

Concurrence Point 2A
Bridging Decisions and Alignment Review

STIP Project No. A-0009C
WBS No. 32572.1.FS10
FA No. APD-0074(178)

Corridor K - US 129, NC 143 and NC 28
From US 129 in Robbinsville to NC 28 in Stecoah

Graham County



November 20, 2019

1. INTRODUCTION AND PROJECT OVERVIEW

1.1 Meeting Purpose

In accordance with the National Environmental Policy Act (NEPA)/Section 404 Merger Process, NCDOT is seeking concurrence from the NEPA/404 Merger Team on CP 2A – Bridging Decisions and Alignment Review.

1.2 Project Description

The proposed improvements to this section of Corridor K along US 129, NC 143, and NC 28 extend from Robbinsville to Stecoah in Graham County, which include both new location and improved existing options.

1.3 Schedule

- Environmental Assessment - Jan/Feb 2020
- Public Hearing - March 2020
- CP 3/4A Meeting – April 2020
- FONSI - June 2020
- Construction - FY 2024

1.4 Merger Process Concurrence Points 1 and 2)

On October 9, 2019 the NEPA/404 Merger Team met to discuss Purpose and Need and Study Area (CP 1) and Detailed Study Alternatives (CP 2) for the referenced project. The Merger Team agreed to the following:

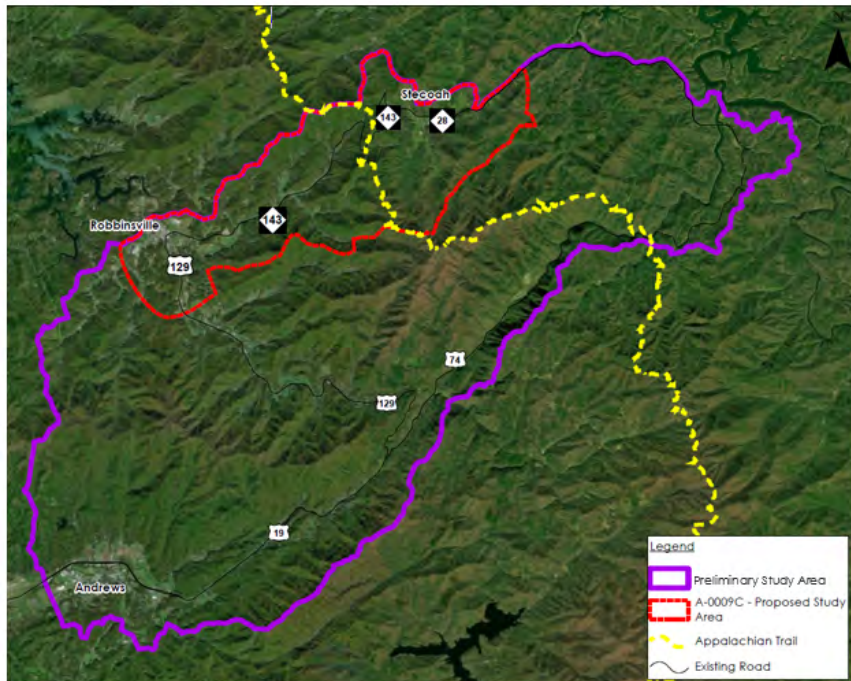
Purpose and Need

The project purpose is to provide transportation infrastructure necessary for the well-being of local residents by improving mobility and reliability between the existing four-lane section on NC 28 at Stecoah and US 129 south of Robbinsville.

Study Area Defined

The proposed study area is shown on the next page.

A-0009C Study Area Defined



Design Options for Detailed Study

Improve Existing US 129/NC 143: This option would maintain the existing alignment along US 129 and NC 143 between each road's intersection with Five Point Road. After the traffic analysis is completed, additional design work will be conducted in the Robbinsville area along existing US 129 and NC 143 to evaluate improvements that can facilitate mobility without causing business or residential relocations to the downtown Robbinsville area. The improve existing option may encroach on commercial parking along existing routes; however, the design will be developed to avoid relocations.

R-1E: This design option would provide a new location connection along the Five Point Road corridor to facilitate through movements. New intersections with US 129 and NC 143 are being studied including conventional T-intersections and roundabouts. Additional design work will be performed after the traffic analysis is completed.

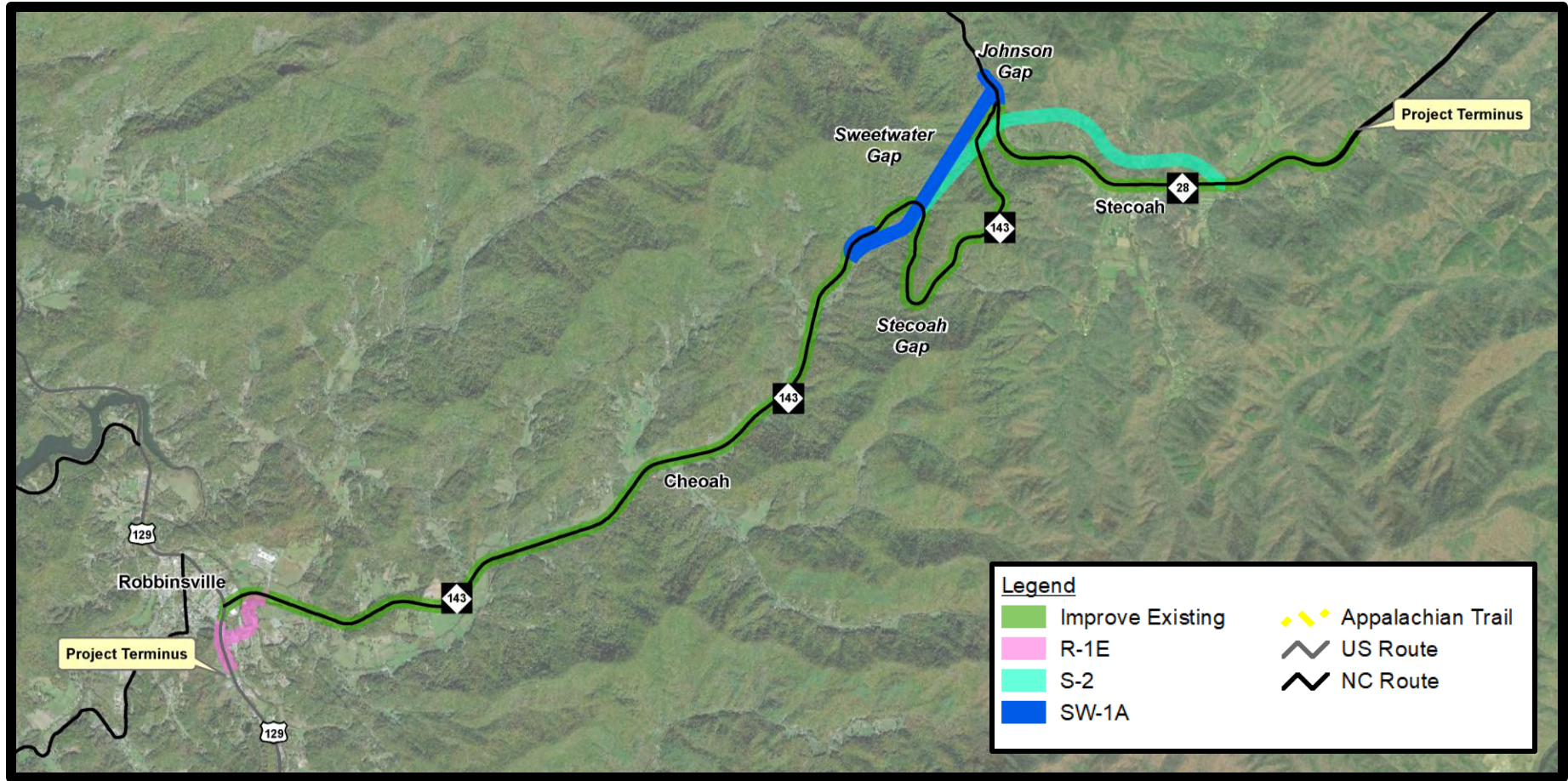
Improve Existing NC 143/NC28: Improvements including widening, providing adequate shoulders, passing and climbing lanes, and modifying superelevations (cross-slopes) to improve traffic flow along existing NC 143 and NC 28.

S-2: Originates at Five Point Road and NC 143 for an improve existing segment, continuing north and tunneling under NC 143 and the Appalachian Trail for 4,445 feet. The corridor then crosses NC 28 and NC 143 south of the existing intersection, turning northeast and following the north side of the Stecoah Valley before an improve existing segment and terminating at the four-lane section of NC 28.

SW-1A: Originates at Five Point Road and NC 143 for an improve existing segment, continuing north and tunneling under NC 143 and the Appalachian Trail for 5,416 feet. The corridor includes an at-grade intersection of NC 28 and NC 143 before turning south where the remainder of the corridor improves existing NC 28, terminating at the four-lane section of NC 28.

No-Build: No transportation improvements would be made beyond routine maintenance. This alternative assumes that future traffic would utilize existing roads and typical sections.

Design Options



3. Concurrence Point 2A

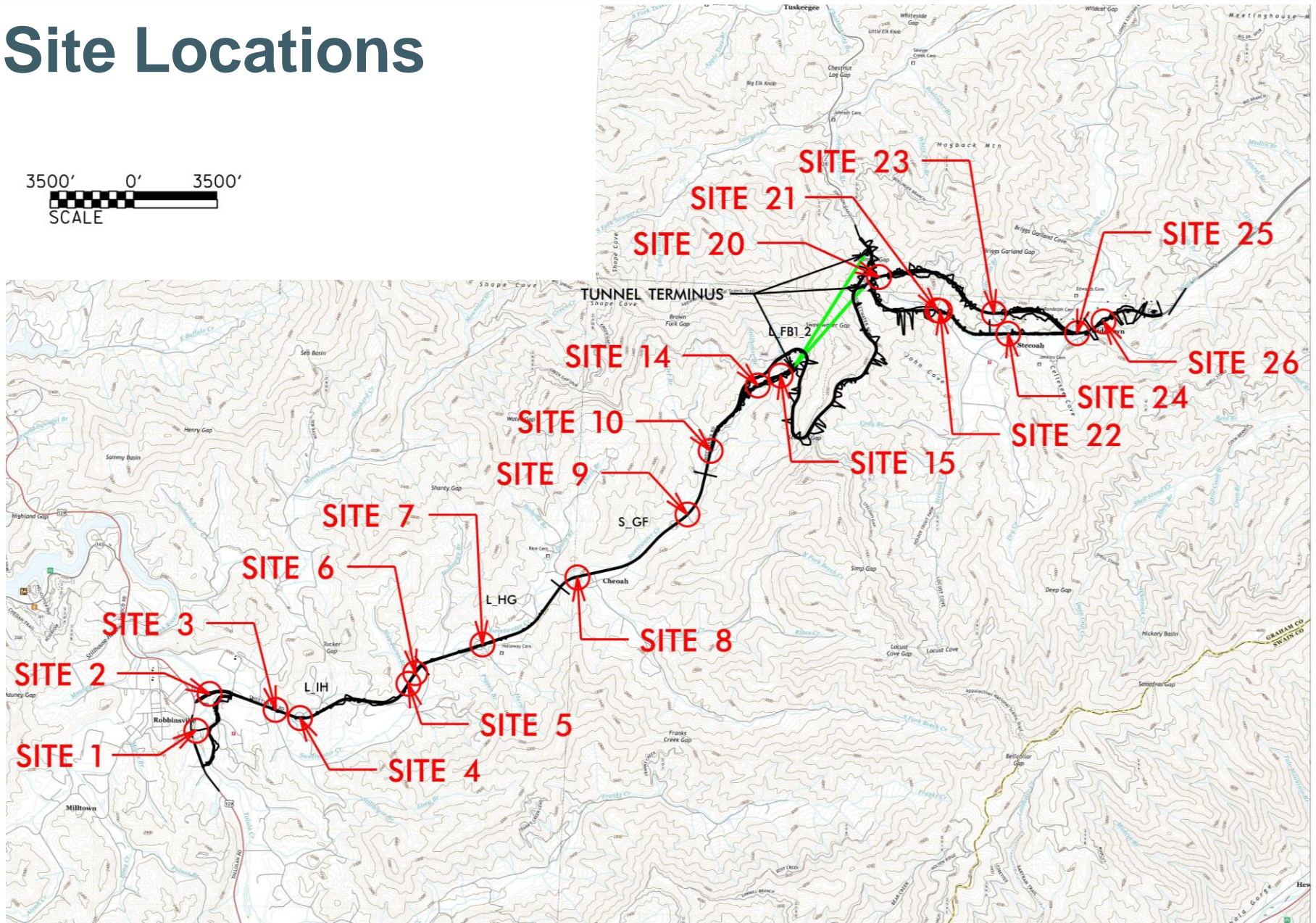
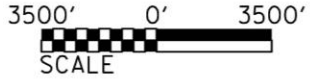
Bridging Decision and Alignment Review

