



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY  
GOVERNOR

ANTHONY J. TATA  
SECRETARY

July 21, 2015

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

ATTN: Ms. Crystal Amschler  
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 13, 23 and 33 and Section 401 Water Quality Certification** for the proposed replacement of Bridge No. 258 over South Fork Crooked Creek on SR 1008 (Indian Trail Road) in Union County, Federal Aid Project No. BRSTP-1008(23), Division 10, TIP No. B-5243, Debit \$570 from WBS 42845.1.1.

Dear Madam:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 258 over South Fork Crooked Creek with an 86.5' long, 12'x8' double-barrel reinforced concrete box culvert (RCBC) on the existing alignment. Traffic will be maintained during construction via an off-site detour.

As a result of the culvert placement and new roadway slopes, there will be 298 linear feet of permanent stream impacts, <0.01 acre of temporary stream impacts and 0.07 acre of permanent impacts to wetlands from fill and mechanized clearing. Additionally, there will be 10 linear feet of stream bank stabilization.

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

TELEPHONE: 919-707-6000  
FAX: 919-212-5785  
WEBSITE: [NCDOT.GOV](http://NCDOT.GOV)

**LOCATION:**  
CENTURY CENTER, BUILDING B  
1020 BIRCH RIDGE DRIVE  
RALEIGH NC 27610

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 Programmatic Categorical Exclusion (PCE) was completed in March 5, 2014 and distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of January 19, 2016 and a review date of December 1, 2015; however, the let date may advance as additional funding becomes available.

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

Sincerely,



*for* 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 1.3 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 <span style="margin-left: 100px;"><input type="checkbox"/> Non-404 Jurisdictional General Permit</span> <input type="checkbox"/> 401 Water Quality Certification – Express <span style="margin-left: 100px;"><input type="checkbox"/> Riparian Buffer Authorization</span>		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: <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 258 over South Fork Crooked Creek on SR 1008
2b. County:	Union
2c. Nearest municipality / town:	Indian Trail
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no.:	B-5243

#### 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

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

<b>B. Project Information and Prior Project History</b>	
<b>1. Property Identification</b>	
1a. Property identification no. (tax PIN or parcel ID):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 35.07102 (DD.DDDDDD) Longitude: - 80.67538 (-DD.DDDDDD)
1c. Property size:	1.3 acre
<b>2. Surface Waters</b>	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	South Fork Crooked Creek
2b. Water Quality Classification of nearest receiving water:	C
2c. River basin:	Yadkin-Pee Dee
<b>3. Project Description</b>	
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: The land use within the vicinity of the project consists of about 30% forest land, 60% developed or disturbed lands (roadsides and residential areas), and 10% cultivated land (agricultural fields and pastures).	
3b. List the total estimated acreage of all existing wetlands on the property: 0.16	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 769	
3d. Explain the purpose of the proposed project: The purpose of this project is to replace a structurally deficient (sufficiency rating of 6.13 of 100 and structural evaluation appraisal of 3 of 9) and functionally obsolete bridge (deck geometry rating 2 of 9).	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 30.15-foot single-span bridge with a double barrel 12'x8' reinforced concrete box culvert (RCBC) on the existing alignment. Traffic will be maintained via an off-site detour during construction. Standard road building equipment, such as trucks, dozers, and cranes will be used.	
<b>4. Jurisdictional Determinations</b>	
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments: JD package already submitted to USACE on February 2, 2015. JD visit was 6/24/15.	<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): Erin Cheely	Agency/Consultant Company: NCDOT Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. See 4a above. NCDOT is requesting PJD with permit.	
<b>5. Project History</b>	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
5b. If yes, explain in detail according to "help file" instructions.	
<b>6. Future Project Plans</b>	
6a. Is this a phased project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6b. If yes, explain.	

<b>C. Proposed Impacts Inventory</b>						
<b>1. Impacts Summary</b>						
1a. Which sections were completed below for your project (check all that apply):						
<input checked="" type="checkbox"/> Wetlands		<input checked="" type="checkbox"/> Streams - tributaries		<input type="checkbox"/> Buffers		
<input type="checkbox"/> Open Waters		<input type="checkbox"/> Pond Construction				
<b>2. Wetland Impacts</b>						
If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.						
2a. 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 checked="" type="checkbox"/> P <input type="checkbox"/> T	Fill	WB – Riverine Swamp Forest	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	0.02	
Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Mechanized Clearing	WB – Riverine Swamp Forest	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	0.02	
Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Fill	WC – Non-tidal Freshwater Marsh	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	0.03	
<b>2g. Total wetland impacts</b>					0.07 Permanent 0 Temporary	
2h. Comments:						
<b>3. Stream Impacts</b>						
If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.						
3a. 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	Fill & Pipe Extension (36" RCP)	SB – UT to SF Crooked Creek	<input type="checkbox"/> PER <input checked="" type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	3	46
Site 1 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	Adjacent to mechanized clearing	SB – UT to SF Crooked Creek	<input type="checkbox"/> PER <input checked="" type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	3	36 (<0.01 ac)
Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Pipe Extension (36" and 48" RCP)	SB – UT to SF Crooked Creek	<input type="checkbox"/> PER <input checked="" type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	3	98
Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Bank Stabilization	SB – UT to SF Crooked Creek	<input type="checkbox"/> PER <input checked="" type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	3	10
Site 2 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	Pipe Extension	SB – UT to SF Crooked Creek	<input type="checkbox"/> PER <input checked="" type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	3	11 (<0.01 ac)
Site 3 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	2 @ 12'x8' RCBC	South Fork Crooked Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	10	154
Site 3 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	Culvert Installation	South Fork Crooked Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	10	8 (<0.01 ac)
<b>3h. Total stream and tributary impacts</b>					308 Perm 55 Temp (<0.01 ac Temp)	
3i. Comments: Of the 308 total feet of permanent stream impact, 10 total feet are from bank stabilization. Therefore, stream mitigation required by the USACE = 298 linear feet, required by DWR = 308 linear feet. An open cut in South Fork Crooked Creek is required to relocate an 8" gravity sewer line near the inlet end of the proposed culvert, which will result in 12 linear feet (<0.01 acre) of stream impacts. However, this impact overlaps with the 154 linear feet of permanent impacts due to culvert installation at Site 3.						

**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				
<b>4f. Total open water impacts</b>				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								
<b>5f. Total</b>								

5g. Comments:

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

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

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

6a. Project is in which protected basin?		<input type="checkbox"/> Neuse <input type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Other: <input type="checkbox"/> Catawba <input type="checkbox"/> Randleman			
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
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		
<b>6h. Total buffer impacts</b>					
6i. Comments: This project is not located within a protected buffer area.					



<b>D. Impact Justification and Mitigation</b>		
<b>1. Avoidance and Minimization</b>		
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. The proposed culvert will be on the same alignment as the existing bridge. The proposed culvert will have sills at the inlet and outlet ends (low flow will have a 1' sill, other barrel will have a 4' sill). The inlet and outlet ends will be stabilized with a low flow floodplain bench using Class I Rip Rap to minimize erosion. Best Management Practices (BMPs) used on this project include rip rap at drainage pipe outfalls and grass lined ditches to minimize stormwater impacts.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. Traffic will be maintained via an off-site detour during construction. Best Management Practices (BMPs) will be utilized during construction to attempt to reduce the stormwater impacts to the receiving streams due to erosion and runoff. Erosion control devices, including a silt bag, will be utilized while maintaining channel flow through the construction sequence.		
<b>2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State</b>		
2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No * Total stream impacts requiring DWR mitigation = 308' * Total stream impacts requiring USACE mitigation = 298' (308' total permanent - 10' bank stabilization = 298') * Total wetland impacts requiring mitigation = 0.07 acre  The NCDOT is proposing to provide stream mitigation at a 1:1 ratio for the impacts to SB and a 2:1 ratio for the impacts to SF Crooked Creek based on conversations in the field with USACE on 6/24/15.  If no, explain:	
2b. If yes, mitigation is required by (check all that apply):	<input checked="" 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	
<b>3. Complete if Using a Mitigation Bank</b>		
3a. Name of Mitigation Bank: not applicable		
3b. Credits Purchased (attach receipt and letter)	Type	Quantity
3c. Comments:		
<b>4. Complete if Making a Payment to In-lieu Fee Program</b>		
4a. Approval letter from in-lieu fee program is attached.	<input checked="" type="checkbox"/> Yes	
4b. Stream mitigation requested:	308 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):	0 square feet	
4e. Riparian wetland mitigation requested:	0.07 acre	
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 55 linear feet (<0.1 acre) of temporary stream impacts. None of these impacts require permanent fill in the stream bed and, therefore, under Section 404 of the Clean Water Act, do not constitute Loss of Waters of the U.S. and are not subject to compensatory mitigation.

**5. Complete if Using a Permittee Responsible Mitigation Plan**

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

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

6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?  Yes  No

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


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

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

6h. Comments:

<b>E. Stormwater Management and Diffuse Flow Plan (required by DWQ)</b>	
<b>1. Diffuse Flow Plan</b>	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: If required from 1a, see attached buffer permit drawings.	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>2. Stormwater Management Plan</b>	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: 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
<b>3. Certified Local Government Stormwater Review</b>	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Phase II <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
<b>4. DWQ Stormwater Program Review</b>	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Coastal counties <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
<b>5. DWQ 401 Unit Stormwater Review</b>	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A
5b. Have all of the 401 Unit submittal requirements been met?	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A

<b>F. Supplementary Information</b>	
<b>1. Environmental Documentation (DWQ Requirement)</b>	
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.)  Comments: Programmatic Categorical Exclusion (PCE) approved 3/5/14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>2. Violations (DWQ Requirement)</b>	
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2b. Is this an after-the-fact permit application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):	
<b>3. Cumulative Impacts (DWQ Requirement)</b>	
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	<input type="checkbox"/> Yes <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.	
<b>4. Sewage Disposal (DWQ Requirement)</b>	
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.  not applicable	

<b>5. Endangered Species and Designated Critical Habitat (Corps Requirement)</b>		
5a. Will this project occur in or near an area with federally protected species or habitat?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input type="checkbox"/> Raleigh	<input type="checkbox"/> Asheville
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? As of March 25, 2015 there are three federally listed species for Union County. Of these three species, only Schweinitz's sunflower and Michaux's sumac have habitat present within the project area. Surveys for two these species were conducted by NCDOT biologists in September 2011 and October 2013. No individuals of either species were observed. No habitat exists within the project area for Carolina heelsplitter. This project will have no effect on any Federally Threatened or Endangered species listed for Union County.		
<b>6. Essential Fish Habitat (Corps Requirement)</b>		
6a. Will this project occur in or near an area designated as essential fish habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
<b>7. Historic or Prehistoric Cultural Resources (Corps Requirement)</b>		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
<b>8. Flood Zone Designation (Corps Requirement)</b>		
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.)	<u>7-21-2015</u> Date



North Carolina Department of Environment and Natural Resources

Pat McCrory  
Governor

Division of Mitigation Services

Donald R. van der Vaart  
Secretary

July 7, 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 27699-1548

Dear Mr. Hancock:

Subject: Mitigation Acceptance Letter:

**B-5243**, Replace Bridge 258 on SR 1008 over South Fork Crooked Creek, Union County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on July 2, 2015, the impacts are located in CU 03040105 of the Yadkin River basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Yadkin 03040105 SM	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non- Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	308.0	0.07	0	0	0	0

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

**This mitigation acceptance letter replaces the mitigation acceptance letter issued on June 18, 2015.** This impact and associated mitigation need were under projected by the NCDOT in the 2015 impact data. DMS will commit to implement sufficient compensatory mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

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

Sincerely,

James B. Stanfill  
Asset Management Supervisor

cc: Ms. Crystal Amschler, USACE – Asheville Regulatory Field Office  
Ms. Amy Chapman, NCDWR  
File: B-5243 Revised



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



(Version 2.01; Released December 2014)

**WBS Element:** 42845.1.1      **TIP No.:** B-5243      **County(ies):** Union      **Page** 1 **of** 2

**General Project Information**

<b>WBS Element:</b>	42845.1.1	<b>TIP Number:</b>	B-5243	<b>Project Type:</b>	Culvert	<b>Date:</b>	3/25/2015
<b>NCDOT Contact:</b>	William S. Zerman			<b>Contractor / Designer:</b>			
<b>Address:</b>	NC DOT Hydraulics Unit 1590 mail Service Center Raleigh, NC 27699			<b>Address:</b>			
<b>Phone:</b>	919-707-6755			<b>Phone:</b>			
<b>Email:</b>	bzerman@ncdot.gov			<b>Email:</b>			
<b>City/Town:</b>	Indian River		<b>County(ies):</b>	Union			
<b>River Basin(s):</b>	Yadkin-Pee Dee		<b>CAMA County?</b>	No			
<b>Wetlands within Project Limits?</b>	Yes						

**Project Description**

<b>Project Length (lin. miles or feet):</b>	0.187 mi	<b>Surrounding Land Use:</b>	Urban
	<b>Proposed Project</b>		<b>Existing Site</b>
<b>Project Built-Upon Area (ac.)</b>	1.3 ac.		1.1 ac.
<b>Typical Cross Section Description:</b>	Two 14 foot lanes with 2.5 feet curb and gutters and with a 12 foot paved median and 10 foot shoulders. Shoulders include 5 to 6 feet sidewalks.		Two 12 foot lanes with grass shoulders and 6 foot sidewalks
<b>Annual Avg Daily Traffic (veh/hr/day):</b>	<b>Design/Future:</b> 19,350	<b>Year:</b> 2036	<b>Existing:</b> 15,900 <b>Year:</b> 2016
<b>General Project Narrative: (Description of Minimization of Water Quality Impacts)</b>	<p>The purpose of this project is to replace the structurally deficient bridge on SR 1008 (Indian Trail Rd) and pedestrian bridge over South Fork Crooked Creek with a new culvert. The existing structures are a one span bridge 30.15 feet in length and a one span pedestrian walkway 43.6 feet in length. The replacement structure is a double barrel 12' x 8' RCBC embedded 1 foot below the streambed with a low flow channel. The replacement culvert will be 86.5 feet long.</p> <p>Best Management Practices (BMPs) and measures used on the project (which include rip rap placed at drainage pipe outfalls and grass lined ditches) are an attempt to reduce the stormwater impacts to the receiving stream due to erosion and runoff. BMPs used on the job are primarily non-structural and consist of methods to attenuate and disperse stormwater before entering the receiving waters. There is no direct discharge into the receiving water.</p>		

**Waterbody Information**

<b>Surface Water Body (1):</b>	South Fork Crooked Creek		<b>NCDWR Stream Index No.:</b>	13-17-20-2a	
<b>NCDWR Surface Water Classification for Water Body</b>	<b>Primary Classification:</b>	Class C			
	<b>Supplemental Classification:</b>				
<b>Other Stream Classification:</b>					
<b>Impairments:</b>	None				
<b>Threatened/Endangered Species?</b>	No	<b>Comments:</b>			
<b>NRTR Stream ID:</b>	South Fork Crooked Creek			<b>Buffer Rules in Effect:</b>	N/A
<b>Project Includes Bridge Spanning Water Body?</b>	No	<b>Deck Drains Discharge Over Buffer?</b>	N/A	<b>Dissipator Pads Provided in Buffer?</b>	N/A
<b>Deck Drains Discharge Over Water Body?</b>	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
	(If yes, provide justification in the General Project Narrative)				



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



(Version 2.01; Released December 2014)

**WBS Element:** 42845.1.1    **TIP No.:** B-5243    **County(ies):** Union    **Page** 2    **of** 2

**Bridge to Culvert Avoidance and Minimization**

**Proposed Structure Summary**

<b>Sheet No. &amp; Station</b>	<b>Sheet No.:</b> 4	<b>Station:</b> 19+67.2 -L-	<b>Number of Culverts:</b>	2
<b>Drainage Area (ac or sq mi):</b>	1.3 Sq. Miles		<b>Culvert Width/Diameter (ft):</b>	12
<b>Surface Water Body:</b>	(1) South Fork Crooked Creek		<b>Culvert Height (ft):</b>	8
<b>Culvert Type:</b>	RCBC		<b>Culvert Length (ft)</b>	86.5
<b>Avoidance and Minimization Efforts: (Bridge to Culvert)</b>	Install erosion control devices, which includes a silt bag with a minimum capacity of 40 C.Y, while maintaining channel flow through the construction sequence.			

Stream Slope		Fish and/or Aquatic Life Passage	
<b>Existing Average Stream Slope (%):</b>	0.50 %	<b>Existing Low Flow Channel Dimensions in the Stream:</b>	Trapezoidal channel, 10 foot base with 1:1 side slopes and 4 foot height
<b>Proposed Culvert Slope (%):</b>	0.40 %	<b>Proposed Low Flow Dimensions Through the Culvert:</b>	Rectangular channel, 12 foot base by 3 foot sides
Culvert Burial		<b>Existing Low Flow Velocities in the Stream (ft/s):</b>	
<b>Proposed Culvert Burial Depth (ft):</b>	1	<b>Proposed Low Flow Velocities Through the Culvert (ft/s):</b>	
<b>Existing Streambed Material:</b>	gravel and sand	<b>Alternating Low Flow Sills/Baffles:</b>	N/A
<b>Proposed Sills/Baffles:</b>	Sills only present at culvert inlet and outlet. Low flow barrel has 1 foot sill. Other barrel has 4 foot sill.		

**Culvert/Stream Alignment**

<b>Stream Patterns Upstream and Downstream of the Culvert that Could Affect Fish Passage and Bank Stability:</b>			
<b>Bed Forms Impacted by Culvert (riffles, pools, glides, etc.):</b>			
<b>Low Flow Floodplain Bench Required? (provide justification)</b>	Yes	The low flow bench was provided in order to maintain the current stream depth through the culvert during normal flow conditions.	
<b>Sharp Bends at Inlet/Outlet? (describe culvert alignment with stream)</b>	No		
<b>Stream Realignment Necessary? (provide justification)</b>	No		
<b>Bank Stabilization:</b>	Class 'I' Rip Rap placed on stream banks approximately 25 feet up and down stream		

**Outlet Velocities**

<b>Natural Stream Channel 2-yr Velocity (ft/s):</b>	3.3	<b>Natural Stream Channel 10-yr Velocity (ft/s):</b>	4.5
<b>Proposed Culvert 2-yr Outlet Velocity (ft/s):</b>	4.1	<b>Proposed Culvert 10-yr Outlet Velocity (ft/s):</b>	4.5

**Roadway Geometric Considerations**

**Evaluate/Describe Roadway Geometric Constraints:**  
None

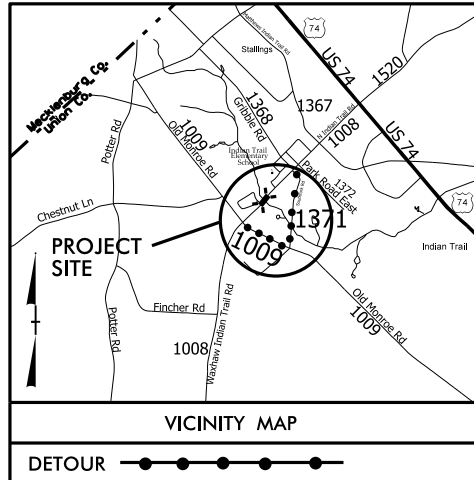


09/20/16/99

**TIP PROJECT: B-5243**

**CONTRACT: C**

See Sheet 1-A For Index of Sheets



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF INDIAN TRAIL.

