



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

February 8, 2017

N.C. Department of Environmental Quality
Winston-Salem Regional Office
450 West Hanes Mill Road, Suite 300
Winston Salem, NC 27105

ATTN: Mr. David Wanucha
NCDOT Division 7 Project Coordinator

SUBJECT: **Application for Jordan Lake Watershed Riparian Buffer Authorization** for the replacement of Bridge No. 85 over Phil's Creek on SR 1005 (Old Greensboro Road), Division 7, Orange County, North Carolina. Federal Aid Project No. BRSTP – 1005 (31), TIP Project No. B-5348.

Debit \$240.00 from WBS 46062.1.1

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 85 over Phil's Creek on SR 1005 (Old Greensboro Road) in Orange County. The project will consist of replacing the existing 3-span, 52-foot structure with a one-span, 104.25-foot structure on the existing alignment. An off-site detour will be employed.

No jurisdictional wetland or stream impacts are proposed for this project.

Proposed buffer impacts include Allowable Bridge impacts totaling 4,027 square ft. in Zone 1 and 469 square ft. in Zone 2; Allowable Road Crossing impacts totaling 1,268 square ft. in Zone 1 and 2,082 square ft. in Zone 2; and Allowable Aerial Utility Impacts Other Than Perpendicular Crossings totaling 300 square ft. in Zone 2.

Please find enclosed the Pre-Construction Notification, Stormwater Management Plan, buffer drawings; utility buffer drawings, and roadway plans for the subject project. A Programmatic Categorical Exclusion (PCE) was completed for this project in May 2016.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
NATURAL ENVIRONMENT SECTION
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Fax: (919) 212-5785
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

The proposed let date for this project is August 15, 2017, with a let review date of June 27, 2017. However, the let date may advance as additional funds become available.

A copy of this permit application will be posted on the NCDOT Website at <https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>, under *Quick Links > Permit Applications*. A copy of the PCE is also available at the above website address under *Quick Links > Environmental Documents*. Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jim Mason at either jmason@ncdot.gov or (919) 707-6136.

Sincerely,


for Philip S. Harris III, P.E., C.P.M.
Natural Environment Section 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:	<input type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Section 10 Permit
1b. Specify Nationwide Permit (NWP) number:	or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1d. Type(s) of approval sought from the DWQ (check all that apply):		
<input type="checkbox"/> 401 Water Quality Certification – Regular <input type="checkbox"/> Non-404 Jurisdictional General Permit <input type="checkbox"/> 401 Water Quality Certification – Express <input checked="" type="checkbox"/> 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: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	For the record only for Corps Permit: <input checked="" type="checkbox"/> Yes <input 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 type="checkbox"/> Yes	<input checked="" 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 No. 85 over Phil's Creek on SR 1005 (Old Greensboro Road)
2b. County:	Orange
2c. Nearest municipality / town:	Carrboro
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no.:	B-5348

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) 707-6136
3g. Fax no.:	(919) 212-5785
3h. Email address:	jsmason@ncdot.gov

4. Applicant Information (if different from owner)	
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:	
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: 35.905674 (DD.DDDDDD) Longitude: - 79.116252 (-DD.DDDDDD)
1c. Property size:	1.04 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Phil's Creek
2b. Water Quality Classification of nearest receiving water:	WS-II, HQW, NSW
2c. River basin:	Cape Fear
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: Old Greensboro Rd is classified as a Major Collector in the Statewide Functional Classification System and is not a National Highway System Route. Land use within the vicinity primarily consists of forested land , agriculture, and low density residential.	
3b. List the total estimated acreage of all existing wetlands on the property: 0.0 acres	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 167 linear feet (Phil's Creek)	
3d. Explain the purpose of the proposed project: To replace a structurally deficient and functionally obsolete bridge	
3e. Describe the overall project in detail, including the type of equipment to be used: The project will consist of replacing the existing 3-span, 52-foot structure with a one-span, 104.25-foot structure on the existing alignment. An off-site detour will be employed. 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: A PJD Request was submitted to Andy Williams (USACE) on 5/22/2013. No response was received	<input checked="" type="checkbox"/> Yes <input 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? Name (if known): Beth Reed, Jason Hartshorn	Agency/Consultant Company: Kimley-Horn 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
5b. If yes, explain in detail according to "help file" instructions.	
6. Future Project Plans	
6a. Is this a phased project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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 2 <input type="checkbox"/> P <input type="checkbox"/> T		Choose One	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T		Choose One	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T		Choose One	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T		Choose One	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T		Choose One	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T		Choose One	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
2g. Total wetland impacts					0 Perm. 0 Temp.
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 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		0
3h. Total stream and tributary impacts						0 Perm. 0 Temp.

3i. 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. 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)
<input type="radio"/> <input type="checkbox"/> P <input type="checkbox"/> T				
<input type="radio"/> <input type="checkbox"/> P <input type="checkbox"/> T				
<input type="radio"/> <input type="checkbox"/> P <input type="checkbox"/> T				
<input type="radio"/> <input type="checkbox"/> P <input type="checkbox"/> T				
4f. Total open water impacts				0 ac Permanent 0 ac 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?	<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. Project is in which protected basin?		<input type="checkbox"/> Neuse	<input type="checkbox"/> Tar-Pamlico	<input checked="" type="checkbox"/> Other: Jordan Lake	
		<input type="checkbox"/> Catawba	<input type="checkbox"/> Randleman		
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)
Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Bridge	Phil's Creek	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4,027	469
Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Road Crossing	Phil's Creek	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1,268	2,082
Utility Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Aerial Impacts Other Than Perp. Crossings	Phil's Creek	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	0	300
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
6h. Total buffer impacts				5,295	2,851

6i. Comments: Aerial Utility Impacts Perpendicularly Crossing the Stream will also occur on the north side of the bridge. These are due to the line relocation. The clearing width for the line installation is 30 linear feet along the stream, which is less than the 150 linear foot threshold; therefore, these impacts are considered Exempt.

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 proposed bridge is 52 feet longer than the existing bridge; Minimization and avoidance measures incorporated into the design include elimination of direct discharge, increasing buffer treatment of discharges, utilizing an existing end bent to minimize stream impacts, removal of an interior bent and vegetative treatment of shoulder section discharges.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. Due to the project's location within the Jordan Lake Watershed, Design Standards in Sensitive Watersheds will be employed; NCDOT Best Management Practices for Construction and Maintenance Activities and Best Management Practices for the Protection of Surface Waters will be employed.		
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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: No wetland or stream impacts.	
2b. If yes, mitigation is required by (check all that apply):	<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 <input type="checkbox"/> Payment to in-lieu fee program <input type="checkbox"/> 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.	<input type="checkbox"/> Yes	
4b. Stream mitigation requested:	0 linear feet	
4c. If using stream mitigation, stream temperature:	<input type="checkbox"/> warm <input type="checkbox"/> cool <input type="checkbox"/> cold	
4d. Buffer mitigation requested (DWQ only):	0 square feet	
4e. Riparian wetland mitigation requested:	0 acres	
4f. Non-riparian wetland mitigation requested:	0 acres	
4g. Coastal (tidal) wetland mitigation requested:	0 acres	
4h. Comments:		
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?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: Please see attached permit drawings	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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?	<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: Please see attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	<input type="checkbox"/> Certified Local Government <input type="checkbox"/> DWQ Stormwater Program <input checked="" type="checkbox"/> 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):	<input type="checkbox"/> Phase II <input type="checkbox"/> NSW <input type="checkbox"/> USMP <input type="checkbox"/> Water Supply Watershed <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
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Coastal counties <input type="checkbox"/> HQW <input type="checkbox"/> ORW <input type="checkbox"/> Session Law 2006-246 <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 N/A
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A
5b. Have all of the 401 Unit submittal requirements been met?	<input type="checkbox"/> Yes <input type="checkbox"/> 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?	<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.) Comments:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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)?	<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):	
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?	<input type="checkbox"/> Yes <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. 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?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input checked="" type="checkbox"/> Raleigh	<input type="checkbox"/> Asheville
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? NC Natural Heritage Program data, USFWS website, NCDOT field surveys; Michaux's sumac and smooth coneflower were last surveyed in June 2016 and a Biol. Concl. of No Effect was rendered; Dwarf wedgemussel was surveyed for in August 2013 and has a Biol. Concl. of No Effect; There will be no impact on bald eagle; the northern long-eared bat (NLEB) is covered by the Programmatic Biological Opinion for Divisions 1 through 8.		
6. Essential Fish Habitat (Corps Requirement)		
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? 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)?	<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? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
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		
<u>Philip S. Harris III, P.E., C.P.M.</u> Applicant/Agent's Printed Name	_____ Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	_____ Date



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS



(Version 2.06; Released June 2016)

WBS Element: 46062.1.1 TIP No.: B-5348 County(ies): Orange Page 1 of 1

General Project Information

WBS Element:	46062.1.1	TIP Number:	B-5348	Project Type:	Bridge Replacement	Date:	8/15/2016
NCDOT Contact:	William H. Elam Jr., PE		Contractor / Designer:	Michael Kelly			
Address:	1020 Birch Ridge Dr, Raleigh, NC 27610		Address:	1020 Birch Ridge Dr. Raleigh, NC 27610			
	Phone:	919.707.6718		Phone:	919.707.6731		
	Email:	belam@ncdot.gov		Email:	mkelly@ncdot.gov		
City/Town:	Carrboro, NC		County(ies):	Orange			
River Basin(s):	Cape Fear		CAMA County?	No			
Wetlands within Project Limits?	No						

Project Description

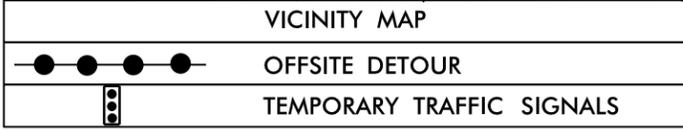
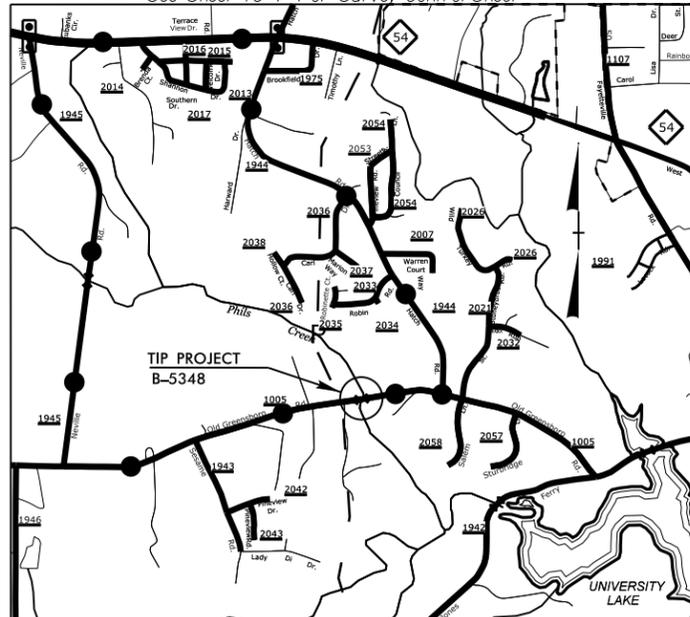
Project Length (lin. miles or feet):	0.085mi.	Surrounding Land Use:	Rural, Wooded, Residential					
	Proposed Project		Existing Site					
Project Built-Upon Area (ac.)	0.3	ac.	0.2	ac.				
Typical Cross Section Description:	Two 12' travel lanes w/ 0' to 6.0' paved shoulders, 0' to 6' grass shoulders and side slopes.			Two 11' travel lanes w/ 4' to 8' grassed shoulders and side slopes				
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	5,800	Year:	2035	Existing:	4,300	Year:	2013
General Project Narrative: (Description of Minimization of Water Quality Impacts)	B-5348 is a Transportation Improvement Project to replace Bridge #0085 in Orange County crossing Phils Creek. The existing bridge is a three span timber deck on I-beams w/two interior bents. The new bridge will be a 105' single span box beam structure. Minimization and avoidance measures incorporated into the design include elimination of direct discharge, increasing buffer treatment of discharges, utilizing an existing end bent to minimize stream impacts, removal of an interior bents and vegetative treatment of shoulder section discharges.							