CONCURRENCE POINT 2A

- Hydraulic Recommendations

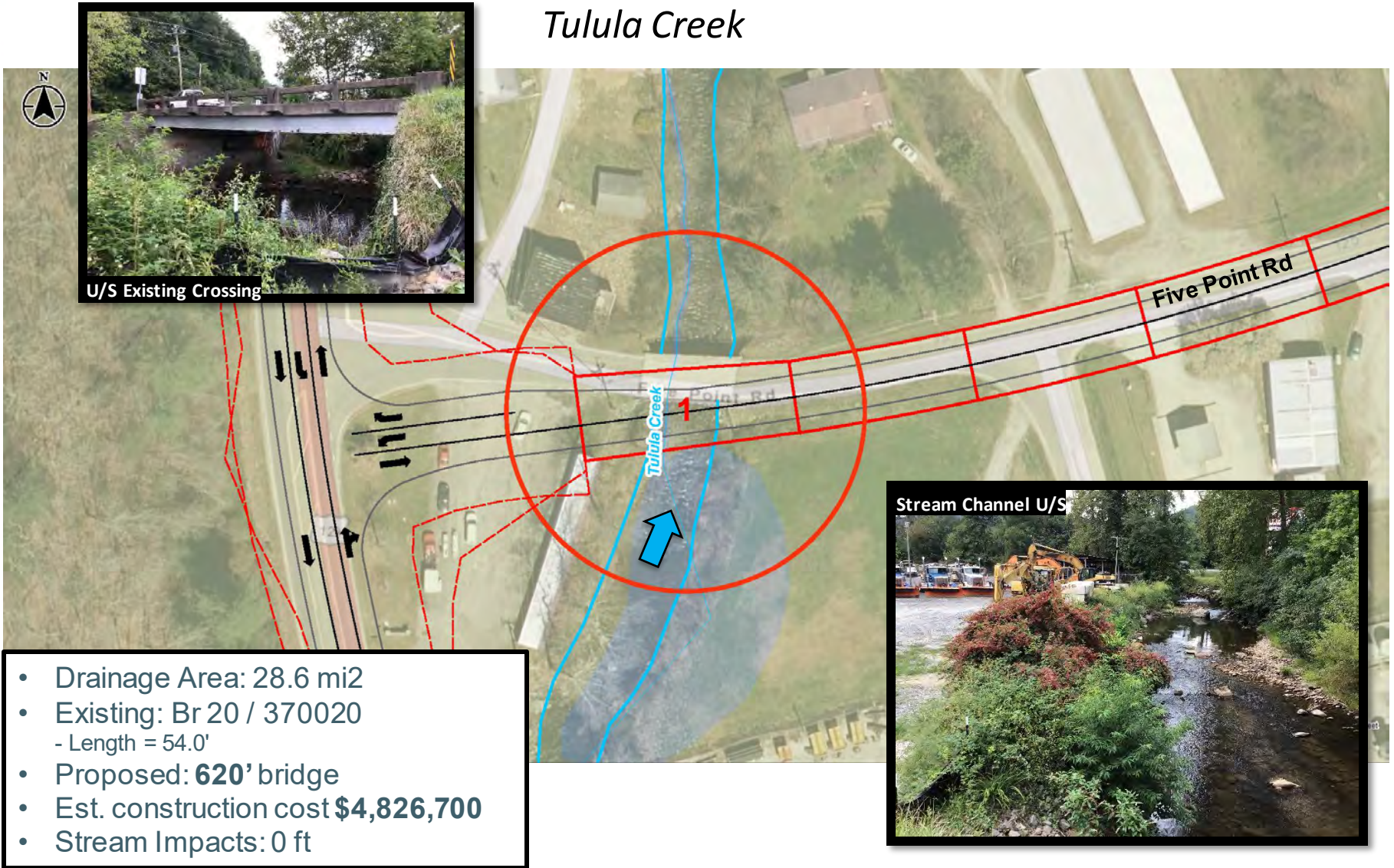


Site Locations



Hydraulic Recommendations - Map ID 1

Tulula Creek

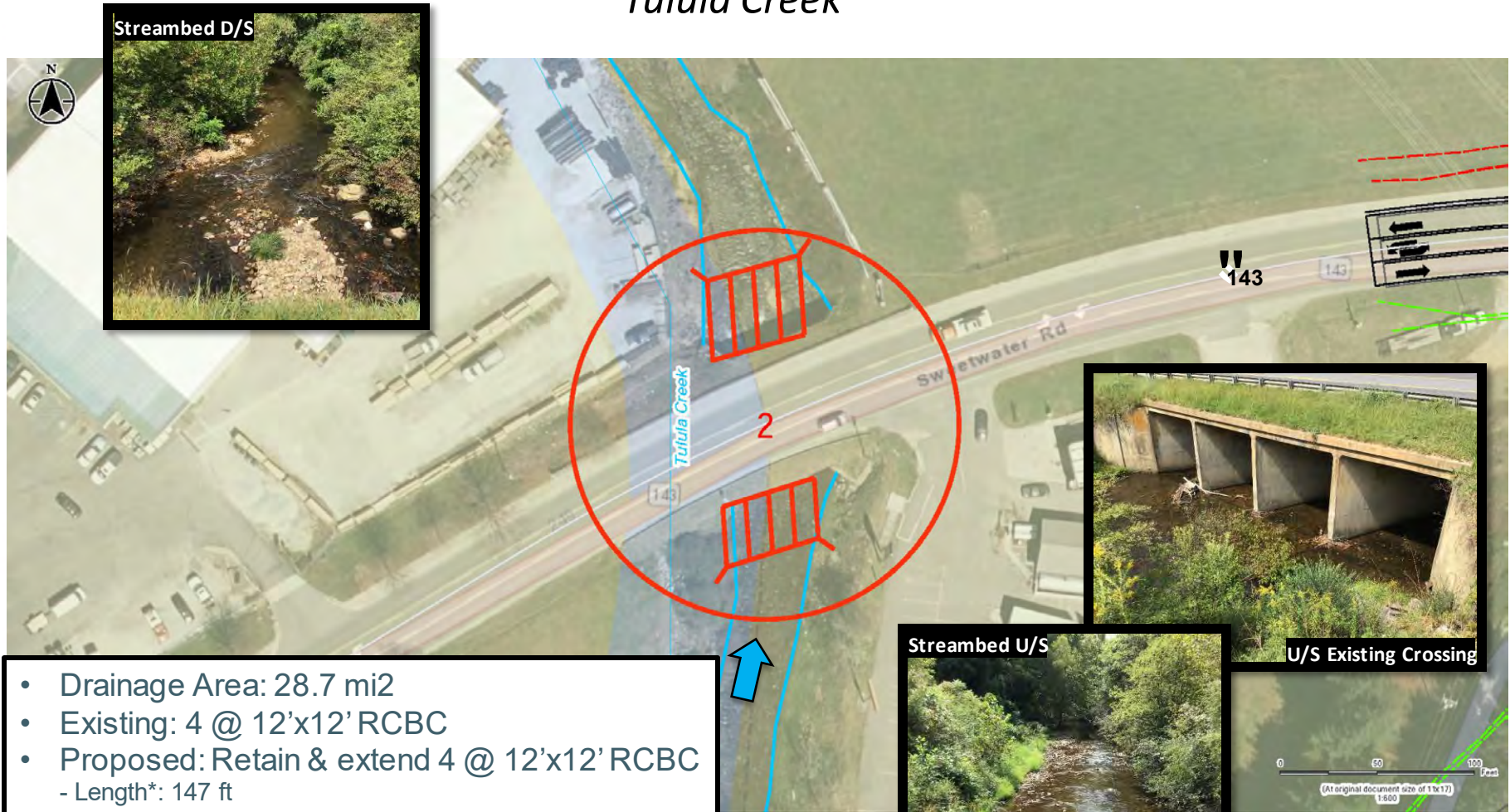


Hydraulic Recommendations - *Map ID 1*

- Alternative: R-1E
- Major crossing: Tulula Creek
 - Drainage Area: 28.6 mi²
 - Existing: Br 20 / 370020,
 - Length = 54.0'
 - Proposed: **620'** bridge
 - Est. construction cost **\$4,826,700**
 - Stream Impacts: 0 ft
 - FEMA Status: Detailed FIS

Hydraulic Recommendations - Map ID 2

Tulula Creek



- Drainage Area: 28.7 mi²
- Existing: 4 @ 12'x12' RCBC
- Proposed: Retain & extend 4 @ 12'x12' RCBC
 - Length*: 147 ft
- Est. construction cost:
 - Culvert Extension: \$1,397,471
 - Bridge: \$1,503,188
- Stream Impacts: 137 ft

Hydraulic Recommendations - *Map ID 2*

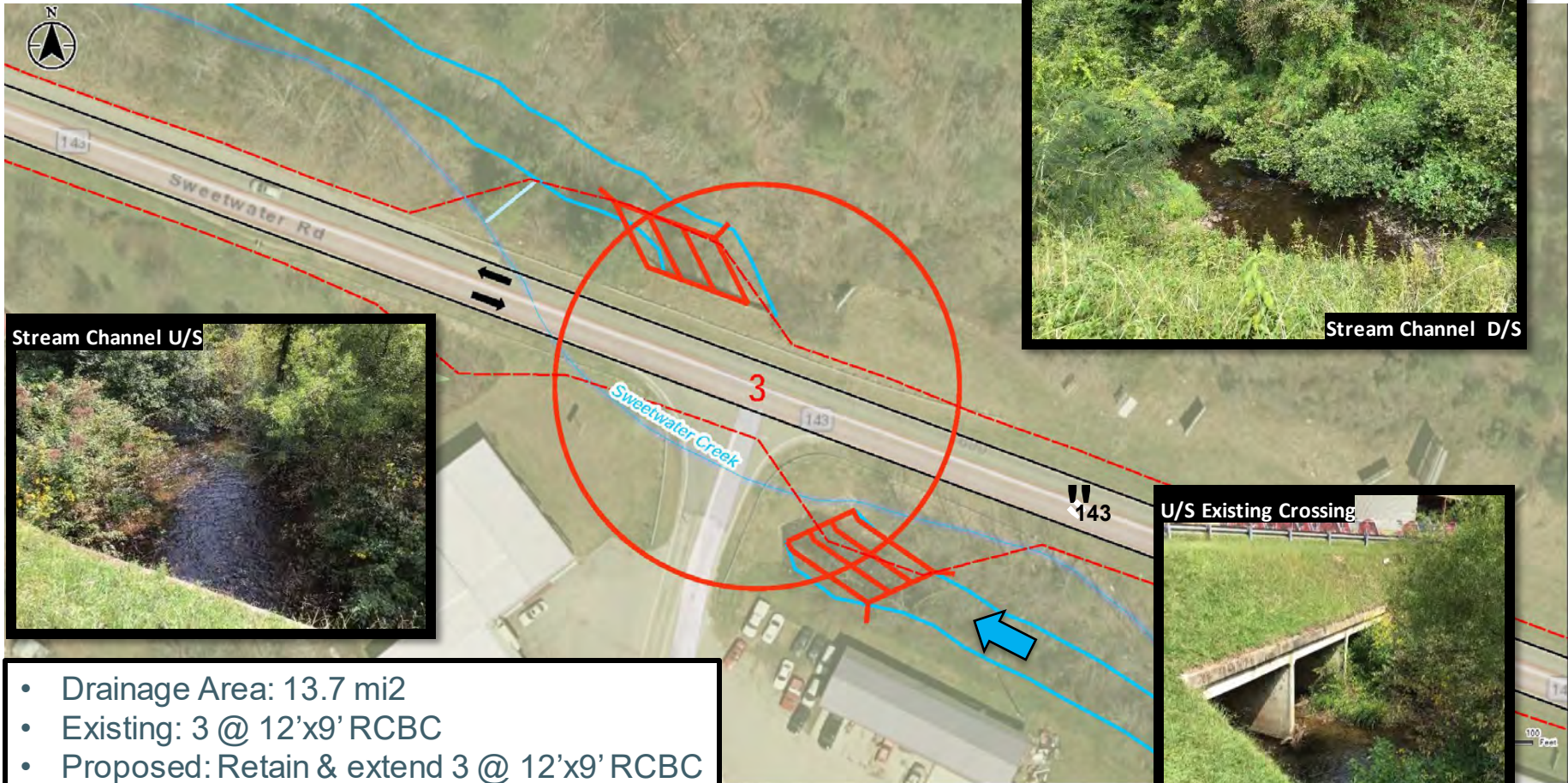
- Alternatives: Improve Existing US 129/ NC 143
- Major crossing: Tulula Creek
 - Drainage Area: 28.7 mi²
 - Existing: 4 @ 12'x12' RCBC
 - Proposed: Retain & extend 4 @ 12'x12' RCBC
 - Length*: 147 ft
 - Est. construction cost:
 - **Culvert Extension: \$1,397,471**
 - **Bridge: \$1,503,188**
 - Stream Impacts: 137 ft
 - FEMA Status: Detailed FIS

Benefits of Box Culvert

- Structurally Sound
- Adequately Sized for Design Storm Frequency
- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 3

Sweetwater Creek



- Drainage Area: 13.7 mi²
- Existing: 3 @ 12'x9' RCBC
- Proposed: Retain & extend 3 @ 12'x9' RCBC
 - Length*: 178 ft
- Est. construction cost:
 - Culvert Extension: \$965,116
 - Bridge: \$1,437,563
- Stream Impacts: 249 ft

Hydraulic Recommendations - *Map ID 3*

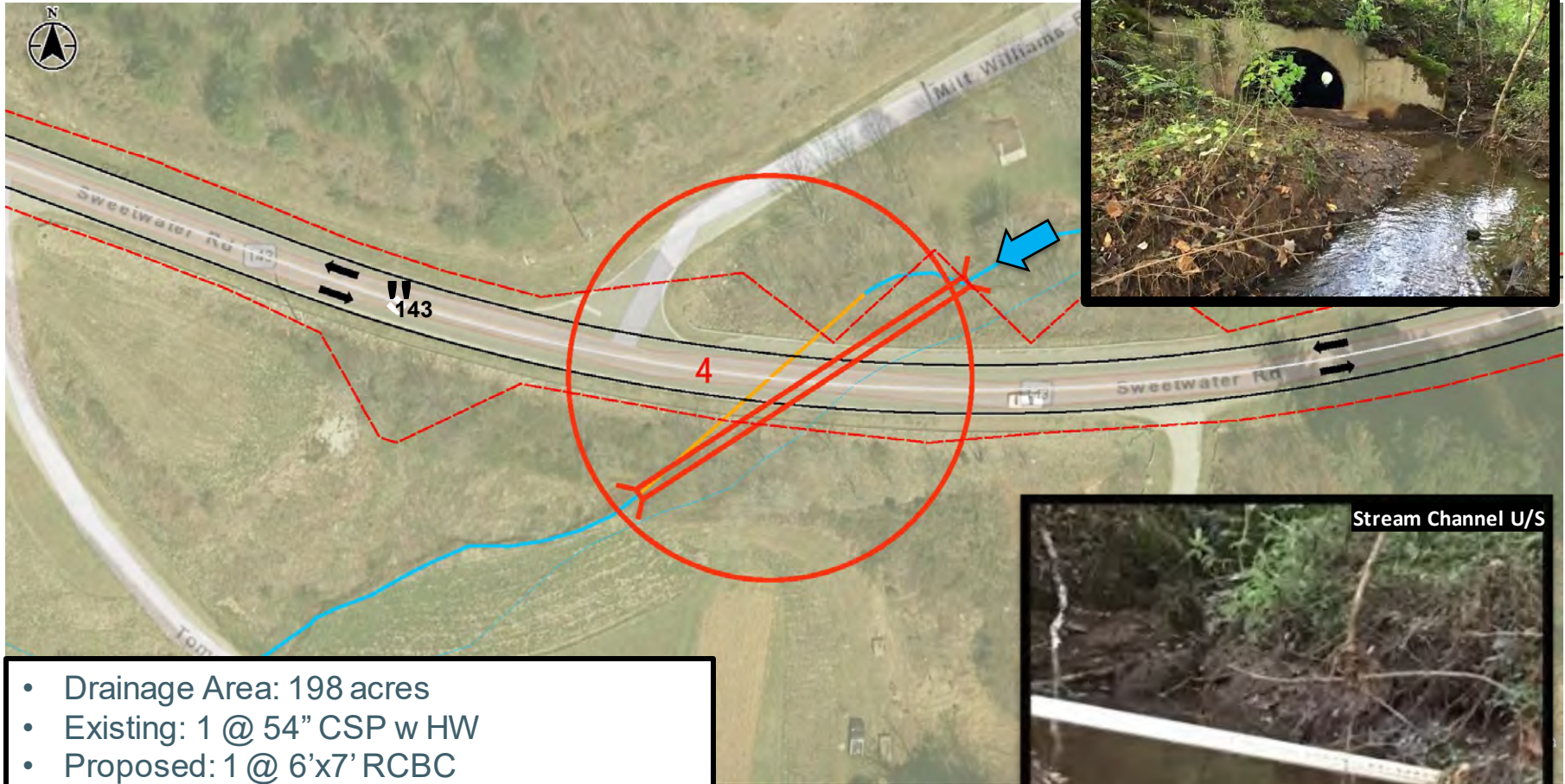
- Alternatives: Improve Existing NC 143/ NC 28, S-2, SW-1A
- Major crossing: Sweetwater Creek
 - Drainage Area: 13.7 mi²
 - Existing: 3 @ 12'x9' RCBC
 - Proposed: Retain & extend 3 @ 12'x9' RCBC
 - Length*: 178 ft
 - Est. construction cost:
 - **Culvert Extension: \$965,116**
 - **Bridge: \$1,437,563**
 - Stream Impacts: 249 ft
 - FEMA Status: Detailed FIS

Benefits of Box Culvert

- Structurally Sound
- Adequately Sized for Design Storm Frequency
- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 4

Sweetwater Creek Tributary SI



- Drainage Area: 198 acres
- Existing: 1 @ 54" CSP w HW
- Proposed: 1 @ 6'x7' RCBC
 - Length*: 194 ft
- Est. construction cost: \$592,300
- Stream Impacts: 197 ft

Hydraulic Recommendations - *Map ID 4*

- Alternatives: Improve Existing NC 143/ NC 28, S-2, SW-1A
- Major crossing: Sweetwater Creek Tributary SI
 - Drainage Area: 198 acres
 - Existing: 1 @ 54" CSP w HW
 - Proposed: 1 @ 6'x7' RCBC
 - Length*: 194 ft
 - Est. construction cost: \$592,300
 - Stream Impacts: 197 ft
 - FEMA Status: N/A

Benefits of Box Culvert

- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 5

Slay Bacon Branch



- Drainage Area: 358 acres
- Existing: 1 @ 66" CSP w HW
- Proposed: 1 @ 7'x8' RCBC
- Length*: 115 ft
- Est. construction cost: \$393,600
- Stream Impacts: 96 ft

Hydraulic Recommendations - *Map ID 5*

- Alternatives: Improve Existing NC 143/NC 28, S-2, SW-1A
- Major crossing: Slay Bacon Branch
 - Drainage Area: 358 acres
 - Existing: 1 @ 66" CSP w HW
 - Proposed: 1 @ 7'x8' RCBC
 - Length*: 115 ft
 - Est. construction cost: \$393,600
 - Stream Impacts: 96 ft
 - FEMA Status: N/A

Benefits of Box Culvert

- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 6

Sweetwater Creek



- Drainage Area: 10.7 mi²
- Existing: 3 @ 11'x9' RCBC
- Proposed: Retain & extend 3 @ 11'x9' RCBC
- Length*: 120 ft
- Est. construction cost:
- Culvert Extension: \$630,506
- Bridge: \$1,079,313
- Stream Impacts: 197 ft

Hydraulic Recommendations - *Map ID 6*

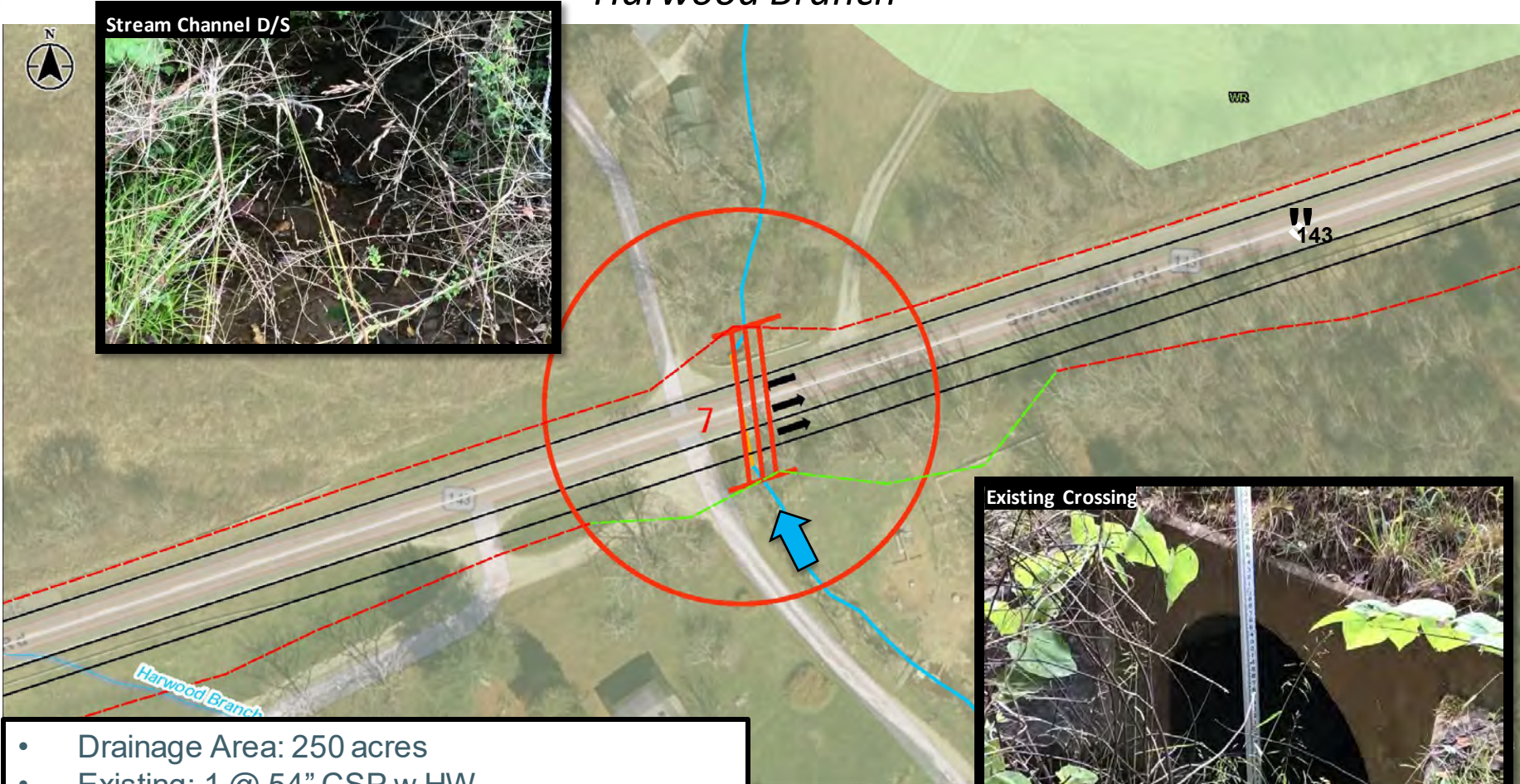
- Alternatives: Improve Existing NC 143/ NC 28, S-2, SW-1A
- Major crossing: Sweetwater Creek
 - Drainage Area: 10.7 mi²
 - Existing: 3 @ 11'x9' RCBC
 - Proposed: Retain & extend 3 @ 11'x9' RCBC
 - Length*: 120 ft
 - Est. construction cost:
 - **Culvert Extension: \$630,506**
 - **Bridge: \$1,079,313**
 - Stream Impacts: 197 ft
 - FEMA Status: Detailed FIS

Benefits of Box Culvert

- Structurally Sound
- Adequately Sized for Design Storm Frequency
- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, during especially the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 7

Harwood Branch



Stream Channel D/S



Existing Crossing



- Drainage Area: 250 acres
- Existing: 1 @ 54" CSP w HW
- Proposed: 1 @ 54" RCP; 2 @ 48" RCP
 - Length*: 78 ft
- Est. construction cost: \$63,900
- Stream Impacts: 98 ft

Hydraulic Recommendations - *Map ID 7*

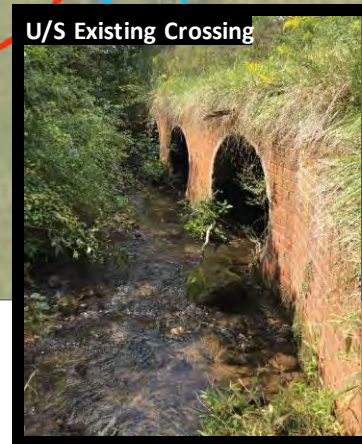
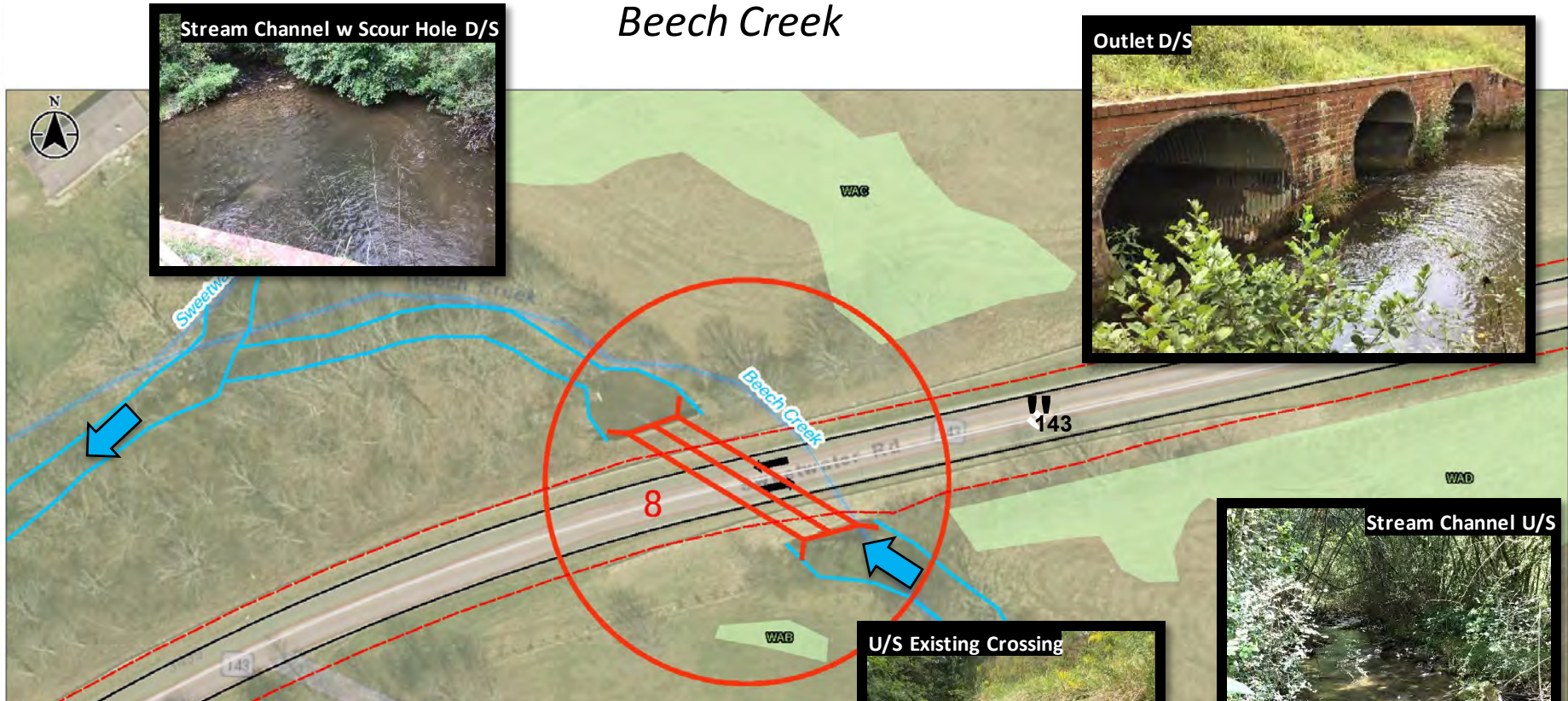
- Alternatives: Improve Existing NC 143/ NC 28, S-2, SW-1A
- Major crossing: Harwood Branch
 - Drainage Area: 250 acres
 - Existing: 1 @ 54" CSP w HW
 - Proposed: 1 @ 54" RCP; 2 @ 48" RCP
 - Length*: 78 ft
 - Est. construction cost: \$63,900
 - Stream Impacts: 98 ft
 - FEMA Status: N/A

