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09/08/99

# TIP PROJECT: B-4775

# CONTRACT: DN00564

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C - RW4 For Survey Control Sheet, Proposed Alignment Sheet, Right of Way Control Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# MACON COUNTY

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | B-4775 | 1 | |

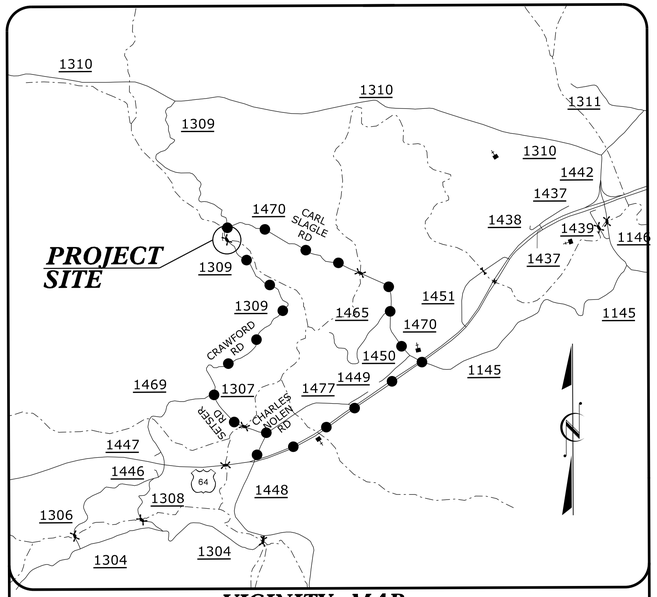
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| 38546.1.1 | BRZ-1309(8) | PE |
| 38546.1.1 | BRZ-1309(8) | ROW/UTIL. |
| 38546.1.1 | BRZ-1309(8) | CONST. |

**LOCATION: BRIDGE NO. 17 OVER WAYAH CREEK ON SR 1309 (CRAWFORD RD.)**

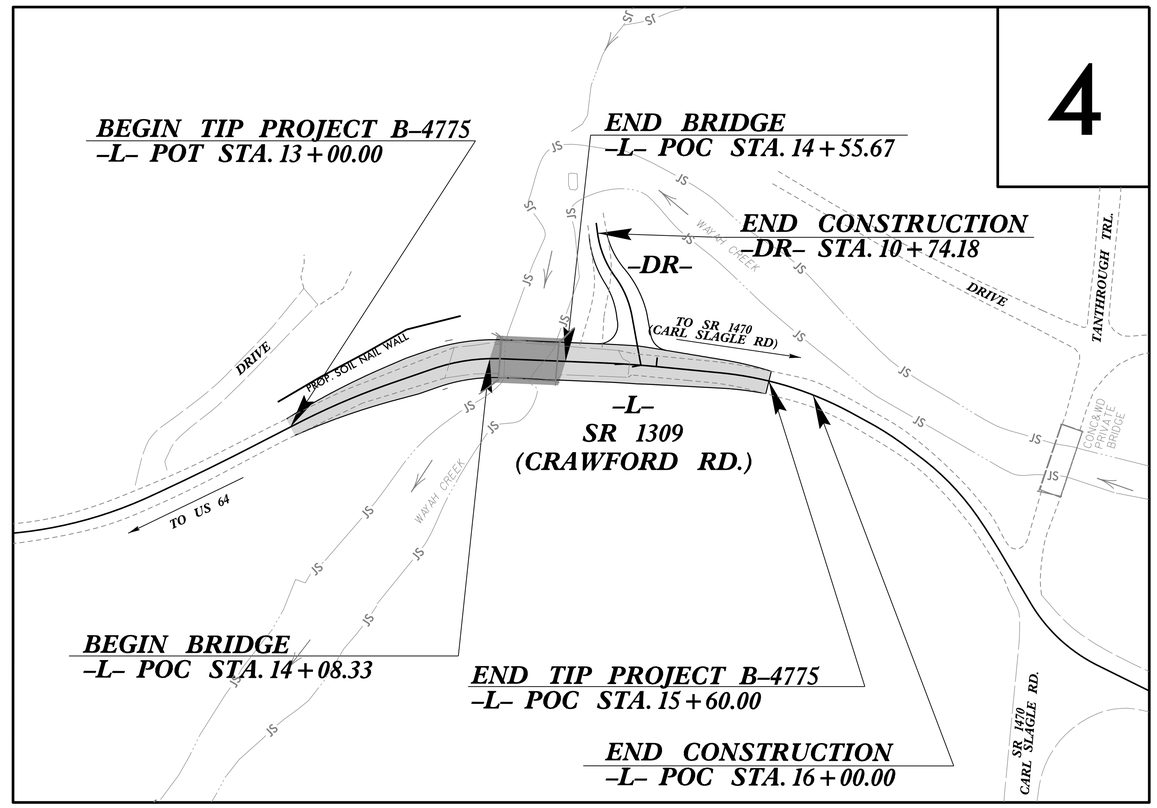
**TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE**

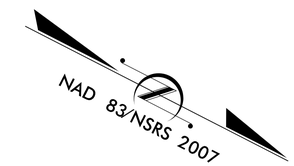
## BRIDGE #17

100% SUBMITTAL




VICINITY MAP
OFF-SITE DETOUR




DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

### GRAPHIC SCALES

30 15 0 30 60
PLANS

30 15 0 30 60
PROFILE (HORIZONTAL)

6 3 0 6 12
PROFILE (VERTICAL)

### DESIGN DATA

ADT 2016 = 110
T = 6 % *
V = 25 MPH
* TTST = 3% DUAL = 3%
FUNC. CLASS = LOCAL (SUBREGIONAL)

### PROJECT LENGTH

| | | |
|---|---|---|
| LENGTH ROADWAY TIP PROJECT B-4775 | = | 0.040 MILES |
| LENGTH STRUCTURE PROJECT B-4775 | = | 0.009 MILES |
| TOTAL LENGTH TIP PROJECT B-4775 | = | 0.049MILES |

Prepared in the Office of:
WETHERILL ENGINEERING
1223 Jones Franklin Rd. Raleigh, N.C. 27606
License No. F-0377
Bus: 919.851.8077 Fax: 919.851.8107

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE: 2018

NCDOT CONTACT:

Prepared for:
DIVISION OF HIGHWAYS
DIVISION 14
253 Webster Road.
Sylva, NC 28801

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

GREG S. PURVIS, PE
PROJECT DESIGN ENGINEER

JOSH DEYTON, PE
DIVISION 14 BRIDGE PROGRAM MANAGER

HYDRAULICS ENGINEER
2/1/2018
NORTH CAROLINA PROFESSIONAL SEAL 18462 ENGINEER JAMES C. DAVIS
SIGNATURE: Docusigned by: James C. Davis E7B66AFAD0C6405... P.E.

ROADWAY DESIGN ENGINEER
2/1/2018
NORTH CAROLINA PROFESSIONAL SEAL 022999 ENGINEER GREG S. PURVIS
SIGNATURE: Docusigned by: Greg S. Purvis D1F0F7C29E3403... P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

1/30/2018
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USER:skennedy

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8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | 1A |

ROADWAY DESIGN ENGINEER

2/1/2018

NORTH CAROLINA PROFESSIONAL SEAL 022999 ENGINEER GREG S. PURVIS

DocuSigned by: Greg S. Purvis

# GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS

EFFECTIVE: 01–16–2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE–IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 & 225 .05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

END BENTS:

THE SURVEYOR SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS–SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

THERE ARE NO KNOWN UTILITY OWNERS ON THIS PROJECT.
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS

RIGHT–OF–WAY MARKERS:

ALL RIGHT–OF–WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT IN ACCORDANCE WITH SECTION 801 OF THE 2018 NORTH CAROLINA STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

# 2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01–16–2018
REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch – N. C. Department of Transportation – Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

| STD.NO. | TITLE |
|---|---|
| DIVISION 2 – EARTHWORK | |
| 200.02 | Method of Clearing – Method II |
| 225.02 | Guide for Grading Subgrade – Secondary and Local |
| 225.04 | Method of Obtaining Superelevation – Two Lane Pavement |
| DIVISION 3 – PIPE CULVERTS | |
| 300.01 | Method of Pipe Installation |
| DIVISION 4 – MAJOR STRUCTURES | |
| 422.02 | Bridge Approach Fills – Type II Modified Approach Fill |
| DIVISION 5 – SUBGRADE, BASES AND SHOULDERS | |
| 560.01 | Method of Shoulder Construction – High Side of Superelevated Curve – Method I |
| DIVISION 8 – INCIDENTALS | |
| 806.01 | Concrete Right–of–Way Marker |
| 840.00 | Concrete Base Pad for Drainage Structures |
| 840.25 | Anchorage for Frames – Brick or Concrete or Precast |
| 840.29 | Frames and Narrow Slot Flat Grates |
| 840.35 | Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates |
| 840.46 | Traffic Bearing Precast Drainage Structure |
| 840.66 | Drainage Structure Steps |
| 846.01 | Concrete Curb, Gutter and Curb & Gutter |
| 862.01 | Guardrail Placement |
| 862.02 | Guardrail Installation |
| 862.03 | Structure Anchor Units |
| 876.01 | Rip Rap in Channels |
| 876.02 | Guide for Rip Rap at Pipe Outlets |

# INDEX OF SHEETS


| SHEET NUMBER | SHEET |
|---|---|
| 1 | TITLE SHEET |
| 1A | INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS |
| 1B | CONVENTIONAL SYMBOLS |
| 1C–1 THRU RW–4 | SURVEY CONTROL SHEET, PROPOSED ALIGNMENT SHEET, RIGHT OF WAY CONTROL SHEETS |
| 2A–1 | TYPICAL SECTIONS, PAVEMENT SCHEDULE, & MISCELLANEOUS DETAILS |
| 2A–2 | TYPE III SHOP CURVE DETAIL |
| 3B–1 | SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY, EARTHWORK SUMMARY, PAVEMENT REMOVAL SUMMARY , AND SHOULDER BERM GUTTER SUMMARY |
| 4 | PLAN SHEET |
| 5 | PROFILE SHEET |
| TMP–1 THRU TMP–2A | TRANSPORATION MANAGEMENT PLANS |
| EC–1 THRU EC–5 | EROSION CONTROL PLANS |
| RF–1 | REFORESTATION PLAN |
| X–1 | CROSS–SECTION SUMMARY SHEET |
| X–2 THRU X–8 | CROSS–SECTIONS |
| S–1 THRU S–18 | STRUCTURE PLANS |
| SN | STRUCTURE NOTES |
| W–1 | WALL PLAN |


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12/2/2016

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | 1B |

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

*Note: Not to Scale*

**S.U.E. = Subsurface Utility Engineering*

## *BOUNDARIES AND PROPERTY:*

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

## *BUILDINGS AND OTHER CULTURE:*

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

## *HYDROLOGY:*

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

## *RAILROADS:*

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

## *RIGHT OF WAY & PROJECT CONTROL:*

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

## *ROADS AND RELATED FEATURES:*

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

## *VEGETATION:*

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

## *EXISTING STRUCTURES:*

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

## *UTILITIES:*

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc.
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

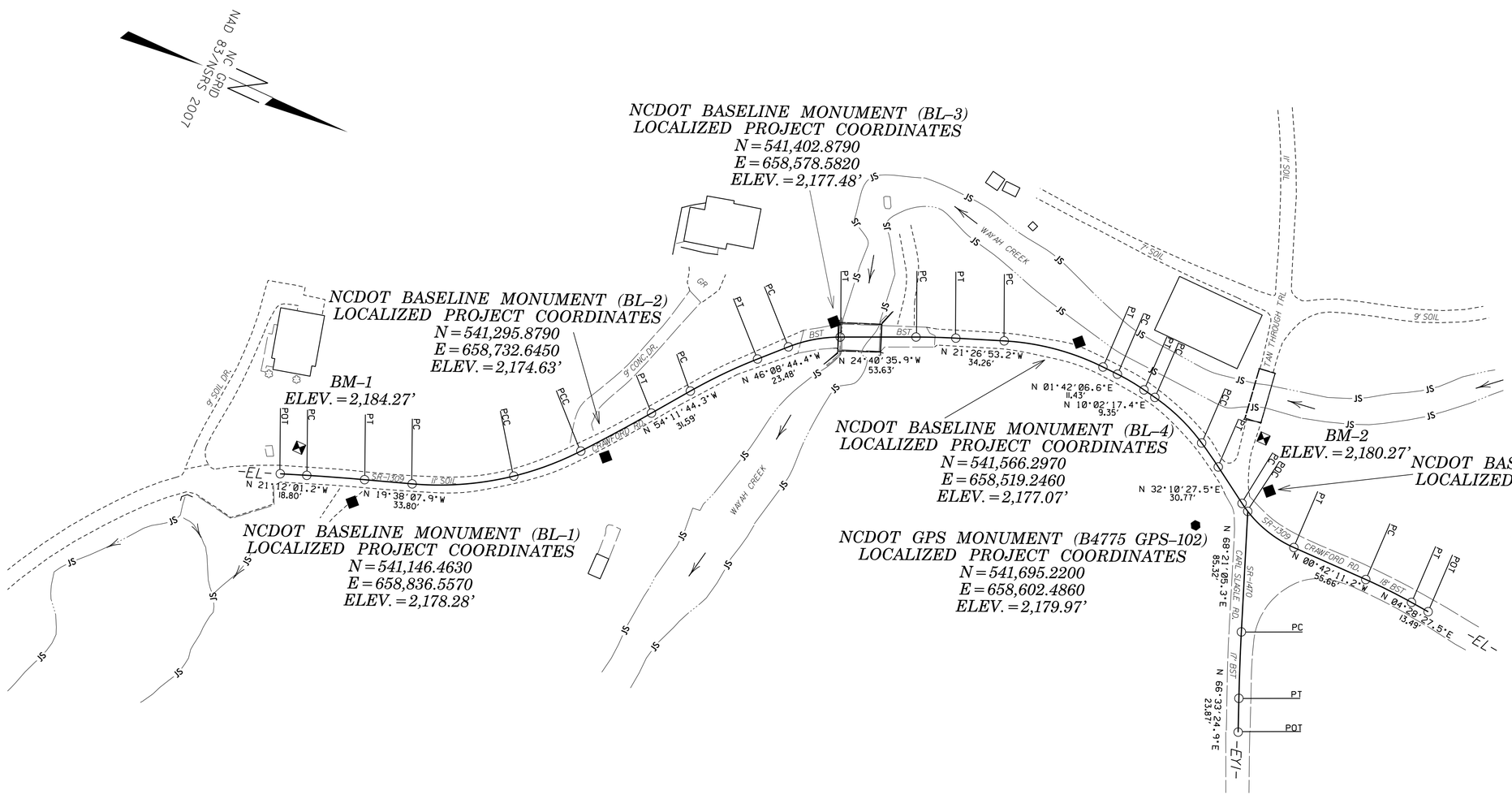
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | 1C-1 |
| Location and Surveys | |

