Community Environmental Response Facilitation Act (CERFA) Report

Hamilton Army Airfield
Novato, California

Prepared for:

U.S. ARMY ENVIRONMENTAL CENTER
ABERDEEN PROVING GROUND, MARYLAND 21010

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Aberdeen Proving Ground, Maryland 21010

April 1994

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This report presents the results of the Community Environmental Response Facilitation Act (CERFA) investigation conducted by The Earth Technology Corporation (TETC) at Hamilton Army Airfield, a U.S. Government property selected for closure by the Base Realignment and Closure (BRAC) Commission under Public Laws 100-526 and 101-510. Under CERFA (Public Law 102-426), Federal agencies are required to identify real property that can be immediately reused and redeveloped. Satisfying this objective requires the identification of real property where no hazardous substances or petroleum products, regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), were stored for one year or more, known to have been released, or disposed.

The Hamilton Army Airfield is an approximately 702-acre site located in Marin County, California, on the southern outskirts of the city of Novato. The BRAC property consists of five non-contiguous parcels; an airfield property, former POL Area, hospital complex parcel (Hospital Hill) and two other small properties (Parcel A2 and A3). Hamilton Army Airfield is a subinstallation of the Presidio of San Francisco. Operations currently ongoing at the installation are minimal. They consist of stormwater management and other operation and maintenance, environmental investigation and remediation activities and tenant operations including a U.S. Coast Guard Medical and Dental clinic, the U.S. Army Regional Training Site (Intelligence), the U.S. Air Force Civil Air Patrol, the Marin Power Squadron and the Vickers Vimy 1994 Project. Current activities associated with the property that have environmental significance consist primarily of environmental investigations being conducted at a former aircraft maintenance area, former sewage treatment plant, operating storm water pump stations, former construction debris landfill (East Levee Landfill), former aircraft revetment area, abandoned fuel lines and a former petroleum oil and lubricants area (POL Area). A groundwater pump and treat facility for a Landfill 26 located on an adjacent property is also located in the POL Area.

During this investigation, TETC reviewed existing investigation documents; U.S. Environmental Protection Agency (USEPA), State, and county regulatory records; environmental data bases; and title documents pertaining to Hamilton Army Airfield. In addition, TETC conducted interviews and visual inspections of Hamilton Army Airfield as well as visual inspections of and data base searches for the surrounding properties.

Information in this CERFA Report was current as of April 1994. This information was used to divide the installation into four categories of parcels: CERFA Parcels, CERFA Parcels with Qualifiers, CERFA Disqualified Parcels, and CERFA-Excluded Parcels, as defined by the Army.

The total BRAC property acreage at Hamilton Army Airfield is 702 acres. Areas of the facility that have no history of release, disposal, or storage of CERCLA-regulated hazardous substances or petroleum products are categorized as CERFA Parcels. TETC determined that approximately 523 acres of the 702 acre property fall within the CERFA Parcel category, predominantly in the south central, and northwestern portions of the airfield BRAC property along the runway.

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EXECUTIVE SUMMARY

This report presents the results of the Community Environmental Response Facilitation Act (CERFA) investigation conducted by The Earth Technology Corporation (TETC) at Hamilton Army Airfield, a U.S. Government property selected for closure by the Base Realignment and Closure (BRAC) Commission under Public Laws 100-526 and 101-510. Under CERFA (Public Law 102-426), Federal agencies are required to identify real property that can be immediately reused and redeveloped. Satisfying this objective requires the identification of real property where no hazardous substances or petroleum products, regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), were stored for one year or more, known to have been released, or disposed.

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523 acres of the 702 acre property fall within the CERFA Parcel category, predominantly in the south central, and northwestern portions of the airfield BRAC property along the runway.

Areas of the facility that had no evidence of such release, disposal, or storage, but contained hazards not regulated by CERCLA (such as asbestos, radon gas, lead-based paint, unexploded ordnance, radionuclides, or not in-use equipment containing polychlorinated biphenyl) were categorized as CERFA Parcels with Qualifiers. Approximately 15 acres of the facility were identified as CERFA Parcels with Qualifiers.

Areas of the facility for which there is a history of release, disposal, or storage for one year or more of CERCLA-regulated hazardous substances or petroleum products or had a release of hazards identified above were categorized as CERFA Disqualified Parcels. One hundred and fifty-five acres of installation property are identified as CERFA Disqualified Parcels.

Areas on the facility that will be retained by the Federal Government or that have already been transferred by deed are categorized as CERFA-Excluded Parcels. None of the property was identified as CERFA-Excluded Parcels.

The primary objective of CERFA is satisfied by the identification of CERFA Parcels and CERFA Parcels with Qualifiers. As a result, concurrence has been sought from the regulatory agencies on these two categories of parcels. This CERFA Report has been reviewed by the U.S. Army Environmental Center (USAEC), Hamilton Army Airfield, Region X USEPA, and the California Department of Toxic Substance Control, and California Regional Water Quality Control Board. Comments from these organizations have been incorporated into this final report. Any unresolved issues from the regulatory agencies are identified.

This report contains maps that summarize the categorization of Hamilton Army Airfield on the basis of the above definitions. This Executive Summary should be read only in conjunction with the complete CERFA Report for this installation. The CERFA Report provides the relevant environmental history to substantiate the parcel categorization. This report does not address other property transfer requirements that may be applicable under the National Environmental Policy Act, nor does it address natural resource considerations such as the threat to plant or animal life.

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1.0 INTRODUCTION

This Community Environmental Response Facilitation Act (CERFA) Report for Hamilton Army Airfield was prepared by The Earth Technology Corporation (TETC) under Contract No. DAAA15-91-0009, Delivery Order 0010, for the U.S. Army Environmental Center (USAEC), Base Closure Division. The purpose and scope of the work are presented in this section. The sources used to conduct the investigations for the CERFA Report are identified in Section 2. Background information for the Hamilton Army Airfield is provided in Section 3. CERFA investigation results are discussed in Section 4. Finally, Section 5 includes maps that delineate Hamilton Army Airfield boundaries, land transfers, and the parcels of the facility according to CERFA Parcel identification requirements.

1.1 PURPOSE AND SCOPE

Public Laws 100-526 and 101-510 designated more than 100 Army facilities for closure and realignment. As a result, it became necessary to expedite the environmental investigation and cleanup process prior to the release and reuse of Army Base Realignment and Closure (BRAC) property. The BRAC environmental restoration program was established with the first round of base closures (BRAC 88) and continued with subsequent rounds (BRAC 91, BRAC 93, etc.). The BRAC program is similar to the Army's Installation Restoration Program, but it has been expanded to include such categories of contamination as asbestos, radon, polychlorinated biphenyls (PCBs), and others that are not normally addressed under the program.

The first step in the BRAC environmental restoration program was the preparation of Enhanced Preliminary Assessments (PAs). The term "enhanced" is used to distinguish these assessments from previous Installation Restoration Program PAs: The BRAC PAs are conducted from a property transfer perspective and evaluate substances (e.g., asbestos, radon, PCBs) that are not included in the previous PAs. The Enhanced PAs include reviews of existing installation documents, regulatory records, and aerial photographs; a site visit and visual inspection; and employee interviews. Enhanced PAs were conducted for BRAC 88 and BRAC 91 installations and are currently underway at BRAC 93 installations. An Enhanced PA was prepared for Hamilton Army Airfield in January 1990 by Roy F. Weston, under the direction of USAEC (formerly the U.S. Army Toxic and Hazardous Material Agency [USATHAMA]).

In October 1992, Public Law 102-426, CERFA, amended Section 120(h) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and established new requirements for contamination assessment and regulatory agency notification/concurrence for Federal facility closures. CERFA requires the Federal Government to identify property where no hazardous substances or petroleum products regulated by CERCLA were stored, released, or disposed before ending activities on real property owned. The Government's assessment of a facility as uncontaminated must be concurred with by the appropriate regulatory agencies (U.S. Environmental Protection Agency (USEPA) on National Priority List bases and the State on non-National Priority List bases). These requirements retroactively affect the Army BRAC 88 and BRAC 91 environmental restoration activities and are being implemented at BRAC 93 sites

concurrently with their Enhanced PAs. The primary objective of the CERFA is that Federal agencies expeditiously identify real property that can be rapidly reused and redeveloped. (However, CERFA does not mandate that the Army transfer real property so identified.)

TETC was awarded the task to identify real property where no hazardous substances or petroleum products regulated by CERCLA were stored, released, or disposed at 12 BRAC 88 sites. This report presents the findings of this CERFA response for Hamilton Army Airfield, California.

1.2 Definition of Terms

The following definitions are used to categorize and label parcels identified on the installation:

- ★ CERFA Parcel -- A portion of the installation real property for which investigation reveals no evidence of storage for one year or more, release, or disposal of CERCLA hazardous substances, petroleum, or petroleum derivatives and no evidence of being threatened by migration of such substances. CERFA parcels include areas where PCB containing equipment is in operation, but there is no evidence of release. CERFA parcels also include any portion of the installation which once contained related environmental, hazard, or safety issues including unexploded ordnance (UXO) located on firing ranges or impact areas, radon, stored (not in-use) PCB-containing equipment, asbestos contained within building materials, and lead-based paint applied to building material surfaces, but which have since been fully remediated or removed.

- ★ CERFA Parcel with Qualifier(s) -- A portion of the installation real property for which investigation reveals no evidence of storage for one year or more, release, or disposal of CERCLA hazardous substances, petroleum, or petroleum derivatives and no evidence of being threatened by migration of such substances. Parcel does however contain related environmental, hazard, or safety issues including unexploded ordnance (UXO) located on firing ranges or impact areas, radon, radionuclides contained within products being used for their intended purposes, asbestos contained within building materials, lead-based paint applied to building material surfaces, or stored (not in-use) PCB containing equipment.

- ★ CERFA Disqualified Parcel -- A portion of the installation real property for which investigation reveals evidence of a release, disposal, or storage for more than one year of a CERCLA hazardous substance, petroleum, or petroleum derivatives; or a portion of the installation threatened by such a release or disposal. CERFA Disqualified Parcels also include any portion of the installation where PCB, asbestos containing material, lead-based paint residue, or any ordnance has been disposed of, and any locations where chemical ordnance has been stored. Additionally, CERFA Disqualified Parcels include any areas in which CERCLA hazardous substances or petroleum products have been released or disposed of and subsequently fully remediated.

- ★ CERFA Excluded Parcel -- A portion of the installation real property retained by the Department of Defense, and therefore not explicitly investigated for CERFA. CERFA Excluded Parcels also include any portions of the installation which have already been transferred by deed to a party outside the Federal Government, or by transfer assembly to another Federal agency.

The following labels are used in conjunction with the identified parcels:

- ★ P = CERFA Parcel
- ★ Q = CERFA Parcel with Qualifier(s)
- ★ D = CERFA Disqualified Parcel
- ★ E = CERFA-Excluded Parcel

Each parcel has been given a unique number to which the appropriate labels are attached. For example, 4P indicates that the fourth parcel is in the CERFA Parcel category.

The presence of hazards not regulated by CERCLA places a parcel in the CERFA Parcel with Qualifier category. This has been indicated by the following labels:

- ★ A = Asbestos
- ★ L = Lead-based Paint
- ★ P = PCB
- ★ R = Radon
- ★ X = Unexploded Ordnance
- ★ RD = Radionuclides

For example, similar to the designation described above, 5Q-L would indicate that the fifth parcel is in the CERFA Parcel with Qualifiers category because of the presence of lead-based paint. Similarly, parcel label 8Q-X/R indicates that the 8th parcel is in the CERFA Parcel with Qualifiers category because of the presence of unexploded ordnance and radon.

The following designations are used to indicate the type of contamination or storage present in a parcel that has been placed in the CERFA Disqualified category:

- ★ PR = Petroleum Release
- ★ PS = Petroleum Storage
- ★ HR = Hazardous Substance Release
- ★ HS = Hazardous Substance Storage

For example, 12D-HR indicates that the twelfth parcel is in the CERFA Disqualified category because of evidence of hazardous substance release.

For all parcels, "(P)" is used to indicate that the presence of a contaminant is possible, but that data are unavailable for verification. For example, 9Q-A(P) indicates that the ninth parcel is in the CERFA Parcel with Qualifiers category because of the possible presence (unverified) of asbestos-containing material. Similarly, parcel label 15D-HR/PS/A(P) indicates that the 15th

parcel is in the CERFA Disqualified category based on evidence of a hazardous substance release and petroleum storage. It may also have asbestos-containing material.

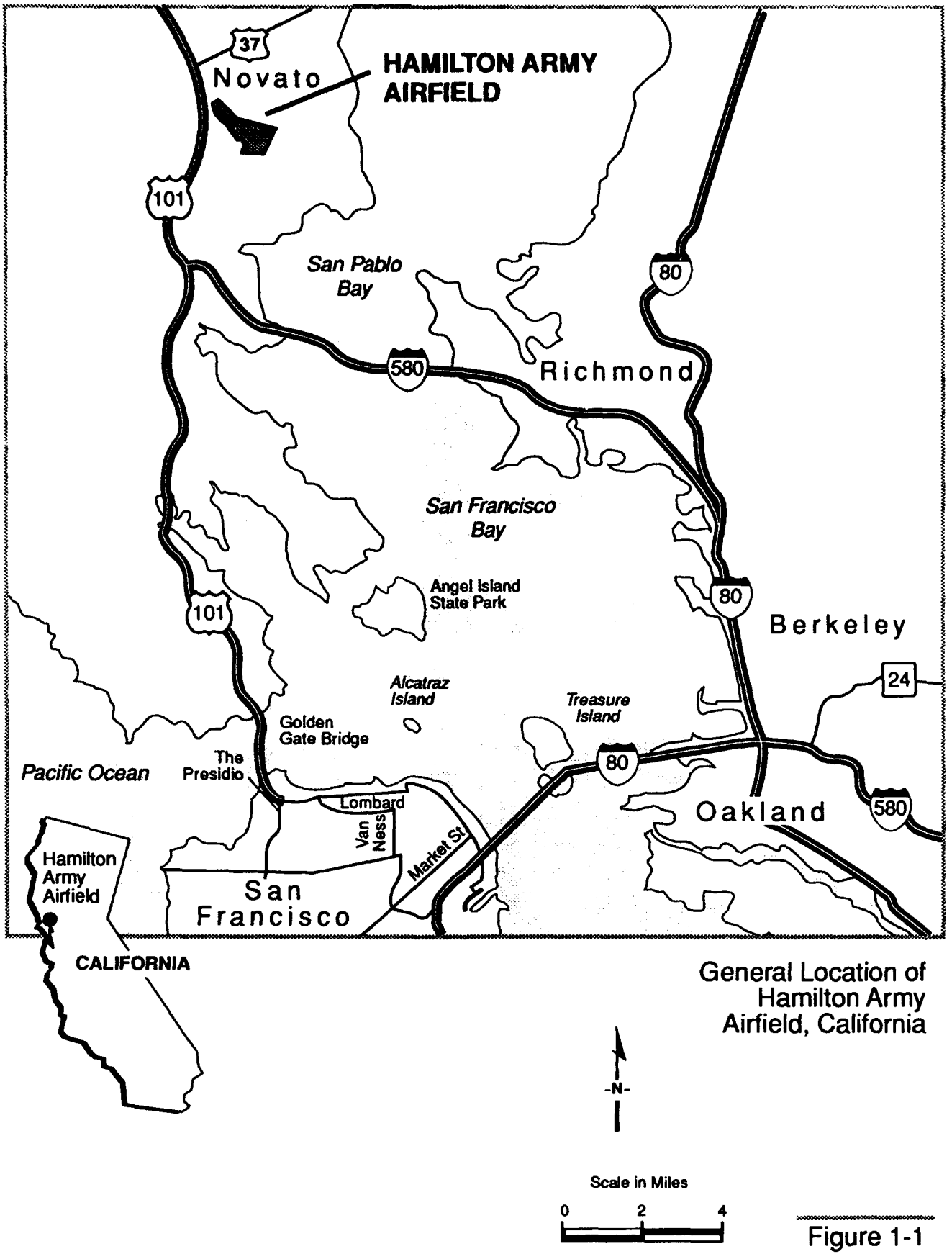
1.3 GEOGRAPHICAL AND ENVIRONMENTAL SETTING

Hamilton Army Airfield is located approximately 22 miles north of San Francisco on the southern outskirts of the city of Novato in Marin County, California. Hamilton Army Airfield is situated at latitude 38°04' 06" N, longitude 112° 32' 24" W on the western shore of San Pablo Bay. Figure 1-1 presents the geographic location of the installation.

The Hamilton Army Airfield BRAC property (hereafter identified as "the BRAC property") consists of five Army-owned parcels that have a combined size of approximately 702 acres. The first parcel (the "airfield BRAC property") is the main portion of the BRAC property. It consists of the main airfield runway, taxiways, revetment area, levees and drainage systems, an aircraft maintenance area including a hangar (Building 86) and several other buildings, and an undeveloped strip of intertidal land outside the east levee. The airfield BRAC property also consists of a parcel ("Parcel A4") which contains Buildings 138 and 140, a 1.8-acre airfield tarmac parcel containing a former aircraft washrack ("Parcel A5"), and a 3.2-acre airfield tarmac parcel ("Parcel A6"). These parcels are located in the southwestern portion of the airfield BRAC property. The airfield BRAC property is bounded by state owned land on the east and a portion of its north boundary. Privately owned farmland borders the property to the south and north, and the property abuts the Ignacio Reservoir in the northwest corner. The parcel is bounded on the west by Army-owned property, the sale of which is being administered by the General Services Administration. The parcel administered by the General Services Administration ("the General Services Administration sale parcel") is not part of the BRAC property. A small parcel that includes Building 85 (located along the southwestern boundary of the BRAC property) is owned by the Coast Guard.

The second BRAC property the ("Petroleum, Oil, and Lubricant (POL) Area BRAC property") is located on the northwest side of the airfield BRAC property, on the north flank of Reservoir Hill. The area is a former fuel storage and distribution area for Hamilton Army Airfield. Buildings 736, 737, and 738 were formerly located on the parcel. A building housing a groundwater treatment system is currently located on the parcel. The property is surrounded by the General Services Administration sale parcel. Immediately west of the BRAC property, on the General Services Administration sale parcel, is the location of a former landfill (Landfill 26).

The third BRAC property ("Hospital Hill BRAC property") is located in the central portion of the installation, west of the airfield BRAC property. The Hospital Hill BRAC property consists of eight buildings and associated grounds formerly part of the installation hospital. The parcel is bounded by U.S. Navy housing property on the southeast and west and the General Services Administration sale parcel to the north.



General Location of Hamilton Army Airfield, California

Figure 1-1

The fourth BRAC parcel ("Parcel A2") is located to the west of the airfield BRAC property and is bounded by Hangar Avenue, Escolta Street, 6th Street, and 7th Street. The parcel consists of four buildings (Buildings 442, 443, 445, and 449) and associated grounds. It is surrounded by General Services Administration sale parcel property.

The fifth BRAC parcel ("Parcel A3") is located west of the airfield BRAC property and is bounded by Hangar Avenue, Escolta Street, 8th Street, and 9th Street. The parcel consists of Building 467 and associated grounds. The property is also surrounded by General Services Administration sale parcel property.

1.3.1 Physical Setting

The airfield BRAC property occupies a broad flat depression bordering San Pablo Bay. The area was created by excavating into San Pablo Bay tidal wetland marshes and alluvial plains during the original airfield construction in 1932 to 1935. Elevations in this portion of the BRAC property range from 8 feet below sea level to several feet above sea level (National Geodetic Vertical Datum). The area is protected from salt water invasion and inundation by a levee system and drainage ditches (to remove water) that surround the northern, southern, eastern, and northwestern portion of the property.

The principal physical feature in the airfield BRAC property is the aircraft runway, which is approximately 8,000 feet long and is oriented in a northwest/southeast direction. The runway is concrete with tarmac overrun areas and concrete and tarmac taxiways. Concrete and tarmac aircraft parking areas cover a large portion of the airfield BRAC property to the southwest of the runway. Northeast of the runway is an aircraft revetment area. The area consists of a grass covered fill area crisscrossed by a series of concrete taxiways and revetment turnouts.

Approximately 15,000 linear feet of earthen levees run along the northern and southern property boundary and on the eastern side of the revetment area. Levee elevations range from 1 to 7 feet (National Geodetic Vertical Datum). The north levee separates the airfield BRAC property from adjacent farmlands and the northwestern levee separates it from the Ignacio Reservoir. Beyond the east levee to the property line, the land is primarily salt marsh.

Unpaved areas of the airfield BRAC property within the levee system consist primarily of grassland dominated by either nonnative annual or fescue grasses and salt marshes. Salt marsh communities occupy the tidally-dominated portion of the airfield outside the levee system and adjacent to San Pablo Bay.

The POL Area BRAC property occupies the northern most corner of a bedrock knob named Reservoir Hill and lowlands adjacent to it. The POL Area consists of three subareas. The first consists of the low relief area that lies along the northeast flank of Reservoir Hill and that has been the site of a former tank farm and extensive excavation and fill activities. This area slopes gently to the northeast and is bounded by a drainage ditch, which runs along the north boundary of the POL Area, just south of West Boundary Road. North of the road, the ground slopes gently down to the level of the airfield BRAC property. The area is partially covered with natural grasses. The second subarea lies west of Reservoir Hill, and consists of a broad, low-

relief area that was formerly partially paved with asphalt and is currently partially covered with natural grasses. The ground surface in this area also slopes gently northward. The third subarea consists of the northwestern corner of Reservoir Hill, which is 50 feet higher than the other subareas and was formerly the site of a large aboveground storage tank. The area is sparsely vegetated with natural grasses.

The Hospital Hill BRAC property is located on the northeast side of a small hill in the upland portion of the installation. Elevations range from approximately 25 feet at the base of the hill along Escolta Avenue to approximately 75 feet at the southwest corner of the property. The property has been developed with roads, parking areas, maintained grass areas, stands of palm trees, and other vegetation.

Parcel A2 is located in the low-relief area between the airfield BRAC property and Hospital Hill. Elevations in the parcel are less than 15 feet (National Geodetic Vertical Datum). Ground cover in the parcel consists of asphalt and dirt parking area, concrete sidewalks, and unmaintained grass areas.

Parcel A3 is also located in the low-relief area between the airfield BRAC property and the upland portion of the installation to the west. Elevations in the parcel are also less than 15 feet (National Geodetic Vertical Datum). Ground cover in the parcel consists predominantly of an asphalt parking area with a small amount of maintained grass and landscape planting around Building 467.

1.3.2 Surface Water

Hamilton Army Airfield is located within the Novato Creek watershed, which includes the tidal estuary east of Highway 101 and the upland areas west of the highway. North of the installation, Novato Creek flows from west to east into the San Pablo Bay, the major surface water body in the area.

The 100-year flood plain covers most (if not all) of the airfield portion of the BRAC property, as this area in low-lying and adjacent to San Pablo Bay. Parcels A2 and A3 are also in the 100-year flood plain. The Hospital Hill and POL Hill BRAC properties are above the flood plain.

Drainage of most of the airfield BRAC property is generally accomplished by sheet flow to a system of storm sewers and concrete-lined ditches that convey water to three stormwater pumping stations located along the east levee. The stations pump water to an outfall ditch outside the east levee, which drains into the tidal wetlands and then into San Pablo Bay. The area outside the east levee in the airfield portion of the BRAC property is intertidal and drains naturally.

The aircraft maintenance area located in the airfield BRAC property is drained by dedicated storm sewers that lead into the southern drainage ditch. Drainage of the Hospital Hill BRAC property is via sheet flow to storm catch basins along the hospital access road and along Escolta Avenue. Parcels A2 and A3 are drained via sheet flow to storm sewers along Escolta Avenue, Hangar Avenue, and 6th, 7th, 8th, and 9th Streets. The stormwater from these three properties

is then directed northward through a series of storm sewers along Hangar Avenue, under the airfield runway and into the northern perimeter drainage ditch.

Drainage of POL Area is via sheet flow north and east into storm sewers and drainage ditches which conduct water around the northwest end of the runway and into the northern perimeter drainage ditch.

1.3.3 Geology and Soils

Hamilton Army Airfield lies within the northern Coast Range geomorphic province of California, which consists of a series of generally fault-bounded, northwest-trending upland areas separated by intermontane valleys. The installation lies at the eastern margin of Big Rock Ridge, which is largely underlain by bedrock of the Franciscan Complex, a structurally disrupted assemblage of Mesozoic sedimentary, igneous, and metamorphic oceanic rocks. Bedrock outcroppings are in the western portion of Hamilton Army Airfield, and they include topographical landmarks known as Ammo Hill and Reservoir Hill.

The airfield BRAC property lies on former wetlands bordering San Pablo Bay. The bay occupies a valley between uplands with sediments deposited in alluvial, fluvial, and shallow-marine environments. The airfield is largely underlain by poorly-consolidated strata of these sedimentary units. The principal sediment type is a dark, organic-rich, highly plastic, silty clay unit that was deposited in intertidal and shallow subtidal depositional environments. This unit is locally referred to as Quaternary Bay Mud. The Bay Mud has been found to extend as deep as 90 feet on the airfield BRAC property.

Surface soils in the developed areas of the airfield consist of artificial fill. The material is highly heterogenous, consisting of sand, gravel, and cobble sized pieces; it has been used for levee construction, landfill cap material, and roadway/taxiway base.

The geology of the POL Area BRAC property consists of at least two distinct lithologic units and two fill units. In the northern portion of the property an older fill unit of pebbly sandy clay is underlain by a rock unit composed of Tertiary period yellow to buff colored siltstone and shale which is prevalent throughout the POL Area. Underlying the siltstone and shale unit is a rock unit of gray, fractured and jointed, well-cemented sandstone of the Mesozoic Franciscan Complex. The fourth geologic unit in the POL Area is unconsolidated clayey sandy gravel fill, which has replaced the upper layer fill unit and shallow portions of the underlying yellow-and-buff clastic unit in areas where recent excavation and backfilling has occurred.

The Hospital Hill BRAC property lies in the upland section of the installation, west of the airfield. Geology in this portion of the site is characterized by bedrock overlain by soils consisting of yellowish-brown clayey loam to brown gravelly loam. Lower slope areas such as Parcels A2 and A3 have soils with a more variable consistency, including loams, rock, cement, and Bay Mud.

1.3.4 Hydrogeology

This section summarizes the hydrogeology of Hamilton Army Airfield and is based on data presented in the Final Environmental Investigation Report, 1993 and the Final Report, Hamilton Air Force Base Storage Tank Removal Project, 1987.

Airfield BRAC Property: The depth to groundwater varies at the airfield BRAC property from near zero to 8 feet below grade. The Bay Mud in the area is relatively impermeable and is not favorable for a productive aquifer, and the groundwater is blackish due to the influence of the nearby bay. Groundwater in the vicinity of Hamilton Army Airfield is not used as drinking water.

The hydrogeology across the airfield BRAC property consists of one to three hydrogeologic units. The dominant unit is the underlying layer of natural earth materials consisting entirely of moist, essentially homogeneous silty clay (Quaternary Bay Mud). The water table typically lies within the Bay Mud throughout the airfield BRAC property. The Bay Mud is best classified as an unconfined aquitard due to the low permeability of the materials and the absence of any confining layer.

In developed areas such as the runway, taxiways, aircraft maintenance area, and aircraft revetments, the Bay Mud is overlain by 1 to 3 feet of course fill covered by a third hydrogeologic unit consisting of concrete or asphalt paving, which forms relatively impermeable caps. These caps are traversed by joints, which form open conduits to underlying materials. The thin layer of fill between the cap and low permeability Bay Mud forms a minor leaking perched aquifer immediately after rainstorms.

Along Hamilton Army Airfield levee system, two hydrogeologic units exist; the Bay Mud unit is overlain by levee soils consisting of clay, clayey sand and some gravel. In the intertidal area, east of the levee and in undeveloped areas inside the levee system, Bay Mud is the only hydrogeologic unit present.

Groundwater in the revetment and burn pit area ranged from 9.52 feet below mean sea level to 13 feet below mean sea level (National Geodetic Vertical Datum). The water table in the region is essentially flat, although the area was observed to display periodic fluctuations in response to rainfall and very slight, transient hydraulic gradients.

In the aircraft maintenance area, the groundwater ranged from approximately 7.5 feet below mean sea level near Building 86 to 9.0 feet below mean sea level near Building 87. However, the thin layer of fill in the area may form a minor perched aquifer during heavy rain and the water table may rise into this layer. The hydraulic conductivity of the Bay Mud in the area is low ($1.0\times10^{-5} \pm 8.5\times10^{-7}$ feet/second), but is higher than that in the revetment area (9.4×10^{-10} feet/second) due to the presence of higher permeability sand pockets interspersed within the Bay Mud. Due to the resultant 0.0025 feet hydraulic gradient that exists in the area, groundwater flow in the region appears to occur in a southerly direct toward the southern perimeter drainage ditch.

The geometry of the water table along the east levee is controlled by the location of the tidal wetlands and the stormwater drainage ditch. The tidal wetlands and channel complex are at a higher elevation than the airfield inside the levee and are perennially saturated, even at low tide. The groundwater elevation in the airfield inside the levee and drainage ditch was recorded at 4.4 feet below mean sea level. As a result, a relatively steep hydraulic gradient exists toward the airfield in the east levee area.

Outside the east levee, the tidal wetlands are commonly inundated at high tide. Water levels in monitoring wells in the area remain relatively static at an average 1 to 2 feet below ground surface, and no perceptible time-averaged hydraulic gradient exists across the area. However, semi-diurnal hydraulic gradients exist due to tidal influence, particularly near channels. Surface flow provides the primary mode of water movement in this area.

In the regions along the north levee, groundwater may be influenced by the Ignacio Reservoir in a similar manner to the east levee. A hydraulic gradient toward the airfield p ter drainage ditch may occur due to divergent groundwater levels on each side of the lev

POL Area BRAC Property: Four relatively distinct hydrogeologic units exist at the POL area: a younger, relatively unconsolidated, fill unit, which was encountered at shallow depth; an older fill unit, which was encountered at shallow depth; a yellow-and-buff, thinly bedded clastic unit of variegated lithology; and a gray, highly indurated, fractured Franciscan sandstone unit encountered in virtually the entire depth. The upper fill unit forms a basin bounded by the yellow sandy siltstone described above. Hydraulic well testing in the area provided estimates of hydraulic conductivity that are generally low, yet on average more than an order of magnitude higher than the wells in Bay Mud: at the burn pit, embankment area, pump station area, and east levee landfill. The lateral hydraulic gradients in the area correspond to the topography. The water surface appears to be an unconfined water table beneath the hill and semiconfined in the flat areas that flank the hill.

Hospital Hill and Parcels A2 and A3: The hydrogeology of the Hospital Hill and Parcels A2 and A3 BRAC properties has not been investigated as thoroughly as the airfield portion of the BRAC property. It is anticipated that the groundwater geometry in this area would follow the surface topography and flow downhill toward the east and northeast. The groundwater table in a groundwater monitoring well (located near Building 442 on Parcel A2) was observed to be 5 feet below ground surface.

2.0 SCOPE OF INVESTIGATION

The scope of this CERFA investigation followed the protocol established in Public Law 102-426 supplemented by Department of Defense Policy on the Implementation of CERFA dated May 19, 1993. This section describes the sources that were used during the CERFA investigation conducted for Hamilton Army Airfield. Relevant information available from previous environmental studies are presented. Findings from Federal, State, and local government regulatory records, installation documents, aerial photographs, and personnel interviews are addressed. The visual inspection methods used during the site survey are identified.

2.1 EXISTING DOCUMENTS

Existing investigation documents and aerial photographs were reviewed to evaluate pertinent information that could be used as part of the CERFA Report. These documents are summarized below and listed in Appendix A, "Reference List for Hamilton Army Airfield." Primary source documents containing CERFA criteria information include the Enhanced PA and the Environmental Investigation, which are summarized in Table 2-1.

2.1.1 Asbestos Survey Report, Hamilton Army Airfield (October 1989)

An asbestos survey was conducted in 1989 to locate, identify, and recommend appropriate abatement action for asbestos-containing materials at Hamilton Army Airfield. Thirty buildings were surveyed, 22 of which are located in the BRAC property; all were found to contain asbestos. Buildings 20, 40, and 516, which are in BRAC property, were not surveyed.

2.1.2 Enhanced Preliminary Assessment Report, Hamilton Army Airfield (January 1990)

In September 1989, the USAEC (formerly USATHAMA) conducted an Enhanced PA to assess the environmental quality of Hamilton Army Airfield and to determine whether environmental concerns are present that might impede transfer or release of Federally-owned property.

Information contained in the Enhanced PA was obtained through visual inspection of the facility; review of available information from current property owners (the U.S. Army) and the U.S. Air Force; review of related regulatory agency files at the local, State, and Federal levels; interviews with available current and former personnel associated with the facility and a review of existing environmental documents. Principal among these environmental documents was a Confirmation Study for Hazardous Waste (1987). The assessment identified the following 12 environmentally significant operations or areas requiring environmental evaluation:

- ★ Aboveground storage tanks at Building 26, the POL Area, and the stormwater pump stations
- ★ Aircraft maintenance/storage areas
- ★ Asbestos-containing materials in buildings
- ★ Bombing range (verbal reports only)

TABLE 2-1
SUMMARY OF ENHANCED PRELIMINARY ASSESSMENT AND ENVIRONMENTAL INVESTIGATION/RISK ASSESSMENT/ALTERNATIVES ASSESSMENT REPORT, HAMILTON ARMY AIRFIELD, CALIFORNIA

CERFA Label	Enhanced Preliminary Assessment, January 1990	Environmental Investigation July 1993
Asbestos	Asbestos survey dated June 1989, conducted by OCCUSAFE, Inc. recommended remediation efforts and Operations and Maintenance Program. Enhanced PA recommended that installation proceed with recommendations of survey.	Not within scope of investigation.
Lead-based paint	Not within scope of investigation.	Not within scope of investigation.
PCBs	Transformers visually inspected. No evidence of leaking observed. Enhanced PA recommended that transformers be tested, labeled, etc. in accordance with TSCA regulations.	Fifty-four transformers and six oil filled switches sampled. Eight transformers found to contain PCBs above 50 parts per million (Buildings 15, 40, 86, 442, 515 and between 443 and 445). Thirteen transformers found to contain PCB's less than or equal to 50 parts per million and greater than or equal to 5 parts per million. Leaking transformers noted at Buildings 8 and 515.
Radon	Not within the scope of the investigation.	Radon survey plan recommended in Environmental Investigation Technical Plan. Sampling eliminated from Environmental Investigation scope of work because adjacent Navy housing test data indicated radon below USEPA recommended action levels and because USGS representatives indicated that radon was not present due to site geology.
Unexploded ordnance	Verbal report identified the location of the bombing areas. No written documentation could be found. Enhanced PA recommended further record reviews to determine if ranges were present.	Interviews and records searches were conducted during Environmental Investigation Technical Plan preparation. No evidence of alleged bombing range was found. Technical Plan therefore identified the site as no further action. Site therefore not investigated in the Environmental Investigation.
Radionuclides	Records regarding former low-level radiological waste disposal site were reviewed. Records indicated former presence of two metal culvert containing low-level radioactive wastes buried of the northwestern end of the property. The cylinders were recovered and removed as part of a Corps of Engineers contract in 1988. Enhanced PA recommended no further investigation of this area be made since cylinder have been removed from property. No other radionuclides issues identified.	Removal and proper disposal of low-level radiological waste culverts confirmed during preparation of Environmental Investigation Technical Plan. Technical Plan concurred with Enhanced PA recommendation of no further action. Site not investigated in the Environmental Investigation.

TABLE 2-1
SUMMARY OF ENHANCED PRELIMINARY ASSESSMENT AND ENVIRONMENTAL INVESTIGATION/RISK ASSESSMENT/ALTERNATIVES ASSESSMENT REPORT, HAMILTON ARMY AIRFIELD, CALIFORNIA

Continued

CERFA Label	Enhanced Preliminary Assessment, March 1990	Environmental Investigation/Risk Assessment, December 1993
Petroleum release/ disposal	Known and suspected releases identified in relation to USTs, AGTs, POL product and waste storage areas and maintenance areas, storm drains, and sewage treatment plant sludge beds. Known and suspected release locations included the POL Area, aircraft maintenance area, burn pit, JP-4 lines, revetment area, East Levee Landfill, former sewage treatment plant and the stormwater pumping stations. Enhanced PA recommended soil sampling, sediment sampling, and groundwater sampling at various locations.	Investigations included the drilling of 30 boreholes, installation of 28 monitoring wells, and excavation of 11 test pits in the first phase of the environmental investigation and the installation of 7 additional wells, drilling of 42 shallow soil borings, surface and sediment sampling, and soil gas surveys in the second phase. Total petroleum hydrocarbons were detected in POL Area and Burn Pit soil and groundwater; revetment area, stormwater pump station, east levee landfill, aircraft maintenance area, and JP-4 line soils.
Petroleum storage	Twenty-one former USTs which had been excavated and removed were identified. For additional suspected UST sites were noted. Eleven AGTs were observed at the installation. An additional 840,000-gallon AGT at the POL Area was noted as removed. Petroleum product and waste storage also noted at the POL Area (Buildings 736, 737, and 738), Buildings 86, 87 and 94 storage areas. Enhanced PA recommended soil borings, groundwater well installation and sampling at the POL Area and geophysical surveys and leak testing for existing USTs.	Geophysical surveys and leak testing of USTs not conducted. Soil and groundwater sampling conducted in UST, AGT, and other POL Storage areas (see petroleum release/disposal).
Hazardous Substance release/disposal	Suspected releases identified at the aircraft maintenance area, former sewage treatment plant, East Levee Landfill and burn pit. Recommended soil sampling, sediment sampling, and groundwater sampling.	Investigations included soil borings and sampling, monitoring well installation and groundwater sampling, test pit soil sampling, and sediment sampling (see petroleum release/disposal). Contaminants detected included VOCs, SVOCs, lead and other metals. Areas where hazardous substances were detected included the POL Area, burn pit, revetment area, former sewage treatment plant, East Levee Landfill, and aircraft maintenance area (soil, groundwater and sediment) and fuel line and Building 442 site (soils).
Hazardous Substance storage	Hazardous substance storage areas including the aircraft maintenance area were noted. Soil, sediment, and groundwater sampling were recommended.	Soil, sediment, and groundwater, sampling were conducted in the aircraft maintenance area.

Key:

PCB	=	Polychlorinated Biphenyl
USEPA	=	U.S. Environmental Protection Agency
CERFA	=	Community Environmental Response Facilitation Act
VOC	=	Volatile Organic Compound
SVOC	=	Semivolatile organic compound
POL	=	Petroleum, oil, and lubricant
UST	=	Underground Storage Tank
AGT	=	Aboveground Storage Tank
USGS	=	U.S. Geologic Survey
TSCA	=	Toxic Substances Control Act

- ★ Burn pit
- ★ East levee landfill
- ★ Former sewage treatment facility
- ★ JP-4 Fuel Lines
- ★ PCBs in transformer oil
- ★ Radiological disposal site
- ★ Revetment area
- ★ Underground storage tanks (in-place and removed) at Building 26, the POL Area, Building 492, and the stormwater pump stations.

The Enhanced PA identified 11 of the 12 environmentally significant operations as areas requiring environmental evaluation. No further investigation was recommended for the former radiological disposal site (documentation reviewed for the Enhanced PA indicated that the site had been properly remediated, i.e., the cylinders had been removed and properly disposed offsite).

Concerns and recommended further actions presented for each of the environmentally significant operations identified in the Enhanced PA are summarized in Table 2-1 relative to CERFA areas of investigation categories.

2.1.3 Installation Assessment, Army Base Closure Program (April 1990)

An imagery analysis of aerial photography of Hamilton Army Airfield was completed by USEPA Environmental Photographic Interpretation Center in April 1990 in support of USAEC's Base Closure Environmental Restoration Program. Aerial photography of the study area, taken in 1952, 1968, 1972, and 1987 were analyzed. Potential sources of contamination noted during the analysis included fill areas with debris, staining, tanks, containers, and outfalls into San Pablo Bay.

2.1.4 Final Environmental Investigation Technical Plan (November 1990)

A Final Technical Plan, prepared in November 1990 for USAEC (formerly USATHAMA), presented the rationale, approach, and timetable for an environmental investigation and alternative analysis at the Hamilton Army Airfield BRAC property. This plan complied with USEPA Remedial Investigation/Feasibility Study Draft Guidance Manual (USEPA, 1989a) requirements. The Hamilton Army Airfield is not on the National Priority List. Although the approach presented in the Environmental Investigation/Alternative Analysis Technical Plan followed that of a National Priority Site Remedial Investigation/Feasibility Study, the term Environmental Investigation/Alternative Analysis was introduced to distinguish Hamilton Army Airfield as a non-National Priority List installation.

The Enhanced PA provided the basis for the Technical Plan. Each of the 12 environmentally significant operations cited in the Enhanced PA was addressed. The plan provided a rationale for either investigating or not investigating the environmentally significant operations. The recommendation that no further investigation be made for the former radiological disposal site presented in the Enhanced PA was concurred upon in the Technical Plan based on confirmation

that the radiological cylinders had been removed. The recommendation for further action (document review) for the bombing range suggested in the Enhanced PA was completed as the Technical Plan was being prepared. Records were reviewed and interviews were conducted with former employees. The presence of a bombing range at the installation was not substantiated. The alleged range was therefore eliminated from consideration in the Technical Plan. The recommendation in the Enhanced PA for implementation of asbestos abatement at the site was not carried forward in the Technical Plan because it was an operations and maintenance remedial action, outside the scope of an Environmental Investigation/Alternative Analysis.

Two environmentally significant operations not considered in the Enhanced PA were introduced in the Technical Plan. First, the Technical Plan presented the methodology for completion of radon screening program in Hamilton Army Airfield buildings. Second, a former PCB drum disposal site was identified in the Technical Plan. However, the Final Technical Plan advised that no further action was required at the site; documentation indicated that the drum had been removed and samples confirmed that the disposal site was uncontaminated by PCBs.

2.1.5 Environmental Assessment for Closure and Realignment (September 1991)

The purpose of the Environmental Assessment was to assess the environmental and economic impacts of installation closure. A number of generalized reuse alternatives for Hamilton Army Airfield were considered in the assessment. The report included pertinent information regarding asbestos, pesticide storage and use, PCB transformers, radioactive materials, underground storage tanks, and waste disposal. The Environmental Assessment considered the BRAC property and adjacent properties, which were part of the BRAC property at the time and have since been proposed for transfer.

2.1.6 Statement of Findings, Preliminary Assessment Screening for Parcels A2, A3, A5, and A6 (April 1993)

Parcels A2 and A3 are Hamilton Army Airfield BRAC properties not contiguous with the airfield BRAC property. Parcels A5 and A6 are part of the airfield BRAC property located near the airfield maintenance area. The Army was mandated in the 1992 Department of Defense Appropriation Act to transfer these parcels to the New Hamilton Partners. The purpose of the document was to provide the necessary property documentation (as required by the National Environmental Policy Act) for the mandated property transfer. The Preliminary Assessment Screening addressed environmentally significant operations that could have occurred on the parcels, including the management of underground storage tanks, transformers, asbestos, radon, lead contamination, unexploded ordnance, pesticide/herbicide management, fuel spills, and hazardous materials management.

The PAs concluded that there was little or no potential risk from radon, PCB filled transformers, lead contamination, unexploded ordnance, underground and aboveground storage tanks, fuel spills, asbestos-containing material, or pesticide/herbicides in the subject parcels. The PAs indicated no records of the storage, or disposal of reportable quantities of CERCLA-regulated hazardous substances at any of the parcels.

The PAs indicated that groundwater sampling has been conducted in association with an aboveground storage tank release at Building 442 by the U.S. Army Corps of Engineers, and that the groundwater underlying Parcel A2 was not contaminated with fuel residuals. The PA indicated that hazardous substances (vinyl chloride and cis-1,2-dichloroethene and methyl ethyl ketone) associated with a washrack wastewater inlet at Parcel A5 were released, and that the site required environmental evaluation. The PA indicated that the remedial action (steam cleaning of the inlet) to be completed by the U.S. Army Corps of Engineers was expected to be effective in remediating the site, thereby rendering it suitable for transfer. The site was remediated by the U.S. Army Corps of Engineers in the summer of 1993 and subsequent sampling conducted in March 1993 reportedly indicates the site is clean. Potential contamination from the adjacent Aircraft Maintenance area were identified at Parcel A6; however, the overall risks were identified as low and the parcel was considered suitable for transfer in the PA.

2.1.7 Final Environmental Investigation Report (July 1993)

The results of environmental investigations conducted at the Hamilton Army Airfield BRAC property and a related baseline risk assessment were presented in a Final Environmental Investigation Report (equivalent to a CERCLA Remedial Investigation document). The environmental investigation focused on areas requiring environmental evaluations identified in the Enhanced PA, excluding asbestos, the former radiological disposal site, and the alleged bombing range. (These sites were eliminated from investigation due to information presented in the Technical Plan.) The goal of the Environmental Investigation was to characterize the contamination that may have resulted from these areas requiring environmental evaluations. Areas investigated in the Environmental Investigation included the POL Area BRAC property; a number of locations on the airfield BRAC property including the burn pit, revetment area, pump station area; former sewage treatment plant, east levee landfill, aircraft maintenance area, and fuel lines; an aboveground storage tank site at Building 442 on Parcel A2; and transformers and oil containing items throughout BRAC property.

Through an integrated sampling and analysis program, the Environmental Investigation identified the nature, extent, and potential pathways of contamination associated with each area of study. This report provides the most recent information on characterization of soil and groundwater contamination.

2.1.8 Draft Alternatives Assessment Report (January 1993)

A Draft Alternative Assessment Report (equivalent to a CERCLA Feasibility Study document) identified remediation alternatives necessary to achieve cleanup levels established by regulatory agencies. The report focuses on remediation of the 10 areas investigated during the Environmental Investigation. Remediation alternatives investigated for the various sites included in-situ bioventing, in-situ bioremediation excavation and biological treatment, or thermal desorption for soils, carbon adsorption and biological treatment for groundwater and excavation/soil washing and excavation/chemical oxidation of sediments.

2.2 FEDERAL, STATE, AND LOCAL GOVERNMENT REGULATORY RECORDS

Information regarding permit and compliance status, enforcement actions, and the hazardous waste generator status of the Hamilton Army Airfield BRAC property was obtained through on-site and telephone interviews; an electronic data base search; and record reviews at various Federal, State, and local regulatory agencies.

Record reviews and interviews were conducted at the California Department of Toxic Substance Control, the California Regional Water Quality Control Board, and the U.S. Environmental Protection Agency Region IX. The city of Novato Sanitary District, the Marin County Fire Marshalls Office, and the Northern California Air Quality Control Region were contacted by phone to obtain relevant information and documentation. Federal and Army records made available by USAEC and Hamilton Army Airfield were also reviewed.

An electronic data base search of Federal and State records resulted in a Federal/State Data Report and Map containing information from the following data bases:

- ★ National Priority List
- ★ Comprehensive Environmental Response Compensation, and Liability Information System
- ★ Toxic Release Inventory
- ★ Resource Conservation and Recovery Information System Treatment and Storage Facility
- ★ Resource Conservation and Recovery Information System Large Quantity Generators
- ★ Resource Conservation and Recovery Information System Small Quantity Generators
- ★ Civil Enforcement Docket
- ★ Emergency Response Notifications System
- ★ Facility Index System
- ★ Nuclear Facilities
- ★ Underground Storage Tanks
- ★ Leaking Underground Storage Tanks
- ★ State Calsites Report
- ★ Solid Waste Information System
- ★ Hazardous Waste Information System
- ★ State Waste Discharger System
- ★ State Title III
- ★ State Cortese List, and the
- ★ State Solid Waste Activity Tracking System.

The search encompassed the properties within a 2.5-mile radius from the center of the installation. A copy of the data base search results is included in Appendix B. A summary of relevant regulatory information obtained during the record review process is presented below.

2.2.1 *Permits and Permit Applications*

The permit status of Hamilton Army Airfield is summarized below from information obtained through prior environmental document reviews, Federal and State record searches, installation record searches, and interviews with installation personnel.

Hamilton Army Airfield records indicate that the installation does not have any current permits from regulatory agencies to conduct installation operations. The installation does not currently store waste regulated under Resource Conservation and Recovery Act (RCRA) in sufficient quantities and for sufficient duration to require a hazardous waste storage permit. Hamilton Army Airfield has its own EPA ID Number (USEPA ID No. CA3570024288). However, because airfield is a subinstallation of the Presidio of San Francisco (USEPA ID No. CA7210020791), hazardous waste generated at the installation (including hazardous waste manifesting, annual, and biannual reporting) is reportedly handled through the Presidio which is classified as a small-quantity generator of hazardous waste.

Currently there are no activities conducted on BRAC property that require an air permit. There is no record of any past application or issuance for an air permit for any air emission sources at the installation (i.e., boilers, burn pit, engine test cell).

The Hamilton Army Airfield was issued a National Pollutant Discharge Elimination System permit (Permit No. CA0110248) for its sewage treatment plant on March 20, 1979. The permit was rescinded in 1987 after the sewage treatment plant ceased operations. The airfield put in a request for a second permit for the stormwater pump station outfalls and is waiting for a response.

2.2.2 *Inspection Reports and Enforcement Actions*

There were few documented inspections by regulatory agencies related to BRAC property. Two inspections were documented in USEPA records. These consisted of a Hazardous Waste Site Inspection and a CERCLA site inspection, both of which occurred on May 19, 1987. There were no Notices of Violation or compliance orders on record at the State or Federal agencies for the BRAC property related to hazardous substance/waste storage handling.

Hamilton Army Airfield received several orders from the California Regional Water Quality Control Board regarding the operation of its sewage treatment plant. Order No. 80-53 issued on November 4, 1980, found that the sewage treatment plant provided insufficient dilution of waste before discharge to the San Pablo Bay. The order mandated that the sewage treatment plant be improved to meet dilution ratio, flow and effluent limitations specified in the order or to participate in a subregional treatment and disposal program administered by the Novato Sanitary District. Cease and Desist Order No. 80-57, also issued on November 4, 1987, found that Hamilton Army Airfield had not filed plans for the sanitary sewer connect into the Novato Sanitary District sewer system in a timely manner. The order established a compliance schedule for completion of the tie in.

After the Hamilton Army Airfield sanitary sewer was connected to the Novato Sanitary District system, an order was issued April 15, 1987, to rescind the Cease and Desist Order No. 80-57.

2.3 INTERVIEWS

TETC conducted site visits at Hamilton Army Airfield on September 21-23, 1993, and March 17-18, 1994, to collect information and interview individuals associated with the installation. TETC's team included Kurt Rausch and Gail Carter for the first site visit Kurt Rausch and David Peck and for the second site visit.

Individuals interviewed during the first site visit included the installation facility manager, representatives from the four active military units located on BRAC property (124th Army Reserves, 6th Army Flight Detachment, Regional Training Site [Intelligence] and U.S. Coast Guard Medical Clinic) adjacent properties (U.S. Navy housing and U.S. Coast Guard Pacific Strike Team), the Environmental Investigation Contractor (Engineering Science) and the USAEC Project Officer.

Several additional personnel were interviewed during the second site visit, including the BRAC environmental coordinator, the U.S. Army Corps of Engineers Sacramento District Technical Manager, and representatives from the California Department of Toxic Substances Control and California Regional Water Quality Control Board.

David Alborn of TETC visited State and USEPA regulatory agencies on September 20-24, 1993, to obtain information not available at the installation. Offsite interviews were also conducted between September 13-20, 1993, with personnel at the Presidio of San Francisco involved in activities at Hamilton Army Airfield as well as the Sacramento District Corps of Engineers Project manager for the airfield. Telephone interviews were conducted with several other Army and Air Force personnel and contractors involved in or knowledgeable of current or past activities at Hamilton Army Airfield. In particular, personnel from the Air Force Center for Environmental Excellence BRAC and Environmental Planning offices, Air Force Radioisotope Committee, Air Force Armstrong Laboratory Occupational and Environmental Health Directorate, Air Force Low Level Radioactive Waste Office and the Army Materiel Command Radioactive Waste Disposal Office were contacted regarding possible past radiological issues at Hamilton Army Airfield.

A complete list of the agencies visited or contacted and the individuals interviewed is provided in Table 2-2.

2.4 VISUAL INSPECTIONS

During the site visits, visual inspections were conducted throughout the facility and at adjacent properties. The purpose was to confirm findings reported in previous studies and information collected through interviews, as well as to identify new areas of concern. The visual inspections consisted of automobile drive-through and walk-through surveys of areas in which substances regulated and not regulated by CERCLA may be or have been stored, released, or disposed. Also included was an aerial flyover. During the visual inspections, contamination sources were

TABLE 2-2
LIST OF PERSONNEL INTERVIEWED, HAMILTON ARMY AIRFIELD

Reference	Name/Phone Number	Location	Dates of Employment	Job Position
ARMY/OTHER DEPARTMENT OF DEFENSE/ARMY CONTRACTOR PERSONNEL				
a	Matthew Alix (916) 557-6668	Corps of Engineers, Sacramento District Defense Environmental Restoration Program Section	1993-present	Technical Manager
b	Larry Brown (415) 883-8985	U.S. Coast Guard Medical/Dental Clinic (Building 511)	1993-present	X-ray Technician
c	Tom Capels (415) 883-5738	U.S. Army Operational Support Airlift Command	1991-present	Facilities Supervisor
d	Jackie Cumpton (916) 557-6845	Corps of Engineers, Sacramento District	1992-present	Reality Specialist
e	Major Duncan	U.S. Army Regional Training Site (Intelligence)	Undetermined	Executive Officer
f	Robert Ebert (415) 561-6361	Presidio of San Francisco, Directorate of Public Works, Environmental Division	1991-present	Environmental Coordinator
g	Sgt. Forman	U.S. Army Regional Training Site (Intelligence)	Undetermined	Staff Sergeant
h	John Headlee (415) 561-5945	Presidio of San Francisco, Directorate of Public Works, Environmental Division	1993-present	Environmental Engineer
i	Lt. Colonel Hegland	U.S. Army Regional Training Site (Intelligence)	Undetermined	Unit Commander
j	Severn Johnson (415) 883-3734	Department of the Army, Facility Management Staff	1993-present	Facility Manager
k	John Kegen (207) 775-5401	E.C. Jordan	1989-1990	Environmental Investigation Work Plan Contractor
l	Frederick C. Kintzer (510) 769-0100	Engineering Science, Inc.	1990-present	Project Manager Environmental Investigation/ Alternative Assessment Investigations
m	Major Ron Light (410) 671-1613	Department of Army, Army Environmental Center	1992-present	Army Environmental Center Installation Point-of-Contact
n	Richard Mangold (415) 561-3198	Presidio of San Francisco, Space Management	1993-present	Reality Specialist
o	George Mattingly (415) 883-2411	U.S. Army Reserve Aviation Support Facility #27	1979-present	Shop Foreman
p	Keith Montag (916) 557-6950	U.S. Army Corps of Engineers, Sacramento District	1993-present	Installation Project Manager
q	Neil Nelson (415) 561-2567	Presidio of San Francisco, Building 222	1993-present	Base Realignment and Closure Environmental Coordinator

TABLE 2-2
LIST OF PERSONNEL INTERVIEWED, HAMILTON ARMY AIRFIELD

Continued

Reference	Name/Phone Number	Location	Dates of Employment	Job Position
ARMY/OTHER DEPARTMENT OF DEFENSE/ARMY CONTRACTOR PERSONNEL (Continued)				
r	Randal S. Ogrydziak (415) 883-3311	U.S. Coast Guard Pacific Strike Team	1990-present	Chemical Officer
s	Luzon Ramos (415) 561-4617	Presidio of San Francisco Public Works, Environmental Division	1990-present	Asbestos Abatement Manager
t	Ceasar SiWa (210) 536-5255	Air Force Center for Environmental Excellence, BRAC Office Brooks Air Force Base	1992-present	Environmental Scientist
u	Captain Stanton (415) 561-4814	Office of Staff Judge Attorney	1992-present	Environmental Attorney
v	Robert Taylor (415) 833-3734	Department of Army, Facility Management Staff	1992-1993	Facility Manager
w	Sgt. Vasquez (415) 883-2331	U.S. Army Operational Support Airlift Command	Undetermined	Shop Foreman
x	Chris Webb (415) 561-3624	Presidio of San Francisco, Directorate of Public Works, Environmental Division	1992-present	Hazardous and Toxic Waste Coordinator
y	Ken Hardy (210) 536-2613	Armstrong Laboratories, Occupational and Environmental Health Directorate, Bioenvironmental Engineering Division, Brooks Air Force Base	1991-present	Occupational and Environmental Health Scientist
z	Major Spear (210) 536-3331	Air Force Radioisotope Committee, Armstrong Laboratories, Brooks Air Force Base	1992-present	Undetermined
aa	Kenneth Vaughn (210) 925-3100	Air Force Low Level Radioactive Waste Office, Brooks Air ForceBase	1985-present	Undetermined
REGULATORY AGENCY PERSONNEL				
bb	Jack Gregg	California Regional Water Quality Control Board, San Francisco Bay Region	1993-present	Project Manager
cc	Barbara Marcotte (916) 255-3747	California Department of Toxic Substance Control, Region 1	1993-present	Project Manager
dd	Chris Nepomuceno (510) 540-3800	California Department of Toxic Substances Control, Region 2	1993-present	Chief Field Clerk
ee	Deirdre Nurre (415) 744-2246	U.S. Environmental Protection Agency, Region IX	1988-present	Project Management, Presidio and Hamilton Army Airfield
ff	James Nusrala (510) 286-0301	California Regional Water Quality Control Board, San Francisco Bay Region	1992-present	Project Management, Hamilton Army Airfield
gg	Dave Parson (916) 255-3668	California Department of Toxic Substance Control, Region 1	1985-1989, 1993-present	Engineering Geologist

Key: BRAC = Base Realignment and Closure

noted and leaks, spills, and other evidence of releases were observed and quantified; no samples were collected. The USAEC project officer and a representative of Engineering Science, the environmental investigation contractor for Hamilton Army Airfield and the installation facility manager accompanied TETC team members for portions of the first site visit. Representatives of USAEC also accompanied TETC team members for a portion of the second site visit.

The first site visit concentrated on inspections in the airfield BRAC property, POL Area, and Hospital Hill. The second site visit included inspections of Parcels A2 and A3, and new dredge spoil disposal area as well as reinspections of facilities including Hospital Hill, Buildings 86, 94, and 87, (vacated by the Army in February 1994). During the site visits, the interior of the majority (24) of buildings on the Hamilton Army Airfield BRAC property was inspected, with the following exceptions:

- ★ Six locked buildings (Buildings 510, 511, 512, 445, 449, and 467). The interior of these buildings was inspected by looking through the windows.

- ★ Regional Training Site (Intelligence) Building 140. Access was denied by the unit commander due to security reasons.

The aerial flyover of the facility and adjacent properties was conducted on September 23, 1994, from rotary wing aircraft. TETC team members and Captain Stanton of the Presidio of San Francisco Judge Advocate Office were passengers; two pilots and a technical assistant of the U.S. Army Operation Support Airlift Command were in control of the aircraft. The aerial flyover at Hamilton Army Airfield was coordinated with that of the Presidio of San Francisco. The flight originated at the airfield. The flight plan took the aircraft south to Presidio of San Francisco and then back north to the airfield. The installation boundaries were flown; the installation was then overflown in a back-and-forth pattern. Particular attention was paid to reconnaissance of adjacent properties. The flight time over Hamilton Army Airfield was approximately 45 minutes. The total flight time including travel to and from and aerial flyover of the Presidio of San Francisco, was approximately 2 hours.

2.4.1 Inspection of Hamilton Army Airfield

Evidence was gathered regarding current or past contamination with the following substances:

Asbestos-containing material: The presence of asbestos-containing material in most Hamilton Army Airfield buildings was identified in an asbestos survey report completed in 1989. Three buildings on the BRAC property were not included in the survey; they were visually inspected to determine the potential presence of asbestos.

Lead-based paint: A lead-based paint survey has not been conducted at Hamilton Army Airfield. The building age of structures in BRAC property was determined from the Real Estate Inventory and other documents. Those buildings determined to be constructed prior to 1978 were assumed to contain lead-based paint.

Polychlorinated Biphenyls: PCB-containing equipment (electrical transformers and oil filled switches) at Hamilton Army Airfield was identified in the Enhanced PA and Final Environmental Investigation Report. During the CERFA investigation this equipment was visually inspected to determine current status and condition, and evidence of releases. Possible PCB-containing electrical equipment on the BRAC property not documented in previous studies was also noted.

Radon: A radon survey of Hamilton Army Airfield BRAC property buildings has not been completed. Interviews with the Environmental Investigation contractor and review of applicable environmental documents and adjacent property radon survey results indicated that radon was not a concern.

Unexploded ordnance: Alleged locations of unexploded ordnance at Hamilton Army Airfield were identified in the Enhanced PA (bombing range) and a newspaper article (ammunition disposal, see Section 2.6). Additional record reviews, interviews, and land based and aerial visual inspections were conducted during the CERFA investigation to determine if the reports were true. No evidence substantiating the presence of unexploded ordnance was found.

Radionuclides: Installation personnel were interviewed and installation files were searched to obtain data on radioactive material storage and use. In addition, the U.S. Army Environmental Hygiene Agency Health Physics Division provided the contractor with information obtained from installation files and U.S. Army Environmental Hygiene Agency archival report files. This information included Nuclear Regulatory Commission licenses and Department of the Army Radioactive Material Authorizations, and U.S. Army Environmental Hygiene Agency reports on radioactive material decommissioning.

Additional interviews were conducted with U.S. Air Force personnel regarding the past use/disposal of radioactive materials at Hamilton Army Airfield during the U.S. Air Force occupation of the installation. Representatives from the U.S. Air Force Center for Environmental Excellence, U.S. Air Force Radioisotope Committee, Occupational and Environmental Health Directorate, and Low-Level Radioactive Waste offices were interviewed. A representative from the U.S. Army Materiel Command Radioactive Waste Disposal Office was also contacted. The former radiological cylinder disposal site, current U.S. Coast Guard Medical Clinic and former hospital (Building 515) at the installation were also visually inspected.

Petroleum release or disposal: Areas of potential and confirmed releases that were identified in the Enhanced PA, Final Environmental Investigation Report, and the records search were inspected visually. Evidence of discoloration or spills were noted. Monitoring well locations identified in the Final Environmental Investigation Report were observed. Visual evidence of soil contamination provided in previous documents was verified.

Petroleum storage: Information on storage tanks and pipelines gathered through document reviews and searches, including location, volume, past and present contents, and evidence of removal actions, was verified during the inspections to the extent possible. Evidence of excavation and removal was noted, including changes in vegetation patterns, and rectangular areas of disturbed soil surface. Petroleum storage facilities not identified in prior documents were also noted.

Hazardous substance release or disposal: Areas of potential releases that were identified in the Enhanced PA, Final Environmental Investigation Report, and records search were inspected visually. Evidence of discoloration or spills were noted. Monitoring well locations identified in the Final Environmental Investigation Report were observed. Evidence of releases from documented sources was verified.

Hazardous substance storage: Hazardous substance and hazardous waste storage areas identified in the Enhanced PA and Final Environmental Investigation Report and the records search were visually inspected. Changes in the storage areas' location, volumes, contents, and management practices were noted. Hazardous substance storage facilities not identified in prior documents were also noted.

2.4.2 Inspection of the Adjacent Property

A visual inspection of the adjacent property was conducted. Prior to the site visits, a data base search was performed for the area adjacent to Hamilton Army Airfield within a 2.5-mile radius to identify small- and large-quantity waste generators, underground storage tanks, and leaking underground storage tanks. Both Federal and State data bases were searched (see Section 2.2 of this report). Information obtained from the search was verified through visual inspections including windshield and walk-through surveys and aerial flyovers.

Adjacent properties inspected included Government Services Administration sale parcel property, Navy housing property, State-owned intertidal land, and the city of Novato sewage treatment plant facilities. The inside and outside of vacant buildings on the General Services Administration parcel adjacent to the airfield BRAC property and Parcels A2 and A3 were inspected. Privately-owned farmland located to the north and south of the airfield BRAC property were inspected from the installation boundary and during the aerial flyover.

2.5 TITLE DOCUMENTS

TETC conducted a review of tract maps and transfer documents to identify the former property owners of BRAC property at the time of its transfer to the Army. The purpose of this review was to determine the property's prior use and environmental condition at the time of its transfer. This review did not result in additional information. Previous ownership and the dates of transfer to the Army are indicated on Figure 5-2.

2.6 NEWSPAPER ARTICLES AND MEDICAL RECORDS

A search of Hamilton Army Airfield, the Presidio of San Francisco, and regulatory agencies revealed one relevant article, published in the Daily Review on Wednesday, July 9, 1986. The article discussed the dumping of unexploded ordnance on the installation; materials were reportedly dumped in unspecified locations of the portion of the airfield BRAC property approximately 30 years ago. The unexploded ordnance consisted of four truck loads of live ammunition, including .50 caliber machine guns .45 automatic ammunition, and 40-millimeter cannon shells. The article did not mention removal of the material. The presence of the reported munitions dump site at Hamilton Army Airfield has not been substantiated in any other record reviews or environmental investigation reports or identified in any site investigations.

3.0 PROPERTY BACKGROUND INFORMATION

This section presents an overview of past and current operations at Hamilton Army Airfield and a discussion of environmental changes associated with the facility. It address activities relevant to waste management practices and significant environmental incidents that occurred since the Enhanced PA was conducted.

3.1 GENERAL BACKGROUND

Hamilton Army Airfield is a subinstallation of the Presidio of San Francisco. The original installation, comprised of 927 acres, was constructed between 1932 and 1935 as the first west coast Army Air Corps facility, and its mission was to train fighter and bomber pilots. The installation also provided aircraft maintenance and repair for various types of aircraft and as a process point for combat crews. The base grew in size and importance through World War II; in 1947 it was transferred to the U.S. Air Force which had just been created, and renamed Hamilton Air Force Base. With the addition of housing areas in the 1950's, the base reached a size of 2,184 acres in 1964. Throughout this period the installation was used as a base for air defense and for training (fighter squadrons). The installation also provided support for the Tactical Command, Military Air Transport Command and the U.S. Air Force Auditor Generals office.

In the mid 1960's, the base began a slow decline as urban land uses began to encroach on the facility and public complaints of jet noise and air safety increased. In 1974, the Air Force deactivated Hamilton Army Airfield and the Air Force property began to be excessed. The housing portion of the installation was transferred to the U.S. Navy in 1975. Custodial management of the remaining portion of the property was taken over by the General Services Administration. A parcel consisting of hangar Building 390 and associated land was transferred to the U.S. Coast Guard on October 1, 1983.

In 1976 the Army received permission to use the runway and ancillary airfield facilities and several other buildings for Army aircraft operation and Army Reserve operations. The Army continued to use portions of Hamilton Air Force Base on a permit basis until July 1984, when approximately 755 acres of the former airfield was officially acquired by the Army and management responsibility of the property was transferred to the Presidio of San Francisco. Approximately 380 acres not needed by the Hamilton Army Airfield were offered for sale by the Army under the administration of the General Services Administration (General Services Administration sale parcel). This property includes most of Hangar Row, the former installation administrative area and the airfield ammunition storage facilities.

Several properties at Hamilton Army Airfield are scheduled for transfer to new owners. A 1992 Department of Defense Appropriations Act (Public Law 102-396) mandates that the Army make five parcels at the airfield available to the New Hamilton Partners. The parcels include the POL Area (Parcel A1), and Parcels A2, A3, A5, and A6. The New Hamilton Partners intended to

use these parcels as part of a commercial/residential development planned at Hamilton Army Airfield.

The POL Area was not accepted for transfer by the New Hamilton Partners and will remain in Army control. Findings of suitability for transfer have been found for Parcels A2, A3, and A6. Transfer of these parcels is anticipated in 1994.

Parcel A5 was determined to have some contamination associated with a washrack inlet. The property is expected to be environmentally suitable for transfer to the New Hamilton Partners following remedial efforts by the Sacramento District of the U.S. Army Corps of Engineers.

The current mission of the Hamilton Army Airfield is to serve as a subinstallation to the Presidio of San Francisco. Limited Army activity takes place at the installation. Hamilton Army Airfield most recently served as a U.S. Army Operational Airlift Support Airfield and as a training center for an Army Reserve aviation unit. These operations were discontinued around February 1994. The only current activities on the installation operation and maintenance functions and tenant activities conducted by the U.S. Coast Guard Medical Clinic, U.S. Air Force Civil Air Patrol, and the Marin Power Squadron. The Vickers Vimy 1994 Project, a vintage World War I bomber reconstruction project, is also located in Building 86. Past and current operations conducted in BRAC property are described in more detail below.