Waterbody Information

Surface Water Body (1):	Phils Creek		NCDWR Stream Index No.:	16-41-2-2-(0.3)			
NCDWR Surface Water Classification for Water Body	Primary Classification:	Water Supply II (WS-II)		(NSW)			
	Supplemental Classification:	High Quality Waters (HQW)					
Other Stream Classification:							
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	16-41-2-2-(0.3)		Buffer Rules in Effect:	Jordan Lake			
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)							

09/205/99

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

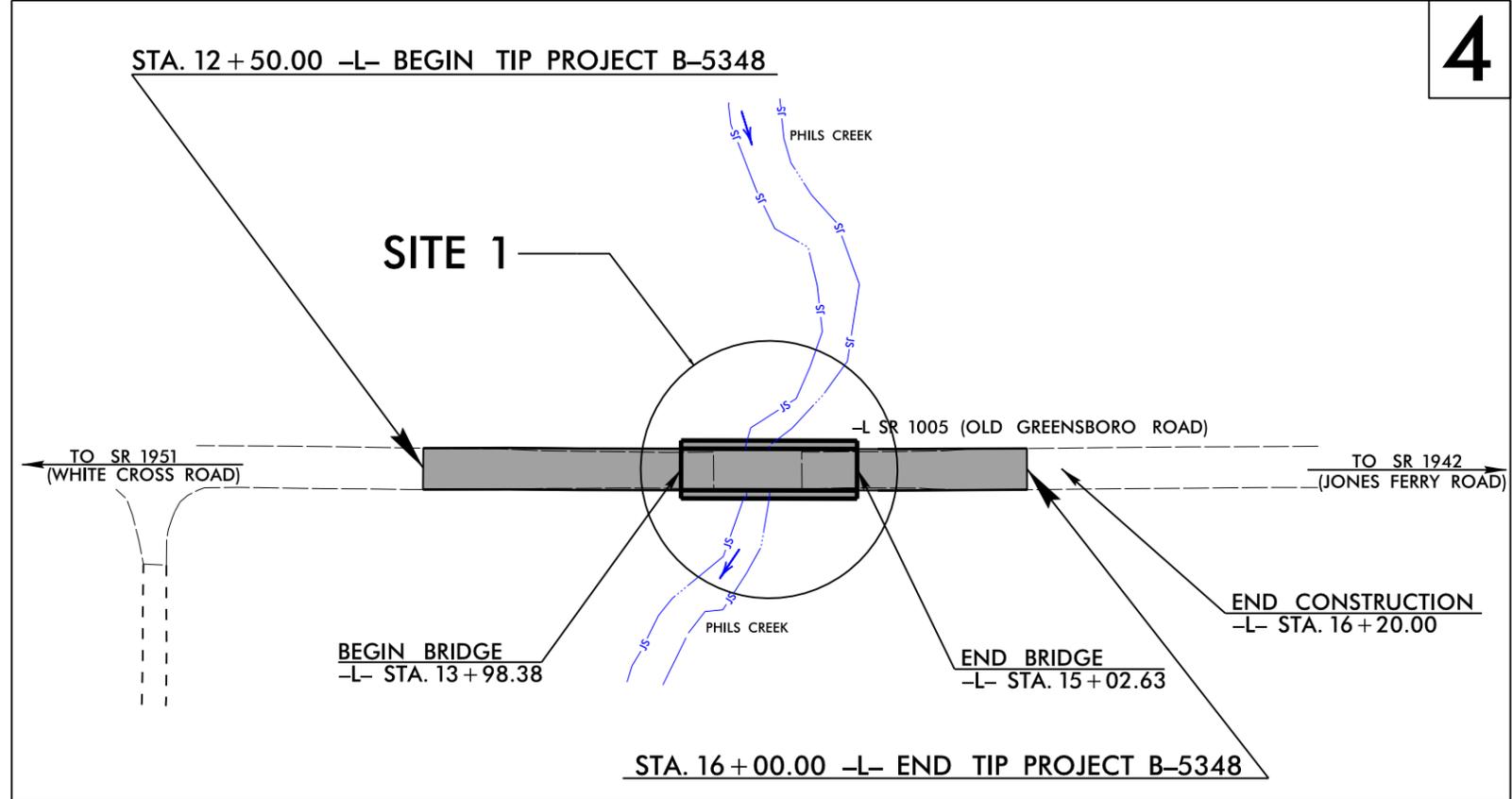


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ORANGE COUNTY

LOCATION: BRIDGE NO. 85 OVER PHILS CREEK ON SR 1005 (OLD GREENSBORO ROAD)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, TEMPORARY TRAFFIC SIGNALS AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5348	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46062.1.1	BRSTP-1005(31)	P.E.	
46062.2.1		RW & UTILITIES	

TIP PROJECT: B-5348



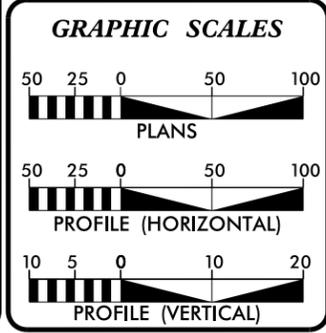
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BUFFER IMPACTS PERMIT

*DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVES AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCE.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

BUFFER DRAWING SHEET 1 OF 5

CONTRACT:



DESIGN DATA

ADT 2017 =	4,575
ADT 2035 =	5,800
K =	9 %
D =	65 %
T =	3 % *
V =	50 MPH
* TTST =	1% DUAL = 2%
FUNC CLASS =	COLLECTOR
"SUB-REGIONAL TIER"	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5348	=	0.046 MI.
LENGTH STRUCTURE TIP PROJECT B-5348	=	0.020 MI.
TOTAL LENGTH OF TIP PROJECT B-5348	=	0.066 MI.

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

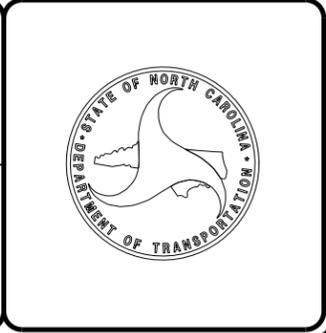
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	JAMES A. SPEER, PE PROJECT ENGINEER
AUGUST 19, 2016	
LETTING DATE:	DANIEL W. GARDNER, JR., PE PROJECT DESIGN ENGINEER
AUGUST 15, 2017	

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

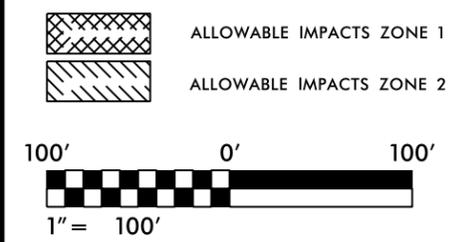
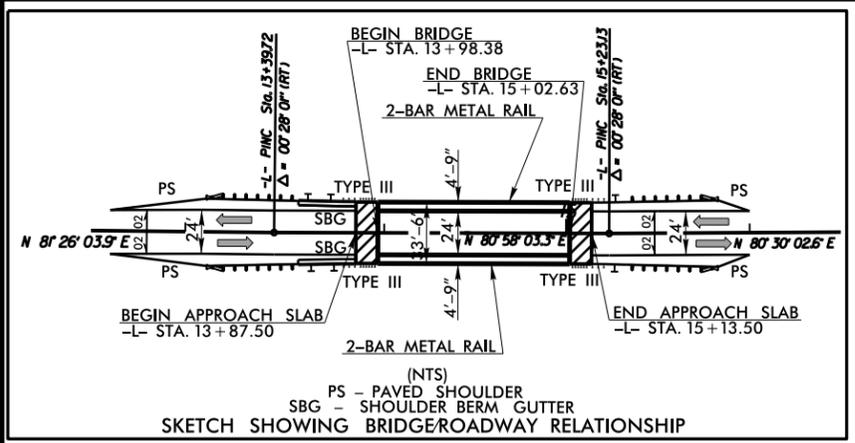
SIGNATURE: _____ P.E.



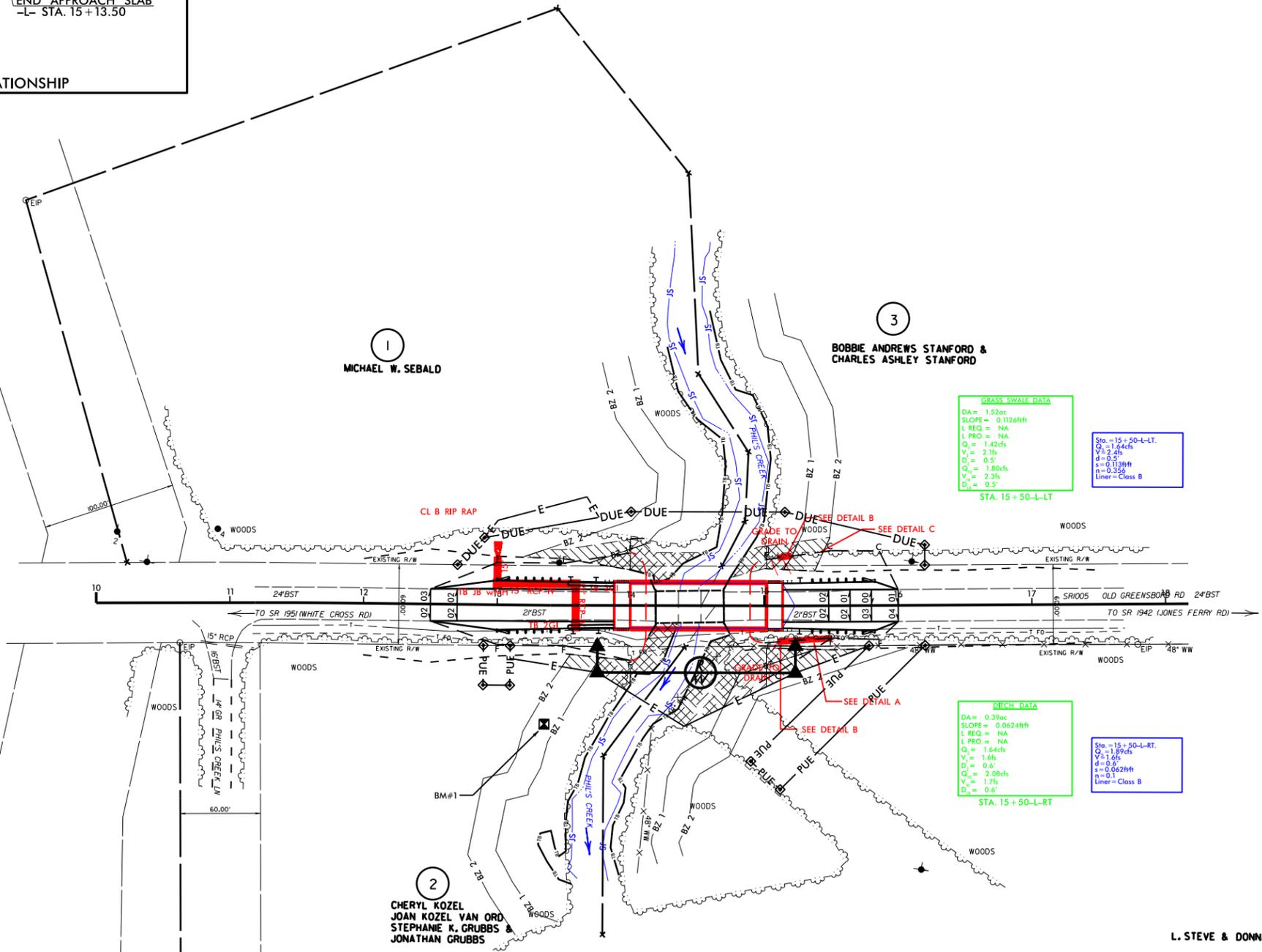
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mkelly
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\$\$\$\$\$DCN\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

