FINDING OF NO SIGNIFICANT IMPACT (FONSI)/

FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)

Environmental Assessment Addressing Streambank Stabilization and Outfall Repairs on Seymour Johnson Air Force Base in Goldsboro, North Carolina

BACKGROUND: The Department of the Air Force (DAF) prepared an Environmental Assessment (EA) to analyze potential environmental impacts from implementation of streambank stabilization, outfall repairs, and various Best Management Practices (BMPs) on Seymour Johnson Air Force Base (SJAFB) in Goldsboro, North Carolina (i.e., the Proposed Action). The attached EA was prepared in accordance with the National Environmental Policy Act (NEPA); the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (Title 40 Code of Federal Regulations [C.F.R.] §§1500-1508)[1]; and Air Force regulations for implementing NEPA (32 C.F.R. Part 989, as amended).

PURPOSE AND NEED FOR THE PROPOSED ACTION: The purpose of the Proposed Action is to protect the natural features of Hospital Creek, Burge Ditch, Stoney Creek, and the Neuse River floodplains on SJAFB, to preserve existing infrastructure, minimize personnel and property risk from flood hazards, and comply with the requirements of the installation's National Pollutant Discharge Elimination System (NPDES) storm water permit #NCS000335. The Proposed Action is needed because of damage caused by previous large-scale storm events, inadequate maintenance of storm water infrastructure, and the absence of erosion and sedimentation control and stabilization measures along stream corridors on SJAFB.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES: Under the Proposed Action, the DAF would implement streambank stabilization, outfall repairs, and various BMPs at three high-priority areas on the installation: Burge Ditch, Hospital Creek North, and Hospital Creek South. The Proposed Action at each priority area includes the following:

Burge Ditch: The Proposed Action would address the streambank erosion in Burge Ditch at the location of Outfalls 11c (one approximate 42-inch culvert) and 11b (two 72-inch culverts). To repair this area, integration of several structural BMPs including riprap[2], gabions[3], and turf reinforcement mats[4] (TRMs) are proposed. Installation of velocity control structures within the channel bottom and new reinforced concrete culvert headwalls and wing walls are proposed at both outfalls.

Hospital Creek North: The Proposed Action would address streambank erosion and pitting found along Hospital Creek by stabilizing the streambanks with TRMs and vegetative cover along the entire length of Hospital Creek between a forested area and Jabara Avenue, for a total length of approximately 500

[1]This EA is following the September 14, 2020, update to the CEQ rules (85 Federal Register, page 43304), as modified by the CEQ NEPA Implementing Regulations Revisions Final Rule that became effective May 20, 2022 (87 Federal Register, page 23453).

[2] Riprap is rock used to armor shorelines and streambeds against scour and water erosion.

[3] Gabions are wirework containers filled with rock, broken concrete, or other material, used for erosion control.

[4] TRMs are synthetic, non-degradable soil covers designed to provide permanent support for vegetation on slopes and permanent armoring and vegetation support for ditches, swales, and channels.

feet. A concrete slough is proposed with sidewalls from the existing edge of the roadway to the top of a new concrete headwall. The area behind the new headwall would be backfilled and planted with new turf. Minor regrading of the stream channel and banks is also proposed within the outfall of the new concrete headwall.

Hospital Creek South: The Proposed Action would fortify four areas identified as being prone to erosion along the stretch of Hospital Creek along Vermont Garrison Street between Chandler Road and Dargue Avenue. The existing concrete pour-over would be demolished. The outfall discharge leading to Hospital Creek would be regraded and reinforced with riprap. The bends in the channel would be regraded and reinforced with native vegetation and gabions. Riprap would be added as a velocity control and a hardening measure prior to and through the bends in the channel. The top layer of soil, currently a sand-silt mixture, would be replaced with a topsoil that can readily establish vegetation. After replacement of the soil, jute mesh would be installed and hydroseeded with an approved grass type for the area.

Three alternatives to the Proposed Action (streambank stabilization only, outfall repairs only and BMPs only) were evaluated against selection standards. Detailed descriptions of the three alternatives are included in Section 2.3 of the EA. The alternatives were selected for analysis based upon the following standards:

- Standard 1 - Complying with the requirements of the installation's NPDES storm water permit, which includes operating and maintaining the Municipal Separate Storm Sewer System (including catch basins and conveyances) to minimize pollutants in the storm water collection system.

- Standard 2 - Repairing damage to natural and manmade storm water conveyance systems caused by previous large-scale storm events and inadequate maintenance of storm water infrastructure.

- Standard 3 - Providing long-term protection against future large-scale storm events and increased volumes of storm water runoff from continued increases in impervious cover within the watershed.

- Standard 4 - Improving receiving water quality by reducing and/or preventing discharges of total suspended solids (TSS) and other storm water-related pollutants.

The evaluation determined that none of the three alternatives were practicable or met the selection standards; therefore, these three alternatives were not considered in further detail within this EA. The only practicable alternative is the Proposed Action.

CEQ regulations require consideration of the No Action Alternative. The No Action Alternative serves as a baseline against which the impacts of the Proposed Action and other potential action alternatives can be evaluated. The No Action Alternative is analyzed in the EA. Under the No Action Alternative, streambank stabilization and outfall repair would not be conducted. Under existing conditions, the structural integrity of streambanks and conveyance performance of the outfall pipes and headwall structures are failing. Under the No Action Alternative, streambank erosion and sediment loading would continue to accelerate and result in further infrastructure damage and environmental impacts.

ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION:. The analysis of environmental impacts focused on the following environmental resources: air quality, water resources, geology and soils, cultural resources, biological resources, land use, utilities and infrastructure, safety and occupational health, traffic and/or airfield operations, and hazardous materials and wastes. The analysis in the EA for each of the environmental resource areas listed above identified negligible to minor adverse impacts under the Proposed Action; environmental impacts would not be significant. Details of the environmental consequences are provided in the EA. Based on the description of the Proposed Action as set forth in the EA, all activities were found to comply with the criteria or standards of environmental quality and were coordinated with the appropriate federal, state, and local agencies. Consultation with U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), and the North Carolina State Historic Preservation Office (NCSHPO) has been completed and documentation is included in Appendix C of the EA. SJAFB submitted a No Effect determination for Threatened & Endangered Species under Section 7 of the Endangered Species Act to the USFWS Raleigh Field Office on 11 July 2022. The USFWS provided written concurrence with the No Effect determination on 19 August 2022. SJAFB submitted a No Effect determination under Section 106 of the National Historic Preservation Act for base-wide cultural resources to the North Carolina SHPO on 11 July 2022. SHPO provided written concurrence with the No Effect determination on 17 October 2022.

NOTICE OF POTENTIAL FLOODPLAIN INVOLVEMENT: As required by Executive Order 11988, *Floodplain Management*, and Air Force Manual (AFMAN) 32-7003, *Environmental Conservation*, the DAF hereby provides notice of the potential for floodplain impacts.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) identifies the Burge Ditch project area within the 100-year Flood Zone AE[5]. Permanent impacts to the floodplain will occur for regrading, revegetation and stabilizing TRM. Temporary floodplain impacts will occur for construction access and placement of erosion and sedimentation (E&S) control measures. The direct impacts from construction within the 100-year floodplain are unavoidable, and there is no practicable alternative to streambank stabilization and outfall repairs to Burge Ditch without encroaching on the 100-year floodplain. No habitable structures will be constructed within the 100-year floodplain. Impacts to the floodplain will be avoided or minimized through the use of BMPs during construction. Standard Erosion and Sediment Pollution Control BMPs such as concrete washouts and rock construction entrances will be installed at all construction entrances. In addition, the use of TRM throughout the stream corridors in the floodplain will stabilize the streambanks and reduce temporary erosion and sediment loading prior to revegetation. The location of each priority area will be restored to pre-activity state in such a manner as to have no or minimal effect on floodplain functions or values. Per Executive Order 11988, adverse impacts associated with the occupancy and modification of floodplains will be avoided and minimized to the maximum extent practicable. The Proposed Action will address streambank erosion and increase the vegetative stream buffer within the floodplain.

The Neuse River Buffer Rule states that the Proposed Action is exempt from its purview, however the stabilization activities within the bed and banks of Hospital Creek North and Burge Ditch will require

[5] Flood Zone AE and Flood Zone X are designations identified by FEMA and are not considered acronyms. From FEMA, April 2023: Zone AE is the base floodplain where base flood elevations are provided. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100- year flood.

authorization by the North Carolina Department of Environmental Quality (NCDEQ). The issuance of the Section 401 Water Quality Certification, in addition to the Buffer Authorization Certificate for impacts to Neuse riparian buffers as part of the state permitting effort will satisfy the authorization requirements of Neuse Buffer Rule.

PUBLIC INVOLVEMENT: The DAF solicited public and agency comments during a scoping period from September 3, 2022, through October 3, 2022. A 30-day Early Public Notice was published in the Goldsboro News-Argus on September 3, 2022, seeking public input on the proposal to implement actions in wetlands and floodplains. No comments were received during the scoping period. The opportunity for additional agency, tribal, and public input was provided during a 30-day public comment period for the Draft EA. The notice of availability was published in the Goldsboro News-Argus and the Goldsboro Daily News on July 20, 2023. The DAF circulated the Draft EA and Draft Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) for public review from July 20, 2023, to August 20, 2023. No comments were received during the public comment period. Tribal consultation letters were mailed to federally recognized tribes on August 9, 2022. A response of no concern was received from one of the tribes on September 9, 2022. Additional attempts to contact tribal representatives were made throughout the duration of EA development. Appendix C includes records of all correspondence with the tribes, agencies, and stakeholders.

FINDING OF NO SIGNIFICANT IMPACT/FINDING OF NO PRACTICABLE ALTERNATIVE: Based on the information and analysis presented in the EA, which is hereby incorporated by reference and was prepared in accordance with the requirements of the NEPA, the CEQ regulations for implementing NEPA, Air Force regulations for implementing NEPA set forth in 32 C.F.R. Part 989 (*Environmental Impact Analysis Process*), as amended, and based on review of the public and agency comments submitted during the 30-day public comment period, I conclude that the environmental effects of implementing the Proposed Action at SJAFB, is not significant, that preparation of an Environmental Impact Statement is unnecessary, and that a FONSI/FONPA is appropriate. Pursuant to Executive Order 11988, *Floodplain Management*, and AFMAN 32-7003, *Environmental Conservation*, and the authority delegated by Secretary of the Air Force Order 791.1, and taking the above information into account, I find that there is no practicable alternative to this action, and the Proposed Action includes all measures necessary to minimize harm to the floodplain.

APPROVED:

DEROSA.ANDREW.E.1024579200 Digitally signed by DEROSA.ANDREW.E.1024579200 Date: 2023.09.29 11:50:40 -04'00'

29 September 2023

ANDREW E. DEROSA, Colonel, USAF — DATE
Chief, Civil Engineer Division
HQ ACC/A4C, Director of Logistics, Engineering and Force Protection

Attachment: *Environmental Assessment Addressing Streambank Stabilization and Outfall Repairs on Seymour Johnson Air Force Base in Goldsboro, North Carolina*

FINAL

ENVIRONMENTAL ASSESSMENT

ADDRESSING

STREAMBANK STABILIZATION AND OUTFALL REPAIRS

ON

SEYMOUR JOHNSON AIR FORCE BASE

IN GOLDSBORO, NORTH CAROLINA

SEPTEMBER 2023

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EXECUTIVE SUMMARY

This Environmental Assessment (EA) describes the potential consequences resulting from a proposal for streambank stabilization, outfall repairs, and various Best Management Practices (BMPs) on the Seymour Johnson Air Force Base (SJAFB) in the city of Goldsboro, North Carolina (Figure 1). SJAFB is located within the Neuse River watershed and is bordered by both the Neuse River and Stoney Creek. Most runoff on base is captured by the storm water conveyance infrastructure, transported in underground piping and outfalls discharging directly into the streams that flow through the SJAFB. These concentrated flows have recently increased degradation and erosion, specifically in areas along Burge Ditch and Hospital Creek.

One objective of the SJAFB Integrated Natural Resources Management Plan (INRMP) (U.S. Air Force, 2020) is to protect the natural features of creek and river floodplains on SJAFB to preserve functions and minimize personnel and property risk from flood hazards.

The SJAFB proposes to address three (3) areas of streambank erosion along Burge Ditch, Hospital Creek North, and Hospital Creek South. The proposed project also includes the repair of Industrial Outfalls 10, 11b and 11c.

Purpose of and Need for the Proposed Action

The purpose of the project is to protect the natural features of Hospital Creek, Burge Ditch and the Neuse River floodplains on SJAFB, to preserve existing infrastructure, and minimize personnel and property risk from flood hazards.

The Proposed Action is needed because of the lack of storm water infrastructure maintenance, and the absence of erosion and sedimentation control and stabilization measures at the outfalls along stream corridors within the SJAFB. High priority problem areas associated with Burge Ditch and Hospital Creek on the SJAFB have been identified as requiring stabilization and repair.

The structural integrity of the stream banks and conveyance performance of the outfall pipes and headwall structures are failing, which would result in further infrastructure damage and environmental impacts including excessive sediment load discharge to the Neuse River, identified by the North Carolina Department of Natural Resources (DNR) as a Class C Nutrient Sensitive Water (NSW). The project need identified at each of these high priority locations include:

<u>Burge Ditch</u>

- Severe side slope failure, potential damage to structural integrity of Outfall 10 structure at Burge Ditch.
- Excessive sediment loading from Burge Ditch after storm flows to Neuse River.

- Damaged outfall apron, erosion around headwall and significant streambank scour of Burge Ditch at Outfall 11b and 11c.

- Numerous areas along Burge Ditch downstream of Outfall 11b are experiencing bank erosion and sediment aggradation.

Hospital Creek

- Roadside bank along east side of Jabara Avenue is experiencing significant erosion which is damaging storm water culverts.

- Excessive sediment loading from storm water flows delivered to Hospital Creek and to Stoney Creek.

- North and South banks of Hospital Creek approximately 300 feet upstream of Jabara Avenue are severely eroded with headwall cutting, bank sloughing and scour observed.

- Roadside swale spillway to Hospital Creek upstream of the Vermont Garrison Street bridge causing scour to bridge abutment and excessive sediment loading from storm water flows.

- Inadequate revegetation of area between Hospital Creek and Vermont Garrison Street that was recently excavated for installation of water main; sediment loading occurs to Hospital Creek because of the exposed soil area approximately 800 feet along the west side of Vermont Garrison Street.

Alternatives Considered

Alternatives were selected for analysis based upon the following screening criteria: (1) practical or feasible from a technical and economic standpoint; and (2) support the project purpose and need. The Department of the Air Force (DAF) is considering one action alternative that meets the purpose and need for the proposed action and a No Action Alternative.

Under Alternative 1 (No Action Alternative), streambank stabilization and outfall repair would not be conducted. In existing conditions, the structural integrity of stream banks and conveyance performance of the outfall pipes and headwall structures are failing. Under the No Action Alternative, streambank erosion and sediment loading would continue to accelerate and result in further infrastructure damage and environmental impacts. The No Action Alternative would not achieve the project purpose and need.

Alternative 2: Repair of Burge Ditch and Hospital Creek is presented as the Proposed Action, meaning that it is the preferred course of action by the DAF and includes streambank and outfall repairs at three (3) high priority locations on base. The locations for the Proposed Action are along Burge Ditch, Hospital Creek North, and Hospital Creek South (Figure 1). A description of the

Proposed Action in each priority area for stream stabilization and repair are detailed in Table ES-1 and in the attached design plans (Appendix E).

Summary of Environmental Resources Evaluated in the EA

Council on Environmental Quality (CEQ) regulations, National Environmental Policy Act (NEPA), and DAF instructions for implementing NEPA, specify that an EA should address those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact. The following important existing resources were analyzed in this EA:

Air Quality: SJAFB is located in Wayne County, which is an attainment area for the criteria pollutants, and is identified as part of the Southern Coastal Plain Intrastate Air Quality Control Region. Impacts to air quality associated with the Proposed Action were estimated using the DAF's Air Conformity Applicability Model. Air emissions associated with construction would be anticipated to be minor and temporary. Detailed emissions calculations are included in Appendix B of this EA. Impacts to air quality resulting from the Proposed Action are expected to be insignificant.

Water Resources (Streams, Floodplains, Surface Water/Groundwater): Surface water resources on the SJAFB are located within the Neuse River-Stoney Creek drainage basin. The Neuse River and Stoney Creek are categorized by the North Carolina Department of Environmental Quality (NCDEQ) as a Class C Nutrient Sensitive Water (NSW). This classification means it is freshwater and protected for secondary recreation, fishing, aquatic life, and wildlife.

According to the North Carolina Administrative Code (NCAC),the Neuse River Buffer Rule (15A NCAC 2B) regulates land use activities adjacent to the Neuse River and its tributaries. In a letter dated March 12, 2020, the NCDEQ determined that the Hospital Creek North and Burge Ditch are subject to The Neuse River Buffer Rule. The issuance of the Section 401 Water Quality Certification, in addition to the Buffer Authorization Certificate for impacts to Neuse riparian buffers as part of the state permitting effort would satisfy the authorization requirements of Neuse Buffer Rule.

Six (6) waterways totaling 8,039 linear feet (LF) were delineated within the project area. The unnamed tributary to Stoney Creek, also known as Hospital Creek, is culverted beneath Vermont Garrison Road (Hospital Creek South) and Dargue Avenue (Hospital Creek North) within the study area. Burge Ditch is a tributary to the Neuse River flowing east to southwest parallel to Burge Road along the southern boundary of SJAFB. Three (3) small unnamed tributaries to Burge Ditch were also delineated within the project area. A total of 482 LF and 6,831.16 square feet (SF) (0.157 acres) of permanent stream impacts resulting from placement of riprap and redi-rock wall would result from the repair and stabilization of several outfalls in Burge Ditch and Hospital Creek associated with the Proposed Action. A total of 6,491 LF of temporary stream impacts would result from construction access, staging, streambank grading, placement of Turf Reinforcement Mats (TRM) and revegetation along the banks of Burge Ditch, its unnamed tributaries, and Hospital Creek associated with the Proposed Action to stabilize the eroded streambanks. It is anticipated

that USACE Nationwide Permits (NWP) 13 – Bank Stabilization and 3 – Maintenance would be utilized to construct the project.

The Federal Emergency Management Agency (FEMA) flood rate insurance map (FIRM) identifies the Burge Ditch project area within the Flood Zone AE[1] which is defined by FEMA as an "area that has a 1% chance of annual flood". Hospital Creek North and Hospital Creek South project areas are within Flood Zone X[1], which is defined by FEMA as an "area of minimal flood hazard, usually depicted on FIRMs as above the 0.2% flood hazard level." No adverse impacts to the floodplain are anticipated with project construction.

Stormwater runoff from SJAFB is received by Stoney Creek, the Neuse River, Burge Ditch, and an unnamed tributary of Stoney Creek (Hospital Creek North and South). SJAFB currently has a National Pollutant Discharge Elimination System (NPDES) permit (#NCS000335) for discharging stormwater to receiving waters designated as: Neuse River, Stoney Creek, and an unnamed tributary (UNT) to Stoney Creek (SJAFB INRMP, U.S. Air Force, 2020). The Proposed Action would address erosion and over time reduce total suspended solid (TSS) discharge to the Neuse River watershed.

Geology and Soils: The Proposed Action would have a beneficial impact on the local environment by reducing the amount of erosional soils and rock materials scoured from unstable streambanks of Hospital Creek and Burge Ditch through implementing stabilization of stream banks and channels, as well as repairing existing outfall structures.

Cultural Resources: Coordination with the North Carolina State Historic Preservation Office (NCSHPO) dated October 17, 2022, determined that there are no historic properties and archaeological sites eligible for listing on the National Register of Historic Places that would be affected by the project. In addition, no traditional cultural properties, sacred sites, or Native American archaeological sites are located within the boundaries of the proposed project areas. The Catawba Indian Nation have requested to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.

Biological Resources (Wetlands, T&E Species): A wetlands investigation was conducted in 2022 for Burge Ditch Hospital Creek North, and Hospital Creek South. Six (6) palustrine emergent (PEM) wetlands were delineated within and along the stream channels in the project area, totaling 2.43 ac. The U.S. Army Corps of Engineers (USACE) concurred with the wetland boundaries delineated for the project via email on August 25, 2022.

A total of 97,482.61 SF (2.238 ac.) of temporary impact to wetland resulting from streambank stabilization and a total of 69.7 SF (0.002 acres) of permanent impact to wetland as a result of outfall repair would result from constructing the Proposed Action. Temporary impact to wetlands would be re-established with the stabilization of soils using TRM and revegetation throughout the entire project corridor. It is anticipated that a USACE NWP 13 – Bank Stabilization and 3 – Maintenance would be utilized to construct the project.

[1] Flood Zone AE and Flood Zone X are designations identified by FEMA and are not considered acronyms. From FEMA, April 2023: Zone AE is the base floodplain where base flood elevations are provided. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100- year flood.

The U.S. Fish and Wildlife Service (USFWS) indicated three (3) aquatic threatened and endangered species; Neuse River waterdog (*Necturus lewisi*), Carolina madtom (*Noturus furiosus*) and Atlantic pigtoe (*Fusconaia masoni*), and one (1) terrestrial threatened and endangered species; red-cockaded woodpecker (*Picoides* [=*Dryobates*] *borealis*) as potentially occurring within the project area. The USFWS concurred on August 19, 2022, that the proposed action would have no effect on the red-cockaded woodpecker, Neuse River waterdog, Carolina madtom or Atlantic pigtoe and requirements of Section 7(a)(2) of the Act have been satisfied.

The North Carolina Natural Heritage Program (NCNHP) Database indicated on August 12, 2022, no state listed species within a one-mile radius of the Hospital Creek South or Hospital Creek North project area, however an element of occurrence for the Atlantic Sturgeon (Endangered) and Natural Community of Brownwater Bottomland Hardwoods was identified. No stressors to Atlantic sturgeon or suitable habitat located one mile downstream would occur as a result of project construction. Therefore, the Proposed Action would result in no effects to Atlantic sturgeon and no further Section 7 consultation with the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA NMFS) under Endangered Species Act (ESA) Section 7 is required. Field investigations conducted as part of the wetland identification and delineation for this project have verified that no Brownwater Bottomland Forests are located within the project area, therefore no Brownwater Bottomland Forests would be impacted by the Proposed Action.

Land Use: The Proposed Action includes repairs to existing culverts. Repairs would be limited to the land directly buffering the stream banks. Areas designated for outdoor recreation, airfield and military land uses would not be permanently affected with project construction. Land use designations for Burge Ditch, Hospital Creek North and Hospital Creek South would not change as a result of project construction.

Utilities and Infrastructure: The Proposed Action would result in a positive impact by repairing damage to storm water infrastructure caused by previous large-scale storm events and inadequate maintenance. Utilities that connect from existing lines and extend into the study area that convey water, sewer or communications would not be impacted by the Proposed Action for Burge Ditch, Hospital Creek North, or Hospital Creek South.

Safety and Occupational Health: The Proposed Action would not increase air operations. No negative impacts would occur to the Bird Exclusion Zone as a result of the Proposed Action for Burge Ditch. The project area for Hospital Creek North and Hospital Creek South are not within the Bird Exclusion Zone, therefore, no impacts would occur under the Proposed Action.

The Proposed Action would not result in significant noise impacts during project construction. However, construction noise minimization measures would be appropriate for construction activities resulting in an increase in decibel levels above the ambient noise environment, which in the case of SJAFB, is the Day-Night Average Sound Levels (DNL) 65 decibels (dB) through DNL 85+ dB.

Burge Ditch Priority Area 1: It is assumed that due to the lack of receptors within close proximity and the high ambient noise levels at Burge Ditch, Priority Area 1, no construction noise reduction would be warranted.

Hospital Creek North, Priority Area 2: Due to the presence of commercial receptors in an area with moderate amounts of ambient noise, noise reduction may be warranted in localized areas, or in cases where specific complaints from adjacent business owners were received.

Hospital Creek South, Priority Area 3: Due to the presence of residential land use within proximity to the Proposed Action, as well as a community facility with youth and recreational uses (trail, ballfield) adjacent to the Proposed Action, noise reduction may be warranted in localized areas, or in cases where specific complaints from adjacent property owners were received.

Traffic and Airfield Operations: No transportation facilities or military operations would be permanently incorporated or affected as part of the Proposed Action. Short-term, minor impacts would occur to traffic entering and leaving SJAFB from the transport of construction equipment, supplies and excavated materials, as well as traffic patterns on SJAFB by construction of the Proposed Action at Hospital Creek South. A Federal Aviation Administration (FAA) *Notice of Proposed Construction or Alteration* would be required for some construction equipment used along Burge Ditch.

Hazardous Materials and Waste: Impacts resulting from constructing the Proposed Action are not anticipated. No known hazardous waste sites or hazardous materials or wastes, underground storage tanks or spills have been identified within the project area. No demolition of structures would be required for construction of the Proposed Action and therefore, no disposal of materials containing asbestos, lead-based paint, or other sources of contamination is anticipated. Any waste generated with the proposed project construction is anticipated to be insignificant. Any spills resulting from unanticipated discharges from equipment during construction would likely be captured through the installation of erosion and sediment pollution control measures required under state and federal permitting requirements.

Socioeconomic/Environmental Justice: Implementing the Proposed Action would improve the quality of receiving water by reducing and/or preventing discharges of TSS and other stormwater-related pollutants. Therefore, positive impacts to the communities surrounding SJAFB are expected as a result of the Proposed Action due to the improvements to the water quality of the receiving waters downstream of SJAFB.

The Proposed Action would not have any impact to schools, businesses, churches, or other community facilities in census tracts within or adjacent to the Proposed Action. The Proposed Action would not have any impact to employment/population projections or local fiscal impacts within any of the census tracts in or adjacent to the Proposed Action. The Proposed Action would have a negligible short-term beneficial indirect impact on the local economy during construction from incidental spending in the local area by construction workers.

Low-income and minority populations within and adjacent to the Proposed Action would not be impacted by the Proposed Action because it would not result in housing relocations, changes in employment opportunities, health or safety hazards, long-term increases in air emissions, long-term noise impacts, travel patterns, or an increase in traffic. The project would not cause disproportionately high and adverse effects to minority or low-income populations.

Coastal Zones: SJAFB is not within the North Carolina Coastal Management Zone, and it has low potential to affect Pamlico sound due to its location. Implementing the Proposed Action would improve the quality of receiving water by reducing and/or preventing discharges of TSS and other stormwater-related pollutants. Therefore, any potential to impact the Pamlico sound as a result of the Proposed Action would be positive due to the improvements to the water quality of the receiving waters downstream of SJAFB.

Climate Change and Climate-Related Financial Risk: Greenhouse gas (GHG) emissions would be expected to be emitted temporarily during construction activities and would occur as a result of the burning of fossil fuels to power construction equipment. The Proposed Action would not permanently increase the emissions of GHG pollutants on base. Total GHG emissions as a result of the Proposed Action were estimated to be minimal, temporary in nature, and the amounts emitted would not have a significant impact on global climate change.

Implementing the Proposed Action would increase the resiliency of the structures and natural resources within SJAFB. The Proposed Action would provide long-term protection against future large-scale storm events and increased volumes of storm water runoff from continued increases in impervious cover within the watershed by repairing existing damaged infrastructure and stabilizing the eroded streambanks associated with Hospital Creek North and South, and Burge Ditch. Repairing damaged stormwater conveyance infrastructure and stabilizing eroded streambanks would proactively reduce the future financial risks to physical property on SJAFB related to climate change impacts. The Proposed Action would not permanently impact the use of carbon-intensive energy sources on base, and therefore would not present any financial risk to the mission or community associated with transition of energy sources.

Summary of Potential Environmental Consequences of the Action Alternatives

Table ES-1 provides a tabular summary of the potential impacts to the resources associated with each of the alternative actions analyzed in this EA.

