STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

May 22, 2017

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

ATTN: Mr. James Lastinger
NCDOT Division 9 Project Coordinator

SUBJECT: **Application for Section 404 Nationwide Permit Nos. 23 and 33 and Section 401 Water Quality Certification** for the replacement of Bridge No. 141 over the Second Creek Arm of High Rock Lake on SR 1004 (Stokes Ferry Road), Division 9, Rowan County, North Carolina. Federal Aid Project No. BRSTP – 1004 (25), TIP Project No. B-4808.

Debit $240.00 from WBS 38578.1.1

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 141 over the Second Creek Arm of High Rock Lake on SR 1004 (Stokes Ferry Road) in Rowan County. The project will consist of replacing the existing five-span, 192-foot structure with a three-span, 212.5-foot bridge on the existing alignment. An on-site detour will be employed.

Along the L-line, proposed impacts include 0.08 acre of permanent open water impacts due to the placement of rock fill associated with the bridge embankments; 0.11 acre of temporary open water impacts due to the placement of temporary causeways; <0.01 acre of permanent wetland fill; and <0.01 acre of mechanized clearing. Impacts along the on-site detour include <0.01 acre of temporary open water impacts at each of four separate locations due to the placement of rip rap on the banks of the lake at the end of temporary ditches; and 0.32 acre of temporary open water impacts due to the placement of temporary causeways.

Please find enclosed the Pre-Construction Notification; Jurisdictional Determination; Stormwater Management Plan; permit drawings; and roadway plans for the subject project. A Categorical Exclusion (CE) was completed for this project in November 2016.

The proposed let date for this project is January 16, 2018, with a let review date of November 28, 2017. However, the let date may advance as additional funds become available.

A copy of this permit application will be posted on the NCDOT Website at https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx, under *Quick Links* >

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

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

Location:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Permit Applications. A copy of the CE is also available at the above website address under *Quick Links > Environmental Documents*. Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jim Mason at either jsmason@ncdot.gov or (919) 707-6136.

Sincerely,

Philip S. Harris III, P.E., C.P.M.
Natural Environment Section Head

cc:
NCDOT Permit Application Standard Distribution List

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

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit ☐ Section 10 Permit	
1b. Specify Nationwide Permit (NWP) number: 23 33	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. 141 over the Second Creek Arm of High Rock Lake on SR 1004 (Stokes Ferry Road)
2b. County:	Rowan
2c. Nearest municipality / town:	Rockwell
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-4808

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) 707-6136
3g. Fax no.:	(919) 212-5785
3h. Email address:	jsmason@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: 35.588654 (DD.DDDDDD)	Longitude: - 80.350307 (-DD.DDDDDD)
1c. Property size:	3.55 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Second Creek Arm of High Rock Lake	
2b. Water Quality Classification of nearest receiving water:	WS-V, B	
2c. River basin:	Yadkin-Pee Dee	
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: Stokes Ferry Road is classified as a Major Collector in the Statewide Functional Classification System and is not a National Highway System Route. Land use within the vicinity primarily consists of forested land, agriculture, silviculture, and low-density residential.		
3b. List the total estimated acreage of all existing wetlands on the property: 0.01		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 0 (only High Rock Lake)		
3d. Explain the purpose of the proposed project: To replace a functionally obsolete bridge.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project will consist of replacing the existing five-span, 192-foot structure with a three-span, 212.5-foot bridge on the existing alignment. An on-site detour will be employed. Standard road building equipment, such as trucks, dozers, and cranes will be used.		
4. Jurisdictional Determinations		
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments: Action ID No. 2011009777	☒ 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): James Pflaum	Agency/Consultant Company: NCDOT Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. 5/26/2011. JD expired; Project re-checked in September 2016; no changes to JDed features and no new features IDed.		
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	Perm. Fill	Bottomland Hardwood Forest	☒ Yes ☐ No	☒ Corps ☐ DWQ	<0.01
Site 1 ☒ P ☐ T	Mechanized Clearing	Bottomland Hardwood Forest	☒ Yes ☐ No	☒ Corps ☐ DWQ	<0.01
Site ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	0.01 ac Perm. 0 ac Temp.

2h. Comments:

3. Stream Impacts

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

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	0 ft. Perm. 0 ft 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)
O 1 ☒ P ☐ T	Second Creek Arm of High Rock Lake	Perm. Fill	Lake	0.02
O 1 ☒ P ☐ T	Second Creek Arm of High Rock Lake	Perm. Fill	Lake	0.05
O 1 ☐ P ☒ T	Second Creek Arm of High Rock Lake	Temp. Causeway	Lake	0.05
O 1 ☐ P ☒ T	Second Creek Arm of High Rock Lake	Temp. Causeway	Lake	0.06
O 1 ☐ P ☒ T	Second Creek Arm of High Rock Lake	Temp. Fill (Detour)	Lake	<0.01
O 1 ☐ P ☒ T	Second Creek Arm of High Rock Lake	Temp. Fill (Detour)	Lake	<0.01
O 1 ☐ P ☒ T	Second Creek Arm of High Rock Lake	Temp. Fill (Detour)	Lake	<0.01
O 1 ☐ P ☒ T	Second Creek Arm of High Rock Lake	Temp. Fill (Detour)	Lake	<0.01
O 1 ☐ P ☒ T	Second Creek Arm of High Rock Lake	Temp. Causeway (Detour)	Lake	0.16
O 1 ☐ P ☒ T	Second Creek Arm of High Rock Lake	Temp. Causeway (Detour)	Lake	0.16
			4f. Total open water impacts	0.08 ac Permanent 0.44 ac Temporary

4g. Comments: Totals are rounded. In addition to the above impacts, there will be two interior bents placed in the lake, each of which is approximately 152 sq. ft. in area (0.0035 ac. each), totaling 304 sq. ft. (0.007 ac.).

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 ☐ Tar-Pamlico ☐ Other: ☐ Catawba ☐ Randleman

6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
Site ☐ P ☐ T			☐ Yes ☐ No		
Site ☐ P ☐ T			☐ Yes ☐ No		
Site ☐ P ☐ T			☐ Yes ☐ No		
Site ☐ P ☐ T			☐ Yes ☐ No		
6h. **Total buffer impacts**					

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 longer than the existing bridge. The majority of the proposed roadway improvements will drain to vegetated fill slopes and roadside ditches, which will convey the roadway runoff towards High Rock Lake. Class B rip rap toe protection will be placed in areas of transition between ditches and fill sections to prevent erosion. Two storm drainage inlets will be placed along the northwestern quadrant of the proposed bridge, located on each side of the profile sag point. These inlets will outfall into a Preformed Scour Hole (PSH). A PSH was chosen for this location due to the proximity of this outfall to High Rock Lake and the gradual slope towards the lake at the point of discharge. In addition, Shoulder Berm Gutter will be placed along the low side of the roadway from a point approximately 70' east of the bridge to the western drainage inlet, just above the PSH location. This gutter will carry runoff to the widened shoulder of the bridge, throughout the minimal longitudinal grade. The wider bridge allows water to be conveyed to the drainage inlets on the west side, preventing the need for deck drainage directly into High Rock Lake, while keeping spread out of the travel lane. The Shoulder Berm Gutter also helps to prevent erosion in areas with higher fill slopes.

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

NCDOT Best Management Practices for Construction and Maintenance Activities and Best Management Practices for the Protection of Surface Waters will be employed.

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

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☐ Yes ☒ No If no, explain: Wetland impacts only 0.01 ac.; remaining impacts open water impacts.
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☐ Corps
2c. If yes, which mitigation 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:	0 linear feet
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	0 sq. ft. Zone 1 and 0 sq. ft. Zone 2
4e. Riparian wetland mitigation requested:	0 acres
4f. Non-riparian wetland mitigation requested:	0 acres
4g. Coastal (tidal) wetland mitigation requested:	0 acres

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.				
6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ				
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?				☐ Yes ☐ No
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
	6f. **Total buffer mitigation required:**			
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).				
6h. Comments:				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☒ Yes ☐ No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: Please see attached 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: Please 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 N/A
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No N/A

F. Supplementary Information		
1. Environmental Documentation (DWQ Requirement)		
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ 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-to-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, indicate 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? NC Natural Heritage Program data, USFWS website, NCDOT field surveys. Small amount of nesting habitat, but no nests or individuals present for bald eagle on 9/26/2016. Habitat present, no individuals identified on 9/26/2016 and no NHP within 1.0 mile for Schweinitz's sunflower; biological conclusion of No Effect for the sunflower. Northern long-eared bat (NLEB) - the project does not require separate consultation on the grounds that the proposed action is consistent with the final Section 4(d) rule; memo dated 4/5/2016, submitted to USFWS on 1/3/2017.		
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		

for Philip S. Harris III, P.E., C.P.M. Applicant/Agent's Printed Name	 Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	05-22-2017 Date

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **201100977** County: **Rowan** U.S.G.S. Quad: **Gold Hill**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Agent: **James Pflaum**
Address: **NC DOT**
1598 Mail Service Center
Raleigh, NC 27699-1598
Telephone No.: **919 715-7217**

Property description:
Size (acres) **3** Nearest Town **Rockwell**
Nearest Waterway **South Second Creek, High Rock Lake** River Basin **Yadkin River**
USGS HUC **03040103** Coordinates N **35.5879735** W **-80.3498498**
Location description **Bridge 141 on SR 1004 (Stokes Ferry Road) adjacent to South Second Creek (High Rock Lake), east of Rockwell, in Rowan County, North Carolina. TIP B-4808.**

Indicate Which of the Following Apply:

A. Preliminary Determination

_ Based on preliminary information, there may be wetlands on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. Approved Determination

_ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

X There are waters of the U.S. including wetlands on the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ We strongly suggest you have the wetlands on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

X The waters of the U.S. including wetland on your project area have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

_ The wetlands have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on _____. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are no waters of the U.S., to include wetlands, present on the above described property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Washington, NC, at (252) 946-6481 to determine their requirements.

Action ID: _____

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **John Thomas** at **919 554-4884 ext. 25**.

C. Basis For Determination

Stream channels and adjacent wetlands within your project site which are tributaries of South Second Creek which flows into the Yadkin River (High Rock Lake) and the Atlantic Ocean. .

D. Remarks

_____

E. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

District Engineer, Wilmington Regulatory Division
Attn:Jean Gibby, Project Manager,
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the District Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **July 26, 2011**.

It is not necessary to submit an RFA form to the District Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: _____

Date **05/26/2011** Expiration Date **05/26/2016**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at http://regulatory.usacesurvey.com/ to complete the survey online.

Copy furnished:

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: NC DOT / James Pfluam/ B-4808	File Number: SAW 2011 00977	Date: May 26 2011
Attached is:		See Section below
☐ INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
☐ PROFFERED PERMIT (Standard Permit or Letter of permission)		B
☐ PERMIT DENIAL		C
☒ APPROVED JURISDICTIONAL DETERMINATION		D
☐ PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
John Thomas @ 919 554-4884 ext. 25	Mr. Mike Bell, Administrative Appeal Review Officer CESAD-ET-CO-R U.S. Army Corps of Engineers, South Atlantic Division 60 Forsyth Street, Room 9M15 Atlanta, Georgia 30303-8801

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits and approved Jurisdictional Determinations send this form to:

District Engineer, Wilmington Regulatory Division, Attn:Jean Gibby, Project Manager, Raleigh Regulatory Field Office, 3331 Heritage Trade Drive , Suite 105, Raleigh, North Carolina 27587

For Permit denials and Proffered Permits send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Mike Bell, Administrative Appeal Officer, CESAD-ET-CO-R, 60 Forsyth Street, Room 9M15, Atlanta, Georgia 30303-8801

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.06; Released June 2016)

General Project Information

WBS Element:	38578.1.1	**TIP Number:**	B-4808	**Project Type:**	Bridge Replacement	**Date:**	3/29/2017
NCDOT Contact:	Bill Elam, PE			**Contractor / Designer:**	Richard Bollinger, PE		
	Address: NCDOT Hydraulics Unit 1020 Birch Ridge Road Raleigh, NC 27610			**Address:**	8601 Six Forks Road, Suite 260 Raleigh, NC 27615		
	Phone: 919-707-6718			**Phone:**	919-926-4105		
	Email: belam@ncdot.gov			**Email:**	Richard.Bollinger@rsandh.com		
City/Town:	Salisbury			**County(ies):**	Rowan		
River Basin(s):	Yadkin-Pee Dee			**CAMA County?**	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	1,050 Feet	**Surrounding Land Use:**	Rural, wooded area, with moderate residential development and some farming locations

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	0.8 ac.	0.6 ac.
Typical Cross Section Description:	The proposed typical section includes two 12' lanes with 6' shoulders, 4' paved. A standard 8' wide ditch will be used in cut sections and fill slopes will be variable.	The existing typical section has two 11.5' lanes with variable grass shoulders, ranging from 6' - 10', with roadside ditches in some locations.
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 5,859 Year: 2036	Existing: 4,692 Year: 2016

General Project Narrative: (Description of Minimization of Water Quality Impacts)

The majority of the proposed roadway improvements will drain to vegetated fill slopes and roadside ditches, which will convey the roadway runoff towards High Rock Lake. Class B rip rap toe protection will be placed in areas of transition between ditches and fill sections to prevent erosion. Two storm drainage inlets will be placed along the north western quadrant of the proposed bridge, located on each side of the profile sag point. These inlets will outfall into a Preformed Scour Hole (PSH). PSH's are square excavated holes lined with filter fabric and rip rap, with a slightly excavated apron surrounding the hole. They are used at pipe outlets to reduce velocities and promote sheet flow. A PSH was chosen for this location due to the proximity of this outfall to High Rock Lake and the gradual slope towards the lake at the point of discharge.

In addition, Shoulder Berm Gutter will be placed along the low side of the roadway from a point approximately 70' east of the bridge to the western drainage inlet, just above the PSH location. This gutter will carry runoff to the widened shoulder of the bridge, throughout the minimal longitudinal grade. The wider bridge allows water to be conveyed to the drainage inlets on the west side, preventing the need for deck drainage directly into High Rock Lake, while keeping spread out of the travel lane. The Shoulder Berm Gutter also helps to prevent erosion in areas with higher fill slopes.

The only proposed permanent impact to surface water is Class II Rip Rap rock fill in the lake. The rip rap will be placed as spill through slope protection at both end bents of the bridge, as well as rock plating to stabilize the roadway fill slopes. There is also a small wetland impact in the south eastern quadrant of the project, due to the roadway fill. A total of 0.01 acres of wetland will be mechanized cleared, with only a trace amount having a permanent impact. Temporary causeways will be staged on each end of the bridge to remove existing interior bents and to construct the two new ones, resulting in a temporary impact throughout the bridge site. The elevation of the causeways will be 1' above the normal water surface, and they will have 2:1 side slopes.

Waterbody Information

Surface Water Body (1):	Second Creek Arm of High Rock Lake		**NCDWR Stream Index No.:**	12-117-(1)	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply V (WS-V)	Class B	
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	chlorophyll a	pH			
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:				**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	No	**Dissipator Pads Provided in Buffer?**	No
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)					

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.06; Released June 2016)

WBS Element: **TIP No.:** B-4808 **County(ies):** Rowan

Preformed Scour Holes and Energy Dissipators

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)	BMP Associated w/ Buffer Rules?
4	-L- 13+12.2660 LT 35.5889858°, -080.3510018°	(1)Second Creek Arm of	PSH	Class 'B'	0.4	Pipe	15	2.0	1.8	No

Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox (2014), NCDOT Standards, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

09/08/69

TIP PROJECT: B-4808

CONTRACT: C203726

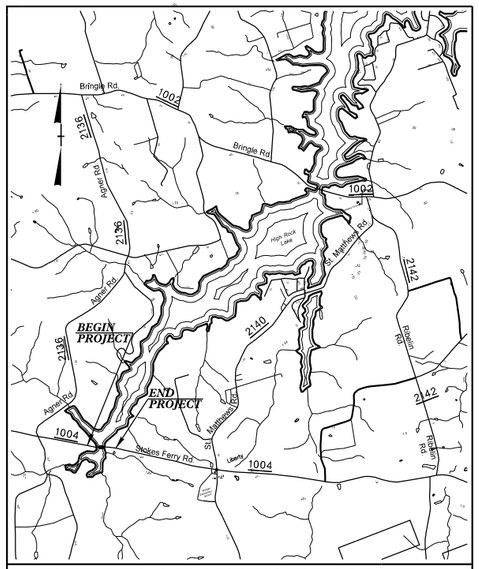
3/29/2017
R:\Hydraulics\PERMITS_Environmental\Drawings\Plan Sheets\B4808_Hyd_prm_1_TSH.dgn
4:26:03 PM

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROWAN COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4808	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38578.1.1	BRSTP-1004(25)	P.E.
38578.2.1	BRSTP-1004(25)	ROW & UTIL
38578.3.1	BRSTP-1004(25)	CONST.



