

*Final*  
**Environmental Assessment for the  
Implementation of Base Realignment and Closure 2005  
Realignment Actions at  
Wilmington, North Carolina**



*Prepared for:*

**U.S. ARMY RESERVE**

*Prepared by:*

**U.S. ARMY CORPS OF ENGINEERS  
MOBILE DISTRICT**

April 2009

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## **ENVIRONMENTAL ASSESSMENT ORGANIZATION**

This environmental assessment (EA) addresses the proposed action to implement the Base Realignment and Closure (BRAC) 2005 Realignment Actions at Wilmington, North Carolina. It has been developed in accordance with the National Environmental Policy Act and implementing regulations issued by the Council on Environmental Quality (Title 40 of the *Code of Federal Regulations* [CFR] Parts 1500–1508) and the Army (32 CFR Part 651). Its purpose is to inform decisionmakers and the public of the likely environmental and socioeconomic consequences of the proposed action and alternatives.

An **EXECUTIVE SUMMARY** briefly describes the proposed action, environmental and socioeconomic consequences, and mitigation measures.

### **CONTENTS**

- SECTION 1.0:**      **PURPOSE, NEED, AND SCOPE** summarizes the purpose of and need for the proposed action and describes the scope of the environmental impact analysis process.
- SECTION 2.0:**      **PROPOSED ACTION** describes the proposed action to implement the BRAC 2005 realignment actions at Wilmington, North Carolina.
- SECTION 3.0:**      **ALTERNATIVES** examines alternatives to implementing the proposed action.
- SECTION 4.0:**      **AFFECTED ENVIRONMENT AND CONSEQUENCES** describes the existing environmental and socioeconomic setting at the proposed site in Wilmington, North Carolina, and identifies potential effects of implementing the proposed action.
- SECTION 5.0:**      **FINDINGS AND CONCLUSIONS** summarizes the environmental and socioeconomic effects of implementing the proposed action.
- SECTION 6.0:**      **REFERENCES** provides bibliographical information for cited sources.
- SECTION 7.0:**      **PERSONS CONSULTED** provides a listing of persons and agencies consulted during preparation of this EA.
- SECTION 8.0:**      **LIST OF PREPARERS** identifies the persons who prepared the document.
- SECTION 9.0:**      **DISTRIBUTION LIST** indicates recipients of this EA.
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**FINAL ENVIRONMENTAL ASSESSMENT FOR THE  
IMPLEMENTATION OF BASE REALIGNMENT AND CLOSURE  
2005 REALIGNMENT ACTIONS AT WILMINGTON, NORTH  
CAROLINA**

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## ***ENVIRONMENTAL ASSESSMENT***

***LEAD AGENCY:*** U.S. Army Reserve

***TITLE OF PROPOSED ACTION:*** Implementation of the Base Realignment and Closure 2005 Actions at Wilmington, North Carolina

***AFFECTED JURISDICTION:*** Wilmington, North Carolina

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***APPROVED BY:*** Charles E. Gorton, Major General, U.S. Army Commanding

***ABSTRACT:*** This environmental assessment (EA) considers implementing the proposal to construct and operate an Armed Forces Reserve Center (AFRC) at Wilmington, North Carolina, according to the Base Realignment and Closure (BRAC) 2005 Commission recommendations. The EA identifies, evaluates, and documents the effects of constructing and operating the new AFRC, which would consist of a training building, organizational maintenance shop, an unheated storage building, and parking for military vehicles and privately owned vehicles. A No Action Alternative is also evaluated. Implementing the proposed action is not expected to result in significant environmental impacts. Therefore, preparation of an environmental impact statement is not required, and a finding of no significant impact (FNSI) will be published in accordance with the National Environmental Policy Act.

***REVIEW COMMENT DEADLINE:*** The EA and draft FNSI are available for review and comment for 30 calendar days from the publication of a Notice of Availability in *The Star-News*. Copies of the final EA and draft FNSI can be obtained by contacting Mr. Dan H. Thomas, III of the U.S. Army Reserve (USAR) 81st Regional Support Command (RSC), DPW, Environmental Division, at (803) 751-9391, or at [harry.thomas@usar.army.mil](mailto:harry.thomas@usar.army.mil). The EA is also available on the BRAC Division Web site at [http://www.hqda.army.mil/acsim/brac/env\\_ea\\_review.htm](http://www.hqda.army.mil/acsim/brac/env_ea_review.htm). Copies of the EA also have been provided to the following library: New Hanover County Main Library, 201 Chestnut Street, Wilmington, NC 28401. Comments on the EA and draft FNSI should be submitted to Mr. Thomas no later than 30 days from the publication of the NOA at USAR 81st RSC DPW, Attn: Mr. Dan H. Thomas, Chief, Environmental Division, 1525 Marion Avenue, Fort Jackson, SC 29207, or at [harry.thomas@usar.army.mil](mailto:harry.thomas@usar.army.mil).

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## **EXECUTIVE SUMMARY**

### **ES.1 INTRODUCTION**

This environmental assessment (EA) describes and analyzes the effects of implementing the 2005 Defense Base Closure and Realignment Commission (BRAC Commission) recommendations with respect to Wilmington, North Carolina, and associated actions on the human environment.

### **ES.2 BACKGROUND**

With respect to Wilmington, North Carolina the BRAC Commission recommended in relevant part:

Close the Army Reserve Adrian B. Rhodes Armed Forces Reserve Center in Wilmington, North Carolina, close the Rock Hill Armed Forces Reserve Center in Rock Hill, South Carolina, close the Niven Armed Forces Reserve Center in Albermarle, North Carolina, and relocate all Army and Navy units to a new Armed Forces Reserve Center (AFRC) and Organizational Maintenance Shop (OMS) in Wilmington, North Carolina, if the Army is able to acquire suitable land for the construction of the facilities.

To meet the BRAC directive, the Army proposes to acquire approximately 11 acres in Wilmington. After acquiring the property, the Army would construct an AFRC having approximately 63,200 square feet of space. The primary facilities of the new AFRC would consist of a training building, an OMS, an unheated storage building, and parking area for military and privately owned vehicles. The facilities would be adequate to accommodate 400 personnel.

### **ES.3 PROPOSED ACTION AND ALTERNATIVES**

#### **ES.3.1 Proposed Action – Site 4—3623 Carolina Beach Road**

The site proposed for the new AFRC is known as Site 4—3623 Carolina Beach Road site. The site is on Carolina Beach Road and consists of approximately 11 acres. The primary facilities of the new AFRC would consist of a training building, an OMS, an unheated storage building, and parking for military and privately owned vehicles. The facilities would be sufficient to accommodate 400 personnel. Demolition of a single story structure (~1,786 square feet) would be required. Construction of the new AFRC would be completed by 2011. The Wilmington AFRC would support operations of units of the Army Reserve and Naval Reserve.

#### **ES.3.2 Site 5—1402 North 23<sup>rd</sup> Street Site Alternative**

Review of other potential sites for construction of the AFRC at Wilmington produced one parcel that is satisfactory in terms of size, availability, compatibility of use, topography, and convenience. The alternative parcel is approximately 11.37 acres and is referred to as Site 5—1402 North 23<sup>rd</sup> Street site. This forested site is accessible from North 23<sup>rd</sup> Street and Scientific Park Drive. The site is approximately 0.5 miles southwest of the Wilmington International Airport and while compatible, aircraft noise would be clearly audible from aircraft arrivals and departures. Additionally, this site is in line with the approach path for a runway and is within Airport Impact Zones 2 and 3. This alternative is evaluated in detail in the EA.

### **ES.3.3 No Action Alternative**

Inclusion of the No Action Alternative is prescribed by CEQ regulations. The No Action Alternative serves as a baseline alternative against which other alternatives can be evaluated. No action assumes that the Army would continue its mission as it existed in November 2005, with no unit relocations and no new facilities constructed. Because the BRAC Commission's recommendations now have the force of law, continuation of the November 2005 missions are not possible without further congressional action. The No Action Alternative is evaluated in detail in this EA.

## **ES.4 ENVIRONMENTAL CONSEQUENCES**

The EA evaluates potential effects on land use, aesthetics and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics (including environmental justice and protection of children), transportation, utilities, and hazardous and toxic materials. For each resource, the predicted effects of the Site 4—3623 Carolina Beach Road—alternative (identified as the Army's Preferred Alternative), the Site 5—1402 North 23<sup>rd</sup> Street Site alternative, and the No Action Alternative are briefly described below. The consequences of the three alternatives are summarized in Table ES-1.

### **ES.4.1 Site 4—3623 Carolina Beach Road (Preferred Alternative)**

No adverse effects from implementing the Preferred Alternative would be expected on the following resource areas: land use, geology/topography, prime farmland, floodplains, coastal zone management, vegetation, wildlife, wetlands, sensitive species, cultural resources, population, housing, quality of life, environmental justice, and protection of children. Short-term minor adverse and long-term minor beneficial effects would be expected on surface water and ground water. Short-term minor adverse effects would be expected on the noise environment and soils. Short-term minor beneficial adverse effects would be expected on economic development. Short- or long-term (or both) minor adverse effects would be expected on air quality and transportation. Long-term negligible adverse effects would be expected on aesthetics, visual resources and utilities. Long-term minor adverse and short-term negligible adverse effects would be expected on hazardous materials. None of the adverse effects associated with implementing the proposed action at this site would be expected to be significant.

### **ES.4.2 Site 5—1402 North 23<sup>rd</sup> Street (Alternate Site)**

No adverse effects from implementing the proposed action at the Alternate Site would be expected on the following resource areas: land use, geology/topography, prime farmland, floodplains, coastal zone management, sensitive species, population, housing, quality of life, environmental justice and protection of children. Short-term minor adverse effects would be expected on the noise environment and soils. Short-term minor beneficial adverse effects would be expected on economic development. Short- or long-term (or both) minor adverse effects would be expected on air quality, surface water, groundwater and transportation. Long-term negligible adverse effects would be expected on utilities. Long-term minor adverse effects would be expected on aesthetics, visual resources, wetlands, vegetation, wildlife, and hazardous materials. None of the adverse effects associated with implementing the proposed action at this forested site would be expected to be significant. If selected, a Phase I Cultural resources Survey would be completed for this site.

**ES.4.3 No Action Alternative**

No adverse effects on any resource area would be expected from implementing the No Action Alternative. Under the No Action Alternative, the Army would not construct an AFRC on either site.

**Table ES-1  
Summary of potential environmental and socioeconomic consequences**

Resource	Environmental and socioeconomic effects		
	Site 4 – 3623 Carolina Beach Road Site (Preferred Alternative)	Site 5 – 1402 North 23 <sup>rd</sup> Street Site (Alternate Site)	No Action Alternative
	<b>Land use</b>	No effect	No effect
<b>Aesthetics and visual resources</b>	Long-term negligible adverse	Long-term minor adverse	No effect
<b>Air quality</b>	Short-term minor adverse Long-term minor adverse	Short-term minor adverse Long-term minor adverse	No effect
<b>Noise</b>	Short-term minor adverse	Short-term minor adverse	No effect
<b>Geology and Soils</b>			
• Geology/Topography	No effect	No effect	No effect
• Soils	Short-term minor adverse	Short-term minor adverse	No effect
• Prime farmland	No effect	No effect	No effect
<b>Water resources</b>			
• Surface water	Short-term minor adverse Long-term minor beneficial	Short-term minor adverse Long-term minor adverse	No effect
• Groundwater	Short-term minor adverse Long-term minor beneficial	Short-term minor adverse Long-term minor adverse	No effect
• Floodplains	No effect	No effect	No effect
• Coastal Zone management	No effect	No effect	No effect
<b>Biological resources</b>			
• Vegetation	No effect	Long-term minor adverse	No effect
• Wildlife	No effect	Long-term minor adverse	No effect
• Wetlands	No effect	Long-term minor adverse	No effect
• Threatened and endangered species	No effect	No effect	No effect
<b>Cultural resources</b>	No effect	Unknown*	No effect
<b>Socioeconomics</b>			
• Regional economic activity	Short-term minor beneficial	Short-term minor beneficial	No effect
• Population	No effect	No effect	No effect
• Housing	No effect	No effect	No effect
• Quality of life	No effect	No effect	No effect
• Environmental justice	No effect	No effect	No effect
• Protection of children	No effect	No effect	No effect
<b>Transportation</b>	Short-term minor adverse Long-term minor adverse	Short-term minor adverse Long-term minor adverse	No effect
<b>Utilities</b>	Long-term negligible adverse	Long-term negligible adverse	No effect
<b>Hazardous and toxic substances</b>	Long-term minor adverse Short-term negligible adverse	Long-term minor adverse	No effect

\*If selected a Phase I Cultural Resources Survey would be completed for this site.

### **ES.5 CUMULATIVE EFFECTS**

Minor beneficial effects on economic development would be expected from implementing the proposed action at Site 4 or 5. Additionally, implementing the proposed action at Site 5 would also include minor adverse cumulative effects on vegetation and wildlife. None of these adverse cumulative effects would be expected to be significant.

### **ES.6 MITIGATION**

Mitigation actions are used to reduce, avoid, or compensate for significant adverse effects. The EA does not identify the need for any mitigation measures.

### **ES.7 CONCLUSIONS**

On the basis of the analyses performed in the EA, Site 4, the Preferred Alternative is the better alternative for the proposed AFRC. Site 4 is previously developed, has low scenic quality and impacts to biological resources such as wildlife and wildlife habitat would not be expected. Additionally, Site 4 would not be subject to aviation noise associated with Wilmington International Airport arrivals and departures and the site is not within Airport Impact Zones. While the Preferred Alternative is the better alternative, implementation of the proposed action on either site would not be expected to have significant direct, indirect, or cumulative adverse effects on the quality of the natural or human environment. Preparation of an environmental impact statement is not required. Issuance of a finding of no significant impact would be appropriate.

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## **SECTION 1.0**

### **PURPOSE, NEED, AND SCOPE**

#### **1.1 INTRODUCTION**

On September 8, 2005, the Defense Base Realignment and Closure Commission (BRAC Commission) recommended that certain realignment actions occur throughout the United States. The President approved these recommendations on September 15, 2005. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. The BRAC Commission recommendations must now be implemented, as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

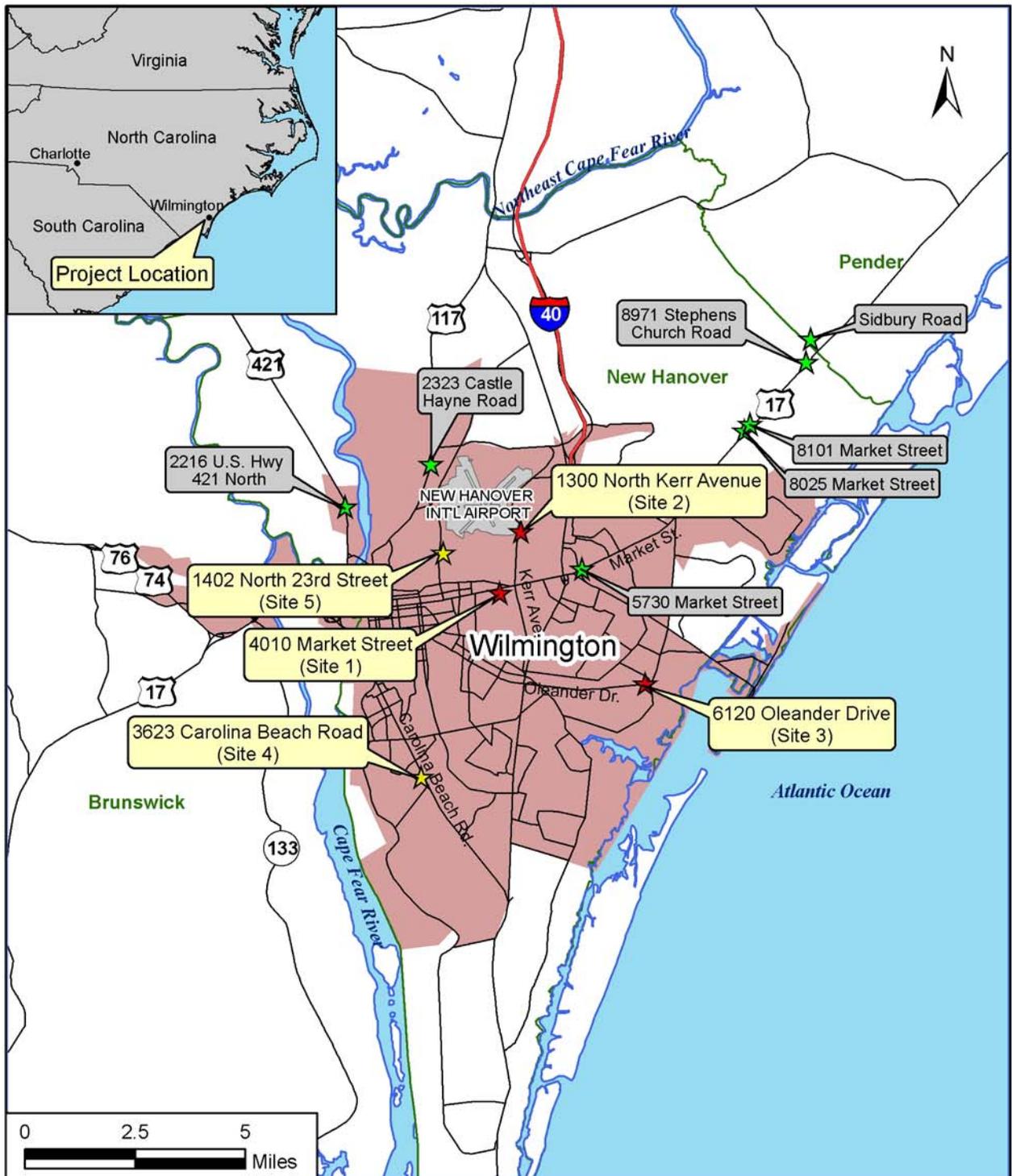
The BRAC Commission recommended the closure of the Army Reserve Adrian B. Rhodes Armed Forces Reserve Center (AFRC) in Wilmington, North Carolina, the Rock Hill AFRC in Rock Hill, South Carolina, the Niven AFRC in Albermarle, North Carolina, and the relocation of all Army and Navy units to a new AFRC and Organizational Maintenance Shop (OMS) in Wilmington, North Carolina, if the Army is able to acquire suitable land for the construction of the facilities. In this environmental assessment (EA), the Army identifies and describes the environmental effects associated with its proposed action in Wilmington. Details on the proposed action are set forth at Section 2.2.

#### **1.2 PURPOSE AND NEED**

The purpose of the proposed action is to provide the necessary facilities to support the BRAC Commission's recommendation pertaining to U.S. Army Reserve and Naval Reserve units to be located in Wilmington. Figure 1-1 shows a general location map of Wilmington and the proposed alternative sites being considered for the new AFRC.

The need for the proposed action is to improve the nation's ability to respond rapidly to challenges of the 21st century. The Army is legally bound to defend the United States and its territories, to support national policies and objectives, and to defeat nations responsible for aggression that endangers the peace and security of the United States. To carry out these tasks, the Army must adapt to changing world conditions and must improve its capabilities to respond to a variety of circumstances across the full spectrum of military operations. The proposed action also is needed because existing Army Reserve and Naval Reserve facilities are substandard and are not adequately sized to support the number of assigned Soldiers. The following is a discussion of two major initiatives that contribute to the Army's need for the proposed action.

**Base Realignment and Closure.** In previous rounds of BRAC, the explicit goal was to save money and downsize the military to reap a *peace dividend*. In the 2005 BRAC round, the Department of Defense (DoD) also sought to reorganize its installation infrastructure to most efficiently support its forces, increase operational readiness, and facilitate new ways of doing business. Thus, BRAC represents more than cost savings; it supports advancing the goals of transformation, improving military capabilities, and enhancing military value. The Army must carry out the BRAC Commission's recommendations in Wilmington to achieve the objectives of the BRAC process.



- LEGEND**
- ★ Contending Site - Analyzed
  - ★ Contending Site - Not Analyzed
  - ★ Non-contending Site
  - County Boundary
  - ▬ Interstate Highway
  - ▬ Road
  - Urban Area
  - ▬ Surface Water

# Location Map

Figure 1-1

**Installation Sustainability.** On October 1, 2004, the Secretary of the Army and the Chief of Staff issued *The Army Strategy for the Environment*, which focuses on the interrelationships of mission, environment, and community. A sustainable installation simultaneously meets current and future mission requirements, safeguards human health, improves quality of life, and enhances the natural environment. A sustained natural environment is necessary to allow the Army to train and maintain military readiness.

### 1.3 SCOPE

The 1990 Defense Base Closure and Realignment Act specifies that the National Environmental Policy Act (NEPA) does not apply to actions of the President, the Commission, or the DoD, except “(i) during the process of property disposal, and (ii) during the process of relocating functions from a military installation being closed or realigned to another military installation after the receiving installation has been selected but before the functions are relocated” (Section 2905[c][2][A], Public Law 101-510, as amended). The law further specifies that in applying the provisions of NEPA to the process, the Secretary of Defense and the secretaries of the military departments concerned do not have to consider “(i) the need for closing or realigning the military installation which has been recommended for closure or realignment by the Commission, (ii) the need for transferring functions to any military installation which has been selected as the receiving installation, or (iii) military installations alternative to those recommended or selected” (Section 2905[c][2][B]). Because the BRAC Commission’s deliberation and decision, as well as the need for closing or realigning a military installation, are exempt from NEPA, this EA does not address the need for realignment. Because NEPA does apply to the activities proposed to support unit realignment, the Army addresses those actions in this document.

### 1.4 PUBLIC INVOLVEMENT

The Army invites public participation in the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision making. All agencies, organizations, and members of the public having a potential interest in the proposed action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate in the decision-making process.

Public participation opportunities with respect to this EA and decision making on the proposed action are guided by Title 32 of the *Code of Federal Regulations* (CFR) Part 651. Upon its completion, the EA will be made available to the public for 30 days, along with a draft finding of no significant impact (FNSI). At the end of the 30-day period, the Army will consider any comments submitted by individuals, agencies, or organizations on the proposed action, the EA, or draft FNSI. As appropriate, the Army may then execute the FNSI and proceed with implementing the proposed action. If it is determined before issuance of a final FNSI that implementing the proposed action would result in significant impacts, the Army will commit to mitigation actions sufficient to reduce impacts below significance levels, or will take no action, or will publish in the *Federal Register* a notice of intent (NOI) to prepare an environmental impact statement (EIS).

## 1.5 IMPACT ANALYSIS PERFORMED

This EA has been developed in accordance with NEPA and its implementing regulations, issued by the President's Council on Environmental Quality (CEQ) and the Army.<sup>1</sup> Its purpose is to inform decisionmakers and the public of the likely environmental consequences of the proposed action and alternatives.

An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and military technicians has analyzed the proposed action and alternatives in light of existing conditions and has identified relevant beneficial and adverse effects associated with the action. The proposed action is described in Section 2.0, and alternatives, including the No Action Alternative, are described in Section 3.0. Conditions considered to be the baseline are described in Section 4.0, Affected Environment and Environmental Consequences. The expected effects of the proposed action, also described in Section 4.0, are presented immediately following the description of baseline conditions for each environmental resource area addressed in the EA. The potential for cumulative effects is also addressed in Section 4.0, and mitigation measures are identified where appropriate.

## 1.6 FRAMEWORK FOR DECISION MAKING

A decision on whether to proceed with the proposed action rests on numerous factors, such as ability to find suitable property, mission requirements, schedule, availability of funding, and environmental considerations. In addressing environmental considerations, the Army is guided by relevant statutes and their implementing regulations and by Executive Orders (EOs) that establish standards and provide guidance on environmental and natural resources management and planning. These include the Clean Air Act (CAA); Clean Water Act (CWA); Noise Control Act; Endangered Species Act (ESA); National Historic Preservation Act (NHPA); Archaeological Resources Protection Act (ARPA); Native American Graves Protection and Repatriation Act (NAGPRA), American Indian Religious Freedom Act (AIRFA); Resource Conservation and Recovery Act (RCRA); and Toxic Substances Control Act (TSCA). EOs bearing on the proposed action include EO 11988 (*Floodplain Management*); EO 11990 (*Protection of Wetlands*); EO 12088 (*Federal Compliance with Pollution Control Standards*); EO 12580 (*Superfund Implementation*); EO 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*); EO 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*); EO 13175 (*Consultation and Coordination with Indian Tribal Governments*); EO 13186 (*Responsibilities of Federal Agencies to Protect Migratory Birds*), and EO 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*). These authorities are addressed in various sections throughout this EA when relevant to environmental resources and conditions. To the extent that state or local laws, ordinances, or regulations are relevant, they are discussed within the appropriate narrative section of this EA, and accompanying citations of authority or other references are provided. The full text of the laws, regulations, and EOs is available on the Defense Environmental Network & Information Exchange Web site, at <http://www.denix.osd.mil>.

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<sup>1</sup> Council on Environmental Quality *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, 40 CFR Parts 1500–1508, and *Environmental Analysis of Army Actions*, 32 CFR Part 651.

## **SECTION 2.0 DESCRIPTION OF THE PROPOSED ACTION**

### **2.1 INTRODUCTION**

This section describes the Army's proposed alternatives for carrying out the BRAC Commission's recommendations, which became law on November 9, 2005, as follows:

Close the Army Reserve Adrian B. Rhodes Armed Forces Reserve Center in Wilmington, North Carolina, close the Rock Hill Armed Forces Reserve Center in Rock Hill, South Carolina, close the Niven Armed Forces Reserve Center in Albermarle, North Carolina, and relocate all Army and Navy units to a new Armed Forces Reserve Center (AFRC) and Organizational Maintenance Shop (OMS) in Wilmington, North Carolina, if the Army is able to acquire suitable land for the construction of the facilities.

To meet the BRAC directive, the Army proposes to acquire approximately 11 acres in Wilmington, North Carolina. Upon acquisition of property, the Army would construct an AFRC having approximately 63,200 square feet of space.

### **2.2 PROPOSED ACTION**

#### **2.2.1 Site Description**

The site proposed for the new AFRC is at 3623 Carolina Beach Road, Wilmington (see Figure 2-1). The site consists of 11 acres and is accessible from Carolina Beach Road, having 560 feet of frontage along that five-lane roadway. The site is zoned for commercial/other use. It is relatively flat and lies outside the 100-year floodplain.

The site is an open parking lot used by a private sector company as a staging site for vehicles that are to be resold to the general public. There is one house and one house trailer on the site. There is also a concrete pad approximately 40 feet wide by 75 feet long. All utilities are readily available.

#### **2.2.2 Facilities Construction**

In addition to land acquisition, primary facilities of the new AFRC would consist of a training building, an OMS, an unheated storage building, and parking area for military and privately owned vehicles. The training building would provide space for administrative, educational, assembly, library, learning center, arms vault, weapon simulator, and physical fitness purposes. The OMS would provide work bays and maintenance administrative support. The facilities would be sufficient to accommodate 400 personnel of five Army Reserve units and one Naval Reserve unit. Table 2.2-1 provides information on the size of these facilities. Buildings would be of permanent construction with plumbing; heating, ventilation, and air conditioning systems; and mechanical, security, and electrical systems. In accordance with Army policy for constructing new facilities, this project would be designed to meet Leadership in Energy and Environmental Design Silver standards, or better, with a view toward enhanced sustainability and energy efficiency.



**LEGEND**  
[Red Box] Site Boundary

## Site 4 - 3623 Carolina Beach Road (Primary Site)

Figure 2-1

**Table 2.2-1  
Facilities sizes**

<b>Facility</b>	<b>Size (square feet)</b>
Armed Forces Reserve Center	55,354
Organizational Maintenance Shop	6,332
Unheated Storage Building	1,520
Organization Parking	33,084
Privately Owned Vehicle Parking, Walks, Curbs, and Gutters	57,870

Facilities construction would require minor land clearing, paving, fencing, general site improvements, and extension of utilities to serve the project. Force protection (physical security) measures would be incorporated into the design, including maximum standoff distance from roads, parking areas, and vehicle unloading areas. Berms, heavy landscaping, and bollards would be used to prevent access when standoff distances cannot be maintained.

A single-story house (1,786 square feet) on the site built in 1945 would require demolition, and a house trailer would have to be removed. Construction of the new AFRC would be completed by 2011.

### **2.2.3 Operations**

The Wilmington AFRC would support operations of units of the Army Reserve and Naval Reserve. The AFRC would be used Monday through Friday by a small, full-time staff and on weekends for training by the various Reserve Component units. Daily operations would include administrative, training, and maintenance support of unit missions and requirements; recruiting; and preparation for battle assembly weekends.

Approximately 400 Reservists would be assigned to the units stationed at the AFRC. These Soldiers and Sailors would participate in training activities on various weekends of each month. A typical training weekend would involve approximately 208 Soldiers and Sailors on-site. On weekends that include a military-observed holiday, training would not occur. Training activities from a holiday weekend would be shifted to one of the other weekends during the same month, resulting in higher training populations during the remaining weekends within that month.

Training activities conducted during drill weekends would include Military Occupational Specialties training in a Soldier's skills (such as maintenance and communications), required briefings, physical training, mentoring, and evaluations. Weekend traffic would include personal vehicles and military vehicles such as high-mobility, multipurpose wheeled vehicles of various configurations; 2.5- and 5-ton cargo trucks; light-medium tactical vehicles; wreckers; and trailers of various configurations. The AFRC would support up to 110 military vehicles.

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## **SECTION 3.0 ALTERNATIVES**

### **3.1 INTRODUCTION**

A bedrock principle of NEPA is that an agency should consider reasonable alternatives to a proposed action. Considering alternatives helps to avoid unnecessary effects and allows analysis of reasonable ways to achieve the stated purpose. To warrant detailed evaluation, an alternative must be reasonable. The following discussion identifies alternatives considered by the Army and whether they are feasible and, hence, subject to detailed evaluation in this EA.

Alternatives to the proposed action were assessed on the basis of alternative sites. On May 15, 2008, the Army prepared a Site Survey Report that evaluated potential sites for the AFRC. Five *contending* sites were identified as Site 1—4010 Market Street; Site 2—1300 North Kerr Avenue; Site 3—6120 Oleander Drive; Site 4—3623 Carolina Beach Road; and Site 5—1402 North 23<sup>rd</sup> Street. The Army also considered seven *non-contending* sites. Figure 1-1 shows the locations of the contending sites and non-contending sites. The five sites considered as alternatives, as well as the No Action Alternative, are discussed below.

### **3.2 CONTENDING SITES**

The Army considered a site a contending site if it met the following criteria:

- Net usable acreage
- Compatibility with surrounding land uses
- Assumed to be environmentally clean
- Ready access to public utilities
- Reasonable cut or fill requirements
- Proximity to a major roadway corridor and safe ingress and egress
- Reasonable purchase price, within budget
- Within the city limits of Wilmington
- Appropriate zoning and antiterrorism (property set-back) requirements

#### **3.2.1 Site 1—4010 Market Street Site Alternative**

The Army eliminated this 12.7-acre site because it is occupied by two buildings. One of the buildings is newly constructed but has never been occupied or built-out. The other building is vacant, having previously been used as a restaurant. Behind the buildings is a large, heavily wooded wetland area. Also, Market Street is one of the most heavily travelled streets in Wilmington, and the traffic pattern would preclude good access for ingress and egress and likely cause an extreme traffic hazard. In combination, the characteristics of the Market Street Site render it not reasonable. Accordingly, this alternative is not evaluated in detail in this EA.

#### **3.2.2 Site 2—1300 North Kerr Avenue Site Alternative**

This 40- to 50-acre site was initially determined to be a contending site. When Army representatives visited the site, they determined that the property had been placed under contract

for sale. In light of the property no longer being available, this alternative is not evaluated in detail in this EA.