PROJECT SURVEYOR

# SURVEY CONTROL SHEET B-4775

## W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

SEE SHEET 1C-3 FOR FURTHER ALIGNMENT DETAILS




## DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-4775 GPS-102"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 541695.2200(ft) EASTING: 658602.4860(ft)
ELEVATION: 2179.97(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99977415
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4775 GPS-102" TO -L- STATION 13+00.00 IS S10°20'13.3"E 373.27'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

REVISIONS

6/2/99

12/12/2017
B4775_sheet_1s_1c-1.dgn
USERkennedy

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | 1C-2 |
| Location and Surveys | |

PROJECT SURVEYOR

# SURVEY CONTROL SHEET B-4775

## W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

## BASELINE

BL

| POINT | DESC. | NORTH | EAST | ELEVATION |
|---|---|---|---|---|
| 1 | BL-1 | 541146.4630 | 658836.5570 | 2178.28 |
| 2 | BL-2 | 541295.8790 | 658732.6450 | 2174.63 |
| 3 | BL-3 | 541402.8790 | 658578.5820 | 2177.48 |
| 4 | BL-4 | 541566.2970 | 658519.2460 | 2177.07 |
| 5 | BL-5 | 541732.5370 | 658558.6350 | 2183.75 |

**********

BM1 ELEVATION = 2184.27
N 541096 E 658817
8 INCH SPIKE IN ROOT OF 12 INCH BLACK
CHERRY TREE

**********

**********

BM2 ELEVATION = 2180.27
N 541713 E 658527
8 INCH SPIKE IN BASE OF 16 INCH SHINGLE
OAK TREE

**********

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

REVISIONS

6/2/99

12/12/2007
B-4775_1s_1c-2.dgn
jlsfrisk@nnedu

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | 1C-3 |
| Location and Surveys | |

PROJECT SURVEYOR

# SURVEY CONTROL SHEET B-4775

## W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

EL

| POINT | N | E | BEARING | DIST | DELTA | D | L | T | R |
|---|---|---|---|---|---|---|---|---|---|
| POT | 541091.803 | 658839.601 | | | | | | | |
| LINE | | | N 21°12′01.2" W | 18.80 | | | | | |
| PC | 541109.327 | 658832.804 | | | | | | | |
| CURVE | | | N 20°25′04.5" W | 40.96 | 01°33′53.2"(RT) | 03°49′11.0" | 40.97 | 20.48 | 1500.00 |
| PT | 541147.718 | 658818.512 | | | | | | | |
| LINE | | | N 19°38′07.9" W | 33.80 | | | | | |
| PC | 541179.553 | 658807.154 | | | | | | | |
| CURVE | | | N 29°03′34.4" W | 72.05 | 18°50′53.1"(LT) | 26°02′36.7" | 72.37 | 36.52 | 220.00 |
| PCC | 541242.530 | 658772.160 | | | | | | | |
| CURVE | | | N 45°05′22.9" W | 50.62 | 13°12′43.8"(LT) | 26°02′36.7" | 50.73 | 25.48 | 220.00 |
| PCC | 541278.266 | 658736.311 | | | | | | | |
| CURVE | | | N 52°56′44.5" W | 56.72 | 02°29′59.5"(LT) | 04°24′26.5" | 56.72 | 28.36 | 1300.00 |
| PT | 541312.441 | 658691.049 | | | | | | | |
| LINE | | | N 54°11′44.3" W | 31.59 | | | | | |
| PC | 541330.923 | 658665.428 | | | | | | | |
| CURVE | | | N 50°10′14.3" W | 52.64 | 08°02′59.8"(RT) | 15°16′43.9" | 52.69 | 26.39 | 375.00 |
| PT | 541364.641 | 658625.000 | | | | | | | |
| LINE | | | N 46°08′44.4" W | 23.48 | | | | | |
| PC | 541380.906 | 658608.071 | | | | | | | |
| CURVE | | | N 35°24′40.2" W | 37.25 | 21°28′08.5"(RT) | 57°17′44.8" | 37.47 | 18.96 | 100.00 |
| PT | 541411.267 | 658586.486 | | | | | | | |
| LINE | | | N 24°40′35.9" W | 53.63 | | | | | |
| PC | 541460.000 | 658564.096 | | | | | | | |
| CURVE | | | N 23°03′44.6" W | 28.17 | 03°13′42.8"(RT) | 11°27′33.0" | 28.17 | 14.09 | 500.00 |
| PT | 541485.919 | 658553.060 | | | | | | | |
| LINE | | | N 21°26′53.2" W | 34.26 | | | | | |
| PC | 541517.808 | 658540.532 | | | | | | | |
| CURVE | | | N 09°52′23.3" W | 72.23 | 23°08′59.7"(RT) | 31°49′51.6" | 72.73 | 36.87 | 180.00 |
| PT | 541588.972 | 658528.147 | | | | | | | |
| LINE | | | N 01°42′06.6" E | 11.43 | | | | | |
| PC | 541600.396 | 658528.486 | | | | | | | |
| CURVE | | | N 05°52′12.0" E | 21.81 | 08°20′10.8"(RT) | 38°11′49.9" | 21.82 | 10.93 | 150.00 |
| PT | 541622.087 | 658530.716 | | | | | | | |
| LINE | | | N 10°02′17.4" E | 9.35 | | | | | |
| PC | 541631.293 | 658532.346 | | | | | | | |
| CURVE | | | N 19°31′48.7" E | 46.17 | 18°59′02.6"(RT) | 40°55′32.0" | 46.39 | 23.41 | 140.00 |
| PCC | 541674.811 | 658547.782 | | | | | | | |
| CURVE | | | N 30°35′53.5" E | 20.63 | 03°09′07.1"(RT) | 15°16′43.9" | 20.63 | 10.32 | 375.00 |
| PT | 541692.566 | 658558.282 | | | | | | | |
| LINE | | | N 32°10′27.0" E | 30.77 | | | | | |
| PC | 541718.607 | 658574.664 | | | | | | | |
| CURVE | | | N 15°44′07.9" E | 48.11 | 32°52′38.2"(LT) | 67°24′24.5" | 48.77 | 25.08 | 85.00 |
| PT | 541764.912 | 658587.711 | | | | | | | |
| LINE | | | N 00°42′11.2" W | 55.66 | | | | | |
| PC | 541820.567 | 658587.028 | | | | | | | |
| CURVE | | | N 01°53′07.9" E | 36.13 | 05°10′38.2"(RT) | 14°19′26.2" | 36.14 | 18.08 | 400.00 |
| PT | 541856.680 | 658588.217 | | | | | | | |
| LINE | | | N 04°28′27.0" E | 13.49 | | | | | |
| POT | 541870.129 | 658589.269 | | | | | | | |

EY1

| POINT | N | E | BEARING | DIST | DELTA | D | L | T | R |
|---|---|---|---|---|---|---|---|---|---|
| POT | 541724.598 | 658578.102 | | | | | | | |
| LINE | | | N 68°21′05.3" E | 85.32 | | | | | |
| PC | 541756.074 | 658657.403 | | | | | | | |
| CURVE | | | N 67°27′15.1" E | 46.98 | 01°47′40.4"(LT) | 03°49′11.0" | 46.98 | 23.49 | 1500.00 |
| PT | 541774.087 | 658700.792 | | | | | | | |
| LINE | | | N 66°33′24.9" E | 23.87 | | | | | |
| POT | 541783.583 | 658722.692 | | | | | | | |

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

REVISIONS

6/2/99

12/6/2017
1:\B4775_1c-3.dgn
jlt5:Rskennedy

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | 1D-1 |
| Location and Surveys | |

PROJECT SURVEYOR

# PROPOSED ALIGNMENT CONTROL SHEET B-4775

| TYPE | STATION | L<br>NORTH | EAST |
|---|---|---|---|
| POT | 10+00.00 | 541091.8026 | 658839.6010 |
| PC | 10+18.80 | 541109.3269 | 658832.8036 |
| PT | 10+59.76 | 541147.7180 | 658818.5124 |
| PC | 10+93.56 | 541179.5535 | 658807.1541 |
| PCC | 11+65.93 | 541242.5296 | 658772.1602 |
| PCC | 12+16.67 | 541278.2664 | 658736.3114 |
| PT | 12+73.39 | 541312.4415 | 658691.0488 |
| PC | 13+04.98 | 541330.9228 | 658665.4280 |
| PT | 13+57.66 | 541364.6411 | 658625.0001 |
| PC | 13+81.14 | 541380.9059 | 658608.0714 |
| PT | 14+18.61 | 541411.2666 | 658586.4863 |
| PC | 14+72.24 | 541459.9995 | 658564.0957 |
| PT | 15+00.42 | 541485.9187 | 658553.0604 |
| PC | 15+34.68 | 541517.8078 | 658540.5323 |
| PT | 16+07.40 | 541588.9720 | 658528.1465 |
| PC | 16+18.83 | 541600.3957 | 658528.4859 |
| PT | 16+40.66 | 541622.0866 | 658530.7160 |
| PC | 16+50.01 | 541631.2931 | 658532.3457 |
| PCC | 16+96.39 | 541674.8114 | 658547.7821 |
| PT | 17+17.02 | 541692.5662 | 658558.2815 |
| PC | 17+47.79 | 541718.6070 | 658574.6639 |
| PT | 17+96.56 | 541764.9121 | 658587.7107 |
| PC | 18+52.22 | 541820.5673 | 658587.0277 |
| PT | 18+88.37 | 541856.6797 | 658588.2165 |
| POT | 19+01.86 | 541870.1289 | 658589.2689 |

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

REVISIONS

6/2/99

12/12/2007
B-4775_ls_1d-1.dgn
jlsPRiskennedy

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | 1E-1 |
| Location and Surveys | |

# RIGHT OF WAY CONTROL SHEET B-4775

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A BARWATT

I, Brian Barwatt, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, Planimetrics, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 26th day of October, 2017.

DocuSigned by: Brian Barwatt 4A9A5FE4A4A4AC...

Professional Land Surveyor — L-4727 PLS #

## ROW MARKER IRON PIN AND CAP-E

| ALIGN | STATION | OFFSET | NORTH | EAST |
|---|---|---|---|---|
| L | 13+31.73 | -25.00 | 541328.1504 | 658628.2765 |
| L | 14+00.51 | -35.00 | 541375.4962 | 658566.8298 |
| L | 14+18.61 | -35.00 | 541396.6542 | 658554.6826 |
| L | 14+54.43 | -35.00 | 541429.1998 | 658539.7293 |
| L | 15+08.49 | -25.00 | 541484.2886 | 658526.8407 |
| L | 15+60.00 | 25.00 | 541547.7383 | 658557.2790 |
| L | 15+00.42 | 45.00 | 541502.3734 | 658594.9441 |
| L | 14+18.61 | 45.00 | 541430.0540 | 658627.3768 |
| L | 13+81.14 | 45.00 | 541413.3556 | 658639.2486 |
| L | 13+57.66 | 45.00 | 541397.0907 | 658656.1773 |
| L | 13+00.00 | 25.00 | 541348.2867 | 658684.0898 |

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

6/2/99
REVISIONS
$$$$$$SYTME$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