VICINITY MAP SHOWING LOCATION OF PROJECT B-4808

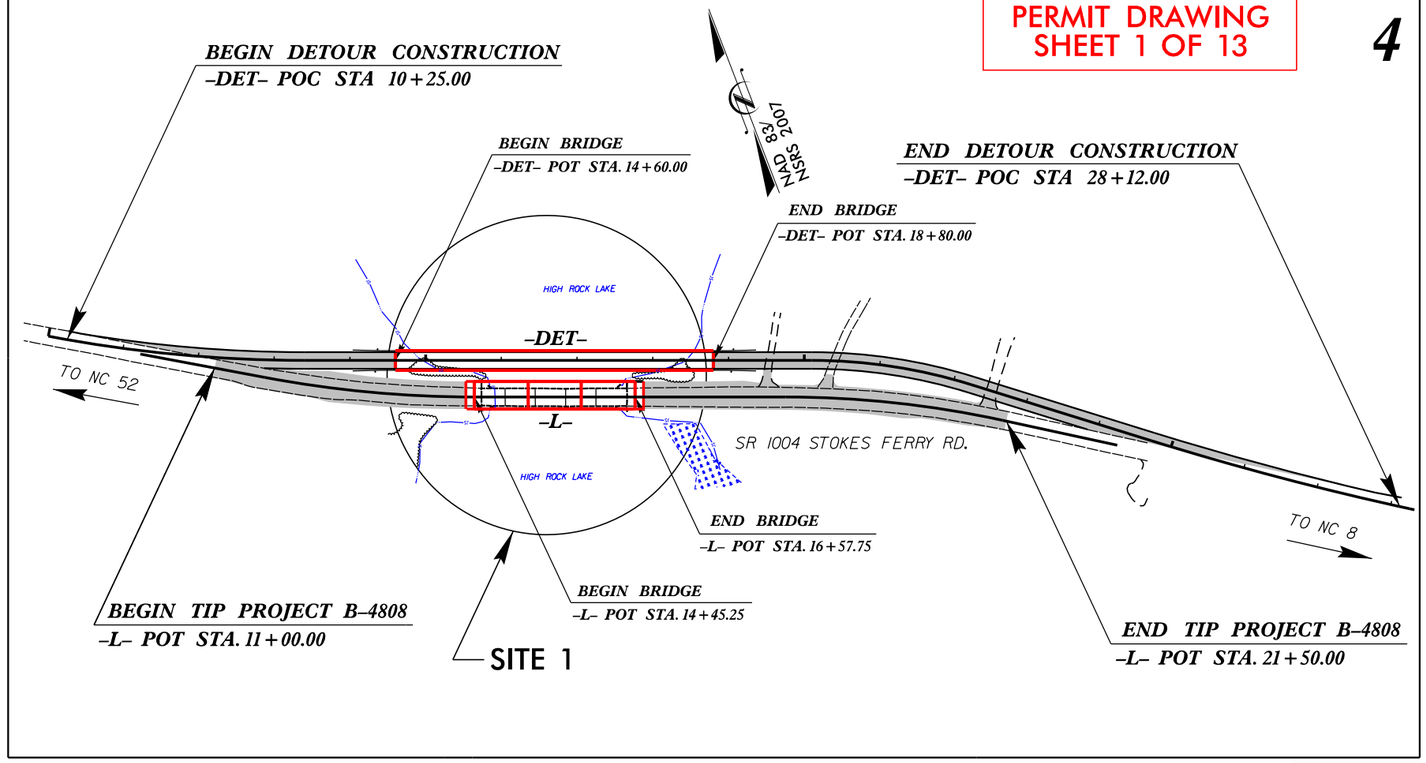
LOCATION: ***BRIDGE 141 OVER SOUTH SECOND CREEK ON SR 1004 (STOKES FERRY ROAD)***

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

WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING SHEET 1 OF 13

4



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

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 2018 = 4,809
ADT 2038 = 5,975
DHV = 13 %
D = 65 %
T = 9 % *
V = 60 MPH
* TTST = 4 DUAL 5
FUNC CLASS =
MAJOR COLLECTOR
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4808 = *0.159 MILES*
LENGTH STRUCTURE TIP PROJECT B-4808 = *0.040 MILES*
TOTAL LENGTH TIP PROJECT B-4808 = *0.199 MILES*

PLANS PREPARED BY:

RS&H
8601 SIX FORKS RD, SUITE 260
RALEIGH, NC 27615
919-926-4100

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 20, 2017

LETTING DATE: JANUARY 16, 2018

TONY HOUSER, PE
PROJECT ENGINEER

BRUCE PAYNE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE:

ROADWAY DESIGN ENGINEER

SIGNATURE:

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4808	2B-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

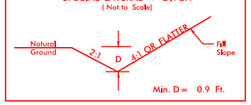
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

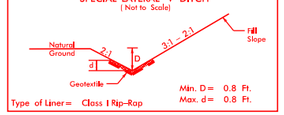
PERMIT DRAWING SHEET 2 OF 13

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM –DET– STA. 11+00 TO STA. 14+00 LT

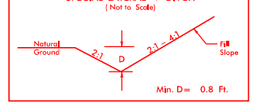
DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner = Class I Rip-Rap

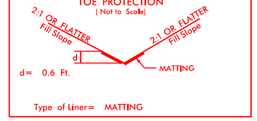
FROM –DET– STA. 14+00 TO STA. 14+60 LT

DETAIL C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM –DET– STA. 19+00 TO STA. 28+00 LT
FROM –DET– STA. 18+80 TO STA. 20+21 RT

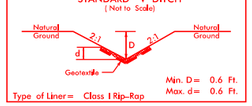
DETAIL D
TOE PROTECTION
(Not to Scale)



Type of Liner = MATTING

FROM –DET– STA. 14+00 TO STA. 14+60 RT

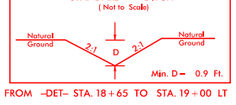
DETAIL E
STANDARD 'V' DITCH
(Not to Scale)



Type of Liner = Class I Rip-Rap

FROM –DET– STA. 14+60 TO STA. 15+12 RT
FROM –DET– STA. 18+43 TO STA. 18+80 RT

DETAIL F
STANDARD 'V' DITCH
(Not to Scale)



FROM –DET– STA. 18+65 TO STA. 19+00 LT

N 83765
NAD

SPECIAL LATERAL 'V' DITCH SEE DETAIL A

SPECIAL LATERAL 'V' DITCH SEE DETAIL B

SPECIAL LATERAL 'V' DITCH SEE DETAIL C

STANDARD 'V' DITCH SEE DETAIL F

STANDARD 'V' DITCH SEE DETAIL E

TOE PROTECTION SEE DETAIL D

TEMPORARY IMPACTS IN SURFACE WATER

PHASE 1 TEMP WORKPAD

PHASE 2 TEMP WORKPAD

TEMPORARY IMPACTS IN SURFACE WATER*

15" SIDE DRAIN

REMOVE

TALL PINE INVESTMENTS LLC

HIGH ROCK LAKE

ALCOA POWER GENERATING INC

STEVE F & LINDA S WILSON

JIMMY M KETCHIE

DAVID R & LILLIE T MORGAN

JERRY W & MARY C MORGAN

BRIDGE #141
CONC. & STEEL

SR 1004 STOKES FERRY RD.

MATCHLINE –L– STA. 22+75.00 INSET A

SEE SHEET 6 OF 13 FOR ENLARGEMENT

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

5/5/2017
R:\Projects\Bridges\PERMITS_Environmental\Drawings\Plan Sheets\B4808_Hyd_prm_2_2B-1.dgn
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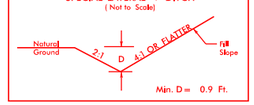
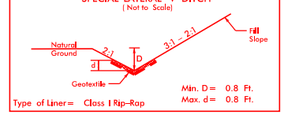
8/17/99

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



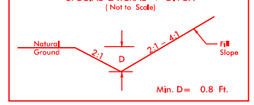
FROM –DET– STA. 11+00 TO STA. 14+00 LT

DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



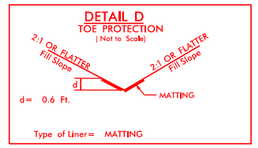
FROM –DET– STA. 14+00 TO STA. 14+60 LT

DETAIL C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



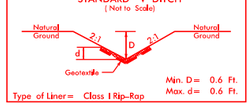
FROM –DET– STA. 19+00 TO STA. 28+00 LT
FROM –DET– STA. 18+80 TO STA. 20+21 RT

DETAIL D
TOE PROTECTION
(Not to Scale)



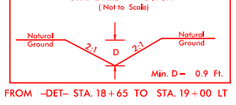
FROM –DET– STA. 14+00 TO STA. 14+60 RT

DETAIL E
STANDARD 'V' DITCH
(Not to Scale)



FROM –DET– STA. 14+60 TO STA. 15+12 RT
FROM –DET– STA. 18+43 TO STA. 18+80 RT

DETAIL F
STANDARD 'V' DITCH
(Not to Scale)



FROM –DET– STA. 18+65 TO STA. 19+00 LT

PROJECT REFERENCE NO.	SHEET NO.
B-4808	2B-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 3 OF 13

RS&H

10

15

20

NAD 83/95

SPECIAL LATERAL 'V' DITCH SEE DETAIL A

SPECIAL LATERAL 'V' DITCH SEE DETAIL B

SPECIAL LATERAL 'V' DITCH SEE DETAIL C

STANDARD 'V' DITCH SEE DETAIL E

STANDARD 'V' DITCH SEE DETAIL F

TOE PROTECTION SEE DETAIL D

TEMPORARY IMPACTS IN SURFACE WATER

PHASE 1 TEMP WORKPAD

PHASE 2 TEMP WORKPAD

TEMPORARY IMPACTS IN SURFACE WATER*

TALL PINE INVESTMENTS LLC

HIGH ROCK LAKE

ALCOA POWER GENERATING INC

STEVE F & LINDA S WILSON

JIMMY M KETCHIE

DAVID R & LILLIE T MORGAN

JERRY W & MARY C MORGAN

15" SIDE DRAIN

REMOVE

RETAIN

BRIDGE #141

CONC. & STEEL

SR 1004 STOKES FERRY RD.

MATCHLINE –L– STA. 22+75.00 INSET A

SEE SHEET 7 OF 13 FOR ENLARGEMENT

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

5/5/2017
R:\Projects\PERMITS_Environmental\Drawings\Plan Sheets\B4808_Hyd_prm_3_2B-1_Con.dgn
1:3945 BKI

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4808	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

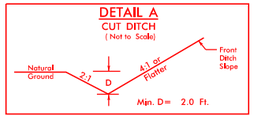
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

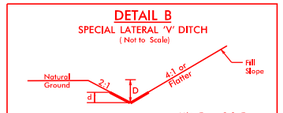
PERMIT DRAWING SHEET 4 OF 13

DETAIL A
CUT DITCH
(Not to Scale)



FROM –L– STA. 11+50 TO –L– STA. 13+00 RT

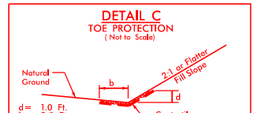
DETAIL B
SPECIAL LATERAL "V" DITCH
(Not to Scale)



Type of Liner= PSRM

FROM –L– STA. 17+50 TO –L– STA. 22+00 LT

DETAIL C
TOE PROTECTION
(Not to Scale)

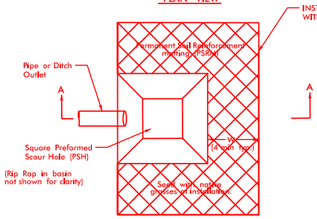


Type of Liner= B Rip-Rap

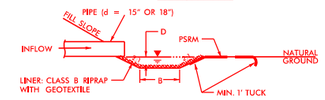
FROM –L– STA. 12+75 TO –L– STA. 13+25 RT
FROM –L– STA. 12+75 TO –L– STA. 13+25 LT

PREFORMED SCOUR HOLE
*NOT TO SCALE

PLAN VIEW



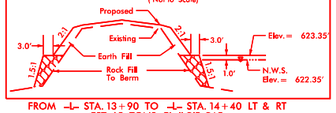
SECTION A–A



3:08

–L– STA. 13+13 LT

DETAIL D
ROCK FILL IN POND
(Not to Scale)



FROM –L– STA. 13+90 TO –L– STA. 14+40 LT & RT
EST 65 TONS CL II RIP RAP
FROM –L– STA. 16+63 TO –L– STA. 17+10 LT & RT
EST 113 TONS CL II RIP RAP

USE SHOULDER BERM GUTTER AT THE FOLLOWING LOCATIONS:
–L– STA. 13+05.00 TO –L– 14+34.25 (BEGIN APPROACH SLAB) LT.
–L– 16+68.75 (END APPROACH SLAB) TO –L– STA. 17+37.00 LT.

NAD 83/95

P P DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES MECHANIZED CLEARING

F F DENOTES FILL IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4808	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

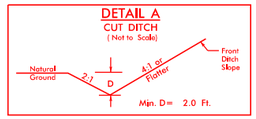
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

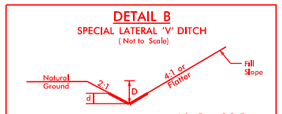
PERMIT DRAWING SHEET 5 OF 13

DETAIL A
CUT DITCH
(Not to Scale)



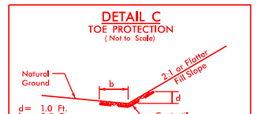
FROM –L– STA. 11+50 TO –L– STA. 13+00 RT

DETAIL B
SPECIAL LATERAL "V" DITCH
(Not to Scale)



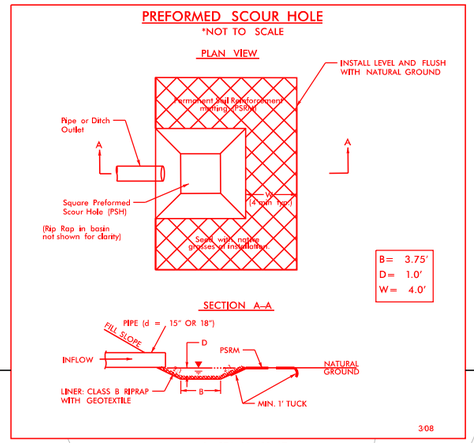
FROM –L– STA. 17+50 TO –L– STA. 22+00 LT

DETAIL C
TOE PROTECTION
(Not to Scale)



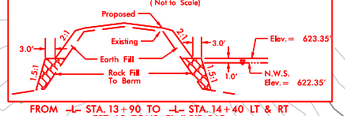
FROM –L– STA. 12+75 TO –L– STA. 13+25 RT
FROM –L– STA. 12+75 TO –L– STA. 13+25 LT

PREFORMED SCOUR HOLE
*NOT TO SCALE



–L– STA. 13+13 LT

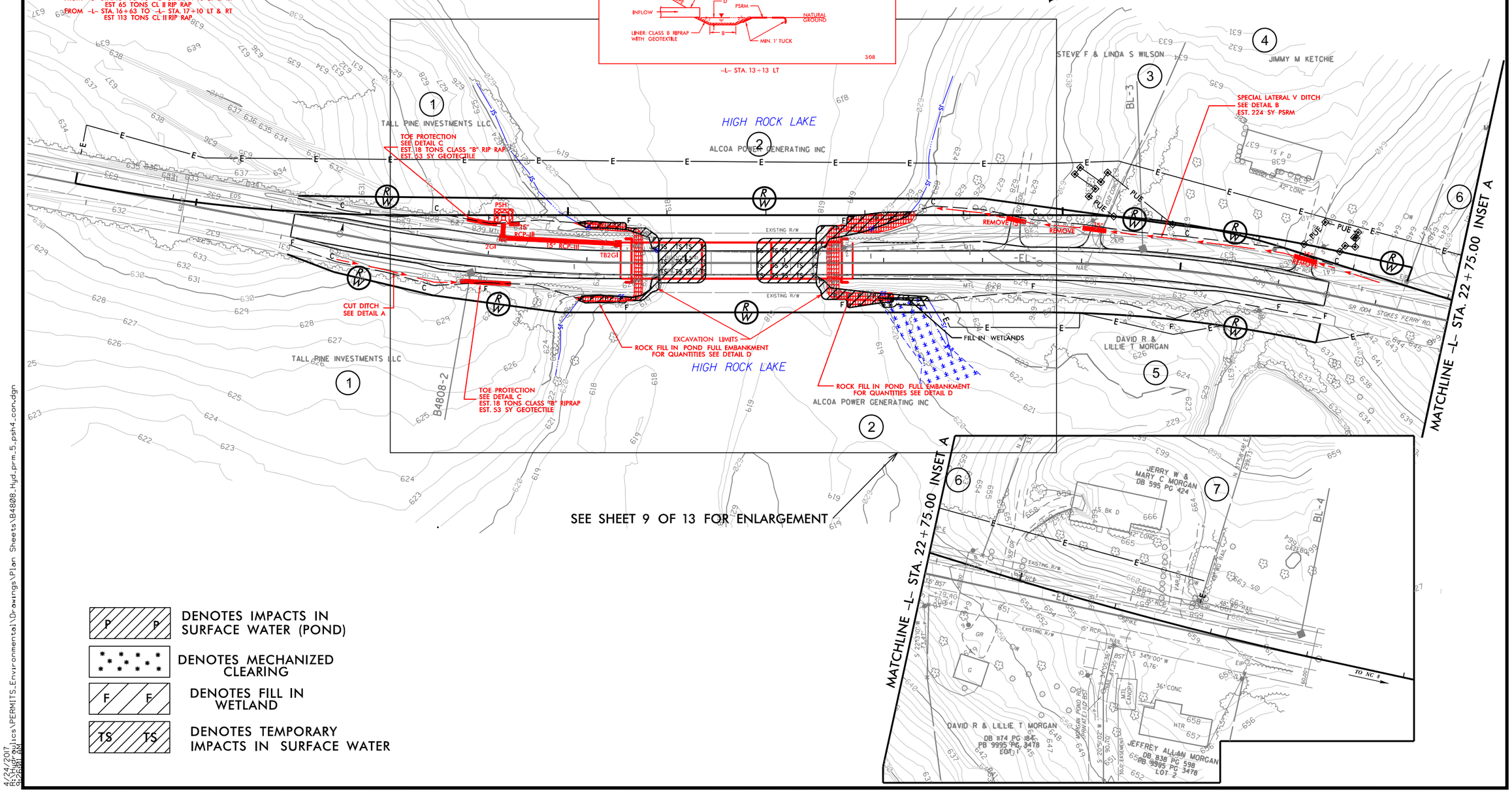
DETAIL D
ROCK FILL IN POND
(Not to Scale)



FROM –L– STA. 13+90 TO –L– STA. 14+40 LT & RT
EST 65 TONS CL II RIP RAP
FROM –L– STA. 16+63 TO –L– STA. 17+10 LT & RT
EST 113 TONS CL II RIP RAP

USE SHOULDER BERM GUTTER AT THE FOLLOWING LOCATIONS:
–L– STA. 13+05.00 TO –L– 14+34.25 (BEGIN APPROACH SLAB) LT.
–L– 16+68.75 (END APPROACH SLAB) TO –L– STA. 17+37.00 LT.

NAD 83/95



P P DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES MECHANIZED CLEARING

F F DENOTES FILL IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

4/24/2017
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PROJECT REFERENCE NO.	SHEET NO.
B-4808	2B-1

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

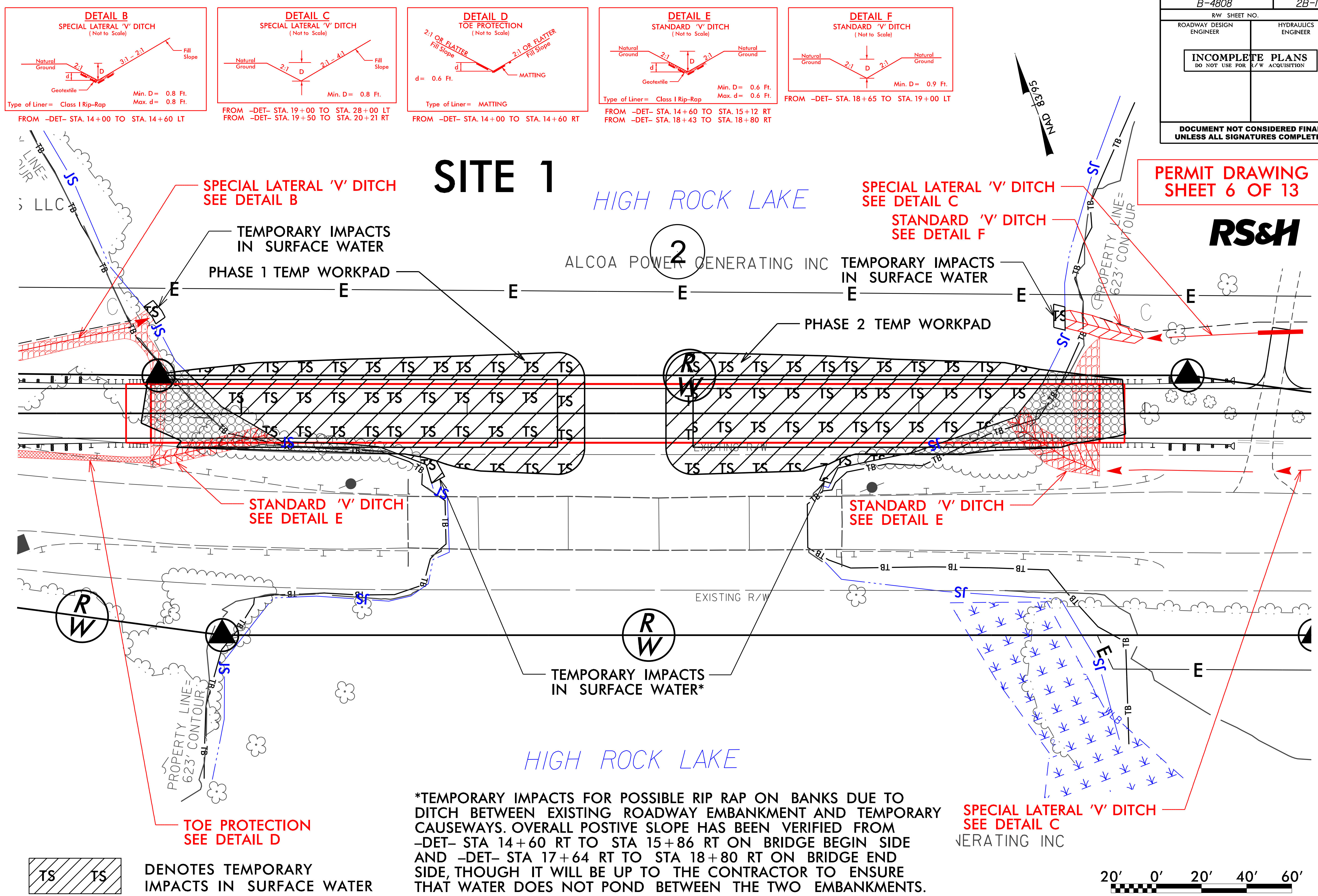
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 6 OF 13

RS&H

SITE 1



*TEMPORARY IMPACTS FOR POSSIBLE RIP RAP ON BANKS DUE TO DITCH BETWEEN EXISTING ROADWAY EMBANKMENT AND TEMPORARY CAUSEWAYS. OVERALL POSTIVE SLOPE HAS BEEN VERIFIED FROM -DET- STA 14+60 RT TO STA 15+86 RT ON BRIDGE BEGIN SIDE AND -DET- STA 17+64 RT TO STA 18+80 RT ON BRIDGE END SIDE, THOUGH IT WILL BE UP TO THE CONTRACTOR TO ENSURE THAT WATER DOES NOT POND BETWEEN THE TWO EMBANKMENTS.

8/17/99

5/5/2017
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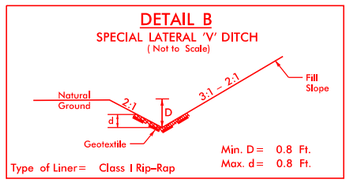
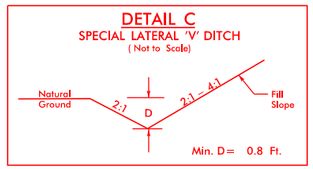
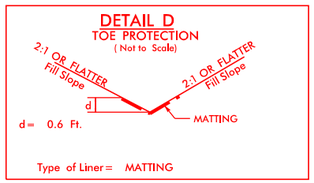
8/17/99



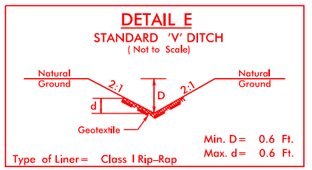
FROM –DET– STA. 14+00 TO STA. 14+60 LT



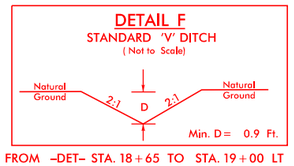
FROM –DET– STA. 19+00 TO STA. 28+00 LT
FROM –DET– STA. 19+50 TO STA. 20+21 RT



FROM –DET– STA. 14+00 TO STA. 14+60 RT



FROM –DET– STA. 14+60 TO STA. 15+12 RT
FROM –DET– STA. 18+43 TO STA. 18+80 RT



FROM –DET– STA. 18+65 TO STA. 19+00 LT

PROJECT REFERENCE NO.	SHEET NO.
B-4808	2B-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 7 OF 13

RS&H

SITE 1

HIGH ROCK LAKE

2

ALCOA POWER GENERATING INC

SPECIAL LATERAL 'V' DITCH
SEE DETAIL B

TEMPORARY IMPACTS
IN SURFACE WATER

PHASE 1 TEMP WORKPAD

SPECIAL LATERAL 'V' DITCH
SEE DETAIL C

STANDARD 'V' DITCH
SEE DETAIL F

TEMPORARY IMPACTS
IN SURFACE WATER

PHASE 2 TEMP WORKPAD

STANDARD 'V' DITCH
SEE DETAIL E

STANDARD 'V' DITCH
SEE DETAIL E

EXISTING R/W

TEMPORARY IMPACTS
IN SURFACE WATER*

PROPERTY LINE
623' CONTOUR

TOE PROTECTION
SEE DETAIL D

SPECIAL LATERAL 'V' DITCH
SEE DETAIL C

HIGH ROCK LAKE

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

*TEMPORARY IMPACTS FOR POSSIBLE RIP RAP ON BANKS DUE TO DITCH BETWEEN EXISTING ROADWAY EMBANKMENT AND TEMPORARY CAUSEWAYS. OVERALL POSTIVE SLOPE HAS BEEN VERIFIED FROM –DET– STA 14+60 RT TO STA 15+86 RT ON BRIDGE BEGIN SIDE AND –DET– STA 17+64 RT TO STA 18+80 RT ON BRIDGE END SIDE, THOUGH IT WILL BE UP TO THE CONTRACTOR TO ENSURE THAT WATER DOES NOT POND BETWEEN THE TWO EMBANKMENTS.

20' 0' 20' 40' 60'

NAD 83/95

5/5/2017
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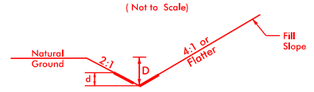
DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

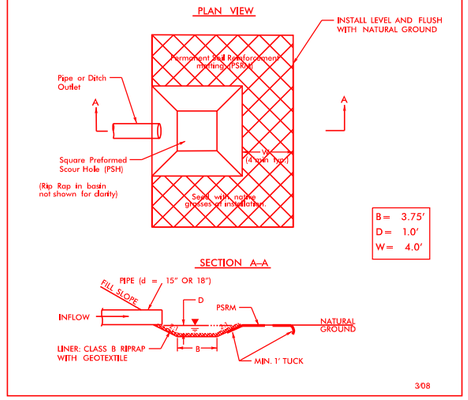


Min. D = 2.0 Ft.
Max. d = 1.0 Ft.

Type of Liner = PSRM

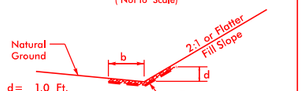
FROM –L– STA. 17+50 TO –L– STA. 22+00 LT

PREFORMED SCOUR HOLE
*NOT TO SCALE



–L– STA. 13+13 LT

DETAIL C
TOE PROTECTION
(Not to Scale)

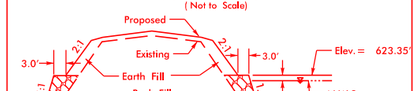


d = 1.0 Ft.
b = 2.0 Ft.

Type of Liner = B Rip–Rap

FROM –L– STA. 12+75 TO –L– STA. 13+25 RT
FROM –L– STA. 12+75 TO –L– STA. 13+25 LT

DETAIL D
ROCK FILL IN POND
(Not to Scale)



FROM –L– STA. 13+90 TO –L– STA. 14+40 LT & RT
EST 65 TONS CL II RIP RAP
FROM –L– STA. 16+63 TO –L– STA. 17+10 LT & RT
EST 113 TONS CL II RIP RAP

PROJECT REFERENCE NO.	SHEET NO.
B-4808	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 8 OF 13

RS&H

SITE 1

HIGH ROCK LAKE

ALCOA POWER GENERATING INC

2

SPECIAL LATERAL 'V' DITCH
SEE DETAIL B

PROPERTY LINE = 623' CONTOUR

TOE PROTECTION
SEE DETAIL C

PSH

PHASE 3 TEMP WORKPAD

PHASE 4 TEMP WORKPAD

EXISTING R/W

ROCK FILL IN
POND FULL EMBANKMENT
SEE DETAIL D

TOE PROTECTION
SEE DETAIL C

EXCAVATION LIMITS

FILL IN WETLANDS

HIGH ROCK LAKE

ALCOA POWER GENERATING INC

ROCK FILL IN
POND FULL EMBANKMENT
SEE DETAIL D

2

P P DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES MECHANIZED CLEARING

F F DENOTES FILL IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

20' 0' 20' 40' 60'

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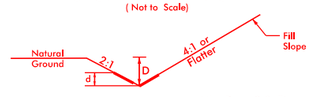
DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

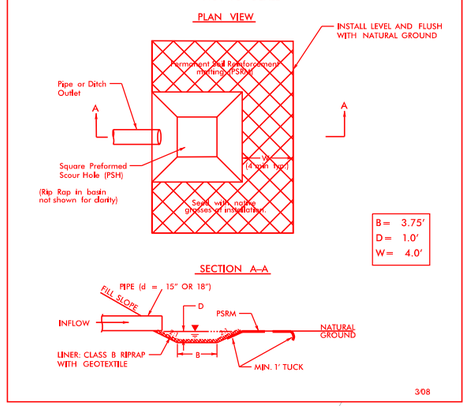


Min. D = 2.0 Ft.
Max. d = 1.0 Ft.

Type of Liner = PSRM

FROM –L– STA. 17+50 TO –L– STA. 22+00 LT

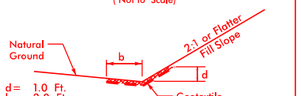
PREFORMED SCOUR HOLE
*NOT TO SCALE



B = 3.75'
D = 1.0'
W = 4.0'

–L– STA. 13+13 LT

DETAIL C
TOE PROTECTION
(Not to Scale)

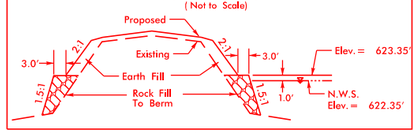


d = 1.0 Ft.
b = 2.0 Ft.

Type of Liner = B Rip–Rap

FROM –L– STA. 12+75 TO –L– STA. 13+25 RT
FROM –L– STA. 12+75 TO –L– STA. 13+25 LT

DETAIL D
ROCK FILL IN POND
(Not to Scale)



FROM –L– STA. 13+90 TO –L– STA. 14+40 LT & RT
EST 65 TONS CL II RIP RAP
FROM –L– STA. 16+63 TO –L– STA. 17+10 LT & RT
EST 113 TONS CL II RIP RAP

PROJECT REFERENCE NO.	SHEET NO.
B-4808	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 1

PERMIT DRAWING SHEET 9 OF 13

RS&H

54638 CAN

HIGH ROCK LAKE

ALCOA POWER GENERATING INC

2

PROPERTY LINE = 623' CONTOUR

SPECIAL LATERAL 'V' DITCH SEE DETAIL B

TOE PROTECTION SEE DETAIL C

PSH

PHASE 3 TEMP WORKPAD

PHASE 4 TEMP WORKPAD

EXISTING R/W

ROCK FILL IN POND FULL EMBANKMENT SEE DETAIL D

TOE PROTECTION SEE DETAIL C

EXCAVATION LIMITS

FILL IN WETLANDS

ROCK FILL IN POND FULL EMBANKMENT SEE DETAIL D

HIGH ROCK LAKE

ALCOA POWER GENERATING INC

2

P P — DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES MECHANIZED CLEARING

F F — DENOTES FILL IN WETLAND

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

20' 0' 20' 40' 60'

4/24/2017
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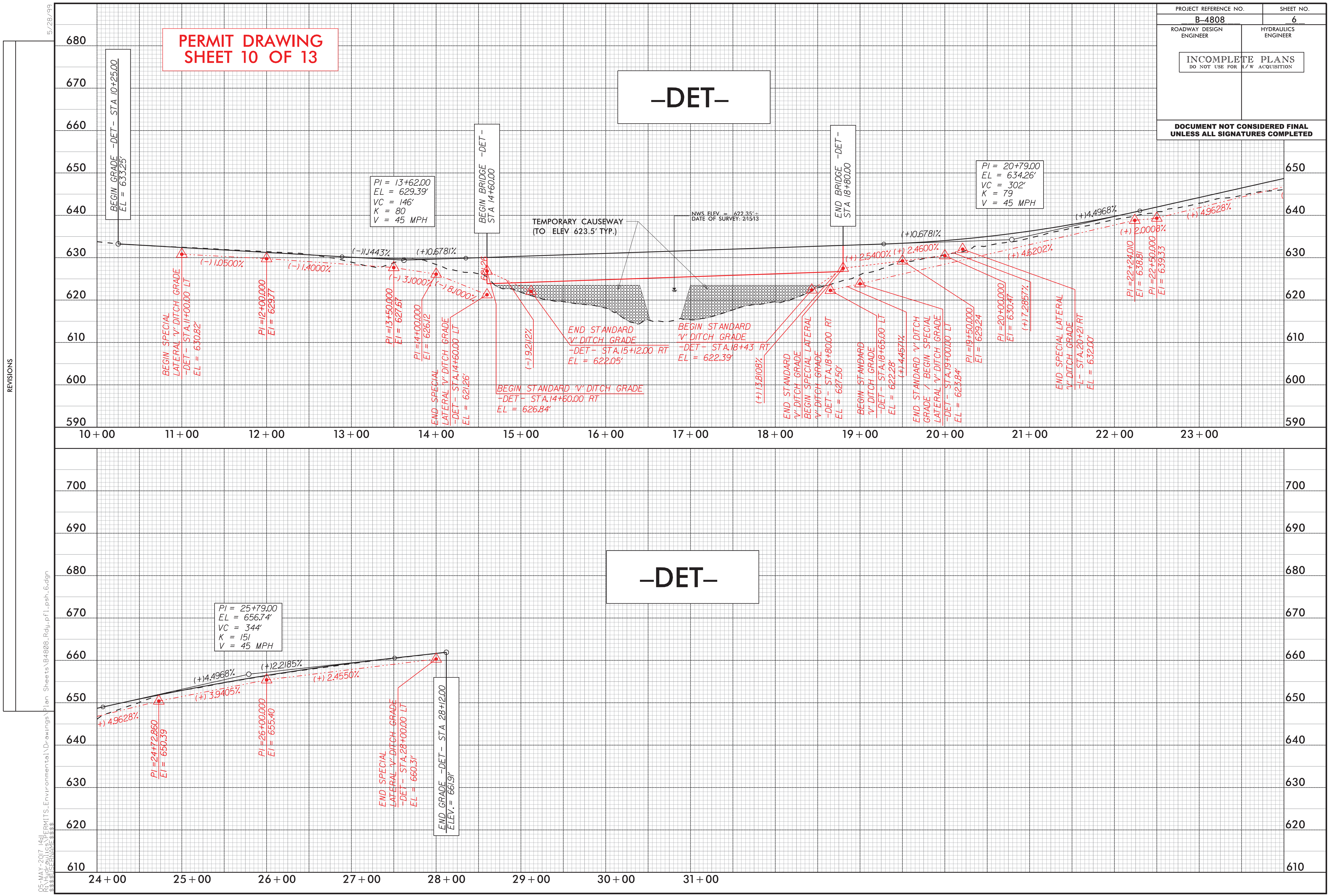
PERMIT DRAWING
SHEET 10 OF 13
PROJECT REFERENCE NO. B-4808
SHEET NO. 6
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
REVISIONS
-DET-
BEGIN GRADE -DET- STA 10+25.00
EL = 633.25'
PI = 13+62.00
EL = 629.39'
VC = 146'
K = 80
V = 45 MPH
BEGIN BRIDGE -DET- STA 14+60.00
TEMPORARY CAUSEWAY
(TO ELEV 623.5' TYP.)
NWS ELEV = 622.35'±
DATE OF SURVEY: 2/15/13
BEGIN BRIDGE -DET- STA 18+80.00
PI = 20+79.00
EL = 634.26'
VC = 302'
K = 79
V = 45 MPH
(-)1.1443%
(+)0.6781%
(+)4.4968%
(-) 1.0500%
(-) 1.4000%
(-) 3.1000%
(-) 8.1000%
(-) 9.2112%
(+) 2.5400%
(+) 2.4600%
(+) 4.6202%
(+) 2.0008%
(+) 4.9628%
(+) 13.8108%
(+) 4.4571%
(+) 7.2857%
BEGIN SPECIAL LATERAL 'V' DITCH GRADE -DET- STA.11+00.00 LT EL = 630.82'
PI =12+00.000 El = 629.77
PI =13+50.000 El = 627.67
PI =14+00.000 El = 626.12
END SPECIAL LATERAL 'V' DITCH GRADE -DET- STA.14+60.00 LT EL = 621.26'
BEGIN STANDARD 'V' DITCH GRADE -DET- STA.14+60.00 RT EL = 626.84'
END STANDARD 'V' DITCH GRADE -DET- STA.15+12.00 RT EL = 622.05'
BEGIN STANDARD 'V' DITCH GRADE -DET- STA.18+43 RT EL = 622.39'
END STANDARD 'V' DITCH GRADE
BEGIN SPECIAL LATERAL 'V' DITCH GRADE -DET- STA.18+80.00 RT EL = 627.50'
BEGIN STANDARD 'V' DITCH GRADE -DET- STA.18+65.00 LT EL = 622.28'
END STANDARD 'V' DITCH GRADE / BEGIN SPECIAL LATERAL 'V' DITCH GRADE -DET- STA.19+00.00 LT EL = 623.84'
PI =19+50.000 El = 629.24
PI =20+00.000 El = 630.47
END SPECIAL LATERAL 'V' DITCH GRADE -L- STA.20+21 RT EL = 632.00'
PI =22+24.010 El = 638.81
PI =22+50.000 El = 639.33
10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00
590 600 610 620 630 640 650 660 670 680
-DET-
PI = 25+79.00
EL = 656.74'
VC = 344'
K = 151
V = 45 MPH
(+)4.4968%
(+)2.2185%
(+) 3.9405%
(+) 2.4550%
(+) 4.9628%
PI =24+72.860 El = 650.39
PI =26+00.000 El = 655.40
END SPECIAL LATERAL 'V' DITCH GRADE -DET- STA.28+00.00 LT EL = 660.31'
END GRADE -DET- STA 28+12.00
ELEV. = 661.91'
24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00
610 620 630 640 650 660 670 680 690 700
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4808	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

DITCH LEGEND	
RIGHT DITCH	----------
LEFT DITCH	-·-·-·-·-

PERMIT DRAWING
SHEET 11 OF 13

BM 1
ELEVATION = 661.07'
N 672602 E 1597401
BL STATION 5+04.00 63' LEFT
RR SPIKE IN SW ROOT OF A
4" WILD CHERRY TREE

BEGIN GRADE
-L- STA. 11+00.00
EL = 631.71'
INCLUDES 3" S9.5B

631.71'

PI = 13+50.00
EL = 629.71'
VC = 110'
K = 96
DS = 50 MPH

(-)10.8017%

(-)10.9400%

BEGIN BRIDGE
-L- STA. 14+45.25

℄ STA 15+51.50 -L-
3 @ 70'
24" CORED SLABS
BRIDGE WITH 4'-0" CAPS
SKEW = 90°
℄ ELEV. = 630.40

WS ELEV = 622.35'
DATE OF SURVEY
02-15-2013

(+)10.3420%

END BENT EXCAVATION
SEE STRUCTURE PAY ITEM

END BENT EXCAVATION
SEE STRUCTURE PAY ITEM

1.5:1 MAX
(TYP.)

CLASS II RIP RAP (TYP.)
SEE STRUCTURE PAY ITEM

TEMPORARY CAUSEWAY
(TO ELEV 623.5' TYP.)

END BRIDGE
-L- STA. 16+57.75

BM 2
ELEVATION = 665.47'
N 671276 E 1599715
BL STATION 29+76.00
S 56°07'42.20" E Dist 211.23'
ALUMINUM CAP IN CONCRETE HW

(+)10.3420%

PI = 19+10.00
EL = 631.62'
VC = 402'
K = 96
DS = 50 MPH

(+)4.4645%

(+)4.5191%

(+)3.5937%

(+)5.9000%

END GRADE
-L- STA. 21+50.00
EL = 642.47'
INCLUDES 3" S9.5B

642.47'

BEGIN CUT DITCH RT
-L- STA. 11+50.00
EL = 629.53'

END CUT DITCH RT
-L- STA. 13+00.00
EL = 628.12'

BEGIN LATERAL V DITCH LT
-L- STA. 17+50.00
EL = 622.92'

PI STA. 19+50.00 LT
EL = 632.21'

PI STA. 21+10.00 LT
EL = 637.96'

END LATERAL V DITCH LT
-L- STA. 22+00.00
EL = 643.27'

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 4800	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 621.6	FT
BASE DISCHARGE	= 6600	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 622.82	FT
OVERTOPPING DISCHARGE	= 17,950	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 629.9	FT

FOR -L- PLAN VIEW, SEE SHEET NO. 4

680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530

10 11 12 13 14 15 16 17 18 19 20 21 22 23

3/29/2017
R:\Projects\PERMITS_Environmental\Drawings\Plan Sheets\B4808_Hyd_prm_11_pf1_Dsn.dgn
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6/23/16

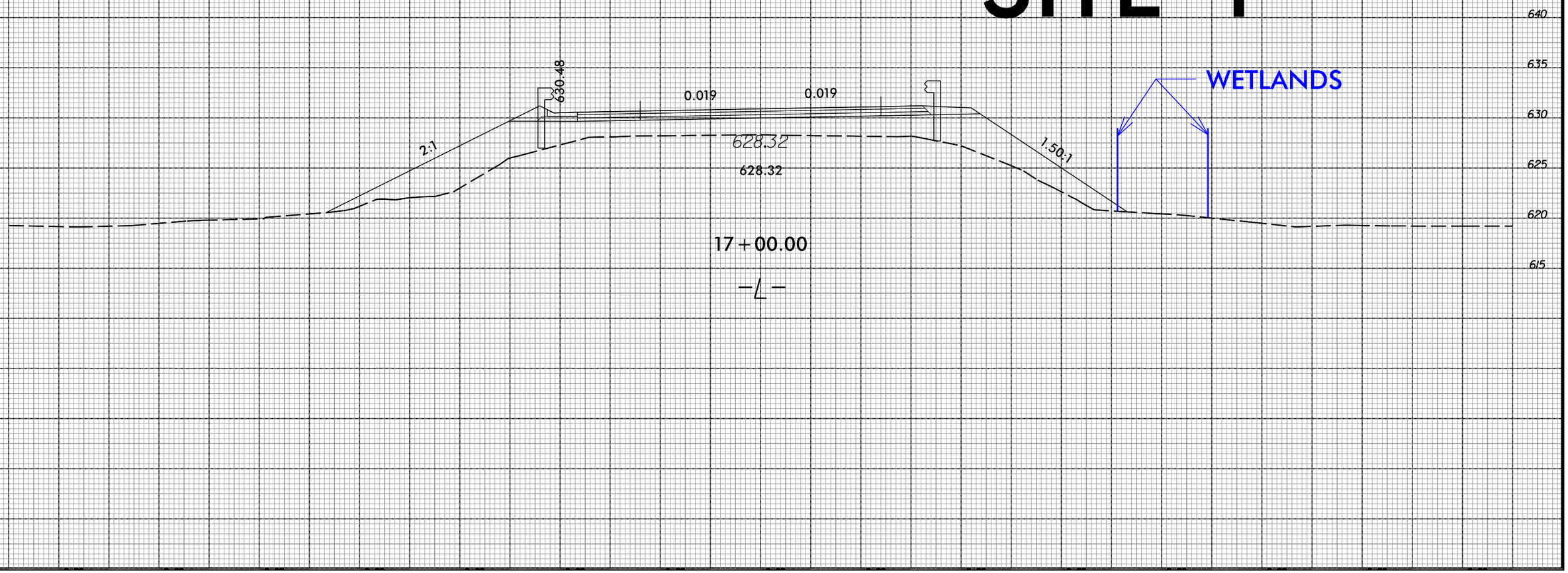
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-1

WETLAND IMPACTS

RS&H

PERMIT DRAWING
SHEET 12 OF 13

SITE 1



3/29/2017
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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)
1	-L- 13+89 to 14+72 LT & RT	Proposed Bridge Embankment						0.02				
1	-L- 16+32 to 17+46 LT & RT	Proposed Bridge Embankment						0.05				
1	-L- 14+72 to 15+20 LT & RT	Temporary Causeway (Phase 3)							0.05			
1	-L- 15+72 to 16+32 LT & RT	Temporary Causeway (Phase 4)							0.06			
1	-L- 17+18 RT	Roadway Embankment	< 0.01			< 0.01						
1	-DET- 14+62 LT	Rip Rap on Banks							< 0.01			
1	-DET- 15+85 RT	Rip Rap on Banks							< 0.01			
1	-DET- 17+68 RT	Rip Rap on Banks							< 0.01			
1	-DET- 18+62 LT	Rip Rap on Banks							< 0.01			
1	-DET- 14+75 to 16+52 LT & RT	Temporary Causeway (Phase 1)							0.16			
1	-DET- 16+88 to 18+58 LT & RT	Temporary Causeway (Phase 2)							0.16			
TOTALS*:			< 0.01			< 0.01		0.08	0.44	0	0	0

*Rounded totals are sum of actual impacts

NOTES:

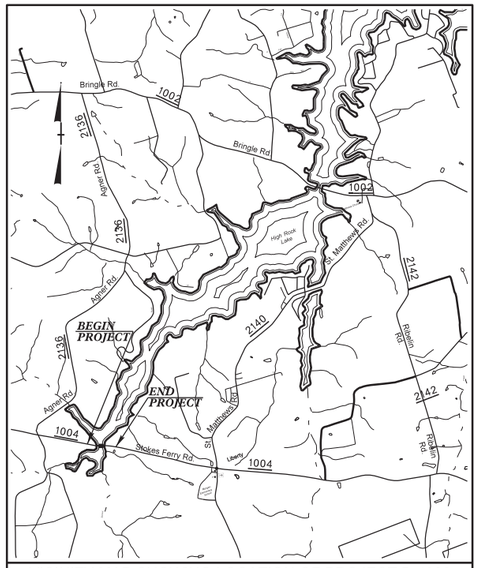
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
3/27/2017
Rowan County
B-4808
38578.2.1

09/08/99

TIP PROJECT: B-4808

CONTRACT: C203726

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbology



VICINITY MAP SHOWING LOCATION OF PROJECT B-4808

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

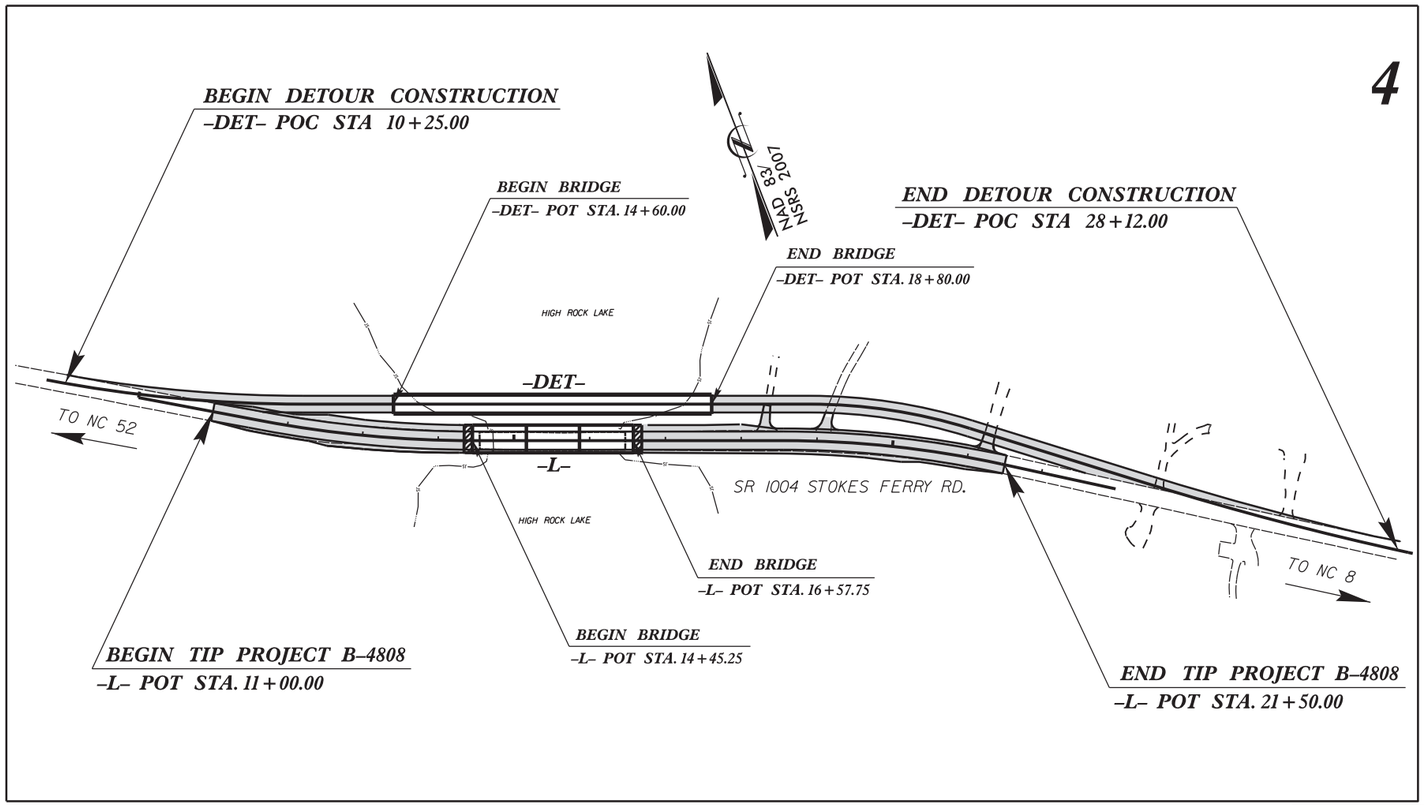
ROWAN COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4808	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38578.1.1	BRSTP-1004(25)	P.E.
38578.2.1	BRSTP-1004(25)	ROW & UTIL
38578.3.1	BRSTP-1004(25)	CONST.

LOCATION: BRIDGE 141 OVER SOUTH SECOND CREEK ON SR 1004 (STOKES FERRY ROAD)

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



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

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 2018 = 4,809
ADT 2038 = 5,975
DHV = 13 %
D = 65 %
T = 9 % *
V = 60 MPH
* TTST = 4 DUAL 5
FUNC CLASS =
MAJOR COLLECTOR
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4808 =	*0.159 MILES*
LENGTH STRUCTURE TIP PROJECT B–4808 =	*0.040 MILES*
TOTAL LENGTH TIP PROJECT B–4808 =	*0.199 MILES*

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 31, 2017

LETTING DATE: JANUARY 16, 2018

GARY LOVERING, PE
PROJECT ENGINEER

BRUCE PAYNE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE:

ROADWAY DESIGN ENGINEER

SIGNATURE:

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

31-JAN-2017 16:55
R:\Roadway\Proj\B4808_Rdy_tsh.dgn
$$$$USERNAME$$$$

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
B-4808	1B

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
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access — CA
- Proposed Control of Access — CA
- 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 — W
- 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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4808	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

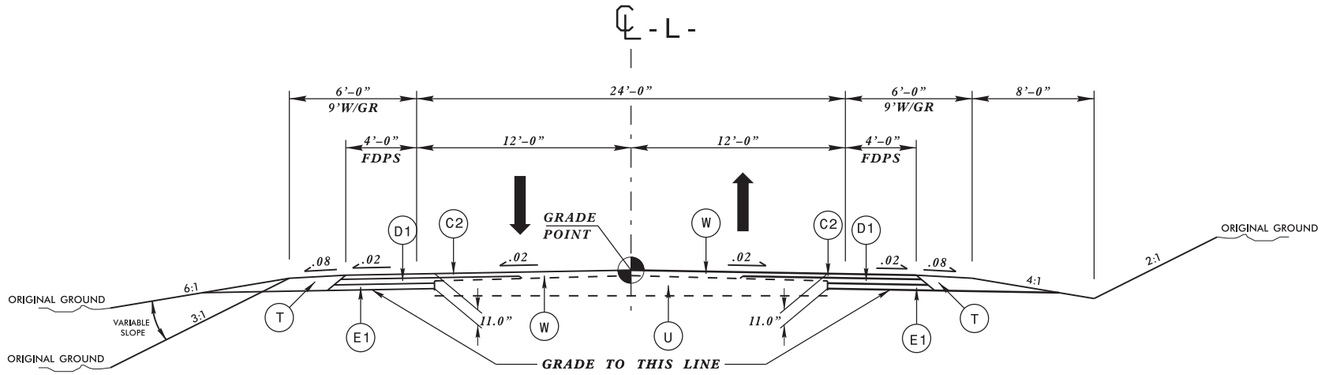
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

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

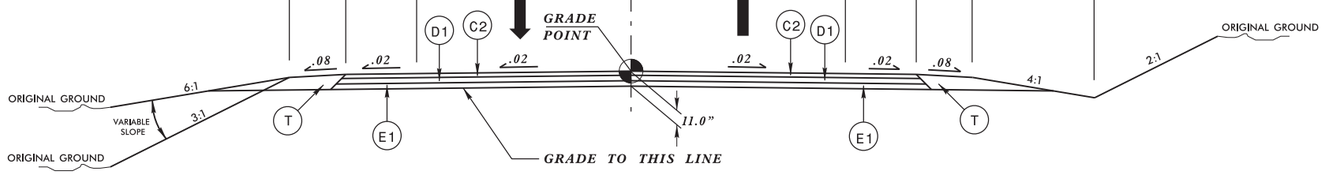
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" 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. 8" AGGREGATE BASE COURSE.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING



TYPICAL SECTION NO. 1

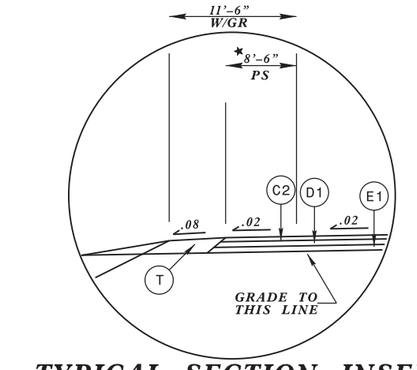
USE TYPICAL SECTION NO. 1:
-L- STA. 11+00.00 TO 12+75.00
-L- STA. 20+00.00 TO 21+50.00

(50' INCIDENTAL MILLING FOR TIE-ENDS AS DIRECTED BY THE DIVISION CONSTRUCTION ENGINEER)



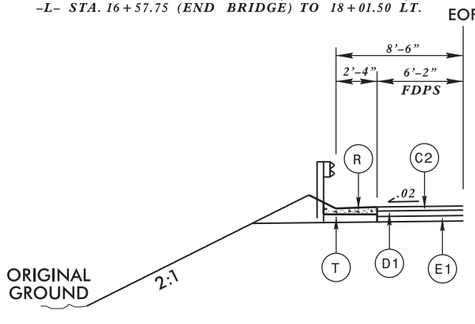
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2:
-L- STA. 12+75.00 TO 14+45.25 (BEG. BRIDGE)
-L- STA. 16+57.75 (END BRIDGE) TO 20+00.00



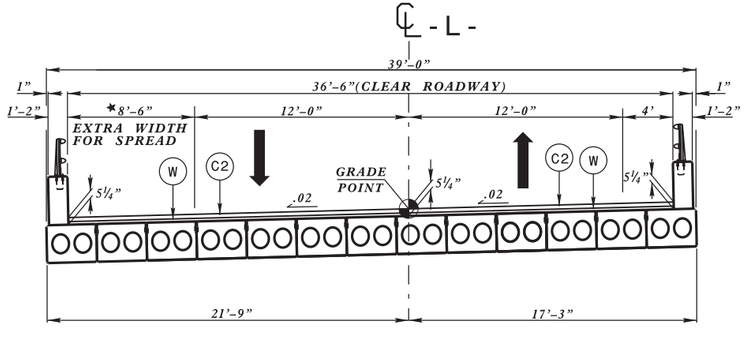
TYPICAL SECTION INSERT A:

USE IN CONJUCTION WITH TYPICAL SECTION NO. 1 & 2:
-L- STA. 12+51.50 TO 14+45.25 (BEGIN BRIDGE) LT.
-L- STA. 16+57.75 (END BRIDGE) TO 18+01.50 LT.



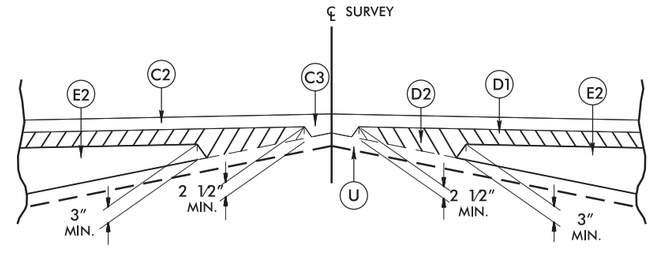
SHOULDER BERM GUTTER DETAIL

-L- STA. 13+05.00 TO 14+34.25 (BEGIN APPROACH SLAB) LT.
-L- STA. 16+68.75 (END APPROACH SLAB) TO 17+37.00 LT.



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3:
-L- STA. 14+45.25 TO 16+57.75



DETAIL SHOWING METHOD OF WEDGING

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4808	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

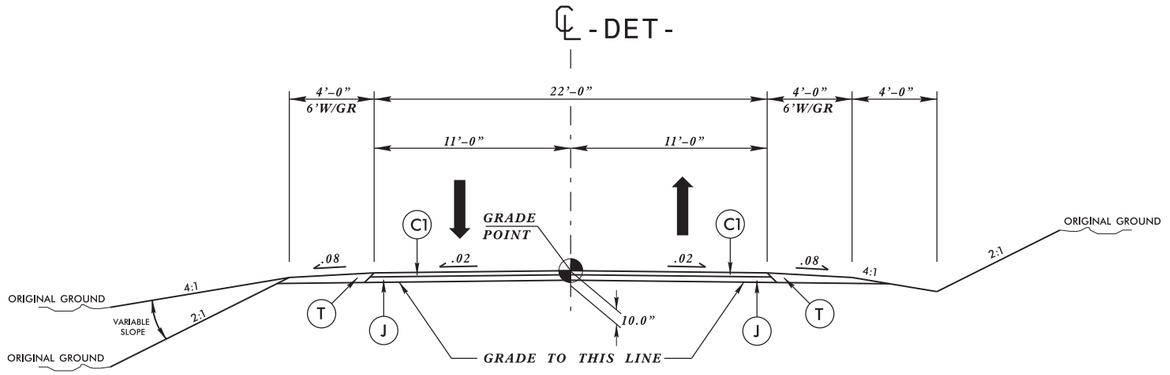
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

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

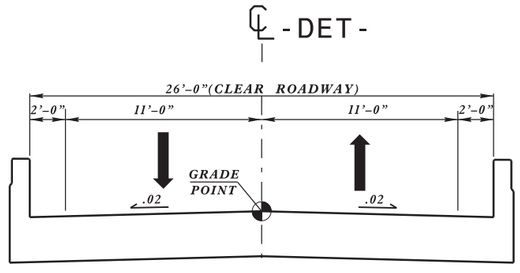
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" 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. 8" AGGREGATE BASE COURSE.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4:

-DET- STA. 10+25.00 TO 14+60.00 (BEG. TEMP. BRIDGE)
-DET- STA. 18+80.00 (END TEMP. BRIDGE) TO 28+12.00



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5:

-DET- STA. 14+60.00 (BEG. TEMP BRIDGE) TO 18+80.00 (END TEMP. BRIDGE)

PROJECT REFERENCE NO.	SHEET NO.
B-4808	2B-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

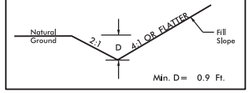
8/17/99

REVISIONS

4-12-17 ROW REVISION: ADDED DRAINAGE DITCHES AND REVISED SLOPE STAKES FOR ON-SITE DETOUR.RLC

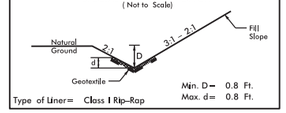
13-APR-2017 09:01
R:\Roadway\Proj\B4808_Rdy_psh_2B-1.dgn
$$$$USERNAME$$$$

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM –DET– STA. 11+00 TO STA. 14+00 LT

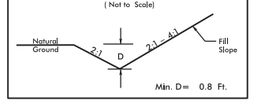
DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= Class I Rip-Rap

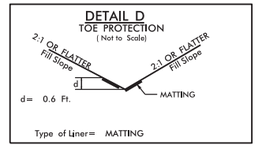
FROM –DET– STA. 14+00 TO STA. 14+60 LT

DETAIL C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM –DET– STA. 19+00 TO STA. 28+00 LT
FROM –DET– STA. 18+80 TO STA. 20+21 RT

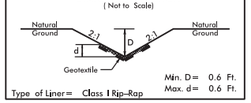
DETAIL D
TOE PROTECTION
(Not to Scale)



Type of Liner= MATTING

FROM –DET– STA. 14+00 TO STA. 14+60 RT

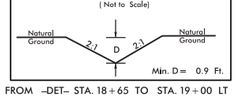
DETAIL E
STANDARD 'V' DITCH
(Not to Scale)



Type of Liner= Class I Rip-Rap

FROM –DET– STA. 14+60 TO STA. 15+12 RT
FROM –DET– STA. 18+43 TO STA. 18+80 RT

DETAIL F
STANDARD 'V' DITCH
(Not to Scale)



FROM –DET– STA. 18+65 TO STA. 19+00 LT

NAD 83/95

~~BEGIN TIP PROJECT B-4808~~
~~-L- POT STA. 11+00.00~~

~~-DET- PC Sta. 10+00.00~~

~~-L- POT Sta. 10+09.99~~

~~-L- PC Sta. 11+67.19~~

~~-DET- PT Sta. 13+39.96~~

SPECIAL LATERAL 'V' DITCH
SEE DETAIL A

~~-L- PT Sta. 14+46.06~~

BEGIN BRIDGE
-DET- POT STA 14+60.00

SPECIAL LATERAL 'V' DITCH
SEE DETAIL B

TALL PINE INVESTMENTS LLC
DB 1043 PG 48

END BRIDGE
-DET- POT STA 18+80.00

HIGH ROCK LAKE

DB 876 PG 128
ALCOA POWER GENERATING INC

STANDARD 'V' DITCH
SEE DETAIL F

~~-L- PC Sta. 18+56.34~~

-DET- PC Sta. 20+09.78

STEVE F & LINDA S WILSON
DB 1025 PG 960

JIMMY M KETCHIE
DB 620 PG 18

~~END TIP PROJECT B-4808~~
~~-L- POT STA. 21+50.00~~

~~-DET- PT Sta. 22+24.01~~

~~-L- PT Sta. 21+45.38~~

JERRY W & MARY C MORGAN
DB 617 PG 927

MATCHLINE -L- STA. 22+75.00 INSET A

SPECIAL LATERAL 'V' DITCH
SEE DETAIL C

15" SIDE DRAIN

REMOVE

23' INC.

C 74.00

S 58° 10' 16.3" E

S 58° 20' 24.5" E

GRAU 350 TL-2

TYPE-III

-DET- S 68° 59' 32.5" E

S 68° 59' 32.5" E

BRIDGE #141
CONC. & STEEL

EXISTING R/W

S 51° 43' 41.0" E

S 56° 43' 30.4" E

SR 1004 STOKES FERRY RD.

BEGIN CONSTRUCTION
-DET- POC STA 10+25.00

TALL PINE INVESTMENTS LLC
DB 1043 PG 48

B4808-2

STANDARD 'V' DITCH
SEE DETAIL E

TOE PROTECTION
SEE DETAIL D

HIGH ROCK LAKE

DAVID R & LILLIE T MORGAN
DB 874 PG 185

STANDARD 'V' DITCH
SEE DETAIL E

SPECIAL LATERAL 'V' DITCH
SEE DETAIL C

ALCOA POWER GENERATING INC
DB 876 PG 128

MATCHLINE -L- STA. 22+75.00 INSET A

~~-L- POT Sta. 23+00.00~~

~~-DET- PC Sta. 24+72.86~~

JERRY W & MARY C MORGAN
DB 595 PG 424

JERRY W & MARY C MORGAN
DB 617 PG 927

SPECIAL LATERAL 'V' DITCH
SEE DETAIL C

15" SIDE DRAIN

REMOVE

RETAIN

36" CONC

MTL CANOPY

HTR

GAZEBO

~~-DET- PT Sta. 25+25.61~~

~~-DET-~~

~~S 56° 43' 51.0" E~~

DAVID R & LILLIE T MORGAN
DB 874 PG 184
PB 9995 PG 3478
LOT 1

JEFFREY ALLAN MORGAN
DB 838 PG 598
PB 9995 PG 3478
LOT 2

END CONSTRUCTION
-DET- POC STA 28+12.00

~~-L-~~		-DET-	
~~PI Sta 13+07.03~~	~~PI Sta 20+01.42~~	PI Sta 11+70.49	PI Sta 21+17.71
~~Δ = 10° 39' 07.9" (LT)~~	~~Δ = 12° 16' 02.1" (RT)~~	Δ = 10° 49' 16.2" (LT)	Δ = 17° 15' 51.5" (RT)
~~D = 3° 49' 11.0"~~	~~D = 4° 14' 38.9"~~	D = 3° 10' 59.2"	D = 8° 03' 30.5"
~~L = 278.87'~~	~~L = 269.04'~~	L = 339.96'	L = 214.24'
~~T = 139.84'~~	~~T = 145.07'~~	T = 170.49'	T = 107.94'
~~R = 1,500.00'~~	~~R = 1,350.00'~~	R = 1,800.00'	R = 711.00'
~~SE = 0.06~~	~~SE = 0.06~~	SE = 0.04	SE = 0.04

FOR –DET– PROFILE, SEE SHEET NO. 6
FOR STRUCTURE PLANS, SEE SHEET NO. S–? THRU S–?