Table ES-1. Summary of Potential Impacts to Resource Areas

Resource	Anticipated Impacts	
	Alternative 1: No Action Alternative	**Alternative 2: Repair of Burge Ditch and Hospital Creek**
Air Quality (Emissions, attainment status, etc.)	No	No
Water Resources (Quality, quantity, source, etc.)	**Yes: Negative**	**Yes: Positive**
Geology & Soils (Topography, Erosion)	**Yes: Negative**	**Yes: Positive**
Cultural Resource (Native American sites, archaeological, historical, etc.)	No	No
Biological Resources (Wetlands, threat & endangered species, etc.)	**Yes: Negative**	**Yes: Positive**
Land Use (Existing use, maintenance, encroachment, etc.)	No	No
Utilities & Infrastructure	**Yes: Negative**	**Yes: Positive**
Safety & Occupational Health (Bird-Aircraft Strike Hazard [BASH], construction noise exposure, etc.)	**Yes: Negative**	**Yes: Negative**
Traffic and/or Airfield Operations	No	**Yes: Negative**
Hazardous Materials/Waste (Use/storage, solid waste, etc.)	No	No
Socioeconomic Resources & Environmental Justice (Employment/population projections, school and local fiscal impacts, Disproportionate impacts to minority or low-income populations, etc.)	**Yes: Negative**	**Yes: Positive**
Coastal Zones	No	No
Climate Change/Climate-Related Financial Risk	**Yes: Negative**	**Yes: Positive**

Intergovernmental Coordination, Public and Agency Participation: The DAF solicited public and agency comments during a scoping period from September 3, 2022, through October 3, 2022. A 30-day Early Public Notice was published in the Goldsboro News-Argus on September 3, 2022, seeking public input on the proposal to implement actions in wetlands and floodplains. No comments were received during the scoping period. The opportunity for additional agency, tribal, and public input was provided during a 30-day public comment period for the Draft EA. The notice of availability was published in the Goldsboro News-Argus and the Goldsboro Daily News on July 20, 2023. The DAF circulated the Draft EA and Draft Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) for public review from July 20, 2023, to August 20, 2023. No comments were received during the public comment period. Agency and stakeholder coordination letters are provided in Appendix C.

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Table of Contents

Appendices

Acronyms and Abbreviations

Acronym	Definition
ACS	American Community Survey
ACAM	Air Conformity Applicability Model
AFI	Air Force Instruction
AFMAN	Air Force Manual
AFOSH	Air Force Occupational Safety and Health
AICUZ	Air Installation Compatible Use Zone
AJD	Approved Jurisdictional Determination
APE	Area of Potential Effect
BASH	Bird Aircraft Strike Hazard
BCR	Bird Conservation Region
BEZ	Bird Exclusion Zone
BMP	Best Management Practice
CAA	Clean Air Act
CAMA	Coastal Area Management Act
CEJST	Climate and Economic Justice Screening Tool
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
C.F.R.	Code of Federal Regulations
CMP	Corrugated Metal Pipe
CWA	Clean Water Act

CY	Cubic Yards
CZMA	Coastal Zone Management Act
DAF	Department of the Air Force
dB	Decibels
DEQ	Department of Environmental Quality
DNL	Day-Night Average Sound Levels
DNR	Department of Natural Resources
DoD	Department of Defense
DOPAA	Description of Proposed Action and Alternatives
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
E&S	Erosion & Sedimentation
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRMs	Flood Insurance Rate Maps
FONSI	Finding of No Significant Impact
FONPA	Finding of No Practicable Alternative
FRS	Facility Registry Service (USEPA EnviroFacts)
GHG	Greenhouse Gas
HPOWEB	North Carolina State Historic Preservation Office online database
IICEP	Interagency/Intergovernmental Coordination of Environmental Planning
INRMP	Integrated Natural Resources Management Plan
IPaC	Information for Planning and Consultation (USFWS)
LBP	Lead-based Paint
LEP	Limited English Proficiency
LF	Linear Feet
MCM	Minimum Control Measures
MOU	Memorandum of Understanding
MUTCD	Manual on Uniform Traffic Control Devices
NAAQS	National Ambient Air Quality Standards
NCAC	North Carolina Administrative Code
NCDENR	North Carolina Department of Environment and Natural Resources
NCDEQ	North Carolina Department of Environmental Quality
NCDOT	North Carolina Department of Transportation
NCNHP	North Carolina Natural Heritage Program
NCSHPO	North Carolina State Historic Preservation Office
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System

NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NSW	Nutrient Sensitive Water
NWP	Nationwide Permit
PBF	Physical and Biological Features
PEL	Permissible Exposure Limits
RCP	Reinforced Concrete Pipe
RCW	Red-cockaded woodpecker
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SECP	Sedimentation Erosion Control Plan
SF	Square Feet
SJAFB	Seymour Johnson Air Force Base
TMDL	Total Maximum Daily Load
TRM	Turf Reinforcement Mats
TSCA	Toxic Substances Control Act
TSS	Total Suspended Solids
TWA	Total Weighted Average
UNT	Unnamed Tributary
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USC	United States Code
USGS	United States Geological Survey
USFWS	U.S. Fish and Wildlife Service

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 Introduction and Background

Seymour Johnson Air Force Base (SJAFB) is preparing this Environmental Assessment (EA) to evaluate the potential impacts associated with the implementation of streambank stabilization, outfall repairs, and various Best Management Practices (BMPs) within Burge Ditch and Hospital Creek on the installation (Proposed Action). The Description of Proposed Action and Alternatives (DOPAA) describes the Proposed Action, any viable alternative(s) (including the No Action Alternative), and the purpose and need for the Proposed Action that would be addressed in this EA.

SJAFB is a 3,233-acre military facility located within the Neuse River watershed and is bordered by both the Neuse River and Stoney Creek. The installation is bounded on the northwest and west by Stoney Creek and on the southwest by the Neuse River. Base topography includes the Neuse River and Stoney Creek floodplains, and elevations range from 45 to 110 feet, sloping gradually downward from the northeast to the southwest. Approximately 25 percent of the installation is covered with impervious areas, such as buildings and pavement (U.S. Air Force, 2022). Most the runoff on base is captured by storm water conveyance infrastructure and transported in underground piping and outfalls discharging directly into the streams that flow through SJAFB. These concentrated flows have recently increased degradation and erosion, specifically in areas along Burge Ditch and Hospital Creek.

Evaluation of historic satellite imagery from 2007 to 2016 shows channel bends have become more pronounced and erosion has significantly increased. In addition, natural vegetative cover has decreased, which may result in accelerated rates of erosion, bank failure, and damage to infrastructure. Significant erosion around outfall and conveyance structures has been caused by heavy storm events.

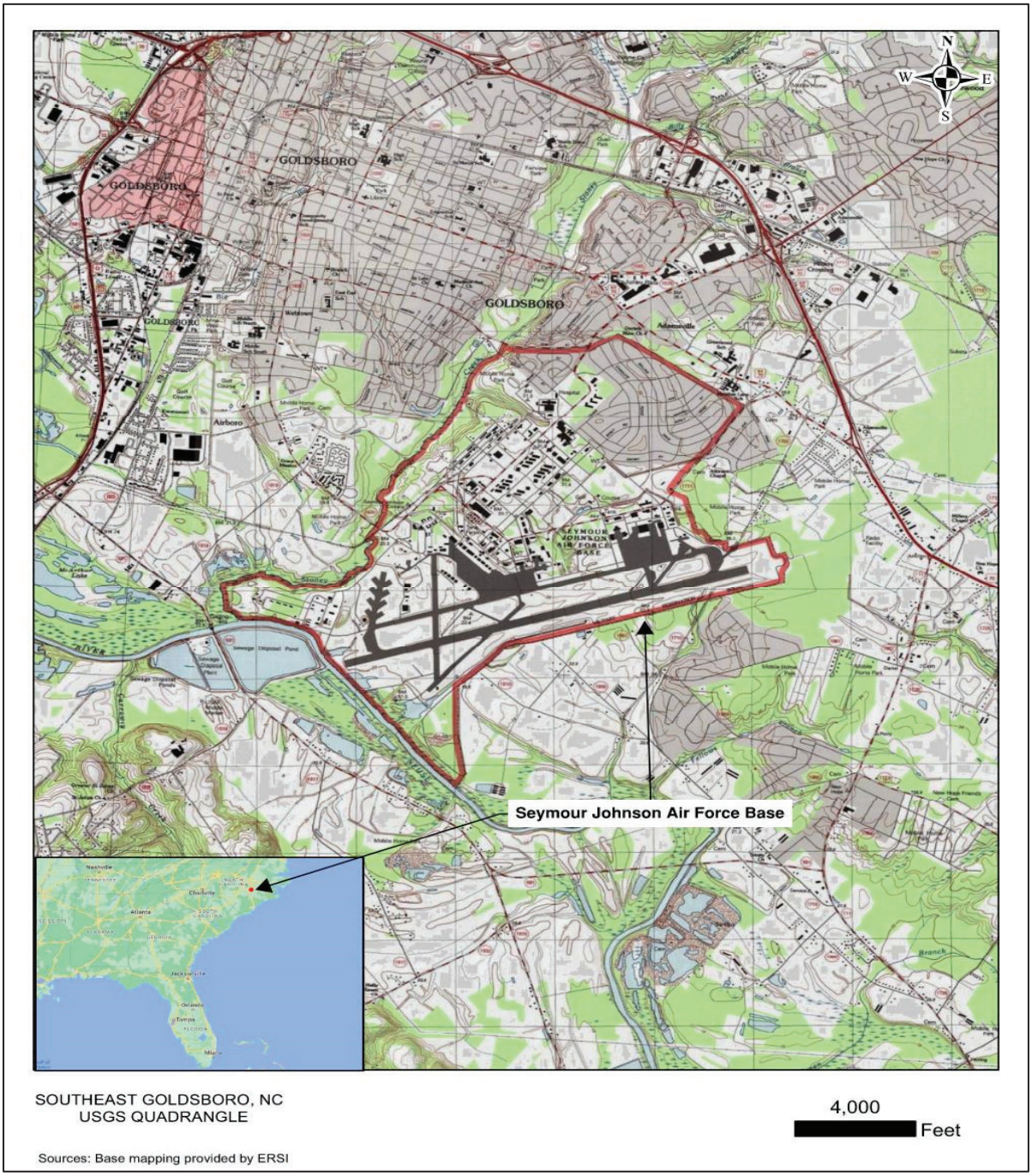
One objective of the SJAFB INRMP (U.S. Air Force, 2020) is to protect the natural features of creek and river floodplains on SJAFB to preserve functions and minimize personnel and property risk from flood hazards. To meet this objective, the Proposed Action would proactively address streambank erosion at three (3) high-priority areas of concern. The implementation of BMPs, including structural and non-structural controls to prevent or reduce erosion and improve infiltration, would reduce the volume of stormwater, and subsequently improve the quality of storm water discharge to the watershed.

Additionally, the recent listing of the Neuse River waterdog (*Necturus lewisi*) as threatened has made repairs to Burge Ditch and Hospital Creek even more important. The Neuse River has been designated as critical habitat for the waterdog. According to the USFWS, “the Neuse River waterdog is extremely susceptible to the effects of siltation, or the deposit of sediments in freshwater” (U.S. Fish & Wildlife Service, 2022). Burge Ditch discharges directly into the Neuse River, while Hospital Creek discharges into Stoney Creek, which then discharges directly into the Neuse River.

1.2 Location

SJAFB is located within the City of Goldsboro in Wayne County, North Carolina, roughly 50 miles southeast of Raleigh, North Carolina (Figure 1). Stoney Creek runs along the west boundary of SJAFB and is a tributary to the Neuse River; the confluence of Stoney Creek and the Neuse River lies on the western boundary of SJAFB.

Figure 1. Location of SJAFB



1.3 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to protect the natural features of Hospital Creek, Burge Ditch, Stoney Creek, and the Neuse River floodplains on SJAFB, to preserve existing infrastructure, minimize personnel and property risk from flood hazards, and comply with the requirements of the installation's NPDES storm water permit.

The Proposed Action is needed because of damage caused by previous large-scale storm events, inadequate maintenance of storm water infrastructure, and the absence of erosion and sedimentation control and stabilization measures along stream corridors on SJAFB. High-priority problem areas associated with Burge Ditch and Hospital Creek on SJAFB have been identified for stabilization and repair. The structural integrity of the streambanks and the conveyance performance of the outfall pipes and headwall structures are failing, which would result in further infrastructure damage and environmental impacts, including excessive sediment load discharge to the Neuse River. The Neuse River is identified by the NCDEQ as a Class C NSW. Additionally, the USFWS has designated the Neuse River as critical habitat for the recently listed Neuse River waterdog. The issues identified at these high-priority locations include:

<u>Burge Ditch</u>

- Severe side slope failure, potential damage to structural integrity of Outfall 10 structure
- Excessive sediment loading after storm flows to Neuse River.
- Damaged outfall apron, erosion around headwall, and significant streambank scour at Outfalls 11b and 11c.
- Numerous areas downstream of Outfall 11b are experiencing bank erosion and sediment aggradation[2].

<u>Hospital Creek</u>

- Roadside bank along east side of Jabara Avenue is experiencing significant erosion, which is damaging storm water culverts.
- Excessive sediment loading from storm water flows delivered to Hospital Creek and ultimately to Stoney Creek.
- North and south banks of Hospital Creek approximately 300 feet upstream of Jabara Avenue are severely eroded with headwall cutting, bank sloughing, and scour observed.
- Roadside swale spillway upstream of the Vermont Garrison Street bridge causing scour to bridge abutment and excessive sediment loading from storm water flows.
- Inadequate revegetation of area between Hospital Creek and Vermont Garrison Street; sediment loading occurs to Hospital Creek because of the exposed soil area approximately 800 feet along the west side of Vermont Garrison Street.

Photos illustrating the current condition of these high-priority areas are included in Appendix A.

[2] Aggradation is the increase in land elevation, typically in a river system, due to the deposition of sediment. Aggradation occurs in areas where the supply of sediment is greater than the amount of material the system is able to transport.

1.4 Scope of Environmental Analysis

This EA will identify, document, and evaluate the potential environmental, cultural, and socioeconomic effects of the analyzed alternatives in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations[3], and Title 32 of the Code of Federal Regulations (C.F.R.) Part 989. It would include a thorough evaluation of positive and negative direct, indirect, and cumulative impacts, both temporary and permanent, that could occur as a result of implementing the alternatives and informs decision-makers and the public of the potential environmental consequences of the Proposed Action and alternatives.

Under NEPA, the analysis of environmental conditions only addresses those areas (i.e., the Region of Influence [ROI]) and environmental resources with the potential to be affected by the Proposed Action or alternatives. Locations and resources with no potential to be affected are not analyzed. The ROI may vary by resource.

Based on the analyses conducted for this EA, the DAF will make one (1) of three (3) decisions regarding the Proposed Action:

- Choose to move forward with the Proposed Action and sign a Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA), allowing the Proposed Action to be implemented.

- Initiate preparation of an Environmental Impact Statement (EIS), if the findings of the EA identify significant impacts (or controversy) would likely occur from implementing the Proposed Action; or

- Select the No Action Alternative, where the Proposed Action would not be implemented.

Since the alternatives involve "construction" in a wetland as defined in Executive Order (EO) 11990, *Protection of Wetlands*, or "action" in a floodplain under EO 11988, *Floodplain Management*, a FONPA will be prepared in conjunction with the FONSI. A FONPA is a finding that explains why there are no practicable alternatives to an action affecting a wetland or floodplain, based on appropriate NEPA analysis or other documentation. A FONPA must be prepared and approved by the DAF for all proposed actions impacting wetland and floodplain areas.

1.5 Relevant Laws and Regulations

The DAF is preparing this EA in accordance with NEPA, as implemented by CEQ regulations (40 C.F.R. 1500–1508) and Air Force regulations for implementing NEPA procedures (32 C.F.R. Part 989). Additional relevant laws and regulations include:

[3] This EA is following the September 14, 2020, update to the CEQ rules (Title 85 Federal Register, page 43304), as modified by the CEQ NEPA Implementing Regulations Revisions Final Rule that became effective May 20, 2022 (Title 87 Federal Register, page 23453).

- The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d)
- Clean Air Act (CAA) (42 United States Code [U.S.C.] 7401 et seq.)
- Clean Water Act (CWA) (33 United States Code (U.S.C.) §1251 et seq.)
- Coastal Zone Management Act (CZMA) (16 C.F.R. 1451–1464)
- EO 11990, Protection of Wetlands
- EO 11988, Floodplain Management
- Endangered Species Act (ESA) (16 U.S.C. §1531 et seq.)
- Fish and Wildlife Conservation Act (Public Law 100-653)
- Neuse River Buffer Rules (15A North Carolina Administrative Code [NCAC] 02B .0233)
- Migratory Bird Treaty Act (16 U.S.C. §703 et seq.)
- The Sedimentation Pollution Control Act of 1973
- The National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et sq.)
- The Noise Control Act of 1972 (43 U.S.C. 4901 et seq.)
- Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901 et seq.)
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601 et seq.)
- Toxic Substances Control Act (TSCA) (15 U.S.C. 2601 et seq.)
- EO 12196, Occupational Safety and Health Programs for Federal Employees
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- EO 13166, Improving Access to Services for Persons with Limited English Proficiency
- EO13186, Responsibilities of Federal Agencies to Protect Migratory Birds
- EO 14008, Tackling the Climate Crisis at Home and Abroad
- Council on Environmental Quality (CEQ) Cumulative Effects regulations (40 C.F.R. § 1508.7)
- Air Force Manual (AFMAN) 32-7003, Environmental Conservation (U.S. Air Force, 2020)
- Air Force Instruction (AFI) 32-7001, Environmental Management (U.S. Air Force, 2019)
- AFI 32-1015, Integrated Installation Planning (U.S. Air Force, 2019)
- EO 14030, Climate-Related Financial Risk
- The Occupational Safety and Health Act of 1970

1.6 Intergovernmental Coordination, Public and Agency Participation

Federal and State agencies, as well as federally recognized Native American tribes, have been invited to contribute to this EA through the Interagency/Intergovernmental Coordination of Environmental Planning (IICEP) process. Consideration of the views and information from all interested persons promotes open communication and enables better decision-making by the DAF. All persons and organizations having potential interest in the Proposed Action, including minority, low income, disadvantaged, and federally recognized Native American tribes, are urged to participate in the NEPA environmental analysis process.

Table 1 lists the agencies and Native American tribes that were invited to contribute to this assessment through the IICEP process.

Table 1. Agencies and Tribes Invited to Contribute via the IICEP Process

Catawba Indian Nation	Tuscarora Nation
US Fish and Wildlife Service (USFWS)	National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA NMFS)
US Army Corps of Engineers (USACE)	EPA Wetlands Regulatory Section
NC Dept of Env Quality (NCDEQ) – Land Resources	NC Dept of Env Quality (NCDEQ) – Water Resources
NC State Historic Preservation Office (NCSHPO)	NC Natural Heritage Program (NCNHP)
NC Wildlife Resources Commission	U.S. Department of Agriculture (USDA) Natural Resources Conservation Service

Additionally, in accordance with the requirements of EO 11990, *Protection of Wetlands*, and 11988, *Floodplain Management*, a 30-day Early Public Notice was published in the Goldsboro News-Argus on September 3, 2022, seeking public input on the proposal to implement actions in wetlands and floodplains. No comments were received during the scoping period. The opportunity for additional agency, tribal, and public input was provided during a 30-day public comment period for the Draft EA. The notice of availability was published in the Goldsboro News-Argus and the Goldsboro Daily News on July 20, 2023. The DAF circulated the Draft EA and Draft Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) for public review from July 20, 2023, to August 20, 2023. No comments were received during the public comment period. Agency and stakeholder coordination letters are provided in Appendix C.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The Proposed Action includes streambank stabilization, outfall repairs, and various BMPs at three (3) high-priority areas on the installation: Burge Ditch, Hospital Creek North, and Hospital Creek South (Figure 2). A summary of the actions proposed in each priority area is detailed in Table 2.

Table 2. Summary of the Proposed Action

	Site ID	Summary of Proposed Action
Priority Area 1 - Burge Ditch	1a	• Regrade, revegetate eroded area at bend in channel • Replace headwall structure • Remove sand and sediment deposits • Extend headwall on east and west to divert runoff around bends and reinforce bank; reinforce both banks with redi-rock walls • Install riprap in channel bottom to fortify, decrease discharge velocity
	1b	• Install riprap in area above headwall, on both sides of wing walls, and below concrete apron to fortify against erosion around headwall • Fill void under headwall foundation with polymer or concrete • Regrade and reinforce channel leading to Burge Ditch with turf reinforcement mats (TRM)
	1c	• Reestablish vegetation, utilizing turf grass that would not attract birds, between Outfalls 11b and 11c and Outfall 02
Priority Area 2 - Hospital Creek North	2	• Demolish, excavate pour-over concrete • Add concrete slough to direct roadway runoff away from culvert ends • Remove separated culvert ends, construct headwall and wing walls • Backfill area behind new headwall and plant new turf • Install riprap across the entire width of the wing wall, extending upstream 20 feet • Regrade and revegetate along both banks; reinforce banks with TRM to stabilize slope until vegetation is established
Priority Area 3 - Hospital Creek South	3	• Demolish, excavate pour-over concrete • Minor grading transition from roadside swale to Hospital Creek and armor entire swale and upstream of headwall structure with riprap • Regrade, reinforce outfall discharge leading to Creek with riprap • Regrade, reinforce bends in channel with native vegetation and redi-rock walls; install riprap prior to and through each bend to act as a velocity control device and reinforce the channel bottom • Replace sand/silt mixture with native topsoil and grass seed to establish vegetation throughout the 30-foot wide by 800-foot-long area between Vermont Garrison St and Hospital Creek, southeast of Dargue Avenue

Source: DOPAA for Repair Burge Ditch and Hospital Creek at SJAFB, North Carolina. 2022.

Figure 2. Map of Burge Ditch and Hospital Creek

Priority Area 1 - Burge Ditch

The Proposed Action would address the streambank erosion in Burge Ditch at the location of Outfalls 11c (one (1) approximate 42-inch culvert) and 11b (two (2) 72-inch culverts). To repair this area, integration of several structural BMPs including riprap[4], redi-rock walls[5], and TRMs [6] is proposed. Installation of velocity control structures within the channel bottom and new reinforced concrete culvert headwalls and wing walls are proposed at both outfalls.

The primary temporary construction access and staging for work along Burge Ditch is proposed adjacent to Outfall #2 as it is the entry point to the work area. There is an area identified for staging at this location along with concrete wash out and a construction entrance. The primary access route will be from the existing maintenance road that parallels Burge Ditch once in the work area. An additional construction entrance and concrete washout is located near Priority Area 1a. Additional access points along Burge Ditch from the maintenance road are included within the LOD and are to be used as work progresses along the stream channel.

Priority Area 1a – The Proposed Action would address erosion by regrading and revegetating approximately 12,420 SF of eroded area at the bends in the channel. The outfall repairs would be replaced and extended for a total length of 150 linear feet, and approximately 720 cubic yards (CY) of sediment and sand deposits would be removed. Both banks would be reinforced with redi-rock walls, and approximately 572 CY of riprap would be installed in the channel bottom to fortify and decrease discharge velocity.

Priority Area 1b –The Proposed Action would address the erosion caused by overland flow around the headwall at the location of Outfall 10. Integration of several structural BMPs would be required. This would include filling the approximately 5 CY void under the existing discharge apron, fortifying the approximately 2,265 SF eroded area with 185 CY of riprap around the headwall, wing walls, and channel bottom directly below the discharge, and regrading and reinforcing the 80-foot channel leading to Burge Ditch and 20 feet across Burge Ditch, for a total of 106 linear feet along Burge Ditch, and 34 linear feet along a UNT to Burge Ditch.

Priority Area 1c – The Proposed Action would address the continued erosion from the streambanks along Burge Ditch. The streambanks would be stabilized with TRM and vegetative cover along both banks of Burge Ditch downstream of Outfall 11B (Area 1A) to Outfall 2 (Area 1C) for a total of 4,831 LF (Figure 3). Additionally, riprap and stabilization would be installed at three (3) non-industrial outfalls that discharge to Burge Ditch to act as velocity dissipaters for a total length of 167 LF along Burge Ditch. Temporary stream crossings for a total of 60 LF at three (3) locations between Outfall 2 and Outfall 10 would occur where access is limited due to airfield operations.

[4] Riprap is rock used to armor shorelines and streambeds against scour and water erosion.
[5] Redi-rock is a material that is made from pre-mixed concrete and is used to build retaining walls for erosion control.
[6] Turf reinforcement mats (TRMs) are synthetic, non-degradable soil covers designed to provide permanent support for vegetation on slopes and permanent armoring and vegetation support for ditches, swales, and channels.

Priority Area 2 - Hospital Creek North

The Proposed Action would address streambank erosion and pitting found along Hospital Creek by stabilizing the streambanks with TRM and vegetative cover along 484 LF of Hospital Creek between a forested area and Jabara Avenue, for a total length of approximately 500 feet. A concrete slough is proposed with sidewalls from the existing edge of the roadway to the top of a new concrete headwall. The 850 SF area behind the new headwall would be backfilled and planted with new turf. Minor regrading of the stream channel and banks is proposed within the outfall of the new concrete headwall for a total of 24 LF.

Temporary construction access and staging for work in Priority Area 2 will be located on either side of the Jabara Avenue culverts. There is an area for staging at these locations along with a concrete wash out, tire wash and a construction entrance. The primary access route will be from Jabara Avenue. The access areas are located on both sides of the culvert headwall to provide access to both sides of streambanks without a stream channel crossing required.

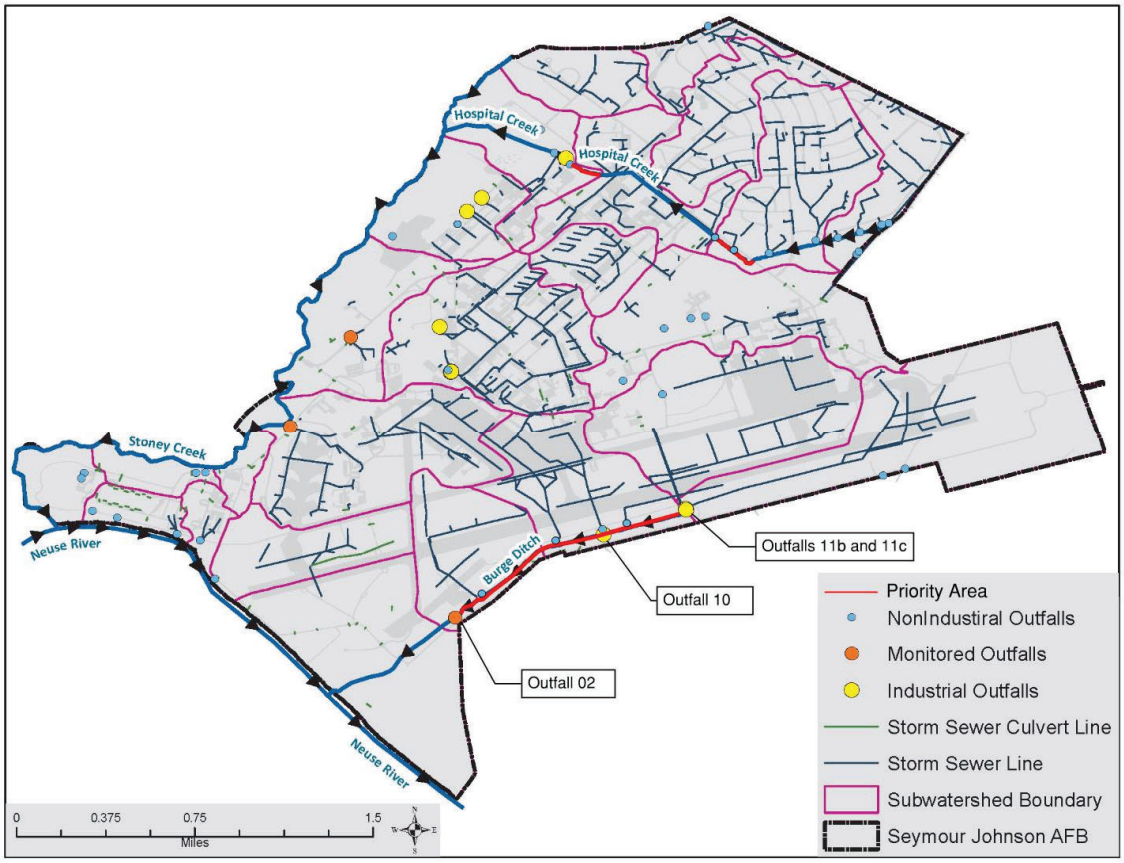
Priority Area 3 - Hospital Creek South

The Proposed Action would fortify four (4) areas identified as being prone to erosion along the stretch of Hospital Creek along Vermont Garrison Street between Chandler Road and Dargue Avenue, for a total of 947 LF. The existing 160 SF concrete pour-over would be demolished. The 1,200 SF outfall discharge area leading to Hospital Creek would be regraded and reinforced with 100 CY of riprap. The 6,500 SF area around the bends in the channel would be regraded and reinforced with native vegetation and redi-rock walls. Approximately 50 CY of riprap would be added as a velocity control and a hardening measure prior to, and through the bends in the channel. The top four (4) inches of soil in an area of 19,500 SF, currently a sand-silt mixture, would be replaced with a topsoil that can readily establish vegetation. After replacement of the soil, jute mesh would be installed and hydroseeded with an approved grass type for the area. The excavated sand-silt mixture of approximately 240 CY would be hauled offsite.

