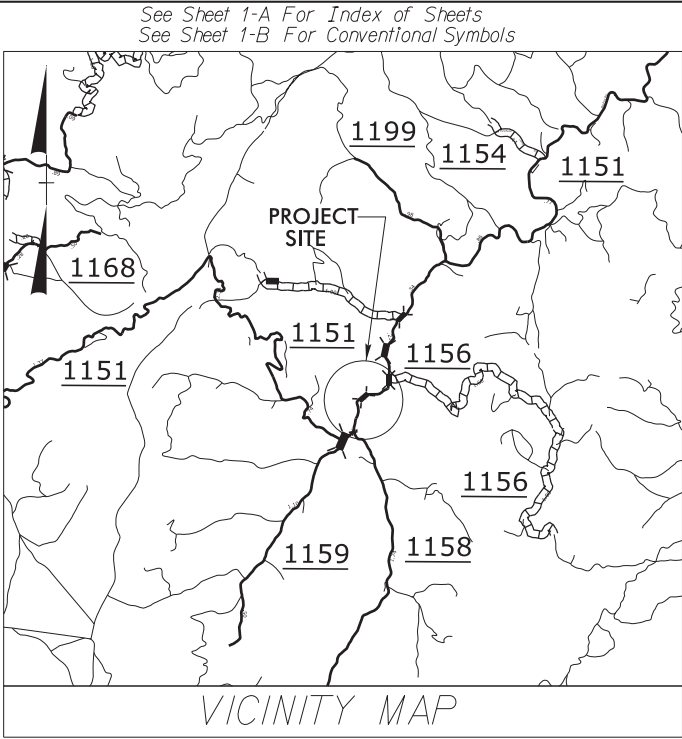


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\$\$\$\$\$SERNAME\$\$\$\$\$

09/08/99

STATE PROJECT: 17BP.13.R.172

CONTRACT: DM00327

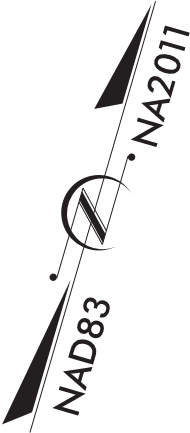


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

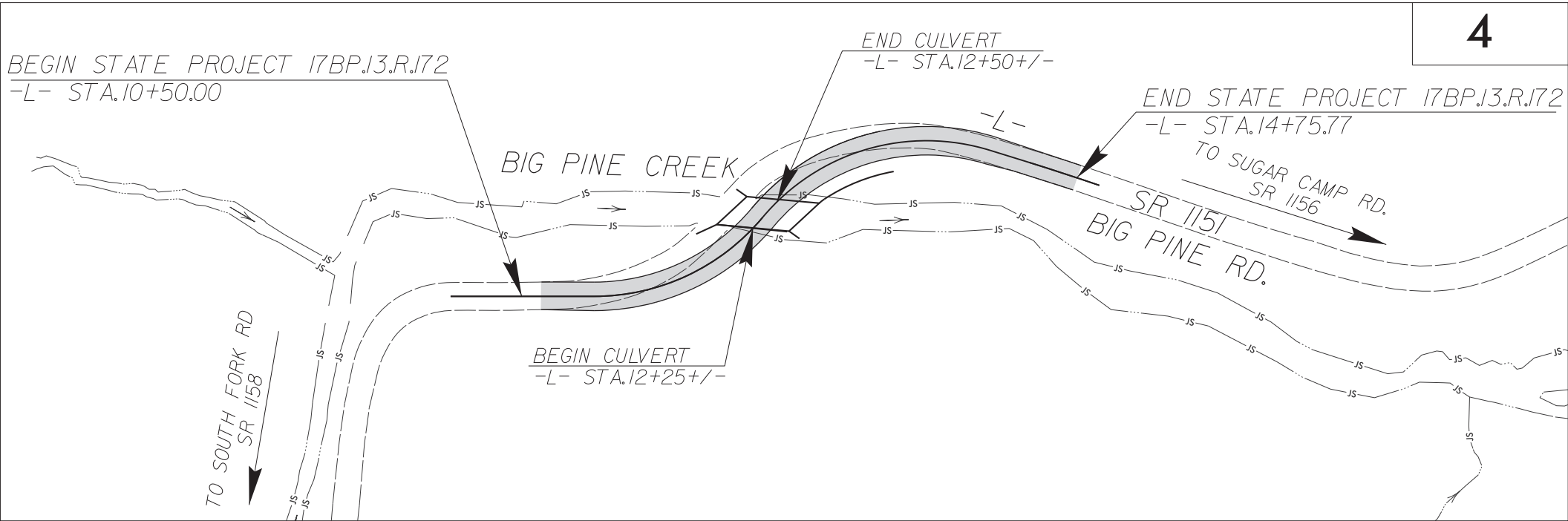
MADISON COUNTY

LOCATION: REPLACE BRIDGE NO.145 OVER BIG PINE CREEK ON SR 1151 (BIG PINE ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND CULVERT

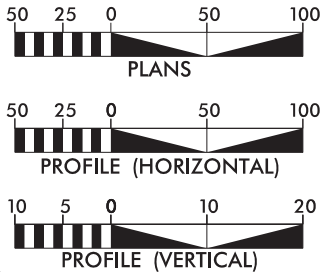


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.13.R.172	1	
STATE PROJ.NO.	P.A.PROJ.NO.	DESCRIPTION	
17BP.13.PE.172		P.E.	
17BP.13.ROW.172		RW	
17BP.13.R.172		CONST.	



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 510
V = 25 MPH

FUNC CLASS = MINOR
COLLECTOR

SUB - REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.13.R.172 = .076 MILES

LENGTH OF STRUCTURE PROJECT 17BP.13.R.172 = .005 MILES

TOTAL LENGTH OF PROJECT 17BP.13.R.172 = .081 MILES

Prepared in the Office of:

KCI Associates of N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609
Phone (919) 783-9214
Fax (919) 783-9266

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 5, 2021

LETTING DATE:
JANUARY 18, 2023

NCDOT CONTACT:

Plans Prepared For:

NCDOT DIVISION 13
55 Orange Street
Asheville, NC 28801

CHARLES L. FLOWE, P.E.
KCI ROADWAY PRACTICE LEAD

RONALD D. ALLEN, P.E.
KCI ROADWAY PROJECT MANAGER

EDDIE DOUGLAS
DIVISION 13

HYDRAULICS ENGINEER

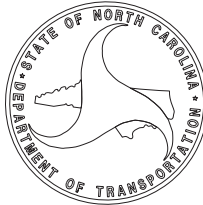
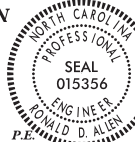
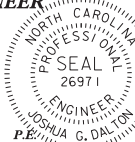
11/7/2022

DocuSigned by:
Josh Dalton
1708A5D0C4B64C3
SIGNATURE:

ROADWAY DESIGN
ENGINEER

11/7/2022

DocuSigned by:
Ronald D. Allen, PE
B8CD9CC392A745D
SIGNATURE:



M:\2016\221601946.09 NCDOT Division 13 Bridge Replacements\F_178P.13.R.172_Madison_560145.B5882\Roadway\Proj\B5882_Rdy_Index_1-A.dgn
\$\$\$\$\CFRNAME\$\$\$\$

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

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJ72	1B

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Exist Permanent Easment Pin and Cap	
New Permanent Easement Pin and Cap	
Vertical Benchmark	
Existing Right of Way Marker	
Existing Right of Way Line	
New Right of Way Line	
New Right of Way Line with Pin and Cap	
New Right of Way Line with Concrete or Granite R/W Marker	
New Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
New Control of Access	
Existing Easement Line	
New Temporary Construction Easement	
New Temporary Drainage Easement	
New Permanent Drainage Easement	
New Permanent Drainage /Utility Easement	
New Permanent Utility Easement	
New Temporary Utility Easement	
New Aerial Utility Easement	

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	
Single Shrub	

*S.U.E. = Subsurface Utility Engineering

Hedge	
Woods Line	
Orchard	
Vineyard	

EXISTING STRUCTURES:

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

UTILITIES:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

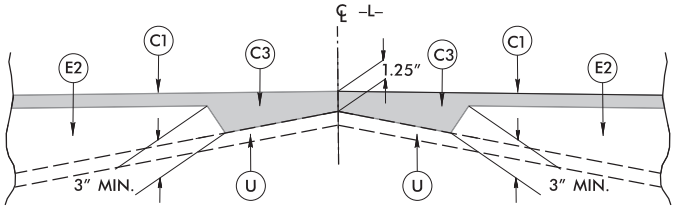
MISCELLANEOUS:

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

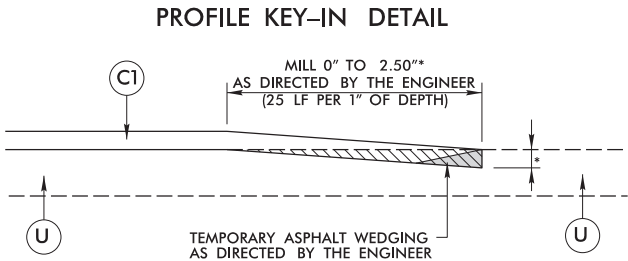
6/22/99
07-NOV-2022 10:57
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\$\$\$\$\$ USER NAME \$\$\$\$\$

FINAL PAVEMENT DESIGN	
C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

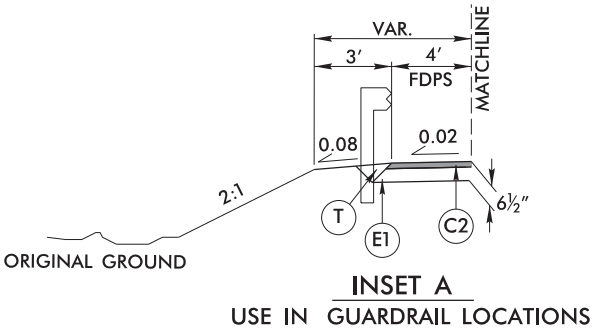
ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.



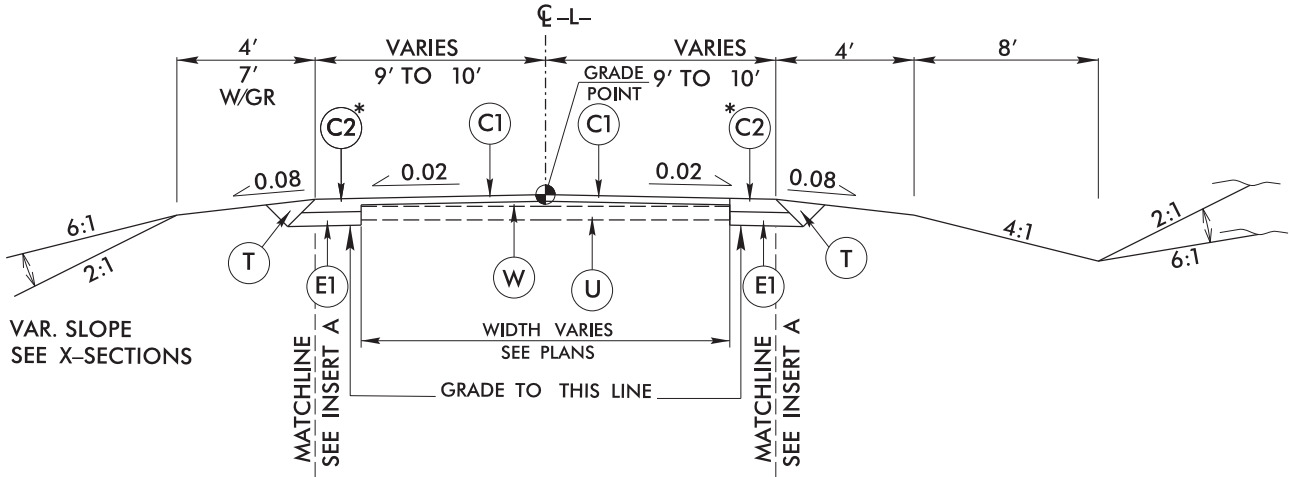
Detail Showing Method of Wedging



* MILL 0" TO 2.50" AS DIRECTED BY THE ENGINEER (25 LF PER 1" OF DEPTH)
* MILL DEPTH AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER
** SEE TYPICALS FOR MIX TYPE



USE IN GUARDRAIL LOCATIONS

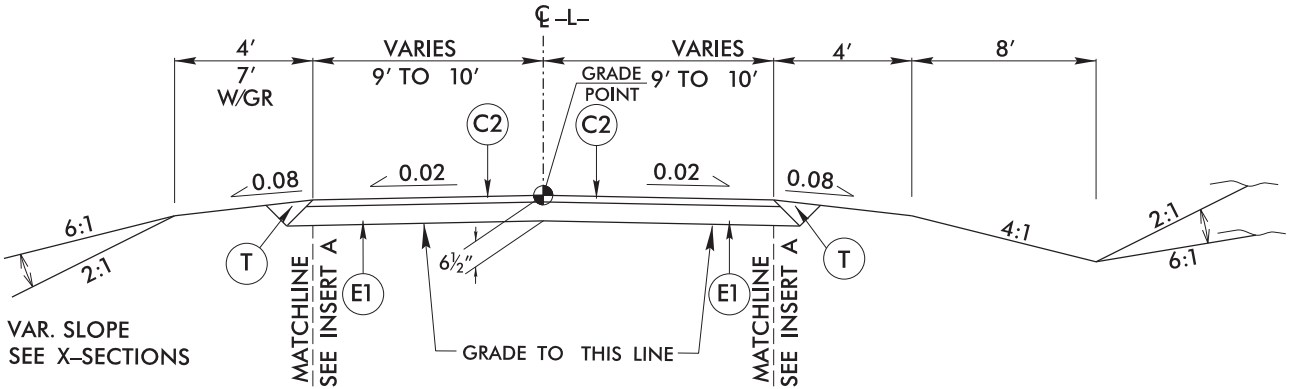


ROADWAY TYPICAL SECTION NO. 1

ROADWAY TYPICAL SECTION NO. 1

-L- STA. 10 + 63.74 TO STA. 11 + 25.00

-L- STA. 14 + 00.00 TO STA. 14 + 75.77



ROADWAY TYPICAL SECTION NO. 2

ROADWAY TYPICAL SECTION NO. 2

-L- STA. 11 + 25.00 TO STA. 14 + 00.00

* FINAL SURFACE TO BE INSTALLED IN ONE OPERATION PER LANE

PROJECT REFERENCE NO. 17BP.13.R.172	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 11/7/2022 NORTH CAROLINA PROFESSIONAL SEAL 015356 Ronald D. Allen, PE	PAVEMENT DESIGN ENGINEER 11/9/2022 NORTH CAROLINA PROFESSIONAL SEAL 022896 Clark S. Harrison
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
KCI Engineers • Planners • Scientists • Construction Managers 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609 Phone (919) 783-9214 • Fax (919) 783-9266	

SUMMARY OF DRAINAGE

***SUB-REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)***

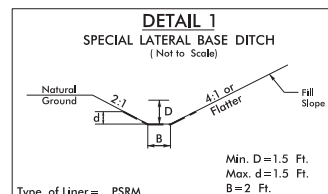
[illegible]

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

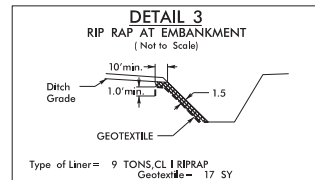
8/17/99

REVISIONS

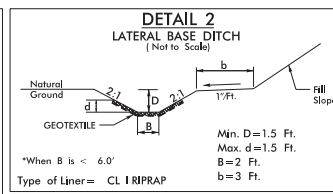
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\$\$\$\$\$USERNAME\$\$\$\$\$



Type of Liner= PSRM B=2 Ft.
FROM STA. 10+75 -L- TO STA. 11+50 -L- RT



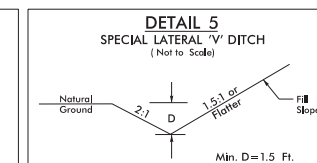
FROM STA. 12+38 -L- TO STA. 12+47 -L- RT



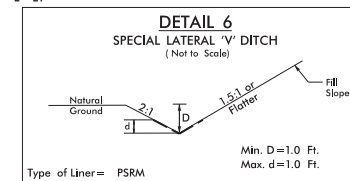
*When B is < 6.0'

Type of Liner= CL I RIPRAP

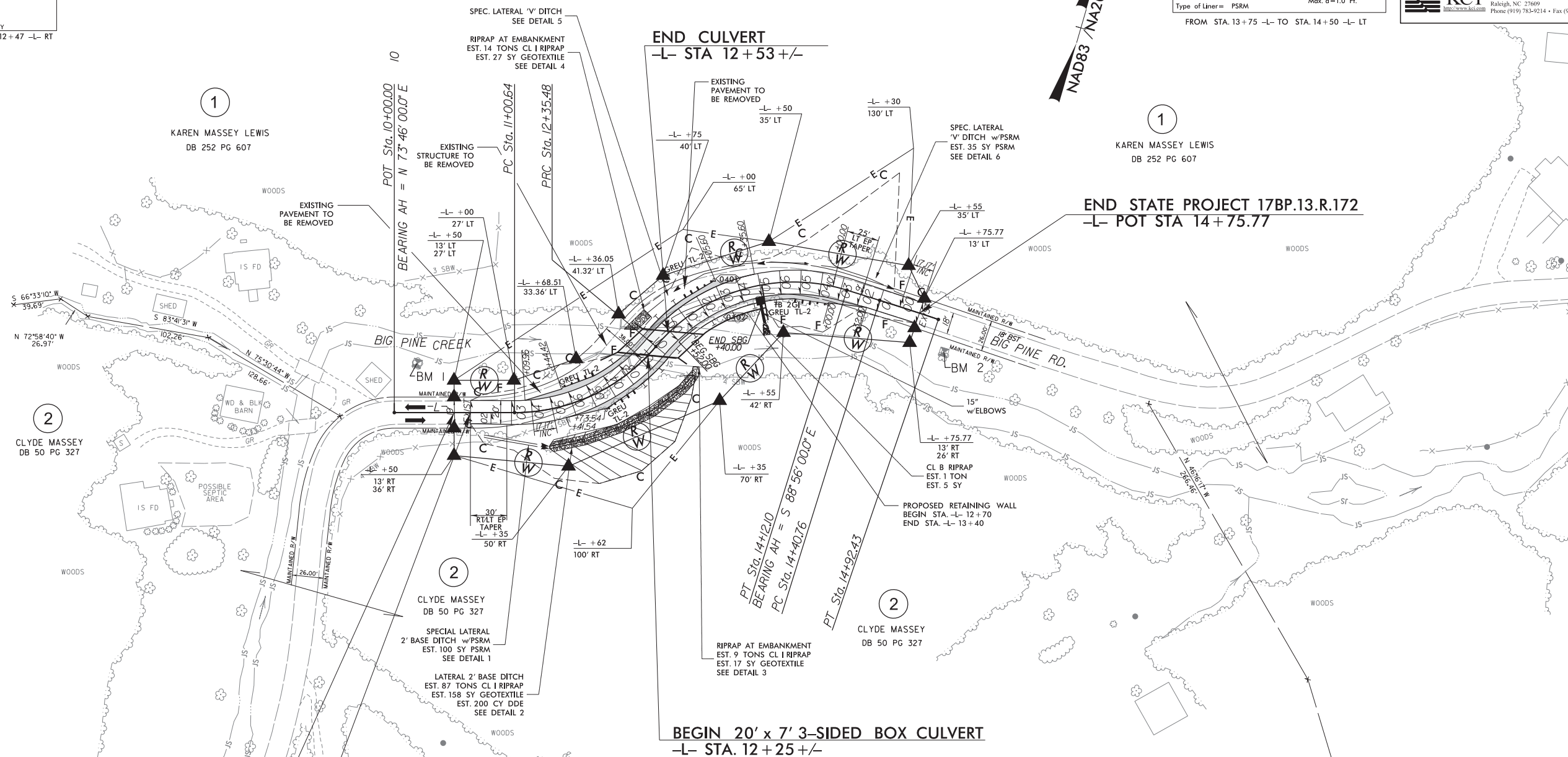
FROM STA. 11+50 -L- TO STA. 12+38 -L- RT



FROM STA. 12+50 -L- TO STA. 13+75 -L- L



FROM STA. 13+75 -L- TO STA. 14+50 -L- LT



BEGIN STATE PROJECT 17BP.13.R.172
-L- POT STA 10+50.00

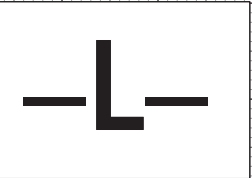
BEGIN PAVEMENT
-L- STA 10+63.74

BEGIN 20' x 7' 3-SIDED BOX CULVERT
-L- STA. 12+25 +/-

FOR -L- PROFILE SEE SHEET 5

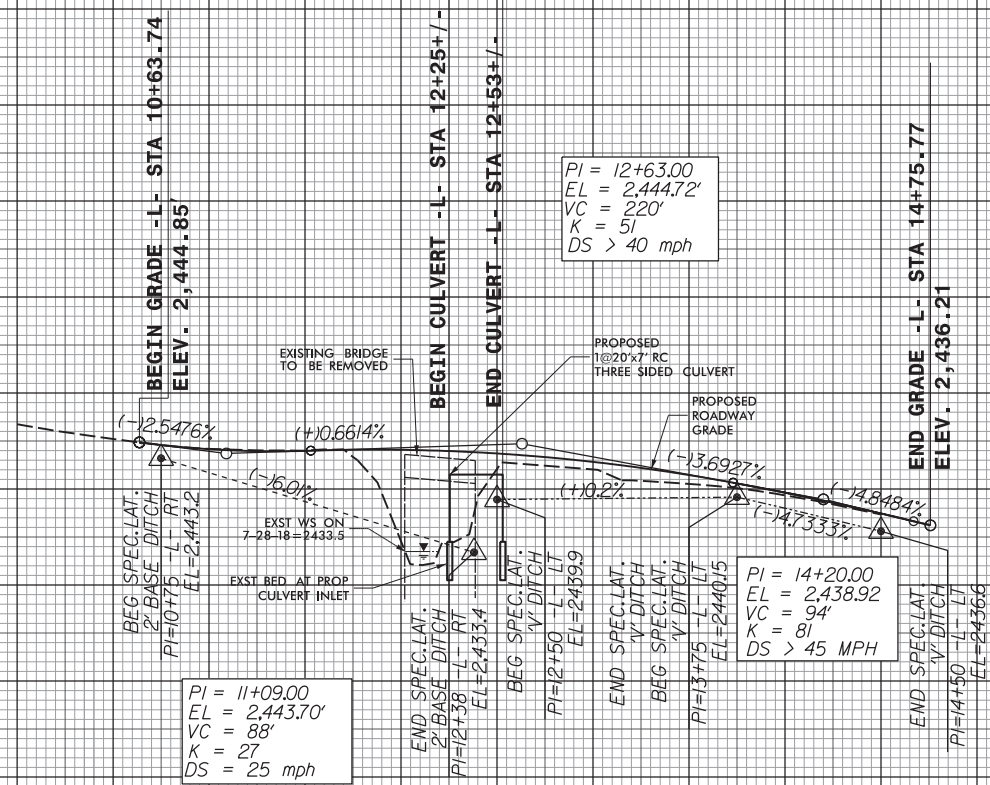
5/14/99
05-158-2022.1342
05-2016-221501616.09
13 Bridge Replacements\17BP.13.R.172_Madison.560145.B5882\Roadway\Proj\B5882_Rdy_pfl.s5.dgn

BM #1
-L- STA. 10+19.26, 41.23' LT
EL = 2445.25'
R/R SPIKE SET IN BASE OF 30" POPLAR



CULVERT HYDRAULIC DATA		
1@20'x7' RC THREE SIDED Sta. 12+39		
DESIGN DISCHARGE	= 1,500	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2,443.0	FT
BASE DISCHARGE	= 2,520	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2,444.5	FT
OVERTOPPING DISCHARGE	= 1,650	CFS
OVERTOPPING FREQUENCY	= 50+/-	YRS
OVERTOPPING ELEVATION	= 2,443.4	FT

