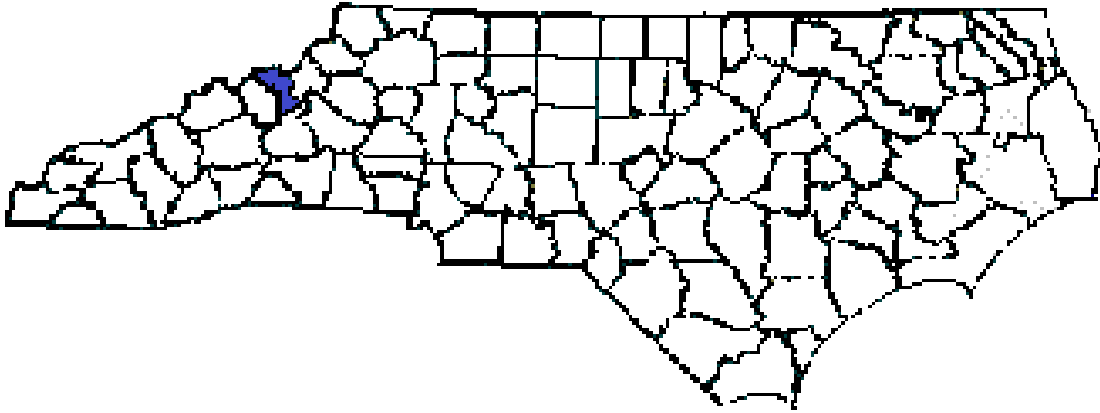


ANNUAL REPORT FOR 2021



UT to Brushy Creek Site #35 Mitigation Site

ONE ID #: 061-006

Mitchell County

TIP No. R-2519B

COE Action ID: SAW-2004-9987181 / 2004-30631

NCDWR Project #: 2013-0743v.2



Prepared By:
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TABLE OF CONTENTS

SUMMARY	1
1.0 INTRODUCTION:.....	2
.1 Project Description	2
.2 Purpose	2
.3 Project History	2
.4 Debit Ledger.....	2
2.0 STREAM ASSESSMENT:	7
.1 Success Criteria	7
.2 Stream Description	8
.2.1 Post Construction Conditions.....	8
.2.2 Monitoring Conditions	8
.3 Results of Stream Monitoring	8
.3.1 Site Data	8
3.0 VEGETATION	9
.1 Description of Species.....	9
.2 Results of Vegetation Monitoring.....	9
.3 Conclusions	9
4.0 OVERALL CONCLUSIONS/RECOMMENDATIONS	9
5.0 REFERENCES:	10

FIGURES

Figure 1 – Site #35 Vicinity Map	3
Figure 2 – Site #35 Permit Drawing	4
Figure 3 – Site #35 Reforestation Plan	5
Figure 4 – Site #35 Map	6

APPENDICES

Appendix A – Site Photographs

SUMMARY

The following report summarizes the stream monitoring activities that have occurred during the Year 2021 at the UT to Brushy Creek Site #35 Mitigation Site in Mitchell County. This report provides the monitoring results for the second formal year of monitoring (Year 2021). The Year 2021 monitoring period was the second of five scheduled years of monitoring on the UT to Brushy Creek Site #35 Mitigation Site (See Success Criteria Section 2.1).

Based on the overall conclusions of monitoring at the UT to Brushy Creek Site #35, it has not met the required monitoring protocols for the second formal year of monitoring on the stream. The site is inundated with kudzu both within NCDOT's right-of-way and outside of NCDOT's right-of-way.

NCDOT proposes to abandon this site due to the kudzu infestation. NCDOT plans to do a permit modification for the UT to Brushy Creek Site #35 Mitigation Site at the end of the five-year monitoring period.

1.0 INTRODUCTION

1.1 Project Description

The following report summarizes the stream monitoring activities that have occurred during the Year 2021 at the UT to Brushy Creek Site #35 Mitigation Site. Site #35 is located on US 19 across from Ned Hughes Road (SR 1155) in Mitchell County at Sta. 358+50 -L- Lt. (Figure 1). The UT to Brushy Creek Site #35 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 46 linear feet of stream restoration. Streambank reforestation was completed in March 2020 by NCDOT. The restoration of the UT to Brushy Creek Site #35 Mitigation Site included relocating 46 feet of UT to Brushy Creek due to road widening and to establish a better alignment with the installation of a 30-inch welded steel pipe on the inlet side of the channel. The riparian buffer will be planted along both sides of the stream relocation.

1.2 Purpose

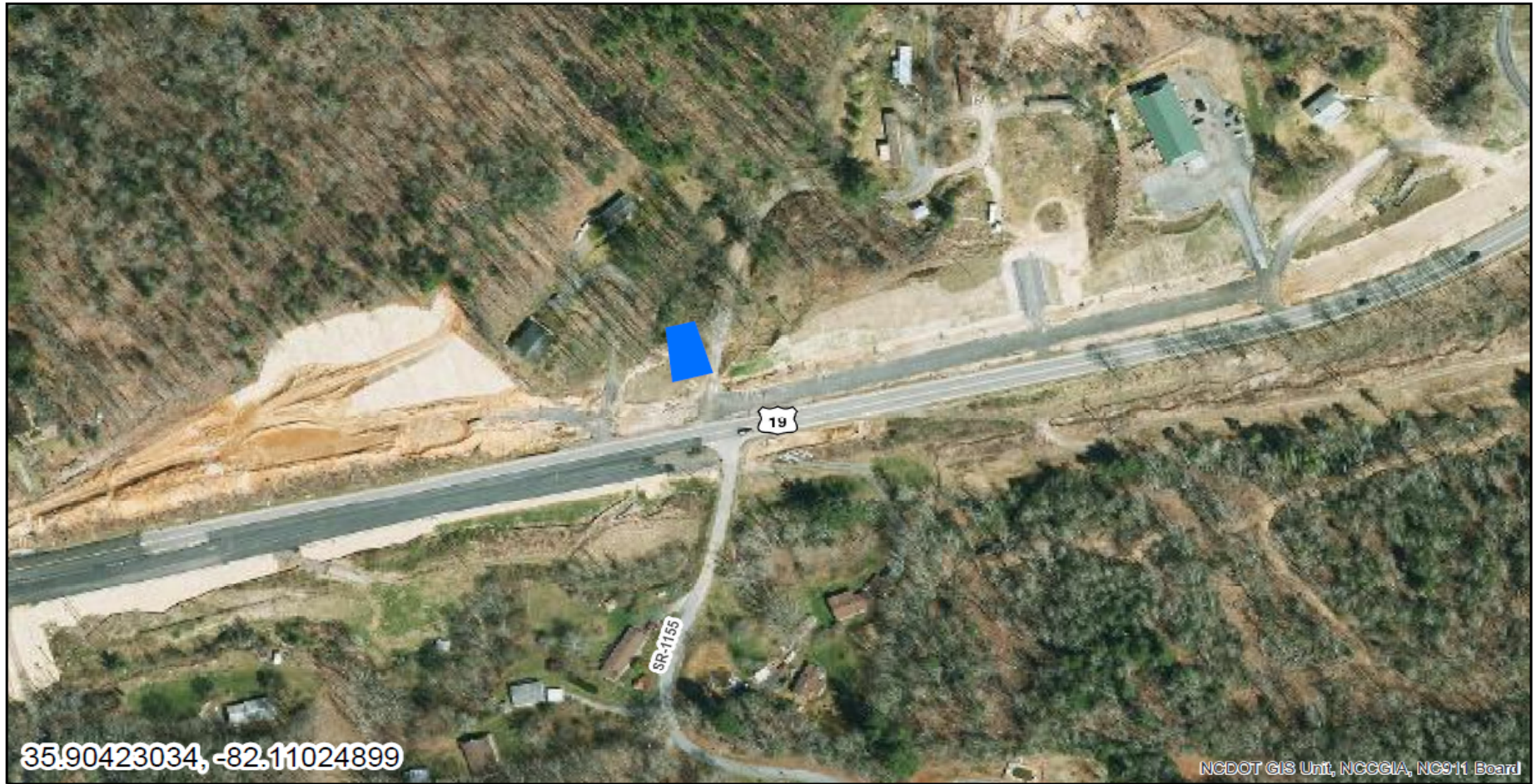
In order for a mitigation site to be considered successful, the site must meet the success criteria. This report details the monitoring in 2021 at the UT to Brushy Creek Site #35 Mitigation Site. Hydrologic monitoring was not required for this site.

1.3 Project History

March 2020	Streambank Reforestation Completed
September 2020	Stream Channel and Vegetation Monitoring (Year 1)
July 2021	Stream Channel and Vegetation Monitoring (Year 2)

1.4 Debit Ledger

The entire UT to Brushy Creek Site #35 stream mitigation site was used for the R-2519B project to compensate for unavoidable stream impacts.



35.90423034, -82.11024899

NCDOT GIS Unit, NCCGIA, NC911 Board

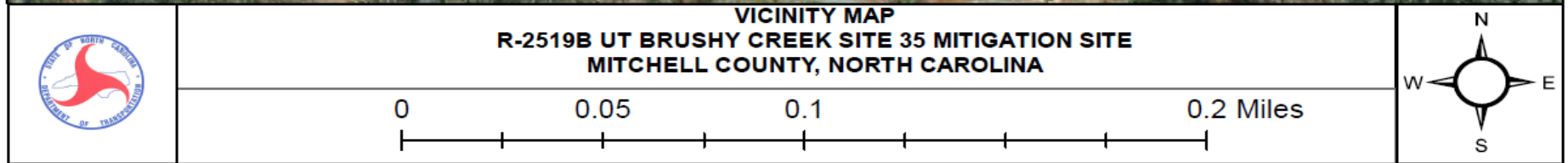


Figure 1. Vicinity Map

SITE 35 STREAM RELOCATION

PROJECT REFERENCE NO. R-2519B	SHEET NO. 29
RDY SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	CONSTRUCTION
PRELIMINARY PLANS <small>NO NOT USE FOR CONSTRUCTION</small>	

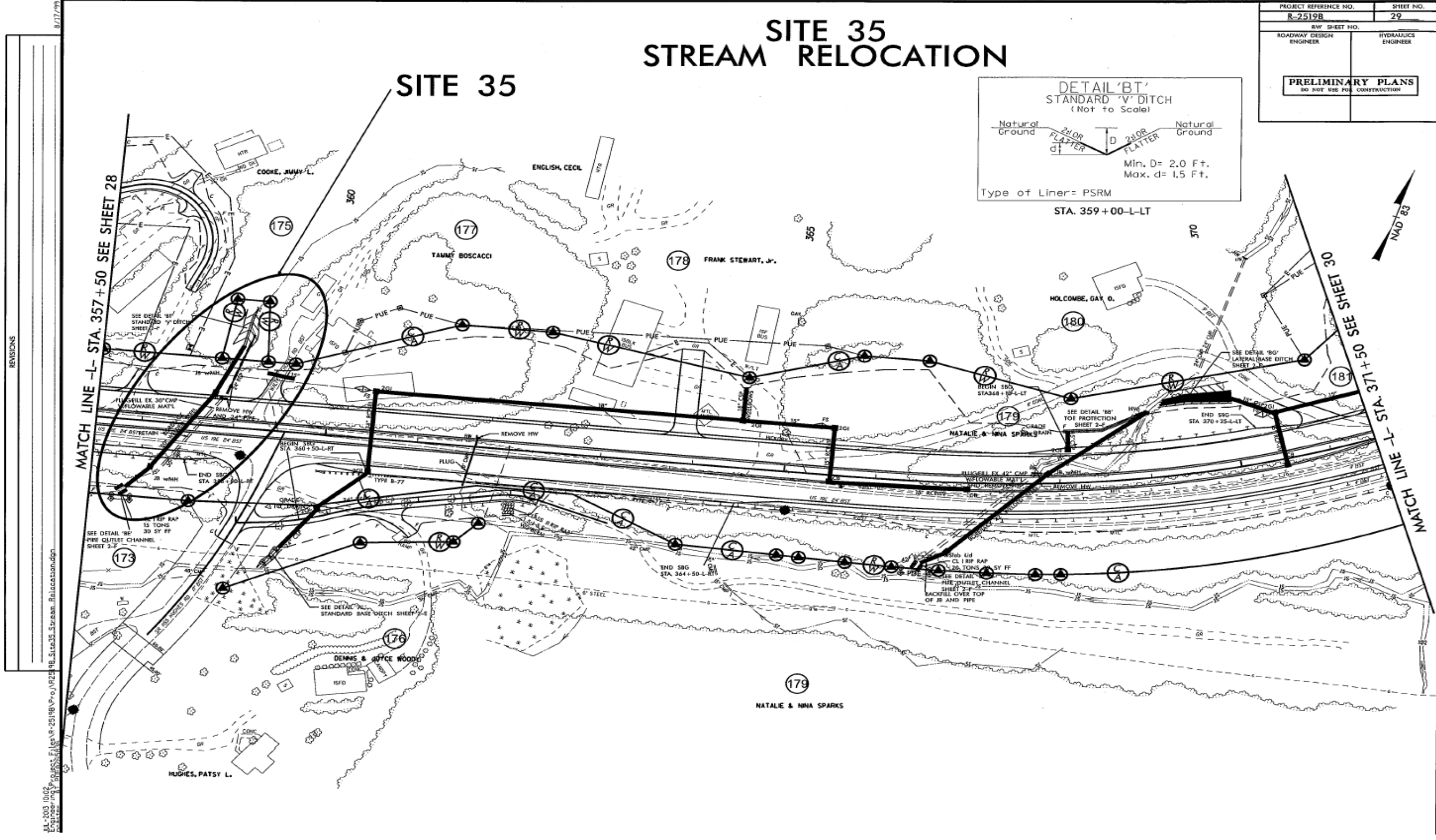
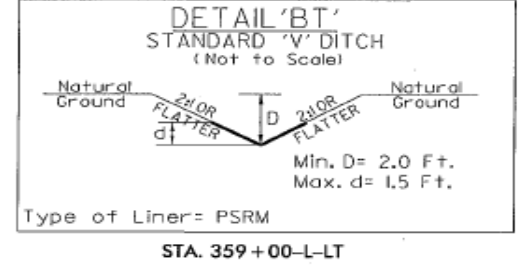