Priority Area 3 also includes repairs for a total of 146 LF to the Vermont Garrison Street bridge abutments and installation of outfall scour protection and redi-rock wall on the upstream and downstream side of the bridge.

Temporary Construction access and staging for work in Priority Area 3 will be located on either side of the Dargue Avenue culverts. There is an area for staging at these locations along with a concrete wash out, tire wash and a construction entrance. The primary access route will be from Dargue Avenue. The access areas are located on both sides of the culvert headwall to provide access to both sides of streambanks without a stream channel crossing being required. The work at the Vermont Garrison Street Bridge inlet abutment will be accessed from Vermont Garrison Street.

Figure 3. Outfall Locations



Source: Base map provided by VKAG[7] 19-7005 Streambank Stabilization Plan.

2.2 Selection Standards and Criteria

Identification and analysis of alternatives is one of the core elements of the environmental process under NEPA and the DAF's implementing regulations. The DAF may expressly eliminate alternatives from detailed analysis based on reasonable selection standards (32 C.F.R. 989.8(c)). Consequently, SJAFB systematically evaluated design plans to identify potential design alternatives for the Proposed Action. Specifically, the selection standards for identifying a suitable design plan included the following:

- **Standard 1** - Complying with the requirements of the installation's NPDES storm water permit, which includes operating and maintaining the Municipal Separate Storm Sewer System (including catch basins and conveyances) to minimize pollutants in the storm water collection system.

- **Standard 2** - Repairing damage to natural and manmade storm water conveyance systems caused by previous large-scale storm events and inadequate maintenance of storm water infrastructure.

[7] VKAG is a designation identified by DAF and is not considered an acronym.

- **Standard 3** - Providing long-term protection against future large-scale storm events and increased volumes of storm water runoff from continued increases in impervious cover within the watershed.

- **Standard 4** - Improving receiving water [8]quality by reducing and/or preventing discharges of TSS and other storm water-related pollutants.

2.3 Alternatives Considered but Eliminated from Further Analysis

2.3.1 Streambank Stabilization Only

Implementing the 'Streambank Stabilization Only' alternative would repair some damage to the natural storm water conveyance systems (i.e., streams), but it would not address the damage that has occurred to the manmade stormwater conveyance structures (i.e., outfalls) (Standard 2). This alternative would also help improve receiving water quality (Standard 4) by repairing erosion associated with streambank failure, but it would not remedy the other sources of erosion that are contributing to discharges of TSS. Additionally, it would not adequately address NPDES storm water permit requirements (Standard 1) or provide sufficient long-term protection, by itself, against future large-scale storm events and increased volumes of storm water runoff (Standard 3). Therefore, this alternative has been eliminated from further analysis.

2.3.2 Outfall Repairs Only

While implementing the 'Outfall Repairs Only' alternative would repair damage to the manmade storm water conveyance structures (i.e., outfalls), it would not address the damage that has occurred to the natural storm water conveyance systems (i.e., streams) (Standard 2). This alternative would also help improve receiving water quality (Standard 4) by repairing erosion associated with the existing outfall structures, but it would not remedy the other sources of erosion that are contributing to discharges of TSS. Additionally, it would not adequately address NPDES storm water permit requirements (Standard 1) or provide long-term protection against future large-scale storm events and increased volumes of storm water runoff (Standard 3). Therefore, this alternative has been eliminated from further analysis.

2.3.3 BMPs Only

Implementing the 'BMPs Only' alternative would provide some long-term protection against future large-scale storm events and increased volumes of storm water runoff (Standard 3) and would help improve receiving water quality (Standard 4), but it would not fully remedy these issues. Additionally, it would not address NPDES storm water permit requirements (Standard 1) or repair damage caused by previous large-scale storm events (i.e., hurricanes) and inadequate maintenance of storm water infrastructure (Standard 2). Therefore, this alternative has been eliminated from further analysis.

[8] Receiving waters means waters of the United States, as defined under the Clean Water Act. Receiving waters include surface bodies of water that serve as discharge points for runoff, such as creeks, rivers, reservoirs, lakes, lagoons, estuaries, harbors, bays, and the ocean.

2.4 Alternatives Carried Forward for Analysis

The Proposed Action is comprised of multiple actions needed to repair existing damage and prevent or reduce future damage to the natural and manmade elements of the stormwater conveyance systems at Burge Ditch, Hospital Creek North, and Hospital Creek South. As discussed above, implementing portions of the Proposed Action would not resolve the issues that combine to create the problems being addressed. Therefore, the alternatives selected for analysis in this EA are 'No Action Alternative' and 'Comprehensive Repair of Burge Ditch and Hospital Creek'.

2.4.1 Alternative 1: No Action Alternative

Under the No Action Alternative, streambank stabilization and outfall repair would not be conducted. Under existing conditions, the structural integrity of streambanks and conveyance performance of the outfall pipes and headwall structures are failing. Under the No Action Alternative, streambank erosion and sediment loading would continue to accelerate and result in further infrastructure damage and environmental impacts.

2.4.2 Alternative 2: Repair of Burge Ditch and Hospital Creek (Proposed Action)

The Proposed Action would implement multiple measures to repair damaged stormwater conveyance channels and infrastructure, prevent or reduce future damage, prevent, or reduce the discharge of TSS, and comply with the requirements of the installation's NPDES permit.

2.5 Summary of Alternatives and Resources

The following table provides a summary of the selected alternatives and the resource areas that may experience positive or negative impacts as a result of implementing the selected alternatives.

Table 3. Summary of Alternatives and Resources

Resource	Anticipated Impacts	
	Alternative 1: No Action Alternative	**Alternative 2: Repair of Burge Ditch and Hospital Creek**
Air Quality (Emissions, attainment status, etc.)	No	No
Water Resources (Quality, quantity, source, etc.)	**Yes: Negative**	**Yes: Positive**
Geology & Soils (Topography, Erosion)	**Yes: Negative**	**Yes: Positive**
Cultural Resource (Native American sites, archaeological, historical, etc.)	No	No
Biological Resources (Wetlands, threat & endangered species, etc.)	**Yes: Negative**	**Yes: Positive**
Land Use (Existing use, maintenance, encroachment, etc.)	No	No
Utilities & Infrastructure	**Yes: Negative**	**Yes: Positive**
Safety & Occupational Health (Bird-Aircraft Strike Hazard [BASH], construction noise exposure, etc.)	**Yes: Negative**	**Yes: Negative**
Traffic and/or Airfield Operations	No	**Yes: Negative**
Hazardous Materials/Waste (Use/storage, solid waste, etc.)	No	No
Socioeconomic Resources & Environmental Justice (Employment/population projections, school and local fiscal impacts, Disproportionate impacts to minority or low-income populations, etc.)	**Yes: Negative**	**Yes: Positive**
Coastal Zones	No	No
Climate Change/Climate-Related Financial Risk	**Yes: Negative**	**Yes: Positive**

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes relevant environmental conditions at SJAFB for resources potentially affected by the Proposed Action Alternative and the No Action Alternative described in Chapter 2. In compliance with guidelines contained in NEPA and CEQ regulations and 32 C.F.R. 989, the description of the existing environment focuses on those environmental resources potentially subject to impacts.

For each resource discussed below, the nature of potential direct, indirect, and cumulative impacts from the proposed project were considered when identifying the extent of existing conditions to discuss for that resource.

3.1 Air Quality

3.1.1 Regulatory Setting

The Clean Air Act (CAA), codified as 42 U.S.C. 7401 et seq., seeks to protect human health and the environment from emissions that pollute ambient, or outdoor, air. National Ambient Air Quality Standards (NAAQS) (40 C.F.R. § 50) 40 C.F.R. Part 81.152 are established by the U.S. Environmental Protection Agency (EPA) and the classification can be found in 40 C.F.R. Part 81.334.

3.1.2 Affected Environment

Air quality is defined as ambient air concentrations of specific pollutants determined by the USEPA to be of concern because of their impacts on the health and welfare of the general public and the environment. These pollutants are widespread across the United States. The primary pollutants of concern, called "criteria pollutants," include carbon monoxide (CO), sulfur dioxide ($S0_2$), nitrogen dioxide ($N0_2$), ozone (0_3), suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$) and lead (Pb). Under the CAA, the USEPA has established NAAQS (40 C.F.R. § 50) for these pollutants. Areas that are and have historically been in compliance with the NAAQS are designated as attainment areas. Areas that do not meet a federal air quality standard are designated as nonattainment areas for that pollutant. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas and are required to adhere to maintenance plans to ensure continued attainment. The NAAQS represent the maximum levels of pollution that are considered safe, with an adequate margin of safety, to protect public health and welfare. Short-term standards (i.e., 1-, 3-, 8-, and 24-hour periods) are established for pollutants contributing to chronic health effects.

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the

atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO_2, Pb and some particulates are emitted directly into the atmosphere from emissions sources.

Secondary pollutants, such as O_3, NO_2 and some particulates are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes.

SJAFB is located in Wayne County, which is an attainment area for the criteria pollutants, and is identified as part of the Southern Coastal Plain Intrastate Air Quality Control Region (defined in 40 C.F.R. Part 81.152 and the classification can be found in 40 C.F.R. Part 81.334). Since Wayne County is located in an attainment area, the General Conformity Rule (this rule only applies for federal actions in nonattainment or maintenance areas) does not apply; however, the anticipated impacts to air quality associated with the Proposed Action were estimated using the DAF's Air Conformity Applicability Model (ACAM). National and North Carolina ambient air quality standards are provided in Table 4.

Table 4. National and North Carolina Ambient Air Quality Standards

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Ozone (O_3)	Primary and Secondary	8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Carbon Monoxide (CO)	Primary	8-hour	9.0 ppm	Not to exceed more than once per year
	Primary	1-hour	35 ppm	
Nitrogen Dioxide (NO_2)	Primary and Secondary	Annual	53 ppb	Annual Mean
	Primary	1-hour	100 ppb	98th percentile, averaged over 3 years
Sulfur Dioxide (SO_2)	Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year
PM_{10}	Primary and Secondary	Annual	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
$PM_{2.5}$	Primary	Annual	12µg/m^3	Annual mean, averaged over 3 years
	Secondary	Annual	15 µg/m^3	Annual mean, averaged over 3 years
	Primary and Secondary	24-hour	35 µg/m^3	98th percentile, averaged over 3 years
Lead (Pb)	Primary and Secondary	Rolling 3 month average	1.5 µg/m^3	Not to be exceeded

Source: EPA, 2012; North Carolina Department of Environment and Natural Resources (NCDENR), 2012
Notes:
ppm = parts per million by volume
ppb = parts per billion by volume
µg/m3 = micrograms per cubic meter

3.1.3 Environmental Consequences

Proposed Action

Table 5 depicts the total emissions that would be anticipated resulting from proposed activities (construction and use) as compared to the total emissions for Wayne County in 2011. The emissions associated with construction would only occur during the construction period. Air emissions associated with construction would be anticipated to be minor and temporary. Detailed emissions calculations are included in Appendix B of this EA. Impacts to air quality resulting from the Proposed Action are expected to be insignificant.

Table 5. Estimated Emissions for Construction of the Project

Pollutant	Construction Total Emissions (tons/year)
CO	2.533
NOx	2.837
VOCs	0.445
$PM_{2.5}$	0.112
PM_{10}	21.379
SO_2	0.007
Pb	0.000

Source: DAF ACAM, Version 5.0.18a; Air Emissions Sources (USEPA, 2014)

No Action Alternative

Under the No Action Alternative, the bed and banks of Hospital Creek and Burge ditch would continue to degrade and erode with the same surrounding vegetation and land use. The existing conditions and baseline air quality would remain unchanged. There would be no impacts to air quality as a result of the No Action Alternative.

3.2 Water Resources

3.2.1 Regulatory Setting

The Clean Water Act (CWA) (33 U.S.C. § 1251 et seq.) regulates discharges of pollutants into surface waters of the United States. Section 404 of the CWA established a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. The USACE defines wetlands as “those areas that could result in discharge to State Waters”.

EO 11990, Protection of Wetlands, requires federal agencies to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. It also requires that agencies avoid construction or provide assistance for new construction located in wetlands, to the extent practicable.

Jurisdictional features include wetlands, open waters, ponds, lakes, and perennial/intermittent streams. Jurisdictional features are regulated by the USACE and NCDEQ. Permits are required prior to impacting any jurisdictional feature. The type of permit required is specific to the type, location, and quantity of impacts.

To help protect water quality in North Carolina, DWR has riparian buffer rules protecting vegetated areas adjacent to intermittent and perennial streams, lakes, reservoirs, ponds, estuaries, and modified natural streams. The Neuse River Basin: Nutrient Sensitive Water Management Strategy: Protection of Existing Riparian Buffers (15A NCAC 2B) protects and preserves existing riparian buffers in the Neuse River Basin to maintain their nutrient removal functions. The rule applies to 50-foot-wide riparian buffers directly adjacent to surface waters in the Neuse River Basin.

EO 11988, Floodplain Management, requires federal agencies to avoid, to the extent possible, adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development.

3.2.2 Affected Environment

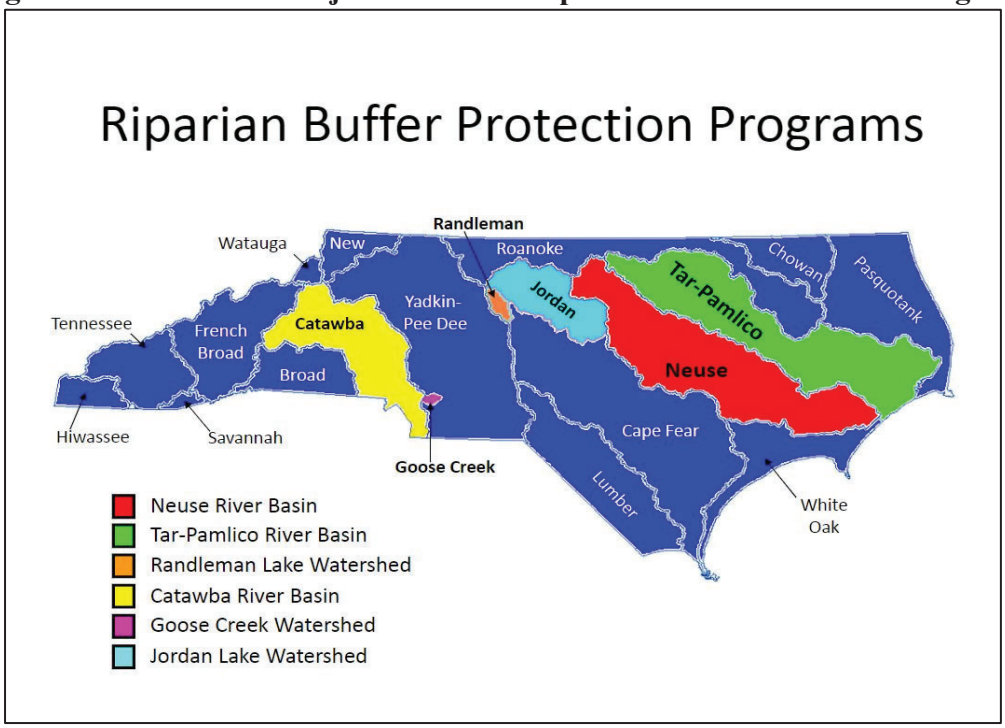
Water resources described in this section include surface waters and stormwater runoff, groundwater, and floodplains. Information provided was obtained from existing reports: Wetland and Watercourse Delineation Report (Pilot 2022), the DAF's INRMP for SJAFB (U.S. Air Force, 2020) or from the U.S. Geological Survey (USGS) and NCDEQ online resources.

Surface Waters and Stormwater Runoff

SJAFB is located within the Neuse River watershed and is bordered by both the Neuse River and Stoney Creek. Stoney Creek runs along the northwest boundary of SJAFB and is a tributary to the Neuse River; the confluence of Stoney Creek and the Neuse River lies on the western boundary of SJAFB. Most the runoff on base is captured by the storm water conveyance infrastructure, transported in underground piping, and outfalls discharging directly into the streams that flow through SJAFB.

The Neuse River and Stoney Creek are categorized by NCDEQ as a Class C NSW. This classification means it is freshwater and protected for secondary recreation, fishing, aquatic life, and wildlife. The Neuse River is subject to the North Carolina Riparian Buffer Protection Program (Figure 4). A riparian buffer filters stormwater runoff before it enters a stream. Vegetation within the riparian buffer absorbs excess nutrients and sediment, helps to control erosion, moderates water temperature, and also provides flood control. More information on the Neuse River and the Riparian Buffer Protection Program can be found on the NCDEQ web site (https://deq.nc.gov).

Figure 4. Watersheds Subject to the NC Riparian Buffer Protection Program

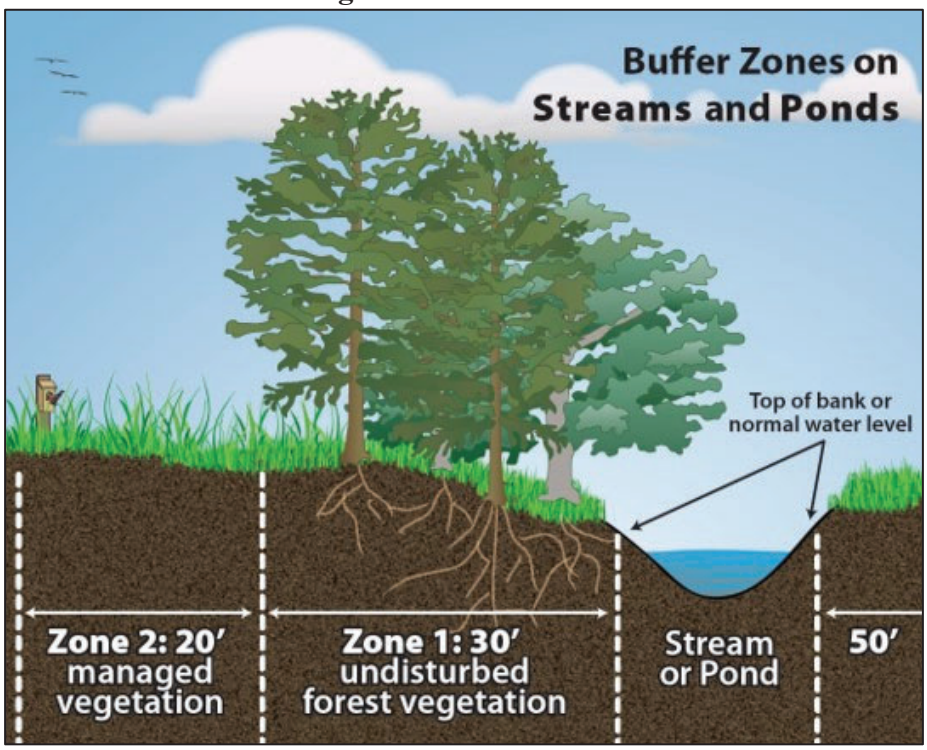


Source: NCDEQ Riparian Buffer Protection Program.

The Neuse River Buffer Rule (15A NCAC 2B) regulates land use activities adjacent to the Neuse River and its tributaries. In a letter dated March 12, 2020, the North Carolina Department of Environmental Quality determined that the unnamed tributary (UNT) to Stoney Creek (Hospital Creek South) within the project study area is not subject to the Neuse River Buffer Rule. Hospital Creek North and Burge Ditch are subject to The Neuse River Buffer Rule. This determination is valid for 5-years (See Appendix C).

Based on the NCDEQ determination, a 50-foot-wide riparian buffer directly adjacent to Hospital Creek North and Burge Ditch is protected. The Neuse River Buffer Rule (15A NCAC 2B) defines the riparian buffer in two (2) zones. Figure 5 provides a visual representation of buffer Zone 1 and Zone 2. Zone 1 includes 30-feet from the top of bank on all sides of the stream, measured horizontally on a line perpendicular to the stream. Zone 2 begins at the edge of Zone 1 and extends landward 20-feet as measured horizontally on a line perpendicular to the surface water. The combined width of Zones 1 and 2 make up the 50-foot-wide riparian buffer on all sides of the surface water.

Figure 5. Buffer Zones



Source: NQDEQ - Riparian Buffer Rules Education and Outreach

A waterway investigation was conducted by Pilot Environmental, Inc. on February 17 and April 8, 2022. The investigation delineated six (6) waterways totaling 8,039 linear feet (LF) within the project area. A summary of the waterways is provided in Table 6 and in the paragraphs below. A Wetland and Waterway Delineation Report was completed by Pilot dated May 4, 2022 (see Appendix D).

The UNT to Stoney Creek, also known as Hospital Creek, is within a maintained area and has been previously straightened. The banks are surrounded by maintained herbaceous vegetation with no riparian shrubs. There is a straight line of landscaped trees planted approximately 50-feet away and parallel to the stream. The stream is culverted beneath Vermont Garrison Road (Hospital Creek South) and again beneath Dargue Avenue (Hospital Creek North) within the study area.

Table 6. Waterway Summary

Location	Resource I.D.	Resource Name	NC Surface Water Quality	Associated Wetland	Size within Project Study Area (LF)
Hospital Creek North*	SA	UNT to Stoney Creek	Class C, NSW	WA	597
Hospital Creek South	SB	UNT to Stoney Creek	Class C, NSW	WB	1,095
Burge Ditch*	SCA	UNT to Neuse River	Class C, NSW	N/A	93
	SCB	UNT to Neuse River	Class C, NSW	N/A	94
	SCD	UNT to Neuse River	Class C, NSW	WC1	48
	SE	UNT to Neuse River	Class C, NSW	WC1, WC2, WC3, WC4	6,112

Source: Wetland and Waterway Delineation Report (Pilot 2022)
*Subject to the Neuse River Buffer Rule – 50-foot riparian buffer required

Burge Ditch is a tributary to the Neuse River and has also been previously straightened. The banks are surrounded by maintained herbaceous vegetation between Service Road and Burge Road. Burge Ditch flows east to southwest parallel to Burge Road along the southern boundary of the military reservation until its confluence with Neuse River in the southernmost portion of SJAFB. Three (3) small unnamed tributaries to Burge Ditch originating from stormwater outfall culverts were delineated within the project study area.

Stormwater runoff from SJAFB is received by Stoney Creek, the Neuse River, Burge Ditch, and an unnamed tributary of Stoney Creek (Hospital Creek North and South). SJAFB currently has a NPDES permit (#NCS000335) for discharging stormwater into the Neuse River, Stoney Creek, and a UNT to Stoney Creek (SJAFB INRMP, U.S. Air Force, 2020). Within the project area, there is one stormwater outfall discharging to the UNT to Stoney Creek. A roadside swale discharges stormwater to the UNT to Stoney Creek within the project study area on the northwest side of Vermont Garrison Road. The stormwater discharge individual NPDES permit #NCS000335 and related regulatory documents are published on the NCDEQ website and available to the public.

Groundwater

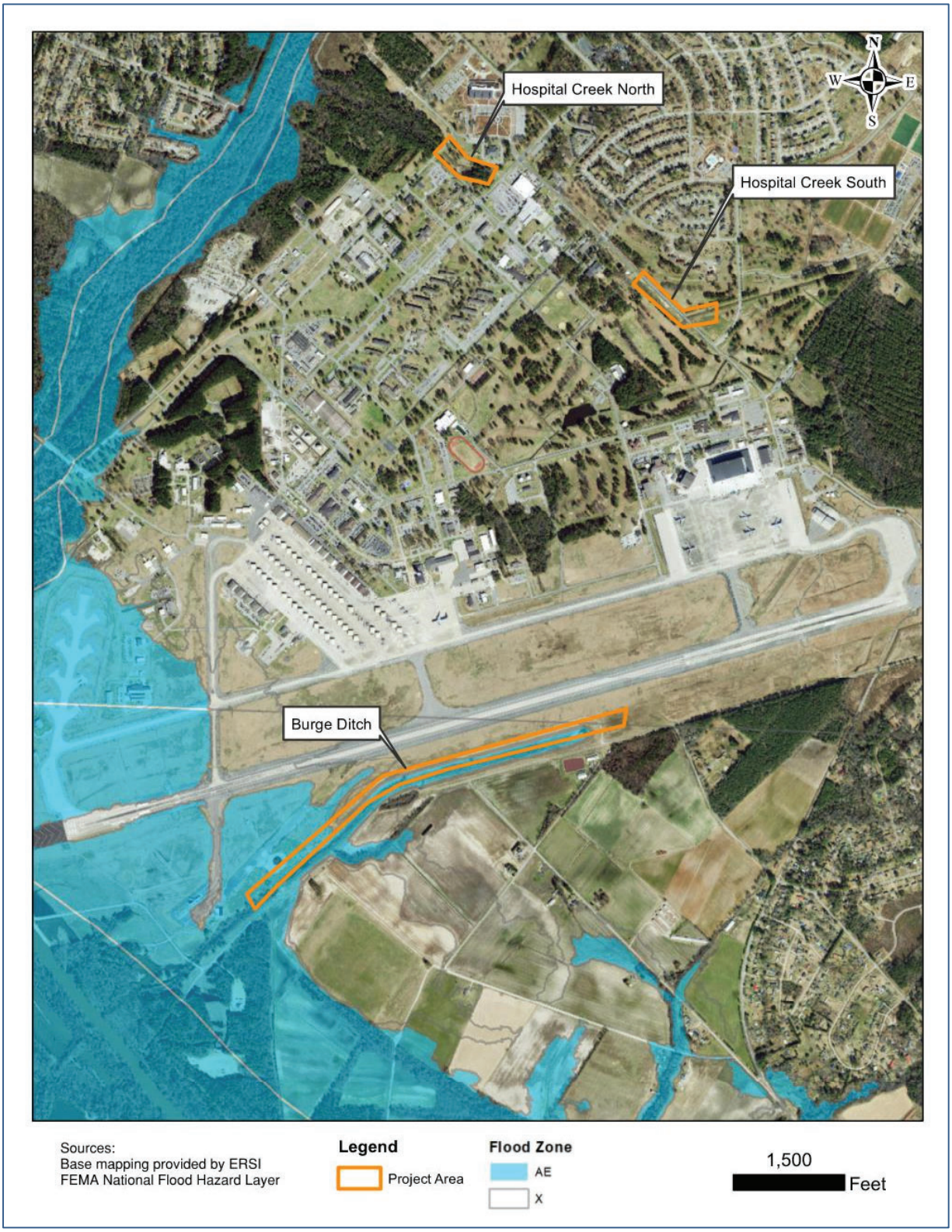
The SJAFB receives water from City of Goldsboro for industrial activities and domestic uses. The groundwater resources on SJAFB are influenced by three (3) principal aquifers: the water table aquifer, the Black Creek aquifer, and the Cape Fear aquifer (SJAFB INRMP, U.S. Air Force, 2020). The nearest USGS groundwater monitoring well is located in Wayne County near Grantham, North Carolina, approximately 15 miles west of SJAFB. This well is associated with a surficial aquifer system and has been monitored by USGS since 1980. According to the USGS National Water Information System, the mean water level in this well for water year 2022 is 7.55 feet below the land surface. The mean depth to water level based on over 40 years of data (1980 to 2022) is 4.29 feet.

Floodplains

Floodplains are defined in AFMAN 32-7003 as lowland or flat areas adjoining inland and coastal waters that have a 1 percent or greater chance of flooding in any given year. The floodplains associated with SJAFB in the project area are described below.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) identifies the Burge Ditch project area within the Flood Zone AE which is defined by FEMA as an "area that has a 1% chance of annual flood". Hospital Creek North and Hospital Creek South project areas are within Flood Zone X, which is defined by FEMA as an "area of minimal flood hazard, usually depicted on FIRMs as above the 0.2% flood hazard level" (Figure 6).

Figure 6. FEMA FIRM Map



3.2.3 Environmental Consequences

Surface Waters and Stormwater Runoff

Proposed Action

Table 7 summarizes the temporary and permanent impacts to surface waters anticipated with construction of the Proposed Action. Temporary stream impacts to surface waters would occur during construction activities. Silt fencing and other recognized best management practices and temporary E&S control measures would be utilized along stream banks in accordance with an approved erosion and sedimentation control plan to restrict sediment transport downstream until the sites are stabilized.

Permanent impacts to surface waters resulting from bank regrading and the placement of reinforcement with native vegetation, redi-rock walls, TRM and riprap installation would occur. The Proposed Action would stabilize stream banks and reduce erosion in the stream. The use of TRM would improve the aquatic habitat of the stream by decreasing deposition in the water column as well as the deposition of sediment on the substrate.

Table 7. Surface Waters Impacted at SJAFB

Priority Area	Location	Temporary Stream Impacts (Linear Feet [LF])	Permanent Stream Impacts (Linear Feet [LF])	Permanent Stream Impacts (Square Feet [SF]/Acres)	Permanent Fill Placed Below OHWM (Cubic Yards [CY])
Priority Area 1	Burge Ditch	4,831 LF	150 LF	3,604.10 (0.083)	109.83
	UNTs to Burge Ditch	234 LF	162 LF	2,289.70 (0.052)	90.22
Priority Area 2	Hospital Creek North	485 LF	24 LF	313 (0.007)	0
Priority Area 3	Hospital Creek South	941 LF	146 LF	624.36 (0.014)	23.13
Total		**6,491 LF**	**482 LF**	**6,831.16 (0.157)**	**223.18**

The following activities are proposed in each Priority Area:

Priority Area 1

- Repair to damaged concrete apron and installation of riprap and redi-rock wall at existing Outfalls 11b and 11c resulting in the permanent impact to 150 LF (3,604.10 SF (0.083 ac.)) to Burge Ditch (Area 1A).

- Grade and install TRM, and stabilize until vegetation is established along both banks of Burge Ditch downstream of Outfall 10 for a total of 106 LF of temporary impact to an unnamed tributary to Burge Ditch (Area 1B).

- Grade and install riprap at Outfall 10 for a total of 34 LF (716.8 SF (0.016 ac.)) of permanent impact to an unnamed tributary to Burge Ditch (Area 1B).

- Grade and install TRM and install riprap at the 6-inch corrugated metal pipe (CMP) for a total of 89 LF (981.3 SF (0.022 ac.)) of permanent impact to an unnamed tributary to Burge Ditch (Area 1C).

- Regrade and reinforce channel with TRM and Stabilize until vegetation is established for a total of 39 LF of temporary impact at the 48-inch reinforced concrete pipe (RCP) (Area 1C).

- Grade and install riprap at the 48-inch RCP for a total of 39 LF (591.6 SF (0.013 ac)) of permanent impact to an unnamed tributary to Burge Ditch (Area 1C).

- Grade and install TRM, and stabilize until vegetation is established along both banks of Burge Ditch downstream of Outfall 11B (Area 1A) to Outfall 2 (Area 1C) to repair bank erosion and sediment aggradation resulting in a total of 4,831 LF of temporary impact.

- Temporary stream crossings at four (4) locations between Outfall 2 and Outfall 10 where access is limited due to airfield operations. The temporary construction stream crossings would result in 80 LF of temporary stream impact.

Priority Area 2

- Install new concrete headwall and outfall scour protection; backfill area behind headwall of Hospital Creek at Jabara Avenue for a total of 24 LF (313 SF (0.007 ac.)) of permanent impact.

- Grade and install TRM, and stabilize until vegetation is established along both banks of Hospital Creek downstream of Jabara Avenue to repair bank erosion and sediment aggradation for a total of 484 LF of temporary impact.

Priority Area 3

- Grade and stabilize until vegetation is established along both banks of Hospital Creek upstream of the Vermont Garrison Street Bridge to repair bank erosion and sediment aggradation for a total of 947 LF of temporary impact.

- Repair abutments to Vermont Garrison Street bridge over Hospital Creek and install outfall scour protection and redi-rock wall on the upstream and downstream side of the bridge for a total of 146 LF (624.36 SF (0.014 ac.)) of permanent impact.

The Proposed Action would address erosion and would improve water quality in Burge Ditch and Hospital Creek by reducing and/or preventing TSS discharge and other storm water-related pollutants to the Neuse River watershed. Permanent and temporary impacts to aquatic resources and biodiversity within the bed and banks of Burge Ditch and Hospital Creek caused by the Proposed Action would be balanced or outweighed by the benefits generated by the stabilization of the streambanks and the repair of the existing stormwater outfalls, which would offset any residual impacts so that no loss to function and value of aquatic resources would result from project construction.

It is anticipated that a NCDEQ 401 Water Quality Certification and USACE Nationwide Permit (NWP) 13 – Bank Stabilization would be utilized to construct the project.

Hospital Creek North and Burge Ditch are subject to The Neuse River Buffer Rule (15A NCAC 2B) which regulates land use activities adjacent to the Neuse River and its tributaries, and therefore would require authorization from NCDEQ.

No Action
Under the No Action Alternative, stream banks would continue to scour, erode, and slough. The structural integrity of the stream banks and conveyance performance of the outfall pipes and headwall structures are failing which would result in excessive sediment load discharge to the Neuse River. The No Action Alternative would have a negative impact on the quality of surface water and stormwater on SJAFB and Neuse River watershed.

Groundwater
Proposed Action
No impacts to groundwater resources are anticipated under the Proposed Action Alternative. Minor, shallow excavation and grading is required to construct the project and would not intercept the water table.

No Action
No impacts to groundwater resources are anticipated under the No Action Alternative.

Floodplains
The Neuse River Buffer Rule states that the proposed stream stabilization and outfall repair is exempt from its purview, however the stabilization activities within the bed and banks of Hospital Creek North and Burge Ditch would require authorization by the NCDEQ. The issuance of the Section 401 Water Quality Certification, in addition to the Buffer Authorization Certificate for impacts to Neuse riparian buffers as part of the state permitting effort would satisfy the authorization requirements of the Neuse Buffer Rule.

Proposed Action
Burge Ditch is the only stream within the FEMA mapped floodplain with a 1% Flood Hazard[9] (Figure 3). Temporary impacts to the floodplain along Burge Ditch would occur for regrading,

[9] The 1% Flood Hazard is a flooding event which has 1% likelihood of happening in any given year.

revegetation and stabilizing TRM, and for construction access and placement of E&S control measures. Permanent impacts to the floodplain include the placement of fill for riprap stabilization and the outfall improvements proposed at Outfall 10, 11B and 11C for a total of 12,452 SF (0.286 ac). The Proposed Action would address streambank erosion and increase the vegetative stream buffer within the floodplain. No adverse impacts to the floodplain would result from construction of the Proposed Action.

Table 8. Floodplain Impacts at SJAFB

Priority Area	Location	Temporary Floodplain Impacts Square Feet [SF] (acre)	Permanent Floodplain Impacts Square Feet [SF] (acre)	Temporary Buffer Impacts Square Feet [SF] (acre)	Permanent Buffer Impacts Square Feet [SF] (acres)
Priority Area 1	Burge Ditch*	309,002 (7.09)	12,452 (0.286)	Zone 1: 245,790 (5.64) Zone 2: 16,311 (0.37)	Zone 1: 0.00 Zone 2: 0.00
Priority Area 2	Hospital Creek North*	NA	NA	Zone 1: 22,924 (0.53) Zone 2: 1,044 (0.02)	Zone 1: 0.00 Zone 2: 0.00
Priority Area 3	Hospital Creek South	NA	NA	NA	NA
Total		**309,002 (7.09)**	**12,452 (0.286)**	**Zone 1: 268,714 (6.16) Zone 2: 17,355 (0.39)**	**Zone 1: 0.00 Zone 2: 0.00**

*Subject to Neuse River Buffer Rule

The Proposed Action would result in minor short-term disturbance within the floodplain but would not result in short or long-term adverse impact to the floodplain values or functions. Short-term impacts would be avoided or minimized through the use of best management practices during sampling and remediation activities. The sites would be restored to pre-activity state in such a manner as to have no or minimal effect on floodplain values or functions. No impacts to lives and private property are anticipated from this project. As per Executive Order (EO) 11988, Floodplain Management, adverse impacts associated with the occupancy and modification of floodplains have been avoided and minimized to the maximum extent practicable and direct and indirect support of floodplain development has been avoided.

The 50-foot protected riparian buffer is divided into two (2) zones, as discussed in Chapter 3.2.2. Impacts to Zone 1 and Zone 2 of the buffer are quantified in Table 8. Temporary roads, temporary sediment and erosion control devices, and streambank stabilization activities are considered either exempt or allowable under the Neuse River Buffer Rule (15A NCAC 2B) for the Proposed Action because the project would comply with the requirements under the Rule. Specifically, vegetation would be restored within six (6) months of initial disturbance for temporary roads that would disturb greater than 2,500 square feet; vegetation in Zone 1 would not be permanently compromised and that discharge would be released as diffuse flow in accordance with Item (5) of the Rule; temporary sediment and erosion control devices would be used in Zones 1 and 2 to control impacts associated with approved uses; and in-stream temporary erosion and sediment control measures would be used for work within the stream channels.

No Action

Under the No Action Alternative, continued erosion along Burge Ditch and Hospital Creek (North and South) would reduce the waterways active connection to the floodplain. Increased flow rates during storm events would perpetuate erosion. The exposed soil between Hospital Creek South and Vermont Garrison Street would not be revegetated under the No Action Alternative. Inadequate revegetation of the area would allow for continued sediment loading to the Neuse River watershed.

3.3 Geology and Soils

3.3.1 Regulatory Setting

The Sedimentation Pollution Control Act of 1973 (as amended through 1999, North Carolina General Statute §113A Article 4) provides for the creation, administration, and enforcement of a program and for the adoption of minimal mandatory standards that would permit development of the State of North Carolina to continue with the least detrimental effects from pollution by sedimentation.

3.3.2 Affected Environment

Geology

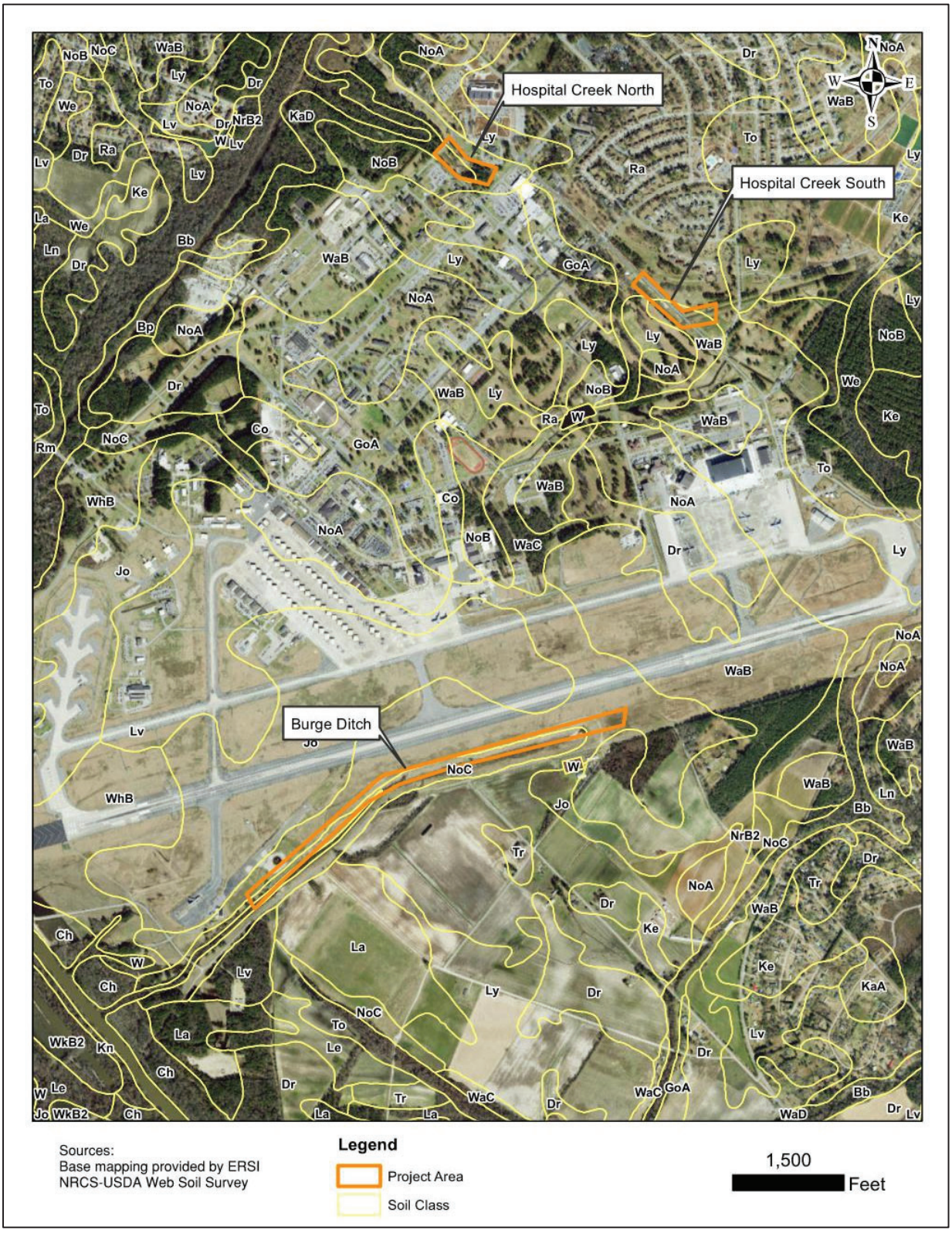
Geology information for SJAFB was obtained from the Wetland and Watercourse Delineation Report (Pilot 2022), and the DAF's INRMP for SJAFB (U.S. Air Force, 2020).

SJAFB is located in the Coastal Plain Province geologic unit of North Carolina. Sediments of the Coastal Plain comprise mainly Quaternary and Tertiary sediments overlying about 130 feet of Cretaceous marine sediments. Surficial deposits in the area consist of the Holocene Goldsboro Sands and Pliocene Sunderland Formation. Topography on SJAFB is generally flat to gently rolling with the lowest elevation being 48 feet above mean sea level.

Soils

Based on mapped soil data obtained from the USDA Soil Survey for Wayne County, the soils in the project area include Kalmia loam sand (KaD), Lumbee sandy loam (Lv), Lynchburg sandy loam, 0 to 2 percent slopes (Ly), Norfolk loamy sand (NoB and NoC), Rains sandy loam, 0 to 2 percent slopes (Ra) and Wagram loamy sand, 0 to 6 percent slopes (WaB) (Figure 7).

Figure 7. USDA Soils within the Project Area



The Kalmia series consists of well drained, moderately permeable soils that occur on stream terraces. The Lumbee series consists of poorly drained, moderately permeable soils that occur on stream terraces and flats. The Lynchburg series consists of somewhat poorly drained, moderately permeable soils that occur on marine terraces and flats. The Norfolk series consists of well drained, moderately permeable soils that occur on marine terraces and uplands. The Rains series consists of poorly drained, moderately permeable soils that occur on flats, depressions, and Carolina bays. The Wagram series consists of somewhat excessively drained, moderately permeable soils that occur on interfluves and side slopes. Each of the soil mapping units are identified on the Wayne County Hydric Soils List.

Soil series within the project study area (Ly and Ra) are identified as Prime Farmland Soils if drained. Additionally, Wagram soil series (WaB) is identified as a Farmland Soil of Statewide Importance. The soils within SJAFB property have been previously altered and developed. There are no active agricultural parcels, or land used for agricultural production within the project area.

3.3.3 Environmental Consequences

Proposed Action

The Proposed Action would have a beneficial impact on the local environment by reducing the amount of erosional soils and rock materials scoured from unstable streambanks of Hospital Creek and Burge Ditch through implementing stabilization of stream banks and channels, as well as repairing existing outfall structures.

Temporary erosion control elements would be utilized along stream banks to restrict sediment transport downstream until the sites are stabilized. Areas disturbed for access and construction would be regraded and seeded for revegetation. Permanent impacts would occur to soils in areas excavated for the placement of rock and culvert repair and replacement structures. Areas of eroding surface soils along Vermont Garrison Street in Priority Area 3, would be replaced with a topsoil that can readily establish vegetation. Jute mesh would be installed and hydroseeded with an approved grass type for the area. The soils excavated for stabilization activities int this area would be hauled offsite.

The drainage system repairs would disturb greater than one (1.0) acre and trigger the submission and approval of a Sedimentation Erosion Control Plan (SECP) according to NCDEQ Land Resources. The drainage systems also have designated outfalls listed in the NPDES federal stormwater permit (Permit No. NCS000335). The proposed grading and construction activities would be consistent with the requirements of NPDES Permit No. NCS0000335 by utilizing the following:

- Development, implementation and management of a Stormwater Management Plan in accordance with Section 402(p)(3)(B) of the CWA that includes specific and measurable goals that define program elements to fully implement each of the six (6) minimum control measures (MCMs) defined in 40 C.F.R. §122.34(b): public education and outreach on stormwater impacts, public involvement and participation, illicit discharge detection and elimination, construction site runoff control, post-construction stormwater management,

and pollution prevention/good housekeeping for municipal operations, as well as any required Total Maximum Daily Load (TMDL) requirements.

- The Stormwater Plan shall detail the permittee's Stormwater Management Program for the five-year term of the stormwater permit. that identifies specific position(s) and responsibilities for the implementation of each MCM and any TMDL requirements, as well as overall coordination and management of the Comprehensive Stormwater Management Program.

- If discharges are determined to cause or contribute to non-attainment of an applicable water quality standard, the permittee shall expand or better tailor its BMPs within the scope of the six (6) minimum control measures to address the discharges.

- Implementation of best management practices consistent with the provisions of the Stormwater Plan to reduce the discharge of pollutants from the MS4 to the maximum extent practicable, to protect water quality, and to satisfy the applicable water quality requirements of the Clean Water Act.

In addition, the project would also be consistent with the requirements outlined in the approved Comprehensive Watershed Protection Plan (NCDEQ Approval Letter, 2015) by designing the project to improve and protect water quality in the Neuse River watershed through the stabilization of streambanks and minimizing erosion that would reduce pollutant loads and hydrologic alterations to waterbodies and integrating green infrastructure practices as part of the project design.

No Action Alternative
The bed and banks of Hospital Creek and Burge ditch are comprised of sandy soils. The stream channels experience chronic erosion in areas where the sandy soil is devoid of ground cover. Without established vegetation to stabilize the soil, the stream banks would continue to erode as they are exposed through overland runoff.

3.4 Cultural Resources

3.4.1 Regulatory Setting

The National Historic Preservation Act (NHPA) requires federal agencies to consider effects of federal undertakings on historic properties prior to deciding or taking an action and integrate historic preservation values into their decision-making process. Federal agencies fulfill this requirement by completing the NHPA Section 106 Process codified at 36 C.F.R. Part 800. Section 106 also requires agencies to consult with federally recognized American Indian tribes with a vested interest in the undertaking. In addition, tribal consultations are conducted under Section 106 of the NHPA and DAF Instruction 90-2002, *Interactions with Federally Recognized Tribes.*

3.4.2 Affected Environment

The North Carolina State Historic Preservation Office's (NCSHPO) online database (HPOWEB) does not identify any historic resources within the project study area. There are two (2) buildings located on SJAFB (Building 2130-NAOC and Building 5015 – Maintenance Training Hangar) that

are identified as eligible for the National Register of Historic Places. These buildings are not located within the area of potential effect (APE) of the Hospital Creek North, Hospital Creek South, or the Burge Ditch streambank and Outfall Repair project areas (See Figure 8).

The Catawba and Tuscarora Tribes were consulted to identify whether there are areas of historic, religious, or cultural significance within the APE for this proposed action. A summary of the responses is included in Section 3.4.3.

Figure 8. Eligible Buildings on SJAFB for the National Register of Historic Places

3.4.3 Environmental Consequences

Proposed Action

Consultation with the NCSHPO was conducted for the project. A response was received on October 17, 2022, and determined that there are no cultural resources that would be affected by the proposed action, because there are no cultural resources present within the proposed action area. A copy of the letter is provided in Appendix C.

Tribal consultation with the Catawba Indian Nation was conducted during the scoping period. A response was received on September 9, 2022, indicating the Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites, or Native American archaeological sites within the boundaries of the proposed project areas. However, the Catawba have requested to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project. The DAF circulated the Draft EA and Draft Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) for public review from July 20, 2023, to August 20, 2023. No comments were received during the public comment period. The DAF initiated follow-up coordination with the Catawba Indian Nation on August 21, 2023, and no response was received. A copy of the coordination is provided in Appendix C.

A letter requesting tribal consultation with the Tuscarora Indian Nation was sent during the scoping period from September 3, 2022, through October 3, 2022. No response from this agency was received. The DAF circulated the Draft EA and Draft Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) for public review from July 20, 2023, to August 20, 2023. No comments were received during the public comment period. The DAF initiated follow-up coordination with the Tuscarora Indian Nation on August 21, 2023, and no response was received. A copy of the coordination is provided in Appendix C.

No Action

The two (2) buildings located on SJAFB that are identified as eligible for the National Register of Historic Places (Building 2130-NAOC and Building 5015 – Maintenance Training Hangar, Figure 8) would not be impacted under the No Action Alternative. Under the No Action Alternative, the stream banks would continue to erode; however, the eligible buildings are not located within close proximity to the stream banks of Hospital Creek North, Hospital Creek South, or Burge Ditch to be impacted by the eroded condition under the No Action Alternative. No impacts to cultural resources are anticipated under the No Action Alternative.

3.5 Biological Resources

3.5.1 Regulatory Setting

Biological resources include native or invasive plants and animals; sensitive and protected floral and faunal species; and the habitats, such as wetlands, forests, and grasslands, in which they exist. Habitat can be defined as the resources and conditions in an area that support a defined suite of organisms.

Section 7 of The Endangered Species Act of 1973 (16 U.S.C. 1531 et. seq.) directs all federal departments and agencies to seek to conserve endangered species and threatened species and to cooperate with state and local agencies to resolve critical habitat issues in concert with conservation of endangered species. The ESA established protection over and conservation of

threatened and endangered species and the ecosystems on which they depend. Sensitive and protected biological resources include plans and animal species listed as threatened, endangered, or special status by the USFWS and NOAA NMFS. The USFWS maintains a list of species considered to be candidates for possible listing under ESA. ESA also allows the designation of geographic areas as critical habitat for threatened or endangered species. Although candidate species receive no statutory protection under ESA, the USFWS has attempted to advise government agencies, industry and the public that these species are at risk and may warrant protection under ESA.

The CWA (33 U.S.C. §1251 et seq.) and the Water Quality Act of 1987 (33 U.S.C. § 1251 as amended) establish federal policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters and, where attainable, to achieve a level of water quality that provides for the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water.

Section 404 of the CWA established a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. The USACE defines wetlands as "those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions" (Environmental Laboratory, 1987). Wetlands generally include swamps, marshes, bogs, and similar areas (33 C.F.R. § 328).

The CWA initiated strict control of wastewater discharges with responsibility of enforcement given to the EPA. The EPA then created the NPDES to track and control point sources of pollution. The primary method of control is by issuing permits to dischargers with limitations on wastewater flow and constituents. The EPA delegated permitting authority to the State of North Carolina, which permits stormwater discharge under North Carolina General Statute 143-215.1.

As part of the 1988 amendment to the Fish and Wildlife Conservation Act (Public Law 100-653), the USFWS is required to identify species, subspecies, and populations of migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA of 1973. Bird species of conservation concern are listed by USFWS according to Bird Conservation Regions (BCRs). The lists are intended to assist federal land-managing agencies in their efforts to abide by bird conservation principles set forth in the Migratory Bird Treaty Act and EO 13186 "Responsibilities of federal agencies to protect migratory birds".

Migratory Bird Treaty Act (16 U.S.C. §703 et seq.) makes it unlawful for anyone to take migratory birds for their parts, nests, or eggs unless permitted to do so by regulations. Per the MTBA "take" is defined as "pursue, hunt, shoot, wound, kill, trap, capture, or collect" (50 C.F.R. § 10.12). Birds protected under the MTBA include nearly all species in the U.S., with the exception of nonnative/human-introduced species and some game birds.

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), enacted in 1940, and amended several times since, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts (including feathers), nests, or eggs.

EO 11990, Protection of Wetlands, requires that federal agencies provide leadership and take actions to minimize or avoid the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. EO 11988, Floodplain Management requires Federal agencies to avoid, to the extent possible, the short- and long-term adverse impacts associated with the occupancy and modification of floodplains.

3.5.2 Affected Environment

Threatened and Endangered Species

The North Carolina Natural Heritage Program (NCNHP) Database and USFWS Service were consulted to identify any state or federal listed species within the project area and a one-mile radius of the project area. Responses were provided in a Letter dated August 12, 2022. Table 9 summarizes the State and Federal Listed species present.

Table 9. Threatened and Endangered Species Summary

Common Name	Scientific Name	Listing
Atlantic Sturgeon	*Acipenser oxyrinchus oxyrinchus*	State & Federal Endangered
Red-cockaded woodpecker	*Picoides [=Dryobates] borealis*	Federal, Endangered
Neuse River waterdog	*Necturus lewisi*	Federal, Threatened
Carolina madtom	*Noturus furiosus*	Federal, Endangered
Atlantic pigtoe	*Fusconaia masoni*	Federal, Threatened

Source: NCNHP 2022, USFWS 2022

State Listed Species

No state listed species are documented within the project area or one-mile radius of Hospital Creek South or Hospital Creek North. No state listed species are documented within the project area for Burge Ditch; however, within a one-mile radius, there are element occurrences for Freshwater Fish, Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) ((Federal and State Listed, Endangered) and a Natural Community of Brownwater Bottomland Hardwoods.

Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) lives in rivers and coastal waters from Canada to Florida. Hatched in the freshwater of rivers, Atlantic sturgeon head out to sea as sub-adults, and return to their birthplace to spawn, or lay eggs, when they reach adulthood. Sturgeon eggs are highly adhesive and are deposited on bottom substrate, usually on hard surfaces (e.g., cobble). It is likely that cold, clean water is important for proper larval development. Once larvae begin migrating downstream, they use benthic structure (especially gravel matrices) as refuges. Upon hatching, larvae hide along the river bottom and drift downstream until reaching brackish waters where they may reside for 1 to 5 years before moving into coastal waters. Spawning runs of Atlantic sturgeon are still not completely understood. In rivers from Georgia to the Chesapeake Bay, scientists have confirmed that adult sturgeon spawn during the late summer and fall. In rivers from Delaware to Canada, adults spawn in the spring and early summer. Due to overfishing, the abundance of natal populations is much less than historical levels, but breeding populations still exist in at least 22 U.S. rivers from Maine to Georgia and in several more in Canada. The species can grow to approximately 16 feet long and weigh up to 800 pounds. The species are bottom

feeders, typically consuming invertebrates such as crustaceans, worms, mollusks, and bottom-dwelling fish. (NOAA NMFS 2022).

According to the NCNHP Brownwater Bottomland Hardwoods consist of forests of Coastal Plain floodplain terraces and ridges other than active natural levees, lacking a significant component of levee tree species, and naturally dominated by bottomland oaks, hickories, and sweetgum. The Swamp Transition Subtype encompasses communities that are transitional to Cypress–Gum Swamp, having a mix of oaks with *Taxodium* or *Nyssa* in the canopy and having lower strata that are similarly intermediate. Brownwater Bottomland Hardwoods are distinguished by occurrence on floodplains of brownwater rivers but away from the riverbank or natural levees, and by dominance by bottomland oaks or sweetgum (NCNHP 2020).