BM #2
N 763950 E 870314
EL = 2429.29'
NAIL SET IN BASE OF 16" CUCUMBER



FOR -L- ALIGNMENT SEE SHEET 4

09/08/99

PROJECT: 17BP.13.R.172

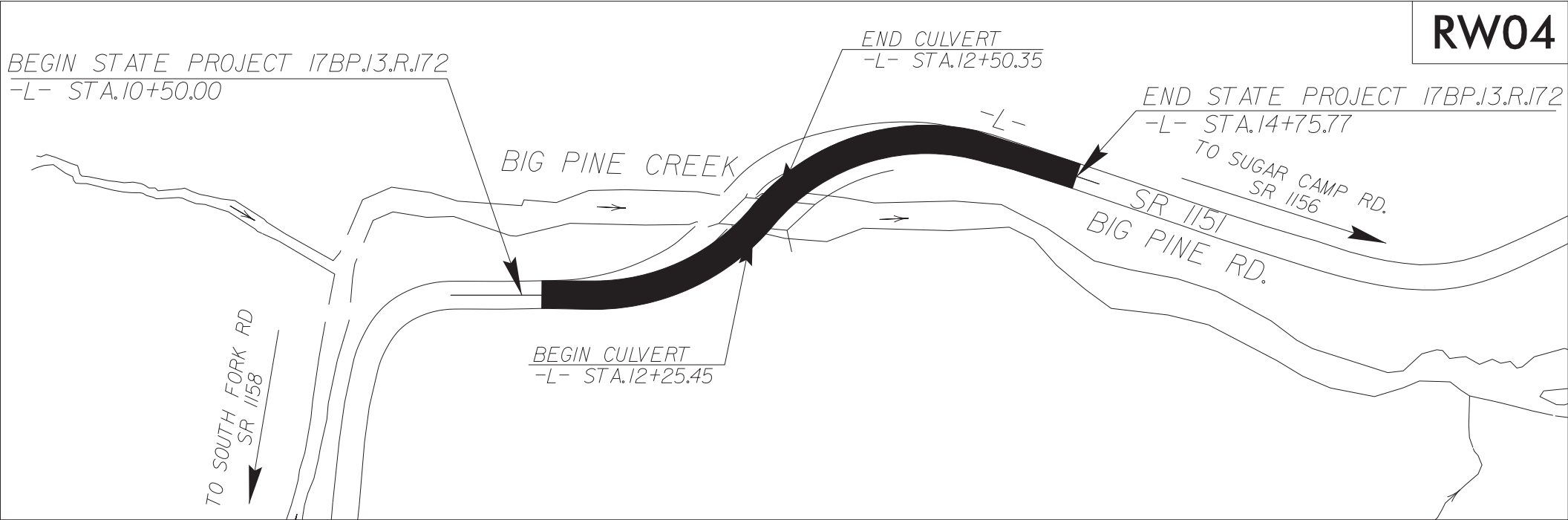
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.13.R.172	RW01	7

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES,
RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

MADISON COUNTY



RW04

GRAPHIC SCALE



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3869-1" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 762,438.769(ft) EASTING: 869,349.664(ft) ELEVATION: 2,490.240(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99981377 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3869-1" TO -L- STATION 10+00.00 IS N 21°55'35.3" E 1,437.79(ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:



2018 STANDARD SPECIFICATIONS

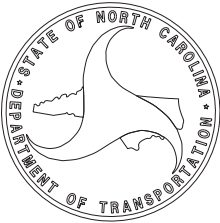
RIGHT OF WAY DATE:
02/05/2021

LETTING DATE:
06/02/2021

PROFESSIONAL LAND
SURVEYOR



Date:



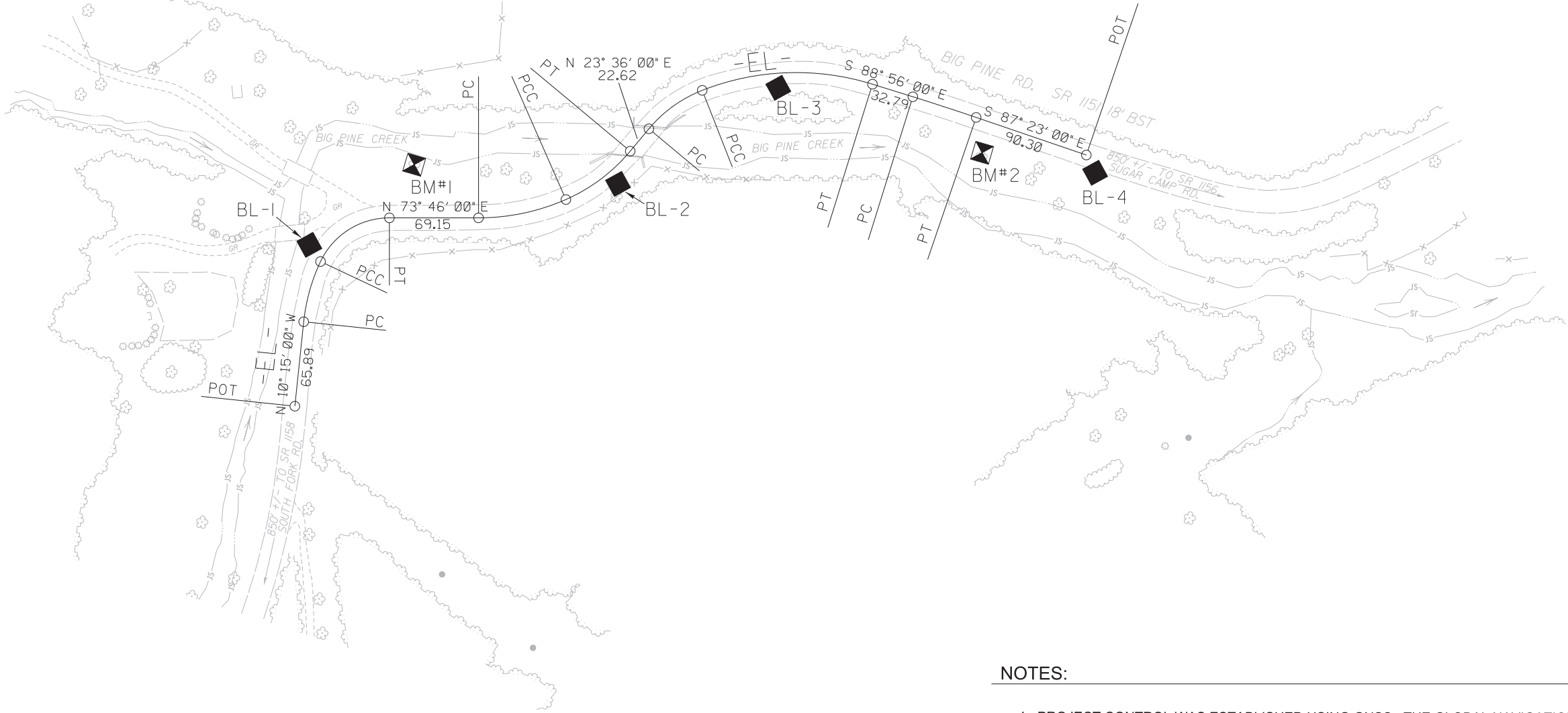
REVISIONS

10-MAR-2021 09:54
V:\NC\Survey\202112-06_BRDG 145 Big Pine Crk\Survey\Control Sheets\B5882.1s.RW02C-1.dgn
Jegordon

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

SEE SHEETS RW02C-2 THRU RW02C-3
FOR FURTHER
ALIGNMENT DETAILS



I, Mark A. Parris, PLS, certify that the Project Control was VERIFIED under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: AA
Type of GPS field procedure: RTN
Dates of survey: 02/12/2013
Datum/Epoch: NAD 83/95
Published/Fixed-control use: N/A
Localized around: B3869-1
Northing: 762438.769
Easting: 869349.664
Combined grid factor: 0.99981377
Geoid model: 12NC
Units: US SURVEY FT.

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 02/19/2014 to 02/24/2014, and all coordinates are based on NAD 83/95 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 1st day of March, 2021.

DocuSigned by:
Mark A. Parris
F1570CB85C7243A
Professional Land Surveyor L-4529

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.172	RW02C-1
Location and Surveys	
 1318-F Patton Avenue Asheville, NC 28806 Firm License # F-1088	
PROJECT SURVEYOR 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

- NOTES:
- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
 - THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

6/2/99

REVISIONS

10-MAR-2021 09:56
V:\NC\Survey\032112-06_BRDG 145 Big Pine Crk\Survey\Control Sheets\B5882_1s.RW02C-2.dgn
Jegordon

SURVEY CONTROL SHEET
W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.
17BP.13.R.172

SHEET NO.
RW02C-2

Location and Surveys

V&M
Vaughn & Melton
1318-F Patton Avenue
Asheville, NC 28806
Firm License # F-1088

PROJECT SURVEYOR



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

I, Mark A. Parris, PLS, certify that the Project Control was VERIFIED under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**
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Published/Fixed-control use: N/A
Localized around: B3869-1
Northing: 762438.769
Easting: 869349.664
Combined grid factor: 0.99981377
Geoid model: 12NC
Units: US SURVEY FT.

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This 1st day of March, 2021.


F1570CB85C7248A
Professional Land Surveyor L-4529

BL	POINT	DESC.	NORTH	EAST	ELEVATION
1		BL - 1	763735.0419	869832.7351	2450.20
2		BL - 2	763847.4045	870049.3994	2443.32
3		BL - 3	763953.7585	870147.9455	2440.11
4		BL - 4	763959.1469	870402.3268	2430.96

BM1 ELEVATION = 2445.25
N 763818 E 869894
R/R SPIKE SET IN BASE OF 30" POPLAR

BM2 ELEVATION = 2429.29
N 763950 E 870314
NAIL SET IN BASE OF 16" CUCUMBER

- NOTES:
- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
 - THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

I:\MAR-2021\09-58
V:\NC\Survey\202112-06 BRDG 145 Big Pine Crk\Survey\Control Sheets\B5882.1s.RW02C-3.dgn
Jegordon
AT WKS-1903PY-8

SURVEY CONTROL SHEET
W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

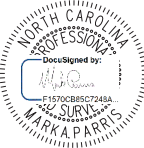
PROJECT REFERENCE NO.
17BP.13.R.172

SHEET NO.
RW02C-3

Location and Surveys

V&M
Vaughn & Melton
1318-F Patton Avenue
Asheville, NC 28806
Firm License # F-1088

PROJECT SURVEYOR



DocuSigned by:
Mark A. Parris
F1570CB85C7248A
Professional Land Surveyor

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	763611.759	869856.985							
LINE			N 10°15'00.0" W	65.89					
PC	763676.593	869845.261							
CURVE			N 00°37'47.7" W	48.48	19°14'24.5"(RT)	39°30'00.0"	48.71	24.59	145.05
PCC	763725.071	869844.728							
CURVE			N 41°22'42.3" E	63.28	64°46'35.5"(RT)	97°00'00.1"	66.78	37.47	59.07
PT	763772.553	869886.558							
LINE			N 73°46'00.0" E	69.15					
PC	763791.883	869952.948							
CURVE			N 61°54'25.5" E	69.27	23°43'09.0"(LT)	34°00'00.0"	69.76	35.39	168.52
PCC	763824.501	870014.052							
CURVE			N 36°49'25.5" E	62.41	26°26'51.0"(LT)	42°00'00.0"	62.97	32.06	136.42
PT	763874.461	870051.460							
LINE			N 23°36'00.0" E	22.62					
PC	763895.190	870060.516							
CURVE			N 37°58'12.3" E	51.01	28°44'24.6"(RT)	55°45'00.0"	51.55	26.33	102.77
PCC	763935.405	870091.902							
CURVE			N 71°42'12.3" E	132.15	38°43'35.4"(RT)	28°45'00.0"	134.70	70.04	199.29
PT	763976.892	870217.372							
LINE			S 88°56'00.0" E	32.79					
PC	763976.282	870250.154							
CURVE			S 88°09'30.0" E	51.67	01°33'00.0"(RT)	03°00'00.0"	51.67	25.83	1909.86
PT	763974.622	870301.793							
LINE			S 87°23'00.0" E	90.30					
POT	763970.499	870392.002							

I, Mark A. Parris, PLS, certify that the Project Control was VERIFIED under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**
Type of GPS field procedure: RTN
Dates of survey: 02/12/2013
Datum/Epoch: NAD 83/95
Published/Fixed-control use: N/A
Localized around: B3869-1
Northing: 762438.769
Easting: 869349.664
Combined grid factor: 0.99981377
Geoid model: 12NC
Units: US SURVEY FT.

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 02/19/2014 to 02/24/2014 , and all coordinates are based on NAD 83/95 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 1st day of March, 2021.


F1570CB85C7248A
Professional Land Surveyor L-4529

NOTES:

- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
- THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

6/2/99

REVISIONS

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Jegordon

PROPOSED ALIGNMENT CONTROL SHEET

L			
TYPE	STATION	NORTH	EAST
POT	10+00.00	763772.5535	869886.5577
PC	11+00.64	763800.6867	869983.1831
PRC	12+35.48	763886.8938	870081.2530
PT	14+12.10	763976.8155	870221.4998
PC	14+40.76	763976.2820	870250.1543
PT	14+92.43	763974.6216	870301.7927

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATINO REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

PROJECT REFERENCE NO.
17BP.13.R.172

SHEET NO.
RW02D-1

Location and Surveys

V&M

Vaughn & Melfon

1318-F Patton Avenue
Asheville, NC 28806
Firm License # F-1088

PROJECT SURVEYOR

NORTH CAROLINA
PROFESSIONAL
SURVEYOR

DocuSigned by:
MARK A. PARRIS
F1570CB85C7243A

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UNLESS ALL SIGNATURES COMPLETED

I, Mark A. Parris, PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

This 10th day of March, 2021.

DocuSigned by:
MARK A. PARRIS
F1570CB85C7243A

Professional Land Surveyor L-4529

6/2/2021

REVISIONS

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AJ WKS-003FY-18
Jegordon

RIGHT OF WAY CONTROL SHEET

I, Mark A. Parris, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A); Field work was performed from 3/9 to 3/10, and all coordinates are based on NAD83/95; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 10th day of March, 2021.
DocuSigned by:
F1570CB85C748A...nd Surveyor L-4529

PROJECT REFERENCE NO.
17BP.13.R.172

SHEET NO.
RW03E-1

Location and Surveys



1318-F Patton Avenue
Asheville, NC 28806
Firm License # F-1088

PROJECT SURVEYOR



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ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+50.00	13.00	763774.0493	869938.1985
L	10+50.00	36.00	763751.9663	869944.6281
L	10+50.00	-13.00	763799.0127	869930.9302
L	10+50.00	-27.00	763812.4545	869927.0165
L	11+00.00	-27.00	763826.4320	869975.0230
L	11+35.00	50.00	763770.1553	870039.0892
L	11+68.51	-33.36	763858.1724	870020.0447
L	12+35.00	70.00	763858.2341	870145.1197
L	12+36.05	-41.32	763904.1031	870043.6851
L	12+75.00	-40.00	763945.6290	870070.4188
L	13+50.00	-35.00	763997.5665	870147.4476
L	13+55.00	42.00	763927.8390	870180.4518
L	14+55.00	-35.00	764010.9520	870265.2993
L	14+75.77	-13.00	763988.3007	870285.6267
L	14+75.77	13.00	763962.3185	870284.6663
L	14+75.77	26.00	763949.3273	870284.1862

NOTES:

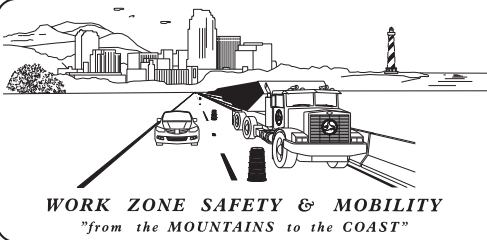
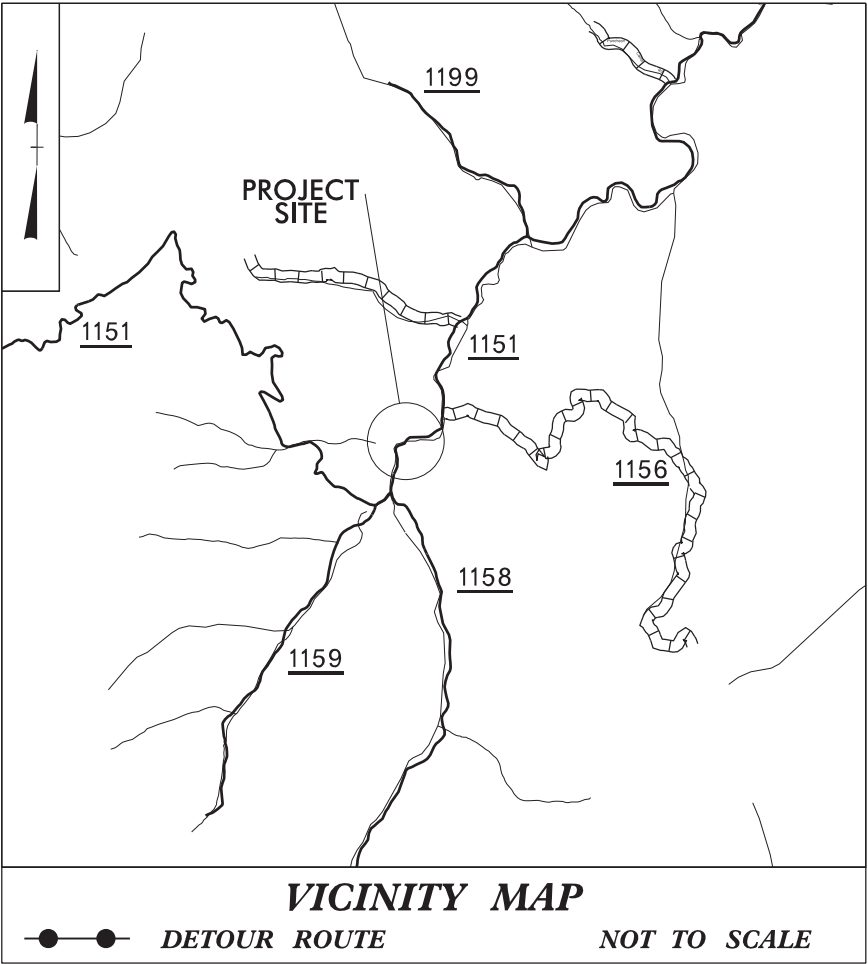
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 3/9/2021 TO 3/10/2021 .

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MADISON COUNTY



PLANS PREPARED BY:
RONALD D. ALLEN, P.E.
KCI ROADWAY PROJECT MANAGER
TYLER KRAUSS
KCI DESIGN ENGINEER

NCDOT CONTACTS:
D.A. PARKER, P.E.
PROJECT ENGINEER
KARMEN DAIS
PROJECT DESIGN ENGINEER



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APPROVED: 
11/3/2022

DATE:

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INDEX OF SHEETS

SHEET NO.	TITLE
TCP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TCP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TCP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, LOCAL NOTES)
TCP-1C	PHASING
TCP-2A	ADVANCE SIGNING DETAIL FOR TEMPORARY SIGNAL (SOUTHBOUND LANE SHIFT)
TCP-2B	ADVANCE SIGNING DETAIL FOR TEMPORARY SIGNAL (NORTHBOUD LANE SHIFT)
TCP-3A	TEMPORARY TRAFFIC CONTROL PHASE 1 DETAIL
TCP-3B	TEMPORARY TRAFFIC CONTROL PHASE 2 DETAIL

SHEET NO.

TCP-1

CONTRACT: DM00327 PROJECT: 17BP.13.R.172

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.172	TCP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1180.01	SKINNY - DRUMS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)

- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

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KCI
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4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-4270
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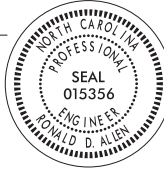
APPROVED:

DocuSigned by:
Ronald D. Allen, PE

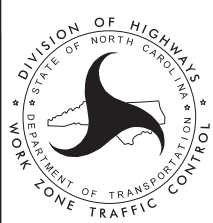
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DATE: 11/3/2022

SEAL



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UNLESS ALL SIGNATURES COMPLETED



ROADWAY STANDARD
DRAWINGS & LEGEND

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.172	TCP-1B

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

- G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 100 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

- H) NOTIFIY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATIONS.

SIGNING

- I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- J) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- K) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

- L) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION, ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

- M) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH OR HIGHER	30 FT

TRAFFIC CONTROL DEVICES

- N) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- O) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- P) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME:	MARKING PAINT	MARKER
SR 1151 (BIG PINE ROAD)		TEMPORARY RAISED

- Q) PLACE ON APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

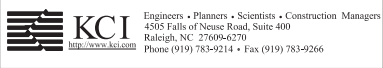
- R) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

- S) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

- T) IN THE EVEN OF A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 100 FT AND 200 FT RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

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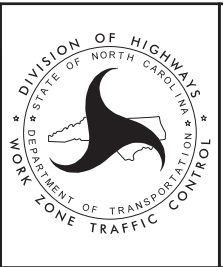
DocuSigned by:
Ronald D. Allen, PE
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DATE: 11/3/2022

SEAL

Seal of Ronald D. Allen, PE, Professional Engineer, State of North Carolina, License No. 015356

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TRANSPORTATION
OPERATIONS
PLAN

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.172	TCP-1C

PHASING

PHASE 1

WORKING IN A CONTINUOUS MANNER COMPLETE THE FOLLOWING IN PHASE 1 STEPS 1 AND 2:

- STEP 1: USING ROADWAY STANDARD DRAWING 1101.04 SHEET 1 OF 1 COMPLETE THE FOLLOWING:

INSTALL ADVANCE WARNING WORK ZONE SIGNS PER ADVANCED SIGNING DETAIL TCP-2A AND ROADWAY STANDARD DRAWING 1101.01, SHEET 3 OF 3. KEEP "ONE LANE ROAD AHEAD", "BE PREPARED TO STOP", "SIGNAL AHEAD", AND "STOPE HERE ON RED" SIGNS COVERED.
- STEP 2: USING ROADWAY STANDARD DRAWING 1101.02 SHEET 1 OF 15 AND FLAGGERS AS NEEDED, COMPLETE THE FOLLOWING:

INSTALL TEMPORARY SIGNALS AND TEMPORARY 24" WHITE STOP BARS, KEEPING SIGNAL HEADS COVERED (SEE DETAIL TCP-2A).

REMOVE EXISTING PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKINGS FROM -L- STA. 10+50.00 +/- TO -L- STA 14+75.77 +/- TO DESIGNATE NORTHBOUND LANE SHIFT AND 12 FT. MINIMUM LANE WIDTH WITH 1 FT OFFSETS ON BOTH SIDES.

INSTALL TEMPORARY PORTABLE CONCRETE BARRIER PER PHASE 1 DETAIL (TCP-3A) FROM -L- STA. 11+65 +/- TO -L- STA. 12+75 +/-, KEEPING ENDS PROTECTED BY TEMPORARY CRASH CUSHIONS.

INSTALL TYPE III BARRICADES AND CHANNELIZING DEVICES PER ADVANCE SIGNING DETAIL TCP-2A AND PHASE 1 DETAIL.

UNCOVER SIGNAL HEADS AND SIGNS. ACTIVATE TEMPORARY SIGNALS AND PLACE SR 1151 (BIG PINE RD) IN A ONE-LANE, TWO-WAY PATTERN FROM -L- STA. 10+50 +/- TO -L- STA. 14+75.77 +/-.

STEP 3: BEHIND THE TEMPORARY TRAFFIC BARRIER AND CHANNELIZING DEVICES COMPLETE THE FOLLOWING:

CONSTRUCT DOWNSTREAM PORTION OF THE PROPOSED CULVERT, AS SHOWN IN PHASE 1 TYPICAL, INCLUDING WING WALLS.

