SECTION 2

PROPERTY CHARACTERIZATION

2.1 PROPERTY DESCRIPTION AND HISTORY

Fort McClellan is an Army installation of approximately 45,679 acres adjacent to Anniston, Alabama. Figure 2-1 is a site location map. A property information summary is provided in Table 2-1. A panoramic view of Fort McClellan's Main Post, looking west from the Choccolocco Mountain Range, is presented in Photograph 1.

The area known today as Fort McClellan first attracted interest among military circles when the 4th Alabama Artillery discovered at the time of the Spanish-American War (1898) that the Choccolocco Mountains form an excellent background for artillery training. Federal officials were sent to Anniston from 1912 to 1916 to study the possibility of locating an Army camp in this area.

The Federal government, in 1917, purchased 18,946 acres of land near Anniston for use as an artillery range. With the outbreak of World War I, it was decided to use the property as a training camp, and it was named Camp McClellan in honor of Major General George B. McClellan.

In 1917, Camp McClellan was used to train troops for World War I and served in that capacity until the armistice. It was then designated as a demobilization center. Between 1919 and 1929, it served as a training area for active army units and other civilian elements. Camp McClellan was redesignated as Fort McClellan in July 1929 and continued to serve as a training area.

In October 1940, the government acquired another approximately 22,245 acres due west of Fort McClellan (see Figure 2-1). This tract of land was named Pelham Range in honor of Major John Pelham. The Alabama Legislature, in 1941, leased approximately 4,488 acres to the Federal government to provide an access corridor from the Main Post to Talladega National Forest. This provided access to additional woodlands (Choccolocco Corridor, see Figure 2-1) for training. A view of the Choccolocco Corridor, looking east from the Choccolocco Mountain Range, is shown in Photograph 2.

From August 1945 until August 1946, Fort McClellan served as a separation point. After a 3-month closing period, it was activated as a Recruit Training Center until May 1947. Once again it ceased operation and was placed in an inactive status until 1951.

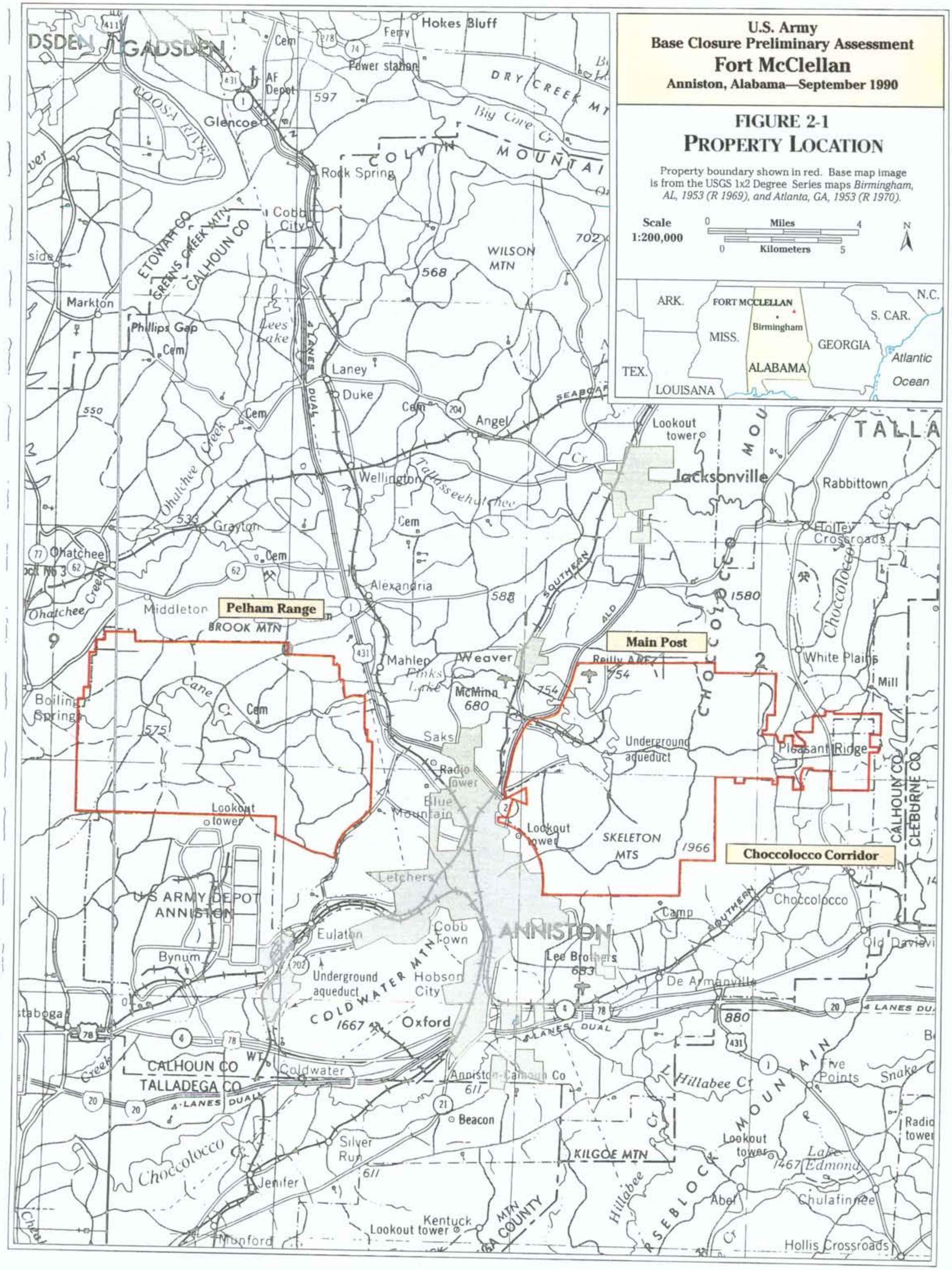

U.S. Army
Base Closure Preliminary Assessment
Fort McClellan
Anniston, Alabama—September 1990
FIGURE 2-1
PROPERTY LOCATION
Property boundary shown in red. Base map image is from the USGS 1x2 Degree Series maps Birmingham, AL, 1953 (R 1969), and Atlanta, GA, 1953 (R 1970).
Scale 1:200,000
Miles
Kilometers
N
ARK.
FORT MCCLELLAN
Birmingham
MISS.
ALABAMA
GEORGIA
TEX.
LOUISANA
N.C.
S. CAR.
Atlantic Ocean
Pelham Range
Main Post
Choccolocco Corridor
GADSDEN
Hokes Bluff
Glencoe
Rock Spring
Cobb City
WILSON MTN
COLVIN MOUNTAIN
ETOWAH CO
CALHOUN CO
GREENS CREEK MTN
Markton
Phillips Gap
Lees Lake
Laney
Duke
Angel
Wellington
Jacksonville
Rabbittown
Grayton
Ohatchee
Alexandria
Middleton
BROOK MTN
Mahler
Weaver
McMinn
Saks
Radio tower
Blue Mountain
Underground aqueduct
Pleasant Ridge
White Plains
Mill
SKELETON MTS
Lookout tower
Letchers
U S ARMY DEPOT ANNISTON
Eulaton
Bynum
Cobb Town
ANNISTON
Hobson City
COLDWATER MTN
Oxford
Lee Brothers
De Armanville
Choccolocco
Camp
CALHOUN CO
TALLADEGA CO
CALHOUN CO
CLEBURNE CO
Coldwater
Anniston-Calhoun Co
Beacon
Silver Run
Jenifer
Munford
Kentuck
KILGOE MTN
Hillabee Cr
Five Points
Lake Edmond
Abel
Chulafinnee
Hollis Crossroads
Boiling Springs
Cane Cr
Choccolocco Cr
Ohatchee Cr
Tallasseehatchee
Holley Crossroads
TALLA

Table 2-1

Property Information Summary

Name: Fort McClellan and Pelham Range

FFIS: AL-2137-20562

Property Number: 1102

Command: U.S. Training and Document Command

County: Calhoun, Alabama

Property Description: Fort McClellan consists of three components: the Main Post, Choccolocco Corridor, and Pelham Range. The main installation adjoins the city of Anniston on the south and west. It is bounded on the east by the Choccolocco Corridor, which connects the post with Talladega National Forest. Pelham Range is located approximately 5 miles due west of the Main Post.

Installation Coordinates: 33° 42'N; 85° 47'W

Size: 45,679 acres total (18,946 acres Main Post, 4,488 acres Choccolocco Corridor, and 22,245 acres Pelham Range)

Mission: Fort McClellan's primary mission is to provide command and support for the U.S. Army Military Police and Chemical Schools/Training Centers, the Training Brigade, and other units, as specified by higher headquarters.

Operations: Activities at Fort McClellan can be divided into three categories: support activities, academic training, and practical training. Support activities include housing, feeding, and moving individuals during training. Academic training includes classroom, laboratory, and field instruction. Practical training encompasses weapons, artillery and explosives, vehicle operation and maintenance, physical and tactical training activities.

On 4 January 1951, the Army reactivated Fort McClellan on an unlimited basis for operation of the Chemical Corps School and as a replacement center for the Chemical Corps. The Chemical Corps School offered advance training in all phases of chemical, biological, and radiological warfare to students from all branches of the military service until the school was deactivated in 1973.

Construction was begun at Fort McClellan in November 1952 for the Women's Army Corps (WAC) Center. In May 1954 elements of the WAC Center began moving from Fort Lee, Virginia, where the Center had been since 1948.

In 1962, the Army Combat Development Command Chemical/Biological/ Radiological Agency moved to Fort McClellan and performed its mission until it was deactivated in 1973.

In 1966, the mission of the installation was changed and Fort McClellan was renamed the U.S. Army School/Training Center and Fort McClellan. To meet requirements for the Viet Nam War, an Advanced Individual Training Infantry Brigade was activated in 1966. Because of continued force reductions in Viet Nam, the Brigade was deactivated in 1970 after training more than 30,000 men. The 3rd Army NCO Academy was also stationed at Fort McClellan from 1967 to 1972.

