



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

November 7, 2012

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

ATTN: Ms. Loretta Beckwith
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 13, 23 and 33** for the proposed replacement of Bridge No. 45 over Devil's Fork Creek on SR 1525 (Dana Road) in Henderson County, Federal Aid Project No. BRSTP-1525(8), Division 14, TIP No. B-4547, Debit \$240 from WBS 38407.1.1.

Dear Madam:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 45 over Devil's Fork Creek on SR 1525 with a double barrel 9'x9' reinforced concrete box culvert (RCBC), 45'6" in length on the existing alignment. Traffic will be detoured on-site during construction. There will be 65 linear feet of permanent impacts, 60 linear feet of bank stabilization and 0.03 acre (136 linear feet) of temporary stream impacts due to the installation of the RCBC, construction of floodplain benches and the temporary pipe for the onsite detour.

Please see enclosed copies of the Pre-Construction Notification (PCN), EEP acceptance letter, stormwater management plan, permit drawings and design plans for the above-referenced project. The Categorical Exclusion (CE) was completed in March 2012 and distributed shortly thereafter. Additional copies are available upon request.

This project is located in a trout county, therefore comments from the NCWRC will be required prior to authorization by the Corps of Engineers. By copy of this letter and

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6100
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

LOCATION:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610-4328

attachment, NCDOT hereby requests NCWRC Review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers and the NCDOT within 30 calendar days of receipt of this application.

This project calls for a letting date of May 21, 2013 and a review date of April 2, 2013; however, the let date may advance as additional funding becomes available.

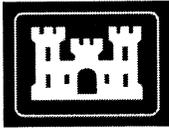
A copy of this permit application and its distribution list will be posted on the NCDOT Website at: <http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html>. If you have any questions or need additional information, please call Erin Cheely at (919) 707-6108.

Sincerely,

A handwritten signature in black ink, appearing to read "Gregory J. Thorpe". The signature is written in a cursive style with a horizontal line at the end.

Gregory J. Thorpe, Ph.D., 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 1.3 Dec 10 2008

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	<input checked="" type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 13 23 33 or General Permit (GP) number:		
1c. Has the NWP or GP number been verified by the Corps?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1d. Type(s) of approval sought from the DWQ (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 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 45 over Devil's Fork Creek on SR 1525
2b. County:	Henderson
2c. Nearest municipality / town:	Hendersonville
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no.:	B-4547

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) 707-6108
3g. Fax no.:	(919) 212-5785
3h. Email address:	ekcheely@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: 35.32784 (DD.DDDDDD) Longitude: - 82.39215 (-DD.DDDDDD)
1c. Property size:	4.4 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Devil's Fork Creek
2b. Water Quality Classification of nearest receiving water:	C
2c. River basin:	French Broad
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: The land use within the vicinity of the project consists of about 20% forest land (including mixed hardwood forests), 30% developed or disturbed lands (roadsides and residential areas) and 50% cultivated land (agricultural fields and pastures).	
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: 170	
3d. Explain the purpose of the proposed project: The purpose of this project is to replace a structurally deficient (sufficiency rating of 30.3 of 100) and functionally obsolete (deck geometry appraisal of 2 out of 9) bridge.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 47-foot three-span bridge with a 45'6" long, 2 @ 9'x9' reinforced concrete box culvert (RCBC) on the existing alignment with a temporary on-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: Rapanos and JD packet sent 1/29/08. NCDOT is requesting a final JD with this permit.	<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): Erin Cheely	Agency/Consultant Company: NCDOT Other: USACE desired to issue JD w/permit instead
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 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 (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)	
Site 1 <input type="checkbox"/> P <input type="checkbox"/> T			<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			<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			<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			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
2g. Total wetland impacts					0 Permanent 0 Temporary	
2h. Comments: No wetlands within construction limits						
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 type="checkbox"/> T	Culvert (RCBC)	Devil's Fork Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	11	65
Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Bank Stabilization	Devil's Fork Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	11	60
Site 3 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	On-site detour pipe/RCBC install	Devil's Fork Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	11	136 (0.03 ac)
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						125 Perm 136 Temp
3i. Comments: Replace bridge with 2@9'x9' RCBC. Permanent impacts resulting from new RCBC itself and floodplain bench construction at outlet (primarily) & inlet. Bank stabilization at the inlet (primarily) and outlet as well (some overlap with floodplain bench construction). Temporary impacts are at inlet & outlet of proposed RCBC associated with its installation. Temporary impacts also result from the proposed temporary onsite detour pipe downstream of the main crossing.						

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						0 Permanent 0 Temporary		
4g. Comments: No open water within construction limits.								
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.

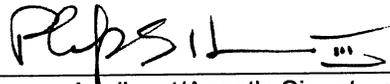
6a. Project is in which protected basin?			<input type="checkbox"/> Neuse <input type="checkbox"/> Catawba	<input type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Randleman	<input type="checkbox"/> Other:
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
B2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
B3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
6h. Total buffer impacts					
6i. Comments: This project is not located within a protected buffer area.					

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 double-barrel reinforced concrete box culvert (RCBC) will be located on the same alignment as the existing bridge. A floodplain bench on the inlet and outlet ends of the RCBC will direct the stream through the baseflow cell, with the remaining overflow cell being utilized for high-water events. The overflow cell will have a 2' sill at each end, and the baseflow cell will have a 1' sill at each end. Due to the high volume of traffic on SR 1525, a temporary onsite detour will be utilized with a temporary 112"x75" corrugated steel pipe arch (CSPA) that will be removed upon completion of construction.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. During the construction of the baseflow cell, the stream will be temporary piped around (dewatered) to protect the flow during culvert construction from live concrete. The temporary CSPA will be removed as soon as construction is completed. and is only estimated to be required for 5 months (with an estimated total construction timeframe of 7 months).		
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:	65 linear feet	
4c. If using stream mitigation, stream temperature:	<input type="checkbox"/> warm <input checked="" 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: The NCDOT does not propose mitigation for the 60 linear feet of stream bank stabilization activities. Stabilizing the bank of a stream does not require fill in the stream bed and, therefore, under Section 404 of the Clean Water Act, does not constitute Loss of Waters of the U.S. and is not subject to compensatory mitigation. Furthermore, the proposed bank stabilization activities are necessary to prevent erosion and sedimentation, i.e. preventing bank destabilization and minimizing impacts to the environment.		
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?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: If required from 1a, see attached buffer permit drawings.	<input 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: Categorical Exclusion (CE) approved 3/6/12	<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 type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input 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? Of the eight federally listed species for Henderson County, only one species, small whorled pogonia, has potential habitat located within the construction limits of this project. The project area was surveyed by NCDOT biologists in 2007 and 2012 for small whorled pogonia, and no individuals of this species were found. This project will have no effect on any Federally Threatened or Endangered species listed for Henderson County.		
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		
 <u>Dr. Gregory J. Thorpe, Ph D</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.)	11/07/2012 _____ Date



October 11, 2012

Mr. Gregory J. Thorpe, Ph.D.
Manager, Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-4547, Replace Bridge Number 45 on SR 1525 (Dana Road) over Devil's Fork Creek,
Henderson County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on October 8, 2012, the impacts are located in CU 06010105 of the French Broad River basin in the Southern Mountains (SM) Eco-Region, and are as follows:

French Broad 06010105 SM	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non- Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	65	0	0	0	0	0	0

EEP 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' Ecosystem Enhancement Program 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 EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

