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1.0 INTRODUCTION

The City of Kansas City, Missouri Aviation Department is filing for a stormwater permit for Richards-Gebaur Airport. This is one of two permit applications being filed by KCAD for the airport.

1.1 Site Description and History

The area which is now Richards-Gebaur Memorial Airport was acquired by Kansas City in 1941 and the Grandview Airport was constructed. The Air Force acquired the facility in 1952 and it has operated continuously as an Air Force base until September 30, 1994. In 1980, the majority of the base was transferred to the General Services Administration (GSA), and Kansas City leased much of this property and began their current airport operations. Kansas City later purchased that leased property from the GSA. The Kansas City-owned property is indicated in Figure 1 (back pocket).

Currently, property owners at Richards-Gebaur Airport include the City of Kansas City (City) , U.S. Air Force, and U.S. Marine Corps. The City leases portions of the property to the U.S. Marine Corps, Million Air, City of Belton, Calvary Bible College, TRACOR, Inc., B.T. Manufacturing, Branson Airlines, Falcon Gun Club, and Electronics Institute. The Million Air lease is the only property contiguous to the active airport.

On September 30, 1994, the Air Force ceased operations at the facility. The ultimate plan for the Air Force property is transfer to the City once the Base Realignment and Closure (BRAC) process is complete. Activities under the BRAC program include environmental restoration of the property. The City plans to lease parcels of the Air Force property in the near future and sublet the parcels to commercial businesses.

1.2 Report Organization

This application report is organized as follows.

Section 2 describes the scope of the application including the airport tenants to be included in the permit and the applicant's proposed approach for compliance monitoring.

Section 3 identifies the drainage basins including size, drainage patterns, general sources of stormwater pollutants, and proposed stormwater sampling locations.

Section 4 describes existing stormwater data.

Section 5 summarizes the available information on potential pollutant sources, past and present.

Section 6 describes the proposed analytical parameters for stormwater monitoring.

Section 7 references the required elements of application forms MO-1 and EPA Form 2F.

2.0 SCOPE OF APPLICATION

2.1 Activities Covered

The City requests that a permit be issued for the airport activities consisting of ground vehicle fueling, maintenance, and repair performed by the Kansas City Aviation Department, as well as aircraft fueling, maintenance and repair performed by the fixed base operator, Million Air (FBO) which leases space from the City.

The Air Force-owned property along the flight line (north of the City's airport operation) is currently leased to the City. The Air Force-owned property is not included in this permit application. Also, industrial activities that may be occurring on the City's leased properties (other than FBO) in the vicinity of the airport are not included in this permit application.

There are several known locations of past industrial activity or areas where industrial wastes were stored or discarded. There is evidence of existing contamination associated with some of these locations. Most of these sites were identified as part of the Air Force Installation Restoration Program prior to Kansas City commencing current airport operations in 1980. The Army Corps of Engineers (USACE) is continuing assessment work on these sites under the Formerly Utilized Defense Sites (FUDS) program. These sites are included in the permit application.

This is one of two applications that KCAD is submitting for Richards-Gebaur Memorial Airport. The other application covers property owned by the Air Force and leases to KCAD. Both applications cover all the airport property owned by KCAD or under the operational control of KCAD.

2.2 Area Included

The area to be included in the permit application is presented in Figure 1. The areas of current and past KCAD and FBO industrial activities, as well as the FUDS sites are indicated in this figure. The City property to the east of Bales Avenue and south of Scope Creek are not included on the permit application because there are no industrial activities or areas of known contamination; that area is distant from the current airport activities.

2.3 Proposed Monitoring Approach

Industrial activities subject to the rules for stormwater discharge monitoring are present in the drainage areas tributary to the two proposed monitoring outfalls (See Section 3). The other sampling locations presented in this application have been selected to monitor

for potential pollutant sources from past activities. The applicant proposes that compliance monitoring be required only for those sampling locations where significant pollutants are detected in the application analysis.

3.0 IDENTIFICATION OF OUTFALLS

The area included in this permit application is divided into 17 drainage basins (See Figure 3 for locations) and are described below.

3.1 Drainage Area 1

Drainage Area 1 is 36 acres of mostly green area adjacent to runway 18-36. There are no current or known past industrial activities in this area and no known environmental contamination. Therefore, no outfall is designated for this area.

3.2 Drainage Area 2

Drainage Area 2 is 27 acres, consisting of about 11 acres of pavement and roof top and 16 acres of green area. A building is located in this drainage area that was formerly used as a military hangar and later for aircraft rehabilitation work. This hangar is currently used for storage and no significant materials are stored outside. There are no industrial activities in this drainage area. Drainage in this area is toward the north to a culvert located along Missouri Highway 150. Because of the potential for stormwater pollution due to past industrial activities, stormwater will be monitored at the culvert (Sampling Location A). This sampling location will be proposed for a monitoring outfall in the permit application only if significant contamination is detected in the stormwater.

3.3 Drainage Area 3

Drainage Area 3 is 67 acres, consisting of about 43 acres of impervious roads, runways, and taxiways and 24 acres of green area. A portion of this area is owned by the Air Force and is not included in the permit application. The east side of the building discussed in Section 3.2- Drainage Area 2 is located in this drainage area. Again, because of the potential for stormwater pollution associated with activities at this building, stormwater will be monitored in this drainage area. The drainage area drains to the north and monitoring will be performed at a culvert located along Missouri Highway 150 (Sampling Location B). This sampling location will be proposed for a monitoring outfall in the permit application only if significant contamination is detected in the stormwater.

An Air Force-owned communications transmitter facility is located within Drainage Area 3. This facility is not addressed in this permit application.

3.4 Drainage Area 4

Drainage Area 4 is 20 acres consisting of mostly green area along Missouri Highway 150. The area drains to the north to a culvert located along the highway. There are no current or known past industrial activities associated with this area and no known areas of environmental contamination. Therefore, no outfall is designated for this area.

3.5 Drainage Area 5

Drainage Area 5 is 73 acres, consisting of 37 acres of runways and other impervious surfaces and 36 acres of green area. Drainage is toward the northeast to a culvert located along Missouri Highway 150. A parcel owned by the Air Force is located within this drainage area and the facility in the parcel has served as a fire training pit. This parcel is not addressed in this permit; any required monitoring associated with that facility will be addressed in the permit application for the Air Force-owned property. There are no other current or known past industrial activities and known environmental contamination on Kansas City property in this area. Therefore, no outfall is designated for this area.

3.6 Drainage Area 6

Drainage Area 6 is 41 acres, located in the northeast corner of the facility and is comprised mostly of green area. Drainage in this area is toward the east to several culverts located along the St. Louis & San Francisco Railroad line. There are no current or known past industrial activities associated with this area and no known areas of environmental contamination. Therefore, no outfall is designated for this area.

3.7 Drainage Area 7

Drainage Area 7 is 5 acres of green area located along the St. Louis & San Francisco Railroad line. This area drains toward the south to Scope Creek through a natural channel. This area is part of the Northeast Landfill FUDS site and has also been used for outside storage of numerous materials by KCAD. Because of the potential for stormwater pollutants associated with these activities, stormwater monitoring will be performed along the natural drainage channel immediately upstream of its discharge point to Scope Creek (Sampling Location C). This sampling location will be proposed for a monitoring outfall in the permit application only if significant pollutants are detected in the stormwater.

3.8 Drainage Area 8

Drainage Area 8 is 98 acres of mostly green area. This area drains toward the south to Scope Creek. This area is part of the Northeast Landfill FUDS site and has also been used

for outside storage of numerous materials by KCAD. A skeet and trap shooting range, leased by KCAD to the Falcon Gun Club, is also located in this area. Runoff is directed along the unpaved access road and drains under the road at a culvert directly uphill from Scope Creek. Because of the potential for stormwater pollutants due to the Northeast Landfill FUDS site and other activities, stormwater will be monitored at the culvert along the unpaved access road (Sampling Location D). This sampling location will be proposed for a monitoring outfall in the permit application only if significant contamination is detected in the stormwater.

3.9 Drainage Area 9

Drainage Area 9 is 21 acres of mostly green area. This area drains toward the south to Scope Creek. An Air Force-owned rifle and pistol range is located within this area. The rifle and pistol range will not be addressed in this application. There are no current or known past industrial activities and no known areas of environmental contamination in this area. Therefore, no monitoring outfall is designated in this area.

3.10 Drainage Area 10

Drainage Area 10 is 43 acres, comprised of 5 acres of impervious surface and 38 acres of green area. Stormwater drainage is toward the south to Scope Creek. This area includes the Former Waste Water Treatment Plant FUDS site. There are no current industrial activities associated with this drainage area. The former Waste Water
Treatment Plant is relatively flat and runoff flows to either the northeast or southwest with a ridge at the center of the former plant. Drainage to the southwest collects at a culvert located along the access road. Drainage to the northeast does not concentrate into a channel before entering a drainage swale that carries runoff from north and upstream of the FUDS site to Scope Creek. Stormwater quality is expected to be the same for runoff in either direction from the FUDS site. The surfaces types, drainage area, and potential for stormwater pollutants are the same across the former plant. The culvert that collects runoff southwest of the former plant will be monitored (Sampling Location E) to represent the stormwater quality associated with runoff from the former plant. Monitoring runoff toward the northeast is not feasible because the stormwater does not concentrate into a swale prior to mixing with stormwater that drains from an area where stormwater pollutants are not expected. Sampling location E will be proposed as an outfall in the permit application only if significant pollutants are detected in the stormwater.

3.11 Drainage Area 11

Drainage Area 11 is 35 acres immediately west and adjacent to Scope Creek. The area is comprised of about 13 acres of impervious surfaces and 22 acres of green area. This area

drains eastwardly directly into Scope Creek or into several storm sewers that discharge to the creek. The majority of this area is leased by KCAD to U.S. Marine Corps and to B.T. Manufacturing. The Marine Corps is constructing office space and parking area in part of their leased area and a soil-fill building pad, for future expansion, has been placed on the remainder of the area. There are no industrial activities associated with the Marine Corps. B.T. Manufacturing is a manufacturer of screws, nuts, and bolts. Any required monitoring associated with that facility shall be the responsibility of B.T. Manufacturing. There are no current industrial activities other than B.T. Manufacturing and no known areas of environmental contamination in this area. Therefore, no monitoring outfall is proposed in this area.

3.12 Drainage Area 12

Drainage Area 12 is 72 acres, comprised mostly of green area with the remainder of the area covered by active runway 18-36, inactive runway, and taxiways. Drainage is toward the east and southeast. Runoff is intercepted by a detention pond located on Air Force property downstream of Area 12. That detention pond discharges to the sanitary sewer under normal flow. The pond inlet structure has an flowrate capacity equivalent to the maximum runoff from a 7-year storm event. When the capacity of the inlet structure is exceeded, stormwater bypasses the pond and it enters a storm sewer that crosses Drainage Area 11 and discharges into Scope Creek. There are no current or known past industrial activities and no known areas of environmental contamination associated with Drainage Area 12. Therefore, no outfall is proposed for this area.

3.13 Drainage Area 13

Drainage Area 13 is 17 acres of green area adjacent to runway 18-36. Drainage is toward the west and the runoff collects at a culvert located along the Kansas City Southern Railroad line where it is discharged off of City property. There are no current or known past industrial activities and no known areas of environmental contamination associated with this area. Therefore, no outfall is proposed for this area.

3.14 Drainage Area 14

Drainage Area 14 is 52 acres, comprised mostly of green area with the remainder of the area covered by active runway 18-36, an inactive runway, and taxiways. Drainage is toward the southeast. Runoff is intercepted by an enclosed storm sewer system that crosses Air Force-owned property and Drainage Area 11, and is discharged into Scope Creek. There are no current or known past industrial activities and no known areas of environmental contamination associated with this area. Therefore, no outfall is proposed for this area.

3.15 Drainage Area 15

Drainage Area 15 is 31 acres of green area located adjacent to Scope Creek. Drainage is to the south into Scope Creek. There are no current or known past industrial activities and no known areas of environmental contamination associated with this area. Therefore, no outfall is proposed for this area.

3.16 Drainage Area 16

Drainage Area 16 is 550 acres comprised of 163 acres of impervious surfaces and 387 of green area. About 190 acres of farmland drain onto City property from off the site. A portion of the golf course leased by Kansas City to the City of Belton is included in this drainage area. There are three parcels that are owned by the Air Force within this drainage area, one is located east of the south end of Runway 18-36 and two are located along Bales Avenue. These lots are not included in the permit application and any stormwater permitting requirements associated with these parcels shall be addressed elsewhere.

Drainage Area 16 includes the ground vehicle fueling, maintenance, and repair facilities owned and operated by the Kansas City Aviation Department as well as the facilities leased by the City to Million Air, the FBO, where aircraft fueling, maintenance and repair are performed. There are also Several FUDS sites located in this drainage area. Runoff in this drainage area is generally to the east and north toward Scope Creek. A channel with intermittent flow is located between Runway 18-36 and Bales Avenue and receives all of the runoff from this drainage area. This channel originates on City property. The channel is enclosed in a corrugated metal pipe arch culvert at the Bales Avenue crossing. This is the low point in the drainage area. The entrance to this culvert (upstream side) is proposed as Outfall 001.

3.17 Drainage Area 17

Drainage Area 17 is 160 acres comprised of about 10 acres of runway and 150 acres of green area. Drainage is to the west and runoff is diverted to a box culvert along the Kansas City Southern Railroad line where it flows off the site. This area is located at the south end of Runway 18-36. About 70 acres of farmland drain onto City property from off the site. There are no current or known past industrial activities and no known environmental contamination associated with this area. Therefore, no outfall is proposed for this area.

3.18 Drainage Area 18

Drainage Area 18 is 5 acres of mostly paved surface. Drainage is to the east and runoff is collected in an area inlet connected to a storm sewer system that drains much of the Air Force-owned property to the north and east of Drainage Area 18. The City's FBO leases part of Area 18; the FBO parks and fuels small aircraft in that area. The area inlet is proposed as Outfall 002.

4.0 EXISTING STORMWATER ANALYSIS

A stormwater sample was collected in November 1992 from Scope Creek downstream of Drainage Area 16. It was analyzed for oil and grease, biological oxygen demand, chemical oxygen demand, total suspended solids, total Kjeldahl nitrogen, nitrate/nitrite, and total phosphorus. This sampling effort was performed as part of a group permit application submitted by the American Association of Airport Executives (AAAE). The results of that analysis are included in Appendix A.

5.0 PAST AND CURRENT POLLUTANT SOURCES

This section describes the potential stormwater pollutant sources at the airport based on current airport activities and documented past Air Force activities.

5.1 Information Sources

The sources of information on current activities were:

- Facility tour and interview with Mr. David Malecki, Richards-Gebaur Airport Manager, Kansas City Aviation Department (KCAD).
- Review of an unpublished inventory of chemical products stored by KCAD at the airport. This list included products in small and large quantities, products that are not currently used at the facility, and hazardous and non-hazardous materials.

The sources of information for past Air Force activities and potential sources of contamination were:

- Interview with Mr. Malecki.
- Interview with Mr. Glenn Golson, Federal Facilities Group, MDNR.
- Interview with Mr. Mark Esch, BRAC Environmental Coordinator, U.S. Air Force.
- Interview with Mr. Jim Thompson, Richards-Gebaur Project Manager, FUDS program, U.S. Army Corps of Engineers (USACE).
- Review of Installation Restoration Program Records Search for Richards-Gebaur Air Force Base, Missouri, CH2M Hill, March 1983.
- Review of Installation Restoration Program, Phase II, Confirmation/Quantification, Stage 2, Richards-Gebaur Air Force Base, Missouri, Ecology and Environment, Inc., July 1988.
- Review of Draft Phase 1 Environmental Assessment, 155th Street and U.S. 71, Kansas City, Missouri, Terracon Environmental, Inc., January 8, 1993.
- Review of Preliminary Report of Findings, Literature Search, Former Richards-Gebaur Air Force Base, Missouri, RUST Environment & Infrastructure, November 10, 1993.
- Review of BRAC Cleanup Plan (BCP), Richards-Gebaur Air Force Base, Kansas City, Missouri, March 15, 1994.

The Rust report, Preliminary Report of Findings, Literature Search, Former Richards-Gebaur Air Force Base, Missouri, provides a summary of previous environmental investigations conducted at FUDS Sites at the airport. Selected Chapters of that report are reprinted in Appendix B.

5.2 Current Airport Activities

Current airport activities consist of general aviation support including aircraft fueling; minor aircraft maintenance; support vehicle maintenance, fueling, and washing; grounds upkeep, including mowing and limited herbicide, insecticide and fertilizer application; snow removal from paved surfaces; and periodic construction associated with facility repairs and improvements.

5.2.1 Fueling Operations

Fueling for aircraft is performed in Drainage Areas 16 and 18, upstream from proposed Outfalls 001 and 002. Fueling of ground support vehicles is performed in Drainage Area 16.

Unleaded gasoline and diesel fuel for ground vehicles are stored in two 2,000-gallon above ground storage tanks at the Kansas City, Missouri maintenance area. The above ground tanks have secondary containment. Fuel is dispensed to vehicles in a paved area. Rainwater is not drained from the containment structure but held until it evaporates. If in the future, draining the containment structure is required, the water will be tested prior to discharge. Until recently, the fuel was stored in underground storage tanks in the same area. These tanks are planned for closure in accordance with MDNR regulations.

An attendant is present during all fuel transfer and dispensing activities. Routine inventory control and monthly inventory reconciliation is also performed.

In the event that a fuel spill occurs outside of the containment in this area, the spill would flow across the pavement to a curb inlet. The storm drain from the curb inlet flows to the channel upstream of outfall 001. City personnel are on-site 24 hours per day and are instructed to contact the City Airport Manager in the event of a spill. The on-site personnel are equipped with sorbent materials and earth moving equipment to contain fuel migration as close to the spill origin as possible. The City also has an environmental remediation contractor retained for emergency response to spills.

The fixed base operator (FBO) has a 15,000-gallon Missouri registered underground storage tank for aviation gas. The dispensing unit is located in a paved area. The FBO also has three 5,000-gallon Jet A tanker trucks, a 1,000-gallon Jet A tanker and a 500-gallon unleaded gasoline tanker. These trucks are parked on the airport apron and fuel transfer is performed on the apron. An attendant is present at all times during fuel transfer. The mobile fuelers are equipped with emergency cutoff valves and fuel delivery is controlled with a manually operated "deadman" switch in conformance with FAA regulations.

In the event of a spill, the FBO is required to immediately notify the Kansas City Aviation Department. A spill would flow across the pavement to a grass-lined swale. The swale is approximately 800 feet long flowing to the channel upstream of outfall 001. As stated above, the City is on the site 24 hours per day and equipped to respond to a spill. In the event of a spill, the City would construct an earthen or sand berm in the channel to contain the spill.