DocuSign Envelope ID: C8E85870-BD17-41B5-A52F-6262ABA179A1

09/08/99

TIP PROJECT: B-4775

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

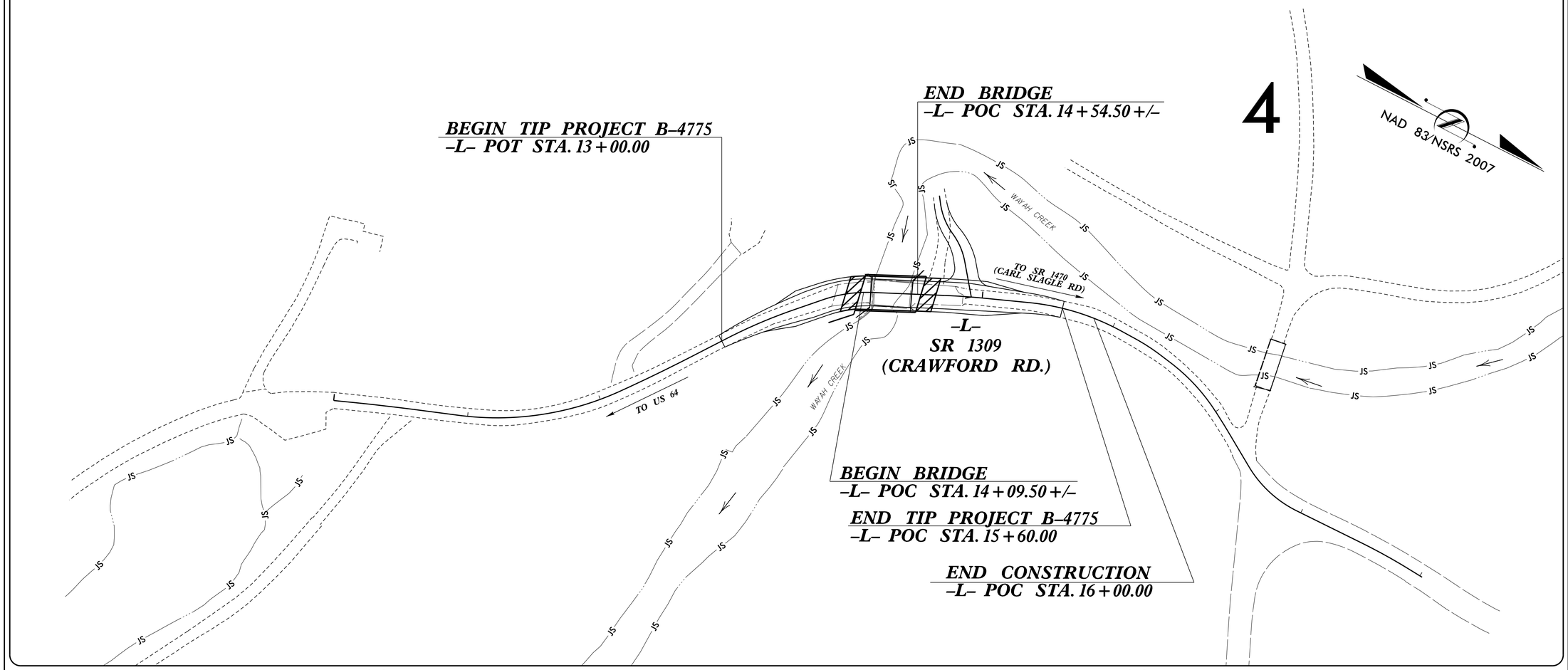
# MACON COUNTY

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | B-4775 | RW-1 | |

| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| 38546.1.1 | BRZ-1309(8) | PE |
| 38546.1.1 | BRZ-1309(8) | ROW/UTIL. |

**LOCATION:** BRIDGE NO. 17 OVER WAYAH CREEK ON SR 1309 (CRAWFORD RD.)

**TYPE OF WORK:** GRADING, DRAINAGE, PAVING & STRUCTURE




**GRAPHIC SCALES**

30 15 0 30 60
PLANS

30 15 0 30 60
PROFILE (HORIZONTAL)

6 3 0 6 12
PROFILE (VERTICAL)

**DESIGN DATA**

ADT 2016 = 110

T = 6 % *

V = 25 MPH

* TTST = 3% DUAL = 3%

FUNC. CLASS = LOCAL (SUBREGIONAL)

**PROJECT LENGTH**

| | | |
|---|---|---|
| LENGTH ROADWAY TIP PROJECT B-4775 | = | 0.041 MILES |
| LENGTH STRUCTURE PROJECT B-4775 | = | 0.008 MILES |
| TOTAL LENGTH TIP PROJECT B-4775 | = | 0.049MILES |

Prepared in the Office of:
WETHERILL ENGINEERING
1223 Jones Franklin Rd. Raleigh, N.C. 27606
License No. F-0377
Bus: 919.851.8077 Fax: 919.851.8107

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

NCDOT CONTACT:

Prepared for:
DIVISION OF HIGHWAYS
DIVISION 14
253 Webster Road.
Sylva, NC 28801

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

GREG S. PURVIS, PE
PROJECT DESIGN ENGINEER

JOSH DEYTON, PE
DIVISION 14 BRIDGE PROGRAM MANAGER

PROFESSIONAL LAND SURVEYOR

DocuSigned by:
Brian A. Barwalt P.L.S.
SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A BARWALT
2/1/2018

12/12/2017
...\b4775_ls_rw-1.dgn
USER:skennedy

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | RW-4 |

Location and Surveys

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

I, Brian Barwatt, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, Planimetrics, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 26th day of October, 2017.

DocuSigned by: Brian Barwatt
A9555FE84AB4ACE...

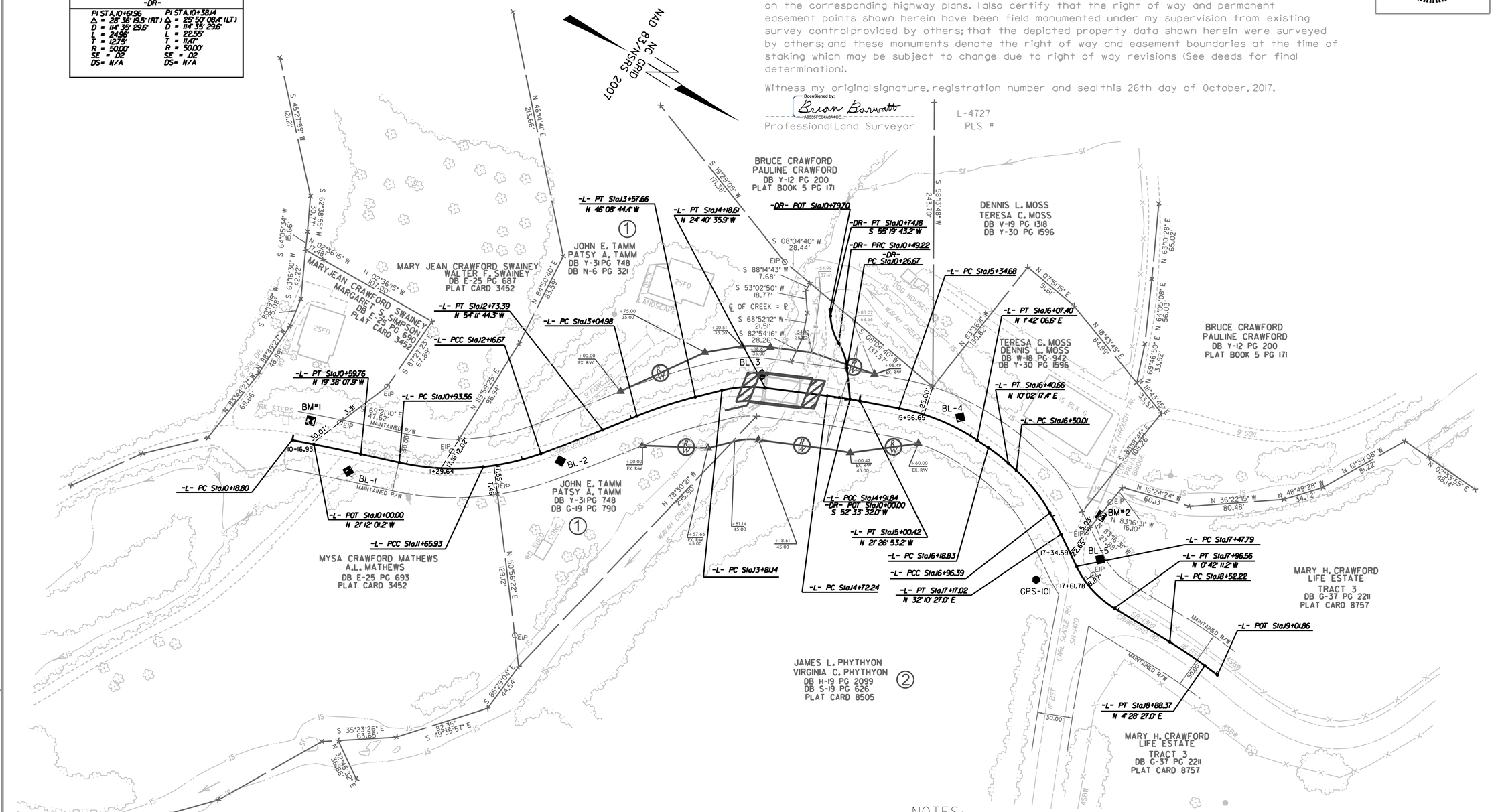
Professional Land Surveyor — L-4727 PLS #

-L-

| | | | | | | |
|---|---|---|---|---|---|---|
| PI STA 10+39.28<br>Δ = 1° 33' 53.2" (RT)<br>D = 3° 49' 11.0"<br>L = 40.91'<br>T = 20.48'<br>R = 1,500.00'<br>SE = EXIST. | PI STA 11+30.08<br>Δ = 18° 50' 53.3" (LT)<br>D = 26° 02' 36.7"<br>L = 72.37'<br>T = 36.52'<br>R = 220.00'<br>SE = EXIST. | PI STA 11+91.41<br>Δ = 13° 12' 43.8" (LT)<br>D = 26° 02' 36.7"<br>L = 50.73'<br>T = 25.48'<br>R = 220.00'<br>SE = EXIST. | PI STA 12+45.03<br>Δ = 2° 29' 59.5" (LT)<br>D = 4° 24' 26.5"<br>L = 56.72'<br>T = 28.36'<br>R = 1,300.00'<br>SE = EXIST. | PI STA 13+31.36<br>Δ = 8° 02' 59.8" (RT)<br>D = 15° 16' 43.9"<br>L = 52.69'<br>T = 26.39'<br>R = 375.00'<br>SE = EXIST. | PI STA 14+00.10<br>Δ = 21° 28' 08.5" (RT)<br>D = 57° 11' 44.8"<br>L = 37.47'<br>T = 18.96'<br>R = 100.00'<br>SE = .04<br>DS= 20 MPH | PI STA 14+86.33<br>Δ = 3° 13' 42.8" (RT)<br>D = 11° 27' 33.0"<br>L = 28.17'<br>T = 14.09'<br>R = 500.00'<br>SE = .04<br>DS= 20 MPH |
| PI STA 15+71.54<br>Δ = 23° 08' 59.7" (RT)<br>D = 37° 49' 51.6"<br>L = 72.73'<br>T = 36.87'<br>R = 180.00'<br>SE = EXIST. | PI STA 16+29.76<br>Δ = 8° 20' 10.8" (RT)<br>D = 38° 11' 49.9"<br>L = 21.82'<br>T = 10.93'<br>R = 150.00'<br>SE = EXIST. | PI STA 16+73.42<br>Δ = 18° 59' 02.6" (RT)<br>D = 40° 55' 32.0"<br>L = 46.39'<br>T = 23.41'<br>R = 140.00'<br>SE = EXIST. | PI STA 17+06.71<br>Δ = 3° 09' 07.1" (RT)<br>D = 15° 16' 43.9"<br>L = 20.63'<br>T = 10.32'<br>R = 375.00'<br>SE = EXIST. | PI STA 17+72.87<br>Δ = 32° 52' 38.2" (LT)<br>D = 67° 24' 24.5"<br>L = 48.77'<br>T = 25.08'<br>R = 85.00'<br>SE = EXIST. | PI STA 18+70.31<br>Δ = 5° 10' 38.2" (RT)<br>D = 14° 19' 26.2"<br>L = 36.14'<br>T = 18.08'<br>R = 400.00'<br>SE = EXIST. | |

-DR-

| | |
|---|---|
| PI STA 10+61.96<br>Δ = 28° 36' 19.5" (RT)<br>D = 114° 35' 29.6"<br>L = 24.96'<br>T = 12.75'<br>R = 50.00'<br>SE = .02<br>DS= N/A | PI STA 10+38.14<br>Δ = 25° 50' 08.4" (LT)<br>D = 114° 35' 29.6"<br>L = 22.55'<br>T = 11.47'<br>R = 50.00'<br>SE = .02<br>DS= N/A |




NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

6/2/99

REVISIONS

$$$$SYSTIME$$$$
$$$$TIME$$$$ $$$$DIV$$$$
$$$$USERNAME$$$$

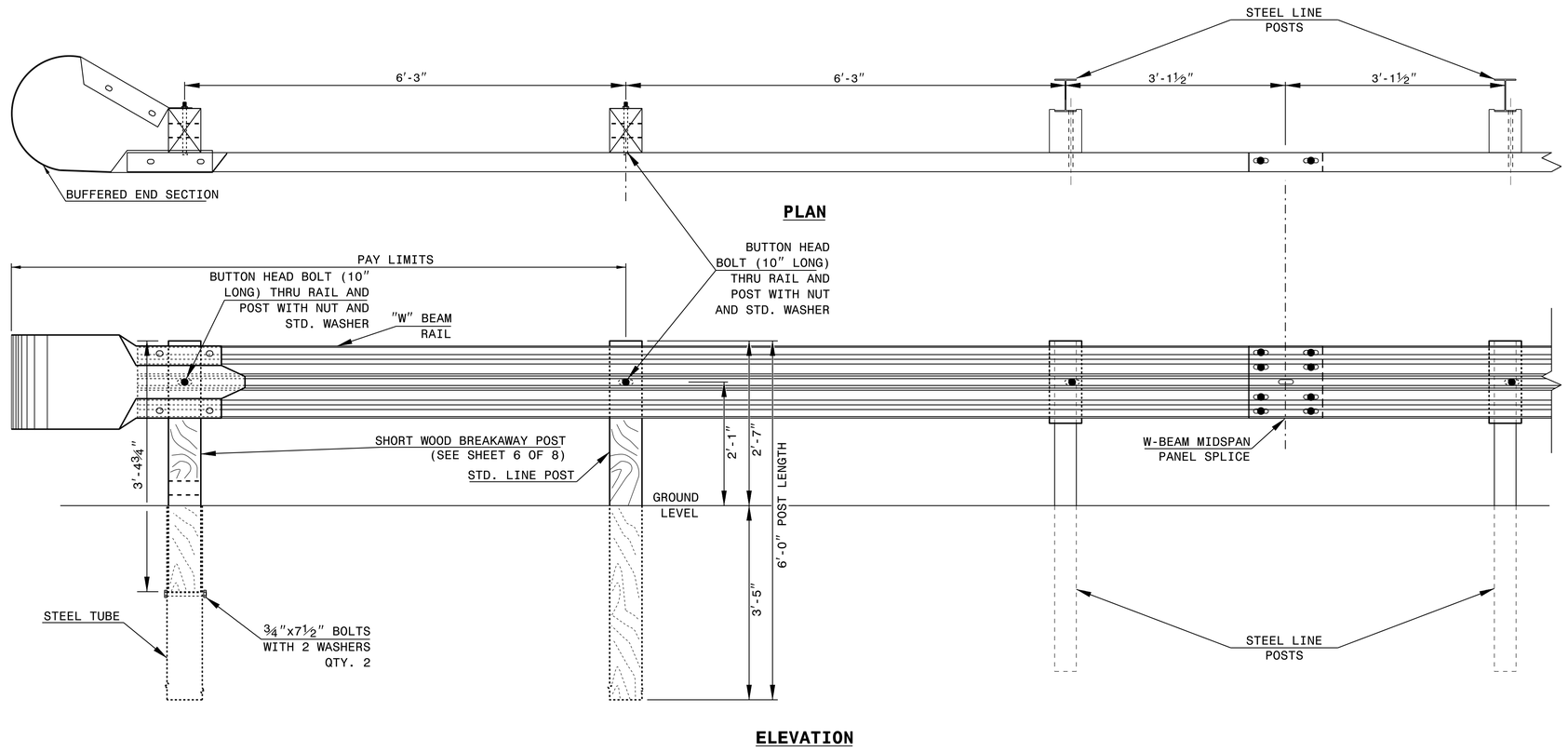
DocuSign Envelope ID: 0399784A-10CB-4081-BD3A-8A6302C0FD1A

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | 2A-2 |

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
**GUARDRAIL INSTALLATION**

SHEET OF




## TRAILING END UNIT ASSEMBLY

## A.T.-1 SYSTEM

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
**GUARDRAIL INSTALLATION**

SHEET OF

DocuSigned by: Joel S. Howerton
B7BF8D7D0C8F4...

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
2/1/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**CONTRACTS STANDARDS AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

# A.T.-1 SYSTEM

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

DocuSign Envelope ID: 60782F5A-0F74-4E66-91F5-57CE8CEDAC22

6/2/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | 2A-1 |

DocuSigned by: Greg S. Purvis — NORTH CAROLINA PROFESSIONAL SEAL 022999 ENGINEER GREG S. PURVIS — 2/1/2018

DocuSigned by: James C. Davis — NORTH CAROLINA PROFESSIONAL SEAL 18462 ENGINEER JAMES C. DAVIS — 2/1/2018

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

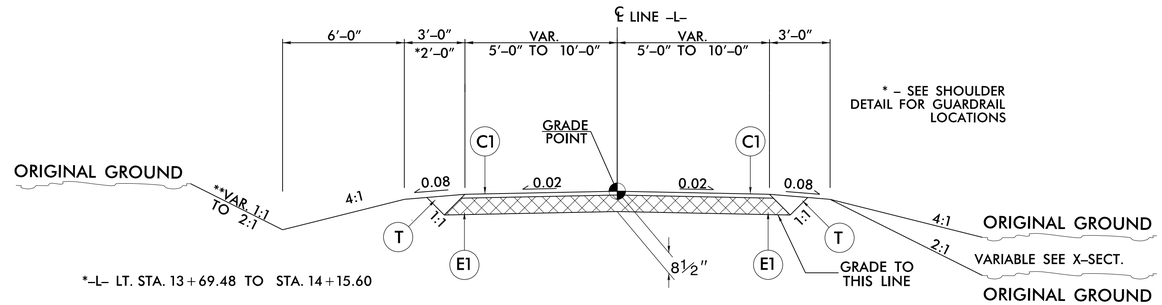
# BRIDGE #17

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

## PAVEMENT SCHEDULE

| | |
|---|---|
| C1 | PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| C2 | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH. |
| E1 | PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD. |
| E2 | PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH. |
| J1 | PROP. 6" AGGREGATE BASE COURSE |
| T | EARTH MATERIAL. |
| U | EXISTING PAVEMENT. |
| W | VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL) |

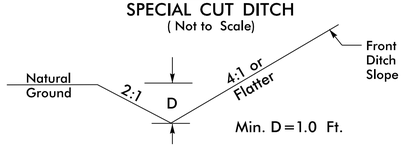
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.




## TYPICAL SECTION NO. 1

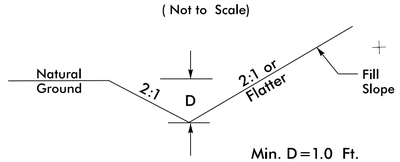
USE TYPICAL SECTION NO. 1 AS FOLLOWS:
-L- STA. 13+00.00 TO -L- STA. 14+08.33 (BEGIN BRIDGE)
-L- STA. 14+55.67 (END BRIDGE) TO -L- STA. 15+60.00

## DETAIL 1
SPECIAL CUT DITCH
( Not to Scale)



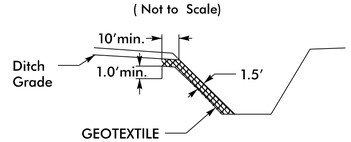

FROM STA.14+75 TO STA.16+00 -L- RT.
STA. 15+60 TO STA. 15+90 -L- LT.

## DETAIL 2
LATERAL 'V' DITCH
( Not to Scale)




FROM STA.14+38 TO STA.14+52 -L- RT.

## DETAIL 3
RIP RAP AT EMBANKMENT
( Not to Scale)



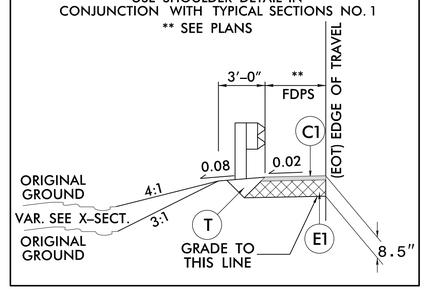

Type of Liner= 3 TONS,CL B Rip-Rap
Geotextile= 5 SY

FROM STA.15+86 TO STA.15+96 -L- LT.
AT STA. 14+38 -L- RT.

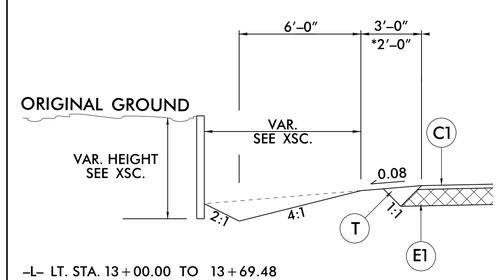
## SHOULDER DETAIL

-L- STA. 13+55.19 TO -L- STA. 14+04.57 RT.
-L- STA. 14+51.30 TO -L- STA. 15+00.67 RT.
-L- STA. 13+63.98 TO -L- STA. 14+13.36 LT.
-L- STA. 14+57.72 TO -L- STA. 15+07.09 LT.

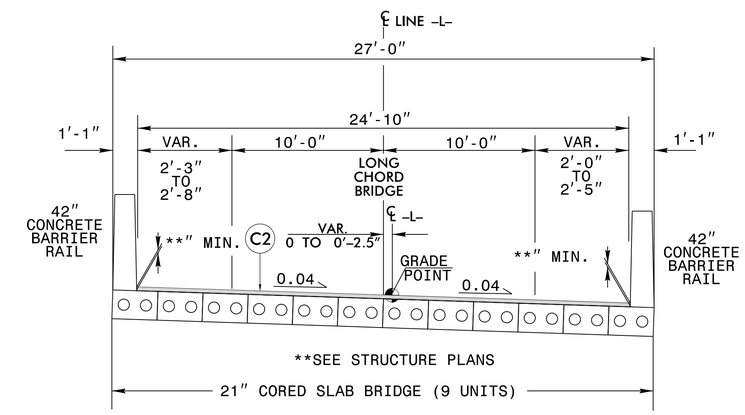
USE SHOULDER DETAIL IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1
** SEE PLANS




## DETAIL OF VERTICAL SOIL NAIL WALL

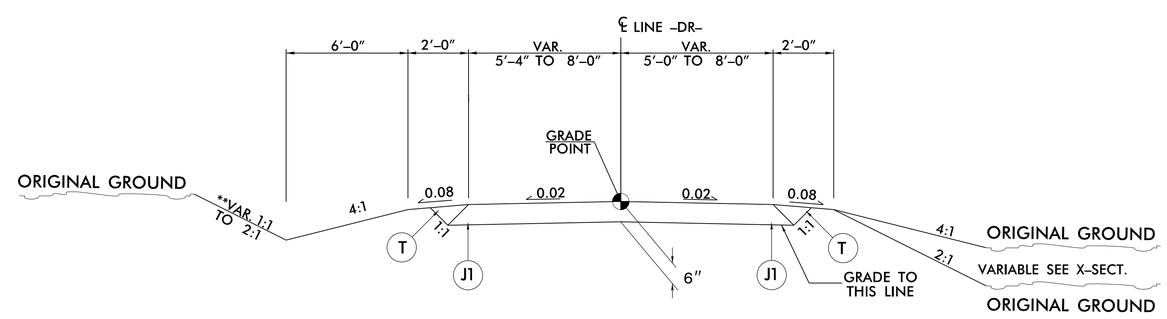



-L- LT. STA. 13+00.00 TO 13+69.48
*-L- LT. STA. 13+69.48 TO STA. 14+15.60




## TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
-L- STA. 14+08.33 (BEGIN BRIDGE) TO -L- STA. 14+55.67 (END BRIDGE)




## TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:
-DR- STA. 10+10.35 TO -DR- STA. 10+74.18

1/30/2018
B-4775_Rdy_typ.dgn
USER: kgreene

| COMPUTED BY: REO | DATE: |
|---|---|
| CHECKED BY: GSP | DATE: |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | 3B-1 |

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

## SUMMARY OF EARTHWORK

| STATION | STATION | UNCL. EXCAV. | EMBANK. +% | BORROW | WASTE |
|---|---|---|---|---|---|
| -L- | | | | | |
| 13+00.00 | 14+08.33 BB | 298 | 53 | | 245 |
| SUBTOTAL: | | 298 | 53 | | 245 |
| -L- | | | | | |
| 14+55.67 EB | 15+60.00 | 161 | 24 | | 137 |
| -DR- | | | | | |
| 10+10.35 | 10+74.18 | 4 | 10 | 6 | |
| SUBTOTAL: | | 165 | 34 | 6 | 137 |
| TOTAL: | | 463 | 87 | 6 | 382 |
| WASTE IN LIEU OF BORROW | | | | -6 | -6 |
| PROJECT TOTALS: | | 463 | 87 | | 376 |
| GRAND TOTALS: | | 463 | 87 | | 376 |
| SAY: | | 470 | | | 380 |

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, ROMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR" GRADING".

## SHOULDER BERM GUTTER SUMMARY

| SURVEY LINE | STATION | STATION | LENGTH |
|---|---|---|---|
| -L- | 14+62.30 | 14+75.93 | 13.6' |
| TOTAL: | | | 13.6' |
| SAY: | | | 14.0' |

## PAVEMENT REMOVAL SUMMARY

| SURVEY LINE | STATION | STATION | LOCATION LT/RT/CL | $YD^2$ |
|---|---|---|---|---|
| -L- | 13+90.23 | 14+17.06 | CL | 45.81 |
| -L- | 14+47.76 | 14+85.70 | CL | 58.75 |
| TOTAL: | | | | 104.56 |
| SAY: | | | | 110.00 |

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, ROMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR" GRADING".

**NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.**
See "Standard Specifications For Roads and Structures, Section 300-5".

## LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

| STATION | LOCATION (LT,RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | C.S. PIPE (UNLESS NOTED OTHRWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P. | C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. "A" + (1.3 X COL. "B") PER EACH (0' THRU 5.0') | LIN. FT. A (5.0' THRU 10.0') | B (10.0' AND ABOVE) | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME & GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | T.B.D.I. STD. 840.35 | G.D.I. FRAME WITH GRATE STD. 840.22 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24 | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29 | J.B. STD. 840.31 OR 840.32 | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN.FT. | REMARKS |
|---|---|---|---|---|---

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | 4 |
| R/W SHEET NO. | |

ROADWAY DESIGN ENGINEER
DocuSigned by: Greg S. Purvis
NORTH CAROLINA PROFESSIONAL SEAL 022999 ENGINEER GREG S. PURVIS
2/1/2018

HYDRAULICS ENGINEER
DocuSigned by: James C. Davis
NORTH CAROLINA PROFESSIONAL SEAL 18462 ENGINEER JAMES C. DAVIS
2/1/2018

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Liscense No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

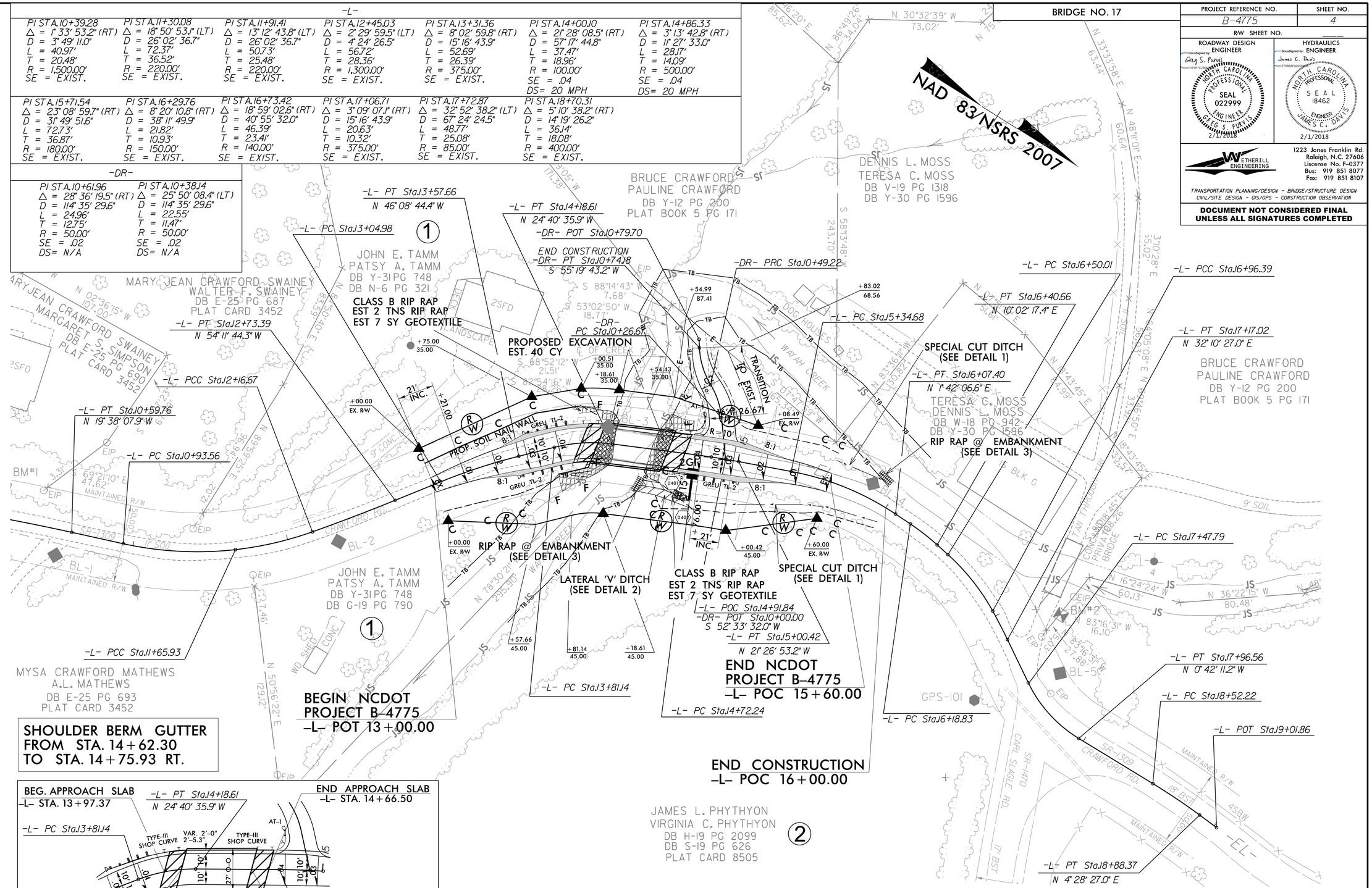
# BRIDGE NO. 17

-L-

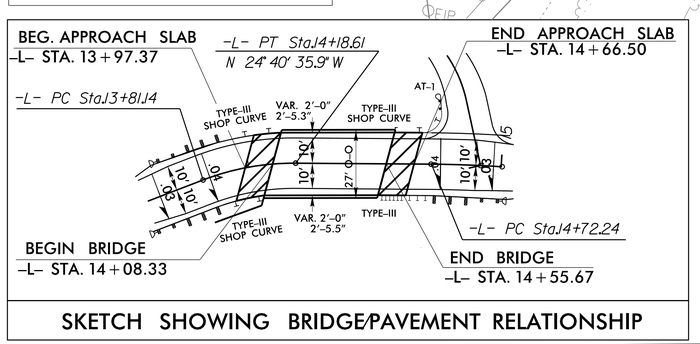
| | | | | | | |
|---|---|---|---|---|---|---|
| PI STA.10+39.28<br>Δ = 1° 33' 53.2" (RT)<br>D = 3° 49' 11.0"<br>L = 40.97'<br>T = 20.48'<br>R = 1,500.00'<br>SE = EXIST. | PI STA.11+30.08<br>Δ = 18° 50' 53.1" (LT)<br>D = 26° 02' 36.7"<br>L = 72.37'<br>T = 36.52'<br>R = 220.00'<br>SE = EXIST. | PI STA.11+91.41<br>Δ = 13° 12' 43.8" (LT)<br>D = 26° 02' 36.7"<br>L = 50.73'<br>T = 25.48'<br>R = 220.00'<br>SE = EXIST. | PI STA.12+45.03<br>Δ = 2° 29' 59.5" (LT)<br>D = 4° 24' 26.5"<br>L = 56.72'<br>T = 28.36'<br>R = 1,300.00'<br>SE = EXIST. | PI STA.13+31.36<br>Δ = 8° 02' 59.8" (RT)<br>D = 15° 16' 43.9"<br>L = 52.69'<br>T = 26.39'<br>R = 375.00'<br>SE = EXIST. | PI STA.14+00.10<br>Δ = 21° 28' 08.5" (RT)<br>D = 57° 17' 44.8"<br>L = 37.47'<br>T = 18.96'<br>R = 100.00'<br>SE = .04<br>DS= 20 MPH | PI STA.14+86.33<br>Δ = 3° 13' 42.8" (RT)<br>D = 11° 27' 33.0"<br>L = 28.17'<br>T = 14.09'<br>R = 500.00'<br>SE = .04<br>DS= 20 MPH |
| PI STA.15+71.54<br>Δ = 23° 08' 59.7" (RT)<br>D = 31° 49' 51.6"<br>L = 72.73'<br>T = 36.87'<br>R = 180.00'<br>SE = EXIST. | PI STA.16+29.76<br>Δ = 8° 20' 10.8" (RT)<br>D = 38° 11' 49.9"<br>L = 21.82'<br>T = 10.93'<br>R = 150.00'<br>SE = EXIST. | PI STA.16+73.42<br>Δ = 18° 59' 02.6" (RT)<br>D = 40° 55' 32.0"<br>L = 46.39'<br>T = 23.41'<br>R = 140.00'<br>SE = EXIST. | PI STA.17+06.71<br>Δ = 3° 09' 07.1" (RT)<br>D = 15° 16' 43.9"<br>L = 20.63'<br>T = 10.32'<br>R = 375.00'<br>SE = EXIST. | PI STA.17+72.87<br>Δ = 32° 52' 38.2" (LT)<br>D = 67° 24' 24.5"<br>L = 48.77'<br>T = 25.08'<br>R = 85.00'<br>SE = EXIST. | PI STA.18+70.31<br>Δ = 5° 10' 38.2" (RT)<br>D = 14° 19' 26.2"<br>L = 36.14'<br>T = 18.08'<br>R = 400.00'<br>SE = EXIST. | |

-DR-

| | |
|---|---|
| PI STA.10+61.96<br>Δ = 28° 36' 19.5" (RT)<br>D = 114° 35' 29.6"<br>L = 24.96'<br>T = 12.75'<br>R = 50.00'<br>SE = .02<br>DS= N/A | PI STA.10+38.14<br>Δ = 25° 50' 08.4" (LT)<br>D = 114° 35' 29.6"<br>L = 22.55'<br>T = 11.47'<br>R = 50.00'<br>SE = .02<br>DS= N/A |




SHOULDER BERM GUTTER
FROM STA. 14+62.30
TO STA. 14+75.93 RT.




SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

PROP. SOIL NAIL WALL -L- LT/ 13+00 TO 14+15.60

SEE SHEET 2A-1 FOR DRAINAGE DETAILS

SEE SHEET 5 FOR -L-, -DR- PROFILE

REVISIONS

8/17/99

1/30/2018
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8/17/99

REVISIONS

## BRIDGE HYDRAULIC DATA

| | | |
|---|---|---|
| DESIGN DISCHARGE | = 1500 | CFS |
| DESIGN FREQUENCY | = 5 | YRS |
| DESIGN HW ELEVATION | = 2175.1 | FT |
| BASE DISCHARGE | = 3700 | CFS |
| BASE FREQUENCY | = 100 | YRS |
| BASE HW ELEVATION | = 2178.5 | FT |
| OVERTOPPING DISCHARGE | = 1575 | CFS |
| OVERTOPPING FREQUENCY | = 5+ | YRS |
| OVERTOPPING ELEVATION | = 2177.3 | FT |
| MOST RECENT ELEVATION | = 2174.5 | FT |
| DATE OF SURVEY | = 09/13/2016 | |
| W.S.ELEVATION AT DATE OF SURVEY | = 2169.9 | FT |

BRIDGE NO. 17

WETHERILL ENGINEERING
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | 5 |
| R/W SHEET NO. | |

ROADWAY DESIGN ENGINEER
DocuSigned by: Greg S. Purvis
NORTH CAROLINA PROFESSIONAL SEAL 022999 ENGINEER GREG S. PURVIS
2/1/2018

HYDRAULICS ENGINEER
DocuSigned by: James C. Davis
NORTH CAROLINA PROFESSIONAL SEAL 18462 ENGINEER JAMES C. DAVIS
2/1/2018

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

# –L–

PI = 13+25.00
EL = 2,176.47'
VC = 50'
K = 34
DS = 25MPH

PI = 13+90.00
EL = 2,178.43'
VC = 52'
K = 12
DS = 25MPH

PI = 14+88.03
EL = 2,177.15'
VC = 50'
K = 66
DS = 25+MPH

–L– STA. 14+32.00
1 @ 45' SPAN 21" CORED SLAB; 4'-0" DEEP CAP
EL. 2177.88
SKEW=105

BEG. GRADE
–L– STA. 13+00.00
EL = 2176.09

BEG. BRIDGE
–L– STA. 14+08.33

END BRIDGE
–L– STA. 14+55.67

END GRADE
–L– STA. 15+60.00
EL = 2176.75

(+)1.5446%
(+)3.0101%
(–)1.3053%
(–)0.5524%
(+)4.83%
(+)2.00%
(+)4.90%
(+)2.63%
(–)0.30%

BEGIN DITCH STA 14+38.00 (RT)
EL=2,172.00 FT

PVI STA. 14+50.00
EL=2,172.58

PVI STA 15+50.00 (RT)
EL=2,174.58 FT

BEGIN DITCH 15+60.00 (LT)
EL=2,175.07

END DITCH STA 16+00.00 (RT)
EL=2,176.12 FT

END DITCH 15+90.00 (LT)
EL=2,174.98

PVI STA 15+60.00 (RT)
EL=2,175.07 FT

LEFT DITCH
RIGHT DITCH

SEE SHEET 4 –L– FOR PLAN VIEW

2,196 2,190 2,184 2,178 2,172 2,166 2,160 2,154

11 12 13 14 15 16 17 18 19

# –DR–

PI = 10+24.00
EL = 2,177.11'
VC = 25'
K = 5
DS = N/A

BEG. GRADE
–DR– STA. 10+10.35
EL = 2177.52

END GRADE
–DR– STA. 10+74.18
EL = 2173.07

(–)3.0008%
(–)8.0526%

2,182 2,176 2,170

BM1 ELEVATION = 2184.27
N 541096 E 658817
BL STATION 5+00.00
S 21°00'59.81" W DIST 53.74' LEFT
8 INCH SPIKE IN ROOT OF 12 INCH BLACK CHERRY TREE

BM2 ELEVATION = 2180.27
N 541713 E 658527
BL STATION 11+88.18 26.67' LEFT
8 INCH SPIKE IN BASE OF 16 INCH SHINGLE OAK TREE

SEE SHEET 4 –DR– FOR PLAN VIEW

10 11

1/30/2018
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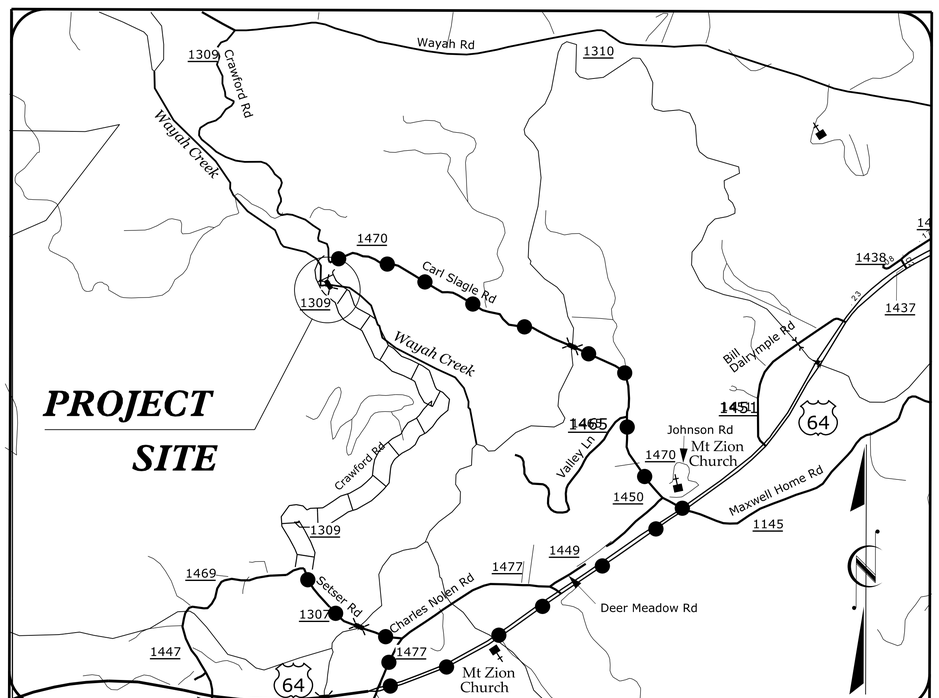
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# TRANSPORTATION MANAGEMENT PLAN