PROJECT REFERENCE NO. B-5348	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-
 PI Sta 11+50.27
 $\Delta = 0' 42' 15.0''$ (RT)
 $D = 1' 07' 14.7''$
 $L = 62.83'$
 $T = 31.42'$
 $R = 5112.28'$
 SE = SEE PLANS



NAD 83 NA 2011



GRASS SWALE DATA

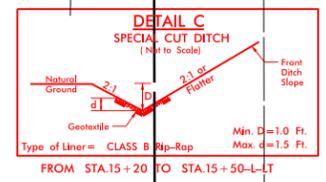
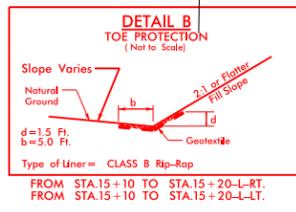
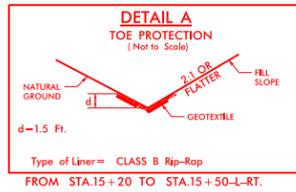
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SLOPE = 0.1126ft/ft
L REQ = NA
L PRO = NA
Q _s = 1.42cfs
V _s = 2.1fs
D _s = 0.5'
Q _w = 1.80cfs
V _w = 2.3fs
D _w = 0.5'

Sta. = 15 + 50-L-LT
 Q_s = 1.64cfs
 V_s = 2.4fs
 D_s = 0.5'
 s = 0.113ft/ft
 n = 0.35
 Liner = Class B

DITCH DATA

DA = 0.39c
SLOPE = 0.0624ft/ft
L REQ = NA
L PRO = NA
Q _s = 1.64cfs
V _s = 1.6fs
D _s = 0.6'
Q _w = 2.08cfs
V _w = 1.7fs
D _w = 0.6'

Sta. = 15 + 50-L-RT
 Q_s = 1.69cfs
 V_s = 1.6fs
 D_s = 0.6'
 s = 0.062ft/ft
 n = 0.1
 Liner = Class B



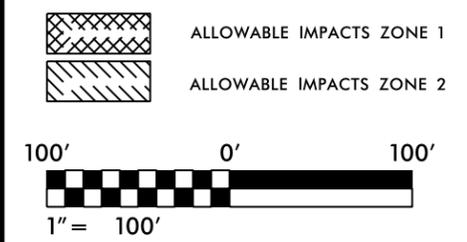
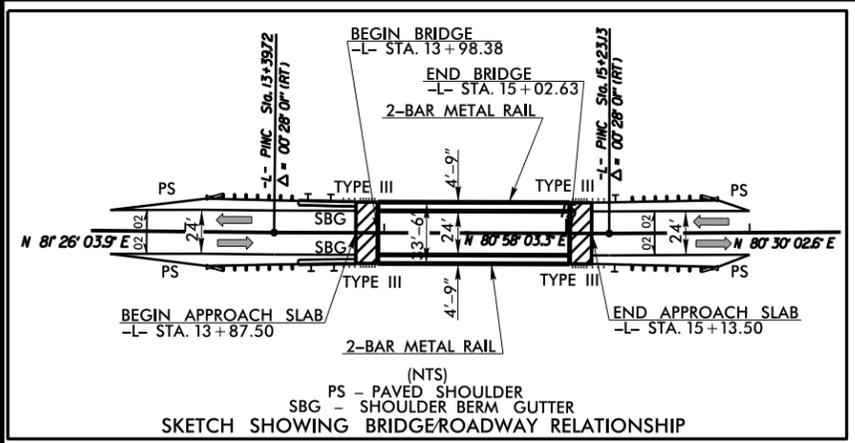
PERMIT DRAWING
SHEET 2 OF 5

SEE SHEET 5 FOR PROFILE
 SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

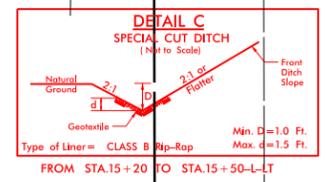
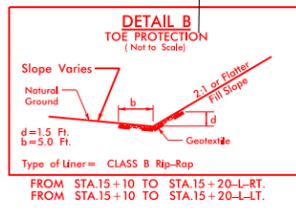
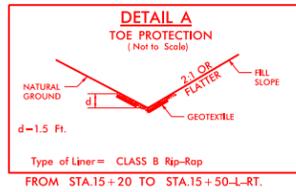
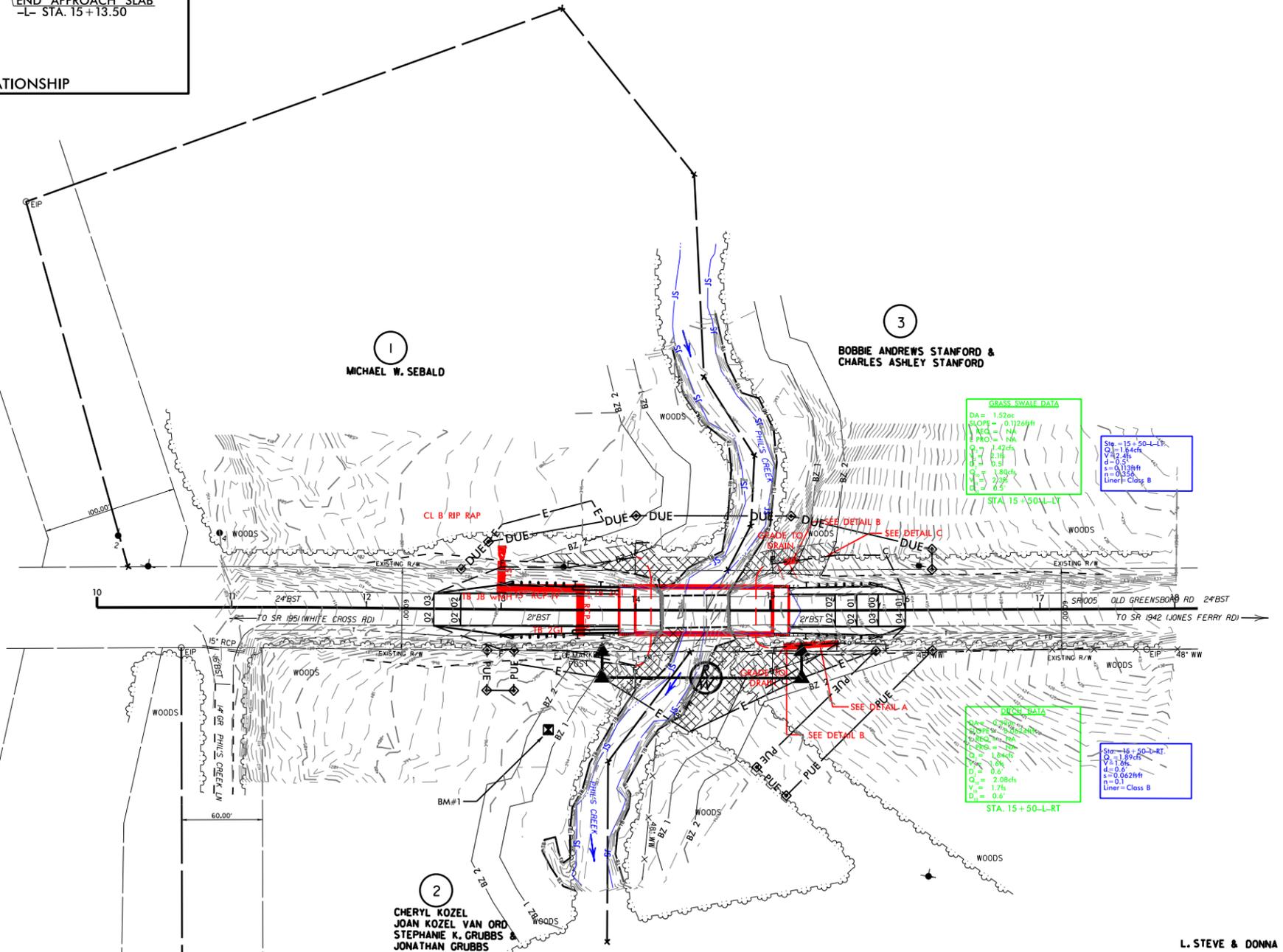
8/23/2016
 mkelly
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 REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5348	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-
 PI Sta 11+50.27
 $\Delta = 0' 42' 15.0''$ (RT)
 $D = 1' 07' 14.7''$
 $L = 62.83'$
 $T = 31.42'$
 $R = 5112.28'$
 SE = SEE PLANS



NAD 83 NA 2011



**PERMIT DRAWING
 SHEET 3 OF 5**

SEE SHEET 5 FOR PROFILE
 SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

8/23/2016
 mkelly
 R:\Hydraulics\PERMITS_Environmental\Drawings\Buffer\B5348_Hyd_perm_buf_Con.dgn
 REVISIONS

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft ²)	ZONE 2 (ft ²)
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)		
1		13+18/15+78	X			1268	2082	3350					
1		13+99/15+02		X		4027	469	4496					
TOTAL:						5295	2551	7846	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 ORANGE COUNTY
 PROJECT: 46062.1.1 (B-5348)