5.2.2 Vehicle and Aircraft Maintenance

Minor quantities of petroleum-based fluids and solvents are used in the repair and maintenance of facility vehicles and aircraft by both the City and the FBO. Maintenance is performed in a hanger or the City vehicle maintenance garage. Spills, wash water, and other flows from the vehicle maintenance garage discharge to an oil/water separator and then to the sanitary sewer. No major overhauling, paint stripping, or degreasing of aircraft or aircraft engines is performed at this facility. These vehicle and aircraft maintenance activities are performed in Drainage Areas 16 and 18, tributary to outfalls 001 and 002.

5.2.3 Vehicle Washing

No aircraft washing is performed outside. Ground support vehicles are washed at an outside wash area that is sloped to drain to an inlet, through an oil/water separator, and to the sanitary sewer.

5.2.4 Fuel Storage for Emergency Power Generation

Diesel fuel and gasoline is stored in small aboveground tanks at several Instrument Landing System transmitter stations. The fuel storage is for operation of an emergency generator. A concrete wall is provided as secondary containment for these tanks. These fuel tanks are located in Drainage Areas 1, 16, and 17.

5.2.5 Pavement Deicing

Salt and sand are stored in an enclosed shed at the Kansas City, Missouri maintenance area in Drainage Area 16 (tributary to Outfall 001). Stormwater does not come in contact with the stockpiles. Salt is used for deicing roadways and sand is used for deicing air operations surfaces.

Pelletized Urea (46 % nitrogen) is used sparingly for deicing the air operations surfaces. Because of its cost, urea is used when mechanical deicing methods and sand application fail. This product is used in Drainage Areas 1, 2, 12, 14, and 16.

5.2.6 Grounds Maintenance

No insecticides or soil conditioners are used at the facility. No fertilizer is used in the air operations area. Agricultural fields outside of the air operations area are fertilized every few years.

Roundup (Isopropylamine salt of Glyphosate) is used selectively in limited areas such as fence rows, bridge abutments, edges of buildings, pavement cracks in the air operations area, and in gutters and culvert entrances where vegetation obstructs flow. This product may be used in all Drainage Areas.

Herbicides containing 2,4-dichlorophenoxyacetic acid (2,4-D) are applied about twice per year on approximately 300 acres of air operations area to control broad leaf plants. This product is used in areas tributary to all outfalls.

Fertilizers, herbicides, and pesticides are stored inside buildings in their original packaging. Stormwater does not come in contact with these stored materials.

5.2.7 Aircraft Deicing

No aircraft deicing is performed at this facility.

5.2.8 Storage of Miscellaneous Chemicals

Miscellaneous chemicals are stored inside buildings in their original packaging. Stormwater does not come in contact with these materials. Many of these chemicals do not have a current use and are being expedited for removal from inventory and off-site disposal.

5.2.9 Storage of Miscellaneous Construction Materials, Equipment, and Aids

Small quantities of construction materials such as PVC conduit, wooden concrete formwork, crushed rock, sand, iron castings, straw bales, wire, and cable are stored outside on paved surfaces. Construction and maintenance equipment is also stored in paved areas. These materials are located in Drainage Areas 3, 5, 7, 8, and 16.

5.3 Past Air Force Base Operations

The following information was obtained from Installation Restoration Program Records Search for Richards-Gebaur Air Force Base, Missouri, CH2M Hill, March 1983.

- Industrial operations at Richards-Gebaur Air Force Base (including portions of the area now owned by Kansas City) included aerospace ground equipment, pneuhydraulics, engine maintenance, and corrosion control. These operations generated varying quantities of waste oils, waste fuels, solvents, and cleaners.
- The only reported on-site disposal activities were materials used in fire training operations. Other waste streams were reported to be disposed of off the site.
- There were limited painting and paint stripping operations at the Air Force Base. Wastes generated from these operations were reportedly disposed of off the site.
- Herbicide usage in the early 1980's consisted of 2,4,-D, Krovar®, Dipel®, Weed-B-Gone®, Tordon®, Round-Up®, and Embark®.
- Pesticide used as late as 1976 included diazinon, chlordane, malathion, dursban®, pyrethrin, diazinon dust, warfarin, sevin®, and vapona®.

5.4 Drainage Areas 2 and 3 (Sampling Locations A and B)

Building 1010 is located in Drainage Areas 2 and 3 at the end of the runway. This building was originally "alert" hangars for the Air Force. Building 1010 was included in the property transaction with the City in the early 1980s. The building was leased at that time to an industrial tenant that conducted aircraft paint stripping and painting operations. Originally paint stripping fluids were allowed to drain outside of the building but after a complaint was received about dead grass a containment system was installed to capture the fluids. The stripping agent was reportedly a biodegradable product. No environmental sampling has been performed at the site.

Supporting information is provided as follows.

The following information was obtained from Installation Restoration Program Records Search for Richards-Gebaur Air Force Base, Missouri, CH2M Hill, March 1983.

- Talley Services, Inc. began stripping and overhauling of Army helicopters in October 1992 at Building 1010. Reportedly, a biodegradable stripper was used in this operation.

The following information was obtained from Installation Restoration Program, Phase II, Confirmation/Quantification, Stage 2, Richards-Gebaur Air Force Base, Missouri, Ecology and Environment, Inc., July 1988.

- Following the City's acquisition of this area, a spill of commercial paint stripper contaminated the surface ditches draining Building 1010. Two metal drum sumps were located outside of two of the hangars and overflow from the sumps flowed into the surface ditches.

Supplementary information on Building 1010 (Paint Stripper Site) is presented in Appendix B. Besides maintenance of grounds, there are no current airport activities in these drainage areas.

5.5 Drainage Areas 7 and 8 (Sampling Locations C and D)

Drainage Areas 7 and 8 contain the Northeast Landfill FUDS Site. The following information was obtained from Installation Restoration Program Records Search for Richards-Gebaur Air Force Base, Missouri, CH2M Hill, March 1983.

- The Northeast Landfill was used between about 1961 and 1971 for the disposal of construction debris, yard waste and waste from some industrial shop areas. Wastes were typically burned in trenches.
- Waste paints and waste thinners were reportedly disposed of at the northeast landfill by spreading on the ground as recently as 1978. The eastern portion of the site has been used for open storage of materials including construction materials, pipes, empty tanks, waste paint and thinners in drums and buckets, and empty 55-gallon drums. Over 400 drums were stored at the time of the report (early 1980's), most of which were empty, and some of which the contents were unknown.

The following information was obtained from Installation Restoration Program, Phase II, Confirmation/Quantification, Stage 2, Richards-Gebaur Air Force Base, Missouri, Ecology and Environment, Inc., July 1988.

- Less than 20 drums, mostly empty, were on-site as of 1986.
- Three subsurface soil samples were obtained from borings located at the Northeast Landfill. The samples were analyzed for halogenated and aromatic volatile organics and petroleum hydrocarbons.
- No volatile organics were detected in the soil samples. Petroleum hydrocarbons were detected at 440 mg/Kg in one sample collected at 1 to 2 feet of depth. Petroleum hydrocarbons were also detected in 2 of the other 10 samples at levels of 19 and 1.0 mg/Kg.
- Monitoring wells were installed and five groundwater samples were collected and analyzed for petroleum hydrocarbons, total dissolved solids, halogenated and aromatic volatile organics, priority pollutant metals, extractible priority pollutants (GC/MS), common anions, and phenols.
- No organics were detected in the groundwater. Several common anions and lead were detected at levels significantly below drinking water standards and health advisories.
- Three surface water samples were collected, one from the identical location of the proposed Sampling Location D and two from Scope Creek, upstream and

downstream of the landfill. The samples were analyzed for petroleum hydrocarbons, total dissolved solids, halogenated and aromatic volatile organics, priority pollutant metals, extractible priority pollutants (GC/MS), common anions, and phenols.

- No organics were detected in the surface water. Several common anions were detected at levels significantly below drinking water standards and health advisories. No lead was detected.

Supplementary information on the Northeast Landfill FUDS Site is presented in Appendix B.

Also present in Drainage Area 8 is a Skeet and Trap Shooting Range. There are no current airport activities in these drainage basins other than grounds maintenance.

5.6 Drainage Area 10 (Sampling Location E)

The Waste Water Treatment Plant FUDS Site is located in Drainage Area 10. Mr. Thompson, USACE, reports that pesticides are currently stored in a building at the closed Waste Water Treatment Plant and for this reason the plant was identified as a FUDS Site. These pesticides have not been used in a number of years and the responsibility for disposal of the pesticides is being negotiated. There is no indication that a release of these pesticides outside of the building has occurred. Also discovered at this location were several 55-gallon drums of petroleum located outside of the building. The appearance of an oily sheen was observed around the base of the drums and the U.S. Marine Corps subsequently contained the barrels in a plastic overwrap. No environmental sampling and analysis has been performed at the site.

Other than grounds maintenance, there are no current airport activities in this drainage area.

5.7 Drainage Area 16 (Proposed Outfall 001)

Aircraft and ground vehicle fueling, fuel storage, aircraft and ground vehicle maintenance, and ground vehicle washing occur in Drainage Area 16. There are also 6 FUDS Sites in this drainage area, South Landfill, Radioactive Disposal Well, Herbicide Burial Site, Contractor Rubble Disposal Site, South Burn Pit, and West Burn Pit.

The following information was obtained from Installation Restoration Program Records Search for Richards-Gebaur Air Force Base, Missouri, CH2M Hill, March 1983.

- An unknown herbicide containing mercury was reportedly disposed of at the herbicide burial area FUDS site [this FUDS site is not located on City property but is within the drainage area tributary to proposed Outfall 001].
- South landfill was the primary sanitary landfill for the base from 1954 to 1956.
- Sanitary waste was disposed of off the site after 1956.
- South landfill received construction debris, yard waste, and some industrial shop waste until 1961. Materials which may have been disposed of in the landfill included small quantities of waste paints, thinners, strippers, solvents, and oils (this was not the standard disposal procedure). Disposal operations were ceased in 1961 and unauthorized dumping has intermittently occurred since then.
- The contractor rubble burial site received construction debris between 1954 and 1978. Sanitary waste was also reportedly disposed in this area prior to 1961 and household debris was observed at ground surface at the time of the report (early 1980's).
- West burn pit was reportedly used in 1954 and 1955 for fire training exercises using waste oil, waste fuel, and spent solvents. This area is within the drainage area tributary to outfall 001.
- The south burn pit was unlined.
- The radioactive disposal well was used intermittently between 1955 and 1970 for disposal of low-level radioactive materials, primarily dosimeters. Levels of radioactivity in the vicinity of the well were measured and found to be at or near background conditions.
- The herbicide burial site is an area where about 4 cases of a mercury-containing herbicide in plastic pint-sized bottles were buried in 1971.

The information obtained from Installation Restoration Program, Phase II, Confirmation/Quantification, Stage 2, Richards-Gebaur Air Force Base, Missouri, Ecology and Environment, Inc., July 1988 is summarized as follows.

West Burn Pit

- A tar-like sludge was encountered at a location believed to be the west burn pit site.

South Landfill

- Two seeps were observed at the South Landfill adjacent to the intermittent channel (Scope Creek).
- Four surface water samples, one from an observed seep, one from surface water runoff downstream of the detention basin, and two from the intermittent channel (Scope Creek), were collected at the South Landfill and were analyzed for petroleum hydrocarbons, total dissolved solids, halogenated and aromatic volatile organics, priority pollutant metals, extractible priority pollutants (GC/MS), common anions, and phenols.

- No organics or priority pollutant metals were detected in the surface water samples. Several common anions were detected at levels significantly below drinking water standards and health advisories.
- Three subsurface soil samples were collected at the South Landfill and were analyzed for halogenated and aromatic volatile organic and petroleum hydrocarbons.
- A subsurface soil sample collected at 7 feet of depth contained 1.2 mg/Kg of petroleum hydrocarbons and the other soil samples were non-detect. No volatile organic hydrocarbons were detected.
- Four surface soil samples were collected and analyzed for halogenated and aromatic volatile organic and petroleum hydrocarbons.
- Petroleum hydrocarbons were detected at concentrations of 16 and 1.9 mg/Kg in the surface soil samples and were not detected in the other samples. No volatile organic hydrocarbons were detected.

Herbicide Burial Site

- An area believed to be the Herbicide Burial Area was located based on a location description found in Air Force records. A broad, shallow depression was observed in the area.
- Four composite surface soil samples were collected and analyzed for herbicides, arsenic, and mercury.
- No pesticides or mercury were detected in the surface soil samples. Arsenic was detected in 3 or 4 samples at levels within the normal range for area soils (3 to 13 mg/Kg.
- One surface water sample was collected at a pond directly downgradient from the site. The sample was analyzed for petroleum hydrocarbons, total dissolved solids, halogenated and aromatic volatile organics, and lead.
- No contaminants were detected in the surface water sample.

The other FUDS Sites were not included in the 1988 Ecology & Environment Study. Supplementary information on the South Landfill, Contractor Rubble Burial Area, West Burn Pit, South Burn Pit, Radioactive Disposal Well, and the Herbicide Disposal Area is presented in Appendix B.

5.8 Drainage Area 18 (Proposed Outfall 2)

The City's FBO leases a portion of Drainage Area 18 where aircraft are parked and fueled. There are no known areas of environmental concern related to past or current activities associated with this area.

6.0 SELECTION OF ANALYTICAL PARAMETERS

This section documents the basis for selecting the analytical parameters for each of the sampling locations and proposed outfalls identified in Section 3.0.

6.1 Rationale for Selection

The selection of parameters for each sampling location is based on information provided in Section 5 - Past and Current Pollutant Sources. The information presented in Section 5 was used to identify pollutants or common groups of pollutants that have the potential to be present in stormwater runoff tributary to a given sampling location. The identified pollutants were then compared to the pollutants listed in Tables 2F-1, 2F-2, 2F-3, and 2F-4 of EPA's Form 2F to select the analytical parameters.

All sampling locations will be sampled for the conventional parameters of oil and grease, biological oxygen demand, chemical oxygen demand, total suspended solids, total Kjeldahl nitrogen, nitrate/nitrite, and total phosphorus as listed in Part VII.A of EPA's Form 2F.

6.2 Monitoring for Pesticides and Fertilizers

Past usage of pesticides (herbicides and insecticides) included the following active ingredients:

diazinon	warfarin	Bacillus Thurigiensis (Dipel®)
chlordane	carbaryl (Sevin®)	
malathion	dichlorvos (Vapona®)	pichloram (Tordon®)
chlorpyrifos (Dursban®)	2,4,-D	glyphosate (Round-Up®)
pyrethrin	diuron (Krovar®)	mefluide (Embark®)

Currently, no insecticides or soil conditioners are used at the facility. No fertilizer is used in the air operations area. Agricultural fields outside of the air operations area are fertilized every few years.

Current usage of herbicides consists of selective use of glyphosate and semi-annual applications of 2,4-D.

Of the products used at the facility (past and present), chlordane is a toxic pollutant and the following are CWA hazardous substances:

carbaryl	2,4-D	diazinon
chlorpyrifos		dichlorvos
diuron	malathion	
	pyrethrins	

Of the products used in the past, only chlordane is persistent in the environment and is the only parameter that could potentially be present as a stormwater pollutant. Since 2,4-D is still used, it is also a potential stormwater pollutant source. Therefore, samples from all stormwater sampling locations and proposed outfalls will be analyzed for chlordane and 2,4-D.

6.3 Sampling Locations A and B

Building 1010 is tributary to Sampling Locations A and B. Because of past aircraft paint stripping, painting, and aircraft overhaul work that was performed at the building, residues of solvents and metals may be present as a stormwater pollutant source. Therefore, these sampling locations will be analyzed for priority pollutant volatile organics and priority pollutant metals.

6.4 Sampling Locations C and D

The Northeast Landfill FUDS site is tributary to sampling locations C and D. Furthermore, various significant materials are also stored in this area. A surface water sample collected in 1988 from sampling location D indicated no organic contamination and no significant priority pollutant metals contamination. To confirm these results, Sampling Locations C and D will be analyzed for Priority Pollutant metals, volatile organics, and base/neutral and acid extractible organics and pesticides & PCBs.

6.5 Sampling Location E

The Waste Water Treatment Plant FUDS site is tributary to Sampling Location E. The only suspected source of stormwater pollutants at this site are drums containing petroleum. Petroleum products contain small fractions of some of the priority pollutant organics. However, the conventional parameters of oil and grease, BOD and COD will adequately characterize the stormwater at this outfall.

6.6 Proposed Outfall 001

The current airport activities as well as several FUDS Sites are tributary to Proposed Outfall 001. Previous surface water analysis at the South Landfill Site indicates no significant contamination; petroleum contamination was detected in surface soil. Because

of the various potential stormwater pollutant sources at the South Landfill and other locations, samples from this proposed outfall will be analyzed for priority pollutant metals, volatile organics, and base/neutral and acid extractible organics and pesticides and PCBs.

6.7 Proposed Outfall 002

Aircraft parking and fueling is tributary to Proposed Outfall 002. Potential pollutant sources consist of fuel, hydraulic fluid, and engine oil leaking or spilling from the aircraft. These petroleum products contain small fractions of some of the priority pollutant organics. However, the conventional parameters of oil and grease, BOD and COD will adequately characterize the stormwater at this outfall. Because this area is mostly paved, chlordane and 2,4-D will not be analyzed.

6.8 Summary

A summary of the analytical parameters proposed for each sampling location and proposed outfall is presented in Figure 1.

FIGURE 2
SUMMARY MATRIX OF ANALYSIS

Outfall or Sampling Location	Conventional Parameters[1]	Priority Pollutant Volatile Organics (GC/MS)	Priority Pollutant BNA Extractible Organics (GC/MS)	Priority Pollutant Metals	Priority Pollutant Pesticides	Chlordane & 2,4-D
A	X			X		X
B	X	X		X		X
C	X	X	X	X	X	X
D	X	X	X	X	X	X
E	X					X
Outfall 001	X	X	X	X	X	X
Outfall 002	X					

1 Conventional parameters are oil and grease, biological oxygen demand, chemical oxygen demand, total suspended solids, total Kjeldahl nitrogen, nitrate plus nitrite as oxygen, total phosphorus, and pH.

2 All analysis will be performed in accordance with EPA NPDES/SDWA Methods.

7.0 MISSOURI FORM 1 AND EPA FORM 2F

The completed Missouri Form 1 is included in Appendix C.

The required elements of EPA Form 2F is addressed as follows.

I. Outfall Location
For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving stream.

A. Outfall Number	B. Latitude	C. Longitude	D. Receiving Stream
001	38° 50' 28"	94° 33' 17"	Scope Creek
002			Scope Creek

II. Improvements
A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application

There are eight sites on Kansas City's airport property where hazardous substances or petroleum was previously stored, treated, or disposed and may have potentially been released to the environment. These sites were originally identified by the U.S. Air Force under the Installation Restoration Program prior to the City taking ownership of the property. The U.S. Army Corps of Engineers (USACE) has contracted for a Site Investigation (SI) to be performed on the eight sites. The SI consists of interviews, record searches, and site reconnaissance; no sampling and testing were performed. As part of the SI, a Literature Search Report was prepared and is currently under review by the USACE. More information concerning these sites is presented in Section 5.