Federal Listed Species

The USFWS Information for Planning and Consultation (IPaC) online review tool was completed and identified three (3) aquatic species; Neuse River waterdog (*Necturus lewisi*), Carolina madtom (*Noturus furiosus*) and Atlantic pigtoe (*Fusconaia masoni*), and one (1) terrestrial species; red-cockaded woodpecker (*Picoides [=Dryobates] borealis*) as potentially occurring within the project area.

The Red-cockaded woodpecker (*Picoides [=Dryobates] borealis*) is a federally listed avian species known to occur in Wayne County. The Red-cockaded woodpecker (RCW) is a small bird measuring about seven (7) inches in length. Red-cockaded woodpecker habitat includes forests with trees old enough for roosting, generally at least 30-120 years old, or greater than 10 inches diameter at breast height, depending on species of pine. Longleaf pines (*Pinus palustrus*) are preferred, but other species of southern pine are also acceptable. Dense stands with a thick hardwood under story are avoided, an open under story with "meadow-like" characteristic is preferred. The most prominent adaptation of RCWs is their use of living pines for cavity excavation.

Three (3) federally listed aquatic species are known to occur in Wayne County: Neuse River waterdog (*Necturus lewisi*; amphibian), Carolina madtom (*Noturus furiosus*; fish) and Atlantic pigtoe (*Fusconaia masoni*; mussel).

The Neuse River waterdog is an aquatic salamander, and its habitat includes low to moderate gradient streams and low current velocity. It lacks lungs, getting oxygen from the water via external gills and needs clean, flowing water with high dissolved oxygen concentrations. The species occurs in streams wider than 15 meters but has been found in smaller creeks. The species thrives in cold water and is much more active in colder seasons. In early spring the salamanders move into leaf beds over mud banks on the low-energy sides of riffles and where leaves are intact or only slightly decomposed with small vertebrates/invertebrates in the leaf litter.

The Carolina madtom occurs in riffles, runs, and pools in medium to large streams and rivers. It prefers fresh waters with continuous, year-round flow and moderate gradient in both the Piedmont and Coastal Plain. Optimal substrate for the Carolina madtom is predominantly silt-free, stable,

gravel and cobble bottom habitat, and with cover for nest sites, including under rocks, bark, relic mussel shells, and even cans and bottles.

The preferred habitat for the Atlantic pigtoe is coarse sand and gravel, and rarely silt and detritus. Historically, the healthiest populations existed in small creeks to larger rivers with excellent water quality, where flows were sufficient to maintain clean, silt-free substrates.

Migratory Birds

Migratory Bird information for SJAFB was obtained from the DAF's INRMP for SJAFB (U.S. Air Force, 2020). SJAFB is located in BCR 27, Southeastern Coastal Plain. Within BCR 27, there are six (6) species known or expected to occur at SJAFB: American kestrel (*Falco spaverius*), Bald eagle (*Haliaeetus leucocephalus*), Kentucky warbler (*Oporonis formosus*), Loggerhead shrike (*Lanius ludovicianus*), Swainson's warbler (*Limnothlypis swainsonii*), and Wood thrush (*Hylocichla mustelina*).

EO 13186 requires a Memorandum of Understanding (MOU) between the federal agency and the USFWS if the agency takes actions that have, or are likely to have, a measurable negative effect on migratory bird populations. SJAFB does not take actions that are likely to have a measurable effect on migratory bird populations, and therefore a MOU is not required. As part of the Bird Aircraft Strike Hazard (BASH) Plan at SJAFB, a Migratory Bird Depredation permit has been issued by the USFWS. The permit establishes various procedures and allows the taking, after all non-lethal methods have been exhausted, of the minimum number of birds necessary to protect the aircraft and aircrews.

Wetlands

A wetlands investigation was conducted by Pilot on February 17 and April 8, 2022, for Burge Ditch Hospital Creek North, and Hospital Creek South. The investigation determined there are six (6) wetlands within the project area. A Wetland and Waterway Delineation Report was completed by Pilot dated May 4, 2022 (see Appendix D). Table 10 summarizes the wetlands delineated within SJAFB in the project study area.

Table 10. Wetlands Delineated at SJAFB.

Wetland ID	Location	Wetland Class	Area
WC1	Burge Ditch	PEM	0.335 ac.
WC2	Burge Ditch	PEM	0.112 ac.
WC3	Burge Ditch	PEM	0.019 ac.
WC4	Burge Ditch	PEM	1.963 ac.
WA1-19	Hospital Creek North	PEM	0.264 ac.
WA1-27	Hospital Creek South	PEM	0.559 ac.
Total			**2.429 ac.**

Source: Wetland and Waterway Delineation Report (Pilot 2022)

Coordination with the USACE via email dated August 25, 2022, stated concurrence on the wetland delineation boundaries as sufficient and accurate (See Appendix C). The USACE stated that the delineation may be relied on for permitting. The delineation verification does not serve as an approved jurisdictional determination (AJD).

3.5.3 Environmental Consequences

Threatened and Endangered Species

Proposed Action

Coordination with USFWS in a letter dated August 19, 2022, indicated that based on the sparsity and low quality of suitable forested habitat within or near the project locations, they concurred with the determination that the proposed action would have no effect on the red-cockaded woodpecker (*Picoides [=Dryobates] borealis*).

Due to the limited size and degraded conditions of the streams to be addressed through stormwater repair, the DAF determined that the proposed repair of stormwater systems within the Burge Ditch and Hospital Creek water courses would have no effect on the three (3) aquatic species identified as potentially occurring in Wayne County [Neuse River waterdog (*Necturus lewisi*), Carolina madtom (*Noturus furiosus*) and Atlantic pigtoe (*Fusconaia masoni*)]. Based on a review of the information contained in the DAF's July 11, 2022, letter, and enclosures, the USFWS concurred on August 19, 2022, that the proposed action would have no effect on the red-cockaded woodpecker, Neuse River waterdog, Carolina madtom or Atlantic pigtoe and requirements of Section 7(a)(2) of the Act have been satisfied (See Appendix C).

Suitable habitat for Atlantic sturgeon is not located within the Action Area. Based on a review of the NCNHP database, a documented occurrence of Atlantic sturgeon is located within the Neuse River, approximately one (1) mile downstream of the Burge Ditch project area. Other occurrences are not documented within one mile of the Hospital Creek North or Hospital Creek South project areas.

In accordance with 50 C.F.R. 226, the Atlantic sturgeon Critical Habitat Physical and Biological Features (PBF) were evaluated to determine which essential features are present in the action area and the following stressors were evaluated to determine potential effects to known Atlantic sturgeon Critical Habitat:

Sound: Sound generated by the proposed project would have no effect on known locations or suitable habitat because of the substantial distance (one (1) mile) of the proposed project upstream of these resources.

Habitat Structure and Disturbance: There are no habitat structures or biological features present in the Action Area due to the hydrologic separation from the documented occurrence and suitable habitat for Atlantic sturgeon by a reported oil-water separator.

Dredging: There are no essential features present in the Action Area affected by dredging. Dredging that would occur within the action area would not affect the known locations or suitable habitat of Atlantic sturgeon downstream because the proposed project would utilize best management practices and obtain a state grading permit to avoid and minimize down-gradient sedimentation.

Water Quality: There are no physical or biological features present in the Action Area where water quality would be affected. The proposed project would utilize best management practices to avoid and minimize temporary or permanent water quality impacts in the Action Area and would obtain a state grading permit to avoid down-gradient, long term water quality impacts. In addition, the proposed project would improve erosion and potential sediment loading in Burge Ditch by stabilizing the streambanks within the Action Area.

In-water Structures including Aquaculture: There are no in-water structures or aquaculture present in the Action Area.

Prey Quantity/Quality: There are no physical or biological features present in the Action Area and the Action area is not used for foraging by Atlantic sturgeon due to the hydrologic separation from the documented occurrence and suitable habitat by a reported oil-water separator. No permanent or temporary impacts or changes in the abundance, availability, accessibility, or quality of prey is anticipated from project construction within the known sturgeon location or within suitable habitat because of the project's distance from these resources, and the utilization of best management practices to avoid and minimize down-gradient sedimentation and water quality impacts. In addition, the proposed project would improve erosion and potential sediment loading in Burge Ditch by stabilizing the streambanks within the Action Area.

No stressors to Atlantic sturgeon or suitable habitat located one (1) mile downstream would occur as a result of project construction. Therefore, the Proposed Action would result in no effect to Atlantic sturgeon and no further Section 7 consultation with NOAA NMFS under ESA Section 7 is required. NOAA Fisheries does not provide a formal written response to requests for concurrence with a federal action agency's determination that its actions will not affect any ESA-listed species or designated critical habitat ("no effect" determination). A copy of the NMFS Procedural Instruction on "no effect" determinations dated January 12, 2017, is included in Appendix C.

The SJAFB INRMP identified and mapped the Coastal Plain Levee Forest (Brownwater Subtype) associated with natural levees and point bar ridge deposits located adjacent to channels of brownwater (alluvial) rivers in a small, degraded area in the southeastern corner of SJAFB. This area is located outside and to the southwest of, the project area associated with Burge Ditch. Field investigations conducted as part of the wetland identification and delineation for this project have verified that no forested vegetation is located in the project area associated with Hospital Creek North, Hospital Creek South, or Burge Ditch. Therefore, no Brownwater Bottomland Forests are located within the project area, and no Brownwater Bottomland Forests would be impacted by the Proposed Action.

No Action Alternative

Under the No Action Alternative, streambank erosion and sediment loading would continue to accelerate and result in continued degradation of the water quality in the receiving waters, downstream of SJAFB. Reduced water quality could negatively impact state or federally listed threatened and endangered species including Atlantic Sturgeon, the Neuse River waterdog, Carolina madtom, and Atlantic pigtoe.

The USFWS indicated that suitable forested habitat within or near the project location for the red-cockaded woodpecker is sparse and low quality. No impacts to the red-cockaded woodpecker are anticipated under the No Action Alternative.

Migratory Birds

Proposed Action

Burge Ditch is within a Bird Exclusion Zone (BEZ). The proposed streambank stabilization for Burge Ditch includes TRM and vegetative cover utilizing turf grass that would not attract birds. No ornamental trees or shrubs would be planted. In accordance with the BASH Plan (March 2022), the proposed activity would stabilize the stream bank while maintaining the area to be as unattractive to birds as possible. Additional impacts to migratory birds as a result of Burge Ditch are not anticipated.

No Action Alternative

Burge Ditch is within a BEZ. Under the Migratory Bird Depredation permit issued to SJAFB by USFWS, impacts to migratory birds may occur to a minimum number of birds necessary to protect the aircraft and aircrews. No additional impacts to migratory bird species are anticipated as a result of the No Action Alternative.

Wetlands

Proposed Action

Permanent and temporary impacts to wetlands would occur with construction of the Proposed Action as a result of regrading, revegetation and TRM as indicated in Table 11. Short term direct and indirect impacts to biological resources would occur from construction activities. These impacts would be managed through the implementation of BMPs.

Table 11. Wetlands Impacted at SJAFB.

Priority Area	Location	Class	Temporary Impacts Square Feet [SF] (acre)	Permanent Impacts Square Feet [SF] (acre)
Priority Area 1	Burge Ditch	PEM	67,155.20 (1.54)	0.00/0.00
Priority Area 2	Hospital Creek North	PEM	9,273.9 (0.21)	69.7 (0.002)
Priority Area 3	Hospital Creek South	PEM	21,053.51 (0.483)	0.00/0.00
Total			**97,482.61 (2.238)**	**69.7 (0.002)**

Priority Area 1

- Grade and install TRM, and stabilize until vegetation is established along both banks of Burge Ditch to repair bank erosion and sediment aggradation resulting in a total of 67,155.20 square feet (1.54 acres) of temporary wetland impact (Area 1).

Priority Area 2

- Install new concrete headwall and outfall scour protection; backfill area behind headwall of Hospital Creek at Jabara Avenue for a total of 69.7 square feet (0.002 acres) of permanent wetland impact.
- Grade and install TRM, and stabilize until vegetation is established along both banks of Hospital Creek to repair bank erosion and sediment aggradation for a total of 9,273.9 square feet (0.21 acres) of temporary wetland impact (Area 2).

Priority Area 3

- Grade and install TRM, and stabilize until vegetation is established along both banks of Hospital Creek upstream of the Vermont Garrison Street Bridge to repair bank erosion and sediment aggradation for a total of 21,053.51 square feet (0.483 acres) of temporary wetland impact (Area 3).

Permanent and temporary impacts to aquatic resources and biodiversity within wetlands along Burge Ditch and Hospital Creek caused by the Proposed Action would be balanced or outweighed by the benefits generated by the stabilization of the streambanks and the repair of the existing stormwater outfalls, which would offset any residual impacts so that no loss to function and value of aquatic resources would result from project construction. Grading limited to approximately 0' to 3 feet deep would be completed to remove headwall cuts and areas of erosion along the stream corridors in the Priority Areas, requiring the removal of the shallow surface of the soil within wetland and floodplain areas. These areas would be covered with TRM and reseeded with a wetland seed mix, and replanted with a herbaceous species. Stabilizing with soil surface with TRM and revegetating the wetlands would generate the re-establishment of physical wetland conditions, as well as the re-establishment and enhancement of the wetland function and value of wetlands along the stream corridors.

No Action Alternative

Under the No Action Alternative, stream banks would continue to scour, erode, and slough. Over time, the sources of hydrology to the wetlands buffering Burge Ditch, Hospital Creek North and Hospital Creek South may become reduced or eliminated.

3.6 Land Use

3.6.1 Regulatory Setting

It is DoD policy that air, land, and water resources under their jurisdiction be managed and sustained to support the military mission and readiness.

3.6.2 Affected Environment

Land use data described in the northern portion of this section was obtained from the DAF's INRMP for SJAFB (U.S. Air Force, 2020), and the SJAFB and Dare County Joint Land Use Study (Matrix 2017).

The primary land uses at SJAFB support the airfield operations and maintenance, other military operations, military housing, open space, and outdoor recreation. The southern portion of SJAFB is largely dedicated to the airfield and aircraft operations and maintenance uses. The northern portion of SJAFB supports administrative, community related, industrial, and outdoor recreation uses.

Burge Ditch is located within land use designated for the SJAFB airfield. A water control device is located on the western portion of the project area. The remainder of the project area consists of maintained and mowed grass areas. Burge Ditch, a perennial stream, crosses the project area originating at a culvert near the eastern site boundary and discharges at the water control device located near the western site boundary. Three (3) additional streams originate from existing stormwater outfall culverts. Wetlands are located adjacent to Burge Ditch along the stream corridor in the project area.

Hospital Creek North has a designated military operations land use. The project area consists of predominantly maintained and mowed grass areas adjacent to Kimpo Park on the northwest side of Jabara Avenue. Kimpo Park includes a network of recreational trails, one of which crosses Jabara Avenue and parallels Hospital Creek North. Several stormwater outfalls that discharge to or proximate to streams or wetlands were observed. Hospital Creek, a perennial stream, crosses the project area and discharges from the project area at a culvert beneath Jabara Ave. Wetlands are located adjacent to Hospital Creek along the stream corridor in the project area.

Hospital Creek South has a designated military operations land use. The project area consists of predominantly maintained and mowed grass areas and is partially located within Three Eagles Golf Course on the west side of Vermont Garrison Road. Three Eagles Golf Course includes a paved outdoor recreational trail. A culvert beneath Vermont Garrison Road bisects Hospital Creek, a perennial stream on site. Wetlands are located adjacent to Hospital Creek along the stream corridor in the project area.

Future land use planned for the study area is aircraft operations (SJAFB INRMP, U.S. Air Force, 2020) and maintenance.

3.6.3 Environmental Consequences

Proposed Action

The Proposed Action includes repairs to existing culverts. Repairs would be limited to the land directly buffering the stream banks. Areas designated for outdoor recreation, airfield and military land uses would not be permanently affected with project construction. Land use designations for Burge Ditch, Hospital Creek North and Hospital Creek South would not change as a result of project construction.

The existing recreational trails would remain open during construction. Temporary impacts to maintained and mowed grass areas adjacent to existing land use features would result from project construction. These areas would be regraded and seeded for revegetation and stabilization in accordance with the approved SECP completed for the project.

No Action Alternative
Under the No Action Alternative, streambanks would continue to degrade, and the maintained grass areas along the streambanks would continue to erode within the project area for Burge Ditch, Hospital Creek North and Hospital Creek South. The land use designated for Burge Ditch (airfield) and Hospital Creek North and South (military operations) are not anticipated to change under the No Action Alternative. The No Action Alternative may affect future land use in the project area by destabilizing the streambanks and potentially eroding developable land or limiting the type and quantity of infrastructure or the quality of land use directly adjacent to the streams.

3.7 Utilities and Infrastructure

3.7.1 Regulatory Setting

NEPA, as implemented by CEQ regulations (40 Code of Federal Regulations [C.F.R.] 1500–1508) and DAF regulations for implementing NEPA procedures (32 C.F.R. Part 989) pertain to protection and maintenance of utilities and infrastructure.

3.7.2 Affected Environment

In the Hospital Creek North project area, one (1) stormwater gravity line discharges into Hospital Creek at the southern project limit and one (1) stormwater gravity line discharges into Hospital Creek at the northern project limit.

In the Hospital Creek South project area, a water main line and an overhead transmission line runs parallel and directly adjacent to Vermont Garrison Road. Two (2) sewer outfalls are located in the project area, one (1) in the central portion of the area, and one (1) at the intersection of Dargue Avenue and Vermont Garrison Road.

A ductbank crosses Burge Ditch in the project area and runs parallel to Burge Road along the existing trail located between Burge Road and Burge Ditch. Stormwater gravity lines cross Burge Road and discharge at six (6) locations, including the discharge for Burge Ditch. Stormwater open drainage is shown draining into Burge Ditch. Water service lines extend across Burge Road and cross Burge Ditch in one (1) location.

SJAFB owns the utilities on SJAFB. SJAFB purchases potable water from the City of Goldsboro, and sanitary sewer discharge is treated by the City of Goldsboro. SJAFB purchases electricity from Progress Energy. Storm sewer discharge is disposed of on base and through outfalls to the Neuse River.

3.7.3 Environmental Consequences

Proposed Action
Under the Proposed Action for Burge Ditch, new reinforced concrete culvert headwalls and wingwalls would be installed at outfalls to replace the existing damaged stormwater conveyance infrastructure. The Proposed Action for Hospital Creek North would remove the existing concrete drop stormwater structure and concrete over pour. Roadway runoff flow from Jabara Avenue

would be diverted through a new concrete lined slough. The Proposed Action for Hospital Creek South would remove the existing concrete pour over. The existing roadside conveyance swale would be regraded and lined with riprap.

The Proposed Action would result in a positive impact by repairing damage to storm water infrastructure caused by previous large-scale storm events and inadequate maintenance. Utilities that connect from existing lines and extend into the study area that convey water, sewer or communications would not be impacted by the Proposed Action for Burge Ditch, Hospital Creek North, or Hospital Creek South. There are no proposed facilities in the study area that would result in an increase in consumption demands. Therefore, utilities outside the study area would not need to be upgraded to support a demand resulting from the proposed project.

No Action Alternative
Under the No Action Alternative, erosion and sediment loading into Hospital Creek and Burge Ditch would continue. The structural integrity and conveyance performance of the outfall pipes and headwall structures are failing, which would result in further infrastructure damage and environmental impacts, including excessive sediment load discharge to the Neuse River.

3.8 Safety and Occupational Health

3.8.1 Regulatory Setting

The SJAFB BASH Plan (March 2022) provides guidance for reducing the bird aircraft strike hazard in the areas where the flying units based at SJAFB conduct flying operations.

The Noise Control Act of 1972 identified that noise not adequately controlled has the potential of endangering the health and welfare of people. It states that all Americans are entitled to an environment free from noise that can jeopardize their general health and quality of life. Along with state, local, and territorial governments, actions from the federal government were needed to ensure that the objectives of the Act were met.

The DoD's Air Installation Compatible Use Zone (AICUZ) program promotes compatible land development in areas subject to increased aircraft noise exposure and accident potential due to aircraft operations.

The Occupational Safety and Health Act of 1970, Executive Order 12196 and 29 C.F.R. 1960 require the heads of Federal Agencies to establish programs to protect their personnel from work-related deaths, injuries, and illnesses. The Air Force Occupational Safety and Health (AFOSH) program is explained in AFI 91-202, the USAF Mishap Prevention Program.

3.8.2 Affected Environment

Bird Exclusion Zone
The SJAFB BASH Plan was reviewed, and Burge Ditch is located within a Bird Exclusion Zone. The Bird Exclusion Zone is a perimeter around the airfield property in which bird concentrations of any significance would not be tolerated.

The area of Burge Ditch within the Bird Exclusion Zone contains maintained and mowed herbaceous vegetation. Evaluation of historic satellite imagery from 2007 to 2016 shows natural vegetative cover has decreased in the area of Burge Ditch. Dominant species documented during the wetland investigation include Bermuda grass, fescue, common dandelion, common chickweed, wild geranium, foxtail species, broadleaf plantain, purple cudweed, broomsedge, yellow wood sorrel, meadow onion, and buttercup (Pilot 2022).

Noise

According to the SJAFB and Dare County Joint Land Use Study (Matrix 2017), mission and testing activities conducted by SJAFB and the Dare County Range generate a number of impacts that can affect the health, safety, and overall quality of life of the surrounding community and natural environment. Examples of these mission impacts include noise and vibration from overhead flights or the risk of an aircraft accident.

To some degree, construction noise can be a contributing factor to the degradation of someone's health in that it can cause people to be irritated and stressed and can interrupt their ability to sleep – all of which may lead to higher blood pressure, anxiety, and feelings of animosity toward the people or agencies responsible for producing the noise (FHWA, 2006). Construction noise has the potential to disturb people 24 hours a day, 7 days a week. If not properly addressed, specific public concerns related to a project could result in actions affecting the progress and/or cost of a project (FHWA, 2006).

Existing land use and receptors adjacent to the Proposed Action for each priority area are as follows:

Burge Ditch Priority Area 1: Airfield to the North; Farmland (barn structures Appx. 363 ft from Proposed Action) and active agricultural fields to South; Airfield to West; Airfield and 1 single family residence (Appx. 1,424 feet from Proposed Action) to East, with extensive forestland between airfield and residence.

Hospital Creek North, Priority Area 2: Commercial land use - Keiker Dental Clinic to the North (330 feet from Proposed Action); Dry Cleaners and Retail Shops to the East (600 feet from Proposed Action); Office Buildings (200 feet from Proposed Action) to the South; Kimpo Park to the West.

Hospital Creek South, Priority Area 3: 7 single family residences along Eagleston Court to the North (closest residence 480 feet from Proposed Action); School/Youth Center to the West (1,265 feet from Proposed Action); Recreation trail (95 feet from Proposed Action) and Open Space to the South; Ball field and open space to the East.

3.8.3 Environmental Consequences

Bird Exclusion Zone

Proposed Action

The proposed streambank stabilization for Burge Ditch includes TRM and vegetative cover utilizing turf grass that would not attract birds. No ornamental trees or shrubs would be planted. In accordance with the SJAFB BASH Plan (March 2022), the proposed activity would stabilize

the stream bank while maintaining the area to be unattractive to birds as possible. The Proposed Action would not increase air operations. No negative impacts would occur to the Bird Exclusion Zone as a result of the Proposed Action for Burge Ditch. The project area for Hospital Creek North and Hospital Creek South are not within the Bird Exclusion Zone, therefore, no impacts would occur under the Proposed Action.

No Action Alternative
The area of Burge Ditch within the Bird Exclusion Zone contains maintained and mowed herbaceous vegetation. Under the No Action Alternative, stream banks will continue to erode and slough, further reducing vegetative cover. Remaining vegetative cover within the Bird Exclusion Zone would continue to be maintained and mowed. No impacts to the Bird Exclusion Zone are anticipated under the No Action Alternative.

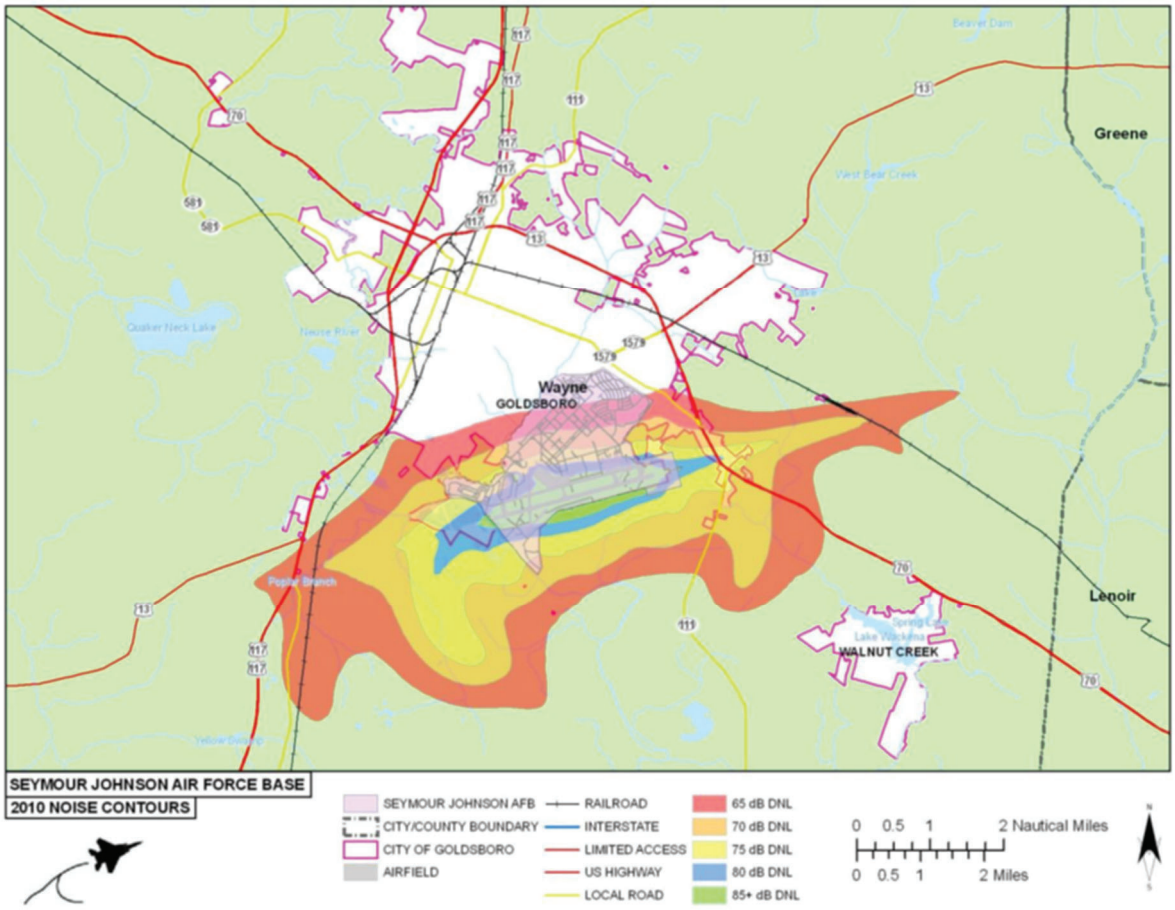
Noise
Proposed Action
A qualitative analysis of construction noise using existing noise data generated for SJAFB was used to determine whether minimization measures for construction noise at Burge Ditch, Priority Area 1, Hospital Creek North, Priority Area 2, and Hospital Creek South, Priority Area 3 are warranted.

Identifying direct (dozing, excavating) and indirect (hauling) construction noise effects requires either a qualitative or quantitative analysis (i.e. noise monitoring of existing sound levels and modeling predictive sound levels at construction). Most projects do not require modeling, or any form of analysis associated with construction-related noise. In many cases, construction noise may be adequately addressed through a narrative discussion. Some projects may require application of a simplified manual calculation technique. Regardless of the type of project, it is important that any abatement techniques developed to address construction noise consider cost-effectiveness (FHWA, 2006).

Baseline levels indicate the sound level at a receptor before any construction noise contributions. Existing (or background) noise levels serve as a reference or benchmark level to which a comparison can be made with noise levels associated with construction operations. Background levels include noise contributions from all sources and may be the result of normal neighborhood activities plus noise generated by traffic on local transportation facilities.

It is anticipated that the existing noise levels within the project's AAs are affected by aircraft and associated activities located within close proximity to airfields with regular takeoff and landing of military equipment on SJAFB. The DAF has adopted the NOISEMAP software program for use in predicting noise exposure that would result from aircraft operations in the vicinity of a military air base due to aircraft flights and engine run-up activities (SJAFB – AICUZ Update Air Installation Compatible Use Zone, December 2011). NOISEMAP (Version 7.353) was used to calculate and plot the average busy day contours for Day-Night Average Sound Levels (DNL) 65 decibels (dB) through DNL 85+ dB. Based on 2011 data of 236.818 daily operations (60,035 annual operations) along the mix of flight track, the modeled noise levels were mapped as depicted in Figure 9 below.

Figure 9. Day-Night Average Sound Levels, SJAFB.



Source: Seymour Johnson AFB – AICUZ Update Air Installation Compatible Use Zone, December 2011.

Extrapolating the data in Figure 9, the Burge Ditch, Priority Area 1 Proposed Action is located in a zone with a modeled DNL of 85+ dB, the Hospital Creek North, Priority Area 2 Proposed Action is located in a zone with a modeled DNL of 65 dB, and the Hospital Creek South, Priority Area 3 Proposed Action is located in a zone with a modeled DNL of 70 dB. For purposes of comparison, a normal conversation occurs between 60 to 70 dB, a vacuum cleaner runs around 75 dB, and city traffic is recorded at about 85 dB. The level at which sustained exposure may result in hearing loss ranges between 80 to 90 dB (Decibel Level Comparison Chart, Yale University (https://ehs.yale.edu/sites/default/files/files/decibel-level-chart.pdf). Given the existing noise levels in the project's AAs, significant construction noise impacts are not likely to result from the Proposed Action. However, minimization measures, if required are discussed below.

Consideration of Construction Noise Reduction

Noise reduction measures would be appropriate for construction activities resulting in an increase in decibel levels above the ambient noise environment, which in the case of SJAFB, is the DNL 65 decibels (dB) through DNL 85+ dB indicated above.

Burge Ditch Priority Area 1: It is assumed that due to the lack of receptors within close proximity and the high ambient noise levels at Burge Ditch, Priority Area 1, construction noise reduction measures would not be warranted.

Hospital Creek North, Priority Area 2: Due to the presence of commercial receptors in an area with moderate amounts of ambient noise, construction noise reduction measures may be warranted in localized areas, or in cases where specific complaints from adjacent business owners were received.

Hospital Creek South, Priority Area 3: Due to the presence of residential land use within proximity to the Proposed Action, as well as a community facility with youth and recreational uses (trail, ballfield) adjacent to the Proposed Action, construction noise reduction measures may be warranted in localized areas, or in cases where specific complaints from adjacent property owners were received.

Local Noise Ordinance

The Noise Ordinance of Wayne County, NC identifies the following as exempt from the provisions of the Ordinance: Noise resulting from activities of a temporary duration permitted by law and for which a license or permit therefore has been granted by the County of Wayne; and any noise emanating from a military base or surrounding area due to military operations. In addition, the maximum permissible noise level limits for continuous sound is 90 dB. The Noise Ordinance indicates that no person shall operate or cause to be operated any source of continuous sound from any use in such a manner as to create a sound level which exceeds the limits of 90db more than one (1) minute of any 10-minute period unless excepted. For any source of sound, the maximum intermittent sound level shall not exceed 90dB.

Potential Construction Noise Reduction Strategies

Determining what minimization measures are best suited for implementation in a specific project area are influenced by cost, practicality, achievable noise reduction, and effect on overall project operation. The following outlines a list of reduction strategies that could be identified in the project construction plans and made available to the contractor to reduce construction noise, when and where appropriate:

Aprons: Sound aprons generally take the form of sound absorptive mats hung from the equipment or on frames attached to the equipment. The aprons can be constructed of rubber, lead-filled fabric, or PVC layers with possibly sound absorptive material covering the side facing the machine. Sound aprons are useful when the shielding must be frequently removed or if only partial covering is possible.

Enclosures: Enclosures for stationary work may be constructed of wood or any other suitable material and typically surround the specific operation area and equipment. The walls could be lined with sound absorptive material to prevent an increase of sound levels within the structure. They should be designed for ease of erection and dismantling.

Blasting Mats: These mats are typically made with layers of used tires cabled together. They are commonly used as blankets for blasting operations to control and confine debris. These mats also

provide a degree of noise attenuation from the blast. However, they do not reduce vibration, which is usually more of a concern than noise.

Selection of Equipment: Newer equipment is generally quieter than old equipment for many reasons, including technological advancements and the lack of worn, loose, or damaged components. Some equipment manufacturers have made their equipment quieter in recent years and have achieved significant reductions over older equipment. In some cases, the use of over- or under-powered equipment may be an unexpected source of excessive noise. The types of engines and power transfer methods also plays a significant role in achieving lowered equipment noise. The use of electric powered equipment is typically quieter than diesel, and hydraulic powered equipment is quieter than pneumatic power.

Maintenance Programs: Poor maintenance of equipment typically causes excessive noise levels. Faulty or damaged mufflers and loose engine parts such as screws, bolts, or metal plates contribute to increased noise levels. Removal of noise-reducing attachments and devices such as mufflers, silencers, covers, guards, vibration isolators, etc., would, to varying degrees, increase noise emission levels. Old equipment may be made quieter by simple modifications, such as adding new mufflers or sound absorbing materials. Loose and worn parts should be fixed as soon as possible.

Equipment Operation Training: Careless or improper operation or inappropriate use of equipment can increase noise levels. Poor loading, unloading, excavation, and hauling techniques are examples of how lack of adequate guidance and training may lead to increased noise levels.

Stationary Equipment: Whenever possible, positioning stationary noise sources such as generators and compressors as far away as possible from noise sensitive areas should be considered. Temporary barriers can be employed and/or enclosures can be built around noisy equipment. These techniques can significantly reduce noise levels and, in many cases, are relatively inexpensive. These barriers can typically be constructed on the work site from common construction building material (plywood, block, stacks, or spoils). Enclosures are often constructed from commercial panels lined with sound absorbing material to achieve the maximum possible shielding effect. To be effective, the length of a barrier should be greater than its height, the noise source should not be visible, and any barrier should be located as close as possible to either the noise source or the receiver. In addition, providing increased distance between a noise source and a noise receiver can also be considered a form of abatement.

Shielding along the Path: In some situations, such as in urban and commercial areas or on isolated sections of a project, it may be beneficial and necessary to construct barriers adjacent to the work area. These can take the form of natural shielding and temporary shielding.

Existing Features: Utilizing existing shielding such as berms, existing noise barriers, or structures for relatively static equipment such as pumps, generators, compressors, air ventilation, batch plants, and storage areas may be appropriate. Other temporary abatement techniques include the use of temporary and/or movable shielding for both specific and nonspecific operations. Some mobile shielding is capable of being moved intact or being repeatedly erected and dismantled to shield a moving operation. An example of such a barrier utilizes noise curtains in conjunction with trailers to create an easily movable, temporary noise barrier system.

Sequence of Operation: The sequencing and scheduling of construction operations would address reducing construction-related noise by scheduling several noisy operations concurrently to take advantage of the fact that the combined noise levels produced may not be significantly greater than the level produced if the operations were performed separately. Alternatives to standard construction techniques may also be available and determined to be more practical and/or cost-effective in dealing with construction noise impacts and perceptions. Contract specifications and special provisions would be included in the project plans and contract documents that would divide the set limits into specific time periods during the day, such as daytime, evening, and nighttime, where appropriate.

Public Outreach/Reporting: SJAFB has a webpage where residents of the Base can report a noise complaint associated with aircraft or other non-aircraft specific events at https://www.seymourjohnson.af.mil/Units/Public-Affairs/Noise-Complaints/. A form can be filled out that prompts identification of details on the noise event generated and whether or not actions to resolve the complaint are warranted, and submitted to: 4fw.pa.civicoutreach@us.af.mil.

No Action Alternative
Impacts to health, safety, and overall quality of life to the surrounding community and natural environment are not anticipated under the No Action Alternative. No increases in noise and vibration would result in the implementation of the No Action Alternative.

Construction Occupational Safety Concerns
Proposed Action
Table 12 outlines concerns for workers during construction address occupational safety factors specific to working within and along a body of water and performing earthmoving activities, and prevention and/or reduction of potential injury. The preparation of, and worker familiarity with, an Emergency Action Plan and a Site-Specific Health and Safety Plan are essential components to successfully implementing and maintaining safe work zones during construction of the proposed project.

Table 12. Occupational Safety Concerns During Project Construction at SJAFB.

Occupational Safety Issue	Prevention and Abatement Measures
Drowning	Provision of U.S. Coast Guard-approved life jacket of buoyant work vests
Hazardous Substance Exposure (asbestos, lead, chemicals, contaminated soil, etc.)	OSHA/HAZWOPER Worker Training; Monitoring of Occupational Exposure Limits; PPE and PPE Training
Hand Injury (cuts / punctures / lacerations, hand tools, caught in, etc.)	Worker Education and Training; PPE and PPE Training
Foot Injury (falling objects, heavy equipment, power tools, cutting tools, chemicals, etc.)	Worker Education and Training; PPE and PPE Training
Harmful Insects, Animals, or Plants	Provision and use of EPA-registered insect repellent; covering exposed areas of skin using light-colored long-sleeved shirts, long pants (preferably denim); PPE and PPE Training.
Hearing Damage (loud noises, machinery, drilling, etc.)	Hearing protection for all workers exposed to 8-hour total weight average (TWA) permissible exposure limit of noise levels of 85 dB or above. Limit of 90 dB over an 8-hour TWA; Construction Noise reduction strategies outlined in Section 3.8.3 of this EA.
Head Injury (falling objects, impacts, construction site, etc.)	Fall Hazards Training; Fall Hazard PPE and PPE Training
Line Break	Utility Line Location and Utility Coordination; PPE and PPE Training

Notes: PPE = Personal Protection Equipment: Eye Protection, Gloves, Safety Toed Shoes, Hard Hat, Hi-Vis Clothing, etc. The 8-hour TWA PEL is defined in the Federal Register, Vol. 57, No. 114, June 12, 1992, as the employee's average airborne exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded.

No Action Alternative

Impacts to Construction Occupational Safety are not anticipated under the No Action Alternative. No concerns generated from the construction site for project construction would result in the implementation of the No Action Alternative.

3.9 Traffic and/or Airfield Operations

3.9.1 Regulatory Setting

NEPA, as implemented by CEQ regulations (40 Code of Federal Regulations [C.F.R.] 1500–1508) and DAF regulations for implementing NEPA procedures (32 C.F.R. Part 989); DoD policy.

3.9.2 Affected Environment

The proposed streambank stabilization and stormwater infrastructure repair at Hospital Creek North and Hospital Creek South are located along existing streams and floodplain corridors adjacent to recreational parks and trails and existing roads within a residential and commercial area of SJAFB designated as military operations land use.

The proposed streambank stabilization at Burge Ditch is located along existing a stream and floodplain corridor adjacent to a recreational trail designated as Base airfield land use. No roadways, airfields or other military facilities are located within the project area.

3.9.3 Environmental Consequences

Proposed Action

No transportation facilities or military operations would be permanently incorporated or affected as part of the Proposed Action. The capacity of roadways or traffic patterns would not be permanently affected within SJAFB.

Short-term, minor impacts would occur to traffic entering and leaving SJAFB from the transport of construction equipment, supplies and excavated materials. The proposed construction activities for Burge Ditch would be coordinated with runway activities to avoid temporary impacts to airfield operations. Hospital Creek North or Hospital Creek South are not in close vicinity to airfield operations, and therefore airfield operations would not be impacted by the Proposed Action for Hospital Creek North or Hospital Creek South.

Traffic patterns on SJAFB would be temporarily affected by construction of the BMPs for Hospital Creek South. Temporary lane closures would be required on Vermont Garrison Street and Jabara Ave. Standard North Carolina Department of Transportation (NCDOT), and Manual on Uniform Traffic Control Devices (MUTCD) temporary traffic control figures would be used for temporary lane closures.

No Action Alternative

No impacts to traffic and/or airfield operations are anticipated under the No Action Alternative.

3.10 Hazardous Materials and Wastes

3.10.1 Regulatory Setting

Hazardous materials and wastes are subject to federal regulation under the Solid Waste Disposal Act (as amended by the RCRA); CERCLA; the TSCA; the CWA; and the CAA.

3.10.2 Affected Environment

The USEPA EnviroFacts Facility Registry Service (FRS) Query has identified active facilities, sites, or places within SJAFB that are subject to environmental regulations or of environmental interest. The identified facilities, sites, or places are indicated below in Table 13.

Table 13. USEPA Active EnviroFacts Facilities Identified in SJAFB

Facility Name	Location/Address	EPA Registry ID	Latitude/Longitude
Barrus Construction	Goldsboro Arrington Bridge Road State Road 1915 Goldsboro, NC 27530	110018687009	35.33091; -77.99381
RC Construction Co. Inc.	499 Piedmont Airline Road Goldsboro, NC 27530	110070050135	35.34906; -77.93882
DAF Seymour Johnson AFB	1711 Goodson Street Seymour Johnson AFB, NC 27531	110070749563	35.35498; -77.97142
Summers Concrete Contracting, Inc.	1000 Burge Road Goldsboro, NC 27531	110045439520	35.34666; -77.94071
DAF Seymour Johnson AFB	1095 Peterson Avenue Seymour Johnson AFB, NC 27531	110000913851	35.349475; -77.968849

The EPA Envirofacts sites identified above are not located in or directly adjacent to the Proposed Action areas. In addition, the EPA online database, NEPAssist, does not identify any EPA hazardous waste facilities within the project study area. No above or underground storage tanks or fuel lines were identified in the on-line database searches conducted. No known hazardous waste sites or hazardous materials or wastes have been identified within the project area of the Proposed Action.

The project does not involve demolition or removal of structures that would exceed the allowable limits for asbestos and lead-based paint (LBP) and no asbestos or LBP concerns were identified for any culvert or infrastructure repair work, therefore the project does not require an asbestos permit, or the disposal of materials contaminated with LBP.

3.10.3 Environmental Consequences

Proposed Action

Impacts resulting from constructing the Proposed Action are not anticipated. No known hazardous waste sites or hazardous materials or wastes, underground storage tanks or spills have been identified within the project area. No demolition of structures would be required for construction

of the Proposed Action and therefore, no disposal of materials containing asbestos, lead-based paint, or other sources of contamination is anticipated.

Any waste generated with the proposed project construction is anticipated to be insignificant. Any spills resulting from unanticipated discharges from equipment during construction would likely be captured through the installation of erosion and sediment pollution control measures required under state and federal permitting requirements.

No Action Alternative
No known hazardous waste sites or hazardous materials or wastes, underground storage tanks or spills have been identified within the project area. Under the No Action Alternative, the stream banks would continue to erode; however, the EPA Envirofacts sites, including structures, are not located within close enough proximity to the stream banks of Hospital Creek North, Hospital Creek South, or Burge Ditch to be impacted by the eroded condition. In addition, no asbestos or LPB concerns were identified for the culvert or infrastructure repair work; therefore, the continued erosion will not impact any asbestos containing materials or LBP. No impacts to hazardous materials and wastes are anticipated under the No Action Alternative.

3.11 Socioeconomic Resources and Environmental Justice

3.11.1 Regulatory Setting

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was signed on February 11, 1994. The EO requires the assessment of disproportionately high and adverse human health and environmental effects on minority and low-income populations resulting from proposed federal actions while ensuring Environmental Justice communities are proactively provided meaningful opportunities for public participation in project development and decision-making. The EO reaffirms the provisions of Title VI of the Civil Rights Act of 1964 and related statutes and emphasizes the incorporation of those provisions into existing planning and environmental processes.

EO 13166, "Improving Access to Services for Persons with Limited English Proficiency" (2000) Requires federal agencies to examine the services they provide, identify any need for services to those with limited English proficiency (LEP), and develop and implement a system to provide those services so LEP persons can have meaningful access to them.

EO 14008, "Tackling the Climate Crisis at Home and Abroad" (2021) amended EO 12898 and outlined new environmental justice initiatives including the establishment of the White House Environmental Justice Advisory Council, and the development of clear performance metrics to bring greater visibility to Environmental Justice issues and ensure accountability, namely the Climate and Economic Justice Screening Tool (https://screeningtool.geoplatform.gov).

3.11.2 Affected Environment

Community Resources
Community resources were analyzed within and adjacent to the Proposed Action. The study area for this analysis was based on those communities directly adjacent to the Proposed Action and downstream within the receiving waters of the waterbodies affected by the Proposed Action;

specifically, 1.) in and directly adjacent to the limit of disturbance of the proposed action within SJAFB; 2.) within Stoney Creek downstream of the Proposed Action in Hospital Creek North and Hospital Creek South; and 3.) downstream of the Proposed Action at Service Road/Burge Ditch. Community facilities and sensitive resource information at the census block level was obtained by the NCDEQ Community Mapping System at https://ncdenr.maps.arcgis.com/. A block group consists of clusters of blocks within the same census tract that have the same first digit of their four-digit census block number (U.S. Census Bureau). Census blocks were grouped into tracts utilizing the 2020 Census Tract Reference Map for Wayne County, North Carolina (U.S. Census Bureau's MAF/TIGER database (TAB20)).

Census Tract 5 (SJAFB): No community facilities were identified within or immediately adjacent to the Proposed Action limit of disturbance.

Census Tract 14.02 (Hospital Creek to Stoney Creek): The following community facilities were identified: Dillard Elementary school, Dillard Middle School, Guiding Star Holly Church, New Saint John African Methodist Episcopal Church, Emanuel Church, Faith United Holy Church.

Census Tract 15 (Hospital Creek to Stoney Creek): The following community facilities were identified: Goldsboro Chapel Free Will Church; Community of Christ Church; Grace Mission; Princeton Deliverance Center; Seymour Johnson Homes.

Census Tract 6.03 (Neuse River South of Burge Ditch): The following community were identified: Johnson Chapel; Peace Church; Old Smoky Church; Holly Green Church; Emmaus Church.

Environmental Justice (EJ) Populations

Identification of minority or low-income populations was based on the 2016-2020 5-year estimates data from the U.S. Census Bureau (American Community Survey (ACS)) provided by the USEPA Environmental Justice Screening Tool. Baseline demographic information at the census-tract level was obtained by the NCDEQ Community Mapping System and the NCDEQ Environmental Justice Tool at https://ncdenr.maps.arcgis.com/.

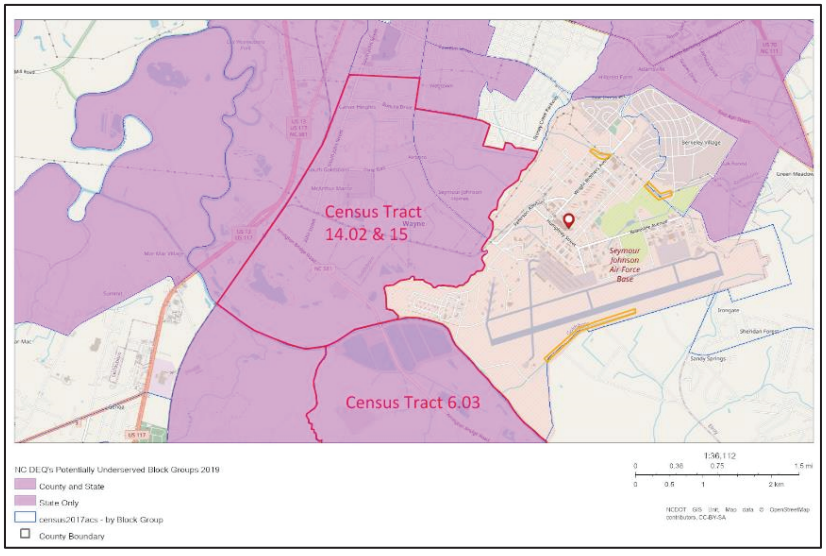


Figure 10a. NCDEQ's Potentially Underserved Block Groups, 2019.

The interactive mapping tools were used to compare the demographic composition of the census tracts surrounding SJAFB to the statewide demographics.

Potential EJ populations were analyzed, 1.) in, and directly adjacent to the proposed action within SJAFB; 2.) downstream in the receiving waters of the Proposed Action at Hospital Creek North, Hospital Creek South, and 3.) downstream of the receiving waters of the Proposed Action at Service Road/Burge Ditch. The NCDEQ census block data shows that there are higher percentages of EJ Populations (minority and low-income populations) neighboring SJAFB located in Census Tract 14.02, Census Tract 15, and Census Tract 6.03 located downstream of the receiving waters of the Proposed Action, when compared to the statewide average. The data generated by the NCDEQ Environmental Justice Tool is shown in Figure 10a, Figure 10b, and Figure 10c.

Similar to the NCDEQ census block data, the ACS data provided by the USEPA Environmental Justice Screening Tool shows higher percentage rates of Environmental Justice Populations in Census Tract 14.02, Census Tract 15, and Census Tract 6.03 located downstream of the receiving waters of the Proposed Action, when compared to the statewide average (Table 14). The only population lower than the statewide average is that of minorities within SJAFB.

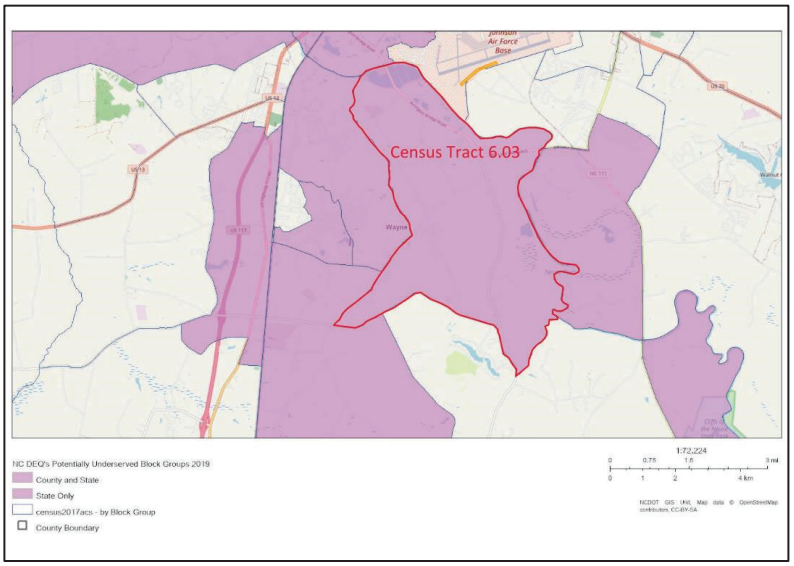


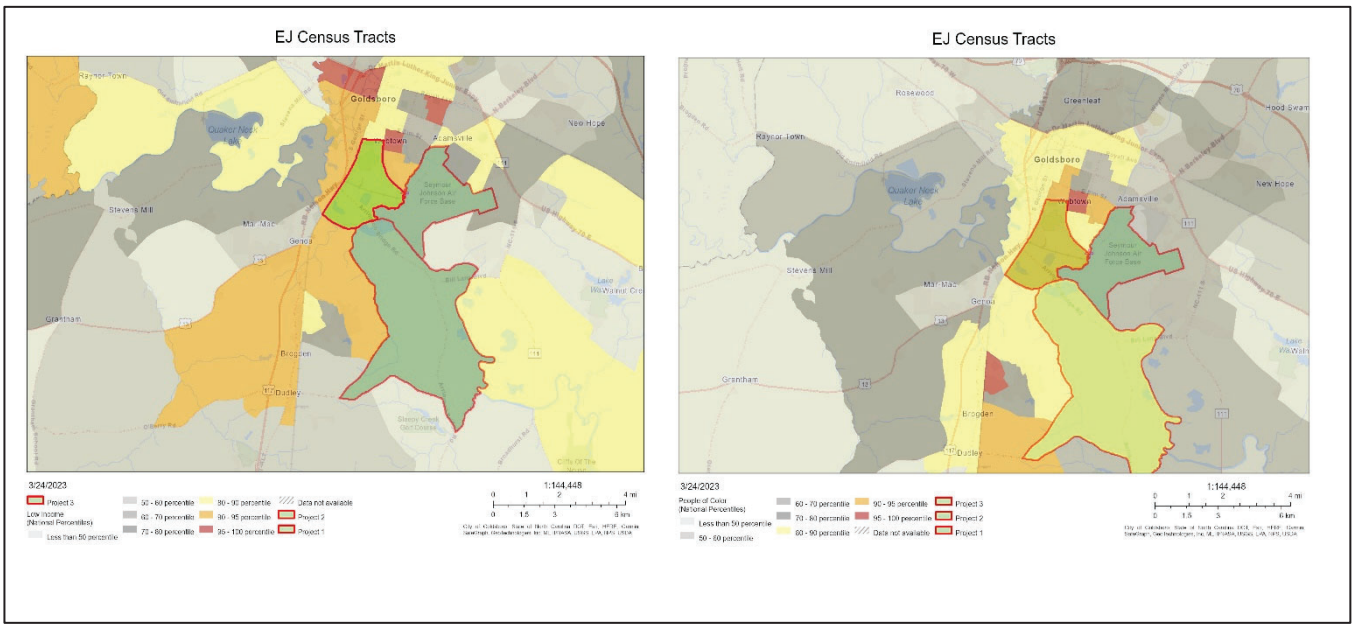
Figure 10b. NCDEQ's Potentially Underserved Block Groups, 2019.

Table 14: People of Color and Low-Income Data for Census Tracts Surrounding the Project Area

	Population[1]	% People of Color[2]	% Low Income[2]
Census Tract 5 *SJAFB*	1,013	33.42%	65.36%
Census Tract 14.02 *Hospital Creek to Stoney Creek*	1,281	93.68%	54.25%
Census Tract 15 *Hospital Creek to Stoney Creek*	1,225	94.29%	83.84%
Census Tract 6.03 *Neuse River S. of Burge Ditch*	1,113	80.86%	74.03%
Statewide Average (USEPA)		**37%**	**33%**

[1]Source: NCDEQ Environmental Justice Tool at https://ncdenr.maps.arcgis.com/
[2]Source: 2016-2020 ACS 5-year estimates data from the U.S. Census Bureau.

Figure 10c. EJ Census Tract Data for Low Income and Minority Populations using the NCDEQ EJ Screening Tool.



The Climate and Economic Justice Screening Tool (https://screeningtool.geoplatform.gov) was reviewed and compared to EJ population data generated from the U.S. Census Bureau and the NCDEQ. The Climate and Economic Justice Screening Tool (CEJST) considers census tracts disadvantaged if they meet the thresholds for at least one of the Tool's categories of burden, or if they are on land within the boundaries of Federally Recognized Tribes.

A community is highlighted as disadvantaged if it is in a census tract that is 1.) at or above the threshold for one or more environmental, climate, or other burdens, and 2.) at or above the threshold for an associated socioeconomic burden. In addition, a census tract that is completely surrounded by disadvantaged communities and is at or above the 50% percentile for low income is also considered disadvantaged. The burdens are categorized into the following groups: Climate Change, Energy, Health, Housing, Legacy Pollution, Transportation, Water and Wastewater, Workforce Development.

The census tracts identified above that are located downstream in the receiving waters of the Proposed Action at Hospital Creek North and Hospital Creek South (Census Tract 14.02 and 15), and downstream of the receiving waters of the Proposed Action at Service Road/Burge Ditch (Census Tract 6.03) are considered disadvantaged in the CEJST because they meet more than one (1) burden threshold, as well as the associated socioeconomic threshold. The census tract directly in and adjacent to the proposed action within SJAFB (Census Tract 5) was not identified as disadvantaged according to the CEJST because it does not meet any burden thresholds or at least one (1) associated socioeconomic threshold.

3.11.3 Environmental Consequences

Proposed Action

The information gathered from NCDEQ's Community Mapping System and Environmental Justice Tool, the U.S. Census Bureau, and the CEJST was used to facilitate the discussion on the potential impacts to the communities surrounding SJAFB as a result of the Proposed Action.

Community Resources

Human activities upstream in a watershed have the potential to adversely affect communities living downstream. The water quality within the project area for Burge Ditch, Hospital Creek North and Hospital Creek South impact the quality of the receiving waters downstream of SJAFB. As previously introduced in Section 2 of this EA, receiving waters include surface bodies of water that serve as discharge points for runoff, such as creeks, rivers, reservoirs, lakes, lagoons, estuaries, harbors, bays, and the ocean. Implementing the Proposed Action would improve the quality of receiving water by reducing and/or preventing discharges of TSS and other stormwater-related pollutants. Therefore, positive impacts to the communities surrounding SJAFB are expected as a result of the Proposed Action due to the improvements to the water quality of the receiving waters downstream of SJAFB.

The project area defined for Burge Ditch, Hospital Creek North and Hospital Creek South does not include any buildings, schools, or businesses. The Proposed Action would not have any impact to schools, businesses, churches, or other community facilities in census tracts within or adjacent to the Proposed Action. The Proposed Action would not have any impact to employment/population projections or local fiscal impacts within any of the census tracts in or adjacent to the Proposed Action.

The Proposed Action would have a negligible short-term beneficial indirect impact on the local economy during construction from incidental spending in the local area by construction workers. No additional jobs would be generated, and no new units would come to SJAFB as part of the Proposed Action. There would be no change in the local economy once the streambank stabilization is complete, as compared to existing conditions.

Environmental Justice Populations

Low-income and minority populations within and adjacent to the Proposed Action would not be impacted by the Proposed Action because it would not result in housing relocations, changes in employment opportunities, health or safety hazards, long-term increases in air emissions, long-term noise impacts, travel patterns, or an increase in traffic. Therefore, the project would not cause disproportionately high and adverse effects to minority or low-income populations. No disproportionate or adverse environmental justice or socioeconomic impacts would occur as a result of implementing the Proposed Action.

No Action Alternative

Under the No Action Alternative, streambank erosion and sediment loading would continue to accelerate and result in continued degradation of the water quality in the receiving waters. Reduced water quality would result in negative impacts to the communities within and surrounding SJAFB, including environmental justice populations.

3.12 Coastal Zones

3.12.1 Regulatory Setting

The Coastal Zone Management Act (CZMA), administered by NOAA, is the law that authorized funding for state coastal programs around the country to improve the environmental and economic health of America's coastal areas by establishing federal-state partnerships, and provided the legal framework related to management of the nation's coastal resources. The North Carolina Coastal Management Program, approved by NOAA in 1978, is administered by the Division of Coastal Management within the Department of Environment and Natural Resources. The states Coastal Area Management Act (CAMA) was enacted to preserve, protect, develop, and, where possible, restore or enhance valuable natural coastal resources such as wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as the fish and wildlife supported by those habitats.

In addition, the DAF entered into an agreement with the Coastal America National Implementation Team to coordinate and cooperate in the restoration and protection of coastal areas (AFMAN 32-7003).

3.12.2 Affected Environment

North Carolina's coastal zone includes 20 coastal counties that in whole or in part are adjacent to, adjoining, intersected, or bounded by the Atlantic Ocean or any coastal sound. SJAFB is located in Wayne County, which is not identified as a county under jurisdiction of the NC Division of Coastal Management.

SJAFB is located within Wayne County and is part of the Neuse River drainage basin. This basin ultimately empties into Pamlico Sound, an estuary on the North Carolina coast. A coastal sound is described as a large ocean inlet that lies parallel to the coastline. A coastal sound can provide valuable habitat for juvenile fish to mature before spawning and reproducing. The Albemarle-Pamlico National Estuary Partnership website was referenced to gather information on the Pamlico Sound: https://apnep.nc.gov/our-estuary/albemarle-pamlico-region. The Albemarle-Pamlico estuarine system is made up of six (6) river basins that flow into the sounds. The Pasquotank, Chowan and Roanoke basins ultimately flow into the Albemarle Sound. The Tar-Pamlico and Neuse basin empty directly into Pamlico Sound, and the White Oak basin flows into the Albemarle-Pamlico southern sounds. Figure 11 depicts the location of Albemarle-Pamlico Estuarine System and shows that Wayne County is as part of the Neuse River Basin.

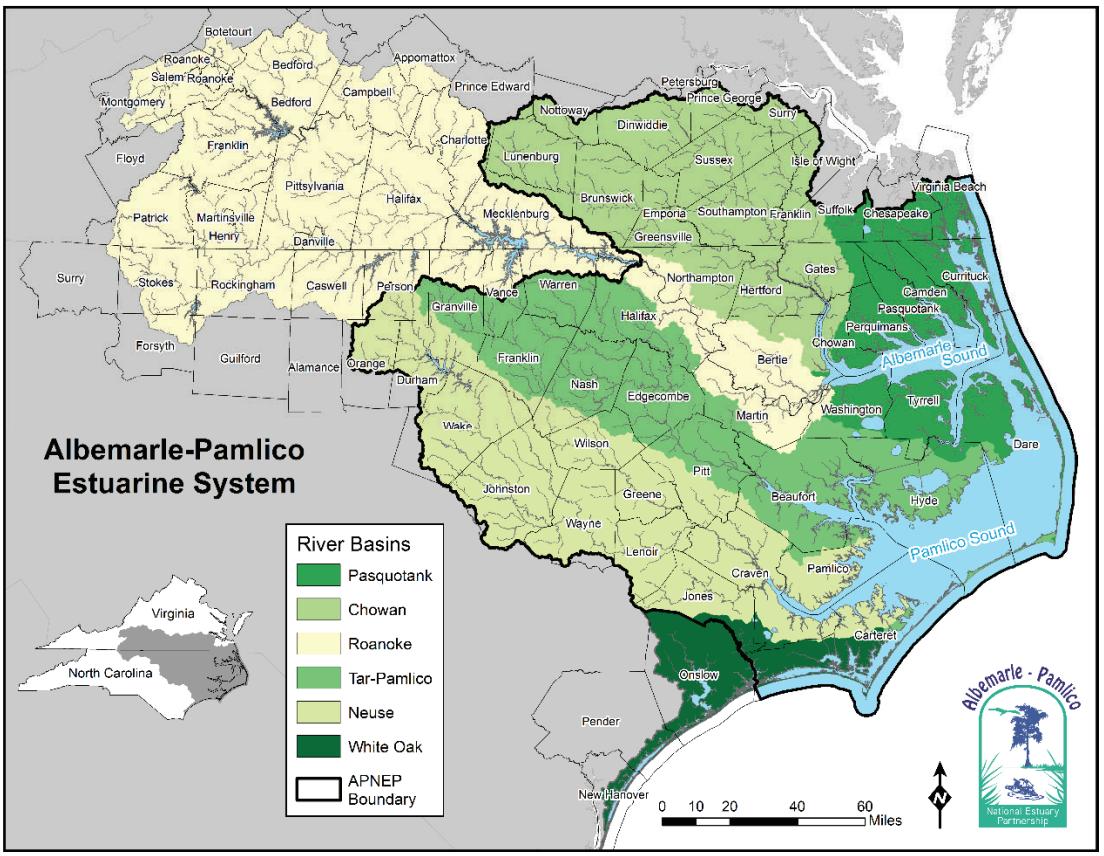


Figure 11. Albemarle-Pamlico Estuary System Map. Source: National Estuary Partnership

3.12.3 Environmental Consequences

Proposed Action

SJAFB is not within the North Carolina Coastal Management Zone, and it has low potential to affect Pamlico sound due to its location. SJAFB discharges stormwater to receiving waters downstream of the base including the Neuse River, Stoney Creek, and an unnamed tributary to Stoney Creek (SJAFB INRMP, U.S. Air Force, 2020). Implementing the Proposed Action would improve the quality of receiving water by reducing and/or preventing discharges of TSS and other stormwater-related pollutants. Therefore, any potential to impact the Pamlico sound as a result of the Proposed Action would be positive due to the improvements to the water quality of the receiving waters downstream of SJAFB.

No Action Alternative

SJAFB is not within the North Carolina Coastal Management Zone. No impacts to the North Carolina Coastal Management Zone are anticipated under the No Action Alternative. Described under the Proposed Action paragraph above, SJAFB has low potential to affect Pamlico sound due to its location. Under the No Action Alternative, streambank erosion and sediment loading would continue to accelerate and result in continued degradation of the water quality in the receiving

waters, downstream of SJAFB. Any potential impacts to the Pamlico sound would be negative due to reduced water quality.

3.13 Climate Change and Climate-Related Financial Risk

3.13.1 Regulatory Setting

Pursuant to NEPA and Section 309 of the CAA, considerations on potential effects of a proposed action on climate change and the implications of climate change for the environmental effects of a proposed action should be analyzed. In addition, EO 14030, Federal Actions to Address Climate-Related Financial Risk, was signed on May 20, 2021. EO 14030 requires federal agencies to disclose both physical and transitional financial risks of a proposed action in the context of climate change.

3.13.2 Affected Environment

Reasonably foreseeable environmental trends, including climate change effects were analyzed within and adjacent to the Proposed Action. With the readily available data and studies related to climate change, the area included in this analysis was based on the installation at SJAFB, as well the state of North Carolina and Wayne County.

Climate Vulnerability

Climate vulnerability refers to the degree to which SJAFB and its natural resources are susceptible to the impacts of climate change. Temperature and precipitation are the main ways that people experience climate. The INRMP for SJAFB (U.S. Air Force, 2020) predicted future climate conditions at the base using historical data including average daily temperature, maximum and minimum daily temperatures, and daily precipitation. The climate projections were generated under both moderate and high future carbon-emission scenarios. Table 15 provides a summary of the climate data generated in the SJAFB study.

Table 15. Summary of Climate Data at SJAFB

Variable	Historical	Moderate Carbon Emissions		High Carbon Emissions	
		2030	2050	2030	2050
Precipitation (inches)	49.2	55.2	61.0	55.2	59.8
Average Temperature (°F)	61.3	63.5	64.8	64.0	65.5

Source: SJAFB INRMP, U.S. Air Force, 2020

The climate data projections show increases in annual precipitation and average temperature under both carbon-emission scenarios when compared to the historical averages. The results of the climate assessments predict that SJAFB would see warmer and wetter conditions over the next 30-years.

USAFacts is a website that provides free access to U.S. government data and was used to obtain compiled historic climate data for Wayne County, North Carolina (https://usafacts.org/issues/climate). USAFacts datasets for temperature and precipitation are taken from The National Centers for Environmental Information (NCEI), NOAA Monthly U.S. Climate Divisional Database (NClimDiv).

The data shows that the yearly temperature in Wayne County is trending upward. The 12-month average temperature increased 2.9°F from 1900 to 2023 (Figure 12a). When compared to the 20th century average monthly temperatures the data shows many counties in North Carolina, including Wayne County are experiencing above average temperatures in 2023 (Figure 12b).

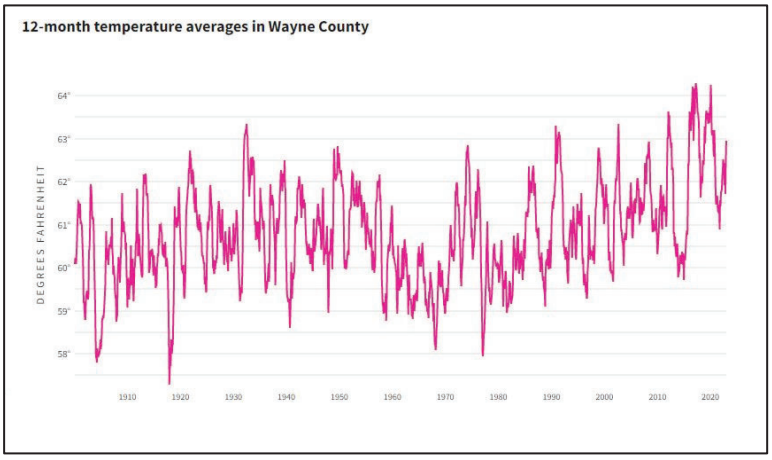


Figure 12a. 12-Month Temperature Averages from 1900-2023 in Wayne County. Source: USAFacts

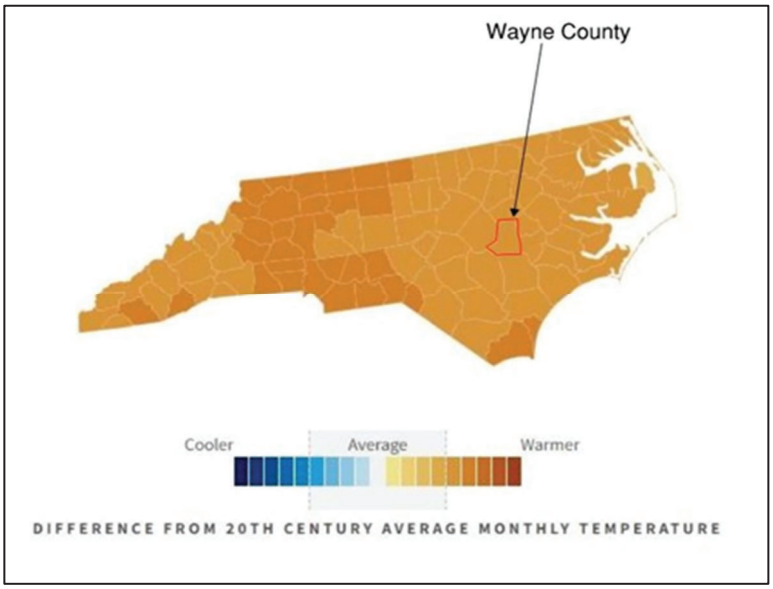


Figure 12b. North Carolina Monthly Temperatures Compared to 20th Century. Source: USAFacts

The North Carolina Climate Science Report published in March 2020 by the North Carolina Institute for Climate Studies (Kunkel, 2020) documented that the state of North Carolina experienced accelerated warming during the last decade (2009-2018) and is expected to continue to warm throughout this century. The year 2018 documented North Carolina's wettest year in 125 years of record keeping. During Hurricane Florence, Wayne County experienced 15.6 inches of precipitation within a 24-hour time period, making that the highest recorded 24-hour rainfall event in the county since 1980. Extreme weather events such as hurricanes resulting in heavy rainfall and flash flooding have increased in the recent past, for example Hurricane Dorian in 2019, Hurricane Isaias in 2020 and Hurricane Ian in 2022. The full report and executive summary are

available to the public for review on the NCDEQ website: https://www.deq.nc.gov/energy-climate/climate-change/.

The NOAA climate data for Wayne County from 1901 to 2023 shows a gradual upward trend in annual precipitation, with an average increase of 1.12 inches per decade (Figure 12c).

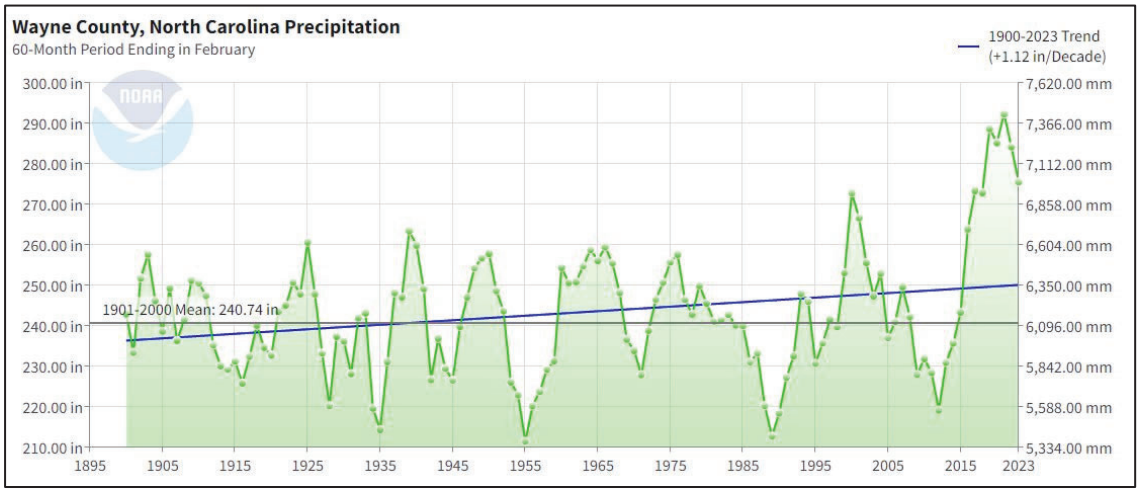


Figure 12c. 12-Month Precipitation Averages from 1900-2023 in Wayne County.
Source: NOAA NCEI

Foreseeable environmental impacts such as rising temperatures and increased occurrences of extreme rainfall and flooding would make the natural resources, ecosystems, human communities, and infrastructure on SJAFB more vulnerable to climate change effects.

Greenhouse Gas Emissions

A greenhouse gas (GHG) is any gas that has the property of absorbing and trapping infrared radiation emitted from the Earth's surface. According to the EPA, fluorinated gases, nitrous oxide (N_2O), methane (CH_4) and carbon dioxide (CO_2) are the primary GHG pollutants.

Baseline emissions information at the national level was obtained by the EPA Greenhouse Gas Inventory Data Explorer at https://cfpub.epa.gov/ghgdata/, and at the state level by the NCDEQ North Carolina Greenhouse Gas Inventory. Statewide and national data identify the largest contribution of GHG emissions come from CO_2. Although there are natural sources of atmospheric CO_2, human activities increase atmospheric CO_2 levels, primarily through the burning of fossil fuels for use in transportation, heating, and electricity generation. Figure 12d summarizes the sources of GHG Emissions in 2020 by type of gas and economic sector.

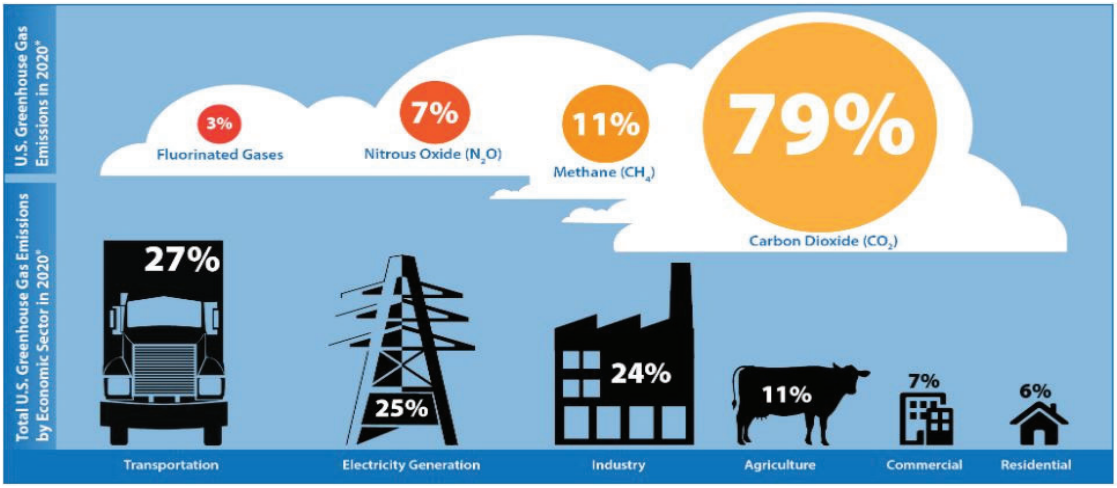


Figure 12d. Greenhouse Gas Emissions in 2020 using the EPA Greenhouse Gas Inventory Data Explorer.

Many of the regulated activities at SJAFB fall under the transportation sector and are contributing factors to the GHG pollutants emitted at the base. Examples include refueling aircraft, aircraft maintenance and vehicle maintenance (SJAFB INRMP, U.S. Air Force, 2020). Additionally, electricity generation, commercial and residential sectors all add to the sum of GHG emissions within SJAFB.

In contrast to the emission of CO_2, carbon sequestration is the process by which CO_2 is removed from the atmosphere and stored in solid or liquid form. A carbon sink is any natural system that absorbs and stores more carbon from the atmosphere than it releases. The world's main carbon sinks are soil, plants, and the ocean. The anoxic, or oxygen-poor conditions of wetland soils lead to the accumulation of organic plant matter. CO_2 is held within the organic matter; therefore, wetlands provide valuable carbon storage. On SJAFB, specifically within the Proposed Action areas for Burge Ditch, Hospital Creek North and Hospital Creek South, wetlands are located adjacent to the stream corridors. The wetlands within the Proposed Action area act as a carbon sink on SJAFB.

Climate-Related Financial Risk

Climate-related financial risk can arise in the form of physical risk and transition risk. Physical risk refers to the impact of events related to climate change, such as severe storms, on property and infrastructure. An extreme weather event may result in financial loss due to property damage. Transition risk is presented by the global shift away from carbon-intensive energy sources and industrial processes, having the potential to financially impact companies, communities, and workers (EO 14030).

Utilities and infrastructure on SJAFB are Federal real property, and energy is sourced from commercial providers off-base. As previously introduced in Section 3.7 of this EA, there are stormwater lines, water main lines, stormwater drainage channels and overhead transmission lines within the Proposed Action areas for Burge Ditch, Hospital Creek North, and Hospital Creek South. Adjacent to the Proposed Action areas, physical assets on SJAFB include the airfield and

aircraft equipment, military housing, administrative and community related buildings, and outdoor recreational facilities. SJAFB and the surrounding communities rely on the transportation, electricity, industry, agriculture, commercial and residential economic sectors powered by carbon-intensive energy sources. Table 16 provides a summary of potential financial risks associated with climate change impacts on base.

Table 16. Projected Climate Change Impacts Leading to Financial Risk on SJAFB.

Climate Change Impact	Financial Risk
Increases in temperature and wind velocity	• unsafe environmental conditions for the launch of weapons and equipment. • increased maintenance requirements. • requirements for new equipment.
Increased dust generation	• unsafe environmental conditions for visibility. • increased maintenance requirements.
Increased frequency of large-scale storm events	• causing damage to vital mission infrastructure.

Source: SJAFB INRMP, U.S. Air Force, 2020

3.13.3 Environmental Consequences

The environmental consequences discussed in this section consider foreseeable climate change effects on natural resources, ecosystems, human community, and infrastructure on SJAFB.

Proposed Action

GHGs would be expected to be emitted temporarily during construction activities and would occur as a result of the burning of fossil fuels to power construction equipment. The Proposed Action would not permanently increase the emissions of GHG pollutants on base. On SJAFB, specifically within the Proposed Action areas for Burge Ditch, Hospital Creek North and Hospital Creek South, there would be no increases to the frequency of refueling aircraft, aircraft maintenance and vehicle maintenance. Additionally, the Proposed Action areas would not impact existing GHG emissions from commercial and residential sectors.

The expected total emissions from the project were quantified using the data generated from the air quality analysis (See Section 3.1). An estimation for the quantity and duration of construction equipment usage needed for the Proposed Action was included in the DAF ACAM. The ACAM utilized formulas to calculate total emissions based on assumptions for fugitive dust, construction exhaust, vehicle exhaust, and emissions for the workers commuting to and from the site. Total GHG emissions including CO_2, were estimated to be minimal (630 metric tons/year for construction), would be temporary in nature, and the amounts emitted would not have a significant impact on global climate change. Detailed emissions calculations are included in Appendix B of this EA.

Implementing the Proposed Action would increase the resiliency of the structures and natural resources within SJAFB. The Proposed Action would provide long-term protection against future large-scale storm events and increased volumes of storm water runoff from continued increases in impervious cover within the watershed by repairing existing damaged infrastructure and stabilizing the eroded streambanks associated with Hospital Creek North and South, and Burge Ditch. Repairing damaged stormwater conveyance infrastructure and stabilizing eroded streambanks would proactively reduce the future financial risks to physical property on SJAFB related to climate change impacts. Approximately 2.24 acres of wetland would be temporarily impacted during construction for shallow grading along the stream corridors. The areas would be reseeded and planted with herbaceous wetland species, which would reestablish the wetlands to pre-construction condition. Additionally, the stabilization of stream banks would protect the wetlands from future erosion and enhance the function and value of wetlands along the stream corridors. The Proposed Action would not permanently impact the use of carbon-intensive energy sources on base, and therefore would not present any financial risk to the mission or community associated with transition of energy sources.

No Action

Under the No Action Alternative, stream banks would continue to scour, erode, and slough. The sources of hydrology to the wetlands buffering Burge Ditch, Hospital Creek North, and Hospital Creek South, currently providing carbon sequestration on SJAFB may become reduced or eliminated. Accelerated erosion without intervention would result in further infrastructure damage and environmental consequences including degradation of receiving water quality. Over time, foreseeable environmental changes would continue to make the natural resources, ecosystems, human communities, and infrastructure on SJAFB more vulnerable to negative impacts including increased financial risk.

4.0 REASONABLY FORESEEABLE ACTIONS AND CUMULATIVE IMPACTS

The CEQ defines cumulative effects as the "effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non- Federal) or person undertakes such other actions" (40 C.F.R. 1508.7). Although individual impacts of various actions might be minor, taken together their effects could be significant. Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. It is the combination of these effects, and any resulting environmental degradation, that should be the focus of cumulative impact analysis (EPA, 1999).

Impacts subject to cumulative effects analysis are identified by reference to the temporal span and spatial area in which the Proposed Action could cause effects. Spatial and temporal boundaries were delineated to determine the area and projects the cumulative analysis would address. For this cumulative analysis, the spatial boundary is the airfield environment of SJAFB. The temporal boundary includes past actions that have occurred within the last 3 years, and reasonably foreseeable future actions include those that are planned to occur within the next 5 years.

4.1 Past, Present, and Reasonably Foreseeable Actions

This section provides decision makers with the cumulative impacts of the Proposed Action at SJAFB by determining the incremental contribution of the Proposed Action together with past, present, and reasonably foreseeable future actions. This section briefly describes each action, and presents the proponent and the timeframe (e.g., past, present/ongoing, future) of the action.

4.1.1 Past Projects

Past projects and actions at SJAFB are primarily tied to aircraft operations and other activities on airfields, taxiways, aprons, and associated infrastructure. Other projects or actions to consider in terms of cumulative effects would also include housing development, transportation infrastructure, and recreational facilities constructed within SJAFB. No projects within the last 3 years have been identified that would result in potential cumulative effects when combined with the Proposed Action that would directly or indirectly affect the existing conditions within the project area in the bed and banks of Hospital Creek and Burge ditch. Therefore, the impacts of past actions are now considered part of the existing environment and are incorporated in the description of the affected environment in Section 3 of this EA.

4.1.2 Present and Reasonably Foreseeable Future Actions

Present actions at SJAFB that may result in potential cumulative effects when combined with the Proposed Action include on-going military activities, particularly aircraft operations, and improvements to existing infrastructure. Reasonably foreseeable future projects and actions at SJAFB include construction and ground disturbance primarily tied to aircraft operations and improvements to existing infrastructure "on-installation" or within SJAFB, as shown in Table 17 and on Figure 13. Because the Proposed Action also includes construction and ground disturbance at SJAFB, it is expected that these on-installation cumulative projects would have similar types of resource impacts as the Proposed Action. Therefore, cumulative impacts from the on-installation

cumulative projects, combined with the Proposed Action, are anticipated on all resources areas which would experience impacts from the Proposed Action.

Table 17. Reasonably Foreseeable Actions at SJAFB

Action	Timeframe	Description
Child Development Center (CDC)	Reasonably Foreseeable	Construct a new childcare facility (less than 50,000 SF) for daytime recreation/education, situated adjacent to an existing facility with similar function.
Indoor Small Arms Firing Range	Reasonably Foreseeable	Construct a new enclosed training complex (less than 100,000 SF) after demolishing several existing storage facilities (more than 50,000 SF).
Airman Dormitory	Reasonably Foreseeable	Construct a new two-story dormitory (less than 50,000 SF footprint) for unaccompanied airmen assigned at SJAFB, situated next to existing dormitories.
Consolidated Wing Support Center (CWSC)	Reasonably Foreseeable	Construct a new two-story administrative building (less than 10,000 SF), thus consolidating various functions from across SJAFB.

Figure 13. Locations of Reasonably Foreseeable Actions at SJAFB

4.2 Assessment of Cumulative Impacts by Resource

Cumulative impacts were evaluated for the project along with the direct effects and indirect effects of each alternative in keeping with 40 C.F.R. §§ 1500-1508.

As part of cumulative impact analyses, qualitative and quantitative thresholds can be used to indicate whether a resource(s) of concern has been degraded and whether the combination of the action's impacts with other impacts will result in a serious deterioration of environmental functions. Thresholds can be used to determine if the cumulative impacts of an action will be significant and if the resource will be degraded to unacceptable levels. The environmental consequences outlined in Chapter 3 forms the scientific and analytic basis for comparison for the assessment of cumulative impacts resulting the Proposed Action Alternative.

4.2.1 Air Quality

Short- and long-term minor, adverse cumulative impacts to air quality would be expected under the Proposed Action and reasonably foreseeable on-installation cumulative projects. Section 3 of this EA indicated that the Proposed Action has no or negligible negative impacts on Air Quality. Air emissions associated with construction would be anticipated to be temporary and would only occur during the construction period. The Proposed Action would not create emissions greater than the de minimis threshold values, or lead to a violation of any federal, state, or local air regulation, and activities of this limited size and nature would not appreciably contribute to adverse cumulative impacts on air quality.

Assuming that the Proposed Action and reasonably foreseeable on-installation projects are implemented at the same time, short-term adverse cumulative impacts would be expected from the use of heavy equipment and generation of fugitive dust during construction and demolition activities, construction, and ground disturbance. However, cumulative impacts on air quality from construction activities would not occur should the Proposed Action and reasonably foreseeable on-installation cumulative projects be implemented at different times. Similarly, should some, but not all, of the cumulative projects overlap in time, short-term, minor, adverse cumulative effect might be expected.

4.2.2 Water Resources

The Proposed Action and reasonably foreseeable on-installation cumulative projects would result in short-term negligible to minor adverse, and long-term beneficial cumulative impacts on local and regional water resources. Implementation of the Proposed Action would result in beneficial long-term impacts to Water Resources due to an increase or uplift in water quality and biological restoration in Hospital Creek and Burge Ditch. Construction activities for the Proposed Action and reasonably foreseeable on-installation cumulative projects would involve ground-disturbing activities during construction which would result in short-term cumulative impacts on water resources in the watershed from removing vegetation, which could cumulatively increase sedimentation short-term, as well as decrease infiltration and groundwater recharge.

To minimize cumulative short-term erosion and sedimentation, grading and clearing for the Proposed Action and on installation projects would be managed by SJAFB and occur only as needed and only within approved construction sites. SJAFB would be required to implement

stormwater controls for each project that would minimize the potential for long-term cumulative impacts. It is assumed that construction of the Proposed Action and reasonably foreseeable on-installation cumulative projects would include adherence to construction site-specific BMPs associated with erosion and sediment generation during future storm events, which would reduce the potential for adverse cumulative impacts.

Long-term cumulative impacts would be expected on water resources from an increase in impervious surfaces associated with on-installation cumulative projects, which would result in a cumulative increase in the 100-year runoff volume and would require measures for each project to offset the additional volume. In addition, reasonably foreseeable on-installation cumulative projects could cause cumulative impacts to stormwater drainage in the area, requiring additional stormwater infrastructure. However, ordinances and best management practices regarding control of runoff, impervious surfaces and stormwater management would be required for implementation of future development within SJAFB, resulting in minimal and insignificant potential cumulative impacts. Erosion and sedimentation and stormwater controls for the Proposed Action and on-installation cumulative projects would be designed in coordination with SJAFB to release stormwater at a rate equal to or less than existing current conditions.

SJAFB stormwater permits would be obtained or amended as necessary for the Proposed Action and on-installation cumulative projects to comply with applicable NCDEQ stormwater regulations. Therefore, degraded water quality due to increased erosion and sedimentation is unlikely. The Proposed Action, when combined with other cumulative projects, would not be expected to result in a significant cumulative impact on water resources.

4.2.3 Geology and Soils

Short-term, negligible to minor, short-term adverse, and beneficial long-term cumulative impacts would be expected on geology and soil resulting from constructing the Proposed Action and reasonably foreseeable on-installation cumulative projects.

Implementation of the Proposed Action would result in beneficial impacts to geology and soils due to an increase or uplift in water quality and biological restoration in Hospital Creek and Burge Ditch. Ground-disturbing activities during construction of the Proposed Action and reasonably foreseeable on-installation cumulative projects would expose soils and cumulatively increase their susceptibility to water and wind erosion and could result in soil compaction. Additionally, clearing of vegetation associated with the Proposed Action and on-installation cumulative projects, and an increase in impervious surfaces to support facility construction under on-installation cumulative projects, would cumulatively increase erosion and sedimentation potential. However, construction activities associated with the Proposed Action and each on-installation cumulative project would be completed in accordance with an erosion and sediment control plan to contain soil and runoff on-site and reduce the potential for adverse cumulative impacts associated with erosion and sedimentation and transport of sediments in runoff.

SJAFB would be required to implement stormwater controls for each project that would minimize the potential for long-term cumulative impacts associated with erosion and sediment generation

during future storm events. The Proposed Action, when combined with on-installation cumulative projects would not result in significant cumulative impacts on geology and soils.

4.2.4 Cultural Resources

Section 3 of this EA indicated that the Proposed Action has no or negligible negative impacts on Cultural Resources. It is not anticipated that any of the reasonably foreseeable on-installation cumulative projects would impact cultural resources that are eligible or listed on the National Register of Historic Places. Therefore, the Proposed Action, when combined with relatively foreseeable cumulative projects, would not contribute to cumulative impacts on cultural resources.

4.2.5 Biological Resources

Construction under the Proposed Action and reasonably foreseeable on-installation cumulative projects would result in minor short- and long-term adverse cumulative impacts to Biological Resources from permanent removal of otherwise undisturbed vegetation, and an increased risk of spreading of noxious weeds and other invasive species.

Section 3 of this EA indicated that the Proposed Action has no or negligible negative impacts on Biological Resources. The Proposed Action would result in no effect to Atlantic sturgeon and four (4) federally protected species potentially occurring in Wayne County, NC, and no further Section 7 consultation with USFWS or NOAA NMFS under ESA Section 7 is required. No state protected Brownwater Bottomland Forests are located within the project area, and no Brownwater Bottomland Forests would be impacted by the Proposed Action. In addition, SJAFB does not take actions that are likely to have a measurable effect on migratory bird populations, and therefore a Memorandum of Understanding (MOU) is not required because no actions have, or are likely to have, a measurable negative effect on migratory bird populations. Permanent and temporary short term direct and indirect impacts to wetlands would occur with construction of the Proposed Action as a result of regrading, revegetation and TRM.

Removing vegetation and operating heavy equipment under the Proposed Action and reasonably foreseeable on-installation cumulative projects could cause a cumulative loss of habitat for various wildlife on and adjacent to the installation. Smaller species that are less mobile or have smaller home ranges may be permanently displaced or killed during ground disturbing activities associated with construction of the Proposed Action and reasonably foreseeable on-installation cumulative projects. These disturbances are expected to be minor, and it is assumed that wildlife would gradually acclimate and use open space in adjacent areas during and following completion of the Proposed Action and reasonably foreseeable on-installation cumulative projects.

Because there is comparable habitat in the vicinity of SJAFB, and because the Proposed Action and reasonably foreseeable on-installation cumulative projects would not remove all habitat on or adjacent to SJAFB, it is expected that only individuals would be affected, and construction of the Proposed Action and cumulative projects would not have a cumulative impact on local or regional wildlife populations. Temporary and permanent impacts would be managed through the implementation of BMPs. Therefore, the Proposed Action, when combined with on-installation cumulative projects would not result in a significant cumulative impact on biological resources.

4.2.6 Land Use

Construction under the Proposed Action and reasonably foreseeable on-installation cumulative projects would result in short-term, negligible to minor, adverse cumulative impacts to land use. Areas designated for outdoor recreation, airfield and military land uses would not be permanently affected with the Proposed Action. Land use designations for Burge Ditch, Hospital Creek North and Hospital Creek South would not change as a result of project construction. Only temporary impacts to recreational facilities (trails) adjacent to the Proposed Action would result from temporary access, laydown and storage.

Reasonably foreseeable on-installation projects are anticipated to be constructed within areas designated as military land use; land use would not change because of project construction since the proposed facilities are associated with military base operations. Temporary short-term impacts would occur within areas that would be used for construction access, to facilitate grading, or areas used for laydown and storage areas. Occupation of areas or facilities adjacent to construction, demolition, and renovation sites for the Proposed Action and on-installation cumulative projects would be limited by SJAFB to the duration of construction and coordinated with users prior to the disruption. Therefore, the Proposed Action, when combined with reasonably foreseeable on-installation cumulative projects, would not result in a significant cumulative impact on land use.

4.2.7 Utilities and Infrastructure

Construction under the Proposed Action and the reasonably foreseeable on-installation cumulative projects would result in short- and long-term negligible to minor, adverse cumulative impacts on infrastructure and utilities. The Proposed Action would result in a positive impact by repairing damage to storm water infrastructure caused by previous large-scale storm events and inadequate maintenance. Utilities that connect from existing lines and extend into the study area that convey water, sewer or communications would not be impacted by the Proposed Action. There are no proposed facilities in the study area that would result in an increase in consumption demands, and adjacent utilities would not need to be upgraded to support a demand resulting from the Proposed Action. Utilities may need to be connected to or extended into the reasonably foreseeable on-installation cumulative projects, and short-term cumulative impacts could include service interruptions experienced when extending or rerouting existing utility lines. In addition, the Proposed Action and reasonably foreseeable on-installation cumulative projects would require minimal amounts of water for dust suppression and may temporarily increase solid waste generation.

Temporary and permanent impacts from construction of the Proposed Action and reasonably foreseeable on-installation cumulative projects would be managed through the implementation of BMPs, and diverting materials that could be recycled or reused from landfills to the greatest extent possible would reduce cumulative impacts. Long-term cumulative impacts could occur from on-installation cumulative projects due to the increased demand on utilities from new facilities and increased personnel. However, the Proposed Action, when combined with cumulative projects, would not be expected to result in a significant cumulative impact on utilities and infrastructure.

4.2.8 Safety and Occupational Health

Short-term negligible to minor, adverse cumulative impacts would be expected on health and safety. Chapter 3 of this EA indicated that the Proposed Action has no or negligible negative impacts on Safety and Occupational Health. The Proposed Action and reasonably foreseeable on-installation cumulative projects would result in short-term, minor cumulative impacts to construction personnel during construction and demolition activities. Cumulative impacts could occur from the exposure of workers to the inherent safety hazards associated with construction such as slips, trips, and falls; exposure to hot, cold, and wet conditions; biological hazards; and fire, mechanical, vision, noise, and respiratory hazards.

Cumulative safety impacts on contractors and construction workers would be dependent on activity levels, activity types, and length of the construction period for the Proposed Action and cumulative projects. Compliance with OSHA standards, use of appropriate PPE, and application of abatement measures outlined in Section 3 of this EA during construction of the Proposed Action and reasonably foreseeable on-installation cumulative projects would minimize health and safety risks. The Proposed Action, when combined with reasonably foreseeable on-installation cumulative projects, would not result in a significant cumulative impact on safety and occupational health.

Short-term minor, adverse cumulative impacts would be expected from construction noise associated with the Proposed Action and reasonably foreseeable on-installation cumulative projects. Given the sporadic nature of construction activities, that the Proposed Action and on-installation cumulative project construction would likely occur in varying locations and at different times, distance to noise-sensitive areas within SJAFB, and the existing noise environment on SJAFB, these cumulative impacts on noise would be minor. Therefore, the Proposed Action when combined with reasonably foreseeable cumulative projects, would not result in significant cumulative impacts on sensitive noise receptors or the noise environment at SJAFB or regionally.

4.2.9 Traffic and/or Airfield Operations

Localized, short-term minor, adverse cumulative transportation impacts would be expected from an increase in construction vehicles accessing SJAFB, and areas adjacent to SJAFB, to support the Proposed Action and reasonably foreseeable on-installation cumulative projects. The Proposed Action, when combined with reasonably foreseeable on-installation cumulative projects, would not result in a significant cumulative impact on transportation.

No transportation facilities or military operations would be permanently incorporated or affected as part of the Proposed Action. The capacity of roadways or traffic patterns would not be permanently affected within SJAFB, only short-term, minor impacts would occur to traffic entering and leaving SJAFB from the transport of construction equipment, supplies, and excavated materials. Traffic patterns and temporary lane closures on SJAFB would be affected by the Proposed Action.

4.2.10 Hazardous Materials and Wastes

Construction under the Proposed Action and construction proposed for reasonably foreseeable on-installation cumulative projects would result in short-term negligible to minor, adverse cumulative

impacts from the use and generation of hazardous materials and wastes. Chapter 3 of this EA indicated that no known hazardous waste sites or hazardous materials or wastes, underground storage tanks, or spills have been identified within the project area. No demolition of structures would be required for construction of the Proposed Action and therefore, no disposal of materials containing asbestos, lead-based paint, or other sources of contamination is anticipated with construction of the Proposed Action.

The Proposed Action and reasonably foreseeable on-installation cumulative projects would result in a cumulative, short-term, temporary increase in the use of hazardous materials and petroleum products, and generation of waste during construction of these projects. Because the proponents for the Proposed Action and reasonably foreseeable on-installation cumulative projects are either federal or state agencies, it is assumed that all federal and state regulations would be followed regarding hazardous material and waste management during the Proposed Action and on-installation project construction, and site-specific BMPs for equipment use and emergency equipment repair, fuel and other potentially hazardous materials containment will be adhered to, which would reduce the potential for adverse cumulative impacts. Therefore, the Proposed Action, when combined with cumulative projects, would not result in a significant cumulative impact on hazardous materials and wastes.

4.2.11 Socioeconomic Resources

Short-term, negligible to minor adverse, and beneficial long-term cumulative impacts would be expected for socioeconomic resources. Implementation of the Proposed Action would result in long term beneficial impacts to Socioeconomic Resources and EJ populations, and communities surrounding SJAFB, including those located downstream in the receiving waters when combined with current military operations at SJAFB.

The Proposed Action, when combined with reasonably foreseeable on-installation cumulative projects would result in short-term, beneficial cumulative impacts on the region's economy through the purchase of construction materials and providing employment for construction personnel during project activities.

Short-term, negligible, adverse cumulative impacts on EJ and disadvantaged populations neighboring SJAFB located in Census Tract 14.02, Census Tract 15, and Census Tract 6.03 located downstream of the receiving waters of the Proposed Action could occur from construction noise and air emissions under the Proposed Action and reasonably foreseeable on-installation cumulative projects. However, noise levels and air emissions would attenuate with distance and would not be concentrated within these EJ and disadvantaged Census Tracts, and construction projects would likely occur in varying locations at different times. Therefore, disproportionately high and adverse cumulative impacts on EJ populations would not be expected. The Proposed Action, when combined with reasonably foreseeable on-installation cumulative projects, would not result in a significant cumulative impact on socioeconomic resources.

4.2.12 Coastal Zones

The Proposed Action and reasonably foreseeable on-installation cumulative projects would result in short-term negligible to minor adverse, and long-term beneficial cumulative impacts on the Coastal Zone.

SJAFB is not within the North Carolina Coastal Management Zone, and the Proposed Action and reasonably foreseeable on-installation cumulative projects have low potential to directly affect Pamlico Sound due to their location. However, construction of the Proposed Action and reasonably foreseeable on-installation cumulative projects would involve ground-disturbing and vegetation removal during construction, which could cumulatively increase sedimentation short-term, as well as decrease infiltration and groundwater recharge in the Hospital Creek and Burge Ditch watersheds, which would result in short-term cumulative impacts on water resources downstream including the Coastal Zone.

To minimize cumulative short-term erosion and sedimentation, grading and clearing for the Proposed Action and on installation projects would be managed by SJAFB and occur only as needed and only within approved construction sites. Implementing the Proposed Action and reasonably foreseeable on-installation cumulative projects would result in long-term positive impacts due to the improvements to the water quality of the receiving waters downstream of SJAFB. Implementation of the Proposed Action would result in beneficial long-term impacts to water resources downstream including the Coastal Zone due to an increase or uplift in water quality and biological restoration in Hospital Creek and Burge Ditch.

Long-term adverse cumulative impacts would be expected on the Coastal Zone from an increase in runoff from impervious surfaces associated with reasonably foreseeable on-installation cumulative projects upstream, which would result in a cumulative increase in the 100-year runoff volume and would require measures for each project to offset the additional volume. In addition, reasonably foreseeable on-installation cumulative projects could cause cumulative impacts to stormwater drainage in the area, requiring additional stormwater infrastructure which would ultimately discharge to watersheds within the Coastal Zone.

Ordinances and best management practices regarding control of runoff, impervious surfaces and stormwater management would be required for implementation of future development within SJAFB, resulting in minimal and insignificant adverse cumulative impacts. SJAFB stormwater permits would be obtained or amended as necessary for the Proposed Action and on-installation cumulative projects to comply with applicable NCDEQ stormwater regulations. Therefore, degraded water quality due to increased erosion and sedimentation and increased stormwater volume and rate is unlikely. The Proposed Action, when combined with other reasonably foreseeable on-installation cumulative projects, would not be expected to result in a significant cumulative impact on the Coastal Zone.

4.2.13 Climate Change and Climate-Related Financial Risk

The Proposed Action and reasonably foreseeable on-installation cumulative projects would result in short-term minor adverse, and long-term beneficial cumulative impacts to the climate. In the discussion in Section 3 of this EA, it was shown that repairing existing damaged infrastructure

under the Proposed Action would increase the resiliency and long-term protection of the structures within SJAFB, reducing the future financial risks to physical property on SJAFB and providing long-term beneficial cumulative climate impacts.

Projected climate change impacts leading to financial risk assessed at SJAFB include increases in temperature and wind velocity that would require increased maintenance and equipment purchases, increased dust generation leading to unsafe environmental conditions for visibility, and increased frequency of large-scale storm events causing damage to vital mission infrastructure. Assuming that the Proposed Action and reasonably foreseeable on-installation cumulative projects are implemented at the same time, short-term adverse cumulative impacts would be expected from the use of heavy equipment and generation of fugitive dust during construction and demolition activities, construction, and ground disturbance.
Air emissions associated with construction would be anticipated to be temporary and would only occur during the construction period. The Proposed Action would not create emissions greater than the de minimis threshold values, or lead to a violation of any federal, state, or local air regulation, and activities of this limited size and nature would not appreciably contribute to adverse cumulative impacts on air quality. However, cumulative impacts on air quality from construction activities would not occur should the Proposed Action and reasonably foreseeable on-installation cumulative projects be implemented at different times. Similarly, should some, but not all, of the cumulative projects overlap in time, short-term, minor, adverse cumulative effect might be expected.

GHGs would be expected to be emitted temporarily during construction activities and would occur because of the burning of fossil fuels to power construction equipment. The Proposed Action and reasonably foreseeable on-installation cumulative projects would not permanently increase the emissions of GHG pollutants on base. The Proposed Action, when combined with other reasonably foreseeable on-installation cumulative projects, would not be expected to result in a significant cumulative impact on the climate and would not significantly contribute to Climate Change.

5.0 SUMMARY OF ENVIRONMENTAL MANAGEMENT AND MITIGATIONS

5.1 Air Quality

GHGs would be expected to be emitted during construction activities. Greenhouse emissions from construction activities would occur as a result of the burning of fossil fuels to power construction equipment. GHG emissions would be minimal (630 metric tons/year for construction), temporary in nature, and the amounts of GHGs emitted would not have a significant impact on global climate change.

5.2 Water Resources

A total of 482 LF and 6,831.16 SF (0.157 acres) of permanent stream impacts resulting from placement of riprap and redi-rock wall would result from the repair and stabilization of several outfalls in Burge Ditch and Hospital Creek associated with the Proposed Action.

A total of 6,491 LF of temporary stream impacts would result from construction access, staging, streambank grading, placement of TRM and revegetation along the banks of Burge Ditch, its unnamed tributaries, and Hospital Creek would result from the Proposed Action to stabilize the eroded streambanks.

The streams would be temporarily impacted by erosion and sedimentation during the construction process. It is anticipated that impacts would be temporary, occurring only during construction activities. Silt fencing and other recognized best management practices would minimize construction impacts. Temporary E&S control measures would be utilized along stream banks in accordance with a SECP to restrict sediment transport downstream until streambanks are stabilized.

It is anticipated that a NCDEQ 401 Water Quality Certification and USACE Nationwide Permits (NWP) 13 – Bank Stabilization and 3 – Maintenance would be utilized to construct the project. Hospital Creek North and Burge Ditch are subject to The Neuse River Buffer Rule (15A NCAC 2B) which regulates land use activities adjacent to the Neuse River and its tributaries, and therefore would require authorization from NCDEQ.

5.3 Geology and Soils

Temporary erosion control elements would be utilized along stream banks to restrict sediment transport downstream until the sites are stabilized. Areas disturbed for access and construction would be regraded and seeded for revegetation. Permanent impacts would occur to soils in areas excavated for the placement of rock and culvert repair and replacement structures.

The drainage system repairs would disturb greater than one (1) acre and trigger the submission and approval of a SECP according to NCDEQ Land Resources. The drainage systems also have designated outfalls listed in the NPDES federal stormwater permit (Permit No. NCS000335). The proposed grading and construction activities would be consistent with the requirements of NPDES Permit No. NCS0000335. In addition, the project would also be consistent with the requirements outlined in the approved Comprehensive Watershed Protection Plan (2015).

5.4 Cultural Resources

No cultural resources are located in the project study areas. In addition, no traditional cultural properties, sacred sites, or Native American archaeological sites are located within the boundaries of the proposed project areas. No comments were received during the Draft EA review period from the Catawba Indian Nation or the Tuscarora Indian Nation. The Catawba Indian Nation have requested to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.

5.5 Biological Resources

Threatened and Endangered Species

The proposed action would have no effect on the red-cockaded woodpecker, Neuse River waterdog, Carolina madtom or Atlantic pigtoe. No stressors to Atlantic sturgeon or suitable habitat located one (1) mile downstream would occur as a result of project construction. Therefore, the Proposed Action would result in no effect to Atlantic sturgeon. No further consultation with USFWS and NOAA NMFS under ESA Section 7 is required.

Brownwater Bottomland Forests

No Brownwater Bottomland Forests are located within the project area.

Migratory Birds

Burge Ditch is within a BEZ. The proposed streambank stabilization for Burge Ditch includes TRM and vegetative cover utilizing turf grass that would not attract birds. No ornamental trees or shrubs would be planted. In accordance with the BASH Plan (March 2022), the proposed activity would stabilize the stream bank while maintaining the area to be as unattractive to birds as possible. Impacts to migratory birds in addition to the existing impacts as a result of Burge Ditch being within the BEZ are not anticipated.

Wetlands

A total of 97,482.61 SF (2.238 ac.) of temporary impact to wetland resulting from streambank stabilization and a total of 69.7 SF (0.002 acres) of permanent impact to wetland as a result of outfall repair would result from constructing the Proposed Action. Temporary impact to wetlands would be re-established with the stabilization of soils using TRM and revegetation throughout the entire project corridor. It is anticipated that a USACE Nationwide Permits (NWP) 13 – Bank Stabilization and 3 – Maintenance would be utilized to construct the project.

5.6 Land Use

Areas designated as outdoor recreation, airfield and military land uses would not be permanently affected with project construction. Land use designations for Burge Ditch, Hospital Creek North and Hospital Creek South would not change as a result of project construction. The existing recreational trails would remain open during construction. Temporary impacts to maintained and mowed grass areas adjacent to existing land use features would result from project construction. These areas would be regraded and seeded for revegetation and stabilization in accordance with the approved SECP completed for the project.

5.7 Utilities and Infrastructure

Utilities that connect from existing lines and extend into the study area that convey water, sewer or communications would not be impacted by the Proposed Action for Burge Ditch, Hospital Creek North, or Hospital Creek South. There are no proposed facilities in the study area that would result in an increase in consumption demands. Therefore, utilities outside the study area would not need to be upgraded to support a demand resulting from the proposed project.

5.8 Safety and Occupational Health

Bird Exclusion Zone

No negative impacts would occur to the Bird Exclusion Zone as a result of the Proposed Action for Burge Ditch. The project area for Hospital Creek North and Hospital Creek South are not within the BEZ, therefore, no impacts would occur under the Proposed Action.

Noise and Vibration

Except for temporary noise impacts from construction vehicles during active construction of the project, no noise or vibration impacts would result from project construction. The Proposed Action would not impact the frequency or nature of takeoffs and landings on the airfield and would therefore have no impact on current noise or vibration levels and would not have an effect on the natural environment in or around the study area or the surrounding community.

5.9 Traffic and/or Airfield Operations

Short-term, minor impacts would occur to traffic entering and leaving SJAFB from the transport of construction equipment, supplies, and excavated materials. The proposed construction activities for Burge Ditch would be coordinated with runway activities to avoid temporary impacts to airfield operations. Hospital Creek North or Hospital Creek South are not in close vicinity to airfield operations, and therefore airfield operations would not be impacted by the Proposed Action for Hospital Creek North or Hospital Creek South.

Traffic patterns on SJAFB would be temporarily affected by construction of the BMPs for Hospital Creek South and Hospital Creek North. Temporary lane closures would be required on Vermont Garrison Street and Jabara Ave. Standard NCDOT, and MUTCD temporary traffic control figures would be used for temporary lane closures.

5.10 Hazardous Materials and Wastes

No USEPA Envirofacts sites are identified in or directly adjacent to the Proposed Action areas. In addition, the EPA online database, NEPAssist, does not identify any EPA hazardous waste facilities within the project study area. No above or underground storage tanks or fuel lines were identified in the on-line database searches conducted. No known hazardous waste sites or hazardous materials or wastes have been identified within the project area of the Proposed Action. The project does not involve demolition or removal of structures that would exceed the allowable limits for asbestos and LBP and no asbestos or LBP concerns were identified for any culvert or infrastructure repair work, therefore the project does not require an asbestos permit, or the disposal of materials contaminated with LBP.

5.11 Socioeconomic Resources and Environmental Justice

Positive impacts to the communities surrounding SJAFB are expected as a result of the Proposed Action due to the improvements to the water quality of the receiving waters downstream of SJAFB. The Proposed Action would not have any impact to schools, businesses, churches, or other community facilities in census tracts within or adjacent to the Proposed Action. The Proposed Action would not have any impact to employment/population projections or local fiscal impacts within any of the census tracts in or adjacent to the Proposed Action.

The Proposed Action would have a negligible short-term beneficial indirect impact on the local economy during construction from incidental spending in the local area by construction workers. No additional jobs would be generated, and no new units would come to SJAFB as part of the Proposed Action. There would be no change in the local economy once the streambank stabilization is complete, as compared to existing conditions.

5.12 Coastal Zones

SJAFB is not within the North Carolina Coastal Management Zone, and it has low potential to affect Pamlico sound due to its location. SJAFB is within the Neuse River Basin, which directly outlets to the Pamlico Sound. Implementing the Proposed Action would improve the quality of receiving water, including the Neuse River Basin.

5.13 Climate Change and Climate-Related Financial Risk

GHGs would be expected to be emitted temporarily during construction activities and would occur as a result of the burning of fossil fuels to power construction equipment. The Proposed Action would not permanently increase the emissions of GHG pollutants on base. Total GHG emissions as a result of the Proposed Action were estimated to be minimal (630 metric tons/year for construction), would be temporary in nature, and the amounts emitted would not have a significant impact on global climate change.

Implementing the Proposed Action would increase the resiliency of the structures and natural resources within SJAFB. Repairing damaged stormwater conveyance infrastructure and stabilizing eroded streambanks would proactively reduce the future financial risks to physical property on SJAFB related to climate change impacts.

The Proposed Action would not permanently impact the use of carbon-intensive energy sources on base, and therefore would not present any financial risk to the mission or community associated with transition of energy sources.

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