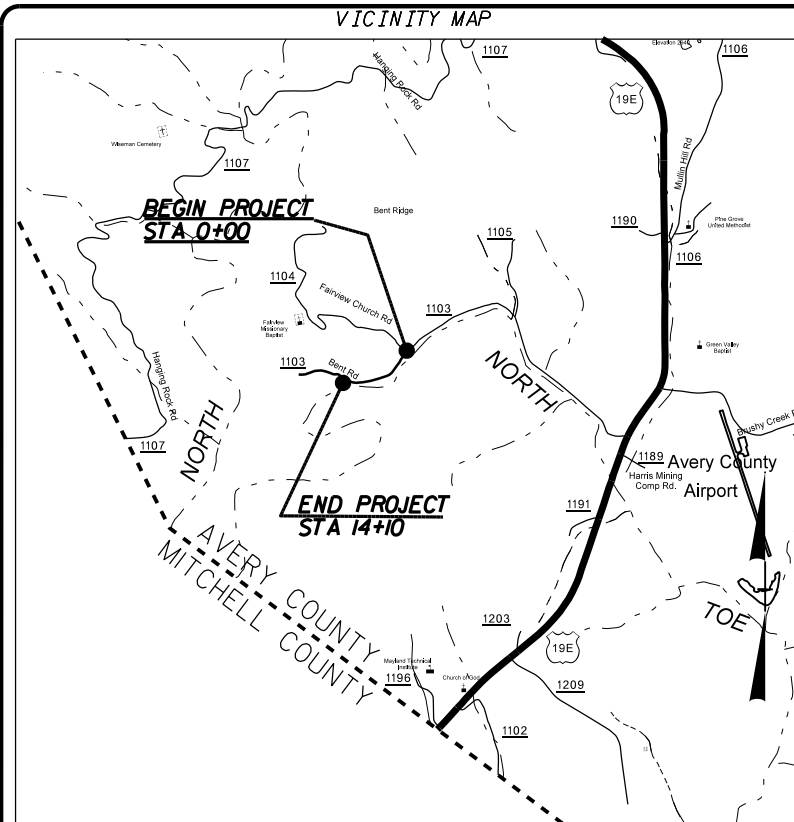


WBS#: IIC.006052



STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 PLAN FOR PROPOSED
 HIGHWAY EROSION CONTROL
AVERY COUNTY

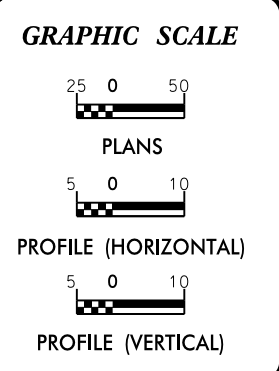
**LOCATION: SR 1103 BENT ROAD FROM
 SR 1104 TO POINT
 STA 0+00 TO E.O.P. STA 14+10
 TYPE OF WORK: GRADING, DRAINAGE, BASE
 AND PAVING - .27 MILES**

**BEGAN SURVEY: 10/05/11
 END SURVEY: 10/26/11**

Porous Baffle Spacing
 *Baffles in Silt Basins at drainage
 turnouts and all other temporary
 rock sediment dams-Type B:
 -If basin length=10' or less;1 baffle
 -If basin length=11' to 20';2 baffles
 -If basin length=20' or more;3 baffles
 equally spaced in basin

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE
 INSTALLED DURING CLEARING AND GRUBBING PHASE.

Level III-A Cert # 391
 Level III-B Cert# 382



ROADSIDE ENVIRONMENTAL UNIT
 DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY
 WITH THE REGULATIONS SET FORTH BY THE
 NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011
 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND
 NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared In the Office of:
DIVISION OF HIGHWAYS
 DIVISION 11, DISTRICT 2 BOONE
 P. O. BOX 1460, BOONE, N.C. 28607
2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	IIC.006052	EC-1	6
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	---
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	--- --- ---
1606.01	Special Sediment Control Fence	--- --- ---
1622.01	Temporary Berms and Slope Drains	---
1630.02	Silt Basin Type B	---
1633.01	Temporary Rock Silt Check Type-A	---
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	---
1633.02	Temporary Rock Silt Check Type-B	---
	Wattle/Coir Fiber Wattle	---
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	---
1634.01	Temporary Rock Sediment Dam Type-A	---
1634.02	Temporary Rock Sediment Dam Type-B	---
1635.01	Rock Pipe Inlet Sediment Trap Type-A	---
1635.02	Rock Pipe Inlet Sediment Trap Type-B	---
1630.04	Stilling Basin	---
1630.06	Special Stilling Basin	---
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	---
	Tiered Skimmer Basin	---
	Infiltration Basin	---

THIS PROJECT CONTAINS
 EROSION CONTROL PLANS
 FOR CLEARING AND
 GRUBBING PHASE OF
 CONSTRUCTION.

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EROSION CONTROL & PIPE INSTALLATION SCHEDULE

TROUT BUFFER ZONE SEQUENCE

GENERAL E&SC NOTES

GROUND STABILIZATION CHART

Erosion Control Schedule and Notes

1. Generally, the order of installation of the erosion control measures will be as follows:
 - A. Temporary silt basins shall be installed before clearing and grubbing begins.
 - B. Silt fences and temporary silt ditches shall be installed after clearing and before grading.
 - C. Temporary stone ditch checks with PAM or wattles with PAM shall be installed in all disturbed areas as soon as the disturbance begins.
 - D. Final stone ditch checks or wattles shall be installed as soon as ditch line is established.
 - E. Pipe outlet and inlet protection will be done as soon as the pipe is installed.
 - F. Other permanent erosion control measures are to be implemented as soon as practical.
2. Temporary rock silt checks, type B will be spaced by percent grade as shown in the erosion control plan.
3. No. 5 stone, or equivalent, will be used in conjunction with the temporary rock silt checks in locations where water is leaving the project or entering a pipe.
4. All devices are to be cleaned out when half full.
5. Establish permanent vegetation per ground stabilization chart.

Notes:

For silt basin size see the attached erosion control plans.

PAM is to be placed on all Type A checks and wattles in the erosion control chain except for the final device in HWQ and Trout projects.

