

EGLIN AIR FORCE BASE
DIGITAL AIRPORT SURVEILLANCE RADAR
ENVIRONMENTAL ASSESSMENT

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1.0 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

The National Environmental Policy Act (NEPA; 42 U.S.C Sections 4321-4347) is the basic national charter for protection of the environment (CEQ, 1978). NEPA establishes policy, sets goals, and provides the process for carrying out the policy and achieving the goals. NEPA procedures were established to ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. To implement NEPA, the U.S. Air Force (USAF) has promulgated an internal instruction that contains policies, responsibilities, and procedures dictating how NEPA should be implemented for USAF projects (AFI 32-7061; USAF, 1995a).

This environmental assessment (EA) has been completed as part of the NEPA process, in compliance with USAF instruction AFI 32-7061 (USAF, 1995a). According to this instruction, the environmental assessment is a written analysis which serves to (1) provide analysis sufficient to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI); and (2) aid federal agencies in complying with NEPA when no EIS is required. If this EA were to determine that the proposed project would significantly degrade the environment, significantly threaten public health or safety, or generate significant public controversy, then an EIS would be completed. An EIS involves a comprehensive assessment of project impacts and alternatives and a high degree of public input. Alternatively, if this EA results in a FONSI, then the action would not be the subject of an EIS. The EA is not intended to be a scientific document. The level and extent of detail and analysis in the EA is commensurate with the importance of the environmental issues involved and with the information needs of both the decision makers and the general public.

The proposed action addressed in this EA is the construction of a Digital Airport Surveillance Radar (DASR) at Eglin Air Force Base (AFB) in Florida. This proposed action is part of the DoD National

Airspace System (NAS) Program, which involves installation of new air traffic control equipment on U.S. Army, U.S. Navy, and USAF bases throughout the country. These radars are also being installed at commercial airports under the authority of the Federal Aviation Administration (FAA). The implementation of the NAS program at DoD bases was previously evaluated in a programmatic EA and FONSI (USAF, 1995b), which fully detail the need for the program. Environmental review at FAA airfields is being conducted separately.

Eglin AFB is the first USAF site scheduled for implementation of the NAS program, and will, therefore, serve as the USAF test site for NAS. The DASR is one of three components of NAS that are currently proposed for installation at Eglin AFB. The other two components are the DoD Advanced Automation System (DAAS) and the Voice Communications Switching System (VCSS), which will both be located within existing buildings and are therefore not addressed in this EA. The programmatic EA for the NAS program committed to completing site-specific NEPA documentation tiered to the programmatic EA for individual NAS sites. This EA addresses the site-specific impacts of locating a DASR on Eglin AFB, and evaluates the consequences of the DASR construction on both the natural and man-made environments.

1.2 PURPOSE OF THE ACTION

The NAS program was developed to modernize military approach control systems in the United States and its territories. DoD NAS is a component of the aviation system capital investment plan developed by the Federal Aviation Administration (FAA). Pursuant to the Program Management Directive (USAF, 1994), the DoD must provide services within its delegated airspace which are comparable to the services which FAA provides to civil aircraft in civilian airspace. These services include: flight following, separation, expeditious handling, radar approach control, and landing.

The purpose of the DASR component of the USAF NAS program is to detect and process aircraft position and weather conditions at USAF airfields. The DASR will serve to accurately locate aircraft,

in terms of range, azimuth, and altitude; provide information regarding aircraft identification code; identify emergency conditions; and report six discreet weather precipitation levels.

Eglin AFB is the test site for the USAF portion of the NAS program. Thus, an additional purpose of the DASR proposed for installation at Eglin AFB is that this DASR will provide valuable information which can be used during the design, installation, and construction of DASRs at future USAF NAS sites.

1.3 NEED FOR THE ACTION

The USAF NAS program will comprehensively upgrade air traffic control systems infrastructure by systematically replacing analog systems with state-of-the-art, digital technology. The DASR at Eglin AFB is needed to replace an existing Airport Surveillance Radar (ASR-7), which is at the end of its useful life cycle, difficult to maintain due to the decreasing availability of spare parts, and incapable of meeting user requirements for target detection and weather reporting. The existing ASR-7 at Eglin AFB is over 20 years old. The proposed new DASR system will take advantage of the significantly increased capabilities of digital technology now available in radars. A 1992 DoD study (USAF, 1992) concluded that retention of the present NAS equipment would cost more over its life cycle than would replacement with modern systems.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

The proposed action is the construction of a DASR at Eglin AFB (Figures 2-1 and 2-2). Three alternative sites for the DASR on Eglin AFB have been identified, in accordance with the NAS Siting Plan (USAF, 1995b). The only alternative to constructing the DASR at Eglin AFB is the No-Action Alternative, which would result in the continued use of the existing ASR-7 system.

2.1 PROPOSED ACTION: DASR AT EGLIN AFB

2.1.1 DASR System.

The DASR system would detect and process aircraft position and weather conditions at the airfield. DASR systems would consist of two subsystems: the primary radar and the integrated secondary surveillance radar. The purpose of the subsystems would be to accurately locate aircraft, in terms of range, azimuth, and altitude.

The primary radar would transmit electromagnetic waves in the form of radio frequency pulses which backscatter from the surface of aircraft. The radar would measure the time required for an echo to return and the direction of the signal in order to determine the aircraft range and azimuth, respectively. By comparing variations in returned signal parameters, such as phase differences between pulses, the radar could separate moving targets from stationary clutter, such as mountains and trees. The primary radar would also report six discrete weather precipitation levels (from mild to hazardous) via a processing channel dedicated to weather detection and reporting.

The secondary surveillance radar (also called the beacon radar) would be a cooperative system consisting of ground-based beacon interrogator/receiver systems and existing aircraft based transponders. The secondary radar would obtain additional information, such as identification code, barometric altitude, and emergency conditions, from an aircraft transponder. Various processing techniques would be used to decipher both overlapping responses from multiple aircraft (synchronous garble) and aircraft responses to other beacon systems (asynchronous interference). The beacon radar would also provide rapid identification of aircraft in distress.

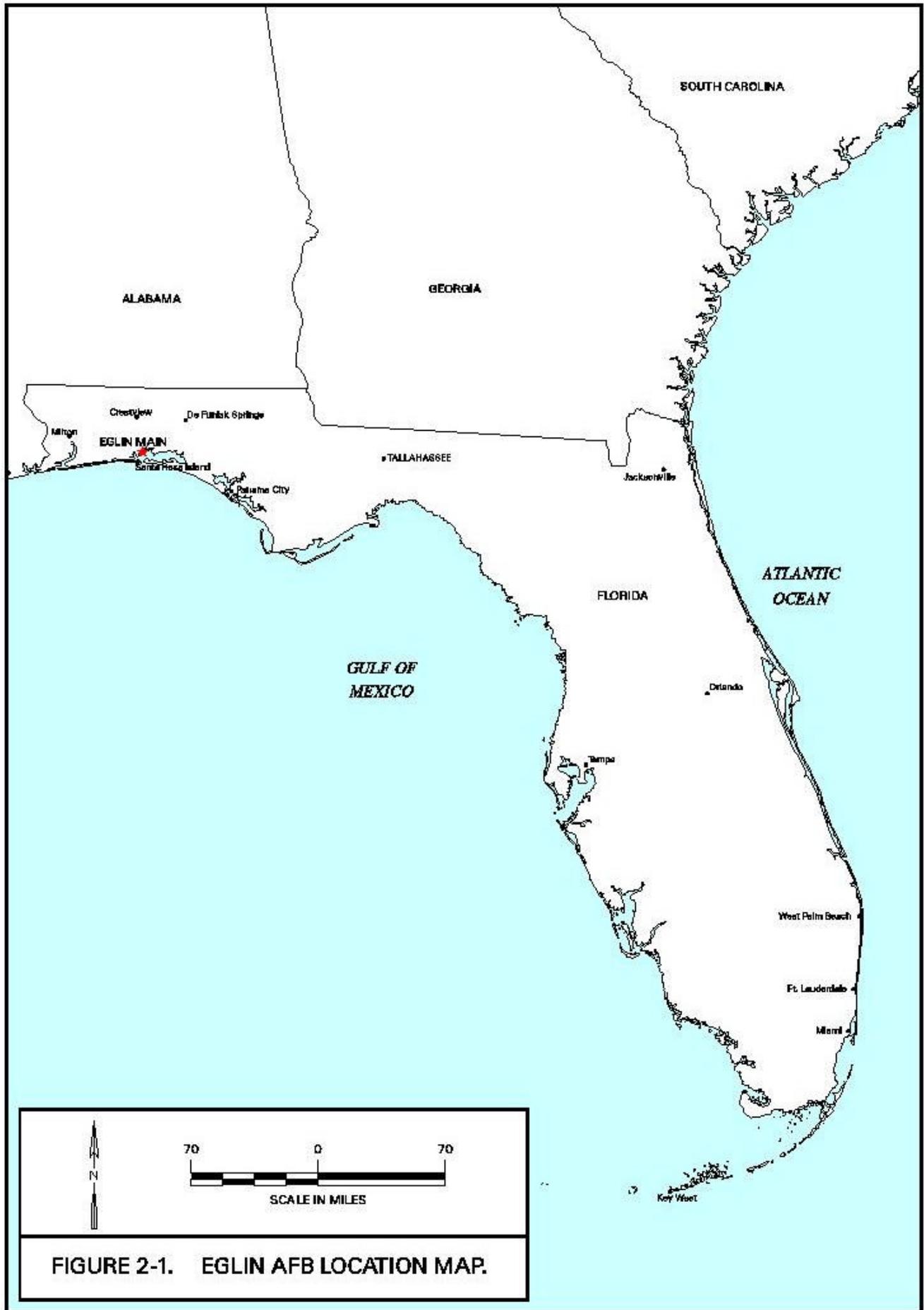
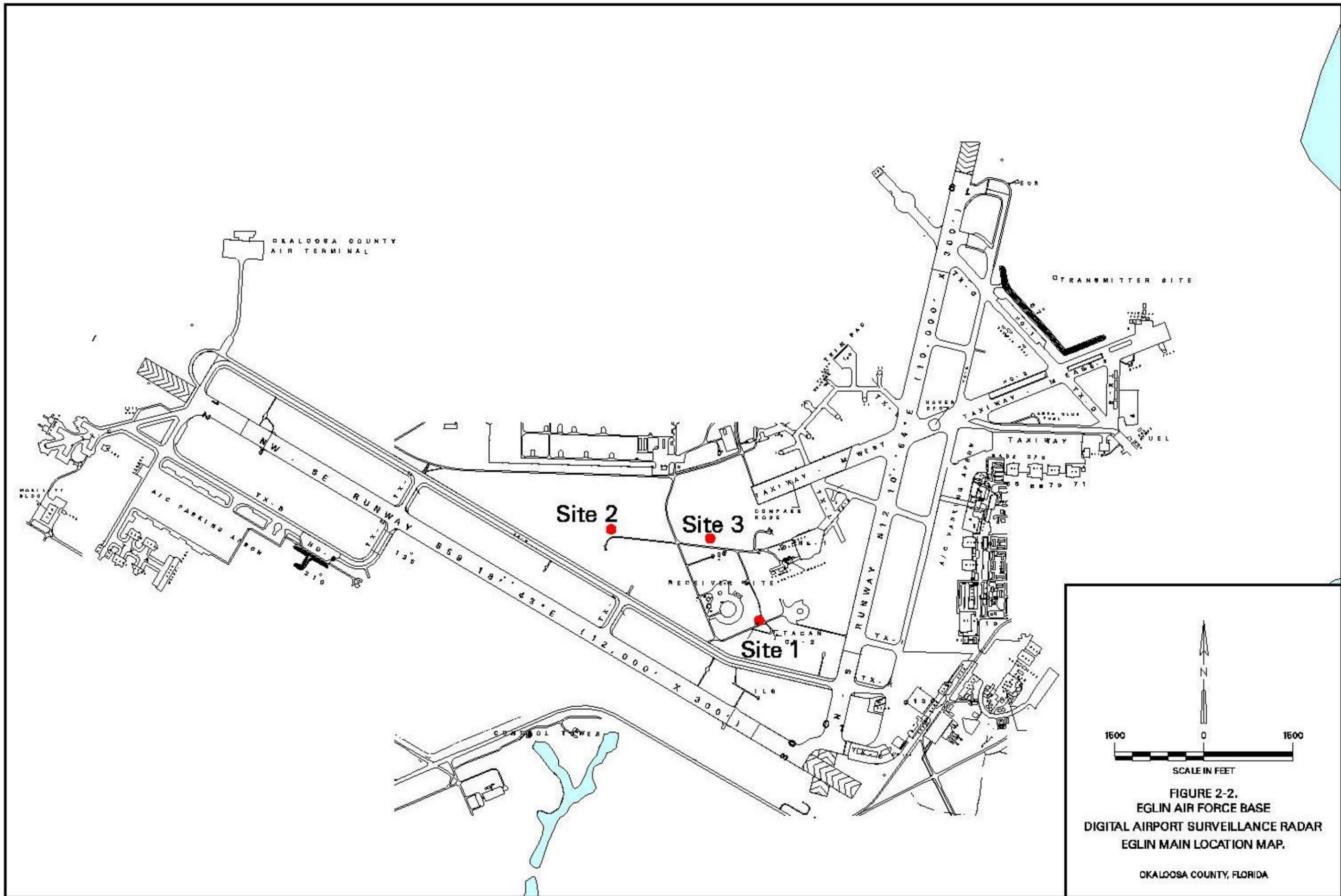


FIGURE 2-1. EGLIN AFB LOCATION MAP.



The DASR would provide highly accurate target data to the Eglin AFB Local Control Facilities (LCF) and Military Control Towers (MCT). The DASR would have clutter rejection, target accuracy, and probability of detection that are equal to or better than the existing ASR-7.

The DASR at Eglin AFB is part of the pre-operational test phase of the DoD NAS program, and will consequently undergo DoD developmental and operational testing. The USAF will test the DASR system to verify basic performance requirements and USAF interfaces, and will also field test the DASR system to verify operational performance and suitability for air traffic control. When the DAAS and the VCSS are available, a system level follow-on test and evaluation will be conducted with an integrated DASR, DAAS, and VCSS in a fully operational environment.

The DASR facilities at Eglin AFB would consist of: primary and secondary radar electronics, rotating antenna(s), tower, and optional radome; interconnecting cabling; an uninterruptable power supply; an emergency generator; power conditioning; electronic equipment grounding systems; a fuel storage system; foundations for a DASR shelter and antenna; an unpaved access road; fences; and security systems. Facility construction at Eglin AFB would include a one-third acre site for the concrete pad foundation for an equipment shelter and antenna; an above ground fuel storage tank for the emergency generator; and miscellaneous site improvements (minor regrading and reseeded for erosion control). In addition, between approximately 200 and 500 feet of utility trenching between the edge of the site and existing duct banks would be required, depending on the site chosen. No new roads would be constructed with the exception of a short driveway to access the radar tower. Once the new DASR system is operational, the existing ASR-7 would be dismantled, structures would be razed, and the ground would be reclaimed in accordance with the desires of Eglin AFB. The ASR-7 components would be transferred to another location for re-use.

2.1.2 Alternative DASR Sites.

Three alternative sites on Eglin AFB have been identified as potential locations for the DASR, based on the siting criteria contained in the *National Airspace System Digital Airport Surveillance Radar*

Siting Plan (USAF, 1995b). The three sites evaluated in this EA were identified based on operational, construction, and environmental criteria. The operational criteria included the following (DOT FAA, 1992):

- The site should not be located closer than 0.5 mile from the end of any existing or planned runway.
- The site should not be located closer than 0.5 mile from any point of required detection coverage.
- The site should not be located closer than 2,500 feet from any existing or planned electronic equipment installation or facility.
- The site should not be located less than 0.5 mile from National Weather Bureau radars and radiosonde equipment.
- The site should not be located closer than 1,500 feet to any above-ground object which would interfere or cause degradation in the ASR-11 operation.

The operational characteristics of the new DASR as compared to the existing ASR-7 are shown in Table 2.1-1.