12/06/07

COMPUTED BY: T.R. HOWELL DATE: 12/13/2012
CHECKED BY: J. Braxton DATE: 11/4/2013

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4808	3B

SUMMARY OF EARTHWORK

(IN CUBIC YARDS)

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
–L– 11+00.00	–L– 14+45.25(Beg.BR.)	180	281	101	
–L– 16+57.75(End BR.)	–L– 21+50.00	125	1,748	1,623	
TOTAL:		305	2,029	1,724	
SHOULDER MATERIAL			242	242	
PROJECT TOTALS:		305	2,271	1,966	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				98	
GRAND TOTALS:		305	2,271	2,064	
SAY:		310		2,070	
*ROCK PLATING		222 SY			
*UNDERCUT FOR EMBANKMENT STAB.		500 CY			
*UNDERCUT FOR SUBGRADE STABILIZATION		250 CY			
*SHALLOW UNDERCUT FOR SUBGRADE STAB.		300 CY			
*GEOTEXTILE FOR SOIL STABILIZATION		200 SY			
*CLASS IV SUBGRADE STABILIZATION		570 TONS			

*RECOMMENDED FOR INCLUSION IN THE CONTRACT AS A CONTINGENCY ITEM PER GEOTECHNICAL'S LETTER DATED APRIL 2, 2013

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

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

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
–L–, LT	13+05.00	14+34.25	129.25
–L–, LT	16+68.75	17+37.00	68.25
		TOTAL:	197.5
		SAY:	200.00

REMOVAL OF EXISTING ASPHALT PAVEMENT SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–L–	12+75.00	14+54.65	CL	459.11
–L–	16+46.89	20+00.00	CL	922.01
			TOTAL:	1,381.12
			SAY:	1,390

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350 TL–3	M–350	TYPE III	CAT–1	VI MOD	BIC	AT–1	EA	G	NG				
–L–	12+51.50	14+45.25 (BEG. BR)	LT	193.75′				13+76.50	8.5′	11.5′		50′		1′			1		1									193′		
–L–	16+57.75 (END BR.)	18+01.50	LT	143.75′			16+76.50		8.5′	11.5′	50′		1′				1		1				1					144′		
–L–	12+51.50	14+45.25 (BEG. BR.)	RT	193.75′			13+76.50		6′	9′	175′		3′				1		1									168′		
–L–	16+57.75 (END BR.)	20+14.00	RT	356.25′				18+89.00	6′	9′		337.5′		3′			1		1									144′		
			SUBTOTAL:	887.50′													4		4											
			ANCHOR DEDUCTION:	–275.00′												ANCHOR DEDUCTION:														
			TOTAL:	612.50′													GRAU–350: 4 @ 50 = 200′													
			SAY:	625.00′													TYPE–III: 4 @ 18.75 = 75′			275′									
																	ADDITIONAL POSTS: = 5													

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PROJECT REFERENCE NO.	SHEET NO.
B-4808	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

8/17/99

4-12-17 ROW REVISION: ADDED PUE ON PARCELS 1,2,3 AND 4, ADJUSTED TCE ON PARCELS 3 AND 4

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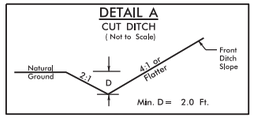
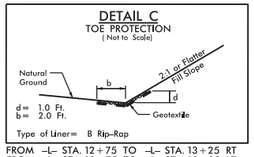
DETAIL A
CUT DITCH
(Not to Scale)



FROM –L– STA. 11+50 TO –L– STA. 13+00 RT

DETAIL C
TOE PROTECTION
(Not to Scale)

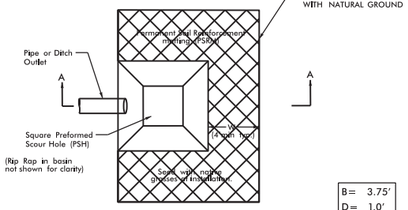


Type of Liner= B Rip-Rap

FROM –L– STA. 12+75 TO –L– STA. 13+25 RT
FROM –L– STA. 12+75 TO –L– STA. 13+25 LT

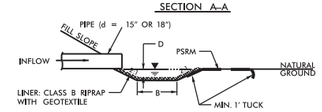
PREFORMED SCOUR HOLE
*NOT TO SCALE

PLAN VIEW



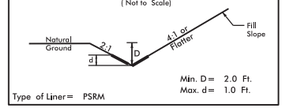
B= 3.75'
D= 1.0'
W= 4.0'

SECTION A–A



308

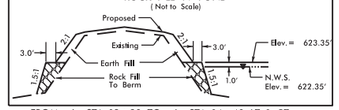
DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= PSRM

FROM –L– STA. 17+50 TO –L– STA. 22+00 LT

DETAIL D
ROCK FILL IN POND
(Not to Scale)



FROM –L– STA. 13+90 TO –L– STA. 14+40 LT & RT
EST 65 TONS CL II RIP RAP
FROM –L– STA. 16+63 TO –L– STA. 17+10 LT & RT
EST 113 TONS CL II RIP RAP

USE SHOULDER BERM GUTTER AT THE FOLLOWING LOCATIONS:
–L– STA. 13+05.00 TO –L– 14+34.25 (BEGIN APPROACH SLAB) LT.
–L– 16+68.75 (END APPROACH SLAB) TO –L– STA. 17+37.00 LT.

BEGIN TIP PROJECT B-4808
–L– POT STA. 11+00.00

END TIP PROJECT B-4808
–L– POT STA. 21+50.00

~~–DET– PC Sta. 10+09.88~~
–L– POT Sta. 10+00.00
–L– PC Sta. 11+67.19
~~–DET– PT Sta. 13+39.96~~
–L– PT Sta. 14+46.06
–L– PC Sta. 18+56.34
~~–DET– PC Sta. 20+09.78~~
~~–DET– PT Sta. 22+24.40~~
–L– PT Sta. 21+45.38

N 63°38' NAD

1 TALL PINE INVESTMENTS LLC DB 1043 PG 48

2 ALCOA POWER GENERATING INC DB 876 PG 128

3 STEVE F & LINDA S WILSON DB 1025 PG 960

4 JIMMY M KETCHIE DB 620 PG 18

5 DAVID R & LILLIE T MORGAN DB 1174 PG 185

6 JERRY W & MARY C MORGAN DB 617 PG 927

7 JERRY W & MARY C MORGAN DB 595 PG 424

TOE PROTECTION SEE DETAIL C EST. 18 TONS CLASS "B" RIP RAP EST. 53 SY GEOTECTILE

ROCK FILL IN POND FULL EMBANKMENT FOR QUANTITIES SEE DETAIL D

ROCK PLATING SEE DETAIL

SPECIAL LATERAL V DITCH SEE DETAIL B EST. 224 SY PSRM

CUT DITCH SEE DETAIL A

BEGIN APPROACH SLAB
–L– POC STA.14+34.25
BEGIN BRIDGE
–L– POT STA.14+45.25
HIGH ROCK LAKE

END BRIDGE
–L– POT STA.16+57.75
END APPROACH SLAB
–L– POT STA.16+68.75

~~BEGIN CONSTRUCTION~~
~~–DET– POC STA 10+25.00~~

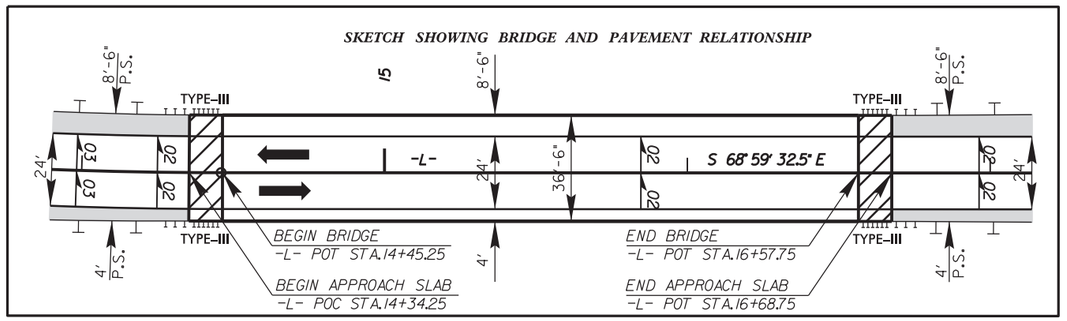
~~END CONSTRUCTION~~
~~–DET– POC STA 28+12.00~~

–L– POT Sta. 23+00.00
~~–DET– PC Sta. 24+72.86~~
~~–DET– PT Sta. 28+25.54~~

MATCHLINE –L– STA. 22+75.00 INSET A

–L–		–DET–	
PI Sta 13+07.03	PI Sta 20+01.42	~~PI Sta 11+70.49~~	~~PI Sta 21+17.71~~
Δ = 10° 39' 07.9" (LT)	Δ = 12° 16' 02.1" (RT)	~~Δ = 10° 49' 16.2" (LT)~~	~~Δ = 17° 15' 51.5" (RT)~~
D = 3° 49' 11.0"	D = 4° 14' 38.9"	~~D = 3° 10' 59.2"~~	~~D = 8° 03' 30.5"~~
L = 278.87'	L = 289.04'	~~L = 339.96'~~	~~L = 214.24'~~
T = 139.84'	T = 145.07'	~~T = 170.49'~~	~~T = 107.94'~~
R = 1,500.00'	R = 1,350.00'	~~R = 1,800.00'~~	~~R = 711.00'~~
SE = 0.06	SE = 0.06	~~SE = 0.04~~	~~SE = 0.04~~

SKETCH SHOWING BRIDGE AND PAVEMENT RELATIONSHIP



FOR –DET– PLAN VIEW, SEE SHEET NO. 2B–1
FOR –L– PROFILE, SEE SHEET NO. 5
FOR STRUCTURE PLANS, SEE SHEETS NO. S–? THRU S–?

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4808	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

DITCH LEGEND	
RIGHT DITCH	- - - - - - -
LEFT DITCH	— - - — -

BM 1
ELEVATION = 661.07'
N 672602 E 1597401
BL STATION 5+04.00 63' LEFT
RR SPIKE IN SW ROOT OF A
4" WILD CHERRY TREE

BEGIN BRIDGE
-L- STA. 14+45.25

END BRIDGE
-L- STA. 16+57.75

BM 2
ELEVATION = 665.47'
N 671276 E 1599715
BL STATION 29+76.00
S 56°07'42.20" E Dist 211.23'
ALUMINUM CAP IN CONCRETE HW

END GRADE
-L- STA. 21+50.00
EL = 642.47'
INCLUDES 3" S9.5B

BEGIN GRADE
-L- STA. 11+00.00
EL = 631.71'
INCLUDES 3" S9.5B

PI = 13+50.00
EL = 629.71'
VC = 110'
K = 96
DS = 50 MPH

℄ STA 15+51.50 -L-
3 @ 70'
24" CORED SLABS
BRIDGE WITH 4'-0" CAPS
SKEW = 90°
℄ ELEV. = 630.40

WS ELEV = 622.35'
DATE OF SURVEY
02-15-2013

PI = 19+10.00
EL = 631.62'
VC = 402'
K = 96
DS = 50 MPH

631.71'
(-)0.8017%
(-)0.9400%
(+)0.3420%
(+)0.3420%
(+)4.5191%
(+)3.5931%
(+)5.9600%
642.47'
(+)4.6450%

END BENT EXCAVATION
SEE STRUCTURE PAY ITEM

END BENT EXCAVATION
SEE STRUCTURE PAY ITEM

1.5:1 MAX
(TYP.)

CLASS II RIP RAP (TYP.)
SEE STRUCTURE PAY ITEM

BEGIN CUT DITCH RT
-L- STA.11+50.00
EL = 629.53'

END CUT DITCH RT
-L- STA.13+00.00
EL = 628.12'

BEGIN LATERAL V DITCH LT
-L- STA.17+50.00
EL = 622.92'

PI STA.19+50.00 LT
EL = 632.21'

PI STA.21+10.00 LT
EL = 637.96'

END LATERAL V DITCH LT
-L- STA.22+00.00
EL = 643.21'

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 4800	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 621.6	FT
BASE DISCHARGE	= 6600	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 622.82	FT
OVERTOPPING DISCHARGE	= 17,950	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 629.9	FT

FOR -L- PLAN VIEW, SEE SHEET NO. 4

680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530

10 11 12 13 14 15 16 17 18 19 20 21 22 23

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PROJECT REFERENCE NO.	SHEET NO.
B-4808	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

4-12-17 ROW REVISION: ADDED DRAINAGE DITCHES TO ON-SITE DETOUR PROFILE. RLC

5/28/99

-DET-

BEGIN GRADE -DET- STA 10+25.00
EL = 633.25'

PI = 13+62.00
EL = 629.39'
VC = 146'
K = 80
V = 45 MPH

BEGIN BRIDGE -DET-
STA 14+60.00

END BRIDGE -DET-
STA 18+80.00

PI = 20+79.00
EL = 634.26'
VC = 302'
K = 79
V = 45 MPH

(-)1.05000%
(-)1.40000%
(-)11.443%
(+)10.6781%
(-)3.10000%
(-)8.60000%
(+)1.92112%
(+)10.6781%
(+)12.4600%
(+)4.5202%
(+)14.4968%
(+)14.9628%

BEGIN SPECIAL LATERAL "V" DITCH GRADE -DET- STA 11+60.00 LT EL = 630.82'

PI =12+00.000 EL = 629.77'

PI =13+50.000 EL = 627.65'

PI =14+00.000 EL = 626.12'

END SPECIAL LATERAL "V" DITCH GRADE -DET- STA 14+60.00 LT EL = 621.26'

END SPECIAL LATERAL "V" DITCH GRADE
BEGIN STANDARD "V" DITCH GRADE
-DET- STA 14+60.00 RT
EL = 626.84'

END STANDARD "V" DITCH GRADE -DET- STA 15+12.00 RT EL = 622.05'

BEGIN STANDARD "V" DITCH GRADE -DET- STA 18+43 RT EL = 622.39'

END STANDARD "V" DITCH GRADE -DET- STA 18+80.00 RT EL = 622.56'

BEGIN STANDARD "V" DITCH GRADE -DET- STA 18+65.00 LT EL = 622.28'

END STANDARD "V" DITCH GRADE / BEGIN SPECIAL LATERAL "V" DITCH GRADE -DET- STA 19+00.00 LT EL = 623.84'

BEGIN SPECIAL LATERAL "V" DITCH GRADE -DET- STA 19+50 RT EL = 629.24'

PI =20+00.000 EL = 630.47'

END SPECIAL LATERAL "V" DITCH GRADE -L- STA 20+21 RT EL = 632.00'

PI =22+24.010 EL = 638.89'

PI =22+50.000 EL = 639.33'

-DET-

PI = 25+79.00
EL = 656.74'
VC = 344'
K = 151
V = 45 MPH

END GRADE -DET- STA 28+12.00
ELEV. = 661.91'

(+)1.49628%
(+)14.4968%
(+)12.2185%
(+) 2.4600%

PI =24+72.860 EL = 650.39'

(+)3.94625%

PI =25+00.000 EL = 651.46'

(+)3.94000%

PI =25+50.000 EL = 653.43'

(+)3.94000%

PI =26+00.000 EL = 655.40'

(+)2.46000%

PI =26+50.000 EL = 656.63'

(+)2.46000%

PI =27+00.000 EL = 657.86'

(+)2.44000%

PI =27+50.000 EL = 659.08'

END SPECIAL LATERAL "V" DITCH GRADE -DET- STA 28+00.00 LT EL = 660.31'

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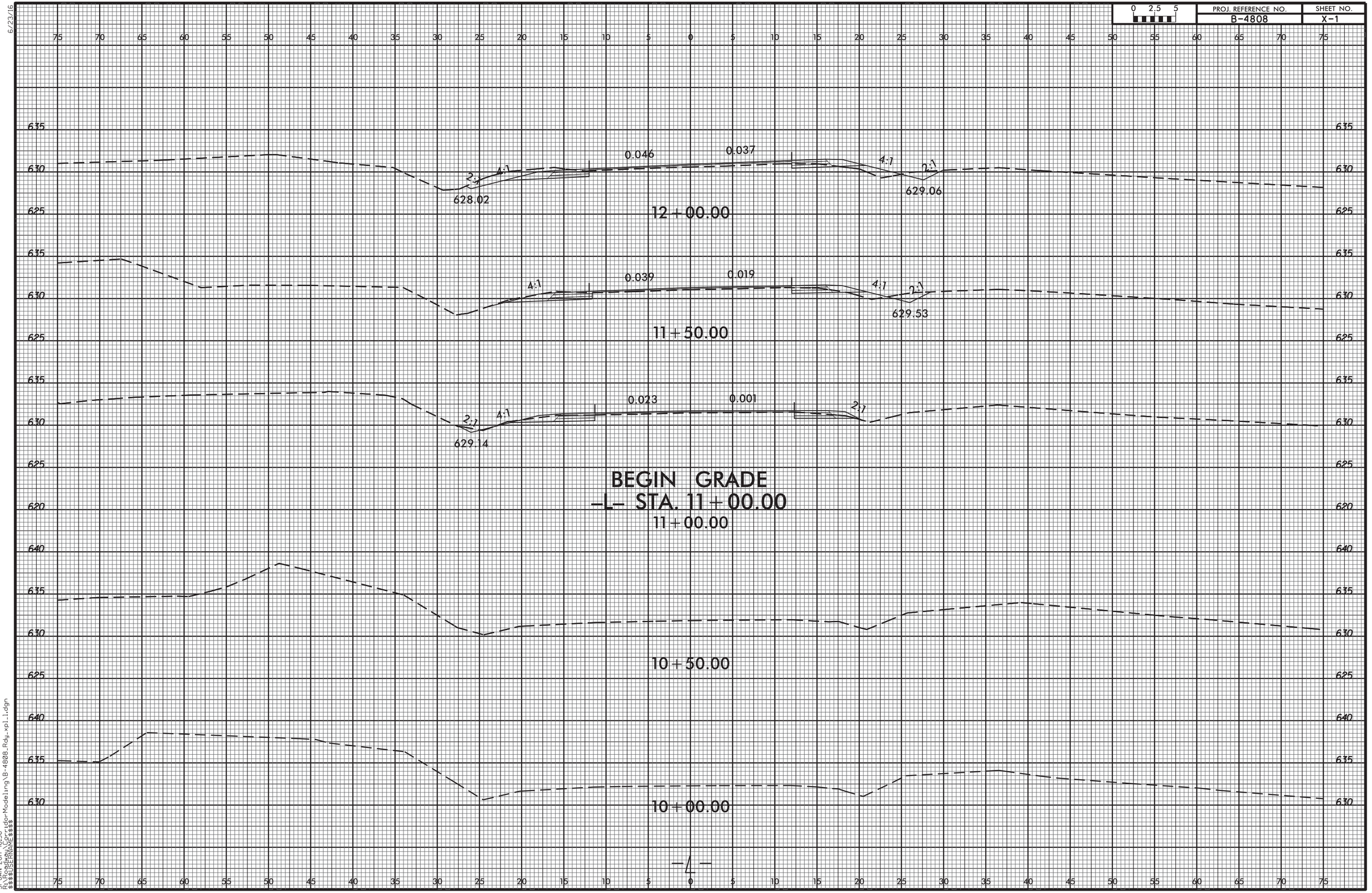
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-1



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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-2

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

635 630 625 620 615

0.020 0.020

BEGIN BRIDGE
–L– STA. 14+45.25

14+50.00

635 630 625 620

229.25

0.029 0.029

2:1 2:1

14+00.00

635 630 625 620

228.89

0.048 0.048

3:1 2:1

13+50.00

635 630 625 620

0.060 0.060

4:1 2:1

628.12

13+00.00

635 630 625

0.056 0.056

2:1 4:1 4:1 2:1

628.59

12+50.00

–4–

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

31-JAN-2017 16:56
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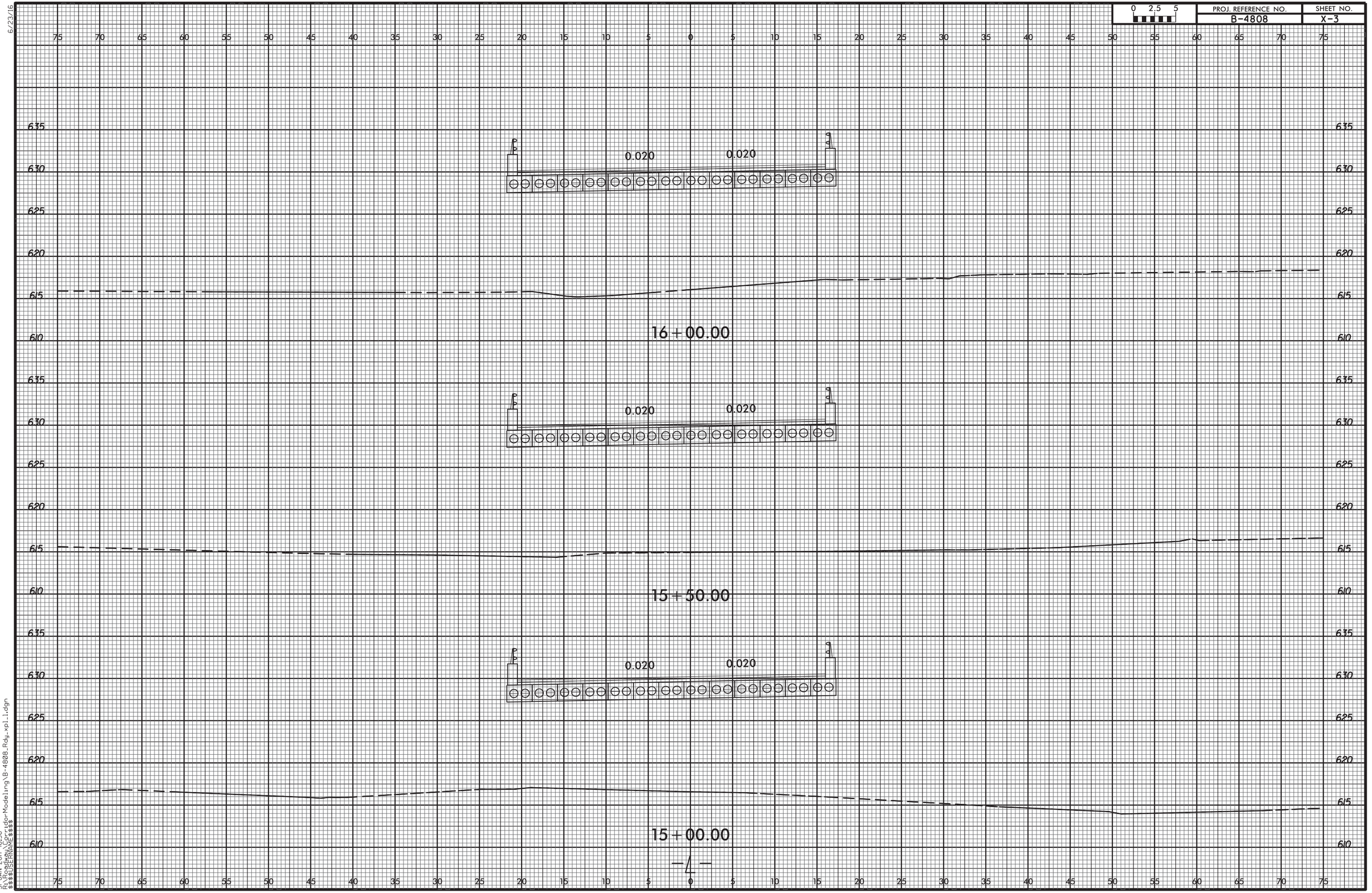
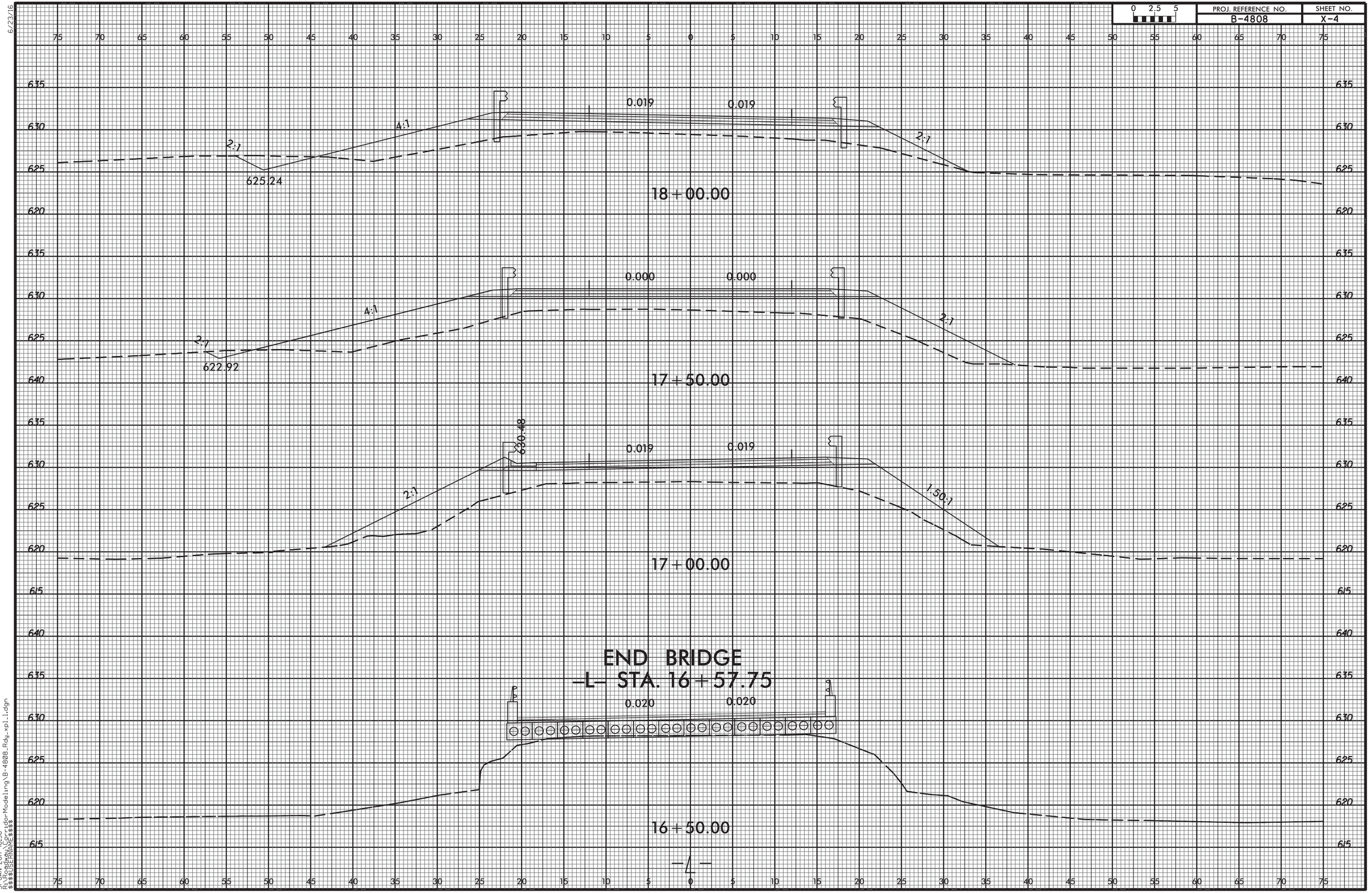
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-3



6/23/16

0 2,5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-4



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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-5

20 + 00.00

634.01

0.060 0.060

2:1 4:1 3:1

19 + 50.00

632.21

0.060 0.060

2:1 4:1 2:1

19 + 00.00

629.89

0.056 0.056

2:1 4:1 2:1

18 + 50.00

627.56

0.038 0.038

2:1 4:1 2:1

-4-

31-JAN-2017 16:56
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$$$$USERNAME$$$$

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-7

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

640 635 630 625

2:1
4:1
0.020
631.93
630.29
11+50.00

640 635 630

4:1
0.011
632.47
630.82
11+00.00

640 635 630

4:1
0.000
632.97
10+50.00

640 635 630

633.25
10+25.00

640 635 630

633.78
10+00.00

625

-DET-

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

13-APR-2017 09:02
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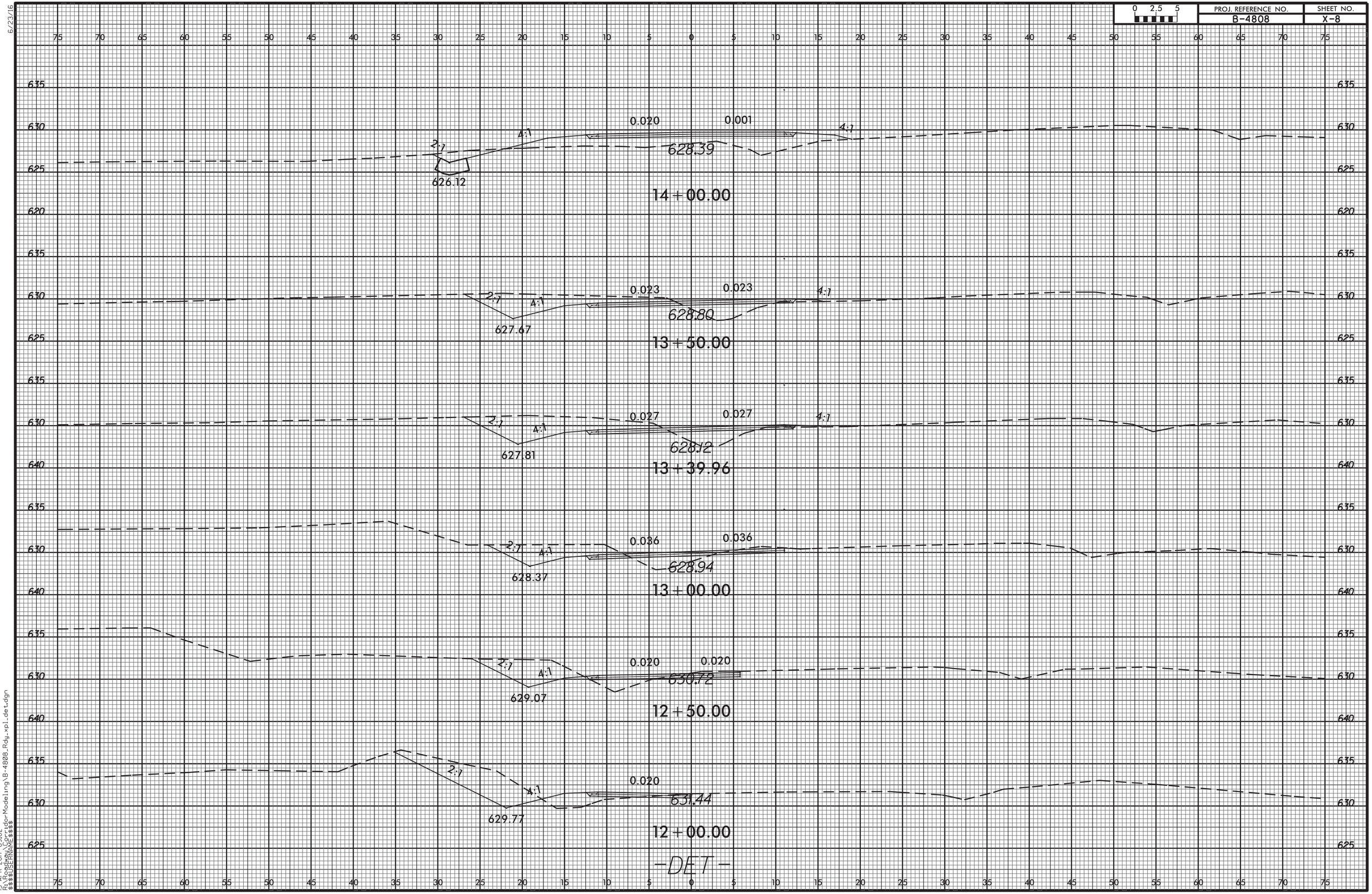
$$$$USERNAME$$$$

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-8



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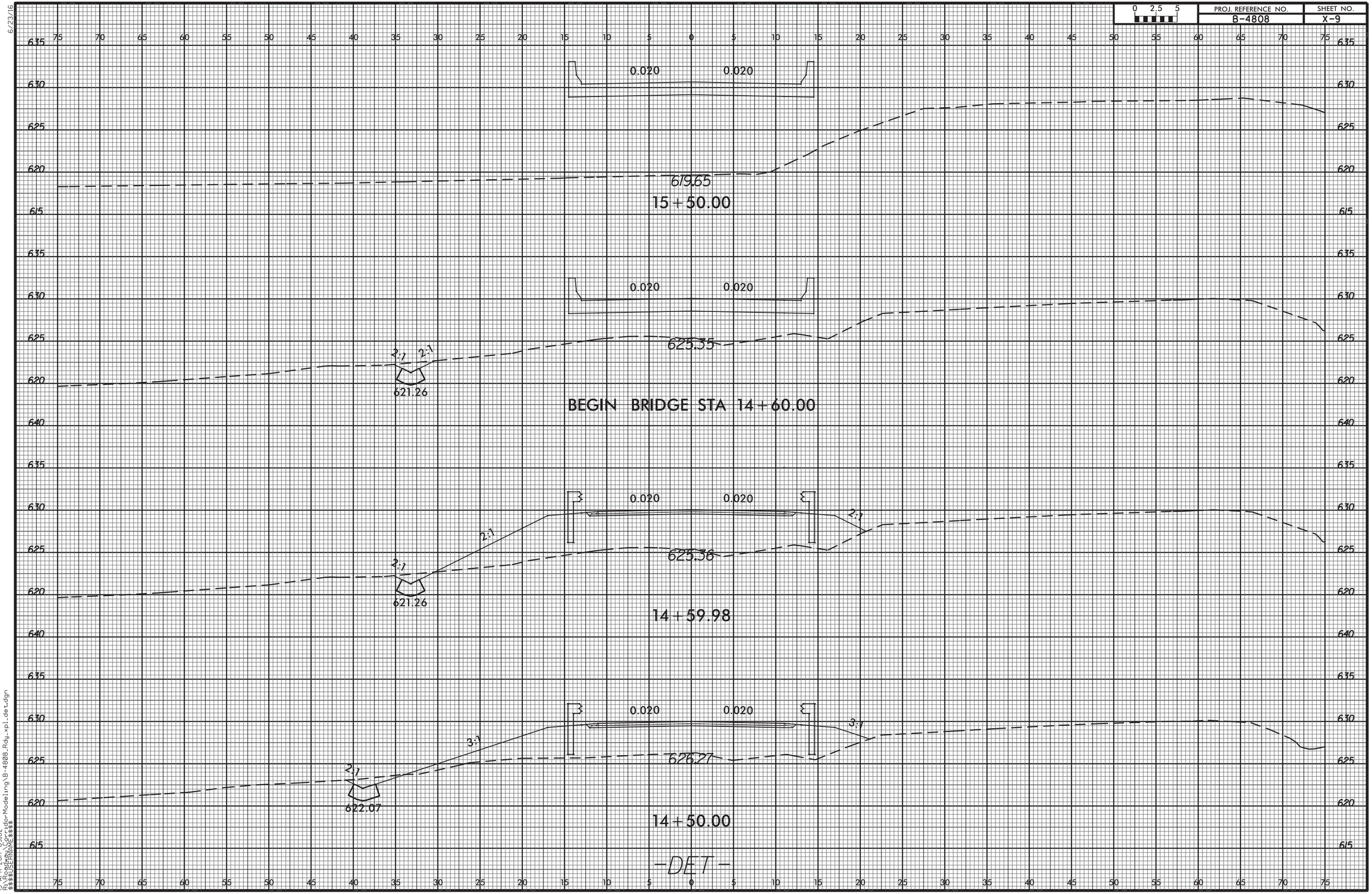
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-9