On 11 July 1975 the U.S. Army Military Police School was moved from Fort Gordon, Georgia, to Fort McClellan [R-1].

2.2 DESCRIPTION OF FACILITIES

The military and civilian facilities located at Fort McClellan and Pelham Range are numerous and varied. This subsection provides a brief overview of the operations and structures. Detailed descriptions of specific operations are provided in Section 3.

Training facilities at Pelham Range include impact areas, CBR (chemical biological, radiological) training areas, CBR ranges, and bivouacs. Training facilities at Fort McClellan include impact areas, CBR ranges, the Chemical Decontamination Training Facility (CDTF), and a fire training pit. Former training facilities at Fort McClellan include the U.S. Army Chemical Center and School and associated radiological laboratories and training areas. Other facilities associated with training include an ordnance disposal site at Pelham Range and an ordnance motor repair shop, a small weapons repair shop, a print shop, a photographic processing laboratory, and boiler plants.

Numerous transportation facilities are located at Fort McClellan, including Reilly Heliport (formerly an airport), a rail yard, and several motor pools. Associated maintenance operations are conducted at the Facility Engineer's Area (vehicle

maintenance), Alabama National Guard UTES #1 (tank and armored personnel maintenance), the radiator repair shop, two battery maintenance shops, and nine vehicle wash racks. In addition, one vehicle wash rack is located at Pelham Range.

Fuel and other fluids are stored in tanks at Fort McClellan and Pelham Range. There are both aboveground storage tanks (ASTs) and underground storage tanks (USTs), which are discussed in Subsection 3.3.

Housing and community facilities are located in the northwestern portion of Fort McClellan, in an area roughly bounded by State Road 23 and Cane Creek. These facilities include family housing units, enlisted men's barracks, museums, mess halls, a school, a day-care center, a golf course, and other recreational areas. Associated facilities include a commissary, theater, library, multi-craft and auto craft shops, and (formerly) a dry cleaning plant. Medical facilities include a hospital, dental clinic, and dispensaries.

Residential solid waste as well as limited amounts of waste generated through training have been disposed of in four landfills, only one of which is still active.

A wastewater treatment plant located at Fort McClellan has been leased to the city of Anniston since 1974. The plant treats wastewater from Fort McClellan and Pelham Range plus the city of Anniston. Discharge from this plant enters Cane Creek.

Apart from the facilities, areas at Fort McClellan that may be of environmental concern include spill areas, surface streams, and areas where toxic substances such as asbestos, pesticides, radioactive waste, and PCB were used or stored.

2.3 GENERAL ENVIRONMENTAL INFORMATION

2.3.1 DEMOGRAPHICS AND LAND USE

Fort McClellan consists of three parcels of land that encompass 46,000 acres situated within the Appalachian Valley and Ridge and Piedmont Provinces. Located in northeastern Alabama, Fort McClellan lies in the center of Calhoun County. As seen in Figure 2-1, the city of Anniston (population 31,500) is located between and to the south of the Main Post and Pelham Range, while the town of Weaver (population 2,000) is located to the north. The Anniston Ordnance Depot bounds Pelham Range to the south, and the Choccolocco Corridor connects the post to the Talladega National Forest to the east. The Choccolocco Corridor is leased from the State of Alabama and designated for bivouac maneuvers by foot troops, wheeled vehicles, and tracked vehicles. No AREEs were identified in this area.

2.3.2 CLIMATE

Fort McClellan is situated in a temperate, humid climate. Summers are hot and long, while winters are usually short and mild to moderately cold. The climate is influenced by frontal systems moving from northwest to southeast, and temperatures change rapidly from warm to cool due to the inflow of northern air. The average annual temperature is 63°F. Summer temperatures usually reach 90°F or higher about 70 days per year, but temperatures above 100°F are relatively rare. Freezing temperatures are common but are usually of short duration. The first frost may arrive by late October. At Anniston the average date of the first 32°F temperature is 6 November and the last is 30 March. This provides a growing season of 221 days. Snowfall averages 0.5 to 1 inch. On rare occasions, several inches of snow accummulate from a single storm.

The average annual rainfall is about 53 inches and is fairly well distributed throughout the year, as indicated in Table 2-2. The more intense rains usually occur during the warmer months, and some flooding occurs nearly every year; drought conditions are rare.

Approximately 80 percent of the flood-producing storms are of the frontal type and occur in the winter and spring, lasting from 2 to 4 days each. Summer storms are usually thunderstorms with intense precipitation over small areas, and these sometimes result in serious local floods. Occasionally, several wet years or dry years occur in series. Annual rainfall records indicate no characteristic order or pattern.

A brief study of wind velocity, duration, and direction reveals that winds in the Fort McClellan area are seldom strong and frequently blow down the valley from the northeast. However, there is no truly persistent wind direction. During the majority of the time, only light breezes or calm prevail, except during passages of cyclonic disturbances, when destructive local wind storms develop, some into tornadoes, with winds of 100 miles per hour (mph) or more.

Figure 2-2 is a wind rose of 1988 wind conditions for the Birmingham, Alabama, area. Northeast winds occur most frequently, with a secondary maximum of north winds.

2.3.3 PHYSIOGRAPHY AND SURFACE WATER

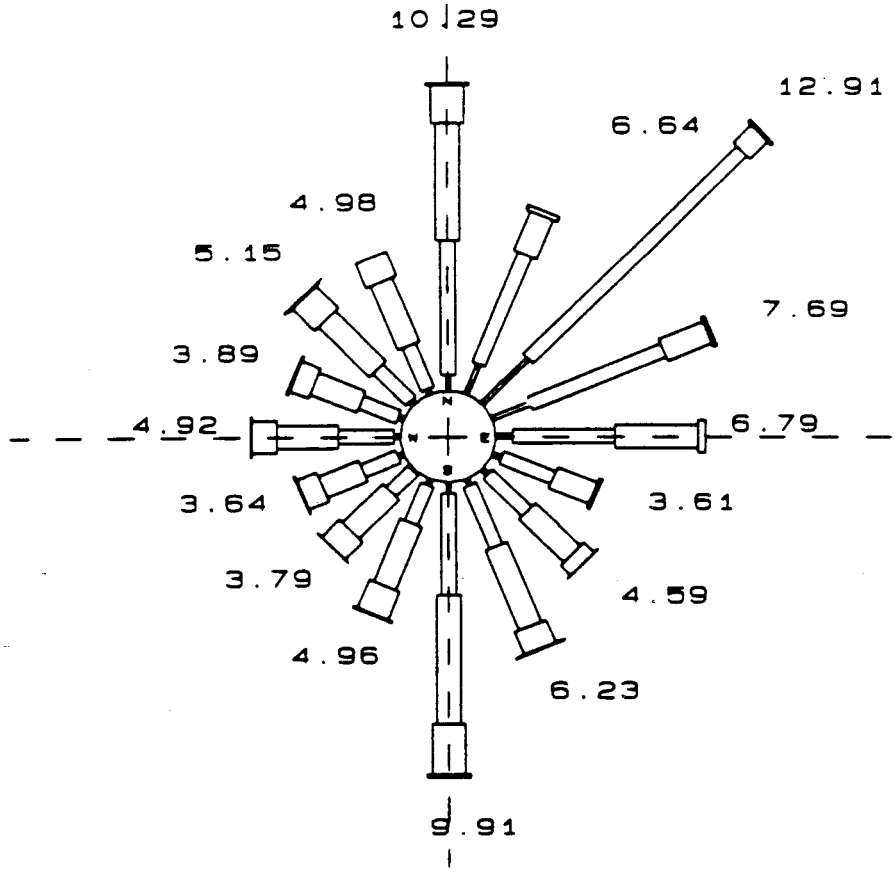
Pelham Range and all but the easternmost portion of Fort McClellan lie within the Valley and Ridge Province of the Appalachian Highlands. The portion of Fort McClellan west of Choccolocco Creek lies within the Piedmont Province. Figure 2-3a provides the site plan for the Main Post and Choccolocco Corridor, and Figure 2-3b provides the site plan for Pelham Range.

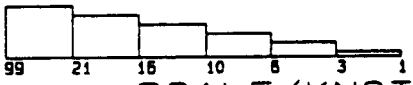
Table 2-2

Average Precipitation by Month
(40-year average)
Birmingham, Alabama

Month	Inches	Month	Inches
January	4.95	July	5.45
February	5.26	August	4.17
March	5.77	September	3.16
April	4.93	October	2.80
May	3.83	November	3.30
June	4.02	December	5.44

BIRMINGHAM, ALABAMA
YEAR: 1988
CALMS EXCLUDED





SCALE (KNOTS)

	WIND SPEED (KNOTS) PERCENT OCCURRENCE					
	1-3	3-6	6-10	10-16	16-21	>21
N	0.51	4.55	3.90	1.27	0.06	0.00
NNE	1.07	3.99	1.41	0.17	0.00	0.00
NE	2.13	9.86	0.81	0.11	0.00	0.00
ENE	1.33	4.65	1.56	0.15	0.00	0.00
E	0.54	3.30	2.70	0.25	0.00	0.00
ESE	0.32	1.79	1.36	0.11	0.00	0.00
SE	0.26	1.79	2.04	0.47	0.01	0.00
SSE	0.24	2.24	2.89	0.81	0.02	0.02

	WIND SPEED (KNOTS) PERCENT OCCURRENCE					
	1-3	3-6	6-10	10-16	16-21	>21
S	0.37	3.43	4.30	1.69	0.11	0.00
SSW	0.22	1.40	2.28	1.01	0.05	0.00
SW	0.07	1.01	1.87	0.82	0.01	0.00
WSW	0.20	1.26	1.42	0.71	0.05	0.00
W	0.21	1.63	2.01	0.81	0.08	0.00
WNW	0.19	1.33	1.85	0.85	0.07	0.00
NW	0.16	1.52	2.37	1.02	0.06	0.01
NNW	0.19	1.57	2.33	0.90	0.00	0.00