Table 2.1-1 Comparison of Characteristics

	ASR-7	DASR
Frequency	2700-2900MHz	2700-2900MHz 2 freq. Separated by at least 30 MHz
Power Peak	425 Kilowatts (0.83 microsec)	19.5 Kwatts (1 microsec) 18.0 Kwatts (89 microsec)
Average	400 Watts (Magnetron tube)	1600 Watts (Solid state)
Pulse Repetition Frequency	700-1200 pulses/second	720-1050 pulses/second

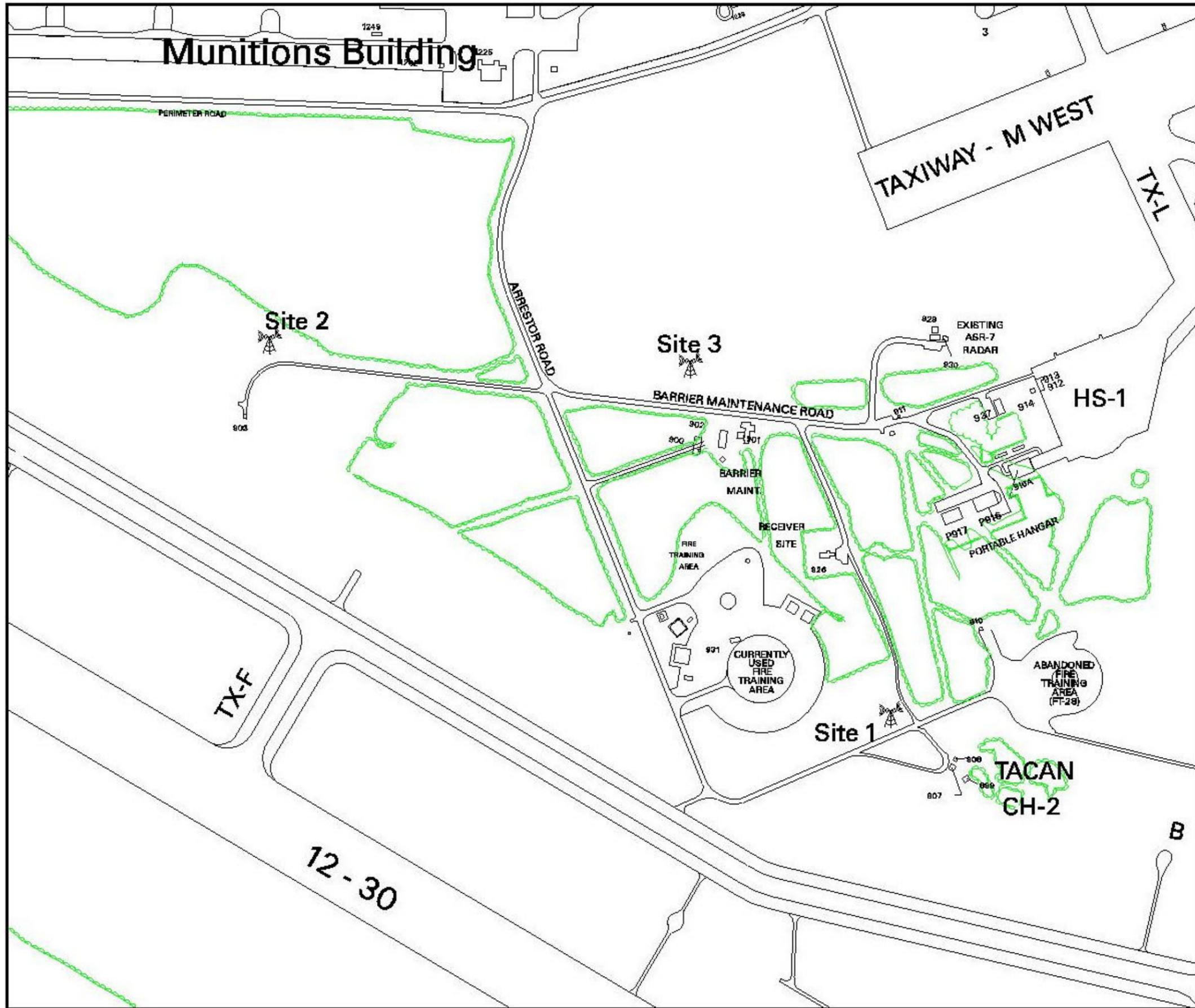
Construction criteria included siting the DASR in an area with a slope of less than 20 percent and away from occupied existing structures, railroads, highways, runways and taxiways, or power lines. The environmental criteria for siting included avoiding a number of sensitive resources, including: ecological/wildlife refuges, preserves, conservation areas and sanctuaries; wild and scenic rivers;

prime and unique farmlands; historical, archaeological, and cultural sensitive sites; wetlands; threatened and endangered species habitat; designated hazardous waste sites, and floodplains. The details of the siting process are described in the Site Survey Report prepared by Raytheon (Raytheon, 1997).

The three alternative sites identified have been designated as Sites 1, 2 and 3 (Figures 2-3 through 2-6). All three sites are located in the same general location, near the intersection of the Runway 01-19 and Runway 12-30 on Eglin Main. Site 1 is located off of Barrier Maintenance Road, near the existing fire training area, runway supervisory unit, and the air traffic control receiving towers. Site 2 is located near the end of an unnamed road which originates at the intersections of Barrier Maintenance and Arrestor Roads. Site 3 is located off of Barrier Maintenance Road, near its intersection with Arrestor Road, to the west of the existing ASR-7.

2.2 NO ACTION ALTERNATIVE

If a DASR is not constructed at Eglin AFB, then the existing ASR-7 system would remain in place. The existing ASR-7 is over 20 years old and difficult to maintain due to the decreasing availability of spare parts. In addition, as discussed in Section 1.3, the existing ASR-7 is no longer capable of meeting user requirements for target detection and weather reporting. The existing system lacks the inter-operability necessary to work with modern digital systems, and has higher operation and maintenance costs. The DoD NAS Milestone I Cost and Operational Effectiveness Report (USAF,1992) determined that modifications to extend the life of the existing system and improve its performance were not cost effective.



LEGEND

 Tree Line

 Alternative DASR Site

MAP SOURCE : EGLIN AFB, Engineering Department.

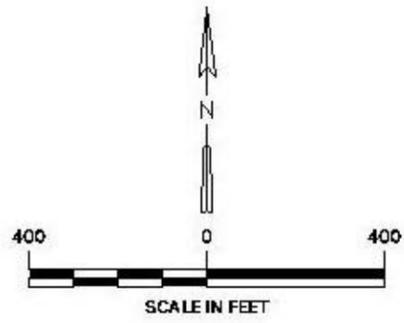
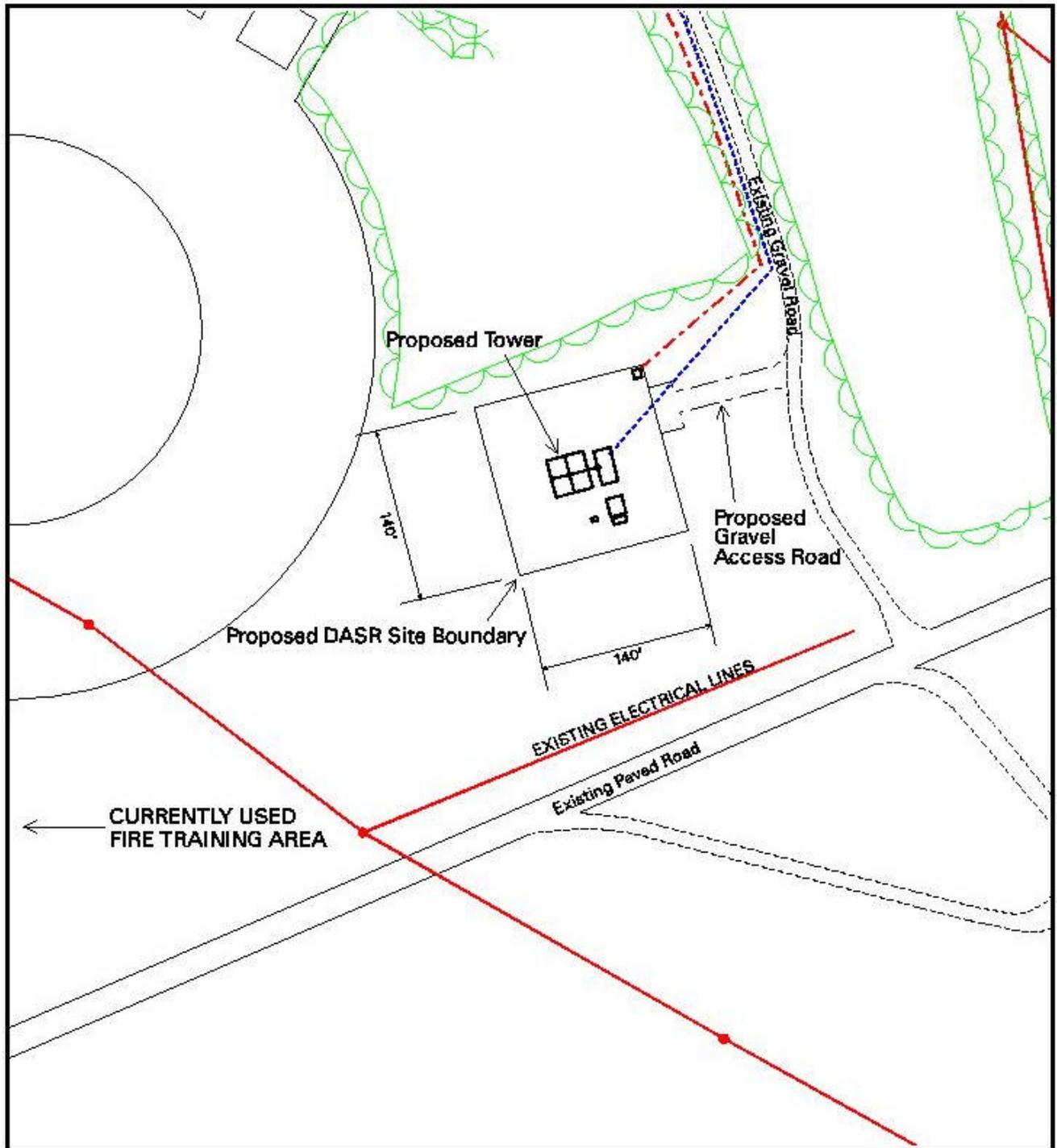


FIGURE 2-3.
EGLIN AIR FORCE BASE
DIGITAL AIRPORT SURVEILLANCE RADAR
SITING PLAN.

OKALOOSA COUNTY, FLORIDA



LEGEND	
	Underground Power
	Fiber Optic Signal Cable
	Proposed Access
	Existing Electrical Lines
	Existing Paved Road
	Existing Gravel Road
	Tree Line

OKALOOSA COUNTY,
FLORIDA

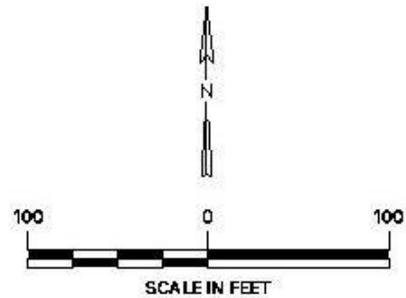
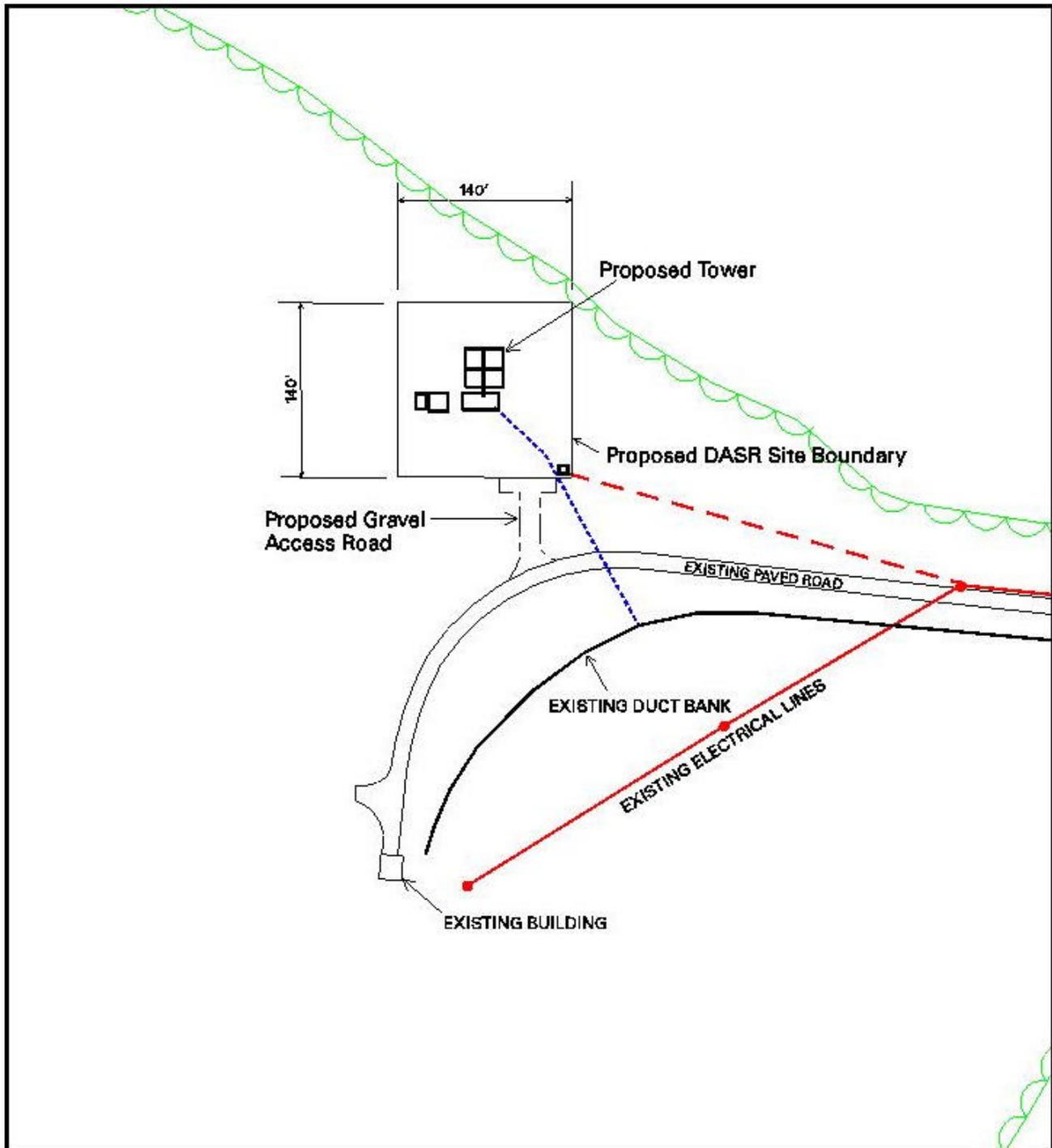


FIGURE 2-4. ALTERNATIVE DASR SITE 1.



LEGEND

	Overhead Power
	Fiber Optic Signal Cable
	Proposed Access
	Existing Electrical Lines
	Existing Duct Bank
	Tree Line

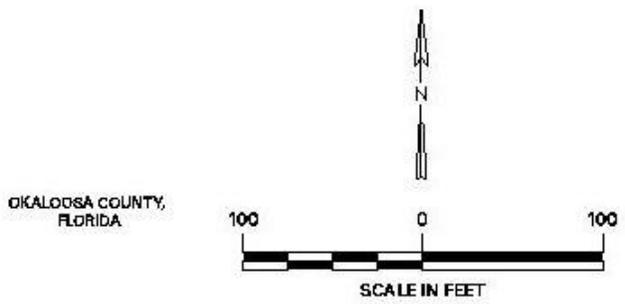
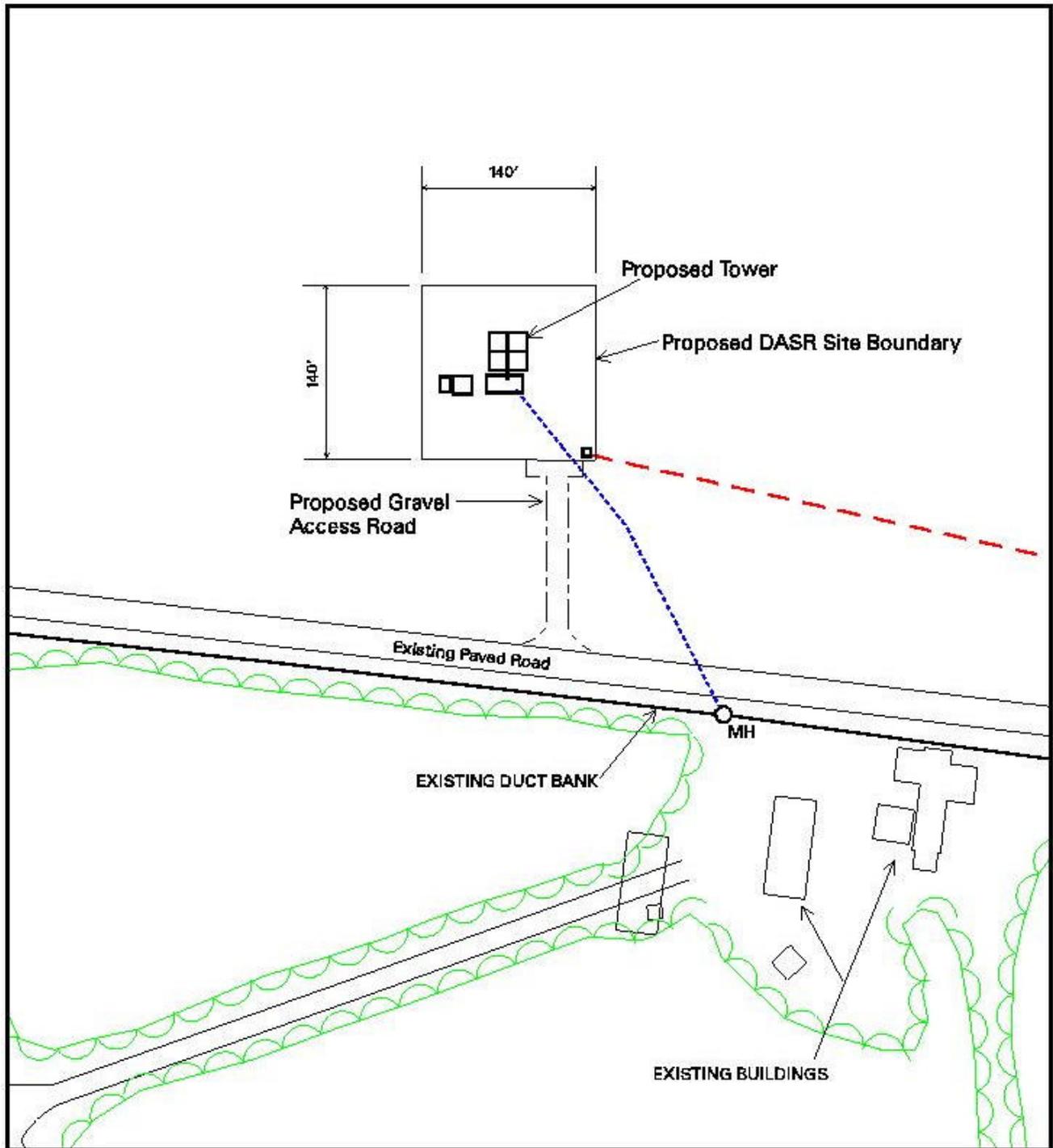


FIGURE 2-5. ALTERNATIVE DASR SITE 2.



LEGEND

- Overhead Power
- Fiber Optic Signal Cable
- Proposed Access
- Existing Duct Bank
- ~ Tree Line

OKALOOSA COUNTY, FLORIDA

N

100 0 100

SCALE IN FEET

FIGURE 2-6. ALTERNATIVE DASR SITE 3.

2.3 OTHER NAS - RELATED WORK AT EGLIN AFB

As discussed in Section 1.0 and the Programmatic EA (USAF, 1995b), implementation of the NAS Program at Eglin AFB would involve some work in and adjacent to existing facilities on the base, in addition to the proposed DASR. Since the project will be conducted under separate contracts the environmental consequences of this work are not addressed in this EA. This work will occur within or immediately adjacent to existing buildings at Duke Field and the Eglin Main areas of the base. This work is briefly summarized below:

2.3.1 Duke Field

As part of the implementation of the NAS Program at Eglin AFB, air traffic control electronic equipment at the Duke Field Air Traffic Control Tower will be upgraded. This work includes modifying power panels, running circuits from power panels to electronic equipment, running signal cables from electronic equipment to other electronic equipment or communications systems, and installation of electronic equipment. Installation includes bolting equipment to floors and attaching equipment to the ceiling in the tower cab. All work will take place within the existing Duke Field Air Traffic Control Tower. Eglin AFB bioenvironmental engineering (96AMDS/SGPB) personnel have inspected the tower facility and have determined that no asbestos or lead-based paint hazard is present in the work area. The work at Duke Field is not within the scope of this contract, therefore, it will be addressed in a separate environmental document to be submitted in the future.

2.3.2 Eglin Main

2.3.2.1 Building 104. Air traffic control electronic equipment in the Eglin AFB Radar Approach Control (RAPCON) will be upgraded as part of the NAS Program implementation on Eglin AFB. The RAPCON is being renovated by Eglin AFB under a separate contract to accommodate new equipment, with enhanced air conditioning, enhanced grounding, additional power distribution and architectural modifications. All this work will be within the 5-foot line of the existing building.

Electronic equipment will be installed on the raised floor of the renovated RAPCON. Signal and power cabling for the equipment will be installed below the raised floor. Communications interconnectivity between the RAPCON and the DASR site will be provided via fiber-optic cable.

A preliminary environmental impact analysis of alterations to Building 104 (AF Form 813, ECN #95-45, 18 Jun 1995) determined that the proposed work qualifies for a categorical exclusion from further environmental analysis. Lead based paint and asbestos containing materials surveys were conducted on the first floor of building 104 in 1995. This survey found small amounts of lead based paint in all areas sampled, and asbestos only in the mechanical room (USAF, 1997k). The contractor performing the building modifications is required to properly dispose of any hazardous material in accordance with state and local laws governing hazardous waste removal, packaging and disposal.

2.3.2.2 Air Traffic Control Tower. Air traffic control electronic equipment in the Eglin Air Traffic Control Tower will be upgraded. Work includes minor carpentry, running electrical and signal lines to the new equipment, and installation of electronic equipment. All work will take place within the tower facility.

3.0 AFFECTED ENVIRONMENT

The existing environmental conditions and future conditions without the project are described for each site in order to provide a baseline against which construction or operation of the DASR can be determined.

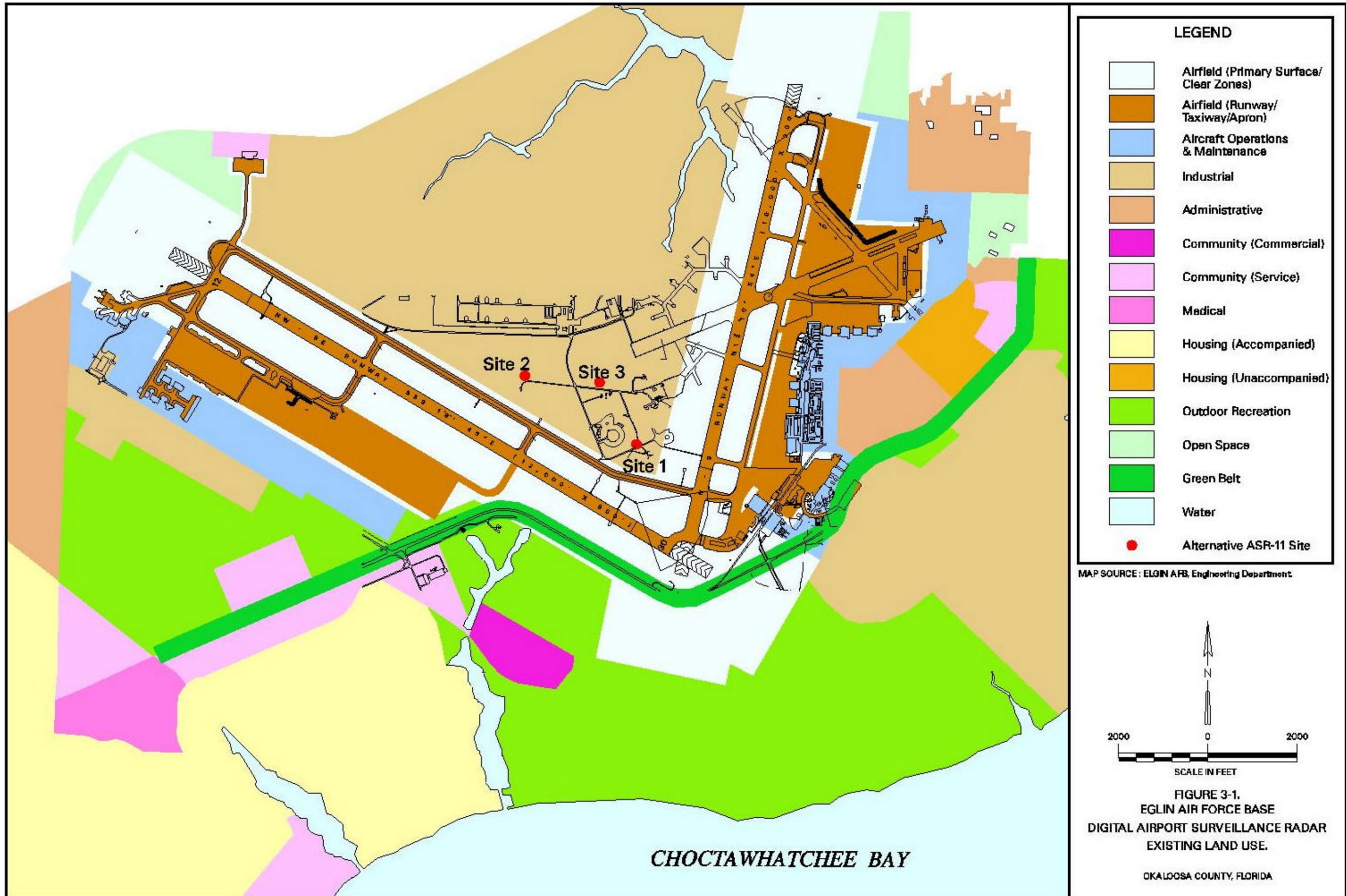
3.1 LAND USE

3.1.1 Existing Conditions

Eglin AFB extends over three counties in Florida's panhandle: Walton, Okaloosa, and Santa Rosa counties with a total area of approximately 463,000 acres. The three alternative DASR sites and the existing radar system, ASR-7, are located in the center of Eglin Main, which is located in southern Okaloosa county.

There are five general land use types that have been designated by the USAF on Eglin AFB: test and evaluation (the base's primary mission), safety buffer, space operations support, training, and base support. Eglin Main is within the land use type designated base support (USAF, 1995c). In order to operate and manage Eglin AFB the following facilities and services are part of base support: administrative, residential, commercial, and other land uses (USAF, 1995c). The type of mission support activities that take place on base support land use areas are control, scheduling, maintenance, repair, target acquisition augmentation and maintenance, training, space-related functions, and safety support for test and evaluation. (USAF, 1995c).

Eglin Main is subdivided into the following thirteen land use types that contribute to its function of base support: airfield (primary surface/clear zones); airfield (runway/taxiway /apron); aircraft operations and maintenance; industrial; administrative; community (commercial); community (service); medical; housing (accompanied); housing (unaccompanied); outdoor recreation; open space; and water (see Figure 3-1) (STV Incorporated, 1996a).



The area in which the three alternative DASR sites and existing ASR-7 are located is classed as industrial land use. It is located north of Runway 12-30 and west of Runway 01-19. Within this area are the munitions storage areas and the associated explosive safety quantity-distance (ESQD) clearance zones. The ESQD clearance zones are set back zones established to protect the safety of individuals and facilities on Eglin Main. The ESQD zone north of Runway 12-30 and Runway 01-19 provides the minimum acceptable distance that is necessary to protect the concentrated development centers to the south and east, and the public thoroughfare, State Route 85, to the north. In some areas, the existing ESQD demarcates a distance greater than the minimum ESQD required. This often provides for future development of the area outside the minimum setback. Generally, development within the ESQD clearance zones is limited to facilities associated with explosive activities (STV Incorporated, 1996a; Eglin Weapons Safety Office, 1997). However, special rules established for the ESQD zones do permit the siting of unmanned radar facilities within the zone, after the review and approval of an Explosive Site Plan, (Eglin Weapons Safety Office, 1997).

Site 1 is located off a gravel roadway approximately 1,400 feet northeast of Runway 12-30. It is located 400 feet east of the fire training pit, and approximately 400 feet west of the Runway Supervision Unit. According to the Eglin Air Force Base Land Use Plan (STV Incorporated, 1996a), Site 1 is located just outside the ESQD clearance zone. The site is generally cleared land with some scrub forest on the perimeter, and supports no other activity.

Site 2 is located approximately 600 feet northeast of taxiway 6 and 1,600 feet northeast of Runway 12-30. The area is fairly remote from any other base activity or heavily traveled roadway. The site itself is off an extension to Barrier Maintenance Road. Site 2 is located inside the ESQD clearance zone associated with the munitions storage area.

Site 3 is located directly off of Barrier Maintenance Road in a cleared field at the southwest end of Taxiway M West. A small active base facility is located across the street from the site. The site has been used in the past as a staging area for airmen awaiting departure for assignment. According to

96 CG/SCXQ on Eglin AFB, Site 3 is located just outside of the ESQD clearance zone, and is bounded on three sides by the ESQD zone (96 CG/SCXQ, 1997).

The ASR-7 is located approximately 1,000 feet east of Site 3, on a dedicated access road off of Barrier Maintenance Road. The radar site is fairly remote, in a cleared area about 500 feet south of Taxiway M West. The ASR-7 is located within the ESQD zone associated with the munitions storage area.

3.1.2 Future Baseline Without the Project

There are no future land use developments planned for the immediate area where the alternative DASR sites and existing ASR-7 are located. However, 900 acres of land on Eglin Main have been re-designated for industrial land use. Of this area, 361 acres are proposed for potential expansion of munition storage and ESQD clearance zones located north of the existing munition storage and south of State Route 85 (STV Inc., 1996a). This redesignation does not impact the land use in the area of the alternative DASR sites or ASR-7 site.

3.2 SOCIOECONOMICS

3.2.1 Existing Conditions

Socioeconomic data specific to the alternative DASR site locations and the existing radar system, ASR-7, do not exist. However, there are data for the general area surrounding and including Eglin AFB. The data for Eglin AFB are a compilation of data for Eglin Main, auxiliary fields, and the land test areas. For this EA, the data primarily concerning Eglin AFB are the relevant data for the alternative sites and the ASR-7. All data from 1982 through 1991 are from the Eglin AFB Economic Resource Impact Statements (USAF, 1995d). The 1992 and 1993 employment data are from the *Eglin AFB/Hurlburt Field Economic Influence Data Sheet, Public Affairs Executive Summary* for Fiscal Year 1992 and the Executive Summary Economic Influence Data Sheet for Fiscal Year 1993.

3.2.1.1 Employment. In 1993 the number of employed persons at Eglin AFB was 15,640. There are six broad categories of employment at Eglin AFB: active duty military personnel; appropriated fund personnel; nonappropriated fund (NAF) personnel; Base Exchange/Commissary employees; contractors; and employees of private businesses on base. Active duty personnel in 1993 were slightly smaller in number than in 1982; these personnel numbers were 10,170 and 10,569, respectively (USAF, 1995d).

The combined payroll for all of Eglin AFB was \$292.6 million in 1982 and \$517.1 million in 1993. This represented an annual increase of 5.3 percent, and was 42.5 percent of the total personnel income for Okaloosa County. The payrolls for active duty personnel and appropriated fund civilians were \$323.2 million and \$169.9 million, respectively (USAF, 1995d).

3.2.1.2 Expenditures of Eglin AFB. Expenses associated with the operation of Eglin AFB include: contracts and procurements of services; materials; equipment; and supplies. Jobs for contractors and other secondary employment opportunities are created as a result of these expenses, providing Eglin AFB with the following services: range operations and maintenance, engineering support, and management support. Total expenditures for Eglin AFB were \$487.4 million in 1993, which included costs for construction, services contracts, Base Exchange/Commissary, health, and education. This is a decrease of 2.5 percent per year since 1982 (USAF, 1995d). Services and construction are the largest expenditure costs.

The expenditures of Eglin AFB result in retail sales for the surrounding areas outside of the base, including Bay, Escambia, Okaloosa, Santa Rosa, and Walton counties. In 1993, retail sales attributed to Eglin AFB were \$2.2 billion (USAF, 1995d).

3.2.1.3 Population. The number of active duty persons and their dependents was 35,595 in 1993. This is an increase of 4,792 persons since 1982, representing a 1.3 percent annual increase (Table 3.2-1). Specific data for the population of civilian dependents of active duty personnel living on Eglin

AFB are not available; however, it has been estimated that 14,000 civilians (employees and dependents of active duty personnel) live on the base. The number of retirees in the area of Eglin AFB has increased by 3 percent each year since 1984, ranging from 22,882 in 1984 to 29,826 in 1993 (USAF, 1995d).

Table 3.2-1 Military Population

	1982	1987	1993
Eglin AFB			
Active Duty Personnel	10,569	10,091	10,170
Living on base	N/A	4,494	N/A
Living off base	N/A	5,597	N/A
Dependents of Active Duty Personnel	20,234	13,605	25,425
Living on base	N/A	5,422	6,302
Living off base	N/A	8,183	19,123

Notes: 1982 and 1987 data from Eglin AFB Economic Resource Impact Statements (ERIS).
1993 data from US Air Force, 1993b
N/A = not available (data not reported)

Source: U.S. Air Force, 1995d.

3.2.1.4 Housing. There are three types of housing available to all active duty personnel on Eglin AFB. There were a total of 2,360 family housing units (FHUs) provided for officers and enlisted personnel in 1993. This was a decrease of 380 units (14 percent) from those available in 1982 on Eglin AFB. A second type of housing is in the dormitory quarters, which had a capacity of 5,139 personnel in 1987. Due to a change in living standards, fewer persons per room, the bed space number decreased to 2,155 (58 percent) in 1993 (USAF, 1995d).

A mobile home park operated by Eglin AFB has space for 236 mobile homes. Space can be rented from the base, which provides all utilities except for electricity.

3.2.2 Future Baseline Without the Project.

It is not expected that there would be any substantial change in socioeconomic trends unless there is a major change (expansion or reduction) in base operation. Presently there is no indication of any planned changes on base. It can be expected that there will be an increase in population based on the 1.3 percent annual population increase.

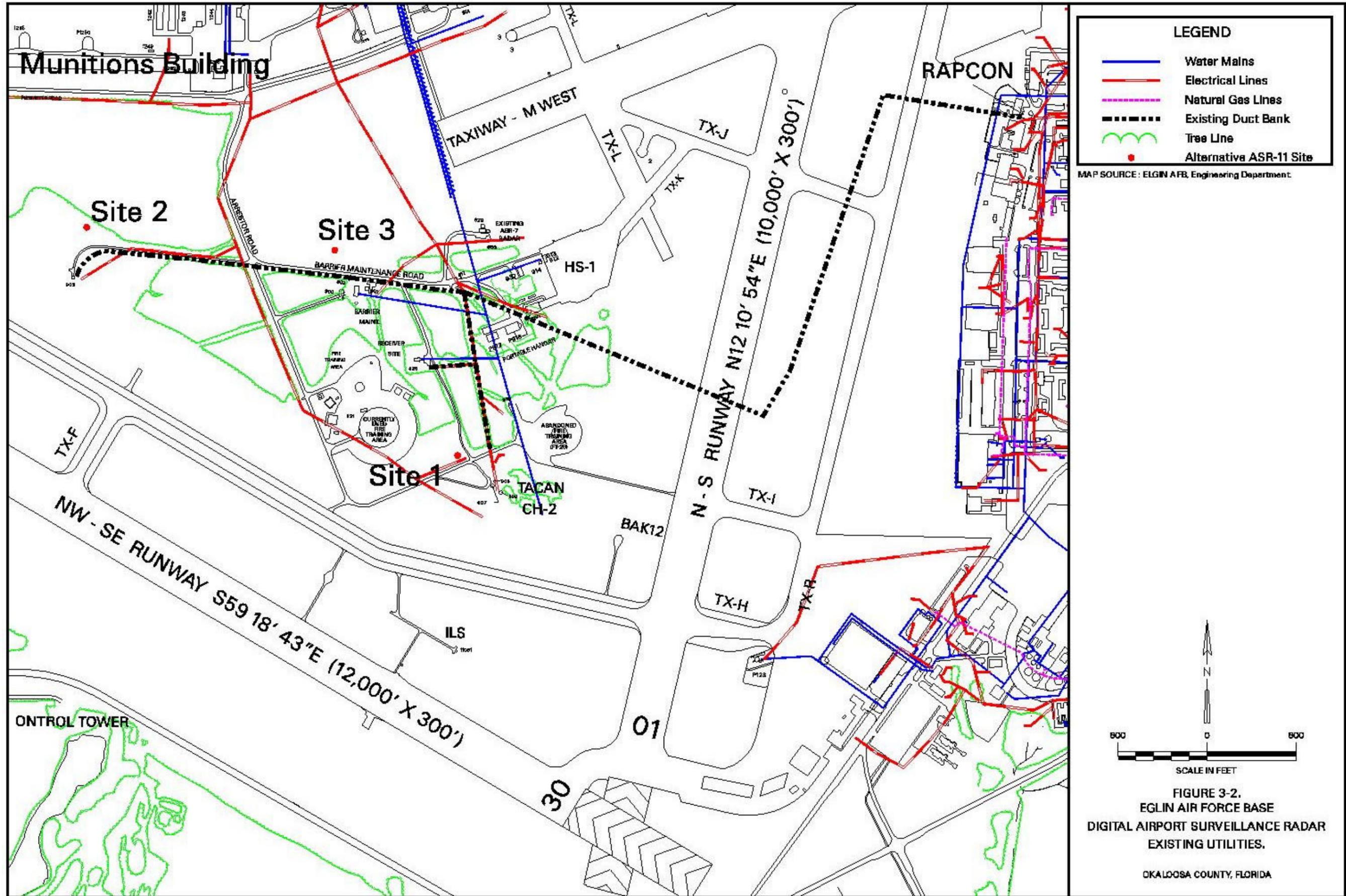
3.3 UTILITIES AND TRANSPORTATION

3.3.1 Existing Conditions

The utilities supplied to Eglin Main of Eglin AFB, including the area of the alternative DASR sites and the existing radar, ASR-7, are discussed in this section. The utilities include water supply, wastewater treatment, solid waste, electricity, telephone, and natural gas. Transportation, mainly roadway management and usage, is described in 3.3.1.7.

