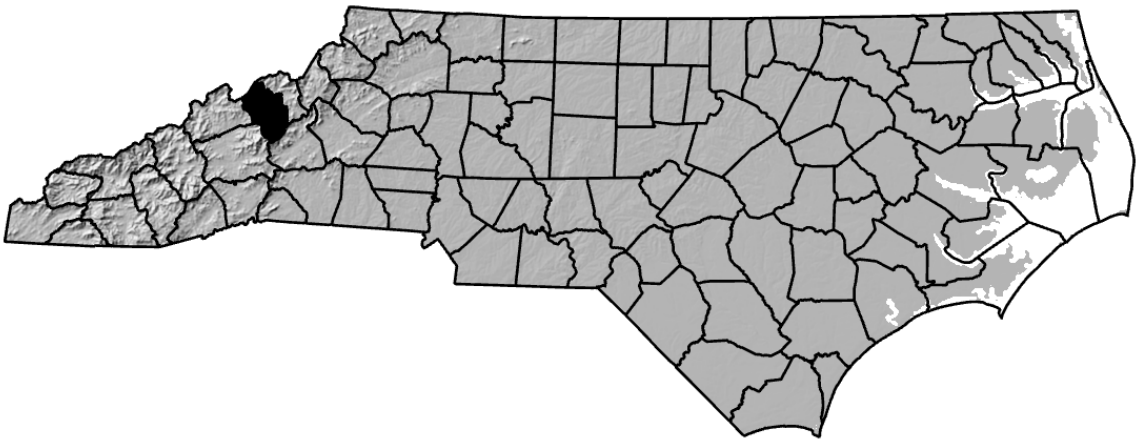
# ANNUAL REPORT FOR 2023



**Long Branch Site #8 Mitigation Site**
**ONE ID #: 100-015**
**Yancey County**
**TIP No. R-2519B**
**COE Action ID: SAW-2004-9987181 / 2004-30631**
**NCDWR Project #: 2013-0743v.2**

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North Carolina Department of Transportation
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## SUMMARY

The following report summarizes the stream monitoring activities that have occurred during the Year 2023 at the Long Branch Site #8 Mitigation Site in Yancey County. The North Carolina Department of Transportation (NCDOT) completed the streambank reforestation in March 2020. This report provides the monitoring results for the fourth formal year of monitoring (Year 2023). The Year 2023 monitoring period was the fourth of five scheduled years of monitoring on the Long Branch Site #8 Mitigation Site (See Success Criteria Section 2.1).

Based on the overall conclusions of monitoring at the Long Branch Site #8, it has met the required monitoring protocols for the fourth formal year of monitoring on the stream. The channel throughout the stream site is stable at this time. The 2023 vegetation monitoring of the site revealed an average tree density within the buffer of 655 trees per acre based on the vegetation plot and visually the streambank vegetation was surviving throughout the site. This average is above the minimum success criteria of 290 trees per acre within the buffer for Year 4. The upper reach – north side of the stream buffer (approx. 0.25 acres) was sprayed for lespedeza in September 2022 and replanted in March 2023.

NCDOT will continue stream and vegetation monitoring at the Long Branch Site #8 Mitigation Site in 2024.

# 1.0 INTRODUCTION

## 1.1 Project Description

The following report summarizes the stream monitoring activities that have occurred during the Year 2023 at the Long Branch Site #8 Mitigation Site. Site #8 is located on US 19 at the intersection with Newdale Church Rd. (SR 1423) and Sycamore Circle (SR 1185) in Yancey County from Sta. 152+50 to 155+00 -L- Rt. and 155+98 to 157+80 -L- Lt. (Figure 1). The Long Branch Site #8 was constructed to provide mitigation for stream impacts associated with Transportation Improvement Program (TIP) number R-2519B in Yancey and Mitchell Counties.