Benefits of Culvert

- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 8

Beech Creek



- Drainage Area: 4.39 mi²
- Existing: 3 @ 72" CSP w Brick HW & EW
- Proposed: 2 @ 10'x8' RCBC
 - Length*: 103 ft
- Est. construction cost:
 - New Box Culvert: \$877,403
 - Bridge: \$904,768
- Stream Impacts: 79 ft

Hydraulic Recommendations - *Map ID 8*

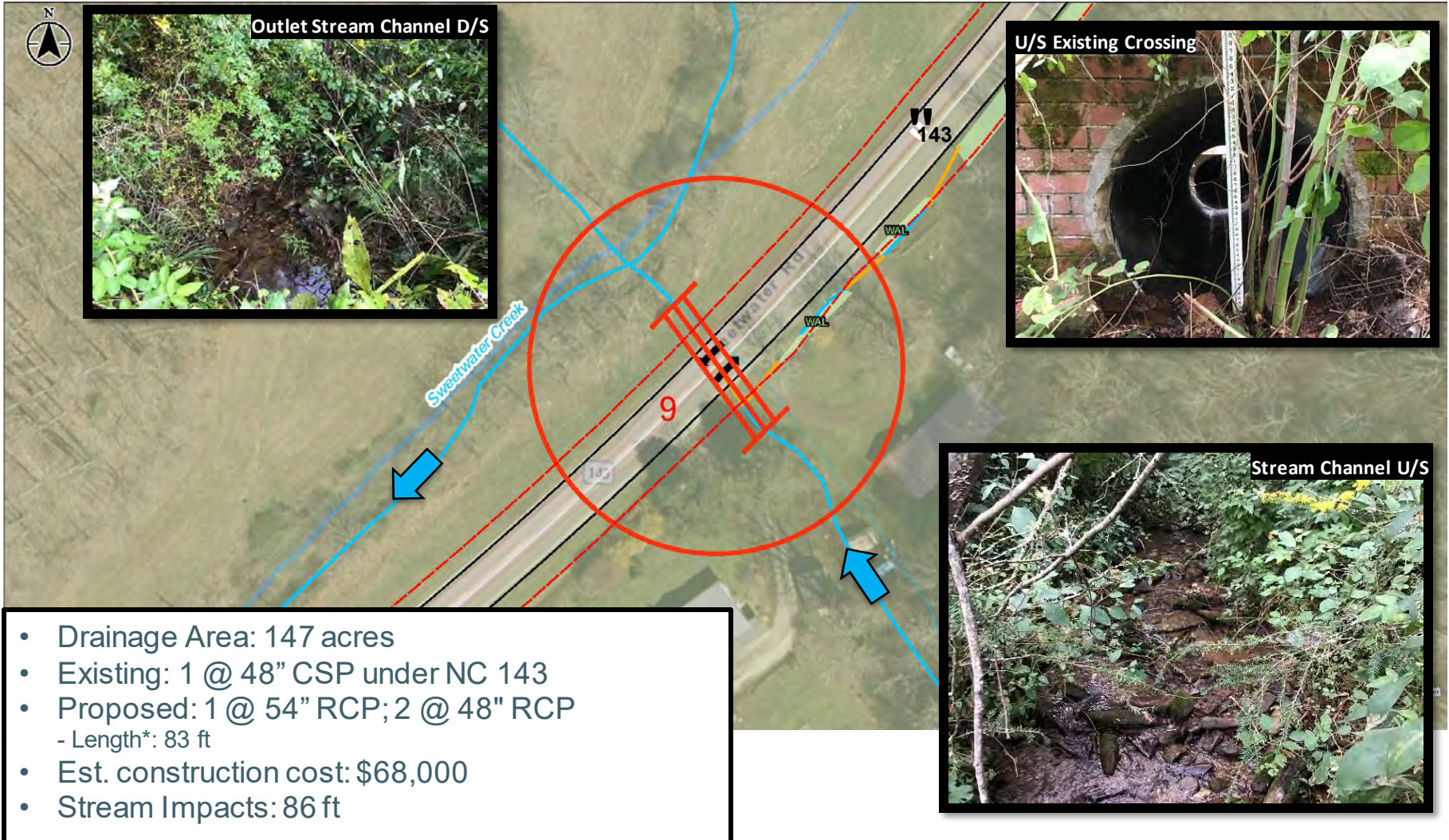
- Alternatives: Improve Existing NC 143/ NC 28, S-2, SW-1A
- Major crossing: Beech Creek
 - Drainage Area: 4.39 mi²
 - Existing: 3 @ 72" CSP w Brick HW & EW
 - Proposed: 2 @ 10'x8' RCBC
 - Length*: 103 ft
 - Est. construction cost:
 - **New Culvert: \$877,403**
 - **Bridge: \$904,768**
 - Stream Impacts: 79 ft
 - FEMA Status: Limited Detail Study

Benefits of Culvert

- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 9

Sweetwater Creek Tributary SAD



Hydraulic Recommendations - *Map ID 9*

- Alternatives: Improve Existing NC 143/NC 28, S-2, SW-1A
- Major crossing: Sweetwater Creek Tributary SAD
 - Drainage Area: 147 acres
 - Existing: 1 @ 48" CSP under NC 143
 - Proposed: 1 @ 54" RCP; 2 @ 48" RCP
 - Length*: 83 ft
 - Est. construction cost: \$68,000
 - Stream Impacts: 86 ft
 - FEMA Status: N/A

Benefits of Culvert

- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

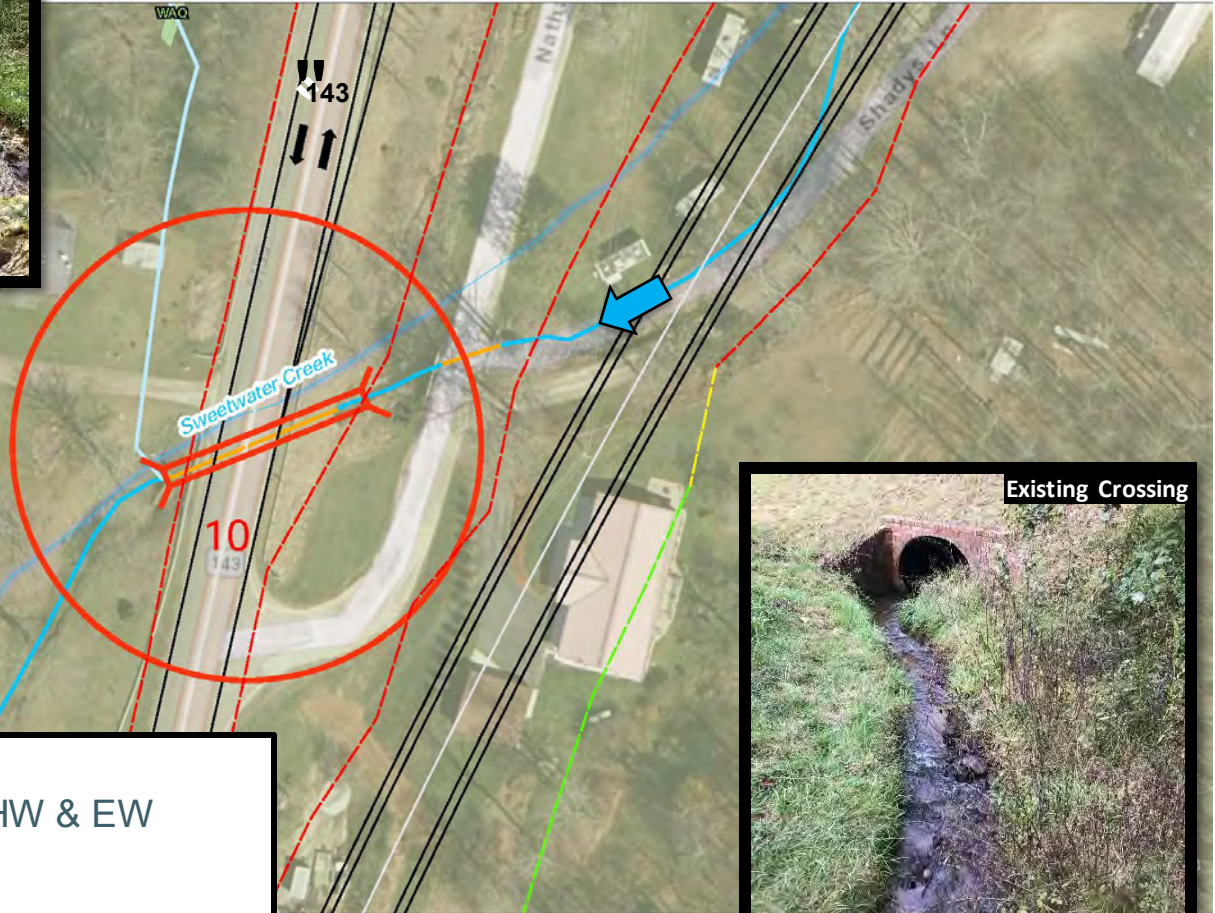
Hydraulic Recommendations - Map ID 10

Sweetwater Creek

D/S Outlet



D/S Stream Channel



Existing Crossing



- Drainage Area: 1.09 mi²
- Existing: 1 @ 72" CSP w Brick HW & EW
- Proposed: 1 @ 8'x9' RCBC
- Length*: 91 ft
- Est. construction cost: \$360,700
- Stream Impacts: 111 ft

Hydraulic Recommendations - *Map ID 10*

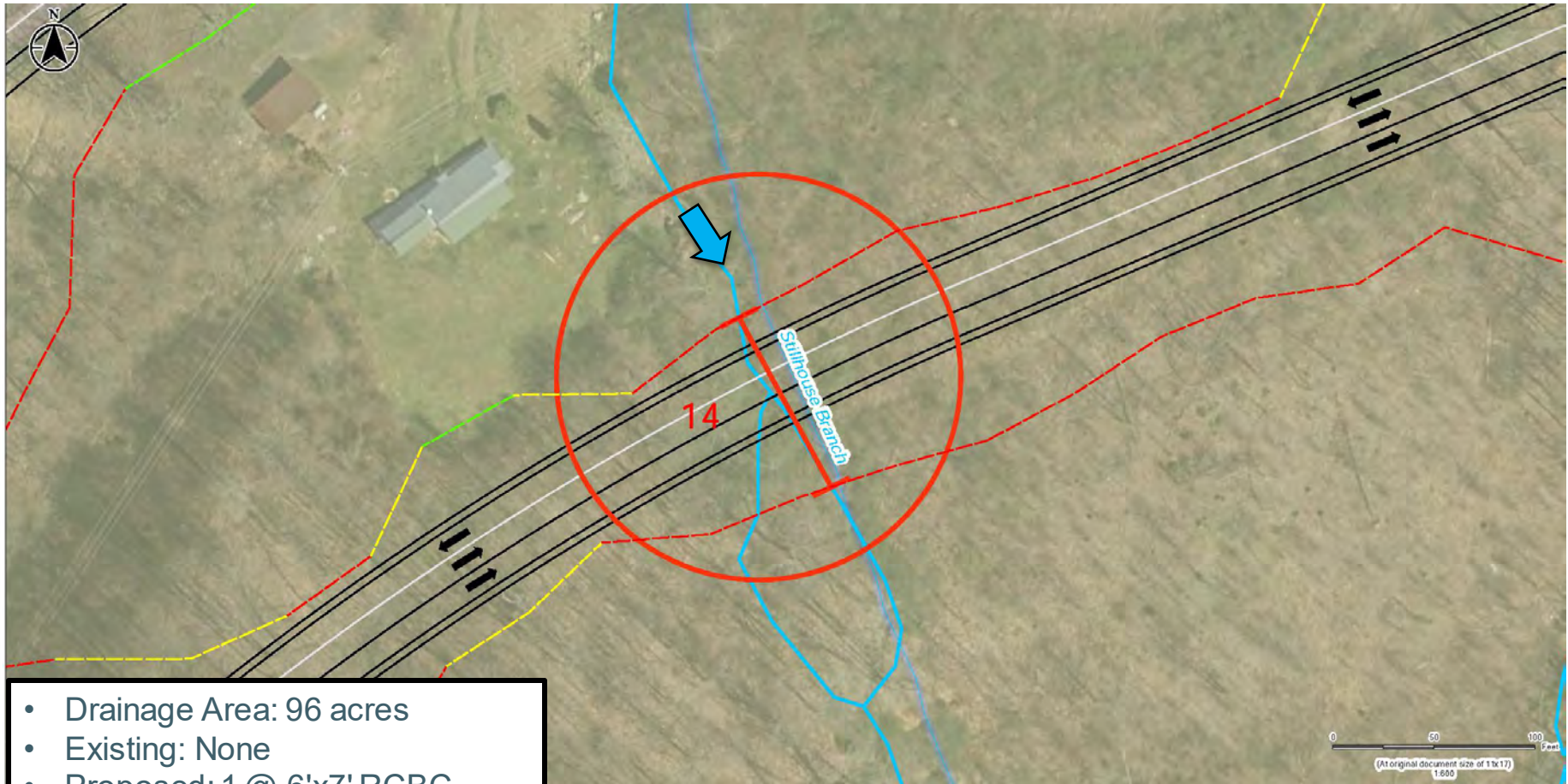
- Alternatives: Improve Existing NC 143/ NC 28, S-2, SW-1A
- Major crossing: Sweetwater Creek
 - Drainage Area: 1.09 mi²
 - Existing: 1 @ 72" CSP w Brick HW & EW
 - Proposed: 1 @ 8'x9' RCBC
 - Length*: 91 ft
 - Est. construction cost: \$360,700
 - Stream Impacts: 111 ft
 - FEMA Status: N/A

Benefits of Box Culvert

- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 14

Stillhouse Branch



- Drainage Area: 96 acres
- Existing: None
- Proposed: 1 @ 6'x7' RCBC
- Length*: 96 ft
- Est. construction cost: \$218,200
- Stream Impacts: 272 ft

Hydraulic Recommendations - *Map ID 14*

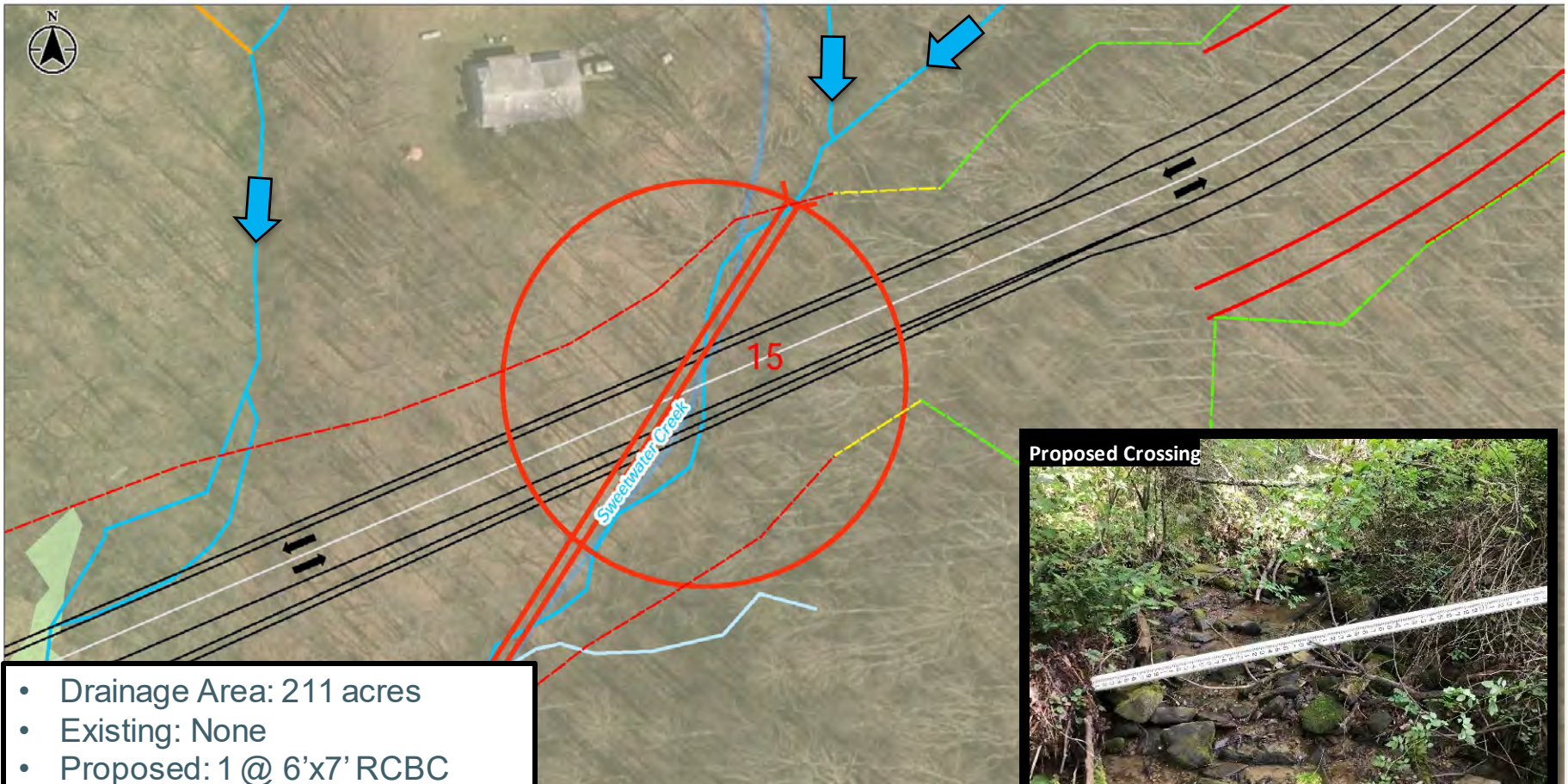
- Alternatives: S-2, SW-1A
- Major crossing: Stillhouse Branch
 - Drainage Area: 96 acres
 - Existing: None
 - Proposed: 1 @ 6'x7' RCBC
 - Length*: 96 ft
 - Est. construction cost: \$218,200
 - Stream Impacts: 272 ft
 - FEMA Status: N/A

Benefits of Culvert

- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 15

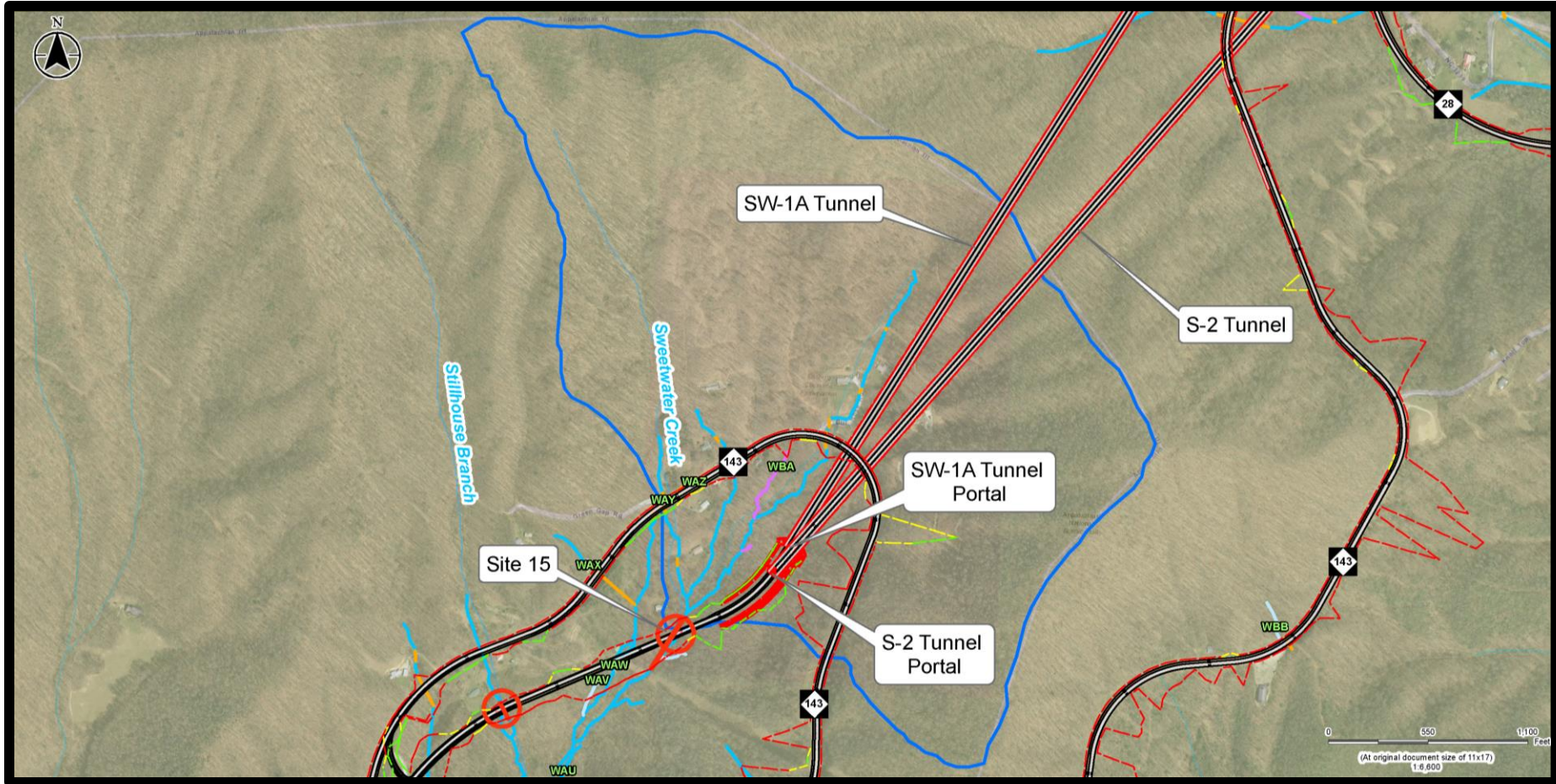
Sweetwater Creek



- Drainage Area: 211 acres
- Existing: None
- Proposed: 1 @ 6'x7' RCBC
 - Length*: 129 ft
- Est. construction cost: \$271,500
- Stream Impacts: 438 ft

Hydraulic Recommendations - *Map ID 15*

Drainage Area to Site 15 at Western Tunnel Portal

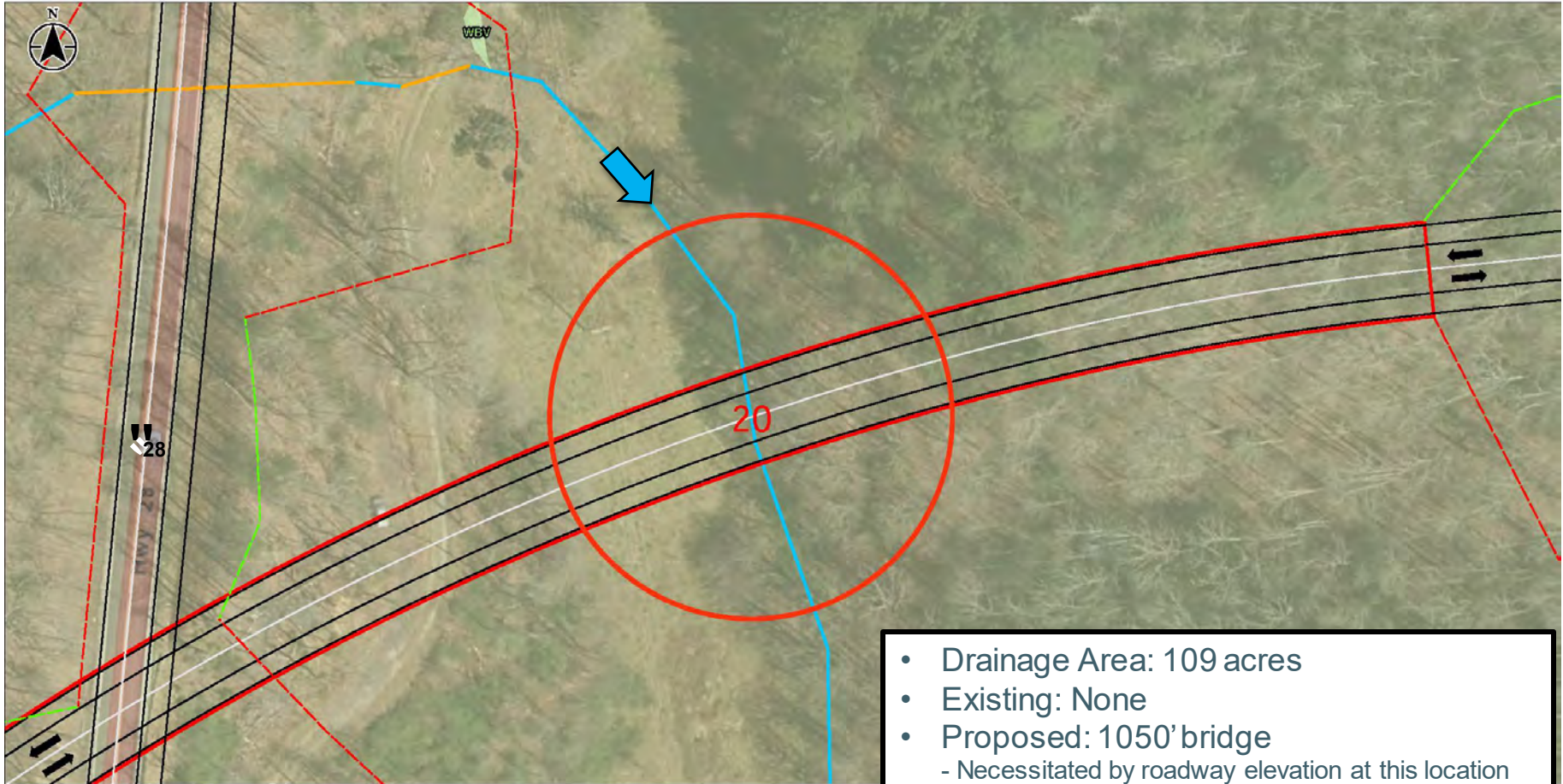


Hydraulic Recommendations - *Map ID 15*

- Alternatives: S-2, SW-1A
 - Major crossing: Sweetwater Creek
 - Drainage Area: 211 acres
 - Existing: None
 - Proposed: 1 @ 6'x7' RCBC
 - Length*: 129 ft
 - Est. construction cost: \$271,500
 - Stream Impacts: 438 ft
 - FEMA Status: N/A
- Benefits of Box Culvert
 - Currently Maintaining Normal Depth of Flow
 - Matches Existing Channel Width
 - Safer for Motorists, especially during the winter months
 - Cost Effective
 - Less Maintenance
 - Greater Lifespan