### **3.2.3 Site 3—6120 Oleander Drive Site Alternative**

This approximately 14.82-acre site has limited access along Oleander Drive and Greenville Loop Road. Access along these roads would be available only on the north and northeast sides of parcel. The site is cleared along Oleander Drive but is heavily wooded on the rear portion. On the rear portion of the site there are abandoned houses (some with aboveground heating oil tanks) that would require demolition. The site is mostly flat, is very narrow and with AT/FP setback requirements would provide a small buildable area for the AFRC. Contiguous to the site is an Exxon gas station, and a new fire station is being built at the intersection of Oleander Drive and Bagley Avenue. Utilities are not readily available to the buildable portion of the site. Poor soils in the area might require a piered foundation system. Residential housing occurs to the east, south, and west of the site. There is a church on the opposite side of Oleander Drive, which would increase weekend traffic because of church service attendance. Along Oleander Drive, the parcel is zoned for office and institutional uses; the majority of the site is zoned for residential use. There are live oak trees on the property; the buyer might not be able to remove them because of their historical significance or because of local tree ordinances. Additionally, this site compared to the other alternatives is the most costly, and the property owner refused to sign right-of-entry to allow the Army to perform environmental studies on the site. On the basis of these findings, this alternative is not evaluated in detail in this EA.

### **3.2.4 Site 4—3623 Carolina Beach Road Site Alternative**

This 11-acre site on Carolina Beach Road is the Army's primary alternative for the AFRC. It is described in detail in Section 2.2.

### **3.2.5 Site 5—1402 North 23<sup>rd</sup> Street Site Alternative**

This 11.37-acre site is within the city limits near the Wilmington airport (see Figure 3-1). An additional 2-acre site is adjacent and available for purchase. The site, in an industrial area, is zoned for airport industrial use. Access for ingress and egress is available from Interstate (I) 40 and Highway 17; access to the site itself is available from 23<sup>rd</sup> Street and a side road. The site is approximately 0.5 miles southwest of the Wilmington International Airport.

North 23<sup>rd</sup> Street runs north-south along the west side of the parcel. The parcel has 107 feet of frontage on North 23<sup>rd</sup> Street, which consists of four traffic lanes with a turning lane in the middle. Scientific Park Drive is a two-lane paved street that runs east-west along the south side of the site. Property to the north is used for roadway easement, and property to the east is treed and serves as a private park.

The generally flat land is heavily wooded. There are no existing structures, parking areas, or roadways on the site. There are no known wetlands present. This site alternative is evaluated in detail in this EA.



**LEGEND**  
[Red Outline] Site Boundary

**Site 5 - 1402 North 23rd Street  
(Alternate Site)**

Figure 3-1

### **3.3 NON-CONTENDING SITES**

Non-contending sites are those that do not meet the screening criteria established by the Army as minimally necessary to support construction and operation of the AFRC. (See the minimal requirements listed in Section 3.2.) The non-contending sites that were identified and eliminated are the following:

- Sidbury Road was eliminated because it is outside the city limits.
- 8971 Stephens Church Road was eliminated because it is outside the city limits.
- 2216 U.S. Hwy 421 North was eliminated because of multiple occupant relocation requirements.
- 5730 Market Street Market Street was eliminated because of multiple occupant relocation requirements.
- 8101 Market Street was eliminated because of excess acreage.
- 8025 Market Street was eliminated because it is irregularly shaped and because of Antiterrorism Force Protection (ATFP) setbacks issues.
- 2323 Castle Hayne Road was eliminated because it is irregularly shaped and because of ATFP setbacks issues.

These sites, having been rejected from consideration for acquisition because they would not support the purpose and need of the proposed action, are not evaluated in detail in this EA.

### **3.4 NO ACTION ALTERNATIVE**

The CEQ regulations require inclusion of the No Action Alternative, which serves as a baseline against which the effects of the proposed action and alternatives can be evaluated.

Under the No Action Alternative, the Army would not implement the proposed action. No land would be acquired, no facilities would be constructed, and no units would relocate from other facilities. The units proposed for relocation under the proposed action would continue to operate from their current facilities.

## **SECTION 4.0**

### **AFFECTED ENVIRONMENT AND CONSEQUENCES**

#### **4.1 LAND USE**

##### **4.1.1 Affected Environment: Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

The preferred site for the proposed AFRC is in the city of Wilmington in New Hanover County, North Carolina. The site is known as Site 4—3623 Carolina Beach Road Site (Preferred Alternative) and is accessible from Carolina Beach Road, having approximately 560 feet of frontage along that five-lane highway. Zoned as a Commercial Service District, the property is a cleared, fenced parking lot used by a private sector company as a staging site for vehicles that are to be resold to the general public. One single-story house that is used as an office is on the property.

The site is surrounded by commercial services and community business zoning classifications to the north, south and west. Uses include retail businesses, automotives sales and repair businesses, and restaurants. The property to the east is zoned as residential; however, the property is heavily wooded and undeveloped. Beyond the wooded area, approximately 1,200 feet north-northeast of the site is a residential area, and across Carolina Beach Road, approximately 500 feet west of the site, is another residential area.

According to Wilmington's Composite Future Land Use Map 2025, the property to the east of the preferred site has been labeled as Commerce Center/Mixed Use, and much of the property to the west remains unchanged or has been labeled as Industrial Center. A priority redevelopment area is at the intersection between Carolina Beach Road and Shipyard Boulevard approximately 1 mile north of the site (City of Wilmington 2004a). The preferred site was included in a Carolina Beach Road Corridor Plan that was prepared in 2004. The purpose of the plan is to provide strategies to make Carolina Beach Road less congested and more attractive. Additionally, the plan helps with the implementation of the city's strategic plan by strengthening the economic and fiscal effect of commercial development along the corridor. The plan also enhances the Future Land Use Plan by providing guidance for future rezoning proposals and long-term capital expenditures (City of Wilmington 2004b).

##### **4.1.2 Affected Environment: Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

The alternate site for the proposed AFRC is also in Wilmington in New Hanover County, North Carolina. This site is known as Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site) and is accessible from 23<sup>rd</sup> Street or Scientific Park Drive. Zoned Airport Industrial, the alternate site is undeveloped and is heavily wooded.

The site is bound by Scientific Park Drive and an unoccupied pre-engineered building to the south, North 23<sup>rd</sup> Street to the west, a wooded access ramp easement for I-74 and a utility easement and a wooded private park to the east. The Wilmington International Airport (ILM) is approximately 2,500 feet north-northeast of the alternate site. A residential area is approximately 1,000 feet east of this site.

The Federal Aviation Administration (FAA) Southern Region has developed Land Use Compatibility guidelines for airports within its purview. Airport impacts zones are developed on the basis of the air operations and approach tracks for airfields. FAA recommends limiting residential and industrial development depending on proximity to these zones. The alternate site is within Zones 2 and 3. Figure 4-1 shows the airport impact zones for the Wilmington International Airport and Table 4.1-1 outlines the FAA land use recommendations for each zone.

**Table 4.1-1  
Recommended land uses and densities**

<b>Airport impact zone</b>	<b>Land use recommendations</b>
Zones 1,2, and 5	Residential development prohibited, low-density industrial development (< 5 people/acre) allowed
Zones 3 and 4	Low-density residential development, Industrial development with 25–40 people/acre
Zone 6	Low-density residential development and Industrial development with < 100 people/acre

According to Wilmington’s Composite Future Land Use Map 2025, Site 5 and the property to the east and southeast have been labeled as Industrial Center. Other areas are expected to retain their current use through 2025 (City of Wilmington 2004a).

### **4.1.3 Consequences**

#### **4.1.3.1 Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

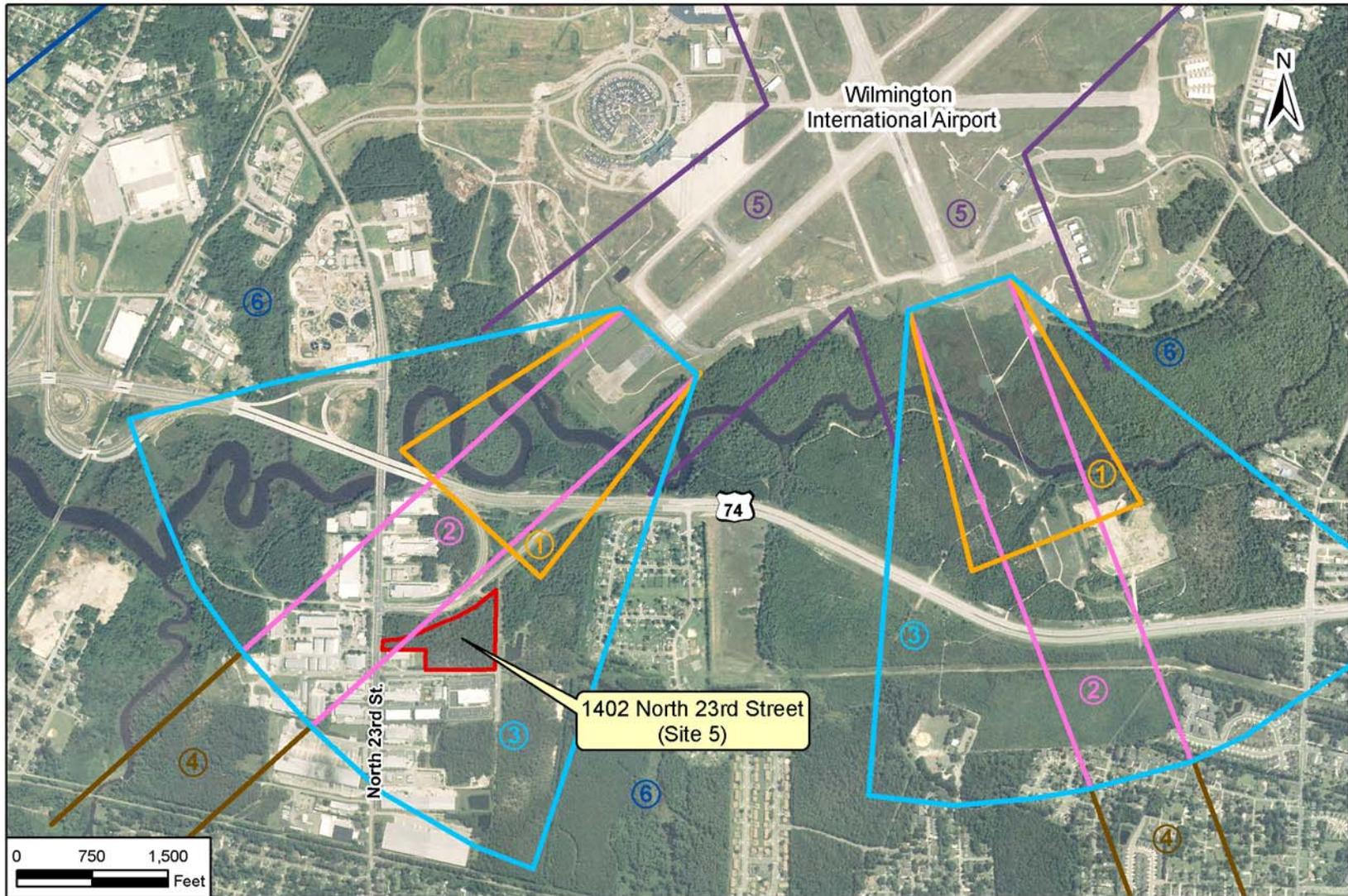
No effects on land use would be expected from implementing the Preferred Alternative. There would be no change in land use zoning in the proposed project area. The property is zoned Commercial Services. Construction and operation of the AFRC would be expected to be compatible with this designated land use.

#### **4.1.3.2 Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

No effects on land use would be expected from implementing this alternative; however, this site is within Airport Impact Zones 2 and 3. If this alternative is selected, the final site plan should position all AFRC facilities with concentrations of people completely outside Zone 2 and carefully arrange activities within Zone 3 to meet the FAA land use criteria. FAA Southern Region, for off-airport projects, and the city of Wilmington should review site plans. This site is outside the incompatible noise contours for the airport. Effects of noise on land use are detailed in Section 4.4.

#### **4.1.3.3 No Action Alternative**

Under the No Action Alternative, there would be no effects on land use because baseline conditions would remain the same.



**LEGEND**

Site Boundary

**Airport Impact Zones**

① Runway Protection Zone

② Inner Safety Zone

③ Inner Turning Zone

④ Outer Safety Zone

⑤ Sideline Safety Zone

⑥ Traffic Pattern Zone

**Airport Impact Zones**

Figure 4-1

Source: Wilmington International Airport, 2004.

## **4.2 AESTHETICS AND VISUAL RESOURCES**

Aesthetics and visual resources are the natural and man-made features of a landscape. They include notable landmarks, buildings and infrastructure elements, landforms of particular beauty or significance, water features, and vegetation. Together, these features form the overall aesthetic impression that a viewer receives of an area or its landscape.

### **4.2.1 Affected Environment: Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

The proposed Site 4—3623 Carolina Beach Road site is a cleared, fenced, mostly gravel parking lot used by a private sector company as a staging site for vehicles that are to be resold to the public. It can be considered to have a low scenic quality. Carolina Beach Road is a busy, five-lane highway lined with numerous small businesses that include automotive sales and repair shops, restaurants, billboards, and numerous overhead utilities. East of the parcel is a large, undeveloped, wooded parcel that is zoned Residential.

### **4.2.2 Affected Environment: Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

The alternate site is undeveloped woodlands and is bounded by North 23<sup>rd</sup> Street and Scientific Park Drive, wooded highway easement, and a utility easement. Numerous commercial and industrial-like businesses operate along North 23<sup>rd</sup> Street. Because of the undeveloped, wooded nature of the site, it can be considered to have moderate to high scenic quality. A very small section of this site would be visible from North 23<sup>rd</sup> Street, and the wooded highway easement to the north of the site would not be disturbed.

### **4.2.3 Consequences**

#### **4.2.3.1 Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

Converting Site 4 from a gravel car lot to a developed site would be expected to have a long-term negligible adverse effect on aesthetics and visual resources. The project would be in keeping with the commercial aspects of Carolina Beach Road. Because the AFRC facility would be of modern design, it could be a beneficial addition to the area.

#### **4.2.3.2 Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

Converting Site 5 from undeveloped woodland to a developed site would be expected to have long-term minor adverse effects on aesthetics and visual resources because of the loss of green space. However, constructing the AFRC would be in keeping with the existing surrounding development. The AFRC facility would be modern and state-of-the-art and would be designed in accordance with applicable design, construction, and maintenance guidelines and requirements.

#### **4.2.3.3 No Action Alternative**

Under the No Action Alternative, there would be no effects on visual resources at the proposed site because baseline conditions would remain the same.

## **4.3 AIR QUALITY**

### **4.3.1 Affected Environment**

This is a description of ambient air quality with respect to attaining National Ambient Air Quality Standards (NAAQS) and identifying applicable air quality regulations.

#### **4.3.1.1 National Ambient Air Quality Standards and Attainment Status**

The U.S. Environmental Protection Agency (EPA) Region 4 and the North Carolina Department of Environment and Natural Resources (NCDENR) regulate air quality in North Carolina. The CAA (42 U.S.C. 7401-7671q), as amended, gives EPA the responsibility to establish the primary and secondary NAAQS (40 CFR Part 50) that set acceptable concentration levels for seven criteria pollutants: fine particulate matter (PM<sub>10</sub>), very fine particulate matter (PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), nitrous oxides (NO<sub>x</sub>), ozone (O<sub>3</sub>), and lead. Short-term standards (1-, 8-, and 24-hour periods) have been established for pollutants contributing to acute health effects, while long-term standards (annual averages) have been established for pollutants contributing to chronic health effects. On the basis of the severity of the pollution problem, *nonattainment* areas are categorized as marginal, moderate, serious, severe, or extreme. Each state has the authority to adopt standards stricter than those established under the federal program; however, North Carolina accepts the federal standards.

Federal regulations designate Air-Quality Control Regions (AQCRs) in violation of the NAAQS as *nonattainment* areas. Federal regulations designate AQCRs with levels below the NAAQS as *attainment* areas. *Maintenance* AQCRs are areas that have previously been designated nonattainment, and have been redesignated to attainment for a probationary period through implementation of maintenance plans. New Hanover, North Carolina, is completely within the Southern Coastal Plain Intrastate AQCR (AQCR 170) (USEPA 2008). Federal regulations designate AQCR 170 as an attainment area for all criteria pollutants (40 CFR 81.334). Because the project area is in an attainment region, the air conformity regulations do not apply. Although the area is in attainment and the air conformity regulations do not apply, the project's emissions of criteria pollutants and the applicability thresholds under the general conformity rules were carried forward for more detailed analysis to determine the level of impact under NEPA.

#### **4.3.1.2 Local Ambient Air Quality**

Existing ambient air quality conditions can be estimated from measurements conducted at air-quality monitoring stations close to the proposed AFRC (Table 4.3-1). As expected for an attainment region, all air-quality measurements are below the NAAQS (USEPA 2008).

### **4.3.2 Consequences**

#### **4.3.2.1 Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

Implementing the Preferred Alternative would be expected to have both short- and long-term minor adverse effects on air quality. Effects would be primarily from air emissions during demolition, construction and the introduction of new stationary sources of air emissions, such as heating boilers and standby generators. Increases in emissions would not exceed applicability thresholds, be regionally significant, or contribute to a violation of any federal, state, or local air regulation.

**Table 4.3-1  
National Ambient Air Quality Standards and monitored air quality concentrations**

<b>Pollutant and averaging time</b>	<b>Primary NAAQS<sup>a</sup></b>	<b>Secondary NAAQS<sup>a</sup></b>	<b>Monitored data<sup>b</sup></b>	<b>Location of station</b>
<b>CO</b>				
8-Hour Maximum <sup>c</sup> (ppm)	9	(None)	(no data available)	--
1-Hour Maximum <sup>c</sup> (ppm)	35	(None)	(no data available)	--
<b>NO<sub>2</sub></b>				
Annual Arithmetic Mean (ppm)	0.053	0.053	(no data available)	--
<b>Ozone</b>				
8-Hour Maximum <sup>d</sup> (ppm)	0.08	0.08	0.077	Lenoir County
<b>PM<sub>2.5</sub></b>				
Annual Arithmetic Mean <sup>e</sup> (µg/m <sup>3</sup> )	15	15	11.5	Wayne County
24-Hour Maximum <sup>f</sup> (µg/m <sup>3</sup> )	35	35	30.4	
<b>PM<sub>10</sub></b>				
Annual Arithmetic Mean <sup>g</sup> (µg/m <sup>3</sup> )	50	50	18	Wayne County
24-Hour Maximum <sup>c</sup> (µg/m <sup>3</sup> )	150	150	39	
<b>SO<sub>2</sub></b>				
Annual Arithmetic Mean (ppm)	0.03	(None)	0.006	New Hanover County
24-Hour Maximum <sup>3</sup> (ppm)	0.14	(None)	0.036	
3-Hour Maximum <sup>3</sup> (ppm)	--	0.5	0.139	

a Source: 40 CFR 50.1-50.12.

b Source: USEPA 2008

c Not to be exceeded more than once per year

d The 3-year average of the fourth highest daily maximum 8-hour average O<sub>3</sub> concentrations over each year must not exceed 0.08 ppm.

e The 3-year average of the weighted annual mean PM<sub>2.5</sub> concentrations from must not exceed 15.0 ug/m<sup>3</sup>.

f The 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor must not exceed 35 ug/m<sup>3</sup>.

g The 3-year average of the weighted annual mean PM<sub>10</sub> concentration at each monitor within an area must not exceed 50 ug/m<sup>3</sup>.

ppm = parts per million

µg/m<sup>3</sup> = micrograms per cubic meter

NO<sub>2</sub> = Nitrogen dioxide

**Estimated Emissions and General Conformity.** The general conformity rules require federal agencies to determine whether their action(s) would increase emissions of criteria pollutants above preset threshold levels (40 CFR 93.153(b)). These *de minimis* (of minimal importance) rates vary depending on the severity of the nonattainment and geographic location. Because the region is in attainment, the air conformity regulations do not apply. A Record of Non-Applicability (RONA) is in Appendix B. However, all direct and indirect emissions of criteria pollutants were estimated and compared to applicability threshold levels of 100 tons per year to determine whether implementing the Preferred Alternative would be significant under NEPA. The Army calculated the total direct and indirect emissions associated with the following activities:

- Demolition and construction activities
- Operating personal vehicles for construction workers
- Paving parking areas
- Operating personal vehicles for employees and trainees
- Operating new boilers
- Operating new back-up generators

The total direct and indirect emissions associated with the Preferred Alternative would not be expected to exceed applicability threshold levels (Table 4.3-2). Because the region is an attainment area, there is no existing emission budget. However, because of the limited size and scope of the Preferred Alternative, it is not anticipated that the estimated emission would make up 10 percent or more of regional emissions for any criteria pollutant and not be regionally significant. A detailed breakdown of construction and operational emissions are in Appendix A.

**Table 4.3-2  
Preferred Alternative emissions compared to applicability thresholds**

Activity	Annual emissions (tons per year)						De minimis threshold (tons per year)	Would emissions exceed applicability thresholds? (Yes/No)
	CO	NO <sub>x</sub>	VOC	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>		
Construction	5.3	6.3	1.2	0.0	2.3	0.5	100	No
Operational	3.3	1.9	0.4	0.4	0.1	0.1		

**Regulatory Review.** The CAA, as amended in 1990, mandates that state agencies adopt State Implementation Plans (SIPs) that target the elimination or reduction of the severity and number of violations of the NAAQS. SIPs set forth policies to expeditiously achieve and maintain attainment of the NAAQS. Since 1990, North Carolina has developed a core of air quality regulations that EPA has approved. These approvals signified the development of the general requirements of the SIP. North Carolina's program for regulating air emissions affects industrial sources, commercial facilities, and residential development activities. Regulation occurs primarily through a process of reviewing engineering documents and other technical information, applying emission standards and regulations in permit issuance, performing field inspections, and assisting industries in determining their compliance status with applicable requirements.

As part of these requirements, NCDENR oversees programs for permitting the construction and operation of new or modified stationary source air emissions in North Carolina. NCDENR air permitting is required for many industries and facilities that emit regulated pollutants. These requirements include Title V permitting of major sources, New Source Review, Prevention of Significant Deterioration, New Source Performance Standards for selected categories of industrial sources, and the National Emission Standards for Hazardous Air Pollutants. NCDENR air permitting regulations do not apply to mobile sources, such as trucks. An overview of the applicability of these regulations to the project is outlined in Table 4.3-3.

**Table 4.3-3  
Air quality regulatory review for proposed stationary sources**

Regulation	Project status
New Source Review (NSR)	The potential emissions would not exceed NSR threshold and would be exempt from NSR permitting requirements. It is possible that a state operating permit would be required for both the boilers and emergency back-up generators.
Prevention of Significant Deterioration (PSD)	Potential emissions would not exceed the 250-tpy PSD threshold. Therefore, the project would not be subject to PSD review.
Title V Permitting Requirements	The facilities potential to emit would be below the Title V major source threshold and would not require a Title V permit.
National Emission Standards for Hazardous Air Pollutants (NESHAP)	Potential HAP emissions would not exceed NESHAP thresholds. Therefore, the use of Maximum Available Control Technology (MACT) would not be required.
New Source Performance Standards (NSPS)	Both emergency generators and boilers would be subject to NSPS.

Other non-permitting requirements might be required by using compliant practices, products, or both. These requirements appear in the North Carolina Administrative Code 15A NCAC 2D and 2Q—Air Quality Rules. They include the following:

- Section .0900-Volatile Organic Compounds
- Section .1800-Control of Odors
- Section .1900-Open Burning

This is not an all inclusive list. All contractors would comply with all federal, state, and local laws pertaining to air quality.

#### **4.3.2.2 Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

Implementing the Site 5 Alternative would be expected to have short- and long-term minor adverse effects on air quality. Minor increases in emissions would not exceed applicability thresholds, be regionally significant, or contribute to a violation of any federal, state, or local air regulation.

**Estimated Emissions and General Conformity.** As with the Preferred Alternative, the Site 5 Alternative is in an attainment area; therefore, it is exempt for the general conformity rules (40 CFR 95.153). A RONA is in Appendix B. Because there would be no demolition activities, the total direct and indirect emissions associated with the Site 5 Alternative would be slightly less than those outlined under the Preferred Alternative, and would not exceed applicability threshold levels. These effects would be expected to be minor.

**Regulatory Review.** Under the Site 5 Alternative, the AFRC would be equipped with boilers for heating, and a back-up generator. These sources of air emissions might be subject to federal and state air permitting regulations similar to those outlined under the Preferred Alternative. As with the Preferred Alternative, stationary sources would not be expected to exceed thresholds to require NSR, PSD, or Title V permitting requirements. Both emergency generators and boilers would be subject to NSPS. All non-permitting regulations and best management practices (BMPs) would be similar to those outlined under the Preferred Alternative.

#### **4.3.2.3 No Action Alternative**

Selecting the No Action Alternative would result in no effects on ambient air-quality. No construction would occur, and no new facility operations would be expected. Ambient air-quality conditions would remain as described in Section 4.3.1.

### **4.4 NOISE**

#### **4.4.1 Affected Environment**

Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise, distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise is often generated by activities as part of everyday life, such as construction or vehicular traffic.

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz (Hz) are used to quantify sound frequency. The

human ear responds differently to different frequencies. A-weighting, described in a-weighted decibels (dBA), approximates this frequency response to express accurately the perception of sound by humans. Sounds encountered in daily life and their approximate levels in dBA are provided in Table 4.4-1.

**Table 4.4-1  
Common sounds and their levels**

<b>Outdoor</b>	<b>Sound level (dBA)</b>	<b>Indoor</b>
Snowmobile	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringling telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Source: Harris 1998

The dBA noise metric describes steady noise levels. Although, very few noises are, in fact, constant; therefore, a noise metric, Day-night Sound Level (DNL) has been developed. DNL is defined as the average sound energy in a 24-hour period with a 10-dB penalty added to the nighttime levels (10 p.m. to 7 a.m.). DNL is a useful descriptor for noise because (1) it averages ongoing yet intermittent noise, and (2) it measures total sound energy over a 24-hour period. In addition, Equivalent Sound Level ( $L_{eq}$ ) is often used to describe the overall noise environment.  $L_{eq}$  is the average sound level in dB.

The Noise Control Act of 1972 (P.L. 92-574) directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. In 1974 EPA provided information suggesting that continuous and long-term noise levels in excess of DNL 65 dBA are normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals. North Carolina has no statewide noise regulation. Wilmington has a local noise ordinance. The city code restricts the operation or use of any devices or equipment to less than 65 dBA during the hours of from 7:00 a.m. until 11:00 p.m. or 55 dBA from 11:00 p.m. until 7:00 a.m. within residential areas. There are also less restrictive noise limits for commercial and industrial areas. The code specifically exempts construction activity or equipment (Wilmington Municipal Code Article II. Sec. 6-31).

Existing sources of noise near the proposed sites include local road traffic, high-altitude aircraft overflights, and natural noises such as leaves rustling, and bird vocalizations. The areas surrounding these locations can be categorized as quiet suburban. The noise environment consists of light traffic conditions, where few trucks pass. Existing noise levels (DNL and  $L_{eq}$ ) were estimated for the proposed sites and surrounding areas using the techniques specified in the *American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short-term measurements with an observer present*. Table 4.4-2 outlines the closest Noise Sensitive Areas (NSAs) such as residents, schools, churches, and hospitals and the estimated existing noise levels at each location.

**Table 4.4-2  
Estimated existing noise levels at nearby NSAs**

Location	Closest noise sensitive area (NSA)			Land use category	Estimated existing sound levels (dBA)		
	Distance	Direction	Type		DNL	L <sub>eq</sub> (Daytime)	L <sub>eq</sub> (Nighttime)
Site 4	500 feet (155 meters)	Southwest	Residential	Quiet Suburban (Semi-Urban) Residential	50	48	42
Site 5	990 feet (300 meters)	East	Residential				

Source: ANSI 2003

## 4.4.2 Consequences

### 4.4.2.1 Site 4—3623 Carolina Beach Road Site (Preferred Alternative)

Implementing the Preferred Alternative would be expected to have short-term minor adverse effects on the noise environment. These minor increases in noise would primarily be from the use of heavy equipment during construction. The effects would be temporary and would end upon completion of construction.

The Preferred Alternative would require some demolition activities and the construction of several new facilities at the site. Individual pieces of heavy equipment typically generate noise levels of 80 to 90 dBA at a distance of 50 feet (Table 4.4-3). With multiple items of equipment operating concurrently, noise levels can be relatively high during daytime periods at locations within several hundred feet of active demolition or construction sites. The zone of relatively high construction noise levels typically extends to distances of 400 to 800 feet from the site of major equipment operations. Locations more than 1,000 feet from sites seldom experience appreciable levels of construction noise. There are several residences closer than 800 feet to the site that would experience appreciable amounts of noise. Given the temporary nature of proposed activities, this effect would be considered minor. Construction activities are exempt from the Wilmington noise ordinance. The use of heavy equipment would not occur during the nighttime hours.

**Table 4.4-3  
Noise levels associated with outdoor construction**

Construction phase	dBA L <sub>eq</sub> at 50 feet from source
Ground clearing	84
Excavation, grading	89
Foundations	78
Structural	85
Finishing	89

Source: USEPA 1971

Although demolition and construction-related noise effects would be minor, the following BMPs would be implemented to reduce further any realized noise effects:

- Construction and demolition would primarily occur during normal weekday business hours.
- Equipment mufflers would be properly maintained and in good working order.

Construction noise would dominate the soundscape for all on-site personnel. Construction personnel, and particularly equipment operators, would don adequate personal hearing protection to limit exposure and ensure compliance with federal health and safety regulations.

Noise generated during training at the AFRC would not generate disruptive noise levels at the adjacent residences. No use of weaponry, demolitions, or aircraft operations would occur with the implementation of the Preferred Alternative. Therefore, no changes in the existing noise environment associated with these sources would be expected.

#### 4.4.2.2 Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)

Implementing the Site 5 Alternative would be expected to have short-term minor adverse effects on the noise environment. These minor increases in noise would primarily be from the use of heavy equipment during construction. These minor increases would be temporary and would end upon completion of construction.

This alternative would require the construction of several new facilities at Site 5. Unlike the Preferred Alternative, no demolition would be required. Except for the lack of demolition noise, the noise associated with this alternative would be similar in both level and frequency as those outlined under the Preferred Alternative. As with the Preferred Alternative, there are several existing residences near the site that would experience appreciable amounts of construction noise. BMPs would be similar to those outlined under the Preferred Alternative. These effects would be expected to be minor.

The facility would be primarily administrative in nature. Some vehicle maintenance activities would be conducted there. No use of weaponry, demolitions, or aircraft operations would occur. Therefore, no changes in the existing noise environment associated with these sources would be expected.

**Aircraft Noise and Land Use Compatibility.** Site 5 is in line with the approach path for a runway at the Wilmington International Airport, which is approximately 0.5 miles northeast of the site. The metric used in defining noise zones for aircraft activities is DNL. Table 4.4-4 outlines noise limits and zones for land use planning for aircraft operations. Noise exposure calculated on the basis of these limits have been carried forward to determine the level of impact under NEPA.

**Table 4.4-4  
Noise limits for noise zones—aircraft operations**

Noise zone	General level of noise	Noise limits (DNL)	Recommended uses
1	Low	< 65 dBA	noise-sensitive land uses acceptable
2	Moderate	65–75 dBA	noise-sensitive land uses normally not recommended
3	High	> 75 dBA	noise-sensitive land uses not recommended

Source: FAA 1983

The proposed site is in Noise Zone 1 (< 65 dBA DNL contour) for the Wilmington International Airport. Noise-sensitive land uses are acceptable without noise reduction controls. Although completely compatible, aircraft noise would be clearly audible at the proposed AFRC. Its tenants would experience ongoing systematic exposure to transient acoustical events. These events would be loud enough to have a brief, somewhat unnoticeable, effect on verbal communication outside the buildings.

#### **4.4.2.3 No Action Alternative**

The No Action Alternative would result in no effect on the ambient noise environment. No construction would be expected. Ambient noise conditions would remain as described in Section 4.4.1.