Wet Pipe Installation Schedule and Notes

1. Prior to installing any E&SC measures identify permit conditions and impact area limits.
2. Install erosion control devices.
3. Manage the water course. The pipe must be placed in the dry. Install dewatering measures.
4. Remove material and existing pipe while limiting material and sediment from entering stream and escaping the project.
5. Excavation of stream channel shall not exceed 10' on either side of new pipe or culvert unless indicated on permit.
6. Per permit conditions for Corps of Engineers and the Wildlife Resources Commission, all pipes in streams 48" or greater must be buried 12" below streambed elevation. Pipes less than 48" must be buried with 20% of the diameter below streambed elevation.
7. Place the new pipe and compact backfill.
8. Install slope protection on the outlet and inlet ends of the pipe. Also complete installation of erosion control measures and perform maintenance as needed on existing measures.
9. Establish permanent vegetation per ground stabilization chart.
10. More information on wet pipe installation can be found in the BMP manual section 4.2 "Pipe & Culvert installation"

General Erosion Control Sequence & Notes for NC DOT Projects in Trout Buffer Zones

1. Prior to installing any E&SC measures identify permit conditions and impact area limits. Review trout buffer variance approval conditions for any special provisions.
2. All materials should be on the hand before work is commenced.
3. Install EC devices
4. Work within the buffer zone should be sequenced to minimize the length of time that disturbed areas are exposed. Stream bank stabilization, which includes the area from the edge of water to the top of bank, should be phased so that each day's work is a completed work, including provision of adequate ground cover.
5. Graded slopes and fills within the trout buffer zone will within 7 calendar days of completion of any phase of grading be planted or otherwise provided with temporary or permanent ground cover, devices, or structures sufficient to restrain erosion.
6. Graded slopes and fills within the trout buffer zone (excluding road shoulders) shall be protected with rolled erosion control product, bonded fiber matrix, or flexible growth medium after seeding.

Notes:

Silt fence backed by woven wire, with a post spacing of 6 feet, shall be used instead of standard silt fence in trout buffer zone. Special sediment control fence shall be used in areas where bedrock is encountered which prohibits the proper anchoring of fabric, and in low points of the silt fence in 3-foot sections to allow for concentrated flows.

The disturbed areas within the stream buffer shall be restored to native vegetation characteristic of an undisturbed buffer to the extent practical upon completion of construction.

Flyrock protection such as blast mats should be provided for blasting in close proximity to streams.

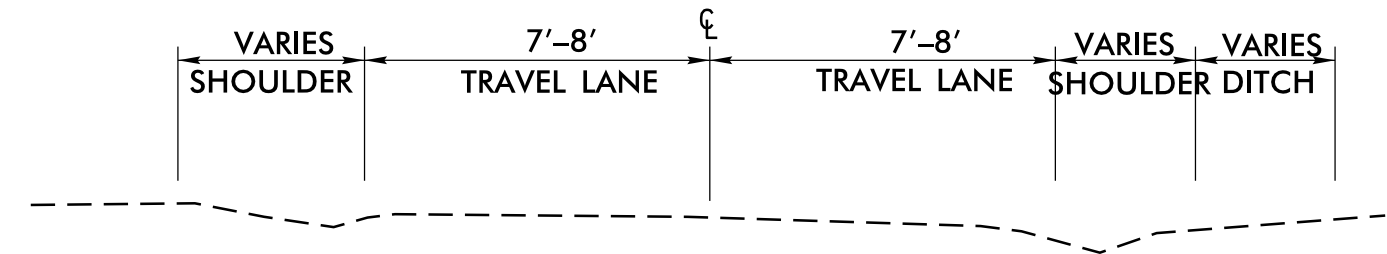
PAM is to be placed on all Type A checks and wattles in the erosion control chain except for the final device in HWQ and Trout projects.

GROUND STABILIZATION CHART

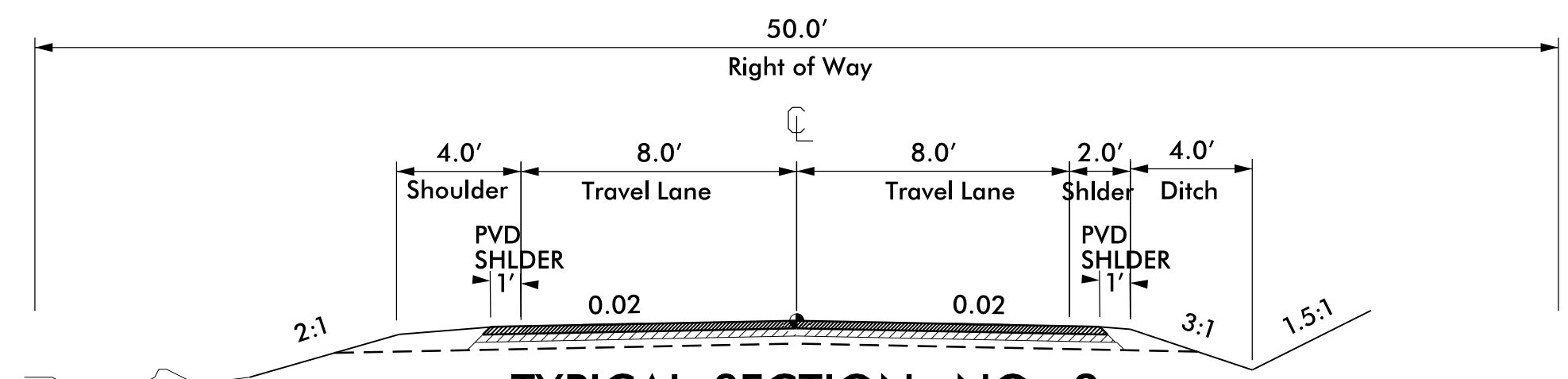
Site Area Description	Stabilization Time Frame	Stabilization Time Frame Exceptions
Perimeter dikes, swales, ditches and slopes	7 days	None
High Quality Water Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10 ft. or less in length and are not steeper than 2:1, 14 days are allowed
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 50' in length
All other areas flatter than 4:1	14 days	None (except for perimeters and HQW zones)

6/2/99

PROJECT REFERENCE NO. <i>AV-1103</i>	SHEET NO. <i>2</i>
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

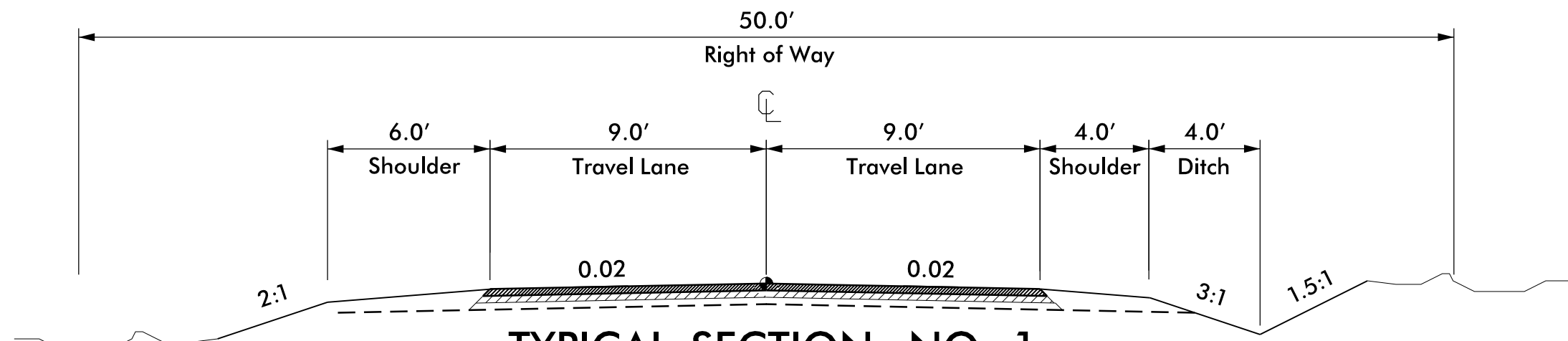


14'-16' EXISTING TYPICAL SECTION



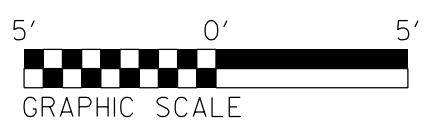
TYPICAL SECTION NO. 2

STA. 12 + 00 to E.O.P



TYPICAL SECTION NO. 1

STA. 00 + 50 to 12 + 00



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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>SR-1103</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION SUMMARY SHEET

MATting FOR EROSION CONTROL

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
5	-L-	2+50	6+04	RT	255
6	-L-	14+10	12+69	RT	105
			SUBTOTAL		360
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					
			TOTAL		360
			SAY		360

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	0+50	1+90	RT	100
			SUBTOTAL		100
			ADDITIONAL PSRM TO BE INSTALLED		
			TOTAL		100
			SAY		100

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

PROJECT REFERENCE NO. <i>SR-1103</i>	SHEET NO. <i>EC-3B</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.