3.1.1 Past Activities

Several industrial operations (including aircraft maintenance, aircraft fueling, jet engine testing, and fire training) were performed in the BRAC property in support of its mission. Facility support functions included sewage treatment at an on-site sewage treatment plan, emergency electrical power generation, stormwater management, and landfilling of waste materials. Medical care was offered at the installation hospital on Hospital Hill.

Aircraft Maintenance: Aircraft maintenance was performed in the aircraft maintenance area near the southwest portion of BRAC property. Maintenance activities were conducted inside Hangar Building 86 and outside on the tarmac to the northwest and southwest of the building. Installation records also indicated aircraft maintenance operations occurred in Buildings 84 and 93 and electronics equipment repair occurred in Building 90. Activities included aircraft equipment repair, oil changing, jet and prop engine repair and service, aircraft bodywork painting and washing, and fuel testing. The hazardous substances used and wastes generated during these activities included stripping and degreasing solvents, oils, and other aircraft fluids, batteries and battery liquids, POL) antifreeze, and paints. Hazardous substances and wastes were stored in various locations and in various size containers including a storage area on the northeast side of Building 86 (Storage Area 1), an area to the northwest of Building 88 (Storage Area 2), an area to the southeast of Building 94 (Storage Area 3), and in and around Building 87 (Storage Area 4). Substances were stored in these areas inside conexes and outside in uncovered areas. Building 90 was also reportedly used for a period as a storage area of hazardous substance, specifically 55-gallon drums of POL. Lockers in Hangar 86 were used for the storage of smaller amounts of materials such as paints, adhesives, solvents, etc.

Aircraft staging and maintenance occurred in the revetment area which consists of 28 revetment turnouts connected by taxiways. Twenty-three of the turnouts are paved, and 5 are unpaved. During maintenance activities in these areas, oils and other fluids may have been spilled.

Aircraft were washed at an aircraft washrack located at Parcel A5, located on the north side of Hangar Building 95. Washrack facilities included drums, hose racks, and a detergent pumping system.

Aircraft Fuel Storage: Several locations at Hamilton Army Airfield have been used to store fuel. These included the POL Area (a BRAC property) and two other POL facilities (POL Areas 2 and 3), both located in the General Services Administration sale parcel. The POL Area contained twenty 25,000-gallon underground storage tanks and several aboveground storage tanks previously used to store JP-4 jet fuel. Aboveground Storage Tank-2 was an 84,000-gallon JP-4 tank that stood on the hillside bench in the POL Area and supplied the lower tank farm by gravity field through a pipeline. The tank was supplied by pipes and a pump station located at the underground storage tank farm.

An additional 750-gallon underground storage tank and three buildings (Buildings 736, 737, and 738) were also located in the area. The buildings were used for the temporary storage of waste oil prior to removal by a refuse company. The material stored in the 750-gallon underground storage tank is undetermined.

All the underground storage tanks and Aboveground Storage Tank-2 were removed in 1986 by IT Corporation as part of a POL Area remediation contracted by the U.S. Army Corps of Engineers. In addition, fuel line removal and soil remediation (consisting of soil removal operations) occurred at the site in 1986, 1990, and 1993.

More recently, aircraft fuel has been stored in fuel trucks and fuel pods to support activities at Building 86. One 1,000-gallon, one 1,200-gallon and one 2,400-gallon fuel trucks were parked north of Building 86. One 600-gallon fuel pod was located at the south end of the runway between Buildings 87 and 90.

Aircraft Fueling: Aircraft fueling historically occurred in the revetment areas and aircraft maintenance area via fuel truck and at 9 fueling stations located along the southeast side of the runway taxiway, in front of hangar row. The fueling stations were fed by a JP-4 fuel hydrant system. JP-4 was offloaded from barges at an unloading pier located approximately 18,000 feet into San Pablo Bay. The fuel was piped via a 12-inch fuel line on to the shore and along the northern property line for 6,890 feet to a point where it turned southwest, crossed under the airfield for another 870 feet and branched to BRAC property POL Area, and former POL areas located on the General Services Administration sale parcel.

A 6-inch fuel line which runs underground along the southern taxiway in front of the hangar buildings provided fuel from the POL Area to a network of fuel lines and the 9 fueling stations located on BRAC property parallel to Hangar Row. A portion of the lines from the POL Area BRAC property and POL Area 2 which tie into these stations were removed in 1990 and the winter of 1994 respectively.

The use of the fuel distribution system at Hamilton Army Airfield has been discontinued. Recent aircraft activities around Building 86 have been serviced by fuel trucks and fuel pods located in the area.

Jet Engine Testing: An enlarged revetment pad, Revetment No. 6, was used to test jet engines. The concrete pad is approximately 200 feet in diameter and has a steel backstop located east of the pad to redirect jet engine backwash during testing. It is estimated that engine testing began in the 1950's and ended in 1974 when the Air Force ceased operations at the installation.

Fire Training: A concrete burn pit is located at Revetment No. 10. The pit was used for fire fighter training from approximately 1975 to 1987. Fuel, solvents, and vehicles were burned in the pit.

Sewage Treatment: The installation sewage treatment plant was located on the east side of Hamilton Army Airfield between Perimeter Road and the east levee. The outfall pipe from the sewage treatment plant extended approximately 600 feet eastward from the levee into the tidal wetlands.

The former sewage treatment plant provided primary and secondary treatment of installation generated sewage in aboveground concrete tanks. Presumable only sanitary wastes were treated in the plant. Unspecified chemicals, including coagulants, were used in the treatment process. The former sewage treatment plant operated until November 1986, after which time all Hamilton Army Airfield sanitary wastes have been pumped to the Novato Sanitation District.

The plant was demolished in 1987. All buildings associated underground storage tanks and aboveground tanks, and sludge from the drying beds were removed. The depth of sludge removed from the drying beds is unknown.

Stormwater Management: A series of drainage channels, levees, and three stormwater pump stations located on the east side of Hamilton Army Airfield between Perimeter Road and the east levee remove runoff and groundwater seepage from Hamilton Army Airfield and discharge the stormwater into San Pablo Bay. The pump station area includes Buildings 35, 39, 40, and 41. Drainage system pumps are located in Buildings 35, 39, and 41. The pump in Building 39 operates automatically while the other pumps operate manually. An aboveground diesel storage tank is associated with each of the three pump houses (Aboveground Storage Tanks 5, 6, and 7), and one documented underground storage tank is located at Building 41. The tanks provide fuel for pump station engines and generators.

Pump equipment was maintained at the pump station this included equipment repair, painting, adding and changing oil, and battery charging/change out. POL products and batteries have been stored in the various pump station buildings to support maintenance activities.

Electrical Power Generation: In addition to electrical power generation capability at the pump stations, several other buildings (including Buildings 15, 20, 26, and 48) on Hamilton Army Airfield contained electrical power generators to supply power for airfield activities such as runway lighting, radar, and TACON stations. These buildings are located along the north levee

and in the revetment area. Fuel for the generators at each building was supplied by aboveground tanks and/or underground storage tanks at each location. Equipment maintenance of this equipment would have been periodically required. The electrical generator buildings have been taken out of service; when that occurred was not determined.

Landfill Operations: Wastes historically generated at Hamilton Army Airfield and disposed on-site included trash and garbage, construction debris, and low-level radioactive materials. Landfill 26, located on the General Services Administration sale parcel, served as the installation sanitary landfill discontinued operation. The landfill has ceased operation and is currently undergoing remedial action by the U.S. Army Corps of Engineers.

The east levee landfill was used for deposition of metal and construction debris. The landfill is located outside the east levee in the eastern area of the airfield BRAC property. The site was used for the disposal of construction debris beginning around 1961. A site on the State-owned portion of the landfill was also used as a burn pit.

Two 18-inch diameter corrugated metal culverts, 18 to 24 feet in length, were buried below the northern earthen level beyond the runway overrun. These cylinders contained electron tubes and wave guides containing exempted quantities of low-level radioactive materials. The cylinders were exhumed and the materials were disposed to a licensed disposal site in September 1988. The work was accomplished by the U.S. Army Corps of Engineers through a contract with Chem-Nuclear. The site was subsequently released to unrestricted use the U.S. Army Corps of Engineers.

A newspaper report alleges that ammunition was also buried in several locations on the airfield BRAC property. There are no other records, documents, or site investigation results to substantiate this information.

Medical Activities: The Hamilton Army Airfield medical facilities were located in the Hospital Hill BRAC property and included Building 515, the main installation hospital; Building 510, a former medical and dental clinic; Building 511, a former medical lab; Building 520, a former administration building; Building 521, a former dental prosthetic lab; and Building 575, the former hospital warehouse. Although limited information is available on historical practices in these buildings, medical supplies such as alcohol, acetone, peroxide, active acid, and disinfectants and cleaners were probably stored in all but Building 520. X-ray equipment and materials were used in Building 515. Medical wastes generated at the Hamilton facilities were reportedly properly disposed. There was reportedly no medical waste incinerator at the installation. The exact off-site disposal method for medical waste from Hamilton, however, was not identified.

In addition to the Hospital Hill area, Building 82 in the aircraft maintenance area was used more recently for the storage of U.S. Army Reserve Medical Detachment (Air Ambulance) unit supplies.

A variety of other airfield operation related industrial activities historically occurred at Hamilton Army Airfield. These activities occurred on parcels adjacent to but not on BRAC property (i.e.,

General Services Administration sale parcel, U.S. Coast Guard property, State land and the U.S. Navy housing parcel). Operations on adjacent properties and their actual or potential effect on the BRAC property are described in detail in Section 4.3 of this report.

3.1.2 Current Activities

The level of operations at Hamilton Army Airfield has significantly declined since the Air Force left the installation in 1974 and, more recently, since the BRAC closure process began. The most recent change was the relocation of the U.S. Army Reserve Aviation Support Facility #27 and U.S. Army Operational Support Airlift Command Detachments from Hamilton Army Airfield. However, industrial operations still occurred at the installation on BRAC property at the time of the CERFA site visits. These include some minor aircraft maintenance and fueling operations and stormwater management on the airfield BRAC property. Medical activities and some administrative functions are still maintained in the Hospital Hill area. A detailed description of operations in BRAC property is provided below.

Airfield BRAC Property:

- ***Electrical Power Generator Buildings 15, 20, 26, and 48:*** These buildings are abandoned, and electrical generation equipment has been removed. Aboveground tanks located at Buildings 15 and 26 are still in place. There are currently no aboveground tanks at Buildings 20 and 48. Vent pipes at both buildings and a fill pipe at Building 20 indicate the probable presence of underground storage tanks. There is no documentation of any tank removal at these two buildings.

- ***Stormwater Pump Stations:*** Stormwater pumping facilities at Hamilton Army Airfield are still operating. Facilities include Pump Buildings 35, 39, 41 and electrical power generator Buildings 38 and 40. Two aboveground tanks are in operation at Building 35 one located outside and one inside the building. Two aboveground tanks are in operation at Building 39, one located in front of the building and one mounted on the building's west wall. One aboveground tank and one documented underground storage tank are located at Building 41. There may be second underground storage tank at the building.

- ***Former Sewage Treatment Plant:*** All sewage treatment plant buildings and associated facilities including underground storage tanks and aboveground tanks were removed in 1987. Buildings 42, 43, 44, and 45 were raised. The wastewater treatment plant outfall pipe has been abandoned.

- ***Barge Dock:*** Buildings 57 and 60, which were associated with a barge dock located at the southwest corner of the airfield, have been razed. The remains of the dock are in poor condition.

- ***Building 82:*** Building 82 is currently being used to store supplies for the 343rd U.S. Army Medical Detachment (Air Ambulance) Unit, which has been relocated. These medical supplies may include some hazardous substances.

- ***Building 83:*** This former oxygen storage building is empty.

- ***Building 84:*** This building is empty. The former aviation maintenance shop was most recently used by the 12th Special Forces Unit of the 4th Army for training.

- ***Building 86:*** At the time of the first CERFA site visit in September 1993, this maintenance hangar and the surrounding grounds were used by the U.S. Army Operational Support Airlift Command and U.S. Army Reserve Aviation Support Facility #27 as a storage and light maintenance area for small fixed wing and rotary aircraft. One of the Army units occupied the west side of the hangar while the second unit occupied the east side. The building contained several flammable cabinets for storage of small volumes of materials (less than 20 gallons) such as paints, acetone, hydrochloric acid, and POL products. A 30-gallon degreasing unit that uses mineral spirits solvent was also located in the hangar.

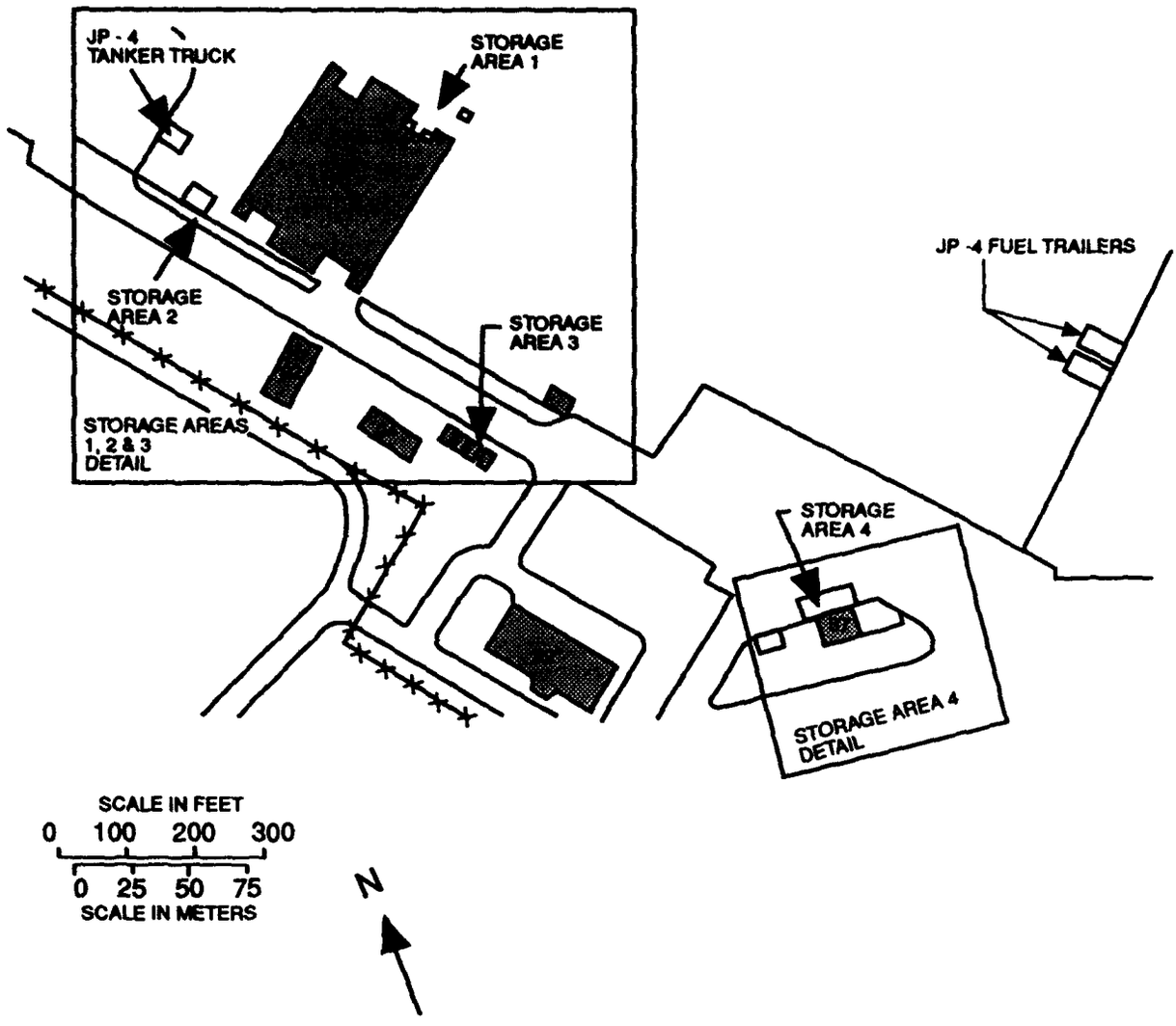
  Four POL and hazardous substance/waste storage areas associated with the Army units were located at Building 86. Two areas, denoted Storage Area 1 and Storage Area 2, were located next to Building 86. (These two areas are described below.) The other two areas, Storage Area 3 and Storage Area 4, were located at Buildings 94 and 87, respectively. These areas are discussed in the applicable building descriptions. Figures 3-1, 3-2, and 3-3 show the four storage area locations at Hamilton Army Airfield.

  Storage Area 1 was located outside the northwest corner of Building 86. It consisted of a POL Storage Conex (Conex 86A), an air compressor and POL Storage Shed (Building 145), a jet fuel test station, and a POL product distribution area. Bulk POL were stored in the conex and shed in containers ranging from 5-gallon buckets to 55-gallon drums. Safety cans and glass jars of waste jet fuel were located at the jet fuel test station. POL products in 55-gallon drums were placed in dispensing racks with drip pans under them in the POL product distribution area.

  Storage Area 2 was located approximately 100 feet northwest of Building 86. The storage area was used for waste oil/fuel storage. The storage area consists of 55-gallon drums and smaller containers of waste oil, fuel, and other maintenance related fluids stored within a metal container that rests on a gravel surface, surrounded by sandbags.

  A single 5,000 gallon JP-4 fuel truck was located near Storage Area 2 northwest of the building. The truck provided JP-4 fuel storage for the Operational Support Airlift Command Detachment. The truck was parked in the location unless servicing an aircraft or being filled.

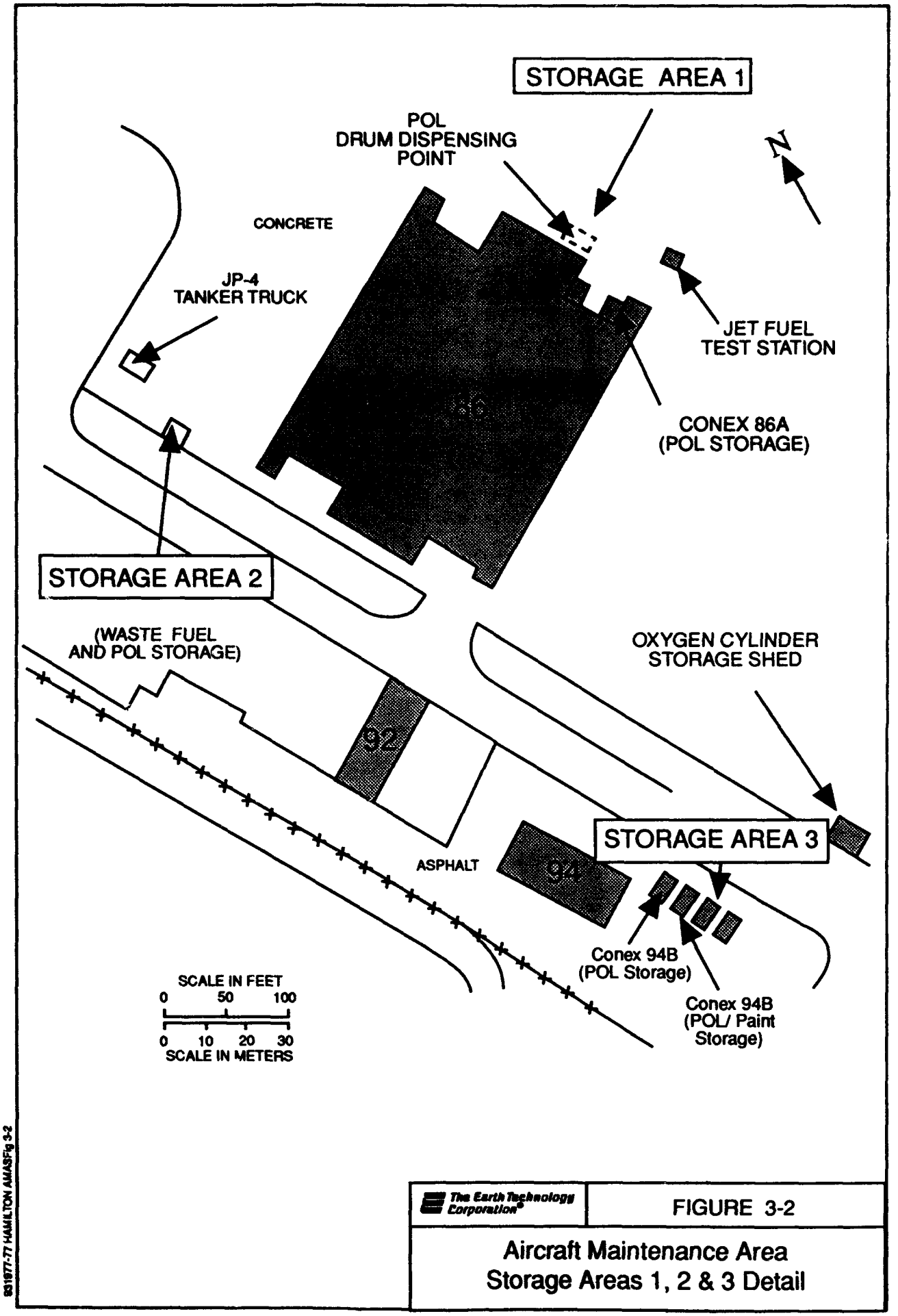
  At the time of the second CERFA site visit in March 1994, the two Army units formerly occupying Building 86 had vacated. The storage areas inside Building 86 and Storage Areas 1 and 2 were generally empty. The only materials



831977-77 HAMILTON AMAS

FIGURE 3-1

Aircraft Maintenance
Storage Area Locations

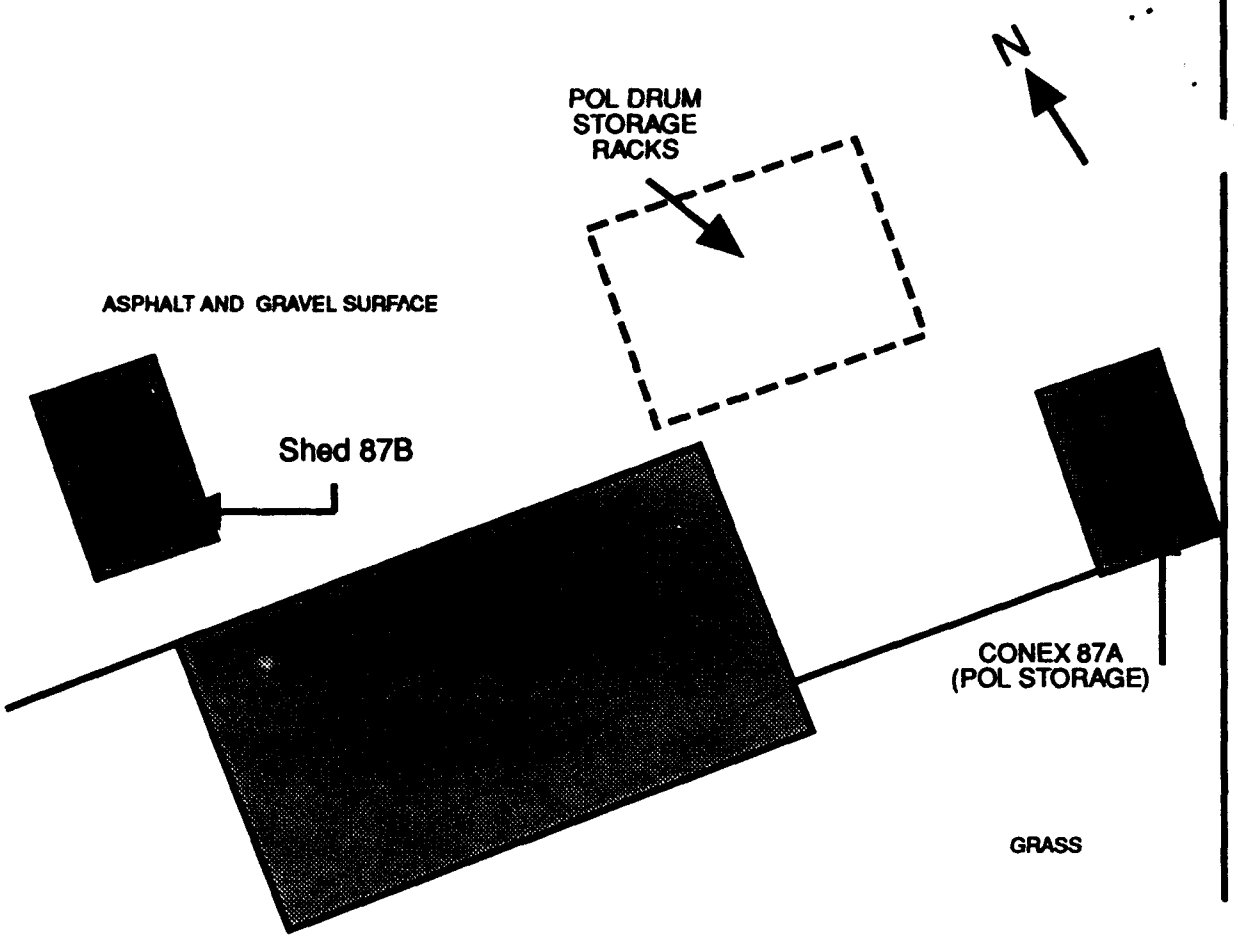


831977-77 HAMILTON AMASFig 3-2

The Earth Technology Corporation®

FIGURE 3-2

Aircraft Maintenance Area
Storage Areas 1, 2 & 3 Detail



SCALE IN FEET

0 10 20

0 5

SCALE IN METERS

931977-07 HAMILTON AMAS A-4

The Earth Technology Corporation

Figure 3-3

Aircraft Maintenance Area
Storage Area 4 Detail

remaining were three 5-gallon cans in Storage Area 2. One of the cans contained oil. One of the cans was unlabeled but appeared to contain waste thinner or other petroleum based solvent. The third can was empty. The hangar is currently being used by the Vickers Vimy 1994 Project which is an effort to reconstruct a vintage World War I bomber plane, the first aircraft to complete trans-Atlantic and Pacific flights. The Vickers Vimy 1994 Project maintains small amounts of adhesives, paints, and solvents on hand in Building 86 for use in the construction of the aircraft.

★ ***Building 87:*** Building 87, an adjacent conex (Conex 87A) and shed (Shed 87B), and the area surrounding these buildings are designated Storage Area 4. At the time of the first CERFA site visit, unopened 55-gallon drums of POL products, cleaning compound, and antifreeze were stored inside and outside the buildings. Opened drums of POL products placed on metal storage and dispensing racks with drip pans underneath were located outside on the asphalt apron. Stains were visible on the ground. Gasoline stored in 5-gallon cans was stored in the conex.

Approximately halfway between Building 87 and Building 90 along the southern edge of the concrete tarmac, two 5,000 gallon JP-4 fuel trailers are permanently parked. The trailers provided JP-4 fuel storage for the U.S. Army Reserve Aviation Support Facility #27 when it was stationed at the airfield. The trailers were provided with a sandbag berm, open at one end.

At the time of the second site visit in March 1994, Buildings 87 and 87A, and Shed 87B were locked and their interiors could not be inspected. The POL dispensing racks and all but three 55-gallon drums of products had been removed. The two JP-4 fuel trailers were still in place. In addition, a single 55-gallon drum of waste jet fuel was located within the sandbag bermed area. The drum was properly labeled and in good condition.

★ ***Building 92:*** This building currently served as a crash rescue station. A fire/rescue truck is parked inside. The rear of the building also served as a storage area for the U.S. Army Reserve Aviation Support Facility #27 at the time of the first CERFA site visit.

★ ***Building 94:*** This building was used for miscellaneous storage by the 124th Army Command at the time of the first CERFA site visit. No hazardous substances/wastes are stored in the building on a regular basis.

Storage Area 3 is located just to the southeast of the Building 94. At the time of the first CERFA site visit, the storage area consisted of four conexes (denoted Conex 94A, 94B, 94C, and 94D). POL products were stored in the first conex, paints and adhesive were stored in the second and third conex, and the fourth conex was empty. At the time of the second CERFA site visit, two of the conexes had been removed and the remaining two conexes were empty.

- ***Buildings 138 and 140***: These buildings are currently used by the U.S. Army Regional Training Site (Intelligence) Unit for administrative and training purposes. Small volumes (less than 5 gallons) of electronics cleaning solvent and flux are maintained on hand in the buildings for minor electronic repair and training activities. An underground storage tank is suspected at Building 140.

POL Area BRAC Property: The POL Area property is currently the site of a groundwater treatment facility for the remediation of Landfill 26. At the time of the first site visit in September 1993 remediation activities were ongoing at the area under contract to the U.S. Army Corps of Engineers. Buildings 736, 737, and 738 had been removed. Excavation was being conducted in the area of the future treatment facility to remove benzene- contaminated soil and rock. Excavated material was being stockpiled on-site.

At the time of the second visit in March 1994, on-site excavation activities had been completed and the treatment facility had been constructed at the site. Contaminated soil excavated from the area was stockpiled on-site. The stockpiles were placed on and covered with polyurethylene sheeting. The soil will be used as fill material during construction of a cap for Landfill 26.

Hospital Hill BRAC Property:

- ***Building 510:*** This building was damaged by a falling tree and is currently vacant.

- ***Building 511:*** This building is currently used by the U.S. Coast Guard for various administrative functions; it also serves a clinic, pharmacy, and medical lab. Small quantities of chemicals, such as acetone, hydrogen peroxide, acetic acid, and denatured alcohol are stored in locked cabinets in the building.

- ***Building 512:*** This former administration/classroom building is currently empty.

- ***Building 515:*** The former hospital building is mostly empty. Several offices including Hamilton Army Airfield facility management office are still located in the building. In the basement, there is a x-ray machine and a maintenance room, in which 9 transformers are located. (Six of the transformers are PCB-contaminated.) Oil staining is present on the concrete floor around the transformers.

- ***Building 516:*** This small building located directly behind Building 515 was previously used for the storage of office-related refuse. The building is currently empty.

- ***Building 520:*** This building is currently used by the U.S. Air Force for coordinating and organizing activities for the Civil Air Patrol.

- ***Building 521:*** This building is currently used by the U.S. Air Force for Civil Air Patrol administrative functions. A UST is suspected at the building.

- ★ ***Building 525:*** This former hospital general storage building is empty.

- ★ ***Building 575:*** This former hospital warehouse is empty.

Current waste management practices associated with the BRAC property include solid waste (refuse) removal, and sanitary sewage treatment. General refuse placed in dumpsters is removed by the U.S. Navy. Hazardous waste substances generated during former Army unit aircraft maintenance activities at Building 86 were stored in designated storage areas (Storage Areas 1 and 2) and have removed quarterly for offsite disposal. Sanitary sewage is currently pumped to treatment facilities owned by the Novato Sanitation District. An associated lift station is maintained by the U.S. Navy.

Parcel A2 BRAC Property:

- ★ ***Building 442***: This administration building is currently vacant.

- ★ ***Building 443***: This former kitchen building is currently vacant.

- ★ ***Building 445***: This building is currently leased to the Book Exchange used for book storage.

- ★ ***Building 449***: This building houses an electrical vault. The transformers inside the building were observed to be in good condition.

Parcel A3 BRAC Property: The only building on Parcel A3 is Building 467. The building is used by the Marin Power Squadron for a administrative and training activities.

3.2 Environmental Changes at Hamilton Army Airfield

Operations at Hamilton Army Airfield declined after the Enhanced PA and Final Environmental Investigation Report were completed in January 1990 and July 1993, respectively. With the closure and realignment of Hamilton Army Airfield in progress, a number of tenants have left the installation and several parcels in BRAC property have formal agreements in place for transfer. These changes are listed below:

Occupancy Changes:

- ★ The U.S. Army Reserve Aviation Support Facility #27 and U.S. Army Operational Support Airlift Command detachments have left Hamilton Army Airfield. Building 86 is currently occupied by the Vickers Vimy 1994 Project.

- ★ The 12th Special Forces Unit of the 4th Army has vacated Building 84.

- ★ With the exception of a small amount of supplies stored in Building 82, the 343rd U.S. Army Reserve Medical Detachment (Air Ambulance) Unit has vacated the installation.

- ★ The U.S. Army Regional Training Site (Intelligence) unit has consolidated operations into Buildings 138 and 140 property and has vacated Building 512.

- ★ The majority of hospital Building 515 has been vacated.

A number of environmentally significant changes have also occurred in the BRAC property since the Enhanced PA and Final Environmental Investigation Report was completed. These changes were identified during the two CERFA site visit. These changes are as follows:

- ★ Soil removal remediation of the POL Area BRAC property has been completed and a groundwater treatment building has been constructed on the site. Buildings 736, 737, and 738 have been razed.

- ★ Changes have occurred related to the fuel storage facilities at the aircraft maintenance area. The 1,000-gallon, 1,200-gallon, and 2,400-gallon capacity trucks reported in the Enhanced PA had been replaced with one 5,000-gallon truck at the time of the first CERFA site visit in September 1993. The truck was parked northwest of Building 86. At the time of the second CERFA site visit in March 1994 the truck was no longer present. Two 5,000 fuel trailers replaced the former 600-gallon fuel pod located east of Building 87 identified in the Enhanced PA.

- ★ Evidence of potential petroleum releases (lack of vegetation and petroleum odor in surface soils) was noted during the CERFA site visit at the suspected underground storage tank site behind Building 26.

- ★ A leak was reported in the recorded underground storage tank at Building 41 in February 1993. The tank was taken out of service after the leak was discovered. Anecdotal evidence collected during the CERFA investigation indicates the possible presence of a second underground storage tank at the site.

- ★ Aboveground tanks not identified in prior environmental documents were identified at Buildings 15, 26, 35, and 39 during the CERFA site visit. In addition, underground storage tanks are suspected to be present at Buildings 20 and 26 based on building function although there is no documented or visual evidence indicating their presence.

USAEC has contacted the Presidio of San Francisco regarding underground storage tank leaks and transformer leak concerns. The Presidio of San Francisco Directorate of Public Works is responsible for the cleanup of these areas; funds are available for this purpose.

4.0 INVESTIGATION RESULTS

This section describes the results of the CERFA investigation. The first part describes all areas within the BRAC property that have been addressed in reports prior to the CERFA investigation, and the second part describes all areas within the BRAC property that have not been addressed in previous reports. The third part identifies adjacent properties that may be potential sources of contamination. The fourth part describes areas containing items not regulated by CERCLA, and the fifth part describes areas where remediation has occurred. Part six describes real property within the BRAC property that will be retained by the Army.

4.1 PREVIOUSLY IDENTIFIED AREAS REQUIRING ENVIRONMENTAL EVALUATIONS

This part describes both existing areas requiring environmental evaluations and those that have undergone change.

4.1.1 Existing Areas Requiring Environmental Evaluations

Table 4-1 lists all the areas within BRAC property addressed in the Enhanced PA, Final Environmental Investigation Report Technical Plan, Final Environmental Investigation Report and Draft Alternative Assessment. Site numbers in the table correspond to those provided in the Draft Alternative Assessment. Several sites were not included in the Draft Alternative Assessment and therefore do not have site numbers. The Enhanced PA identified 13 environmentally significant operations at Hamilton Army Airfield, 12 of which were identified as areas requiring environmental evaluation or other further action. (A former radiological disposal site was identified as requiring no further action.)

The Final Environmental Investigation Technical Plan identified 2 additional environmentally significant operations not identified in the Enhanced PA (a PCB drum site and installation-wide radon). The plan recommended no further action for the PCB drum disposal site because it had been remediated, and it confirmed the recommendation of the Enhanced PA that no further action needed to be taken regarding the former radiological site because it had also been remediated. The Final Environmental Investigation Work Plan also recommended that no further action needed to be taken in connection with a reported bombing range, an area identified in the Enhanced PA because the presence of the alleged range could not be substantiated. Finally, the plan concluded that further action for two environmentally significant operations (asbestos and underground storage tank management) fall outside the scope of an environmental investigation. In total 10 areas were recommended for further environmental evaluation in the Final Environmental Investigation Report Technical Plan. The Final Environmental Investigation Report evaluated 9 of these areas. Prior to the start of the environmental investigation, it was determined that no further action needed to be taken regarding radon.

TABLE 4-1
PREVIOUSLY IDENTIFIED AREAS REQUIRING ENVIRONMENTAL EVALUATION IN BRAC PROPERTY, HAMILTON ARMY AIRFIELD

Site Number	Name	Coordinate Location (x,y) Figure 5-1	Parcel Number	Source of Information				Risk (Noncarcinogenic: Hazard Index ≥ 1 or Carcinogenic – Risk ≥ 1E-06)
				Enhanced Preliminary Assessment	Environmental Investigation Work Plan	Environmental Investigation	Draft Alternative Assessment	
1	Underground storage tanks (POL Area)	12, 27	9D	✓	✓	✓		n: no c: no
2	Burn pit	44, 26	7D	✓	✓	✓	✓	n: no c: no
3	Revetment area	44, 22	7D, 5D, 16D	✓	✓	✓	✓	n: no c: no
4	Stormwater pump stations	50, 24	7D	✓	✓	✓	✓	N; yes c: yes
5	Former sewage treatment facility	52, 21	20D	✓	✓	✓	✓	n: yes c: no
6	East levee landfill	50, 17	23D	✓	✓	✓	✓	n: yes c: no
7	Aircraft maintenance/ storage areas	37, 7	30D	✓	✓	✓	✓	n: yes c: yes
8	JP-4 fuel lines	24, 22 28, 18	18D	✓	✓	✓	✓	No risk calcula
9	Aboveground tanks (Building 442 and others)	Multiple	Multiple	✓	✓	✓		No risk calculated
10	PCBs in transformer oil	–	–	✓	✓	✓		No risk calculated
–	Asbestos-containing material in buildings	–	–	✓	✓			No risk calculated
–	Radiological disposal site	–	–	✓	✓			No risk calculated
–	Bombing range (unsubstantiated reports only)	–	–	✓	✓			No risk calculated
–	Underground storage tanks (general)	–	–	✓	✓			No risk calculated
–	PCB drum site	7, 39	1D		✓			No risk calculated
–	Radon in buildings	–	–		✓			No risk calculated

Key:
– = Site numbers were identified in the Draft Alternatives Assessment. A number of sites however, were not provided with site numbers.
✓ = Site addressed in source document
Yes = Human health carcinogenic or noncarcinogenic risk were found to exist above 1E-04 and 1, respectively.
No = Human health carcinogenic or noncarcinogenic risk not found to exist above 1E-04 and 1, respectively.
n = Noncarcinogenic Risk
c = Carcinogenic Risk
PCB = Polychlorinated Biphenyl
POL = Petroleum, Oil, and Lubricant

Note: Figure 5-1 is located at the end of Section 5.

A risk assessment was completed as part of the Final Environmental Investigation Report. The risk identified in the "risk" column in Table 4-1 is any risk equal to or above the noncarcinogenic hazard index of 1 or the carcinogenic risk factor of 1E-06.

Each of the sites identified during prior environmental investigations are discussed in detail in the sections below.

POL Area: The former POL area is located west of West Boundary Road and on the north flank of Reservoir Hill. The area is approximately 220 feet from the airfield BRAC property; it contained a variety of fuel storage facilities including twenty 25,000-gallon underground storage tanks; one 840,000-gallon aboveground tank (aboveground tank 2) and one 25,000-gallon aboveground tank used to store JP-4 fuel; one 750-gallon underground storage tank of undetermined content; and fuel lines and pumping systems. Several buildings that stored POL products and wastes were also located in the area. All 21 underground storage tanks and aboveground tank 2 were removed in 1986 by IT Corporation. The 25,000-gallon aboveground tank, pipelines and concrete fuel islands were removed by IT Corporation in 1990. The buildings in the area were demolished more recently.

POL storage and handling at the POL Area resulted in soil, bedrock, and groundwater contamination. To date remediation of the site has consisted of soil and rock removal. The first two removal efforts were conducted by IT Corporation in 1986 and 1990 under contract to the U.S. Army Corps of Engineers. An estimated 74,000 cubic yards of soil and rock were removed. The Enhanced PA recommended soil and groundwater sampling in the area. Environmental investigation soil and groundwater sample and analysis results indicated the remedial excavation of the U.S. Army Corps of Engineers, has been successful in removing significant fuel contaminated soil and rock. However, residual non-lead fuel contamination remains both in the groundwater and unsaturated rock on the ridge beneath the former location of aboveground storage tank-2 and the alignment of the recently removed fuel supply line that formerly led from aboveground storage tank-2 to the tank farm. Approximately 15,000 cubic yards of residual contaminated (above 100 milligrams per kilogram (mg/kg) total petroleum hydrocarbon (TPH)) rock were estimated to remain in the POL Area in the Environmental Investigation.

Additional soil/rock excavation was underway at the time of the first CERFA site visit in September 1994 in order to partially remediate residual soil contamination and construct a groundwater treatment facility for Landfill 26. At the time of the second CERFA site visit in March 1994, soil and rock removal remediation was completed. Contaminated soil was stockpiled at the site and covered for use as fill material at Landfill 26. Groundwater treatment plant building which will be used to house a groundwater treatment system for from Landfill 26 and the POL Area was also built on the site.

Remedial action alternatives for the POL Area were investigated in the alternatives assessment for the BRAC property and are discussed in the Draft Alternatives Assessment.

Burn Pit Area: Until 1987, one of the concrete pads at the revetment area was used as a burn pit for fire fighting training. Information on the exact materials burned was not available.

Results of the Confirmation Study for Hazardous Waste completed in 1987 indicate shallow contamination around and under the concrete pad. The contaminants included diesel fuel, kerosene, jet fuel, C11-C20 hydrocarbons, and several volatile organics. Concentrations of metals detected in the Burn pit area were all well below California's total threshold limit concentration. The Enhanced PA recommended soil sampling, groundwater well installation, and groundwater sampling around the concrete pad in this area.

A total of 4 monitoring wells, 2 test pits, and 5 surface soil sampling locations were installed at the burn pit area during the Environmental Investigation. TPH, lead, volatile organic compounds, and semivolatile organic compounds were detected in soils beneath the concrete pad. TPH, toluene, semivolatile organic compounds and lead were detected in soils on the perimeter of the pad. Concentrations were assumed to be in the top 8 feet of soil. TPH, volatile organic compounds (methyl ethyl ketone), and lead were detected in groundwater in area wells. A number of remedial action alternatives were investigated in the Draft Alternative Analysis to address soil contamination at the burn pit for development and wetland reuse scenarios.

Revetment Area: This area consists of 28 turnouts formerly used for aircraft parking and maintenance one pad, revetment and was also used for jet engine testing (excluding the burn pit). Fuel and oils have reportedly been spilled or dumped on the ground in this area. Soil sampling and the installation of one monitoring well were recommended in the Enhanced PA to evaluate potential contamination in this area. Three groundwater monitoring wells, 3 test pits, and 16 soil boring locations were installed within the revetment area during the environmental investigation. Soil analysis results indicated that TPH contamination is variable. Approximately half of the revetments had soil TPH concentrations greater than 50 mg/kg. Pads 17, 20, 26, and 27 and the engine test pad had TPH concentrations greater than 100 mg/kg. Revetments 19 and 22 did not demonstrate significant contamination. Several semivolatile organic compounds were detected in some revetment area soils and toluene was encountered in a test pit at the engine test cell but concentrations were low; the highest concentration was at revetment 20 (36 mg/kg including tentatively identified compounds). Lead was detected above the background concentration range in soils at revetments 1, 2, 20, and 27. The highest concentration was at revetments 13 and 20 (44 mg/kg). There were no significant detections in groundwater samples.

Several remedial action alternatives were investigated in the Draft Alternative Analysis to address contaminated soils at the revetment areas for development and wetland reuse scenarios.

Pump Stations: The Enhanced PA identified one underground storage tank and three above ground storage tanks near the pump stations. Stained soil and stressed vegetation were noted at several of these locations. The Enhanced PA recommended soil borings and soil sampling at each of the tank locations. One monitoring well was installed near Buildings 35 and 17 soil or sediment sample locations were installed in the pump station area on the westside of the east levee during the Environmental Investigation. Nine sediment sample locations were also installed in the pump stations outfall ditch on the east side of the east levee.

Elevated TPH, semivolatile organic compounds, and lead concentrations were found at each of the soil boring locations. Maximum concentrations were encountered near aboveground storage Tank-6 at Building 35. TPH, semivolatile organic compounds, and lead concentrations at that

site were 332,000 mg/kg, 4,383 mg/kg, and 410 mg/kg, respectively. Pump station outfall ditch sediments exhibited varying levels of TPH, volatile organic compounds, semivolatile organic compounds, and metals contamination. The highest TPH concentration was at the outfall from Building 35 (2,690 mg/kg). The highest semivolatile organic compound and metals (lead) concentrations were near the outfall of Building 39 (21.3 mg/kg and 140 mg/kg, respectively). The groundwater monitoring well at the pump station area exhibited no TPH or semivolatile organic compound contamination and only trace lead concentration (12 micrograms per liter [μg/L]).

The Draft Alternative Analysis investigated remedial action alternatives to address the contaminated soils at the pump stations for development and wetland reuse scenarios.

Former Sewage Treatment Facility: A sewage treatment facility was located at Hamilton Army Airfield until 1986 after which time all sanitary wastes were pumped to the Novato Sanitation District. Since then, all buildings have been demolished; only the three sludge drying beds remain. Sampling of the sludge drying beds for metals and pesticides/herbicides was recommended in the Enhanced PA. One monitoring well, 3 surface water sampling locations, 3 sediment sampling locations, and 8 soil sample locations were installed during the Environmental Investigation. TPH was detected in the partially remediated sludge drying beds, at a maximum concentration of 2,600 mg/kg. Volatile organic compound (toluene), semivolatile organic compounds, metals (barium, cadmium, copper, and mercury), pesticides, and PCBs were also detected in the former sludge drying bed soils. Semivolatile organic compounds and lead were detected in pond sediments adjacent to Building 40. Semivolatile organic compounds were also detected in sediments in the area. One groundwater well contained 300 to 370 μg/L volatile organic compounds and 290 to 350 μg/L semi-volatile organic compounds including 230 μg/L phenol, 76 μg/L methyl ethyl ketone, 200 μg/L acetone, and 1.4 μg/L benzene. Elevated levels of lead were detected in sediment samples collected in the area of the former sewage treatment plant outfall (45.8 mg/kg).

In the Draft Alternative Analysis a number of remedial action alternatives were discussed to address the contaminated soils, sediment, and groundwater at the former sewage treatment plant for development and wetlands reuse scenarios.

East Levee Landfill: An inactive landfill is located between the east levee and the bay on both the Army closure and State-owned property. Ninety percent of the landfill is below sea level at high tides, which results in continual saturation of landfill soils. Soil trenching in the landfill conducted during the Hazardous Waste Confirmation Study in 1987 found low concentrations of TPH, volatile organic compound, semivolatile organic compounds, and some metals in shallow soils. The Enhanced PA investigations conducted in 1989 indicated that only construction-related debris had been deposited in the landfill. The Enhanced PA recommended the installation of two monitoring wells and the collection of groundwater samples. During the Environmental Investigation, 5 monitoring wells were installed at the east levee landfill; no significant soil contamination were found in samples from the wells borings. Groundwater analyses from all five wells showed only one organic detection, 28 μg/L of methyl ethyl ketone.

A number of remedial action alternatives were investigated in the Draft Alternatives Analysis to address the contaminated soils at the former construction debris landfill.

Aircraft Maintenance Area: The Enhanced PA identified the handling and storage of oils, fuels, and other aircraft-related liquids as potential contamination sources in the Aircraft Maintenance Area. The various hazardous substance and POL storage areas in the aircraft maintenance area are shown in Figures 3-1, 3-2, and 3-3 (see Section 3.1.2). The Enhanced PA recommended that soil samples should be collected from north of Building 87, east of Building 87 and at Storage Area 2. Sediment samples were recommended for the storm sewer located within and surrounding the maintenance building. The Enhanced PA also recommended that a groundwater well be placed immediately downgradient of Storage Area 3. During the environmental investigation, 3 monitoring wells, 6 soil borings, 2 test pits, and 7 storm sediment sample points were installed; semivolatile organic compounds and lead were detected in drain sediments. Maximum concentrations were 425 mg/kg semivolatile organic compounds and 690 mg/kg lead. Sediment samples were also collected from the south drainage ditch storm sewer outfall. Samples exhibited elevated concentrations of TPH (1,230 mg/kg), semivolatile organic compounds (17.9 mg/kg), and lead (168 mg/kg).

Test pits at Storage Area 2 exhibited TPH concentrations as high as 4,650 mg/kg. Toluene was also detected in one of the pits. Semivolatile organic compounds but no TPH was detected in test pit soils at Storage Area 3. TPH was detected in two soil borings at Storage Area 4; the maximum TPH concentration was 1,060 mg/kg. Trace amounts of volatile organic compounds, semivolatile organic compounds, and metals were detected in a well at Storage Area 2 and on the southwest side of Building 86. Metal concentrations were also elevated in groundwater samples from a well installed at Storage Area 4.

A number of remedial action alternatives were investigated in the Draft Alternative Assessment to address contaminated soils, sediments, and groundwater at the aircraft maintenance area for development and reuse scenarios.

JP-4 Lines: A 12-inch fuel line transported JP-4 from an offloading station in San Pablo Bay along the northern boundary of the airfield BRAC property to the POL Area BRAC property and POL areas located on the General Services Administration sale parcel. A 6-inch fuel line supplied JP-4 from the POL area to an aircraft fueling point consisting of additional fuel lines and four abandoned fueling stations along the airfield runway. The Enhanced PA recommended visual testing of aboveground portions of the line and leak testing of underground portions of the line to identify the presence of any releases from the fuel transport and distribution system.

During the environmental investigation, soil gas surveys were conducted along the 12-inch fuel line. Soil gas surveys and shallow soil sampling were conducted along the 6-inch fuel line and in the area of the abandoned fueling stations and associated fuel lines. Toluene, o-xylene and m-xylene were detected in varying concentrations at various locations along the 12-inch fuel line. The highest concentration was 106 parts per billion toluene at a location west of revetment 16. TPH and lead were detected in varying concentrations at various locations along the 6-inch fuel line and in the fueling station area. The highest concentrations were 123 mg/kg TPH and 160

mg/kg lead. Benzene and ethylbenzene were also detected near the southern portion of the 6-inch fuel line at concentrations of 638 parts per billion and 88 parts per billion, respectively.

A number of remedial action alternatives were investigated in the Draft Alternative Analysis to address contaminated soils associated with the Hamilton Army Airfield fuel lines and fueling stations for development and wetland reuse scenarios.

Aboveground Tanks: The Enhanced PA identified 11 aboveground tanks within the BRAC property: 2 tanks at the POL Area; 1 tank at Building 15; 1 tank at Building 26; 1 tank at Building 35; 1 tank at Building 39; 1 tank at Building 40; 1 fuel pod and 3 fuel tanks associated with Building 86.

The Enhanced PA also noted the former 840,000 gallon aboveground storage tank at the POL Area (which was removed in 1986) and the possible historical presence of aboveground tanks at the former sewage treatment plant. Staining was associated with aboveground tanks associated with the pump stations, particularly the one at Building 35. The report also noted prior investigations conducted at the former 840,000-gallon aboveground tank site at the POL Area where five of 27 soil samples indicated the presence of fuel hydrocarbons at levels exceeding 1,000 parts per million. The Enhanced PA recommended soil sampling at each of the pump station tank sites as well as at the POL Area.

The Technical Plan for the environmental investigation discussed an additional aboveground storage tank not identified in the Enhanced PA, located at Building 442 on Parcel A2. The plan indicates that Army personnel had reported leakage from the tank into a utility trench at the site in the past.

The environmental investigation evaluated potential releases from aboveground tanks at POL Area, the pump stations and the former sewage treatment plant and the Building 442 site. Investigations were not conducted for aboveground tanks at Buildings 15, 26, or 86 because no suspected releases were identified for these tanks in prior environmental assessment documents. Investigations conducted at the Building 442 aboveground storage tank site included the installation of 9 soil gas and 3 shallow surface sample locations at the site. Five soil borings were also made and groundwater samples were collected from an existing groundwater monitoring well in the area. Levels of TPH and benzene, toluene, ethylbenzene, xylene in the soil gas survey and near surface soil survey analysis results were below limits of detection. Analysis of deeper soil and groundwater near the tank indicated the presence of diesel fuel at the detection limit of the analysis method. Subsequent sampling of the groundwater by the U.S. Army Corps of Engineers, Sacramento District, yielded nondetectable results for TPH (diesel), TPH (JP-4), benzene, toluene, ethylbenzene, and xylene analysis. The preliminary assessment for Parcel A2 indicated that based on these data, it appears the residual groundwater underlying Parcel A2 is not contaminated by fuel residuals. The site was not considered in the Draft Alternatives Assessment.

Transformers: The presence of PCBs in transformers on the Army closure property is a potential concern due to the diverse nature of past activities prior to restriction of these compounds around 1977. A survey of electrical transformers at Hamilton Army Airfield was

completed in 1987 as part of the Confirmation Study for Hazardous Waste. Thirteen of the transformers tested were on BRAC property. Only one of the transformers sampled contained PCBs greater than 25 parts per million. This was a pole-mounted transformer located between Buildings 443 and 445 on the Parcel A2 BRAC property.

A visual inspection of the transformers on the Hamilton Army Airfield BRAC property was conducted during the Enhanced PA. No transformers were found leaking and no rusted transformer housings were noted.

An additional transformer sampling program was conducted during the environmental investigation. Fifty-four transformers of which 8 were found to contain PCBs at levels greater than the USEPA hazardous threshold of 50 parts per million. These units were located on concrete transformer pads outside Buildings 15 and 40, in a concrete contaminant outside Building 86, in the basements of Buildings 442 and 515, and on a telephone pole between Buildings 443 and 445. Thirteen transformers were found to contain PCBs at levels less than or equal to 50 parts per million and greater than or equal to 5 parts per million, which classifies them as hazardous under State of California regulations. Thirty-three transformers were found to contain PCBs at levels less than 5 parts per million.

During the environmental investigation, oil staining was noted on the concrete floor around the transformers in Building 515, the concrete pad for transformers at Building 40, in the concrete contaminant for transformers at Building 86, and on a transformer pad at the POL Area. Although no evidence of release was noted; one of the transformer housing for the pole-mounted transformers between Buildings 443 and 445 was observed to be rusting. Each of these locations has transformers contaminated with PCBs in excess of 50 parts per million. The transformers at the POL Area tested non-detect for PCBs. Two transformers located near the boat launch at the southeast corner of the runway could not be sampled because they were overturned and empty. Soil samples collected in the vicinity of these transformers tested non-detect for PCBs.

The Presidio of San Francisco has been notified of the leaking transformers found at the installation during the various surveys and site inspections. Funds are available to complete operation and maintenance on leaking transformers.

Asbestos: Because of the historic nature of Hamilton Army Airfield, it is likely that asbestos-containing materials were used in the construction or operation of the facilities. In 1989 an asbestos survey was conducted to determine asbestos-containing material at Hamilton Army Airfield. The survey identified 20 buildings on BRAC property with asbestos-containing materials. The Enhanced PA identified 29 sites in 9 buildings where immediate actions were needed to remove asbestos. The Enhanced PA also identified 149 sites in 22 building where additional inspection and maintenance of asbestos materials was required. Asbestos was not investigated in the environmental investigation or Draft Alternatives Analysis because further action related to asbestos is a operation and maintenance function outside the scope of such investigations.

Former Radiological Disposal Site: Two metal culverts containing electron tubes and wave guides were buried in the northeast corner of the airfield BRAC property at an undetermined

time. The culverts were recovered by Chem-Nuclear under contract to the U.S. Army in 1988. Exhumation generated 13 drums of low-level radioactive waste which was disposed to a licensed burial site. The site was subsequently released to unrestricted use by the U.S. Army Corps of Engineers. The Enhanced PA and Environmental Investigation Technical Plan concluded that no further action was required at the site because it was fully remediated.

Bombing Range: A verbal report in the Enhanced PA indicated possible bombing areas at Hamilton Army Airfield. One was reportedly located near the East Levee Landfill, one north of the revetment area, and one at the northwestern end of the runway. These areas reportedly extended to non-Army properties. No other information learned during the course of the Enhanced PA investigation substantiated the bombing range claim.

The Enhanced PA recommended further document reviews to determine whether the reported ranges existed. Record reviews were conducted during the completion of the Environmental Investigation Technical Plan. No evidence could be found to substantiate the presence of the ranges. The Technical Plan therefore indicated no further action for the site.

There has been no additional evidence to support the presence of bombing ranges on the Hamilton Army Airfield BRAC property identified during any subsequent investigations. The presence of such ranges was not identified in the USEPA analysis of aerial photographs of the property taken between 1952 and 1987. No physical or documented evidence of a range was identified during the environmental investigation. No records on the discovery of bombing range related materials in the plowed farmlands around the Hamilton Army Airfield have been identified. Physical evidence or other records of bombing ranges were not identified during the CERFA windshield, walk-through, and aerial site surveys.

Hamilton Army Airfield is an unlikely location for a bombing range. It is not large enough to provide a safe bombing area. In addition, the surrounding property has historically been used for farming and residences. The operation of a bombing range in these surroundings is atypical. The lack of substantiating documentation or physical evidence for the ranges identified in any of the site investigations conducted since the Enhanced PA and in conjunction with the unlikelihood of the site as a bombing range due to safety considerations support the Environmental Investigation Technical Plan conclusion that there never was a bombing range at Hamilton Army Airfield.

Underground Storage Tanks: The Enhanced PA identified the former or current presence of more than 29 underground storage tanks located on the BRAC property as follows: 21 tanks removed from the POL Area in 1986; possible tanks at Buildings 26, 35, 38, 39, 40, 41, and 521 and under the aircraft runway; and possible tanks removed from the former sewage treatment plant.

The Enhanced PA recommended soil boring/samples and groundwater samples at the POL Area; it also recommended that the presence of other tanks be confirmed through excavation or geophysical testing, and that those tanks left in place be tested for leaks.

The Environmental Investigation Technical Plan indicated underground storage tank identification and management lies beyond scope of the study. However, the plan and subsequent environmental investigation did consider underground storage tank releases at the POL Area, and the pump station area and the former sewage treatment plant (see Sections 4.1). The environmental investigation confirmed the presence of one underground storage tank at Building 41.

PCB Drum Release: On November 2, 1989, an abandoned 55-gallon drum was discovered in the northern corner of the airfield BRAC by property security personnel. The drum was dumped in a low unpaved area just inside the earthen levee that surrounds the airfield. The drum was found lying on its side with several holes in it from which a black oily substance leaked onto the ground. The U.S. Coast Guard Pacific Strike Team, which is stationed at Building 85, sampled the contents of the drum and found PCBs at levels of 2,000 parts per million. The drum and plastic bag were removed and properly disposed of in the summer of 1990. Soil samples collected near the drum were uncontaminated by PCBs. As a result, the Environmental Investigation Technical Plan indicated that no further action was needed.

Radon in Buildings: A radon survey has not been conducted on the BRAC property. The Environmental Investigation Technical Plan recommended radon screening of buildings on the Hamilton Army Airfield BRAC property which were or had the potential for frequent occupancy. Prior to the initiation of the Environmental Investigation field effort, additional investigations were conducted to determine the necessity of radon testing at Hamilton Army Airfield. Radon test data for the Navy housing unit located adjacent to BRAC property was evaluated; test data did not indicate the presence of radon above 4 picoCuries. Interviews were also conducted with U.S. Geological Survey representatives who indicated that radon is not present in BRAC property geologic formations. As a result, it was determined that no further action was necessary in connection with radon. Radon was eliminated from the environmental investigation scope of work.

4.2 Additional Areas Identified by CERFA Investigation

4.2.1 Existing Area Requiring Environmental Investigation That Have Expanded in Size

A number of areas requiring environmental evaluation that were identified in the Enhanced PA and final environmental investigation report have expanded in number of sites, presence or extent of releases, or other characteristics. These areas which includes underground storage tanks, hazardous substance and POL storage areas, and revetment turnouts are described in this section. Areas requiring environmental evaluation where remediation has occurred since the time of the environmental investigation are described in Section 4.5.

Electrical Power Generation Buildings Underground Storage Tanks: Buildings 20 and 48 contained electrical power generators used to supply power for airfield activities such as runway lighting. Fuel for such generators was typically provided by underground storage tanks or aboveground tanks (see descriptions of Buildings 15 and 26). Such fuel storage facilities are therefore expected at Buildings 20 and 48. However, tanks were not identified at these buildings in prior environmental documents. There was no physical evidence of these storage tanks noted

at the time of the CERFA site visits. The tanks may have been present and subsequently removed; if they are underground storage tanks, they may have had visible aboveground piping (vent pipes and fill) disconnected.

During the CERFA site visits undocumented evidence of a possible release was noted at Building 26. Soils behind the building a lacked vegetation and had a petroleum odor. An abandoned underground fill pipe was also noted in the area.

Building 41 Underground Storage Tank: One underground storage tank has been documented at Building 41. Installation personnel indicate the presence of a second underground storage tank at the location during the first CERFA site visit. Evidence of two underground storage tank filler pipes were also noted at the site during the CERFA site visit.

Facility personnel indicated that a leak was detected in one of the underground storage tanks at Building 41. The release was reported to the appropriate regulatory authorities and was taken out of service February 1993; it is not known whether the leak was from the underground storage tank identified in the Enhanced PA or if the leak is from the second underground storage tank reported to be located at Building 41.

Aboveground Fuel Storage Tanks: Five previously unidentified aboveground tanks were noted during the CERFA site visits. An aboveground tank with an estimated capacity of 250 gallons was observed outside Building 15, a former electrical power generator building. The tank was empty. There was no visual evidence of releases from the tank. An aboveground tank with an estimated capacity of 250 gallons was observed inside Stormwater Pump Building 35. An aboveground tank with an estimated capacity of 250 gallons was observed mounted to the outside of the east wall of Building 39. The tanks contained product at the time of the CERFA site visit. An aboveground tank with an estimated capacity of 500 gallons was observed outside Building 41 during the CERFA site visit. Finally, an aboveground tank with an estimated capacity of 250 gallons was discovered inside Building 26.

POL and Paint Storage and Disposal: The Enhanced PA identified a number of buildings and storage areas where POL products and wastes and hazardous materials and wastes were generated and stored. Several storage and disposal locations that were not identified in the Enhanced PA were noted during the CERFA investigation.

The installation real estate inventory identifies Buildings 84, 90, and 93 as the site of a former aviation maintenance shop. As such, they were likely to have had storage for POL, flammables, and paint. In addition, installation personnel indicated that Building 90 had been used as a drummed POL storage building. During the second CERFA site visit, a rusted locker was also noted discarded in the back of Building 26. Several old 1-gallon cans of paint were observed in the locker.

Two POL storage areas not previously identified were observed during the CERFA site visits. The first area was located in an unpaved area at the northwest corner of Building 40 in the stormwater pump station area. At the time of the site visit the drums stored at the location had been removed. Indentations in the ground indicated that at least six drums had been stored in

the area. Information on the content of the drums and the length of time they had been stored in the area was not determined. Evidence of releases from the storage area (consisting of stained soil in an area approximately six square feet) was noted at the time of the CERFA site visit.

The second storage area was located at the base of Building 41 (under its southwest corner), also in pump station area. The storage area consisted of a single spigoted drum of turbine oil placed in a drum-dispensing rack. The drum was located on a concrete pad. Information regarding the length of time the drum had been stored in the location was not determined. During the CERFA site visits, it was observed that the staining on the concrete pad below the drum dispensing rack extended to the edge of the pad and onto the unpaved ground.

Changes have also occurred in relation to JP-4 fuel storage facilities at the aircraft maintenance area. The 1,000-gallon, 1,200-gallon, and 2,400-gallon capacity trucks reported in the Enhanced PA have been replaced with one 5,000-gallon truck. The truck is parked northwest of Building 86. Two 5,000-gallon fuel trailers have replaced the former 600-gallon fuel pod located east of Building 87.

Revetment Turnouts: Four unpaved aircraft revetment turnouts were noted in historical aerial photographs reviewed during the CERFA investigation; they were also shown in historical installation maps not in the previous environmental reports. The unpaved revetment areas include revetment turnouts 9, 11, 12, and 23. Aerial photographs of these areas indicate the presence of staining. It is likely that the unpaved revetment turnouts exhibit TPH soil contamination similar to that identified at the paved revetments in the installation Environmental Investigation.

4.2.1 Additional Areas Identified by the CERFA Investigation

One new environmental concern consisting of two ditch sediment dredge disposal sites was identified during the second CERFA site visit conducted in March 1994.

The installation's perimeter drainage ditch was reportedly dredged in 1992 and again in the fall/winter of 1993/1994. Spoils from the 1992 dredging were deposited in various locations along the north side of Perimeter Road, just to the west of Building 20. Spoils from the 1993/1994 dredging were deposited in the Revetment Area, on the south side of the revetment taxiway, between Revetments 10 and 7. An estimated 200 cubic yards of spoils have been deposited in this area.

The dredge spoils were observed to consist of sediment and vegetative matter that has built up in the bottom of the concrete ditches. The character of the dredge material has not been identified. The dredge spoil material may be a concern if it contains contaminants from the aircraft storm drainage system or other drainage sources.

4.3 Adjacent and Surrounding Properties

Several properties of different ownership and/or administration surround the airfield, POL Area, and Hospital Hill BRAC properties. The airfield BRAC property is bounded by State-owned land, privately owned farmland, and the Ignacio Reservoir to the north; State-owned land to the

east; privately owned farmland to the south; and the General Services Administration sale parcel to the west. A parcel owned by the U.S. Coast Guard is also located to the west of the airfield BRAC property. A residential development (Bel Marin Keys) and a commercial and light industrial park are located approximately 1-mile north of the airfield, buffered by the State-owned land, privately owned farmland, and the Ignacio Reservoir, respectively. The POL Area, Parcel A2, and Parcel A3 BRAC properties are surrounded by General Services Administration sale property. The Hospital Hill BRAC property is surrounded by the General Services Administration sale property and the U.S. Navy housing property.

4.3.1 Existing or Potential Pathways of Contamination Migration

Topographic and hydrogeological information for the Hamilton Army Airfield BRAC property provided in existing environmental documents was reviewed to assess potential contamination migration pathways onto the property from adjacent properties. This information was used in combination with data on potential contamination sources on adjacent and surrounding property to determine if there were any existing or potential environmental impacts on the Hamilton Army Airfield BRAC property from off-site sources. Contamination source data were obtained through record searches, review of existing environmental reports, personnel interviews, and property site visits. The result of these adjacent and surrounding property evaluations are described below.

Potential pathways of contamination onto the BRAC property are from stormwater runoff and groundwater migration. Onsite drainage onto the BRAC property occurs in several locations. The same system that services the airfield portion of the BRAC property, the POL Area, Hospital Hill, Parcels A2 and A3 BRAC properties also provides drainage for the hangar and building complex on the General Services Administration sale parcel, Landfill 26 on the General Services Administration Sale Property and the U.S. Coast Guard parcel. In addition, the drainage ditch located on the airfield BRAC property, outside of the south levee, is fed by surface runoff from the U.S. Navy housing unit and farmland located to the south. A 2,575 foot gap exists in the northern levee and subjects the BRAC property to the same flooding from the State-owned tidal wetlands. Finally, during high tides, when the Novato Creek backs up, the excess water flows into the Ignacio Reservoir and then through siphons in the west levee into the airfield northern drainage ditch.

In general, groundwater flow onto the BRAC property is not expected to be significant. Most of the airfield BRAC property and Parcels A2 and A3 are in an area of low hydraulic conductivity as a result of the underlying Bay Mud in the area. This may inhibit rapid movement of groundwater to this portion of the BRAC property.

The Hospital Hill BRAC property is in an area that is likely to be more hydrogeologically active than the airfield area. Soils in the area are sandy and gravelly loams that tend to have a higher hydraulic conductivity than relatively impermeable Bay Mud. No groundwater mapping has been conducted in the area. However, the Hospital Hill area is located on a minor topographic high. Groundwater flow may follow the local topography in the area, subsequently flowing away from the Hospital Hill BRAC property.

4.3.2 Environmental Concerns from Adjacent and Surrounding Properties

In order to identify potential offsite contamination sources for the Hamilton Army Airfield BRAC property, a records search of Federal and State data bases (see Section 2.2) was conducted. The results of this search are provided in Appendix B. The search indicated the following:

- ★ No National Priority List or CERCLA sites are located within a 2.5-mile radius of BRAC property.

- ★ No RCRA treatment, storage, or disposal facilities are located within a 2.5-mile radius of BRAC property.