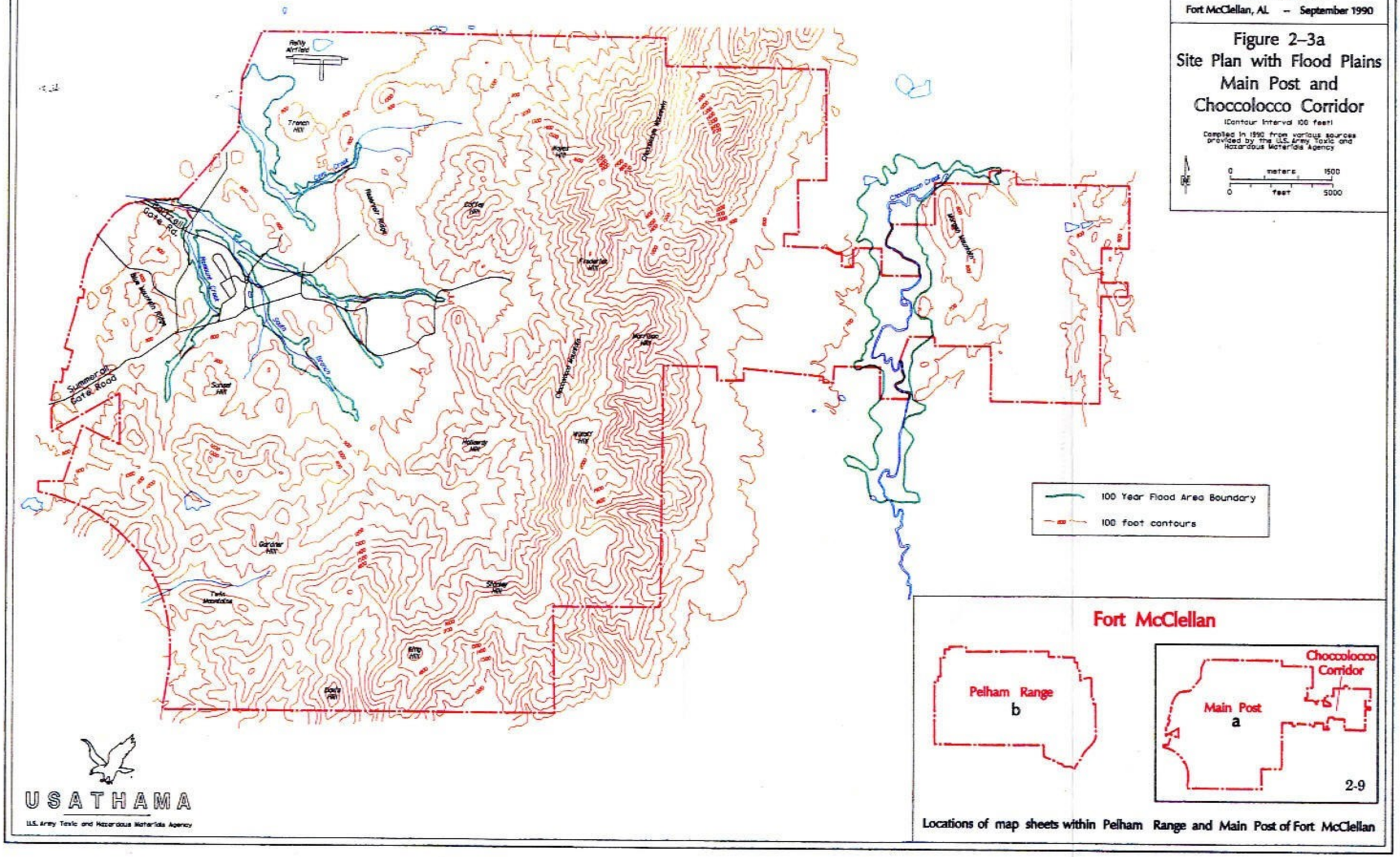
FIGURE 2-2 WIND ROSE

U. S. Army
Base Closure Preliminary Assessment
Fort McClellan
Fort McClellan, AL – September 1990

Figure 2–3a
Site Plan with Flood Plains Main Post and Choccolocco Corridor

(Contour Interval 100 feet)

Compiled in 1990 from various sources provided by the U.S. Army Toxic and Hazardous Materials Agency



Locations of map sheets within Pelham Range and Main Post of Fort McClellan

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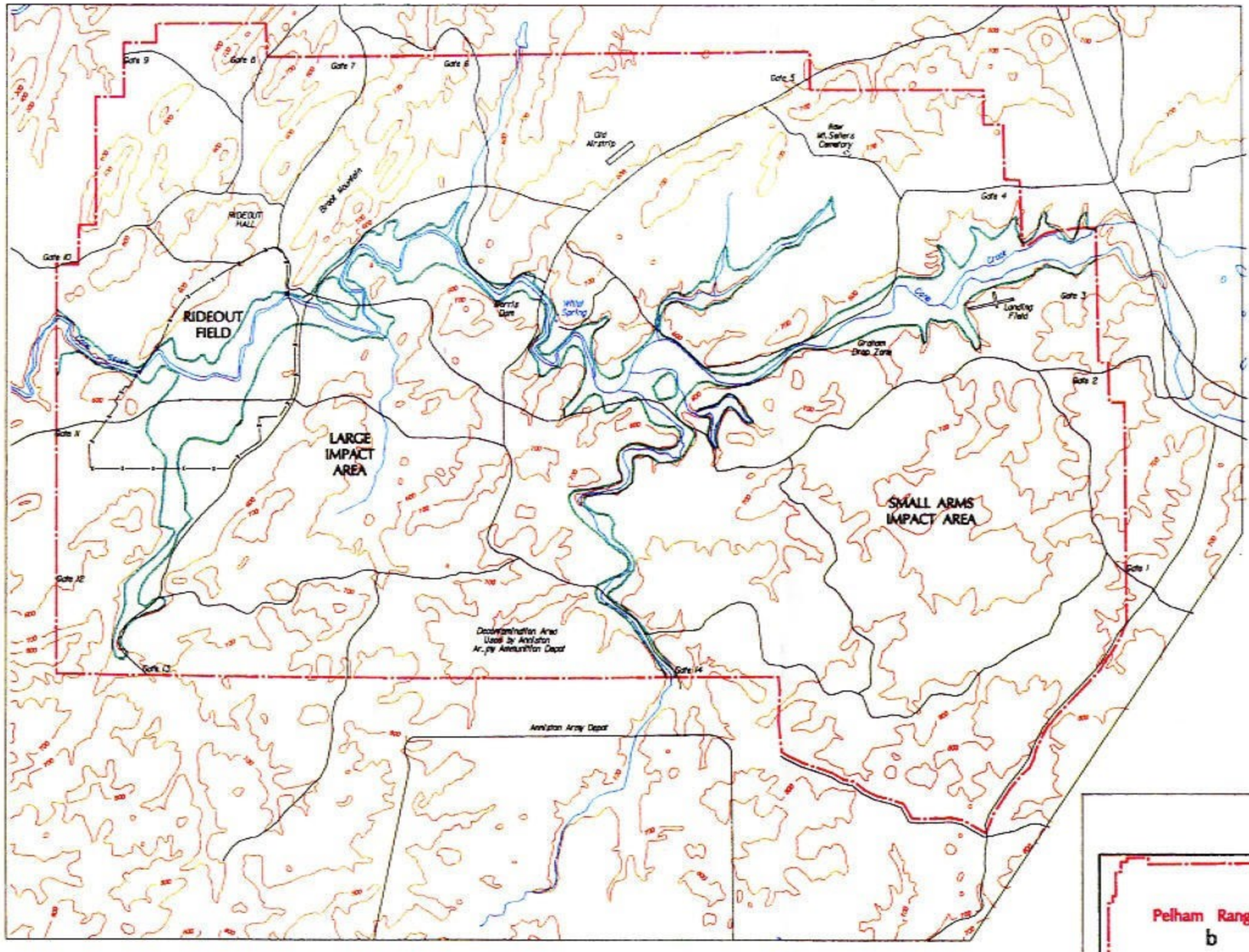
27-NOV-90

U. S. Army
Base Closure Preliminary Assessment
Fort McClellan
Fort McClellan, AL – September 1990

Figure 2–3b
Site Plan with Flood Plains Pelham Range

(Contour Interval 100 feet)

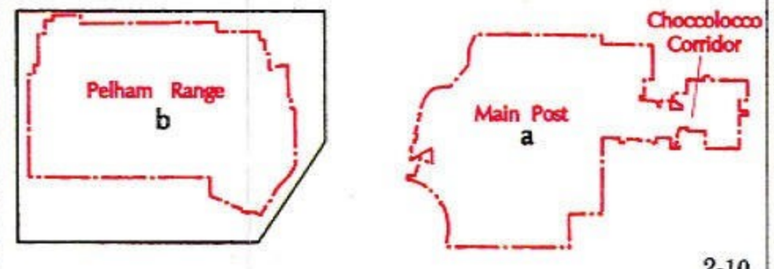
Compiled in 1990 from various sources provided by the U.S. Army Toxic and Hazardous Materials Agency



100 Year Flood Area Boundary

100 foot contours

Fort McClellan



Locations of map sheets within Pelham Range and Main Post of Fort McClellan

USATHAMA
U.S. Army Toxic and Hazardous Materials Agency

27-NOV-90

Local relief on Fort McClellan is in excess of 1,320 feet. The lower elevations (700 feet above mean sea level (MSL)) occur along Cane Creek, near Baltzell Gate Road, while the maximum elevation (2,063 feet above MSL) occurs on Choccolocco Mountain, which traverses the area in a north/south direction, with the steep easterly slopes grading abruptly into Choccolocco Valley. The western slopes are more continuous, with the southern extension maintaining elevations up to 900 feet above MSL near the western reservation boundary. The northern extension decreases in elevation in the vicinity of Reilly Heliport. The central portion of Fort McClellan is characterized by flat to gently sloping land [R-1].