3.3.1.1 Water Supply. Water supplies in the State of Florida are regulated by the Safe Drinking Water Act (42 U.S. Code [U.S.C.] 201, 300 et seq.) and the National Primary Drinking Water Regulations, which the Florida Department of Environmental Protection (FDEP) enforces. After the Florida Water Resources Act (Florida Statutes, Title 28 Section 373) was established, the Northwest Florida Water Management District (NFWFMD) was created to conserve, protect, manage, and control most of the waters of the Florida panhandle (USAF, 1995e).

Eglin Main utilizes eleven wells for potable water, ten of which have standard water use permits. These wells draw water from the upper unit of the Floridian Aquifer. The water pumped from these wells is treated with fluoride at the well head only in housing areas, which are not in the vicinity of the alternative DASR sites. Water treatment plants on Eglin AFB have been designed with a capacity of 16.429 million gallons per day (MGD). Figure 3-2 shows the existing water mains in the vicinity of the alternative DASR site locations (USAF, 1995e). Site 1 is located approximately



600 feet west of the closest water main. Site 2 is located approximately 1,500 feet from the closest water main to the northeast, and Site 3 is located approximately 900 feet west of the closest water main

3.3.1.2 Wastewater Treatment. The 96th Air Base Wing Civil Engineering Group (96 CEG/CEOIT) manages the operation and maintenance of the wastewater treatment plants (WWTP) on Eglin AFB so that the plants are in compliance with the regulations of the Clean Water Act (33 U.S.C. 1151 et seq., 1251 et seq.) (USAF, 1995e). There are two WWTPs on Eglin Main. An extended aeration facility with a capacity of 1.0 MGD and two 5 million gallon holding ponds treat the wastewater from the administrative areas, research laboratories, aircraft operations, and aircraft support areas on Eglin Main (USAF, 1995e). Wastewater from facilities in the vicinity of the alternative sites is treated at this WWTP.

The effluent from both WWTPs is discharged to a 209 acre spray field west of the junction of State Route (SR) 85 and SR 123. The surface water and groundwater at the spray field is monitored at specific sampling locations and monitoring wells. Sludge produced at the WWTPs is treated and dried with aerobic digesters and drying beds, then transported to a 49 acre permitted location close to Auxiliary Field 4. The treated and dried sludge is spread out at the field and annually sampled. The sampling results have indicated that the pH levels of the disposal field are higher than the limitation set by FDEP (USAF, 1995e).

3.3.1.3 Solid Waste. Eglin Main has a state-of-the-art recycling center for the entire base to use. The center sells or reuses the recycled material. The service is provided to the housing, industrial, auxiliary fields, ranges, and test areas. In 1993, 40 percent of all solid waste produced on Eglin AFB was recycled, making it the only community in northwest Florida to meet a state-wide mandate of reducing solid waste disposal by 30 percent by the year 1994 (USAF, 1995e).

The Okaloosa Transfer Station in Fort Walton Beach receives the Class I waste from Eglin Main. The waste is transferred by a contractor to the transfer station where it is temporarily stored until moved to Springhill Landfill. Springhill Landfill receives municipal solid waste and some special wastes (sludge and industrial waste) from most counties in Northwest Florida. No free liquid or hazardous materials are accepted. Springhill Landfill received a permit to extend its acreage by 137 acres, which prolongs the life of the landfill by 30 years with a daily input of approximately 1,000 tons (USAF, 1995e).

Eglin AFB disposes of construction and demolition debris and landscaping waste near Field 4 at a converted borrow pit permitted by FDEP. Construction and demolition debris is also brought to Point Center landfill close to Crestview. A used oil tank farm receives the oil that is collected. The oil is later picked up by contract for recycling (USAF, 1995e).

3.3.1.4 Electricity. Electrical power is supplied to Eglin AFB by CHELCO, Gulf Power Company, and Florida Power Company. These companies pool or draw power from two primary sources: a combustion turbine plant near Freeport and the Smith Steam Plant in Bay County (USAF, 1995e). The power is then provided to the base through 335 miles of transmission lines and 930 miles of distribution lines. Site 1 is approximately 500 feet south of an existing underground line at building 926 (Figures 2-3 and 2-4); Site 2 is approximately 250 feet west of an existing overhead 12 kilovolt amperes (KVA) line (Figure 2-5); and Site 3 is 400 feet west of an existing overhead 12 KVA line (see Figure 2-6) (USAF, 1997g). All three alternative sites have 12 KVA power available (Raytheon, 1997a). Much of the electrical distribution system is in need of replacement because it is thirty years old. A proposal to refurbish and upgrade the transmission and distribution system in fiscal year 1998 has been made (USAF, 1995e).

3.3.1.5 Telephone. Telephone lines exist within a few hundred feet of each alternative site (Raytheon, 1997a).

3.3.1.6 Natural Gas. Okaloosa Gas District supplies Eglin AFB with natural gas. There are nine metering and three regulating stations involved in the system to provide the base with natural gas. Eglin AFB does not utilize the volume of gas that is capable of being provided (68,000 million cubic feet). Only seven to eight percent of the total capacity is used (USAF, 1995e). There are no natural gas lines in the vicinity of any of the alternative DASR sites. The closest natural gas lines are to the east, approximately 4,200 feet, near base operations (see Figure 3-2).

3.3.1.7 Transportation. Metropolitan Planning Organizations (MPO) for each metropolitan area in the state develop plans for urban transportation. They are comprised of elected local officials and administrated by the Florida Department of Transportation (FDOT) (USAF, 1995f). The MPO responsible for areas surrounding and including Eglin AFB is the Fort Walton Beach Urbanized Area MPO. The 96th Civil Engineering Group (96 CEG) is the MPO primarily for Eglin AFB, including the alternative DASR sites. The 96 CEG is responsible for planning and engineering transportation support, and maintaining and repairing much of the roadways on base (USAF, 1995f).

SR 85, SR 123, and SR 397 are the three main roads that provide access to and from Eglin Main and to the National Strategic Highway Corridor Network (Interstate 10). The National Strategic Highway Corridor Network is part of the Highways for the National Defense Act (23 U.S.C. 210) and is established by coordinating with civil highway authorities so that the designated highway systems meet defense needs (USAF, 1995f). SR 85 provides access to the Air Combat Command (ACC) gate and the North gate of Eglin Main. SR 397, also known as Eglin Boulevard, accesses the West and East gates. From the East gate, SR 397 connects to SR 85, which continues north to Interstate 10. SR 123 is a bypass route for a section of SR 85 north of Eglin Main, and is also part of a hurricane evacuation route (USAF, 1995f). SR 123 and SR 85 are closed at times of military testing in the area. When this occurs a two week warning is given the public. The three open gates to Eglin Main, East, West and ACC gates, all provide access to the alternative DASR sites by approximately the same distance. However, trucks commonly enter Eglin Main via the East and West gates (STV Incorporated, 1996b).

Roads utilized to access the alternative DASR sites are: from the West gate, Eglin Boulevard to Nomad Way (west), to Perimeter Road (east), to Arrester Road (south); from the ACC gate, Perimeter Road (east) to Arrester Road (south); and from the East gate, Perimeter Road (west) to Arrester Road (south). The traffic volumes on Eglin Main for 24-hour periods in August, 1993 were: Eglin Boulevard west of Nomad Way, 26,843 vehicles; Nomad Way east of ACC Gate, 3,658 vehicles; and Perimeter Road north of ACC Gate, 567 vehicles (STV Incorporated, 1996b; USAF, 1995f).

The traffic accident count from June 1, 1992 through May 31, 1993 at the intersection of Eglin Boulevard and Nomad Way was 15 accidents.

3.3.2 Future Baseline Without The Project

No substantial change in water, wastewater, solid waste, and natural gas utility conditions would occur if the project were not completed. Improvements of electrical transmission and distribution systems are proposed for the future (USAF, 1995e). It is expected that a population increase, as discussed in Section 3.2 Socioeconomics, would increase traffic volumes in the future. This would not adversely impact the levels of service (LOS) of the access roads to the alternative DASR sites, due to the present low LOS for the roads.

3.4 NOISE

3.4.1 Existing Conditions

The decibel (dB) is the preferred unit of measure for expressing sound pressure levels (SPL) and sound level. The decibel scale is logarithmic (Base 10) , where 0 dB corresponds to the threshold of human hearing. The frequency range of human hearing extends from roughly 20 Hertz (Hz) to approximately 10,000 to 15,000 Hz. The human ear is most sensitive to high frequencies of 1,000 Hz and above, and less sensitive to mid-and-low frequencies of 125 Hz and below. Consequently, an “A-weighted scale, termed dBA, which places more emphasis on high frequencies than on low frequencies, is typically used to express sound. Different activities result in varying sound levels

(Table 3.4-1). Sound does abate as one's distance from the source of sound increases. As a general rule, SPL from a stationary source drops off at a rate of 6 dB with each doubling of distance from the source (USAF, 1978).

The proposed sites of the new DASR radar at Eglin AFB are all located in the same general area in the triangle created by the intersection of Runway 01-19 and Runway 12-30. The area is fairly remote from other activities on the Main Base, and is at a distance from residential receptors and other noise sensitive receptors such as schools, and medical facilities. The following describes the general ambient noise characteristics of the three proposed sites.

Site 1 is not affected by any substantial amounts of ground vehicular traffic. The ambient noise level, as observed during the field survey, is fairly quiet, with the exception of significantly elevated noise levels when jet aircraft take off and land on the adjacent runway. Noise levels during these periods are elevated to the degree that conversations must be terminated until the aircraft has gone past the area. As indicated in Table 3.4-1, the typical sound level of a jet engine at 75 feet is 140 dBA. At a reduction of 6 dBA for every doubling of distance, the estimated noise level at 2000 feet would be 110 dBA, representing an extremely noisy periodic ambient condition.

Ambient noise conditions at Site 2 are similar to those at Site 1. The ambient noise levels are fairly quiet, with the exception of times when jet aircraft fly overhead.

Site 3 is affected by a small volume of ground vehicular traffic on Barrier Maintenance Road, accessing the radio control towers, and building No. 900, a small active base facility occupied by 10 people full-time approximately 260 feet across the road from the site. Site 3 is equidistant between two major runways. Based on observed conditions during the field survey, ambient noise levels at Site 3 appeared to be slightly higher than at the other two sites during periods when no aircraft are flying in the vicinity. The slightly higher ambient noise conditions are due to the proximity to vehicular traffic on Barrier Maintenance Road.

Table 3.4-1. Typical dBA Sound Levels

dBA	Description
0	Threshold for Hearing
10	Barely Audible Noise
20	Broadcasting Studio
30	Soft Whisper
40	Residential Area at Night
50	Quiet Conversation (10 ft)
60	Large Store
70	Vacuum Cleaner (10 feet) Freeway Traffic (250 feet)
80	Inside Sport Car at High Speed Freight Train (50 feet)
90	Subway Train (90 Feet) Jack Hammer (50 feet)
100	Inside Propeller Plane Electric Furnace Area
110	Riveting Machine
120	Maximum Vocal Effort Jet Engine (200 feet)
130	Limit of Amplified Speech

Sources: Yerges, 1969; U.S. Air Force, 1993

The existing ASR-7 is located several hundred feet southeast of Site 3, but is less affected by ambient noise conditions associated with Barrier Maintenance Road. The existing ASR-7 radar emits noise measured at 55.5 decibel watts (dBW) (Sallions, 1997). No audible noise levels were observed during the field survey which occurred within 200 feet of the radar facility.

3.4.2 Future Baseline Without the Project

It is not anticipated that there would be any substantial change in ambient noise conditions at any of the sites or at the ASR-7 in the future without the project. No major changes in land use activities are expected to occur, and thus there would be no major changes in noise levels.

3.5 AIR QUALITY

3.5.1 Existing Conditions

All of Eglin Air Force Base, including the three alternative DASR sites and the existing ASR-7 site, is located within the FDEP's Northwest District Air Quality Control Region (Woolpert, 1996). The potential DASR sites and the existing ASR-7 site are located within Okaloosa county. The U.S. Environmental Protection Agency (USEPA) has established national ambient air quality standards (NAAQS) which identify acceptable levels of air pollutants across the country (Table 3.5-1). In addition, FDEP has established separate state ambient air quality standards, which are stricter than the NAAQS for sulfur dioxide. In regard to the NAAQS, Okaloosa County is designated as either unclassifiable/attainment or better than national standards for all criteria pollutants except lead, which is not designated (Table 3.5-2). Under the Florida state standards, Okaloosa County is designated as in attainment for all criteria pollutants (Table 3.5-2), except lead which is not designated (USAF, 1995h).

Table 3.5-1 National Ambient Air Quality Standards

Pollutant	Federal Standards		Florida State Standards
	Primary Standard	Secondary Standard	
Sulfur dioxide (SO ₂) annual arithmetic mean ⁴ maximum 24-hour average ⁵ maximum 3-hour average ⁵	80 µg/m ³ (0.03 ppm) ^{1,2} 365 µg/m ³ (0.14 ppm) ² None	No secondary Standard No secondary Standard 1300 µg/m ³ (0.50 ppm) ²	60 µg/m ³ (0.02 ppm) 260 µg/m ³ (0.1 ppm) 1300 µg/m ³ (0.50 ppm) ²
Particulate Matter (PM-10 ^a) 24-hour average ⁵ annual arithmetic mean ⁴	150 µg/m ³ 50 µg/m ³	Same as primary standard Same as primary standard	150 µg/m ³ 50 µg/m ³
Carbon Monoxide (CO) 8 hour average ⁵ 1 hour average ⁵	9 ppm (10 mg/m ³) 35 ppm (40 mg/m ³)	No secondary Standard No secondary Standard	9 ppm (10 mg/m ³) 35 ppm (40 mg/m ³)
Ozone (O ₃) 1 hour average ⁶	0.12 ppm (235 µg/m ³)	Same as primary standard	0.12 ppm (235 µg/m ³)
Nitrogen Dioxide (NO ₂) annual arithmetic mean ⁴	0.053 ppm (100 µg/m ³)	Same as primary standard	0.053 ppm (100 µg/m ³)
Lead (Pb) Calendar quarter max. arithmetic mean ⁴	1.5 µg/m ³	Same as primary standard	1.5 µg/m ³

^a"particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers" (40 CFR 50)

¹ppm=parts per million

²approximate equivalent value in either µg/m³, mg/m³ or ppm

⁴not to be exceeded

⁵not to be exceeded more than once a year

⁶not to be exceeded more than one day per year

Source: Environmental Protection Agency, 1993; U.S. Air Force, 1995h

Table 3.5-2 Federal and State Designations of Okaloosa County Ambient Air Quality

Criteria Air Pollutant	Federal Designation	State of Florida Designation
Sulfur dioxide	Better than National Standards	Attainment
Carbon monoxide	Unclassifiable/ Attainment	Attainment
Lead	Not designated	--
Nitrogen dioxide	Cannot be Classified or Better Than National Standards	Attainment
Ozone	Unclassifiable/ Attainment	Attainment
Total Suspended Particulates (TSP)	Better Than National Standards	--
Particulate Matter Less than 10 μ	--	Attainment

Source: U.S. Air Force, 1995h

There are no air monitoring stations located on Eglin AFB. The nearest air monitoring locations range between 5 and 50 miles from Eglin AFB, and are generally located within areas more urban than Eglin AFB. Consequently, these stations are presumed to be a conservative representation of air quality on the base (USAF, 1995h). The regional air quality monitoring stations record the ambient air concentrations of only ozone, sulfur dioxide and particulate matter less than 10 μ in diameter (PM-10). There are no existing monitoring data for carbon monoxide, nitrogen dioxide or lead for the vicinity of Eglin AFB (USAF, 1995h). The monitored levels of ozone, sulfur dioxide and PM-10 are all at or below the NAAQS and state standards. Thus, the air concentration of these three priority pollutants in the vicinity of the three alternative DASR sites is presumed to be at or below both federal and state air quality standards. Although the ambient air concentrations for carbon monoxide, nitrogen dioxide, and lead are unknown, the FDEP has designated Okaloosa county at attainment for carbon monoxide and nitrogen dioxide.

Activities at Eglin AFB that could potentially affect the air quality in the vicinity of the three alternative DASR sites and the existing ASR-7 site include managed and inadvertent fires on the base, which may emit PM-10 and carbon monoxide; and open burn/open detonation treatment of unexploded ordinances, which may emit carbon dioxide, carbon monoxide, nitrogen oxides, ammonia, sulfur oxides, hydrogen sulfide, water, and trace metal oxides and salts (USAF, 1995h). Other potential emission sources in the vicinity of the DASR and ASR-7 sites include the Eglin AFB asphalt plant, vehicular traffic, and activities associated with aircraft and runway operations, such as aircraft and equipment maintenance and jet engine testing and operation (USAF, 1995h). A minimal source of emission is the emergency generator for the ASR-7. The generator is used approximately 4 times a month, when power is lost, for approximately 5 hours and is tested once a month for one hour (M&E, 1997).