 9/29/2016
 SHEET 5 OF 5

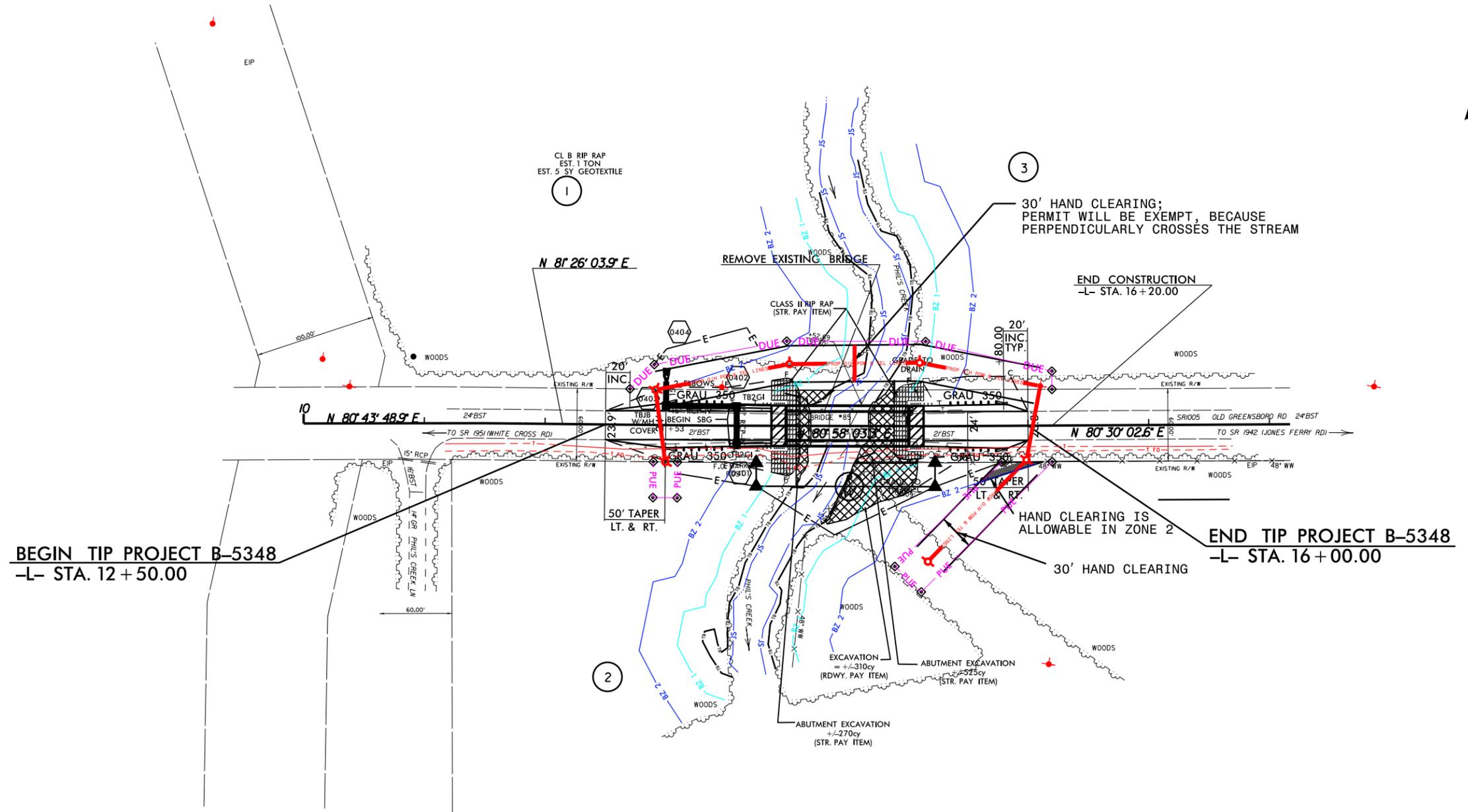
PROJECT REFERENCE NO.	SHEET NO.
B-5348	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-
 PI Sta 11+50.27
 $\Delta = 0' 42' 15.0" (RT)$
 $D = 1' 07' 14.7"$
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 $T = 31.42'$
 $R = 5112.28'$
 SE = SEE PLANS

UTILITY RELOCATION BY OTHERS
 POWER POLES AND LINE
 CREATED AUGUST 17, 2016
 REVISED JANUARY 17, 2017



REVISIONS



BEGIN TIP PROJECT B-5348
 -L- STA. 12 + 50.00

END TIP PROJECT B-5348
 -L- STA. 16 + 00.00

30' HAND CLEARING;
 PERMIT WILL BE EXEMPT, BECAUSE
 PERPENDICULARLY CROSSES THE STREAM

END CONSTRUCTION
 -L- STA. 16 + 20.00

HAND CLEARING IS
 ALLOWABLE IN ZONE 2

30' HAND CLEARING

ALLOWABLE IMPACTS ZONE 2 : 300 SQFT (114.6 FEET)

Utility Buffer Drawings
 Sheet 1 of 2

8/17/99
 17-JAN-2017 16:07
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BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft ²)	ZONE 2 (ft ²)
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)		
1	O/H POWER LINE	-L- 15+59 / 16+12					300	300					
TOTAL:						0	300	300					

NOTES:
 1. North side of bridge hand clearing will be exempt because line perpendicularly crosses the stream and impact is less than 150 linear feet (Impact is 30 linear ft).
 2. South side of bridge hand clearing will be allowable in zone 2 and is considered impact other than perpendicular crossing.

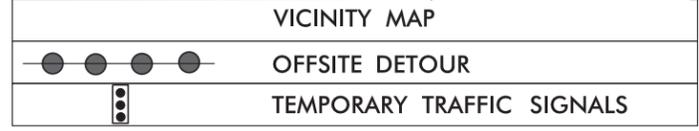
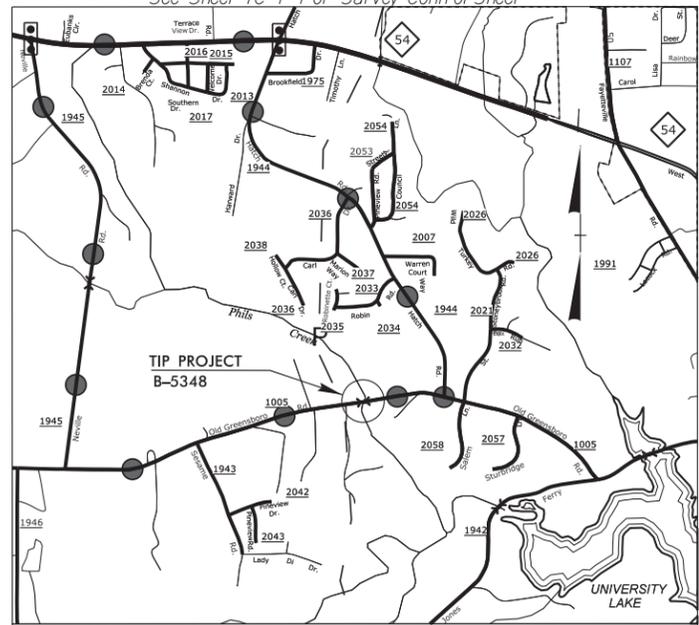
N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 ORANGE COUNTY
 PROJECT: 46062.1.1 (B-5348)

 1/17/2017
 SHEET 2 OF 2

09/06/19

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



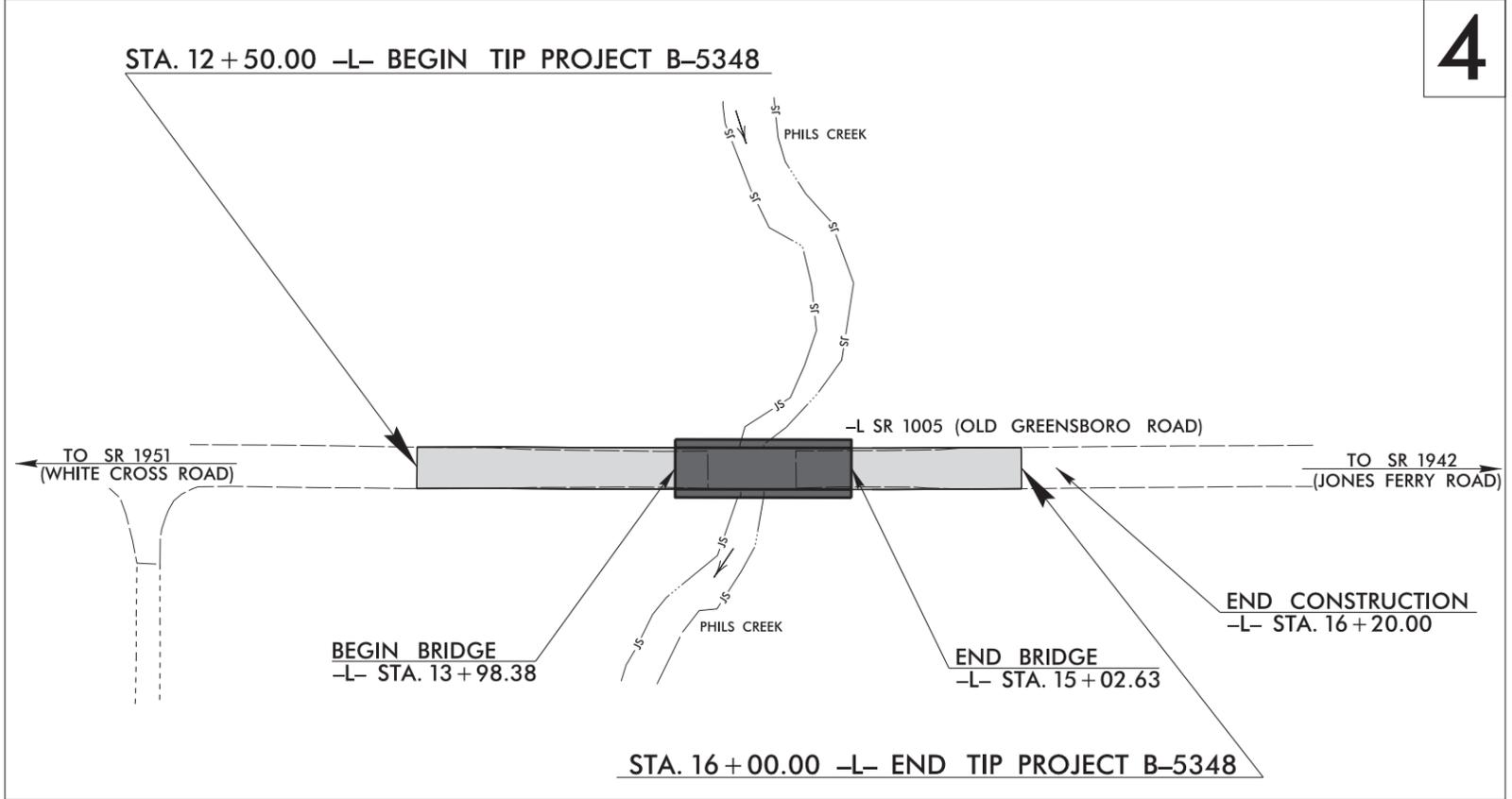
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ORANGE COUNTY

**LOCATION: BRIDGE NO. 85 OVER PHILS CREEK ON
SR 1005 (OLD GREENSBORO ROAD)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, TEMPORARY TRAFFIC SIGNALS
AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5348	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46062.1.1	BRSTP-1005(31)	P.E.	
46062.2.1		RW & UTILITIES	

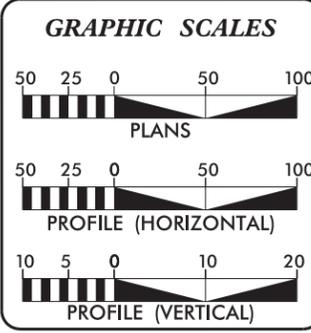
TIP PROJECT: B-5348



*DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVES AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCE.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT:



DESIGN DATA

ADT 2017 =	4,575
ADT 2035 =	5,800
K =	9 %
D =	65 %
T =	3 % *
V =	50 MPH
* TTST =	1% DUAL = 2%
FUNC CLASS =	COLLECTOR
"SUB-REGIONAL TIER"	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5348	=	0.046 MI.
LENGTH STRUCTURE TIP PROJECT B-5348	=	0.020 MI.
TOTAL LENGTH OF TIP PROJECT B-5348	=	0.066 MI.