The Choccolocco Mountains, located in the eastern portion of the post, form a major surface water divide. East of this divide the reservation consists of a relatively narrow strip called Choccolocco Corridor, which extends approximately 3.5 to 4 miles from the mountains across the floodplain of Choccolocco Creek, to the base of Rattlesnake Mountain. Choccolocco Creek and its tributaries drain this portion of Fort McClellan and flows southward to the Coosa River.

West of the drainage divide the entire central portion of Fort McClellan is drained by three major creeks and their tributaries. South Branch receives runoff from the south-central portion, then joins Cane Creek before leaving the reservation on the western boundary. Cane Creek receives surface runoff from the central section. The north-central section of the post is drained by Cave Creek, which leaves the post on the northwestern boundary [R-1].

Other surface water features within Fort McClellan include Lakes Yahou (13.5 acres), Reilly (8.5 acres), Cappington Ridge (0.3 acres), Duck Pond (0.5 acres), and an aqueduct. Surface drainage is collected in small independent networks that drain areas varying from 20 to 60 acres [R-2].

As indicated in Figure 2-3a, the 100-year floodplain includes the sanitary landfill from the Dothard System, the Alabama Military Academy facilities from the Cave Creek system, and a portion of the golf course area from Remount Creek. Other facilities within the 100-year floodplain include the training aids and temporary MP academic facilities, transportation motor pool yard, industrial storage areas along Baltzell Gate Road, Directorate of Industrial Operations and Supply warehouses, Post Engineer facilities, facilities along Seventh Avenue, 21st Street, and 22nd Street, as well as the main training ranges within the Ingram Creek system [R-2].

The topographic relief at Pelham Range is on the order of 425 feet. The minimum elevation is 500 feet above MSL, which occurs at the exit of Cane Creek from the range, and the maximum is 945 feet above MSL, near the southeastern boundary. The northern sector contains broad rolling topography capped with isolated round

knobs rising 75 to 90 feet above the surrounding terrain. A large, relatively flat area called Battle Drill Area is situated near the western boundary [R-1].

Cane Creek, which flows westwardly across the center of Pelham Range, and its tributaries drain almost all of Pelham Range. Drainage entering the range from the south originates in the Anniston Army Depot, which joins Pelham Range to the south. One drainageway located in the southwestern corner, flows in a northerly direction and empties into a large topographic low (Battle Drill Area). Cane Creek traverses this low some 800 yards to the north, and all water collected in the low eventually drains into Cane Creek [R-1]. Other surface water features include Lake Conteras (27 acres), Cane Creek Lake (7.5 acres), Willet Springs (0.8 acres), and Blue Hole (0.2 acres) [R-3]. All drainage from Fort McClellan and Pelham Range ultimately empties to the Coosa River. The 100-year floodplain within Pelham Range is shown in Figure 2-3b. Floodplains up to 2,500 feet wide traverse this sector and slope toward the center of the range. The wide floodplains are absent in the southern portion of the range.

2.3.4 SOILS

The five soil associations found at Fort McClellan and Pelham Range are shown in Figures 2-4a and 2-4b [R-4]. These associations are:

- Altavista-Masada-Tate: Well drained and moderately steep terraces and foot slopes. This association is limited to Fort McClellan.

- Anniston-Allen-Decatur-Cumberland: Deep, well drained, level to moderately steep soils in valleys underlain by limestone and shale.

- Clarksville-Fullerton: Well drained to moderately well drained stony or cherty soils on ridgetops and steep slopes and in local alluvium on foot slopes or in draws. This association is limited to Pelham Range.

- Rarden-Montevallo-Lehew: Moderately deep or shallow soils on ridgetops and steep slopes and in local alluvium in draws.

- Stony Rough Land: Shallow, steep, and stony soils underlain by sandstone, limestone, and Talladega Slate. This association is limited to Fort McClellan.

Table 2-3 summarizes the ranges of permeabilities measured for the major soil types of each soil association mentioned above. These tests are based on soils sampled throughout Calhoun County [R-4].

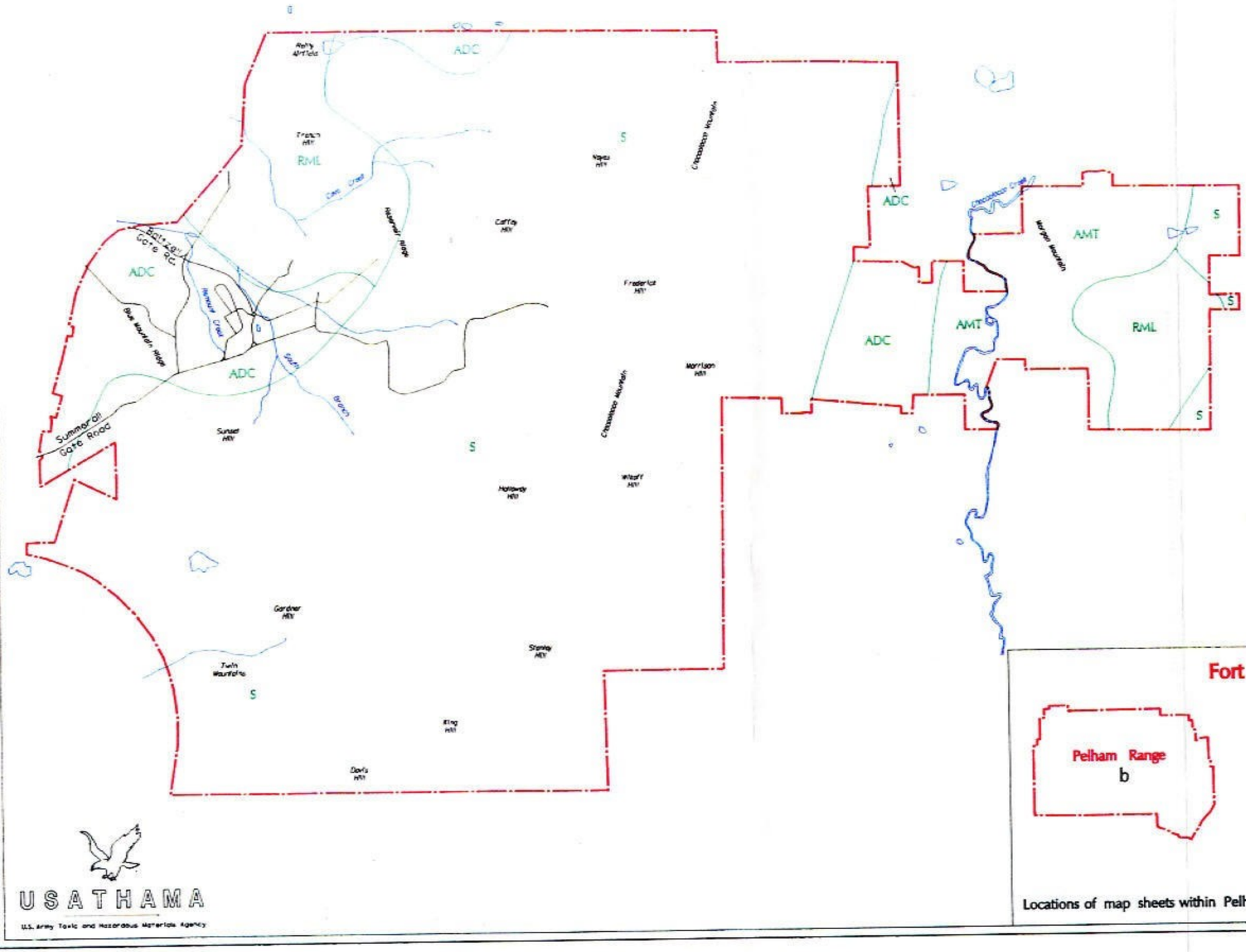
U. S. Army
Base Closure Preliminary Assessment
Fort McClellan
Fort McClellan, AL – September 1990

Figure 2-4a
Soil Associations
Main Post and
Choccolocco Corridor

Compiled in 1990 from various sources provided by the U.S. Army Toxic and Hazardous Materials Agency

N

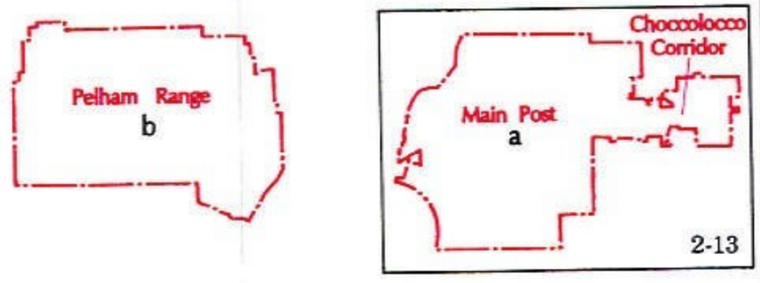
0 meters 1500
0 feet 5000



SOIL ASSOCIATIONS

AMT	Well drained and moderately well drained soils on level to moderately steep terraces and foot slopes: Altavista-Masada-Tate.
ADC	Deep, well-drained, level to moderately steep soils in valleys underlain by limestone and shale: Anniston-Allen-Decatur-Cumberland
CF	Well drained to moderately well drained, stony or cherty soils on ridgetops and steep slopes and in local alluvium on foot slopes or in draws: Clarksville-Fullerton
RML	Moderately deep or shallow soils on ridgetops and steep slopes and in local alluvium in draws: Rarden-Montevallo-Lehew.
S	Shallow, steep, and stony soils underlain by sandstone, limestone and Talladega slate: Stony rough land.

