STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

May 21, 2014

N.C. Division of Water Resources
585 Waughtown Street
Winston-Salem, NC 27107

ATTN: Mr. Dave Wanucha
NCDOT Division 7 Project Coordinator

SUBJECT: **Application for Section 401 Water Quality Certification No. 3883 and Jordan Lake Water Supply Watershed Buffer Authorization** for the replacement of Bridge No. 64 over Quaker Creek on SR 1912 (Dickey Mill Road), Alamance County, North Carolina. Federal Aid Project No. BRZ-1912(12), TIP No. B-4953.

Debit $240.00 from WBS Element No. 40078.1.1

Please find enclosed the Pre-Construction Notification (PCN), Stormwater Management Plan, permit drawings, and roadway design plans for the subject project. A Programmatic Categorical Exclusion (PCE) was completed for this project in September 2013.

The proposed let date for this project is January 20, 2015, with a let review date of December 2, 2014. However, the let date may advance as additional funds become available.

A copy of this permit application will be posted on the NCDOT Website at https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx, under *Quick Links > Permit Applications*. A copy of the PCE is also available at the above website address under *Quick Links > Environmental Documents*. Thank you for your assistance with this project. If you have any questions or need additional information, please contact Amy James at either aejames2@ncdot.gov or (919) 707-6129.

Sincerely,

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

cc: NCDOT Permit Application Standard Distribution List
David Bailey, USACE Division 7 Permit Coordinator

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-707-6000
FAX: 919-212-5785
WEBSITE: WWW.NCDOT.ORG

LOCATION:
CENTURY CENTER BUILDING B
1020 BIRCH RIDGE DR.
RALEIGH, NC 27610

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

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit ☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 3	or General Permit (GP) number:
1c. Has the NWP or GP number been verified by the Corps?	☐ Yes ☒ No
1d. Type(s) of approval sought from the DWQ (check all that apply):	☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit ☐ 401 Water Quality Certification – Express ☒ Riparian Buffer Authorization
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No For the record only for Corps Permit: ☒ Yes ☐ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	☐ Yes ☒ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	☐ Yes ☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	☐ Yes ☒ No

2. Project Information

2a. Name of project:	Replacement of Bridge No. 64 over Quaker Creek on SR 1912
2b. County:	Alamance
2c. Nearest municipality / town:	Burlington
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-4953

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6129
3g. Fax no.:	(919) 212-5785
3h. Email address:	aejames2@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	*not applicable*
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:	*not applicable*
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):	*not applicable*
1b. Site coordinates (in decimal degrees):	Latitude: 36.144548 (DD.DDDDDD) Longitude: - 79.309751 (-DD.DDDDDD)
1c. Property size:	1.6 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Quaker Creek
2b. Water Quality Classification of nearest receiving water:	WS-II; HQW; NSW
2c. River basin:	Cape Fear
3. Project Description	
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Land use in the project vicinity consists primarily of agriculture, interspersed with residential development along roadways and forestland along stream corridors.	
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: 200	
3d. Explain the purpose of the proposed project: To replace a structurally deficient and functionally obsolete bridge.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 62-foot bridge with a 74-foot, single span bridge on the existing alignment with an off-site detour and a temporary workpad. Standard road building equipment, such as trucks, dozers, and cranes will be used.	
4. Jurisdictional Determinations	
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments: A JD was not sought due to the nature of jurisdictional features identified (a single, perennial stream).	☐ Yes ☒ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary ☐ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known):	Agency/Consultant Company: Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.	
5. Project History	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes ☒ No ☐ Unknown
5b. If yes, explain in detail according to "help file" instructions.	
6. Future Project Plans	
6a. Is this a phased project?	☐ Yes ☒ No
6b. If yes, explain.	

C. Proposed Impacts Inventory

1. Impacts Summary

1a. Which sections were completed below for your project (check all that apply):

☐ Wetlands ☒ Streams - tributaries ☒ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction	2f. Area of impact (acres)
Site 1 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 2 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 3 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 4 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 5 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 6 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	X Permanent X Temporary

2h. Comments:

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☐ P ☒ T	Temporary workpad	Quaker Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	30	43 (<0.01 acre)
Site 2 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	0 Perm 43 Temp

3i. Comments:

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

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

4g. Comments:

5. Pond or Lake Construction

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

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

5g. Comments:

5h. Is a dam high hazard permit required?	☐ Yes ☐ No If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

6. Buffer Impacts (for DWQ)

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

6a. Project is in which protected basin?			☐ Neuse ☐ Catawba	☐ Tar-Pamlico ☐ Randleman	☒ Other: Jordan
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☒ P ☐ T	Bridge	Quaker Creek	☐ Yes ☒ No	1,261	137
B2 ☒ P ☐ T	Road Crossing	Quaker Creek	☐ Yes ☒ No	1,159	1,500
B3 ☐ P ☐ T			☐ Yes ☐ No		
			6h. **Total buffer impacts**	2,420	1,637

6i. Comments:

D. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.

The proposed bridge is 12 feet longer than the existing bridge and will be at approximately the same grade and alignment as the existing structure; no deck drains on bridge; use of Design Standards for Sensitive Watersheds; removal of interior bent; vegetative treatment of shoulder section discharges and increased buffer treatment of discharges; use of an existing end bent to minimize stream impacts.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.

NCDOT Best Management Practices for Bridge Demolition, Removal and Construction will be followed, as well as those for Sedimentation and Erosion Control; use of an off-site detour.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☐ Yes ☒ No If no, explain: Impacts are temporary.
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☐ Corps
2c. If yes, which mitigat ion option will be used for this project?	☐ Mitigation bank ☐ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

3b. Credits Purchased (attach receipt and letter)	Type	Quantity

3c. Comments:

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

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

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

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

6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ				
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?				☐ Yes ☒ No
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
	6f. **Total buffer mitigation required:**			
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).				
6h. Comments:				

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

F. Supplementary Information	
1. Environmental Documentation (DWQ Requirement)	
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes ☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes ☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	☒ Yes ☐ No
2. Violations (DWQ Requirement)	
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes ☒ No
2b. Is this an after-the-fact permit application?	☐ Yes ☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):	
3. Cumulative Impacts (DWQ Requirement)	
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ No
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.	
4. Sewage Disposal (DWQ Requirement)	
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable	

5. Endangered Species and Designated Critical Habitat (Corps Requirement)	
5a. Will this project occur in or near an area with federally protected species or habitat?	☐ Yes ☒ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☐ Yes ☒ No
5c. If yes, ind icate the USFWS Field Office you have contacted.	☐ Raleigh ☐ Asheville
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? USFWS county list	
6. Essential Fish Habitat (Corps Requirement)	
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes ☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index	
7. Historic or Prehistoric Cultural Resources (Corps Requirement)	
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes ☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation	
8. Flood Zone Designation (Corps Requirement)	
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes ☐ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA	
8c. What source(s) did you use to make the floodplain determination? FEMA Maps	

Richard W. Hancock, P.E. Applicant/Agent's Printed Name	Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	05/21/2014 Date

North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2; Released April 2014)

WBS Element: 40078.1.1 **TIP No.:** B-4953 **County(ies):** Alamance **Page** 1 **of** 1

General Project Information

WBS Element:	40078.1.1	**TIP Number:**	B-4953	**Project Type:**	Bridge Replacement	**Date:**	3/1/2014
NCDOT Contact:	Ray Lovinggood			**Contractor / Designer:**			
Address:	1020 Birch Ridge Dr. Raleigh, NC 27610			**Address:**			
Phone:	919.707.6736			**Phone:**			
Email:	rlovinggood@ncdot.gov			**Email:**			
City/Town:	Haw River			**County(ies):**	Alamance		
River Basin(s):	Cape Fear			**CAMA County?**	No		
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	0.066 miles	**Surrounding Land Use:**	Farm land, Historic Property
	Proposed Project		**Existing Site**
Project Built-Upon Area (ac.)	0.2 ac.		0.2 ac.
Typical Cross Section Description:	Two 10' travel lanes with 3' to 4.33' paved shoulders,shoulder berm gutter,3' to 6' grassed shoulders and grassed side slopes.		Two 9' travel lanes with 4' grassed shoulders and side slopes.
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 600	Year: 2035	Existing: 452 Year: 2015
General Project Narrative: (Description of Minimization of Water Quality Impacts)	B-4953 is a Transportation Improvement Project to replace Bridge #0064 in Alamance County crossing Quaker Creek. The existing bridge is a two span timber deck on I-beams w/one interior bent. The new bridge will be a 70' single span cored slab structure. Minimization and avoidance measures incorporated into the design include elimination of direct discharge, increasing buffer treatment of discharges, utilizing an existing end bent to minimize stream impacts, removal of an interior bent and vegetative treatment of shoulder section discharges.		

Waterbody Information

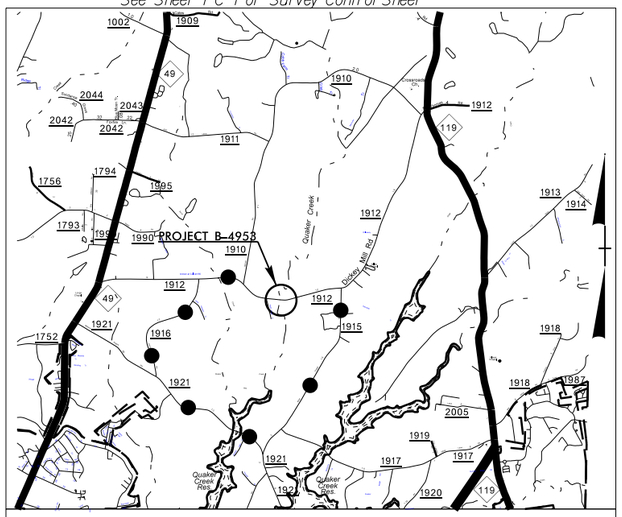
Surface Water Body (1):	Quaker Creek		**NCDWR Stream Index No.:**	16-18-4-(1)	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply II (WS-II)		
		Supplemental Classification:	High Quality Waters (HQW)	(NSW)	
Other Stream Classification:	None				
Impairments:	None				
Threatened/Endangered Species?		Comments:			
Buffer Rules in Effect	Jordan Lake				
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	No	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

09/08/99

TIP PROJECT: B-4953

CONTRACT: C203516

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



VICINITY MAP

DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ALAMANCE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4953	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
40078.1.1	BRZ-1912(2)	PE
40078.2.FD1	BRZ-1912(2)	R/W & UTILITIES
40078.3.FD1	BRZ-1912(2)	CONST.

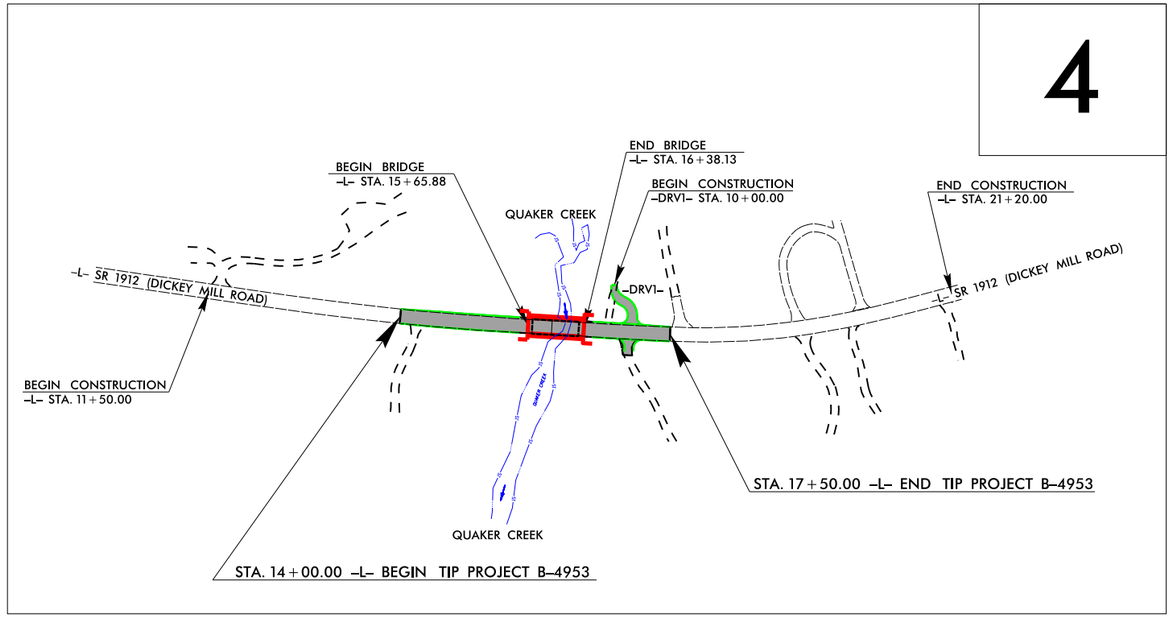
LOCATION: BRIDGE NO. 64 ON SR 1912 (DICKEY MILL ROAD) OVER QUAKER CREEK

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

WETLAND AND SURFACE WATER IMPACTS PERMIT

NAD 83/
NSRS 2007

4



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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2015 = 452
ADT 2035 = 600
DHV = 13 %
D ≐ 60 %
T = 3 % *
V = 45 MPH

* TTST 1% DUAL 2%
FUNC CLASS = RURAL LOCAL
"SUB-REGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4953 = 0.052 MILES
LENGTH STRUCTURE TIP PROJECT B-4953 = 0.014 MILES
TOTAL LENGTH OF TIP PROJECT B-4953 = 0.066 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 28, 2014

LETTING DATE:
JANUARY 20, 2015

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

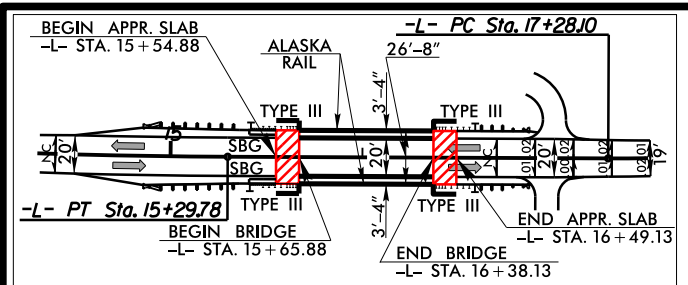
SIGNATURE: P.E.