- ★ No RCRA large-quantity generators are located within a 1-mile radius of the BRAC property. Thirteen large-quantity generators are located within a 2.5-mile radius of the site. Most of these are situated in the commercial/light industrial development northwest of the installation. One RCRA small-quantity generator was identified within 1-mile of BRAC property. The generator is the U.S. Coast Guard facility located at Building 390, adjacent to the airfield BRAC property. Activities on this adjacent property and possible impacts on BRAC property are described in more detail in Section 4.3. An additional 12 small-quantity generators are located within a 2.5-mile radius of the site. Most of these are also situated in the commercial/light industrial development northwest of the site.

- ★ One hazardous spill within a 2.5-mile radius of BRAC property was reported in January 1992. The spill, which occurred 1.2 miles northwest of the installation, was of an unknown quantity of sulfuric acid from an unknown source.

- ★ Two underground storage tank sites are on record within 1-mile of BRAC property. Six tanks are reportedly located at the U.S. Navy Exchange, approximately 0.5-mile west of BRAC property. Two additional tanks are reportedly located at the Novato Chlorination Station, situated on land north of the airfield BRAC property. Activities on this adjacent property and possible impacts on BRAC property are described in more detail in Section 4.3. Thirteen additional tank sites are located within 2.5 miles of Hamilton Army Airfield, 6 of which are reported to be leaking.

The surrounding properties with the environmentally significant operations described above (excluding the U.S. Coast Guard and City of Novato facilities) should not pose pathways of contamination to the site. All properties are located more than 1-mile away from BRAC property except for one, which is located more than 0.5 miles away. To date, environmental investigation have not indicated an on-site groundwater flow necessary for transport of contamination from these "remote" offsite sources to BRAC property.

Migration of contamination from these sources via surface water flow is also unlikely. Surface water flow on-site from these sources is circuitous and rarely occurs. The only possible pathway

is as follows: contaminant discharge either directly or indirectly via storm sewer into Novato Creek or the Ignacio Reservoir, contaminant transport across the length of the reservoir, and entry onto the airfield portion of BRAC property via siphons in the north levee. This can only occur during a high stormwater event. There is no environmental investigation data, spill reports, or other documentation indicating that such an event has occurred.

Some environmentally significant operations have occurred near and/or adjacent to the Hamilton Army Airfield BRAC properties. These activities and their existing or potential impact on BRAC property are described below.

POL Area 2: The former POL area is located north of the flight line fire station near West Boundary Road. The area is in the General Services Administration sale parcel approximately 500 feet west of the airfield BRAC property. The POL area contained five 25,000-gallon underground storage tanks used to store aviation gas. Two pump houses (Buildings 332 and 333) were located adjacent to the tanks. The pump houses and tanks were removed in 1986 by IT Corporation. Analytical results from soil samples from the tank excavations indicated volatile fuel hydrocarbon concentrations ranging from nondetectable to 992 parts per million. Groundwater sample analysis results from wells installed in the area indicated nondetectable levels of volatile fuel hydrocarbon. The tank site was closed without any further remedial action. Additional associated tank fuel line removals occurred in 1990 and move recently in the winter of 1994.

There is no information available on groundwater flow or current condition in the immediate area of the POL area. However, it is anticipated that because of the distance from BRAC property, the low hydraulic conductivity of the Bay Mud underlying the area, and the limited soil contamination and lack of groundwater contamination at the time of tank removal, the former POL area should not present an adverse environmental impact on BRAC property.

POL Area 3: The former POL area is located along Hangar Avenue, at the intersection with 2nd Street. The area is in the General Services Administration sale parcel approximately 550 feet west of the airfield BRAC property. The POL area contained twenty 25,000-gallon and one 500-gallon underground storage tanks, used primarily to store aviation fuel. The tanks and one building in the area (Building 308) were removed in 1986 by IT Corporation. Analytical results from soil samples from the tank excavations indicated volatile fuel hydrocarbon concentrations ranging from 5.2 to 220 parts per million. Groundwater sample analysis results from an existing well in the area did not indicate the presence of any contaminants. The tank site was closed without any further remedial action. Additional associated tank fuel line removals occurred in 1990 and move recently in the winter of 1994.

As with POL Area 2, there is no information available on groundwater flow or current condition in the immediate area of POL Area 3. However, it is anticipated that because of the distance from BRAC property, the low hydraulic conductivity of the Bay Mud underlying the area, and the limited soil contamination and lack of groundwater contamination at the time of tank removal, former POL Area 2 should not have an adverse impact on BRAC property.

Landfill 26: The former installation sanitary landfill is located west of the north end of the runway between Ammo Hill and Reservoir Hill. The landfill is in the General Services Administration sale parcel, approximately 800 feet west of the airfield BRAC property.

The landfill comprises an area of approximately 23 acres. Soil contamination including petroleum-related chemicals, metals, and semivolatile organics, chlorinated pesticides, and PCBs has been found below the landfill. Petroleum hydrocarbons, volatile organics, and metals have also been detected in groundwater below the site. This groundwater is primarily within a shallow unconfined zone associated with the refuse horizon.

The Army signed a Record of Decision for the remediation of Landfill 26 in 1989. Construction of a landfill cap began in April 1994. A groundwater pump and treat system has been installed to treat landfill leachate and the groundwater in the area. Wetlands destruction that will occur in the construction of the cap will be mitigated by flooding an area in the northern part of the airfield runway.

There is no evidence that the groundwater contamination associated with Landfill 26 has affected the environmental quality of BRAC property approximately 800 feet away. The ongoing remediation, as well as the distance of the site from BRAC property and the Bay Mud geology in the area, is likely to prevent contamination migration onto BRAC property in the future.

Building 750: Building 750, a former jet aircraft alert hangar constructed in 1952, was located at the foot of Ammo Hill to the west of the northern end of the airfield runway. The building site is the General Services Administration sale parcel approximately 400 feet from the airfield BRAC property. The building was razed in January 1994 to accommodate the Landfill 26 wetlands mitigation plan requirements.

Two 1,000-gallon underground storage tanks containing diesel fuel to power emergency generators were located at the site. The two tanks were removed in 1986 by IT Corporation. Analytical results from the tank excavations indicated the presence of POL-related contamination in soils and groundwater. The two tank removal sites were subsequently remediated. Contaminated overburden soils and excavation soils with a volatile fuel hydrocarbon concentration of 1,000 parts per million or greater were removed. When the building was demolished in early 1994, additional contamination was discovered in the rear of the building. It has been postulated that the contamination could have been caused by the washing and servicing of aircraft in the building. The U.S. Army Corps of Engineers is currently conducting investigations to determine the character degree and extent of contamination at the site.

There is no information available on groundwater flow or current condition in the immediate area of Building 750. Groundwater sampling has been completed by the USAEC in the area. However, analytical data were not available at the time of the CERFA investigation. It is anticipated that any residual contamination that may be present at Building 750 will have minimal impact on the environmental quality of the BRAC property. This is because low hydraulic conductivity Bay Mud underlies the area, groundwater contamination sources at the site have been removed, site is a significant distance (over 350 feet) from BRAC property.

Building 329: Building 329 is a former jet engine test cell constructed in 1959. The building, located at the foot of Reservoir Hill, to the west of the airfield runway, is situated in the General Services Administration sale parcel approximately 400 feet from the airfield BRAC property. Two abandoned aboveground tanks are located outside the building. The tanks may have stored jet fuel for use in engine testing operations. The tanks were inspected during the CERFA site visit. The size and current content of the two tanks were not determined. There was no visual evidence of release noted around either tank.

A former drum storage area was reportedly located at Building 329. Information on the exact location of the storage area, and the number and content of the drums, has not been determined. Soil samples collected from the former storage area during the conduct of the Confirmation Study for Hazardous Waste completed in 1987 indicated the presence of hydrocarbon contamination, including hydrocarbons at 15,000 parts per million and metals as high as 480 parts per million. Further sampling has not been conducted in the area.

There is no information available on groundwater flow or current groundwater condition in the immediate area of Building 329. Its impact is anticipated to be minimal because of the low hydraulic conductivity mud in BRAC property in the area and the distance from the site low (300 feet).

Airfield Industrial Area: A former industrial area is located southwest of the intersection of Hangar Avenue and 2nd Street northwest toward West Boundary Road in the Government Services sale parcel. Currently existing buildings in this area include Building 318, a former battery storage building, and Building 315, a former flammables storage building and paint shop. Former storage buildings for hazardous substances in the area include Buildings 305, 308, and 310, which have been removed. There are no reports of hazardous substance releases from operations conducted in and around these buildings. Buildings 315 and 318 were empty at the time of the CERFA site visit.

Several former POL areas are located in the airfield industrial area. Three 10,000-gallon underground storage tanks and one 100-gallon underground storage tank that provided fuel for installation vehicles were located at the former location of Building 304, approximately 990 feet west of the airfield BRAC property. Three vaulted tanks were also located adjacent to Building 315: a 750-gallon tank used to store kerosene, and two 2,000-gallon tanks used to store solvents.

All seven tanks were reportedly removed in 1986 by IT Corporation. Analytical soil sampling in the underground storage tank excavation indicated the presence of volatile fuel hydrocarbon at 30 parts per million. Analytical results from groundwater samples in the tank excavation and a nearby well indicated 8.1 parts per million volatile fuel hydrocarbon and 2.0 parts per million volatile fuel hydrocarbon, respectively. Analytical results for samples collected from below the vaulted tank floor indicated negligible contamination of soils and nondetectable levels of groundwater contamination. The underground storage tank sites were closed without further remediation.

There is limited information available on groundwater flow or current condition in the Airfield Industrial Area. Based on available information, it is unlikely that any residual contamination from the airfield industrial area has or will impact the BRAC property. The site is in an area of low hydraulic conductivity Bay Mud, there is limited residual groundwater contamination from area sources, and potential contamination source points (former POL areas) are more than 700 feet from BRAC property.

Hangar Row: Hangar Row is the General Services Administration sale parcel between Hangar Avenue and Hangar Drive to the west and the airfield BRAC property to the east. A number of aircraft hangars and other buildings are located in this area. Most of the Hangar Row buildings are currently vacant. The only exception is Building 390, which is currently occupied by the U.S. Coast Guard Pacific Coast Strike Team.

It is probable that some aircraft maintenance activities and hazardous substance/waste storage occurred in and around the currently vacant hangar buildings when the airfield was in full operation. There are records of spills or other releases associated with such activities.

A number of environmentally significant operations occur at the U.S. Coast Guard facility adjacent to the airfield BRAC property. POL products, paints, batteries, and battery acid are stored in bermed areas between Hangars A and B on the north side of the building. A bermed 1,000-gallon aboveground tank used for the storage of waste oil and a 554-gallon aboveground tank used for the storage of diesel fuel are also located in this area. At the time of the CERFA site visit several drums of POL product were also observed outside the berm in the same area. Various small quantities of flammables are stored in cabinets inside the hangar building. A small 30-gallon parts cleaner is also located in the building. The U.S. Coast Guard unit has its own USEPA hazardous waste generator ID number and is classified as a small-quantity generator.

There is no visual or documented evidence of environmental impact on BRAC property from operations currently conducted at the U.S. Coast Guard facility. There are no spills or other releases associated with the U.S. Coast Guard activities on record and there was no evidence of significant spills or other releases in the area of the U.S. Coast Guard hangar at the time of the CERFA site visit.

Three underground storage tanks and two underground grease traps have been documented in the Hangar Row area. The first tank was located near the north corner of Hangar 365, approximately 100 feet west of the airfield BRAC property. The tank was 5,000-gallons in size and was used to supply fuel oil to operate two standby airfield lighting generators. The tank was removed in 1986 by IT Corporation. Analytical results of water samples collected from the tank excavation indicated the presence of low levels of semi- and non-volatile fuel hydrocarbon (12 parts per million). Analytical results of water samples collected from an existing down gradient well indicated less than 0.05 parts per million semi- and non-volatile fuel hydrocarbon and nondetectable levels of volatile fuel hydrocarbon. The tank was closed without further remediation.

Two 1,000-gallon gasoline tanks, two concrete grease traps, and a gas pump dispenser island were located on the north side of Building 141, approximately 200 feet west of the airfield BRAC property. The storage and dispensing facilities were removed in 1986 by IT Corporation. Analytical results of water collected from the tank and grease trap excavations demonstrated low levels of volatile fuel hydrocarbon, semi- and non-volatile fuel hydrocarbon, and PCBs (7.3 parts per million, 4.2 parts per million ,and 8.4 parts per billion, maximum respectively). The sites were closed without further remediation.

Based on available information, it is not anticipated that any residual contamination at the two tank/grease trap sites will have an impact on the environmental quality of BRAC property. The potential contamination sources have been removed, and the sites are in an area of low hydraulic conductivity Bay Mud soils.

City of Novato Dechlorination Plant: The dechlorination plant is located north of the north levee, an estimated 200 feet north of the airfield BRAC property. Data base search records indicate that two underground storage tanks are located at the plant. At the time of the CERFA site visit two aboveground tanks used for the storage of sodium bisulfide were observed at the site. No evidence of underground storage tanks was noted. The exact location, size, contents or condition of the reported underground storage tanks at the location has not been determined. Based on available information, it is not anticipated that such tanks would adversely affect the environmental quality of the BRAC property; they are over 200 feet away from BRAC property and in an area within low hydraulic conductivity Bay Mud soils.

Adjacent Farmland: Land used for agricultural purposes is located to the north and south of the airfield BRAC property. The drainage ditch located on the airfield property outside the south levee collects surface water from the southern farmlands. In addition, a 2,575-foot gap in the northern levee subjects the airfield BRAC property to flooding from the Ignacio Reservoir and the State-owned tidal wetlands. The on-site run-on in these locations may contain residual pesticides from agricultural operations. However, no analytical data are available to determine whether this has occurred.

In summary, a number of environmentally significant operations have occurred or continue to occur on properties ranging in distance from directly adjacent to 0.25 miles from the BRAC property. These operations include the underground and aboveground storage of POL products, hazardous substances and wastes; aircraft and vehicle maintenance and fueling operations; and landfill operations. Although there have been both soil and groundwater releases from many of these operations, most have undergone or are undergoing remediation. Based on currently available environmental investigation results and hydrogeologic data, it is unlikely that any residual contamination present at these sites has migrated or has the potential to migrate to BRAC property.

4.4 RELATED ENVIRONMENTAL, HAZARDS, AND SAFETY ISSUES

Military installations frequently raise concerns the USAEC believes fall outside of the provisions of CERFA. For example, while a release of lead-based paint to the ground may be a CERCLA concern, the application of lead-based paint to a building surface generally is not. However, lead-based paint applied to buildings may represent a safety hazard to young children. Similarly, other substances or materials commonly applied to or found in buildings (for example, radon and asbestos) may not be explicitly regulated under CERCLA; however, it may be necessary to notify potential transferees and lessees that they exist.

USAEC has sought to balance the statutory requirements of CERFA with the law's intent to identify uncontaminated property to the public that can be expeditiously reused. Notice has been provided for those parcels that appear to be uncontaminated under the definition provided in CERFA, but which may contain environmental, hazard, or safety issues. Buildings that contain asbestos-containing materials, lead-based paint, or naturally occurring radon fall into this category and are identified as "CERFA Parcels with Qualifiers" in this CERFA Report. Parcels containing stored (not in use) equipment that contains some level of PCB oil, stored low level radionuclide-containing equipment such as dials and weapon site posts, and unexploded ordnance are also designated "CERFA Parcels with Qualifiers."

In those cases, however, where (for example) asbestos or PCBs have been disposed in the environment, the parcel has been identified as "CERFA Disqualified." In this example, the designation indicates that a CERCLA hazard may exist at this location. The following discussion addresses the presence of asbestos-containing material, lead-based paint, PCB storage, radon, unexploded ordnance, and radionuclides.

4.4.1 Asbestos

An asbestos survey was conducted in 1989 to locate, identify, and recommend appropriate abatement action for asbestos-containing materials at Hamilton Army Airfield. Thirty buildings were surveyed; storage conexes were not included in the survey. All were found to contain asbestos. Buildings 20, 40, 145, and 516 in BRAC property were not surveyed. Buildings 20, 40, and 145 are small electrical generating and utility buildings made of concrete blocks, corrugated metal, and wood, respectively; Building 516 is a small storage building made of concrete. There was no visual evidence of asbestos-containing materials in these buildings at the time of the CERFA site visit. Asbestos in buildings at the Hamilton Army Airfield BRAC property is managed in place. There have been no significant asbestos abatements on BRAC property.

In addition to the asbestos containing buildings, the former sewage treatment plant outfall pipe has been found to contain asbestos. The majority of the pipe is underground or under water. The pipe does not represent an environmental hazard in its current condition.

4.4.2 Lead-based Paint

There has been no lead-based paint survey of buildings at Hamilton Army Airfield. In order to quantify those buildings that may contain lead-based paint, structures built prior to 1978 were considered to contain lead-based paint. Based on the Hamilton Army Airfield real property inventory, all the buildings on BRAC property were constructed prior to 1978. The construction dates for the five metal storage conexes at the installation at the time of the first CERFA site visit in September 1993 conexes 86A, 94A, 94B, 94C, 94D, and 87A) are not known; they may also contain lead-based paint. Conex 86A, 94C, and 94D were not present at the time of the second CERFA site visit in March 1994.

4.4.3 Polychlorinated Biphenyls

Transformers that contain PCBs and that have not leaked have not been considered in this CERFA investigation. Several PCB transformers on BRAC property have historically leaked or were leaking at the time of CERFA visit. These areas requiring environmental evaluation are classified as hazardous releases and have been described in previous sections of this report.

A single 55-gallon drum of PCB-contaminated oil was improperly disposed in the northern end of the airfield BRAC property. The drum was found leaking on October 2, 1989; it was removed from the site and properly disposed. Soil sampling conducted around the drum did not indicate the presence of PCBs (see Section 4.1). The drum was not left in the location for the one year time period necessary to constitute the area as an actual "storage area" for a CERCLA hazardous substance as defined in this CERFA Report.

4.4.4 Radon

A radon survey has not been conducted on BRAC property. However, radon is not considered to be an environmental concern at Hamilton Army Airfield. Survey results for the adjacent Navy property were negative and information provided to the environmental investigation by U.S. Geologic Survey representations indicate that radon is not found in the region due to the geology of the area.

4.4.5 Unexploded Ordnance

A newspaper report indicated the presence of buried unexploded ordnance in unspecified locations of the airfield BRAC property (see Section 2.6). The alleged dumping reportedly occurred approximately 30 years ago and consisted of the deposition of four truckloads of ammunition including .50 and .45 caliber bullets and 40-mm canon shells. Anecdotal evidence collected during Enhanced PA investigations indicates that the Hamilton Army Airfield also had a former bombing range.

The presence of the buried ammunition and bombing range are unsubstantiated. There has been no evidence of either unexploded ordnance issue in other Hamilton records other than the individual ones noted above. USEPA analysis of aerial photographs of the site taken in 1952, 1968, 1972, and 1987 did not identify any potential bombing sites. No evidence of unexploded

sites or bombing ranges were identified during the environmental investigation. No visual evidence indicating the presence of a former bombing range was identified during the aerial flyover conducted during the CERFA investigation. In addition, there has been no documented reports of the discovery of any unexploded ordnance in adjacent farmlands as would be expected if the installation had a former bombing range.

4.4.6 Radionuclides

Medical facilities were formerly located in a number of Hospital Hill BRAC property buildings: Building 511 is currently used as a U.S. Coast Guard medical and dental clinic. Clinic personnel utilize one Kodack RP X-0 Mat Model x-ray machine located in the basement of Building 515.

Two corrugated-metal culverts containing electron tubes and waveguides were previously located in the airfield BRAC property south of the northern levee beyond the runway overrun. The cylinders were recovered and the low-level radioactive material was removed from the property in 1988 and properly disposed. The USAEC released the site for unrestricted use.

A thorough review of Army records relative to possible radiological materials of Hamilton Army Airfield was conducted by the Army Environmental Hygiene Agency. In addition, telephone interviews were conducted with representatives of the U.S. Air Force including the U.S. Air Force Radioisotope Committee, Low Level Radioactive Waste Office, and Air Force Center for Environmental Excellence. With the exception of the low-level radiological waste cylinder described above, there were no records regarding the use, storage, or disposal of radiological materials at Hamilton Army Airfield identified.

4.5 REMEDIATION EFFORTS

Most of the environmental effort at Hamilton Army Airfield BRAC property has been spent in investigations to determine the degree and extent of possible contamination. A Draft Alternative Assessment report that analyzes various remediation alternatives for the contaminated areas of the BRAC property was prepared in January 1993. Cleanup methods for the aircraft maintenance area, revetment area, burn pit, east levee landfill, stormwater pump stations, former sewage treatment plant and the former POL Area are identified in the report.

Six remedial activities have been conducted on the BRAC property:

- ***POL Area***: Twenty-one underground storage tanks and the 840,000-gallon above storage tank-2 at the area were removed in 1986 by IT Corporation as part of a POL Area remediation completed by the USAEC. A 25,000-gallon aboveground storage tank, a pipeline associated and several concrete fuel islands in the area were removed by IT Corporation in 1990. These buildings formerly used to store POL products and waste (Buildings 736, 737, and 738) were removed in 1993.

  POL storage and handling at the POL Area resulted in soil, bedrock, and groundwater contamination. Remediation of the site to date has consisted of soil

and rock excavation. During the tank removals, soil containing fuel hydrocarbons in excess of an established cleanup level of 1,000 parts per million were excavated. In addition, soil was excavated from the aboveground storage tank-2 hillside bench area and replaced with clean backfill. In 1990, further remediation was done using a cleanup criterion of 100 parts per million fuel hydrocarbons. Under the direction of USAEC a total of 24,000 cubic yards of contaminated soil and rock was removed and replaced with clean borrow material.

A final soil and rock removal effort was conducted in 1993. Some soil and rock with residual contamination were excavated in preparation for the construction of a groundwater treatment plant building to be used to treat contaminated possibly, groundwater and leachate from Landfill 26 and groundwater from the POL Area.

- ★ ***Former Sewage Treatment Plant:*** The former sewage treatment plant located on the airfield BRAC property was demolished in 1987. Buildings 42, 43, 44, and 45 were razed and all associated underground storage tanks and aboveground tanks were removed. An undetermined amount of sludge from the former sludge drying beds was also removed. Soil and groundwater contamination still exists at the site.

- ★ ***PCB Drum:*** The leaking PCB drum found in the northern portion of the airfield BRAC property was removed and properly disposed. Analysis of soils in the area of the leaking drum reportedly indicate that the area is not contaminated with PCBs.

- ★ ***Radiological Disposal Site:*** The two buried metal cylinders formerly used for low level radiological material disposal were exhumed and properly disposed off-site in 1988.

4.6 CERFA-EXCLUDED PARCELS

Real property exclusions consist of those parcels to be retained by the Army or other Department of Defense agency (CERFA-Excluded, BRAC property), or property that will be transferred to another Federal agency with restrictions, by statute. A 1992 Department of Defense Appropriations Act/Public Law 102-396 mandates that the Army make five parcels at Hamilton Army Airfield available for sale to the New Hamilton Partners. These parcels include the POL Area and Parcels A2, A3, A5, and A6. The POL Area has been removed from consideration as part of this transfer due to the ongoing remedial actions occurring at the site. Preliminary assessment screenings of Parcels A2, A3, A4, and A5 found that all but Parcel A5 were currently suitable for transfer. Parcel A5 required remediation of a contaminated wastewater inlet at the aircraft washrack on the property. Steam cleaning of the inlet was completed in the summer of 1993. Sampling conducted in March 1994 reportedly indicates the site has been remediated. A finding of suitability for transfer is anticipated for Parcel A5 in the near future. All four parcels are expected to be transferred before the end of the fiscal year 1994. Because these properties are being retained by the Army for legislatively mandated transfer to the New Hamilton Partners, they are considered as excluded properties.

5.0 SITE PARCELIZATION

After reviewing investigation documents, regulatory records, personnel interviews, and visual inspections, TETC identified parcels on the installation as CERFA Parcels, CERFA Parcels with Qualifiers, CERFA Disqualified Parcels, or CERFA-Excluded Parcels in accordance with the definitions in Section 1.2. The parcels are delineated on a map of BRAC portion of the installation using a 1-acre square grid for boundary definition. The Army chose a 1-acre grid system to aid in the presentation of data gathered during the CERFA report investigation, and to facilitate use of the document by reuse groups and others. The 1-acre grid provided a consistent method to report and locate environmental or other concerns. In the many cases where the concerns are much smaller than 1-acre, the grid system simplifies depiction of the concern. Accordingly, the size of many small areas of concern, such as underground storage tank sites, are liberally depicted in the CERFA report. Additionally, the 1-acre grid size was chosen as a generally redevelopable parcel size for either industrial or residential uses. However, the grid does not drive reuse nor restrict it. Reuse decisions should be made irrespective of the grid. The entire 1-acre grid square is colored or shaded to indicate the applicable parcel category on the basis of the history of storage or release for any portion of that square. Parcels are labelled according to a system outlined in Section 1.2 of this report to indicate the applicable parcel category and the contaminating circumstances. Parcel labels are connected to the respective parcel boundaries by a line or are located within the parcel boundaries.

Where CERFA Disqualified Parcels and CERFA Parcels with Qualifiers have coincided, the overlapped area has been designated CERFA Disqualified. Labels for any such overlapped parcels also indicate the presence of the qualifying hazards. CERFA-Excluded Parcels have been excluded from this investigation of contaminant locations and therefore do not overlap with CERFA Disqualified Parcels or CERFA Parcels with Qualifiers. Structures within CERFA Disqualified parcels that contain qualifying safety hazards are designated with the applicable qualifying label, where map scale permits this level of detail.

TETC's investigation and subsequent parcelization of Hamilton Army Airfield determined that approximately 523 acres of the facility fall within the CERFA Parcel category. Approximately 15 acres of the facility are categorized as CERFA Parcels with Qualifiers. One hundred and fifty-five acres constitute the CERFA Disqualified portion of the installation and the remaining 9 acres are designated CERFA-Excluded because of legislatively mandated transfer (Public Law 102-396) of Parcels A2, A3, A5, and A6 to the New Hamilton Partners. The CERFA Parcels are located predominantly in the south central and northwestern portions of the airfield BRAC property along the runway.

In determining the applicable parcel categories for the installation property, TETC observed the following guidelines provided by USAEC for specific circumstances:

- ★ Buildings constructed prior to 1978 are assumed to contain lead-based paint. A similar assumption is made for asbestos in buildings constructed prior to 1985.

- ★ Storage of petroleum products, petroleum derivatives, and CERCLA-regulated hazardous substances will prevent an area from becoming a CERFA Parcel as long as that storage is for one year or longer. The quantity of substances stored is not relevant to determining the applicable parcel category. However, if the operation requiring such substances is in the immediate area, and the storage is in limited quantities for immediate use, the area is not precluded from being a CERFA Parcel.

- ★ Nonleaking equipment containing less than 50 parts per million PCBs does not preclude an area from becoming a CERFA Parcel. Nonleaking, out-of-service equipment with greater than 50 parts per million PCBs will place an area in the CERFA Parcel with Qualifier category. An area is designated CERFA Disqualified if there is a known release containing greater than 50 parts per million PCBs.

- ★ Areas where there are transport systems or equipment that handle hazardous substances or petroleum products (JP-4 fuel lines) and on which there has been no release, storage, or disposal of these substances are categorized as CERFA Parcels.

- ★ Ordnance disposal locations are designated CERFA Disqualified. This does not include ordnance impact areas that are designated CERFA Parcels with Qualifiers.

- ★ Routine pesticide and herbicide application in accordance with manufacturer's directions and chlorofluorocarbons and halon in operational systems do not preclude an area from becoming a CERFA Parcel.

State and Federal (when applicable) comments on the draft CERFA report were incorporated into the final CERFA report. These comments are provided in Appendix C.

5.1 Parcel Designation Maps

Table 5-1 and Figure 5-1 identify the breakdown of the Hamilton Army Airfield property according to the criteria for parcel identification under CERFA. Appendix D includes the detailed database used to generate Table 8-1 and Figure 5-1.

5.2 Tract Map

The property boundaries and all property transfers, including prior ownership information, are shown in Figure 5-2.

5.3 Summary CERFA Maps

Figure 5-3 summarizes the breakdown of the Hamilton Army Airfield property according to the criteria for parcel identification under CERFA.

TABLE 5-1. Parcel Descriptions, Hamilton Army Airfield

PARCEL NUMBER	APPROX. SIZE (ACRES)	COORD (X,Y) ON FIG 5-1	LOCATION	CATEGORY	BASIS	APP. A REF(S)	REMEDIATION OR MITIGATION
1D-/PR(P)/HR	1	7,39	Former PCB Drum	Disqualified, Petroleum Release (P)	10/2/89 -- Release of TPH associated with Former PCB Drum	24	Sampling indicates soil uncontaminated by PCBs
				Disqualified, Hazardous Substance Release	10/2/89 -- Release of PCBs associated with Former PCB Drum	24	Sampling indicates soil uncontaminated by PCBs
2P	490	44,13		CERFA Parcel	No hazardous substances or petroleum products have been stored, released or disposed in this area.		
3D-/PR(P)/HR(P)	4	21,30	Dredge West of Building 20, North of Perimeter Road	Disqualified, Petroleum Release (P)	1992 -- 100 CY Release of TPH associated with dredge spoils West of Bldg 20, North of Perimeter Road	30	No odor. Vegetation has grown up through material
				Disqualified, Hazardous Substance Release (P)	1992 -- 100 CY Release of SVOCs, Lead associated with dredge spoils W. of building 20 and N. of Perimeter Road	30	No odor. Vegetation has grown up through material
4D-/A/L/PR/PS/HR	2	24,29	12 inch JP4 fuel line (SG8)	Disqualified, Petroleum Release	Release of TPH=51.8 ppm associated with 12 inch JP4 fuel line (SG8)	2, 13	
				Disqualified, Hazardous Substance Release	Release of m-xylene=96 ppb, lead=48 ppm associated with 12 inch JP4 fuel line (SG8)	2, 13	
		24,28	Building 20	Qualified, Asbestos	Asbestos Containing Material	30	
				Qualified, Lead	Lead-based paint associated with structure built in 1957	27	
				Disqualified, Petroleum Release (P)	Release of Diesel Fuel (TPH) associated with UST release	25	Tank no longer in service
				Disqualified, Petroleum Storage	Diesel Fuel (P) stored in UST -- Used from 1944 (P) to 1975(P)(Tank #20)	25	
5D-/A/L/PR/PS/HR	20	31,29	12 inch JP4 fuel line (SG67-SG37)	Disqualified, Petroleum Release (P)	Release of TPH associated with 12 inch JP4 fuel line (SG67-SG37)	2, 13	
				Disqualified, Hazardous Substance Release	Release of o-xylene=84 ppb, toluene=106 ppb associated with 12 inch JP4 fuel line (SG67-SG37)	2, 13	
		33,26	Building 15	Qualified, Asbestos	Asbestos Containing Material	26	
				Qualified, Lead	Lead-Based Paint associated with structure	27	
				Disqualified, Petroleum Storage	Diesel Fuel (P) stored in ~250 gal AGT -- Used from 1934 (P) to 1975(P)(Tank #10)	25	AGT is Empty
		38,25	Revetment 15	Disqualified, Petroleum Release	Release of TPH=63.5 ppm associated with Revetment 15	2, 12, 13, 33	Concrete revetment turnout limited infiltration
		37,27	Revetment 16	Disqualified, Petroleum Release	Release of TPH=27.4 ppm associated with Revetment 16	2, 12, 13, 33	Concrete revetment turnout limited infiltration
		35,27	Revetment 17	Disqualified, Petroleum Release	Release of TPH=139 ppm associated with Revetment 17	2, 12, 13, 33	Concrete revetment turnout limited infiltration
		33,27	Revetment 18	Disqualified, Petroleum Release	Release of TPH=15.8 ppm associated with Revetment 18	2, 12, 13, 33	Concrete revetment turnout limited infiltration

TABLE 5-1. Parcel Descriptions, Hamilton Army Airfield

PARCEL NUMBER	APPROX. SIZE (ACRES)	COORD (X,Y) ON FIG 5-1	LOCATION	CATEGORY	BASIS	APP. A REF(S)	REMEDIATION OR MITIGATION
6D-/A/L/PS/HR	1	29,28	Building 26	Qualified, Asbestos	Asbestos Containing Material	26	
				Qualified, Lead	Lead-Based Paint associated with structure	27	
				Disqualified, Petroleum Storage (P)	Diesel Fuel (P) stored in 1,000 gal UST -- Used from 1944 (P) to 1975(P)(Tank #25)	4, 25	
				Disqualified, Petroleum Storage	Diesel Fuel stored in ~300 gal AGT -- Used from 1944 (P) to 1975(P)	1	Inside Building
				Disqualified, Hazardous Substance Release	Release of Waste paint associated with Discarder locker behind building		Paint contained in locker
7D-/A/L(P)/PR/PS/HR	55	42,28	12 inch JP4 fuel line (SG84)	Disqualified, Petroleum Release (P)	Release of TPH associated with 12 inch JP4 fuel line (SG84)	2, 13	
				Disqualified, Hazardous Substance Release	Release of o-xylene=74 ppb associated with 12 inch JP4 fuel line (SG84)	2, 13	
		49,26	Building 35	Qualified, Asbestos	Asbestos Containing Material	26	
				Qualified, Lead (P)	Lead-Based Paint associated with structure	27	
				Disqualified, Petroleum Release	Release of Diesel Fuel (TPH=332,000 ppm) associated with AGT #6	25, 22, 2, 13	
				Disqualified, Petroleum Storage	Diesel Fuel stored in 5,000 gal AGT - First used in 1934 (P)(Tank #6)	22, 25	Tank Active
					Diesel Fuel stored in ~250 gal AGT - First used in 1934 (P)	25	ACTIVE - Located Inside Building
				Disqualified, Hazardous Substance Release	Release of SVOCs, lead=410 ppm associated with AGT #6	2, 13, 25, 22	
			Building 38	Qualified, Lead (P)	Lead-Based Paint associated with structure	27	
			Building 39	Qualified, Asbestos	Asbestos Containing Material	26	
				Qualified, Lead (P)	Lead-Based Paint associated with structure	27	
				Disqualified, Petroleum Release	Release of Diesel Fuel (TPH=166,000 ppm) associated with AGT #5	25, 22, 2, 13	Leaking pump noted during CERFA inspection
				Disqualified, Petroleum Storage	Diesel Fuel stored in 2,000 gal AGT - First used in 1934 (P)(Tank #5)	22, 25	Tank Active
					Diesel Fuel(P) stored in ~250 gal AGT - First used in 1934(P)(Tank attch. to W. side of bldg)	30	Tank Active
				Disqualified, Hazardous Substance Release	Release of SVOCs, lead=14 ppm associated with AGT #5	2, 13, 22, 25	
		49,23	Building 40	Qualified, Lead (P)	Lead-Based Paint associated with structure	27	
				Disqualified, Petroleum Release	Release of POL (TPH) associated with former POL drum storage area	25	Drums have been removed
					Release of Diesel Fuel (TPH=11,100 ppm) associated with AGT #7	2, 13	
				Disqualified, Petroleum Storage	Diesel Fuel stored in ~500 gal AGT - First used in 1934 (P)(Tank #7)	25	Tank Active
					Various POL stored in 440 gal drums -- Inactivated in 1993(P)(Storage Area)	25	Leaking Drums have been removed
				Disqualified, Hazardous Substance Release	Release of Metals, Chloride=13,000,000 ppb associated with sewage treatment plant pond	2, 13	
					Release of SVOCs, lead=23 ppm associated with AGT #7	2, 13	
		49,24	Building 41	Qualified, Asbestos	Asbestos Containing Material	26	
				Qualified, Lead (P)	Lead-Based Paint associated with structure	27	
				Disqualified, Petroleum Release	75 CY Release of POL (TPH=1570 ppm) associated with soil stockpiles	2, 13	
					Release of Diesel Fuel (TPH) associated with AGT	2, 13	
					Release of Turbine Oil (TPH) associated with turbine oil drum	25	Drum stored on concrete pad, staining runs off concrete into soil
					2/9/93 -- 100 gal Release of Diesel Fuel (TPH) associated with UST #23	25, 1-2, 31	
				Disqualified, Petroleum Storage	Diesel Fuel (P) stored in UST - First used in 1944 (P)(UST #23)	25	
				Disqualified, Petroleum Storage (P)	Diesel Fuel (P) stored in UST - First used in 1944 (P)	1-2, 31	
				Disqualified, Petroleum Storage	Diesel Fuel stored in ~500 gal AGT - First used in 1934 (P)(Unnumbered Tank)	25	Tank Active
					Turbine Oil stored in 55 gal drums(Dispensing rack under building)	25	Tank Active
				Disqualified, Hazardous Substance Release	Release of SVOCs, lead=27 ppm associated with soil stockpiles at Bldg 41	2, 13	
		49,22	Building 45	Qualified, Lead (P)	Lead-Based Paint associated with structure	27	
				Disqualified, Petroleum Storage (P)	Diesel Fuel (P) stored in UST -- Used from 1944 (P) to 1986(Suspected UST/AGT)	2	UST and soils have been removed

TABLE 5-1. Parcel Descriptions, Hamilton Army Airfield

PARCEL NUMBER	APPROX. SIZE (ACRES)	COORD (X,Y) ON FIG 5-1	LOCATION	CATEGORY	BASIS	APP. A REF(S)	REMEDIATION OR MITIGATION
7D-/A/L(P)/PR/PS/HR	55	49,22	Building 45	Disqualified, Petroleum Storage	Diesel Fuel (P) stored in AGT – Used from 1934 (P) to 1986	2	Tank and some soils removed
		45,26	Dredge between revetments 7 & 10	Disqualified, Petroleum Release (P)	Fall 1993 – 200 CY Release of TPH associated with dredge spoils between revetments 7 & 10	30	No odor. Vegetation has grown up through material
				Disqualified, Hazardous Substance Release (P)	Fall 1993 – 200 CY Release of SVOCs, Lead associated with dredge spoils between revetments 7 & 10	30	No odor. Vegetation has grown up through material
		49,22	Former Building 45A	Qualified, Asbestos	Asbestos Containing Material	2	
		41,19	Former Building 48	Qualified, Asbestos	Asbestos Containing Material	26	
				Disqualified, Petroleum Storage (P)	Diesel Fuel (P) stored in UST - First used in 1944 (P)(Suspected UST/AGT)	1, 25, 30	
		50,26	Pump station outfall ditch (Bldg 35 and Bldg 39)	Disqualified, Petroleum Release	Release of TPH=2690 ppm associated with Pump station outfall ditch (Bldg 35 and Bldg 39)	2, 13	
				Disqualified, Hazardous Substance Release	Release of SVOCs, Pb=890 ppm associated with Pump station outfall ditch (Bldg 35 and Bldg 39)	2, 13	
		50,24	Pump station outfall ditch (Bldg 41)	Disqualified, Petroleum Release	Release of TPH=283 ppm associated with Pump station outfall ditch (Bldg 41)	2, 13	
				Disqualified, Hazardous Substance Release	Release of SVOCs, lead=79 ppm associated with Pump station outfall ditch (Bldg 41)	2, 13	
		44,26	Revetment 10 (Burn Pit)	Disqualified, Petroleum Release	Release of TPH=1920 ppm associated with Revetment 10 (Burn Pit)	2, 12, 13, 33	Concrete revetment turnout limited infiltration
				Disqualified, Hazardous Substance Release	Release of MEK=29.9 ppb, SVOCs TICs=126 ppb, Naphthalene=8.59 ppb, lead=9.1 ppm associated with Revetment 10 (Burn Pit)	2, 13	3
		43,27	Revetment 11	Disqualified, Petroleum Release (P)	Release of TPH associated with Revetment 11	12, 13, 33	
		41,26	Revetment 12	Disqualified, Petroleum Release (P)	Release of TPH associated with Revetment 12	12, 13, 33	
		41,24	Revetment 13	Disqualified, Petroleum Release	Release of TPH=77.6 ppm associated with Revetment 13	2, 12, 13, 33	Concrete revetment turnout limited infiltration
		40,26	Revetment 14	Disqualified, Petroleum Release	Release of TPH=19.2 ppm associated with Revetment 14	2, 12, 13, 33	
		46,19	Revetment 2	Disqualified, Petroleum Release	Release of TPH=60.4 ppm associated with Revetment 2	2, 12, 13, 33	Concrete revetment turnout limited infiltration
		42,20	Revetment 25	Disqualified, Petroleum Release	Release of TPH=17.4 ppm associated with Revetment 25	2, 12, 13, 33	Concrete revetment turnout limited infiltration
		44,22	Revetment 26	Disqualified, Petroleum Release	Release of TPH=174 ppm associated with Revetment 26	2, 12, 13, 33	Concrete revetment turnout limited infiltration
		42,22	Revetment 27	Disqualified, Petroleum Release	Release of TPH=302 ppm associated with Revetment 27	2, 12, 13	Concrete revetment turnout limited infiltration
		42,25	Revetment 28	Disqualified, Petroleum Release	Release of TPH=19.7 ppm associated with Revetment 28	2, 12, 13	Concrete revetment turnout limited infiltration
		46,22	Revetment 4	Disqualified, Petroleum Release (P)	Release of TPH associated with Revetment 4	2, 13, 33	Concrete revetment turnout limited

TABLE 5-1. Parcel Descriptions, Hamilton Army Airfield

PARCEL NUMBER	APPROX. SIZE (ACRES)	COORD (X,Y) ON FIG 5-1	LOCATION	CATEGORY	BASIS	APP. A REF(S)	REMEDIATION OR MITIGATION
							infiltration
7D-/A/L(P)/PR/PS/WS	55	46,24	Revetment 5	Disqualified, Petroleum Release	Release of TPH=67.9 ppm associated with Revetment 5	2, 12, 13, 33	Concrete revetment turnout limited infiltration
		48,25	Revetment 6 (Engine Test Pad)	Disqualified, Petroleum Release	Release of TPH=44 ppm associated with Revetment 6 (Engine Test Pad)	2, 12, 13, 33	Concrete revetment turnout limited infiltration
				Disqualified, Hazardous Substance Release	Release of Toluene=0.28 ppb, bis(2-ethylhexyl)-phthalate=2.17 ppb, lead=20 ppm, CN=12.6 ppb associated with Revetment 6 (Engine Test Pad)	2, 13	
		46,25	Revetment 7	Disqualified, Petroleum Release (P)	Release of TPH associated with Revetment 7	12, 13, 33	Concrete revetment turnout limited infiltration
		46,27	Revetment 8	Disqualified, Petroleum Release	Release of TPH=53.6 ppm associated with Revetment 8	2, 12, 13, 33	Concrete revetment turnout limited infiltration
		44,27	Revetment 9	Disqualified, Petroleum Release (P)	Release of TPH associated with Revetment 9	12, 13, 33	
		49,23	Sewage treatment plant (STP) sludge drying bed	Disqualified, Petroleum Release	Release of TPH=2600 ppm associated with Sewage treatment plant (STP) sludge drying bed	2, 13	
				Disqualified, Hazardous Substance Release	Release of SVOCs, VOCs, Metals, PCBs=1.2 ppm, DDT=1.68 ppb, CN associated with Sewage treatment plant (STP) sludge drying bed	2, 13	Soil removed after STP closure
8P	10	47,26		CERFA Parcel	No hazardous substances or petroleum products have been stored, released or disposed in this area.		
9D-/PR/PS	8	9,27	Former Building 736	Disqualified, Petroleum Storage	Waste Oil stored in drums -- Inactivated in 1986	1, 2, 24	Building removed in 1993
		9,28	Former Building 737	Disqualified, Petroleum Storage	Waste Oil stored in drums -- Inactivated in 1986	1, 2, 24	Building removed in 1993
		10,27	Former Building 738	Disqualified, Petroleum Storage	Waste Oil stored in drums -- Inactivated in 1986	1, 2, 24	Building removed in 1993
		10,26	POL Hill AGT C01	Disqualified, Petroleum Storage	JP4 - Jet Fuel stored in 840,000 gal AGT -- Inactivated in 1986(Tank #C01 - POL Hill)	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
		10,27	POL Hill Plume	Disqualified, Petroleum Release	Release of TPH associated with POL Area Plume	1, 2, 3, 13	Soil removed in 1986 and 1990 to 100 ppm cleanup level
		12,27	POL Hill Tank Farm	Disqualified, Petroleum Storage	JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D01)	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
					JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D02)	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
					JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D03)	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
					JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D04)	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
					JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D05)	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
					JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D06)	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
					JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in	1, 2, 3	Tank removed in 1986 - Contaminated soil

TABLE 5-1. Parcel Descriptions, Hamilton Army Airfield

PARCEL NUMBER	APPROX. SIZE (ACRES)	COORD (X,Y) ON FIG 5-1	LOCATION	CATEGORY	BASIS	APP. A REF(S)	REMEDIATION OR MITIGATION
9D-/PR/PS	8	12,27	POL Hill Tank Farm	Disqualified, Petroleum Storage	1986(Tank #D07) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D08) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D09) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D10) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D11) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D12) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D13) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D14) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D15) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D16) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D17) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D18) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D19) JP4 - Jet Fuel stored in 25,000 gal UST -- Inactivated in 1986(Tank #D20) JP4 - Jet Fuel stored in 750 gal UST -- Inactivated in 1986(Tank #D21)	1, 2, 3 1, 2, 3 1, 2, 3 1, 2, 3 1, 2, 3 1, 2, 3 1, 2, 3 1, 2, 3 1, 2, 3 1, 2, 3 1, 2, 3 1, 2, 3 1, 2, 3 1, 2, 3	removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992 Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
10Q-/L	1	49,28	Building 152	Qualified, Lead	Lead-based paint associated with structure built in 1959	27	
11D-/PS(P)/HR	1	19,26	6 inch JP4 fuel line (JP-SS-1) Undetermined UST Site, North end of runway	Disqualified, Hazardous Substance Release Disqualified, Petroleum Storage (P)	Release of lead=86 ppm associated with 6 inch JP4 fuel line (JP-SS-1) POL stored in UST - First used in 1944 (P)(UST #22)	2, 13 1	Abandoned - Attempted Location using Metal Detector
12P	1	42,26		CERFA Parcel	No hazardous substances or petroleum products have been stored, released or disposed in this area.		
13D-/PR/HR	2	22,24	6 inch JP4 fuel line (JP-SS-2)	Disqualified, Petroleum Release Disqualified, Hazardous Substance Release	Release of TPH=82 ppm associated with 6 inch JP4 fuel line (JP-SS-2) Release of lead=16 ppm associated with 6 inch JP4 fuel line (JP-SS-2)	2, 13 2, 13	
14P	4	44,24		CERFA Parcel	No hazardous substances or petroleum products have been stored, released or disposed in this area.		
15D-/PR/HR	5	24,22	6 inch JP4 fuel line (JP-SS-3/4)	Disqualified, Petroleum Release Disqualified, Hazardous Substance Release	Release of TPH=111 ppm associated with 6 inch JP4 fuel line (JP-SS-3/4) Release of lead=16 ppm associated with 6 inch JP4 fuel line (JP-SS-3/4)	2, 13 2, 13	

TABLE 5-1. Parcel Descriptions, Hamilton Army Airfield

PARCEL NUMBER	APPROX. SIZE (ACRES)	COORD (X,Y) ON FIG 5-1	LOCATION	CATEGORY	BASIS	APP. A REF(S)	REMEDIATION OR MITIGATION
15D-/PR/HR	5	24,23	8 inch JP4 fuel line (JP-SS-16/17) Intermediate JP4 fuel line (JP-SS-18)	Disqualified, Hazardous Substance Release Disqualified, Hazardous Substance Release	Release of lead=20.8 ppm associated with 8 inch JP4 fuel line (JP-SS-16/17) Release of lead=9.2 ppm associated with Intermediate JP4 fuel line (JP-SS-18)	2, 13 2, 13	
16D-/PR	5	37,24	Revetment 20	Disqualified, Petroleum Release	Release of TPH=131 ppm associated with Revetment 20	2, 12, 13, 33	Concrete revetment turnout limited infiltration
		36,22	Revetment 21	Disqualified, Petroleum Release	Release of TPH=84.9 ppm associated with Revetment 21	2, 12, 13, 33	Concrete revetment turnout limited infiltration
17D-/PR	2	39,22	Revetment 24	Disqualified, Petroleum Release	Release of TPH=49.3 ppm associated with Revetment 24	2, 12, 13, 33	Concrete revetment turnout limited infiltration
18D-/PR/HR	10	26,21	6 inch JP4 fuel line (JP-SS-5/6)	Disqualified, Petroleum Release Disqualified, Hazardous Substance Release	Release of TPH=123 ppm associated with 6 inch JP4 fuel line (JP-SS-5/6) Release of lead=160 ppm associated with 6 inch JP4 fuel line (JP-SS-5/6)	2, 13 2, 13	
		27,19	6 inch JP4 fuel line (JP-SS-7/8)	Disqualified, Petroleum Release Disqualified, Hazardous Substance Release	Release of TPH=264 ppm associated with 6 inch JP4 fuel line (JP-SS-7/8) Release of lead=44 ppm associated with 6 inch JP4 fuel line (JP-SS-7/8)	2, 13 2, 13	
		28,18	6 inch JP4 fuel line (JP-SS-9/10)	Disqualified, Petroleum Release Disqualified, Hazardous Substance Release	Release of TPH=112 ppm associated with 6 inch JP4 fuel line (JP-SS-9/10) Release of lead=360 ppm, benzene=663 ppb, ethylbenzene=88 ppb associated with 6 inch JP4 fuel line (JP-SS-9/10)	2, 13 2, 13	Drum removed
		30,18	8 inch JP4 fuel line (JP-SS-15)	Disqualified, Hazardous Substance Release	Release of lead=6.7 ppm associated with 8 inch JP4 fuel line (JP-SS-15)	2, 13	
		30,17	Intermediate JP4 fuel line (JP-SS-14)	Disqualified, Hazardous Substance Release	Release of lead=21.6 ppm associated with Intermediate JP4 fuel line (JP-SS-14)	2, 13	
19D-/PR(P)	2	38,21	Revetment 23	Disqualified, Petroleum Release (P)	Release of TPH associated with Revetment 23	12, 13, 33	
20D-/HR	1	52,21	Sewage treatment plant (STP) Outfall	Disqualified, Hazardous Substance Release	Release of lead=45.8 ppm associated with Sewage treatment plant (STP) Outfall	2, 13	Partial sludge removal
21D-/PR	1	44,20	Revetment 3	Disqualified, Petroleum Release	Release of TPH=17.4 ppm associated with Revetment 3	2, 12, 13, 33	Concrete revetment turnout limited infiltration

TABLE 5-1. Parcel Descriptions, Hamilton Army Airfield

PARCEL NUMBER	APPROX. SIZE (ACRES)	COORD (X,Y) ON FIG 5-1	LOCATION	CATEGORY	BASIS	APP. A REF(S)	REMEDIATION OR MITIGATION
22D-/PR	2	45,18	Revetment 1	Disqualified, Petroleum Release	Release of TPH=32.5 ppm associated with Revetment 1	2, 12, 13, 33	Concrete revetment removed limited infiltration
23D-/HR	5	50,17	East Levee Landfill	Disqualified, Hazardous Substance Release	Release of Metals, SVOCs, MEK=27.6 ppb associated with East Levee Landfill	2, 13	Minimal contamination identified
24E	3	20,17		CERFA Excluded Parcel	Retained by Federal Government or transferred by deed.		
25E	2	22,15		CERFA Excluded Parcel	Retained by Federal Government or transferred by deed.		
26Q-/A/L	1	17,16	Building 510 Building 520	Qualified, Asbestos Qualified, Lead Qualified, Asbestos Qualified, Lead	Asbestos Containing Material Lead-based paint associated with structure built in 1957 Asbestos Containing Material Lead-based paint associated with structure built in 1941	26 27 26 27	
27D-/A/L/PS(P)/HR/HS	3	16,15	Building 511	Qualified, Asbestos Qualified, Lead Disqualified, Hazardous Substance Storage	Asbestos Containing Material Lead-based paint associated with structure built in 1941 Acetone, echohol, acetic acid, hydrogen peroxide stored in 25 gal CANS(Lockers inside building)	26 27	
		16,14	Building 512	Qualified, Asbestos Qualified, Lead	Asbestos Containing Material Lead-based paint associated with structure built in 1941	26 27	
		17,14	Building 515	Qualified, Asbestos Qualified, Lead Disqualified, Hazardous Substance Release	Asbestos Containing Material Lead-based paint associated with structure built in 1934 Release of PCBs associated with transformers in basement	26 27 1, 2, 25, 31	Release in locked maintenance room with concrete floor
			Building 516	Qualified, Lead	Lead-based paint associated with structure built in 1934	27	
		17,16	Building 520	Qualified, Asbestos Qualified, Lead	Asbestos Containing Material Lead-based paint associated with structure built in 1941	26 27	
		17,15	Building 521	Qualified, Asbestos Qualified, Lead Disqualified, Petroleum Storage (P)	Asbestos Containing Material Lead-based paint associated with structure built in 1942 Diesel Fuel(P) stored in UST(Suspected UST at back of bldg)	26 27 30, 31	Tank no longer used
		17,14	Building 525	Qualified, Asbestos Qualified, Lead	Asbestos Containing Material Lead-based paint associated with structure built in 1941	26 27	
28D-/PS(P)	3	27,15	Building 140	Disqualified, Petroleum Storage (P)	Diesel Fuel(P) stored in UST(Suspected UST at bldg 140)	1, 31	Tank no longer used
29E	2	31,13		CERFA Excluded Parcel	Retained by Federal Government or transferred by deed.		

TABLE 5-1. Parcel Descriptions, Hamilton Army Airfield

PARCEL NUMBER	APPROX. SIZE (ACRES)	COORD (X,Y) ON FIG 5-1	LOCATION	CATEGORY	BASIS	APP. A REF(S)	REMEDIATION OR MITIGATION
30D-/A/L/PR/PS/HR/HS	23	33,10	Aircraft Maintenance Area - Storage Area 2	Disqualified, Petroleum Storage	POL stored in 25 gal Cans -- Inactivated in 1994(West of building 86)	2, 25, 30	Activity ceased 2/94. Several cans remain in area.
				Disqualified, Hazardous Substance Storage	Product and Waste Flammables stored in 25 gal CANS - First used in 1944 (P)(West of Building 86)	2, 25, 30	Army activity ceased 2/94. Several cans remain in the area.
			Aircraft Maintenance Area Storage Area 2 plume	Disqualified, Petroleum Release	Release of TPH=4650 ppm associated with Aircraft Maintenance Area - Storage Area 2 Plume	2, 13	
					Release of TPH=4650 ppm associated with Aircraft Maintenance Area - Storage Area 2 Plume	2, 13	
				Disqualified, Hazardous Substance Release	Release of Toluene=0.21 ppb, VOC TICs=6700 ppb, metals associated with Aircraft Maintenance Area - Storage Area 2 Plume	2, 13	
					Release of Toluene=0.21 ppb, VOC TICs=6780 ppb, metals associated with Aircraft Maintenance Area - Storage Area 2 Plume	2, 13	
		37,7	Aircraft maintenance area storage area 4 (AM-SB-10	Disqualified, Petroleum Release	Release of TPH=1060 ppm associated with Aircraft Maintenance Area - Storage Area 4 (AM-SB-10)	2, 13	
			Aircraft maintenance area storage area 4 (AM-SB-8)	Disqualified, Petroleum Release	Release of TPH=33.5 ppm associated with Aircraft Maintenance Area - Storage Area 4 (AM-SB-8)	2, 13	
		34,10	Building 145A	Qualified, Lead (P)	Lead-Based Paint associated with structure	30	
				Disqualified, Petroleum Storage	Diesel Fuel(P) stored in ~250 gal AGT(Tank in air comp. shed bld 145)	31	Tank Active
		35,9	Building 83	Qualified, Asbestos	Asbestos Containing Material	26	
				Qualified, Lead (P)	Lead-Based Paint associated with structure	27	
		34,10	Building 86	Qualified, Asbestos	Asbestos Containing Material	26	
				Qualified, Lead	Lead-based paint associated with structure built in 1967	27	
				Disqualified, Petroleum Release	9/19/93 -- Release of TPH associated with transformer #P-956911, Southwest corner of building	2, 25	Released contained in concrete sump
				Disqualified, Petroleum Storage	POL stored in 25 gal cans -- Used from 1944 (P) to 1994(Inside)	2, 25, 30	Cans inside building. Activity ceased 2/94
				Disqualified, Petroleum Storage (P)	Diesel Fuel(P) stored in AGT(Former tank in bldg 86)	31	Tank no longer present in building
				Disqualified, Hazardous Substance Release	9/19/93 -- Release of PCBs associated with transformer #P-956911 - Southwest corner of building	25	Release contained in concrete sump
				Disqualified, Hazardous Substance Storage	Paint, Acetone, HCL, Flammables stored in 25 gal CANS - First used in 1944 (P)(Inside)	2, 25, 30	Army activity ceased 2/94. Currently minor activity by VMX Project
		37,7	Building 87	Qualified, Asbestos	Asbestos Containing Material	26	
				Qualified, Lead	Lead-Based Paint associated with structure	27	
				Disqualified, Petroleum Storage	POL stored in drums -- Inactivated in 1994(Inside and outside building)	2, 25, 30	Activity ceased 2/94, drums outside of bldg, bldg leaked, continues unk
				Disqualified, Hazardous Substance Storage	Paints, Antifreeze, Solvents stored in ~1,650 gal CANS(Inside and outside building)	2, 25, 30	Army activity ceased 2/94. Some material still stored in area
		33,9	Building 92	Qualified, Asbestos	Asbestos Containing Material	26	
				Qualified, Lead	Lead-based paint associated with structure built in 1972	27	
		34,8	Building 94	Qualified, Asbestos	Asbestos Containing Material	26	
				Qualified, Lead	Lead-based paint associated with structure built in 1962	27	
		34,10	Conex 86A - Aircraft Maintenance Area - Storage Area	Qualified, Lead (P)	Lead-Based Paint associated with structure	27	
				Disqualified, Petroleum Storage	Product and wastes POL stored in 1,000 gal drums -- Inactivated in 1994(West side of building 86)	2, 25, 30	Activity ceased 2/94

TABLE 5-1. Parcel Descriptions, Hamilton Army Airfield

PARCEL NUMBER	APPROX. SIZE (ACRES)	COORD (X,Y) ON FIG 5-1	LOCATION	CATEGORY	BASIS	APP. A REF(S)	REMEDIATION OR MITIGATION
30D-/A/L/PR/PS/HR/HS	23	38,7	Conex 87A - Aircraft Maintenance Area - Storage Area	Qualified, Lead (P)	Lead-Based Paint associated with structure	27	
				Disqualified, Petroleum Storage	Gasoline stored in 50 gal cans -- Inactivated in 1994	2, 25, 30	Activity ceased 2/94. Conex locked, contents unknown
		34,8	Conex 94A - Aircraft Maintenance Area - Storage Area	Qualified, Lead (P)	Lead-Based Paint associated with structure	27	
				Disqualified, Petroleum Storage	POL Products stored in 1,000 gal drums -- Inactivated in 1994	2, 25	ACTIVE
		35,8	Conex 94B - Aircraft Maintenance Area - Storage Area	Qualified, Lead (P)	Lead-Based Paint associated with structure	27	
				Disqualified, Hazardous Substance Storage	Paints and Adhesives stored in 50 gal CANS -- Inactivated in 1994	2, 25, 30	Army activity ceased 2/94. Conex empty
			Conex 94C - Aircraft Maintenance Area - Storage Area	Qualified, Lead (P)	Lead-Based Paint associated with structure	27	
		33,10	Fuel Truck	Disqualified, Petroleum Storage	JP-4 stored in 5,000 gal AGT - First used in 1974 (P)(North of Building 86)	25	ACTIVE - Replaces 3 Tanker Trucks
		37,9	Storm drain 1	Disqualified, Petroleum Release (P)	Release of TPH associated with Storm drain 1	2, 13	
				Disqualified, Hazardous Substance Release (P)	Release of SVOCs, lead associated with Storm drain 1	2, 13	
		35,10	Storm drain 10 (AM-SD-2)	Disqualified, Petroleum Release	Release of TPH=2390 ppm associated with Storm drain 10 (AM-SD-2)	2, 13	
				Disqualified, Hazardous Substance Release	Release of SVOCs TICs=185 ppb, bis(2-ethylhexyl)-phthalate=15 ppb, lead=1020 ppm associated with Storm drain 10 (AM-SD-2)	2, 13	
		35,9	Storm drain 11	Disqualified, Petroleum Release (P)	Release of TPH associated with Storm drain 11	2, 13	
				Disqualified, Hazardous Substance Release (P)	Release of SVOCs, lead associated with Storm drain 11	2, 13	
		34,12	Storm drain 12 (AM-SD-6)	Disqualified, Petroleum Release	Release of TPH=373 ppm associated with Storm drain 12 (AM-SD-6)	2, 13	
				Disqualified, Hazardous Substance Release	Release of SVOCs TICs=16.4 ppb, lead=190 ppm associated with Storm drain 12 (AM-SD-6)	2, 13	
		33,11	Storm drain 13 (AM-SD-1)	Disqualified, Petroleum Release	Release of TPH=1940 ppm associated with Storm drain 13 (AM-SD-1)	2, 13	
				Disqualified, Hazardous Substance Release	Release of SVOCs TICs=34 ppb, phenanthrene=15 ppb, lead=618 ppm associated with Storm drain 13 (AM-SD-1)	2, 13	
		32,10	Storm drain 14 (AM-SD-4)	Disqualified, Petroleum Release	Release of TPH=1590 ppm associated with Storm drain 14 (AM-SD-4)	2, 13	
				Disqualified, Hazardous Substance Release	Release of SVOCs TICs=95 ppb, lead=480 ppm associated with Storm drain 14 (AM-SD-4)	2, 13	
		34,9	Storm drain 15 (AM-SD-5)	Disqualified, Petroleum Release	Release of TPH=884 ppm associated with Storm drain 15 (AM-SD-5)	2, 13	
				Disqualified, Hazardous Substance Release	Release of phenanthrene=4.44 ppb, pyrene=3.59 ppb, lead=430 ppm associated with Storm drain 15 (AM-SD-5)	2, 13	
		37,7	Storm drain 16 (AM-SD-7)	Disqualified, Petroleum Release	Release of TPH=2500 ppm associated with Storm drain 16 (AM-SD-7)	2, 13	
				Disqualified, Hazardous Substance Release	Release of SVOCs TICs=18 ppb, pyrene=9 ppb, phenanthrene=9.4 ppb,	2, 13	

TABLE 5-1. Parcel Descriptions, Hamilton Army Airfield

PARCEL NUMBER	APPROX. SIZE (ACRES)	COORD (X,Y) ON FIG 5-1	LOCATION	CATEGORY	BASIS	APP. A REF(S)	REMEDIATION OR MITIGATION
					lead=200 ppm associated with Storm drain 16 (AM-SD-7)		
30D-/A/L/PR/PS/HR/HS	23	38,9	Storm drain 2	Disqualified, Petroleum Release (P) Disqualified, Hazardous Substance Release (P)	Release of TPH associated with Storm drain 2 Release of SVOCs, lead associated with Storm drain 2	2, 13 2, 13	
		38,10	Storm drain 3	Disqualified, Petroleum Release (P) Disqualified, Hazardous Substance Release (P)	Release of TPH associated with Storm drain 3 Release of SVOCs, lead associated with Storm drain 3	2, 13 2, 13	
		38,11	Storm drain 4	Disqualified, Petroleum Release (P) Disqualified, Hazardous Substance Release (P)	Release of TPH associated with Storm drain 4 Release of SVOCs, lead associated with Storm drain 4	2, 13 2, 13	
		38,12	Storm drain 5 (AM-SD-8)	Disqualified, Petroleum Release	Release of TPH=230 ppm associated with Storm drain 5 (AM-SD-8)	2, 13	
				Disqualified, Hazardous Substance Release	Release of SVOCs TICs=32 ppb, phenanthrene=24 ppb, benzo[b]fluoranthene=22 ppb Pb=690 ppm associated with Storm drain 5 (AM-SD-8)	2, 13	
		37,10	Storm drain 6	Disqualified, Petroleum Release (P) Disqualified, Hazardous Substance Release (P)	Release of TPH associated with Storm drain 6 Release of SVOCs, lead associated with Storm drain 6	2, 13 2, 13	
		37,11	Storm drain 7	Disqualified, Petroleum Release (P) Disqualified, Hazardous Substance Release (P)	Release of TPH associated with Storm drain 7 Release of SVOCs, lead associated with Storm drain 7	2, 13 2, 13	
		36,11	Storm drain 8	Disqualified, Petroleum Release (P) Disqualified, Hazardous Substance Release (P)	Release of TPH associated with Storm drain 8 Release of SVOCs, lead associated with Storm drain 8	2, 13 2, 13	
		35,11	Storm drain 9	Disqualified, Petroleum Release (P) Disqualified, Hazardous Substance Release (P)	Release of TPH associated with Storm drain 9 Release of SVOCs, lead associated with Storm drain 9	2, 13 2, 13	
31E	2	31,9		CERFA Excluded Parcel	Retained by Federal Government or transferred by deed.		
32P	4	36,8		CERFA Parcel	No hazardous substances or petroleum products have been stored, released or disposed in this area.		
33D-/A/L/PS/HS	3	40,8	Building 84	Qualified, Asbestos Qualified, Lead	Asbestos Containing Material Lead-based paint associated with structure built in 1961	26 27	
		40,9	Building 90	Qualified, Asbestos Qualified, Lead Disqualified, Petroleum Storage	Asbestos Containing Material Lead-based paint associated with structure built in 1961 POL stored in drums – Used from 1961 (P) to 1974 (P)(Former AV Maintan. Shop)	26 27 25, 27	
				Disqualified, Hazardous Substance Storage	Flammables, Paints stored in DRUM – Used from 1961 (P) to 1974 (P)(Former AV Maintan. Shop)	27, 30	
		39,8	Fuel Trailers	Disqualified, Petroleum Storage	JP-4 stored in 5,000 gal AGT(Northwest of Bldg 90) JP-4 stored in 5,000 gal AGT(Northwest of Bldg 90)	1, 2, 25 1, 2, 25	Tank no longer used Replaced 600 gal fuel tank one of two, surrounded by sand bags, not in use
34P	2	32,8		CERFA Parcel	No hazardous substances or petroleum products have been stored, released or disposed in this area.		

