



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

NICHOLAS J. TENNYSON
SECRETARY

September 18, 2015

U. S. Army Corps of Engineers
Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

ATTN: Mr. Eric Alsmeyer
NCDOT Division 5 Project Coordinator

Subject: **Application for Section 404 Nationwide Permits 13, 23, 33, Section 401 Water Quality Certification and Tar-Pamlico Riparian Buffer Authorization** for replacement of Bridge No. 178 over Fox Creek on SR 1304 (Sunset Road), Granville County, North Carolina. Federal Aid Project No. BRZ-1304(10), TIP No. B-5157. Debit \$240.00 from WBS Element No. 42332.1.1

Dear Sir:

Please find enclosed the Pre-Construction Notification (PCN) form, Division of Mitigation Services acceptance letter, USFWS concurrence letter, stormwater management plan, permit drawings, and roadway plans for the above referenced project. A Categorical Exclusion (CE) was completed for this project in January 2015.

The proposed let date for the project is April 29, 2016 with a review date of March 1, 2016. However, the let date may advance as additional funds become available.

A copy of this permit application and its distribution list 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 CE is also available at the above website address under *Quick Links > Environmental Documents*. Thank you for your time and assistance with this project. Please contact Rachelle Beauregard at either rbeauregard@ncdot.gov or (919) 707-6105 if you have any questions or need additional information.

Sincerely,

RW Richard W. Hancock, P.E. Manager
Project Development and Environmental Analysis Unit

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 checked="" type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 13 23 33 or General Permit (GP) number:		
1c. Has the NWP or GP number been verified by the Corps?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1d. Type(s) of approval sought from the DWR (check all that apply):		
<input checked="" 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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

2. Project Information

2a. Name of project:	Replacement of Bridge 179 over Fox Creek on SR 1304
2b. County:	Granville
2c. Nearest municipality / town:	Berea
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no.:	B-5157

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) 707-6105
3g. Fax no.:	(919) 212-5785
3h. Email address:	rbeauregard@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: 36.355886 (DD.DDDDDD) Longitude: - 78.724769 (-DD.DDDDDD)
1c. Property size:	6.4 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Fox Creek
2b. Water Quality Classification of nearest receiving water:	WS-V; NSW
2c. River basin:	Tar Pamlico
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: Land use in the project vicinity consists primarily of agriculture and forested areas, interspersed with residential homes along roadways.	
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: 398	
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 involves replacing a 72-foot bridge with a 100-foot bridge. It will span the creek on the existing alignment and have an off-site detour. 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 JD was not sought due to the nature of jurisdictional features identified	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	<input type="checkbox"/> Preliminary <input type="checkbox"/> Final
4c. If yes, who delineated the jurisdictional areas? 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?	<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):						
<input type="checkbox"/> Wetlands		<input checked="" type="checkbox"/> Streams - tributaries		<input checked="" type="checkbox"/> Buffers		
<input type="checkbox"/> Open Waters		<input type="checkbox"/> 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 <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 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		
Site 6 <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						
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 checked="" type="checkbox"/> P <input checked="" type="checkbox"/> T	bank stabilization	Fox Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	24	46 perm 8 temp
Site 2 <input checked="" type="checkbox"/> P <input checked="" type="checkbox"/> T	fill	UT to Fox Creek	<input type="checkbox"/> PER <input checked="" type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	5	14 perm 20 temp
Site 3 <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 4 <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 5 <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 6 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
3h. Total stream and tributary impacts					60 Perm 28Temp	

3i. Comments: No mitigation is required from the USACE for bank stabilization. Temporary impacts to Fox Creek under the bridge are for the removal of the bent.

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 <input type="checkbox"/> P <input type="checkbox"/> T				
O2 <input type="checkbox"/> P <input type="checkbox"/> T				
O3 <input type="checkbox"/> P <input type="checkbox"/> T				
O4 <input type="checkbox"/> P <input type="checkbox"/> T				
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?	<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"/> Catawba	<input checked="" type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Randleman	<input type="checkbox"/> 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 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Road crossing	Fox Creek	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	360	1087
B2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Bridge	Fox Creek	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	3150	576
B3 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Road impacts other than crossings of streams	UT to Fox Creek	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1754	1179
6h. Total buffer impacts				5264	2842
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 proposed bridge is 28 feet longer than the existing bridge and will be at approximately the same grade and alignment as the existing structure; the new bridge will span the creek; no deck drains on bridge; use of Design Standards for Sensitive Watersheds; See Stormwater Management Plan for more measures.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. NCDOT Best Management Practices for Construction and Maintenance Activities will be followed; use of an off-site detour.		
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, explain:	
2b. If yes, mitigation is required by (check all that apply):	<input type="checkbox"/> DWQ <input checked="" type="checkbox"/> Corps	
2c. If yes, which mitigation option will be used for this project?	<input type="checkbox"/> Mitigation bank <input checked="" 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 checked="" type="checkbox"/> Yes	
4b. Stream mitigation requested:	28 linear feet	
4c. If using stream mitigation, stream temperature:	<input checked="" type="checkbox"/> warm <input type="checkbox"/> cool <input type="checkbox"/> cold	
4d. Buffer mitigation requested (DWQ only):	6168 square feet	
4e. Riparian wetland mitigation requested:	acres	
4f. Non-riparian wetland mitigation requested:	acres	
4g. Coastal (tidal) wetland mitigation requested:	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	Road impacts other than crossings of streams	1754	3 (2 for Catawba)	2631
Zone 2	Road impacts other than crossings of streams	1179	1.5	3537
6f. Total buffer mitigation required:				6168

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).

Division of Mitigation Services

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: 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: 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 checked="" 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? There was habitat present but no species found on the project for smooth coneflower and harperella. There is habitat for the dwarf wedgemussel. Several surveys did not locate the species but records are known nearby the bridge. NCDOT received a concurrence letter from the USFWS dated April 6, 2015 (enclosed) that concurred with a May Affect, but Not Likely to Adversely Affect this species.		
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 type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		
for <u>Richard W. Hancock, P.E.</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.)	9-17-15 Date



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Division of Mitigation Services

Donald R. van der Vaart
Secretary

July 16, 2015

Mr. Richard W. Hancock, P.E.
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Hancock:

Subject: Mitigation Acceptance Letter:

B-5157, Replace Bridge 178 on SR 1304, Granville County

The purpose of this letter is to notify you that the NCDENR Division of Mitigation Services (NCDENR DMS) will provide the stream and buffer mitigation for the subject project. Based on the information supplied by you on July 14, 2015, the stream and buffer impacts are located in CU 03020101 of the Tar-Pamlico River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Stream and Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands		
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Tar-Pamlico	03020101	CP	0	0	14.0	0	0	0

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

All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Authorization Certification, NCDENR DMS will transfer funds from the NCDOT 2984 Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its riparian buffer mitigation responsibility for TIP Number B-5157. Subsequently, DMS will conduct a review of current NCDOT ILF Program mitigation projects in the river basin to determine if available buffer mitigation credits exist. If there are buffer mitigation credits available, then the Riparian Restoration Buffer Fund will purchase the appropriate amount of buffer mitigation credits from NCDOT ILF Program.

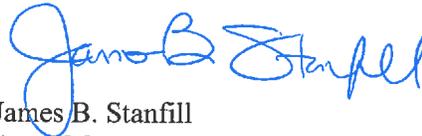
Buffer	River Basin	CU	Eco-Region	Buffer Impacts		
				Zone 1	Zone 2	TOTAL
Impacts	Tar-Pamlico	03020101	CP	1,754.0	1,179.0	2,933.0

Mr. Richard Hancock
July 16, 2015
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NCDOT TIP B-5157

NCENR DMS commits to implementing sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the N.C. Department of Environment and Natural Resources' In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from NCDENR DMS.

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

Sincerely,



James B. Stanfill
Asset Management Supervisor

Cc: Mr. Eric Alsmeyer, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NC Division of Water Resources
File: B-5157



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Raleigh Field Office

Post Office Box 33726

Raleigh, North Carolina 27636-3726

April 6, 2015

Richard W. Hancock, P.E.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Hancock:

This letter is in response to your letter of April 2, 2015 which provided the U.S. Fish and Wildlife Service (Service) with the biological conclusion of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 178 on SR 1304 over Fox Creek in Granville County (TIP No. B-5157) may affect, but is not likely to adversely affect the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*). In addition, NCDOT has determined that the project will have no effect on the federally endangered smooth coneflower (*Echinacea laevigata*) and harperella (*Ptilimnium nodosum*). These comments are provided in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

The dwarf wedgemussel has been observed in the vicinity of Bridge No. 178 in 2003 and also approximately 0.5 miles downstream in 2005. However, a severe drought in late 2007/early 2008 caused Fox Creek to dry out for several months. Subsequent mussel surveys in 2008 found only fresh dead and relic dwarf wedgemussel shells. NCDOT conducted additional mussel surveys on August 20, 2009 and July 22, 2010. No evidence of dwarf wedgemussels was observed and mussel numbers and richness were low compared to pre-drought surveys, with only two species observed. NCDOT again conducted a mussel survey at the site on June 8, 2014. The survey extended 100 meters upstream and 400 meters downstream of SR 1304. No dwarf wedgemussels were observed, and only two other mussel species were observed. The low species diversity likely indicates that the Fox Creek mussel fauna has not yet recovered from the drought of 2007/2008.

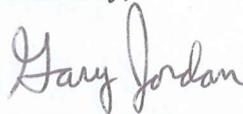
The new bridge will completely span the channel, and in-water work will be limited to removing an existing bent located at the edge of the water line. The bent removal will be completed within a "temporary dewatering footprint" to minimize sedimentation. NCDOT has also committed to adhering to Design Standards for Sensitive Watersheds.

Based on the mussel survey results and other available information, the Service concurs with your conclusion that the proposed bridge replacement may affect, but is not likely to adversely

affect the dwarf wedgemussel. In addition, based on negative survey data from August 4, 2009 and July 14, 2014, the Service concurs with your conclusion that the project will have no effect on the smooth coneflower and harperella. We believe that the requirements of Section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under Section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,


for Pete Benjamin
Field Supervisor

Electronic copy: Eric Alsmeyer, USACE, Wake Forest, NC
Travis Wilson, NCWRC, Creedmoor, NC



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR NCDOT PROJECTS



(Version 2.02; Released April 2015)

WBS Element: 42332.1.1 TIP No.: B-5157 County(ies): Granville Page 1 of 1

General Project Information

WBS Element:	42332.1.1	TIP Number:	B-5157	Project Type:	Bridge Replacement	Date:	4/1/2015
NCDOT Contact:	Galen Cail, PE		Contractor / Designer:	Sungate Design Group, P.A.			
Address:	NCDOT Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590		Address:	915 Jones Franklin Road Raleigh, NC 27606			
	Phone:	(919) 707-6711		Phone:	(919) 859-2243		
	Email:	gcail@ncdot.gov		Email:	bsmith@sungatedesign.com		
City/Town:	Oxford		County(ies):	Granville			
River Basin(s):	Tar-Pamlico		CAMA County?	No			
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	0.17 Miles	Surrounding Land Use:	Agricultural, Rural Residential				
	Proposed Project			Existing Site			
Project Built-Upon Area (ac.)	0.53	ac.	0.43	ac.			
Typical Cross Section Description:	2 10' lanes with 4' paved shoulder			2 10' lanes			

Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	305	Year:	2036	Existing:	160	Year:	2012
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General Project Narrative:
(Description of Minimization of Water Quality Impacts)

This project involves the replacment of Granville County Bridge #178 over Fox Creek on SR 1304 (Sunset Road) in Granville County, NC with a 1@95' 39" Box Beam bridge. This bridge replacement and the associated roadway improvements have been designed in a manner that minimizes the increase in impervious surface area. Fox Creek is protected by the Tar-Pamlico Buffer Protection Rules. As such, all efforts were made to produce a design that will protect and preserve existing riparian buffers. No wetlands are located at this site. There will be no deck drains installed on the bridge. Class II rip rap will be placed on the east streambank (not to be placed on the stream bed) and floodplain bench under the bridge to provide protection to the bare soil resulting from excavation and removal of the existing interior bent.

Stormwater runoff from the road will be collected in roadway ditches. The proposed roadway ditches in the northwest and southeast quadrants will outlet to existing ditches outside of the buffer zone. The proposed ditches in the southwest and northeast quadrants will flow through the buffer zones and are replacing existing ditches that are being covered by proposed fill due to widened shoulders. These ditches are carrying concentrated off-site stormwater. The site topography is extremely steep and will not allow utilization of stormwater treatment practices. Due to this, these ditches cannot meet the criteria required to get treatment before entering the buffer however non-erosive velocities will be achieved in these ditches during the 10 yr storm before entering the buffer. The ditches have been lined with Class I rip rap to eliminate potential erosion. Class I rip rap will be placed in the unnamed tributary to Fox Creek receiving stormwater from the proposed ditch in the southwest quadrant to protect against erosive forces resultant of the steep grade of the proposed ditch. Rip rap will only be placed in the immediate vicinity of the confluence of the proposed ditch and tributary. Stormwater runoff from the bridge will be conveyed by shoulder berm gutter to a drop inlet and discharged into the proposed ditch in the northeast quadrant outside of the buffer zone.