Due to the climatic conditions in the region, atmospheric inversions are common at Eglin AFB. During an inversion, the air stratum closest to the ground does not mix with air in the upper atmosphere. Typically, inversions are associated with poorer than usual air quality conditions because pollutants that may be in the air layer located closest to the ground are not able to disperse throughout the atmosphere, and instead become trapped near ground level. However, the occurrence of inversions at Eglin AFB is not known to be associated with deteriorated air quality conditions (USAF, 1995h). With the exception of a few days per year, inversions at Eglin AFB usually last only during morning hours and typically disappear in the afternoon (USAF, 1995h).

3.5.2 Future Baseline without the Project

Without the project, the air quality in the vicinity of the three DASR sites and the existing ASR-7 site is expected to improve as a result of ongoing efforts to reduce emissions at the Eglin AFB. For example, continuing pollution prevention efforts at the base are aimed at reducing the use of volatile organic compounds and eliminating the use of all Class I ozone-depleting chemicals (USAF 1995h; Woolpert, 1996). In addition, the *Environmental Quality Protection Plan* for Eglin AFB indicates that air emissions at the base should decrease in the future due to the implementation of new

technologies which reduce emissions; improved maintenance of motor vehicles, aircraft, and equipment; development and implementation of a comprehensive transportation plan for the base; and replacement of outdated aircraft and machinery with more efficient models that have lower emissions (Woolpert, 1996).

3.6 GEOLOGY AND SOILS

3.6.1 Existing Conditions

Soils, physiography, geology, mineral resources, and geologic hazards at the three alternative DASR sites and the site of the ASR-7 are discussed in this section. Since the three alternative DASR sites and the existing radar, ASR-7, are within one-half mile of each other on Eglin Main, the discussion of geology and soil characteristics is presented once, rather than repeating a similar discussion for each site. There are no existing data specific to the sites. Therefore, the data for the surrounding area are expected to generally characterize, or describe the alternative DASR sites and the ASR-7.

3.6.1.1 Soil Resources. The description of soils at the alternative sites applies between the soil surface and a general depth of five to six feet (USAF, 1995i). Below this depth the geologic description is applicable, Section 3.6.1.2.

According to the Okaloosa County, FL soil survey (USDA NRCS, 1995), the soil type at the project sites consists of the Lakeland association. This is one of eight soil associations found on Eglin AFB, and occurs on 78 percent of Eglin AFB. The Lakeland Association consists of fine sands that have formed in higher elevations on broad ridgetops. Typically the soil has an approximate depth of 80 inches, with dark grayish brown sand at the surface (0-6 inches), to yellowish sand at a depth of 80 inches.

The permeability of the Lakeland association is rapid, especially in areas with slopes of zero to five percent, which includes the DASR sites (USDA NRCS, 1995). The soil is not supportive of

cultivated crops due to the rapid permeability and leaching of plant nutrients. The shrink-swell potential in the project area is very low. Shrink-swell potential describes the soil's capability of retaining and losing water, which causes the soil volume to fluctuate and can cause damage to foundations. The main reason that the soil is not capable of retaining water is due to the absence of silt and clay-sized grains, which results in the soil having a non-cohesive property. Another limitation of the soil is the potential for caving of the cutbanks associated with shallow excavations for utilities and foundations (USDA NRCS, 1995).

The majority of the soil at Eglin AFB has been disturbed, and is therefore classified as urban land. Much of the vegetation has been cleared to facilitate the visibility of the aircraft and the radar systems, leaving the planted grass to act as soil protection and erosion control. Without vegetation, the project area is highly susceptible to soil erosion due to the low level of soil moisture, and absence of clay and silt.

3.6.1.2 Geology. Eglin AFB lies on the Citronelle Formation. This geologic formation is of the Quaternary/Tertiary geologic periods (65 million years ago to the present). The sediments are thought to be deposits of early rivers in the area that emptied into the Gulf of Mexico (USAF, 1995i). This explains why most of the sediments are of a non-marine origin, consisting of quartz sands, some gravel, and thin clay lenses. A series of Miocene-aged coarse clastic (Alum Bluff Group) and clay marine deposits (Pensacola Clay) has been found to underlay the Citronelle Formation, with a thickness upwards of several hundred feet. Several hundred feet of marine limestone from early Miocene and Oligocene epochs underlies the Miocene-aged deposits. All the units are part of the Gulf Coast geosyncline that gently dips southwest (USAF, 1995i).

The mineral resources in the area of Eglin AFB are quartz sand, gravel, and clay, which are all near-surface, non-energy resources. Sand and gravel have been used for masonry and concrete on Eglin AFB. Clay is removed from the 165 borrow pits on Eglin AFB and is used for the maintenance of roads on the AFB, due to of the unconsolidated soils characterizing most of the base (USAF, 1995i).

Petroleum and natural gas resources are not known to exist under the base. Exploration wells have been drilled in East Bay (approximately 23.5 miles west of the alternative sites), however, no significant amounts of oil or gas were found (USAF, 1995i).

The geologic hazard that could threaten the area of the alternative DASR sites and the ASR-7 site is a sinkhole, also known as a doline. Sinkholes are common geologic features that result when the subsurface rock type is dissolved by the groundwater to a point at which the subsurface material can no longer support the overlying materials. As a result, the surface materials subside or collapse. The occurrence of sinkholes is common in areas underlain by limestone, which is soluble in water. Even though the DASR sites and the ASR-7 site are underlain by limestone, the possibility that a sinkhole will occur is low due to the thickness of unconsolidated sediments above the limestone. No sinkholes exist on Eglin AFB (USAF, 1995i).

Fault planes do exist in the panhandle of Florida, although there has been no history of earthquakes resulting from Floridian faults. Distant earthquakes outside of Florida could cause minor damage. However, the U.S. Geological Survey has mapped the region including Eglin AFB as Seismic Risk Zone 0, which applies to areas with no reasonable expectancy of earthquake damage (USAF, 1995i).

3.6.2 Future Baseline Without the Project

The geology and soil conditions are not expected to change in the future. The above stated existing conditions will continue to represent the area of the alternative DASR sites.

3.7 SURFACE WATER AND GROUNDWATER

3.7.1 Existing Conditions

In addition to federal and state regulations established to protect surface water and groundwater, Eglin AFB has established regulations to protect and monitor the quality of surface water and groundwater on the base. The base regulations aid in identifying contaminated water on the base,

help to determine the cause of water quality deterioration, and require solutions to remediate the problems and prevent future water contamination. In addition, Air Force Instruction (AFI) 32-7041 explains how the Air Force is to comply with the Clean Water Act, other federal, state and local regulations, and associated Department of Defense (DOD) and Air Force water quality requirements (USAF, 1995j).

3.7.1.1 Surface Water. Three hydrologic basins contribute to the surface water on Eglin AFB: the Choctawhatchee Bay, Yellow River Basin, and Pensacola Bay. Eglin AFB contains approximately 300 acres of man-made ponds and natural lakes, 30 miles of rivers, and 20 miles of coastline on the Gulf of Mexico (USAF, 1995j). The quality of the rivers on the base is high enough to be used as potable water. However, these rivers are not currently used as a drinking water source. Turkey Creek is one of the potential potable surface water sources and is located to the east of Eglin Main, near the alternative DASR sites and the existing ASR-7 site. This creek has been rated as having “good” water quality in *The Florida Water Quality Assessment, 1994 305 (b) Report* (USAF, 1995j), which was the highest rating a river or body of water could receive.

There are no surface water features found on the three alternative sites or ASR-7. In addition, all of the sites are outside the 100-year flood zone (USAF, 1995j). Stormwater runoff is minimal due to the high permeable soils and low percent slopes in the area of the alternative sites and the ASR-7. Outstanding Florida Waters, which are protected for their natural resources or recreational use, exist on Elgin AFB (USAF, 1995j). However, there are not any Outstanding Florida Waters in the area of the alternative sites.

Existing features on Eglin AFB that can cause contamination to surface water include: eroded sections of the range roads throughout the base; drainage ditches along the range roads; cleared areas adjacent to waterways for test ranges; Installation Restoration Program (IRP) sites; areas of concern (AOC); and borrow pits, where the underlying clay has been excavated for use on base. AOCs are locations of possible contamination to the surface water, groundwater, and soil from a spill or another

source of contaminants. Most of these features can cause an increase in sediment load to surface water or can contaminate water by introducing chemicals. Of these potential sources of contamination, one IRP site is in the vicinity of alternative DASR sites (Site 1) and could contribute to surface water and groundwater contamination (USAF, 1995j). Refer to Section 3.11 Pollution Prevention and Hazardous Waste for more information on the IRP site and its proximity to one of the proposed DASR sites.

3.7.1.2 Groundwater. Two aquifers comprise the groundwater throughout the state of Florida: the Sand and Gravel Aquifer and the Floridian Aquifer. The Sand and Gravel Aquifer is found close to the ground surface and is separated from the lower Floridian Aquifer by the low-permeable Pensacola Clay confining bed. Specific groundwater characteristics in the area of the alternative DASR sites do not exist. Therefore, it is expected that the general characteristic data for the Sand and Gravel Aquifer and the Floridian Aquifer apply to the groundwater in the vicinity of the alternative sites.

Sand and Gravel Aquifer. The Sand and Gravel Aquifer contains the Citronelle Formation and marine terrace deposits, and has a thickness at Eglin Main of approximately 75 feet. Generally, the materials are clean, fine-to-course sand and gravel. However, in the area of Eglin AFB silt, silty clay, and peat beds are also present. Eglin Main is within the Coastal Lowlands region, where the Sand and Gravel Aquifer is at a depth greater than 80 inches during the high rain season (USDA NRCS, 1995). Escambia, Okaloosa, and Santa Rosa counties depend on the aquifer, although Okaloosa and Walton counties use the water primarily for irrigation (USAF, 1995j).

A state-wide monitoring program has been set up by FDEP, Bureau of Drinking Water and Groundwater Resources, including 1,200 wells, to help determine the quality and trends of the groundwater in the major aquifers. Overall the quality of the groundwater in the Sand and Gravel Aquifer is good; it is very soft because the water contains very few minerals (USAF, 1995j). The water is usually acidic, with a pH ranging from 3.0 to 10.2 (4.9 towards the top and 7.2 in deeper

depths, the 'production zone'). The nitrate values for the upper and lower zones range from 0.81 mg/L to 0.11 mg/L, respectively, and iron content is between 0.07 mg/L and 95 mg/L (USAF, 1995j). Eglin AFB has a number of shallow groundwater monitoring wells that are required in association with FDEP permitted facilities, such as open burn/open detonation, landfills, wastewater spray fields, and IRP sites. One IRP site exists in the vicinity of the alternative DASR sites, as mentioned above. No other facilities requiring a monitoring well exist in the area of the alternative sites. Monitoring wells are established at IRP sites only if the groundwater is thought to have been contaminated from petroleum hydrocarbons, pesticides, or heavy metals (USAF, 1995j).

Floridian Aquifer. The Floridian Aquifer is segregated from the Sand and Gravel Aquifer by a confining bed of Pensacola Clay. Interbedded limestones and dolomites make up the Floridian Aquifer, which is separated into upper and lower units by the confining Bucatunna Formation. The lower unit has a high saline content and is not used as a water source. The upper unit is the main source of water for Eglin AFB and is pumped at rates between 250 and more than 1,000 gallons per minute under confined conditions (USAF, 1995j). The Floridian Aquifer is recharged in southeastern Alabama and southwestern Georgia, where water can enter the limestone/dolomite beds that are near the surface. Significant recharge does not occur at Eglin AFB because of the layer of impermeable Pensacola Clay above the Floridian Aquifer. At the alternative DASR sites, the top of the aquifer is approximately 350 feet below mean sea level (MSL) and the thickness of potable water is approximately 350 feet (USAF, 1995j).

The water quality of the upper unit in the Floridian Aquifer is appropriate for most water uses. The amount of calcium carbonate ranges from below 150 mg/L to 280 mg/L, the pH is between 7.5 and 8.5, and chloride is usually less than 10mg/L (USAF, 1995j).

Eglin Main is presently drawing water from 10 permitted wells that are required to be sampled regularly for state and federal primary and secondary drinking water standards. All 10 presently meet the standards set by the state of Florida (USAF, 1995e; USAF, 1995j).

3.7.2 Future Baseline Without the Project

There are no proposed activities in the future that would adversely affect the surface water or groundwater in area of the alternative DASR sites or ASR-7.

3.8 BIOLOGICAL RESOURCES

The three alternative DASR sites and the existing ASR-7 site are located on Eglin Main, which has been classified as an urban/landscape ecological association (USAF, 1995k). Biological resources present within this association in general, and at the ASR-7 site and alternative DASR sites in particular, are discussed below.

3.8.1 Existing Conditions

3.8.1.1 Vegetation. Vegetation throughout the urban/landscape ecological association has been altered by human activities, and is currently subjected to management activities, including mowing and fertilizing (USAF, 1995k). The three DASR sites and the existing ASR-7 site have all been cleared in the past. The vegetation at all three alternative DASR sites currently consists of grass that is periodically maintained by mowing (USAF, 1997a). Sites 1 and 2 are bordered by small areas of fragmented forest, whereas Site 3 is a large open field bounded by roads and a flight strip. The existing ASR-7 site is similarly in an open area bordered by a flight strip, road, and a small area of fragmented forest.

3.8.1.2 Wetlands. Although there are wetlands present on Eglin Main, no wetland resource areas are present in the vicinity of the three alternative DASR sites or at the existing ASR-7 site (USAF, 1995k; USAF, 1997a). The alternative DASR sites and the existing ASR-7 site are upland sites with rapidly draining soils (see Geology and Soils, Section 3.6), and deep water tables (see Surface Water and Groundwater, Section 3.7).

3.8.1.3 Wildlife. The urban/landscape ecological association provides minimal valuable wildlife habitat because it has been altered by human activities. However, wildlife which are able to coexist with human activities may utilize this area, including: blue jay (*Cyanocitta cristata*), cardinal (*Cardinalis cardinalis*), American crow (*Corvus brachyrhynchos*), English house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), racoon (*Procyon lotor*), opossum (*Didelphis marsupialis*), white-tailed deer (*Odocoileus virginianus*), and coyote (*Canis latrans*) (USAF, 1995k). Wildlife use at the three alternative DASR sites is expected to be extremely minimal, because the mowed grass characterizing these areas provides little food or cover for birds or mammals. Similarly, the wildlife use at the existing ASR-7 site is expected to be low, due to the lack of food and cover as well as the proximity of human activities. However, an old nest of a song bird has been observed within the existing ASR-7 (M&E, 1997a).

3.8.1.4 Threatened and Endangered Species. There are three endangered animal species that are present on Eglin Main: the Okaloosa Darter, the Red Cockaded Woodpecker (RCW), and the Least Tern (USAF, 1995k). However, correspondence with Jackson Guard has indicated that there are no federally listed plant or animal species, species of special concern, candidate species, or unique natural habitats that occur at the three alternative DASR sites (USAF, 1997a). The closest location to the sites at which the Okaloosa Darter is known to exist is Tom's Creek, which is approximately 6,000 feet north of the sites. There is only one RCW known to exist on Eglin Main. This bird is located in the Wherry Housing Area, which is approximately 6,400 feet southwest of the DASR sites and the existing ASR-7 site, across Runway 12-30 (STV Incorporated, 1996a). The Least Tern is reported to nest on rooftops throughout the urban/landscape ecological association (USAF, 1995k).

3.8.2 Future Baseline without the Project

Without the project, the status of vegetation, wetlands, wildlife, and threatened and endangered species in the vicinity of the three DASR sites and the ASR-7 site is expected to be the same as at present. There is no planned change in land use for the locations of the sites which would alter the current characteristics of biological resources in this area.

3.9 AESTHETIC RESOURCES

3.9.1 Existing Conditions

Site 1 is located approximately 1,600 feet north of Runway 12-30, to the east of the currently used Fire Training Area (Figure 2-3). The ground surface has been cleared of all vegetation except for mowed grass. The views to the southeast, south, and southwest are of cleared land, and Runway 12-30 (see Figures 3-3 through 3-5). Trees border Site 1 to the northwest and north. The view to the west is of the new fire training area. The view towards the east is of transmission lines and the old control tower.

The aesthetic resources at Site 2 are similar to that at Site 1. Site 2 is located approximately 1,600 feet north of Runway 12-30 and 1,200 feet south of the munitions building (Figure 2-3). No water bodies or wetlands exist on the project area, and the ground surface is mowed grass. Views to the north and east are of trees (see Figures 3-6 through 3-9). Transmission lines, a dirt access road and Runway 12-30 exist south of the site.

Site 3 is located within a field that has been cleared of vegetation and is now dominated by mowed grass. Roads border the field. Base operation buildings exist south of the site (Figure 2-3). The existing ASR-7 is located east of Site 3 and trees are located approximately 600 feet to the west (see Figures 3-10 through 3-12). The munitions building is visible to the northwest of Site 3 (approximately 1,600 feet), and further north are trees.

The existing ASR-7 is located approximately 1,000 feet east of Site 3. The aesthetic conditions at the existing ASR-7 are much the same as at Site 3. Taxiway M West is located to the north past 500 feet of cleared land; HS-1 and taxiway TX-L are east of the ASR-7 site; trees are located approximately 100 feet south, adjacent to a road; and Site 3 is to the west in a cleared field.



Figure 3-3. View of Site 1 looking east



Figure 3-4. View of Site 1 looking south



Figure 3-5. View from fire training area looking east toward Site 1



Figure 3-6. View looking northwest toward Site 2



Figure 3-7. View looking west toward Site 2



Figure 3-8. View looking south from Site 2 toward TX 6-W and Runway 12-30



Figure 3-9. View looking east toward Site 2



Figure 3-10. View looking north from Site 3



Figure 3-11. View looking east from Site 3 toward existing ASR-7 radar facility



Figure 3-12. View from Site 3 looking southeast across Barrier Maintenance Road toward base operation buildings

3.9.2 Future Baseline Without the Project

The aesthetic values for the areas of all the alternative DASR sites are not expected to substantially change in the future without the project. There are no proposed projects that would alter the aesthetic resources that currently exist at the sites.