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UNION COUNTY**

**LOCATION: BRIDGE 258 ON SR 1008 OVER SOUTH FORK CROOKED CREEK AND IMPROVEMENT OF THE INTERSECTION OF SR 1009 AND SR 1371**

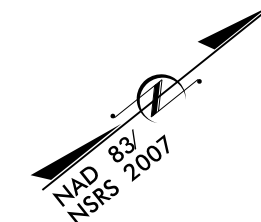
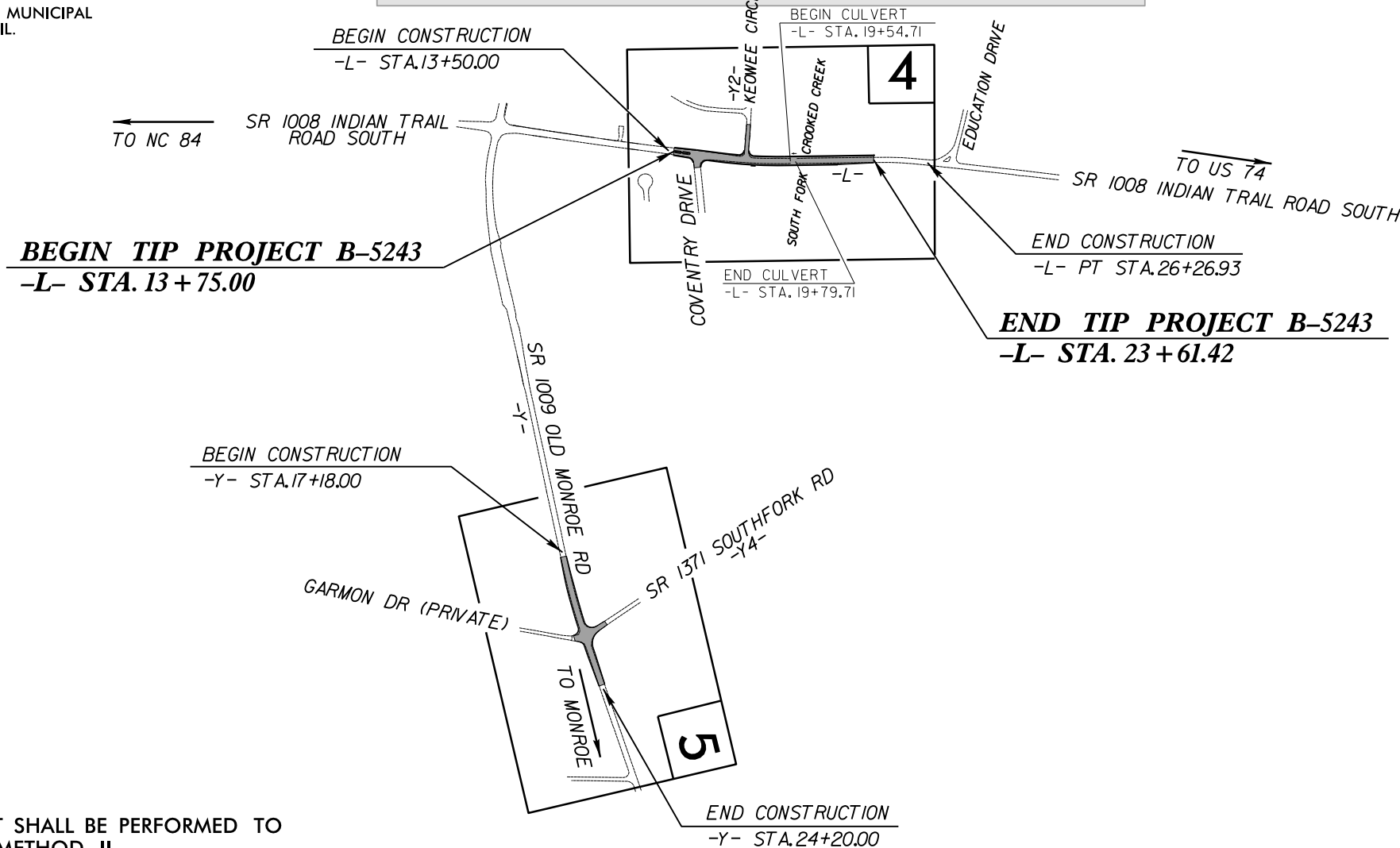
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERT AND SIGNAL**

**WETLAND AND SURFACE WATER IMPACTS PERMIT**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5243	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42845.1.1	BRSTP-1008(23)	PE	
42845.2.FD1	BRSTP-1008(23)	RW & UTIL.	
42845.3.FD1	BRSTP-1008(23)	CONST.	

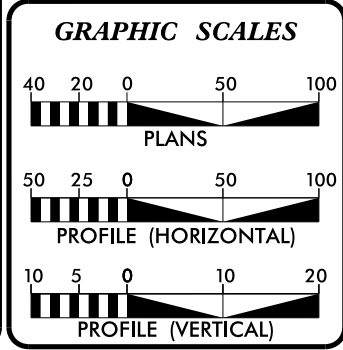


**PERMIT DRAWING  
SHEET 1 OF 11**



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

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



**DESIGN DATA**

ADT 2016 =	15,900
ADT 2036 =	19,350
K =	9 %
D =	65 %
T =	5 % *
V =	40 MPH
* TTST = 1% DUAL 4%	
FUNC CLASS =	MAJOR COLLECTOR
SUB REGIONAL TIER	

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-5243 =	0.182 MILES
LENGTH STRUCTURE TIP PROJECT B-5243 =	0.005 MILES
TOTAL LENGTH OF TIP PROJECT B-5243 =	0.187 MILES

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

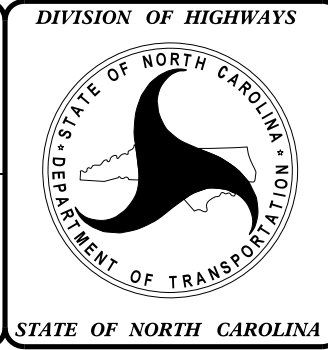
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: JANUARY 16, 2015	G.E. BREW, PE PROJECT ENGINEER
LETTING DATE: JANUARY 19, 2016	I.T. YOUNIS PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

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

**ROADWAY DESIGN ENGINEER**

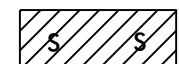
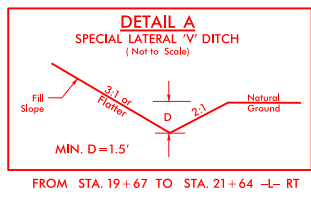
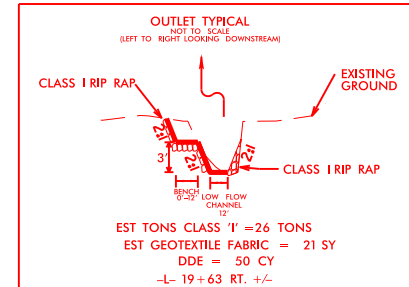
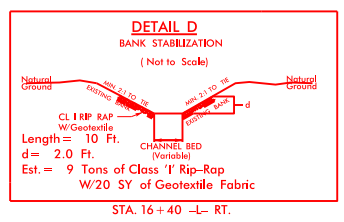
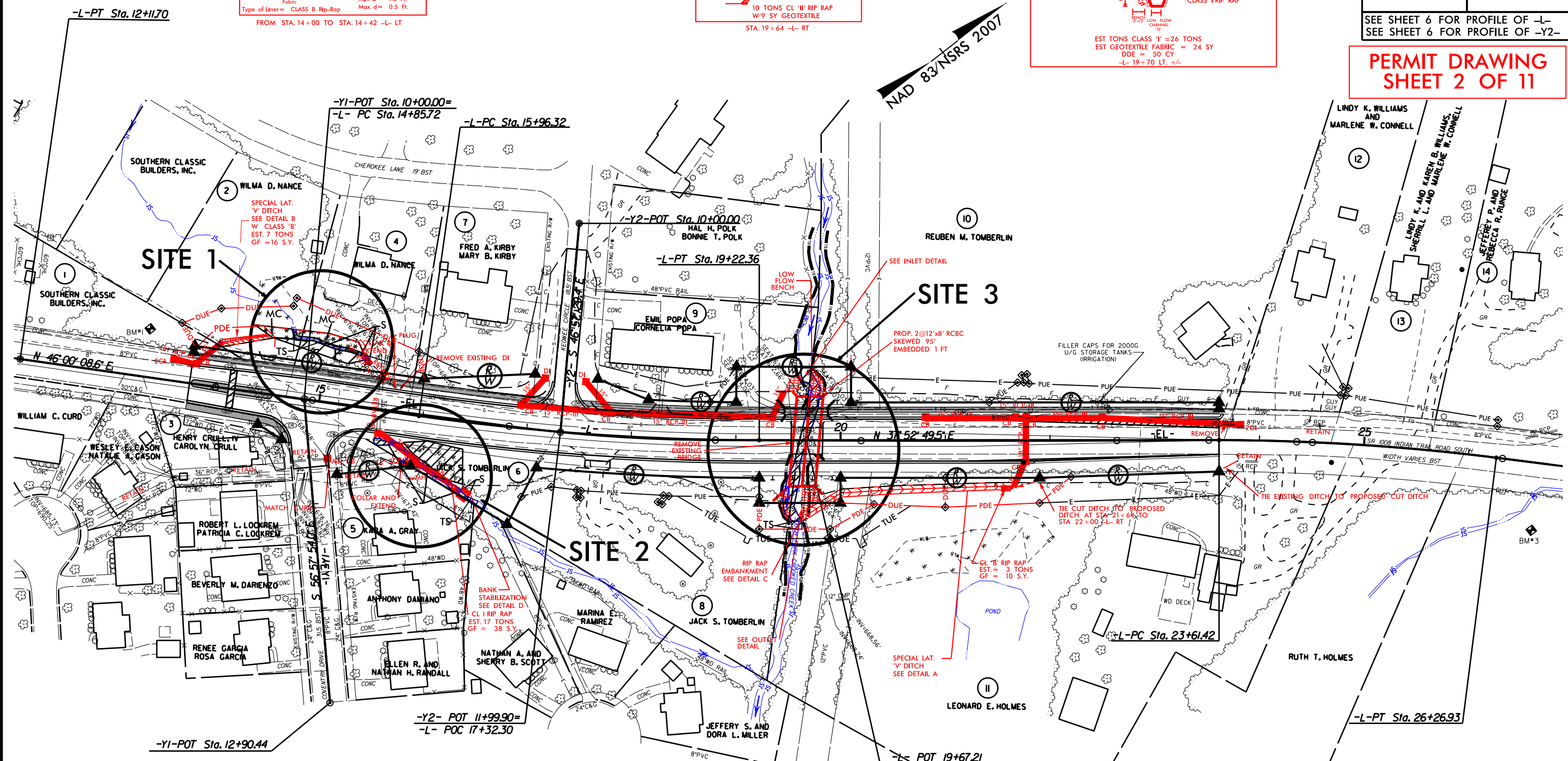
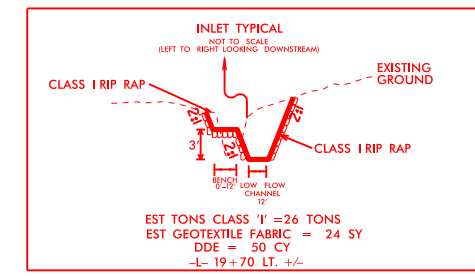
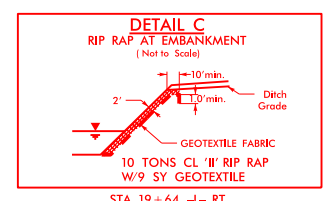
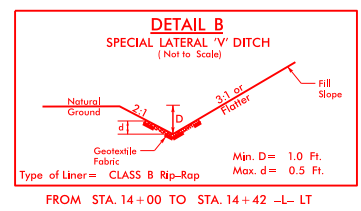
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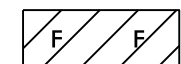
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SEE SHEET 6 FOR PROFILE OF -L- SEE SHEET 6 FOR PROFILE OF -Y2-	

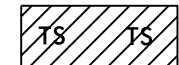
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SHEET 2 OF 11



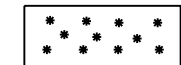
DENOTES IMPACTS IN SURFACE WATER



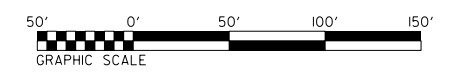
DENOTES FILL IN WETLAND



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES MECHANIZED CLEARING

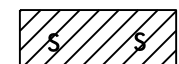
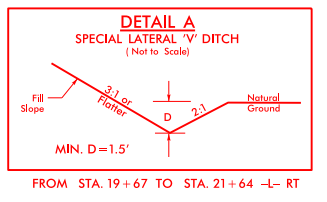
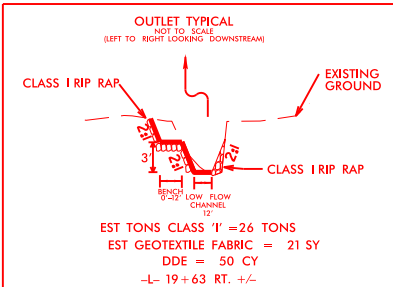
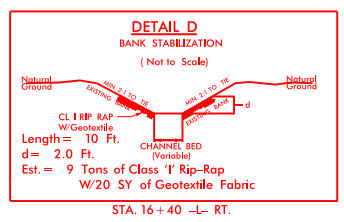
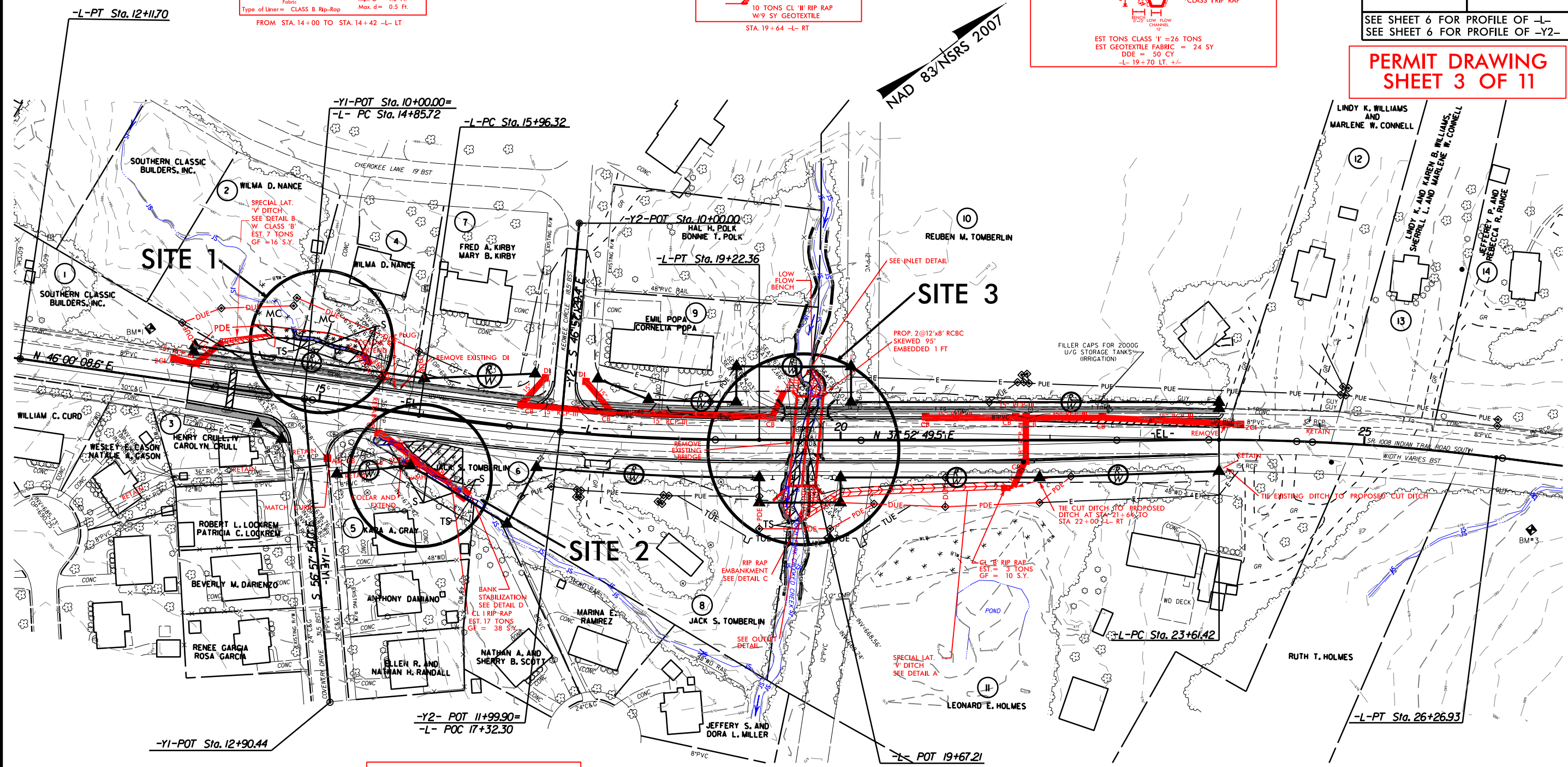
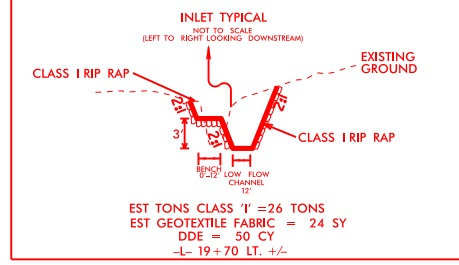
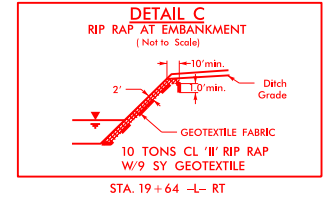
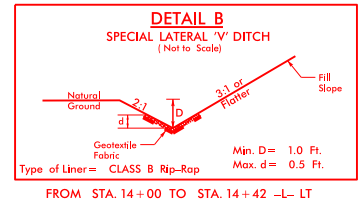


