



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

MEMO TO: Roadway Design Unit
Structures Management Unit
Project Management Unit
Geotechnical Engineering Unit
Hydraulics Unit
Division Project Delivery Engineers

FROM: Brenda Moore, PE, MBA
State Roadway Design Engineer

DocuSigned by:

Brenda L. Moore

A6412923BFD0472...

Brian Hanks, PE
State Structures Engineer

DocuSigned by:

Brian Hanks

FBB293CD6E2E4E4...

DATE: March 14, 2019

SUBJECT: Cessation of Structure Recommendations

In an effort to streamline business processes, the Roadway Design and Structures Management Units have determined that the transmittal of structure recommendations will no longer be required. Instead, the roadway design information needed by Structures to develop preliminary general drawings shall be included in the 25% plan submittal. Approval of the 25% plans submittal will serve as official notification that the Roadway Design review has been completed and any comments relevant to the structure design have been addressed. This change is effective immediately on projects for which 25% plans have not been submitted.

As a part of this new process, the following changes to the 25% plan submittal will be implemented (an example is attached).

Title Sheet

- The begin and end bridge stations will be shown to the nearest foot (+/-).

Typical Sections

- A typical section shall be provided for all proposed bridges.
 - Include proposed lane widths, superelevation, minimum offset from the proposed edge of travel to interior bridge rail, and elements that contribute to load calculation (i.e. sidewalk, monolithic islands, etc).
- A typical section under the structure will be provided, where applicable.
 - Include dimensions for lane widths, cross slopes, the paved offset and/or distance to the the end bent break point (see standards 610.01 through 610.04).

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN UNIT
1582 MAIL SERVICE CENTER
RALEIGH, NC 27699-1582

Telephone: (919) 707-6200
Fax: (919) 250-4036
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

- If the roadway under the structure is median divided, then provide the median dimension, shoulder and ditch slopes, positive protection treatment with applicable standard, and the required horizontal offsets for interior bents.
- If accommodations are being made for future lanes, then dimensions for them shall be included. A typical section under the structure is not needed for stream crossings.
- A typical section of the roadway approaching beneath the structure shall not be provided.
- Traffic information for each of the intersecting roadways and minimum vertical clearance information shall not be provided. Note: This data can be found in the approved design criteria on SharePoint.
- Notes designating items to be determined by other units (bridge pier, abutment wall, and retaining wall locations, spill through slopes, etc.) shall not be included.

Plans

- The equality station for the intersecting alignments and skew angle for each bridge location over a roadway or railroad shall be shown.
- The bridge/pavement relationship sketches shall not be provided on plan sheets or as separate detail sheets during the life of the project. The information pertaining to bridge layout shall be shown on the appropriate plan sheet and bridge typical section.
- The begin and end bridge stations shall not be shown.
- The begin and end approach slab stations shall not be shown.

Profiles

- The begin and end bridge stations shall not be shown.
- The begin and end approach slab stations shall not be shown.
- Show the equality station if the bridge is over a roadway or railroad.

Approximate stations for the begin and end bridge(s) and approach slab(s) shall not be included in the 25% plans except for the title sheet. **These stations will be incorporated into the plan set once the preliminary general drawings are placed on SharePoint by Structures Management before the 65% submittal.** It will be the responsibility of the roadway design engineer of record to retrieve this information for incorporation into the final right of way plans. The roadway design reviewer will verify the plans have been updated per the data on SharePoint.

We are hopeful these changes will minimize plan redundancy and streamline processes. If there are any questions or concerns, please contact Tatia L. White, PE, PLS, Roadway Design Plan Review and Design Support Group Leader at (919) 707-6342 or Kevin Fischer, PE, Assistant State Structures Engineer at (919) 707-6514.

BLM/BH/tw

Attachment

EXAMPLE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

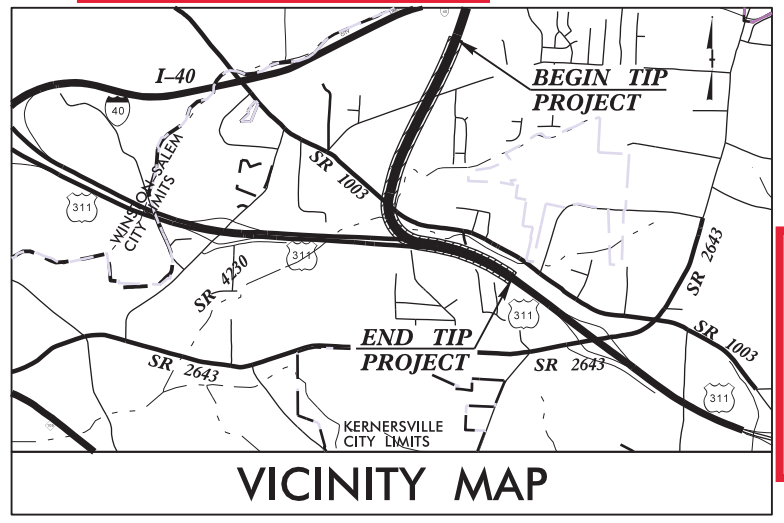
FORSYTH COUNTY

LOCATION: WINSTON-SALEM NORTHERN BELTWAY EASTERN SECTION
(FUTURE I-74) FROM US 311 TO I-40
TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.		1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

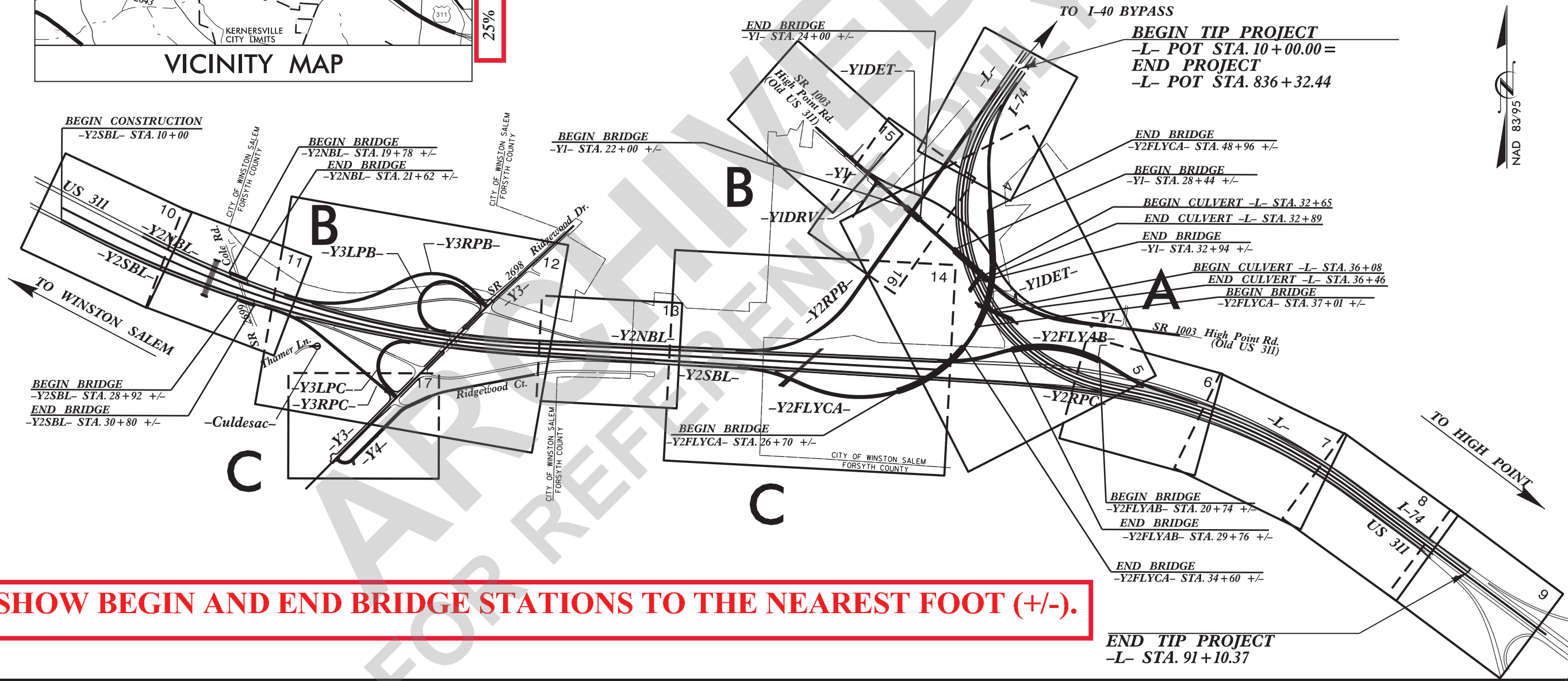
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



VICINITY MAP

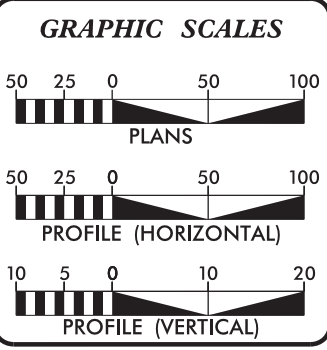
25% PLANS



SHOW BEGIN AND END BRIDGE STATIONS TO THE NEAREST FOOT (+/-).

TIP PROJECT:

CONTRACT:



DESIGN DATA

ADT 2020 =	10,733
ADT 2040 =	16,400
K =	9 %
D =	60 %
T =	7 % *
V =	70 MPH
* (TTST = 4% & DUAL = 3%)	
FUNC CLASS = INTERSTATE STATEWIDE TIER	

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT	=	1.524 MILES
LENGTH OF STRUCTURES TIP PROJECT	=	0.012 MILES
TOTAL LENGTH TIP PROJECT	=	1.536 MILES

Prepared in the Office of:

2018 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	PROJECT ENGINEER
AUGUST 31, 2018	
LETTING DATE:	PROJECT DESIGN ENGINEER
SEPTEMBER 15, 2020	
NCDOT CONTACT:	

HYDRAULICS ENGINEER

SIGNATURE: _____

ROADWAY DESIGN ENGINEER

SIGNATURE: _____



25-FEB-2019 14:24 U:\Roadway Design\New folder\structure recs\2579aa.rdy_tsh.dgn \$\$\$USERNAME\$\$\$

EXAMPLE

**BRIDGE AT -Y2FLYCA- STATION 39 + 65.10
OVER -L- STATION 35 + 17.72**

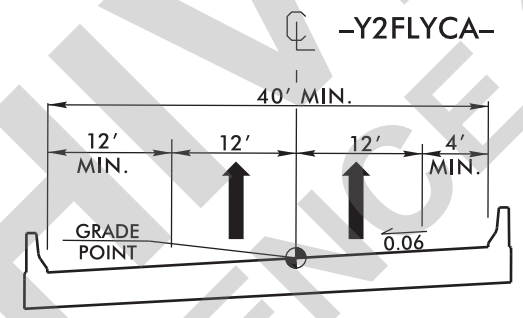
NOTES

GENERAL:
DO NOT PROVIDE A ROADWAY TYPICAL SECTION APPROACHING STRUCTURE.
DO NOT PROVIDE NOTES FOR ITEMS "TO BE DETERMINED BY OTHER UNITS."
TRAFFIC DATA AND VERTICAL CLEARANCE INFORMATION SHALL BE FOUND IN DESIGN CRITERIA.
TYPICALS PERTAINING TO STRUCTURES SHALL BE PLACED BEHIND THE ROADWAY TYPICALS IN THE 2A SERIES SHEETS.

BASED ON PROJECT SPECIFIC NEEDS:

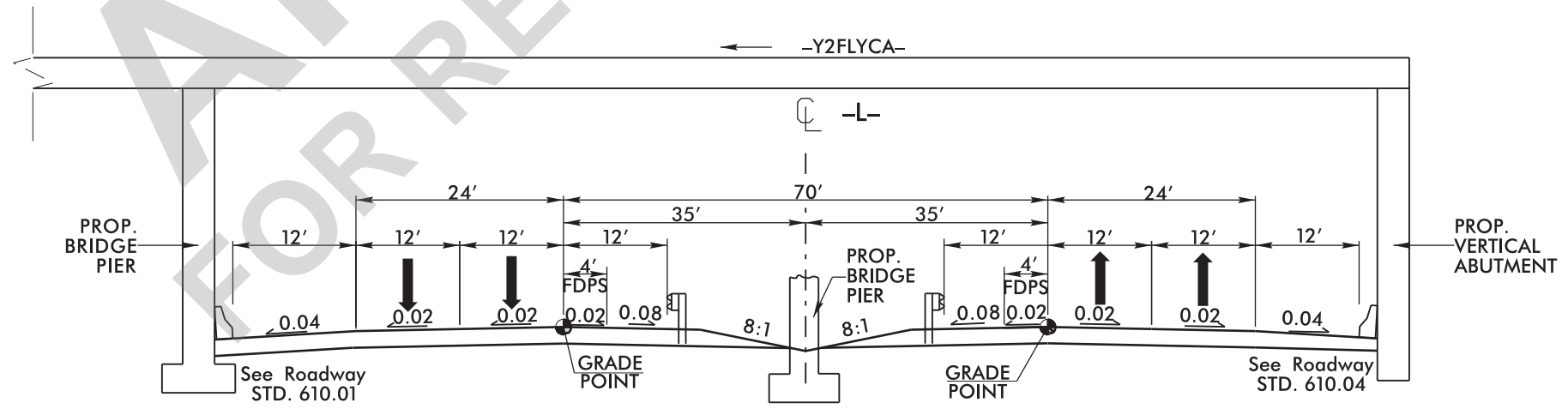
1. SHOW LANE WIDTHS (INCLUDING FUTURE LANES), CROSS SLOPE, MONOLITHIC ISLANDS, SIDEWALKS, ETC. ON THE STRUCTURE.
2. SHOW ONLY THE MINIMUM DISTANCE FROM THE EOT TO THE BRIDGE RAIL.
3. SHOW LANE WIDTHS (INCLUDING FUTURE LANES), SUPERELEVATION, AND SHOULDER SLOPES UNDER THE STRUCTURE.
4. SHOW ONLY THE PAVED OFFSET AND/OR DISTANCE FROM THE EOT TO THE BREAKPOINT (SEE STANDARDS 610.01 THROUGH 610.04), AND THE APPROPRIATE STANDARD NUMBER.
5. IF THE ROADWAY UNDER THE STRUCTURE IS MEDIAN DIVIDED, SHOW THE MEDIAN WIDTH, SHOULDER WIDTH AND SLOPE, DITCH SLOPES, POSITIVE PROTECTION TREATMENT WITH APPLICABLE STANDARD, AND REQUIRED HORIZONTAL OFFSET FOR INTERIOR BENTS.

1, 2



STRUCTURE TYPICAL SECTION

3, 4, 5



TYPICAL SECTION UNDER STRUCTURE

EXAMPLE

**BRIDGE AT -Y2FLYCA- STATION 30+02.29 OVER -Y2SBL- STATION 98+82.37
AND AT -Y2FLYCA- STATION 32+66.17 OVER -Y2FLYAB- STATION 35+93.09**

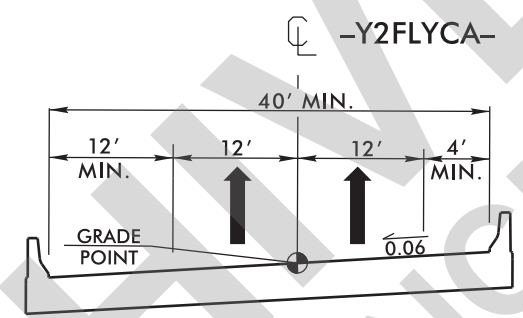
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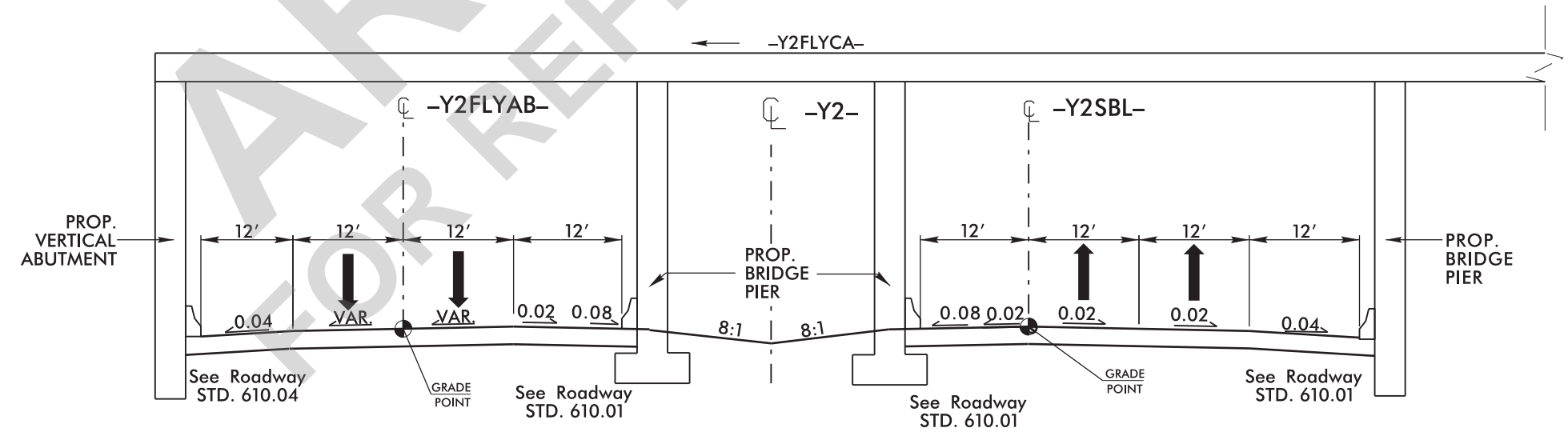
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1, 2



STRUCTURE TYPICAL SECTION

3, 4, 5



TYPICAL SECTION UNDER STRUCTURE

EXAMPLE

**BRIDGE AT -Y1- STATION 22 + 84.09
OVER -Y2RPB- STATION 25 + 32.95**

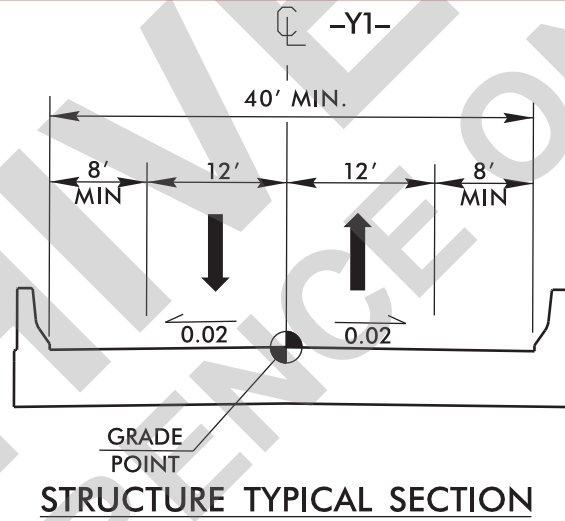
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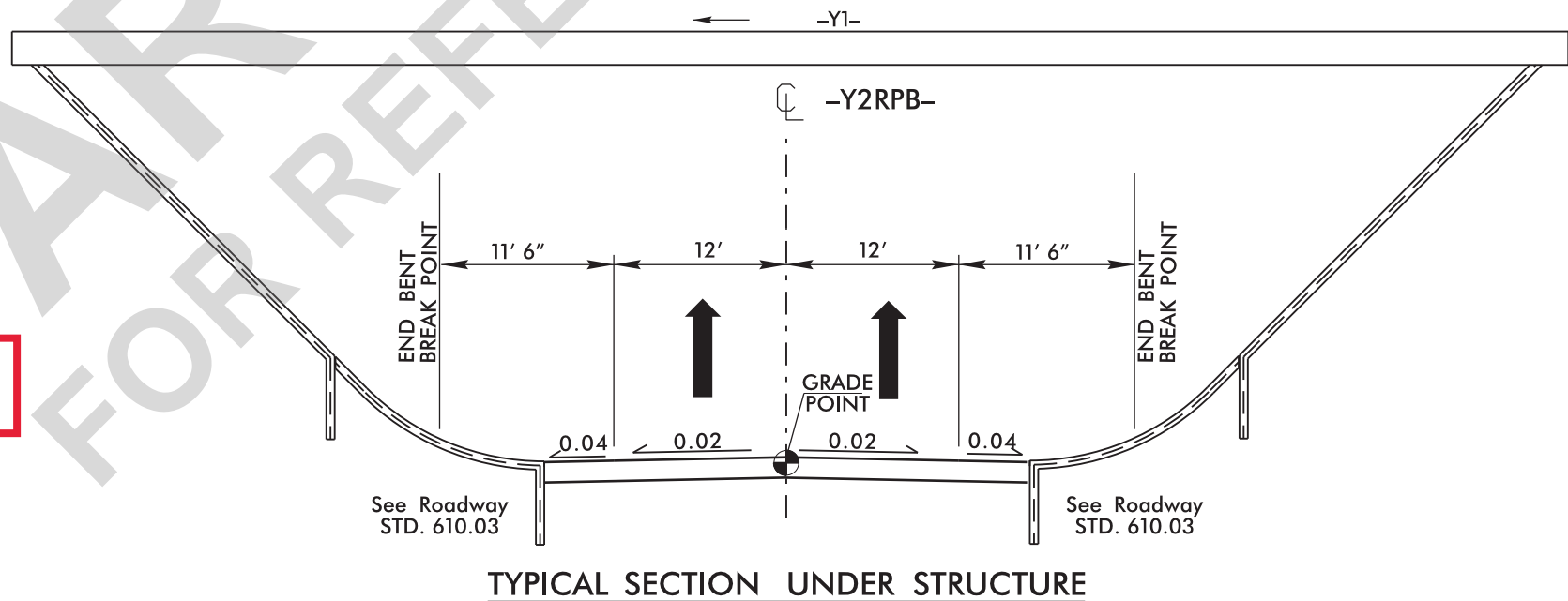
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1, 2



3, 4



EXAMPLE

**BRIDGE AT -Y1- STATION 30+69.44
OVER -L- STATION 31+06.88**

NOTES

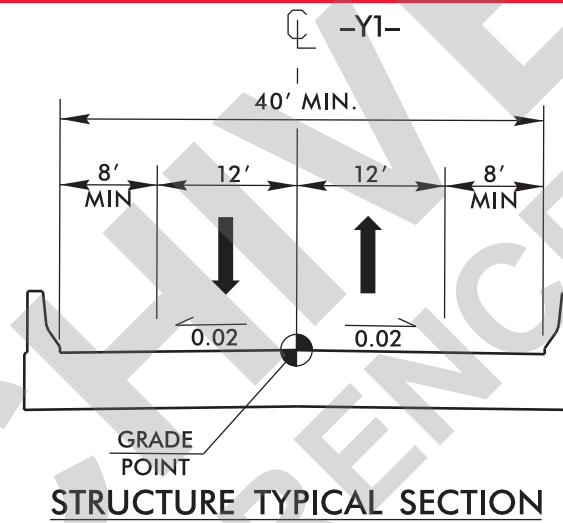
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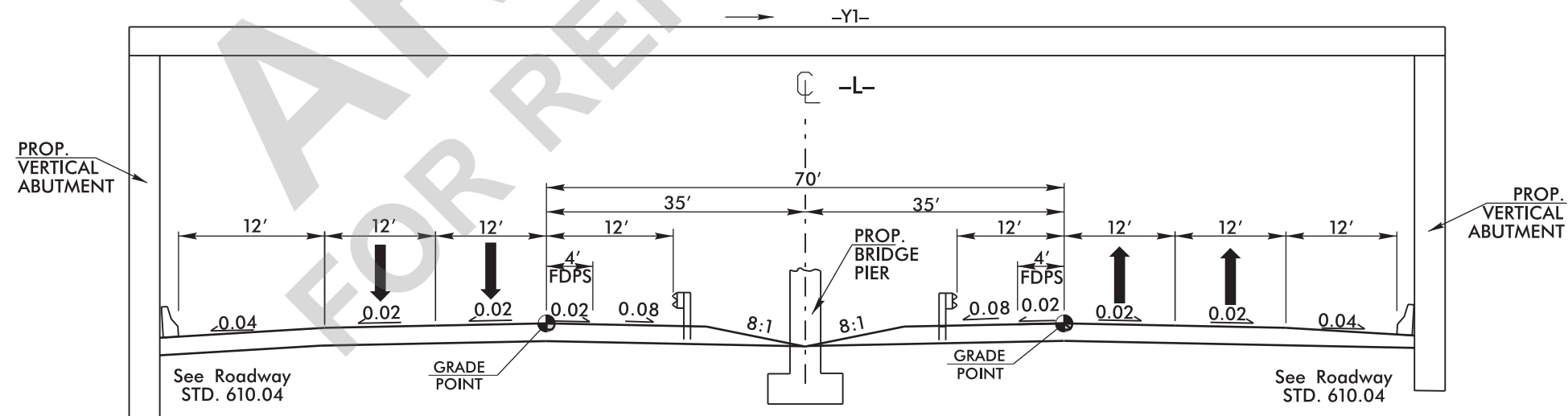
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1, 2



3, 4, 5



TYPICAL SECTION UNDER STRUCTURE

EXAMPLE

DUAL BRIDGES AT -Y2- STATION 21+74.32 OVER -Y5- STATION 6+50.36

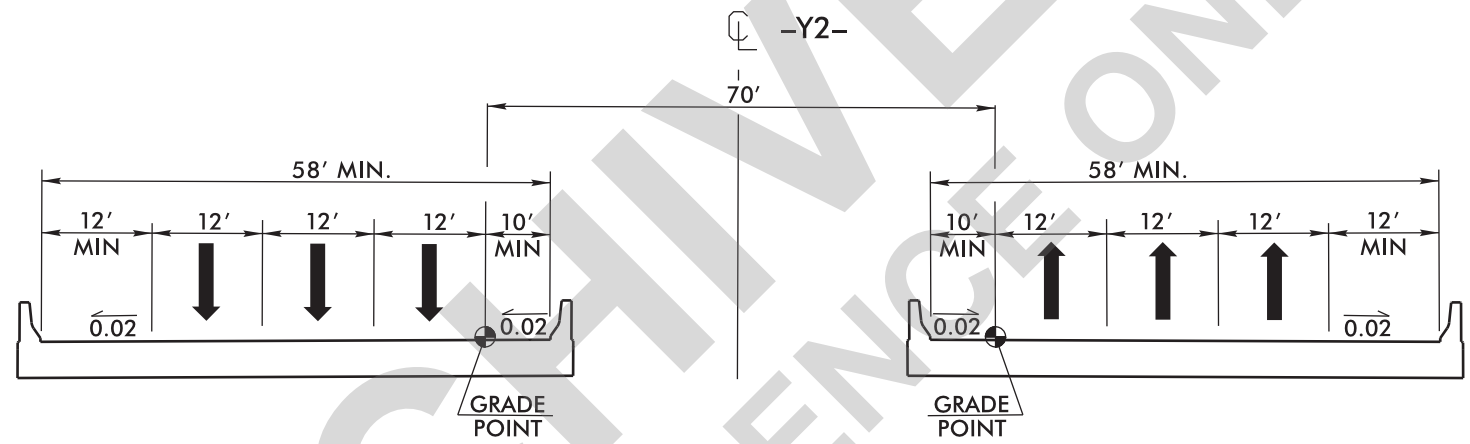
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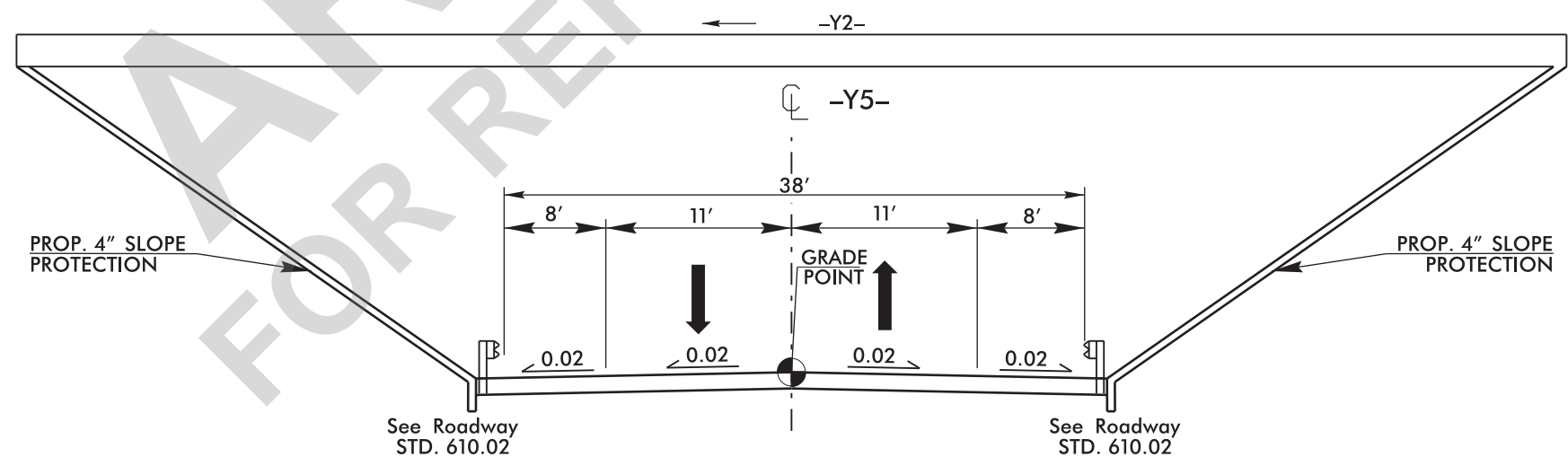
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1, 2



STRUCTURE TYPICAL SECTION

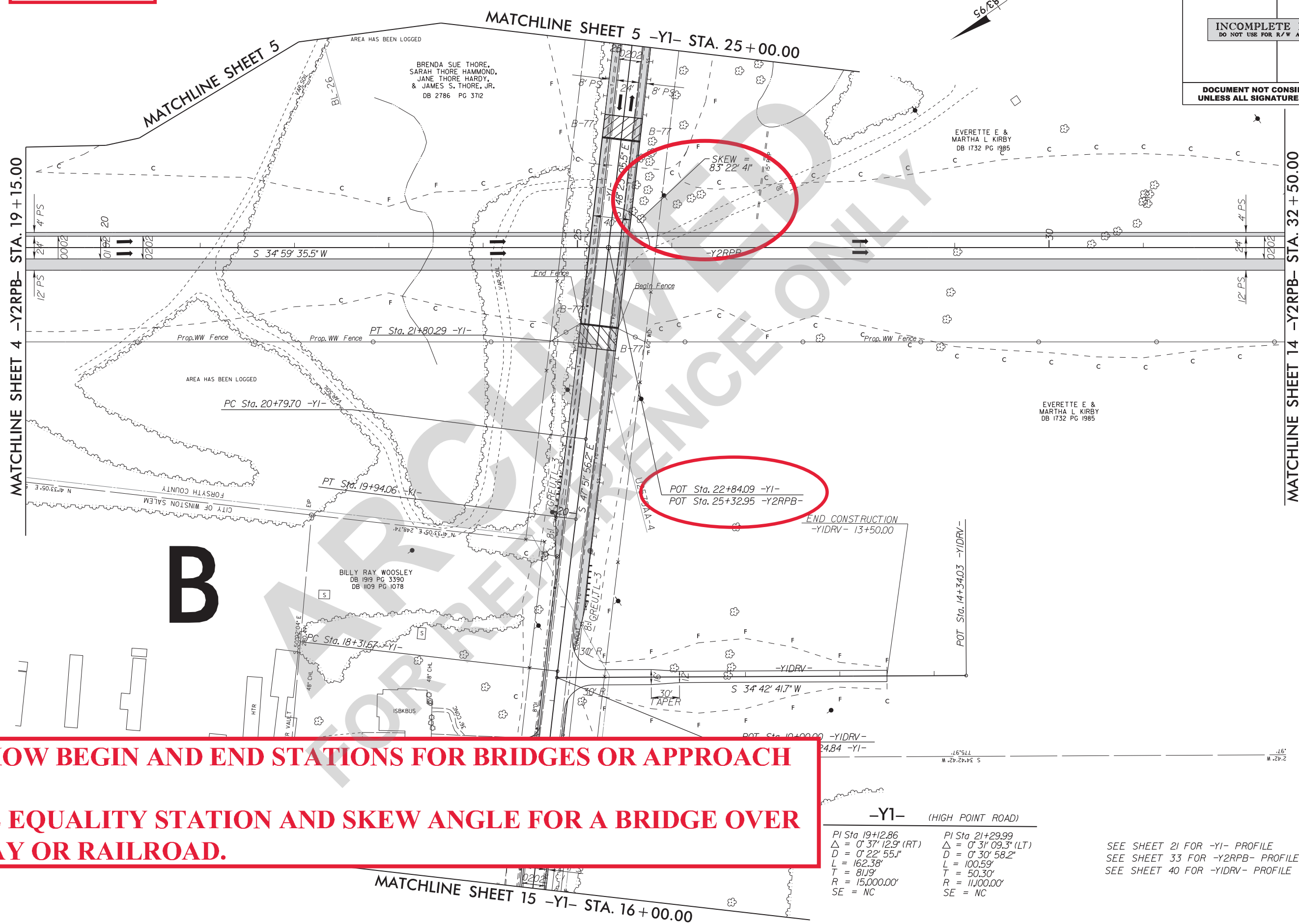
3, 4



TYPICAL SECTION UNDER STRUCTURE

EXAMPLE

PROJECT REFERENCE NO.	SHEET NO.
	16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



**DO NOT SHOW BEGIN AND END STATIONS FOR BRIDGES OR APPROACH SLABS.
SHOW THE EQUALITY STATION AND SKEW ANGLE FOR A BRIDGE OVER A ROADWAY OR RAILROAD.**

-Y1- (HIGH POINT ROAD)	
PI Sta 19+12.86	PI Sta 21+29.99
$\Delta = 0^\circ 37' 12.9''$ (RT)	$\Delta = 0^\circ 31' 09.3''$ (LT)
$D = 0^\circ 22' 55.1''$	$D = 0^\circ 30' 58.2''$
$L = 162.38'$	$L = 100.59'$
$T = 81.19'$	$T = 50.30'$
$R = 15,000.00'$	$R = 11,100.00'$
SE = NC	SE = NC

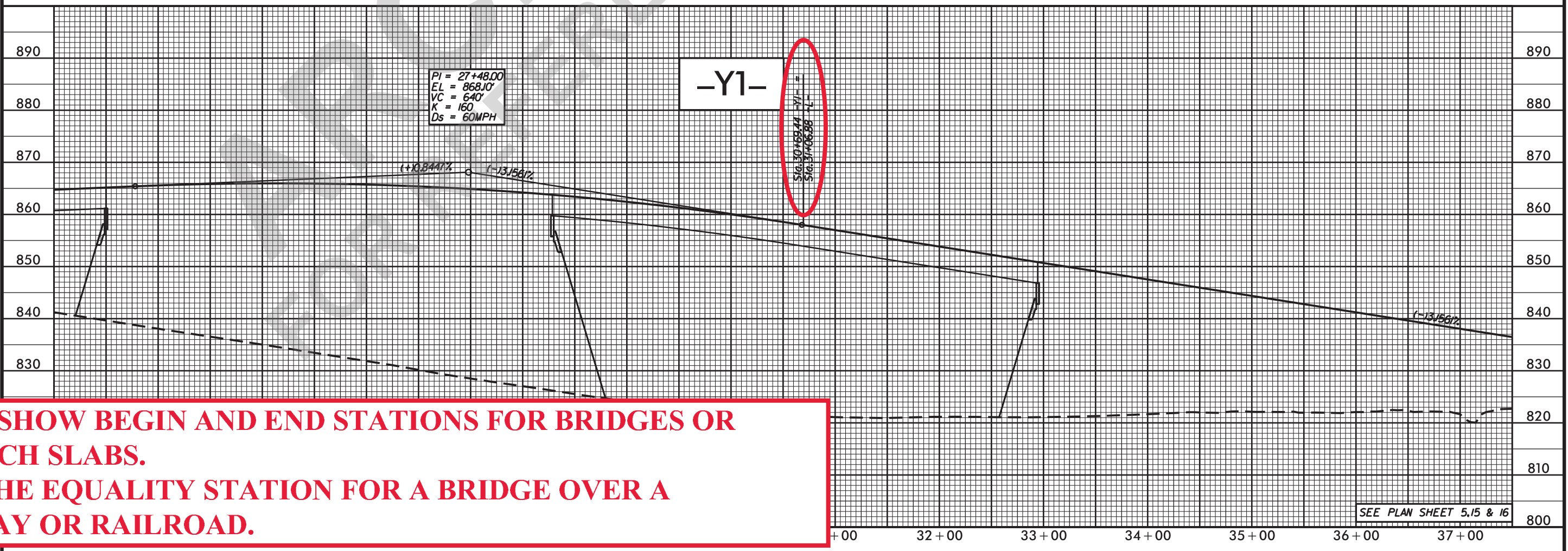
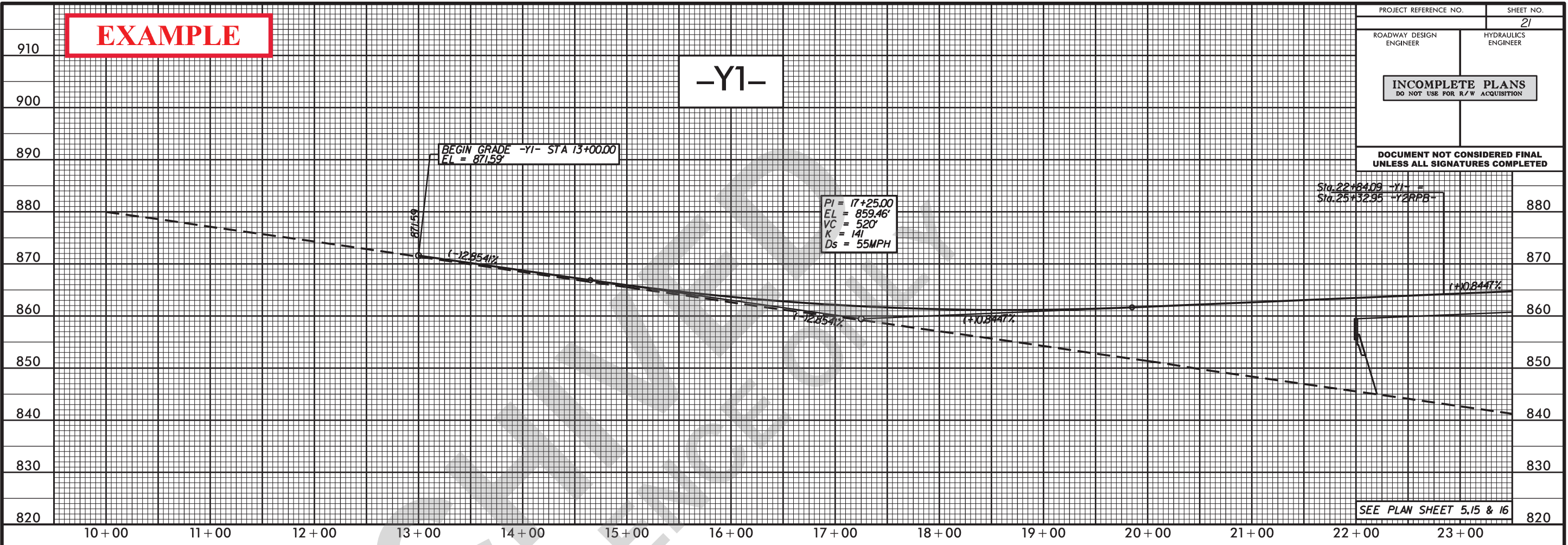
SEE SHEET 21 FOR -Y1- PROFILE
SEE SHEET 33 FOR -Y2RPB- PROFILE
SEE SHEET 40 FOR -YIDRV- PROFILE

MATCHLINE SHEET 15 -Y1- STA. 16+00.00

EXAMPLE

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