



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

JAMES H. TROGDON, III  
SECRETARY

July 26, 2017

U.S. Army Corps of Engineers  
Regulatory Field Office  
151 Patton Avenue, Room 208  
Asheville, NC 28801-5006

ATTN: Ms. Loretta Beckwith  
NCDOT Coordinator

Subject: Application for Section 404 Nationwide Permits 13, 23 & 33 and 401 Water Quality Certification for the Proposed Replacement of Bridge 139 on SR 1139 over East Branch Toxaway Creek in Transylvania County, Federal Aid Project No. BRZ-1127(12); TIP B- 5405, Division 14; Work Order WBS Element 46120.1.1.

Dear Madam:

The North Carolina Department of Transportation (NCDOT) proposes to replace bridge number 139 on SR 1139 (Old Toxaway Road) over Toxaway Creek in Transylvania County with a single span, 60 feet long cored slab bridge to the south of the existing alignment. The existing bridge will be utilized as an onsite detour during construction. This action will result in 60 lf feet of permanent impacts resulting from bank stabilization (34lf) and energy dissipaters/roadway fill (26 lf). There will be < 0.01 acres (48 lf) of temporary impacts to surface waters from bank stabilization installation and temporary dewatering. Mitigation has been acquired from NCDMS for the 26 lf of roadway fill.

Please see enclosed copies of the Pre-Construction Notification (PCN), NCDMS Acceptance Letter, Stormwater Management Plan, Permit Drawings, and Roadway Plansheets. A Categorical Exclusion (CE) was completed in October 2015 and distributed shortly thereafter. Additional copies are available upon request.

This project is located in a trout watershed; therefore comments from the NCWRC will be required prior to authorization by the Corps of Engineers. By copy of this letter and attachment, NCDOT hereby requests NCWRC Review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers and the NCDOT within 30 calendar days of receipt of this application.

This project calls for a letting date of February 20, 2018 and a review date of January 2, 2018.

A copy of this permit application and its distribution list will be posted on the NCDOT Website at: <http://connect.ncdot.gov/resources/Environmental>. If you have any questions or need additional information, please call Jeff Hemphill at (919) 707-6126.

Sincerely,

A handwritten signature in black ink, appearing to read 'PHS', with a long horizontal flourish extending to the right.

for Philip S. Harris, P.E., Manager  
Environmental Analysis Unit

cc:  
NCDOT Permit Application Standard Distribution List



Office Use Only:  
 Corps action ID no. \_\_\_\_\_  
 DWQ project no. \_\_\_\_\_  
 Form Version 1.3 Dec 10 2008

## Pre-Construction Notification (PCN) Form

### A. Applicant Information

#### 1. Processing

|                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                       |                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 1a. Type(s) of approval sought from the Corps:                                                                                                                                                                                                                                                                                                              | <input checked="" type="checkbox"/> Section 404 Permit                                                                | <input type="checkbox"/> Section 10 Permit                                                                   |
| 1b. Specify Nationwide Permit (NWP) number: 13, 23, 33 or General Permit (GP) number:                                                                                                                                                                                                                                                                       |                                                                                                                       |                                                                                                              |
| 1c. Has the NWP or GP number been verified by the Corps?                                                                                                                                                                                                                                                                                                    | <input checked="" type="checkbox"/> Yes                                                                               | <input type="checkbox"/> No                                                                                  |
| 1d. Type(s) of approval sought from the DWQ (check all that apply):                                                                                                                                                                                                                                                                                         |                                                                                                                       |                                                                                                              |
| <input type="checkbox"/> 401 Water Quality Certification – Regular <span style="margin-left: 150px;"><input type="checkbox"/> Non-404 Jurisdictional General Permit</span><br><input checked="" type="checkbox"/> 401 Water Quality Certification – Express <span style="margin-left: 150px;"><input type="checkbox"/> Riparian Buffer Authorization</span> |                                                                                                                       |                                                                                                              |
| 1e. Is this notification solely for the record because written approval is not required?                                                                                                                                                                                                                                                                    | For the record only for DWQ 401 Certification:<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | For the record only for Corps Permit:<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.                                                                                                                                                                           | <input checked="" type="checkbox"/> Yes                                                                               | <input type="checkbox"/> No                                                                                  |
| 1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.                                                                                                                                                                                                                                                                 | <input type="checkbox"/> Yes                                                                                          | <input checked="" type="checkbox"/> No                                                                       |
| 1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?                                                                                                                                                                                                                                                                             | <input type="checkbox"/> Yes                                                                                          | <input checked="" type="checkbox"/> No                                                                       |

#### 2. Project Information

|                                              |                                                                                        |
|----------------------------------------------|----------------------------------------------------------------------------------------|
| 2a. Name of project:                         | Replacement of Bridge 139 over East Branch Toxaway Creek on SR 1139 (Old Toxaway Road) |
| 2b. County:                                  | Transylvania                                                                           |
| 2c. Nearest municipality / town:             | Rosman                                                                                 |
| 2d. Subdivision name:                        | <i>not applicable</i>                                                                  |
| 2e. NCDOT only, T.I.P. or state project no.: | B-5405                                                                                 |

#### 3. Owner Information

|                                                |                                             |
|------------------------------------------------|---------------------------------------------|
| 3a. Name(s) on Recorded Deed:                  | North Carolina Department of Transportation |
| 3b. Deed Book and Page No.                     | <i>not applicable</i>                       |
| 3c. Responsible Party (for LLC if applicable): | <i>not applicable</i>                       |
| 3d. Street address:                            | 1598 Mail Service Center                    |
| 3e. City, state, zip:                          | Raleigh, NC 27699-1598                      |
| 3f. Telephone no.:                             | (919) 707-6126                              |
| 3g. Fax no.:                                   | (919) 212-5785                              |
| 3h. Email address:                             | jhemphill@ncdot.gov                         |

|                                                           |                                                                         |
|-----------------------------------------------------------|-------------------------------------------------------------------------|
| <b>4. Applicant Information (if different from owner)</b> |                                                                         |
| 4a. Applicant is:                                         | <input type="checkbox"/> Agent <input type="checkbox"/> Other, specify: |
| 4b. Name:                                                 | <i>not applicable</i>                                                   |
| 4c. Business name (if applicable):                        |                                                                         |
| 4d. Street address:                                       |                                                                         |
| 4e. City, state, zip:                                     |                                                                         |
| 4f. Telephone no.:                                        |                                                                         |
| 4g. Fax no.:                                              |                                                                         |
| 4h. Email address:                                        |                                                                         |
| <b>5. Agent/Consultant Information (if applicable)</b>    |                                                                         |
| 5a. Name:                                                 | <i>not applicable</i>                                                   |
| 5b. Business name (if applicable):                        |                                                                         |
| 5c. Street address:                                       |                                                                         |
| 5d. City, state, zip:                                     |                                                                         |
| 5e. Telephone no.:                                        |                                                                         |
| 5f. Fax no.:                                              |                                                                         |
| 5g. Email address:                                        |                                                                         |

| <b>B. Project Information and Prior Project History</b>                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>1. Property Identification</b>                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                      |
| 1a. Property identification no. (tax PIN or parcel ID):                                                                                                                                                                                                                                                                                                                                                                        | <i>not applicable</i>                                                                                |
| 1b. Site coordinates (in decimal degrees):                                                                                                                                                                                                                                                                                                                                                                                     | Latitude: 35.09583<br>(DD.DDDDDD) Longitude: - 82.85703<br>(-DD.DDDDDD)                              |
| 1c. Property size:                                                                                                                                                                                                                                                                                                                                                                                                             | 0.74 acre                                                                                            |
| <b>2. Surface Waters</b>                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                      |
| 2a. Name of nearest body of water (stream, river, etc.) to proposed project:                                                                                                                                                                                                                                                                                                                                                   | East Branch Toxaway Creek                                                                            |
| 2b. Water Quality Classification of nearest receiving water:                                                                                                                                                                                                                                                                                                                                                                   | C;Tr                                                                                                 |
| 2c. River basin:                                                                                                                                                                                                                                                                                                                                                                                                               | Savannah                                                                                             |
| <b>3. Project Description</b>                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                      |
| 3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application:<br>Forest land, rural residential.                                                                                                                                                                                                                                                   |                                                                                                      |
| 3b. List the total estimated acreage of all existing wetlands on the property:<br>0.02 acre                                                                                                                                                                                                                                                                                                                                    |                                                                                                      |
| 3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property:<br>168 lf                                                                                                                                                                                                                                                                                                       |                                                                                                      |
| 3d. Explain the purpose of the proposed project:<br>To replace a structurally deficient and functionally obsolete bridge.                                                                                                                                                                                                                                                                                                      |                                                                                                      |
| 3e. Describe the overall project in detail, including the type of equipment to be used:<br>The project involves replacing a single span 30-foot timber deck & steel I beam bridge with a single span, 60-foot cored slab bridge on a new alignment to the south. The existing bridge will be utilized as an onsite detour for this project. Standard road building equipment, such as trucks, dozers, and cranes will be used. |                                                                                                      |
| <b>4. Jurisdictional Determinations</b>                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                      |
| 4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past?<br>Comments:                                                                                                                                                                                                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown |
| 4b. If the Corps made the jurisdictional determination, what type of determination was made?                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> Preliminary <input type="checkbox"/> Final                                  |
| 4c. If yes, who delineated the jurisdictional areas?<br>Name (if known):                                                                                                                                                                                                                                                                                                                                                       | Agency/Consultant Company:<br>Other: NCDOT                                                           |
| 4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.                                                                                                                                                                                                                                                                                                        |                                                                                                      |
| <b>5. Project History</b>                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                      |
| 5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown |
| 5b. If yes, explain in detail according to "help file" instructions.                                                                                                                                                                                                                                                                                                                                                           |                                                                                                      |
| <b>6. Future Project Plans</b>                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                      |
| 6a. Is this a phased project?                                                                                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                  |
| 6b. If yes, explain.                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                      |

| <b>C. Proposed Impacts Inventory</b>                                                                                                                                 |                          |                                                           |                                                                         |                                                                                      |                                    |                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------|------------------------------------|
| <b>1. Impacts Summary</b>                                                                                                                                            |                          |                                                           |                                                                         |                                                                                      |                                    |                                    |
| 1a. Which sections were completed below for your project (check all that apply):                                                                                     |                          |                                                           |                                                                         |                                                                                      |                                    |                                    |
| <input type="checkbox"/> Wetlands                                                                                                                                    |                          | <input checked="" type="checkbox"/> Streams - tributaries |                                                                         | <input type="checkbox"/> Buffers                                                     |                                    |                                    |
| <input type="checkbox"/> Open Waters                                                                                                                                 |                          | <input type="checkbox"/> Pond Construction                |                                                                         |                                                                                      |                                    |                                    |
| <b>2. Wetland Impacts</b>                                                                                                                                            |                          |                                                           |                                                                         |                                                                                      |                                    |                                    |
| If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.                                                       |                          |                                                           |                                                                         |                                                                                      |                                    |                                    |
| 2a.<br>Wetland impact number – Permanent (P) or Temporary (T)                                                                                                        | 2b.<br>Type of impact    | 2c.<br>Type of wetland (if known)                         | 2d.<br>Forested                                                         | 2e.<br>Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)                   | 2f.<br>Area of impact (acres)      |                                    |
| Site <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                           |                          |                                                           | <input type="checkbox"/> Yes<br><input type="checkbox"/> No             | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                       |                                    |                                    |
| Site <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                           |                          |                                                           | <input type="checkbox"/> Yes<br><input type="checkbox"/> No             | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                       |                                    |                                    |
| Site <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                           |                          |                                                           | <input type="checkbox"/> Yes<br><input type="checkbox"/> No             | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                       |                                    |                                    |
| Site <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                           |                          |                                                           | <input type="checkbox"/> Yes<br><input type="checkbox"/> No             | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                       |                                    |                                    |
| Site <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                           |                          |                                                           | <input type="checkbox"/> Yes<br><input type="checkbox"/> No             | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                       |                                    |                                    |
| <b>2g. Total wetland impacts</b>                                                                                                                                     |                          |                                                           |                                                                         |                                                                                      |                                    |                                    |
| <b>3. Stream Impacts</b>                                                                                                                                             |                          |                                                           |                                                                         |                                                                                      |                                    |                                    |
| If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted. |                          |                                                           |                                                                         |                                                                                      |                                    |                                    |
| 3a.<br>Stream impact number - Permanent (P) or Temporary (T)                                                                                                         | 3b.<br>Type of impact    | 3c.<br>Stream name                                        | 3d.<br>Perennial (PER) or intermittent (INT)?                           | 3e.<br>Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)                   | 3f.<br>Average stream width (feet) | 3g.<br>Impact length (linear feet) |
| Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T                                                                                              | Energy Dissipaters       | East Branch Toxaway Creek                                 | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input checked="" type="checkbox"/> DWQ | 2                                  | 19                                 |
| Site 1 <input type="checkbox"/> P <input checked="" type="checkbox"/> T                                                                                              | Dewatering/ Installation | East Branch Toxaway Creek                                 | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input checked="" type="checkbox"/> DWQ | 2                                  | 15                                 |
| Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T                                                                                              | Bank Stabilization       | UT to East Branch Toxaway Creek                           | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input checked="" type="checkbox"/> DWQ | 17                                 | 19                                 |
| Site 2 <input type="checkbox"/> P <input checked="" type="checkbox"/> T                                                                                              | Bank Stabilization       | UT to East Branch Toxaway Creek                           | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input checked="" type="checkbox"/> DWQ | 17                                 | 10                                 |
| Site 3 <input checked="" type="checkbox"/> P <input type="checkbox"/> T                                                                                              | Pipe Extension           | UT to East Branch Toxaway Creek                           | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input checked="" type="checkbox"/> DWQ | 5                                  | 7                                  |
| Site 3 <input type="checkbox"/> P <input checked="" type="checkbox"/> T                                                                                              | Dewatering               | UT to East Branch Toxaway Creek                           | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input checked="" type="checkbox"/> DWQ | 5                                  | 18                                 |
| Site 3 <input checked="" type="checkbox"/> P <input type="checkbox"/> T                                                                                              | Bank Stabilization       | UT to East Branch Toxaway Creek                           | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input checked="" type="checkbox"/> DWQ | 5                                  | 15                                 |
| Site 3 <input type="checkbox"/> P <input checked="" type="checkbox"/> T                                                                                              | Bank Stabilization       | UT to East Branch Toxaway Creek                           | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input checked="" type="checkbox"/> DWQ | 5                                  | 5                                  |
| <b>3h. Total stream and tributary impacts</b>                                                                                                                        |                          |                                                           |                                                                         |                                                                                      |                                    | 60 lf Perm<br>48 lf temp           |
| . Comments:                                                                                                                                                          |                          |                                                           |                                                                         |                                                                                      |                                    |                                    |

**4. Open Water Impacts**

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

| 4a.<br>Open water impact number – Permanent (P) or Temporary (T) | 4b.<br>Name of waterbody (if applicable) | 4c.<br>Type of impact | 4d.<br>Waterbody type | 4e.<br>Area of impact (acres) |
|------------------------------------------------------------------|------------------------------------------|-----------------------|-----------------------|-------------------------------|
| O1 <input type="checkbox"/> P <input type="checkbox"/> T         |                                          |                       |                       |                               |
| O1 <input type="checkbox"/> P <input type="checkbox"/> T         |                                          |                       |                       |                               |
| O3 <input type="checkbox"/> P <input type="checkbox"/> T         |                                          |                       |                       |                               |
| O4 <input type="checkbox"/> P <input type="checkbox"/> T         |                                          |                       |                       |                               |
| <b>4f. Total open water impacts</b>                              |                                          |                       |                       | Permanent<br>Temporary        |

4g. Comments:

**5. Pond or Lake Construction**

If pond or lake construction proposed, then complete the chart below.

| 5a.<br>Pond ID number | 5b.<br>Proposed use or purpose of pond | 5c.<br>Wetland Impacts (acres) |        |           | 5d.<br>Stream Impacts (feet) |        |           | 5e.<br>Upland (acres) |
|-----------------------|----------------------------------------|--------------------------------|--------|-----------|------------------------------|--------|-----------|-----------------------|
|                       |                                        | Flooded                        | Filled | Excavated | Flooded                      | Filled | Excavated | Flooded               |
| P1                    |                                        |                                |        |           |                              |        |           |                       |
| P2                    |                                        |                                |        |           |                              |        |           |                       |
| <b>5f. Total</b>      |                                        |                                |        |           |                              |        |           |                       |