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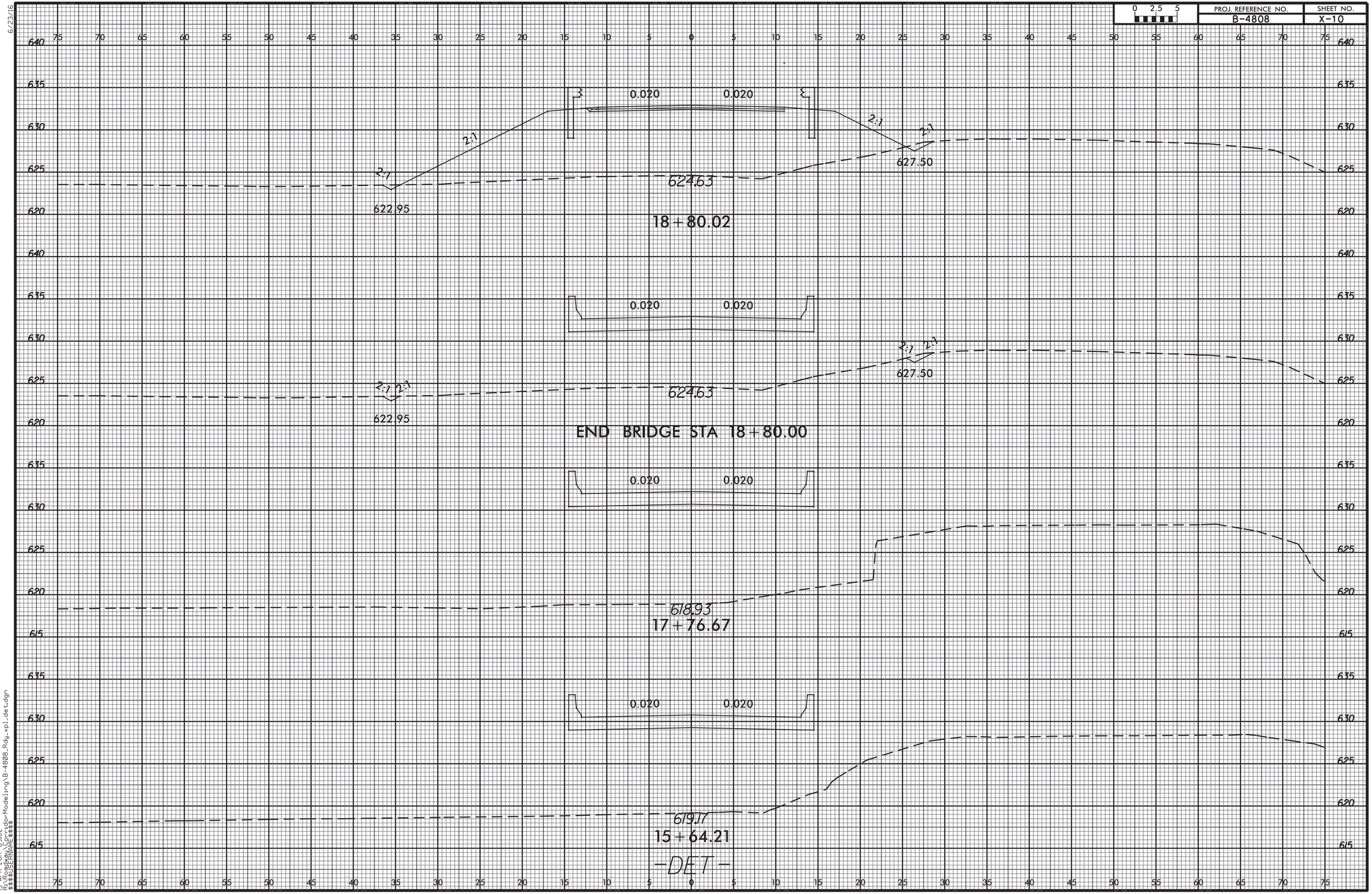
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-10



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$$$$USERNAME$$$$

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-11

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

640 635 630 625

0.027 0.027 4:1 2:1 4:1 2:1 631.18 631.07 628.91

20+09.78

640 635 630 625

0.023 0.023 4:1 3:1 2:1 2:1 630.47 630.69 628.46

20+00.00

640 635 630 625

0.001 0.020 3:1 3:1 2:1 2:1 629.24 629.18 626.15

19+50.00

640 635 630 625 620

0.020 0.020 2:1 2:1 2:1 2:1 628.00 625.97 623.84

19+00.00

-DET-

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

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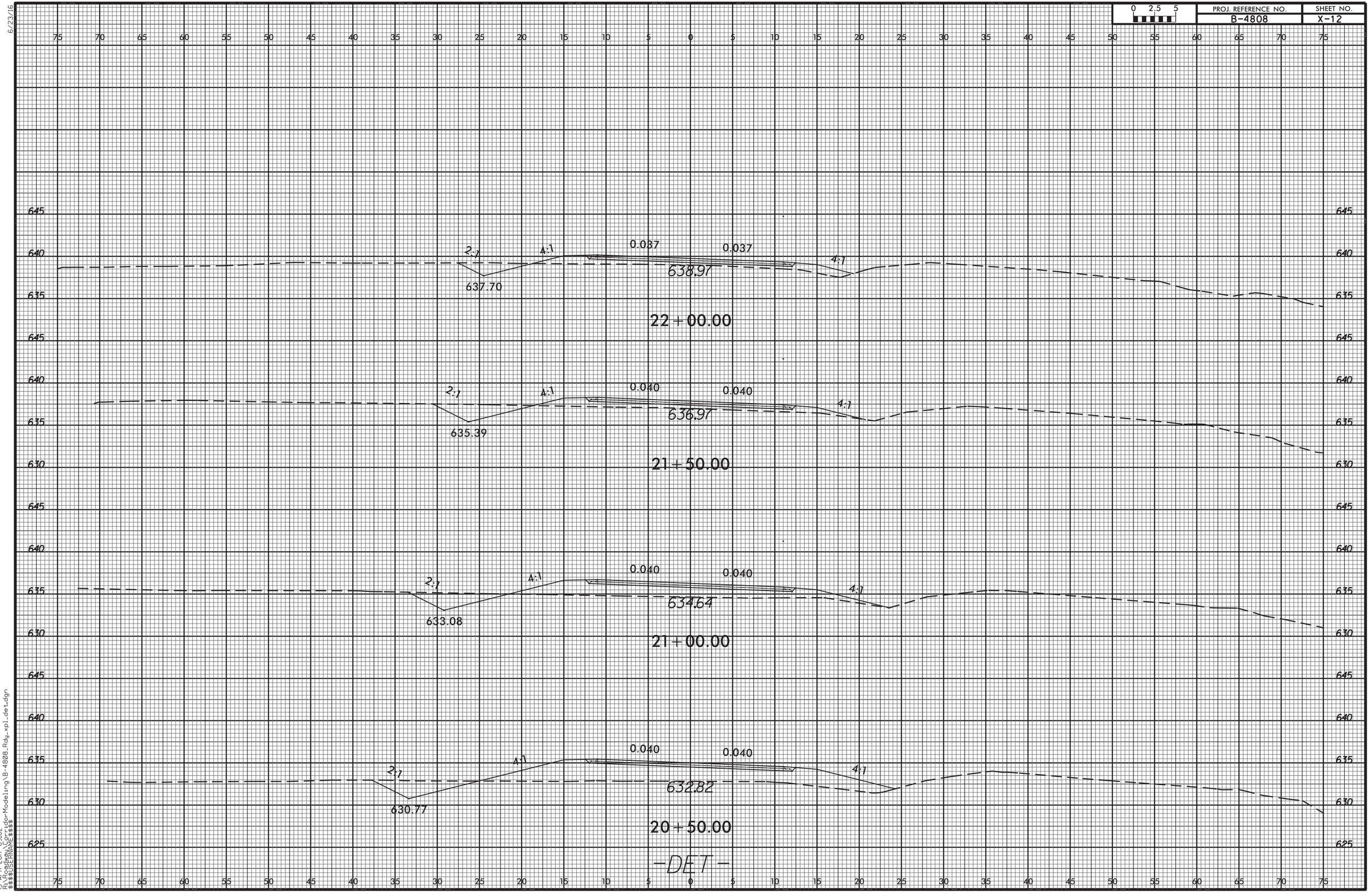
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-12



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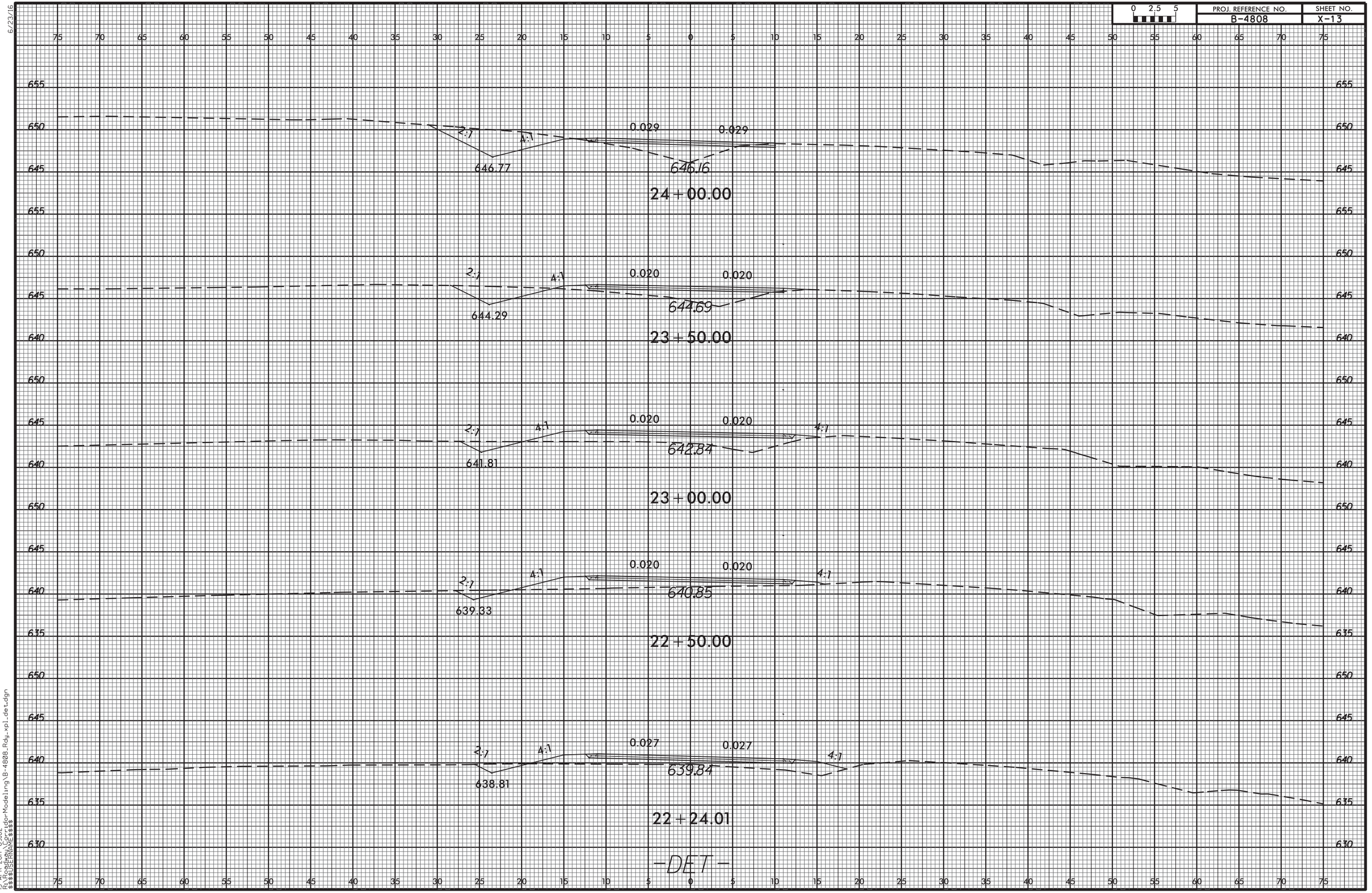
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-13



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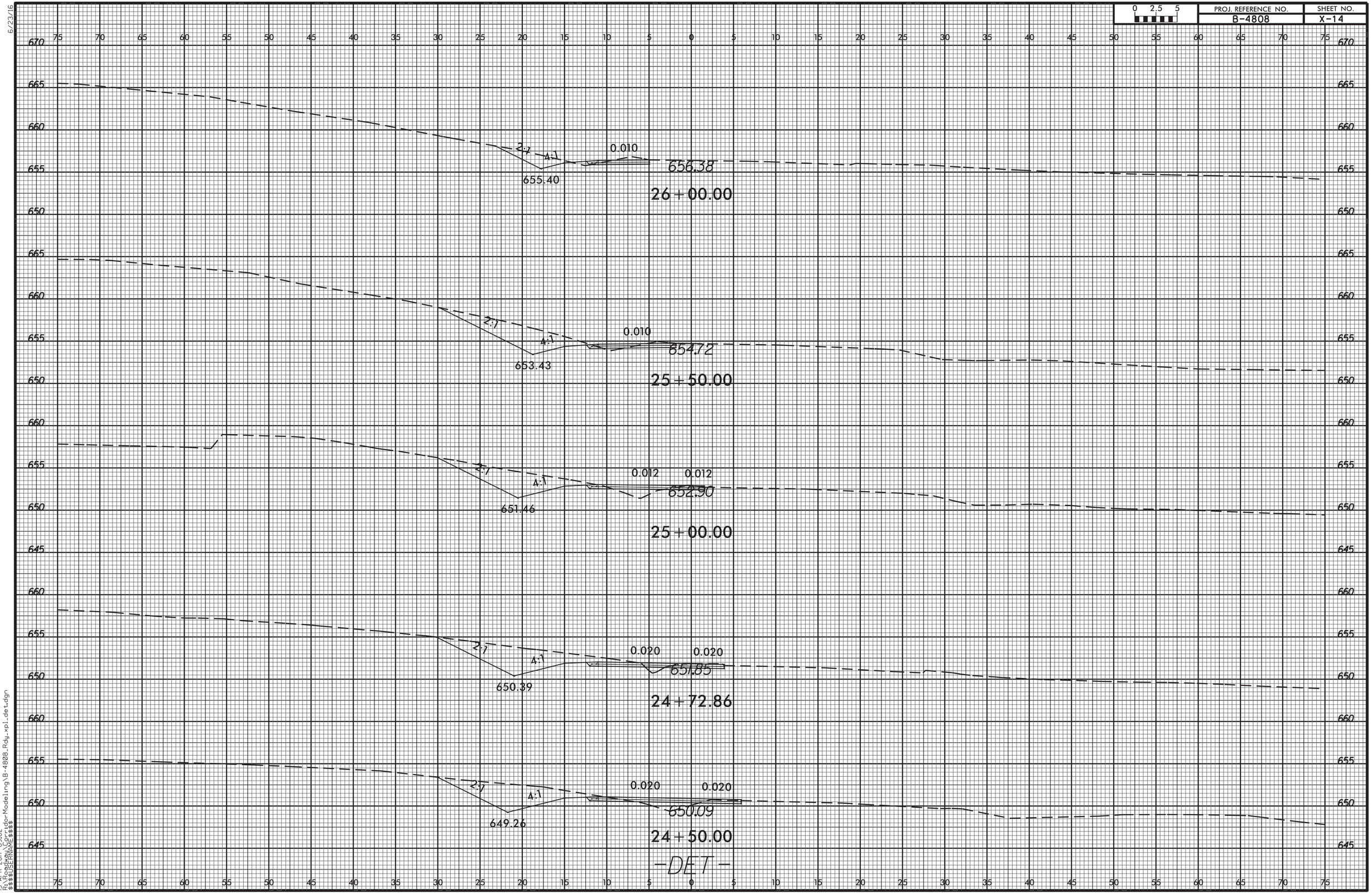
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-14



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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4808	X-15

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

665
660
655

661.91
28+12.00

2:1 4:1 0.000
660.31
661.64
28+00.00

665
660
655

2:1 4:1 0.000
659.08
660.47
27+50.00

665
660
655

2:1 4:1 0.000
657.86
659.20
27+00.00

665
660
655

2:1 4:1 0.007
656.63
657.86
26+50.00

650

-DET-

13-APR-2017 09:02
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