### **4.5 GEOLOGY AND SOILS**

#### **4.5.1 Affected Environment: Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

##### **4.5.1.1 Geologic and Topographic Conditions**

The site is in the Coastal Plains of North Carolina. The area is underlain by limestone of the Peedee Formation of Cretaceous age and limestone and dolomitic limestone of the Castle Hayne Formation. Significant layers of coastal sediments can be over the limestone and dolomitic limestone. The topography of the site is mainly flat, gently sloping to Carolina Beach Road (USACE 2008a).

##### **4.5.1.2 Soils**

The parent materials of the soils of New Hanover County are of two basic kinds. The first is unconsolidated rock material, sand, silt, and clay that make up the marine and fluvial sediments of the Coastal Plain province. The second is the eolian sand deposits (USDA 1977a).

The site soils have been classified as Leon sand, Murville fine sand, and Seagate fine sand (USDA 2008b). These soil classifications are described below.

- The Leon sand is derived from sandy fluviomarine deposits or eolian sands (or both). It is on marine terrace flats and is poorly drained with a low available water capacity. The depth to water table in this soil can be between 0 and 12 inches. The depth to restrictive features is more than 80 inches. This soil is classified as hydric.
- The Murville fine sand (drained) is derived from sandy fluviomarine deposits or eolian sands (or both). Its setting is described as depressions on marine terraces or flats on marine terraces. It is very poorly drained and has a low water capacity. The depth to water in this soil is about 0 inches. This soil is classified as hydric.
- Seagate fine sand derived from sandy and loamy fluviomarine marine deposits or eolian sands (or both). It is on marine terrace flats and is moderately well drained with a very low available water capacity. The depth to water table in this soil can be between 18 and 30 inches. The depth to restrictive features can be between 20 to 40 inches. This soil is classified as hydric.

Surveyors conducting a cultural resources survey on Site 4 in December 2008 noted that the typical soil profile in the project area consists of 12-22 inches of fill atop coarse sand with high organic content, with the lower soil being typical of wetlands in New Hanover County. The surveyors suggested that fill was brought to this location to modify wetlands to usable land.

##### **4.5.1.3 Prime Farmland**

Congress enacted the Farmland Protection Policy Act (FPPA) as a subtitle of the 1981 Farm Bill. The purpose of the law is to “minimize the extent to which Federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses” (Public Law 97-98, Sec. 1539-1549;

7 U.S.C. section 4201 *et seq.*). According to the Natural Resources Conservation Service (NRCS), the Leon sand and the Murville fine sand (drained) are classified as prime farmland soils (of unique importance). While the site has been developed, coordination with the NRCS was initiated to determine if the completion of a Farmland Conversion Impact Rating Form AD1006 would be required. According to the NRCS, the form would not be required in accordance with *Federal Register* 7 CFR Part 658, Farmland Protection Policy Act; 1-1-99 Edition. For correspondence, see Appendix E. No further evaluation of Site 4—3623 Carolina Beach Road (Preferred Alternative) is required under the FPPA.

#### **4.5.2 Affected Environment: Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

##### **4.5.2.1 Geologic and Topographic Conditions**

The geological conditions are similar to those described Section 4.5.1.1 above. The topography of the site is mainly flat (DA, HQ, 81<sup>st</sup> RRC 2008).

##### **4.5.2.2 Soils**

The site soils have been classified as Baymeade fine sand, 1 to 6 percent slopes; Borrow pits; Kenansville fine sand, 0 to 3 percent slopes; Leon sand; Murville fine sand, and Seagate fine sand (USDA 2008b). The soil classifications for the Leon sand; Murville fine sand, and Seagate fine sand are described in Section 4.5.1.2 above. The Baymeade fine sand, 1 to 6 percent slopes; Borrow pits; Kenansville fine sand, 0 to 3 percent slopes are described below.

- The Baymeade fine sand, 1 to 6 percent slopes is derived from loamy and sandy marine deposits. Typically it is on ridges on marine terraces and is well drained with a low water capacity. The depth to water table in this soil can be between 48 and 60 inches. The depth to restrictive features can be more than 80 inches. This soil is classified as hydric.
- The Borrow pit classification is derived from loamy mine spoil or earthfill. It is well drained with a moderate water capacity. The depth to water and restrictive features is generally more than 80 inches.
- The Kenansville fine sand, 0 to 3 percent slopes is derived from loamy alluvium over sandy alluvium. Typically it is on stream terraces and is well drained with a low water capacity. The depth to water table in this soil can be between 48 and 72 inches. The depth to restrictive features can be more than 80 inches. This soil is classified as hydric.

##### **4.5.2.3 Prime Farmland**

According the NRCS, the Baymeade fine sand, 1 to 6 percent slopes and the Kenansville fine sand, 0 to 3 percent slopes are classified as prime farmland soils (of unique and statewide importance); however, coordination with the NRCS indicated that completion of a Farmland Conversion Impact rating form AD1006 would not be required according to *Federal Register* 7 CFR Part 658, Farmland Protection Policy Act; 1-1-99 Edition. For coordination letters, see Appendix E. No further evaluation of Site 5—1402 North 23<sup>rd</sup> Street Site is required under the FPPA.

### **4.5.3 Consequences**

#### **4.5.3.1 Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

Short-term minor adverse effects on soils would be expected under the Preferred Alternative from removing vegetation, site grading, and exposure of soil during construction, but construction would not permanently alter the geology or soils of the site. These effects would be minimized by using appropriate BMPs for controlling runoff, erosion, and sedimentation. Construction would be in compliance with NCDENR's National Pollutant Discharge Elimination System (NPDES) Phase I Stormwater Program. An approved erosion and sediment control plan would also be required (NCDNR 2008).

#### **4.5.3.2 Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

Short-term minor adverse effects on Site 5—1402 North 23<sup>rd</sup> Street site would be expected from clearing the wooded parcel and other vegetation, site grading and exposure of soil during construction. Like the Preferred Alternative, construction would not permanently alter the geology or the soils and the effects of tree removal and construction would be minimized by using appropriate BMPs for controlling runoff, erosion, and sedimentation. Construction would be in compliance with NCDENR's NPDES Phase I Stormwater Program and an approved erosion and sediment control plan.

#### **4.5.3.3 No Action Alternative**

No adverse effects would be expected from implementing the No Action Alternative. No site disturbance or construction would occur.

## **4.6 WATER RESOURCES**

### **4.6.1 Affected Environment: Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

#### **4.6.1.1 Surface Water**

Wilmington is north of the mouth of the Cape Fear River, along a wedge of land between the river and North Carolina's Atlantic Ocean coastline (see Figure 1-1). Site 4 is in the watershed of creeks in the lower Cape Fear River drainage basin. The lower 35-mile stretch of the river between Wilmington and the ocean is referred to as the Cape Fear Estuary (UNCW-CMS 2009).

Site 4—3623 Carolina Beach Road is within Wilmington's Barnards Creek watershed. Barnards Creek flows generally west about 1.5 to 2 miles south of the site and discharges into the Cape Fear River estuary about 2 miles southwest of the site (City of Wilmington Development Services Department 2006; City of Wilmington Public Services Department n.d.; USGS 1993). Site 4—3623 Carolina Beach Road has no perennial surface waterbodies (see Figure 4-2). Natural surface drainage from the site and its vicinity drains generally south and west toward Barnards Creek and ultimately to the Cape Fear River. Water quality in Barnards Creek has been monitored by the University of North Carolina at Wilmington's (UNCW) Center for Marine Science since 1997 and is reported to be generally good, with minor problems with low dissolved oxygen but not enough to impair its use (City of Wilmington Public Services Department 2008).

#### **4.6.1.2 Hydrogeology/Groundwater**

New Hanover County and Wilmington are underlain by a near-surface, unconfined, surficial aquifer and the deeper Castle Hayne- and Peedee-confined aquifers (City of Wilmington and New Hanover County 2006; Lautier 1998; NCDENR-DWR 2008). These units occur in a hydrogeologic setting made up of an eastward thickening wedge of sediments and sedimentary rock consisting of sands, silts, conglomerates, clays, shell hash, and fossiliferous limestone (Lautier 1998). Depth to water in the surficial aquifer varies throughout the area, with wells ranging in depth from about 20 to 75 feet (City of Wilmington and New Hanover County 2006). The surficial aquifer is recharged by rainfall, and water received from recharge tends to be discharged laterally to the Cape Fear River, its tributaries, and other local surface waterbodies. A small amount of recharge water moves downward from the surficial aquifer to recharge the underlying Castle Hayne aquifer through the Castle Hayne confining unit, and the Peedee aquifer through the upper Peedee confining unit (Lautier 1998). Most recharge to the two underlying confined aquifers occurs through infiltration of precipitation well west of Wilmington where these aquifers are exposed at the surface. In the Wilmington area, wells to the Castle Hayne- and Peedee-confined aquifers range in depth from about 75 to 200 feet (City of Wilmington and New Hanover County 2006). Depth to the bottom of the Peedee aquifer (top of its underlying confining unit) in Wilmington is about 450 feet below mean sea level (Lautier 1998). The Castle Hayne aquifer, composed of limestone, sandy limestone, and sand, is the most productive aquifer in North Carolina, producing wells that typically can yield 200 to 500 gallons per minute but can sometimes exceed 2,000 gallons per minute. The Peedee Aquifer, composed mostly of fine to medium sands, can produce wells typically yielding up to 200 gallons per minute (NCDENR-DWR 2008). No groundwater wells are known to occur on Site 4.

#### **4.6.1.3 Floodplains**

Through the Federal Emergency Management Agency's (FEMA's) Cooperating Technical Community partnership initiative, North Carolina has been designated as a Cooperating Technical State and, as such, has assumed primary ownership and responsibility of the National Flood Insurance Program Flood Insurance Rate Maps for all North Carolina communities (NCFMP 2009).

According to North Carolina Flood Mapping Program (NCFMP) map number 3720312500J, Site 4 does not lie within any 100-year floodplain boundary (see Figure 4-2) (NCFMP 2006).

#### **4.6.1.4 Coastal Zone**

The federal Coastal Zone Management Act of 1972 (CZMA) (16 U.S.C. 1451 *et seq.* as amended) was enacted to preserve, protect, develop, and where possible restore or enhance the resources of the coastal zone of the United States. Provisions under the CZMA assist states in developing coastal management programs to manage and balance competing uses of the coastal zone. The CZMA requires federal agencies to act consistently with federally approved state coastal management programs. North Carolina's coastal programs are governed under the state's 1974 Coastal Area Management Act (CAMA), which created the state's Coastal Resources Commission (CRC) to establish policies and adopt implementing rules for CAMA. The NCDENR Division of Coastal Management (DCM) carries out CRC policies and rules, including the federal consistency review process and federal consistency determinations (NCDENR-DCM 2009).

New Hanover County is one of the 20 North Carolina coastal counties governed under CAMA. North Carolina CRC provides guidelines that assist coastal counties in developing land use plans,

as required under CAMA, that DCM uses in making decisions pertaining to CAMA permits and federal consistency (NCDENR-DCM 2009). New Hanover County and Wilmington have developed a joint Coastal Area Management Plan (land use plan), first adopted in 1976, and are completing its 5th update (City of Wilmington and New Hanover County 2006). The preferred and alternate Wilmington AFRC sites have been reviewed in the context of this joint Wilmington–New Hanover County land use plan.

Coastal zone consistency review may be coordinated with the NEPA review process. A draft Federal Coastal Zone Consistency Determination for the Wilmington AFRC proposed action has been prepared and is included in Appendix G of this EA for review by North Carolina DCM. All activities under the proposed action will meet all CAMA, CRC, and joint Wilmington–New Hanover County land use planning requirements. Preparation of the final Federal Coastal Zone Consistency Determination will include additional required information, including final site selection, site plan layout, and stormwater and other required permit applications. Submittal of a final Coastal Zone Consistency Determination by the Army to DCM, as required, will be completed upon further decisionmaking in the development process.

The preferred AFRC site on Carolina Beach Road is in an area designated as Urban under the 2006 land classification map update in the Wilmington–New Hanover County Joint Coastal Area Management Plan (City of Wilmington and New Hanover County 2006). This class allows for continued intensive development and redevelopment of existing urban areas when all applicable local development regulations and guidelines are followed. The site is not in any CAMA-designated Areas of Environmental Concern (AEC) or in any city- or county-designated Resource Protection Areas, Conservation Areas, or Sensitive Areas. A letter from DCM confirming the site's location outside of any CAMA AECs is included in Appendix E.

#### **4.6.2 Affected Environment: Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

##### **4.6.2.1 Surface Water**

Like Site 4, Site 5 is in the watershed of creeks in the lower Cape Fear River drainage basin.

Site 5—1402 North 23<sup>rd</sup> Street is within Wilmington's Smith Creek watershed (City of Wilmington Public Services Department n.d.). Smith Creek flows in a meandering channel generally westward about one-quarter to one-half mile north of the site across Highway 74 (see Figure 4-3). North 23<sup>rd</sup> Street follows closely along the drainage divide between the watersheds of Smith Creek and Burnt Mill Creek, a Smith Creek tributary (City of Wilmington Development Services Department 2006; City of Wilmington Public Services Department n.d.). Smith Creek's marshy mouth at the Northeast Cape Fear River is about 1.5 to 2 miles northwest of the site (City of Wilmington Public Services Department n.d.; USGS 1997). The Northeast Cape Fear River flows into the Cape Fear River about 2 miles south of the mouth of Smith Creek (USGS 1993, 1997). Site 5 has no perennial surface waterbodies. Natural surface drainage from the site and its vicinity flows generally north toward Smith Creek and ultimately to the Cape Fear River. Water quality monitoring by both NCDENR Division of Water Quality and UNCW Center for Marine Science has assessed Smith Creek as impaired in its ability to support aquatic life (impaired biological integrity), and Smith Creek is listed on North Carolina's 2006 303(d) list of impaired waters (the 2008 list is unavailable pending EPA approval) (City of Wilmington Public Services Department 2008; NCDENR-DWQ 2007).

#### **4.6.2.2 Hydrogeology/Groundwater**

Hydrogeology and groundwater conditions in the Wilmington region are as described in Section 4.6.1.2. No groundwater wells are known to exist on the North 23<sup>rd</sup> Street site.

#### **4.6.2.3 Floodplains**

According to NCFMP map number 3720312800J, Site 5 does not lie within any 100-year floodplain boundary (see Figure 4-3) (NCFMP 2006).

#### **4.6.2.4 Coastal Zone**

Like Site 4, Site 5 is in an area designated as Urban under the 2006 land classification map update in the Wilmington–New Hanover County Joint Coastal Area Management Plan (City of Wilmington and New Hanover County 2006) and is not in any CAMA-designated AEC or city- or county-designated Resource Protection Areas, Conservation Areas, or Sensitive Areas. This class allows for continued intensive development as described in Section 4.6.1.4. A draft Federal Coastal Zone Consistency Determination, as described in Section 4.6.1.4, is included in Appendix G of this EA for review by North Carolina DCM. All activities under the proposed action will meet all CAMA, CRC, and joint Wilmington-New Hanover County land use planning requirements. A letter from DCM confirming the site's location outside of any CAMA AECs is included in Appendix E.

### **4.6.3 Consequences**

#### **4.6.3.1 Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

Short-term minor adverse effects and long-term minor beneficial effects on surface waters would be expected from implementing the Preferred Alternative. The site is mostly covered with a gravel parking area and concrete pad. In the short term, land disturbance activities associated with redeveloping the site for the proposed AFRC could increase soil erosion and runoff of dissolved solids, sediment, and other waterborne pollutants. The effects would be minimized by using construction-specific BMPs to control storm water runoff and implementing a site-specific sediment and erosion control plan during land development, construction, and afterward during operation of the AFRC, including the development of a site-specific Storm Water Pollution Prevention Plan (SWPPP). These measures would reduce the effects of land disturbance activities on water resources. In the long term, redevelopment of the site for the proposed AFRC would convert some of the site to vegetated and landscaped surfaces. During the site's use as a vehicle storage and staging area, compaction of soils is likely to have occurred beneath the gravel land cover, reducing infiltration rates and increasing imperviousness. Increasing the presence of vegetated and landscaped areas on the site, and using BMPs for storm water management, are likely to improve infiltration and reduce runoff of precipitation, resulting in minor long-term beneficial effects in the Barnards Creek watershed.

Short-term minor adverse effects and long-term minor beneficial effects on groundwater would be expected from implementing the Preferred Alternative. During redevelopment of the site, construction-related activities could result in spills of petroleum hydrocarbons or other pollutants that could contaminate groundwater. The shallow, unconfined surficial aquifer in the affected environment is susceptible to contamination. Use of BMPs for erosion and storm water management would minimize potential contamination of groundwater resources. In the long term, improved vegetative cover and effective storm water management would be expected to reduce the potential for pollutants to be conveyed to groundwater.

No effect on floodplains would be expected.

No effect on coastal zone resources would be expected. The site is in an area of Urban land classification under the Wilmington–New Hanover County Coastal Area Management Plan, where development and redevelopment are allowed when applicable regulations are followed. The Army would comply with all applicable state and local regulations for development in Urban areas of the coastal zone.

#### **4.6.3.2 Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

Short- and long-term minor adverse effects would be expected on surface and groundwater resources. The site is undeveloped and heavily wooded. The existing vegetative cover would have to be cleared for development of the proposed AFRC. Short-term minor adverse effects could result from erosion and sediment runoff during land disturbance activities and vegetation clearing as described in Section 4.6.3.1. Long-term minor adverse effects would be expected as a result of increased impervious surface area of the site, such as parking lots, driveways, and rooftops. Impervious surface area can result in increased runoff (in the forms of increased volume, velocity, and peak flows), increased erosion, increased pollutant loads (e.g., dissolved solids, petroleum hydrocarbons, or excess nutrients) and sediment loads, and reduced ground absorption and infiltration of runoff that would otherwise recharge groundwater aquifers or seeps. Short- and long-term adverse effects would be minimized as described in Section 4.6.3.1 by using construction-specific and longer-term BMPs; compliance with all federal, state, local, and Army requirements to reduce potential detrimental effects; and developing an effective SWPPP.

No effect on floodplains would be expected.

No effect on coastal zone resources would be expected. The site is in an area of Urban land classification as described in Section 4.6.2.4 and Section 4.6.3.1.

#### **4.6.3.3 No Action Alternative**

Under the No Action Alternative, no effects on water resources would be expected because baseline conditions would remain the same.

### **4.7 BIOLOGICAL RESOURCES**

#### **4.7.1 Affected Environment: Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

Wilmington, North Carolina, is in a broad ecological area of the United States referred to as the Outer Coastal Plain (USFS 2008). Temperate rainforest, also called temperate evergreen forest or laurel forest, is typical along the southeastern coast (USFS 2008). Common species include evergreen oaks, laurels, and magnolias. (Scientific names of all species mentioned in the text are provided in Appendix C.) Forests of the region usually have a well-developed understory of shrubs and herbaceous plants. The nearly level coastal plain area surrounding Wilmington is further defined as being *Carolina Flatwoods* (USEPA 2007). Most uplands of the area are covered by subclimax pine forest, which has an understory of grasses and sedges (USEPA 2007; USFS 2008). The potential natural vegetation for the area consists of longleaf pine-wiregrass, dry sandhill scrub, and some oak-hickory and mixed forest (USEPA 2007). The forest industry has converted much of the area's natural pine forest to loblolly pine plantations.

#### 4.7.1.1 Vegetation

The preferred site is cleared, with a mostly gravel base; however, portions of the site do support natural vegetation such as grasses.

#### 4.7.1.2 Wildlife

The preferred site is cleared and fenced; however, portions of the site do support vegetation that could provide habitat for some wildlife. Because the site is so altered from its natural state, if wildlife is present on the site, it would be expected to be small birds and small species of mammals and reptiles from adjacent areas that use the site only occasionally or in transit, but not for nesting or other important aspects of their life histories.

#### 4.7.1.3 Sensitive Species

Terrestrial species listed by the North Carolina Natural Heritage Program as occurring in New Hanover County, North Carolina, and as being formally listed by the federal government and North Carolina as either threatened or endangered are listed in Table 4.7-1. Threatened and endangered aquatic species are not listed in Table 4.7-1 because they would not be a concern on either site being considered for the AFRC. A coordination letter requesting agency input regarding environmental concerns as result of the proposed project has been sent to the USFWS, Raleigh Ecological Services Field Office (see Appendix E).

**Table 4.7-1  
State and federal terrestrial species in New Hanover County, North Carolina**

<b>Common name</b>	<b>State status</b>	<b>Federal status</b>
Seabeach amaranth	Threatened	Threatened
Rough-leaf loosestrife	Endangered	Endangered
Piping plover	Threatened	Threatened
Red-cockaded Woodpecker	Endangered	Endangered

The preferred site does not support federal or state listed species. The site is developed and does not support the habitat of any sensitive species of plants or animals.

#### 4.7.1.4 Wetlands

Wetlands are depicted on Figure 4-2; however, the preferred site is mostly covered with gravel and has been used as a parking/staging area since at least 1993. Jurisdictional wetlands, as defined by the U.S. Army Corps of Engineers, must possess one positive indicator from each wetland parameter (hydrology, soil, and vegetation) (USACE 1987). Briefly, the *hydrology* criterion requires that the area be inundated either permanently or periodically at mean water depths of less than or equal to 6.6 feet, or that the soil be saturated to the surface at some time during the growing season of the prevalent vegetation; the *soil* criterion requires that the soils be hydric (such as soils found in swamps, marshes, and bogs); the *vegetation* criterion requires that the prevalent vegetation be adapted to inundated or saturated soil conditions. All three criteria must be present in order to classify an area as a wetland. National Wetlands Inventory data indicates that the site formerly supported wetlands (see Figure 4-2), but based on visual inspection during site visits, the site is unlikely to support wetlands now.

Surveyors conducting a cultural resources survey on the site in December 2008 noted that the typical soil profile in the project area consists of 12-22 inches of fill atop coarse sand with high

organic content, with the lower soil being typical of wetlands in New Hanover County. The surveyors suggested that fill was brought to this location to modify wetlands to usable land.

#### **4.7.2 Affected Environment: Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

The regional affected environment is the same as that described in Section 4.7.1.

##### **4.7.2.1 Vegetation**

This site is forested and supports a mixture of pine, oak, and hickory overstory trees with an understory of shrubs and herbaceous plants. The site could support a natural vegetative community as described above in Section 4.7.1. The site is connected to other vegetated areas east and southeast of the site and to a riparian buffer area that borders Smith Creek north of Martin Luther King Parkway.

##### **4.7.2.2 Wildlife**

This region provides habitat for a wide variety of animals. Whitetail deer is the only large indigenous mammal in the region (USFS 2008). Common small mammals include raccoons, opossums, flying squirrels, rabbits, and numerous species of ground-dwelling rodents. Bobwhite and wild turkey are the principal game birds. Migratory nongame bird species and migratory waterfowl are numerous.

Site 5 provides habitat for wildlife of the area, which would be expected to consist of an assemblage of the species mentioned above, including deer, which could move between this site and adjacent and nearby vegetated areas.

##### **4.7.2.3 Sensitive Species**

Site 5 does not provide suitable habitat for any of the species listed in Table 4.7-1 (USACE Louisville District 2008; USFWS 2009). A coordination letter requesting agency input regarding environmental concerns as result of the proposed project has been sent to the USFWS, Raleigh Ecological Services Field Office (see Appendix E).

##### **4.7.2.4 Wetlands**

Wilmington's GIS data shows a small area of wetlands in the southeast corner of Site 5 and wetlands near the site along the eastern boundary and near the northwest corner. These wetlands are depicted in Figure 4-3.

#### **4.7.3 Consequences**

##### **4.7.3.1 Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

No effects on biological resources would be expected from implementing the proposed action. The preferred site does not support forest, wildlife, or sensitive species, and it is doubtful that the site still supports wetlands. If, upon further site inspection, it was determined that the site could still support remnants of the wetlands that might once have been on the site, a jurisdictional determination of wetlands on the site could be required to determine the presence of wetlands and if any permitting requirements would be necessary to construct on the site.

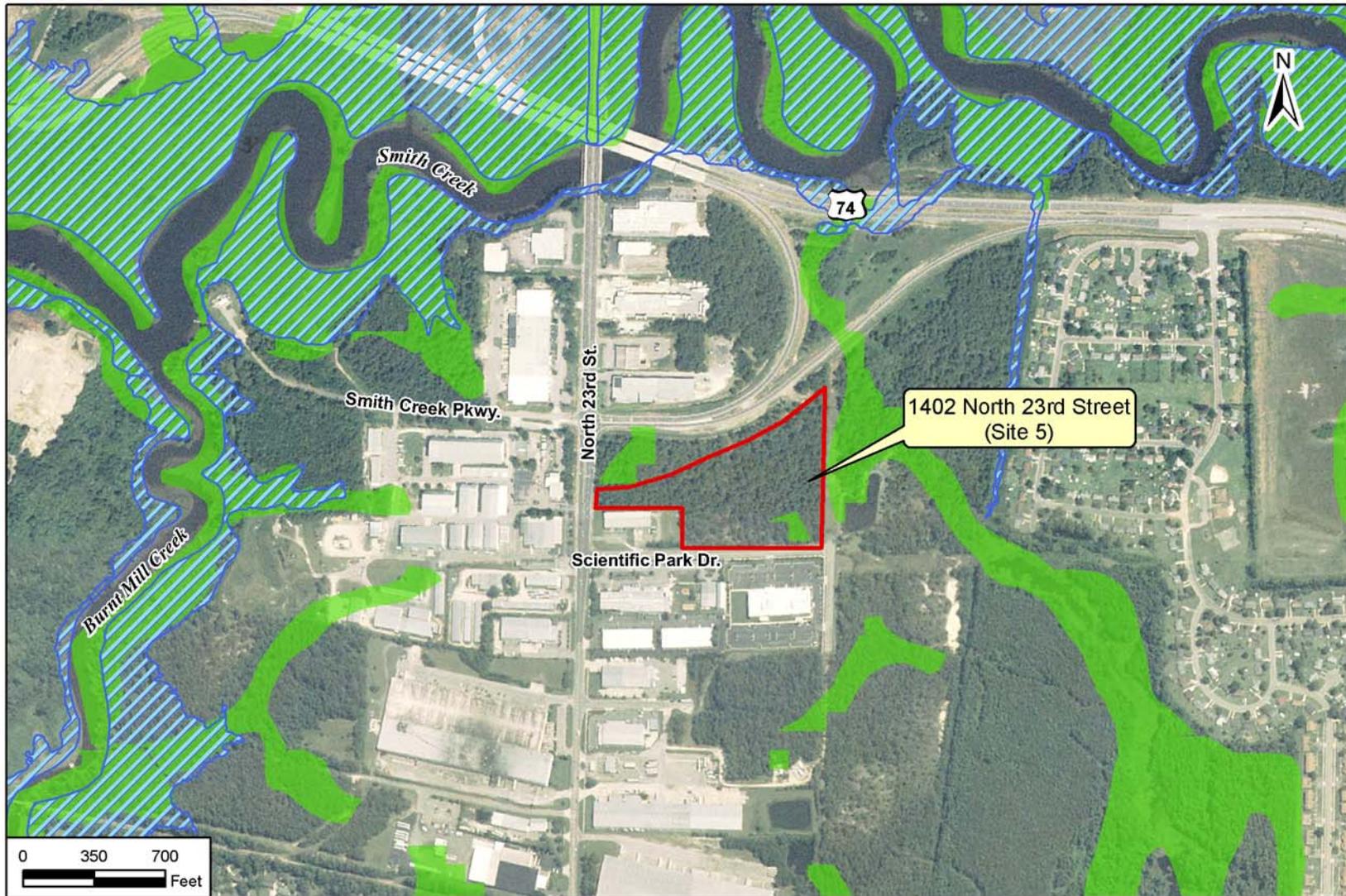


**LEGEND**  
[Red outline] Site Boundary  
[Green fill] Wetland

### Surface Water Features Site 4 (Primary Site)

Figure 4-2

Source: NC DCM, 2003.



**LEGEND**  
[Red outline] Site Boundary  
[Blue diagonal lines] 100-Year Floodplain  
[Green] Wetland

# Surface Water Features Site 5 (Alternate Site)

Figure 4-3

Source: NC DCM, 2003; FEMA, 2006.

#### **4.7.3.2 Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

Long-term minor adverse effects on vegetation and wildlife would be expected from implementing the action at Site 5. The forest on the site would be largely removed for construction of the AFRC facility and associated structures, and wildlife of the site would lose their habitat. Some trees would be retained on the site, in accordance with Article 8 of Wilmington's Land Development Code, *Landscaping and Tree Preservation*, which requires the retention of trees on development sites to provide visual and noise buffers, pollution control, and other purposes. Article 8 requires that landscaping plans be submitted before or at the time of application for the Building Permit for all development projects. Some species would be displaced to other, nearby natural areas. No sensitive species or wetlands would be expected to be affected by implementing this alternative. Long-term minor adverse effects on wetlands would be expected if the site layout required use of the southeast corner of the site where wetlands might be located. A jurisdictional determination of wetlands on the site could be required to determine the presence of wetlands and if any permitting requirements would be necessary to construct on the site.

#### **4.7.3.3 No Action Alternative**

No effects on biological resources would result from implementing the No Action Alternative. Under the No Action Alternative, no land would be acquired, and no facilities would be constructed.

### **4.8 CULTURAL RESOURCES**

#### **4.8.1 Affected Environment: Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

##### **4.8.1.1 Archaeological Resources**

A review of the North Carolina state archaeological site files identified no previously recorded archaeological resources within the proposed project area or the Area of Potential Effect (APE) for the proposed project. Three previously recorded archaeological resources were identified within a 1-mile radius of the APE for the proposed project (Table 4.8-1). Two were archaeological sites (31NH743\*\* and 31NH744) and the other an isolated find (31NH745). All were recommended not eligible for the National Register of Historic Places (NRHP).

Archaeologists conducted an Archaeological Impact Evaluation of the APE between December 8 and 9, 2008, to identify those areas of the APE for both proposed sites that were too disturbed to contain archaeological sites and to identify areas with potential to contain archaeological deposits. An Intensive Archaeological Survey of those areas of the APE with potential to contain archaeological deposits was then conducted. The Archaeological Impact Evaluation completed a 100 percent archaeological survey of the APE for Site 4—3623 Carolina Beach Road.

The archeological survey was accomplished through the excavation of screened shovel tests on a 30-meter interval. The shovel tests measured 30 centimeters in diameter and were excavated to the top of former wetland soils. A total of 35 shovel tests were excavated. The survey identified no artifacts or archaeological sites.

Archaeologists have concluded that there are no archaeological resources within the APE for the proposed site, at 3623 Carolina Beach Road (36 CFR 800.16[1]), nor any State Archaeological Landmarks (SAL) (Espenshade et al. 2008).

**Table 4.8-1  
Previously recorded archaeological sites within a 1-mile radius  
of the APE for the proposed project**

<b>Site#</b>	<b>Time period</b>	<b>Site type</b>	<b>NRHP status</b>
31NH743**	WWII era	Historic, barracks for shipyard workers	Not eligible
31NH744	Middle Woodland	Prehistoric, sparse pottery scatter	Not eligible
31NH745	Early-Middle Woodland	Prehistoric Isolated Find (1 shard)	Not eligible

Source: Young et al. 2006

#### **4.8.1.2 Historic Buildings**

A search of the North Carolina State Historic Preservation Office (SHPO), survey and Planning Branch files revealed no previously recorded historic buildings or NRHP-listed properties within the proposed project area or the APE for the proposed project.

The cultural resource survey conducted between December 8 and 9, 2008, identified one historic building in the APE for the proposed project. The building appears to have originally been a residential structure but has been converted for use as commercial offices. Tax records indicate that the building was constructed in 1945 but might have undergone significant alterations in 1969. The property was recommended not eligible for listing on the NRHP. In a letter dated February 16, 2009, the SHPO determined that the project as proposed will not have an effect on any historic structures. Consultation letters notifying the North Carolina State Historic Preservation Office of the proposed project and letters transmitting the cultural resources survey are provided in Appendix E. Agency responses to coordination letters are also included in Appendix E. A photograph of the building on the site is provided in Appendix F.

#### **4.8.1.3 Historic Districts**

Review of the North Carolina SHPO, survey and Planning Branch files revealed no previously recorded historic districts or NRHP listed districts within the proposed project area or the APE for the proposed project. The cultural resource survey identified no historic districts within the APE for the proposed project.

#### **4.8.1.4 Historic Markers, Monuments, and Memorials**

Review of the North Carolina SHPO, survey and Planning Branch files revealed no previously recorded historic markers, monuments, or memorials within the proposed project area or the APE for the proposed project. The cultural resource survey did not identify any of these resource types within the APE for the proposed project.

#### **4.8.1.5 Traditional Cultural Properties, National Historic Landmarks, and World Heritage Sites**

There are no Traditional Cultural Properties, National Historic Landmarks, World Heritage Sites, or any state or locally designated landmarks within the proposed project area or the APE for the proposed project, nor did the cultural resource survey identify any of these resource types within the APE for the proposed project.

Copies of consultation letters notifying Federally Recognized Native American Indian Tribes of the proposed action are provided in Appendix E.

#### **4.8.2 Affected Environment: Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

Site 5—1402 North 23<sup>rd</sup> Street was not included in the included in the Phase I Cultural Resources Survey; however, an archaeological survey of the right-of-way of the now-constructed interchange was conducted in-house by North Carolina Department of Transportation in 1994. The survey identified no sites within 1 mile of Tract 5 (Joy 1994).

If the preferred site alternative Site 4—3623 Carolina Beach Road is not selected and the Army instead elects to move forward with the alternate site, Site 5—1402 North 23<sup>rd</sup> Street, the Army would first conduct a Phase I Cultural Resources Survey and any further consultation that might be required to remain in compliance with the NHPA before proceeding with construction.

#### **4.8.3 Consequences**

##### **4.8.3.1 Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

No effect would be expected on cultural or historical resources from implementing the Preferred Alternative. There are no NRHP-listed or eligible, archaeological, or historic resources within the APE for the proposed project area. The newly identified historic building on the project has been determined to be not eligible for listing on the NRHP.

##### **4.8.3.2 Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

As presented in Section 4.8.2, Site 5—1402 North 23<sup>rd</sup> Street was not included in the Phase I Cultural Resources Survey. Therefore no determination of effect can be made for this site.

##### **4.8.3.3 No Action Alternative**

No effects on cultural or historic resources would occur from implementing the No Action Alternative.

### **4.9 SOCIOECONOMICS**

#### **4.9.1 Affected Environment**

The socioeconomic indicators used for this study include economic development, demographics, quality of life, environmental justice, and protection of children. These indicators characterize the region of influence (ROI). The ROI is a geographic area selected as a basis on which social and economic impacts of project alternatives are analyzed. The ROI for the social and economic environment is New Hanover County, North Carolina. The ROI covers an area of 199 square miles on the North Carolina southeast coastline.

The baseline year for socioeconomic data is 2007, the most recent year for which most of the ROI socioeconomic indicators (e.g., population, employment) are reasonably available. Where 2007 data are not available, the most recent data available are presented.

##### **4.9.1.1 Economic Environment**

**Employment and industry.** The ROI has a civilian labor force of 103,485, an increase of 18 percent over the 2000 labor force of 87,641 (Table 4.9-1). The ROI 2007 annual unemployment rate was 3.7 percent, the same as it was in 2000 and lower than the national unemployment rate of 4.6 percent (BLS 2008). The primary sources of ROI employment were government and

government enterprises, retail trade, accommodation and food services, construction, and health care and social assistance industries. Together, these industry sectors accounted for more than 50 percent of regional employment (BEA 2008).

**Table 4.9-1  
Labor force and unemployment**

	2000 civilian labor force	2007 civilian labor force	Change in labor force, 2000–2007	2007 Unemployment rate
New Hanover County	87,641	103,485	18%	3.7%
United States	142,583,000	153,124,000	7%	4.6%

Source: BLS 2008

**Income.** The per capita personal income (PCPI) of the ROI was \$31,568 (Table 4.9-2). This PCPI was 130 percent of the State PCPI of \$24,307 and 118 percent of the national PCPI of \$26,688. ROI median household income was \$48,206, 108 percent of the state median household income of \$44,670 and 95 percent of the national median household income of \$50,740 (U.S. Census Bureau 2008a).

**Table 4.9-2  
Income, 2007**

	New Hanover County	North Carolina	United States
PCPI	\$31,568	\$24,307	\$26,688
Median household income	\$48,206	\$44,670	\$50,740

Source: U.S. Census Bureau 2008a

**Population.** The ROI's population was 190,432, with a population density of about 960 persons per square mile. North Carolina's population density was about 185 persons per square mile and the U.S. population density was 85 persons per square mile. The ROI population increased 19 percent between 2000 and 2007 (Table 4.9-3). This growth was higher than North Carolina's and the U.S. population growth during the same time period of 13 percent and 7 percent, respectively (U.S. Census Bureau 2008a, 2008b).

**Table 4.9-3  
Population**

	2000 population	2007 population	Change in population, 2000–2007
New Hanover County	160,307	190,432	19%
North Carolina	8,049,313	9,061,032	13%
United States	281,421,906	301,621,159	7%

Source: U.S. Census Bureau 2008a,b

#### 4.9.1.2 Sociological Environment

**Housing.** Housing data are presented in Table 4.9-4. There were 97,660 housing units in the ROI, of which 84 percent were occupied and 16 percent were vacant, which was higher than the state and national vacancy rates. ROI housing costs were higher than state averages but about the same as national averages. The ROI median monthly mortgage was \$1,404, which was 96 percent of the national median mortgage of \$1,464 and 118 percent of the state median mortgage of \$1,189. ROI median gross rent was \$797 a month, or 101 percent of the national median gross rent of \$789 and 118 percent of the state median gross rent of \$678 (U.S. Census Bureau 2008a).

**Table 4.9-4  
Housing data, 2007**

	Number of housing units	Occupied	Vacant	Median monthly mortgage	Median gross rent
New Hanover County	97,660	84%	16%	\$1,404	\$797
North Carolina	4,124,066	86%	14%	\$1,189	\$678
United States	127,895,430	88%	12%	\$1,464	\$789

Source: U.S. Census Bureau 2008a.

**Law enforcement, fire protection, medical services.** ROI law enforcement is provided by the Wilmington Police Department along with the county sheriff and state law enforcement officers. The proposed sites are within the jurisdiction of the Wilmington Police Department. The department employs about 260 sworn officers and 40 civilian employees (City of Wilmington 2008). The nearest police station is about 5 miles from the proposed AFRC Site 4 and 2 miles from the proposed AFRC Site 5.

The Wilmington Fire Department has 10 fire stations and a headquarters building. The fire department consists of about 200 personnel (firefighters and staff) providing services, which include fire suppression and rescue, emergency medical services, hazardous materials response, marine fire response, water rescue, and fire inspections (City of Wilmington 2008). The nearest fire station is about 4 miles from the proposed AFRC Site 4 and about 1.5 miles from the proposed Site 5.

The Cape Fear Hospital and the New Hanover Regional Medical Center are in Wilmington. The hospitals provide emergency facilities, urgent medical care, inpatient care, and surgical facilities (ahd.com 2008). The Cape Fear Hospital is about 6 miles from the proposed AFRC Sites 4 and 5. The New Hanover Regional Medical Center is about 3 miles from Site 4 and about 4 miles from Site 5.

**Schools.** The ROI has 2 public school districts with a total enrollment of more than 24,000 students in 36 schools. There are also 15 private schools in the ROI with a total student enrollment of more than 3,000 (NCES 2007). No primary or secondary schools are on or adjacent to the proposed AFRC sites.

**Support services, shops, and recreation.** There is an array of the typical shopping, service, and recreational facilities in the ROI.

#### 4.9.1.3 Environmental Justice

On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. The EO is designed to focus the attention of federal agencies on the human health and environmental conditions in minority communities and low-income communities. Environmental justice analyses are performed to identify the disproportionate placement of high and adverse environmental or health impacts from proposed federal actions on minority or low-income populations, and to identify alternatives that could mitigate these impacts.

Minority populations are identified as Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and other Pacific Islander; persons of two or more or some other race; and persons of Hispanic origin. Minority populations should be identified where either the minority population of the affected area exceeds 50 percent or the minority population percentage

of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (CEQ 1997). As of 2007, 79 percent of the ROI population was white, and 21 percent was of a minority population. The ROI had a lower percentage of minority populations compared to North Carolina and the United States, which had 30 percent and 26 percent minority populations, respectively (U.S. Census Bureau 2008a).

Poverty thresholds established by the Census Bureau are used to identify low-income populations (CEQ 1997). Poverty status is reported as the number of persons or families with income below a defined threshold level. Thirteen percent of ROI residents were classified as living in poverty, lower than North Carolina's 14 percent poverty rate but the same as the national poverty rate (U.S. Census Bureau 2008a).

#### **4.9.1.4 Protection of Children**

EO 13045, *Protection of Children from Environmental Health and Safety Risks*, requires federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children.

There are no residences, schools, churches, or day care centers on or adjacent to the proposed AFRC sites.

### **4.9.2 Consequences**

#### **4.9.2.1 Site 4—3623 Carolina Beach Road (Preferred Alternative)**

***EIFS Methodology.*** The economic effects of implementing the proposed action are estimated using the Economic Impact Forecast System (EIFS) model, a computer-based economic tool that calculates multipliers to estimate the direct and indirect effects resulting from a given action. Changes in spending and employment from constructing the AFRC represent the direct effects of the action. Using the input data and calculated multipliers, the model estimates ROI changes in sales volume, income, employment, and population, accounting for the direct and indirect effects of the action.

For purposes of this analysis, a change is considered significant if it falls outside the historical range of ROI economic variation. To determine that range, the EIFS model calculates a rational threshold value (RTV) profile for the ROI. This analytical process uses historical data for the ROI and calculates fluctuations in sales volume, income, employment, and population patterns. The historical extremes for the ROI become the thresholds of significance (i.e., the RTVs) for social and economic change. If the estimated effect of an action falls above the positive RTV or below the negative RTV, the effect is considered significant. Appendix D discusses this methodology in more detail and presents the model inputs and outputs developed for this analysis.

***EIFS model results.*** Short-term minor beneficial effects would be expected from implementing the proposed action. In the short term, the expenditures and employment associated with construction of the AFRC, OMS, storage building, and parking area would increase ROI sales volume, employment, and income. A benefit of any type of development is the construction spending, especially if local labor and materials are used. The economic benefits would be for a short term, lasting only for the duration of the construction period. These changes in sales volume, employment, and income would fall within historical fluctuations (i.e., within the RTV range) and be considered minor (Table 4.9-5 and Appendix D).

**Table 4.9-5  
EIFS model output**

<b>Indicator</b>	<b>Projected change</b>	<b>Percentage change</b>	<b>RTV range</b>
Direct sales volume	\$21,000,000		
Induced sales Volume	\$42,840,000		
Total sales volume	\$63,840,000	0.88	-6.98% to 7.75%
Direct income	\$4,002,172		
Induced income	\$8,164,431		
Total income	\$12,166,600	0.33	-5.11% to 8.31%
Direct employment	107		
Induced employment	218		
Total employment	325	0.32	-5.92% to 3.54%
Local population	0	0.00	-1.64% to 2.15%

Source: EIFS model calculations.

**Population.** No effects would be expected. The Preferred Alternative would not change the ROI's population. AFRC employees and the Reservists would commute from their homes to the training center.

**Housing.** No effects would be expected. The Preferred Alternative would not change the ROI's population and would not affect the housing market. AFRC employees and the Reservists would commute from their homes to the training center.

**Quality of Life.** The following paragraphs identify the anticipated effects for each of the key components of quality of life.

*Law Enforcement, Fire Protection, and Medical Services.* No effects would be expected. The Wilmington police, fire, and medical emergency departments would respond to emergencies at the proposed site.

*Schools.* No effects would be expected. The Preferred Alternative would not change the ROI population and would not affect school enrollment. AFRC employees and the Reservists would commute from their homes to the training center.

*Family Support, Shops and Services, and Recreation.* No effects would be expected. Shopping and service facilities needed by the Reservists or AFRC staff (such as gas stations or food establishments) are available in Wilmington.

**Environmental Justice.** No effects would be expected. Implementing the Preferred Alternative to construct and operate an AFRC would not result in disproportionate adverse environmental or health effects on low-income or minority populations.

**Protection of Children.** No effects would be expected. Implementing the Proposed Action to construct and operate an AFRC would not result in disproportionate adverse environmental or health or safety risks to children.

#### **4.9.2.2 Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

Effects would be the same as those stated above in Section 4.9.2.1.

### **4.9.2.3 No Action Alternative**

No effects on socioeconomics, environmental justice, or the protection of children would be expected. Under the No Action Alternative, there would be no changes to the existing condition of socioeconomic resources.

## **4.10 TRANSPORTATION**

This section describes the existing highway and transit subsystems near the proposed sites; the effects associated with the Preferred Alternative and alternatives; and potential mitigation measures, if required.

### **4.10.1 Affected Environment**

Traffic in Wilmington is generated primarily by personal operating vehicles (POVs). Roadways are predominantly paved two- or four-lane asphalt. Regional access to Wilmington is via I-40 and State Route 17 from the North and South, and Route 76 from the West. Most travelers on I-40 or Route 17 would access Site 4 via Carolina Beach Road (Route 421), and Site 5 via 23<sup>rd</sup> Street. Site 4 is approximately 4 miles from Route 17. Site 5 is approximately 1 mile from Route 17. The Annual Average Daily Traffic Count on Carolina Beach Road is 7,500 vehicles per day near Site 4. The Annual Average Daily Traffic Count 23<sup>rd</sup> Street is 18,000 vehicles per day near Site 5.

The Cape Fear Public Transportation Authority system is the public transit system for Wilmington. Site 4 is serviced by route 201 (grey), and Site 5 is service by bus routes 207 (orange) and 101 (brown) (Wave 2008). There is both a Greyhound bus terminal and an Amtrak station in downtown Wilmington. The largest airport in the area is the Wilmington International Airport. This airport is serves the greater Wilmington area and surrounding southeastern cities. It has approximately 230 arrivals and departures daily to cities and hubs throughout the United States and Canada (FAA 2008).

### **4.10.2 Consequences**

#### **4.10.2.1 Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

Short- and long-term minor adverse effects on traffic would be expected from implementing the Preferred Alternative. The Preferred Alternative would introduce approximately 10 full-time /weekday and 400 weekend/once a month personnel stationed at the new AFRC. Only small, somewhat unnoticeable changes to the transportation system would be expected with this alternative. The changes would be primarily from construction vehicles and small changes in localized traffic patterns due to the additional personnel.

Traffic would increase because of additional construction vehicles and traffic delays near construction sites. These effects would be temporary and would end with the construction phase. The local roadway infrastructure would be sufficient to support any increase in construction vehicle traffic. In addition, road closures or detours to accommodate utility system work would be expected, creating short-term traffic delays. Such effects would be minimized by placing construction staging areas where they interfere with traffic the least. All construction vehicles would be equipped with backing alarms, two-way radios, and Slow Moving Vehicle signs when appropriate. Although the effects would be minor, the following measures would be implemented during construction:

- Route and schedule construction vehicle traffic to minimize conflicts with other traffic
- Strategically locate construction material staging areas to minimize traffic effects

The following operational components of the Preferred Alternative would contribute additional vehicle trips to local roadways:

- Daily activities would generate up to 24 daily vehicle trips by full-time staff.
- Weekend training would generate a daily traffic count of 500 vehicle trips on maximum training days.

Access to the project site is limited to a single entrance/exit, which would result in effects that are more noticeable on streets near the project site than on I-40, Route 17, or Route 76. Approximately 10 additional permanent, on-post personnel and support staff would work at the proposed AFRC during normal weekday business hours. These personnel would primarily answer phones, perform maintenance, and provide administrative support services. These personnel would constitute approximately 24 POV trips per normal weekday (ITE 2003), only a fraction of which would occur during peak traffic periods. This small increase in traffic would not affect the capacity of any nearby roadway segments or intersections adjacent to the Site 4. Weekday operational activities would likely result in long-term negligible adverse effects on local and regional traffic levels.

Additional traffic would be expected after hours and on the weekends when training is conducted. These effects would primarily occur on Saturday morning, and Friday and Sunday evenings. On the typical weekend, the 208 trainees' POV per week would constitute approximately 500 POV trips spread out over these periods (ITE 2003). None of the new trips would occur during weekday peak periods. Although this would be an increase in trips to and from the site, it would be only a fraction of the existing weekday traffic at any of the intersections or roadways affected. The additional traffic would have negligible changes on nearby roadway segments or intersections adjacent to the Site 4. Therefore, the effects would be expected to be minor.

Because the administrative personnel and weekend trainees would be within driving distance of the AFRC, the Preferred Alternative would have no effect on public transit, rail, bus, or air traffic in the area. The additional 2.1 acres would be adequate for the permanent personnel's POVs, trainees' POVs on weekends, and for the staging military vehicles.

#### **4.10.2.2 Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

Short- and long-term minor adverse effects on traffic would be expected with the Site 5 Alternative. The changes would be primarily from construction vehicles and small changes in localized traffic patterns from the additional personnel.

Traffic would increase because of additional construction vehicles, traffic delays near construction sites, and their effects would be similar to those outlined under the Preferred Alternative. Although effects would be minor in nature, the route and schedule construction vehicle traffic would be chosen to minimize conflicts with other traffic, and construction material staging areas would be strategically located to minimize traffic effects.

This site would be accessed directly from North 23<sup>rd</sup> Street. As with the Preferred Alternative, approximately 10 additional full-time/weekday and 24 more POV trips would be expected at the proposed AFRC during normal weekday business hours. Although this would be an increase in trips to and from the site, additional traffic would be only a very small fraction of the existing

weekday traffic at any of the intersections or roadways affected. On the typical weekend, the 500 additional trips would occur during off-peak periods and would have minor changes on nearby roadway segments or intersections adjacent to Site 5. These effects would be expected to be minor.

As with the Preferred Alternative, this alternative would have no effect on public transit, rail, bus, or air traffic in the area. Effects on parking would be similar to those outlined under the Preferred Alternative.

#### **4.10.2.3 No Action Alternative**

Under the No Action Alternative, no effects on transportation resources would be expected because there would be no construction or increase in traffic volume. Current and future traffic would remain as described in section 4.10.1.

### **4.11 UTILITIES**

Unless otherwise indicated, the information on utilities in this section was obtained from an *Engineering Feasibility Study* (USACE 2008b) completed specifically for the construction of the AFRC in Wilmington.

#### **4.11.1 Affected Environment: Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

##### **4.11.1.1 Potable Water Supply**

Public water is provided by the Cape Fear Public Utility Authority (CFPUA). An 8-inch water main runs along Carolina Beach Road. CFPUA officials indicated that the system has adequate capacity to serve the proposed project.

##### **4.11.1.2 Wastewater System**

Public sanitary sewer is provided by the CFPUA. An 8-inch sanitary sewer line runs along Carolina Beach Road. CFPUA officials stated that the system has adequate sanitary sewer capacity for the proposed project.

##### **4.11.1.3 Storm Water System**

Storm water runoff in Wilmington is captured by a system of pipes, ditches, creeks, and other natural and man-made features (City of Wilmington 2009b). Storm water from the preferred site would infiltrate the ground or enter the storm water system through drains along adjacent roads.

##### **4.11.1.4 Energy Sources**

**Electricity.** Electrical service is provided by Progress Energy. Electrical service is available at the Preferred Alternative site. Overhead electrical lines run along Carolina Beach Road.

**Natural Gas.** Natural gas service is provided by Piedmont Natural Gas and would be available at the site.

#### **4.11.1.5 Communications**

Telecommunications service is provided by AT&T for Site 4. Lines run along the east side of Carolina Beach Road. Cable television service is provided by Vision Cable, and service is available from overhead lines on Carolina Beach Road.

#### **4.11.1.6 Solid Waste**

Wilmington's Solid Waste Management Division provides weekly curbside garbage, recycling, and yard waste pick up service to commercial customers in the downtown business area (City of Wilmington 2009a).

### **4.11.2 Affected Environment: Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

#### **4.11.2.1 Potable Water Supply**

Public water at the Site 5 is provided by CFPUA, and system capacity is adequate for the proposed project. An 8-inch water main runs along 23<sup>rd</sup> Street, and a 10-inch line runs along the east side of Site 5.

#### **4.11.2.2 Wastewater System**

Public sanitary sewer is provided by the CFPUA. A 12-inch sanitary sewer line runs along 23<sup>rd</sup> Street, and the system has adequate capacity for the project.

#### **4.11.2.3 Storm Water System**

The storm water system for Site 5 is the same as that described for the Preferred Alternative site.

#### **4.11.2.4 Energy Sources**

*Electricity.* Electrical service is available at Site 5 from overhead lines along North 23<sup>rd</sup> Street.

*Natural Gas.* Natural gas service is provided by Piedmont Natural Gas and would be available at the site.

#### **4.11.2.5 Communications**

Telephone service is available at Site 5 from overhead lines on North 23<sup>rd</sup> Street. Cable television service is provided by Vision Cable and is available from the same lines.

#### **4.11.2.6 Solid Waste**

Wilmington provides solid waste collection service to commercial customers in the downtown business area on a weekly schedule (City of Wilmington 2009a).

### 4.11.3 Consequences

#### 4.11.3.1 Site 4—3623 Carolina Beach Road Site (Preferred Alternative)

Long-term negligible adverse effects would be expected on all utility systems from implementing the Preferred Alternative. The new AFRC's operation would create additional demand on all local utility systems. Closing the Army Reserve Adrian B. Rhodes AFRC in Wilmington, North Carolina, would partially offset the demand created by the new AFRC. Demand offsets from closing the Rock Hill AFRC in Rock Hill, South Carolina, and the Niven AFRC in Albermarle, North Carolina, would be experienced locally to those closures and would not offset any additional demand created by the new AFRC in Wilmington. Connecting to utility systems would not be expected to have adverse environmental effects at either site.

Table 4.11-1 summarizes the approximate demand that the new AFRC's operation would create for potable water, wastewater, and solid waste disposal. Demand estimates for electricity and natural gas are not available. Table 4.11-2 provides an estimate of the debris that would be generated during the AFRC's construction. An estimate of the debris from demolition of the structures on the Carolina Beach Road site is not available, but the quantity of debris would not be expected to be a solid waste disposal issue.

**Table 4.11-1  
Utility system demand created by the proposed AFRC**

<b>System</b>	<b>Average per capita consumption rate</b>	<b>Monthly AFRC demand</b>
Potable water	150 gallons per day	234,000 gallons
Wastewater	120 gallons per day	187,200 gallons
Municipal solid waste	4.5 pounds per day	7,020 pounds

Note: The information in this table assumes 12 full time equivalent staff 30 days/month and 400 Reservists 3 days/month.

Calculations for demand on the electrical system and natural gas usage are not available. However, any increased demand for electricity and natural gas would be minimized by the Army installing electrical fixtures and air conditioning systems in compliance with the Energy Policy Act of 2005 (Public Law 109-58), which has specified goals for increased use of renewable energy sources, advanced utility metering, and procurement of energy-efficient equipment and building systems in all applicable contracts. The demand on the water supply system would be minimized by installing water-conserving devices such as low-flow shower heads, faucets, and toilets in new facilities. All DoD vertical building construction projects, starting with the FY2008, would be expected to achieve the SILVER level of Leadership in Energy and Environmental Design of the U.S. Green Building Council (Deputy Assistant Secretary of the Army 2006).

Adhering to the Army memorandum dated February 6, 2006 (ACSIM 2006), the Army's contractor would attempt to divert 50 percent or more of the estimated 139 tons of construction debris from landfills by recycling. As a result, about 70 tons of debris would be disposed of in landfills (Table 4.11-2).

#### 4.11.3.2 Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)

The environmental consequences for Site 5—1402 North 23<sup>rd</sup> Street site are similar to those discussed in Section 4.11.3.1.

**Table 4.11-2  
Construction debris generated by AFRC construction**

<b>Construction type</b>	<b>Gross building area<sup>a</sup> (sf)</b>	<b>C&amp;D factor (lb/sf)</b>	<b>Estimated waste (lb)</b>	<b>Estimated waste (tons)</b>
Construction	63,206	4.4	278,106	139
Amount recycled (50%)	N/A	N/A	139,053	70
Net total C&D debris generated	N/A	N/A	139,053	70

lb = pound, sf = square foot, C&D = construction and debris

<sup>a</sup> Includes construction of the AFRC, OMS, and unheated storage building.

#### **4.11.3.3 No Action Alternative**

No effects on utility systems would be expected from implementing the No Action Alternative. Under the No Action Alternative, no land would be acquired, no facilities would be constructed, and no units would relocate from other facilities. The units proposed for relocation under the proposed action would continue to operate from their current facilities.

## **4.12 HAZARDOUS AND TOXIC MATERIALS**

### **4.12.1 Affected Environment: Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

According to the Site Survey report, no apparent environmental concerns or issues were observed during the visual inspection of the parcel (DA, HQ, 81<sup>st</sup> RRC 2008). A house on the parcel that is now used as office space was constructed around 1945. Because of the structure's age it might have building components that contain asbestos or lead-based paint.

Before site acquisition, an Environmental Condition of Property (ECP) report would be prepared. The ECP report would be prepared to meet the Department of the Army's requirement to assess, determine, and document the environmental condition of transferable property and to determine if the property is suitable for acquisition. The ECP would be prepared in accordance with Army Regulation 200-1 (AR 200-1), Section 15-5 c(6) Environmental Protection and Enhancement, and comply with EPA's *All Appropriate Inquiry* rules under the Comprehensive Environmental Response, Compensation, and Liability Act. Additionally, the ECP would comply with the American Society for Testing and Materials Designation: E 1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*.

### **4.12.2 Affected Environment: Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

According to the Site Survey report, no apparent environmental concerns or issues were observed during the visual inspection of the parcel (DA, HQ, 81<sup>st</sup> RRC 2008). Like the Preferred Alternative, if this site is selected, an ECP report would be prepared before acquisition.

### **4.12.3 Consequences**

#### **4.12.3.1 Site 4—3623 Carolina Beach Road Site (Preferred Alternative)**

Long-term minor adverse effects related to hazardous materials and waste would be expected from implementing the Preferred Alternative. Facility construction would involve the use of heavy equipment, which would be expected to result in minor spills from engines and equipment operation. There would be an increased use of materials such as petroleum, oils, lubricants,

solvents, and paints from maintenance activities. All hazardous materials and waste would be handled in accordance with local, state, and federal regulations and in accordance with established procedures. Short-term negligible adverse effects would be expected from the demolition of the structure on the parcel. Building components including those that might contain lead-based paint or asbestos would be managed and disposed of in accordance with applicable federal, state and local regulations.

#### **4.12.3.2 Site 5—1402 North 23<sup>rd</sup> Street Site (Alternate Site)**

Like the Preferred Alternative, long-term minor adverse effects on Site 5 would be expected.

#### **4.12.3.3 No Action Alternative**

No adverse effects would be expected from implementing the No Action Alternative.

### **4.13 CUMULATIVE EFFECTS SUMMARY**

Cumulative effects reasonably expected to result if the proposed action is implemented as described in this EA are discussed below. Only those resource areas for which cumulative effects were identified are discussed.

Development would continue in the ROI with or without the proposed action. The owners of Site 4 and 5 are seeking to sell the parcels for development. Development of Site 4, which is already devoid of forest vegetation, would not result in a reduction in green space; however, development of Site 5 would result in a reduction in green space with adverse cumulative effects expected on the natural vegetation of the region, its wildlife and an increase in the quantity of developed land. Beneficial cumulative socioeconomic effects would be expected with implementation of the proposed action at either site in conjunction with other economic development projects occurring in the region, which would have short- and long-term beneficial effects on the local economy by increasing employment, income, and business sales volume. Projects in the ROI that would be expected with or without the proposed action include residential development, industrial and commercial development, and infrastructure improvements.

### **4.14 MITIGATION SUMMARY**

Mitigation actions are used to reduce, avoid, or compensate for significant adverse effects. The EA does not identify the need for any mitigation measures.

## SECTION 5.0 FINDINGS AND CONCLUSIONS

This EA has been prepared to evaluate the potential effects on the natural and human environment from activities associated with implementation of the proposed action. The EA has examined the Army's Preferred Alternative, an Alternate Site and the No Action alternative.

The EA has evaluated potential effects on land use, aesthetics and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics (including environmental justice and protection of children), transportation, utilities, and hazardous and toxic materials.

### 5.1 FINDINGS

Evaluation of Site 4—3623 Carolina Beach Road Site Alternative, identified as the Army's Preferred Alternative, and Site 5—1402 North 23<sup>rd</sup> Street Site Alternative indicates that the physical and socioeconomic environments in Wilmington and in the ROI would not be significantly affected. The predicted consequences on resource areas are briefly described below. Table 5.1-1 provides a summary and comparison of the consequences of the alternatives versus the No Action Alternative.

**Table 5.1-1  
Summary of potential environmental and socioeconomic consequences**

Resource	Environmental and socioeconomic effects		
	Site 4—3623 Carolina Beach Road Site (Preferred Alternative)	Site 5—1402 North 23 <sup>rd</sup> Street Site (Alternate Site)	No Action Alternative
<b>Land use</b>	No effect	No effect	No effect
<b>Aesthetics and visual resources</b>	Long-term negligible adverse	Long-term minor adverse	No effect
<b>Air quality</b>	Short-term minor adverse Long-term minor adverse	Short-term minor adverse Long-term minor adverse	No effect
<b>Noise</b>	Short-term minor adverse	Short-term minor adverse	No effect
<b>Geology and Soils</b>			
• Geology/Topography	No effect	No effect	No effect
• Soils	Short-term minor adverse	Short-term minor adverse	No effect
• Prime farmland	No effect	No effect	No effect
<b>Water resources</b>			
• Surface water	Short-term minor adverse Long-term minor beneficial	Short-term minor adverse Long-term minor adverse	No effect
• Groundwater	Short-term minor adverse Long-term minor beneficial	Short-term minor adverse Long-term minor adverse	No effect
• Floodplains	No effect	No effect	No effect
• Coastal Zone management	No effect	No effect	No effect
<b>Biological resources</b>			
• Vegetation	No effect	Long-term minor adverse	No effect
• Wildlife	No effect	Long-term minor adverse	No effect
• Wetlands	No effect	Long-term minor adverse	No effect
• Threatened and endangered species	No effect	No effect	No effect
<b>Cultural resources</b>	No effect	Unknown*	No effect

**Table 5.1-1  
Summary of potential environmental and socioeconomic consequences (continued)**

Environmental and socioeconomic effects			
	Site 4—3623 Carolina Beach Road Site (Preferred Alternative)	Site 5—1402 North 23 <sup>rd</sup> Street Site (Alternate Site)	No Action Alternative
<b>Socioeconomics</b>			
• Regional economic activity	Short-term minor beneficial	Short-term minor beneficial	No effect
• Population	No effect	No effect	No effect
• Housing	No effect	No effect	No effect
• Quality of life	No effect	No effect	No effect
• Environmental justice	No effect	No effect	No effect
• Protection of children	No effect	No effect	No effect
<b>Transportation</b>	Short-term minor adverse Long-term minor adverse	Short-term minor adverse Long-term minor adverse	No effect
<b>Utilities</b>	Long-term negligible adverse	Long-term negligible adverse	No effect
<b>Hazardous and toxic substances</b>	Long-term minor adverse Short-term negligible adverse	Long-term minor adverse	No effect

\*If selected, a Phase I Cultural Resources Survey would be completed for this site.