CONSTRUCT PROPOSED ROADWAY ASPHALT UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS SHOWN IN PHASE 1 DETAIL, INCLUDING GUARDRAIL AND SHOULDERS AS SHOWN IN THE ROADWAY PLANS.

WEDGE/PAVE TO TIE IN WHERE NECESSARY TO PROVIDE 14' CLEAR ROADWAY FOR PHASE 2.

PHASE 2

- STEP 1: USING ROADWAY STANDARD DRAWING 1101.02 SHEET 14 OF 14 COMPLETE THE FOLLOWING:

MOVE TEMPORARY PORTABLE CONCRETE BARRIER PER PHASE 2 DETAIL (TCP-3B) TO -L- STA. 11+75 +/- TO -L- STA. 13+10 +/-, KEEPING ENDS PROTECTED BY TEMPORARY CRASH CUSHIONS.

WEDGE/PAVE AS NECESSARY TO SMOOTHLY TIE PROPOSED WITH EXISTING SR 1151.

REMOVE CONFLICTING EXISTING TEMPORARY PAVEMENT MARKINGS AND PLACE NEW TEMPORARY PAVEMENT MARKINGS FROM -L- STA. 10+50 +/- TO -L- STA. 14+75.77 +/- TO DESIGNATE SOUTHBOUND LANE SHIFT AND 10 FT. MINIMUM LANE WIDTH WITH 1 FT OFFSETS ON BOTH SIDES.

RESET TYPE III BARRICADES, CHANNELIZING DEVICES, AND TRAFFIC SHIFT SIGNS PER SHEET TCP-2B AND PHASE 2 DETAIL (TCP-3B).

PLACE TRAFFIC TO NEW ONE-LANE, TWO-WAY PATTERN SHOWN IN PHASE 2 DETAIL (TCP-3B).
- STEP 2: BEHIND THE TEMPORARY TRAFFIC BARRIER AND CHANNELIZING DEVICES COMPLETE THE FOLLOWING:

REMOVE REMAINING PORTION OF EXISTING BRIDGE INCLUDING WING WALLS.

CONSTRUCT REMAINING PORTION OF PROPOSED CULVERT, AS SHOWN IN PHASE 2 TYPICAL.

CONSTRUCT PROPOSED ROADWAY ASPHALT UP TO BUT NOT INCLUDED THE FINAL LAYER OF SURFACE COURSE, AS SHOWN IN PHASE 2 DETAIL, INCLUDING GUARDRAIL AND SHOULDERS AS SHOWN IN THE ROADWAY PLANS.

STEP 3: USING ROADWAY STANDARD DRAWING 1101.02 SHEET 14 OF 14 COMPLETE THE FOLLOWING:

REMOVE PORTABLE CONCRETE BARRIER AND TEMPORARY PAVEMENT MARKINGS.

WEDGE/PAVE AS NECESSARY TO SMOOTHLY TIE REMAINING SECTIONS OF PROPOSED -L- FROM -L- STA. 10+50 +/- TO -L- STA. 14+75.77 +/- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.

COVER TEMPORARY SIGNALS AND REMOVE "STOP HERE ON RED", "ONE LANE ROAD AHEAD", AND "BE PREPARED TO STOP" SIGNS.

REMOVE ALL EXISTING AND TEMPORARY PAVEMENT MARKINGS FROM -L- STA. 10+50 +/- TO -L- STA. 14+75.77 +/-.

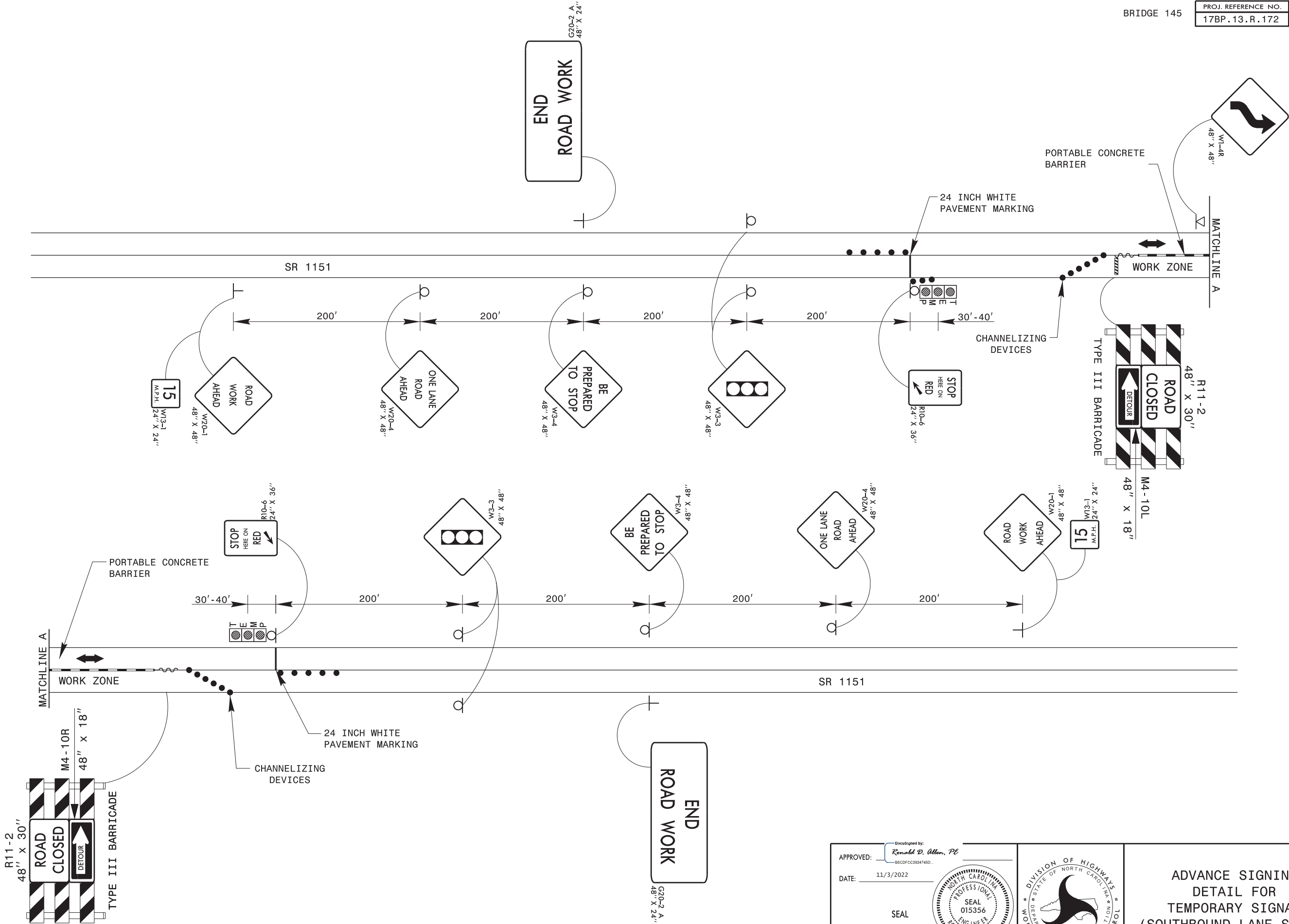
PLACE THE FINAL LAYER OF SURFACE COURSE IN THE FINAL TWO-WAY, TWO-LANE PATTERN (SEE ROADWAY PLANS) AND PLACE FINAL PAVEMENT MARKINGS (PAINT) IN THE FINAL PATTERN FROM -L- STA. 10+50 +/- TO -L- STA. 14+75.77 +/-.

OPEN SR 1151 (BIG PINE RD) TO THE FINAL TWO-LANE, TWO-WAY PATTERN.
- STEP 4: REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

26-APR-2021 13:40
Ma\2016\221601946.09 NCDOT Division 13 Bridge Replacements\F_17BP.13.R.172_Madison_560145.B5882\TrafficControl\TCP\B5882_TC_TMP_01C.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

APPROVED: DocuSigned by: <i>Ronald D. Allen, PE</i> 86C3F0C3834745D... DATE: 11/3/2022 SEAL  DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		PHASING
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BRIDGE 145

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.172	TCP-2A

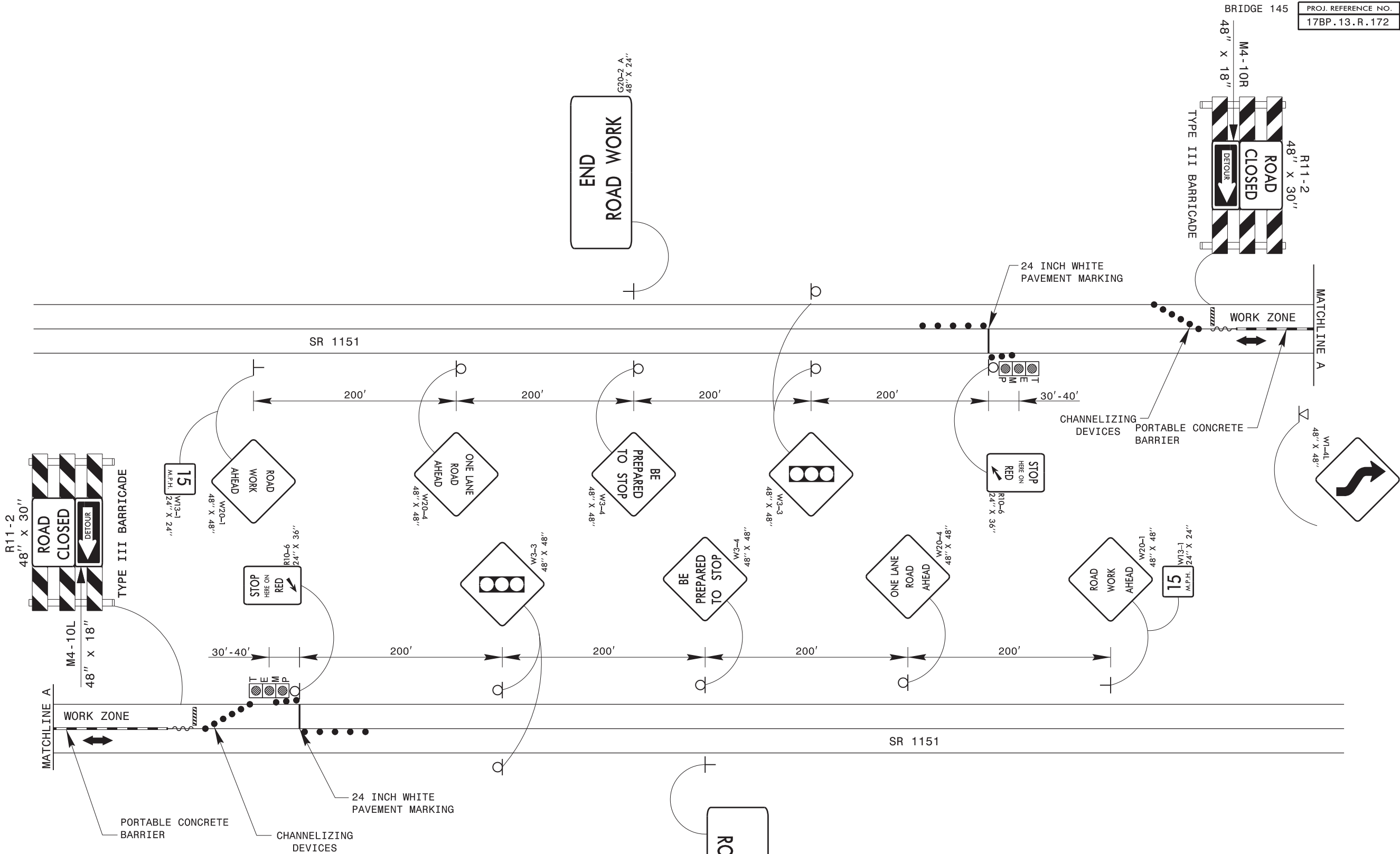
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4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-6770
Phone (919) 783-9214 • Fax (919) 783-9266

APPROVED: <u>Ronald D. Allen, PE</u>	Discussed by: <u>BSCDFCC3934746D</u>
DATE: <u>11/3/2022</u>	
SEAL	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



ADVANCE SIGNING
DETAIL FOR
TEMPORARY SIGNAL
(SOUTHBOUND LANE SHIFT)

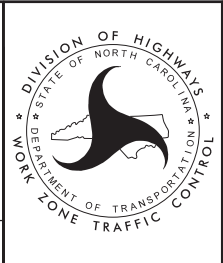
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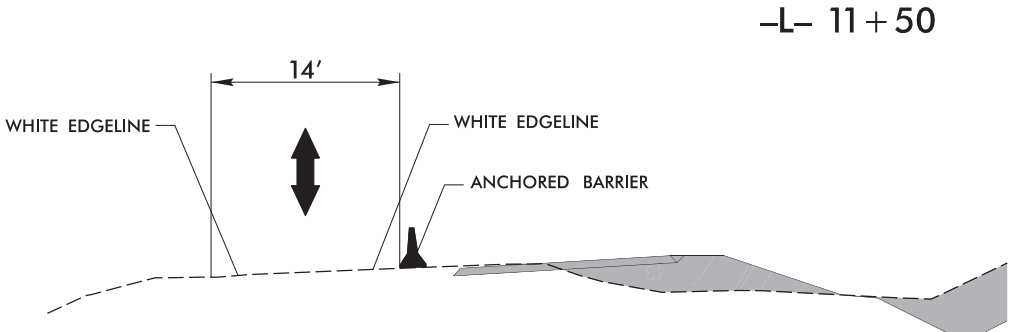
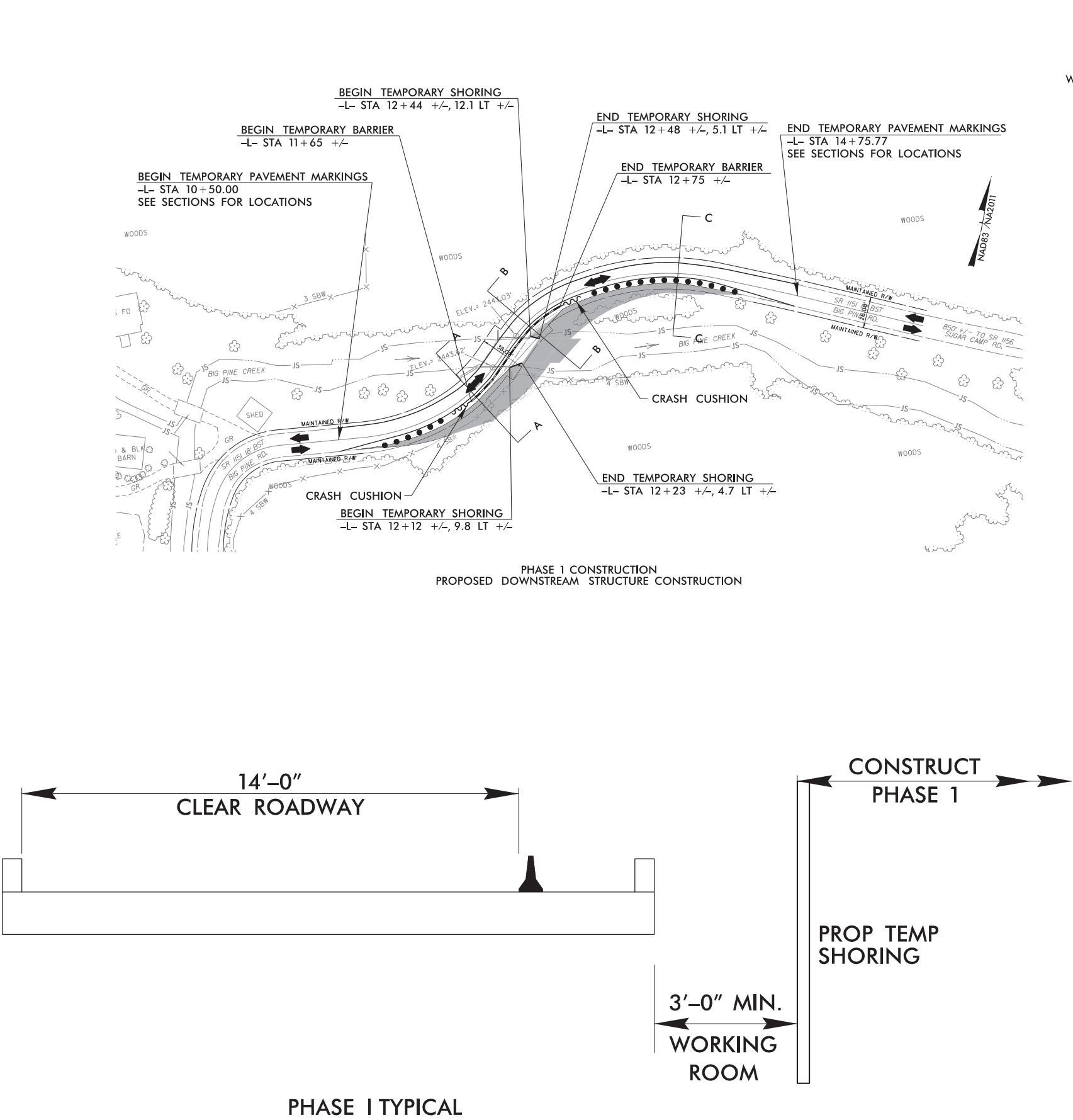
PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.172	TCP-2B

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<http://www.kci.com>

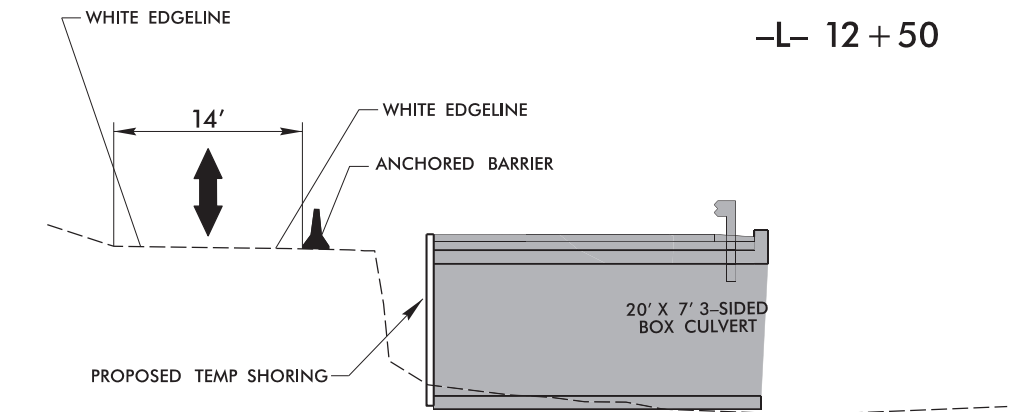
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DATE: 11/3/2022
SEAL
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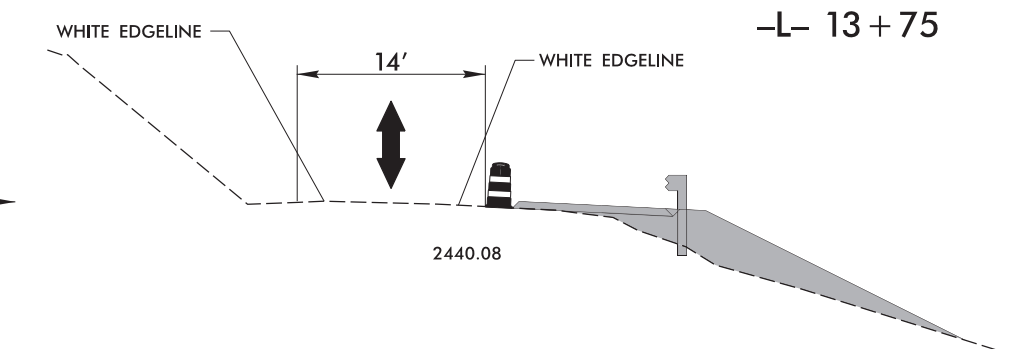
ADVANCE SIGNING
DETAIL FOR
TEMPORARY SIGNAL
(NORTHBOUND LANE SHIFT)



SECTION A-A



SECTION B-B

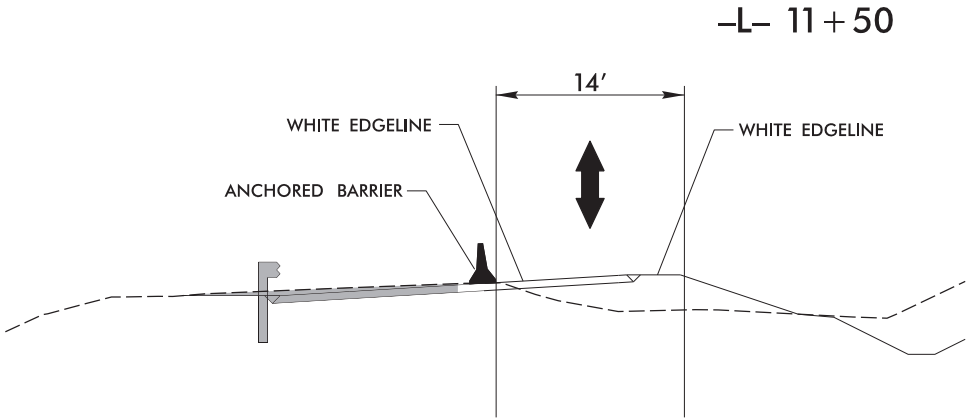
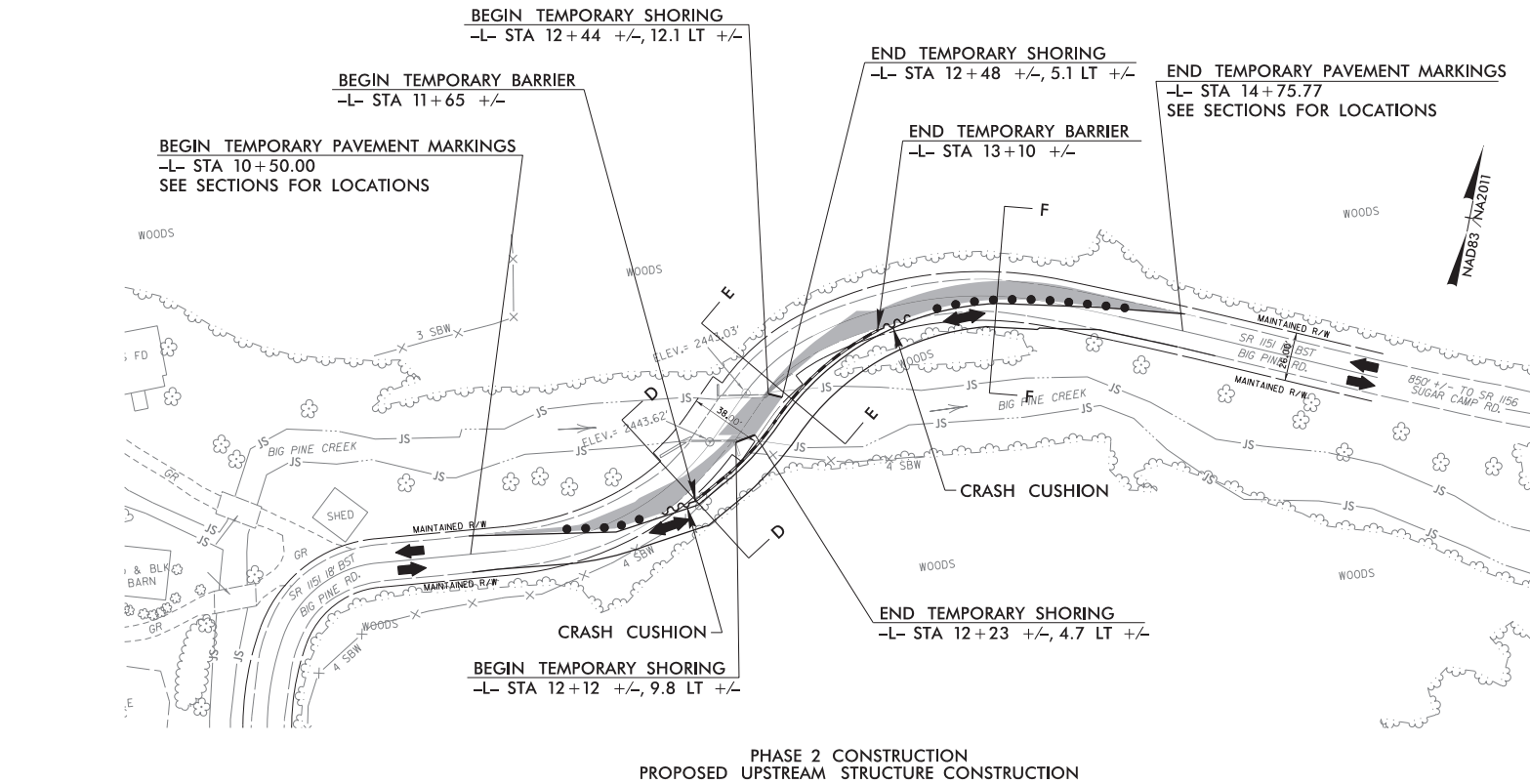