TABLE 5-1. Parcel Descriptions, Hamilton Army Airfield

PARCEL NUMBER	APPROX. SIZE (ACRES)	COORD (X,Y) ON FIG 5-1	LOCATION	CATEGORY	BASIS	APP. A REF(S)	REMEDIATION OR MITIGATION
35Q-/A/L	1	33,9	Building 92	Qualified, Asbestos Qualified, Lead	Asbestos Containing Material Lead-based paint associated with structure built in 1972	26 27	
36P	1	38,8		CERFA Parcel	No hazardous substances or petroleum products have been stored, released or disposed in this area.		
37Q-/A/L	2	40,8	Building 84	Qualified, Asbestos Qualified, Lead	Asbestos Containing Material Lead-based paint associated with structure built in 1961	26 27	
38D-/PR(P)	2	46,8	Former Building 60	Disqualified, Petroleum Release (P)	Release of Dielectric Fluid (TPH) associated with overturned transformers	2, 25	
39P	11	35,5		CERFA Parcel	No hazardous substances or petroleum products have been stored, released or disposed in this area.		
40Q-/A/L	3	35,7	Building 82	Qualified, Asbestos Qualified, Lead	Asbestos Containing Material Lead-based paint associated with structure built in 1969	26 27	
41D-/PR/HR	1	39,6	South drainage ditch storm drain outfall (AM-SD-3)	Disqualified, Petroleum Release Disqualified, Hazardous Substance Release	Release of TPH=1230 ppm associated with South Drainage Ditch Storm Drain Outfall (AM-SD-3) Release of SVOCs, lead=168 ppm associated with South Drainage Ditch Storm Drain Outfall (AM-SD-3)	2, 13 2, 13	Sampling conducted by COE to determine degree & extent, avail 4/94

D=CERFA DISQUALIFIED PARCEL
E=CERFA EXCLUDED PARCEL
P=CERFA PARCEL
Q=CERFA PARCEL WITH QUALIFIERS

A=ASBESTOS
L=LEAD-BASED PAINT
P=PCB STORAGE
R=RADON
RD=RADIONUCLIDES
X=UNEXPLODED ORDNANCE

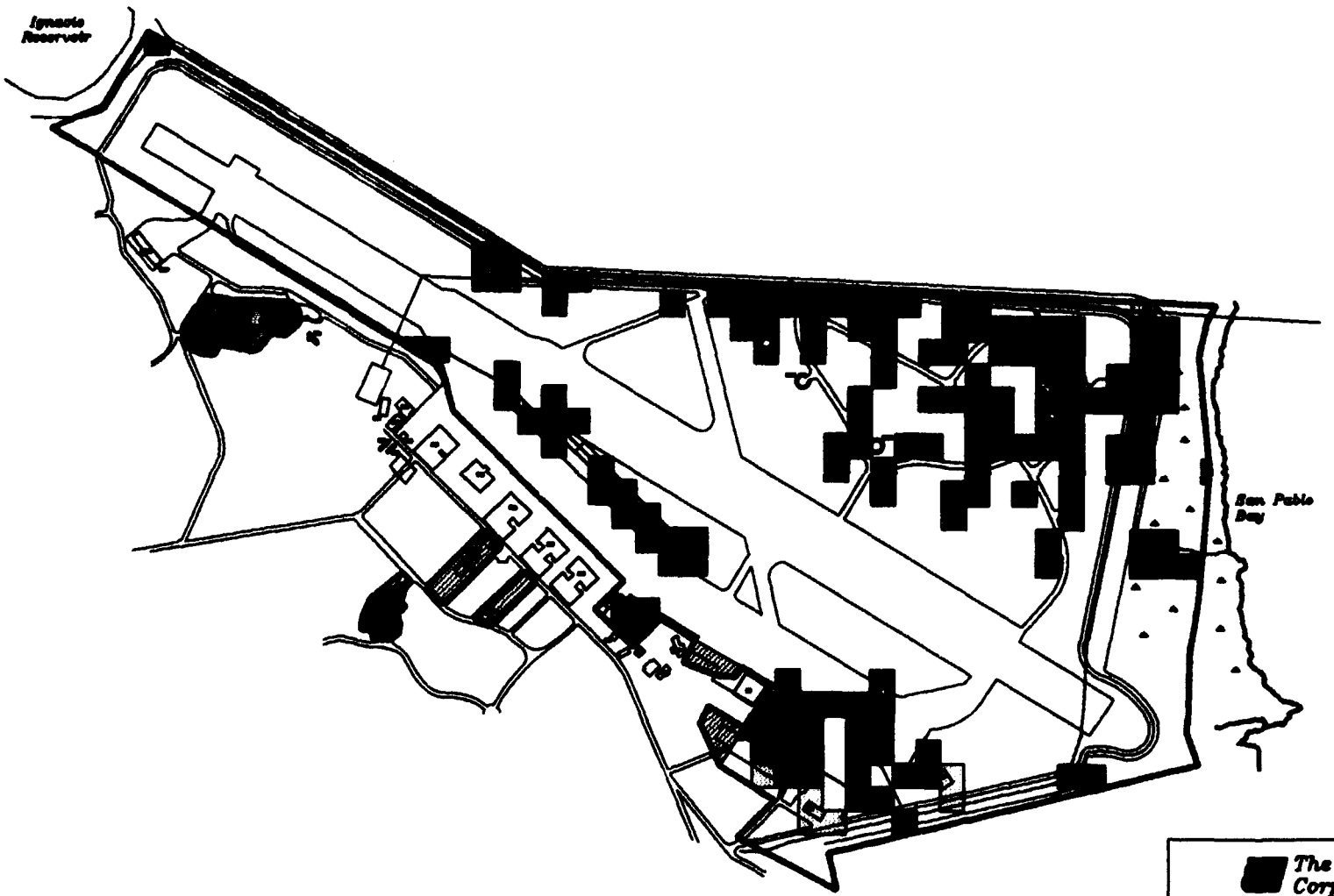
PR=PETROLEUM RELEASE
PS=PETROLEUM STORAGE
HR=HAZARDOUS SUBSTANCE RELEASE
HS=HAZARDOUS SUBSTANCE STORAGE

(P)=POSSIBLE QUALIFIER

FIGURE 5-1
PARCEL DESIGNATION MAP, HAMILTON ARMY AIRFIELD, NOVATO, CALIFORNIA

FIGURE 5-3
SUMMARY CERFA MAP, HAMILTON ARMY AIRFIELD, NOVATO, CALIFORNIA

REVISION	DATE
0	11/01/93
1	04/08/94



BRAC Property Boundary
CERFA Parcel
CERFA Parcel with Qualifiers
CERFA Disqualified Parcel
CERFA Excluded Parcel

Source: CERFA Investigation, April 1994

The Earth Technology Corporation

1400 [illegible] STREET SUITE 600, ALEXANDRIA, VIRGINIA 22314

FIGURE 5-3
SUMMARY CERFA MAP
HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA

DRAWN BY: MTM	REVIEWED BY: N/A	
CHECKED BY: KR	APPROVED BY: BY	DATE: 04/08/94
TES PROJECT NUMBER: 931977-07	DRAWING NUMBER: 1 OF 1	REV. NO.: 1

APPENDIX A

REFERENCE LIST FOR HAMILTON ARMY AIRFIELD

APPENDIX A
REFERENCE LIST FOR HAMILTON ARMY AIRFIELD

Document	Date	Source
1. Enhanced Preliminary Assessment Report: Hamilton Army Airfield Novato, California, Roy F. Weston	January 1990	USAEC
2. Final Environmental Investigation, Hamilton Army Airfield, Engineering Science	July 1993	USAEC
3. Final Report, Hamilton Air Force Base - Storage Tank Removal Project, International Technology Corporation	February 1987	USEPA Region IX
4. Final Report Confirmation Study for Hazardous Waste, Hamilton Army Airfield, Woodward-Clyde	January 1987	USAEC
5. Final Environmental Impact Statement on Disposition and Use of Federal Surplus Property at Hamilton Air Force Base, Novato, CA, U.S. General Services Administration	1980	Hamilton Army Airfield
6. Hamilton Field Project, Subsequent Environmental Impact Report, City of Novato (EIP Associates)	December 1992	TBD
7. Transmittal of Preliminary Assessment Screening Report, Parcels A2, A3, A5, A6, Hamilton Army Airfield, USAEC	April 1993	USAEC
8. Preliminary Assessment Screening, Homeless Parcels, Hamilton Army Airfield, USAEC	February 1993	USAEC
9. Draft Environmental Assessment for the Disposal of Outparcel Properties at Hamilton Army Airfield, Jones and Stokes Associates	January 1993	Hamilton Army Airfield
10. Real Estate Transfer Register	November 1948, Revised January 1990	USAEC
11. Real Estate Tract Map	November 1948, Revised January 1990	USAEC
12. Installation Assessment Army Base Closure Program (Aerial Photographs)	April 1990	USAEC
13. Draft Alternatives Assessment Report, Engineering Science	January 1993	USAEC
14. Hazardous Waste Cleanup Management Plan (Revised Draft) Hamilton Army Airfield, Authorless	March 1987	USEPA
15. Federal Facility Preliminary Assessment/Site Inspection Review, Hamilton Army Airfield, Ecology and Environment, Inc.	October 1991	USEPA
16. Remedial Action Plan, Hamilton Army Airfield, International Technology Corporation	September 1990	USEPA
17. Environmental Assessment for the Closure and Realignment of Hamilton Army Airfield, U.S. Army Corps of Engineers, Sacramento District	September 1991	USEPA Region IX
18. Solicitation, Removal of Hazardous Waste from the Surface, Hamilton Air Force Base	July 1985	USEPA Region IX
19. Supplemental Environmental Investigation for Phase I Property Disposal, Hamilton Army Airfield, U.S. Army Corps of Engineers, Sacramento District	March 1993	California Regional Water Quality Control Board

APPENDIX A
REFERENCE LIST FOR HAMILTON ARMY AIRFIELD

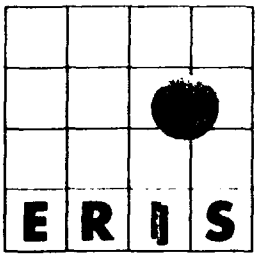
20.	Record of Decision, Remedial Alternative Selection, Hamilton Air Force Base Landfill No. 26, *Authorless*	Undated	Hamilton Army Airfield
21.	Wetland Mitigation Plan, Hamilton Air Force Base, Hazardous Environmental Services	June 1993	Hamilton Army Airfield
22.	Flood Control Study, Hamilton Army Airfield, Draft Final Report, U.S. Army Corps of Engineers, Sacramental District	May 1988	Hamilton Army Airfield
23.	Hamilton Field Master Plan, The Martin Group	December 1992	Hamilton Army Airfield
24.	Environmental Investigation Technical Plan, Hamilton Army Airfield, E.C. Jordan Co.	September 1990	USEPA Region IX
25.	CERFA Visual Site Inspection	September 1993	TETC
26.	Asbestos Survey, Hamilton Army Airfield, Occusafe	October, 1989	Presidio of San Francisco
27.	Inventory of Real Property	June, 1993	Presidio of San Francisco
28.	Newspaper article "Vet Recalls Ammo Dump," The Daily Review, July 9, 1986	July, 1986	California Regional Water Quality Control Board
29.	Letters documenting radon condition	Various	Engineering Science, Inc.
30.	Supplemental CERFA Site Visit	March 1994	TETC
31.	Trip Report, Site Visit Hamilton Army Airfield, Characterization and Remedial Design of Underground Storage Tanks	March 1994	USACE, Sacramento District
32.	ERIIS Report	August 1993	ERIIS
33.	Landfill 26 - Phase I Remedial Action Plan Drawing No. DER39-400E2	August 1992	USACE, Omaha District

Key:

TBD	=	To be determined.
USAEC	=	U.S. Army Environmental Center
CERFA	=	Community Environmental Response Facilitation Act
ERIIS	=	Environmental Risk Information and Imaging Services
TETC	=	The Earth Technology Corporation
USEPA	=	U.S. Environmental Protection Agency
USACE	=	U.S. Army Corps of Engineers

APPENDIX B

ERIIS DATA BASE SEARCH REPORT



ENVIRONMENTAL RISK INFORMATION & IMAGING SERVICES REPORT

PERTAINING TO:

HAMILTON ARMY AIRFIELD
NOVATO, CA

ON BEHALF OF:

THE EARTH TECHNOLOGY CORP.
1420 KING ST., STE. 600
ALEXANDRIA, VA 22314

PREPARED ON:

August 20, 1993

ERIIS REPORT NUMBER:

28665

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ERIIS Report Overview

The ERIIS Report consists of five (5) basic sections:

- Digital Custom Plotted Map
- Database Records
- Statistical Profile
- Sanborn Fire Insurance Map(s)
- Topographical Map

Digital Custom Map

Each site-specific Digital Custom Map is plotted using U.S. Census TIGER Files. The cross in the center of the map represents the study site. The red circle represents the study radius, usually one mile. Reported federal/state hazardous waste and toxic chemical sites are plotted on the map and are easily distinguished by different symbols.

Statistical Profile

The Statistical Profile is an at-a-glance numeric summary of the data included in the ERIIS Report.

Database Records

This section presents detailed federal and state database information for each site within the study radius. Sites are easily located on the digital map by using the number in the MAP ID column of the report.

Note: Many of the sites reported in federal/state databases cannot be plotted due to inaccurate or incomplete addresses (e.g., PO Box number, street name with no number). Still, they are potentially within the study radius. ERIIS reports these sites using progressively broader search criteria to ensure that all potentially relevant hazardous sites are included. All zip codes within and intersected by the study radius are searched, as well as records that simply report the relevant city or county. Where applicable, federal and state database information is further subdivided.

Sanborn Fire Insurance Maps

ERIIS has assembled a collection of Historical Sanborn Fire Insurance Maps covering 14,000 cities and towns. In some cases, however, the ERIIS Report will include a notice that no maps were found. This notice should serve as evidence of due diligence.

Topographic Map

ERIIS provides a topographic map with each report which accurately depicts the natural and man-made features of the land. The shape and elevation of the terrain are represented by contour lines and specific features, such as roads, towns, and vegetation, are portrayed by map symbols and colors. Standard topographic maps are produced at a 1:24,000 scale, or one inch represents 2000 feet.

ENVIRONMENTAL RISK INFORMATION & IMAGING SERVICES

RADIUS REPORT

REPORT NUMBER: 28665

STATE: CA
LATITUDE: 38.063495
LONGITUDE: -122.513695
ZIP CODES SEARCHED: 94945 94947 94903 94949

DATABASE	RADIUS (MILES)	RADIUS REPORTED SITES					NOT RADIUS REPORTED		TOTAL SITES
		Property	Property-1/16	1/16-1/2	1/2-1	>1	ZIP CODE	CITY/COUNTY	
NPL	2.500	NO	0	0	0	0	0	0	0
CERCLIS	2.500	NO	0	0	0	0	2	0	2
TRI	2.500	NO	0	0	0	0	0	0	0
RCRIS_TS	2.500	NO	0	0	0	0	0	0	0
RCRIS_LG	2.500	NO	0	0	0	13	4	0	17
RCRIS_SG	2.500	NO	0	0	0	12	10	0	22
DOCKET	2.500	NO	0	0	0	0	0	0	0
ERNS	2.500	NO	0	0	0	1	3	7	11
FINDS	2.500	NO	0	0	0	31	25	0	56
NUCLEAR		NR	NR	NR	NR	NR	0	0	0
OPENDUMP		NR	NR	NR	NR	NR	0	0	0
UST	2.500	NO	0	0	0	12	13	0	[illegible]
LUST	2.500	NO	0	0	0	6	6	7	19
CALSITES	2.500	NO	0	0	0	1	10	0	11
SWIS	2.500	NO	0	0	0	0	0	5	5
HWIS	2.500	NO	0	0	0	10	12	43	65
WDS	2.500	NO	0	0	0	0	5	1	6
TITLE3	2.500	NO	0	0	0	1	1	0	2
CORTS	2.500	NO	0	0	0	4	8	7	19

Selection of PROPERTY records requires an accurate street address in the ERIIS job order.

ZIP CODE and CITY/COUNTY sites are not radius reportable due to insufficient and/or inaccurate addresses reported by federal/state agency. These sites are reported within the study site zip code(s) and/or city/county and may be within the study site radius. These sites require further investigation to accurately assess proximity to the study site.

A blank radius count indicates that the database was not searched by this radius per client instructions.

NR in a radius or zip code count indicates that the database cannot be reported by this search criteria due to insufficient and/or inaccurate addresses reported by a federal/state agency.

State data in paper format is sorted using the most specific secondary search criteria available (zip code, city, or county).

ENVIRONMENTAL RISK INFORMATION & IMAGING SERVICES

RADIUS REPORT

REPORT NUMBER: 28665

STATE: CA
LATITUDE: 38.063495
LONGITUDE: -122.513695
ZIP CODES SEARCHED: 94945 94947 94903 94949

		RADIUS REPORTED SITES					NOT RADIUS REPORTED		
DATABASE	RADIUS (MILES)	Property	Property-1/16	1/16-1/2	1/2-1	≥1	ZIP CODE	CITY/COUNTY	TOTAL SITES
SWAT	2.500	NO	0	0	0	0	1	10	11
			0	0	0	91	100	80	271

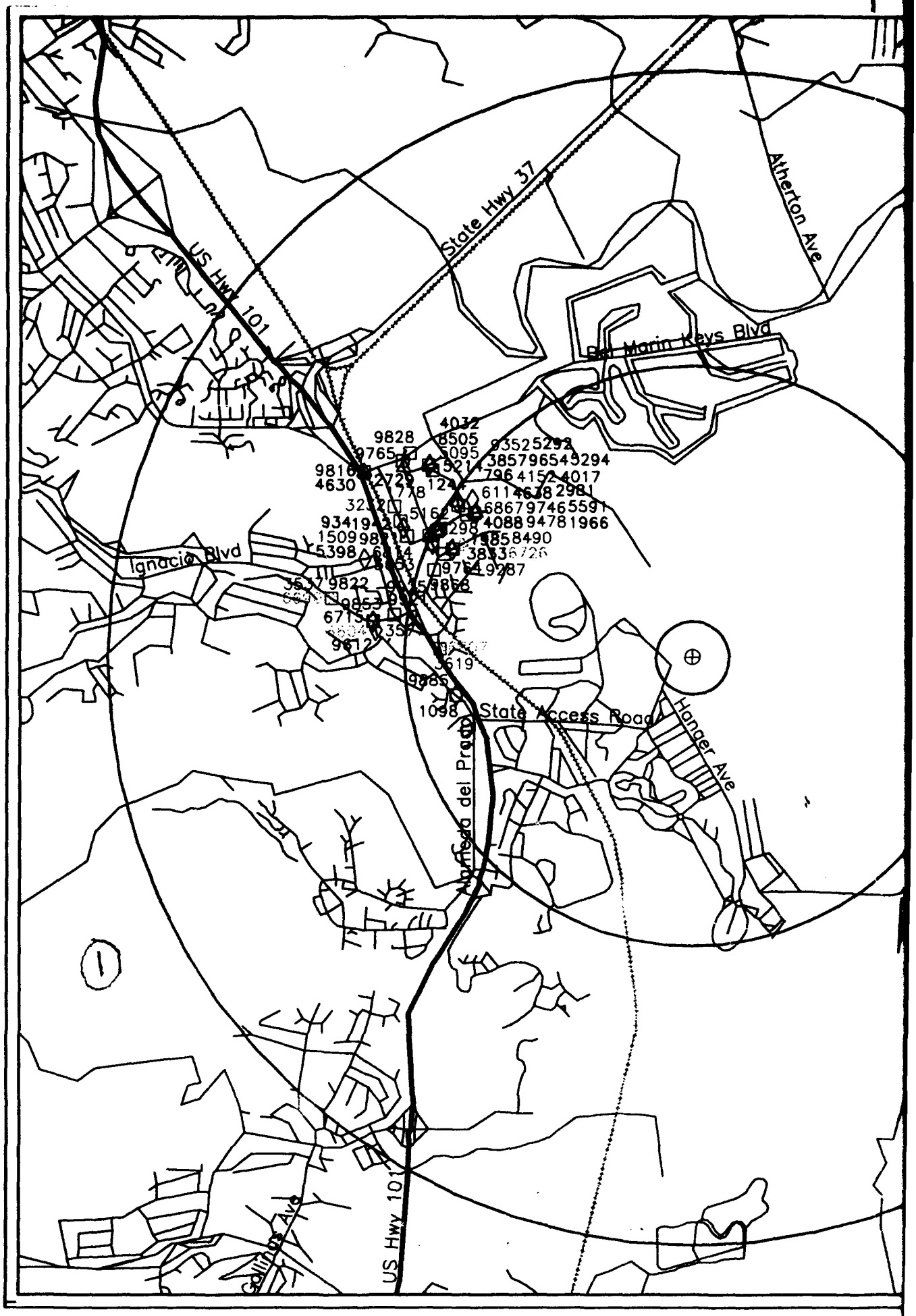
Selection of PROPERTY records requires an accurate street address in the ERIIS job order.

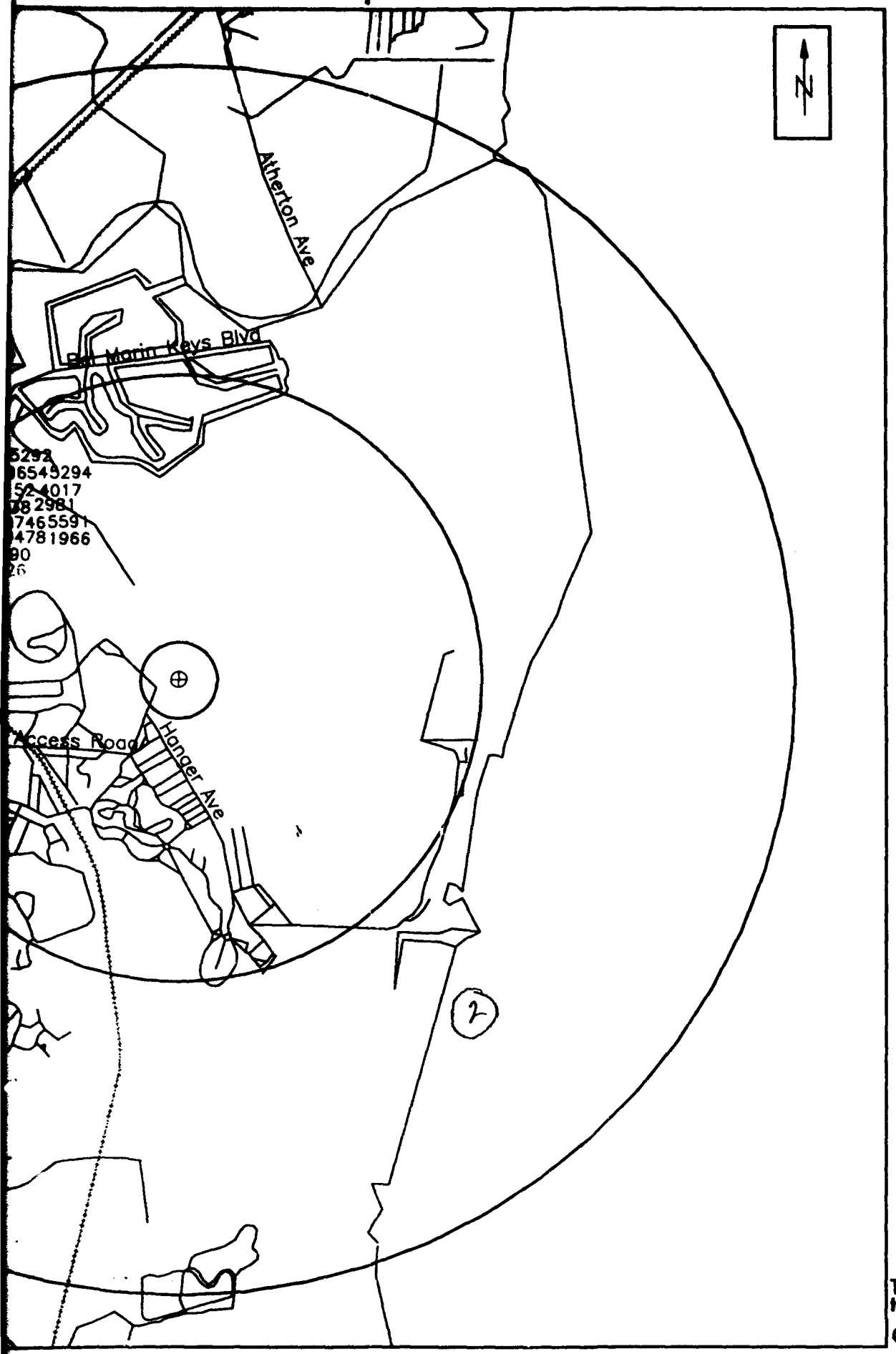
ZIP CODE and CITY/COUNTY sites are not radius reportable due to insufficient and/or inaccurate addresses reported by federal/state agency. These sites are reported within the study site zip code(s) and/or city/county and may be within the study site radius. These sites require further investigation to accurately assess proximity to the study site.

A blank radius count indicates that the database was not searched by this radius per client instructions.

NR in a radius or zip code count indicates that the database cannot be reported by this search criteria due to insufficient and/or inaccurate addresses reported by a federal/state agency.

State data in paper format is sorted using the most specific secondary search criteria available (zip code, city, or county).


State Hwy 37
Atherton Ave
US Hwy 101
Bel Marin Keys Blvd
Ignacio Blvd
Alameda del Prado
State Access Road
Hanger Ave
US Hwy 101
Gallinas Ave



ERIIS

1421 Prince Street, S
Alexandria, VA 223
(703)836-0402 (800)9
FAX: (703)836-0468

SITE INFORMA

Hamilton Army Ai
Novato, CA
Marin County
Job Number: 28
Map Plotted: Aug 1

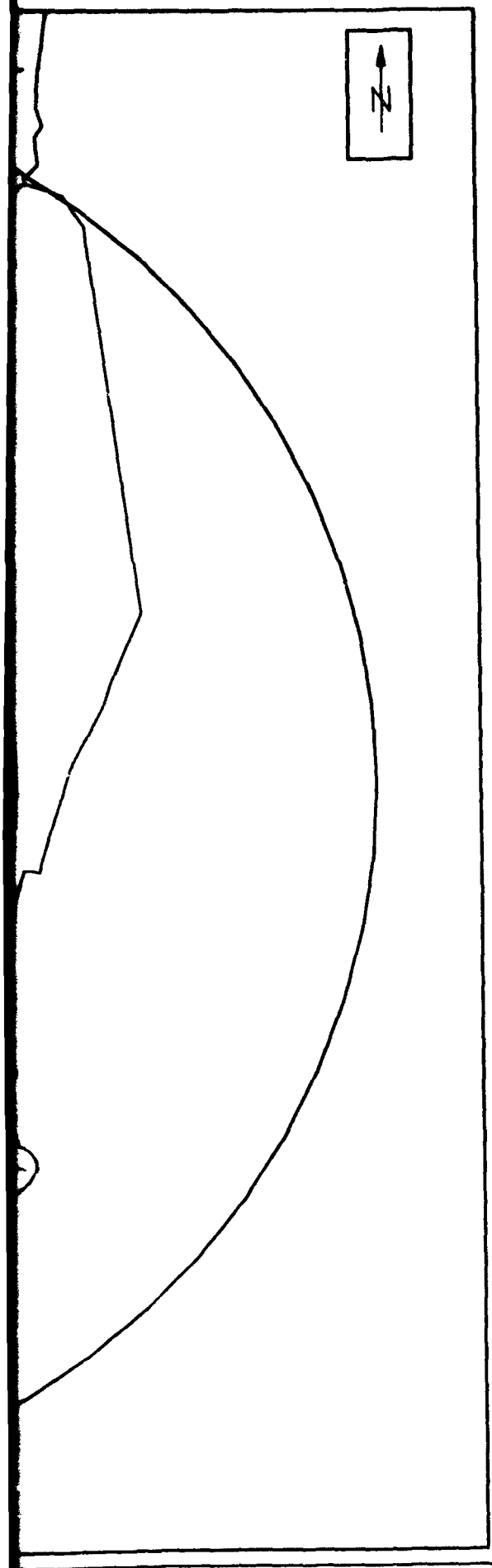
MAP LEGEN

- Hydrography
- Railroads
- Roads
- Highways
- CALSITES 1 Sit
- CERCLIS 0 Site
- CORTESE 4 Sit
- HWIS 10 Site(s
- LUST 6 Site(s)
- NPL 0 Site(s)
- RCRIS_LG 13 S
- RCRIS_SG 12 S
- RCRIS_TS 0 Sit
- SWAT 0 Site(s)
- SWIS 0 Site(s)
- TITLE3 1 Site(s)
- TRI 0 Site(s)
- UST 12 Site(s)
- WDS 0 Site(s)

Miles

0 0.5

The Information on this ma
to the Report Disclaimer N



ERIIS

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(703)836-0402 (800)989-0402
FAX: (703)836-0468

SITE INFORMATION

Hamilton Army Airfield
Novato, CA
Marin County
Job Number: 28665
Map Plotted: Aug 19, 1993

MAP LEGEND

- Hydrography
- Railroads
- Roads
- Highways
- CALSITES 1 Site(s)
- CERCLIS 0 Site(s)
- CORTESE 4 Site(s)
- HWIS 10 Site(s)
- LUST 6 Site(s)
- NPL 0 Site(s)
- RCRIS_LG 13 Site(s)
- RCRIS_SG 12 Site(s)
- RCRIS_TS 0 Site(s)
- SWAT 0 Site(s)
- SWIS 0 Site(s)
- TITLE3 1 Site(s)
- TRI 0 Site(s)
- UST 12 Site(s)
- WDS 0 Site(s)

Miles

0 0.5

(3)

APPENDIX C

REGULATORY COMMENTS TO DRAFT HAMILTON ARMY AIRFIELD CERFA REPORT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105-3901

APR 3 1994

Major Ronald Light
Department of the Army, USAEC
Base Closure Division
Beal Road, Building 4480
Aberdeen Proving Ground, MD 21010

Dear Major Light:

We appreciated the opportunity to review the draft Community Environmental Response and Facilitation Act (CERFA) Report for Hamilton Army Airfield and are submitting the enclosed general comments. As part of this review, we have reviewed draft comments on the CERFA report prepared by the California Department of Toxic Substances (DTSC). We concur with the approach DTSC has taken in analyzing the document and are submitting our comments to augment DTSC's more detailed remarks.

We are interested in meeting with you and representatives from DTSC to discuss the CERFA report for Hamilton Army Airfield. I have asked Esther Hill, of my staff, to contact you about a possible time and location. Also, please contact Esther at (415) 744-~~2385~~ 2331 if you have any immediate questions about our comments.

Sincerely,

John Kemmerer, Chief
Base Closures Program

Enclosure

cc: Neil Nelson, Sixth Army
Jennifer Smith, DTSC

Comments on Draft CERFA Report
Hamilton Army Airfield
1/27/94

Definition of parcels:

On page 1-2 of the draft document, definitions are provided for the parcels under review. Although the category "BRAC Parcel" would appear to be the equivalent of "uncontaminated" as defined by CERFA, this is not explicitly stated. Similarly, it appears from the text that "BRAC Parcel with Qualifiers" is intended as equivalent to "CERFA Parcel." Given the objective of identifying parcels uncontaminated under CERFA, we suggest the use of "CERFA Uncontaminated Parcel" or "CERFA Parcel" unless there is some other justification for the use of "BRAC Parcel" and "BRAC Parcel with Qualifiers." The text defines "BRAC Parcel" to include portions of the installation "which once contained non-CERCLA hazards including asbestos, unexploded ordnance (UXO), lead-based paint, and radionuclides, but has since been fully remediated." This definition should be changed since several of these materials are explicitly defined in 40 CFR 302 as hazardous substances and are therefore not "non-CERCLA." Also, contaminated parcels which have undergone a response action are not uncontaminated parcels under CERFA.

It is our understanding that the Army has taken the position that the presence of asbestos and lead-based paint in intact and good condition, the presence of naturally-occurring radon (or other naturally-occurring radionuclides), or the presence of PCB-containing transformers that are part of an active electrical supply system need not disqualify property as being uncontaminated under 120(h)(4). It would be useful for the CERFA report to provide the Army's legal rationale for this conclusion. We support the position that at a minimum the presence of these materials be disclosed to the public and to potential future users of the property.

Boundaries of parcels:

The document uses a one-acre grid pattern for delineating the boundaries of parcels on the installation. It is unclear from the text and map whether these boundaries adequately delineate contaminated from uncontaminated areas. For example, stars are used on the map to indicate areas where there has been a release of a hazardous substance or petroleum. Please tell us whether the contamination is fully characterized within the one acre grid. In several instances, the star appears at the edge of a one acre grid boundary, yet there is no justification provided that soil and groundwater contamination stops at the one acre line.

CERFA research and documentation:

This document should include the results of research and analysis of historic and current aerial photographs and title documents for all of the parcels. In addition, the document should provide information on past use of facilities (in particular, the buildings located on Hospital Hill have little or no discussion of past use).

In identifying uncontaminated property, Section 120(h)(4)(A) says that identification may be based on sampling, if appropriate under the circumstances. The document identifies two adjacent properties, the former drum storage site at Building 329 and the undetermined UST site at Building 140, where there is insufficient information to assess possible environmental impacts on the CERFA parcel. If records search, interviews, and visual inspection cannot provide sufficient information for these two, or any other, parcels, sampling may be necessary to determine that there is no migration of contamination.

Better linkage between text and map:

While the map in Figure 5-1 helps orient the reader, there are a number of references in the text to specific buildings, hangers, revetment areas, test facilities, and hazardous materials storage and use areas that are not identified or correctly coded on the map. For example, Building 515 is reported to have actively leaking PCB containing transformers, yet it is coded as part of a CERFA Parcel. It would also be helpful to reference a site in the text by the map coordinates (x,y). For example, in section 4.4.6 Radionuclides, it would be easier to locate the cylinders by map coordinates rather than describing the location as "below the northern levee beyond the runway overrun in the airfield BRAC Parcel."

Possible contaminants:

There are a few possible contaminants that are not specifically addressed or only briefly addressed in the document.

Section 2.4.1, Visual Inspection of HAAF, notes that barrels, bags, or other containers observed on the BRAC Parcel were inspected to determine if they contained pesticides or herbicides and that evidence of stressed vegetation was noted. However, there is no specific report on pesticides or herbicides application, storage, or use. The document should contain this information and its impact on the identification of CERFA parcels. If the Army intends to identify parcels where pesticides/herbicides have been applied as uncontaminated under CERFA, the legal rationale for these conclusions should be provided.

Current waste management practices are described in the document, but past disposal of medical or biohazardous is listed as unknown.

Section 4.9 contains a brief note that no data was available regarding storm sewers when the BRAC parcels were designated and that this data, when complete and received, could change the designation of some areas within the BRAC parcels. Rather than including within CERFA parcels any areas suspected of contamination, these areas should be listed as "under investigation" similar to Category 7 parcels as described in the BCP Guidebook.

The document notes that one newspaper article reported dumping of UXO and that the enhanced PA included an estimate of the location of bombing areas. Although there is no other documentation of these areas, are there former employees who might be able to verify or locate these sites?

Analysis of all applicable property:

Section 120(h)(4)(E) specifies that CERFA identification applies to any real property owned by the United States that is or has been used as a military installation and on which the United States plans to close or realign military operations pursuant to a base closure law. It is not clear why the following parcels are not part of this review and document: the Army-owned parcels to the north and west of the identified BRAC Parcels; the small parcels identified in the text as A1, A2, A3, A5, and A6; property transferred and to be transferred to the US Coast Guard; and the levee easement. The document should clearly note property on HAAF as subject to 120(h)(4)(E), along with the rationale for why any property is not considered.

...RONMENTAL PROTECTION AGENCY

PETE WILSON, Governor

...ENT OF TOXIC SUBSTANCES CONTROL

...ael, 4th Floor
P. Box 806
Sacramento, CA 95812-0806
(916) 255-2023

Rec'd 2/[illegible]/94

February 4, 1994

Major Ronald Light
United States Army Environmental Center
Attn: SFIM-AEC-BCP
Aberdeen Proving Ground, Maryland 21010

Dear Major Light:

We appreciate the opportunity to review the draft Community Environmental Response and Facilitation Act (CERFA) Report for Hamilton Army Airfield. We look forward to the opportunity to review and comment on your final report.

Enclosed please find general and specific comments on the draft CERFA Report from the following:

Attachment One is California Environmental Protection Agency's (Cal/EPA) comments. This set of comments is primarily prepared by the Department of Toxic Substances Control. Comments have also been provided by the Regional Water Quality Control Board and are denoted with the initials (RWQCB).

The Department of Health Services, Environmental Radiation Program and the County of Marin, Waste Management Division also provided comments and are included as Attachments Two and Three.

One of our major concerns is that the CERFA process was not applied to all Army owned property. It appears the CERFA review was not conducted on property outside the designated Base Realignment and Closure (BRAC) parcels. We realize the Navy property will be included in the CERFA document currently being prepared by the Navy.

We have coordinated our comments with the United States Environmental Protection Agency. We are interested in meeting with you to discuss the CERFA Report. I will call you about a possible time and location. Due to the strict time line imposed by the CERFA statute, we feel that it is important that we work closely with you to address our concerns in your final report. Further, it would be helpful to the State if your letter requesting concurrence included a listing of specific parcels upon which you want concurrence.

Please contact me at (916) 255-2023 if you have any immediate issues to discuss.

Sincerely,

Theresa McGarry
Environmental Assessment and
Reuse Specialist

Enclosure

cc: Ms. Esther Hill
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street (MC H-3-2)
San Francisco, California 94105

Mr. Neil Nelson
BRAC Environmental Coordinator (BEC)
6th U.S. Army
Presidio of San Francisco
Attn: AFKC-ZM-DEH-EE
San Francisco, California 94129-7000

Steven A. Book, Ph.D.
Environmental Radiation Programs
Division of Drinking Water and
Environmental Management
601 North 7th Street
P.O. Box 942732
Sacramento, California 94234-7320

Mr. Timothy A. Underwood
County of Marin, Waste Management Division
3501 Civic Center Drive
San Rafael, California 94903-4177

Attachment 1

SUBJECT: EVALUATION OF COMMUNITY ENVIRONMENTAL RESPONSE FACILITATION ACT (CERFA) REPORT FOR HAMILTON ARMY AIRFIELD (HAAF), NOVATO, CALIFORNIA

GENERAL COMMENTS

1. Numerous acronyms and abbreviations are used throughout the Report. Some of the acronyms and abbreviations presented in the Report are relatively new to the environmental process. A listing of acronyms and abbreviations was not provided.

   The Army should provide a listing of acronyms and abbreviations in alphabetical order prior to Section 1.0 (Introduction) of the Report.

2. Department of Defense (DOD) Guidance for CERFA (September 1993) states that the Environmental Baseline Survey (EBS) Report will include "property identification" (e.g., address, assessor parcel number, legal description). Please discuss why the acre-grid approach was taken, instead.

3. Section 3.0 (Property Background Information) discusses numerous land parcels, buildings, sale property, parking areas, and housing areas without providing a scaled base map showing all the referenced locations. The lack of correlation between text and scaled figures greatly reduces the readability and useability of the Report.

   Please provide a scaled base map showing all identified features contained within the Report to ensure completeness and to enhance useability.

4. Section 4.0 (Investigation Results) presents generalized test results and sampling locations, some of which are incorrect when compared to data presented in the Final Environmental Investigation Report (FEIR).

   Please use specific test results and sampling locations, such as monitoring well and test pit identifications. These identifications should be linked to proper references so that any reader would know where and what information to look for if they are interested in specific details.

5. Section 4.0 (Investigation Results) consistently uses subjective terminology such as trace, significant, low, elevated, and others to describe the extent of contamination. Without the use of a proper reference, the use of subjective terminology is misleading because the terms have different meaning to different data users.

Please remove subjective terminology from the Report and use only reported concentrations to describe the extent of all identified contaminants.

6. The Report does not adequately address the potential impact of contamination from parcel to parcel identified in the Report.

   Please adequately address any impacts to uncontaminated areas from contamination on the installation and adjacent properties.

7. The Army appears to have done an incomplete review of historical aerial photos for the installation. This review is required by CERFA.

   It appears that the only reference to an aerial photo review is on page 4.5 of the Report under the section "Revetment Turnouts".

8. In general, the parcels on HAAF with buried fuel lines have not been adequately investigated to determine if fuel has been released. Given the age of the fuel lines and soil conditions at the site it is likely that undocumented fuel releases have occurred along these lines.

   Please classify parcels with unexcavated fuel lines as CERFA Disqualified, since contamination from these older structures is likely and they have not yet been adequately investigated. (RWQCB)

9. Analysis of samples from the large drainage ditches that transport surface runoff from HAAF and from the tidal wetlands exposed to the discharge from these ditches, has revealed elevated levels of metals, semi-volatile organic compounds and petroleum hydrocarbons (see FEIR). These data indicate that the drainage ditches may be an important transport pathway for contaminants from various parts of the airfield to the San Francisco Bay.

   Please classify parcels including portions of the large drainage ditches as CERFA Disqualified until they have been adequately investigated. Adequate investigation may include additional samples for chemical analysis and/or bioassay analysis of the water in the ditches. (RWQCB)

10. It is unclear from the information provided whether the parcel borders adequately delineate contaminated from uncontaminated areas. The Army should provide the rationale used in delineating parcel boundaries and "areas of concern".

11. It is our understanding that the Army is taking the position that the presence of asbestos or lead-based paint, the presence of naturally-occurring radon (or other radionuclides), or the presence of polychloroethylene Biphenyl (PCB)-containing equipment stored (not in use) need not disqualify property from being designated CERFA or CERFA Qualified parcel.

    Please provide in the Report the legal and technical rationale that was used to reach this conclusion.

12. The Army should identify Installation Restoration Program (IRP) sites on the maps.

SPECIFIC COMMENTS

1. Cover Letter: The cover letter for this Report (to Major Ron Light, dated November 1, 1993) indicates that the Northern Drainage Ditch and portions of the JP-4 Fuel Lines may be reclassified as CERFA Parcels.

    Please keep these areas as CERFA Disqualified because as discussed above, it is suspected that these areas may be contaminated to some degree. (RWQCB)

2. Page 1-1. The text states, " The BRAC Program is patterned after the Army's IRP except it has been expanded to include such categories of contamination such as asbestos, radon, PCBs, and others that are not normally addressed under the Army IRP." Based on this statement it is unclear what categories of contamination are addressed under which program. This is particularly important with respect to property transfers because more than one program may need to be involved to adequately characterize and remediate contamination.

    Please amend Section 1.1 (Purpose and Scope) to clearly and completely define which types of contaminants and/or substances are identified under which program.

3. Page 1-1. The text states " The term "enhanced" is used to distinguish these assessments from previous IRP preliminary assessment (PAs) since the BRAC PAs are conducted from a property transfer perspective and evaluate areas which are not included on the IRP (e.g. asbestos, radon, PCBs)." This is incorrect. The scope of the IRP PA may be different than the enhanced-PA in terms of the types of contaminants but certainly not in terms of land or area.

    Please provide clear and complete definition of what contaminants are addressed under which program (i.e PAs versus enhanced PAs).

4. Page 1-1. The text generically refers to BRAC 1 and BRAC 91 base closures but never identifies how HAAF fits into which base closure group.

   The text should provide the necessary link of HAAF to the appropriate closure group.

5. Page 1-2. The text states, "The purpose of this final report is to present the findings for HAAF in Novato, California." The text incorrectly identifies the Report as final when the Report cover clearly identifies it as draft.

   Please accurately state the status of the Report, which is draft.

6. Page 1-2. The text under Section 1.2 identifies four parcel types: (1) BRAC Parcel, (2) BRAC Parcel with Qualifier(s), (3) CERFA Disqualified Parcel, and (4) CERFA Excluded Parcel. Unfortunately, consistency is not maintained within the Report using the four identified terms. For example, Figure 5-1 uses the term CERFA Parcel not BRAC Parcel and it uses the term CERFA Parcel with Qualifiers not BRAC Parcel with Qualifier(s). Consistency between the two remaining terms is maintained between the text on Page 1-2 and Figure 5-1. Also, BRAC Parcel is incorrectly given the definition of CERFA. The BRAC Parcel definition appears to be defining the Army-owned property which is subject to BRAC and which consists of all four parcel types.

   Please correct the definitions and maintain term consistency throughout the Report for accuracy, completeness, and readability.

7. Page 1-2. The text (eg. BRAC Parcel, BRAC Parcel with Qualifier) incorrectly identifies radionuclides, lead-based paint and asbestos (friable) as non-CERCLA hazardous. According to 40 CFR Part 302 and Table 302.4 these substances are listed as a CERCLA hazardous substance.

8. Page 1-2. BRAC Parcel with Qualifier: The text incorrectly identifies PCB containing equipment as non-CERCLA. PCBs are considered a CERCLA substance. PCB transformers which are in service need not preclude a CERFA parcel designation.

9. Pages 1-2 and 1-3. The text identifies labels for qualifying parcels and labels to qualify contaminants. Unfortunately, these labels are not included on Figure 5-1 which reduces the useability of Figure 5-1. Further, a review of Table 5-1 shows that parcel 2Q was not identified and labels are inconsistently applied such as for parcel number 1Q-/A/L/RD when compared to the listing on Figure 5-1.

Please be consistent with labeling to facilitate direct comparison of text to figures, text to tables, and figures to tables. Accuracy and consistency must be maintained in the Report to ensure useability.

10. Page 1-3. The text under Section 1.3 (Geographical/Environmental Setting) describes the "airfield BRAC Parcel" and "Hospital Hill Brac Parcel" in terms of location on the base and the types of properties bounding these parcels. While the text is lengthy, it is not referenced to any scaled map which clearly and completely shows all of the referenced properties. In addition, the text indicates that the "airfield BRAC Parcel" is located in the eastern portion of the installation. The latter statement is only partially correct because the "airfield BRAC Parcel" extends from the northwestern extent of the installation to the eastern levee, not to mention its northern or southern boundaries. Further, the text identified parcels A1 through A6 without definition of their location or boundaries.

    Please provide a scaled base map, a size similar to Figure 5-1, which clearly shows all identified parcels, border properties with designations, and all boundaries.

11. Page 1-3. Please reword "Hazardous Release/Disposal" to "Hazardous Substances Release/Disposal" and "Hazardous Storage" to "Hazardous Substances storage".

12. Page 1-4. Section 1.3.2 (Surface Water Drainage) is not correlated to a scaled map indicating flow directions of surface water supporting the text. The text is unclear where surface runoff from one parcel flows onto another parcel.

    It would be helpful if the Army provided a scaled base map showing surface water drainage flow paths, flood plains, Novato Creek Watershed, tidal estuaries, Novato Creek, collection ditches, and pump stations to accurately show the surface water drainage interaction among land parcels.

13. Page 1-5. Section 1.3.3 (Geology and Soils) is not linked to a scaled base map, does not identify the presence of Tertiary(?) sandstone unconformably overlying Franciscan Complex rocks on Reservoir Hill and incorrectly uses the term "classic" sediments.

    Please modify the text appropriately and link it to a scaled base map. The FEIR should be appropriately referenced when modifying the text.

14. Page 1-6. Section 1.3.4 (Hydrogeology). The text should discuss any relevant information regarding well locations, potentiometric surface, and groundwater flow directions.

The Army could reference any scaled maps showing all well locations, potentiometric surface, and groundwater flow directions.

15. Page 1-6. Section 1.3.4 (Hydrogeology) uses subjective terminology such as small, low, high, and very slow to describe groundwater flow rates and lateral hydraulic gradients. Subjective terminology has different meanings to different data users.

Please delete all subjective terminology and use actual values found in the FEIR. The actual values should be obtainable from the scaled map identified in specific comment number 12.

16. Pages 1-6 and 1-7. Section 1.3.4 (Hydrogeology) consistently uses inappropriate terminology such as "unconformed aquitard", "inpockets", and "backish" to describe the hydrogeology at HAAF.

Please use recognized hydrogeology terms for describing the hydrogeology at HAAF.

17. Page 1-6. Section 1.3.4 (Hydrogeology) identifies that the "airfield BRAC Parcel" consists of one to three hydrogeologic units. One unit is identified as the Bay Mud and another unit is identified as fill material placed upon the Bay Mud. The third unit is not described.

Please identify the third hydrogeologic unit. The text should describe the interaction of groundwater among units. The Army could reference any scaled maps which show the locations of hydrogeologic units.

18. Page 1-6 and 1-7. The Bay Mud is a locally recognized stratigraphic unit.

Please capitalize the name "Bay Mud" thrcughout the document. (RWQCB)

19. Page 1-7. The text states that "The only region of the airfield portion of the BRAC Parcel in which significant groundwater investigations have not been conducted is along the runway and in the northern most portion of the site." These portions of the site make up on-third to one-half of the BRAC Parcel and it is misleading to discount their importance with a qualifier such as "only".

Please modify the text to include an estimate of proportion of HAAF that has not been the subject of a groundwater investigation. (RWQCB)

20. Page 1-7. The text states that "It is anticipated that these areas would exhibit a relatively flat water table similar to the revetment area due to the presence of the low hydraulic conductivity of bay mud." While a flat water table may be expected in this area due to the low relief, it would probably not be caused by low hydraulic conductivity.

    Please reword the text or give further explanation. (RWQCB)

21. Page 1-7. The text states that "The hydrogeology of the Hospital Hill BRAC Parcel has not been investigated as thoroughly as the airfield portion of the BRAC Parcel." It does not appear the hydrogeology of this area has been investigated at all, since the nearest well (that the text indicates) is in a completely different hydrogeologic situation (low relief Bay Mud versus high relief bedrock and colluvium).

    Please modify the text to accurately and completely state the facts. (RWQCB)

22. Page 2-1. The text states, "A listing of these documents is provided in Appendix A. A summary of the findings in the most relevant of these documents is provided below." A review of Appendix A shows that the cover page's title is mis-spelled, the title is mis-spelled on Page A-1, some dates are not provided, and TBD (to be determined) is provided as a footnote but is not used on Page A-1. Further, it is unclear how "most relevant" is defined and what criteria were used for selection.

    Please resolve spelling errors, missing dates, and TBD issues in Appendix A. Further, the Army should clearly define the term "most relevant" and state what criteria was used in the selection process.

23. Page 2-1. The text states, "The PA is enhanced to cover topics not normally addressed in a PA. These topics include: . . . ". The listing of topics provided is not the same as the listing provided on Page 1-3 of the Report.

    Please ensure that the topics identified in the enhanced-PA on Page 2-1 be fully compatible with the listing provided on Page 1-3.

24. Page 2-2. The text indicates that the enhanced-PA recommended further actions. However, the recommended further actions are in some cases inappropriate because of prior decisions. For example, the U.S. Army Corps of Engineers Sacramento Division has indicated to DTSC that JP-4 fuel lines and any associated contamination will be removed.

    Please contact the appropriate personnel at the regulatory agencies, DoD, and Corps of Engineers to gain a more accurate and complete picture of where and what further actions actually need to be proposed.

25. Page 2-3. Section 2.1.2 (EI Report) states, "The EI focused on AREEs identified in the enhanced PA". A review of the EI and comparison to the Report shows that asbestos, radiological disposal site, and bombing range were not part of site-specific evaluations.

    Please modify the quoted language to exclude asbestos, radiological disposal site, and bombing range as elements of the EI.

26. Page 2-3. The text states, "Through an integrated sampling and analysis program, the EI identified the nature, extent, and potential pathways of contamination associated with the study area." This statement is incorrect. In fact the extent of contamination is not fully defined at any site. The California Regional Water Quality Control Board (RWQCB) San Francisco Bay Region has given conditional approval of the EI, under conditions of additional sampling and analysis as confirming the extent of contamination during remedial activities.

    Please reword the text to accurately and correctly state the facts.

27. Page 2-3. Section 2.1.3 (Draft Alternatives Assessment Report) indicates that cleanup levels have been established by regulatory agencies. In fact, only cleanup levels for total petroleum hydrocarbons as gasoline and diesel fuel in soil and groundwater for the Phase 1 General Services Administration (GSA) sale property have been established. All other cleanup levels are in the process of being determined and are largely a function of the proposed reuse options.

    Please modify Section 2.1.3 to present the facts regarding cleanup levels.

28. Page 2-3. Section 2.1.4 (Asbestos Survey Report, HAAF) indicates that three buildings (numbers 20, 40, 516) were not surveyed for asbestos. However, no indication of why they were not surveyed or when they will be surveyed is provided. No information is provided regarding whether or not the asbestos is in friable condition.

Please provide the rationale for not surveying buildings 20, 40, and 516, as well as an indication as to if and when they will be surveyed. The Army should consider including a copy of the Asbestos Survey Report as was done in the CERFA Report for Fort Ord. Information regarding the condition of the asbestos in the buildings should be provided.

29. Page 2-4. The text contained within Section 2.1.6 discusses the preparation of a PA report for the four parcels that will be transferred but omits any discussion of the revelant information revealed in that report.

Please summarize the results of the PA.

30. Page 2-4. The text contained within Section 2.2 (Federal, State, and Local Government Regulatory Records) indicates an electronic database search was conducted and results are in Appendix B. A review of Appendix B shows that an electronic database search was conducted (with numerous disclaimers) and a statistical profile is presented. The text in Section 2.2 does not clearly and completely identify database acronyms, such as HWIS, and where the identified sites are relative to the two subject parcels. Therefore, interpretation and useability are greatly hindered.

Please modify the text in Section 2.2 of the Report to clearly summarize the results of Appendix B, some of which should be tabular format, and clearly identify what each acronym means. Further, the Army should provide a scaled map showing the locations of the sites identified in Appendix B and the two subject parcels at HAAF.

31. Page 2-4. The text states, "A complete list of agencies visited or contacted and individuals interviewed is provided in Table 2-1." A review of Table 2-1 shows that dates of employment for 10 of 23 interviewees are undetermined. Because nearly 50 percent of the interviews have undetermined time frames for involvement with environmental activities at HAAF a high degree of chronologic unreliability exists for information provided by the 10 interviews. Further, there is no Region 12 for the California Department of Toxic Substances Control (DTSC) and some of the interviewees names are misspelled.

Please do the following: (1) identify the uncertainty associated with the 10 interviewees in the Report or make a better effort to identify actual dates of involvement, (2) identify the appropriate DTSC Regions and (3) correct name misspellings.

32. Page 2-10. Pesticide/Herbicide Application, Storage, or Use. The Army should address, in more detail, the results of the visual inspection regarding the storage and use of the pesticides and herbicides and their potential impacts on uncontaminated areas.

33. Page 2-10 to 2-11. The report indicates that a newspaper article reported dumping of unexploded ordnance (UXO). Although there appears to be no other documented evidence of this activity, the Report indicates that interviews were done to confirm this activity. The Report does not discuss the results of those interviews.

34. Page 2-11. Section 2.4.2 (Visual Inspection of the Adjacent Property) indicates a database search within a 1.75 mile radius from the center of the site has occurred. In Section 2.2 a 2.5 mile radius database search was conducted and information was provided in Appendix B. No associated appendix is provided for the 1.75 mile radius database search. It is unclear why a shorter radius database search was conducted, why it has a shorter radius and, therefore, is a subset of the larger radius database search, and why the resultant database information is not provided in a supporting appendix.

Please provide the following: (1) a scaled base map showing the centroid and the 1.75 mile radius database search area (2) supportive database information in appendix format, and (3) a clear rationale for apparently duplication of effort when the 1.75 mile radius database search is a subset of the 2.5 mile radius database search.

35. Page 2-11. Section 2.5 (Title Documents) indicates that the last revision date is January 1990, and several transfers have occurred since that time. It is unclear why all property transfers since 1990 are not identified in Section 2.5 of the Report.

Please provide a current Tract Register Map which shows all property transfers to date, or the existing map should be supplemented with scaled maps and supportive text that clearly and completely shows all property transfers. Further, the Army should provide any relevant information obtained from the review of recorded chain of title documents regarding the property.

36. Page 3-2. Section 3.1.1 (Past Activities) describes numerous areas with respect to specific buildings, hangers, test facilities, and the storage and use of hazardous substances. Scaled maps are not provided which show the necessary visual support for the text.

Please provide a scaled map showing the specific text referenced structures to properly orientate the reader.

37. Pages 3-2 and 3-3. The text indicates that the majority of reventment turnouts are paved, although several are unpaved. The text does not specifically identify by number designation which reventments are unpaved, nor is the text supported by a scaled map showing paved and unpaved revetment areas.

Please number designate all reventment areas and show their locations on a scaled map.

38. Page 3-4. The text indicates that one and possibly two underground storage tanks (USTs) exist at Building 41. The FEIR indicates that only one UST currently exists at Building 41 and a second UST was previously removed because it leaked. When the leaky UST was removed, over excavation of impacted soils also occurred and those soils are still stockpiled on-site.

Please amend the Report and present the facts as they exist in the FEIR.

39. Page 3-4. The text identifies the existence of Building 575 in the "Hospital Hill BRAC Parcel". However, a review of Figure 5-1 shows that Building 575 is not labeled as existing at the "Hospital Hill BRAC Parcel".

Please modify Figure 5-1 to show the location of Building 575 as part of the "Hospital Hill BRAC Parcel".

40. Page 3-4. The text for medical activities fails to identify the potential existence of mercury associated with thermometers and other medical measurement equipment. It is the common practice of most medical facilities to discard the mercury associated with broken medical measurement equipment by pouring it down the drain. At other/ DoD facilities, drain line traps have been found to be laden with mercury. Further, text on page 4-17, Section 4.4.6 indicates the potential for radioactive materials in several buildings which is not addressed in this section. Also, the buildings located on Hospital Hill have little discussion of past uses.

Please identify the potential presence of mercury with medical activities and drain disposal to receiving base facilities and consider it a potential migration pathway. The Army should also address the potential for radioactive materials.

41. Page 3-6. Associated with Building 86, the text identifies three hazardous materials/waste storage areas that are located outside the hanger. The text discusses two of the storage areas but not the third storage area. No scaled map is provided showing their locations. Further, the hazardous substances/wastes are not specifically identified as Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) hazardous or non-CERCLA hazardous.

    Please discuss the third storage area, identify the hazardous substances and provide a scaled map supporting the text to enhance its readability and understanding.

42. Page 3-6. The text indicates that a 5,000 gallon JP4 fuel truck is located near storage area 2 northwest of Building 86. A review of the FEIR indicates that the northwest designation may be incorrect and it may be southwest.

    Please verify the geographic designation and show the JP4 trucks location on a scaled map.

43. Page 3-7. The text identifies three connexs associated with Building 94, as 94A, 94B, and 94C. Unfortunately, none of the connexs are shown on a scaled map.

    The Army should provide a scaled map which shows text referenced building and connexs.

44. Page 3-7. A discussion is provided on the "Hospital Hill BRAC Parcel" with specific text on each building. However, no mention of Building 575 is provided even though it is identified on Page 3-4 of the Report.

    Please include a discussion of Building 575 on Page 3-7 of the "Hospital Hill BRAC Parcel".

45. Page 3-8. The final paragraph at the bottom of Page 3- states, ". . . at a suspected UST site behind Building 26." Page 3-5 of the Report indicates that only above ground storage tanks (AGTs) exist at Building 26 but USTs may exist at Building 20.

    Please resolve the continuity regarding the existence of ASTs and/or USTs at Building 26 and Building 20 so that the Report is consistent and accurate.

46. The text states that "Parcels A1, A2, A3, A5, and A6 have been transferred to the new Hamilton Partners." It is our understanding that these parcels are owned by the Army, the sale of which is been administered by GSA. It also seems that since this is army-owned property, where federal government operations have been terminated, it should be included in the CERFA determination process and not considered adjacent properties. (See CERFA Law, Section 120(h)4(E).

The Army should check the accuracy of the text and confirm whether the GSA parcels should be part of the CERFA uncontaminated property determination process.

47. Page 3-9. The text indicates a second UST may exist at Building 41. This is in contradiction to Page 4-48 of the FEIR, which indicates that the second UST was removed and a stockpile of contaminated soils exist.

The Report should accurately present information found in the FEIR.

48. Page 4-3. The text indicates that the highest Total Petroleum Hydrocarbons (TPH) concentrations found at the JP-4 lines is 360 mg/Kg. A review of data for the fuel lines presented in the FEIR shows that sample location JP-SS-10 had a maximum lead concentration of 360 mg/Kg and the maximum TPH concentration was 264 mg/Kg at sample location JP-SS-8. Clearly, there is an accuracy problem with data presented in the Report.

The Army should ensure that all chemical data presented in the Report be directly compared to the FEIR to ensure that accuracy is maintained.

49. Page 4-3. The text does not clearly separate results from the 12" fuel line and the distribution fuel lines (6" and 8" lines), although they are physically separated and may have had different histories. No indication of the number of samples taken along each pipeline is given. An additional fuel line between the 6" and 8" lines that was identified in the FEIR is not mentioned in the CERFA Report.

The Army should modify the text to accurately and completely state the facts, including the approximate numbers of soil and groundwater samples taken near the fuel lines and analyzed for petroleum hydrocarbons. (RWQCB)

50. Page 4-3. California regulates PCBs as hazardous waste at 5 mg/l at soluble concentrations and 50 mg/kg at a total concentration.

Please clarify whether or not the liquid PCBs in the nine transformers are greater than 5 mg/l.

51. Page 4-4. The Report text once again identifies a UST (#25) associated with Building 26 which contradicts earlier text in the Report.

The Army should resolve the AGT versus UST issue at Building 26.

52. Page 4-4. The text states, " A number of new AREEs were identified through the CERFA Investigation ." The text should state specifically how many new AREEs were identified and correctly indicate which AREEs were not addressed in the FEIR. For example, the Report identified an AST at Building 35 as a new AREE but the FEIR had previously identified the same AST and provides chemical test results. This suggests that identification of new AREEs is questionable.

The Army should do a careful and complete comparison of new AREEs to sites in the FEIR to accurately confirm the new AREEs. The Army should map these "AREEs" and indicate what actions will be taken to address them.

53. Page 4-6. The text associated with the UST/AGT releases indicates that a UST exists behind Building 26 and evidence of a release exists. Once again, this information contradicts information presented on page 3-5 of the Report which indicates an AGT not UST exists at Building 26.

The Army should resolve the issue of AGT versus UST for Building 26 to ensure an accurate report.

54. Page 4-6. The text Expansion of Areas of Contamination text in the Report suggest that the extent of groundwater contamination was preliminarily identified. This is incorrect. The extent of soil and groundwater contamination at the Aircraft Maintenance Area (AMA) and the former Sanitary Treatment Plant (STP) are not fully defined.

The Army should ensure that the text clearly indicate that the extent of contamination is not fully defined at the AMA and STP but due to the unique geologic setting the extent of contamination is thought to be localized in extent.

55. Page 4-7. The text discusses adjacent and surrounding properties, but does not provide a scaled map to visually support the text.

The Army should provide a scaled map showing all adjacent and surrounding properties. A clear property boundary should be presented on the scaled map for all identified parcels presented in the Report.

56. Pages 4-8 to 4-15. The text discusses contaminant pathways from off-site, surrounding properties, and adjacent properties, but does not consider airborne transport and deposition. While this pathway may not be significant, it should be identified and discussed and directly linked to the risk assessment presented in the FEIR.

The Army should identify the airborne pathway and discuss it as a potential contaminant pathway.

57. Page 4-16. The text under Section 4.3.2 (New AREEs on Adjacent Properties) appears to have an important typographical error, the word quality should be qualify. Further, it appears that the potential for surface water runoff containing pesticides and/or herbicides from adjacent agricultural lands has not been adequately addressed.

The Army should evaluate and correct the apparent typographical error if appropriate and address the off-site transport of agricultural related chemicals onto HAAF.

58. Page 4-18. Section 4.5 (Remediation Efforts) states, "Three incomplete remedial activities have been conducted on the BRAC Parcel". However, four activities are presented below the quoted text. Further, the text identifies BRAC Parcel instead of "airfield BRAC Parcel" or "Hospital BRAC Parcel" as identified on Page 1-3 of the Report.

The text should be consistent in terms of identifying parcels and identifying remedial actions.

59. Page 4-19. Section 4.9 (BRAC Parcels) states, "It should be noted that no data were available regarding storm sewers when BRAC parcels were designated. This data, when completed and received, could change the designation of some areas within the BRAC Parcels identified on the maps in Section 5.0." Some additional parcels on Figure 5-1 would be redesignated as currently disqualified because of this uncertainty. Examples of the storm drain uncertainty combined with extent of contamination uncertainty at any site suggest that parcels, not limited to, ; 39,32; 39,33; 39,35; 38,34; 42,18; 29,25; 47 to 50 by 28 to 33; 18,16; and 37,14 be disqualified. We have used standard x-y nomenclature for identifying the presented parcel designations.

The Army should show the uncertainty with the extent of contamination associated with storm sewers on Figure 5-1 by redesignating appropriate parcels.

60. Table 5-1. Parcel 1Q-/A/L/RD cannot be labeled as a CERFA Qualified parcel when CERCLA hazardous substances (Radionuclides) are released, disposed of, or stored for greater than one year.

61. Table 5-1. Parcel 1Q-A(P)L RD cannot be labeled as a CERFA Qualified parcel if there is a leaky PCB transformer in Building 515, as noted on page 4-6 of the Report.

62. Appendix B. This appendix contains portions of the Environmental Risk Information and Imaging Services Report, but has no explanation of the acronyms used in the figures and tables. The appendix is not listed in the main Table of Contents. The appendix is also missing Sections IV, V, and VI, as listed in the appendix's Table of Contents.

Please define the acronyms used in the Report to aid the readers. Sections IV, V, and VI should be included in the appendix and the main Table of Contents should include Appendix B. (RWQCB)

63. Figure 5-1. Communications at meetings indicate groundwater and soil contamination found in approximate coordinates of 6 to 10 and 12 to 8 could impact BRAC parcel.

64. Figure 5-1. Due to their proximity to jet fuel lines, the following parcels should be classified as CERFA Disqualified: 17,14; 19,15; and 21,16. Due to the metal and semi-votatile organic compound contamination of the Wetlands that are exposed to discharge from the HAAF storm drainage system, the following parcels should be classified as CERFA Disqualified: 50,18; 50,19; and 51, 15-19. Further, a number of Disqualified parcels should be expanded to ensure adequate protection from the contamination in those areas (eg. 42,20; 37,15; 36,32 to 35).

Due to the large extent of "Disqualified Parcels" mixed in with the "CERFA Parcels" in the Northeastern and Southeastern portions of the Airfield BRAC Parcel, we suggest that these entire areas be considered "CERFA Disqualified".

Attachment 2

State of California **Department of Health Services**

Memorandum

DATE: January 18, 1994

TO: Jennifer Smith
Office of Military Facilities
Department of Toxic Substances Control
400 P Street, 4th Floor
Sacramento, California 95812-0806

FROM: Environmental Radiation Programs
Division of Drinking Water and
Environmental Management
601 North 7th Street
P.O. Box 942732
Sacramento, CA 94234-7320

SUBJECT: Hamilton Army Airfield Draft CERFA Report—Comments

Attached are the Department of Health Services' comments on the *Draft Community Response Facilitation Act (CERFA) Report, Hamilton Army Airfield, Novato, California, November 1, 1993.*

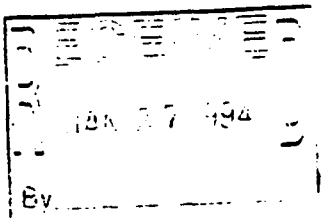
These comments are in support of the Interagency Agreement between the State Water Resources Control Board and the Department of Health Services.

If you have any questions concerning these comments or if you need additional information, please give me a call at (916) 322-2183.

Steven A. Book, Ph.D.
Special Assistant

Attachment

cc: Rufus Howell, DHS
Jack McGurk, DHS
Bill Watson, DHS
John Adams, SWRCB
Leslie Laudon, SWRCB
Theresa McGarry, DTSC



California Department of Health Services' Comments on the *Draft Community Response Facilitation Act (CERFA) Report, Hamilton Army Airfield, Novato, California, November 1, 1993.*

General Comments:

The report should contain a glossary of acronyms.

With regard to radioactive materials, the draft CERFA report for Hamilton Army Airfield (HAAF), discusses only two cites: (1) seven buildings associated with the medical facilities of the Hospital Hill BRAC parcel, and (2) a former burial site for two containers containing low-level radioactive materials, which were removed in 1988.

The discussion of radioactive materials is extremely limited. The report does not include radioactive materials as hazardous substance that need to be addressed, but considers them to be "Non-CERCLA related environmental, hazard, and safety issues". It is unclear why radionuclides are not considered hazardous substances, but are instead designated as "non-CERCLA" in this report.

Issues related to the presence of radioactive material are a major component of the base closure process. If the past use of radioactive material (including radium-226) and its disposal practices are not addressed, an expeditious transfer of military property to nonmilitary uses will be difficult.

There are concerns regarding the past use, storage, and disposal of radioactive material that need to be addressed in identifying property on military bases that can be released from military control. This belief arise from our observations of the historical use of radioactive material on military bases.

For example, the Department of the Army's Corps of Engineers distributed to its regional commands a memorandum (dated December 8, 1993) addressing awareness of radioactive materials used at Department of Defense (DOD) facilities. That memorandum pointed out that the DOD has issued over 2800 different types of instruments and articles containing radioactive materials, and that radioactive contamination may exist in materials in base supply warehouses, or in shops used for the manufacture, repair or maintenance of such articles. The memorandum also points out that "during the 1940s, 1950s, and 1960s, on-base burial, sometimes in radioactive waste disposal cells and often in on-base landfills, was a reasonable and acceptable disposal technique."

It also points out a number of radioactive materials that may be found (or may have been found) on Army, Navy and Air Force facilities. Under the facilities' general licenses the following may exist, or may have existed:

a. Radium dials, gauges, and illuminators. This is by far the most common and the greatest radioactive health and environmental hazard found on bases and includes luminous aircraft dials, watch dials, weapons sights, and compasses.

b. Depleted uranium (DU) used in armor and armor piercing weapons. (DU was also used in aircraft wings as a counter-balance.)

c. Tritium used in illuminators, especially self-illuminating exit signs.

d. Thorium used in lenses and glass, and in mag-thorium metal used for machine, aircraft and rocket parts. (Also, thoriated tungsten welding rods.)

e. Where the base includes a hospital, tritium and carbon-14 used in liquid scintillation counting. Note that most liquid scintillation counting fluids contain xylene or toluene which are hazardous wastes.

f. Washdown racks for aircraft used for flybys of nuclear tests have been found to contain radioactive fission products, uranium and plutonium.

Under Army, Navy and Air Force facilities' specific licenses, the following may be or have been present:

a. Calibration sources for radiation survey meters.

b. Hospital radiation therapy sources.

c. Radiography sources.

d. Some storage tank level detectors.

e. Certain soil probes.