PERMIT DRAWING
SHEET 1 OF 11

3/31/2014
mkdfly
R:\Hydraulics\PERMITS_Environmental\Drawings\Wetland_Stream\B4953_Hyd_prm_wet_TSH.dgn
$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

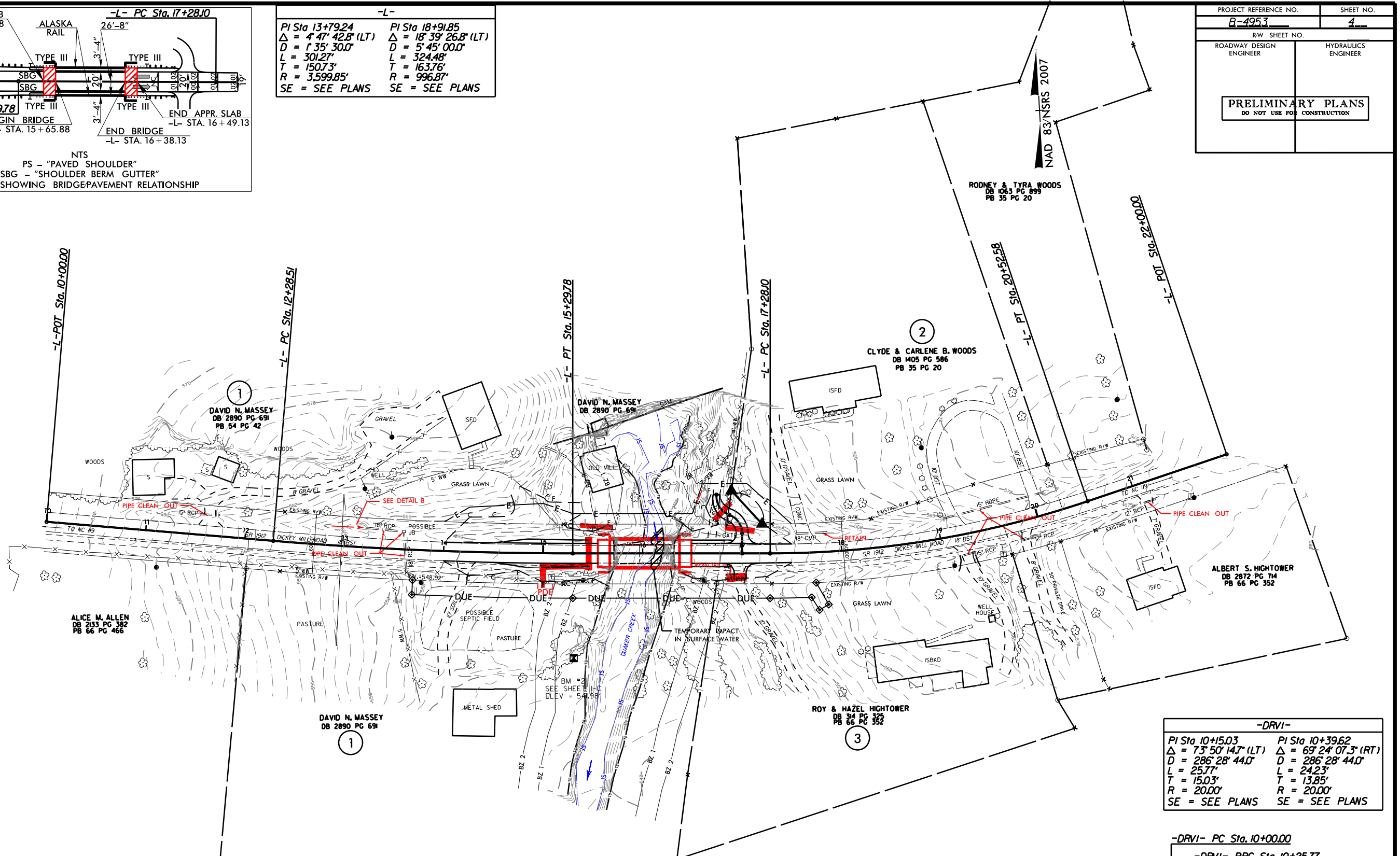
PROJECT REFERENCE NO.	SHEET NO.
B-4953	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

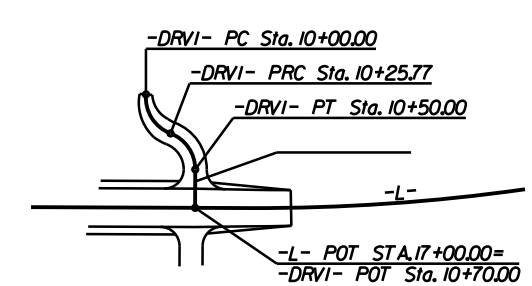


NTS
PS – "PAVED SHOULDER"
SBG – "SHOULDER BERM GUTTER"
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

-L-	
PI Sta 13+79.24	PI Sta 18+91.85
Δ = 4° 47' 42.8" (LT)	Δ = 18° 39' 26.8" (LT)
D = 1° 35' 30.0"	D = 5° 45' 00.0"
L = 301.27'	L = 324.48'
T = 150.73'	T = 163.76'
R = 3,599.85'	R = 996.87'
SE = SEE PLANS	SE = SEE PLANS



-DRV1-	
PI Sta 10+15.03	PI Sta 10+39.62
Δ = 73° 50' 14.7" (LT)	Δ = 69° 24' 07.3" (RT)
D = 286° 28' 44.0"	D = 286° 28' 44.0"
L = 25.77'	L = 24.23'
T = 15.03'	T = 13.85'
R = 20.00'	R = 20.00'
SE = SEE PLANS	SE = SEE PLANS



TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100' 200' 300'
Scale: 1" = 100'

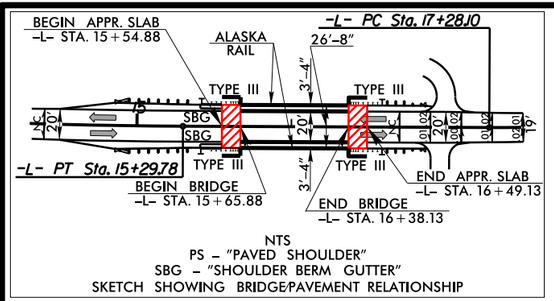
PERMIT DRAWING
SHEET 2 OF 11

SEE SHEET 5 FOR -L- PROFILE
SEE SHEET 5 FOR -DRV1- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

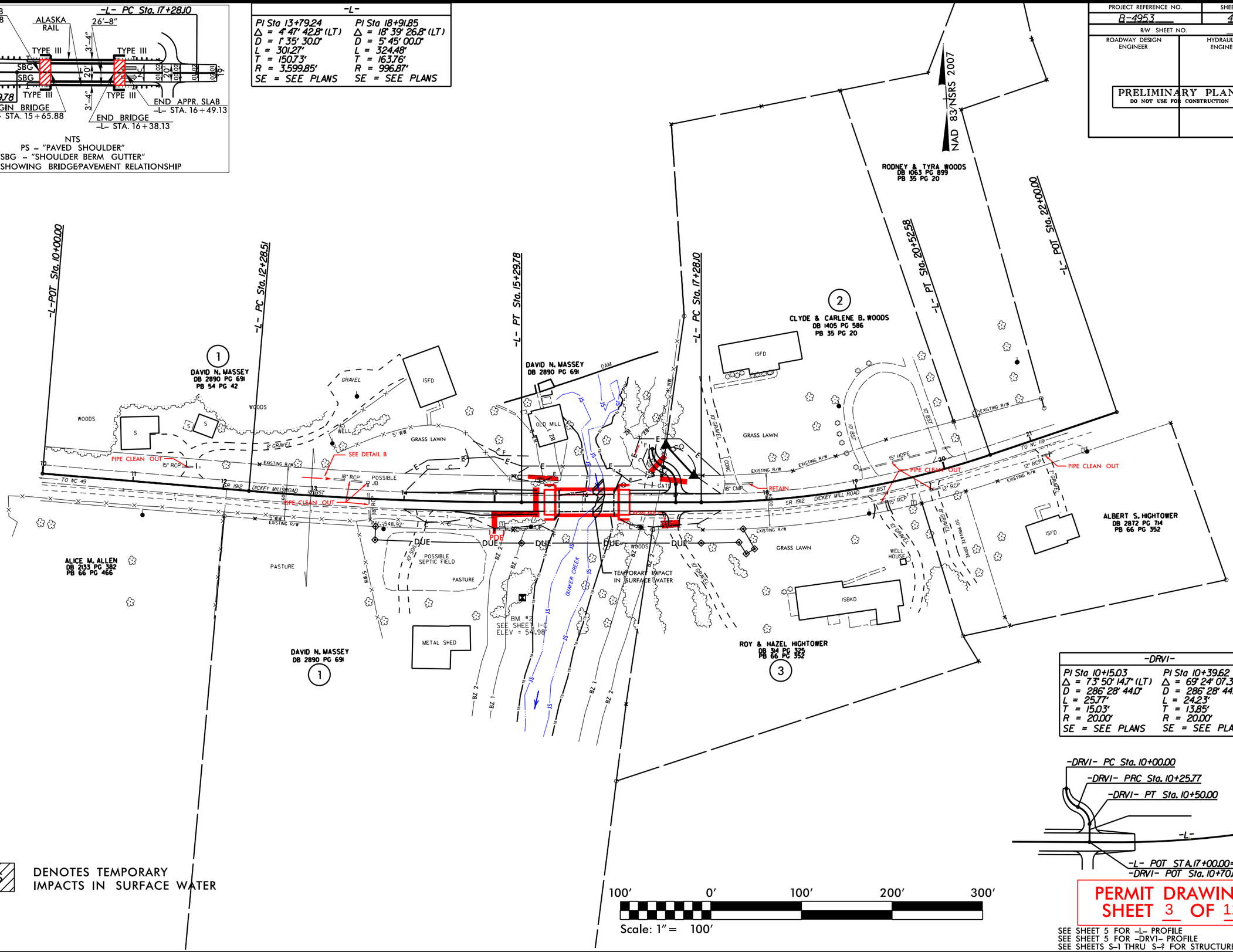
3/31/2014
mkelly
R:\Hydraulics\PERMITS_Environmental\Drawings\Wetland_Stream\B4953_Hyd_prm_wet_PSH04.dgn
REVISIONS
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4953	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-L-	
PI Sta 13+79.24	PI Sta 18+91.85
Δ = 4° 47' 42.8" (LT)	Δ = 18° 39' 26.8" (LT)
D = 1° 35' 30.0"	D = 5° 45' 00.0"
L = 301.27'	L = 324.48'
T = 150.73'	T = 163.76'
R = 3,599.85'	R = 996.87'
SE = SEE PLANS	SE = SEE PLANS



-DRV1-	
PI Sta 10+15.03	PI Sta 10+39.62
Δ = 73° 50' 14.7" (LT)	Δ = 69° 24' 07.3" (RT)
D = 286° 28' 44.0"	D = 286° 28' 44.0"
L = 25.77'	L = 24.23'
T = 15.03'	T = 13.85'
R = 20.00'	R = 20.00'
SE = SEE PLANS	SE = SEE PLANS

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100' 200' 300'
Scale: 1" = 100'

PERMIT DRAWING
SHEET 3 OF 11

SEE SHEET 5 FOR -L- PROFILE
SEE SHEET 5 FOR -DRV1- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

8/17/99
REVISIONS
3/31/2014
mkelly
R:\Hydraulics\PERMITS_Environmental\Drawings\Wetland_Stream\B4953_Hyd_prm_wet_PSH04.dgn
$$$$SYSTIME$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

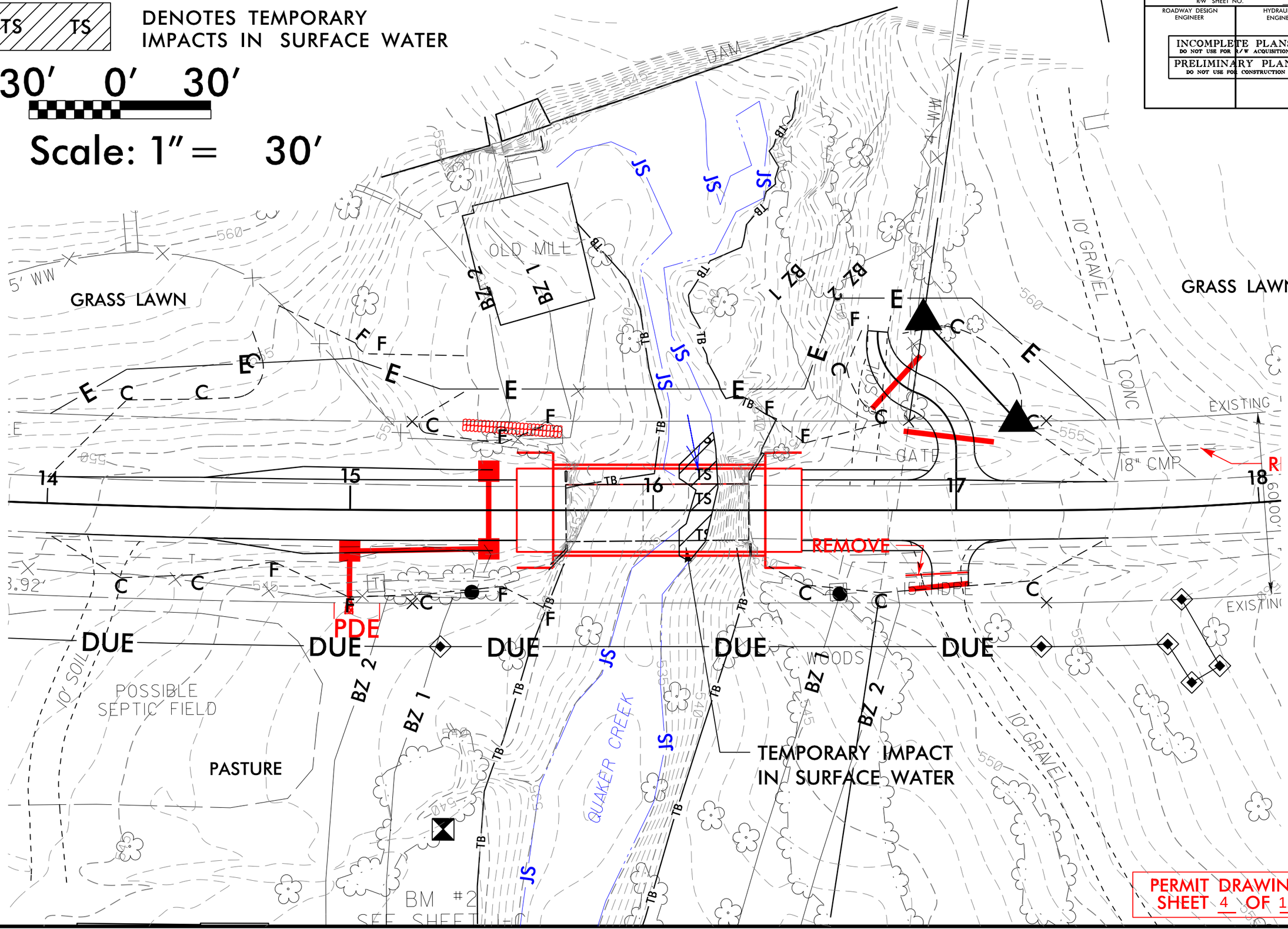
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