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

2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	JAMES A. SPEER, PE PROJECT ENGINEER
AUGUST 19, 2016	
LETTING DATE:	DANIEL W. GARDNER, JR., PE PROJECT DESIGN ENGINEER
AUGUST 15, 2017	

HYDRAULICS ENGINEER	SIGNATURE: _____ P.E.
ROADWAY DESIGN ENGINEER	SIGNATURE: _____ P.E.



16-AUG-2016 10:23
R:\Roadway\Proj\N5348_Rdy_tsh.dgn
\$\$\$\$\$SERNAME\$\$\$\$\$

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

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

04/06/15

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	✕
Property Monument	◻ ECM
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	☠☠
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	○ S
Well	○ W
Small Mine	✕
Foundation	◻
Area Outline	◻
Cemetery	⊕
Building	◻
School	⊕
Church	⊕
Dam	▬

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	◻
Jurisdictional Stream	---JS---
Buffer Zone 1	---BZ 1---
Buffer Zone 2	---BZ 2---
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	⊥
Proposed Lateral, Tail, Head Ditch	▬
False Sump	◻

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	◻ 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	○ RW
Proposed Right of Way Line with Iron Pin and Cap Marker	○ RW ▲
Proposed Right of Way Line with Concrete or Granite RW Marker	▲ RW
Proposed Control of Access Line with Concrete C/A Marker	○ C/A
Existing Control of Access	○ C/A
Proposed Control of Access	○ C/A
Existing Easement Line	---E---
Proposed Temporary Construction Easement	---E---
Proposed Temporary Drainage Easement	---TDE---
Proposed Permanent Drainage Easement	---PDE---
Proposed Permanent Drainage / Utility Easement	---DUE---
Proposed Permanent Utility Easement	---PUE---
Proposed Temporary Utility Easement	---TUE---
Proposed Aerial Utility Easement	---AUE---
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

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.*)	---TFD---
U/G Fiber Optics Cable LOS C (S.U.E.*)	---TFD---
U/G Fiber Optics Cable LOS D (S.U.E.*)	---TFD---

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.*)	---7UTL---
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.

12/01/2005

B-5348 SURVEY CONTROL SHEET

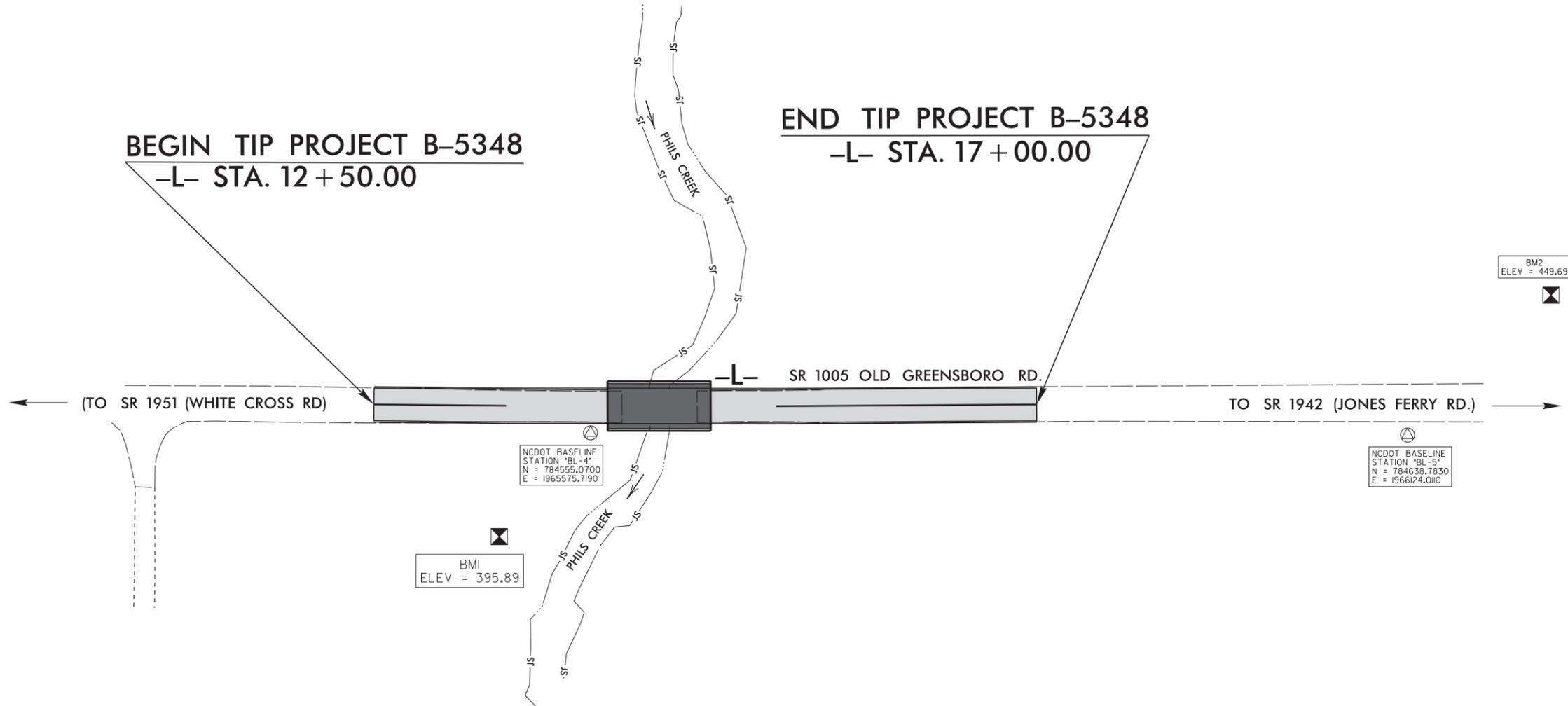
PROJECT REFERENCE NO.	SHEET NO.
B-5348	1C-1
Location and Surveys	



BEGIN TIP PROJECT B-5348
-L- STA. 12 + 50.00

END TIP PROJECT B-5348
-L- STA. 17 + 00.00

NCDOT BASELINE STATION "BL-3"
N = 784524.4450
E = 1965098.5220



BM1
ELEV = 395.89

BM2
ELEV = 449.69

NCDOT BASELINE STATION "BL-4"
N = 784555.0700
E = 1965575.7190

NCDOT BASELINE STATION "BL-5"
N = 784638.7830
E = 1966124.0110

BASELINE DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-3	784524.4450	1965098.5220	443.20	OUTSIDE PROJECT LIMITS	
4	BL-4	784555.0700	1965575.7190	401.06	13+97.24	15.42' RT
5	BL-5	784638.7830	1966124.0110	440.59	OUTSIDE PROJECT LIMITS	
2	B5348-2	784758.7530	1966661.8980	453.58	OUTSIDE PROJECT LIMITS	
1	B5348-1	784621.2950	1967522.7730	484.72	OUTSIDE PROJECT LIMITS	

NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCTHIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstructhighway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
b5348_ls_control_151005.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.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5348-2"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 784758.7530(ft) EASTING: 1966661.8980(ft)
ELEVATION: 453.58(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999208814
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5348-2" TO -L- STATION 12+50.00 IS
S 80°18'18" W 1252.00'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BENCHMARK DATA

.....
BM1 ELEVATION = 395.89'
N 784473 E 1965526
BL STATION 9+23.00 78' RIGHT
R/R SPIKE IN BASE OF 18' PINE
.....
BM2 ELEVATION = 449.69'
N 784750 E 1966247
BL STATION 16+77.00 81' LEFT
R/R SPIKE IN BASE OF 24' POPLAR
.....

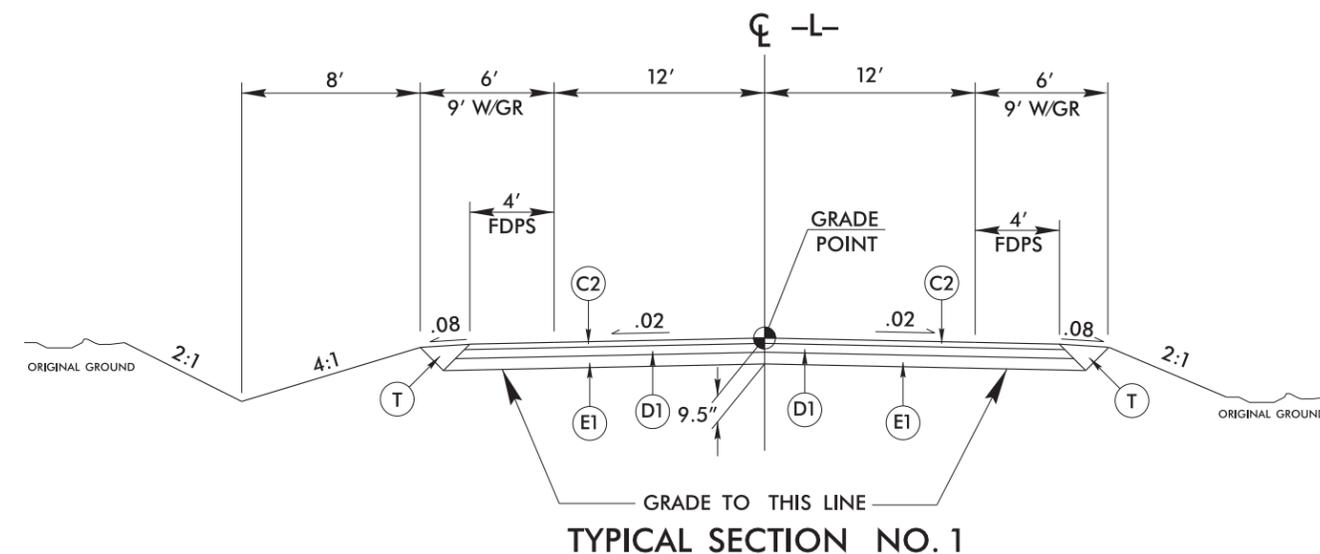
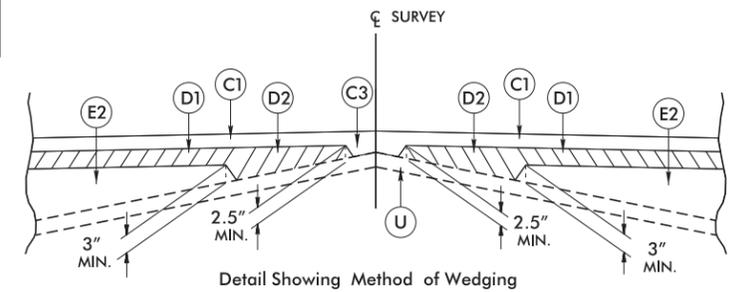
NOTE: DRAWING NOT TO SCALE

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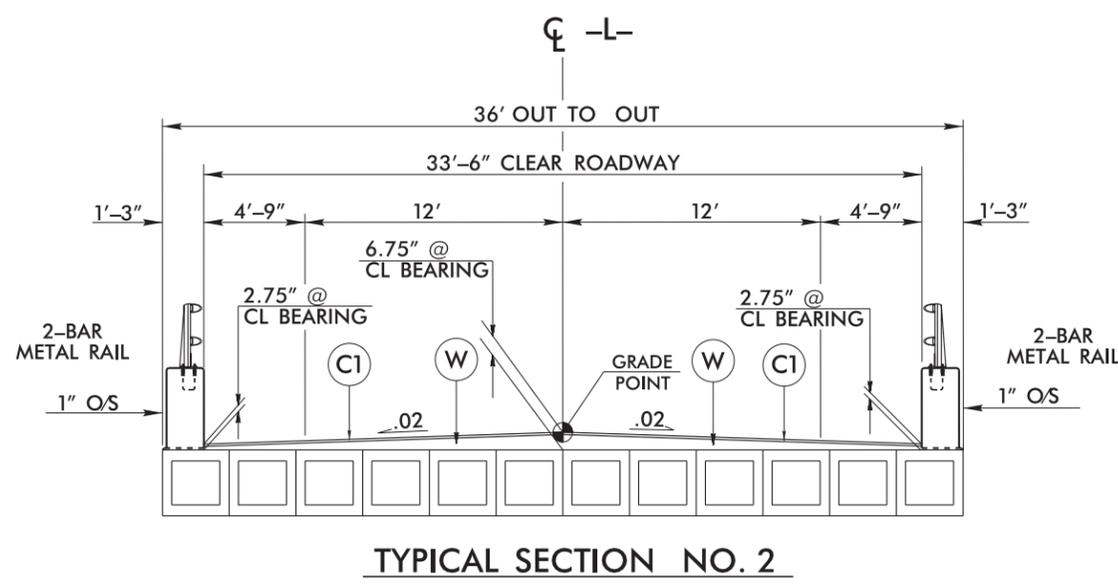
PROJECT REFERENCE NO. <i>B-5348</i>	SHEET NO. <i>2A-1</i>
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PAVEMENT SCHEDULE			
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
C2	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.	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 5.5" IN DEPTH.
C3	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 1.5" IN DEPTH.	T	EARTH MATERIAL.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
D2	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 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL)

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



NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
 -L- STA. 12+50.00 TO STA. 13+00.00
TYPICAL SECTION NO. 1
 -L- STA. 13+00.00 TO STA. 13+98.38 (BEGIN BRIDGE)
 -L- STA. 15+02.63 (END BRIDGE) TO STA. 15+50.00

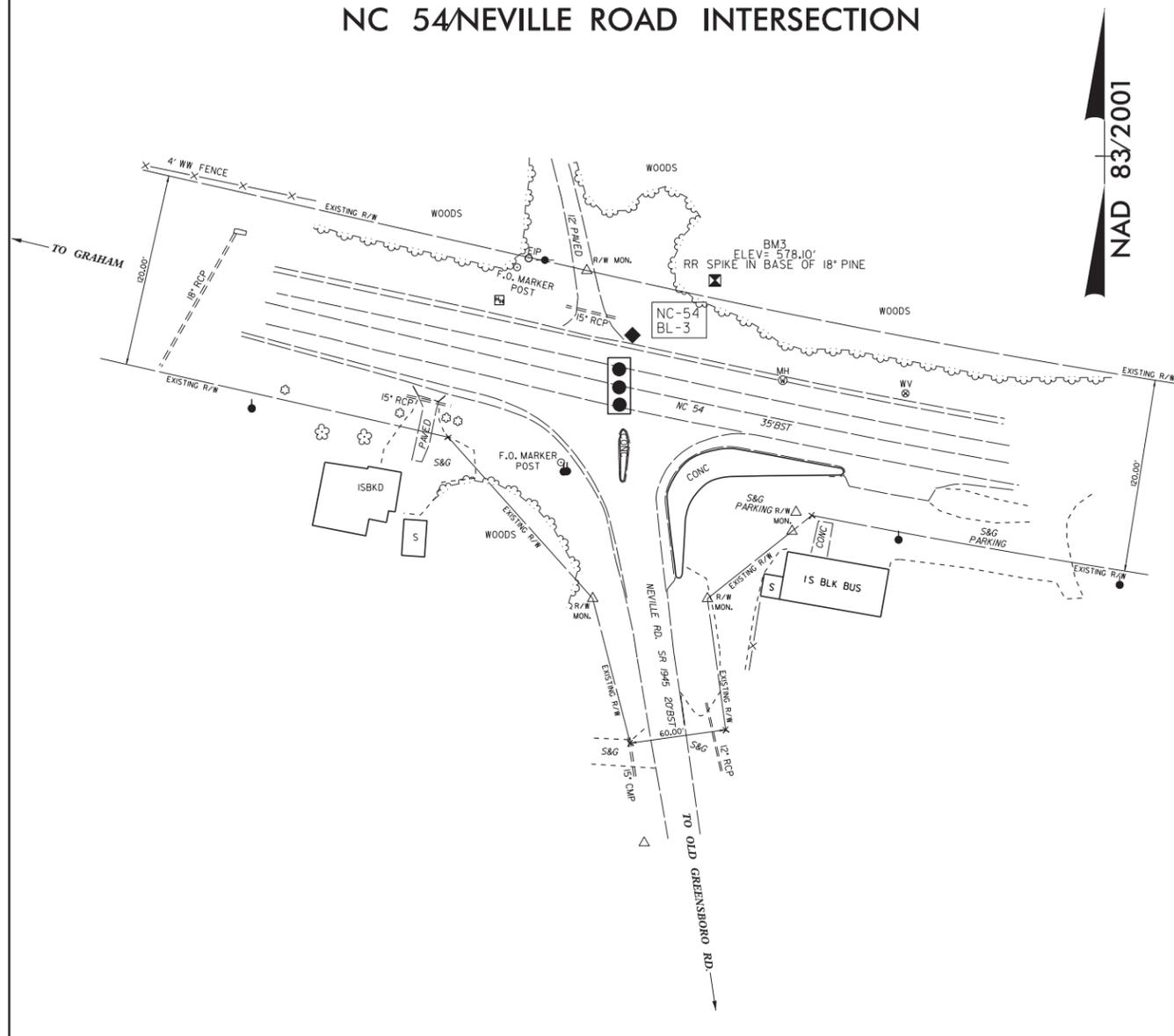


TYPICAL SECTION NO. 2
 -L- STA. 13+98.38 (BEGIN BRIDGE) TO STA. 15+02.63 (END BRIDGE)

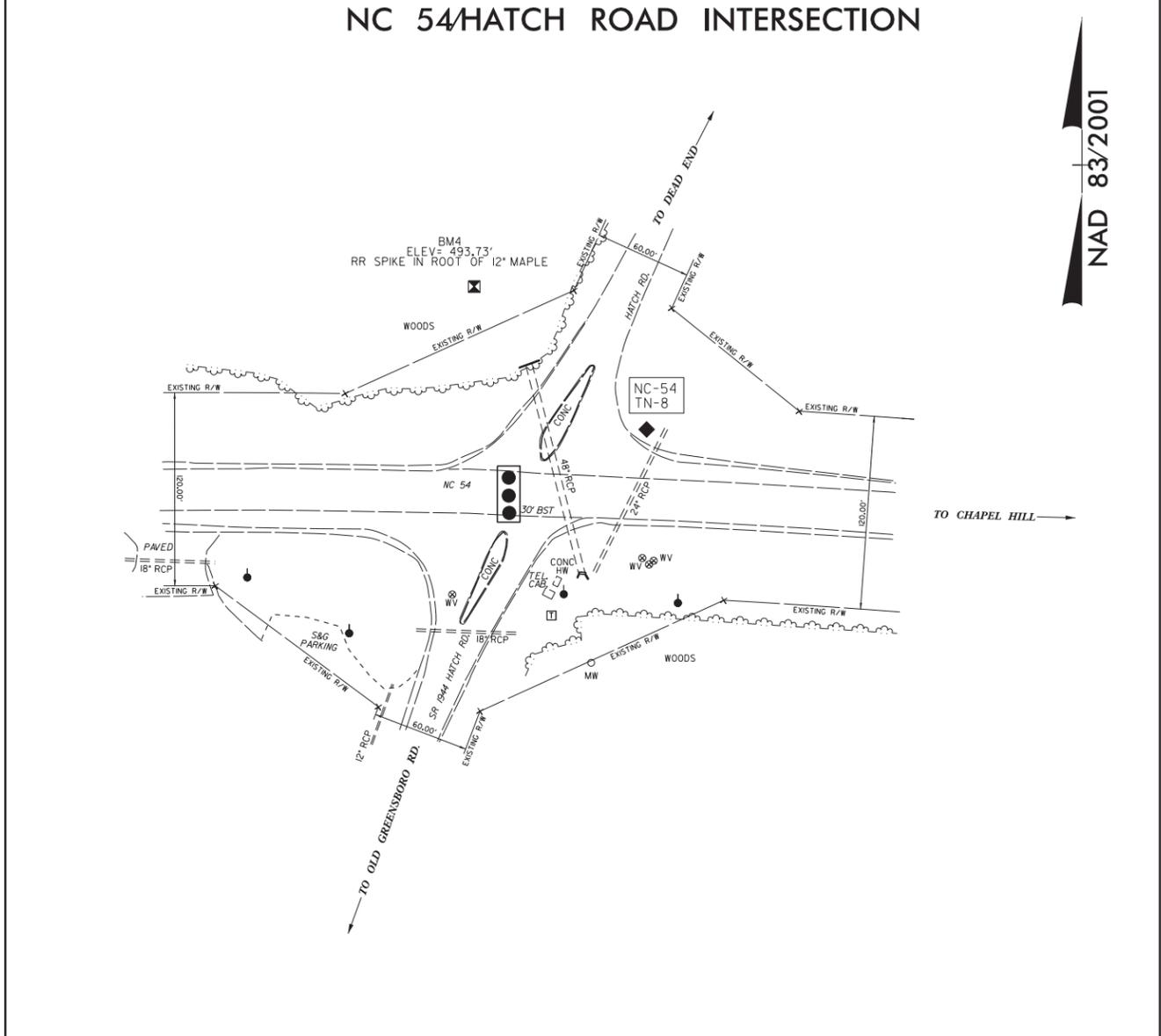
NOTE: SR 1005 (OLD GREENSBORO ROAD) IS DESIGNATED PART OF THE "MOUNTAINS TO SEA" BIKE ROUTE

PROJECT REFERENCE NO. B-5348	SHEET NO. 2B-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