5g. Comments:

|                                           |                                                                                     |
|-------------------------------------------|-------------------------------------------------------------------------------------|
| 5h. Is a dam high hazard permit required? | <input type="checkbox"/> Yes <input type="checkbox"/> No      If yes, permit ID no: |
| 5i. Expected pond surface area (acres):   |                                                                                     |
| 5j. Size of pond watershed (acres):       |                                                                                     |
| 5k. Method of construction:               |                                                                                     |

**6. Buffer Impacts (for DWQ)**

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

|                                                              |                          |                    |                                                                                                   |                                                                            |                                    |
|--------------------------------------------------------------|--------------------------|--------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------|
| 6a.<br>Project is in which protected basin?                  |                          |                    | <input type="checkbox"/> Neuse<br><input type="checkbox"/> Catawba                                | <input type="checkbox"/> Tar-Pamlico<br><input type="checkbox"/> Randleman | <input type="checkbox"/> Other:    |
| 6b.<br>Buffer impact number – Permanent (P) or Temporary (T) | 6c.<br>Reason for impact | 6d.<br>Stream name | 6e.<br>Buffer mitigation required?<br><input type="checkbox"/> Yes<br><input type="checkbox"/> No | 6f.<br>Zone 1 impact (square feet)                                         | 6g.<br>Zone 2 impact (square feet) |
| B1 <input type="checkbox"/> P <input type="checkbox"/> T     |                          |                    | <input type="checkbox"/> Yes<br><input type="checkbox"/> No                                       |                                                                            |                                    |
| B2 <input type="checkbox"/> P <input type="checkbox"/> T     |                          |                    | <input type="checkbox"/> Yes<br><input type="checkbox"/> No                                       |                                                                            |                                    |
| B3 <input type="checkbox"/> P <input type="checkbox"/> T     |                          |                    | <input type="checkbox"/> Yes<br><input type="checkbox"/> No                                       |                                                                            |                                    |
| <b>6h. Total buffer impacts</b>                              |                          |                    |                                                                                                   |                                                                            |                                    |
| 6i. Comments:                                                |                          |                    |                                                                                                   |                                                                            |                                    |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                             |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| <b>D. Impact Justification and Mitigation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                             |          |
| <b>1. Avoidance and Minimization</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                             |          |
| 1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                             |          |
| 1. See Stormwater Management Plan. The proposed bridge will have no direct discharge into the water. Two deck drains are proposed to decrease spread at the 2GI at the beginning of the bridge. The design was shifted to the south to avoid the stream and wetland immediately to the north of the project. The new bridge spans the creek. A NCWRC Letter dated July 30, 2013 stated 'a moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds'. |                                                                                                                                                                             |          |
| 1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                             |          |
| Best Management Practices for Surface Waters will be used during all phases of construction.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                             |          |
| <b>2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                             |          |
| 2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                         |          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> DWQ <input type="checkbox"/> Corps                                                                                                                 |          |
| 2c. If yes, which mitigation option will be used for this project?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> Mitigation bank<br><input checked="" type="checkbox"/> Payment to in-lieu fee program<br><input type="checkbox"/> Permittee Responsible Mitigation |          |
| <b>3. Complete if Using a Mitigation Bank</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                             |          |
| 3a. Name of Mitigation Bank: not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                             |          |
| 3b. Credits Purchased (attach receipt and letter)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Type                                                                                                                                                                        | Quantity |
| 3c. Comments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                             |          |
| <b>4. Complete if Making a Payment to In-lieu Fee Program</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                             |          |
| 4a. Approval letter from in-lieu fee program is attached.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <input checked="" type="checkbox"/> Yes                                                                                                                                     |          |
| 4b. Stream mitigation requested:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 26 linear feet                                                                                                                                                              |          |
| 4c. If using stream mitigation, stream temperature:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> warm <input type="checkbox"/> cool <input checked="" type="checkbox"/> cold                                                                        |          |
| 4d. Buffer mitigation requested (DWQ only):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0 square feet                                                                                                                                                               |          |
| 4e. Riparian wetland mitigation requested:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                             |          |
| 4f. Non-riparian wetland mitigation requested:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0 acres                                                                                                                                                                     |          |
| 4g. Coastal (tidal) wetland mitigation requested:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0 acres                                                                                                                                                                     |          |
| 4h. Comments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                             |          |
| <b>5. Complete if Using a Permittee Responsible Mitigation Plan</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                             |          |
| 5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                             |          |

**6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ**

6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?

Yes       No

6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.


| Zone                                         | 6c.<br>Reason for impact | 6d.<br>Total impact<br>(square feet) | Multiplier | 6e.<br>Required mitigation<br>(square feet) |
|----------------------------------------------|--------------------------|--------------------------------------|------------|---------------------------------------------|
| Zone 1                                       |                          |                                      |            |                                             |
| Zone 2                                       |                          |                                      |            |                                             |
| <b>6f. Total buffer mitigation required:</b> |                          |                                      |            |                                             |

6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).

6h. Comments:

| <b>E. Stormwater Management and Diffuse Flow Plan (required by DWQ)</b>                                                                        |                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Diffuse Flow Plan</b>                                                                                                                    |                                                                                                                                                                                               |
| 1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                                                                                                           |
| 1b. If yes, then is a diffuse flow plan included? If no, explain why.<br>Comments:                                                             | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                                                                                                           |
| <b>2. Stormwater Management Plan</b>                                                                                                           |                                                                                                                                                                                               |
| 2a. What is the overall percent imperviousness of this project?                                                                                | N/A                                                                                                                                                                                           |
| 2b. Does this project require a Stormwater Management Plan?                                                                                    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                           |
| 2c. If this project DOES NOT require a Stormwater Management Plan, explain why:                                                                |                                                                                                                                                                                               |
| 2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan:<br>See attached.       |                                                                                                                                                                                               |
| 2e. Who will be responsible for the review of the Stormwater Management Plan?                                                                  | <input type="checkbox"/> Certified Local Government<br><input type="checkbox"/> DWQ Stormwater Program<br><input checked="" type="checkbox"/> DWQ 401 Unit                                    |
| <b>3. Certified Local Government Stormwater Review</b>                                                                                         |                                                                                                                                                                                               |
| 3a. In which local government's jurisdiction is this project?                                                                                  | not applicable                                                                                                                                                                                |
| 3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):                                    | <input type="checkbox"/> Phase II<br><input type="checkbox"/> NSW<br><input type="checkbox"/> USMP<br><input type="checkbox"/> Water Supply Watershed<br><input type="checkbox"/> Other:      |
| 3c. Has the approved Stormwater Management Plan with proof of approval been attached?                                                          | <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                                      |
| <b>4. DWQ Stormwater Program Review</b>                                                                                                        |                                                                                                                                                                                               |
| 4a. Which of the following state-implemented stormwater management programs apply (check all that apply):                                      | <input type="checkbox"/> Coastal counties<br><input type="checkbox"/> HQW<br><input type="checkbox"/> ORW<br><input type="checkbox"/> Session Law 2006-246<br><input type="checkbox"/> Other: |
| 4b. Has the approved Stormwater Management Plan with proof of approval been attached?                                                          | <input type="checkbox"/> Yes <input type="checkbox"/> No      NA                                                                                                                              |
| <b>5. DWQ 401 Unit Stormwater Review</b>                                                                                                       |                                                                                                                                                                                               |
| 5a. Does the Stormwater Management Plan meet the appropriate requirements?                                                                     | <input type="checkbox"/> Yes <input type="checkbox"/> No      NA                                                                                                                              |
| 5b. Have all of the 401 Unit submittal requirements been met?                                                                                  | <input type="checkbox"/> Yes <input type="checkbox"/> No      NA                                                                                                                              |

| <b>F. Supplementary Information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| <b>1. Environmental Documentation (DWQ Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                        |
| 1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?                                                                                                                                                                                                                                                                                                                                             | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No    |
| 1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?                                                                                                                                                                                                                                                   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No    |
| 1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.)<br><br>Comments:                                                                                                                                                                                                                                                                           | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No    |
| <b>2. Violations (DWQ Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                        |
| 2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?                                                                                                                                                                                                                                                                 | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    |
| 2b. Is this an after-the-fact permit application?                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    |
| 2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):                                                                                                                                                                                                                                                                                                                                                             |                                                                        |
| <b>3. Cumulative Impacts (DWQ Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                        |
| 3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No |
| 3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description.<br><br>Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary. |                                                                        |
| <b>4. Sewage Disposal (DWQ Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                        |
| 4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.<br><br>not applicable                                                                                                                                                                                                                                                   |                                                                        |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                     |                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| <b>5. Endangered Species and Designated Critical Habitat (Corps Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                     |                                        |
| 5a. Will this project occur in or near an area with federally protected species or habitat?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <input checked="" type="checkbox"/> Yes                                                                                                                                                                             | <input type="checkbox"/> No            |
| 5b. Have you checked with the USFWS concerning Endangered Species Act impacts?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Yes                                                                                                                                                                                        | <input checked="" type="checkbox"/> No |
| 5c. If yes, indicate the USFWS Field Office you have contacted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> Raleigh<br><input type="checkbox"/> Asheville                                                                                                                                              |                                        |
| 5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat?<br><br>N.C. Natural Heritage Program database; USFWS-website; biological surveys for protected species listed for Transylvania County. A bat survey report dated April 12, 2017 found no roosting habitat nor nearby occurrences for Gray bat and NLEB is 4(d) compliant (emailed 5/31/17). An aquatic screening for Appalachian elktoe was conducted in 2013 and determined that the mussel does not occur in the Savannah River basin. Habitat for Small whorled pogonia, mountain sweet pitcher plant and swamp pink no longer exists in the project footprint. |                                                                                                                                                                                                                     |                                        |
| <b>6. Essential Fish Habitat (Corps Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                     |                                        |
| 6a. Will this project occur in or near an area designated as essential fish habitat?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> Yes                                                                                                                                                                                        | <input checked="" type="checkbox"/> No |
| 6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat?<br>NMFS County Index                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                     |                                        |
| <b>7. Historic or Prehistoric Cultural Resources (Corps Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                     |                                        |
| 7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> Yes                                                                                                                                                                                        | <input checked="" type="checkbox"/> No |
| 7b. What data sources did you use to determine whether your site would impact historic or archeological resources?<br>NEPA Documentation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                     |                                        |
| <b>8. Flood Zone Designation (Corps Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                     |                                        |
| 8a. Will this project occur in a FEMA-designated 100-year floodplain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <input checked="" type="checkbox"/> Yes                                                                                                                                                                             | <input type="checkbox"/> No            |
| 8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                     |                                        |
| 8c. What source(s) did you use to make the floodplain determination? FEMA Maps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                     |                                        |
| for<br>Phillip S. Harris III, P.E., C.P.M.<br>Applicant/Agent's Printed Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <br>Applicant/Agent's Signature<br>(Agent's signature is valid only if an authorization letter from the applicant is provided.) | 07-26-2017<br>Date                     |



ROY COOPER  
Governor

June 19, 2017

Mr. Philip S. Harris, III, P.E., CPM  
Project Development and Environmental Analysis Unit  
North Carolina Department of Transportation  
1598 Mail Service Center  
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: Mitigation Acceptance Letter:

**B-5405**, Replace Bridge Number 139 over East Branch Toxaway Creek on SR 1139,  
Transylvania County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on June 16, 2017, the impacts are located in CU 03060101 of the Savannah River basin in the Southern Mountains (SM) Eco-Region, and are as follows:

| Savannah<br>03060101<br>SM | Stream |      |      | Wetlands |              |               | Buffer (Sq. Ft.) |        |
|----------------------------|--------|------|------|----------|--------------|---------------|------------------|--------|
|                            | Cold   | Cool | Warm | Riparian | Non-Riparian | Coastal Marsh | Zone 1           | Zone 2 |
| Impacts (feet/acres)       | 26.0   | 0    | 0    | 0        | 0            | 0             | 0                | 0      |

\*Some of the stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

The impacts and associated mitigation needs were under projected by the NCDOT in the 2017 impact data. DMS will commit to implement sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Beth Harmon at 919-707-8420.

Sincerely,

James B. Stanfill  
Credit Management Supervisor

cc: Mr. Lori Beckwith, USACE – Asheville Regulatory Field Office  
Ms. Amy Chapman, NCDWR  
File: B-5405





North Carolina Department of Transportation

Highway Stormwater Program  
STORMWATER MANAGEMENT PLAN  
FOR NCDOT PROJECTS



(Version 2.06; Released June 2016)

WBS Element: 46120.1.1      TIP No.: B-5405      County(ies): Transylvania      Page 1 of 2

General Project Information

|                                 |                                |             |                        |                                            |                    |       |           |
|---------------------------------|--------------------------------|-------------|------------------------|--------------------------------------------|--------------------|-------|-----------|
| WBS Element:                    | 46120.1.1                      | TIP Number: | B-5405                 | Project Type:                              | Bridge Replacement | Date: | 3/27/2017 |
| NCDOT Contact:                  | William (Bill) H. Elam Jr., PE |             | Contractor / Designer: | Frank Fleming, PE - Ecological Engineering |                    |       |           |
| Address:                        | 1000 Birch Ridge Drive         |             | Address:               | 1151 SE Cary Parkway                       |                    |       |           |
|                                 | Raleigh, NC 27610              |             |                        | Suite 101                                  |                    |       |           |
|                                 | Cary, NC 27518                 |             |                        | Cary, NC 27518                             |                    |       |           |
| Phone:                          | 919-707-6718                   |             | Phone:                 | 919-557-0929                               |                    |       |           |
| Email:                          | belam@ncdot.gov                |             | Email:                 | ffleming@ecologicaleng.com                 |                    |       |           |
| City/Town:                      | Rosman, NC                     |             | County(ies):           | Transylvania                               |                    |       |           |
| River Basin(s):                 | Savannah                       |             | CAMA County?           | No                                         |                    |       |           |
| Wetlands within Project Limits? | Yes                            |             |                        |                                            |                    |       |           |

Project Description

|                                      |                                                         |                       |                                                  |                                 |  |  |  |
|--------------------------------------|---------------------------------------------------------|-----------------------|--------------------------------------------------|---------------------------------|--|--|--|
| Project Length (lin. miles or feet): | 0.142 Miles                                             | Surrounding Land Use: | Rural area with forest and agricultural landuses |                                 |  |  |  |
|                                      | Proposed Project                                        |                       | Existing Site                                    |                                 |  |  |  |
| Project Built-Upon Area (ac.)        | 0.5                                                     | ac.                   | 0.3                                              | ac.                             |  |  |  |
| Typical Cross Section Description:   | 2@11' lane with 3'-0" shoulders (7'-0" with guardrail). |                       |                                                  | 2@9' lane with 0'-0" shoulders. |  |  |  |

|                                        |                |     |       |      |           |     |       |      |
|----------------------------------------|----------------|-----|-------|------|-----------|-----|-------|------|
| Annual Avg Daily Traffic (veh/hr/day): | Design/Future: | 314 | Year: | 2038 | Existing: | 223 | Year: | 2018 |
|----------------------------------------|----------------|-----|-------|------|-----------|-----|-------|------|

**General Project Narrative:**  
**(Description of Minimization of Water Quality Impacts)**

State Project B-5405 involves the replacement of the existing NCDOT Bridge #870139 on SR 1139 over East Branch Toxaway Creek. Bridge #870139 consists of 1@30'-8" timber floor on I-beams on timber caps with timber posts and sills. The proposed bridge will be 1@60' 24" cored slab with 4'-0" caps and sloping abutments. The proposed bridge is located in Zone X of FIRM Map number 3700854100J and is not located within a study area. The proposed bridge will provide more hydraulic opening than the existing bridge. Two deck drains are proposed to decrease spread at the 2GI at the begin of the bridge. Deck drains are not located over the water body. One stormwater outfall is proposed to outfall into UT to East Branch Creek a Rip Rap pad will be utilized to dissipate the energy. Two existing cross pipes will be replaced in place with rip rap added to outlets for stabilization.