Waterbody Information

Surface Water Body (1):	Fox Creek		NCDWR Stream Index No.:	28-4-1			
NCDWR Surface Water Classification for Water Body	Primary Classification:	Water Supply IV (WS-IV)					
	Supplemental Classification:	Nutrient Sensitive Waters (NSW)					
Other Stream Classification:							
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	N/A		Buffer Rules in Effect:	Tar-Pamlico			
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)						

09/08/99

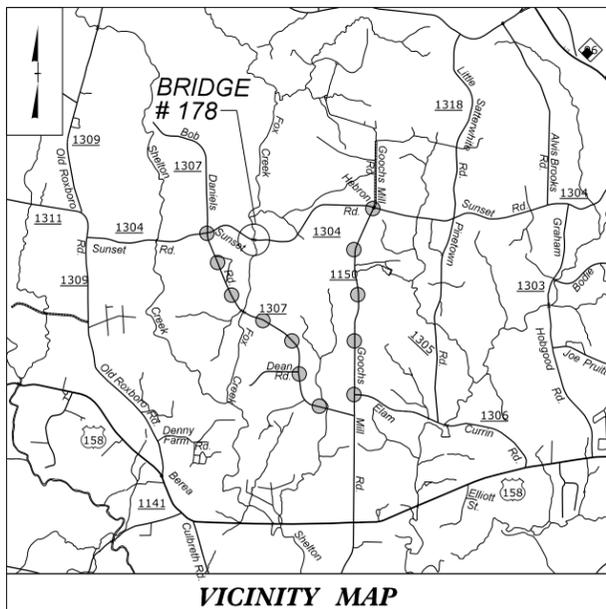
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWING
SHEET 1 OF 6

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5157	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
42332.1.1	BRZ-1304(10)	P.E.	
42332.2.FD1	BRZ-1304(10)	RW & UTILITIES	

CONTRACT: TIP PROJECT: B-5157



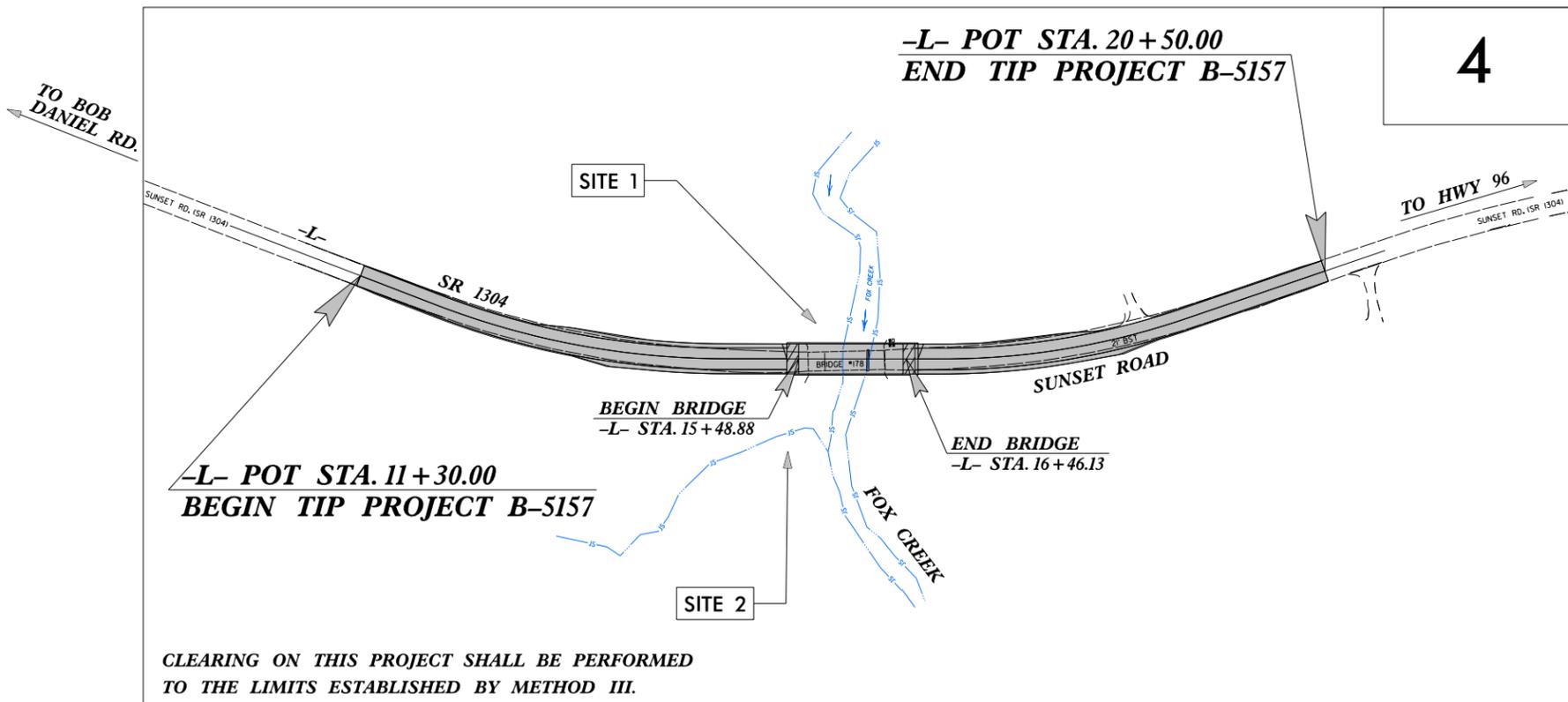
GRANVILLE COUNTY

LOCATION: BRIDGE NO. 178 OVER FOX CREEK ON SR 1304
(SUNSET ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

WETLAND AND SURFACE WATER IMPACTS PERMIT

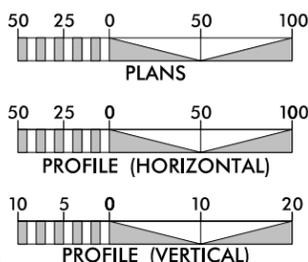
NC GRID (NAD 83/NSRS 2007)



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

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2016 = 225
ADT 2036 = 305
K = 10 %
D = 60 %
T = 5 % *
V = 35 MPH
* TTST = 2% DUAL 3%
FUNC CLASS = RURAL LOCAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5157 = 0.156 MILES
LENGTH OF STRUCTURE TIP PROJECT B-5157 = 0.018 MILES
TOTAL LENGTH TIP PROJECT B-5157 = 0.174 MILES

Prepared in the Office of:

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2283 FAX (919) 859-6258
ENG. PERM. LICENSE NO. C-499

Stantec

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801 Jones Franklin Road Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0072

for the North Carolina Department of Transportation

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

APRIL 23, 2015

LETTING DATE:

APRIL 19, 2016

STANTEC CONTACT

STEVE SMALLWOOD, P.E.
PROJECT ENGINEER

NC DOT CONTACT:

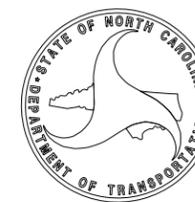
RON MCCOLLUM, P.E.

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



7/13/2015 B-5157_Hyd_prm_wet_tsh.dgn bsm:th

5/14/99

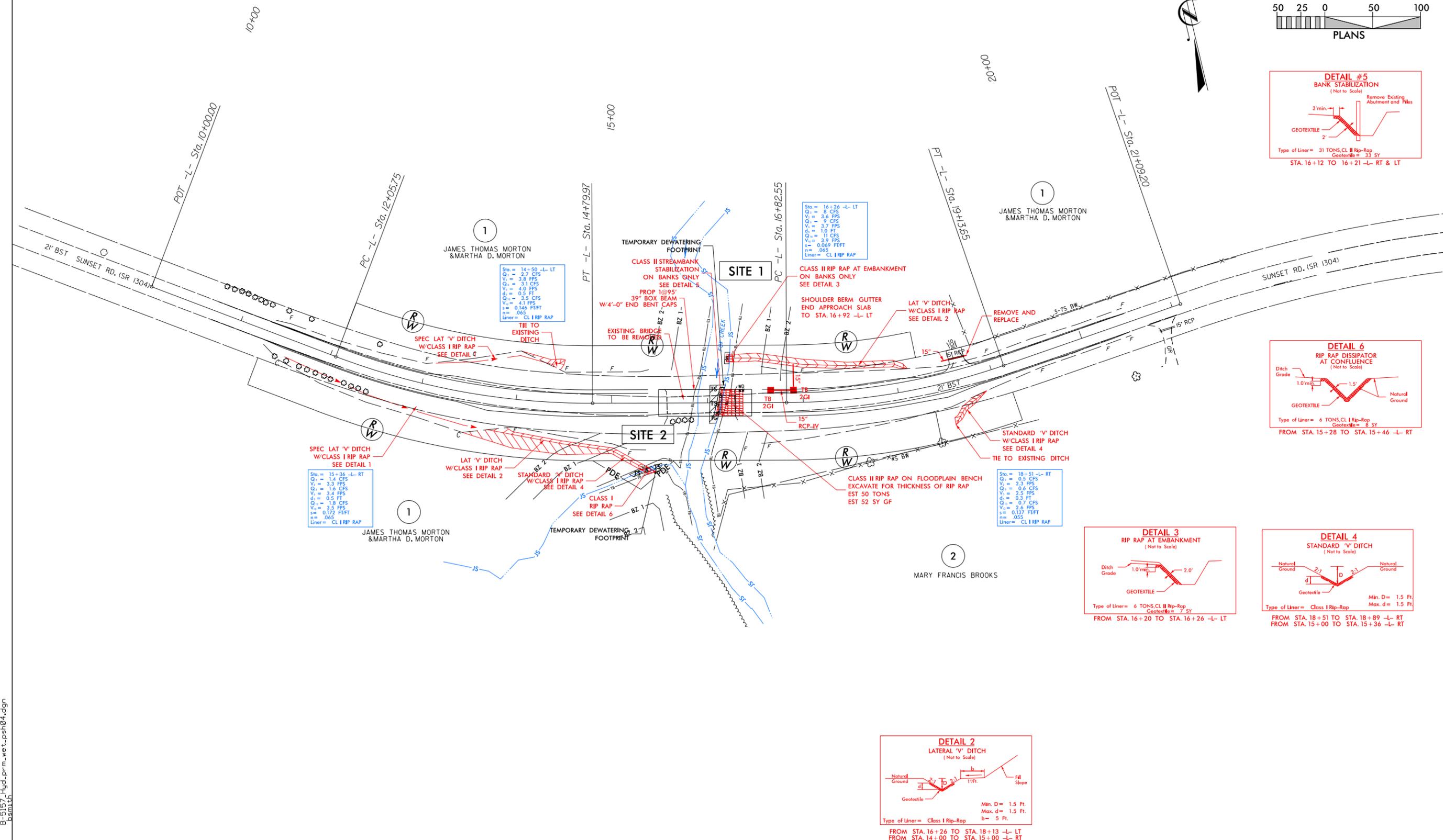
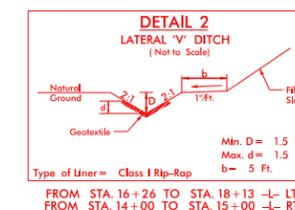
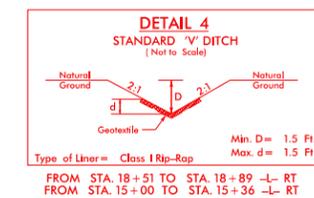
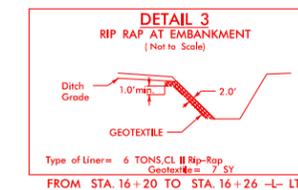
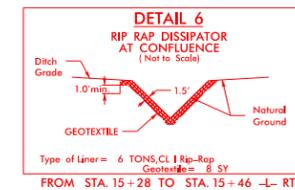
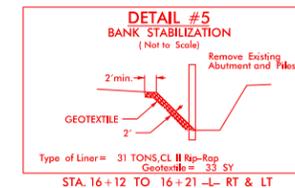
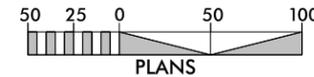
DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING SHEET 2 OF 6

PROJECT REFERENCE NO. B-5157		SHEET NO. 04	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			