We have also found that many times radioactive materials are not considered by contractors with expertise in hazardous materials as within their bailiwick, so in-depth review of the use, storage, and disposal of radioactivity may be omitted from the contractors efforts.

We have also found that the process often ignores experts that are available within a specific military branch. Information about the use of radioactive material could be obtained not only from interviews with past Radiological Safety Officers and employees, but also from radiation experts associated with the various service branches. These include: the Air Force's Armstrong Laboratory at Brooks Air Force Base in Texas; the Army's Environmental Hygiene Agency at the Aberdeen Proving Ground, Maryland; the Army Corps of Engineers in Omaha, Nebraska; and the Navy's Radiological Affairs Support Office in Yorktown, Virginia.

Documents regarding the use, storage, and disposal of radioactive material are often not being reviewed by contractors. For example, specific licenses from the Nuclear Regulatory Commission (NRC), DOD permits issued to facilities, and documentation generated by a facility's radiation safety program all have information that is needed to describe the historic presence of radioactive material on a military base.

Finally, we have found that naturally occurring radioactive material, in particular radium-226, is often not considered to be "radioactive material." However, it is of concern from a public health and environmental protection standpoint, and does need to be addressed in base closures and

property transfer. Radium-226, as mentioned above, was widely used throughout DOD facilities in a variety of commodities and practices.

We believe that the CERFA documents do need to address the wide use of radioactive material associated with typical military functions. We believe that it would be unusual for a military base not to have had on-site some presence of radium-226 containing dials, knobs, and gauges, or facilities that repaired equipment that contained radium-226 or other radionuclides. If no radioactive materials containing radium-226 or other radionuclides were used, repaired, stored, or disposed of on site, then this historical non-use should be included in the reports on the facility, with appropriate documentation and concurrence from knowledgeable and responsible base authorities.

No mention of the kinds of materials or uses itemized by the Army Corps of Engineers in its memorandum discussed above leads the reviewer to conclude that the issue of radioactivity on the facility was not considered in an appropriately thorough manner.

Specific comments:

Page 2-5 through 2-7, Table 2-1, List of Personnel Interviewed, and Page 2-8, Interviews: No mention is made of interviews with past Radiation Safety Officers, nor with personnel from the Department of the Army Environmental Hygiene Agency. Because of the nature of HAAF's mission, information from the Air Force's radiologic experts at Brooks Air Force Base might be pertinent. The x-ray technician interviewed may have had knowledge of the medical/dental clinic, but it seems unlikely that he would have had experience in the use of radiologic material in aircraft repair and maintenance, or in the disposal of such material. HAAF's radiation safety officer and health physics technicians would have been involved in the broader use of radioactive material on HAAF.

Page 2-5 through 2-7, Table 2-1, List of Personnel Interviewed, and Page 2-8, Interviews: No mention is made of interviews with Army personnel who would have been familiar with HAAF's required licenses for the use of radioactive materials. Knowledge of any such licenses would be with the NRC, or its precursor, the Atomic Energy Commission.

Page 2-10, Radon: Were the prior surveys and investigations of radon for residential buildings only, or did they include other buildings? What is the documentation for these surveys and investigations?

Page 2-10, Radioactive Material Storage or Use: Did the document reviews and record searches used to identify the past and present use, storage, and disposal of radioactive material include documents and records from the Army's Environmental Hygiene Agency, or other Department of Army or Department of Defense organizations? What were the documents reviewed and the sources of information?

Page 2-10, Radioactive Material Storage or Use: Visual inspection, as is mentioned for radon on the same page, is not effective in detecting or monitoring radioactivity. Did any monitoring, using appropriate radiation detection equipment, take place in any of the facilities mentioned in the report where radioactivity may have been used (such as Hospital Hill), or in any of the aircraft maintenance facilities, where radioactive materials may have been present? Is there documentation?

Page 3-1, General Background: That HAAF was used for maintenance and repair of various types of aircraft from the 1930's through the 1960's suggests that there would have been radioactive material in these facilities. It is highly likely that dials, gauges, and/or knobs containing radium-226 would have been present in those aircraft, and that instruments containing radioactive components would have been repaired or otherwise utilized. Painting operations using luminescent paint containing radium-226 took place in many military facilities. Did such activities occur at HAAF? If they did not, where was HAAF's equipment sent when it needed maintenance and repair?

Page 3-2, 3.1.1 Past Activities, Aircraft Maintenance: See above comment. If there were radioactive instruments or components associated with aircraft maintenance, was all the radioactivity disposed of in the two cylinders in the low-level radioactive waste burial site? On some bases, radium-226 containing knobs, dials, and gauges were disposed of in landfills. If radium-226 paint was present, how was it disposed of? Was Ground Control Approach (CGA) radar used or repaired at HAAF? GCA had trailers filled with radioluminescent components.

Page 3-4, 3.1.1 Past Activities, Landfill Operation: Were the low-level radioactive materials mentioned in the first paragraph of this sentence only those that were in the two corrugated-metal cylinders mentioned two paragraphs later? Did those two cylinders contain all the radioactive materials used on the base? When did the practice of cylinder disposal and burial begin? Could radioactive materials have been disposed of in landfills prior to the practice of cylinder disposal? Is there a list of documents pertinent to this site?

Page 3-5, 3.1.1 Past Activities, Medical Activities: If radioactive materials were used in the course of medical activities, as is suggested in 4.4.6 Radionuclides, how were they disposed of? Were radiation safety programs of the medical facility and the base separate, or were they under the same office at HAAF? Was there an incinerator used on base? Were the licenses for radioactive materials for HAAF reviewed, and what did they indicate?

Page 3-6, 3.1.2 Current Activities, Airfield BRAC Parcel, Building 84: See comments above regarding aircraft maintenance shops. Were any radiologic surveys for radioactive contamination performed in such maintenance shops prior to changing their use?

Page 3-7, 3.1.2 Current Activities, Hospital Hill BRAC Parcel, Building 511: What kinds of medical instruments are present that may contain radionuclides? Were any radioactive materials present in any of the other buildings or storage facilities associated with the medical facilities?

Page 4-2, 4.1 Previously Identified AREE, East Levee Landfill: Is the Army confident that no radioactive material, including radium-226, was disposed of at this site? Is there documentation that would support such a position, and concurrence by qualified and responsible DOD personnel?

Page 4-2, 4.1 Previously Identified AREE, Aircraft Maintenance Area: See earlier comments regarding radioactive materials in aircraft instrumentation and equipment.

Page 4-3, 4.1 Previously Identified AREE, Former Radiological Disposal Site: Was this the disposal site for all radioactive material at HAAF? Is there supporting documentation, and concurrence by qualified and responsible DOD personnel?

Page 4-9, 4.3.1.2 Surrounding Property. . . .: Were any of the facilities nearby involved in the repair or maintenance of aircraft equipment that would have contained radioactive material?

Page 4-11, 4.3.1.3 Adjacent Property . . ., Landfill 26: Is the Army confident that no radioactive material, including radium-226, was disposed of at this site? Is there documentation that would support such a position, and concurrence by qualified and responsible DOD personnel?

Page 4-11, 4.3.1.3 Adjacent Property . . ., Hangar Row: Was any of the hazardous material/waste stored in vacant hangars radioactive? Were any of the paints stored between Hangars A and B radium-containing paints?

Page 4-17, 4.4.6 Radionuclides: What kinds of radioactive materials were utilized in these buildings? What kinds of radionuclides are present in x-ray equipment? The NRC-issued licenses would provide some answers to these questions.

Page 4-17, 4.4.6 Radionuclides: Over what time frame were the cylinders used for disposal of radioactive wastes? Was there other disposal prior to use of the cylinders? What is the documentation for the disposal practices?

Page 4-18, 4.5 Remediation Efforts, Radiological Disposal Site: The two buried cylinders used for low-level radioactive waste disposal were reportedly removed in 1988 and transported where? What is the documentation regarding their removal, transfer, and disposal? Were there radiologic surveys done at the site? If so, what did they indicate? What is the documentation?

Editorial suggestions: "Hangar" is sometimes spelled incorrectly. The contraction "it's" (for "it is") is often used incorrectly for the possessive pronoun "its".

Attachment 3

WASTE MANAGEMENT

COUNTY OF MARIN

Dee Johnson
Deputy County Administrator

January 25,1994

Teresa McGarry
Toxics Substance Control Board
Military Facilities
400 P St.
Box 806
Sacramento, Ca 95812-0806

Dear Teresa

This letter is in response to our conversation of January 24,1994. The four tanks that I am going to mention may already be in the report if not this may be information that you can use.

There was an unauthorized release at the pump station east of the runway last year . Upon investigation it was found that it came from an abandoned underground tank that used to run the pumps. The pumps now run from fuel from above ground tanks. Both tanks were pumped out to stop the leak and are still in place.

The other two tanks that I know about are on the Navy exchange at the fuel site. One tank had a leak and they have discontinued use of it. The other tank at that site is an abandoned Waste oil Tank at the rear of the station.

They have an old South land gas station , now a BP station , just off the base that has a history of leaking tanks . It is now surrounded by a perimeter drain and is going through a pump and treat phase.

I hope that the above information is of help if you have any further question please feel free to call me at (415) 499-6647.

Sincerely,

Timothy A. Underwood

3501 Civic Center Drive, Room 403 • San Rafael, Ca 94903-4177 • (415) 499-6647 • (415) 499-6910 FAX

U.S. Army Environmental Center
Response to Regulatory Comments
Hamilton Army Airfield CERFA Report (draft)
21 Mar 1994

PART A: Comments from DTSC and RWQCB
(Army responses in bold print)

GENERAL COMMENTS

1. Numerous acronyms and abbreviations are used throughout the Report. Some of the acronyms and abbreviations presented in the Report are relatively new to the environmental process. A listing of acronyms and abbreviations was not provided.

   The Army should provide a listing of acronyms and abbreviations in alphabetical order prior to Section 1.0 (Introduction) of the Report.

Army Response: An acronym section will be added.

2. Department of Defense (DOD) Guidance for CERFA (September 1993) states that the Environmental Baseline Survey (EBS) Report will include "property identification" (e.g., address, assessor parcel number, legal description) . Please discuss why the acre-grid approach was taken, instead.

Army Response: The abbreviation "e.g." is interpreted by the Army to mean "for example." As such, all of the Army's CERFA reports include the installation name and location. The Army believes this is sufficient to the purposes of CERFA. The Army chose a one-acre grid system to facilitate the use of a GIS mapping and data base system; to improve the readability of the report maps; and to eliminate as much subjectivity as possible in delineating parcel boundaries. The use of the GIS system is supported by DoD guidance.

3. Section 3.0 (Property Background Information) discusses numerous land parcels, buildings, sale property, parking areas, an housing areas without providing a scaled base map showing all the referenced locations. The lack of correlation between text and scaled figures greatly reduces the readability and useability of the Report.

   Please provide a scaled base map showing all identified features contained within the Report to ensure completeness and to enhance useability.

Army Response: To the extent the map identified at Figure 5-1 of the report can be revised to include this information, it will be revised.

4. Section 4.0 (Investigation Results) presents generalized test results and sampling locations, some of which are incorrect when compared to data presented in the Final Environmental Investigation Report (FEIR).

   Please use specific test results and sampling locations, such as monitoring well and test pit identifications. These identifications should be linked to proper references so that any reader would know where and what information to look for if they are interested in specific details.

Army Response: The text will be linked to the data in the Final Environmental Investigation Report, and referenced. However, it is important to point out that Public Law 102-426 only required the Army to delineate that portion of HAAP which was "uncontaminated". As such, extensive information about contamination was purposefully excluded from the CERFA reports prepared by the Army as this information is, in general, superfluous to the requirements of the CERFA law.

5. Section 4.0 (Investigation Results) consistently uses subjective terminology such as trace, significant, low, elevated, and others to describe the extent of contamination. Without the use of a proper reference, the use of subjective terminology is misleading because the terms have different meaning to different data users. Please remove subjective terminology from the Report and use only reported concentrations to describe the extent of all identified contaminants.

Army Response: Subjective terminology will be removed from the text where appropriate. Information will be better referenced. However, part of the CERFA 7 step protocol to reach determinations of "uncontaminated" property included interviews with personnel, review of aerial photographs, and other sources of information where subjective terminology was used. Therefore, the Army's position is that subjective terminology is appropriate in this document in light of the requirements of the Public Law.

6. The Report does not adequately address the potential impact of contamination from parcel to parcel identified in the Report.

   Please adequately address any impacts to uncontaminated areas from contamination on the installation and adjacent properties.

Army Response: Where parcels were potentially impacted from adjacent sources of contamination, either on the BRAC property or from elsewhere, the potentially impacted property was "disqualified" from designation as "uncontaminated." Thus, while not explicitly stated in the text, the process is imbedded in the map products. However, the text will be revised to more clearly

discuss those parcels which are believed to be impacted by off-parcel contamination.

7. The Army appears to have done an incomplete review of historical aerial photos for the installation. This review is required by CERFA.

   It appears that the only reference to an aerial photo review is on page 4.5 of the Report under the section "Revetment Turnouts".

Army Response: Aerial photographs were reviewed as required by CERFA. This fact will be more clearly stated in the text.

8. In general the parcels on HAAF with buried fuel lines have not been adequately investigated to determine if fuel has been released. Given the age of the fuel lines and soil conditions at the site it is likely that undocumented fuel releases have occurred along these lines.

   Please classify parcels with unexcavated fuel lines as CERFA Disqualified, since contamination from these older structures is likely and they have not yet been adequately investigated. (RWQCB)

Army Response: The Army non-concurs with the requested change. CERFA required the Army undertake a 7 step process to determine whether or not there was any evidence of contamination which would preclude a parcel from being designated as "uncontaminated." The Army believes that it has conducted the designation of "uncontaminated" parcels in accordance with this process. The Army does not believe it was Congress's intent to eliminate parcels which could be designated as "uncontaminated" based on supposition. In the absence of information to the contrary, the Army has not "disqualified" parcels from being designated as "uncontaminated." However, a review of the HAAF CERFA report indicates that some parcels which contained fuel lines were disqualified, and are so labelled on Figure 5-1. For other parcels which contained fuel lines, unless DTSC can provide evidence of a release, the Army does not intend to override the results of the CERFA investigation for the reasons stated above.

9. Analysis of samples from the large drainage ditches that transport surface runoff from HAAF and from the tidal wetlands exposed to the discharge from these ditches, has revealed elevated levels of metals, semi-volatile organic compounds and petroleum hydrocarbons (see FEIR) . These data indicate that the drainage ditches may be an important transport pathway for contaminants from various parts of the airfield to the San Francisco Bay.

Please classify parcels including portions of the large drainage ditches as CERFA Disqualified until they have been adequately investigated. Adequate investigation may include additional samples for chemical analysis and/or bioassay analysis of the water in the ditches. (RWQCB)

Army Response: The Army non-concurs with the requested changes. The Army has "disqualified" parcels where contamination is known to exist. However, for the same reasons stated in General comment #8, above, the Army will not undertake to "disqualify" parcels by default.

10. It is unclear from the information provided whether the parcel borders adequately delineate contaminated from uncontaminated areas. The Army should provide the rationale used in delineating parcel boundaries and "areas of concern".

Army Response: Concur. The Army will provide a description of its protocol to address designation of parcels, along the following lines: The grid system discussed earlier was overlaid on HAAP. Then, based upon the results of the CERFA investigation, areas which contained hazardous substance storage (greater than 1 year), release, disposal, and/or areas which contained petroleum product/petroleum product derivative storage (greater than 1 year), release, or disposal, were indicated where they fell on the gridded area. Similarly, any areas threatened by such releases, storage, or disposal were also indicated. Any parcel (one acre grid) which contained such an annotation was automatically "disqualified" by the GIS software system. In those cases were a storage, release, or disposal indicator fell at the intersection of a grid (for example, an underground storage tank), all 4 one acre parcels in proximity to the UST were "disqualified". In those cases of a groundwater contamination plume, airborne plume, or other known source of contamination, the Army conservatively (that is, erring on the side of safety) disqualified parcels. Thus, given the information gathered during the 7 step process of parcel identification, the Army took a "worst case" scenario posture in regards to extent of contamination.

11. It is our understanding that the Army is taking the position that the presence of asbestos or lead-based paint, the presence of naturally-occurring radon (or other radionuclides), or the presence of polychloroethylene Biphenyl (PCB)-containing equipment stored (not in use) need not disqualify property from being designated CERFA or CERFA Qualified parcel.

Please provide in the Report the legal and technical rationale that was used to reach this conclusion.

***Army Response: AEC's Office of Counsel has researched this issue**

and a copy of their full legal analysis can be made available. The Army's position is as follows: Absent a release or disposal, the presence of the following will not disqualify a parcel as being uncontaminated: asbestos contained within building materials; lead-based paint applied to building material surfaces; and PCBs, radionuclides or other substances contained within sealed products being used or capable of being used for their intended purpose. Additionally, the presence of naturally occurring substances, such as radon, in their natural form, or altered solely through naturally occurring processes or phenomena, from a location where they are naturally found, are not considered releases which would disqualify a parcel as being uncontaminated.

We are evaluating whether or not the legal rationale for this position should appropriately be a part of the CERFA report.

12. The Army should identify Installation Restoration Program (IRP) sites on the maps.

Army Response: The Army wishes to reiterate that depiction of contamination, and thus IRP sites, is not a requirement of CERFA; CERFA required only information about uncontaminated parcels. However, we concur that the reports are more useful if they contain this information, and we have instructed our contractors to include it. It is important to note, however, that the areas under investigation do not fall under the Army's Installation Restoration Program, and therefore are inappropriately referred to by DTSC as "IRP sites." IRP sites are funded differently than sites at Base Realignment and Closure (BRAC) sites; BRAC sites fall under the BRAC program and are more appropriately referred to as "BRAC sites."

SPECIFIC COMMENTS

1. Cover Letter: The cover letter for this Report (to Major Ron Light, dated November 1, 1993) indicates that the Northern Drainage Ditch and portions of the JP-4 Fuel Lines may be reclassified as CERFA Parcels.

   Please keep these areas as CERFA Disqualified because as discussed above, it is suspected that these areas may be contaminated to some degree. (RWQCB)

Army Response: The Army non-concurs with the requested change. As indicated in the referenced cover letter, and General comment #8, the Army intends to designate areas in accordance with the results of the CERFA investigation conducted.

2. Page 1-1. the text states, "The BRAC Program is patterned after the Army's IRP except it has been expanded to include such categories of contamination such as asbestos, radon,

PCBs, and others that are not normally addressed under the Army IRP." Based on this statement it is unclear what categories of contamination are addressed under which program. This is particularly important with respect to property transfers because more than one program may need to be involved to adequately characterize and remediate contamination.

Please amend Section 1.1 (Purpose and Scope) to clearly and completely define which types of contaminants and/or substances are identified under which program.

Army Response: The text appears clear. The active installation Installation Restoration Program does not fund asbestos, radon, PCB, or unexploded ordnance cleanup issues; these concerns are funded apart from the IRP and are considered "compliance" actions. Under the BRAC program, if there are concerns which must be met to allow the closure of an installation (such as asbestos, radon, PCBs, or unexploded ordnance), these can be funded using BRAC funds. The BRAC program includes all other contaminants typically investigated under the IRP.

3. Page 1-1. The text states "The term "enhanced" is used to distinguish these assessments from previous IRP preliminary assessment (Pas) since the BRAC Pas are conducted from a property transfer perspective and evaluate areas which are not included on the IRP (e.g. asbestos, radon, PCBs)." This is incorrect. The scope of the IRP PA may be different than the enhanced-PA in terms of the types of contaminants but certainly not in terms of land or area.

   Please provide clear and complete definition of what contaminants are addressed under which program (i.e PAs versus enhanced PAs)

Army Response: The text is correct as stated. See response to comment #2, above.

4. Page 1-1. The text generically refers to BRAC 1 and BRAC 91 base closures but never identifies how HAAF fits into which base closure group.

   The text should provide the necessary link of HAAF to the appropriate closure group.

Army Response: Concur. The text will be modified to reflect that HAAF appeared as part of the BRAC I base closure list.

5. Page 1-2. The text states, "The purpose of this final report is to present the findings for HAAF in Novato, California." The text incorrectly identifies the Report as final when the Report cover clearly identifies it as draft.

   Please accurately state the status of the Report, which is

draft.

Army Response: The Army cover letter transmitting the CERFA report indicated that the report was a draft. Moreover, the transmittal letter indicated that the Army was pursuing "concurrent review" of the report, and that the inevitable errors would be corrected. Since July, 1993, the Army has undertaken to involve all regulatory agencies in its implementation of CERFA. As there will be no interim draft of this report, the next report DTSC receives will be the final report.

6. Page 1-2. The text under Section 1.2 identifies four parcel types: (1) BRAC Parcel, (2) BRAC Parcel with Qualifier(s), (3) CERFA disqualified Parcel, and (4) CERFA Excluded Parcel. Unfortunately, consistency is not maintained within the Report using the four identified terms. For example, Figure 5-1 uses the term CERFA Parcel not BRAC Parcel and it uses the term CERFA Parcel with Qualifiers not BRAC Parcel with Qualifier(s). Consistency between the two remaining terms is maintained between the text on Page 1-2 and Figure 5-1. Also, BRAC Parcel is incorrectly given the definition of CERFA. The BRAC Parcel definition appears to be defining the Army-owned property which is subject to BRAC and which consists of all four parcel types.

   Please correct the definitions and maintain term consistency throughout the Report for accuracy, completeness, and readability.

Army Response: Concur. These issues were previously identified during the Army's internal in-house review of the HAAF CERFA document, the results of which were provided to DTSC on/about 19 January 94. The contractor has already made the referenced changes.

7. Page 1-2. The text (eg. BRAC Parcel, BRAC Parcel with Qualifier) incorrectly identifies radionuclides, lead-based paint and asbestos (friable) as non-CERCLA hazardous. According to 40 CFR Part 302 and Table 302.4 these substances are listed as a CERCLA hazardous substance.

***Army Response: The Army's position is that asbestos in buildings or other structures, naturally occurring radon or other radionuclides, lead-based in buildings or other structures, PCB transformers in use, and areas of unexploded ordnance (UXO) are properly exempt from both the provisions of CERCLA and CERFA. This position is supported by Army legal review at several levels, and by DOD guidance dated 9 September 1993.**

In regards to the specific issue of unexploded ordnance, the Army's position is that UXO located in areas where conventional explosive ordnance firing and explosive activities have been

conducted, e.g., impact ranges and training ranges, are not hazardous substances or hazardous waste, and thus not subject to CERCLA or the Resource Conservation and Recovery Act (RCRA). Although UXO in these areas may present a safety hazard (hence the Army's decision to classify these areas as "CERFA Parcels with Qualifiers"), the Army's position is that their presence does not constitute a release, disposal or storage of a hazardous substance which could disqualify the parcel as contaminated. In those cases where the presence of UXO is clearly the result of a disposal (e.g., UXO discovered in a pit not part of an impact range or training range), would "disqualify" a parcel from being designated as "uncontaminated." There are no indications that such disposal has occurred at Hamilton Army Airfield.

8. Page 1-2. BRAC Parcel with Qualifier: The text incorrectly identifies PCB containing equipment as non-CERCLA. PCBs are considered a CERCLA substance. PCB transformers which are in service need not preclude a CERFA parcel designation.

Army Response: Equipment in service, such as switches and transformers, which contain PCBs, regardless of the level of PCBs, do not "disqualify" a parcel from being designated as "uncontaminated." Transformers which contain PCBs which have leaked, would disqualify a parcel from being designated as "uncontaminated."

9. Pages 1-2 and 1-3. The text identifies labels for qualifying parcels and labels to qualify contaminants. Unfortunately, these labels are not included on Figure 5-1 which reduces the useability of Figure 5-1. Further, a review of Table 5-1 shows that parcel 2Q was not identified and labels are inconsistently applied such as for parcel number 1Q-/A/L/RD when compared to the listing on Figure 5-1.

   Please be consistent with labeling to facilitate direct comparison of text to figures, text to tables, and figures to tables. Accuracy and consistency must be maintained in the Report to ensure useability.

Army Response: Please see response to specific comment #6. The Army has already made DTSC aware that these inaccuracies exist. The Army has already directed these corrections be made.

10. Page 1-3. The text under Section 1.3 (Geographical/Environmental Setting) describes the "airfield BRAC Parcel" and "Hospital Hill Brac Parcel" in terms of location on the base and the types of properties bounding these parcels. While the text is lengthy, it is not referenced to any scaled map which clearly and completely shows all of the referenced properties. In addition, the text indicates that the "airfield BRAC Parcel" is located in

the eastern portion of the installation. The latter statement is only partially correct because the "airfield BRAC Parcel" extends from the northwestern extent of the installation to the eastern levee, not to mention its northern or southern boundaries. Further, the text identified parcels A1 through A6 without definition of their location or boundaries.

Please provide a scaled base map, a size similar to Figure 5-1, which clearly shows all identified parcels, border properties with designations, and all boundaries.

Army Response: See response to specific comment #6. The Army has already directed these corrections be made. However, the existing map at Figure 5-1 of the report will be modified to include this information. However, other maps are beyond the scope of the contract vehicle in place to effect compliance with CERFA. A separate map will not be generated under this CERFA effort; however, such a map may be within the scope of the BRAC Cleanup Plan (BCP) contract also being undertaken by this Center.

11. Page 1-3. Please reword "Hazardous Release/Disposal" to "Hazardous Substances Release/Disposal" and "Hazardous Storage" to "Hazardous Substances storage".

Army Response: Concur. The text will be modified as indicated.

12. Page 1-4. Section 1.3.2 (Surface Water Drainage) is not correlated to a scaled map indicating flow directions of surface water supporting the text. The text is unclear where surface runoff from one parcel flows onto another parcel.

It would be helpful if the Army provided a scaled base map showing surface water drainage flow paths, flood plains, Novato Creek Watershed, tidal estuaries, Novato Creek, collection ditches, and pump stations to accurately show the surface water drainage interaction among land parcels.

Army Response: The Army concurs that it might be helpful to include this information. However, such a map is beyond the scope of the Army's contract vehicle in place to effect compliance with CERFA. A separate map will not be generated.

13. Page 1-5. Section 1.3.3 (Geology and Soils) is not linked to a scaled base map, does not identify the presence of Tertiary(?) sandstone unconformably overlying Franciscan Complex rocks on Reservoir Hill and incorrectly uses the term "classic" sediments.

Please modify the text appropriately and link it to a scaled base map. The FEIR should be appropriately referenced when modifying the text.

Army Response: The depiction of geology and soils is beyond the scope required by CERFA, and beyond the scope of the Army's contract vehicle in place to effect compliance with CERFA. However, the text will be modified to reflect the findings in the FEIR.

14. Page 1-6. section 1.3.4 (Hydrogeology). The text should discuss all relevant information regarding well locations, potentiometric surface, and groundwater flow directions.

    The Army could reference any scaled maps showing all well locations, potentiometric surface, and groundwater flow directions.

Army Response: The Army does not believe that Congress intended a reevaluation of all environmental studies which came before the requirement to comply with CERFA. As such, much effort, all of it reviewed by California regulatory agencies, has already occurred to characterize the nature and extent of contamination at HAAF. The conclusions of these reports and efforts to identify what areas of HAAF are and are not "uncontaminated" are pertinent to fulfilling the requirements of CERFA. The level of detail alluded to in this comment is beyond the scope of information required to be re-presented in the Army's opinion. However, all available information was reviewed in reaching determinations of "uncontaminated" parcels, in accordance with CERFA.

15. Page 1-6. Section 1.3.4 (Hydrogeology) uses subjective terminology such as small, low, high, and very slow to describe groundwater flow rates and lateral hydraulic gradients. Subjective terminology has different meanings to different data users.

    Please delete all subjective terminology and use actual values found in the FEIR. The actual values should be obtainable from the scaled map identified in specific comment number 12.

Army Response: Concur with respect to actual values found in the FEIR. However, the Army believes that a certain amount of subjective language is appropriate. The CERFA report has as its primary user local reuse groups. The CERFA report results are communicated more effectively to less technically proficient users if a certain amount of subjective language is included. As stated earlier, the process of reaching "uncontaminated' parcel designations under CERFA is by it nature somewhat subjective.

16. Pages 1-6 and 1-7. Section 1.3.4 (Hydrogeology) consistently uses inappropriate terminology such as "unconformed aquitard", "inpockets", and "backish" to describe the hydrogeology at HAAF.

Please use recognized hydrogeology terms for describing the hydrogeology at HAAF.

Army Response: Concur. The correct terminology will be used.

17. Page 1-6. Section 1.3.4 (Hydrogeology) identifies that the "airfield BRAC Parcel" consists of one to three hydrogeologic units. One unit is identified as the Bay Mud and another unit is identified as fill material placed upon the Bay Mud. The third unit is not described.

Please identify the third hydrogeologic unit. The text should describe the interaction of groundwater among units. The Army could reference any scaled maps which show the locations of hydrogeologic units.

Army Response: See response to comment #6. The Army has directed that these corrections be made.

18. Page 1-6 and 1-7. The Bay Mud is a locally recognized stratigraphic unit.

Please capitalize the name "Bay Mud" throughout the document. (RWQCB).

Army Response: Concur. Bay Mud will be capitalized.

19. Page 1-7. The text states that "The only region of the airfield portion of the BRAC Parcel in which significant groundwater investigations have not been conducted is along the runway and in the northern most portion of the site." These portions of the site make up on-third to one-half of the BRAC Parcel and it is misleading to discount their importance with a qualifier such as "only".

Please modify the text to include an estimate of proportion of HAAF that has not been the subject of a groundwater investigation. (RWQCB)

***Army Response: Concur. The text will be revised to remove the contentious statement.**

20. Page 1-7. The text states that "It is anticipated that these areas would exhibit a relatively flat water table similar to the revetment area due to the presence of the low hydraulic conductivity of bay mud." While a flat water table may be expected in this area due to the low relief, it would probably not be caused by low hydraulic conductivity.

Please reword the text or give further explanation. (RWQCB)

Army Response: Concur. The text will be reworded to eliminate the

misleading statement.

21. Page 1-7. The text states that "The hydrogeology of the Hospital Hill BRAC Parcel has not been investigated as thoroughly as the airfield portion of the BRAC Parcel." It does not appear the hydrogeology of this area has been investigated at all, since the nearest well (that the text indicates) is in a completely different hydrogeologic situation (low relief Bay Mud versus high relief bedrock and colluvium).

    Please modify the text to accurately and completely state the facts. (RWQCB)

Army Response: The contractor has been directed to research this issue and clarify in the text the nature of groundwater investigations at Hospital Hill.

22. Page 2-1. The text states, "A listing of these documents is provided in Appendix A. A summary of the findings in the most relevant of these documents is provided below." A review of Appendix A shows that the cover page's title is misspelled, the title is misspelled on Page A-I, some dates are not provided, and TBD (to be determined) is provided s a footnote but is not used on Page A-I. Further, it is unclear how "most relevant" is defined and what criteria were used for selection.

    Please resolve spelling errors, missing dates, and TBD issues in Appendix A. Further, the Army should clearly define the term "most relevant" and state what criteria was used in the selection process.

***Army Response: Concur. The contractor has been directed to restate the second quoted sentence to read as follows: "A summary of the findings in those documents found to be relevant to the document investigation requirements of CERFA is provided below." See response to comment #6 regarding the other issues identified in this comment; the Army has already directed that these corrections be made.**

23. Page 2-1. The text states, "The PA is enhanced to cover topics not normally addressed in a PA. These topics include: . . . ". The listing of topics provided is not the same as the listing provided on Page 1-3 of the Report.

    Please ensure that the topics identified in the enhanced-PA on Page 2-1 be fully compatible with the listing provided on Page 1-3.

Army Response: The Army non-concurs with the requested change. The environmental topics considered in the HAAF Enhanced PA and those considered in the identification of CERFA Parcels with

Qualifiers are similar but do not necessarily constitute a one-to-one match. For example, radon was not considered in the Enhanced PA but is considered in the Army's CERFA screening process. The text will nevertheless be modified to clarify this issue.

24. Page 2-2. The text indicates that the enhanced-PA recommended further actions. However, the recommended further actions are in some cases inappropriate because of prior decisions. For example, the U.S. Army Corps of Engineers Sacramento Division has indicated to DTSC that JP 4 fuel lines and any associated contamination will be removed.

    Please contact the appropriate personnel at the regulatory agencies, DoD, and Corps of Engineers to gain a more accurate and complete picture of where and what further actions actually need to be proposed.

Army Response: See response to comment #6. The Army has already directed that this occur.

25. Page 2-3. Section 2.1.2 (El Report) states, "The El focused on AREEs identified in the enhanced PA". A review of the El and comparison to the Report shows that asbestos, radiological disposal site, and bombing range were not part of site-specific evaluations.

    Please modify the quoted language to exclude asbestos, radiological disposal site, and bombing range as elements of the El.

Army Response: Concur. The text will be modified to eliminate the inconsistencies identified.

26. Page 2-3. The text states, "Through an integrated sampling and analyses program, the El identified the nature, extent, and potential pathways of contamination associated with the study area." This statement is incorrect. In fact the extent of contamination is not fully defined at any site. The California Regional Water Quality Control Board (RWQCB) San Francisco Bay Region has given conditional approval of the El, under conditions of additional sampling and analysis as confirming the extent of contamination during remedial activities.

    Please reword the text to accurately and correctly state the facts.

Army Response: The additional sampling will be included in the HAAF CERFA report, but only to the extent that this information makes the document more complete. The Army is surprised at the tone of this comment. The Army has sought and received from the

Board approval of all work conducted at HAAF since the site became listed as a BRAC site. The Army has fully complied with all additional sampling requested by the Board. The Army has undertaken to involve the Board, and later DTSC, in every step of the environmental investigation and restoration of HAAF. The Army does not believe that the additional sampling requested by the Board is indicative of a defective environmental investigation.

27. Page 2-3. Section 2.1.3 (Draft Alternatives Assessment Report) indicates that cleanup levels have been established by regulatory agencies. In fact, only cleanup levels for total petroleum hydrocarbons as gasoline and diesel fuel in soil and groundwater for the Phase 1 General Services Administration (GSA) sale property have been established. All other cleanup levels are in the process of being determined and are largely a function of the proposed reuse options.

    Please modify Section 2.1.3 to present the facts regarding cleanup levels.

***Army Response: Concur. The Army understands that the referenced cleanup values have been withdrawn by the Board. The CERFA report will be modified to reflect that cleanup levels have not yet been determined for all remediation required at HAAF.**

28. Page 2-3. Section 2.1.4 (Asbestos Survey Report, HAAF) indicates that three buildings (numbers 20, 40, 516) were not surveyed for asbestos. However, no indication of why they were not surveyed or when they will be surveyed is provided. No information is provided regarding whether or not the asbestos is in friable condition.

    Please provide the rationale for not surveying buildings 20, 40, and 516, as well as an indication as to if and when they will be surveyed. The Army should consider including a copy of the Asbestos Survey Report as was done in the CERFA Report for Fort Ord. Information regarding the condition of the asbestos in the buildings should be provided.

Army Response: Concur. The Army has instructed the contractor to review asbestos survey information for the buildings in question. However, the Army's position is that the presence of asbestos in buildings, regardless of condition, is immaterial to the process whereby such buildings are designated as "uncontaminated" under CERFA. It is inappropriate to include the asbestos report for HAAF in the CERFA report, for the same reasons previously prepared reports are not included. Information relative to the date these buildings may be surveyed for asbestos is immaterial to the requirements of CERFA.

29. Page 2-4. The text contained within Section 2.1.6 discusses the preparation of a PA report for the four parcels that will be transferred but omits any discussion of the revelant [sic] information revealed in that report.

Please summarize the results of the PA.

Army Response: The report prepared for parcels A2, A3, A5, and A6 is correctly termed a Preliminary Assessment Screening (PAS) report. The contractor has been notified to make this change, and to also state the conclusions of this report. See response to comment #6.

30. Page 2-4. The text contained within Section 2.2 (Federal, State, and Local Government Regulatory Records) indicates an electronic database search was conducted and results are in Appendix B. A review of Appendix B shows that an electronic database search was conducted (with numerous disclaimers) and a statistical profile is presented. The text in Section 2.2 does not clearly and completely identify database acronyms, such as HWIS, and where the identified sites are relative to the two subject parcels. Therefore, interpretation and useability are greatly hindered.

Please modify the text in Section 2.2 of the Report to clearly summarize the results of Appendix B, some of which should be tabular format, and clearly identify what each acronym means. Further, the Army should provide a scaled map showing the locations of the sites identified in Appendix and the two subject parcels at HAAF.

Army Response: Concur. The requested revisions to Section 2.2 will be made. A scaled map will be provided as currently exists in the draft CERFA report.

31. Page 2-4. The text states, "A complete list of agencies visited or contacted and individuals interviewed is provided in Table 2-1." A review of Table 2-1 shows that dates of employment for 10 of 23 interviewees are undetermined. Because nearly 50 percent of the interviews have undetermined time frames for involvement with environmental activities at HAAF a high degree of chronologic unreliability exists for information provided by the 10 interviews. Further, there is no Region 12 for the California Department of Toxic Substances Control (DTSC) and some of the interviewees names are misspelled.

Please do the following: (1) identify the uncertainty associated with the 10 interviewees in the Report or make a better effort to identify actual dates of involvement, (2) identify the appropriate DTSC Regions and (3) correct name misspellings.

Army Response: Concur. The contractor has been directed to make

the requested changes. See response to comment #6.

32. Page 2-10. Pesticide/Herbicide Application, Storage, or Use. The Army should address, in more detail, the results of the visual inspection regarding the storage and use of the pesticides and herbicides and their potential impacts on uncontaminated areas.

Army Response: Concur. The contractor will be instructed to provide additional detail.

33. Page 2-10 to 2-11. The report indicates that a newspaper article reported dumping of unexploded ordnance (UXO). Although there appears to be no other documented evidence of this activity, the Report indicates that interviews were done to confirm this activity. The Report does not discuss the result of those interviews.

Army Response: Concur. The contractor has been instructed to close the loop on this issue and provide more detail. See response to comment #6.

34. Page 2-11. Section 2.4.2 (Visual Inspection of the Adjacent Property) indicates a database search within a 1.75 mile radius from the center of the site has occurred. In Section 2.2 a 2.5 mile radius database search was conducted and information was provided in Appendix B. No associated appendix is provided for the 1.75 mile radius database search. It is unclear why a shorter radius database search was conducted, why it has a shorter radius and, therefore, is a subset of the larger radius database search, and why the resultant database information is not provided in a supporting appendix.

    Please provide the following: (1) a scaled base map showing the centroid and the 1.75 mile radius database search area (2) supportive database information in appendix format, and (3) a clear rationale for apparently duplication of effort when the 1.75 mile radius database search is a subset of the 2.5 mile radius database search.

Army Response: Concur. The contractor has been instructed to clarify the text regarding the data base search. A scaled map will be provided as per comment #30.

35. Page 2-11. Section 2.5 (Title Documents) indicates that the last revision date is January 1990, and several transfers have occurred since that time. It is unclear why all property transfers since 1990 are not identified in Section 2.5 of the Report.

    Please provide a current Tract Register Map which shows all property transfers to date, or the existing map should be

supplemented with scaled maps and supportive text that clearly an completely shows all property transfers. Further, the Army should provide any relevant information obtained from the review of recorded chain of title documents regarding the property.

Army Response: CERFA does not require a listing of property transfers, nor does it require a tract map be included in the CERFA report. What CERFA does require is a review of recorded chain of title documents regarding the real [installation] property. The purpose of this review is to ascertain from previous ownership of the property, any information which may supplement what is known about the environmental condition of the property. To this extent, the Army concurs that the CERFA report is lacking detail, and the contractor has already been instructed to state the results of the title document review. The inclusion of information regarding transfers of property is pertinent only insofar as that property was part of the approximately 700 acres of the BRAC parcel, to which the Army has applied the requirements of CERFA, or to the extent that the transferred property affects that BRAC parcel with contamination.

36. Page 3-2. Section 3.1.1 (Past Activities) Describes numerous areas with respect to specific buildings, hangers, test facilities and the storage and use of hazardous substances. Scaled maps are not provided which show the necessary visual support for the text.

    Please provide a scaled map showing the specific text referenced structures to properly orientate [sic] the reader.

Army Response: Concur. See responses to specific comments #6 and General comment #3.

37. Pages 3-2 nd 3-3. The text indicates that the majority of reventment [sic] turnouts are paved, although several are unpaved. The text does not specifically identify by number designation which reventments [sic] are unpaved, nor is the text supported by a scaled map showing paved and unpaved revetment areas.

    Please number designate all reventment [sic] areas and show their locations on a scaled map.

Army Response: Concur. See response to specific comment #6 and General comment #3. The contractor has been requested to review the aerial photos showing new revetment areas with the Army.

38. Page 3-4. The text indicates that one and possibly two underground storage tanks (USTs) exist at Building 41. The FEIR indicates that only one UST currently exists at Building 4 and a second UST was previously removed because it leaked. When the leaky UST was removed, over excavation

of impacted soils also occurred and those soils are still stockpiled on-site.

Please amend the Report and present the facts as they exist in the FEIR.

Army Response: The contractor has been instructed to research this issue.

39. Page 3-4. The text identifies the existence of Building 575 in the "Hospital Hill BRAC Parcel". However, a review of Figure 5-1 shows that Building 575 is not labeled as existing at the "Hospital Hill BRAC Parcel".

Please modify Figure 5-1 to show the location of Building 575 as part of the "Hospital Hill BRAC Parcel".

Army Response: Concur. The text and Figure 5-1 will be correlated as requested.

40. Page 3-4. The text for medical activities fails to identify the potential existence of mercury associated with thermometers and other medical measurement equipment. It is the common practice of most medical facilities to discard the mercury associated with broken medical measurement equipment by pouring it down the drain. At other/ DoD facilities drain line traps have been found to be laden with mercury. Further, text on page 4-17, Section 4.4.6 indicates the potential for radioactive materials in several buildings which is not addressed in this section. Also, the buildings located on Hospital Hill have little discussion of past uses.

Please identify the potential presence of mercury with medical activities and drain disposal to receiving base facilities and consider it a potential migration pathway. The Army should also address the potential for radioactive materials.

***Army Response: The Army non-concurs with the requested changes. The comment raises the fundamental question of "what is required" under CERFA. The Army undertook, without any preconceived notions regarding what parts of HAAP should be designated as "uncontaminated" or otherwise, the 7 step protocol outlined in Public Law 102-426. The results of this analysis has not led to the conclusion that there are radionuclide, mercurial, unexploded ordnance, or other hazards on or adjacent to HAAP beyond that which the Army's investigation revealed. The Army believes that conjecture or sweeping generalities are inappropriate and should not be made regarding fulfillment of Public Law 102-426. The potential for contamination in a stochastic sense exists on every acre, and in every building on HAAP, and on every acre and in every building on every military installation. CERFA requires**

the Army to identify property on which no hazardous substances and no petroleum products or their derivatives were stored for one year or more, known to have been released or disposed of [42 U.S.C. § 9620 (h) (4)]. Furthermore, CERFA relies on the "obviousness" of such releases. To that end, the Army's position is that our investigation has met both the spirit and letter of CERFA and Congressional intent.

41. Page 3-6. Associated with Building 86, the text identifies three hazardous materials/waste storage areas that are located outside the hanger. The text discusses two of the storage areas but not the third storage area. No scaled map is provide showing their locations. Further, the hazardous substances wastes are not specifically identified as Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) hazardous or non-CERCLA hazardous.

Please discuss the third storage area, identify the hazardous substances and provide a scaled map supporting the text to enhance its readability and understanding.

Army Response: Concur. See responses to specific comment #6 and General comment #3.

42. Page 3-6. The text indicates that a 5,000 gallon JP4 fuel truck is located near storage area 2 northwest of Building 86. A review of the FEIR indicates that the northwest designation may be incorrect and it may be southwest.

Please verify the geographic designation and show the JP4 trucks location on a scaled map.

Army Response: Concur. The contractor has verified that the trucks are reported in the proper place in the CERFA report.

43. Page 3-7. The text identifies three connexs [sic] associated with

Building 94, as 94A, 94B, and 94C. Unfortunately, none of the connexes [sic] are shown on a scaled map.

The Army should provide a scaled map which shows text referenced building and connexs.

Army Response: Concur. See response to specific comment #6 and General comment #3.

44. Page 3-7. Discussion is provided on the "Hospital Hill BRAC Parcel" with specific text on each building. However, no mention of Building 575 is provided even though it is identified on Page 3-4 of the Report.

Please include a discussion of Building 575 on Page 3-7 of the "Hospital Hill BRAC Parcel".

Army Response: Concur. The contractor will be directed to address this in the text.

45. Page 3-8. The final paragraph at the bottom of Page 3- states, ". . . at a suspected UST site behind Building 26." Page 3-5 of the Report indicates that only above ground storage tanks (AGTs) exist at Building 26 but USTs may exist at Building 20.

    Please resolve the continuity regarding the existence of ASTs and/o USTs at Building 26 and Building 20 so that the Report is consistent and accurate.

Army Response: Concur. The contractor will be directed to address this in the text.

46. The text states that "Parcels A1, A2, A3, A5, and A6 have been transferred to the new Hamilton Partners." It is our understanding that these parcels are owned by the Army, the sale of which is been administered by GSA. It also seems that since this is army-owned property, where federal government operations have been terminated, it should be included in the CERFA determination process and not considered adjacent properties. (See CERFA Law, Section 120 (h) 4(E).

    The Army should check the accuracy of the text and confirm whether the GSA parcels should be part of the CERFA uncontaminated property determination process.

Army Response: The contractor has been notified that the referenced sale has yet to occur. The larger question relates to what part of HAAP require CERFA analysis. The Army notes that the provisions of CERFA to apply to "property that offers the greatest opportunity for reuse and redevelopment". As such, it is the Army's position that on portions of an installation on which Army operations will not be terminated (e.g., a reserve enclave), or already mandated for transfer (e.g., due to a public law or other binding agreement), or pending transfer where such transfer has a high degree of certainty of occurring, that the provisions of CERFA do not apply. In other words, if the intent of CERFA is to identify property for reuse and redevelopment, then Army efforts assess "uncontaminated" parcels on property to be held by the Army, or on property to be transferred to a third party is both counterproductive and an imprudent expenditure of scarce public funds. However, the Army has maintained the flexibility to apply the requirements of CERFA in those cases where reserve enclave plans have changed, or where planned transfers have failed, etc. Moreover, all real property, whether designated to be held as a reserve enclave, or excluded from CERFA analysis based on a pending transfer, was nevertheless assessed, where appropriate, in terms of the "adjacent parcel" requirements in CERFA. As a final note, that Army has exercised

great caution in deciding which areas of BRAC installations should not be subject to the provisions of CERFA.

47. Page 3-9. The text indicates a second UST may exist at Building 41. This is in contradiction to Page 4-48 of the FEIR, which indicates that the second UST was removed and a stockpile of contaminated soils exist.

The Report should accurately present information found in the FEIR.

Army Response: Concur. The contractor has been instructed to review their data and clarify the noted discrepancy. It is possible that 3 USTs exist at this site.

48. Page 4-3. The text indicates that the highest Total Petroleum Hydrocarbons (TPH) concentrations found at the JP4 lines is 360 mg/Kg. A review of data for the fuel lines presented in the FEIR shows that sample location JP-SS-10 had a maximum lead concentration of 360 mg/Kg and the maximum TPH concentration was 264 mg/Kg at sample location JP-SS-8. Clearly, there is an accuracy problem with data presented in the Report.

The Army should ensure that all chemical data presented in the Report be directly compared to the FEIR to ensure that accuracy is maintained.

***Army Response: Concur. The contractor has been directed to resolve the inconsistencies noted.**

49. Page 4-3. The text does not clearly separate results from the 12" fuel line and the distribution fuel lines (6" and 8" lines), as though they are physically separated and may have had different histories. No indication of the number of samples taken along each pipeline is given. An additional fuel line between the 6" and 8" lines that was identified in the FEIR is not mentioned in the CERFA Report.

The Army should modify the text to accurately and completely state the facts, including the approximate numbers of soil and groundwater samples taken near the fuel lines and analyzed or petroleum hydrocarbons. (RWQCB)

Army Response: The contractor has been instructed to research the existence of the additional fuel line. However, the number of samples is immaterial to the requirements of CERFA. The bottom line is that the subject contaminated parcels cannot be designated as "uncontaminated." CERFA does not require a comprehensive treatment of why parcels are not designated as "uncontaminated." Neither the proper amount of time nor funds are available to effect the level of detail discussed in comment

#49.

50. Page 4-3. California regulates PCBs as hazardous waste at 5 mg/l at soluble concentrations and 50 mg/kg at a total concentration.

Please clarify whether or not the liquid PCBs in the nine transformers are greater than 5 mg/l.

Army Response: The contractor has been directed to research the level of PCBs in the subject transformers. However, it is the Army's understanding that PCBs contained in in-use equipment is not regulated as a hazardous waste. The Army is interested in more information regarding California PCB regulations.

51. Page 4-4. The Report text once again identifies a UST (#25) associated with Building 26 which contradicts earlier text in the Report.

The Army should resolve the AGT versus UST issue at Building 26.

Army Response: Concur. See response to comment #45.

52. Page 4-4. The text states, " A number of new AREEs were identified through the CERFA Investigation ." The text should state specifically how many new AREEs were identified and correctly indicate which AREEs were not addressed in the FEIR. For example, the Report identified an AST at Building 35 as a new AREE but the FEIR had previously identified the same AST and provides chemical test results. This suggests that identification of new AREEs is questionable.

The Army should do a careful and complete comparison of new AREEs to sites in the FEIR to accurately confirm the new AREEs. The Army should map these "AREEs" and indicate what actions will be taken to address them.

Army Response: See response to specific comment #6. It is possible that the CERFA investigation has identified another AST at the indicated building. The Army is revising the term for new areas identified and the new term will be reflected in the final CERFA report. In any event, the contractor has been instructed to show these areas on Figure 5-1. The Directorate of Public Works, Presidio of San Francisco, and the U.S. Army Corps of Engineers, Sacramento District, will effect cleanup of these areas, as necessary, where they fall outside of the scope of ongoing Army BRAC restoration efforts. Details of what the Army intends to do in regard to these areas are not fully known at this time.

53. Page 4-6. The text associated with the UST/AGT releases indicates that a UST exists behind Building 26 and evidence

of a release exists. Once again, this information contradicts information presented on page 3-5 of the Report which indicates an AGT not UST exists at Building 26.

The Army should resolve the issue of AGT versus UST for Building 26 to ensure an accurate report.

Army Response: Concur. See response to comment #45.

54. Page 4-6. The text Expansion of Areas of Contamination text in the Report suggest that the extent of groundwater contamination was preliminarily identified. This is incorrect. The extent of soil and groundwater contamination at the Aircraft Maintenance Area (AMA) and the former Sanitary Treatment Plant (STP) are not fully defined.

The Army should ensure that the text clearly indicate that the extent of contamination is not fully defined at the AMA and STP but due to the unique geologic setting the extent of contamination is thought to be localized in extent.

***Army Response: Concur. See responses to specific comments #6 and #26.**

55. Page 4-7. The text discusses adjacent and surrounding properties but does not provide a scaled map to visually support the text.

The Army should provide a scaled map showing all adjacent and surrounding properties. A clear property boundary should be resented on the scaled map for all identified parcels presented in the Report.

Army Response: The Army non-concurs with the requested changes. The Army's position on this comment is driven by the requirements of CERFA (i.e., there is no requirement to present the information as requested) and liability issues. The Army must exercise caution when depicting adjacent property and environmental concerns on adjacent property which may threaten Army property. In general, the Army has chosen to limit the aerial extent of maps included in the CERFA reports to installation BRAC boundaries.

56. Pages 4-8 to 4-15. The text discusses contaminant pathways from off-site, surrounding properties, and adjacent properties, but does not consider airborne transport and deposition. While this pathway may not be significant, it should be identified and discussed and directly linked to the risk assessment presented in the FEIR.

The Army should identify the airborne pathway and discuss it as a potential contaminant pathway.

***Army Response: Nonconcur. Complying with this comment is problematic. Airborne transport of contaminants occurs over a wide area; it is entirely possible that some level of contamination present at HAAF is not only from off-site, but also from out-of-state and even out-of-country sources. For example, there is abundant evidence pollution and radioactive fallout from sources as far away as the former Soviet Union have contaminated parts of the U.S. (AEC can provide these references upon request.) Additionally, given the absence of a "reportable quantity trigger," even microscopic particles of hazardous substances could arguably disqualify entire installations. While AEC does not believe this has occurred at HAAF, we similarly do not believe this is the result Congress intended when it passed CERFA. Programmatically, however, the Army has identified those cases where off-site contamination could clearly pose an airborne hazard to an installation.**

57. Page 4-16. The text under Section 4.3.2 (New AREEs on Adjacent Properties) appears to have an important typographical error, the word quality should be qualify. Further, it appears that the potential for surface water runoff containing pesticides and/or herbicides from adjacent agricultural lands has not been adequately addressed.

    The Army should evaluate and correct the apparent typographical error if appropriate and address the off-site transport of agricultural related chemicals onto HAAF.

Army Response: Concur. The contractor will be notified to address this issue. The Army notes DTSC's recognition that surface water from non-Army or DOD property may be impacting the level of contamination noted and suspected at HAAF. This raises the very important question of liability for cleanup of contamination found in the perimeter drainage ditch at HAAF, and at the outfall of the pump houses into the San Pablo Bay.

58. Page 4-18. Section 4.5 (Remediation Efforts) states, "Three incomplete remedial activities have been conducted on the BRAC Parcel". However, four activities are presented below the quoted text. Further, the text identifies BRAC Parcel instead of "airfield BRAC Parcel" or "Hospital BRAC Parcel" as identified on Page 1-3 of the Report.

    The text should be consistent in terms of identifying parcels and identifying remedial actions.

Army Response: Concur. The contractor will be notified to address the inconsistency. See response to specific comment #6.

59. Page 4-19. Section 4.9 (BRAC Parcels) states, "It should be noted that no data were available regarding storm sewers when BRAC parcels were designated. This data, when

completed and received, could change the designation of some areas within the BRAC Parcels identified on the maps in Section 5.0." Some additional parcels on Figure 5-1 would be redesignated as currently disqualified because of this uncertainty. Examples of the storm drain uncertainty combined with extent of contamination uncertainty at any site suggest that parcels, not limited to, ; 39,32; 39,33; 39,35; 38,34; 42,18; 29,25; 47 to 50 by 28 to 33; 18,16; and 37,14 be disqualified. We have used standard x-y nomenclature for identifying the presented parcel designations.

The Army should show the uncertainty with the extent of contamination associated with storm sewers on Figure 5-1 by redesignating appropriate parcels.

Army Response: The Army non-concurs with the requested changes. See response to General comment #8.

60. Table 5-1. Parcel IQ-/A/L/RD cannot be labeled as a CERFA Qualified parcel when CERCLA hazardous substances (Radionuclides) are released, disposed of, or stored for greater than one year.

Army Response: Concur. In this case a disposal of radionuclide-laden equipment occurred; the parcel was incorrectly identified. The parcel will be relabelled as a CERFA Disqualified Parcel.

61. Table 5-1. Parcel IQ-A(P)L RD cannot be labeled as a CERFA Qualified parcel if there is a leaky PCB transformer in Building 51, as noted on page 4-6 of the Report.

Army Response: Concur. The report will be changes to reflect this parcel as "disqualified."

62. Appendix B. This appendix contains portions of the Environmentall Risk Information and Imaging Services Report, but has no explanation of the acronyms used in the figures and tables. The appendix is not listed in the main Table of Contents. The appendix is also missing Sections IV, V, and VI, as listed in the appendix's Table of Contents.

Please define the acronyms used in the Report to aid the readers. Sections IV, V, and VI should be included in the appendix and the main Table of Contents should include Appendix B. (RWQCB)

Army Response: Concur. The contractor will be instructed to address the noted discrepancies.

63. Figure 5-1. Communications at meetings indicate groundwater and soil contamination found in approximate coordinates of 6

to 10 and 1 to 8 could impact BRAC parcel.

Army Response: The contractor will be instructed to contact DTSC in regards to this comment. If information exists upon which to disqualify parcels, the Army will do this.

64. Figure 5-1. Due to their proximity to jet fuel lines, the following parcels should be classified as CERFA Disqualified: 17,14; 19,15; and 21,16. Due to the metal and semi-volatile organic compound contamination of the Wetlands that are exposed to discharge from the HAAF storm drainage system, the following parcels should be classified as CERFA Disqualified: 50,18; 50,19; and 51, 15-19. Further, a number of Disqualified parcels should be expanded to ensure adequate protection from the contamination in those areas (eg. 42,20; 37,15; 36,32 to 35).

Due to the large extent of "Disqualified Parcels" mixed in with the "CERFA Parcels" in the Northeastern and Southeastern portions of the Airfield BRAC Parcel, we suggest that these entire areas be considered "CERFA Disqualified".

Army Response: The Army will reevaluate the data regarding these parcels.

Attachment 2

California Department of Health Services' Comments on the Draft Community Response Facilitation Act (CERFA) Report, Hamilton Army Airfield, Novato, California, November], 1993.

General Comments:

The report should contain a glossary of acronyms.

With regard to radioactive materials, the draft CERFA report for Hamilton Army Airfield (HAAF), discusses only two cites [sic]: (1) seven buildings associated with the medical facilities of the Hospital Hill BRAC parcel, and (2) a former burial site for two containers containing low-level radioactive materials, which were removed in 1988.

The discussion of radioactive materials is extremely limited. The report does not include radioactive materials as hazardous substance that need to be addressed, but considers them to be "Non-CERCLA relate environmental, hazard, and safety issues". It is unclear why radionuclides are not considered hazardous substances, but are instead designated as "non-CERCLA" in this report.

Issues related to the presence of radioactive material are a major component of the base closure process. If the past use of radioactive material (including radium-226) and its disposal practices are not addressed, an expeditious transfer of military property to nonmilitary uses will be difficult.

There are concerns regarding the past use, storage, and disposal of radioactive material that need to be addressed in identifying property on military bases that can be released from military control. This belief arise [sic] from our observations of the historical use of radioactive material on military bases.

For example, the Department of the Army's Corps of Engineers distributed to its regional commands a memorandum (dated December 8, 1993) addressing awareness of radioactive materials used at Department of Defense (DOD) facilities. That memorandum pointed out that the DOD has issued over 2800 different types of instruments and articles containing radioactive materials, and that radioactive contamination may exist in materials in base supply warehouses, or in shops used for the manufacture, repair or maintenance of such articles. The memorandum also points out that "during the 1940s, 1950s, and 1960s, on-base burial, sometimes in radioactive waste disposal cells and often in on-base landfills, was a reasonable and acceptable disposal technique."

It also points out a number of radioactive materials that may be found (or may have been found) on Army, Navy and Air Force facilities. Under the facilities' general licenses the following

may exist, or may have existed:

a. Radium dials gauges, and illuminators. This is by far the most common and the greatest radioactive health and environmental hazard found on bases and includes luminous aircraft dials, watch dials, weapons sights, and compasses.

b. Deplete uranium (DU) used in armor and armor piercing weapons. (DU was also used in aircraft wings as a counter-balance.)

c. Tritium used in illuminators, especially self-illuminating exit signs.

d. Thorium used in lenses and glass, and in mag-thorium metal used for machine, aircraft and in rocket parts. (Also, thoriated tungsten welding rods.)

e. Where the base includes a hospital, tritium and carbon-14 used in liquid scintillation counting. Note that most liquid scintillation counting fluids contain xylene or toluene which are hazardous wastes.

f. Washdown racks for aircraft used for flybys of nuclear tests have been found to contain radioactive fission products, uranium and plutonium.

Under Army, Navy and Air Force facilities' specific licenses, the following may be or have been present:

a. Calibration sources for radiation survey meters.

b. Hospital radiation therapy sources.

c. Radiography sources.

d. Some Storage tank level detectors.

e. Certain oil probes.

We have also found that many times radioactive materials are not considered by contractors with expertise in hazardous materials as within their bailiwick, so in-depth review of the use, storage and disposal of radioactivity may be omitted from the contractors efforts.

We have also found that the process often ignores experts that are available within a specific military branch. Information about the use of radioactive material could be obtained not only from interviews with past Radiological Safety Officers and employees, but also from radiation experts associated with the various service branches. These include: the Air Force's Armstrong Laboratory at Bro ks Air Force Base in Texas; the Army's Environmental Hygiene

Agency at the Aberdeen Proving Ground, Maryland; the Army Corps of Engineers in Omaha, Nebraska; and the Navy's Radiological Affairs Support Office in Yorktown, Virginia.

Documents regarding the use, storage, and disposal of radioactive material are often not being reviewed by contractors. For example, specific licenses from the Nuclear Regulatory Commission (NRC), DOD permits issued to facilities, and documentation generated by a facility's radiation safety program all have information that is needed to describe the historic presence of radioactive material on a military base.

Finally, we have found that naturally occurring radioactive material, in particular radium-226, is often not considered to be "radioactive material." However, it is of concern from a public health and environmental protection standpoint, and does need to be addressed in base closures and property transfer. Radium-226, as mentioned above, was widely used throughout DOD facilities in a variety of commodities and practices.

We believe that the CERFA documents do need to address the wide use of radioactive material associated with typical military functions. We believe that it would be unusual for a military base not to have had on-site some presence of radium-226 containing dials, knobs, and gauges, or facilities that repaired equipment that contained radium-226 or other radionuclides. If no radioactive materials containing radium-226 or other radionuclides were used, repaired, stored, or disposed of on site then this historical non-use should be included in the reports on the facility, with appropriate documentation and concurrence from knowledgeable and responsible base authorities.

No mention of the kinds of materials or uses itemized by the Army Corps of Engineers in its memorandum discussed above leads the reviewer to conclude that the issue of radioactivity on the facility was not [sic] considered in an appropriately thorough manner.

***Army Response: See response to comment #40, above.**

Specific comments:

Page 2-5 through 2-7 able 2-1 List of Personnel Interviewed, and Page 2-8 Interviews: No mention is made of interviews with past Radiation Safety Officers, nor with personnel from the Department of the Army Environmental Hygiene Agency. Because of the nature of HAAF's mission, information from the Air Force's radiologic experts at Brooks Air Force Base might be pertinent. The x-ray technician interviewed may have had knowledge of the medical/dental clinic, but it seems unlikely that he would have had experience in the use of radiologic material in aircraft repair and maintenance, or in the disposal of such material. HAAF's radiation safety officer and health physics technicians would have been involved in the broader

use of radioactive material on HAAF.

***Army Response: See response to general comment #11 and specific comment #40, above. Additionally, the Army has undertaken a review of Army Environmental Hygiene Agency (AEHA) archives as requested by the reviewer. In the case of HAAF, Brooks AFB will also be contacted to determine if radiological issues beyond those encountered during the CERFA investigation exist.**

Page 2-5 through 2-7 able 2-1 List of Personnel Interviewed and Page 2-8 Interviews: No mention is made of interviews with Army personnel who would have been familiar with HAAF's required licenses for the use of radioactive materials. Knowledge of any such licenses would be with the NRC, or its precursor, the Atomic Energy Commission.

***Army Response: The Army has undertaken additional records review at the AEHA and at Brooks AFB. This records review is focusing, in part, on NRC licenses. The results of this review will be detailed in the CERFA report.**

Page 2-10 Radon: Were the prior surveys and investigations of radon for residential buildings only, or did they include other buildings? What is the documentation for these surveys and investigations?

***Army Response: The text will be expanded to include the requested information, where known.**

Page 2-10 Radioactive Material Storage or Use: Did the document reviews and record searches used to identify the past and present use, storage, and disposal of radioactive material include documents and records from the Army's Environmental Hygiene Agency, or other Department of Army or Department of Defense organizations? What were the documents reviewed and the sources of information?

***Army Response: In response to this comment the Army has undertaken additional records review as discussed above. Relevant information will be included in the CERFA report for HAAF and all other Army BRAC installations to which CERFA applies.**

Page 2-10 Radioactive Material Storage or Use: Visual inspection, as is mentioned for radon on the same page, is not effective in detecting or monitoring radioactivity. Did any monitoring, using appropriate radiation detection equipment, take place in any of the facilities mentioned in the report where radio activity may have been used (such as Hospital Hill), or in any of the aircraft maintenance facilities, where radioactive materials may have been present? Is there documentation?

***Army Response: The text will be expanded to include the requested information, where known.**

Page 3-1 General Background: That HAAF was used for maintenance and repair of various types of aircraft from the 1930's through the 1960's suggests that there would have been radioactive material these facilities. It is highly likely that dials, gauges, and/or knobs containing radium-22 would have been present in those aircraft, and that instruments containing radioactive components would have been repaired or otherwise utilized. Painting operations using luminescent paint containing radium-226 took place in many military facilities. Did such activities occur at HAAF? If they did not, where was HAAF's equipment sent when it needed maintenance and repair?

***Army Response: The text will be expanded to include the requested information, where known.**

Page 3-2 3.1.1 Past Activities Aircraft Maintenance: See above comment. If there were radioactive instruments or components associated with aircraft maintenance, was all the radioactivity disposed of in the two cylinders in the low-level radioactive waste burial site? On some bases, radium-2 6 containing knobs, dials, and gauges were disposed of in landfills. If radium-226 paint was resent, how was it disposed of? Was Ground Control Approach (CGA) radar used or repaired at HAAF? GCA had trailers filled with radioluminescent components.

***Army Response: The text will be expanded to include the requested information, where known.**

Page 3-4 3. 1.1 Past activities Landfill Operation: Were the low-level radioactive materials mentioned in the first paragraph of this sentence only those that were in the two corrugated-metal cylinders mentioned two paragraphs later? Did those two cylinders contain all the radioactive materials used on the base? When did the practice of cylinder disposal and burial begin? Could radioactive materials have been disposed of in landfills prior to the practice of cylinder disposal? Is there a list of documents pertinent to this site?

***Army Response: The text will be expanded to include the requested information, where known.**

Page 3-5 3. I.1 Past Activities, Medical Activities: If radioactive materials were used in the course of medical activities, as is suggested in 4.4.6 Radionuclides. How were they disposed of? Were radiation safety programs of the medical facility and the base separate, or were they under the same office at HAAF? Was there an incinerator used on base? Were the licenses for radioactive materials for HAAF reviewed, and what did they indicate?

***Army Response: The text will be expanded to include the requested information, where known.**

Page 3-6 3.1.2 Current Activities Airfield BRAC Parcel Building 84:

See comments above regarding aircraft maintenance shops. Were any radiologic surveys for radioactive contamination performed in such maintenance shops prior to changing their use?

***Army Response: The text will be expanded to include the requested information, where known.**

Page 3-7 3.1.2 Current Activities Hospital Hill BRAC Parcel Building 511: What kinds of medical instruments ar present that may contain radionuclides? Were any radioactive materials present in any of the other buildings or storage facilities associated with the medical facilities?

***Army Response: The text will be expanded to include the requested information, where known.**

Page 4-2 4.1 Previously Identified AREE East Levee Landfill: Is the Army confident that no radioactive material, including radium-226, was disposed of at this site? Is there documentation that would support such a position, and concurrence by qualified and responsible DOD personnel?

***Army Response: The Army is confident, based on sampling and analysis data, that no radioactive material was disposed of at this site. The text will be expanded to include the requested information.**

Page 4-2 4.1 Previously Identified AREE Aircraft Maintenance Area: See earlier comments regarding radioactive materials in aircraft instrumentation and equipment.

***Army Response: See earlier response.**

Page 4-3 4.1 Previously Identified AREE Former Radiological Disposal Site: Was this the disposal site for all radioactive material at HAAF? Is there supporting documentation, and concurrence by qualified and responsible DOD personnel?

***Army Response: The text will be expanded to include the requested information, where known.**

Page 4-9 4.3.1.2 Surrounding Property . . . : Were any of the facilities nearby involved in the repair or maintenance of aircraft equipment that would have contained radioactive material?

***Army Response: The text will be expanded to include the requested information, where known.**

Page 4-11 4.3.1.3 Adjacent Property ... Landfill 26: Is the Army confident that no radioactive material, including radium-226, was disposed of at this site? Is there documentation that would support such a position, and concurrence by qualified and responsible DOD personnel?

***Army Response: The Army will review the data on Landfill 26 and address this comment.**

Page 4-11, 4.3.1.3 Adjacent Property . . . Hangar Row: Was any of the hazardous material/waste stored in vacant hangars radioactive? Were any of the paints stored between Hangars A and B radium-containing paints?

***Army Response: The text will be expanded to include the requested information, where known.**

Page 4-17, 4.4.6 Radionuclides: What kinds of radioactive materials were utilized in these buildings? What kinds of radionuclides are present in x-ray equipment? The NRC-issued licenses would provide some answers to these questions.

***Army Response: The text will be expanded to include the requested information, where known. Information gleaned from AEHA and Brooks AFB will be included as appropriate.**

Page 4-17 4.4.6 Radionuclides: Over what time frame were the cylinders used for disposal of radioactive wastes? Was there other disposal prior to use of the cylinders? What is the documentation for the disposal practices?

***Army Response: The text will be expanded to include the requested information, where known.**

Page 4-18 4.5 Remediation Efforts Radiological Disposal Site: The two buried cylinders used for low-level radioactive waste disposal were reportedly removed in 1988 and transported where? What is the documentation regarding their removal, transfer, and disposal? Were there radiologic surveys don at the site? If so, what did they indicate? What is the documentation?

***Army Response: The text will be expanded to include the requested information, where known.**

<u>Editorial suggestions</u>: 'Hangar" is sometimes spelled incorrectly. The contraction "it's" (for "it is") is often used incorrectly for the possessive pronoun "its".

***Army Response: These corrections have already been made.**

<u>4.4.6 Radionuclides</u>. How were they disposed of? Were radiation safety programs of t

APPENDIX D

DETAILED DATA BASE HAMILTON ARMY AIRFIELD

C:\CERFA .M\MASTER\YES-NO.HAM
Printed: 04/08/94 14:54

HAMILTON ARMY AIRFIELD
CERFA CATEGORY MATRIX

LOCATION	CERFA PARCEL WITH QUALIFIERS CATEGORIES						CERFA DISQUALIFIED CATEGORIES			
	ASBESTOS	LEAD	RADON	RADIO-NUCLIDES	UNEXPLODED ORDNANCE	PCBs STORAGE	PETROLEUM RELEASE	PETROLEUM STORAGE	HAZARDOUS SUBSTANCE RELEASE	HAZARDOUS SUBSTANCE STORAGE
Building 140								P		
Building 145A		P						Y		
Building 15	Y	Y						Y		
Building 152		Y								
Building 20	Y	Y					P	Y		
Building 26	Y	Y						Y	Y	
Building 35	Y	P					Y	Y	Y	
Building 38		P								
Building 39	Y	P					Y	Y	Y	
Building 40		P					Y	Y	Y	
Building 41	Y	P					Y	Y	Y	
Building 45		P						Y		
Former Building 45A	Y									
Former Building 48	Y							P		
Building 510	Y	Y								
Building 511	Y	Y								Y
Building 512	Y	Y								
Building 515	Y	Y							Y	
Building 516		Y								
Building 520	Y	Y								
Building 521	Y	Y						P		
Building 525	Y	Y								
Former Building 60							P			
Former Building 736								Y		
Former Building 737								Y		
Former Building 738								Y		
Building 82	Y	Y								

LOCATION	CERFA PARCEL WITH QUALIFIERS CATEGORIES						CERFA DISQUALIFIED CATEGORIES			
	ASBESTOS	LEAD	RADON	RADIO-NUCLIDES	UNEXPLODED ORDNANCE	PCBs STORAGE	PETROLEUM RELEASE	PETROLEUM STORAGE	HAZARDOUS SUBSTANCE RELEASE	HAZARDOUS SUBSTANCE STORAGE
Building 83	Y	P								
Building 84	Y	Y								
Building 86	Y	Y					Y	Y	Y	Y
Conex 86A - Aircraft Maintenance Area - Storage Area 1		P						Y		
Building 87	Y	Y						Y		Y
Conex 87A - Aircraft Maintenance Area - Storage Area 4		P						Y		
Building 90	Y	Y						Y		Y
Building 92	Y	Y								
Building 94	Y	Y								
Conex 94A - Aircraft Maintenance Area - Storage Area 3		P						Y		
Conex 94B - Aircraft Maintenance Area - Storage Area 3		P								Y
Conex 94C - Aircraft Maintenance Area - Storage Area 3		P								
Aircraft Maintenance Area - Storage Area 2 Plume							Y		Y	
Aircraft Maintenance Area - Storage Area 4 (AM-SB-8)							Y			
Aircraft Maintenance Area - Storage Area 4 (AM-SB-10)							Y			
POL Hill AGT C01								Y		
South Drainage Ditch Storm Drain Outfall (AM-SD-3)							Y		Y	
Dredge Spoils between Revetments 7 & 10							P		P	
Dredge Spoils W. of Building 20, N. of Perimeter Road							P		P	
East Levee Landfill									Y	
12 inch JP4 fuel line (SG84)							P		Y	
12 inch JP4 fuel line (SG67-SG37)							P		Y	

LOCATION	CERFA PARCEL WITH QUALIFIERS CATEGORIES						CERFA DISQUALIFIED CATEGORIES			
	ASBESTOS	LEAD	RADON	RADIO-NUCLIDES	UNEXPLODED ORDNANCE	PCBs STORAGE	PETROLEUM RELEASE	PETROLEUM STORAGE	HAZARDOUS SUBSTANCE RELEASE	HAZARDOUS SUBSTANCE STORAGE
12 inch JP4 fuel line (SG8)							Y		Y	
6 inch JP4 fuel line (JP-SS-1)									Y	
6 inch JP4 fuel line (JP-SS-2)							Y		Y	
Intermediate JP4 fuel line (JP-SS-18)									Y	
8 inch JP4 fuel line (JP-SS-16/17)									Y	
6 inch JP4 fuel line (JP-SS-3/4)							Y		Y	
6 inch JP4 fuel line (JP-SS-5/6)							Y		Y	
6 inch JP4 fuel line (JP-SS-7/8)							Y		Y	
6 inch JP4 fuel line (JP-SS-9/10)							Y		Y	
8 inch JP4 fuel line (JP-SS-15)									Y	
Intermediate JP4 fuel line (JP-SS-14)									Y	
Fuel Truck								Y		
Fuel Trailers								Y		
Former PCB Drum							P		Y	
POL Area Plume							Y			
Radiological Material Cylinders Disposal Site									Y	
Revetment 1							Y			
Revetment 2							Y			
Revetment 3							Y			
Revetment 4							P			
Revetment 5							Y			
Revetment 6 (Engine Test Pad)							Y		Y	
Revetment 7							P			
Revetment 8							Y			
Revetment 9							P			
Revetment 10 (Burn Pit)							Y		Y	
Revetment 11							P			
Revetment 12							P			
Revetment 13							Y			
Revetment 14							Y			

LOCATION	CERFA PARCEL WITH QUALIFIERS CATEGORIES						CERFA DISQUALIFIED CATEGORIES			
	ASBESTOS	LEAD	RADON	RADIO-NUCLIDES	UNEXPLODED ORDNANCE	PCBs STORAGE	PETROLEUM RELEASE	PETROLEUM STORAGE	HAZARDOUS SUBSTANCE RELEASE	HAZARDOUS SUBSTANCE STORAGE
Revetment 15							Y			
Revetment 16							Y			
Revetment 17							Y			
Revetment 18							Y			
Revetment 20							Y			
Revetment 21							Y			
Revetment 23							P			
Revetment 24							Y			
Revetment 25							Y			
Revetment 26							Y			
Revetment 27							Y			
Revetment 28							Y			
Aircraft Maintenance Area - Storage Area 2								Y		Y
Storm drain 1							P		P	
Storm drain 2							P		P	
Storm drain 3							P		P	
Storm drain 4							P		P	
Storm drain 5 (AM-SD-8)							Y		Y	
Storm drain 6							P		P	
Storm drain 7							P		P	
Storm drain 8							P		P	
Storm drain 9							P		P	
Storm drain 10 (AM-SD-2)							Y		Y	
Storm drain 11							P		P	
Storm drain 12 (AM-SD-6)							Y		Y	
Storm drain 13 (AM-SD-1)							Y		Y	
Storm drain 14 (AM-SD-4)							Y		Y	
Storm drain 15 (AM-SD-5)							Y		Y	
Storm drain 16 (AM-SD-7)							Y		Y	
Sewage Treatment Plant (STP) Outfall									Y	

LOCATION	CERFA PARCEL WITH QUALIFIERS CATEGORIES						CERFA DISQUALIFIED CATEGORIES			
	ASBESTOS	LEAD	RADON	RADIO-NUCLIDES	UNEXPLODED ORDNANCE	PCBs STORAGE	PETROLEUM RELEASE	PETROLEUM STORAGE	HAZARDOUS SUBSTANCE RELEASE	HAZARDOUS SUBSTANCE STORAGE
Pump Station Outfall Ditch (Bldg 35 and Bldg 39)							Y		Y	
Pump Station Outfall Ditch (Bldg 41)							Y		Y	
POL Area Tank Farm								Y		
Undetermined UST Site, North end of runway								P		
Sewage Treatment Plant (STP) Sludge Drying Bed							Y		Y	

STATUS=Y - SUBSTANCE PRESENT
STATUS=P - POSSIBLE SUBSTANCE PRESENT

Records printed: 114

ASBESTOS-CONTAINING MATERIAL

LOCATION	STATUS	LOCATION COMMENTS	REMEDIATION OR MITIGATION	APPENDIX A REFERENCE(S)
Building 15	Y			26
Building 20	Y			30
Building 26	Y			26
Building 35	Y			26
Building 39	Y			26
Building 48	Y			26
Building 82	Y			26
Building 83	Y			26
Building 84	Y			26
Building 86	Y			26
Building 87	Y			26
Building 90	Y			26
Building 92	Y			26
Building 94	Y			26

STATUS=Y - ASBESTOS CONTAINING MATERIAL PRESENT
STATUS=P- POSSIBLE ASBESTOS CONTAINING MATERIAL PRESENT

Records printed: 14

LEAD-BASED PAINT

LOCATION	STATUS	LOCATION COMMENTS	YEAR BUILT	REMEDIATION OR MITIGATION	APPENDIX A REFERENCE(S)
Building 145A	P				30
Building 15	Y				27
Building 152	Y		1959		27
Building 20	Y		1957		27
Building 26	Y				27
Building 35	P				27
Building 38	P				27
Building 39	P				27
Building 40	P				27
Building 41	P				27
Building 45	P				27
Building 510	Y		1957		27
Building 511	Y		1941		27
Building 512	Y		1941		27
Building 515	Y		1934		27
Building 516	Y		1934		27
Building 520	Y		1941		27
Building 521	Y		1942		27
Building 525	Y		1941		27
Building 82	Y		1969		27
Building 83	P				27
Building 84	Y		1961		27
Building 86	Y		1967		27
Conex 86A - Aircraft Maintenance Area - Storage Area 1	P				27
Building 87	Y				27
Conex 87A - Aircraft Maintenance Area - Storage Area 4	P				27
Building 90	Y		1961		27
Building 92	Y		1972		27
Building 94	Y		1962		27
Conex 94A - Aircraft Maintenance Area - Storage Area 3	P				27
Conex 94B - Aircraft Maintenance Area - Storage Area 3	P				27
Conex 94C - Aircraft Maintenance Area - Storage Area 3	P				27

STATUS=Y - LEAD-BASED PAINT PRESENT
STATUS=P - POSSIBLE LEAD-BASED PAINT PRESENT

Records printed: 32

UNEXPLODED ORDNANCE

LOCATION	STATUS	LOC CMTS	SUBSTANCE	REM OR MIT	REFERENCE
South end of runway	P	South end of runway	Ammunition	No evidence of UXO in any subsequent investigations or records	28
Undetermined location	P	Undetermined	Unexploded bombs	No evidence of UXO in any subsequent investigations or records	1

STATUS=Y - SUBSTANCE PRESENT
STATUS=P - POSSIBLE SUBSTANCE PRESENT

Records printed: 0

PETROLEUM RELEASE

LOCATION	STATUS	LOCATION COMMENTS	TYPE	SUBSTANCE	QUANTITY	DATE RELEASE	APPENDIX A REFERENCE(S)	REMEDIATION OR MITIGATION
Building 20	P	UST release	SOIL	Diesel Fuel (TPH)			25	Tank no longer in service
Building 35	Y	AGT #6	SOIL/GW	Diesel Fuel (TPH=332,000 ppm)			25, 22, 2, 13	
Building 39	Y	AGT #5	SOIL/GW	Diesel Fuel (TPH=166,000 ppm)			25, 22, 2, 13	Leaking pump noted during CERFA inspection
Building 40	Y	former POL drum storage area	SOIL	POL (TPH)			25	Drums have been removed
Building 40	Y	AGT #7	SOIL	Diesel Fuel (TPH=11,100 ppm)			2, 13	
Building 41	Y	soil stockpiles	SOIL	POL (TPH=1570 ppm)	75 CY		2, 13	
Building 41	Y	AGT	SOIL	Diesel Fuel (TPH)			2, 13	
Building 41	Y	turbine oil drum	SOIL	Turbine Oil (TPH)			25	Drum stored on concrete pad, staining runs off concrete into soil
Building 41	Y	UST #23	SOIL	Diesel Fuel (TPH)	100 gal	2/9/93	25, I-2, 31	
Former Building 60	P	overturned transformers	SOIL	Dielectric Fluid (TPH)			2, 25	
Building 86	Y	transformer #F-956911, Southwest corner of building	SURFACE	TPH		9/19/93	2, 25	Released contained in concrete sump
Aircraft Maintenance Area - Storage Area 2 Plume	Y		SOIL	TPH=4650 ppm			2, 13	
Aircraft Maintenance Area - Storage Area 4 (AM-SB-8)	Y		SOIL	TPH=33.5 ppm			2, 13	
Aircraft Maintenance Area - Storage Area 4 (AM-SB-10)	Y		SOIL	TPH=1060 ppm			2, 13	
South Drainage Ditch Storm Drain Outfall (AM-SD-3)	Y		SD	TPH=1230 ppm			2, 13	Sampling conducted by COE t determine degree & extent, avail 4/94
Dredge Spoils between Revetments 7 & 10	P	dredge spoils between revetments 7 & 10	SOIL	TPH	200 CY	Fall 1993	30	No odor. Vegetation has grown up through material

LOCATION	STATUS	LOCATION COMMENTS	TYPE	SUBSTANCE	QUANTITY	DATE RELEASE	APPENDIX A REFERENCE(S)	REMEDIATION OR MITIGATION
Dredge Spoils W. of Building 20, N. of Perimeter Road	P	dredge spoils West of Bldg 20, North of Perimeter Road	SOIL	TPH	100 CY	1992	30	No odor. Vegetation has grown up through material
12 inch JP4 fuel line (SG84)	P		SOIL	TPH			2, 13	
12 inch JP4 fuel line (SG67-SG37)	P		SOIL	TPH			2, 13	
12 inch JP4 fuel line (SG8)	Y		SOIL	TPH=51.8 ppm			2, 13	
6 inch JP4 fuel line (JP-SS-2)	Y		SOIL	TPH=82 ppm			2, 13	
6 inch JP4 fuel line (JP-SS-3/4)	Y		SOIL	TPH=111 ppm			2, 13	
6 inch JP4 fuel line (JP-SS-5/6)	Y		SOIL	TPH=123 ppm			2, 13	
6 inch JP4 fuel line (JP-SS-7/8)	Y		SOIL	TPH=264 ppm			2, 13	
6 inch JP4 fuel line (JP-SS-9/10)	Y		SOIL	TPH=112 ppm			2, 13	Drum removed
Former PCB Drum	P		SOIL	TPH		10/2/89	24	Sampling indicates soil uncontaminated by PCBs
POL Area Plume	Y		SOIL/GW	TPH			1, 2, 3, 13	Soil removed in 1986 and 1990 to 100 ppm cleanup level
Revetment 1	Y		SOIL	TPH=32.5 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 2	Y		SOIL	TPH=60.4 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 3	Y		SOIL	TPH=17.4 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
evetment 4	P		SOIL	TPH			2, 13, 33	Concrete revetment turnout limited infiltration
Revetment 5	Y		SOIL	TPH=87.9 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 6 (Engine Test Pad)	Y		SOIL/GW	TPH=44 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 7	P		SOIL	TPH			12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 8	Y		SOIL	TPH=53.6 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 9	P		SOIL	TPH			12, 13, 33	

LOCATION	STATUS	LOCATION COMMENTS	TYPE	SUBSTANCE	QUANTITY	DATE RELEASE	APPENDIX A REFERENCE(S)	REMEDIATION OR MITIGATION
Revetment 10 (Burn Pit)	Y		SOIL/GW	TPH=1920 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 11	P		SOIL	TPH			12, 13, 33	
Revetment 12	P		SOIL	TPH			12, 13, 33	
Revetment 13	Y		SOIL	TPH=77.6 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 14	Y		SOIL	TPH=19.2 ppm			2, 12, 13, 33	
Revetment 15	Y		SOIL	TPH=63.5 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 16	Y		SOIL	TPH=27.4 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 17	Y		SOIL	TPH=139 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 18	Y		SOIL	TPH=15.8 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 20	Y		SOIL	TPH=131 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 21	Y		SOIL	TPH=84.9 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 23	P		SOIL	TPH			12, 13, 33	
Revetment 24	Y		SOIL	TPH=49.3 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 25	Y		SOIL	TPH=17.4 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 26	Y		SOIL	TPH=174 ppm			2, 12, 13, 33	Concrete revetment turnout limited infiltration
Revetment 27	Y		SOIL	TPH=302 ppm			2, 12, 13	Concrete revetment turnout limited infiltration
Revetment 28	Y		SOIL	TPH=19.7 ppm			2, 12, 13	Concrete revetment turnout limited infiltration
Storm drain 1	P		SD	TPH			2, 13	
Storm drain 2	P		SD	TPH			2, 13	
Storm drain 3	P		SD	TPH			2, 13	
Storm drain 4	P		SD	TPH			2, 13	
Storm drain 5 (AM-SD-8)	Y		SD	TPH=230 ppm			2, 13	
Storm drain 6	P		SD	TPH			2, 13	
Storm drain 7	P		SD	TPH			2, 13	
Storm drain 8	P		SD	TPH			2, 13	
Storm drain 9	P		SD	TPH			2, 13	

LOCATION	STATUS	LOCATION COMMENTS	TYPE	SUBSTANCE	QUANTITY	DATE RELEASE	APPENDIX A REFERENCE(S)	REMEDIATION OR MITIGATION
Storm drain 10 (AM-SD-2)	Y		SD	TPH=2390 ppm			2, 13	
Storm drain 11	P		SD	TPH			2, 13	
Storm drain 12 (AM-SD-6)	Y		SD	TPH=373 ppm			2, 13	
Storm drain 13 (AM-SD-1)	Y		SD	TPH=1940 ppm			2, 13	
Storm drain 14 (AM-SD-4)	Y		SD	TPH=1590 ppm			2, 13	
Storm drain 15 (AM-SD-5)	Y		SD	TPH=884 ppm			2, 13	
Storm drain 16 (AM-SD-7)	Y		SD	TPH=2500 ppm			2, 13	
Pump station outfall ditch (Bldg 35 and Bldg 39)	Y		SD	TPH=2690 ppm			2, 13	
Pump station outfall ditch (Bldg 41)	Y		SD	TPH=283 ppm			2, 13	
Sewage treatment plant (STP) sludge drying bed	Y		SOIL/GW/SW	TPH=2600 ppm			2, 13	

STATUS=Y - SUBSTANCE PRESENT
STATUS=P - POSSIBLE SUBSTANCE PRESENT

Records printed: 72

PETROLEUM STORAGE

LOCATION	STATUS	LOCATION COMMENTS	TYPE	SUBSTANCE	QUANTITY	DATE INACTIVATED	APPENDIX A REFERENCE(S)	REMEDIATION OR MITIGATION
Building 140	P	Suspected UST at bldg 140	UST	Diesel Fuel(P)			1, 31	Tank no longer used
Building 145A	Y	Tank in air comp. shed bld 145	AGT	Diesel Fuel(P)	~250 gal		31	Tank Active
Building 15	Y	Tank #10	AGT	Diesel Fuel (P)	~250 gal	1975(P)	25	AGT is Empty
Building 20	Y	Tank #20	UST	Diesel Fuel (P)		1975(P)	25	
Building 26	P	Tank #25	UST	Diesel Fuel (P)	1,000 gal	1975(P)	4, 25	
Building 26	Y		AGT	Diesel Fuel	~300 gal	1975(P)	1	Inside Building
Building 35	Y	Tank #6	AGT	Diesel Fuel	5,000 gal		22, 25	Tank Active
Building 35	Y		AGT	Diesel Fuel	~250 gal		25	ACTIVE - Located Inside Building
Building 39	Y	Tank #5	AGT	Diesel Fuel	2,000 gal		22, 25	Tank Active
Building 39	Y	Tank attch. to W. side of bldg	AGT	Diesel Fuel(P)	~250 gal		30	Tank Active
Building 40	Y	Tank #7	AGT	Diesel Fuel	~500 gal		25	Tank Active
Building 40	Y	Storage Area	drums	Various POL	440 gal	1993(P)	25	Leaking Drums have been removed
Building 41	Y	UST #23	UST	Diesel Fuel (P)			25	
Building 41	P		UST	Diesel Fuel (P)			I-2, 31	
Building 41	Y	Unnumbered Tank	AGT	Diesel Fuel	~500 gal		25	Tank Active
Building 41	Y	Dispensing rack under building	drums	Turbine Oil	55 gal		25	Tank Active
Building 45	P	Suspected UST/AGT	UST	Diesel Fuel (P)		1986	2	UST and soils have been removed
Building 45	Y		AGT	Diesel Fuel (P)		1986	2	Tank and some soils removed
Former Building 48	P	Suspected UST/AGT	UST	Diesel Fuel (P)			1, 25, 30	
Building 521	P	Suspected UST at back of bldg	UST	Diesel Fuel(P)			30, 31	Tank no longer used
Former Building 736	Y		drums	Waste Oil		1986	1, 2, 24	Building removed in 1993
Former Building 737	Y		drums	Waste Oil		1986	1, 2, 24	Building removed in 1993
Former Building 738	Y		drums	Waste Oil		1986	1, 2, 24	Building removed in 1993
Building 86	Y	Inside	cans	POL	25 gal	1994	2, 25, 30	Cans inside building. Activity ceased 2/94

LOCATION	STATUS	LOCATION COMMENTS	TYPE	SUBSTANCE	QUANTITY	DATE INACTIVATED	APPENDIX A REFERENCE(S)	REMEDIATION OR MITIGATION
Building 86	P	Former tank in bldg 86	AGT	Diesel Fuel(P)			31	Tank no longer present in building
Conex 86A - Aircraft Maintenance Area - Storage Area 1	Y	West side of building 86	drums	Product and wastes POL	1,000 gal	1994	2, 25, 30	Activity ceased 2/94
Building 87	Y	Inside and outside building	drums	POL		1994	2, 25, 30	Activity ceased 2/94, drums outside of bldg, bldg locked, contents unk
Conex 87A - Aircraft Maintenance Area - Storage Area 4	Y		cans	Gasoline	50 gal	1994	2, 25, 30	Activity ceased 2/94. Conex locked, contents unkown
Building 90	Y	Former AV Mainten. Shop	drums	POL		1974 (P)	25, 27	
Conex 94A - Aircraft Maintenance Area - Storage Area 3	Y		drums	POL Products	1,000 gal	1994	2, 25	ACTIVE
POL Hill AGT C01	Y	Tank #C01 - POL Hill	AGT	JP4 - Jet Fuel	840,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
Fuel Truck	Y	North of Building 86	AGT	JP-4	5,000 gal		25	ACTIVE - Replaces 3 Tanker Trucks
Fuel Trailers	Y	Northwest of Bldg 90	AGT	JP-4	5,000 gal		1, 2, 25	Tank no longer used
Fuel Trailers	Y	Northwest of Bldg 90	AGT	JP-4	5,000 gal		1, 2, 25	Replaced 600 gal fuel tank one of two, surrounded by sand bags, not in use
Aircraft Maintenance Area - Storage Area 2	Y	West of building 86	Cans	POL	25 gal	1994	2, 25, 30	Activity ceased 2/94. Several cans remain in area.
POL Area Tank Farm	Y	Tank #D01	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D02	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D03	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D04	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992

LOCATION	STATUS	LOCATION COMMENTS	TYPE	SUBSTANCE	QUANTITY	DATE INACTIVATED	APPENDIX A REFERENCE(S)	REMEDIATION OR MITIGATION
POL Area Tank Farm	Y	Tank #D05	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D06	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D07	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D08	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D09	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D10	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D11	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D12	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D13	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D14	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D15	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D16	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D17	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992

LOCATION	STATUS	LOCATION COMMENTS	TYPE	SUBSTANCE	QUANTITY	DATE INACTIVATED	APPENDIX A REFERENCE(S)	REMEDIATION OR MITIGATION
POL Area Tank Farm	Y	Tank #D18	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D19	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D20	UST	JP4 - Jet Fuel	25,000 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
POL Area Tank Farm	Y	Tank #D21	UST	JP4 - Jet Fuel	750 gal	1986	1, 2, 3	Tank removed in 1986 - Contaminated soil removed in 1990 and 1992
Undetermined UST Site, North end of runway	P	UST #22	UST	POL			1	Abandoned - Attempted Locatio using Metal Detector

STATUS=Y - SUBSTANCE PRESENT
STATUS=P - POSSIBLE SUBSTANCE PRESENT

Records printed: 57

HAZARDOUS SUBSTANCE RELEASE

LOCATION	STATUS	LOCATION COMMENTS	TYPE	SUBSTANCE	QUANTITY	DATE RELEASE	APPENDIX A REFERENCE(S)	REMEDIATION OR MITIGATION
Building 26	Y	Discarder locker behind building	SURFACE	Waste paint				Paint contained in locker
Building 35	Y	AGT #6	SOIL	SVOCs, lead=410 ppm			2, 13, 25, 22	
Building 39	Y	AGT #5	SOIL	SVOCs, lead=14 ppm			2, 13, 22, 25	
Building 40	Y	sewage treatment plant pond	SW	Metals, Chloride=13,000,000 ppb			2, 13	
Building 40	Y	AGT #7	SOIL	SVOCs, lead=23 ppm			2, 13	
Building 41	Y	soil stockpiles at Bldg 41	SOIL	SVOCs, lead=27 ppm			2, 13	
Building 515	Y	transformers in basement	SURFACE	PCBs			1, 2, 25, 31	Release in locked maintenance room with concrete floor
Building 86	Y	transformer #F-956911 - Southwest corner of building	SURFACE	PCBs		9/19/93	25	Release contained in concrete sump
Aircraft Maintenance Area - Storage Area 2 Plume	Y		SOIL	Toluene=0.21 ppb, VOC TICs=6700 ppb, metals			2, 13	
South Drainage Ditch Storm Drain Outfall (AM-SD-3)	Y		SD	SVOCs, lead=168 ppm			2, 13	
Dredge Spoils between Revetments 7 & 10	P	dredge spoils between revetments 7 & 10	SOIL	SVOCs, Lead	200 CY	Fall 1993	30	No odor. Vegetation has grown up through material
Dredge Spoils W. of Building 20, N. of Perimeter Road	P	dredge spoils W. of building 20 and N. of Perimeter Road	SOIL	SVOCs, Lead	100 CY	1992	30	No odor. Vegetation has grown up through material
East Levee Landfill	Y		GW/SOIL	Metals, SVOCs, MEK=27.6 ppb			2, 13	Minimal contamination identified

LOCATION	STATUS	LOCATION COMMENTS	TYPE	SUBSTANCE	QUANTITY	DATE RELEASE	APPENDIX A REFERENCE(S)	REMEDIATION OR MITIGATION
12 inch JP4 fuel line (SG84)	Y		SOIL	o-xylene=74 ppb			2, 13	
12 inch JP4 fuel line (SG67-SG37)	Y		SOIL	o-xylene=84 ppb, toluene=106 ppb			2, 13	
12 inch JP4 fuel line (SG8)	Y		SOIL	m-xylene=96 ppb, lead=48 ppm			2, 13	
6 inch JP4 fuel line (JP-SS-1)	Y		SOIL	lead=86 ppm			2, 13	
6 inch JP4 fuel line (JP-SS-2)	Y		SOIL	lead=16 ppm			2, 13	
Intermediate JP4 fuel line (JP-SS-18)	Y		SOIL	lead=9.2 ppm			2, 13	
8 inch JP4 fuel line (JP-SS-16/17)	Y		SOIL	lead=20.8 ppm			2, 13	
6 inch JP4 fuel line (JP-SS-3/4)	Y		SOIL	lead=16 ppm			2, 13	
6 inch JP4 fuel line (JP-SS-5/6)	Y		SOIL	lead=160 ppm			2, 13	
6 inch JP4 fuel line (JP-SS-7/8)	Y		SOIL	lead=44 ppm			2, 13	
6 inch JP4 fuel line (JP-SS-9/10)	Y		SOIL	lead=360 ppm, benzene=663 ppb, ethylbenzene=88 ppb			2, 13	
8 inch JP4 fuel line (JP-SS-15)	Y		SOIL	lead=8.7 ppm			2, 13	
Intermediate JP4 fuel line (JP-SS-14)	Y		SOIL	lead=21.6 ppm			2, 13	
Former PCB Drum	Y		SOIL	PCBs		10/2/89	24	Sampling indicates soil uncontaminated by PCBs
Radiological Material Cylinders Disposal Site	Y		SOIL	Radiological materials			1, 4, 24	Radiological material cylinders removed
Revetment 6 (Engine Test Pad)	Y		SOIL/GW	Toluene=0.28 ppb, bis(2-ethylhexyl)-phthalate=2.17 ppb, lead=20 ppm, CN=12.6 ppb			2, 13	
Revetment 10 (Burn Pit)	Y		SOIL/GW	MEK=29.9 ppb, SVOCs TICs=126 ppb, Naphthalene=8.59 ppb, lead=9.1 ppm			2, 13	3
Storm drain 1	P		SD	SVOCs, lead			2, 13	
Storm drain 2	P		SD	SVOCs, lead			2, 13	
Storm drain 3	P		SD	SVOCs, lead			2, 13	
Storm drain 4	P		SD	SVOCs, lead			2, 13	

LOCATION	STATUS	LOCATION COMMENTS	TYPE	SUBSTANCE	QUANTITY	DATE RELEASE	APPENDIX A REFERENCE(S)	REMEDIATION OR MITIGATION
Storm drain 5 (AM-SD-8)	Y		SD	SVOCs TICs=32 ppb, phenanthrene=24 ppb, benzo[B]fluoranthrene=22 ppb Pb=690 ppm			2, 13	
Storm drain 6	P		SD	SVOCs, lead			2, 13	
Storm drain 7	P		SD	SVOCs, lead			2, 13	
Storm drain 8	P		SD	SVOCs, lead			2, 13	
Storm drain 9	P		SD	SVOCs, lead			2, 13	
Storm drain 10 (AM-SD-2)	Y		SD	SVOCs TICs=185 ppb, bis(2-ethylhexyl)-phthalate=15 ppb, lead=1020 ppm			2, 13	
Storm drain 11	P		SD	SVOCs, lead			2, 13	
Storm drain 12 (AM-SD-6)	Y		SD	SVOCs TICs=16.4 ppb, lead=190 ppm			2, 13	
Storm drain 13 (AM-SD-1)	Y		SD	SVOCs TICs=34 ppb, phenanthrene=15 ppb, lead=618 ppm			2, 13	
Storm drain 14 (AM-SD-4)	Y		SD	SVOCs TICs=95 ppb, lead=480 ppm			2, 13	
Storm drain 15 (AM-SD-5)	Y		SD	phenanthrene=4.44 ppb, pyrene=3.59 ppb, lead=430 ppm			2, 13	
Storm drain 16 (AM-SD-7)	Y		SD	SVOCs TICs=18 ppb, pyrene=9 ppb, phenanthrene=9.4 ppb, lead=200 ppm			2, 13	
Sewage treatment plant (STP) Outfall	Y		SOIL	lead=45.8 ppm			2, 13	Partial sludge removal
Pump station outfall ditch (Bldg 35 and Bldg 39)	Y		SD	SVOCs, Pb=890 ppm			2, 13	
Pump station outfall ditch (Bldg 41)	Y		SD	SVOCs, lead=79 ppm			2, 13	
Sewage treatment plant (STP) sludge drying bed	Y		SOIL/SW/GW	SVOCs, VOCs, Metals, PCBs=1.2 ppm, DDT=1.68 ppb, CN			2, 13	Soil removal after STP closure

STATUS=Y - SUBSTANCE PRESENT
STATUS=P - POSSIBLE SUBSTANCE PRESENT

Records printed: 50

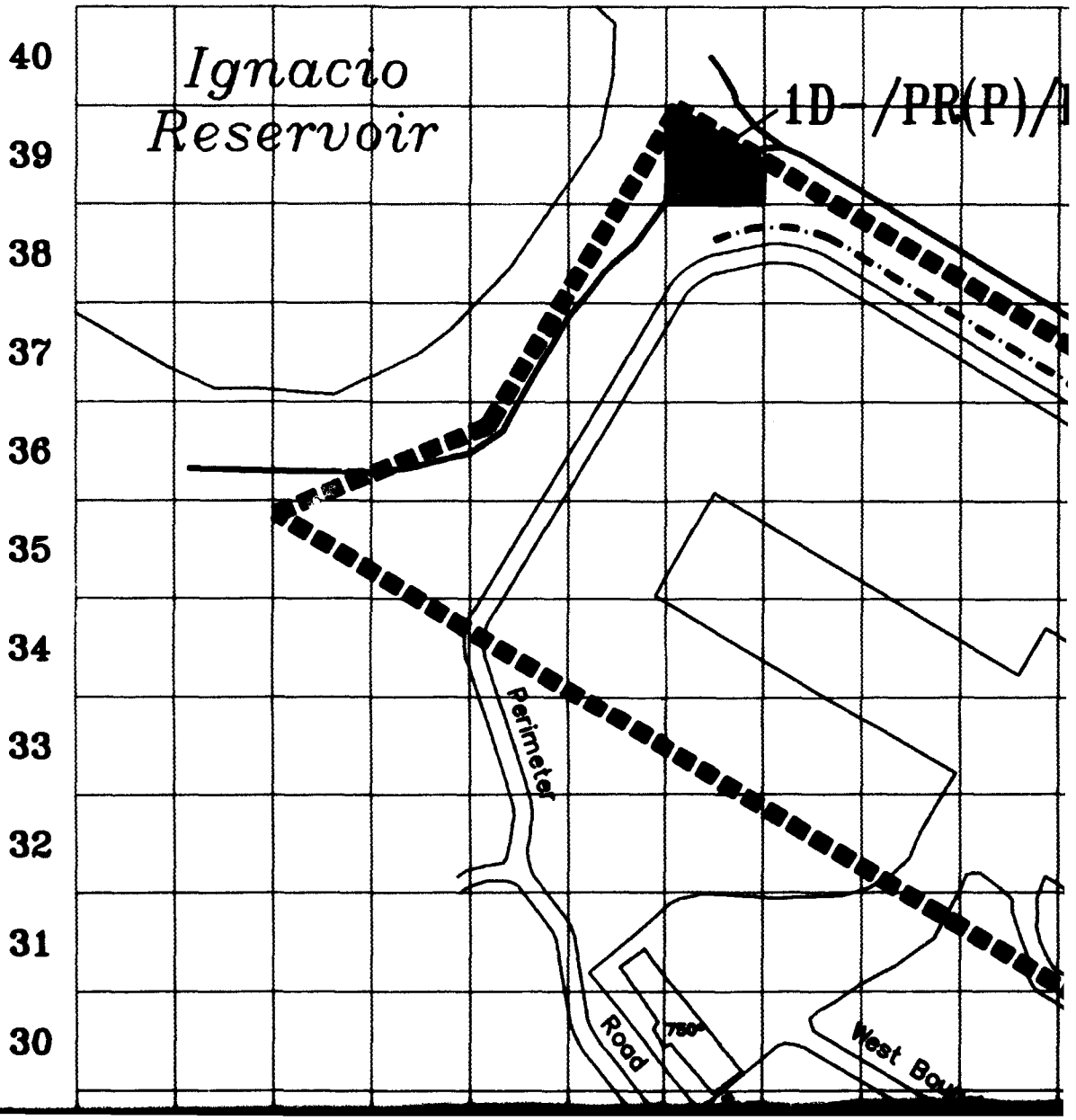
HAZARDOUS SUBSTANCE STORAGE

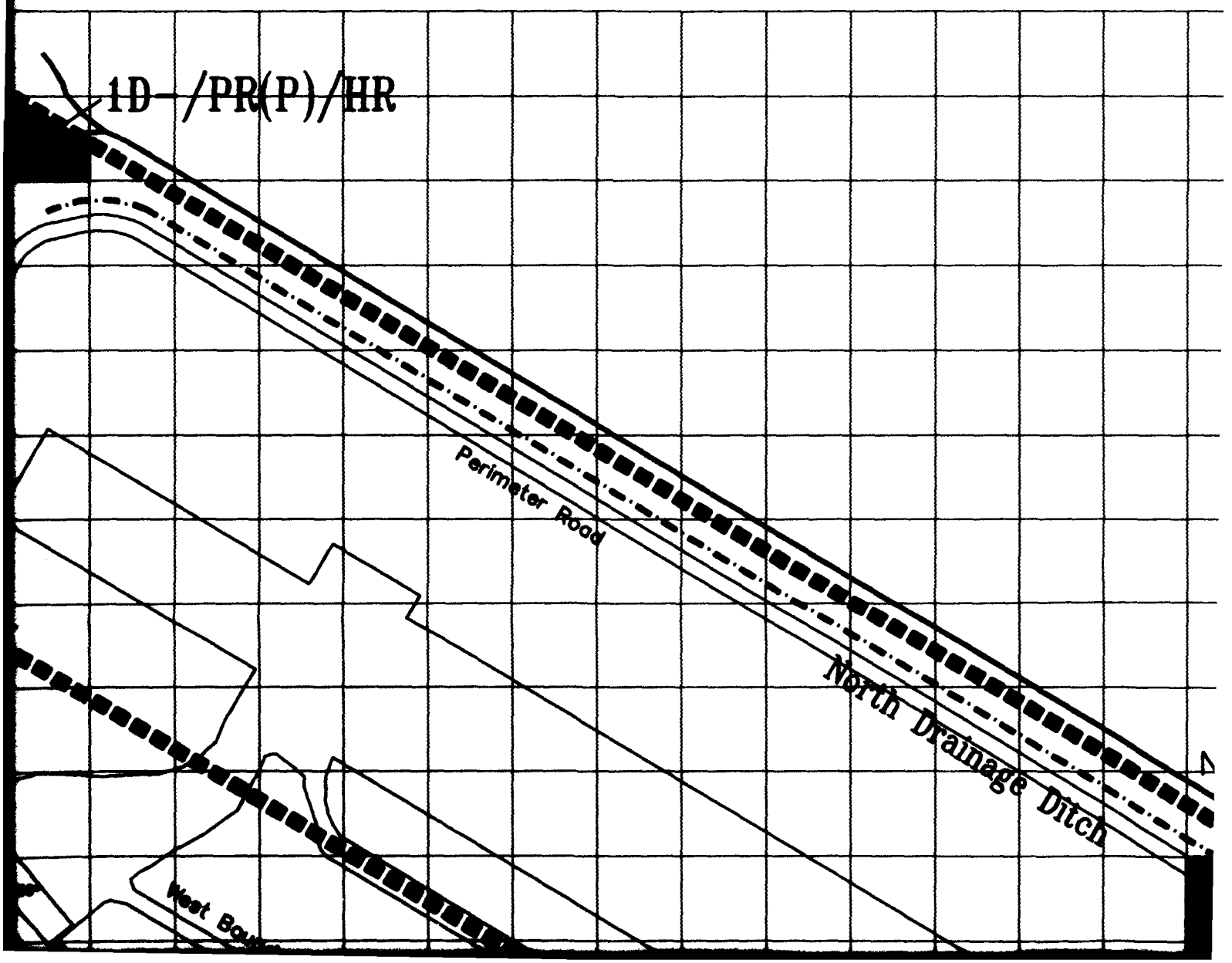
LOCATION	STATUS	LOCATION COMMENTS	TYPE	SUBSTANCE	QUANTITY	DATE START	DATE INACTIVATED	APPENDIX A REFERENCE(S)	REMEDIATION OR MITIGATION
Building 511	Y	Lockers inside building	CANS	Acetone, achohol, acetic acid, hydrogen peroxide	25 gal				
Building 86	Y	Inside	CANS	Paint, Acetone, HCL, Flammables	25 gal	1944 (P)		2, 25, 30	Army activity ceased 2/94. Currently minor activity by VMX Project
Building 87	Y	Inside and outside building	CANS	Paints, Antifreeze, Solvents	~1,650 gal			2, 25, 30	Army activity ceased 2/94. Some material still stored in area
Building 90	Y	Former AV Mainten. Shop	DRUM	Flammables, Paints		1961 (P)	1974 (P)	27, 30	
Conex 94B - Aircraft Maintenance Area - Storage Area 3	Y		CANS	Paints and Adhesives	50 gal		1994	2, 25, 30	Army activity ceased 2/94. Conex empty
Aircraft Maintenance Area - Storage Area 2	Y	West of Building 86	CANS	Product and Waste Flammables	25 gal	1944 (P)		2, 25, 30	Army activity ceased 2/94. Several cans remain in the area.

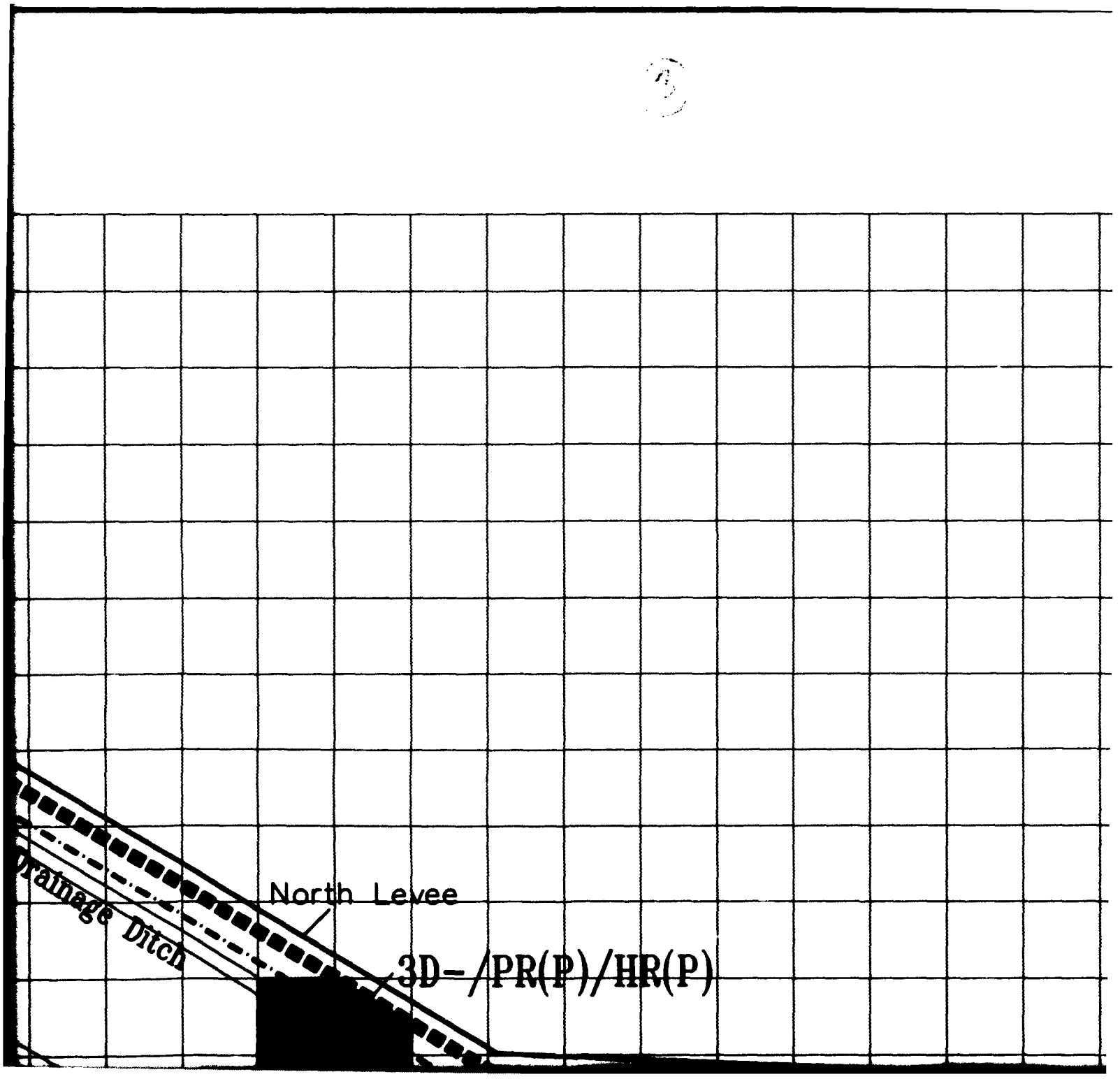
STATUS=Y - SUBSTANCE PRESENT
STATUS=P - POSSIBLE SUBSTANCE PRESENT

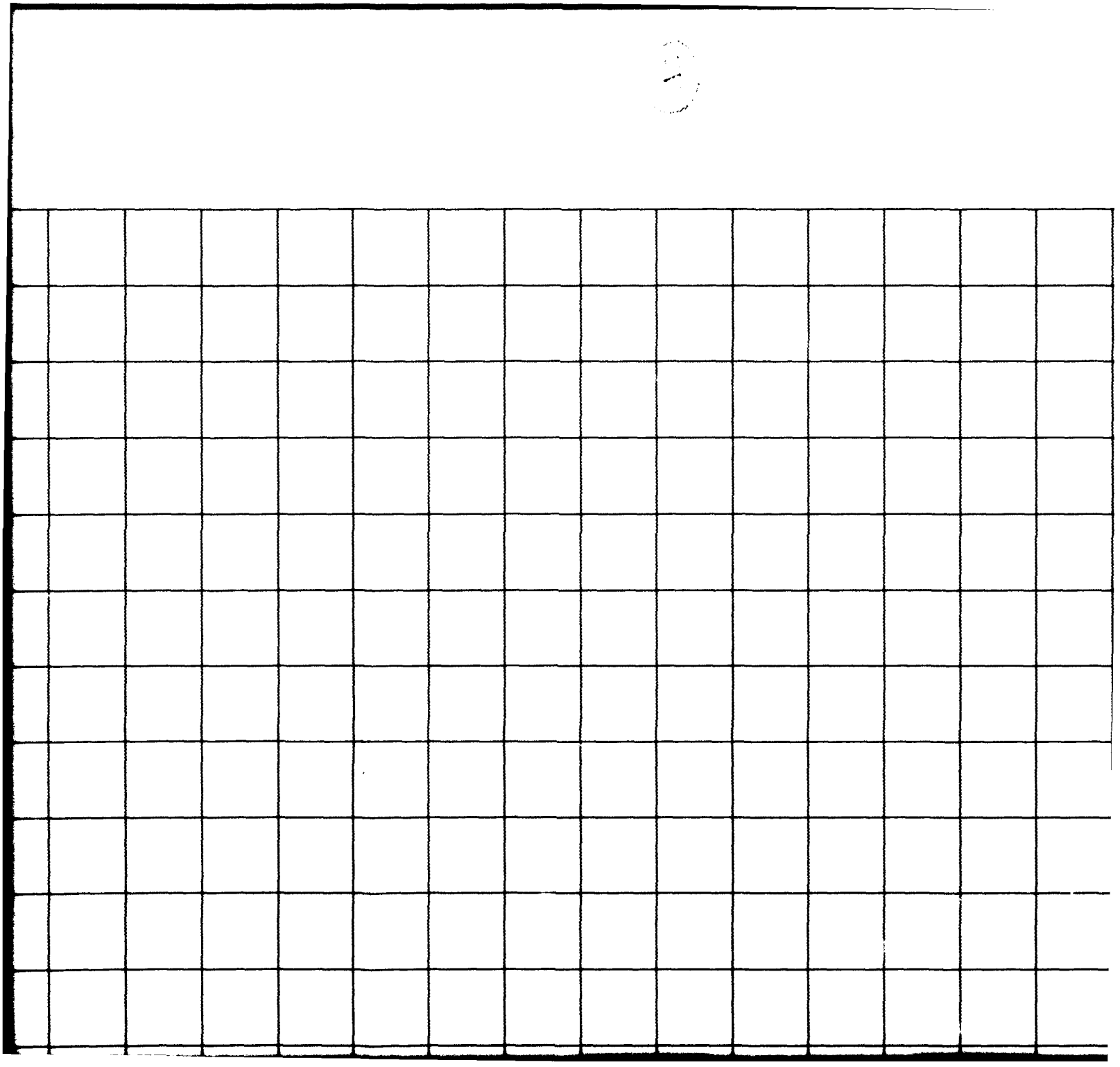
Records printed: 6

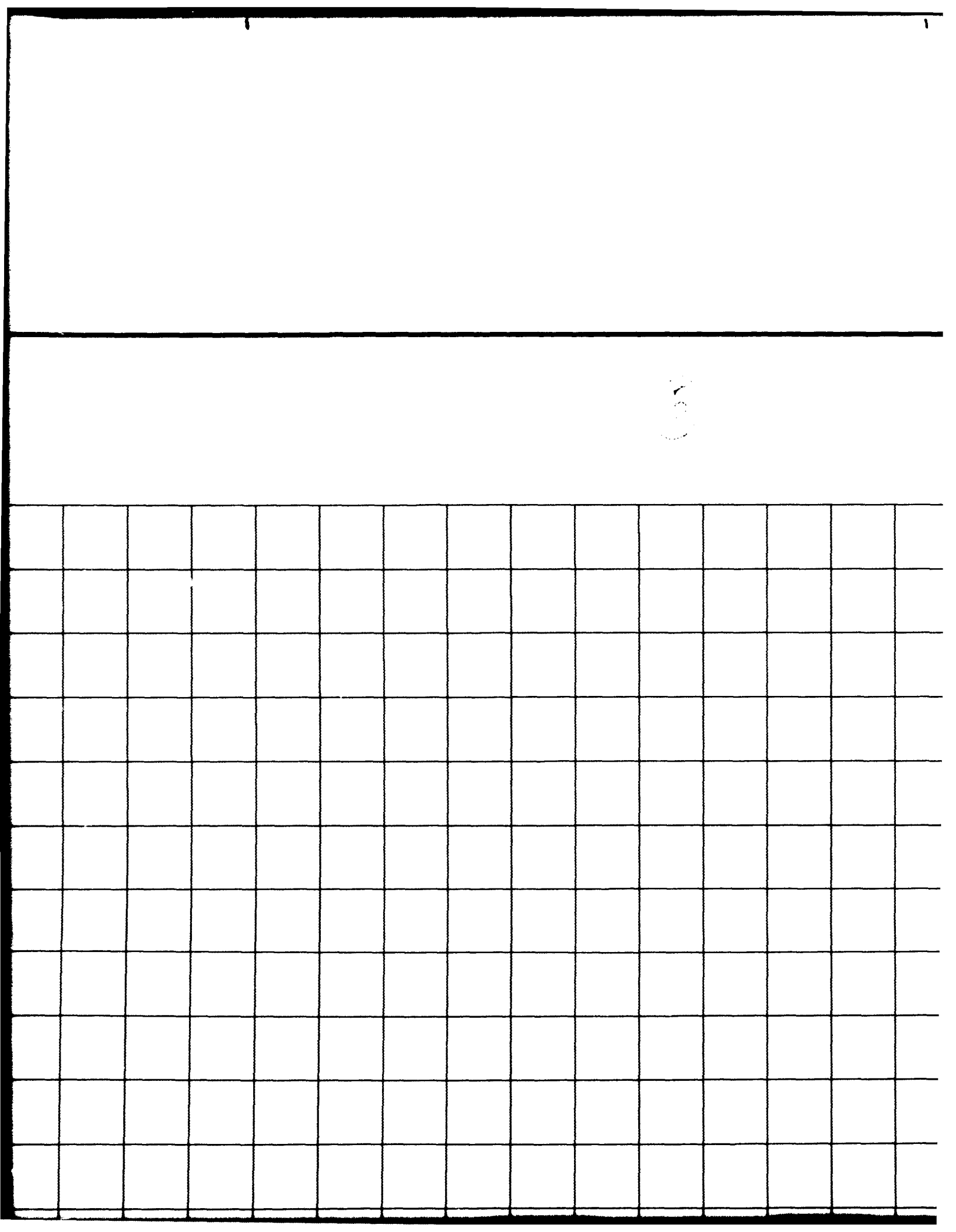
REVISION	DATE
0	11/01/93
1	04/08/94

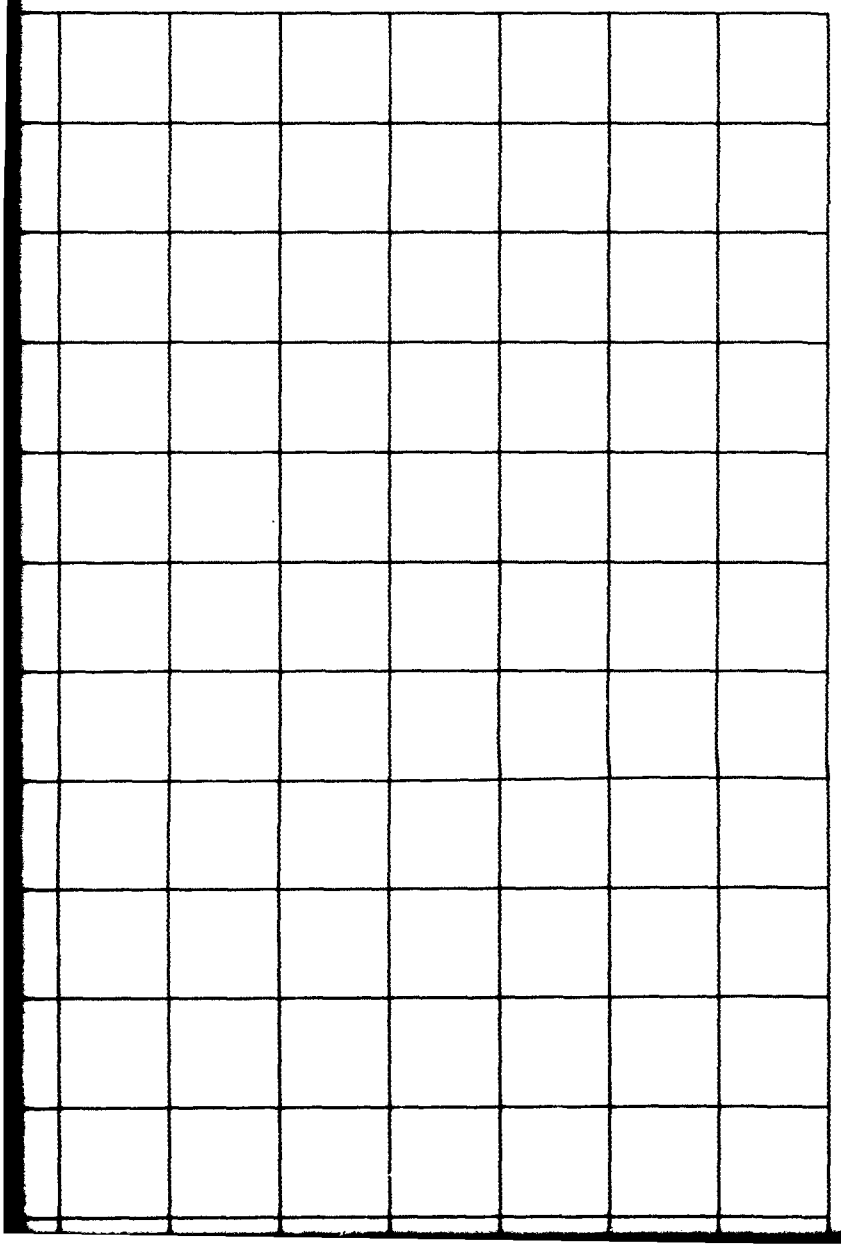



1D-/PR(P)/HR
Perimeter Road
North Drainage Ditch
West Boun


rainage Ditch
North Levee
3D-/PR(P)/HR(P)



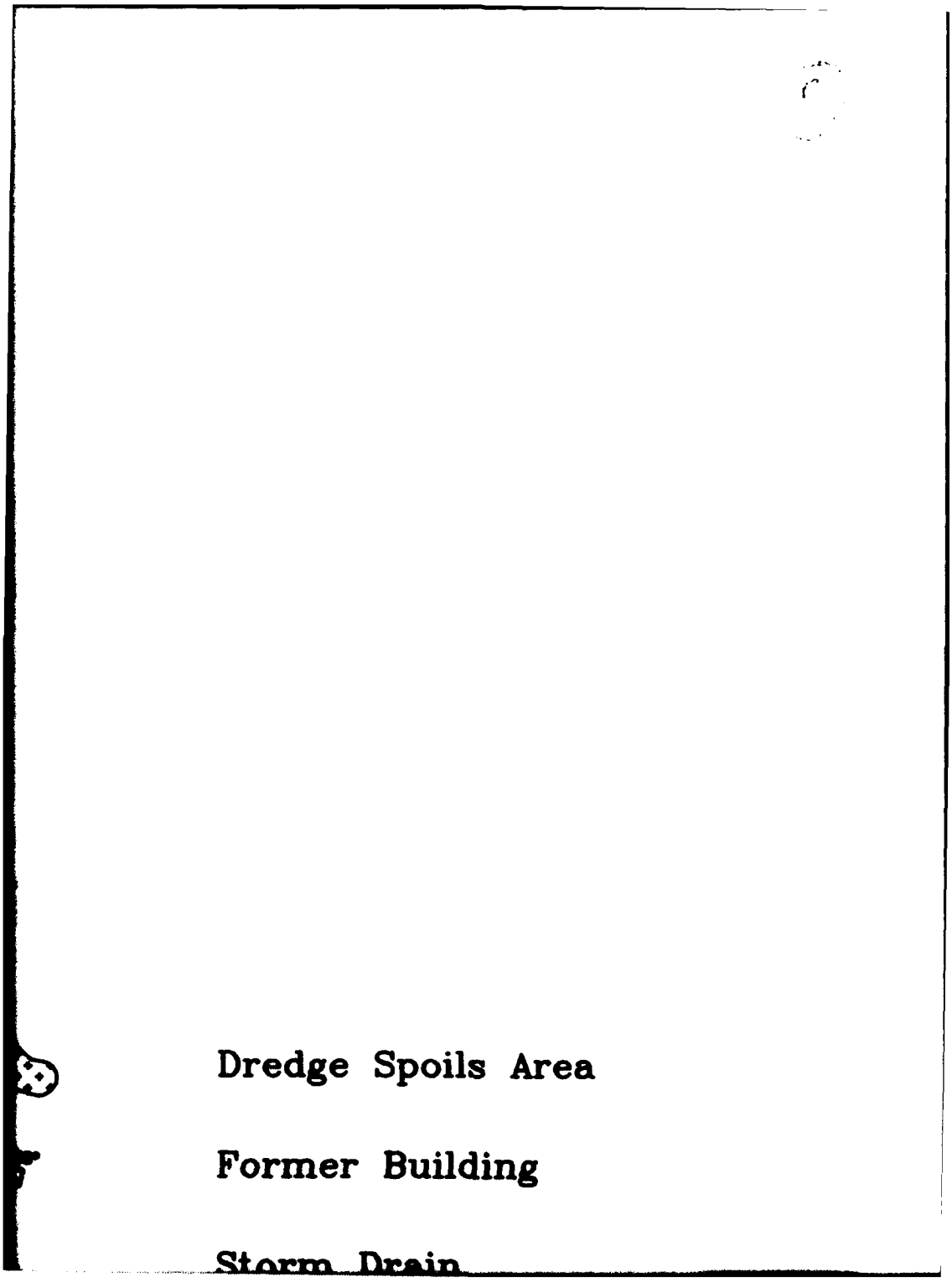


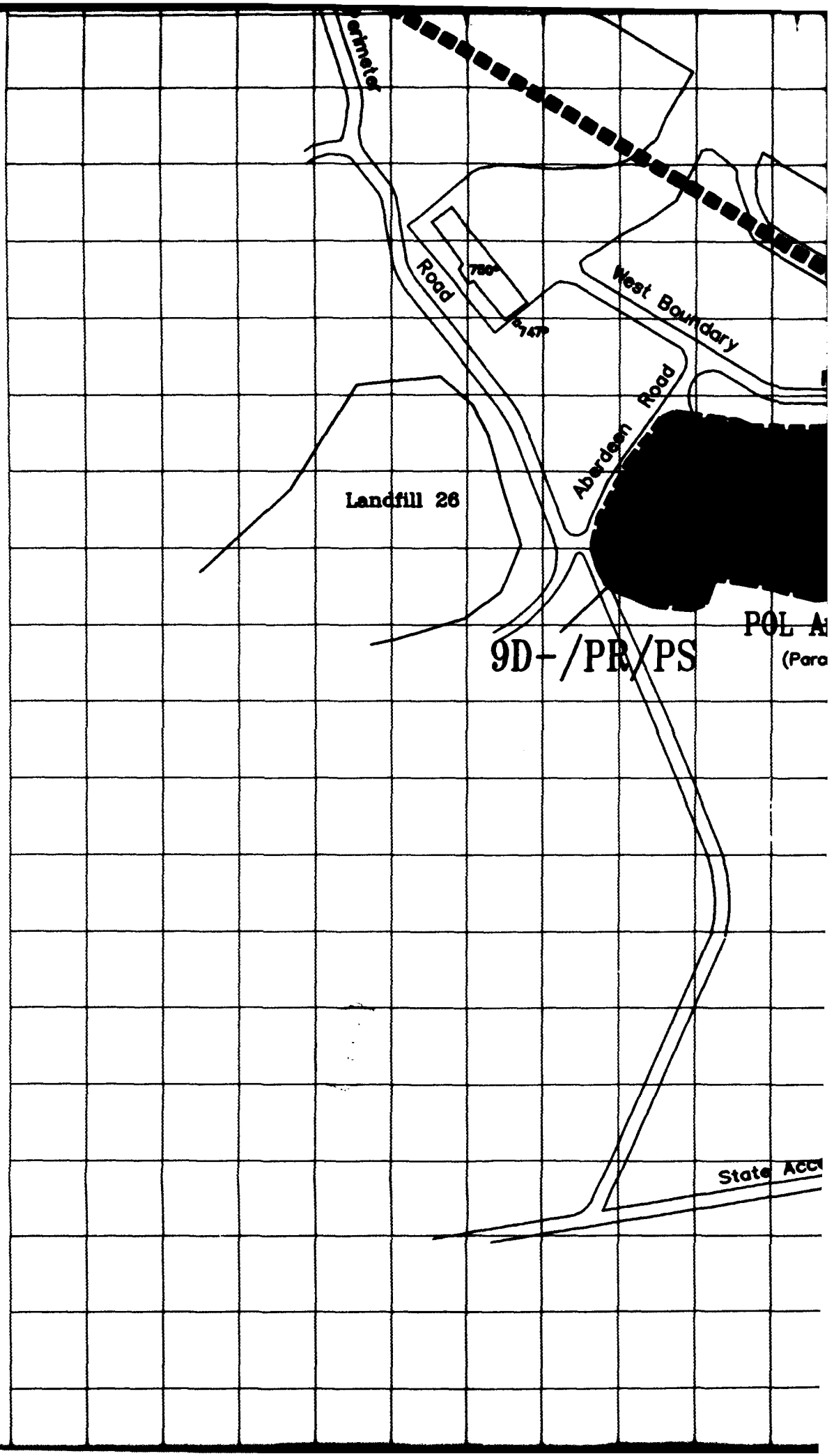


Dredge Spoi

Former Buil

Storm Drair


Dredge Spoils Area
Former Building
Storm Drain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Road
750'
147'
West Boundary
Aberdeen Road
Landfill 26
9D-/PR/PS
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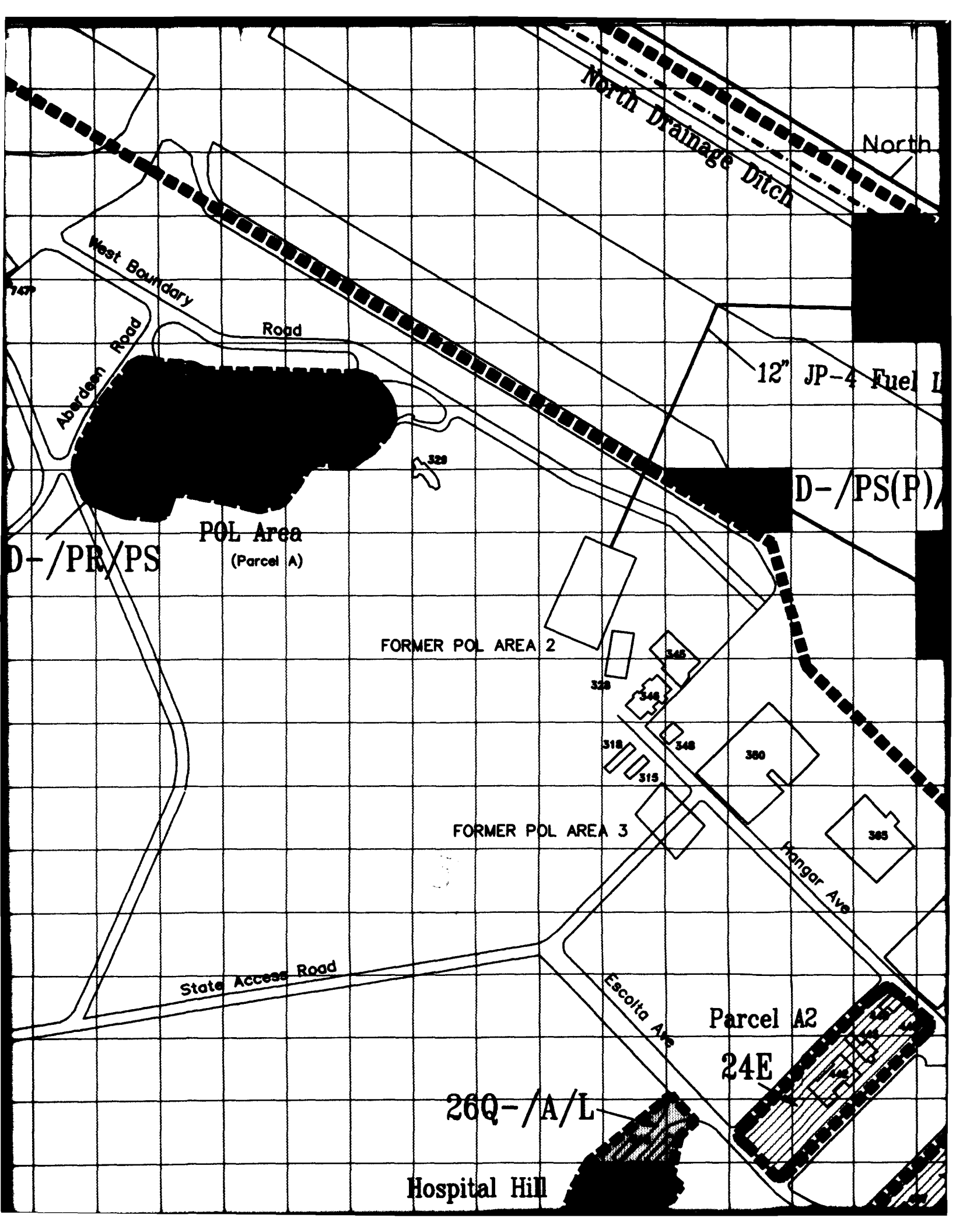
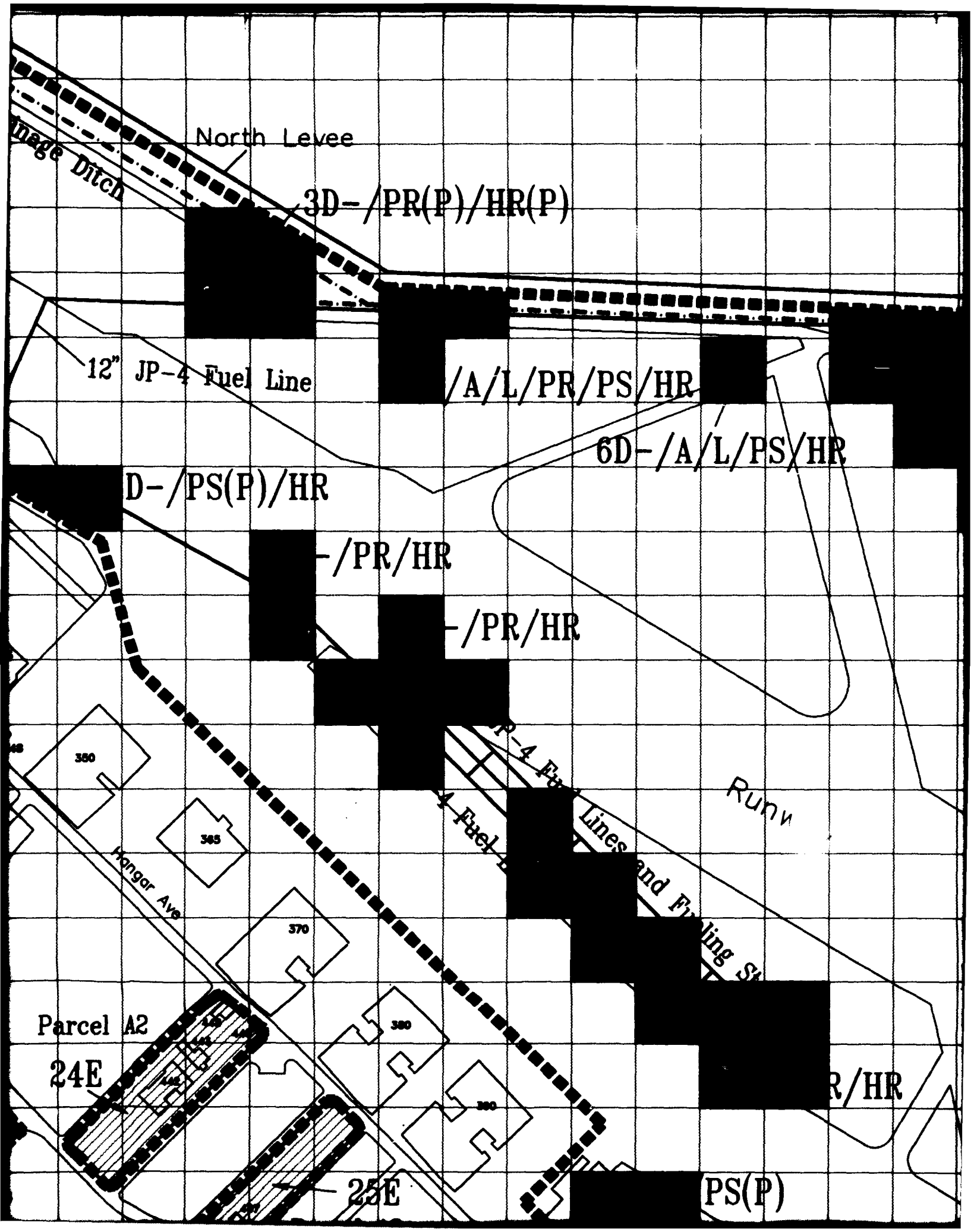
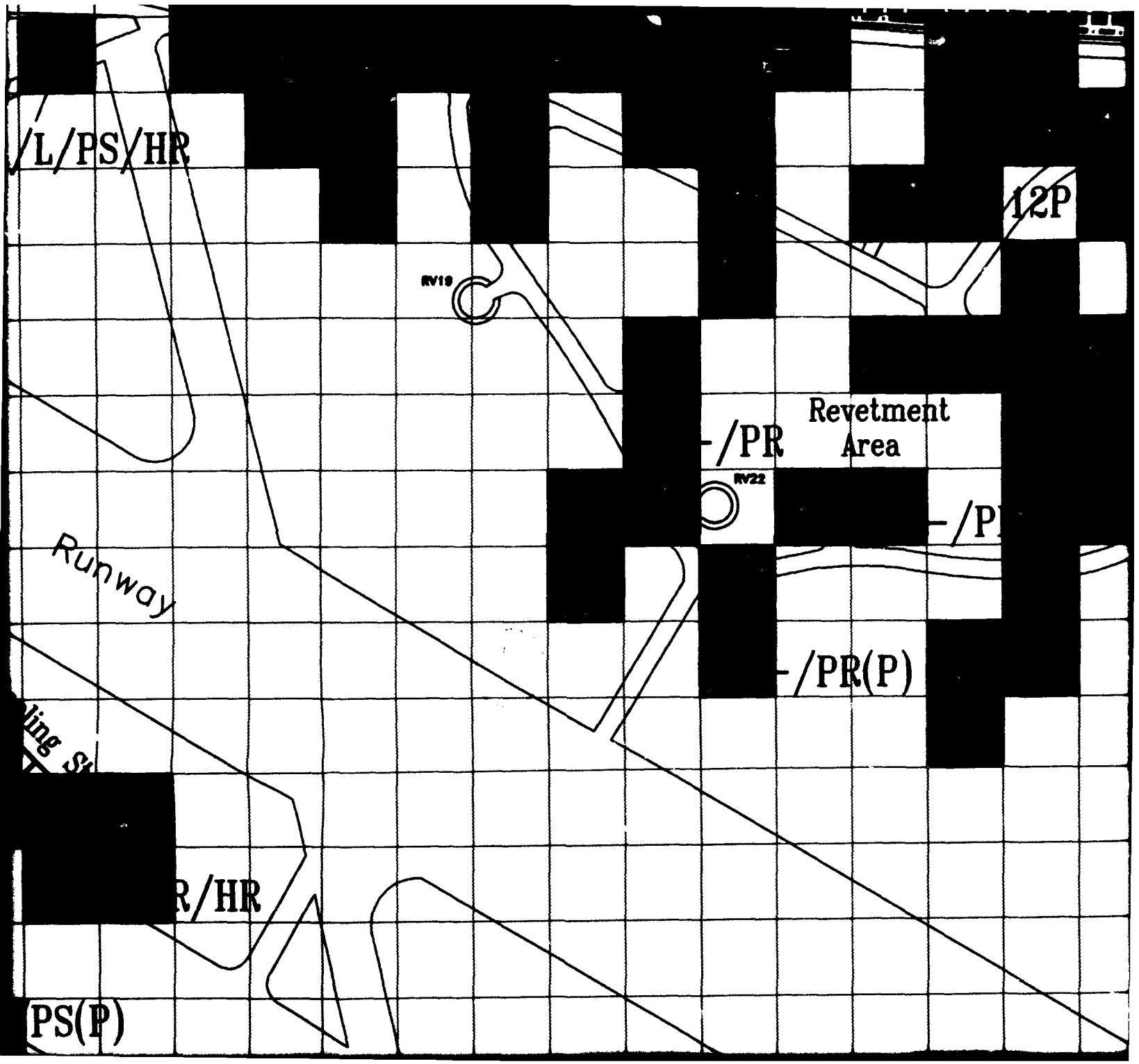
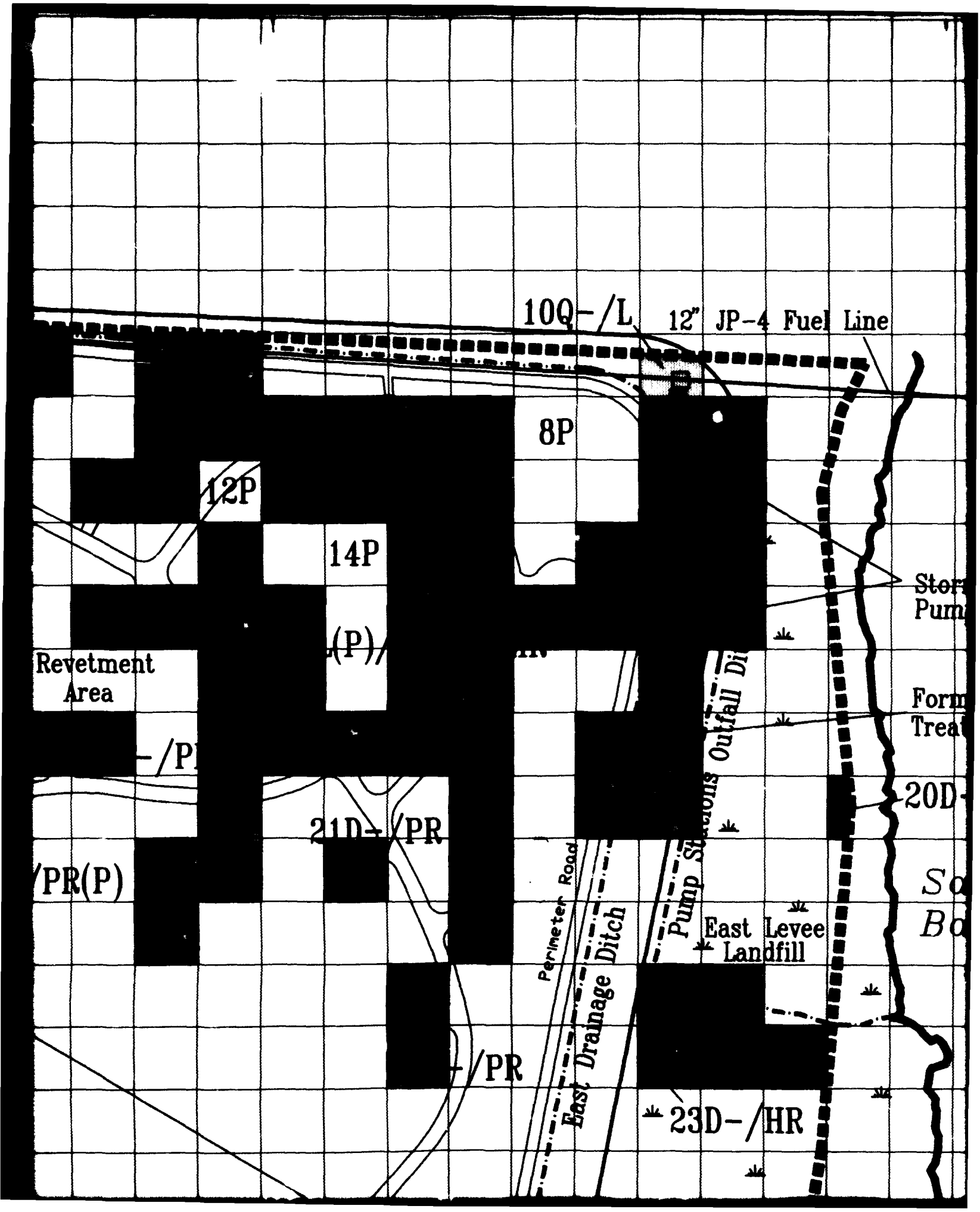
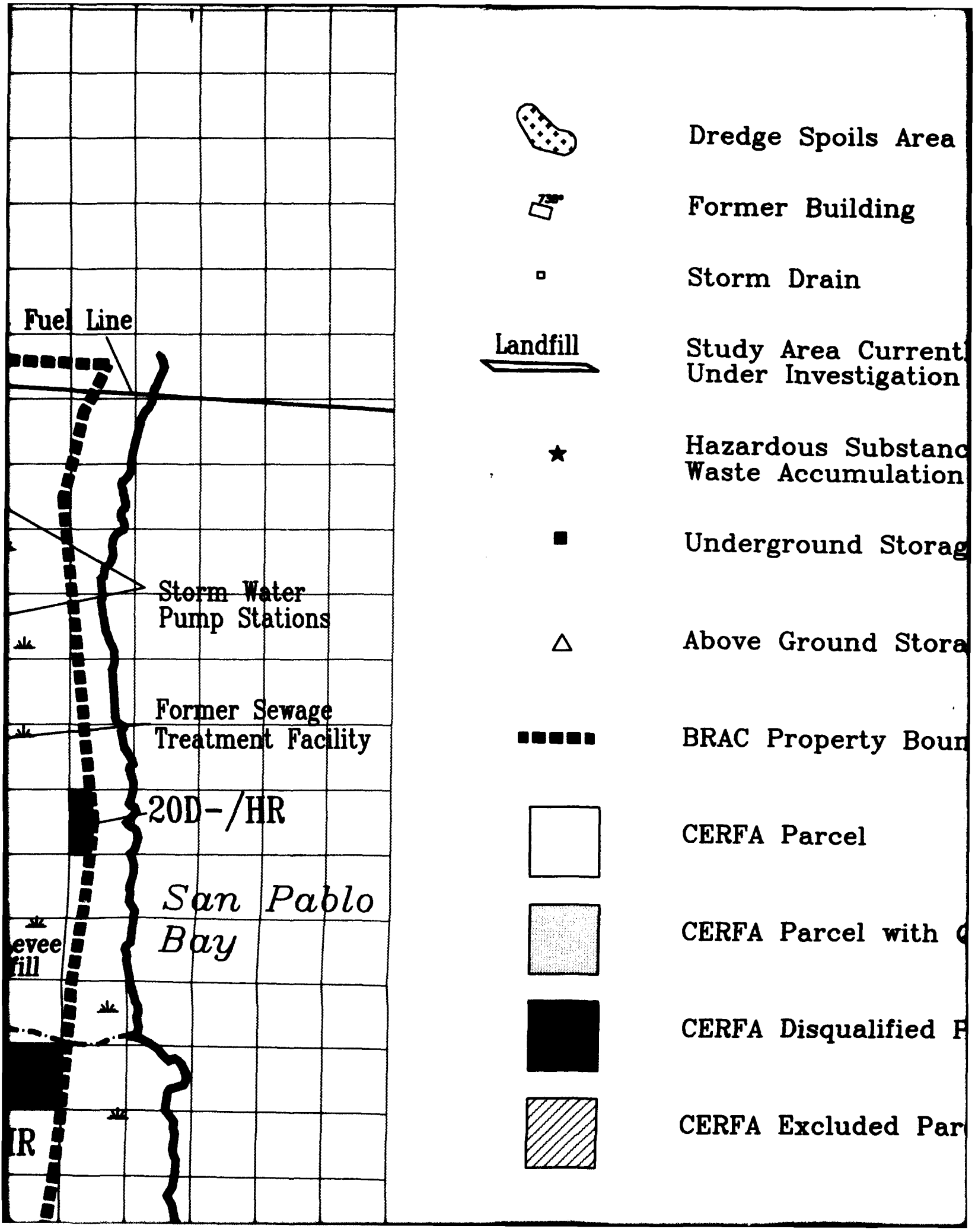
State Acc


North Drainage Ditch
North
West Boundary
Road
Aberdeen Road
12" JP-4 Fuel L
D-/PS(P)
POL Area
(Parcel A)
D-/PR/PS
FORMER POL AREA 2
FORMER POL AREA 3
Hangar Ave
State Access Road
Escolta Ave
Parcel A2
24E
26Q-/A/L
Hospital Hill


North Levee
3D-/PR(P)/HR(P)
12" JP-4 Fuel Line
/A/L/PR/PS/HR
6D-/A/L/PS/HR
D-/PS(P)/HR
-/PR/HR
-/PR/HR
Runw
Hangar Ave
Parcel A2
24E
25E
PS(P)


/L/PS/HR
12P
RV19
Revetment
Area
-/PR
RV22
-/P
Runway
-/PR(P)
R/HR
PS(P)


10Q-/L
12" JP-4 Fuel Line
8P
12P
14P
Revetment Area
21D-/PR
/PR(P)
East Levee Landfill
Perimeter Road
East Drainage Ditch
23D-/HR
20D-


Fuel Line
Storm Water
Pump Stations
Former Sewage
Treatment Facility
20D-/HR
San Pablo
Bay
evee
ill
IR
Dredge Spoils Area
Former Building
Storm Drain
Landfill
Study Area Current
Under Investigation
Hazardous Substanc
Waste Accumulation
Underground Storag
Above Ground Stora
BRAC Property Boun
CERFA Parcel
CERFA Parcel with
CERFA Disqualified P
CERFA Excluded Par

Dredge Spoils Area

Former Building

Storm Drain

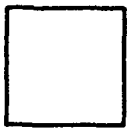
Study Area Currently Under Investigation

Hazardous Substance Storage or Waste Accumulation Area

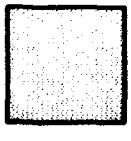
Underground Storage Tank

Above Ground Storage Tank

BRAC Property Boundary

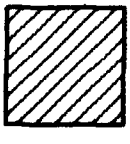


CERFA Parcel

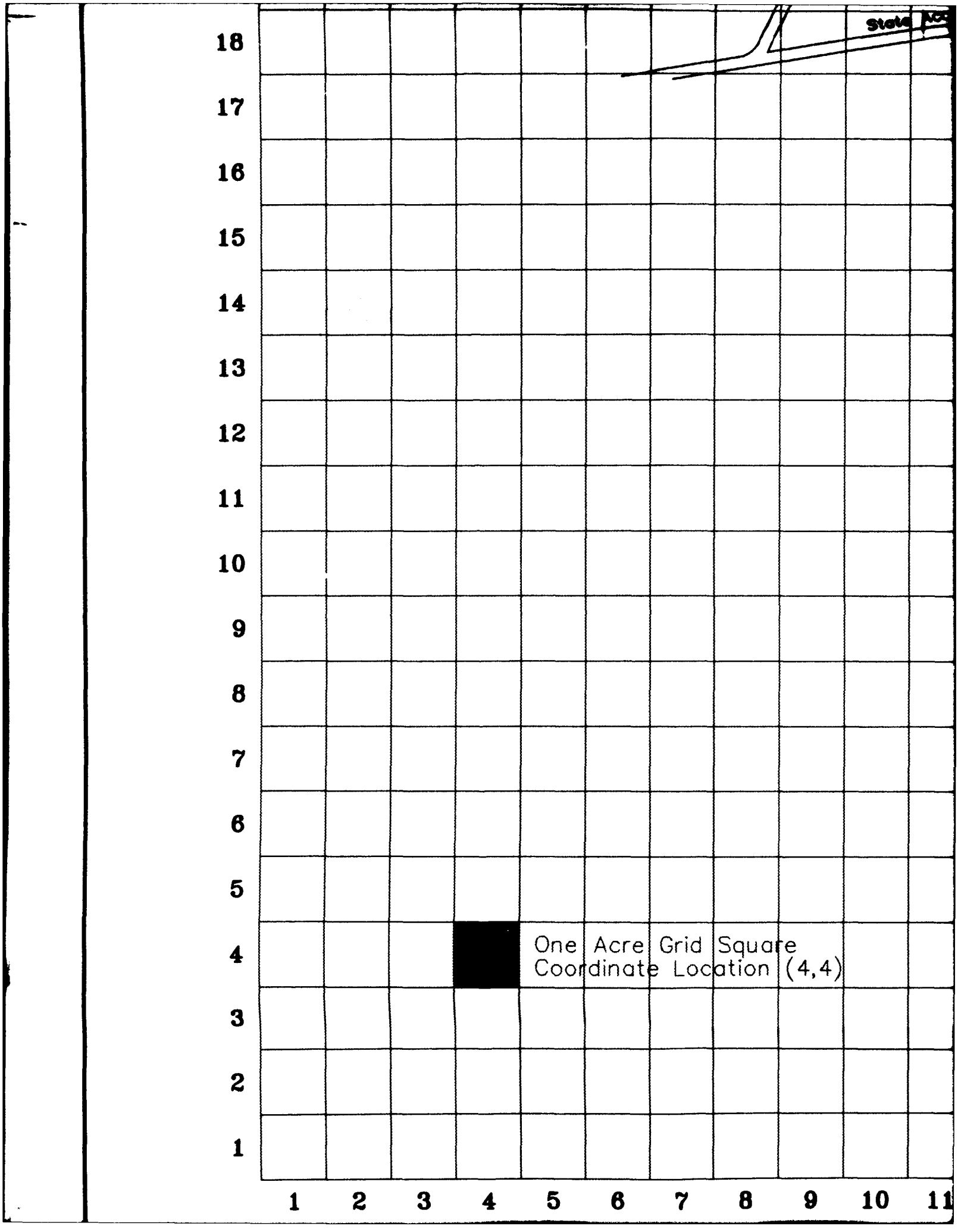


CERFA Parcel with Qualifiers

CERFA Disqualified Parcel



CERFA Excluded Parcel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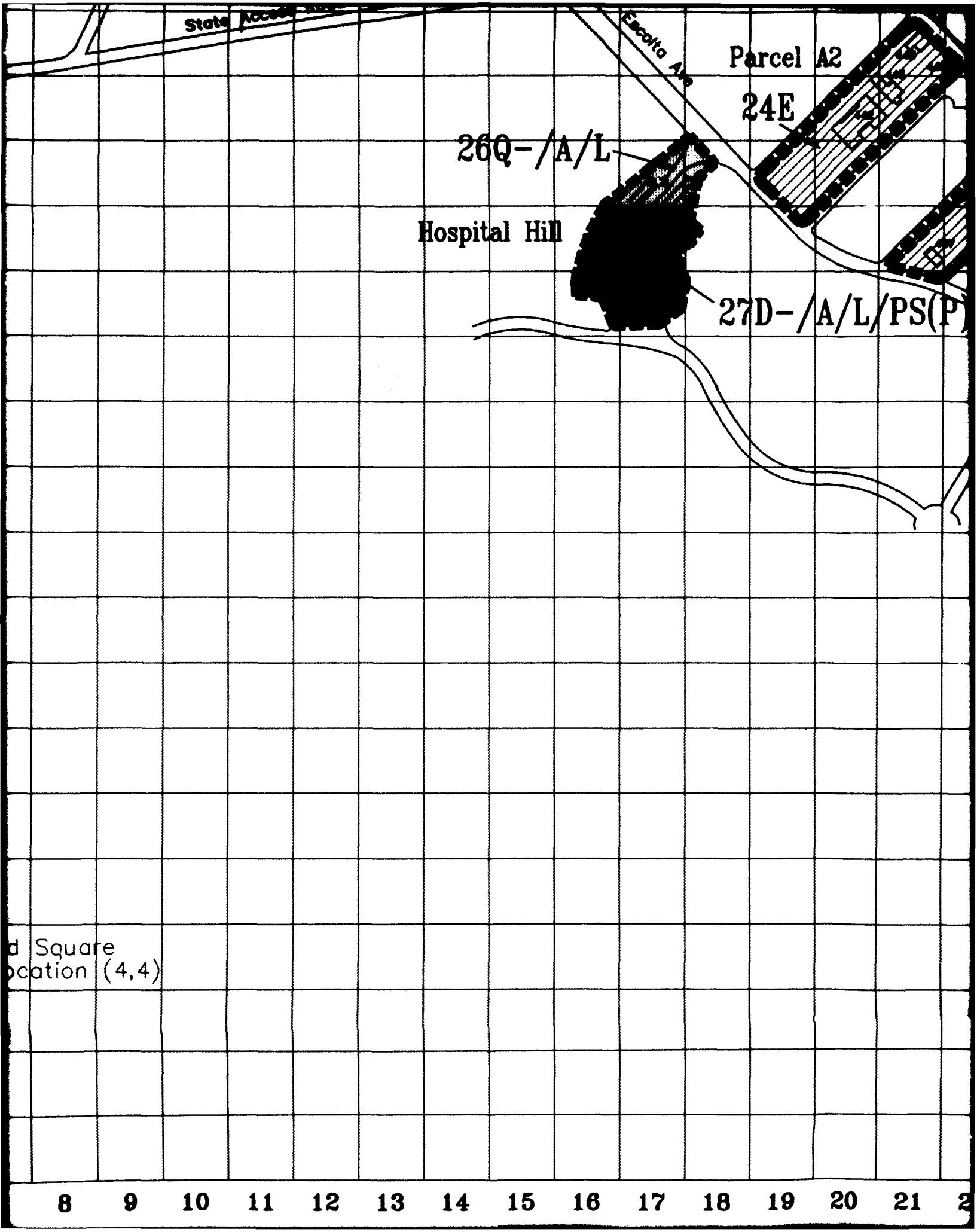
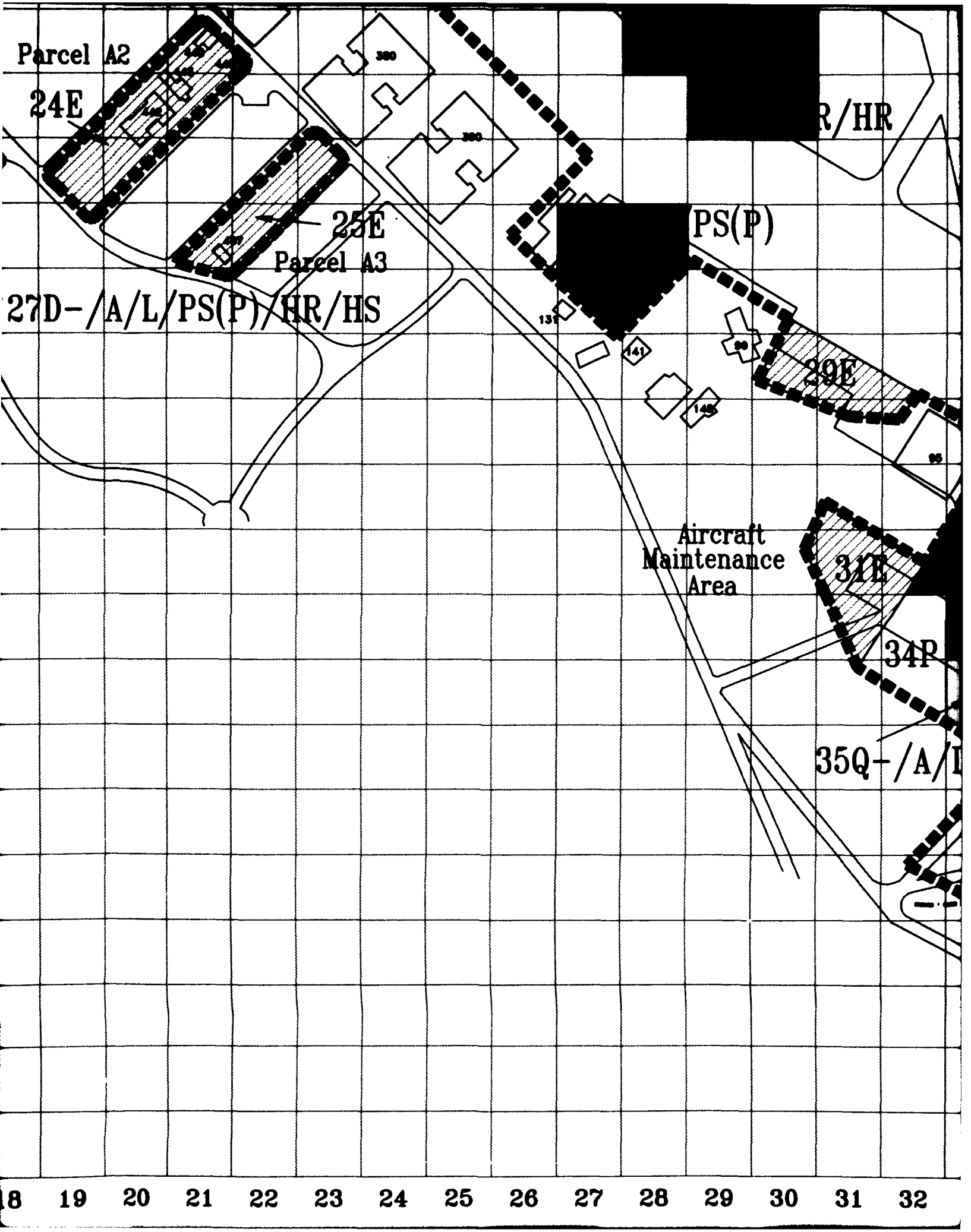
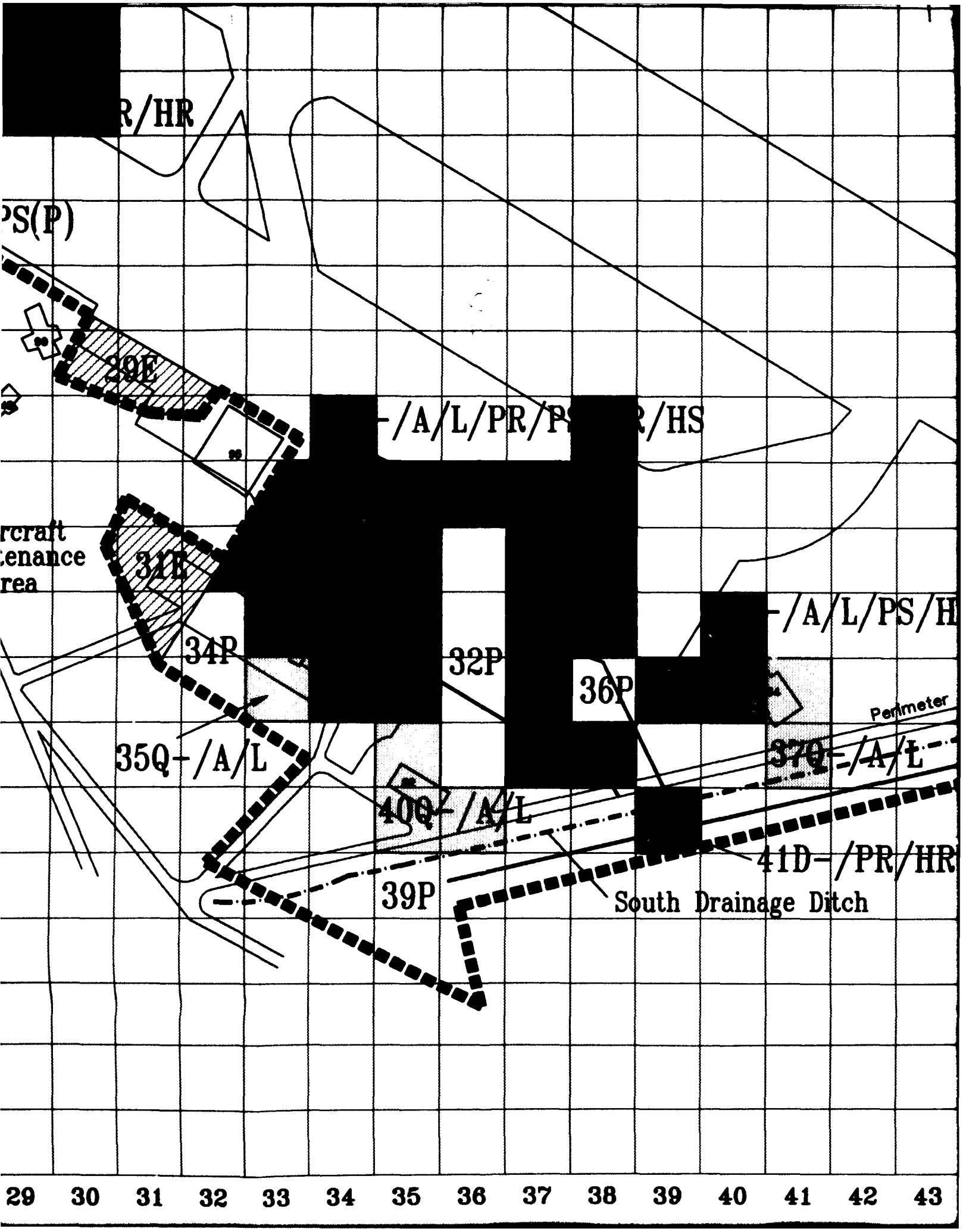
1 2 3 4 5 6 7 8 9 10 11
One Acre Grid Square
Coordinate Location (4,4)



d Square
ocation (4,4)


Parcel A2
24E
25E
Parcel A3
27D-/A/L/PS(P)/HR/HS
PS(P)
R/HR
29E
Aircraft
Maintenance
Area
31E
34P
35Q-/A/
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32


R/HR
PS(P)
29E
-/A/L/PR/PS
R/HS
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tenance
rea
31E
34P
32P
36P
-/A/L/PS/H
Perimeter
35Q-/A/L
37Q-/A/L
40Q-/A/L
41D-/PR/HR
39P
South Drainage Ditch
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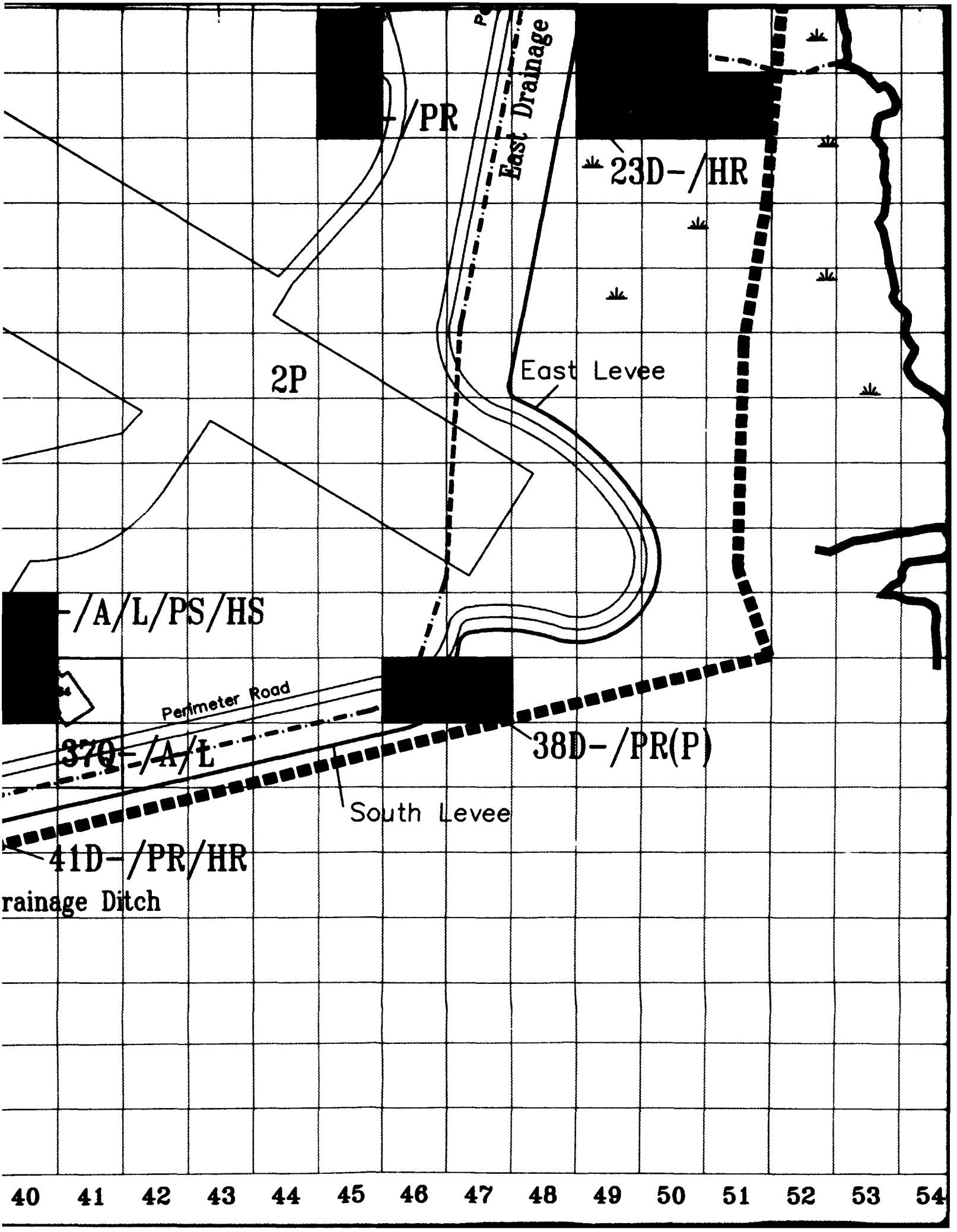
-/PR
East Drainage
23D-/HR
2P
East Levee
-/A/L/PS/HS
Perimeter Road
37Q-/A/L
38D-/PR(P)
South Levee
41D-/PR/HR
rainage Ditch
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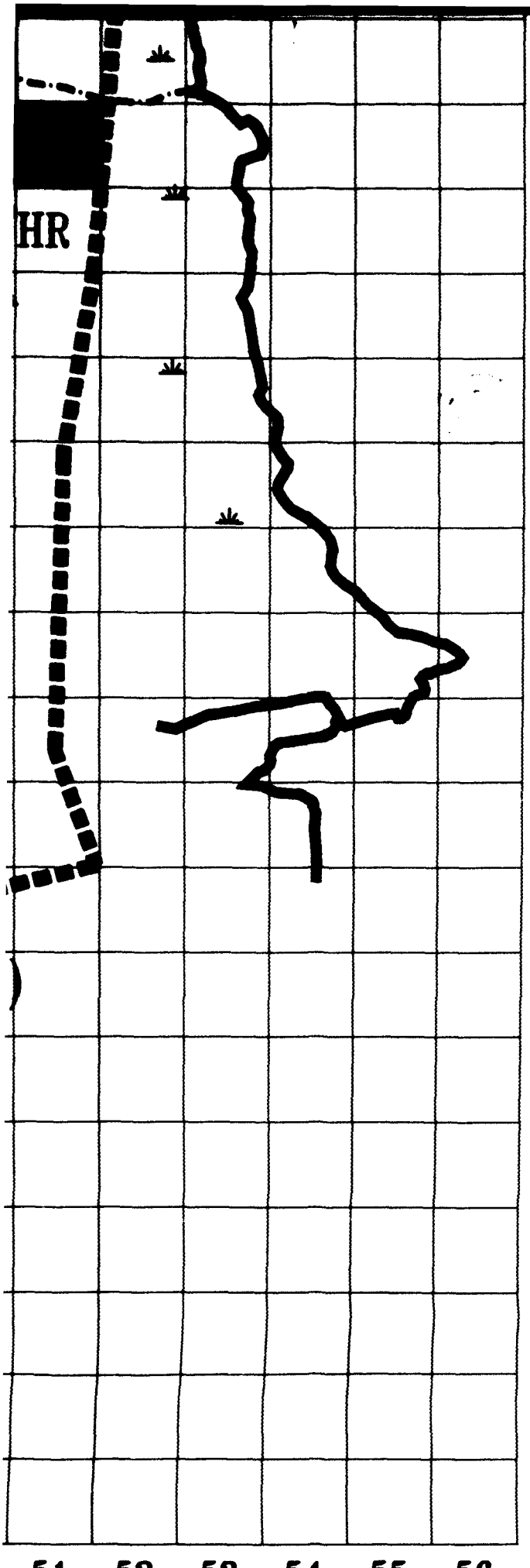


CERFA Disqualifie

CERFA Excluded F

PARCEL LABEL DEFINITIONS

13P-/A/L

- A = ASBESTOS
- L = LEAD-BASED PAINT
- P = PCB
- R = RADON
- X = UNEXPLODED ORDNANC
- RD = RADIONUCLIDES
- PR = PETROLEUM RELEASE
- PS = PETROLEUM STORAGE
- HR = HAZARDOUS SUBSTAN
- HS = HAZARDOUS SUBSTAN
- (P) = POSSIBLE QUALIFIER

- P = CERFA PARCEL
- Q = CERFA PARCEL WITH C
- D = CERFA DISQUALIFIED P
- E = CERFA EXCLUDED PAR

- PARCEL NUMBER

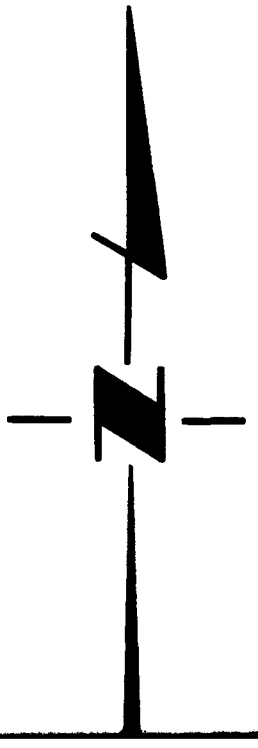
CERFA Disqualified Parcel

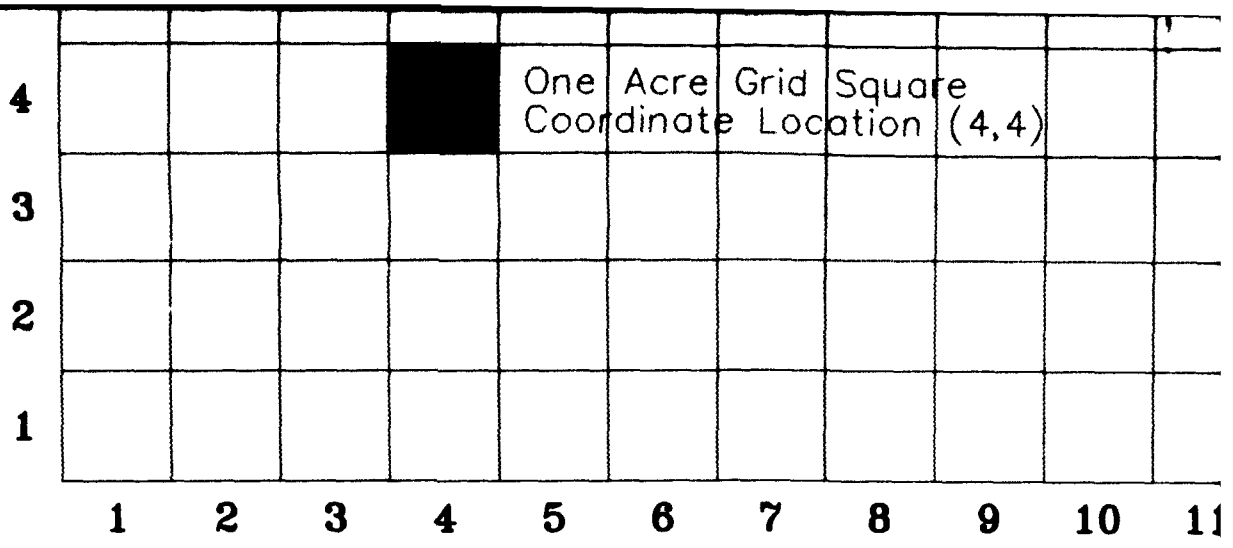
CERFA Excluded Parcel

PARCEL LABEL DEFINITIONS

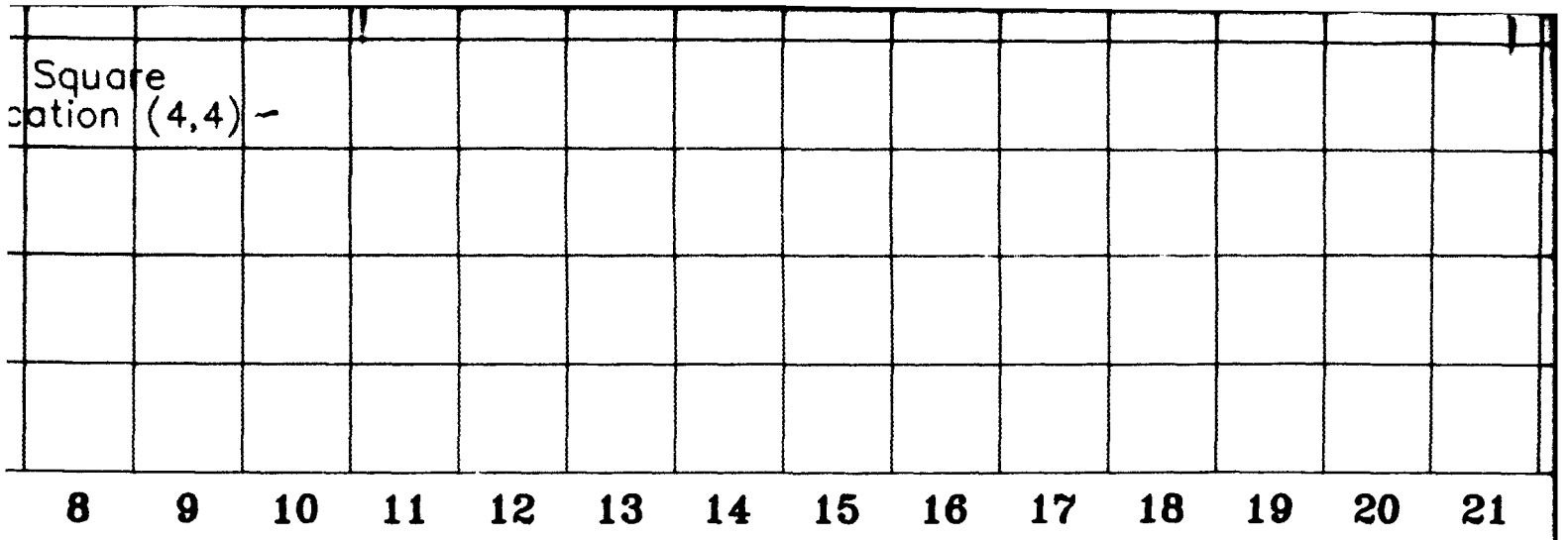
13P-/A/L

- /A/L
  - A = ASBESTOS
  - L = LEAD-BASED PAINT
  - P = PCB
  - R = RADON
  - X = UNEXPLODED ORDNANCE
  - RD = RADIONUCLIDES
  - PR = PETROLEUM RELEASE
  - PS = PETROLEUM STORAGE
  - HR = HAZARDOUS SUBSTANCE RELEASE
  - HS = HAZARDOUS SUBSTANCE STORAGE
  - (P) = POSSIBLE QUALIFIER
- 13P-
  - P = CERFA PARCEL
  - Q = CERFA PARCEL WITH QUALIFIER(S)
  - D = CERFA DISQUALIFIED PARCEL
  - E = CERFA EXCLUDED PARCEL
- 13P-
  - PARCEL NUMBER

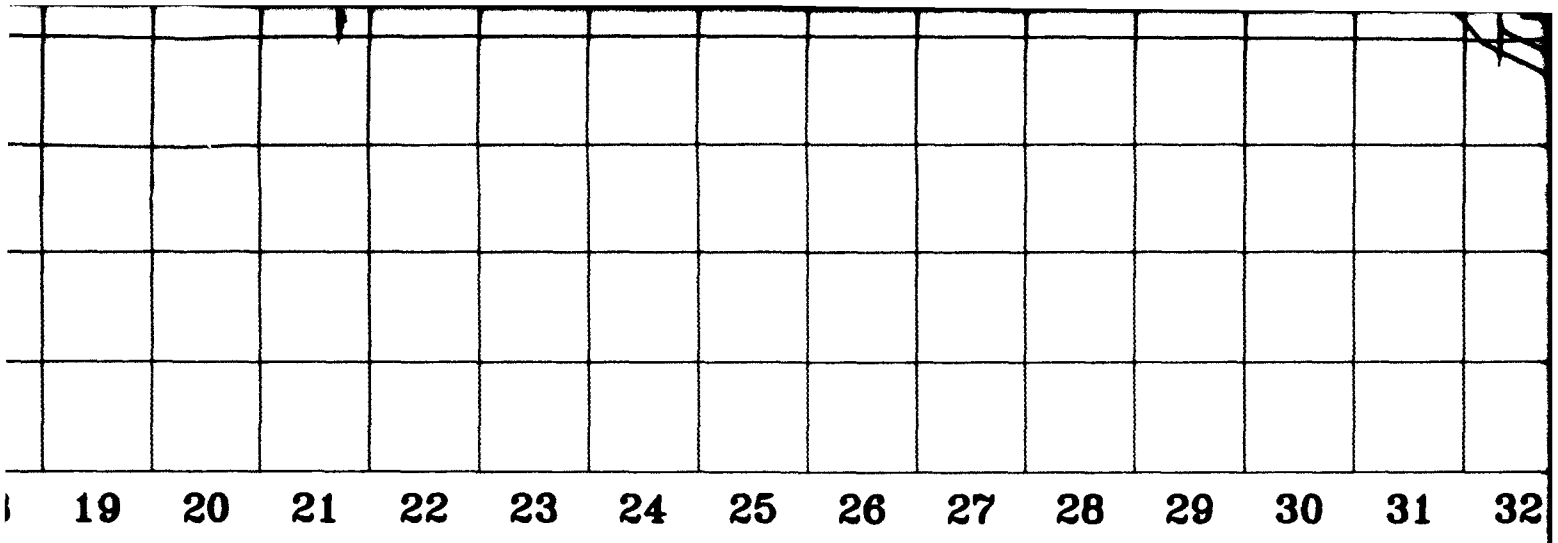




Source: CERFA Investigation, April 1994



ril 1994


19
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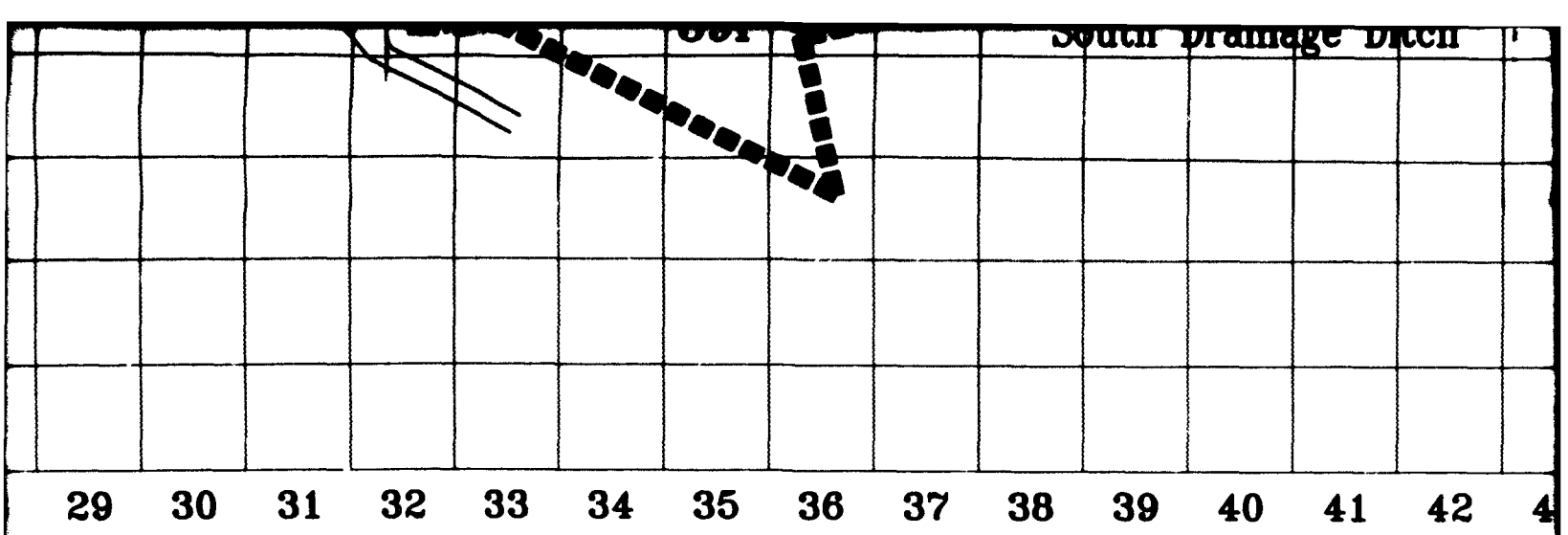
South Drainage Ditch
29
30
31
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35
36
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38
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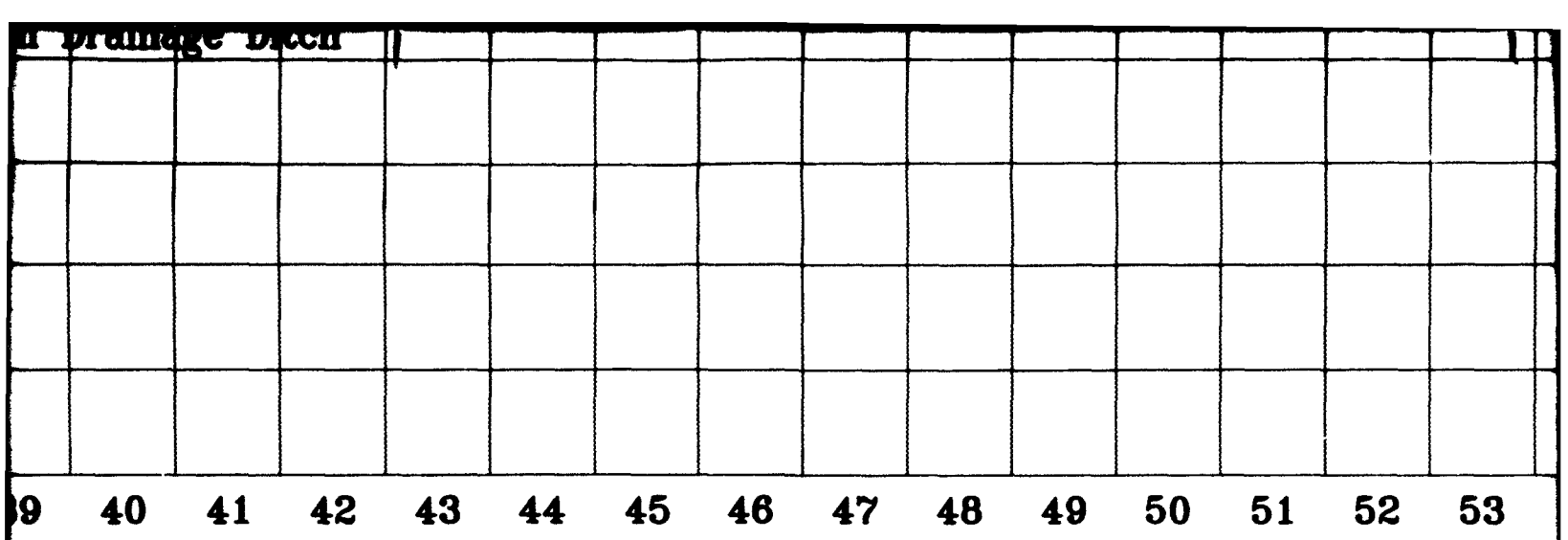
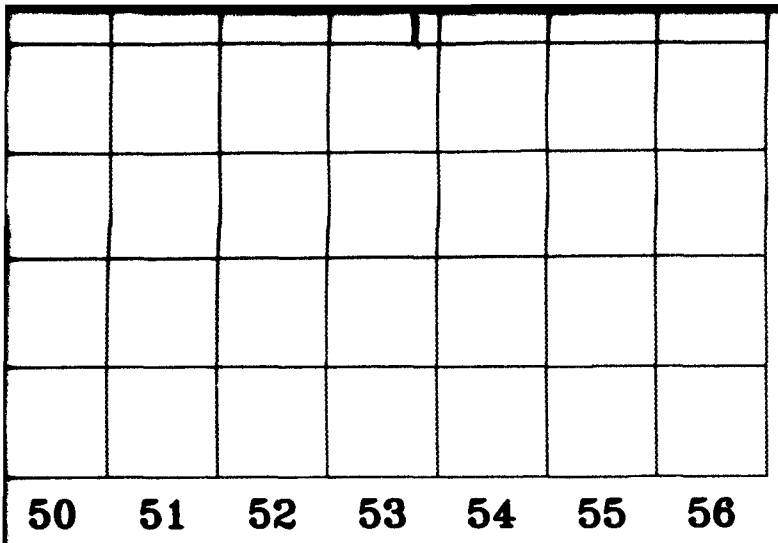
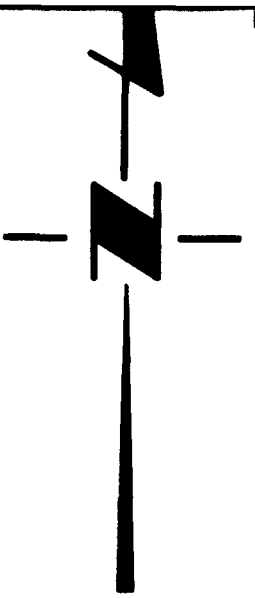
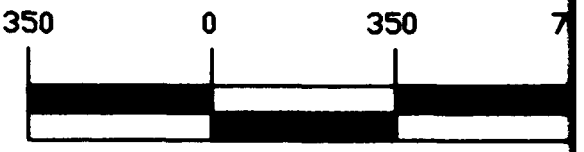
40
41
42


Drainage Ditch
39 40 41 42 43 44 45 46 47 48 49 50 51 52 53







SCALE IN FEET

The Eart
Corporati

1420 KING STREET SUITE 600,

FIGUR
PARCEL DESI
HAMILTON AF
NOVATO, C

DRAWN BY: MTM	DESIGNED
CHECKED BY: KR	APPROVE
TETC PROJECT NUMBER 931977-07	DRAWING SHEET

SCALE IN FEET

The Earth Technology Corporation

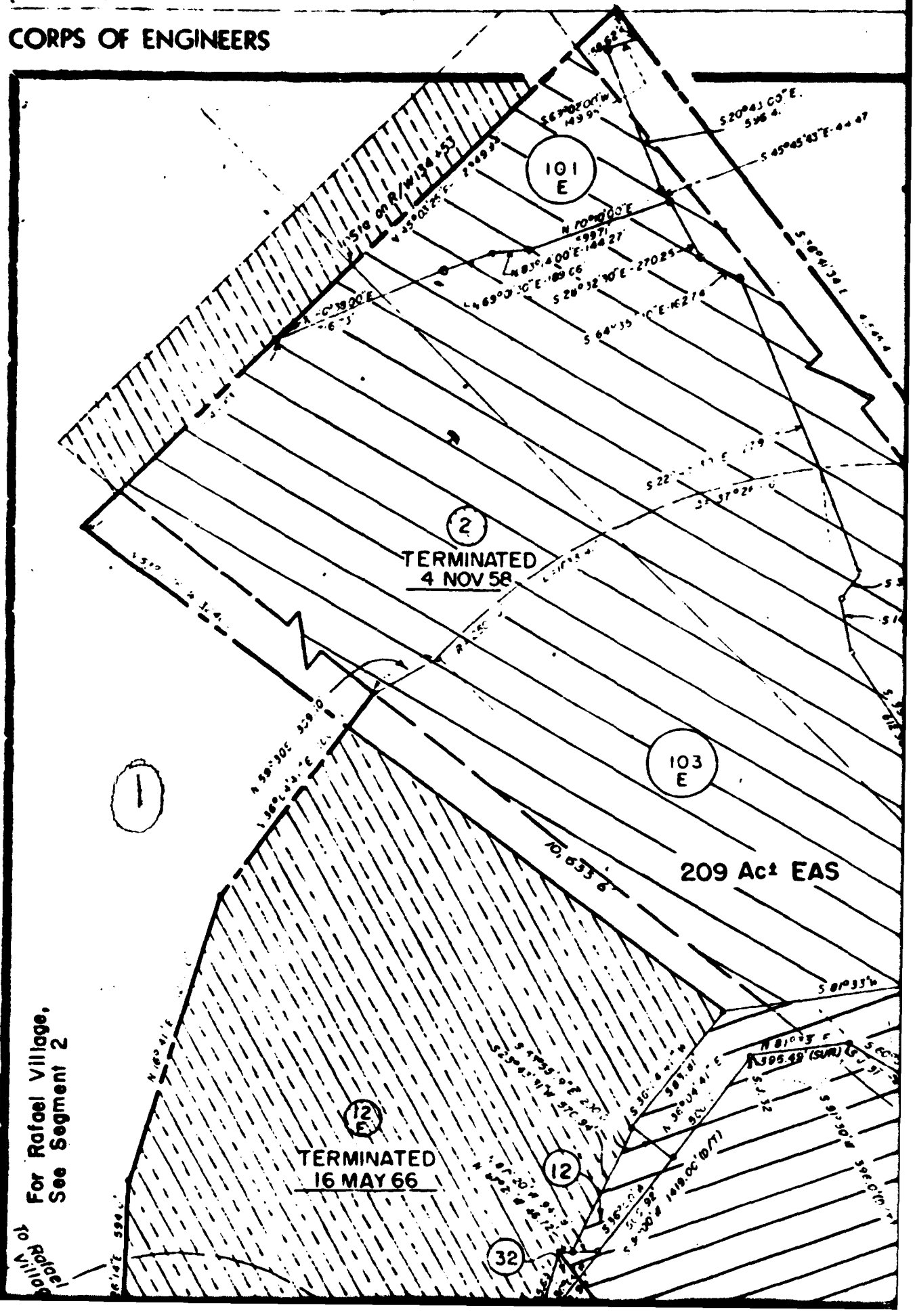
1420 KING STREET SUITE 600, ALEXANDRIA, VIRGINIA 22314

FIGURE 5-1
PARCEL DESIGNATION MAP
HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA

DRAWN BY: MTM	DESIGNED BY: N/A	SCALE: 1" = 350'
CHECKED BY: KR	APPROVED BY: BY	DATE: 04/08/94
TETC PROJECT NUMBER 931977-07	DRAWING NUMBER SHEET 1 OF 1	REV. NO. 1

FIGURE 5-2
TRACT MAP, HAMILTON ARMY AIRFIELD, NOVATO, CALIFORNIA

CORPS OF ENGINEERS



(2)

TRACT REGIST

TRACT NO.	LAND OWNE
1E-1	The Roman Catholic Ar of San Francisco
1E-2	" " " "
1E-3	" " " "
2E-1	State of California
2E-2	" " " "
101E	Clarence Leveron, et al
103E	Estate of Manuel T Pim
104E	Jack Hunt West
105P	State of California
106P	State of California Dept. of Public Works
107P	State of California Dept of Public Wor
108E	Northwestern Pa Railroad Comp
109L	Northwestern Railroad Co
110E	State of Ca

SPD-RE-D 76 (1E-1, 1E-2, 1E-3)

▲ 2E-1

Ltr Hq 78th Fighter Interceptor Wing dtd. 10 Mar 51 ▲ 2E-2

1st Ind AFOCEFD to OCE (101E, 103E, 104E, 105P)

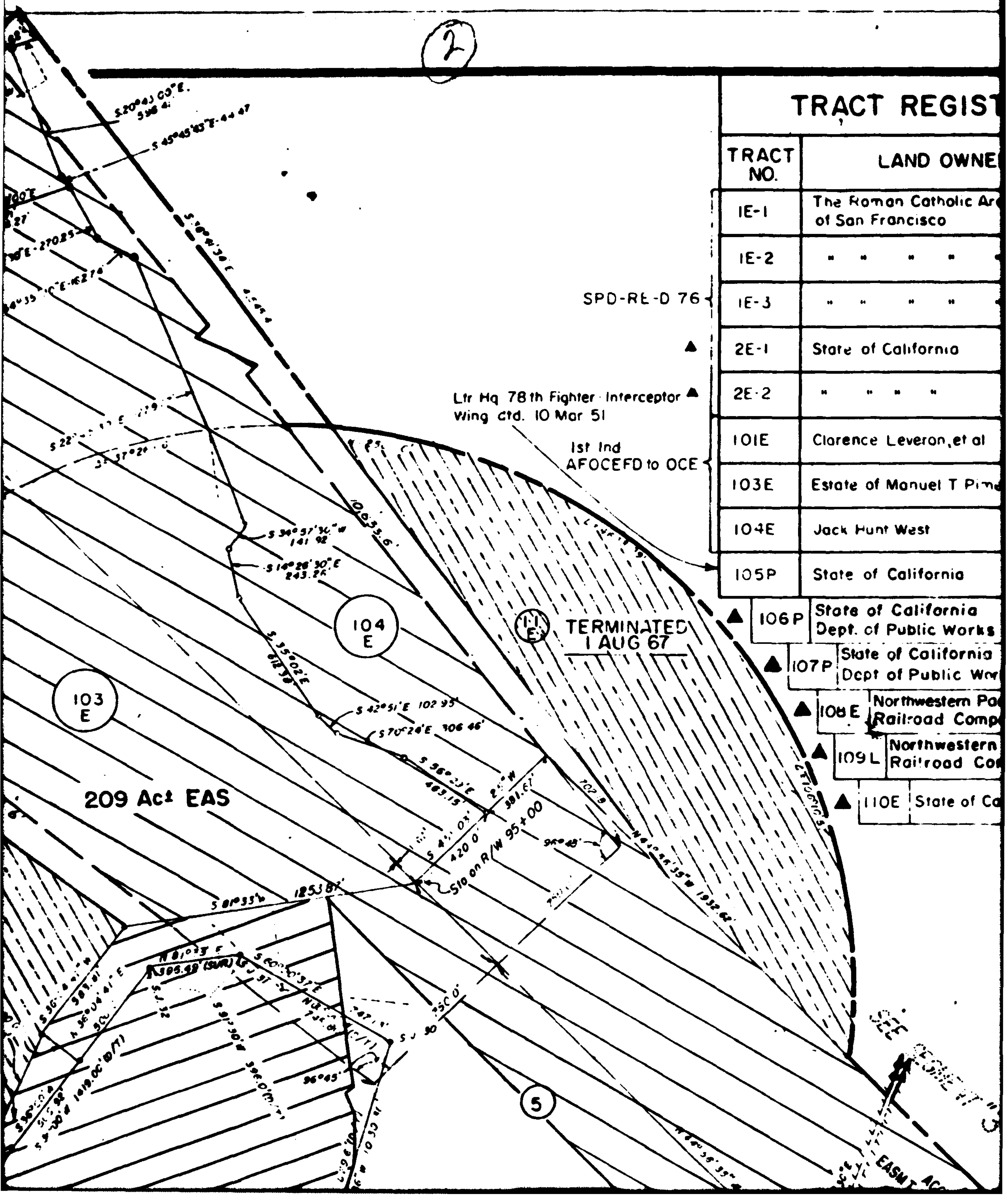
▲ 106P

▲ 107P

▲ 108E

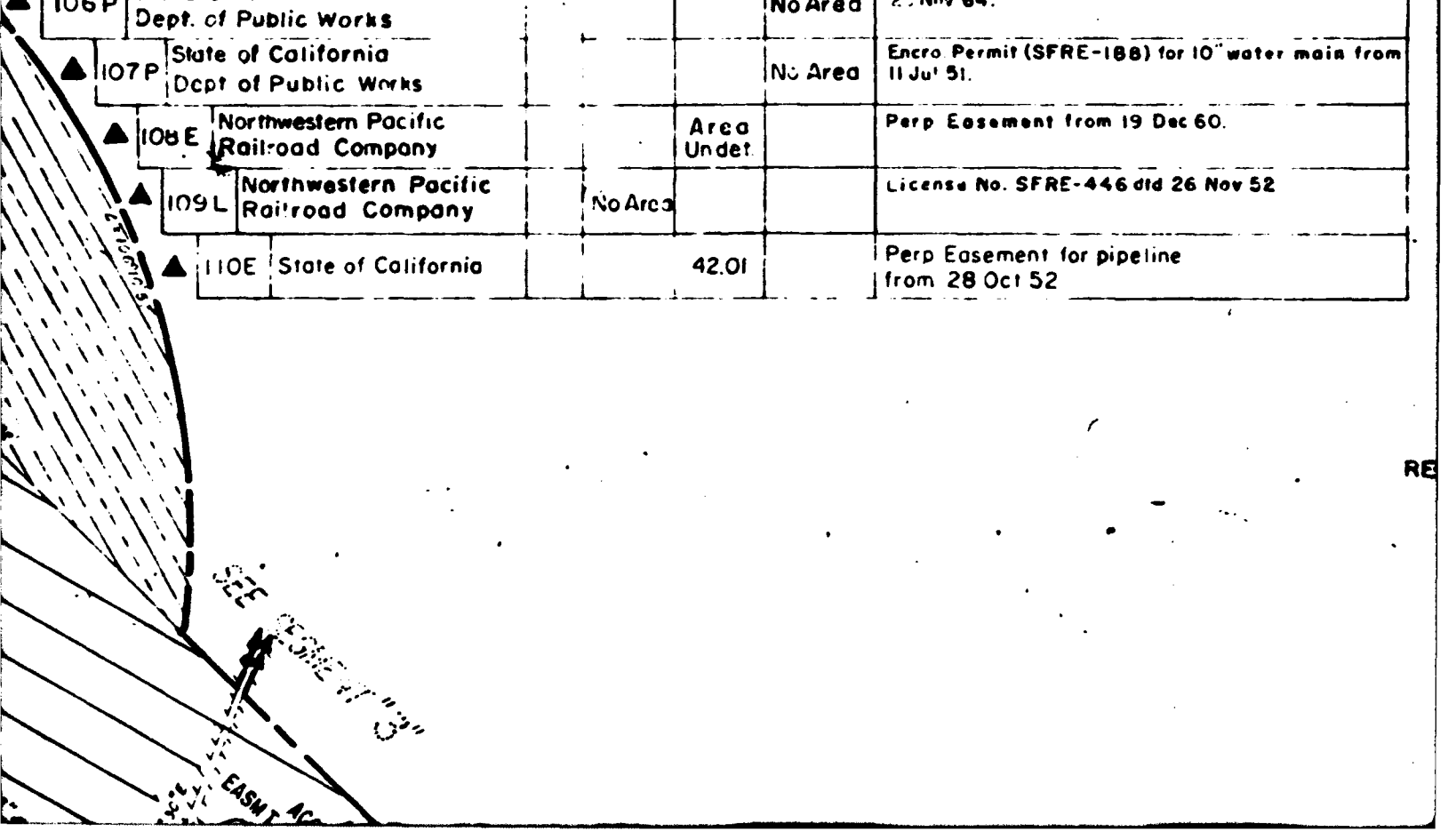
▲ 109L

▲ 110E



TRACT REGISTER OF ACQUISITION AFTER 1 JULY 1940

TRACT NO.	LAND OWNER	ACREAGE				REMARKS
		FEE	L.I.C.	EASM'T	PERMIT	
1E-1	The Roman Catholic Archbishop of San Francisco			0.21		Perp easmt & R/W for approach lighting system from 21 Sep 60.
1E-2	" " " " " "			0.98		Perp clearance easm't from 21 Sep 60.
1E-3	" " " " " "			0.09		" " " " " " "
2E-1	State of California			1.01		Temp Easmt for approach lighting from 6 Sep 1973 thru 5 Sep 2039
2E-2	" " " "			10.38		Temp Easmt for glide plane clearance surface of the approach zone from 6 Sep 1973 thru 5 Sep 2039.
101E	Clarence Leveron, et al			13.89		Perp clearance easm't from [illegible] incls area (1.74 ac) formerly known as Tr 2C2E Reacquisition of port. former Tr 2
103E	Estate of Manuel T Pimental			149.00		Perp clearance easm't from 16 May 66 Reacquisition of port former Tr 2 & port Tr 12E
104E	Jack Hunt West			46.13		Perp clearance easm't from 16 May 66 Reacquisition of port former Tr 2 & port Tr 11E
105P	State of California				No Area	Encroachment Per No. G-< 2648 Rev dtd 4 Apr 51 for 10" sewer main, manholes & 12" water main.
▲ 106P	State of California Dept. of Public Works				No Area	Encro Permit (112-186) for security fence from 23 Nov 64.
▲ 107P	State of California Dept of Public Works				No Area	Encro Permit (SFRE-188) for 10" water main from 11 Jul 51.
▲ 108E	Northwestern Pacific Railroad Company			Area Undet		Perp Easement from 19 Dec 60.
▲ 109L	Northwestern Pacific Railroad Company		No Area			License No. SFRE-446 dtd 26 Nov 52
▲ 110E	State of California			42.01		Perp Easement for pipeline from 28 Oct 52



JULY 1940

REMARKS
or approach lighting system
n't from 21 Sep 60.
" " " " .
'each lighting from 6 Sep 1973 thru
e plane clearance surface of the n 6 Sep 1973 thru 5 Sep 2039.
it from Incls area (1.74 ac) C2E Reacquisition of port. former
it from 16 May 66 Reacquisition of ort Tr 12E
it from 16 May 66 Reacquisition of ort Tr 11E
No. G-<2648 Rev dtd 4 Apr 51 manholes & 1)" water main.
186) for security fence from
E-188) for 10" water main from
rom 19 Dec 60.
-446 dtd 26 Nov 52
or pipeline

SUMMARY OF ACQUISITIO

	ACREAG
	FEE
	927.425

TRACT REGISTER OF ACQUISIT

TRACT NO.	LAND OWNER	ACREA			
		FEE	TRANS	LEASE	EASM
A	HOUSING & HOME FINANCE AGENCY		23.56*		
B	HOUSING & HOME FINANCE AGENCY		15.33		
1	JULIA C. BODKIN	55.00			
2	CALIFORNIA PACKING CORP.				
3	COUNTY OF MARIN	253.10			
4	CALIFORNIA PACKING CORP. AND STATE OF CALIFORNIA	2.81			
5	CALIFORNIA PACKING CORP	123.77			
7	NORTHWESTERN PACIFIC RAILROAD COMPANY				
8	NORTHWESTERN PACIFIC RAILROAD COMPANY				
9	NORTHWESTERN PACIFIC RAILROAD COMPANY				
10	NORTHWESTERN PACIFIC RAILROAD COMPANY				
32	PINE AND COMPANY, et al	0.56			
11-E	PINE AND COMPANY, et al				81.2
12	ESTATE OF MANUEL T. PIMENTAL, et al	1.74			
12-E	" " " " " "				177.9
13	PACIFIC GAS & ELECTRIC COMPANY				
14	STATE OF CALIFORNIA DIVISION OF HIGHWAYS				
15	NORTHWESTERN PACIFIC RAILROAD COMPANY				
17	NORTHWESTERN PACIFIC RAILROAD COMPANY				

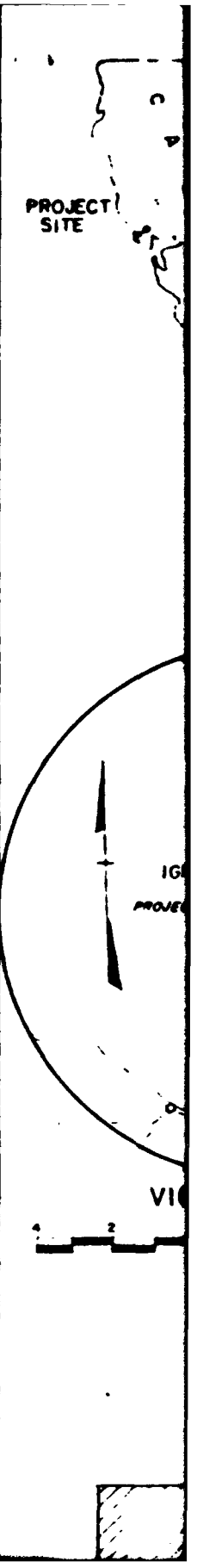
RE-D 6373

Y OF ACQUISITION AS OF 1 JULY 1940

ACREAGE		
FEE	EASM'T	
927.425	0.535	SEE AREA DEPICTED WITHIN FEATHERED PERIMETER

ISTER OF ACQUISITION AFTER 1 JULY 1940

ACREAGE						REMARKS
FEE	TRANS	LEASE	EASM'T	LICENSE	PERMIT	
	23.56*					Letter Transfer dated 29 April 1948. Includes 0.023 ac formerly covered by permit dated 14 Oct. '42, 6" Sewer
	15.33					Letter Transfer dated 29 April 1948. Includes 3.14 ac. formerly covered by permit dated 24 April 1943
55.00						DIRECT PURCHASE
					NO AREA	PERMIT DATED 5 NOV. 1943. FOR GLIDE ANGLE CLEARANCE
53.10						FORMERLY SHOWN AS LOT F & PORTION TR. 10 IN D/T (CIVIL ACTION NO. 22190-R)
2.81						FORMERLY SHOWN AS TRACT I IN D/T (CIVIL ACTION NO. 22540-R)
23.77						DIRECT PURCHASE. FORMERLY KNOWN AS TRACT I OF RUNWAY EXTENSION
				0.156		AGREEMENT W-868 ENG.-4400, DATED 26 MAY '42. FOR RAILROAD CROSSING R/W.
				0.026		AGREEMENT W-04-193-ENG.-5368, DATED 22 NOV. 1944. FOR 8" SEWER LINE R/W.
				0.058		LICENSE W-2972-ENG-998, DATED 27 OCT 1942. FOR RAILROAD CROSSING R/W.
				.0.06		AGREEMENT DATED 12 APRIL 1944. FOR PEDESTRIAN OVERPASS
0.56						Formerly a portion of Tr. 12 as held under lease W-04-193 ENG 3220 and condemned by (Civ. No. 32013) D/T No. 1, filed 22 Jan 54 and amend by D/T No. 2, filed 19 Nov 56.
			81.28			Formerly a portion of Tr. 11 as held under lease W04-193 ENG 3220 and condemned by (Civ. No. 32013) D/T No. 1, filed 22 Jan 54 △△
1.74						Formerly a portion of Tr. 12 as held under lease W04-193 ENG 3220, and condemned by (Civ. No. 32013) D/T No. 1, filed 22 Jan 54 and amend by D/T No. 2, filed 19 Nov 56.
			177.97			PERPETUAL EASEMENT FOR SAFETY AREA FROM 11-19-56 PORTION OF AREA FORMERLY UNDER LEASES W-04-193 ENG 5368, W-04-193 ENG 3220, W-04-193 ENG. 3235 & LEASEHOLD CONDEMN., D/T No. 1 (Civil No. 32013) △
				NO AREA		LICENSE DATED 29 MARCH 1945. FOR USE OF POWER LINE POLE.
					NO AREA	ENCROACHMENT PERMIT E-40985 DATED 11 JAN. 1946 FOR SIDEWALK R/W.
					NO AREA	PERMIT W 04-193 ENG. 4007 DATED 27 APRIL 1944 FOR UNDERGROUND CABLE R/W.
				NO AREA		LICENSE W-3460-ENG. 560 DATED 21 OCT 1942 FOR 6" WATER LINE R/W.