SECTION C-C

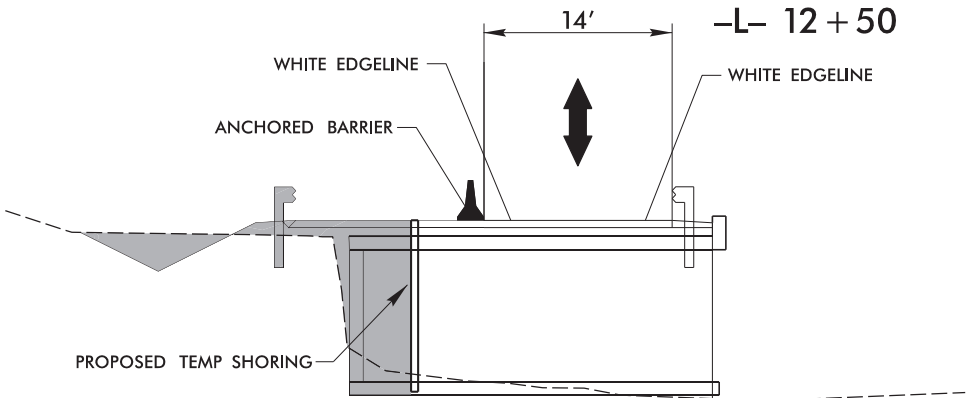
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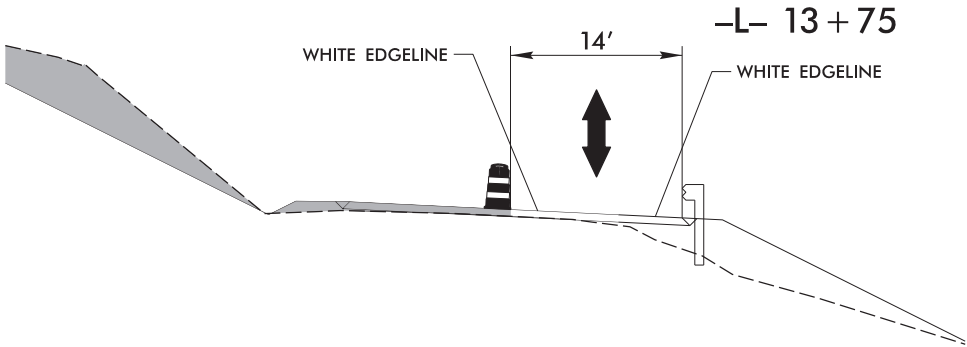
APPROVED: DATE: 11/3/2022 SEAL	 DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	TEMPORARY TRAFFIC CONTROL PHASE 1 DETAIL
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



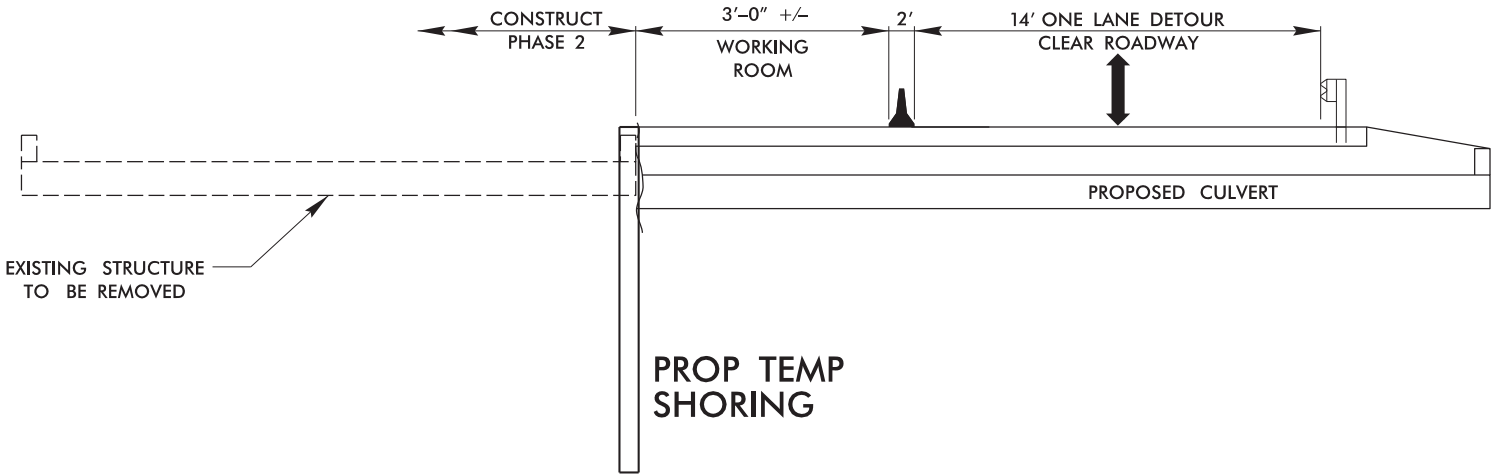
SECTION D-D



SECTION E-E



SECTION F-F



PHASE II TYPICAL

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TEMPORARY TRAFFIC
CONTROL
PHASE 2 DETAIL

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

PAVEMENT MARKING PLAN

MADISON COUNTY

PROJECT REFERENCE NO.

17BP.13.R.172

SHEET NO.

PMP-1

APPROVED:

DocuSigned by:
Ronald D. Allen, PE

B6C0FC3924746D

DATE:

11/3/2022

SEAL:



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WWW.KCI.COM

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

PAVEMENT MARKING SCHEDULE

FINAL PAVEMENT MARKING	
SYMB	DESCRIPTION
P1	PAINT (4") WHITE EDGELINE
P13	PAINT (4") YELLOW DOUBLE CENTER

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

- A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:
- | BRIDGE # | MARKING | MARKER |
|------------|---------|--------|
| No. 560145 | PAINT | NONE |
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

INDEX

SHEET NO.	DESCRIPTION
PMP - 1	PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET
PMP - 2	PAVEMENT MARKING DETAIL

PLAN SUBMITTED TO:

KELVIN L. JORDAN	SIGNING & DELINEATION REGIONAL ENGINEER
RENEE B. ROACH, PE, CPM	STATE SIGNING & DELINEATION ENGINEER



PLANS PREPARED BY:

RON ALLEN, PE	PROJECT ENGINEER
TYLER KRAUSS, PE	PROJECT DESIGN ENGINEER



PROJECT REFERENCE NO.
17BP.13.R.172

SHEET NO.
PMP-2

DESIGNED BY
Ronald D. Allen, PE

APPROVED
BSCDFCC9824745D..

DATE:
11/3/2022

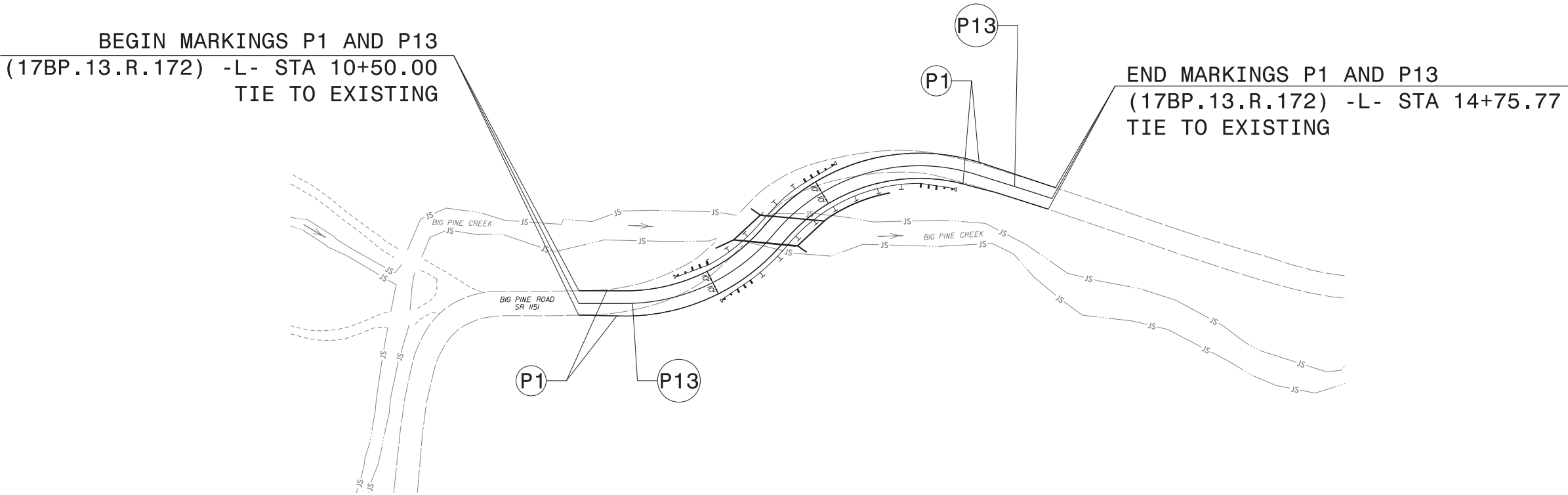
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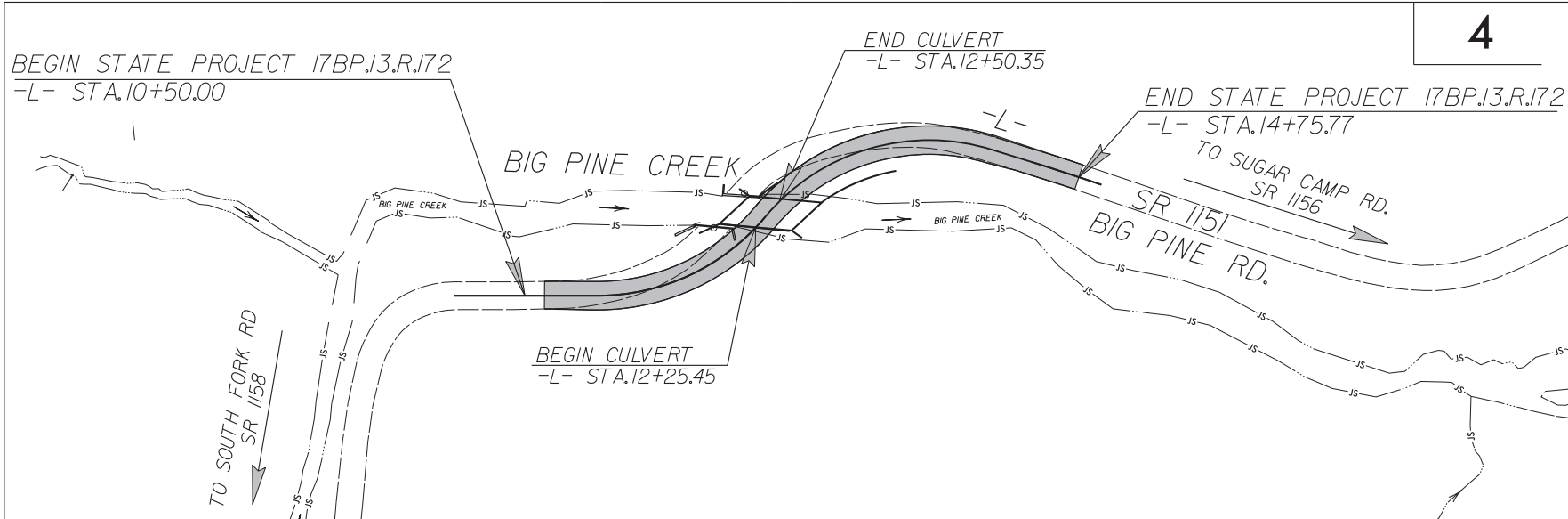
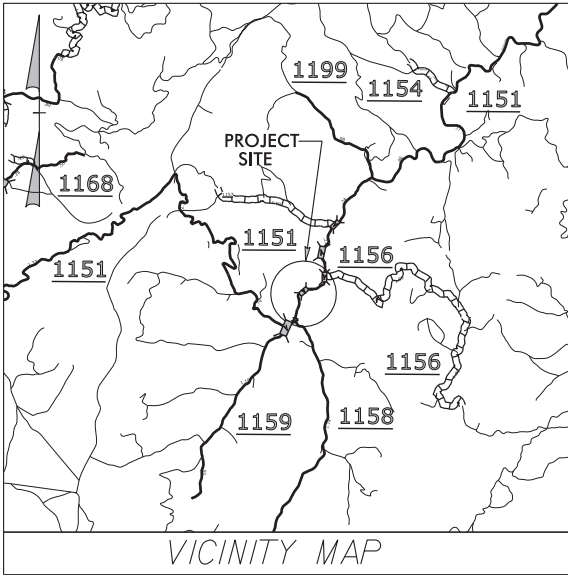
PAVEMENT MARKING LEGEND	
	WHITE EDGELINE (4")
	YELLOW DOUBLE CENTER (4")

PAVEMENT MARKING DETAIL

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

LOCATION: REPLACE BRIDGE NO.145 OVER BIG PINE CREEK ON SR 1151 (BIG PINE ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

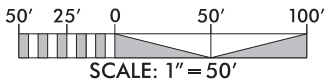


EROSION AND SEDIMENT CONTROL MEASURES

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

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

GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

Prepared in the Office of:

SUNGATE DESIGN GROUP, P.A.



905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

Designed by:

BRIAN N. ELAM, PE

NAME

3195

LEVEL III CERTIFICATION NO.

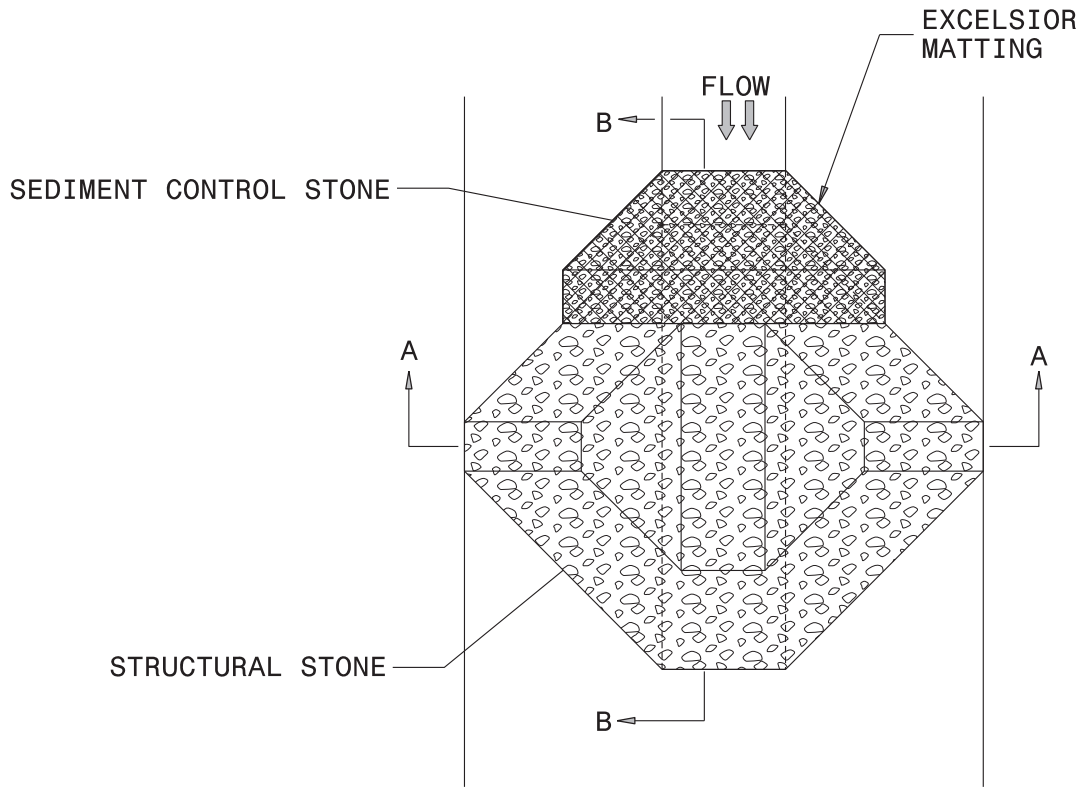
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"-- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

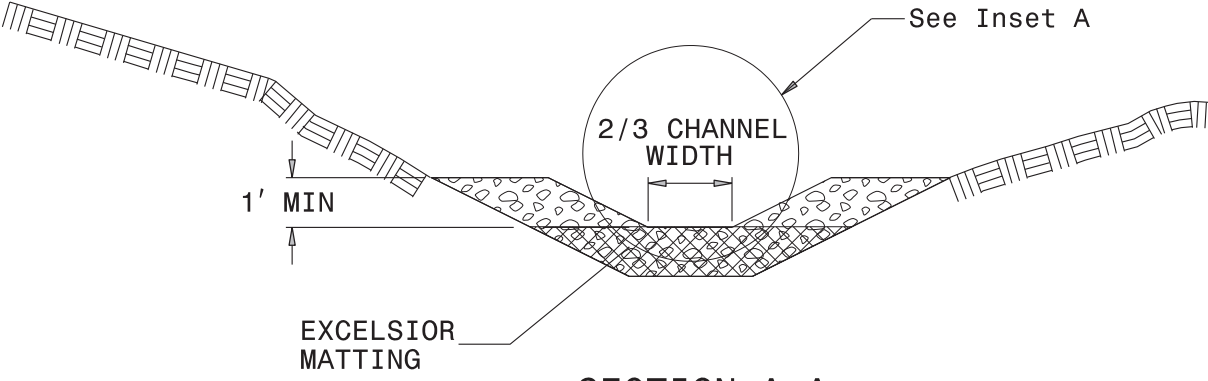
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type 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		

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJ72	EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PLAN



SECTION A-A

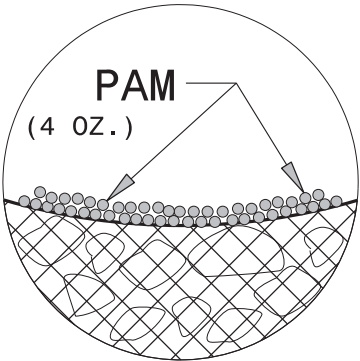
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

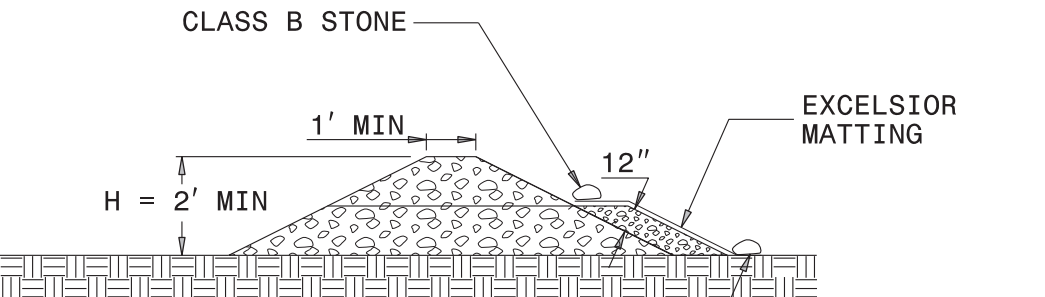
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

NOT TO SCALE

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJT2	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

[illegible]

MATTING FOR EROSION CONTROL

[illegible]

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJ72	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

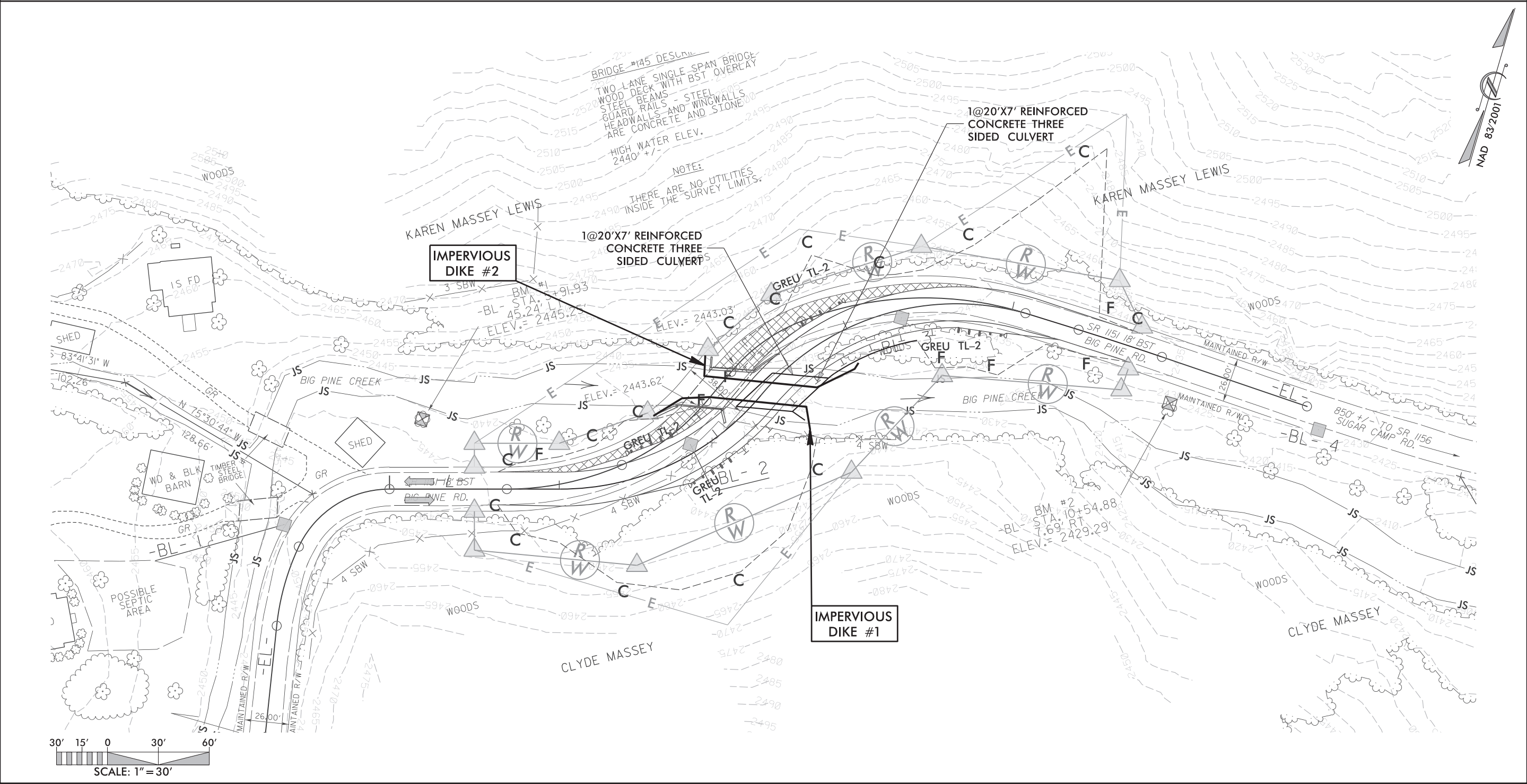
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	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.

1@20'X7' REINFORCED CONCRETE THREE SIDED CULVERT CONSTRUCTION SEQUENCE STA. 12+38 -L- BIG PINE CREEK

PROJECT REFERENCE NO.	SHEET NO.
17BP13.R172	EC-04A/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

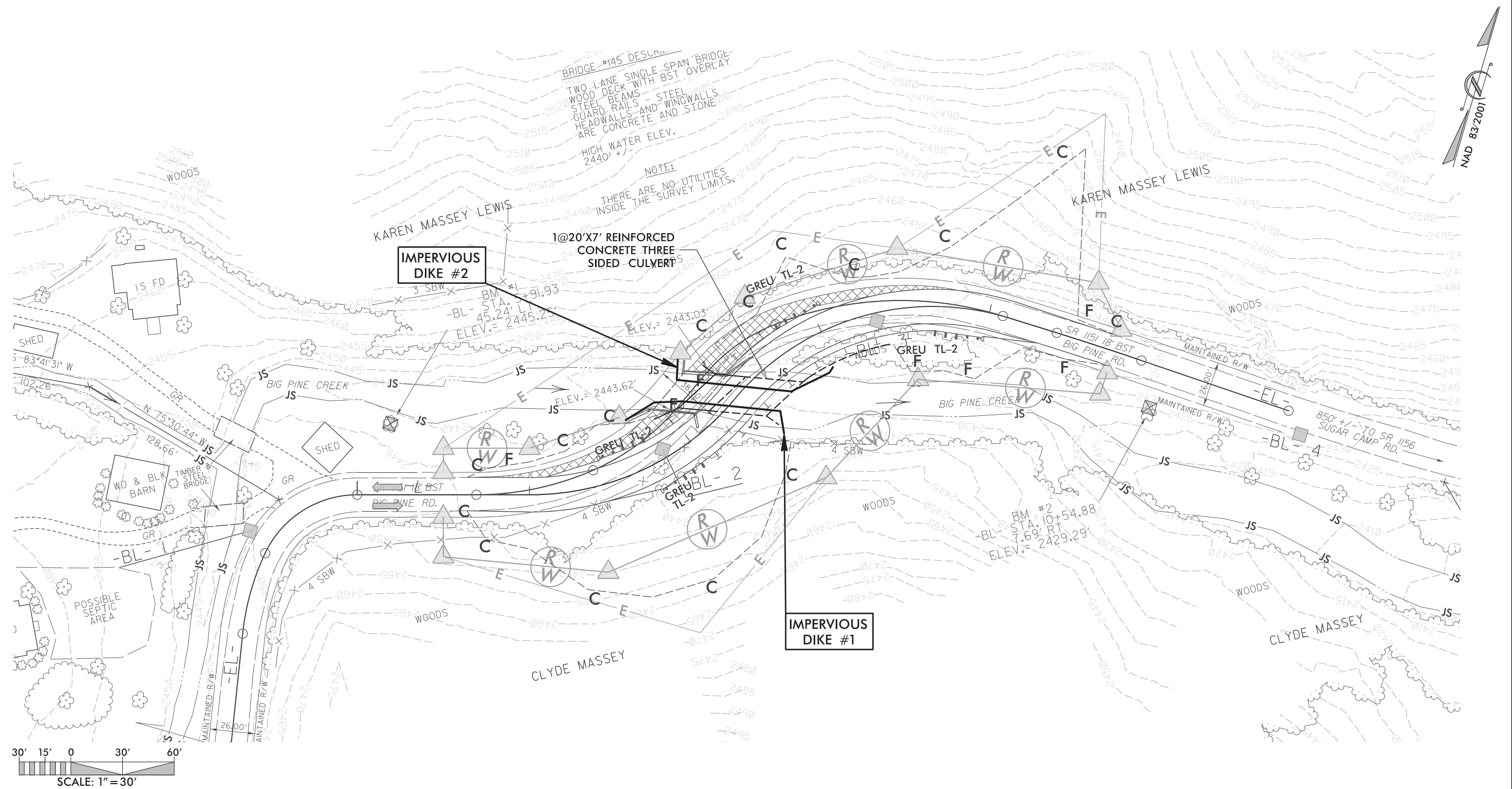
PHASE I

- 1.) UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT CULVERT CONSTRUCTION.
- 2.) INSTALL IMPERVIOUS DIKES #1 AND #2.
- 3.) DEWATER CONSTRUCTION AREA, UTILIZING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
- 4.) RETAIN EXISTING BRIDGE FOR USE BY TRAFFIC.
- 5.) CONSTRUCT APPROXIMATELY 32' OF 1@20'X7' REINFORCED CONCRETE THREE SIDED CULVERT ON DOWNSTREAM SIDE.
- 6.) CONSTRUCT EAST BOUND LANE.
- 7.) SHIFT TRAFFIC ONTO EAST BOUND LANE TO BE USED AS A ONE LANE ROAD.



PROJECT REFERENCE NO.	SHEET NO.
17BP13RJ72	EC-04B/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

- 1.) REMOVE EXISTING BRIDGE.
- 2.) CONSTRUCT REMAINING PORTION OF 1@20'X7' REINFORCED CONCRETE THREE SIDED CULVERT.
- 3.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
- 4.) REMOVE ANY REMAINING SPECIAL STILLING BASIN(S) AND IMPERVIOUS DIKES.
- 5.) COMPLETE ROADWAY.

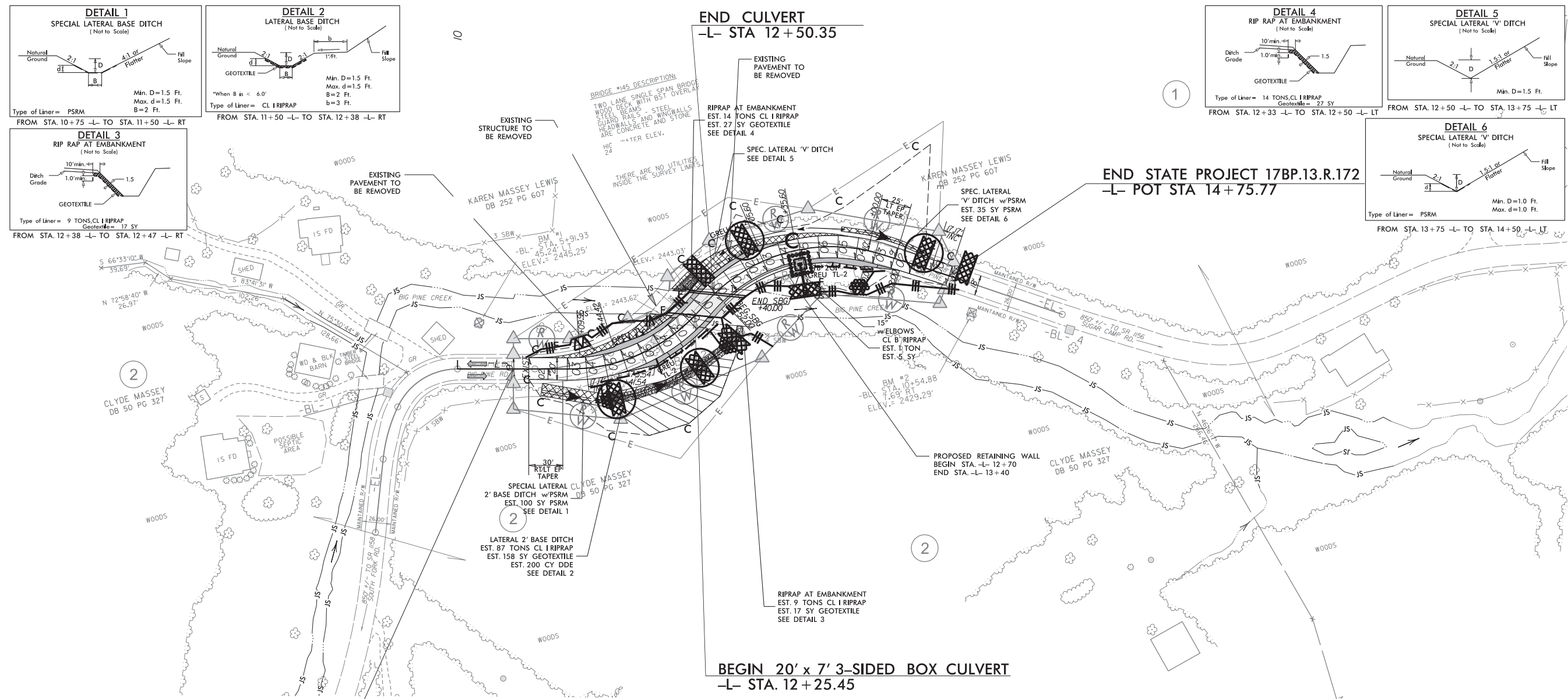


PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.172	EC-05/CONST.04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:
UTILIZE SPECIAL STILLING BASIN(S)
AS STILLING BASIN WHERE APPLICABLE.

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 11+25 to Sta. 12+25 -L- RT
Sta. 13+50 to Sta. 14+10 -L- RT

FINAL GRADING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04



BRIDGE 560145	PROJ. REFERENCE NO.	SHEET NO.
	17BP.13.R.172	X-0

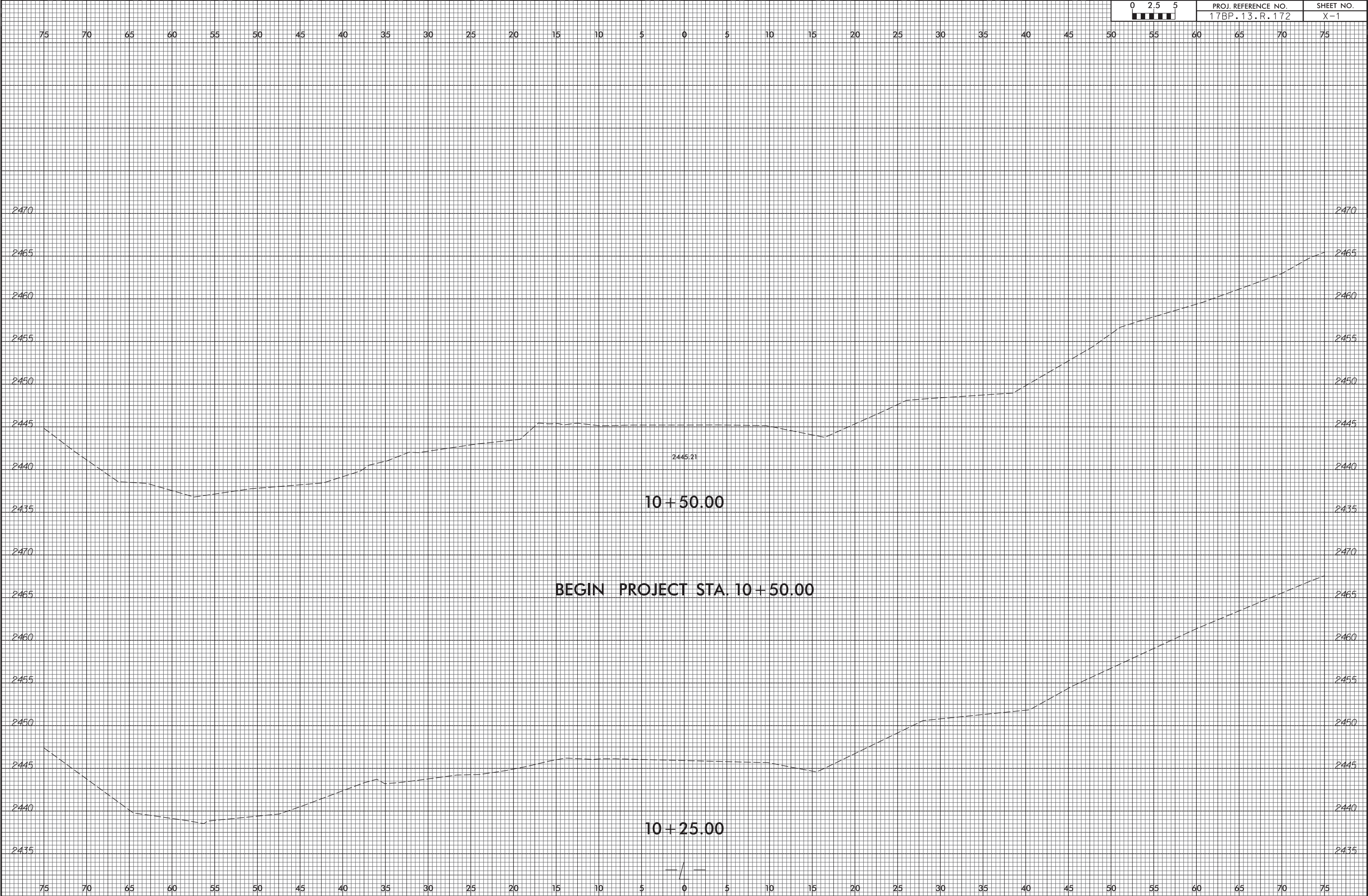
Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the contract lump sum price for "Grading".

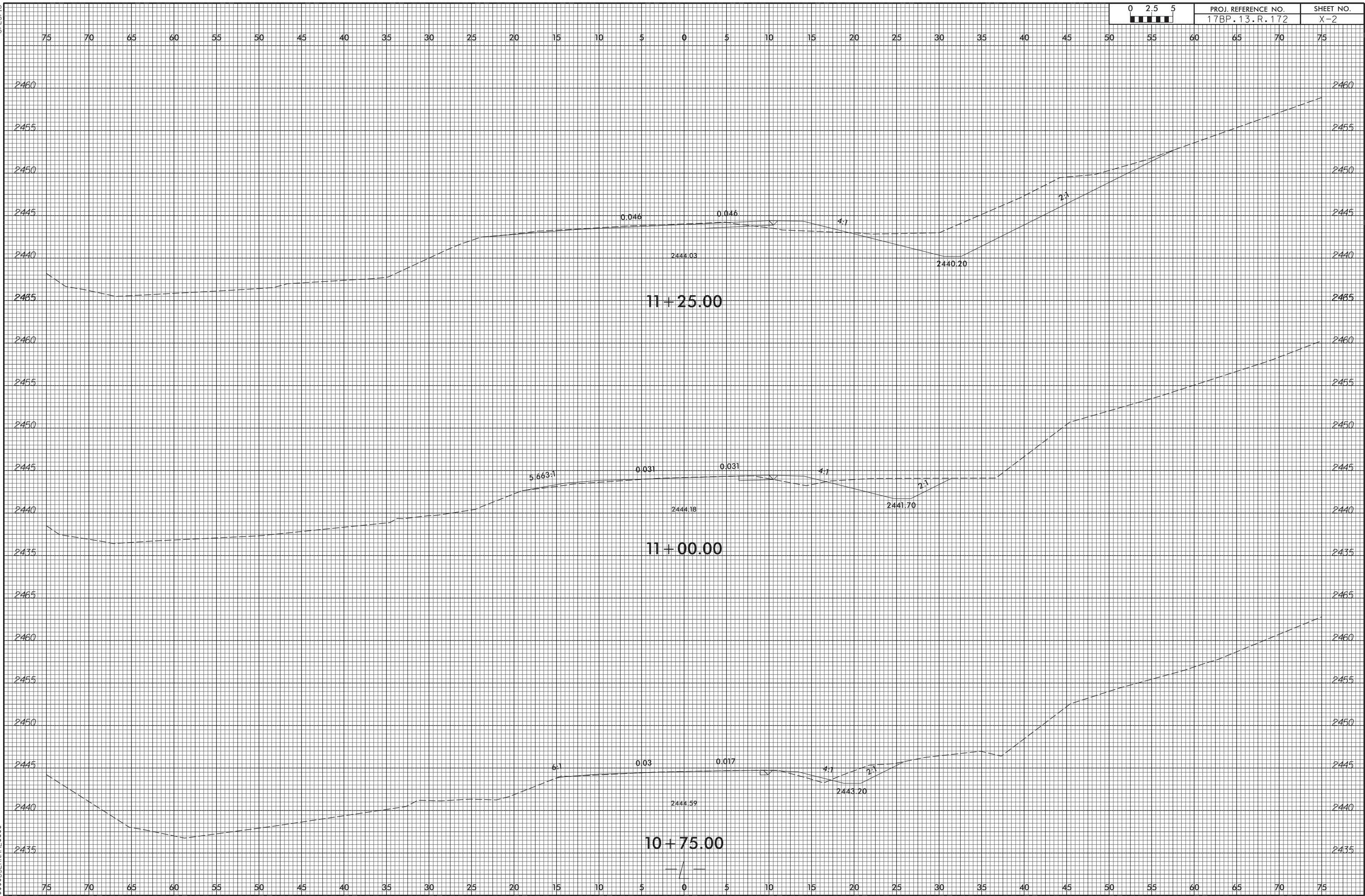
NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

Station	Uncl. Exc.	Embt
L	(cu. yd.)	(cu. yd.)
10+75.00	0	0
11+00.00	14	4
11+25.00	50	6
11+50.00	51	18
11+75.00	19	53
12+00.00	10	115
12+25.00	2	274
12+35.00	7	348
12+50.00	13	257
12+75.00	27	156
13+00.00	24	81
13+25.00	2	22
13+50.00	3	37
13+75.00	10	66
14+00.00	97	54
14+25.00	169	25
14+50.00	81	0
14+75.00	0	0
14+75.77	0	0