1/13/2015
B-5157-Hyd-prm-wet_psh04.dgn
basm1th

5/14/99

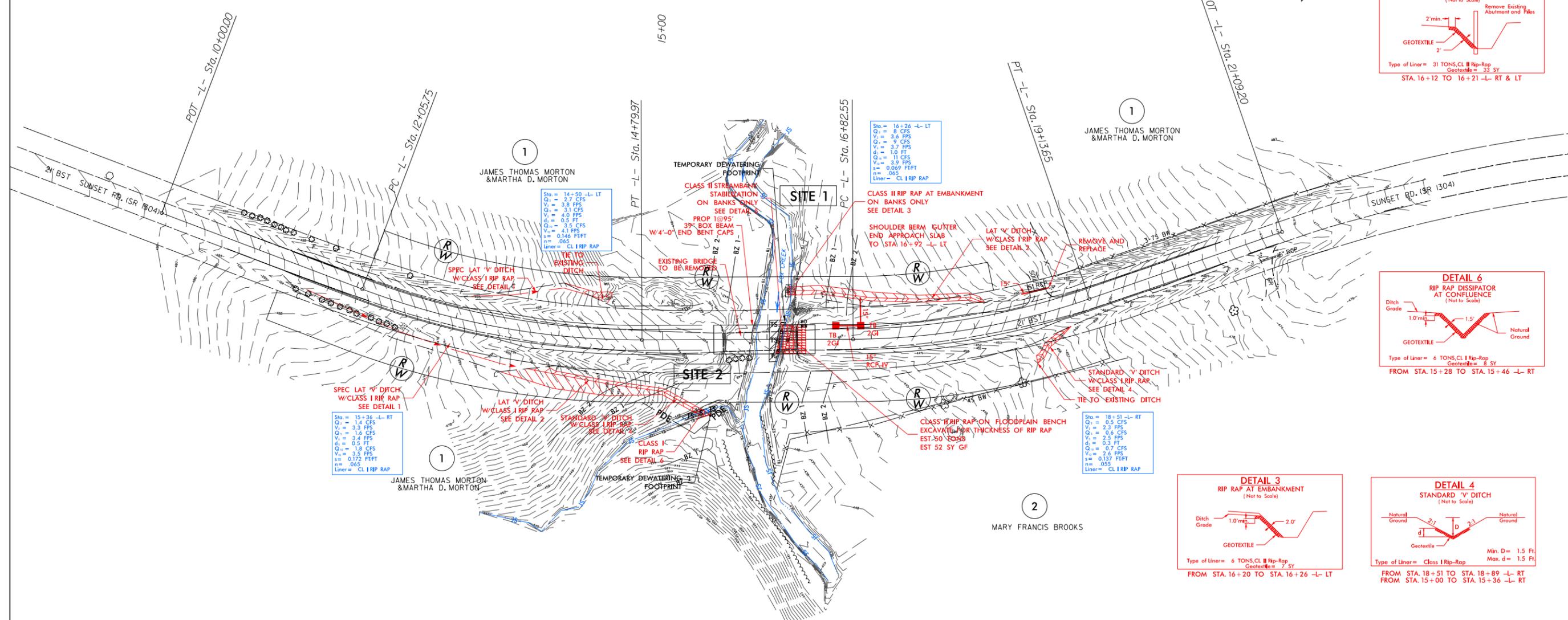
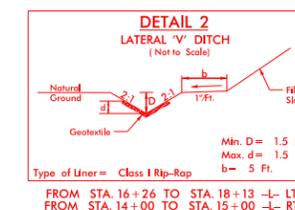
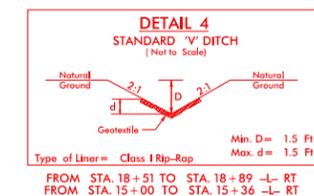
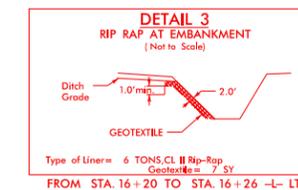
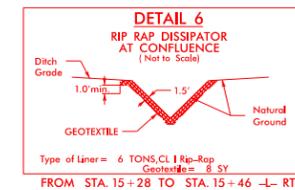
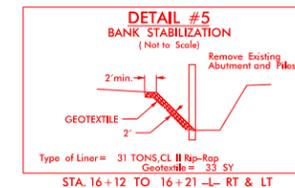
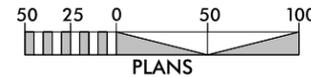
DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING SHEET 3 OF 6

PROJECT REFERENCE NO. B-5157	SHEET NO. 04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



1/13/2015 B-5157-Hyd-prm-wet_psh04.dgn bsm:ltb

PROJECT REFERENCE NO. B-5157	SHEET NO. 04A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING
SHEET 4 OF 6

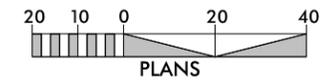
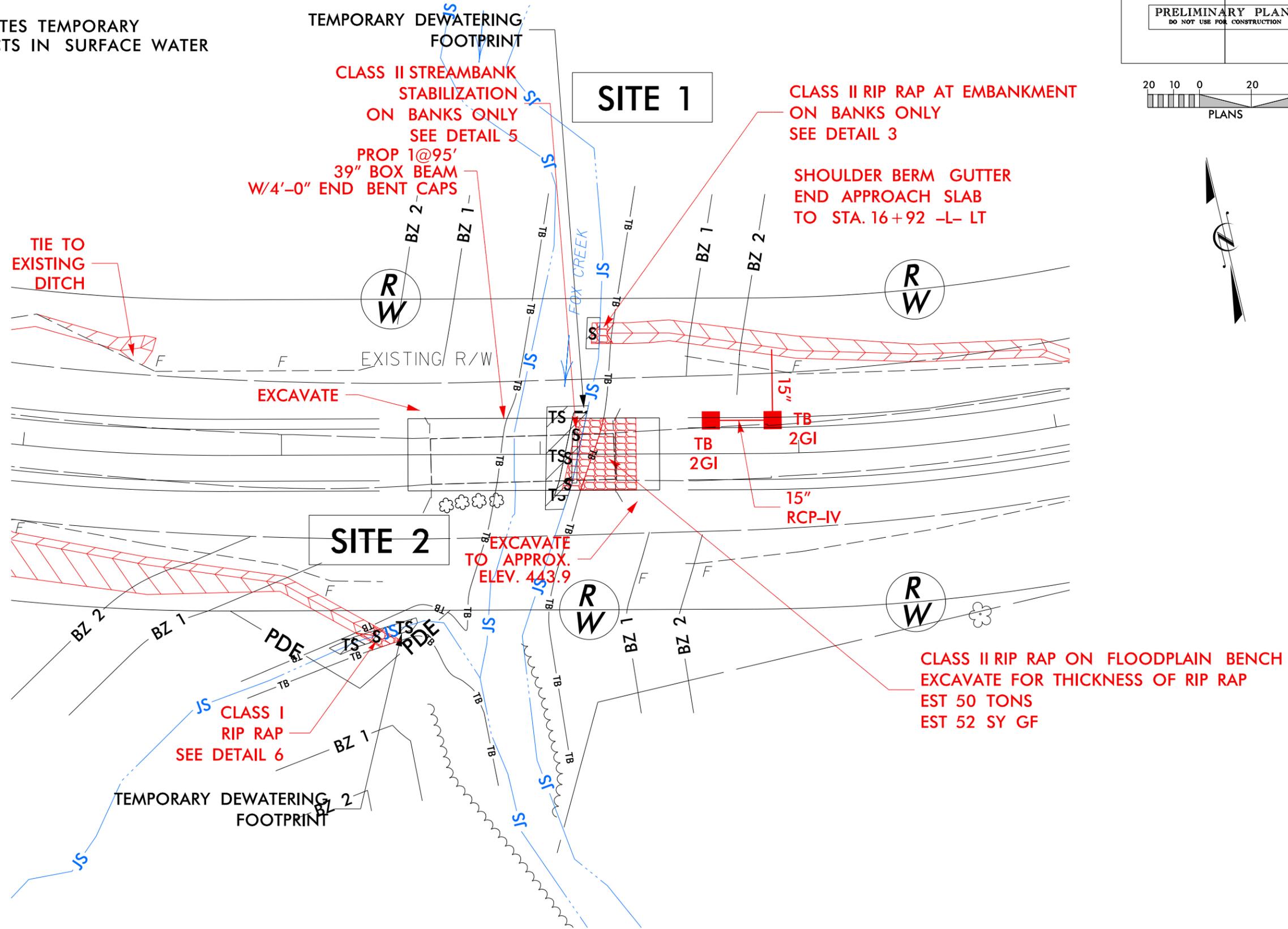


DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENLARGED VIEW OF IMPACT AREA



5/28/99

ARCADIS
 G & M of North Carolina, Inc.
 WWW.ARCADIS-US.COM
 80 Corporate Center Drive, Suite 300
 Raleigh, NC 27607-5013
 Tel: 919/854-1282 Fax: 919/854-5448 NC License No. C-869

SUNGATE DESIGN GROUP, P.A.
 915 JONES FRANKLIN ROAD
 RALEIGH, NORTH CAROLINA 27608
 TEL: 919/859-2241 FAX: 919/859-4258
 ENG FIRM LICENSE NO. C-890

PROJECT REFERENCE NO. <i>B-5157</i>	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWING
SHEET 5 OF 6

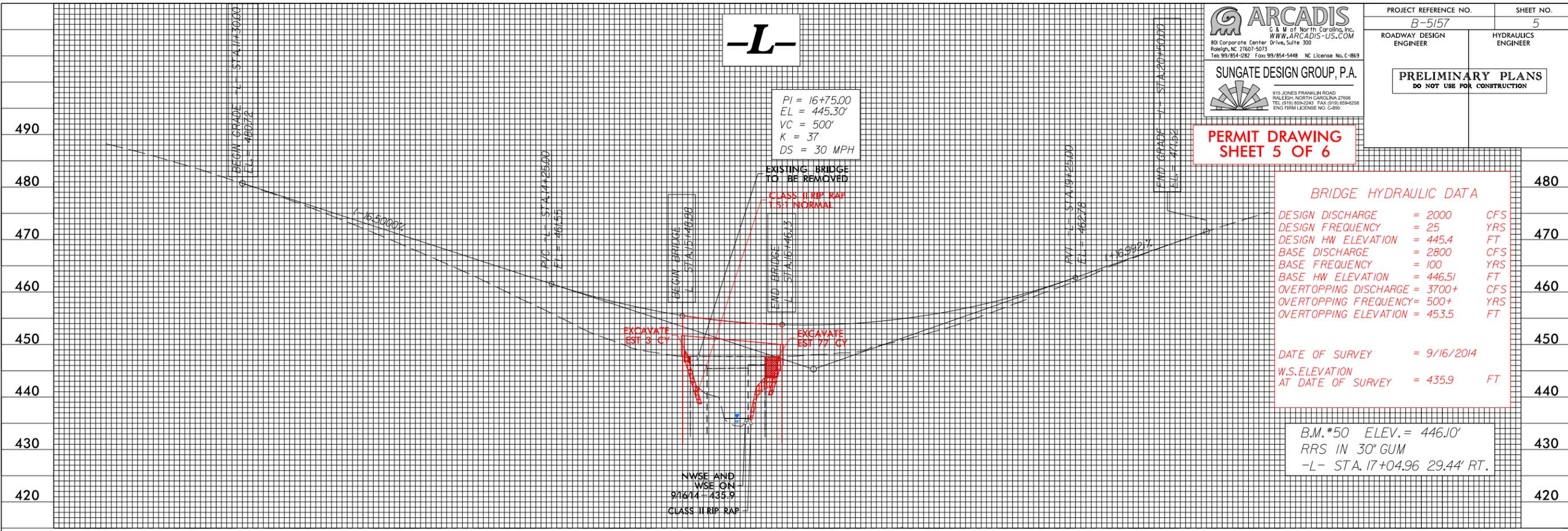
-L-

PI = 16+75.00
 EL = 445.30'
 VC = 500'
 K = 37
 DS = 30 MPH

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2000	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 445.4	FT
BASE DISCHARGE	= 2800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 446.51	FT
OVERTOPPING DISCHARGE	= 3700+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 453.5	FT
DATE OF SURVEY	= 9/16/2014	
W.S. ELEVATION AT DATE OF SURVEY	= 435.9	FT

B.M. *50 ELEV. = 446.10'
 RRS IN 30" GUM
 -L- STA. 17+04.96 29.44' RT.