Waterbody Information

|                                                                  |                              |                                                                  |                         |                                     |                                                                                                      |                         |     |     |
|------------------------------------------------------------------|------------------------------|------------------------------------------------------------------|-------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------|-----|-----|
| Surface Water Body (1):                                          | East Branch Toxaway Creek    |                                                                  | NCDWR Stream Index No.: | 4-9                                 |                                                                                                      |                         |     |     |
| NCDWR Surface Water Classification for Water Body                | Primary Classification:      |                                                                  | Class C                 |                                     |                                                                                                      |                         |     |     |
|                                                                  | Supplemental Classification: |                                                                  | Trout Waters (Tr)       |                                     |                                                                                                      |                         |     |     |
| Other Stream Classification:                                     | None                         |                                                                  |                         |                                     |                                                                                                      |                         |     |     |
| Impairments:                                                     | None                         |                                                                  |                         |                                     |                                                                                                      |                         |     |     |
| Aquatic T&E Species?                                             | No                           | Comments:                                                        |                         |                                     |                                                                                                      |                         |     |     |
| NRTR Stream ID:                                                  |                              |                                                                  |                         |                                     |                                                                                                      | Buffer Rules in Effect: | N/A |     |
| Project Includes Bridge Spanning Water Body?                     | Yes                          | Deck Drains Discharge Over Buffer?                               | N/A                     | Dissipator Pads Provided in Buffer? |                                                                                                      |                         |     | N/A |
| Deck Drains Discharge Over Water Body?                           | No                           | (If yes, provide justification in the General Project Narrative) |                         |                                     | (If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative) |                         |     |     |
| (If yes, provide justification in the General Project Narrative) |                              |                                                                  |                         |                                     |                                                                                                      |                         |     |     |



**North Carolina Department of Transportation**  
**Highway Stormwater Program**  
**STORMWATER MANAGEMENT PLAN**  
**FOR NCDOT PROJECTS**



(Version 2.06; Released June 2016)

**WBS Element:** 46120.1.1      **TIP No.:** B-5405      **County(ies):** Transylvania      **Page** 2 **of** 2

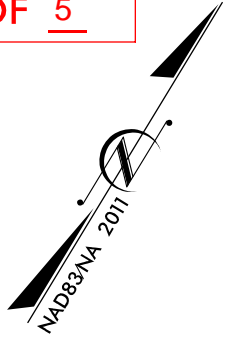
**Additional Waterbody Information**

|                                                          |                                                                  |                                                                  |                                |                                                                                                      |     |
|----------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------|-----|
| <b>Surface Water Body (2):</b>                           | UT to East Branch Toxaway Creek (1)                              |                                                                  | <b>NCDWR Stream Index No.:</b> | NA                                                                                                   |     |
| <b>NCDWR Surface Water Classification for Water Body</b> | <b>Primary Classification:</b>                                   |                                                                  | None                           |                                                                                                      |     |
|                                                          | <b>Supplemental Classification:</b>                              |                                                                  | None                           |                                                                                                      |     |
| <b>Other Stream Classification:</b>                      | None                                                             |                                                                  |                                |                                                                                                      |     |
| <b>Impairments:</b>                                      | None                                                             |                                                                  |                                |                                                                                                      |     |
| <b>Aquatic T&amp;E Species?</b>                          | Yes                                                              | <b>Comments:</b>                                                 |                                |                                                                                                      |     |
| <b>NRTR Stream ID:</b>                                   |                                                                  |                                                                  | <b>Buffer Rules in Effect:</b> | N/A                                                                                                  |     |
| <b>Project Includes Bridge Spanning Water Body?</b>      | No                                                               | <b>Deck Drains Discharge Over Buffer?</b>                        | N/A                            | <b>Dissipator Pads Provided in Buffer?</b>                                                           | N/A |
| <b>Deck Drains Discharge Over Water Body?</b>            | N/A                                                              | (If yes, provide justification in the General Project Narrative) |                                | (If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative) |     |
|                                                          | (If yes, provide justification in the General Project Narrative) |                                                                  |                                |                                                                                                      |     |
| <b>Surface Water Body (3):</b>                           | UT to East Branch Toxaway Creek (2)                              |                                                                  | <b>NCDWR Stream Index No.:</b> | NA                                                                                                   |     |
| <b>NCDWR Surface Water Classification for Water Body</b> | <b>Primary Classification:</b>                                   |                                                                  | None                           |                                                                                                      |     |
|                                                          | <b>Supplemental Classification:</b>                              |                                                                  | None                           |                                                                                                      |     |
| <b>Other Stream Classification:</b>                      | None                                                             |                                                                  |                                |                                                                                                      |     |
| <b>Impairments:</b>                                      | None                                                             |                                                                  |                                |                                                                                                      |     |
| <b>Aquatic T&amp;E Species?</b>                          | No                                                               | <b>Comments:</b>                                                 |                                |                                                                                                      |     |
| <b>NRTR Stream ID:</b>                                   |                                                                  |                                                                  | <b>Buffer Rules in Effect:</b> | N/A                                                                                                  |     |
| <b>Project Includes Bridge Spanning Water Body?</b>      | No                                                               | <b>Deck Drains Discharge Over Buffer?</b>                        | N/A                            | <b>Dissipator Pads Provided in Buffer?</b>                                                           | N/A |
| <b>Deck Drains Discharge Over Water Body?</b>            | N/A                                                              | (If yes, provide justification in the General Project Narrative) |                                | (If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative) |     |
|                                                          | (If yes, provide justification in the General Project Narrative) |                                                                  |                                |                                                                                                      |     |



| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C.            | B-5405                      | 1           |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |              |
| 46120.1.1       | BRZ-1139(6)                 | PE          |              |
| 46120.2.1       |                             | RW, UTIL    |              |
|                 |                             |             |              |
|                 |                             |             |              |

**PERMIT DRAWING  
SHEET 1 OF 5**



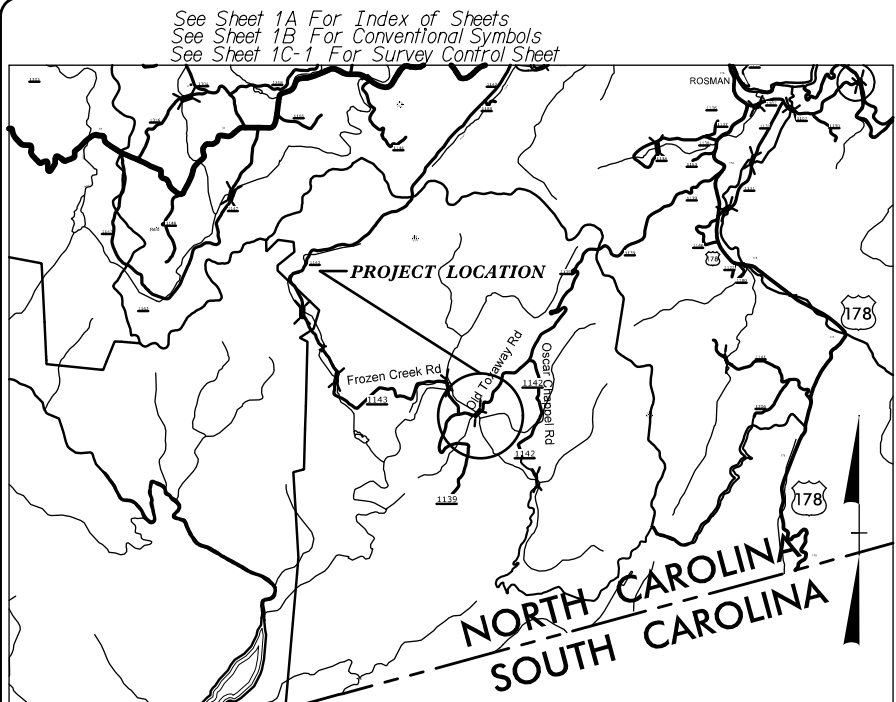
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# TRANSYLVANIA COUNTY

**LOCATION: REPLACE BRIDGE NO. 139 OVER EAST BRANCH TOXAWAY CREEK ON SR 1139 (OLD TOXAWAY ROAD)**

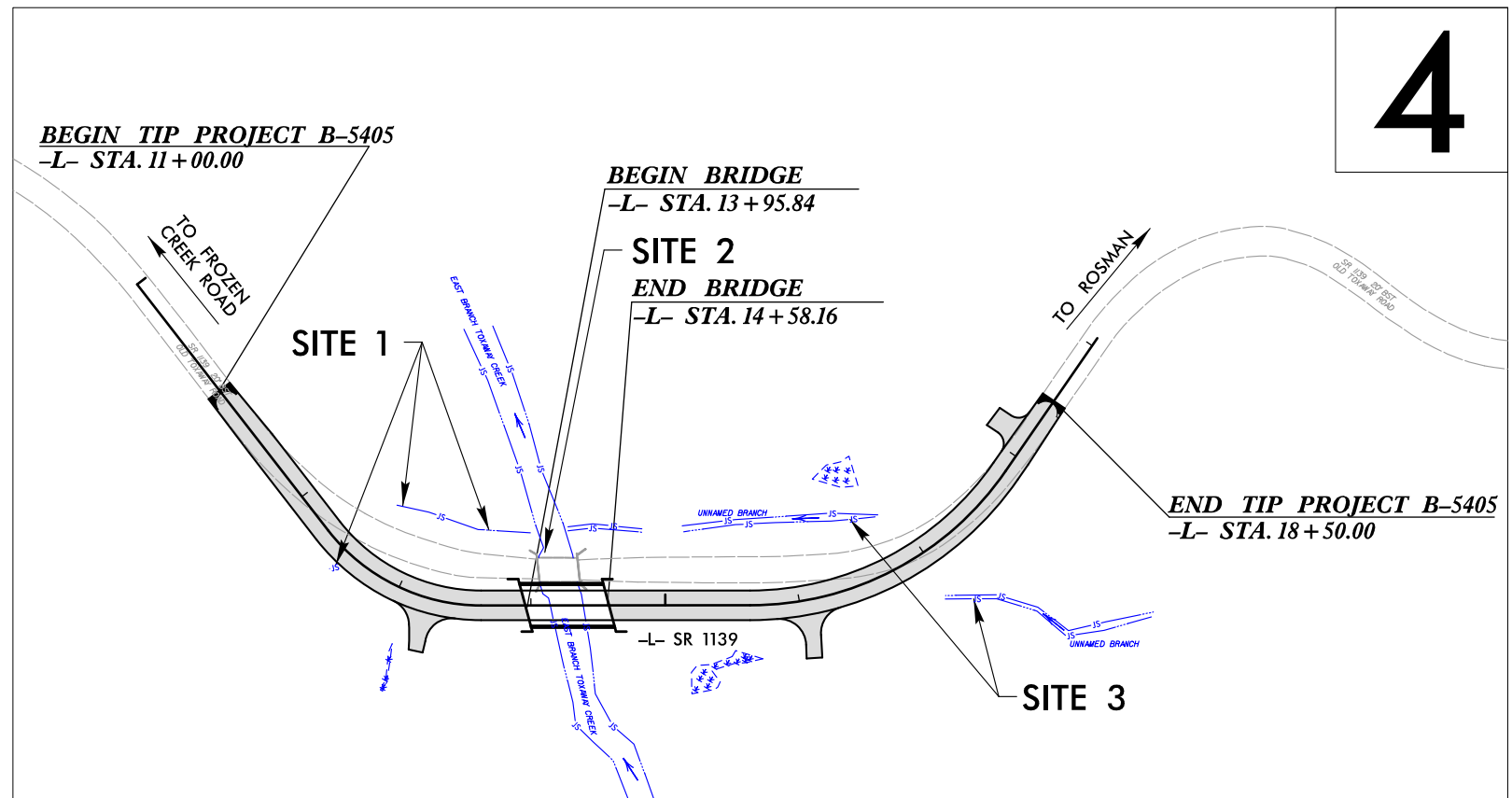
**TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE**

**WETLAND AND SURFACE WATER IMPACTS PERMIT**



**VICINITY MAP**

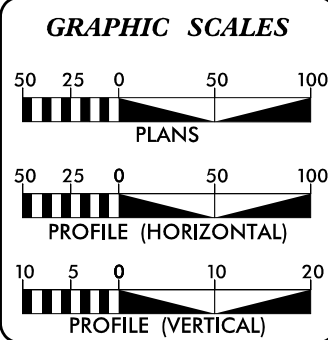
**75% PLANS**



• DESIGN EXCEPTION REQUIRED FOR HORIZONTAL ALIGNMENT AND HORIZONTAL STOPPING SIGHT DISTANCE

THIS IS NOT A CONTROL OF ACCESS PROJECT  
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARY  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

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



**DESIGN DATA**

|                          |        |
|--------------------------|--------|
| ADT 2018 =               | 223    |
| ADT 2038 =               | 314    |
| K =                      | 10 %   |
| D =                      | 55 %   |
| T =                      | 22 % * |
| V =                      | 40 MPH |
| * TTST = 2%+ DUALS = 20% |        |
| FUNC CLASS =             |        |
| RURAL LOCAL              |        |
| SUBREGIONAL TIER         |        |

**PROJECT LENGTH**

|                                          |       |
|------------------------------------------|-------|
| LENGTH ROADWAY T.I.P. PROJECT B-5405 =   | 0.131 |
| LENGTH STRUCTURE T.I.P. PROJECT B-5405 = | 0.011 |
| TOTAL LENGTH OF T.I.P. PROJECT B-5405 =  | 0.142 |

Prepared In the Office of:

**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612  
(919) 571-7111

2012 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
FEBRUARY 17, 2017

**LETTING DATE:**  
FEBRUARY 20, 2018

NC FIRM LICENSE No F-1148  
1151 SE Cary Parkway  
Suite 102  
Cary, NC 27518  
(919) 557-0029

**BRIAN K. EASON, PE**  
PROJECT ENGINEER

**DAVID MARTIN**  
PROJECT DESIGN ENGINEER

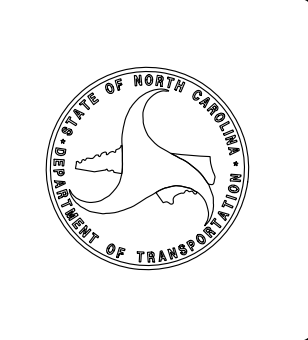
**BRYAN KEY, PE**  
NCDOT CONTACT

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.