REVISIONS

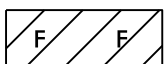
8/17/99

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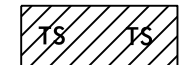
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**SHEET 3 OF 11**



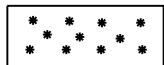
DENOTES IMPACTS IN SURFACE WATER



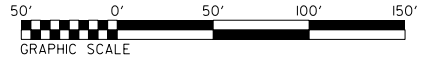
DENOTES FILL IN WETLAND



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES MECHANIZED CLEARING



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8/17/99

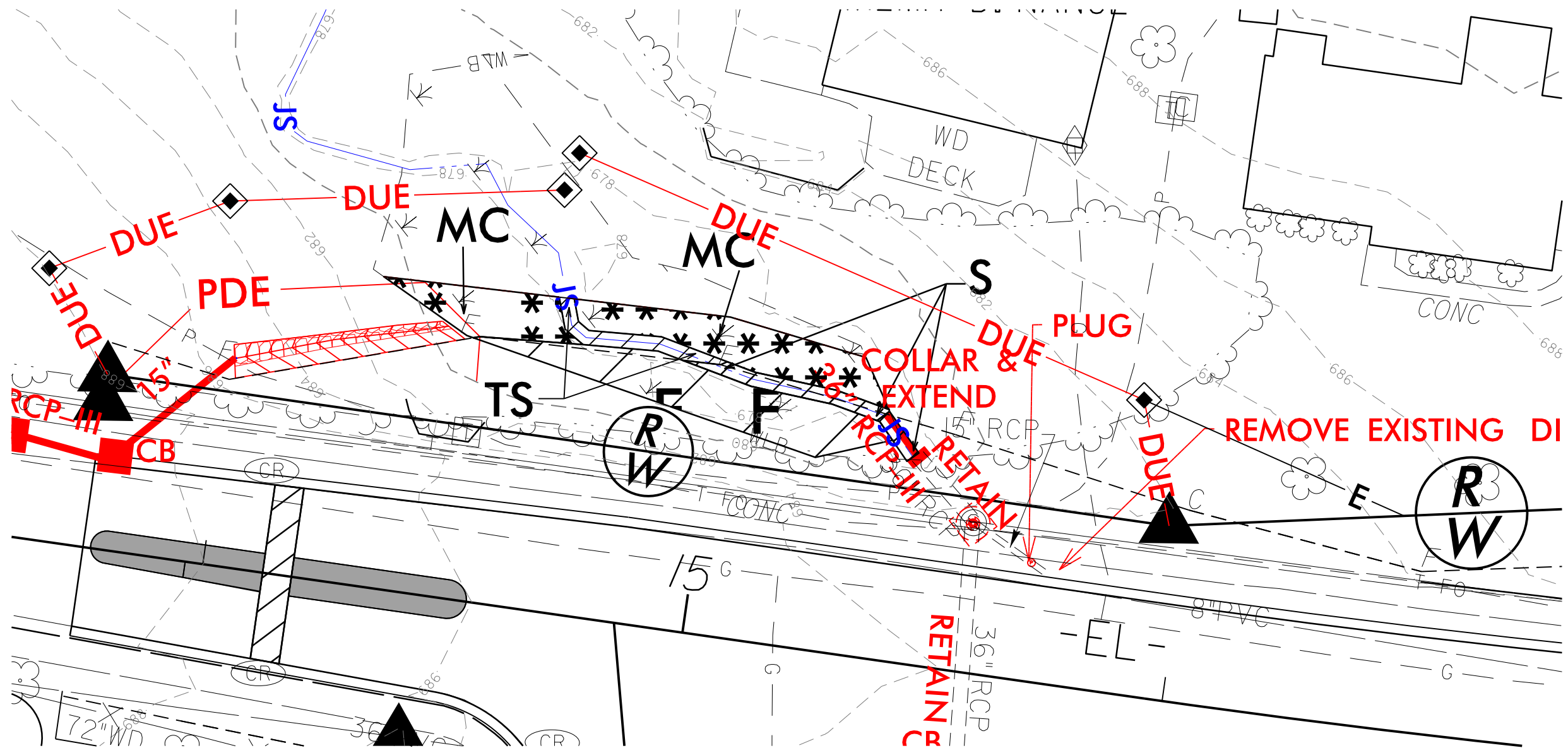


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NAD 83/NSRS 2007

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PERMIT DRAWING  
SHEET 5 OF 11



REVISIONS



DENOTES IMPACTS IN SURFACE WATER



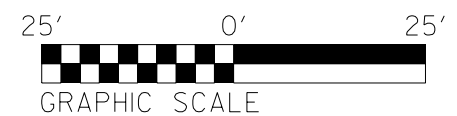
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DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES MECHANIZED CLEARING

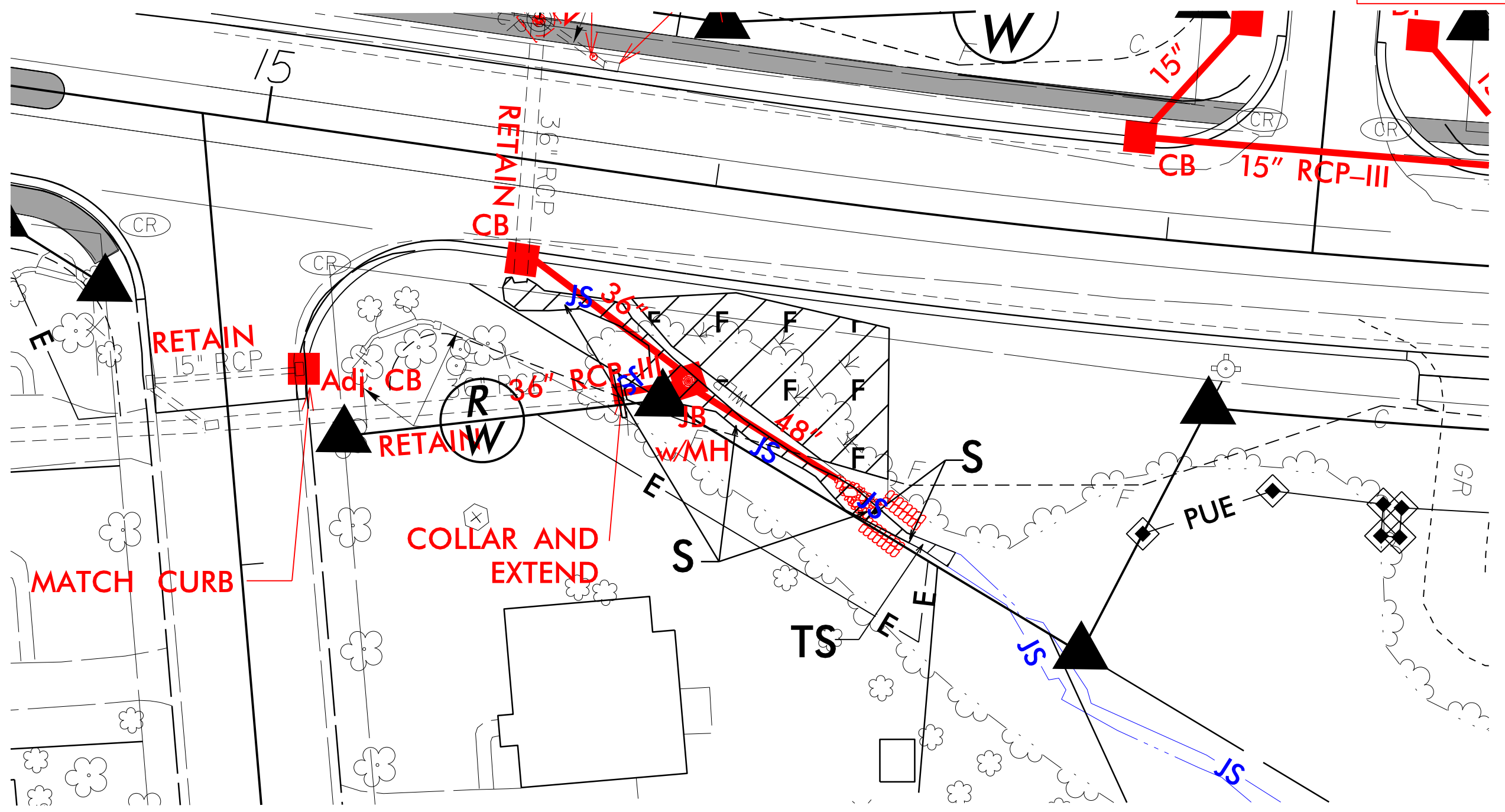


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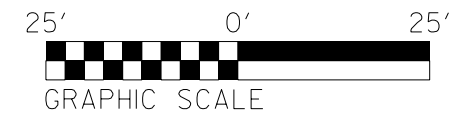
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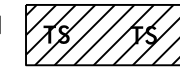
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SHEET 6 OF 11



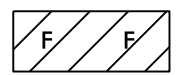
REVISIONS



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES FILL IN WETLAND

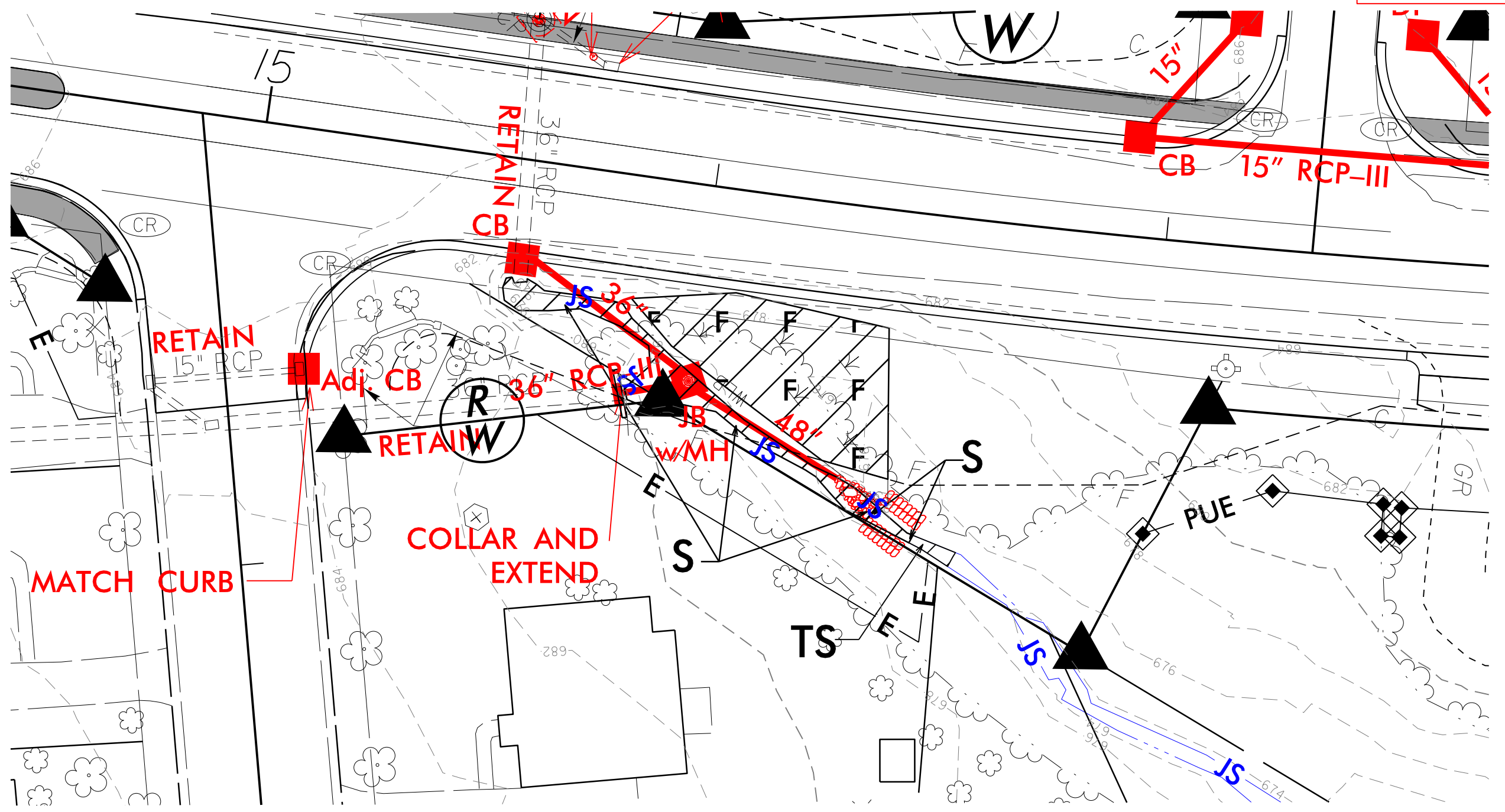
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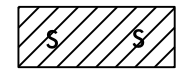
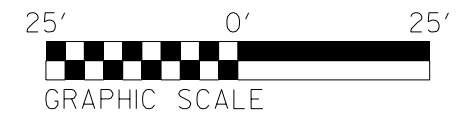
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PROJECT REFERENCE NO. B-5243	SHEET NO. 4
RW SHEET NO.	
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PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

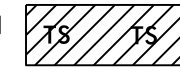
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SHEET 7 OF 11



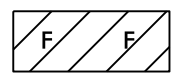
REVISIONS



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



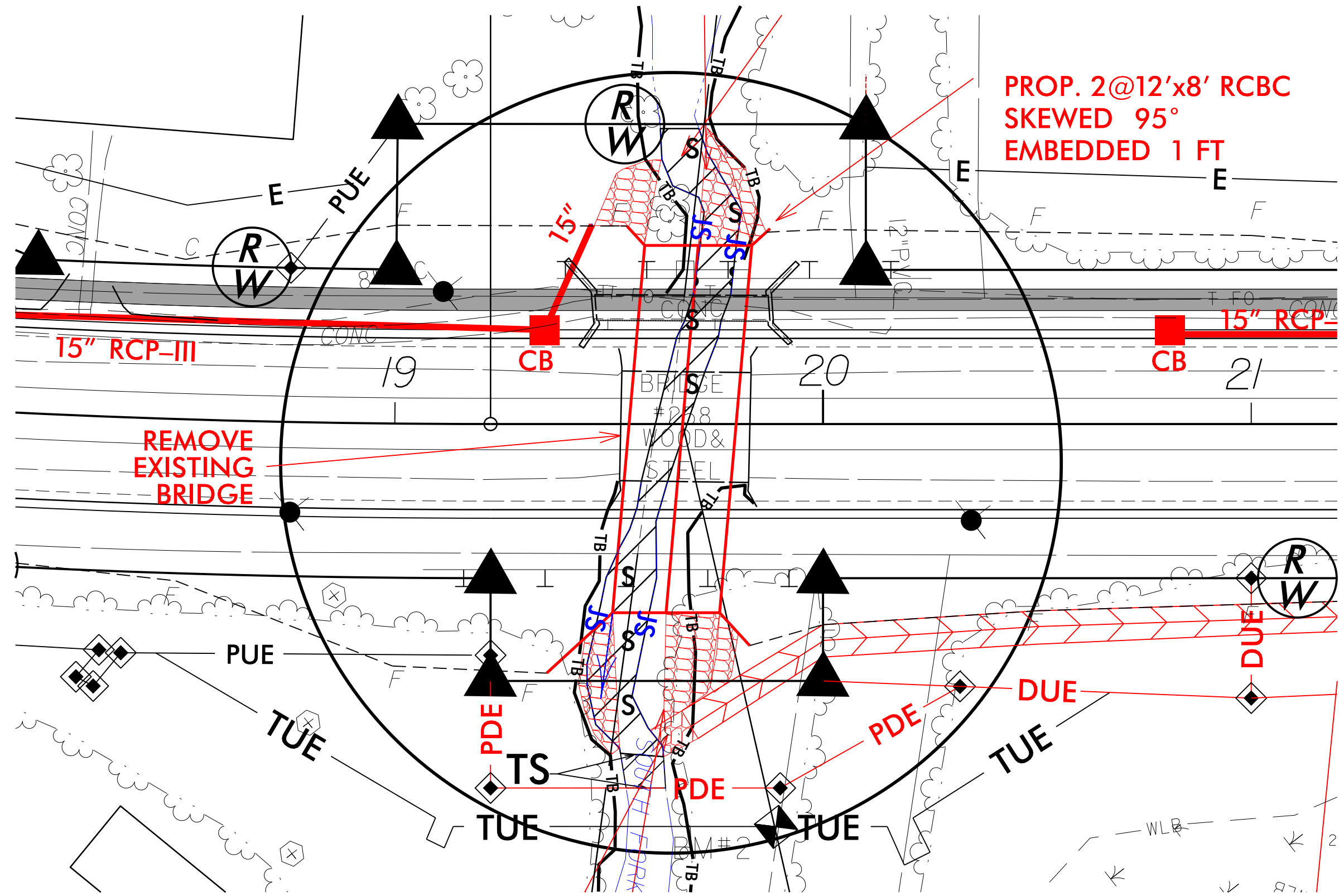
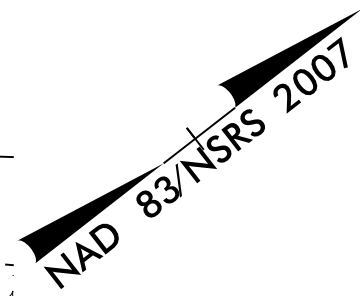
DENOTES FILL IN WETLAND

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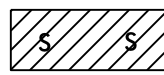
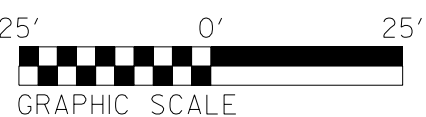
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWING  
SHEET 8 OF 11

PROP. 2@12'x8' RCBC  
SKEWED 95°  
EMBEDDED 1 FT



REMOVE  
EXISTING  
BRIDGE



DENOTES IMPACTS IN  
SURFACE WATER



DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER

REVISIONS

B/17/99

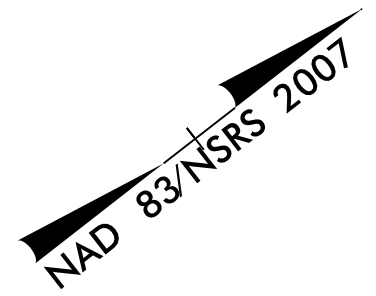
3/25/2015  
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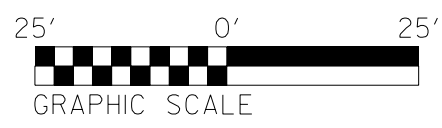
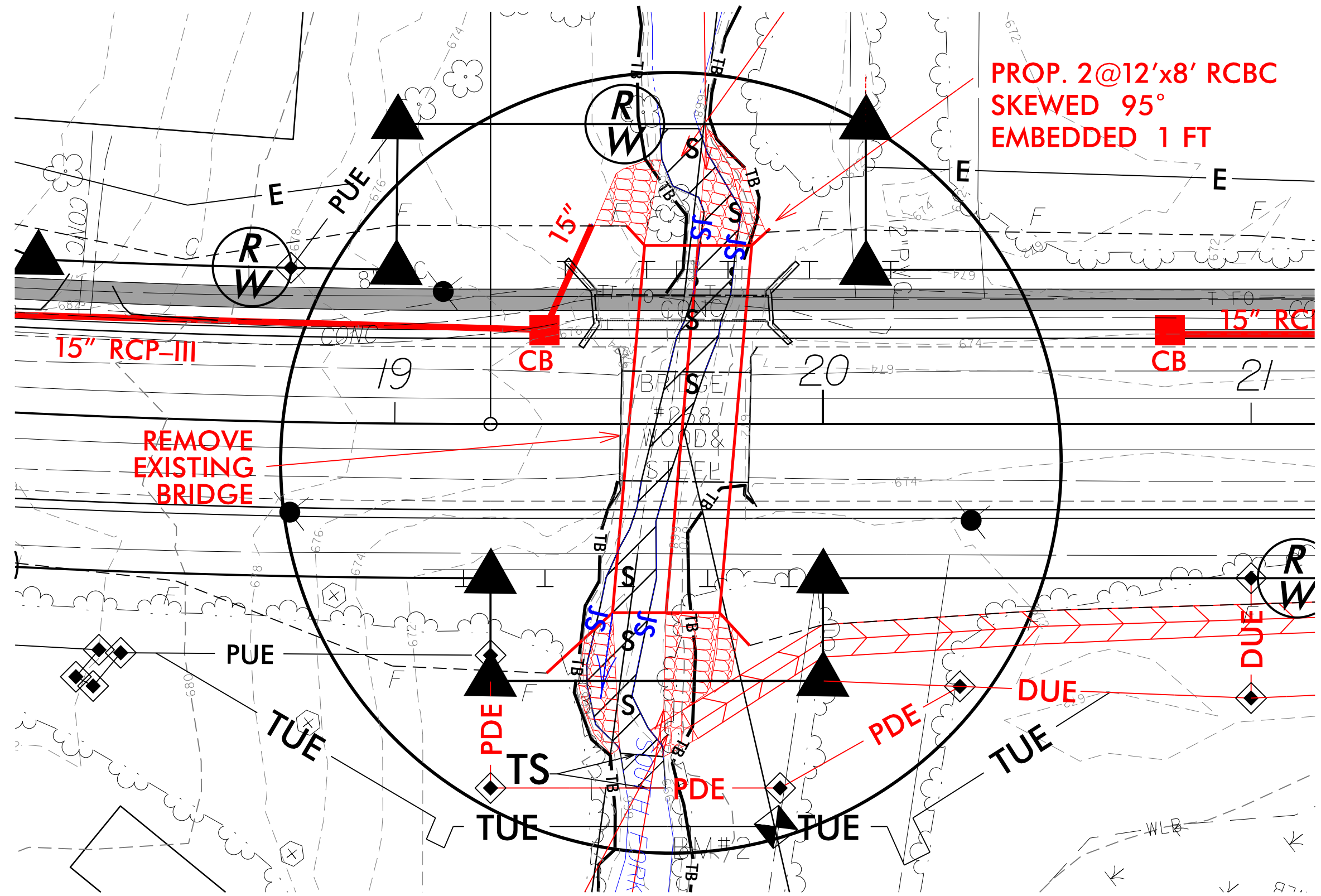
# SITE 3 ENLARGEMENT

PROJECT REFERENCE NO. B-5243	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

**PERMIT DRAWING  
SHEET 9 OF 11**



**PROP. 2@12'x8' RCBC  
SKEWED 95°  
EMBEDDED 1 FT**



DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

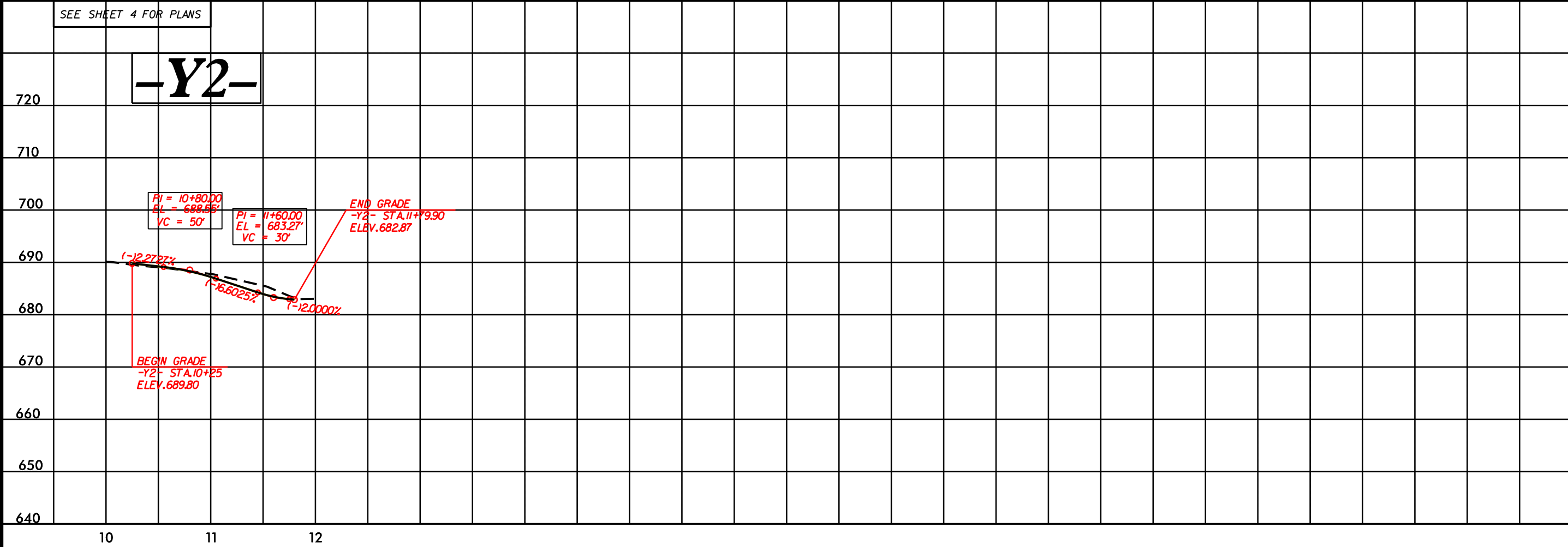
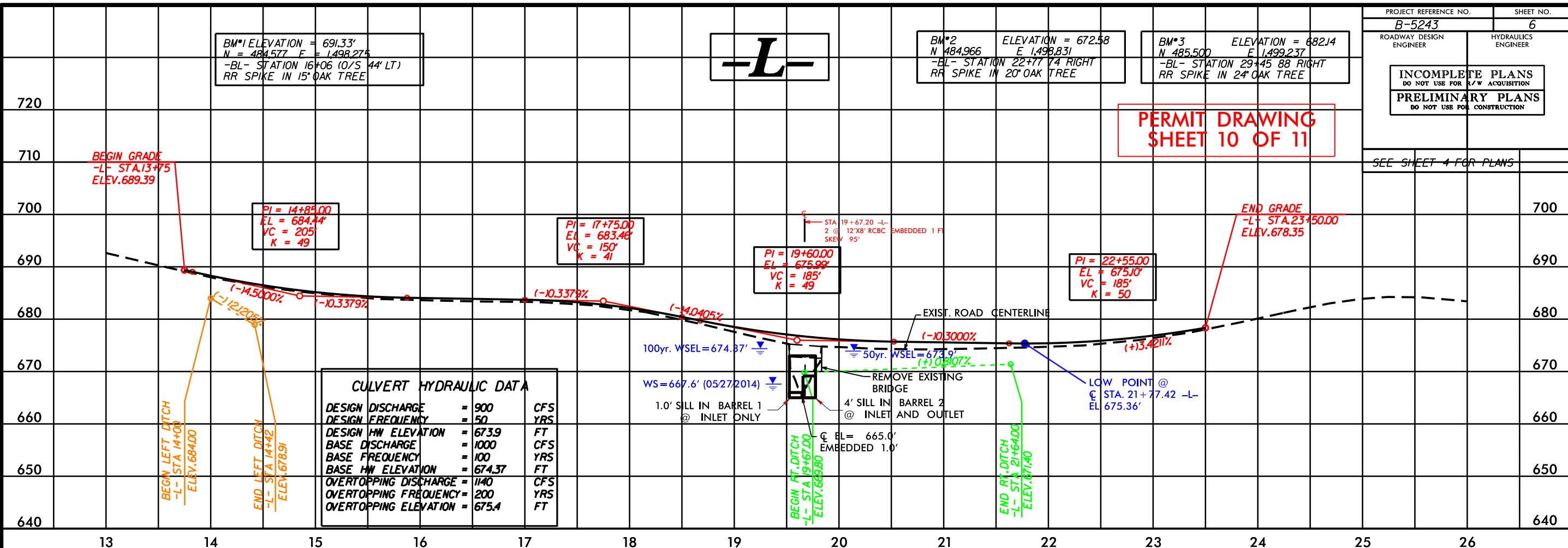
REVISIONS

B/17/99

3/25/2015  
 qtnguyen  
 R:\Hydraulics\CADD\DRAFT PERMIT DRAWINGS\B5243\_Hyd\_psh04\_site3.dgn

**PERMIT DRAWING SHEET 10 OF 11**

SEE SHEET 4 FOR PLANS



**-Y2-**

**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)
1	14+48 TO 15+37 -L- LT	ROAD FILL	0.02									
1	14+28 TO 14+71 -L- LT	ROAD FILL				< 0.01						
1	14+68 TO 15+34 -L- LT	ROAD FILL				0.01						
1	14+65 TO 15+01 -L- LT	STREAM INSIDE MC							< 0.01		36	
1	15+01 TO 15+35 -L- LT	ROAD FILL						< 0.01		36		
1	15+35 TO 15+43 -L- LT	36" RCP						< 0.01		10		
2	15+85 TO 14+61 -L- RT	ROAD FILL	0.03									
2	15+87 TO 16+43 -L- RT	STREAM IMPACT (36" & 48" ALT.)						< 0.01	< 0.01	98	11	
2	16+43 TO 16+53 -L- RT	BANK STABILIZATION						< 0.01		10		
3	19+47 TO 19+80 -L-	2 @ 12'X8' RCBC SOUTH FORK CROOK CREEK						0.03	< 0.01	154	8	
<b>TOTALS*:</b>			0.05			0.02		0.04	< 0.01	308	55	0

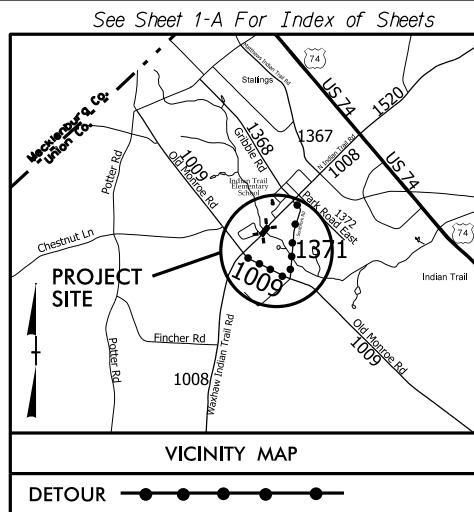
\*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 3/25/2015  
 UNION COUNTY  
 B-5243  
 WBS 42845.1.1  
 SHEET 11 OF 11

09/08/99

**TIP PROJECT: B-5243**



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF INDIAN TRAIL.

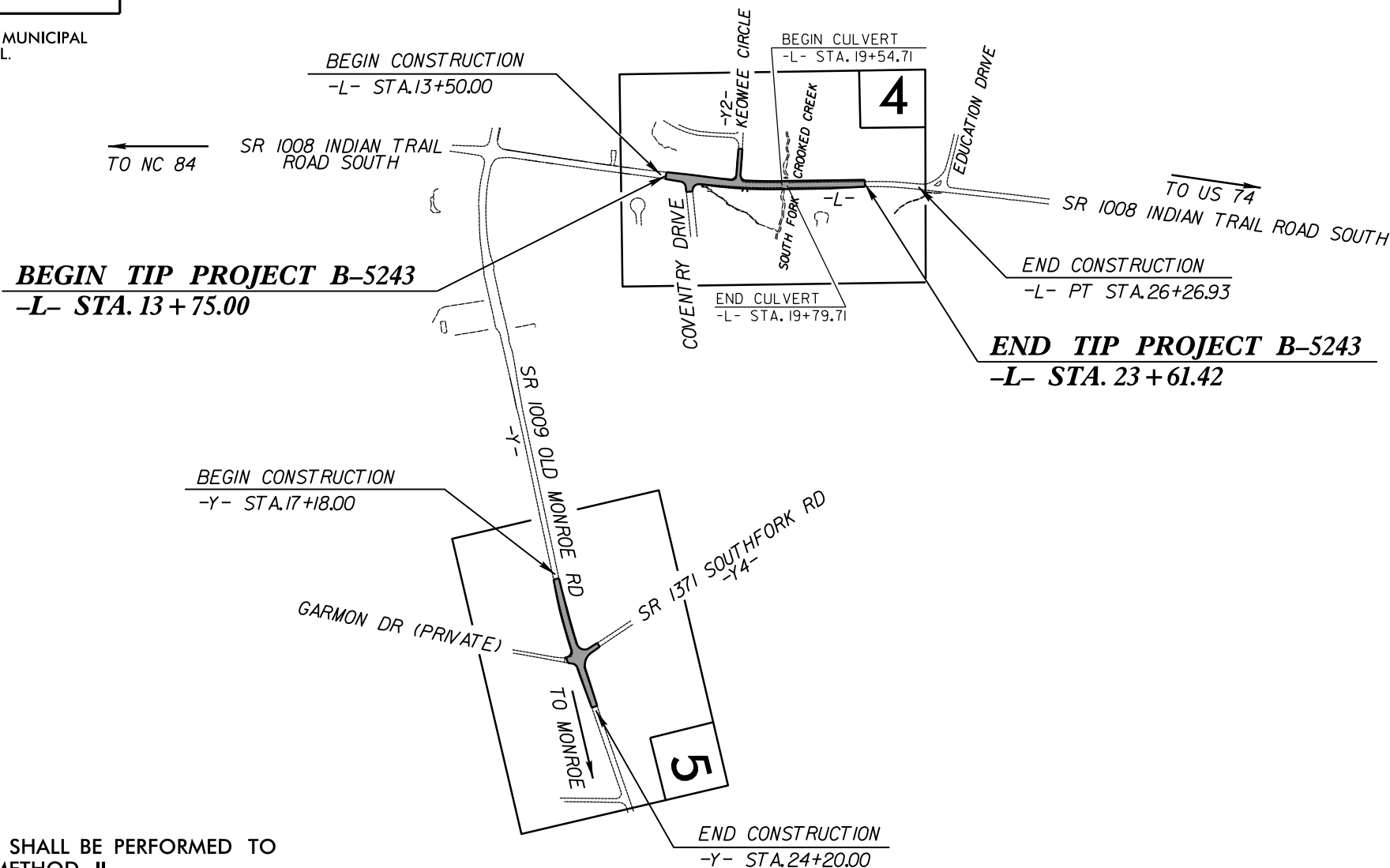
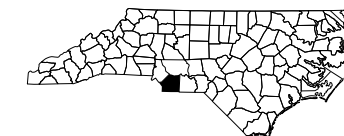
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UNION COUNTY**

**LOCATION: BRIDGE 258 ON SR 1008 OVER SOUTH FORK CROOKED CREEK AND IMPROVEMENT OF THE INTERSECTION OF SR 1009 AND SR 1371**

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

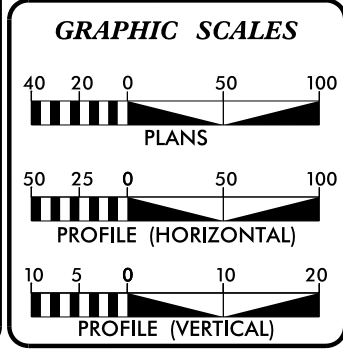
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5243	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42845.1.1	BRSTP-1008(23)	PE	
42845.2.FD1	BRSTP-1008(23)	R/W & UTIL.	



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 2016 =	15,900
ADT 2036 =	19,350
K =	9 %
D =	65 %
T =	5 % *
V =	40 MPH
* TTST = 1% DUAL 4%	
FUNC CLASS = MAJOR COLLECTOR	
SUB REGIONAL TIER	

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-5243 =	0.182 MILES
LENGTH STRUCTURE TIP PROJECT B-5243 =	0.005 MILES
TOTAL LENGTH OF TIP PROJECT B-5243 =	0.187 MILES

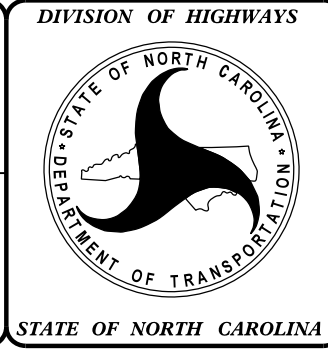
Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS	RIGHT OF WAY DATE:	LETTING DATE:
	JANUARY 16, 2015	JANUARY 19, 2016

<b>G.E. BREW, PE</b> PROJECT ENGINEER	<b>HYDRAULICS ENGINEER</b>
<b>I.T. YOUNIS</b> PROJECT DESIGN ENGINEER	<b>ROADWAY DESIGN ENGINEER</b>

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

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



23-JAN-2015 14:22 R:\Roadway\Proj\B5243\_Rdy\_t.sh.dgn \$\$\$USERNAME\$\$\$

12/05/11

Note: Not to Scale

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

## BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
Property Monument	□ EDM
Parcel/Sequence Number	⑬②③
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 R/W Marker	-----
Proposed Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----
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	-----
Single Tree	-----
Single Shrub	-----
Hedge	-----
Woods Line	-----

## VEGETATION:

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	-----
End of Information	-----

# SURVEY CONTROL SHEET PRELIMINARY

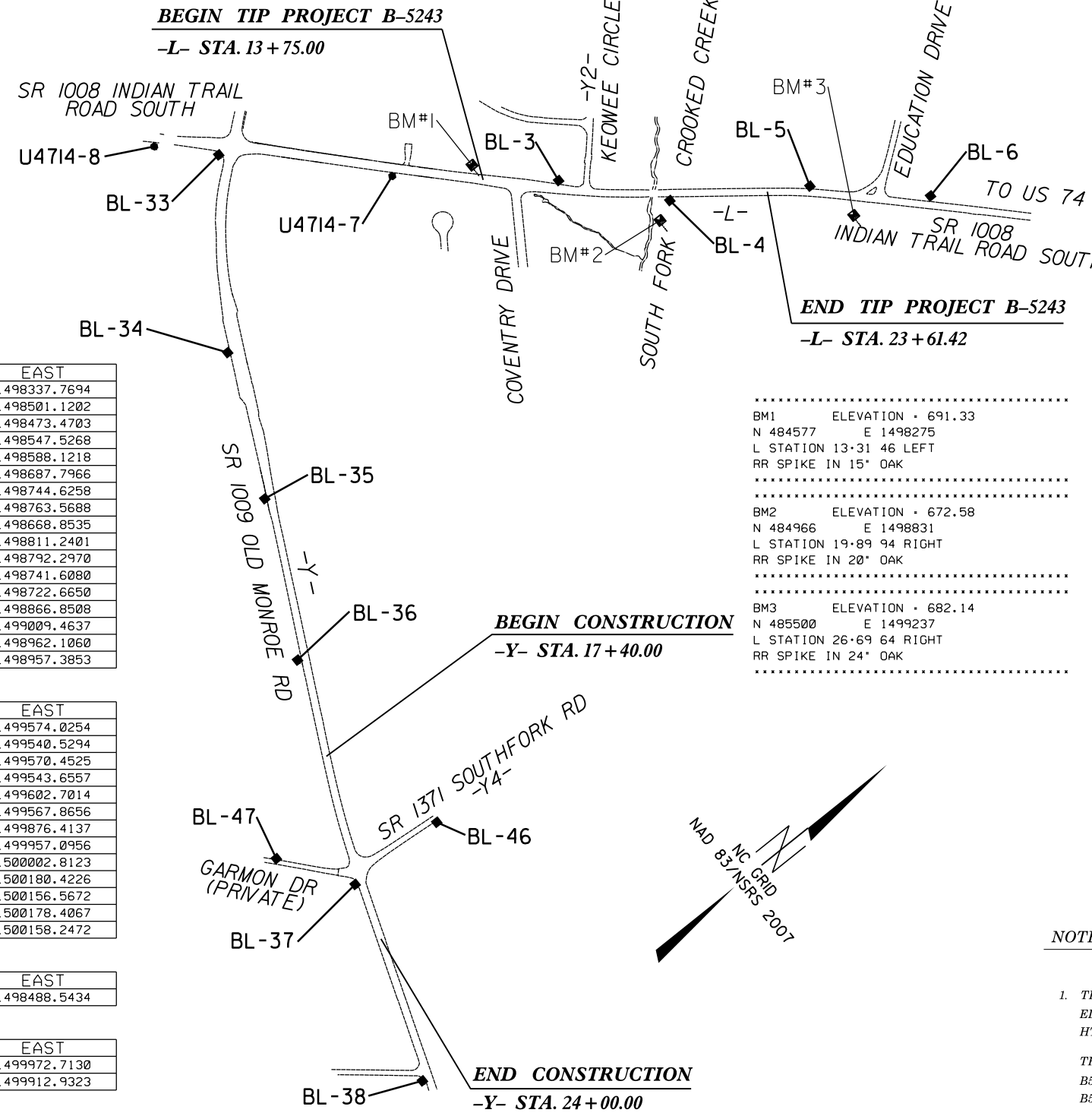
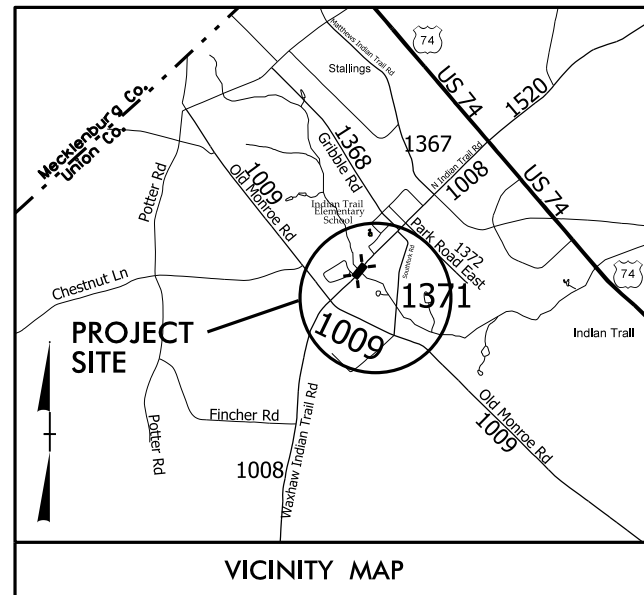
**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5243-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 484815.283(fft) EASTING: 1498556.393(fft) ELEVATION: 683.30(fft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999849

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5243-2" TO -L- STATION 13+75.00 IS S 42°04'36.4" W 324.01'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88



ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+07.68	-36.00	484623.3867	1498337.7694
L	15+65.43	35.80	484681.3158	1498501.1202
L	15+96.32	-36.00	484754.4205	1498473.4703
L	17+03.35	-36.00	484829.3365	1498547.5268
L	17+64.30	-36.00	484873.5187	1498588.1218
L	19+22.36	-36.00	484992.9436	1498687.7966
L	19+22.36	36.00	484948.7345	1498744.6258
L	19+22.36	60.00	484933.9981	1498763.5688
L	19+22.36	-60.00	485007.6800	1498668.8535
L	20+00.00	60.00	484995.2778	1498811.2401
L	20+00.00	36.00	485010.0141	1498792.2970
L	20+10.00	-36.00	485062.1162	1498741.6080
L	20+10.00	-60.00	485076.8526	1498722.6650
L	21+21.42	36.00	485105.8502	1498866.8508
L	23+61.42	29.98	485298.9766	1499009.4637
L	23+61.42	-30.02	485335.8175	1498962.1060
L	23+61.42	-36.00	485339.4899	1498957.3853

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
Y	17+40.00	-38.00	482938.5236	1499574.0254
Y	17+40.00	37.00	482871.4191	1499540.5294
Y	17+40.00	-30.00	482931.3658	1499570.4525
Y	17+40.00	30.00	482877.6822	1499543.6557
Y	17+72.05	-38.00	482924.2097	1499602.7014
Y	17+72.05	40.00	482854.4210	1499567.8656
Y	20+75.00	-38.00	482803.0558	1499876.4137
Y	21+90.00	40.00	482690.1334	1499957.0956
Y	22+10.00	-40.00	482758.7627	1500002.8123
Y	24+00.00	-36.00	482691.1568	1500180.4226
Y	24+00.00	35.00	482624.2844	1500156.5672
Y	24+00.00	-30.00	482685.5056	1500178.4067
Y	24+00.00	30.00	482628.9937	1500158.2472

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	10+66.80	-25.00	484636.2387	1498488.5434

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
Y4	12+00.00	-30.77	482860.9725	1499972.7130
Y4	12+00.00	29.23	482866.0979	1499912.9323

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
8	U4714-8		483758.3140	1497537.3690	723.23	OUTSIDE PROJECT LIMITS	
7	U4714-7		484337.5870	1498132.2920	705.51	10+61.56	27.46 RT
1	B5243-1		484358.4930	1498146.1750	705.08	10+86.00	21.89 RT
3	BL-3		484777.4570	1498504.1900	683.10	16+34.94	30.91 LT
4	BL-4		485034.8140	1498798.7530	671.98	20+23.54	25.87 RT
5	BL-5		485444.4770	1499062.8930	683.88	25+07.63	22.34 LT
6	BL-6		485749.0960	1499350.4400	687.14	29+25.12	32.02 LT

TYPE	STATION	NORTH	EAST
POT	5+00.00	483974.8701	1497702.3473
PC	8+09.85	484185.3113	1497929.7673
PT	12+11.70	484461.3567	1498221.7947
PC	15+96.32	484728.5262	1498498.4800
PT	19+22.36	484970.8390	1498716.2112
PC	23+61.42	485317.3837	1498985.7986
PT	26+26.93	485516.0737	1499161.6536
POT	33+53.38	486028.4780	1499676.6019

Y

TYPE	STATION	NORTH	EAST
POT	10+00.00	483235.0177	1498894.9560
PC	17+72.05	482890.2113	1499585.7277
PT	21+65.97	482735.8802	1499947.9069
PC	29+95.74	482457.0851	1500729.4360
PT	35+01.63	482189.1002	1501153.6729
POT	48+84.77	481212.3183	1502132.9385

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	484651.6964	1498418.9137
POT	12+90.44	484493.3616	1498662.4021

Y2

TYPE	STATION	NORTH	EAST
POT	10+00.00	484962.2539	1498447.3491
POT	11+99.90	484825.8144	1498593.4486

Y3

TYPE	STATION	NORTH	EAST
POT	10+00.00	485824.4662	1499077.1963
POT	12+80.50	485601.8856	1499247.8916

Y4

TYPE	STATION	NORTH	EAST
POT	10+00.00	483062.8695	1499959.1450
POT	13+22.31	482741.7416	1499931.6122

- NOTES:**
- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: [HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION](https://connect.ncdot.gov/resources/location)
  - THE FILES TO BE FOUND ARE AS FOLLOWS:  
B5243\_LS\_CONTROL.TXT  
B5243\_LS\_LOCAL.TXT
  - SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
  - PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM, UTILIZING THE NCGS RTN SYSTEM (VRS).
  - MONUMENTS USED OR SET FOR PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT:
- INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL
  - INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
  - ⊠ INDICATES BENCHMARKS FOR VERTICAL CONTROL

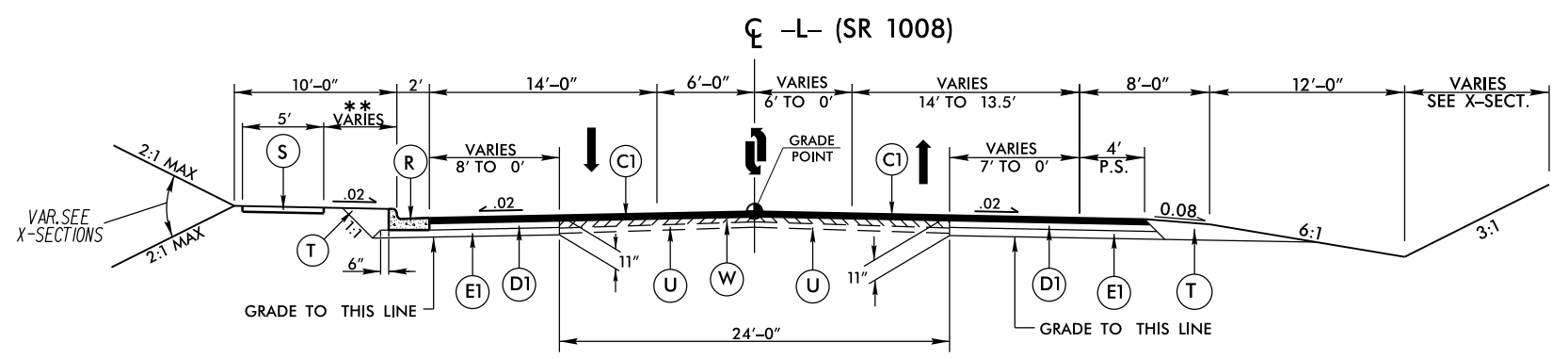
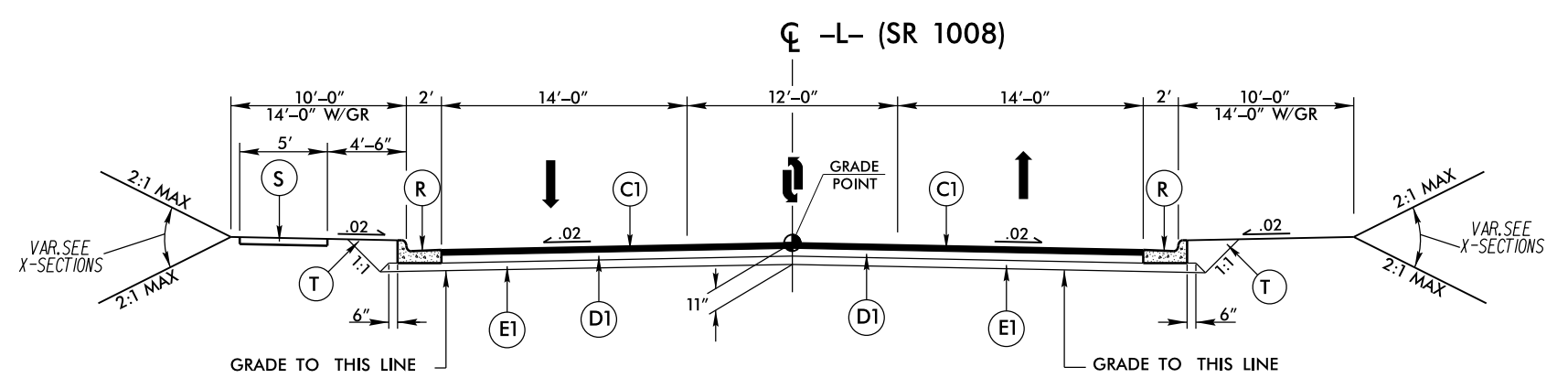
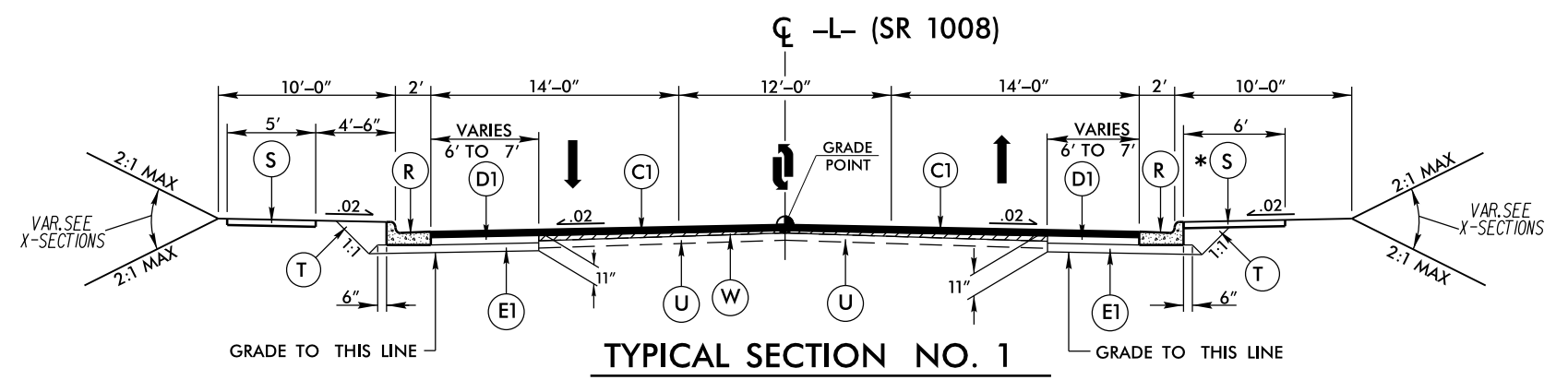
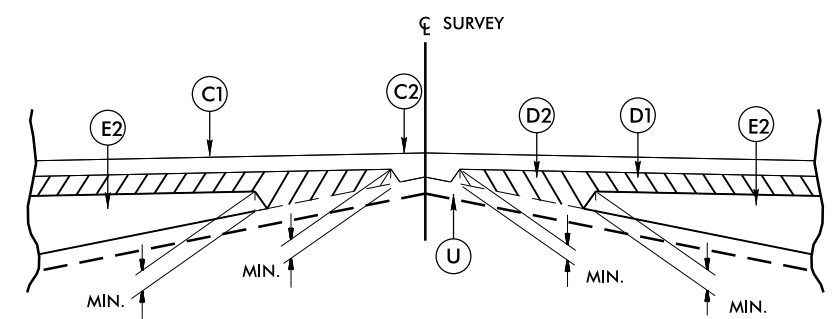
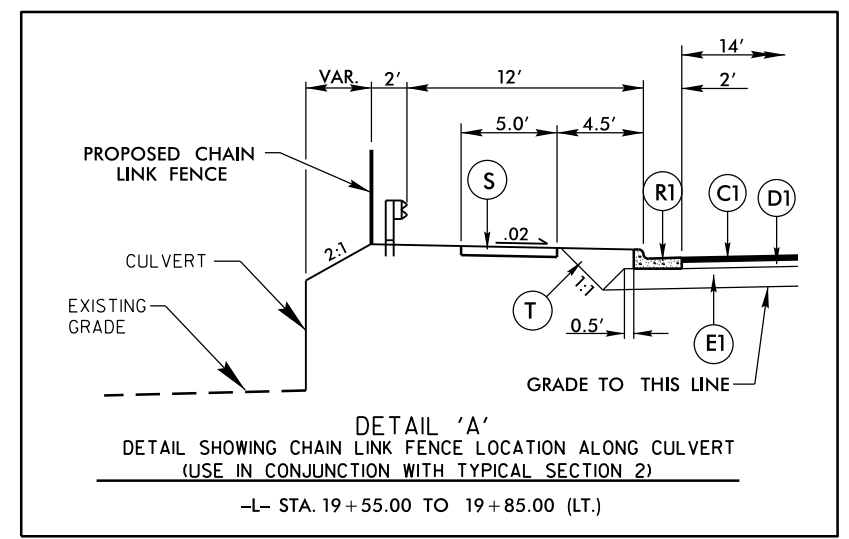
**NOTE: DRAWING NOT TO SCALE**

TBL 14.05/06  
16-JAN-2015 10:41  
P:\Roadwork\Projects\B5243-1s-1c.dgn  
B5243-1s-1c.dwg

### FINAL PAVEMENT SCHEDULE

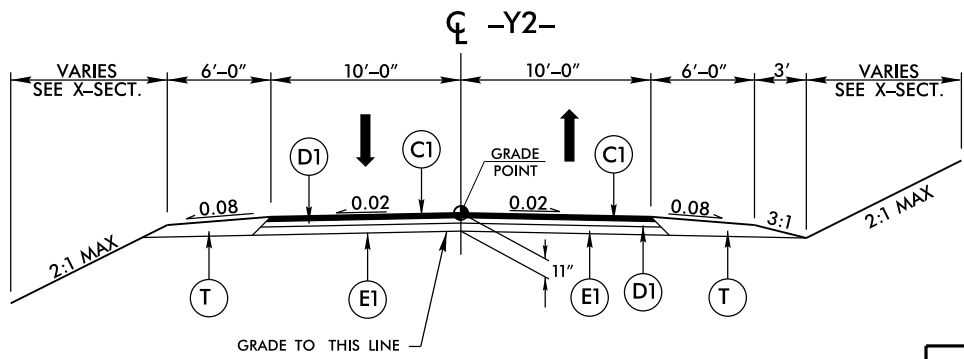
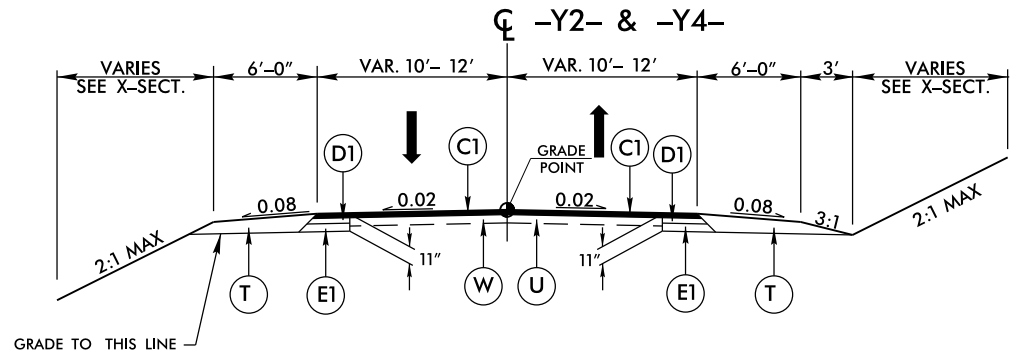
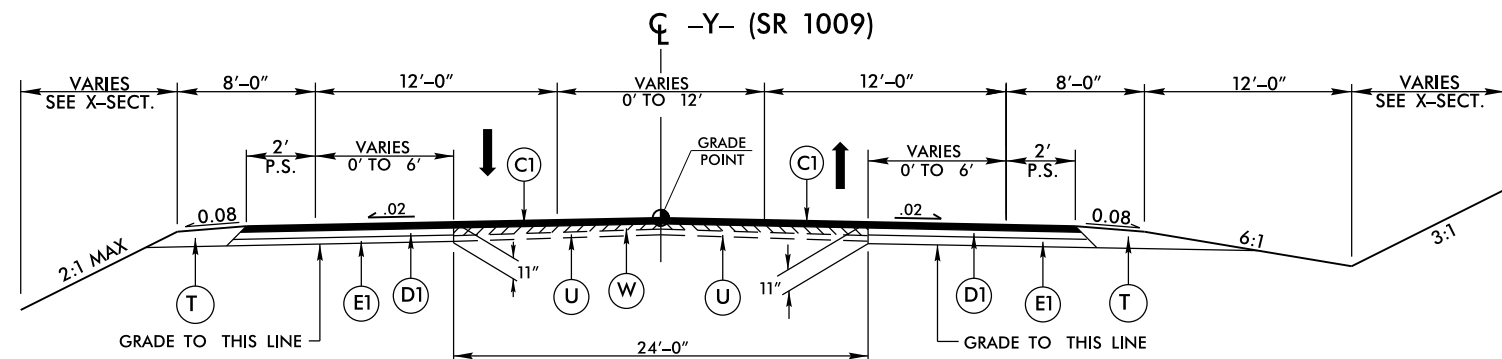
<b>C1</b>	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD., IN EACH OF TWO LAYERS.
<b>C2</b>	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT EXCEED 2" IN DEPTH.
<b>D1</b>	PROP. APPROX. 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
<b>D2</b>	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
<b>E1</b>	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
<b>E2</b>	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3.0" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
<b>R</b>	2'-6" CONCRETE CURB AND GUTTER.
<b>S</b>	PROP 4" CONCRETE SIDEWALK
<b>T</b>	EARTH MATERIAL.
<b>U</b>	EXISTING PAVEMENT.
<b>W</b>	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

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



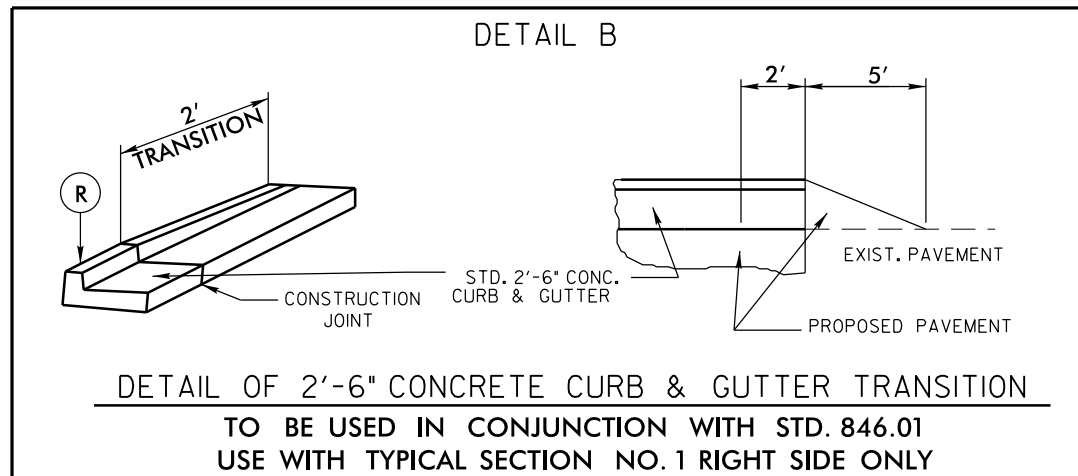
\*\* VARIES SEE PLANS FOR SIDEWALK TRANSITION

PROJECT REFERENCE NO. <b>B-5243</b>	SHEET NO. <b>2A-2</b>
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



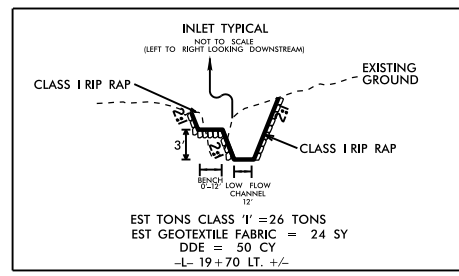
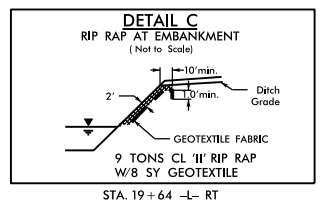
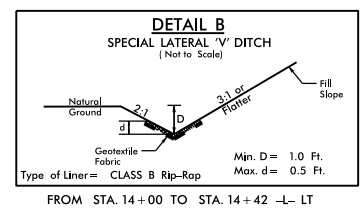
**PAVEMENT SCHEDULE**

(C1)	3.0" S9.5B
(C2)	VAR. S9.5B
(D1)	4.0" I19.0B
(D2)	VAR. I19.0B
(E1)	4.0" B25.0B
(E2)	VAR. B25.0B
(R)	2'-6" C&G
(S)	SIDEWALK
(T)	EARTH MATERIAL
(U)	EXISTING PAVEMENT
(W)	WEDGING



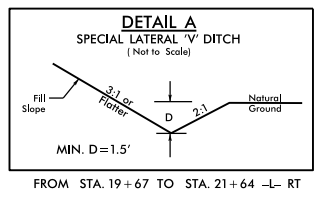
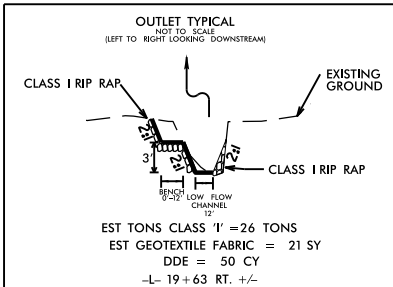
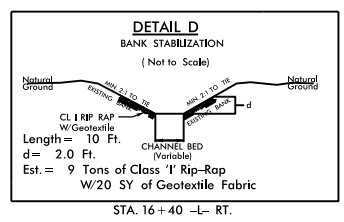
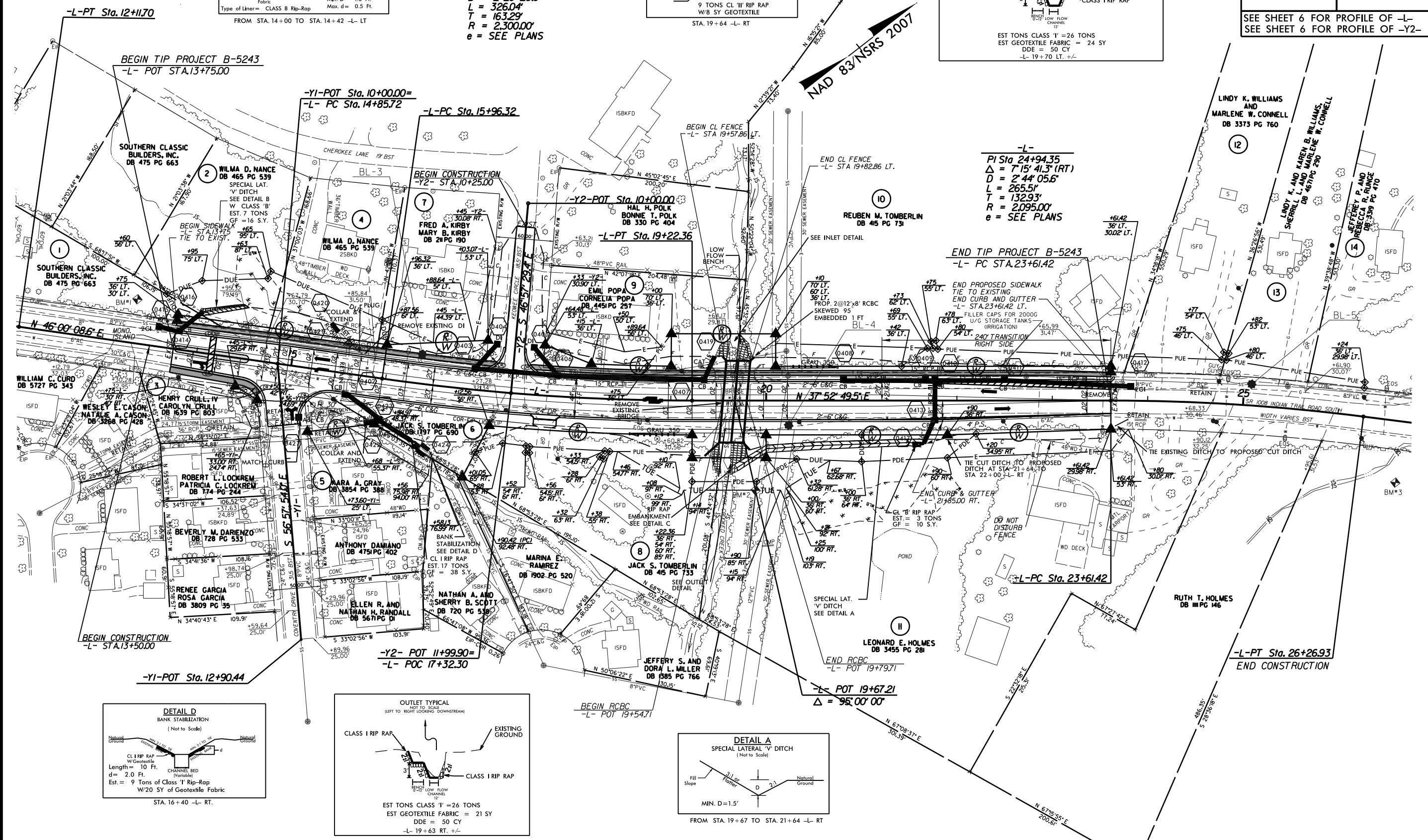


PROJECT REFERENCE NO.	SHEET NO.
B-5243	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b>	
DO NOT USE FOR CONSTRUCTION	
SEE SHEET 6 FOR PROFILE OF -L- SEE SHEET 6 FOR PROFILE OF -Y2-	



-L-  
 PI Sta 17+59.62  
 $\Delta = 8'07''19.1''$  (LT)  
 $D = 2'29''28.0''$   
 $L = 326.04'$   
 $T = 163.29'$   
 $R = 2,300.00'$   
 e = SEE PLANS

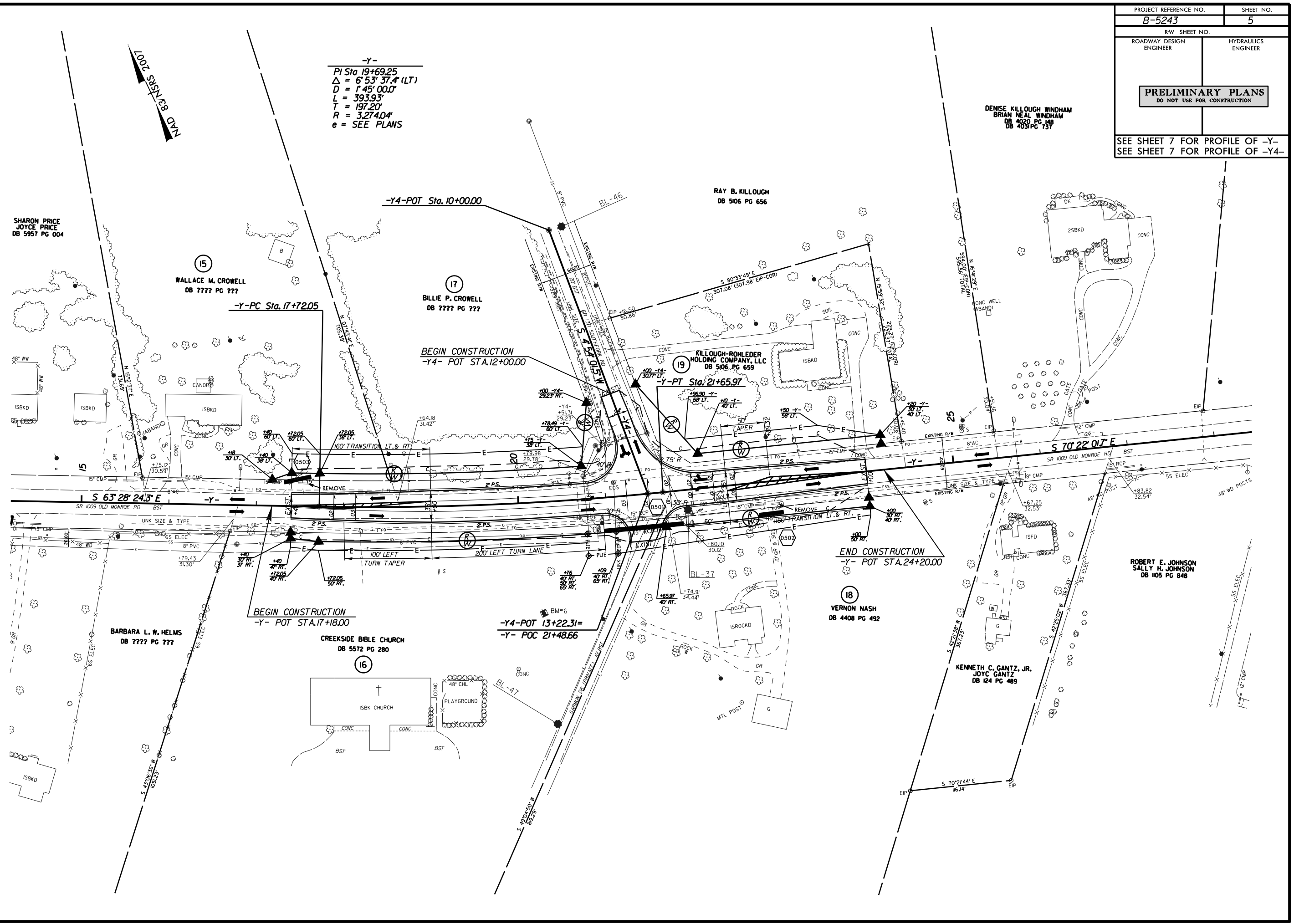
-L-  
 PI Sta 24+94.35  
 $\Delta = 7'15''41.3''$  (RT)  
 $D = 2'44''05.6''$   
 $L = 265.51'$   
 $T = 132.93'$   
 $R = 2,095.00'$   
 e = SEE PLANS



5/14/99  
 J:\E-2015 08:53 RA\Projects\B-5243\_Rdy\_psh\04.dgn  
 4:58:15 PM 5/14/99

PROJECT REFERENCE NO. <b>B-5243</b>	SHEET NO. <b>5</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
SEE SHEET 7 FOR PROFILE OF -Y- SEE SHEET 7 FOR PROFILE OF -Y4-	

5/14/99  
23-JAN-2015 11:23 R:\PROJECTS\B243\FD\B243\_Fdy\_psh.05.dgn



-Y-  
 PI Sta 19+69.25  
 $\Delta = 6'53''37.4''$  (LT)  
 $D = 1'45''00.0''$   
 $L = 393.93'$   
 $T = 197.20'$   
 $R = 3,274.04'$   
 $e = \text{SEE PLANS}$

DENSE KILLOUGH WINDHAM  
 BRIAN NEAL WINDHAM  
 DB 4020 PG 148  
 DB 4031 PG 737

RAY B. KILLOUGH  
 DB 5106 PG 656

SHARON PRICE  
 JOYCE PRICE  
 DB 5957 PG 004

15  
 WALLACE M. CROWELL  
 DB ???? PG ???

17  
 BILLIE P. CROWELL  
 DB ???? PG ???

19  
 KILLOUGH-ROHLER  
 HOLDING COMPANY, LLC  
 DB 5106 PG 659

BARBARA L. W. HELMS  
 DB ???? PG ???

16  
 CREEKSIDE BIBLE CHURCH  
 DB 5572 PG 280

BM#6  
 -Y4-POT 13+22.31=  
 -Y- POC 21+48.66

18  
 VERNON NASH  
 DB 4408 PG 492

KENNETH C. GANTZ, JR.  
 JOYCE GANTZ  
 DB 124 PG 489

ROBERT E. JOHNSON  
 SALLY H. JOHNSON  
 DB 1105 PG 848



5/28/99

PROJECT REFERENCE NO. SHEET NO.

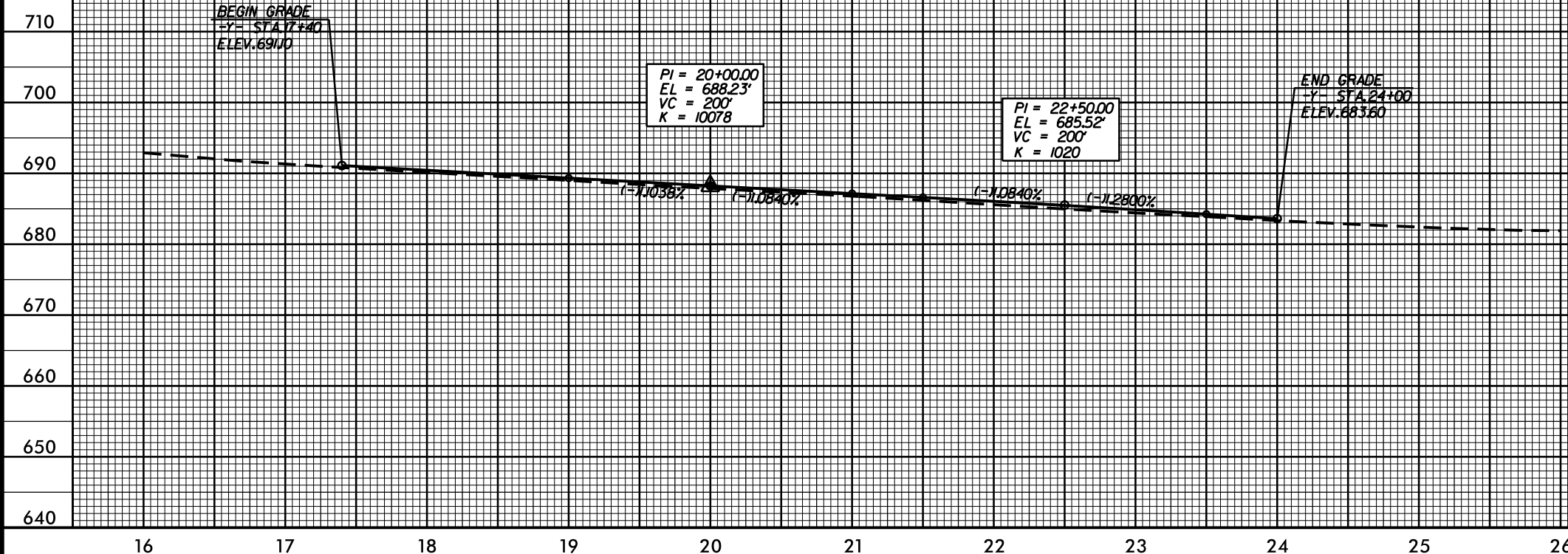
B-5243 7

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

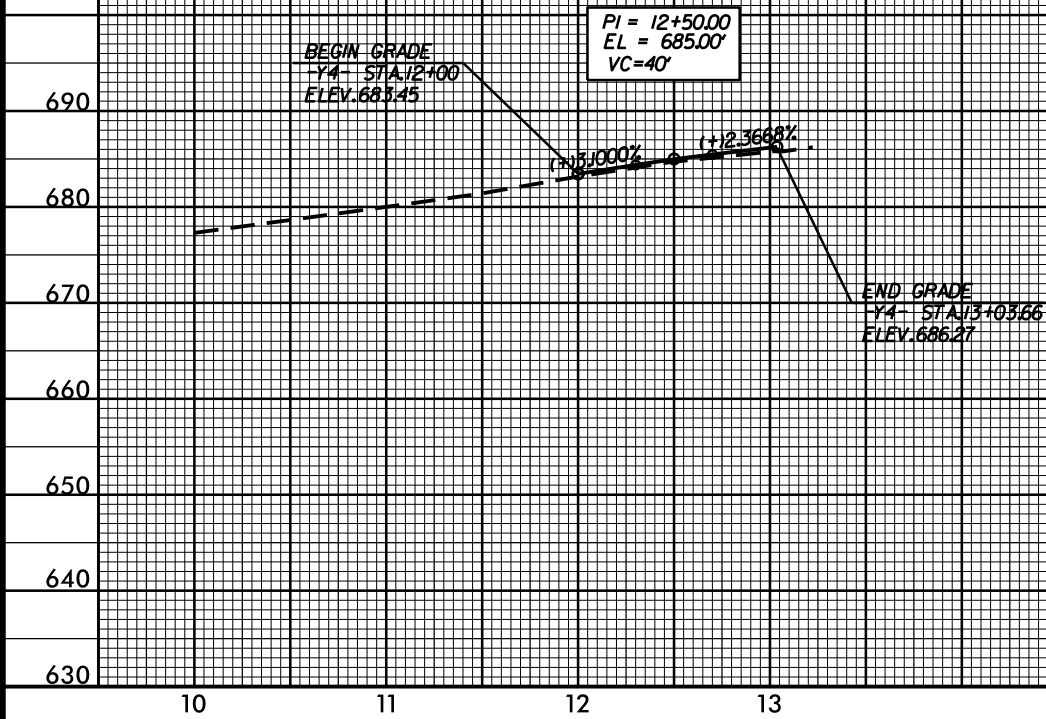
SEE SHEET 5 FOR PLANS

# -Y-



SEE SHEET 5 FOR PLANS

# -Y4-

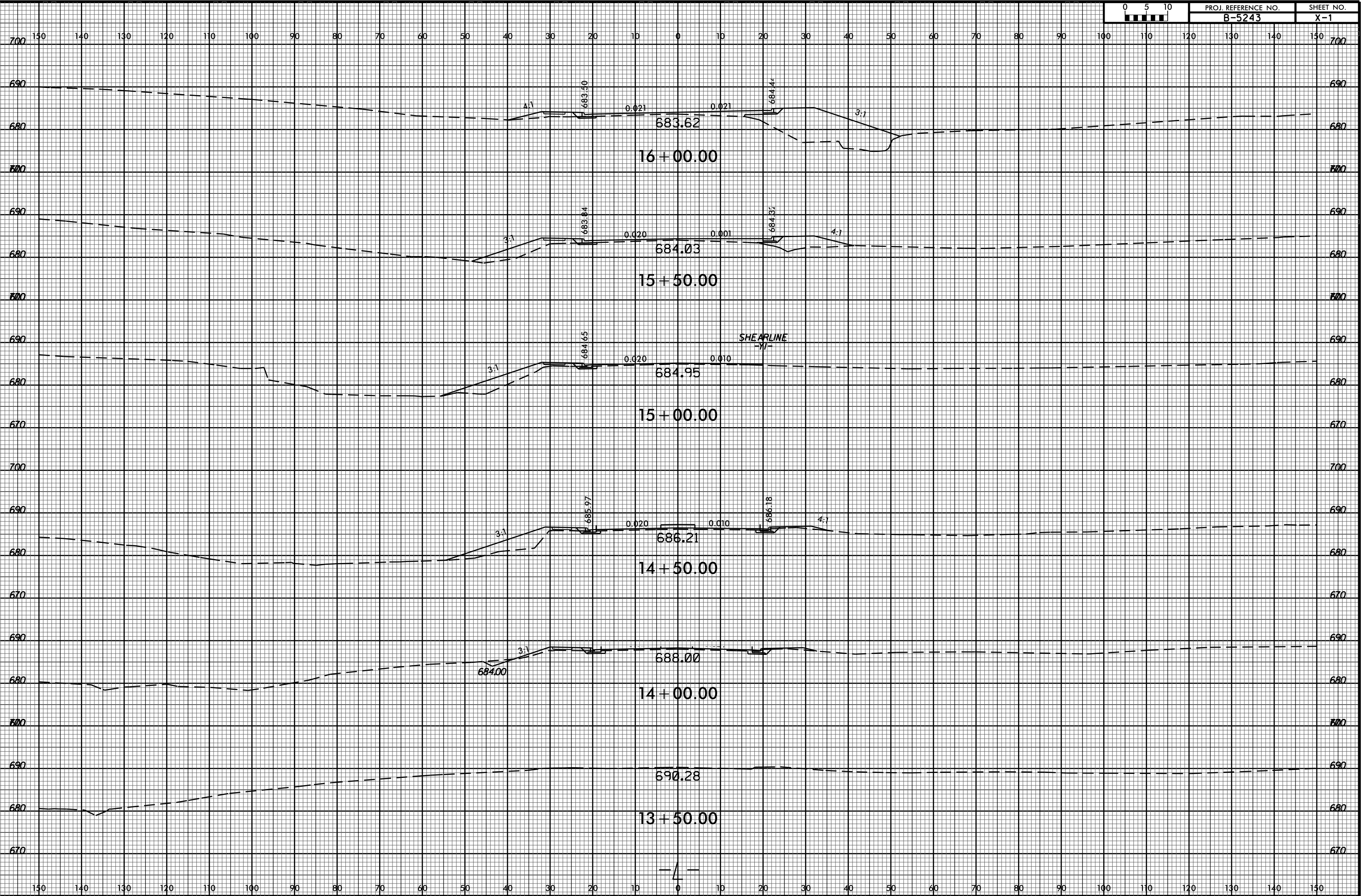


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8/23/99



PROJ. REFERENCE NO.	SHEET NO.
B-5243	X-1

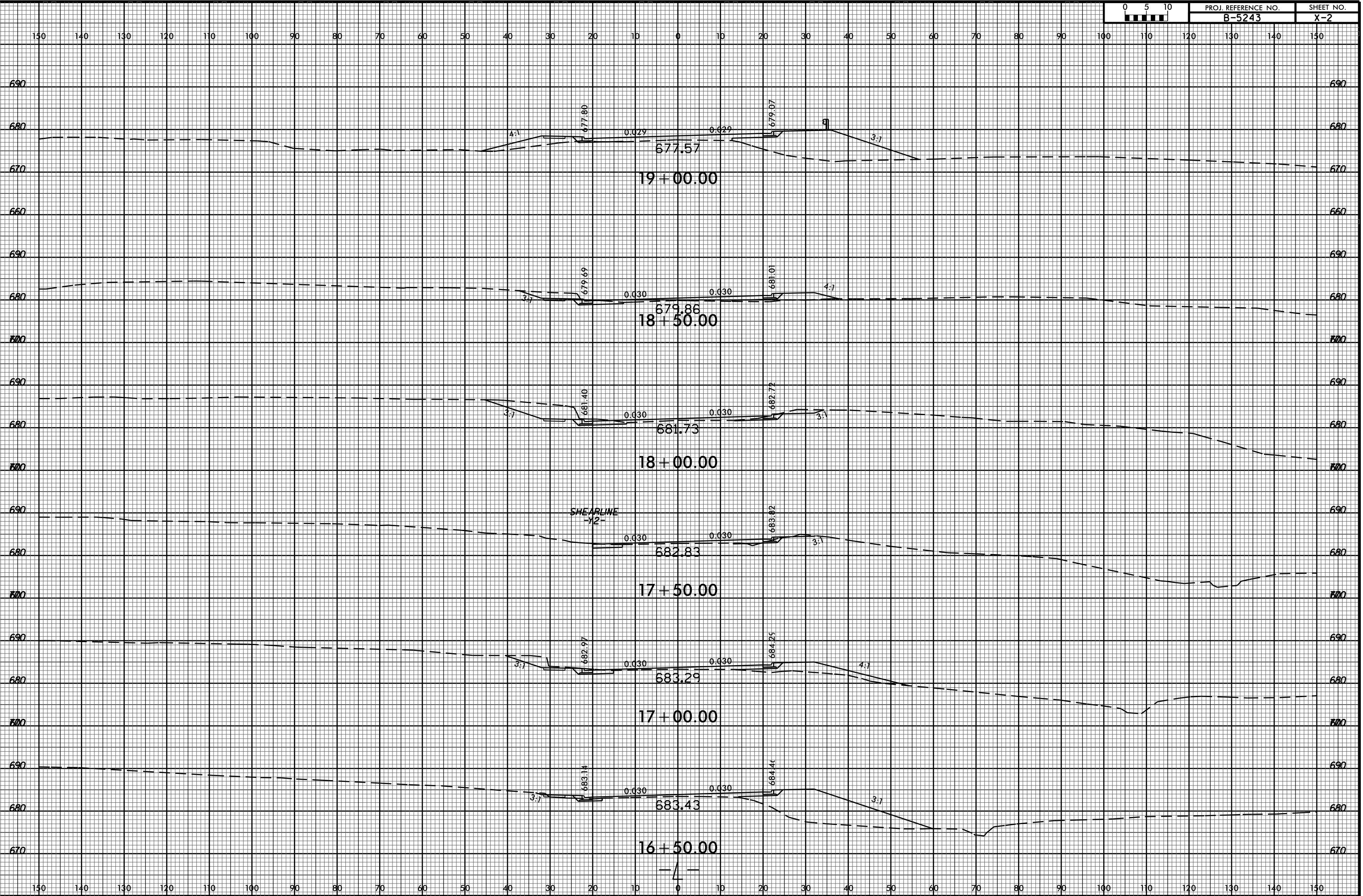


07-JAN-2015 09:39  
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8/23/99



PROJ. REFERENCE NO. B-5243 SHEET NO. X-2

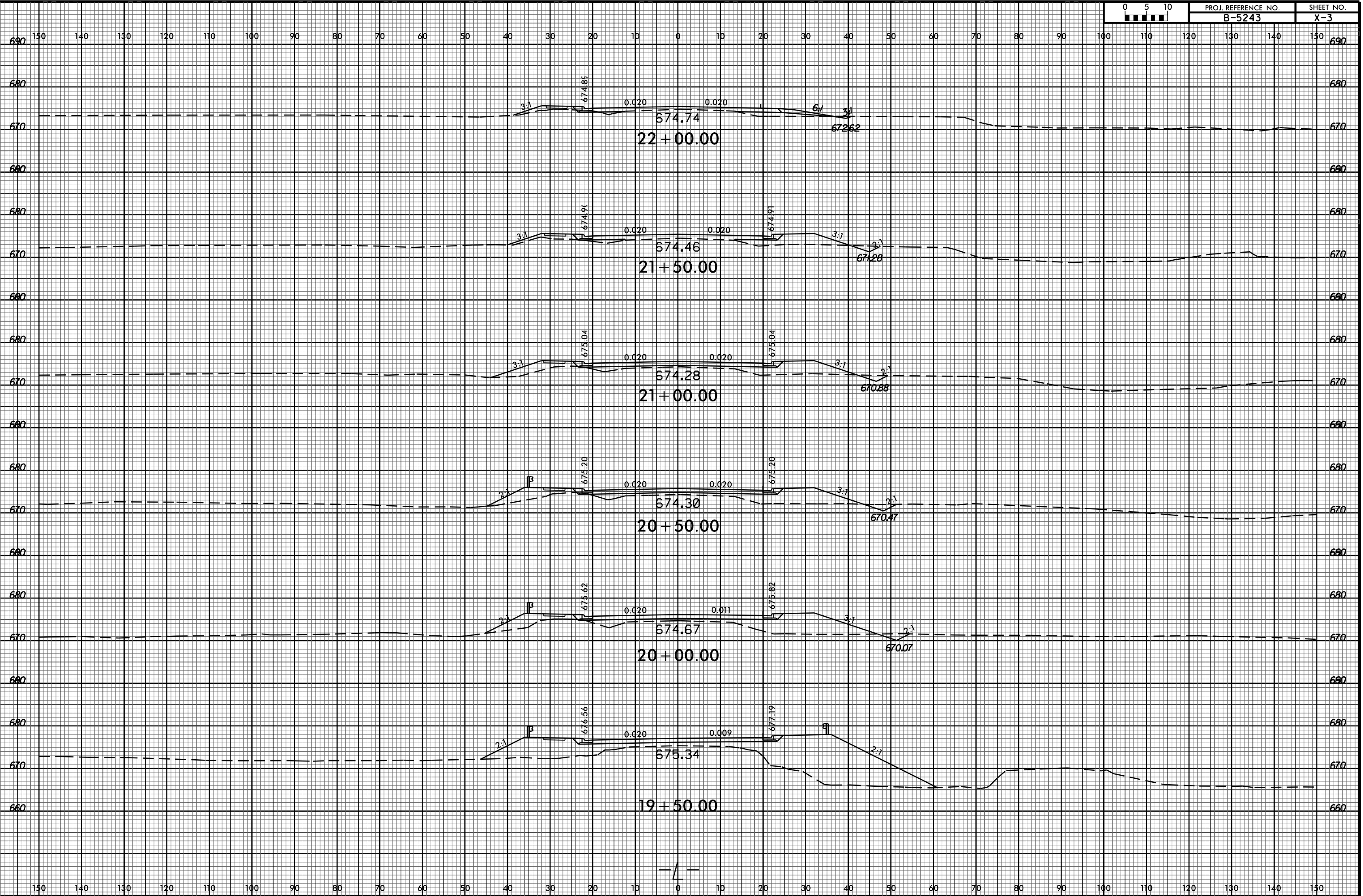


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8/23/99



PROJ. REFERENCE NO.	SHEET NO.
B-5243	X-3

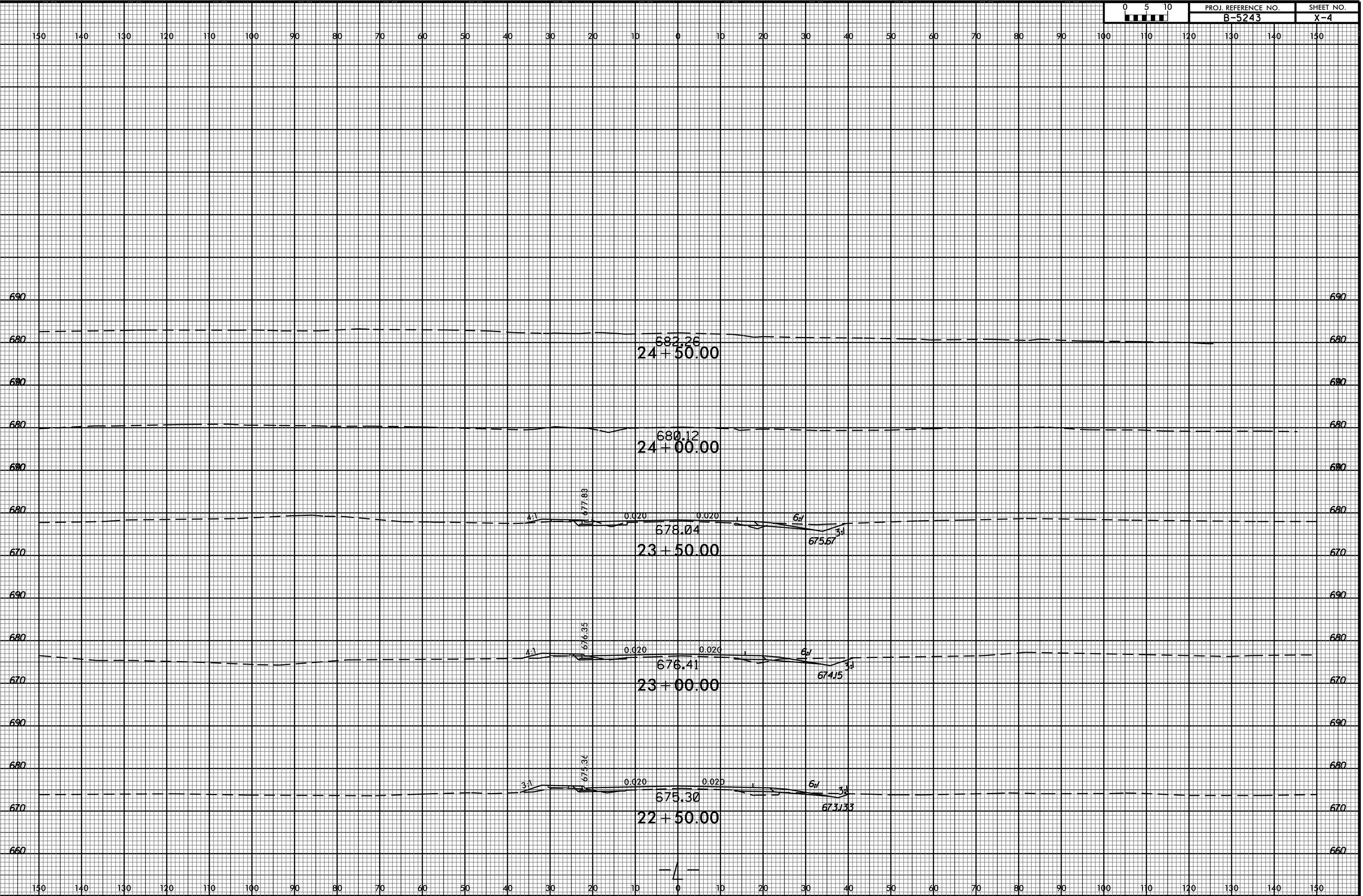


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8/23/99



PROJ. REFERENCE NO. B-5243 SHEET NO. X-4



682.26  
24 + 50.00

680.12  
24 + 00.00

678.04  
23 + 50.00

676.41  
23 + 00.00

675.30  
22 + 50.00

4:1

4:1

3:1

6:1

6:1

6:1

0.020

0.020

0.020

0.020

0.020

0.020

6:1

6:1

6:1

3:1

3:1

3:1

675.67

674.15

673.33

677.83

676.35

675.36

07-JAN-2015 09:39 P:\PROJECTS\2015\B5243\_Rdy\_xpl.dgn \$\$\$USERNAME\$\$\$

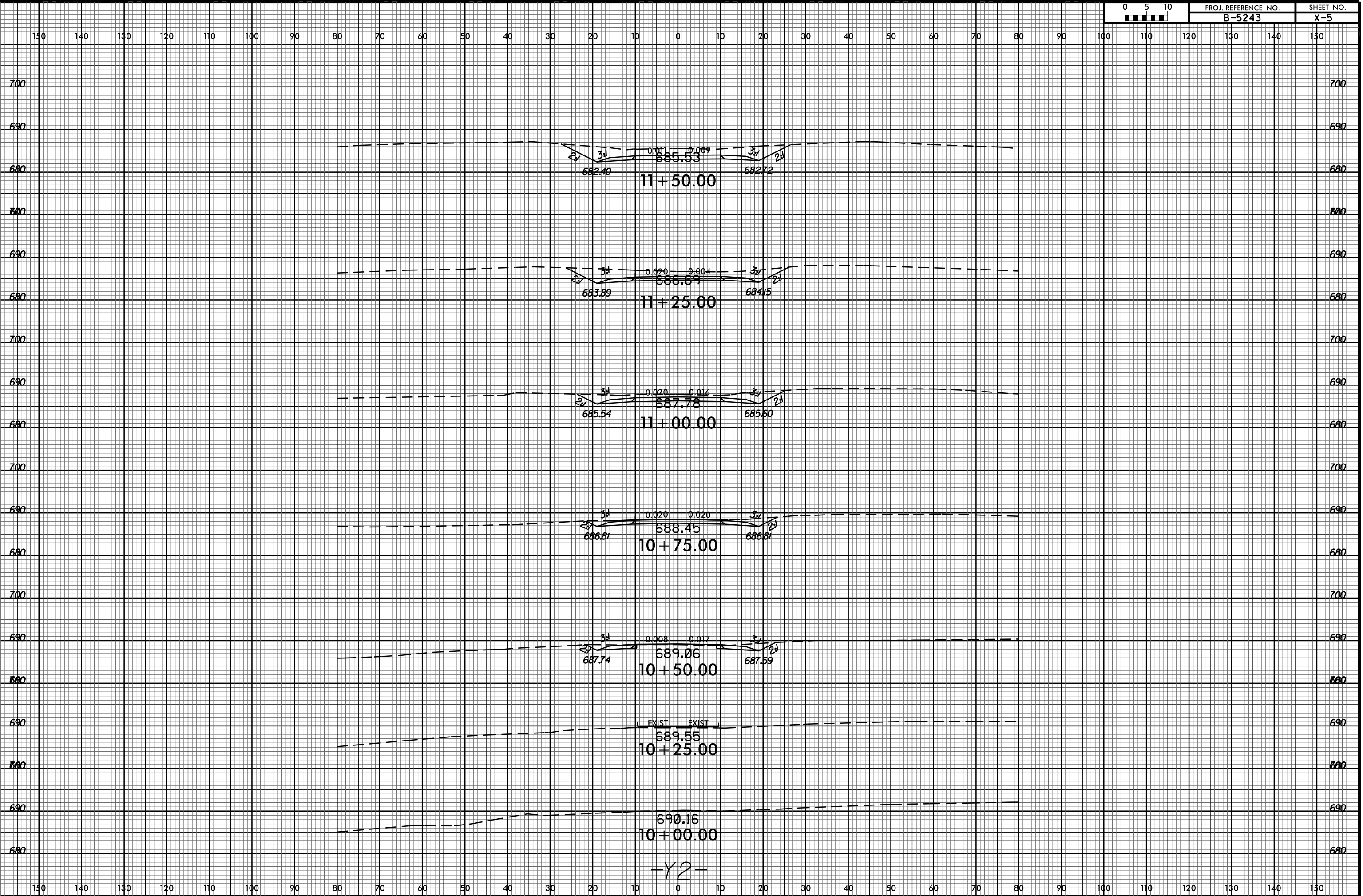


8/23/99



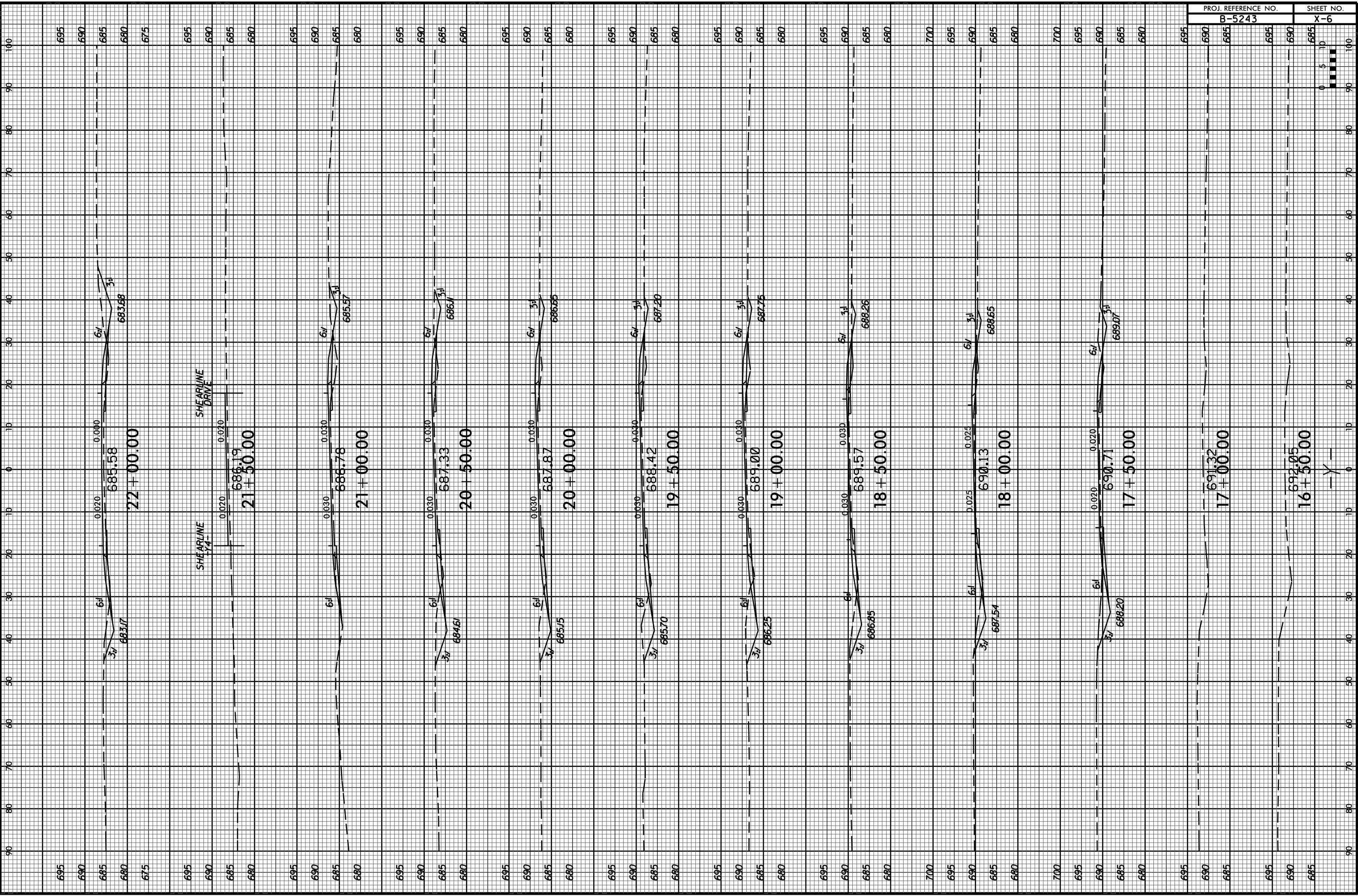
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B-5243

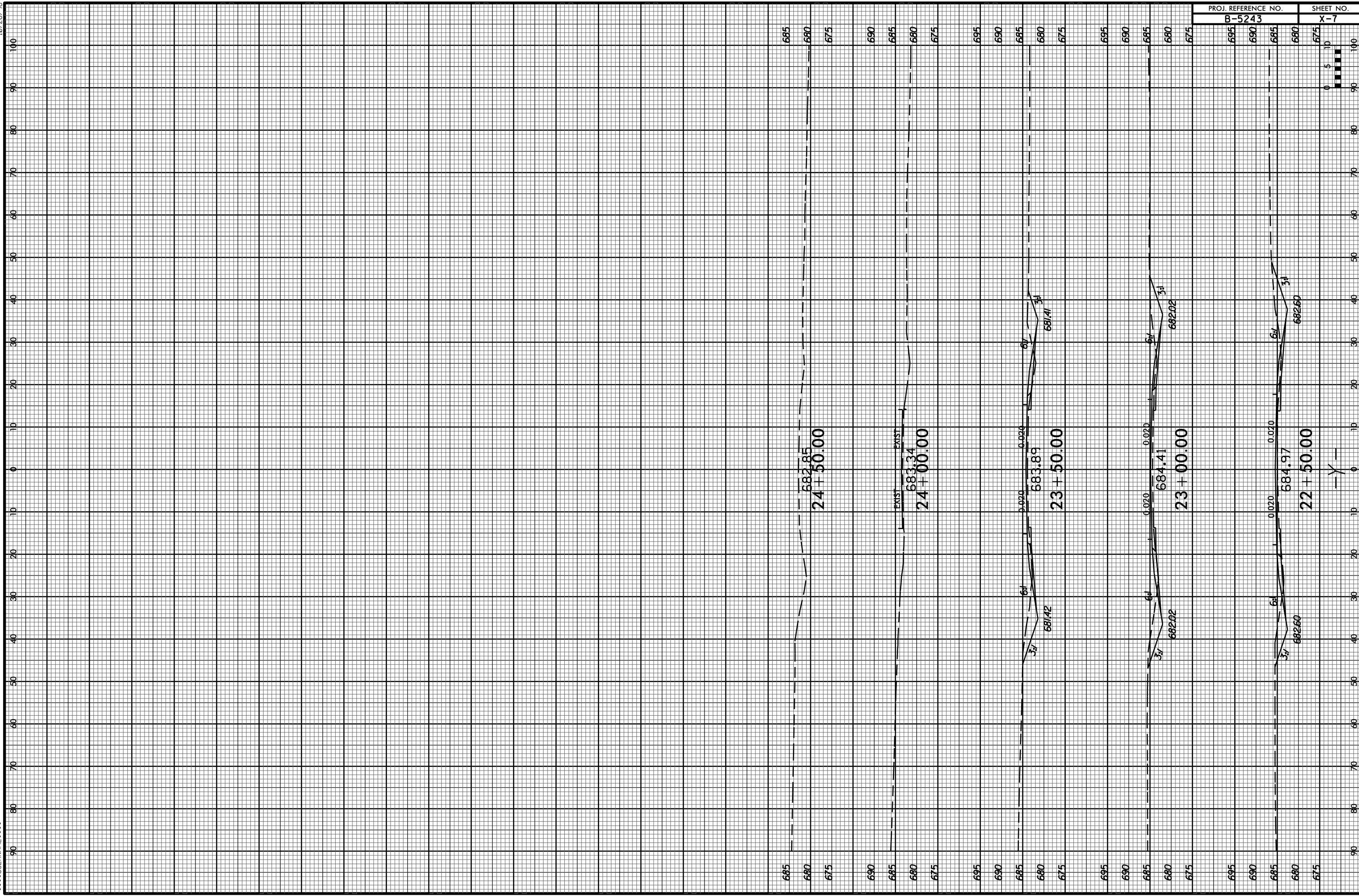
SHEET NO.  
X-5



-Y2-

07-JAN-2015 09:39  
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685  
680  
675  
690  
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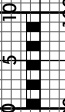
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24+00.00

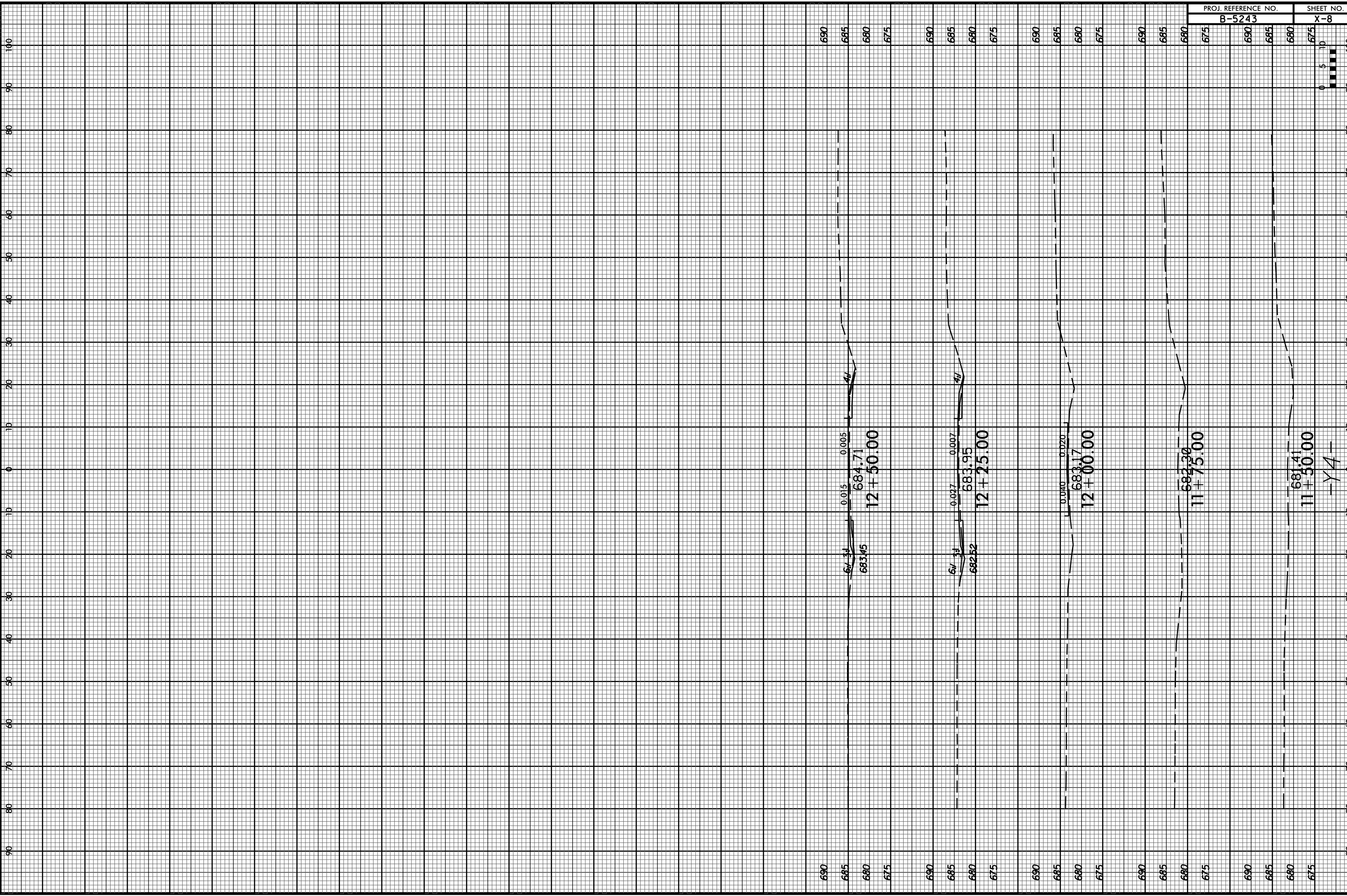
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23+50.00

EXIST  
684.41  
23+00.00

EXIST  
684.97  
22+50.00

—Y—





-Y4-

