



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 4, 2007

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

ATTENTION: Mr. Steve Lund
NCDOT Coordinator

SUBJECT: **Nationwide Permit 23 & 33 Application** for the proposed replacement of Bridge No. 140 on SR 1581 (Damascus Church Road) over Snow Creek, in Iredell County. Federal Aid Project No. BRZ-1581 (2), State Project No. 8.2822701 WBS Element 33505.1.1, TIP No. B-4157, in Division 12.

Dear Mr. Lund:

Please find enclosed a copy of the Pre-Construction Notification (PCN), permit drawings, and 1/2 size plans. A Programmatic Categorical Exclusion (PCE) was completed for this project in September 2005 and distributed shortly thereafter. Additional copies are available upon request. Due to the age and condition of the current structure, the North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 140 with a new bridge 156 feet in length and 33 feet in width. Despite avoidance and minimization efforts, temporary surface water impacts of 0.03 acres of Snow Creek are required. In addition, <0.01 acre of permanent surface water impacts are proposed for bent installation. Traffic will be detoured offsite during construction.

Impacts to Waters of the United States

Snow Creek, which is assigned as a "Class WS-IV" water by the North Carolina Division of Water Quality (NCDWQ), is located in the Yadkin River Basin, Subbasin 03-07-06 within Hydrological Cataloguing Unit 03040102. There are no Outstanding Resource Waters (ORW), High Quality Waters (HQW), WS-I, WS-II, or watershed Critical Areas (CA), within 1 mile of the project study area. Snow Creek is not identified as a 303(d)

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

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

stream by NCDWQ nor does the project drain to a 303(d) stream within one mile. No moratoriums are present within the study area.

Permanent Impacts: There will be <0.01 acre of permanent surface water impacts resulting from the installation of bents within Snow Creek.

Temporary Impacts: The implementation of a temporary workpad will result in 0.03 acre of temporary surface water impacts to Snow Creek. These temporary workpads are necessary for the removal of the existing structure and to construct the bent of the new structure. In addition, at no time will the temporary workpads cover greater than 50% of Snow Creek.

Utility Impacts: The relocation of the power pole lines and the telephone lines will not impact Snow Creek. Therefore, there will be no impacts to jurisdictional resources due to utilities for this project.

Bridge Demolition

The existing bridge has an asphalt-wearing surface, and the remainder of the bridge, both superstructure and substructure, is composed of timber and steel. The asphalt surface will be removed prior to demolition. The remainder of the bridge will be removed without dropping into Waters of the U.S. During construction, Best Management Practices for Bridge Demolition and Removal will be followed.

Federally Protected Species

As of August 10, 2007 the United States Fish and Wildlife Service (USFWS) lists no federally protected species for Iredell County (Table 1). However, the bog turtle is included and carries a threatened due to similarity of appearance T (S/A) designation but does not warrant federal protection under the Endangered Species Act of 1973.

Table 1. Federally Protected Species for Rutherford County.

Common Name	Scientific Name	Status	Habitat	Biological Conclusion
bog turtle	<i>Clemmys muhlenbergii</i>	T(S/A)	No	N/A

Avoidance and Minimization

NCDOT has minimized impacts to the fullest extent possible. Avoidance measures were taken during the planning and NEPA compliance stages and minimization measures were incorporated as part of project design.

- Preformed scour holes to provide outlet protection at the end of drainage pipes and ditches.
- Traffic will be detoured offsite during construction.

The PCE identifies a design commitment for design standards in sensitive watersheds. However, there are no ORW, HQW, WS-I, WS-II, or watershed CA, within 1 mile of the

project study area and Snow Creek is not identified as a 303(d) stream by NCDWQ nor does the project drain to a 303(d) stream within one mile. Therefore, adherence to the design standards in sensitive watershed is not warranted.

Mitigation

Construction for this project will impose both temporary surface water impacts and permanent surface water impacts to jurisdictional waters. Nonetheless, due to the minimal impact numbers and no HQW's for this project, no mitigation is proposed for this project.

Regulatory Approvals

Section 404 Permit: It is anticipated that the temporary and permanent construction impacts to Snow Creek can be authorized under Section 404 Nationwide Permits 23 and 33 (Approved Categorical Exclusion and Temporary Construction Access and Dewatering, respectively). We are, therefore, requesting the issuance of Nationwide Permits 23 and 33 authorizing the temporary and permanent surface water impacts of Snow Creek.

Section 401 Permit: We anticipate 401 General Certification numbers 3632 and 3634 will apply to Nationwide Permits 23 and 33 respectively. All general conditions of WQC 3632 and 3634 will be met. Therefore, we are not requesting written concurrence from NCDWQ. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to NCDWQ for their records.

Thank you for your assistance with this project. A copy of this permit application will be posted on the NCDOT Website at www.ncdot.org/doh/preconstruct/pe/neu/permit.html. If you have any questions or need additional information, please contact Kris Dramby at (919) 715-5526.

Sincerely,



for Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis Branch

Cc

W/attachment

Mr. John Hennessy, NCDWQ
Ms. Marella Buncick, USFWS
Dr. David Chang, P.E., Hydraulics
Mr. Victor Barbour, P.E., PSU
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. J.J. Swain, P.E. (Div. 13), Division Engineer
Mr. Roger Bryan (Div. 13), DEO

W/o attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., PRGM/TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Ms. Natalie Lockhart, Planning Engineer

Office Use Only:

Form Version March 05

USACE Action ID No. _____ **DWQ No.** _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Section 404 Permit | <input type="checkbox"/> Riparian or Watershed Buffer Rules |
| <input type="checkbox"/> Section 10 Permit | <input type="checkbox"/> Isolated Wetland Permit from DWQ |
| <input type="checkbox"/> 401 Water Quality Certification | <input type="checkbox"/> Express 401 Water Quality Certification |

2. Nationwide, Regional or General Permit Number(s) Requested: NWP 23 & 33

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here:

4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here:

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here:

II. Applicant Information

1. Owner/Applicant Information

Name: Gregory J. Thorpe, Ph.D., Environmental Management Director

Mailing Address: 1598 Mail Service Center
Raleigh, NC 27699-1598

Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794

E-mail Address: _____

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)

Name: _____

Company Affiliation: _____

Mailing Address: _____

Telephone Number: _____ Fax Number: _____

E-mail Address: _____

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the - USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Replacement of Bridge No. 140 on SR 1581 (Damascus Church Road) over Snow Creek
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4157
3. Property Identification Number (Tax PIN): N/A
4. Location
County: Iredell Nearest Town: The town of Central is located to the east and Hiddenite to the west. Statesville is the largest city located in close proximity to the project.
Subdivision name (include phase/lot number): N/A
Directions to site (include road numbers/names, landmarks, etc.): From the town of Statesville, travel off of Interstate 40 to US 115 heading north. Continue on US 115 North for approximately 8 miles and cross over Snow Creek. Continue on US 115 North for an additional 5 miles until reaching the intersection of SR 1581 (Damascus Church Road) and US 115. At the intersection, turn left on SR 1581 (Damascus Church Road) and travel for approximately 1 mile until crossing over Snow Creek and reaching Bridge No. 140.
5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
Decimal Degrees (6 digits minimum): 35°56'15.22" N 80°58'54.11" W
6. Property size (acres): N/A
7. Name of nearest receiving body of water: Snow Creek
8. River Basin: Yadkin River Basin
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The site is located in a rural section of Iredell County primarily surrounded by agriculture and forested land. The topography in the project area is comprised of a downward slope leading into the nearly level floodplain of Snow Creek. Elevation within the project area measures approximately 985 feet above mean sea level.

10. Describe the overall project in detail, including the type of equipment to be used: The project will consist of replacing the existing 146 foot structure that consists of timber deck on steel I-beams. The substructure consists of timber caps and piles, with one abutment of mass concrete. The new bridge structure will be a new bridge of approximately 156 feet in length and 33 feet in width. The new bridge will have a 30-foot travelway accommodating two 12-foot lanes, and will have 3-foot offsets on each side. The roadway grade of the new structure will be placed at an elevation approximately four feet higher than the existing grade at the this location. Traffic will be detoured offsite during construction. Construction equipment will consist of heavy trucks, earth moving equipment, cranes, etc.

11. Explain the purpose of the proposed work: The existing bridge is structurally deficient and according to federal guidelines is considered functionally obsolete. The replacement of this bridge will result in safer traffic operations.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules. N/A

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.
N/A

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from

riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: Permanent impacts totaling <0.01 acre of surface waters will result from the construction of the interior bent of the new structure. Temporary surface water impacts totaling 0.03 acre will occur in order to construct the necessary temporary workpads.
2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
N/A					
Total Wetland Impact (acres)					

3. List the total acreage (estimated) of all existing wetlands on the property: 0.00 acre
4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
Site 1	Snow Creek	Temporary	Perennial	40 feet	100	0.03
	Snow Creek	Permanent	Perennial	40 feet	NA	<0.01

Total Stream Impact (by length and acreage)					100	0.03

5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
N/A				
Total Open Water Impact (acres)				

6. List the cumulative impact to all Waters of the U.S. resulting from the project:

Stream Impact (acres):	0.03
Wetland Impact (acres):	0.00
Open Water Impact (acres):	0.00
Total Impact to Waters of the U.S. (acres)	0.03
Total Stream Impact (linear feet):	100

7. Isolated Waters

Do any isolated waters exist on the property? Yes No

Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.

N/A

8. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): uplands stream wetlands

Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): _____

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): _____

Current land use in the vicinity of the pond: _____

Size of watershed draining to pond: _____ Expected pond surface area: _____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. See Permit Application Cover Letter

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on January 15, 2002, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at <http://h2o.enr.state.nc.us/ncwetlands/strmgide.html>.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

N/A

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

Amount of stream mitigation requested (linear feet): N/A
 Amount of buffer mitigation requested (square feet): N/A
 Amount of Riparian wetland mitigation requested (acres): N/A
 Amount of Non-riparian wetland mitigation requested (acres): N/A
 Amount of Coastal wetland mitigation requested (acres): N/A

IX. Environmental Documentation (required by DWQ)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes No
2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?
 Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.
 Yes No
3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes No

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify _____)? Yes No
2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact	Multiplier	Required
-------	--------	------------	----------

	(square feet)		Mitigation
1		3 (2 for Catawba)	
2		1.5	
Total			

* Zone 1 extends out 30 feet perpendicular from the top of the near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. N/A

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. N/A

XII. Sewage Disposal (required by DWQ)

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. N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?
 Yes No

Is this an after-the-fact permit application? Yes No

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes No
 If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at <http://h2o.enr.state.nc.us/newetlands>. If no, please provide a short narrative description: _____

XV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

N/A

E. L. Luke for Gregory J. Thape, PhD

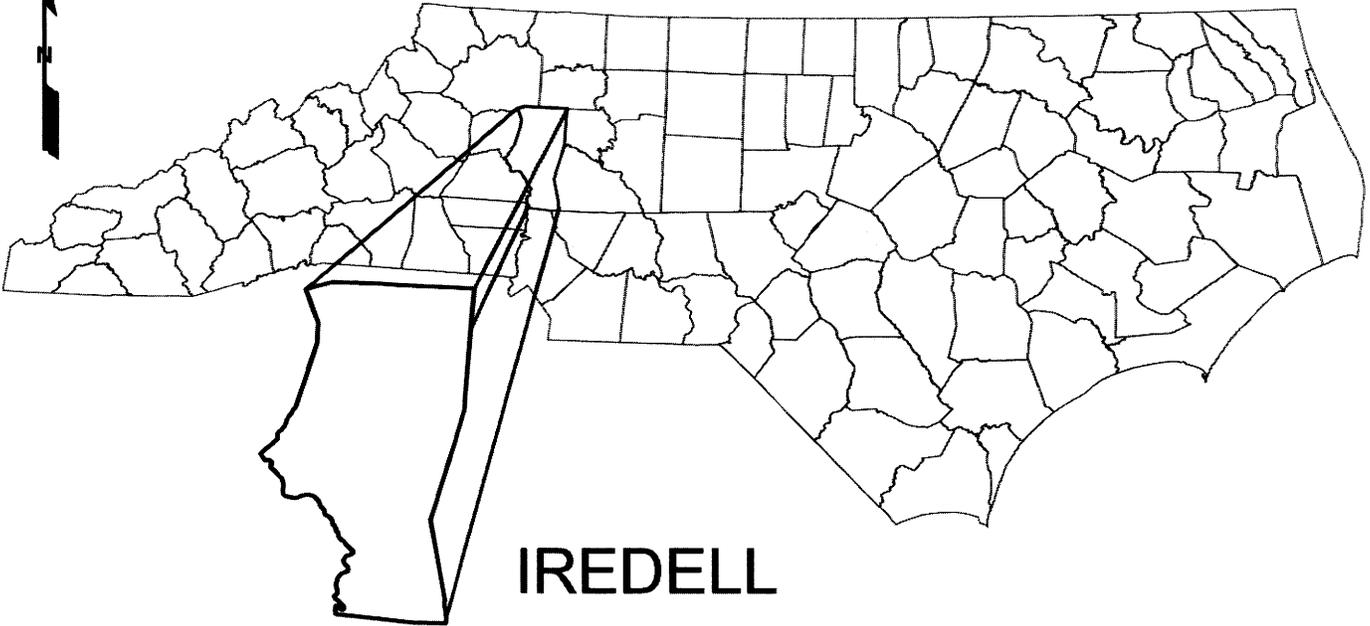
Applicant/Agent's Signature

10.3.07

Date

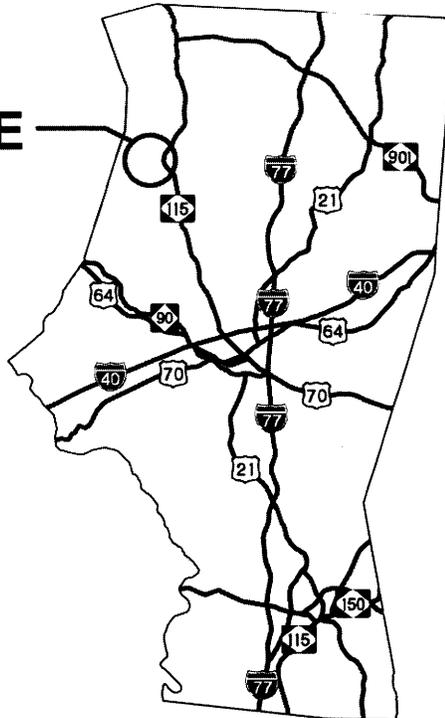
(Agent's signature is valid only if an authorization letter from the applicant is provided.)

NORTH CAROLINA



IREDELL

SITE



RECEIVED

MAY 24 2007

DIVISION OF HIGHWAYS
PDEA-OFFICE OF NATURAL ENVIRONMENT

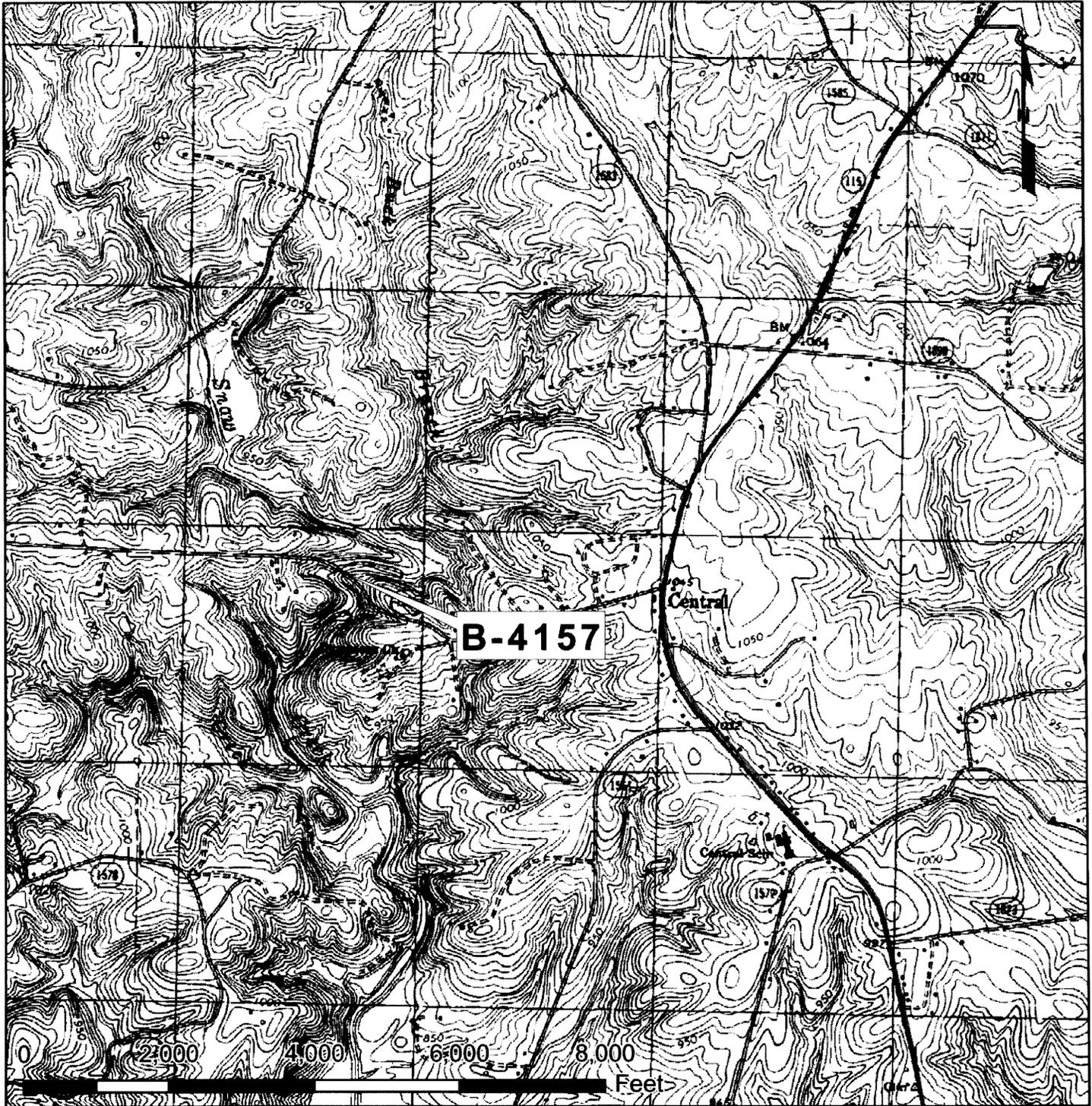
VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
IREDELL COUNTY
PROJECT NO. 33505.1.1 (B-4157)

Permit Drawing
Sheet 1 of 8

05/01/07



1 inch equals 2,000 feet

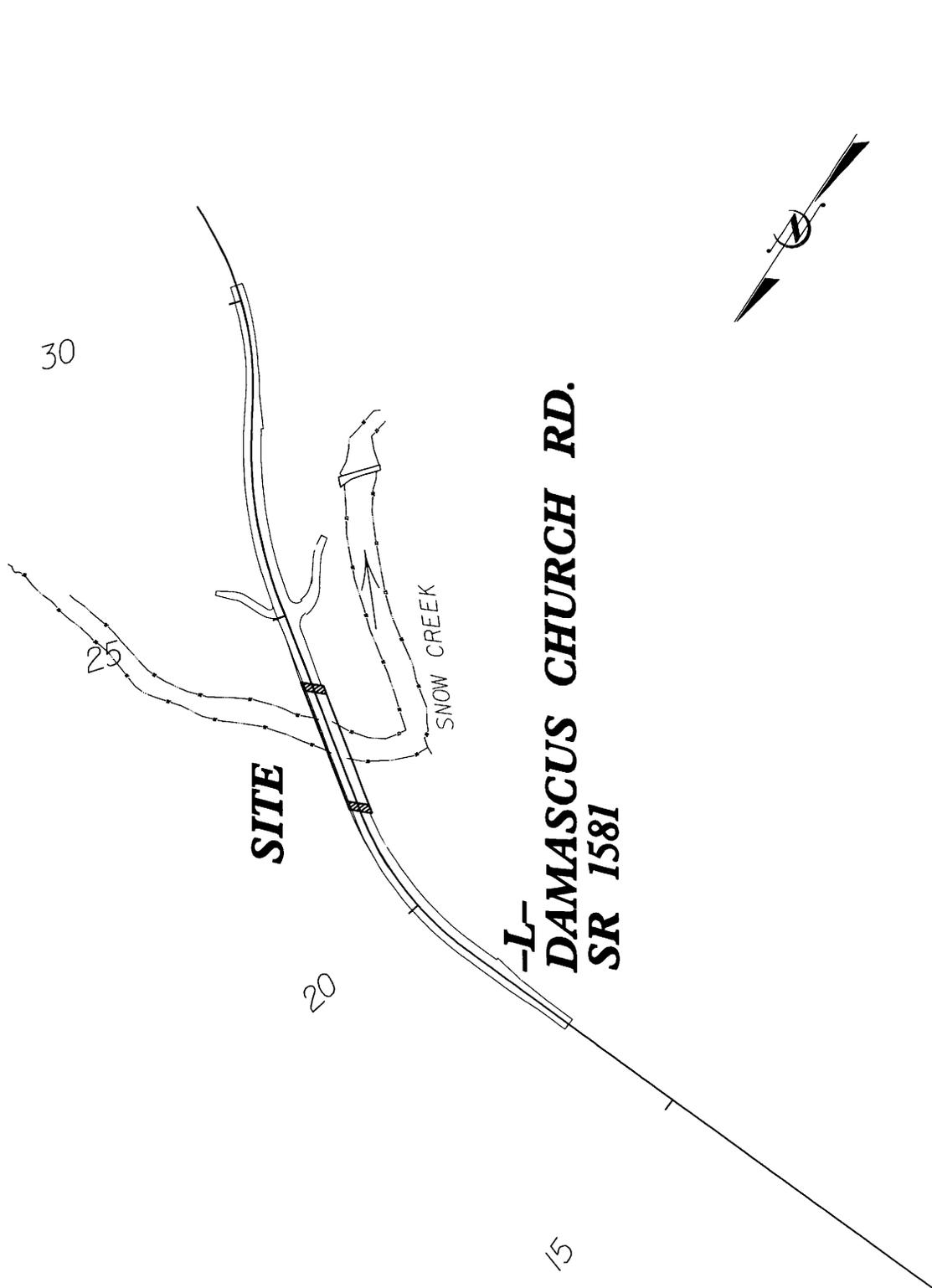
LOCATION

NCDOT

DIVISION OF HIGHWAYS
 IREDELL COUNTY
 PROJECT NO. 33505.1.1 (B-4157)

Permit Drawing
 Sheet 2 of 8

05/01/07



SITE MAP

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 IREDELL COUNTY

PROJECT 33505.1.1 (B-4157)
 Permit Drawing
 Sheet 3 of 3

05 / 01 / 07

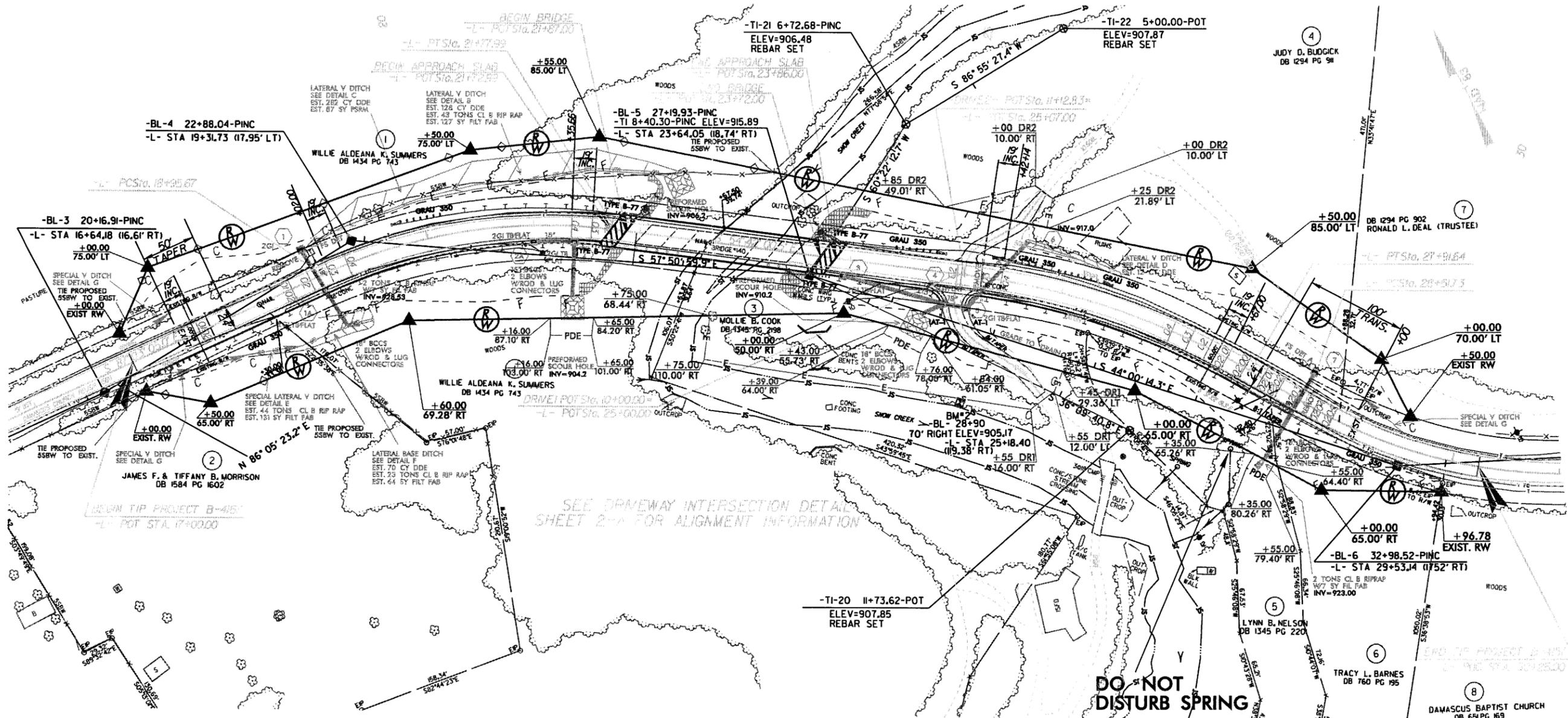
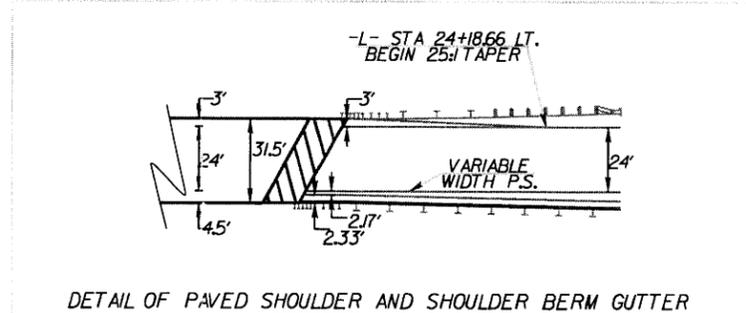
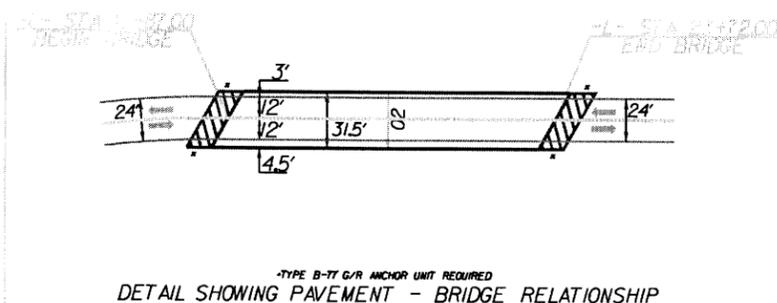
PROP. NO.	PROPERTY OWNER NAME	PROP. OWNER DEED BOOK & PAGE
3	MOLLIE B. COOK	1345/2198
4	JUDY D. BUDGICK	1294 / 911
<p data-bbox="397 598 1510 735">N.C. DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS</p> <p data-bbox="397 735 1510 840">IREDELL COUNTY PROJECT: 33505.1.1 (B-4157)</p> <p data-bbox="397 840 1510 945">5/1/2007</p>		

R:\Z-MISCIHYDROWETPROP B-4157.XLS

B/17/99

** DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 55 MPH TO 25 MPH

PROJECT REFERENCE NO. B-4157	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULIC ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



SEE DRIVEWAY INTERSECTION DETAIL SHEET 2-A FOR ALIGNMENT INFORMATION

-L-		-DRIVE1-		-DRIVE2-	
PI Sta. 20+40.70	PI Sta. 26+56.75	PI Sta. 29+88.53	PI Sta. 10+49.14	PI Sta. 10+37.22	PI Sta. 10+49.25
Δ = 113° 31' 04.5" (RT)	Δ = 23° 09' 42.2" (RT)	Δ = 32° 02' 12.8" (LT)	Δ = 65° 21' 35.5" (LT)	Δ = 117° 32' 46.4" (RT)	Δ = 141° 00' 35.0" (LT)
D = 720' 3.30'	D = 820' 0.00'	D = 1000' 0.00'	D = 1000' 0.00'	D = 1000' 0.00'	D = 1000' 0.00'
L = 200.00'	L = 200.00'	L = 200.00'	L = 200.00'	L = 200.00'	L = 200.00'
SE = 04	SE = 04	SE = 04	SE = 04	SE = 04	SE = 04
PO = 76	PO = 76	PO = 76	PO = 76	PO = 76	PO = 76
V = 39 MPH	V = 40 MPH	V = 35 MPH	V = 35 MPH	V = 35 MPH	V = 35 MPH

FOR L, DRIVE1, & DRIVE2 PROFILES, SEE SHEET NO. 5

BRIDGE APPROACH SLAB

FOR STRUCTURE PLANS, SEE SHEET S-? THRU S-??

Permit Drawing
Sheet 4 of 5

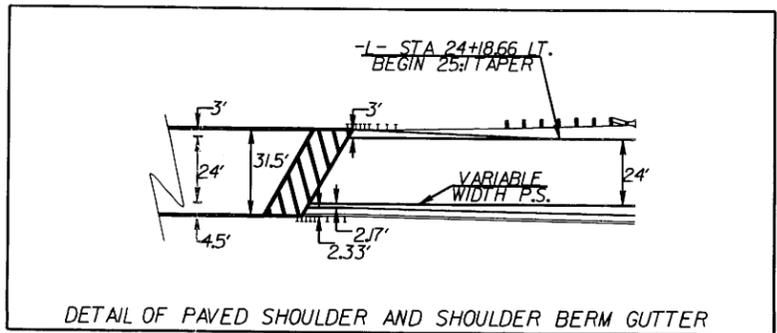
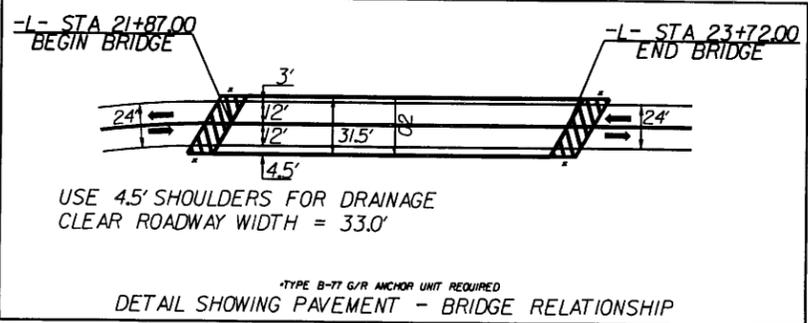
REVISIONS

SYSTEMTIME *****

USER *****

** DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 55 MPH TO 25 MPH

PROJECT REFERENCE NO. B-4157	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



English

032807

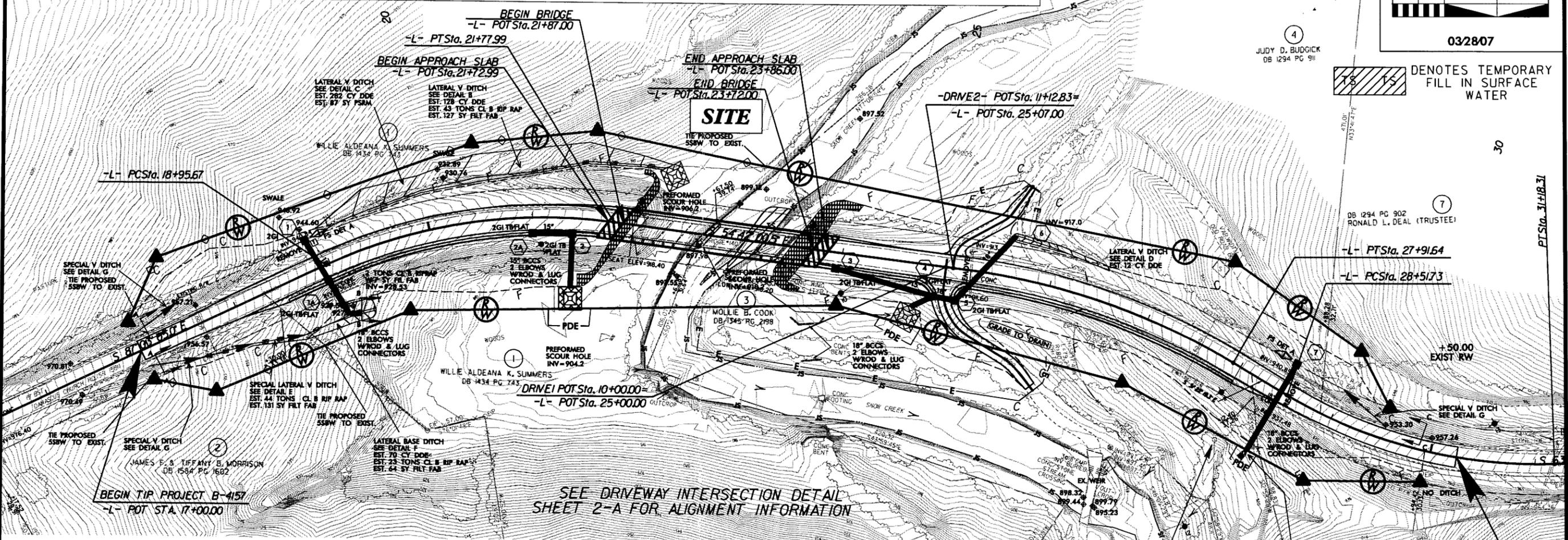
DB 1294 PC 98
JUDY D. BUDGICK

DB 1294 PC 902
RONALD L. DEAL (TRUSTEE)

B-17-099

REVISIONS

05/01/07 12:04:10 R:\Hydro\civil\cs\ERMIT\157_Hyd_pm104.dgn



DO NOT DISTURB SPRING

END TIP PROJECT B-4157
-L- POC STA. 30+25.00

FOR L, DRIVE1, & DRIVE2 PROFILES, SEE SHEET NO. 5

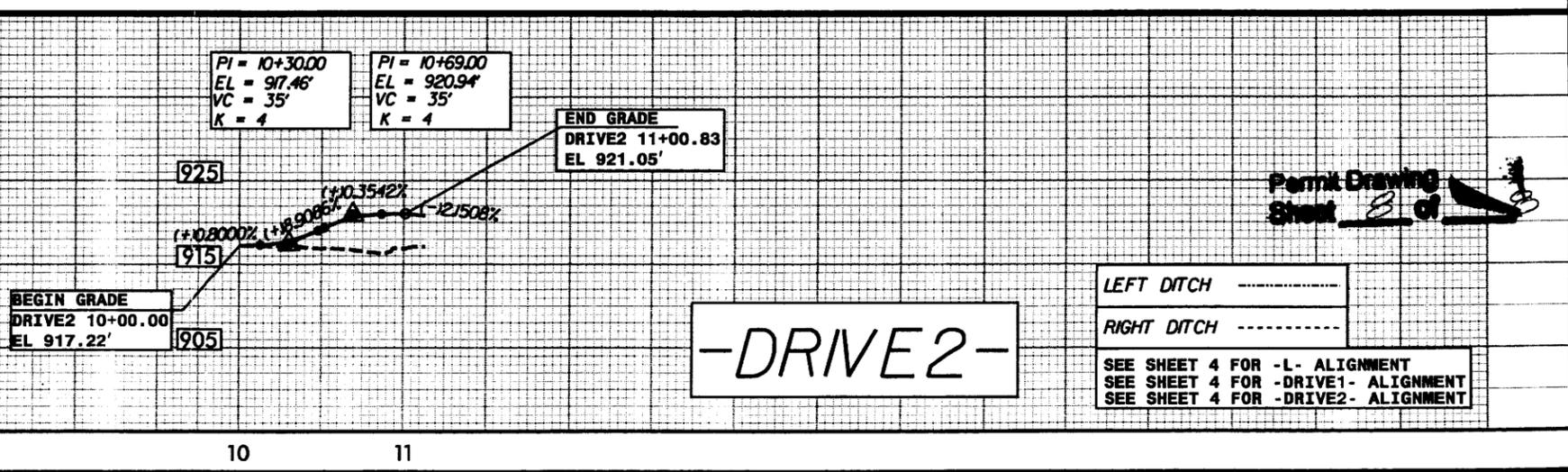
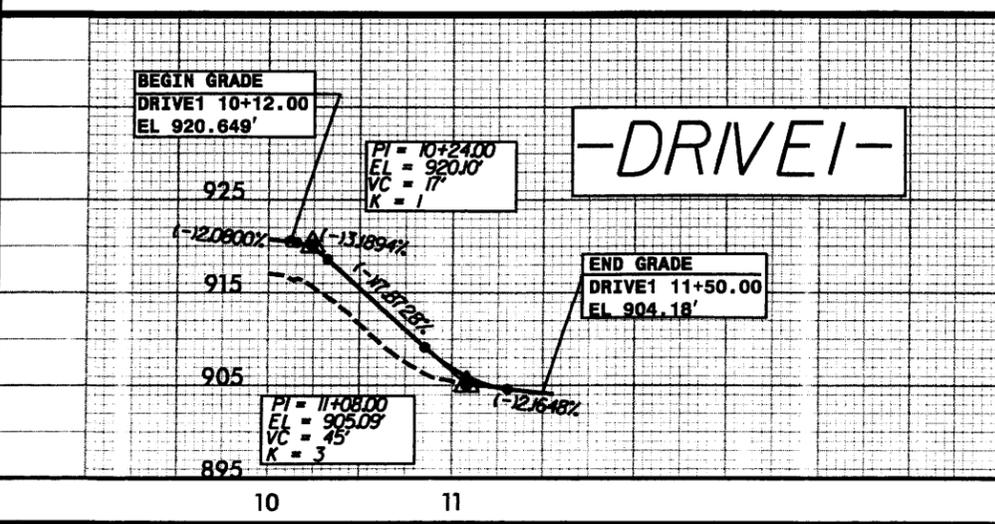
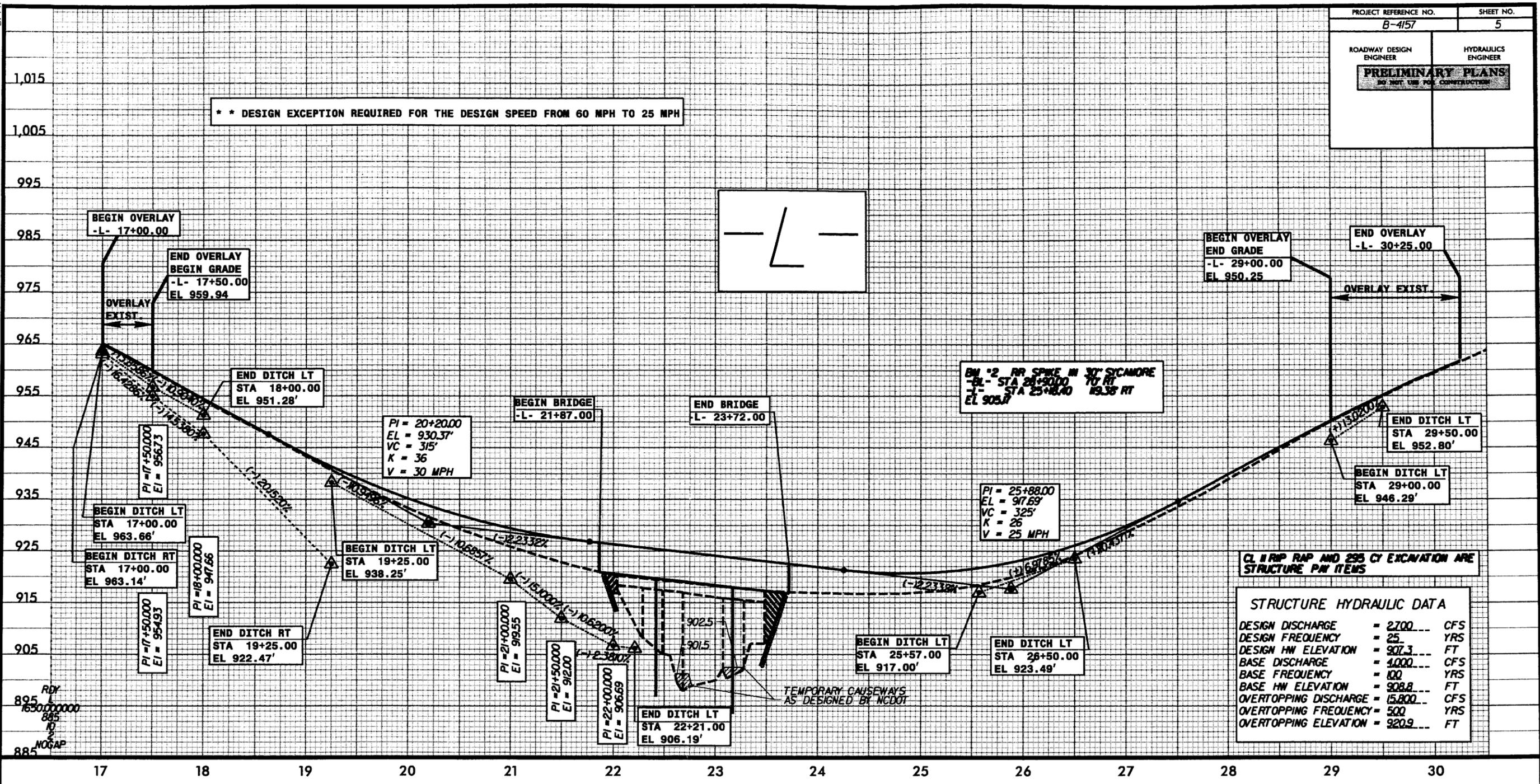
BRIDGE APPROACH SLAB

FOR STRUCTURE PLANS, SEE SHEET S-? THRU S-??



5/14

** DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 60 MPH TO 25 MPH



LEFT DITCH -----
 RIGHT DITCH -----
 SEE SHEET 4 FOR -L- ALIGNMENT
 SEE SHEET 4 FOR -DRIVE1- ALIGNMENT
 SEE SHEET 4 FOR -DRIVE2- ALIGNMENT

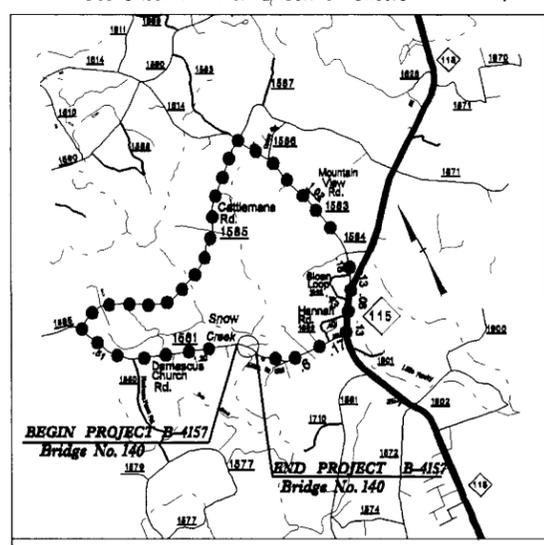
Permit Drawing
Sheet 5 of 5

D:\27\07\10\20\84\Roadway\4157\rdy_pl_050217.dgn

TIP PROJECT: B-4157

CONTRACT: C201782

See Sheet 1-A For Index of Sheets



VICINITY MAP

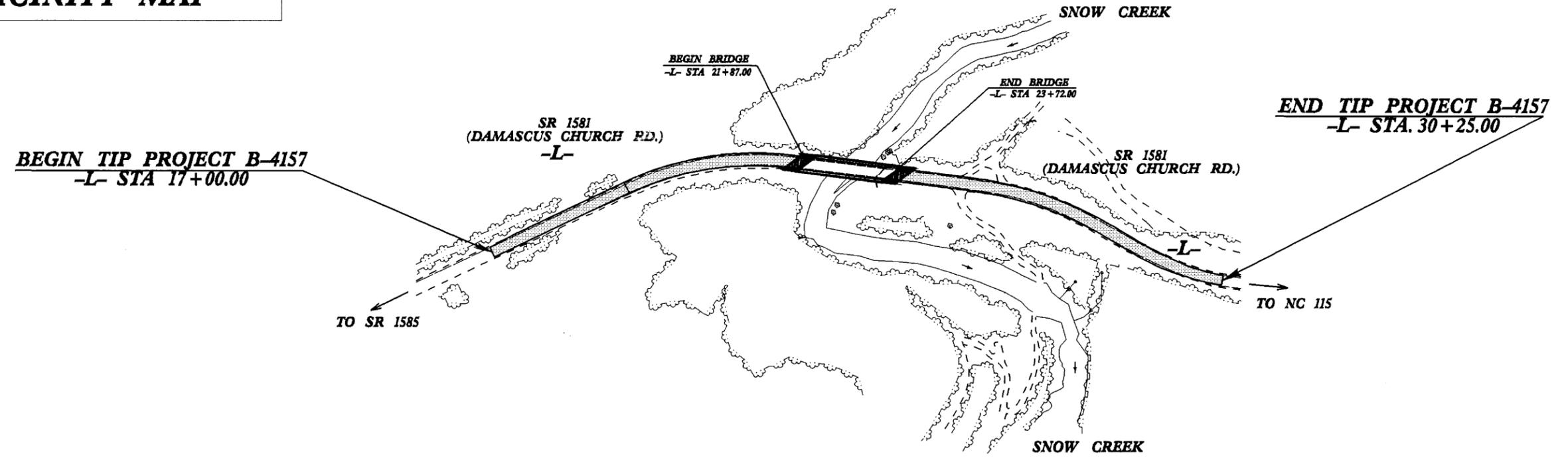
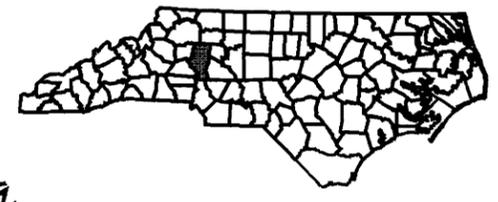
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

IREDELL COUNTY

LOCATION: BRIDGE No. 140 OVER SNOW CREEK ON SR 1581

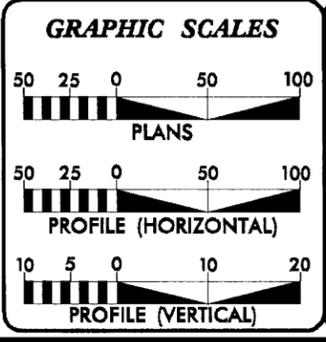
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4157	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33505.1.1	BRZ-1581 (2)	P.E.	
33505.2.1	BRZ-1581 (2)	R/W, UTIL.	



****DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 60 MPH TO 25 MPH.
THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
THIS PROJECT IS NOT WITHIN MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHOULD BE PREFORMED TO THE LIMITS ESTABLISHED BY METHOD III**

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT 2008	= 1139
ADT 2028	= 1917
DHV	= 10 %
D	= 60 %
T	= 3 % *
** V	= 60 MPH
* TTST	1% DUAL 2%
FUNC CLASS	= LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4157	= 0.216 MILE
LENGTH STRUCTURE TIP PROJECT B-4157	= 0.035 MILE
TOTAL LENGTH TIP PROJECT B-4157	= 0.251 MILE

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

2006 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: MARCH 2, 2007	TONY HOUSER, PE PROJECT ENGINEER
LETTING DATE: MARCH 18, 2008	JASON TALLEY, PE PROJECT DESIGN ENGINEER

<p>HYDRAULICS ENGINEER</p> <p>SIGNATURE: _____</p>	<p>ROADWAY DESIGN ENGINEER</p> <p>SIGNATURE: _____</p>
---	---

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

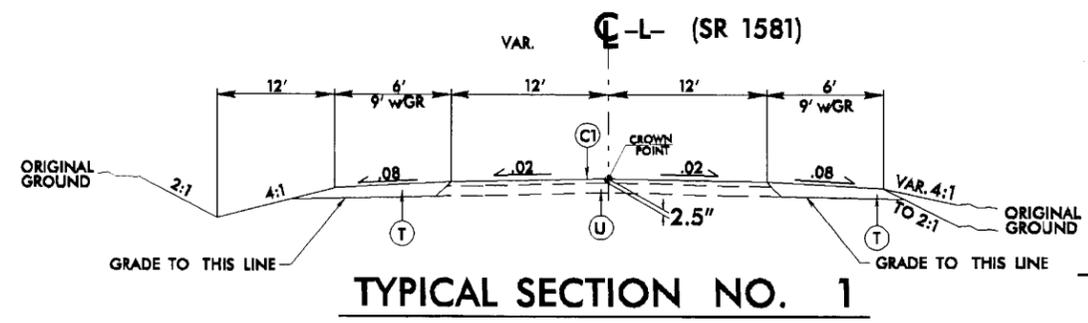
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6/2/99
 30-APR-2007 14:58
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 11:51:18 AM

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137½ LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 458 LBS. PER SQ. YD.
E2	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 827 LBS. PER SQ. YD.
E3	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.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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

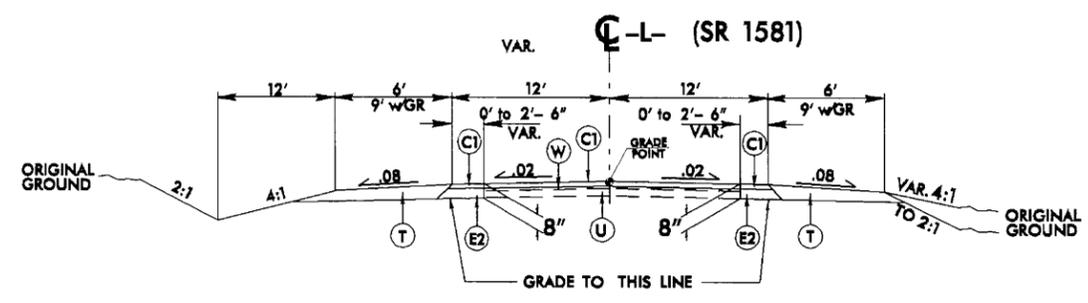
PROJECT REFERENCE NO. B-4157	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 FOR THE FOLLOWING:

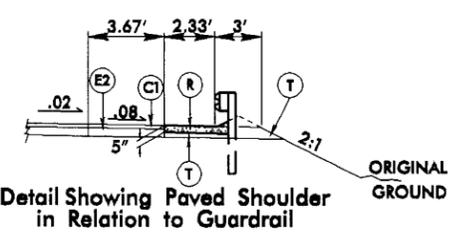
- * OVERLAY EXISTING PAVEMENT
- L- STA. 17+00.00 TO -L- STA. 17+50.00
- L- STA. 29+00.00 TO -L- STA. 30+25.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 FOR THE FOLLOWING:

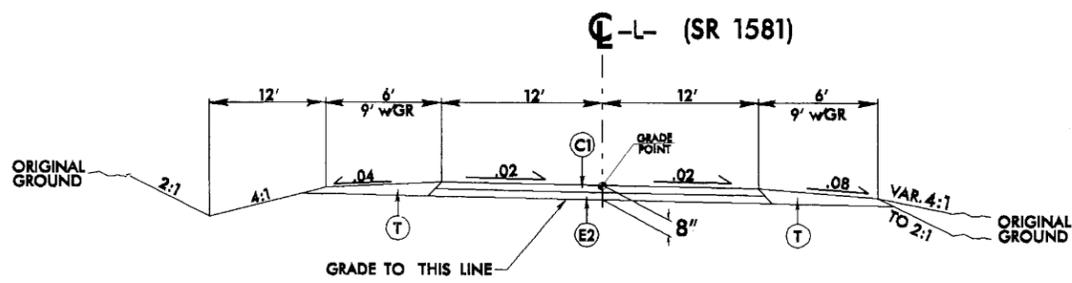
- L- STA. 17+50.00 TO -L- STA. 20+00.00
- L- STA. 28+00.00 TO -L- STA. 29+00.00



Detail Showing Paved Shoulder in Relation to Guardrail

USE SHOULDER BERM GUTTER FOR THE FOLLOWING:

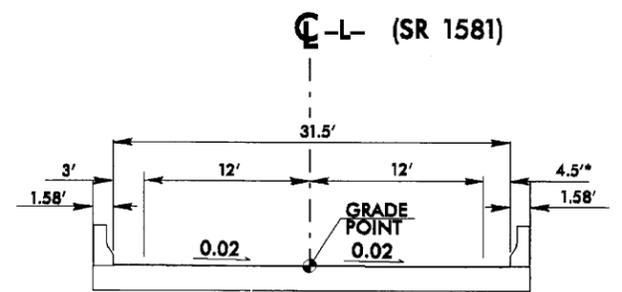
- L- STA. 18+50.00 TO -L- STA. 21+62.98 (RT)
- L- STA. 23+76.47 TO -DRIVE 1- STA. 10+28.74 (RT)
- DRIVE 1- STA. 10+37.24 TO -L- STA. 28+00.00 (RT)



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 FOR THE FOLLOWING:

- L- STA. 20+00.00 TO -L- STA. 21+87.00 (BEGIN BRIDGE)
- L- STA. 23+72.00 (END BRIDGE) TO -L- STA. 28+00.00

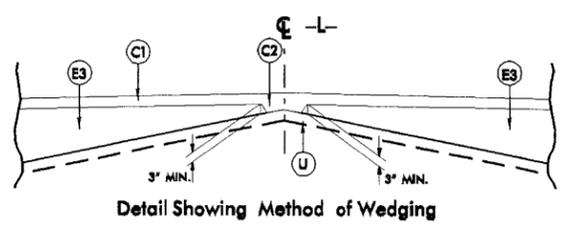


TYPICAL SECTION NO. 4

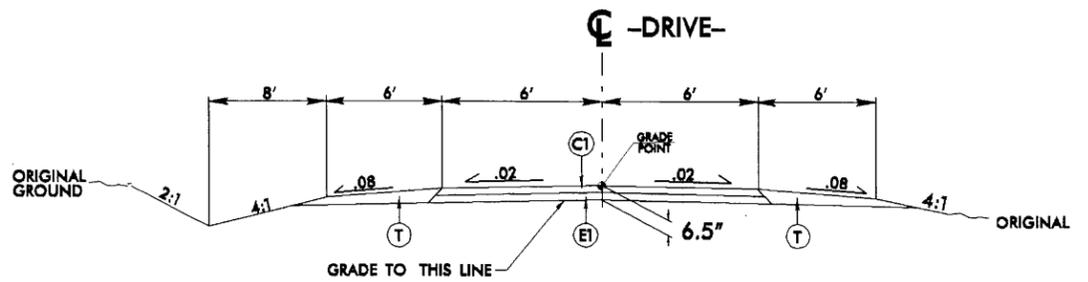
USE TYPICAL SECTION NO. 4 FOR THE FOLLOWING:

- L- STA. 21+87.00 TO -L- STA. 23+72.00

* USED 4.5' OFFSET ON RIGHT SIDE DUE TO HYDRAULIC SPREAD



Detail Showing Method of Wedging



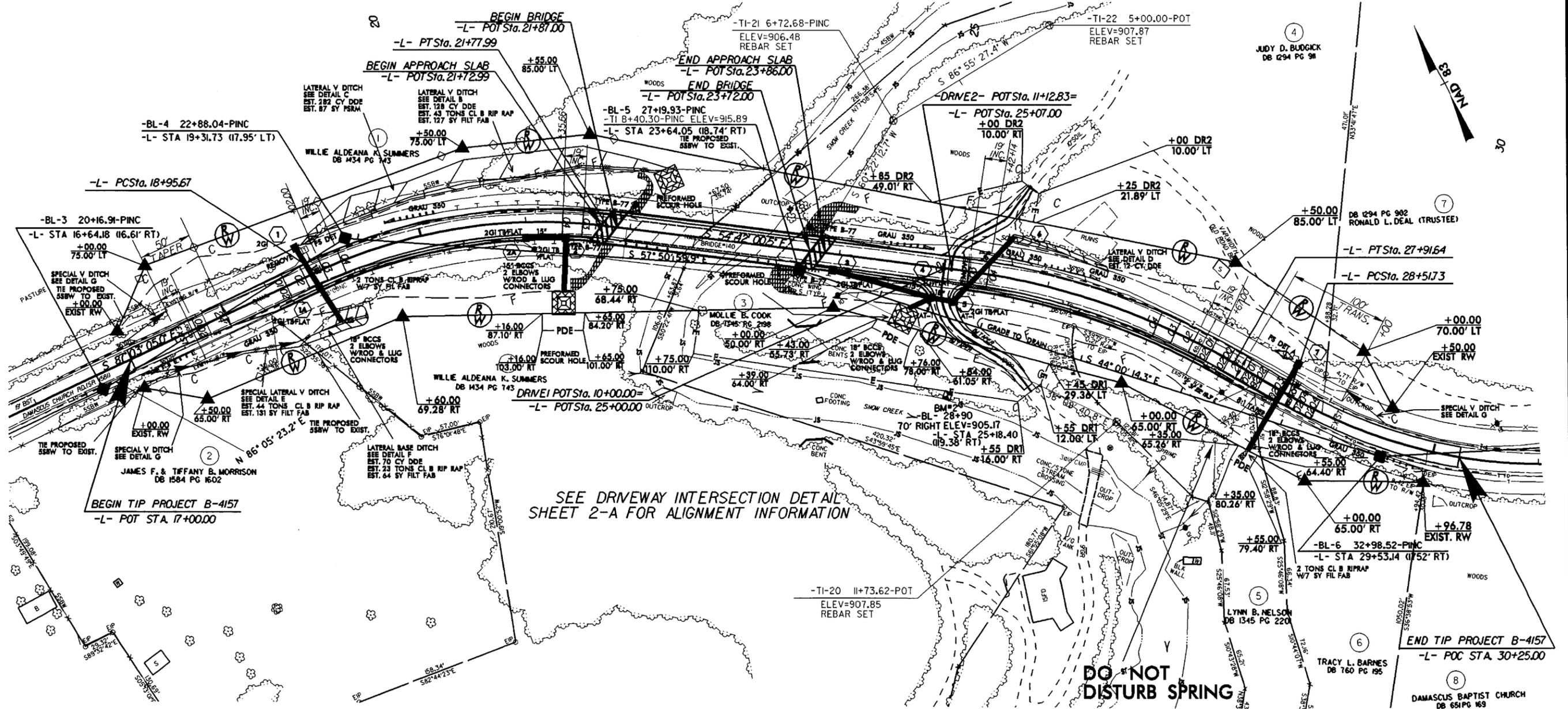
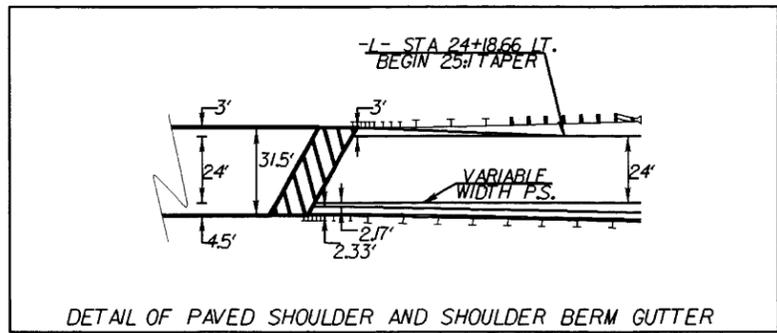
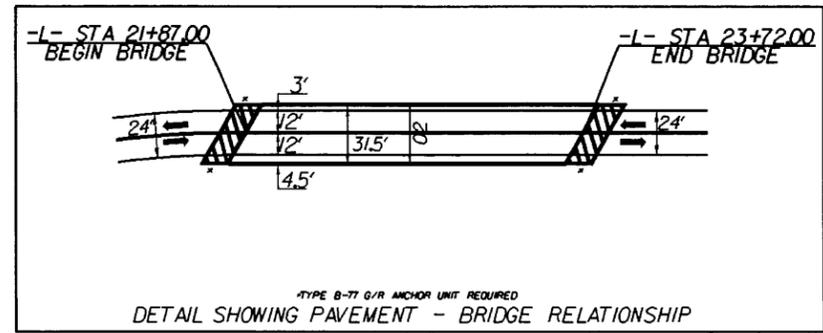
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 FOR THE FOLLOWING:

- DRIVE1- STA. 11+12.83 TO -DRIVE1- STA. 11+50
- DRIVE2- STA. 10+00.00 TO -DRIVE2- STA. 10+96.19

** DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 55 MPH TO 25 MPH

PROJECT REFERENCE NO. B-4157	SHEET NO. 4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



SEE DRIVEWAY INTERSECTION DETAIL SHEET 2-A FOR ALIGNMENT INFORMATION

DO NOT DISTURB SPRING

CURVE DATA

-L-			-DRIVE1-		-DRIVE2-	
PI Sta 20+40.70	PI Sta 26+56.15	PI Sta 29+88.63	PI Sta 10+49.14	PI Sta 11+22.50	PI Sta 10+37.22	PI Sta 10+94.20
$\Delta = 32^\circ 31' 04.5''$ (RT)	$\Delta = 23^\circ 19' 41.2''$ (RT)	$\Delta = 32^\circ 09' 22.8''$ (LT)	$\Delta = 65^\circ 21' 35.3''$ (LT)	$\Delta = 20^\circ 24' 38.0''$ (LT)	$\Delta = 24^\circ 52' 41.4''$ (RT)	$\Delta = 54^\circ 08' 55.0''$ (LT)
D = 11' 27' 33.0"	D = 8' 29' 17.7"	D = 12' 03' 44.2"	D = 114' 35' 29.6"	D = 88' 08' 50.5"	D = 190' 59' 09.4"	D = 229' 10' 59.2"
L = 282.32'	L = 274.83'	L = 266.59'	L = 57.04'	L = 23.16'	L = 13.03'	L = 23.63'
T = 145.03'	T = 139.34'	T = 136.91'	T = 32.07'	T = 11.70'	T = 6.62'	T = 12.78'
R = 500.00'	R = 675.00'	R = 475.00'	R = 50'	R = 65.00'	R = 30.00'	R = 25.00'
SE = 04	SE = 04	SE = 04				
RO = 76'	RO = 76'	RO = 76'				
V = 39 MPH	V = 40 MPH	V = 35 MPH				

FOR L, DRIVE1, & DRIVE2 PROFILES, SEE SHEET NO. 5

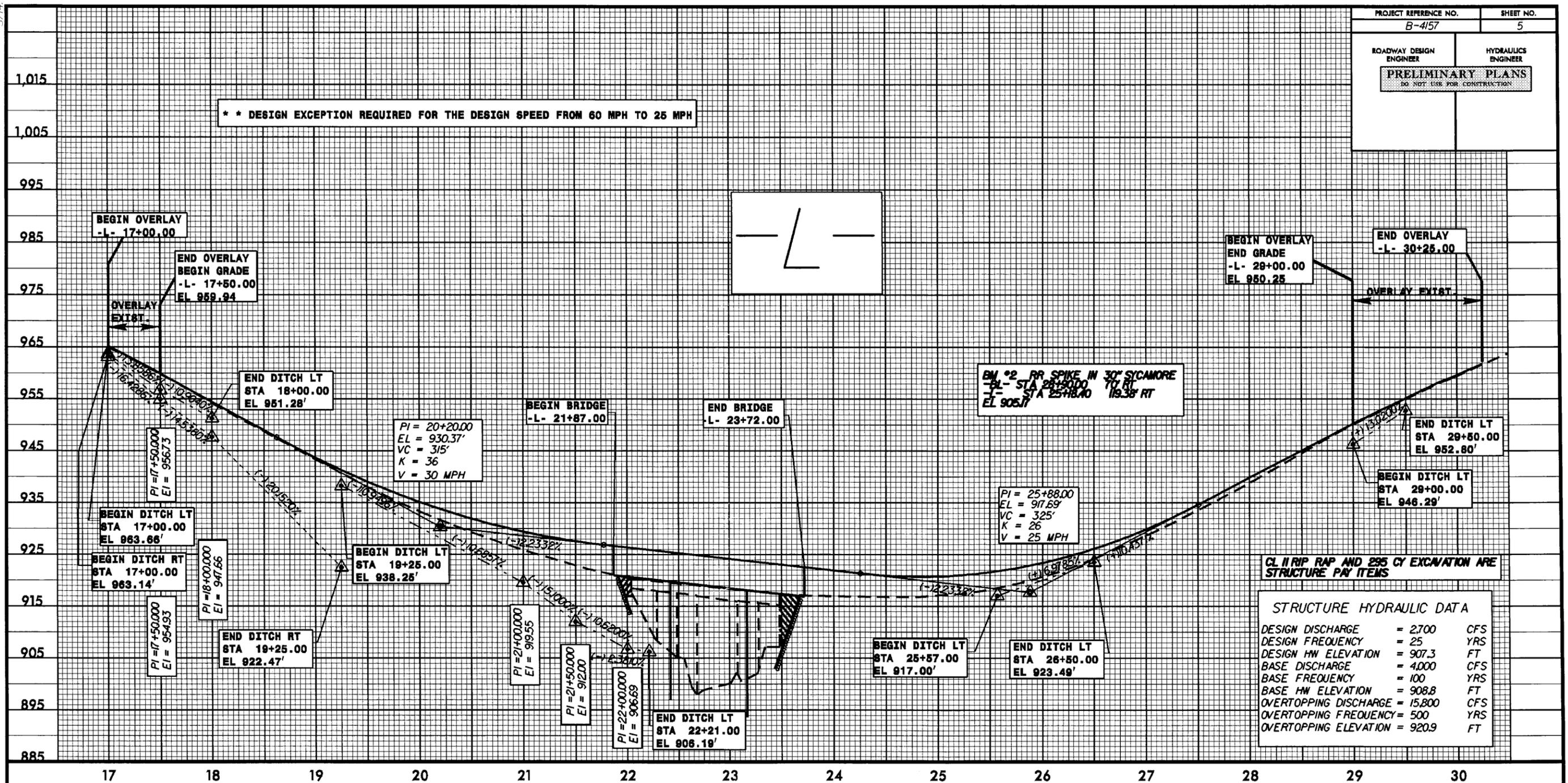
BRIDGE APPROACH SLAB

FOR STRUCTURE PLANS, SEE SHEET S-? THRU S-??

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 8.17/99
 REVISIONS

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

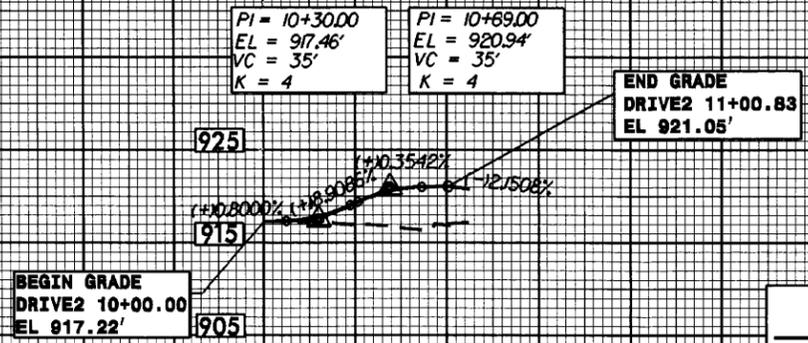
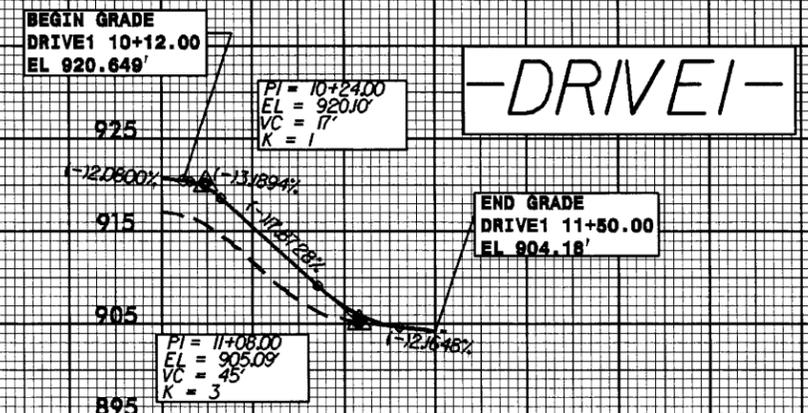
** DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 60 MPH TO 25 MPH



CL II RIP RAP AND 295 CY EXCAVATION ARE STRUCTURE PAY ITEMS

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2700	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 907.3	FT
BASE DISCHARGE	= 4000	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 908.8	FT
OVERTOPPING DISCHARGE	= 15,800	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 920.9	FT

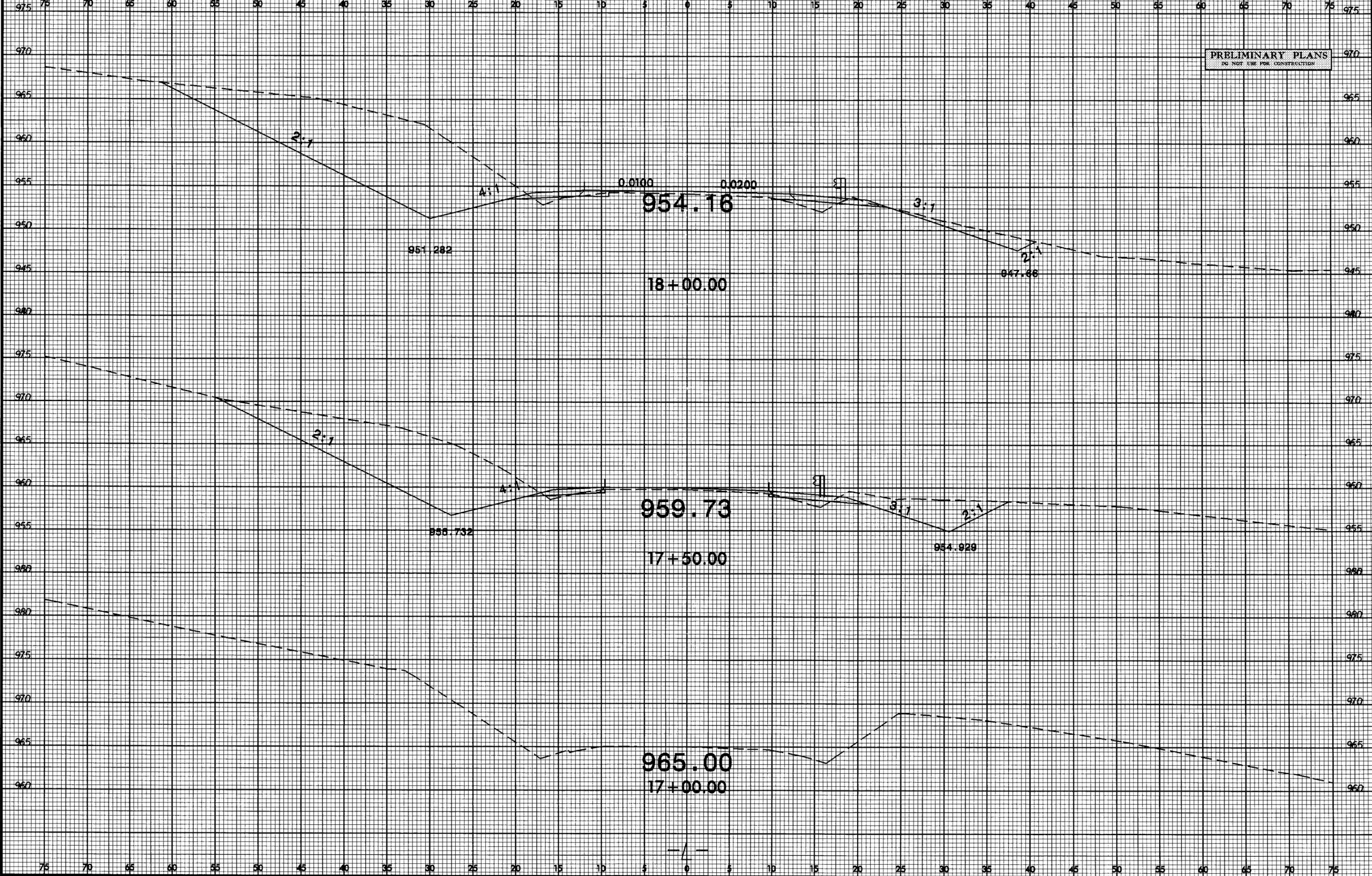


LEFT DITCH - - - - -
 RIGHT DITCH - - - - -
 SEE SHEET 4 FOR -L- ALIGNMENT
 SEE SHEET 4 FOR -DRIVE1- ALIGNMENT
 SEE SHEET 4 FOR -DRIVE2- ALIGNMENT

5/14

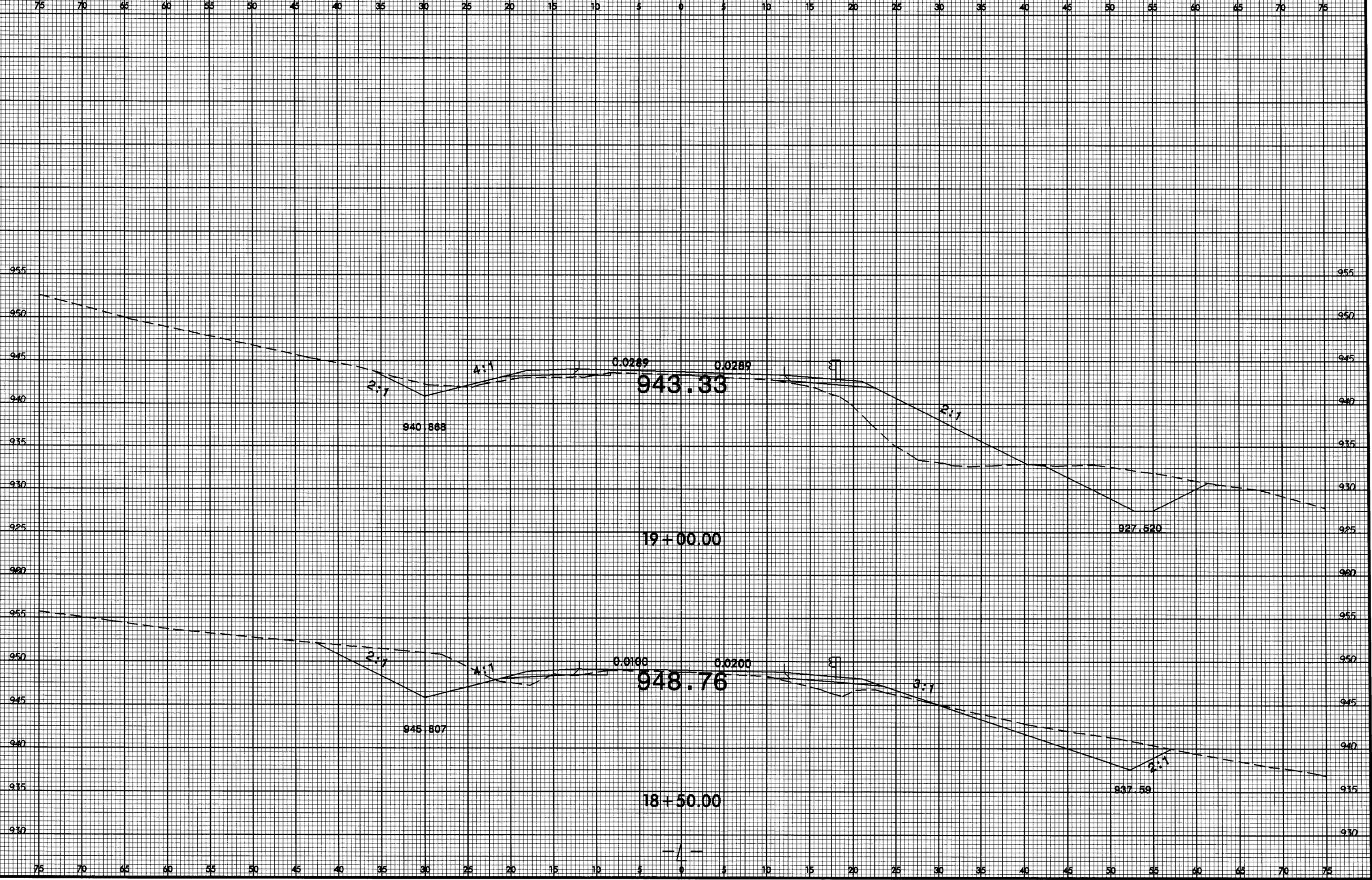
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8/23/99



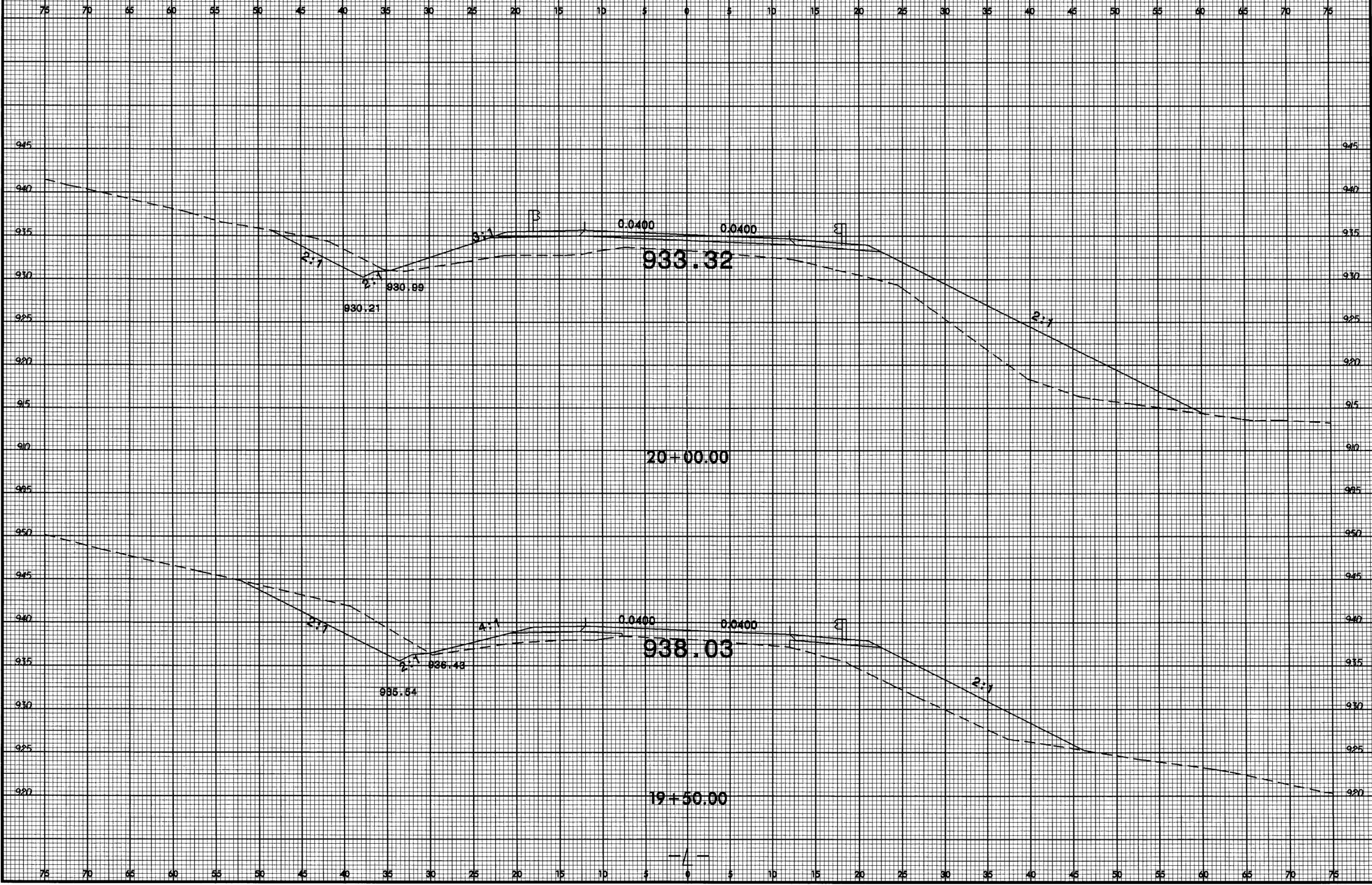
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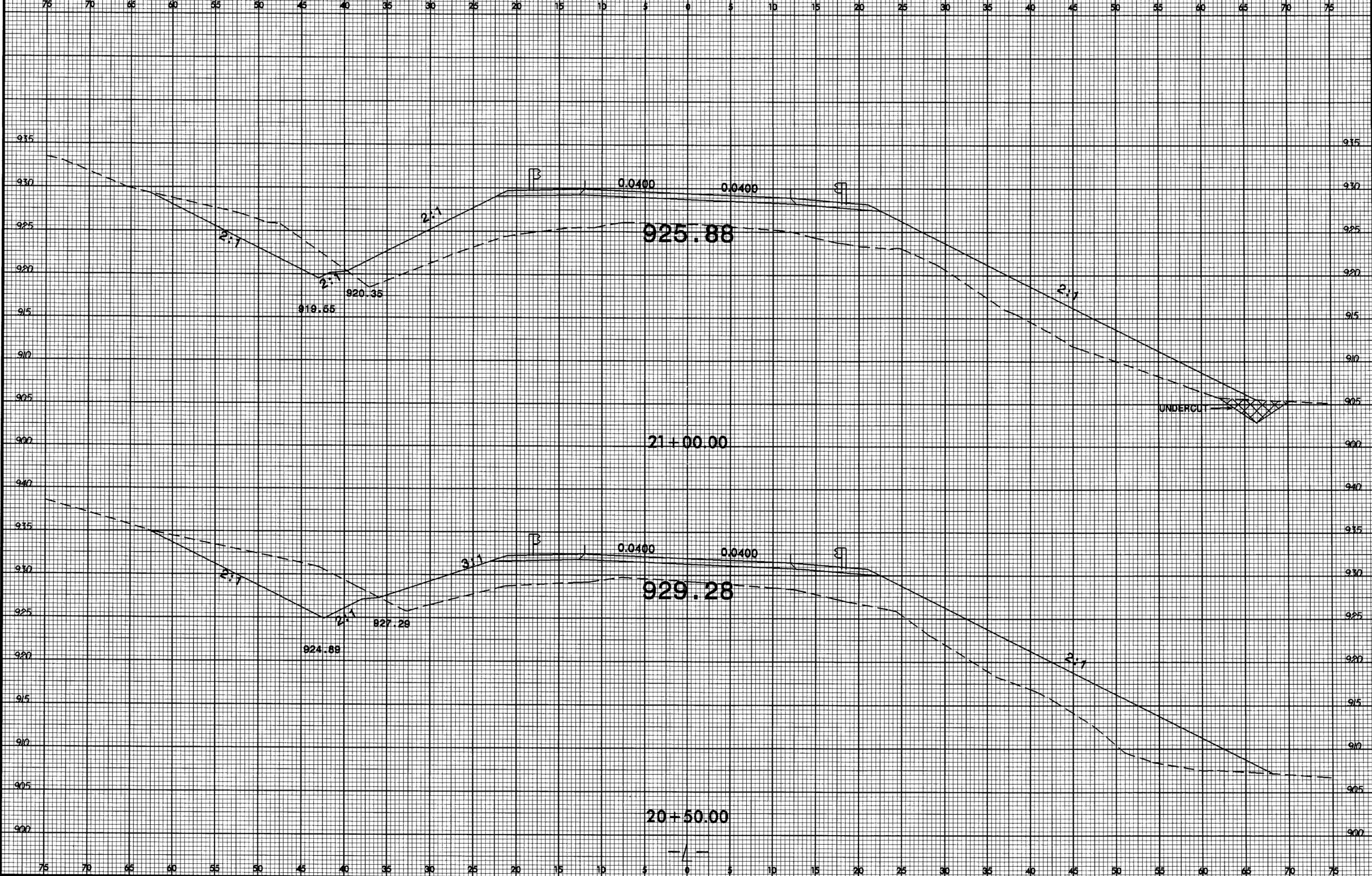
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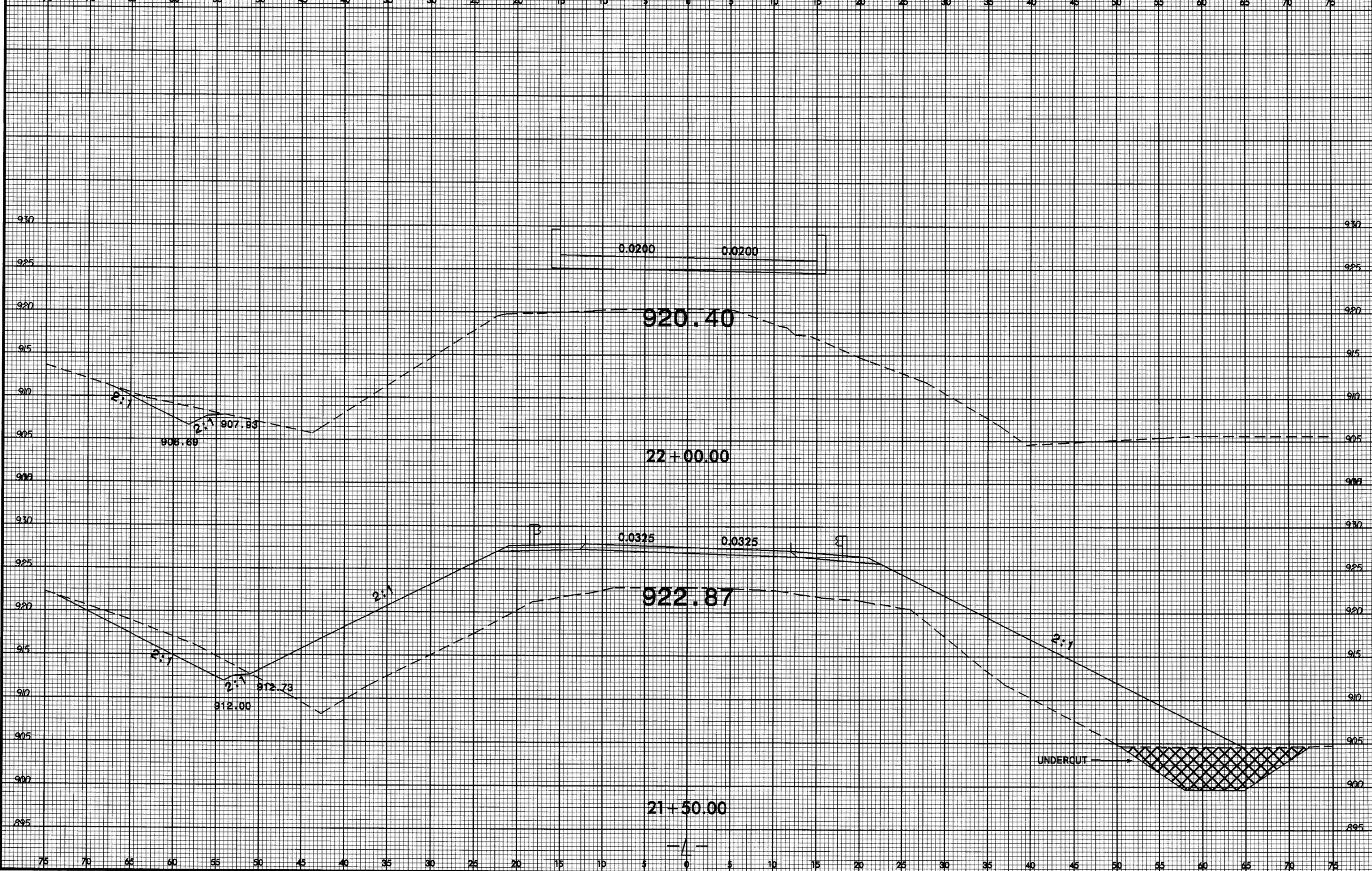
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8/23/99



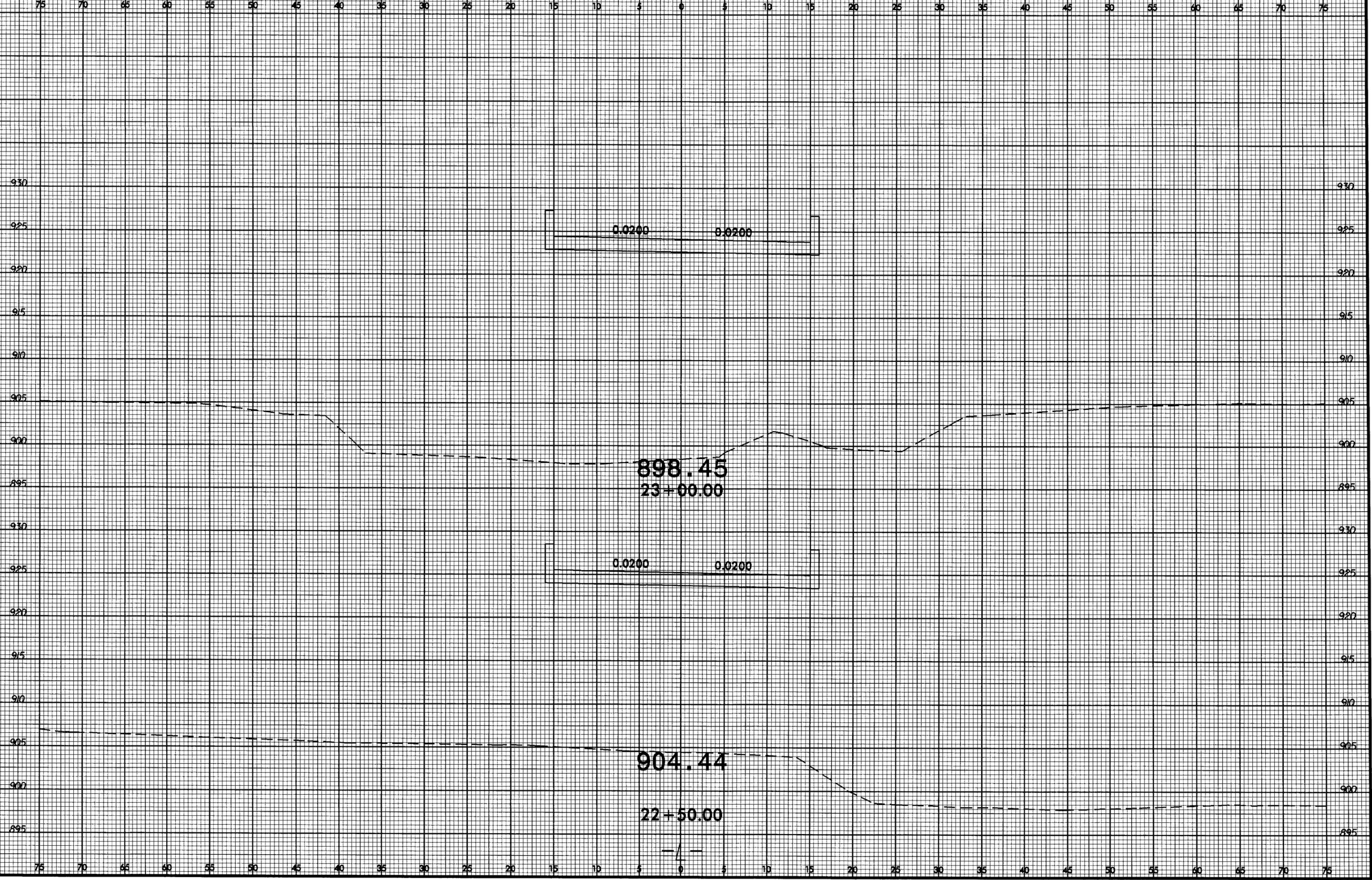
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8/23/99



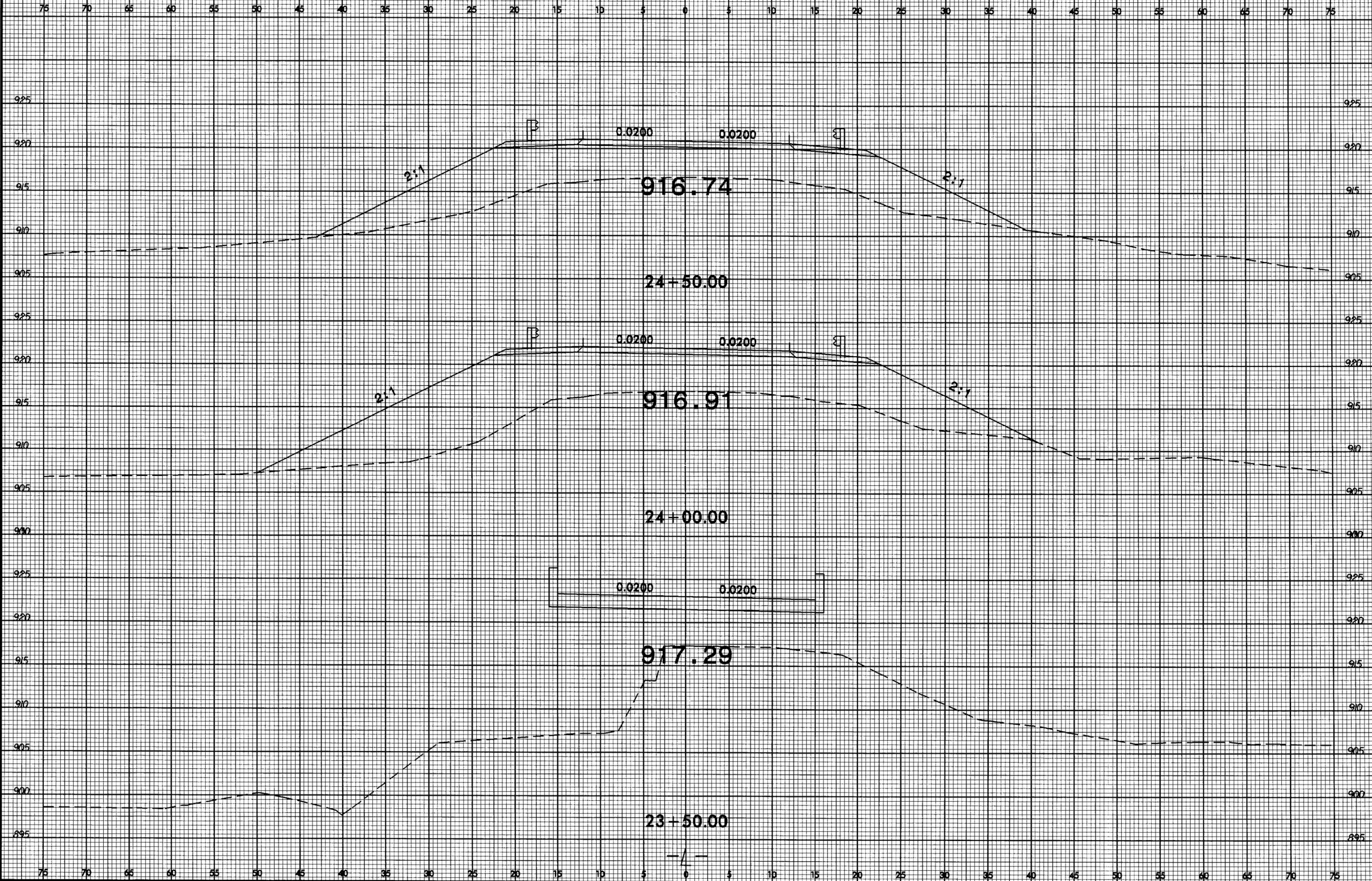
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8/23/99



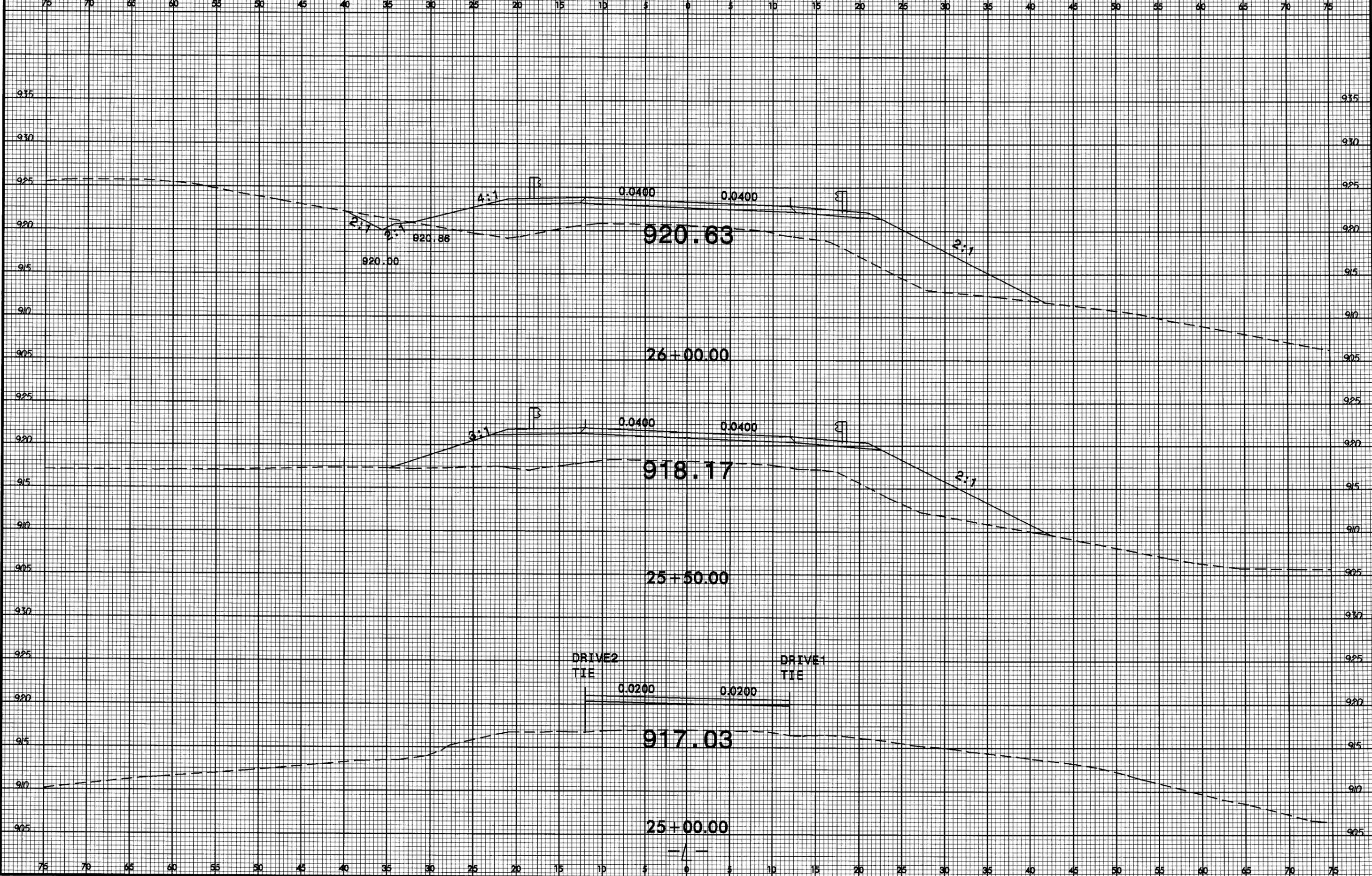
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8/23/09



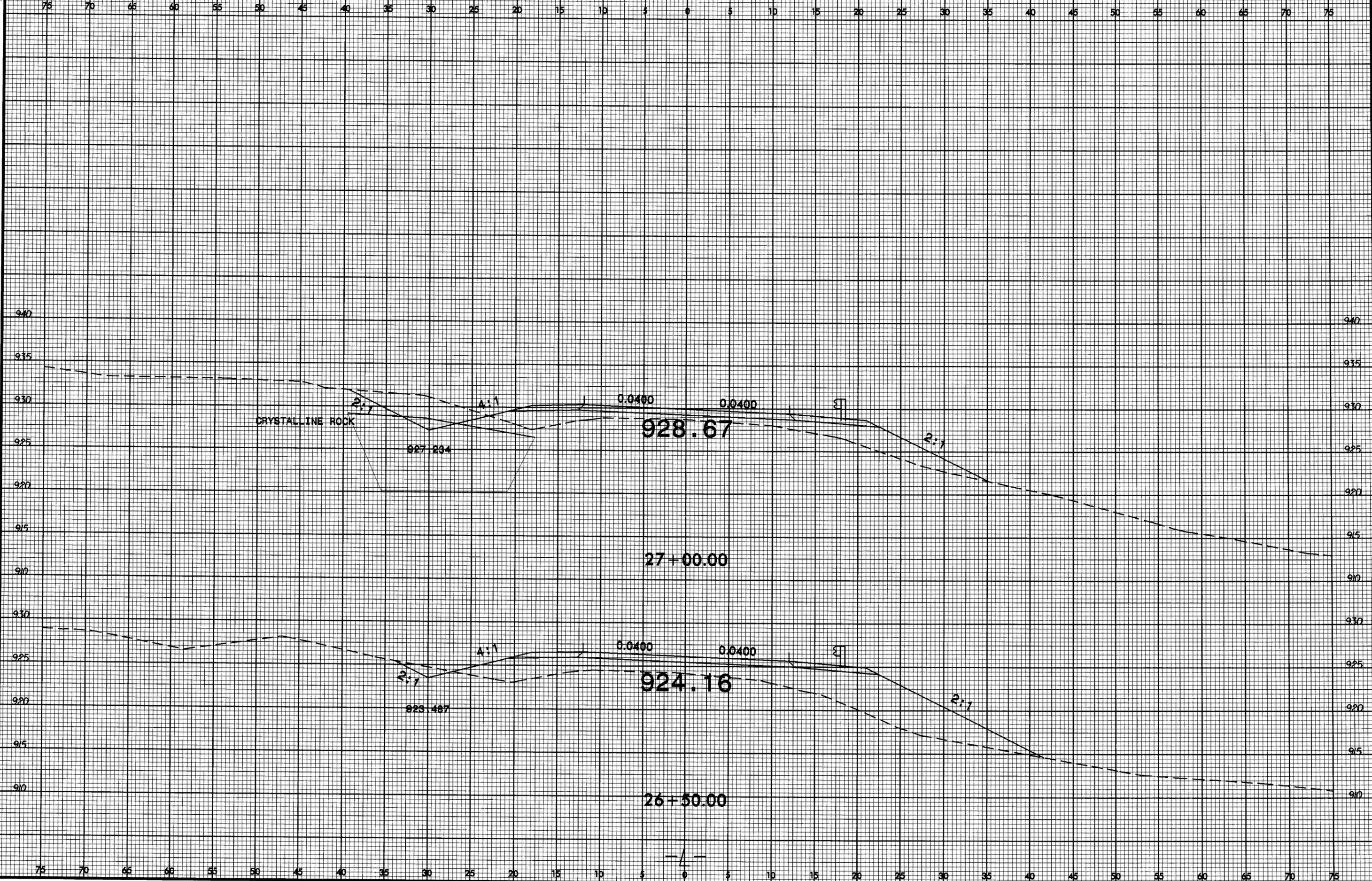
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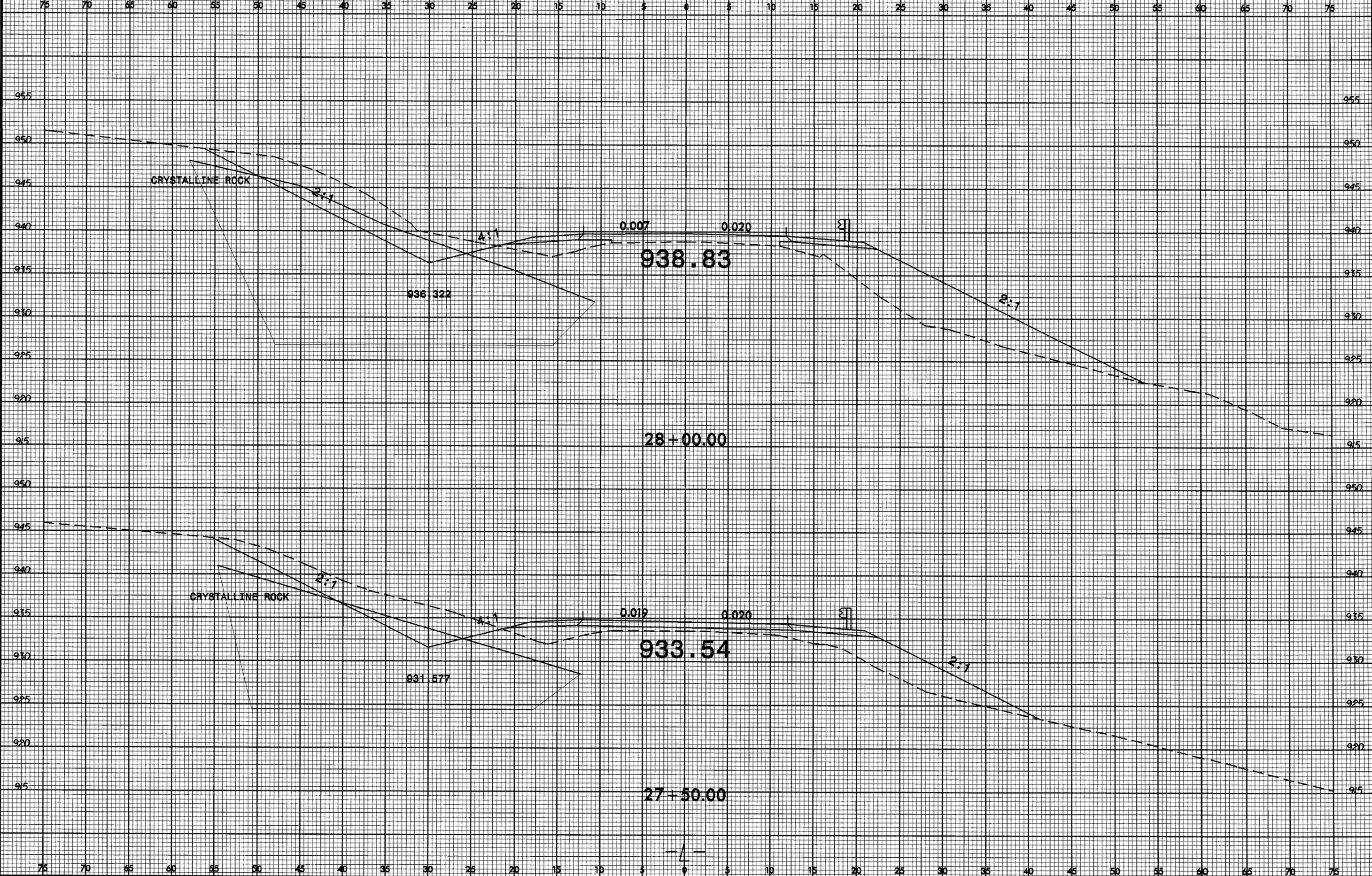


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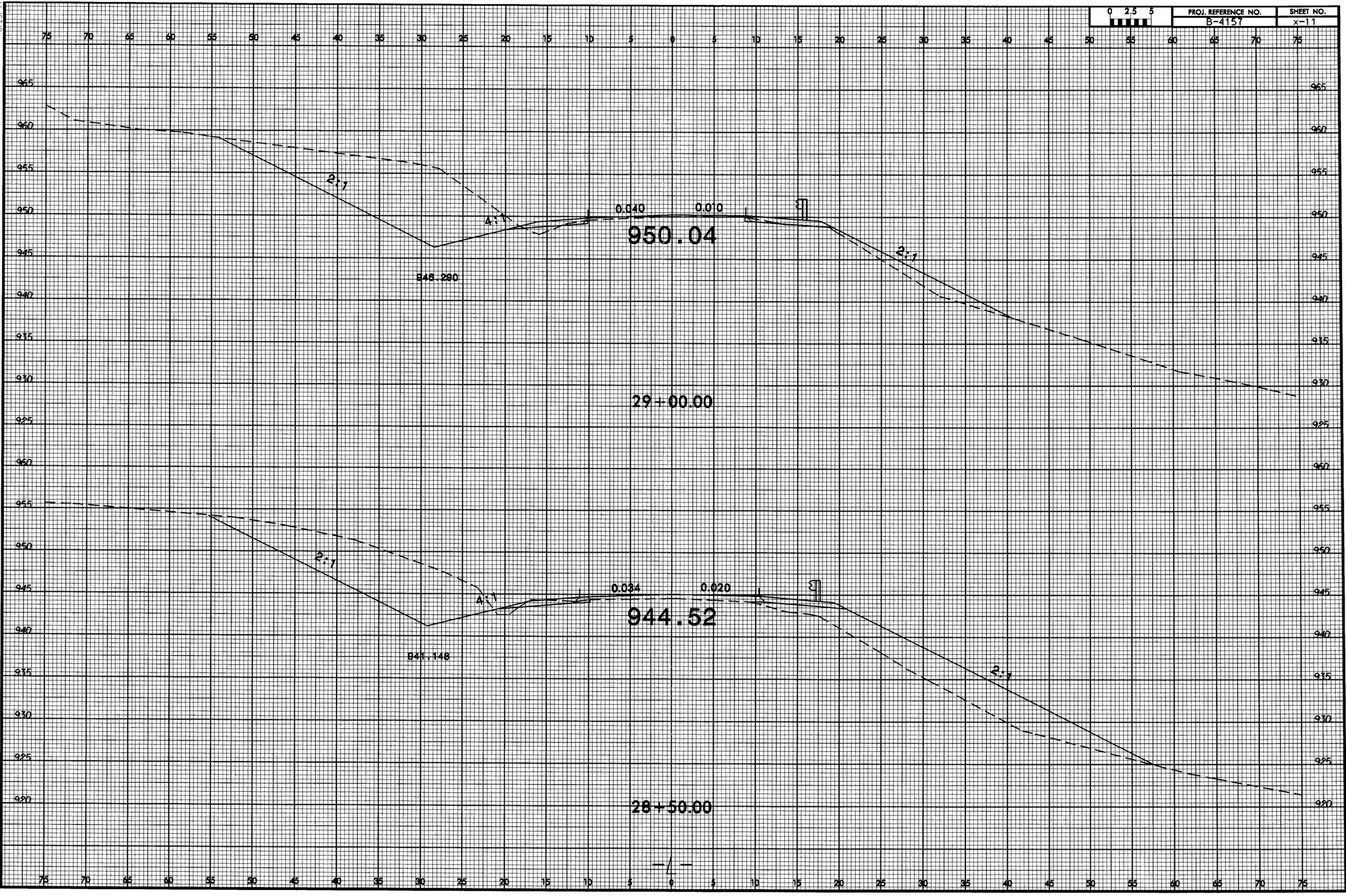
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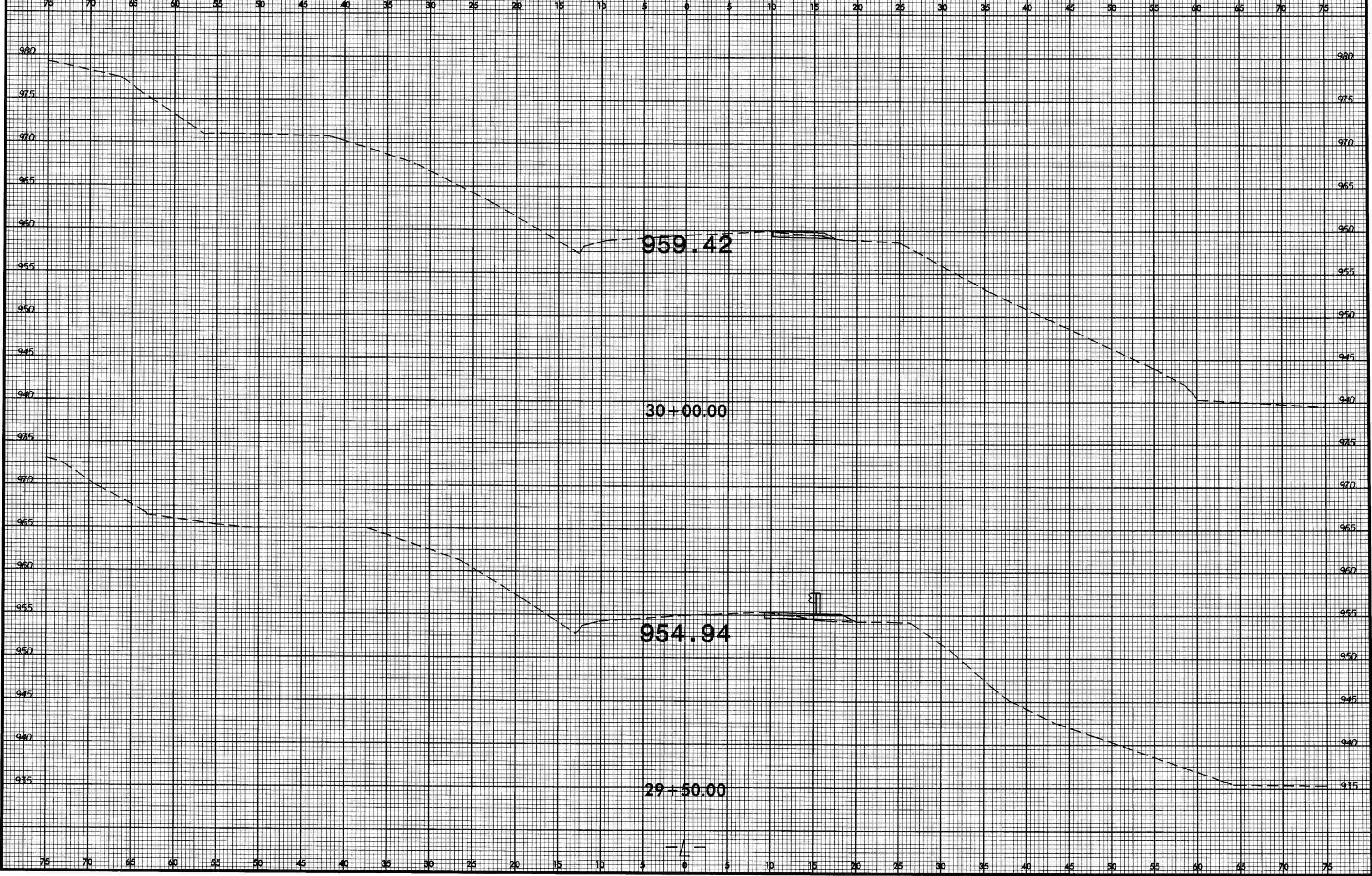


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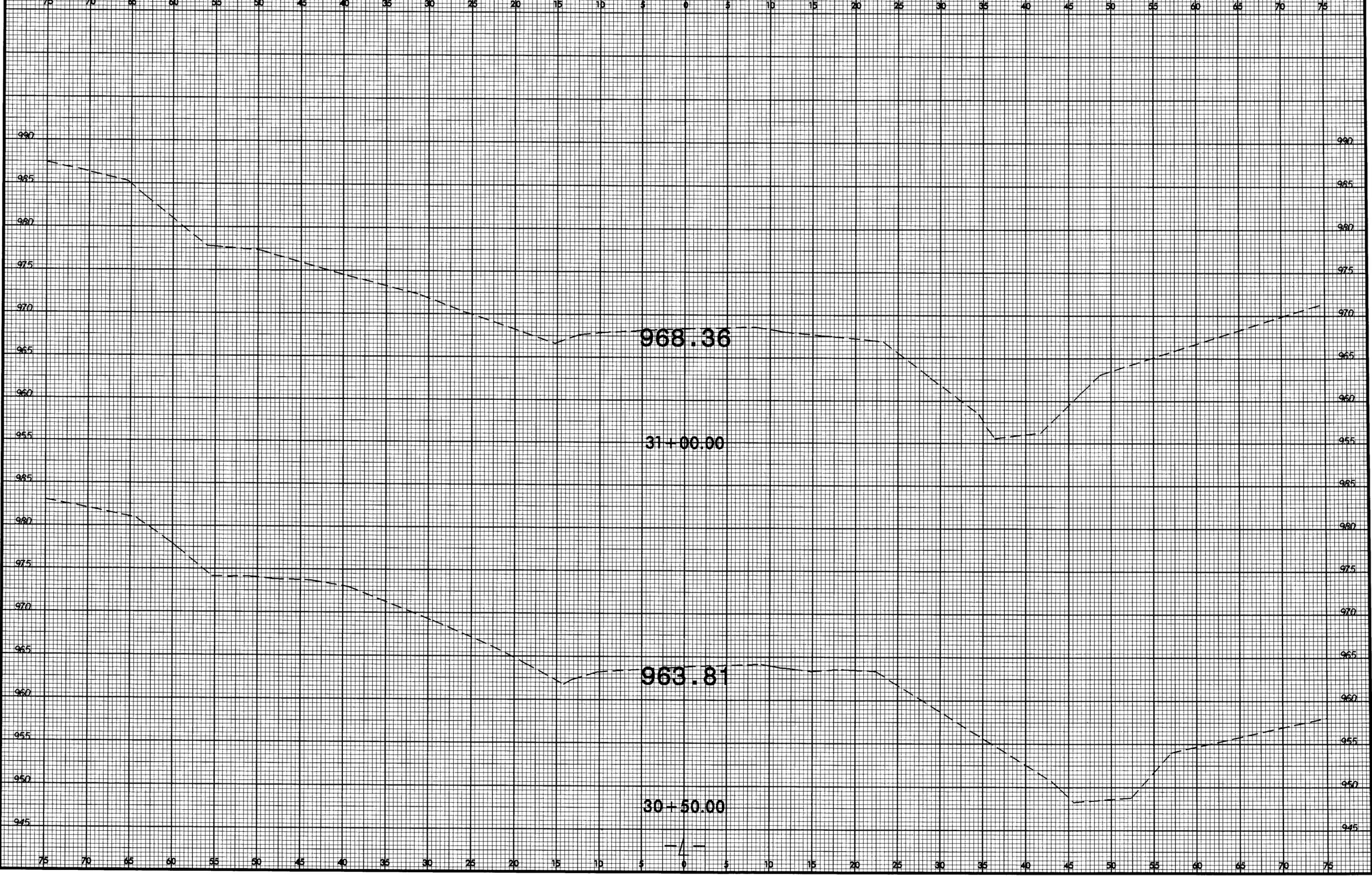
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8/23/99



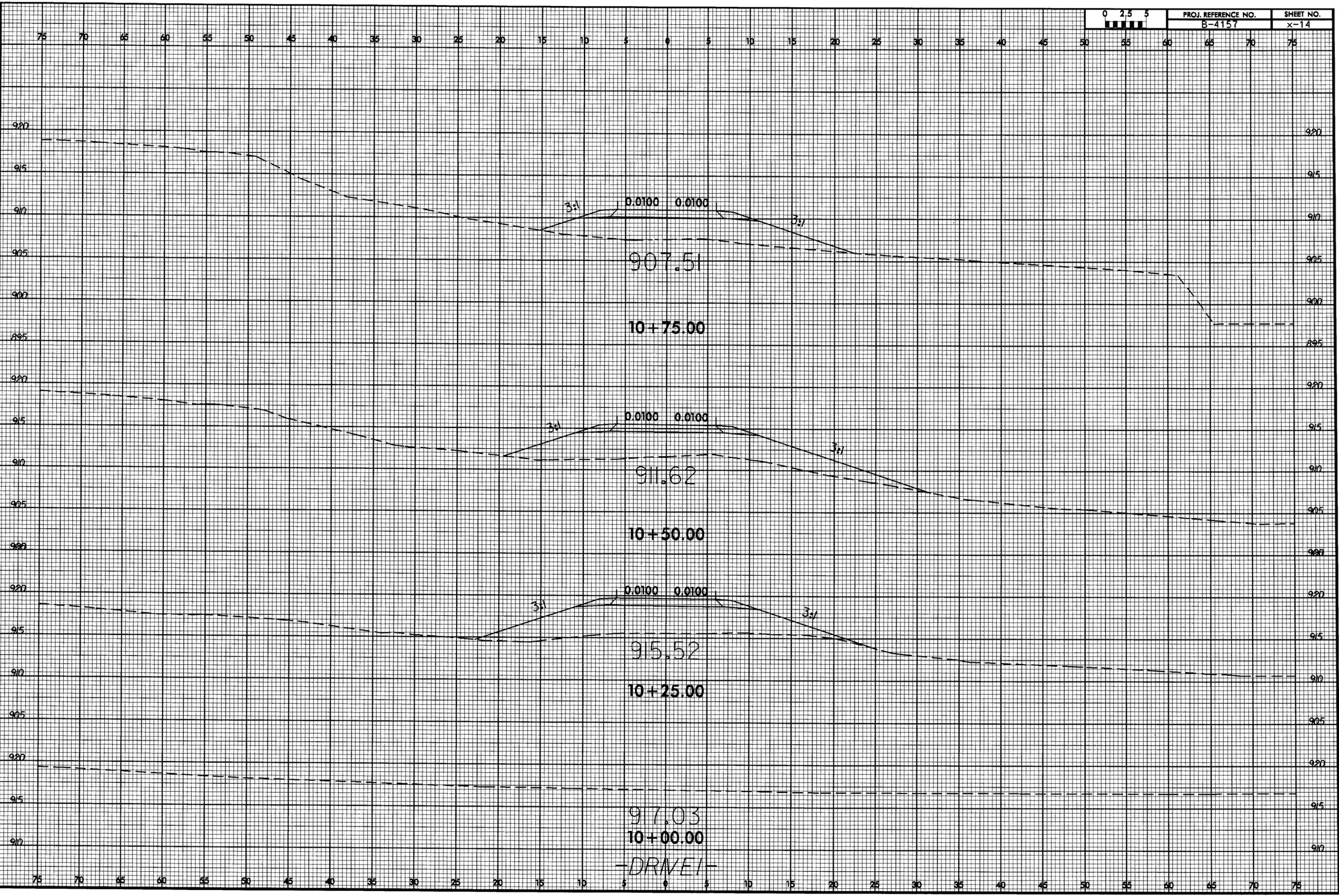
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8/23/99



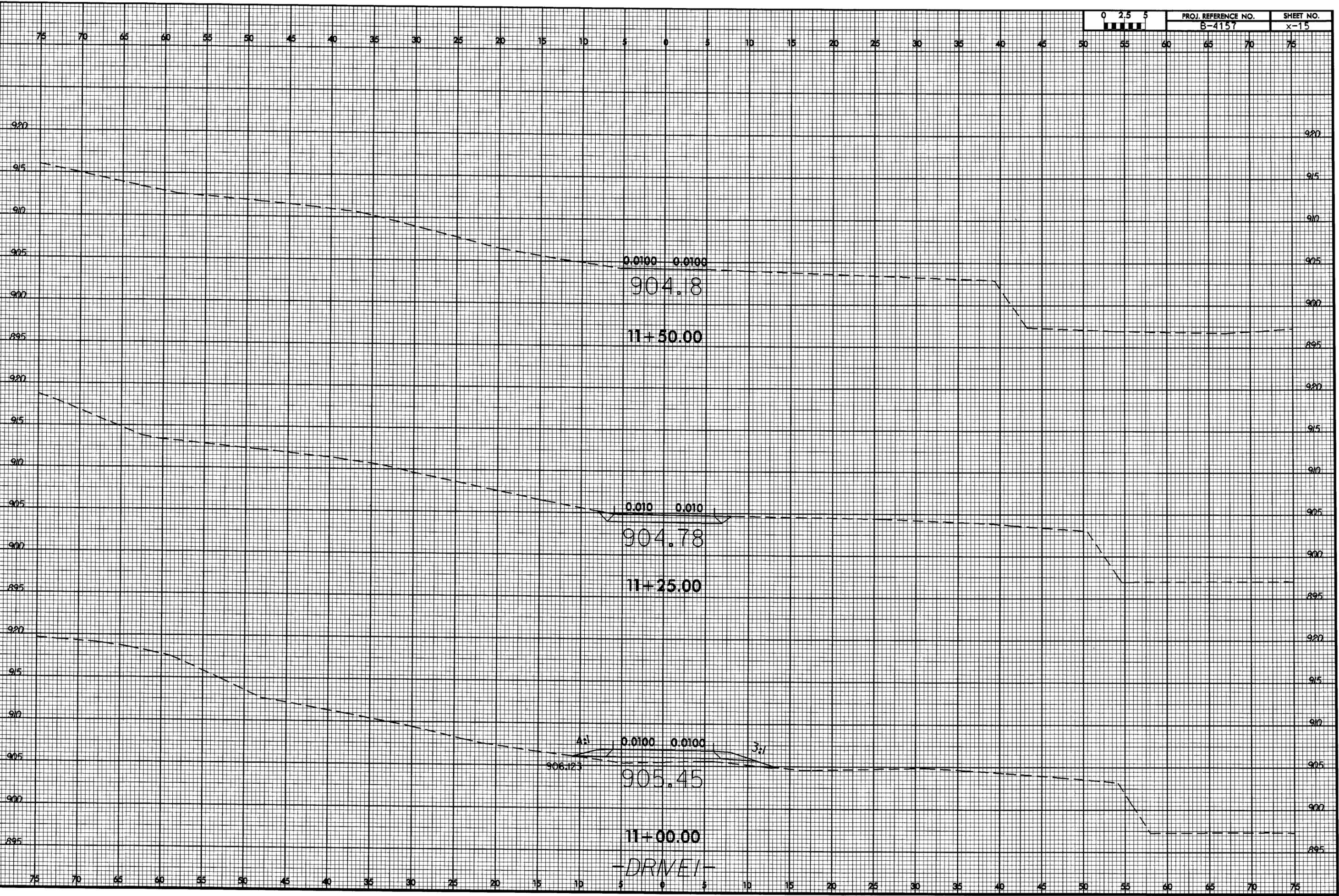
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8/23/09



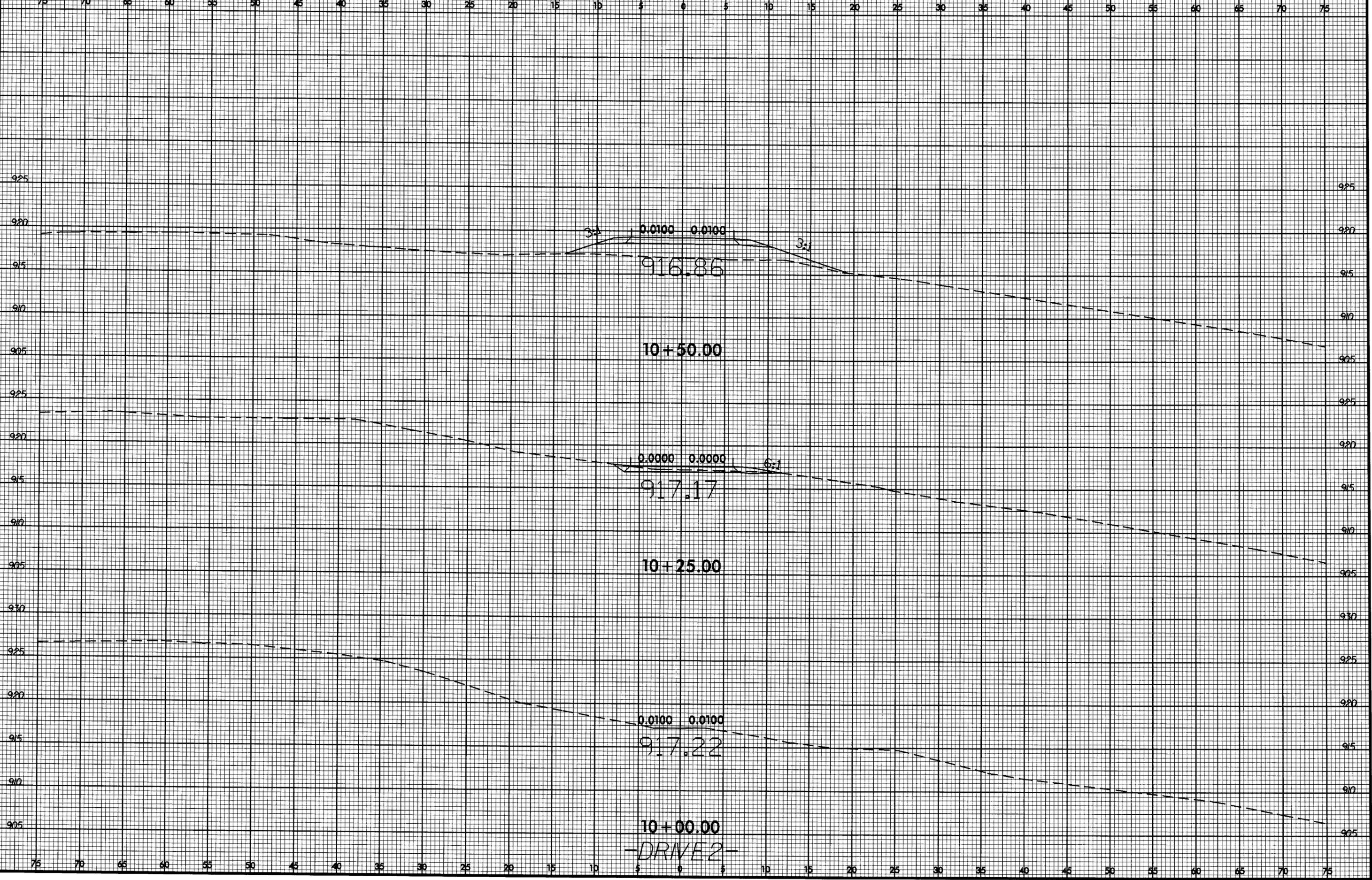
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8/23/98



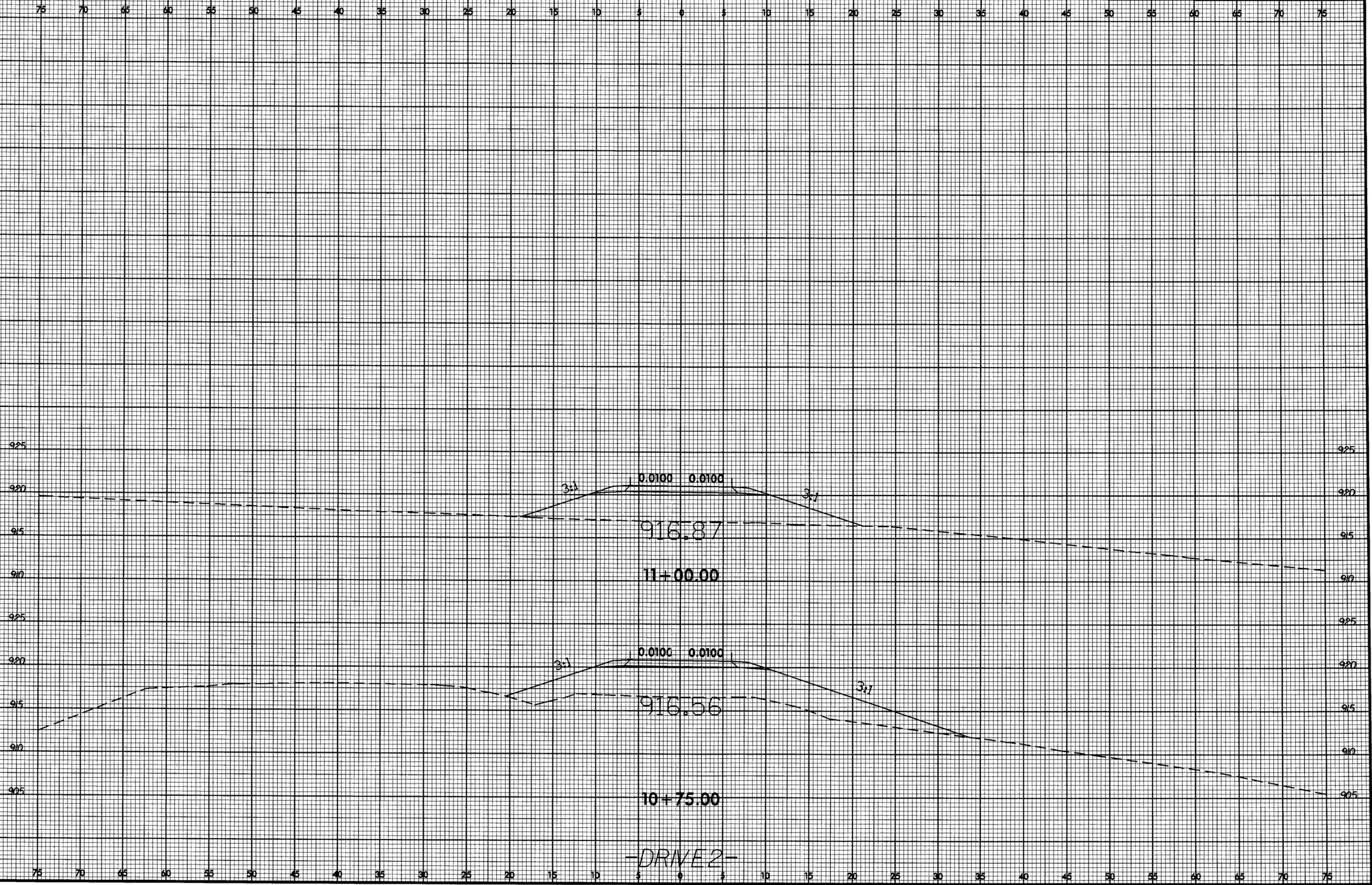
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8/23/99



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8/23/99



30-APR-2007 14:49
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