**TIP PROJECT: B-5405**

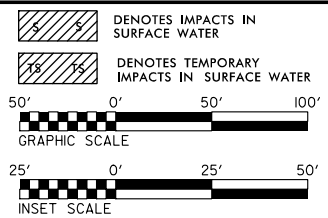
**CONTRACT:**

8/17/99

REVISIONS

4/13/2017  
8:09:59 AM  
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CAD:cbob

PI Sta 13+02.45      PI Sta 16+84.66  
 $\Delta = 52^{\circ} 10' 00.0''$  (LT)       $\Delta = 55^{\circ} 27' 00.0''$  (LT)  
 $D = 39^{\circ} 47' 19.4''$        $D = 24^{\circ} 48' 12.1''$   
 $L = 131.11'$        $L = 223.56'$   
 $T = 70.49'$        $T = 121.41'$   
 $* R = 144.00'$        $R = 231.00'$   
 $SE = 6\%$        $SE = 6\%$   
 $R_o = 108$        $R_o = 114$   
 $V_d = 25$  mph       $V_d = 30$  mph

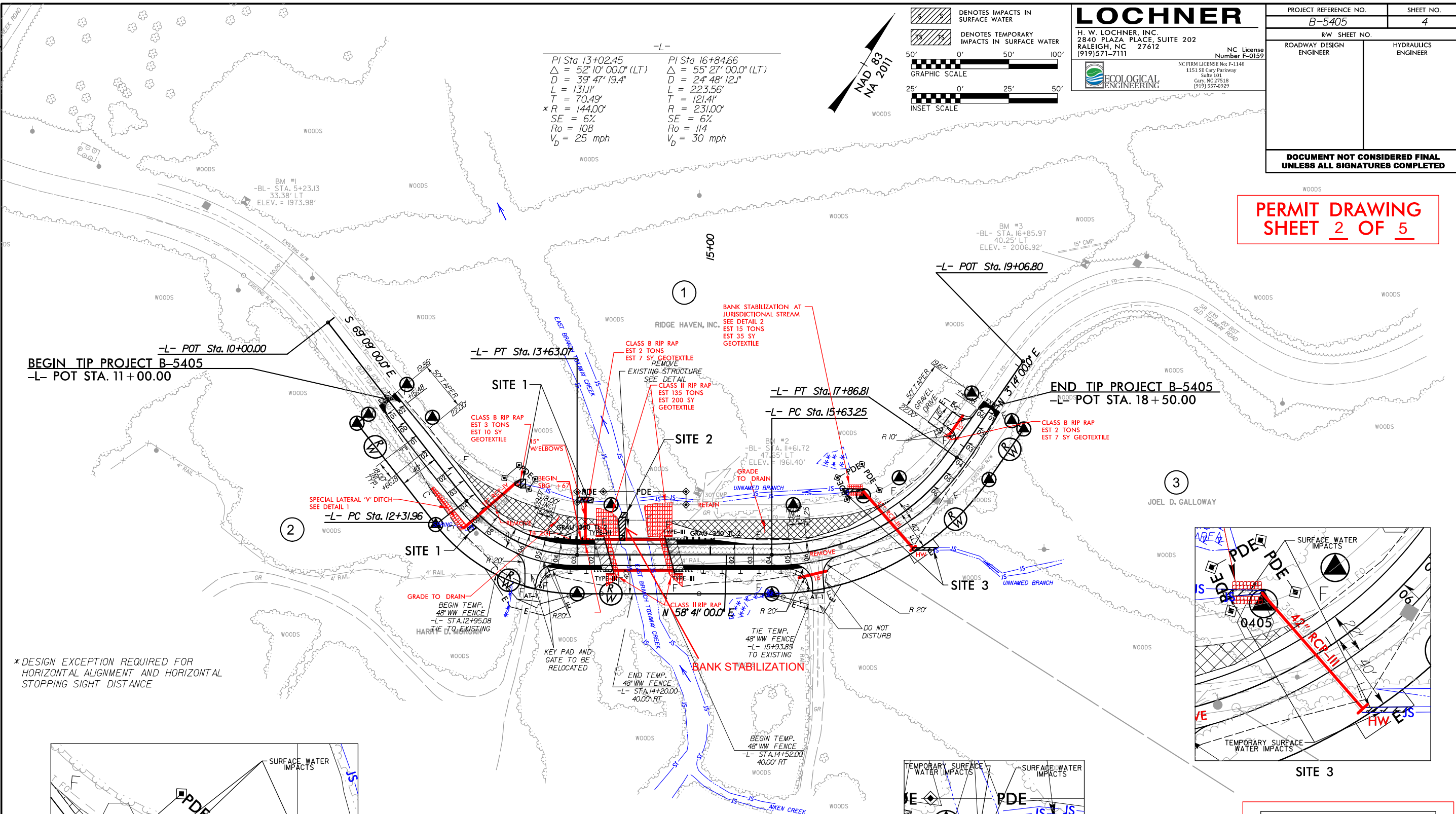


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 H. W. LOCHNER, INC.  
 2840 PLAZA PLACE, SUITE 202  
 RALEIGH, NC 27612  
 (919) 571-7111  
 NC License Number E-0159  
 NC FIRM LICENSE Num F-1146  
 1151 SE Cary Parkway  
 Suite 101  
 Cary, NC 27518  
 (919) 557-4929  
**ECOLOGICAL ENGINEERING**

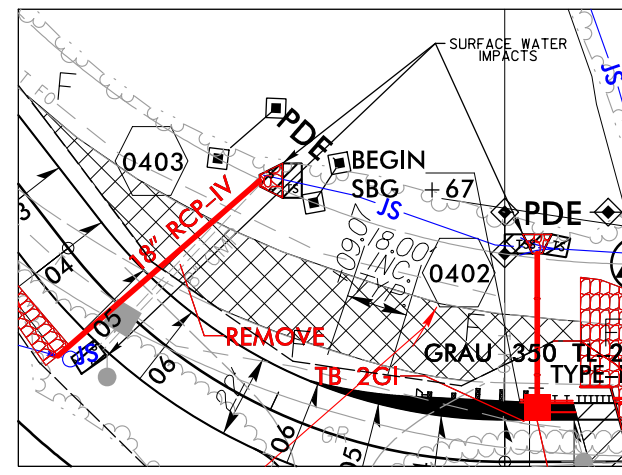
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| PROJECT REFERENCE NO.<br>B-5405 | SHEET NO.<br>4      |
| RW SHEET NO.                    | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER         | HYDRAULICS ENGINEER |

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

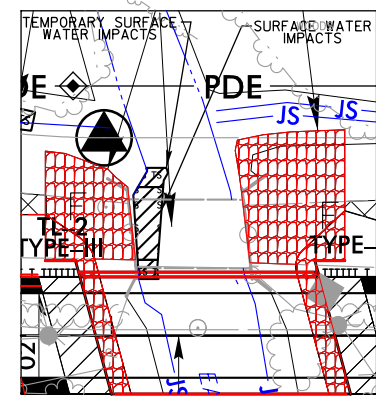
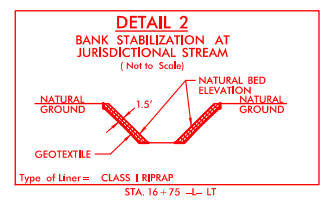
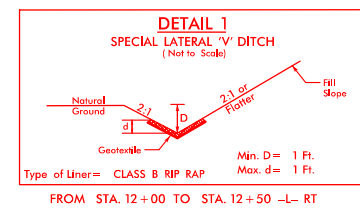
**PERMIT DRAWING  
SHEET 2 OF 5**



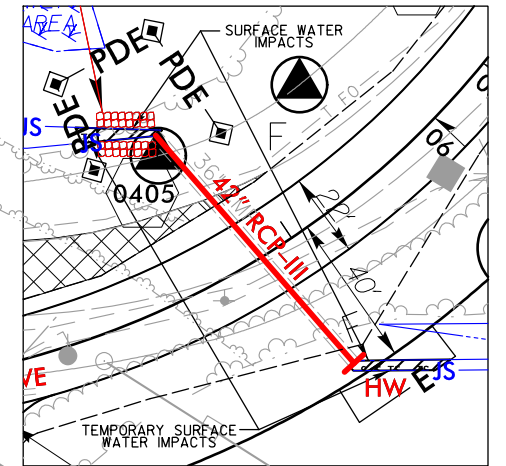
\*DESIGN EXCEPTION REQUIRED FOR HORIZONTAL ALIGNMENT AND HORIZONTAL STOPPING SIGHT DISTANCE



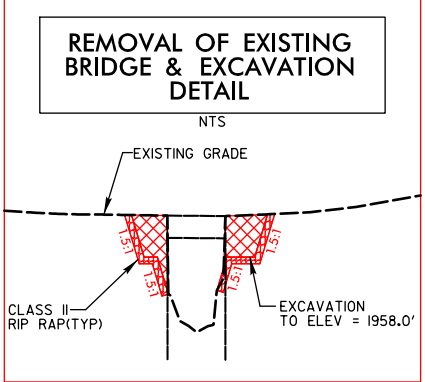
SITE 1



SITE 2



SITE 3



SEE SHEET 5 FOR -L- PROFILE

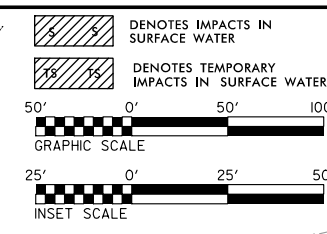
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 PAVED SHOULDER

8/17/99

REVISIONS

4/13/2017  
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CAD:cbob

PI Sta 13+02.45      PI Sta 16+84.66  
 $\Delta = 52^{\circ} 10' 00.0''$  (LT)       $\Delta = 55^{\circ} 27' 00.0''$  (LT)  
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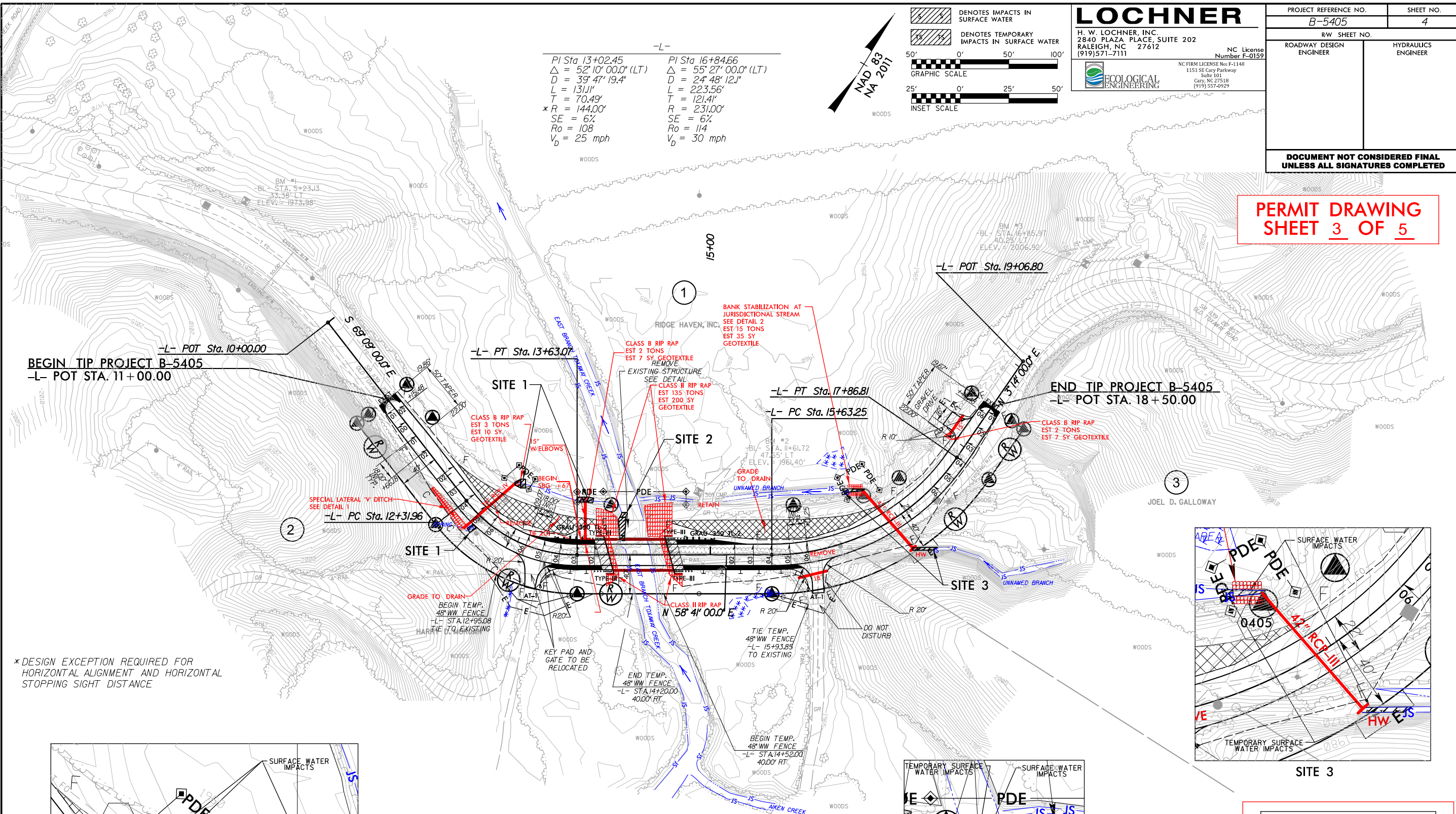


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 NC FIRM LICENSE Num F-1148  
 1151 SE Cary Parkway  
 Suite 101  
 Cary, NC 27518  
 (919) 557-4929  
 ECOLOGICAL ENGINEERING

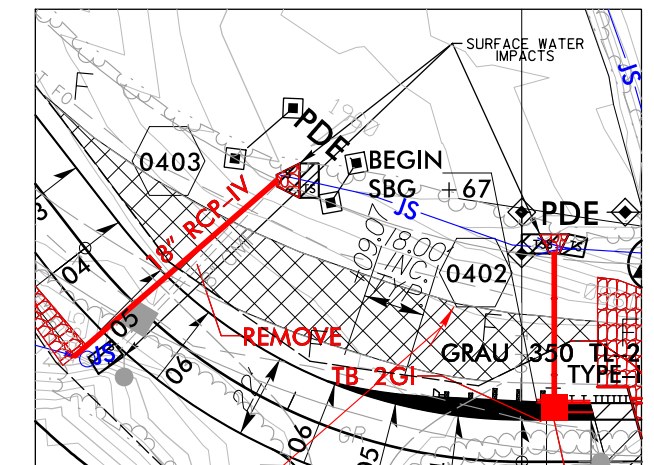
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|---------------------------------|---------------------|
| PROJECT REFERENCE NO.<br>B-5405 | SHEET NO.<br>4      |
| RW SHEET NO.                    | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER         |                     |

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

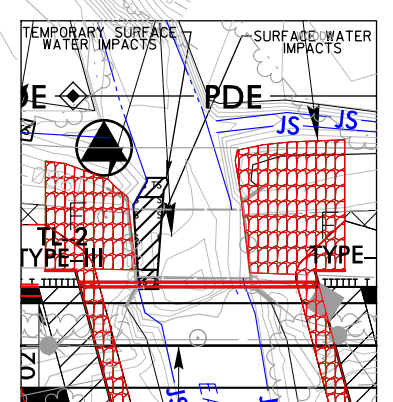
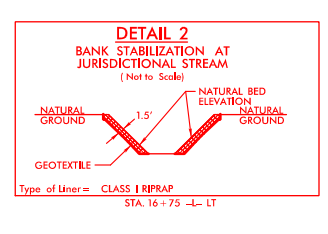
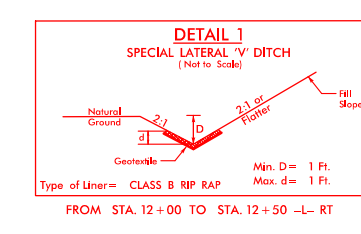
**PERMIT DRAWING  
SHEET 3 OF 5**



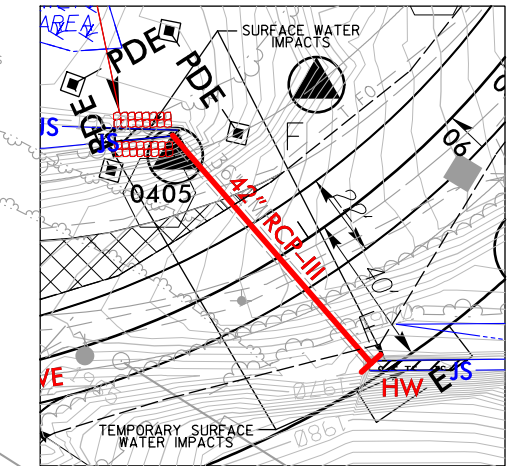
\*DESIGN EXCEPTION REQUIRED FOR HORIZONTAL ALIGNMENT AND HORIZONTAL STOPPING SIGHT DISTANCE



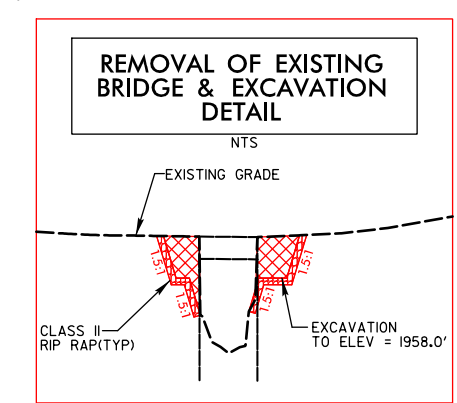
SITE 1



SITE 2



SITE 3



SEE SHEET 5 FOR -L- PROFILE



5/14/99

# LOCHNER

H. W. LOCHNER, INC.  
 2840 PLAZA PLACE, SUITE 202  
 RALEIGH, NC 27612  
 (919)571-7111

NC License Number F-0152  
 NC FIRM LICENSE No. F-1146  
 1151 SE Cary Parkway  
 Suite 101  
 Cary, NC 27518  
 (919) 557-0929

**ECOLOGICAL ENGINEERING**

|                                        |                       |
|----------------------------------------|-----------------------|
| PROJECT REFERENCE NO.<br><i>B-5405</i> | SHEET NO.<br><i>5</i> |
| ROADWAY DESIGN ENGINEER                | HYDRAULICS ENGINEER   |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

## PERMIT DRAWING SHEET 4 OF 5

**PIPE HYDRAULIC DATA**  
 18" RCP Sta. 12+51

|                       |          |     |
|-----------------------|----------|-----|
| DRAINAGE AREA         | = 1.3    | AC  |
| DESIGN FREQUENCY      | = 25     | YR  |
| DESIGN DISCHARGE      | = 2.5    | CFS |
| DESIGN HW ELEVATION   | = 1962.4 | FT  |
| 100 YEAR DISCHARGE    | = 3.0    | CFS |
| 100 YEAR HW ELEVATION | = 1962.5 | FT  |
| OVERTOPPING FREQUENCY | = 500+   | YR  |
| OVERTOPPING DISCHARGE | = 14.8   | CFS |
| OVERTOPPING ELEVATION | = 1964.8 | FT  |

**PIPE HYDRAULIC DATA**  
 42" RCP Sta. 16+91

|                       |          |     |
|-----------------------|----------|-----|
| DRAINAGE AREA         | = 43.6   | AC  |
| DESIGN FREQUENCY      | = 25     | YR  |
| DESIGN DISCHARGE      | = 51.7   | CFS |
| DESIGN HW ELEVATION   | = 1965.1 | FT  |
| 100 YEAR DISCHARGE    | = 82.3   | CFS |
| 100 YEAR HW ELEVATION | = 1966.6 | FT  |
| OVERTOPPING FREQUENCY | = 500+   | YR  |
| OVERTOPPING DISCHARGE | = 194.9  | CFS |
| OVERTOPPING ELEVATION | = 1976.4 | FT  |

**BRIDGE HYDRAULIC DATA**

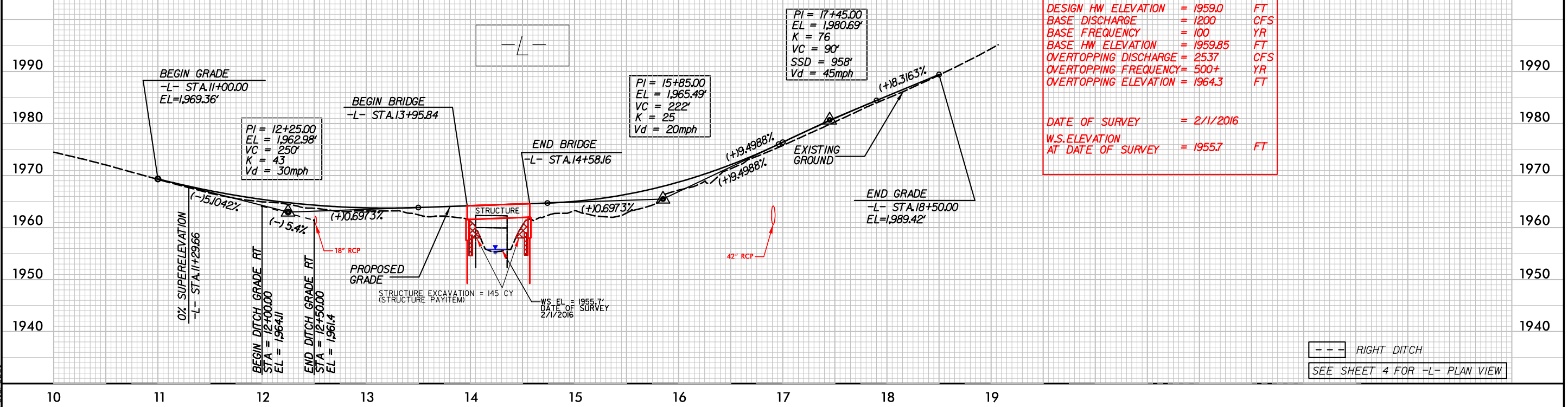
|                       |           |     |
|-----------------------|-----------|-----|
| DESIGN DISCHARGE      | = 850     | CFS |
| DESIGN FREQUENCY      | = 25      | YR  |
| DESIGN HW ELEVATION   | = 1959.0  | FT  |
| BASE DISCHARGE        | = 1200    | CFS |
| BASE FREQUENCY        | = 100     | YR  |
| BASE HW ELEVATION     | = 1959.85 | FT  |
| OVERTOPPING DISCHARGE | = 2537    | CFS |
| OVERTOPPING FREQUENCY | = 500+    | YR  |
| OVERTOPPING ELEVATION | = 1964.3  | FT  |

DATE OF SURVEY = 2/11/2016  
 W.S. ELEVATION AT DATE OF SURVEY = 1955.7 FT

BM #1  
 -BL- STA. 5+23.13  
 33.38' LT  
 ELEV. = 1973.98'

BM #2  
 -L- STA. 14+87.82  
 64.74' LT  
 ELEV. = 1961.40'

BM #3  
 -BL- STA. 16+85.97  
 40.25' LT  
 ELEV. = 2006.92'



--- RIGHT DITCH  
 SEE SHEET 4 FOR -L- PLAN VIEW

3/28/2017 8:23:03 AM  
 R:\Hydro\Projects\PERMITS\Environmental\Drawings\B-5405\_Hyd-prm\_PSH\_05.dgn  
 cad:abob



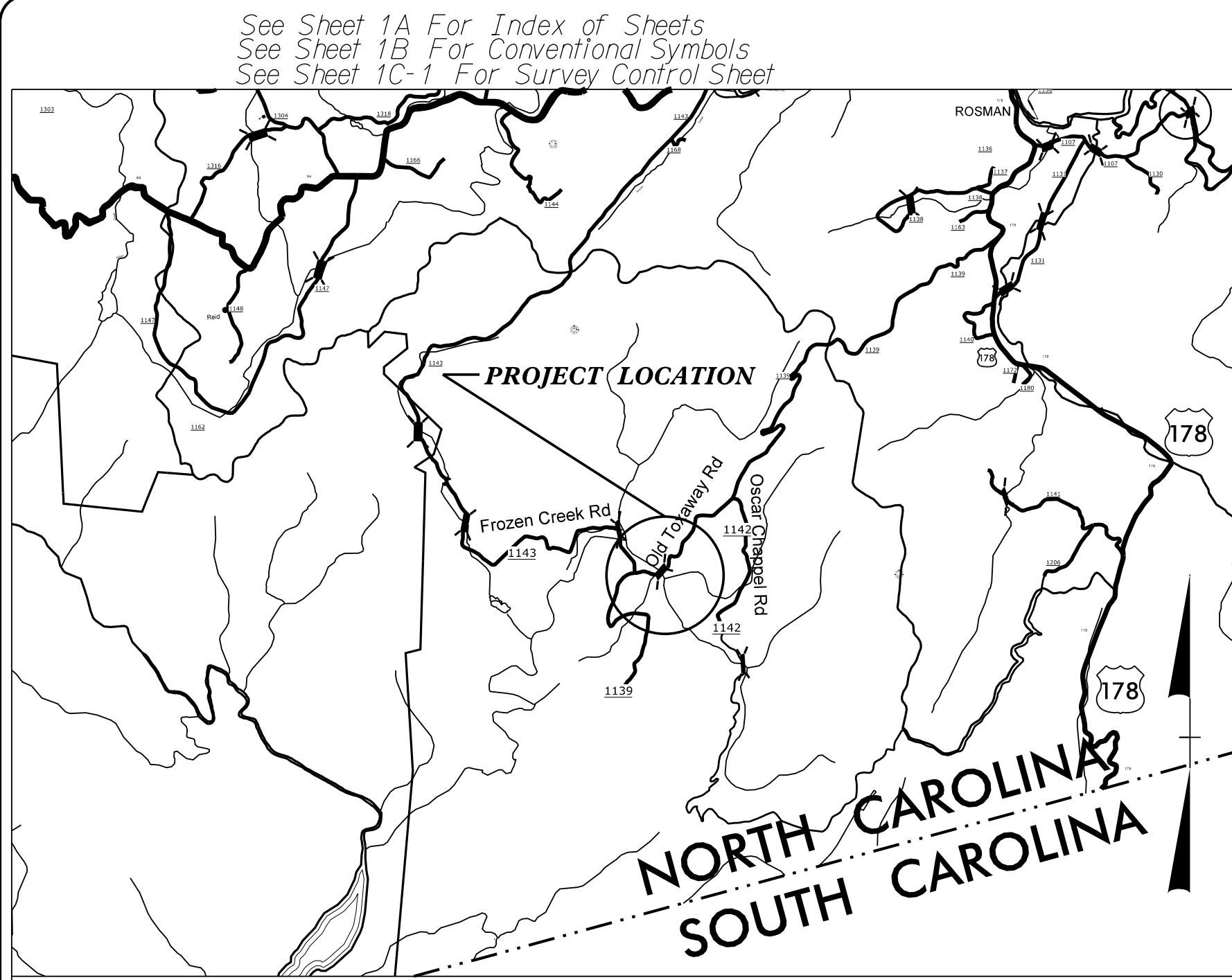
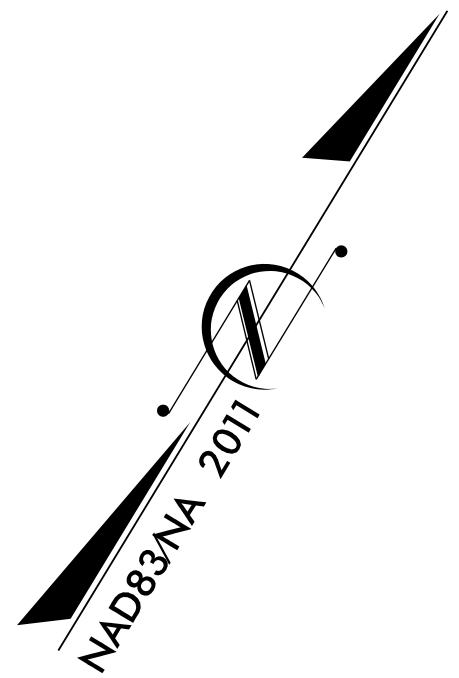
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|-----------------|-----------------------------|-------------|--------------|
| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
| N.C.            | B-5405                      | 1           |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |              |
| 46120.1.1       | BRZ-1139(6)                 | PE          |              |
| 46120.2.1       |                             | RW, UTIL    |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSYLVANIA COUNTY**

**LOCATION: REPLACE BRIDGE NO. 139 OVER EAST BRANCH TOXAWAY CREEK ON SR 1139 (OLD TOXAWAY ROAD)**

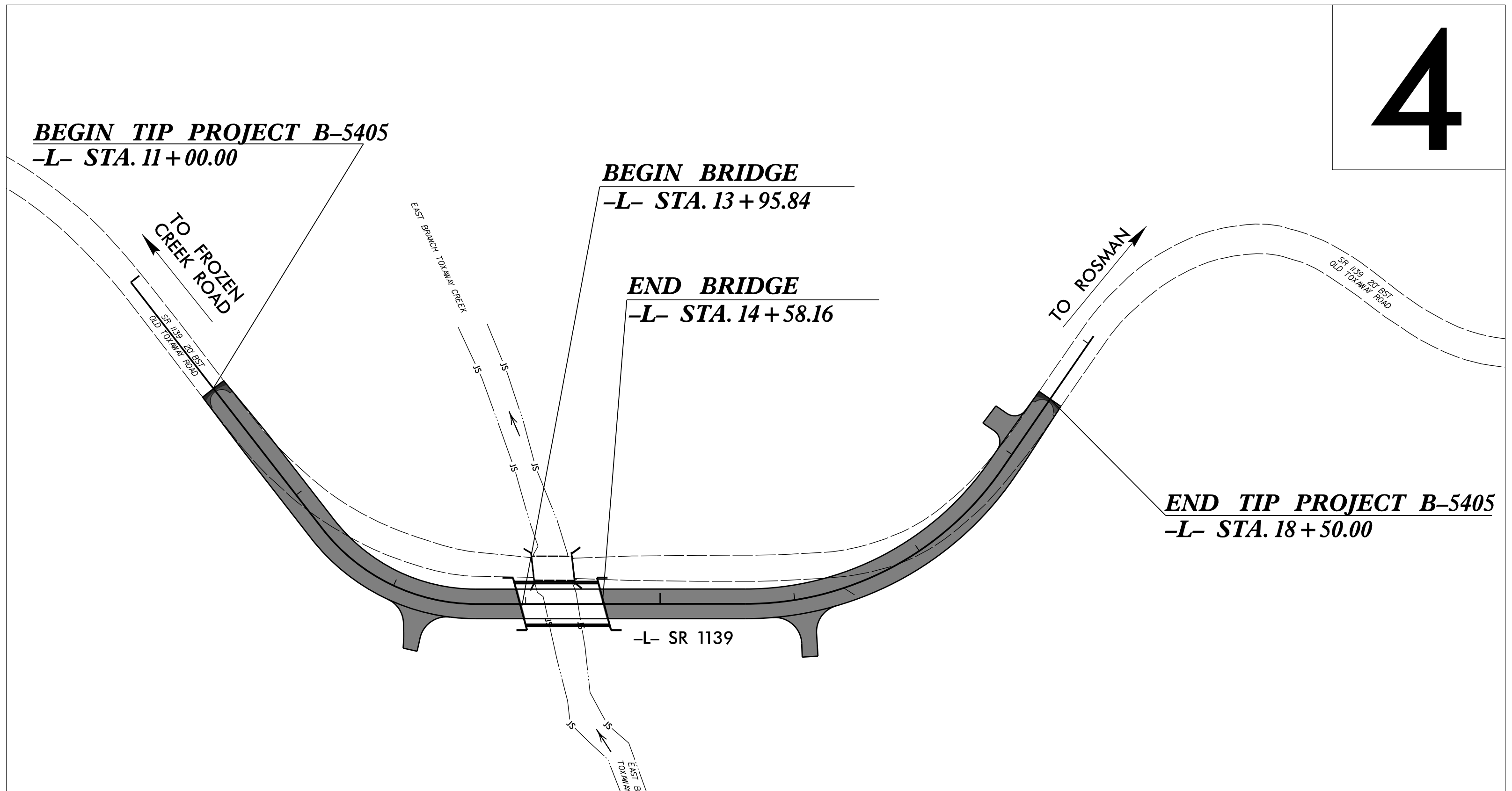
**TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE**



**VICINITY MAP**

**TIP PROJECT: B-5405**

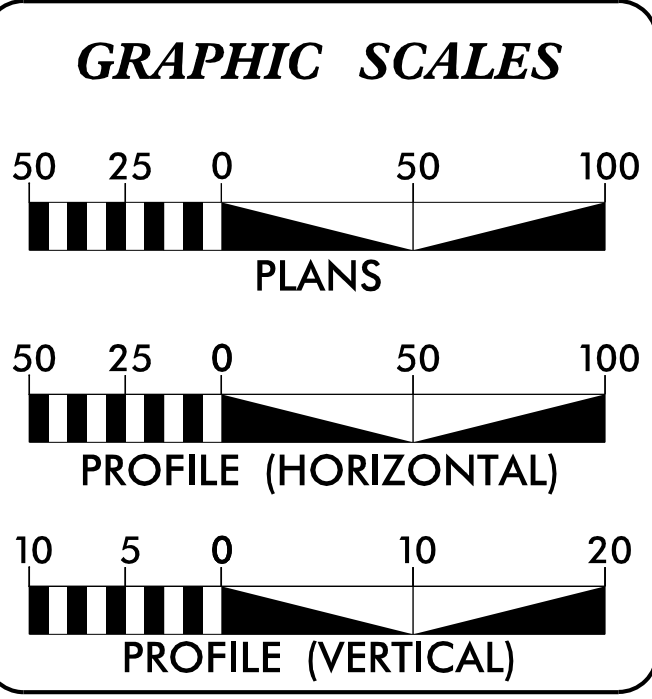
**R/W PLANS**



\* DESIGN EXCEPTION REQUIRED FOR HORIZONTAL ALIGNMENT AND HORIZONTAL STOPPING SIGHT DISTANCE

THIS IS NOT A CONTROL OF ACCESS PROJECT  
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARY  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

**DOCUMENT NOT CONSIDERED FINAL  
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**DESIGN DATA**

|                           |                  |
|---------------------------|------------------|
| ADT 2018 =                | 223              |
| ADT 2038 =                | 314              |
| K =                       | 10 %             |
| D =                       | 55 %             |
| T =                       | 22 % *           |
| V =                       | 40 MPH           |
| * TTST = 2% + DUALS = 20% |                  |
| FUNC CLASS =              | RURAL LOCAL      |
|                           | SUBREGIONAL TIER |

**PROJECT LENGTH**

|                                          |       |
|------------------------------------------|-------|
| LENGTH ROADWAY T.I.P. PROJECT B-5405 =   | 0.131 |
| LENGTH STRUCTURE T.I.P. PROJECT B-5405 = | 0.011 |
| TOTAL LENGTH OF T.I.P. PROJECT B-5405 =  | 0.142 |

Prepared In the Office of:

**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612  
(919)571-7111

NC License Number F-0159

2012 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
FEBRUARY 17, 2017

**LETTING DATE:**  
FEBRUARY 20, 2018

**BRIAN K. EASON, PE**  
PROJECT ENGINEER

**DAVID MARTIN**  
PROJECT DESIGN ENGINEER

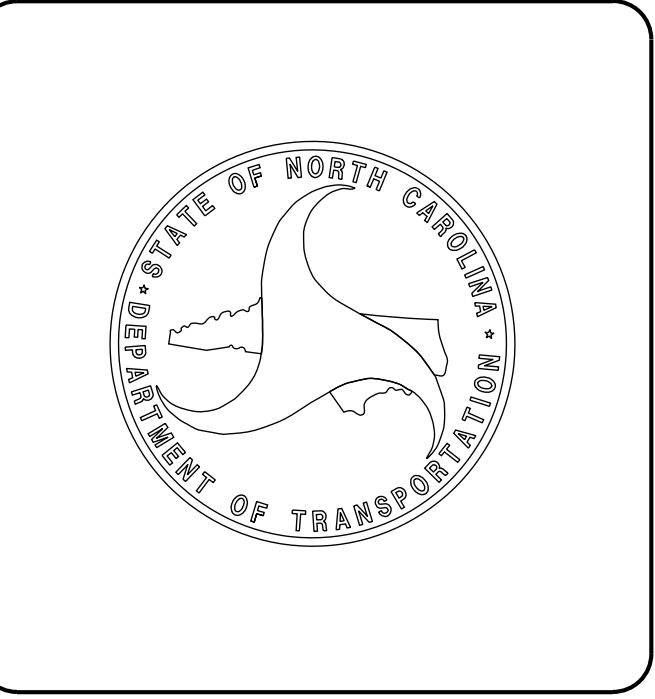
**BRYAN KEY, PE**  
NCDOT CONTACT

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.



20-FEB-2017 10:04 P:\Roadway\Projects\B-5405\_RDY\_PSH\_01\_TSH.dgn \$\$\$USERNAME\$\$\$

**CONTRACT:**

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

## BOUNDARIES AND PROPERTY:

|                                       |           |
|---------------------------------------|-----------|
| State Line                            | -----     |
| County Line                           | -----     |
| Township Line                         | -----     |
| City Line                             | -----     |
| Reservation Line                      | -----     |
| Property Line                         | -----     |
| Existing Iron Pin                     | ○ EIP     |
| Computed Property Corner              | -----     |
| Property Monument                     | □ EGM     |
| Parcel/Sequence Number                | ⑫③        |
| Existing Fence Line                   | -x-x-x-   |
| 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                          | ○   |
| 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 | -----      |
| False Sump                         | -----      |

## RAILROADS:

|                    |               |
|--------------------|---------------|
| Standard Gauge     | -----         |
| RR Signal Milepost | ○ MILEPOST 35 |
| Switch             | □ SWITCH      |
| RR Abandoned       | -----         |
| RR Dismantled      | -----         |

Note: Not to Scale

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

## RIGHT OF WAY & PROJECT CONTROL:

|                                                          |              |
|----------------------------------------------------------|--------------|
| Secondary Horiz and Vert Control Point                   | ◆            |
| Primary Horiz Control Point                              | ○            |
| Primary Horiz and Vert Control Point                     | ●            |
| Exist Permanent Easement 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 RW Marker | ----- (RW) ● |
| New Control of Access Line with Concrete CA 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                      | ⊙             |
| Storm Sewer                              | ----- S       |

## UTILITIES:

|                                |         |
|--------------------------------|---------|
| POWER:                         |         |
| Existing Power Pole            | ●       |
| Proposed Power Pole            | ○       |
| Existing Joint Use Pole        | ●       |
| Proposed Joint Use Pole        | ○       |
| Power Manhole                  | ⊙       |
| 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                      | ⊙          |
| Telephone Pedestal                     | ⊠          |
| Telephone Cell Tower                   | ⊠          |
| U/G Telephone Cable Hand Hole          | ○          |
| 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                  | ⊙               |
| 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                           | ⊠           |
| TV Tower                              | ⊗           |
| U/G TV Cable Hand Hole                | ○           |
| 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               | ⊠         |
| Utility Unknown U/G Line LOS B (S.U.E.*) | ----- TUL |
| 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.    |

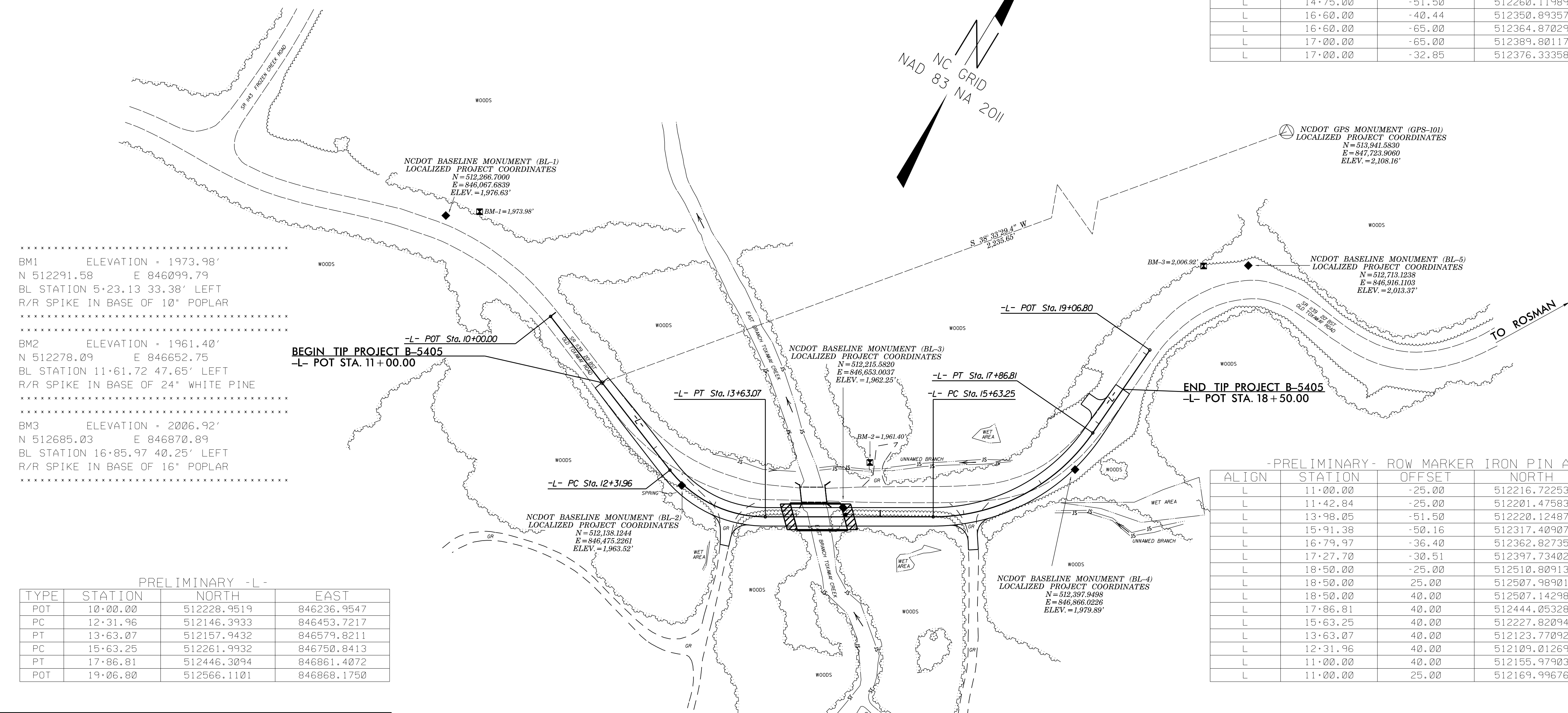
6/2/09

# SURVEY CONTROL SHEET B-5405 -PRELIMINARY-

| BL | POINT | DESC. | NORTH       | EAST        | ELEVATION | L STATION              | OFFSET   |
|----|-------|-------|-------------|-------------|-----------|------------------------|----------|
| 1  | BL-1  |       | 512266.7000 | 846067.6839 | 1976.63   | OUTSIDE PROJECT LIMITS |          |
| 2  | BL-2  |       | 512138.1244 | 846475.2261 | 1963.52   | 12+54.79               | 1.90 RT  |
| 3  | BL-3  |       | 512215.5820 | 846653.0037 | 1962.25   | 14+55.54               | 11.20 LT |
| 4  | BL-4  |       | 512397.9498 | 846866.0226 | 1979.89   | 17+40.88               | 12.13 RT |
| 5  | BL-5  |       | 512713.1238 | 846916.1103 | 2013.37   | OUTSIDE PROJECT LIMITS |          |

-PRELIMINARY- ROW MARKER PERMANENT EASEMENT-E

| ALIGN | STATION  | OFFSET | NORTH        | EAST         |
|-------|----------|--------|--------------|--------------|
| L     | 12+40.00 | -44.98 | 512186.60456 | 846474.95219 |
| L     | 12+40.00 | -65.00 | 512205.68219 | 846481.02216 |
| L     | 12+80.00 | -65.00 | 512201.99971 | 846502.58392 |
| L     | 12+80.00 | -52.73 | 512189.73533 | 846502.21261 |
| L     | 13+63.07 | -54.15 | 512204.20399 | 846551.67572 |
| L     | 13+63.07 | -65.00 | 512213.47323 | 846546.03624 |
| L     | 13+90.00 | -65.00 | 512227.47279 | 846569.04641 |
| L     | 14+75.00 | -65.00 | 512271.65304 | 846641.66256 |
| L     | 14+75.00 | -51.50 | 512260.11989 | 846648.67942 |
| L     | 16+60.00 | -40.44 | 512350.89357 | 846787.46843 |
| L     | 16+60.00 | -65.00 | 512364.87029 | 846767.27326 |
| L     | 17+00.00 | -65.00 | 512389.80117 | 846781.50843 |
| L     | 17+00.00 | -32.85 | 512376.33358 | 846810.70169 |



\*\*\*\*\*  
 BM1 ELEVATION = 1973.98'  
 N 512291.58 E 846099.79  
 BL STATION 5+23.13 33.38' LEFT  
 R/R SPIKE IN BASE OF 10" POPLAR  
 \*\*\*\*\*  
 BM2 ELEVATION = 1961.40'  
 N 512278.09 E 846652.75  
 BL STATION 11+61.72 47.65' LEFT  
 R/R SPIKE IN BASE OF 24" WHITE PINE  
 \*\*\*\*\*  
 BM3 ELEVATION = 2006.92'  
 N 512685.03 E 846870.89  
 BL STATION 16+85.97 40.25' LEFT  
 R/R SPIKE IN BASE OF 16" POPLAR  
 \*\*\*\*\*

PRELIMINARY -L-

| TYPE | STATION  | NORTH       | EAST        |
|------|----------|-------------|-------------|
| POT  | 10+00.00 | 512228.9519 | 846236.9547 |
| PC   | 12+31.96 | 512146.3933 | 846453.7217 |
| PT   | 13+63.07 | 512157.9432 | 846579.8211 |
| PC   | 15+63.25 | 512261.9932 | 846750.8413 |
| PT   | 17+86.81 | 512446.3094 | 846861.4072 |
| POT  | 19+06.80 | 512566.1101 | 846868.1750 |

-PRELIMINARY- ROW MARKER IRON PIN AND CAP -E

| ALIGN | STATION  | OFFSET | NORTH        | EAST         |
|-------|----------|--------|--------------|--------------|
| L     | 11+00.00 | -25.00 | 512216.72253 | 846339.30434 |
| L     | 11+42.84 | -25.00 | 512201.47583 | 846379.33628 |
| L     | 13+98.05 | -51.50 | 512220.12487 | 846582.94225 |
| L     | 15+91.38 | -50.16 | 512317.40907 | 846742.84185 |
| L     | 16+79.97 | -36.40 | 512362.82735 | 846799.75437 |
| L     | 17+27.70 | -30.51 | 512397.73402 | 846821.56830 |
| L     | 18+50.00 | -25.00 | 512510.80913 | 846840.01110 |
| L     | 18+50.00 | 25.00  | 512507.98901 | 846889.93150 |
| L     | 18+50.00 | 40.00  | 512507.14298 | 846904.40762 |
| L     | 17+86.81 | 40.00  | 512444.05328 | 846901.34354 |
| L     | 15+63.25 | 40.00  | 512227.82094 | 846771.63197 |
| L     | 13+63.07 | 40.00  | 512123.77092 | 846600.61184 |
| L     | 12+31.96 | 40.00  | 512109.01269 | 846439.48484 |
| L     | 11+00.00 | 40.00  | 512155.97903 | 846316.16937 |
| L     | 11+00.00 | 25.00  | 512169.99676 | 846321.50821 |

### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-101" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 513941.5830(±) EASTING: 847723.9060(±) ELEVATION: 2108.16(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99978022 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-101" TO -L- STATION 11+00.00 IS S 38°33'29.4" W 2235.65' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

### NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: [HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/) THE FILES TO BE FOUND ARE AS FOLLOWS: B-5405\_LS\_CONTROL.TXT
  - SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- ⊕ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT. PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

GEOID MODEL: G12NC  
NOTE: DRAWING NOT TO SCALE

6/2/09/2017 10:16:10-1.dgn



## FINAL PAVEMENT SCHEDULE

|    |                                                                                                                                                                                                        |   |                                                      |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|------------------------------------------------------|
| C1 | PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.                                                                                         | T | EARTH MATERIAL.                                      |
| C2 | PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.                                                                   | U | EXISTING PAVEMENT.                                   |
| C3 | 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 1 1/2" IN DEPTH                               | V | MILLING (VARIABLE DEPTH- SEE DETAIL)                 |
| E1 | PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.                                                                                                 | W | VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL) |
| 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 5 1/2" IN DEPTH. |   |                                                      |

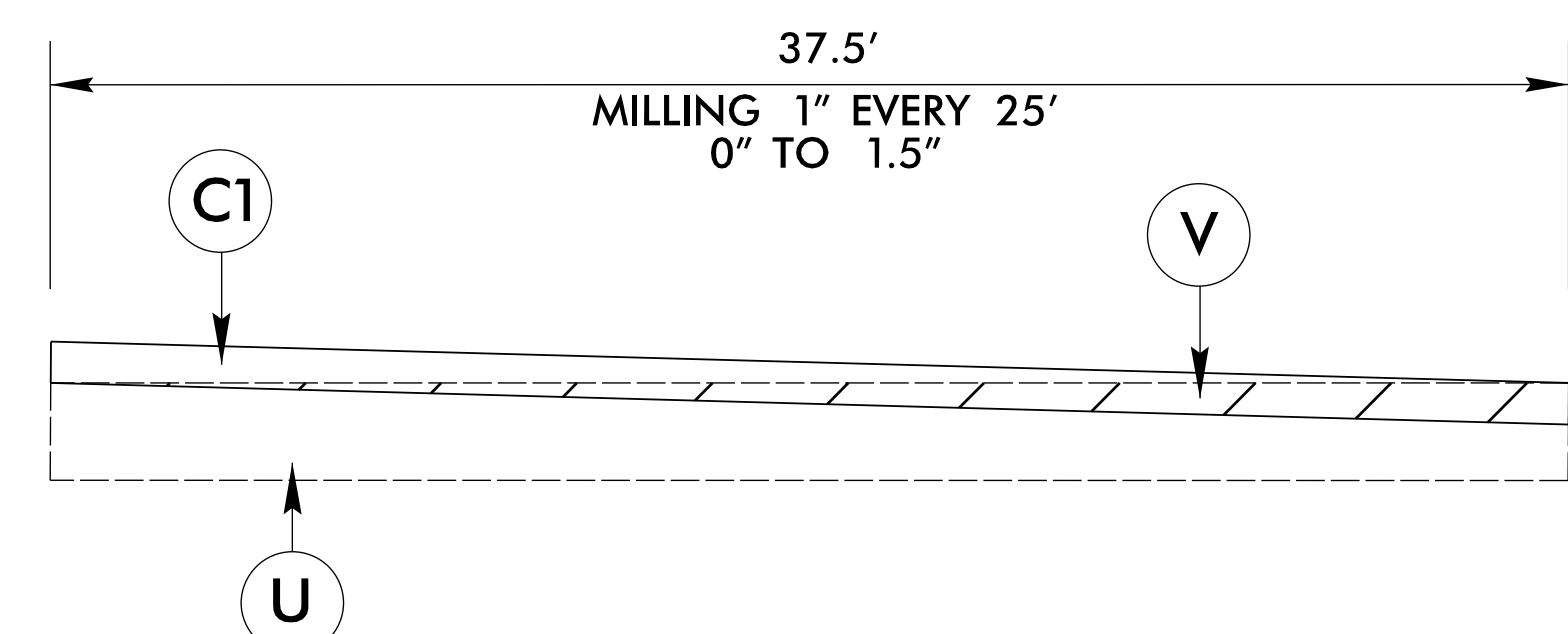
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

**LOCHNER**  
 H. W. LOCHNER, INC.  
 2840 PLAZA PLACE, SUITE 202  
 RALEIGH, NC 27612  
 (919)571-7111

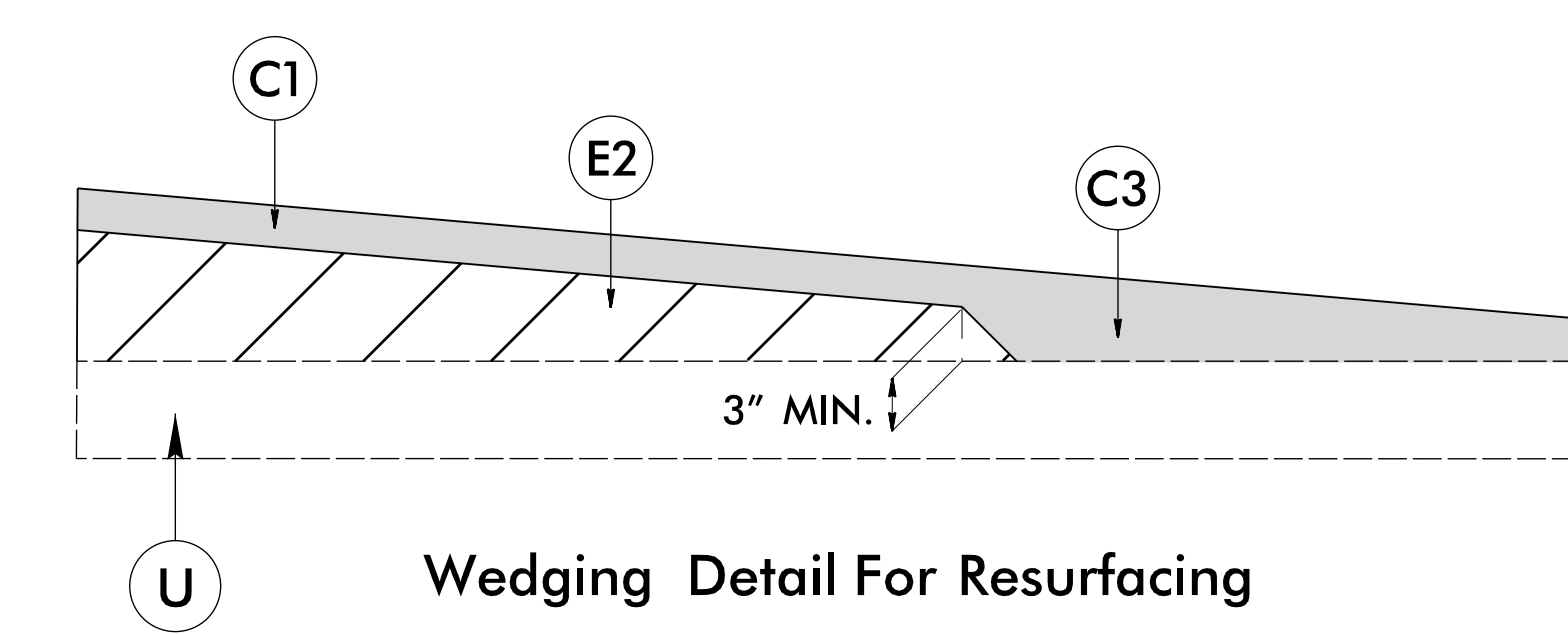
NC License Number F-0159  
 NC FIRM LICENSE No: F-1148  
 1151 SE Cary Parkway  
 Suite 101  
 Cary, NC 27518  
 (919) 557-0929

**ECOLOGICAL ENGINEERING**

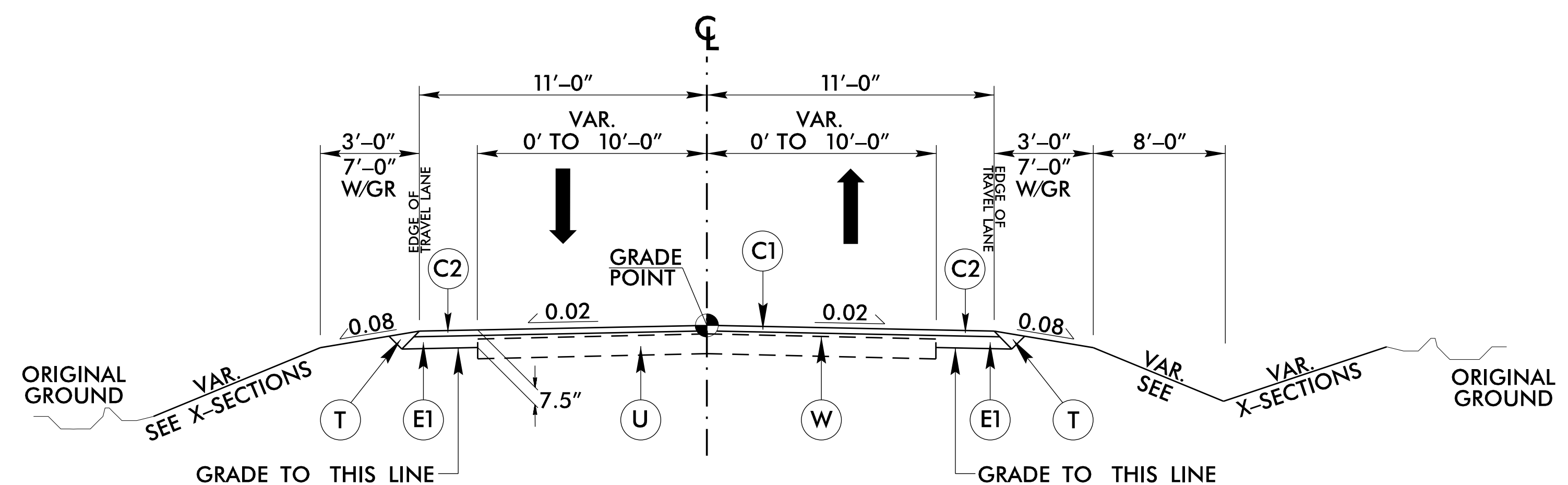
|                                                                      |                          |
|----------------------------------------------------------------------|--------------------------|
| PROJECT REFERENCE NO.<br><i>B-5405</i>                               | SHEET NO.<br><i>2A-1</i> |
| RW SHEET NO.                                                         |                          |
| ROADWAY DESIGN ENGINEER                                              | HYDRAULICS ENGINEER      |
| <b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b> |                          |



**MILLING DETAIL**  
 USE MILLING DETAIL AT RESURFACING TIES

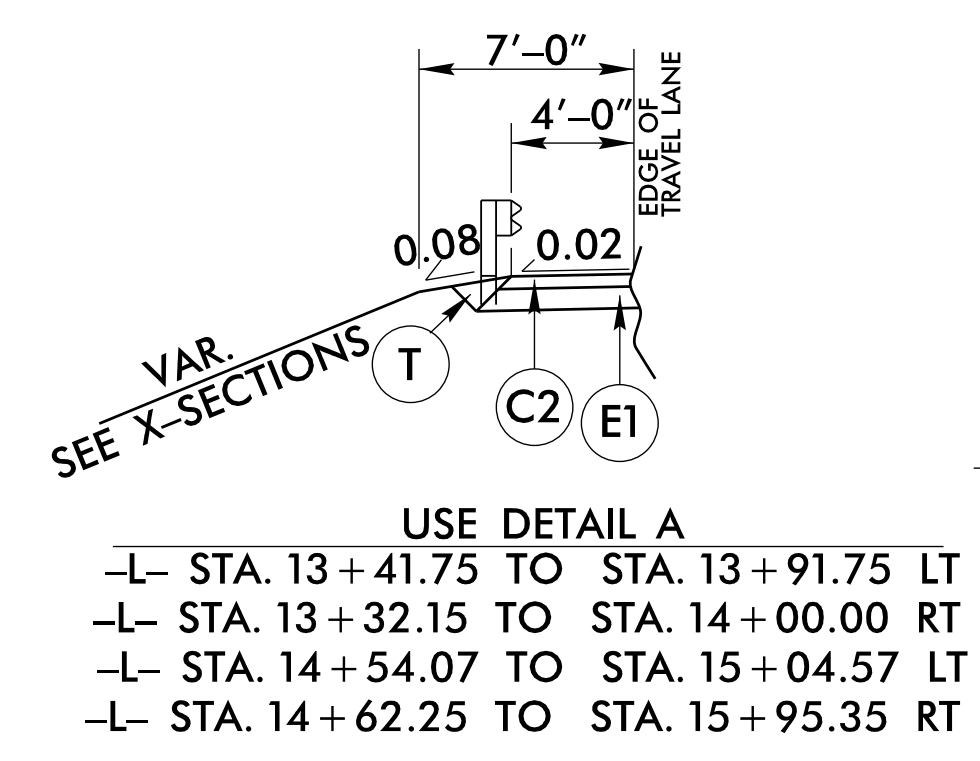


Wedging Detail For Resurfacing  
**WEDGING DETAIL**

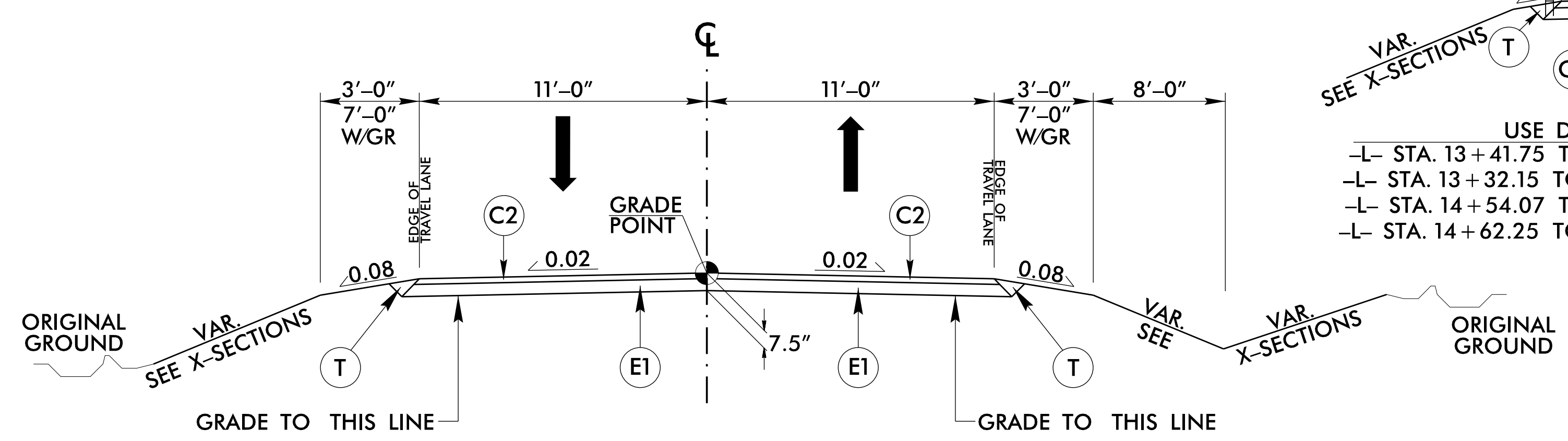


**TYPICAL SECTION NO. 1**  
 USE TYPICAL SECTION NO. 1  
 -L- STA. 11+00.00 TO STA. 12+50.35  
 -L- STA. 16+26.06 TO STA. 18+50.00

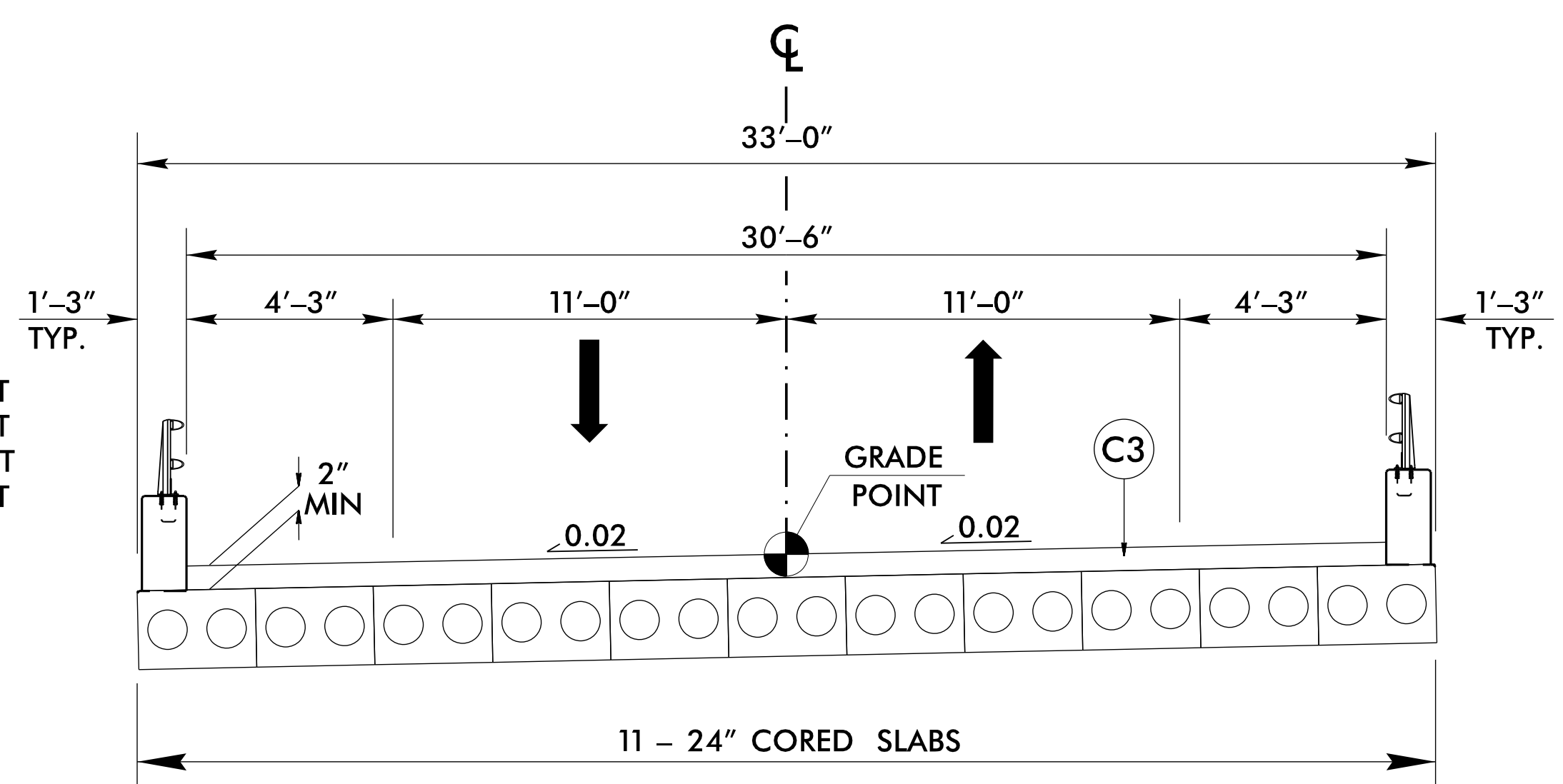
**DETAIL A  
 PAVED SHOULDER WITH GUARDRAIL**



USE DETAIL A  
 -L- STA. 13+41.75 TO STA. 13+91.75 LT  
 -L- STA. 13+32.15 TO STA. 14+00.00 RT  
 -L- STA. 14+54.07 TO STA. 15+04.57 LT  
 -L- STA. 14+62.25 TO STA. 15+95.35 RT



**TYPICAL SECTION NO. 2**  
 USE TYPICAL SECTION NO. 2  
 -L- STA. 12+50.35 TO STA. 13+95.84 (BEGIN BRIDGE)  
 -L- STA. 14+58.16 (END BRIDGE) TO STA. 16+26.06



**TYPICAL SECTION NO. 3**  
 USE TYPICAL SECTION NO. 3  
 -L- STA. 13+95.84 (BEGIN BRIDGE) TO STA. 14+58.16 (END BRIDGE)

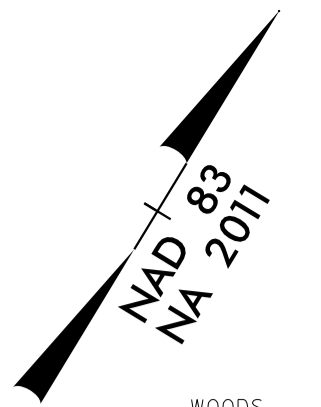
REVISIONS

14-FEB-2017 09:02  
 I:\RAL\PR\02001763\B-5405\Roadway\Proj\B-5405\_FDY\_PSH\_02A-1\_TYP.dgn

|                                 |                     |
|---------------------------------|---------------------|
| PROJECT REFERENCE NO.<br>B-5405 | SHEET NO.<br>4      |
| RW SHEET NO.                    | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER         | ENGINEER            |

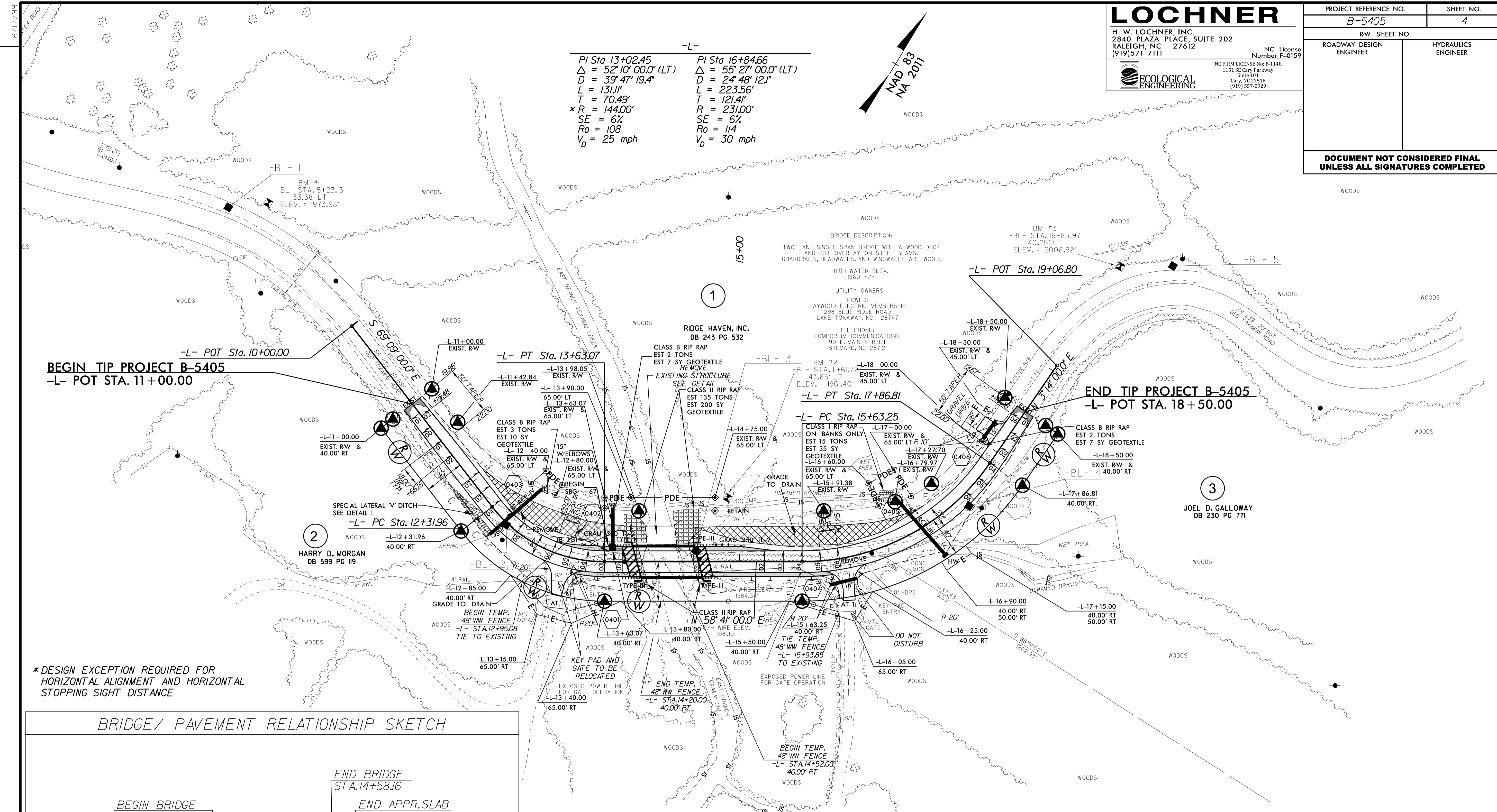
**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

|                                                                                                                                                         |                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\Delta = 52' 10'' 00.0''$ (LT)<br>$D = 39' 47'' 19.4''$<br>$L = 131.1'$<br>$T = 70.49'$<br>$R = 144.00'$<br>$SE = 6\%$<br>$Ro = 108$<br>$V_D = 25$ mph | $\Delta = 55' 27'' 00.0''$ (LT)<br>$D = 24' 48'' 12.1''$<br>$L = 223.56'$<br>$T = 121.4'$<br>$R = 231.00'$<br>$SE = 6\%$<br>$Ro = 114$<br>$V_D = 30$ mph |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|

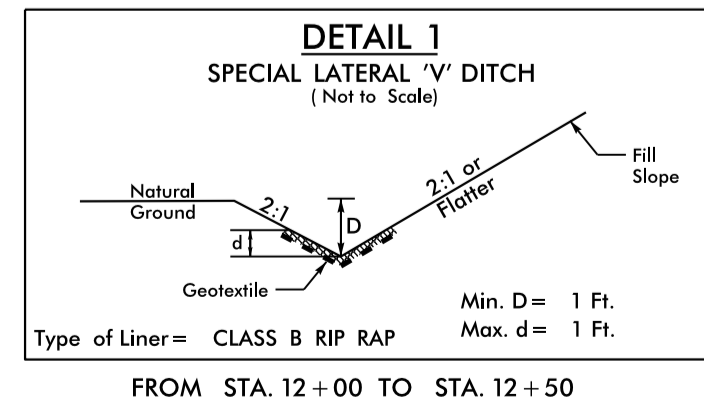
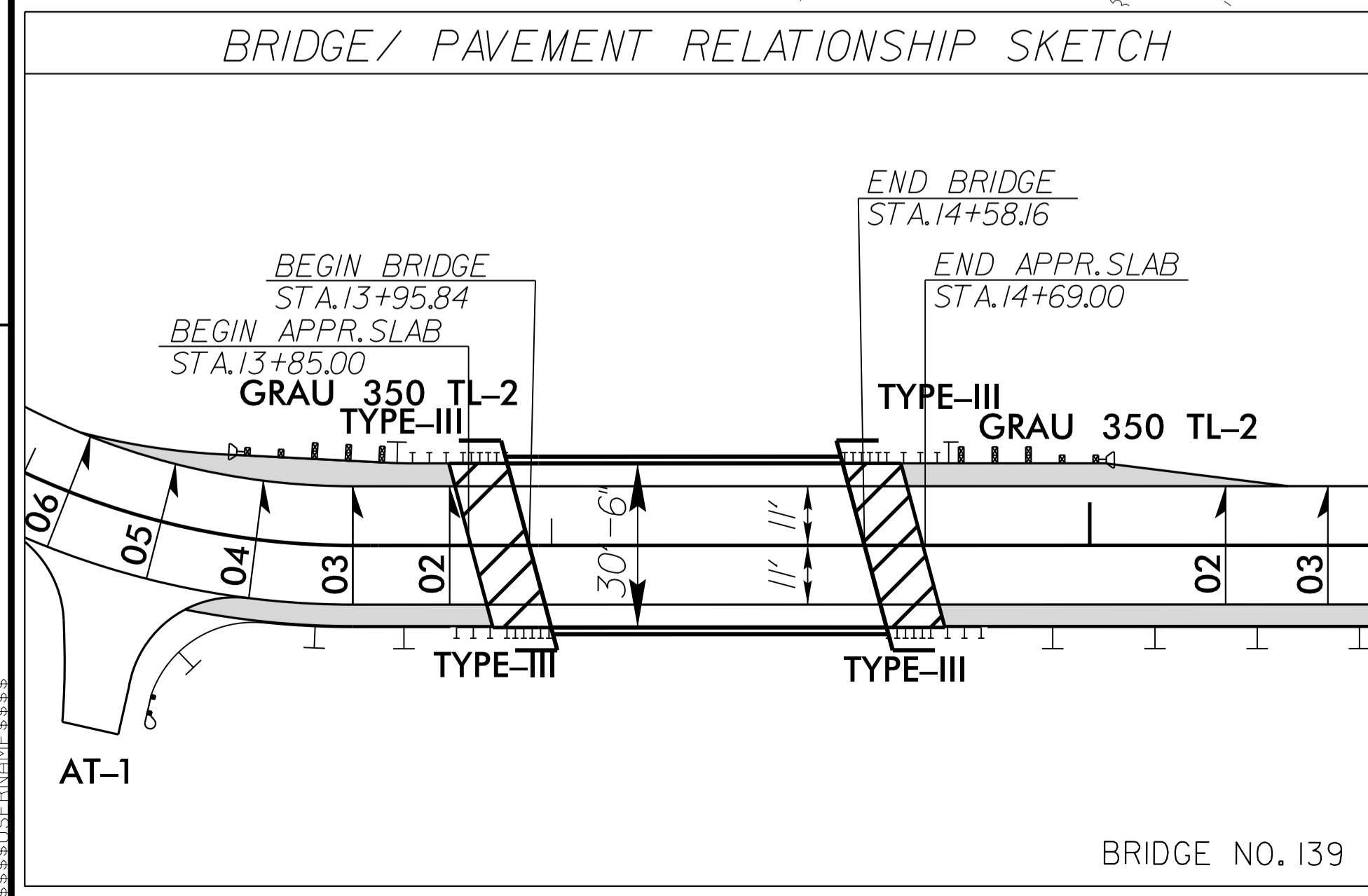


REVISIONS

8/17/99



\*DESIGN EXCEPTION REQUIRED FOR HORIZONTAL ALIGNMENT AND HORIZONTAL STOPPING SIGHT DISTANCE



XXXXXX PAVEMENT REMOVAL  
 PAVED SHOULDER

SEE SHEET 5 FOR -L- PROFILE

02\_APR\_2017\_17:13 AD\_5405\_RDV\_PSH\_04.dgn  
 \$\$\$\$\$\$  
 \$\$\$\$\$\$

5/14/99

# LOCHNER

H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612  
(919)571-7111



NC License  
Number F-0159  
1151 SE Gary Parkway  
Suite 101  
Cary, NC 27518  
(919) 557-0929

PROJECT REFERENCE NO. **B-5405** SHEET NO. **5**

ROADWAY DESIGN ENGINEER  
HYDRAULICS ENGINEER

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

**PIPE HYDRAULIC DATA**  
18" RCP Sta. 12+51

|                       |          |     |
|-----------------------|----------|-----|
| DRAINAGE AREA         | = 1.3    | AC  |
| DESIGN FREQUENCY      | = 25     | YR  |
| DESIGN DISCHARGE      | = 2.5    | CFS |
| DESIGN HW ELEVATION   | = 1962.4 | FT  |
| 100 YEAR DISCHARGE    | = 3.0    | CFS |
| 100 YEAR HW ELEVATION | = 1962.5 | FT  |
| OVERTOPPING FREQUENCY | = 500+   | YR  |
| OVERTOPPING DISCHARGE | = 14.8   | CFS |
| OVERTOPPING ELEVATION | = 1964.8 | FT  |

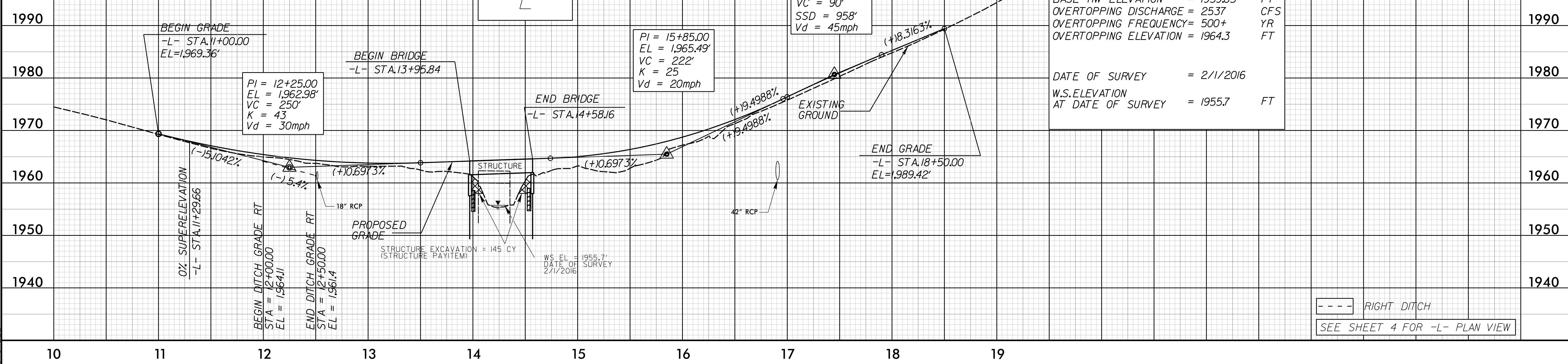
**PIPE HYDRAULIC DATA**  
42" RCP Sta. 16+91

|                       |          |     |
|-----------------------|----------|-----|
| DRAINAGE AREA         | = 43.6   | AC  |
| DESIGN FREQUENCY      | = 25     | YR  |
| DESIGN DISCHARGE      | = 51.7   | CFS |
| DESIGN HW ELEVATION   | = 1965.1 | FT  |
| 100 YEAR DISCHARGE    | = 82.3   | CFS |
| 100 YEAR HW ELEVATION | = 1966.6 | FT  |
| OVERTOPPING FREQUENCY | = 500+   | YR  |
| OVERTOPPING DISCHARGE | = 194.9  | CFS |
| OVERTOPPING ELEVATION | = 1976.4 | FT  |

**BRIDGE HYDRAULIC DATA**

|                       |           |     |
|-----------------------|-----------|-----|
| DESIGN DISCHARGE      | = 850     | CFS |
| DESIGN FREQUENCY      | = 25      | YR  |
| DESIGN HW ELEVATION   | = 1959.0  | FT  |
| BASE DISCHARGE        | = 1200    | CFS |
| BASE FREQUENCY        | = 100     | YR  |
| BASE HW ELEVATION     | = 1959.85 | FT  |
| OVERTOPPING DISCHARGE | = 2537    | CFS |
| OVERTOPPING FREQUENCY | = 500+    | YR  |
| OVERTOPPING ELEVATION | = 1964.3  | FT  |

DATE OF SURVEY = 2/1/2016  
W.S. ELEVATION AT DATE OF SURVEY = 1955.7 FT



--- RIGHT DITCH  
SEE SHEET 4 FOR -L- PLAN VIEW

2/14/2017  
B:\5405\_Rdy\_PSH-05.dgn  
C:\D\KLELY