U.S. Army Corps of Engineers (USACE)

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved - OMB No. 0710-0003 Expires: 01-08-2018

The public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR APPLICATION TO THE ABOVE EMAIL.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Randal Middle - Last - Vosburg	First - Keven Middle - Last - Duerr
Company - Town of Apex	Company - Hazen and Sawyer
E-mail Address - randal.vosburg@apexnc.org	E-mail Address - kduerr@hazenandsawyer.com
6. APPLICANT'S ADDRESS:	9. AGENT'S ADDRESS:
Address- 105-B Upchurch Street	Address- 4011 WestChase Blvd. Suite 500
City - Apex State - NC Zip - 27502 Country - USA	City - Raleigh State - NC Zip - 27607 Country - USA
7. APPLICANT'S PHONE NOs. w/AREA CODE	10. AGENTS PHONE NOs. w/AREA CODE
a. Residence b. Business c. Fax	a. Residence b. Business c. Fax
919-249-1042	919-522-4269 919-863-9350

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Keven Duerr to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Randy Vosburg — SIGNATURE OF APPLICANT — 7/22/24 — DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
Big Branch Force Main and Pump Station

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Big Branch, White Oak Creek, and Little White Oak Creek	Address
15. LOCATION OF PROJECT	City - State- Zip-
Latitude: °N 35.677944 Longitude: °W 78.911341	

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID utility easement Municipality Apex, Holly Springs, unincorporated Wake County

Section - Township - Range -

17. DIRECTIONS TO THE SITE

From Raleigh, take US Highways 1 south and 64 west towards Apex. Stay on US Highway 1 south to NC Highway 540 south/east. Take exit 55 for Veridea Parkway. The eastern terminus of the project area is across Veridea Parkway from the NC Highway 540 offramp.

18. Nature of Activity (Description of project, include all features)

See attached Additional Information Document.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

See attached Additional Information Document.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

See attached Additional Information Document.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres

or

Linear Feet 155

23. Description of Avoidance, Minimization, and Compensation (see instructions)

See attached Additional Information Document.

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- See attached Additional Information Document.

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

Randy Vaas — SIGNATURE OF APPLICANT; 7/22/24 — DATE; Kevin Dreen — SIGNATURE OF AGENT; 30 July 2024 — DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Additional Information Document (ENG 4345)

Big Branch Force Main and Pump Station (SAW-2024-00257)

18. Nature of Activity (Description of project, include all features).

The Town of Apex proposes to construct a new wastewater pump station (PS) and force main (FM) in the southwestern portion of Apex, Wake County, North Carolina (Figures 1 and 2). The proposed project will connect to a sanitary sewer line to be constructed as part of a separate project that will extend to the proposed PS entrance gate. The access road to the PS is proposed to connect to Old Holly Springs Apex Rd at the NC 540 interchange and run approximately 2,500 feet (0.48 mile) west to the proposed PS site.

The PS is proposed to provide up to 4 million gallons per day (mgd) of capacity, utilizing a combination of high-flow and low-flow pumps for operational flexibility as demand grows. In addition to the PS, the PS infrastructure includes a chemical building, an electrical building, back-up generator, and odor control. The PS site shall contain an access road, FM, and waterline that will roughly parallel the access road and feed into the PS, perimeter fence, stormwater pond with outlet, and retaining wall.

The proposed FM will extend northwest then west from the proposed PS. The proposed FM will extend in a southwesterly direction, generally following the US Highway 1 (US 1) corridor. The proposed pipe alignment crosses US 1 immediately west of the NC 540 interchange with US 1 and roughly parallels the north side of US 1 as the pipe continues in a southwesterly direction to a point approximately 1,700 feet southwest of the New Hill Holleman Road interchange with US 1. The FM corridor turns west then north to follow the east side of the eastern property boundary of the Western Wake Regional Water Reclamation Facility (WWRWRF). The FM corridor turns west then north to follow an existing utility corridor to the north side of the WWRWRF. The proposed FM will connect to the existing influent structure at the WWRWRF. The proposed FM from the PS to the WWRWRF is 26,016 feet (approximately 4.93 miles) in length.

The FM shall consist of dual, parallel, 20-inch diameter force mains from the PS to the WWRWRF parcel boundary, a length of approximately 22,768 feet. The dual force mains will join, and flow shall continue through a single, 24-inch diameter FM within/along the WWRWRF parcel to the influent structure. The pipes shall be PVC for the majority of their length. Ductile iron joints will be used where necessary to ensure stable joints and turns in the pipe alignment. The PVC pipes shall be encased in a steel carrier pipe at the crossings under US 1, Friendship Road, New Hill Holleman Road, and existing gas transmission lines. With the exception of the listed road crossings, the pipe will be installed via open-cut trench. The listed road crossings will be installed via bore and jack.

The FM will be installed with a minimum cover of 4 feet for the majority of its length. Stream crossings will have minimum cover of 3 feet, and air release valve manholes will be set with a minimum of 5 feet of cover. Anti-seep collars will be installed on the FM at the wetland/upland boundaries. No wetland crossings exceed 150 feet in length; therefore, anti-seep collars are proposed for the wetland/upland boundary only for each wetland crossing. Anti-seep collars shall be cast-in-place concrete, and the contractor shall ensure that no live concrete comes into contact with surface waters.

Construction access to the FM corridor will be achieved from existing roadways, including Old Holly Springs Apex Road, Woodfield Dead End Road, Winding Way, Friendship Road, New Hill Holleman Road, and US 1. The PS access road will provide the access point from Old Holly Springs Apex Road. New access roads and or temporary construction entrances will be developed at Winding Way and at four locations along US 1. The corridor will be accessed directly from the roadway along the other roads.

Equipment anticipated to be used to construct the proposed project includes, but is not limited to, cranes, excavators, backhoes, front-end loaders, and dump trucks. Due to the depth of the force main and the geology of the area, blasting is anticipated to be necessary to fracture subsurface rock to facilitate construction of the proposed PS and/or FM. Blasting will be confined to the minimum space needed to accommodate pipe installation. The specific blasting locations will be dictated by subsurface conditions.

Erosion and Sediment Control Measures

Erosion and sediment control measures will be utilized onsite to manage stormwater runoff and prevent indirect impacts to surface waters and degradation of water quality. Erosion and sediment control measures will be installed prior to commencing land-disturbing activities. Regular weekly inspections and maintenance will be performed to ensure the efficacy of the devices. Inspections will also be performed following any rain event that generates greater than one inch of rainfall.

The PS site, including the access road, will utilize the following measures: temporary slope drains; inlet protection for yard inlets; sediment basin with skimmer and baffles; lined, stormwater drainage channels with wattles to trap sediments; riprap outlet protection at downstream end of aforementioned channels and the outlet from the sediment basin; and silt fence. Erosion and sediment control measures to be implemented along the FM are as follows. Silt fence and tree protection fence will run the length of the corridor with stabilized stone outlets at regular intervals. The construction entrances will be stabilized with stone to minimize soil disturbance and tracking soil offsite. Temporary coir matting is prescribed on steep slopes.

Additional erosion and sediment control measures for protection of waters of the US will be implemented at stream and wetland crossings. Rock check dams and a temporary pump-around system will be used in stream SKA to establish and maintain a dry work area during construction of the access road to the PS. The temporary pump-around will consist of two pump set-ups – a clean water diversion and a work area pump. The clean water diversion will pump stream flow from upstream of the work area to a discharge location on a stable riprap pad located downstream of the work area. The work area pump will pump the water from within the work area into a filter bag or similar device prior to discharging the pumped water into the channel downstream of the work area. The temporary riprap pad and filter bag will be installed along the stream bank, not to encroach on or below the Ordinary High-Water Mark.

Along the FM corridor, the approach to a stream or wetland will include a double row of silt fence that crosses the pipe centerlines with stabilized stone outlets upslope of the jurisdictional feature. Temporary pump-around systems, as described in the preceding paragraph, will be utilized for all jurisdictional stream crossings to establish and maintain a dry work area. Permanent crossings of streams and wetlands will be installed to facilitate future operations and maintenance access

needs. The permanent crossings will consist of at-grade stone, measuring 10 feet wide in streams and 15 feet wide in the wetland, and an embedded rock sill abutting the downstream side of the crossing stone in streams. The rock sill will protect against future scour of the streambed.

19. Project Purpose (Describe the reason or purpose of the project, see instructions).

The Town of Apex seeks to replace four small PSs with the proposed Big Branch 2 PS and associated FM. The replacement of four PSs with one PS will help to streamline operations and maintenance for the Town. The four PSs currently transfer water from the Cape Fear River basin to the Neuse River basin. The interbasin transfer will be eliminated by the proposed project, as the wastewater will be generated, treated, and discharged in the Cape Fear River basin. Additionally, the proposed Big Branch 2 PS will provide adequate capacity to meet the projected demands of the service area in 2040 with the capability to be expanded to meet the demands at build-out of the service area. At present, construction is estimated to commence in January 2025 and last approximately 21 months.

20. Reasons for Discharge.

The project crosses two (2) wetlands and fourteen (14) streams, including Big Branch, White Oak Creek, and Little White Oak Creek. The unnamed tributaries (UTs) in the project area drain to the aforementioned named streams as well as to a second Big Branch, which is located west of the project area and is a direct tributary to Shearon Harris Reservoir. One stream (stream SKA, a UT to Big Branch) will be culverted to accommodate the PS access road. The remainder of the streams and wetlands are located along the FM corridor and will be temporarily impacted by the pipe installation and permanently impacted by the permanent access corridor. A listing of proposed impacts to wetlands and streams is presented in Table 1.

Direct Impacts

Permanent impacts to wetlands are proposed to consist of establishment of permanent, 15-foot-wide, maintained access corridor along the FM, being characterized by placement of stone fill. The stone fill will be placed such that the top elevation matches the existing land surface elevation and shall provide stability and reduced degradation of the abutting wetland area over time due to maintenance vehicle use.

Stream impacts will include temporary construction impacts and permanent impacts. The permanent impacts consist of a 10-foot-wide, riprap-lined ford to accommodate future maintenance access along the pipeline. The ford requires that the streambanks be laid back to attain a suitable slope for safe vehicular passage; see sheet EC15 for details on the proposed fords and slope per stream. The ford will consist of riprap embedded in the stream bed, keyed in to the bed elevation to ensure aquatic life movement and maintenance of low flows across the ford. The downstream face of the ford will consist of a rock sill embedded in the streambed. The top elevation of the ford and rock sill will match the elevation of the thalweg of the stream.

Crossing of the streams and wetlands by the FM will not result in the net loss of jurisdictional waters. Stream crossings will be performed within 15 degrees of perpendicular to the maximum extent feasible. A near-perpendicular crossing is not feasible for one of the two parallel pipes at stream impact sites S5/S6 (stream SKC) due to the natural meander of the stream. A near-

perpendicular crossing is not feasible at stream impact sites S19/S20 (stream SLB) and S21/S22 (stream SLA) due to the natural topography, proximity of the two channels to each other, and proximity of the NCDOT right-of-way (ROW).

Indirect Impacts

Indirect impacts associated with installation of the sewer are anticipated to be negligible since construction of the proposed project will not induce growth but is required to meet current and future demands of the service area. Cumulative impacts of the proposed project in conjunction with reasonably foreseeable activities in the vicinity of the project are possible. Cumulative impacts will be managed in accordance with and following the Town of Apex's Secondary and Cumulative Impacts Master Management Plan (2015).

Table 1. Impacts to Waters of the United States

Impact Site ID	Reason for Impact	Impact Duration	Impact Type	Feature Name	Feature Type	Stream Width	Impact Size
W1	Utility easement	P	Conversion	WLB	Bottomland hardwood forest	n/a	0.010 acre
W2	Utility installation	T	Excavation	WLB	Bottomland hardwood forest	n/a	0.014 acre
W3	Utility easement	P	Access / riprap	WLA	Non-tidal freshwater marsh	n/a	0.009 acre
W4	Utility installation	T	Excavation	WLA	Non-tidal freshwater marsh	n/a	0.035 acre
S1	Access road to PS	P	Culvert	SKA – UT1 to Big Branch	Perennial	6 feet	155 feet
S2	Access road to PS	T	Culvert	SKA – UT1 to Big Branch	Perennial	6 feet	48 feet
S3	Utility easement	P	Access / riprap	Big Branch	Perennial	25 feet	13 feet
S4	Utility installation	T	Excavation	Big Branch	Perennial	25 feet	38 feet
S5	Utility easement	P	Access / riprap	SKC – UT2 to Big Branch	Intermittent	5 feet	15 feet
S6	Utility installation	T	Excavation	SKC – UT2 to Big Branch	Intermittent	5 feet	47 feet

S7	Utility easement	P	Access / riprap	SLE – UT1 to White Oak Crk	Intermittent	28 feet	32 feet
S8	Utility installation	T	Excavation	SLE – UT1 to White Oak Crk	Intermittent	28 feet	42 feet
S9	Utility easement	P	Access / riprap	SKF – UT2 to White Oak Crk	Intermittent	10 feet	10 feet
S10	Utility installation	T	Excavation	SKF – UT2 to White Oak Crk	Intermittent	10 feet	21 feet
S11	Utility easement	P	Access / riprap	White Oak Crk	Intermittent	9 feet	10 feet
S12	Utility installation	T	Excavation	White Oak Crk	Intermittent	9 feet	40 feet
S13	Utility easement	P	Access / riprap	SKE – UT3 to White Oak Crk	Intermittent	4 feet	12 feet
S14	Utility installation	T	Excavation	SKE – UT3 to White Oak Crk	Intermittent	4 feet	18 feet
S15	Utility easement	P	Access / riprap	SLC – UT1 to Little White Oak Crk	Intermittent	5 feet	18 feet
S16	Utility installation	T	Excavation	SLC – UT1 to Little White Oak Crk	Intermittent	5 feet	44 feet
S17	Utility easement	P	Access / riprap	Little White Oak Crk	Perennial	15 feet	13 feet
S18	Utility installation	T	Excavation	Little White Oak Crk	Perennial	15 feet	53 feet
S19	Utility easement	P	Access / riprap	SLB – UT2 to Little White Oak Crk	Perennial	9 feet	17 feet
S20	Utility installation	T	Excavation	SLB – UT2 to Little White Oak Crk	Perennial	9 feet	63 feet
S21	Utility easement	P	Access / riprap	SLA – UT3 to Little	Intermittent	5 feet	19 feet

				White Oak Crk			
S22	Utility installation	T	Excavation	SLA – UT3 to Little White Oak Crk	Intermittent	5 feet	112 feet
S23	Utility easement	P	Access / riprap	SC – UT1 to Big Branch (western)	Intermittent	7 feet	14 feet
S24	Utility installation	T	Excavation	SC – UT1 to Big Branch (western)	Intermittent	7 feet	27 feet
S25	Utility easement	P	Access / riprap	SA – UT2 to Big Branch (western)	Perennial	15 feet	13 feet
S26	Utility installation	T	Excavation	SA – UT2 to Big Branch (western)	Perennial	15 feet	38 feet
S27	Utility easement	P	Access / riprap	SB – UT2 to Big Branch (western)	Intermittent	5 feet	14 feet
S28	Utility installation	T	Excavation	SB – UT2 to Big Branch (western)	Intermittent	5 feet	38 feet

23. Description of Avoidance, Minimization, and Compensation.

Multiple project alternatives have been considered and are discussed in detail in the Avoidance and Minimization sections below. Proposed compensation for unavoidable permanent impacts to waters of the U.S. is described in the Compensation section.

Avoidance

Avoidance of impacts to jurisdictional waters of the U.S. can be achieved by the No-Action Alternative. Three locations were evaluated for the PS, and four FM corridor alignments were assessed, as discussed below. The Preferred Alternative consists of PS Site 2 and a modified version of FM Route 2. The Preferred Alternative is described in Box 18 and is therefore not described in Box 23. Due to the east-west nature of the FM corridor and the north-south drainage pattern of the local landscape, no build alternative offers the opportunity to avoid impacting jurisdictional waters of the U.S. Conceptual site layout alternatives are presented in the Alternatives Figure, attached.

No-Action Alternative

Avoidance of impacts can be achieved by the No-Action Alternative. In the No-Action Alternative, the Town would continue to rely on the existing four PSs and their respective piping. The existing

PSs do not provide the capacity needed to meet future demands and do not have the capability to be expanded to meet future demands. The No-Action Alternative fails to meet the purpose and need of the project. Furthermore, replacing the four PSs with the proposed Big Branch 2 PS and routing the wastewater flow to the WWRWRF will eliminate interbasin transfer of the flows currently handled by the four PSs. Thereby, the project will help to ensure that adequate flow and volume of water is available in the Cape Fear River for downstream users.

Pump Station Alternative – Site 1

Big Branch PS Site 1 is located southeast of the PS associated with the Preferred Alternative. The access road for Site 1 connects to Old Holly Springs Apex Road and extends approximately 1,800 feet (0.34 mile) east to the proposed PS site. The access road to Site 1 will cross one stream mapped on the USGS topographic quadrangle. The PS will be situated adjacent to the mouth of the crossed stream at an unnamed tributary to Little Branch. Site 1, including the PS and the access road, encompasses approximately 2.2 acres.

Big Branch PS Site 1 is being constructed under a separate project. However, Big Branch PS Site 1 is inadequate to fully meet the needs of the herein proposed project.

Pump Station Alternative – Site 12

Big Branch PS Site 12 (Site 12) is named for the subbasin that it would directly serve. Site 12 is located southeast of the Preferred Alternative location for the PS. The access road to Site 12 connects to Old Holly Springs Apex Road and extends approximately 900 feet westward to the PS location. The access road and PS associated with Site 12 may impact one topographic drainageway or may have no impacts to jurisdictional waters of the U.S. However, the FM will cross at least one additional stream compared to the FM corridor of the Preferred Alternative, specifically the stream that is proposed to be culverted (stream SKA) under the Preferred Alternative. Site 12, including the PS and the access road, encompasses approximately 1.9 acres.

Site 12 is situated at a higher elevation than the Preferred Alternative. Construction of the PS at Site 12 would require extensive grading and taller retaining walls. The site has higher risks associated with structural integrity of the PS due to the grading that would be required and greater challenges with managing stormwater runoff than the Preferred Alternative. The site was eliminated due to the depth required for the pumps and the FM and the additional risks associated with constructing on the site.

Force Main Alternative – Route 1

Route 1 is located primarily on the north side of US 1 and is outside the controlled access ROW. Route 1 runs west from the proposed PS, crosses US 1, and turns west to Winding Way. The route follows Winding Way to Friendship Road, along which the route turns south. The alignment parallels US 1 for nearly one mile and turns west to Bosco Road. Route 1 follows Bosco Road south and then follows US 1 to immediately east of the New Hill Holleman Road interchange. The alignment turns north then west to cross New Hill Holleman Road and continues to the WWRWRF.

Route 1 was determined to be a viable, but not preferred, option. Route 1 involves a longer pipe length, more easements on private property, challenging installation along secondary roads and

adjacent to existing easements. The concept has greater impact to the existing two-lane, rural residential roadways, which increases the direct impact to local residents due to partial road closures and associated effects on transportation and emergency response time. Route 1 is expected to have the same or similar impacts to sensitive resources as the Preferred Alternative.

Force Main Alternative – Route 2

Route 2 is similar to Route 1 but is situated within the NCDOT ROW along the north side of US 1. From the PS to the crossing under US 1, Route 2 follows the same corridor as Route 1. From the US 1 crossing westward, the Route 2 alignment parallels US 1 within the ROW. On the west side of the New Hill Holleman Road interchange, the route turns north toward the WWRWRF property and follows the same corridor as Route 1 within the WWRWRF property.

Route 2 was eliminated as a potential alignment for the FM due to NCDOT declining the Town's request for a utility easement within the ROW. NCDOT requires demonstration of extenuating circumstances or a lack of feasible alternatives when considering a request for parallel occupancy in the US 1 ROW. NCDOT anticipates the need to widen US 1 in the future and is retaining unencumbered use of the full ROW width to accommodate future transportation needs. As such, the alternative is not feasible.

Force Main Alternative – Route 3

Route 3 is located primarily on the south side of US 1. Route 3 is primarily sited in the ROWs of secondary roads. The FM would run west to Woods End Road and turn northwest to begin following the roadway ROW of Woods End Road. The route turns south to follow Friendship Road to Deer Path Road. After crossing Little White Oak Creek, the route turns west and then northwest to cross US 1. The route turns west, crosses New Hill Holleman Road, and enters the WWRWRF parcel.

Route 3 traverses a planned, large-scale development and may present a constructability challenge for the development where proposed elements of the development are within or abutting the utility easement that would be recorded along Route 3. The alignment of Route 3 through the proposed development presents significant coordination challenges with the developer of the site. The Route 3 alignment encroaches into the extra-territorial jurisdiction (ETJ) of the Town of Holly Springs. Coordination with the Town of Holly Springs is necessary to obtain approval for the construction and is expected to be challenging due to the potential conflict with the proposed development and the availability of routing options that do not infringe on the proposed development or the ETJ of Holly Springs.

Route 3 traverses a greater number of private properties than Route 1 traverses. Due to the orientation of the drainageways in the vicinity of the route with respect to the orientation of the FM route in general, there is no reduction in the number of stream crossings with Route 3. Route 3 was eliminated from consideration by the design team based on consideration of the challenges associated with the proposed alignment.

Force Main Alternative – Route 4

Route 4 is located primarily on the south side of US 1. Route 4 follows existing utility easements to the extent feasible. The route runs parallel to the Cardinal and Dixie Pipeline easements through a

planned, large-scale development. It continues to its crossing of Friendship Road paralleling the Dixie Pipeline easement. The route parallels the Duke Power Transmission Main easement to Deer Park Road and then follows the same alignment as Route 3 to cross US 1 and New Hill Holleman Road and to connect to the WWRWRF intake structure.

The challenges associated with Route 4 are similar to Route 3, in that Route 4 also bisects the location of the planned, large-scale development and encroaches on the ETJ of the Town of Holly Springs. Route 4 also traverses more private properties than Route 1 crosses. Stream crossings are similar among all route options due to the relative orientation of the routes to the drainageways.

Minimization

The Preferred Alternative sites the PS at the nearest location to the WWRWRF, reducing the number of stream crossings compared to Site 12. The Preferred Alternative FM route is similar to Route 2 but is located adjacent to the US 1 ROW. As such, the Preferred Alternative FM route impacts private property owners while minimizing effects on traffic associated with Route 1. With the Preferred Alternative corridor, the design was developed with consideration given to utilizing existing sewer corridors where possible to minimize new cleared areas. Utilization of existing cleared areas reduces the removal of woody vegetation both within the undisturbed wooded buffer along the perimeter of WWRWRF and along the US 1 ROW, retaining the visual and noise barrier between the residents and US 1 traffic.

Another modification of the design concept for the FM component of the Preferred Alternative consisted of the FM corridor turning west from the northwest quadrant of the New Hill Holleman Road interchange with US 1 in alignment with the existing maintained easement within the WWRWRF property. The second design concept was eliminated during coordination with the property owner in order to accommodate development plans for the property. The alignment of the FMs was adjusted to follow the parcel perimeter adjacent to the US 1 ROW and the WWRWRF property boundary. The second design concept has similar impacts to natural and cultural resources as the Preferred Alternative. However, the second design concept interferes with the planned use of the property on which the concept differs from the Preferred Alternative.

Design modifications have been made during the development of the design of the Preferred Alternative. Erosion and sediment control measures are included in the project design to protect water quality downstream of the construction corridor. Measures include perimeter silt fence, minimization of tree removal, and channel protection and restoration measures. The limits of disturbance of the project have been reduced to the extent feasible to minimize impacts to waters of the U.S. and private properties. Further reduction would render the pipelines not constructible due to the depth of the FM. Stream crossings were designed to minimize the limits of disturbance with crossings within 15 degrees of perpendicular, where feasible.

Installation of the FM and of the PS access road cannot be completed without in-water work. The alignment of the access road crossing was adjusted to reduce the length of impact while balancing property owner request for the location of the permanent road. Side slopes along the road were maximized to the extent possible without compromising long-term slope stability in order to shorten the length of stream impact. Assessment of trenchless installation methods versus using

open-cut installation for the proposed FM was performed. The proposed stream and wetland crossings along the FM corridor are located in areas for which easements on private property are being obtained. Mobilizing trenchless installation machinery to each stream crossing would result in greater impacts to private property due to wider temporary construction easement needs and would not eliminate the need to impact the stream. Permanent access across the streams and wetlands will remain a need of the project, thereby necessitating the temporary and permanent impact footprints proposed herein.

In addition to minimizing impacts through the project design, measures are required of the construction contractor to minimize impacts to waters of the U.S. during construction. The contractor shall perform inspections of erosion and sediment control devices weekly and following rain events of 1 inch or greater and shall perform maintenance as needed to ensure maximum efficacy of all devices in use. Vehicle and equipment maintenance activities are required to be performed outside of jurisdictional areas. Disturbed soils will be temporarily stabilized if the disturbed area will not be final graded and permanently stabilized within a reasonable timeframe. Impacts to jurisdictional areas during construction will be limited to the extent feasible by performing as much work as is possible from upland areas. Disturbed areas, including temporary wetland and stream impacts, will be returned to original grade and seeded with an appropriate native seed mix as soon as possible, not to exceed 90 days of completion of the project.

In wetlands, the contractor shall remove and stockpile the top 12-inches of material. The stockpiled material shall be used to backfill the top 12 inches of the trench in wetlands during backfill operations. Similarly, native streambed material will be reused as the upper portion of the trench backfill in streams. Trenches will be constructed and backfilled to ensure waters of the U.S. are not subject to drainage during construction activities. Excavation of the pipe trench will be performed as prescribed by the USACE in jurisdictional areas, and side casting of excavated material into abutting wetland areas will be avoided to the extent feasible.

Compensation

Mitigation is not required for the impacts to jurisdictional waters of the U.S. as the impacts thereto are below the threshold at which compensation is required under the Clean Water Act. Mitigation for impacts to the protected wooded buffer surrounding the WWRWRF is necessary. The wooded buffer was required as a mitigative measure in the Environmental Impact Statement for the construction of the WWRWRF due to the proximity of the facility to a community that is protected under Environmental Justice.

Impacts to the protected wooded buffer around the WWRWRF are not avoidable as the FM shall convey flow to the facility and the buffer follows the full perimeter of the WWRWRF parcel with the exception of the existing maintained utility easements. The proposed FM cannot be constructed within the existing utility easements due to spacing and protection of existing utilities during excavation and installation of the proposed FM. The area of protected wooded buffer to be removed and maintained regularly as a permanent utility easement is 3,697 SF. The WWRWRF is owned by the Town of Cary. Additional wooded area abutting the existing, dedicated wooded buffer is proposed to be protected as compensatory mitigation for the proposed impacts to the buffer. The compensation area is 6 feet wide and 617 feet long. The compensation area is depicted on the attached Wooded Buffer Mitigation figure.

25. Addresses of Adjoining Property Owners (continued)

Property Owner	Mailing Address	City	State	Zip
Inna Deng, Trustee	1200 Carlos Dr, Apt 261	Raleigh	NC	27609
Richard and Jeanne Stone	3817 Bosco Rd	New Hill	NC	27562
Elizabeth Stitt	3113 Friendship Rd	Apex	NC	27502
Barbara Bereman, Trustee	2900 Woodfield Dead End Rd	Apex	NC	27539
Bentley and Leanne Olive	3426 Winding Way	Apex	NC	27502
Jeffrey and Lesleigh Hastings	3601 Friendship Rd	Apex	NC	27502
TKC CCCXIX, LLC	4500 Cameron Valley Pkwy, Ste 400	Charlotte	NC	28211
Shenandoah Homes, LLC	4112 Blue Ridge Rd, Ste 210	Raleigh	NC	27612
5131 Church Road Apex LLC	PO Box 1866	Cary	NC	27512
Charles Baucom	2440 High Ridge Dr	Raleigh	NC	27606
Martha Edwards	3005 Pleasant Plains Rd	Apex	NC	27502
Duke Energy Progress Inc	Tax Dept – DEC41B 550 S Tryon St	Charlotte	NC	28202
RXR LEN Apex Owner LLC, General Counsel	625 RXR Plz	Uniondale	NY	11556
Dr. Jon and Tina Bruce	8164 Providence Oak Path	New Hill	NC	27562

Threatened and Endangered Species

Hazen biologists reviewed the USFWS IPaC tool to determine species and/or critical habitat within the vicinity of the proposed project most recently on May 9, 2024. The IPaC tool identified the following species as known to or having the potential to occur within or in proximity to the project limits: red-cockaded woodpecker (*Picoides borealis*) (endangered), Cape Fear shiner (*Notropis mekistocholas*) (endangered), and Michaux's sumac (*Rhus michauxii*) (endangered) as well as the tricolored bat (*Perimyotis subflavus*) (proposed endangered) and monarch butterfly (*Danaus plexippus*) (candidate).

The proposed project is not located within range of critical habitat for any federally listed species. Onsite field investigations were conducted by Hazen staff in June and July 2022 and May 2024, including pedestrian surveys for Michaux's sumac in areas of suitable habitat and visual assessment of mature trees for evidence of use by red-cockaded woodpeckers. No evidence of either species was observed. Cape Fear shiner inhabits streams with rocky substrate and good water quality and has been observed in slow pools, riffles, and slow runs. Habitat with the potential to support Cape Fear shiner may be present in or adjacent to the project limits; however, there are no records of the species in any stream in the subwatersheds traversed by the project, and the area has been impacted previously by road construction projects and development upgradient. During the 2022 field investigations, several of the jurisdictional streams were dry or nearly dry, which is unsuitable for supporting a fish population.

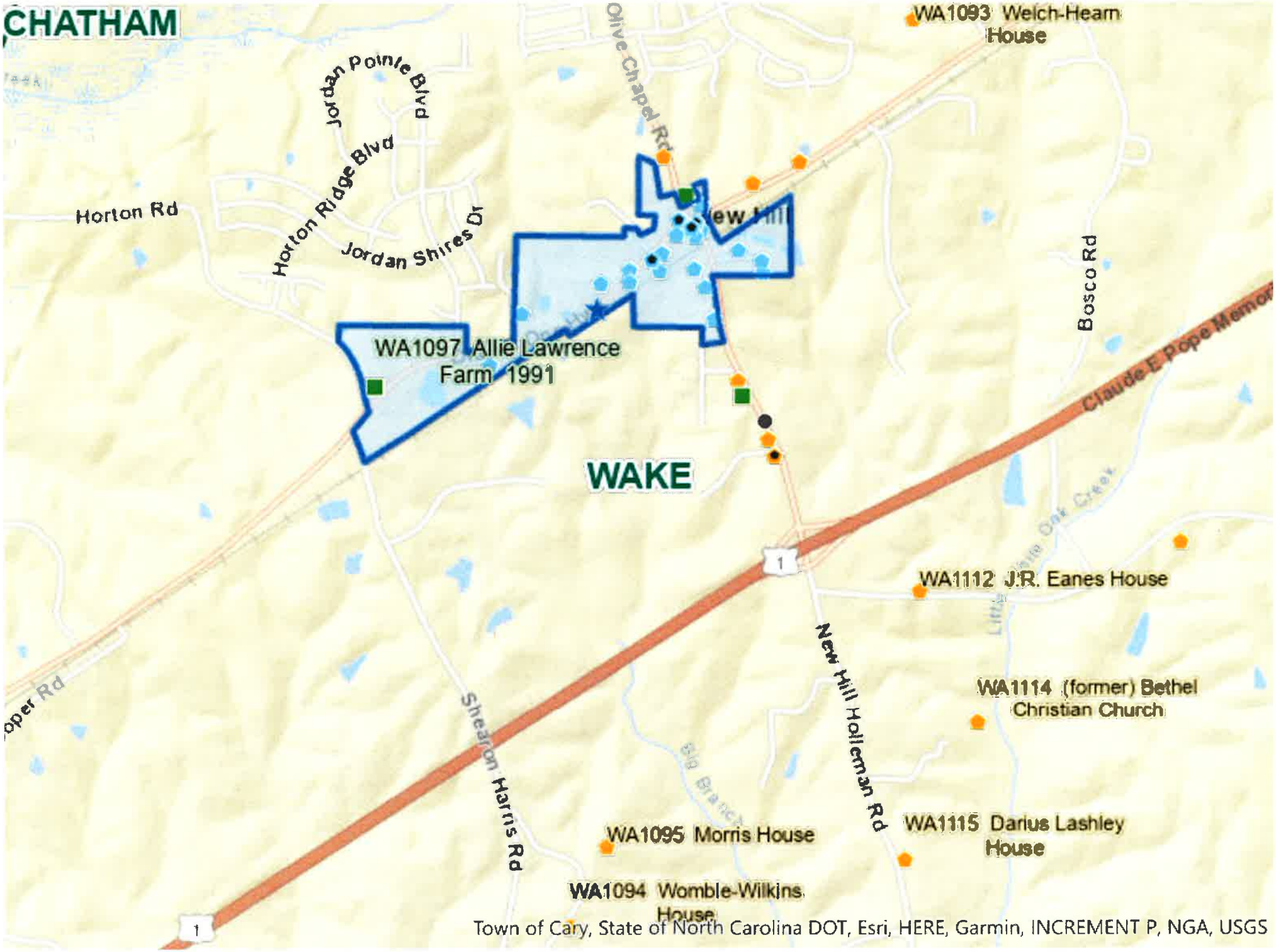
The tricolored bat is not currently protected under federal law, but it may be listed as endangered prior to the completion of construction of the proposed project. As such, the tricolored bat is

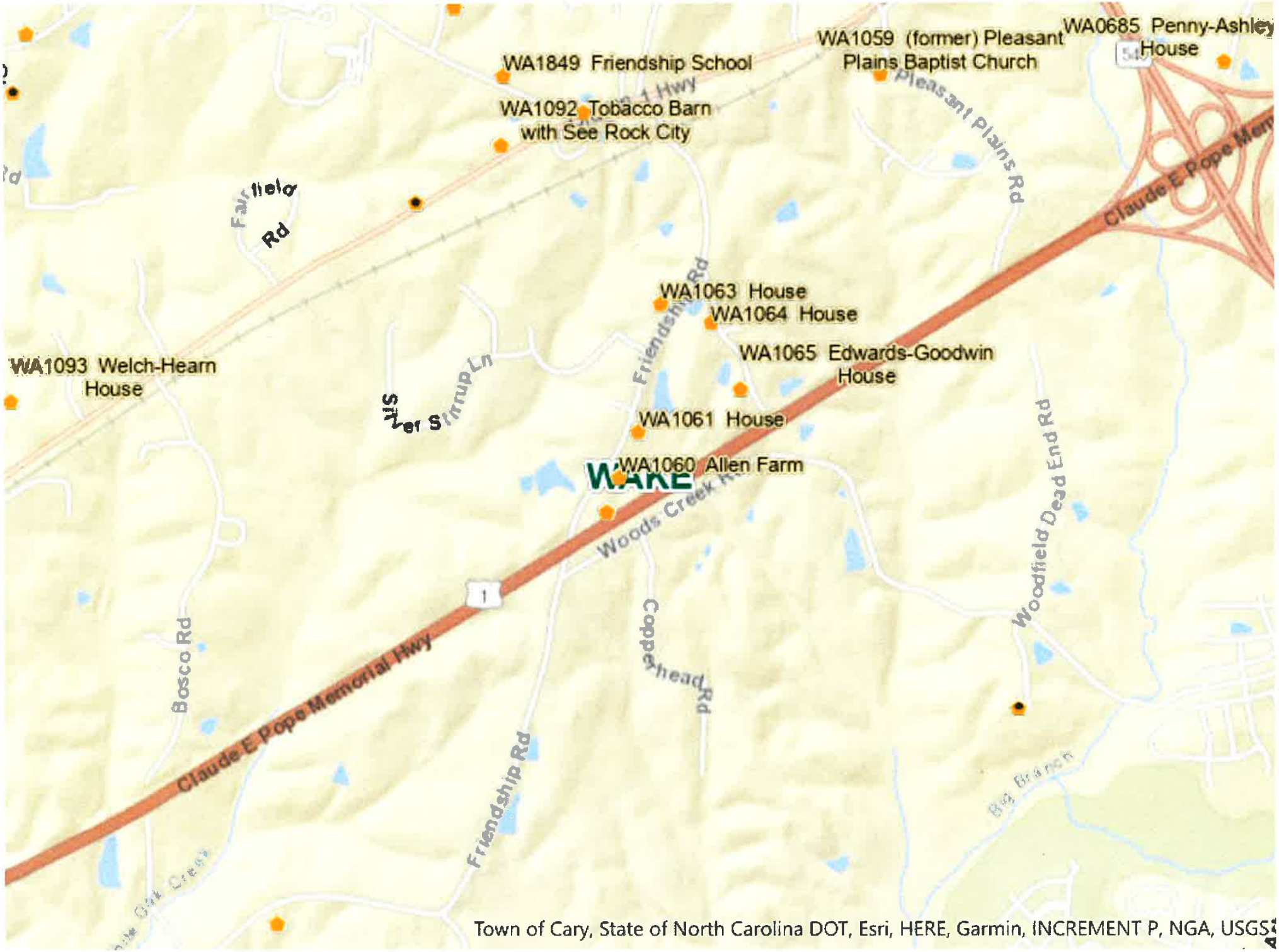
addressed as a proactive step to facilitate future consultation needs, should the species be listed. Tree clearing in jurisdictional areas will occur in wetland WLB and will affect 0.025 acre of forest. The surrounding lands have been recently timbered to support a planned development. Areas of suitable habitat for the tricolored bat remain intact in the vicinity. Additionally, the project does not entail the alteration or demolition of any structure or culvert. Negligible impact, at most, to the tricolored bat is anticipated as a result of the proposed project. The monarch butterfly is also not currently protected under federal law but may be listed prior to completion of construction of the proposed project. No areas of milkweed plants, a critical host plant for the butterfly, were observed during field investigations. As such, no impacts to the monarch butterfly are anticipated to result from construction of the proposed project.

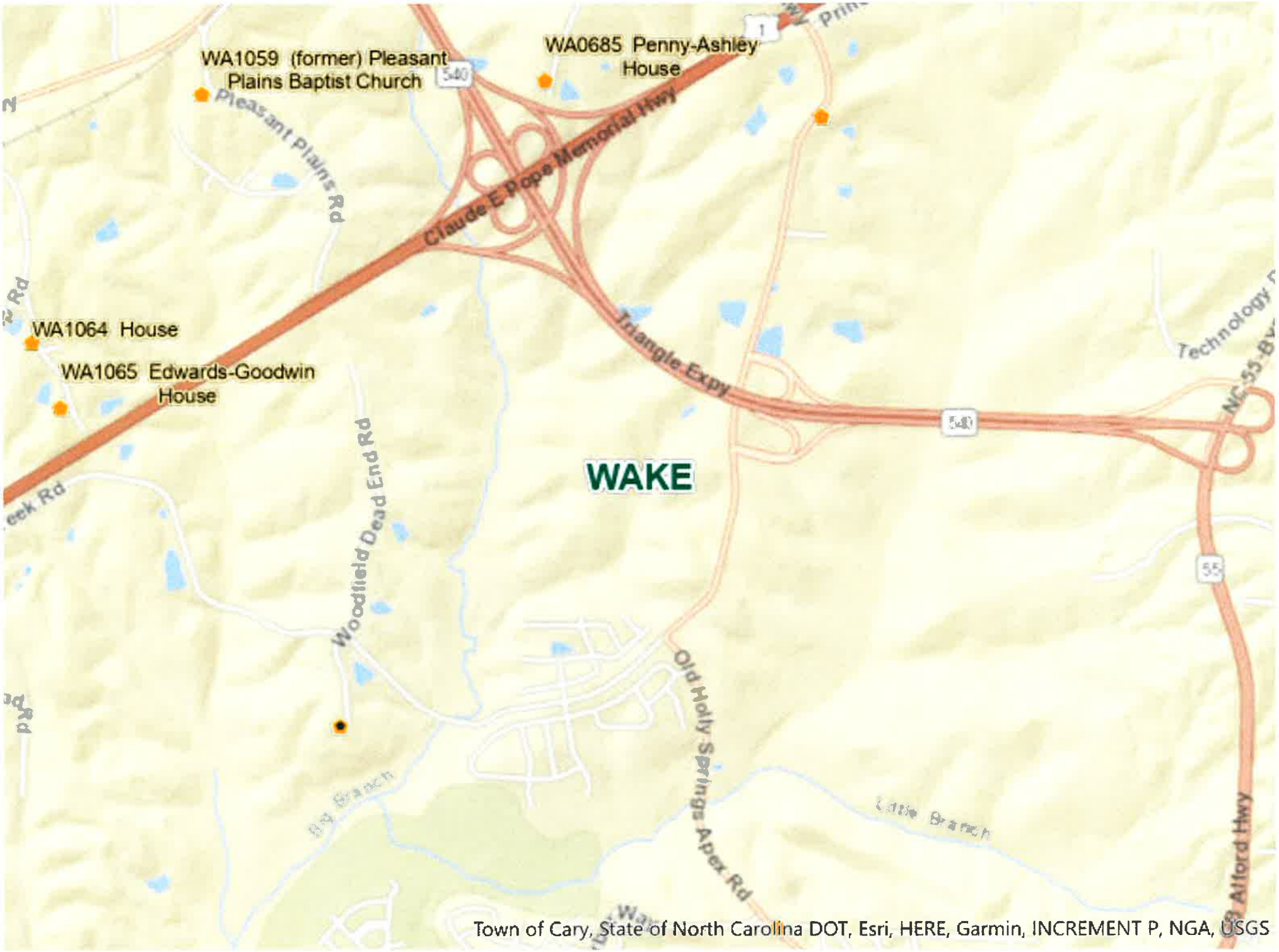
Historic and Archaeological Resources

Hazen biologists reviewed HPOWEB on numerous occasions through the course of the project design, most recently on May 9, 2024, to determine potential impacts to historic resources. At present, the westernmost portion of the FM is proposed to be located approximately 1,100 feet from the New Hill Historic District (Site ID WA1011). The area in which the FM is proposed to be constructed in proximity to the New Hill Historic District includes the WWRWRF, existing overhead and buried utilities, and is adjacent to recent residential development. No new aboveground structures are proposed as part of the project within a one-mile radius of the New Hill Historic District. There is an undisturbed forested buffer between the existing WWRWRF and the Historic District. Impacts to and compensatory mitigation for the impacts to the undisturbed wooded buffer around WWRWRF is discussed in a preceding section. The area of the buffer to be disturbed is not located in the space through which the WWRWRF is screened from the Historic District. No portion of the Historic District will be utilized during construction activities or is visible from the WWRWRF due to the existing, densely vegetated buffer.

Much of the project area has been disturbed by prior construction or timbering operations. Archaeological resources that may have been present within the project area have likely been previously disturbed. Additionally, excavated materials will be reused to backfill the excavated trenches along the FM corridor.


CHATHAM
WA1093 Welch-Hearn House
Olive Chapel Rd
Jordan Pointe Blvd
Horton Ridge Blvd
Horton Rd
Jordan Shires Dr
Bosco Rd
WA1097 Allie Lawrence Farm 1991
WAKE
Claude E Pope Memor
WA1112 J.R. Eanes House
New Hill Holleman Rd
WA1114 (former) Bethel Christian Church
Shearon Harris Rd
WA1095 Morris House
WA1115 Darius Lashley House
WA1094 Womble-Wilkins House
1
Town of Cary, State of North Carolina DOT, Esri, HERE, Garmin, INCREMENT P, NGA, USGS


WA1849 Friendship School
WA1092 Tobacco Barn with See Rock City
WA1059 (former) Pleasant Plains Baptist Church
WA0685 Penny-Ashley House
WA1063 House
WA1064 House
WA1065 Edwards-Goodwin House
WA1061 House
WA1060 Allen Farm
WA1093 Welch-Hearn House
Pleasant Plains Rd
Claude E Pope Memorial Hwy
Friendship Rd
Woodfield Dead End Rd
Bosco Rd
Woods Creek
Town of Cary, State of North Carolina DOT, Esri, HERE, Garmin, INCREMENT P, NGA, USGS


WA1059 (former) Pleasant Plains Baptist Church
WA0685 Penny-Ashley House
WA1064 House
WA1065 Edwards-Goodwin House
Pleasant Plains Rd
Claude E Pope Memorial Hwy
Triangle Expy
WAKE
Woodfield Dead End Rd
Old Holly Springs Apex Rd
Alford Hwy
Big Branch
Little Branch
Technology
Town of Cary, State of North Carolina DOT, Esri, HERE, Garmin, INCREMENT P, NGA, USGS

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Wake County, North Carolina

Local office

Raleigh Ecological Services Field Office

(919) 856-4520
(919) 856-4556

3916 Sunset Ridge Rd
Raleigh, NC 27607

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Birds

NAME	STATUS
Red-cockaded Woodpecker Picoides borealis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7614	Endangered

Fishes

NAME	STATUS
Cape Fear Shiner Notropis mekistocholas Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6063	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS

Michaux's Sumac Rhus michauxii Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5217

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence ( )

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week

12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

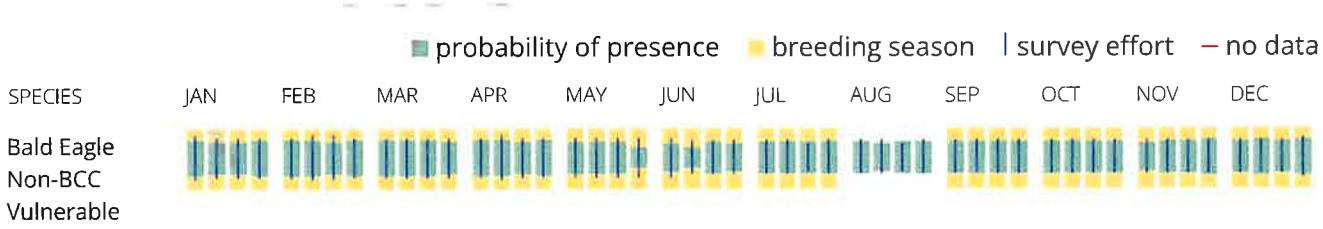
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Chuck-will's-widow *Antrostomus carolinensis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 10 to Jul 10
Eastern Whip-poor-will *Antrostomus vociferus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20

Grasshopper Sparrow Ammodramus savannarum perpallidus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20
Kentucky Warbler Geothlypis formosa This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
King Rail Rallus elegans This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8936	Breeds May 1 to Sep 5
Prairie Warbler Setophaga discolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler Protonotaria citrea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.


probability of presence
breeding season
survey effort
no data
SPECIES
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Bald Eagle
Non-BCC
Vulnerable
Black-billed
Cuckoo
BCC Rangewide
(CON)
Chimney Swift
BCC Rangewide
(CON)
Chuck-will's-
widow
BCC - BCR
Eastern Whip-
poor-will
BCC Rangewide
(CON)
Grasshopper
Sparrow
BCC - BCR
Kentucky
Warbler
BCC Rangewide
(CON)
King Rail
BCC Rangewide
(CON)
Prairie Warbler
BCC Rangewide
(CON)
Prothonotary
Warbler
BCC Rangewide
(CON)
Red-headed
Woodpecker
BCC Rangewide
(CON)
Rusty Blackbird
BCC - BCR
SPECIES
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Wood Thrush
BCC Rangewide
(CON)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or

minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

PFO1A
PFO1/4A

PSS1A

RIVERINE

R4SBC

R5UBH

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.