5/13/2015
 B-5157_Hyd.prm_wet_pah05.dgn
 bam.tn

FOR -L- PLAN SEE SHEET 4

SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

09/08/99

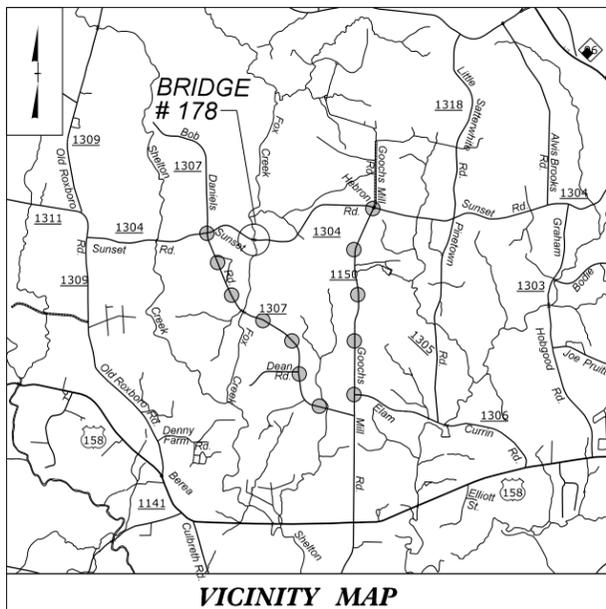
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

**BUFFER DRAWING
SHEET 1 OF 4**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5157	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
42332.1.1	BRZ-1304(10)	P.E.	
42332.2.FD1	BRZ-1304(10)	RW & UTILITIES	

TIP PROJECT: B-5157



●●●●●●●● DENOTES OFF-SITE DETOUR

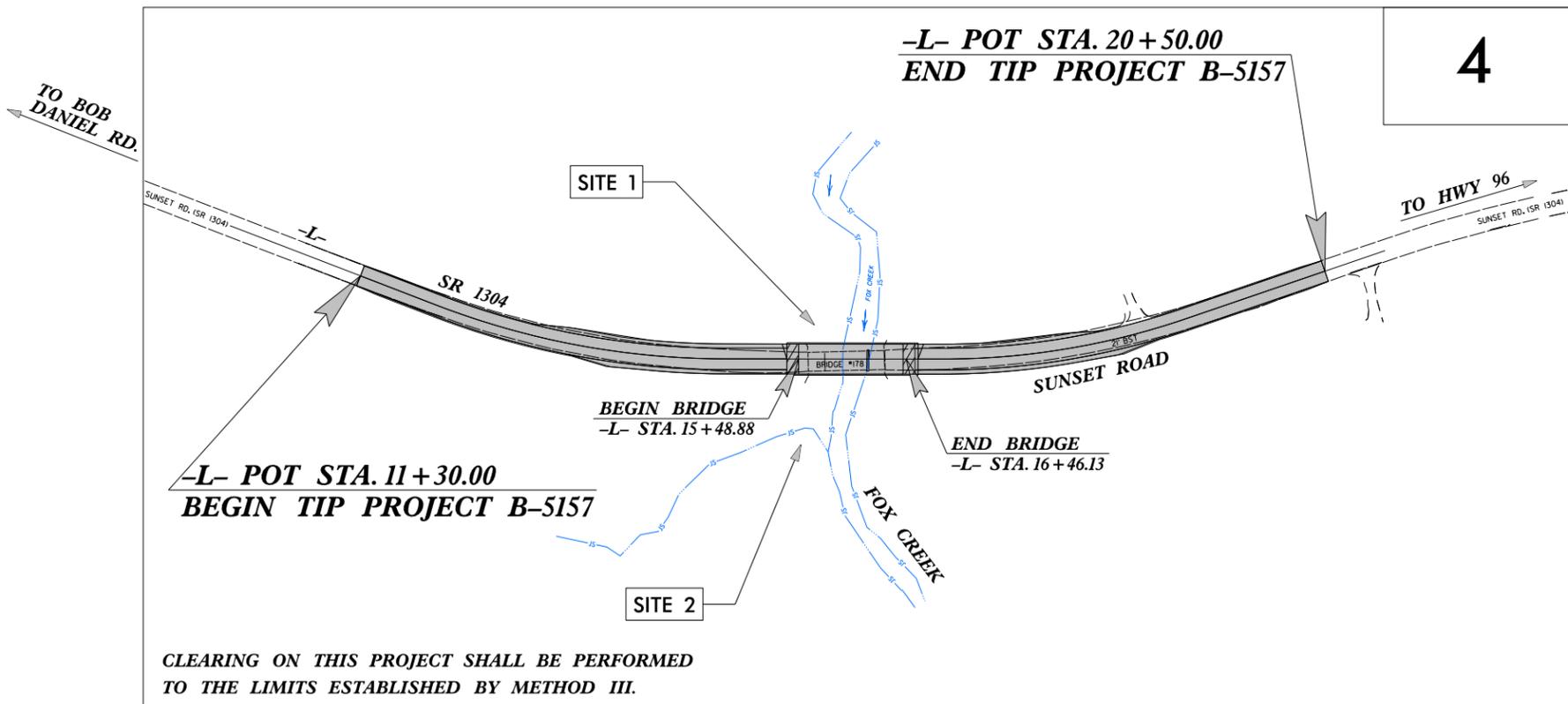
GRANVILLE COUNTY

**LOCATION: BRIDGE NO. 178 OVER FOX CREEK ON SR 1304
(SUNSET ROAD)**

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

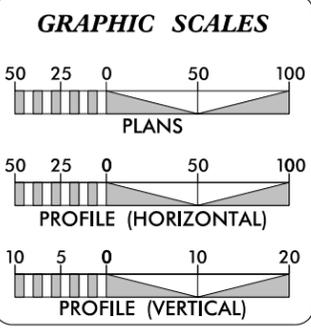
BUFFER IMPACTS PERMIT

NC GRID (NAD 83/NSRS 2007)



**PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION**

CONTRACT:



DESIGN DATA

ADT 2016 =	225
ADT 2036 =	305
K =	10 %
D =	60 %
T =	5 % *
V =	35 MPH
* TTST =	2% DUAL 3%
FUNC CLASS =	RURAL LOCAL
SUB-REGIONAL TIER	

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5157	=	0.156 MILES
LENGTH OF STRUCTURE TIP PROJECT B-5157	=	0.018 MILES
TOTAL LENGTH TIP PROJECT B-5157	=	0.174 MILES

Prepared in the Office of:

SUNGATE DESIGN GROUP, P.A.
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RALEIGH, NORTH CAROLINA 27606
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Raleigh, NC 27606
Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0072

for the North Carolina Department of Transportation

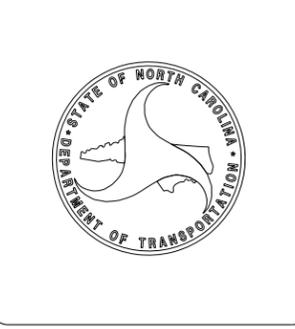
2012 STANDARD SPECIFICATIONS	STANTEC CONTACT
RIGHT OF WAY DATE:	STEVE SMALLWOOD, P.E. PROJECT ENGINEER
APRIL 23, 2015	
LETTING DATE:	RON MCCOLLUM, P.E.
APRIL 19, 2016	

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



7/13/2015 B-5157_Hyd_prm_buf_tsh.dgn bsmith

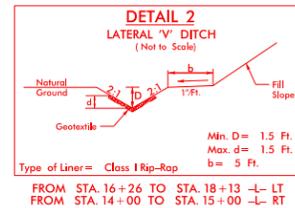
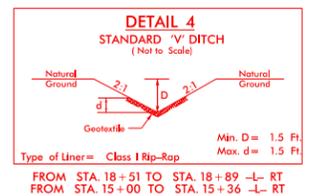
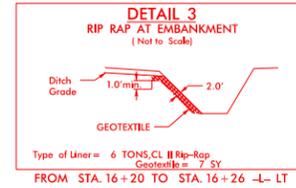
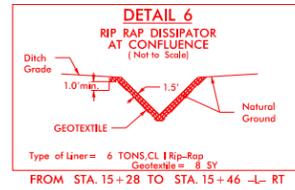
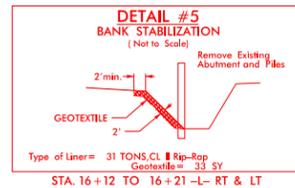
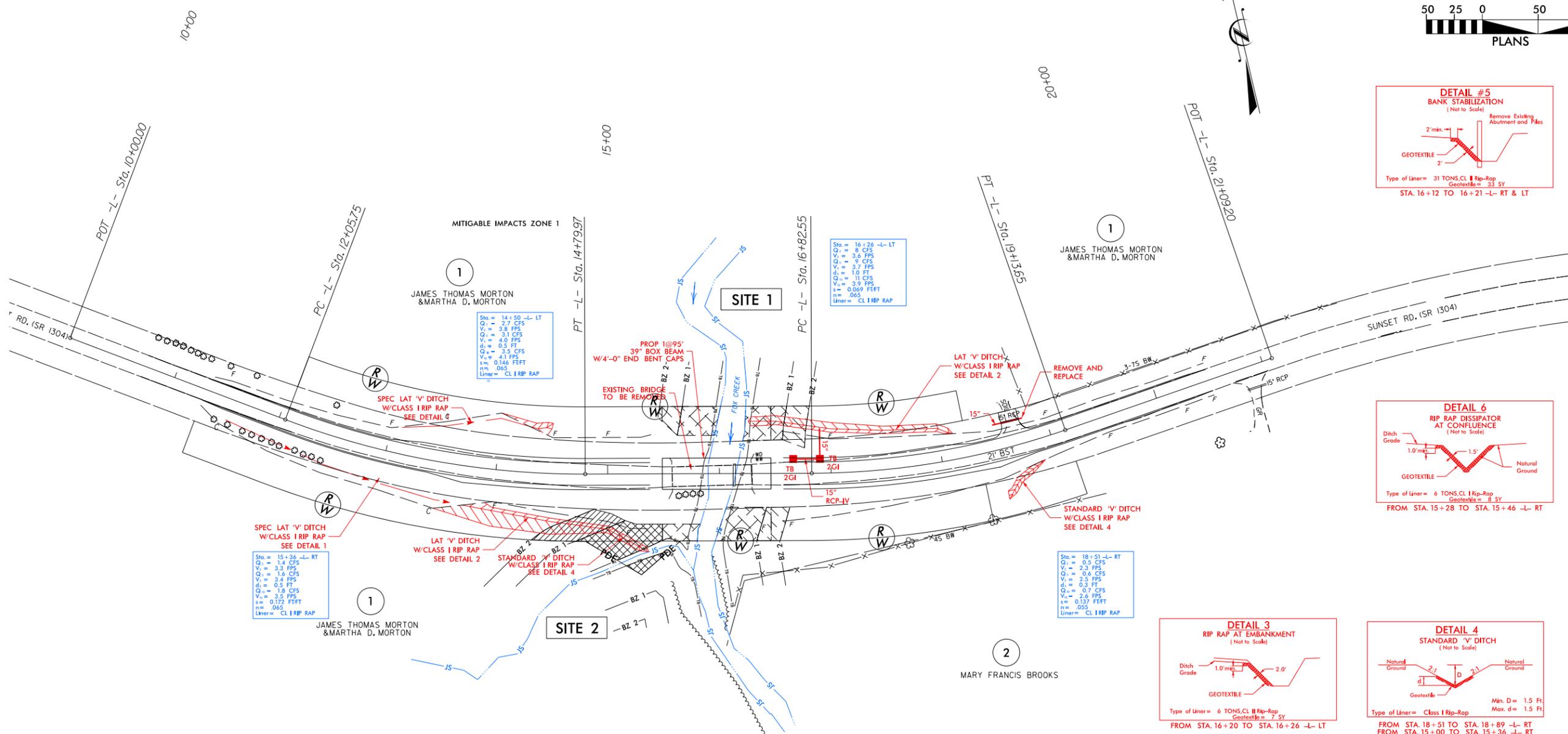
BUFFER IMPACTS PERMIT

BUFFER DRAWING SHEET 2 OF 4

PROJECT REFERENCE NO. B-5157	SHEET NO. 04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2
- MITIGABLE IMPACTS ZONE 1
- MITIGABLE IMPACTS ZONE 2



Sta. = 15+36 -L- RT
Q₁ = 1.4 CFS
Q₂ = 3.3 CFS
V₁ = 1.6 FPS
V₂ = 2.4 FPS
Q₃ = 1.8 CFS
V₃ = 3.5 FPS
s = 0.172 FT/FT
n = .065
Liner = CL I RIP RAP

Sta. = 14+50 -L- LT
Q₁ = 2.7 CFS
Q₂ = 3.8 FPS
Q₃ = 3.1 CFS
V₁ = 4.0 FPS
V₂ = 3.5 FPS
V₃ = 4.1 FPS
s = 0.146 FT/FT
n = .065
Liner = CL I RIP RAP

Sta. = 16+26 -L- LT
Q₁ = 8 CFS
Q₂ = 3.6 FPS
Q₃ = 9 CFS
V₁ = 1.0 FT
V₂ = 11 CFS
V₃ = 3.5 FPS
s = 0.059 FT/FT
n = .065
Liner = CL I RIP RAP

Sta. = 18+51 -L- RT
Q₁ = 0.5 CFS
Q₂ = 2.3 FPS
Q₃ = 0.6 CFS
V₁ = 2.3 FPS
V₂ = 0.3 FT
Q₄ = 0.7 CFS
V₃ = 2.6 FPS
s = 0.137 FT/FT
n = .025
Liner = CL I RIP RAP

BUFFER IMPACTS PERMIT

**BUFFER DRAWING
SHEET 3 OF 4**

PROJECT REFERENCE NO. <i>B-5157</i>	SHEET NO. <i>04</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	



JAMES & MAR

- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2
- MITIGABLE IMPACTS ZONE 1
- MITIGABLE IMPACTS ZONE 2

PC -L- Sta. 12+05.75

15+00

PT -L- Sta. 14+79.97

PC -L- Sta. 16+82.55

PT -L- Sta. 19+13.65

1
JAMES THOMAS MORTON
& MARTHA D. MORTON

Sta. = 14+50 -L- LT
Q ₂ = 2.7 CFS
V ₂ = 3.8 FPS
Q ₅ = 3.1 CFS
V ₅ = 4.0 FPS
d ₅ = 0.5 FT
Q ₁₀ = 3.5 CFS
V ₁₀ = 4.1 FPS
s = 0.146 FT/FT
n = .065
Liner = CL I RIP RAP

Sta. = 16+26 -L- LT
Q = 8 CFS
V = 3.6 FPS
Q = 9 CFS
V = 3.7 FPS
d = 1.0 FT
Q = 11 CFS
V = 3.9 FPS
s = 0.069 FT/FT
n = .065
Liner = CL I RIP RAP

SITE 1

PROP 1@95'
39" BOX BEAM
W/4'-0" END BENT CAPS

EXISTING BRIDGE
TO BE REMOVED

LAT 'V' DITCH
W/CLASS I RIP RAP
SEE DETAIL 2

REMOVE &
REPLACE

SPEC LAT 'V' DITCH
W/CLASS I RIP RAP
SEE DETAIL 1

TB
2GI

15"
RCP-IV

STANDA
W/CLAS
SEE DET

ITCH
RAP
'AIL 1

LAT 'V' DITCH
W/CLASS I RIP RAP
SEE DETAIL 2

STANDARD 'V' DITCH
W/CLASS I RIP RAP
SEE DETAIL 4

1

JAMES THOMAS MORTON
& MARTHA D. MORTON

Sta. = 15+36 -L- RT
Q = 1.4 CFS
V = 3.3 FPS
Q = 1.6 CFS
V = 3.4 FPS
d = 0.5 FT
Q = 1.8 CFS
V = 3.5 FPS
s = 0.172 FT/FT
n = .065
Liner = CL I RIP RAP

SITE 2

Sta. = 18+51 -L- RT
Q = 0.5 CFS
V = 2.3 FPS
Q = 0.6 CFS
V = 2.5 FPS
d = 0.3 FT
Q = 0.7 CFS
V = 2.6 FPS
s = 0.137 FT/FT
n = .055
Liner = CL I RIP RAP

2

MARY FRANCIS BROOKS

REVISIONS

8/17/99

7/13/2015
B-5157_Hyd_prm_buf_pah04.dgn
bamtd

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	1 @ 95' BRIDGE	15+50 TO 16+45 -L-		X		3150	576	3726					
1	-L- LT & RT	15+45 TO 16+81 -L-	X			360	1087	1447					
2	IMPACTS TO UT -L- RT	14+35 TO 15+50 -L-			X				1754	1179	2933		
TOTAL:						3510	1663	5173	1754	1179	2933		

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 GRANVILLE COUNTY
 PROJECT: 42332.1.1 (B-5157)

 7/13/2015
 SHEET 4 OF 4

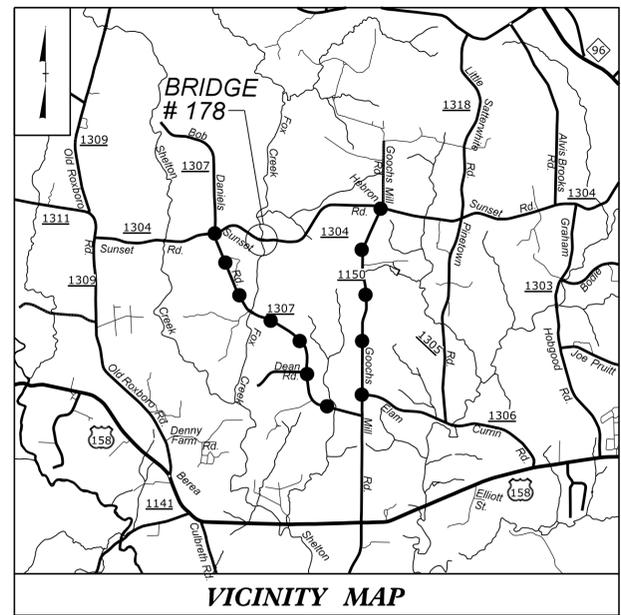
09.08/09

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
GRANVILLE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5157	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42332.1.1	BRZ-1304(10)	P.E.	
42332.2.FD1	BRZ-1304(10)	RW & UTILITIES	

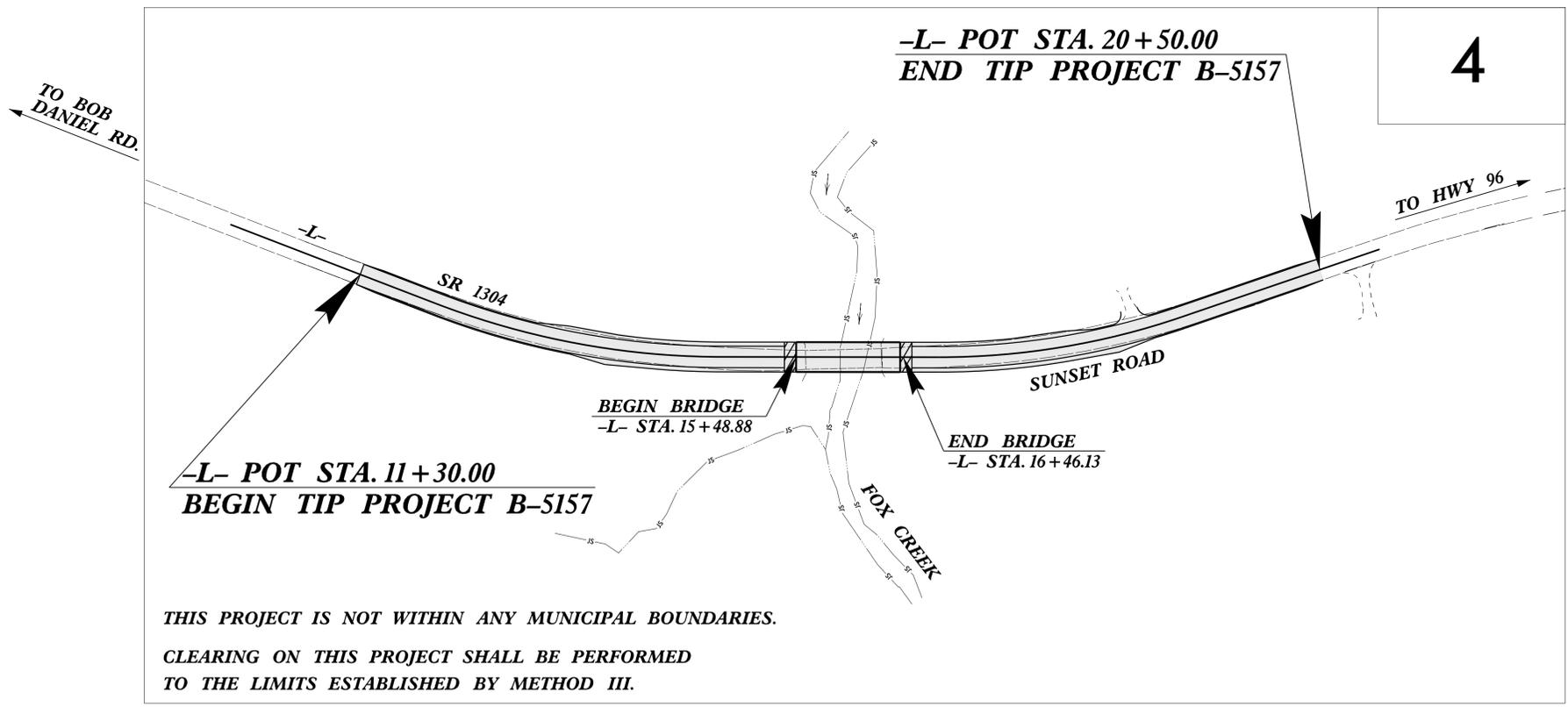
TIP PROJECT: B-5157



LOCATION: BRIDGE NO. 178 OVER FOX CREEK ON SR 1304 (SUNSET ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

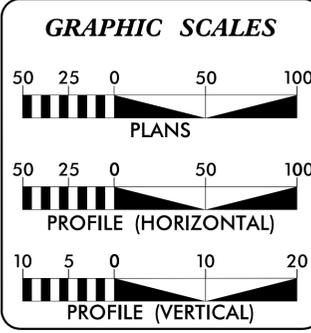
NC GRID (NAD 83/NSRS 2007)



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:



DESIGN DATA

ADT 2016 =	225
ADT 2036 =	305
K =	10 %
D =	60 %
T =	5 % *
V =	35 MPH
* TTST =	2% DUAL 3%
FUNC CLASS =	RURAL LOCAL
SUB-REGIONAL TIER	

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5157	=	0.156 MILES
LENGTH OF STRUCTURE TIP PROJECT B-5157	=	0.018 MILES
TOTAL LENGTH TIP PROJECT B-5157	=	0.174 MILES

Prepared in the Office of:

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL: (919) 859-2243 FAX: (919) 859-6258
ENG FIRM LICENSE NO. C-890

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road Suite 300
Raleigh, NC 27606
Tel: (919) 851-8888 Fax: (919) 851-7024 www.stantec.com License No. F-0872

for the North Carolina Department of Transportation

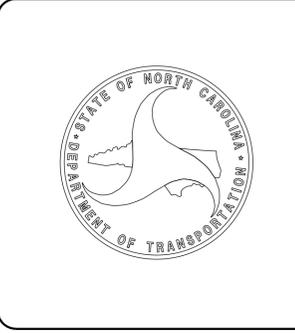
2012 STANDARD SPECIFICATIONS	STANTEC CONTACT
RIGHT OF WAY DATE:	STEVE SMALLWOOD, P.E. PROJECT ENGINEER
APRIL 23, 2015	
LETTING DATE:	NCDOT CONTACT:
APRIL 19, 2016	RON MCCOLLUM, P.E.

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



4/2/2015 U:\Roadway\Proj\B5157_rdy_tsh.dgn stsmallwood

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

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

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	⊙ EIP
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 ---
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

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	--- 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	Ⓜ
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 RW Marker	Ⓜ
Proposed Control of Access Line with Concrete CA Marker	Ⓜ
Existing Control of Access	Ⓜ
Proposed Control of Access	Ⓜ
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	Ⓜ
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	⊠
Recorded U/G Power Line	--- P ---
Designated U/G Power Line (S.U.E.*)	--- P ---

TELEPHONE:

Existing Telephone Pole	⊠
Proposed Telephone Pole	⊠
Telephone Manhole	⊠
Telephone Booth	⊠
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	⊠
Recorded U/G Telephone Cable	--- T ---
Designated U/G Telephone Cable (S.U.E.*)	--- T ---
Recorded U/G Telephone Conduit	--- TC ---
Designated U/G Telephone Conduit (S.U.E.*)	--- TC ---
Recorded U/G Fiber Optics Cable	--- T FO ---
Designated U/G Fiber Optics Cable (S.U.E.*)	--- T FO ---

WATER:

Water Manhole	⊠
Water Meter	⊠
Water Valve	⊠
Water Hydrant	⊠
Recorded U/G Water Line	--- W ---
Designated U/G Water Line (S.U.E.*)	--- W ---
Above Ground Water Line	--- A/G Water ---

TV:

TV Satellite Dish	⊠
TV Pedestal	⊠
TV Tower	⊠
U/G TV Cable Hand Hole	⊠
Recorded U/G TV Cable	--- TV ---
Designated U/G TV Cable (S.U.E.*)	--- TV ---
Recorded U/G Fiber Optic Cable	--- TV FO ---
Designated U/G Fiber Optic Cable (S.U.E.*)	--- TV FO ---

GAS:

Gas Valve	⊠
Gas Meter	⊠
Recorded U/G Gas Line	--- G ---
Designated U/G Gas Line (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 ---
Recorded SS Forced Main Line	--- FSS ---
Designated SS Forced Main Line (S.U.E.*)	--- FSS ---

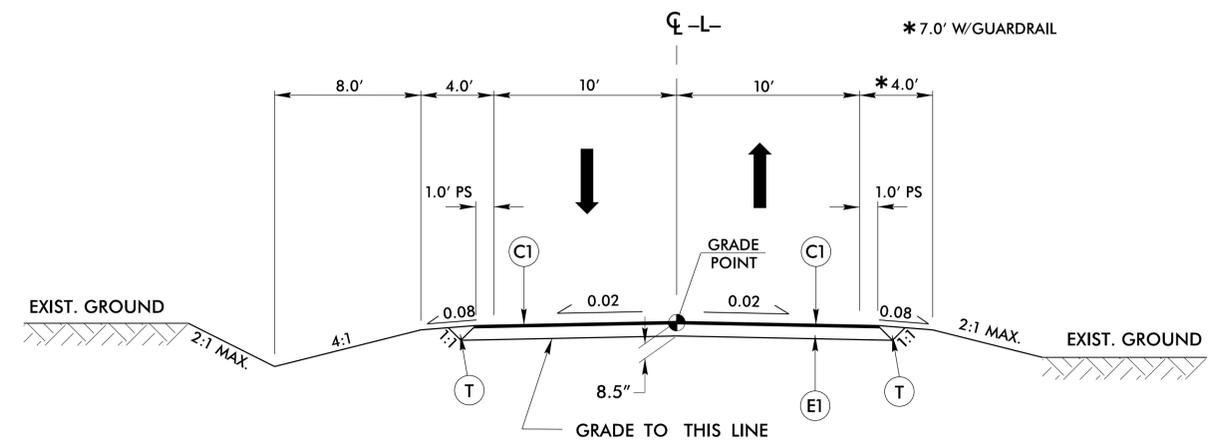
MISCELLANEOUS:

Utility Pole	⊠
Utility Pole with Base	⊠
Utility Located Object	⊠
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line	--- 7UTL ---
U/G Tank; Water, Gas, Oil	⊠
Underground Storage Tank, Approx. Loc.	⊠
A/G Tank; Water, Gas, Oil	⊠
Geoenvironmental Boring	⊠
U/G Test Hole (S.U.E.*)	⊠
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

6/2/99

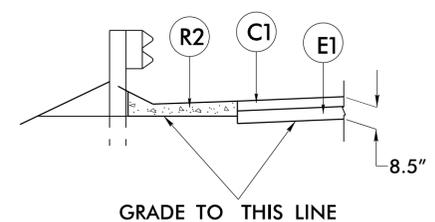
FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE DETAIL SHOWING METHOD OF WEDGING)

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

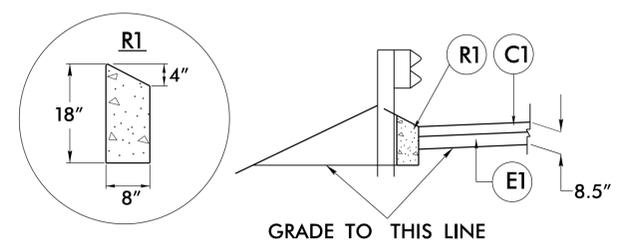


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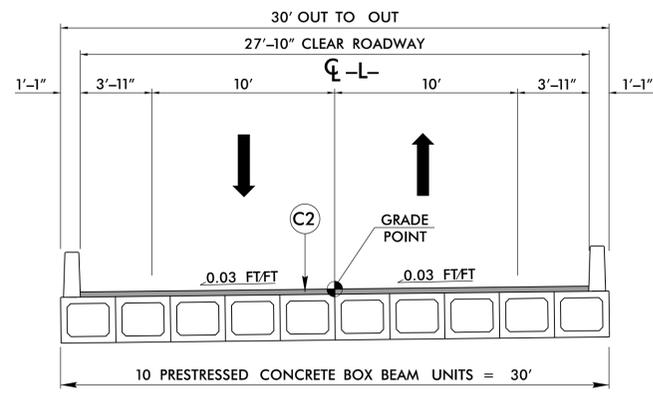
USE TYPICAL SECTION NO. 1
 -L- STA. 11+30.00 TO -L- STA. 15+48.88 (BEGIN BRIDGE)
 -L- STA. 16+46.13 (END BRIDGE) TO -L- STA. 20+50.00



DETAIL SHOWING SHOULDER BERM GUTTER (SBG) ON TOP OF SUBGRADE
 -L- STA. ? (END APPROACH SLAB) TO -L- STA. ? (LT & RT)



DETAIL SHOWING SPECIAL SHOULDER BERM CURB (SBC) ON TOP OF SUBGRADE
 -L- STA. ? TO -L- STA. ? (BEGIN APPROACH SLAB) (LT & RT)



TYPICAL SECTION ON STRUCTURE
 -L- STA. 15+48.88 TO -L- STA. 16+46.13

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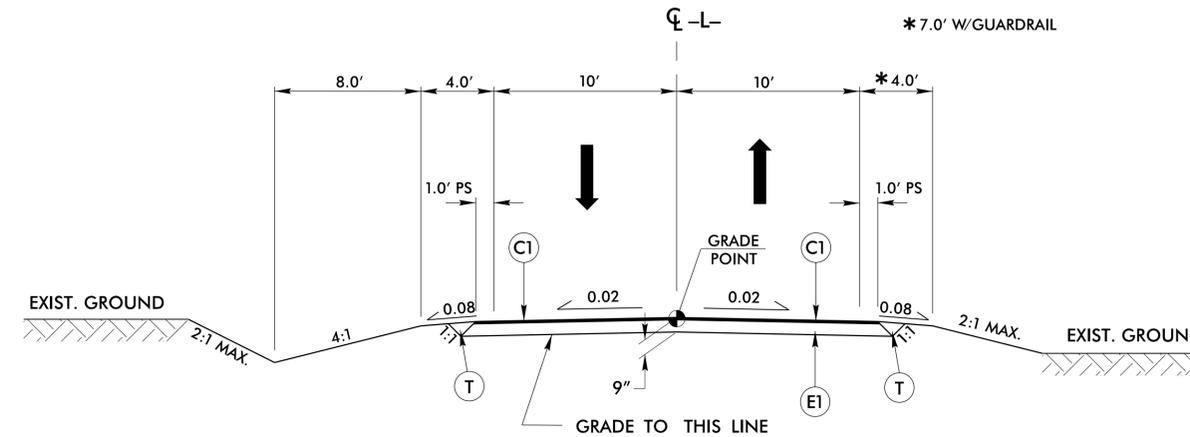
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel: (919) 851-6866
Fax: (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.		SHEET NO.	
		2A-1	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			



FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 7½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE DETAIL SHOWING METHOD OF WEDGING)

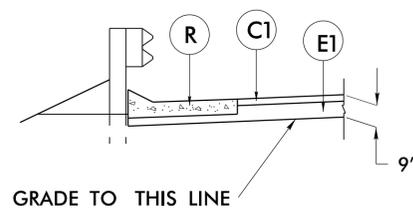
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

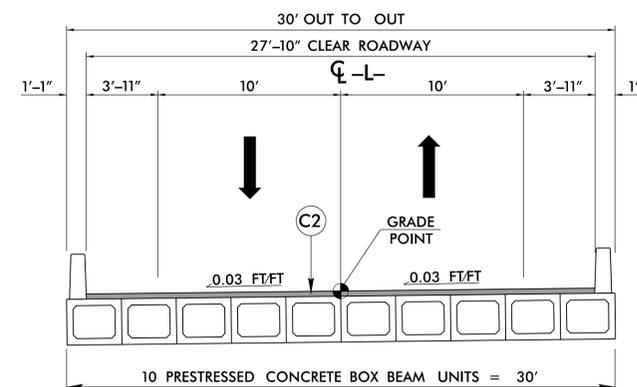
USE TYPICAL SECTION NO. 1

-L- STA. 11+30.00 TO -L- STA. 15+48.88 (BEGIN BRIDGE)
-L- STA. 16+46.13 (END BRIDGE) TO -L- STA. 20+50.00



DETAIL SHOWING SHOULDER BERM GUTTER (SBG) ON TOP OF SUBGRADE

-L- STA. 16+57.13 (END APPROACH SLAB) TO -L- STA. 16+92.00 LT



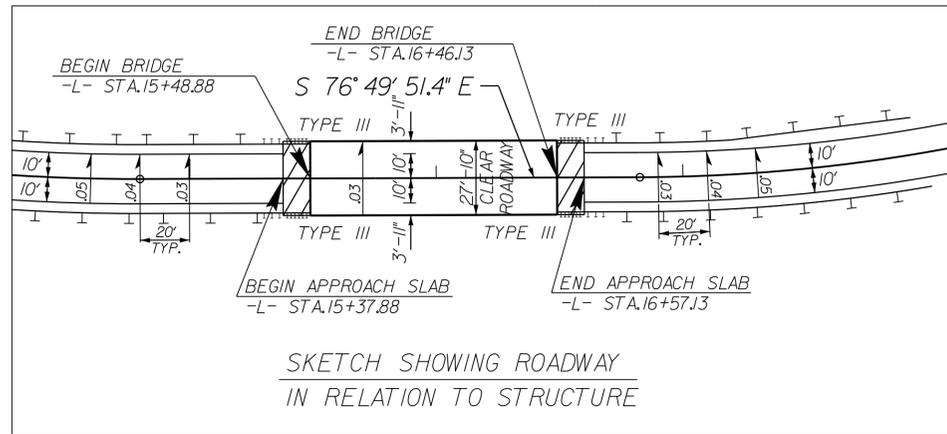
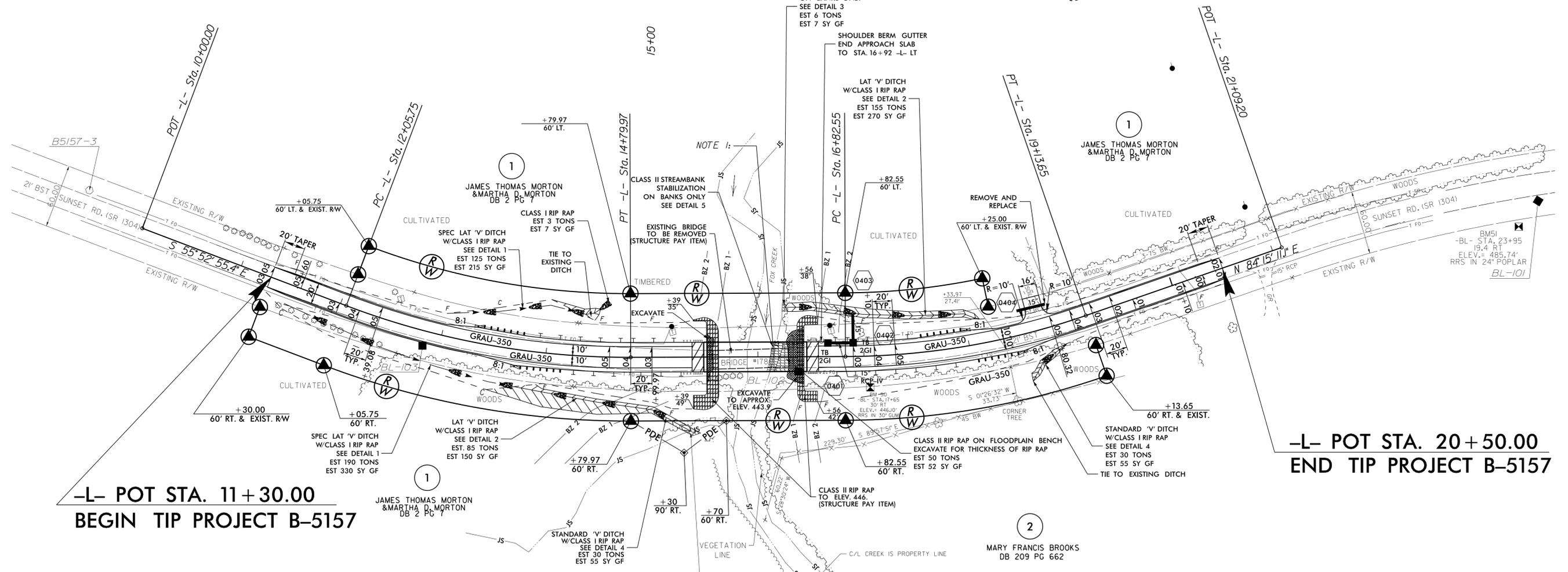
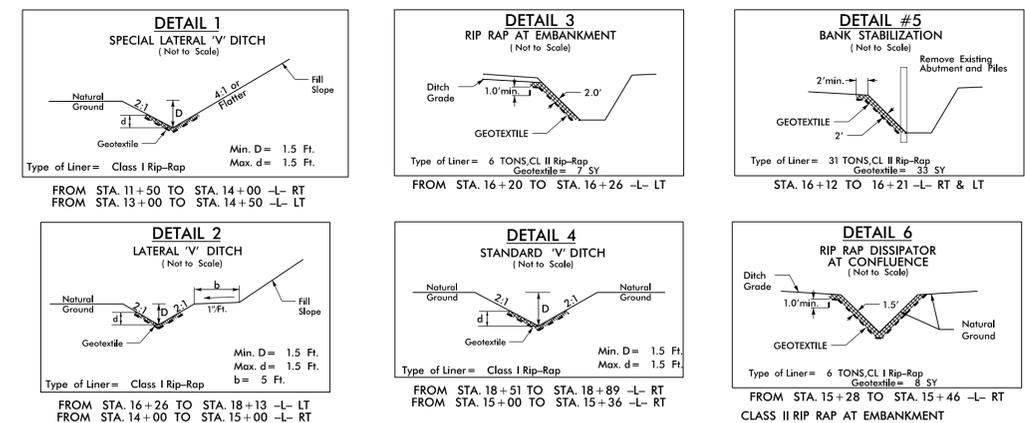
TYPICAL SECTION ON STRUCTURE

-L- STA. 15+48.88 TO -L- STA. 16+46.13

4/27/2015
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 stam11wood

5/14/99
 4/21/2015
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 10:00 AM

PROJECT REFERENCE NO. B-5157	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



-L- CURVE DATA

PI Sta 13+44.1	PI Sta 17+99.6
$\Delta = 20^\circ 56' 56.0''$ (LT)	$\Delta = 18^\circ 54' 57.6''$ (LT)
$D = 7^\circ 38' 22.0''$	$D = 8^\circ 11' 06.4''$
$L = 274.22'$	$L = 231.10'$
$T = 138.66'$	$T = 116.61'$
$R = 750.00'$	$R = 700.00'$
$DS = 35$ MPH	$DS = 35$ MPH
$SE = .05$	$SE = .05$

5/14/99



-L-

----- LEFT DITCH GRADE
 ----- RIGHT DITCH GRADE

B.M. #50 ELEV. = 446.10'
 RRS IN 30° GUM
 -L- STA. 17+04.96 29.44' RT.

PI = 16+75.00
 EL = 445.30'
 VC = 500'
 K = 37
 DS = 30 MPH

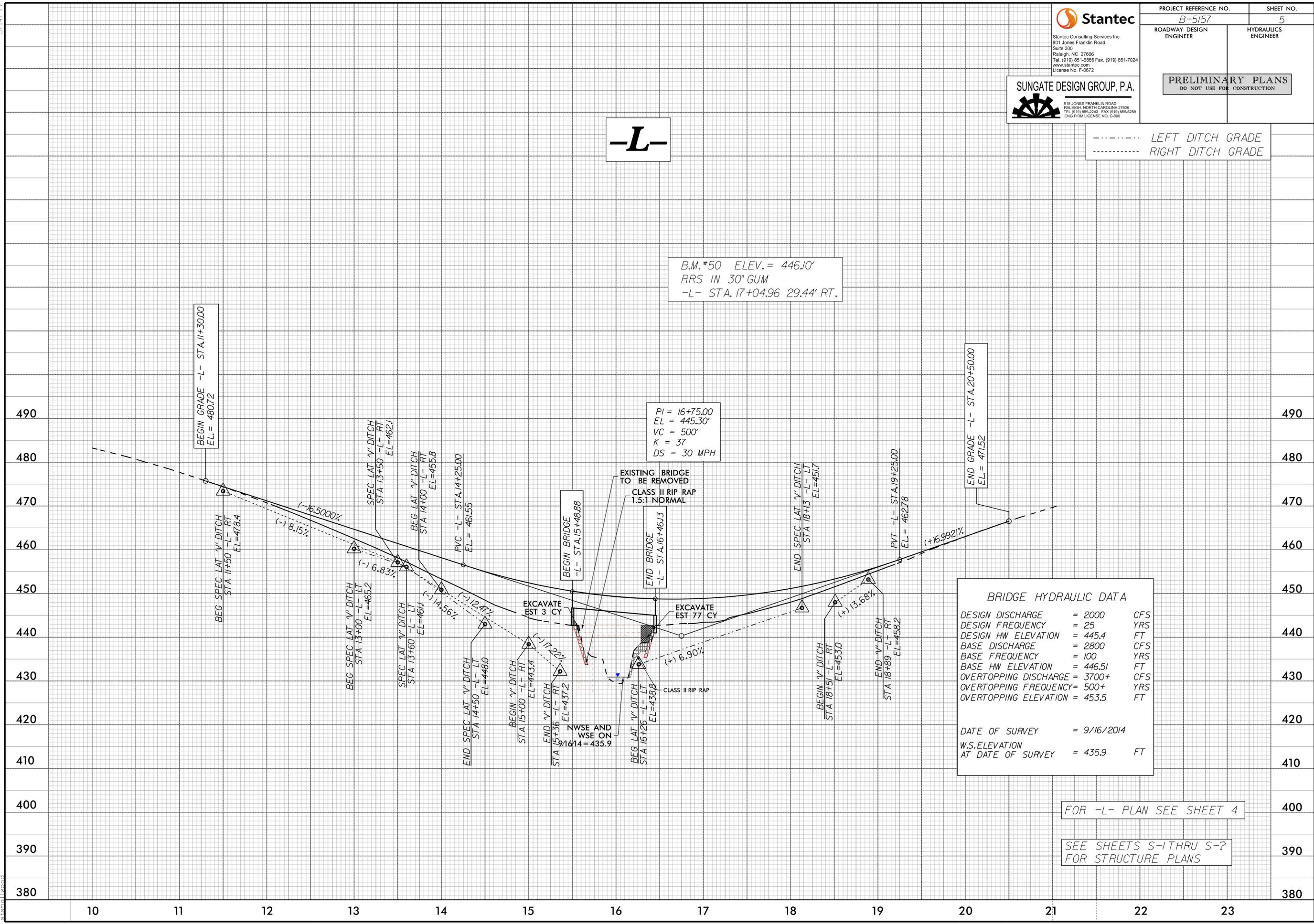
EXISTING BRIDGE TO BE REMOVED
 CLASS II RIP RAP 1.5:1 NORMAL

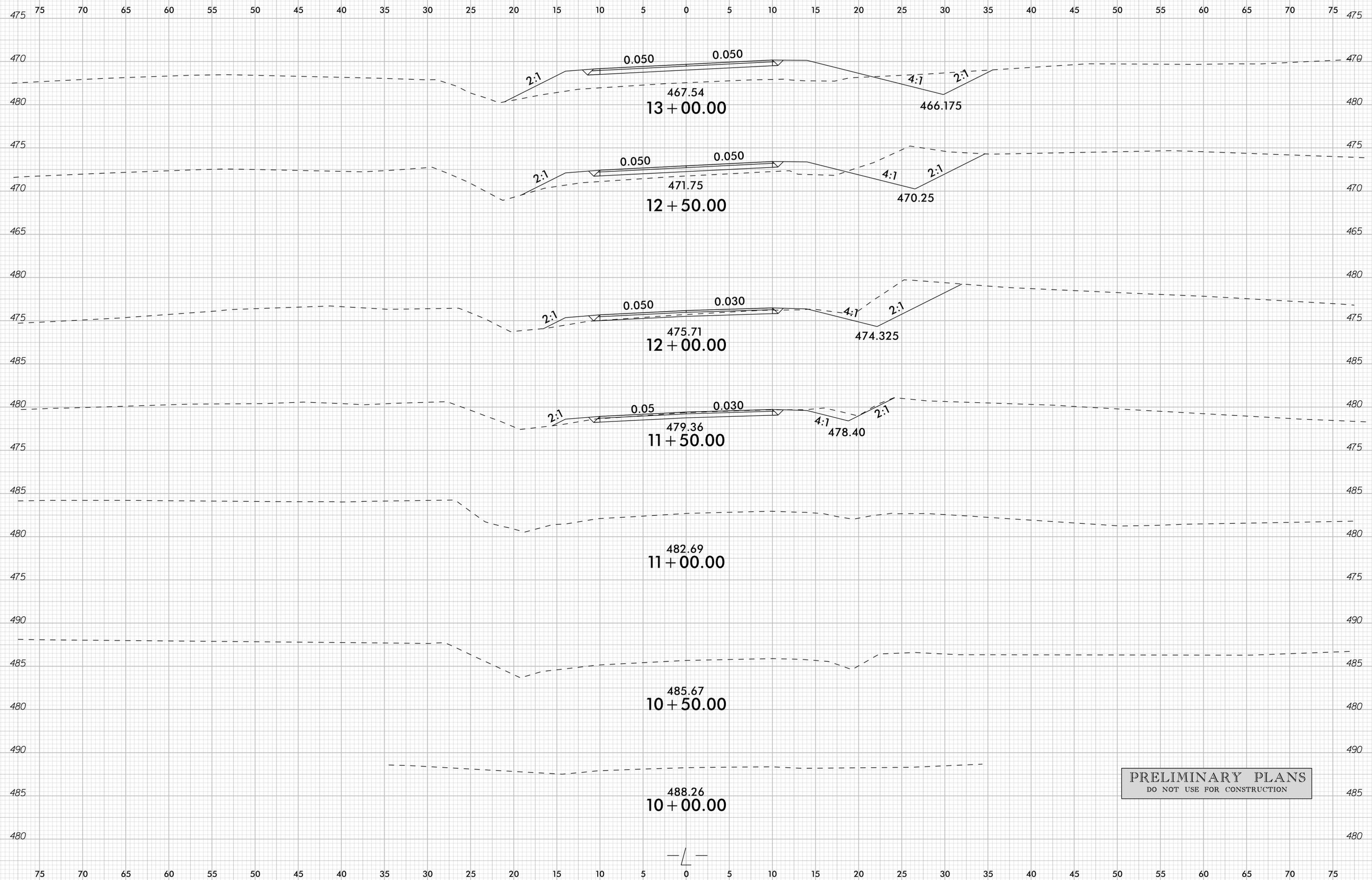
BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 2000	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 445.4	FT
BASE DISCHARGE	= 2800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 446.51	FT
OVERTOPPING DISCHARGE	= 3700+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 453.5	FT
DATE OF SURVEY = 9/16/2014		
W.S. ELEVATION AT DATE OF SURVEY = 435.9 FT		

FOR -L- PLAN SEE SHEET 4

SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

3/21/2015
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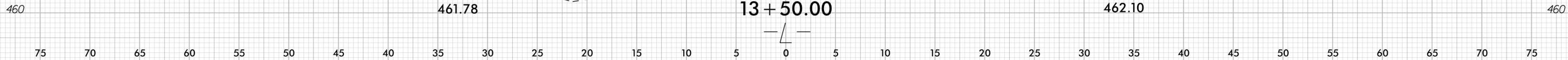
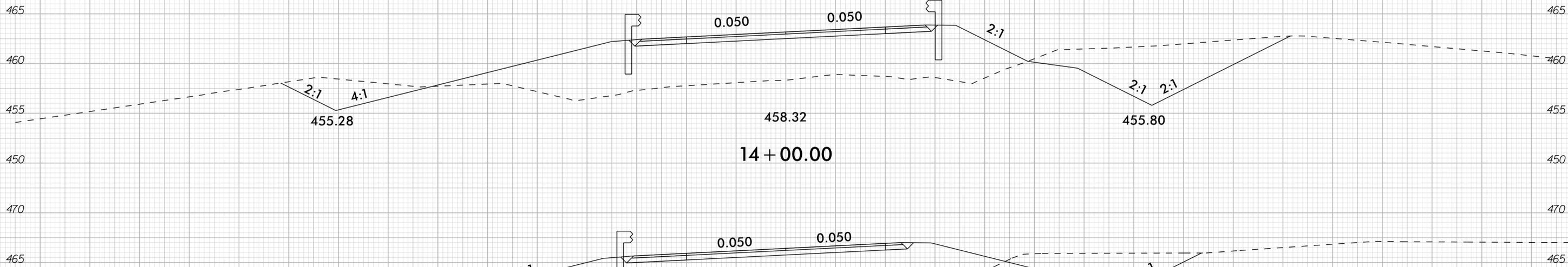
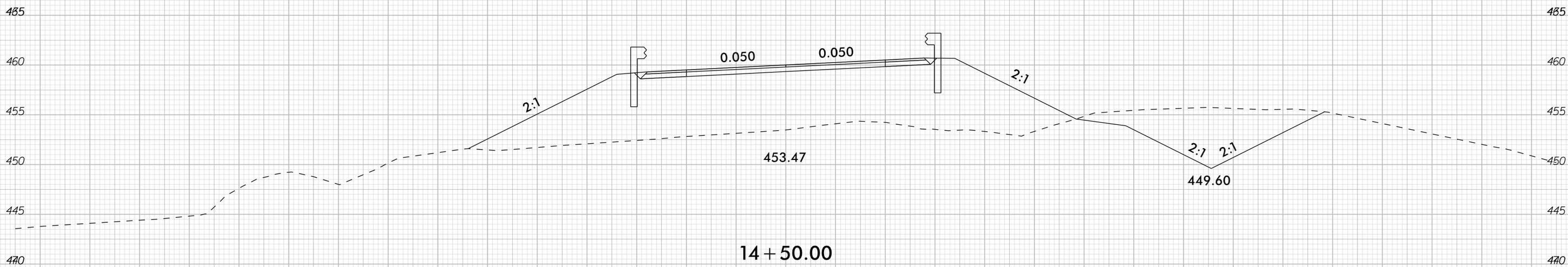
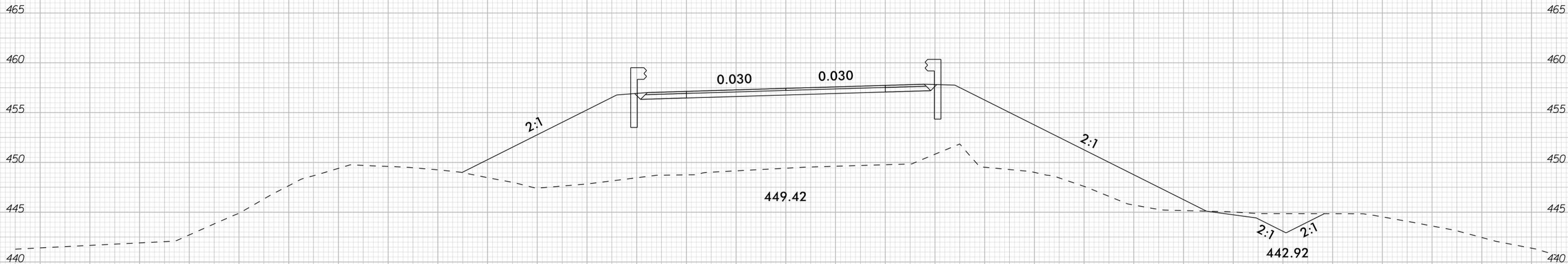




PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

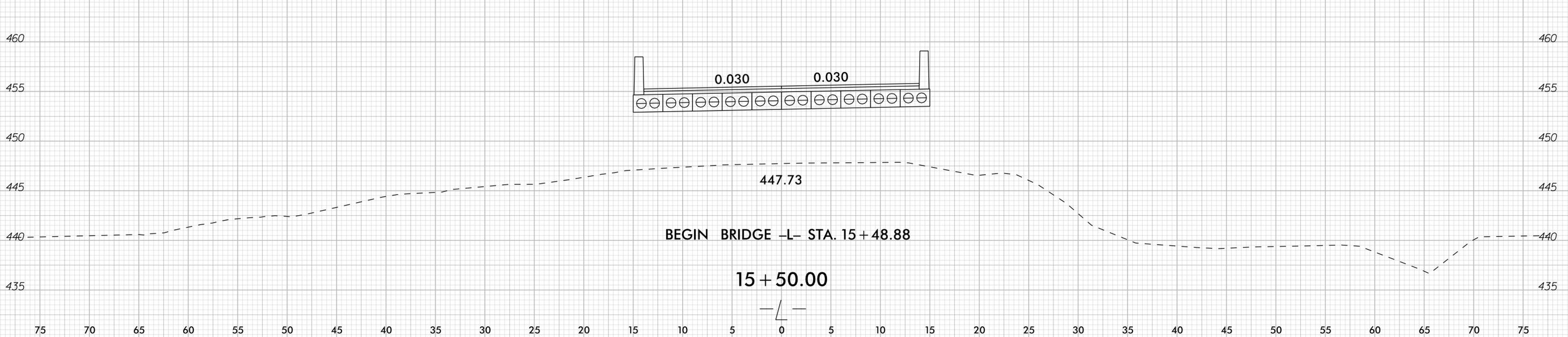
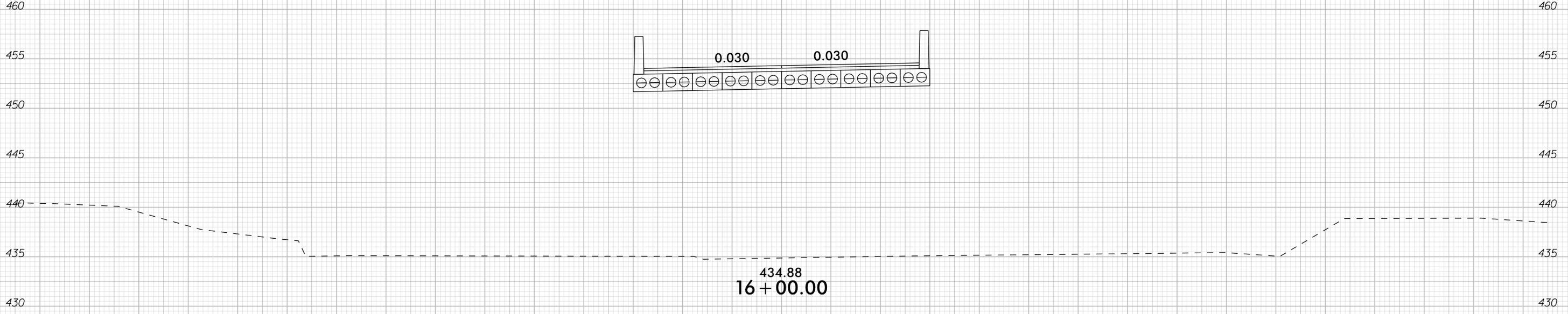
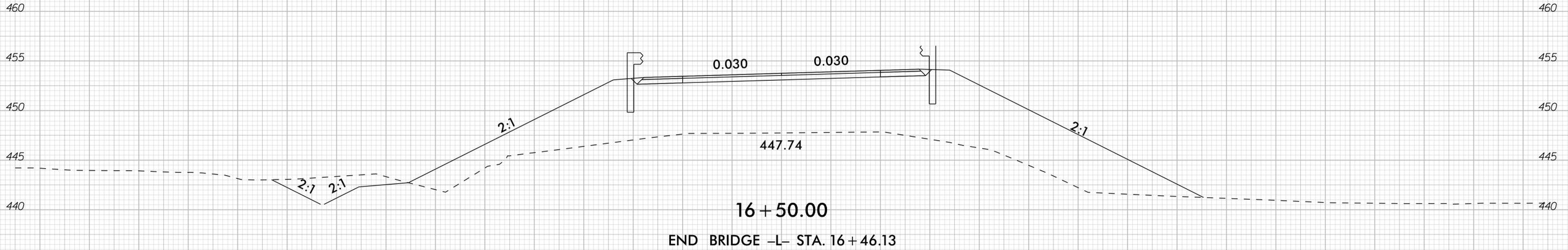


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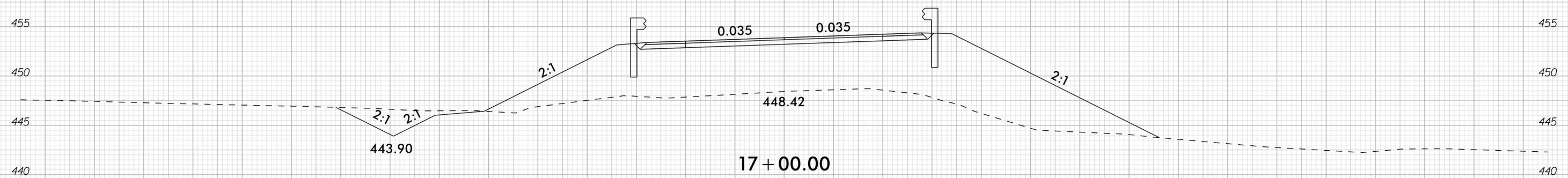
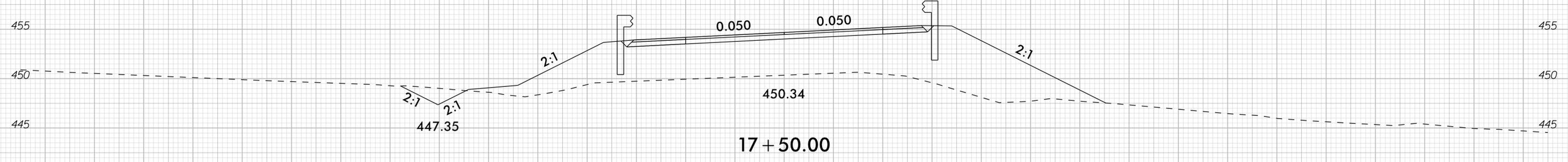
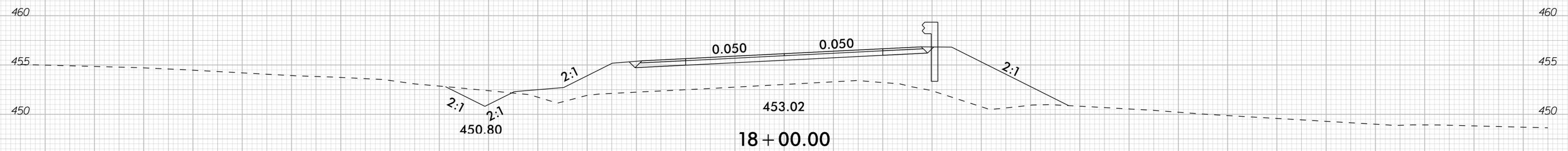
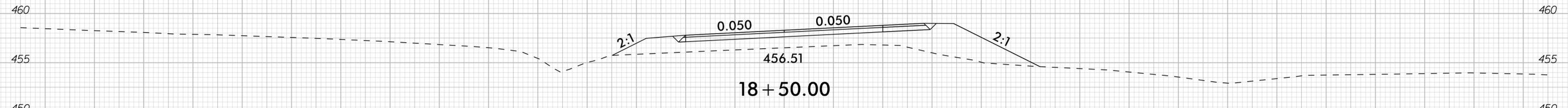
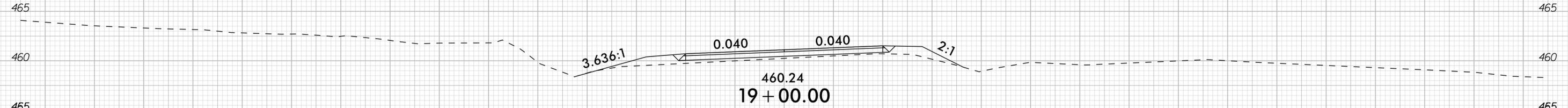
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75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



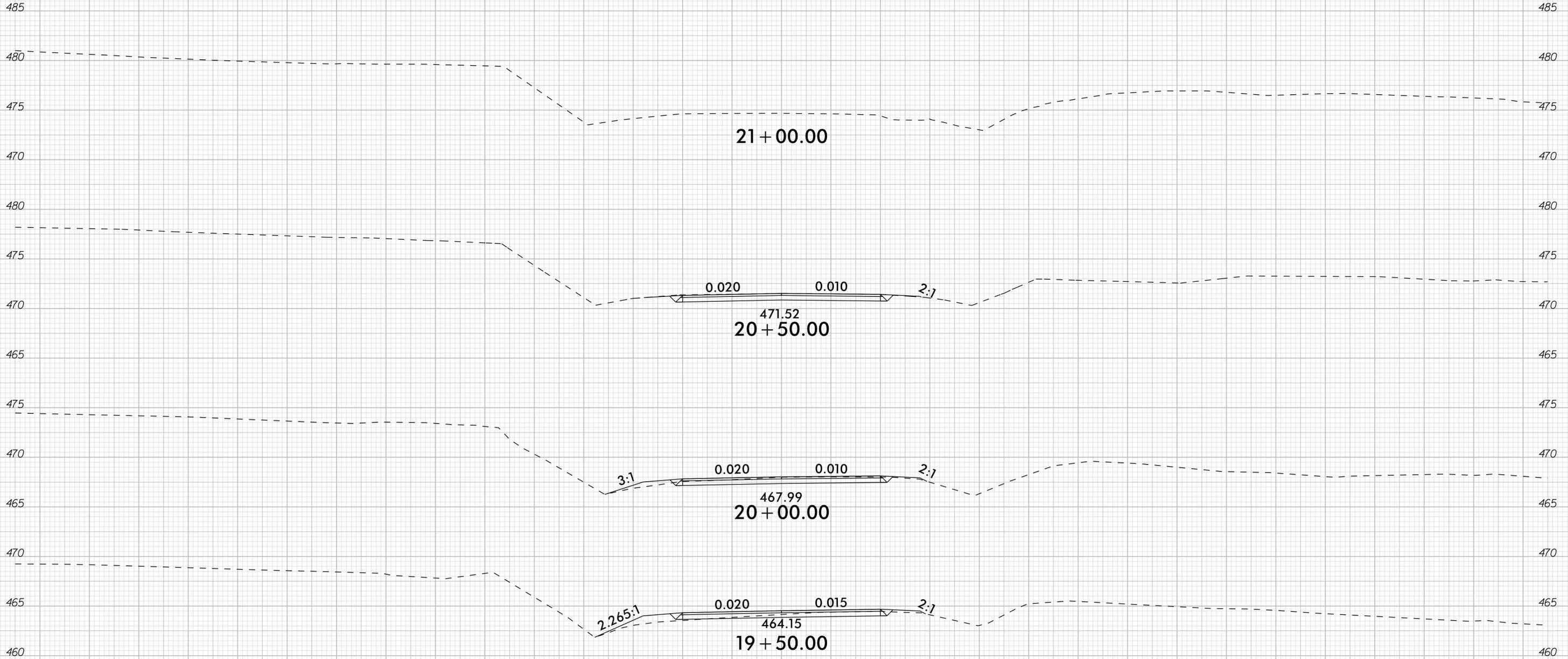
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75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



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



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