D11CAD-224780

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
SR 1103	3-C

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER) ***revised 07/09/13***

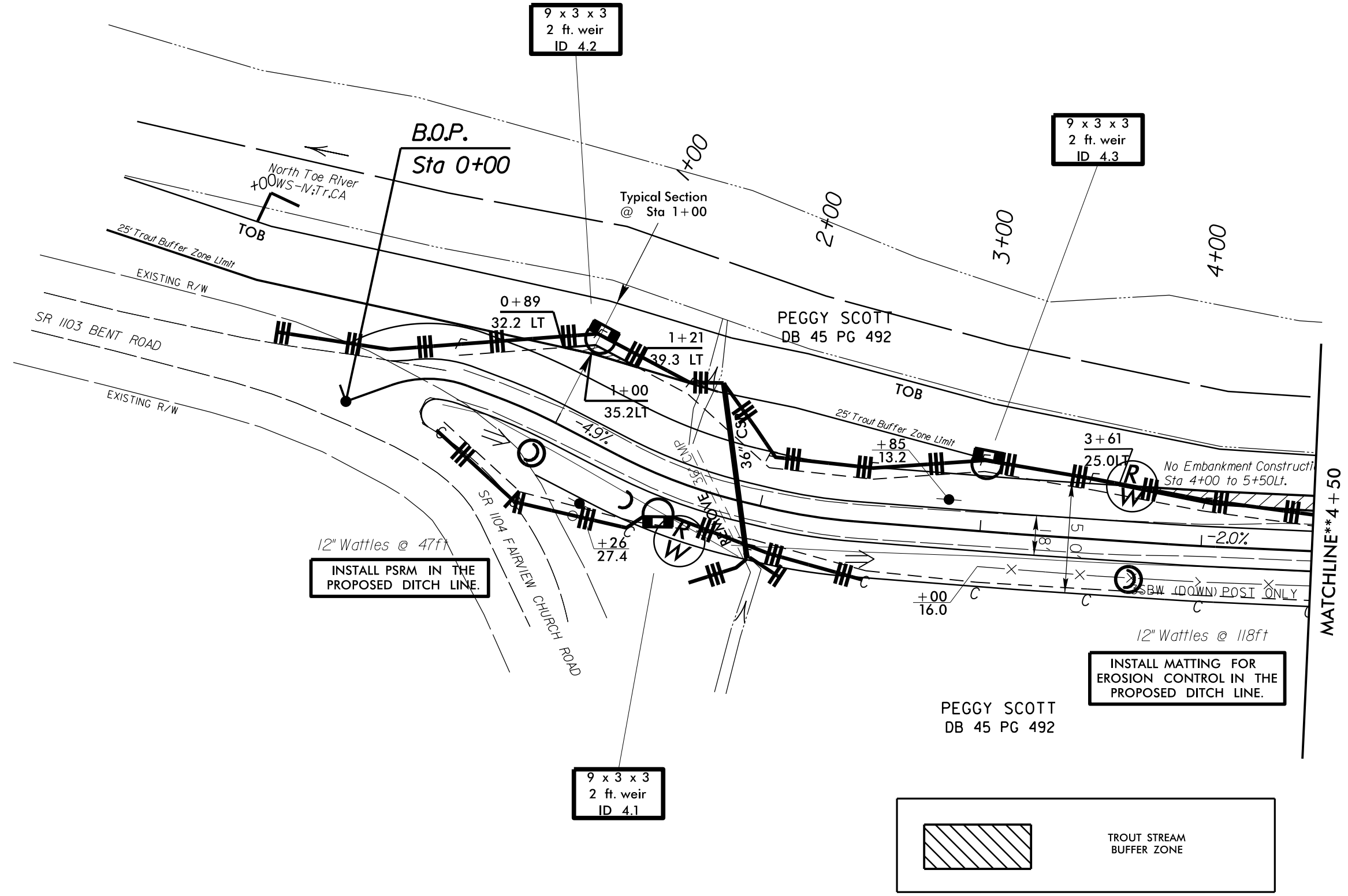
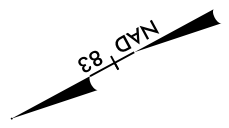
STATION	LOCATION (LT, RT, OR CL)	NEW PIPES									EXISTING PIPES								PIPE REMOVAL D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	J.B. STD. 840.31 OR 840.32	REMARKS
		BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE)																				
		SIZE	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"				
01+75	CL														56'			56'	REMOVE			
01+90	CL							80'										0'	NEW WET PIPE 60 SKEW 6% GRADE			
06+04	CL				50'							32'						32'				
11+00	CL			50'														0'	ADDITION - 11+00 +/- LAID AT LOW PT			
11+66	RT		25'															0'	ADD DRIVE PIPE			
12+69	CL			45'								30'						30'				
																		0'				
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SHEET TOTALS			0	25	95	50	0	80	0	0	250	0	0	62	0	0	56	0	0	118		