30′ 0′ 30′

Scale: 1″ = 30′

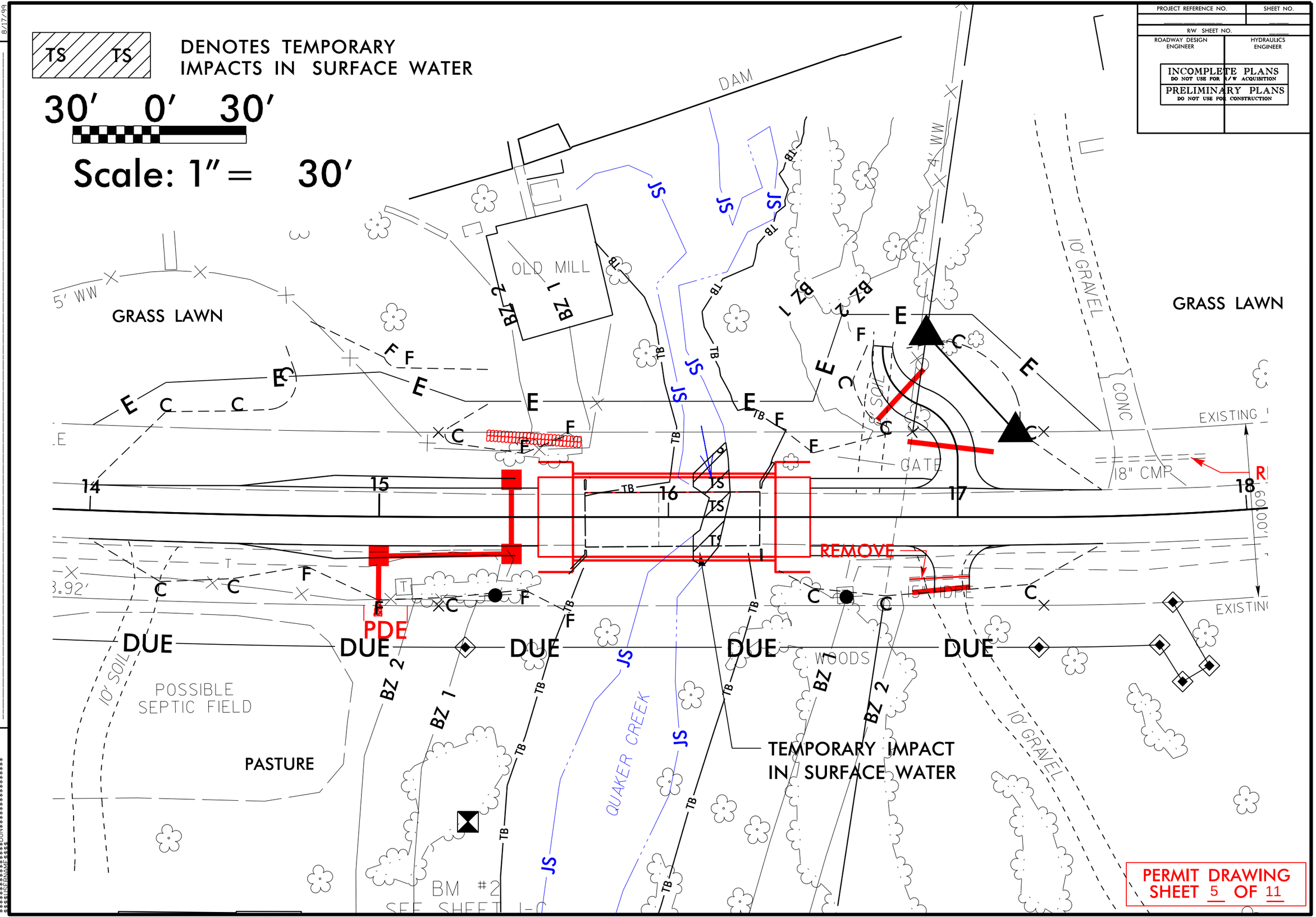


PERMIT DRAWING
SHEET 4 OF 11

8/17/99

REVISIONS

3/31/2014
mikelly
R:\Hydraulics\PERMITS_Environmental\Drawings\Wetland_Stream\B4953_Hyd_prm_wet_PSH04BU.dgn



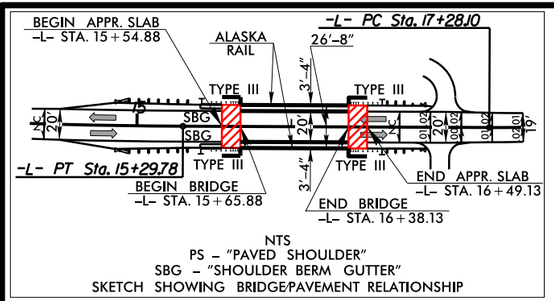
8/17/99

REVISIONS

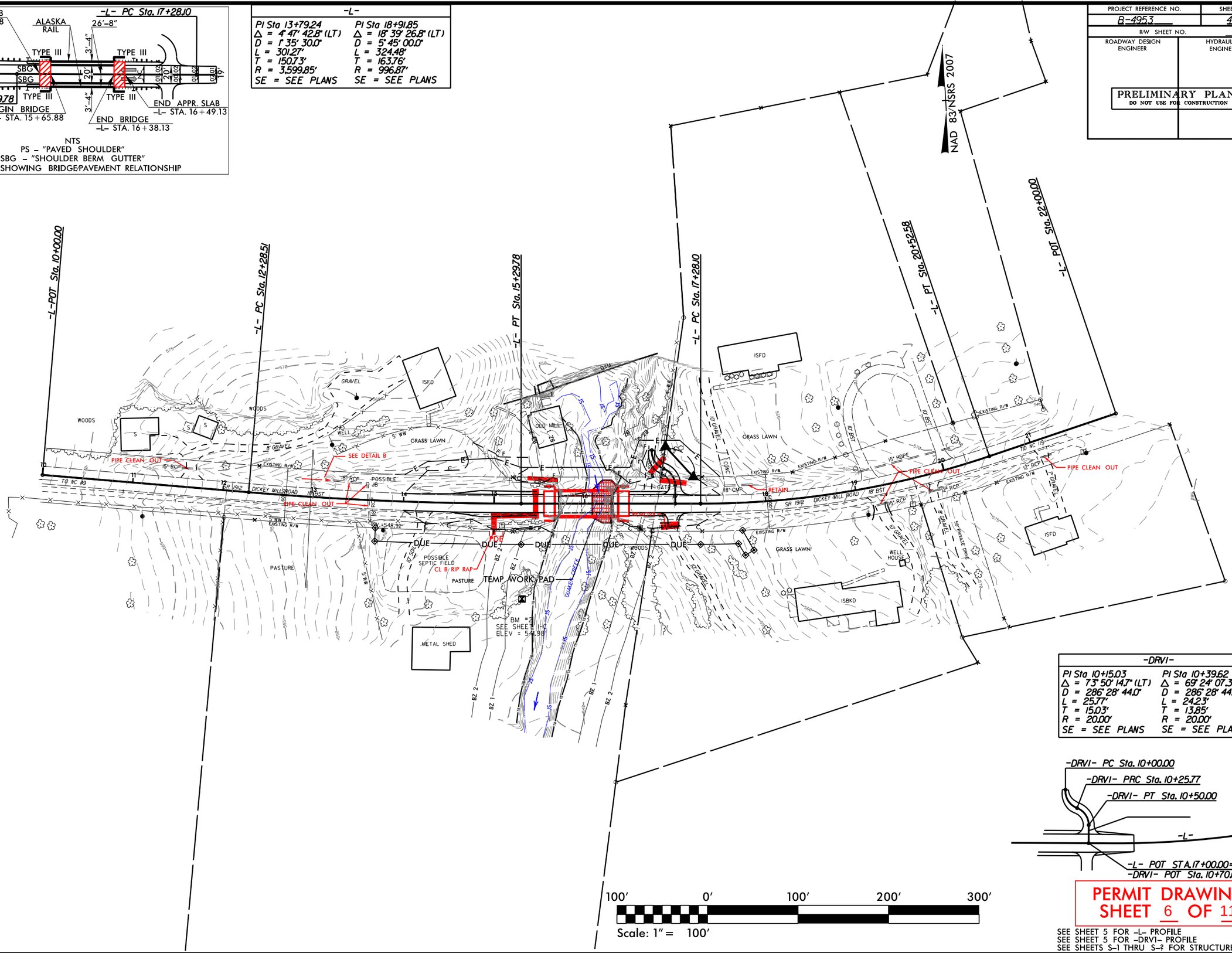
3/31/2014
mkelly
R:\Hydraulics\PERMITS_Environmental\Drawings\Wetland_Stream\B4953_Hyd_prm_wet_PSH04BU.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4953	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-L-	
PI Sta 13+79.24	PI Sta 18+91.85
Δ = 4° 47' 42.8" (LT)	Δ = 18° 39' 26.8" (LT)
D = 1° 35' 30.0"	D = 5° 45' 00.0"
L = 301.27'	L = 324.48'
T = 150.73'	T = 163.76'
R = 3,599.85'	R = 996.87'
SE = SEE PLANS	SE = SEE PLANS



-DRV1-	
PI Sta 10+15.03	PI Sta 10+39.62
Δ = 73° 50' 14.7" (LT)	Δ = 69° 24' 07.3" (RT)
D = 286° 28' 44.0"	D = 286° 28' 44.0"
L = 25.77'	L = 24.23'
T = 15.03'	T = 13.85'
R = 20.00'	R = 20.00'
SE = SEE PLANS	SE = SEE PLANS

PERMIT DRAWING
SHEET 6 OF 11

SEE SHEET 5 FOR -L- PROFILE
SEE SHEET 5 FOR -DRV1- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

REVISIONS

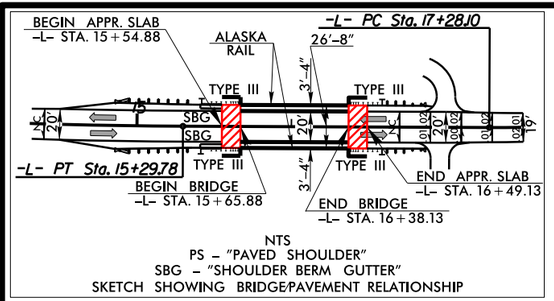
8/17/99

3/31/2014
mkelly
p:\wetlands\fes\PERMITS_Environmental\Drawings\Wetland_Stream\B4953_Hyd_cross_wetl_WorkPad.dgn

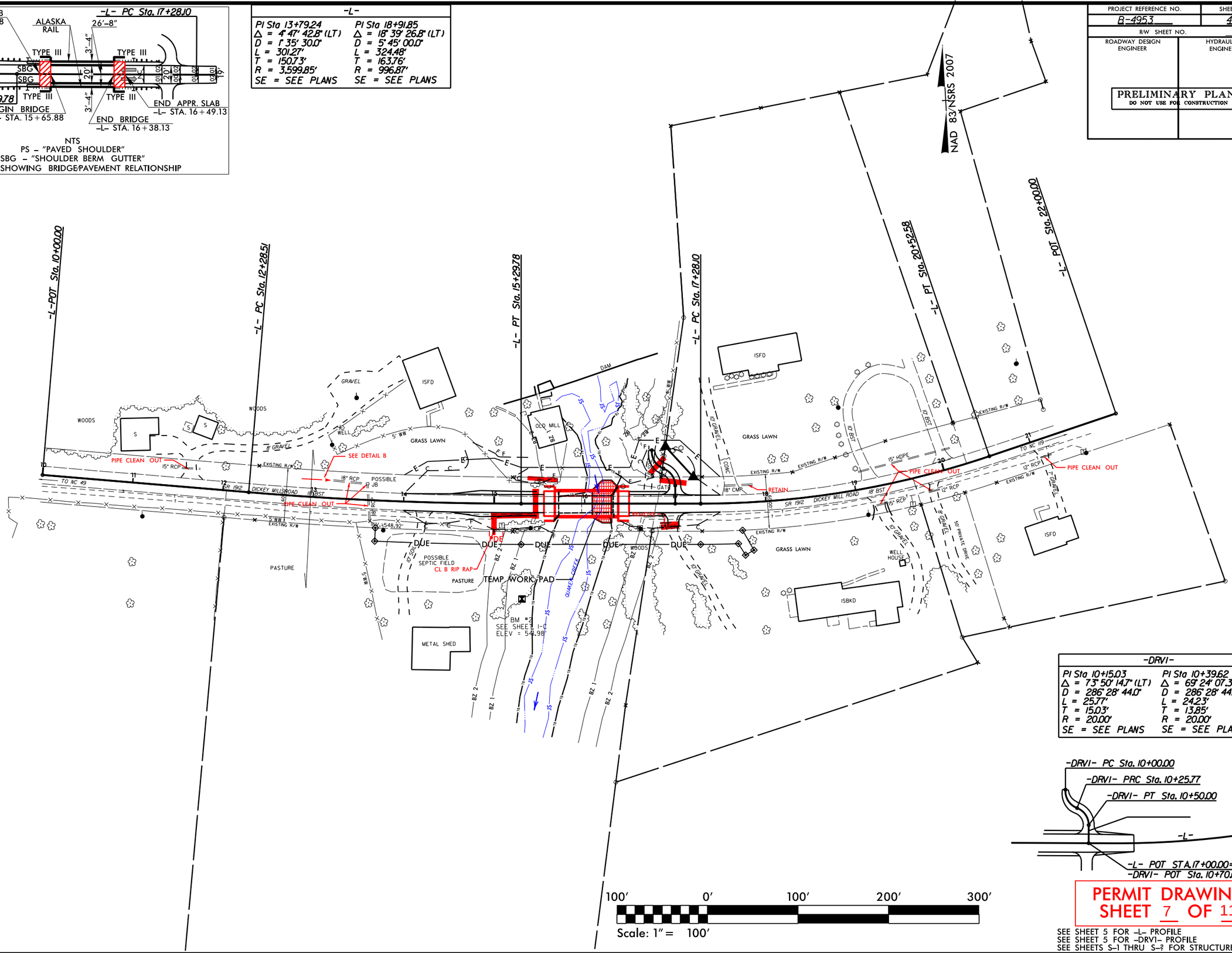
$$$$$SYSTIME$$$$$
>>>>>USONS$$$$$$$$$$$$$$$$$$$$
$$$$$FILENAME$$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4953	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-L-	
PI Sta 13+79.24	PI Sta 18+91.85
Δ = 4° 47' 42.8" (LT)	Δ = 18° 39' 26.8" (LT)
D = 1° 35' 30.0"	D = 5° 45' 00.0"
L = 301.27'	L = 324.48'
T = 150.73'	T = 163.76'
R = 3,599.85'	R = 996.87'
SE = SEE PLANS	SE = SEE PLANS



-DRV1-	
PI Sta 10+15.03	PI Sta 10+39.62
Δ = 73° 50' 14.7" (LT)	Δ = 69° 24' 07.3" (RT)
D = 286° 28' 44.0"	D = 286° 28' 44.0"
L = 25.77'	L = 24.23'
T = 15.03'	T = 13.85'
R = 20.00'	R = 20.00'
SE = SEE PLANS	SE = SEE PLANS