Fort McClellan



Locations of map sheets within Pelham Range and Main Post of Fort McClellan

USATHAMA
U.S. Army Toxic and Hazardous Materials Agency

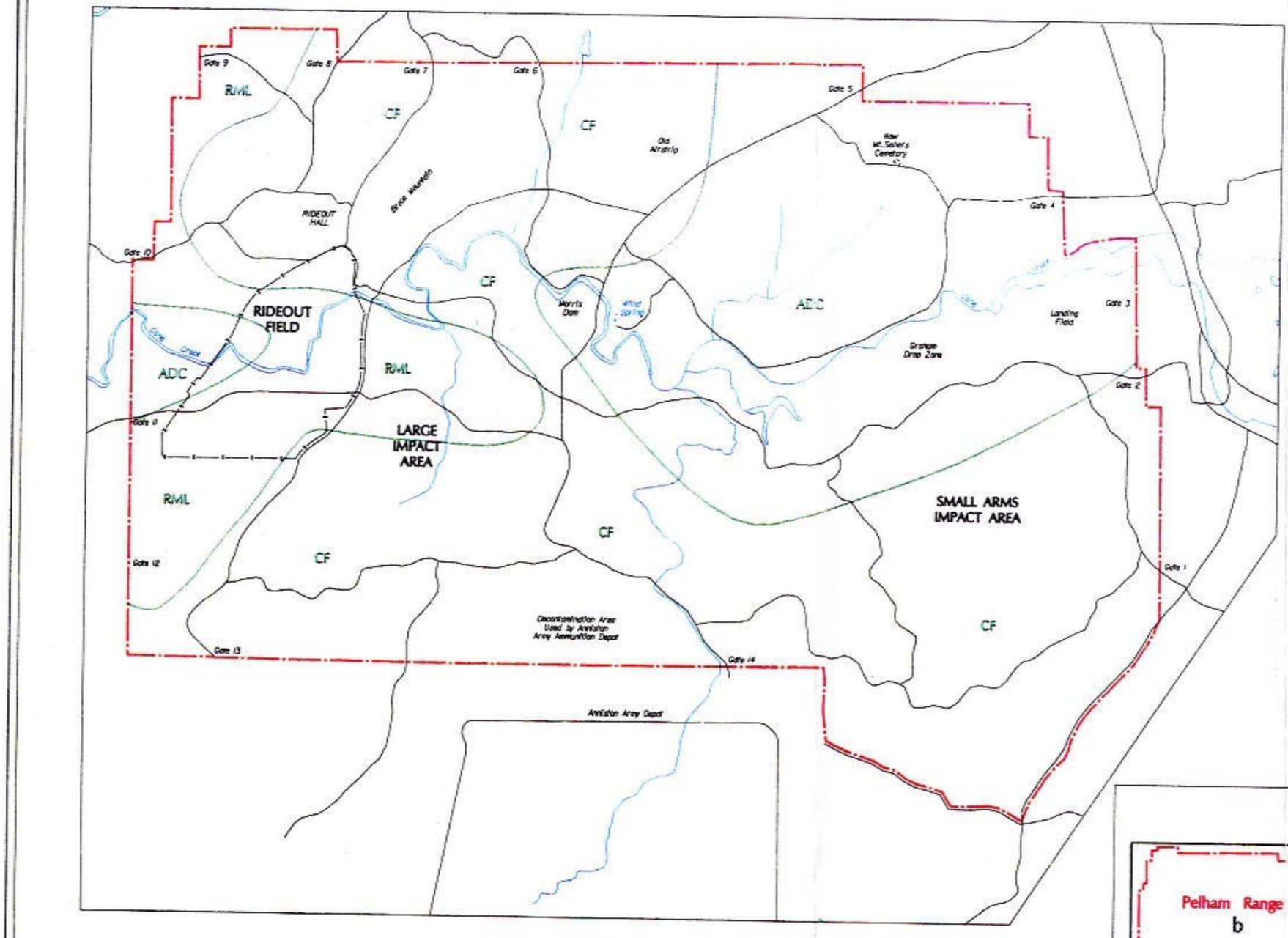
21-NOV-90

U. S. Army
Base Closure Preliminary Assessment
Fort McClellan
Fort McClellan, AL – September 1990

Figure 2–4b
Soil Associations
Pelham Range

Compiled in 1990 from various sources provided by the U.S. Army Toxic and Hazardous Materials Agency

0 meters 1500
0 feet 5000



SOIL ASSOCIATIONS

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RML	Moderately deep or shallow soils on ridgetops and steep slopes and in local alluvium in draws: Rarden-Montevallo-Lehew.
S	Shallow, steep, and stony soils underlain by sandstone, limestone and Talladega slate: Stony rough land.

USATHAMA
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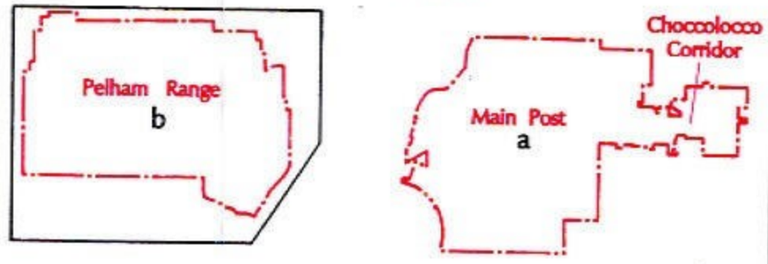
Fort McClellan



Locations of map sheets within Pelham Range and Main Post of Fort McClellan

27-NOV-90

Table 2-3

Summary of Permeability Results for Soil Associations

Association	Soil Tested	Permeability (inches/hour)	Number of Tests
Altavista-Masada-Tate	Altavista-Masada	0.8 - 2	2
	Tate	0.8 - 2	2
Anniston-Allen-Decatur-Cumberland	Anniston	0.8 - 2	2
	Anniston-Allen	0.8 - 2	2
	Cumberland	0.8 - 2	2
	Decatur-Cumberland	0.8 - 2 to 0.8 - 3	2
Clarksville-Fullerton	Clarksville	2 - 10	2
	Clarksville-Fullerton	2 - 10	4
Rarden-Montevallo-Lehew	Rarden	0.2 - 0.8	2
	Montavello	2 - 10	2
	Lehew-Montevallo	0.2 - 0.8	2
Stony Rough Land	Associated with limestone	0.2 - 0.8	1
	Associated with sandstone	2 - 10	1
	Associated with slate	0.8 - 2 to 2 - 10	2

Note: Results of test samples are given as ranges (e.g., 0.8 - 2); where results vary, a range is given (e.g., 0.8 - 2 to 0.8 - 3).

Basis of permeability results [R-3].

2.3.5 REGIONAL GEOLOGY AND HYDROGEOLOGY

Fort McClellan and Pelham Range lie within the Appalachian fold and thrust belt. Southeastward-dipping thrust faults with associated minor folding are the predominant structural features. Geologic contacts generally strike northeast/ southwest to north/south parallel to the faults; repetition of section is common. Geologic formations within Fort McClellan and Pelham Range range in age from Precambrian to Mississippian (see Figures 2-5a and 2-5b). On the eastern boundary of Fort McClellan, Talladega Slate crops out in a narrow band between the county line and the easternmost exposure of the Paleozoic rocks.

The Weisner Formation, locally a sandstone and quartzite with thin-bedded shale, is the basal formation of the unmetamorphosed sedimentary rocks. It is capped by the Shady Dolomite, followed in turn by the Rome Formation and the Conasauga Formation, all of Cambrian Age. The Shady Dolomite is a thin gray medium to thick bedded dolomite with some limestone beds. The Rome Formation is composed of colored shale with thin interbedded sandstones and calcareous layers, and the Conasauga Formation is composed of interbedded limestones and shale.

Resting upon the Conasauga Formation is the Knox Group, composed of Ridge and Chepultepec Dolomites of Cambrian or Ordovician Age. These are capped by Ordovician formations: Newala and Longview Limestones, Lenoir Limestone, Athens Shale, Little Oak Limestone, and Chickamauga Limestone.

The Frog Mountain Sandstone, of Devonian Age, is composed of sandstone and quartzitic sandstone.

The Fort Payne Chert (Mississippian) overlies the Frog Mountain Sandstone. It is composed of a limestone with an increasing amount of calcareous chert toward the base of the formation. Overlying the Fort Payne is the Floyd Shale, also of Mississippian Age, which consists of thin-bedded fissile brown to black shale with a few thin intercalated limestone layers and some interbedded sandstone [R-5].

Primary controls on groundwater flow are topography and bedrock permeability. Precipitation and subsequent infiltration provide recharge to the groundwater flow system. Points of discharge occur as springs, effluent streams, and lakes.

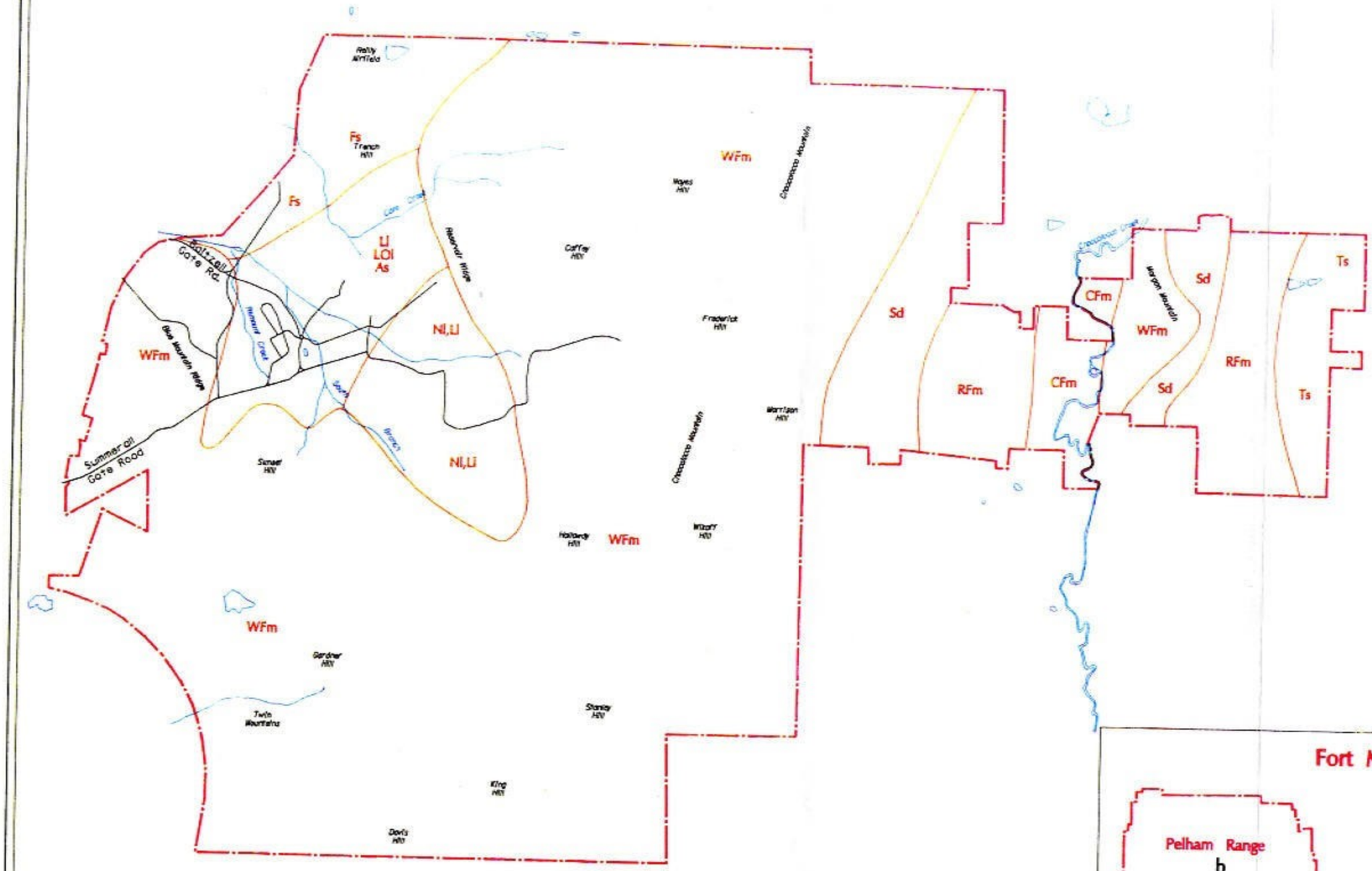
Groundwater on Fort McClellan occurs principally in the quartzites of the Weisner Formation in the Choccolocco Mountains and locally in lower Ordovician carbonates. Bedrock permeability may be locally enhanced by fracture zones associated with thrust faults. Pelham Range groundwater flow has not been mapped due to insufficient control data. It is probable that shallow groundwater flow follows topography, with groundwater movement toward Cane Creek.

U. S. Army
Base Closure Preliminary Assessment
Fort McClellan
Fort McClellan, AL – September 1990

Figure 2–5a
Geologic Formations Main Post and Choccolocco Corridor

Compiled in 1990 from various sources provided by the U.S. Army Toxic and Hazardous Materials Agency

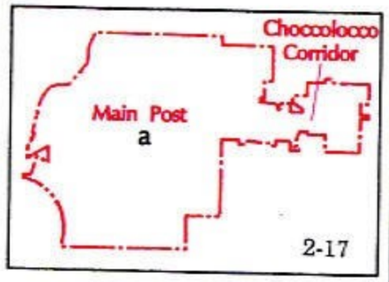
0 meters 1500
0 feet 5000



SYSTEM	SYMBOL	STRATIGRAPHIC UNIT
MISSISSIPPIAN	Fs	FLOYD SHALE
	FPc	FORT PAYNE CHERT
DEVONIAN	FMs	FROG MOUNTAIN SANDSTONE
ORDOVICIAN	Cl	CHICKAMAUGA LIMESTONE
	LOl	LITTLE OAK LIMESTONE
	As	ATHENS SHALE
	Ll	LENOIR LIMESTONE
	Nl,Ll	NEWALA LIMESTONE AND LONGVIEW LIMESTONE, UNDIFFERENTIATED
ORDOVICIAN AND CAMBRIAN	Kg	KNOX GROUP
CAMBRIAN	CFm	CONASAUGA FORMATION
	RFm	ROME FORMATION
	Sd	SHADY DOLOMITE
	WFm	WEISNER FORMATION
PRECAMBRIAN(?) TO CARBONIFEROUS(?)	Ts	TALLADEGA SLATE

USATHAMA
U.S. Army Toxic and Hazardous Materials Agency

Fort McClellan



Locations of map sheets within Pelham Range and Main Post of Fort McClellan

27-NOV-90

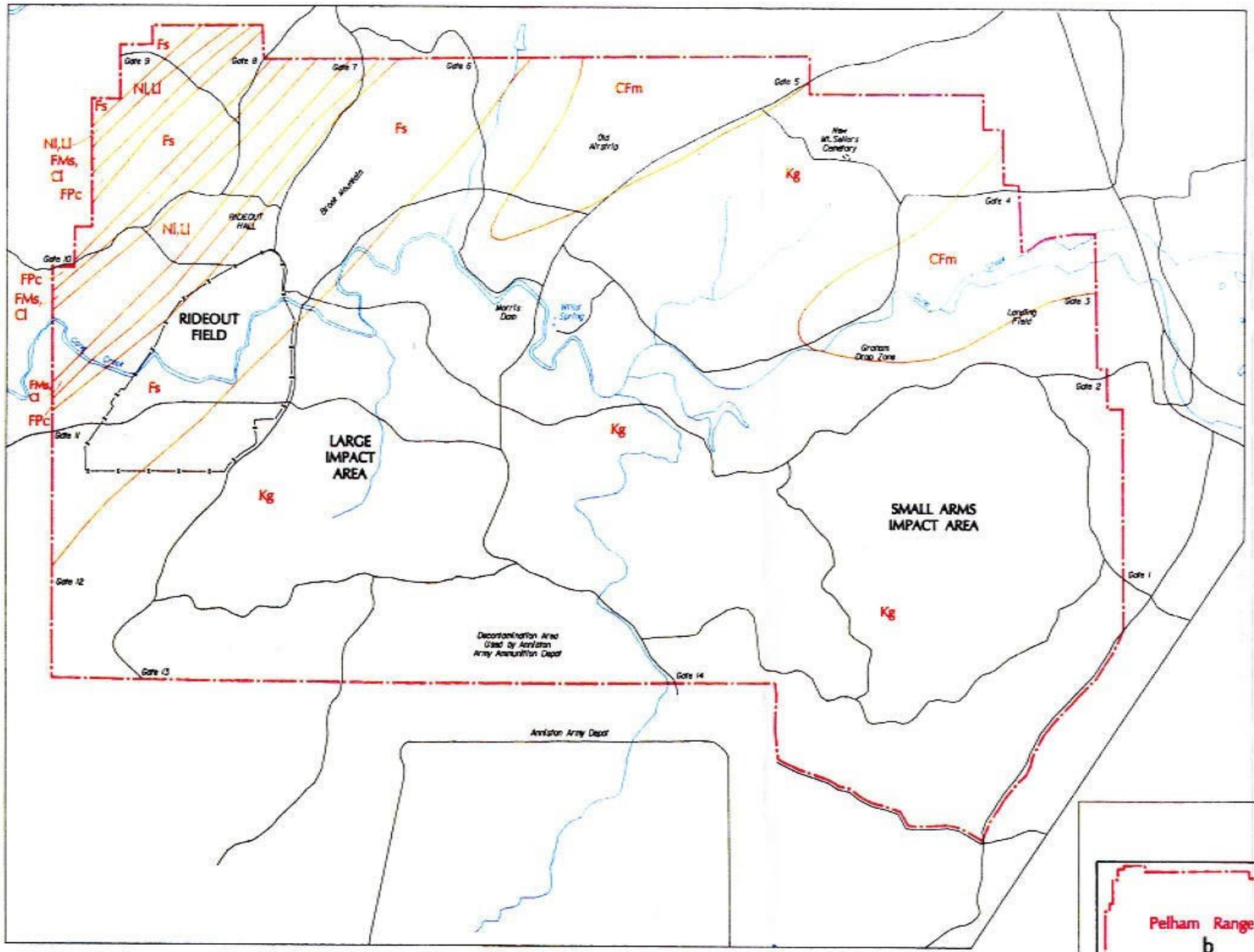
U. S. Army
Base Closure Preliminary Assessment
Fort McClellan
Fort McClellan, AL – September 1990

Figure 2-5b
Geologic Formations
Pelham Range

Compiled in 1990 from various sources provided by the U.S. Army Toxic and Hazardous Materials Agency

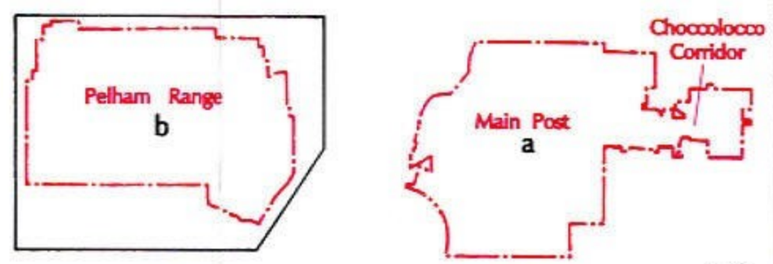
N

0 meters 1500
0 feet 5000



SYSTEM	SYMBOL	STRATIGRAPHIC UNIT
MISSISSIPPIAN	Fs	FLOYD SHALE
	FPc	FORT PAYNE CHERT
DEVONIAN	FMs	FROG MOUNTAIN SANDSTONE
ORDOVICIAN	CI	CHICKAMAUGA LIMESTONE
	LOI	LITTLE OAK LIMESTONE
	As	ATHENS SHALE
	LI	LENOIR LIMESTONE
	NI,LI	NEWALA LIMESTONE AND LONGVIEW LIMESTONE, UNDIFFERENTIATED
ORDOVICIAN AND CAMBRIAN	Kg	KNOX GROUP
CAMBRIAN	CFm	CONASAUGA FORMATION
	RFm	ROME FORMATION
	Sd	SHADY DOLOMITE
	WFm	WEISNER FORMATION
PRECAMBRIAN(?) TO CARBONIFEROUS(?)	Ts	TALLADEGA SLATE

Fort McClellan



Locations of map sheets within Pelham Range and Main Post of Fort McClellan

USATHAMA
U.S. Army Toxic and Hazardous Materials Agency

27-NOV-90

2.3.6 SENSITIVE ENVIRONMENTS

The purpose of this subsection is to provide information on the sensitive species and habitats of Fort McClellan, Pelham Range, and the Choccolocco Corridor. Information presented was obtained through a review of existing literature and conversations with personnel of appropriate State and Federal agencies and the Environmental Management Office of Fort McClellan.