6/23/16

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B-5882_Rdy_xpl.dgn

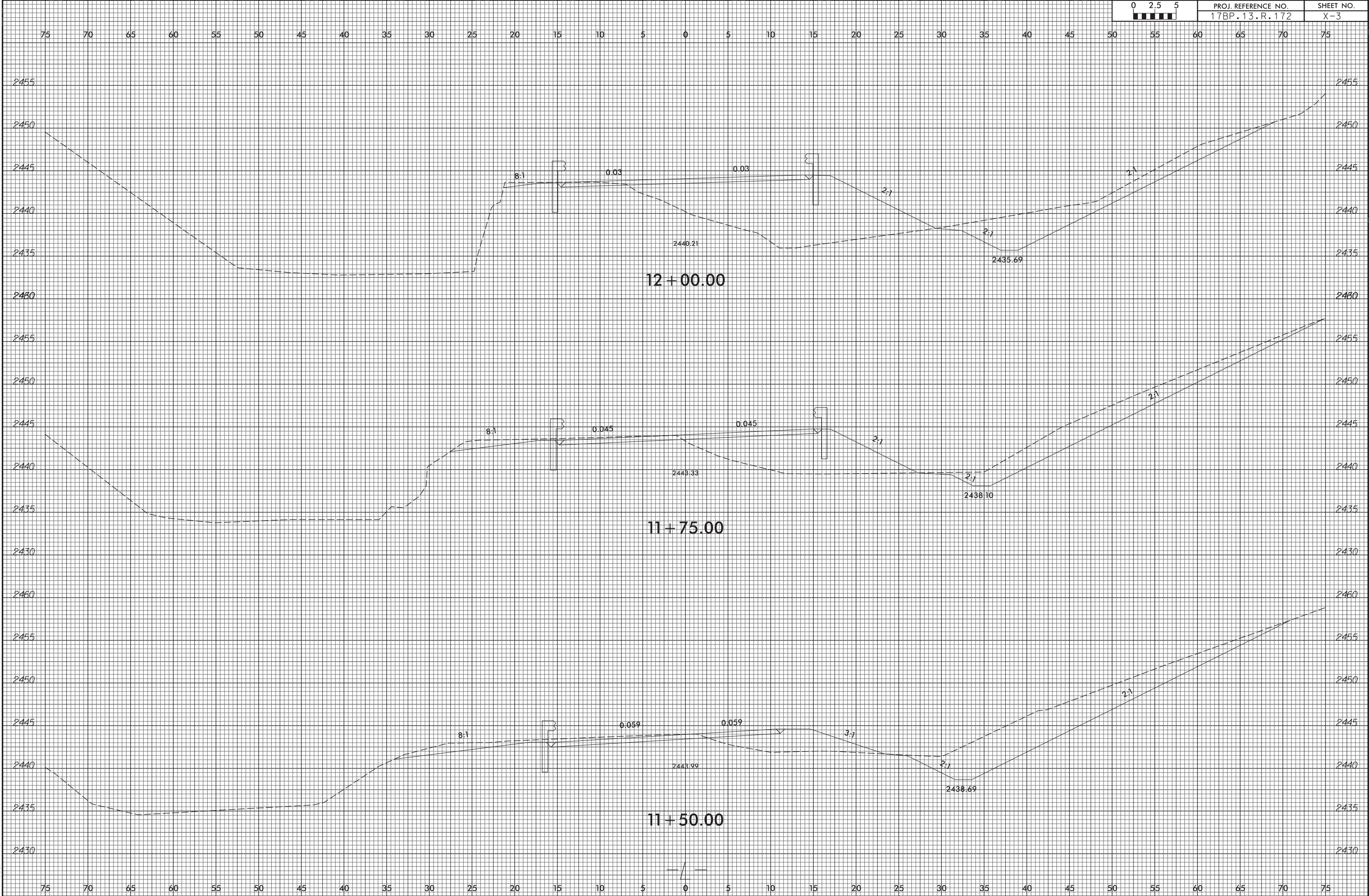


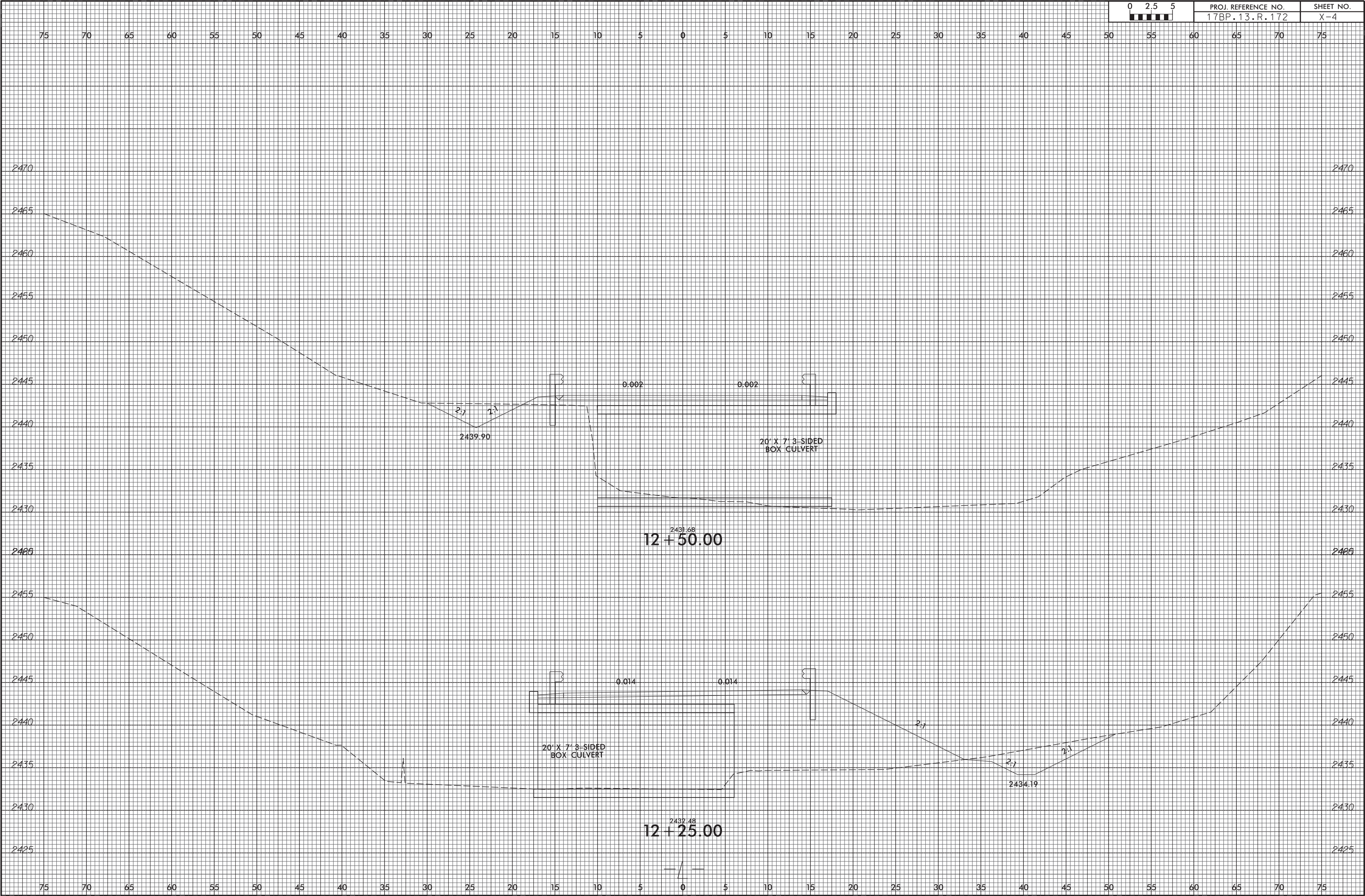


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	17BP.13.R.172	X-3





6/23/16

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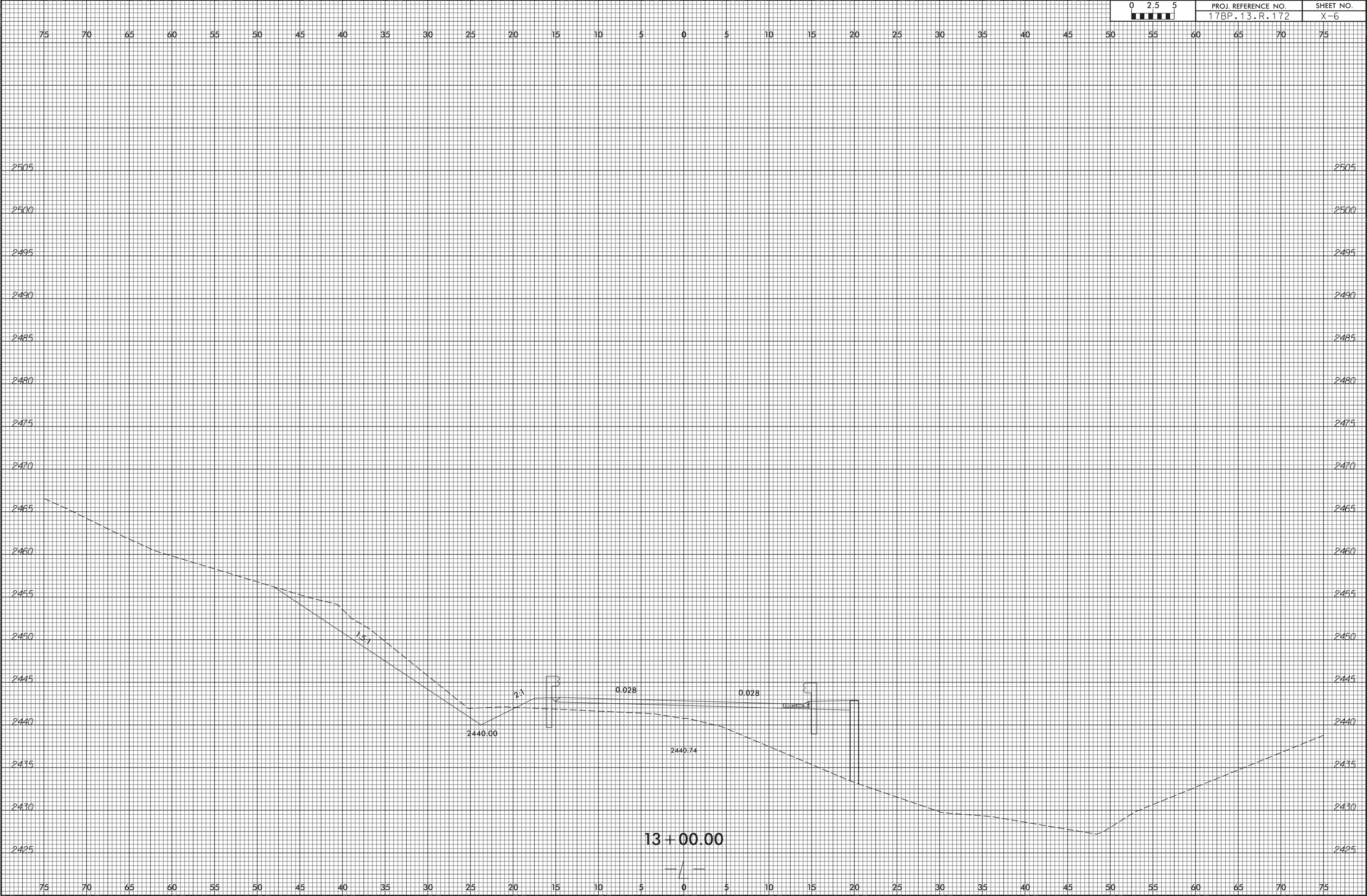
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17BP.13.R.172

SHEET NO.
X-5

12 + 75.00

6/23/16

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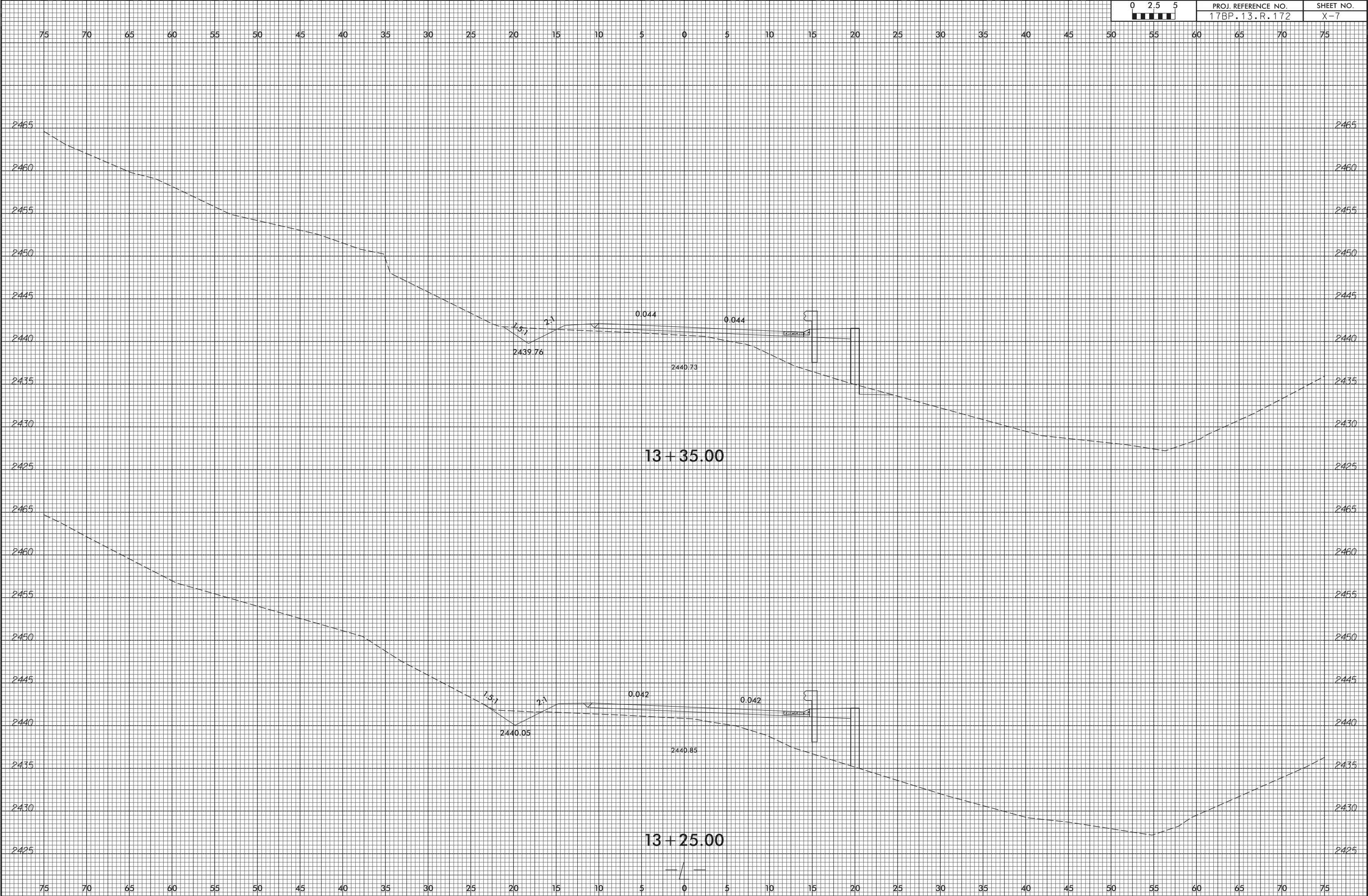
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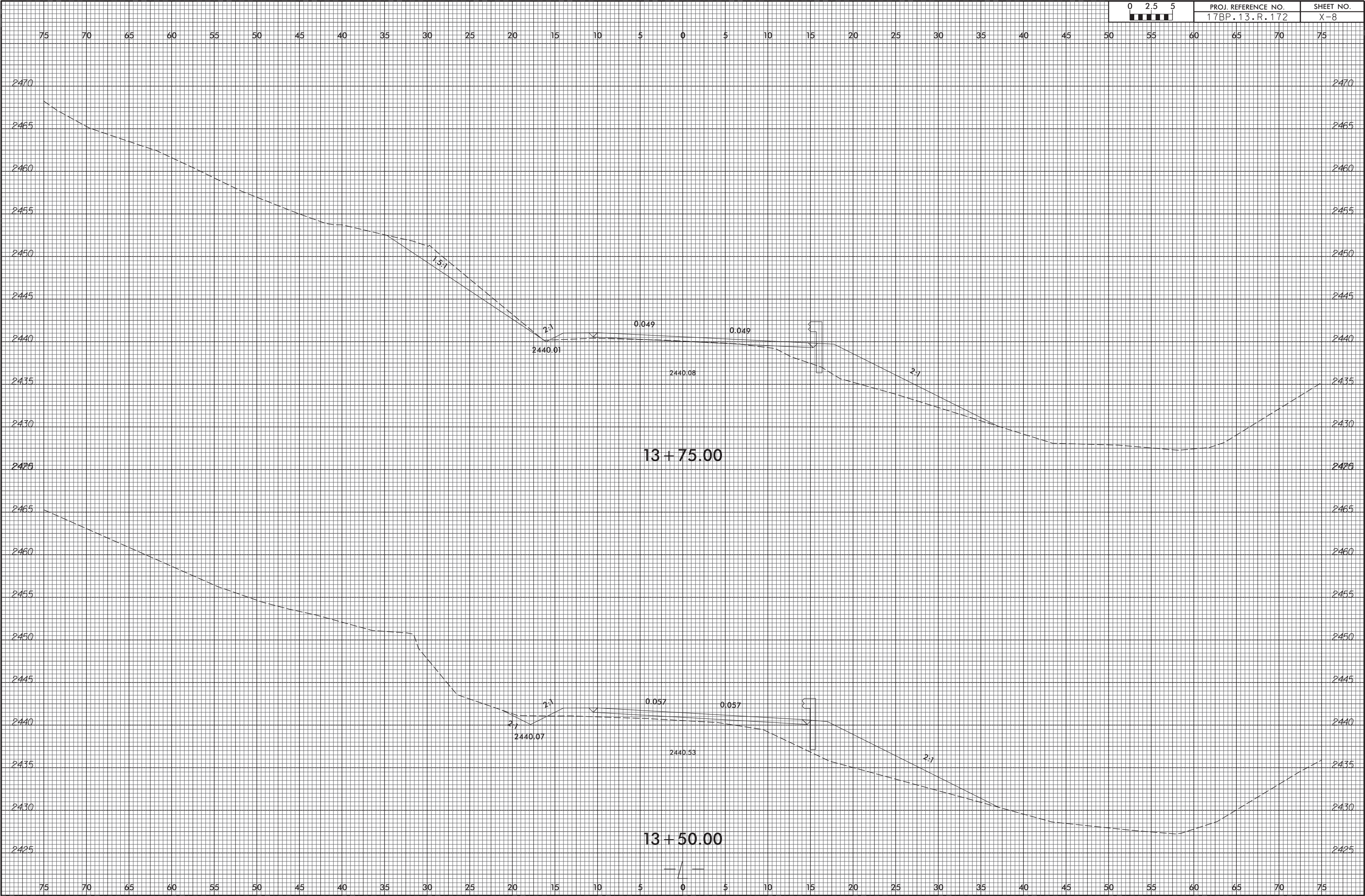
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6/23/16

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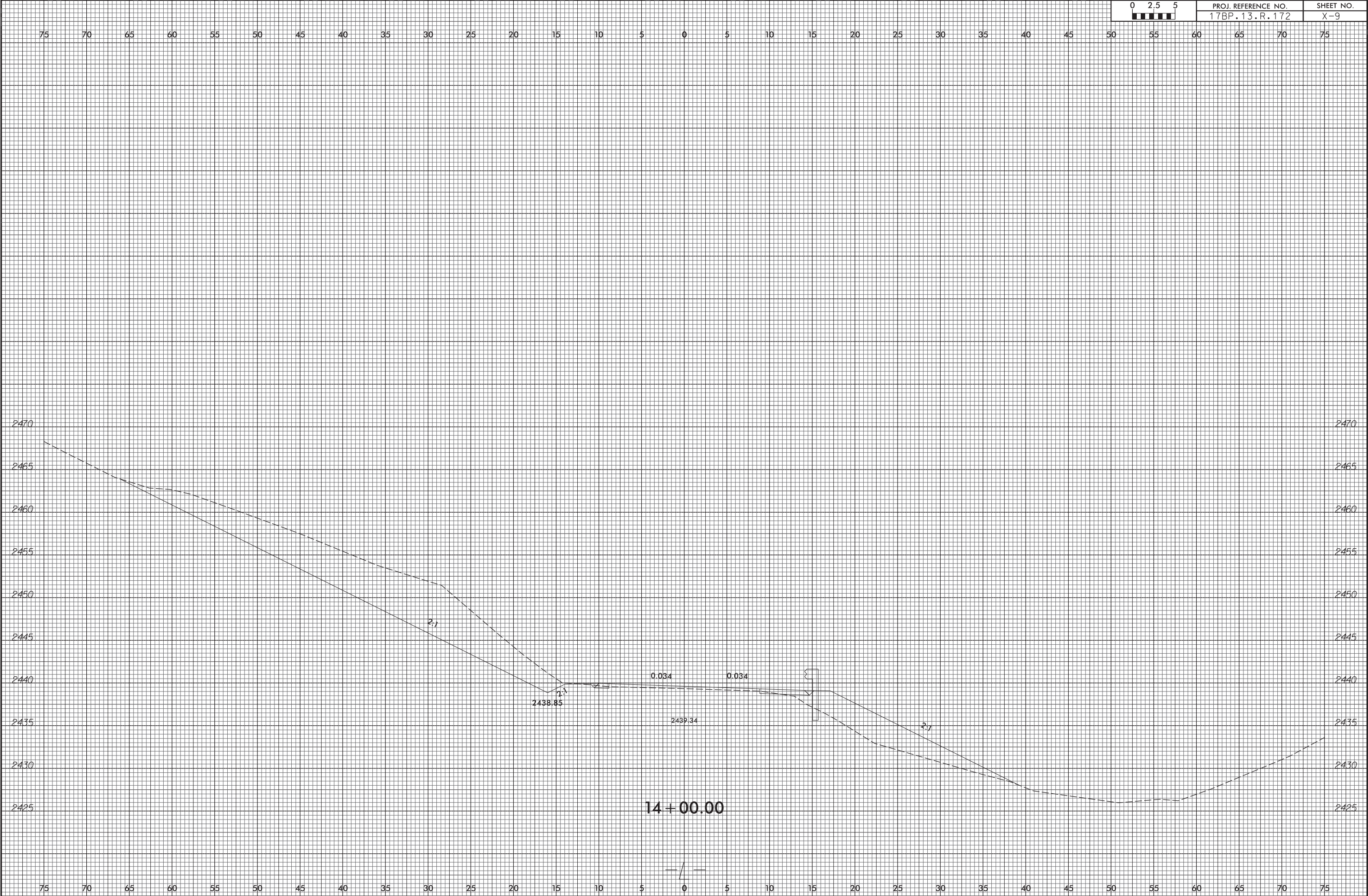




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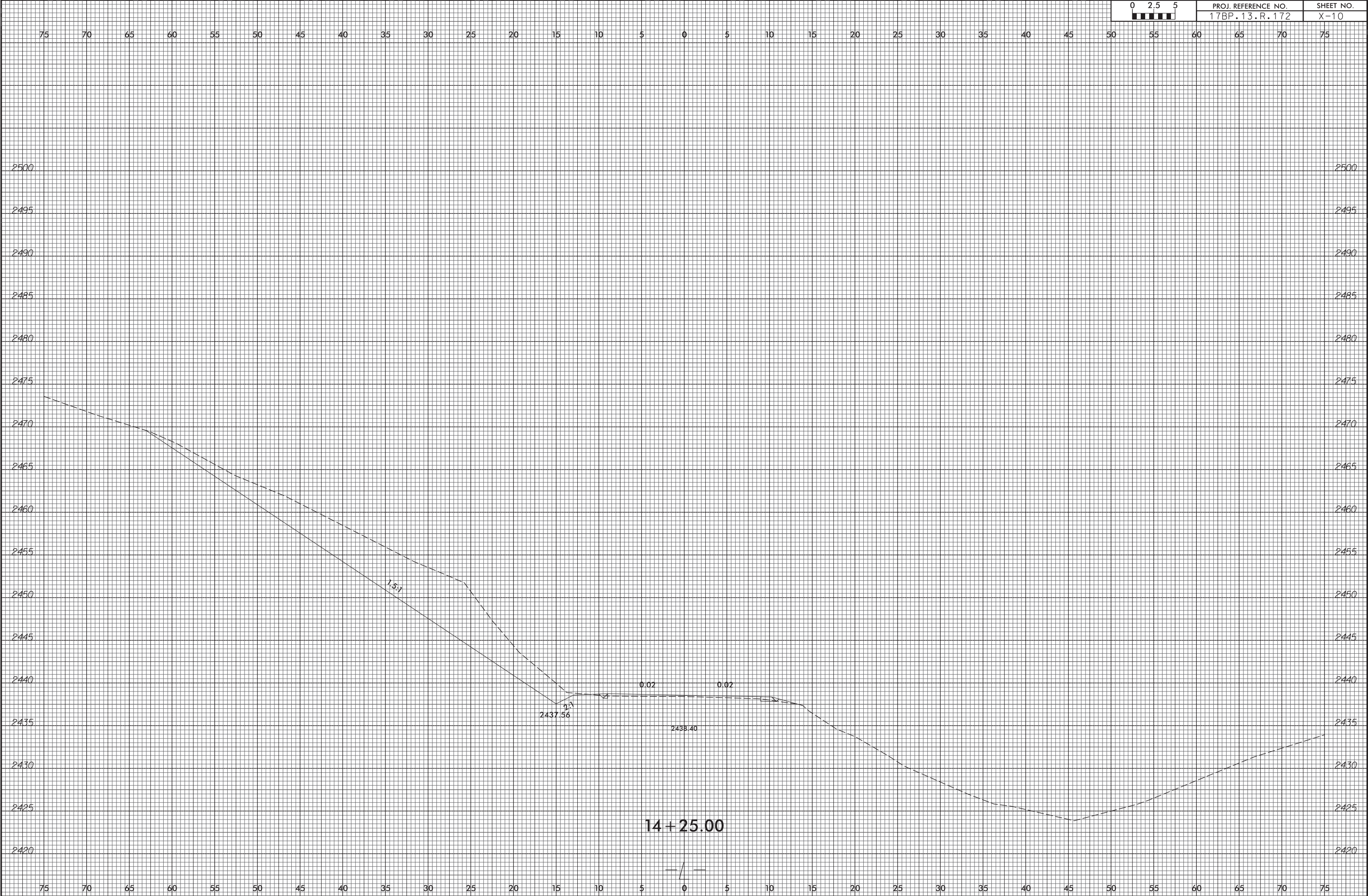
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6/23/16

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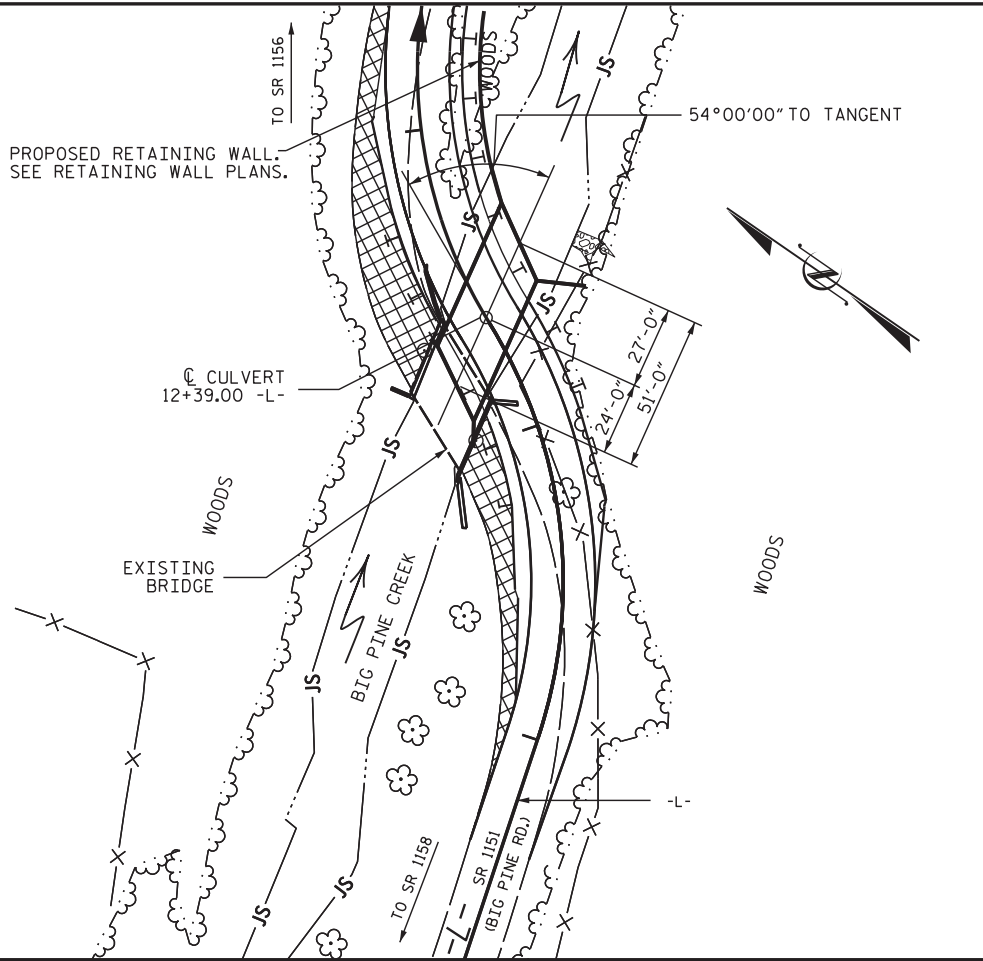
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PROJ. REFERENCE NO.
17BP.13.R.172

SHEET NO.
X-11



BENCHMARK: RR SPIKE SET IN BASE OF 30" POPLAR, STA 10+19 -L-, 41' LT EL. 2429.29 NAVD 88

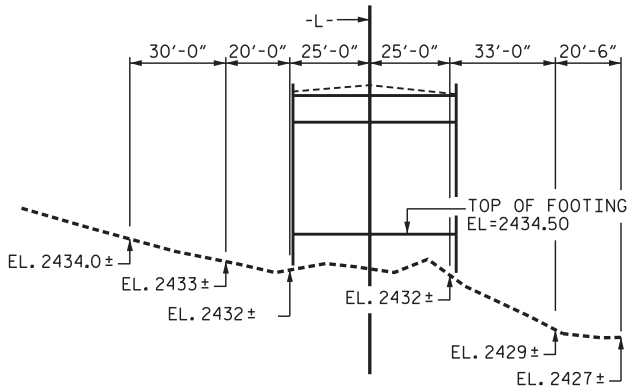


FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

TOP OF FOOTING ELEVATION AT STATION 12+39.00 -L- = 2434.50
GRADE POINT ELEVATION AT STATION 12+39.00 -L- = 2443.83

ROADWAY SLOPES 2:1



PROFILE ALONG CULVERT

HYDRAULIC DATA

DESIGN DISCHARGE = 1500 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 2,443.0 FT
DRAINAGE AREA = 6.0 SQ. MI.
BASE DISCHARGE = 2,520 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 2,444.5 FT

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 1,650 CFS
OVERTOPPING FREQUENCY = 50 +/- YRS
OVERTOPPING ELEVATION = 2,443.4 FT

TOTAL BILL OF MATERIAL

REMOVAL OF EXISTING STRUCTURE @ STA. 12+39.00 -L-	LUMP SUM
PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT @ STA. 12+39.00 -L-	LUMP SUM
ASBESTOS ASSESSMENT	LUMP SUM
FOUNDATION EXCAVATION	12 CUBIC YARDS
UNCLASSIFIED STRUCTURE EXCAVATION @ STA. 12+39.00 -L-	LUMP SUM
CLASS A CONCRETE	* 40 CUBIC YARDS

* FOR BIDDING ONLY - ACTUAL QUANTITY TO BE DETERMINED BY CONTRACTOR/FABRICATOR
SEE SPECIAL PROVISIONS.