Hydraulic Recommendations - *Map ID 20*

Carver Branch



- Drainage Area: 109 acres
- Existing: None
- Proposed: 1050' bridge
 - Necessitated by roadway elevation at this location rather than hydraulic design requirements
- Est. construction cost: \$11,353,200
- Stream Impacts: 0 ft

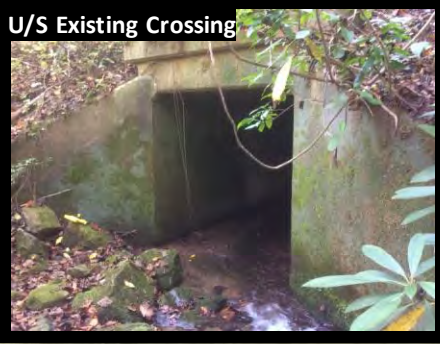
Hydraulic Recommendations - *Map ID 20*

- Alternative: S-2
- Major crossing: Carver Branch
 - Drainage Area: 109 acres
 - Existing: None
 - Proposed: 1050' bridge
 - Necessitated by roadway elevation at this location rather than hydraulic design requirements
 - Est. construction cost: \$11,353,200
 - Stream Impacts: 0 ft
 - FEMA Status: N/A

Hydraulic Recommendations - Map ID 21

Carver Branch

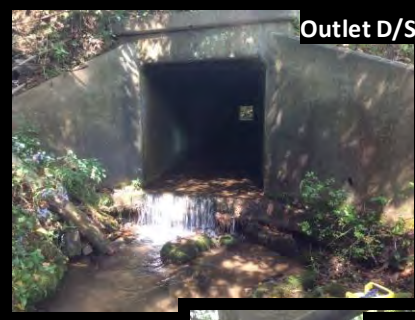
U/S Existing Crossing



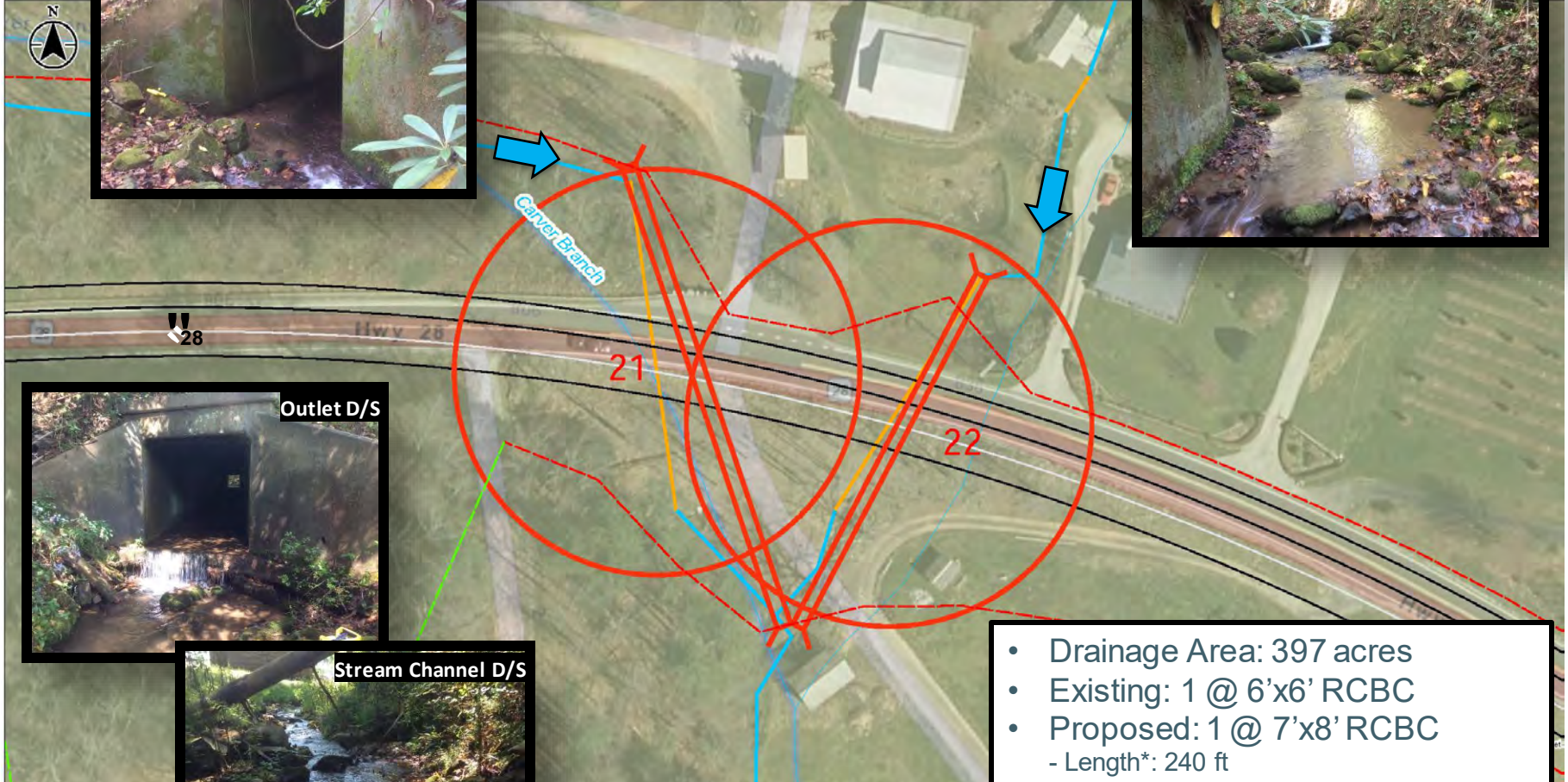
Stream Channel U/S



Outlet D/S



Stream Channel D/S



- Drainage Area: 397 acres
- Existing: 1 @ 6'x6' RCBC
- Proposed: 1 @ 7'x8' RCBC
- Length*: 240 ft
- Est. construction cost: \$1,631,400
- Stream Impacts: 581 ft

Hydraulic Recommendations - *Map ID 21*

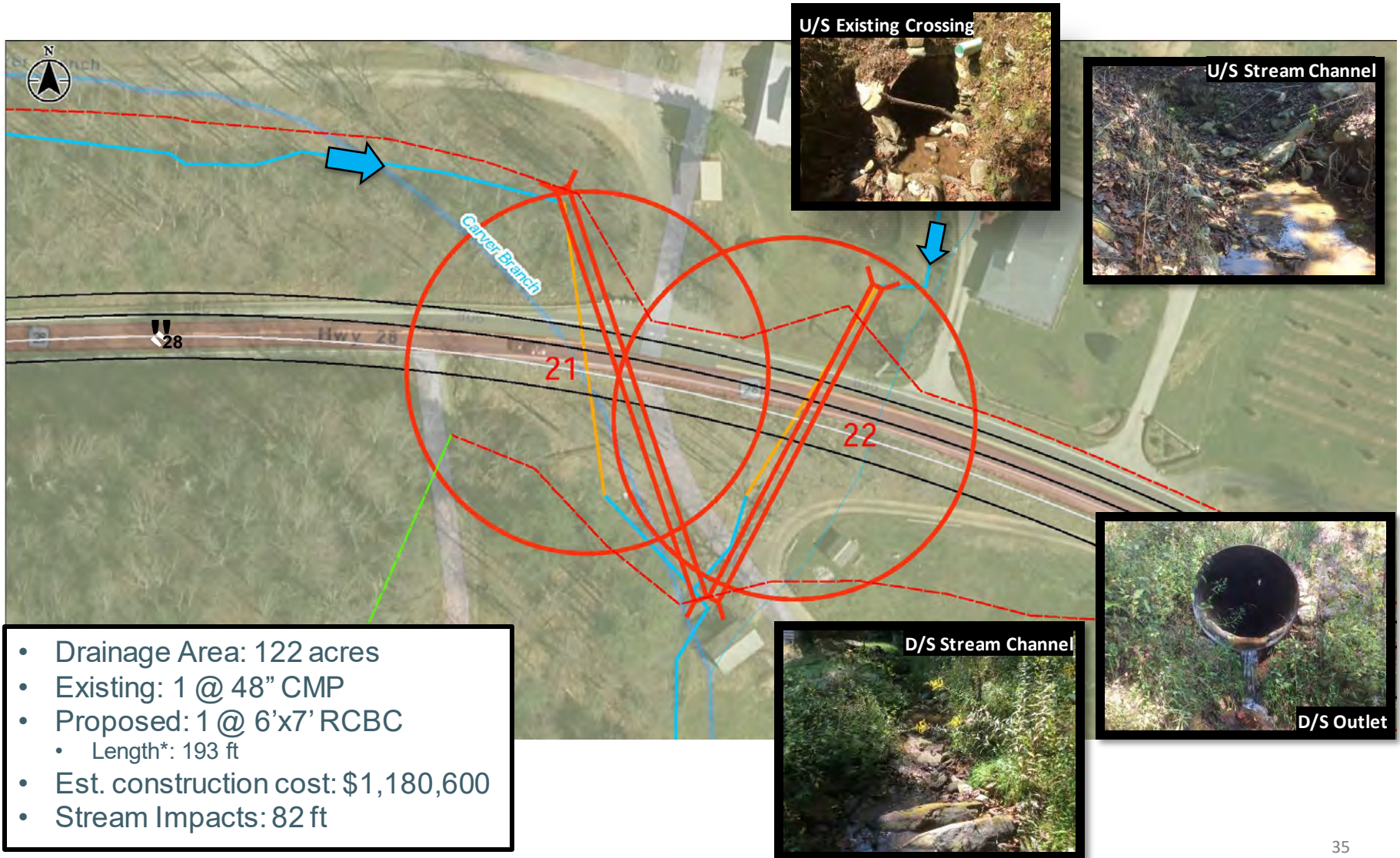
- Alternatives: Improve Existing NC 143/ NC 28, SW-1A
- Major crossing: Carver Branch
 - Drainage Area: 397 acres
 - Existing: 1 @ 6'x6' RCBC
 - Proposed: 1 @ 7'x8' RCBC
 - Length*: 240 ft
 - Est. construction cost: \$1,631,400
 - Stream Impacts: 581 ft
 - FEMA Status: N/A

Benefits of Box Culvert

- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 22

Carver Branch Tributary SBJ



Hydraulic Recommendations - *Map ID 22*

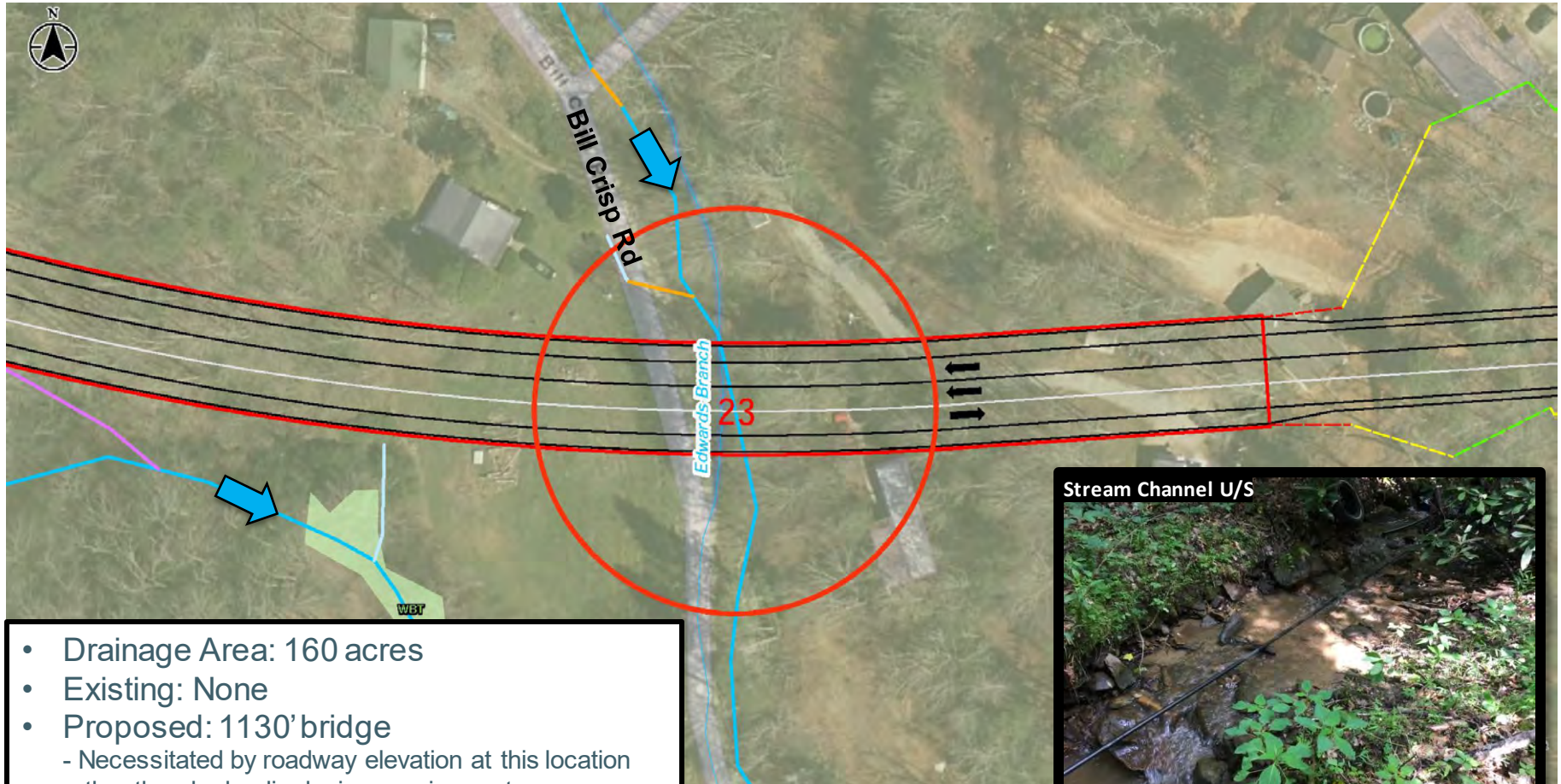
- Alternatives: Improve Existing NC 143/ NC 28, SW-1A
- Major crossing: Carver Branch Tributary SBJ
 - Drainage Area: 122 acres
 - Existing: 1 @ 48" CMP
 - Proposed: 1 @ 6'x7' RCBC
 - Length*: 193 ft
 - Est. construction cost: \$1,180,600
 - Stream Impacts: 82 ft
 - FEMA Status: N/A

Benefits of Box Culvert

- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 23

Edwards Branch



- Drainage Area: 160 acres
- Existing: None
- Proposed: 1130' bridge
 - Necessitated by roadway elevation at this location rather than hydraulic design requirements
- Est. construction cost: \$12,218,200
- Stream Impacts: 0 ft

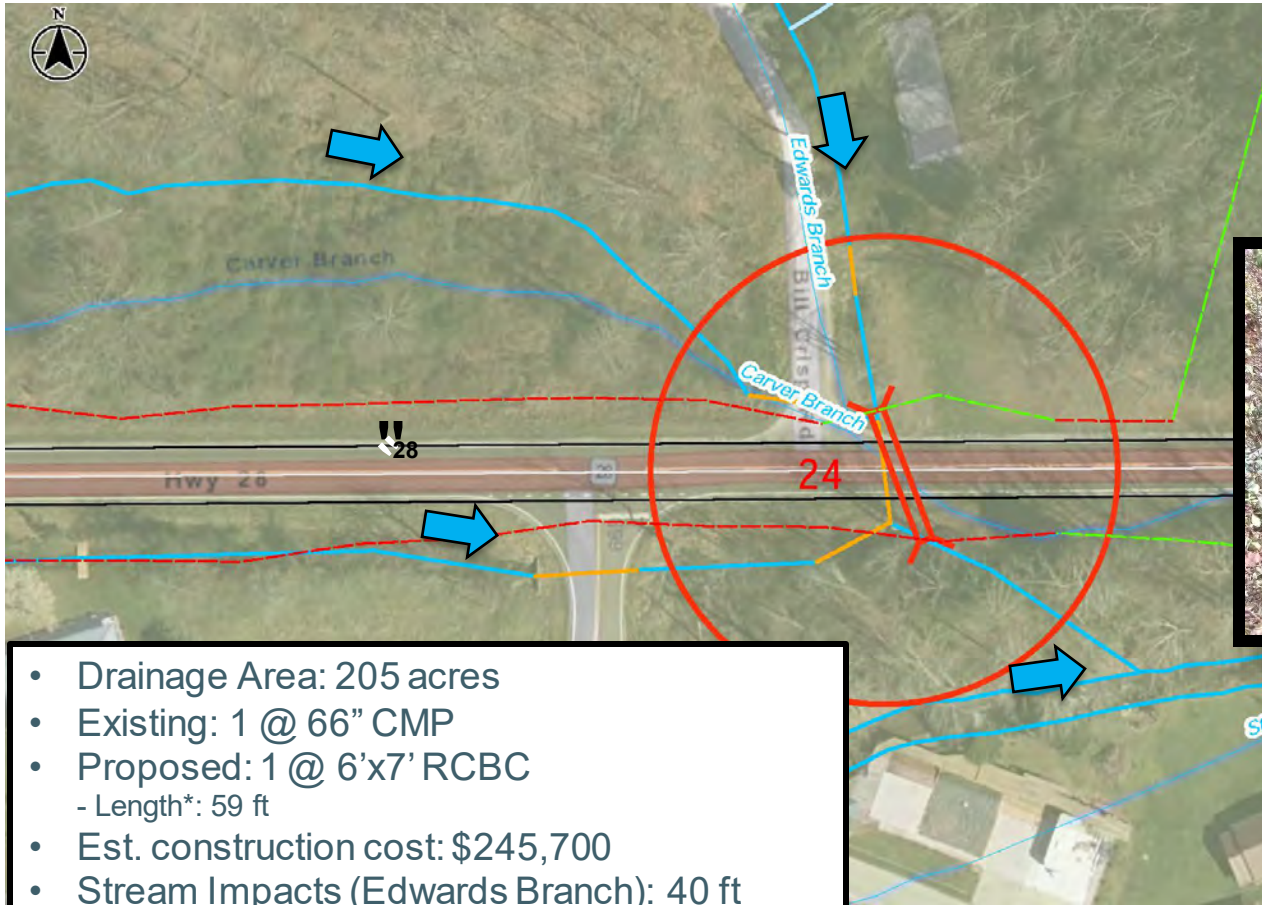


Hydraulic Recommendations - *Map ID 23*

- Alternative: S-2
- Major crossing: Edwards Branch
 - Drainage Area: 160 acres
 - Existing: None
 - Proposed: 1130' bridge
 - Necessitated by roadway elevation at this location rather than hydraulic design requirements
 - Est. construction cost: \$12,218,200
 - Stream Impacts: 0 ft
 - FEMA Status: N/A

Hydraulic Recommendations - Map ID 24

*Edwards Branch
Edwards Branch Tributary
Carver Branch*



- Drainage Area: 205 acres
- Existing: 1 @ 66" CMP
- Proposed: 1 @ 6'x7' RCBC
- Length*: 59 ft
- Est. construction cost: \$245,700
- Stream Impacts (Edwards Branch): 40 ft
- Stream Impacts (Edwards Branch Trib.): 65 ft
- Stream Impacts (Carver Branch): 82 ft

Hydraulic Recommendations - *Map ID 24*

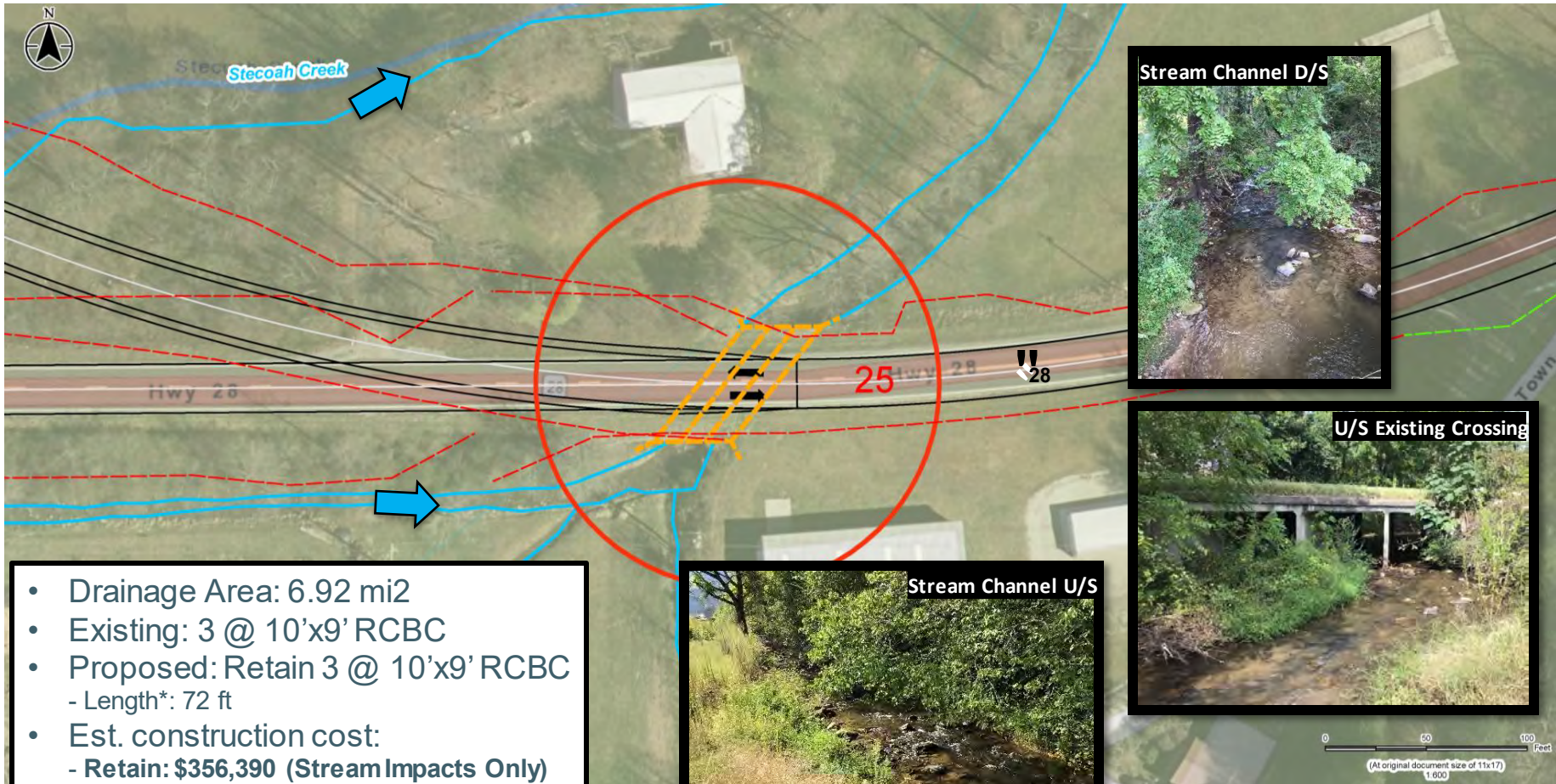
- Alternatives: Improve Existing NC 143/ NC 28, SW-1A
- Major crossing: Edwards Branch / Carver Branch
 - Drainage Area: 205 acres
 - Existing: 1 @ 66" CMP
 - Proposed: 1 @ 6'x7' RCBC
 - Length*: 59 ft
 - Est. construction cost: \$245,700
 - Stream Impacts (Edwards Branch): 40 ft
 - FEMA Status: N/A
 - Stream Impacts (Edwards Branch Trib.): 65 ft
 - FEMA Status: N/A
 - Stream Impacts (Carver Branch): 82 ft
 - FEMA Status: N/A

Benefits of Box Culvert

- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 25

Stecoah Creek



- Drainage Area: 6.92 mi²
- Existing: 3 @ 10'x9' RCBC
- Proposed: Retain 3 @ 10'x9' RCBC
- Length*: 72 ft
- Est. construction cost:
- Retain: \$356,390 (Stream Impacts Only)
- Bridge: \$1,102,643
- Stream Impacts: 124 ft

Hydraulic Recommendations - *Map ID 25*

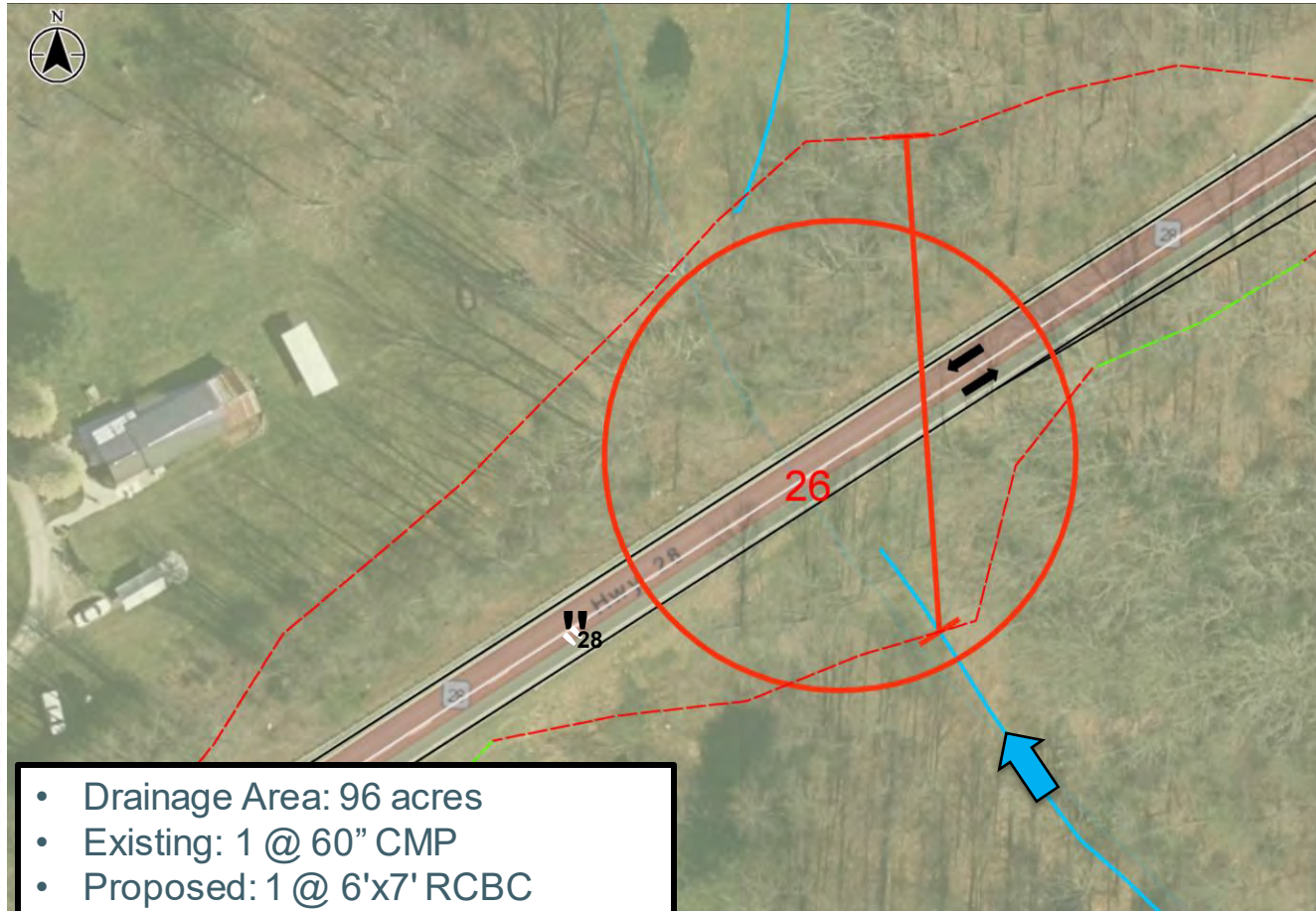
- Alternatives: Improve Existing NC 143/ NC 28, S-2, SW-1A
- Major crossing: Stecoah Creek
 - Drainage Area: 6.92 mi²
 - Existing: 3 @ 10'x9' RCBC
 - Proposed: Retain 3 @ 10'x9' RCBC
 - Length*: 72 ft
 - Est. construction cost:
 - Retain: \$356,390
 - Bridge: \$1,102,643
 - Stream Impacts: 124 ft
 - FEMA Status: Limited Detail Study

Benefits of Box Culvert

- Structurally Sound
- Adequately Sized for Design Storm Frequency
- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations - Map ID 26

Stecoah Creek Tributary SDT



- Drainage Area: 96 acres
- Existing: 1 @ 60" CMP
- Proposed: 1 @ 6'x7' RCBC
 - Length*: 212 ft
- Est. construction cost: \$1,343,300
- Stream Impacts: 148 ft

Hydraulic Recommendations - *Map ID 26*

- Alternatives: Improve Existing NC 143/ NC 28, S-2, SW-1A
- Major crossing: Stecoah Creek Tributary SDT
 - Drainage Area: 96 acres
 - Existing: 1 @ 60" CMP
 - Proposed: 1 @ 6'x7' RCBC
 - Length*: 212 ft
 - Est. construction cost: \$1,343,300
 - Stream Impacts: 148 ft
 - FEMA Status: N/A

Benefits of Culvert

- Currently Maintaining Normal Depth of Flow
- Matches Existing Channel Width
- Safer for Motorists, especially during the winter months
- Cost Effective
- Less Maintenance
- Greater Lifespan

Hydraulic Recommendations – R-1E

MAP ID	STREAM NAME	DRAINAGE AREA (MI ²)	EXISTING STRUCTURE	MIN. RECOMMENDED STRUCTURE	STREAM IMPACTS (ft.) w/ 35' Offset	STREAM CLASS
			Number, Size, Structure Type	Number, Size, Structure Type		
1	Tulula Creek	28.60	Br 20 / 370020, Length = 54.0'	Bridge 620'	0	WS-III; Tr

Hydraulic Recommendations – *Improve Existing NC 143/ NC 28*

MAP ID	STREAM NAME	DRAINAGE AREA (MI ²)	EXISTING STRUCTURE	MIN. RECOMMENDED STRUCTURE	STREAM IMPACTS (ft.) w/ 35' Offset	STREAM CLASS
			Number, Size, Structure Type	Number, Size, Structure Type		
3	Sweetwater Creek	13.70	C-132 / 370132 3@12'x9' RCBC	Retain & Extend 3@12'x9' RCBC	249	WS-III
	Sweetwater Creek Trib. SG	-	-	-	32	WS-III
4	Sweetwater Creek Trib. SI	0.31	1 @ 54" CSP w/ HW	1 @ 6'x7' RCBC	197	WS-III; Tr
5	Slay Bacon Branch	0.56	1 @ 66" CSP w/ HW	1 @ 7'x8' RCBC	96	WS-III
	Sweetwater Creek	-	-	-	260	WS-III
6	Sweetwater Creek	10.70	C-133 / 370133 3@11'x9' RCBC	Retain & Extend 3@11'x9' RCBC	197	WS-III
7	Harwood Branch	0.39	1 @ 54" CSP w/ HW	1 @ 54" RCP; 2 @ 48" RCP	98	WS-III
8	Beech Creek	4.39	3 @ 72" CSP w/ Brick HW & EW	2@10'x8' RCBC	79	WS-III
	Sweetwater Creek	-	-	-	192	WS-III
9	Sweetwater Creek Trib. SAD	0.23	1 @ 48"CSP under NC 143	1 @ 54" RCP; 2 @ 48" RCP	86	WS-III; Tr
	Sweetwater Creek Trib. SEQ	-	-	-	2	WS-III; Tr
	Sweetwater Creek	-	-	-	46	WS-III
	Sweetwater Creek Trib. SAE	-	-	-	113	WS-III; Tr
10	Sweetwater Creek	1.09	1 @ 72" CSP w/ Brick HW & EW	1 @ 8'x9' RCBC	111	WS-III
	Sweetwater Creek Trib.	-	-	-	121	WS-III; Tr
21	Carver Branch	0.62	1 @ 6' x 6' RCBC	1 @ 7' x 8' RCBC	581	C
22	Carver Branch Trib. SBJ	0.19	1 @ 48" CMP	1 @ 6' x 7' RCBC	82	C
24	Edwards Branch	0.32	1 @ 66" CMP	1 @ 6'x7' RCBC	40	C
	Edwards Branch Trib.	-	-	-	65	C
	Carver Branch	-	-	-	794	C
25	Stecoah Creek	6.92	C-3 / 370003 3@10'x9' RCBC	Retain 3 @ 10'x9' RCBC	124	C; Tr
	Stecoah Creek Trib.	-	-	-	208	C; Tr
	Stecoah Creek Trib.	-	-	-	7	C; Tr
26	Stecoah Creek Trib. SDT	0.15	1 @ 60" CMP	1 @ 6'x7' RCBC	148	C; Tr

Hydraulic Recommendations – S-2

MAP ID	STREAM NAME	DRAINAGE AREA (MI ²)	EXISTING STRUCTURE	MIN. RECOMMENDED STRUCTURE	STREAM IMPACTS (ft.) w/ 35' Offset	STREAM CLASS
			Number, Size, Structure Type	Number, Size, Structure Type		
3	Sweetwater Creek	13.70	C-132 / 370132 3@12'x9' RCBC	Retain & Extend 3@12'x9' RCBC	249	WS-III
	Sweetwater Creek Trib. SG	-	-	-	32	WS-III
4	Sweetwater Creek Trib. SI	0.31	1 @ 54" CSP w/ HW	1 @ 6'x7' RCBC	197	WS-III; Tr
5	Slay Bacon Branch	0.56	1 @ 66" CSP w/ HW	1 @ 7'x8' RCBC	96	WS-III
	Sweetwater Creek	-	-	-	260	WS-III
6	Sweetwater Creek	10.70	C-133 / 370133 3@11'x9' RCBC	Retain & Extend 3@11'x9' RCBC	197	WS-III
7	Harwood Branch	0.39	1 @ 54" CSP w/ HW	1 @ 54" RCP; 2 @ 48" RCP	98	WS-III
8	Beech Creek	4.39	3 @ 72" CSP w/ Brick HW & EW	2@10'x8' RCBC	79	WS-III
	Sweetwater Creek	-	-	-	192	WS-III
9	Sweetwater Creek Trib. SAD	0.23	1 @ 48"CSP under NC 143	1 @ 54" RCP; 2 @ 48" RCP	86	WS-III; Tr
	Sweetwater Creek Trib. SEQ	-	-	-	2	WS-III; Tr
	Sweetwater Creek	-	-	-	46	WS-III
	Sweetwater Creek Trib. SAE	-	-	-	113	WS-III; Tr
10	Sweetwater Creek	1.09	1 @ 72" CSP w/ Brick HW & EW	1 @ 8X9' RCBC	111	WS-III
	Sweetwater Creek Trib.	-	-	-	121	WS-III; Tr
14	Stillhouse Branch	0.15	1 @ 36" CSP	1 @ 6'X7' RCBC	272	WS-III; Tr
15	Sweetwater Creek	0.33	-	1 @ 6'X7' RCBC	438	WS-III
	Sweetwater Creek Trib.	-	-	-	15	WS-III; Tr
	Sweetwater Creek Trib.	-	-	-	166	WS-III; Tr
20	Carver Branch	0.17	-	1 @ 72" / 1050' of proposed bridge	0	C
23	Edwards Branch	0.25	-	1 @ 84" / 1130' of proposed bridge	0	C
	Edwards Branch Trib.	-	-	-	0	C
25	Stecoah Creek	6.92	C-3 / 370003 3@10'x9' RCBC	Retain 3 @ 10'X9' RCBC	124	C; Tr
	Stecoah Creek Trib.	-	-	-	208	C; Tr
	Stecoah Creek Trib.	-	-	-	7	C; Tr
26	Stecoah Creek Trib. SDT	0.15	1 @ 60" CMP	1 @ 6'x7' RCBC	148	C; Tr

Hydraulic Recommendations – SW-1A

MAP ID	STREAM NAME	DRAINAGE AREA (Mi ²)	EXISTING STRUCTURE	MIN. RECOMMENDED STRUCTURE	STREAM IMPACTS (ft.) w/ 35' Offset	STREAM CLASS
			Number, Size, Structure Type	Number, Size, Structure Type		
3	Sweetwater Creek	13.70	C-132 / 370132 3@12'x9' RCBC	Retain & Extend 3@12'x9' RCBC	249	WS-III
	Sweetwater Creek Trib. SG	-	-	-	32	WS-III
4	Sweetwater Creek Trib. SI	0.31	1 @ 54" CSP w/ HW	1 @ 6'x7' RCBC	197	WS-III; Tr
5	Slay Bacon Branch	0.56	1 @ 66" CSP w/ HW	1 @ 7'x8' RCBC	96	WS-III
	Sweetwater Creek	-	-	-	260	WS-III
6	Sweetwater Creek	10.70	C-133 / 370133 3@11'x9' RCBC	Retain & Extend 3@11'x9' RCBC	197	WS-III
7	Harwood Branch	0.39	1 @ 54" CSP w/ HW	1 @ 54" RCP; 2 @ 48" RCP	98	WS-III
8	Beech Creek	4.39	3 @ 72" CSP w/ Brick HW & EW	2@10'x8' RCBC	79	WS-III
	Sweetwater Creek	-	-	-	192	WS-III
9	Sweetwater Creek Trib. SAD	0.23	1 @ 48"CSP under NC 143	1 @ 54" RCP; 2 @ 48" RCP	86	WS-III; Tr
	Sweetwater Creek Trib. SEQ	-	-	-	2	WS-III; Tr
	Sweetwater Creek	-	-	-	46	WS-III
	Sweetwater Creek Trib. SAE	-	-	-	113	WS-III; Tr
10	Sweetwater Creek	1.09	1 @ 72" CSP w/ Brick HW & EW	1 @ 8X9' RCBC	111	WS-III
	Sweetwater Creek Trib.	-	-	-	121	WS-III; Tr
14	Stillhouse Branch	0.15	1 @ 36" CSP	1 @ 6'X7' RCBC	272	WS-III; Tr
15	Sweetwater Creek	0.33	-	1 @ 6'X7' RCBC	438	WS-III
	Sweetwater Creek Trib.	-	-	-	15	WS-III; Tr
	Sweetwater Creek Trib.	-	-	-	166	WS-III; Tr
21	Carver Branch	0.62	1 @ 6' x 6' RCBC	1 @ 7' x 8' RCBC	581	C
22	Carver Branch Trib. SBJ	0.19	1 @ 48" CMP	1 @ 6' x 7' RCBC	82	C
24	Edwards Branch	0.32	1 @ 66" CMP	1 @ 6'x7' RCBC	40	C
	Edwards Branch Trib.	-	-	-	65	C
	Carver Branch	-	-	-	794	C
25	Stecoah Creek	6.92	C-3 / 370003 3@10'x9' RCBC	Retain 3 @ 10'X9' RCBC	124	C; Tr
	Stecoah Creek Trib.	-	-	-	208	C; Tr
	Stecoah Creek Trib.	-	-	-	7	C; Tr
26	Stecoah Creek Trib. SDT	0.15	1 @ 60" CMP	1 @ 6'x7' RCBC	148	C; Tr

Concurrence Point 2A

NEPA/404 MERGER TEAM MEETING AGREEMENT

Concurrence Point No. 2A: Alignment Review and Bridging Decisions

PROJECT NO./FA NO./STIP NO./ NAME/DESCRIPTION:

WBS Element: 32572.1.FS10

FA No. APD-0074(178)

STIP Project Number: A-0009C

STIP Description: Corridor K Improvements along US 129, NC 143, and NC 28 from Robbinsville to Stecoah

The Project Team concurred on this date of November 20, 2019, and reached concurrence on bridging decisions for the proposed improvements as shown in the attached table.

USACE	_____	_____	NCDWR	_____	_____
	Crystal Amschler	Date		Amy Chapman	Date
USFWS	_____	_____	NCWRC	_____	_____
	Claire Ellwanger	Date		Marla Chambers	Date
USFS	_____	_____	SHPO	_____	_____
	Amy Mathis	Date		Renee Gledhill-Earley	Date
RPO	_____	_____	USEPA	_____	_____
	Rose Bauguess	Date		Amanetta Somerville	Date
FHWA	_____	_____	NCDOT	_____	_____
	Aaron Williams	Date		Wanda Austin	Date