III. Site Drainage Map
Refer to Figure 1 (back pocket).

IV. Narrative Description of Pollutant Sources

A. For each outfall, provide an estimate of the area (include units) of impervious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall.

Drainage Area	Outfall Number	Impervious Surface Area (acres)	Total Area Drained (acres)
1		0	36
2		11	27
3		43	67
4		0	20
5		37	73
6		0	41
7		0	5
8		0	98
9		0	21
10		5	38
11		13	35
12		0	72
13		0	17
14		0	52
15		0	31
16	001	163	550
17		10	160
18	002	5	5

B. *Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored, or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed, in the last three years, to minimize contact by these materials with storm water runoff; materials loading and access areas; and the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.*

See Section 5.2 - Current Airport Activities.

C. *For each outfall, provide the location and description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of the treatment the storm water receives, including the schedule and type of maintenance for control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge.*

Outfall Number	Treatment	Codes (Table 2F-1)
All	None.	

V. Non-stormwater Discharges

Pending.

VI. Provide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three years, including the approximate date and location of the spill or leak, and the type and amount of material released.

No spills or leaks were reported in the last three years. Information regarding past environmental releases is presented in Section 5.

VII. Discharge Information

See Appendix D. (Pending)

VIII. Biological Toxicity Testing Data
Do you have any knowledge or reason to believe that nay biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

No.

IX. Contract Analysis Information

Pending.

X. Certification
I certify under penalty of law that this document and all attachments are prepared under my direction or supervision i accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

A. Name & Official Title

B. Signature

_____

C. Area Code and Phone No.

D. Date Signed

_____

A - Previous Stormwater Analysis

EPA ID Number (copy from Item 1 of Form 1) 0656 Facility ID: 00182

VII. Discharge Information (continued from page 3 of Form 2F)

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number (if available)	Maximum Values: Grab Sample Taken During First 30 Minutes	Maximum Values: Flow-weighted Composite	Average Values: Grab Sample Taken During First 30 Minutes	Average Values: Flow-weighted Composite	Number of Storm Events Sampled	Sources of Pollutants
Oil and Grease	11 PPM	N/A PPM	1.5 HR 3.3 PPM			Aircraft Fueling, Cleaning, & Maintenance
Biological Oxygen Demand (BOD5)	3.2 PPM	3.4 PPM 5023 GR				
Chemical Oxygen Demand (COD)	33 PPM	41 PPM 60569 GR				
Total Suspended Solids (TSS)	43 PPM	35 PPM 51705 GR				
Total Kjeldahl Nitrogen	0.78 PPM	0.82 PPM 1211 GR				
Nitrate plus Nitrite Nitrogen	0.6 PPM	0.61 PPM 901 GR				
Total Phosphorus	0.3 PPM	0.27 PPM 399 GR				
pH	Min 8.1	Max 8.7	Min	Max		

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number (if available)	Maximum Values (include units): Grab Sample Taken During First 30 Minutes	Maximum Values (include units): Flow-weighted Composite	Average Values (include units): Grab Sample Taken During First 30 Minutes	Average Values (include units): Flow-weighted Composite	Number of Storm Events Sampled	Sources of Pollutants

EPA ID (copy from Item 1 of Form 1) 0656 Facility ID: 00182

Part C – List each pollutant that is shown in Tables 2F-2, 2F-3, and 2F-4 that you know of or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		

Part D Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm (in minutes)	3. Total rainfall during storm event (in inches)	4. # of hours between beg. of storm measured and end of prev. measurable rain event	5. Maximum flow rate during rain event (cubic ft/sec)	6. Total flow from rain event (cubic feet)	7. Season sample was taken	8. Form of Precipitation (rainfall, snowmelt)
11-10-92	1440	0.35	24	4.8	52164	Fall	Rainfall

9. Provide a description of the method of flow measurement or estimate

The "Rational" formula Q = CIA was used to provide flow estimation at the outfall during the sampling event. Where:

Q = Flow rate in units of cubic feet/second

C = runoff coefficient,

I = Intensity of rainfall,

A = Area draining to the outfall in acres.

The runoff coefficient and area were determined from site map information supplied by the facility. The rainfall intensity was measured at intervals during the sampling event

B - Selected Previous Reports

PRELIMINARY REPORT OF FINDINGS
LITERATURE SEARCH
AND
SITE INSPECTION
FORMER RICHARDS-GEBAUR AIR FORCE BASE
(NOW RICHARDS-GEBAUR AIR FIELD)
BELTON, MISSOURI

November 10, 1993

U.S. Army Corps of Engineers, Kansas City District
601 E. 12th Street
Kansas City, Missouri 64106

RUST Environment & Infrastructure*
4738 N. 40th Street
Sheboygan, Wisconsin 53083

Project No. 18798.200

*Formerly d/b/a Donohue & Associates, Inc.

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Appendix

6/RP/BELTONMS/TITLE.TOC

EXECUTIVE SUMMARY

The purpose of this work was to provide a preliminary determination as to the probable presence or absence of Department of Defense caused contamination at the eight sites assigned to RUST E&I of the eleven sites to be evaluated at the Richards-Gebaur Air Force Base. Several of these sites may be in the area being considered for inclusion in the Kansas City Southport Parkway Project, the first phase of an industrial development complex planned to replace portions of the Base.

Since each of the eight sites involved is treated separately in this report, the findings can best be summarized as follows:

SOUTH LANDFILL

Surface fill was found in the general area described in earlier reports. However, although interviews indicated that only a portion of the area had originally been an early sanitary landfill, considerable waste and construction debris was observed in the general area.

While no soil or surface water contamination was observed and no hazardous waste was noted during inspection, there is a possibility that the site may be involved in the future Kansas City Southport Parkway project. Since preliminary work for this project may involve environmental investigation of the site, and because no immediate threat to human health was observed, no immediate action is recommended, other than to determine whether or not continuing dumping at the site is in violation of Missouri regulations.

NORTHEAST LANDFILL

From previous reports and RUST E&I observations, this general area appears to have been a depository for many types of discarded material for at least 10 years, with practically every type of material other than explosives, chemical warfare agents, and radionuclides having been discarded. While most of this surface deposited material is located outside the original boundaries of this landfill, it certainly has the possibility of contributing to any environmental impact produced by the original landfill.

Although the area is on the planned route of the first stage of the Kansas City Southport Parkway project and can be expected to be the subject of a Kansas City environmental investigation before construction begins, RUST E&I recommends a review of previous analysis of samples from installed monitoring wells, and then resuming such sampling and considering further investigation of soil and groundwater. This recommendation is based on the strong possibility that this general area may have considerable environmental impact.

CONTRACTOR RUBBLE AREA

With the exception of a few protruding stones and pieces of concrete, the area described by earlier reports was found to be relatively clear of debris except near the adjacent Scope Creek. No further action is advised since the site does not appear to be a threat to human health. It is also near the proposed path of the Kansas City Southport Parkway project.

WEST BURN AREA

A report indicating the possibility of this site being outside the base was not available to RUST E&I before the site inspection so observations were limited to possible sites within the confines of the base boundaries. A surface anomaly involving tar-like material, which could be a source of soil and groundwater contamination and which some persons interviewed attributed to Fire Department test burns in this location, was inspected. Recommendations involve additional investigation of, followed by possible remediation of, the tar-like deposit unless it is found to be a natural phenomenon. Whether the site is inside or outside the base limits, it is far removed from the currently proposed Kansas City Southport Parkway project.

SOUTH BURN AREA

According to interview information and reports reviewed, this site was in an area which later became a landfill. Consequently, without extensive soil penetration measures, no observations which would evaluate this site were possible. No action is recommended. However, since it lies near the proposed location of the Kansas City Southport Parkway project, it may be subject to future environmental studies by Kansas City.

RADIOACTIVE DISPOSAL WELL

At the site, a sealed well was found inside a broken fence with what was probably a warning sign before it deteriorated. Based on readings of alpha, beta, and gamma radiation in the vicinity, the site does not appear to pose any threat to human health. However, a search for drilling records from the 1930's or casing records from the 1960's should be made to determine the feasibility of sealing and abandoning the well. It lies near the proposed location of the Kansas City Southport Parkway project. Consequently, it is recommended that the feasibility of proper abandonment be carried out before the well may become the subject to a Southport Parkway Environmental Impact Study (EIS).

HERBICIDE BURIAL AREA

A search of the area in which this burial was reported to have occurred was carried out without locating any sign of the material, or any effect on the environment. Additional investigation to locate more detailed records of its location is recommended. If found, the material should be removed and properly disposed of, and any soil contamination resulting from its presence should be remediated. The site is far enough removed from the currently planned path of the Kansas

City Southport Parkway project that, unless relocation to the west occurs, environmental studies involving this site will probably not be part of any pre-project work.

PAINT STRIPPER HANGAR

Environmental concern about this site developed after previous environmental studies were completed. Consequently, interview information was the only data source available. Unfortunately, those individuals who offered information on the site told somewhat conflicting stories. As a result, RUST E&I recommends a review of State and Federal regulatory records and interrogation of the individuals who operated the two private enterprises involved before any sample or soil or groundwater work is planned. The site is sufficiently far removed from the currently planned Kansas City Southport Parkway project so that no study of the site by Kansas City can be anticipated.

6/RP/BELTONMS/EXCUSUM.DF

CHAPTER 1

INTRODUCTION

BACKGROUND INFORMATION

The purpose of this investigation was to provide a preliminary determination as to the presence or absence of Department of Defense (DOD) caused contamination at this former base. RUST Environment & Infrastructure (RUST E&I), was retained by the U.S. Army Corps of Engineers, Missouri River Division, Kansas City District (CEMRK), to conduct a limited records review and visual site investigation at eight of the Formerly Used Defense Sites (FUDS) identified at the former Richards-Gebaur Air Force Base near Belton, Missouri.[15]

Records to be reviewed included those located in the Kansas City offices of the U.S. Army Corps of Engineers (COE) and records available in Cass and Jackson Counties in Missouri. Up to five personnel interviews were also to be conducted.

The investigation was limited to the eight following sites:

Site 1: South Landfill
Site 2: Northeast Landfill
Site 3: Contractor Rubble Area
Site 4: West Burn Area
Site 5: South Burn Area
Site 7: Radioactive Disposal Well
Site 8: Herbicide Burial Area
Site 11: Paint Stripper Hangar

The regional topography and geology for the area of investigation is not repeated in this report, as our geologist[5] reviewed earlier reports[4,10] and found these papers provided an adequate summary of this type of information. Observations made by RUST E&I are limited to topography, surface drainage, surface water, and soils at the site.

A USGS Orthophotoquad map[16] was examined, but this provided no information on the sites involved in this investigation.

The most recent USGS 7.5-minute series topographic map available[17] was also of little value in the investigation other than indicating contours and surface water flow.

INVESTIGATIONAL PROCEDURES

The investigation was divided into two parts. The first involved review of available records on the eight sites in the Kansas City Offices of the CEMRK. Then two individuals from RUST

E&I, accompanied by a RUST E&I Safety Officer, conducted the site inspection. Following this, interviews were conducted. No records' investigations were carried out in Cass and Jackson Counties because phone inquiries to those counties disclosed that none of the offices contacted had any documentation for inspection.

ORGANIZATION OF FINDINGS

Each of the eight sites assigned are treated separately so that what follows consists of eight separate reports, with no conclusions being drawn or recommendations offered concerning the entire Richards-Gebaur installation.

While maps of the eight sites are provided, Figure B-1, which is an overall map of the base, shows only the locations of the eight sites. A single map attempting to show details of all of the areas would have been extremely cluttered.

6/RP/BELTONMS/C.1

CHAPTER 2

SITE 1: SOUTH LANDFILL

LOCATION

This site was found[6] to lie in the general area described by earlier reports.[4,2] Generally, it lies to the east of a man-made lake (Photos 1119-96-3 and 1118-96-7) and south of the point where a ditch which drains overflow from the lake (Photo 1118-96-1) into Scope Creek. However, the area appears to extend beyond what is shown on a map in one of the earlier reports[4], discarded material having been observed in Scope Creek and on both sides of Scope Creek to the northeast and up to the unnamed ditch to the northwest, and continuing south about 150 to 200 feet south of the point where the drainage ditch discharges into Scope Creek. Figure B-1 points out the location of the South Landfill on the base, while Figure B-2 illustrates the limits of rubble found during the investigation of the South Landfill.

OCTOBER 1991 OBSERVATIONS

Waste

All of the areas east of the berms which contain the lake were found[6] to be covered with discarded materials such as concrete, bicycles, furniture, plastic, plywood, pallets, a refrigerator, asphalt, rebars, wire mesh, sewer pipe, gravel, and the like (Photos 1118-96-0 and 1118-96-2). Its location suggested this material had been dumped off the berms.[5] The low, marshy area east of the lake also contains similar discarded material, as well as the region between the marshy area and the north-south road known as either Walker Road or Bales Avenue. However, no discarded material was noted in the grassy area between the brush surrounding Scope Creek and this road. In some locations, the rubble piles appeared to be about 12 feet high.[6]

Soil Contamination

No visible soil contamination, stained soil, stressed vegetation,[5] or discarded materials were observed which would contribute to such contamination.[6]

Surface Water and Groundwater

From the location of berms on the north, east, and south sides of the lake, the purpose of the lake appears to be collection of surface water draining from the southern part of the airfield. No flow was observed in the unnamed ditch draining the lake, but there was a slight trickle of water flowing in Scope Creek (Photo 1118-96-5).[6]

No seeps of liquid or surface water were observed.[5]

No contamination was observed in Scope Creek, which is intermittent and runs near the eastern

edge of the landfill;[5] no water-surface oil sheen was noted.[6]

Hazardous Materials

No hazardous materials were observed.[6]

On-Site Operations

No indication of recent dumping was observed. The only on-site activity appeared to be mowing of grasses in areas beyond the landfill.[6]

SUMMARY OF EARLIER OBSERVATIONS REPORTED

Waste

One interview[3] disclosed that the landfill was originally east of Scope Creek, lying between the creek and what is now known as Walker Road. The location was not excavated and no clay was put down for containment. Later on, the area on the other side of the creek was used, but it was reported in this interview to have extended only about half as far south as is shown in Figure 1-4 of the Ecology and Environment, Inc. (E&E) report;[4] material added to the south portion is believed to have been added by Kansas City. The landfill was reported to have been used from 1954 until some time in the late 1950's or early 1960's.

The dumping of construction debris was confirmed by one interview.[13] Two other persons[14,7] indicated that only soil, concrete, and rocks have been disposed of in this location since 1981, but that other persons may have dumped other materials. One of these individuals[14] indicated that a maximum depth of 10 feet above initial grade was involved and that a bulldozer was used for compaction. No liner was placed before adding debris. The second individual[7] indicated that the fill was up to 30 feet deep, that it had been used for a 6-to 10-year period subsequent to 1956, and that prior to its use for construction debris it had been a burning pit.

Still another person interviewed[8] indicated that Kansas City has permitted the base to dispose of construction materials since the 1980's and that such disposal has raised the level by about 3 feet.

One report[2] indicated that rubble from runway demolition was used to dam an existing swale and create the pond during the mid-1950's, which may account for the rubble noted adjacent to the pond. It also noted that this was the principal base sanitary landfill between 1954 and 1956, but that building rubble, yard debris, and some industrial shop materials were disposed of at the site until 1961 with unauthorized dumping reported to have occurred after 1961.

Soil Contamination

The landfill reportedly[4] is situated on a thin cover of unconsolidated silt and clay overlying Pennsylvanian age bedrock, which outcrops occasionally along the banks of Scope Creek.[5]

Analyses carried out on soil samples reported on in 1988[4] showed no volatile organic compound or petroleum hydrocarbon contamination.

One interview[13] disclosed that Kansas City personnel were once found dumping oil along the southwest border of the landfill, but the quantity was small and there was only one instance of this.

Surface Water and Groundwater

Analyses carried out on four surface water samples reported on in 1988[4] showed no petroleum hydrocarbon, halogenated volatile organic, aromatic volatile organic, priority pollutant metal, or extractable organic contamination to be present.

There is reported to be limited use of groundwater for drinking purposes in the area. Typical wells are less than 250 feet deep and draw mineralized water from Pennsylvania shales and lenticular sandstone bodies.[4]

Hazardous Materials

No information was found on the placing of hazardous materials or hazardous wastes in the landfill.

PAST USE OF SITE

To summarize information obtained, it appears the site had been used as a sanitary landfill, as a burning pit, and as a construction debris landfill.

FUTURE INVESTIGATION

No further action such as sampling is recommended because the South Landfill does not appear to threaten public health.

This site lies adjacent to the proposed Kansas City Southport Parkway project planned roadway improvements.[11] An environmental assessment of the site by the City of Kansas City can be anticipated when this project approaches the construction stage.

CONCLUSIONS

While no disposal operations were observed during the inspection, some dumping appears to have taken place in the recent past. Consequently, future investigation should determine whether or not such activities met regulatory standards of the State of Missouri.

CHAPTER 3

SITE 2: NORTHEAST LANDFILL

LOCATION

The area described in previous reports[4,2] was inspected, as well as the surrounding area. The landfill area lies east of the trap and skeet range, south of what appears to be an abandoned rail-spur, north of a creek or drainage ditch, and west of a north-south rail line.

The landfill appears to be,[5] and is reported to be,[4,10] situated on a thin cover of unconsolidated silt and clay overlying gray to green shale which is approximately 20 feet thick. The unconsolidated deposit appears along the banks of Scope Creek in a few areas.

The filled area is overgrown with small brush and trees and is outlined by older trees. Scope Creek is surrounded by a heavily wooded area. The surface of the landfill slopes slightly to the south and appears to be slightly hummocky.[5]

Figure B-3 illustrates Site 2, the Northeast Landfill.

OCTOBER 1991 OBSERVATIONS

Waste

The quantity of equipment and materials noted during inspection[6] gives the area surrounding what is marked on a map[4] as the boundaries of the landfill the appearance of a salvage yard (Photos 1118-97-1 and 1118-97-9). Timbers (Photo 1118-97-5), empty drums, a planter, scrap fencing, scrap metal, vehicle parts, air compressor tanks, large underground-type tanks (Photo 1118-97-0 and 1118-97-4), riser-benches, fence posts, concrete, propane tanks, tables, concrete pipe, steel pipe, sheet metal, a grease-trap, chairs, desks, clay pipe, culvert pipe, concrete block, upholstered furniture, catch-basin grates, and several bulging drums were observed (Photo 1118-97-6). Near the railroad tracks to the east and beyond what was designated on maps to be the landfill, such waste as drums, old batteries, and cans were observed.

