DEPTH OF HOLE: 16.5'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
3	—	3 Pb	Pesticides 3	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
NA	Bentonite	Temporary Piezometer	NA	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	0	Topsoil leaf litter	0				
		SILT, dark brown 3/4 10YR, damp, soft non-plastic		5.8/5			
	1	SILT, brown (4/3 10YR) damp soft non plastic, w/ sand	0				
	2		0		5801 2-3		
	3		0				
	4		0				
	5		0				1205

HTW DRILLING LOG

HOLE NO. FTRI-047 BP02

PROJECT 40747 ESI 49 sites

INSPECTOR

SHEET 2 OF 5 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME As Above	0				
	6		0				
				4.1/5	SB02 6-8		
	7	SILT, very dark brown (2/2 10YR) medium, ~~near~~ trace plastic, damp, trace sand, some clay	0				
	8		0				
		SILT, dark brown (3/3 10YR) damp, soft, medium	0				
	9	plasticity, some clay, trace sand					
			0				
	10						1210
			0		SB03 10-11		
		CLAY, very dark brown (3/2 10YR) soft, medium plasticity		4.7/5			
	11	trace sand, trace silt	0				
	12	SAND, very dark brown, 2/2 10YR, damp, w/clay	0				
		CLAY, very dark brown (3/2 10YR)	0				
	13	Soft, highly plastic, ~~w~~ sand					
			0				
	14						

HTW DRILLING LOG

HOLE NO. FTRI-047 DP02

PROJECT 40747 ESI 49 sites

INSPECTOR

SHEET 03 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME As Above	0				1215
	15		0	1.5 / 1.5			
	16		0				water
							1220
		Refusal					
		Set a temporary piezometer					

HTW DRILLING LOG

HOLE NO. FTRI-047 DP03

1. COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: EPS
SHEET 1 OF 4 SHEETS	
3. PROJECT: 40747 ESI 49 sites	4. LOCATION: Fort Riley
5. NAME OF DRILLER: Eric Markoff / Scott Miller	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 6620DT; 5' macrocore	8. HOLE LOCATION: NA
	9. SURFACE ELEVATION: NA
	10. DATE STARTED: 7/12/06 — 11. DATE COMPLETED: 7/12/06
12. OVERBURDEN THICKNESS: 24'	15. DEPTH GROUNDWATER ENCOUNTERED: 23.7
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
14. TOTAL DEPTH OF HOLE: 24	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
3	—	3 Pb	Pesticides 3	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
NA	Bentonite	Temporary Piezometer	—	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	0	Topsoil & leaf litter					
		SILT, brown (7/3 10YR) dmp soft, non plastic	0				
				3.6 / 5	SB01 8-3		
	1		0				
	2		0				
	3		0				
	4		0				
		CLAY, yellowish brown (5/6 10YR) stiff, dmp, medium plastic trace sand, some silt	0				
	5						1245

HTW DRILLING LOG

HOLE NO. FTRI-017 DP03

PROJECT 40747 ESI 49 sites

INSPECTOR EES

SHEET 2 OF 4 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME AS ABOVE	0				
	6		0	4.2/5	SB02 6-7		
	7		0				
		silt, yellowish brown (5/4 10YR) soft, damp, non plastic, w/sand	0				
	8						
	9		0				
		clay, brownish yellow (6/6 10YR) stiff, damp, non plastic w/silt	0				1250
	10			3.8/5			
	11		0		SB03 11-12		
	12		0				
			0				
	13		0				
	14		0				

PROJECT 40747

HOLE NO. FTRI-017 DP03

051601
Form MRK-55-2

HTW DRILLING LOG

HOLE NO. FTRI-017 DP03

PROJECT 40747 ESI 49 sites

INSPECTOR

SHEET 3 OF 4 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME As Above	0				
	15						1255
		SILT; light yellowish brown (5/4 10YR) soft, damp medium plasticity; w/clay	0				
	16		0	4.7/5			
	17		0				
	18		0				
		CLAY; yellowish brown (5/4 10YR) stiff, highly plastic	0				
	19	CLAY, pale brown (6/3 10YR) damp, soft, highly plastic w/silt	0				
	20						1300
	20		0				
				3.5/4			
	21		0				
	22		0				
			0				
	23						