The mitigation site provided approximately 449 linear feet of stream relocation. Streambank reforestation was completed in March 2020 by NCDOT. Construction at the Long Branch Site #8 Mitigation Site involved relocating 449 feet of Long Branch due to road widening and associated fill slopes. A new floodplain and channel were excavated, and several cross vanes were installed. The riparian buffer zone was also planted which consisted of 35 feet of buffer along the upstream section and 20 feet of buffer along the downstream section. An existing utility easement reduced the buffer to between 0 to 10 feet on the left-hand side for 130 feet downstream of the culvert under US 19.

## 1.2 Purpose

In order for a mitigation site to be considered successful, the site must meet the success criteria. This report details the monitoring in 2023 at the Long Branch Site #8 Mitigation Site. Hydrologic monitoring was not required for this site.

## 1.3 Project History

| | |
|---|---|
| March 2020 | Streambank Reforestation Completed |
| September 2020 | Stream Channel and Vegetation Monitoring (Year 1) |
| February 2021 | Supplemental Buffer Planting Completed |
| July 2021 | Stream Channel and Vegetation Monitoring (Year 2) |
| August 2021 | Herbicide Application on Invasive Species |
| August 2022 | Stream Channel and Vegetation Monitoring (Year 3) |
| September 2022 | Herbicide Application on Invasive Species |
| March 2023 | Replanted Upper Reach – North Buffer |
| July 2023 | Stream Channel and Vegetation Monitoring (Year 4) |

## 1.4 Debit Ledger

The entire Long Branch Site #8 stream mitigation site was used for the R-2519B project to compensate for unavoidable stream impacts.