Various railroad rolling stock appears to have been abandoned on the adjacent siding such as a gondola car, a crane, a diesel locomotive, and a smashed caboose (Photo 1118-97-8).[6]

However, what is designated on the map noted above as the landfill itself is comparatively free of debris being covered with brush and small trees.[6]

Soil Contamination

The bulging drums noted above appear to be a source of soil contamination.[6] One of them had oil-like material slowly leaking from it. Labels indicate some had contained lubricating oil. One

drum had a label marked "City of Kansas City". However, this material is outside the designated landfill area. No stained soil or stressed vegetation was noted.[6]

Surface Water and Groundwater

The leaking and open drums noted above could contaminate surface water and groundwater, as well as soil. A culvert passing under the railroad siding carries water out of the landfill area (Photo 1118-97-2). Three monitoring wells were noted adjacent to the road leading into the landfill (Photo 1118-97-7). Markings identified them as RGW-2, RGW-3, and RGW-4.[6] One well, identified on the map as MW-3, was not found. However, a well in the landfill marked RGW-6 was found in the center of the landfill (Photo 1118-97-3).

Observed well locations are noted on Figure B-1. However, it appears that notations used for identifying wells may have changed over the years, as is indicated by the following table:

September 1986	May 1987	July 1988	Observed 1991
NE-1	MW-3	MW-3	Not Located
NE-2	MW-2	MW-2	RGW-4
NE-3	MW-1	MW-1	RGW-3
--	MW-6	--	RGW-2
--	--	--	RGW-6

A ditch runs through the landfill in a generally north-south direction, appearing to discharge to flat land to the south.[6] No oil sheen or staining was observed on any waters in the vicinity.

Hazardous Materials

No hazardous materials were observed.[6]

On-Site Operations

Flattened grass in the vicinity of the bulging drums observed suggests that dumping in this area by unknown individuals may be occurring.[6]

SUMMARY OF EARLIER OBSERVATIONS REPORTED

Waste

One interview disclosed that corrugated steel pipe had been disposed of on the site in deep trenches at one time.[13] The landfill was reported to have been used from the early to the mid 1970's.[13] Another report[2] indicated that the site was in use from 1961 to 1971, with some use having continued until 1978. This report indicated that, although the landfill was not used for sanitary wastes, building rubble, yard debris, and industrial shop waste was disposed of in

trenches; a statement was relayed by this report that waste paint and paint thinners were disposed of by placing them in the trenches and setting them on fire.

Another individual interviewed[3] indicated that this landfill began as a series of trenches about 8 feet deep adjacent to the access road at the south end of the area marked on Figure 1-11 of the E&E report.[4] As filling progressed, the trenches moved to the north. However, he reported that they never moved as far north as indicated by this drawing. He also reported that the use of the Northeast Landfill began when the South Landfill was closed in the 1970's. A bulldozer was used for compaction.

Still another individual[14] indicated that this site was known as the "Old CE Dump" and that scrap metal, concrete block, and industrial waste were disposed of, and that it was used for surface storage of equipment and of 55-gallon drums. He also indicated that no burial has taken place since 1980, disposal being limited to surface placement of materials. The use of the site for disposal began in the 1950's.

Another interview[7] disclosed that transformers were dumped at this site at one time, but that these had been removed and properly disposed of in the 1970's. This person also disclosed that this area was used as the Fire Department burn area for a short time, but proved to be too wet for such purposes. Materials disposed of were compacted by bulldozers to a depth of no more than 10 feet. He also indicated this area was used for disposal during the 1960's and 1970's.

Another report[8] indicated that Burns and McDonald, an AE firm, had excavated an exploratory trench and found discolored soil. Although it was beyond the scope of the work carried out by RUST E&I during the course of this survey, it is recommended that any intrusive investigation planned for the future include a search for the discolored soil reported.

The E&E report[4] indicated that the three discrete trenches indicated in a CH2M Hill report[2] was not correct, but that there were actually a series of trenches in a north-south and in an east-west direction.

Observations listed in a report on a November 1982, inspection[2] indicated that construction rubble, pipes, empty tanks, waste paints and thinners in drums and buckets, and other drums, some empty and some with unknown contents were present at that time.

Soil Contamination

According to one individual interviewed,[3] anything which required disposal was placed into this landfill, including garbage, lumber, paint, and scrap wood. No liner of any type was constructed in the bottom of the trenches.

One soil sample believed to have been taken by E&E in 1986[4] indicated a rather high petroleum hydrocarbons content near the surface in one location in this landfill.

Surface Water and Groundwater

One individual interviewed[14] advised us that the creek has never overflowed into this landfill. Another[8] indicated that the creek probably does overflow.

In sampling believed to have been carried out in 1986, E&E[4] reported finding no organic chemicals or metals in water samples taken at the site.

Hazardous Materials

Containerized materials observed in the area in 1982 and noted above in 1991 could be hazardous to the environment due to container leakage.

PAST USE OF SITE

From interviews, previous reports, and observations it appears the site had been used for disposal of all wastes generated at the base except explosives, chemical warfare agents, and radionuclides.

FUTURE INVESTIGATION

Conclusions reached from review and evaluation of past groundwater analysis data, as is discussed in the second paragraph on Page 7-4, explain that contamination of groundwater due to leakage from a landfill should create no hazard, since, "...there are no major drinking water aquifers in the region, due to the total dissolved solids in the Pennsylvania strata involved reaching 40,000 ppm in southwest Jackson and northwest Cass Counties. This high degree of salinity would exclude this strata as a significant source of groundwater, according to 40 CFR 119.12(n)."

To determine if the quality of the alluvial water is impacted by the landfill, a sampling and analysis program should be completed by sampling the stream water and stream sediments upstream from the landfill, at the landfill, and downstream from the landfill.

This site lies in the path of the proposed Kansas City Southport Parkway project planned roadway improvements.[11] An environmental assessment of the site by the City of Kansas City can be anticipated when this project approaches the construction stage.

Future monitoring is required to verify presence or absence of any latent hazards on the Northeast Landfill. Examination of data from past reports does not indicate that a hazard exists as long as access to the area is controlled. The nature of plans which may be developed for future use of the area would have considerable bearing on the identification of any latent hazards.

Any future investigation in the Northeast Landfill area should include a search for the discolored soil reported to exist in the Burns and McDonald report. Shallow test borings taken in depressions which may have been former trench sites may identify the discolored soil. If a

discoloration is found, further exploration to define nature and extent, and sampling and analysis to characterize the potential contaminant, should be completed.

CONCLUSIONS

If additional review of past results and any future monitoring indicate that the landfill threatens human health, a remediation program should be developed. If no current threat is indicated, monitoring of existing wells should be instituted on an annual basis to determine whether continuing dumping and waste material storage operations develop threatening situations.

6/RP/BELTONMS/C.3

CHAPTER 4

SITE 3: THE CONTRACTOR RUBBLE BURIAL AREA

LOCATION

It was not possible to differentiate between the South Landfill (Site 1), described above, and the contractor rubble area.[6] As indicated in the description of the South Landfill, much of this general area is covered with broken concrete, rebars, wire mesh, asphalt, and gravel piled to a depth of 12 feet in one location. This material is found in the general area bordered by the manmade lake, Scope Creek, and the ditch draining the lake into Scope Creek (Photo 1118-96-6). The rubble extends into and beyond the creek and ditch.

Figure B-4 illustrates Site 3, the Contractor Rubble Burial Area.

OCTOBER 1991 OBSERVATIONS

Waste

Observations noted above in describing the South Landfill would apply to this location.[6]

Soil Contamination

No visible signs of soil contamination were noted.[6]

Surface Water and Groundwater

See the section on the South Landfill, above, for this information.

Hazardous Materials

No hazardous materials were observed.[6]

On-Site Operations

No on-site operations were observed.[6]

SUMMARY OF EARLIER OBSERVATIONS REPORTED

Waste

One person interviewed[3] advised us that contractor rubble was first placed east of Scope Creek. No excavation was carried out to prepare this original site. When the fill reached its present level, this area was used for the contractor storage area and rubble was placed in the northern

portion of the area designated as the South Landfill location on Figure 1-4 of the E&E report.[4] Later, when Kansas City took over the landfill, rubble was placed in the south part of this area. The time of use was estimated from the 1960's into the 1970's. Another interview[8] disclosed there has been no activity on this site since 1982.

Still another person interviewed[14] estimated that no activity of any kind has taken place at the original site since 1980 when, apparently, the material stored by contractors was removed. During the time of rubble placement east of the creek, no type of compaction was used. He estimated that filling of the area, by dumping rubble up to the edge of the creek, began in the 1950's.

A fourth individual[7] indicated that a 30-foot ravine was filled in between 1955 and 1970 utilizing construction debris.

A report made available to RUST E&I[2] indicated that this site had indeed been located between Scope Creek and the road to the west of the creek, and that it had been used between 1955 and 1978. This report also relayed information that the site had been used as a sanitary landfill prior to 1961.

Soil Contamination

No information was found on soil contamination at the original contractor rubble disposal site.

Surface Water and Groundwater

One individual interviewed[14] indicated that, at times, the creek has overflowed the gravel road near area below the radioactive disposal well where a culvert and gate are located.

Hazardous Materials

No information was found on disposal of hazardous materials at this site.

PAST USE OF SITE

Although household discards were observed at the time of the RUST E&I inspection, no information was found on the use of the original contractor rubble site for any other materials.

FUTURE INVESTIGATION

This site lies adjacent to the proposed Kansas City Southport Parkway project planned roadway improvements.[11] An environmental assessment of the site by the City of Kansas City can be anticipated when this project approaches the construction stage.

CONCLUSIONS

No further action is recommended, since this site does not appear to be the source of possible risk to public health.

6/RP/BELTONMS/C.4

CHAPTER 5

SITE 4: THE WEST BURN AREA

LOCATION

Most of the airport area west of the runway was inspected in a search for signs of this location. Information on a possible location west of the railroad tracks, off airport property, was not available at the time the search was made. Three anomalies were noted.[6] The northernmost one was directly across the runway from the 442nd Maintenance Organization hangars. It consisted of an area where development of grass appeared to be suppressed; a small concrete platform was also found here (Photo 1118-96-8).

A small depressed area, avoided by mowers, was also observed directly across the runway from the north wall of the northernmost Million-Air building. The Million-Air buildings are the two closest to the runway, on either side of the tower (Photo 1118-96-9).

A third unmowed anomaly was noted about 230 feet further south, in line with the north half of the hangar-type building located between the two Million-Air buildings (Photo 1118-96-10).

Information provided after RUST E&I's site inspection was completed suggests that none of the three are the West Burn Area. A CH2M Hill report based on a 1982 investigation places the burn area west of the property line; all three locations investigated in 1991 were inside the fence. The 1982 report indicates that the area was just north of the Cass County-Jackson County boundary and was abandoned in 1955, when it was discovered that the West Burn Pit was outside the base property line.

It is recommended that COE counsel determine whether or not the DOD has any responsibility for clean-up which may be required at this off-site area.

Figures B-5A, B-5B, and B-5C illustrate the three areas inspected in a search for the West Burn Area.

OCTOBER 1991 OBSERVATIONS

Waste

Nothing was observed which could be considered as disposed of waste.[6]

Soil Contamination

At the southernmost of the three anomalies, extensive soil contamination by petroleum-like residues was observed (Photo 1118-96-11). A photoionization meter indicated 4.5 ppm above

the undisturbed material. To the south of residues, a metal cap flush with the ground was noted (Photo 1118-96-12) which could indicate presence of an underground tank or a well.[6] It was noted at the time of inspection that this area was about 60 feet long (north-south direction) and 20 to 25 feet wide (east-west direction).

It was possible to press a wooden stake about 2 feet into the residue (Photo 1118-96-13). When the stake was withdrawn, a meter reading of between 200 and 300 ppm was obtained in the vicinity.6

It was suggested that the deposit could be related to fuel jettisoning. However, an interview conducted on October 2 indicated that emergency jettisoning of fuel occurred only about once a year, so it is unlikely that the deposit found was associated with these operations. The geologic summary in the 1983 CH2M Hill report discussed above indicates that Richards-Gebaur is located on the King anticline, a structural rise favorable for oil and gas production, but that gas production ended here about 1938. Consequently, were it not for the capped structure adjacent to the tar-pool, natural seepage would seem the most likely reason for the existence of the pool. Physical probing of the location may yield more information on the source of the tar-like material than a records search. It may be found that the cap observed, flush with the ground, closes an old well.

While such probing was beyond the scope of the original records search and follow-up site inspection, it is recommended that it be included in future investigations.

If the CH2M Hill report cited above is correct, and gas production ceased in 1938, well records on old gas wells may no longer be available. However, there is a possibility that DOT or AEC records may possibly yield definitive information on the depth of the well and type of casing used. While such inquiries were beyond the scope of this preliminary report, they should be a part of future investigations.

Surface Water and Groundwater

No ditches or channels indicating surface water flow were noted.6 Groundwater may well be impacted by the tar-like residue found, depending upon the water table at that point.

Hazardous Materials

On the basis of readings taken, the tar-like material could be considered a hazardous material.

On-Site Operations

No on-site operations were observed at any of the three anomalies.[6]

SUMMARY OF EARLIER OBSERVATIONS REPORTED

One report available to RUST E&I[2] indicated that the West Burn Site was located west of the north-south runway and just north of County Line Road, outside of Base property and was used during 1954 and 1955.

Waste

Although waste materials were reported to have been burned at this site, no information on waste disposal operations were found.

Soil Contamination

One person interviewed suggested that the sludge observed may have been the result of exploratory oil wells once installed in that region[13] three or four years ago. Another interview[3] also failed to disclose any knowledge of a burn area in this region and suggested that the tar pit found may be the result of exploratory drilling. However, this second individual pointed out that this part of the base was used when emergency jettisoning of fuel from aircraft was required. However, this occurred only about once a year during the period when T-Birds and F-86 planes were based at Richards-Gebaur.

Another person[14] indicated that the sludge found is residue from the fire-test exercises run in this area. All types of fuel were used, JP-4 jet fuel, gasoline, and waste oil; however, disposal of this material was not the purpose of the operation. The dates between which this was done could not be fixed during this interview.

Still another individual[7] confirmed that a test burn area, which used jet fuel, was located west of the runway but could not recall whether it was east or west of the fence. It was used for a period of seven to ten years in the 1960's and 1970's. He expressed doubt that any residues could remain from those tests and pointed out that seeps similar to the tar-like material we observed are a natural phenomenon in this area which sometimes occur in farmers' fields.

A final interview on the matter[8] resulted in disclosure that previous reports differ on the location, one placing it east and one placing it west of the fence.

Surface Water and Groundwater

No information was found on the effect of the West Burn Area on surface water or groundwater.

Hazardous Materials

No information was found on hazardous materials at the site.

PAST USE OF SITE

Nothing was disclosed to us on any use of this area for anything other than a burn site and occasional jettisoning of fuel.

FUTURE INVESTIGATIONS

The oily material found may be the result of a spill or could be a natural occurrence related to the Knoche oil fields reported to be 3,000 feet southeast of the location.[5] Its nature and source should be determined by future investigation.

To determine if the material is naturally occurring or was disposed there, an intrusive investigation should be completed. The investigation should determine nature and extent, and include a sampling and analysis program. Based on those results, further action can then be developed.

To determine the existence of the area known as the West Burn Area, a soil-gas investigation in this area should be completed. According to information obtained, the area was used for fire control training, disposing of surplus flammable liquids, or both. Potential remaining contaminants may consist of volatile organic compound (VOC) residues. The installation of soil-gas probes may detect the presence of VOCs.

This site lies about 3,500 feet west of the proposed Kansas City Southport Parkway project planned roadway improvements.[11] Consequently, it is unlikely that an environmental assessment of the site by the City of Kansas City will be conducted when this project approaches the construction stage.

CONCLUSIONS

Unless it is determined that the oily material is caused by natural seepage, the deposit should be identified, the extent defined, and the material removed and proper soil and groundwater remediation measures instituted.

6/RP/BELTONMS/C.5

CHAPTER 6

SITE 5: THE SOUTH BURN AREA

LOCATION

Information provided[4] indicated this area was in the vicinity of the South Landfill. However, nothing was found which provided current indication of the location of this site.[6,5]

Figure B-6 illustrates Site 5, the South Burn Area.

OCTOBER 1991 OBSERVATIONS

Waste

No sign of waste resulting from burn operations was observed.[6]

Soil Contamination

No sign of soil contamination resulting from burn operations was observed.[6]

Surface Water and Groundwater

No effect of burn operations on surface water or groundwater was observed.[6] No oil sheen was observed on any surface waters in the vicinity.

Hazardous Materials

No hazardous materials resulting from burn operations were observed.[6]

On-Site Operations

No on-site operations related to fire-training exercises or to disposal of waste by burning were observed.[6]

SUMMARY OF EARLIER OBSERVATIONS REPORTED

A report available to RUST E&I[2] indicates that this site was used between 1955 and 1965 and was located at the South Landfill.

Waste

An individual who had been at the base between 1955 and 1979[3] had no knowledge of a South Burn area, only of the North Burn area, where an airplane was used for training. Another individual with 11 years experience[14] also had never heard of this site.

However, a third individual[7] confirmed that a spot about 25 feet below the present grade level in the South Landfill had been used for fire tests during a three to four year period in the mid to late 1950's, using jet fuel, foam, light water, fertilizer, and fish oils during the tests on aircraft fuselages. He reported that there were no residues. The area involved was described as having been in the southeast end of the marshy area lying between the eastern tip of the manmade lake and the area shown to be the South Landfill in Figure 1-4 of the E&E report.[4]

Soil Contamination

No information was located on any soil contamination resulting from this operation.

Surface Water and Groundwater

No information was located on any surface water or groundwater contamination resulting from this operation.

Hazardous Materials

The same report cited above[2] indicates that small quantities of hazardous waste were disposed of at this site by burning.

PAST USE OF SITE

The general area appears to have been used for burn test, sanitary waste disposal, rubble disposal, and general trash disposal.

FUTURE INVESTIGATION

Since the site, as described in previous investigations, appears to be part of a landfill, no further investigation is recommended except as part of any future study of the South Landfill.

This site lies adjacent to the proposed Kansas City Southport Parkway project planned roadway improvements.[11] An environmental assessment of the site by the City of Kansas City can be anticipated when this project approaches the construction stage.

CONCLUSIONS

The site of the burn pit described does not appear to constitute a threat to public health.

6/RP/BELTONMS/C.6

CHAPTER 7

SITE 7: THE RADIOACTIVE DISPOSAL WELL

LOCATION

A capped 12-inch casing was found,[6] surrounded by a broken barbed-wire fence, and marked by a board on which a sign may once have been mounted (Photo 1118-96-4). The pipe, about 5-1/2 feet tall, is located about 350 feet northeast of the beacon located south and east of the airfield and about 200 feet southwest of a point where a gate is located on a gravel road running northeast toward Walker Road (Bales Avenue). A culvert for Scope Creek is also located near this gate. The well is located in an open field north of a marshy area and the South Landfill.

Figure B-7 illustrates Site 7, the Radioactive Disposal Well.

OCTOBER 1991 OBSERVATIONS

Waste

No sign of waste was observed in the vicinity of this well.[6] A survey meter, Atomic Products Corporation Survey Meter Model 069-701, responding to alpha, beta, and gamma radiation, indicated a reading of 0.05 milliroentgens/hour with the probe within 1 inch of the outside of the pipe at ground level and with a background reading some distance from the pipe of 0.01 milliroetgens/hour. However, it must be pointed out that these readings were taken with the pipe casing intact and with the metal cap in place, so they provide no indication of the intensity of radiation inside the well. Also, to indicate the low quantity of radiation which was detected, it must be pointed out that readings far in excess of 0.05 milliroentgens/hour were obtained when the probe was pointed at the sky.

Soil Contamination

No soil contamination was noted in the vicinity of this well.[6]

Surface Water and Groundwater

Surface water from the vicinity of the well would flow northeast toward Scope Creek.[6]

Hazardous Materials

Hazardous materials were not observed in the vicinity of this well.[6]

On-Site Operations

No on-site operations of any kind were observed.[6]

SUMMARY OF EARLIER OBSERVATIONS REPORTED

Waste

One individual interviewed[13] advised us that the only materials ever disposed of in this well consisted of industrial badges about 1-inch square and that it had been used from the 1960's to about 1976. Another[14] person reported similar disposal and indicated that the well has not been used since 1980. Still another[3] reported that this was one of three gas wells which had been at the site, and that at least one of the other two wells is still under pressure. He also advised us that dosimeters, watch dials, vacuum tubes, and medical materials were disposed of in this well during the 1950's and 1960's.

Another individual[7] reported that an old well was capped and a casing was installed inside it to contain the waste. After the hospital checked the dosimeters, they were placed in the well for a period of about 15 years, from 1962 until the mid-1970's. He reported that the well was sampled and tested in 1979. An August 1980 memorandum found in the Kansas City COE files also makes reference to a report of this type[9] (Appendix D).

One interview[8] disclosed the existence of a letter written by the Surgeon General in 1982 or 1983 indicating there are no hazards associated with this well; this individual could not recall sampling or testing of the well.

A report available to RUST E&I[2] indicated that the site was used principally for disposal of dosimeters from 1955 to about 1970. Nothing in that report indicated what may have contributed to that area becoming radioactive.

Soil Contamination

No information was found on soil contamination in the vicinity of this well.

Surface Water and Groundwater

No information was found on surface water or groundwater contamination in the vicinity of this well.

Hazardous Materials

The only hazardous materials involved in the site appear to be the radioactive items placed in the well.

PAST USE OF SITE

As indicated above, according to one interview this had originally been a gas well. One report[2] indicated that gas production in this vicinity ended about 1938.

FUTURE INVESTIGATIONS

A records search should be instituted for drilling logs filed with regulatory agencies for the gas well which was converted to disposal operations. From this data, a determination may be possible as to whether or not the radioactive material in the well constitutes a threat to public health.

If the additional records search provides no conclusive information on this well, further investigation is needed to determine potential threat to area. As a minimum, the well should be opened and a radiological scan of the well depth be done. The data can be used to determine if the material in the well poses a threat to public health and if appropriate remedial action is warranted.

This site lies adjacent to the proposed Kansas City Southport Parkway project planned roadway improvements.[11] An environmental assessment of the site by the City of Kansas City can be anticipated when this project approaches the construction stage.

CONCLUSIONS

If it is determined from future investigation that the well is not a threat to public health in its present condition, no action may be warranted. However, if tampering with the well by an unknowing person constitutes a possible hazard, the well should be properly closed and sealed. On the other hand, if it is found that the well is either sufficiently shallow to pose a threat, or presents the possibility of aquifer radionuclide contamination, rather costly remediation may be required. In any case, immediate restoration of the fence and warning sign is recommended.

Considering the unknown factors involved, it is urged that the initiation of this investigation be given a high priority. First, the nature of any hazard present should be defined before the matter becomes the subject of an Environmental Impact Statement (EIS) prepared in connection with the proposed Kansas City Southport Parkway project. Publication of some of the data in an EIS often makes a matter of this type a subject of considerable public concern.

According to the correspondence in Appendix D of this report, investigation carried out about 1980 consisted of merely checking radioactivity outside the well, similar to the cursory inspection carried out by RUST E&I in October, 1991. Nothing was found in the records on the nature of any agreement concerning maintaining the site as a low grade radioactive disposal area or on any conditions under which it must be maintained, such as for signs, fencing, and the like. Such conditions would probably be enforced by the U.S. Nuclear Regulatory Commission. Since Missouri is not known to be an "agreement state" under Subsection 274b of the Atomic Energy Act of 1954, as amended, Federal jurisdiction would probably prevail in this case.

Although five individuals were interviewed between September 30 and October 2, 1991, and two days, September 12 and 13, 1991, were spent reviewing records in the USACE offices in Kansas City, no information on this well, other than what is presented in Appendix D, was found.

An earlier report[2] indicates that gas-bearing horizons in the region are found in 400 feet of strata between 300 and 700 feet below the surface. This may suggest the lowest depth of the radioactive waste, but no information has been located on the depth to which the well was filled with waste. This report also indicates that gas production in the area ended about 1938, which suggests that the casing has been subject to corrosion for well over 50 years.

However, the report continues to describe the situation by indicating that there are no major public drinking water aquifers in the region due to the total dissolved solids in the Pennsylvanian strata involved reaching 40,000 ppm in southwest Jackson and northwest Cass Counties. This high degree of salinity would exclude this strata as a significant source of groundwater, according to 40 CFR 119.12(n).

Nevertheless, timely investigation of existing records on this possible source of public hazard is recommended.

6/RP/BELTONMS/C.7

CHAPTER 8

SITE 8: THE HERBICIDE BURIAL AREA

LOCATION

The location described[4,2] was found to be a soybean field near the southeast corner of the facility (Photos 1118-97-15 and 1118-97-16).[6]

Figure B-8 illustrates Site 8, the Herbicidal Burial Area.

OCTOBER 1991 OBSERVATIONS

Waste

No waste of any kind was observed.[6]

Soil Contamination

No signs of soil contamination were observed.[6]

Surface Water and Groundwater

The pond described on a sketch provided to us[4,2] proved to be dry at the time of the RUST E&I inspection.[6]

Hazardous Materials

No hazardous materials of any kind were observed.[6]

On-Site Operations

The entire area, including a grove of trees in the center of the field (Photos 1118-97-13 and 1118-97-14) was checked, but no sign of distressed vegetation was observed.[6] Except for the grove of trees, the entire area was devoted to growing soybeans.

SUMMARY OF EARLIER OBSERVATIONS REPORTED

A report available to RUST E&I[2] indicated that this herbicide burial took place in 1971 and consisted of four cases of mercury-containing herbicide in plastic bottles.

Waste

No information was found on any waste disposal in the area, other than that of the above mentioned quantity of herbicide.

Soil Contamination

Soil samples believed to have been taken by E&E[4] in 1986 showed arsenic levels no greater than those for background levels in soils in the region, although they appeared to be higher in the reported burial location than they were in one sample taken in an adjacent area. Mercury and herbicides were not found in this investigation.

Surface Water and Groundwater

In what is believed to have been a 1986 sampling program by E&E,[4] no pesticides, arsenic, or mercury were found in groundwater samples taken in the suspected vicinity of the burial site.

Hazardous Materials

One person interviewed[3] indicated that two or three cases of plastic bottles, smaller than a one-pint size, were buried in an excavation about 6 feet by 8 feet, opened to a 4-foot depth with a backhoe; he said that a drawing showing the exact location should be in the Base Engineering Office. However, the Base Engineering Office was not able to produce the drawing referred to.[8] Another[14] indicated that the plot is owned by the City of Belton and that it was pasture grass until four years ago when soybean farming was started. Still another[7] reported that he had never heard of the site.

One person interviewed[8] reported inspecting the site at the time of the E&E investigation[4] and failed to find the stressed vegetation they reported.

The E&E report[4] makes reference to a document[1] which describes the pit as being 6 feet by 6 feet by 6 feet and 100 yards south of a former weather station at the south end of the runway.

Inquiries were made, but the reported drawing was not located and none of the individuals interviewed had any first-hand knowledge of this reported disposal operation, which was to have taken place in 1971.

PAST USE OF SITE

No information was found on use of the site prior to the reported herbicide disposal.

FUTURE INVESTIGATION

Further investigation should consist of locating the reported drawing or other records which describe the exact location of any buried hazardous material, removing the material, and disposing of it in a proper manner.

This site lies about 1,000 feet west of the proposed Kansas City Southport Parkway project planned roadway improvements.[11] Consequently, it is unlikely that an environmental assessment

of the site by the City of Kansas City will be conducted when this project approaches the construction stage. Figure B-10 illustrates the Planned Kansas City Southport Parkway Project location.

CONCLUSIONS

The material described poses little potential for immediate threat considering present use of the field involved. However, because of hazards which could be associated with any excavation involved with future use of the site, the material should be located, removed, and if required, soil remediation measures should be taken.

One unknown is the potential for soybeans, the food crop for which the land is currently being used, to pick up mercury, and whether or not levels could be reached which could harm consumers. Similarly, it is not known whether or not levels of mercury in some portion of these plants could be used to define any area of contamination in an efficient manner.

6/RP/BELTONMS/C.8

CHAPTER 9

SITE 11: THE PAINT STRIPPER HANGAR

LOCATION

These buildings are located east of the north end of the runway at Richards-Gebaur. The complex consists of four connected hangars (Photos 1118-97-17 and 1118-97-22) with a large door at each end of each hangar and an office area between the two central hangars.[6]

Figure B-9 illustrates Site 11, the Paint Stripper Hanger.

OCTOBER 1991 OBSERVATIONS

Waste

Considerable surplus or seasonal equipment and materials appears to be stored in these hangars, but the only material found which could be considered waste consisted of empty drums.[6]

Soil Contamination

Nothing was observed which could be considered the result of soil contamination. However, some empty drums observed (Photo 1118-97-19) could have been a potential source of contamination.[6]

Surface Water and Groundwater

No stains or other signs of contamination of surface water or groundwater were observed.[6]

Hazardous Materials

Drums of 2-4-D (Dymec turf herbicide) and caustic potash were noted in one of the hangars. Several hangar doors are insulated with a sprayed-on type of material which could contain asbestos. Drums were found which appeared to contain flooring tile which could contain asbestos. There was no sign of the solvent residues being sought, but signs and wiring at the back of the central building (Photo 1118-97-18) suggested that an operation involving solvents may have been conducted there at one time.[6] A large portable tank (Photo 1118-97-21) labeled as containing waste oil was observed west of the hangars.

On-Site Operations

Operations at this site appear to consist of storage of a wide variety of equipment such as snow fences, fence posts, furniture, a baler, augering equipment, fertilizer spreaders, salt hoppers, snow plows, and other equipment attachments, light-fixtures, trucks, branch choppers, sweepers, water

treatment chemicals, paint, tires, vacuum cleaners, kitchen equipment, rubber hose, plastic debris, drums of scrap flooring tile (may contain asbestos), a ditchwitch, an air compressor, an oil spreader, a planter, paint,[5] and many small drums marked to indicate they are made for containing transformers (Photos 1118-97-10, 1118-97-11, 1118-97-12, and 1117-97-20).[6]

SUMMARY OF EARLIER OBSERVATIONS REPORTED

Waste

No verification was obtained through interviews and record searches for a report[12] that a large cargo plane had loaded hazardous material accumulated between 1978 and 1980 and removed it to an unknown destination.

Soil Contamination

One individual interviewed[13] indicated that only one of the hangars had been used for aircraft stripping operations and that the U.S. EPA was involved in a soil contamination problem which developed.

A second individual[3] reported having no knowledge of what was apparently a contract operation carried out after the Air Force relinquished control of the property.

A third interview[8] disclosed that these hangars were originally "Alert" hangars for the Air Defense Command. The individual did not know what they had been used for subsequent to cessation of Air Force operations at the buildings. Eventually, it was used for the stripping and painting of helicopters. A letter written by the Base Civil Engineer to the COE at the time complained that the washing of materials out the back door of the hangar was killing grass so they required installation of an underground tank for collecting these washings. The person interviewed did not know whether or not the tank had ever been removed. Sam Mitchell, who was Base Civil Engineer at that period in 1983 and 1984, was reported to be the individual who would know of details of the matter. A search for visual signs of the tank was unsuccessful. None of the individuals interviewed had first hand knowledge of any tank. The use of geophysical equipment to locate subsurface anomalies was beyond the scope of the site inspection. However, it is recommended that a geophysical search be made part of future investigations.

A report reviewed[2] indicated that the Talley Services, Inc., operation involving stripping and painting helicopters began in October 1982.

Surface Water and Groundwater

The interview cited above indicated that surface water and groundwater contamination had been a factor in initiating collection of washings.

Hazardous Materials

One report reviewed[2] indicated that a non-hazardous material was used for stripping paint off helicopters.

PAST USE OF SITE

One individual interviewed[14] advised us that two companies were involved in operations at this site. One was involved in painting helicopters for the U.S. Army and a second, known as "Big Irons", started restoring World War II aircraft in 1982 and was out of business by 1986. The buildings were insulated by the Air Force when they painted aircraft here. All waste liquids went into an underground tank east of the second building from the south. It was pumped out occasionally. Other waste, such as rollers, brushes, waste paint, and waste abrasive went into the "garbage". When spills occurred, the material was washed out the door, a practice which was known to kill the grass in the region. The first and third buildings from the south end were used for sheet metal operations.

Still another individual[7] recalled only the helicopter painting operation. He reported that the underground tank, provided with containment, was used for storing stripper and was located behind No. 3 and No. 4 hangars (the two to the south). Remaining material was pumped out by a hazardous waste disposal company following the one-year period in 1982 and 1983 when the operation was carried out. He said that disposal of the stripper presented no problem, since it was biodegradable. The only solvents used were those in the spray paint; no method of application other than spraying was employed.

FUTURE INVESTIGATION

This site lies nearly 1 mile northwest of the proposed Kansas City Southport Parkway project planned roadway improvements.[11] Consequently, it is unlikely that an environmental assessment of the site by the City of Kansas City will be conducted when this project approaches the construction stage.

To determine the existence of the reported underground tank, a magnetometer survey of the area should be completed. If the survey indicates an underground tank may be present, appropriate sampling and analysis would be needed to determine additional course of action.

CONCLUSIONS

Information gained through this investigation provided minimal information on whether or not any hazard to human health exists at this site. However, in connection with another project, it was learned that information on the matter can be found at the Missouri Department of Natural Resources (MDNR) offices in Jefferson City. Such investigation was, unfortunately, beyond the limited scope of this project. In addition to reviewing State and Federal regulatory agency files, it is recommended that the former operators of both the helicopter painting and the World War

II airplane restoration firms be interviewed.

Should these interviews fail to yield any useful information, inspection of deposits in various drains at the site may provide evidence of locations for further investigation.

6/RP/BELTONMS/C.9

CHAPTER 10

STATEMENT OF LIMITATIONS

RUST E&I's scope of services was limited to evaluating on-site sources that may impose significant environmental risk to the property and to a review of records related to such risk. While investigation of potential off-site sources located immediately adjacent to the property was performed, RUST E&I does not propose to have fully addressed off-site concerns. Furthermore, when an assessment is completed with no subsurface exploration program, RUST E&I can not present an opinion regarding latent subsurface conditions potentially resulting from on-site and off-site influences.

RUST E&I's opinion regarding the environmental risk at the property does not constitute a guarantee or warranty as to the potential environmental liability associated with this property. Furthermore, the findings and conclusions given herein are not scientific certainties, but rather probabilities based on and limited to data obtained or activities performed during this investigation, and to professional judgment concerning the significance of this data. All information was collected in accordance with accepted professional standards and practices, accepted in good faith, and is assumed to be factual and accurate. RUST E&I is not able to determine whether or not the property or adjoining land area contains hazardous waste, oil, or other latent conditions beyond those detected or observed by RUST E&I at the time this investigation was conducted. The possibility always exists for contaminants to migrate through the surface water, air, or groundwater. Detailed analysis and discussion of the environmental risk associated with contaminant transport in these media was beyond the scope of this investigation.

6/R/BELTONMS/C.10

APPENDIX A

REFERENCES

APPENDIX A

REFERENCES

[1]Air Force Civil Engineer's Construction Permit (AF 103), August 6, 1971

[2]CH2MHill, "Installation Restoration Program Records Search for Richards-Gebaur Air Force Base, Missouri," March 1983

[3]Earhart, Harold E., retired Operations and Maintenance Chief, interview

[4]Ecology and Environment, Inc., "Final Report for Richards-Gebaur Air Force Base, Missouri, Installation Restoration Program Phase II," July 1988

[5]Field Notes, Kim Elias, September 30 to October 2, 1991

[6]Field Notes, R. M. Uschan, September 30 to October 2, 1991

[7]Herbst, Nick, General Manager, Million-Air, and former Fire Chief, Richards-Gebaur, interview

[8]Hurd, John, Base Civil Engineer, interview

[9]Memo dated August 1980, on radionuclide analysis of soil and water samples by USAF OEHL

[10]O'Brien & Gere Engineers, Inc., "Remedial Investigation at Richards-Gebaur Air Force Base," July 1990

[11]Personal communication, Carl L. Johnson, Associate, Bucher, Willis, Ratliff, Consulting Engineers, Planners, and Architects, Kansas City, Missouri office

[12]Personal communication, City of Kansas City, Missouri Environmental Hazards Group

[13]Shuert, Richard D., Planner/Estimator Intelcom, interview

[14]Siefers, Wayne, Airport Manager and Maintenance Superintendent for Kansas City at Richards-Gebaur Airport, interview

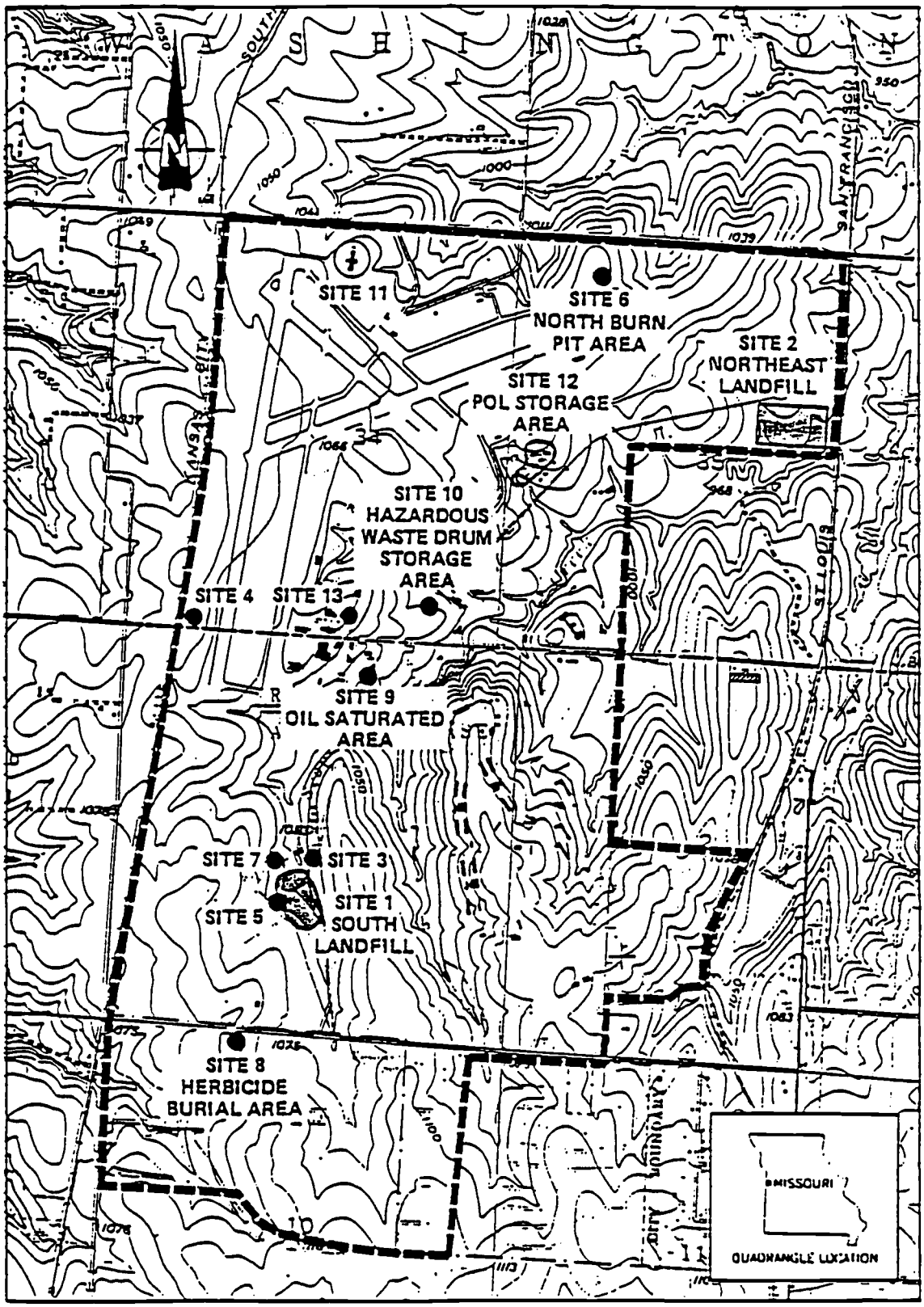
[15]USACE, Kansas City District, "Scope of Work, Site Investigation," Former Richards-Gebaur Air Force Base, Belton, Missouri, May 7, 1991

[16]USGS 7.5 minute Orthophotoquad map of Belton Quadrangle, Missouri-Kansas, prepared from aerial photograph taken March 21, 1980

[17]USGS 7.5 minute Topographic map of Belton Quadrangle, Missouri-Kansas, 1953, photo revised 1970 and 1975

APPENDIX B

SITE MAPS



SOURCE: U.S.G.S. 7.5' Quadrangle, Belton, Mo.—Kans. 1975.