PI Sta 11+72.72
Δ = 50° 10' 00.0" (LT)
D = 37° 12' 17.2"
L = 134.84'
T = 72.08'
R = 154.00'

PI Sta 13+35.64
Δ = 67° 28' 00.0" (RT)
D = 38° 11' 49.9"
L = 176.63'
T = 100.16'
R = 150.00'

HORIZONTAL CURVE DATA

PI = 12+63.00
EL = 2,444.72
VC = 220'
K = 51

(+).06614% (-).36927%

VERTICAL CURVE DATA

NOTES (CONT'D)

CARE SHALL BE TAKEN DURING BACKFILL AND COMPACTION OPERATION TO MAINTAIN ALIGNMENT AND PREVENT DAMAGE TO THE JOINTS. UNITS WHICH BECOME MISALIGNED, SHOW EXCESSIVE SETTLEMENT, OR HAVE OTHERWISE BEEN DAMAGED BY THE CONTRACTOR'S OPERATION SHALL AT THE DISCRETION OF THE ENGINEER BE REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO THE DEPARTMENT OF TRANSPORTATION.

CONCRETE CHAMFERS ON EXTERIOR LONGITUDINAL EDGES OF THE PRECAST UNITS MAY BE AS PER THE FABRICATOR'S RECOMMENDATION, HOWEVER ALL WORKMANSHIP SHALL PROVIDE CONCRETE COVER OVER THE WELDED WIRE FABRIC AS SPECIFIED ON THE PLANS AND IN THE SPECIAL PROVISIONS. THE CONCRETE CHAMFERS CHOSEN SHALL IN NO WAY FUNCTIONALLY LESSEN THE DESIGN SHOWN ON THE PLANS.

FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

NOTES

ASSUMED LIVE LOAD = HL 93.

DESIGN EARTH COVER = 1.7' MIN., 2.5' MAX.

FOR OTHER STANDARD DATA AND NOTES SEE SHEET S-N.

3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF ONE 30'-8" STEEL BEAM SPAN WITH CLEAR ROADWAY WIDTH OF 19.9' AND TIMBER FLOOR ON MASONRY ABUTMENTS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 12+39.00 -L-"

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

TRAFFIC ON SR 1151 SHALL BE MAINTAINED. IN ORDER TO MAINTAIN TRAFFIC THE CULVERT SHALL BE CONSTRUCTED IN SECTIONS AS DIRECTED BY THE ENGINEER. UNITS ADJACENT TO THE CONSTRUCTION JOINT/PHASING LINE SHALL BE DESIGNED WITH AN EDGE BEAM IF REQUIRED BY TEMPORARY CONDITIONS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

THE CONCRETE FOR THE PRECAST UNITS SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 5000 P.S.I.

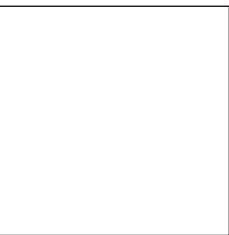
CAST-IN-PLACE CONCRETE SHALL BE POURED IN THE FOLLOWING ORDER:
1. FOOTINGS.
2. HEADWALLS, WINGWALLS

THE CONCRETE FOR THE HEADWALLS AND WINGS IF CAST-IN-PLACE SHALL BE CLASS "A" CONCRETE AS PER THE STANDARD SPECIFICATIONS.

ALL PRECAST UNITS SHALL BE PLACED PRIOR TO POURING THE WINGS AND HEADWALLS.

THE PRECAST UNITS SHALL BE CAREFULLY POSITIONED ON THE CAST-IN-PLACE FOOTINGS, AND EACH JOINT CHECKED FOR ALIGNMENT PRIOR TO JACKING THE UNIT INTO PLACE. SATISFACTORY FITTING AND PROPER GRADE SHALL BE MAINTAINED AS THE WORK PROCEEDS.

WHEN ANY PRECAST UNIT IS DAMAGED DURING HANDLING, THE ENGINEER AT HIS DISCRETION SHALL REJECT THE UNIT AS BEING UNFIT FOR INSTALLATION AND THE CONTRACTOR SHALL REMOVE SUCH REJECTED UNIT FROM THE PROJECT. MINOR DAMAGE TO THE UNIT MAY BE REPAIRED BY THE CONTRACTOR WHEN PERMITTED BY THE ENGINEER.



I HEREBY CERTIFY
THESE PLANS ARE
THE AS-BUILT PLANS

PROJECT NO. 17BP.13.R.172

MADISON COUNTY

STATION: 12+39.00 -L-

SHEET 1 OF 6 REPLACES BRIDGE NO. 560145

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

1 @ 20' X 7'
REINFORCED CONCRETE
THREE SIDED CULVERT
54° SKEW

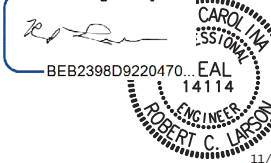
REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			C-1
2			4			TOTAL SHEETS 6

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ENGINEERS & PLANNERS & SCIENTISTS & CONSTRUCTION MANAGERS LICENSE NUMBER: C-0764
KCI Associates
of North Carolina, P.A.
4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-4270 Phone: (919) 785-9244

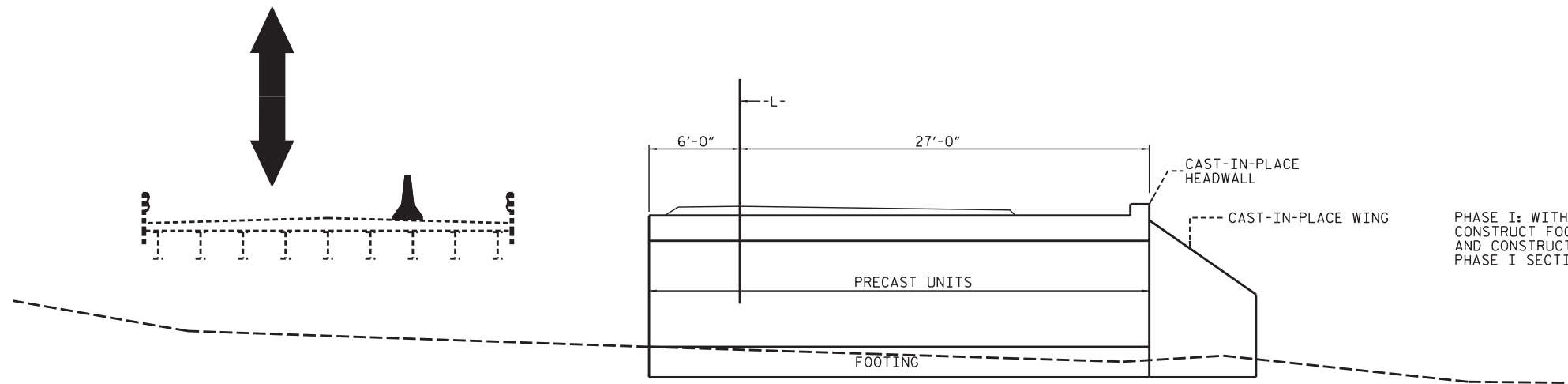
DocuSigned by:



DESIGN ENGINEER OF RECORD: R. J. FLORY
DATE: 11/30/17
CHECKED BY: R. C. LARSON
DATE: 12/08/20

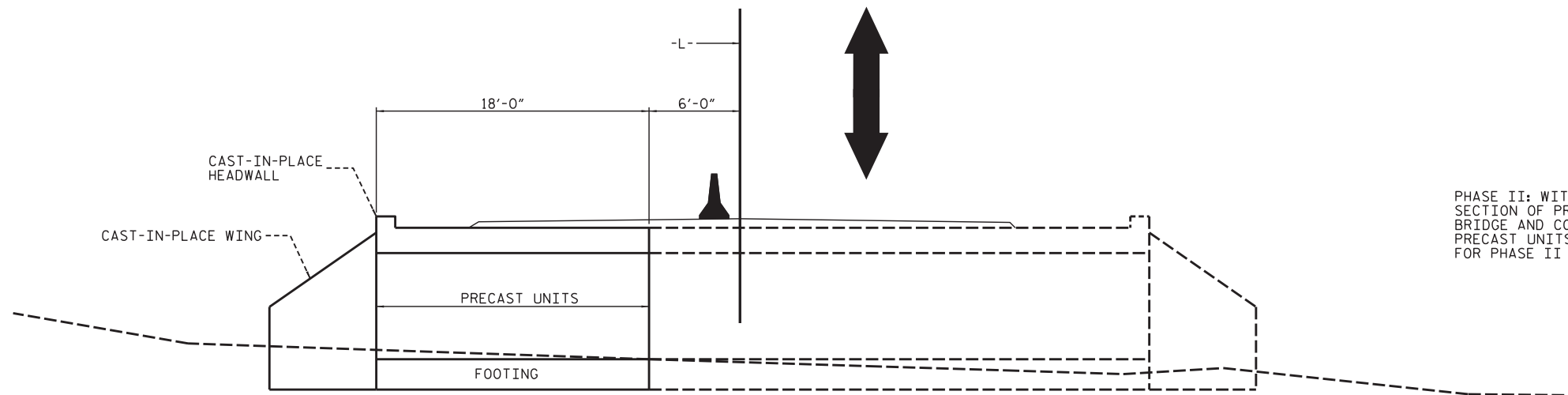
KCI PROJ. 221601946.09

KCI PROJ. 221601946.09



PHASE I: WITH TRAFFIC ON EXISTING BRIDGE, CONSTRUCT FOOTINGS, PLACE PRECAST UNITS, AND CONSTRUCT WINGS AND HEADWALL FOR PHASE I SECTION OF PROPOSED CULVERT.

TYPICAL SECTION - PHASE I



PHASE II: WITH TRAFFIC ON PREVIOUSLY CONSTRUCTED SECTION OF PROPOSED CULVERT, REMOVE EXISTING BRIDGE AND CONSTRUCT FOOTINGS, PLACE REMAINING PRECAST UNITS, AND CONSTRUCT WINGS AND HEADWALL FOR PHASE II SECTION OF PROPOSED CULVERT.

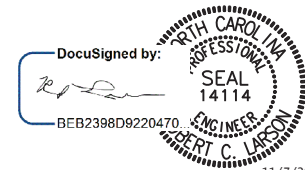
TYPICAL SECTION - PHASE II

PROJECT NO. 17BP.13.R.172
MADISON COUNTY
STATION: 12+39.00 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONSTRUCTION
SEQUENCE

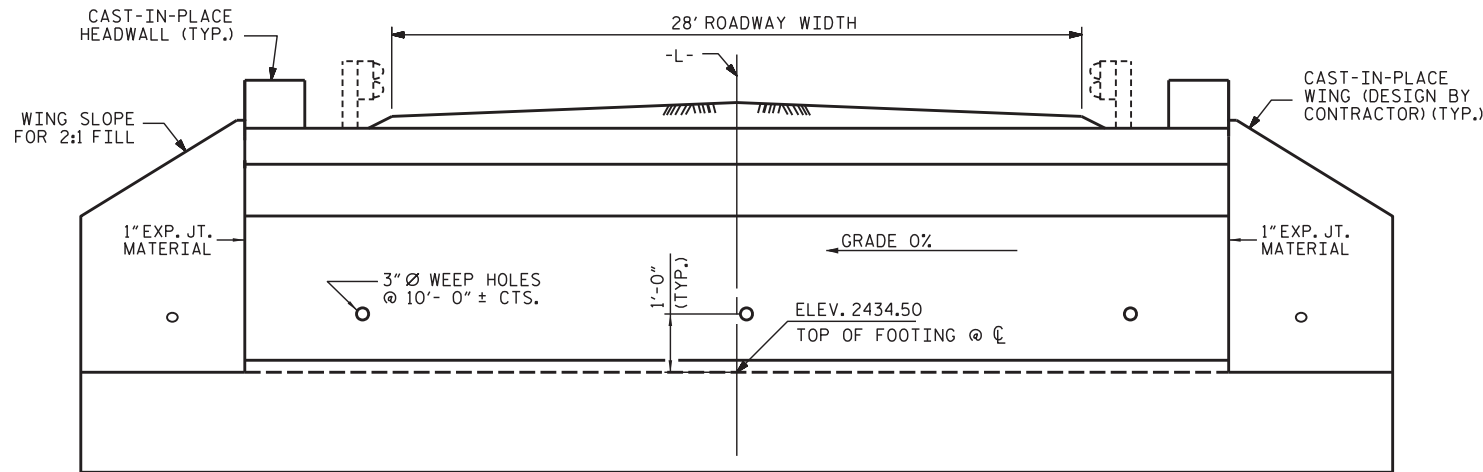


DESIGN ENGINEER OF RECORD: R.C. LARSON DATE: 11/7/2022
DRAWN BY: R.C. LARSON DATE: 06/28/2021
CHECKED BY: M.G. ARMSTRONG DATE: 06/30/2021

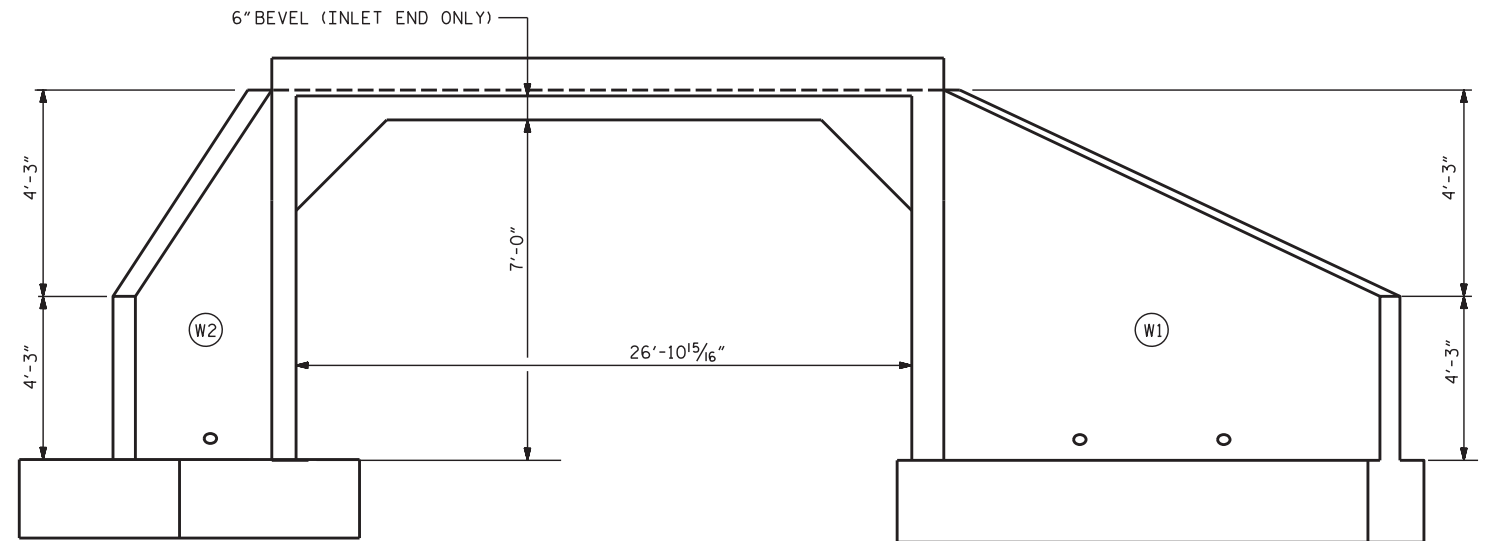
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KCI Associates
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4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-6270 Phone: (919) 785-9204

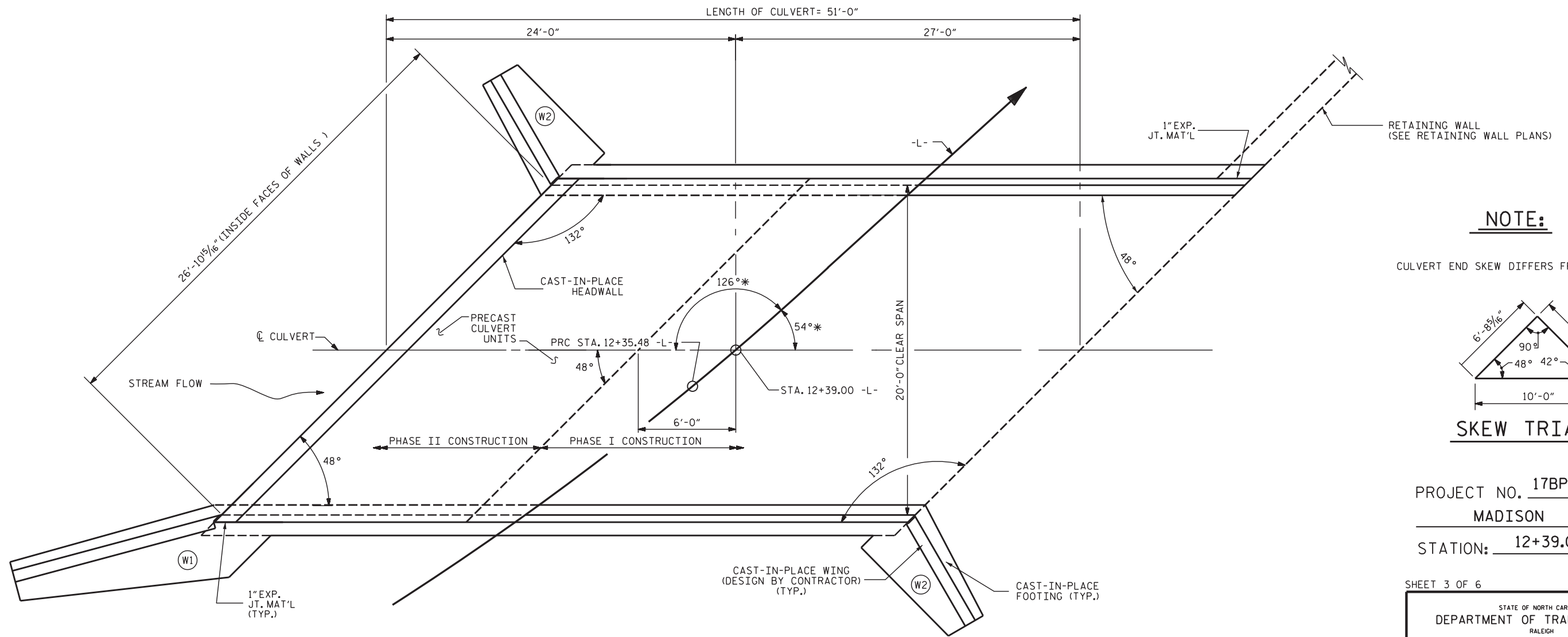
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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				TOTAL SHEETS	6



CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION NORMAL TO SKEW



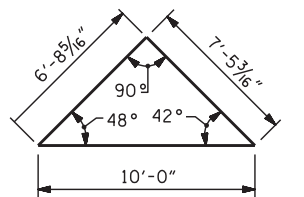
PART PLAN OF TOP SLAB

* TANGENT TO CURVE

PART PLAN OF FOOTINGS

NOTE:

CULVERT END SKEW DIFFERS FROM $\mathcal{C}$ SKEW.



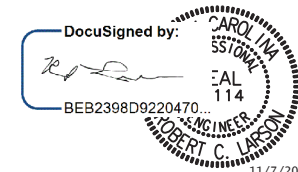
SKEW TRIANGLE

PROJECT NO. 17BP.13.R.172
MADISON COUNTY
STATION: 12+39.00 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN & ELEVATIONS
20 FT. X 7 FT.
PRECAST 3-SIDED
CULVERT - 54° SKEW

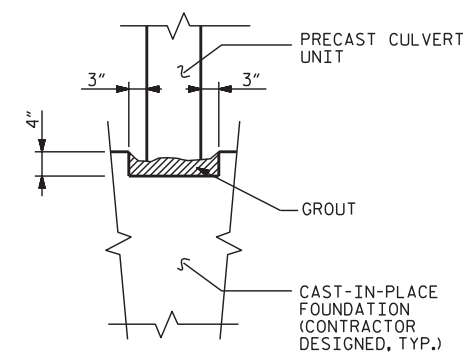


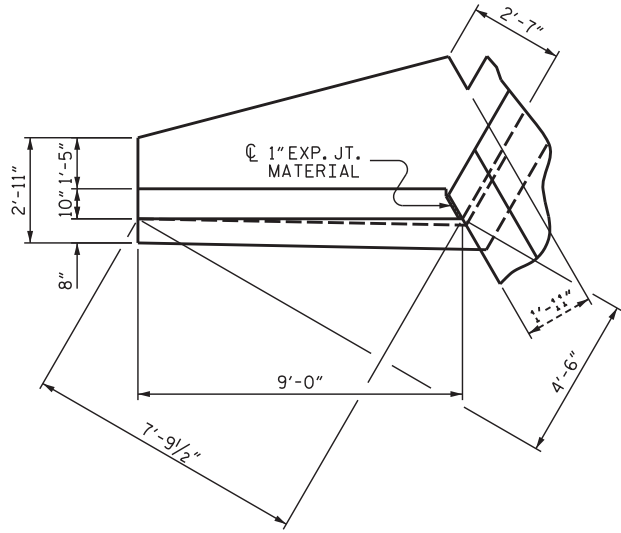
DESIGN ENGINEER OF RECORD:	DATE: 11/7/2022
DRAWN BY: A. K. ALLAM	DATE: 4/18/19
CHECKED BY: R. C. LARSON	DATE: 4/18/19

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UNLESS ALL SIGNATURES COMPLETED

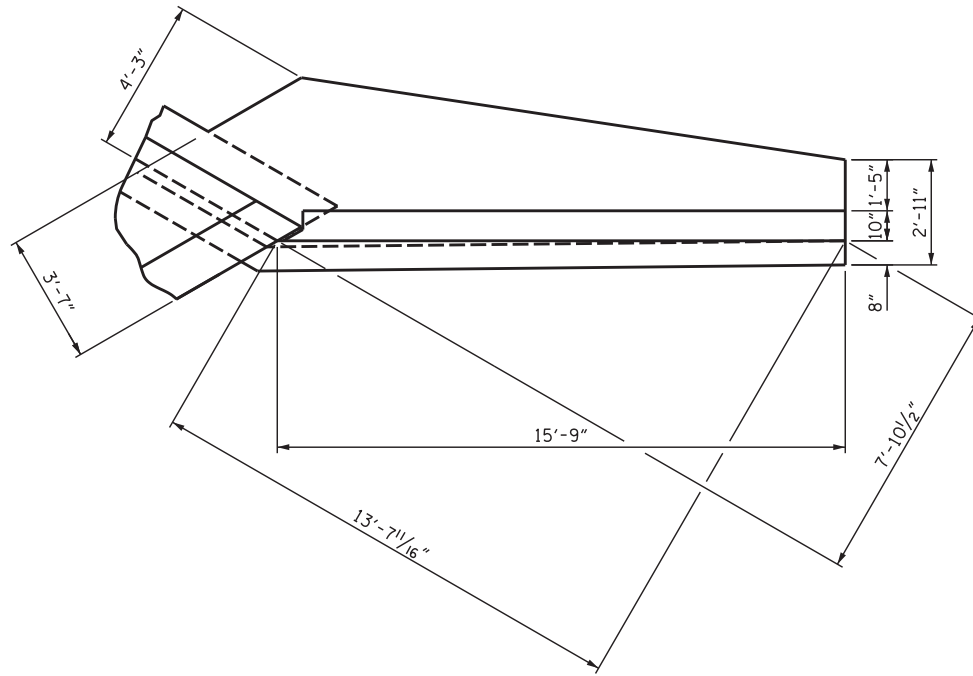


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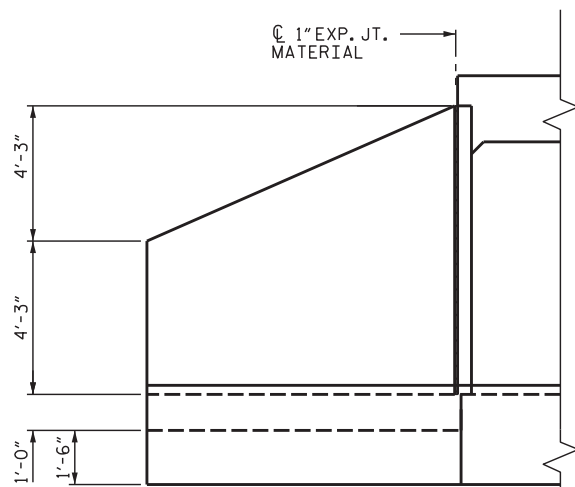




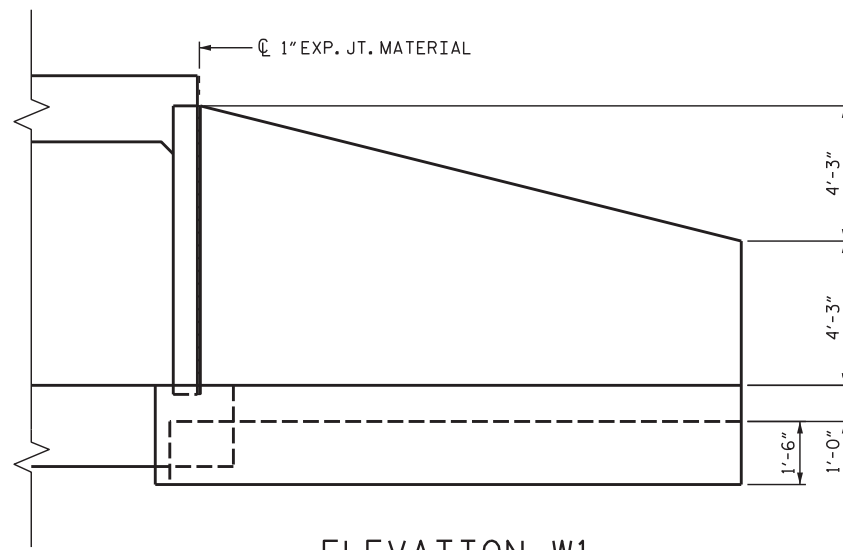
PLAN W2



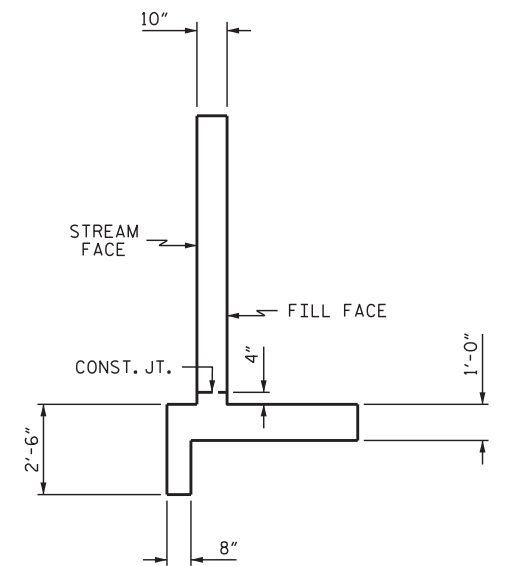
PLAN W1



ELEVATION W2



ELEVATION W1



TYPICAL WING SECTION

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

PROJECT NO. 17BP.13.R.172
MADISON COUNTY
 STATION: 12+39.00 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**WINGS FOR
 CONCRETE BOX CULVERT**
 H = 7'-0" SLOPE = 2:1
 60° SKEW

DocuSigned by:
 CAROLINA ASSOCIATES
 BEB2398D9220470...114
 11/7/2022

DESIGN ENGINEER OF RECORD: Robert C. Larson 11/7/2022
 ASSEMBLED BY: R. C. LARSON DATE: 12/08/20
 CHECKED BY: M.G. ARMSTRONG DATE: 06/30/21
 DRAWN BY: CCJ 11/99 REV. 6/19 MAA/THC
 CHECKED BY: RWW 03/00

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KCI Associates
 of North Carolina, P.A.
 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-6270 Phone: (919) 785-324

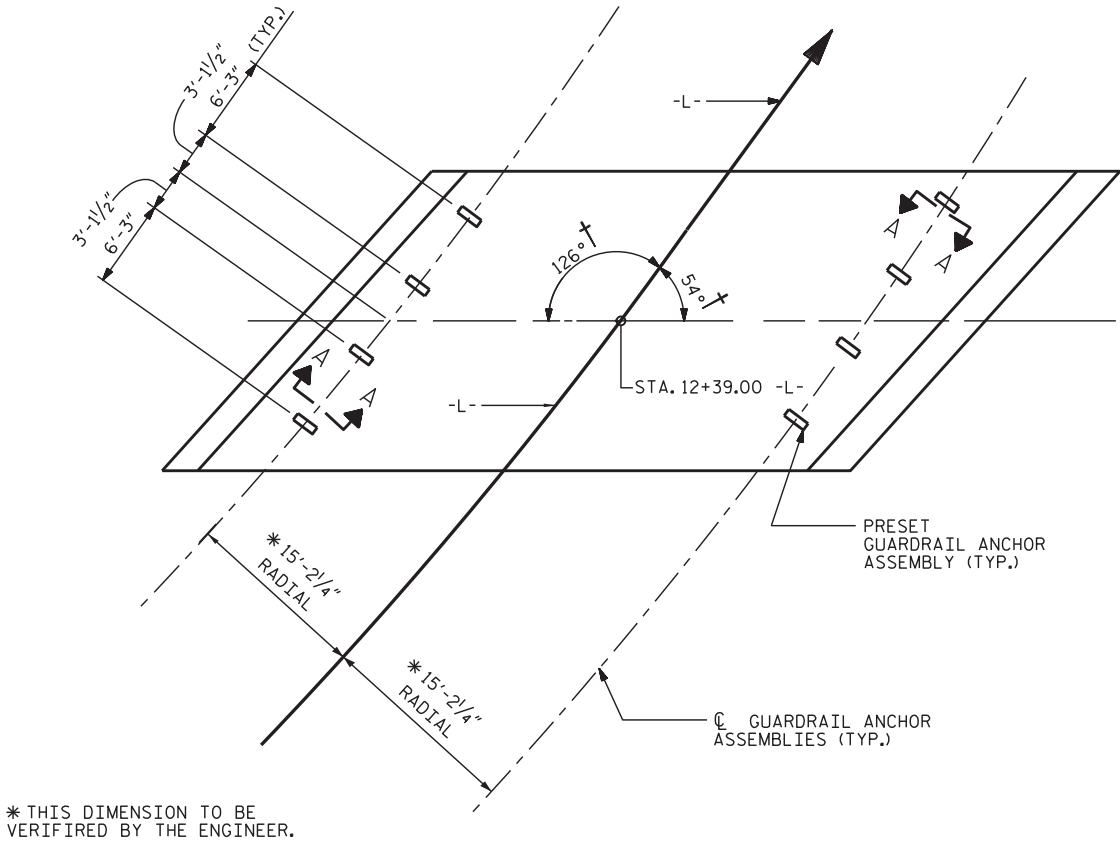
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			C-5
2			4			
TOTAL SHEETS						6

NOTES

ALL GUARDRAIL ATTACHMENTS SHALL BE MADE USING ADHESIVELY ANCHORED ANCHOR BOLTS. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4"Ø BOLT IS 12.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

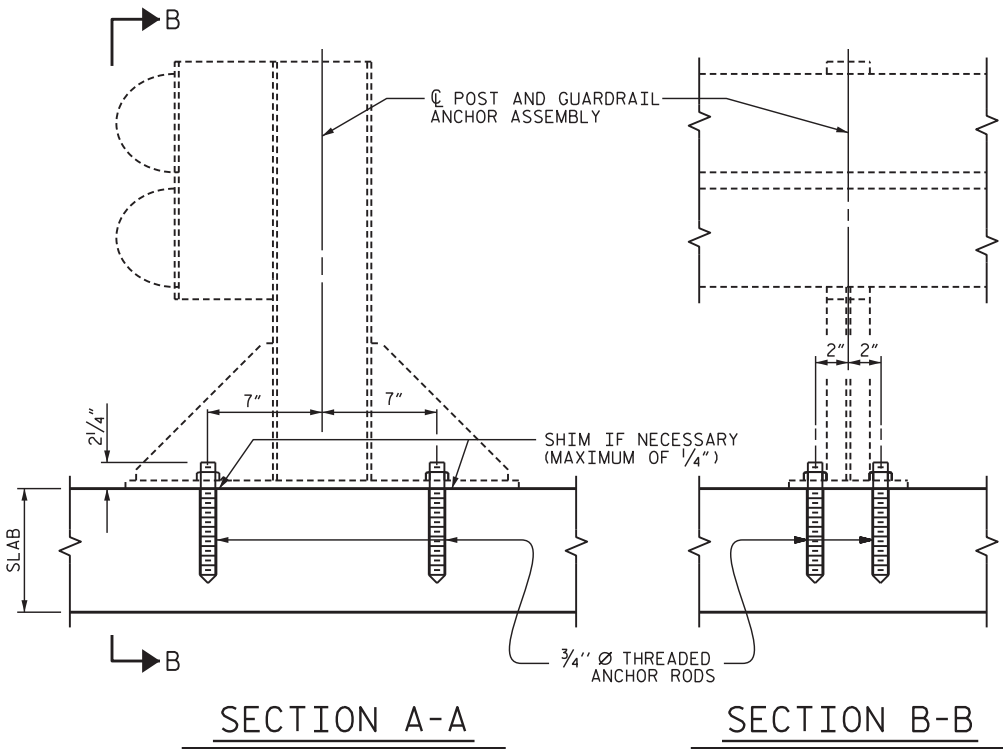
ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE 3/4"Ø AND MEET THE REQUIREMENTS OF ASTM A325. BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED.

PAYMENT FOR GUARDRAIL, POST, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.



PLAN OF PRECAST CULVERT
GUARDRAIL ANCHOR ASSEMBLY SPACING

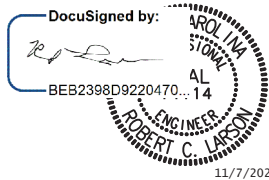
NOTE: GUARDRAIL POSTS PLACEMENT AS SHOWN.
GUARDRAIL POSTS AND THREADED ANCHOR RODS
MUST CLEAR ALL JOINTS OF PRECAST CONCRETE
CULVERT UNITS.



PROJECT NO. 17BP.13.R.172
MADISON COUNTY
STATION: 12+39.00 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ANCHORAGE DETAILS FOR
GUARDRAIL ATTACHMENTS
FOR PRECAST CULVERTS



DESIGN ENGINEER OF RECORD:	DATE:
ASSEMBLED BY : A.K. AL	11/7/2022
CHECKED BY : R.C. LARSON	DATE : 4/19/19
DRAWN BY : FCJ 6/88	REV. 10/1/11 MAA/GM
CHECKED BY : ARB 6/88	REV. 12/17 MAA/THC
	REV. 6/19 MAA/THC

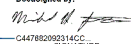
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			C-6
2			4			TOTAL SHEETS 6

GEOTECHNICAL
ENGINEER

NORTH CAROLINA
PROFESSIONAL
SEAL
028893
ENGINEER
MICHAEL H. STEPHENS

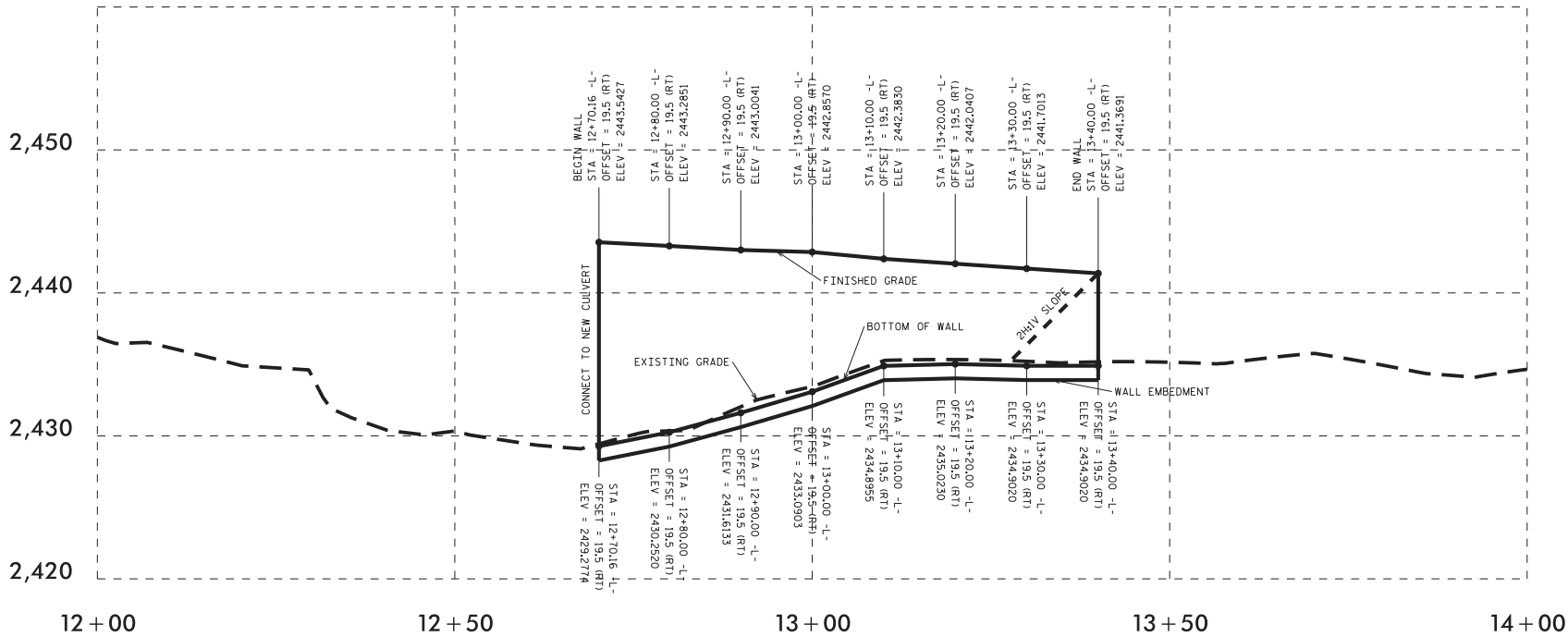
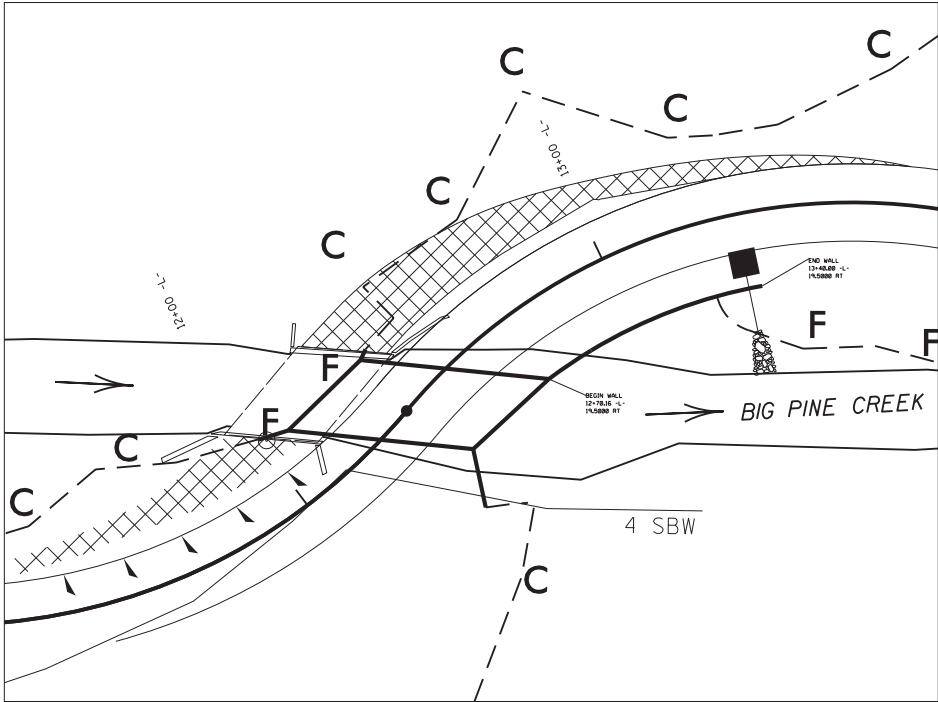
DocuSigned by:
 8/10/2020
C4478929251400 SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ESTIMATED CIP MSE RETAINING WALL QUANTITIES (SQUARE FEET)	
CIP MSE RETAINING WALL NO. 1	726 SF



PROJECT NO.: 17BP.13.R.172 (SF-560145)
MADISON COUNTY
STATION: 12+70 -L-
SHEET 1 OF 2

PREPARED BY: MHS	DATE: 8/7/20
REVIEWED BY: SCC	DATE: 8/7/20

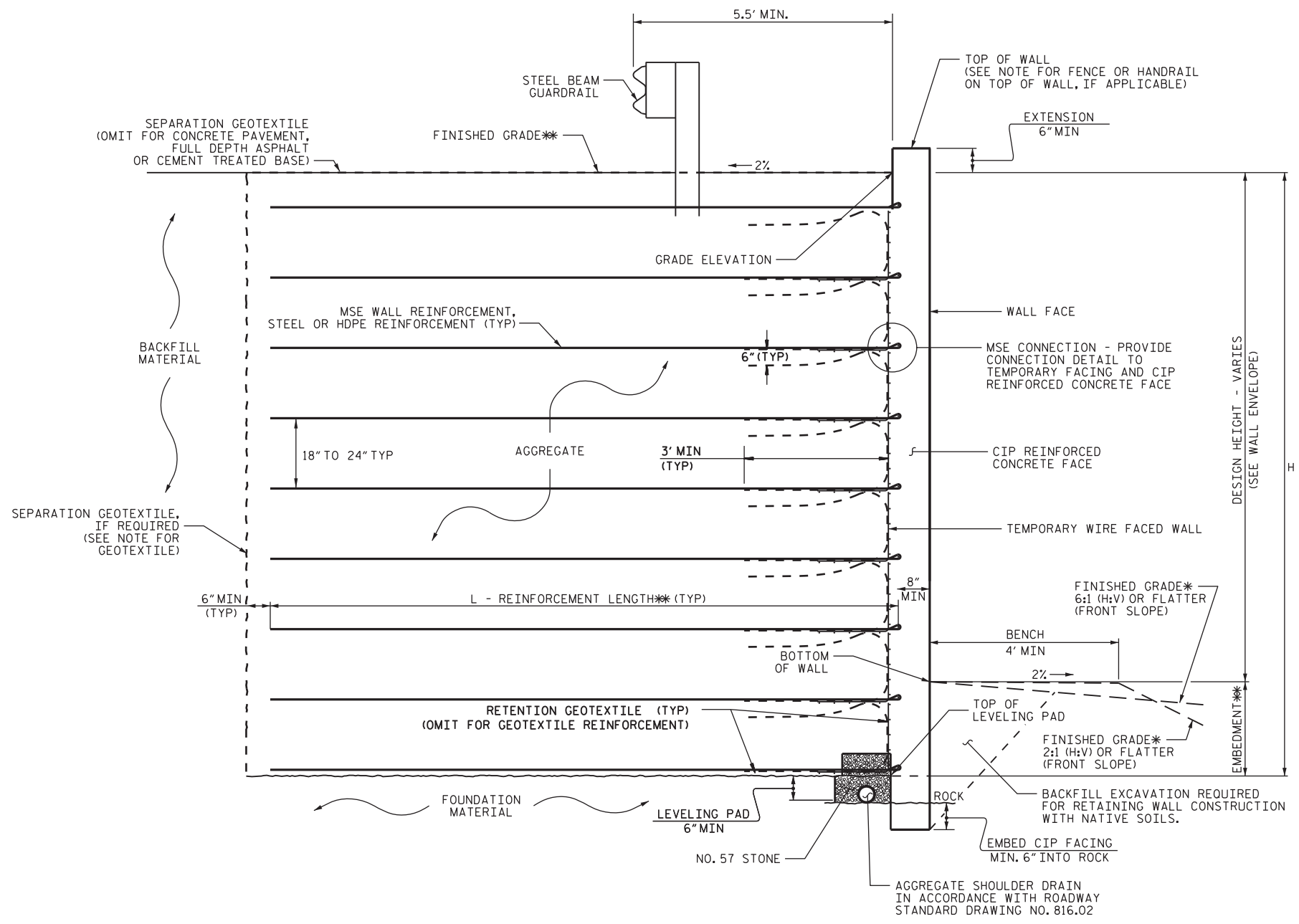
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

CIP MECHANICALLY STABILIZED
EARTH RETAINING WALL NO. 1
CULVERT ON SR 1151
OVER BIG PINE CREEK

REVISIONS						SHEET NO. W-1
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			



CIP MSE WALL - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.
*SEE MSE RETAINING WALLS PROVISION AND IF APPLICABLE, MSE WALL NOTES FOR EMBEDMENT AND REINFORCEMENT LENGTH REQUIREMENTS.

NOTES:

FOR CIP MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE CIP MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.

AT THE CONTRACTORS OPTION AND NO ADDITIONAL COST TO THE DEPARTMENT, A CIP CANTILEVER WALL MAY BE SUBSTITUTED. THE DESIGN AND RELATED SUBMITTALS TO THE DEPARTMENT ARE THE RESPONSIBILITY OF THE CONTRACTOR. FINAL ACCEPTANCE IS UP TO THE DEPARTMENT.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO. 1.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO.1, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

DESIGN RETAINING WALL NO.1 FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,100 LB/SF
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.8H OR 6 FT, WHICHEVER IS LONGER
- 5) MINIMUM EMBEDMENT ELEVATION = 1 FT AND EMBED CIP WALL FACING AT LEAST 6" INTO ROCK AS SHOWN ON THE PLANS.
- 6) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
COARSE	110	38	0

*SEE MSE RETAINING WALLS PROVISION FOR COARSE AGGREGATE MATERIAL REQUIREMENTS.

7) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
BACKFILL	120	30	0
FOUNDATION	135	38	0

THE MINIMUM EMBEDMENT ELEVATION FOR RETAINING WALL NO.1 INCLUDES EMBEDMENT FOR SCOUR.

DESIGN RETAINING WALL NO.1 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DESIGN RETAINING WALL NO.1 FOR A PIPE EXTENDING THROUGH THE WALL LOCATED AT STATION 13+53.21. VERIFY PIPE LOCATION AND ELEVATION BEFORE BEGINNING MSE WALL DESIGN OR CONSTRUCTION.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.1.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO.1 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

DO NOT PLACE WELDED WIRE FACING, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO.1 UNTIL OBTAINING APPROVAL OF THE EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL.