



PAT McCrory
Governor

NICHOLAS J. TENNYSON
Secretary

June 24, 2016

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

ATTN: Ms. Lori Beckwith
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 23 and 33 and Section 401 Water Quality Certification** for the proposed replacement of Bridge No. 21 over Henry Fork on SR 1803 in Burke County, Federal Aid Project No. BRZ-1803(1), Division 13, TIP No. B-5398, Debit \$240 from WBS 46113.1.1.

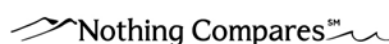
Dear Madam:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 21 over Henry Fork with a 190' long, three-span box beam bridge on the existing alignment. Traffic will be maintained during construction via an off-site detour.

As a result of the bridge replacement and new roadway slopes, there will be 31 linear feet of permanent stream impacts and 0.08 acre (184 linear feet) of temporary stream impacts.

Please see enclosed copies of the Pre-Construction Notification (PCN), DMS acceptance letter, stormwater management plan, permit drawings and design plans for the above-referenced project. The Programmatic Categorical Exclusion (PCE) was completed on August 20, 2015 and distributed shortly thereafter. Additional copies are available upon request.

This project is located in a trout county, therefore comments from the NCWRC will be required prior to authorization by the Corps of Engineers. By copy of this letter and attachment, NCDOT hereby requests NCWRC Review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers and the NCDOT within 30 calendar days of receipt of this application.



This project calls for a letting date of January 17, 2017 and a review date of November 29, 2016; however, the let date may advance as additional funding beco

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

Sincerely,



for 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 1.3 Dec 10 2008

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	<input checked="" type="checkbox"/> Section 404 Permit <input type="checkbox"/> Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 23 & 33 or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1d. Type(s) of approval sought from the DWQ (check all that apply): <input checked="" type="checkbox"/> 401 Water Quality Certification – Regular <input type="checkbox"/> Non-404 Jurisdictional General Permit <input type="checkbox"/> 401 Water Quality Certification – Express <input type="checkbox"/> Riparian Buffer Authorization	
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
For the record only for Corps Permit: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

2. Project Information

2a. Name of project:	Replacement of Bridge 21 over Henry Fork on SR 1803
2b. County:	Burke
2c. Nearest municipality / town:	Hildebran
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no:	B-5398

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	<i>not applicable</i>
3c. Responsible Party (for LLC if applicable):	<i>not applicable</i>
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6108
3g. Fax no.:	(919) 212-5785
3h. Email address:	ekcheely@ncdot.gov

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

B. Project Information and Prior Project History	
1. Property Identification	
1a. Property identification no. (tax PIN or parcel ID):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 35.689432 (DD.DDDDDD) Longitude: - 81.449746 (-DD.DDDDDD)
1c. Property size:	5 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Henry Fork
2b. Water Quality Classification of nearest receiving water:	C
2c. River basin:	Catawba
3. Project Description	
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: The land use within the vicinity of the project consists of about 45% forest land, 20% developed or disturbed lands (roadsides and residential areas), and 35% cultivated land (agricultural fields and pastures).	
3b. List the total estimated acreage of all existing wetlands on the property: 0	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 1370	
3d. Explain the purpose of the proposed project: The purpose of this project is to replace a functionally obsolete bridge (structural evaluation 3 of 9, deck geometry rating 2 of 9, and sufficiency rating 7 out of 100).	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 200-foot five-span bridge with a 190-foot three-span box beam bridge on the existing alignment. The bridge approaches will also be widened. All traffic will be detoured off-site during construction. 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: Only perennial streams within project area	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	<input type="checkbox"/> Preliminary <input type="checkbox"/> Final
4c. If yes, who delineated the jurisdictional areas? Name (if known):	Agency/Consultant Company: Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. The NCDOT requests a PJD with this permit application. PJD package submitted to USACE 6/23/16.	
5. Project History	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
5b. If yes, explain in detail according to "help file" instructions.	
6. Future Project Plans	
6a. Is this a phased project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6b. If yes, explain.	

C. Proposed Impacts Inventory

1. Impacts Summary

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

- ☐ 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 (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
2g. Total wetland impacts					0 Permanent 0 Temporary

2h. Comments:

3. Stream Impacts

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

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	Temporary Causeways	Henry Fork	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	50	54 (0.07 ac)
Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Pipe Replacement	SA (UT to Henry Fork)	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	4	31
Site 2 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	Temporary Construction Access	SA (UT to Henry Fork)	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	4	130 (<0.01 ac)
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
3h. Total stream and tributary impacts						31 Perm 184 Temp (0.08 ac Temp)

3i. Comments: Rounded temporary impact total is the sum of actual impacts. There will be two temporary causeways. These causeways will be constructed in two phases and no more than 50% of the stream channel will be blocked at any given time. Temporary impacts to stream SA cover the impervious dikes and temporary dewatering necessary to replace the existing 96" pipe as well as a temporary crossing that will be necessary to access the work area.

4. Open Water Impacts

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

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 <input type="checkbox"/> P <input type="checkbox"/> T				
O2 <input type="checkbox"/> P <input type="checkbox"/> T				
O3 <input type="checkbox"/> P <input type="checkbox"/> T				
O4 <input type="checkbox"/> P <input type="checkbox"/> T				
4f. Total open water impacts				0 Permanent 0 Temporary

4g. Comments: No open water within construction limits.

5. Pond or Lake Construction

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

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

5g. Comments:

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

6. Buffer Impacts (for DWQ)

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



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

D. Impact Justification and Mitigation		
1. Avoidance and Minimization		
<p>1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.</p> <p>The proposed replacement bridge will be on the same alignment as the existing bridge. It will only have three spans instead of 5 and it will span Henry Fork during normal flow (as opposed to the current bridge which has two piers in the water). Deck drains are required for the new bridge and will be positioned so that they will not directly discharge into Henry Fork. Rip rap deck drain dissipator pads will be installed below the deck drains to prevent erosion. 1.5:1 spill through slopes will be provided under the bridge and will be armored with Class II rip rap to promote stability and prevent erosion. Proposed grassed shoulders which are wider than the existing grassed shoulders will promote sheet flow and infiltration. The vegetative conveyance to Henry Fork has been maximized to the greatest extent possible and rip rap armoring has been provided where appropriate to prevent erosion.</p>		
<p>1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.</p> <p>Traffic will be maintained via an off-site detour during construction. Best Management Practices (BMPs) will be utilized during construction to attempt to reduce the stormwater impacts to the receiving streams due to erosion and runoff.</p>		
2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State		
2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, explain:	
2b. If yes, mitigation is required by (check all that apply):	<input type="checkbox"/> DWQ <input checked="" type="checkbox"/> Corps	
2c. If yes, which mitigation option will be used for this project?	<input type="checkbox"/> Mitigation bank <input checked="" type="checkbox"/> Payment to in-lieu fee program <input type="checkbox"/> Permittee Responsible Mitigation	
3. Complete if Using a Mitigation Bank		
3a. Name of Mitigation Bank: not applicable		
3b. Credits Purchased (attach receipt and letter)	Type	Quantity
3c. Comments:		
4. Complete if Making a Payment to In-lieu Fee Program		
4a. Approval letter from in-lieu fee program is attached.	<input checked="" type="checkbox"/> Yes	
4b. Stream mitigation requested:	31 linear feet	
4c. If using stream mitigation, stream temperature:	<input type="checkbox"/> warm <input checked="" type="checkbox"/> cool <input type="checkbox"/> cold	
4d. Buffer mitigation requested (DWQ only):	0 square feet	
4e. Riparian wetland mitigation requested:	0 acres	
4f. Non-riparian wetland mitigation requested:	0 acres	
4g. Coastal (tidal) wetland mitigation requested:	0 acres	
4h. Comments: The NCDOT does not propose mitigation for the 184 linear feet (<0.01 acre) of temporary stream impacts. These impacts do not require permanent fill in the stream bed and, therefore, under Section 404 of the Clean Water Act, do not constitute Loss of Waters of the U.S. and are not subject to compensatory mitigation.		
Complete if Using a Permittee Responsible Mitigation Plan		
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.		

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

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

F. Supplementary Information	
1. Environmental Documentation (DWQ Requirement)	
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments: Programmatic Categorical Exclusion (PCE) approved 8/20/15	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. Violations (DWQ Requirement)	
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2b. Is this an after-the-fact permit application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):	
3. Cumulative Impacts (DWQ Requirement)	
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.	
4. Sewage Disposal (DWQ Requirement)	
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable	

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input type="checkbox"/> Raleigh	<input checked="" type="checkbox"/> Asheville
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? As of July 14, 2015 the USFWS lists nine federally listed species for Burke County. There is no habitat present for five of these species. Habitat is present for white irisette, small whorled pogonia, dwarf-flowered heartleaf and the northern long-eared bat. Surveys were conducted for the three plant species, and only dwarf-flowered heartleaf was identified within the project area. However, the populations of dwarf-flowered heartleaf are located just north of the construction footprint of this project. Per e-mail correspondence with Andrew Henderson of the USFWS on December 14, 2015, this project will have No Effect on dwarf-flowered heartleaf. A memo was submitted to USFWS on June 16, 2016 indicating that NCDOT is in compliance with the 4(d) rule for the NLEB, therefore satisfying Section 7 of the Endangered Species Act (ESA) provided no response from them is received within 30 days of memo submission. The biological conclusion for this species is "May Affect".		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		
 Philip S. Harris, III, P.E. Applicant/Agent's Printed Name	 Applicant/Agent's Signature <small>(Agent's signature is valid only if an authorization letter from the applicant is provided.)</small>	06-24-2016 Date



PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

June 14, 2016

Mr. Philip S. Harris, III, P.E., CPM
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: Mitigation Acceptance Letter:

B-5398, Replace Bridge 21 on SR 1803 over Henry Fork, Burke County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on June 13, 2016, the impacts are located in CU 03050102 of the Catawba River basin in the Northern Mountains (NM) Eco-Region, and are as follows:

Catawba 03050102 NM	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	31.0	0	0	0	0	0	0

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

The impacts and associated mitigation needs were under projected by the NCDOT in the 2016 impact data. DMS will commit to implement sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

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

Sincerely,

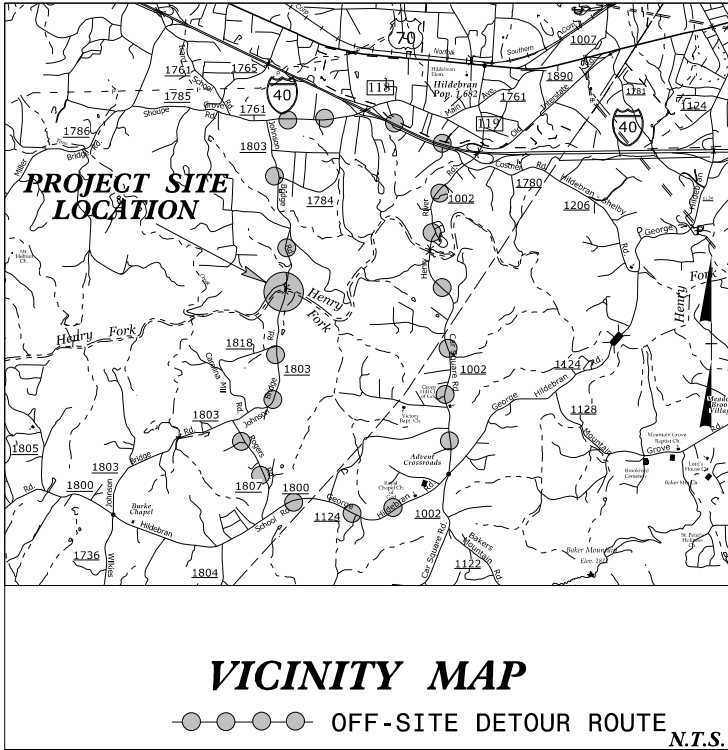
James B. Stanfill
Credit Management Supervisor

cc: Ms. Lori Beckwith, USACE – Asheville Regulatory Field Office
Ms. Amy Chapman, NCDWR
File: B-5398

CONTRACT:

TIP PROJECT: B-5398

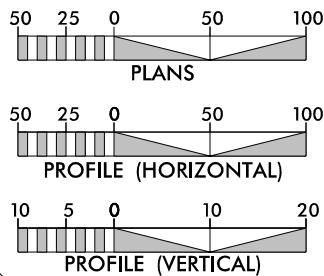
See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



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

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
THIS IS NOT A CONTROLLED ACCESS ROADWAY.

GRAPHIC SCALES



DESIGN DATA

ADT 2015 = 2,740
ADT 2035 = 3,000
K = 10 %
D = 55 %
T = 8 % *
V = 50 MPH
* TTST = 1% DUAL 7%
FUNC CLASS =
RURAL MINOR COLLECTOR
SUB-REGIONAL TIER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

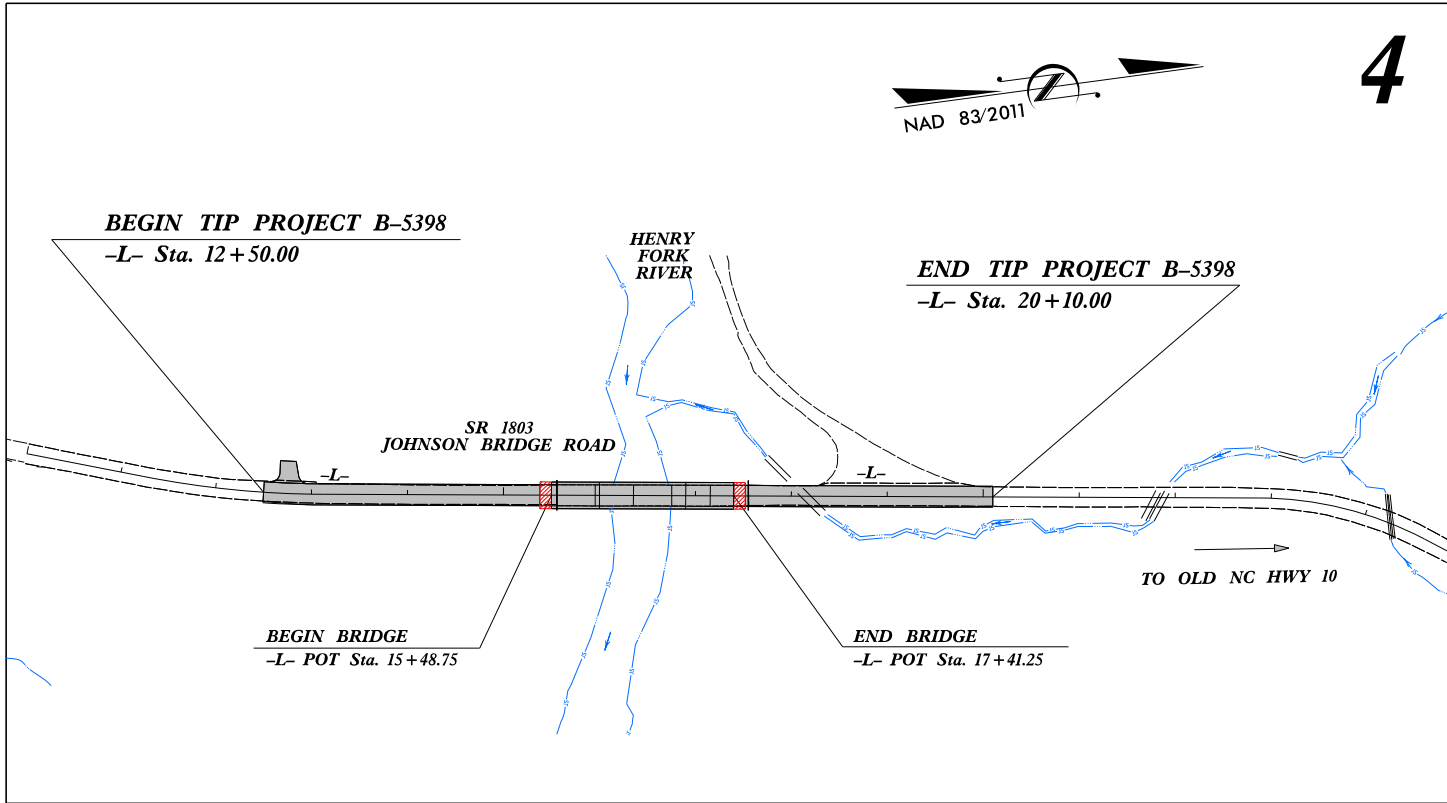
BURKE COUNTY

LOCATION: BRIDGE NO. 21 OVER HENRY FORK RIVER
ON SR 1803 (JOHNSON BRIDGE ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE

WETLAND AND SURFACE WATER IMPACTS PERMIT

75% Plans for Review



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5398	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46113.1.1	BRZ-1803(1)	P.E.	

PERMIT DRAWING
SHEET 1 OF 5

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

PLANS PREPARED BY:
CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TEL: 919.788.0224 FAX: 919.788.0292
NC LICENSE #P-0189

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 15, 2016

LETTING DATE:
JANUARY 17, 2017

PLANS PREPARED FOR:
DIVISION OF HIGHWAYS

1000 Birch Ridge Dr.
Raleigh, NC 27610

BRIAN A. WILES, PE
PROJECT ENGINEER

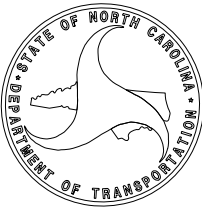
KEVIN E. MOORE, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

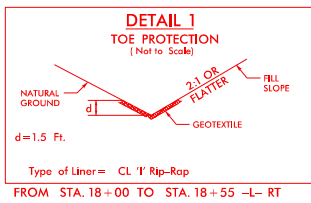
SIGNATURE: P.E.

ROADWAY DESIGN
ENGINEER

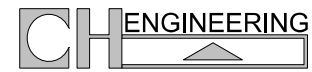
SIGNATURE: P.E.



5/14/99



DENOTES IMPACTS IN
SURFACE WATER



3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

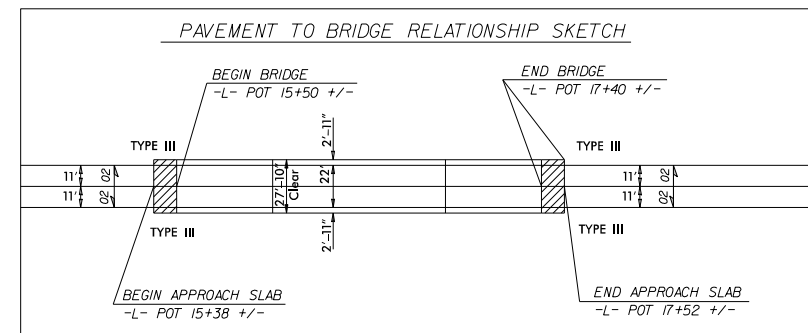
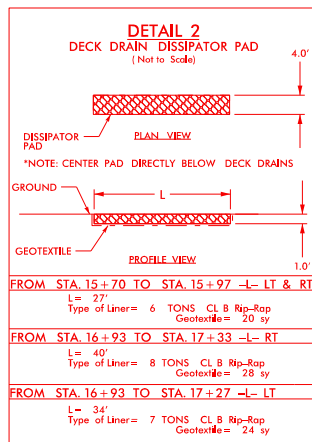
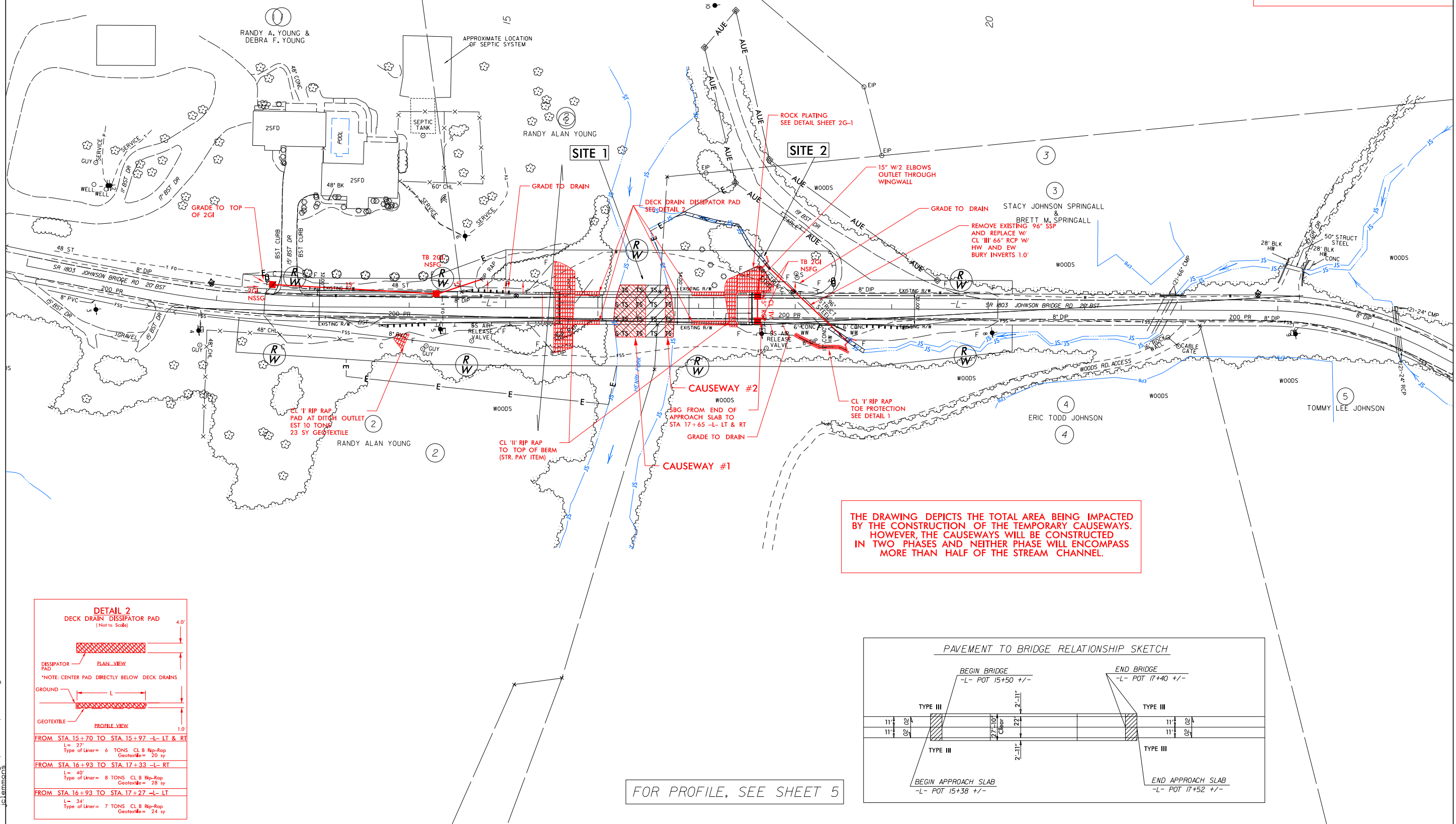
PROJECT REFERENCE NO.		SHEET NO.	
B-5398		4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			

PERMIT DRAWING
SHEET 2 OF 5

NAD 83/2011

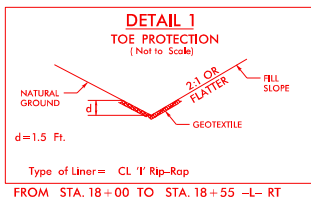


DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



FOR PROFILE, SEE SHEET 5

5/14/99



DENOTES IMPACTS IN
SURFACE WATER



3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

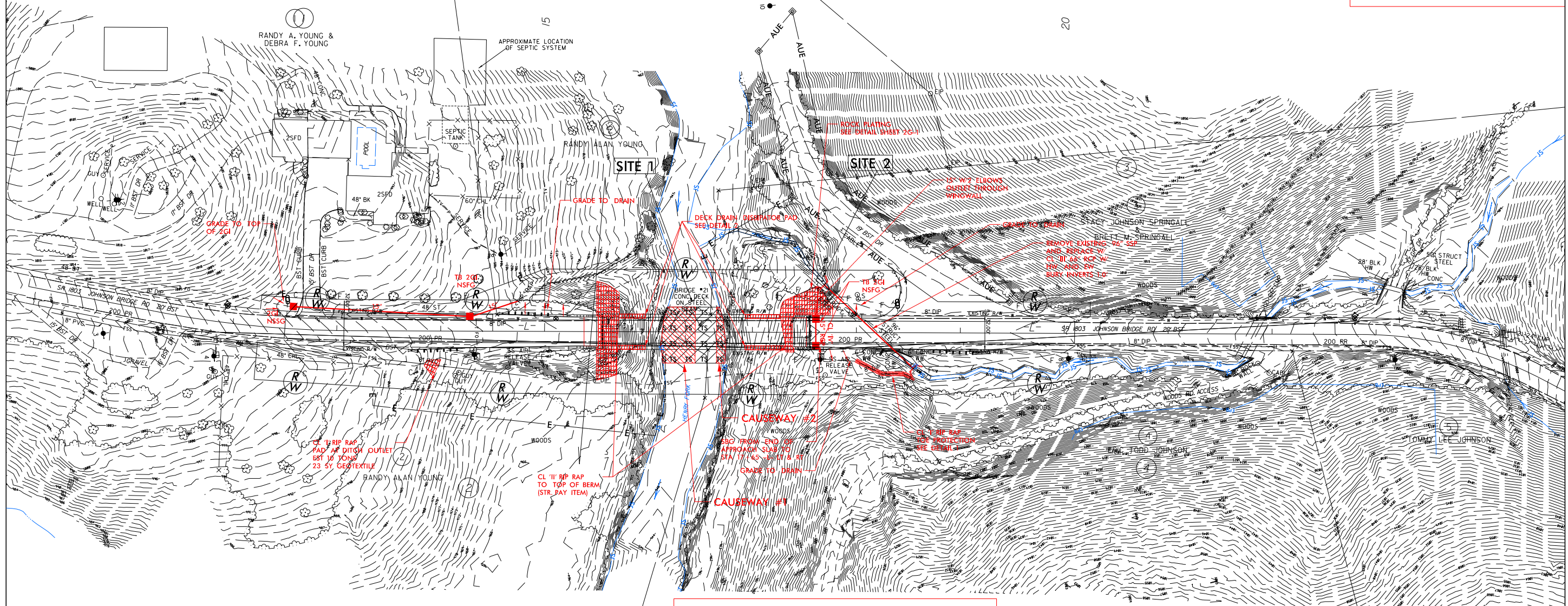
PROJECT REFERENCE NO.		SHEET NO.	
B-5398		4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			

PERMIT DRAWING
SHEET 3 OF 5

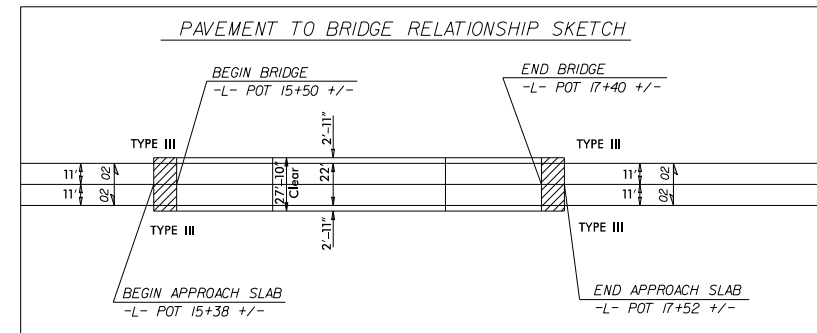
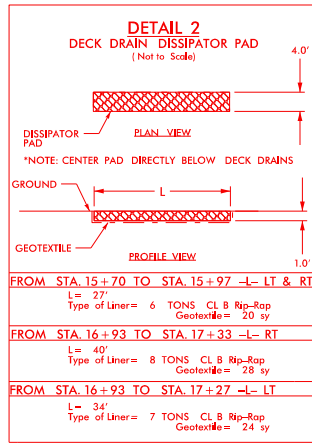
NAD 83/2011



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



THE DRAWING DEPICTS THE TOTAL AREA BEING IMPACTED BY THE CONSTRUCTION OF THE TEMPORARY CAUSEWAYS. HOWEVER, THE CAUSEWAYS WILL BE CONSTRUCTED IN TWO PHASES AND NEITHER PHASE WILL ENCOMPASS MORE THAN HALF OF THE STREAM CHANNEL.



FOR PROFILE, SEE SHEET 5

12/8/2015
B5398.dwg
p.m.wet.psh_04.con.dgn
clemmons

5/14/99

12/3/2015 10:45 am wet.psh.05.dgn
jclemons

CHENGINEERING

3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

PROJECT REFERENCE NO.
B-5398

SHEET NO.
5

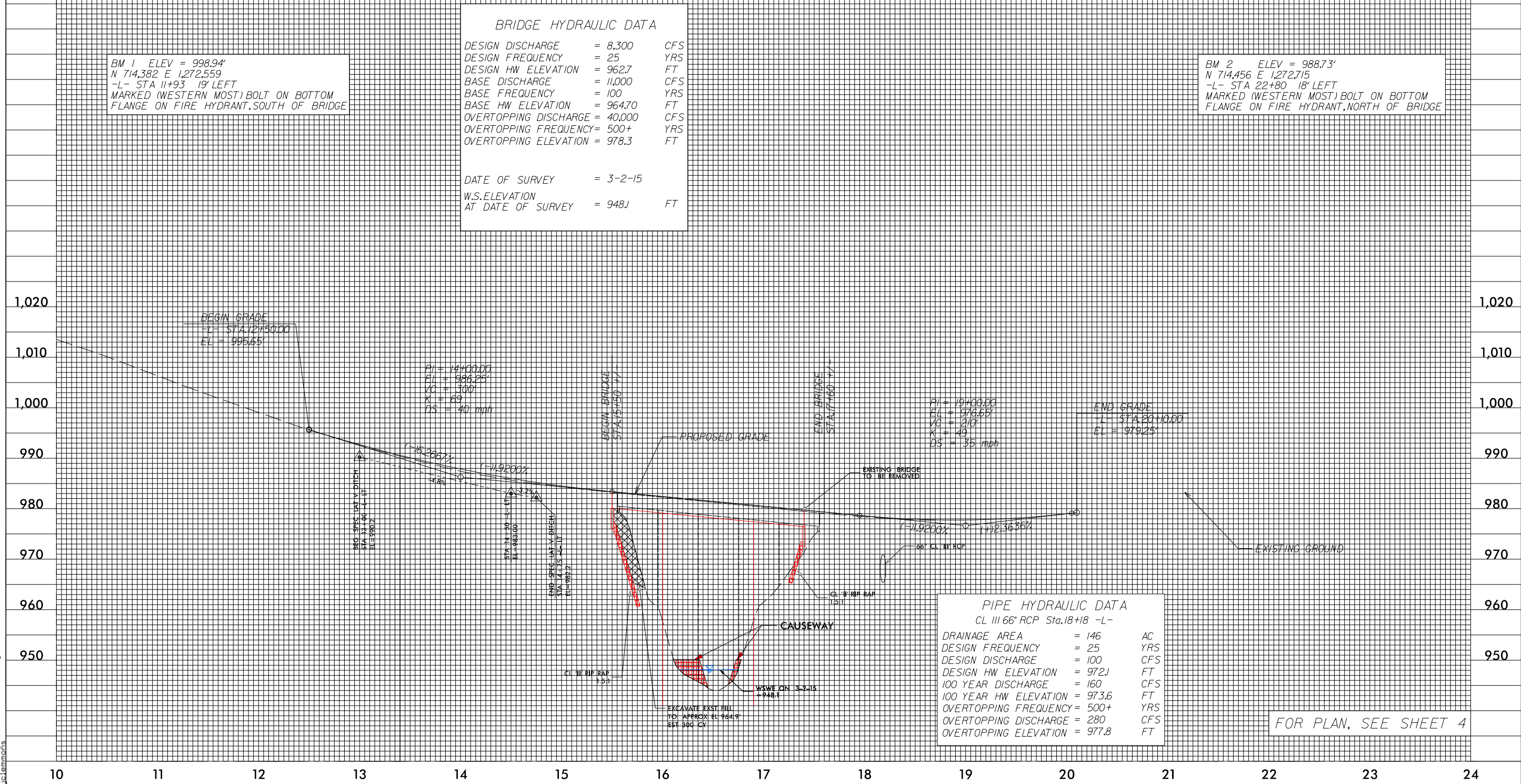
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 4 OF 5



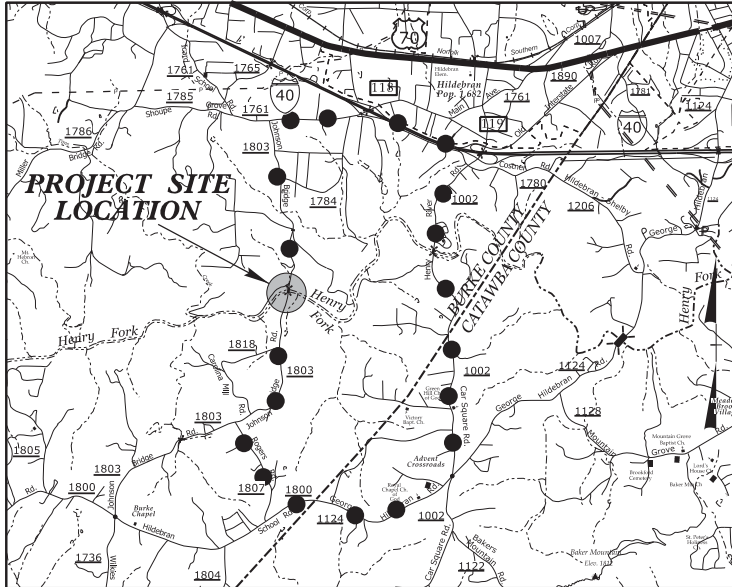
BM 1 ELEV = 998.94'
N 714.382 E 1,272.559
-L- STA 11+93 18' LEFT
MARKED (WESTERN MOST) BOLT ON BOTTOM
FLANGE ON FIRE HYDRANT, SOUTH OF BRIDGE

BM 2 ELEV = 988.73'
N 714.456 E 1,272.715
-L- STA 22+80 18' LEFT
MARKED (WESTERN MOST) BOLT ON BOTTOM
FLANGE ON FIRE HYDRANT, NORTH OF BRIDGE

FOR PLAN, SEE SHEET 4

09/08/99

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



VICINITY MAP

●●●●● OFF-SITE DETOUR ROUTE

N.T.S.

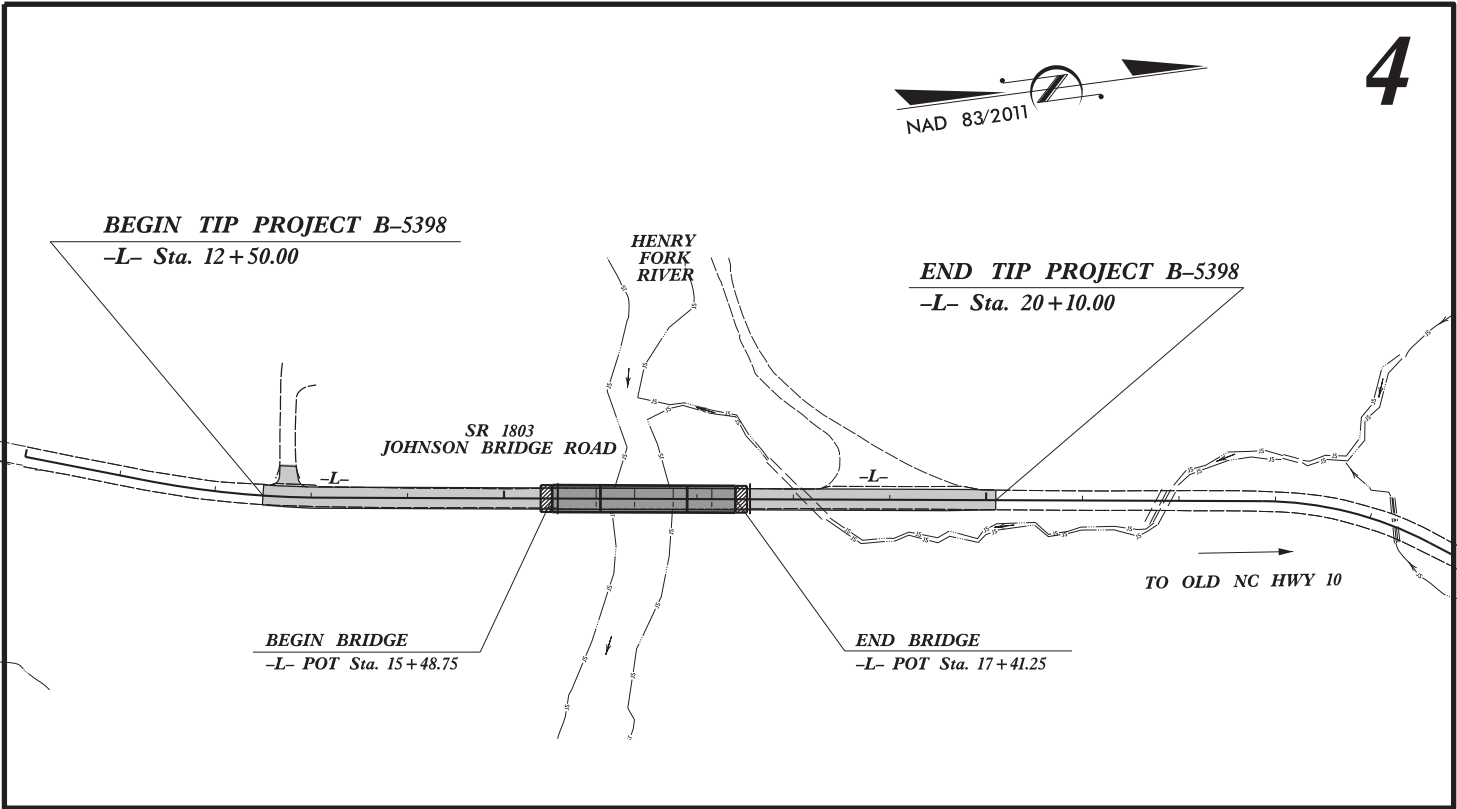
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BURKE COUNTY

**LOCATION: BRIDGE NO. 21 OVER HENRY FORK RIVER
ON SR 1803 (JOHNSON BRIDGE ROAD)**

TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5398	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46113.1.1	BRZ-1803(1)	P.E.	
46113.2.1	BRZ-1803(1)	R/W	
46113.2.1	BRZ-1803(1)	UTILITIES	

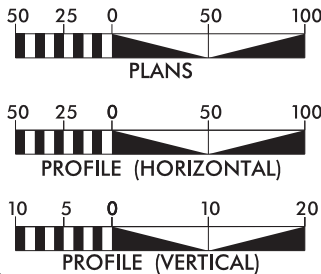


CLEARING ON THIS PROJECT SHALL BE PERFORMED TO LIMITS ESTABLISHED BY METHOD II.

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
THIS IS NOT A CONTROLLED ACCESS ROADWAY.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2015 = 2,740
ADT 2035 = 3,000
K = 10 %
D = 55 %
T = 8 % *
V = 50 MPH
* TTST = 1% DUAL 7%
FUNC CLASS =
RURAL MINOR COLLECTOR
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5398 = 0.108 mi.
LENGTH STRUCTURE TIP PROJECT B-5398 = 0.036 mi.
TOTAL LENGTH TIP PROJECT B-5398 = 0.144 mi.

PLANS PREPARED BY:



3220 GLEN ROYAL RD., RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 15, 2016

LETTING DATE:
JANUARY 17, 2017

PLANS PREPARED FOR:

DIVISION OF HIGHWAYS

1000 Birch Ridge Dr.
Raleigh, NC 27610

BRIAN A. WILES, PE
PROJECT ENGINEER

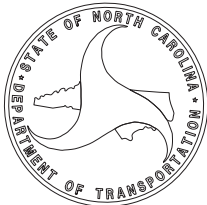
KEVIN E. MOORE, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

**ROADWAY DESIGN
ENGINEER**

SIGNATURE: _____ P.E.



TIP PROJECT: B-5398

CONTRACT:

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

PROJECT REFERENCE NO.	SHEET NO.
B-5398	1B

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	
Single Shrub	
Hedge	
Woods Line	

Orchard	
Vineyard	

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line LOS B (S.U.E.*)	
U/G Power Line LOS C (S.U.E.*)	
U/G Power Line LOS D (S.U.E.*)	

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Cable LOS B (S.U.E.*)	
U/G Telephone Cable LOS C (S.U.E.*)	
U/G Telephone Cable LOS D (S.U.E.*)	
U/G Telephone Conduit LOS B (S.U.E.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	
U/G Fiber Optics Cable LOS B (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)	
U/G Fiber Optics Cable LOS D (S.U.E.*)	

WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line LOS B (S.U.E.*)	
U/G Water Line LOS C (S.U.E.*)	
U/G Water Line LOS D (S.U.E.*)	
Above Ground Water Line	

TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Cable LOS B (S.U.E.*)	
U/G TV Cable LOS C (S.U.E.*)	
U/G TV Cable LOS D (S.U.E.*)	
U/G Fiber Optic Cable LOS B (S.U.E.*)	
U/G Fiber Optic Cable LOS C (S.U.E.*)	
U/G Fiber Optic Cable LOS D (S.U.E.*)	

GAS:

Gas Valve	
Gas Meter	
U/G Gas Line LOS B (S.U.E.*)	
U/G Gas Line LOS C (S.U.E.*)	
U/G Gas Line LOS D (S.U.E.*)	
Above Ground Gas Line	

SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Forced Main Line LOS B (S.U.E.*)	
SS Forced Main Line LOS C (S.U.E.*)	
SS Forced Main Line LOS D (S.U.E.*)	

MISCELLANEOUS:

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

SURVEY CONTROL SHEET B-5398
FINAL

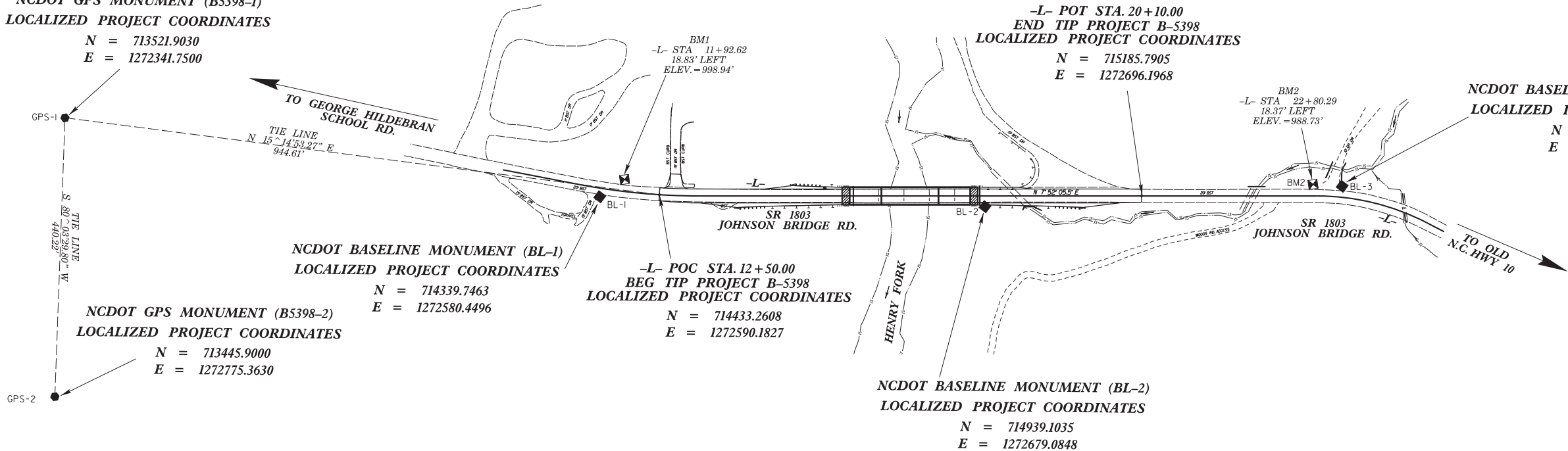
BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1		714339.7463	1272580.4496	1002.46	11+57.53	13.42 RT
2	BL-2		714939.1035	1272679.0848	977.76	17+63.29	16.82 RT
3	BL-3		715501.1480	1272724.2726	991.89	23+24.55	17.36 LT
GPS1	B-5398-1		713521.9030	1272341.7500	1044.34	OUTSIDE PROJECT LIMITS	
GPS2	B-5398-2		713445.9000	1272775.3630	1033.07	OUTSIDE PROJECT LIMITS	

.....
BM1 ELEVATION = 998.94
N 714382 E 1272559
L STATION 11+92.62 18.83' LEFT
BOLT ON BOTTOM FLANGE ON BACK OF FIRE
HYDRANT
.....
BM2 ELEVATION = 988.73
N 715456 E 1272715
L STATION 22+80.29 18.37' LEFT
BOLT ON BOTTOM FLANGE ON BACK OF FIRE
HYDRANT
.....



NCDOT GPS MONUMENT (B5398-1)
LOCALIZED PROJECT COORDINATES

N = 713521.9030
E = 1272341.7500



NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
B5398_LS_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5398-1" WITH NAD 83/2011 STATE PLANE GRID COORDINATES OF NORTHING: 713521.9030(±) EASTING: 1272341.7500(±) ELEVATION: 1044.34(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999834166 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5398-1" TO -L- STATION 12+50.00 IS N 15°14'53.27" E 944.61' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

SURVEY CONTROL SHEET B-5398
(PRELIMINARY)

PROJECT REFERENCE NO.	SHEET NO.
B-5398	1C-2
Location and Surveys	

(DESIGN ALIGNMENTS) PROPOSED RW and EASEMENTS (ROW MARKERS)
HAVE BEEN REVISED
AND ARE NOT REFLECTED
ON THIS SHEET
(PERMANENT EASEMENTS)

TYPE	STATION	NORTH	EAST
POT	10+00.00	714194.2633	1272517.5485
PC	11+23.55	714211.2690	1272557.2353
PT	13+13.24	714495.6863	1272600.8117
PC	22+86.71	714562.5773	1272774.0714
PT	24+66.64	714562.5773	1272799.7004
POT	24+97.16	714562.5773	1272817.5074

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+25.00	50.00	714415.5363	1272555.6564
L	13+25.00	-70.56	714412.5300	1272568.7579
L	12+00.00	0.44	714405.3729	1272599.9478
L	12+25.00	0.00	714402.1171	1272614.1365
L	13+13.24	30.00	714491.4794	1272630.5311
L	13+13.24	-30.00	714499.6931	1272571.0960
L	15+00.00	30.00	714585.7078	1272596.6629
L	15+00.00	-60.00	714689.6055	1272566.9454
L	15+00.00	30.00	714670.4850	1272656.0981
L	15+00.00	60.00	714670.3750	1272685.8156
L	18+00.00	60.00	714969.5538	1272726.8840
L	18+00.00	30.00	714973.6607	1272697.1665
L	18+00.00	-60.00	715021.8265	1272612.9674
L	18+00.00	-30.00	715059.4372	1272648.4502
L	20+25.00	-16.00	715202.8396	1272682.4008
L	20+25.00	30.00	715196.5424	1272727.9677
L	20+25.00	-30.00	715204.7561	1272668.5326
L	20+25.00	16.00	715198.4590	1272714.0995

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+25.00	51.37	714397.3392	1272634.9674
L	13+75.00	30.00	714552.6618	1272638.9862
L	13+75.00	56.53	714549.0304	1272665.2631
L	14+10.00	30.00	714587.3323	1272643.7776
L	14+10.00	59.04	714583.3573	1272672.5411
L	17+05.13	-270.42	714920.8058	1272386.5891
L	17+37.35	-308.71	714957.9693	1272353.0673
L	17+37.40	-130.37	714933.5993	1272529.7389
L	17+72.97	-154.14	714972.0893	1272511.0588
L	18+75.00	60.00	715043.8477	1272737.1511
L	18+75.00	30.00	715047.9546	1272707.4335
L	18+75.00	47.20	715045.5999	1272724.4722
L	19+47.25	-30.00	715127.7381	1272657.8891
L	20+25.00	43.28	715194.7242	1272741.1250

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
HTTP://WWW.DOH.DOT.STATE.NC.USPRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
B5398_LS_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5398-1"

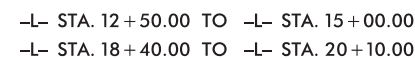
WITH NAD 83/2011 STATE PLANE GRID COORDINATES OF
NORTHING: 713521.9030(++) EASTING: 1272341.7500(++)
ELEVATION: 1044.34(++)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999834166

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5398-1" TO -L- STATION 12+50.00 IS
N 15°14'53.27" E 944.61'

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

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



-L- STA. 15+00.00 TO -L- STA. 15+48.75 (BEGIN BRIDGE)
-L- STA. 17+41.25 (END BRIDGE) TO -L- STA. 18+40.00



- L- STA. 12+88.00 TO - L- STA. 14+30.00 LEFT



-L- STA. 17+52.25 TO -L- STA. 17+65.00 LEFT
-L- STA. 17+52.25 TO -L- STA. 17+65.00 RIGHT



-L- STA. 15+48.75 (BEGIN BRIDGE) TO -L- STA. 17+41.25 (END BRIDGE)

SHOULDER BERM GUTTER SUMMARY

STATION	STATION	UNCL EXCAV.	EMBANK. + %	BORROW	WASTE
12 + 50	15 + 48.75	281	104		177
	SUBTOTAL	281	104		177
17.41 + 25	20 + 10	72	567	495	
	SUBTOTAL	72	567	495	
	SUBTOTAL	353	671	495	177
TOTAL		353	671	495	177
LOSS DUE TO CLEARING & GRUBBING		-50		50	
WASTE IN LIEU OF BORROW				-177	-177
PROJECT TOTAL		303	671	367	0
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				18	
GRAND TOTALS:		303		385	
SAY:		325		400	

SHALLOW UNDERCUT EXCAVATION CONTINGENCY PER GEOTECH REPORT = 50 CUBIC YARDS
UNDERCUT EXCAVATION CONTINGENCY PER GEOTECH REPORT = 100 CUBIC YARDS
SELECT GRANULAR MATERIAL PER GEOTECH REPORT = 100 CUBIC YARDS

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 Excavation, Shoulder Excavation, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Asphalt Pavement will be paid for at the contract lump sum price for grading.

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD
L	15 + 00	15 + 55	CL	122
L	17 + 55	18 + 40	CL	189
TOTAL:				311
SAY:				320

SURVEY LINE	STATION	STATION	LENGTH
L (LT SIDE)	17 + 52	17 + 65	13
L (RT SIDE)	17 + 52	17 + 65	13
TOTAL:			26
SAY:			30

EXPRESSWAY GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
L (LT SIDE)	12 + 88	14 + 30	142
TOTAL:			142
SAY:			145

"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 CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	TYPE III	CAT-I	VI MOD	BIC	AT-1	EA	G	NG							
L	14 + 56.25	15 + 50.00	LT	93.75				15 + 50			50		1			1		1													
L	13 + 68.75	15 + 50.00	RT	181.25			15 + 50			50		1			1		1														
L	17 + 40.00	18 + 42.25	LT	74.75	56.75		17 + 40			50		1				1					1										
L	17 + 40.00	19 + 21.25	RT	181.25				17 + 40			50			1		1															
		SUBTOTAL		531.00	56.75											3	4				1										
		LESS ANCHOR DEDUCTIONS																													
		GRAU-350 3 @ 50'			-150.00																										
		TYPE III 4 @ 18.75'			-75.00																										
		TOTAL			306.00	56.75										3	4				1										
		SAY			312.50	62.50	5 ADDITIONAL GUARDRAIL POSTS									3	4				1										

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

[illegible][illegible]

COMPUTED BY: _____ DATE: _____

CHECKED BY: _____ DATE: _____

(4-21-15)

PROJECT NO. SHEET NO.

B-5398 3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location	Drain Type*	LF
CONTINGENCY				UD	250
				TOTAL LF:	250

*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU		50	80	50		
			TOTAL CY/TONS/SY:		50	80	50*	0	0

ASU = Aggregate Subgrade, AST = Aggregate Stabilization
*Total square yards of Geotextile for Soil Stabilization is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

SUMMARY OF ROCK PLATING

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	SY
L	1.5:1	17+40	1.5:1	17+75	LT	1	2	115
							TOTAL SY:	115

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

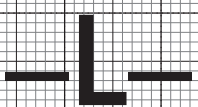
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3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

PROJECT REFERENCE NO.	SHEET NO.
B-5398	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



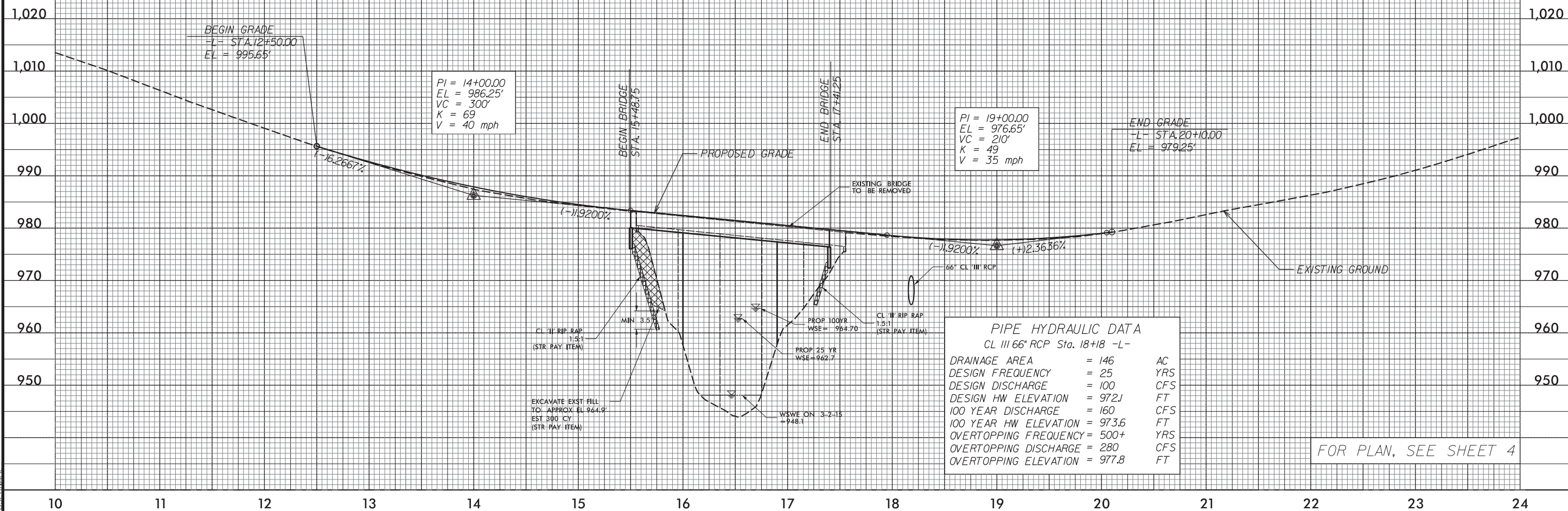
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 8,300 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 962.7 FT
BASE DISCHARGE = 11,000 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 964.70 FT
OVERTOPPING DISCHARGE = 40,000 CFS
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING ELEVATION = 977.8 FT

DATE OF SURVEY = 3-2-15
W.S.ELEVATION AT DATE OF SURVEY = 948.1 FT

BM 1 ELEV = 998.94'
N 714.382 E 1,272.559
-L- STA 11+92.62 18.83' LEFT
MARKED (WESTERN MOST) BOLT ON BOTTOM
FLANGE ON FIRE HYDRANT, SOUTH OF BRIDGE

BM 2 ELEV = 988.73'
N 715.456 E 1,272.715
-L- STA 22+80.29 18.37' LEFT
MARKED (WESTERN MOST) BOLT ON BOTTOM
FLANGE ON FIRE HYDRANT, NORTH OF BRIDGE



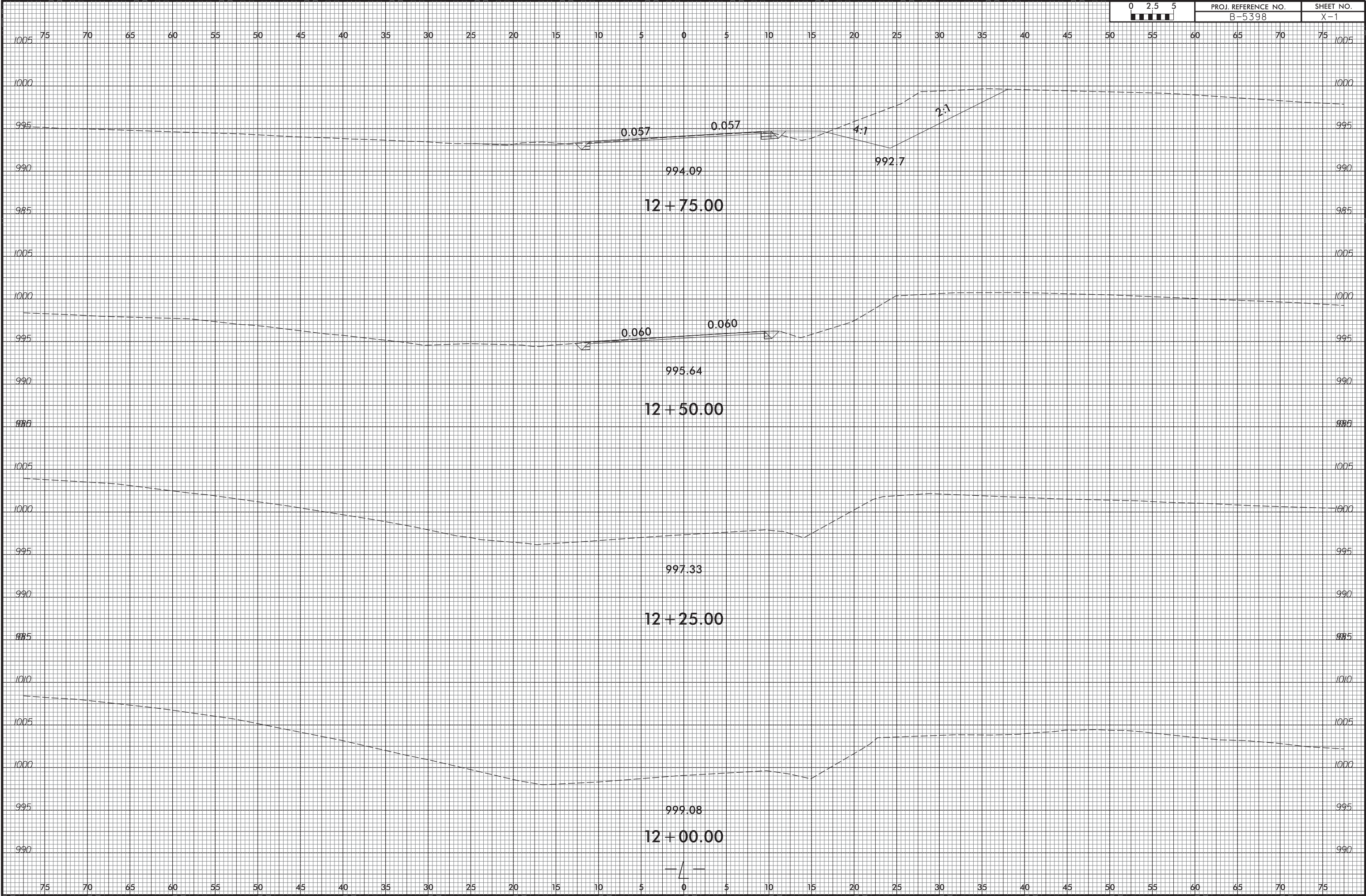
PIPE HYDRAULIC DATA
CL III 66" RCP Sta. 18+18 -L-

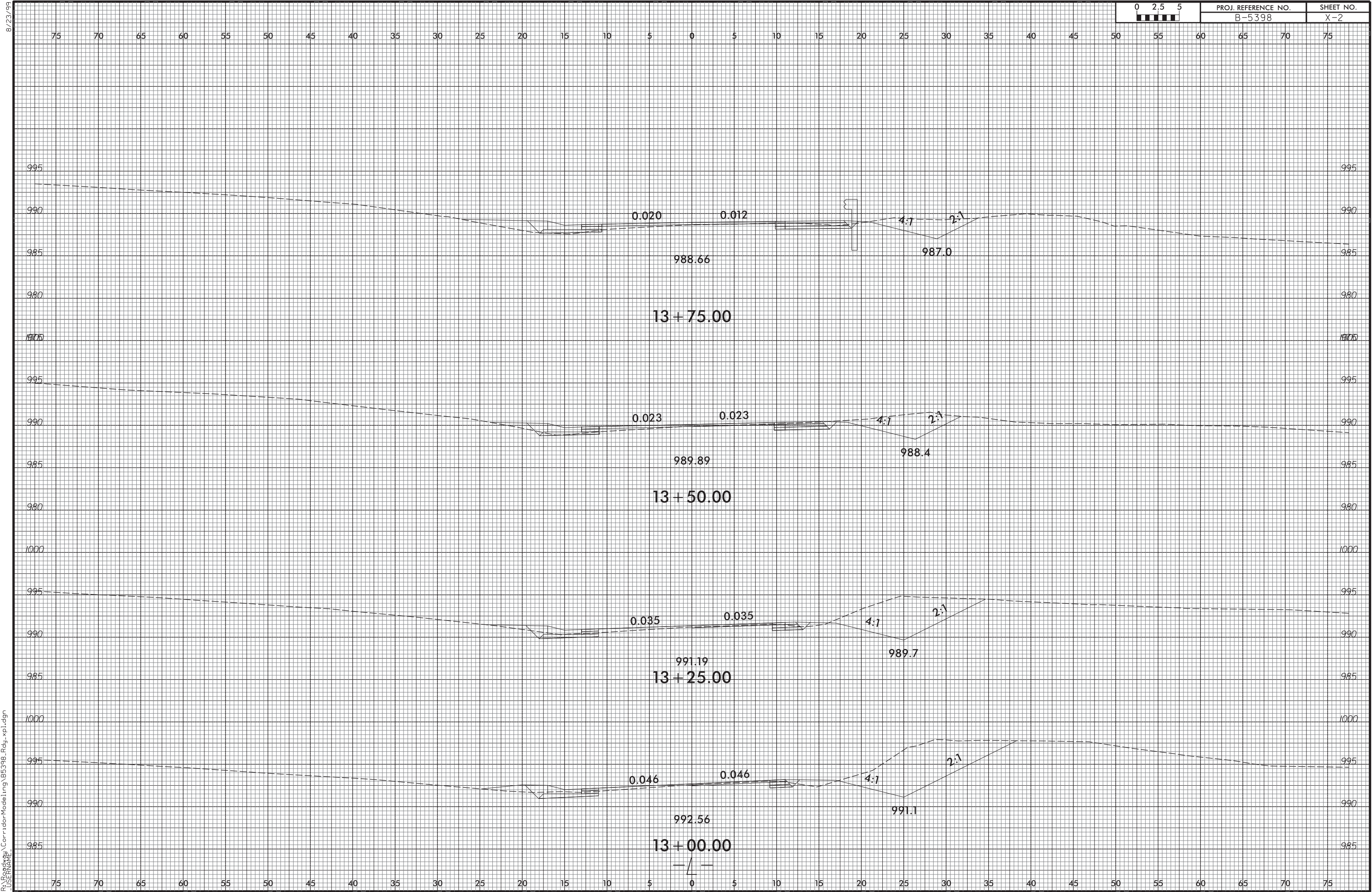
DRAINAGE AREA	= 146	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 100	CFS
DESIGN HW ELEVATION	= 972.1	FT
100 YEAR DISCHARGE	= 160	CFS
100 YEAR HW ELEVATION	= 973.6	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 280	CFS
OVERTOPPING ELEVATION	= 977.8	FT

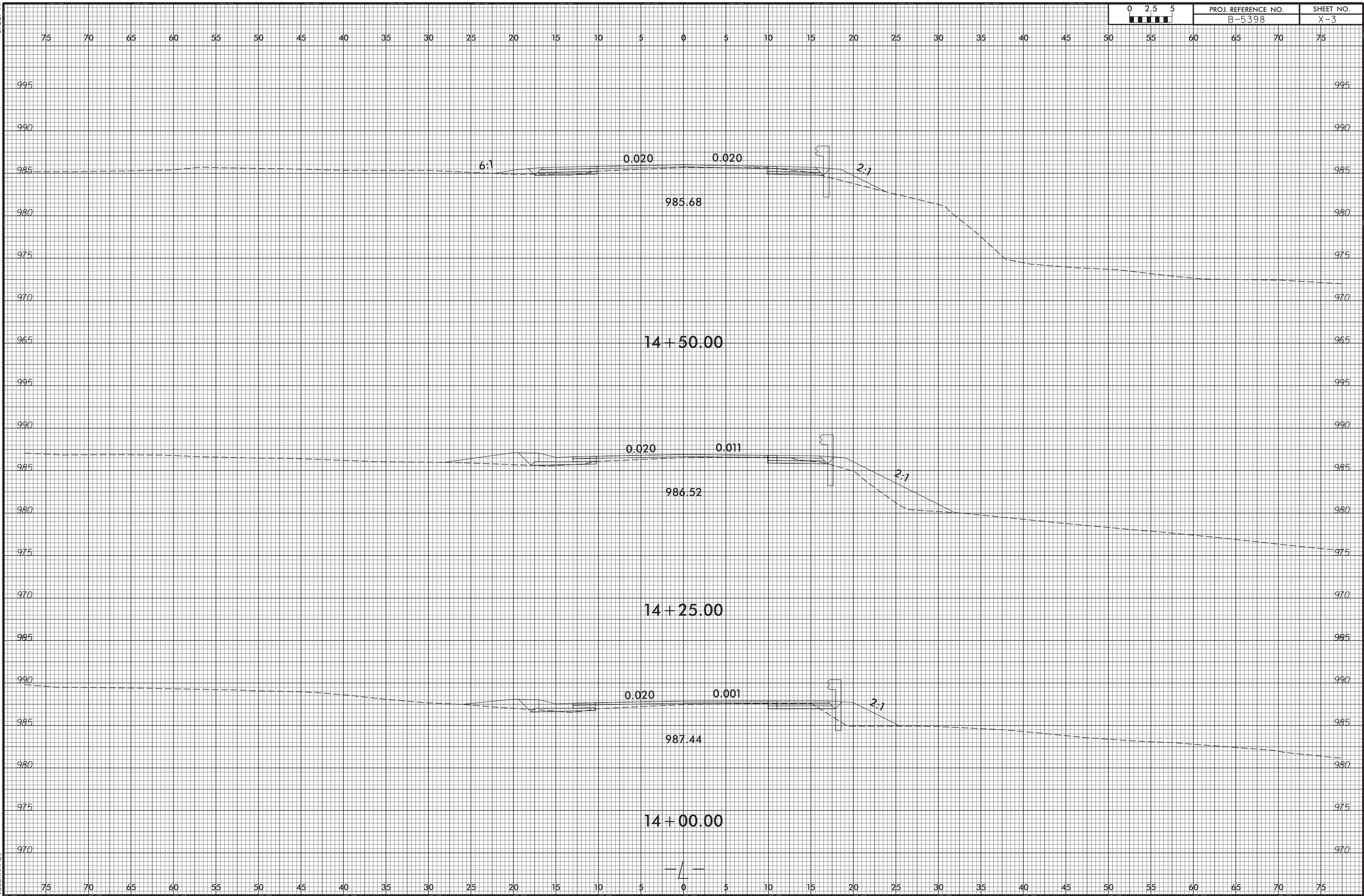
FOR PLAN, SEE SHEET 4

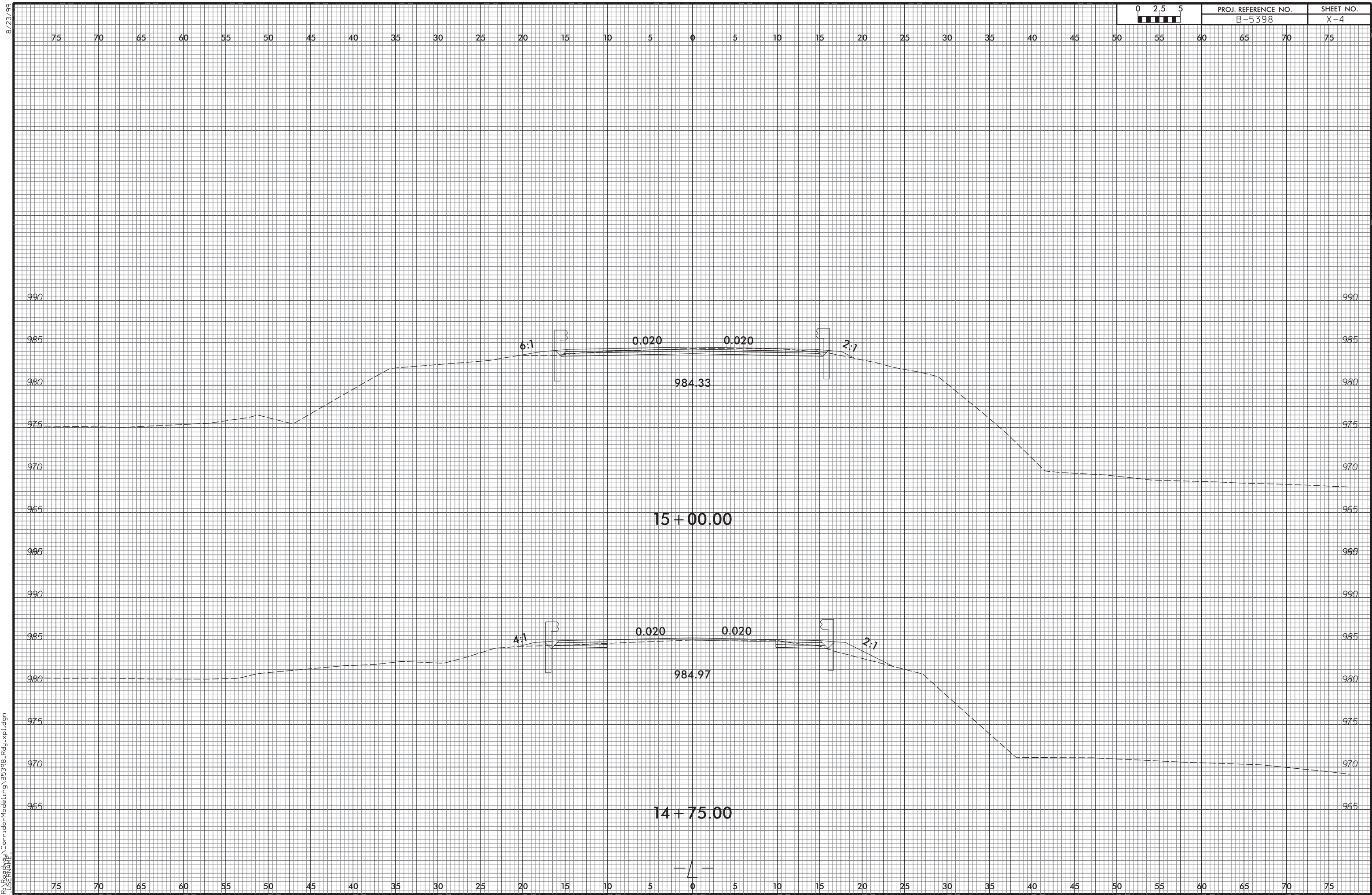
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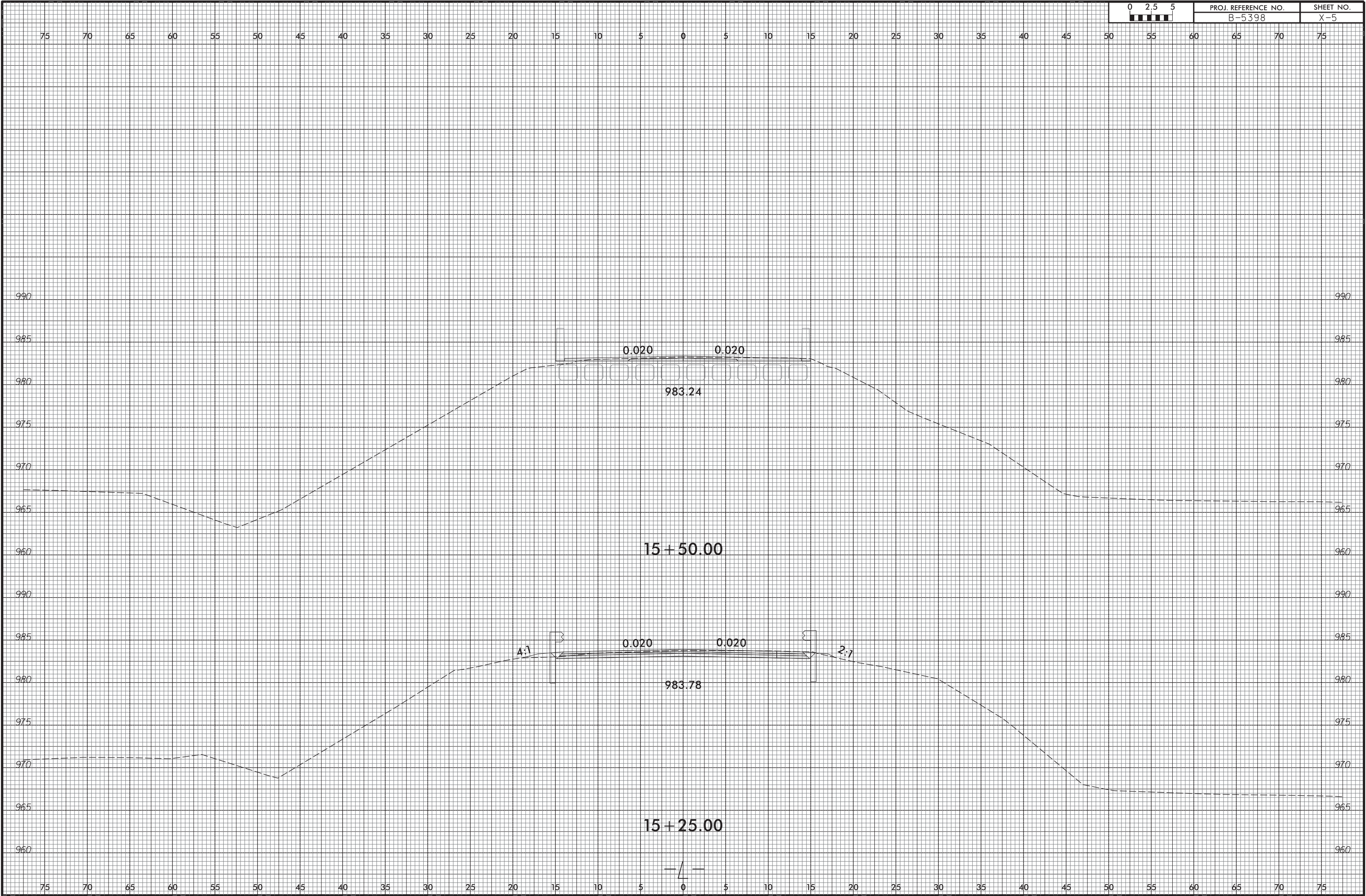
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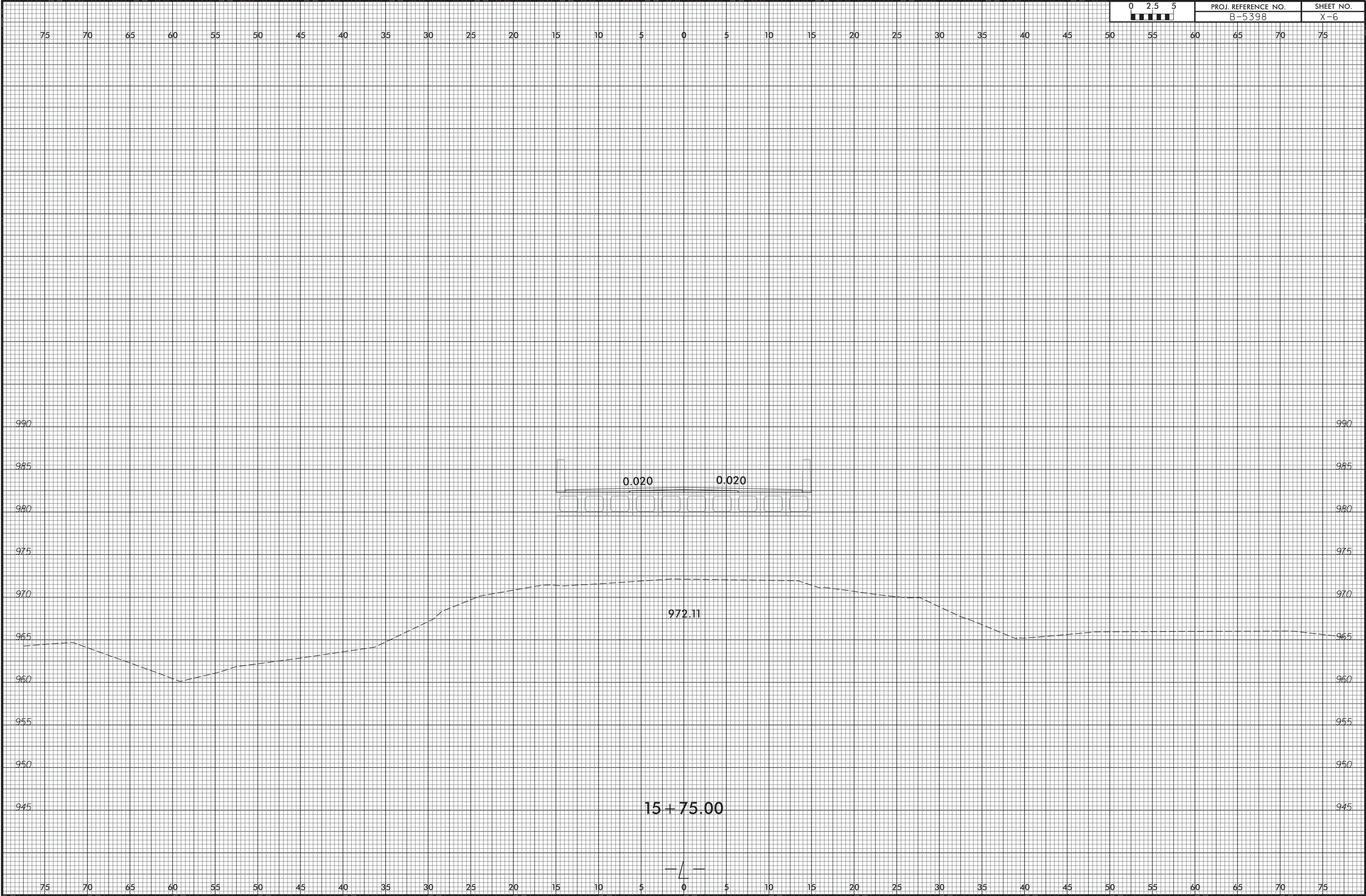


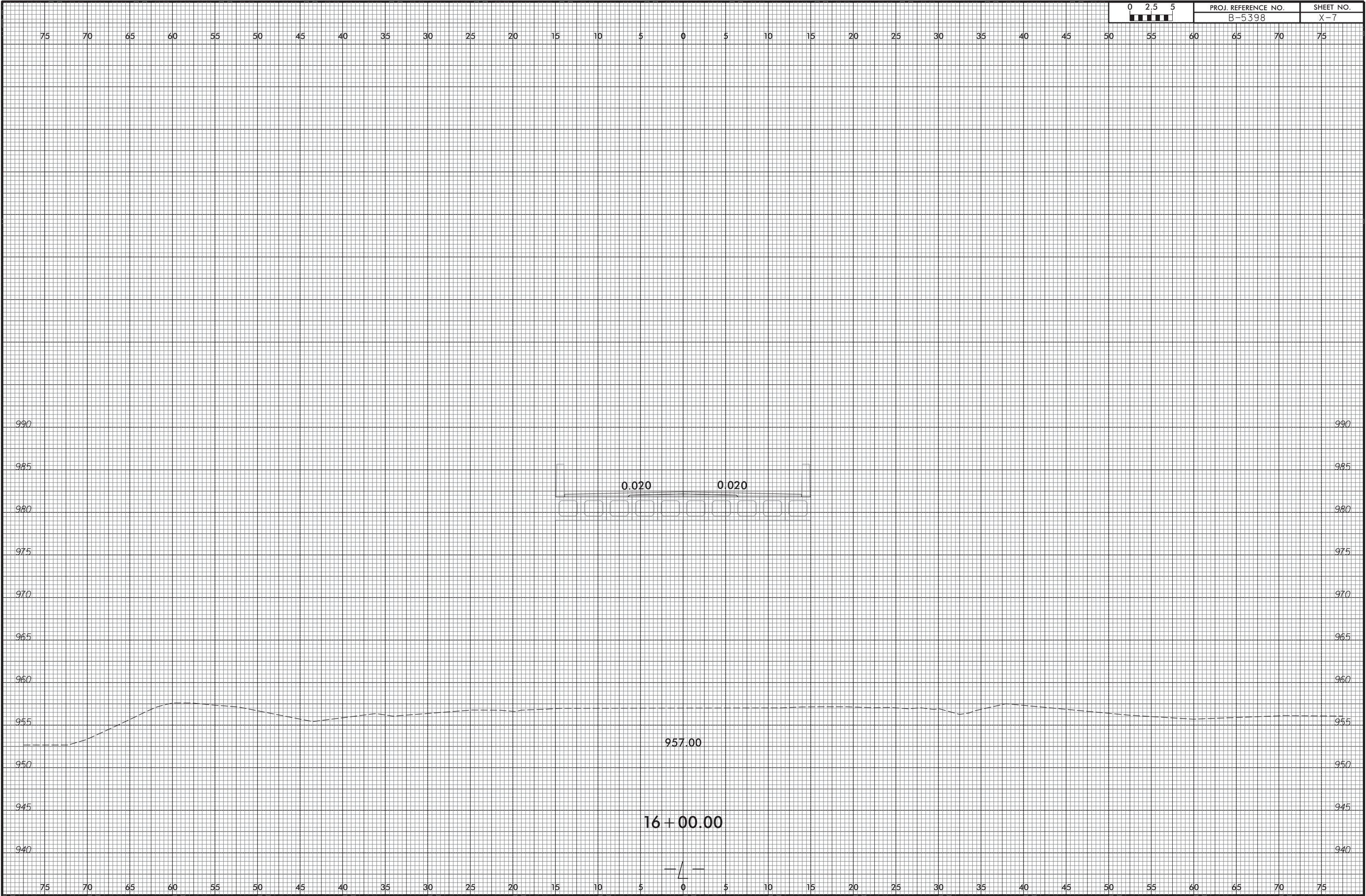


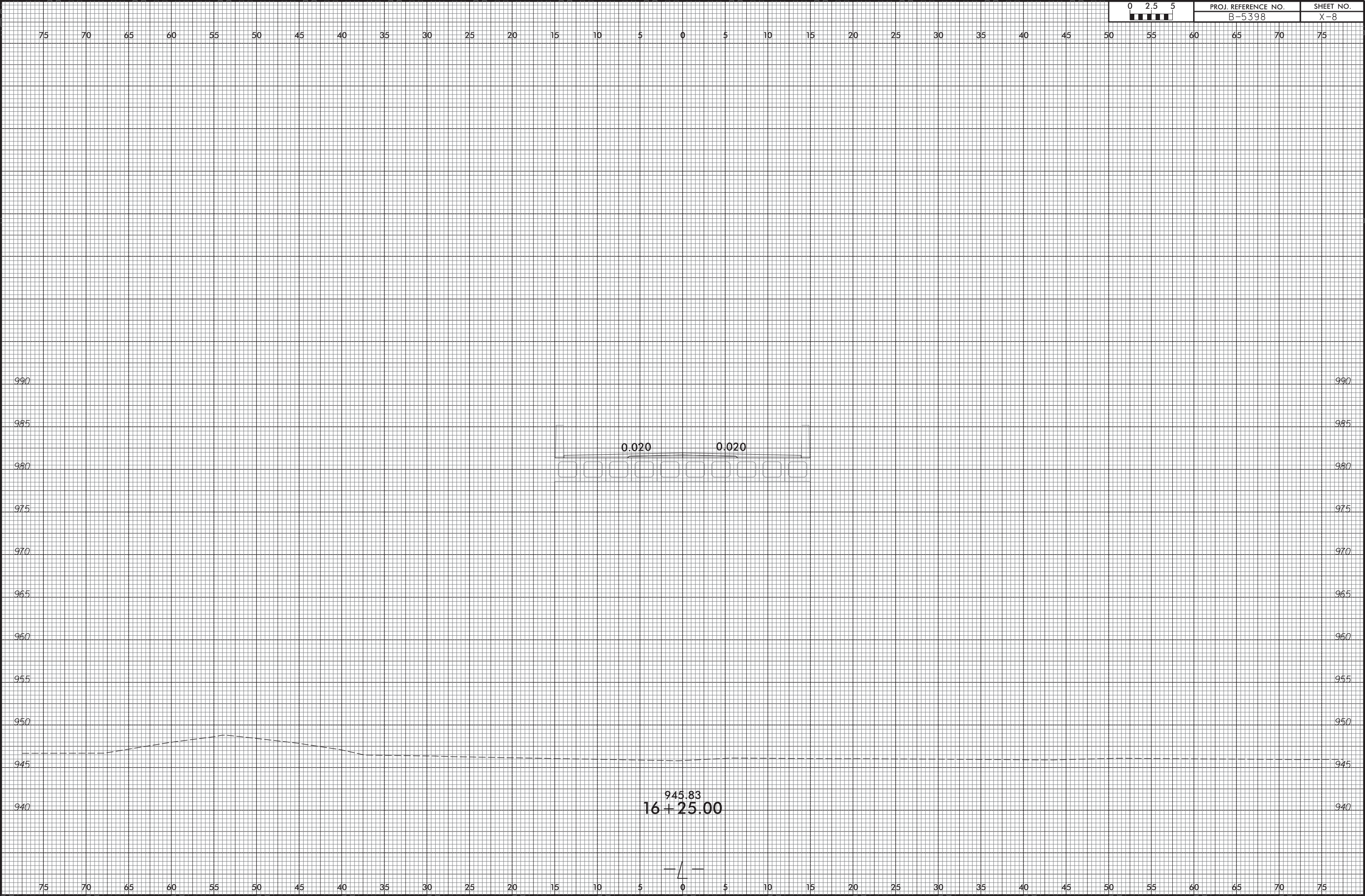
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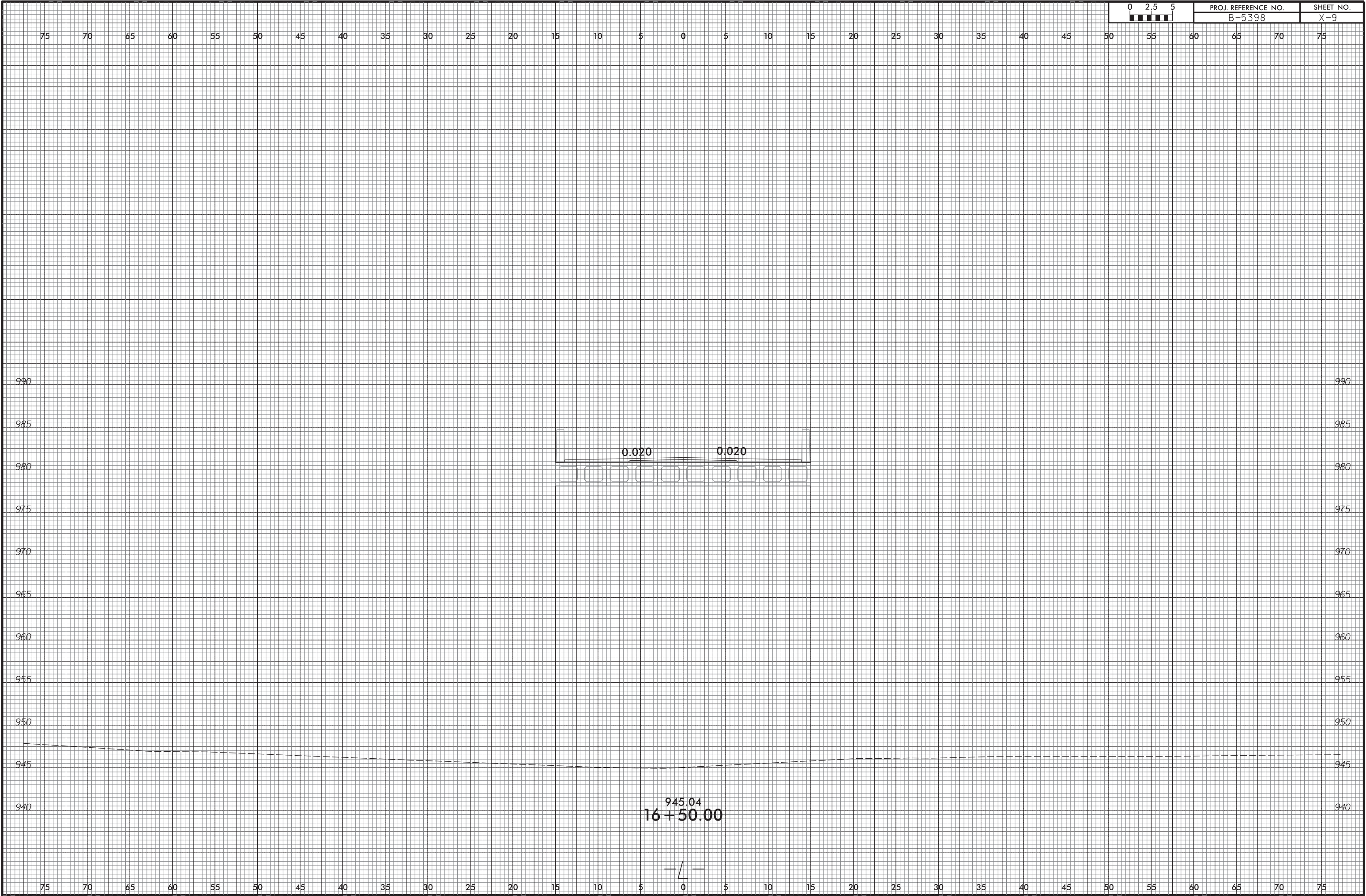
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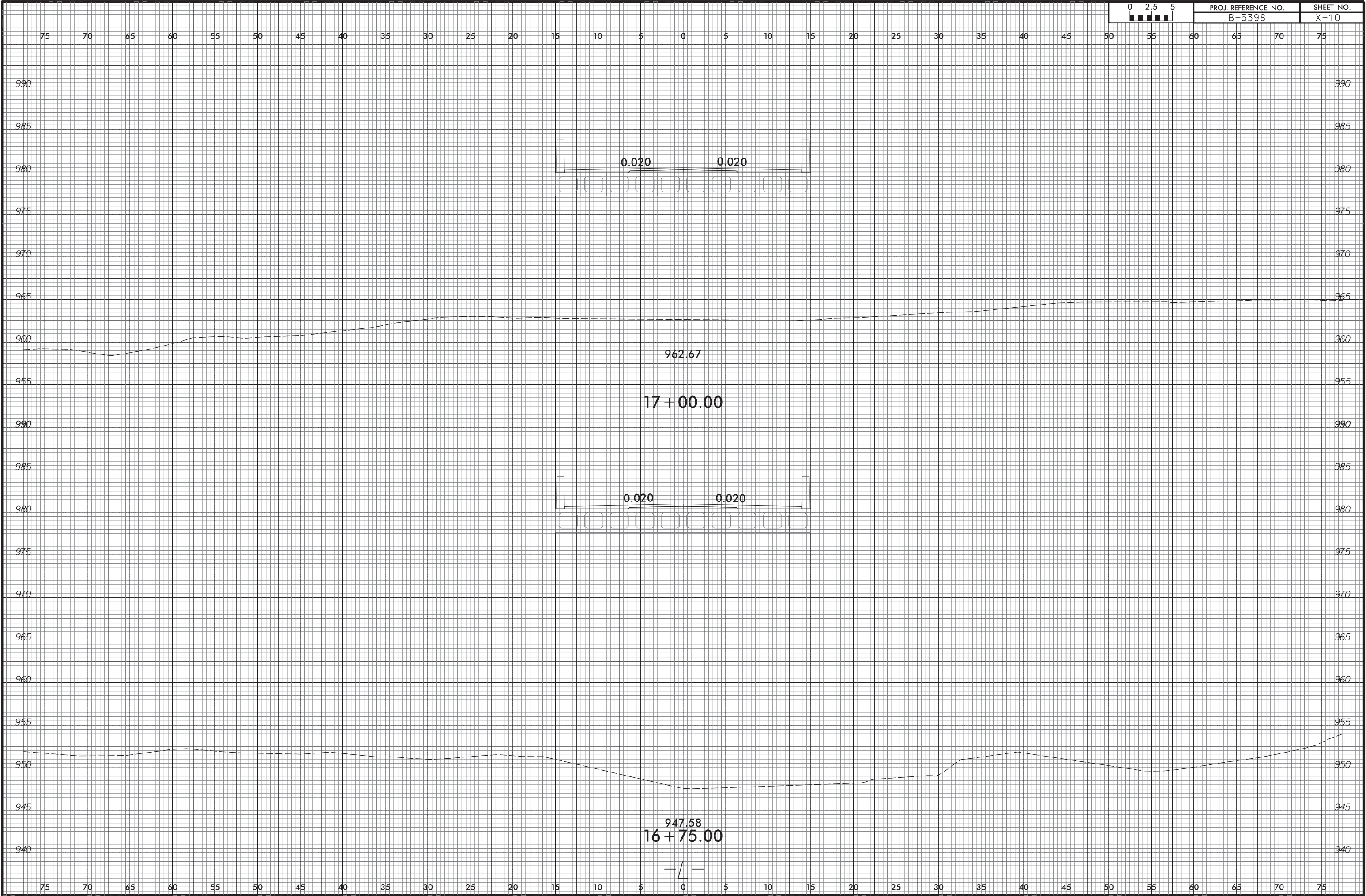
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	B-5398	X-6

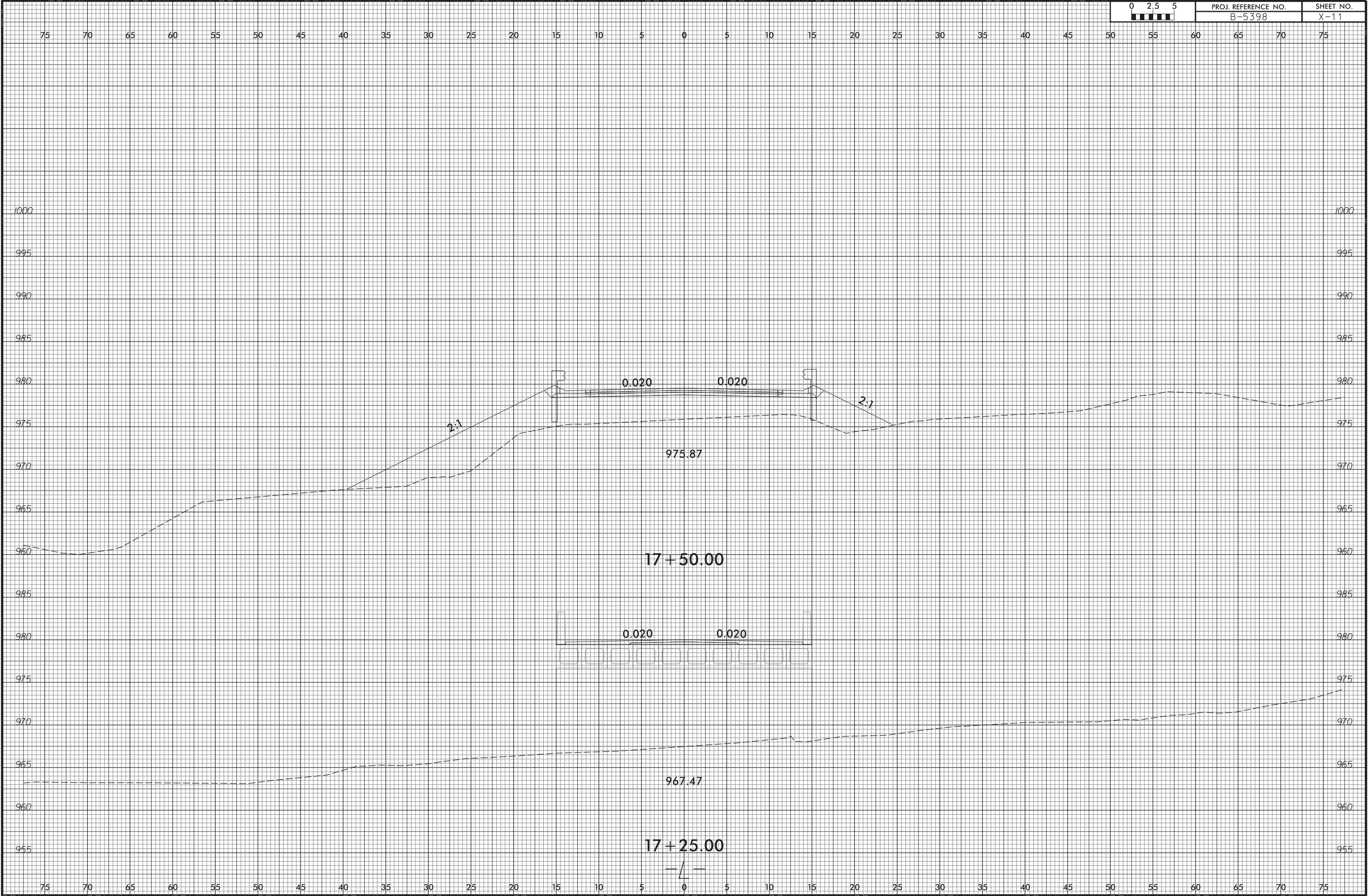


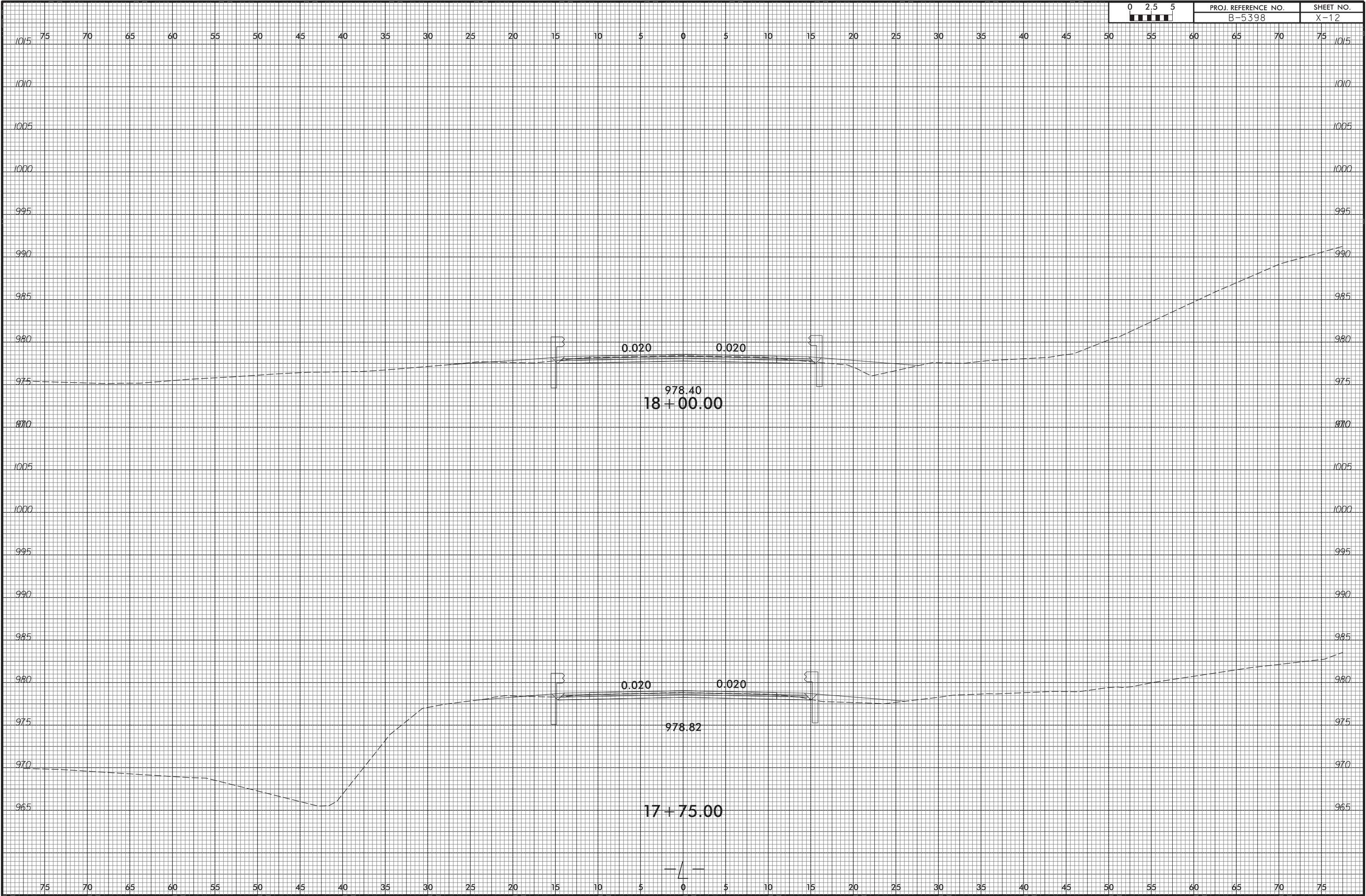






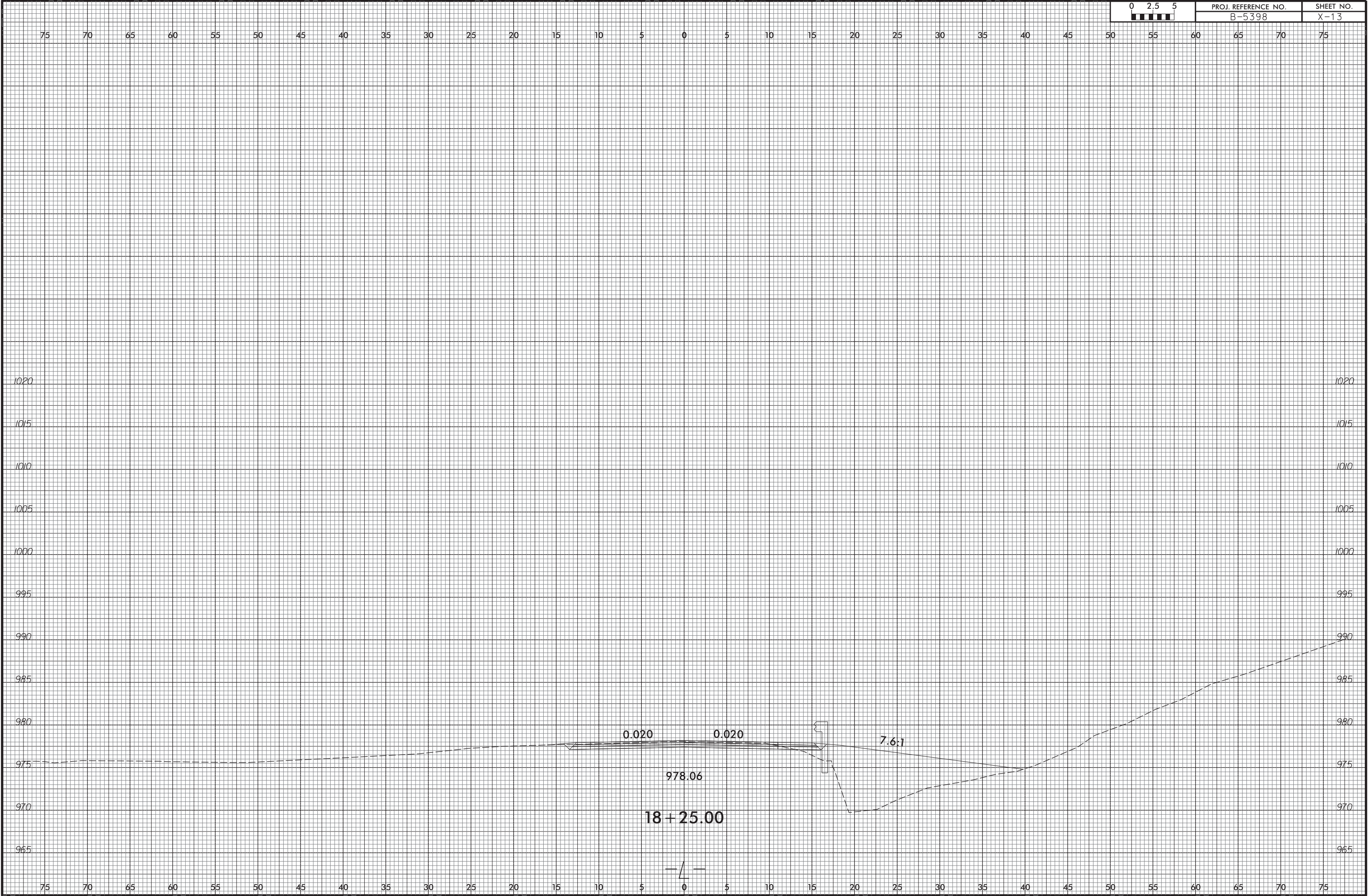


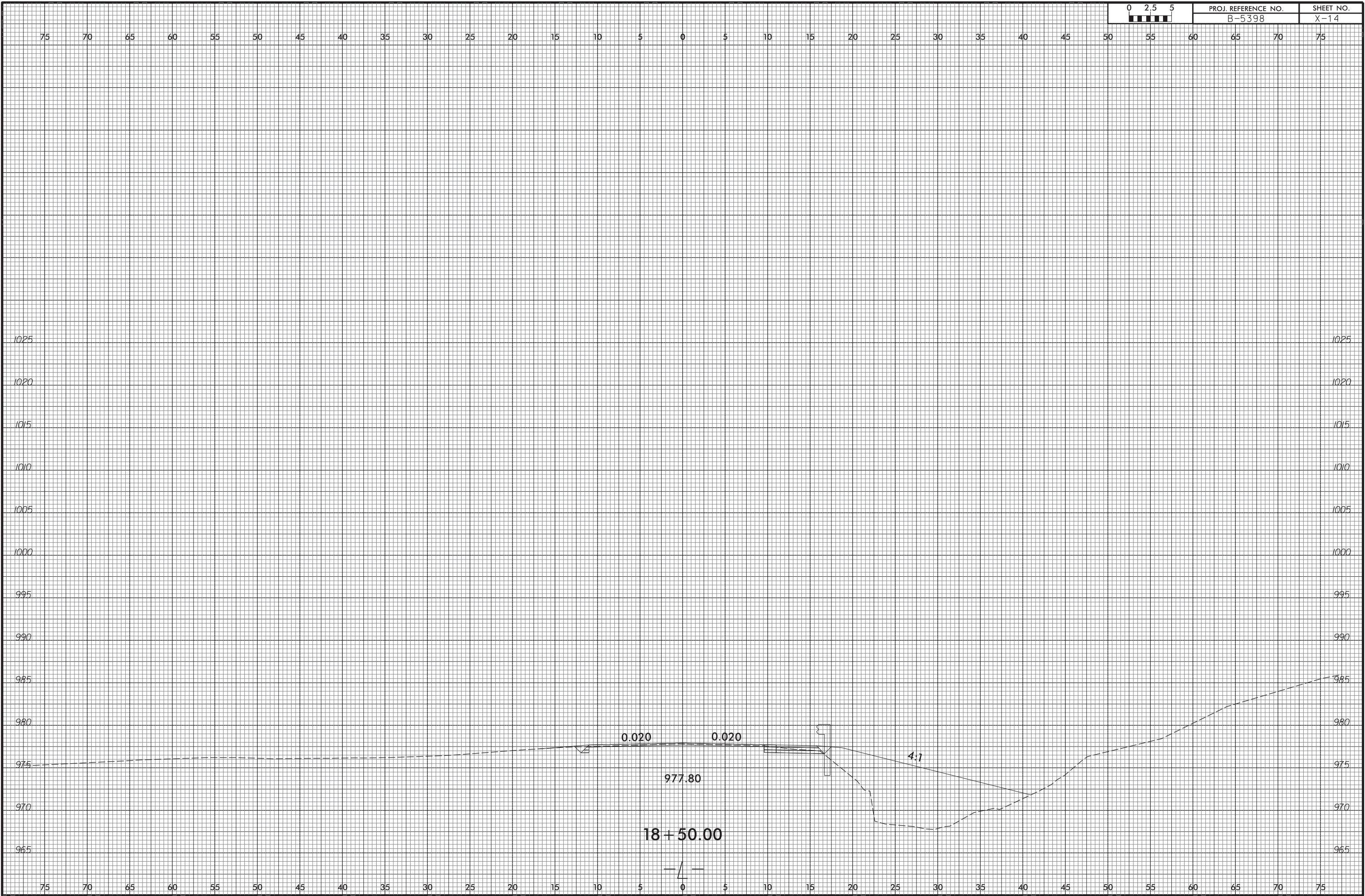


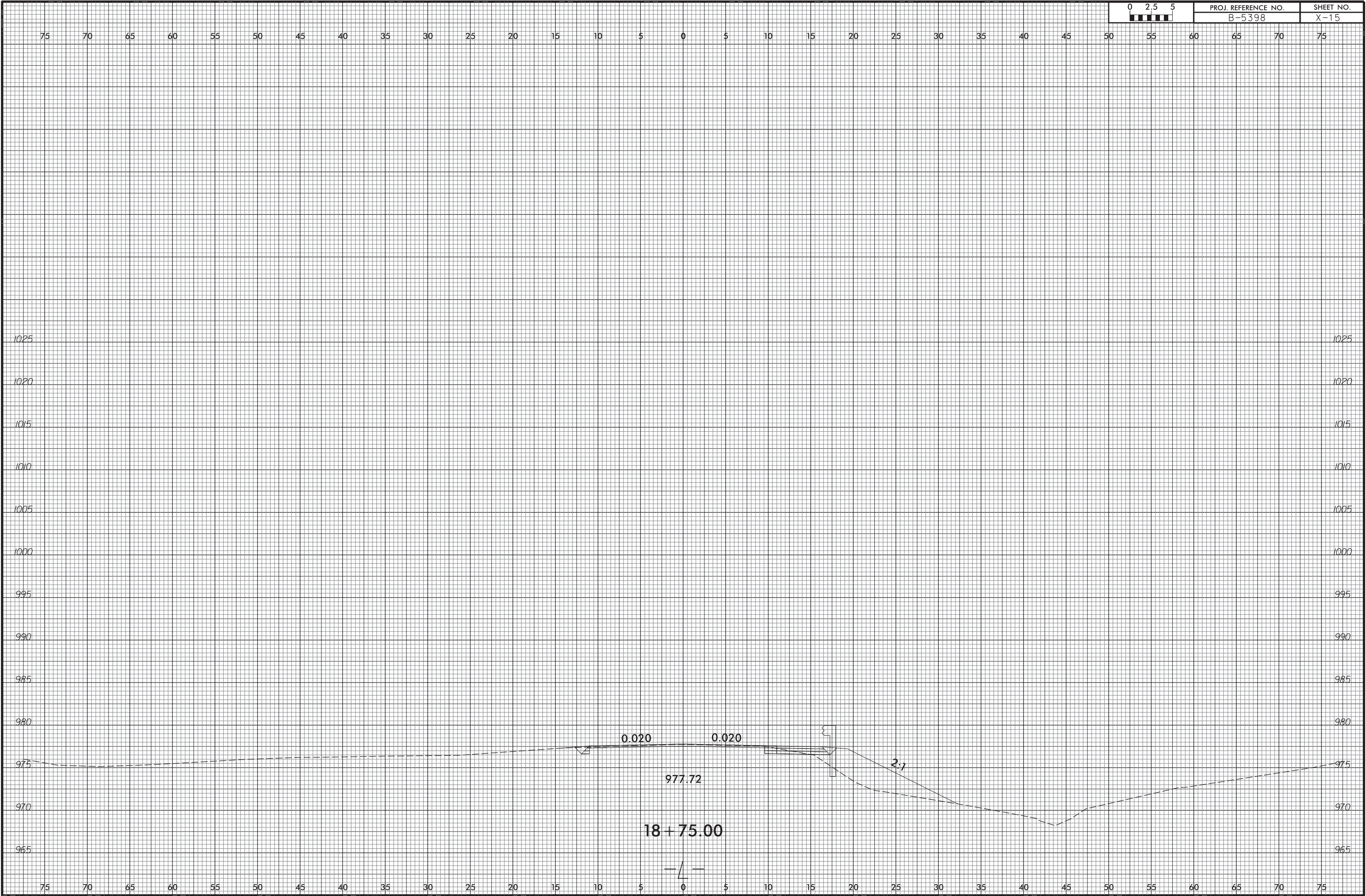


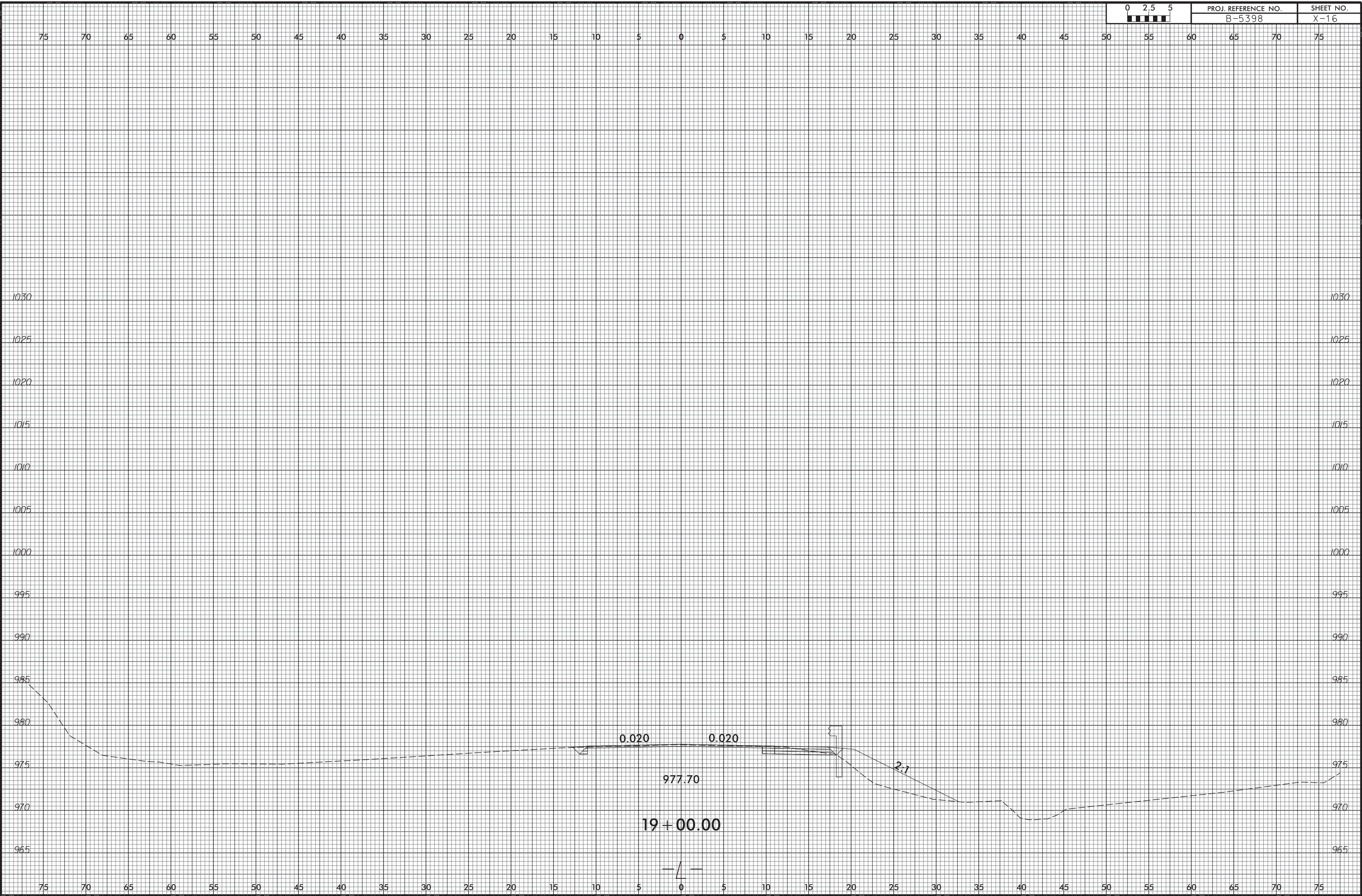
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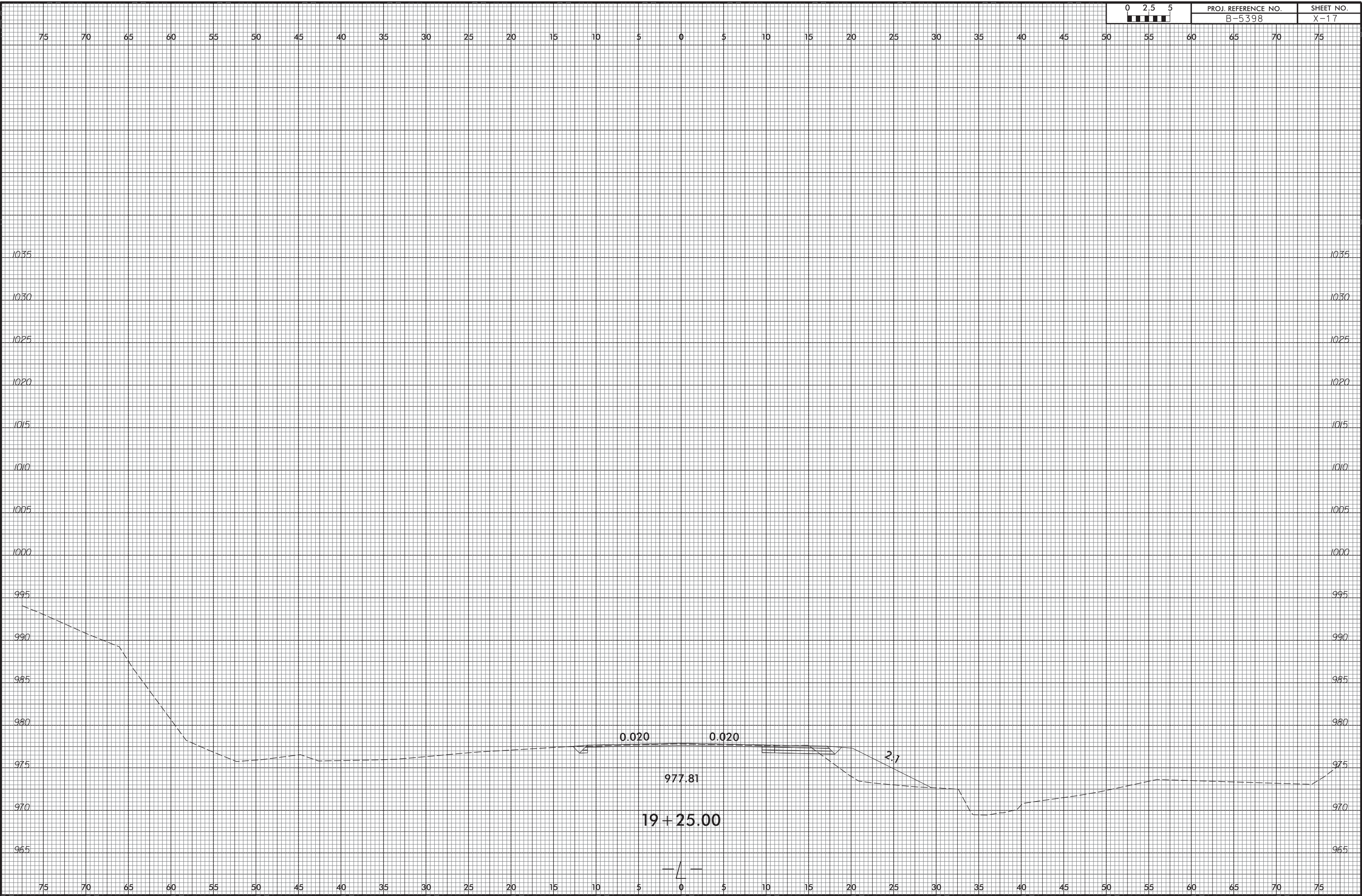
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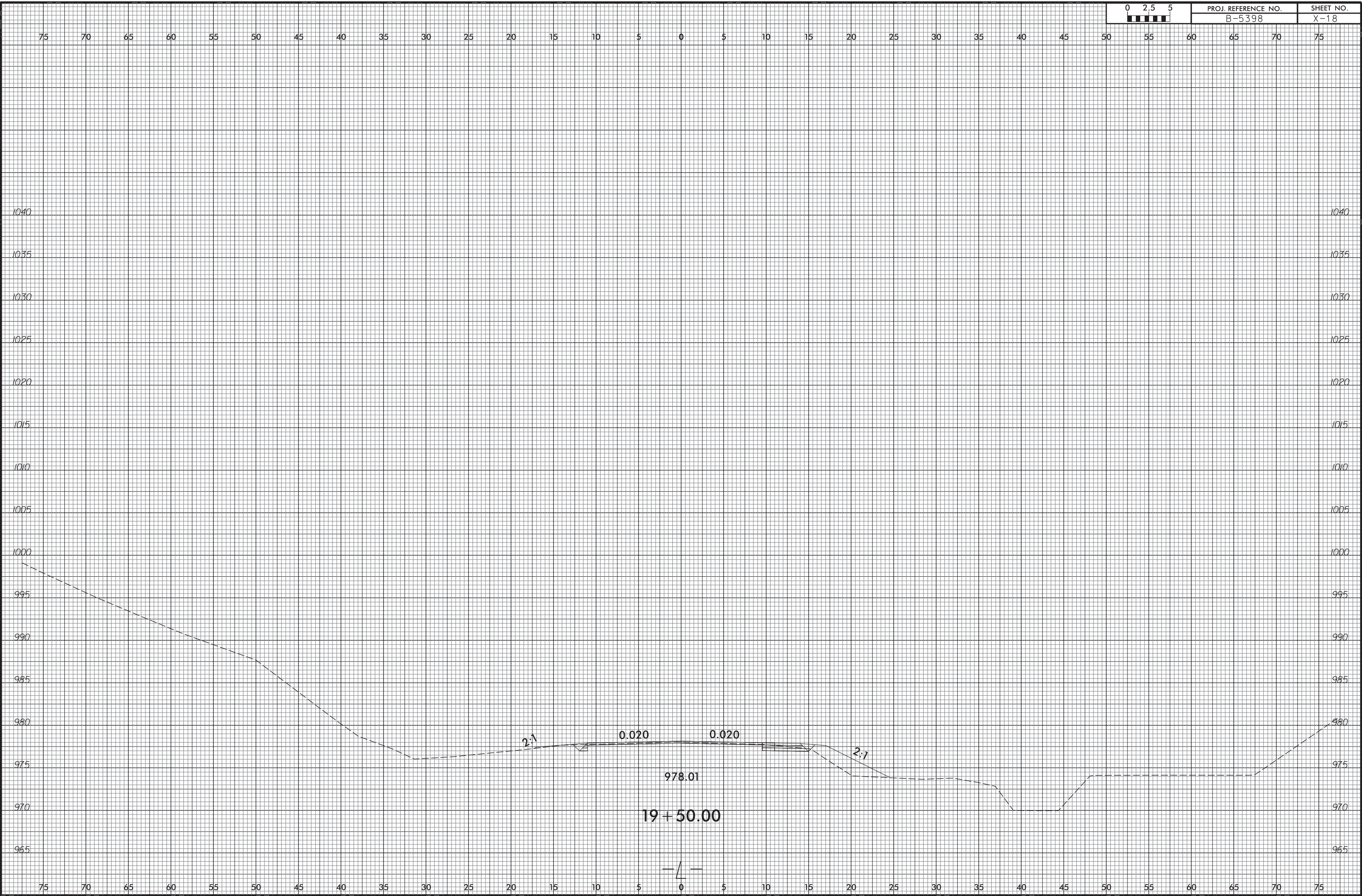




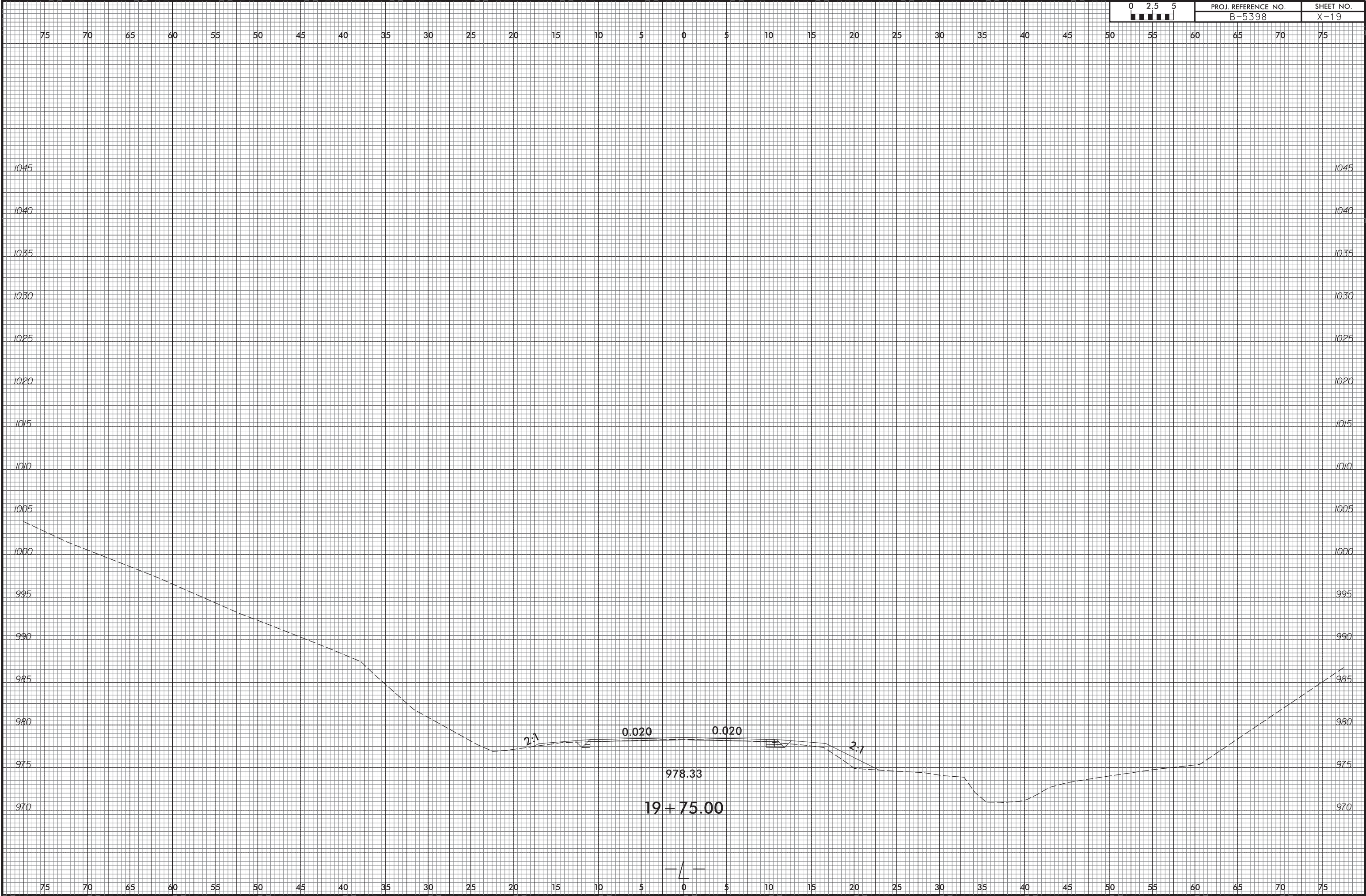








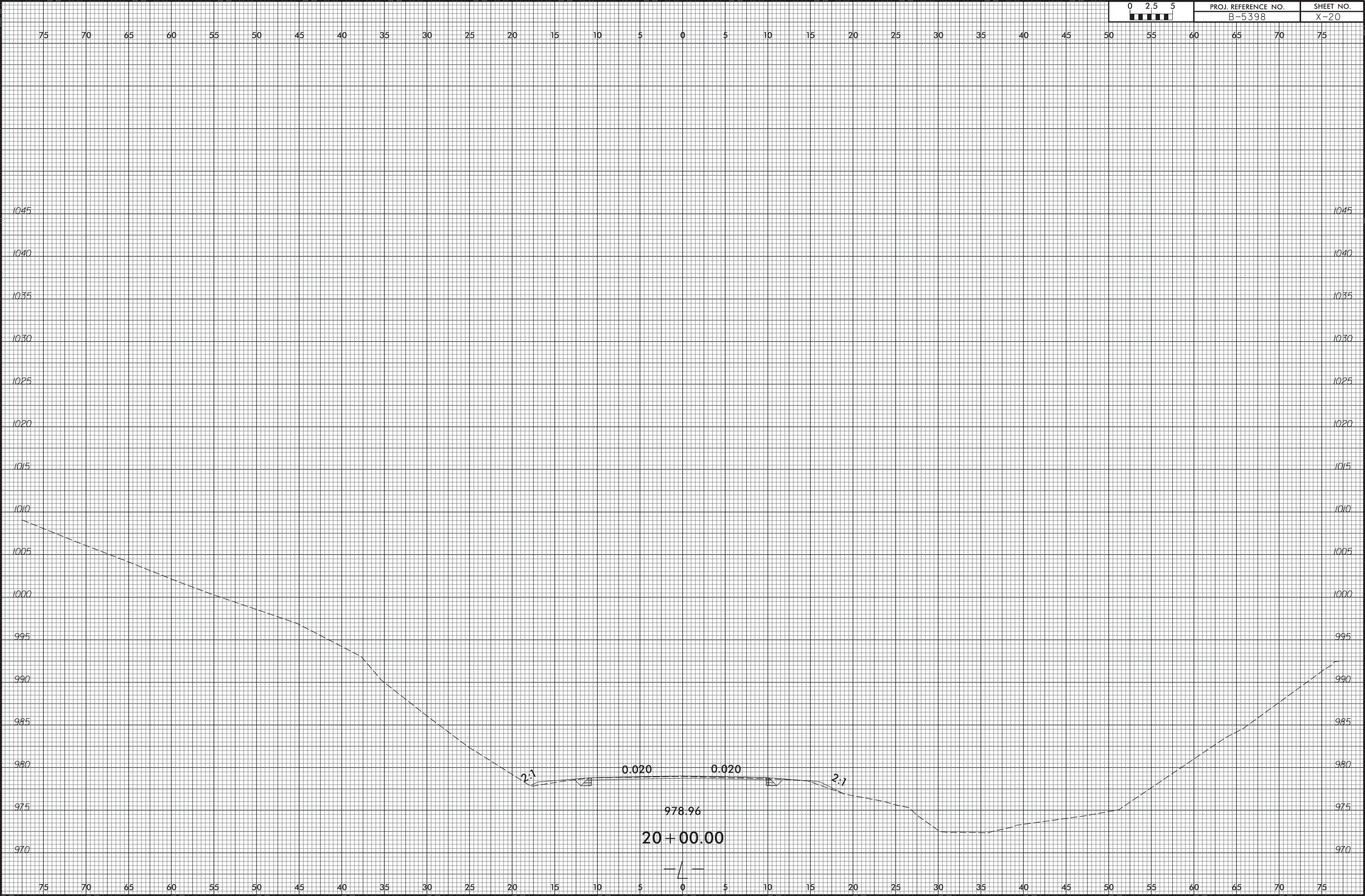
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