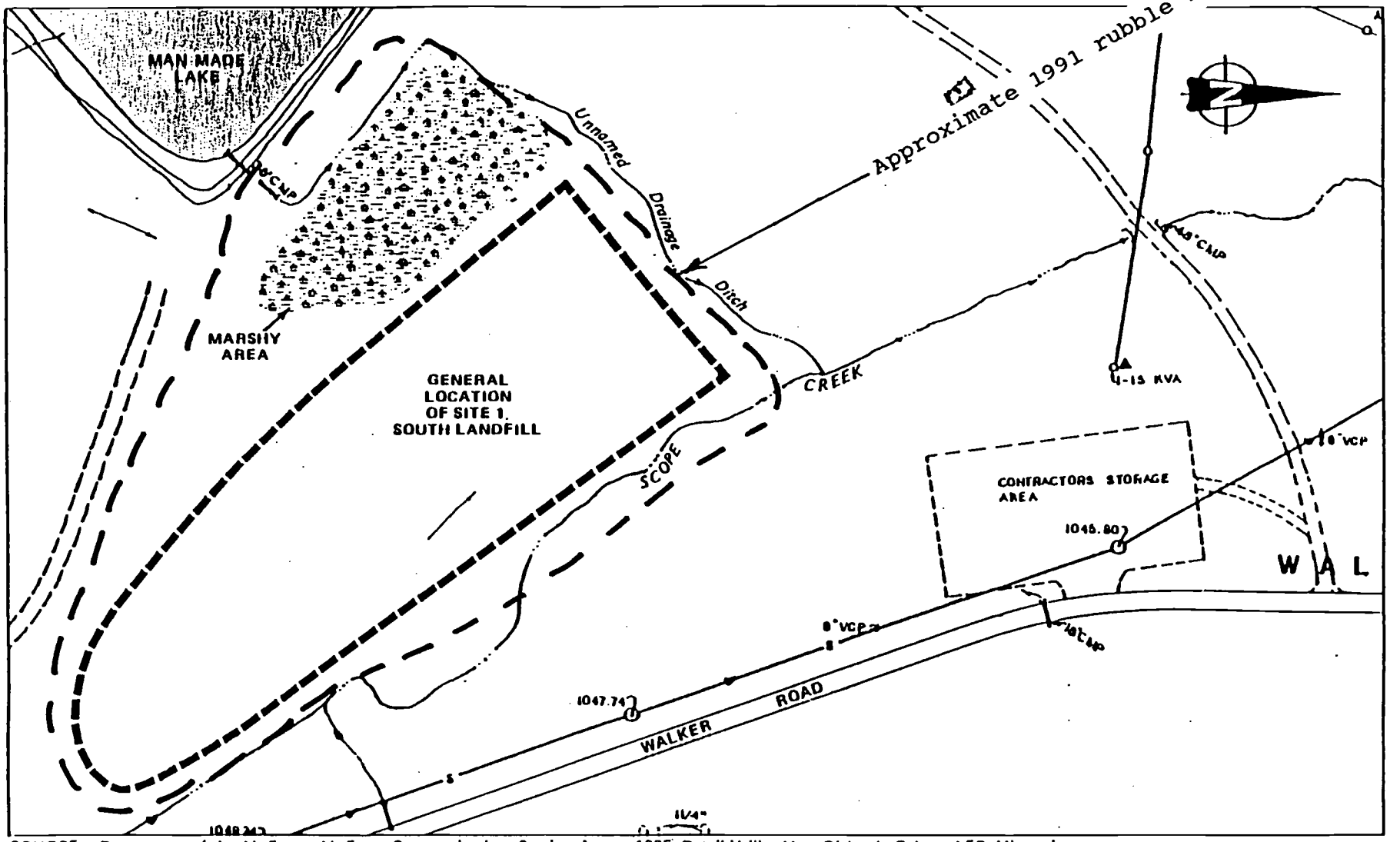
SCALE

0 ½ 1 MILE

Figure B-1 OVERALL MAP OF BASE

Showing All of Potentially Hazardous Site Identified During Past Investigations

Figure B-1 Adapted from Figure 1 in Reference No. 4



SOURCE: Department of the Air Force, Air Force Communications Service, August 1985, Detail Utility Map, Richards-Gebaur AFB, Missouri.