2.3.6.1 Wetlands

Wetlands are protected by the Federal government primarily through Section 404 of the Clean Water Act. This act empowered the U.S. Army Corps of Engineers (COE) and the U.S. Environmental Protection Agency (EPA) to regulate most forms of wetlands destruction.

The following definition of wetlands is the regulatory definition used by EPA and COE for administering the Section 404 permit program:

> "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" [R-7].

Fort McClellan, Pelham Range, and the Choccolocco Corridor have an abundance of wetlands that meet this definition. These wetlands represent important habitats for a wide variety of plants and animals as well as providing a wealth of other values for the public, including:

- Flood control.
- Water quality maintenance.
- Erosion buffers.
- Groundwater recharge and stream flow maintenance.
- Timber production.

The Fort McClellan Military Reservation covers approximately 45,679 acres and is considered part of the Ridge and Valley Province of the Appalachian Highlands. The landscape is dominated by dry ridges composed of sandstone and chert and by valleys and stream terraces that are made up of alluvium over limestone and shale. It is in the valley along creek floodplains, along stream terraces, and in depressions that Fort McClellan's wetlands are found [R-8].

The wetlands plant communities of Fort McClellan and its ancillary facilities have been described by Gaddy (1984) [R-8]. These community descriptions include the following information:

- Community name.
- National Wetlands Inventory (NWI) designation.
- Dominant and associated plant species.
- General location.
- Site-specific location.
- Wildlife value.
- Management recommendations.

In all, 13 types of wetlands plant communities have been described on the reservation. These communities and their NWI designations are as follows:

- Mixed bottomland hardwoods: first bottoms [Palustrine, forested (deciduous), seasonally flooded wetlands].

- Mixed bottomland hardwoods: second bottoms [Palustrine, forested (deciduous or deciduous-evergreen), temporarily flooded wetlands].

- Stream terrace hardwoods [Palustrine, forested (deciduous or deciduous-evergreen), temporarily flooded wetlands].

- Creekbank hardwoods [Palustrine, forested (deciduous), seasonally flooded wetlands].

- Water oak flat [Palustrine, forested (deciduous), temporarily flooded wetlands].

- Sweetgum/bulrush community [Palustrine, forested (deciduous), seasonally flooded wetlands].

- Sweetgum depression [Palustrine, forested (deciduous), temporarily flooded wetlands].

- Mixed shrub community [Palustrine, scrub/shrub (deciduous), temporarily and seasonally flooded wetlands].

- Mixed shrub/bulrush/needlerush community [Palustrine, scrub/shrub/ emergent (persistent), seasonally flooded, impounded, or seasonally flooded wetlands].

- Buttonbush/bulrush community [Palustrine, shrub/scrub (deciduous), semipermanently flooded wetlands].

- Bulrush/needlerush/cattail community [Palustrine, emergent (persistent), temporarily and seasonally flooded wetlands].

- Non-forested creekback community [Palustrine, emergent (persistent and non-persistent), seasonally flooded wetlands].

- Mud flat community [Palustrine, emergent (non-persistent), seasonally flooded and semipermanently flooded wetlands].

The NWI designation is based on the Cowardin, et al. (1979) [R-9] classification of wetlands. The structure of this classification is hierarchical, progressing from systems and subsystems at the most general levels to classes, subclasses, and dominance types. The community name generally reflects the dominant plants or plant types in the community (e.g., sweetgum/bulrush community) and, in some cases, the general habitat in which the community occurs (e.g., stream terrace hardwoods). It should be understood that although the various wetlands plant communities of the reservation have been described, any remediation or base closure activities that would involve impacts to a wetlands area would require a delineation of that wetlands, in accordance with the "Federal Manual for Identifying and Delineating Jurisdictional Wetlands" [R-10].

2.3.6.2 Flora and Fauna

Fort McClellan and its ancillary grounds are composed of a variety of aquatic, riparian, and terrestrial habitats that provide for numerous species of game and non-game animals. To best protect, develop, and manage the fish and wildlife resources on Fort McClellan, a cooperative plan (agreement) between the Department of the Army, the Department of the Interior, and the State of Alabama was established in accordance with the authority contained in Title 10, U.S. Code, Section 2671, approved 28 February 1958, and Public Law 86-797, approved 15 September 1960. Before signing, the agreement was amended because a provision in the agreement was in conflict with regulations pertaining to Alabama Fish and Game's Cooperative Deer Management Assistance Program.

In this amended cooperative agreement, an estimate of populations and habitats was presented based on surveys performed in 1986 [R-11], as follows:

a) Approximately 38,361 acres (government-owned or leased from the State of Alabama) are suitable for wildlife habitat; this includes 16,915 acres in Pelham Range, 18,946 acres in the Main Post, and 2,500 acres in the Choccolocco Corridor.

b) Range conditions are generally good, with the exception of numerous areas where dense growth prohibits the production of certain wildlife foods.

c) The popular game species on the fort are white-tailed deer, northern bobwhite, turkey, mourning dove, eastern cottontail, gray squirrel, raccoon, wood duck, and oppossum.

The cooperative agreement also listed a population estimate of the species presented in (c) above, based on 1986 data. These estimates are:

- Deer -- medium to heavy.
- Northern bobwhite -- light to medium.
- Turkey -- medium.
- Mourning dove -- light.
- Eastern cottontail -- medium.
- Gray squirrel -- heavy.
- Racoon -- medium.
- Wood duck -- light.
- Opossum -- heavy.

In addition, the cooperative agreement described the following aquatic features on the reservation:

- Creeks -- 10 miles.
- Lake Reilly -- 8.5 acres.
- Lake Conteras -- 26.0 acres.
- Lake Yahou -- 13.5 acres.
- Duck Pond -- 0.45 acres.
- Willet Springs -- 0.75 acres.
- Numerous beaver ponds -- size not presented.

It should be pointed out that, as stated in the amendment to the first draft of the interagency agreement, "this agreement covers Army Base lands for the management of fish, game, non-game, endangered, and threatened species only. The military mission at Fort McClellan supersedes fish and wildlife management and associated recreational activities, and such activities must in all instances be compatible with the military mission and the provisions of the Endangered Species Act or other applicable statutes, [and] such conflicts will be resolved by statutory requirements."

The only Federally recognized endangered species known to occur on Fort McClellan is the red-cockaded woodpecker (Picoides borealis); no Federal endangered species are known for Pelham Range [R-12]. This was the conclusion of a study conducted from April through October 1979.

The red-cockaded woodpecker forms colonies in fairly open stands of mature (50+ years) pine trees with no appreciable hardwood understory. Cavity trees are usually infected with red-heart fungus. Previous studies at Fort McClellan identified a small group of pine trees that were used by the red-cockaded woodpecker. During fieldwork for the study of endangered and threatened plants and animals on Fort McClellan [R-12], it was learned that the area previously supporting a red-cockaded woodpecker colony had developed a dense understory vegetation, which was attributed as potentially affecting the desirability of the area for nesting by the woodpeckers. It was also reported that the area was control burned sometime prior to 1979, which may have coincided with the nesting season of these birds. Currently, there are no known nesting colonies of this species on the fort, and there have been no recent sitings [T-1].

To date, the Metee and Haynes (1979) study [R-12] represents the most comprehensive attempt to document Fort McClellan's flora and fauna. Organisms collected during the study include 171 plant species, 36 fish species, 3 snake species, and 4 salamander species. Plant species collected during the study are presented in Table A-1, fish species are presented in Table A-2, and amphibians and reptiles are presented in Table A-3 (all in Appendix A).

Three species of plants and one species of fish were found which are recognized as endangered or threatened by Alabama biologists [R-13] [R-14] [R-15], but because no State endangered species legislation exists, these species are not protected by law. These species and their locations on Fort McClellan are:

Species	Common Name	Status	Location
Equisetum arvense L.	Horsetail	Endangered	Pelham Range along stream bank below Willett Spring pond outlet.
Echinacea palladia Nuttall	Purple cone-flower	Threatened	Fort McClellan, open roadside on opposite side of road from road block 20.
Echinacea puerperae (L.) Moench.	Purple cone-flower	Special concern	Fort McClellan, edge of woods along roadside just north of Ingram Creek.
Etheostoma ditrema	Coldwater darter	Threatened	Unnamed tributary to the southern side of Cone Creek, Pelham Range.

In addition to the red-cockaded woodpecker there are several species listed by the U.S. Fish and Wildlife Service as Federal endangered, threatened, and candidate species which are known to occur in Calhoun County, but have not been documented as occurring within the boundaries of the Fort (letter from Larry E. Goldman, U.S. Fish and Wildlife Service to Lt. Col. Richard L. Goodyear, Director of Engineering and Housing; February 7, 1990) [R-16]. These species are:

- Indiana bat (Myotis sodalis) -- endangered.
- Pygmy sculpin (Cottus pygmaeus) -- threatened.
- Sculpin snail (Stioba nana) -- candidate species.
- Alabama live-bearing snail (Tulotoma magnifica) -- candidate species, with listing package in progress.