3.10 CULTURAL RESOURCES

3.10.1 Existing Conditions

The Air Force Development Test Center, Directorate of Environmental Management, Office of Historic Preservation (AFDTC/EMSH), is responsible for the determination, protection and management of cultural resources on Eglin AFB. The State Historic Preservation Officer must assess a proposed project's impact to cultural resources and determine what work needs to be done in order to protect the resource; have a system of reports and records for all cultural resources, and consult with the Advisory Council and National Park Service when a cultural resource is affected by a project (USAF, 1995).

Although many pre-historic, historic, and military structures and resources do exist on Eglin AFB, no cultural resources of any type have been documented in the areas of the alternative DASR sites or ASR-7 on Eglin Main. Furthermore, consultation with AFDTC/EMSH (USAF, 1997b) and State Historic Preservation Officer indicate that no significant archaeological or historical sites are recorded for or likely to be present within the project area (USAF, 1997d). A letter from an Eglin AFB archaeologist stated the area of interest has been described as having a low probability for the existence of cultural resources in Eglin's draft Cultural Resources Management Plan, and that the area has previously been disturbed by the construction of the runways (USAF, 1997b).

3.10.2 Future Baseline Without the Project

There would be no change in cultural resource conditions at the alternative DASR sites if the project were not completed.

3.11 POLLUTION PREVENTION AND HAZARDOUS WASTE

3.11.1 Existing Conditions - Pollution Prevention

In general, no existing pollution prevention measures exist at the three specific, alternative DASR sites, as there are no existing facilities at the three sites. On Eglin AFB overall, a number of pollution prevention policies and procedures have been implemented, including: development of a hazardous materials pharmacy; development of an oil and hazardous substance pollution contingency plan; reduction in use of ozone-depleting chemicals and EPA 17 chemicals; recycling programs; replacement of underground storage tanks (USTs) with above-ground storage tanks (AST); and training (USAF, 1995m). The implementation of these policies and procedures on the base overall is expected to reduce existing and potential pollution.

The existing ASR-7 is an unmanned facility which does not generally utilize or generate hazardous substances, and therefore does not require ongoing implementation of pollution prevention measures.

However, there is a UST at the existing ASR-7. Eglin AFB personnel have indicated that the UST at the ASR-7 is scheduled to be replaced with an AST during the coming year, as part of the base's ongoing effort to replace USTs with ASTs (USAF, 1997e).

3.11.2 Existing Conditions - Hazardous Waste

Site 1 is located approximately 800 feet west of a hazardous waste site which has been included as part of the Eglin AFB Installation Restoration Program. This hazardous waste site is centered around the abandoned Eglin AFB main fire training area, and has been designated as FT-28 (USAF, 1995n).

FT-28 had been used as a fire training area since the 1950's, although it is no longer in use. While active, numerous flammable liquids were burned at the FT-28 site, including waste fuel, waste oil, and water contaminated JP-4 fuel. Flames at the FT-28 burn pit were historically extinguished using aqueous film forming foam (AFFF). Residual fuels and AFFF at the site either seeped into the soil or evaporated (USAF, 1995n).

As a result of the historical activities at FT-28, constituents of potential concern (COPC) are present at the site (USAF, 1995n). Surface and subsurface soil contamination is limited to the immediate vicinity of the FT-28 burn pit. Contamination has also been detected in the shallow surficial groundwater (approximately 37.6 to 44.4 feet below the ground surface [bls]) and deep surficial groundwater (approximately 38.5 to 46.1 bls) in the Sand and Gravel Aquifer. In the shallow groundwater, the COPCs identified include: aluminum, chromium, iron, lead, manganese, calcium, magnesium, potassium, benzene, ethyl benzene, bis(2-ethylhexyl)phthalate, naphthalene, phenanthrene, and total petroleum hydrocarbons. The COPCs in the deep groundwater have been identified as potassium, iron, trichloroethene, and benzene (USAF, 1995n).

Studies conducted to date at FT-28 have not definitively determined the extent of groundwater contamination in the vicinity of the site. The deep groundwater flow is west to northwest from FT-28, and the shallow groundwater flow is north to southwest from the FT-28 site. Groundwater flow in either of these flow directions could intercept the groundwater at Site 1. In 1995, the shallow groundwater contamination was estimated to be limited to approximately 300 feet down gradient of the site, which is approximately 100 feet east of Site 1. The shallow groundwater flow rate has been estimated to be between 1.95 and 29.3 feet/year. Consequently, it is possible that shallow groundwater in the vicinity of Site 1 is now contaminated. In addition, it is possible that deep groundwater at the site is contaminated. Additional sampling completed in 1996 subsequent to the original RCRA site investigation identified contaminants in deep surficial groundwater almost as far to the northwest as Barrier Maintenance Road, approximately 600 feet to the northwest of the burn pit (USAF, 1997j). The velocity of the deep groundwater flow was estimated as 16.4 feet per year in 1995 (USAF, 1995n).

In addition to the abandoned fire training area, contamination concerns exist in regard to the current fire training area, which is located approximately 800 feet west of Site 1. The fuel pipe leading from the AST at the current fire training area is believed to have leaked fuel which has contaminated the soil (USAF, 1997c). However, no site investigation has been completed yet to confirm the existence

and extent of any contamination at the site (USAF, 1996c). Based on the groundwater studies completed at FT-28, it is likely that groundwater flow from the current fire training area would be in a direction away from Site 1. Therefore, it is unlikely that any contamination from the current fire training area would reach Site 1.

No known sources of hazardous contamination are present in the immediate vicinity of Site 2 (USAF, 1997c). Site 2 is approximately 2,000 feet northwest of the currently used fire training area, and approximately 3,200 feet northwest of the abandoned fire training area. Consequently, it is unlikely that contamination from either of these sources has reached Site 2.

No known sources of hazardous contamination are present in the immediate vicinity of Site 3 (USAF, 1997c). Site 3 is approximately 800 feet north of the currently used fire training area, and approximately 1,800 feet northwest of the abandoned fire training area. Consequently, it is unlikely that contamination from either of these sources has reached Site 3.

The existing ASR-7 is painted with lead paint. In addition, there is a UST at the ASR-7, as discussed in Section 3.11.1. Both the lead paint and the UST are possible sources of hazardous waste at the ASR-7 site, although no contamination at the site is known to exist. The ASR-7 site is located approximately 1,200 feet northeast of the currently used fire training area, and approximately 1,200 feet north of the abandoned fire training area. Consequently, it is unlikely that contamination from either of these sources has reached the ASR-7 site. No other sources of hazardous waste are known to exist at the ASR-7 site.

3.11.3 Future Baseline Without the Project

Without the project, the future hazardous waste conditions are anticipated to either stay the same or improve at the alternative DASR sites and the ASR-7 site. Continuing pollution prevention measures on the base may reduce the potential for new sources of contamination to arise at any of the sites. At Site 1, potential contamination of the groundwater may be remediated in the future, although no

definitive plan for clean-up of the contaminated groundwater emanating from the abandoned fire training area has been established (USAF, 1997c). At the ASR-7 site, the scheduled replacement of the UST with an AST should reduce the potential for hazardous contamination of the soil and groundwater to occur.

3.12 RADIO FREQUENCY RADIATION

3.12.1 Existing Conditions

As explained in the Programmatic EA for the NAS program (USAF, 1995b), radio frequency radiation (RFR), also referred to as radio waves, is electromagnetic waves at frequencies between approximately 3 kilohertz (kHz) and 300 gigahertz (GHz). Exposure to electromagnetic fields (EMFs) is often misunderstood. The media often does not distinguish between RFR and ionizing radiation. This sometimes raises concerns, with no scientific basis, that RFR can give rise to the hazardous effects known to be caused by ionizing radiation. Ionizing radiation, such as ultraviolet light, x-rays and gamma rays, and emissions from radioactive materials, has frequencies millions and trillions of times higher than those of RFR. A "quantum" of any of these radiations has enough intrinsic energy to ionize (eject an electron from) an atom or molecule. The resulting effects can be cumulative and irreversible and, thus, can profoundly affect the health of living organisms. For this reason, devices such as film badges are commonly used for monitoring cumulative exposure over time (total doses) of ionizing radiation (USAF, 1995b).

In contrast to ionizing radiation, quanta of nonionizing radiation or electromagnetic radiation (such as RFR) have intrinsic energies far too small to ionize molecules within a body because their frequencies are vastly lower. Rather than producing changes in molecules (as in ionizing radiation), nonionizing/electromagnetic radiation simply agitates molecules making them vibrate and rotate faster (note that all molecules naturally vibrate and rotate), the equivalent of adding heat to the body. RFR is emitted by devices as commonplace as the hair dryer, electric shaver, TV/computers, radio broadcasting stations, citizen-band radios, ham radio transmitters, and cellular telephones. The

additional molecular agitation produced by the RFR ceases when exposure to RFR ends. The heat induced in a warm-blooded animal by exposure to RFR at relatively low incident power densities can normally be compensated for through the body's temperature regulating capabilities. However, depending on the species, the heat produced at relatively high intensities may exceed the temperature regulating mechanisms of the animal; consequently, compensation for such effects may be inadequate. Thus, exposure at high intensities could cause gross heating and subsequent thermal distress or irreversible thermal damage. Some researchers have reported bioeffects at RFR levels below those giving rise to gross heating. However, such reports are not universally accepted by the large majority of the research community (USAF, 1995b).

There are no specific, known sources of RFR in the immediate vicinity of Sites 1 and 2, although background levels of RFR are likely to exist at these sites due to the ubiquitous presence of RFR in the human environment. Furthermore, RFR in the Eglin environment probably exceeds what is typically found in the human environment due to the typically large number of RFR generating activities in the base.

Site 1 is approximately 600 feet northwest of the Runway Supervisory Unit and TACAN, which undoubtedly emits some RFR from commonly used pieces of equipment, such as those indicated above. There are no actively used operations buildings in the vicinity of Site 2.

Site 3 is located approximately 1,000 feet west of the existing ASR-7 radar, which emits RFR. Thus, Site 3 probably has the highest background RFR levels of the three alternative DASR sites, although this site is located out of any RFR hazard area generated by the ASR-7 radar. Site 3 is also located approximately 350 feet north of a base operations building, which may also generate low levels of background RFR from commonly used electronic equipment.

RFR levels in the immediate vicinity of the existing ASR-7 are hazardous to humans at close distances, when the radar is in operation. As explained in the Programmatic EA for the NAS program

(USAF, 1995b), the hazard zone occurs approximately 0 to 6 feet below the focal point of the ASR-7 beam when the radar is rotating, and approximately 0 to 8 feet below the focal point of the ASR-7 beam when the radar is operating and stationary. The tower immediately below the antenna is in the feed spillover region (0-8 feet when stationary, or 0-6 feet when rotating), and is not safe for personnel when operating. Exposure within the spillover region is safe only if exposure is limited to below the Institute of Electrical Electronics Engineers (IEEE) maximum exposure standard of 6 minutes (for controlled environments; USAF, 1995b). Although low levels of RFR may exist outside of the spillover region, this area does not pose a human health threat (USAF, 1995b). The nearest occupied building to the ASR-7 is 320 feet southeast, which is not subject to a human health threat (USAF, 1997f).

3.12.2 Future Baseline Without the Project

Without the project, the future RFR conditions in the vicinity of the three alternative DASR sites are expected to remain similar to those currently present. There is no planned change in land use in the site locations which would substantially alter the RFR characteristics in the area.

4.0 ENVIRONMENTAL CONSEQUENCES - NO ACTION ALTERNATIVE

The alternative of no action would leave existing ASR-7 and air traffic control equipment in place. In addition, no new construction, renovation, or operations would be required. Since the no action alternative would involve no alteration to any of the three alternative DASR sites at Eglin Main, this alternative would result in no impact to environmental resources. Thus, the environmental consequences of the No Action alternative would be identical to those identified in Section 3.0, Future Baseline Without The Project. However, selecting the No Action alternative, and thereby having to maintain the existing ASR-7, would require relying on uneconomical existing radar equipment that is not capable of meeting user requirements for target detection and weather reporting.

5.0 ENVIRONMENTAL CONSEQUENCES - DASR ALTERNATIVE

5.1 LAND USE

5.1.1 Short-term Impacts

Construction at any of the three alternative DASR sites would have similar impacts to the land use on Eglin Main due to the close proximity of the three sites. However, construction at any of the three sites would have no adverse effect on land use, because all sites are within an area that is zoned as industrial, which permits radar installation and operation.

Although Site 2 is located within the ESQD clearance zone surrounding the munitions storage area, the special rules associated with the zone do permit unmanned radar facilities. However, it is preferred that the DASR be located outside of the ESQD zone to protect the facility from possible damage if a catastrophic event were to occur (USAF, 1997h).

Upon the successful completion of the construction of the DASR, the existing ASR-7 radar would be dismantled. This process would not affect the existing land use of the site, which could be used in the future for an alternative project conforming to the industrial land use category.

5.1.2 Long-term Impacts

Land use would not be substantially affected by the operation of the DASR at Site 1, 2, or 3. Once the construction period is over, the DASR site would be unmanned. The site would consist only of the radar, and would be compatible with the industrial character of the area. The amount of acreage required for the facility is small. Thus the loss of this area for other types of base development would represent a negligible percentage of available land.

5.2 SOCIOECONOMIC

5.2.1 Short-term Impacts

Construction of the DASR at any of the three alternative sites would require identical work efforts, and would therefore have similar effects on the socioeconomic conditions. Construction at alternative Sites 1, 2, or 3 would not adversely impact the socioeconomic conditions at Eglin Main. There would be a slight short-term increase in revenue generated in the surrounding area due to construction employees utilizing local businesses for supplies and personal use. During the construction period, the work crew would consist of approximately 10 persons.

Upon the successful completion of the construction of the DASR the existing ASR-7 radar would be dismantled. The effects of this process on socioeconomic conditions would be similar to the construction phase of the project, which would be a nominal increase of revenue in the surrounding area.

5.2.2 Long-term Impacts

Socioeconomic conditions would return to the existing conditions once the DASR construction was completed. The new radar facility would be unmanned, and would therefore have no long-term effects on socioeconomic conditions.

5.3 UTILITIES AND TRANSPORTATION

5.3.1 Short-term Impacts

The construction of the DASR at any of the alternative sites would not result in impacts to existing utilities or transportation. A temporary water source would be supplied by mobile water tanks. Utility conduits would be added via open trench excavation in order to provide for the DASR operation: approximately 500 feet of conduit for a fiber optic signal cable to connect Site 1 to an existing utility duct bank north of the site; at Site 2, approximately 200 feet of conduit would be

needed for a fiber optic signal cable to connect to an existing utility duct bank southeast of the site across an existing paved road; and Site 3 would require approximately 200 feet of conduit for a fiber optic signal cable, connecting the site to an existing utility duct bank south across Barrier Maintenance Road (USAF, 1997g). Surface disruption resulting from the connections would be minimal. The conditions of the existing duct banks are being determined to insure have sufficient capacity (Raytheon, 1997a). Electrical demands for the DASR would be similar to that of the existing ASR-7 radar system. Power would be supplied to Site 1 through approximately 500 feet of underground electric power line to an existing underground line north of the site at building 926. Site 2 would receive power via overhead lines from an existing 12 KVA line 250 feet east of the site, and Site 3 would be supplied with power via 400 feet of overhead lines from an existing 12 KVA line east of the site (USAF, 1997g). There would be a short-term increase in demand for water and sewage treatment during construction. Portable wastewater units would be on site and the septage would be transported to one of the nearby treatment facilities. During the dismantling of the existing ASR-7 radar there would be a need to remove small amounts of solid waste material that would be inadequate to be used at another site. Any hazardous materials produced would be disposed of following Eglin AFB policies and protocols and relevant state regulations (see also section 5.11 on hazardous materials).

Impacts on transportation within Eglin Main would be minimal. The small size of the project would not produce traffic volume which would effect existing conditions. Personal vehicles and small trucks of the contractor and subcontractors would be on site or at an area designated by the Air Force. There would be a 10 hour period where approximately 20 cement trucks would enter the base for the foundation placement. The foundation cement must be placed continuously resulting in the 10 hour period (Raytheon, 1997a). These cement trucks and other construction vehicles would not exceed rated weight limits of base roads. Construction related vehicles would not adversely impact existing traffic conditions.

5.3.2 Long-term Impacts

Utility and transportation conditions after the completion of the DASR would be similar to the existing conditions if the radar were constructed at any of the three alternative sites. There would be no long-term impacts.

5.4 NOISE

5.4.1 Short-Term Impacts

Noise impacts during construction are expected to be similar at all three sites. Construction of the radar tower and supporting infrastructure, including connections to power and telephone, would result in elevated noise levels as grading and minor excavation occur, and as construction of the tower proceeds. Typical construction equipment noise levels may be reduced by using well-maintained equipment and by installing mufflers and engine jackets (Table 5.4-1). Construction of the tower and supporting infrastructure is anticipated to take approximately three weeks, and therefore, any elevated noise levels would be very short-term in duration. As indicated in the baseline conditions section of this EA, none of the proposed three sites is located in an area populated by sensitive receptors. Of the three sites, Site 3 is closest to an operating building on the base, and intermittent noise disruptions could occur at this facility. It is anticipated that power and telecommunications lines would be conveyed within an existing duct and therefore, there would be no noise impacts at the RAPCON on the main base.

Dismantling and removal of the existing ASR-7 would result in temporary elevated noise levels, however, these are anticipated to be of short duration, and at a distance from any sensitive noise receptors.

**Table 5.4-1. Construction Equipment Noise Levels
in dBA (L_{eq}) at 50 Feet***

Equipment	Field Measurements	Well-Maintained Equipment	Best Technology
Air Compressor	81	71	65
Back Hoe	85 (87 L ₁₀)*	80	76
Concrete Mixer	85	83	75
Concrete Pump	82	80	75
Concrete Vibrator	76	70	--
Crane, Derrick	88	80	66
Crane, Mobile	83	80	76
Dozer	87	83	76
Generator	78	71	78
Grader	85	80	65
Jack Hammer	88	80	76
Loader	84	80	75
Paver	89	80	76
Pile Driver	101	90	76
Pneumatic Tool	85	75	80
Pump	76	71	65
Rock Drill	98	90	65
Roller	80	75	80
Saw	78	70	70
Scraper	88	83	65
Shovel	82	80	78
Truck	88 (90 L ₁₀)*	83	76
Truck Alarms	94	89	75

* Field measurements by CH₂M Hill (1989) for the MWRA CSO construction project indicate that the L₁₀ noise level associated with construction activities averages 2 dB greater than the measured L_{eq} of same equipment.

Sources: Bolt, Beranek, and Newman, 1974; CH₂M Hill, 1989 (*Regulation of Construction Activity Noise*. BBN Report No. 2887. November 1974)

5.4.2 Long-term Impacts

It is not anticipated that there would be any long-term noise impacts as a result of operation of the DASR radar. Noise levels generated by the DASR system would be maintained at a level consistent with current OSHA regulations as specified in CFR Title 29, Part 1910. Noise from the DASR equipment located in operational areas would be designed not to exceed 55 dBA at any time. Noise from DASR system equipment located in general work areas should not exceed 65 dBA, including periods when the cabinet doors are open. The antenna pedestal with its drives, mounted on its tower, will be designed not to produce noise levels in excess of 55 dBA outdoors on the ground at a distance of 100 feet from the tower.

5.5 AIR QUALITY

5.5.1 Short-term Impacts

The short-term air quality impacts of constructing a DASR would be similar at all of the three alternative sites. DASR site clearing and construction vehicle traffic would generate fugitive dust during the six month construction period. Construction of a DASR at any of the sites would require disturbing approximately one-third acre for the facility itself. In addition, installation of electrical connections would require the installation of approximately 500 feet of conduit between the edge of the site and existing overhead lines for Site 1, 250 feet of overhead line to an existing duct bank for Sites 2, and 400 feet of overhead line to an existing duct bank for Site 3. Installation of fiber optic signal cable connections would require the installation of approximately 500 feet of conduit from Site 1 to an existing duct bank, 200 feet of conduit from Site 2 to an existing duct bank, and 200 feet of conduit from Site 3 to an existing duct bank. Since the area that would be disturbed at each of the sites is similar, the amount of dust generated during construction is not expected to vary substantially among the sites. The amount of dust anticipated at any of the Eglin AFB sites is substantially less than that estimated in the Programmatic EA for the NAS program because a smaller area would be disturbed for the Eglin AFB DASR facility itself than was predicted in the Programmatic EA (one-third acre vs. one-half acre); no new roads would be needed with the exception of gravel access driveways; and smaller lengths of new utility lines would be needed than were anticipated in the Programmatic EA (maximum of 1,000 feet vs. 2,640 feet; USAF, 1995b). All dust will be minimized

by applying water as needed during construction. Consequently, no adverse short-term dust impacts are anticipated at any of the sites.

As described in the Programmatic EA for the NAS program (USAF, 1995n), construction vehicles and equipment would produce emissions that could temporarily affect air quality, but are not anticipated to cause an exceedence of National Ambient Air Quality Standards (NAAQS) in the vicinity of the NAS sites. Similarly, these emissions are not anticipated to cause an exceedence of FAAQS. At Eglin AFB, the atmospheric inversions which are common could trap vehicle and equipment emissions close to the ground surface for short periods of time. However, since these inversions typically last only during morning hours, the meteorological conditions are not anticipated to substantially augment the effects of the construction period emissions.

Similar to the installation of the new DASR, dismantling of the existing ASR-7 radar would generate some fugitive dust and some vehicle and equipment emissions. The nominal emissions and dust generated during the ASR-7 dismantling are not anticipated to cause an exceedence of either the state or federal AAQS.

5.5.2 Long-term Impacts

Operation of the DASR at any of the three alternative sites would produce identical emissions, which are not anticipated to have any adverse impact on air quality. Sources of emission during the operation of the DASR would include the operation of the emergency diesel generator at the DASR site, and evaporative loss of fuel from the above-ground storage tank on the DASR site. As described in the Programmatic EA for the NAS program (USAF, 1995b), the emergency generator is anticipated to be operated approximately once/week for testing and during occasional power outages. The emissions anticipated to be produced by the emergency generator would be far below 100 tons per year which require review under the Prevention of Significant Deterioration regulations, and are therefore expected to have no adverse impact on air quality (USAF, 1995b). The evaporative loss from the AST is also expected to be minimal, and to have no adverse impact on air quality. The Programmatic EA also stated that maintenance traffic on unpaved access roads would generate fugitive dust during operation of the DASR facility. However, all of the potential DASR sites at

Eglin AFB would be accessed by either paved or gravel roads. Consequently, minimal fugitive dust should be generated during operation of the DASR facility at Eglin AFB.

5.6 GEOLOGY AND SOILS

5.6.1 Short-term Impacts

The construction of the DASR would have similar effects on the soil at any of the alternative sites. Excavation for the foundation of the DASR and utility conduits would not exceed 10 feet in depth. The Lakeland series occurs at all three alternative DASR sites to a depth of approximately six feet. Consequently, four feet of sand would be disturbed. Due to the nature of the soils in the area, problems associated with caving may occur during excavation for the utility conduits and foundations.

If the banks of the excavated areas are unstable, they could be stabilized with sheeting or other supports as appropriate.

The distance to be excavated at Site 1 for the proposed underground electric cables conduit is approximately 500 feet to an existing utilities duct bank (see Figure 2-4), and 500 feet for the proposed fiber optic signal cable.

At Site 2 the distance to be excavated for the proposed fiber optic signal cable conduit is approximately 200 feet to an existing duct bank (see Figure 2-5).

The distance to be excavated for the proposed fiber optic signal cable conduit from Site 3 to an existing duct bank is approximately 200 feet (see Figure 2-6).

The dismantling of the ASR-7 would not required of any ground disturbance. Therefore, there would be no impact to the soils or geology.

5.6.2 Long-term Impacts

There would be no long-term impacts to the existing soils or geology if the DASR were constructed at any of the alternative sites.

5.7 SURFACE WATER AND GROUNDWATER

5.7.1 Short-term Impacts

Construction of the DASR at any of the alternative sites would have no impacts on surface water because there are no surface water features in the vicinity of any of the three alternative sites. Groundwater would not be impacted by excavating for the utility conduits and foundations for the DASR and operations building. The depth to groundwater is approximately six feet during high rain fall at all sites, and the depth of excavation is 5 feet for the foundations and 3 feet for the conduits, at all sites.

The dismantling of the ASR-7 would not require ground disturbance and any materials (ie. paint chips) that are produced would be removed from the area and disposed of in accordance with base regulations. Therefore, there would be no impact to surface water or ground water. For more information on hazardous materials refer to section 5.11.

5.7.2 Long-term Impacts

There would be no long-term impacts to the surface water or groundwater if the DASR were to be constructed at any of the three alternative sites. There would be minimal change in stormwater runoff at any of the three sites. Removal of the ASR-7 is also not expected to have an impact on stormwater runoff.

5.8 BIOLOGICAL RESOURCES

5.8.1 Short-term Impacts

The short-term impacts of constructing a DASR would be the same at any of the three alternative sites because all of the sites have minimal existing value in terms of biological resources. Construction of the DASR would require disturbing approximately one-third acre of mowed grass to install the antenna foundation, which is anticipated to have no adverse impact on wildlife habitat. In addition, the noise generated during construction is expected to have minimal impact on wildlife

in the area, since the general vicinity of all the sites provides minimal valuable habitat for wildlife. Furthermore, all of the sites are in close proximity to the two runways on Eglin Main, which generate substantially greater amounts of noise than would the construction of the DASR. The construction of the DASR would also have no impact on unique vegetation or plant communities, since the sites are all dominated by mowed grass.

The dismantling of the ASR-7 radar is not anticipated to have any effect on biological resources, due to the limited wildlife value of the mowed grass habitat characterizing the ASR-7 site. Birds utilizing the area will simply construct future nests in other nearby locations.

5.8.1 Long-term Impacts

Operation of the DASR at any of the three alternative sites is not anticipated to have any adverse impact on biological resources. Each of the three sites is located in an area characterized by minimal wildlife use. Consequently, the presence and operation of the DASR system should not interfere with wildlife. The DASR tower could theoretically pose an obstacle to birds flying through the area of the site. However, as discussed in the Programmatic EA for the NAS program (USAF, 1995b), the relatively low height of the DASR antennas is not anticipated to pose a substantial threat to birds flying through the area. Furthermore, as discussed above, the general area of all of the DASR sites offers minimal habitat for birds, and it is unlikely that there would be large numbers of birds flying through the area.

Since all of the three alternative DASR sites are located in relatively flat upland areas away from wetlands and watercourses, it is anticipated that the presence of the DASR structure would have minimal to no effect on sedimentation and erosion in down slope habitat areas.

5.9 AESTHETIC RESOURCES

5.9.1 Short-term Impacts

The construction of the DASR at alternative Site 1, 2, or 3 would not adversely impact aesthetic resources on Eglin Main. Presently the aesthetic values of the area, including all the alternative sites

is limited because it is used for base air traffic and maintenance. Therefore, the construction activity associated with the DASR and removal of the ASR-7 would not change the existing aesthetic resources at the sites.

5.9.2 Long-term Impacts

All three alternative sites and the existing ASR-7 are located on Eglin Main in areas that the general public cannot easily access. There would be no long-term impacts to aesthetic resources because the aesthetic value of the DASR is equal to that of existing aesthetic resources in the area, which include antenna towers, power lines, and maintenance buildings. With the ASR-7 removed, there would be minimal changes in aesthetic conditions.

5.10 CULTURAL RESOURCES

5.10.1 Short-term Impacts

Consultation with Eglin AFB and the State Historic Preservation Officer (SHPO) has indicated that no significant archaeological or historical sites are recorded or likely to be present within the project area. The area has been mapped as having low probability for the presence of cultural resources. Consequently, construction at any of the alternative sites should have no impact on cultural resources.

The dismantling of the ASR-7 would not consist of any ground disturbance, therefore, there would be no cultural or historic resource impacts.

5.10.2 Long-term Impacts

There would be no cultural or historic resource impacts at any of the alternative sites.

5.11 POLLUTION PREVENTION AND HAZARDOUS WASTE

5.11.1 Short-term Impacts

5.11.1.1 Pollution Prevention. The construction phase of the DASR project would comply with all applicable Eglin AFB policies and guidelines for pollution prevention. In addition, a pollution prevention plan is under development for the NAS program. This plan would prohibit the use of all Class I ozone depleting chemicals, and would direct the contractor to minimize the use of Class II ozone depleting chemicals and toxic substances. Consequently, hazardous waste generation is anticipated to be reduced to the maximum extent possible during construction of the DASR facility and the dismantling of the existing ASR-7 radar. Identical pollution prevention measures would be implemented during DASR construction regardless of the alternative site at which the facility is constructed.

5.11.1.2 Hazardous Waste. At each of the three alternative DASR sites, some hazardous materials and waste would likely be used and generated during the DASR construction, including: equipment fuel, engine oil, hydraulic oil, grease, and other equipment operation and maintenance material. Refueling of equipment may also take place at the alternative DASR site selected for construction. Any hazardous materials used during the DASR construction would be used, stored, transported, and disposed in accordance with base, military, state and federal regulations.

It is anticipated that no contaminated soils would be encountered at Sites 1, 2, or 3. The construction of the DASR facility would require excavating to a depth of less than 10 feet to facilitate the antenna foundation installation. Due to the relatively shallow depth of installation, groundwater would not be encountered at any of the sites. Consequently, there would be no potential for encountering contaminated groundwater at any of the alternative DASR sites. Similarly, the utility trenches would be relatively shallow and would therefore not encounter groundwater.

The existing ASR-7 radar is painted with lead paint. The ASR-7 will be dismantled and transported off-site. Consequently, substantial amounts of lead paint should not be left on site as a consequence

of the decommissioning of the radar. However, small pieces of lead paint may chip off of the ASR-7 radar during the dismantling process. As part of the dismantling, the area will be surveyed prior to final site decommissioning, and lead paint chips will be collected and disposed of in accordance with applicable Eglin AFB policies and procedures. Based on information provided by Eglin AFB (USAF, 1997c), no soil or groundwater contamination is believed to exist at the ASR-7 site. Furthermore, the UST at the ASR-7 site is expected to be replaced with an AST prior to the dismantling of the ASR-7 (USAF, 1997e). Consequently, it is not anticipated that contaminated soil or groundwater will be encountered during the ASR-7 dismantling, nor that hazardous waste will be generated at the site.

5.11.2 Long-term Impacts

5.11.2.1 Pollution Prevention. As indicated above, a pollution prevention plan has been developed for the NAS program, which prohibits the use of all Class I ozone depleting chemicals, and directs the contractor to minimize the use of Class II ozone depleting chemicals and toxic substances. In addition, operation of the DASR facility would comply with all applicable Eglin AFB policies and guidelines for pollution prevention. Consequently, hazardous waste generation is anticipated to be reduced to the maximum extent possible during the operation of the DASR facility.

5.11.2.2 Hazardous Waste. Operation of the radar facility at any of the three alternative DASR sites would include the storage of fuel in an AST. In addition, hazardous materials and waste would likely be used and generated during the DASR operation, including: equipment fuel, engine oil, hydraulic oil, grease, and other equipment operation and maintenance material. All hazardous waste would be used and disposed of in accordance with applicable regulations and base policies. Consequently, it is not anticipated that any soil or groundwater contamination would occur as a result of the DASR operation.

5.12 RADIO FREQUENCY RADIATION

5.12.1 Short-term Impacts

Construction at any of the DASR alternative sites on Eglin AFB would not generate RFR at levels that would be harmful to human health. Some low levels of RFR could be generated from commonly used devices at construction sites, such as cellular telephones or portable computers. However, any RFR generated would be typical of that which exists throughout the human environment and is not anticipated to be harmful to human health.

Dismantling of the existing ASR-7 would occur only after operation of the radar has ceased. Consequently, there should be no RFR hazard to workers involved in the ASR-7 dismantling. Similar to the DASR construction, dismantling activities at the ASR-7 site could generate low levels of RFR from commonly used devices, which are not anticipated to be harmful to human health.

5.12.2 Long-term Impacts

Operation of the DASR radar at any of the three alternative sites would generate identical levels of RFR. The level of RFR generated would be similar to that currently generated by the existing ASR-7 radar. As discussed in the Programmatic EA for the NAS program and Section 3.12 of this EA, the RFR generated by the existing ASR-7 is only hazardous at close distances to the radar when it is operating. Similarly, the RFR generated by the DASR would only be hazardous at close ranges. The tower immediately below the radar antenna would be in the spillover region, and would be hazardous to humans while the radar is operating. At any of the three alternative DASR sites, the facility would be sited a sufficient distance from occupied buildings that the radar operation would not pose a RFR hazard to personnel within the general vicinity of any of the DASR sites. To advise personnel in the area of the RFR hazard at close ranges, signs would be posted at the perimeter of DASR facility warning against approaching the antenna while it is in operation. There would be no RFR generated from the antenna, and therefore no RFR hazard, when the antenna is not in operation.

The ESC Frequency Management Office (ESC/FMO) Standard Frequency Form was forwarded to Materiel Command at Wright Patterson Air Force Base in July 1997. Materiel Command is negotiating with the FAA Southern Region regarding acceptable frequencies for the DASR at Eglin AFB. The FAA Frequency Manager for the Southern Region is coordinating with Eglin AFB, Tyndall AFB, and Whiting Field regarding acceptable frequencies for the DASR at Eglin Main (USAF, 1997i).

6.0 COMPARISON OF ENVIRONMENTAL CONSEQUENCES AND SELECTION OF ENVIRONMENTAL PREFERRED ALTERNATIVE

All of the three alternative DASR sites have extremely similar existing conditions for each of the parameters considered in this EA. All of the sites are located in areas zoned for industrial use. All of the sites are located on Eglin Main near the intersection of Runway 01-19 and Runway 12-30, and, therefore, are characterized by similar existing socioeconomic, noise, traffic, and air quality conditions. All of the alternative DASR sites are located in upland areas vegetated with mowed grass, and are characterized by rapidly draining soils and deep water tables. Wildlife use of all of the three sites is anticipated to be minimal due to the poor quality of the habitat available at the sites and the close proximity of human activity. No surface water resources or wetlands, threatened or endangered species, or cultural resources are present at any of the sites. All of the sites are located in areas with minimal aesthetic value, due to the developed nature of the area and the proximity of runways and associated operation and maintenance buildings. No known sources of RFR are present at any of the alternative sites, although many commonly used devices likely contribute to low level background RFR (such as cellular phones and computers).

One feature which is different at the three sites is the presence of media contaminated with hazardous waste. None of the three sites is known to include contaminated soils. However, the groundwater underlying Site 1 may be contaminated as a result of historic activities at the nearby abandoned fire training area. Site 2 and 3 are not believed to be underlain by contaminated groundwater.

The same intensity and type of construction would be utilized to install the DASR facility regardless of which site is chosen. Since the vast majority of existing conditions at the three sites are either identical or extremely similar, there would be little or no difference in environmental consequences for these parameters whether construction proceeded at Sites 1, 2 or 3. In addition, although the groundwater at Site 1 may be contaminated with hazardous materials, the excavation required to install the DASR facility would be extremely shallow relative to the depth of the groundwater. Consequently, construction at any of the sites would result in no contact with groundwater, and the consequences of construction at all of the sites would be the same in regard to hazardous materials.

Due to the developed nature of all of the sites and the absence of sensitive resources of any type, construction of the DASR at any of the sites would result in minimal impacts to the existing natural and human environments.

Similarly, there would be no difference among the three alternative DASR sites in regard to long-term impacts. As indicated above, the existing characteristics of the natural and human environments at the sites are either identical or extremely similar at Sites 1, 2, and 3. Operation of the DASR facility is anticipated to have minimal impacts to the natural and human environments. The radar would generate RFR while operating. However, the RFR generated would be safe to humans at ground level, except at very close distances to the radar. Since warning signs would be placed at the perimeter of the facility, the RFR generated from the radar is not anticipated to pose a harm to the general population. During the DASR operation, fuel and other hazardous materials may be used at the site, such as engine oil, grease. However, use and disposal of any hazardous materials would occur in compliance with Eglin AFB protocols and guidelines as well as applicable state and federal regulations. Consequently, it is anticipated that operational use of hazardous materials will not adversely affect the natural or human environments.

In summary, construction and operation of the DASR facility would result in minimal short-term and long-term impacts, regardless of which site is selected as the preferred location. Since the potential environmental consequences would be extremely similar at any of the three sites, none of the sites emerges as the environmentally preferred site. Instead, each of the three sites would be an acceptable location for the DASR facility from an environmental perspective.

7.0 MITIGATION

Due to the minimal impacts that are predicted to occur as a result of the proposed DASR construction, few mitigation measures would be required. During the construction period, sheeting or supports of some kind may be used in the areas excavated for the antenna foundation and utility trenches in order to prevent collapse of these excavated areas. To minimize noise impacts during construction, mufflers would be used on construction equipment and vehicles. In addition, all equipment and vehicles used during construction would be maintained in good operating condition so that emissions are minimized, thus reducing the potential for air quality impacts. All areas disturbed for the DASR construction would be seeded with a grass mixture to stabilize the disturbed soils, in order to minimize the potential for erosion and sedimentation. All hazardous materials used during construction would be used and disposed of in accordance with Eglin AFB policies and protocols and all applicable state and federal regulations.

During operation of the DASR, fuel would be stored at an AST and some hazardous materials, such as equipment oil or grease, may be used at the site. Similar to the construction period, all hazardous materials used during operation would be used and disposed of in accordance with Eglin AFB policies and protocols and all applicable state and federal regulations in order to minimize the potential for media contamination. The only other mitigation measure that would be implemented during the operation of the DASR facility is the installation of warning signs at the facility perimeter which state that the facility should not be approached at a distance closer than the warning signs while the radar is in operation, due to the potential for RFR hazards.

ACRONYMS AND ABBREVIATIONS

ACC	Air Combat Command
AFDTC	Air Force Development Test Center
AOC	Areas of Concern
ASR	Airport Surveillance Radar
AST	Above-ground Storage Tank
DAAS	DoD Advanced Automation System
DASR	Digital Airport Surveillance Radar
DB	Decibel
DBA	Decibel Ampere
DBW	Decibel Watt
DoD	Department of Defense
EA	Environmental Assessment
ESQD	Explosive Safety Quality Distance
FAA	Federal Aviation Administration
FDEP	Florida Department of Environmental Protection
FONSI	Finding of No Significant Impact
Hz	Hertz
IEEE	Institute of Electrical Electronics Engineers
IRP	Installation Restoration Program
KVA	Kilovolt Ampere
LCF	Local Control Facilities
MCT	Military Control Towers
Mg/L	Miligrams per liter
MPO	Metropolitan Planning Organizations
NAAQS	National Ambient Air Quality Standards
NAS	National Airspace System
NEPA	National Environmental Policy Act
RAPCON	Radar Approach Control
RFR	Radio Frequency Radiation
SPL	Sound Pressure Level
USAF	United States Air Force
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCSS	Voice Communications Switching System
WWTP	Wastewater Treatment Plant

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APPENDIX A: LISTING OF AGENCIES AND INDIVIDUALS CONTACTED

LISTING OF AGENCIES AND INDIVIDUALS CONTACTED

Eglin AFB Environmental Restoration Group, S. Williams

Eglin Main Civil Engineering (96CEG) Dan Tovar

Eglin Main Civil Engineering (96CEG/CECPM), Joe Brannon

Eglin AFB Civil Engineering (96CEG/CEPC), Dennis Rackard

Eglin AFB 46 Text Wing/XPE, Tom Heffernan

Eglin AFB Hazardous Waste Group (AFDTC/EMR), Ralph Armstrong

Eglin AFB Radar Management Group (SES/MAA), Senior Airman Sallions

Florida Department of State Division of Historical Resources State Historic Preservation Office,
George W. Percy, Director

Headquarters Air Force Development Test Center (AFDTC/EMSN), Carl Petrick, Supervisory Fish
and Wildlife Biologist and Bernd Haneke

Headquarters Air Force Development Test Center (AFDTC/EMSH), Dawna Marden, Archaeologist

APPENDIX B: AGENCY CORRESPONDENCE



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE DEVELOPMENT TEST CENTER (AFMC)
EGLIN AIR FORCE BASE, FLORIDA

U.S. AIR FORCE



7 Feb 97 1947 - 1997

Mr. Carl Petrick
Supervisory Fish and Wildlife Biologist
AFDTC/EMSN
501 De Leon Street, Suite 101
Eglin, AFB FL 32542-5133

Metcalf and Eddy
Ms. Jennifer Doyle-Green
30 Harvard Mill Square
Wakefield, MA 01880-5371

Dear Ms. Doyle-Green:

In a letter dated 6 Feb 96, you requested that AFDTC/EMSN evaluate three potential locations for the Digital Airport Surveillance Radar System (DASR) for the presence of federally listed plant and animal species and unique natural habitats. The three sites that were evaluated correspond to the sites indicated on a map provided by you.

The three areas indicated have been previously cleared and are mowed periodically, therefore they have been altered substantially. It is also our understanding that no tree clearing will be required in any of the three sites. As these are well-drained upland sites, there are also no jurisdictional wetlands. Our records indicate that no federally listed plant or animal species occur at the three locations, nor are there any species of special concern, candidate species, or unique natural habitats.

We hope that the enclosed information will satisfy your needs. If you have any questions regarding these three sites or require additional information, please feel free to contact myself or Mr. Bernd Haneke at (904) 882-4164.

Sincerely,

Carl Petrick, GS-12



5/1/97

FLORIDA DEPARTMENT OF STATE

Sandra B. Mortham
Secretary of State

DIVISION OF HISTORICAL RESOURCES

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March 24, 1997

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Dr. Newell O. Wright
Department of the Air Force
AFDTC/EMPH
501 DeLeon Street, Suite 101
Eglin Air Force Base, FL 32542-5133

In Reply Refer To:
Scott B. Edwards
Historic Sites Specialist
Project File No. 970812

RE: Cultural Resource Assessment Request
Construction of a Digital Airport Surveillance Radar (DASR)
Eglin AFB, Okaloosa County, Florida

Dear Dr. Wright:

In accordance with the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the referenced project for possible impact to historic properties listed, or eligible for listing, in the *National Register of Historic Places*. The authority for this procedure is the National Historic Preservation Act of 1966 (Public Law 89-665), as amended.

A review of the Florida Master Site File indicates that no significant archaeological or historical sites are recorded for or likely to be present within the project area. Furthermore, because of the project location and/or nature it is unlikely that any such sites will be affected. Therefore, it is the opinion of this office that the proposed project will have no effect on historic properties listed, or eligible for listing, in the *National Register of Historic Places*.

If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

George W. Percy, Director
Division of Historical Resources
and
State Historic Preservation Officer

GWP/Esc



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE DEVELOPMENT TEST CENTER (AFMC)
EGLIN AIR FORCE BASE, FLORIDA

U.S. AIR FORCE



1947 - 1997

FEB 1997

AFDTC/EMSH
501 DeLeon St, Ste 101
Eglin AFB FL 32542-5133

Jennifer Doyle-Breen,
Senior Environmental Scientist
Metcalf & Eddy
30 Harvard Mill Square
PO Box 4071
Wakefield MA 01880-5371

Dear Ms. Doyle-Breen

The three sites under consideration for proposed construction of a Digital Airport Surveillance Radar at Eglin Air Force Base are in an area which has been mapped as low probability for the presence of cultural resources. In accordance with the National Historic Preservation Act (NHPA) 106 Review process the State Historic Preservation Officer (SHPO) has been consulted for their review. We have recommended to the SHPO that this area is clear of concern for cultural remains. Work on this project should not proceed until consultation is complete.

Attached is a copy of the letter we have submitted to the SHPO. I will contact you when I receive their response.

If I can be of further assistance please call me at 904-882-4435, Ext 588.

Sincerely

DAWNA MARDEN
Archaeologist

Attachment:
SHPO Ltr w/Atch



DEPARTMENT OF THE AIR FORCE
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14 Feb 97

AFDTC/EMSH
501 DeLeon St, Ste 101
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Mr. George Percy
Florida State Historic Preservation Officer
Attn: Compliance Division
R.A. Gray Bldg
500 South Bronough St
Tallahassee FL 32399-0250

Dear Mr. Percy

An action is planned at Eglin AFB, FL which is, according to the National Historic Preservation Act (NHPA), subject to the Section 106 review process. This letter will briefly describe the action and the areas under consideration for the proposed location of the project and elicit any comments you may have.

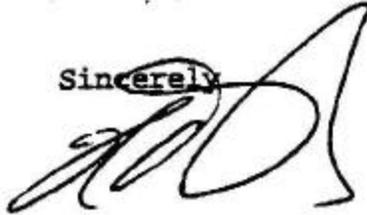
Eglin AFB plans to replace an existing Airport Surveillance Radar (ASR) with a Digital ASR (DASR) on Eglin Main (see Atch., Fig. 1). Three sites are being considered for the location of the radar, all near the intersection of Runways 10-19 and 12-30 (the N - S and NW - SE runways, respectively; see Atch, Fig. 2); only one site will be chosen. Each site is approximately one acre in size.

This activity will not effect any of Eglin's historic structures or proposed historic districts. Further, the area of the undertaking is mapped as low probability for archaeological resources in Eglin's draft Cultural Resources Management Plan and has been previously disturbed by base activities, such as construction of the runway. Eglin therefore feels there is no need for an archaeological survey prior to this construction.

With this letter Eglin is notifying you, as required by Section 106 of the NHPA, that no potentially eligible historic properties, including archaeological sites, are located within the zone of proposed action. If your office does not respond within 30 days, it is assumed you concur with this determination and the undertakings will proceed. However, should you need more information about the planned actions, please contact Ms. Dawna Marden, 904-882-4435, Ext 588.

Once again, Eglin is pleased to have the opportunity to work with you in ensuring protection of the cultural resources of the state of Florida.

Sincerely

A handwritten signature in black ink, appearing to be 'Newell Wright', written over the word 'Sincerely'.

NEWELL WRIGHT, Ph.D.
Historic Preservation

Officer

Attachment:
Maps

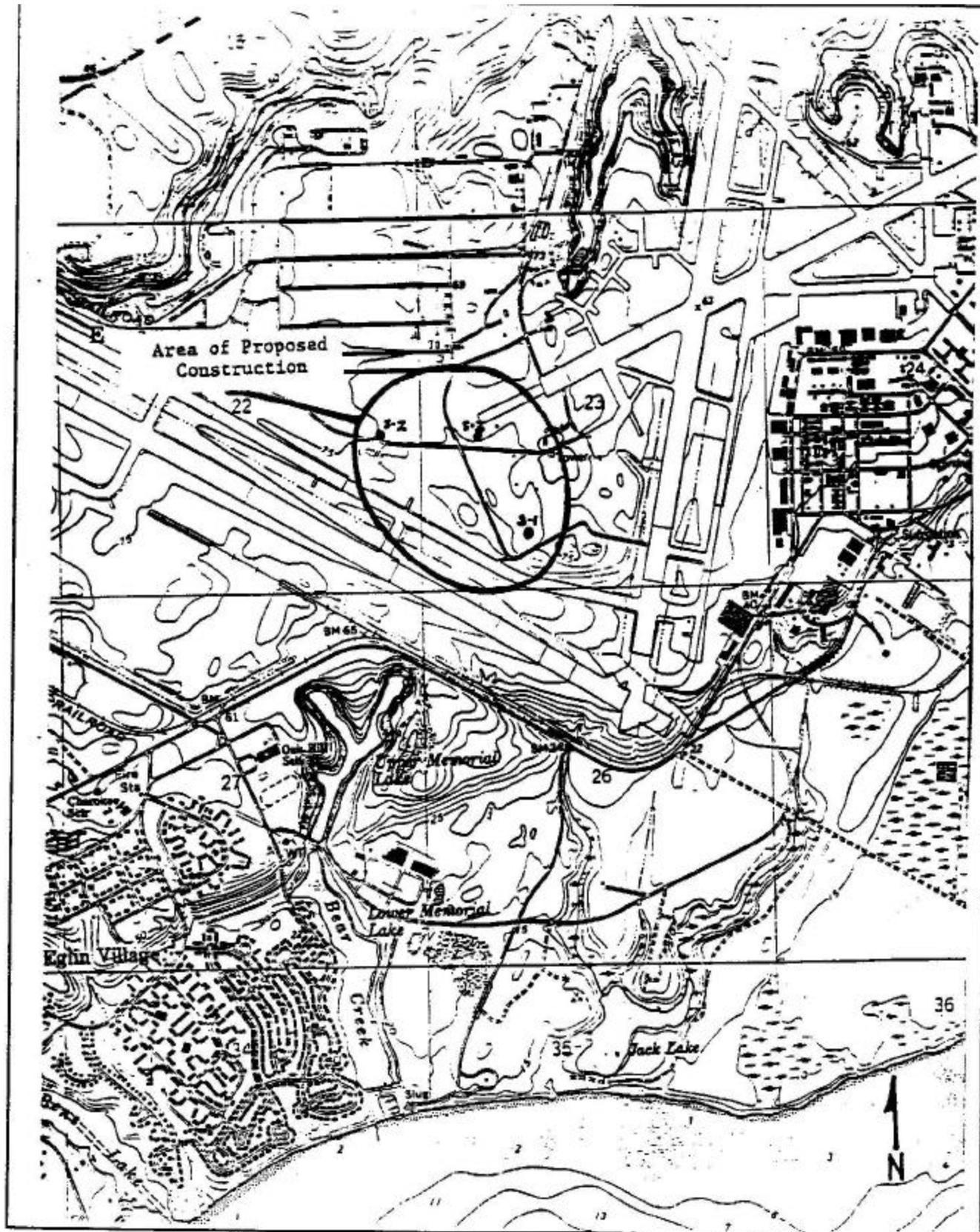


Figure 1. Area of Proposed Construction on Eglin AFB
 From: USGS Quadrangle, Fort Walton Beach, FL 1970, PR 76, MR 92

Scale: 1:24,000

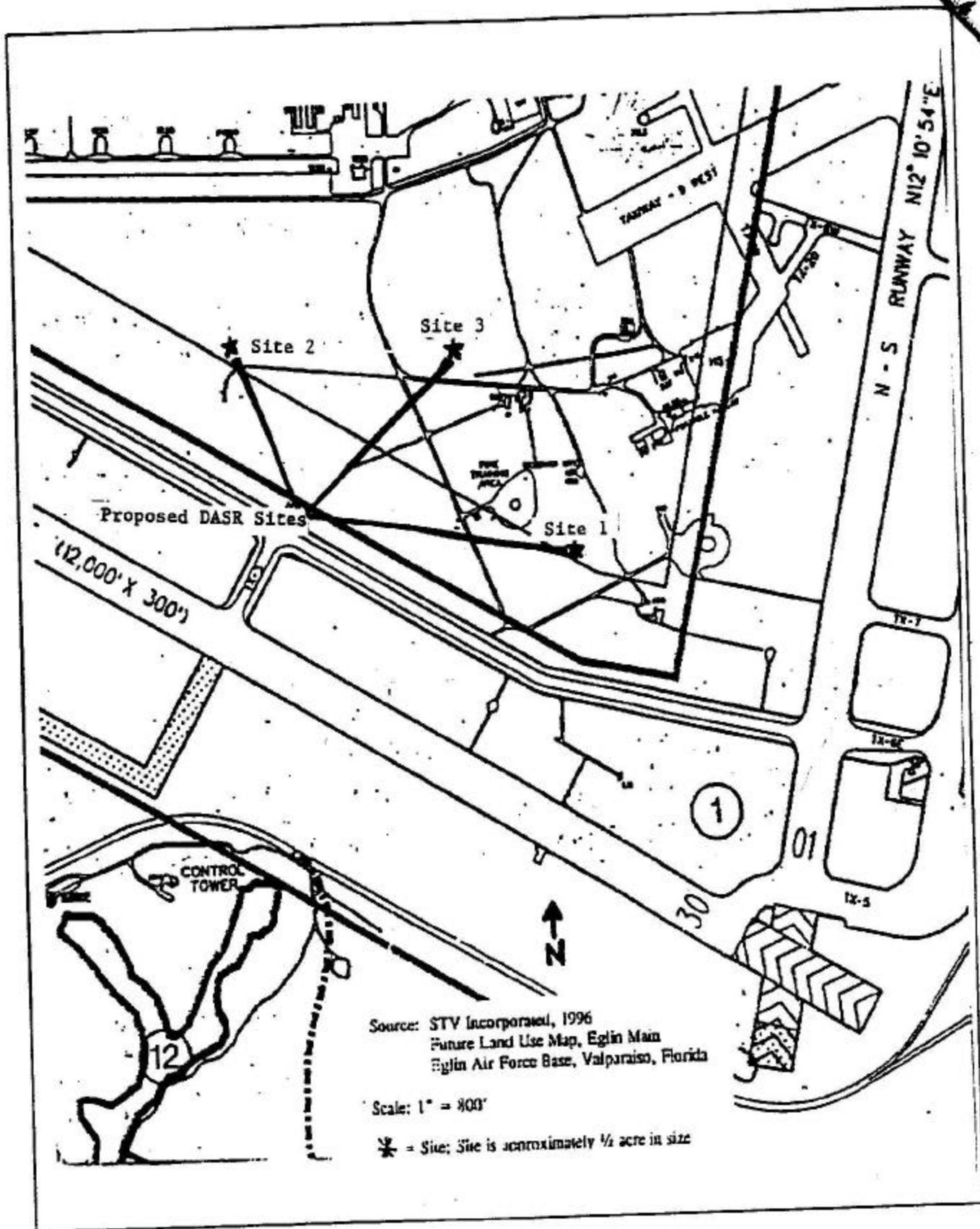


Figure 2. Sites Proposed for Construction of DASR System on Eglin AFB
 From: STV Incorporated, 1996, Future Land Use Map, Eglin Main

Scale: 1" = 800'