KEY: Site Boundary (as designated in Ref. 4) — Surface Runoff Direction

SCALE 0 50 100 200 300 FEET

Figure B-2

South Landfill

Figure B-2 Adapted from Figure 1-9 in Reference No. 4

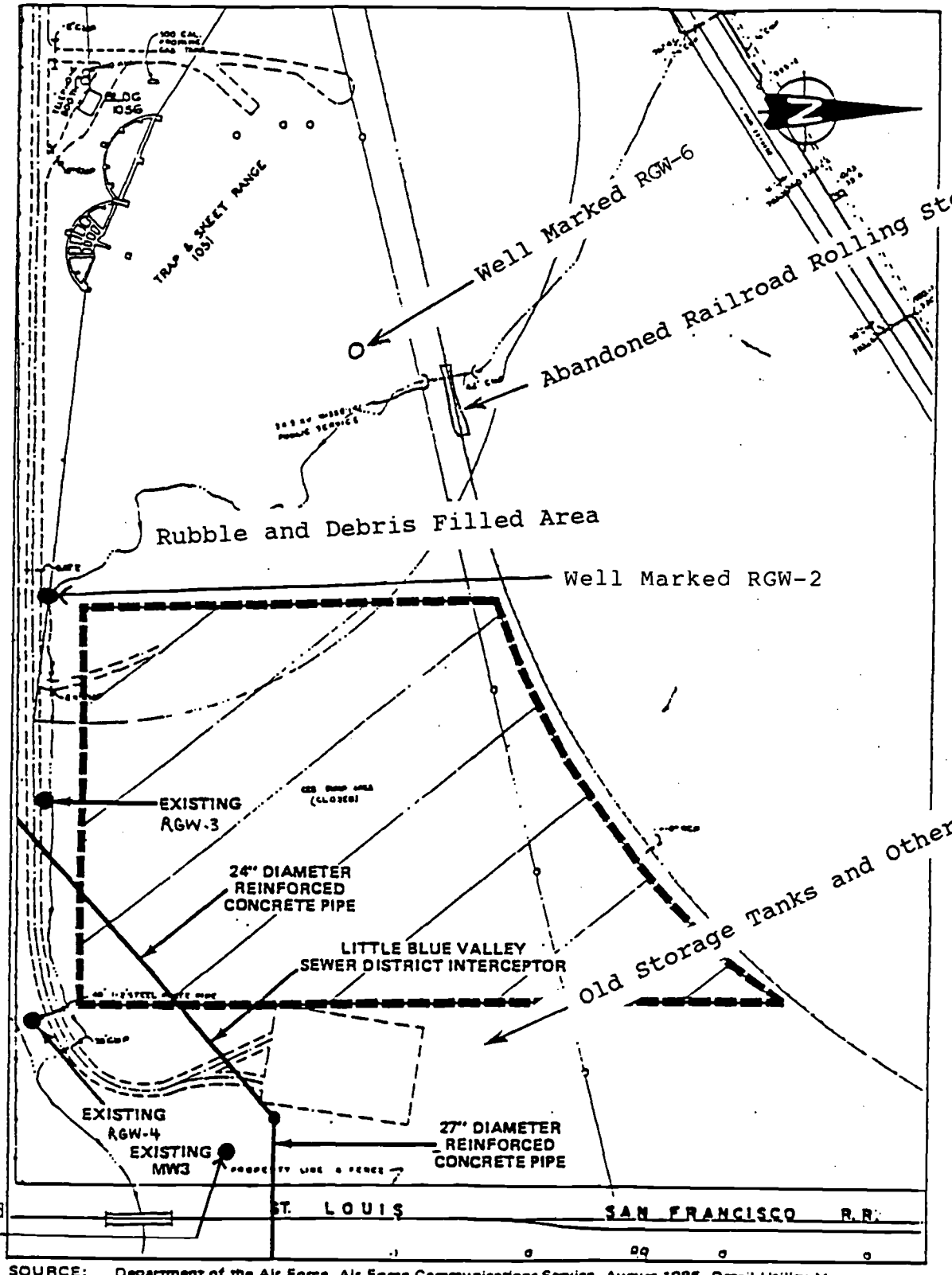


Figure B-3

Northeast Landfill

Figure B-3 Adapted from Figure 1-11 in Reference No. 4

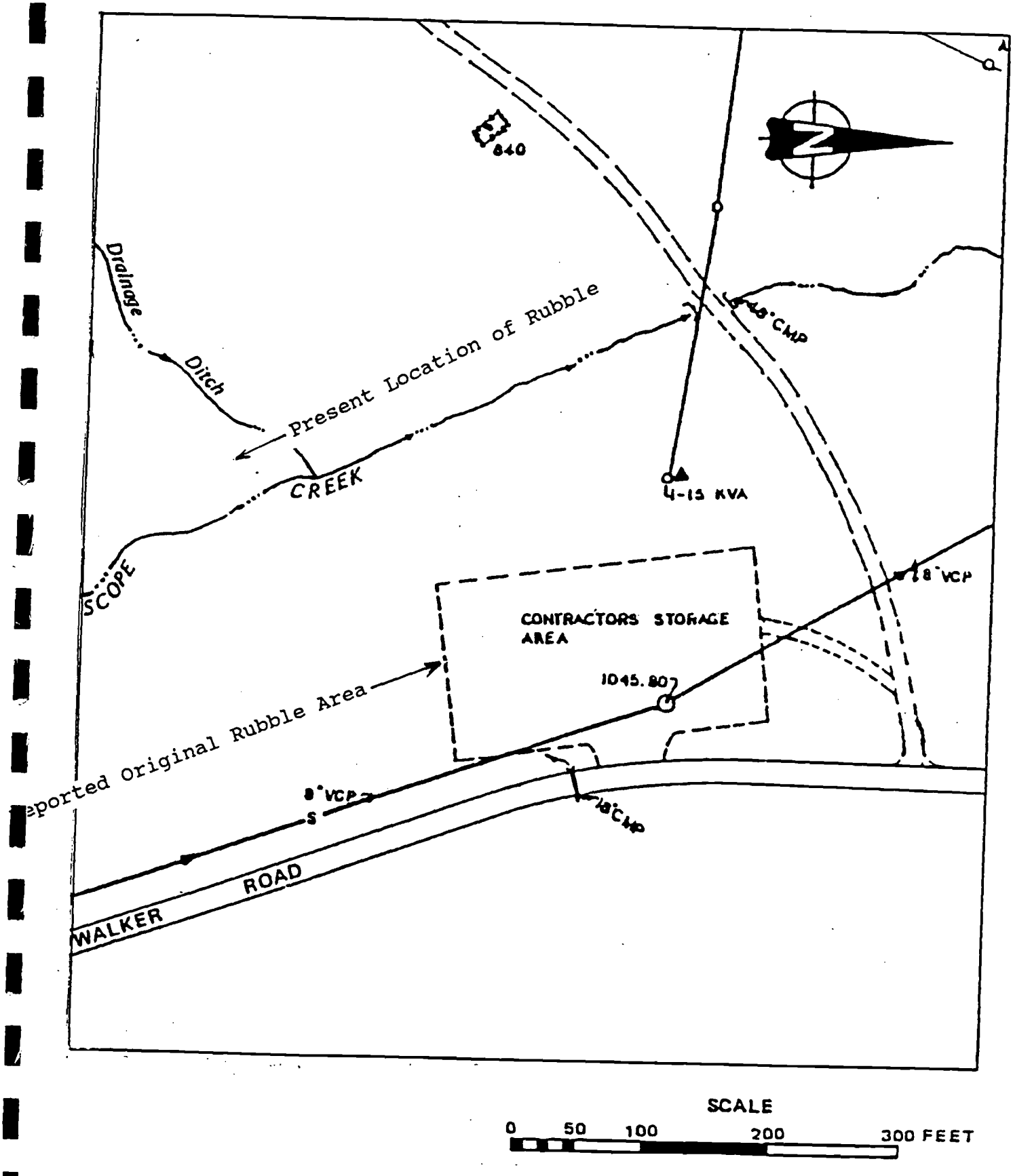


Figure B-4

Contractor Rubble Area

Figure B-4 Adapted from Figure 1-9 in Reference No. 4

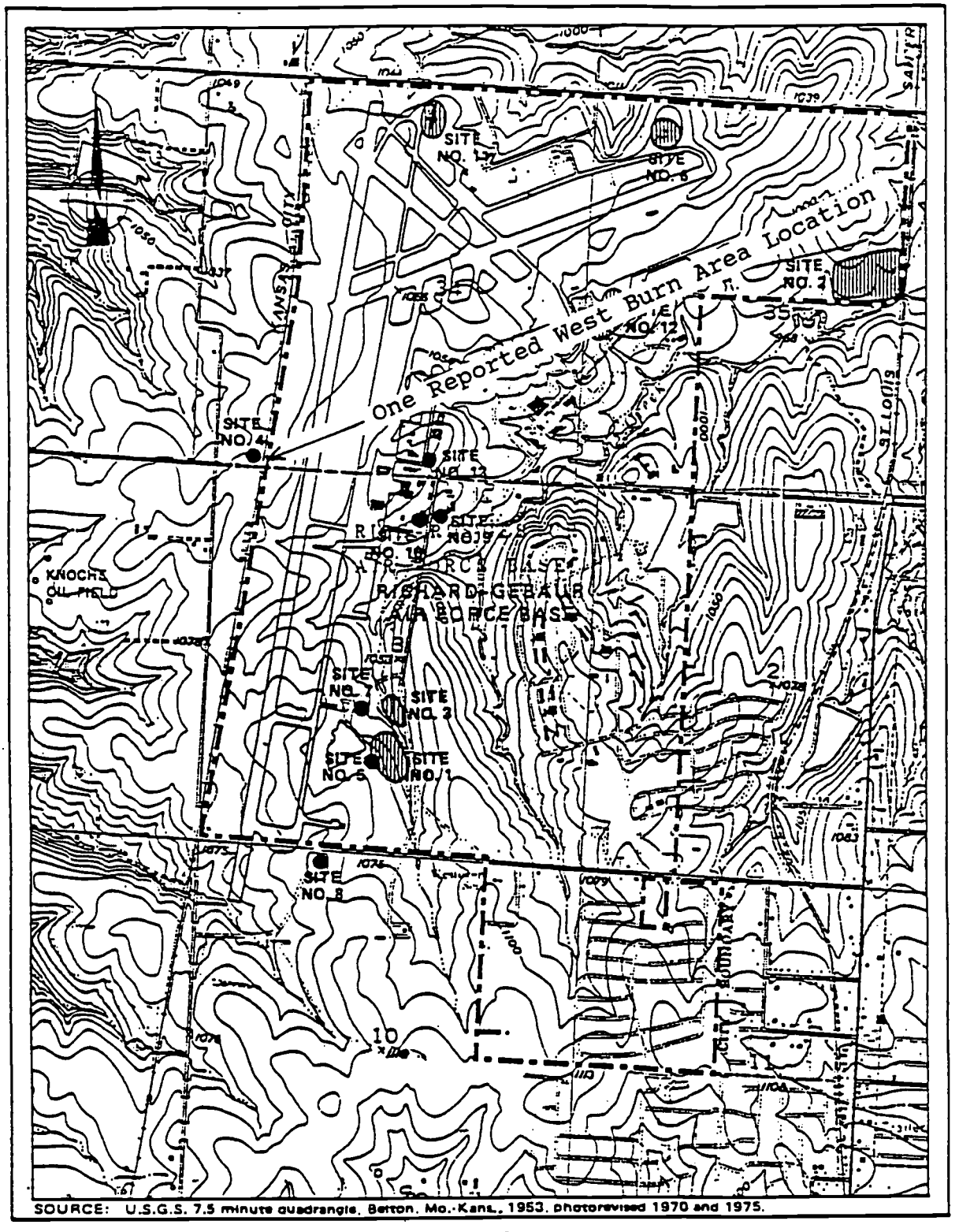


Figure B-5A

West Burn Area - First Location Indicated

Figure B-5A Adapted from Figure 2-1 in
Appendix N of Reference No. 4

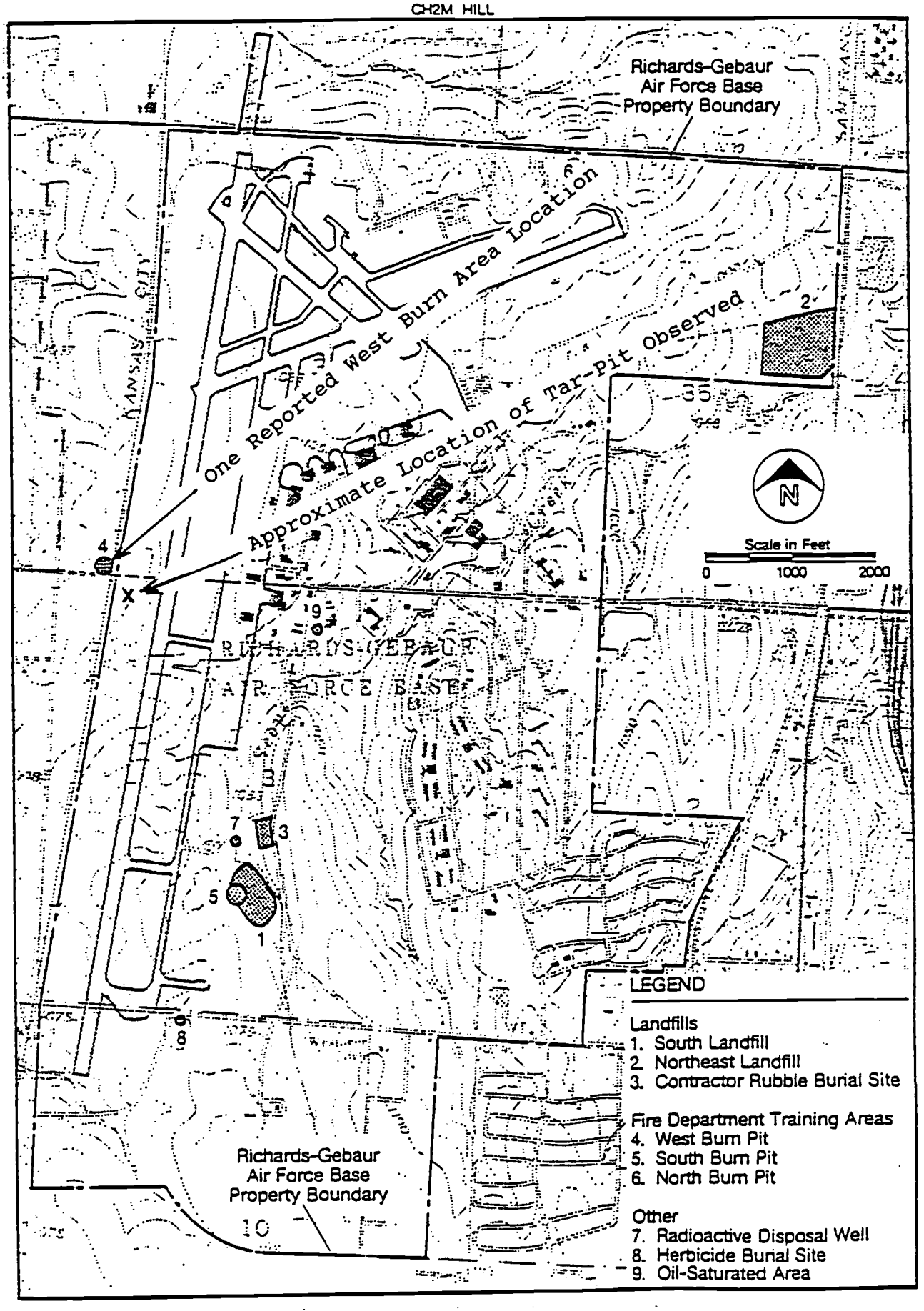
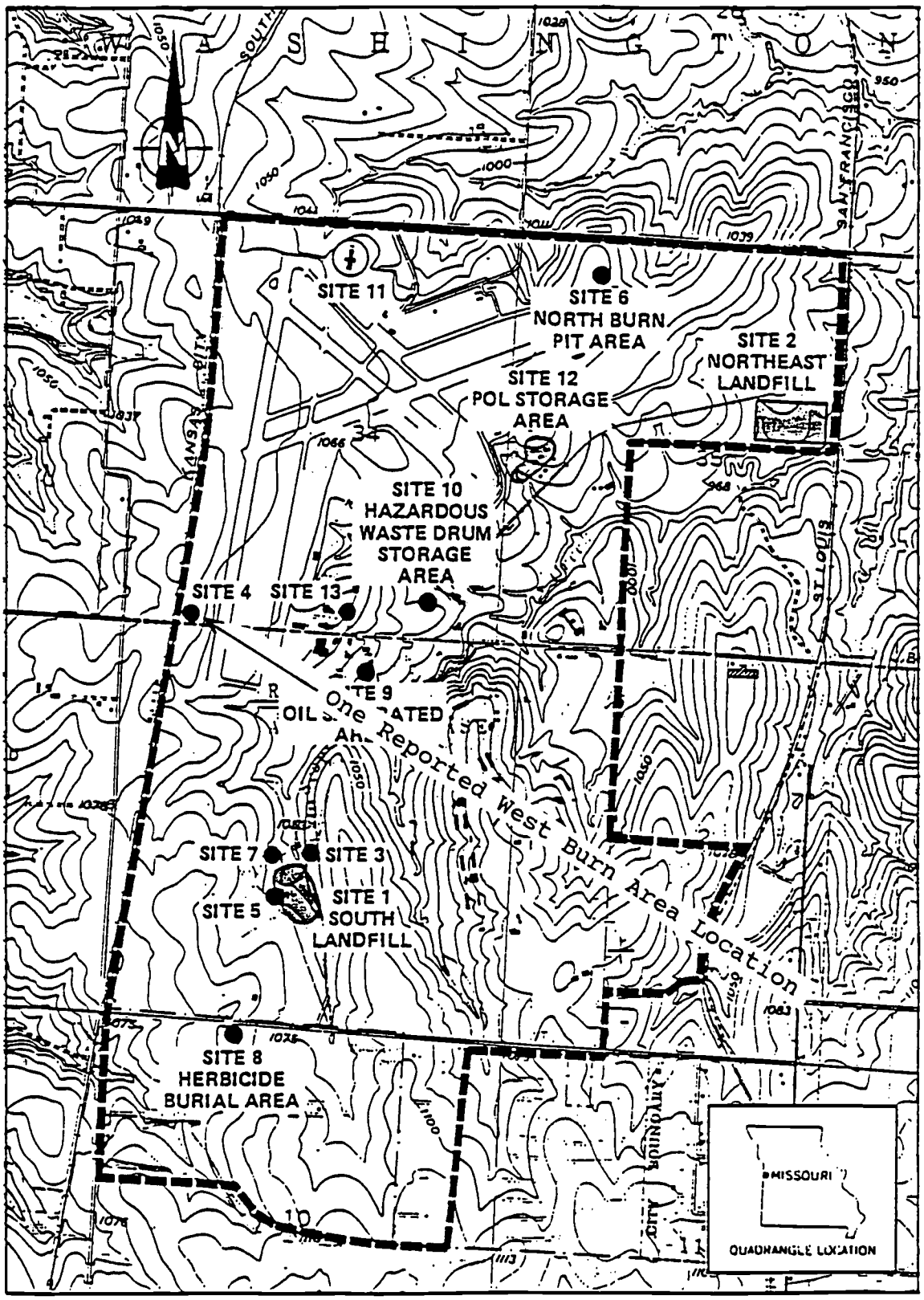


Figure B-5B

West Burn Area - Second Location Indicated

Figure B-5B Adapted from Figure 6 in
Reference No. 2



SOURCE: U.S.G.S. 7.5' Quadrangle, Belton, Mo.—Kans., 1975.

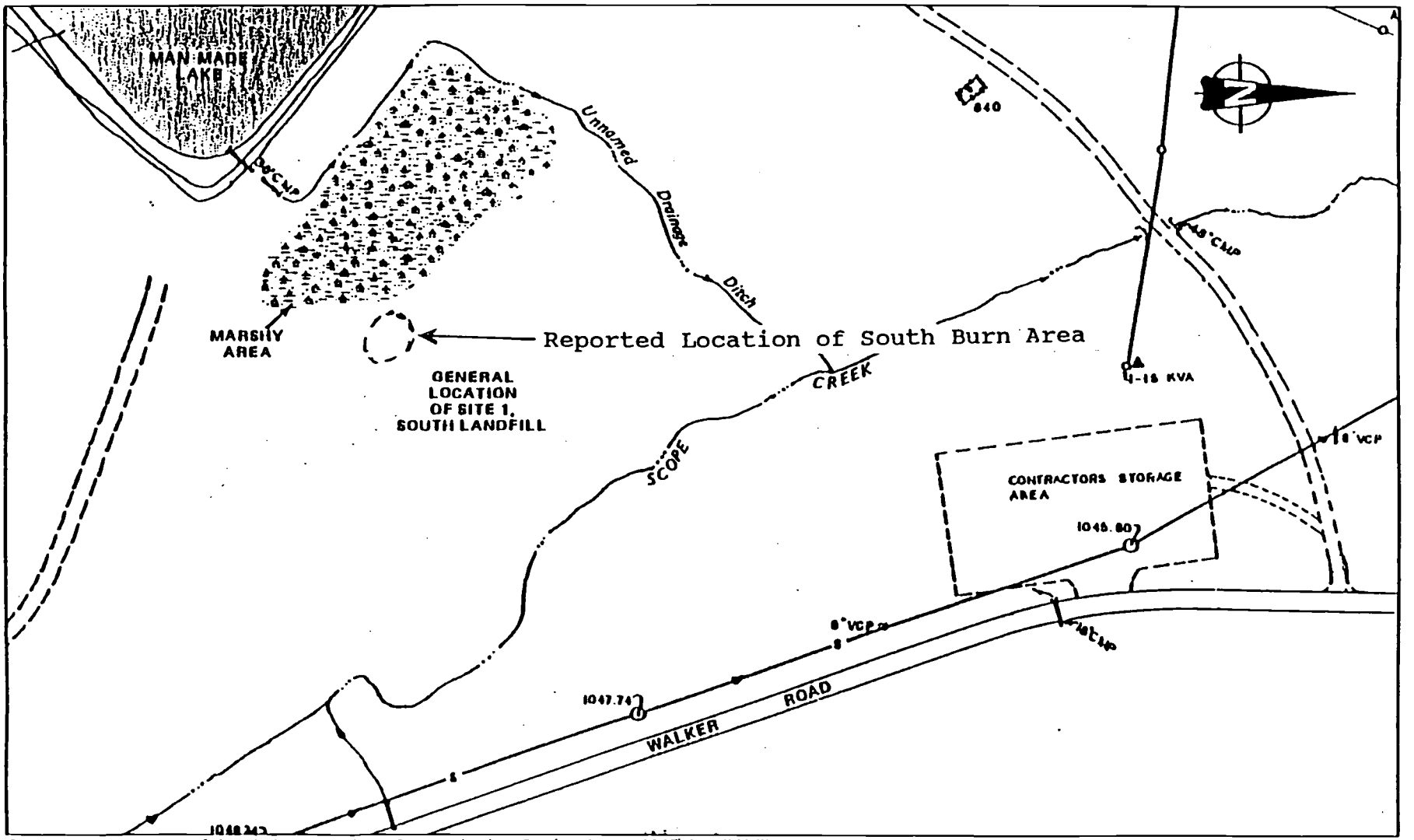
SCALE

0 ½ 1 MILE

Figure B-5C

West Burn Area - Third Location Indicated

Figure B-5C Adapted from Figure 1 in
Reference No. 4



SOURCE: Department of the Air Force, Air Force Communications Service, August 1986, Detail Utility Map, Richards-Gebaur AFB, Missouri.

SCALE

0 50 100 200 300 FEET

Figure B-6

South Burn Area

Figure B-6 Adapated from Figure 1-9 in Reference No. 4

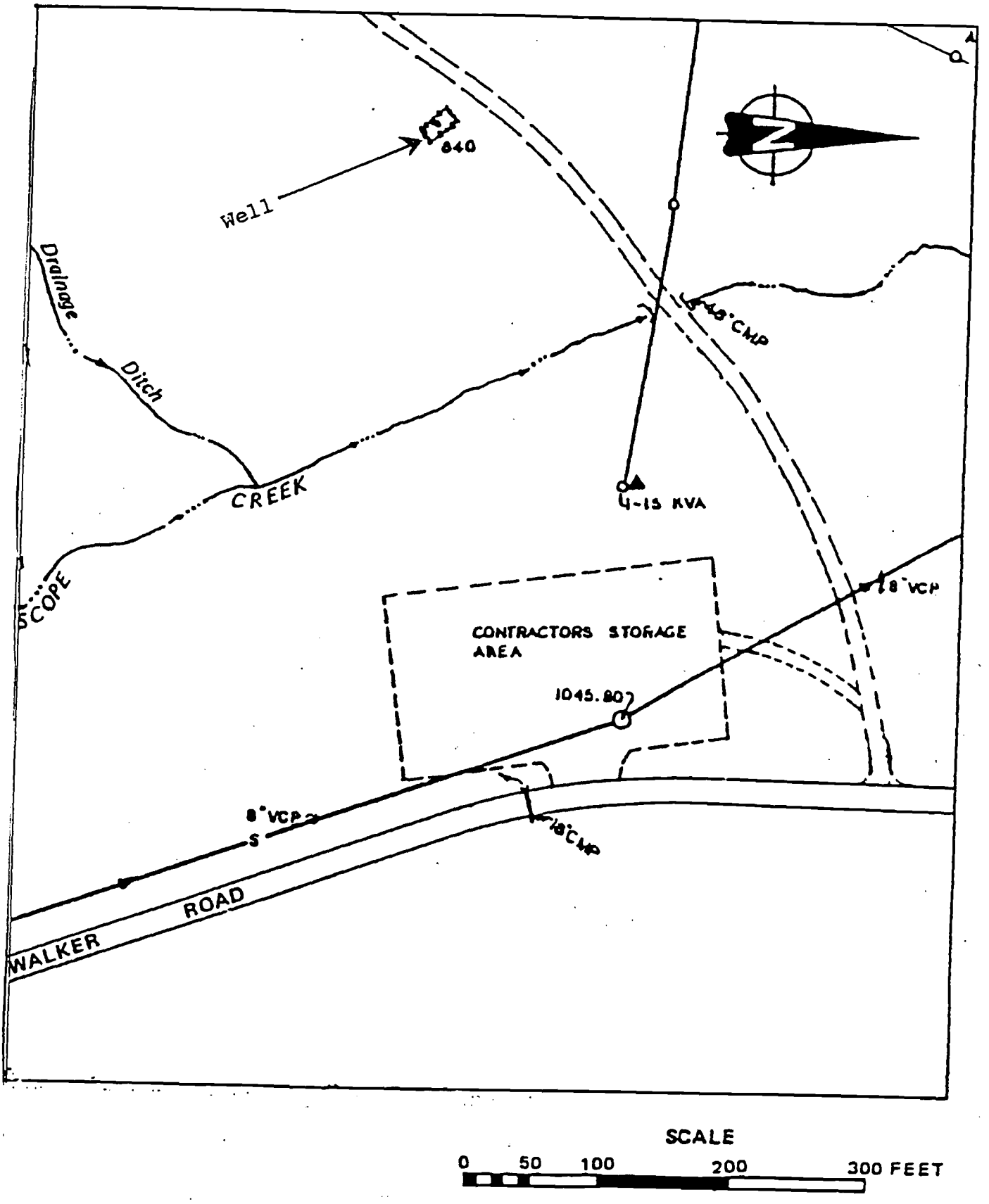
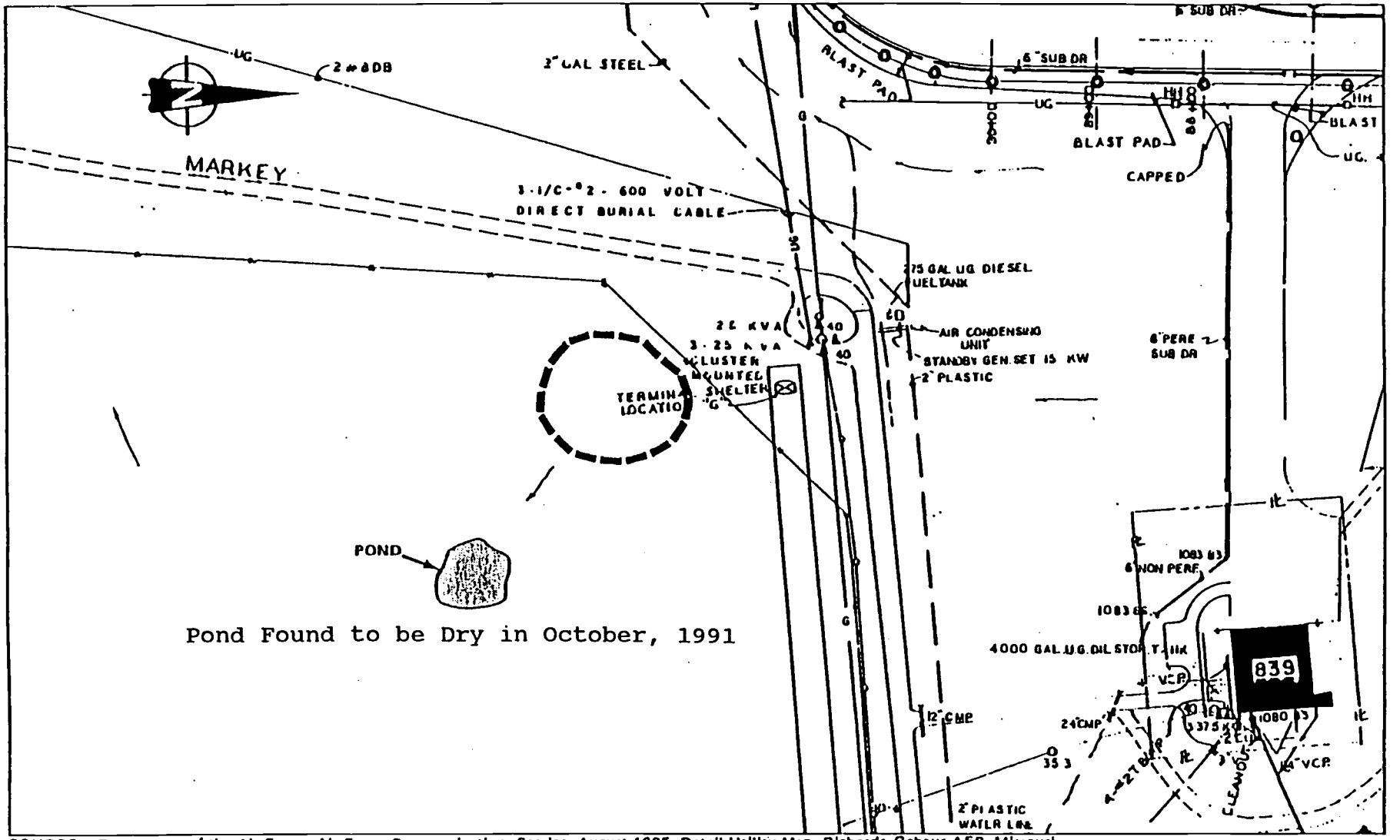


Figure B-7
Radioactive Disposal Well

Figure B-7 Adapted from Figure 1-9 in
Reference No. 4



SOURCE: Department of the Air Force, Air Force Communications Service, August 1985, Detail Utility Map, Richards-Gebaur AFB, Missouri.

KEY: Site Boundary (according to Ref. 4) Surface Runoff Direction

Figure B-8
Herbicide Burial Area

Figure B-8 Adapted from Figure 1-7 in
Reference No. 4

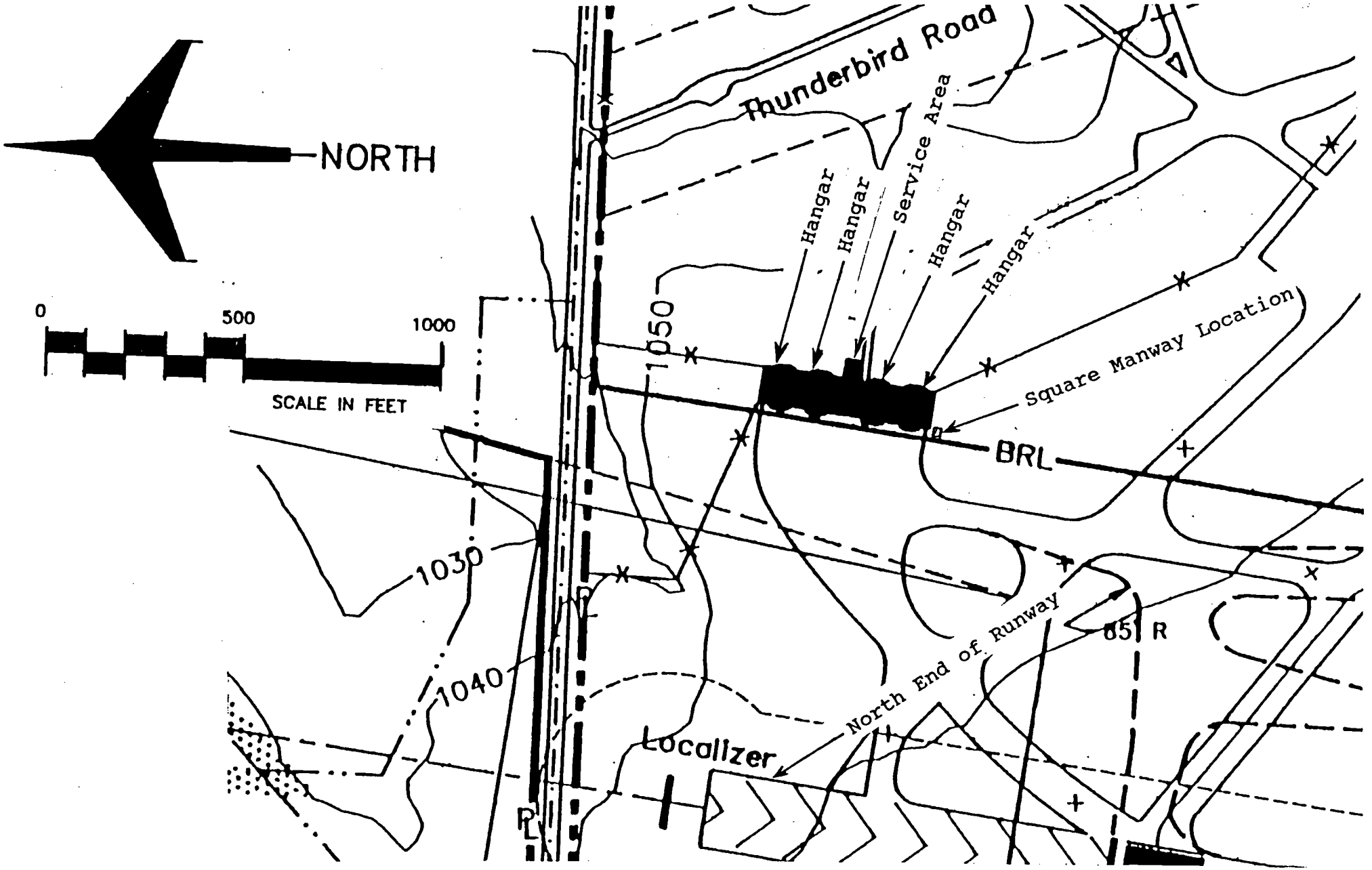


Figure B-9
Paint Stripper Hanger

Figure B-9 Adapted from Portion of
Reference No. 18

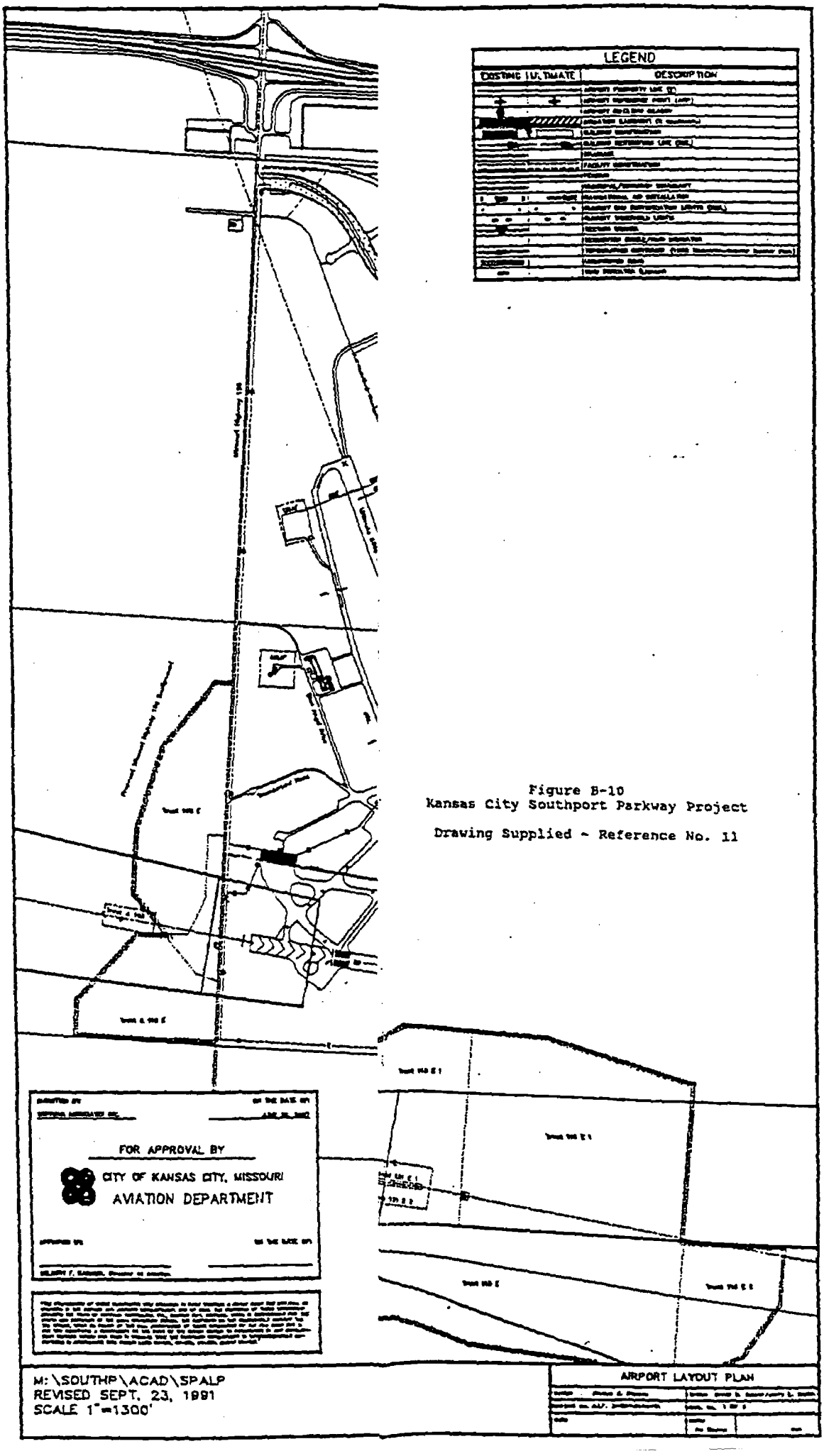


Figure B-10
Kansas City Southport Parkway Project

Drawing Supplied - Reference No. 11

C - Missouri Form 1 (pending)

D - Discharge Information (Part VII of EPA Form 2F) (pending)

E - Analytical Reports (pending)

Draft Stormwater Permit Application

for

Richards-Gebaur Memorial Airport

March 20, 1995

Prepared for
Kansas City, Missouri
Aviation Department

BUCHER, WILLIS & RATLIFF
ENGINEERS ▫ PLANNERS ▫ ARCHITECTS

SAMPLING PT. A
5'x3' RCB

SAMPLING PT. B
8'x8' RCB

SECONDARILY-CONTAINED ABOVE GROUND GASOLINE STORAGE TANK (ABOUT 100 GALLON CAPACITY) TO FUEL EMERGENCY GENERATOR.

BUILDING 1010, SEE NOTE 2

SOIL, ROCK & DEBRIS FILL AREA, EXCESS FROM PAST CONSTRUCTION ACTIVITIES

OUTSIDE STORAGE OF CONC. FORMWORK, LUMBER, PVC CONDUIT, REINFORCING BARS, IRON CASTINGS, TIRES AND MISCELLANEOUS CONSTRUCTION MATERIALS AND AIDS. (NO HAZARDOUS SUBSTANCES)

OUTFALL 002
CATCH BASIN

ABANDONED USAF FIRE TRAINING BURN PIT, SCHEDULED FOR REMOVAL OF CONTAMINATED SOIL. (WEST BURN PIT FUDS SITE)

MILLION AIR OPERATIONS
SEE NOTE 3

KCMO AIRPORT MAINTENANCE AREA
SEE NOTE 1

OUTDOOR STORAGE OF CRUSHED ROCK, SAND, STRAW BALES, CULVERTS & CONSTRUCTION MAINTENANCE EQUIPMENT. (NO HAZARDOUS SUBSTANCES).

AREA LEASED BY FIXED BASE OPERATOR. MILLION AIR INC.

SECONDARILY-CONTAINED, ABOVE GROUND DIESEL FUEL STORAGE TANK (ABOUT 200 GALLON CAPACITY) TO FUEL EMERGENCY GENERATOR.

EXISTING DETENTION BASIN
SCHEDULED FOR REMOVAL

SOIL AND ROCK FILL AREA (EXCESS FROM CONSTRUCTION ACITVITIES).

USAF

(ABANDONED)

P.O.L. YARD FUDS SITE
(OWNED BY CITY)

WASTEWATER TREATMENT PLANT FUDS SITE

LEASED TO U.S. MARINE CORPS

SAMPLING PT. E
CULVERT

SAMPLING PT. D
CULVERT

LEASED TO ELECTRONICS INSTITUTE

BTM MANUFACTURING,
SEE NOTE 4

AIR FORCE OWNED, PERMITTED TO U.S. MARINE CORPS

INDOOR STORAGE OF PACKAGED, PELLETIZED UREA (46% NITROGEN) & SMALL QUANTITIES OF WATER TREATMENT & BOILER CHEMICALS, INSECTICIDES, HERBICIDES, CLEANING PRODUCTS & LUBRICATING OILS.

OWNED BY AIR FORCE

LEASED TO CITY OF BELTON

LEASED BY CALVARY BIBLE COLLEGE

OUTFALL 001
15'x10' CMP ARCH

CONTRACTOR RUBBLE BURIAL FUDS SITE

RADIOACTIVE DISPOSAL WELL FUDS SITE

SOUTH LANDFILL FUDS SITE

SOUTH BURN PIT FUDS SITE

LEASED TO FALCON GUN CLUB

NORTHEAST LANDFILL FUDS SITE

SAMPLING PT. C
SWALE

980,000 N.
978,000 N.
976,000 N.
974,000 N.
972,000 N.
970,000 N.
968,000 N.
778,000 E.
780,000 E.

NOTES:

1. THERE ARE TWO STRUCTURES IN KANSAS CITY AVIATION DEPARTMENT MAINTENANCE AREA, A VEHICLE MAINTENANCE SHOP AND AN EQUIPMENT AND MATERIAL STORAGE SHED. THE VEHICLE MAINTENANCE SHOP INCLUDES THE INDOOR STORAGE OF SMALL QUANTITIES OF SOLVENTS AND LUBRICATING OILS. WASTE OIL IS DISCHARGED INSIDE THE BUILDING TO A DRAIN LINE THAT IS CONNECTED TO AN ABOVE GROUND WASTE OIL STORAGE TANK LOCATED OUTSIDE OF THE BUILDING. FLOOR DRAINS INSIDE OF THE SHOP AND WATER COLLECTED FROM AN OUTSIDE VEHICLE WASH AREA DRAIN TO AN OIL-WATER SEPARATOR. WATER FROM THE SEPARATOR IS DISCHARGED TO THE SANITARY SEWER. SEWER BULK SAND AND SALT AND MOWING EQUIPMENT ARE STORED IN THE SHED. TWO 2,000 GALLON, SECONDARILY CONTAINED ABOVE GROUND FUEL STORAGE TANKS ARE ALSO LOCATED IN THE MAINTENANCE AREA, ONE CONTAINING UNLEADED GAS AND THE OTHER DIESEL FUEL. THE TANKS SERVE OUTSIDE DISPENSING UNITS. THERE ARE ALSO TWO RECENTLY DEACTIVATED UNDERGROUND FUEL STORAGE TANKS PLANNED FOR CLOSURE AND REMOVAL IN THE NEAR FUTURE. MAINTENANCE EQUIPMENT IS ALSO STORED OUTSIDE IN THIS AREA.
2. BUILDING 1010 WAS USED FOR AIRPLANE PAINT STRIPPING OPERATIONS BY A PREVIOUS TENANT IN THE MID-1980S. STRIPPING FLUIDS WERE COLLECTED AND PIPED TO A UNDERGROUND STORAGE TANK. THE TANK WAS REMOVED WHEN THE TENANT VACATED THE PREMISES. CURRENTLY, PRODUCTS INCLUDING ASPHALTIC MATERIALS, ASPHALT SEALER, HERBICIDES, METHYLENE CHLORIDE, PAINTS, FERTILIZERS AND PETROLEUM DISTILLATES ARE STORED INSIDE THIS BUILDING. MANY OF THESE PRODUCTS ARE PLANNED FOR DISPOSAL IN THE NEAR FUTURE. THE BUILDING ALSO HOUSES 3 PCB TRANSFORMERS (STILL IN USE AND PLANNED FOR REPLACEMENT). STORMWATER DOES NOT COME IN CONTACT WITH THE CHEMICALS OR TRANSFORMERS.
3. THE MILLION AIR LEASE AREA INCLUDES 3 HANGERS WHERE MINOR AIRCRAFT MAINTENANCE AND REPAIR IS PERFORMED. THERE ARE FIVE TANKER TRUCKS TO TRANSFER FUEL TO AIRCRAFT. THREE 5,000 GALLON TANKERS FOR JETS, ONE 1,000 GALLON TANKER FOR JETS AND ONE 500 GALLON TANKER FOR UNLEADED GASOLINE. THE TANKERS ARE PARKED OUTSIDE ON THE AIRPORT APRON. THERE IS ALSO A 15,000 GALLON UNLEADED GASOLINE UNDERGROUND STORAGE TANK IN THIS AREA. THE UNDERGROUND TANK SERVES AN OUTSIDE DISPENSING UNIT.
4. BTM MANUFACTURES SCREWS, NUTS AND BOLTS AND LEASES THEIR PROPERTY FROM KANSAS CITY. WIRE COILS AND 55 GALLON DRUMS OF "BREAD PAN OIL" HAVE BEEN OBSERVED STORED OUTSIDE ON THE PROPERTY. THEIR ACTIVITIES ARE NOT ASSOCIATED WITH THE CITY'S AIRPORT ACTIVITIES AND ARE NOT INCLUDED IN THIS PERMIT APPLICATION.
5. THE BASIS FOR THE DRAINAGE AREAS IS TOPOGRAPHIC DATA FROM AERIAL PHOTOGRAPHY, DATED APRIL 11, 1989 AND AVAILABLE STORM SEWER DATA OBTAINED AS PART OF A DRAINAGE STUDY PERFORMED BY BUCHER, WILLIS & RATLIFF IN JANUARY 1992.
6. PROPERTY OWNED BY CITY OF KANSAS CITY, MISSOURI EXCEPT WHERE INDICATED OTHERWISE.
7. ROUNDUP IS USED SELECTIVELY IN LIMITED AREAS SUCH AS FENCE ROWS, BRIDGE ABUTMENTS, EDGES OF BUILDINGS, PAVEMENT CRACK IN THE AIR OPERATIONS AREA AND IN GUTTERS AND CULVERT ENTRANCES WHERE VEGETATION OBSTUCTS FLOW.
8. HERBICIDES CONTAINING 2,4-DICHLOROPHENOXYACETIC ACID (2,4D) IS APPLIED ABOUT TWICE PER YEAR ON APPROXIMATELY 300 ACRES OF AIR OPERATIONS AREA TO CONTROL BROAD LEAF PLANTS.
9. UNDEVELOPED LAND OUTSIDE OF THE AIR OPERATIONS AREA IS LEASED TO FARMERS FOR AGRICULTURAL PURPOSES.
10. NO INSECTICIDES OR SOIL CONDITIONERS ARE USED AT THE FACILITY. NO FERTILIZER IS USED IN THE AIR OPERATIONS AREA. AGRICULTURAL FIELDS OUTSIDE AIR OPERATIONS AREA ARE FERTILIZED EVERY FEW YEARS.
11. PROPERTY LINES ARE APPROXIMATE.
12. THE P.O.L. YARD IS CONTAINED BY AN EARTHEN LEVEE ENCLOSURE PREVENTING STORMWATER RUNOFF. COLLECTED STORMWATER DRAINS THROUGH AN OIL/WATER SEPARATOR TO THE SANITARY SEWER.

N

500 0 500 1000
Scale in Feet

LEGEND

- (17) DRAINAGE AREA DESIGNATION
- LIMITS OF DRAINAGE AREA
- PROPERTY LINE (APPROXIMATE)
- LEASE LINE (APPROXIMATE)
- DIRECTION OF STORMWATER FLOW (TYP.)
- AREA NOT INCLUDED IN PERMIT APPLICATION
- SD SD SD ENCLOSED STORMSEWER

BUCHER, WILLIS & RATLIFF
ENGINEERS • PLANNERS • ARCHITECTS

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
R·G AIRPORT

ER File No. 22V

STORMWATER PERMIT APPLICATION SITE PLAN

dsgn/drwn JDS / DSH
project no. 94346
date/rev. July 1994

sheet no.
1 of 1