(6)

U. S. A

ITHERED

Includes 0.023
Oct. '42, 6" Sewer
Includes 3.14 ac.
April 1943

GLIDE ANGLE

ION TR. 10 IN

/T (CIVIL

N AS TRACT

ED 26 MAY '42.

, DATED 22 NOV.

27 OCT 1942.

FOR

ase W-04-193 ENG
3) D/T No.1, filed
19 Nov 56.

W04-193ENG 3220
.1, filed 22 Jan 54
ΔΔ

04-193ENG 3220,
filed 22 Jan 54 and

11-19-56 PORTION OF
04-193 ENG 3220,
D/T NO. 1 Δ

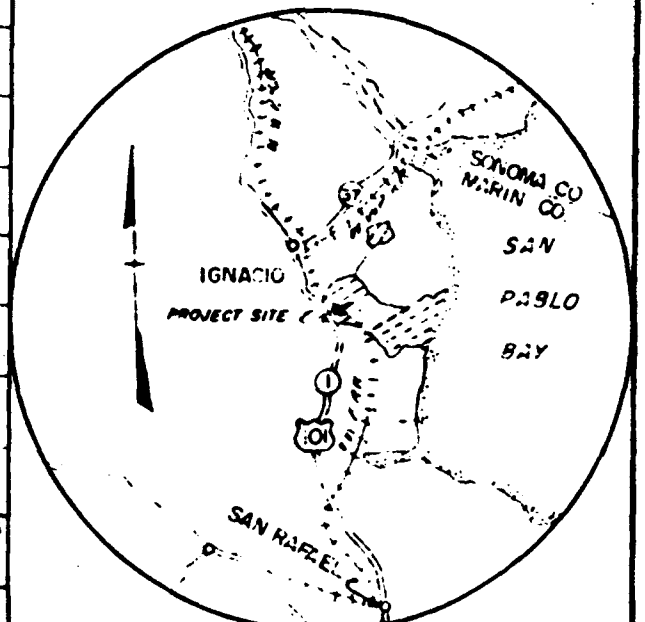
USE OF

ATED 11 JAN. 1946

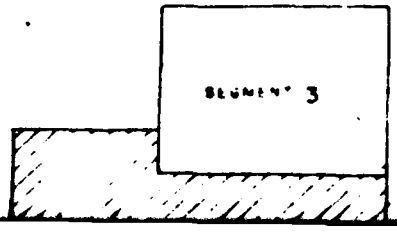
27 APRIL 1944

OCT 1942

STATE INDEX



VICINITY MAP
SCALE IN MILES
4 2 0 4 8



FINAL ▲

PROJECT MAP

DEPT. OF THE AIR FORCE

USING SERVICE AIR DEFENSE COMMAND

STATE CALIFORNIA

COUNTY MARIN

DIVISION SOUTH PACIFIC

DISTRICT SACRAMENTO

ARMY AREA 6 TH

LOCATION OF PROJECT

5 MILES N. OF SAN RAFAEL

MILES OF

TRANSPORTATION FACILITIE

RAILROADS NORTHWESTERN PACIFIC

STATE ROADS 1

FEDERAL ROADS 101

AIR LINES

AUDITED
ACQUISITION

U. S. ARMY

FINAL ▲

PROJECT MAP

DEPT. OF THE AIR FORCE

USING SERVICE AIR DEFENSE COMMAND

STATE CALIFORNIA

COUNTY MARIN

DIVISION SOUTH PACIFIC

DISTRICT SACRAMENTO

ARMY AREA 6 TH

LOCATION OF PROJECT

5 MILES N. OF SAN RAFAEL

MILES OF

TRANSPORTATION FACILITIES

RAILROADS NORTHWESTERN PACIFIC

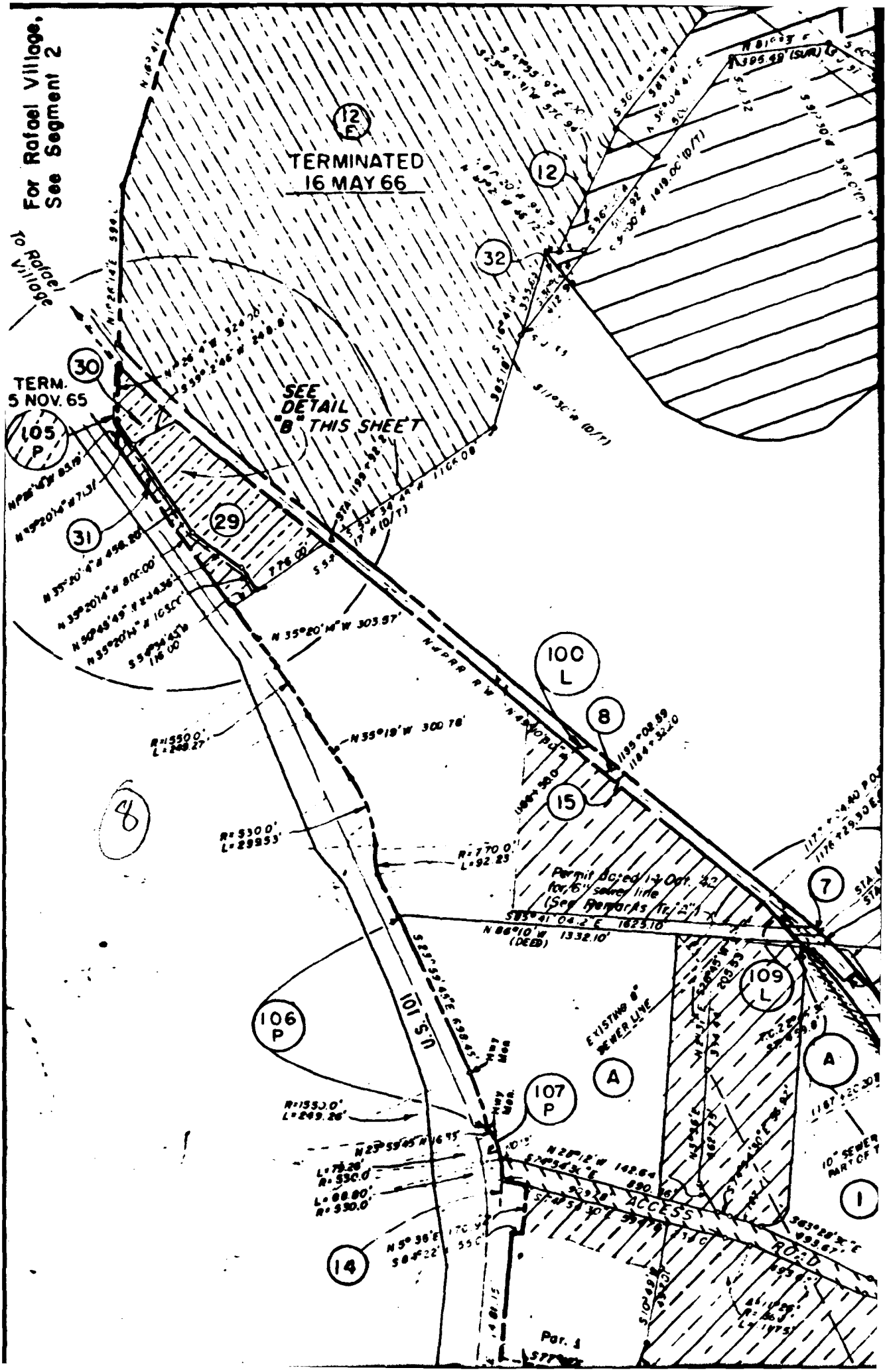
STATE ROADS 1

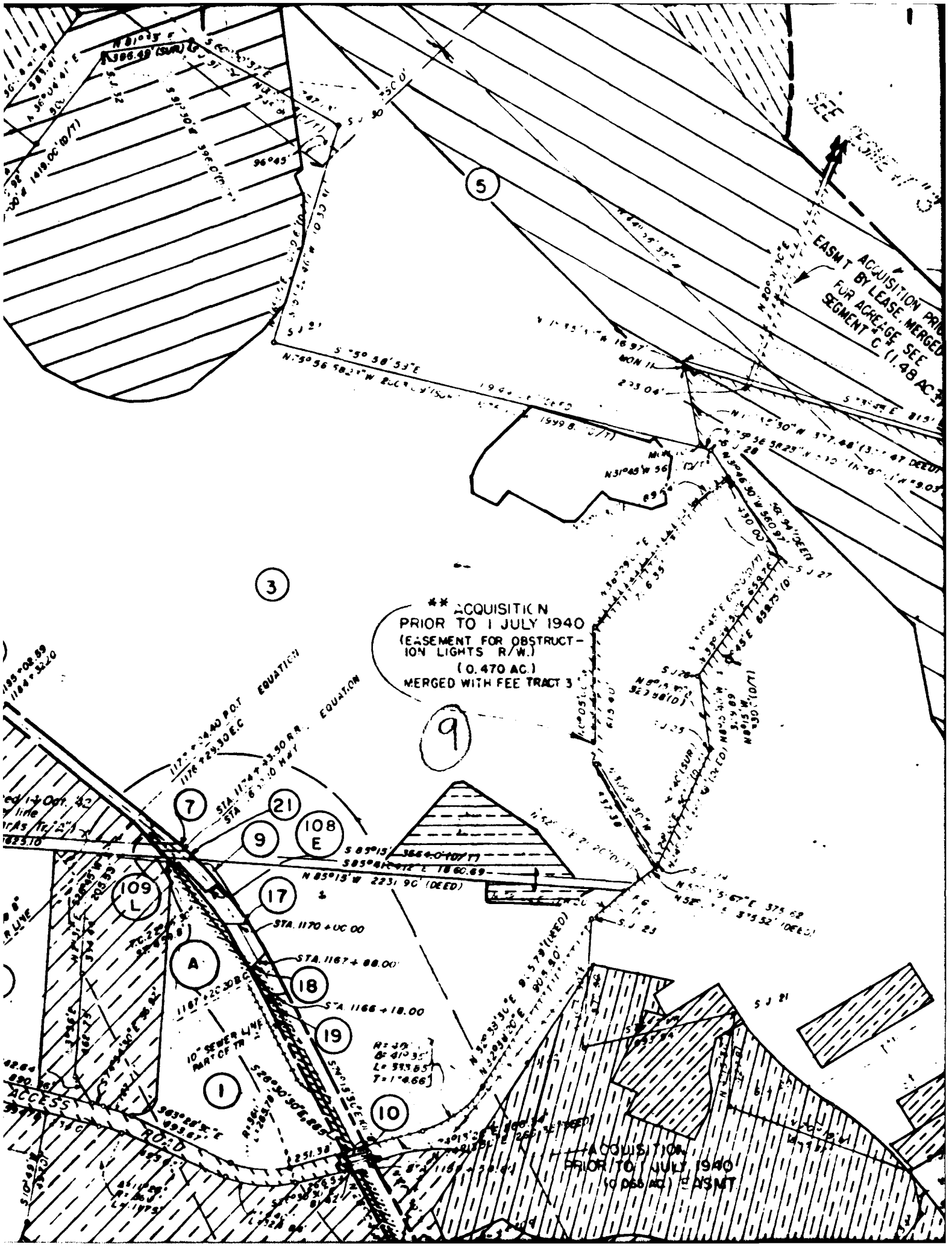
FEDERAL ROADS 101

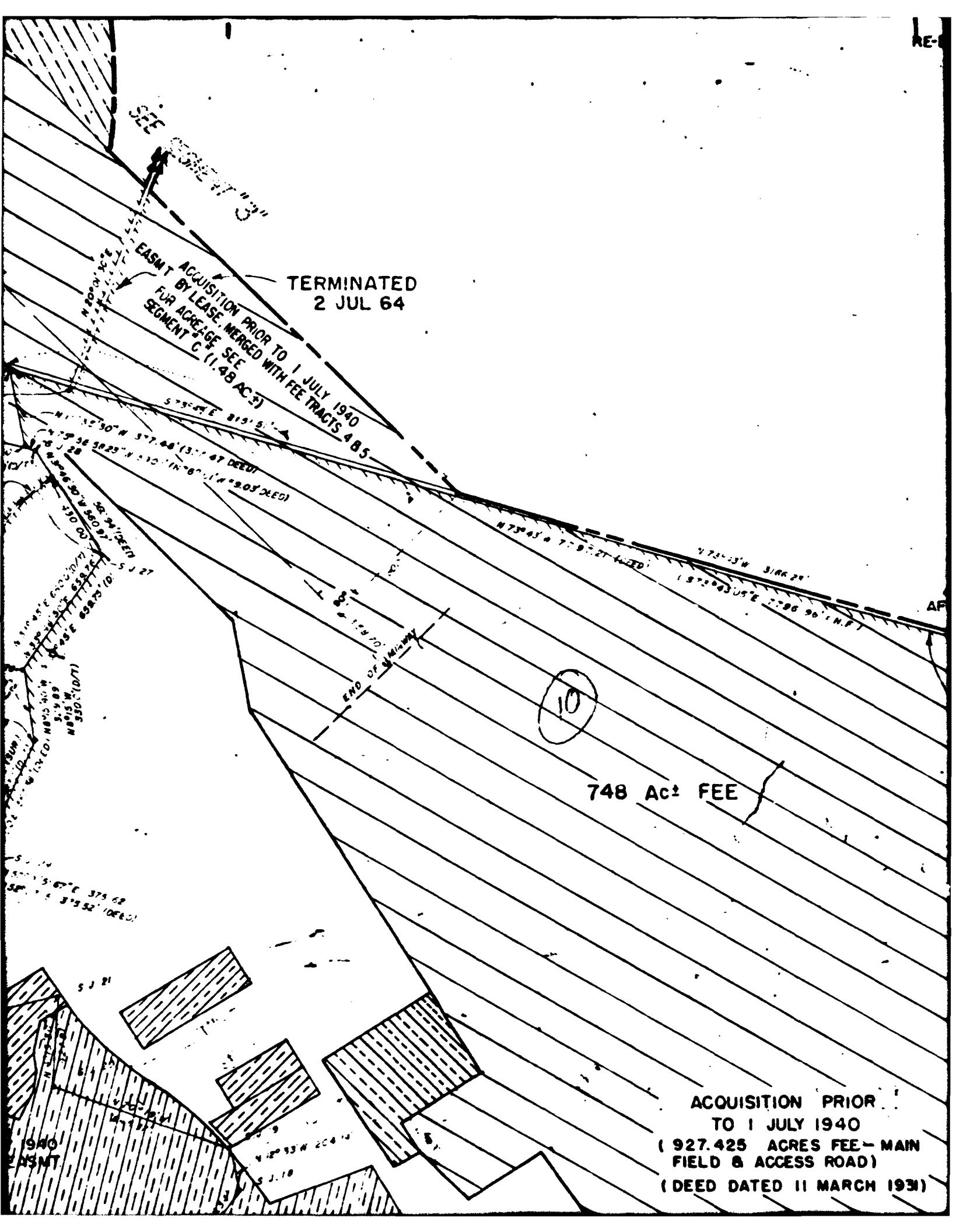
AIR LINES

AUDITED

ACQUISITION


For Rafael Village, See Segment 2
To Rafael Village
TERMINATED 16 MAY 66
12 E
12
32
30
TERM. 5 NOV. 65
105 P
SEE DETAIL "B" THIS SHEET
31
29
100 L
8
15
7
109 L
A
106 P
107 P
U.S. 101
EXISTING SEWER LINE
Permit Acted 1-2 Oct. 62 for 15" sewer line (See Plan As Tr. 2-1)
ACCESS RD.
14
1
Par. 1


5
3
9
** ACQUISITION
PRIOR TO 1 JULY 1940
(EASEMENT FOR OBSTRUCTION LIGHTS R/W.)
(0.470 AC.)
MERGED WITH FEE TRACT 3
EASMT BY ACQUISITION PRIOR TO 1 JULY 1940 FOR ACREAGE. MERGED WITH FEE SEE SEGMENT C (1.48 AC)
7
21
9
108 E
109 L
17
A
18
19
1
10
STA. 1170 + 00.00
STA. 1167 + 88.00
STA. 1166 + 18.00
10" SEWER LINE PART OF TR
ACCESS RD
ACQUISITION PRIOR TO JULY 1940 (0.056 AC) EASMT


TERMINATED
2 JUL 64
EASMT ACQUISITION PRIOR TO 1 JULY 1940
BY LEASE. MERGED WITH FEE TRACTS 485
FOR ACREAGE SEE
SEGMENT C (1.48 AC±)
10
748 Ac± FEE
ACQUISITION PRIOR
TO 1 JULY 1940
(927.425 ACRES FEE — MAIN
FIELD & ACCESS ROAD)
(DEED DATED 11 MARCH 1931)
1940
EASMT

RE-D 6373

TYPE	PARCEL AND OWNERSHIP				
12	ESTATE OF MANUEL T. PIMENTAL, etal	1.74			
12-E	" " " " " "				177
13	PACIFIC GAS & ELECTRIC COMPANY				
14	STATE OF CALIFORNIA DIVISION OF HIGHWAYS				
15	NORTHWESTERN PACIFIC RAILROAD COMPANY				
17	NORTHWESTERN PACIFIC RAILROAD COMPANY				
18	NORTHWESTERN PACIFIC RAILROAD COMPANY				
19	NORTHWESTERN PACIFIC RAILROAD COMPANY				
20	NORTHWESTERN PACIFIC RAILROAD COMPANY				
21	NORTHWESTERN PACIFIC RAILROAD COMPANY				
29	MARIN COUNTY ABSTRACT CO.			6.01	
30	STATE OF CALIFORNIA			1.13	
31	STATE OF CALIFORNIA			1.31	
100-L	NORTHWESTERN PACIFIC RAILROAD COMPANY				

4th Ind
AFRCE to SPD

N 19°09' E

4

11

SEE SEGMENT "3"

N 19°09' 30" E

FEE

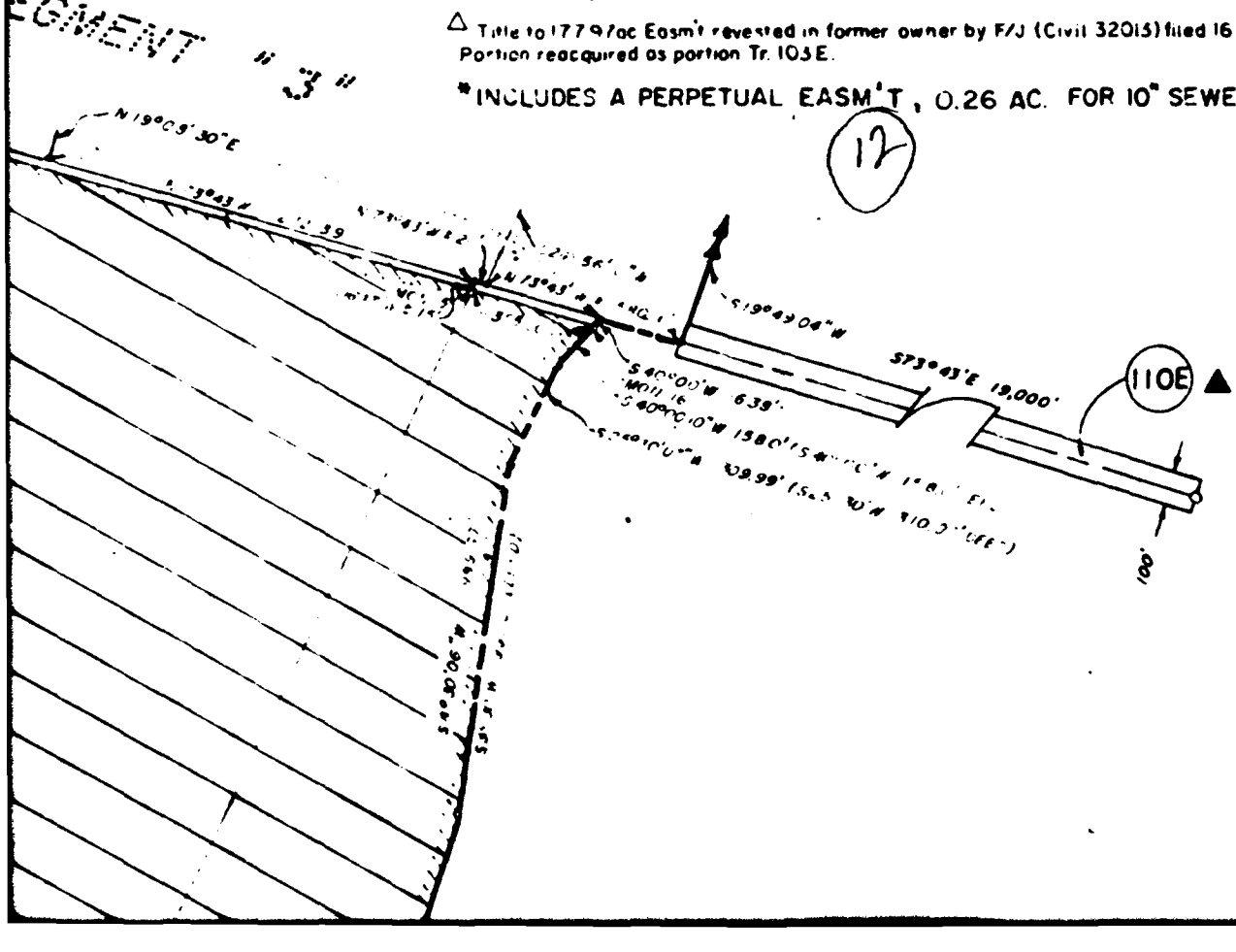
ACQUISITION PRIOR
TO 1 JULY 1940
27.425 ACRES FEE - MAIN
IELD & ACCESS ROAD)
EED DATED 11 MARCH 1931)

	81.28			△△
1.74				Formerly a portion of Tr.12 as held under lease W04-193 ENG 3220, and condemned by (Civ.No.32013) D/T No.1, filed 22 Jan 54 and amend by D/T No.2, filed 19 Nov 56.
	177.97			PERPETUAL EASEMENT FOR SAFETY AREA FROM 11-19-56 PORTION OF AREA FORMERLY UNDER LEASES W04-193 ENG 6[illegible], W04-193 ENG 3220, W04-193 ENG 3255 & LEASEHOLD CONDEMN., D/T No.1 (CIVIL NO. 32013) △
		NO AREA		LICENSE DATED 29 MARCH 1945. FOR USE OF POWER LINE POLE.
			NO AREA	ENCROACHMENT PERMIT E-40985 DATED 11 JAN 1946 FOR SIDEWALK R/W.
			NO AREA	PERMIT W04-193 ENG. 4007 DATED 27 APRIL 1944 FOR UNDERGROUND CABLE R/W
		NO AREA		LICENSE W-3460-ENG. 560 DATED 21 OCT 1942 FOR 8" WATER LINE R/W.
		NO AREA		LICENSE W-3460-ENG 560 DATED 21 OCT 1942 FOR 6" WATER LINE R/W
		NO AREA		LICENSE W-3460-ENG 560 DATED 21 OCT 1942 FOR 6" WATER LINE R/W.
		0.093		LICENSE W-868-ENG4400, DATED 26 MAY 1942. FOR RAILROAD CROSSING R/W
		NO AREA		LICENSE SFRE-47, DATED 10 APRIL 1950. FOR MULTIPLE CLAY DUCT.
	6.01			LEASEHOLD CONDEMN, D/T NO.1 (CIVIL NO. 32013)
	1.13			LEASEHOLD CONDEMN, D/T NO.1 (CIVIL NO. 32013).
	1.31			LEASEHOLD CONDEMN, D/T NO.1 (CIVIL NO. 32013).
		NO AREA		LICENSE DATED 14 SEP 1962. FOR COMMUNICATION CABLE R/W.

△△ Title to 81.28 ac Easm't revested in former owner by F/J (Civil 32013) filed 1 Aug 67. Portion reacquired as portion Tr 104E

△ Title to 177.97 ac Easm't revested in former owner by F/J (Civil 32013) filed 16 May 66. Portion reacquired as portion Tr. 103E.

*INCLUDES A PERPETUAL EASM'T, 0.26 AC. FOR 10" SEWER LINE



NOT

††0.407 Acres 1940 merged

††0.230 Acres 19-0 merged

***0.470 Acres Acquired Prior Acquisition of

***0.96 Acres Pri Reacquired as

ACQUISITI

RE-D 539

RE-D 741 (Ge

RE-D 773(Ge

RE-D 852

RE-D Unnum.

RE-D 852 A

RE-D 2078 (

RE-D 2078A concels RE-

RE-D 2781

704-193ENG 3220, ..., filed 22 Jan 54 and

... 11-19-56 PONT.CA ... 6-193 ENG 3220, ...

...OR USE OF

DATED 11 JAN. 1946

...D 27 APRIL 1944

21 OCT 1942

21 OCT 1942

...) 21 OCT. 1942

26 MAY 1942.

...PRIL 1950.

...L NO. 32013)

...L NO. 32013).

...VIL NO. 32013).

COMMUNICATION

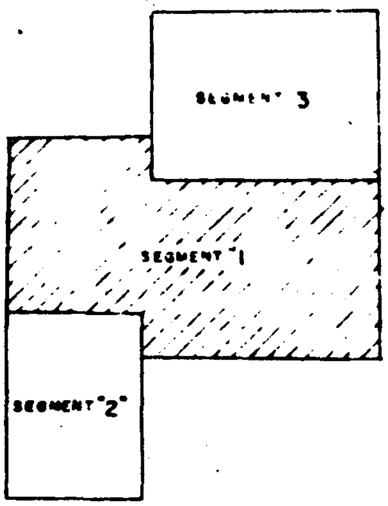
...) filed 1 Aug 67.

...) filed 16 May 66.

... SEWER LINE

VICINITY MAP

SCALE IN MILES: 4 2 0 4 8



SEGMENT INDEX

M.D.M.

13

NOTE:

NOT INCLUDED IN TOTALS:

††0.407 Acres Leased Acquired Prior To 1 July 1940 merged with Fee Tract C-300.

††0.230 Acres Leased Acquired Prior To 1 July 1940 merged with Fee Acquisition of Tracts 4 & 5.

**0.470 Acres of 1.845 Acres Lesser Interests Acquired Prior To 1 July 1940 merged with Fee Acquisition of Tract 3.

***0.96 Acres Prior 1 July 1940 Lease disposed of and Reacquired as Easm't Tr. 305E

ACQUISITION AUTHORIZATION

RE-D	539	dated	12	January	1942
RE-D	741 (Gen.)	dated	3	April	1942
RE-D	773 (Gen.)	dated	10	April	1942
RE-D	852	dated	25	April	1942
RE-D	Unnum. (Gen.)	dated	23	September	1942
RE-D	852 A	dated	23	December	1942
RE-D	2078 (Gen.)	dated	11	January	1943
RE-D	2078 A (Gen.)	dated	30	August	1943
cancels RE-D 2078 (Gen.)					
RE-D	2781	dated	29	December	1943

RAILROADS NORTHWESTERN PACIFIC

STATE ROADS 1

FEDERAL ROADS 101

AIR LINES

AUDITED

ACQUISITION

TOTAL ACRES ACQUIRED 2,809.3...

ORIGINAL ACQUISITION PRIOR 1 JUL. '40.

ACRES FEE	954.4...
††ACRES LEASED TO W.D.	2.0...
**ACRES LESSER INTERESTS	1.8...

ACQUISITION AFTER 1 JULY 1940

ACRES FEE	1026.0...
ACRES TRANSF'D TO W.D.	38.8...
ACRES LEASED TO W.D.	48.67
ACRES LESSER INTERESTS -	
9 Licenses	No Are...
5 Licenses	0.4...
4 Permits	No Are...
15 Easements	474.6...

DISPOSAL

TOTAL ACRES DISPOSED OF	50.66
ACRES SOLD	
ACRES TRANSFERRED	
ACRES LEASES TERMINATED	48.67
ACRES LESS. INT'S. TERMINATED	EAS.(4) 259.74 PER (2) NO ARE...
ACRES REASSIGNED	
PRIOR 1940 EAS.	1.50
ACRES MERGED -	
**1 Lesser Int. Acquired Prior 1 Jul. '40	.47...
††2 Leased Acquisition Prior 1 Jul. '40	.63...

LEGEND

EXCEPT FOR THE SPECIAL SYMBOLS SHOWN BELOW M... SYMBOLS ARE STANDARD IN ARMY MAP SERV... TECHNICAL MANUAL NO. ...

RAILROADS NORTHWESTERN PACIFIC 1

STATE ROADS 1

FEDERAL ROADS 101

AIR LINES

AUDITED
ACQUISITION

TOTAL ACRES ACQUIRED 2,809.37***

ORIGINAL ACQUISITION PRIOR 1 JUL '40.

ACRES FEE 954.425

††ACRES LEASED TO W.D. 2.085

**ACRES LESSER INTERESTS 1.845

ACQUISITION AFTER 1 JULY 1940

ACRES FEE 1026.02

ACRES TRANSF'D TO W.D. 38.89

ACRES LEASED TO W.D. 48.67

ACRES LESSER INTERESTS –

9 Licenses	No Area
5 Licenses	0.40
4 Permits	No Area
15 Easements	474.66

DISPOSAL

TOTAL ACRES DISPOSED OF 50.66 ▲

ACRES SOLD

ACRES TRANSFERRED

ACRES LEASES TERMINATED 48.67

ACRES LESS. INT'S. TERMINATED EAS.(4) 259.74
PER (2) NO AREA

ACRES REASSIGNED

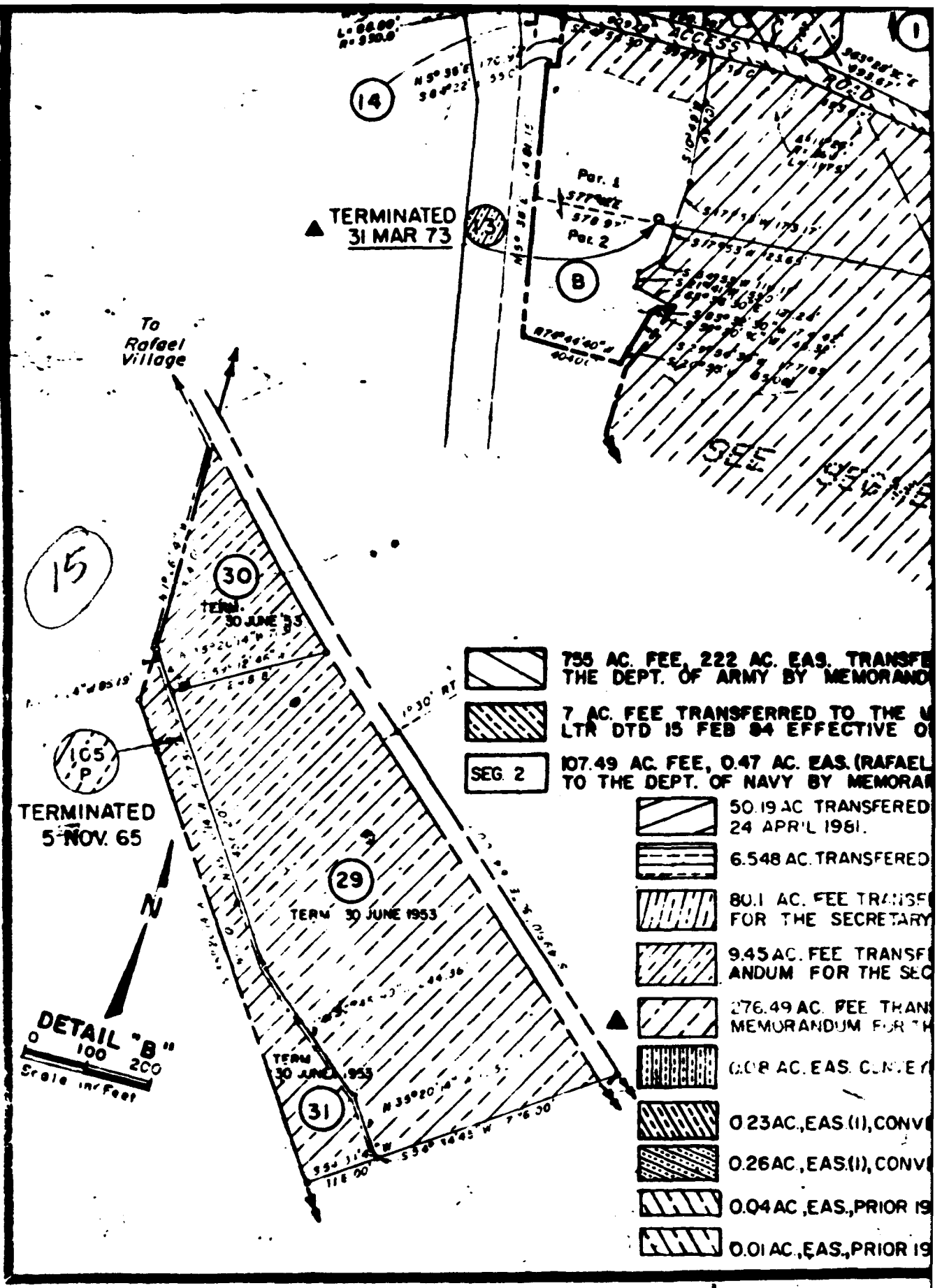
PRIOR 1940 EAS. 1.50

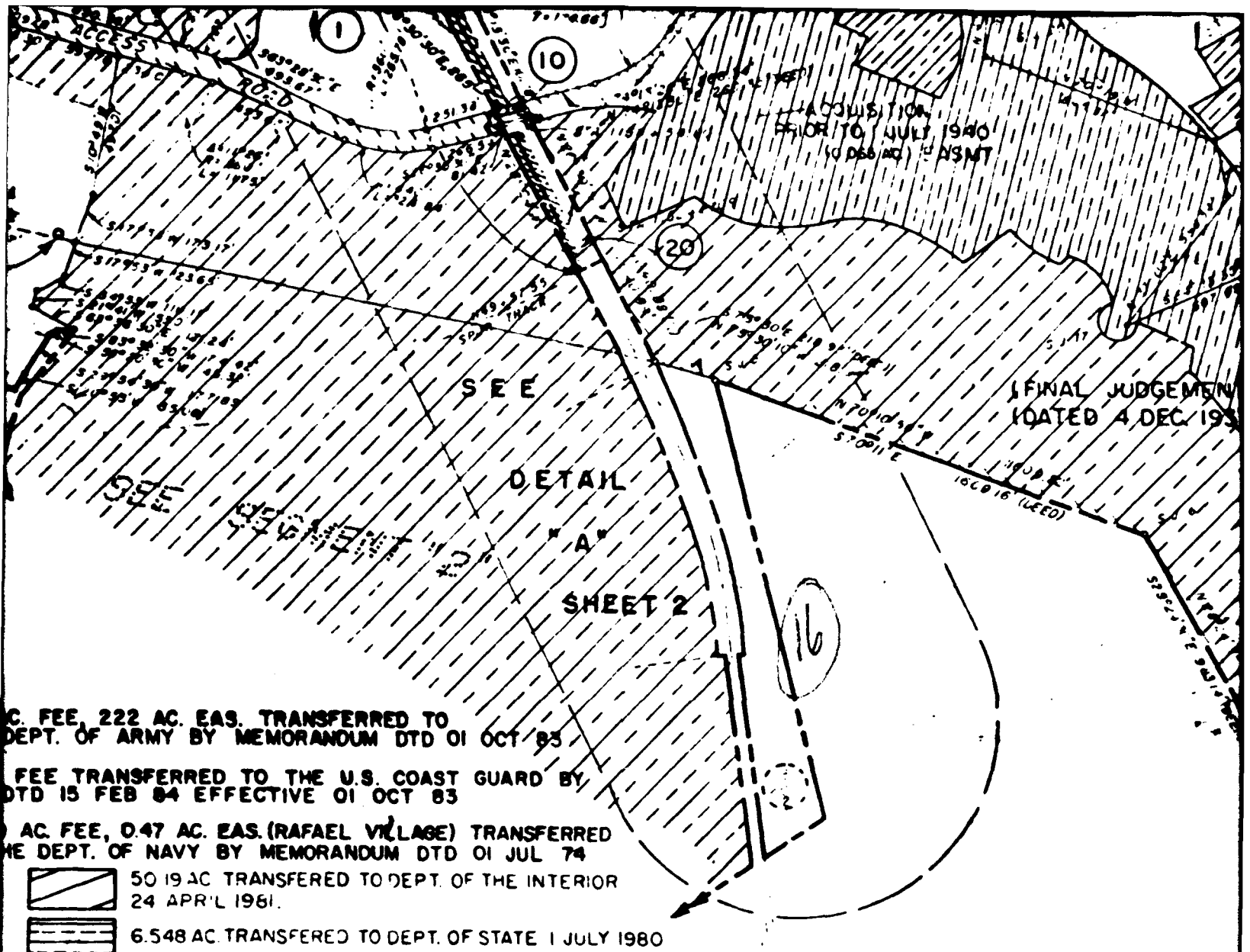
ACRES MERGED =

**1 Lesser Int. Acquired Prior 1 Jul. '40	.470
††2 Leased Acquisition Prior 1 Jul. '40	.637

LEGEND

EXCEPT FOR THE SPECIAL SYMBOLS SHOWN BELOW MAP SYMBOLS ARE STANDARD IN ARMY MAP SERVICE


TERMINATED
31 MAR 73
To
Rafael
Village
TERMINATED
5 NOV. 65
DETAIL "B"
0 100 200
Scale in Feet
TERM 30 JUNE 1953
735 AC. FEE, 222 AC. EAS. TRANSFE
THE DEPT. OF ARMY BY MEMORAND
7 AC. FEE TRANSFERRED TO THE
LTR DTD 15 FEB 84 EFFECTIVE O
SEG. 2
107.49 AC. FEE, 0.47 AC. EAS. (RAFAEL
TO THE DEPT. OF NAVY BY MEMORA
50.19 AC TRANSFERED
24 APRIL 1961.
6.548 AC. TRANSFERED
80.1 AC. FEE TRANSF
FOR THE SECRETARY
9.45 AC. FEE TRANSF
ANDUM FOR THE SEC
276.49 AC. FEE TRAN
MEMORANDUM FOR TH
0.23 AC., EAS. (1), CONV
0.26 AC., EAS. (1), CONV
0.04 AC., EAS., PRIOR 19
0.01 AC., EAS., PRIOR 19



C. FEE, 222 AC. EAS. TRANSFERRED TO
DEPT. OF ARMY BY MEMORANDUM DTD 01 OCT 83

FEE TRANSFERRED TO THE U.S. COAST GUARD BY
DTD 15 FEB 84 EFFECTIVE 01 OCT 83

AC. FEE, 0.47 AC. EAS. (RAFAEL VILLAGE) TRANSFERRED
HE DEPT. OF NAVY BY MEMORANDUM DTD 01 JUL 74

50.19 AC. TRANSFERED TO DEPT. OF THE INTERIOR 24 APRIL 1961.

6.548 AC. TRANSFERED TO DEPT. OF STATE 1 JULY 1980

80.1 AC. FEE TRANSFERRED FROM THE DEPT. OF THE AIR FORCE TO THE DEPT. OF THE NAVY BY MEMORANDUM FOR THE SECRETARY OF THE NAVY DTD 5 MAY 76 EFFECTIVE 12 JAN 76. ACCEPTED ON 29 SEP 76

9.45 AC. FEE TRANSFERRED FROM THE DEPT. OF THE AIR FORCE TO THE DEPT. OF THE ARMY BY MEMORANDUM FOR THE SECRETARY OF THE ARMY DTD 5 MAY 76 EFFECTIVE 12 JAN 76 ACCEPTED 1 JUNE 76

376.49 AC FEE TRANSFERRED FROM THE DEPT. OF THE AIR FORCE TO THE DEPT. OF THE NAVY BY MEMORANDUM FOR THE SECRETARY OF THE NAVY DTD 23 JAN 75 EFFECTIVE 1 JUL 74

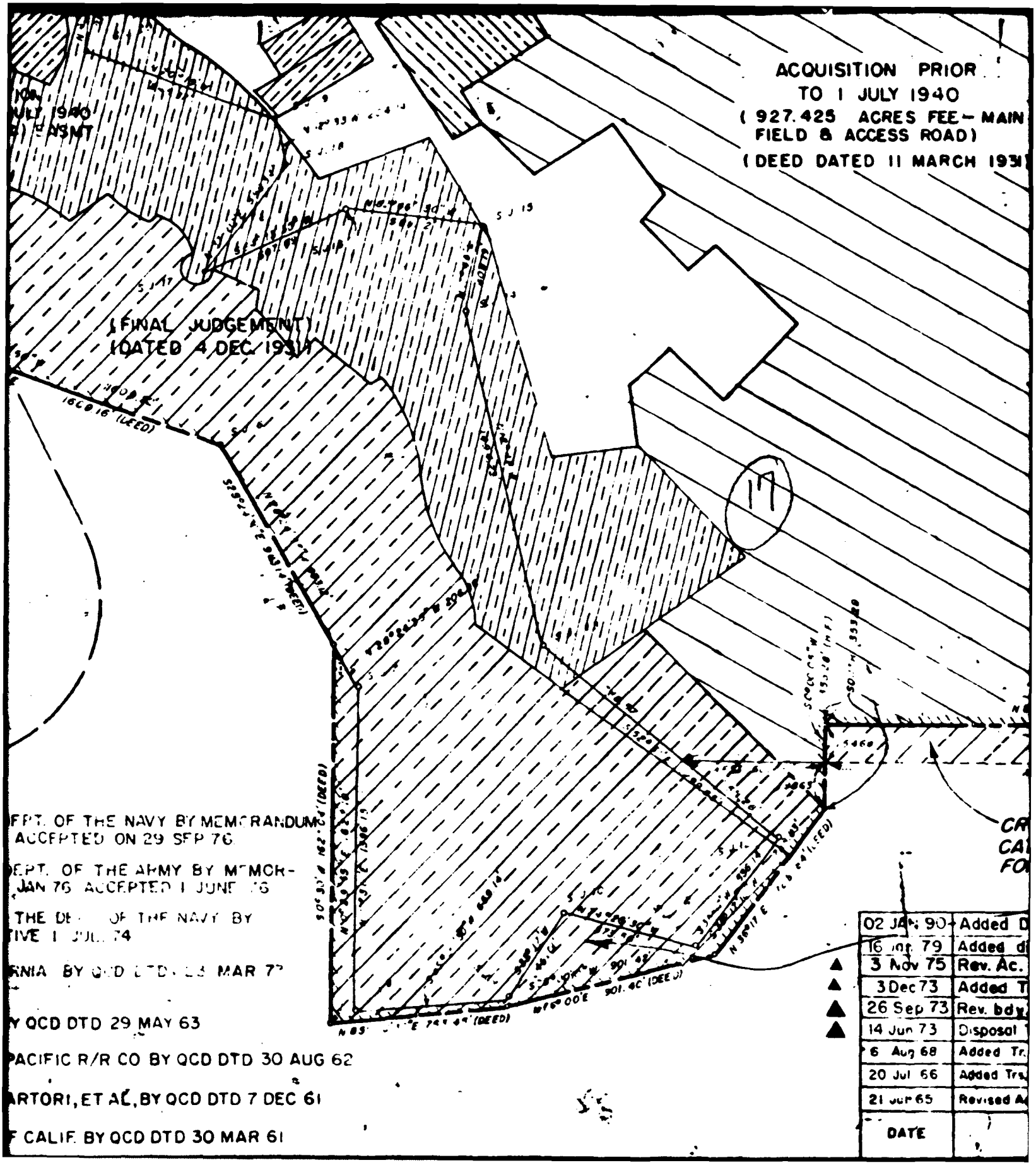
0.08 AC. EAS. CONVEYED BY SECTY OF AIR FORCE TO STATE OF CALIFORNIA BY QCD DTD 25 MAR 77

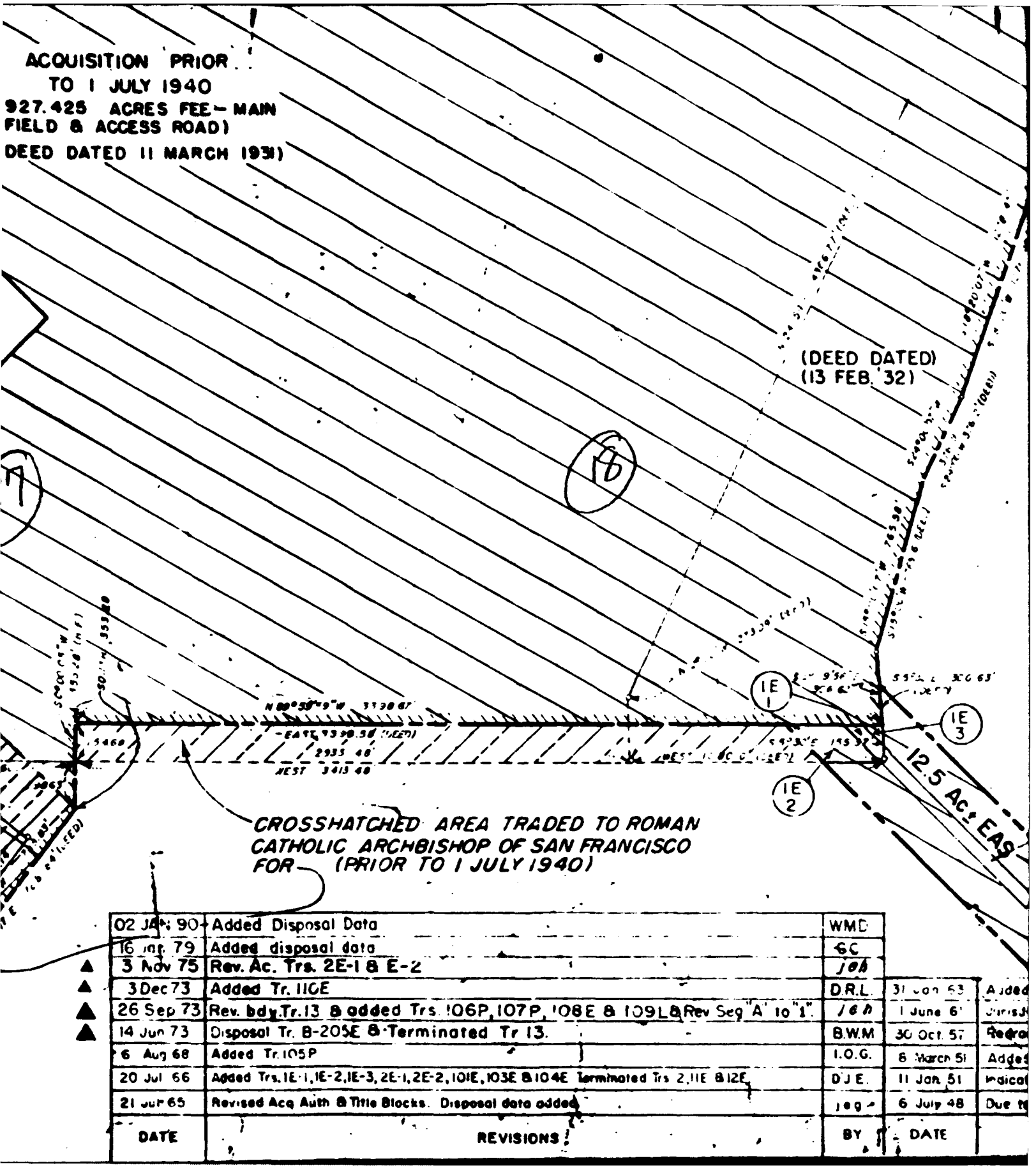
0.23 AC., EAS (1), CONVEYED BY SECTY OF AIR FORCE TO STATE OF CALIF BY QCD DTD 29 MAY 63

0.26 AC., EAS. (1), CONVEYED BY SECTY OF AIR FORCE TO NORTHWESTERN PACIFIC R/R CO BY QCD DTD 30 A

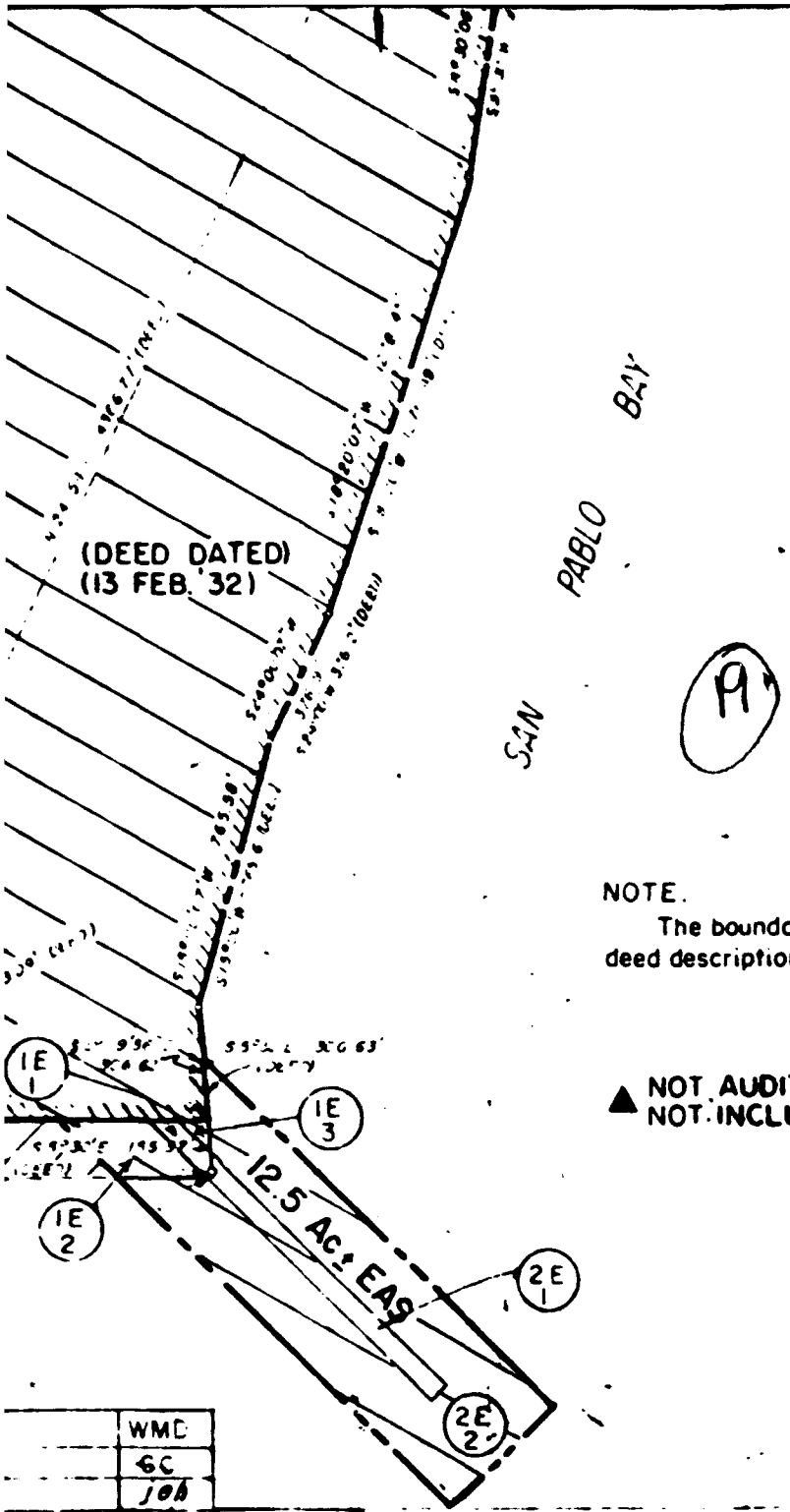
0.04 AC., EAS., PRIOR 1940, CONVEYED BY SECTY OF AIR FORCE TO AIDA I. SARTORI, ET AL, BY QCD DTD 7 DEC

0.01 AC., EAS., PRIOR 1940, CONVEYED BY SECTY OF AIR FORCE TO STATE OF CALIF. BY QCD DTD 30 MAR 61


ACQUISITION PRIOR
TO 1 JULY 1940
(927.425 ACRES FEE – MAIN
FIELD & ACCESS ROAD)
(DEED DATED 11 MARCH 193
(FINAL JUDGEMENT)
(DATED 4 DEC 1931)
17
FPT. OF THE NAVY BY MEMORANDUM
ACCEPTED ON 29 SEP 76
EPT. OF THE ARMY BY MEMOR-
JAN 76 ACCEPTED 1 JUNE 76
THE DE OF THE NAVY BY
IVE 1 JUL 74
RNIA BY QCD DTD 23 MAR 7
Y QCD DTD 29 MAY 63
PACIFIC R/R CO BY QCD DTD 30 AUG 62
RTORI, ET AL, BY QCD DTD 7 DEC 61
F CALIF. BY QCD DTD 30 MAR 61
02 JAN 90 Added D
16 Jan 79 Added d
3 Nov 75 Rev. Ac.
3 Dec 73 Added T
26 Sep 73 Rev. bdy.
14 Jun 73 Disposal
6 Aug 68 Added Tr.
20 Jul 66 Added Tra
21 Jun 65 Revised A
DATE



DATE	REVISIONS	BY	DATE	
02 JAN 90	Added Disposal Data	WMD		
16 Jan 79	Added disposal data	GC		
▲ 3 Nov 75	Rev. Ac. Trs. 2E-1 & E-2	JGH		
▲ 3 Dec 73	Added Tr. 110E	D.R.L.	31 Jan 63	Added
▲ 26 Sep 73	Rev. bdy. Tr. 13 & added Trs. 106P, 107P, 108E & 109L & Rev Seg "A" to "1".	JGH	1 June 61	Juris
▲ 14 Jun 73	Disposal Tr. B-205E & Terminated Tr 13.	B.W.M	30 Oct 57	Reqd
6 Aug 68	Added Tr. 105P	I.O.G.	8 March 51	Added
20 Jul 66	Added Trs. 1E-1, 1E-2, 1E-3, 2E-1, 2E-2, 101E, 103E & 104E Terminated Trs 2, 11E & 12E	D.J.E.	11 Jan 51	Indicat
21 Jun 65	Revised Acq Auth & Title Blocks. Disposal data added	JEG	6 July 48	Due to



NOTE.

The boundary of this installation was compiled from deed descriptions and actual survey

▲ NOT AUDITED-ACREAGE NOT INCLUDED IN STATISTICS

RE-D 539
RE-D 741
RE-D 773
RE-D 852
RE-D Unnu
RE-D 852
RE-D 207
RE-D 207
concels R
RE-D 278
RE-D 297
RE-D 741
concels R
RE-D 278
deletes 5.
RE-D 463
RE-D 467
Ltr Hq 78 th
RE D 595
RE-D 637
RE-D 682
RE-D 682
RE-D 704
Amend to RE
SPD-RE-D
SPD-RE-D
SPD-RE-D
4th Ind AFRC
SPD-RE-D II
SPD-RE-D III
1st Ind AFOCE
AFRCE-SPR
(concels

DRAWN BY
TRACED BY
CHECKED BY
SUBMITTED BY
CHIEF, CADASTRAL
RECOMMENDED
OFFICE, CHI
INSTALLATIO

	BY	DATE	REVISIONS	BY
	WMD			
	GC			
	JOH			
	D.R.L.	31 Jan 63	Added tract 100-L	D A B
A' to 1"	J.G.H.	1 June 61	Jurisdiction Transferred from San Francisco District	F R I.
	B.W.M.	30 Oct. 57	Redrawn to reflect acquisition subsequent to approval of audit.	H.J.B.
	I.O.G.	8 March 51	Added tract 21	E.D.V.
	D.J.E.	11 Jan. 51	Indicated 'EXCEPTED' area in tract B and changed acreage	F.D.V.
	J.E.G.	6 July 48	Due to final audit	A.W.L.

RE-D 639	dated	16 January	1942
RE-D 741 (Gen.)	dated	3 April	1942
RE-D 773(Gen.)	dated	10 April	1942
RE-D 852	dated	25 April	1942
RE-D Unnum.(Gen.)	dated	23 September	1942
RE-D 852 A	dated	23 December	1942
RE-D 2078 (Gen)	dated	11 January	1943
RE-D 2078A(Gen.)	dated	30 August	1943
concels RE-D 2078 (Gen.)			
RE-D 2781	dated	29 December	1943
RE-D 2970	dated	19 April	1944
RE-D 741A (Gen)	dated	10 July	1944
concels RE-D 741 (Gen.)			
RE-D 2781A	dated	3 May	1946
deletes 5.51 acres from RE-D 2781			
RE-D 4654	dated	11 February	1946
RE-D 4671	dated	1 April	1947
Ltr Hq 78th Fighter-Interceptor Wing	dated	10 March	1951
RE-D 5953	dated	20 October	1954
RE-D 6373	dated	30 September	1955
RE-D 6822	dated	8 January	1957
RE-D 6822A	dated	3 Mar	1958
RE-D 7043	dated	28 Mar	1958
Amend to RE-D 6822	dated	29 May	1958
SPD-RE-D 47	dated	17 Jul	1958
SPD-RE-D 47A	dated	1 Jul	1959
SPD-RE-D 76	dated	20 Apr	1960
4th Ind AFRCE-SP to SPD	dated	11 Jul	1962
SPD-RE-D 118	dated	9 Jul	1964
SPD-RE-D 119	dated	21 Jul	1964
1st Ind AFOCEFD to SPD	dated	9 Oct	1964
AFRCE-SPR Ltr	dated	20 Apr	1965
(cancels SPD-RE-D 118)			

20

* Leased Tract Acquired Prior 1 Jul. 40

** Leased Acquisition Prior 1 Jul. 40

LEGEND

EXCEPT FOR THE SPECIAL SYMBOLS SHOWN BELO
SYMBOLS ARE STANDARD IN ARMY MAP
TECHNICAL MANUAL NO. 23.

RESERVATION LINE

RESERVATION LINE (Actual Survey)

TRACT BOUNDARY LINE

TRACT NUMBER

AVIGATION EASEMENT

CONTOUR LINE

DISPOSAL

compiled from

SEGMENT "1"

DEPARTMENT OF THE ARMY
OFFICE OF THE SACRAMENTO DISTRICT ENGINEER
SOUTH PACIFIC DIVISION

DRAWN BY H.J.B.
TRACED BY H.J.B.
CHECKED BY

SUBMITTED BY:
CHIEF CADASTRAL SECTION

RECOMMENDED BY:
CHIEF, PLANNING & CONTROL BRANCH

APPROVED BY:
CHIEF, REAL ESTATE DIVISION

DATE 29 Nov. 1

REAL ESTATE

HAMILTON AIR FORCE BAS

BLACK POINT COMMUNICATION FACILITY

MILITARY RESERVATION

OFFICE, CHIEF OF ENGINEERS, WASHINGTON 25, D. C.

AUDITED

INSTALLATION OR PROJECT NO. 523

SCALE IN FEET
500 0 500

SHEET 1 OF 3 DRAWING NO. FB-

DAB	
FRI	
H.J.B.	
E.D.V.	
F.D.V.	
A.W.L.	
BY	

nuary	1942
ril	1942
ril	1942
ril	1942
ptember	1942
cember	1942
nuary	1943
gust	1943
cember	1943
ril	1944
ly	1944
y	1946
2781	
bruary	1946
ril	1947
g	
arch	1951
tober	1954
ptember	1955
nuary	1957
Mar	1958
Mar	1958
May	1958
Jul	1958
Jul	1959
Apr	1960
11 Jul	1962
Jul	1964
Jul	1964
9 Oct	1964
Apr	1965

**2 Leased Acquisition Prior 1 Jul. 40 .637

LEGEND

EXCEPT FOR THE SPECIAL SYMBOLS SHOWN BELOW MAP SYMBOLS ARE STANDARD IN ARMY MAP SERVICE TECHNICAL MANUAL NO. 23.

RESERVATION LINE

RESERVATION LINE (Actual Survey)

TRACT BOUNDARY LINE

TRACT NUMBER — 180 L

AVIGATION EASEMENT

CONTOUR LINE

DISPOSAL

SEGMENT "1"

DEPARTMENT OF THE ARMY
OF THE SACRAMENTO DISTRICT ENGINEER
SOUTH PACIFIC DIVISION

REAL ESTATE

HAMILTON AIR FORCE BASE

BLACK POINT COMMUNICATION FACILITY

MILITARY RESERVATION

ROVED BY: [signature] DATE 29 Nov. 1948

REAL ESTATE DIVISION

WASHINGTON 25, D. C.

SCALE IN FEET

500 0 500 1000

SD 523

SHEET 1 OF 3 DRAWING NO. FB-387

U. S. ENG. FORM 1456-a
22 JAN. 54