



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

June 6, 2017

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

ATTN: Mr. Steven Kichefski
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permits 13 and 33 and 401 Water Quality Certification** for the Proposed Replacement of Bridge No. 38 over Third Creek on US 21 / NC 115 in Iredell County, Division 12, TIP No. B-4982, Federal Aid Project No.BRSTP-0021(15).
Debit \$570 from WBS# 40159.1.1.

Dear Mr. Kichefski:

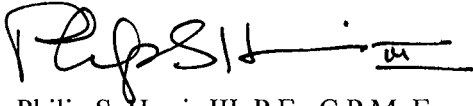
The North Carolina Department of Transportation (NCDOT) proposes to replace bridge number 38 over Third Creek on US 21/NC 115 in Iredell County. There are no alternate routes to support the current traffic through the project corridor, thus no off-site detours are being used to reroute traffic during construction. Instead, the replacement bridge will be constructed in phases to allow traffic to continue to utilize US 21/NC 115 through the duration of construction. There will be 262 linear feet of bank stabilization impact, and 123 linear feet (0.04 acre) of temporary impact from the temporary causeway to be used for the removal of the existing bridge middle bent and the construction of the proposed bridge middle bent.

Please see enclosed copies of the Pre-Construction Notification (PCN), Stormwater Management Plan, Permit Drawings, and Roadway Plan Sheets. A Programmatic Categorical Exclusion (PCE) was completed in July 2015 and distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of September 19, 2017 and a review date of August 1, 2017; however, the let date may advance as additional funding becomes available.

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 Bill Barrett at (919) 707-6103.

Sincerely,

A handwritten signature in black ink, appearing to read "Philip S. Harris III", followed by a horizontal line and a small flourish.

Philip S. Harris III, P.E., C.P.M. E
Environmental Analysis Unit Head

Cc:

NCDOT Permit Application Standard Distribution List



Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.4 January 2009

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit ☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 13 33 or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	☐ Yes ☒ No
1d. Type(s) of approval sought from the DWQ (check all that apply): ☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit ☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization	
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No
For the record only for Corps Permit: ☐ Yes ☒ 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.	☒ Yes ☐ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	☐ Yes ☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	☐ Yes ☒ No

2. Project Information

2a. Name of project:	Replacement of Bridge No. 38 over Third Creek on US 21-NC 115.
2b. County:	Iredell
2c. Nearest municipality / town:	Statesville
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no:	B-4982

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) 707-6103
3g. Fax no.:	(919) 212-5785
3h. Email address:	wabarrett@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ 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:	
5. Agent/Consultant Information (if applicable)	
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. Project Information and Prior Project History	
1. Property Identification	
1a. Property identification no. (tax PIN or parcel ID):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 35.751611 (DD.DDDDDD) Longitude: - 80.891002 (-DD.DDDDDD)
1c. Property size:	43.6 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Third Creek
2b. Water Quality Classification of nearest receiving water:	C
2c. River basin:	Yadkin-Pee Dee
3. Project Description	
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: Development in the area is a mix of residential and commercial development. US 21/NC 115 is classified as a major collector in the Statewide Functional Classification System and it is not part of the National Highway System.	
3b. List the total estimated acreage of all existing wetlands on the property: 0	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 329 linear feet	
3d. Explain the purpose of the proposed project: To replace a structurally deficient (superstructure rating of 3 out of 9, and substructure rating of 4 out of 9) and functionally obsolete (sufficiency rating of 27.3 out of a possible 100 for a new structure) bridge.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 126-foot bridge with a 212-foot, 3-span bridge to the east of the existing bridge. The new bridge will be constructed in phases to allow traffic to continue to utilize US 21/NC 115 through the duration of construction. Standard road building equipment, such as trucks, dozers, and cranes will be used.	
4. Jurisdictional Determinations	
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? Comments:	☐ Yes ☒ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary ☐ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known):	Agency/Consultant Company: Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.	
5. Project History	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes ☒ No ☐ Unknown
5b. If yes, explain in detail according to "help file" instructions.	
6. Future Project Plans	
6a. Is this a phased project?	☐ Yes ☒ No
6b. If yes, explain.	

C. Proposed Impacts Inventory						
1. Impacts Summary						
1a. Which sections were completed below for your project (check all that apply):						
☐ Wetlands		☒ Streams - tributaries		☐ Buffers		
☐ Open Waters		☐ Pond Construction				
2. Wetland Impacts						
If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.						
2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction	2f. Area of impact (acres)	
Site 1 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ		
Site 2 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ		
2g. Total wetland impacts					X Permanent X Temporary	
2h. Comments:						
3. Stream Impacts						
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. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non- 404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☒ P ☐ T	bank stabilization	Third Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	40	262
Site 2 ☐ P ☒ T	causeway	Third Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	35	123 (0.04 ac.)
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 6 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
3h. Total stream and tributary impacts						262 Perm 123 Temp (0.04 ac.)
3i. Comments: The 262 linear feet of permanent stream impact is from bank stabilization, which does not require mitigation.						

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. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
4f. Total open water impacts				X Permanent X Temporary

4g. Comments:

5. Pond or Lake Construction

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

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

5g. Comments:

5h. Is a dam high hazard permit required?	☐ Yes ☐ 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. Project is in which protected basin?			☐ Neuse ☐ Catawba			☐ Tar-Pamlico ☐ Randleman	☐ Other:
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)		
B1 ☐ P ☐ T			☐ Yes ☐ No				
B2 ☐ P ☐ T			☐ Yes ☐ No				
B3 ☐ P ☐ T			☐ Yes ☐ No				
6h. Total buffer impacts							
6i. Comments:							

D. Impact Justification and Mitigation		
1. Avoidance and Minimization		
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. The new bridge will be 86 feet longer than the existing bridge, and will be at approximately the same grade as the existing structure (raised 0.7200%). There are no alternate routes to support the current traffic through the project corridor, thus no off-site detours are being used to reroute traffic during construction. Instead, the replacement bridge will be constructed in phases to allow traffic to continue to utilize US 21/NC 115 through the duration of construction.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. The new bridge will also be a 3-span structure, but the middle bent will be located nearer the south bank, rather than near the middle of Third Creek, as is the current middle bridge bent. Removal of the existing middle bent located near the middle of the stream will require a temporary causeway that will exceed more than 50% of the stream width for no more than 14 consecutive days. Immediately upon removal of the existing middle bent, the temporary causeway will be removed to STA. 20+85 -L-, for the installation of the bent for the new bridge. Causeway construction and bent removal work will be performed consecutively to minimize the time the causeway will block flow (see note on Permit Drawing Sheet 5 of 6). The remainder of the causeway will be removed immediately following construction of the proposed bent for the new bridge.		
2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State		
2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☒ Yes ☐ No If no, explain: NCDOT will mitigate for the 262 linear feet of stream impact, pursuant to NCDWR requirements (@ 1:1 ratio). NCDOT does not propose mitigation to USACE for the 262 linear feet of bank stabilization impact, as it does not require fill in the stream bed and therefore, under Section 404 of the Clean Water Act, does not constitute Loss of Waters of the U.S. and is not subject to compensatory mitigation for the USACE. Furthermore, the proposed bank stabilization is necessary to prevent erosion and sedimentation by preventing bank de-stabilization and thereby minimizing impacts to the environment. NCDWR also does not require mitigation for bank stabilization impacts.	
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☐ Corps	
2c. If yes, which mitigation option will be used for this project?	☐ Mitigation bank ☐ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation	
3. Complete if Using a Mitigation Bank		
3a. Name of Mitigation Bank: not applicable		
3b. Credits Purchased (attach receipt and letter)	Type	Quantity

3c. Comments:

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.	☒ Yes
4b. Stream mitigation requested:	262 linear feet
4c. If using stream mitigation, stream temperature:	☒ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	square feet
4e. Riparian wetland mitigation requested:	acres
4f. Non-riparian wetland mitigation requested:	acres
4g. Coastal (tidal) wetland mitigation requested:	acres
4h. Comments: see Section 2a for comments regarding mitigation.	

5. Complete if Using a Permittee Responsible Mitigation Plan

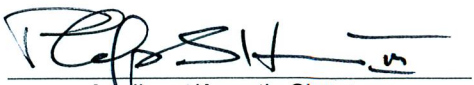
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.

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. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
	6f. Total buffer mitigation required:			
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:				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☐ Yes ☒ No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: If required from 1a, see attached buffer permit drawings.	☐ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ 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: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
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):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No N/A
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☐ Yes ☐ No N/A
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No N/A

F. Supplementary Information	
1. Environmental Documentation (DWQ Requirement)	
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes ☐ 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)?	☒ Yes ☐ 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.) Comments:	☒ Yes ☐ No
2. Violations (DWQ Requirement)	
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)?	☐ Yes ☒ No
2b. Is this an after-the-fact permit application?	☐ Yes ☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):	
3. Cumulative Impacts (DWQ Requirement)	
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ 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. 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.	
4. Sewage Disposal (DWQ Requirement)	
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. not applicable	

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☒ Yes	☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☐ Yes	☒ No
5c. If yes, indicate the USFWS Field Office you have contacted.	☐ Raleigh ☒ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? USFWS and NHP website were used, along with NCDOT field surveys. There is habitat on-site for dwarf-flowered heartleaf (DFHL). During the most recent survey, conducted on May 25, 2017, no individuals of this species were identified. A Memo, dated March 17, 2016, was submitted to USFWS-Asheville on December 12, 2016 regarding the Northern long-eared bat (NLEB), noting that NCDOT has determined that the proposed action does not require separate consultation on the grounds that the proposed action is consistent with the final Section 4(d) rule, codified at 50 C.F.R. 17.40(o) and effective February 16, 2016.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
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)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☐ Yes	☒ No
8b. If yes, explain how project meets FEMA requirements:		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		
Philip S. Harris, P.E., C.P.M. Applicant/Agent's Printed Name	 Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	6/6/2017 Date



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.04; Released November 2015)

WBS Element: 40159.1.1 TIP No.: B-4982 County(ies): Iredell Page 1 of 1

General Project Information

WBS Element:		40159.1.1		TIP Number: B-4982		Project Type: Bridge Replacement		Date: 3/21/2017	
NCDOT Contact:		Stephen R. Morgan, PE				Contractor / Designer:		Sungate Design Group, P.A.	
	Address:	Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590					Address:	915 Jones Franklin road Raleigh, NC 27606	
	Phone:	(919) 707-6739					Phone:	(919) 859-2243	
	Email:	smorgan@ncdot.gov				Email:	jclemmons@sungatedesign.com		
City/Town:		Statesville				County(ies):		Iredell	
River Basin(s):		Yadkin-Pee Dee				CAMA County?		No	
Wetlands within Project Limits?		No							

Project Description

Project Length (lin. miles or feet):	1625'	Surrounding Land Use:	Rural business / residential				
	Proposed Project			Existing Site			
Project Built-Up Area (ac.)	1.8	ac.		1.1	ac.		
Typical Cross Section Description:	3 @ 12' Paved Lanes with 4' Paved Shoulders and 4' Grassed Shoulders			2 @ 12' Paved Lanes with 8' Grassed Shoulders			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	21300	Year:	2037	Existing:	12700	Year: 2017
General Project Narrative: (Description of Minimization of Water Quality Impacts)	Project B-4982 involves the replacement of Bridge # 480038 in Iredell County on US 21 / NC 115 over Third Creek. The proposed bridge consists of a 3 @ 70' 45" prestressed concrete girder with 4' end bent caps and drilled shaft piers. It replaces the existing bridge which consists of a 1@50', 1@42', 1@50' concrete and steel girder on concrete piers with concrete vertical abutments. No deck drains will be necessary for this project. The project has been designed to minimize impervious surfaces to the maximum extent practicable. Vegetative conveyance of project drainage has been maximized to the greatest extent practicable. Permanent Soil Retention Matting and Rip-Rap have been used to line project ditches where necessary to prevent erosion and promote ditch stability. Spill through slopes of no greater than 1.5:1 are provided under the proposed bridge and will be armored with CL 'II' rip rap to prevent erosion and promote bank stability. Existing drainage patterns and subsurface drainage systems have been retained to the greatest extent practicable.						

Waterbody Information

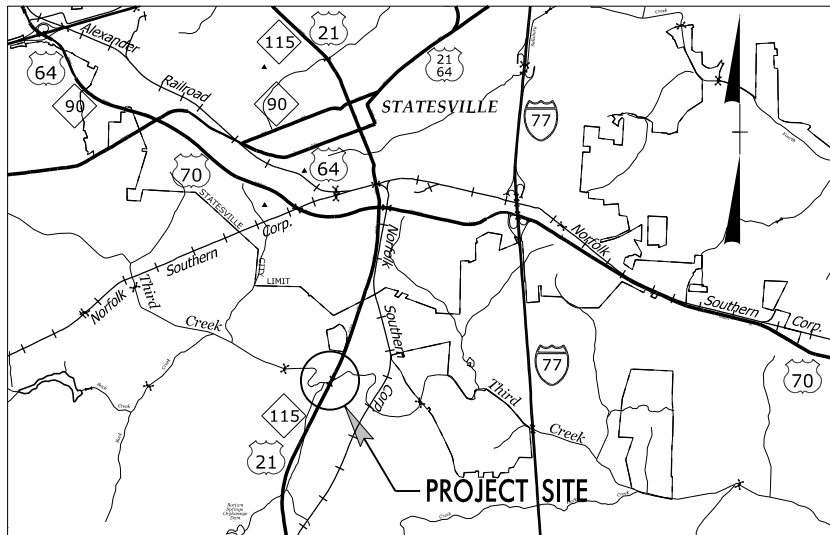
Surface Water Body (1):		Third Creek		NCDWR Stream Index No.:		12-108-20-4				
NCDWR Surface Water Classification for Water Body			Primary Classification:		Class C					
			Supplemental Classification:		None					
Other Stream Classification:		None								
Impairments:		None								
Aquatic T&E Species?		No		Comments:						
NRTR Stream ID:		Third Creek				Buffer Rules in Effect:		N/A		
Project Includes Bridge Spanning Water Body?		Yes		Deck Drains Discharge Over Buffer?		No		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)										

09/08/19

TIP PROJECT: B-4982

CONTRACT:

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 For Survey Control Sheet



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

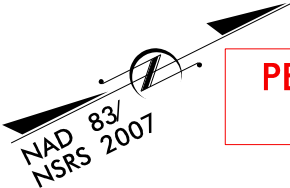
IREDELL COUNTY

LOCATION: REPLACE BRIDGE NO. 38 OVER THIRD CREEK
ON US 21 - NC 115

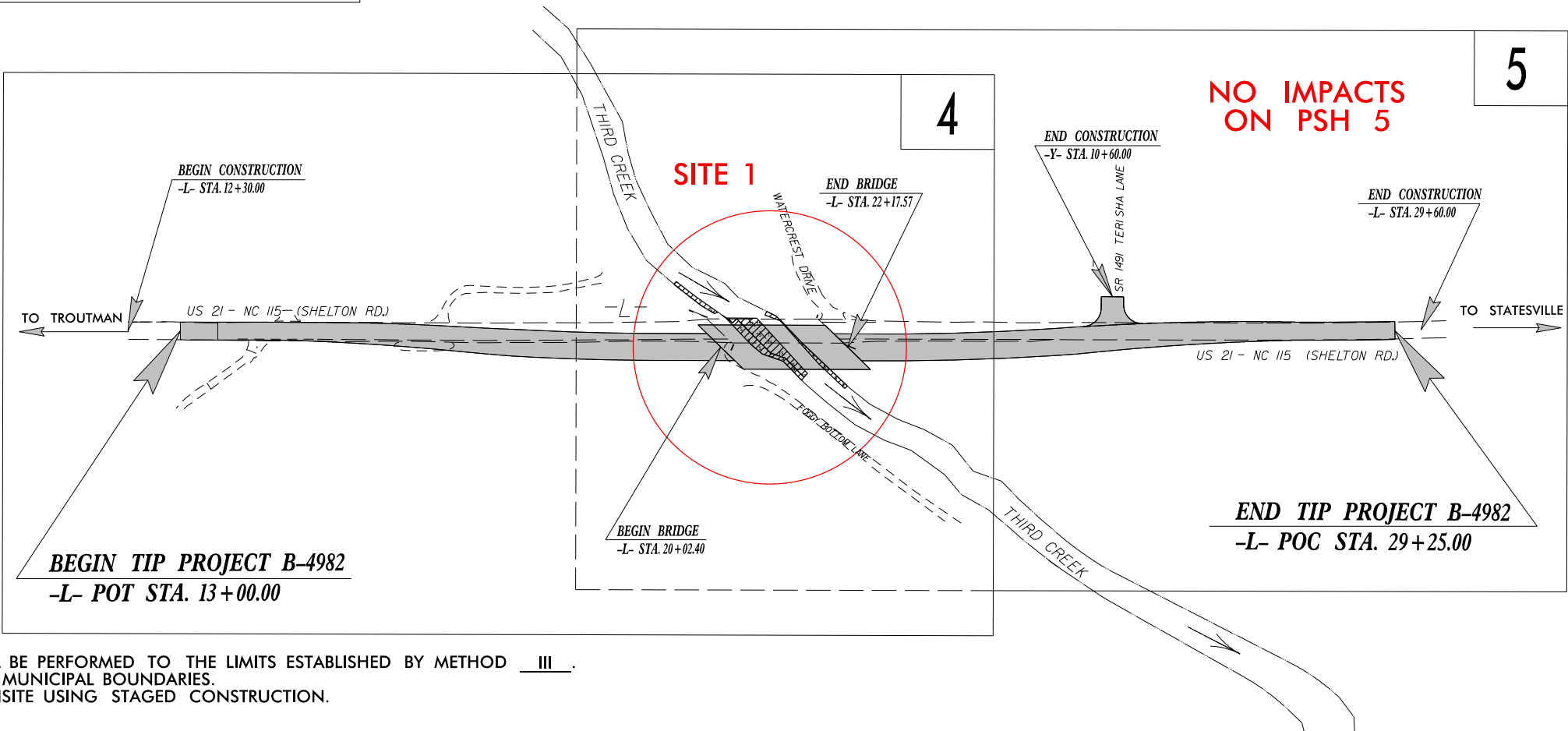
TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE

WETLAND AND SURFACE WATER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4982	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40159.1.1	BRSTP-0021(15)	PE	
40159.2.1		RW	



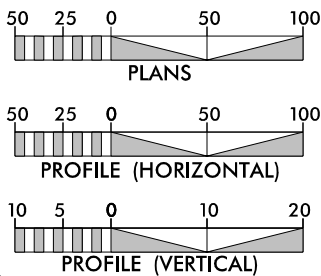
PERMIT DRAWING
SHEET 1 OF 6



NOTES:
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
TRAFFIC IS TO BE MAINTAINED ONSITE USING STAGED CONSTRUCTION.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 12700
ADT 2037 = 21300
K = 9 %
D = 55 %
T = 5 % *
V = 50 MPH
* TTST = 1% DUAL 4%
FUNC CLASS =
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4982 = 0.267
LENGTH STRUCTURE TIP PROJECT B-4982 = 0.041
TOTAL LENGTH OF TIP PROJECT B-4982 = 0.308

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 22, 2016

LETTING DATE:
SEPTEMBER 19, 2017

JAMES A. SPEER, PE
PROJECT ENGINEER

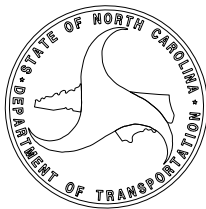
NYA K. BOAYUE, PE
PROJECT DESIGN ENGINEER

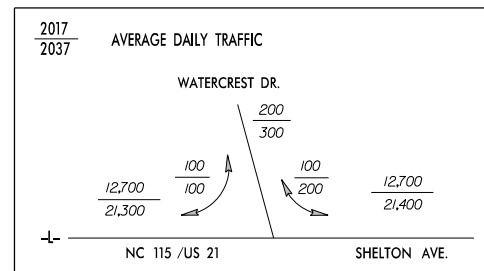
HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN
ENGINEER

SIGNATURE: _____ P.E.

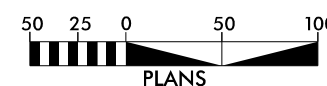
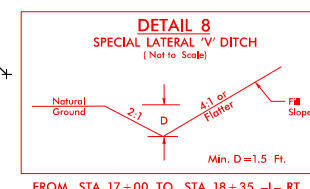
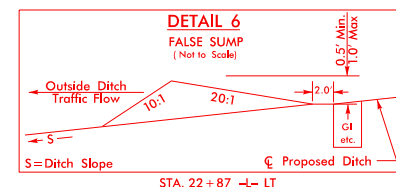
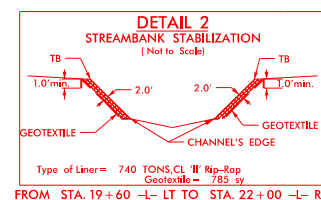
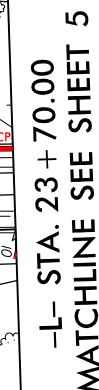


DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

NAD 83/NSRS 200

L. TYRONE STONER
AND WIFE
ESTHER A. STONER

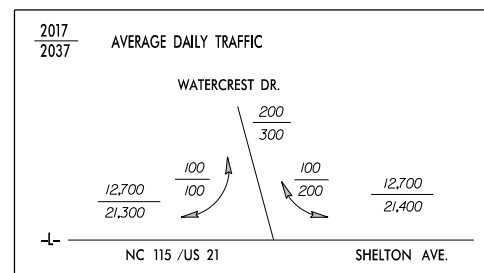


SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -DR1- PROFILE
SEE SHEET 7 FOR -DR2- PROFILE

REVISIONS

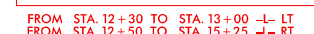
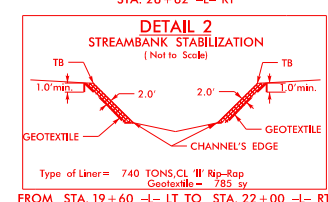
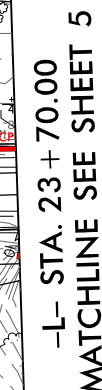
R/W and DESIGN REVISION: DI was added between driveway pipes on parcel 4 and 8. 2-22-17 DK

4/5/2017
34982-Hyd-prm-wet-psh-04.dan

DENOTES IMPACTS IN
SURFACE WATERDENOTES TEMPORARY
IMPACTS IN SURFACE WATER

NAD 83/NSRS 200

L. TYRONE STONER
AND WIFE
ESTHER A. STONER



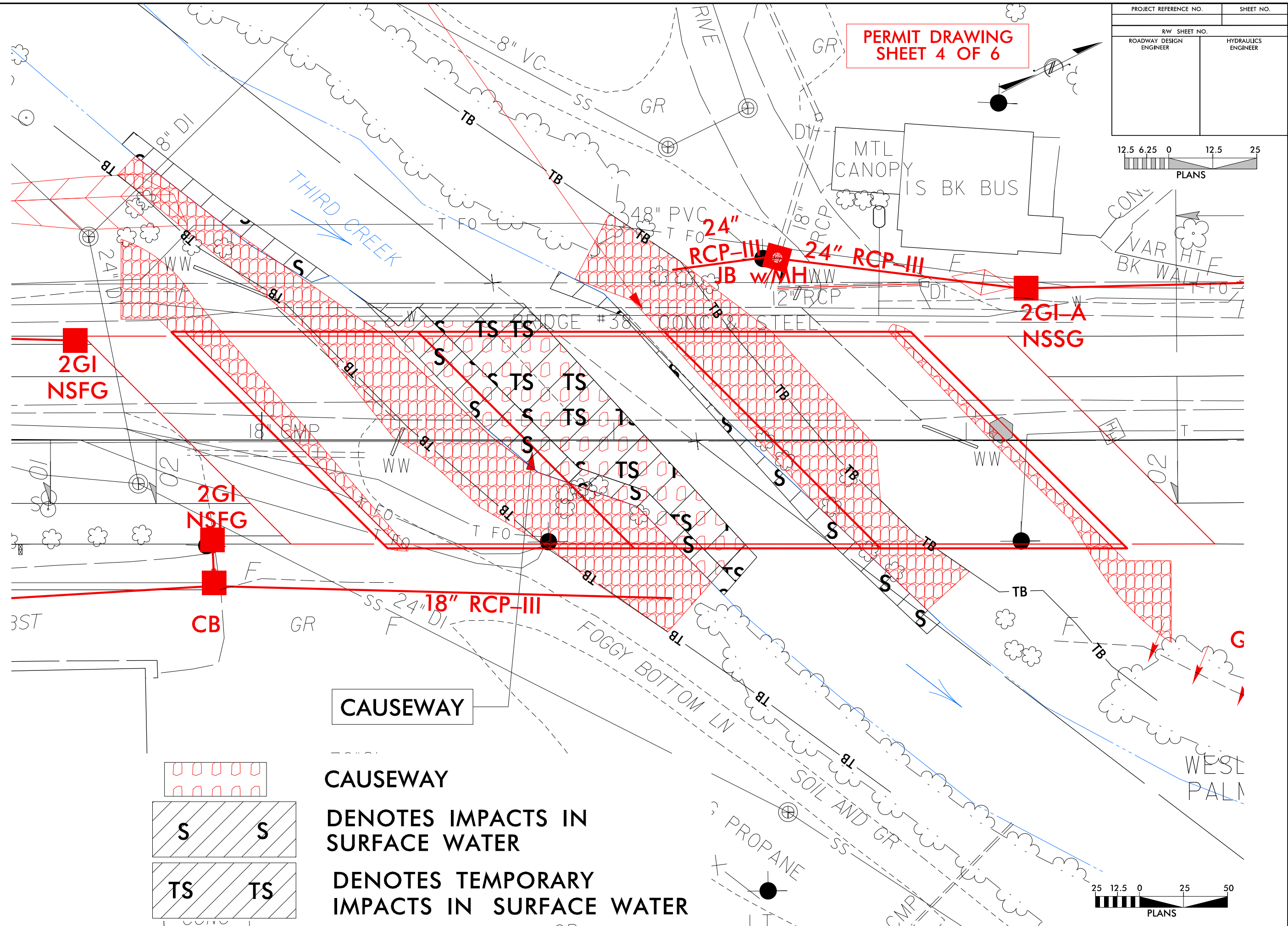
SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -DR1- PROFILE
SEE SHEET 7 FOR -DR2- PROFILE

REVISIONS

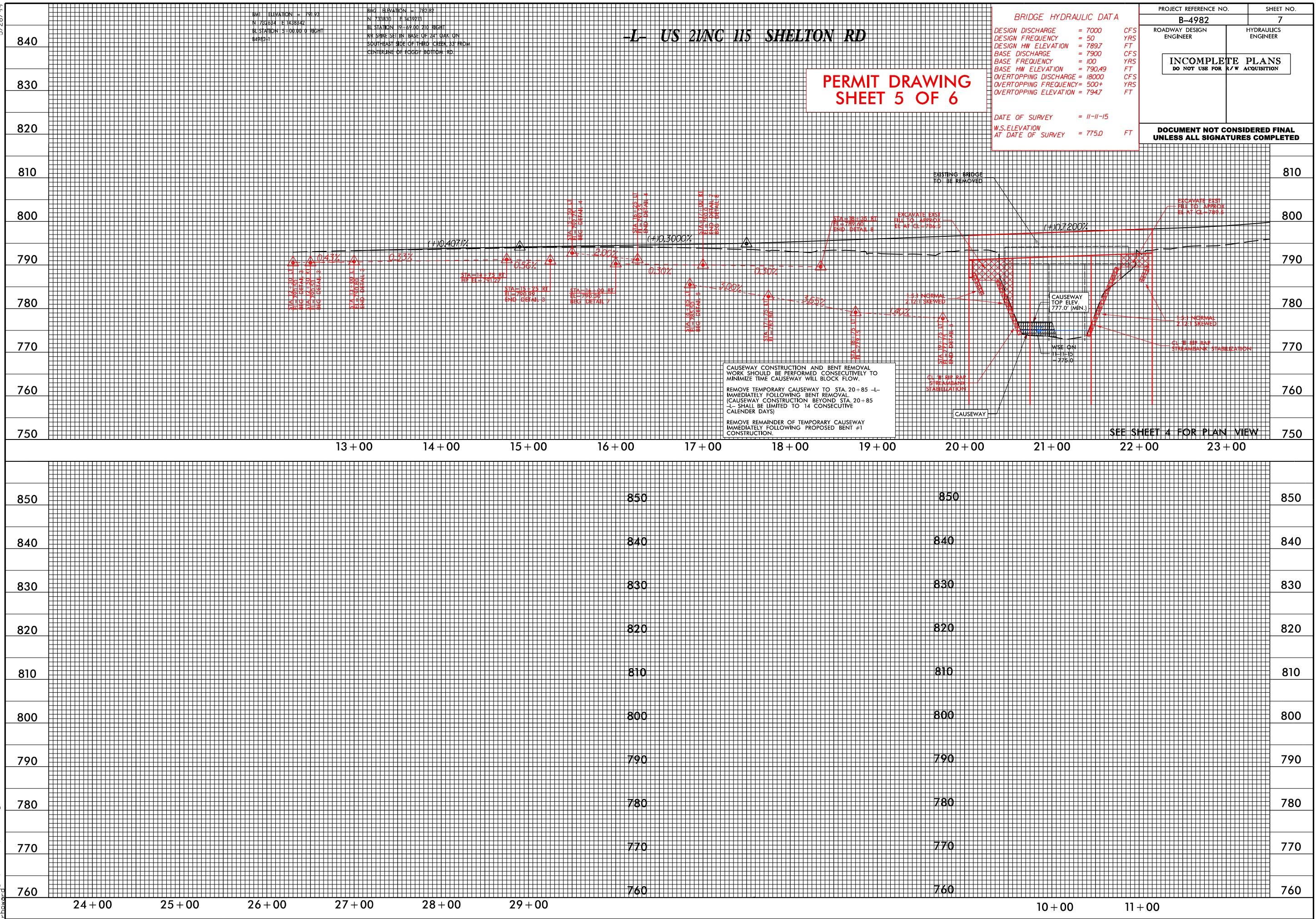
R/W and DESIGN REVISION: DI was added between driveway pipes on parcel 4 and 8. 2-22-17 DK

4/5/2017
34982-Hyd-prm-wet-psh_04a.dgn

8/17/99
REVISIONS
2/16/2017
B:\625\Hyd-prm-wet.psh_04b.dgn
thoward



B4982-Hyd-prm-wet-psh_07.dgn



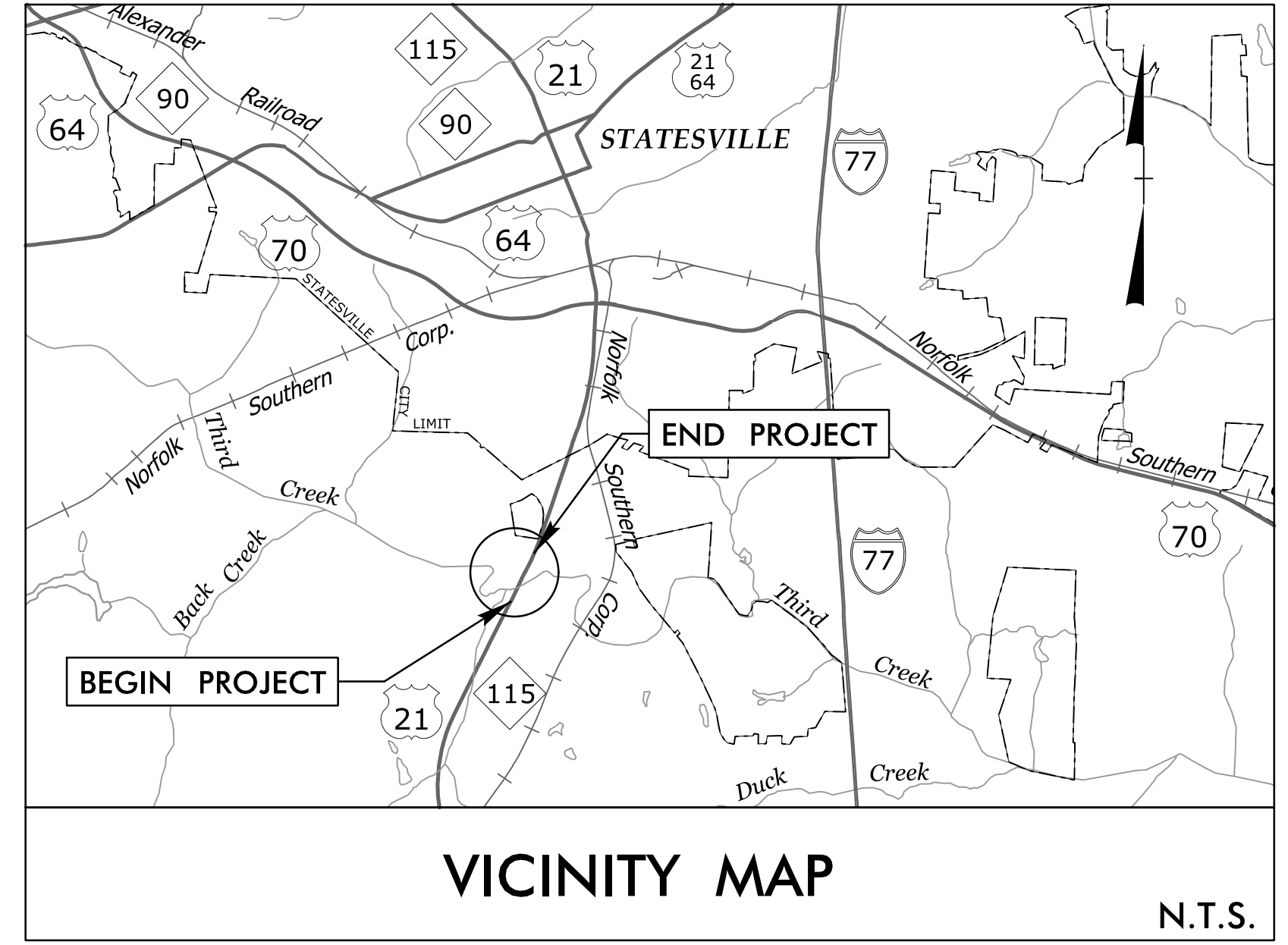
05/08/99

5/1/2017
F:\Roadway\Proj\SH\B-4982_Rdy_psh01_tsh.dgn
stephesc

TIP PROJECT: B-4982

CONTRACT:

See Sheet 1A For Index of Sheets
See Sheet 1B for Conventional Symbols
See Sheet 1C-1 For Survey Control Sheet



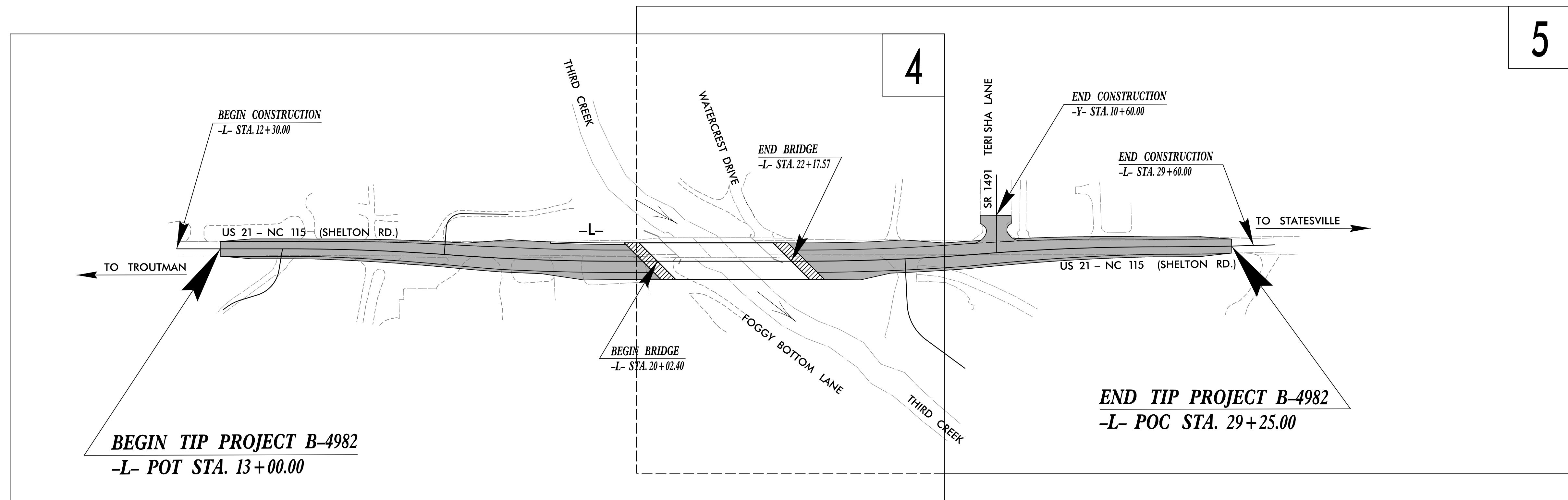
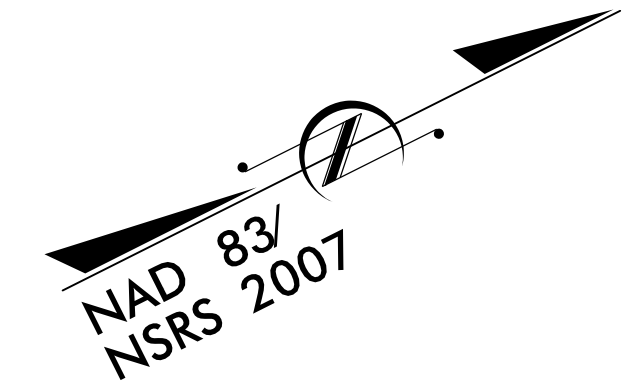
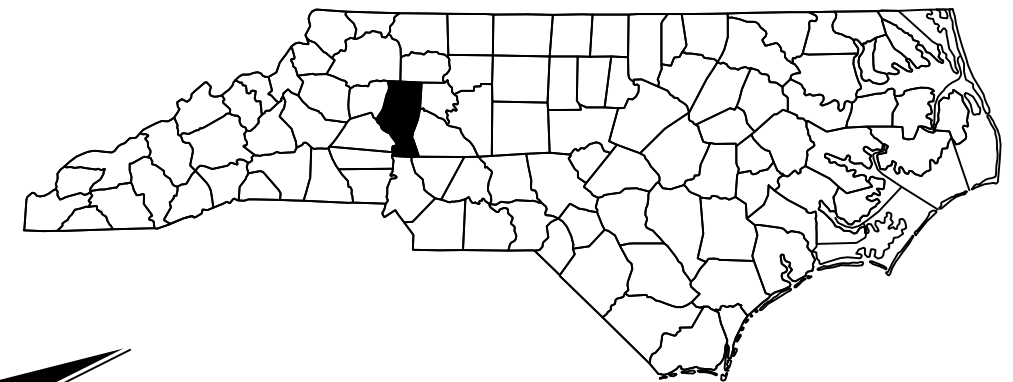
FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
IREDELL COUNTY

LOCATION: REPLACE BRIDGE NO. 38 OVER THIRD CREEK
ON US 21 - NC 115

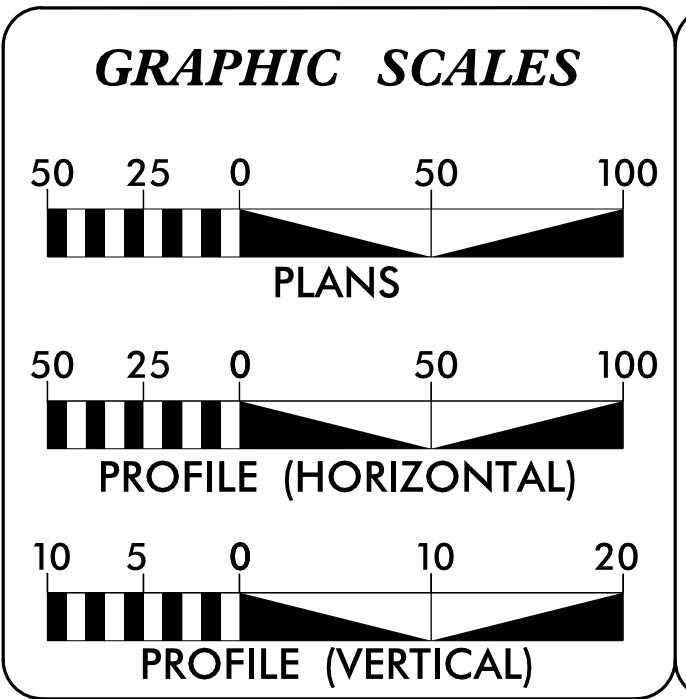
TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4982	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40159.1.1	BRSTP-0021(15)	PE	
40159.2.1		R / W	
40159.3.1		CONSTRUCTION	



NOTES:
TRAFFIC IS TO BE MAINTAINED ONSITE USING STAGED CONSTRUCTION.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2017	=	12700
ADT 2037	=	21300
K	=	9 %
D	=	55 %
T	=	5 % *
V	=	50 MPH
* TTST = 1% DUAL 4%		
FUNC CLASS	=	ARTERIAL
REGIONAL TIER		

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4982	=	0.267
LENGTH STRUCTURE TIP PROJECT B-4982	=	0.041
TOTAL LENGTH OF TIP PROJECT B-4982	=	0.308

NCDOT CONTACT: BRYAN KEY, PE
PROJECT DESIGN ENGINEER

PLANS PREPARED FOR THE NCDOT BY:

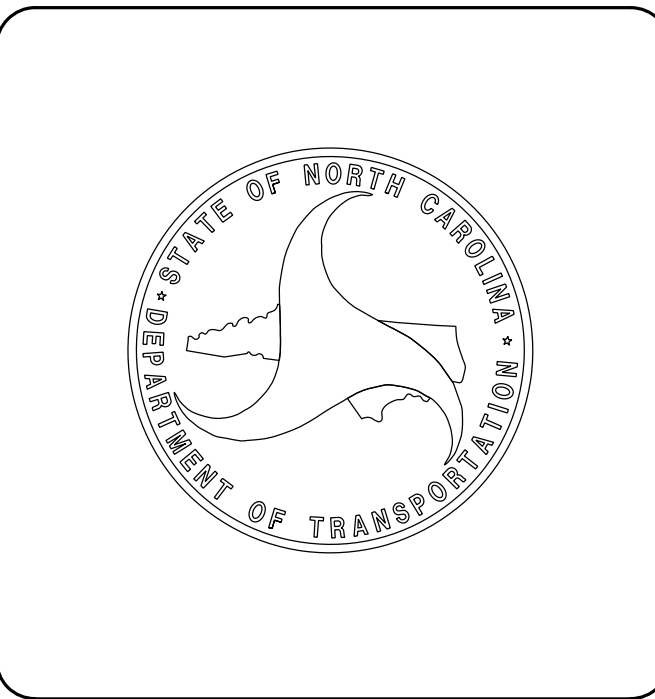
		STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991
2012 STANDARD SPECIFICATIONS		
RIGHT OF WAY DATE: SEPTEMBER 22, 2016	SEAN C. STEPHENS, PE PROJECT ENGINEER	
LETTING DATE: SEPTEMBER 19, 2017	MAAMOON K. ABDELAZIZ PROJECT DESIGNER	

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



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

Note: Not to Scale *S.U.E. = Subsurface Utility Engineering

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY:

Baseline Control Point	
Existing Right of Way Marker	
Existing Right of Way Line	
Proposed Right of Way Line	
Proposed Right of Way Line with Iron Pin and Cap Marker	
Proposed Right of Way Line with Concrete or Granite R/W Marker	
Proposed Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
Proposed Control of Access	
Existing Easement Line	
Proposed Temporary Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage / Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
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	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

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.*)	
U/G Power Line LOS C (S.U.E.*)	
U/G Power Line LOS D (S.U.E.*)	

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.*)	
U/G Telephone Cable LOS C (S.U.E.*)	
U/G Telephone Cable LOS D (S.U.E.*)	
U/G Telephone Conduit LOS B (S.U.E.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	
U/G Fiber Optics Cable LOS B (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)	
U/G Fiber Optics Cable LOS D (S.U.E.*)	

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

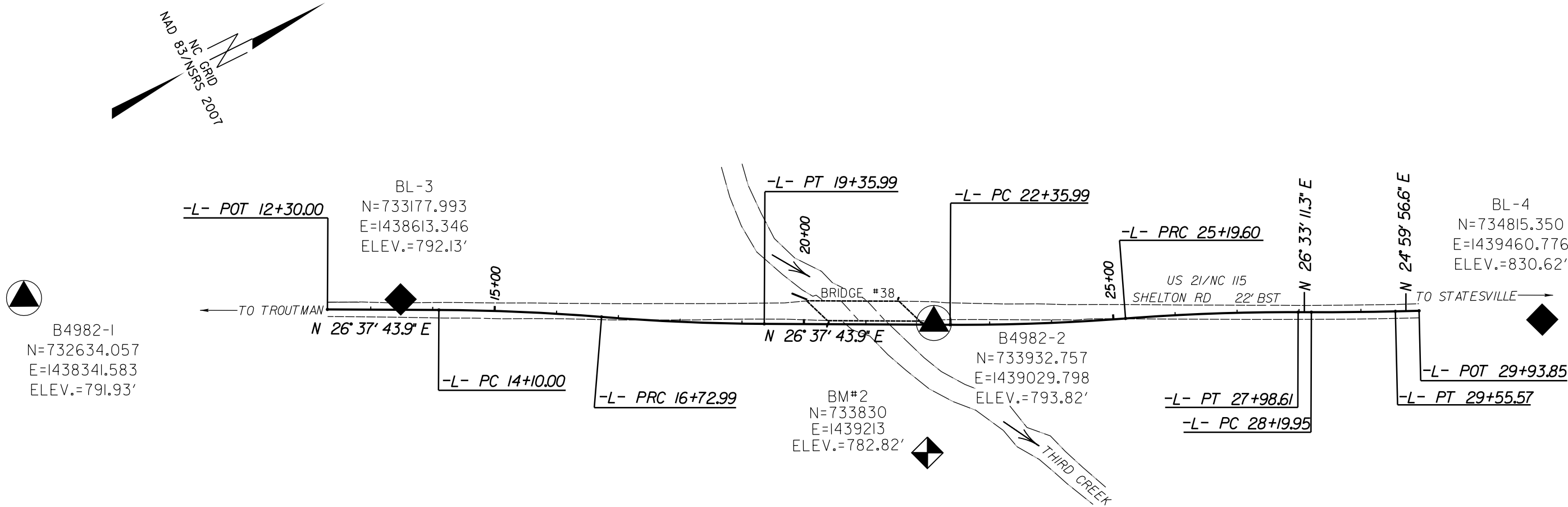
Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line LOS B (S.U.E.*)	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
U/G Test Hole LOS A (S.U.E.*)	
Abandoned According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

6/2/99

20-SEP-2016 11:26
R:\Roadway\Proj\B4982-LS-1c-1.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

PROJECT REFERENCE NO.	SHEET NO.
B-4982	1C-1
Location and Surveys	

SURVEY CONTROL SHEET B-4982



BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4982-1		732634.0570	1438341.5830	791.93	OUTSIDE PROJECT LIMITS	
3	BL-3		733177.9928	1438613.3462	792.13	13+48.09	16.90 LT
2	B4982-2		733932.7570	1439029.7980	793.82	22+09.96	2.78 LT
4	BL-4		734815.3503	1439460.7762	830.62	OUTSIDE PROJECT LIMITS	

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4982-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 732634.057(±) EASTING: 1438341.583(±) ELEVATION: 791.93'(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987725 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4982-1" TO -L- STATION 12+30.00 IS N 28°30'16.08 E 490.21' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

BM1 ELEVATION = 791.93'
N 732634.057 E 1438341.583
L STATION 12+30.00 TO BM 1
S 28°30'16.08" W DIST 490.21'
REBAR AND CAP STAMPED B4982-1

BM2 ELEVATION = 782.82'
N 733830 E 1439213
L STATION 22+00.00 207' RIGHT
R/R SPIKE SET IN BASE OF 24" OAK ON
SOUTHEAST SIDE OF THIRD CREEK, 33' FROM
CENTERLINE OF FOGGY BOTTOM RD.

BM3 ELEVATION = 830.62'
N 734815.350 E 1439460.776
L STATION 29+93.85 TO BM 3
N 30°24'14.24" E DIST 199.35'
REBAR AND CAP STAMPED BL-4

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/)
THE FILES TO BE FOUND ARE AS FOLLOWS:
B4982_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.

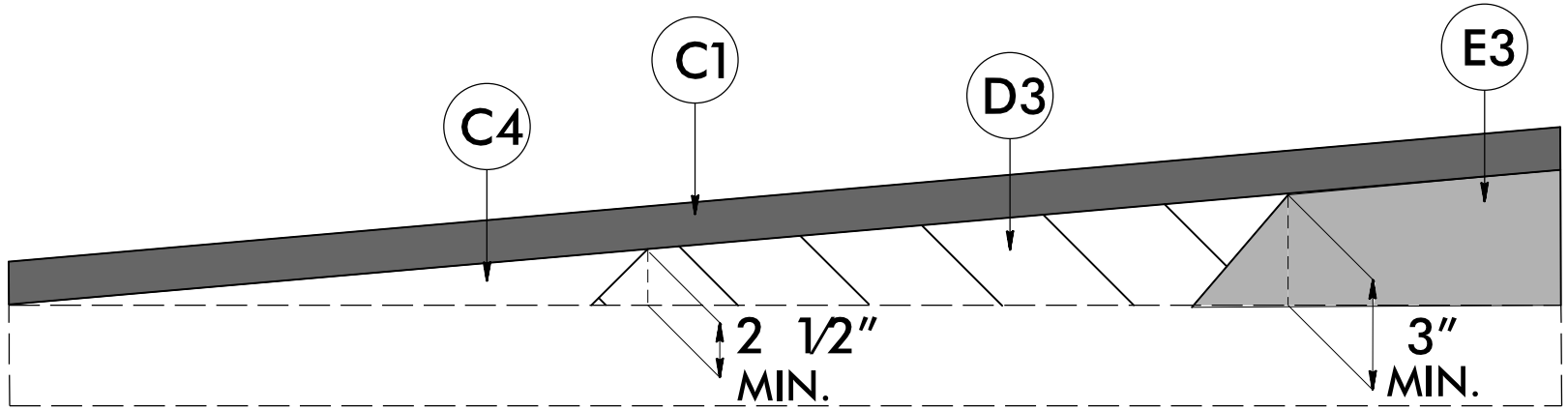
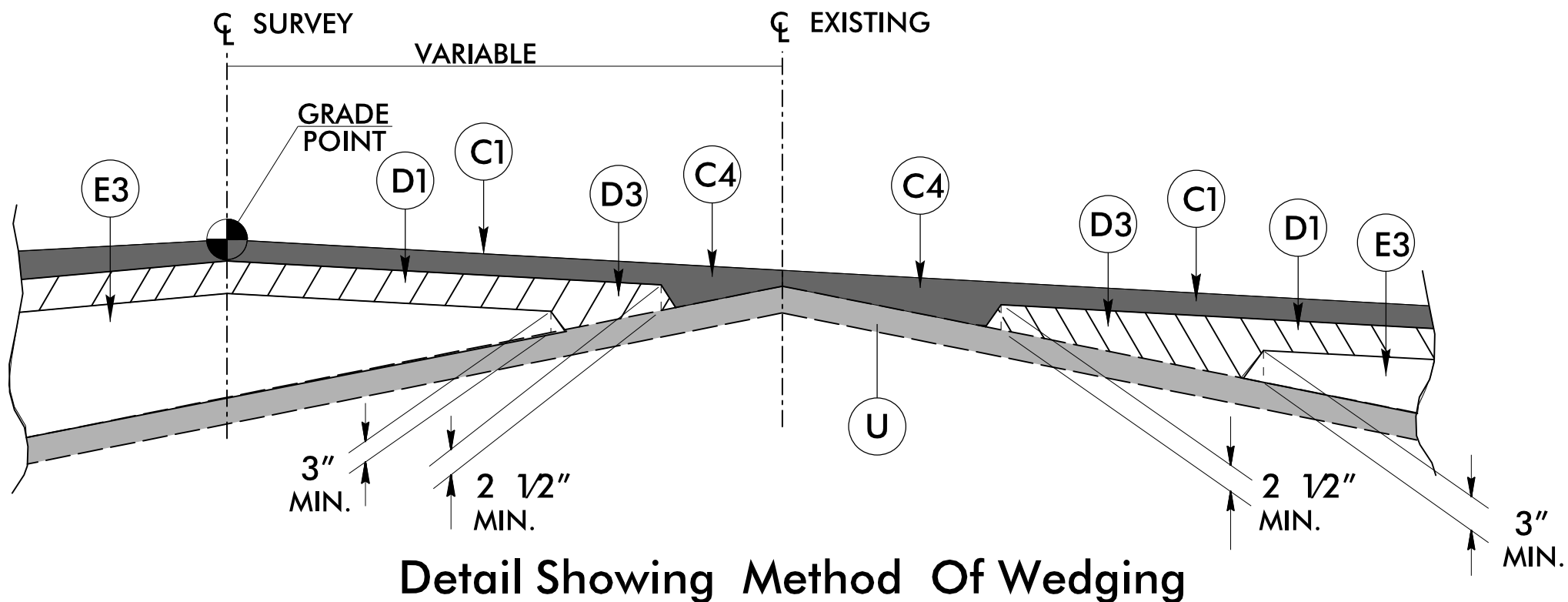


INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

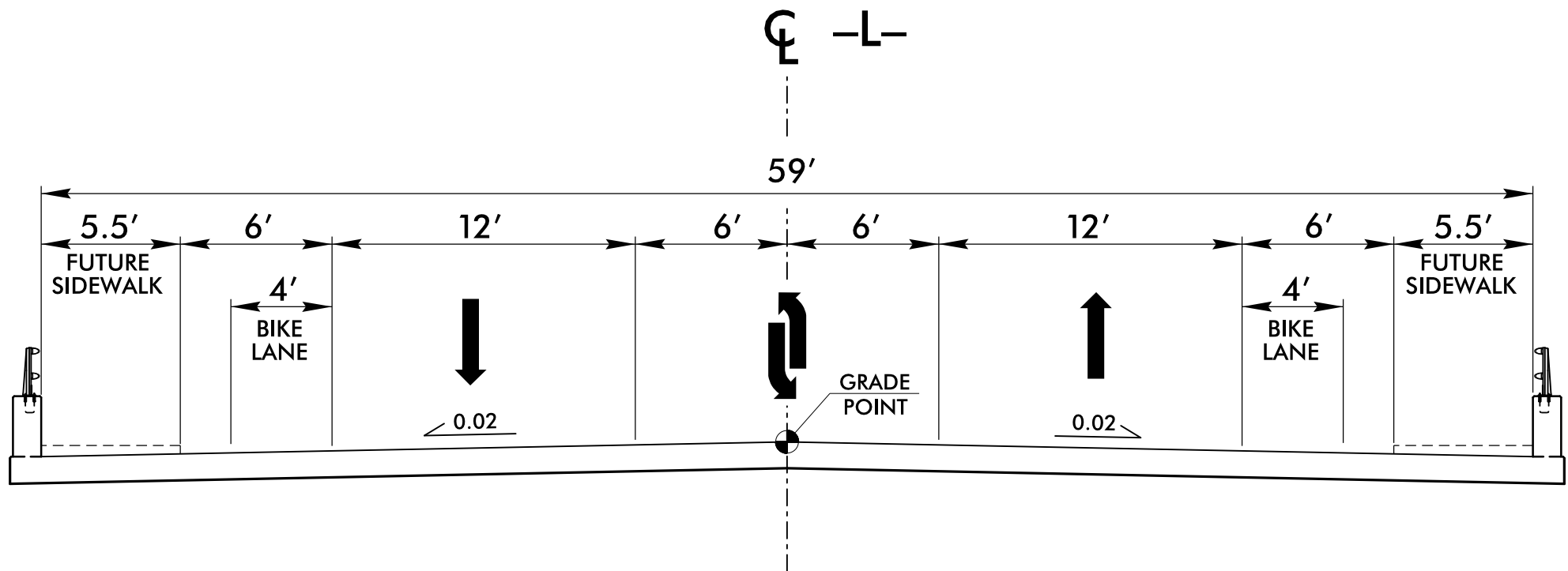
NOTE: DRAWING NOT TO SCALE

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YD.
R1	PROP. SHOULDER BERM GUTTER MODIFIED (SEE DETAIL 2C-1)
R2	PROP. 2'-6" CURB AND GUTTER
J	PROP. 8" AGGREGATE BASE COURSE
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT

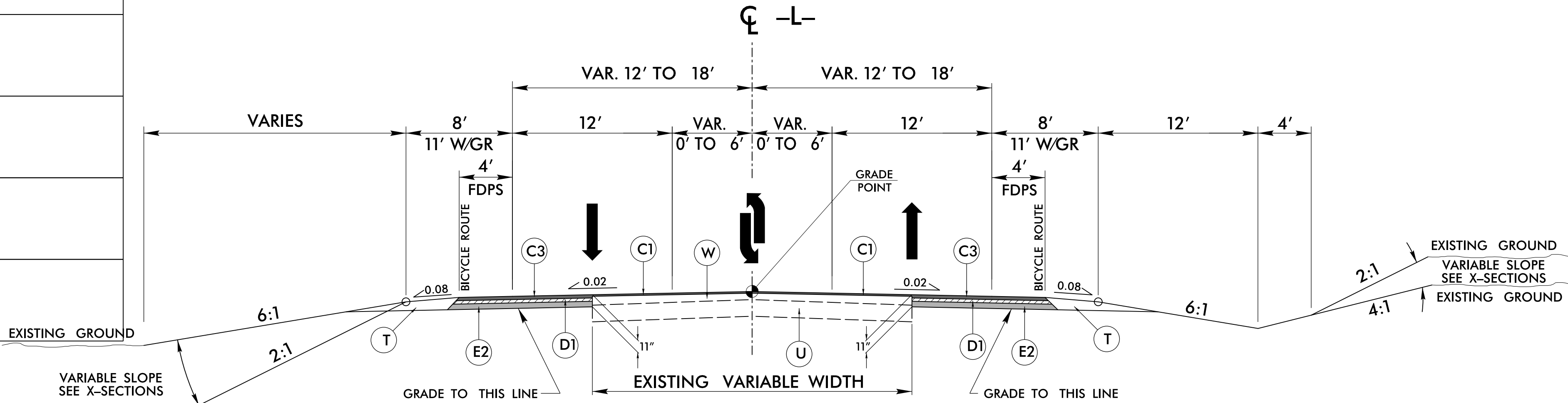
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Wedging Detail For Resurfacing



TYPICAL SECTION ON STRUCTURE
(SEE STRUCTURE PLANS)
-L- STA. 20+02.40 TO STA. 22+17.57

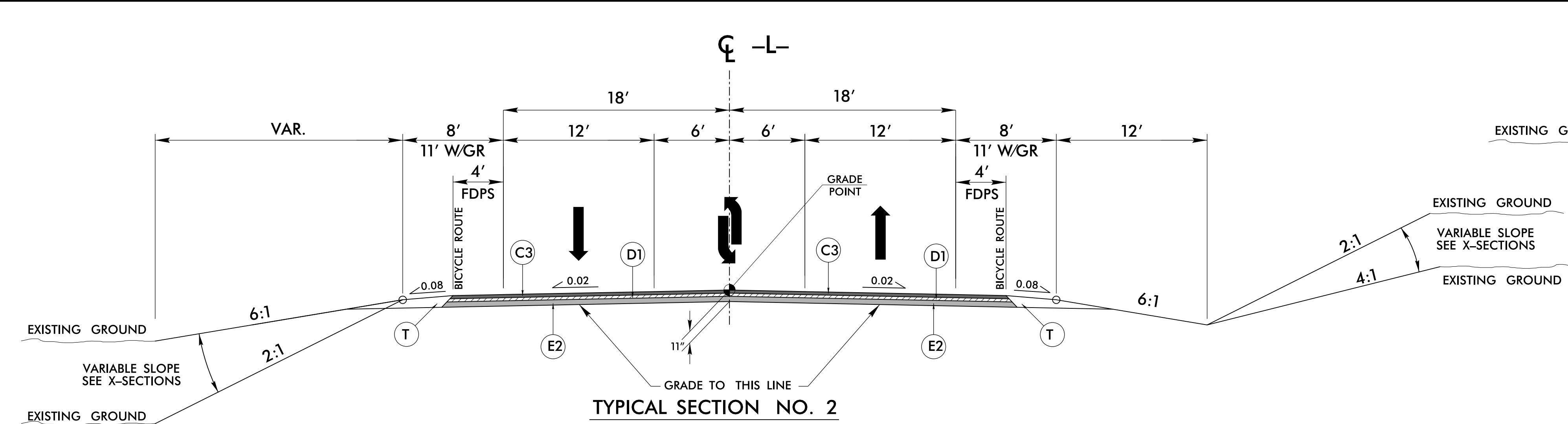


TYPICAL SECTION NO. 1
-L- STA. 13+50.00 TO STA. 18+25.00
-L- STA. 24+75.00 TO STA. 28+75.00

TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
-L- STA. 13+00.00 TO STA. 13+50.00
-L- STA. 28+75.00 TO STA. 29+25.00

PROJECT REFERENCE NO. B-4982		SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
STV 100 Years		STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ACSC, TYPE S9.5B.
C2	PROP. APPROX. 2" ACSC, TYPE S9.5B.
C3	PROP. APPROX. 3" ACSC, TYPE S9.5B.
C4	PROP. VARI. DEPTH ACSC, TYPE S9.5B.
D1	PROP. APPROX. 3" ACIC, TYPE I19.0B.
D2	PROP. APPROX. 4" ACIC, TYPE I19.0B.
D3	PROP. VARI. DEPTH ACIC, TYPE I19.0B.
E1	PROP. APPROX. 4" ACBC, TYPE B25.0B.
E2	PROP. APPROX. 5" ACBC, TYPE B25.0B.
E3	PROP. VARI. DEPTH ACBC, TYPE B25.0B.
P	PRIME COAT
R1	PROP. SHOULDER BERM GUTTER (MOD.) SEE DETAIL 2C-1
R2	PROP. 2'-6" C&G
J	PROP. 8" AGGREGATE BASE COURSE
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT

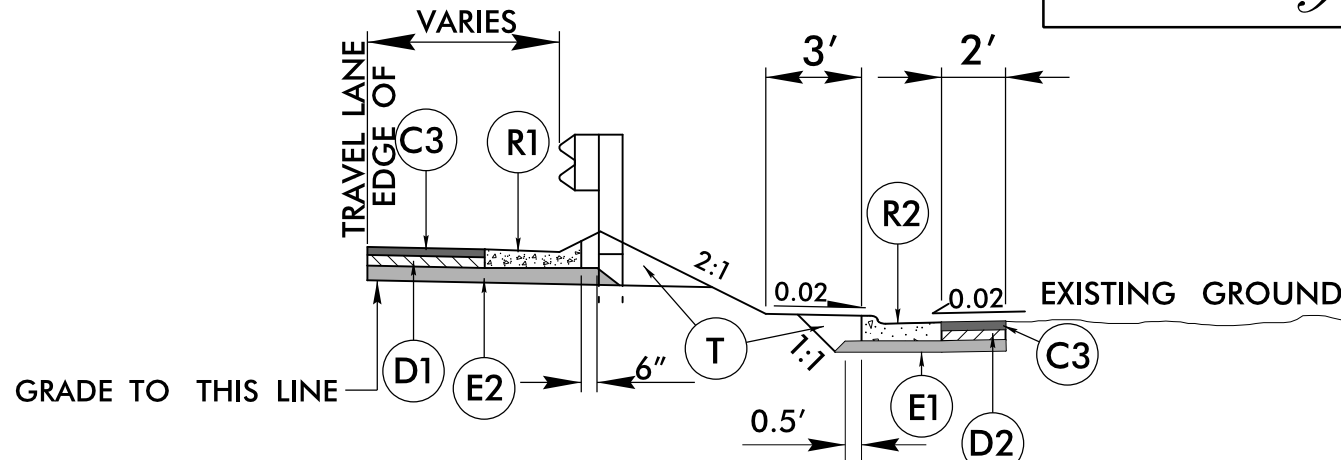


TYPICAL SECTION NO. 2

-L- STA. 18+25.00 TO -L- STA. 20+02.40 (BEGIN BRIDGE)
-L- STA. 22+17.57 (END BRIDGE) TO STA. 24+75.00

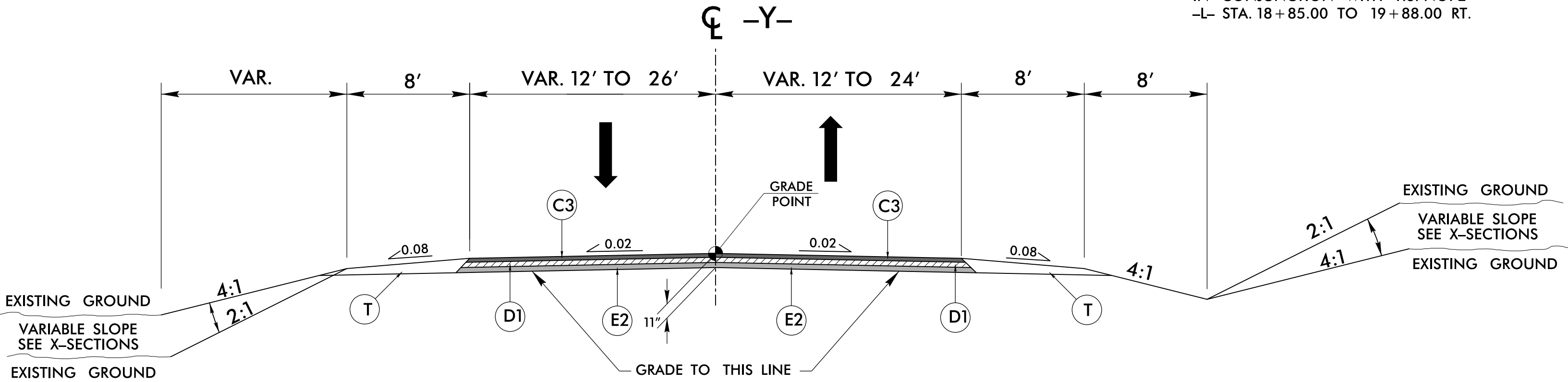
TYPICAL SECTION NO. 2A

IN CONJUNCTION WITH T.S. NO. 2
-L- STA. 18+30.00 TO 19+51.63 LT.
-L- STA. 19+83.00 TO 20+05.97 RT.



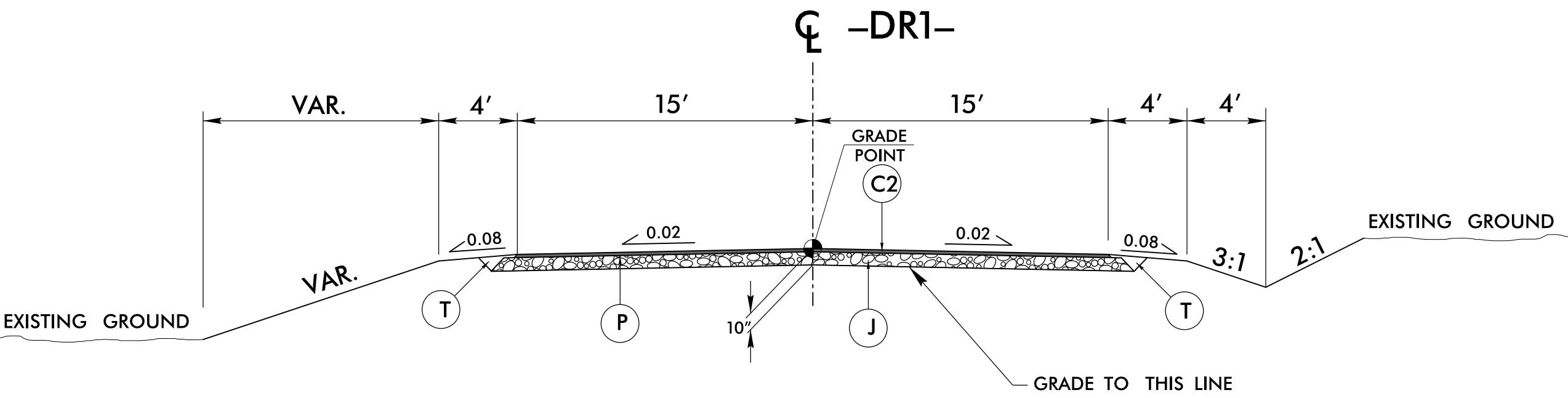
TYPICAL SECTION NO. 2B

IN CONJUNCTION WITH T.S. NO. 2
-L- STA. 18+85.00 TO 19+88.00 RT.



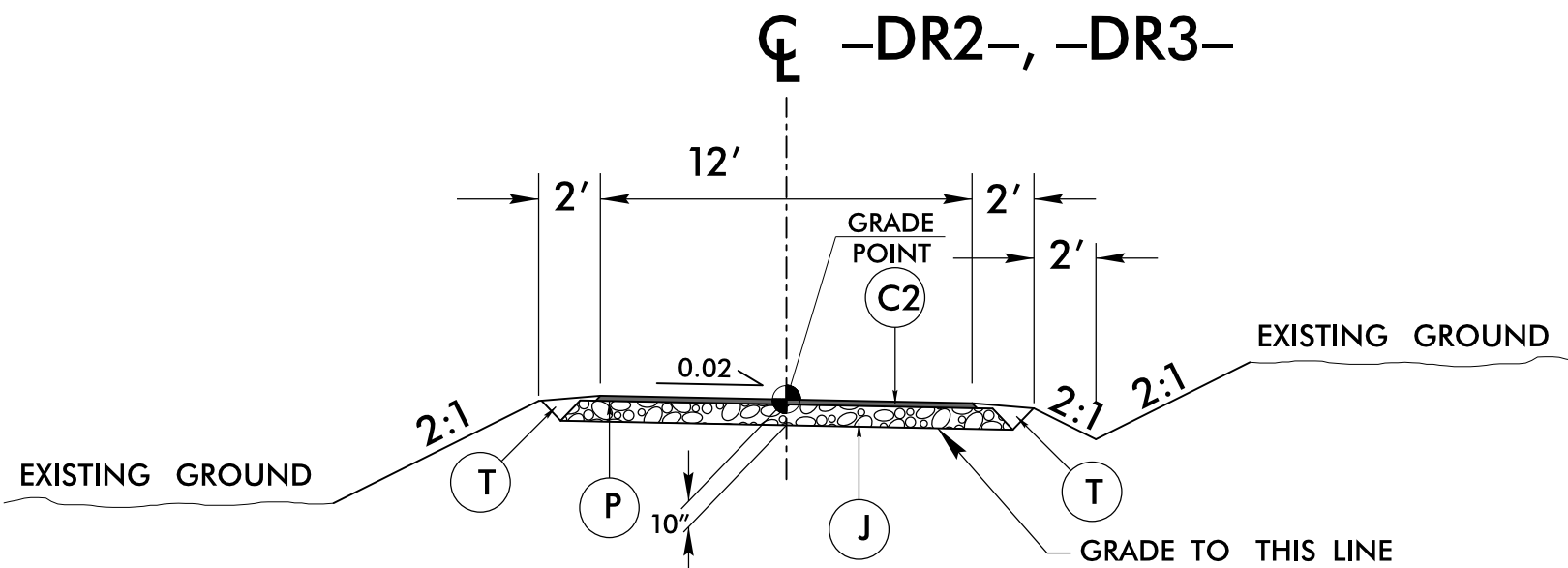
TYPICAL SECTION NO. 3

-Y- STA. 10+17.09 TO STA. 10+60.00



TYPICAL SECTION NO. 4

-DR3- STA. 10+22.00 TO STA. 11+50.00



TYPICAL SECTION NO. 5

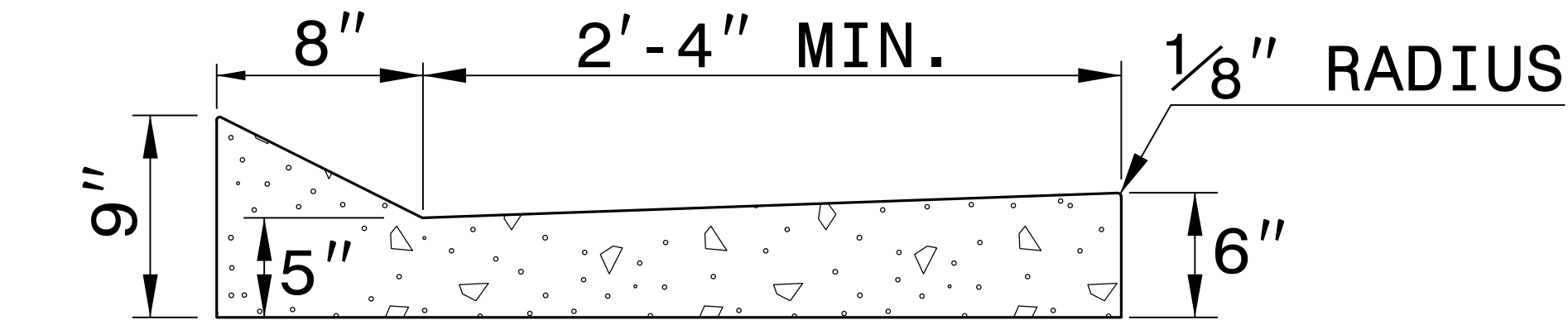
-DR1- STA. 10+00.00 TO STA. 11+34.33
-DR2- STA. 10+20.20 TO STA. 11+25.00

PROJECT REFERENCE NO. <i>B-4982</i>		SHEET NO. <i>2A-2</i>
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
		STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991

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

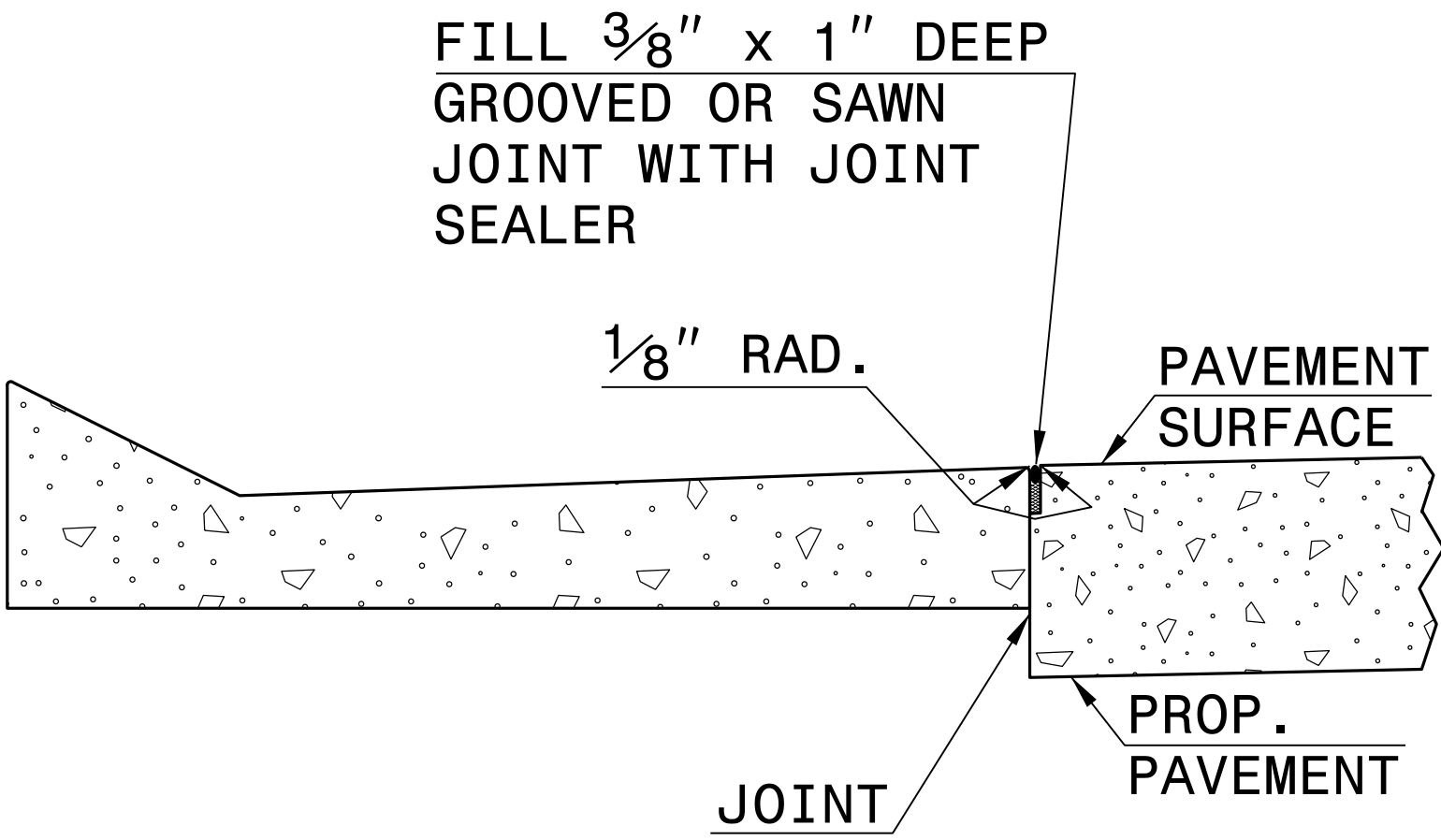
ENGLISH DETAIL DRAWING FOR
**MODIFIED SHOULDER
BERM GUTTER**

SHEET OF
846D01

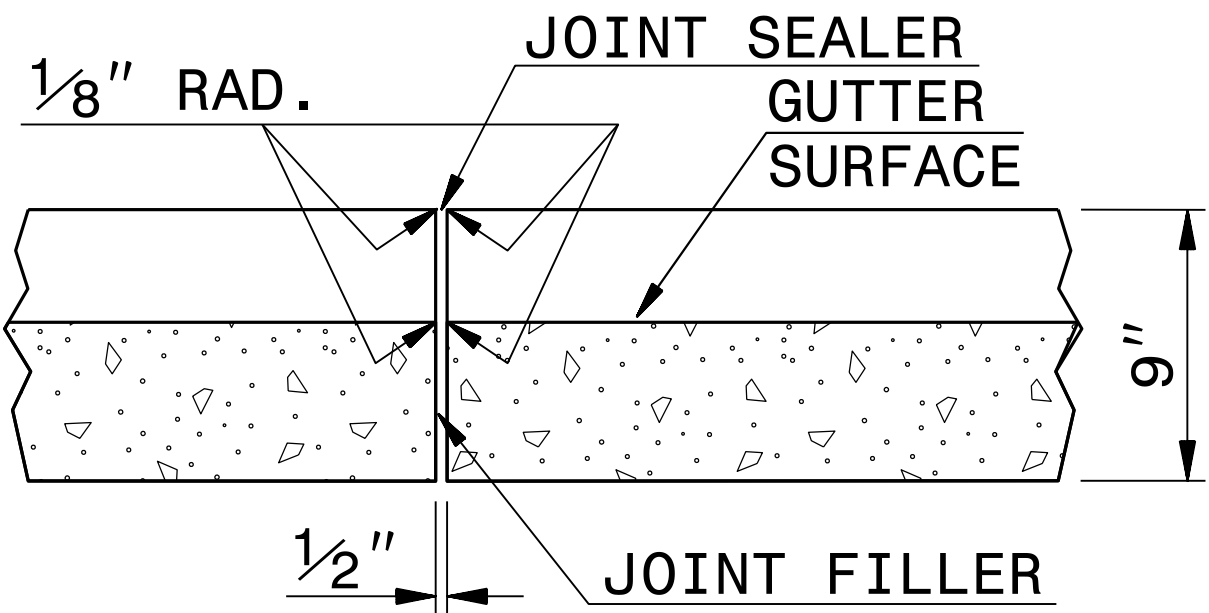


MODIFIED SHOULDER BERM GUTTER

- GENERAL NOTES:
- PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
 - JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
 - CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
 - FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
 - SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



LONGITUDINAL JOINT



**TRANSVERSE EXPANSION JOINT
IN CURB AND GUTTER**

SECTION VIEW OF JOINTS

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

ENGLISH DETAIL DRAWING FOR
**MODIFIED SHOULDER
BERM GUTTER**

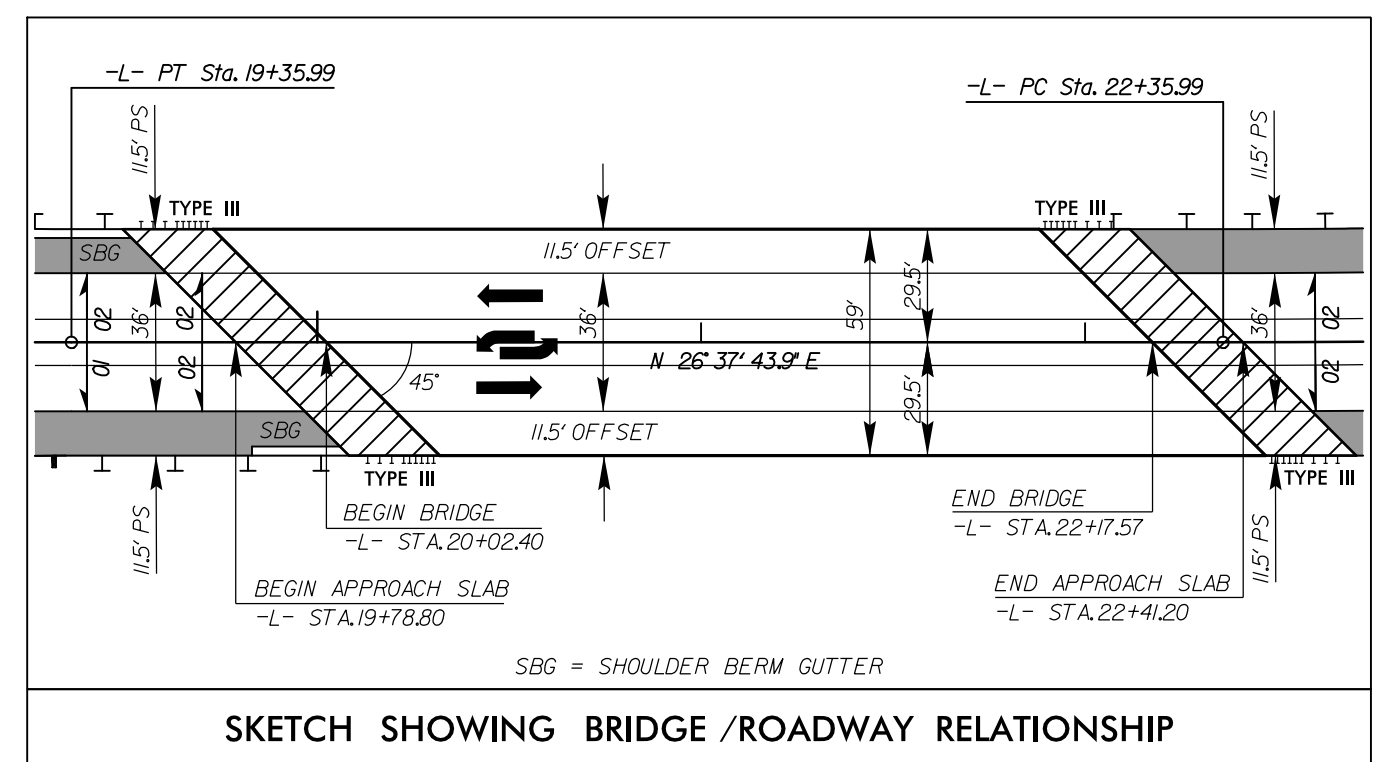
SHEET OF
846D01



CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
SEE TITLE BLOCK	
ORIGINAL BY: <u>kkempf</u>	DATE: <u>11/13/08</u>
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: <u>special details/kkempf/english/117x79_tbd1.dgn</u>	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

8/17/99



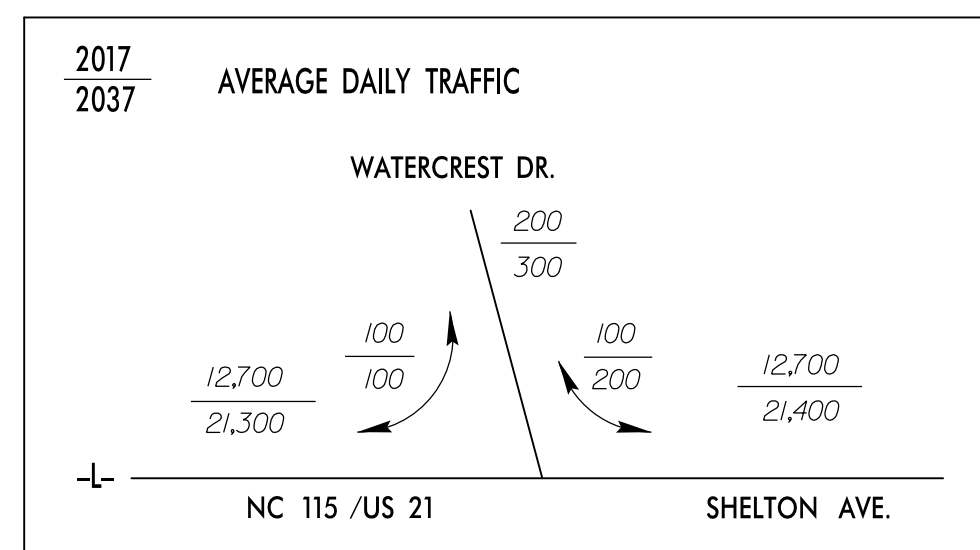
-DRI-

PI Sta 10+19.47
 $\Delta = 19' 48'' 41.0''$ (RT)
D = 76' 23' 39.7"
L = 25.93'
T = 13.10'
R = 75.00'

PI Sta 10+91.14
 $\Delta = 63' 33' 49.5''$ (LT)
D = 114' 35' 29.6"
L = 55.47'
T = 30.98'
R = 50.00'

-DR2-

PI Sta 10+66.10
 $\Delta = 86' 44' 18.8''$ (RT)
D = 229' 10' 59.2"
L = 37.85'
T = 23.62'
R = 25.00'



-L-

PI Sta 15+41.56
 $\Delta = 4' 19' 48.0''$ (RT)
D = 1' 38' 47.1"
L = 262.99'
T = 131.56'
R = 3,480.00'
SE = 0.03

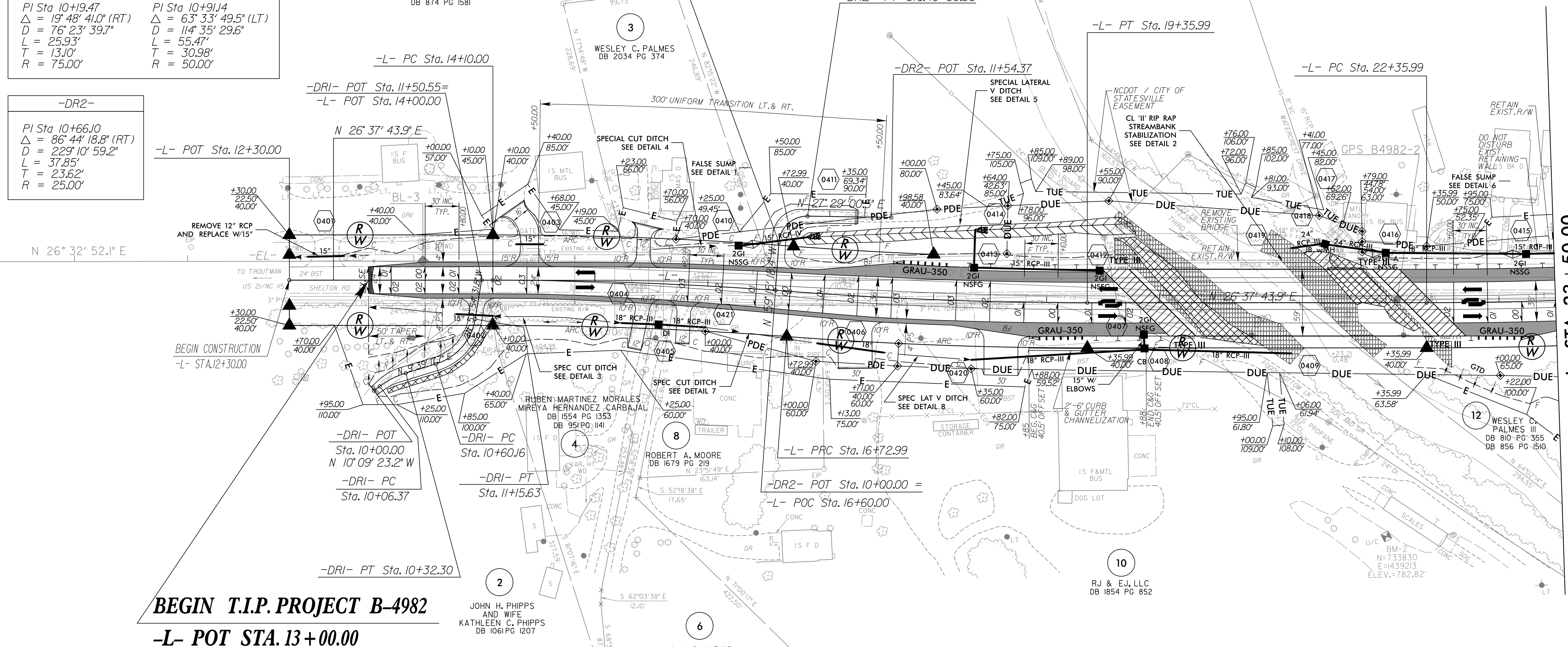
PI Sta 18+04.55
 $\Delta = 4' 19' 48.0''$ (LT)
D = 1' 38' 47.1"
L = 262.99'
T = 131.56'
R = 3,480.00'
SE = 0.03

PI Sta 23+77.87
 $\Delta = 4' 40' 09.9''$ (LT)
D = 1' 38' 47.1"
L = 283.61'
T = 141.88'
R = 3,480.00'
SE = 0.03

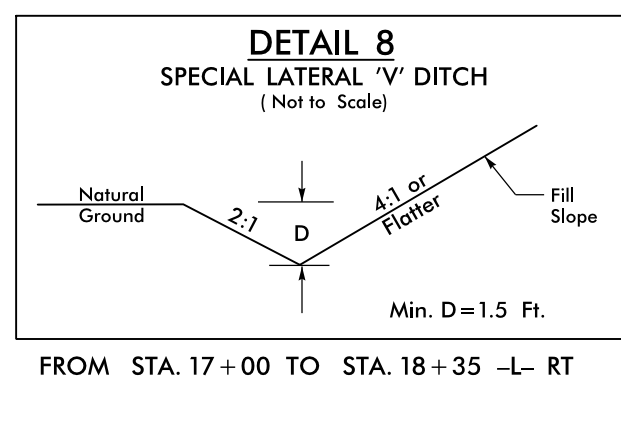
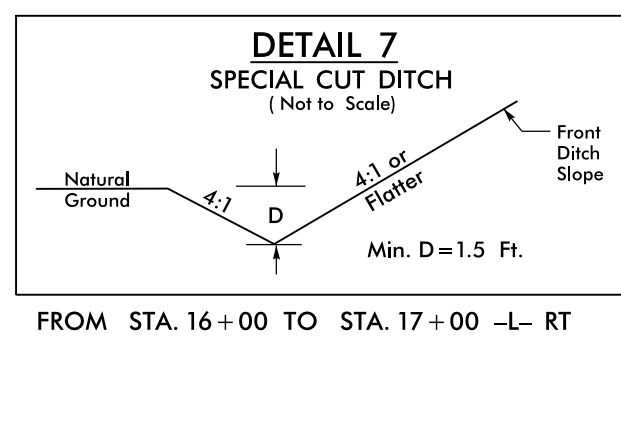
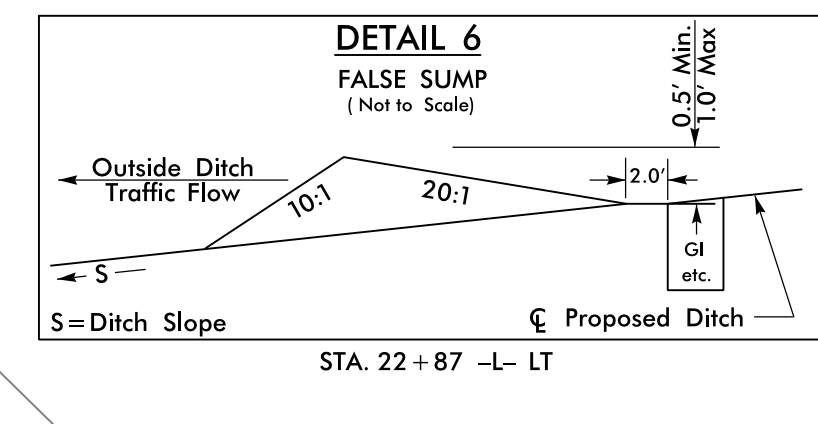
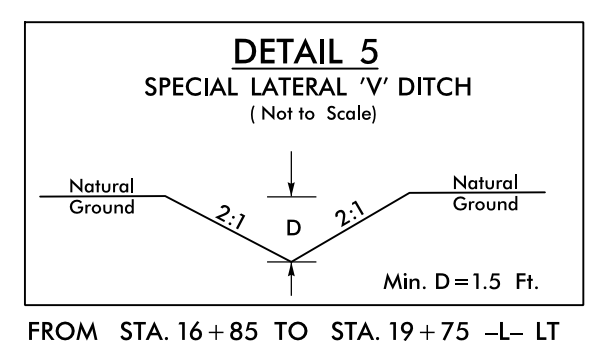
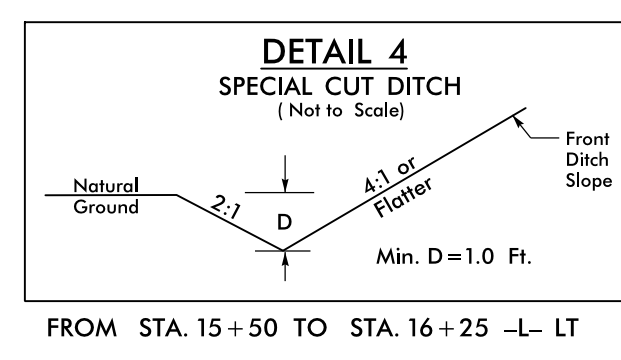
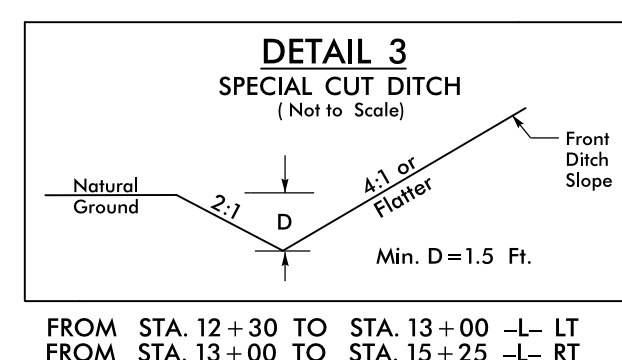
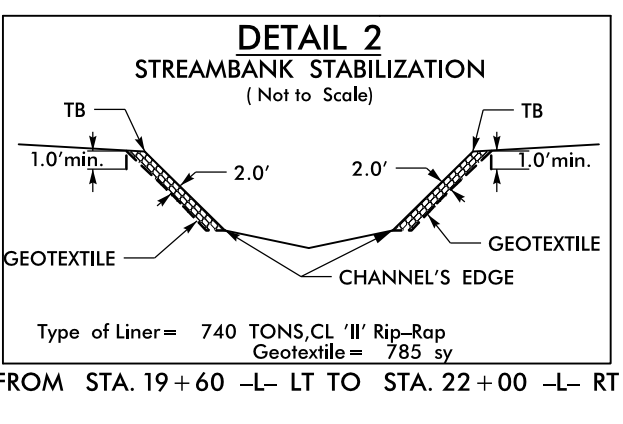
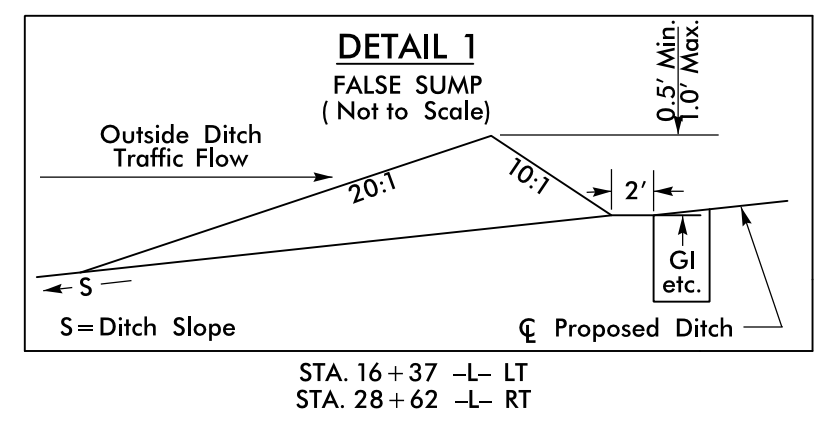
NAD 83 NRS 2007

PROJECT REFERENCE NO. B-4982		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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 STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991			

7
L. TYRONE STONER
AND WIFE
ESTHER A. STONER
DB 796 PG 378



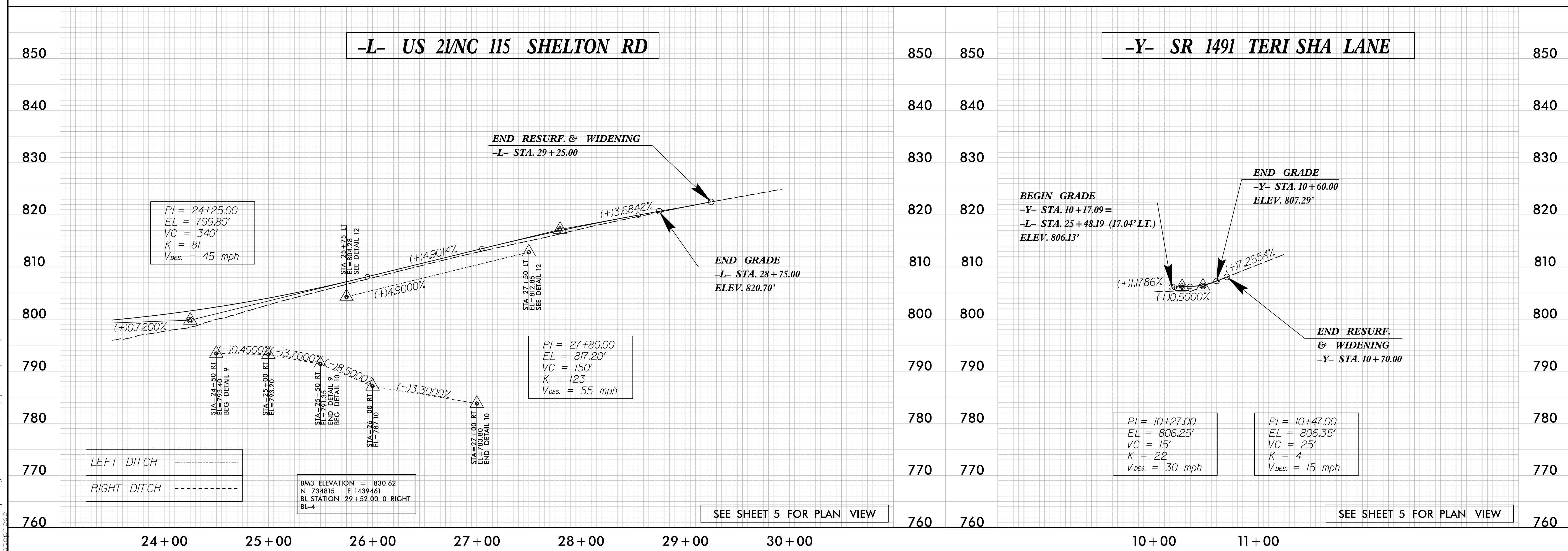
BEGIN T.I.P. PROJECT B-4982
-L- POT STA. 13+00.00



SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -DRI- PROFILE
SEE SHEET 7 FOR -DR2- PROFILE

-L- STA. 23+50.00
MATCHLINE SEE SHEET 5

5/1/2017
r:\roadway\proj\B-4982_Rdy.pst\04.dgn
stephens



5/28/99

5/1/2017
stephesc