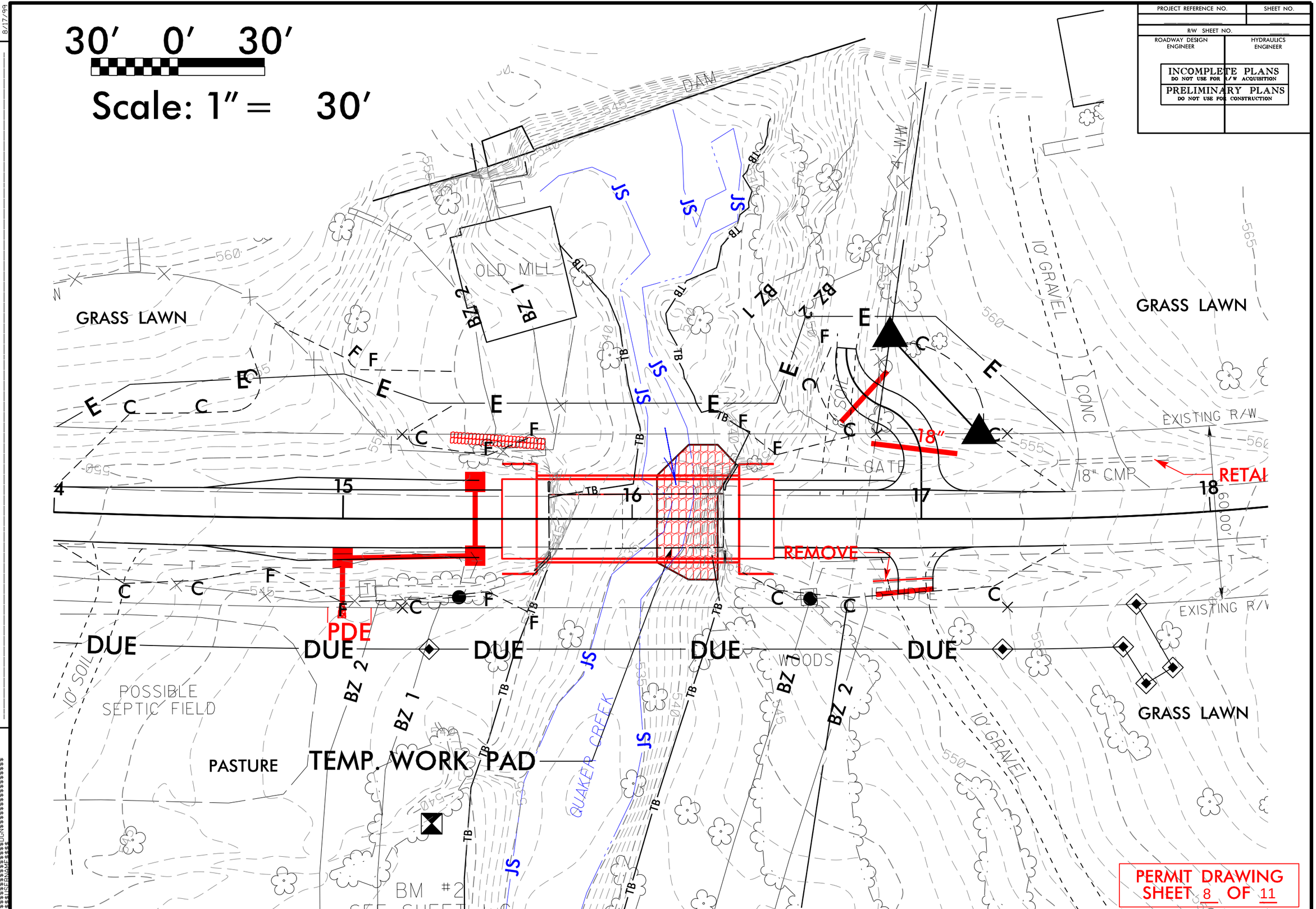
PERMIT DRAWING
SHEET 7 OF 11

SEE SHEET 5 FOR -L- PROFILE
SEE SHEET 5 FOR -DRV1- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

REVISIONS

8/17/99

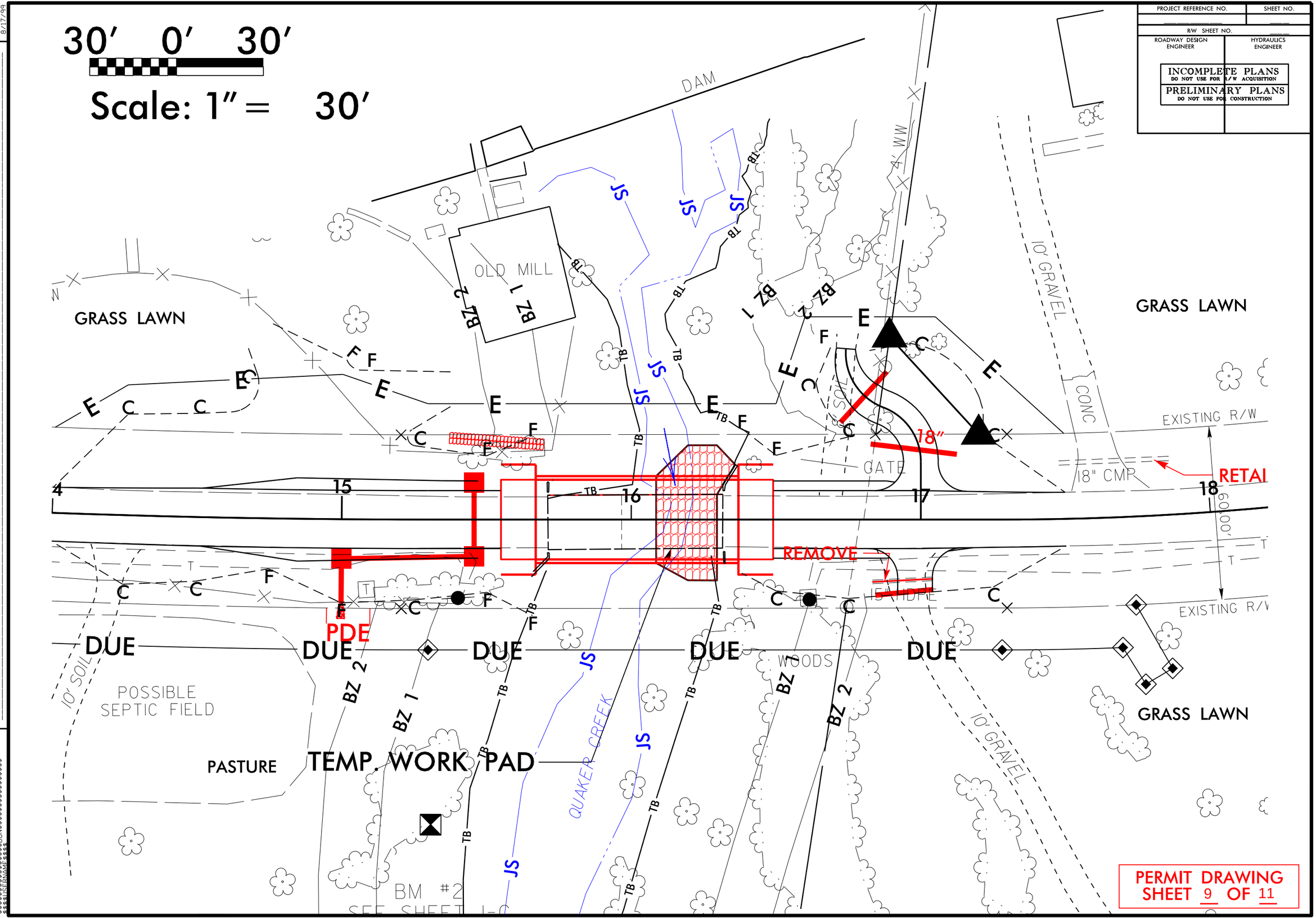
3/3/2014
mkelly
$$$

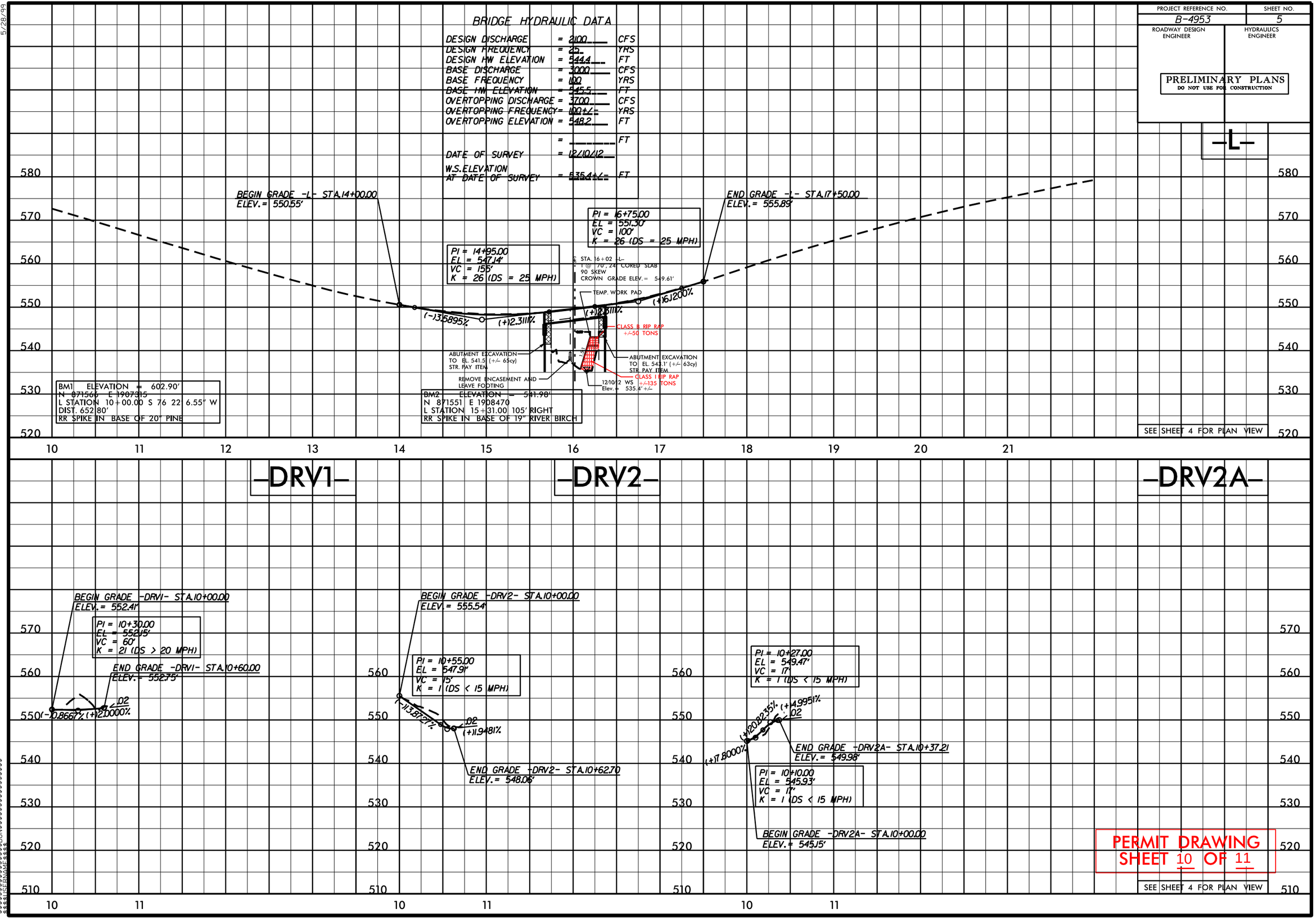


3/31/2014
mkelly
R:\Hydraulics\PERMITS_Environmental\Drawings\Wetland_Stream\B4953_Hyd_prm_wet_WorkPadBU.dgn

REVISIONS

8/17/99


30′ 0′ 30′
Scale: 1″ = 30′
PROJECT REFERENCE NO.
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DAM
OLD MILL
GRASS LAWN
GRASS LAWN
10′ GRAVEL
CONC
EXISTING R/W
18″
GATE
18" CMP
RETAI
60.00′
REMOVE
PDE
DUE
DUE
DUE
DUE
DUE
POSSIBLE SEPTIC FIELD
10′ SOIL
PASTURE
TEMP. WORK PAD
QUAKER CREEK
WOODS
10′ GRAVEL
GRASS LAWN
BM #2
SEE SHEET 1-C
PERMIT DRAWING
SHEET 9 OF 11
3/31/2014
mkelly
R:\Hydraulics\PERMITS_Environmental\Drawings\Wetland_Stream\B4953_Hyd_prm_wet_WorkPadBU.dgn
REVISIONS
8/17/99



5/28/99

3/31/2014
mkelly
R:\Hydraulics\PERMITS_Environmental\Drawings\Wetland_Stream\B4953_Hyd_prm_wet_PFL_PSH05.dgn

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	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)
	16+25	Work Pad							0.008		43	
TOTALS:									<0.01		43	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
Alamance
COUNTY
WBS - 40078.1.1 (B-4953)

SHEET 3/26/2014

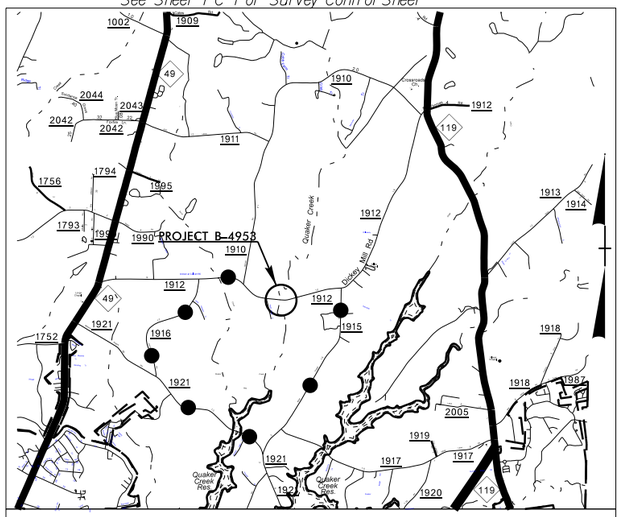
ATN Revised 3/31/05

09/08/99

TIP PROJECT: B-4953

CONTRACT: C203516

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



VICINITY MAP

DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ALAMANCE COUNTY

LOCATION: BRIDGE NO. 64 ON SR 1912 (DICKEY MILL ROAD) OVER QUAKER CREEK

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

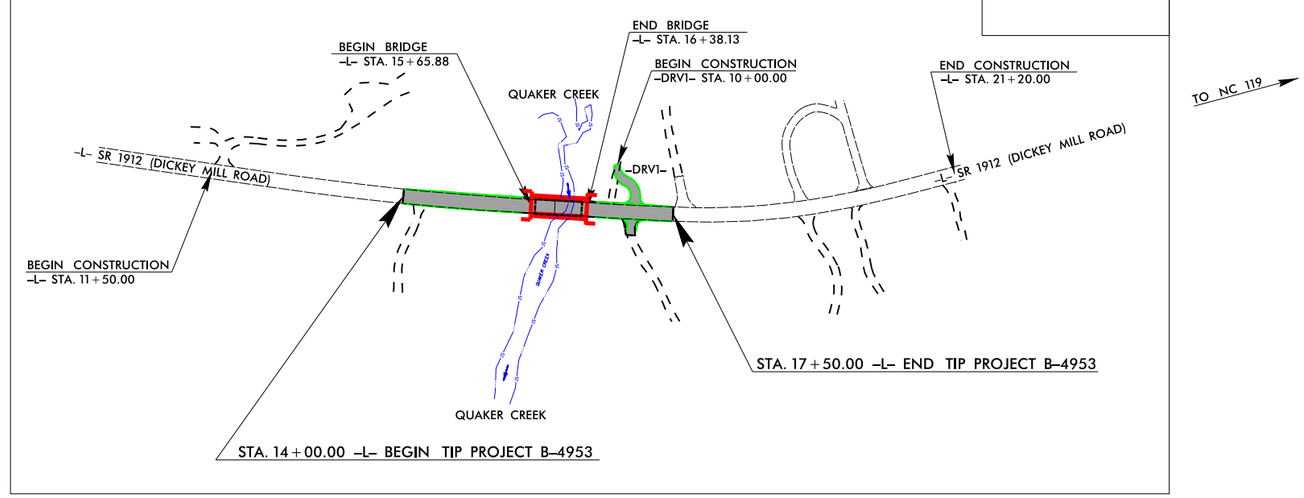
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4953	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
40078.1.1	BRZ-1912(2)	PE
40078.2.FD1	BRZ-1912(2)	R/W & UTILITIES
40078.3.FD1	BRZ-1912(2)	CONST.