NC 54/NEVILLE ROAD INTERSECTION



NC 54/HATCH ROAD INTERSECTION

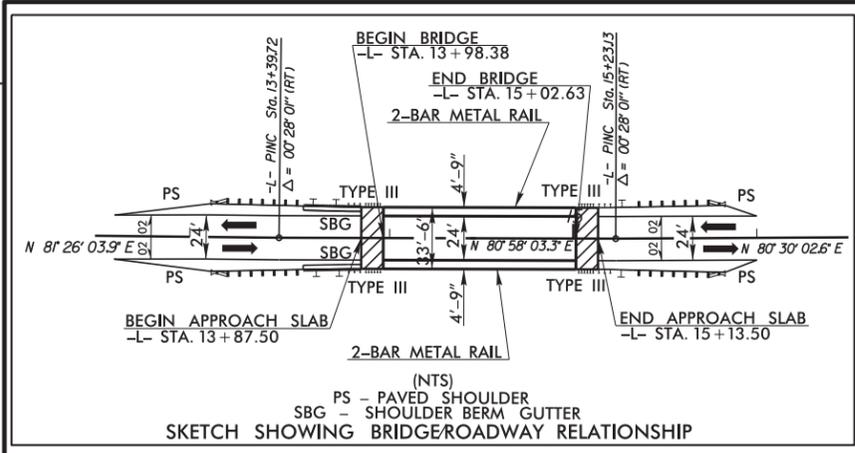


 PROPOSED TEMPORARY SIGNAL

PROJECT REFERENCE NO.	SHEET NO.
B-5348	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

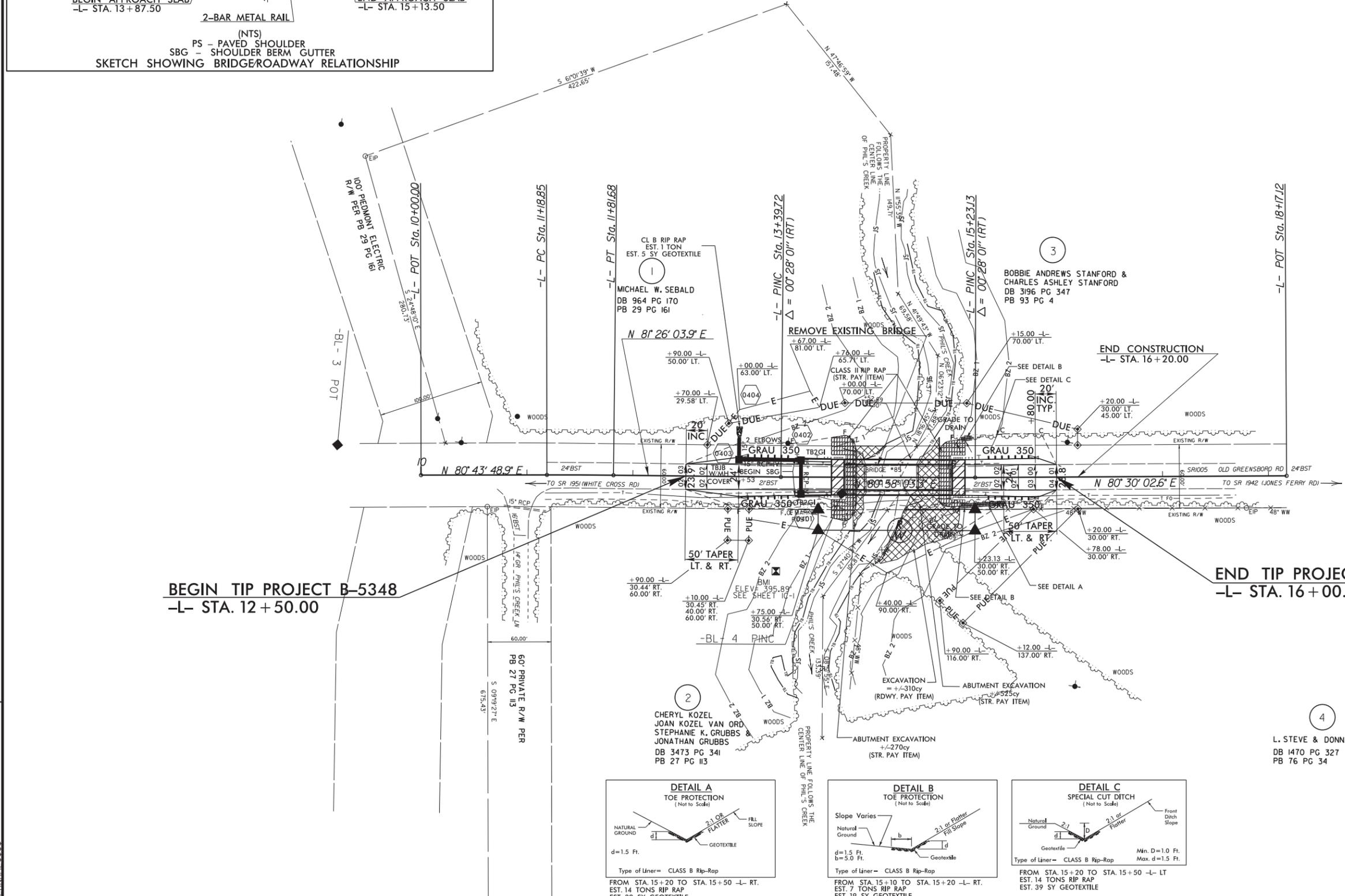
-L-

Pi Sta 11+50.27
 $\Delta = 0' 42' 15.0''$ (RT)
 $D = 1' 07' 14.7''$
 $L = 62.83'$
 $T = 31.42'$
 $R = 5,112.28'$
 $SE = \text{SEE PLANS}$



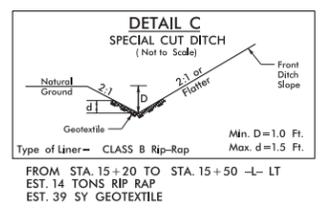
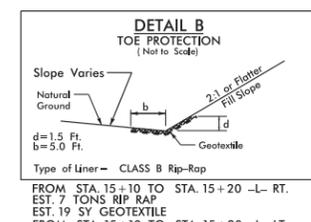
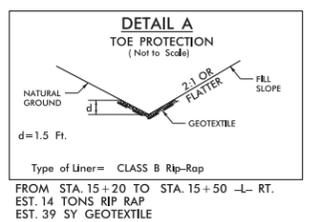
REVISIONS

NAD 83 NA 2011



BEGIN TIP PROJECT B-5348
 -L- STA. 12 + 50.00

END TIP PROJECT B-5348
 -L- STA. 16 + 00.00



4
 L. STEVE & DONNA HARWARD
 DB 1470 PG 327
 PB 76 PG 34

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SEE SHEET 5 FOR PROFILE
 SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

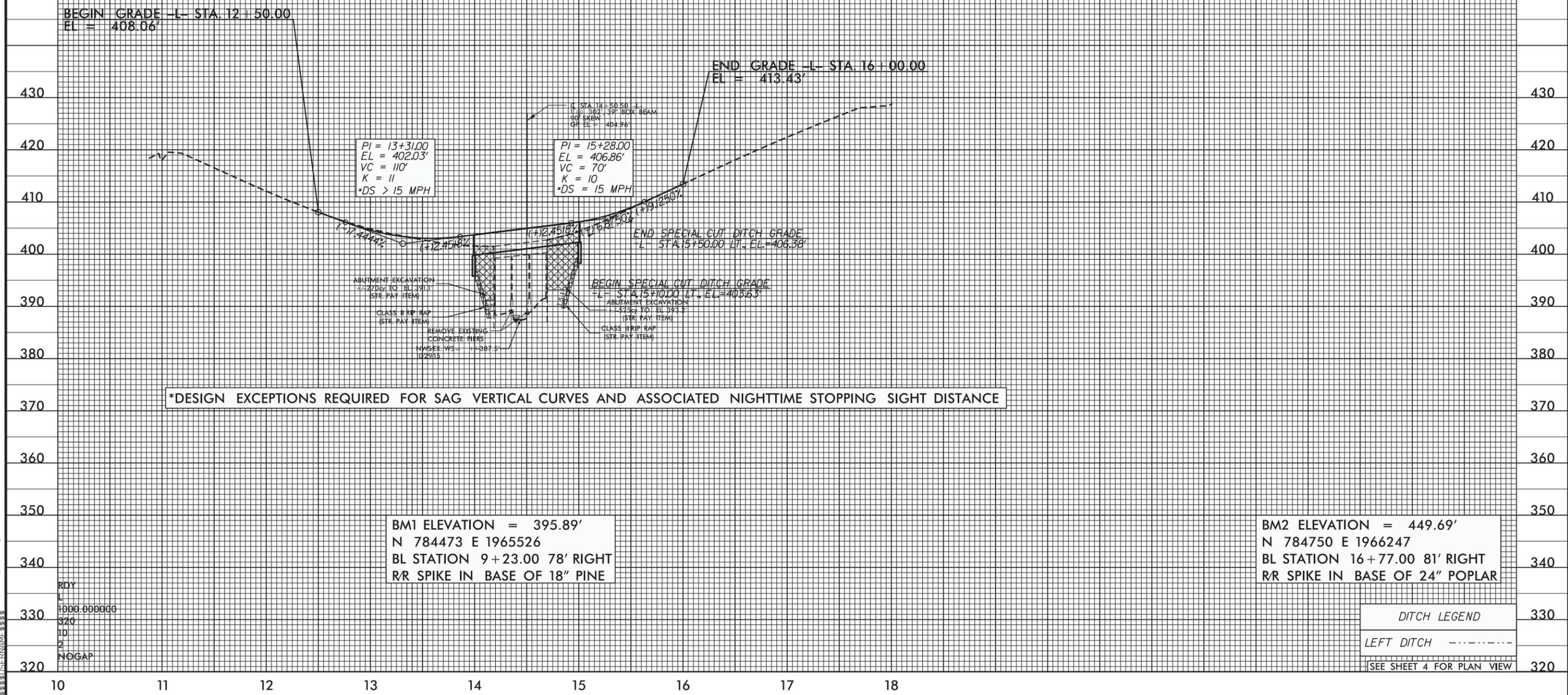
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PROJECT REFERENCE NO. B-5348	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 1730	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 396.30	FT
BASE DISCHARGE	= 2440	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 397.42	FT
OVERTOPPING DISCHARGE	= 6300	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 403.04	FT
	=	FT
DATE OF SURVEY	= 10-29-15	
W.S. ELEVATION AT DATE OF SURVEY	= 387.50 +/-	FT