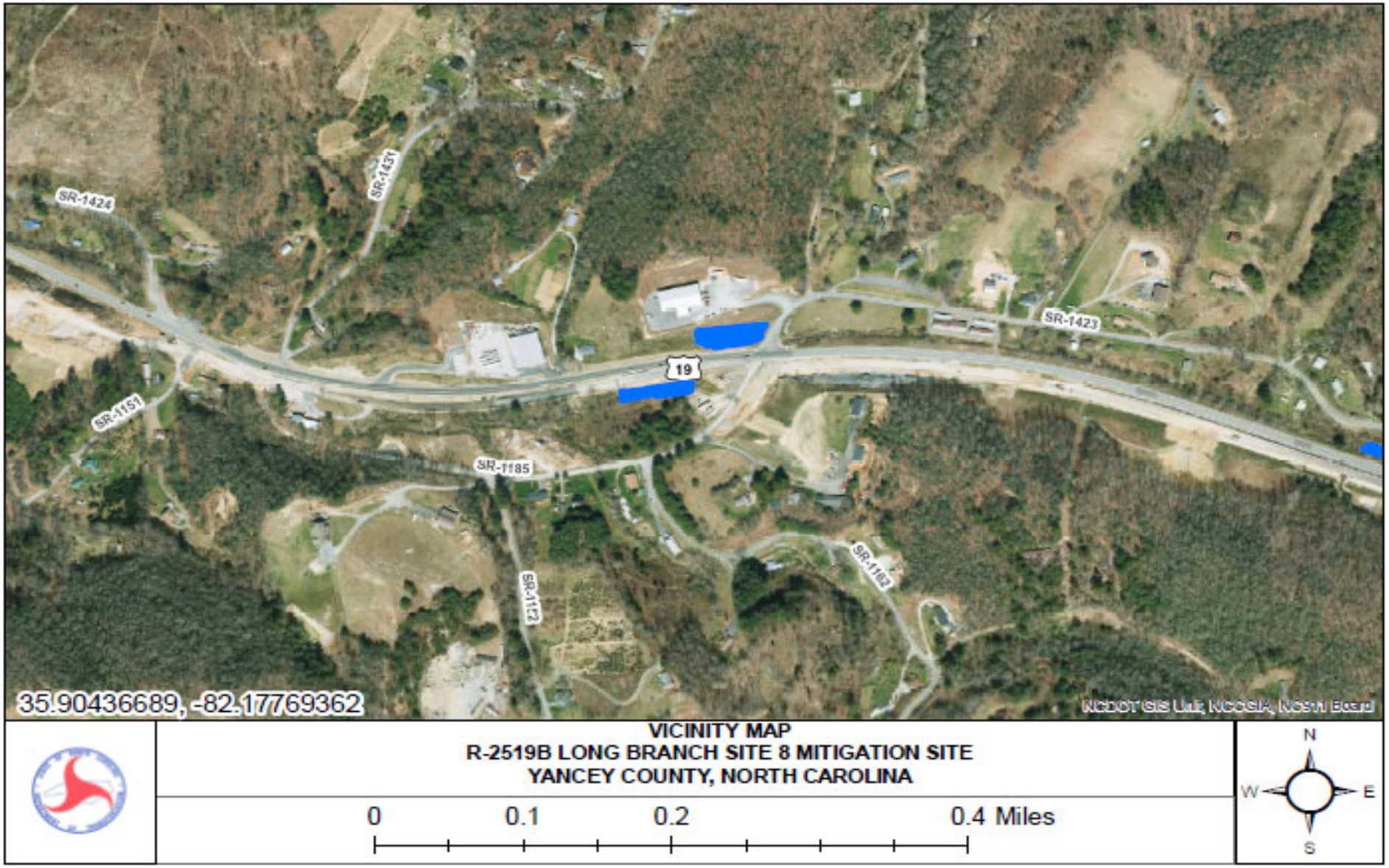


**Figure 1. Vicinity Map**

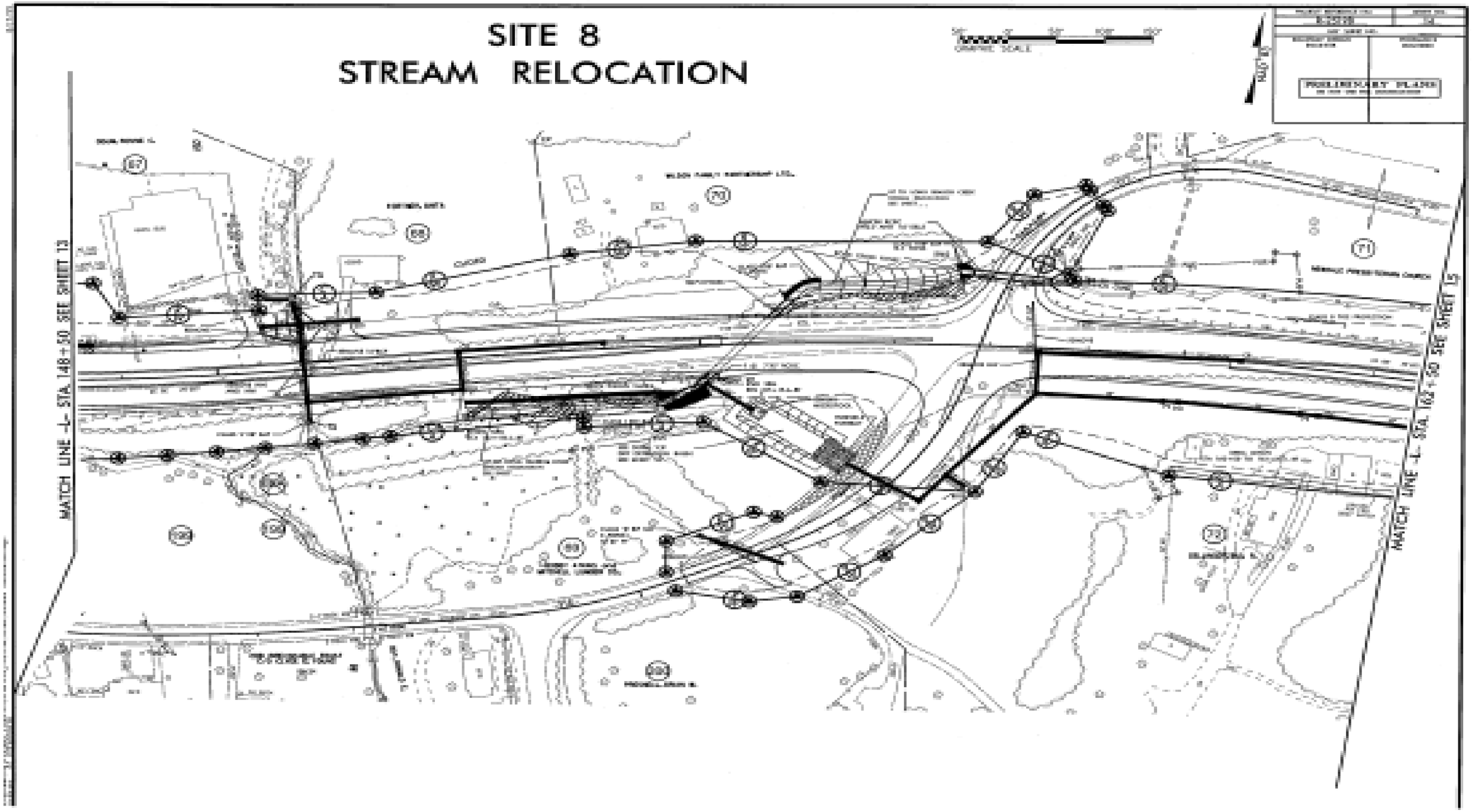


**Figure 2. Site #8 Permit Drawing**

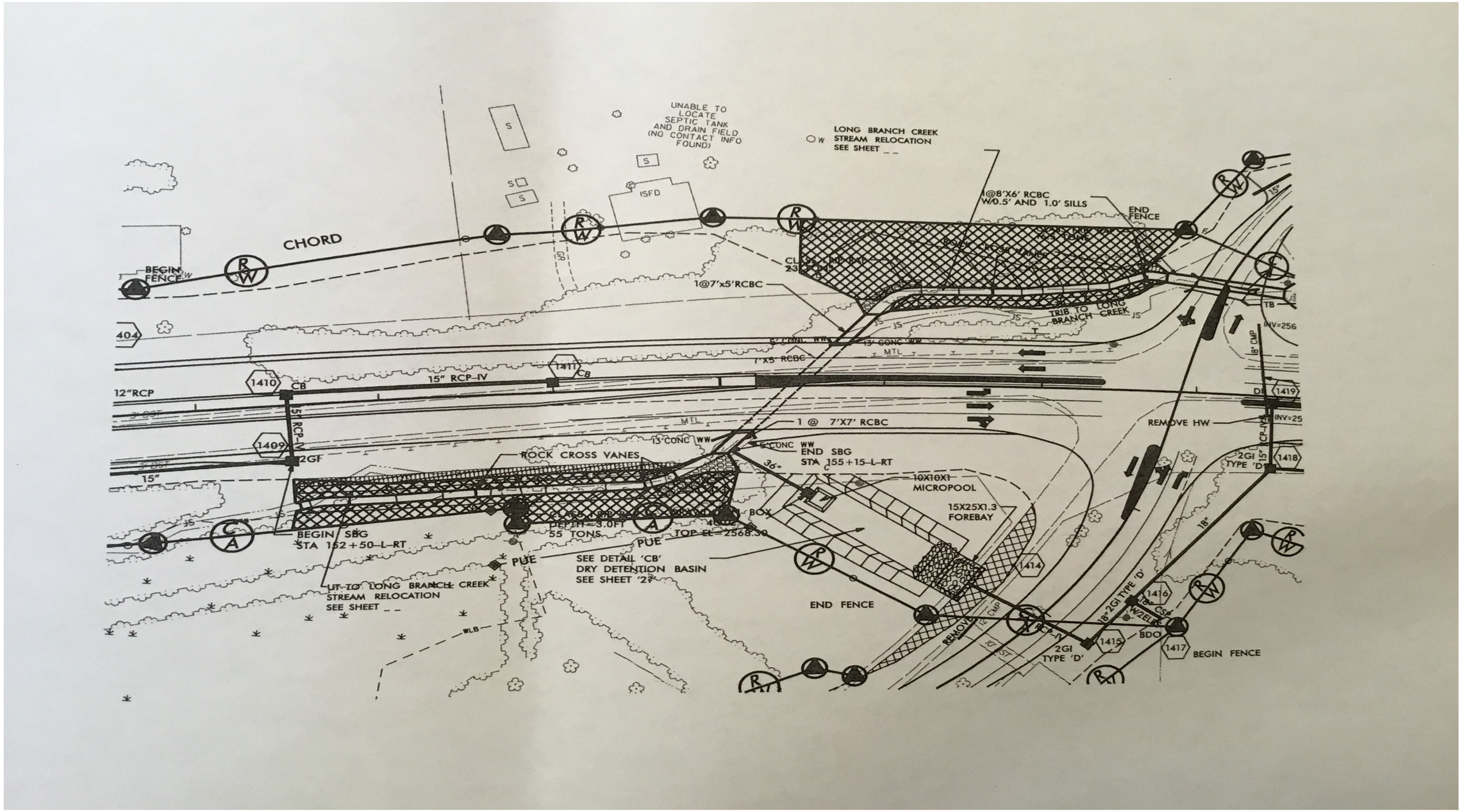


**Figure 3. Site #8 Reforestation Plan**

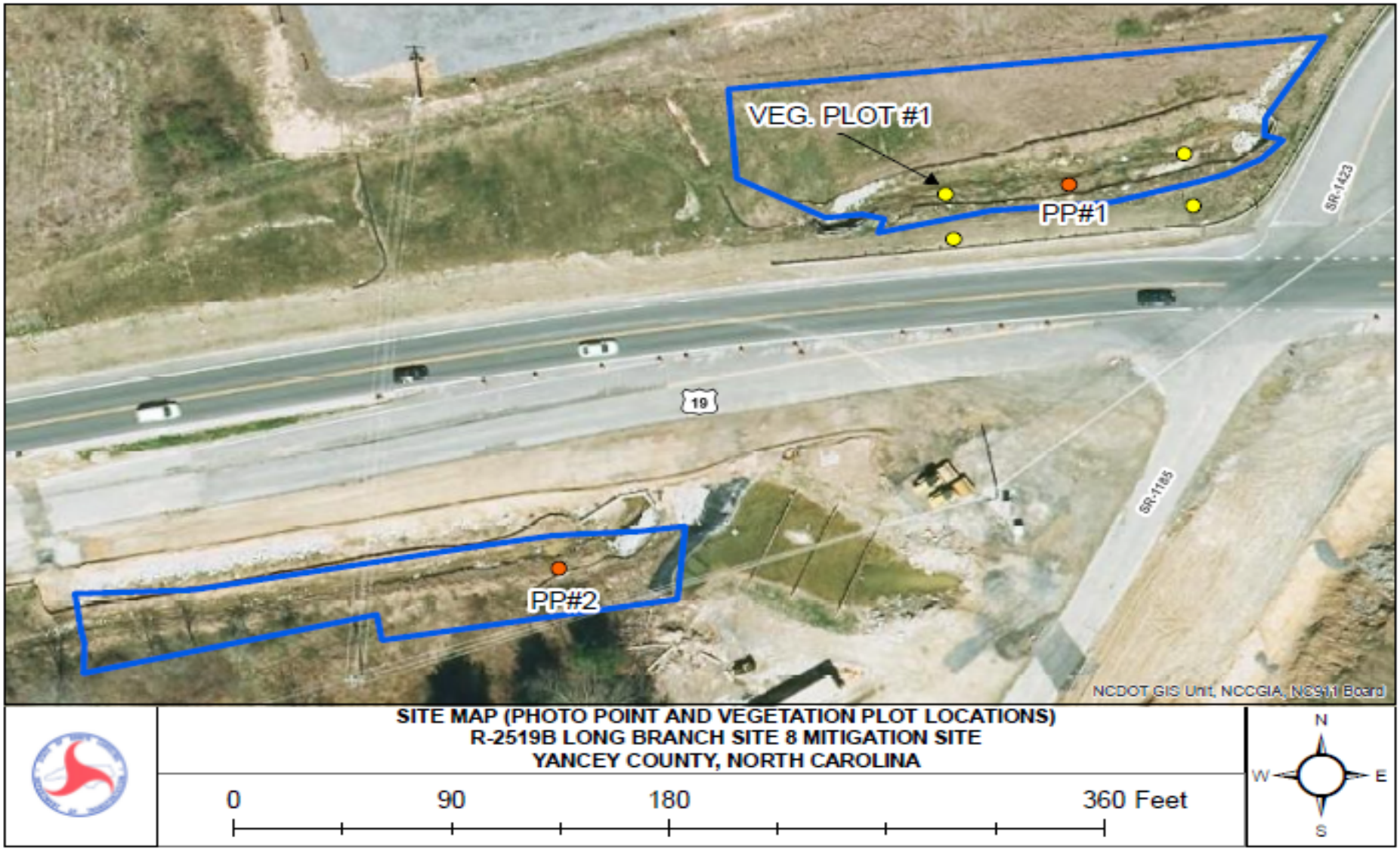


**Figure 4. Site 8 Map**

# 2.0 STREAM ASSESSMENT

## 2.1 Success Criteria

Based on email correspondence with the Regulatory Agencies it was agreed to maintain consistency and follow the mitigation plan language as it relates to vegetation monitoring.

**Mitigation Plan**

**Performance Standards**
Performance standards are based on the April 2003 Stream Mitigation Guidelines. Success for vegetation monitoring within the riparian buffer areas will be based on the survival of at least 260 stems of five-year-old trees at year five. Assessment of channel stability will be based on the survival of riparian vegetation and lack of significant bank erosion, channel widening or down-cutting.

**Monitoring Requirements**
Each site will be monitored for five years with no less than two bankfull events, which must occur in separate monitoring years and be documented. If less than two bankfull events occur during the first five years, monitoring will continue until the second bankfull event is documented. The following components of Level 1 monitoring will be performed annually for the monitoring period: reference photos, plant survival monitoring (identification of specific problem areas and remedial action), and visual inspection of channel stability. Vegetation stem counts will be conducted on Sites 8, 21, and 30 only. Physical measurements of channel stability/morphology will only be performed on Site 30. An as-built will be submitted for each site and will include stream channel profile and cross-section surveys which will provide a baseline for comparison if it is determined at any time during the monitoring period that a problem has occurred. Annual monitoring reports will be made available on the NCDOT website.

**NCDWR Condition #1**
The permittee shall visually monitor the vegetative plantings to assess and ensure complete stabilization of the mitigation stream segments. Riparian area success shall be determined by conducting stem counts to ensure a tree survival rate of 320 stems/acre. The monitoring shall be conducted annually for a minimum of 3 years after final planting. Photo documentation shall be utilized to document the success of the riparian vegetation and submitted to NCDWR in a final report within sixty days after completing monitoring. After 3 years the NCDOT shall contact NCDWR to schedule a site visit to “close out” the mitigation site.

## 2.2 Stream Description

### *2.2.1 Post-Construction Conditions*

The relocation of the Long Branch Site #8 Mitigation Site involved relocating 449 feet of Long Branch due to road widening and associated fill slopes. A new floodplain and channel were excavated, and several cross vanes were installed. The riparian buffer zone was also planted which consisted of 35 feet of buffer along the upstream section and 20 feet of buffer along the downstream section. An existing utility easement will reduce the buffer to between 0 to 10 feet on the left-hand side for 130 feet downstream of the culvert under US 19.

### *2.2.2 Monitoring Conditions*

The objective of the Long Branch Site #8 stream relocation was to restore a stream as identified in Rosgen's Applied River Morphology. A visual stream assessment will be conducted annually each year of the monitoring period.