### 5.1.1 Consequences of the Preferred Alternative: Site 4—3623 Carolina Beach Road Site

#### 5.1.1.1 Land Use

No effects on land use would be expected from constructing an AFRC at Site 4. Aspects of the surrounding area (forested areas and commercial and vacant properties along Carolina Beach Road) would be compatible with the proposed AFRC and would serve as a buffer between the proposed AFRC and potentially incompatible nearby uses such as residential areas.

#### 5.1.1.2 Aesthetics and Visual Resources

Long-term negligible adverse effects would be expected on aesthetics and visual resources as a result of implementing the Preferred Alternative. The project would convert the site from a large mostly unused parking area. The project would be in keeping with the commercial aspect of Carolina Beach Road. Because the AFRC would be of modern design, it could be a beneficial addition to the area.

#### 5.1.1.3 Air Quality

Short- and long-term minor adverse effects would be expected on air quality as a result of implementing the proposed action. Effects would be primarily from air emissions during construction and introducing new stationary sources of air emissions, such as heating boilers and standby generators. Increases in emissions would not exceed applicability thresholds, be *regionally significant*, or contribute to a violation of any federal, state, or local air regulation.

#### 5.1.1.4 Noise

Short-term minor adverse effects would be expected from implementing the Preferred Alternative. Minor increases in noise would primarily be from using heavy equipment during

construction. The effects would be temporary and would end upon completion of construction. Noise from facility operations would be expected to be negligible.

#### **5.1.1.5 Geology and Soils**

Short-term minor adverse effects on soils would be expected under the Preferred Alternative from removing vegetation, site grading, and exposure of soil during construction, but construction would not permanently alter the geology or soils. No effects on prime farmland would be expected.

#### **5.1.1.6 Water Resources**

Short-term minor adverse effects and long-term minor beneficial effects on surface waters would be expected from implementing the Preferred Alternative. In the short term, land disturbance activities associated with redeveloping the site for the proposed AFRC could increase soil erosion and runoff of dissolved solids, sediment, and other waterborne pollutants. In the long term, redevelopment of the site for the proposed AFRC would convert some of the site to vegetated and landscaped surfaces. Increasing the presence of vegetated and landscaped areas on the site, and using BMPs are likely to improve infiltration and reduce runoff of precipitation, likely resulting in minor long-term beneficial effects.

Short-term minor adverse effects and long-term minor beneficial effects on groundwater would be expected from implementing the Preferred Alternative. In the long term, improved vegetative cover and effective storm water management would be expected to reduce the potential for pollutants to be conveyed to groundwater. No effect on floodplains or coastal zone resources would be expected.

#### **5.1.1.7 Biological Resources**

No effects on biological resources would be expected from implementing the proposed action. The preferred site does not support forest, wildlife, or sensitive species, and it is doubtful that the site still supports wetlands. However, a jurisdictional determination of wetlands on the site could be required to determine the presence of wetlands and if any permitting requirements would be necessary to construct on the site.

#### **5.1.1.8 Cultural Resources**

No adverse effects would be expected on cultural or historical resources from implementing the Preferred Alternative. There are no NRHP-listed or eligible, archaeological or historic resources within the APE for the proposed project area. The newly identified historic building on the project has been determined to be not eligible for listing on the NRHP.

#### **5.1.1.9 Socioeconomics**

Short-term minor beneficial effects would be expected from implementing the Preferred Alternative. In the short term, the expenditures and employment associated with construction of the AFRC, OMS, storage building, and parking area would increase ROI sales volume, employment, and income. A benefit of any type of development is the construction spending, especially if local labor and materials are used. The economic benefits would be for a short term, lasting only for the duration of the construction period. No effects on population, housing, quality of life, environmental justice or protection of children would be expected.

### **5.1.1.10 Transportation**

Short- and long-term minor adverse effects on traffic would be expected from implementing the Preferred Alternative. Only small, somewhat unnoticeable changes to transportation system would be expected. The changes would be primarily contributable to construction vehicles, small changes in localized traffic patterns due to the additional personnel.

### **5.1.1.11 Utilities**

Long-term negligible adverse effects on utility systems would be expected from implementing the proposed action. The effects would result from the increased demand on all utility systems created by the construction and operation of an AFRC in Wilmington. Any increase in demand on local utilities would be partially offset by closure of the Adrian B. Rhodes Reserve Center. No significant adverse effects on any utility system would result from the proposed AFRC. All utility systems and utility providers have sufficient capacity to meet the additional demand that the AFRC would create.

### **5.1.1.12 Hazardous and Toxic Substances**

Long-term minor adverse effects related to hazardous materials and waste would be expected from implementing the Preferred Alternative. Facility construction would involve the use of heavy equipment, which would be expected to result in minor spills from engines and equipment operation. There would be an increased use of materials such as petroleum, oils, lubricants, solvents, and paints from maintenance activities. All hazardous materials and waste would be handled in accordance with local, state, and federal regulations and in accordance with established procedures. Short-term negligible adverse effects would be expected from the demolition of the structure on the parcel. Building components including those that might contain lead-based paint or asbestos would be managed and disposed of in accordance with applicable federal, state, and local regulations.

## **5.1.2 Consequences of Site 5—1402 North 23<sup>rd</sup> Street Site Alternative**

### **5.1.2.1 Land Use**

No effects on land use would be expected from constructing an AFRC on Site 5. The site is zoned as Airport Industrial, which would be compatible with the proposed use; however, this site is within airport impact zones 2 and 3. FAA recommends that Zone 2 be low-density industrial development (< 5 people/acre), while Zone 3 should be a low-density residential development or industrial development (25–40 people/acre). These zones are part of land use compatibility guidelines that FAA developed and are based on air operations and approach tracks for airfields. Wilmington International Airport is approximately 2,500 feet north-northwest of Site 5. This site is outside the incompatible noise contours for the airport.

### **5.1.2.2 Aesthetics and Visual Resources**

Long-term minor adverse effects on aesthetics and visual resources would be expected from constructing the AFRC at Site 5 because of the loss of green space. The project would convert the site from forested to developed, which would be in keeping with the commercial aspect of North 23<sup>rd</sup> Street.

### **5.1.2.3 Air Quality**

Short- and long-term minor adverse effects on air quality would be expected from implementing the action at Site 5. Short-term emissions from construction equipment and long-term minor emissions from facilities operation would not be expected to contribute to a violation of any federal, state, or local air regulation.

### **5.1.2.4 Noise**

Short-term minor adverse effects on the noise environment would be expected from the Site 5 alternative. Minor increases in noise would primarily be from the use of heavy equipment during construction. This site is outside the incompatible noise contours for the airport; however, aircraft noise would be clearly audible at this site. Occupants would experience ongoing systematic exposure to transient acoustical events. These events would be loud enough to have brief somewhat unnoticeable effect on verbal communication outside of the buildings.

### **5.1.2.5 Geology and Soils**

Short-term minor adverse effects on soils would be expected from constructing the AFRC at Site 5. The Army would implement BMPs to prevent excessive soil erosion. No effects on prime farmland would be expected.

### **5.1.2.6 Water Resources**

Short- and long-term minor adverse effects would be expected as a result of the proposed action. Short-term minor adverse effects due to increased erosion and sediment runoff could occur during land disturbance activities. Long-term minor adverse effects would be expected from the direct and indirect effects of increased impervious surfaces. No effect on floodplains or coastal zone resources would be expected.

### **5.1.2.7 Biological Resources**

Long-term minor adverse effects on vegetation and wildlife would be expected from implementing the action at Site 5. No sensitive species would be affected by implementing this alternative. Some trees would be retained on the site, in accordance with Article 8 of Wilmington's Land Development Code, *Landscaping and Tree Preservation*, which requires the retention of trees on development site to provide visual and noise buffers, pollution control, and other purposes. Long-term minor adverse effects on wetlands would be expected if the site layout required use of the southeast corner of the site where wetlands might be. A jurisdictional determination of wetlands on the site could be required to determine the presence of wetlands and if any permitting requirements would be necessary to construct on the site.

### **5.1.2.8 Cultural Resources**

Site 5—1402 North 23rd Street Alternative was not included in the Phase I Cultural Resources Survey. If this alternative is chosen, a cultural resources survey would be performed to determine if resources are present.

### **5.1.2.9 Socioeconomics**

Short-term minor beneficial effects would be expected from implementing the Site 5 alternative. In the short term, the expenditures and employment associated with construction of the AFRC, OMS, storage building, and parking area would increase ROI sales volume, employment, and income. No effects on population, housing, quality of life, environmental justice or protection of children would be expected.

### **5.1.2.10 Transportation**

Short- and long-term minor adverse effects on traffic would be expected from implementing the Site 5 alternative. Only small, somewhat unnoticeable changes to transportation system would be expected from implementing this alternative. The changes would be primarily contributable to construction vehicles, small changes in localized traffic patterns because of the additional personnel.

### **5.1.2.11 Utilities**

Long-term negligible adverse effects on utility systems would be expected from the Site 5 alternative. The effects would result from the increased demand on all utility systems created by the construction and operation of an AFRC in Wilmington. Any increase in demand on local utilities would be partially offset by closure of the Adrian B. Rhodes Reserve Center. No significant adverse effects on any utility system would result from constructing and operating the proposed AFRC. All utility systems and utility providers have sufficient capacity to meet the additional demand that the new AFRC would create.

### **5.1.2.12 Hazardous and Toxic Substances**

Long-term minor adverse effects related to hazardous materials and waste would be expected from implementing the Site 5 alternative. Facility construction would involve the use of heavy equipment, which would be expected to result in minor spills from engines and equipment operation. There would be an increased use of materials such as petroleum, oils, lubricants, solvents and paints from maintenance activities. All hazardous materials and waste would be handled in accordance with local, state, and federal regulations and in accordance with established procedures.

### **5.1.3 Consequences of the No Action Alternative**

No adverse effects on any resource area would be expected from implementing the No Action alternative. Under the No Action alternative, the Army would not construct an AFRC on either of the site alternatives.

## **5.2 CUMULATIVE EFFECTS**

The CEQ defines *cumulative effects* at 40 CFR 1508.7 as the “impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions.”

The summary presented in this section recognizes the effects of the proposed action on the various resources and conditions discussed earlier. It also recognizes the effects of other past,

present, and reasonably foreseeable actions, and it describes the additive, or cumulative, effects that might result. Although some cumulative effects, however minimal, could be identified for virtually any resource or condition, the effects described below are believed to be most pertinent to and representative of those associated with the proposed action. Only those resource areas for which cumulative effects were identified are discussed.

Development would continue in the ROI with or without the proposed action. The owners of Site 4 and 5 are seeking to sell the parcels for development. Development of Site 4, which is already devoid of forest vegetation, would not result in a reduction in green space; however, development of Site 5 would result in a reduction in green space with adverse cumulative effects expected on the natural vegetation of the region, its wildlife and an increase in the quantity of developed land. Beneficial cumulative socioeconomic effects would be expected with implementation of the proposed action at either site in conjunction with other economic development projects occurring in the region, which would have short- and long-term beneficial effects on the local economy by increasing employment, income, and business sales volume. Projects in the ROI that would be expected with or without the proposed action include residential development, industrial and commercial development, and infrastructure improvements.

### **5.3 MITIGATION**

Mitigation actions are used to reduce, avoid, or compensate for significant adverse effects. The EA does not identify the need for any mitigation measures.

### **5.4 CONCLUSIONS**

On the basis of the analyses performed in the EA, Site 4—3623 Carolina Beach Road (Preferred Alternative) is the better alternative for the proposed AFRC. Site 4 is previously developed, has low scenic quality and impacts to biological resources such as wildlife and wildlife habitat would not be expected. Additionally, Site 4 would not be subjected to aviation noise associated with Wilmington International Airport arrivals and departures and the site is not within Airport Impact Zones. While Site 4 is the better alternative, implementation of the proposed action at Site 4 or the Site 5—1402 North 23<sup>rd</sup> Street alternative would not be expected to have significant direct, indirect, or cumulative adverse effects on the quality of the natural or human environment.

Preparation of an environmental impact statement is not required. Issuance of a finding of no significant impact would be appropriate.

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## SECTION 6.0 REFERENCES

- ahd.com. 2008. American Hospital Directory. <<http://www.ahd.com>>. Accessed January 2009.
- BEA (Bureau of Economic Analysis). 2008. Total full-time and part-time employment by NAICS industry, New Hanover, NC. <<http://www.bea.gov/bea/regional/reis>>. Accessed January 2009.
- BLS (Bureau of Labor Statistics). 2008. Local Area Unemployment Statistics. <<http://data.bls.gov/PDQ/outside.jsp?survey=la>>. Accessed January 2009.
- CEQ (Council on Environmental Quality). 1997. *Environmental Justice Guidance Under the National Environmental Policy Act*. Council on Environmental Quality, Executive Office of the President, Washington, DC.
- City of Wilmington and New Hanover County. 2006. *Wilmington–New Hanover County Joint Coastal Area Management Plan, 2006 Update, CRC Certification Review Final Draft*. Wilmington City Council and New Hanover County Board of Commissioners. May 8.
- City of Wilmington, Development Services Department. 2006. *The State of Water Quality in Wilmington: A State of the Environment Report*. City of Wilmington, Development Services, Planning Division, Environmental Planning. June 2006. Accessed from <<http://www.wilmingtonnc.gov/Departments/DevelopmentServices/Planning/EnvironmentalPlanning.aspx>>. Accessed January 2009.
- City of Wilmington, Public Services Department. n.d. *Barnards Creek Watershed* (map) and *Smith Creek Watershed* (map). City of Wilmington Stormwater Services, Public Services. <<http://wilmingtonnc.gov/Departments/PublicServices/Stormwater/EducationOutreach/WhatisaWatershed.aspx>>. Accessed January 2009.
- City of Wilmington, Public Services Department. 2008. *Stormwater Watch Newsletter, Annual Water Quality Report Issue, Spring 2008*. <<http://www.wilmingtonnc.gov/Portals/0/stormwater/2008%20SWW%20Insert.pdf>>. Accessed January 2009.
- City of Wilmington. n.d. *Article 8. Landscaping and Tree Preservation*. Land Development Code, City of Wilmington, North Carolina.
- City of Wilmington. 2004a. Composite Future Land Use Map 2025. <<http://www.ci.wilmington.nc.us/Departments/DevelopmentServices/Planning/LongRangePlanning.aspx>>. Accessed February 4, 2009
- City of Wilmington. 2004b. *Carolina Beach Road Corridor Plan*. City of Wilmington Development Services.
- City of Wilmington. 2008. City of Wilmington, North Carolina, Web Site. <<http://www.wilmingtonnc.gov>>. Accessed January 2009.

- City of Wilmington. 2009a. *Solid Waste Management*.  
<<http://www.ci.wilmington.nc.us/Departments/PublicServices/SolidWasteManagement.aspx>>  
Accessed January 23, 2009.
- City of Wilmington. 2009b. *Stormwater Services*.  
<<http://www.ci.wilmington.nc.us/stormwater/tabid/81/Default.aspx>>. Accessed January 23,  
2009.
- DA, HQ, 81<sup>st</sup> RRC (Department of the Army, Headquarters, 81<sup>st</sup> Regional Readiness Command).  
2008. *Site Survey Report, Wilmington, North Carolina*. ARRC-SSC-DPW. Department of the  
Army, Headquarters, 81<sup>st</sup> Regional Readiness Command, Fort Jackson, SC.
- Espenshade, CT., M. O'Neal, and M. Swanson 2008. *Management Summary: Phase I Cultural  
Resources Survey of the Wilmington Armed Forces Reserve Center Site, New Hanover  
County, North Carolina*. Prepared for the U.S. Army Corps of Engineers, Mobile District,  
Mobile, AL, and Tetra Tech, Inc., Fairfax, VA.
- FAA (Federal Aviation Administration). 1983. Noise Control and Compatibility Planning for  
Airports. AC No: 150/5020-1. Federal Aviation Administration.
- FAA (Federal Aviation Administration). 2008. Form 5010 Airport Master Record for the  
Wilmington International Airport. Federal Aviation Administration.
- FEMA (Federal Emergency Management Agency). 2006. *FIRM Flood Insurance Rate Map,  
North Carolina, Map Number 3720312800J*. GIS layers. <<http://msc.fema.gov>>. Revised  
April 3, 2006. Accessed January 2009.
- Harris, Cecil M. 1998. Handbook of Acoustical Measurement and Noise Control.
- ITE (Institute of Transportation Engineers). 2003. Transportation Engineers Trip Generation  
Manual, 7th ed. Institute of Transportation Engineers.
- Joy, Deborah. 1994. *Archaeological Survey Report: Smith Creek Parkway Section C,  
Wilmington, New Hanover County, North Carolina*. North Carolina Department of  
Transportation, Raleigh, NC.
- Lautier, Jeff C. 1998. *Hydrogeologic Assessment of the Proposed Deepening of the Wilmington  
Harbor Shipping Channel, New Hanover and Brunswick Counties, North Carolina*. North  
Carolina Department of Environment and Natural Resources, Division of Water Resources,  
Raleigh, NC.
- NCDENR (North Carolina Department of Environment and Natural Resources) 2008. North  
Carolina Division of water Quality, Stormwater Unit: NPDES Phase I Stormwater Program.  
<[http://h2o.enr.state.nc.us/su/NPDES\\_Phase\\_I\\_Stormwater\\_Program.htm](http://h2o.enr.state.nc.us/su/NPDES_Phase_I_Stormwater_Program.htm)>. Accessed  
January, 14 2009
- NCDENR-DCM (North Carolina Department of Environment and Natural Resources–Division of  
Coastal Management). 2009. *Division of Coastal Management Web Site*.  
<<http://dcm2.ehnr.state.nc.us>> or <<http://www.nccoastalmanagement.net>>. Accessed January  
2009.

- NCDENR-DWQ (North Carolina Department of Environment and Natural Resources, Division of Water Quality). 2007. *Final North Carolina Water Quality Assessment and Impaired Waters List (2006 Integrated 305(b) and 303(d) Report)*. Approved May 17, 2007. <[http://h2o.enr.state.nc.us/tmdl/General\\_303d.htm](http://h2o.enr.state.nc.us/tmdl/General_303d.htm)>. Accessed January 2009.
- NCDENR-DWR (North Carolina Department of Environment and Natural Resources, Division of Water Resources). 2008. *North Carolina Aquifers*. North Carolina Department of Environment and Natural Resources, Division of Water Resources, Raleigh, NC. <[http://www.ncwater.org/Education\\_and\\_Technical\\_Assistance/Ground\\_Water/AquiferCharacteristics](http://www.ncwater.org/Education_and_Technical_Assistance/Ground_Water/AquiferCharacteristics)>. Updated November 14, 2008. Accessed January 2009.
- NCDOT (North Carolina Department of Transportation). 2008. 2007 Traffic Map AADT New Hanover County, North Carolina. North Carolina Department of Transportation, NC
- NC DCM (North Carolina Department of Coastal Management). 2003. Wetlands GIS layers. North Carolina Department of Environment and Natural Resources.
- NCES (National Center for Education Statistics). 2007. U.S. Department of Education, National Center for Education Statistics Common Core of Data Search for Schools. <<http://nces.ed.gov/ccd/schoolsearch>>. Accessed January 2009.
- NCFMP (North Carolina Flood Mapping Program). 2006. *Digital Flood Insurance Rate Map (DFIRM), North Carolina, Panels 3125J and 3128J, Map numbers 3720312500J and 3720312800J*. Effective date April 3, 2006. <<http://www.ncfloodmaps.com>>. Accessed January 2009.
- NCFMP (North Carolina Flood Mapping Program). 2009. *North Carolina Floodplain Mapping Program, About the NCFMP*. <[http://www.ncfloodmaps.com/top\\_about.htm](http://www.ncfloodmaps.com/top_about.htm)>. Accessed January 2009.
- U.S. Census Bureau. 2008a. *2007 American Community Survey*. <[http://factfinder.census.gov/servlet/DatasetMainPageServlet?\\_program=ACS&\\_submenuId=&\\_lang=en&\\_ts=](http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ACS&_submenuId=&_lang=en&_ts=)>. Accessed January 2009.
- U.S. Census Bureau. 2008b. *State and County QuickFacts*. <<http://quickfacts.census.gov/qfd/index.html>>. Accessed January 2009.
- UNCW-CMS (University of North Carolina at Wilmington, Center for Marine Science). 2009. *Lower Cape Fear River Program*. <<http://www.uncwil.edu/cmsr/aquaticceology/LCFRP>>. Accessed January 2009.
- USACE (U.S. Army corps of Engineers) Louisville District. 2008a. *Site Survey Report Approval for Wilmington, North Carolina—FY 2010 Army Reserve Construction Project Number 64732*. U.S. Army Corps of Engineers, Louisville District, Louisville, KY.
- USACE (U.S. Army Corps of Engineers) Louisville District. 2008b. *Engineering Feasibility Study for the Wilmington, North Carolina Armed Forces Reserve Center*. Report No. CAR 10-64732. Prepared for the U.S. Army Corps of Engineers, Louisville District, Louisville, KY, by RSP Architects, Ltd., Minneapolis, MN.

- USACE (U.S. Army Corps of Engineers). 1987. *Corps of Engineers Wetland Delineation Manual*. Wetlands Research Program Technical Report Y-87-1 (on-line edition). Environmental Laboratory, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.
- USDA (U.S. Department of Agriculture). 1977a. Soil Survey of New Hanover County, North Carolina. USDA Soil Conservation Service. U.S. Department of Agriculture.
- USDA (U.S. Department of Agriculture). 2008b. *Custom Soil Resource Report for New Hanover County, North Carolina, Site 4 – 3623 Carolina Beach Road Site*. Natural Resources Conservation Service Web Soil Survey. U.S. Department of Agriculture.
- USDA (U.S. Department of Agriculture). 2008c. *Custom Soil Resource Report for New Hanover County, North Carolina, Site 5 – 1402 North 23<sup>rd</sup> Street Site*. Natural Resources Conservation Service Web Soil Survey, U.S. Department of Agriculture.
- USEPA (U.S. Environmental Protection Agency). 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*. Publication NTID300.1. U.S. Environmental Protection Agency, Washington, DC.
- USEPA (U.S. Environmental Protection Agency). 2007. *Ecoregions of North Carolina and South Carolina*. <[http://www.epa.gov/wed/pages/ecoregions/ncsc\\_eco.htm](http://www.epa.gov/wed/pages/ecoregions/ncsc_eco.htm)>. Accessed January 26, 2009.
- USEPA (U.S. Environmental Protection Agency). 2008. AirDATA Web site. <<http://www.epa/air/data>>. Accessed November 16, 2008.
- USFS (U. S. Forestry Service). 2008. *Description of the Ecoregions of the United States*. Compiled by R.G. Bailey, 1995. <<http://www.fs.fed.us/land/ecosysmgmt/index.html>>. Accessed January 26, 2009.
- USFWS (U.S. Fish and Wildlife Service). 2009. *North Carolina's Threatened and Endangered Species*. U.S. Fish and Wildlife Service, North Carolina Ecological Services. <<http://www.fws.gov/nc-es/es/index.html>>. Accessed January 27, 2009.
- USGS (U.S. Geological Survey). 1993. *Wilmington, NC*. 7.5-minute series (topographic), 1:24,000 scale maps. U.S. Geological Survey, Reston, VA. <<http://www.usgs.gov/pubprod/maps.html>>. Accessed January 2009.
- USGS (U.S. Geological Survey). 1997. *Castle Hayne, NC*. 7.5-minute series (topographic), 1:24,000 scale maps. U.S. Geological Survey, Reston, VA. <<http://www.usgs.gov/pubprod/maps.html>>. Accessed January 2009.
- Wave (Cape Fear Public Transportation Authority). 2008. Wave Public Transportation Guide. Cape Fear Public Transportation Authority.
- Wilmington International Airport. 2005. *Wilmington International Airport (ILM) Airport Master Plan Revision*.

Young, S., C.T. Espenshade, and S. Patch. 2006. *Phase I Archaeological Survey for the North Carolina State Ports Authority's Proposed Wilmington Facility, Wilmington, New Hanover County, North Carolina*. Prepared for the North Carolina Ports Authority, Wilmington, NC, by New South Associates, Inc., Stone Mountain, GA.

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- Brooks, Richard. Resource Soil Scientist, U.S. Department of Agriculture, North Carolina Natural Resources Conservation Service, Smithfield Technical Services Office. January 29, 2009.
- Gledhill-Earley, Renee. Environmental Review Coordinator, Historic Resources Office, North Carolina Department of Cultural Resources, State Historic Preservation Office. March 2009.
- Harrison, Dru. Administrative Secretary/Ed. Coordinator, U.S. Department of Agriculture, North Carolina Natural Resources Conservation Service, Wilmington Field Office (New Hanover County). January 28, 2009.
- Henry, Nathan. Assistant State Archaeologist and Conservator, Underwater Archaeology Branch, North Carolina Office of State Archaeology. March 2009.
- Rynas, Stephen. Federal Consistency Coordinator, North Carolina Division of Coastal Management. February 5, 2009.
- Shearin, Charlotte R. Historic Resources Office, North Carolina Department of Cultural Resources, State Historic Preservation Office. March 2009.
- Snider, Holley. North Carolina Division of Coastal Management, Wilmington District office. February and March 2009.
- Vick, Jr., Roy. State Soil Scientist, U.S. Department of Agriculture, North Carolina Natural Resources Conservation Service. January 29, 2009.
- Walker, Greg. ASTC for Programs, U.S. Department of Agriculture, North Carolina Natural Resources Conservation Service, ASTC—Programs Office. January 28, 2009.
- Wilsey, Julie. Deputy Director, Wilmington International Airport. January 2009.

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Wilmington, NC 28401

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**Appendix A**  
Emission Calculations

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**Table A-1 Construction equipment use**

Equipment Type	Number of Units	Days on Site	Hours Per Day	Operating Hours
Excavators Composite	1	115	4	460
Rollers Composite	1	173	8	1384
Rubber Tired Dozers Composite	1	115	8	920
Plate Compactors Composite	2	115	4	920
Trenchers Composite	2	58	8	928
Air Compressors	2	115	4	920
Cement & Mortar Mixers	2	115	6	1380
Cranes	1	115	7	805
Generator Sets	2	115	4	920
Tractors/Loaders/Backhoes	2	230	7	3220
Pavers Composite	1	58	8	464
Paving Equipment	2	58	8	928

**Table A-2 Construction equipment emission factors (lbs/hour)**

Equipment	CO	NO <sub>x</sub>	VOC	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Excavators Composite	0.5828	1.3249	0.1695	0.0013	0.0727	0.0727	119.6
Rollers Composite	0.4341	0.8607	0.1328	0.0008	0.0601	0.0601	67.1
Rubber Tired Dozers Composite	1.5961	3.2672	0.3644	0.0025	0.1409	0.1409	239.1
Plate Compactors Composite	0.0263	0.0328	0.0052	0.0001	0.0021	0.0021	4.3
Trenchers Composite	0.5080	0.8237	0.1851	0.0007	0.0688	0.0688	58.7
Air Compressors	0.3782	0.7980	0.1232	0.0007	0.0563	0.0563	63.6
Cement and Mortar Mixers	0.0447	0.0658	0.0113	0.0001	0.0044	0.0044	7.2
Cranes	0.6011	1.6100	0.1778	0.0014	0.0715	0.0715	128.7
Generator Sets	0.3461	0.6980	0.1075	0.0007	0.0430	0.0430	61.0
Tractors/Loaders/Backhoes	0.4063	0.7746	0.1204	0.0008	0.0599	0.0599	66.8
Pavers Composite	0.5874	1.0796	0.1963	0.0009	0.0769	0.0769	77.9
Paving Equipment	0.0532	0.1061	0.0166	0.0002	0.0063	0.0063	12.6

Source: CARB 2007b

**Table A-3 Construction equipment emissions (tons per year)**

Equipment	CO	NO <sub>x</sub>	VOC	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Excavators Composite	0.1341	0.3047	0.0390	0.0003	0.0167	0.0167	27.5037
Rollers Composite	0.3004	0.5956	0.0919	0.0005	0.0416	0.0416	46.4006
Rubber Tired Dozers Composite	0.7342	1.5029	0.1676	0.0011	0.0648	0.0648	109.9886
Plate Compactors Composite	0.0121	0.0151	0.0024	0.0000	0.0010	0.0010	1.9843
Trenchers Composite	0.2357	0.3822	0.0859	0.0003	0.0319	0.0319	27.2467
Air Compressors	0.1740	0.3671	0.0567	0.0003	0.0259	0.0259	29.2594
Cement and Mortar Mixers	0.0309	0.0454	0.0078	0.0001	0.0031	0.0031	5.0012
Cranes	0.2419	0.6480	0.0716	0.0006	0.0288	0.0288	51.7885
Generator Sets	0.1592	0.3211	0.0494	0.0003	0.0198	0.0198	28.0566
Tractors/Loaders/Backhoes	0.6542	1.2470	0.1939	0.0012	0.0964	0.0964	107.5583
Pavers Composite	0.1363	0.2505	0.0455	0.0002	0.0178	0.0178	18.0811
Paving Equipment	0.0247	0.0492	0.0077	0.0001	0.0029	0.0029	5.8593
<b>Total</b>	<b>2.84</b>	<b>5.73</b>	<b>0.82</b>	<b>0.0051</b>	<b>0.35</b>	<b>0.35</b>	<b>458.73</b>

**Table A-4 Painting**

VOC Content	0.84	lbs/gallon	
Coverage	400	sqft/gallon	
Emission Factor	0.0021	lbs/sqft	
Building/Facility	Wall Surface	VOC [lbs]	VOC [tpy]
All Buildings Combined	126,412	265.5	0.133
<b>Total</b>	<b>126,412</b>	<b>265.47</b>	<b>0.13</b>

**Table A-5 Delivery of equipment and supplies**

Number of Deliveries	2						
Number of Trips	2						
Miles Per Trip	30						
Days of Construction	230						
Total Miles	27,600						
Pollutant	CO	NO <sub>x</sub>	VOC	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Emission Factor (lbs/mile)	0.0219	0.0237	0.0030	0.0000	0.0009	0.0007	2.7
Total Emissions (lbs)	605.80	654.47	82.60	0.71	23.63	20.41	75056.4
Total Emissions (tpy)	0.30	0.33	0.04	0.0004	0.01	0.01	37.53

Source: CARB 2007a

**Table A-6 Paving off gasses**

VOC Emissions Factor	2.62	lbs/acre	
Building/Facility	Area [acres]	VOC [lbs]	VOC [tpy]
All Combined Parking	2.09	5.48	0.0027
Total	2.09	5.48	0.0027

Source: SQAQMD 1993

**Table A-7 Surface disturbance**

TSP Emissions	80	lb/acre				
PM <sub>10</sub> /TSP	0.45					
PM <sub>2.5</sub> /PM <sub>10</sub>	0.15					
Period of Disturbance	30	days				
Capture Fraction	0.5					
Building/Facility	Area [acres]	TSP [lbs]	PM <sub>10</sub> [lbs]	PM <sub>10</sub> [tons]	PM <sub>2.5</sub> [lbs]	PM <sub>2.5</sub> [tons]
Demolition and Clearing	3.5	8,510	3,829	1.91	287	0.14
Total	3.5	8,510	3,829	1.91	287	0.14

Sources: USEPA 1995, 2005

**Table A-8 Worker commutes**

Number of Workers	30						
Number of Trips	2						
Miles Per Trip	30						
Days of Construction	230						
Total Miles	414,000						
Pollutant	CO	NO <sub>x</sub>	VOC	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Emission Factor (lbs/mile)	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Total Emissions (lbs)	4,367.1	456.6	446.8	4.4	35.2	21.9	455,206.4
Total Emissions (tpy)	2.2	0.2	0.2	0.0	0.0	0.0	227.6

Source: CARB 2007a

**Table A-9 Total construction emissions (tons per year)**

Activity/Source	CO	NO <sub>x</sub>	VOC	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Construction Equipment	2.84	5.73	0.82	0.0051	0.35	0.35	458.73
Painting	0.00	0.00	0.13	0.0000	0.00	0.00	0.00
Delivery of Equipment and Supplies	0.30	0.33	0.04	0.0004	0.01	0.01	37.53
Paving Off Gasses	0.00	0.00	0.00	0.0000	0.00	0.00	0.00
Surface Disturbance	0.00	0.00	0.00	0.0000	1.91	0.14	0.00
Worker Commutes	2.18	0.23	0.22	0.0022	0.02	0.01	227.60
Total Construction Emissions	5.32	6.28	1.22	0.0077	2.29	0.52	723.86

**Table A-10 Boiler emissions**

Gross Area	63,206	sf				
Heating Requirements	99,000	btu/sf				
Total Annual Heat Required	6,257	MMBTU				
Heating Value	150	MMBtu/1000 Gallons				
Total #2 Oil Used	42	10 <sup>3</sup> Gallons				
Pollutant	CO	NO <sub>x</sub>	VOC	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Emission Factor (lb/1000 gal)	5	24	2.493	0.1	2	2
Total Emissions (tons)	0.10	0.50	0.05	0.00	0.04	0.04

1. Emission factors for all pollutants were obtained from EPA's AP-42, Section 1.3. Conservatively assume that PM<sub>10</sub> = PM.
2. Assumed sulfur concentration 1%
3. Heating requirements obtained from Commercial Buildings Energy Consumption Survey, DOE 2003

**Table A-11 Emergency generators**

Pollutant	CO	NO <sub>x</sub>	VOC	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>		
Emission Factor [lb/hp-hr]	0.0055	0.024	0.000705	0.00809	0.0007	0.0007		
Generator Rating [kW]	Estimated Run Time (hr/yr)	Annual Power Output [kW-hr/yr]	CO	NO <sub>x</sub>	VOC	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
700	100	70,000	0.26	1.13	0.03	0.38	0.03	0.03
Total Emissions [tpy]			0.26	1.13	0.03	0.38	0.03	0.03

1. Emission factors for all pollutants were obtained from EPA's AP-42, Section 3.4 Stationary Diesel Engines

**Table A-12 Worker commutes**

Number of Workers	13					
Number of Trips	2					
Miles Per Trip	30					
Days of Work	260					
Total Miles	202,800					
Pollutant	CO	NO <sub>x</sub>	VOC	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Emission Factor (lbs/mile)	0.0105	0.0011	0.0011	0.0000	0.0001	0.0001
Total Emissions (lbs)	2139.22	223.66	218.86	2.18	17.25	10.73
Total Emissions (tons)	1.07	0.11	0.11	0.00	0.01	0.01

Source: CARB 2007a

**Table A-13 Drill weekend commutes**

Number of Workers	400					
Number of Trips	1					
Miles Per Trip	60					
Days of Training	24					
Total Miles	346,055					
Pollutant	CO	NO <sub>x</sub>	VOC	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Emission Factor (lbs/mile)	0.0105	0.0011	0.0011	0.0000	0.0001	0.0001
Total Emissions (lbs)	3650.34	381.66	373.46	3.72	29.43	18.32
Total Emissions (tons)	1.83	0.19	0.19	0.00	0.01	0.01

Source: CARB 2007a

**Table A-14 Total operational emissions (tons)**

Activity/Source	CO	NO <sub>x</sub>	VOC	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Boiler Emissions	0.10	0.50	0.05	0.00	0.04	0.04
Emergency Generators	0.26	1.13	0.03	0.38	0.03	0.03
Worker Commutes	1.07	0.11	0.11	0.00	0.01	0.01
Drill Weekend Commutes	1.83	0.19	0.19	0.00	0.01	0.01
Total Operational Emissions	3.26	1.93	0.38	0.38	0.10	0.09

## References

- CARB (California Air Resources Board). 2007a. EMFAC 2007 (v2.3) Emission Factors (On-Road). California Air Resources Board, Sacramento, CA.
- CARB (California Air Resources Board). 2007b. EMFAC 2007 (v2.3) Emission Factors (Off-Road). California Air Resources Board, Sacramento, CA.
- DOE (Department of Energy). 2003. Consumption and Gross Energy Intensity by Census Region for Sum of Major Fuels, Commercial Buildings Energy Consumption Survey. Department of Energy, Washington, DC.
- SQAQMD (South Coast Air Quality Management District). 1993. CEQA Air Quality Handbook. South Coast Air Quality Management District, Diamond Bar, CA.
- USEPA (U.S. Environmental Protection Agency). 1995. *Compilation of Air Pollutant Emission Factors, AP-42*, 5th ed., Vol. I: Stationary Point and Area Sources. U.S. Environmental Protection Agency, Washington, DC.
- USEPA (U.S. Environmental Protection Agency). 2005. Methodology to Estimate the Transportable Fraction (TF) of Fugitive Dust Emissions for Regional and Urban Scale Air Quality Analyses. U.S. Environmental Protection Agency, Washington, DC.