HTW DRILLING LOG

HOLE NO. FTRI-047 DP03

PROJECT 40747 ESI 49 sites

INSPECTOR [illegible]

SHEET 6 4 OF 4 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAND; yellowish brown 5/4 10YR loose, damp; fine-grained poorly graded	0				
		wet					∇ Water
							1305
	24	refusal					
		Set temporary piezometer					

HTW DRILLING LOG

HOLE NO. FTRL-047 DP04

1. COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: EPS
SHEET 1 OF 3 SHEETS	
3. PROJECT: 40747 ESE 49 sites	4. LOCATION: Fort Riley
5. NAME OF DRILLER: Eric Merhoff / Scott Miller	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 6620DT; 5' macrocore	8. HOLE LOCATION: NA
	9. SURFACE ELEVATION: NA
	10. DATE STARTED: 7/12/06 / 11. DATE COMPLETED: 7/12/06
12. OVERBURDEN THICKNESS: 19	15. DEPTH GROUNDWATER ENCOUNTERED: 18.6
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
14. TOTAL DEPTH OF HOLE: 19	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
3	—	3 Pb	Pesticides 3	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
NA	Bentonite	Temporary Piezometer	—	

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	0	Top Soil + Leaf Litter					
		SAND, yellowish brown (5/6 10YR) damp	0				
		SILT, light brownish gray (6/2 10YR) soft, damp, trace sand, non plastic		3.1			
	1		0				
			0				
	2				SB01 2-3		
			0				
	3						
			0				
	4						
		SILT, brown (4/3 10YR) medium medium plasticity, trace clay, trace sand	0				
	5						0950

HTW DRILLING LOG

HOLE NO. FIRI-047 DF04

PROJECT 40747 ESE 49 sites

INSPECTOR

SHEET 02 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	6	SAME AS Above	0				
			0				
	7	CLAY, brownish yellow (5/6 10YR) medium, medium plasticity, some silt trace sand	0	5/5	SB02 6-8		
	8		0				
	9		0				
	10		0				0955
	11		0	4.8/5			
	12	SILT, light yellowish brown (5/4 10YR), soft, non plastic damp, trace sand	0		SB03 11-12		
			0				
	13	CLAY, yellowish brown (5/6 10YR) medium, highly plastic, damp, trace silt	0				
	14		0				

HTW DRILLING LOG

HOLE NO. FTRI-047 DPOH

PROJECT 40747 ESI 49 sites

INSPECTOR [illegible]

SHEET # 3 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME AS Above	0				
	15						1000
			0				
	16		0	3.3/4			
		SAND, yellowish brown (5/6 10YR) fine grained, damp trace silt	0				
	17						
			0				
	18						
		wet	0				@water
	19	Refusal Bottom of hole Set temporary piezometer					

HTW DRILLING LOG

HOLE NO. FTRI-047 DP05

1. COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: ESE	SHEET 1 OF 3 SHEETS
3. PROJECT: 40747 ESE 49 sites	4. LOCATION: Fort Riley	
5. NAME OF DRILLER: Eric Merhoff / Scott Miller	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 6620 DT; 5' macrocore	8. HOLE LOCATION: NA	
	9. SURFACE ELEVATION: NA	
	10. DATE STARTED: 7/12/06	11. DATE COMPLETED: 7/12/06
12. OVERBURDEN THICKNESS: 22	15. DEPTH GROUNDWATER ENCOUNTERED: 21.4	
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA	
14. TOTAL DEPTH OF HOLE: 22	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
3	—	3 Pb	Pesticides 3	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
NA	Bentonite	Temporary Piezometers	NA	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	0	Top soil, leaf litter					
		SILT, brown (5/3 10YR) damp, non plastic, trace sand	0				
	1		0				
				4/5			
	2		0		SB01 2-3		
	3		0				
			0				
	4	CLAY, yellowish brown (5/4 10YR) medium, trace plastic, damp, trace sand, & silt	0				0855
	5						

HTW DRILLING LOG

HOLE NO: FTRI-047 DP05

PROJECT: ESI 49 sites 40747

INSPECTOR: [illegible]

SHEET 2 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME As Above	0				
	6	SILT, yellowish brown (5/6 10YR), damp, soft trace plasticity, trace sand	0	4.2/5	SB02 6-7		
	7		0				
	8		0				
	9	SILT, pale brown (6/3 10YR) medium, trace plasticity damp, trace sand	0				
	10		0				0900
	11		0	4.8/5	SB03 11-12		
	12		0				
	13		0				
	14	CLAY, dark yellowish brown (4/6 10YR) medium, high plastic damp	0				

HTW DRILLING LOG

HOLE NO. FTRL-047 DP05

PROJECT 40747 ESI 49 sites

INSPECTOR

SHEET 3 OF 3 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		SAME As Above	0				
	15						0905
			0				
	16			5/5			
		SILT, light brownish gray (½ 10YR) soft, highly plastic, trace sand	0				
	17						
			0				
	18						
			0				
	19						
			0				
	20						0910
		SAND, pale brown (⅓ 10YR) damp, loose, mostly quartz fine grained	0	2/2			
	21		0				
		wet.					▼ water
			0				0915
	22	Refusal Boring did not produce H_2O will set a temporary piezometer					

Boring Logs
Former Pesticide Storage Facilities (FTRI-048)

HTW DRILLING LOG

HOLE NO. FTRI-048 DP01

1. COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: EPS	SHEET 1 OF 1 SHEETS
3. PROJECT: 40747 ESI 49 sites	4. LOCATION: Fort Riley	
5. NAME OF DRILLER: Dennis Eller	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / direct-push	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 4200; 4' macrocore	8. HOLE LOCATION: N/A	
	9. SURFACE ELEVATION: NA	
	10. DATE STARTED: 6/30/06	11. DATE COMPLETED: 6/30/06
12. OVERBURDEN THICKNESS: NA	15. DEPTH GROUNDWATER ENCOUNTERED: NA	
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA	
14. TOTAL DEPTH OF HOLE: 5'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
2	—	—	2 pesticides	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	Bentonite	NA	NA	

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	0	CLAY, dark grayish brown (10YR 4/2) stiff, dry, non plastic w/ grass roots	0	1/1	SB01		1245
	2		0	3/4			
	3	CLAY, dark yellowish brown (10YR 4/4) dry, stiff	0				
	4		0		SB02		1250
	5						

HTW DRILLING LOG

HOLE NO. FTRI-048 DP02

1. COMPANY NAME: Burns & McDonnell	2. DRILLING SUBCONTRACTOR: EPS
SHEET 1 OF 1 SHEETS	
3. PROJECT: 40747 ESI-49sites	4. LOCATION: Fort Riley
5. NAME OF DRILLER: Dennis Eller	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 420C; 4" macrocore	8. HOLE LOCATION: NA
	9. SURFACE ELEVATION: NA
	10. DATE STARTED: 6/30/06 — 11. DATE COMPLETED: 6/30/06
12. OVERBURDEN THICKNESS: NA	15. DEPTH GROUNDWATER ENCOUNTERED: NA
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
14. TOTAL DEPTH OF HOLE: 5'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
2	—	—	2 pesticides	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	Bentonite	NA	NA	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	0	clay, very dark brown (7/2) stiff w/ gravel, medium plasticity, dry (10YR)	0	1/1	5B01		1326
	2		0	3.6/4			
	3	clay, dark yellowish brown (3/4) stiff, trace plastic (10YR)	0				
	4		0		5B02		1325
	5						