## 2.3 Results of the Stream Assessment

### *2.3.1 Site Data*

The visual assessment of the stream noted that the channel appears stable with little or no active bank erosion. All in-stream structures noted are functioning properly at this time. NCDOT will continue to monitor the channel stability at Site #8 in 2024.

# 3.0 VEGETATION: LONG BRANCH SITE #8

## 3.1 Description of Species

The following tree species were planted on the streambank:

*Salix nigra,* Black Willow

*Cornus amomum,* Silky Dogwood

The following tree species were planted in the buffer area:

*Liriodendron tulipifera,* Yellow Poplar

*Platanus occidentalis*, Sycamore

*Fraxinus pennsylvanica,* Green Ash

*Quercus alba*, White Oak

*Quercus rubra*, Northern Red Oak

*Betula nigra*, River Birch

*Quercus phellos*, Willow Oak

## 3.2 Results of Vegetation Monitoring

**Streambank & Buffer Vegetation:**

| Plot # | Yellow Poplar | Sycamore | Green Ash | White Oak | Northern Red Oak | River Birch | Willow Oak | Total (Year 4) | Total (at planting) | Density (Trees/Acre |
|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 1 | 1 | 3 | 8 | 8 | 3 | 2 | 26 | 27 | 655 |
| **Year 4 Average Density** | | | | | | | | | | **655** |
| Year 3 Average Density | | | | | | | | | | 680 |
| Year 2 Average Density | | | | | | | | | | 680 |
| Year 1 Average Density | | | | | | | | | | No Stem Count |

**Site Notes:** The visual assessment of the streambank vegetation noted that the live stakes were surviving along the streambank. Tag alder and elderberry were noted within the site. Multiflora rose was also noted within the site. The upper reach - north side of the stream (approx. 0.25 acre) was replanted in March 2023. Recently planted seedlings within this area were noted surviving.

### 3.3 Conclusions

There was 1 vegetation monitoring plot established throughout the buffer area. The 2023 vegetation monitoring of the site revealed an average tree density of 655 trees per acre. This average is above the minimum success criteria of 290 trees per acre for Year 4. Invasive species are planned to be sprayed in 2024.

## 4.0 OVERALL CONCLUSIONS/RECOMMENDATIONS

The Long Branch Site #8 Mitigation Site has met the required monitoring protocols for the fourth formal year of monitoring. The channel throughout the stream site is stable at this time. The 2023 vegetation monitoring of the site revealed an average tree density within the buffer of 655 trees per acre and visually the streambank vegetation was surviving throughout the site. This average is well above the minimum success criteria of 290 trees per acre within the buffer for Year 4.

NCDOT proposes to continue stream and vegetation monitoring at the Long Branch Site #8 Mitigation Site in 2024.

## 5.0 REFERENCES

Mitigation Plan, US 19E Widening, Yancey and Mitchell Counties, North Carolina TIP Number R-2519B, WBS No. 35609.1.1, May 6, 2013 (Revised November 4, 2013)

Department of the Army Permit, Permittee: North Carolina Department of Transportation, Permit No. 2004-9987181 / 2004-30631, TIP No. R-2519B, Issuing Office: CESAW-RG-A

North Carolina Department of Environment and Natural Resources, Division of Water Resources, December 2, 2013, Proposed improvements to US 19E from SR 1186 in Yancey County to multilane section west of Spruce Pine in Mitchell County, State Project No. 6.909001T, WBS Element No. 35609.1.1, TIP R-2519B, NCDWR Project No. 2013-0743v.2

Rosgen, D.L, 1996. Applied River Morphology. Wildland Hydrology, Pagosa Springs, Colorado.

US Army Corps of Engineers (USACE), 2003. Stream Mitigation Guidelines. Prepared with cooperation from the US Environmental Protection Agency, NC Wildlife Resources Commission, and the NC Division of Water Resources.

# APPENDIX A

# SITE PHOTOGRAPHS

# Long Branch Site #8

Photo Point #1 (Upstream)

Photo Point #1 (Downstream)

Photo Point #2 (Upstream)

Photo Point #2 (Downstream)

Vegetation Plot #1

July 2023