NAD 83/
NSRS 2007

BUFFER IMPACTS PERMIT

4



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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2015 = 452
ADT 2035 = 600
DHV = 13 %
D ≐ 60 %
T = 3 % *
V = 45 MPH

* TTST 1% DUAL 2%
FUNC CLASS = RURAL LOCAL
"SUB-REGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4953 = 0.052 MILES
LENGTH STRUCTURE TIP PROJECT B-4953 = 0.014 MILES
TOTAL LENGTH OF TIP PROJECT B-4953 = 0.066 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 28, 2014

LETTING DATE:
JANUARY 20, 2015

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

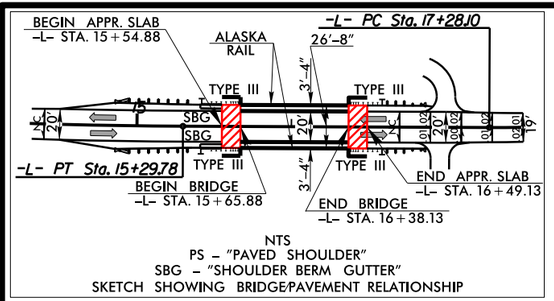
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

BUFFER DRAWING
SHEET 1 OF 4

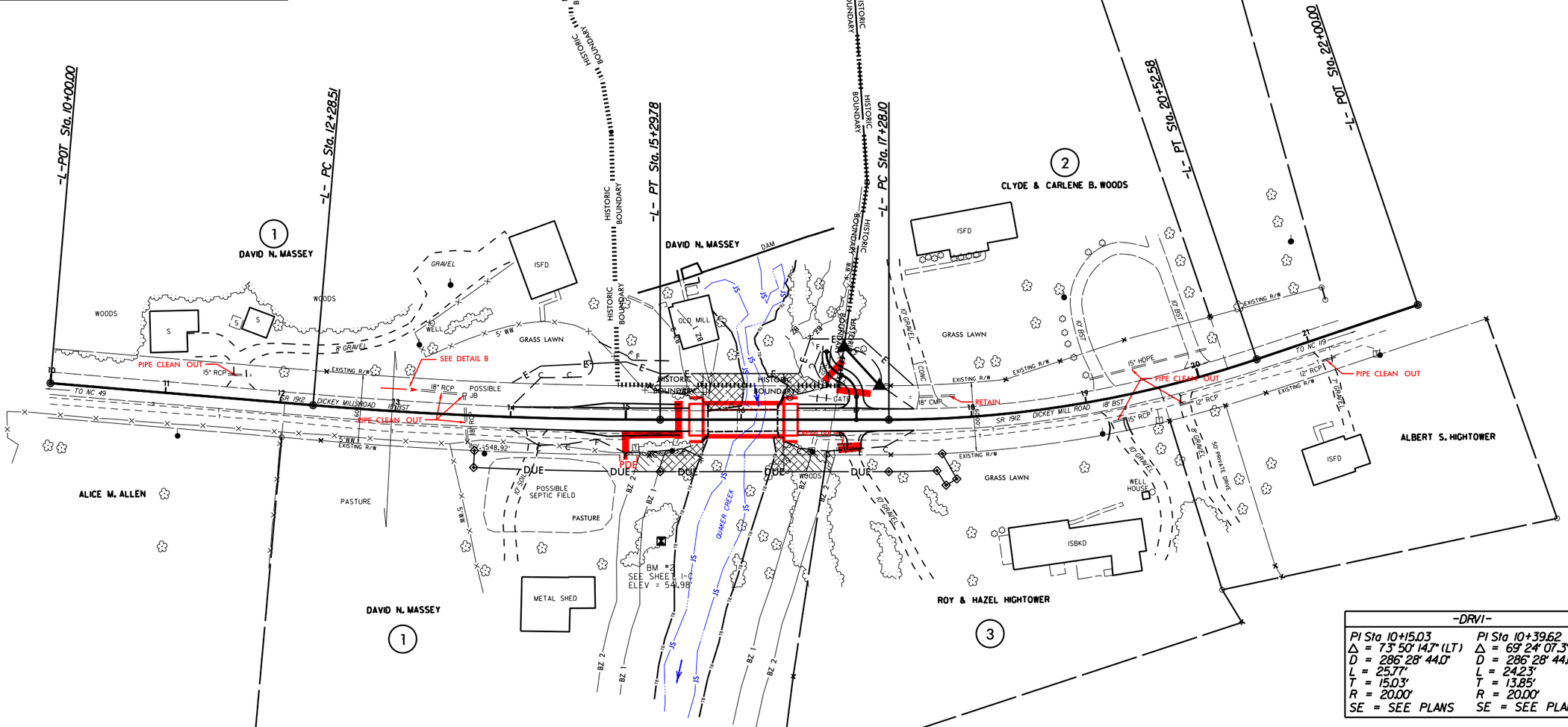
3/31/2014
mkelly
R:\Hydraulics\PERMITS_Environmental\Drawings\Buffer\B4953_Hyd_prm_buf_TSH.dgn
$$$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4953	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

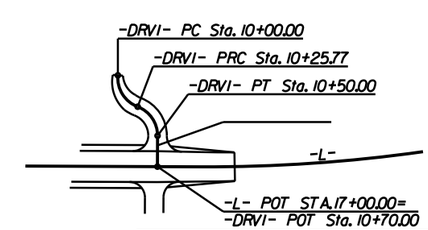
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-L-	
PI Sta 13+79.24	PI Sta 18+91.85
Δ = 4° 47' 42.8" (LT)	Δ = 18° 39' 26.8" (LT)
D = 1° 35' 30.0"	D = 5° 45' 00.0"
L = 301.27'	L = 324.48'
T = 150.73'	T = 163.76'
R = 3,599.85'	R = 996.87'
SE = SEE PLANS	SE = SEE PLANS



-DRV1-	
PI Sta 10+15.03	PI Sta 10+39.62
Δ = 73° 50' 14.7" (LT)	Δ = 69° 24' 07.3" (RT)
D = 286° 28' 44.0"	D = 286° 28' 44.0"
L = 25.77'	L = 24.23'
T = 15.03'	T = 13.85'
R = 20.00'	R = 20.00'
SE = SEE PLANS	SE = SEE PLANS



ALLOWABLE IMPACTS ZONE 1

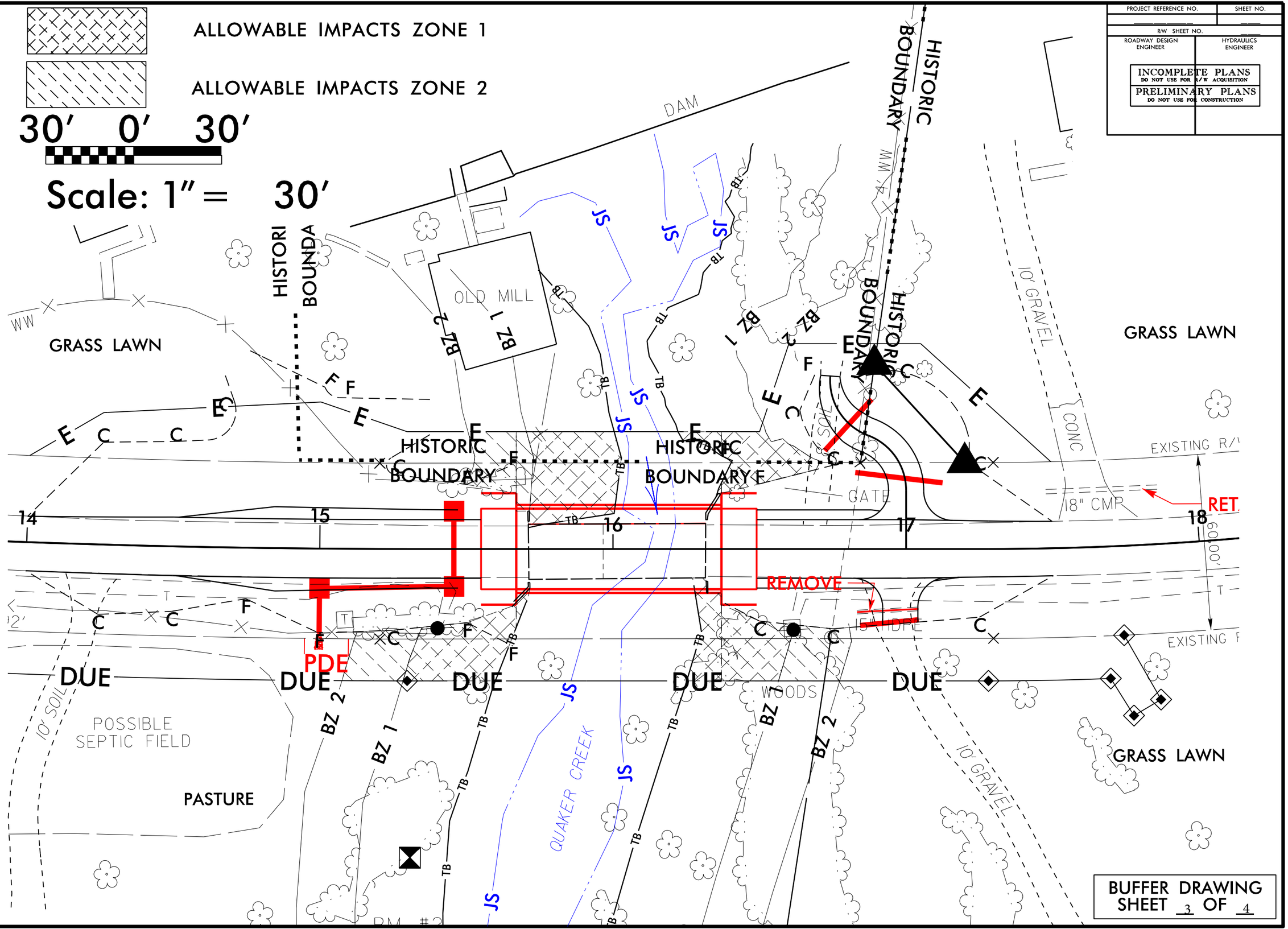
ALLOWABLE IMPACTS ZONE 2

100' 0' 100' 200' 300'
Scale: 1" = 100'

BUFFER DRAWING
SHEET 2 OF 4

SEE SHEET 5 FOR -L- PROFILE
SEE SHEET 5 FOR -DRV1- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

8/17/99
REVISIONS
3/31/2014
mkelly
R:\Hydraulics\PERMITS_Environmental\Drawings\Buffer\B4953_Hyd_prm_buf_PSH04.dgn
$$$$SYSTIME$$$$
$$$$USERNAME$$$$



8/17/99

3/31/2014
mkelly
R:\Hydraulics\PERMITS_Environmental\Drawings\Buffer\B4953_Hyd_prm_buf_PSH04BU.dgn

REVISIONS

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
		15+08 to 16+71-L-	X			1159.0	1500.0	2659.0					
		15+67 to 16+37-L-		X		1261.0	137.0	1398.0					
TOTAL:						2420.0	1637.0	4057.0	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

ALAMANCE COUNTY
PROJECT: 40078.1.1 (B-4953)

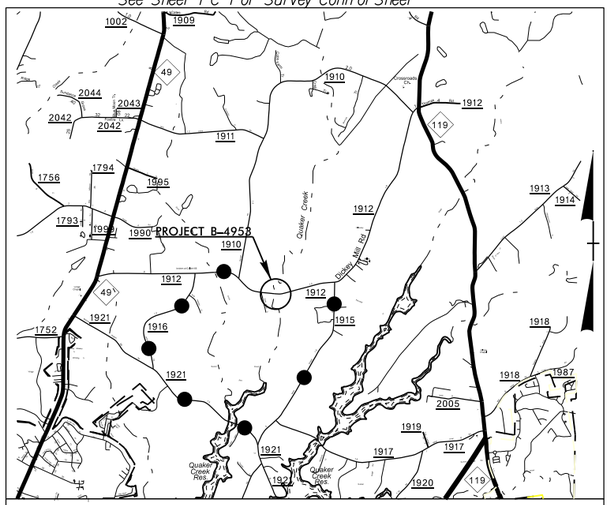
3/31/2014

Rev. May 2006

09/08/99

TIP PROJECT: B-4953

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



VICINITY MAP

DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ALAMANCE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4953	1	

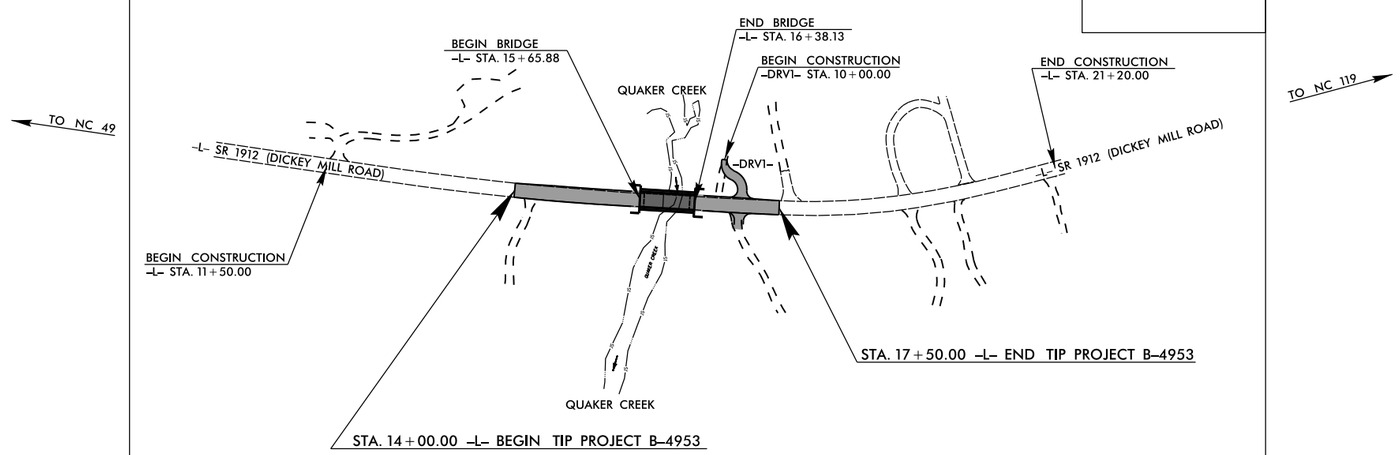
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
40078.1.1	BRZ-1912(2)	PE
40078.2.FD1	BRZ-1912(2)	R/W & UTILITIES

LOCATION: BRIDGE NO. 64 ON SR 1912 (DICKEY MILL ROAD) OVER QUAKER CREEK

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

NAD 83/
NSRS 2007

4



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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2015 = 452
ADT 2035 = 600
DHV = 13 %
D = 60 %
T = 3 % *
V = 45 MPH
* TTST 1% DUAL 2%
FUNC CLASS = RURAL LOCAL
"SUB-REGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4953 = 0.052 MILES
LENGTH STRUCTURE TIP PROJECT B-4953 = 0.014 MILES
TOTAL LENGTH OF TIP PROJECT B-4953 = 0.066 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 28, 2014

LETTING DATE:
JANUARY 20, 2015

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

28-JAN-2014 14:39
R:\Roadway\Proj\b4953_rdy_tsh.dgn
$$$$USERNAME$$$$

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
B-4953	1-B

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 — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — C/A
- Existing Control of Access — C/A
- Proposed Control of Access — C/A
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

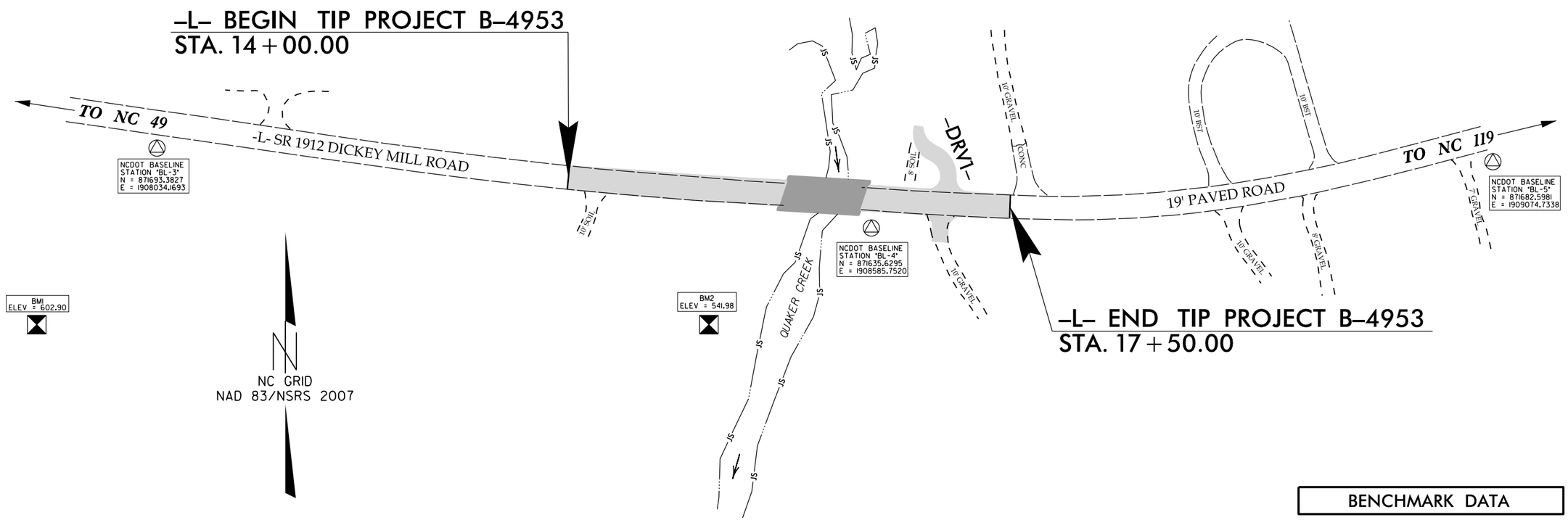
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- 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.

12/01/2005

PROJECT REFERENCE NO.	SHEET NO.
B-4953	1-C
Location and Surveys	

B-4953 SURVEY CONTROL SHEET



BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4953-1	872257.5280	1906866.1960	619.11	OUTSIDE PROJECT LIMITS	
2	B4953-2	871810.7850	1907427.4070	597.69	OUTSIDE PROJECT LIMITS	
3	BL-3	871693.3827	1908034.1693	566.84	10+87.48	14.49 RT
4	BL-4	871635.6295	1908585.7520	550.11	16+41.18	14.16 RT
5	BL-5	871682.5981	1909074.7338	576.84	21+31.02	15.87 RT

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	871720.3180	1907949.6830
PC	12+28.51	871687.4079	1908175.8123
PT	15+29.78	871656.5370	1908475.4191
PC	17+28.10	871644.4811	1908673.3680
PT	20+52.58	871677.3845	1908994.8699
POT	22+00.00	871715.9683	1909137.1549

BENCHMARK DATA

BM1 ELEVATION = 602.90
N 871566 E 1907315
L STATION 10+00.00
S 76°22'6.55" W DIST 652.80
RR SPIKE IN BASE OF 20" PINE

BM2 ELEVATION = 541.98
N 871551 E 1908470
L STATION 15+31.00 105 RIGHT
RR SPIKE IN BASE OF 19" RIVER BIRCH

NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/PAGES/DEFAULT.ASPX

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   B4953_LS_CONTROL.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT

-L- PRELIMINARY DRAINAGE UTILITY EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+70.00	30.35	871639.6026	1908313.0069
L	13+70.00	45.00	871625.0357	1908311.4686
L	15+29.78	45.00	871611.6203	1908472.6835
L	17+28.10	45.00	871599.5643	1908670.6324
L	17+68.00	45.00	871597.8624	1908712.3150
L	17+75.00	58.00	871584.7372	1908719.4541
L	17+94.00	53.00	871589.6481	1908738.0050

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4953-2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 871810.785(ft) EASTING: 1907427.407(ft)
ELEVATION: 597.69'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999702313
THE N.C. LAMBERT GRID BEARING AND

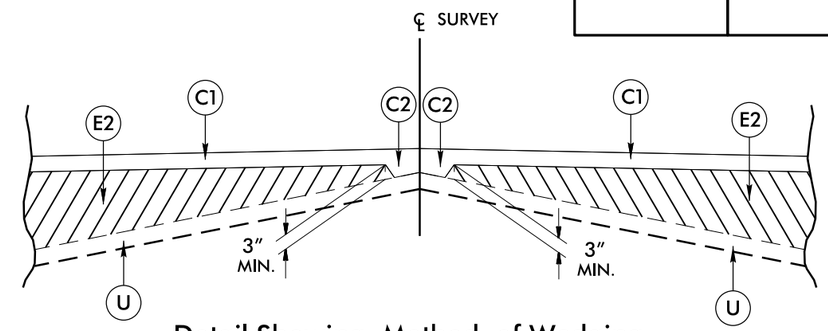
PROJECT REFERENCE NO.	SHEET NO.
B-4953	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

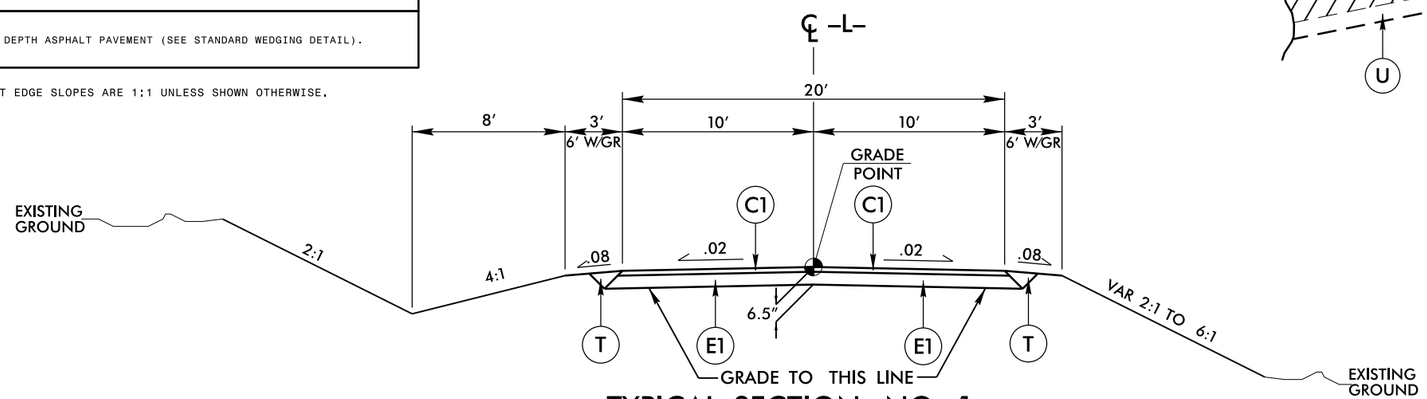
PAVEMENT SCHEDULE

C1	PROP. APPROX. 2½″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½″ IN DEPTH.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5½″ IN DEPTH.
J	PROP. 6″ AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

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



Detail Showing Method of Wedging



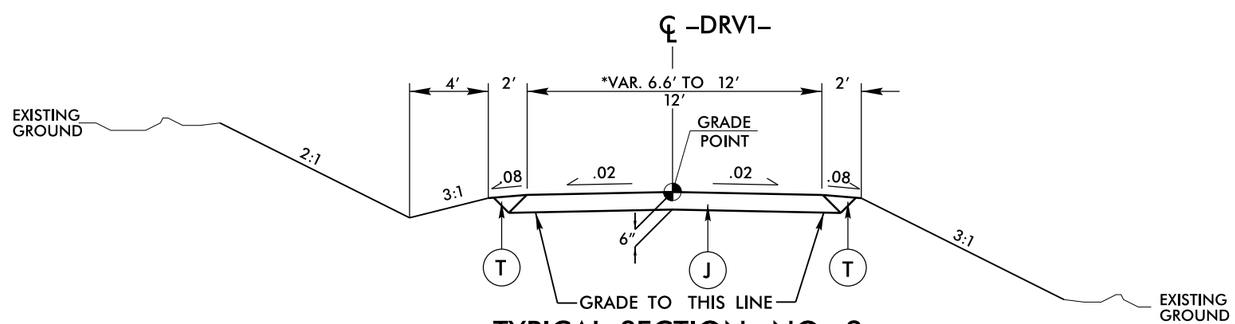
TYPICAL SECTION NO. 1

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
–L– STA. 14+00.00 TO STA. 14+50.00

USE TYPICAL SECTION NO. 1

–L– STA. 14+50.00 TO STA. 15+65.88 (BEGIN BRIDGE)
–L– STA. 16+38.13 (END BRIDGE) TO STA. 17+00.00

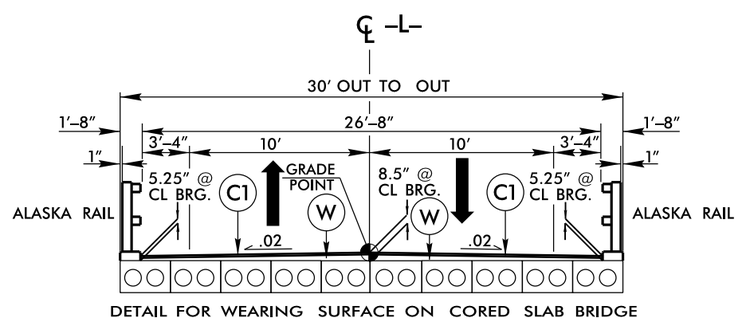
NOTE: TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING
–L– STA. 17+00.00 TO STA. 17+50.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

*–DRV1– STA. 10+00.00 TO STA. 10+20.00
–DRV1– STA. 10+20.00 TO STA. 10+50.00



DETAIL FOR WEARING SURFACE ON CORED SLAB BRIDGE

TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

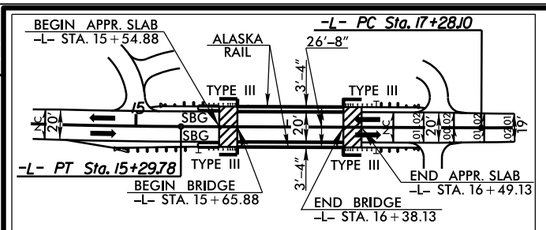
–L– STA. 15+65.88 (BEGIN BRIDGE) TO STA. 16+38.13 (END BRIDGE)

6/2/99
28-JAN-2014 14:39
R:\Roadway\Proj\b4953_rdy_typ.dgn
$$$$USERNAME$$$$

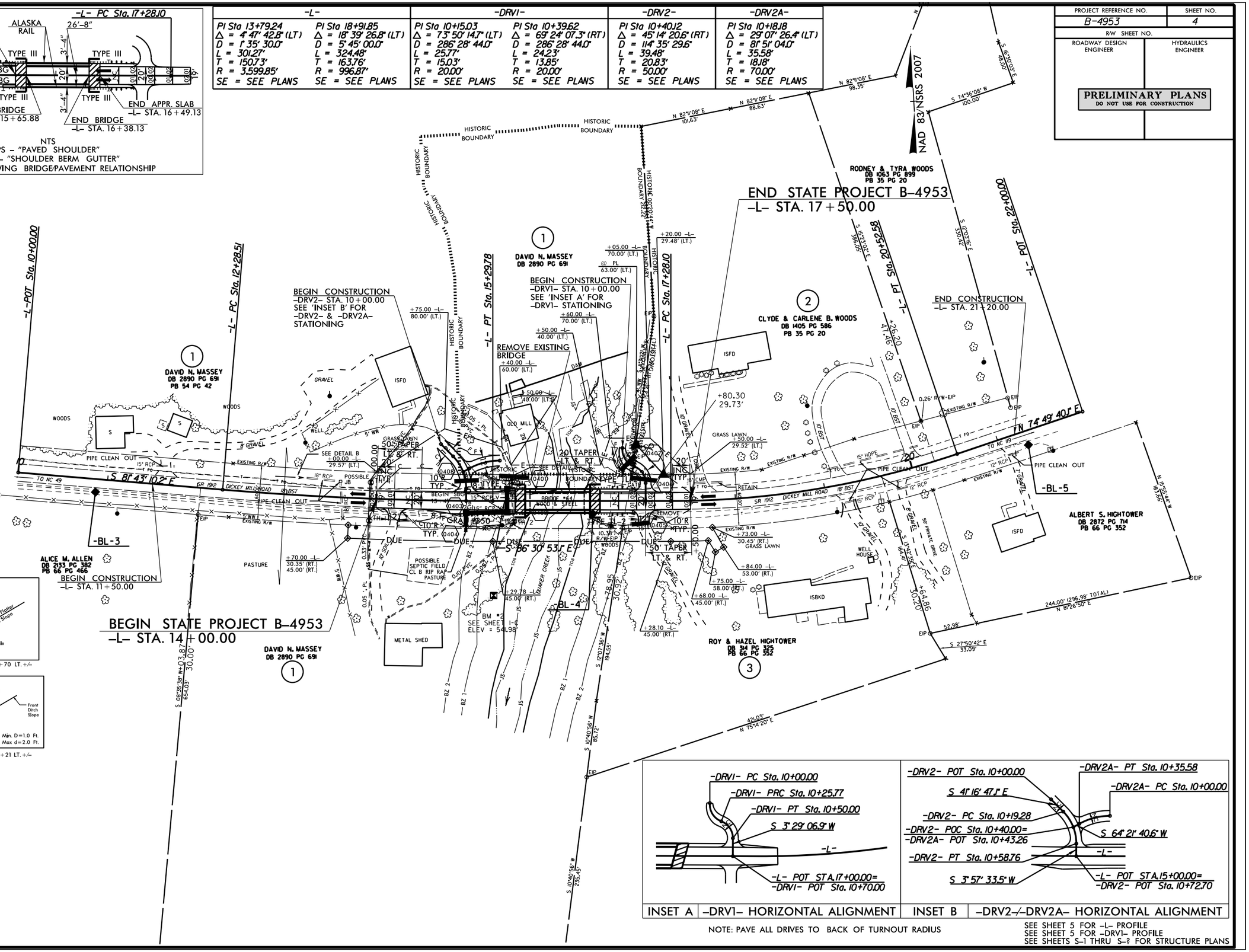
PROJECT REFERENCE NO.	SHEET NO.
B-4953	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

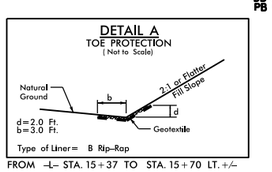
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-		-DRV1-	-DRV2-	-DRV2A-
PI Sta 13+79.24	PI Sta 18+91.85	PI Sta 10+15.03	PI Sta 10+39.62	PI Sta 10+40.12
Δ = 4° 47' 42.8" (LT)	Δ = 18° 39' 26.8" (LT)	Δ = 73° 50' 14.7" (LT)	Δ = 69° 24' 07.3" (RT)	Δ = 45° 14' 20.6" (RT)
D = 1° 35' 30.0"	D = 5° 45' 00.0"	D = 286° 28' 44.0"	D = 286° 28' 44.0"	D = 114° 35' 29.6"
L = 301.27'	L = 324.48'	L = 25.77'	L = 24.23'	L = 39.48'
T = 150.73'	T = 163.76'	T = 15.03'	T = 13.85'	T = 20.83'
R = 3,599.85'	R = 996.87'	R = 20.00'	R = 20.00'	R = 50.00'
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS

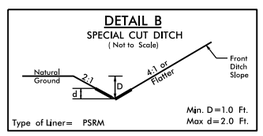


NTS
PS – "PAVED SHOULDER"
SBG – "SHOULDER BERM GUTTER"
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP





FROM -L- STA. 15+37 TO STA. 15+70 LT. +/-



FROM -L- STA. 12+85 TO STA. 13+21 LT. +/-

INSET A | -DRV1- HORIZONTAL ALIGNMENT

INSET B | -DRV2-/-DRV2A- HORIZONTAL ALIGNMENT

NOTE: PAVE ALL DRIVES TO BACK OF TURNOUT RADIUS

SEE SHEET 5 FOR -L- PROFILE
SEE SHEET 5 FOR -DRV1- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

8/17/99

REVISIONS

R/W REVISION 04-22-14 (DWG) - REVISED THE TCE ON PARCEL 1 (DAVID N. MASSEY) FOR THE ADDITION OF -DRV2- AND -DRV2A- LOCATATED AT -L- STA.15+00.00 LT.