# MACON COUNTY




LOCATION MAP

LOCATION: REPLACEMENT OF BRIDGE NO.17 OVER WAYAH CREEK ON SR 1309 (CRAWFORD ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

## INDEX OF SHEETS

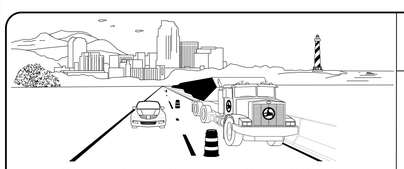

| SHEET NO. | TITLE |
|---|---|
| TMP-1 | TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS |
| TMP-1A | LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, GENERAL NOTES AND PHASING |
| TMP-2 | SPECIAL SIGN DESIGN(S) |
| TMP-2A | DETOUR CRAWFORD RD. (-L-) |


SHEET NO.
TMP-1

B-4775

TIP PROJECT:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"


N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745


| | |
|---|---|
| J. E. HUMMER, P.E. | STATE TRAFFIC MANAGEMENT ENGINEER |
| DON A. PARKER, P.E. | TRAFFIC CONTROL PROJECT ENGINEER |
| ROGER M. GARRETT | TRAFFIC CONTROL PROJECT DESIGN ENGINEER |
| | TRAFFIC CONTROL DESIGN ENGINEER |

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL


PLAN PREPARED FOR NCDOT BY: WETHERILL ENGINEERING
1223 Jones Franklin Road
Raleigh, N.C. 27606
Phone: 919 851 1912
Fax: 919 851 8077
License # C-0910
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CAD/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

GREG S. PURVIS, P.E. — PROJECT ENGINEER
JESSE W. GILSTRAP — TRAFFIC CONTROL ENGINEER
SCOTT L. KENNEDY — TRAFFIC CONTROL ENGINEER


APPROVED: Greg S. Purvis
DATE: 2/1/2018

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 22999 ENGINEER GREG S. PURVIS

1/30/2018
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USER:skennedy

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| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | TMP-1A |

# ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

| STD. NO. | TITLE |
|---|---|
| 1101.03 | TEMPORARY ROAD CLOSURES |
| 1101.05 | WORK ZONE VEHICLE ACCESSES |
| 1101.11 | TRAFFIC CONTROL DESIGN TABLES |
| 1110.01 | STATIONARY WORK ZONE SIGNS |
| 1145.01 | BARRICADES |

# GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS, OR RESULT IN DUPLICATE, OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

## TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

## SIGNING

B) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

C) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

D) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

## TRAFFIC CONTROL DEVICES

E) PLACE TYPE III BARRICADES WITH "ROAD CLOSED" SIGN R11-2 ATTACHED OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

## PAVEMENT MARKINGS AND MARKERS

F) NO PAVEMENT MARKING AND MARKERS ARE REQUIRED ON THIS PROJECT.

# LEGEND

## GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL
- ON GOING CONSTRUCTION
- TEMPORARY PAVEMENT
- PAVEMENT WEDGING

## SIGNALS

EXISTING PROPOSED TEMPORARY

## PAVEMENT MARKINGS

EXISTING LINES
TEMPORARY LINES

## TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

## TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

## PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

## PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

# PHASING

## PHASE I

STEP 1: - USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9 AND SHEET TMP-2A CLOSE CRAWFORD ROAD (-L- / SR 1309) FROM STA. 12+50 +/- -L- TO STA. 17+00 +/- -L- TO TRAFFIC.

NOTE: INSTALL ADDITIONAL TYPE III BARRICADES AT STA 14+50 +/- -L- TO MAINTAIN ACCESS TO EXISTING DRIVEWAY, AS DIRECTED BY THE ENGINEER.

STEP 2: - CONSTRUCT PROPOSED DRIVEWAY (-DR-) AND OPEN TO TRAFFIC (SEE ROADWAY PLANS).

NOTE: MOVE TYPE III BARRICADES FROM STA 14+50 +/- -L- TO STA. 14+70 +/- -L- TO MAINTAIN ACCESS TO PROPOSED DRIVEWAY (-DR-), AS DIRECTED BY THE ENGINEER.

- MAY BEGIN REMOVAL OF EXISTING BRIDGE (SEE ROADWAY PLANS).

STEP 3: - CONSTRUCT PROPOSED BRIDGE AND APPROACHES, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE (SEE ROADWAY PLANS).

STEP 4: - OPEN CRAWFORD ROAD (SR 1309) TO THE FINAL TRAFFIC PATTERN AND REMOVE ALL TRAFFIC CONTROL DEVICES FROM THE PROJECT.

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED Greg S. Purvis DATE: 2/1/2018

SEAL NORTH CAROLINA PROFESSIONAL SEAL 22999 ENGINEER GREG S. PURVIS

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS, LEGEND, GENERAL NOTES AND PHASING

1/30/2018
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| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | TMP-2 |

SIGN NUMBER: name
TYPE: STATIONARY
QUANTITY: SEE PLANS

SIGN WIDTH: 3′-6″
HEIGHT: 2′-6″
TOTAL AREA: 8.8 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.38″
WIDTH: 0.5″
RADII: 1.5″

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

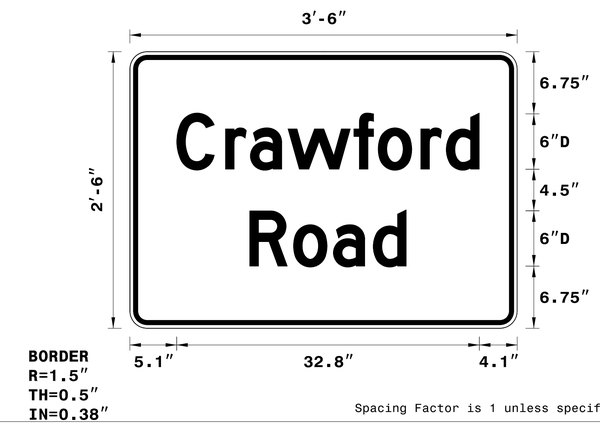
| SYMBOL | X | Y | WID | HT |
|---|---|---|---|---|
| | | | | |

MAT'L: 0.080″ (2.0 mm) ALUMINUM

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.

DESIGN BY: SLK
PROJECT ID: B-4475
CHECKED BY: JWG
DIV: 14
Aug 08, 2016




BORDER
R=1.5″
TH=0.5″
IN=0.38″

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

| | | | | | | | | | | | | | | | | | | | | | | | | | | | Series/Size Text Length |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C | r | a | w | f | o | r | d | | | | | | | | | | | | | | | | | | D 2000 |
| | 5.1 | 5.3 | 2.7 | 4.1 | 7.1 | 2.6 | 4.6 | 2.8 | 3.6 | 4.1 | | | | | | | | | | | | | | | | | 32.8 |
| | | R | o | a | d | | | | | | | | | | | | | | | | | | | | | | D 2000 |
| | 13 | 4.7 | 4.3 | 4.3 | 3.6 | 12 | | | | | | | | | | | | | | | | | | | | | 17 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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FILENAME: Guidesign6_020816

NORTH CAROLINA D.O.T. SIGN DETAIL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Liscense No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: Greg S. Purvis DATE: 2/1/2018
DocuSigned by: 0170F7C5BE5A07...
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 22999 ENGINEER GREG S. PURVIS

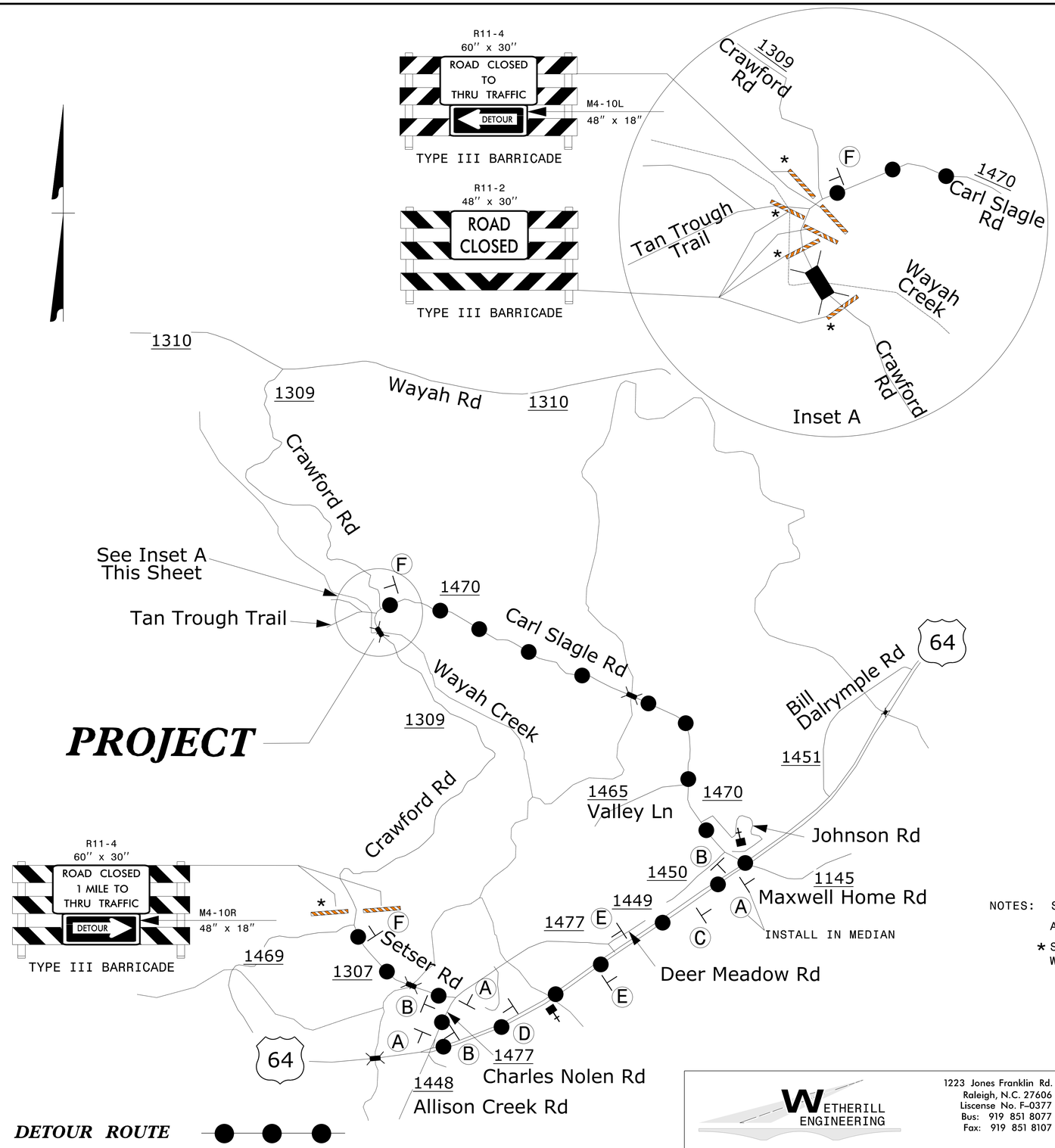
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

SPECIAL
SIGN
DESIGN(S)

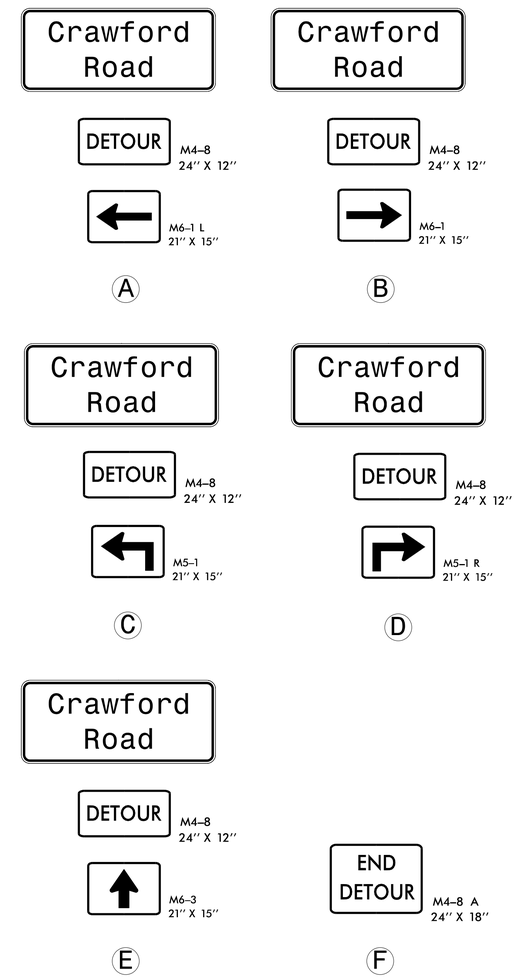
12/6/2017
P:\2016\16158.01_B-4775\Traffic\TrafficControl\TCP\B-4775_TC_TMP_PSH_02.dgn
User:skennedy

DocuSign Envelope ID: 1753246A-9284-436D-B568-8BF727EF65D4

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | TMP-2A |




## DETOUR SIGNING




NOTES: SEE TMP-2 FOR "CRAWFORD ROAD" SPECIAL SIGN DESIGN.
ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.
* SEE RSD 1101.03, SHEET 1 OF 9, FOR TYPE III BARRICADE LOCATION WITH ATTACHED SIGNING & ADDITIONAL SIGNING FOR ROAD CLOSURE.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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APPROVED: Greg S. Purvis DATE: 2/1/2018
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 22999 ENGINEER GREG S. PURVIS

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

# DETOUR CRAWFORD ROAD (SR 1309)

12/6/2017
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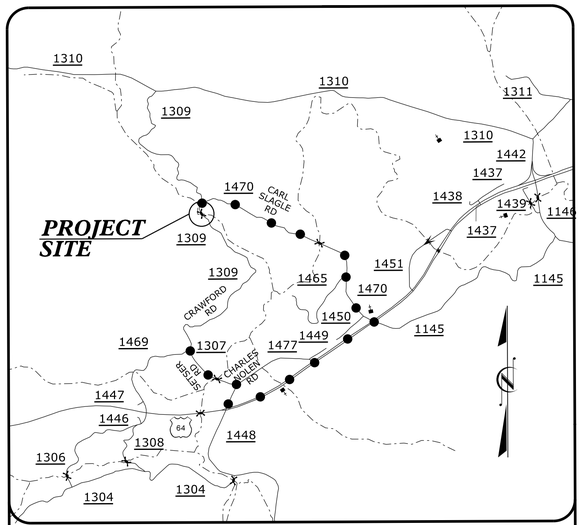
User:skennedy

# PROJECT: B-4775

# TIP B-4775

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | B-4775 | EC-1 | |

| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |




VICINITY MAP

OFF-SITE DETOUR

STATE OF NORTH CAROLINA

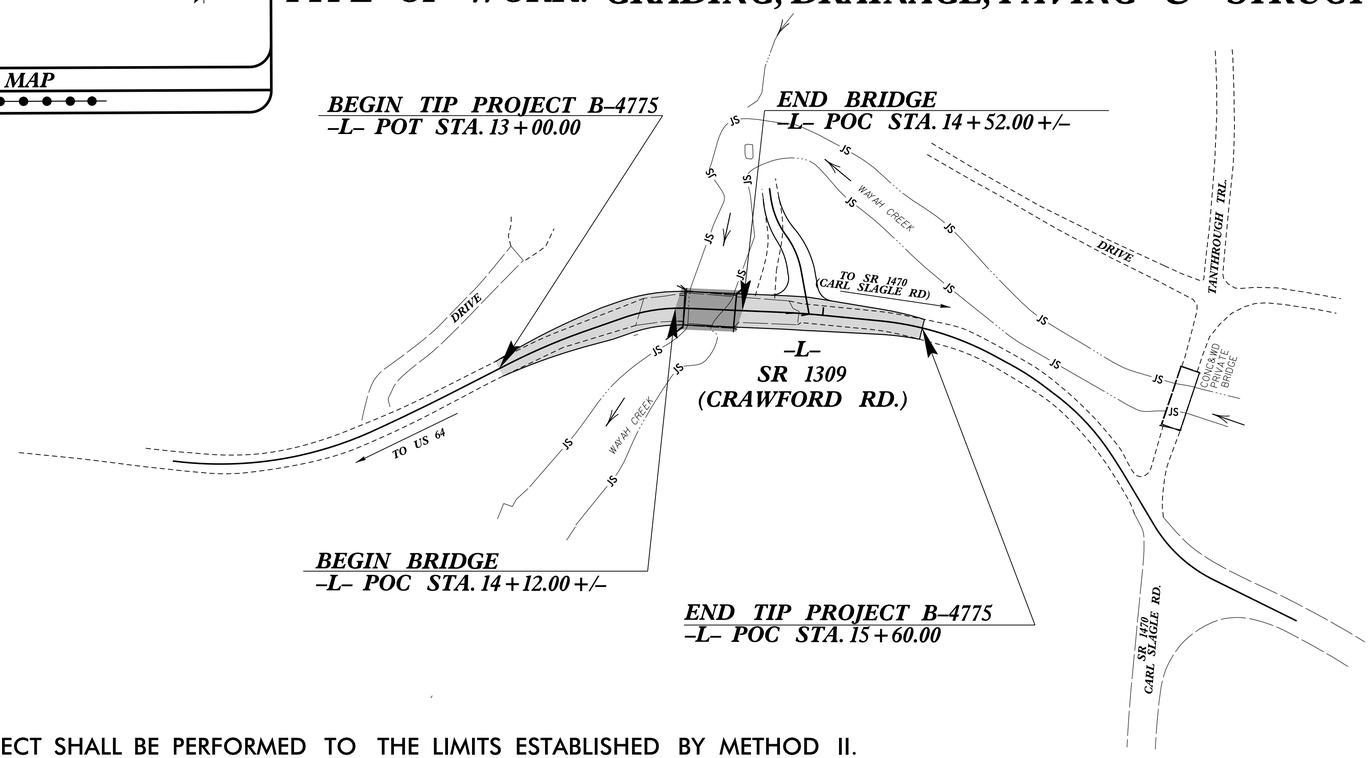
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED

# HIGHWAY EROSION CONTROL

**LOCATION: BRIDGE NO. 17 OVER WAYAH CREEK ON SR 1309 (CRAWFORD RD.)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE**




CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

## EROSION AND SEDIMENT CONTROL MEASURES

| Std. # | Description | Symbol |
|---|---|---|
| 1630.03 | Temporary Silt Ditch | TSD |
| 1630.05 | Temporary Diversion | TD |
| 1605.01 | Temporary Silt Fence | |
| 1606.01 | Special Sediment Control Fence | |
| 1622.01 | Temporary Berms and Slope Drains | |
| 1630.02 | Silt Basin Type B | |
| 1633.01 | Temporary Rock Silt Check Type-A | |
| | Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM) | |
| 1633.02 | Temporary Rock Silt Check Type-B | |
| | Wattle / Coir Fiber Wattle | EW CFW |
| | Wattle / Coir Fiber Wattle with Polyacrylamide (PAM) | |
| 1634.01 | Temporary Rock Sediment Dam Type-A | |
| 1634.02 | Temporary Rock Sediment Dam Type-B | |
| 1635.01 | Rock Pipe Inlet Sediment Trap Type-A | |
| 1635.02 | Rock Pipe Inlet Sediment Trap Type-B | |
| 1630.04 | Stilling Basin | |
| 1630.06 | Special Stilling Basin | |
| | Rock Inlet Sediment Trap: | |
| 1632.01 | Type A | A |
| 1632.02 | Type B | B |
| 1632.03 | Type C | C |
| | Skimmer Basin | |
| | Tiered Skimmer Basin | |
| | Infiltration Basin | |

**THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.**

**THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.**

**ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT**

*Refer To E. C. Special Provisions for Special Considerations.*

**GRAPHIC SCALE**

0 30 PLANS

0 30 PROFILE (HORIZONTAL)

0 10 PROFILE (VERTICAL)

*ROADSIDE ENVIRONMENTAL UNIT*
*DIVISION OF HIGHWAYS*
*STATE OF NORTH CAROLINA*

*THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.*

*Prepared in the Office of:*


WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Liscense No. F-0377
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Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION


**2018 STANDARD SPECIFICATIONS**

*Designed by:*

| JIM DAVIS, PE | 3554 |
|---|---|
| NAME | LEVEL III CERTIFICATION NO. |

Roadway Standard Drawings

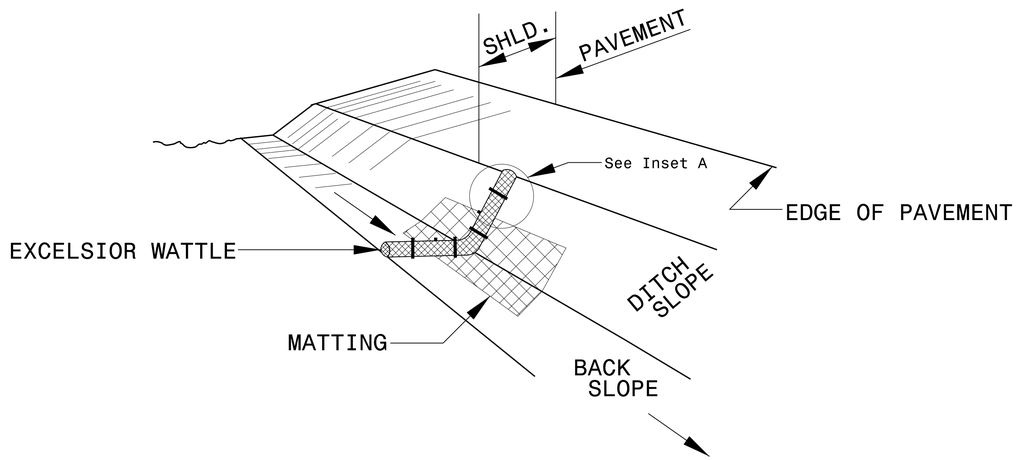
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

| | | | |
|---|---|---|---|
| 1604.01 | Railroad Erosion Control Detail | 1632.01 | Rock Inlet Sediment Trap Type A |
| 1605.01 | Temporary Silt Fence | 1632.02 | Rock Inlet Sediment Trap Type B |
| 1606.01 | Special Sediment Control Fence | 1632.03 | Rock Inlet Sediment Trap Type C |
| 1607.01 | Gravel Construction Entrance | 1633.01 | Temporary Rock Silt Check Type A |
| 1622.01 | Temporary Berms and Slope Drains | 1633.02 | Temporary Rock Silt Check Type B |
| 1630.01 | Riser Basin | 1634.01 | Temporary Rock Sediment Dam Type A |
| 1630.02 | Silt Basin Type B | 1634.02 | Temporary Rock Sediment Dam Type B |
| 1630.03 | Temporary Silt Ditch | 1635.01 | Rock Pipe Inlet Sediment Trap Type A |
| 1630.04 | Stilling Basin | 1635.02 | Rock Pipe Inlet Sediment Trap Type B |
| 1630.05 | Temporary Diversion | 1640.01 | Coir Fiber Baffle |
| 1630.06 | Special Stilling Basin | 1645.01 | Temporary Stream Crossing |
| 1631.01 | Matting Installation | | |

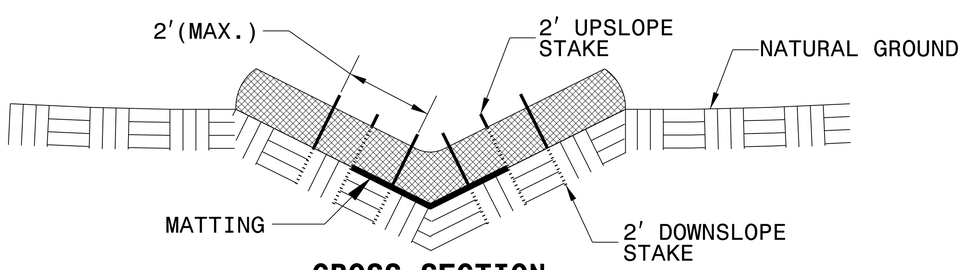
1/30/2018
USER:sk.ermogi
B-4775_EC 1.dgn

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | E-2 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

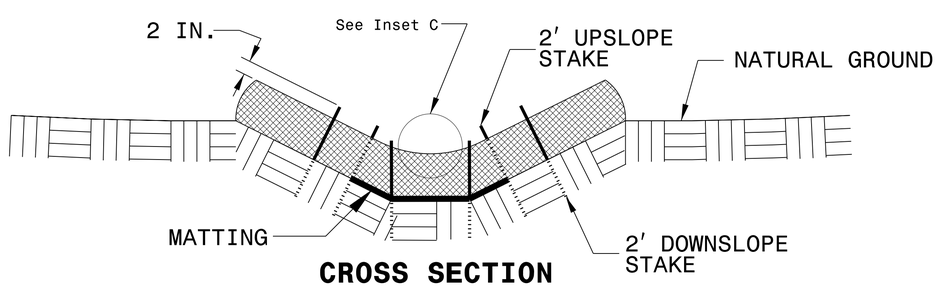
# WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL




**ISOMETRIC VIEW**




**CROSS SECTION VEE DITCH**




**CROSS SECTION TRAPEZOIDAL DITCH**

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

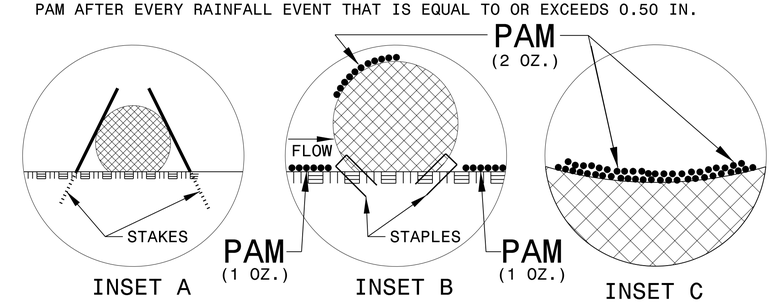
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

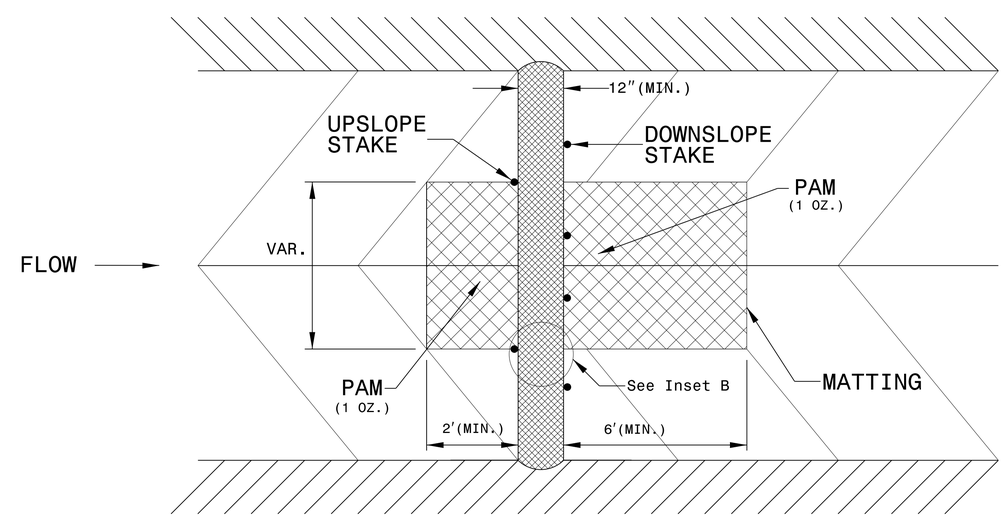
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.




**TOP VIEW**

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | EC-3 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

# SOIL STABILIZATION TIMEFRAMES

| SITE DESCRIPTION | STABILIZATION TIME | TIMEFRAME EXCEPTIONS |
|---|---|---|
| PERIMETER DIKES, SWALES, DITCHES AND SLOPES | 7 DAYS | NONE |
| HIGH QUALITY WATER (HQW) ZONES | 7 DAYS | NONE |
| SLOPES STEEPER THAN 3:1 | 7 DAYS | IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED. |
| SLOPES 3:1 OR FLATTER | 14 DAYS | 7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH. |
| ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1 | 14 DAYS | NONE, EXCEPT FOR PERIMETERS AND HQW ZONES. |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | EC-3A |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

# SOIL STABILIZATION SUMMARY SHEET

## MATTING FOR EROSION CONTROL (DITCHES)

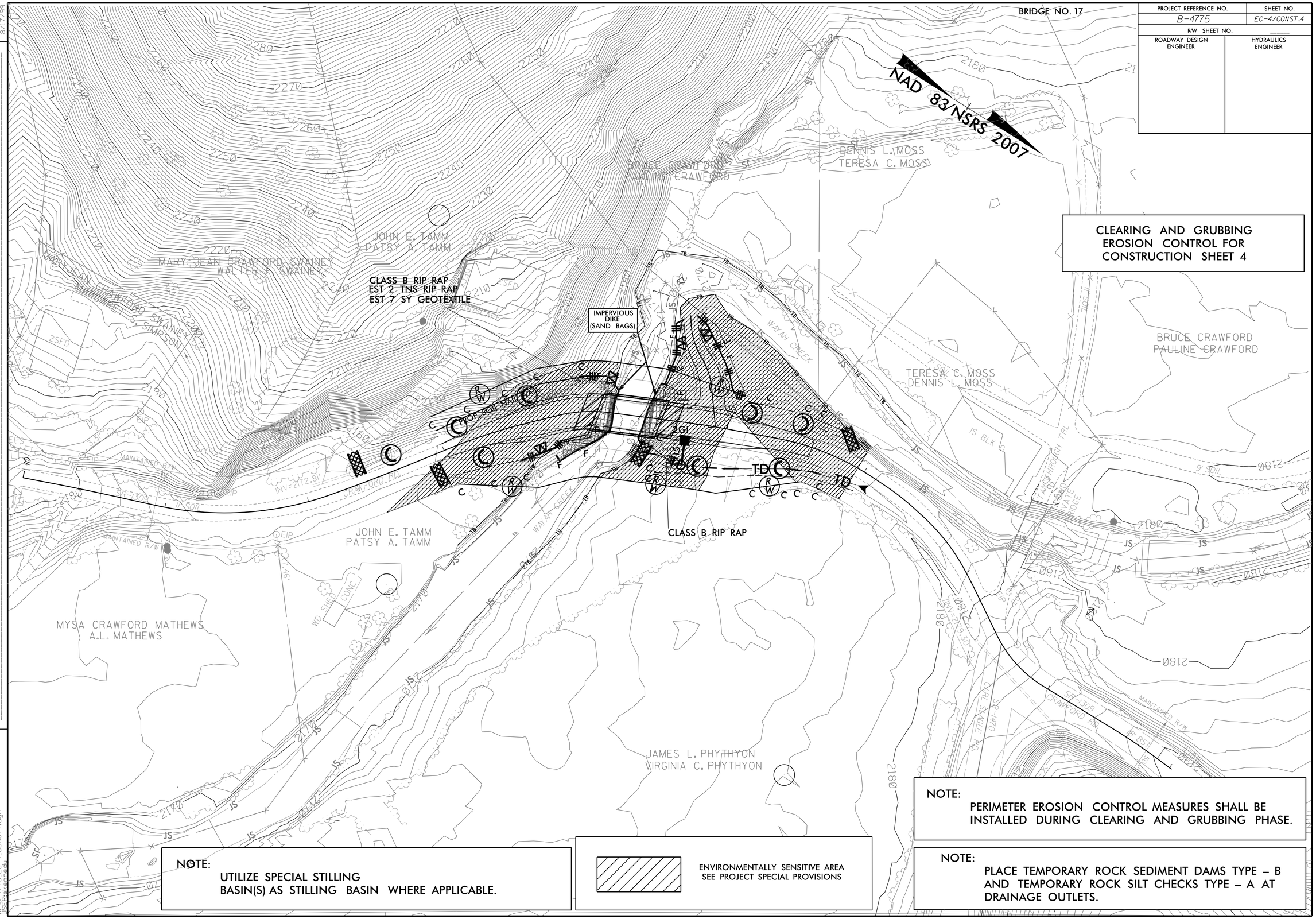
| CONST SHEET NO. | LINE | FROM STATION | TO STATION | SIDE | ESTIMATE (SY) |
|---|---|---|---|---|---|
| 4 | -L- | 14+50 | 16+00 | RT. | 105 |
| 4 | -L- | 13+00 | 14+00 | LT. | 30 |
| 4 | -L- | 15+00 | 15+92 | LT. | 43 |
| | **MATTING FOR EROSION CONTROL (SLOPES & SHOULDERS)** | | | | |
| 4 | -L- | 13+00 | 15+75 | RT. | 405 |
| | | | | SUBTOTAL | 583 |
| MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER | | | | | 35 |
| | | | | TOTAL | 618 |
| | | | | SAY | 620 |
| | **COIR FIBER MATTING** | | | | |
| INSTALL COIR FIBER MATTING ON STREAMBANKS AND FLOODPLAIN BENCHES AS NEEDED | | | | | 150 |

## PERMANENT SOIL REINFORCEMENT MAT

| CONST SHEET NO. | LINE | FROM STATION | TO STATION | SIDE | ESTIMATE (SY) |
|---|---|---|---|---|---|
| 4 | -L- | 14+40 | 14+50 | RT. | 10 |
| | | | | SUBTOTAL | 10 |
| | | ADDITIONAL PSRM TO BE INSTALLED | | | 2 |
| | | | | TOTAL | 12 |
| | | | | SAY | 12 |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | EC-4/CONST.4 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

BRIDGE NO. 17




CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTE:
UTILIZE SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

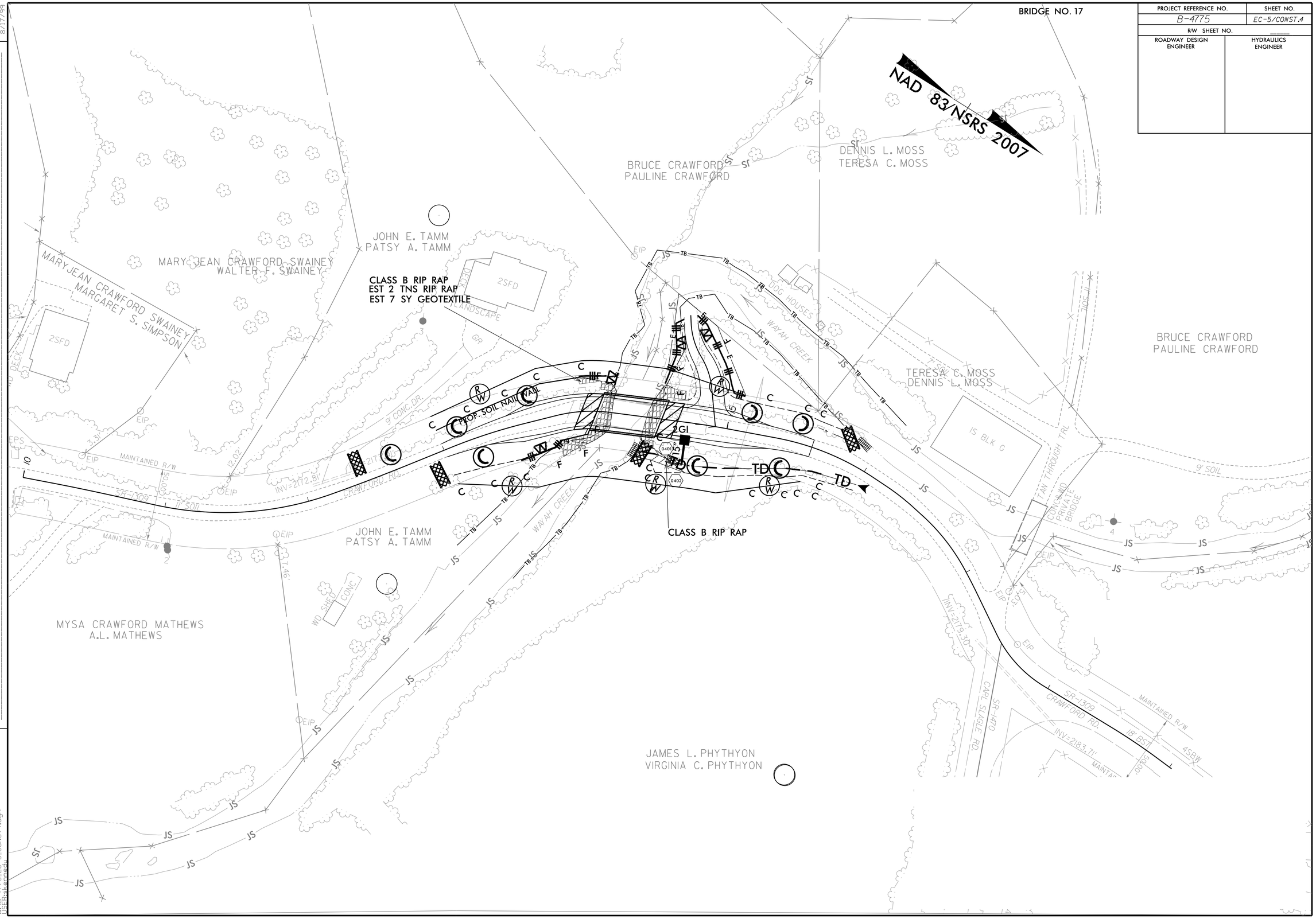
REVISIONS

8/17/99

1/30/2018
B-4775_EC_4_CONST4.dgn
USER:Rskeppard

BRIDGE NO. 17

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4775 | EC-5/CONST.4 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |




REVISIONS

8/17/99

12/13/2017
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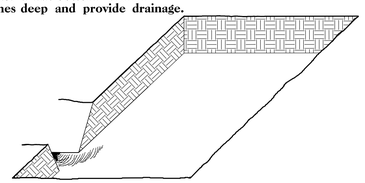
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | B-4775 | RF-1 | |
| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION | |
| | | | |

# PLANTING DETAILS

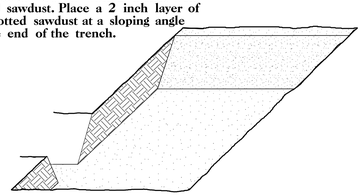
## SEEDLING / LINER BAREROOT PLANTING DETAIL

### HEALING IN

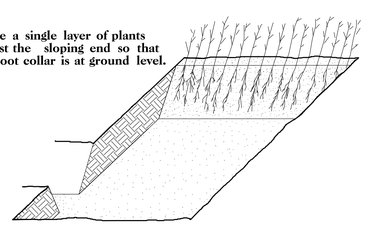
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



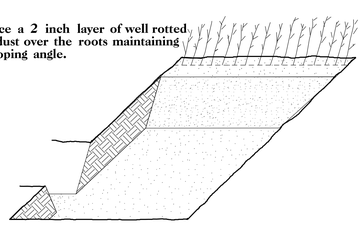
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

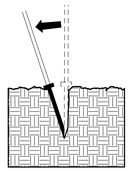


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

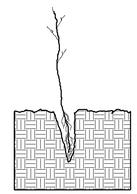


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

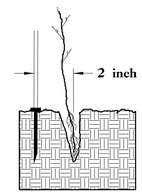
### DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



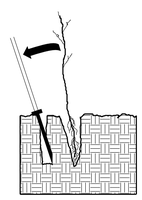
1. Insert planting bar as shown and pull handle toward planter.



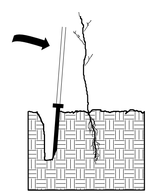
2. Remove planting bar and place seedling at correct depth.



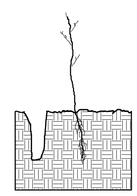

3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

### PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

# REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

**REFORESTATION**

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

| | | | |
|---|---|---|---|
| 25% | LIRIODENDRON TULIPIFERA | TULIP POPLAR | 12 in – 18 in BR |
| 25% | PLATANUS OCCIDENTALIS | AMERICAN SYCAMORE | 12 in – 18 in BR |
| 25% | FRAXINUS PENNSYLVANICA | GREEN ASH | 12 in – 18 in BR |
| 25% | BETULA NIGRA | RIVER BIRCH | 12 in – 18 in BR |

# REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT