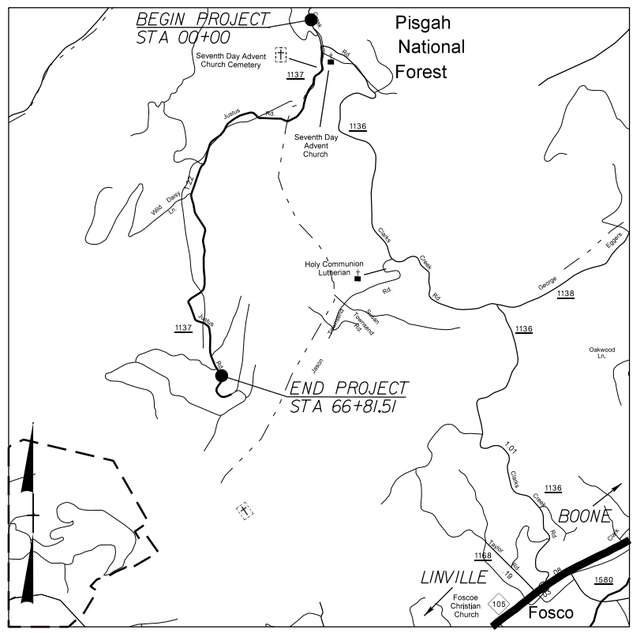
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WATAUGA COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	11C.095108	EC-1	29

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

VICINITY MAP

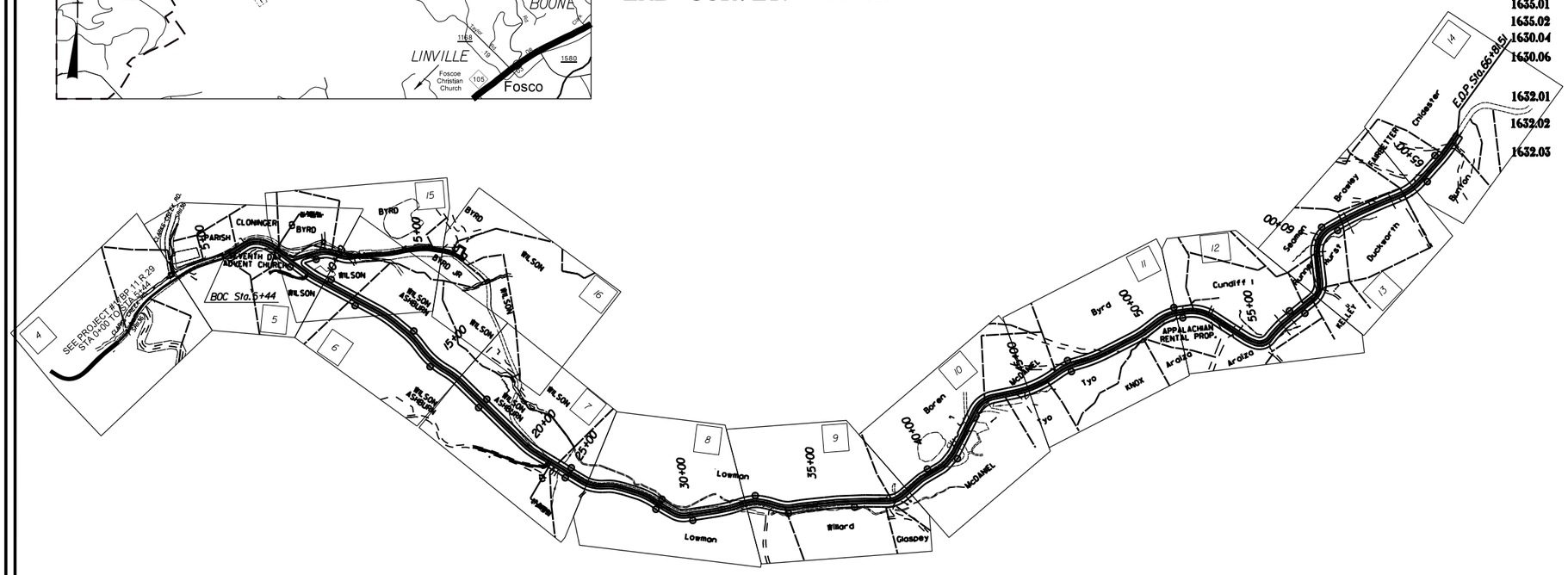


LOCATION: ***SR 1137 JUSTUS RD***
FROM END OF PAVEMENT 1.27 MILES TO END OF MAINT.
STA 5+44 TO E.O.P. 66+81.51 –L–
STA 00+00 TO E.O.P. 6+90 –Y1–
SEE Project#17BP.11.R.29 For Roadway Plans Sta 0+00 to 5+44

TYPE OF WORK: ***GRADING, DRAINAGE, BASE***
AND PAVING – 1.29 MILES

BEGAN SURVEY: ***06/29/15***

END SURVEY: ***04/18/19***



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
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	EW CFW
	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.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

REVISION:

GRAPHIC SCALE

25 0 50
PLANS

5 0 10
PROFILE (HORIZONTAL)

5 0 10
PROFILE (VERTICAL)

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

2018 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 revison 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		

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PROJECT REFERENCE NO.	SHEET NO.
IIC.095108	1A

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.

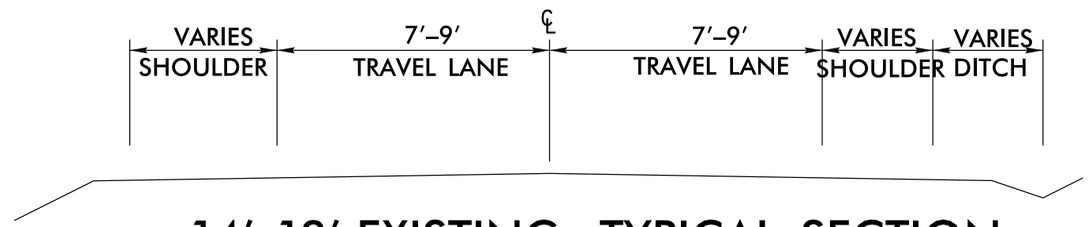
Flyrock protection such as blast mats should be provided for blasting in close proximity to streams.

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.

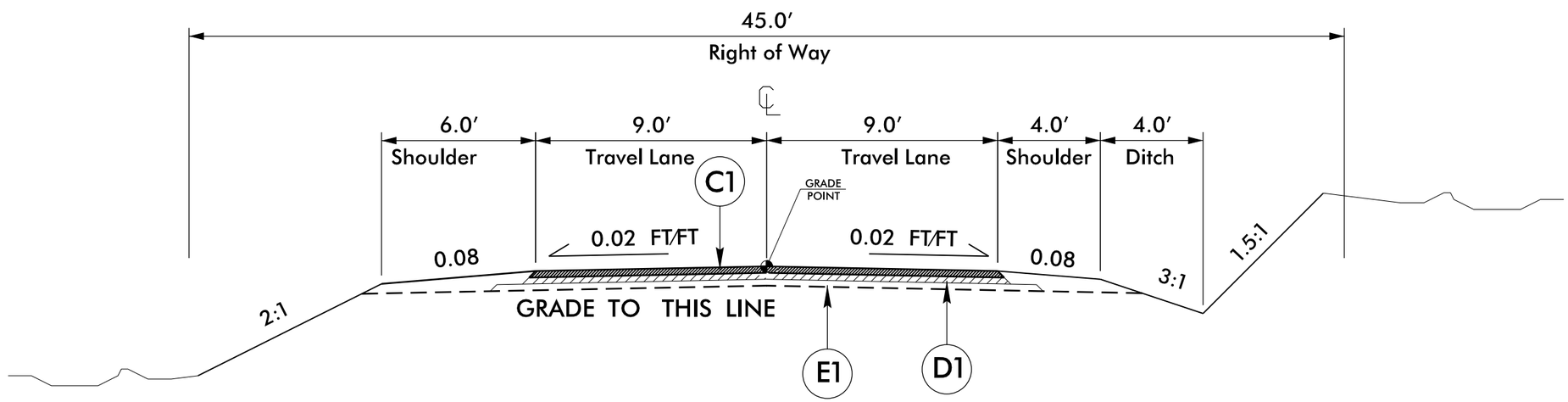
GROUND STABILIZATION CHART

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 lenght
All other areas flatter than 4:1	14 days	None (except for perimeters and HQW zones)

PROJECT REFERENCE NO.	SHEET NO.
11C.095108	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



14′–18′ EXISTING TYPICAL SECTION
SR 1137



TYPICAL SECTION NO. 1

C1	PROP. ASPHALT SURFACE TREATMENT (TRIPLE SEAL).
D1	PROP. APPROX. 3″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E1	PROP. APPROX. 6″ AGGREGATE BASE COURSE.

5′ 0′ 5′
GRAPHIC SCALE

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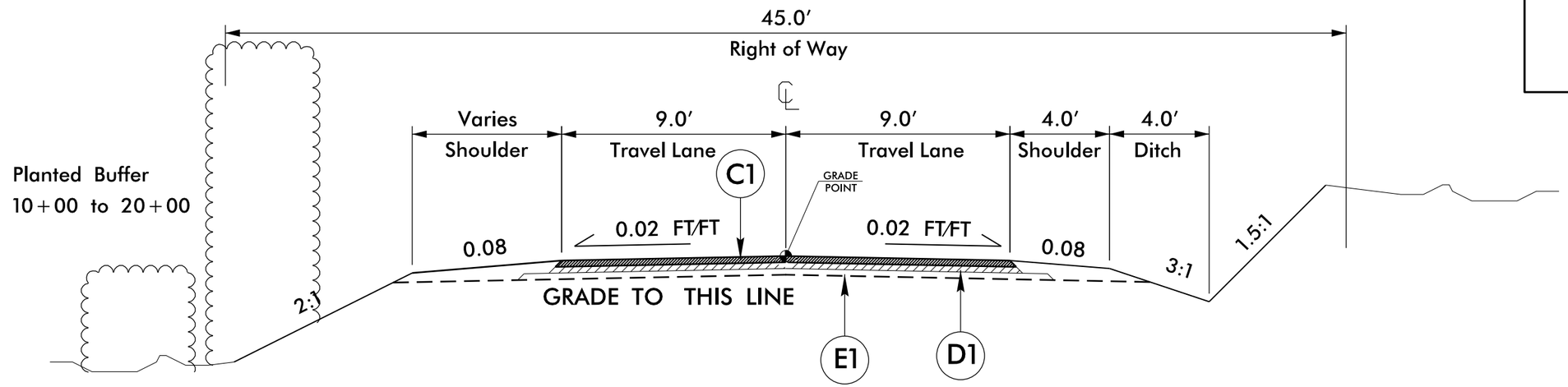
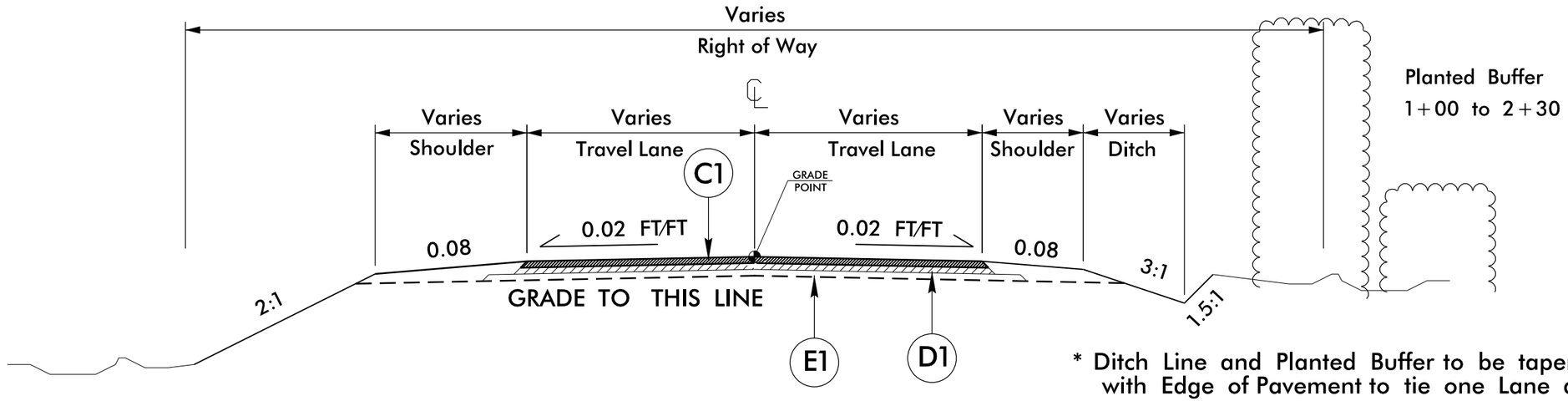
PROJECT REFERENCE NO.	SHEET NO.
11C.095108	2-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



TYPICAL SECTION NO. 2

STATIONS 10+00 to 20+00



* Ditch Line and Planted Buffer to be tapered parallel with Edge of Pavement to tie one Lane at Bridge.

TYPICAL SECTION NO. 3

–Y– STATIONS 0+00 to 6+80

C1	PROP. ASPHALT SURFACE TREATMENT (TRIPLE SEAL).
D1	PROP. APPROX. 3″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E1	PROP. APPROX. 6″ AGGREGATE BASE COURSE.

5′ 0′ 5′
GRAPHIC SCALE

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PROJECT REFERENCE NO.	SHEET NO.
11C.095108	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
				SUBTOTAL	0
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					
				TOTAL	0
				SAY	0

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
7	-L-	17+00	19+50	RT	80
7	-L-	19+50	24+60.55	RT	70
15	-Y-	2+75	6+00	LT	240
				SUBTOTAL	390
		ADDITIONAL PSRM TO BE INSTALLED			
				TOTAL	390
				SAY	390

PROJECT REFERENCE NO.	SHEET NO.
11C.095108	EC-3B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) 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 HQW ZONES.

COMPUTED BY: J COMBS DATE:
CHECKED BY: DATE:

PROJECT REFERENCE NO.	SHEET NO.
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (LT,RT, OR CL)		TYPE B DRAINAGE PIPE (RCP, CSP, CAAP, HDDE OR PVC) (UNLESS NOTED OTHERWISE) NEW PIPES									EXISTING PIPES									PIPE REMOVAL LIN.FT.	J.B. STD. 840.31 or 840.32	D.I. STD. 840.14 or 840.15	F & G STD 840.16	REMARKS
SIZE			12"	15"	18"	24"	30"	36"	42"	72"		12"	15"	18"	24"	30"	36"	42"	72"					
–L3– 7+74	RT			30'																				ADD PIPE
–L3– 8+98	CL				50'																			ADD PIPE
–L3– 19+50	CL				40'																			ADD PIPE
–DR2– 00+17	CL			25'																				ADD DRIVE PIPE
–DR1– 00+17	CL			20'																				ADD DRIVE PIPE
–Y1– 00+54	CL					45'									40'						40'			REPLACE WET PIPE
–Y1– 3+86	CL					34'							108'								36'		1	1 ONLY REPLACE 36' OF PIPE ADD D.I.
–Y1– 4+39	LT				92'																		1	1 ADD PIPE AND D.I.
–Y1– 5+17	LT													40'										DO NOT DISTURB
–Y1– 5+59	LT				147'																		1	1 ADD PIPE AND D.I.
–L– 24+59	CL				35'									32'							32'			REPLACE WET PIPE
–L– 28+20	CL				40'																			ADD PIPE
–L– 31+76	CL									65'									45'		45'			REPLACE WET PIPE
–L– 36+90	CL				42'									29'							29'			REPLACE WET PIPE
–L– 37+83	CL					60'									61'						61'			REPLACE WET PIPE
–L– 41+33	CL					55'									40'						40'	1		REPLACE WET PIPE ADD JUNCTION BOX
–L– 41+21	LT			25'								24'									24'			REPLACE PIPE
–L– 42+17	RT					115'								150'							150'	1		REPLACE WET PIPE ADD JUNCTION BOX
–L– 42+17	LT			45'								39'									39'			REPLACE PIPE
–L– 42+82	RT					21'																1		ADD WET PIPE AND JUCTION BOX
–L– 43+18	RT													36'										DO NOT DISTURB
–L– 44+37	CL				45'																			ADD PIPE
–L– 46+37	LT			50'										49'							49'			REPLACE PIPE
–L– 47+99	LT												29'								29'			REMOVE PIPE
–L– 48+14	CL				45'																			ADD PIPE
–L– 51+52	CL							50'								36'					36'			REPLACE WET PIPE
–L– 52+67	LT			20'																				ADD PIPE
–L– 53+50	RT				75'																			ADD PIPE
SHEET TOTALS				215'	611'	330'		50'		65'		63'	137'	336'	141'	36'			45'		610'	3	3	3

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (LT,RT, OR CL)		TYPE B DRAINAGE PIPE (RCP, CSP, CAAP, HDDE OR PVC) (UNLESS NOTED OTHERWISE) NEW PIPES SIZE 12"	15"	18"	24"	30"	36"	42"	73"		EXISTING PIPES SIZE 12"	15"	18"	24"	30"	36"	48"	72"		PIPE REMOVAL LIN.FT.	J.B. STD. 840.31 or 840.32	D.I. STD. 840.14 or 840.15	F & G STD 840.16	REMARKS
-L- 53+85	LT			30'																					ADD PIPE
-L- 55+46	CL					60'									60'						60'				REPLACE WET PIPE
-L- 57+82	CL												85'								85'				REMOVE PIPE
-L- 58+05	RT			25'																	25'				ADD PIPE
-L- 59+42	RT			25'																					ADD PIPE
-L- 59+77	CL					40'									40'						40'				REPLACE WET PIPE
-L- 60+03	LT			35'								33'									33'				REPLACE PIPE
-L- 61+49	CL				45'									40'							40'				REPLACE PIPE
-L- 62+51	CL				60'									50'							50'				REPLACE PIPE
-L- 62+40	LT			20'								16'									16'				REPLACE PIPE
-L- 63+61	RT														40'			40'			40'				DO NOT DISTURB
-L- 64+55	LT			45'									40'								40'				REPLACE PIPE
-L- 65+08	CL				45'								40'								40'				REPLACE PIPE
-L- 66+12	LT			30'											20'						20'				REPLACE PIPE
SHEET TOTALS				210'	150'	100'						49'	165'	90'	160'			40'			489'				
PROJECT TOTALS				425'	761'	430'		50		65		112'	302'	426'	301'	36'		40'	45'		1099'	3	3	3	

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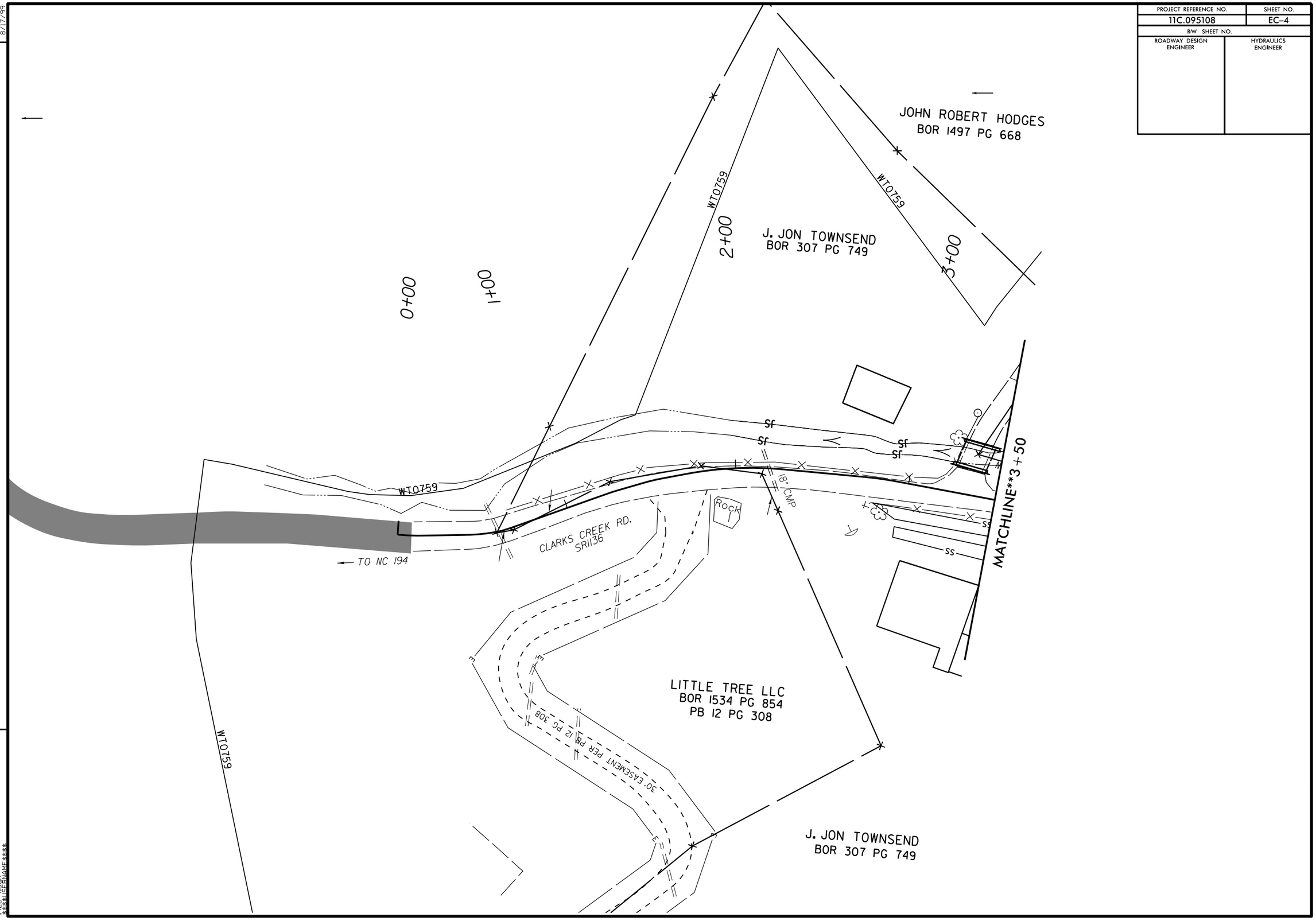

REVISIONS

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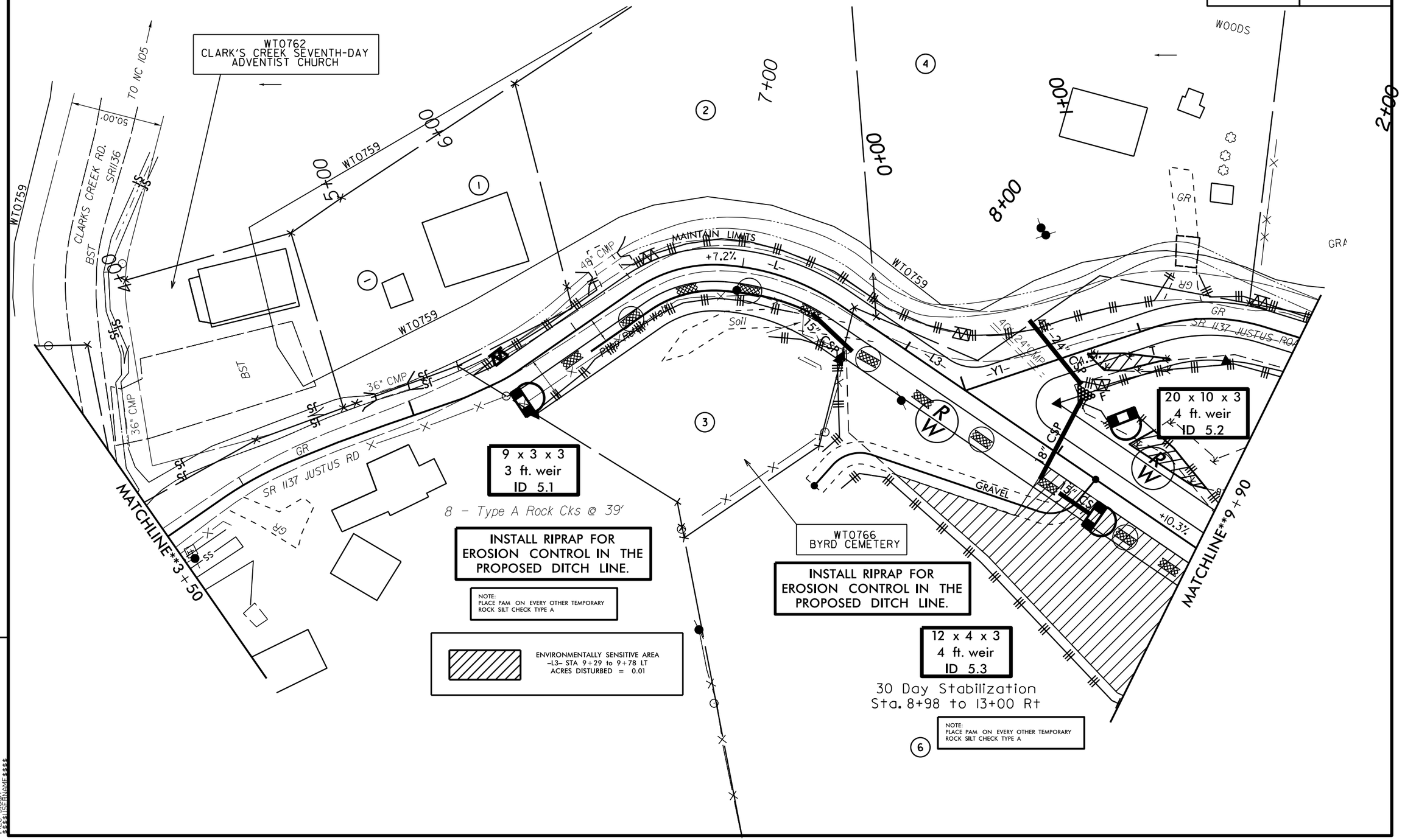

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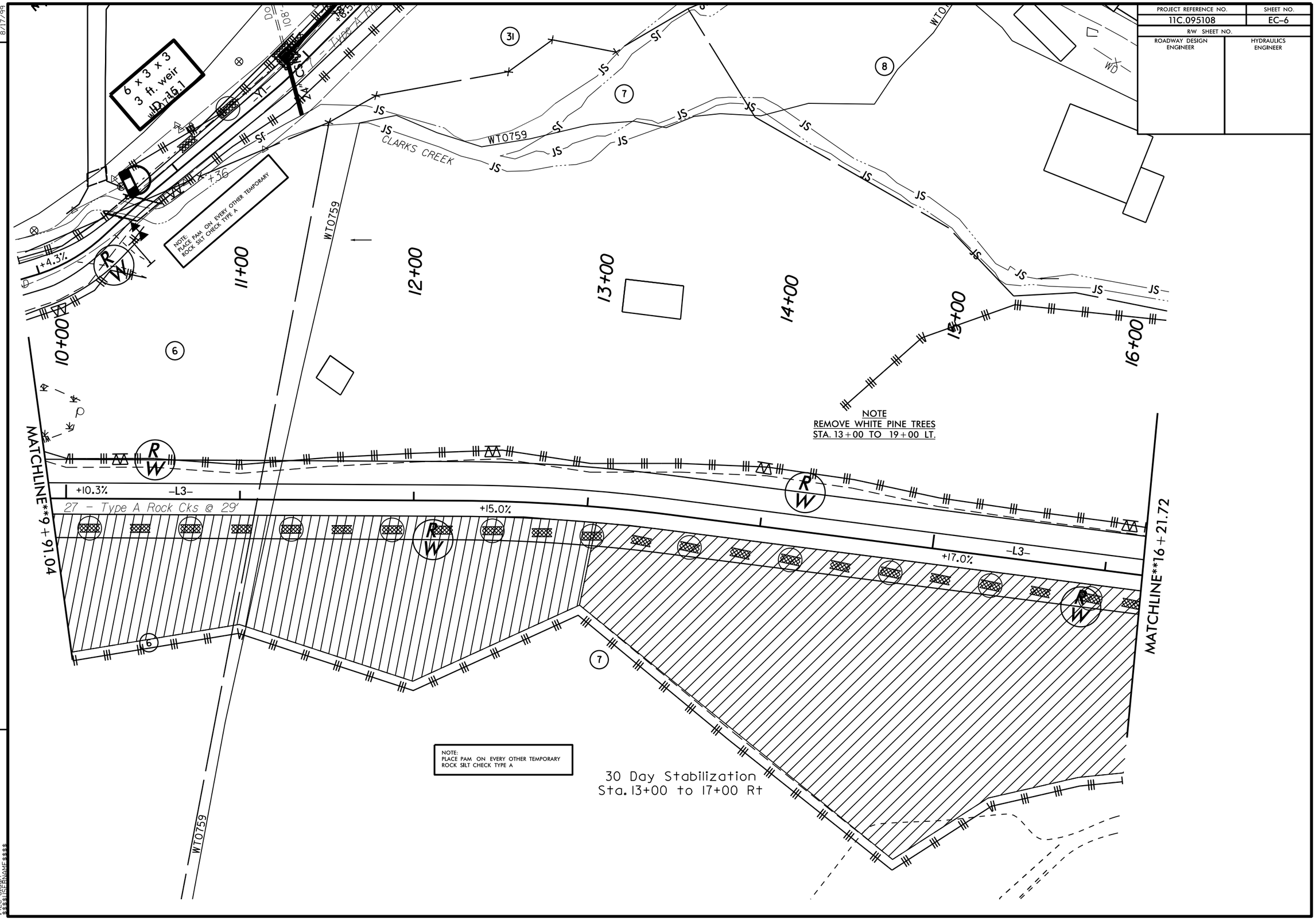

REVISIONS

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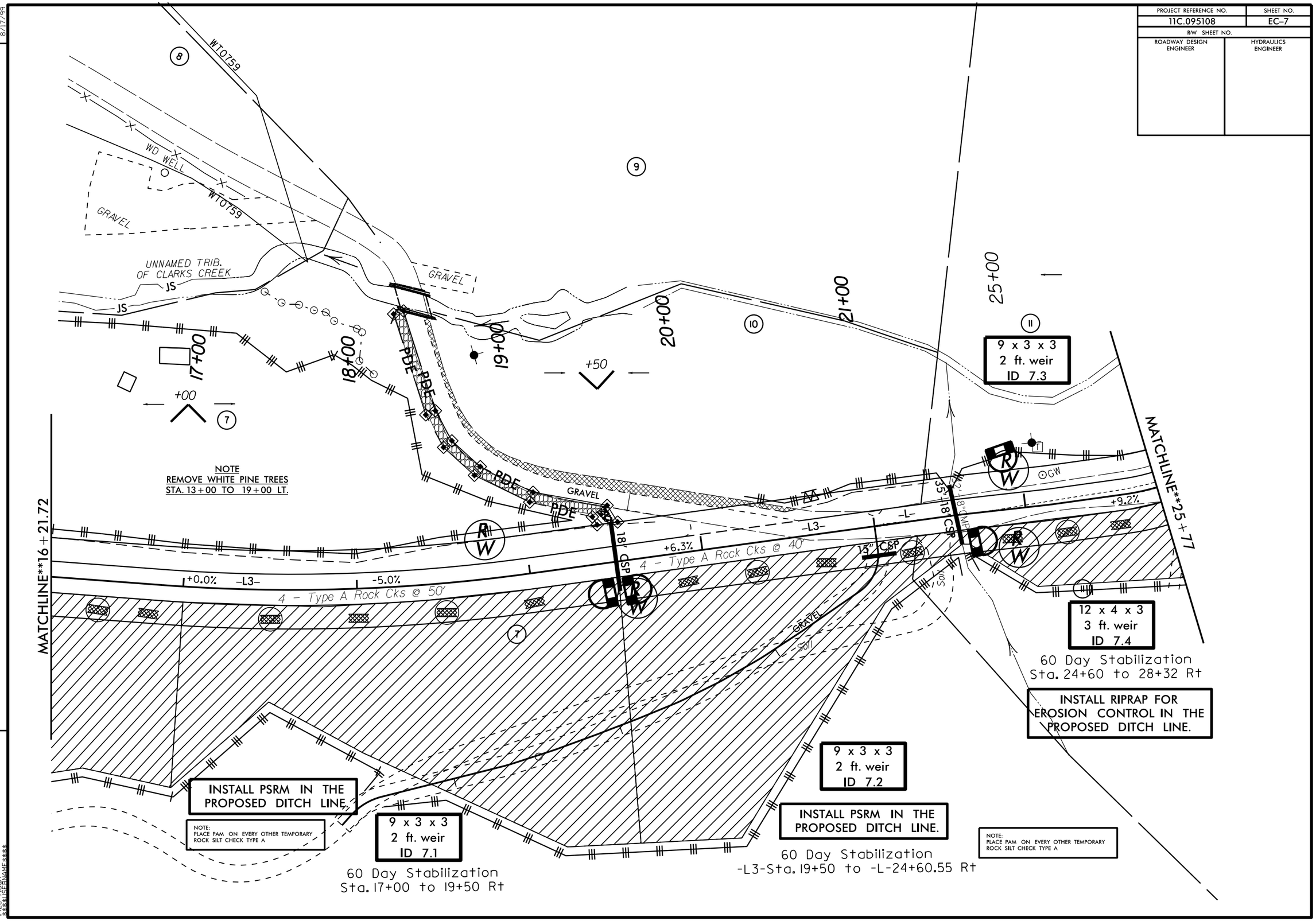

REVISIONS

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11C.095108	EC-8
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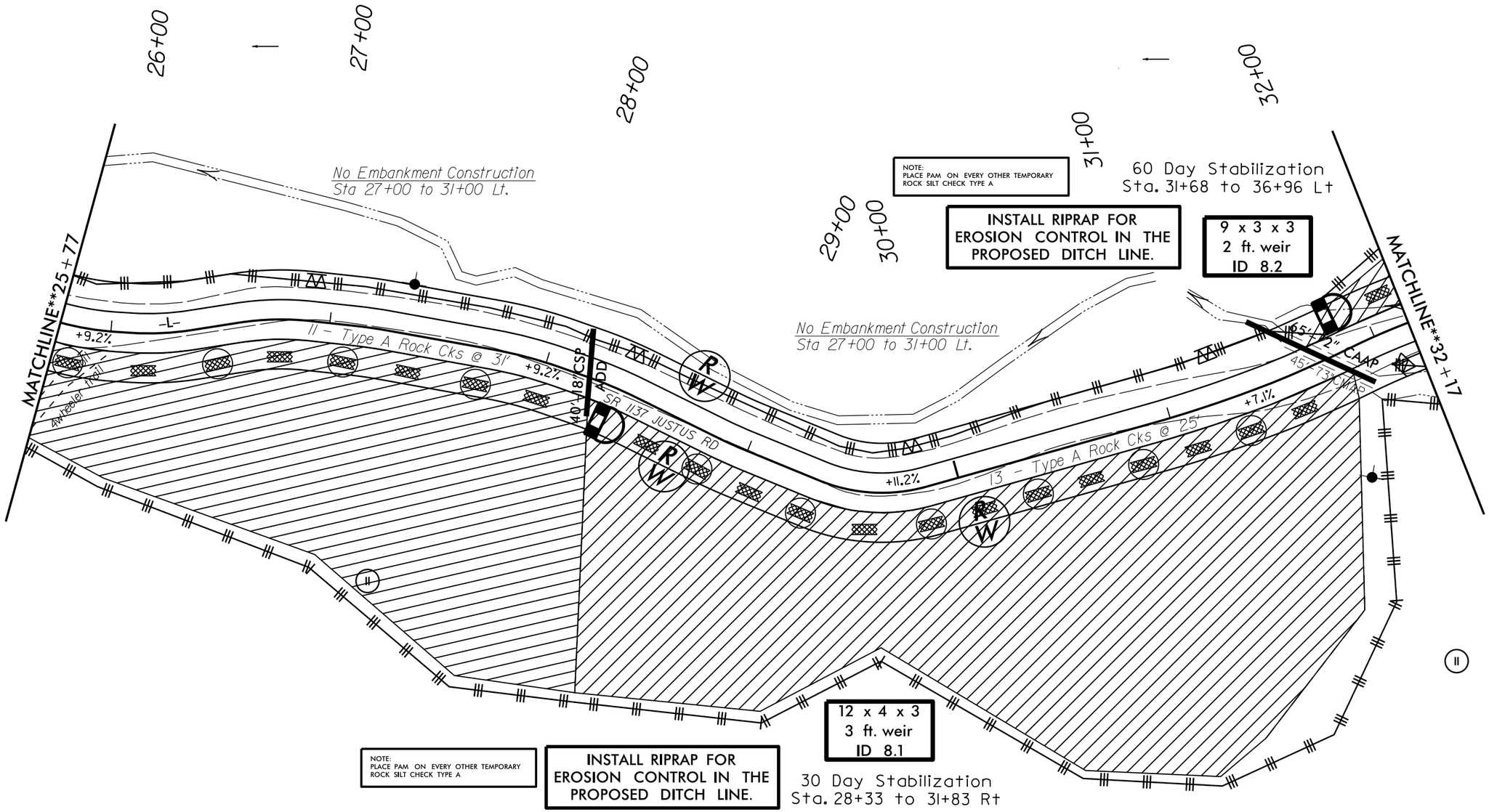

REVISIONS

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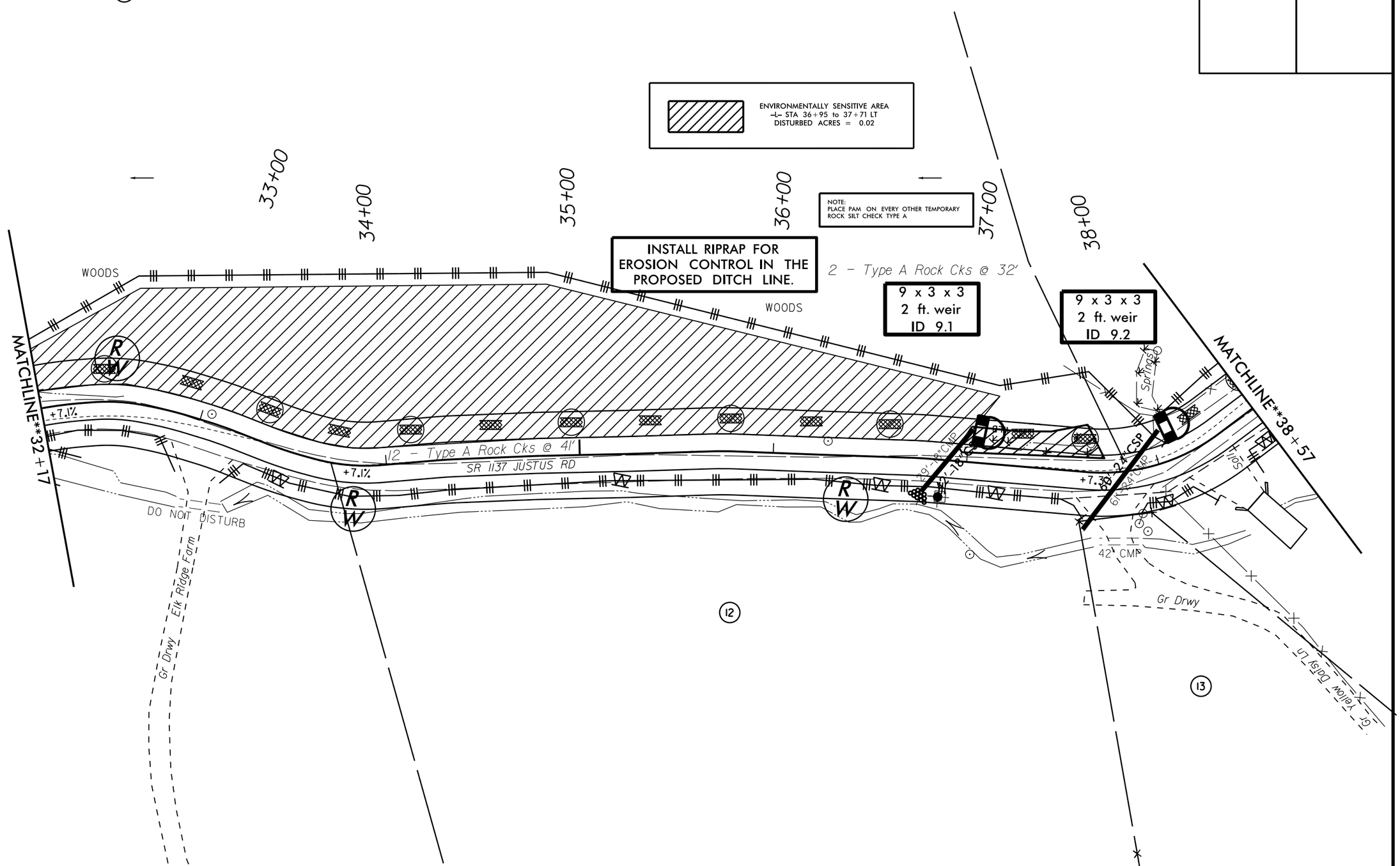
11C.095108	EC-9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

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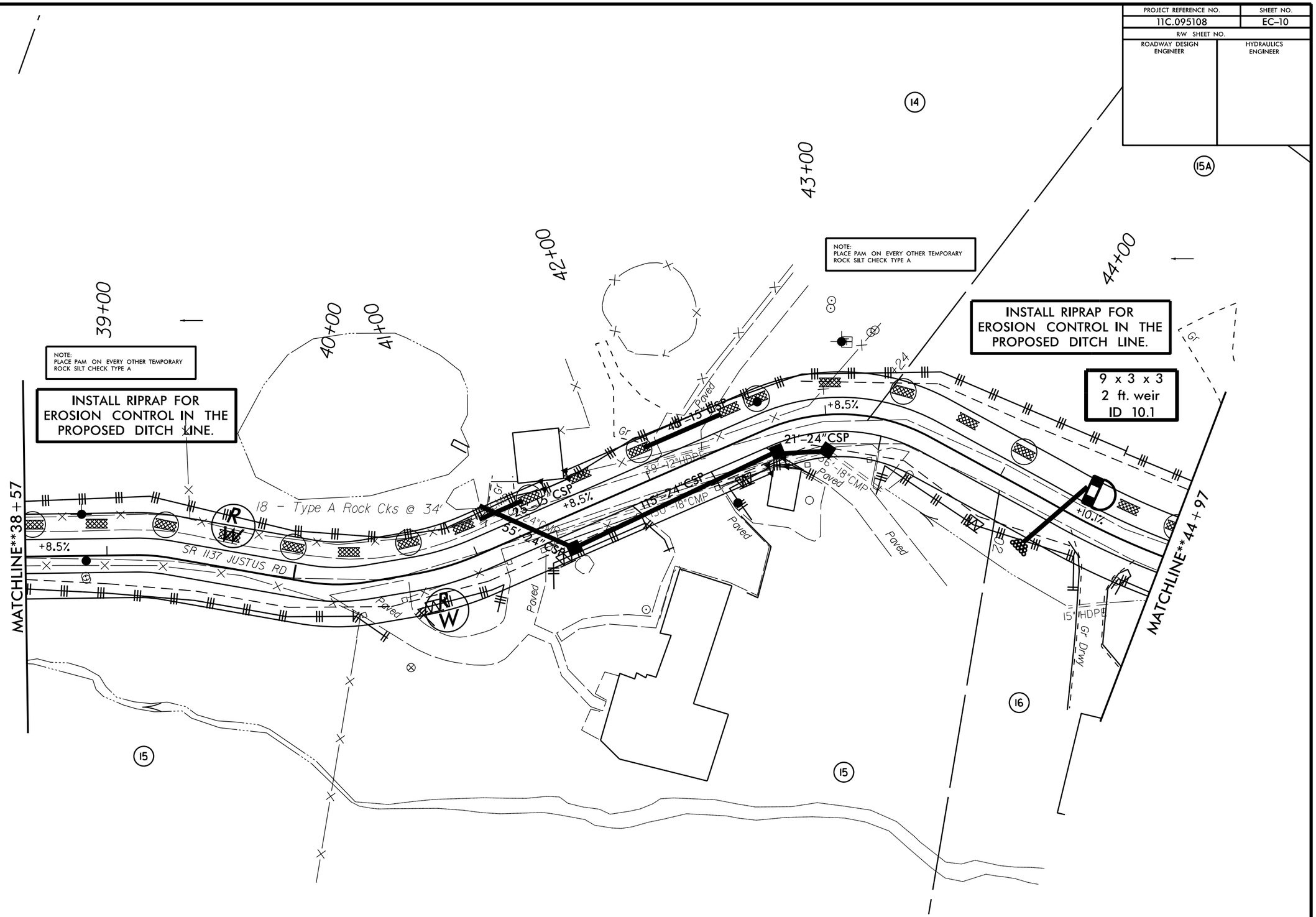

REVISIONS

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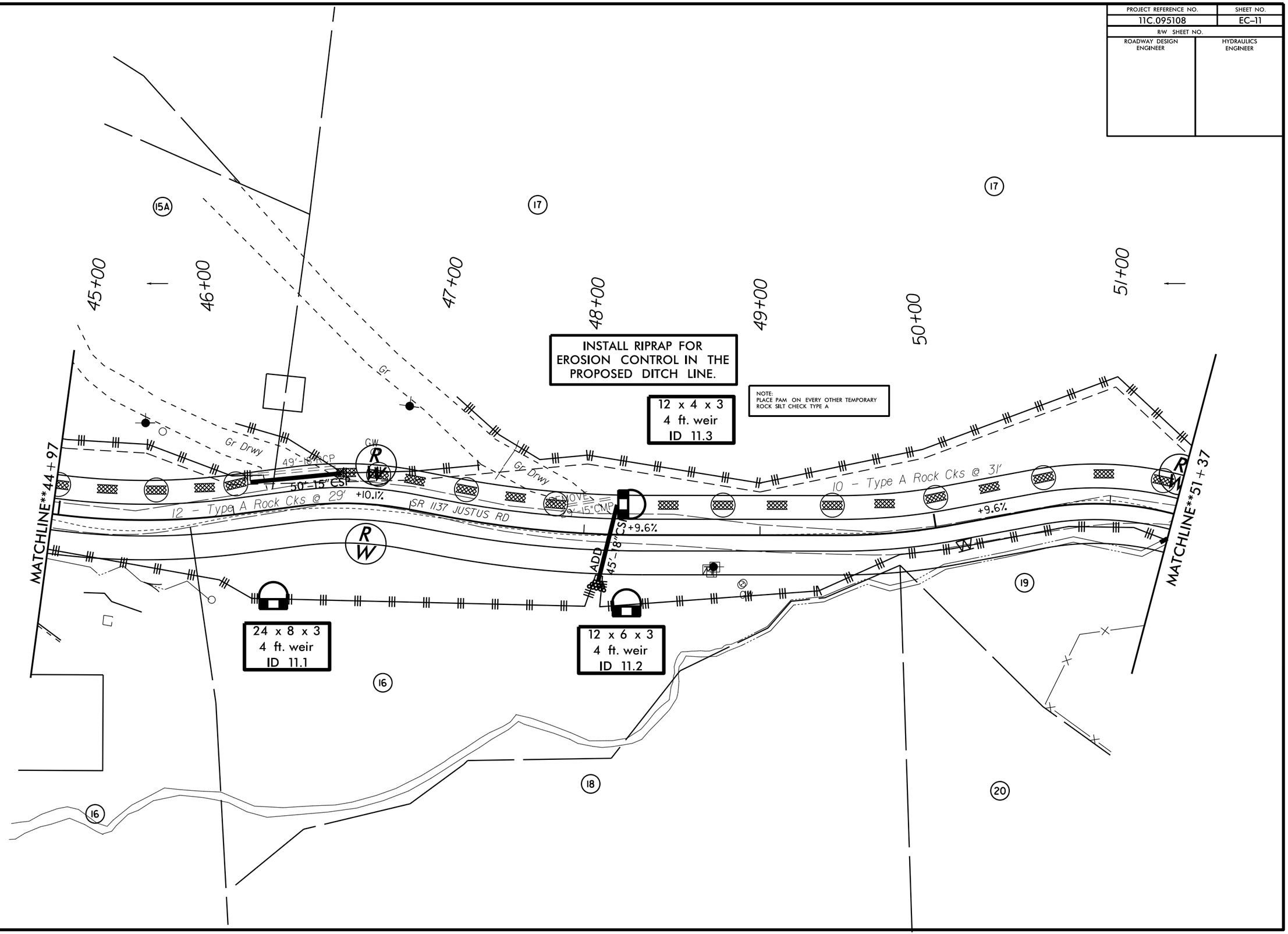
PROJECT REFERENCE NO.	SHEET NO.
11C.095108	EC-11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

8/17/99

22-FEB-2022 10:58
EC-11.dgn
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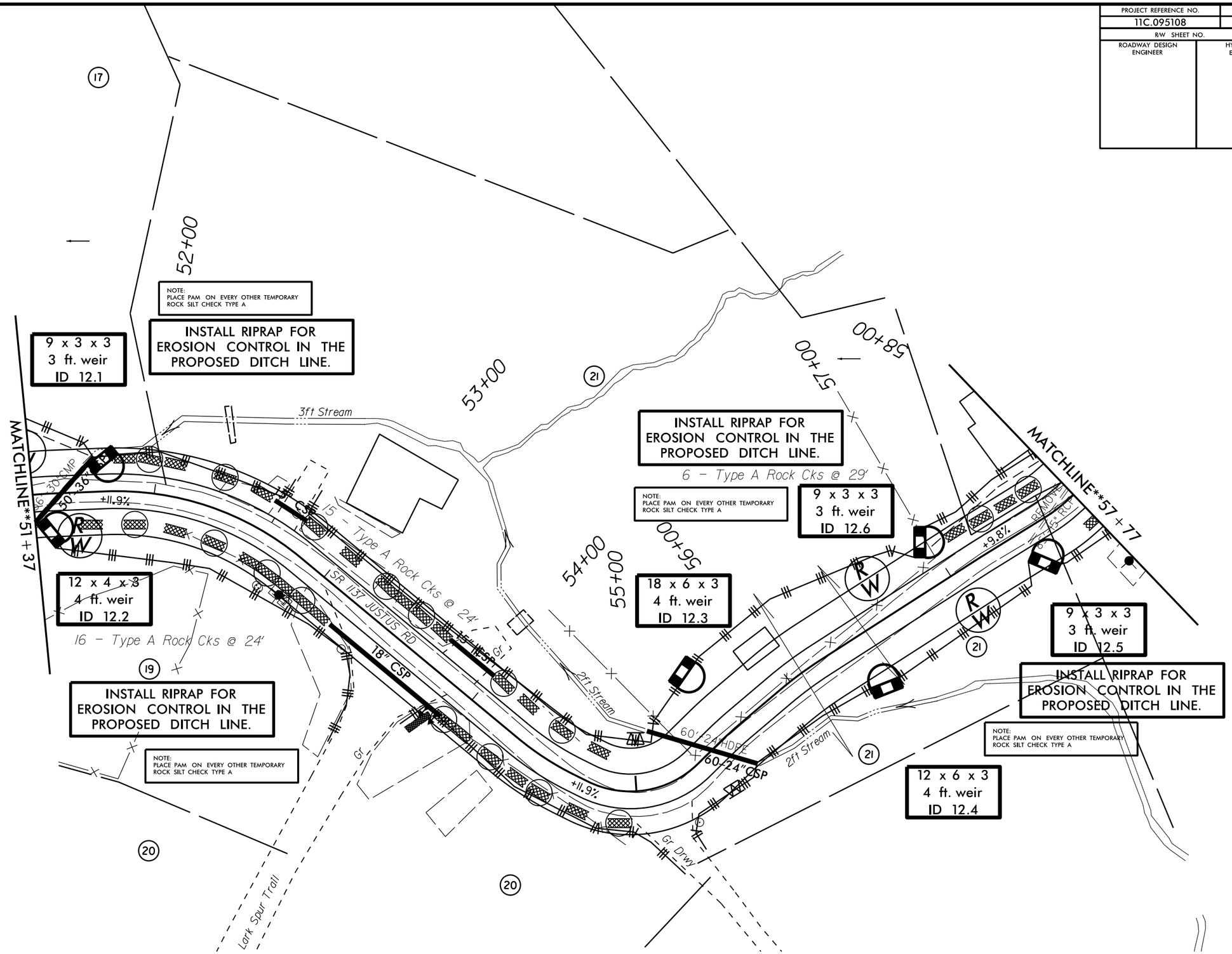
PROJECT REFERENCE NO.	SHEET NO.
11C.095108	EC-12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

8/17/99

22-FEB-2022 10:59
EC-12.dgn
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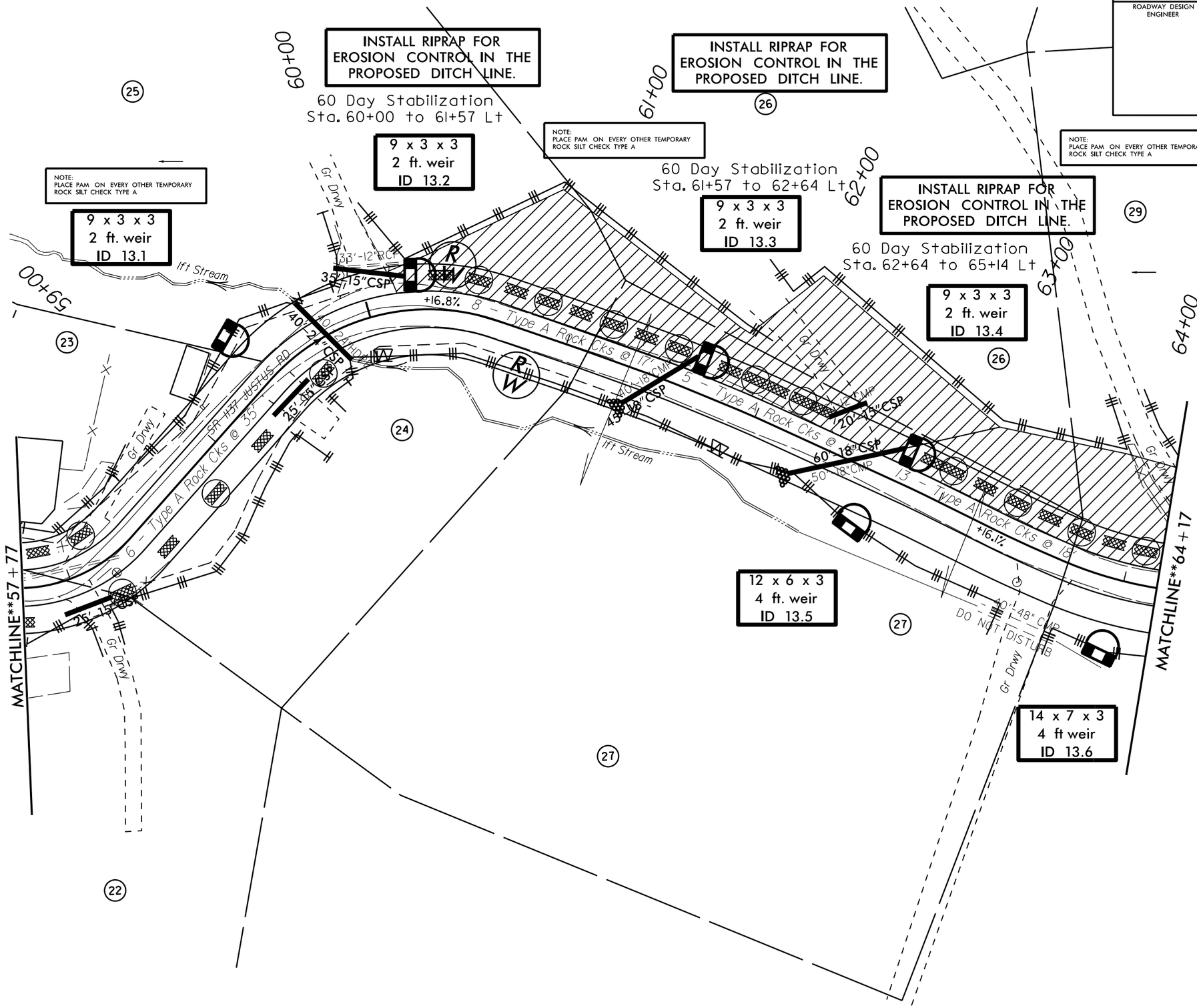
PROJECT REFERENCE NO.	SHEET NO.
11C.095108	EC-13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

8/17/99

22-FEB-2022 11:00
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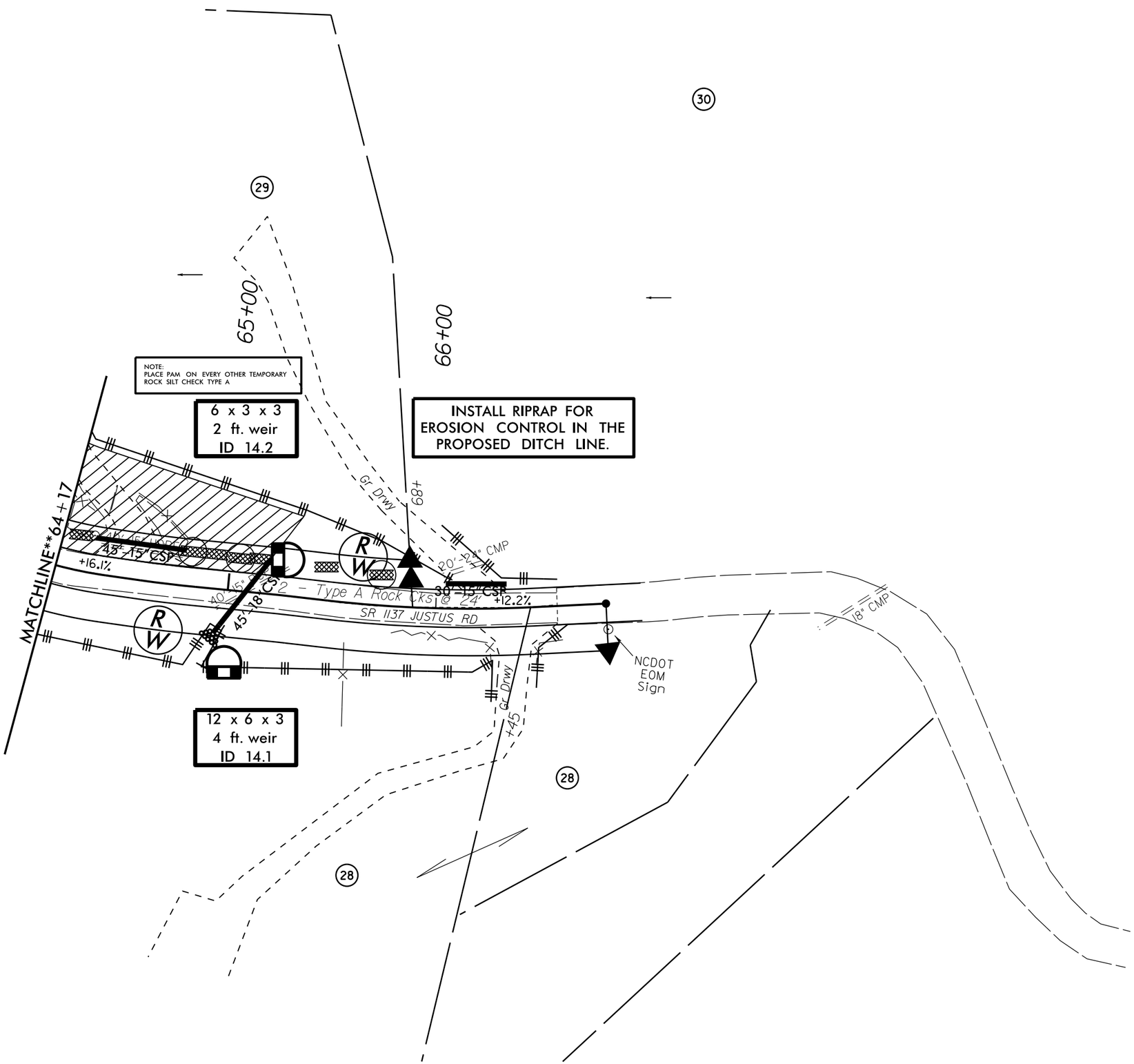
PROJECT REFERENCE NO.	SHEET NO.
11C.095108	EC-14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

8/17/99

22-FEB-2022 11:01
EC-14.dgn
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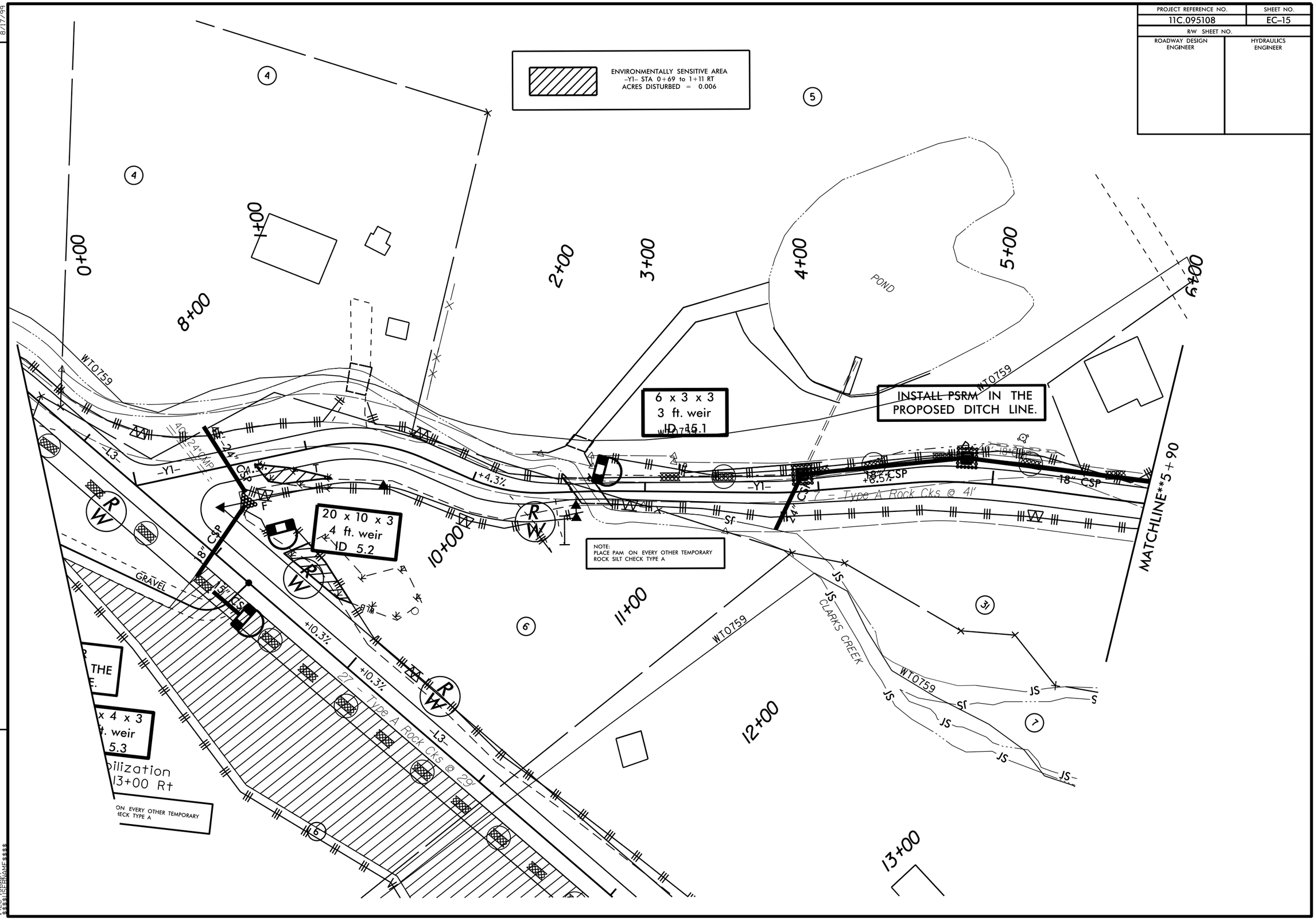
PROJECT REFERENCE NO.	SHEET NO.
11C.095108	EC–15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

8/17/99

22-FEB-2022 11:02
EC-15.dgn
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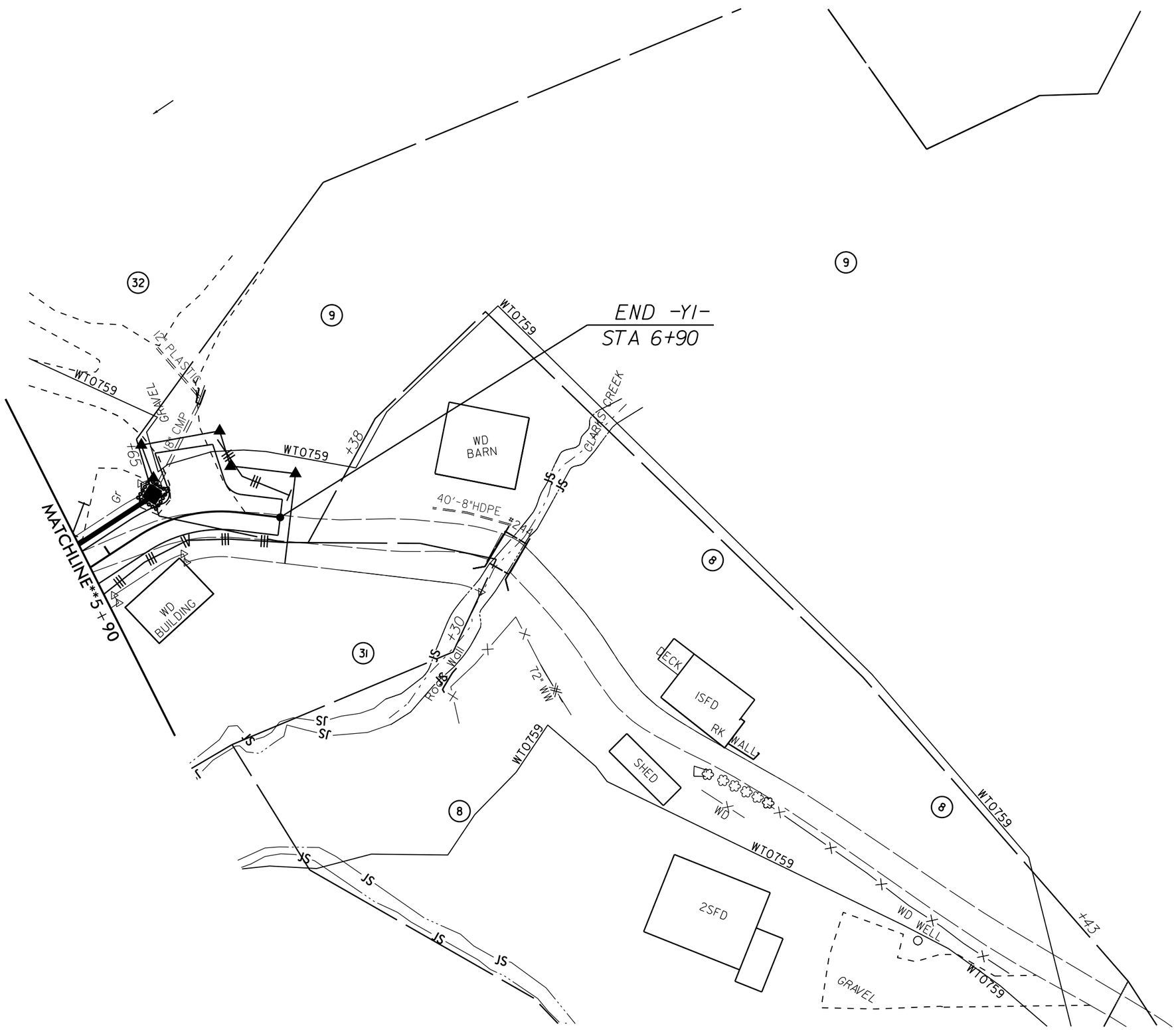
PROJECT REFERENCE NO.	SHEET NO.
11C.095108	EC-16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

8/17/99

22-FEB-2022 11:05
EC-16.dgn
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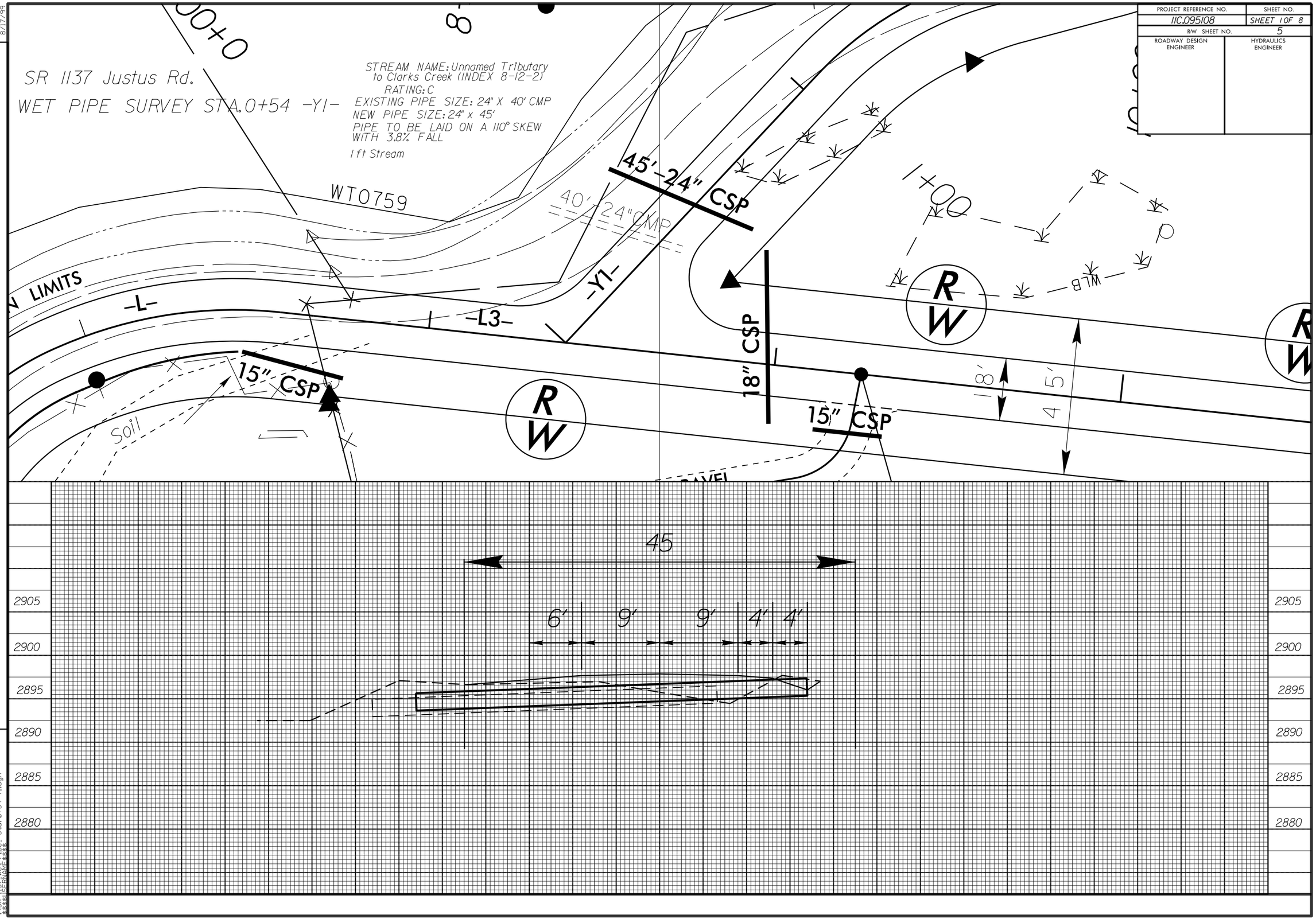
PROJECT REFERENCE NO.	SHEET NO.
IIC.095108	SHEET 10 OF 8
R/W SHEET NO.	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

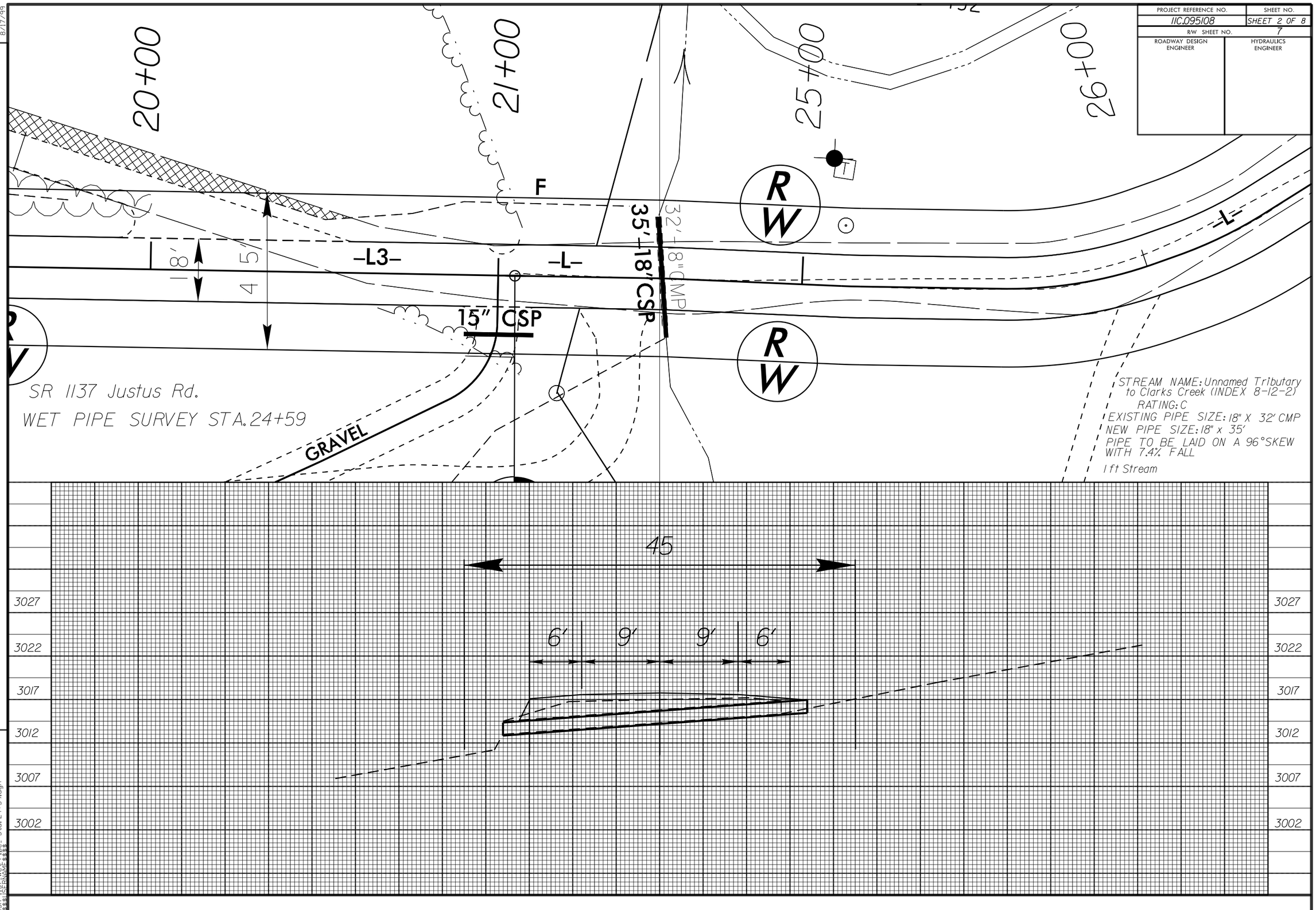


REVISIONS

8/17/99

22-FEB-2022 11:12
\SR 1137\Wet Pipe- Sta. 0+54 Y1.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
IIC.095108	SHEET 2 OF 8
R/W SHEET NO.	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

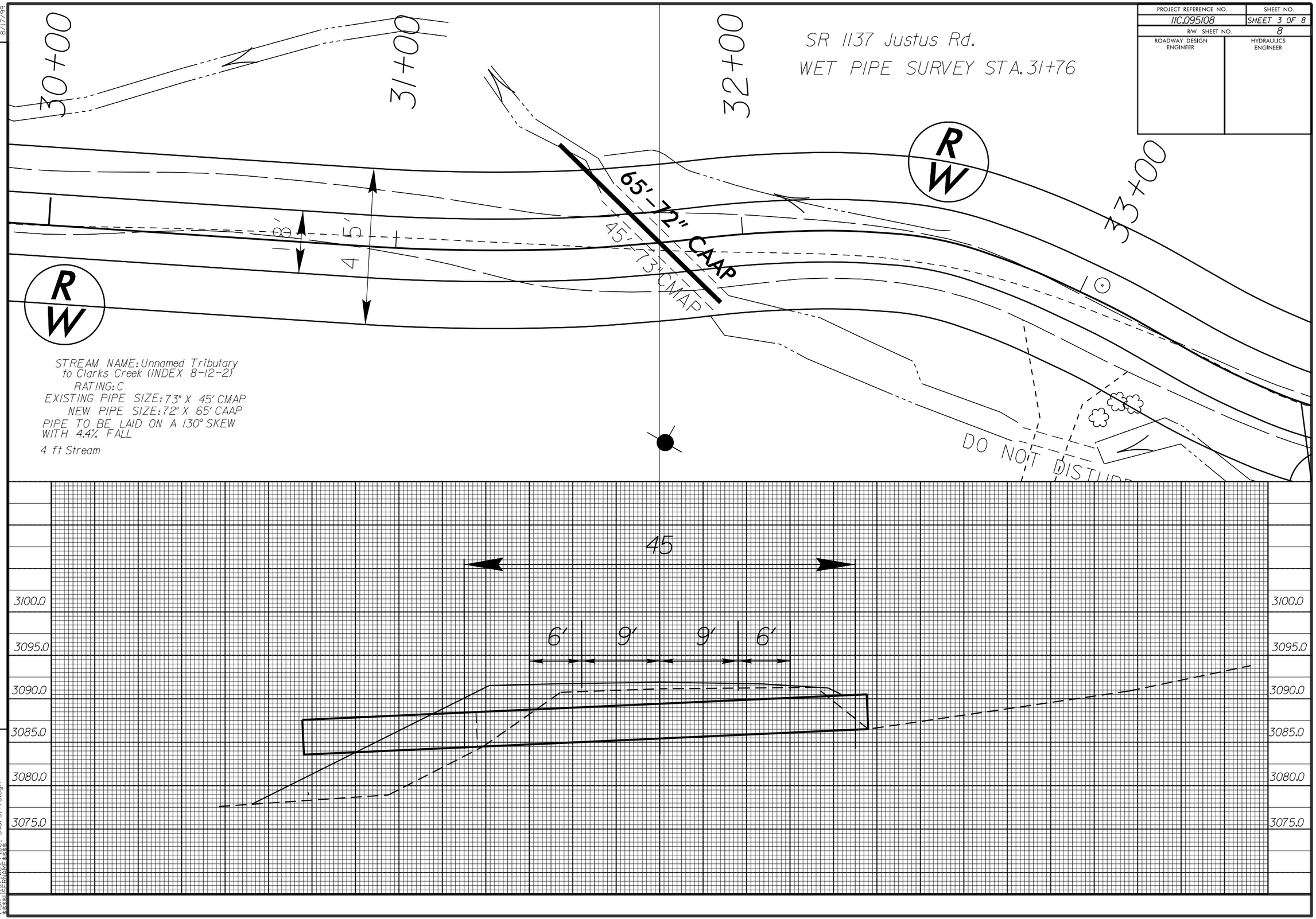


REVISIONS

8/17/99

22-FEB-2022 11:14
\SR 1137 Wet Pipe- Sta. 24+59.dgn
$$$$LCTRAUT$$$$

PROJECT REFERENCE NO.	SHEET NO.
11C.095108	SHEET 3 OF 8
R/W SHEET NO.	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

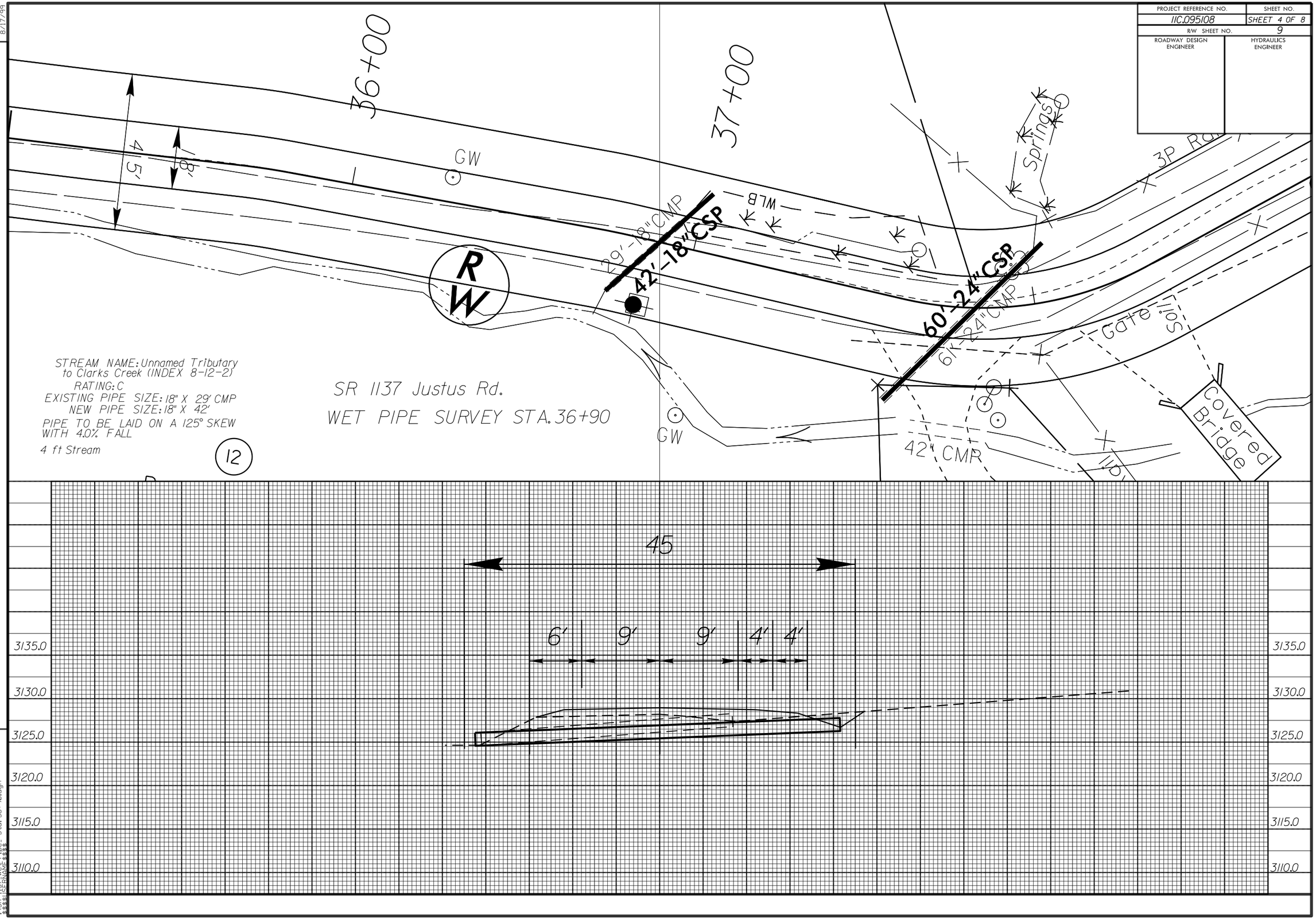


REVISIONS

8/17/99

22-FEB-2022 11:15
\SR 1137 Wet Pipe- Sta. 31+76.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
IIC.095108	SHEET 4 OF 8
R/W SHEET NO.	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

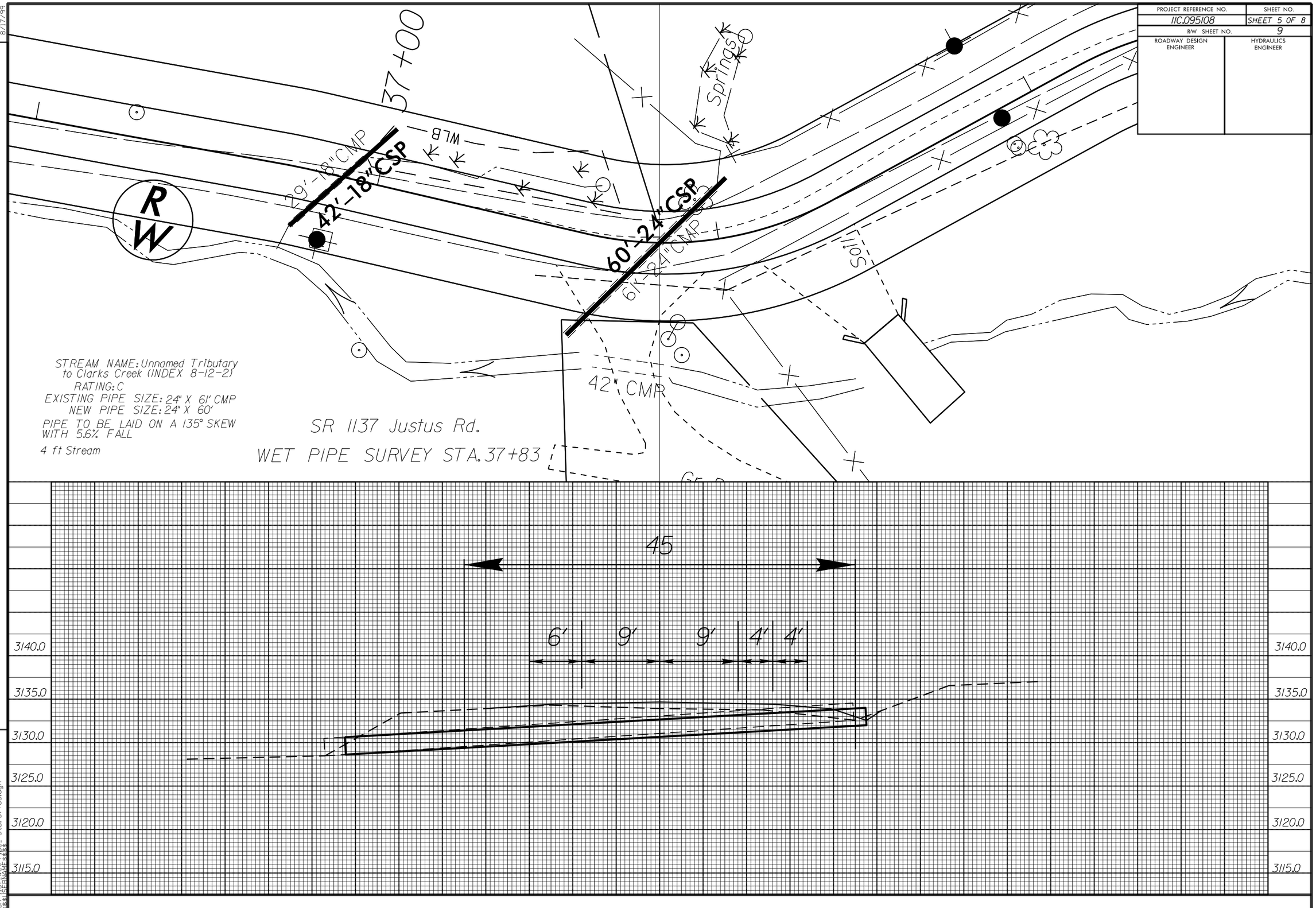


REVISIONS

8/17/99

22-FEB-2022 11:16
\SR 1137 Wet Pipe- Sta. 36+90.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
IIC.095108	SHEET 5 OF 8
R/W SHEET NO.	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

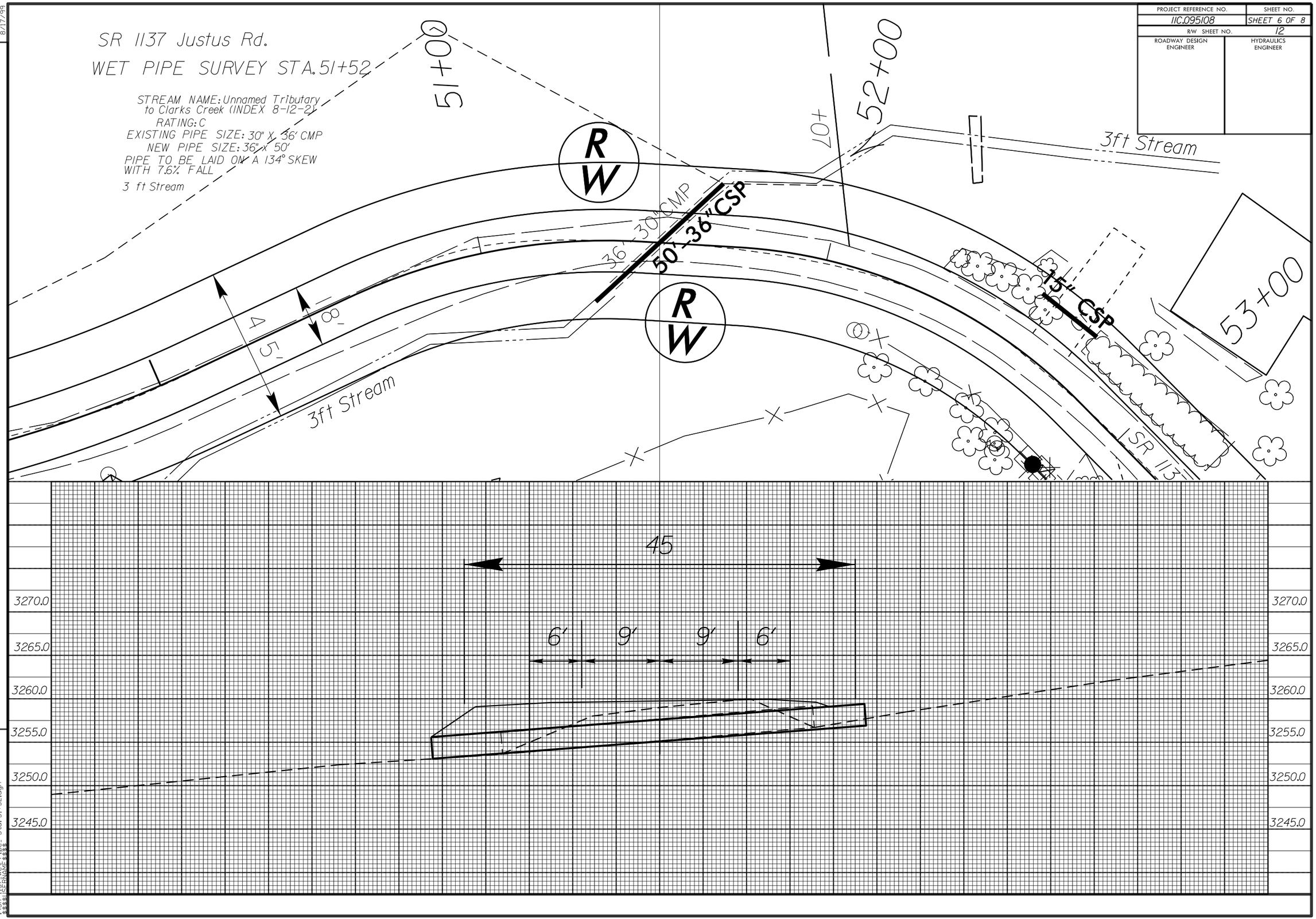


REVISIONS

8/17/99

22-FEB-2022 11:18
\SR 1137 Wet Pipe_ Sta. 37+83.dgn
$$$$USER$$$$

PROJECT REFERENCE NO.	SHEET NO.
11C.095108	SHEET 6 OF 8
R/W SHEET NO.	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

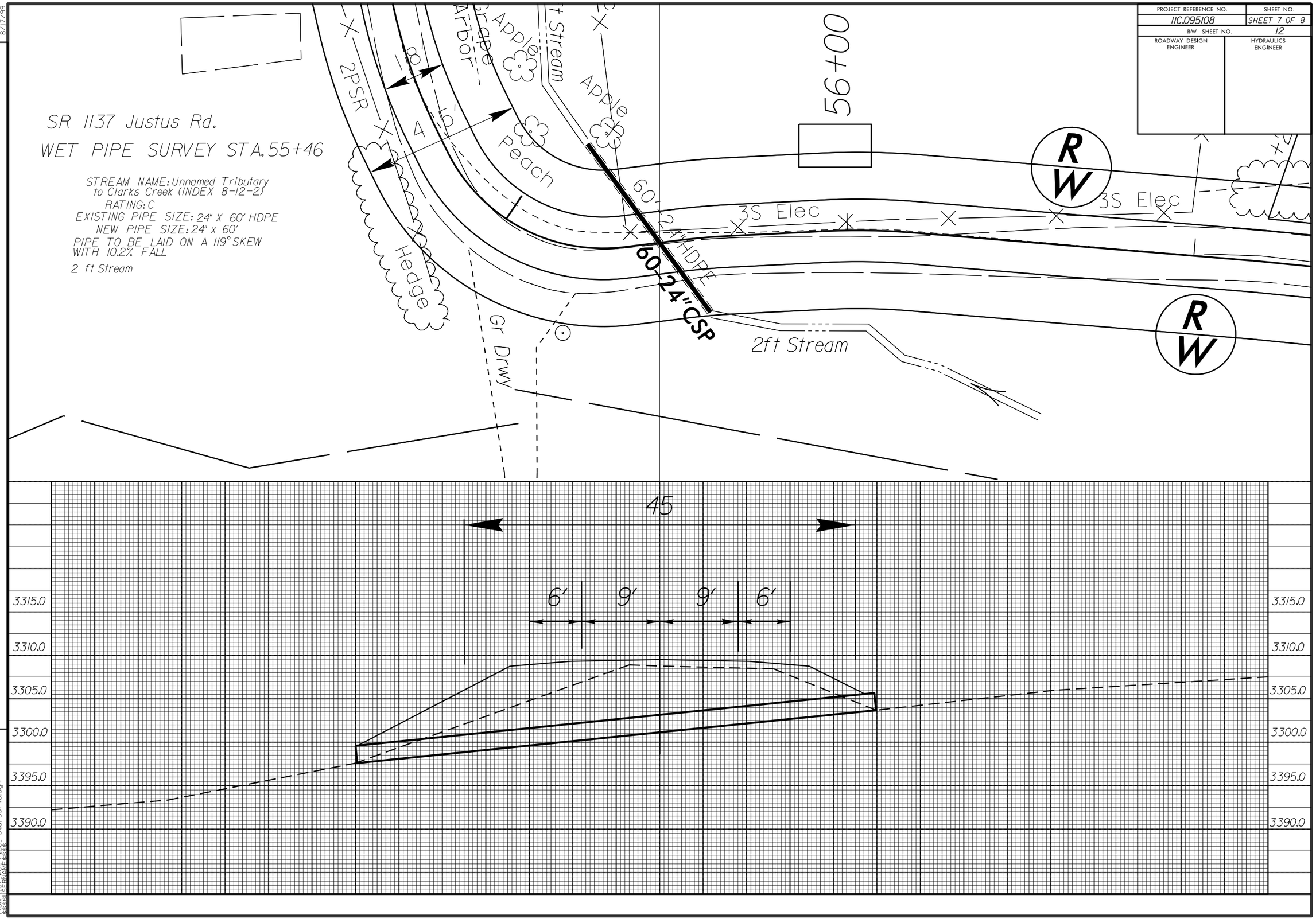


REVISIONS

8/17/99

22-FEB-2022 11:20
\SR 1137 Wet Pipe- Sta. 51+52.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
IIC.095108	SHEET 7 OF 8
R/W SHEET NO.	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

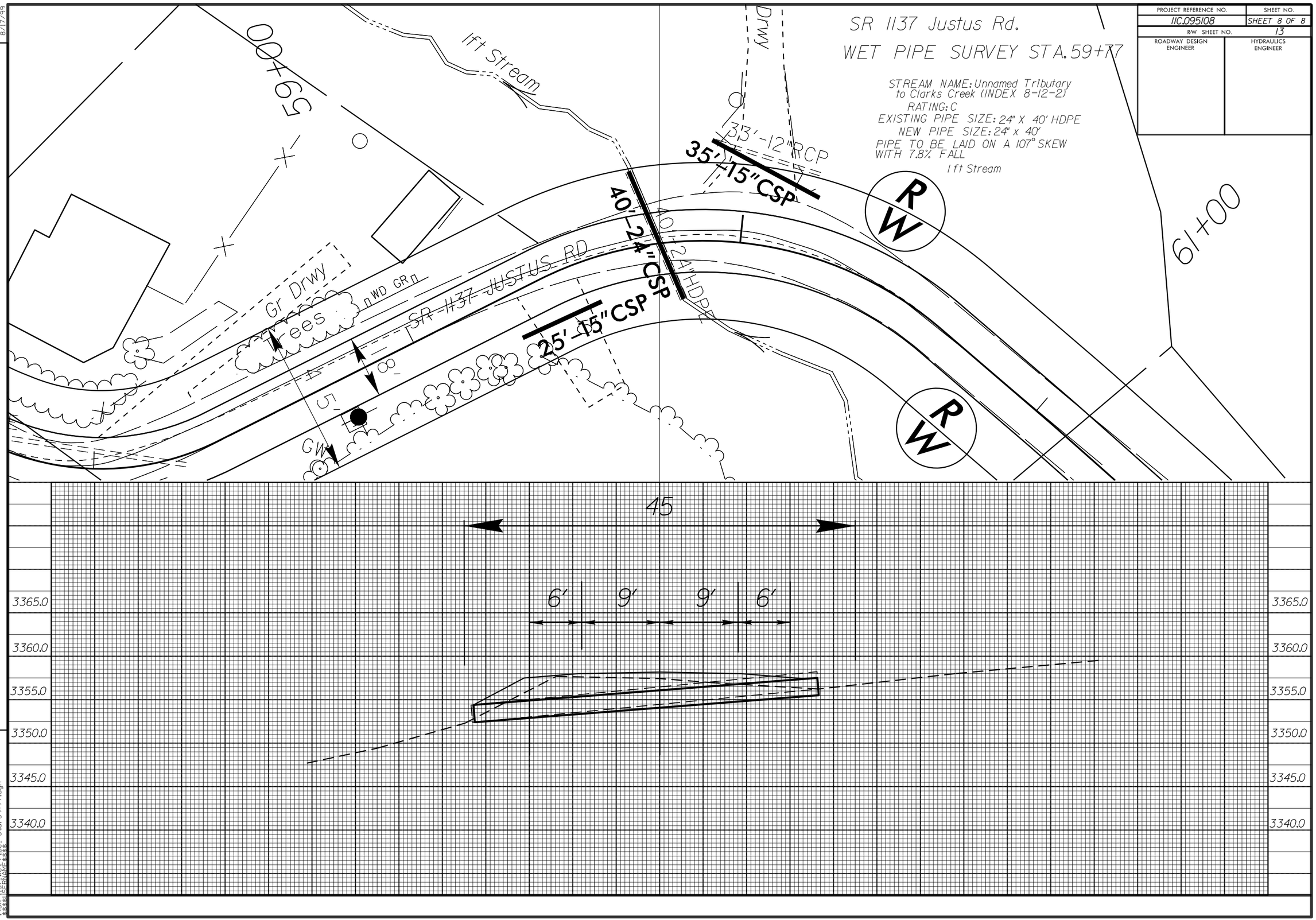
8/17/99

22-FEB-2022 11:21
\SR 1137 Wet Pipe- Sta. 55+46.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
IIC.095108	SHEET 8 OF 8
R/W SHEET NO.	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SR 1137 Justus Rd.
WET PIPE SURVEY STA. 59+77

STREAM NAME: Unnamed Tributary to Clarks Creek (INDEX 8-12-2)
RATING: C
EXISTING PIPE SIZE: 24" X 40' HDPE
NEW PIPE SIZE: 24" x 40'
PIPE TO BE LAID ON A 107° SKEW WITH 7.8% FALL



REVISIONS

8/17/99

22-FEB-2022 11:22
\SR 1137 Wet Pipe- Sta. 59+77.dgn
$$$$USERNAME$$$$