## **Appendix B**

### **Record Of Non-Applicability (RONA)**

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**RECORD OF NON-APPLICABILITY**  
**In Accordance with the Clean Air Act—General Conformity Rule for the**  
**Proposed Construction and Operation**  
**of an Armed Forces Reserve Center in Wilmington, North Carolina**

The Army proposes to construct and operate an Armed Forces reserve Center (AFRC) in Wilmington, North Carolina. Primary facilities would include an AFRC building, maintenance shop, and organizational unit storage building. Buildings would be of permanent construction with heating, ventilation, air conditioning; plumbing; mechanical; security; and electrical systems. Supporting facilities would include land clearing, paving, fencing, general site improvements, and extension of utilities to serve the project. Force protection (physical security) measures would be incorporated into design of the facility, to include consideration of stand-off distance from roads, parking areas, and vehicle unloading areas. The proposed AFRC would provide training to the Army Reserve and Naval Reserve Soldiers and Sailors to attain military education and proficiency.

General Conformity under the Clean Air Act, section 176 has been evaluated according to the requirements of Title 40 of the *Code of Federal Regulations* Part 93, Subpart B. The requirements of this rule are not applicable to the Preferred Alternative or the alternatives because:

All activities associated with the proposed action and alternatives are in an area designated by EPA to be in attainment for all criteria pollutants.

Supported documentation and emission estimates:

- Are Attached
- Appear in the NEPA Documentation
- Other (Not Necessary)

  
Signature

Acting Chief Environmental Branch, 81<sup>st</sup> Regional  
Support Command  
Title

13 March 2009  
Date

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## **Appendix C**

### **Scientific Names of Species Mentioned In the Text**

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**Vegetation**

<i>Aristida stricta</i>	Wiregrass
<i>Carya</i> sp.	Hickory
<i>Laurus</i> sp.	Laurel
<i>Magnolia</i> sp.	Magnolia
<i>Pinus taeda</i>	Loblolly pine
<i>Quercus</i> sp.	Oak

**Animals**

<i>Colinus virginianus</i>	Bobwhite
<i>Didelphis virginiana</i>	Opossum
<i>Glaucomys volans</i>	Southern flying squirrel
<i>Meleagris gallopavo</i>	Eastern wild turkey
<i>Odocoileus virginianus</i>	Whitetail deer
<i>Procyon lotor</i>	Raccoon
<i>Sylvilagus floridanus</i>	Eastern cottontail rabbit

**Protected species in New Hanover County**

<b>Scientific name</b>	<b>Common name</b>	<b>Federal status</b>	<b>State status</b>
<i>Amaranthus pumilus</i>	Seabeach amaranth	Threatened	Threatened
<i>Lysimachia asperulaefolia</i>	Rough-leaf loosestrife	Endangered	Endangered
<i>Charadrius melodus</i>	Piping plover	Threatened	Threatened
<i>Picoides borealis</i>	Red-cockaded woodpecker	Endangered	Endangered

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## **Appendix D**

### **Economic Impact Forecast System (EIFS) Model**

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## **ECONOMIC IMPACT FORECAST SYSTEM (EIFS) MODEL**

### **SOCIOECONOMIC IMPACT ASSESSMENT**

Socioeconomic impacts are linked through cause-and-effect relationships. Military payrolls and local procurement contribute to the economic base for the ROI. In this regard, construction of an AFRC and associated facilities in Wilmington, at either the preferred site or the alternate site, would have a multiplier effect on the local and regional economy. With the proposed action, direct jobs would be created (e.g., construction jobs), generating new income and increasing personal spending. This spending generally creates secondary jobs, increases business volume, and increases revenues for schools and other social services.

### **THE ECONOMIC IMPACT FORECAST SYSTEM**

The U.S. Army, with the assistance of many academic and professional economists and regional scientists, developed EIFS to address the economic impacts of NEPA-requiring actions and to measure their significance. As a result of its designed applicability, and in the interest of uniformity, EIFS should be used in NEPA assessments. The entire system is designed for the scrutiny of a populace affected by the actions being studied. The algorithms in EIFS are simple and easy to understand, but still have firm, defensible bases in regional economic theory.

EIFS was developed under a joint project of the U.S. Army Corps of Engineers, the U.S. Army Environmental Policy Institute, and the Computer and Information Science Department of Clark Atlanta University. EIFS is implemented as an online system supported by the U.S. Army Corps of Engineers, Mobile District. The system is available to anyone with an approved user ID and password. U.S. Army Corps of Engineers staff is available to assist with the use of EIFS.

The databases in EIFS are national in scope and cover the approximately 3,700 counties, parishes, and independent cities that are recognized as reporting units by federal agencies. EIFS allows the user to define an economic ROI by identifying the counties, parishes, or cities to be analyzed. Once the ROI is defined, the system aggregates the data, calculates multipliers and other variables used in the various models in EIFS, and prompts the user for forecast input data.

### **THE EIFS MODEL**

The basis of the EIFS analytical capabilities is the calculation of multipliers that are used to estimate the impacts resulting from Army-related changes in local expenditures or employment. In calculating the multipliers, EIFS uses the economic base model approach, which relies on the ratio of total economic activity to basic economic activity. Basic, in this context, is defined as the production or employment engaged to supply goods and services outside the ROI or by federal activities (such as military installations and their employees). According to economic base theory, the ratio of total income to basic income is measurable (as the multiplier) and sufficiently stable so that future changes in economic activity can be forecast. This technique is especially appropriate for estimating aggregate impacts and makes the economic base model ideal for the EA and EIS process.

The multiplier is interpreted as the total impact on the economy of the region resulting from a unit change in its base sector; for example, a dollar increase in local expenditures due to an expansion of its military installation. EIFS estimates its multipliers using a location quotient approach based on the concentration of industries within the region relative to the industrial concentrations for the nation.

The user inputs into the model the data elements that describe the Army action: the change in expenditures, or dollar volume of the construction project(s); change in civilian or military employment; average annual income of affected civilian or military employees; the percent of civilians expected to relocate due to the Army's action; and the percent of military living on-post.

Once these are entered into the EIFS model, it provides a projection of changes in the local economy. These are projected changes in sales volume, income, employment, and population. These four indicator variables are used to measure and evaluate socioeconomic impacts. Sales volume is the direct and indirect change in local business activity and sales (total retail and wholesale trade sales, total selected service receipts, and value-added by manufacturing). Employment is the total change in local employment due to the proposed action, including not only the direct and secondary changes in local employment, but also those personnel who are initially affected by the military action. Income is the total change in local wages and salaries due to the proposed action, which includes the sum of the direct and indirect wages and salaries, plus the income of the civilian and military personnel affected by the proposed action. Population is the increase or decrease in the local population as a result of the proposed action.

The BRAC action in Wilmington would require construction of an AFRC training building, storage building, parking areas, and supporting facilities such as electrical and mechanical systems, water, sewer, HVAC, plumbing, and force protection measures. The current working estimate for the cost of construction of these facilities (\$21,000,000) over a projected 1-year development period was entered in the EIFS model as the change in expenditures.

**THE SIGNIFICANCE OF SOCIOECONOMIC IMPACTS**

Once model projections are obtained, the Rational Threshold Value (RTV) profile allows the user to evaluate the significance of the impacts. This analytical tool reviews the historical trends for the defined region and develops measures of local historical fluctuations in sales volume, income, employment, and population. These evaluations identify the positive and negative changes within which a project can affect the local economy without creating a significant impact. The greatest historical changes define the boundaries that provide a basis for comparing an action’s impact on the historical fluctuation in a particular area. Specifically, EIFS sets the boundaries by multiplying the maximum historical deviation of the following variables:

		Increase	Decrease
Sales Volume	X	100%	75%
Income	X	100%	67%
Employment	X	100%	67%
Population	X	100%	50%

These boundaries determine the amount of change that will affect an area. The percentage allowances are arbitrary but sensible. The maximum positive historical fluctuation is allowed with expansion because economic growth is beneficial. While cases of damaging economic growth have been cited, and although the zero-growth concept is being accepted by many local planning groups, military base reductions and closures generally are more injurious to local economics than are expansion.

The major strengths of the RTV are its specificity to the region under analysis and its basis on actual historical data for the region. The EIFS model, in combination with the RTV, has proven successful in addressing perceived socioeconomic impacts. The EIFS model and the RTV technique for measuring the intensity of impacts have been reviewed by economic experts and have been deemed theoretically sound.

The following are the EIFS input and output data for construction and the RTV values for the ROI. These data form the basis for the socioeconomic impact analysis presented in Section 4.10.2.1.

**EIFS REPORT**

**PROJECT NAME**

Wilmington BRAC AFRC EA

**STUDY AREA**

37129 New Hanover County, NC

**FORECAST INPUT**

Change In Local Expenditures	\$21,000,000
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-post	0

**FORECAST OUTPUT**

Employment Multiplier	3.04	
Income Multiplier	3.04	
Sales Volume – Direct	\$21,000,000	
Sales Volume – Induced	\$42,840,000	
Sales Volume – Total	\$63,840,000	0.88%
Income – Direct	\$4,002,172	
Income - Induced	\$8,164,431	
Income – Total (place of work)	\$12,166,600	0.33%
Employment – Direct	107	
Employment – Induced	218	
Employment – Total	325	0.32%
Local Population	0	
Local Off-base Population	0	0.00%

**RTV SUMMARY**

	Sales Volume	Income	Employment	Population
Positive RTV	7.75%	8.31%	3.54%	2.15%
Negative RTV	-6.98%	-5.11%	-5.92%	-1.64%

**RTV DETAILED****SALES VOLUME**

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	227385	993672	0	0	0
1970	237815	982176	-11496	-75263	-7.66
1971	260929	1033279	51103	-12664	-1.23
1972	305775	1171118	137839	74072	6.32
1973	355913	1284846	113728	49961	3.89
1974	382092	1241799	-43047	-106814	-8.6
1975	400841	1194506	-47293	-111060	-9.3
1976	448978	1266118	71612	7845	0.62
1977	496305	1310245	44127	-19640	-1.5
1978	557829	1372259	62014	-1753	-0.13
1979	629739	1391723	19464	-44303	-3.18
1980	700241	1358468	-33256	-97023	-7.14
1981	746798	1314364	-44103	-107870	-8.21
1982	779102	1293309	-21055	-84822	-6.56
1983	844770	1360080	66770	3003	0.22
1984	940695	1448670	88591	24824	1.71
1985	1048326	1562006	113335	49568	3.17
1986	1184594	1729507	167502	103735	6
1987	1254133	1943906	214399	150632	7.75
1988	1371658	1865455	-78451	-142218	-7.62
1989	1491231	1923688	58233	-5534	-0.29
1990	1602966	1971648	47960	-15807	-0.8
1991	1697889	2003509	31861	-31906	-1.59
1992	1859068	2119337	115829	52062	2.46
1993	1989103	2207904	88567	24800	1.12
1994	2156621	2329151	121246	57479	2.47
1995	2303755	2418943	89792	26025	1.08
1996	2475466	2524975	106033	42266	1.67
1997	2634422	2634422	109447	45680	1.73
1998	2855255	2798150	163728	99961	3.57
1999	3130843	3005609	207459	143692	4.78
2000	3262589	3034208	28599	-35168	-1.16

**INCOME**

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	247799	1082882	0	0	0
1970	274051	1131831	48949	-46029	-4.07
1971	301191	1192716	60886	-34092	-2.86
1972	350412	1342078	149362	54384	4.05
1973	404045	1458602	116524	21546	1.48
1974	447275	1453644	-4959	-99937	-6.87
1975	486575	1449994	-3650	-98628	-6.8
1976	548096	1545631	95637	659	0.04
1977	608415	1606216	60585	-34393	-2.14
1978	682313	1678490	72274	-22704	-1.35
1979	782810	1730010	51520	-43458	-2.51
1980	889462	1725556	-4454	-99432	-5.76
1981	973661	1713643	-11913	-106891	-6.24
1982	1033718	1715972	2328	-92650	-5.4
1983	1134025	1825780	109808	14830	0.81
1984	1266422	1950290	124510	29532	1.51
1985	1405335	2093949	143659	48681	2.32
1986	1550958	2264399	170450	75472	3.33
1987	1660107	2573166	308767	213789	8.31
1988	1822977	2479249	-93917	-188895	-7.62
1989	1961995	2530973	51725	-43253	-1.71
1990	2153937	2649343	118369	23391	0.88
1991	2305957	2721029	71687	-23291	-0.86
1992	2483483	2831171	110141	15163	0.54
1993	2679830	2974611	143441	48463	1.63
1994	2950245	3186265	211653	116675	3.66
1995	3192083	3351687	165422	70444	2.1
1996	3423111	3491573	139886	44908	1.29
1997	3682862	3682862	191289	96311	2.62
1998	3966209	3886885	204023	109045	2.81
1999	4161763	3995292	108407	13429	0.34
2000	4432455	4122183	126891	31913	0.77

**EMPLOYMENT**

Year	Value	Change	Deviation	%Deviation
1969	41772	0	0	0
1970	42147	375	-1760	-4.18
1971	42486	339	-1796	-4.23
1972	44787	2301	166	0.37
1973	48507	3720	1585	3.27
1974	48836	329	-1806	-3.7
1975	46833	-2003	-4138	-8.84
1976	48285	1452	-683	-1.41
1977	49711	1426	-709	-1.43
1978	51632	1921	-214	-0.41
1979	54259	2627	492	0.91
1980	55245	986	-1149	-2.08
1981	55355	110	-2025	-3.66
1982	54941	-414	-2549	-4.64
1983	55854	913	-1222	-2.19
1984	60115	4261	2126	3.54
1985	63478	3363	1228	1.93
1986	67743	4265	2130	3.14
1987	68651	908	-1227	-1.79
1988	71682	3031	896	1.25
1989	73735	2053	-82	-0.11
1990	76950	3215	1080	1.4
1991	77472	522	-1613	-2.08
1992	79776	2304	169	0.21
1993	83168	3392	1257	1.51
1994	86857	3689	1554	1.79
1995	91412	4555	2420	2.65
1996	96452	5040	2905	3.01
1997	102026	5574	3439	3.37
1998	105192	3166	1031	0.98
1999	108995	3803	1668	1.53
2000	110095	1100	-1035	-0.94

**POPULATION**

Year	Value	Change	Deviation	%Deviation
1969	81134	0	0	0
1970	83678	2544	59	0.07
1971	87357	3679	1194	1.37
1972	91434	4077	1592	1.74
1973	94442	3008	523	0.55
1974	96688	2246	-239	-0.25
1975	98592	1904	-581	-0.59
1976	99827	1235	-1250	-1.25
1977	101538	1711	-774	-0.76
1978	100714	-824	-3309	-3.29
1979	101600	886	-1599	-1.57
1980	103912	2312	-173	-0.17
1981	105368	1456	-1029	-0.98
1982	107489	2121	-364	-0.34
1983	108586	1097	-1388	-1.28
1984	110154	1568	-917	-0.83
1985	112014	1860	-625	-0.56
1986	114273	2259	-226	-0.2
1987	115934	1661	-824	-0.71
1988	116958	1024	-1461	-1.25
1989	118238	1280	-1205	-1.02
1990	121140	2902	417	0.34
1991	125530	4390	1905	1.52
1992	128946	3416	931	0.72
1993	133358	4412	1927	1.44
1994	138365	5007	2522	1.82
1995	143950	5585	3100	2.15
1996	148892	4942	2457	1.65
1997	153079	4187	1702	1.11
1998	156948	3869	1384	0.88
1999	158774	1826	-659	-0.42
2000	160666	1892	-593	-0.37

\*\*\*\*\* End of Report \*\*\*\*\*

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## **Appendix E**

### **Agency Coordination Letters**

[Note: Each letter sent included the three figures that follow the first letter in this appendix. The figures, however, are not duplicated in this appendix for the other coordination letters. An additional letter to the NRCS includes its own figures and attachments.]

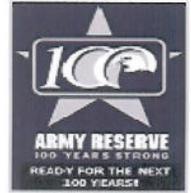
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REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
HEADQUARTERS, 81ST REGIONAL SUPPORT COMMAND  
1525 MARION AVENUE  
FORT JACKSON, SC 29207-6070

January 22, 2009



Environmental Branch, Directorate of Public Works

North Carolina Department of Environmental and Natural Resources  
Wilmington Regional Office  
127 Cardinal Drive Extension  
Wilmington, NC 28405

Dear Sir or Madam:

The Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended, implements recommendations made during the fall of 2005 by the Defense Base Realignment and Closure Commission. One of the proposed actions is to close the Army Reserve Adrian B. Rhodes Armed Forces Reserve Center in Wilmington, North Carolina, close the Rock Hill Armed Forces Reserve Center in Rock Hill, South Carolina, close the Niven Armed Forces Reserve Center in Albermarle, North Carolina, and relocate all Army and Navy units to a new Armed Forces Reserve Center (AFRC) and Organizational Maintenance Shop in Wilmington, North Carolina, if the Army is able to acquire suitable land for the construction of the facilities.

The Army identified two locations—the preferred site and alternate site in Wilmington, North Carolina—as suitable for the construction of the AFRC (see Figure 1). The U.S. Army Corps of Engineers, Mobile District is in the process of preparing an environmental assessment (EA), which will assess the potential impacts of constructing and operating the new AFRC at one of these locations. No additional weapons systems or demands on training ranges are required for the proposed action.

The preferred site (Site 4 – 3623 Carolina Beach Road as shown in Figure 2) consists of approximately 11 acres and is accessible from Carolina Beach Road, having 560 feet of frontage along that five-lane roadway. The site is an open parking lot used by a private sector company as a staging site for vehicles that are to be resold to the general public. The alternate site (Site 5 – 1402 North 23<sup>rd</sup> Street as shown in Figure 3) is approximately 11.37 acres and is accessible from 23<sup>rd</sup> Street and a side road. The site is mostly flat and is heavily wooded. There are no existing structures, parking areas or roadways on the site.

In accordance with the National Environmental Policy Act, Endangered Species Act, Fish and Wildlife Coordination Act, and other regulations, an evaluation of potential effects (both beneficial and adverse) associated with implementing this action is required. We are requesting your input regarding any environmental concerns regarding this action, such as the presence of listed threatened or endangered species or critical habitat.

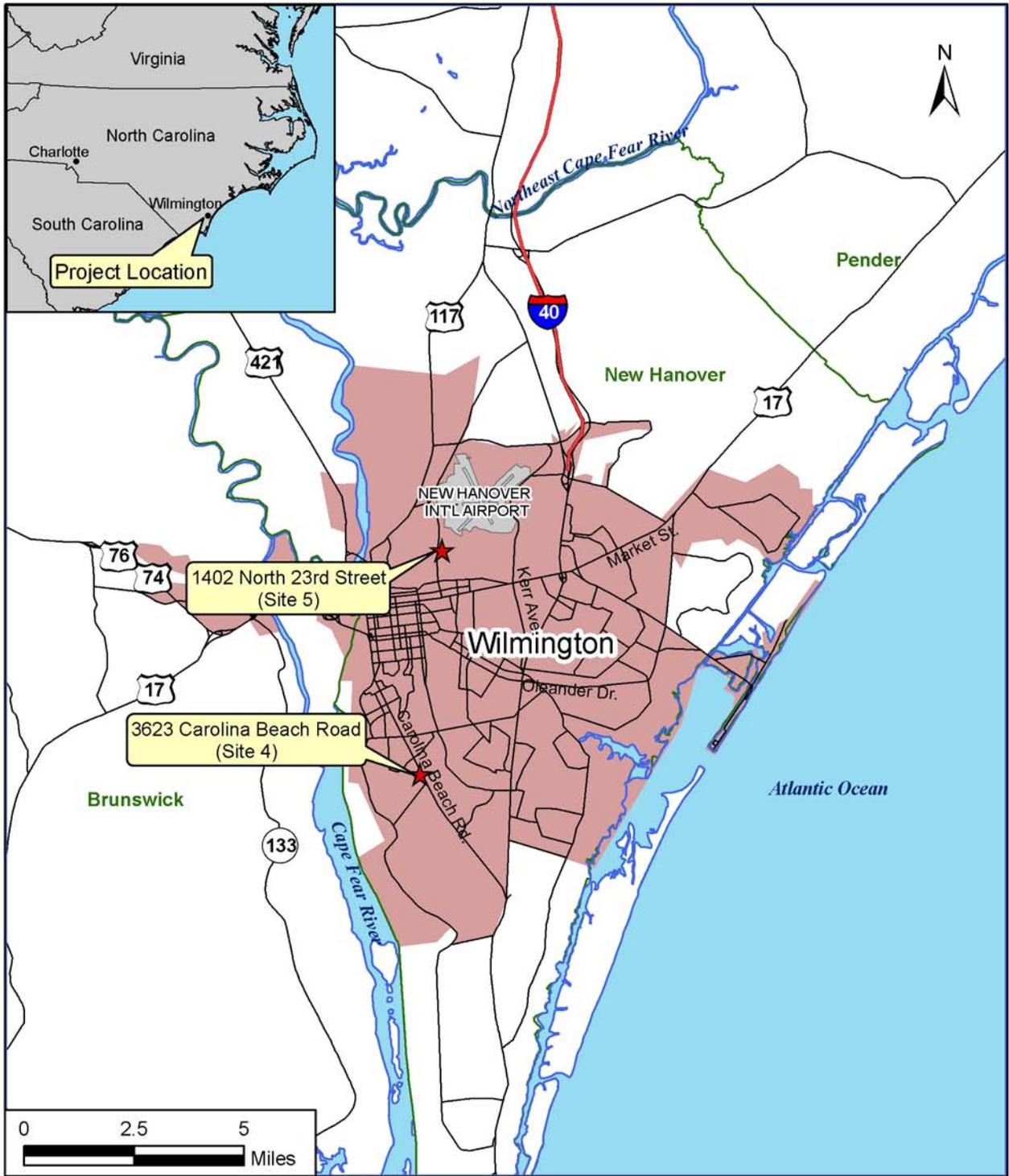
If you are interested in this matter, we ask that you provide your input within 30 calendar days of receipt of this letter. If you have questions or concerns about this project, please do not hesitate to call me at (803) 751-9391.

Sincerely,

A handwritten signature in black ink, appearing to read "D. H. Thomas III". The signature is stylized and somewhat cursive.

Daniel H. Thomas III  
Acting Chief, Environmental Branch

Enclosures



# Location Map

Figure 1



**LEGEND**  
[Red Outline] Site Boundary

**Site 4 - 3623 Carolina Beach Road  
(Primary Site)**

Figure 2



**LEGEND**  
[Red Box] Site Boundary

**Site 5 - 1402 North 23rd Street  
(Alternate Site)**

Figure 3

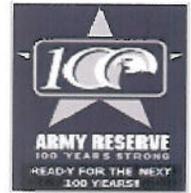
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REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
HEADQUARTERS, 81ST REGIONAL SUPPORT COMMAND  
1525 MARION AVENUE  
FORT JACKSON, SC 29207-6070

January 22, 2009



Environmental Branch, Directorate of Public Works

Mr. Pete Benjamin, Field Supervisor  
U.S. Fish and Wildlife Service  
Raleigh Ecological Services Field Office  
P.O. Box 33726  
Raleigh, NC 27636-3726

Dear Mr. Benjamin:

The Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended, implements recommendations made during the fall of 2005 by the Defense Base Realignment and Closure Commission. One of the proposed actions is to close the Army Reserve Adrian B. Rhodes Armed Forces Reserve Center in Wilmington, North Carolina, close the Rock Hill Armed Forces Reserve Center in Rock Hill, South Carolina, close the Niven Armed Forces Reserve Center in Albermarle, North Carolina, and relocate all Army and Navy units to a new Armed Forces Reserve Center (AFRC) and Organizational Maintenance Shop in Wilmington, North Carolina, if the Army is able to acquire suitable land for the construction of the facilities.

The Army identified two locations—the preferred site and alternate site in Wilmington, North Carolina—as suitable for the construction of the AFRC (see Figure 1). The U.S. Army Corps of Engineers, Mobile District is in the process of preparing an environmental assessment (EA), which will assess the potential impacts of constructing and operating the new AFRC at one of these locations. No additional weapons systems or demands on training ranges are required for the proposed action.

The preferred site (Site 4 – 3623 Carolina Beach Road as shown in Figure 2) consists of approximately 11 acres and is accessible from Carolina Beach Road, having 560 feet of frontage along that five-lane roadway. The site is an open parking lot used by a private sector company as a staging site for vehicles that are to be resold to the general public. The alternate site (Site 5 – 1402 North 23<sup>rd</sup> Street as shown in Figure 3) is approximately 11.37 acres and is accessible from 23<sup>rd</sup> Street and a side road. The site is mostly flat and is heavily wooded. There are no existing structures, parking areas or roadways on the site.

In accordance with the National Environmental Policy Act, Endangered Species Act, Fish and Wildlife Coordination Act, and other regulations, an evaluation of potential effects (both beneficial and adverse) associated with implementing this action is

required. We are requesting your input regarding any environmental concerns regarding this action, such as the presence of listed threatened or endangered species or critical habitat.

If you are interested in this matter, we ask that you provide your input within 30 calendar days of receipt of this letter. If you have questions or concerns about this project, please do not hesitate to call me at (803) 751-9391.

Sincerely,

A handwritten signature in black ink, appearing to read "Daniel H. Thomas III". The signature is stylized with a large initial "D" and a long horizontal flourish extending to the right.

Daniel H. Thomas III  
Acting Chief, Environmental Branch

Enclosures



REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
HEADQUARTERS, 81ST REGIONAL SUPPORT COMMAND  
1525 MARION AVENUE  
FORT JACKSON, SC 29207-6070

January 28, 2009



Environmental Branch, Directorate of Public Works

Dr. Jeffrey Crow  
Deputy Secretary, North Carolina Office of Archives and History  
State Historic Preservation Officer  
4610 Mail Service Center  
Raleigh NC 27699-4610

Dear Mr. Crow:

The Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended, implements recommendations made during the fall of 2005 by the Defense Base Realignment and Closure Commission. One of the proposed actions is to close the Army Reserve Adrian B. Rhodes Armed Forces Reserve Center in Wilmington, North Carolina, close the Rock Hill Armed Forces Reserve Center in Rock Hill, South Carolina, close the Niven Armed Forces Reserve Center in Albermarle, North Carolina, and relocate all Army and Navy units to a new Armed Forces Reserve Center (AFRC) and Organizational Maintenance Shop in Wilmington, North Carolina, if the Army is able to acquire suitable land for the construction of the facilities.

The Army identified two locations—the preferred site and alternate site in Wilmington, North Carolina—as suitable for the construction of the AFRC (see Figure 1). The U.S. Army Corps of Engineers, Mobile District is in the process of preparing an environmental assessment (EA), which will assess the potential impacts of constructing and operating the new AFRC at one of these locations. No additional weapons systems or demands on training ranges are required for the proposed action.

The preferred site (Site 4 – 3623 Carolina Beach Road as shown in Figure 2) consists of approximately 11 acres and is accessible from Carolina Beach Road, having 560 feet of frontage along that five-lane roadway. The site is an open parking lot used by a private sector company as a staging site for vehicles that are to be resold to the general public. The alternate site (Site 5 – 1402 North 23<sup>rd</sup> Street as shown in Figure 3) is approximately 11.37 acres and is accessible from 23<sup>rd</sup> Street and a side road. The site is mostly flat and is heavily wooded. There are no existing structures, parking areas or roadways on the site.

The USACE Mobile has contracted with Tetra Tech, Inc. to complete environmental studies of the AFRC site in compliance with the National Environmental

Protection Act (NEPA). Tetra Tech has subcontracted New South Associates to complete the cultural resource study of this site in accordance with NEPA and the National Historic Preservation Act, its implementing authority, Section 106 of 36 CFR 800; and other federal statutes.

This letter is provided for your notification. If you are aware of any archaeological sites, historic structures, cultural landscapes, or Native American resources within or adjacent to the project area that should be considered during the NEPA process, please contact David Pugh of the USACE—Mobile District at 109 St. Joseph Street, Mobile, AL 36602; [david.w.pugh@usace.army.mil](mailto:david.w.pugh@usace.army.mil); (251) 694-3761 and Dr. J. W. Joseph of New South Associates at 6150 East Ponce de Leon Avenue, Stone Mountain, GA 30083; (770) 498-4155.

If you are interested in this matter, we ask that you provide your input within 30 calendar days of receipt of this letter. If you have questions or concerns about this project, please do not hesitate to call me at (803) 751-9391.

Sincerely,

A handwritten signature in black ink, appearing to read "Daniel H. Thomas III". The signature is fluid and cursive, with a long horizontal stroke at the end.

Daniel H. Thomas III  
Acting Chief, Environmental Branch

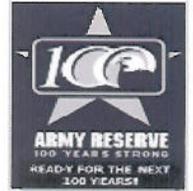
Enclosures



REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
HEADQUARTERS, 81ST REGIONAL SUPPORT COMMAND  
1525 MARION AVENUE  
FORT JACKSON, SC 29207-6070

January 22, 2009



Environmental Branch, Directorate of Public Works

The Honorable Chief Gene Faircloth  
Coharie Intra-Tribal Council  
Coharie Tribal Center  
7531 North US 421 Hwy.  
Clinton, North Carolina 28328

Dear Chief Faircloth:

The Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended, implements recommendations made during the fall of 2005 by the Defense Base Realignment and Closure Commission. One of the proposed actions is to close the Army Reserve Adrian B. Rhodes Armed Forces Reserve Center in Wilmington, North Carolina, close the Rock Hill Armed Forces Reserve Center in Rock Hill, South Carolina, close the Niven Armed Forces Reserve Center in Albermarle, North Carolina, and relocate all Army and Navy units to a new Armed Forces Reserve Center (AFRC) and Organizational Maintenance Shop in Wilmington, North Carolina, if the Army is able to acquire suitable land for the construction of the facilities.

The Army identified two locations—the preferred site and alternate site in Wilmington, North Carolina—as suitable for the construction of the AFRC (see Figure 1). The U.S. Army Corps of Engineers, Mobile District is in the process of preparing an environmental assessment (EA), which will assess the potential impacts of constructing and operating the new AFRC at one of these locations. No additional weapons systems or demands on training ranges are required for the proposed action.

The preferred site (Site 4 – 3623 Carolina Beach Road as shown in Figure 2) consists of approximately 11 acres and is accessible from Carolina Beach Road, having 560 feet of frontage along that five-lane roadway. The site is an open parking lot used by a private sector company as a staging site for vehicles that are to be resold to the general public. The alternate site (Site 5 – 1402 North 23<sup>rd</sup> Street as shown in Figure 3) is approximately 11.37 acres and is accessible from 23<sup>rd</sup> Street and a side road. The site is mostly flat and is heavily wooded. There are no existing structures, parking areas or roadways on the site.

The USACE Mobile District has contracted with Tetra Tech, Inc., to complete environmental studies of the AFRC site in compliance with the National Environmental Protection Act (NEPA). Tetra Tech, Inc., has subcontracted with New South Associates to complete the cultural resource study of this site in accordance with NEPA and the

National Historic Preservation Act, its implementing authority, Section 106 of 36 CFR 800; and other federal statutes.

This notification is an invitation for your tribe to participate in the cultural resources consultation during the NEPA process. The Army wishes to ensure that issues of concern to your tribe are addressed, and we welcome any concerns, questions and comments you may have about the proposed AFRC construction. If your tribe, or members of your tribe, have knowledge of traditional cultural properties, on or near the sites of the project, please contact David Pugh of the USACE—Mobile District at 109 St. Joseph Street, Mobile, AL 36602; [david.w.pugh@usace.army.mil](mailto:david.w.pugh@usace.army.mil); (251)694-3761 and Dr. J. W. Joseph of New South Associates at 6150 East Ponce de Leon Avenue, Stone Mountain, GA 30083.

We ask that you provide your input within 30 days of receipt of this letter. If you have questions or concerns about this project, please do not hesitate to call me at (803) 751-9391.

Sincerely,

A handwritten signature in black ink, appearing to read "Daniel H. Thomas III". The signature is fluid and cursive, with a large initial "D" and "H".

Daniel H. Thomas III  
Acting Chief, Environmental Branch

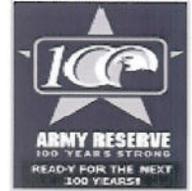
Enclosures



REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
HEADQUARTERS, 81ST REGIONAL SUPPORT COMMAND  
1525 MARION AVENUE  
FORT JACKSON, SC 29207-6070

January 22, 2009



Environmental Branch, Directorate of Public Works

The Honorable Michael Lewis, Chairperson  
Waccamauw Siouan Tribe  
PO Box 221  
Bolton, NC 28423

Dear Chairperson Lewis:

The Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended, implements recommendations made during the fall of 2005 by the Defense Base Realignment and Closure Commission. One of the proposed actions is to close the Army Reserve Adrian B. Rhodes Armed Forces Reserve Center in Wilmington, North Carolina, close the Rock Hill Armed Forces Reserve Center in Rock Hill, South Carolina, close the Niven Armed Forces Reserve Center in Albermarle, North Carolina, and relocate all Army and Navy units to a new Armed Forces Reserve Center (AFRC) and Organizational Maintenance Shop in Wilmington, North Carolina, if the Army is able to acquire suitable land for the construction of the facilities.

The Army identified two locations—the preferred site and alternate site in Wilmington, North Carolina—as suitable for the construction of the AFRC (see Figure 1). The U.S. Army Corps of Engineers, Mobile District is in the process of preparing an environmental assessment (EA), which will assess the potential impacts of constructing and operating the new AFRC at one of these locations. No additional weapons systems or demands on training ranges are required for the proposed action.

The preferred site (Site 4 – 3623 Carolina Beach Road as shown in Figure 2) consists of approximately 11 acres and is accessible from Carolina Beach Road, having 560 feet of frontage along that five-lane roadway. The site is an open parking lot used by a private sector company as a staging site for vehicles that are to be resold to the general public. The alternate site (Site 5 – 1402 North 23<sup>rd</sup> Street as shown in Figure 3) is approximately 11.37 acres and is accessible from 23<sup>rd</sup> Street and a side road. The site is mostly flat and is heavily wooded. There are no existing structures, parking areas or roadways on the site.

The USACE Mobile District has contracted with Tetra Tech, Inc., to complete environmental studies of the AFRC site in compliance with the National Environmental Protection Act (NEPA). Tetra Tech, Inc., has subcontracted with New South Associates to complete the cultural resource study of this site in accordance with NEPA and the

National Historic Preservation Act, its implementing authority, Section 106 of 36 CFR 800; and other federal statutes.

This notification is an invitation for your tribe to participate in the cultural resources consultation during the NEPA process. The Army wishes to ensure that issues of concern to your tribe are addressed, and we welcome any concerns, questions and comments you may have about the proposed AFRC construction. If your tribe, or members of your tribe, have knowledge of traditional cultural properties, on or near the sites of the project, please contact David Pugh of the USACE—Mobile District at 109 St. Joseph Street, Mobile, AL 36602; [david.w.pugh@usace.army.mil](mailto:david.w.pugh@usace.army.mil); (251)694-3761 and Dr. J. W. Joseph of New South Associates at 6150 East Ponce de Leon Avenue, Stone Mountain, GA 30083.

We ask that you provide your input within 30 days of receipt of this letter. If you have questions or concerns about this project, please do not hesitate to call me at (803) 751-9391.

Sincerely,

A handwritten signature in black ink, appearing to read "Daniel H. Thomas III". The signature is stylized with a large initial "D" and "H" and a distinct "III" at the end.

Daniel H. Thomas III  
Acting Chief, Environmental Branch

Enclosures



January 29, 2009

Re: Farmland Conversion Impact Assessment for the proposed Armed Forces Reserve Center in  
Wilmington, North Carolina

Mr. Brooks:

On behalf of the U.S. Army Corps of Engineers, Mobile District, who is acting for the Government to prepare an environmental assessment of a Base Closure and Realignment (BRAC) action requiring relocation of Army and state reserve forces to a new Armed Forces Reserve Center in Wilmington, North Carolina; we are forwarding to you for your evaluation Farmland Conversion Impact Rating Form AD-1006 for each site. Based on our interpretation of Web Soil Survey results we have determined that the soils on the preferred and alternate sites (approximately 11 acres each) are rated as prime farmland and may be subject to the Farmland Protection Policy Act of 1981. Attached are figures depicting the site locations and the results from the Web Soil Survey.

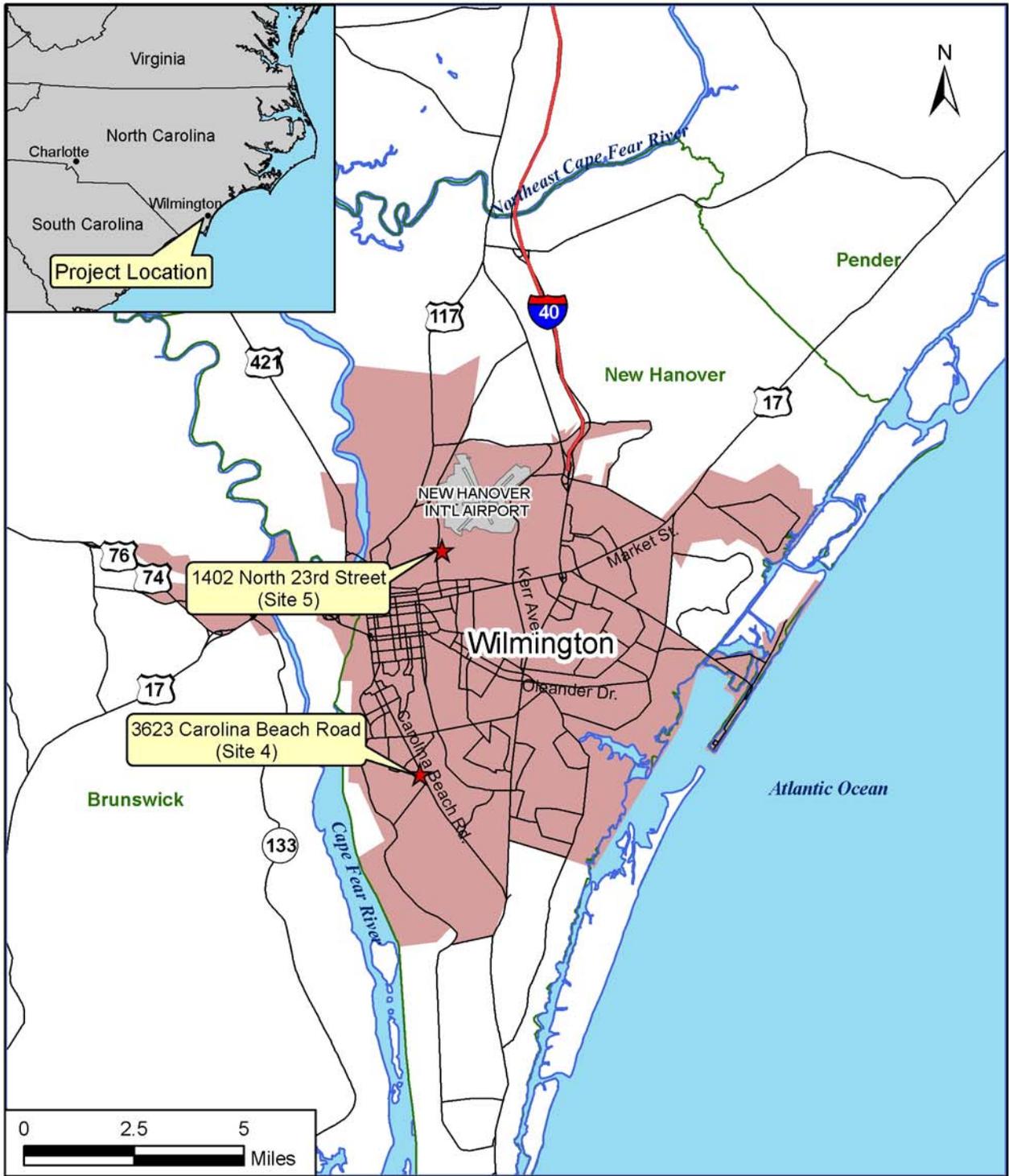
Please review and assess the attached information, and advise if additional information or clarification is required. Please return all correspondence to my attention at the address below or by email at [greg.hippert@tetrattech.com](mailto:greg.hippert@tetrattech.com).

Thank you very much for assistance on this important project.

Sincerely,

*Greg Hippert*  
Project Manager

attachments



- LEGEND**
- ★ Contending Site
  - ▭ County Boundary
  - ↗ Interstate Highway
  - ↘ Road
  - Urban Area
  - Surface Water

# Location Map

Figure 1



**LEGEND**  
[Red Outline] Site Boundary

**Site 4 - 3623 Carolina Beach Road  
(Primary Site)**

Figure 2



**LEGEND**  
[Red Outline] Site Boundary

**Site 5 - 1402 North 23rd Street  
(Alternate Site)**

Figure 3

# FARMLAND CONVERSION IMPACT RATING

<b>PART I</b> <i>(To be completed by Federal Agency)</i>	Date Of Land Evaluation Request
Name Of Project	Federal Agency Involved
Proposed Land Use	County And State

<b>PART II</b> <i>(To be completed by NRCS)</i>		Date Request Received By NRCS	
Does the site contain prime, unique, statewide or local important farmland? <i>(If no, the FPPA does not apply -- do not complete additional parts of this form).</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Acres Irrigated
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %	Average Farm Size Amount Of Farmland As Defined in FPPA Acres: %	
Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By NRCS	

<b>PART III</b> <i>(To be completed by Federal Agency)</i>	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly				
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site				

<b>PART IV</b> <i>(To be completed by NRCS)</i> Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				

<b>PART V</b> <i>(To be completed by NRCS)</i> Land Evaluation Criterion Relative Value Of Farmland To Be Converted <i>(Scale of 0 to 100 Points)</i>				
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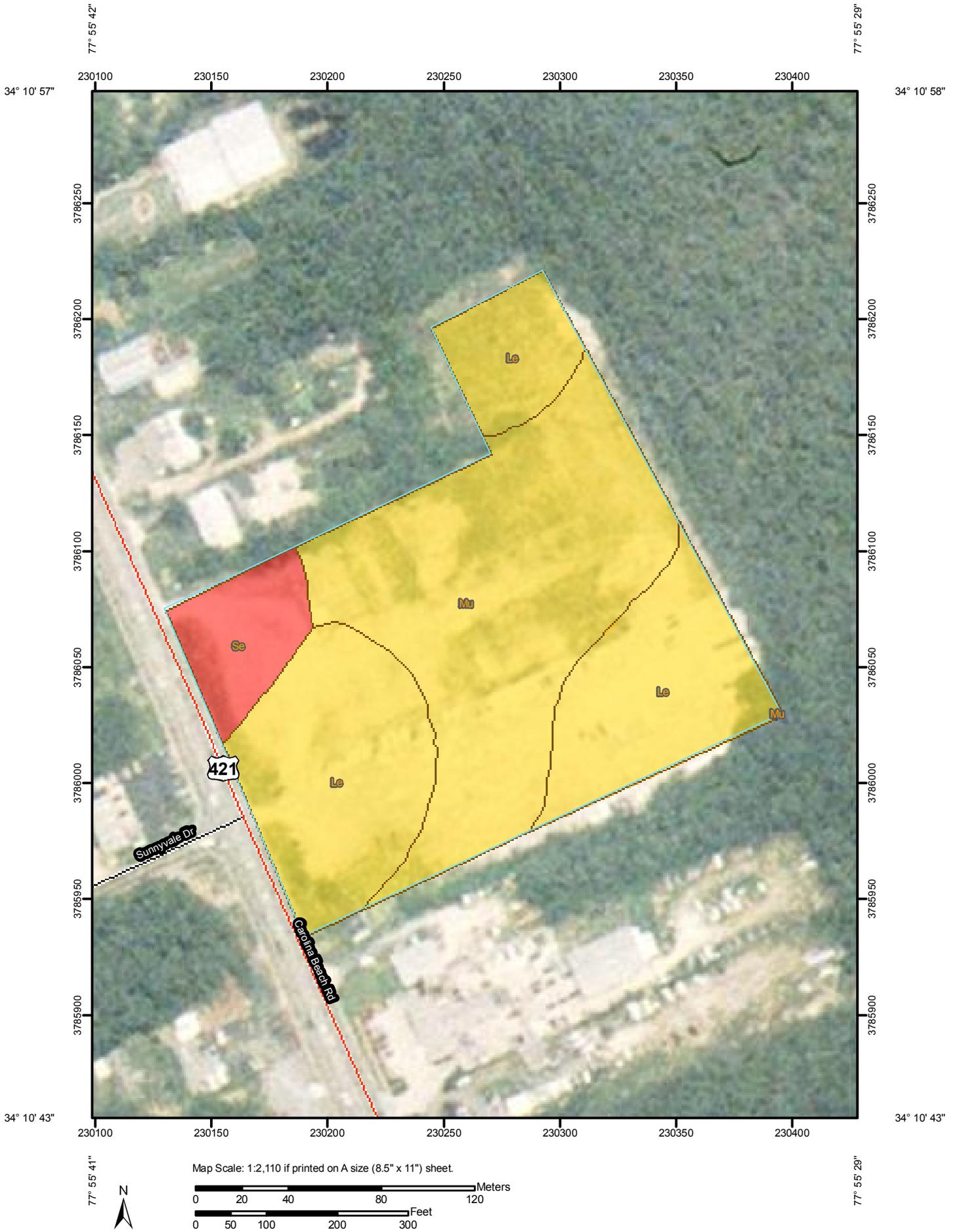
<b>PART VI</b> <i>(To be completed by Federal Agency)</i> Site Assessment Criteria <i>(These criteria are explained in 7 CFR 658.5(b))</i>	Maximum Points				
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
<b>TOTAL SITE ASSESSMENT POINTS</b>	160				

<b>PART VII</b> <i>(To be completed by Federal Agency)</i>					
Relative Value Of Farmland <i>(From Part V)</i>	100				
Total Site Assessment <i>(From Part VI above or a local site assessment)</i>	160				
<b>TOTAL POINTS</b> <i>(Total of above 2 lines)</i>	260				

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>
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Reason For Selection:

Farmland Classification—New Hanover County, North Carolina  
(Site 4)



Farmland Classification–New Hanover County, North Carolina  
(Site 4)

**MAP LEGEND**

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Units

**Soil Ratings**

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

**Political Features**

 Cities

**Water Features**

-  Oceans
-  Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways

-  US Routes
-  Major Roads
-  Local Roads

**MAP INFORMATION**

Map Scale: 1:2,110 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
Coordinate System: UTM Zone 18N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: New Hanover County, North Carolina  
Survey Area Data: Version 12, Feb 26, 2008

Date(s) aerial images were photographed: 7/3/2006; 6/17/2006

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

E-23

## Farmland Classification

Farmland Classification— Summary by Map Unit — New Hanover County, North Carolina				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Le	Leon sand	Farmland of unique importance	4.3	46.3%
Mu	Murville fine sand	Farmland of unique importance	4.2	46.0%
Se	Seagate fine sand	Not prime farmland	0.7	7.7%
<b>Totals for Area of Interest</b>			<b>9.2</b>	<b>100.0%</b>

### Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

### Rating Options

*Aggregation Method:* No Aggregation Necessary

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The majority of soil attributes are associated with a component of a map unit, and such an attribute has to be aggregated to the map unit level before a thematic map can be rendered. Map units, however, also have their own attributes. An attribute of a map unit does not have to be aggregated in order to render a corresponding thematic map. Therefore, the "aggregation method" for any attribute of a map unit is referred to as "No Aggregation Necessary".

*Tie-break Rule:* Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

# FARMLAND CONVERSION IMPACT RATING

<b>PART I</b> (To be completed by Federal Agency)	Date Of Land Evaluation Request
Name Of Project	Federal Agency Involved
Proposed Land Use	County And State

<b>PART II</b> (To be completed by NRCS)		Date Request Received By NRCS	
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply -- do not complete additional parts of this form).	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Acres Irrigated
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %		Average Farm Size
Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Amount Of Farmland As Defined in FPPA Acres: %	
		Date Land Evaluation Returned By NRCS	

<b>PART III</b> (To be completed by Federal Agency)	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly				
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site				

<b>PART IV</b> (To be completed by NRCS) Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				

<b>PART V</b> (To be completed by NRCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)				
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<b>PART VI</b> (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))	Maximum Points				
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
<b>TOTAL SITE ASSESSMENT POINTS</b>	160				

<b>PART VII</b> (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100				
Total Site Assessment (From Part VI above or a local site assessment)	160				
<b>TOTAL POINTS (Total of above 2 lines)</b>	260				

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>
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Reason For Selection:

Farmland Classification—New Hanover County, North Carolina  
(Site 5)



E-27

### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Units

**Soil Ratings**

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

**Political Features**

 Cities

**Water Features**

-  Oceans
-  Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways

-  US Routes
-  Major Roads
-  Local Roads

### MAP INFORMATION

Map Scale: 1:1,870 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
Coordinate System: UTM Zone 18N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: New Hanover County, North Carolina  
Survey Area Data: Version 12, Feb 26, 2008

Date(s) aerial images were photographed: 7/3/2006; 6/17/2006

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Farmland Classification

Farmland Classification— Summary by Map Unit — New Hanover County, North Carolina				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Be	Baymeade fine sand, 1 to 6 percent slopes	Farmland of statewide importance	4.6	49.2%
Bp	Borrow pits	Not prime farmland	0.4	4.0%
Ke	Kenansville fine sand, 0 to 3 percent slopes	Farmland of statewide importance	1.4	14.5%
Le	Leon sand	Farmland of unique importance	1.4	15.4%
Mu	Murville fine sand	Farmland of unique importance	1.5	16.3%
Se	Seagate fine sand	Not prime farmland	0.1	0.6%
<b>Totals for Area of Interest</b>			<b>9.3</b>	<b>100.0%</b>

### Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

### Rating Options

*Aggregation Method:* No Aggregation Necessary

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The majority of soil attributes are associated with a component of a map unit, and such an attribute has to be aggregated to the map unit level before a thematic map can be rendered. Map units, however, also have their own attributes. An attribute of a map unit does not have to be aggregated in order to render a corresponding thematic map. Therefore, the "aggregation method" for any attribute of a map unit is referred to as "No Aggregation Necessary".

*Tie-break Rule:* Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

**PHASE I CULTURAL RESOURCES SURVEY  
SHPO AND TRIBAL LETTERS**

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REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
HEADQUARTERS, 81ST REGIONAL SUPPORT COMMAND  
1525 MARION AVENUE  
FORT JACKSON, SC 29207-6070

March 13, 2009



Dr. Jeffery Crow  
Deputy Secretary, NC Office of Archives and History  
State Historic Preservation Officer  
4610 Mail Service Center  
Raleigh, NC 27699-4610

Dear Dr. Crow:

The Department of the Army (Army), pursuant to the Defense Base Closure and Realignment Act of 1988 (Pub. L. 101-526, 10 U.S.C. 2687 note) and the Defense Base Closure and Realignment Act of 1990 (Pub. L. 101-510), as amended, is implementing applicable provisions for the disposal and reuse of portions under the Base Realignment and Closure Act (BRAC) of 2005. As part of BRAC, the construction of an Armed Forces Reserve Center (AFRC) is proposed for Wilmington, New Hanover County, North Carolina, on 12-acres. In conjunction with that effort and in accordance the National Historic Preservation Act 1966, and its implementing authority, 36 CFR 800, Section 106, a Cultural Resources Survey of the project area was conducted by New South Associates, as a subcontractor to Tetra Tech.

Enclosed is a draft copy the, ***Cultural Resources Survey of the Proposed Wilmington Armed Forces Reserve Center Site***, for your review and comments.

An existing structure was determined to be more than 50 years old, but is recommended as not eligible to the National Register of Historical Places (NRHP) as it did not meet the criteria. The Army has determined there are no other historical properties which are eligible to the NRHP, and there will be no adverse effects to any prehistorical or historical properties.

We seek your concurrence the proposed undertaking will have no adverse effect on any historical properties. If you have any questions pertaining to this report or its findings, please to not hesitate to contact the BRAC NEPA Support Team Cultural Resource Specialist, Mr. David Pugh (251)694-3761 or [david.w.pugh@usace.army.mil](mailto:david.w.pugh@usace.army.mil). A response within 30-calender days would be appreciated.

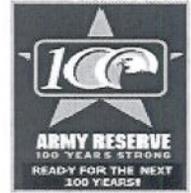
Sincerely,

Daniel H. Thomas III  
Acting Chief, Environmental Branch

Enclosure



DEPARTMENT OF THE ARMY  
HEADQUARTERS, 81ST REGIONAL SUPPORT COMMAND  
1525 MARION AVENUE  
FORT JACKSON, SC 29207-6070



REPLY TO  
ATTENTION OF:

March 13, 2009

The Honorable Chief Gene Faircloth  
Coharie Intra-Tribal Council  
Coharie Tribal Center  
7531 North US 421 Highway  
Clinton, North Carolina 28328

Dear Chief Faircloth:

The Department of the Army (Army), pursuant to the Defense Base Closure and Realignment Act of 1988 (Pub. L. 101-526, 10 U.S.C. 2687 note) and the Defense Base Closure and Realignment Act of 1990 (Pub. L. 101-510), as amended, is implementing applicable provisions for the disposal and reuse of portions under the Base Realignment and Closure Act (BRAC) of 2005. As part of BRAC, the construction of an Armed Forces Reserve Center (AFRC) is proposed for Wilmington, New Hanover County, North Carolina on 12-acres. In conjunction with that effort and in accordance the National Historic Preservation Act 1966, and its implementing authority, 36 CFR 800, Section 106, a Cultural Resources Survey of the project area was conducted by New South Associates, as a subcontractor to Tetra Tech.

Enclosed is a copy of the draft report from this survey, ***Phase I Cultural Resources Survey of the Proposed Wilmington Armed Forces Reserve Center Site, New Hanover County, North Carolina***, by New South Associates is being provided for your review and comments.

An existing structure was determined to be more than 50 years old, but is recommended as not eligible to the National Register of Historic Place (NRHP) as it did not meet the criteria. The Army has determined there are no other historical properties which are eligible to the NRHP, and there will be no adverse effects to any prehistorical or historical properties.

The Army takes seriously its obligation to consult with the Coharie Intra-Tribal Council, and we welcome your comments and seek your concurrence with our findings. If you have any questions pertaining to this report or its findings, please to not hesitate to contact the BRAC NEPA Support Team Cultural Resource Specialist, Mr. David Pugh (251)694-3761 or [david.w.pugh@usace.army.mil](mailto:david.w.pugh@usace.army.mil). A response within 30-calender days would be appreciated.

Sincerely,

Daniel H. Thomas III  
Acting Chief, Environmental Branch

Enclosure



DEPARTMENT OF THE ARMY  
HEADQUARTERS, 81ST REGIONAL SUPPORT COMMAND  
1525 MARION AVENUE  
FORT JACKSON, SC 29207-6070



REPLY TO  
ATTENTION OF:

March 13, 2009

The Honorable Michael Lewis, Chairperson  
Waccamauw Siouan Tribe  
P.O. Box 69  
Bolton, North Carolina 28423

Dear Chairperson Lewis:

The Department of the Army (Army), pursuant to the Defense Base Closure and Realignment Act of 1988 (Pub. L. 101-526, 10 U.S.C. 2687 note) and the Defense Base Closure and Realignment Act of 1990 (Pub. L. 101-510), as amended, is implementing applicable provisions for the disposal and reuse of portions under the Base Realignment and Closure Act (BRAC) of 2005. As part of BRAC, the construction of an Armed Forces Reserve Center (AFRC) is proposed for Wilmington, Hew Hanover County, North Carolina on 12-acres. In conjunction with that effort and in accordance the National Historic Preservation Act 1966, and its implementing authority, 36 CFR 800, Section 106, a Cultural Resources Survey of the project area was conducted by New South Associates, as a subcontractor to Tetra Tech.

Enclosed is a copy of the draft report from this survey, ***Phase I Cultural Resources Survey of the Proposed Wilmington Armed Forces Reserve Center Site, New Hanover County, North Carolina***, by New South Associates is being provided for your review and comments.

An existing structure was determined to be more than 50 years old, is recommended as not eligible to the National Register of Historic Place (NRHP) as it did not meet the criteria. The Army has determined there are no other historical properties which are eligible to the NRHP, and there will be no adverse effects to any prehistorical or historical properties.

The Army takes seriously its obligation to consult on this matter, and we welcome your comments and seek your concurrence with our findings. If you have any questions pertaining to this report or its findings, please to not hesitate to contact the BRAC NEPA Support Team Cultural Resource Specialist, Mr. David Pugh (251)694-3761 or [david.w.pugh@usace.army.mil](mailto:david.w.pugh@usace.army.mil). A response within 30-calender days would be appreciated.

Sincerely,

Daniel H. Thomas III  
Acting Chief, Environmental Branch

Enclosure

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## **AGENCY RESPONSES**

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## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Raleigh Field Office  
Post Office Box 33726  
Raleigh, North Carolina 27636-3726

February 2, 2009

Mr. Daniel H. Thomas III  
Acting Chief, Environmental Branch (Directorate of Public Works)  
Headquarters, 81<sup>st</sup> Regional Support Command  
1525 Marion Avenue  
Fort Jackson, South Carolina 29207-6070

Re: Sites 4 and 5, Armed Forces Reserve Center, Wilmington, New Hanover County, NC

Dear Mr. Thomas:

The U.S. Fish and Wildlife Service (Service) has reviewed the information concerning the above referenced project. The preferred site (Site 4 at 3623 Carolina Beach Road) is described as an open parking lot. Based on the description in your letter to our office, and other information, the use of this site is expected to have minimal adverse impacts to fish and wildlife resources.

For your convenience a list of all federally protected endangered and threatened species in North Carolina is now available on our website at < [http://www.fws.gov/raleigh/es\\_tes.html](http://www.fws.gov/raleigh/es_tes.html) >. Our web page contains a complete and frequently updated list of all endangered and threatened species protected by the provisions of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)(Act) and a list of federal species of concern<sup>1</sup> (FSC) that are known to occur in each county in North Carolina. In addition to the federally-protected species list, information on the species' life histories and habitats and information on completing a biological assessment or evaluation and can be found on our web page. Please check the web site often for updated information or changes.

Additional information on special status species, both State and federal, can be obtained through the Virtual Workroom of the North Carolina Natural Heritage Program (NCNHP). This site can be accessed at < <http://www.ncnhp.org/Pages/heritagedata.html> >. The NCNHP Virtual Workroom is a web-based GIS application that allows users to obtain information on rare species, natural communities, and natural areas. This site allows the public to generate a list of all NCNHP records within two miles of the location specified by the user, and reflects the data as it currently exists in the program's database. The list provides brief comments on the habitat of each species with an occurrence record. Before using the Virtual Workroom, users should review the User's Manual (available through the "Help" link at the upper right of the Web page).