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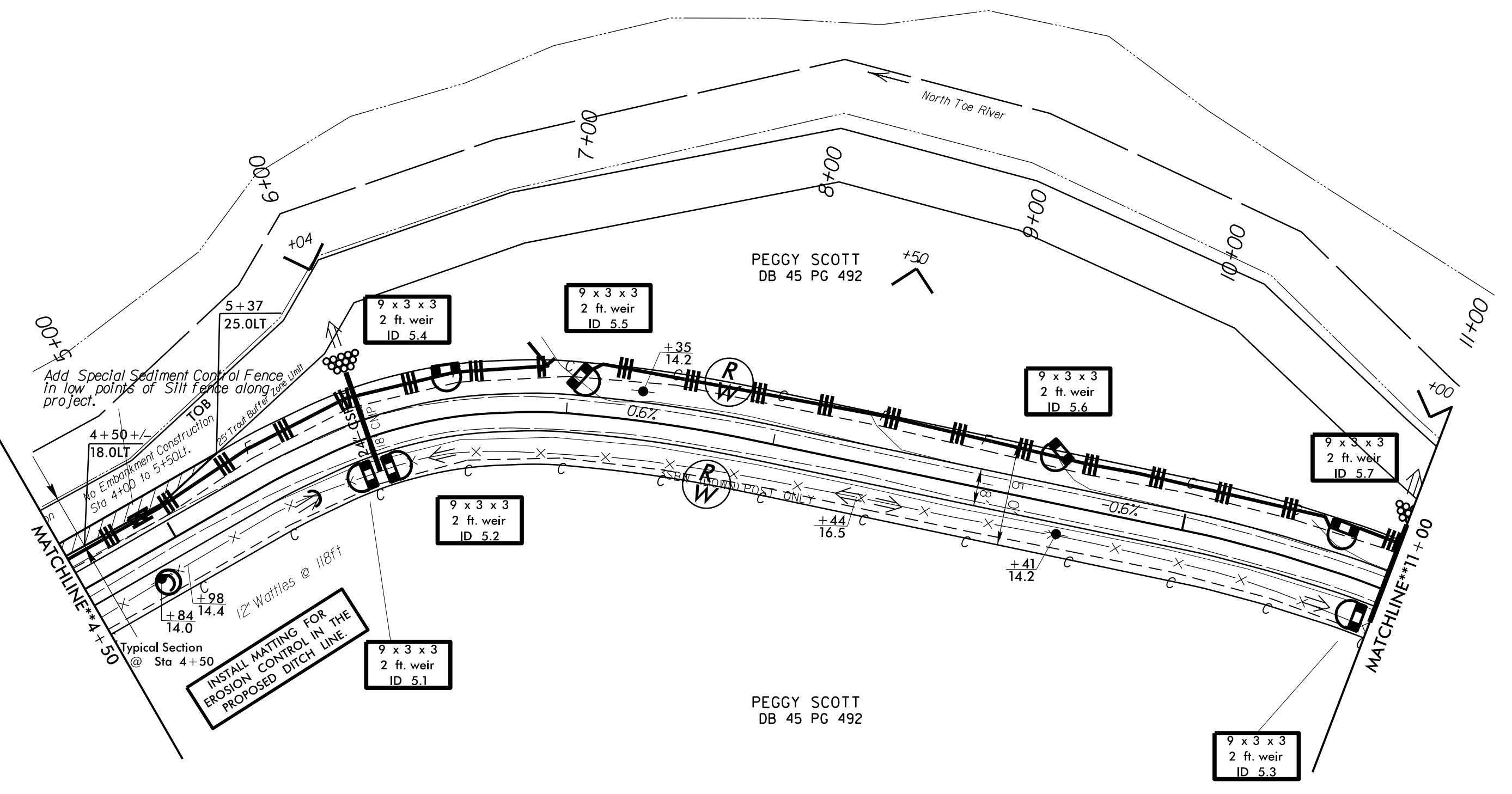
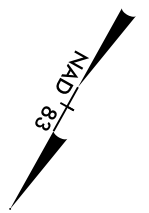
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



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PROJECT REFERENCE NO.	SHEET NO.
	EC5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



Add Special Sediment Control Fence in low points of Silt fence along Zone Limit project.

4+50 +/-
 18.0LT
 No Embankment Construction Sta 4+00 to 5+50LT.

Typical Section @ Sta 4+50
 +84 14.0
 +98 14.4
 12\"/>

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

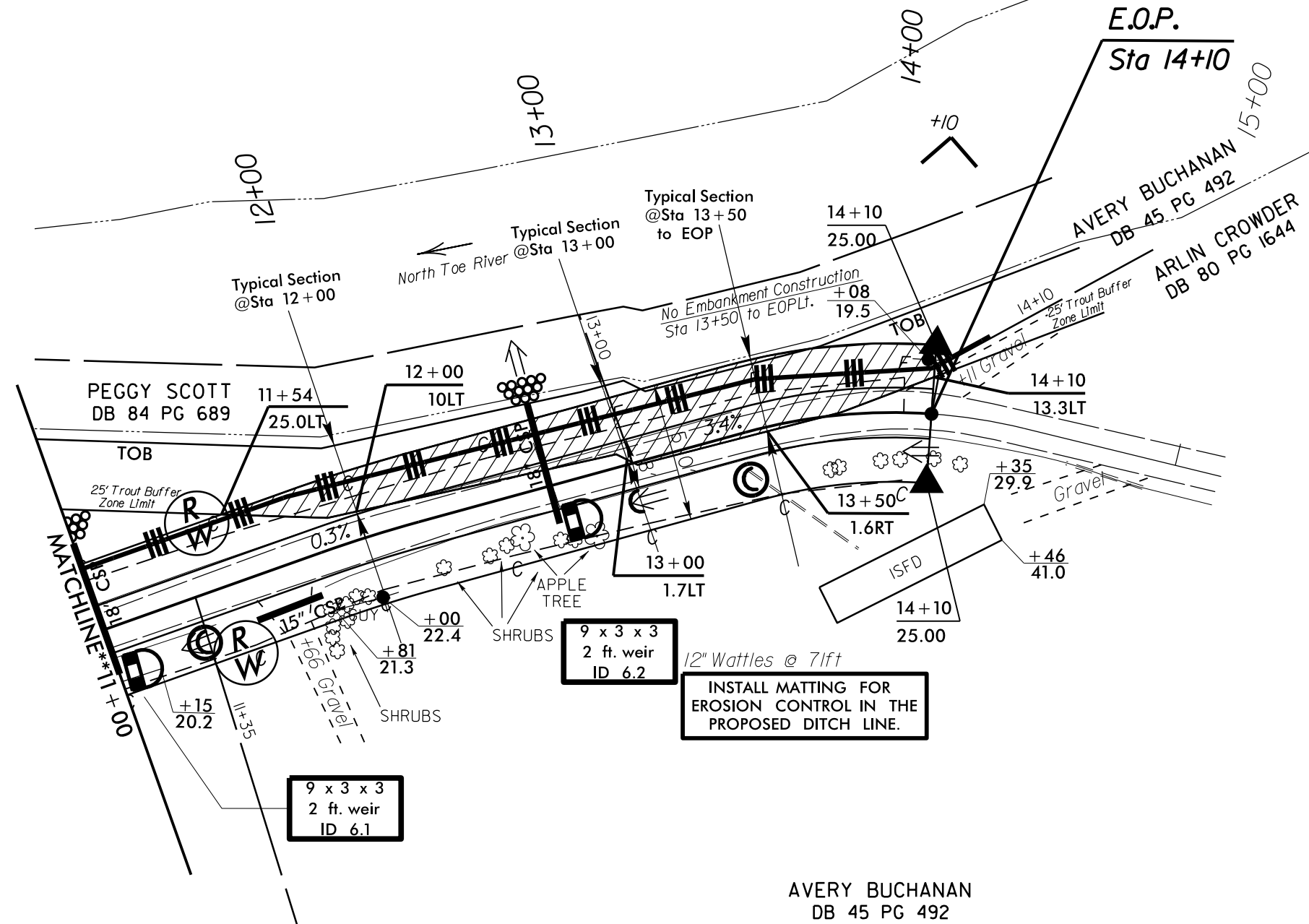


PEGGY SCOTT
 DB 45 PG 492

PEGGY SCOTT
 DB 45 PG 492

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PROJECT REFERENCE NO.	SHEET NO.
	EC6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



12" Wattles @ 7ft
 INSTALL MATTING FOR
 EROSION CONTROL IN THE
 PROPOSED DITCH LINE.

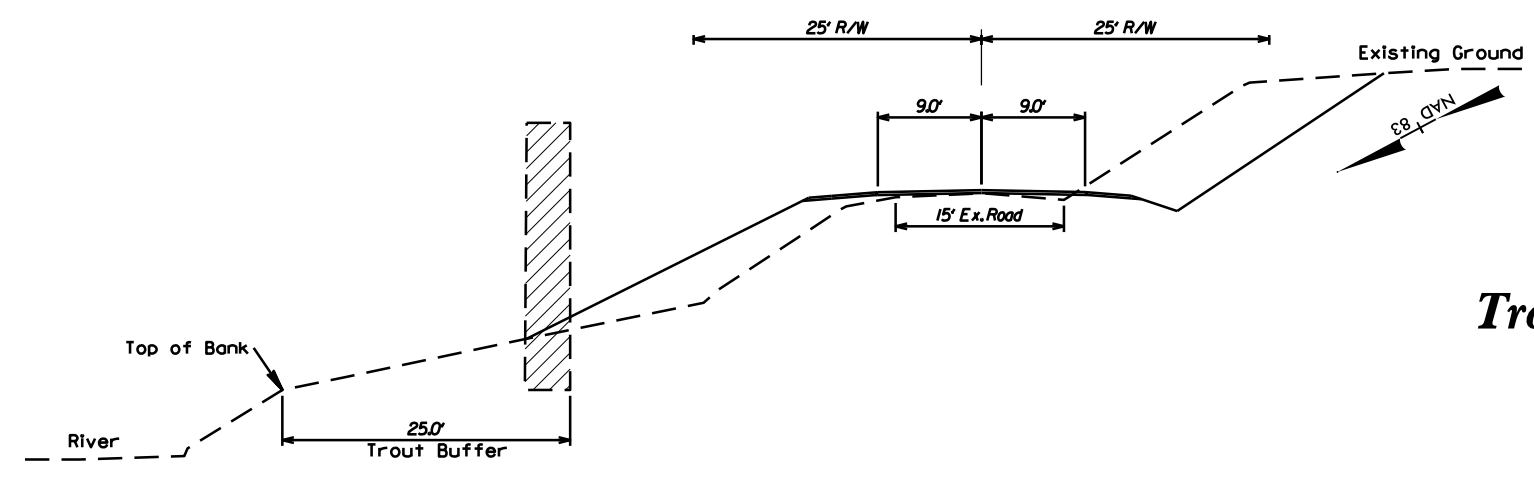
AVERY BUCHANAN
 DB 45 PG 492



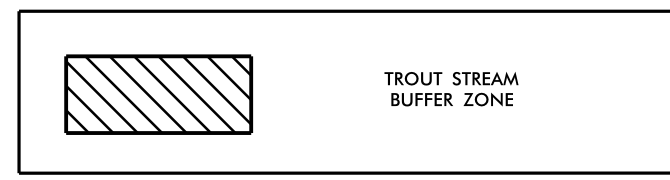
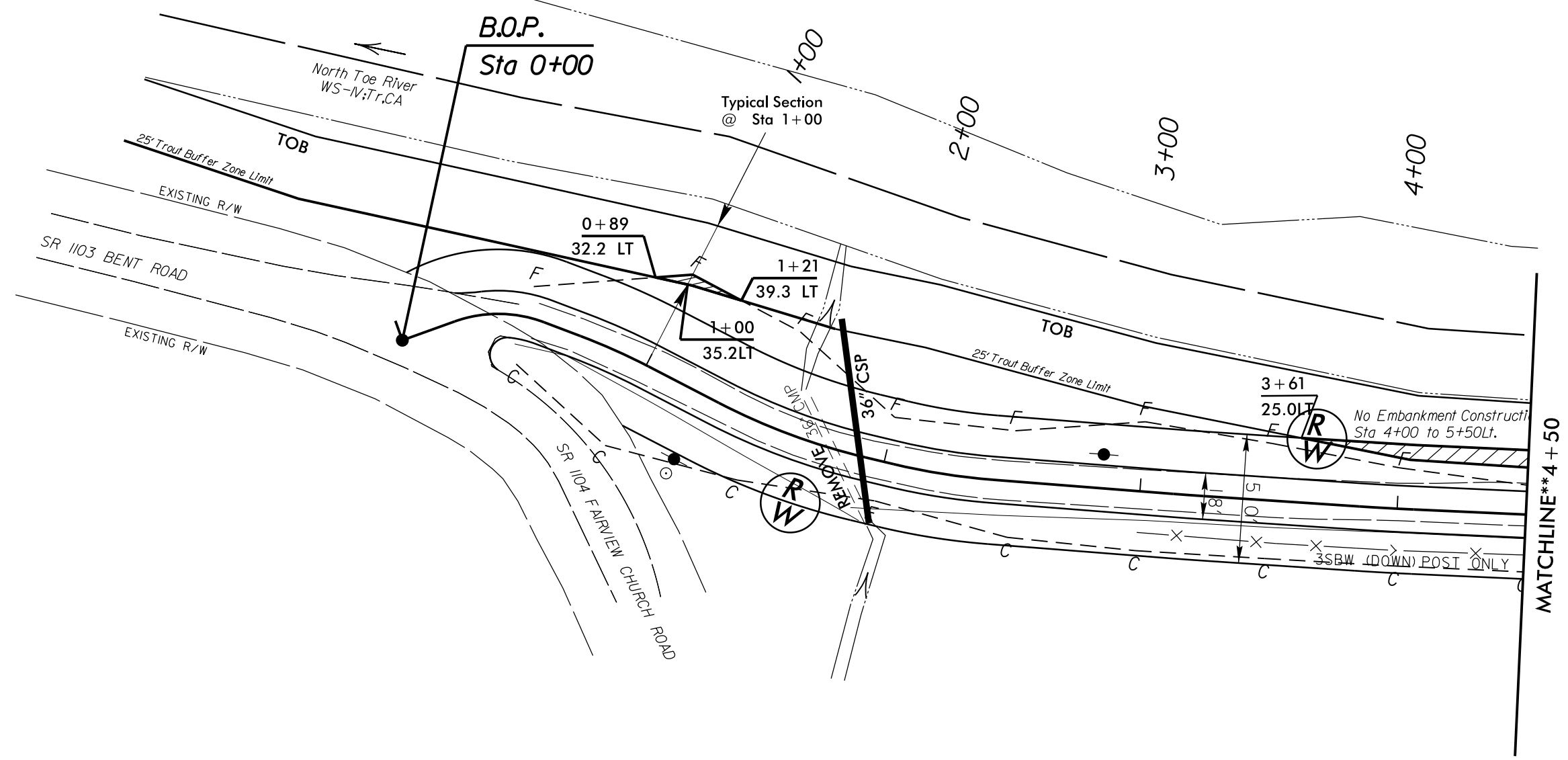
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PROJECT REFERENCE NO.	SHEET NO.
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Trout Buffer Limits



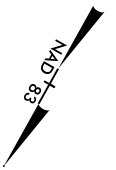
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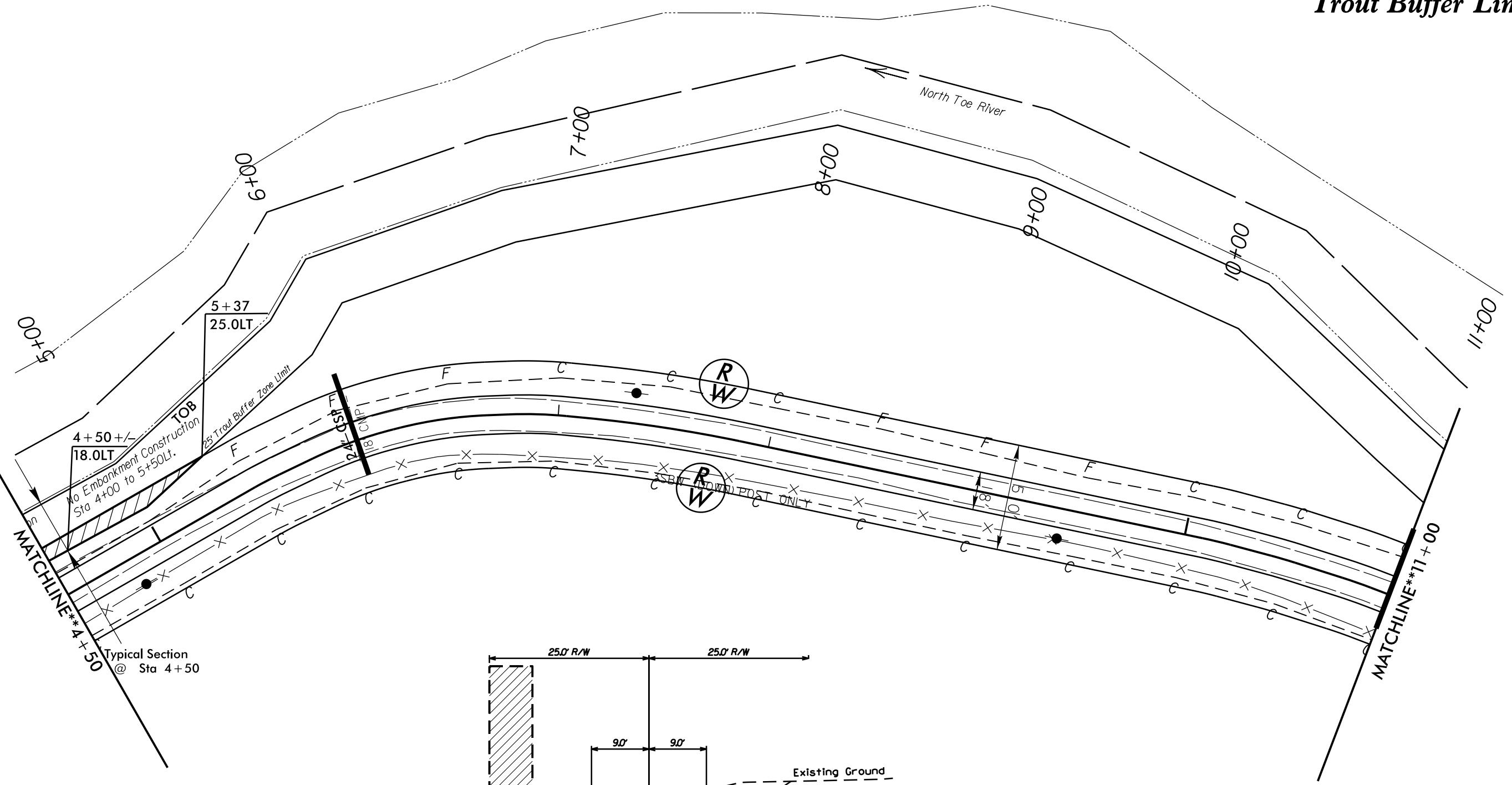
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REVISIONS

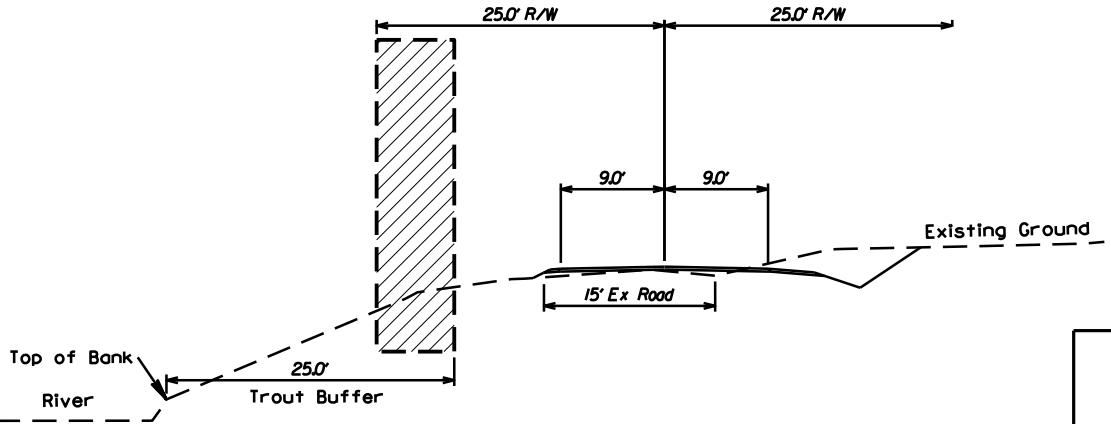
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	EC5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



Trout Buffer Limits



4+50 +/-
 18.0LT
 No Embankment Construction
 Sta 4+00 to 5+50Lr.
 TOB
 25' Trout Buffer Zone Limit
 24' CS1 FF
 18' CMP
 MATCHLINE**4+50
 Typical Section @ Sta 4+50



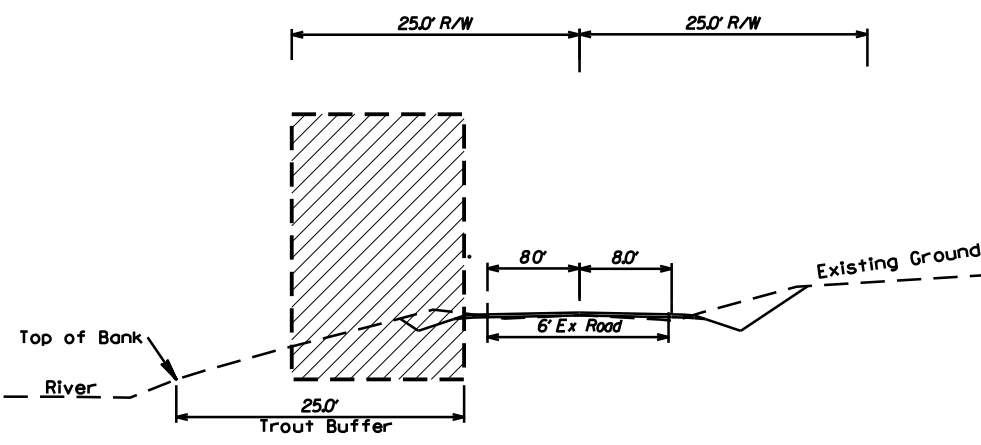
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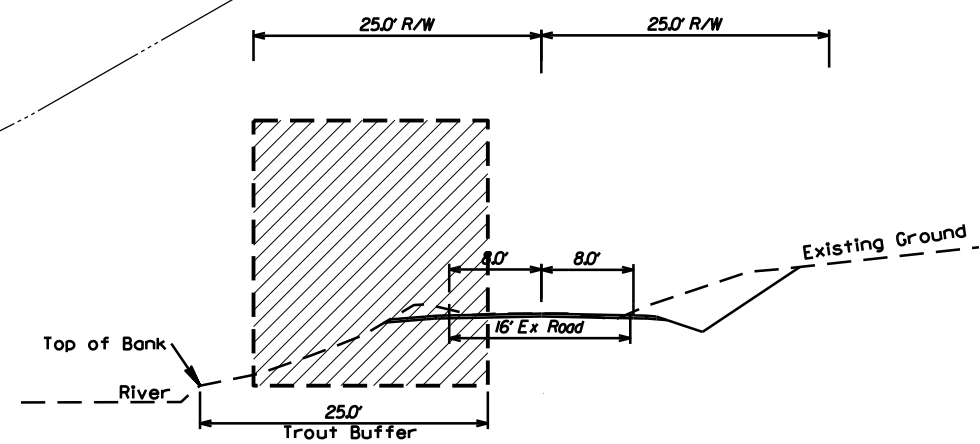
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PROJECT REFERENCE NO.	SHEET NO.
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

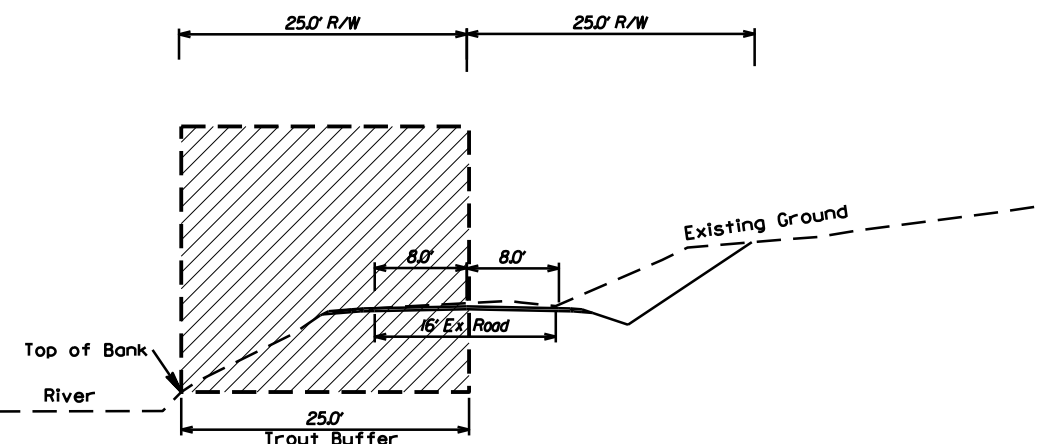
Trout Buffer Limits



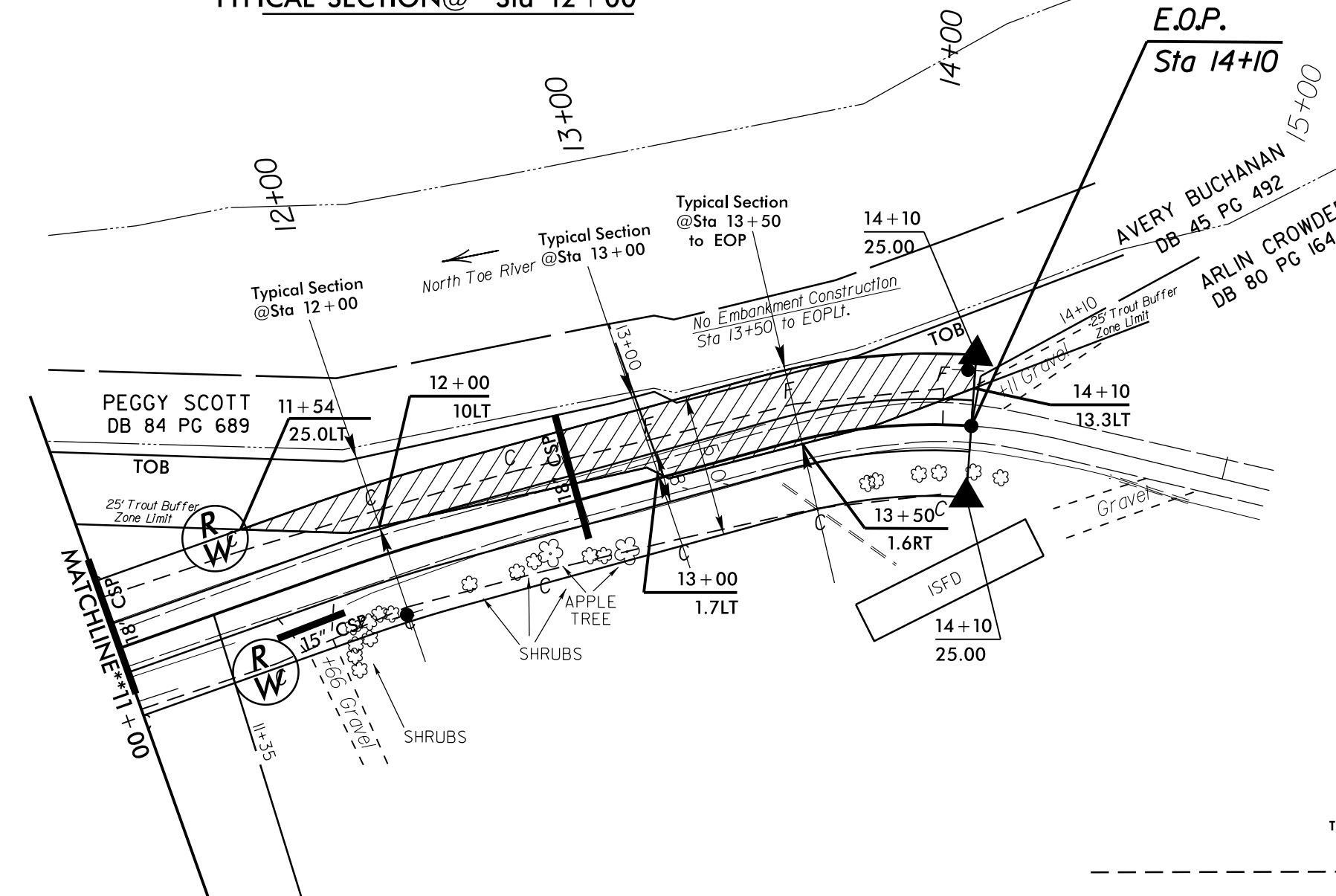
TYPICAL SECTION @ Sta 12+00



TYPICAL SECTION @ Sta 13+00









TYPICAL SECTION @ Sta 13+50 to EOP



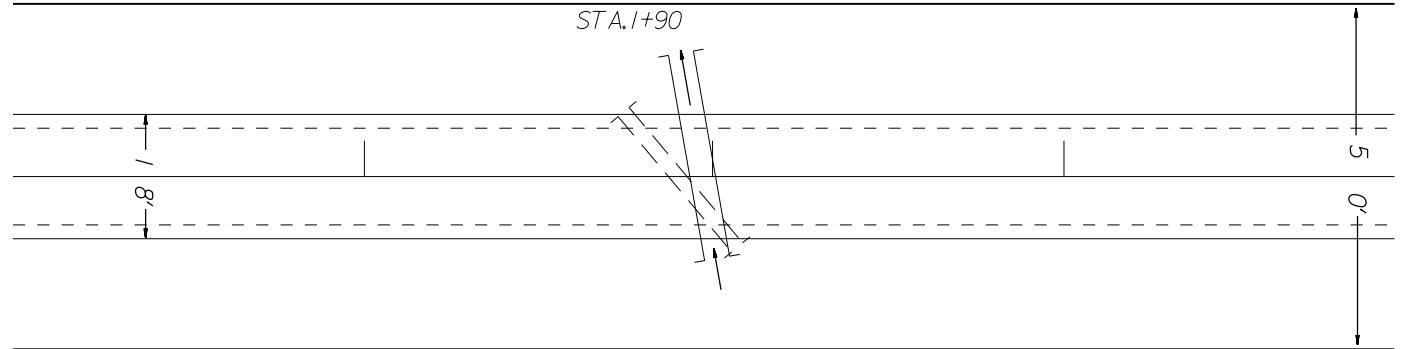
AVERY BUCHANAN DB 45 PG 492



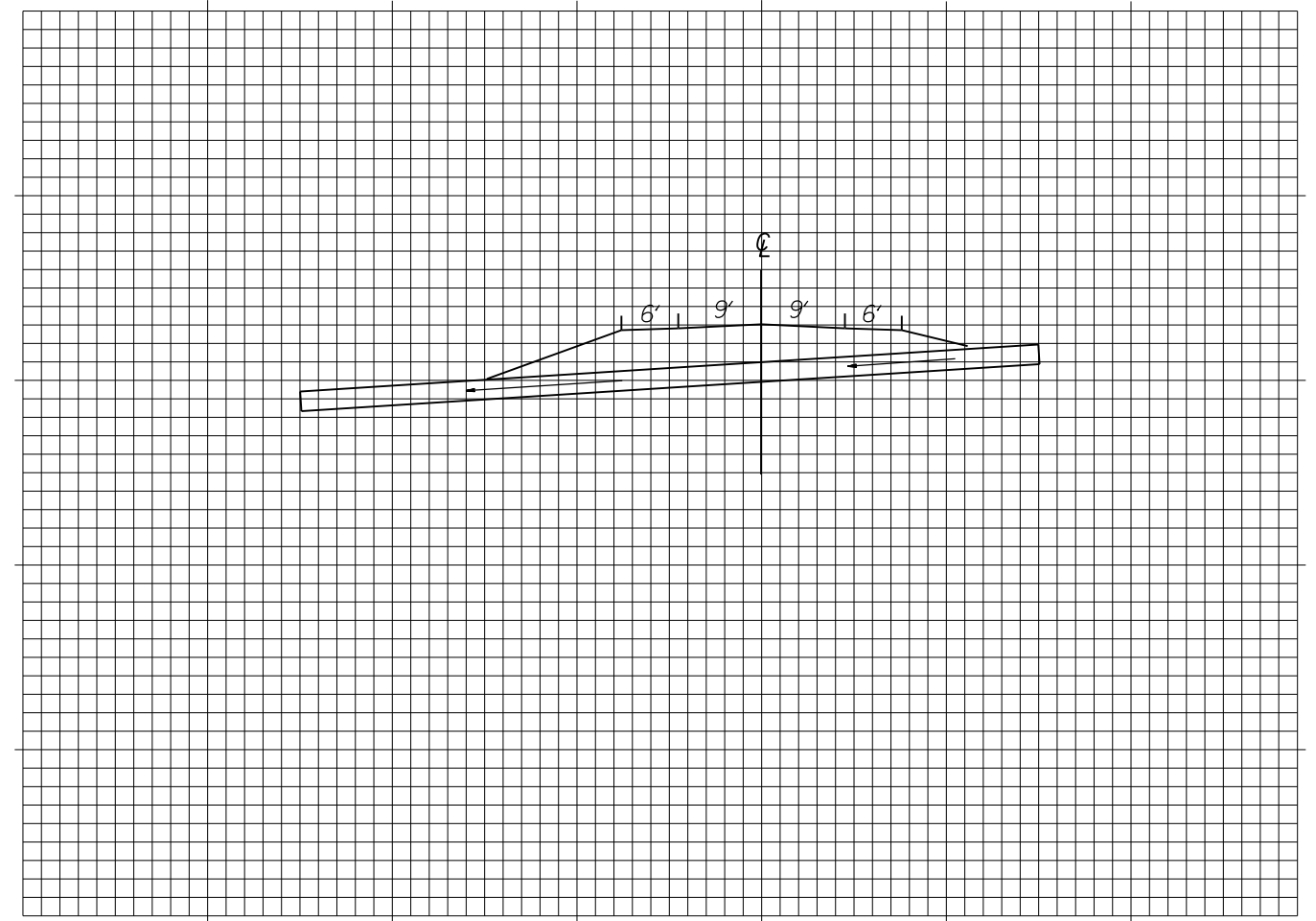
PROJECT:	IIC.006015 (R/W)
	IIC.006052 (CONST)
ROAD:	SR 1103 BENT RD.
COUNTY:	AVERY
TYPE:	WET PIPE SURVEY STA. 1+75 existing
SCALE:	1" = 20' SHEET 1 OF 4 DATE: 7-3-13

-  CENTER LINE
-  PROPOSED R/W
-  NEW EDGE PAVEMENT
-  EXISTING EDGE ROADWAY
-  NEW PIPE
-  EXISTING PIPE

STREAM NAME: UNNAMED TRIBUTARY TO NORTH TOE RIVER
 RATING: WS-N;TR
 3' AVERAGE STREAM WIDTH



EXISTING PIPE SIZE: 60' x 36"
 NEW PIPE SIZE: 80' x 36" PIPE TO BE LAID ON A 60° SKEW WITH 6% FALL



NOTE: TEMPORARY EROSION CONTROL DEVICES NOT SHOWN.

SURVEY DATE: 10-24-11
 CONDUCTED BY: GK,HR