HTW DRILLING LOG

HOLE NO. FTRI-048 DP03

1 COMPANY NAME	2. DRILLING SUBCONTRACTOR	SHEET 1 OF 1 SHEETS
Burns & McDonnell	EPS	

3. PROJECT	4 LOCATION
40747 ESI 49 sites	Fort Riley
5. NAME OF DRILLER: Dennis Eller	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe / Direct Push
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe 4200; 4" macrocore	8. HOLE LOCATION: N/A
	9. SURFACE ELEVATION: NA
	10. DATE STARTED: 6/30/06 — 11. DATE COMPLETED: 6/30/06
12. OVERBURDEN THICKNESS: NA	15. DEPTH GROUNDWATER ENCOUNTERED: NA
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
14. TOTAL DEPTH OF HOLE: 5'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
0	0	0	0

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
2	—	—	2 pesticides	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	Bentonite	NA	NA	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c (10YR)	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	0	CLAY, brown (4/3) dry, stiff non plastic, trace sand w/ grass roots	0		SB01		
	1						1405
		CLAY, brown (4/3 10YR), dry stiff, trace plasticity					
	2		0				
	3		0				
	4		0		SB02		
	5						1410

Appendix B
Survey Data

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Junction City, Kansas 66441
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KAW VALLEY ENGINEERING, INC.

FT. RILEY BORING LOCATIONS
DATUM = UTM Zone 14, NAD83 US SURVEY FEET
NAVD88 US SURVEY FEET

FTRI #	DP/SS #	NORTHING	EASTING	ELEVATION
6	DP01	14208376.505	2287408.367	1048.756
6	DP02	14208381.456	2287504.721	1047.943
6	DP03	14208431.877	2287593.007	1047.543
6	DP04	14207730.390	2287660.026	1048.259
6	S01	14207686.994	2287565.951	1049.288
6	S02	14207599.816	2287596.384	1045.594
6	S03	14207505.263	2287614.691	1044.987
6	S04	14207418.418	2287653.955	1044.954
6	S05	14207365.259	2287690.683	1044.762
8	S01	14193629.305	2272150.873	1080.205
10	DP01	14206804.229	2281176.617	1066.719
15	DP01	14205319.511	2287608.715	1047.200
15	DP02	14205364.243	2287700.360	1047.236
15	DP03	14205558.968	2287634.359	1047.847
47	DP01	14193817.289	2272262.635	1067.713
47	DP02	14193868.099	2272281.361	1069.249
47	DP03	14193871.592	2272338.808	1077.090
47	DP04	14193797.142	2272320.512	1072.063
47	DP05	14193766.053	2272363.992	1074.293
47	S01	14193843.424	2272331.183	1077.672
47	S02	14193819.956	2272350.436	1076.708
47	S03	14193817.656	2272372.372	1076.971
47	S04	14193790.460	2272373.007	1077.930
48	DP01	14207157.512	2262364.171	1333.163
48	DP02	14205816.147	2263972.003	1326.366
48	DP03	14201262.083	2273586.383	1121.195

FT. RILEY BORING LOCATIONS
DATUM = UTM Zone 14, NAD83 US SURVEY FEET
NAVD88 US SURVEY FEET

FTRI #	DP/SS #	NORTHING	EASTING	ELEVATION
50	S01	14194972.082	2256880.541	1070.159
50	S02	14194972.194	2256894.831	1070.426
50	S03	14194909.461	2256887.285	1069.471
50	S04	14194845.744	2256876.687	1071.476
50	S05	14194845.058	2256889.514	1071.411
50	S06	14195884.658	2258697.805	1080.352
50	S07	14195899.161	2258754.334	1079.695
50	S08	14195858.878	2258743.954	1080.669
50	S09	14195845.745	2258707.515	1080.657
50	S10	14195859.104	2258762.227	1080.302
50	S11	14193016.267	2267148.094	1087.008
50	S12	14192990.158	2267155.300	1086.062
50	S13	14193011.334	2267170.828	1086.555
50	S14	14193031.671	2267194.800	1087.602
50	S15	14193012.606	2267199.358	1086.575
50	S16	14199319.381	2273499.470	1100.237
50	S17	14199263.933	2273456.322	1100.560
50	S18	14199273.482	2273500.342	1099.653
50	S19	14199284.574	2273547.441	1099.082
50	S20	14199226.725	2273503.483	1099.098
50	S21	14207488.067	2280715.017	1071.344
50	S22	14207480.783	2280736.466	1071.466
50	S23	14207460.263	2280721.092	1070.942
50	S24	14207448.579	2280703.024	1070.683
50	S25	14207437.541	2280733.590	1070.171
20	DP01	14214435.121	2259673.953	1289.758
20	DP02	14214899.952	2259897.904	1295.065
20	DP03	14215453.812	2260175.200	1286.147
20	DP04	14215864.913	2260406.977	1272.983
20	DP05	14216206.838	2260726.902	1264.191
20	DP06	14216576.333	2260933.624	1256.688
20	DP07	14216480.082	2261304.192	1255.386
20	DP08	14216209.447	2261549.040	1255.435
20	DP09	14215776.275	2261262.854	1272.968
20	DP10	14215432.162	2261043.910	1275.827
20	DP11	14215106.193	2260841.222	1279.396
20	DP12	14214803.951	2260494.335	1279.345
20	DP13	14209618.231	2257473.237	1290.823
20	DP14	14209578.681	2257572.693	1291.510
20	DP15	14209531.301	2257473.316	1300.655
20	DP16	14209520.260	2257529.561	1289.617
20	DP17	14213651.062	2264920.772	1273.824
20	DP18	14213461.114	2265021.220	1273.685
20	DP19	14213680.216	2264993.297	1274.487
20	DP20	14213499.353	2265107.146	1277.704

FT. RILEY BORING LOCATIONS
DATUM = UTM Zone 14, NAD83 US SURVEY FEET
NAVD88 US SURVEY FEET

FTRI #	DP/SS #	NORTHING	EASTING	ELEVATION
22	DP01	14205206.575	2288136.306	1047.985
22	DP02	14204940.978	2288125.389	1048.827
22	DP03	14204832.227	2288405.146	1050.720
22	DP04	14204797.820	2288635.093	1046.938
22	DP05	14204986.546	2288823.601	1047.631
23	DP01	14208798.885	2266065.662	1275.268
23	DP02	14208764.370	2266162.061	1256.806
23	DP03	14208634.392	2266238.525	1259.403
23	DP04	14208560.847	2266138.269	1260.795
24	DP01	14193208.646	2258653.500	1072.482
24	DP02	14193358.947	2258825.277	1065.425
24	DP03	14193168.978	2258748.216	1064.545
24	DP04	14193252.025	2258841.294	1065.308
25	DP01	14194833.090	2273889.635	1058.048
25	DP02	14194915.370	2274079.787	1057.389
25	DP03	14194802.933	2274026.533	1057.754
25	DP04	14194665.039	2274017.322	1058.282
25	DP05	14194666.723	2273892.057	1058.286
26	DP01	14276373.567	2226137.084	1280.764
26	DP02	14275965.236	2226137.645	1285.592
26	DP03	14276482.952	2226546.154	1301.016
26	DP04	14275913.896	2226527.359	1303.105
13	DP01	14200416.246	2271150.251	1254.247
13	DP02	14200391.107	2271206.536	1255.964
13	DP03	14200364.935	2271111.676	1256.444
13	DP04	14200333.216	2271187.297	1256.555
39	DP01	14210872.411	2265406.896	1288.890
39	DP02	14211235.762	2265529.682	1281.037
39	DP03	14211344.589	2265857.569	1278.483
39	DP04	14210964.763	2265997.712	1288.688
39	DP05	14210553.565	2266058.667	1292.252
39	DP06	14210076.879	2266251.831	1290.152
39	DP07	14209911.317	2266018.310	1289.237
39	DP08	14209792.091	2265653.887	1288.902
40	DP01	14207103.516	2280239.619	1067.882
40	DP02	14207039.677	2280253.396	1068.880
40	DP03	14206998.143	2280224.720	1068.496
40	DP04	14207037.717	2280187.602	1067.570

FT. RILEY BORING LOCATIONS
DATUM = UTM Zone 14, NAD83 US SURVEY FEET
NAVD88 US SURVEY FEET

FTRI #	DP/SS #	NORTHING	EASTING	ELEVATION
41	DP01	14193241.008	2272346.837	1061.614
41	DP02	14193171.830	2272374.887	1060.710
41	DP03	14193080.468	2272250.149	1060.735
41	DP04	14206674.963	2285007.242	1052.031
41	DP05	14206616.269	2284955.970	1052.388
41	DP06	14206539.675	2284986.653	1052.609
41	DP07	14206310.229	2285089.663	1051.466
41	DP08	14206225.251	2285167.864	1050.837
41	DP09	14206349.896	2285201.869	1051.959
45	DP01	14192378.953	2269278.723	1125.500
45	DP02	14192359.330	2269370.160	1126.962
45	DP03	14192218.839	2269250.236	1123.491
45	DP04	14192208.121	2269346.907	1125.319
51	DP01	14190188.194	2274396.879	1061.150
51	DP02	14190191.496	2274360.534	1061.375
52	DP01	14201651.123	2273085.716	1181.923
52	DP02	14201891.640	2272215.134	1184.110
52	DP03	14201566.984	2272327.857	1171.548
52	S01	14201818.662	2273439.937	1142.787
52	S02	14201624.341	2273426.000	1139.820
52	S03	14201549.059	2273480.738	1130.635
5	S01	14206305.913	2257792.766	1293.040
14	S01	14199239.550	2272787.321	1123.614
14	S02	14199238.430	2272772.051	1124.821
14	S03	14199250.928	2272772.521	1124.826
36	DP01	14204558.334	2288817.482	1050.761
36	DP02	14204350.562	2289382.088	1047.908
36	DP03	14204728.536	2289638.780	1046.514
37	SB01	14200373.276	2274885.084	1075.807
37	SB02	14200336.726	2274952.453	1075.382

FT. RILEY BORING LOCATIONS
DATUM = UTM Zone 14, NAD83 US SURVEY FEET
NAVD88 US SURVEY FEET

FTRI #	DP/SS #	NORTHING	EASTING	ELEVATION
43	DP01	14192927.314	2257709.516	1068.491
43	DP02	14192921.518	2257792.787	1067.624
43	DP03	14192840.041	2257702.623	1069.184
43	DP04	14192822.943	2257784.472	1068.806
43	DP05	14192266.464	2258201.278	1067.532
43	DP06	14192263.336	2258269.872	1067.819
43	DP07	14192171.355	2258192.295	1067.471
43	DP08	14192158.279	2258265.081	1067.651
43	DP09	14199314.126	2273505.435	1099.991
43	DP10	14199284.241	2273543.303	1099.155
43	DP11	14199266.910	2273467.907	1100.294
43	DP12	14199235.324	2273504.847	1099.038
43	DP13	14202641.783	2276307.306	1069.826
43	DP14	14202713.995	2276405.927	1068.879
43	DP15	14202555.759	2276354.527	1067.861
43	DP16	14202626.759	2276468.487	1066.940
57	DP01	14202940.341	2261091.911	1265.152
57	DP02	14202922.358	2261021.712	1262.338