2.3.6.3 Archeological Sites

Early archeological investigations at Fort McClellan were conducted by the Choccolocco Archeological Society. Their investigation yielded an archaic inventory of stemmed projectile points, used chert and quartzite debtage, flexed burials with grave goods, post molds, refuse pits, and fire pits at various sites around Fort McClellan [R-17] [R-18]. Subsequent archeological investigations were conducted in and around Fort McClellan by DeLean 1976; McEachern, et. al, 1976; 1980; and Holstein and Little, 1982.

The archaeological investigation conducted in 1976 by McEachern and Boice, supervised by C. Roger Nance of the University of Alabama, represented the beginning of a management program of prehistoric and historic resources at the fort.

The following are excerpts from that report:

> Thirty-six archaeological sites were recorded, including 14 potentially significant lithic scatters, 2 insignificant lithic scatters, 1 potentially significant lithic and potter site, 1 significant lithic and pottery site, 3 significant stone mound sites, 2 potentially significant stone mound sites, 2 significant historic sites, 6 potentially significant historic sites, 3 insignificant historic sites, and 2 potentially significant lithic and historic sites.
>
> Prehistoric sites are primarily small lithic scatters, probably the remains of Archaic or later migratory bands. Large base villages may be represented by two sites which date to the Woodland period. Two historic towns were recorded, one of which is the location of an early nineteenth-century foundry [R-17].

McEachern, et al. (1976; 1980) located 129 historic and prehistoric sites on Fort McClellan property. Temporally, the archaeological sites range from Paleo-Indian/Early Archaic to historic twentieth century.

Data generated by this study were used to produce a Fort McClellan cultural resource management tool. The ultimate goal of the study was the creation of a predictive model for estimating the number of sites and densities/types of artifacts that should be located within survey units of Fort McClellan not previously surveyed [R-19].

During the summer of 1982 the Jacksonville Site Archaeological Resource Laboratory was contracted by the U.S. Army Corps of Engineers, Mobile District, to field check the validity of the 1980 McEachern predictive model. The field survey was conducted between August and September 1982. Survey procedures and field methods duplicated those described by McEachern, et al. (1980) to assure comparable results. A total of 49 archaeological sites, 13 isolated finds, and over 1,500 artifacts were located during the survey [R-19].

Complete inventories of the archaeological findings at Fort McClellan are contained within the references cited above.

2.4 ENVIRONMENTAL STUDIES AT FORT McCLELLAN

As listed in the bibliography, numerous environmental studies have been published on some aspect of Fort McClellan and Pelham Range. Nine facility-wide studies are available. These are discussed chronologically below.

The U.S. Army Environmental Hygiene Agency (USAEHA) in 1975 documented a 2-year investigation into the status and historical use of chemical, biological, and radiological (CBR) training areas [R-20]. Based upon a limited records review and interviews, USAEHA identified 12 areas that were possibly contaminated. Restricted access and inclusion in future land restoration and recovery programs were recommended for these areas.

A second investigation consisting of records reviews, personnel interviews, and field inspections was conducted in 1977 [R-6]. This investigation identified burial grounds and training areas within the facility in which chemical or radiological contamination existed or was suspected. In addition, discovered records indicate unexploded ordnance (UXO) may be present in many training areas. This study also concludes that no CBR contamination exits the site in surface water and that a potential exists for groundwater contamination from observed landfill operations.

The final environmental impact statement (EIS) for the ongoing mission was published in 1980 [R-2]. This document takes a broad look at the effect of current facility operations on the environment.

Based upon a current literature review of fate and transport of chemical agents, decontaminants, agent decontaminant by-products, and past onsite CBR training practices, a 1983 study identified the most probable groundwater and soil contaminants that could still be present at Fort McClellan and Pelham Range [R-21]. A second broad review of facility operations and their effects on the environment was also published in 1983 [R-22]. This study was compiled for the facility's Installation Planning Board.

The 1977 records search conducted by USATHAMA was re-evaluated and integrated with subsequent data in 1984. This study was limited to chemical agents and restricted compounds and resulted in 21 site-specific contamination assessments.

The USATHAMA contractor, Dames and Moore, Inc., in 1986 generated a sampling plan in 1986 for 10 sites within Fort McClellan and 4 sites within Pelham Range [R-23], which was not implemented. In the same year USAEHA formally identified 41 solid waste management units (SWMUs) for Fort McClellan and Pelham Range [R-24]. Each SWMU was, to the extent possible, located, described, and evaluated.

An Interim RCRA Facility Assessment Report in 1988 identified 43 areas where a potential existed for a release of hazardous wastes or constituents [R-25]. The likelihood of a release was evaluated. This study reviewed releases from current operations as well as from known or suspected areas of contamination.

2.5 PERMITTING STATUS

2.5.1 RCRA FACILITIES

Table 2-4 presents the RCRA permit status for Fort McClellan. The Main Post (EPA ID No. AL4 210 020 562) had an interim status storage area and several generation points. Fort McClellan has closed the interim status container storage area under RCRA, and as referenced in a letter to the State [R-26], the facility will store and handle hazardous waste under a generator status at the Main Post. Pelham Range is used for the open demolition of UXO. A RCRA Part B permit application for the Open Burn Area was submitted on 13 December 1988 (see Appendix B-2). Unless otherwise noted, the permits mentioned below have been issued by the State of Alabama.

2.5.2 NPDES PERMITS

Wastewater generated at the base is treated in the Fort McClellan Wastewater Treatment Plant (13.25 million gallons per day capacity), which is leased by the Army to the City of Anniston (since 1974). The NPDES permit (No. AL0024520) is maintained by the Water Works and Sewer Board of the city of Anniston. Concern over degradation of nearby Cane Creek due to the age (constructed in 1941) and capacity of the treatment plant and violation of the permit conditions led the ADEM

Table 2-4

RCRA Permit Status, Fort McClellan, Alabama

Date	Submittal	Permit Status
14 November 1980	Fort McClellan RCRA Part A Permit Application	S01 Container Storage T04 Open Burning D80 Landfill-Asbestos
31 October 1985	Revised Part A Permit Application	Dropped Landfill (D80)
13 December 1988	RCRA Part B Permit Application for Pelham Range	T04 Open Burning
Unknown	Closure of Interim Status Container Storage Area	Dropped S01-Main Post under generator status.

to enter into a Consent Order (No. 90-039-WP) with the Water Works and Sewer Board of the city of Anniston.

Various solutions to the current wastewater treatment system overload have been considered. However, since Fort McClellan's activities account for approximately 90 percent of the influent to the wastewater treatment plant, the need for a new or expanded facility is contingent on the future status of Fort McClellan.

Point source discharges were covered by NPDES Permit (No. AL003803, April 1976) including 6 vehicle wash racks, blowdown from 10 cooling towers, blowdown from 2 boiler plants, filter backwash from 4 swimming pools, and overflow from 1 firefighter training pit.

The Army currently maintains two NPDES permits for Fort McClellan and Pelham Range. Permit No. AL0055999 (see Appendix B.3) covers storm water runoff via oil/water separators from petroleum storage and handling areas that discharge to Cane Creek and South Branch. Also included under this permit are the oil/water separators at the fog oil drum storage areas located at Ranges 4A and 24A.

Permit No. AL0057665 (see Appendix B.3) covers discharge from the UTES #1 site at Pelham Range via a sedimentation basin equipped with a float block and an oil skimming device and discharges the water to an unnamed tributary of Cane Creek.

2.5.3 AIR PERMITS

Air permits maintained for Fort McClellan and Pelham Range are covered under Permit Approval Data Sheet - Facility Number 301-0017 and include the following:

- Boiler Plant 1, Building 3176, Main Post. Four gas/oil-fired boilers (one 9.279-mm Btu/hr and three 28,000,000 Btu/hr). Permit No. 301-0017-008 issued 5/3/89.
- Boiler Plant 2. Two gas/oil-fired boilers (51,500,000 Btu/hr). Permit No. 301-0017-002.
- Boiler Plant 3. Three gas/oil-fired boilers (40,626,000 Btu/hr). Permit No. 301-0017-001.
- Boiler Plant 4, Building 1876. Grandfathered.
- Five gasoline storage tanks (12,000 gallons each), Facility T-265. Permit No. 301-0017-003.

- Two JP-4 storage tanks (12,000 gallons each), Facility T-263. Permit No. 301-0017-004.

- Three propane storage tanks (30,000 gallons each), Facility 3217. Permit No. 301-0017-005.

- CDTF Incinerator with wet scrubber. Permit No. 301-0017-007 (see Appendix B.4).

- Noble Army Hospital infectious waste incinerator (30 pounds per week).

2.5.4 SOLID WASTE PERMITS

Solid waste (i.e., household refuse and commercial waste) generated at the base is landfilled at a permitted onbase facility. The landfill is regulated under Permit No. 08-02R (see Appendix B.5) for Military Reservation Fort McClellan. The permitted landfill location is described as S. 1/2 of the N 1/2, Section 10, township 15 South, Range SE, located in Calhoun County, Alabama. Waste approved for disposal under Permit No. 80-02R includes:

- Household garbage and rubbish.

- Commercial solid waste (i.e., wooden pallets, paper, and demolition waste).

The permit was issued 1 May 1987 and expires 30 April 1992.

2.5.5 WATER SUPPLY PERMITS

Water supply permits maintained for Fort McClellan and Pelham Range include the following:

- Facility location -- Anniston, Alabama, Permit No. 86-860; water system consist of two storage tanks combined capacity of 2,500,000 gallons; 15,350 customers, approximately 93 miles of water main.

- Facility location - Range 57, Permit No. 87-742; consists of a 70-gpm well with hypochlorinator and a 100-gallon pressurized tank.

- Facility location - Range 44, Permit No. 87-743; consists of a 5-gpm well with hypochlorinator and 15,000-gallon elevated storage tank.

- Facility location - Rideout Hall, Bldg 8801, Permit No. 87-744; consists of a 5-gpm well with hypochlorinator and a 500-gallon pressurized tank.