Figure 2. Site #35 Permit Drawing

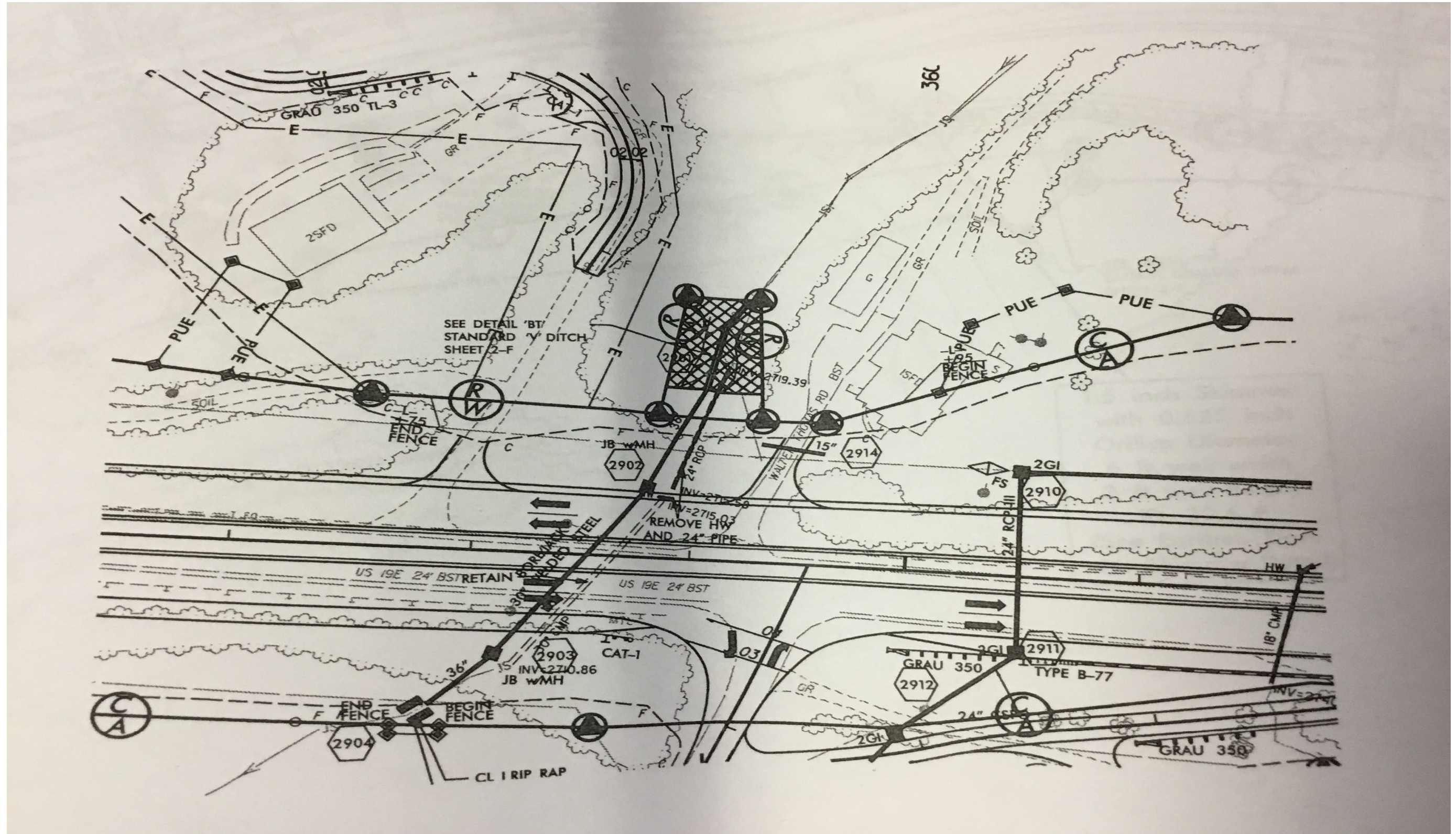


Figure 3. Site #35 Reforestation Plan

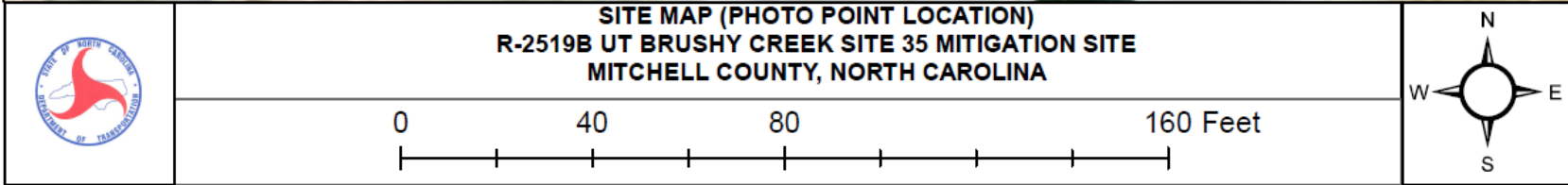


Figure 4. Site Map

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 the 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 restoration of the UT to Brushy Creek Site #35 Mitigation Site included relocating 46 feet of UT to Brushy Creek due to road widening and the installation of a 30-inch welded steel pipe on the inlet side of the channel. The riparian buffer will be planted along both side of the stream relocation.

2.2.2 *Monitoring Conditions*

The objective of the UT to Brushy Creek Site #35 stream restoration 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 did not note any instability. NCDOT will continue to monitor the channel stability at Site #35 in 2022.

3.0 VEGETATION: UT TO BRUSHY CREEK SITE #33

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

3.2 Results of Vegetation Monitoring

Streambank & Buffer Vegetation: Visual planted vegetation assessment noted no planted vegetation is surviving at this time. The site is covered in kudzu and the surrounding area outside of NCDOT's right-of-way is also covered in kudzu.

3.3 Conclusions

NCDOT proposes to continue monitoring the planted vegetation in 2022.

4.0 OVERALL CONCLUSIONS/RECOMMENDATIONS

The UT to Brushy Creek Site #35 Mitigation Site has not met the required monitoring protocols for the second formal year of monitoring. The channel throughout the stream site is covered in kudzu.

NCDOT proposes to abandon this site due to the kudzu infestation. NCDOT plans to do a permit modification for the UT to Brushy Creek Site #35 Mitigation Site at the end of the five-year monitoring period.

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

UT to Brushy Creek Site #35



Photo Point #1 (Upstream)

July 2021