21-APR-2014 14:56
R:\Roadway\Proj\b4953_rdy_psh.dgn
$$$$USERNAME$$$$

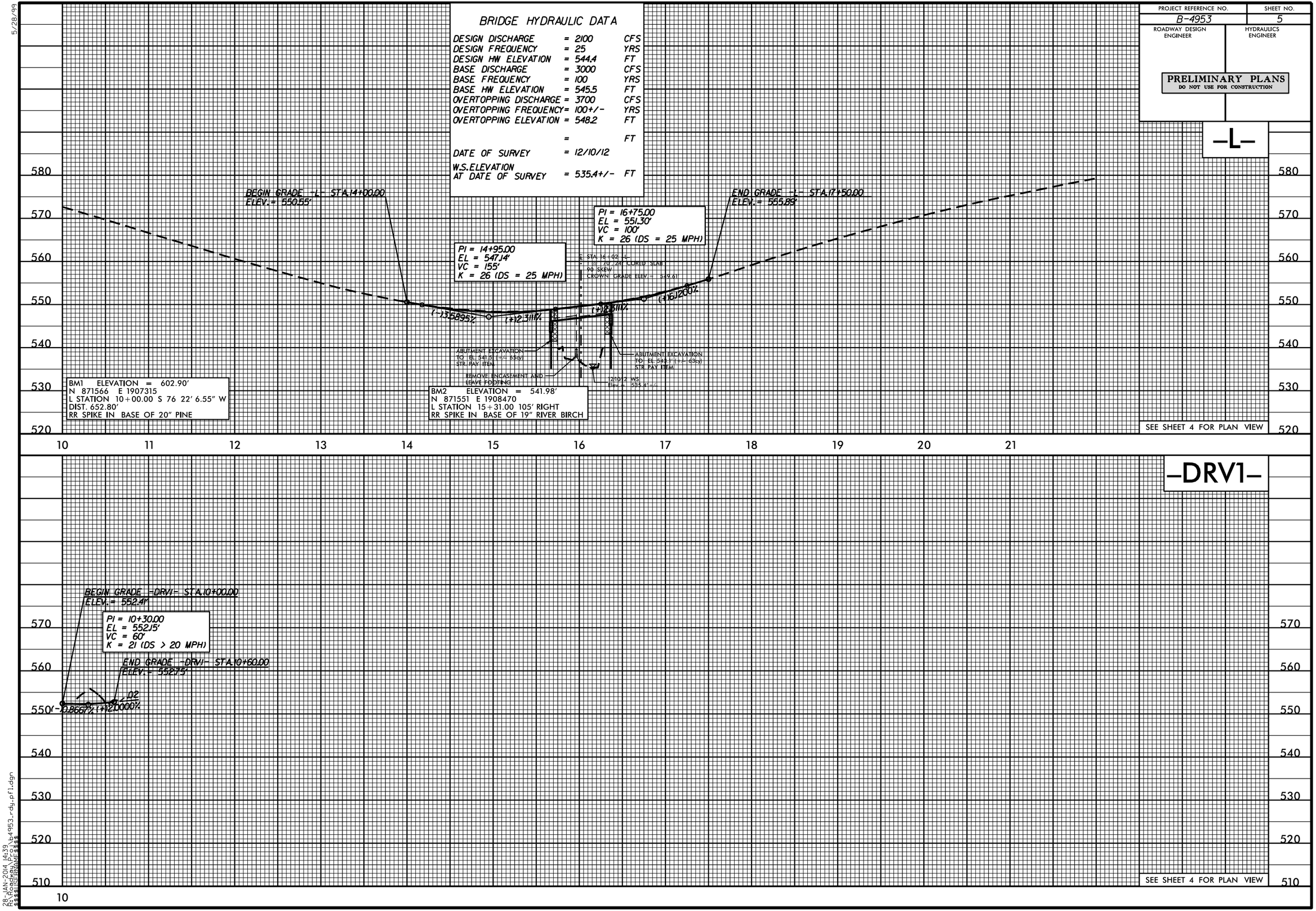
PROJECT REFERENCE NO.	SHEET NO.
B-4953	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2100	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 544.4	FT
BASE DISCHARGE	= 3000	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 545.5	FT
OVERTOPPING DISCHARGE	= 3700	CFS
OVERTOPPING FREQUENCY	= 100+/-	YRS
OVERTOPPING ELEVATION	= 548.2	FT
	=	FT
DATE OF SURVEY	= 12/10/12	
W.S.ELEVATION AT DATE OF SURVEY	= 535.4+/-	FT

-L-



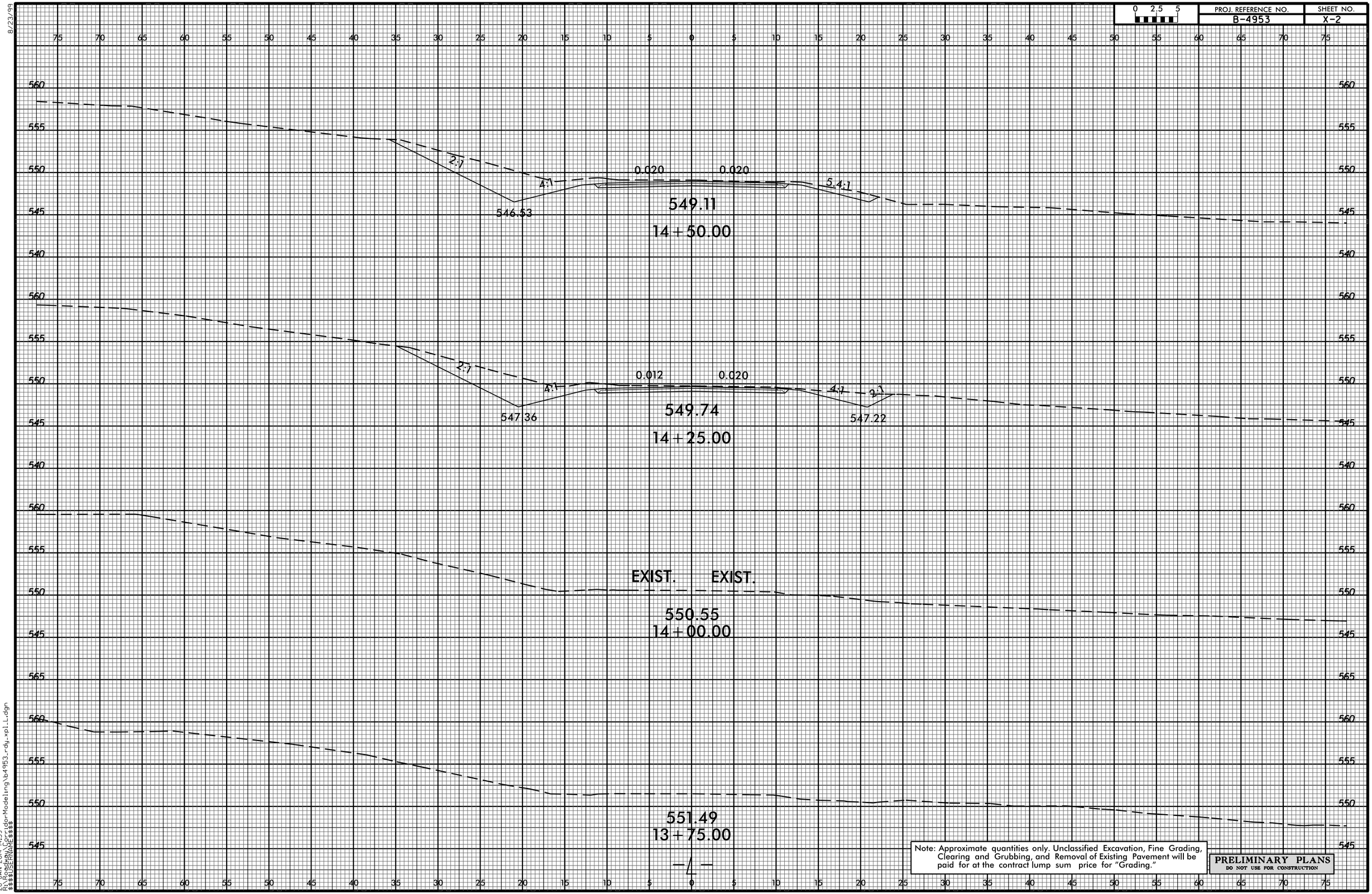
SEE SHEET 4 FOR PLAN VIEW

-DRV1-

SEE SHEET 4 FOR PLAN VIEW

5/28/99

28-JAN-2014 14:39
R:\Roadway\Proj\b4953_rdy_pf1.dgn
$$$$USERNAME$$$$



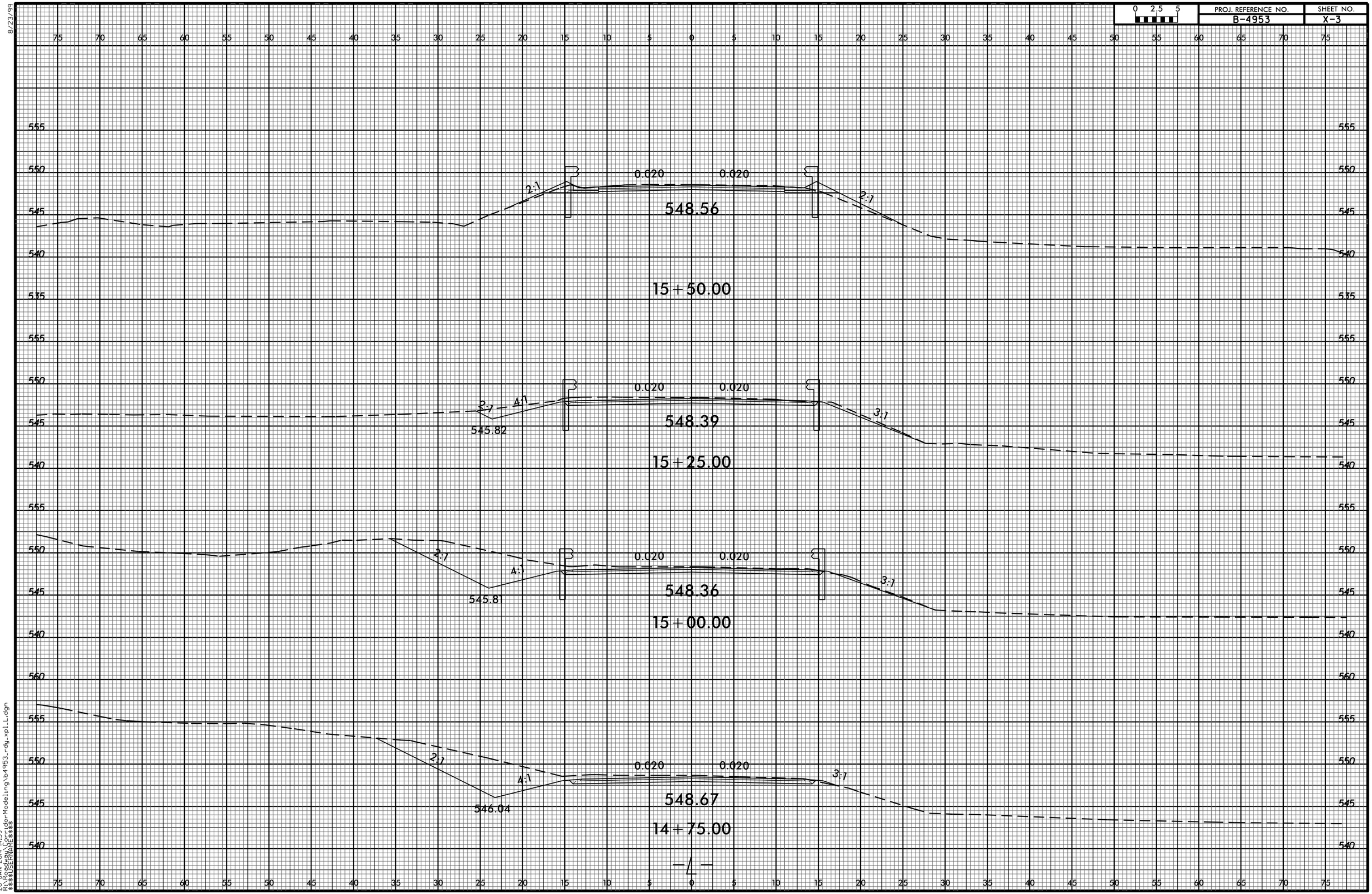
Note: Approximate quantities only. Unclassified Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/23/99

28-JAN-2014 14:39
R:\Roadway\CorridorModeling\b4953_rdy_xpl_L.dgn
$$$$USERNAME$$$$

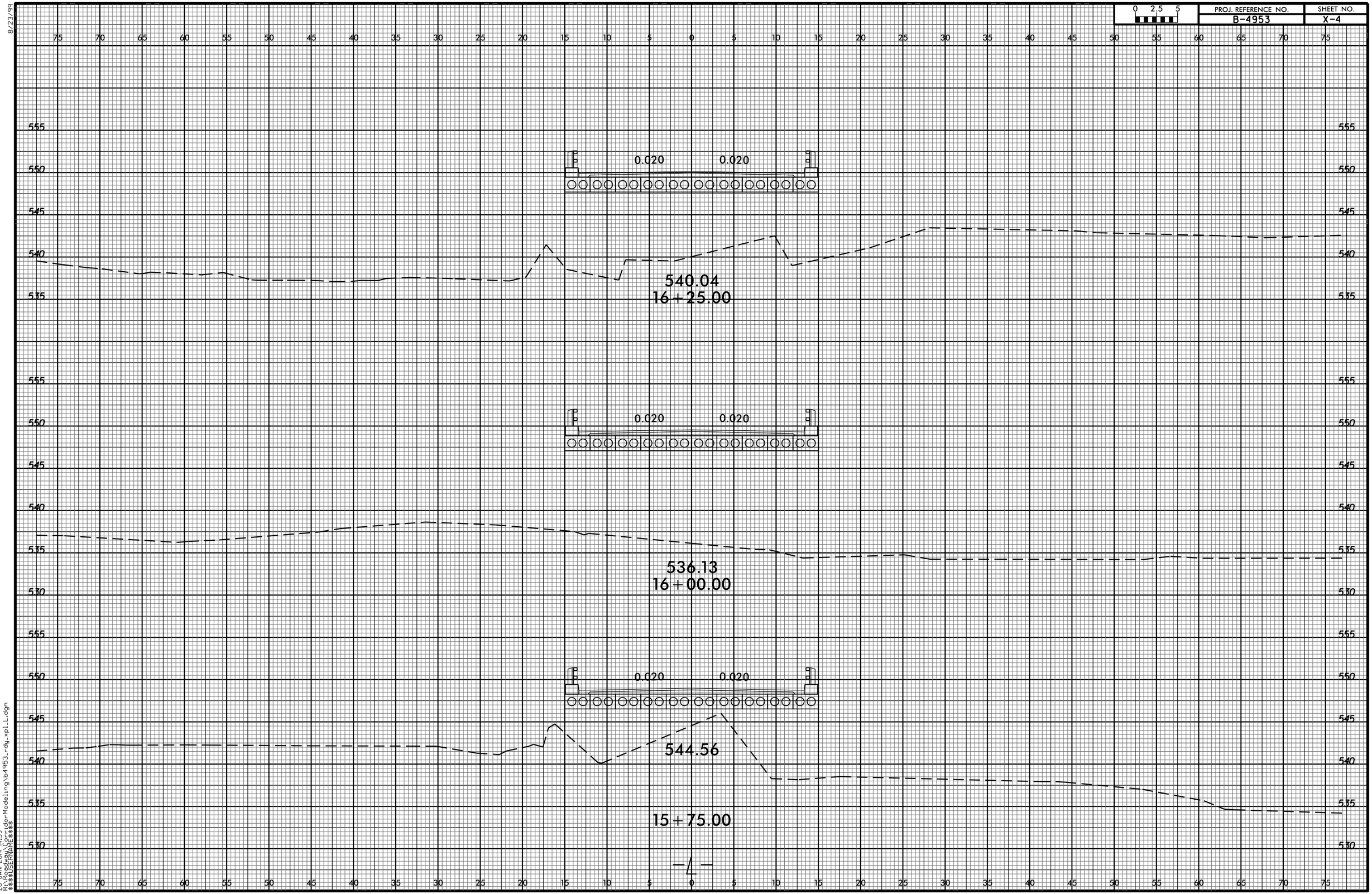
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4953	X-3



8/23/99

28-JAN-2014 14:39
R:\Roadway\Corridor Modeling\b4953_rdy_xpl_L.dgn
$$$$USERNAME$$$$

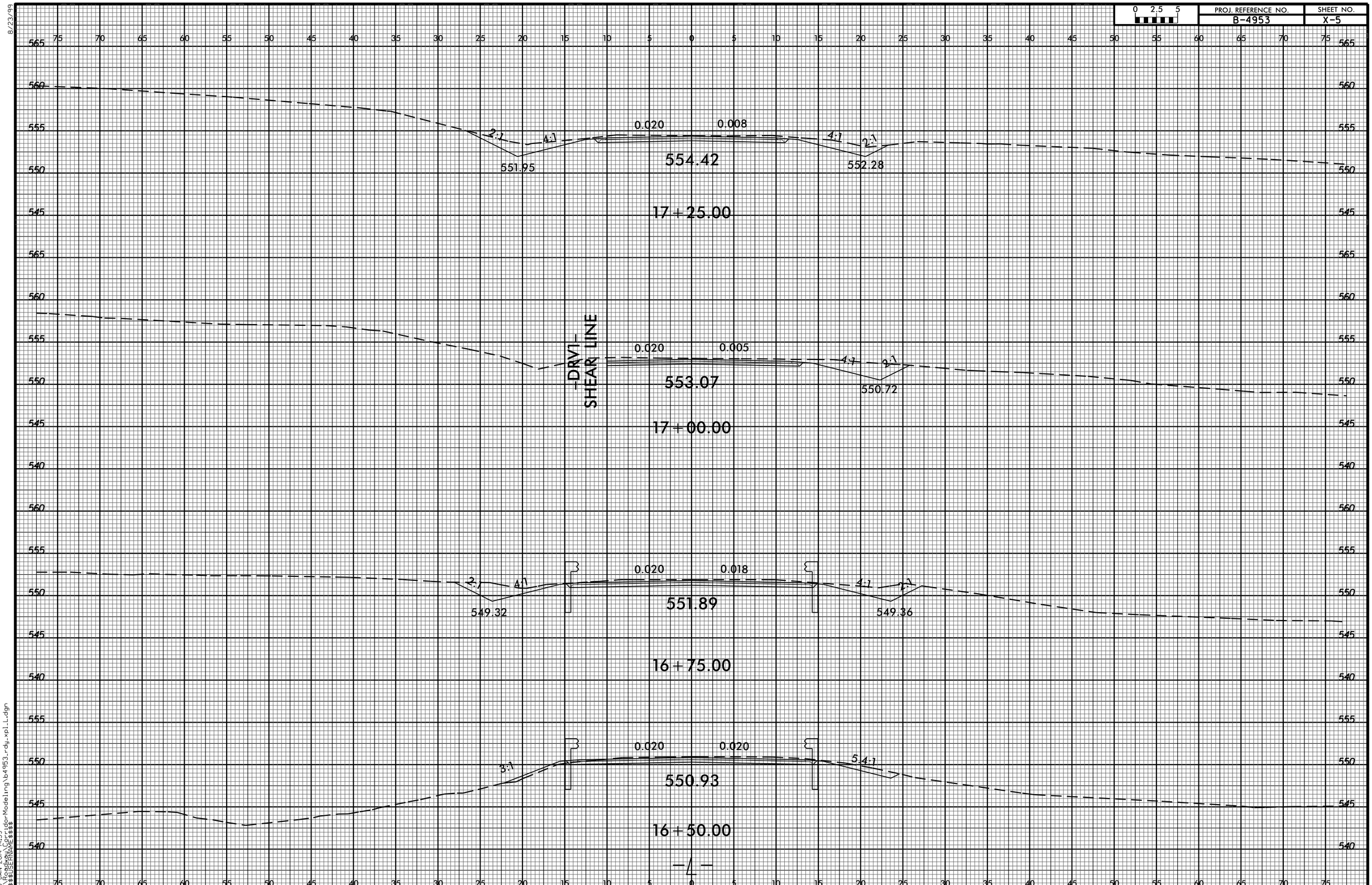
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4953	X-4



8/23/99

28-JAN-2014 14:39
R:\Roadway\CorridorModeling\b4953_rdy_xpl_L.dgn
$$$$USERNAME$$$$

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4953	X-5

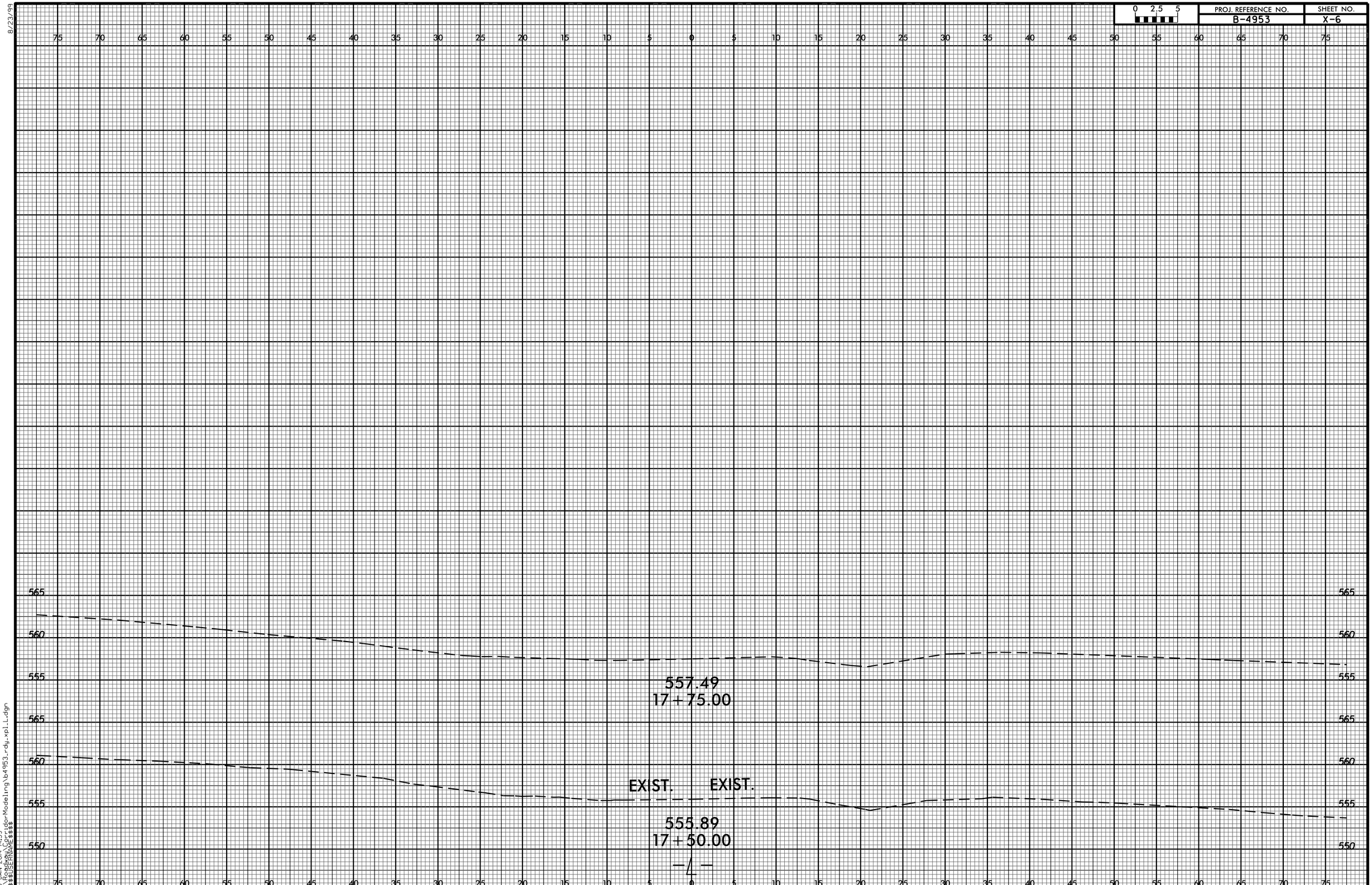


8/23/99

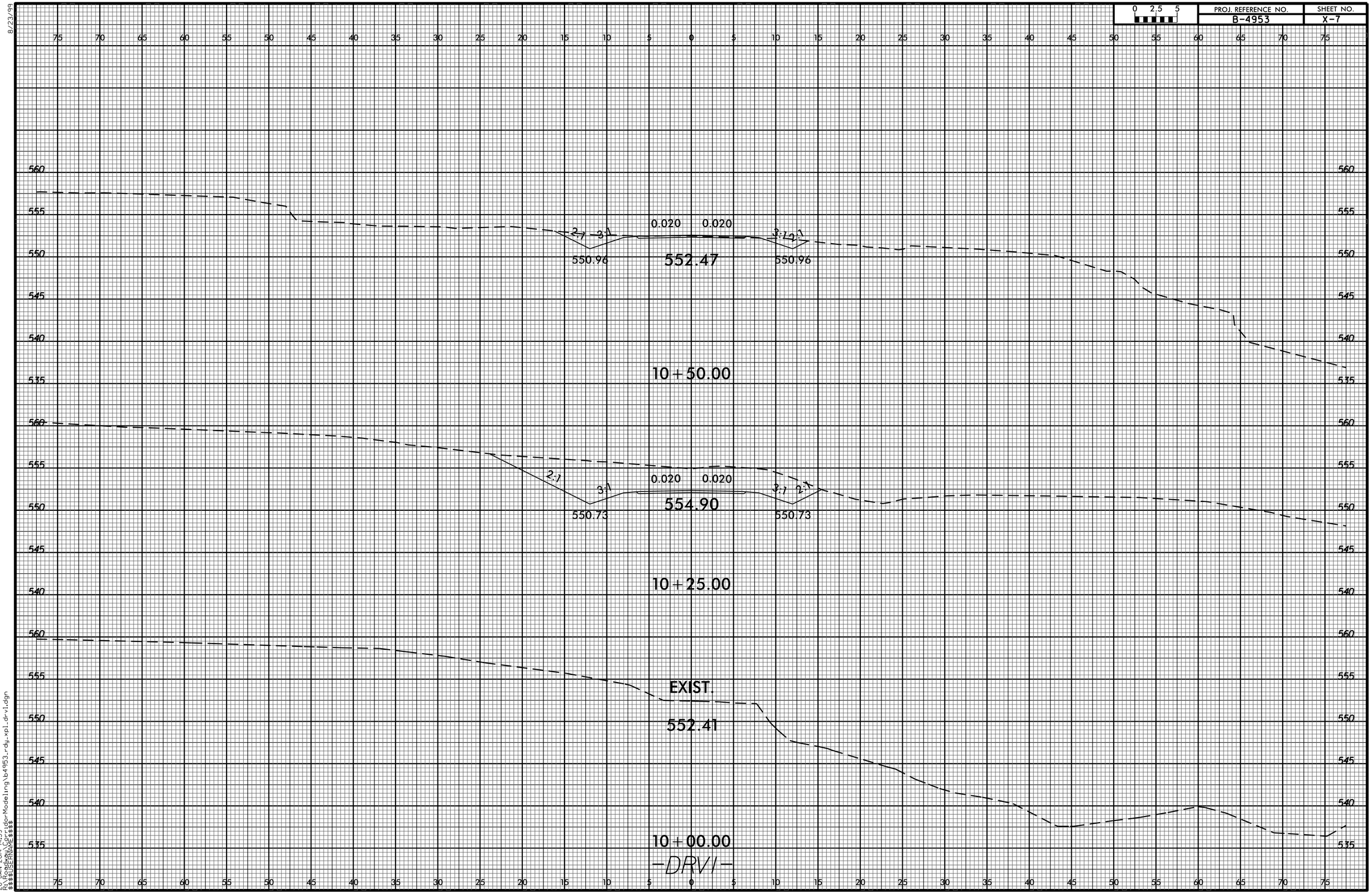
28-JAN-2014 14:39
R:\Roadway\CorridorModeling\b4953_rdy_xpl_L.dgn
$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4953	X-6



28-JAN-2014 14:39
R:\Roadway\CorridorModeling\b4953_rdy_xpl_L.dgn
$$$$USERNAME$$$$



8/23/99

28-JAN-2014 14:39
R:\Roadway\CorridorModeling\b4953_rdy_xpl_drvi.dgn
$$$$USERNAME$$$$