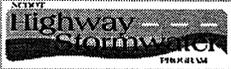
Sincerely,

Suzanne Klimek
EEP Acting Director

cc: Ms. Lori Beckwith, USACE – Asheville Regulatory Field Office
Ms. Amy Chapman, Division of Water Quality, Wetlands/401 Unit
File: B-4547

Restoring... Enhancing... Protecting Our State





North Carolina Department of Transportation
 Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR LINEAR ROADWAY PROJECTS



(Version 1.2; Released September 2011)

Project/TIP No.: 38407.1.1 **County(ies):** Henderson **Page** 1 **of** 2

General Project Information

Project No.:		38407.1.1		Project Type: Bridge Replacement		Date: 6/14/2012	
NCDOT Contact:				Contractor / Designer:			
Address:		1020 Birchridge Drive Raleigh, N.C. 27610		Address:			
Phone:		919-707-6700		Phone:			
Email:				Email:			
City/Town:		Dana		County(ies):		Henderson	
River Basin(s):		French Broad		CAMA County?		No	
Primary Receiving Water:		Devils Fork Creek		NCDWQ Stream Index No.:		6-55-8-2b	
NCDWQ Surface Water Classification for Primary Receiving Water			Primary:		Class C		
			Supplemental:				
Other Stream Classification:		None					
303(d) Impairments:		None					
Buffer Rules in Effect		N/A					

Project Description

Project Length (lin. Miles or feet):		0.208 miles		Surrounding Land Use:		Farming, Yards, Woods	
				Proposed Project		Existing Site	
Project Built-Upon Area (ac.)		0.31 ac.		0.23 ac.			
Typical Cross Section Description:							
Average Daily Traffic (veh/hr/day):		Design/Future: 9400		Existing:		5400	

General Project Narrative: Replacing Bridge #45 over Devils Fork Creek on SR 1525 with a 2@ 9' x 9' RCBC with sills in the Inlet and Outlet.

References

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
	20+25 -L-	2@ 9' x 9' RCBC						0.01	0.03	65	136	
		Bank Stabilization								60		
TOTALS:								0.01	0.03	125	136	

Permit Drawing
 Sheet 1 of 7

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 HENDERSON COUNTY
 WBS -38407.1.1 (B-4547)

 SHEET 7/12/2012

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
2 - 3	DEANNA B. MARION	227 DELOACH ST. MEMPHIS, TN 38111
4	MARTHA G. WARD	1432 DANA RD. HENDERSONVILLE, N.C. 28792
5	GEORGE C. JACKSON	ALLIANCE CHURCH RD. PLEASANT GARDEN, N.C. 27313

Permit Drawing
Sheet 2 of 7

NCDOT

DIVISION OF HIGHWAYS

HENDERSON COUNTY

PROJECT: 38407.1.1 (B-4547)

**REPLACE BRG[#]45 OVER DEVILS FORK
CREEK ON SR 1525 (DANA RD)**

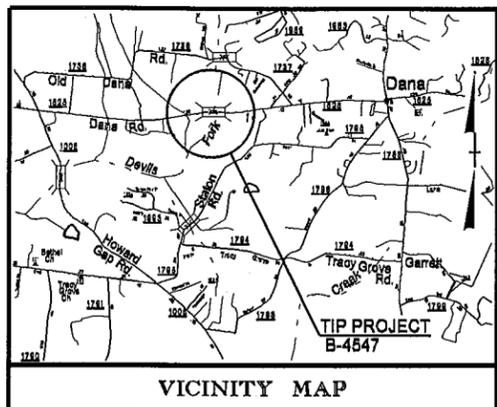
SHEET

OF

07 / 12 / 12

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4547	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38407.1.1	BRSTP-1525(8)	PE	
38407.2.1	BRSTP-1525(8)	RW & UTIL	



HENDERSON COUNTY

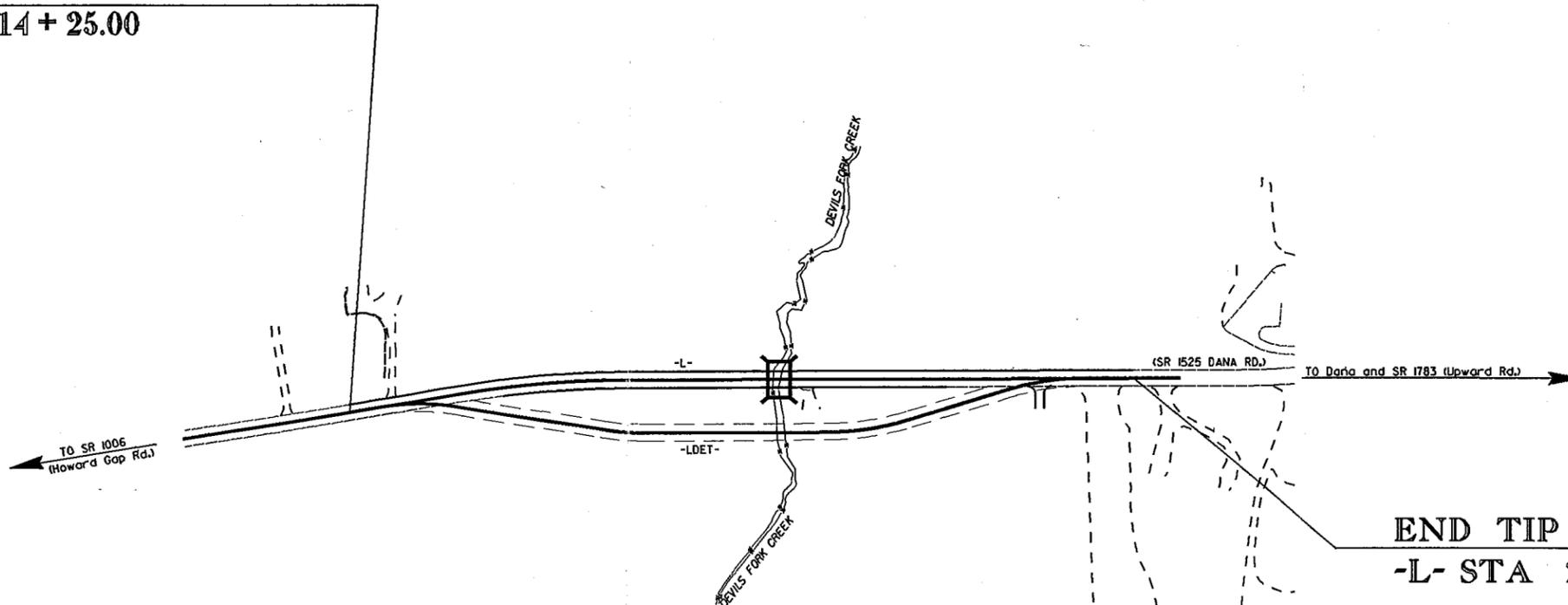
LOCATION: BRIDGE NO. 45 OVER DEVILS FORK CREEK
ON SR 1525 (DANA RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND CULVERT



TIP PROJECT: B-4547

BEGIN TIP PROJECT B-4547
-L- STA 14 + 25.00



END TIP PROJECT B-4547
-L- STA 25 + 25.00

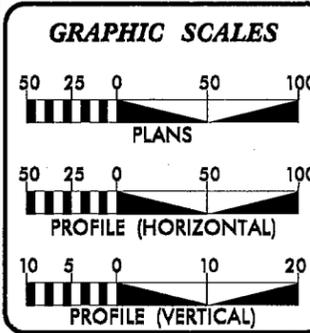
WETLAND AND STREAM IMPACTS

** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE K FACTOR AND NIGHTTIME SSD
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

Permit Drawing
Sheet 3 of 7

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:



DESIGN DATA

ADT 2012 =	5400
ADT 2032 =	9400
DHV =	12 %
D =	60 %
T =	4 % *
V =	50 MPH
* TTST 1% DUAL 3%	
FUNC. CLASS =	MINOR COLLECTOR
SUB REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4547 =	0.208 MILES
TOTAL LENGTH TIP PROJECT B-4547 =	0.208 MILES

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

2006 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	JAMES A. SPEER, PE PROJECT ENGINEER
LETTING DATE:	ALLISON K. WHITE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

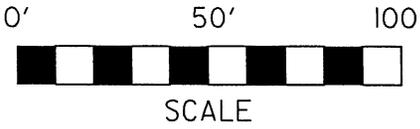
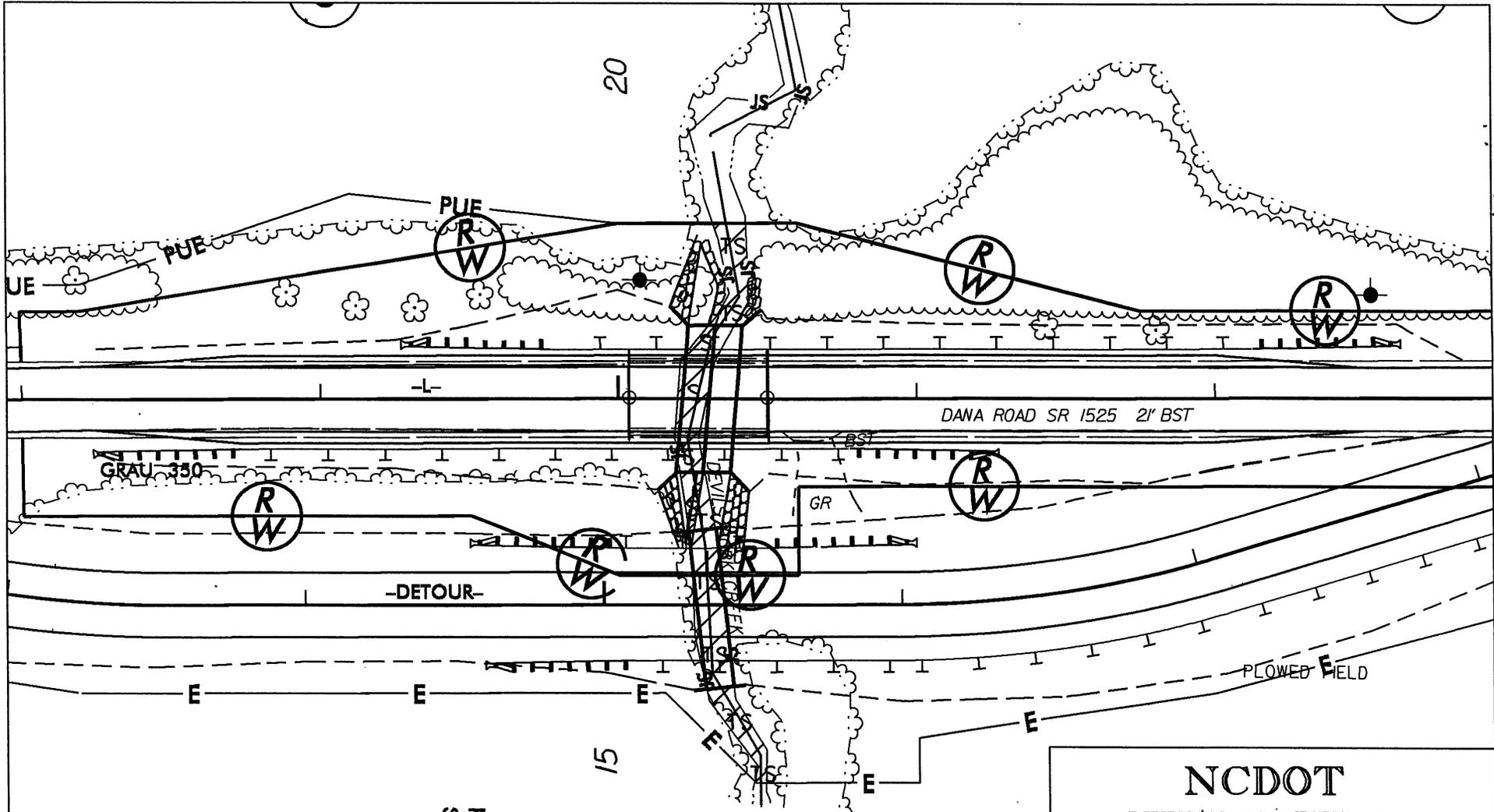
ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

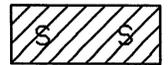
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

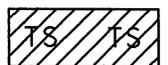
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Permit Drawing
 Sheet 5 of 7



DENOTES IMPACTS IN SURFACE WATER

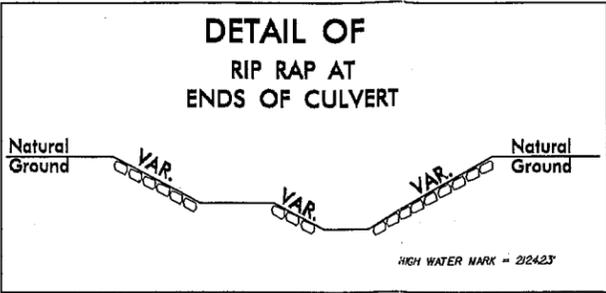


DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NCDOT
 DIVISION OF HIGHWAYS
 HENDERSON COUNTY
 PROJECT: 38407.1.1 (B-4547)
REPLACE BRG#45 OVER DEVILS FORK CREEK ON SR 1525 (DANA RD.)
 SHEET OF 05 / 30 / 12

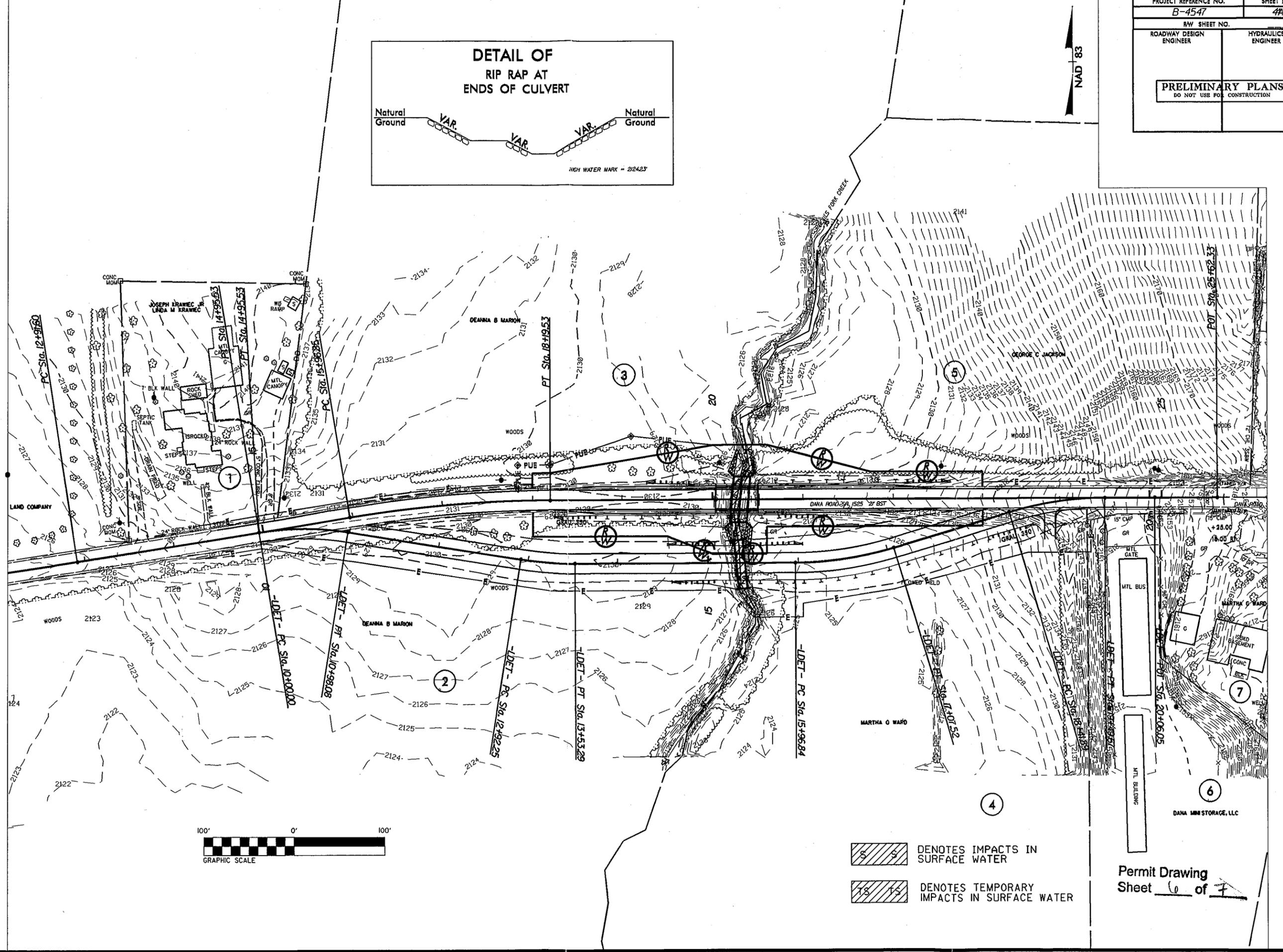
PROJECT REFERENCE NO. B-4547	SHEET NO. 4A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

NAD 83



REVISIONS
 ROW REVISION - MS 7-12-2012 UPDATED PROPERTY OWNER NAMES ON PARCELS 4, 6 AND 7 AND UPDATED EXISTING ROW OFFSET TIES.

8/17/99



Permit Drawing
Sheet 6 of 7

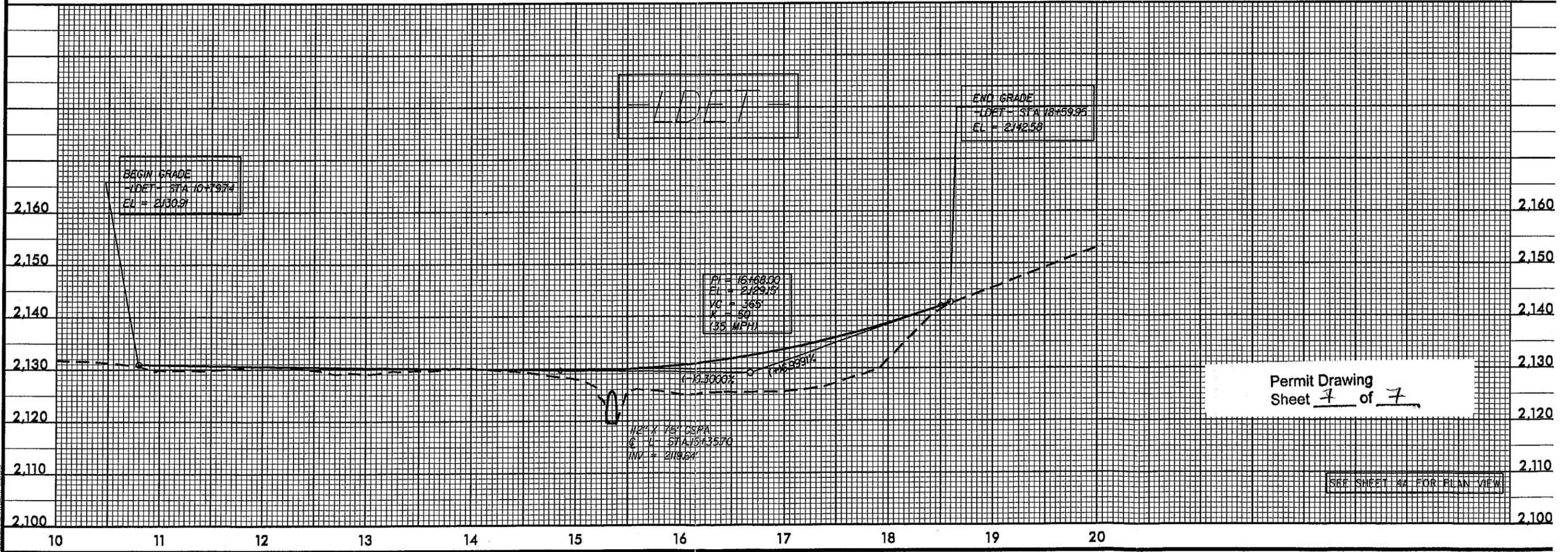
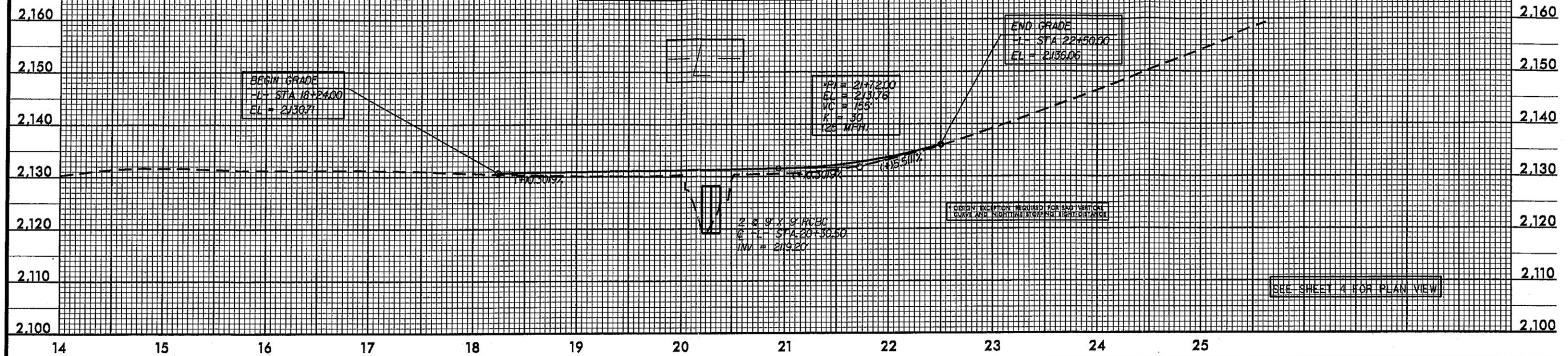
5/28/99

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 120	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2127.8	FT
BASE DISCHARGE	= 400	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2129.2	FT
OVERTOPPING DISCHARGE	= 1500	CFS
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING ELEVATION	= 2130.71	FT

BM1: 8 INCH SPIKE SET IN
A 30 INCH WHITE PINE
4593 FT OF FL
STA 16+79.03 EL 2131.70

BM2: 8 INCH SPIKE SET IN
A 24 INCH POPLAR TREE
2186 FT OF FL
STA 21+43.87 EL 2129.99

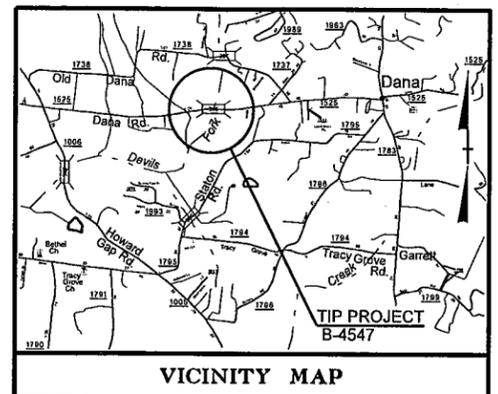


Permit Drawing
Sheet 7 of 7

SYSTIME/CAD/COPY

09/28/99

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

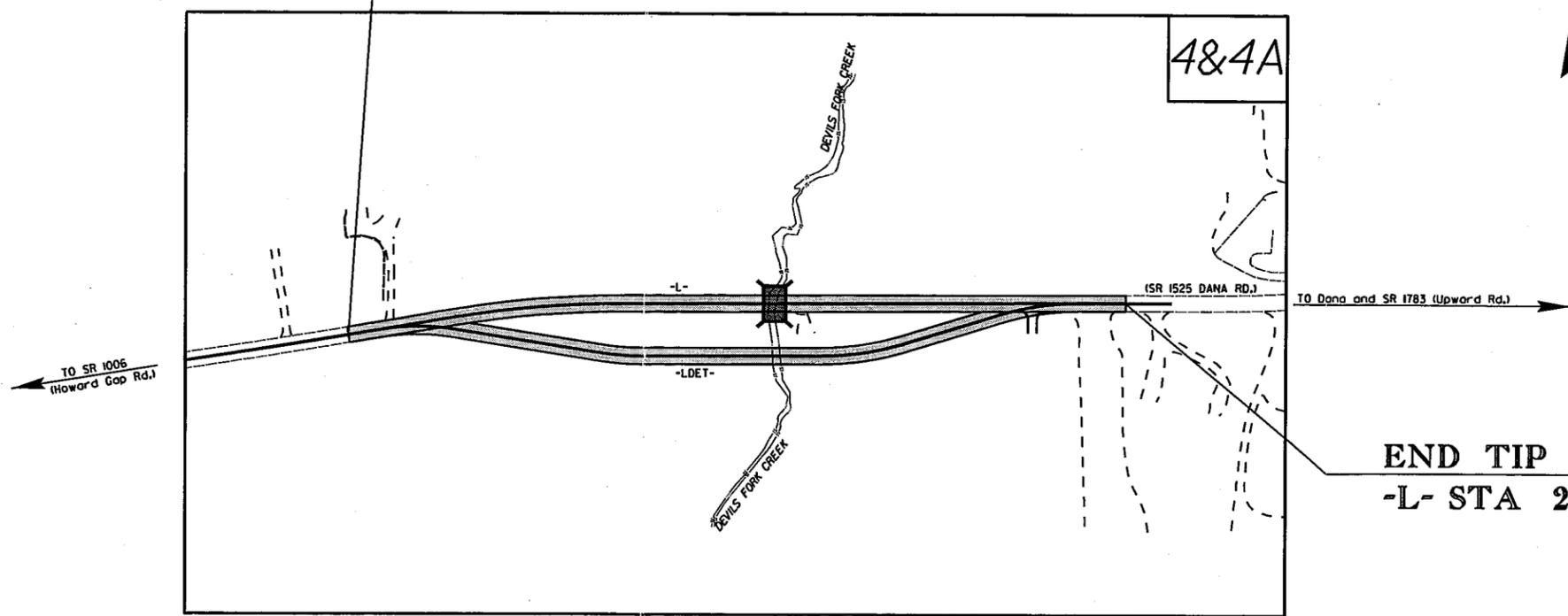
LOCATION: BRIDGE NO. 45 OVER DEVILS FORK CREEK
ON SR 1525 (DANA RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND CULVERT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4547	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
38407.1.1	BRSTP-1525(8)	PE	
38407.2.1	BRSTP-1525(8)	RAW & UTIL	

TIP PROJECT: B-4547

BEGIN TIP PROJECT B-4547
-L- STA 14 + 25.00

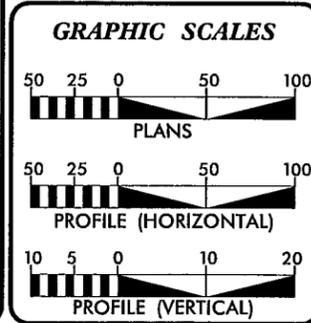


END TIP PROJECT B-4547
-L- STA 25 + 25.00

** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE K FACTOR AND NIGHTTIME SSD
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:



DESIGN DATA

ADT 2012 =	5400
ADT 2032 =	9400
DHV =	12 %
D =	60 %
T =	4 % *
V =	50 MPH
* TTST 1% DUAL 3%	
FUNC. CLASS =	MINOR COLLECTOR SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4547 =	0.208 MILES
TOTAL LENGTH TIP PROJECT B-4547 =	0.208 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: March 28, 2012	JAMES A. SPEER, PE PROJECT ENGINEER
LETTING DATE: May 21, 2013	ALLISON K. WHITE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

29-MAR-2012 07:44
C:\WORK\PROJECTS\B-4547_rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

04/16/11

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-4547
SHEET NO. 1-B

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Property Corner	-----
Property Monument	□
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-----
Proposed Wetland Boundary	-----
Existing Endangered Animal Boundary	-----
Existing Endangered Plant Boundary	-----
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	-----
Buffer Zone 1	-----
Buffer Zone 2	-----
Flow Arrow	←
Disappearing Stream	-----
Spring	○
Wetland	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◇
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----
Proposed Permanent Easement with Iron Pin and Cap Marker	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	○
Pavement Removal	-----

VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	-----
Woods Line	-----

Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	-----
H-Frame Pole	-----
Recorded U/G Power Line	-----
Designated U/G Power Line (S.U.E.*)	-----

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	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

WATER:

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

TV:

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

GAS:

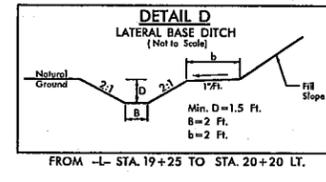
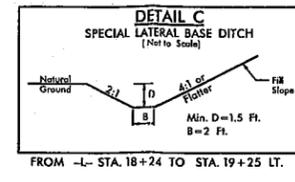
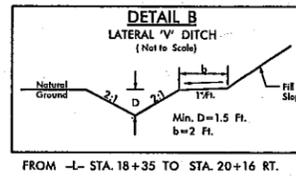
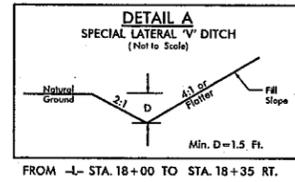
Gas Valve	◇
Gas Meter	⊗
Recorded U/G Gas Line	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----

SANITARY SEWER:

Sanitary Sewer Manhole	-----
Sanitary Sewer Cleanout	-----
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
Recorded SS Forced Main Line	-----
Designated SS Forced Main Line (S.U.E.*)	-----

MISCELLANEOUS:

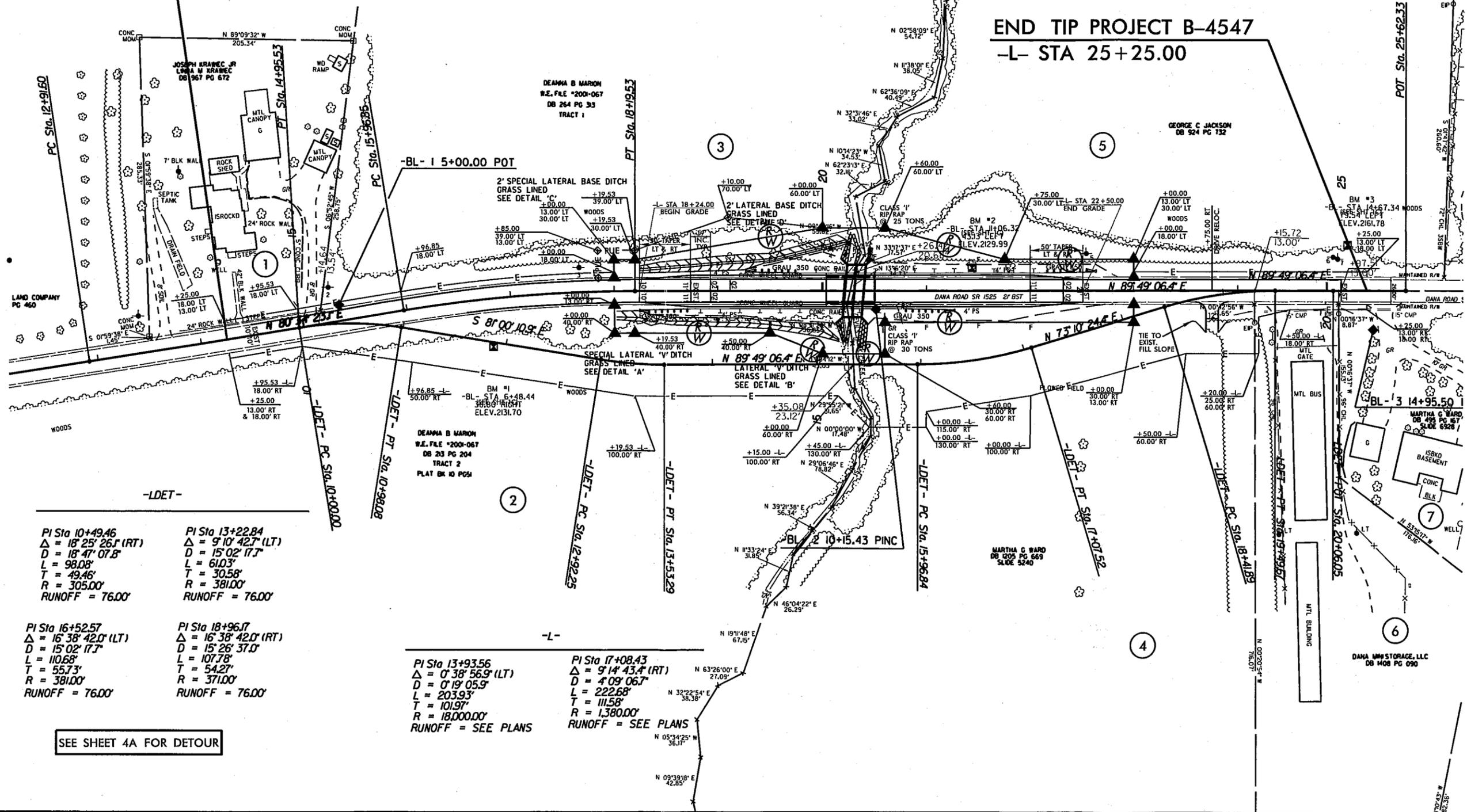
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊗
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊗
U/G Test Hole (S.U.E.*)	⊗
Abandoned According to Utility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



SEE SHEET 5 FOR PROFILE

BEGIN TIP PROJECT B-4547
-L- STA 14+25.00

END TIP PROJECT B-4547
-L- STA 25+25.00



PI Sta 10+49.46
 $\Delta = 18' 25' 26.1$ (RT)
 $D = 18' 47' 07.8$
 $L = 98.08'$
 $T = 49.46'$
 $R = 305.00'$
 RUNOFF = 76.00'

PI Sta 13+22.84
 $\Delta = 9' 10' 42.7$ (LT)
 $D = 15' 02' 17.7$
 $L = 61.03'$
 $T = 30.58'$
 $R = 381.00'$
 RUNOFF = 76.00'

PI Sta 16+52.57
 $\Delta = 16' 38' 42.0$ (LT)
 $D = 15' 02' 17.7$
 $L = 110.68'$
 $T = 55.73'$
 $R = 381.00'$
 RUNOFF = 76.00'

PI Sta 18+96.17
 $\Delta = 16' 38' 42.0$ (RT)
 $D = 15' 26' 37.0$
 $L = 107.78'$
 $T = 54.27'$
 $R = 371.00'$
 RUNOFF = 76.00'

PI Sta 13+93.56
 $\Delta = 0' 38' 56.9$ (LT)
 $D = 0' 19' 05.9$
 $L = 203.93'$
 $T = 101.97'$
 $R = 18,000.00'$
 RUNOFF = SEE PLANS

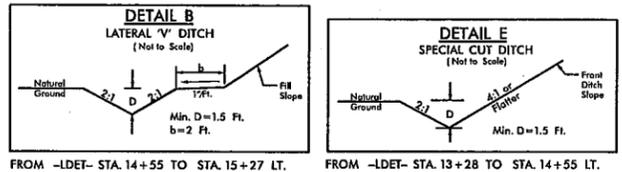
PI Sta 17+08.43
 $\Delta = 9' 14' 43.4$ (RT)
 $D = 4' 09' 06.7$
 $L = 222.68'$
 $T = 111.58'$
 $R = 1,380.00'$
 RUNOFF = SEE PLANS

SEE SHEET 4A FOR DETOUR

REVISIONS - MS 7-12-2012 UPDATED PROPERTY OWNER NAMES ON PARCELS 4, 6 AND 7 AND UPDATED EXISTING R/W OFFSET TIES.

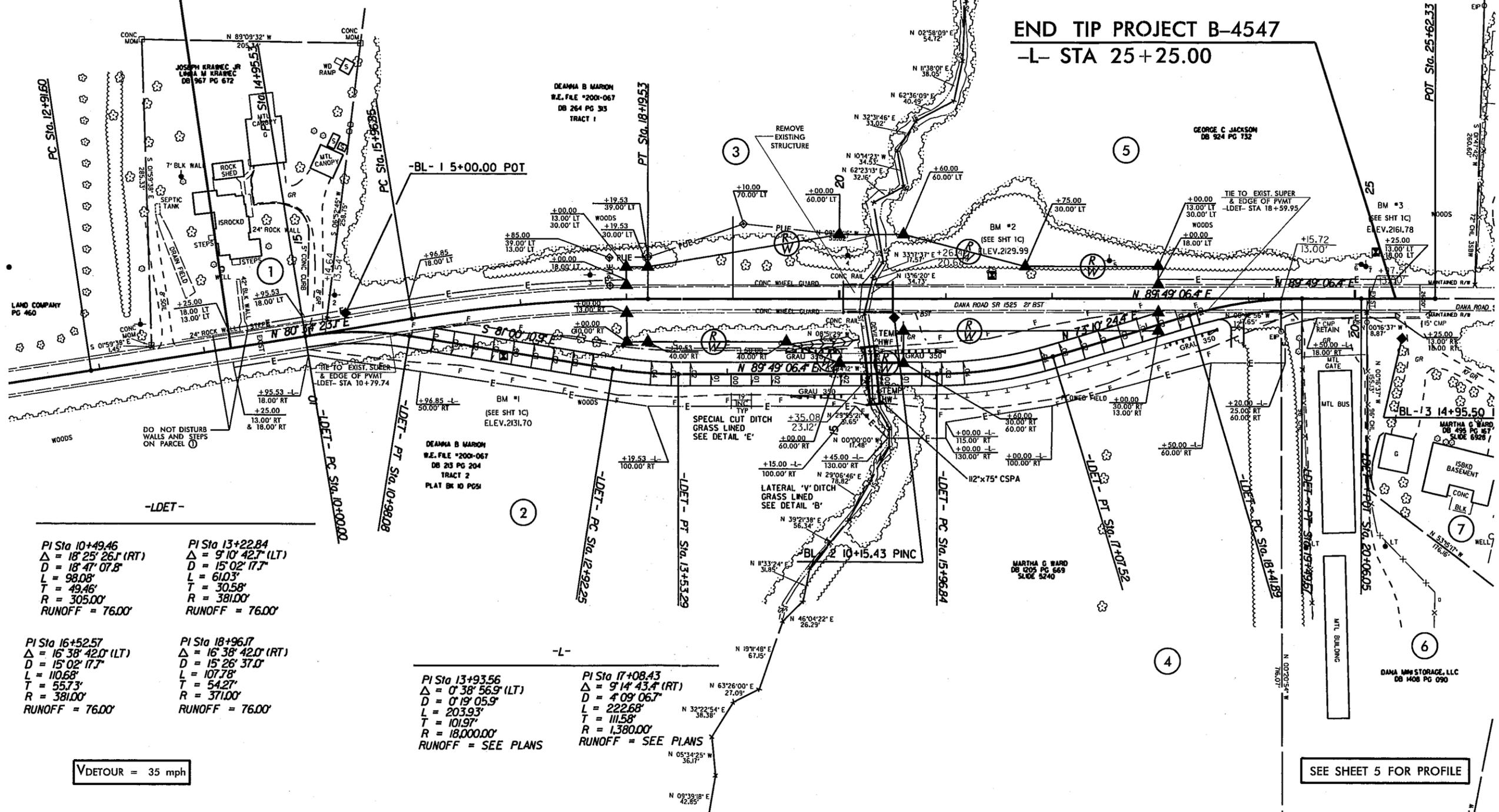
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BEGIN TIP PROJECT B-4547
-L- STA 14+25.00

END TIP PROJECT B-4547
-L- STA 25+25.00



PI Sta 10+49.46
Δ = 18° 25' 26.1" (RT)
D = 18' 47' 07.8"
L = 98.08'
T = 49.46'
R = 305.00'
RUNOFF = 76.00'

PI Sta 13+22.84
Δ = 9° 10' 42.7" (LT)
D = 15' 02' 17.7"
L = 61.03'
T = 30.58'
R = 381.00'
RUNOFF = 76.00'

PI Sta 16+52.57
Δ = 16° 38' 42.0" (LT)
D = 15' 02' 17.7"
L = 110.68'
T = 55.73'
R = 381.00'
RUNOFF = 76.00'

PI Sta 18+96.17
Δ = 16° 38' 42.0" (RT)
D = 15' 26' 37.0"
L = 107.78'
T = 54.27'
R = 371.00'
RUNOFF = 76.00'

PI Sta 13+93.56
Δ = 0° 38' 56.9" (LT)
D = 0' 19' 05.9"
L = 203.93'
T = 101.97'
R = 18,000.00'
RUNOFF = SEE PLANS

PI Sta 17+08.43
Δ = 9° 14' 43.4" (RT)
D = 4' 09' 06.7"
L = 222.68'
T = 111.58'
R = 1,380.00'
RUNOFF = SEE PLANS

VDETOUR = 35 mph

SEE SHEET 5 FOR PROFILE

REVISIONS
MS 7-12-2012 UPDATED PROPERTY OWNER NAMES ON PARCELS 4, 6 AND 7 AND UPDATED EXISTING RAW OFFSET TIES.

8/17/99

12-JUL-2012 09:59
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5/28/99

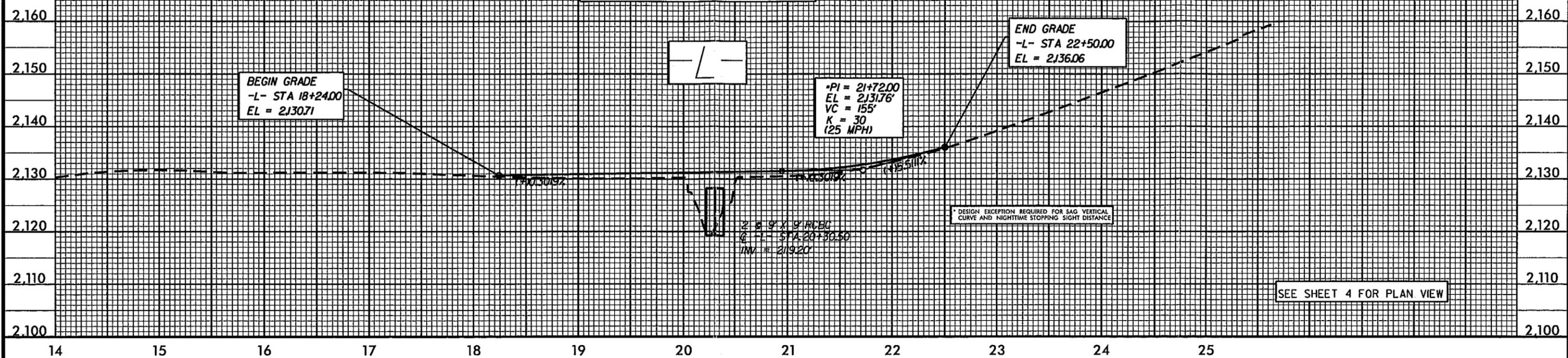
PROJECT REFERENCE NO. B-4547	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 720	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2127.8	FT
BASE DISCHARGE	= 1100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2129.2	FT
OVERTOPPING DISCHARGE	= 1500	CFS
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING ELEVATION	= 2130.71	FT

**BM1: 8 INCH SPIKE SET IN
A 30 INCH WHITE PINE
45.93' RT OF -L-
STA. 16+79.03 EL. 2131.70**

**BM2: 8 INCH SPIKE SET IN
A 24 INCH POPLAR TREE
21.86' LT OF -L-
STA. 21+43.87 EL. 2129.99**



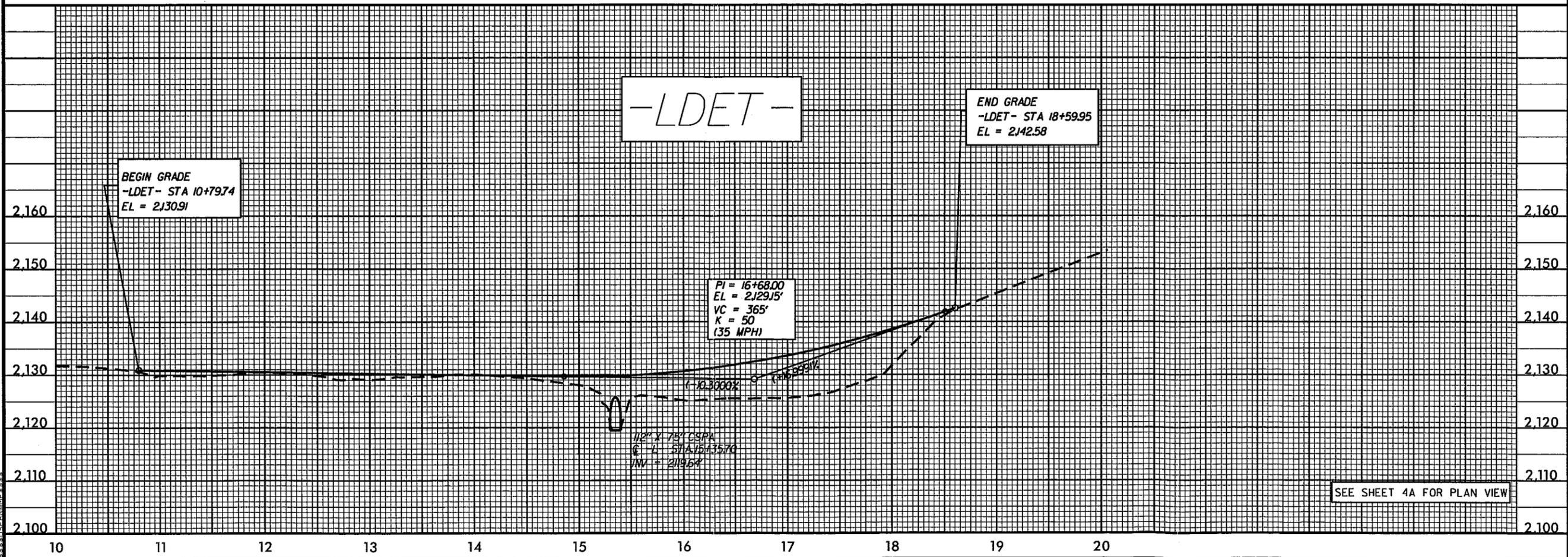
SEE SHEET 4 FOR PLAN VIEW

29-MAR-2002 07:45
R:\Roadway\pco\B-4547_r-dl-pl.dgn
\$\$\$\$USERNAM\$\$\$\$

-LDET-

**BEGIN GRADE
-LDET- STA 10+79.74
EL = 2130.91**

**END GRADE
-LDET- STA 18+59.95
EL = 2142.58**



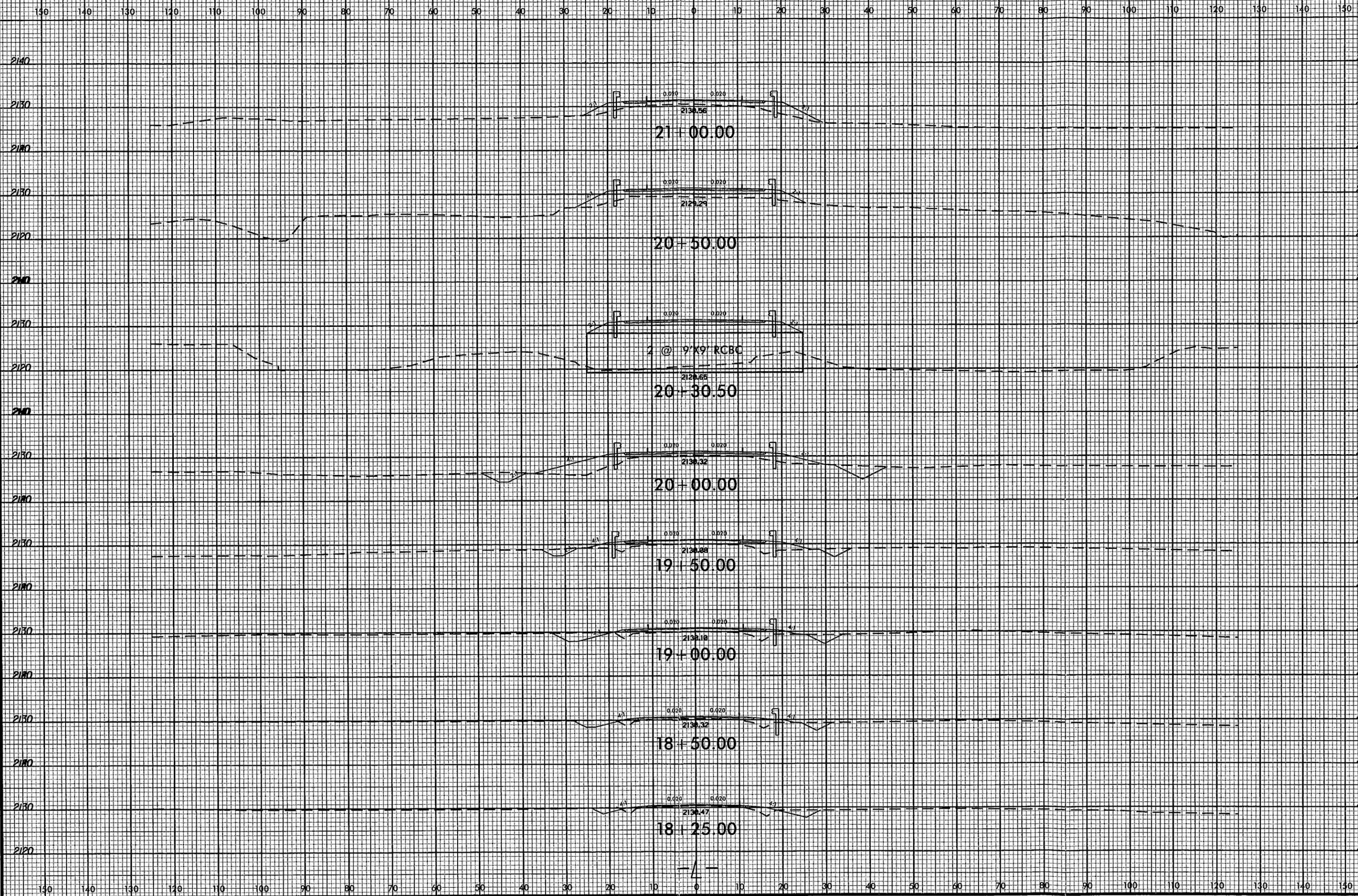
SEE SHEET 4A FOR PLAN VIEW

8/23/99



PROJ. REFERENCE NO.
B-4547

SHEET NO.
X-2



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