*DESIGN EXCEPTIONS REQUIRED FOR SAG VERTICAL CURVES AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCE

BM1 ELEVATION = 395.89'
 N 784473 E 1965526
 BL STATION 9+23.00 78' RIGHT
 R/R SPIKE IN BASE OF 18" PINE

BM2 ELEVATION = 449.69'
 N 784750 E 1966247
 BL STATION 16+77.00 81' RIGHT
 R/R SPIKE IN BASE OF 24" POPLAR

DITCH LEGEND	330
LEFT DITCH - - - - -	
SEE SHEET 4 FOR PLAN VIEW	320

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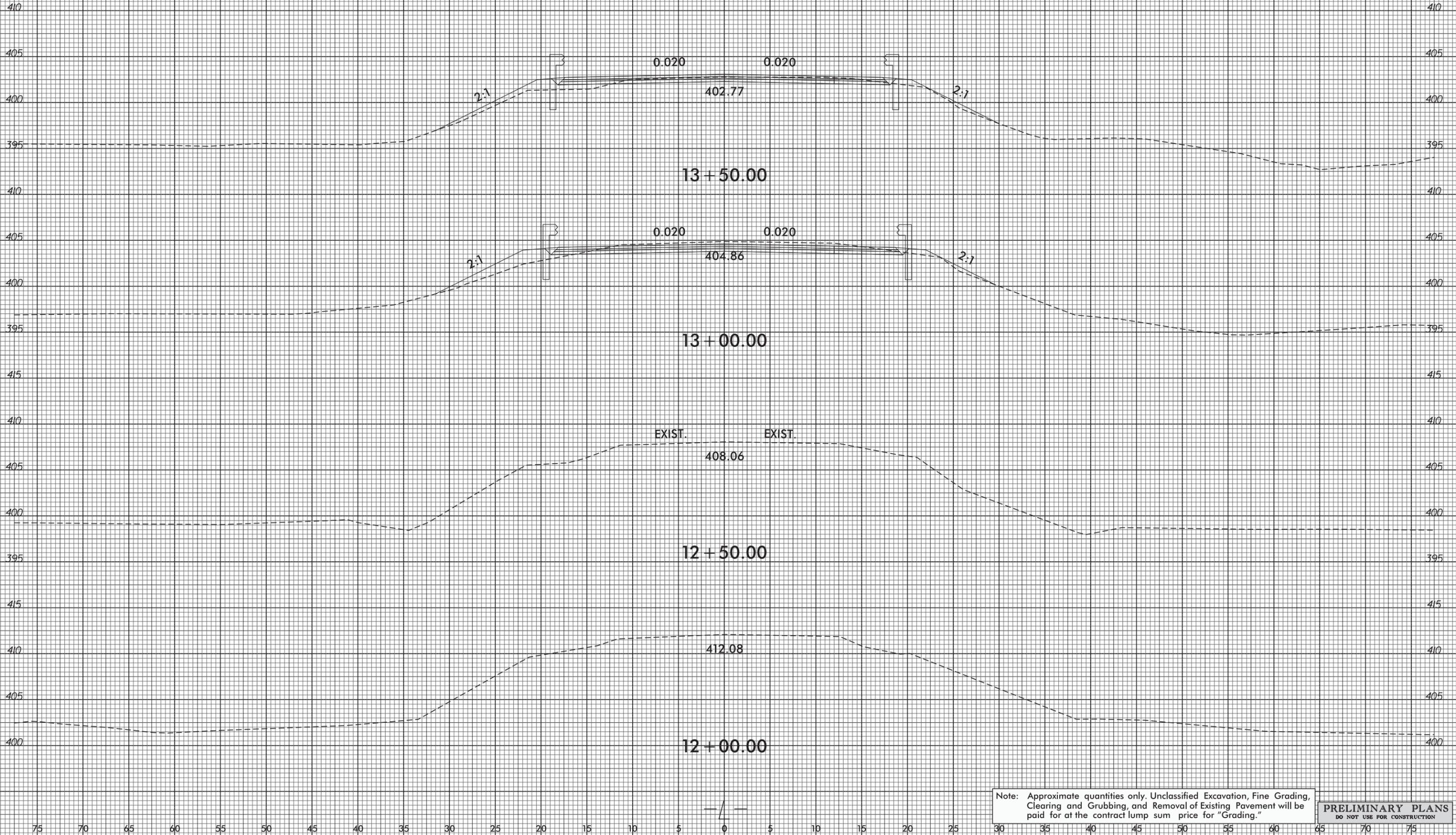
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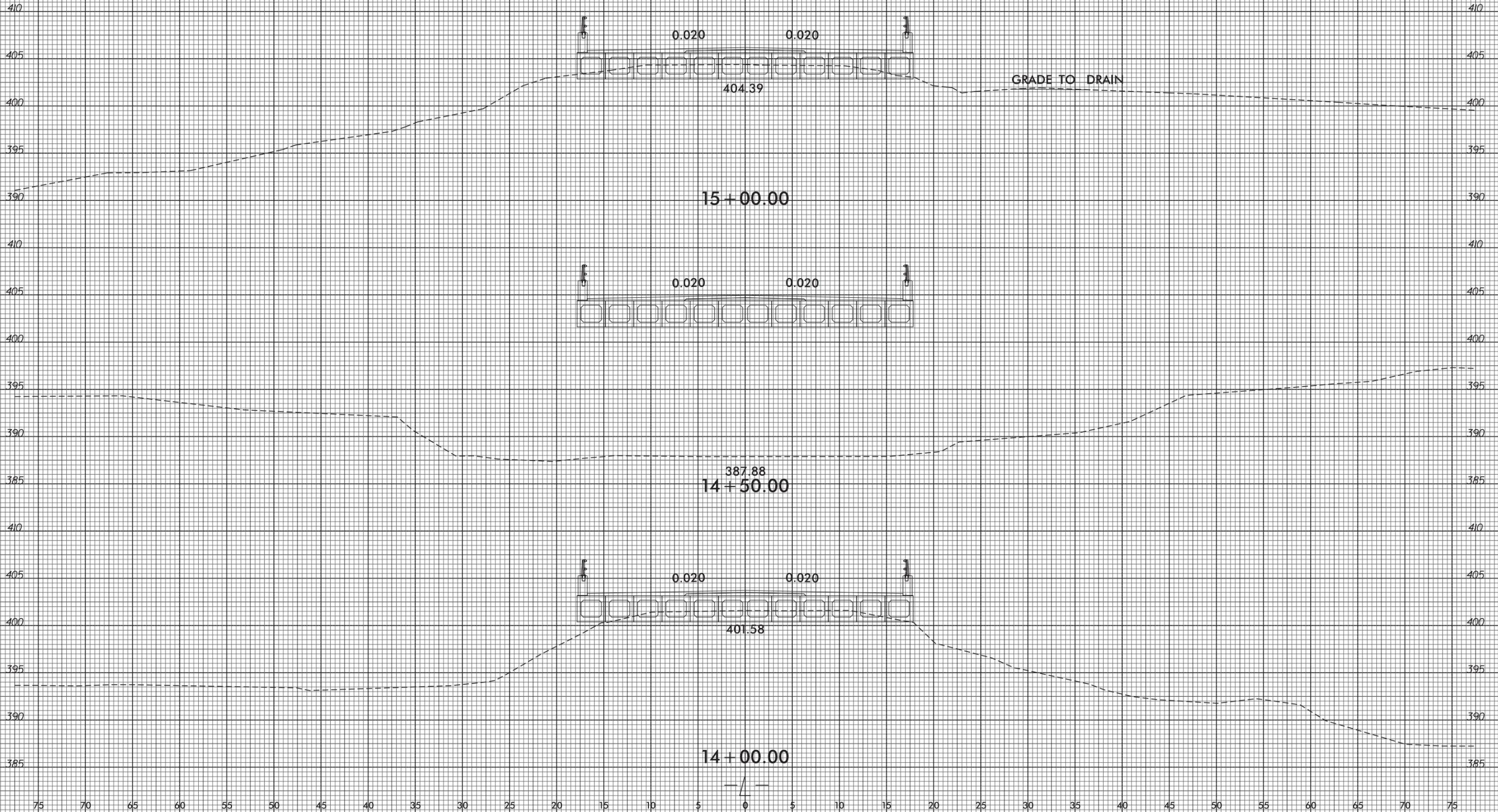
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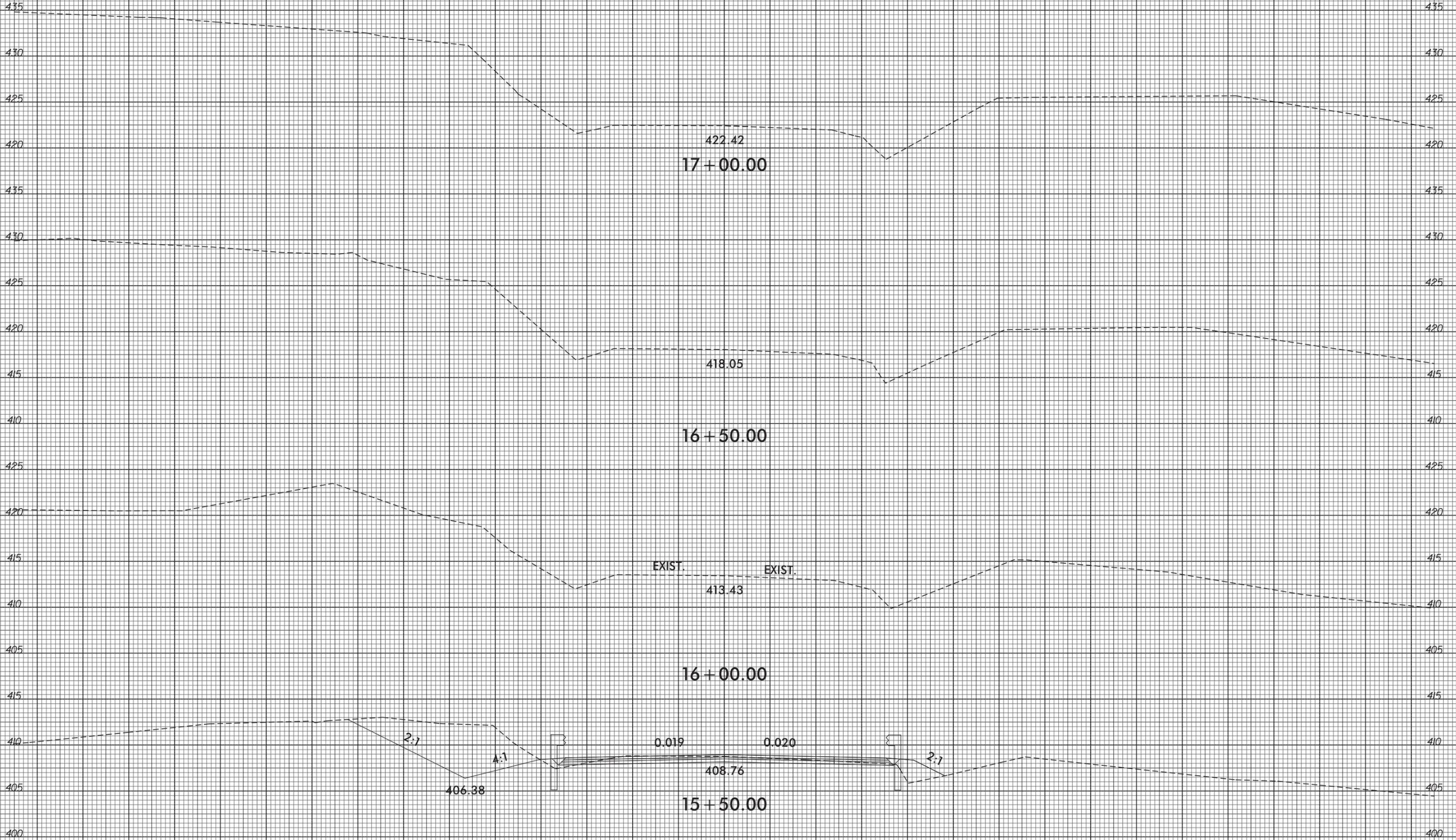
Note: Approximate quantities only. Unclassified Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50



75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75