CONCURRENCE POINT 4A
AVOIDANCE AND MINIMIZATION

I-26 Interchange (Future Exit 35)
Buncombe County
STIP Project HE-0001
WBS No. 49742

June 15, 2022

Purpose of Meeting

The Merger Team is meeting today to discuss and identify methods and opportunities for avoidance and minimization of impacts to natural and human resources associated with the proposed construction of the Least Environmentally Damaging Practicable Alternative (LEDPA)/Preferred Alternative for STIP Project HE-0001. Concurrence will be requested for CP 4A Avoidance and Minimization.

Project Description

To address the lack of network connectivity between NC 191 and I-26 in southern Buncombe County, and to accommodate current and planned growth, NCDOT proposes to construct a new interchange on I-26 in the project study area (PSA). This new interchange would connect to NC 191 via a road that is currently under construction by a private developer but will later become a State maintained road (i.e., East Frederick Law Olmsted Way[1]) (**Figure 1**).

Project Setting

The proposed project is located approximately 6 miles south of Asheville along I-26, north of the Blue Ridge Parkway (BRP) and south of the French Broad River (FBR) bridge (**Figure 1**).

Land use in the project vicinity is mixed and includes manufacturing/distribution facilities, single- and multi-family residential neighborhoods, open space, and commercial and recreational uses. I-26 is currently under construction for widening to 8 lanes (4 lanes in each direction of travel) and includes the

[1] Formerly referred to as Frederick Law Olmsted Way East (and FLOWE), the new roadway between NC 191 and the roundabout has been named East Frederick Law Olmsted Way. The County addressing coordinator indicated that there would be issues with the "East" tag added to the end of the road name. This road name has been added to the County GIS site and is live.

widening/replacement of the I-26 bridges over the FBR and the replacement of the BRP bridge on new alignment, all under the NCDOT STIP Project I-4700. The posted speed limit is 60 mph. North of the Clayton Road (SR 3501) intersection, the NC 191 corridor is characterized by preserved open space in proximity to the FBR, Pisgah National Forest, and the BRP.

Project Status and Schedule

HE-0001 will be federally- and state-funded. NCDOT anticipates documentation as a NEPA Type III Categorical Exclusion (CE) in Summer 2022. NCDOT is targeting right of way acquisition and construction for state fiscal year 2023. The current total cost estimate range is between $20 and $35 million.

Merger History of Project

CP 1: Purpose & Need and Study Area Defined

The Merger Team concurred with the Project Need and Purpose and Study Area on July 15, 2021[2]. In summary:

Study Area

The study area generally includes approximately 210 acres along and west of I-26, south of the FBR and north of the BRP (**Figure 1**). The study area encompasses enough area to explore interchange locations on I-26 and allowing NCDOT to accommodate current and planned growth by connecting to East Frederick Law Olmsted Way. The study area is north of the BRP and south of the FBR to avoid impacts to both features (inclusive of the bridge infrastructure associated with both), and to account for proposed ramp length requirements. The study area extends along the roadway under construction to NC 191 to account for the potential need to provide 4-lanes from I-26 to NC 191. This corridor extension is approximately 300 feet wide; the roadway under construction by a private developer was graded for a 4-lane roadway but is being constructed as a 2-lane roadway. NCDOT's proposed project would be graded for a 2-lane roadway; NCDOT anticipates the need for auxiliary lanes at intersection approaches (e.g., turn lanes) which would result in a wider project footprint near proposed intersections.

Need for Project

The proposed project is needed to address the lack of network connectivity between NC 191 and I-26 in southern Buncombe County to accommodate current and planned growth.

Project Purpose

The purpose of the project is to provide access to I-26 and improve east-west connectivity within the project vicinity to accommodate current and planned growth.

Secondary Benefits

Other desirable outcomes of the proposed project are:

- improved traffic safety due to greater separation of local traffic from interstate traffic;

[2] All regulatory and resource agencies concurred except NC WRC who abstained from concurrence.

- improved emergency response times to the Pratt & Whitney (P&W) Manufacturing Center, Biltmore Park West (BPW) property, and sections of NC 191 and I-26;
- support for local and regional economic development initiatives in the project vicinity;
- improved access to anticipated regional employment opportunities at P&W Manufacturing Center and BPW; and
- improved access to tourist destinations.

CP 2: Detailed Study Alternatives Carried Forward

The Merger Team concurred with the DSAs to be carried forward on July 15, 2021[3]; these are summarized below.

Three build alternatives were carried forward for detailed study (**Table 1**). The NCDOT will consider traffic operations in the final recommendation for the interchange ramp terminal treatment(s). A 2-lane typical section was applied to the proposed roadway that would connect the proposed interchange and the road that is currently being constructed by a private developer (East Frederick Law Olmsted Way). Avoidance and minimization measures will continue to be evaluated throughout design development and in consultation with the Merger Team.

Table 1. Detailed Study Alternative Description

DSA	Description
DSA 1	• left exit/entrance ramp • Diamond configuration • center of the I-26 bifurcated section
DSA 2	• right-exit/entrance ramp • Diverging diamond (DDI) configuration • center of the I-26 bifurcated section
DSA 3	• left exit/entrance ramp • Diamond configuration • North end of the I-26 bifurcated section

CP 2 Update

As requested at the July 15, 2021, CP 1 & 2 Merger Meeting, NCDOT provided the Merger Team with a CP 2 Update at the September 16, 2021, CP 2A Merger Meeting. This update summarized the results of the Traffic Forecast for HE-0001 and NCDOT's decision to proceed with a 2-lane with shoulder typical section proposed roadway, noting the anticipated need for auxiliary lanes at proposed intersections to accommodate traffic operations. The CP 2 Update also revisited potential impacts reported at CP 1 & 2 to include verified jurisdictional resources in place of the GIS data sets.

*Please see **page 9** for an update on the traffic forecast*.

[3] All regulatory and resource agencies concurred except NCWRC who abstained from concurrence.

CP 2A: Bridging Decisions and Alignment Review

The Merger Team concurred with the Bridging Decisions and Alignment Review on September 16, 2021. The Project Team concurred that there are no proposed hydraulic structures or major crossings requiring bridging decisions for STIP Project HE-0001.

CP 3: Least Environmentally Damaging Practicable Alternative (LEDPA)/Preferred Alternative Selection

The Merger Team concurred on the LEDPA/Preferred Alternative on February 9, 2022. DSA 3 was selected as the least environmentally damaging practicable alternative (LEDPA) since it had the least impact to the natural and human environments. Though DSA 3 had the highest potential impacts to Stream SA (approx. 700 ft), it had the lowest overall impacts to potential jurisdictional aquatic resources (approx. 1,500 ft of streams and 0.1 ac of wetlands). Additionally, the National Park Service Blue Ridge Parkway (NPS) (via FHWA's Section 106 Effects Consultation for the Blue Ridge Parkway) found DSA 3 preferable to 1 and 2 because DSA 3 is farthest from the Parkway. For these reasons, NCDOT and FHWA supported DSA 3 as the LEDPA and least impactful to the aquatic environment. Further, NCDOT reported that stormwater BMPs will be more effective in association with Stream SA compared to Stream SDX.

Design Evaluation and Refinement After CP 3 and Prior to CP 4A

NCDOT continues to evaluate the Preferred Alternative design, including avoidance and minimization measures. The following design decisions and adjustments have occurred since CP 3:

- Through coordination with FBRMPO and Buncombe County, NCDOT will extend the sidewalk on the north/west side of the proposed roadway from the roundabout being constructed by the private developer to the proposed control of access (C/A) limits west of the interchange ramp terminal. Inclusion of sidewalk will require a curb and gutter design as opposed to a grass shoulder, with curb and gutter helping to minimize the roadway footprint.
- As requested by NCDWR, a portion of the Y-Line alignment was shifted to the southeast to improve the Stream SA crossing, resulting in a more perpendicular crossing and an approximately 100-foot reduction to stream channel impacts to Stream SA, and avoid approximately 0.04 acre of impacts to Wetland IDs WD and WH.
- Through coordination with the NCDOT-Traffic Mobility and Safety Division (TMSD), NCDOT-Division 13 is pursuing a diverging diamond interchange (DDI) configuration for the Preferred Alternative to maximize safety and operations. As a result of this decision to construct a DDI, coupled with more detailed analysis of the eastbound ramp profiles, the quantity of earthwork increased along the eastbound off-ramp and at the eastbound ramp terminal. The associated tree clearing limits also increased from 19.7 acres reported at CP 3 to 23.6 acres. The USFWS Informal Consultation Letter dated November 18, 2021, states that: "NCDOT will build the project on undeveloped land and clear a maximum of 26 acres of trees."

Figure 2 provides a comparison of the proposed horizontal alignments for the -Y-line and ramps that were presented at CP 3 and those included in the current design under review at CP 4A.

Preliminary Stormwater Management Plan

NCDOT utilized the NC SELDM[4] Catalog tool to analyze the receiving waters for the project and return stormwater BMP recommendations. **Table 2** identifies the location of the receiving water, the NC SELDM simulation result and stormwater treatment goal, and a preliminary recommendation for a BMP device where one is suggested by NC SELDM. Refer to **Figure 3** for site locations. The preliminary device recommendations are subject to refinement through final design, which will consider additional data regarding ground water level, soil type, topography, and access for maintenance, among other considerations.

Table 2. Preliminary Stormwater Management Analysis & Recommendations

Site #	Receiving Water(s) (Jurisdictional Feature)	NC SELDM Recommendation	Preliminary Recommended BMP Device
1	SA	BMP Toolbox	Bio/wet infiltration basin (V_{WQ}=0.07 acre-ft)
2	SE	Minimum measures	Swales, level spreaders, pre-formed scour holes
3	SG	Minimum measures	Swales, level spreaders, pre-formed scour holes
4	SA-A/SA-B/WQ	Minimum measures	Swales, level spreaders, pre-formed scour holes
5	SDX	Possible direct discharge	Swales, level spreaders, pre-formed scour holes
6	SDX/WCT	BMP Toolbox	Bio/wet infiltration basin (V_{WQ}=0.05 acre-ft)
7	SDY	Minimum measures	Swales, level spreaders, pre-formed scour holes
8	SH	BMP Toolbox	Bio/wet infiltration basin (V_{WQ}=0.08 acre-ft)
9	SK	Minimum measures	Swales, level spreaders, preformed scour holes

V_{WQ} (Water Quality Volume) is generally used to define the amount of stormwater runoff from any given storm that should be captured and treated to remove most storm water pollutants on an average annual basis.

In accordance with NCDOT design and construction standards, HE-0001 will follow the hydraulic guidelines including compliance with the "Stormwater Outlet Protection" rule (15A NCAC 04B .0109), a post-construction stormwater erosion policy rule to evaluate stormwater discharge velocities to guard against accelerated erosion in the receiving stormwater conveyance. These methods will evaluate erosion of the stream and water quality concerns.

CP 4A: Avoidance and Minimization Discussion

The Merger Team is being requested to review and concur on opportunities for avoidance and minimization of impacts to natural and human resources associated with the proposed construction of the LEDPA/Preferred Alternative for STIP Project HE-0001.

The avoidance and minimization measures evaluated and implemented by NCDOT throughout project development and in the design of the LEDPA are presented in **Table 3** (next page), noting the above-described design refinements are included in this CP 4A review.

NCDOT will continue to evaluate design details, including the proposed retaining walls, through final design.

[4] North Carolina Stochastic Empirical Loading and Dilution Model (SELDM), www.usgs.gov/data/application-north-carolina-stochastic-empirical-loading-and-dilution-model-seldm-assess

Table 3. HE-0001 Preferred Alternative, Avoidance and Minimization Measures	
Location (if applicable)	**Avoidance and Minimization Measure**
Implemented in Preliminary Design Development	
Concept Development	Eliminated concepts from consideration during the scoping phase of the project for a variety of factors and feasibility concerns, including avoiding and minimizing potential impacts to the FBR floodplain/wetland complex, residential and commercial developments north of the FBR, and the Biltmore Estate National Historic Landmark (NHL) property.
Project Study Area	Reduce PSA to avoid and minimize potential impacts to the FBR floodplain and known potential jurisdictional resources.
Detailed Study Alternatives	• Did not consider alternatives with the potential to have direct effects to the Blue Ridge Parkway. Considered and eliminated alternatives with the potential to have direct effects to the Biltmore Estate NHL.
Two-lane -Y-Line Typical Section	Two-lane roadway with curb and gutter typical section (opposed to 4-lane divided with grassed shoulder typical section) to accommodate future traffic volumes, noting auxiliary lanes will likely be required at intersection approaches. This results in less ROW requirements and will minimize impacts at proposed stream crossings and reduce tree clearing requirements.
-Y-Line Alignment	Shift the roadway alignment to the southeast to minimize potential impacts to Stream SA.
	Following CP 3, per NCDWR request, NCDOT shifted -y-line alignment to: • improve Stream SA crossing skew, reducing potential impacts by approx. 100 ft, • avoid 0.03 ac impact to Wetland WD, and • avoid 0.01 ac impact to Wetland WH.
Ramp -C- and Ramp -D- Retaining Walls	Prior to CP 3, incorporate approx. 1,400 feet of retaining walls to avoid and minimize approx. 1,100 feet of potential impacts to Stream SDX and approx. <0.1 ac of wetlands in the I-26 bifurcated section. Following CP 3, retaining walls were refined in conjunction with the DDI design and Ramp-C- Alignment shift (described below) in the same general locations.
Ramp -C- Alignment	Following CP 3, shift ramp alignment between <1 ft to about 18 ft to the east to: • improve constructability of the proposed retaining walls, • avoid approx. 120 ft of impacts to Stream SDY and Stream SDZ, • avoid approx. <0.1 ac impacts to Wetland WCR, • minimize impact to Stream SDX by approx. 175 ft, and • minimize impacts to Wetland IDs WCS and WCN by approx. <0.1 ac.
Reviewed in Preliminary Design Development, Not Implemented	
Ramp -C- Alignment	NCDOT reviewed a revised Ramp -C- alignment because of challenges associated with bridging Stream SDX (discussed at CP 2A). An approx. 325-ft bridge was reviewed in the I-26 bifurcated section to avoid and minimize potential impacts to Stream SDX and Wetland WCN. The bridge clearance was 6 feet and would not provide the environmental benefit for the wetland feature.

Avoidance and Minimization Commitments

Through section 7 informal consultation with USFWS, NCDOT has committed to several conservation measures. These conservation measures generally apply to tree clearing, construction (temporary) and

project (permanent) lighting, soil, and erosion control (SEC) measures, stormwater control measures, and agency coordination. (See the attached USFWS Informal Consultation letter dated March 16, 2022.)

Final designs are not yet available and stormwater design plans continue to be developed. Therefore, specific avoidance and minimization measures associated with these developing design plans will be addressed in CP 4B and 4C. Per the above described (and referenced) conservation measures, NCDOT has committed to implementing Design Standards in Sensitive Watersheds (DSSW) to minimize impacts to surface waters and wetlands. Further, a combination of DSSW (15A NCAC 04B .0124), Environmentally Sensitive Areas, and the NC Division of Water Quality (NCDWQ) Construction General Permit (NCG01) terms and conditions that allow for stormwater discharge under the National Pollutant Discharge Elimination System (NPDES) apply and NCDOT will default to the most restrictive SEC measure requirements.

Lastly, NCDOT and FHWA continue to refine measures to minimize harm to the Blue Ridge Parkway through the Section 106 consultation process. These preliminary measures to minimize harm will be finalized through the Section 106 process and are discussed in greater detail beginning on **page 10**.

Anticipated Stream Impacts

Based on the above-described avoidance and minimization measures included in the LEDPA/Preferred Alternative design, **Table 4** and **Table 5** present the anticipated impacts to jurisdictional resources and mitigation cost estimates. The tables include an anticipated impact breakdown by resource and include impact calculations reported at CP3, anticipated impacts based on the current LEDPA/Preferred Alternative design, and the difference between the two. Anticipated impacts reported at CP3 were estimated based on design slopestakes plus 25 feet except where retaining walls were proposed; retaining walls were buffered by 10 feet. Since the design has been refined, anticipated impacts reported at CP4A are estimated based on design slopestakes plus 10 feet, including the proposed retaining walls.

Table 4. Comparison of Anticipated Impact (feet) to Jurisdictional Stream and Anticipated Mitigation Cost

Stream ID	CP3[1]	CP4A[2]	Difference	Figure #	Anticipated Mitigation	
					Mitigation Ratio	Cost[3]
SDX	582	460	-122	8-13	1:1	$277,790
SDY	22	10	-12	9	1:1	$6,040
SDZ	96	0	-96	9	1:1	$0
SEV	31	0	-31	9	1:1	$0
SA-A	35	30	-5	7	2:1	$36,240
SA-B	35	30	-5	7	2:1	$36,240
SA	283	170	-113	4	2:1	$205,320
SE	136	100	-36	5	2:1	$120,780
SG	210	180	-30	6	2:1	$217,400
SH	25	0	-25	9	2:1	$0
Totals	**1,455**	**980**	**-475**			**$899,810**

[1] CP3 impacts were estimated based on slopestakes +25 feet except at proposed retaining walls which were +10 feet.

[2] CP4A impacts were estimated based on slopestakes +10 feet and rounded to the nearest 10.

[3] The project is in the French Broad River basin (HUC 06010105060030) and is subject to stream mitigation fees ($603.87/unit foot) and wetland mitigation fees ($67,442.06/unit acre) per the NC Division of Mitigation Services (DMS) statewide fee schedule (May 20, 2022). Costs are rounded to the nearest $10.

Table 5. Comparison of Anticipated Impact (acre) to Jurisdictional Wetland and Anticipated Mitigation Cost						
Wetland ID	**CP3[1]**	**CP4A[2]**	**Difference**	**Figure #**	**Anticipated Mitigation**	
					Mitigation Ratio	**Cost[3]**
WCN	0.04	0.01	-0.03	9	2:1	$1,350
WCQ	<0.01	0.01	0	11	2:1	$1,350
WCR	<0.01	0	-<0.01	11	2:1	$0
WCS	0.02	0.02	-0.01	11	2:1	$2,700
WD	0.03	0	-0.03	4	2:1	$0
WH	0.01	0	-0.01	5	2:1	$0
WQ	0	0.01	+0.01	7	2:1	$1,350
Totals	**0.09**	**0.05**	**-0.04**			**$6,750**

[1] CP3 impacts were estimated based on slopestakes +25 feet except at proposed retaining walls which were +10 feet.

[2] CP4A impacts were estimated based on slopestakes +10 feet and rounded to nearest one-hundredth.

[3] The project is in the French Broad River basin (HUC 06010105060030) and is subject to stream mitigation fees ($603.87/unit foot) and wetland mitigation fees ($67,442.06/unit acre) per the NC Division of Mitigation Services (DMS) statewide fee schedule (May 20, 2022). Costs are rounded to the nearest $10.

Table 6. LEDPA/Preferred Alternative Summary of Potential Impacts[1]	
	LEDPA/Preferred Alternative
Streams [2, 3] (ft)	980
Wetlands [2, 3] (ac)	< 0.1
Gray bat	MANLAA
Appalachian elktoe	MANLAA
Tree Clearing[4] (ac)	23.6
FEMA Floodplain (ac)	0
Biltmore Estate NHL[5]	*No Adverse Effect*
Blue Ridge Parkway[6]	*No Adverse Effect (recommended)*
31BN1119[5]	*No Effect*
Cost Estimates	
Anticipated Stream and Wetland Mitigation Cost	$906,560
Estimated Total Project Cost	$28M

[1] Potential impacts were estimated with preliminary design slope stakes plus 10 feet.

[2] These potential jurisdictional stream and wetland impacts exclude I-4700 permitted permanent impacts.

[3] The HE-0001 PJD delineated to active construction limits or control of access (C/A) fence resulting in some overlap with the I-4700 PJD. In these cases, the HE-0001 (i.e., more recent) delineation was used and the I-4700 PJD feature removed from potential impact calculations. This overlap did not affect the I-4700 PJD in the bifurcated section of I-26.

[4] Tree clearing was estimated with preliminary design slope stakes plus 10 feet; I-4700 tree clearing was removed from this estimation.

[5] Section 106 consultation is ongoing, and the effects included are preliminary and subject to change. Effects determinations will be made in consultation with SHPO and appropriate consulting parties.

[6] Section 106 consultation is ongoing. No Adverse Effect recommendation based on FHWA/NCDOT analyses. These recommendations have not been concurred with by SHPO.

Summary of Updated Traffic Forecast and Traffic Noise Analysis Review

NCDOT approved an updated Traffic Forecast for HE-0001 on April 11, 2022. The updated forecast was developed in response to revisions to the French Broad River Metropolitan Planning Organization (FBRMPO) Travel Demand Model (TDM) (FBRMPO TDM v1.2). This is an update to the first forecast (June 29, 2021) for the proposed project and includes the same base year data with the future year forecast being updated based on the FBRMPO TDM v 1.2 (**Table 7**). Overall, the updated traffic forecast resulted in a reduction of vehicles in the future year (2045). This updated traffic forecast will not alter NCDOT's decision to proceed with a two-lane typical section proposed roadway connector.

Table 7. HE-0001 Traffic Forecast Update, Build and No-Build AADT Summary

Corridor	Corridor Segment	Lanes	Annual Average Daily Traffic (AADT)					
			June 29, 2021, Forecast				April 11, 2022, Forecast	
			2021		2045		2045	
			No Build	Build	No Build	Build	No Build	Build
I-26	north of NC 191	4-lane (8-lane 2024)	89,000	90,500	131,800	132,800	118,000	118,700
	south of NC 191/north of NC 146	4-lane (8-lane 2024)	88,100	90,000	129,000	137,000	116,600	124,000
	south of EFLOW	4-lane (8-lane 2024)		89,900		135,900		122,800
	south of NC 146	4-lane (8-lane 2024)	85,700	86,300	125,400	126,400	113,400	114,100
NC 191	west of I-26	4-lane divided	30,700	25,500	46,600	33,600	43,800	31,100
	south of NC 112/north of SR 3479	4-lane divided or w/TWLTL	23,300	23,700	35,800	28,400	35,000	27,900
	north of BRP/south of SR 3484	4-lane divided or w/TWLTL	20,600	23,200	32,000	27,800	31,200	27,100
	south of BRP	2-lane	18,900	18,300	28,000	22,100	27,200	21,700
NC 146	west of I-26	4-lane divided	24,800	23,900	37,600	31,900	36,200	30,900
EFLOW	east of BPW RAB	2-lane	*N/A*	9,100	*N/A*	19,500	*N/A*	18,600
	west of BPW^ RAB+	2-lane	*N/A*	7,300	13,800	13,300	13,800	12,600

Notes: EFLOW = East Frederick Law Olmsted Way; BRP = Blue Ridge Parkway; BPW = Biltmore Park West; RAB = roundabout.
Sources: NCDOT, Traffic Forecast for HE-0001, April 11, 2022 (note that the base year remains the same and the future forecast year is updated based on the FBRMPO TDM v1.2).

Further, the June 29, 2021, traffic forecast projected 5,200 vehicles per day (vpd) would use the Blue Ridge Parkway Access in the future (2045) Build and No-Build scenarios. The April 11, 2022, traffic forecast projected 5,000 vpd would use the Blue Ridge Parkway Access in the future (2045) Build and No-Build scenarios.

NCDOT reviewed the updated traffic forecast prior to finalizing the Traffic Noise Report (TNR) and ultimately did not revise the TNR analysis. The updated traffic is expected to result in slight reductions in noise levels from those reported in the TNR primarily due to the lower traffic volumes on I-26, which is the major contributor to noise in the area. It is unlikely that applying the updated traffic would eliminate all impacts along the Biltmore Horse Trail or the Mountains to Sea Trail because the reduction in traffic volume is not enough to reduce noise levels at those locations below FHWA's noise abatement criteria (NAC). Applying the updated traffic would also not affect the determination that noise abatement is not feasible or reasonable. For these reasons, the noise analysis results as reported in the TNR remain valid in that noise impacts and likely abatement locations (there are none) would not change even with the updated forecast.

Summary of Section 106 Effects Consultation

- NCDOT received a letter from NPS on February 2, 2022, which stated that the proposed interchange is likely to have an adverse effect on the Blue Ridge Parkway under the National Historic Preservation Act (NHPA) and mitigations should be evaluated. The NPS expressed concerns that future traffic volumes and travel patterns, indirect and cumulative impacts, visual impacts, and auditory impacts caused by HE-0001 have the potential to permanently change the character and visitor experience of the Blue Ridge Parkway between the French Broad Overlook and I-26.
- On February 4, 2022, FHWA and NCDOT consulted with SHPO, Office of State Archaeology (OSA), Biltmore Estate, and the National Park Service Blue Ridge Parkway (NPS) on the potential effects of HE-0001 to cultural resources in and adjacent to the project study area. The parties concurred at that meeting that DSA 3 would have No Adverse Effect to the Biltmore Estate National Historic Landmark (NHL) and No Effect to the National Register (NR)-eligible archaeology site (31BN1119). Concurrence was not reached for the potential effects to the Blue Ridge Parkway (NC0001). NCDOT presented the following materials for the Blue Ridge Parkway:
    - Visualizations for all DSAs and the No-Build scenario
    - Summary of indirect and cumulative analysis
    - Draft traffic noise results for the future (2045) Build and No-Build Alternatives
    - Traffic forecast volumes for the future (2045) Build and No-Build Alternatives
- Consultation continued at a March 18, 2022, Effects Meeting #2 but concurrence was not reached. Per SHPO request, Buncombe County planners and the private property owner (Biltmore Farms) were present to answer questions. No new information was presented at this meeting.
- On April 5, 2022, FHWA responded to NPS's letter and stated that **based on the transportation agencies' assessment the only foreseeable potential effects to the Blue Ridge Parkway attributable to HE-0001 are those directly caused by the undertaking, specifically potential visual, audible, and traffic effects. There are no reasonably foreseeable indirect or cumulative effects to the Blue Ridge Parkway caused by HE-0001.** The transportation agencies committed to the inclusion of 1,000-ft control of access, tree clearing minimization, and vegetative screening in the project's construction. Based on their assessment, the transportation agencies concluded that **by following appropriate measures to minimize harm and including conditions to avoid adverse effect, HE-0001 will have no adverse effect to the Blue Ridge Parkway**.

- Consultation continued at the May 11, 2022, Effects Meeting #3. NCDOT presented the following materials for the Blue Ridge Parkway:
    - Preliminary vegetative screening limits and list of over- and understory species
    - Approximate locations of Blue Ridge Parkway easements held by the private property owner
    - 1,000-foot C/A limits
- Section 106 Consultation, assessment of adverse effect(s) to the Blue Ridge Parkway has not concluded. FHWA and NCDOT continue to consult with NPS, SHPO, Buncombe County, and the property owner in the identification of, and agreement on conditions to minimize effects to the Blue Ridge Parkway. These conditions, once finalized through the Section 106 consultation process, will be placed on the design plans and implemented in the construction of HE-0001.

Sources

NCDEQ, Current Rate Schedules, deq.nc.gov/about/divisions/mitigation-services/dms-customers/fee-schedules

NCDOT, Concurrence Points 1 and 2 Meeting Packet, July 15, 2021, xfer.services.ncdot.gov/pdea/MergerMeetings/HE-0001/HE-0001%20CP1%20and%202%20Packet_071521_rd.pdf

---, Concurrence Point 2 Update, September 16, 2021, xfer.services.ncdot.gov/pdea/MergerMeetings/HE-0001/HE-0001_CP2_Update.pdf

---, Concurrence Point 2A Meeting Packet, September 16, 2021, xfer.services.ncdot.gov/pdea/MergerMeetings/HE-0001/HE-0001_CP2A_MergerMeetingPacket.pdf

---, Concurrence Point 3 Meeting Packet, February 9, 2022, xfer.services.ncdot.gov/pdea/MergerMeetings/HE-0001/HE-0001_CP%203%20Merger%20Meeting%20Packet.pdf

---, Traffic Forecast for HE-0001, April 11, 2022, connect.ncdot.gov/projects/planning/Traffic%20Forecasts/HE-0001%20Buncombe%20TF/HE-0001%20Buncombe%202022%20TF.pdf

FIGURE 1. PROJECT STUDY AREA & ENVIRONMENTAL FEATURES MAP

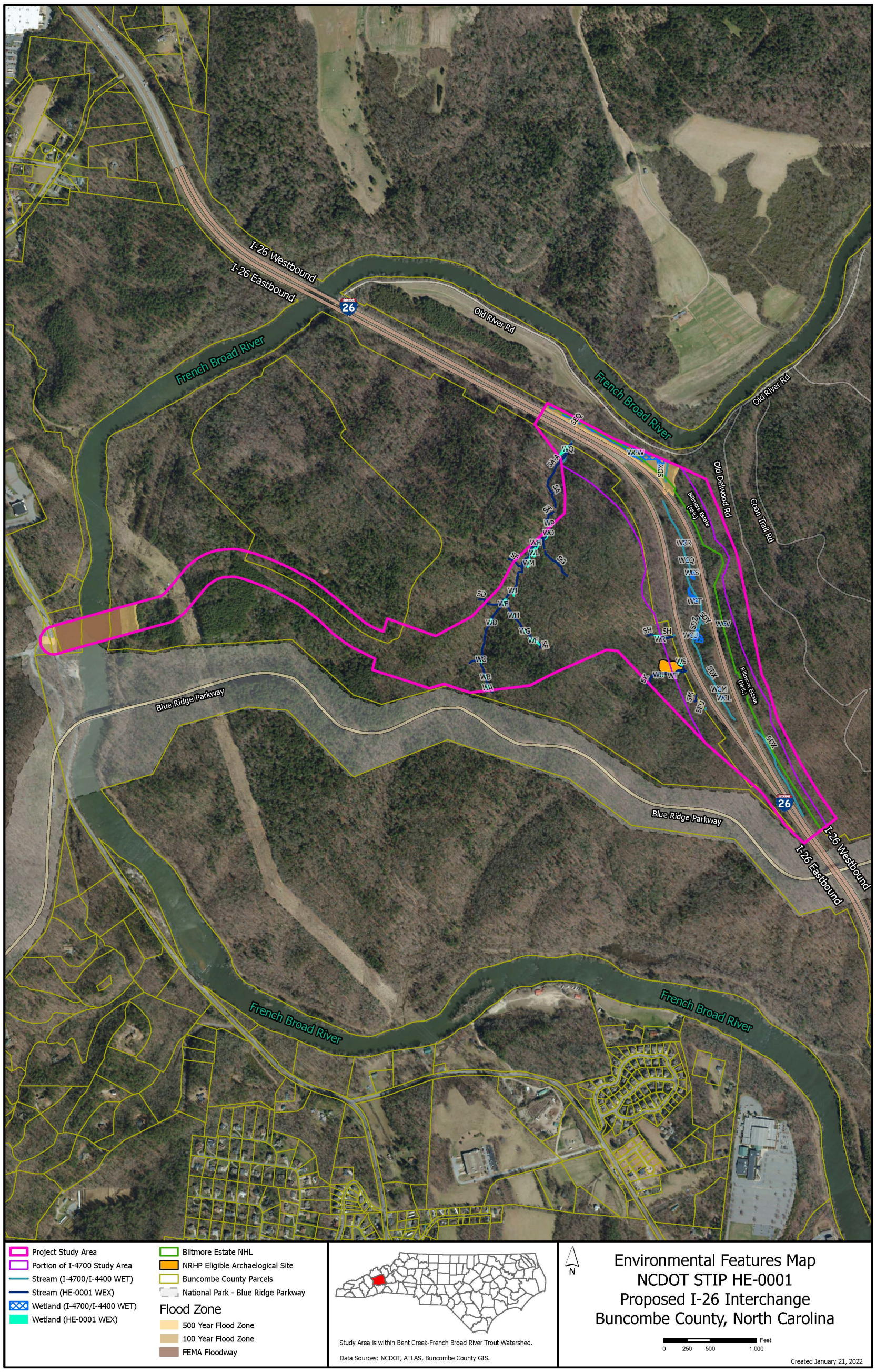
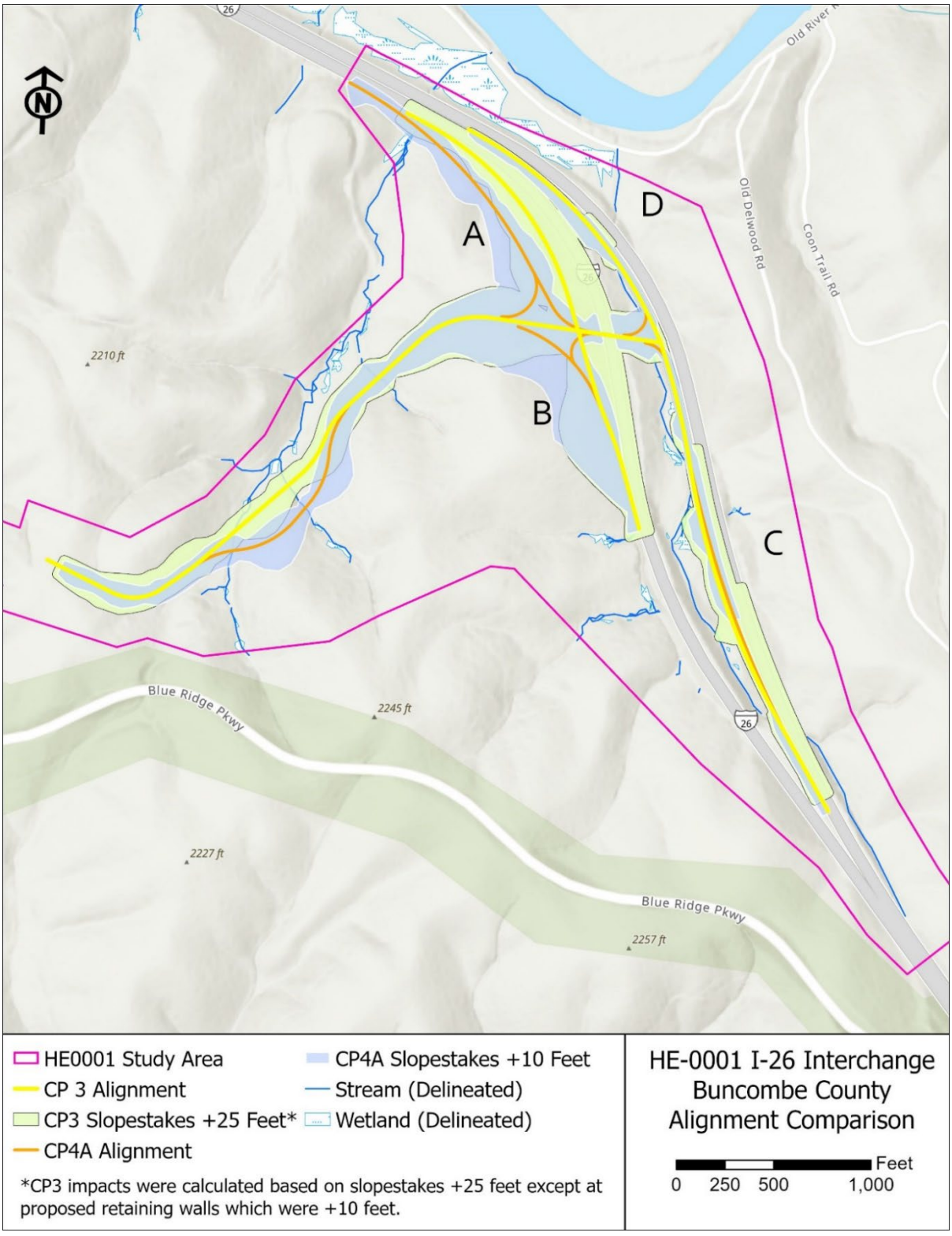


FIGURE 2. COMPARISON OF ALIGNMENTS PRESENTED AT CP3 AND CP4A*



**Note: Letters refer to the interchange quadrant, e.g., "Ramp-A-" refers to the northwest interchange quadrant.*

FIGURE 3. PRELIMINARY STORMWATER MANAGEMENT BMP RECOMMENDATIONS

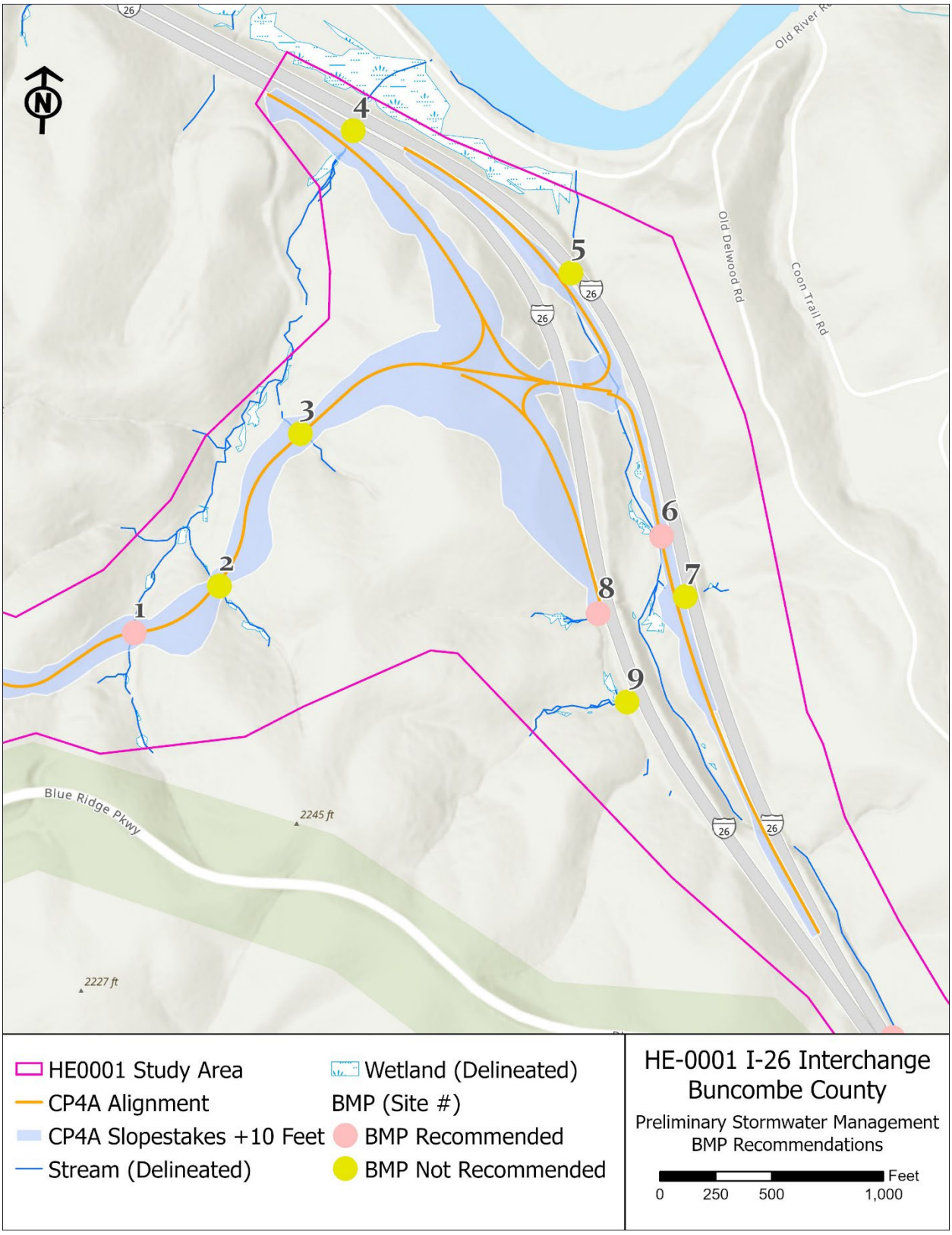


FIGURE 4

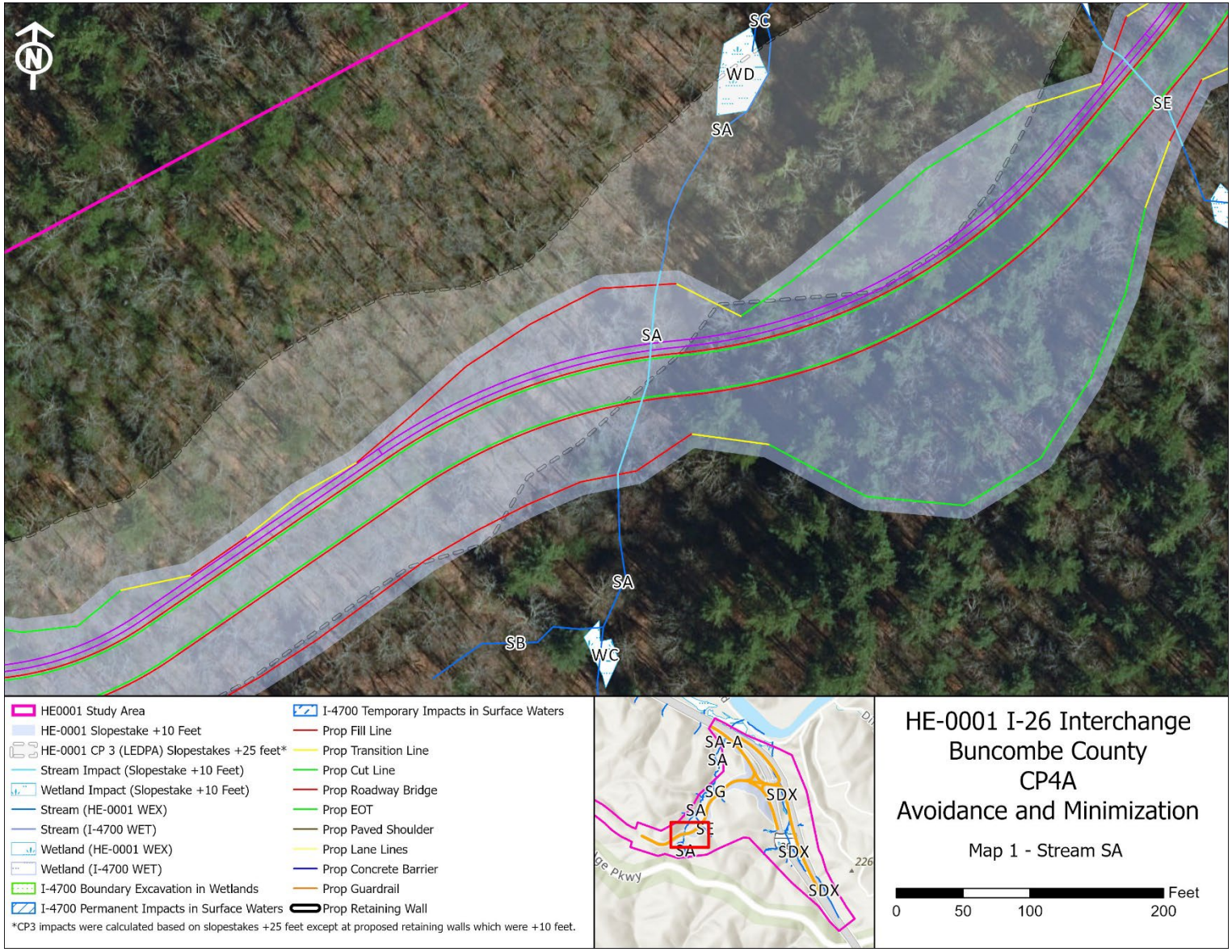

SC
WD
SE
SA
SA
SA
SB
WC
HE0001 Study Area
HE-0001 Slopestake +10 Feet
HE-0001 CP 3 (LEDPA) Slopestakes +25 feet*
Stream Impact (Slopestake +10 Feet)
Wetland Impact (Slopestake +10 Feet)
Stream (HE-0001 WEX)
Stream (I-4700 WET)
Wetland (HE-0001 WEX)
Wetland (I-4700 WET)
I-4700 Boundary Excavation in Wetlands
I-4700 Permanent Impacts in Surface Waters
I-4700 Temporary Impacts in Surface Waters
Prop Fill Line
Prop Transition Line
Prop Cut Line
Prop Roadway Bridge
Prop EOT
Prop Paved Shoulder
Prop Lane Lines
Prop Concrete Barrier
Prop Guardrail
Prop Retaining Wall
*CP3 impacts were calculated based on slopestakes +25 feet except at proposed retaining walls which were +10 feet.
SA-A
SA
SG
SDX
SA
SE
SA
SDX
SDX
HE-0001 I-26 Interchange
Buncombe County
CP4A
Avoidance and Minimization
Map 1 - Stream SA
Feet
0
50
100
200

FIGURE 5

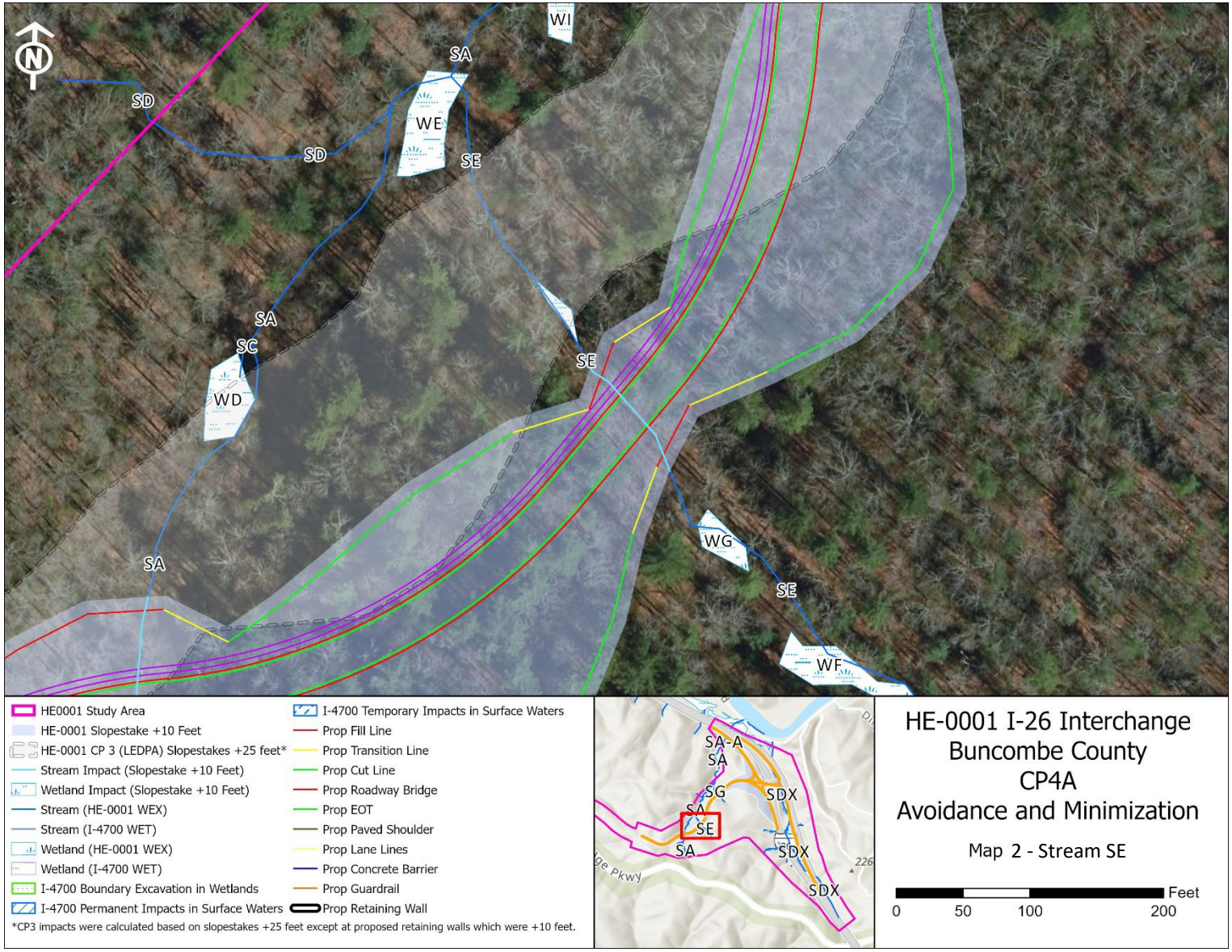

WI
SA
SD
WE
SD
SE
SA
SC
WD
SE
SA
WG
SE
WF
HE0001 Study Area
HE-0001 Slopestake +10 Feet
HE-0001 CP 3 (LEDPA) Slopestakes +25 feet*
Stream Impact (Slopestake +10 Feet)
Wetland Impact (Slopestake +10 Feet)
Stream (HE-0001 WEX)
Stream (I-4700 WET)
Wetland (HE-0001 WEX)
Wetland (I-4700 WET)
I-4700 Boundary Excavation in Wetlands
I-4700 Permanent Impacts in Surface Waters
I-4700 Temporary Impacts in Surface Waters
Prop Fill Line
Prop Transition Line
Prop Cut Line
Prop Roadway Bridge
Prop EOT
Prop Paved Shoulder
Prop Lane Lines
Prop Concrete Barrier
Prop Guardrail
Prop Retaining Wall
*CP3 impacts were calculated based on slopestakes +25 feet except at proposed retaining walls which were +10 feet.
SA-A
SA
SG
SDX
SA
SE
SA
SDX
SDX
HE-0001 I-26 Interchange
Buncombe County
CP4A
Avoidance and Minimization
Map 2 - Stream SE
Feet
0
50
100
200

FIGURE 6

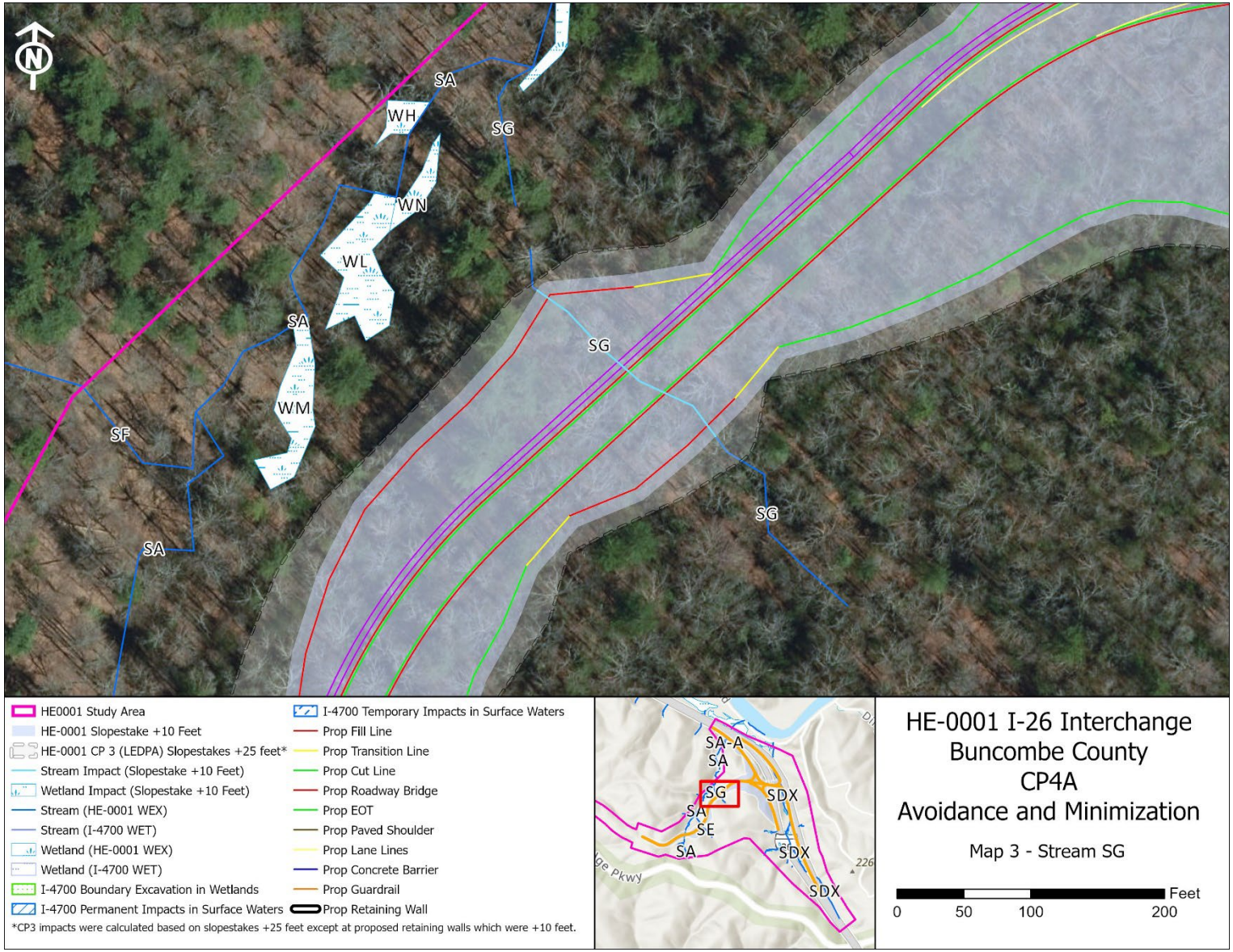

N
SA
WH
SG
WN
WL
SA
SG
WM
SF
SA
SG
HE0001 Study Area
HE-0001 Slopestake +10 Feet
HE-0001 CP 3 (LEDPA) Slopestakes +25 feet*
Stream Impact (Slopestake +10 Feet)
Wetland Impact (Slopestake +10 Feet)
Stream (HE-0001 WEX)
Stream (I-4700 WET)
Wetland (HE-0001 WEX)
Wetland (I-4700 WET)
I-4700 Boundary Excavation in Wetlands
I-4700 Permanent Impacts in Surface Waters
I-4700 Temporary Impacts in Surface Waters
Prop Fill Line
Prop Transition Line
Prop Cut Line
Prop Roadway Bridge
Prop EOT
Prop Paved Shoulder
Prop Lane Lines
Prop Concrete Barrier
Prop Guardrail
Prop Retaining Wall
*CP3 impacts were calculated based on slopestakes +25 feet except at proposed retaining walls which were +10 feet.
SA-A
SA
SG
SDX
SA
SE
SA
SDX
SDX
226
HE-0001 I-26 Interchange
Buncombe County
CP4A
Avoidance and Minimization
Map 3 - Stream SG
Feet
0
50
100
200

FIGURE 7

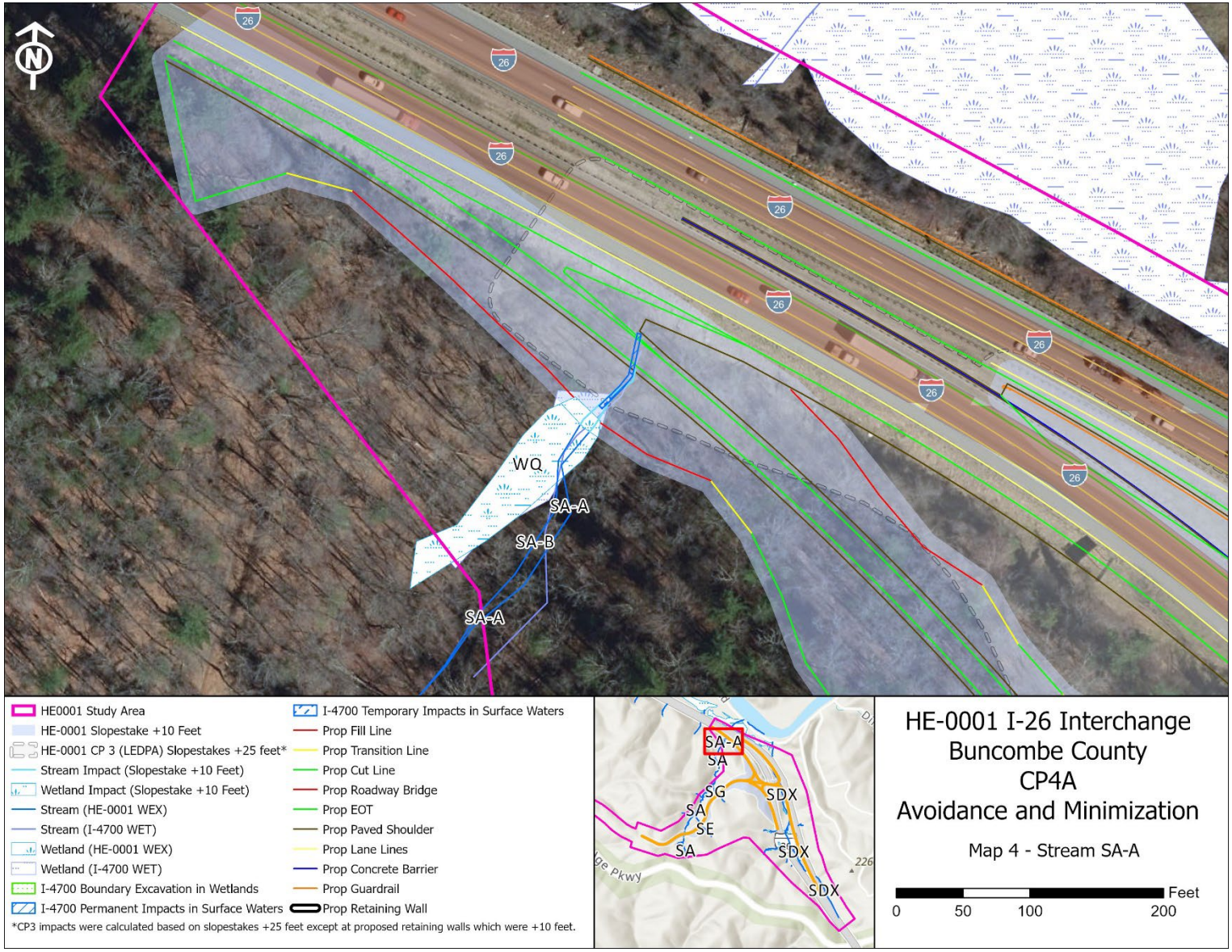
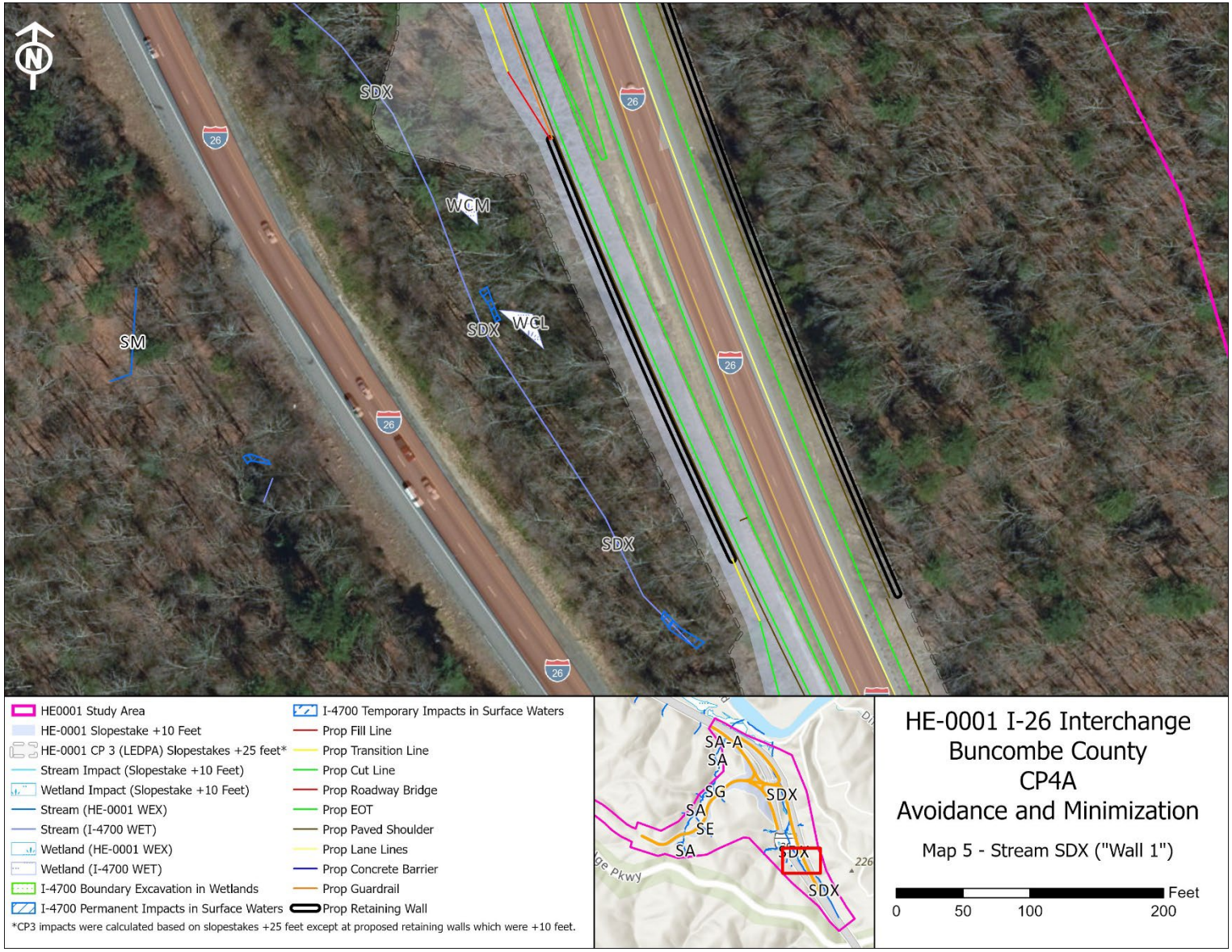

WQ
SA-A
SA-B
SA-A
HE0001 Study Area
HE-0001 Slopestake +10 Feet
HE-0001 CP 3 (LEDPA) Slopestakes +25 feet*
Stream Impact (Slopestake +10 Feet)
Wetland Impact (Slopestake +10 Feet)
Stream (HE-0001 WEX)
Stream (I-4700 WET)
Wetland (HE-0001 WEX)
Wetland (I-4700 WET)
I-4700 Boundary Excavation in Wetlands
I-4700 Permanent Impacts in Surface Waters
I-4700 Temporary Impacts in Surface Waters
Prop Fill Line
Prop Transition Line
Prop Cut Line
Prop Roadway Bridge
Prop EOT
Prop Paved Shoulder
Prop Lane Lines
Prop Concrete Barrier
Prop Guardrail
Prop Retaining Wall
*CP3 impacts were calculated based on slopestakes +25 feet except at proposed retaining walls which were +10 feet.
SA-A
SA
SG
SA
SE
SA
SDX
SDX
SDX
HE-0001 I-26 Interchange
Buncombe County
CP4A
Avoidance and Minimization
Map 4 - Stream SA-A
Feet
0
50
100
200

FIGURE 8


N
SDX
WCM
SDX
WCL
SM
SDX
26
HE0001 Study Area
HE-0001 Slopestake +10 Feet
HE-0001 CP 3 (LEDPA) Slopestakes +25 feet*
Stream Impact (Slopestake +10 Feet)
Wetland Impact (Slopestake +10 Feet)
Stream (HE-0001 WEX)
Stream (I-4700 WET)
Wetland (HE-0001 WEX)
Wetland (I-4700 WET)
I-4700 Boundary Excavation in Wetlands
I-4700 Permanent Impacts in Surface Waters
I-4700 Temporary Impacts in Surface Waters
Prop Fill Line
Prop Transition Line
Prop Cut Line
Prop Roadway Bridge
Prop EOT
Prop Paved Shoulder
Prop Lane Lines
Prop Concrete Barrier
Prop Guardrail
Prop Retaining Wall
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SA-A
SA
SG
SA
SE
SA
SDX
SDX
SDX
HE-0001 I-26 Interchange
Buncombe County
CP4A
Avoidance and Minimization
Map 5 - Stream SDX ("Wall 1")
Feet
0
50
100
200

FIGURE 9


SDX
SDY
SDZ
WCU
WCN
SDX
WCV
SN
SDY
SO
SI
SH
HE0001 Study Area
HE-0001 Slopestake +10 Feet
HE-0001 CP 3 (LEDPA) Slopestakes +25 feet*
Stream Impact (Slopestake +10 Feet)
Wetland Impact (Slopestake +10 Feet)
Stream (HE-0001 WEX)
Stream (I-4700 WET)
Wetland (HE-0001 WEX)
Wetland (I-4700 WET)
I-4700 Boundary Excavation in Wetlands
I-4700 Permanent Impacts in Surface Waters
I-4700 Temporary Impacts in Surface Waters
Prop Fill Line
Prop Transition Line
Prop Cut Line
Prop Roadway Bridge
Prop EOT
Prop Paved Shoulder
Prop Lane Lines
Prop Concrete Barrier
Prop Guardrail
Prop Retaining Wall
*CP3 impacts were calculated based on slopestakes +25 feet except at proposed retaining walls which were +10 feet.
SA-A
SA
SG
SDX
SA
SE
SA
SDX
SDX
HE-0001 I-26 Interchange
Buncombe County
CP4A
Avoidance and Minimization
Map 6 - Stream SDY & Wetland WCN
Feet
0
50
100
200

FIGURE 10

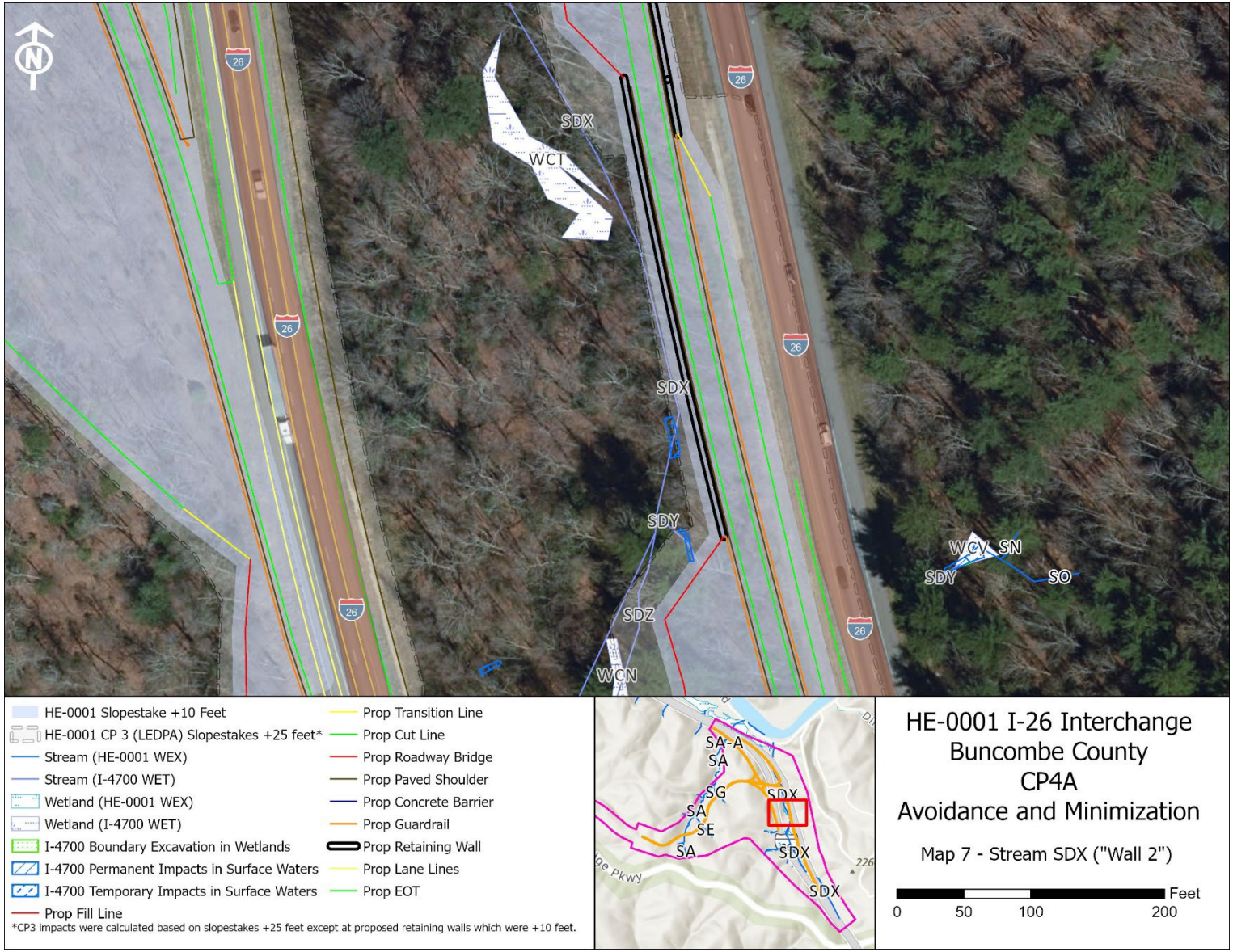

SDX
WCT
SDX
SDY
SDZ
WCN
WCV
SN
SDY
SO
HE-0001 Slopestake +10 Feet
HE-0001 CP 3 (LEDPA) Slopestakes +25 feet*
Stream (HE-0001 WEX)
Stream (I-4700 WET)
Wetland (HE-0001 WEX)
Wetland (I-4700 WET)
I-4700 Boundary Excavation in Wetlands
I-4700 Permanent Impacts in Surface Waters
I-4700 Temporary Impacts in Surface Waters
Prop Fill Line
Prop Transition Line
Prop Cut Line
Prop Roadway Bridge
Prop Paved Shoulder
Prop Concrete Barrier
Prop Guardrail
Prop Retaining Wall
Prop Lane Lines
Prop EOT
*CP3 impacts were calculated based on slopestakes +25 feet except at proposed retaining walls which were +10 feet.
SA-A
SA
SG
SA
SE
SA
SDX
SDX
SDX
HE-0001 I-26 Interchange
Buncombe County
CP4A
Avoidance and Minimization
Map 7 - Stream SDX ("Wall 2")
Feet
0
50
100
200

FIGURE 11

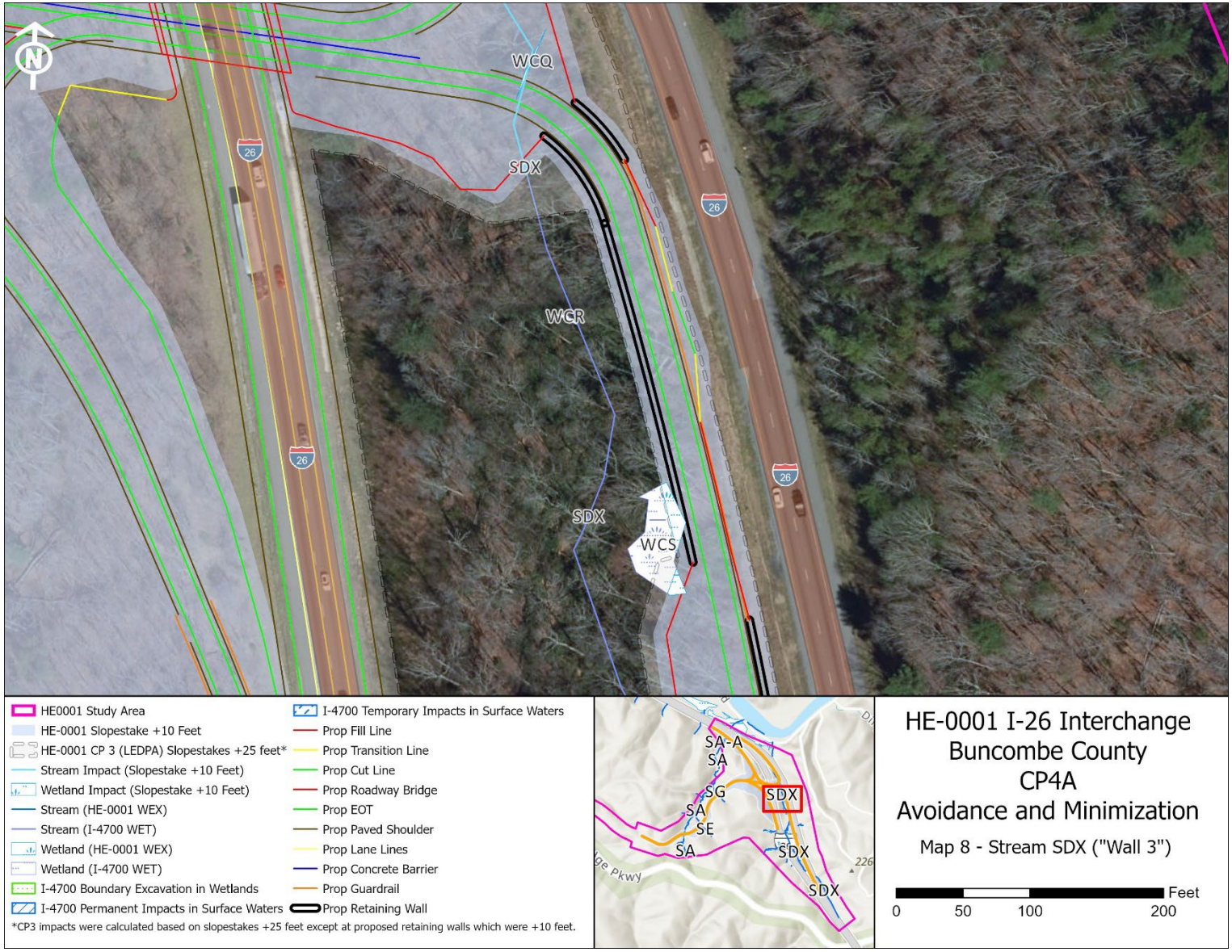

WCQ
SDX
WCR
SDX
WCS
26
HE0001 Study Area
HE-0001 Slopestake +10 Feet
HE-0001 CP 3 (LEDPA) Slopestakes +25 feet*
Stream Impact (Slopestake +10 Feet)
Wetland Impact (Slopestake +10 Feet)
Stream (HE-0001 WEX)
Stream (I-4700 WET)
Wetland (HE-0001 WEX)
Wetland (I-4700 WET)
I-4700 Boundary Excavation in Wetlands
I-4700 Permanent Impacts in Surface Waters
I-4700 Temporary Impacts in Surface Waters
Prop Fill Line
Prop Transition Line
Prop Cut Line
Prop Roadway Bridge
Prop EOT
Prop Paved Shoulder
Prop Lane Lines
Prop Concrete Barrier
Prop Guardrail
Prop Retaining Wall
*CP3 impacts were calculated based on slopestakes +25 feet except at proposed retaining walls which were +10 feet.
SA-A
SA
SG
SA
SE
SA
SDX
SDX
SDX
HE-0001 I-26 Interchange
Buncombe County
CP4A
Avoidance and Minimization
Map 8 - Stream SDX ("Wall 3")
Feet
0
50
100
200

FIGURE 12

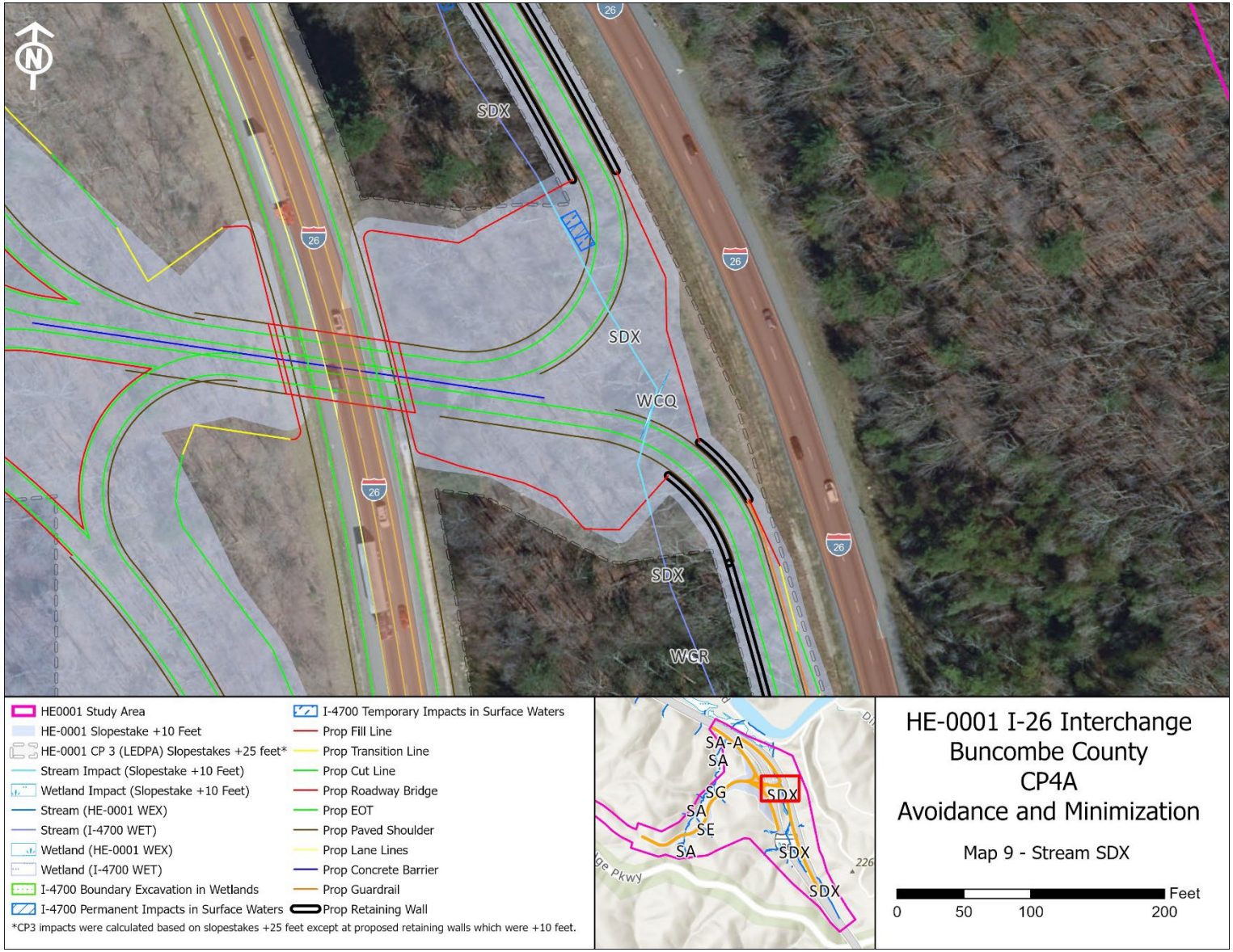
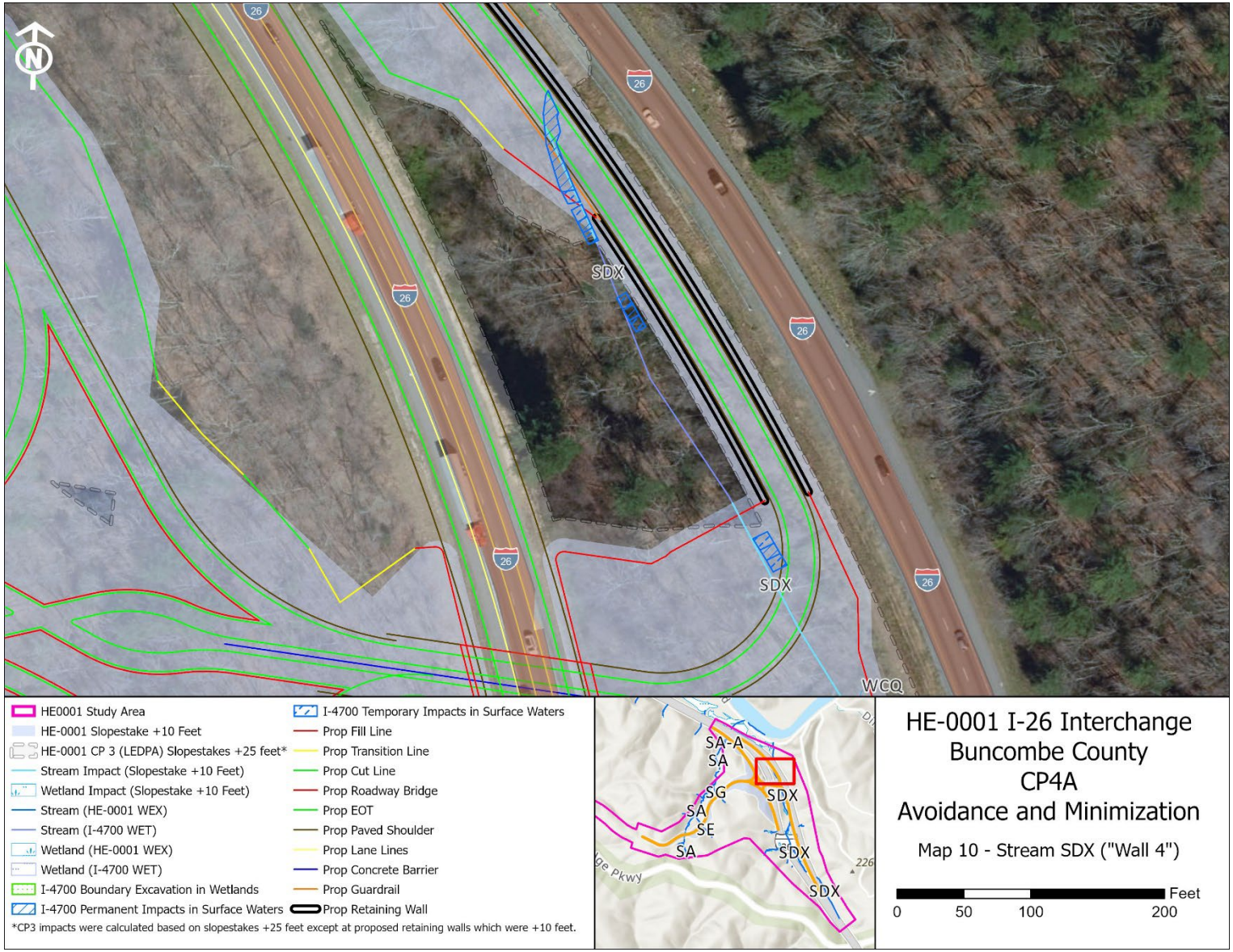

SDX
SDX
WCQ
SDX
WCR
HE0001 Study Area
HE-0001 Slopestake +10 Feet
HE-0001 CP 3 (LEDPA) Slopestakes +25 feet*
Stream Impact (Slopestake +10 Feet)
Wetland Impact (Slopestake +10 Feet)
Stream (HE-0001 WEX)
Stream (I-4700 WET)
Wetland (HE-0001 WEX)
Wetland (I-4700 WET)
I-4700 Boundary Excavation in Wetlands
I-4700 Permanent Impacts in Surface Waters
I-4700 Temporary Impacts in Surface Waters
Prop Fill Line
Prop Transition Line
Prop Cut Line
Prop Roadway Bridge
Prop EOT
Prop Paved Shoulder
Prop Lane Lines
Prop Concrete Barrier
Prop Guardrail
Prop Retaining Wall
*CP3 impacts were calculated based on slopestakes +25 feet except at proposed retaining walls which were +10 feet.
SA-A
SA
SG
SA
SE
SA
SDX
SDX
SDX
HE-0001 I-26 Interchange
Buncombe County
CP4A
Avoidance and Minimization
Map 9 - Stream SDX
Feet
0
50
100
200

FIGURE 13


SDX
SDX
WCQ
HE0001 Study Area
HE-0001 Slopestake +10 Feet
HE-0001 CP 3 (LEDPA) Slopestakes +25 feet*
Stream Impact (Slopestake +10 Feet)
Wetland Impact (Slopestake +10 Feet)
Stream (HE-0001 WEX)
Stream (I-4700 WET)
Wetland (HE-0001 WEX)
Wetland (I-4700 WET)
I-4700 Boundary Excavation in Wetlands
I-4700 Permanent Impacts in Surface Waters
I-4700 Temporary Impacts in Surface Waters
Prop Fill Line
Prop Transition Line
Prop Cut Line
Prop Roadway Bridge
Prop EOT
Prop Paved Shoulder
Prop Lane Lines
Prop Concrete Barrier
Prop Guardrail
Prop Retaining Wall
*CP3 impacts were calculated based on slopestakes +25 feet except at proposed retaining walls which were +10 feet.
SA-A
SA
SG
SA
SE
SA
SDX
SDX
SDX
HE-0001 I-26 Interchange
Buncombe County
CP4A
Avoidance and Minimization
Map 10 - Stream SDX ("Wall 4")
Feet
0
50
100
200

Section 404/NEPA Merger Project Team Meeting Agreement
Concurrence Point 4A
Avoidance and Minimization

Project Name/Description: I-26, New Interchange (Future Exit 35), Buncombe County

STIP Project: HE-0001

Project Need: The proposed project is needed to address the lack of network connectivity between NC 191 and I-26 in southern Buncombe County to accommodate current and planned growth.

Project Purpose: The purpose of the project is to provide access to I-26 and improve east-west connectivity within the project vicinity to accommodate current and planned growth.

The Merger Team has concurred on this date, **June 15, 2022**, with the following **Avoidance and Minimization Measures** for **STIP Project HE-0001**.

Specific avoidance and minimization measures included in the design:

Location	**Avoidance and Minimization Measure**
Implemented in Preliminary Design Development	
Project Study Area	Reduce PSA to avoid and minimize potential impacts to the FBR floodplain and known potential jurisdictional resources.
Two-lane -Y-Line Typical Section	Two-lane roadway typical section (opposed to 4-lane divided typical section) to accommodate future traffic volumes, noting auxiliary lanes will likely be required at intersection approaches. This will minimize impacts at proposed stream crossings and reduce tree clearing requirements.
-Y-Line Alignment	Shift the roadway alignment to the southeast to minimize potential impacts to Stream SA.
	Following CP 3, NCDOT shifted -y-line alignment to: • improve Stream SA crossing skew, reducing potential impacts by approx. 100 ft, • avoid 0.03 ac impact to Wetland WD, and • avoid 0.01 ac impact to Wetland WH.
Ramp -C- and Ramp -D- Retaining Walls	Prior to CP 3, incorporate approx. 1,400 feet of retaining walls to avoid and minimize approx. 1,100 feet of potential impacts to Stream SDX and approx. <0.1 ac of wetlands in the I-26 bifurcated section. Following CP 3, retaining walls were refined in conjunction with the DDI design and Ramp -C- Alignment shift (described below) in the same general locations.
Ramp -C- Alignment	Following CP 3, shift ramp alignment between <1 ft to about 18 ft to the east to: • improve constructability of the proposed retaining walls, • avoid approx. 120 ft of impacts to Stream SDY and Stream SDZ, • avoid approx. <0.1 ac impacts to Wetland WCR, • minimize impact to Stream SDX by approx. 175 ft, and • minimize impacts to Wetland IDs WCS and WCN by approx. <0.1 ac.
Reviewed in Preliminary Design Development, Not Implemented	
Ramp -C- Alignment	NCDOT reviewed a revised Ramp -C- alignment because of challenges associated with bridging Stream SDX (discussed at CP 2A). An approx. 325-ft bridge was reviewed in the I-26 bifurcated section to avoid and minimize potential impacts to Stream SDX and Wetland WCN. The bridge clearance was 6 feet and would not provide the environmental benefit for the wetland feature.

The following commitments have been determined or are being developed and will be discussed again at the CP 4B and CP 4C meetings:

- Through section 7 informal consultation with USFWS, NCDOT has committed to several conservation measures (see attached USFWS Informal Consultation letter dated March 16, 2022).
- Final designs are not yet available and stormwater design plans continue to be developed. Therefore, specific avoidance and minimization measures associated with these developing design plans will be addressed in CP 4B and 4C. NCDOT has committed to implementing Design Standards in Sensitive Watersheds (DSSW) to minimize impacts to surface waters and wetlands. Further, a combination of DSSW (15A NCAC 04B .0124), Environmentally Sensitive Areas, and the NC Division of Water Quality (NCDWQ) Construction General Permit (NCG01) terms and conditions that allow for stormwater discharge under the National Pollutant Discharge Elimination System (NPDES) apply and NCDOT will default to the most restrictive SEC measure requirements.
- NCDOT and FHWA continue to refine measures to minimize harm to the Blue Ridge Parkway through the Section 106 consultation process. These preliminary measures to minimize harm will be finalized through the Section 106 process.

The following avoidance and minimization measures were discussed at CP 4A and will be implemented or further evaluated, as appropriate.

Location	**AAM Measure**

FHWA (lead federal agency)
USACE
NCDOT
USEPA
USFWS
NCWRC
NCDWR
SHPO
FBRMPO

Attachment

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street Suite B
Asheville, North Carolina 28801

March 16, 2022

Marissa Cox
Biological Surveys Group
North Carolina Department of Transportation
1000 Birch Ridge Drive
Raleigh, North Carolina 27610

Subject: Revised Informal Consultation for the New I-26 Interchange at Exit 35 and Roadway Connection to Fredrick Law Olmstead Way East, Asheville, Buncombe County, North Carolina (TIP No. HE-0001)

Dear Marissa Cox:

This responds to your request for a revised concurrence letter on the subject proposed action. On June 16, 2021, we attended an external scoping meeting with regulatory partners where the North Carolina Department of Transportation (NCDOT) introduced the HE-0001 project and indicated its placement in the Merger Process. On June 24, 2021, we received (via e-mail) NCDOT's request for informal consultation and section 7 concurrence on effects the subject project may have on federally listed species. On June 29, 2021, we met with you and your staff to discuss the informal consultation request and initial comments. We then submitted written comments to NCDOT on July 7, 2021. On September 16, 2021, we received (via e-mail) an updated request for informal consultation and section 7 concurrence. We attended additional meetings with NCDOT staff to discuss issues and concerns. We sent you an informal concurrence letter dated November 18, 2021. Members of your staff provided additional information on January 18 and 31, 2022. We reviewed the CP3 Merger Packet provided on January 26, 2022, sent additional comments and questions to you on February 4, 2022, and received NCDOT's responses on February 14, 2022, which included a request for a revised concurrence letter. The following is provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C.§ 4321 et seq.); the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661 - 667e); and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 - 1543) (Act). This revised informal concurrence letter supersedes our previous letter dated November 18, 2021.

Project Description

A full project description is included in the original concurrence letter signed November 18, 2022. NCDOT is not able to implement all the lighting conservation measures requested by the U.S. Fish and Wildlife Service (Service) and provided additional information on nighttime lighting, stormwater, and inclusion of development as an indirect effect. Most agencies concurred with the use of Detailed Study Alternative 3 (Figure 2) at the CP3 Merger Meeting on February 9, 2022. The North Carolina State Historic Preservation Office abstained. The study area (Figure 1) remains the same though the action area is likely to narrow in the future when final designs are completed.

For HE-0001, NCDOT will analyze the project using the Stochastic Empirical Loading and Dilution Model (SELDM) Catalog for North Carolina (NC-SELDM) to determine recommendations for stormwater treatment goals. The model returns one of three recommendations for stormwater treatment 1) a direct discharge is acceptable; 2) minimization measures are sufficient; or 3) implement toolbox best

management practices. Based on the analysis from the NC-SELDM Catalog, NCDOT will implement stormwater controls as needed to guard against erosion and to protect water quality. Stormwater design information is limited at this stage of project development.

NCDOT provided additional information on construction sediment and erosion control (SEC) measures. NCDOT follows design requirements based on peak flow and designs devices to handle the 25-year or 10-year peak flow storm event. Runoff velocities must be controlled so that the peak runoff from the 10-year frequency storm occurring during or after construction will not damage the receiving stream channel at the discharge point. The velocity must not exceed the greater of the maximum non-erosive velocity of the existing channel, based on soil texture or peak velocity in the channel prior to disturbance. If neither condition can be met, then protective measures must be applied to the receiving channel. As stated in the BE, NCDOT will default to the most-restrictive SEC measure requirements.

NCDOT has committed to the following conservation measures in their BE dated September 15, 2021, in emails dated January 18 and 31, 2022, or did not object to their inclusion in the November 18, 2021 concurrence letter. Conservation measures have been modified for clarity as needed, numbered consecutively, and named based on the type of measure.

Conservation Measures for Gray Bat

TREE 1: As the proposed action will impact suitable habitat for gray bat throughout the action area, all tree clearing will occur between November 15 – March 15, which is outside of the bat active season for gray bat in the French Broad River (FBR) Basin.

TREE 2: Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to avoid tree removal in excess of what is required to implement the project safely.

TREE 3: Ensure tree removal is limited to that specified in project plans and ensure that clearing limits are clearly marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).

LIGHT 1: Permanent lighting will be confined to the interchange portion of this project along I-26 and will meet safety requirements for fully controlled access roadways. The roadway connection to Frederick Law Olmstead Way East will remain a dark forested corridor.

LIGHT 2: Lighting used for construction will be limited to what is necessary to maintain safety standards and will only be directed toward active work areas, not into adjacent wooded areas or inactive work sites.

LIGHT 3: NCDOT will use the shortest light pole that meets highway requirements and safety parameters and limits light in suitable bat habitat.

LIGHT 4: NCDOT will use light emitting diode (LED) fixtures with a Type II distribution pattern. This pattern projects light from the fixture further along the road and less across the road.

LIGHT 5: In all cases, the BUG (Backlight, Uplight, and Glare) rating will not exceed 3-0-3.

LIGHT 6: NCDOT will meet the AASHTO minimum requirements of 0.6 fc at 4:1 uniformity, which represents a 25% reduction in the average light on the pavement surface (compared with using the 0.8 fc standard) and should reduce the amount of light reaching suitable bat habitat.

LIGHT 7: NCDOT will eliminate all high mast light poles within the action area.

SEC 1: NCDOT will implement Design Standards for Sensitive Watersheds to minimize impacts to surface waters and wetlands which support aquatic macroinvertebrates, a food source for gray bats.

Conservation Measures for Appalachian Elktoe

Sediment and Erosion Control (SEC)

SEC 2: A combination of Design Standards in Sensitive Watersheds (DSSW, 15A NCAC 04B .0124), Environmentally Sensitive Areas, and the NC Division of Water Quality (NCDWQ) Construction

General Permit (NCG01) terms and conditions that allow for stormwater discharge under the National Pollutant Discharge Elimination System (NPDES) apply and NCDOT will default to the most-restrictive SEC measure requirements.

SEC 3: The sedimentation and erosion control plan (SECP) will be in place prior to any ground disturbance for all pipe replacements and construction. When needed, combinations of SEC measures (such as silt bags in conjunction with a stilling basin) will be used to ensure that the most protective measures are implemented.

SEC 4: The SECP shall adhere to the DSSW for portions of the project draining directly or indirectly to the FBR. Consideration will be given to any on the ground practical application which is most protective of the resource. For example, there may be some areas where NCDOT would not extend a measure of the DSSW (e.g., cut trees to construct a basin) which would have greater impact to sensitive resources.

SEC 5: Environmentally Sensitive Areas will be demarcated within the action area and will be defined by a 50-foot buffer zone on both sides of jurisdictional streams measured from top of streambank, in which the following shall apply:

- The contractor may perform clearing operations, but not grubbing operations until immediately prior to beginning grading operations.
- Once grading operations begin, work shall progress in a continuous manner until complete.
- Erosion control devices shall be installed immediately following the clearing operation.
- Seeding and mulching shall be performed on the areas disturbed by construction immediately following final grade establishment.
- Seeding and mulching shall be done in stages on cut and fill slopes that are greater than 20 feet in height measured along the slope, or greater than 2 acres in area, whichever is less.
- All SEC measures, throughout the project limits, must be cleaned out when half full of sediment, when applicable, to ensure proper function.

Monitoring Effectiveness of SEC Devices

SEC 6: One Construction Project Inspector will monitor SEC devices for the life of the project.

SEC 7: Inspections of erosion control devices will be done on the standard inspection schedule (weekly, or after a rainfall event of one inch or greater).

SEC 8: NCDOT will self-report to the Service any SEC device failures or sediment loss resulting from exceeding the capacity of the measures. The NCDOT inspector will report any failures or sediment loss to the Division Environmental Officer, who will contact the agency within 24 hours. If there are any failures or sediment loss, NCDOT will meet with resource agencies and work to adaptively manage SEC devices for further storm events while construction continues.

Agency Coordination (AC)

AC 1: NCDOT will invite representatives from the Service, U.S. Army Corp of Engineers, and the North Carolina Wildlife Resources Commission to the preconstruction meeting for the proposed project, as well as to all subsequent field inspections prior to construction, to ensure compliance with all special project commitments.

AC 2: NCDOT shall provide the Service with the SECP and allow 30 calendar days for review.

Stormwater Control Measures (SCM):

SCM 1: NCDOT has developed stormwater commitment guidance, which will apply to any portion of the NCDOT stormwater conveyance system draining to an outfall discharging to the FBR within the NCDOT right of way.

SCM 2: NCDOT will prepare a stormwater management plan (SMP) that implements structural and non-structural post-construction stormwater best management practices (BMPs) to the maximum extent practical, which is consistent with NPDES Post-Construction Stormwater Program.

SCM 3: NCDOT will use a hierarchical BMP selection process, which is optimized to treat silt, nutrients, and heavy metals.
SCM 4: NCDOT will evaluate the use of emerging BMP technologies that NCDOT has yet to publish in its BMP Toolbox. These emerging BMP technologies include bioswales, bioembankments, biofiltration conveyances, and soil improvements that maximize infiltration.

Federally Listed Species

Appalachian elktoe (Alasmidonta raveneliana)

Appalachian elktoe occur in the FBR upstream and downstream of the project. While the project may not directly impact the FBR, the project will impact jurisdictional streams SA and SDX that flow into the FBR. The jurisdictional streams themselves do not provide suitable habitat for Appalachian elktoe, but they do affect the water quality of the FBR. Tree clearing, land clearing, and stormwater management may all result in effects to the FBR, as discussed in the BE.

The BE states that due to the implementation of conservation measures related to sediment and erosion control and stormwater, any sedimentation or water quality impacts associated with construction of HE-0001 will be insignificant or discountable as it is not expected to reach the main stem of the FBR.

Based on the conservation measures outlined above, we concur with NCDOT's determination that the project may affect, but is not likely to adversely affect Appalachian elktoe.

Gray bat (Myotis grisescens)

While many gray bats forage and commute over water, some choose to fly over land including heavily wooded areas in the FBR basin and near the project study area (Weber et al., 2020, Figure 3). Additionally, several studies indicate that bad weather in spring and fall can cause gray bats to leave primary feeding locations along water bodies for forest canopies (LaVal et al. 1977, Stevenson and Tuttle 1981). Based on this information and the facts that follow, we believe gray bats forage and commute throughout the action area:

1) a primary gray bat roost occurs within 0.65 miles of the action area boundary,
2) the action area is located within a bend of the FBR that is a well-documented foraging and commuting corridor for gray bats, which creates opportunity for the action area to serve as an overland bypass for gray bats traveling north or south along the river, and
3) the action area is within a small undeveloped forested corridor – connecting the U.S. Forest Service's Bent Creek Experimental Forest with the undeveloped portions of Biltmore properties – that we believe may serve as an important commuting and foraging overland flyway.

Because gray bats are expected to be foraging, commuting, and potentially roosting within the action area, artificial lighting and tree removal may cause avoidance behavior in gray bats during construction and operation of the proposed project. Studies (e.g., Rydell 1992; Blake et al. 1994; Stone et al. 2009, 2012) have shown that road lighting deters many bat species, notably slow-flying, woodland-adapted species such as members of the genus *Myotis*, from approaching the road. Deforestation at foraging sites and along commuting routes is likely to have negative effects due to the removal of prey abundance and reduced cover from natural predators (Tuttle 1979). Recently-volant young are especially susceptible to the effects of deforestation, as they require the protection of forest cover while becoming proficient fliers.

Based on the best available science, information above, and the information provided, we believe that tree removal and new artificial lighting may have short and long-term effects on the gray bat. Conservation measures for this project aim to address these concerns and ensure effects are insignificant. Winter tree clearing and other tree-related measures should reduce any impacts to gray bats including impacts to bats

that may temporarily roost in trees during migration (Samoray et al. 2020). Lighting measures aim to address and reduce the amount of light leaving paved surfaces.

Based on the information provided in the BE, including the conservation measures listed above, we concur with NCDOT that the project may affect, but is not likely to adversely affect the gray bat.

Northern long-eared bat (Myotis septentrionalis, NLEB)
Suitable habitat for NLEB is present within the action area. Based on the information provided, the project is consistent with the final section 4(d) rule, codified at 50 C.F.R. § 17.40(o) and effective February 16, 2016 for NLEB. This rule exempts take of this species for any tree cutting activity that occurs more than 0.25 miles from a known hibernation site or more than 150 feet from a known maternity roost during the pup rearing season (June 1 - July 31). Because this project meets the "exempt" criteria, any take associated with the project has already been addressed in the Biological Opinion for the 4(d) rule, and no further action under section 7 of the Act is required for this species at this time.

The Service is currently reevaluating the listing status of NLEB, and a final listing decision is expected in 2022. Consultations that use the 4(d) rule for NLEB may need to be reinitiated if the 4(d) rule is rescinded or the listing status of the species changes during the life of the project.

Other Species
While the following species occur in the region, the action area is outside the current range and/or area of influence for blue ridge goldenrod (*Solidago spithamaea*), Carolina northern flying squirrel (*Glaucomys sabrinus coloratus),* roan mountain bluet (*Hedyotis purpurea var. montana*), spreading avens (*Geum radiatum*), and spruce-fir moss spider (*Microhexura montivaga*). While the action area is within the current range and/or area of influence for mountain sweet pitcherplant (*Sarracenia rubra* ssp. *jonesii*) and rock gnome lichen (*Gymnoderma lineare*), no suitable habitat is present within the action area for either species. Therefore, no further section 7 review for these species is required.

Little brown bat (*Myotis lucifugus*) and tricolored bat (*Perimyotis subflavus*) are at-risk species (ARS). ARS are not legally protected under the Act and are not subject to any of its provisions, including section 7, unless they are formally proposed or listed as endangered or threatened. The Service is expected to make listing determinations on these species in the near future. While lead federal agencies are not prohibited from jeopardizing the continued existence of an ARS or proposed species unless the species becomes listed, the prohibition against jeopardy and taking a listed species under section 9 of the Act applies as soon as a listing becomes effective, regardless of the stage of completion of the proposed action. We include this notification to make you aware of their current status and potential occurrence within the action area and to request your assistance in protecting them. Depending on the timeline of the subject project and final listing determinations, reinitiation may be required.

Conservation Recommendations
Section 7(a)(1) of the ESA directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

- Consider timing clearing and grading operations (not including tree cutting) such that follow-up seeding and mulching activities avoid the coldest winter months of January and February when growth of winter rye is slow and may not perform well as a protective BMP for sediment and erosion control. This measure may be most effective when applied to Environmentally Sensitive Areas.

- Use only low-pressure sodium (LPS), high-pressure sodium (HPS), or LED light sources that emit "warm" light. "Warm" light sources are those that contain low amounts of blue light in their spectrum. Choosing light sources with a color temperature of no more than 3,000 Kelvins will minimize the effects of blue light exposure. For additional information and actions that can be taken to reduce outdoor light pollution, visit: *https://www.darksky.org/our-work/lighting/lighting-for-citizens/lighting-basics/*.
- Consider the conservation needs of the Appalachian elktoe when designing SEC and SCM plans for HE-0001. Include SCMs that provide control of water quantity to prevent downstream flooding and erosion of Streams SA and SDX. We encourage the use of wet detention basins which maintain a permanent pool of water and attenuates peak stormwater flows (NCDOT BMP Toolbox Chapter 12, 2014). Wet detention basins will benefit gray bats as they have been shown to use them in Weaverville and will improve the aesthetics of the roadway for users and the Blue Ridge Parkway viewshed.
- Develop a study to monitor the new roadway's impacts to Stream SA. We are concerned about the long-term implications of increased impervious surfaces within the watersheds of Appalachian elktoe, and this situation presents an opportunity to observe and learn, on a small scale, what happens to stable streams when well-designed roadway projects that include SCMs are introduced on the landscape. We are ultimately interested in creating adaptive feedback loops that can inform freshwater mussel recovery in a landscape that is under constant development pressure.

For the Service to be kept informed of actions benefitting listed species or their habitats, we request written notification of the implementation of any conservation recommendations along with the results of any monitoring.

Reinitiation Notice

We believe the requirements under section 7 of the Act are fulfilled for the federally listed species discussed above. However, obligations under section 7 must be reconsidered if: (1) new information reveals impacts of this proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) this proposed action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed, or critical habitat is determined that may be affected by the proposed action.

We appreciate the opportunity to provide these comments. Please contact Ms. Lauren B. Wilson of our staff at lauren_wilson@fws.gov if you have any questions. In any future correspondence concerning this project, please reference our Log Number 21-330.

Sincerely,

Janet Mizzi
Field Supervisor

Enclosures: maps

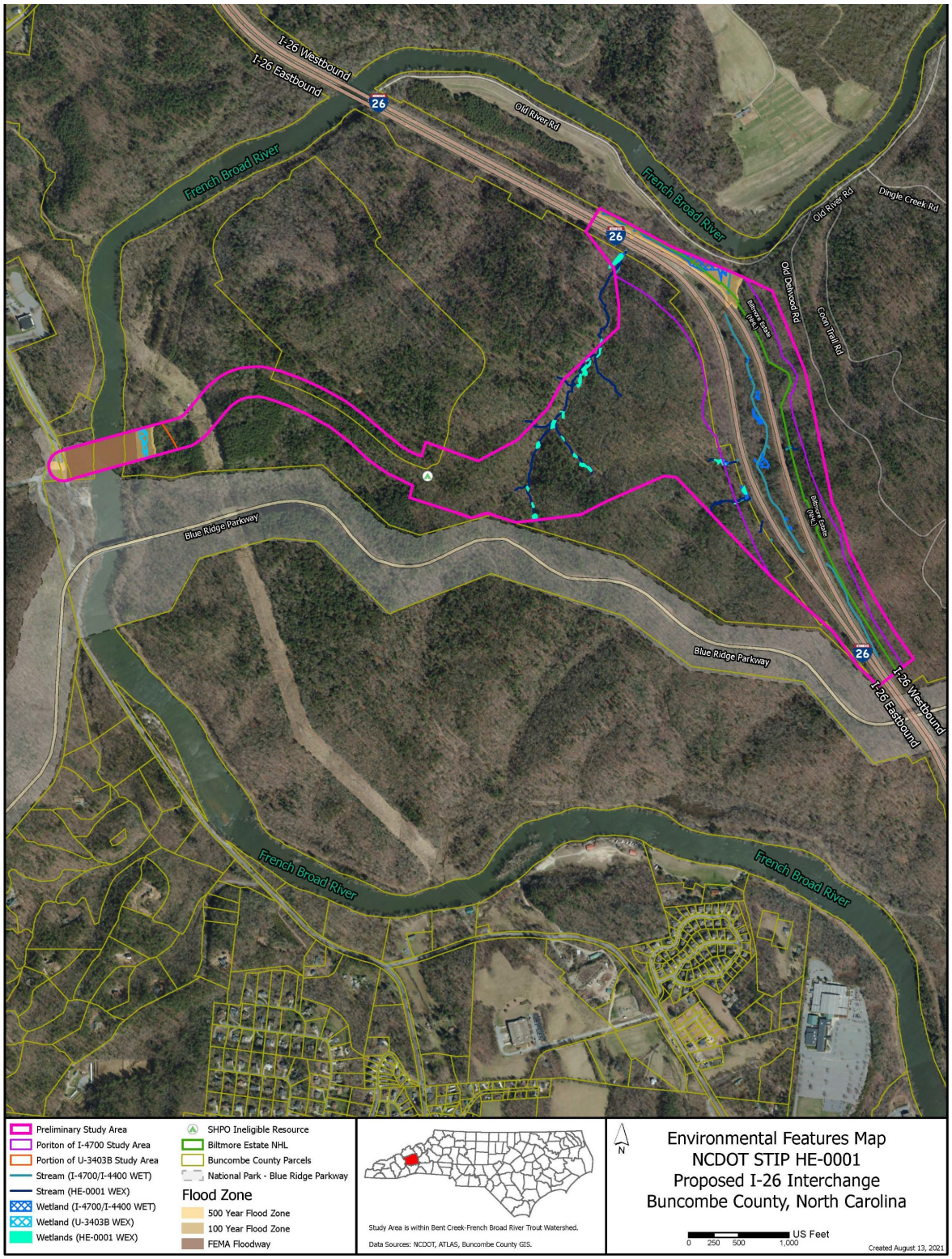


Figure 1. Stream SA and SDX in the Action Area. Map shows results of the jurisdictional determination for streams and wetlands within the action area.

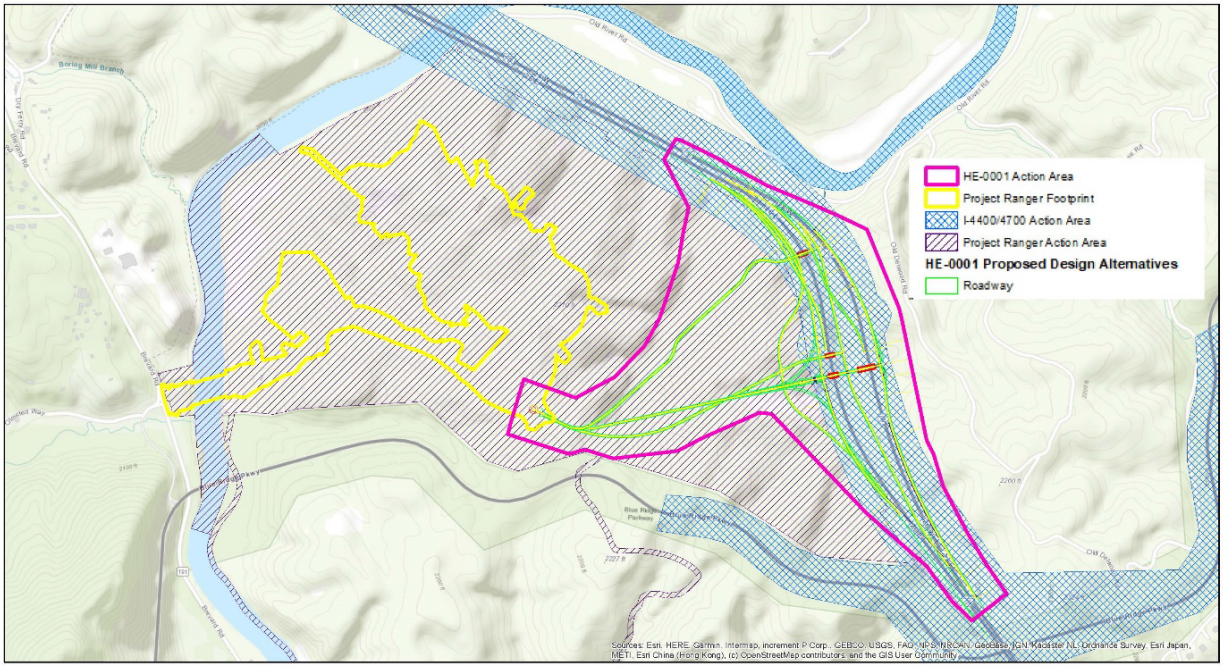


Figure 2. **HE-0001 Detailed Study Alternatives and Consultation History in Project Vicinity.** Includes action areas for Project Ranger (FWS Log No. 19-328) and I-26 Widening Project (I-4400/I-4700). Merger agencies choose Detailed Study Alternative 3, the northern most green road, as the least environmentally damaging practicable alternative.

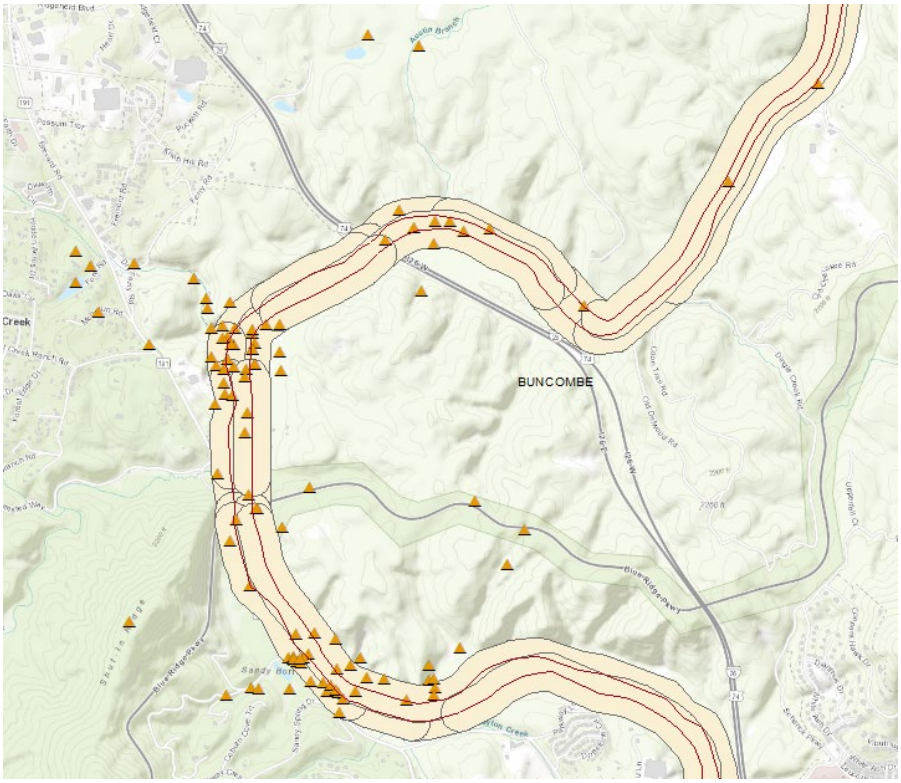


Figure 3. Gray Bat Locations Near the Action Area. Known gray bat foraging locations (orange triangles) from Weber et al. (2020) in the vicinity of the action area. The map shows the French Broad River (cream colored polygon with red outline) and a 100 m buffer (cream polygon with a gray outline).