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<sup>1</sup> The term "federal species of concern" refers to those species which the Service believes might be in need of concentrated conservation actions. Federal species of concern receive no legal protection and their designation does not necessarily imply that the species will eventually be proposed for listing as a federally endangered or threatened species. However, we recommend that all practicable measures be taken to avoid or minimize adverse impacts to federal species of concern.

If your project contains suitable habitat for any of the federally-listed species known to be present within the county where your project occurs, the proposed action has the potential to adversely affect those species. As such, we recommend that surveys be conducted to determine the species' presence or absence within the project area. The use of NCNHP data should not be substituted for actual field surveys.

If you determine that the proposed action may affect (i.e., likely to adversely affect or may affect, but is not likely to adversely affect) a federally-protected species, you should notify this office with your determination, the results of your surveys, survey methodologies, and an analysis of the effects of the action on listed species, including consideration of direct, indirect, and cumulative effects, before conducting any activities that might affect the species. If you determine that the proposed action will have no effect (i.e., no beneficial or adverse, direct or indirect effect) on federally listed species, then you are not required to contact our office for concurrence (unless an Environmental Impact Statement is prepared). However, you should maintain a complete record of the assessment, including steps leading to your determination of effect, the qualified personnel conducting the assessment, habitat conditions, site photographs, and any other related articles.

The Service appreciates the opportunity to review and provide comments on the proposed action. Should you have any questions regarding the project, please contact Howard Hall at (919) 856-4520, extension 27, or by e-mail at <[howard\\_hall@fws.gov](mailto:howard_hall@fws.gov)>.

Sincerely,



Pete Benjamin  
Field Supervisor

cc: WRC, Raleigh



North Carolina Department of Cultural Resources  
State Historic Preservation Office  
Peter B. Sandbeck, Administrator

Beverly Eaves Perdue, Governor  
Linda A. Carlisle, Secretary  
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History  
Division of Historical Resources  
David Brook, Director

February 16, 2009

David Pugh  
USACE-Mobile District  
109 St. Joseph Street  
Mobile, AL 36602

Re: Construction of an Armed Forces Reserve Center and Organizational Maintenance Shop, Wilmington,  
New Hanover County, ER 09-0181

Dear Mr. Pugh:

We have received notification of the proposed construction of an Armed Forces Reserve Center and Organizational Maintenance Shop on one of two tracts in Wilmington, North Carolina. No archaeological sites are known to exist at either the preferred site at 3623 Carolina Beach Road or the alternate site at 1402 North 23rd Street. No systematic archaeological survey has ever been performed at either site.

We are pleased to hear that New South Associates will be performing a cultural resource study of the two sites. We look forward to the opportunity to review the results of the archaeological survey.

We have determined that the project as proposed will not have an effect on any historic structures.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579. In all future communication concerning this project, please cite the above-referenced tracking number.

Sincerely,

A handwritten signature in black ink that reads "Renee Gledhill-Earley".  
Peter Sandbeck

cc: J. W. Joseph, New South Associates

bc: Claggett/Henry  
County

**Hippert, Greg**

---

**From:** Henry, Nathan [nathan.henry@ncdcr.gov]

**Sent:** Friday, March 27, 2009 12:25 PM

**To:** Hippert, Greg

Hi Greg, We've recently received the cultural resource report prepare by New South Associates for the properties being proposed for Armed Forces Reserve Center and Organizational Maintenance Shop in Wilmington NC ( SHPO tracking # 09-0181). It has not gone through the tracking process yet but I have read it and concur with the finding of no significant impact to archaeological resources. As far as I'm concerned there should be no problem beginning ground disturbance in conjunction with geotechnical evaluation of the properties.

Thank you,

NCH

Nathan Henry

Assistant State Archaeologist and Conservator

Underwater Archaeology Branch

NC Office of State Archaeology

1528 Fort Fisher Blvd. South

Kure Beach, NC 28449

Phone: 910 458 9042

<http://www.arch.dcr.state.nc.us/default.htm>

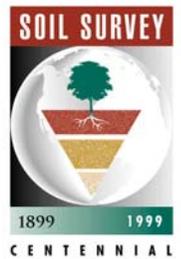
NOTICE: This communication may not reflect or represent the views of the Department of Cultural Resources. E-mail to and from me, in connection with the transaction of public business, is subject to the North Carolina Public Records Law and may be disclosed to third parties.



United States  
Department of  
Agriculture

Natural  
Resources  
Conservation  
Service

2736 NC Hwy 210  
Smithfield, NC 27577  
919-934-7156, ext 139  
(919) 989-5659 (FAX)



**Subject:** Farmland Conversion Impact Rating (Form AD1006)

**Date:** February 2, 2009

**To:** Tetra Tech

**File Code:** 310-11-11

Greg Hippert

100 West Innes St.,

Salisbury, NC 28144

The following information is in response to your request asking for information on farmlands in the (Project).

Prime farmland does not include land already in or committed to urban development or water storage. Other Prime Farmland “already in” urban development includes all land that has been designated for commercial or industrial use or residential use that is not intended at the same time to protect farmland in a,

1. Zoning code or ordinance adopted by the state or local unit of government or,
2. A comprehensive land use plan which has expressly been either adopted or reviewed in its entirety by the unit of local government in whose jurisdiction it is operative within 10 years preceding the implementation of the project or,
3. When funds have already been committed for utilities, water lines, and road replacement and widening, the land is committed to development and can be exempt from having to make determination.

The area in question meets the above criteria. You will NOT need to complete a Farmland Conversion Impact Rating form (AD1006), according to Federal Register 7CFR Part 658, Farmland Protection Policy Act: 1-1-99 Edition.

If you have any other concern please feel free to call me at (919) 934-7156, ext. 139.

Richard Brooks  
Resource Soil Scientist  
Richard.brooks@nc.nrcs.usda.gov

---

The Natural Resources Conservation Service works hand-in-hand with the American people to conserve natural resources on private land

AN EQUAL OPPORTUNITY EMPLOYER



North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

Beverly Eaves Perdue  
Governor

James H. Gregson  
Director

Dee Freeman  
Secretary

March 12, 2009

June Burton  
Tetra Tech  
100 West Innes Street Suite 301-H  
Salisbury, NC 28144

Subject: CAMA Area of Environmental Concern Rating

Dear Ms. Burton,

I have reviewed your request for a jurisdictional call on the project sites located at, 3623 Carolina Beach Road and 1402 North 23<sup>rd</sup> Street, in New Hanover County. The Division of Coastal Management requires a permit for development within the designated Areas of Environmental Concern. Based on site visits made to these locations, neither project site is located near a CAMA Area of Environmental Concern. Based on this determination a permit will not be required by the Division of Coastal Management for the construction or redevelopment of these project sites. This letter does not eliminate the need to obtain any other required local, state, or federal authorization.

If you have any questions, please do not hesitate to contact me at (910)796-7423.

Sincerely,

Holley Snider  
Field Representative  
DCM

CC: Steve Everhart, District Manager, DCM  
Daniel Thomas III, Dept of Army  
File

**Appendix F**  
Project Photographs

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**Site 4 – 3623 Carolina Beach Road Site (Preferred Alternative)**



From the rear of the parcel viewing west across Site 4.



From the northeast portion of the parcel viewing southwest across Site 4.



From the center of the eastern property boundary viewing north-northwest along an old concrete slab. Note fencing along the eastern tree line.



Historic building on Site 4. The property was recommended not eligible for listing on the NRHP.

**Site 5 – 1402 North 23<sup>rd</sup> Street (Alternate Site)**



Typical view of Site 5.

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## **Appendix G**

### ***DRAFT***

Coastal Zone Management Act (CZMA)  
Consistency Determination  
for the Implementation of  
Base Realignment and Closure 2005 Realignment Actions  
at Wilmington, North Carolina

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**DRAFT**  
**Coastal Zone Management Act (CZMA) Consistency Determination  
for the Implementation of Base Realignment and Closure 2005 Realignment  
Actions at Wilmington, North Carolina**

To carry out the directives of the 2005 BRAC Commission with respect to Wilmington, North Carolina, the U.S. Army proposes to acquire approximately 11 acres in Wilmington and build a new Armed Forces Reserve Center (AFRC), as described in Section 1 through Section 3 of this Environmental Assessment (EA). The Army has identified a Preferred Site, Site 4, at 3623 Carolina Beach Road, and an Alternate Site, Site 5, at 1402 North 23rd Street. Pursuant to Section 307(c)(1) of the Federal Coastal Zone Management Act of 1972 as amended, the Department of the Army, as the federal agency behind this undertaking, has determined that the proposed project is consistent to the maximum extent practicable with the enforceable policies of North Carolina's federally approved coastal management program. This determination is based on review of the proposed project's conformance with North Carolina's coastal program policies, which are primarily found in Chapter 7 of Title 15A of North Carolina's Administrative Code, and the *Wilmington–New Hanover County Joint Coastal Area Management Plan, 2006 Update, CRC Certification Review Final Draft* (City of Wilmington and New Hanover County 2006). Details of the determination are provided in this Appendix and in the relevant supporting material contained in the EA to which this Appendix is attached.

The discussion in this Appendix provides the State of North Carolina with a draft Federal Consistency Determination under CZMA Section 307(c)(1) and 15 CFR Part 930, Subpart C, for the implementation of BRAC actions to construct a new Wilmington AFRC. The information in this Consistency Determination is provided pursuant to 15 CFR Section 930.39. The Proposed Action involves those activities described below and in Section 1 through Section 3 of the Environmental Assessment (EA).

### **Brief Project Description**

With respect to Wilmington, North Carolina, the 2005 BRAC Commission recommended in relevant part:

Close the Army Reserve Adrian B. Rhodes Armed Forces Reserve Center in Wilmington, North Carolina, close the Rock Hill Armed Forces Reserve Center in Rock Hill, South Carolina, close the Niven Armed Forces Reserve Center in Albermarle, North Carolina, and relocate all Army and Navy units to a new Armed Forces Reserve Center (AFRC) and Organizational Maintenance Shop (OMS) in Wilmington, North Carolina, if the Army is able to acquire suitable land for the construction of the facilities.

To meet the BRAC directive, the Army proposes to acquire approximately 11 acres in Wilmington. After acquiring the property, the Army would construct an AFRC having approximately 63,200 square feet of space. The primary facilities of the new AFRC would consist of a training building, an OMS, an unheated storage building, and parking area for military and privately owned vehicles. The facilities would be adequate to accommodate 400 personnel.

The Army has identified its preferred site for the proposed new AFRC, known as Site 4, at 3623 Carolina Beach Road. The site is zoned for commercial/other use and currently is an open parking lot used by a private sector company as a staging area for vehicles awaiting resale to the general public. The proposed site is more fully described in Section 2.2 of the EA and is shown in Figure 2-1. The Army also has identified an alternate site, known as Site 5, at 1402 North 23rd Street. This undeveloped and forested alternate site is in an industrial area and zoned for airport industrial use. The alternate site is more fully described in Section 3.2.5 of the EA and is shown

in Figure 3-1. The proposed action is described in more detail in Section 1 through Section 3 of the EA.

### Consistency Determination

North Carolina's Coastal Management Program (CMP) contains the following key elements:<sup>1</sup>

- the Coastal Area Management Act (CAMA)
- North Carolina's Dredge and Fill Law
- Chapter 7 of Title 15A of the North Carolina Administrative Code (NCAC)
- regulations passed by the Coastal Resources Commission (CRC)
- local land use plans certified by the CRC; and
- a network of other state agencies' laws and regulations.

Applicable enforceable policies of CAMA, the Dredge and Fill Law, and CRC and other agency regulations are effectively found in Title 15A of NCAC Chapter 7, as outlined in the summary table on the following pages. The summary table presents the North Carolina CMP applicable enforceable policies and the Army's conclusions determining that the implementation of the BRAC Commission's recommendations to build a new Wilmington AFRC would have no or minor effects on the coastal land or water resources of North Carolina. The table discusses the project with respect to its effects under CAMA, the Dredge and Fill Law, Title 15A NCAC Chapter 7, and the *Wilmington–New Hanover County Joint Coastal Area Management Plan, 2006 Update, CRC Certification Review Final Draft* (City of Wilmington and New Hanover County 2006).

Based upon information, data, and analysis as contained in the EA and this Appendix, the Army finds that the proposed action, as planned, is consistent to the maximum extent practicable with the enforceable policies of the North Carolina CMP. As the project progresses with final site selection, final site plan layout, and permitting (e.g., building permits; potential air quality New Source Review permitting for boilers and emergency generators, if required [Section 4.3.2]; potential Clean Water Act Section 404 permitting [Section 4.7.3]), the Army finds that the project would remain consistent with the enforceable policies of the North Carolina CMP. Submittal of a final Coastal Zone Consistency Determination by the Army to DCM will be completed upon further decisionmaking in the development process. Pursuant to 15 CFR Section 930.41, the North Carolina Division of Coastal Management will have 60 days from the receipt of the final submittal in which to concur with or object to the final Consistency Determination, or to request an extension under 15 CFR Section 930.41(b). North Carolina's concurrence will be concluded if its response is not received by the Army on or before the 60th day from receipt of the final Determination. North Carolina's response should be sent to U.S. Army Reserve 81<sup>st</sup> RSC DPW, Attn: Mr. Daniel H. Thomas, Chief, Environmental Division, 1525 Marion Avenue, Fort Jackson, South Carolina 29207, or at [harry.thomas@usar.army.mil](mailto:harry.thomas@usar.army.mil).

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<sup>1</sup> NC Division of Coastal Management. 2008. *CAMA Permits: Federal Consistency*. <http://dcmw.enr.state.nc.us/Permits/consist.htm>. Last modified March 8, 2008. Accessed January 2009.

Below is a summary analysis of the consistency of the proposed federal activity with the North Carolina Coastal Management Program.

**Table G -1  
Wilmington AFRC Coastal Zone Consistency Determination**

<b>Applicable Enforceable Policy</b>	<b>NC Coastal Management Program Objectives</b>	<b>Effects of the Federally Proposed Action</b>
<b>Coastal Area Management Act (CAMA)</b>		
<i>All Subsections</i>	<i>See Rules and Policies as elaborated under Title 15A NCAC Chapter 7 below</i>	
<b>North Carolina Dredge and Fill Law (§ 113-229)</b>		
<i>All Subsections</i>	To regulate permits to dredge or fill in or about estuarine waters or State-owned lakes.	<b>No effect.</b> Federal activities as part of the proposed action would not involve any dredge or fill activities in North Carolina estuarine waters, tidelands, marshlands, State-owned lakes, or navigable waters.
<b>Title 15A North Carolina Administrative Code (NCAC) Chapter 7</b>		
<b>Subchapter 7H</b>	<b>State Guidelines for Areas of Environmental Concern (AECs)</b>	
NOTE: According to the March 12, 2009 letter from Ms. Holley Snider, Coastal Management Field Representative, NC Division of Coastal Management (See Appendix E, Agency Coordination Letters), the proposed Preferred and Alternate sites are not within or near any AECs and will not require a DCM permit under CAMA. Furthermore, the proposed federal activity is consistent with North Carolina's Coastal Management Program policies and objectives, as outlined below, for projects outside AECs that may have an environmental impact on AECs.		
15A NCAC 07H <b>.0205</b> , Coastal Wetlands and <b>.0208</b> Use Standards	.0205 To conserve and manage coastal wetlands so as to safeguard and perpetuate their biological, social, economic, and aesthetic values, as an essential part of the estuarine system; to maintain land uses that conserve coastal wetlands, or allow development activities that require water access and cannot function elsewhere. .0208 To prevent uses that are not water dependent from occurring in coastal wetlands.	<b>Minor effects.</b> Wetlands that previously existed on the Preferred Site (Site 4–Carolina Beach Road) were previously filled in and no longer exist on the site (see Section 4.7.1.4 and Figure 4-2 of the EA). The Carolina Beach Road site no longer supports wetlands. The alternate site (Site 5–North 23rd Street) contains a small wetland area (see Section 4.7.2.4 and Figure 4-3 of the EA). Minor effects could occur at Site 5 as described in Section 4.7.3.2 of the EA, and a jurisdictional determination and required wetland permits would be obtained before any construction at the alternate site. Stormwater controls would be implemented as described in Sections 4.5.3 and 4.6.3 of the EA to minimize any potential effects to downstream coastal wetlands from stormwater runoff.

**Table G-1, continued**  
**Wilmington AFRC Coastal Zone Consistency Determination**

Applicable Enforceable Policy	NC Coastal Management Program Objectives	Effects of the Federally Proposed Action
<b>Title 15A North Carolina Administrative Code (NCAC) Chapter 7, continued</b>		
<b>Subchapter 7H, continued</b>	<b>State Guidelines for Areas of Environmental Concern (AECs)</b>	
15A NCAC 07H .0206, Estuarine Waters and .0208 Use Standards	.0206 To conserve and manage estuarine waters so as to preserve and perpetuate their biological, social, economic, and aesthetic values. .0208 To prevent uses that are not water dependent from occurring in estuarine waters.	<b>No effect.</b> The proposed federal activity would not occur within any North Carolina estuarine waters. Barnard Creek, in whose watershed the preferred Site 5 is located, and Smith Creek, in whose watershed the alternate Site 4 is located, are freshwater creeks rather than estuarine creeks (City of Wilmington Development Services Department 2006). Stormwater controls as described in Sections 4.5.3 and 4.6.3 of the EA would be implemented to minimize any potential effects to downstream estuarine receiving waters from stormwater runoff.
15A NCAC 07H .0207, Public Trust Areas and .0208 Use Standards	.0207 To develop public trust areas (Atlantic Ocean and tidal waters, public navigable waters) so as to protect public rights for navigation and recreation, and to preserve and perpetuate their biological, economic, and aesthetic values. .0208 To prevent uses that are not water dependent from occurring in public trust areas.	<b>No effect.</b> The proposed federal activity would not occur within any North Carolina public trust areas as defined at .0207.
15A NCAC 07H .0209, Coastal Shorelines	.0209 To ensure that shoreline development is compatible with the dynamic nature of the shoreline and with the values and management objectives of the estuarine and ocean system; to conserve and manage the important natural features of the estuarine and ocean system so as to protect and perpetuate their biological, social, aesthetic, and economic values.	<b>No effect.</b> The proposed federal activity would not occur within any coastal shoreline, including estuarine shorelines and public trust shorelines, as defined at .0209. The project will not alter coastal wetlands, cause degradation of submerged aquatic vegetation or shellfish beds, or impact mud and sand flats, forested shorelines, or other special features of coastal shorelines or their buffer areas.
15A NCAC 07H .0300, Ocean Hazard Areas (all Subsections)	.0300 To manage development in ocean hazard areas so as to maintain and protect natural protective features such as frontal dunes and minimize or prevent unreasonable damage to property and danger to life.	<b>No effect.</b> The proposed federal activity would not occur within any ocean hazard areas as defined at .0304, including beaches, frontal dunes, inlet lands, or other highly erosive or flood-prone areas.

**Table G-1, continued**  
**Wilmington AFRC Coastal Zone Consistency Determination**

<b>Applicable Enforceable Policy</b>	<b>NC Coastal Management Program Objectives</b>	<b>Effects of the Federally Proposed Action</b>
<b>Title 15A North Carolina Administrative Code (NCAC) Chapter 7, continued</b>		
<b>Subchapter 7H, continued</b>	<b>State Guidelines for Areas of Environmental Concern (AECs)</b>	
15A NCAC 07H <b>.0400</b> , Public Water Supplies (all Subsections)	.0400 To protect and preserve valuable small surface water supply watersheds and public water supply well fields to perpetuate their value to the public health, safety, and welfare.	<b>No effect.</b> The proposed federal activity would not occur within any public water supply watershed or well field as defined at .0400.
15A NCAC 07H <b>.0500</b> , Natural and Cultural Resource Areas (all Subsections)	.0500 To protect and preserve the social, aesthetic, historic, educational, scenic, scientific, and biological values of fragile coastal natural and cultural resource areas, including coastal complex natural areas, coastal habitats that sustain remnant species, unique coastal geologic formations, significant coastal architectural resources, and significant coastal historic architectural resources.	<b>No effect.</b> The proposed federal activity would not occur within any coastal natural and cultural AECs. Based on the recent commercial use of Site 4, the site contains no protected habitats, plants, or animals that would be affected by the proposed project. An agency response letter from USFWS (see Appendix E) indicates that "this site is expected to have minimal impacts to fish and wildlife resources." Furthermore, according to cultural resources analysis (see Section 4.8 of the EA), the proposed federal activity would have no effect on cultural resources within the area of potential effect of Site 4.
15A NCAC 07H <b>.0600</b> , Development Standards for all AECs (all Subsections)	.0600 To prevent pollution in shellfish waters; to maintain minimum altitude standards for aircraft safety; to prevent noise pollution resulting from airspace activity.	<b>No effect.</b> The proposed federal activity would not occur within nor cause impact to any shellfish waters, nor would the proposed federal activity occur in any coastal airspace nor involve any aircraft activities.
15A NCAC 07H <b>.0700</b> through <b>.2700</b> (all Subsections)	<i>These Sections are not applicable to the proposed federal activity, including rule changes effective as of February 1, 2009, to Subsections 7H.1400, 7H.2100, 7H.2400.<sup>2</sup></i>	

<sup>2</sup> NC Division of Coastal Management. 2009. *CAMA Rules and Policies: Rules Taking Effect in 2009*. <http://www.nccoastalmanagement.net/Rules/2009.html>. Last modified January 27, 2009. Accessed March 2009.

**Table G-1, continued**  
**Wilmington AFRC Coastal Zone Consistency Determination**

Applicable Enforceable Policy	NC Coastal Management Program Objectives	Effects of the Federally Proposed Action
<b>Title 15A North Carolina Administrative Code (NCAC) Chapter 7, continued</b>		
<b>Subchapter 7M</b>	<b>General Policy Guidelines for the Coastal Area (Rules applicable to projects outside Areas of Environmental Concern)</b>	
<p>NOTE: As noted above, according to the March 12, 2009 letter from Ms. Holley Snider, Coastal Management Field Representative, NC Division of Coastal Management, the proposed Preferred and Alternate sites are not within or near any AECs and will not require a DCM permit under CAMA. Furthermore, the proposed federal activity is consistent with North Carolina's Coastal Management Program policies and objectives, as outlined below, for projects outside AECs.</p>		
15A NCAC 07M .0200, Shoreline erosion response policies (all Subsections)	To manage shoreline development of erosion control measures so as to protect shoreline recreational resources for the public interest while minimizing loss of life, property, or amenities.	<b>No effect.</b> The proposed federal activity would not occur in shoreline areas nor involve the development of any shoreline erosion control features.
15A NCAC 07M .0300, Shorefront access policies (all Subsections) <sup>3</sup>	To enhance and ensure access to public beaches and waters of the North Carolina coastal zone, consistent with private property rights and conservation of important natural coastal resources.	<b>No effect.</b> The proposed federal activity would not interfere with public access to public beaches or waters of the coastal zone.
15A NCAC 07M .0400, Coastal Energy policies (all Subsections)	To manage the development of energy resources and facilities so as to protect and minimize impacts to significant coastal natural resources or uses, public trust areas, or public access.	<b>No effect.</b> The proposed federal activity would not involve the development of any coastal energy facilities.
15A NCAC 07M .0500, Post-Disaster policies (all Subsections)	To provide that all state agencies coordinate activities in coastal areas to reduce damage from coastal disasters. To coordinate pre-disaster planning for post-disaster rebuilding between all levels of government and incorporate such planning into local Land Use Plans. To facilitate pre-disaster mitigation of potential effects of natural disasters by providing that the Coastal Resources Commission advise the North Carolina Building Code Council and the Federal Insurance Administration on standards for development in coastal hazard areas.	<b>No effect.</b> The proposed federal activity will comply with all federal, state, and local building codes, including the North Carolina Building Code. No construction will occur within a 100-year floodplain or other hazard area as defined in 07M.0502. Adequate public services (fire, police, and emergency medical services) are available to either of the proposed sites (see Section 4.9.2 of the EA).
15A NCAC 07M .0600, Floating Structure policies (all Subsections)	To insure that floating structures used for residential or commercial purposes not infringe upon the public trust rights nor discharge into public trust waters of the North Carolina coastal area.	<b>No effect.</b> The proposed federal activity does not involve any construction or use of floating structures.

<sup>3</sup> NC Division of Coastal Management. 2009. *CAMA Rules and Policies: Rules Taking Effect in 2009*. <http://www.nccoastalmanagement.net/Rules/2009.html>. Last modified January 27, 2009. Accessed March 2009.

**Table G-1, continued**  
**Wilmington AFRC Coastal Zone Consistency Determination**

<b>Applicable Enforceable Policy</b>	<b>NC Coastal Management Program Objectives</b>	<b>Effects of the Federally Proposed Action</b>
<b>Title 15A North Carolina Administrative Code (NCAC) Chapter 7, continued</b>		
<b>Subchapter 7M, continued</b>	<b>General Policy Guidelines for the Coastal Area (Rules applicable to projects outside Areas of Environmental Concern)</b>	
15A NCAC 07M .0700, Mitigation Policy (all Subsections)	To require that adverse impacts to North Carolina coastal resources be mitigated or minimized through proper planning, site selection, compliance with standards for development, and creation or restoration of coastal resources.	<b>No effect.</b> As concluded in the EA (see Section 5.0) the proposed federal activity would have no significant adverse impacts on the environmental and socioeconomic resources of Wilmington and the region of influence, and mitigation measures would not be required.
15A NCAC 07M .0800, Coastal Water Quality policies (all Subsections)	To ensure that no land or water use shall cause the degradation of water quality so as to impair the traditional uses of coastal waters; to implement methods to control development so as to eliminate harmful runoff that may impact coastal waters.	<b>Minor effect.</b> Stormwater controls would be implemented as described in Sections 4.5.3 and 4.6.3 of the EA to minimize any potential effects to downstream coastal waters from stormwater runoff.
15A NCAC 07M .0900, Policies on use of Coastal Airspace (all Subsections)	To ensure that coastal airspace is preserved for the use of aircraft by state agencies for the purpose for managing and protecting coastal resources.	<b>No effect.</b> The proposed federal activity is not aviation-related and would not impede the use of coastal airspace for the purpose of managing or protecting coastal resources.
15A NCAC 07M .1000, Policies on Water and Wetland Based Target Areas for Military Training Activities (all Subsections)	To ensure that the use of water and wetland- based targets in military training activities not infringe, to the maximum extent practicable, on public trust rights, cause damage to public trust resources, violate existing water quality standards, or result in public safety hazards.	<b>No effect.</b> The military training activities of the proposed federal activity would not involve any water and wetland-based targets.
15A NCAC 07M .1100, Policies on Beneficial Use and Availability of Materials Resulting from the Excavation or Maintenance of Navigational Channels (all Subsections)	To promote the beneficial use of material resulting from the excavation or maintenance of navigation channels, preferably by disposal on the ocean beach or shallow active nearshore area within the region from which the material was excavated.	<b>No effect.</b> The proposed federal activity would not take place within nor have any impact on any navigational channels.

**Table G-1, continued**  
**Wilmington AFRC Coastal Zone Consistency Determination**

<b>Applicable Enforceable Policy</b>	<b>NC Coastal Management Program Objectives</b>	<b>Effects of the Federally Proposed Action</b>
<b>Title 15A North Carolina Administrative Code (NCAC) Chapter 7, continued</b>		
<b>Subchapter 7M, continued</b>	<b>General Policy Guidelines for the Coastal Area (Rules applicable to projects outside Areas of Environmental Concern)</b>	
15A NCAC 07M .1200, Policies on Ocean Mining (all Subsections)	To manage ocean mining activities so as to protect and restore the usefulness, productivity, scenic, historic, cultural, and biological values of the state's ocean waters and public trust areas.	<b>No effect.</b> The proposed federal activity would not involve any ocean mining.
<b>Subchapter 7O</b>	<b>North Carolina Coastal Reserve</b>	
All Subsections	To preserve representative coastal ecosystems as areas for continuous future study of the processes, functions, and influences that shape and sustain the coastal ecosystems, and as focal points for public outreach and education; to provide new information for sound decisionmaking and management; to provide for traditional recreational and commercial uses when compatible with the research and educational mission of the Reserve.	<b>No effect.</b> The proposed federal activity would not occur within nor have any impact upon any North Carolina Coastal Reserve area as defined at 07O.0105.
<b>Wilmington–New Hanover County Joint Coastal Area Management Plan, 2006 Update</b>		
The Wilmington–New Hanover County Joint Coastal Area Management Plan (City of Wilmington and New Hanover County 2006) does not specifically address the proposed AFRC project, but it does address development in the locations of the two sites. The preferred AFRC site on Carolina Beach Road and the alternate AFRC site on North 23rd Street are in areas designated as Urban under the 2006 land classification map update in the Wilmington–New Hanover County Joint Coastal Area Management Plan. Under this classification, continued intensive development and urban redevelopment are allowed when applicable regulations are followed. The sites are not in any Resource Protection Areas (Natural Heritage, Aquifer, Wetland, or Watershed), Conservation Areas, or Sensitive Areas as defined in the joint city-county Land Use Plan Update. The Army would comply with all applicable state and local regulations for development in Urban areas of the coastal zone. The Wilmington–New Hanover County Joint Coastal Area Management Plan states in its policy analysis that the Plan will be used by DCM for consistency determinations for major permits issued pursuant to CAMA regulations.	<b>No effect.</b> The proposed federal activity is consistent with the Wilmington–New Hanover County Joint Coastal Area Management Plan, 2006 Update	

**Appendix G – Acronyms and Abbreviations**

AEC	Areas of Environmental Concern
AFRC	Armed Forces Reserve Center
BRAC	Base Realignment and Closure
CAMA	Coastal Area Management Act (North Carolina)
CFR	Code of Federal Regulations
CMP	Coastal Management Program (North Carolina)
CRC	Coastal Resources Commission (North Carolina)
CZMA	Coastal Zone Management Act (Federal)
EA	Environmental Assessment
NC	North Carolina
NCAC	North Carolina Administrative Code
OMS	Organizational Maintenance Shop
SHPO	State Historic Preservation Office
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

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## ACRONYMS AND ABBREVIATIONS

$\mu\text{g}/\text{m}^3$	micrograms per meter cubed
AEC	Areas of Environmental Concern
AFRC	Armed Forces Reserve Center
AMSA	Area Maintenance Support Activity
ANSI	American National Standard Institute
AQCR	Air Quality Control Region
BMP	best management practice
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CAMA	Coastal Area Management Act (North Carolina)
CEQ	Council on Environmental Quality
CFR	<i>Code of Federal Regulations</i>
CFPUA	Cape Fear Public Utility Authority
CMP	Coastal Management Program (North Carolina)
CRC	Coastal Resources Commission (North Carolina)
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	decibel
dBA	A-weighted decibel
<i>de minimis</i>	of minimal importance
DNL	Day-night Average Sound Level
DoD	Department of Defense
EA	environmental assessment
ECP	Environmental Condition of Property
ESA	Environmental Site Assessment
EIFS	Economic Impact Forecast System
EIS	environmental impact statement
ESA	Endangered Species Act
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FNSI	finding of no significant impact
FPPA	Farmland Protection Policy Act
I	Interstate
ITE	Institute of Transportation Engineers
kW	kilowatt
lbs	pounds
L <sub>eq</sub>	Equivalent Sound Level
m	meter
NAAQS	National Ambient Air Quality Standards
NCAC	North Carolina Administrative Code
NCDENR	North Carolina Department of Environment and Natural Resources
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System

NSA	Noise Sensitive Area
NO <sub>x</sub>	nitrogen oxides
NOI	notice of intent
O <sub>3</sub>	ozone
OMS	Organizational Maintenance Shop
PCPI	per capita personal income
PM <sub>10</sub>	particulate matter less than 10 microns in diameter
PM <sub>2.5</sub>	particulate matter less than 2.5 microns in diameter
POVs	personal operating vehicles
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
ROI	region of influence
RONA	Record of Non-Applicability
RTV	rational threshold value
sf	square feet
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SSR	Site Survey Report
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USARC	U.S. Army Reserve Center
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey