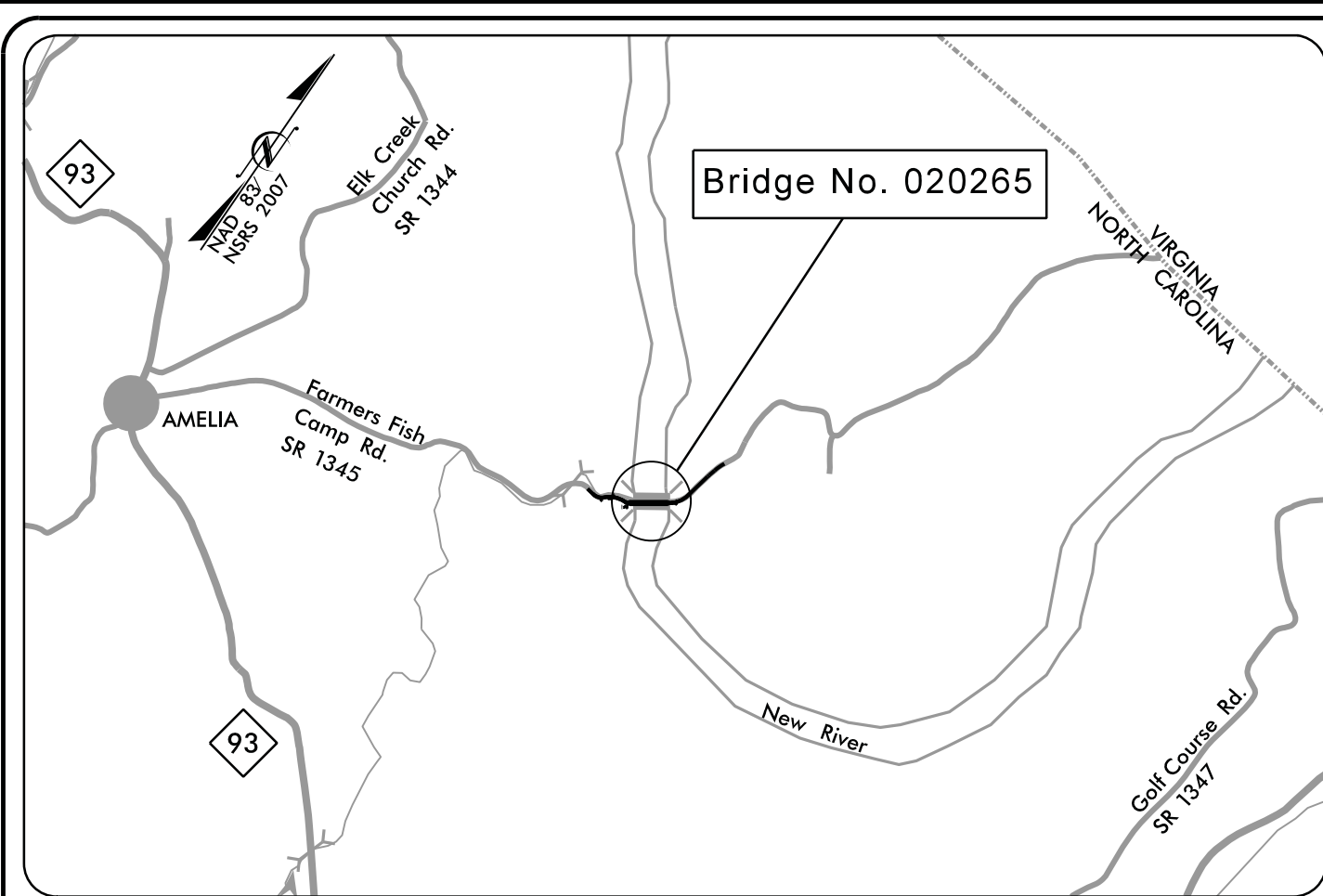


BRIDGE NO. 265

ALLEGHANY COUNTY

17BP.11.R.57



VICINITY MAP

- NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
 2. THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

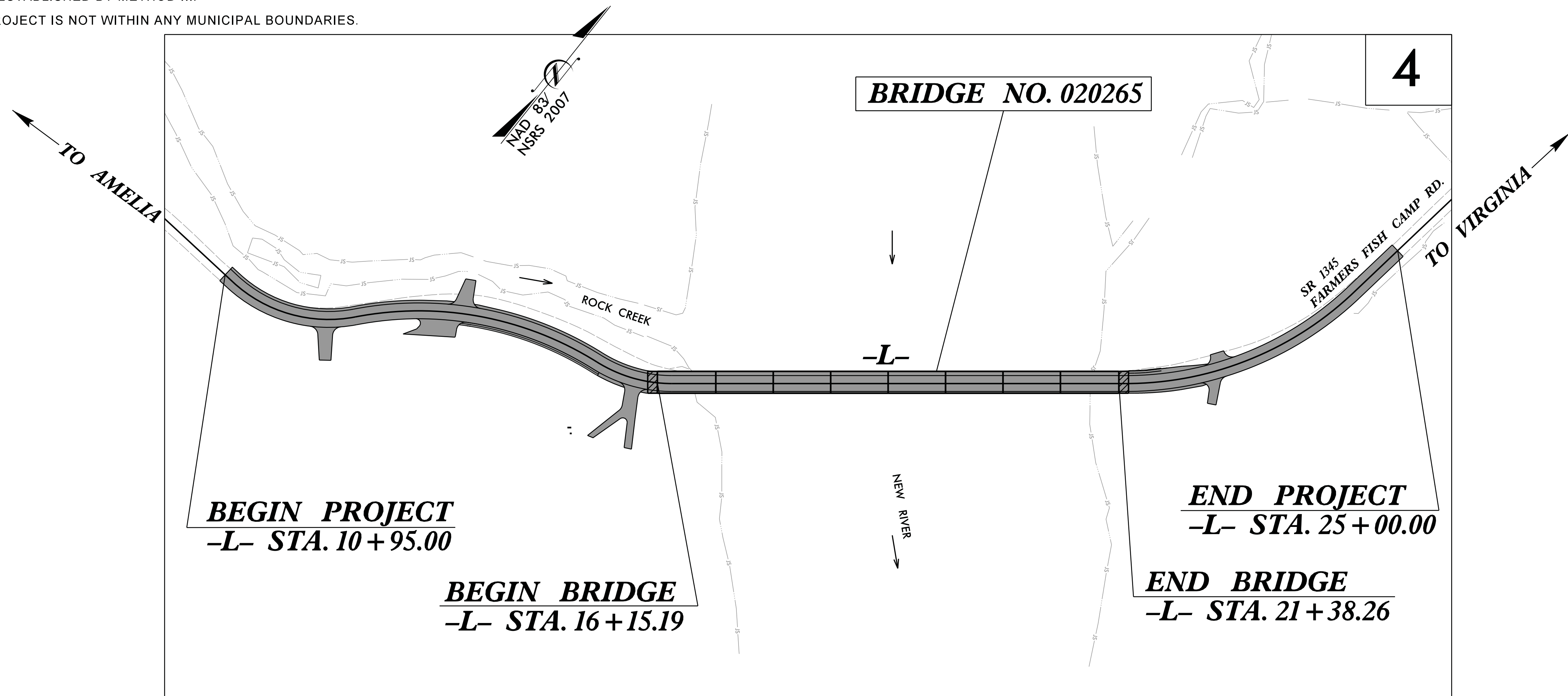
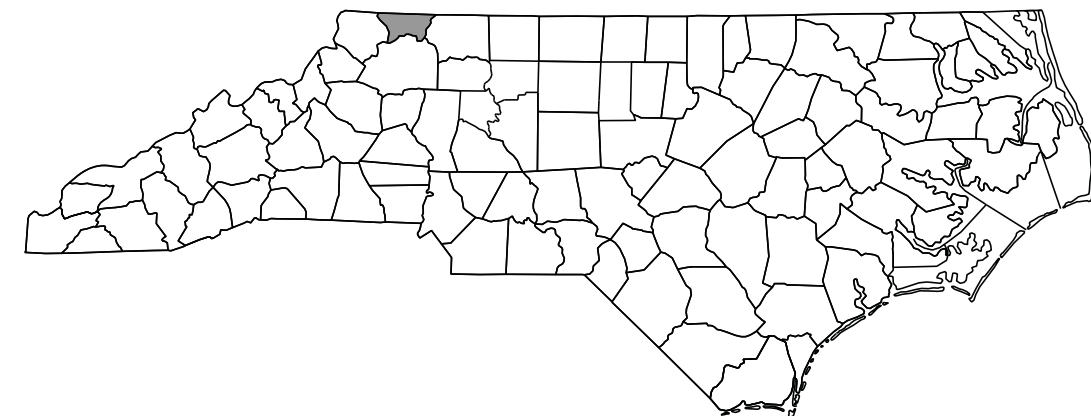
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ALLEGHANY COUNTY

LOCATION: BRIDGE NO. 020265 OVER NEW RIVER
ON SR 1345 (FARMERS FISH CAMP RD)

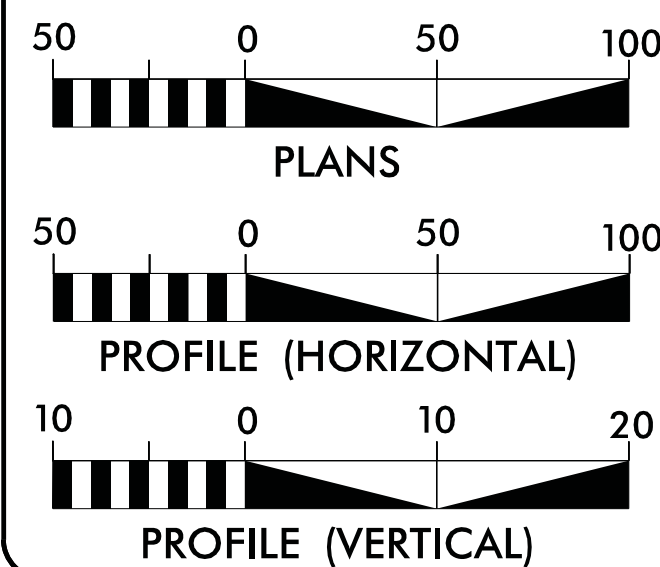
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.11.R.57	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.11.R.57		PE, ROW, UTIL. & CONST.	



**DESIGN EXCEPTION FOR DESIGN SPEED

GRAPHIC SCALES



DESIGN DATA

ADT = 130
DHV = N/A
D = N/A
T = 6 % *
**V = 25 MPH
* TTST = 3% DUAL 3%
FUNC CLASS =
LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT 020265.....0.167 mi
LENGTH STRUCTURE TIP PROJECT 020265.....0.099 mi
TOTAL LENGTH TIP PROJECT 020265.....0.266 mi



RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560

DIVISION OF HIGHWAYS

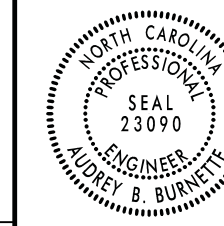
2012 STANDARD SPECIFICATIONS

B. Keith Skinner, P.E.
PROJECT ENGINEER

RIGHT OF WAY DATE:
JANUARY 9, 2014

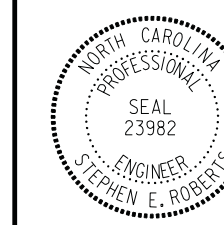
LETTING DATE:
MAY 1, 2014

HYDRAULICS
ENGINEER

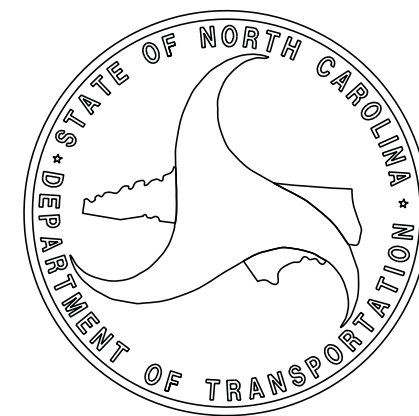


SIGNATURE: *David B. Dineen* 2/28/14 P.E.

ROADWAY
DESIGN
ENGINEER



SIGNATURE: *Stephen E. Parker* 2-28-14 P.E.



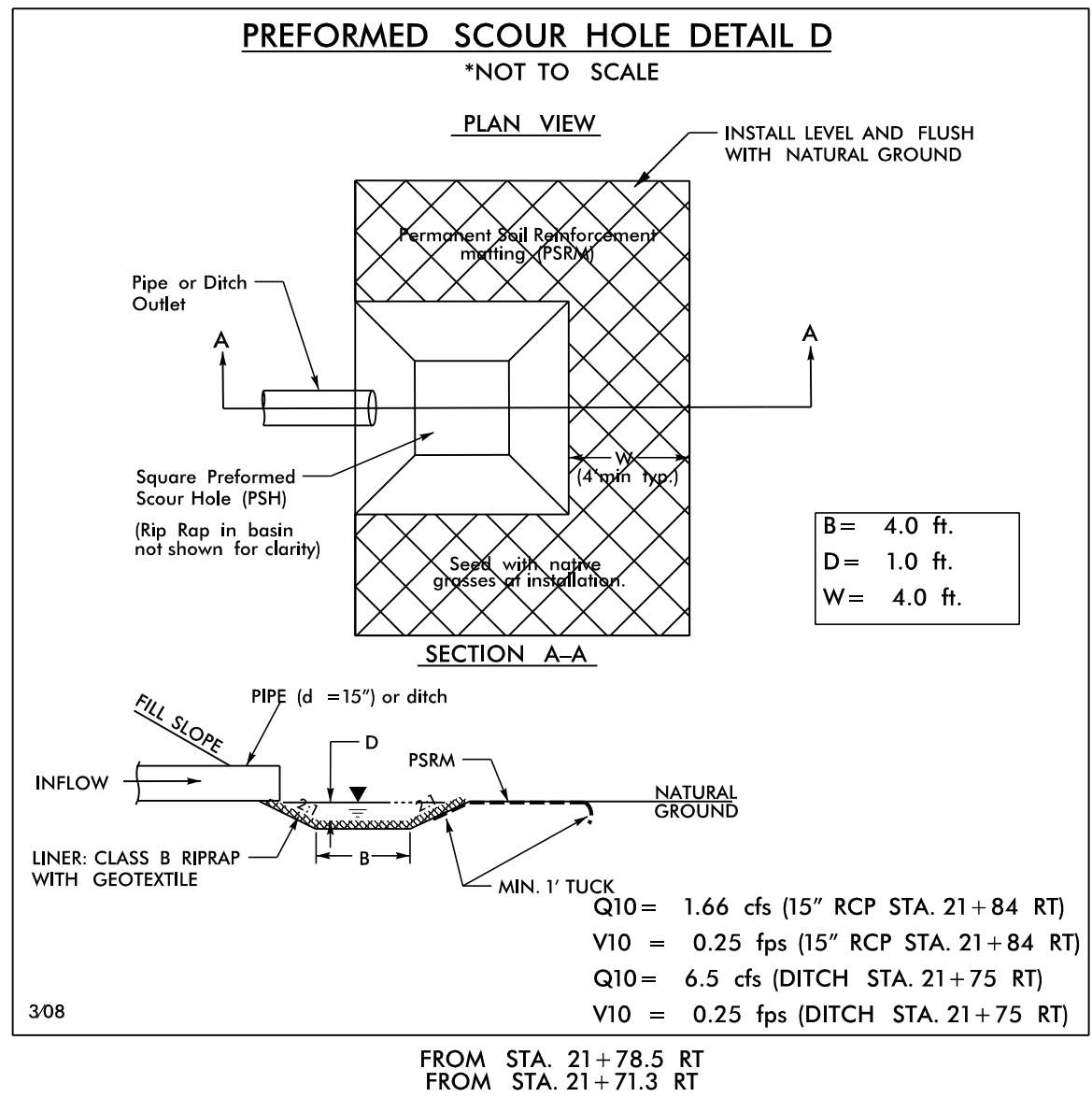
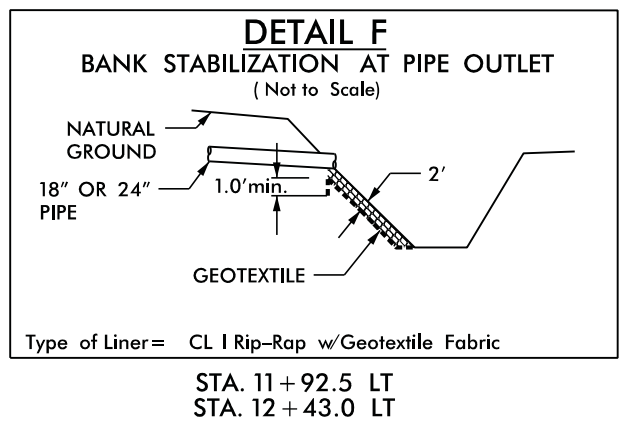
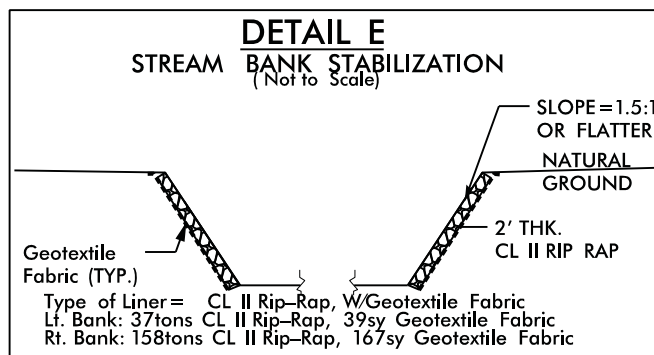
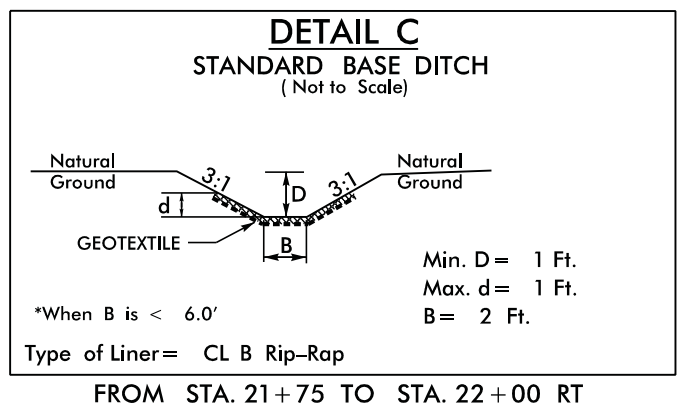
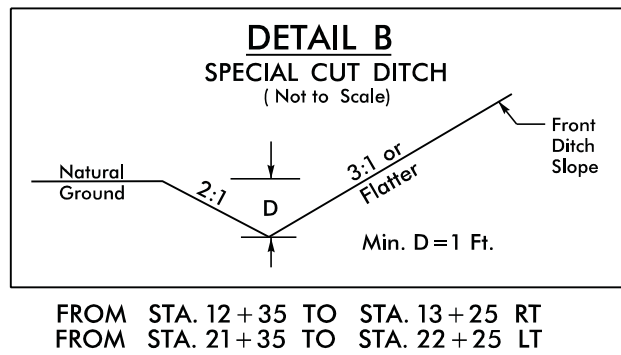
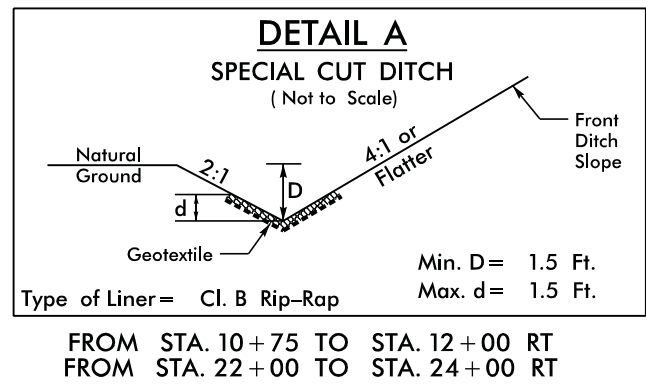
R:\Roadway\Proj\020265_rdy-det03.dgn

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



USE TYPICAL SECTION NO. 1
-L- STA. 10+95.00 TO 25+00.00

PROJECT REFERENCE NO.		SHEET NO.	
17BP.11.R.57		2	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
<i>Steven E. Roberts 2-24-10</i>		<i>Aubrey B. Burnette 2-24-10</i>	



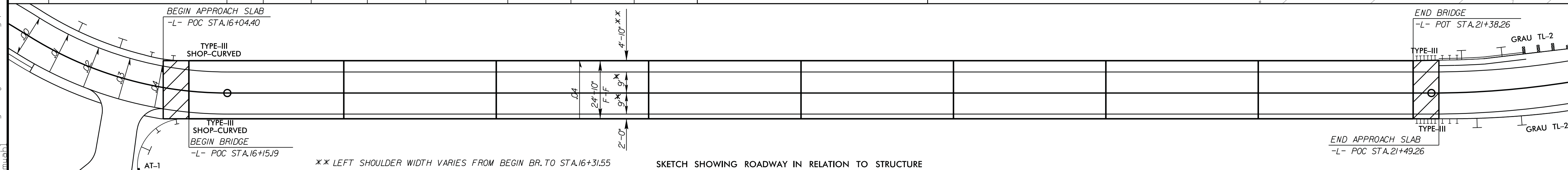
RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

R:\Roadway\Proj\020265_Rdy-psh04.dgn

 HISTORIC PROPERTY

PROJECT REFERENCE NO.	SHEET NO.
17BPJLR.57	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 SEAL 23982 ENGINEER STEPHEN B. BURNETT <i>Stephen B. Burnett</i> 2-24-14	 SEAL 23090 ENGINEER AUDREY B. BURNETT <i>Audrey B. Burnett</i> 2-24-14



RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
LEIGH, NORTH CAROLINA 27609-39
C LICENSE NO. F-0112 • (919) 878-95



PLAN OF CAUSEWAY - PHASE I

1. CONSTRUCT MAIN CAUSEWAY, WITH FLOW THRU PIPES, AS SHOWN ON PLAN. PLAN C
NO MORE THAN HALF OF THE STREAM SHALL BE BLOCKED DURING PHASE I CONSTRUCTION.
2. DRIVEWAY ACCESS TO PROPERTY NO. 6 SHALL BE MAINTAINED 24-HR DURING PHASE I CONSTRUCTION.
3. REMOVE EXISTING CONCRETE PIERS AND ABUTMENT.
4. CONSTRUCT FINGERS OF CAUSEWAY AS SHOWN ON PLAN.
5. BEGIN CONSTRUCTION OF INTERIOR BENTS 1 THROUGH 4 AND END BENT 1.
INSTALL (3)-3.0' DIAMETER SHAFTS PER BENT AS DETAILED ON THE STRUCTURES PLANS.
6. REMOVE BENT ACCESS PORTION OF THE CAUSEWAY AFTER COMPLETION OF BENT CONSTRUCTION.
7. INSTALL 21" CORED SLABS FROM MAIN CAUSEWAY.
8. REMOVE MAIN CAUSEWAY BEFORE BEGINNING CONSTRUCTION OF PHASE II CAUSEWAY.
9. INSTALL BANK STABILIZATION AS SHOWN ON PLANS UPON REMOVAL OF MAIN CAUSEWAY.

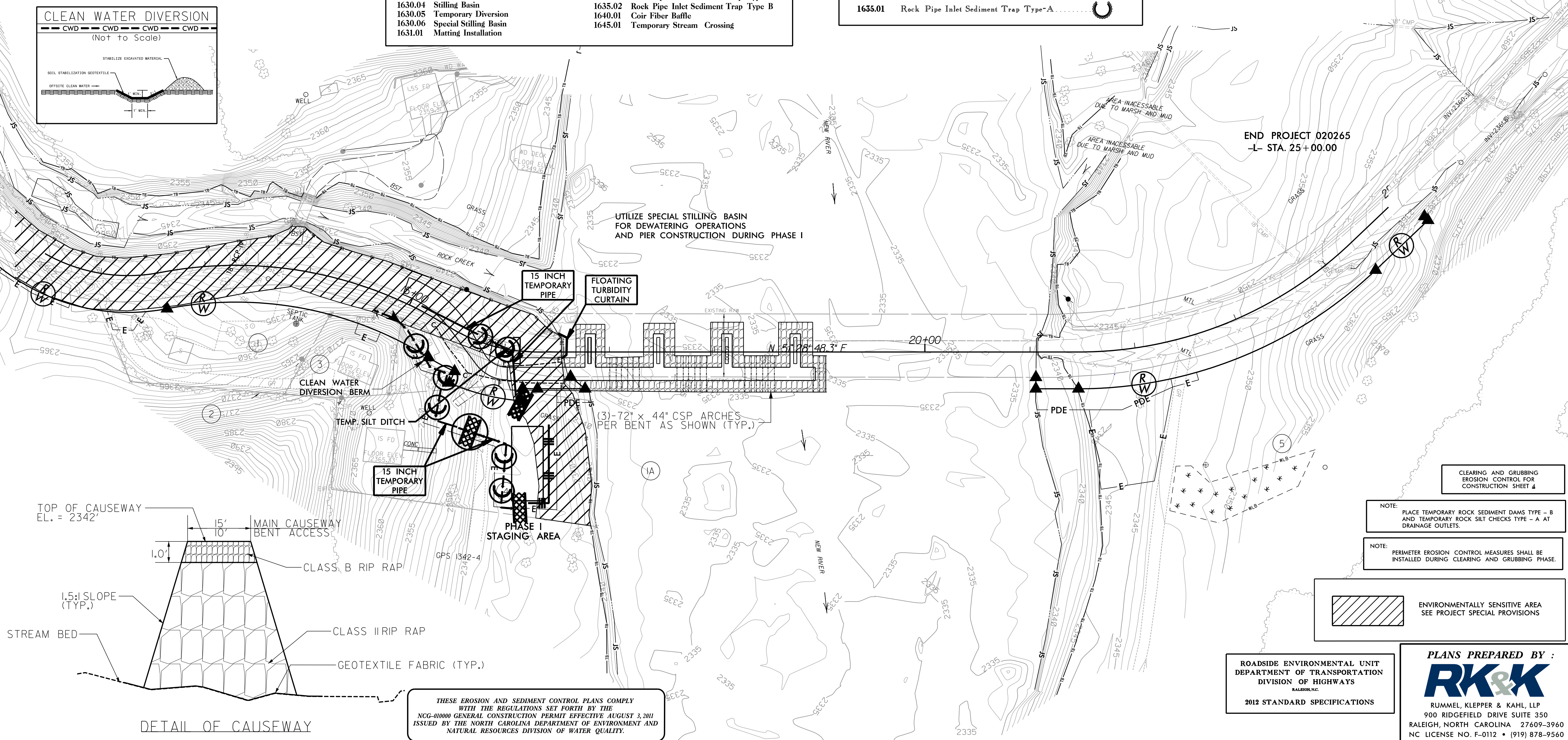
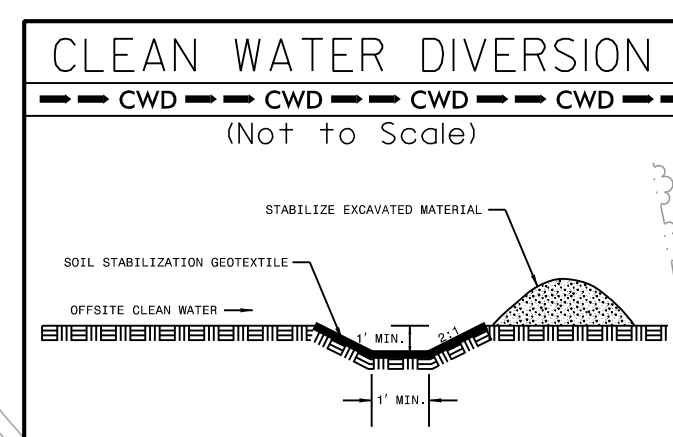
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1653.01	Temporary Rock Silt Cheek Type A
1622.01	Temporary Berms and Slope Drains	1653.02	Temporary Rock Silt Cheek 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

<u>Std. #</u>	<u>Description</u>	<u>Symbol</u>
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1650.02	Silt Basin Type B	
1650.03	Temporary Silt Ditch	
1650.05	Temporary Diversion	
1650.06	Special Stilling Basin	
1652.03	Rock Inlet Sediment Trap Type C	
1653.01	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	
	Wattle with Polyacrylamide (PAM)	
1654.02	Temporary Rock Sediment Dam Type-B	
1655.01	Rock Pipe Inlet Sediment Trap Type-A	

LEVEL IIIA CERTIFICATION NO.

PROFILE (HORIZONTAL)

PROFILE (VERTICAL)



CLEARING AND GRUBBING EROSION CONTROL FOR

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

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

 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

**ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
2012 STANDARD SPECIFICATIONS**

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
WAKEFORD, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

EROSION CONTROL PLAN

PLAN OF CAUSEWAY - PHASE II

CAUSEWAY CONSTRUCTION SEQUENCE

1. CONSTRUCT MAIN CAUSEWAY, WITH FLOW THRU PIPE, AS SHOWN ON PLAN. NO MORE THAN HALF OF THE STREAM SHALL BE BLOCKED DURING PHASE II CONSTRUCTION.
2. REMOVE EXISTING CONCRETE PIERS AND ABUTMENT.
3. CONSTRUCT FINGERS OF CAUSEWAY AS SHOWN ON PLAN.
4. BEGIN CONSTRUCTION INTERIOR BENTS 5 THROUGH 7 AND END BENT 2. INSTALL (3)-3.0' DIAMETER SHAFTS PER BENT.
5. AFTER COMPLETION OF BENT CONSTRUCTION, REMOVE BENT ACCESS PORTION OF CAUSEWAY.
6. INSTALL 21" CORED SLABS FROM MAIN CAUSEWAY. REMOVE MAIN CAUSEWAY UPON COMPLETION.
7. INSTALL BANK STABILIZATION AS SHOWN UPON COMPLETION AFTER REMOVING CAUSEWAY.

2012 STANDARD DRAWINGS

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		

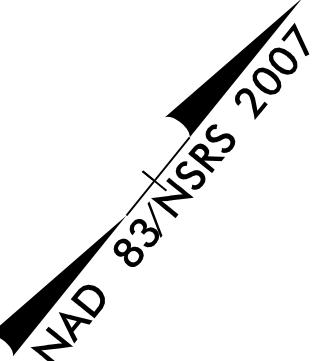
Std. #	Description	Symbol
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	III III III
1630.02	Silt Basin Type B	III III III
1630.03	Temporary Silt Ditch	III III III
1630.05	Temporary Diversion	III III III
1630.06	Special Stilling Basin	III III III
1632.03	Rock Inlet Sediment Trap Type C	III III III
1633.01	Temporary Rock Silt Check Type-A	III III III
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	III III III
1633.02	Temporary Rock Silt Check Type-B	III III III
	Wattle	III III III
	Wattle with Polyacrylamide (PAM)	III III III
1634.02	Temporary Rock Sediment Dam Type-B	III III III
1655.01	Rock Pipe Inlet Sediment Trap Type-A	III III III

Audrey Burnette

LEVEL IIIA NAME

3081

LEVEL IIIA CERTIFICATION NO.



PROJECT REFERENCE NO.

020265

SHEET NO.

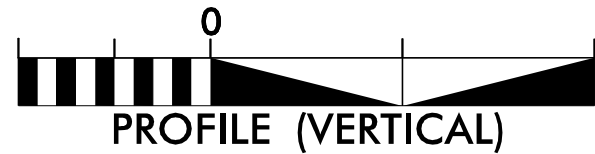
EC-2

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

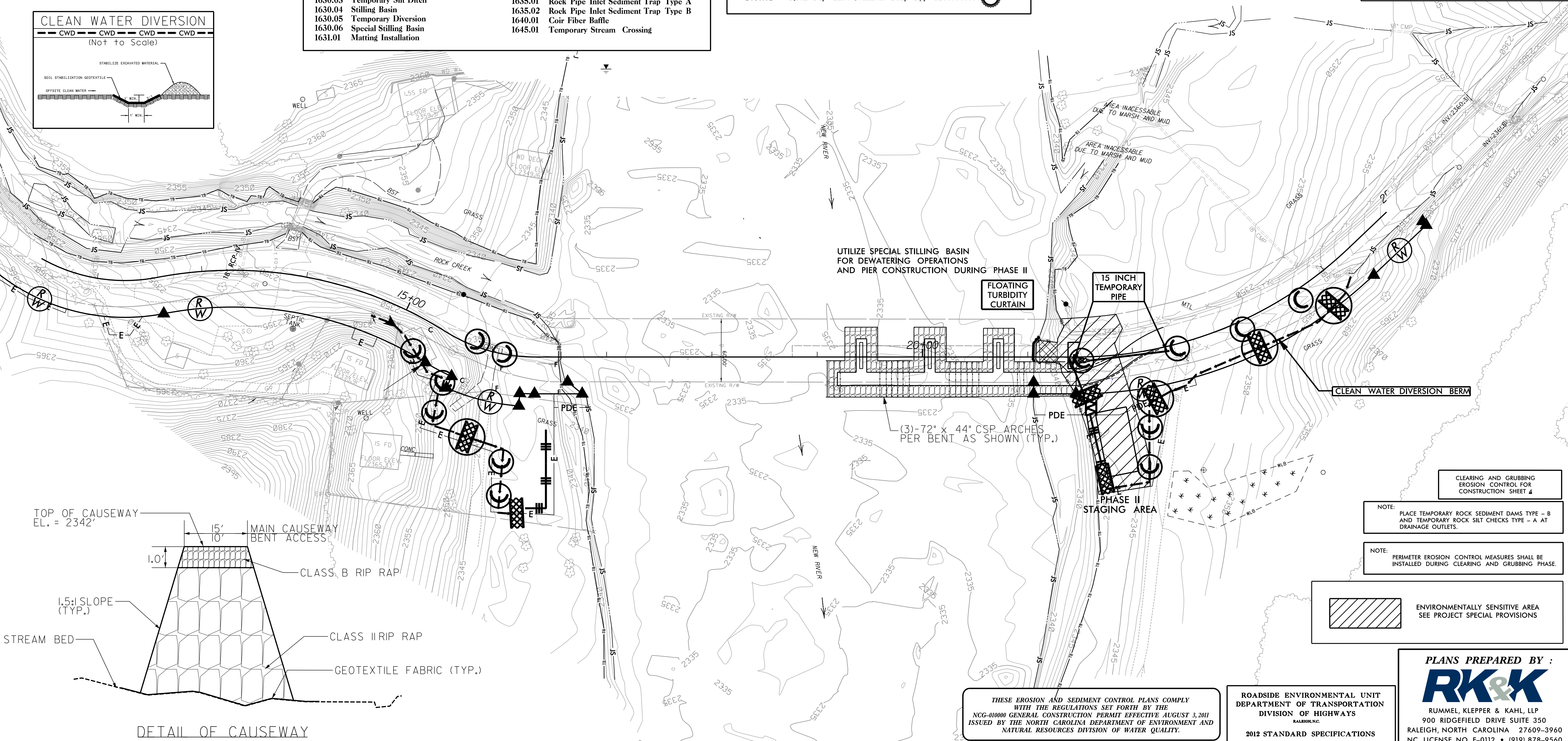
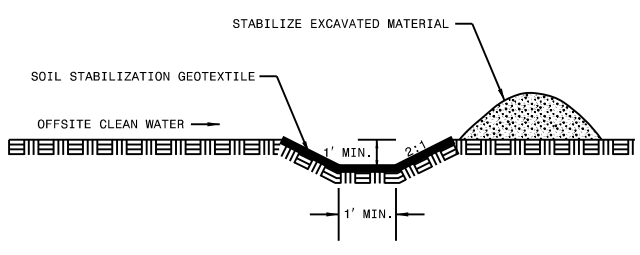
GRAPHIC SCALES



CLEAN WATER DIVERSION

CWD CWD CWD CWD CWD

(Not to Scale)



TOP OF CAUSEWAY
EL. = 2342'

15' 10' MAIN CAUSEWAY
BENT ACCESS

CLASS B RIP RAP

1.5:1 SLOPE
(TYP.)

STREAM BED

CLASS II RIP RAP

GEOTEXTILE FABRIC (TYP.)

UTILIZE SPECIAL STILLING BASIN
FOR DEWATERING OPERATIONS
AND PIER CONSTRUCTION DURING PHASE II

FLOATING
TURBIDITY
CURTAIN

15 INCH
TEMPORARY
PIPE

(3)-72" x 44" CSP ARCHES
PER BENT AS SHOWN (TYP.)

PDE

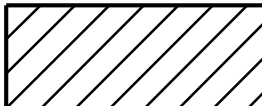
PHASE II
STAGING AREA

CLEAN WATER DIVERSION BERM

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

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



ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

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.

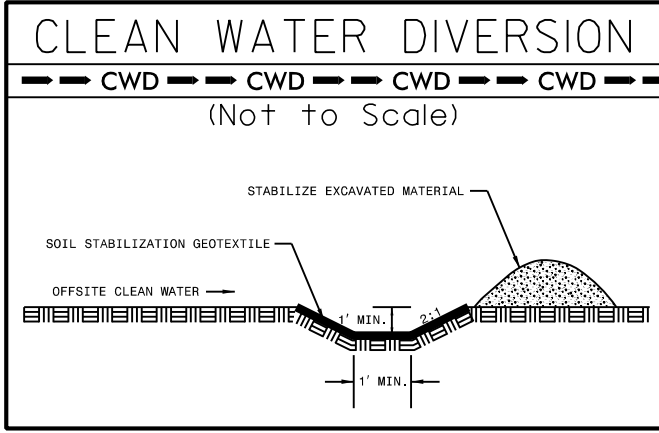
ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, NC
2012 STANDARD SPECIFICATIONS

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	
1630.05	Temporary Diversion	
1630.06	Special Stilling Basin	
1632.03	Rock Inlet Sediment Trap Type C	
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	
	Wattle with Polyacrylamide (PAM)	
1634.02	Temporary Rock Sediment Dam Type-B	
1655.01	Rock Pipe Inlet Sediment Trap Type-A	

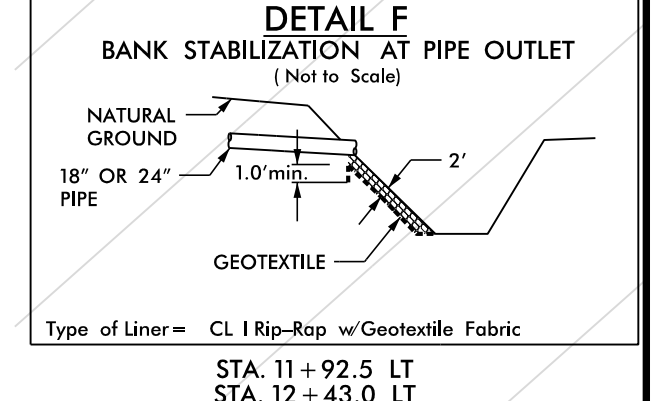
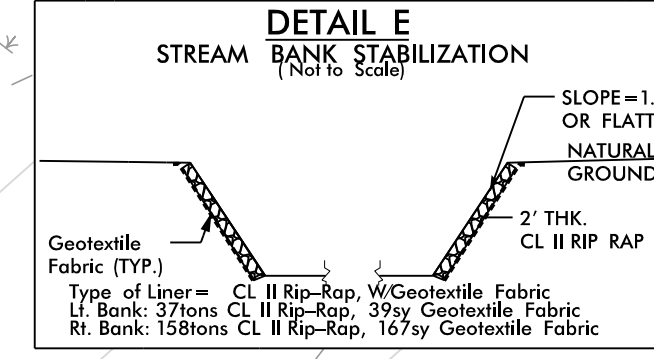
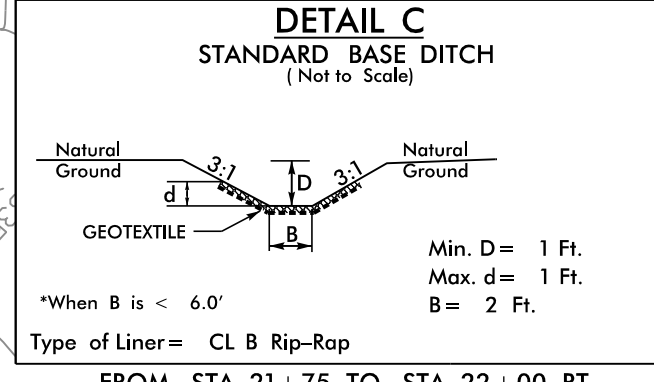
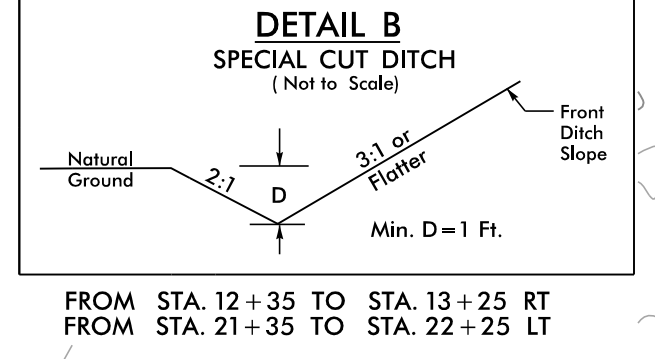
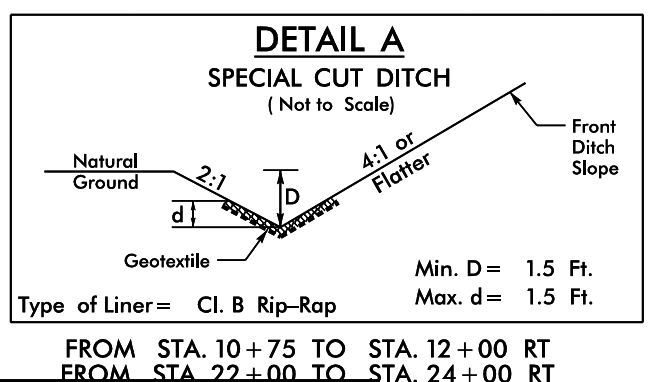
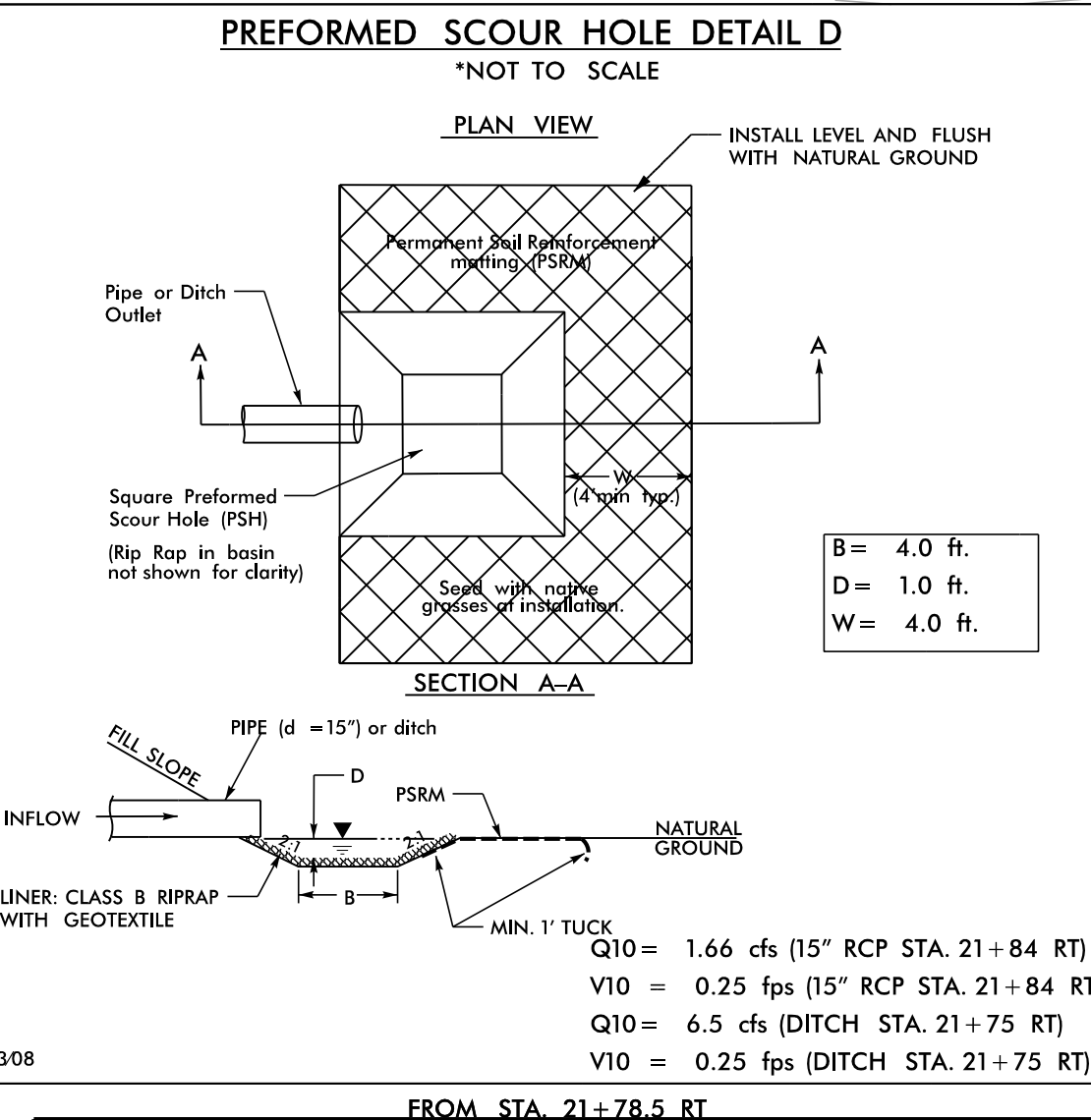
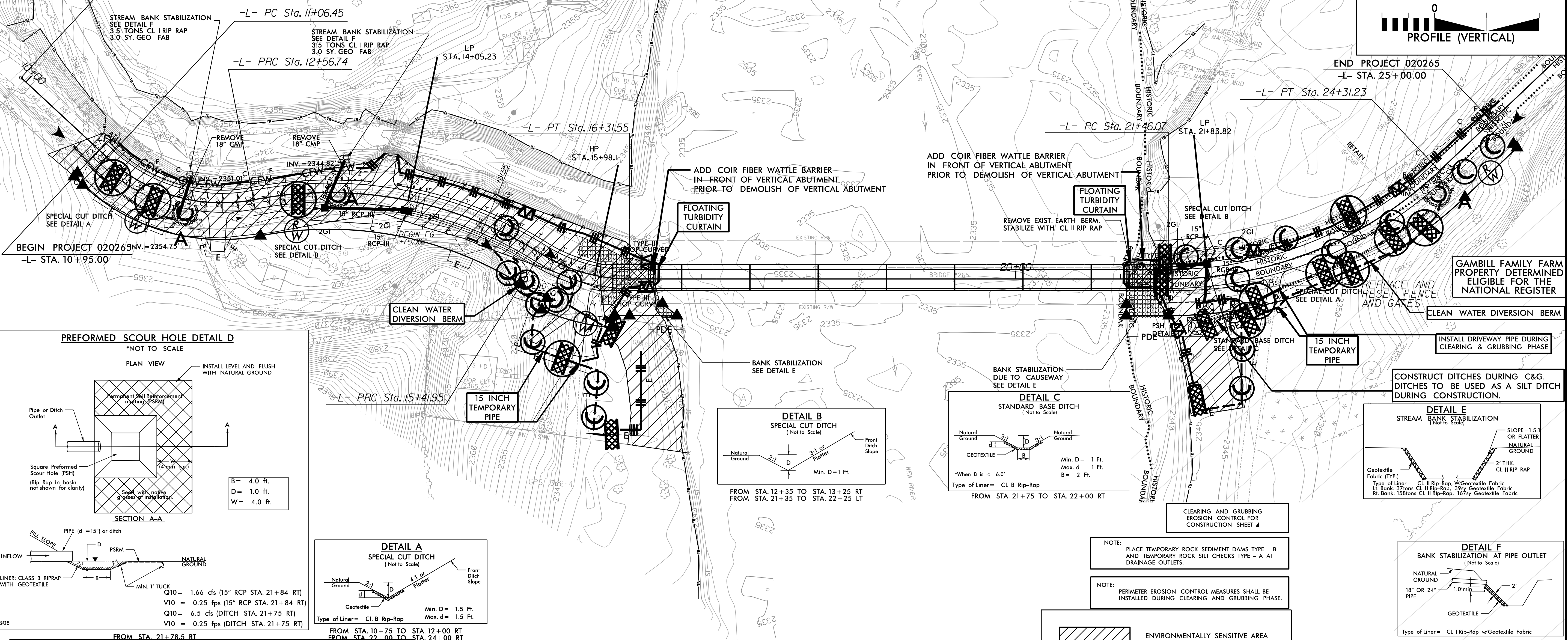
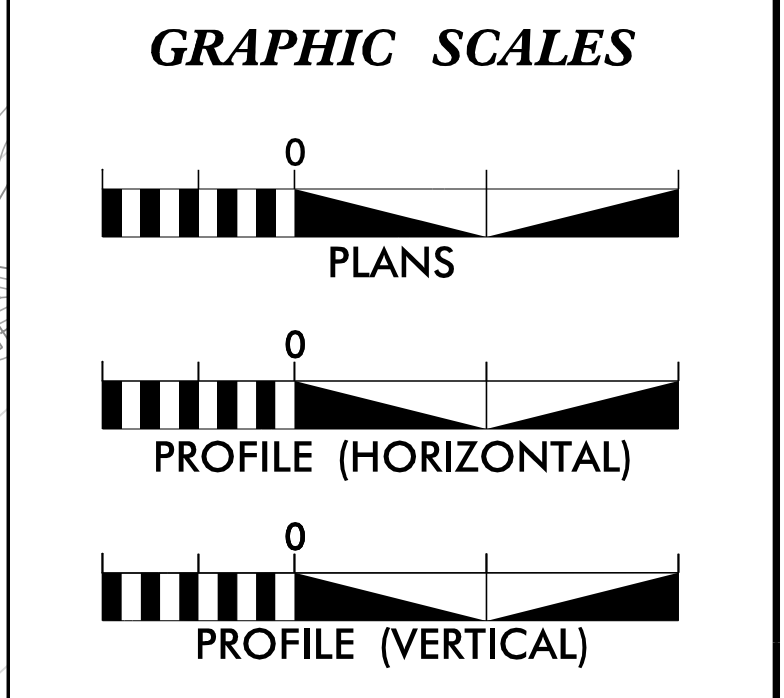
EROSION CONTROL PLAN



Audrey Burnette
LEVEL IIIA NAME

3081
LEVEL IIIA CERTIFICATION NO.

PROJECT REFERENCE NO. 020265	SHEET NO. EC-3/CONST.4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

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

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

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.

PLANS PREPARED BY :

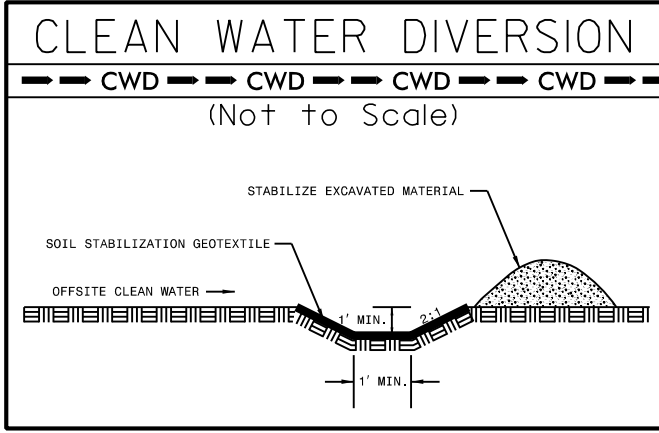
RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

2012 STANDARD DRAWINGS			
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		

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	III III III
1630.02	Silt Basin Type B	III III III
1630.03	Temporary Silt Ditch	III III III
1630.05	Temporary Diversion	III III III
1630.06	Special Stilling Basin	III III III
1632.05	Rock Inlet Sediment Trap Type C	III III III
1633.01	Temporary Rock Silt Check Type-A	III III III
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	III III III
1633.02	Temporary Rock Silt Check Type-B	III III III
	Wattle	III III III
	Wattle with Polyacrylamide (PAM)	III III III
1634.02	Temporary Rock Sediment Dam Type-B	III III III
1655.01	Rock Pipe Inlet Sediment Trap Type-A	III III III

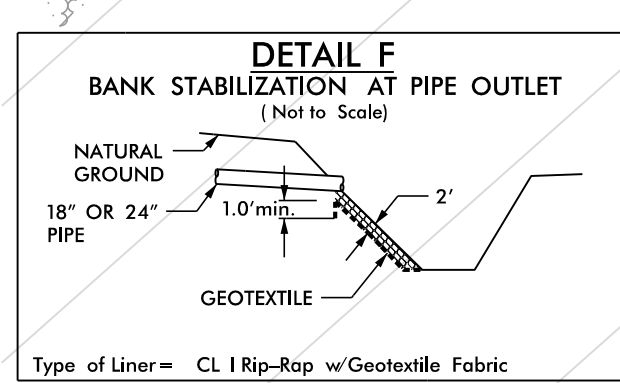
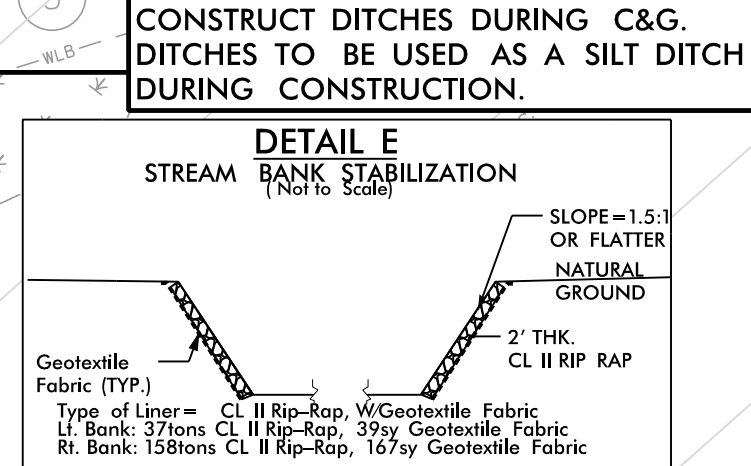
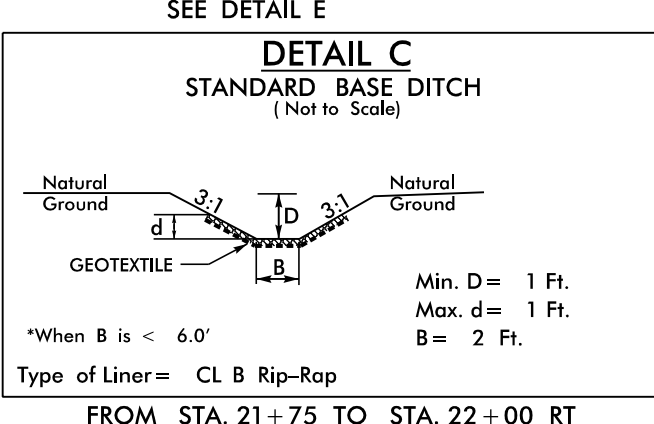
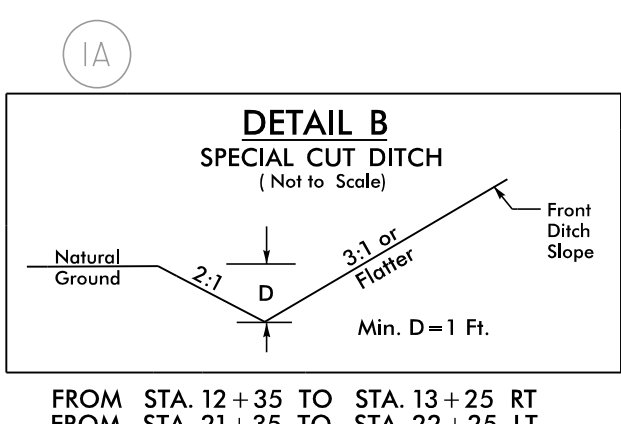
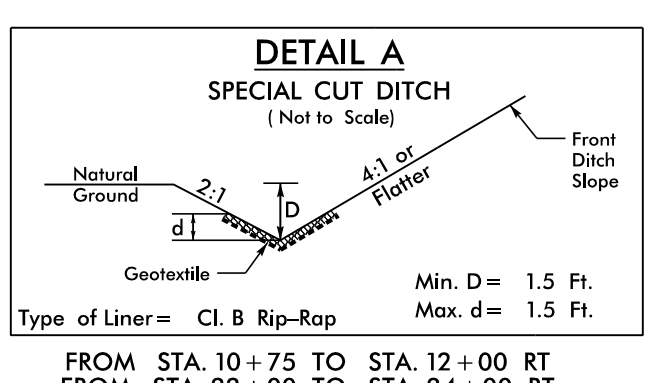
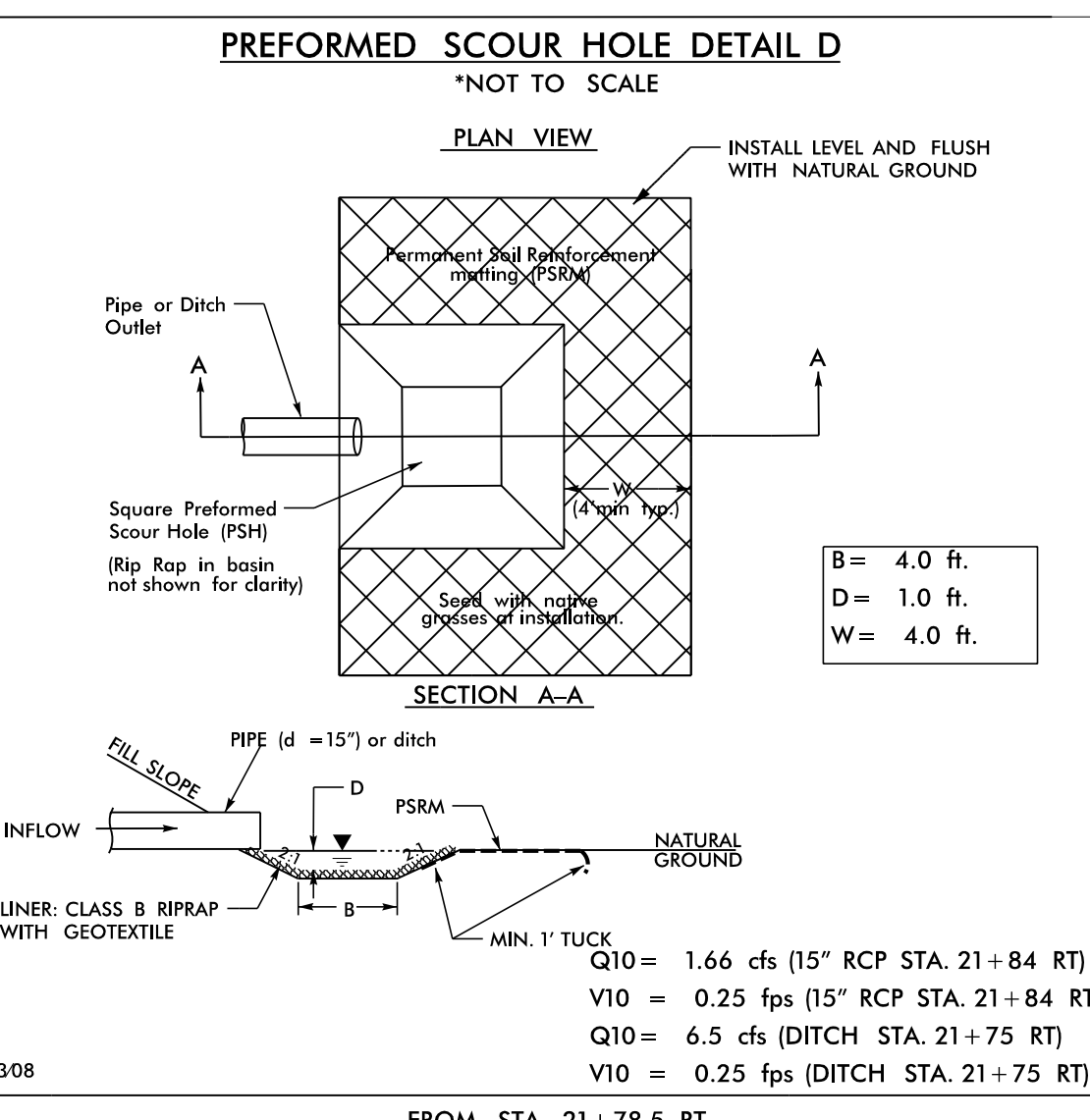
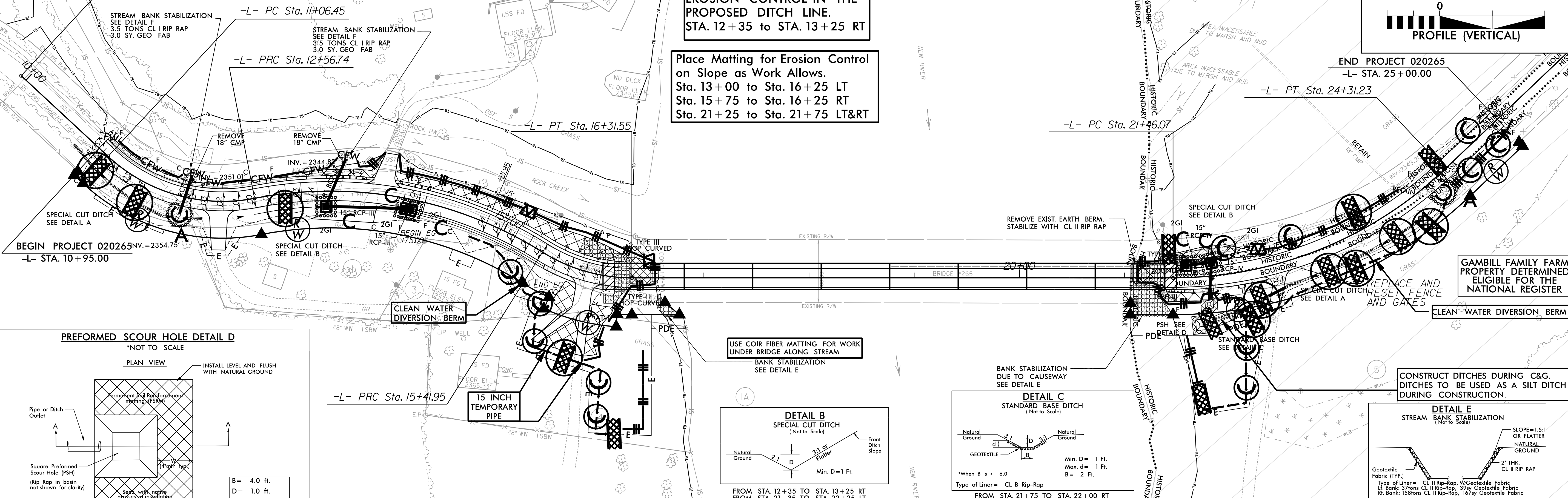
EROSION CONTROL PLAN



INSTALL PSRM IN THE PROPOSED DITCH LINE.
STA. 22+00 TO STA. 22+25 LT
STA. 23+25 TO STA. 24+00 RT

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
STA. 12+35 TO STA. 13+25 RT

Place Matting for Erosion Control on Slope as Work Allows.
Sta. 13+00 to Sta. 16+25 LT
Sta. 15+75 to Sta. 16+25 RT
Sta. 21+25 to Sta. 21+75 LT&RT



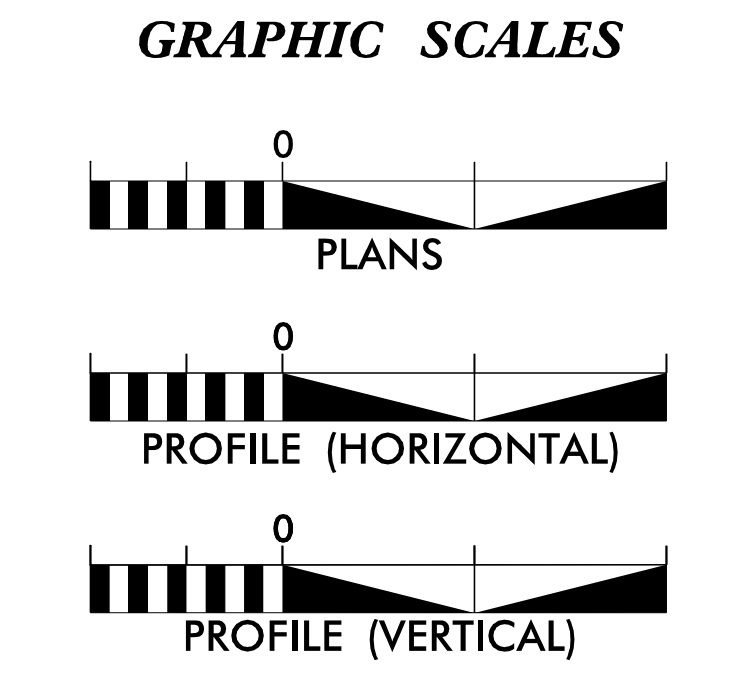
2012 STANDARD DRAWINGS

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	

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	

Audrey Burnette
LEVEL IIIA NAME
3081
LEVEL IIIA CERTIFICATION NO.

PROJECT REFERENCE NO. 020265	SHEET NO. EC-4/CONST.4
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	



ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, NC
2012 STANDARD SPECIFICATIONS

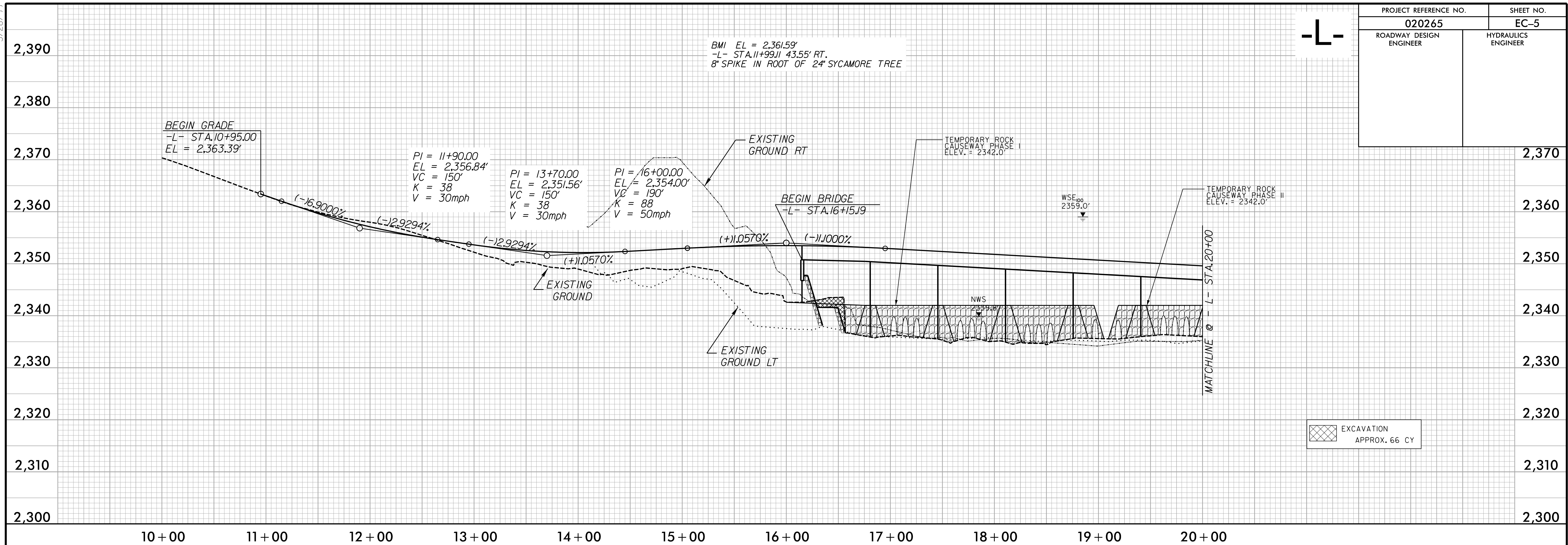
THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

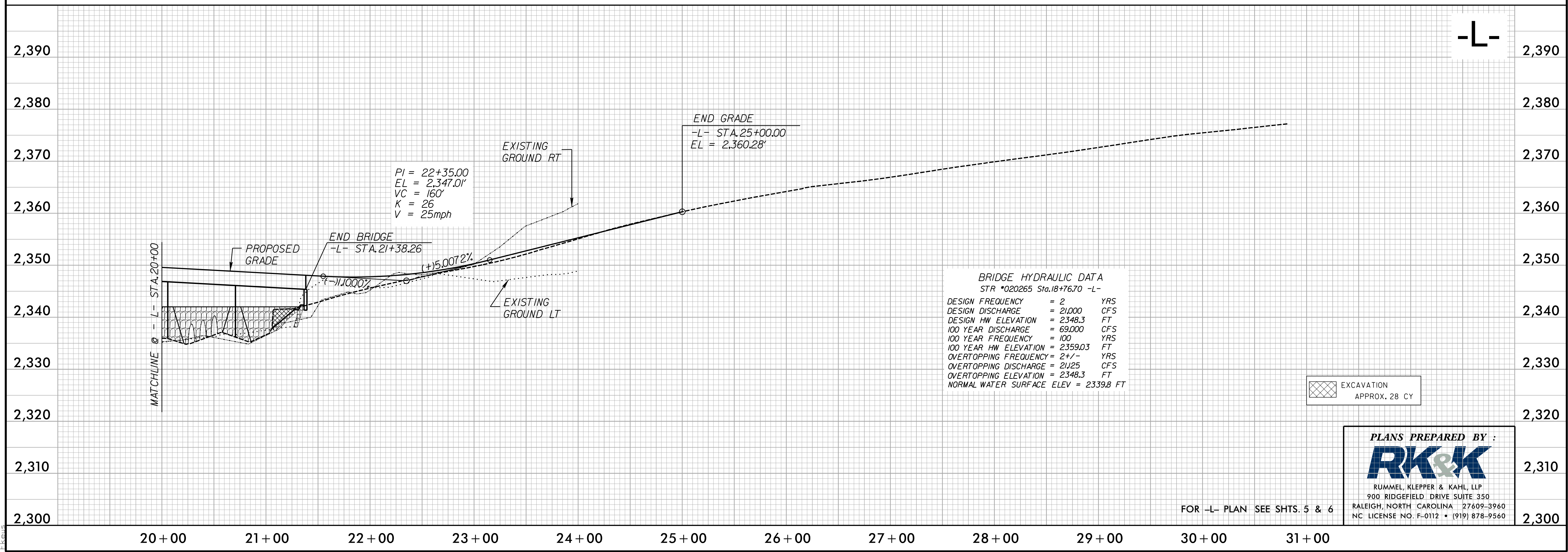
5/28/99
2/20/2014
B:\Hydraulics\CADD\EC Plans\020265-Hyd-ECpf105.dgn
Elevs

-L-

PROJECT REFERENCE NO.		SHEET NO.
020265		EC-5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	



-L-



BRIDGE HYDRAULIC DATA
STR *020265 Sta. 18+76.70 -L-

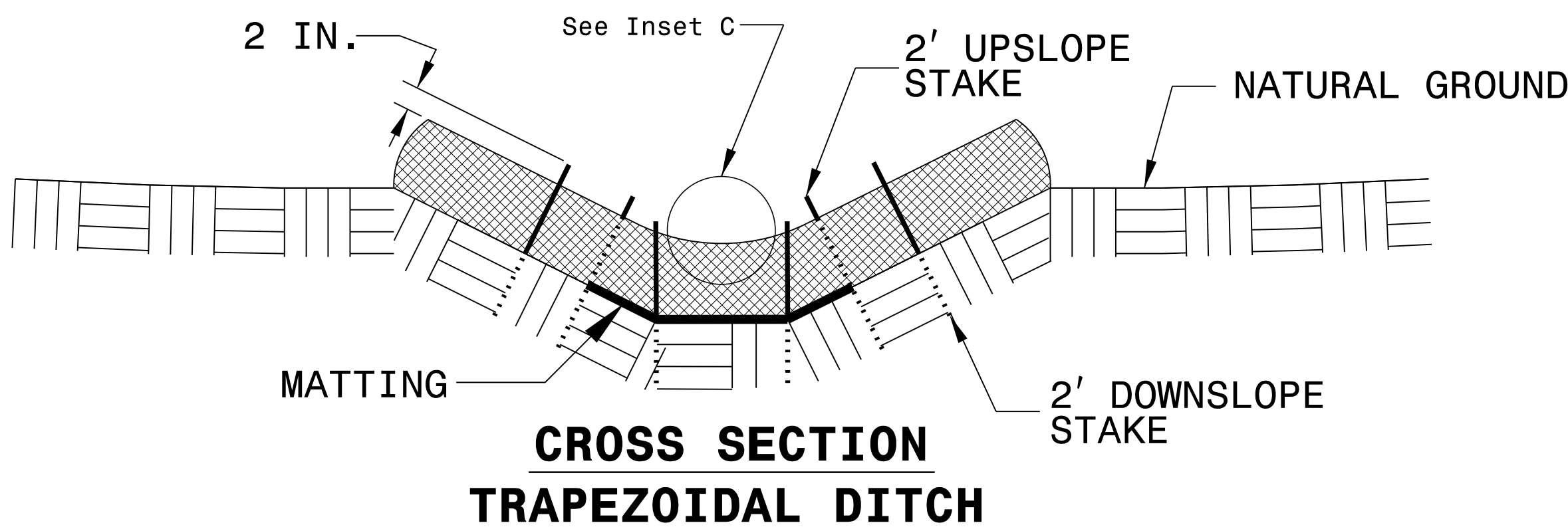
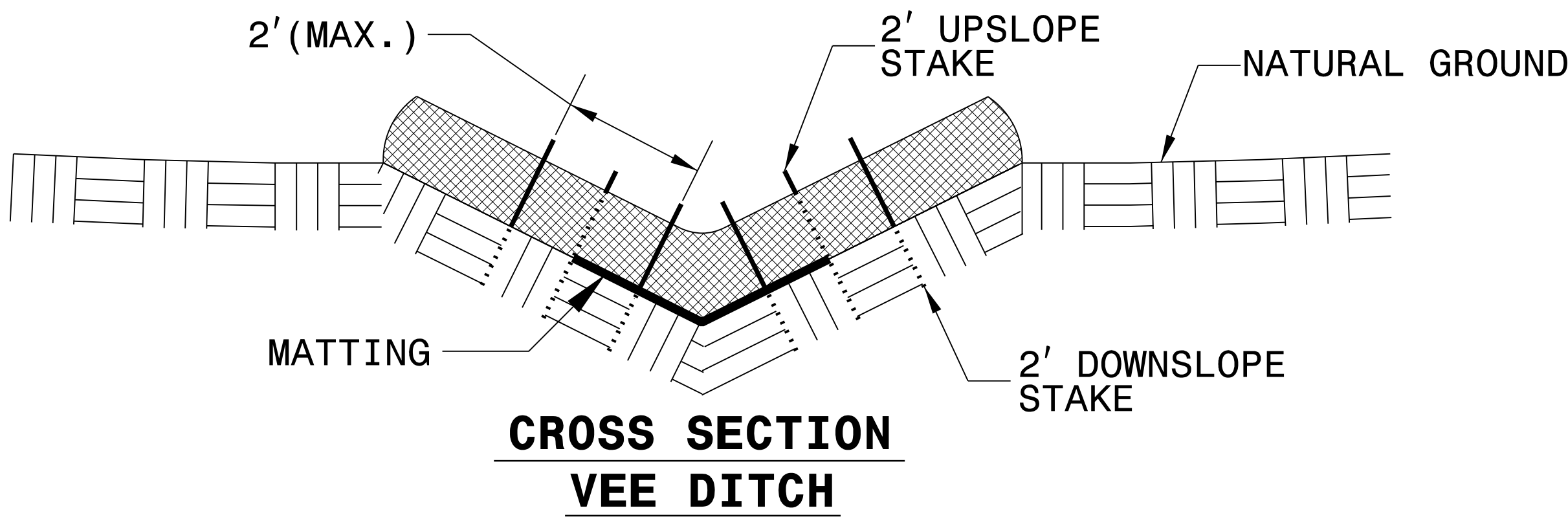
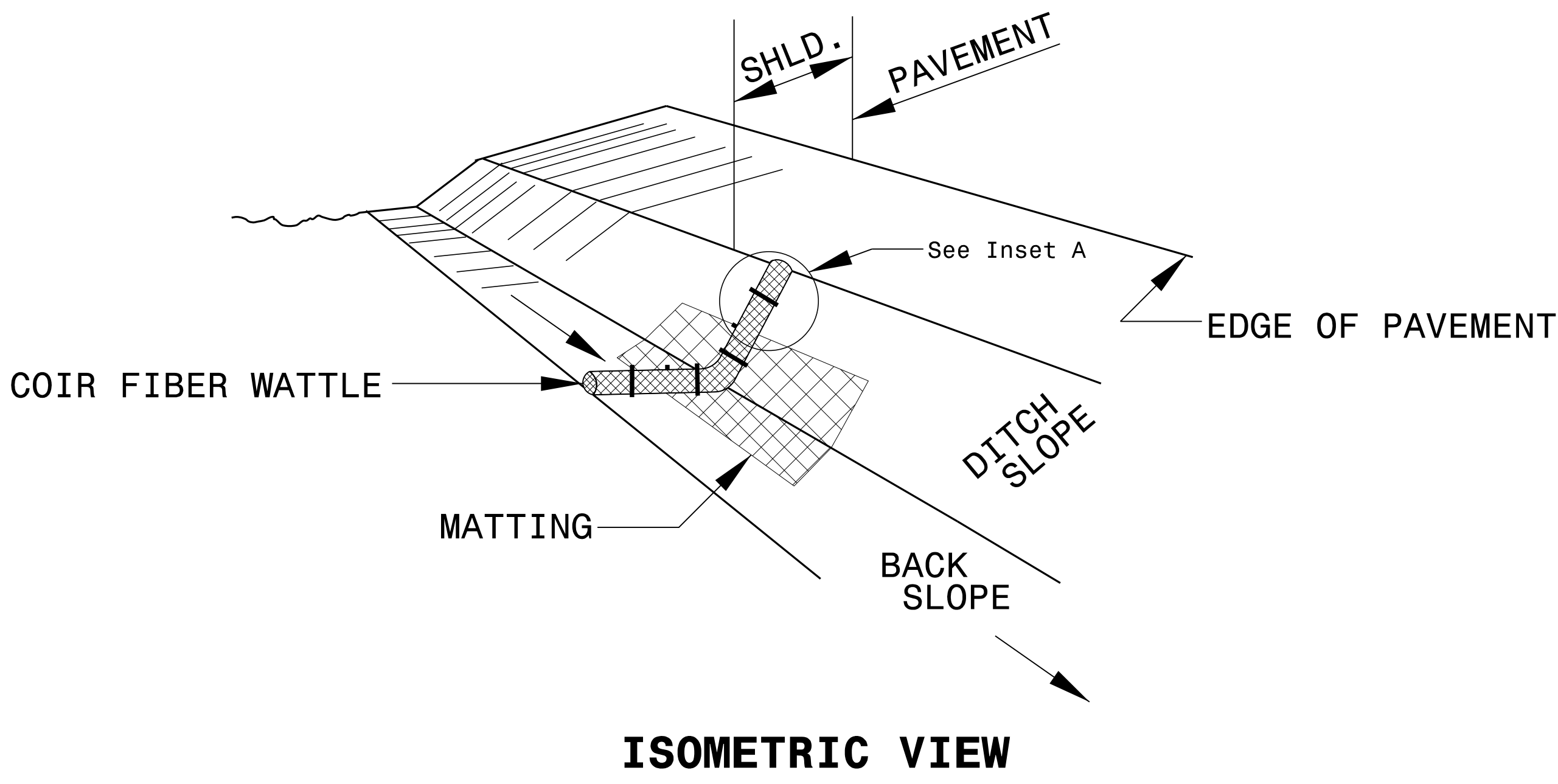
DESIGN FREQUENCY	= 2	YRS
DESIGN DISCHARGE	= 21,000	CFS
DESIGN HW ELEVATION	= 2348.3	FT
100 YEAR DISCHARGE	= 69,000	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 2359.03	FT
OVERTOPPING FREQUENCY	= 2+/-	YRS
OVERTOPPING DISCHARGE	= 21,025	CFS
OVERTOPPING ELEVATION	= 2348.3	FT
NORMAL WATER SURFACE ELEV	= 2339.8	FT

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR -L- PLAN SEE SHTS. 5 & 6

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

PROJECT REFERENCE NO.		SHEET NO.
020265		EC-6
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER



NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

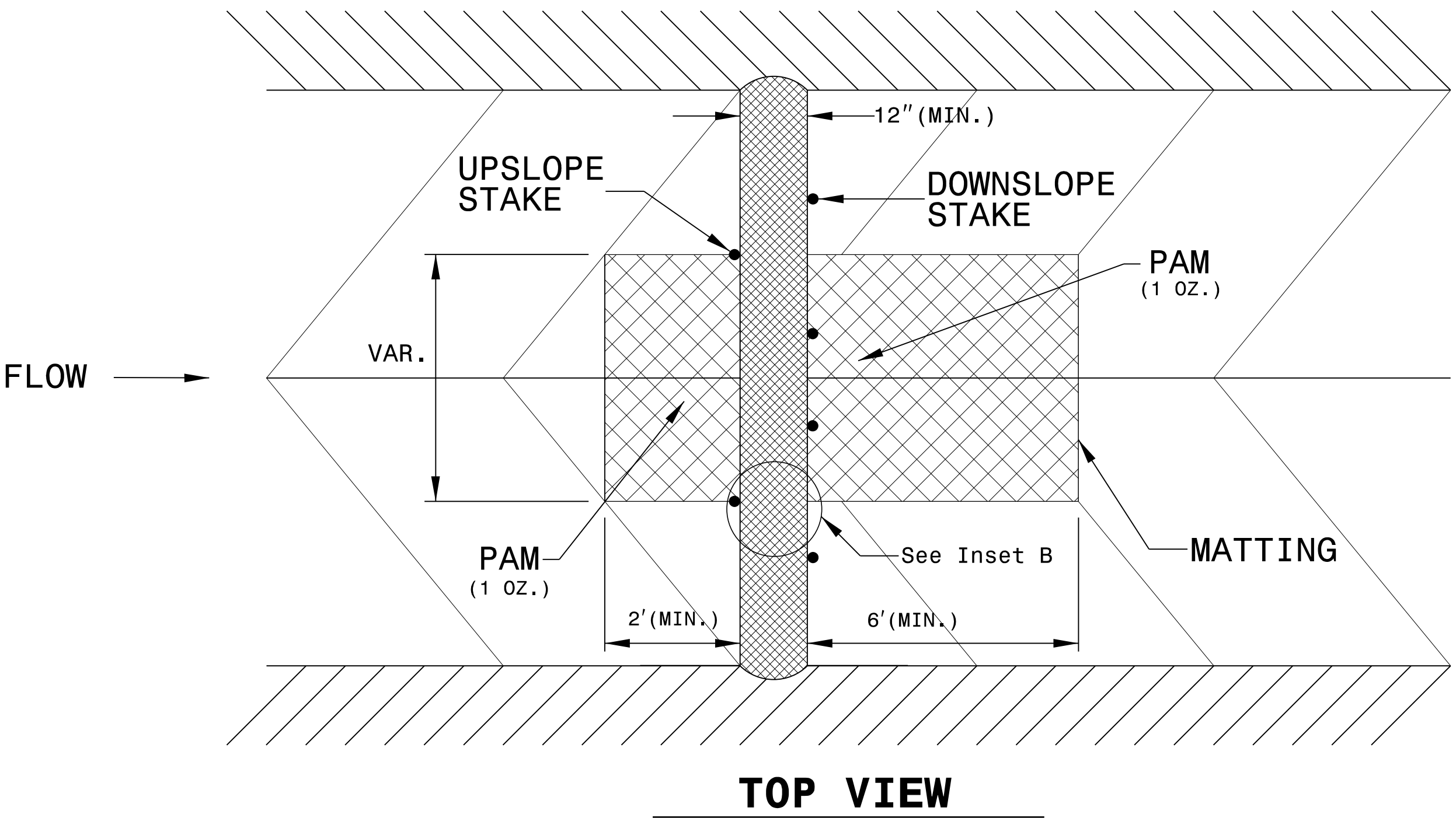
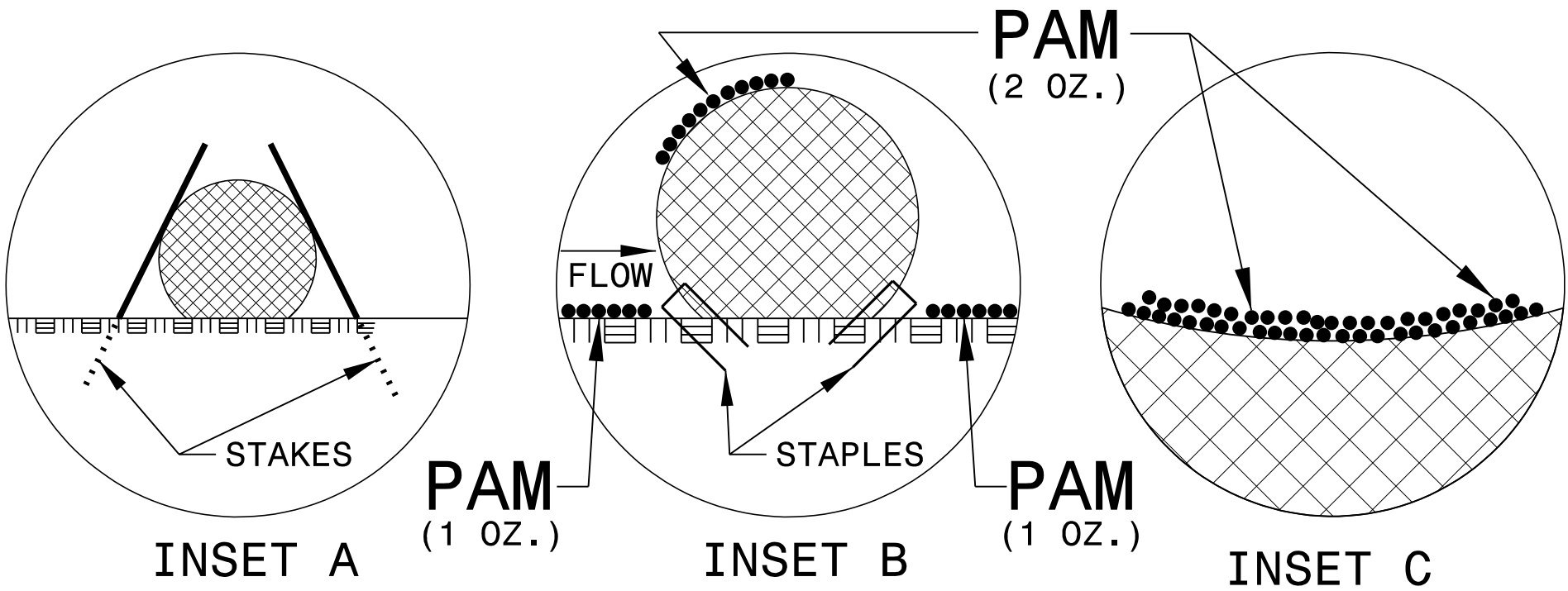
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

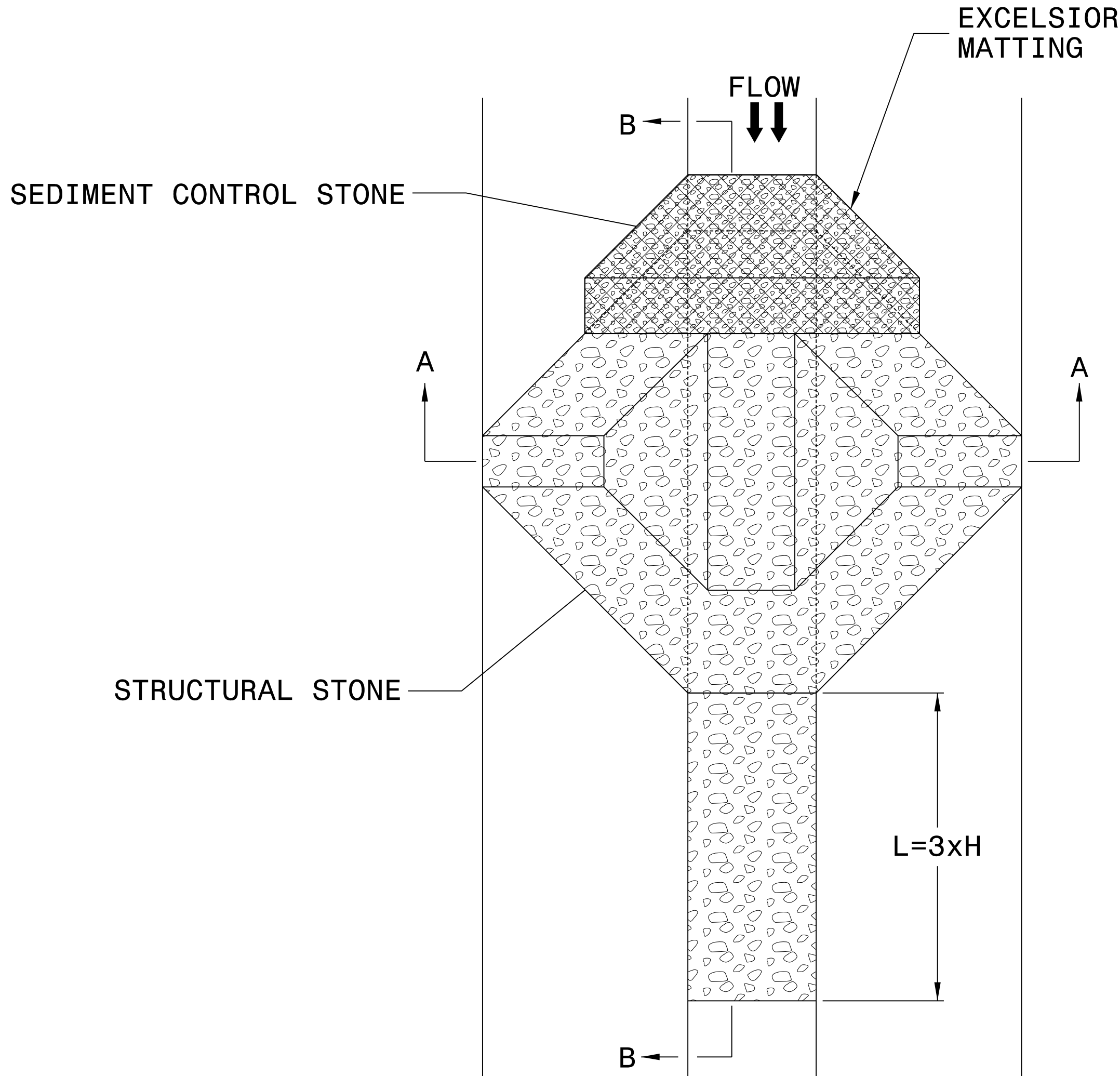
PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.

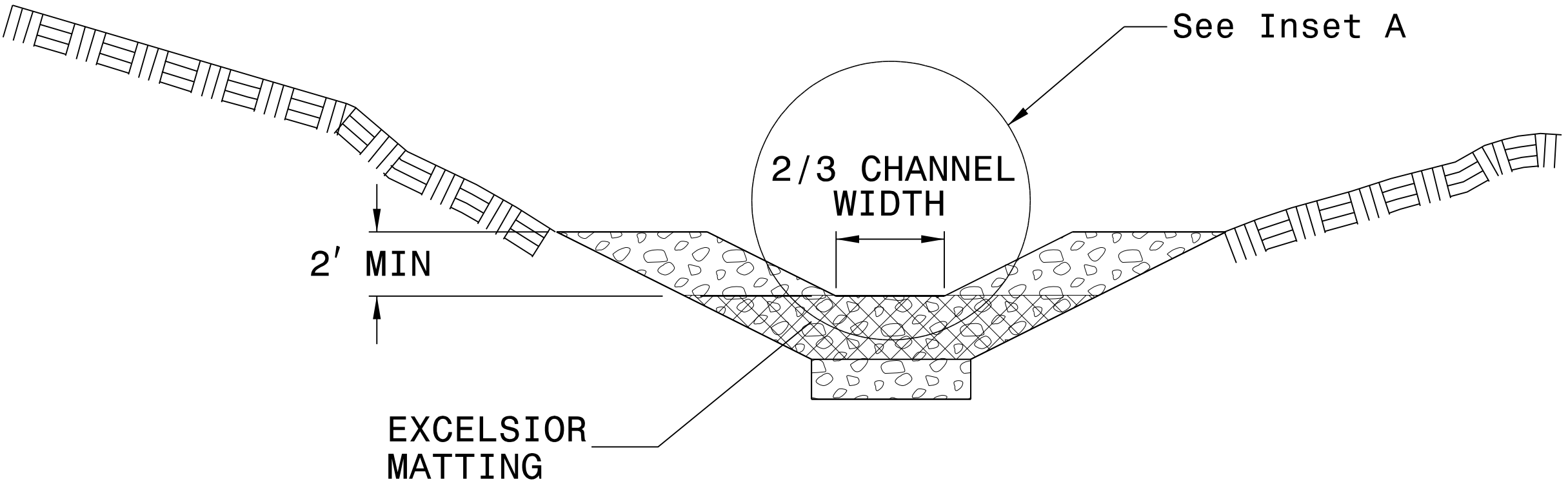


TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)

PROJECT REFERENCE NO.	SHEET NO.
020265	EC-6A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PLAN



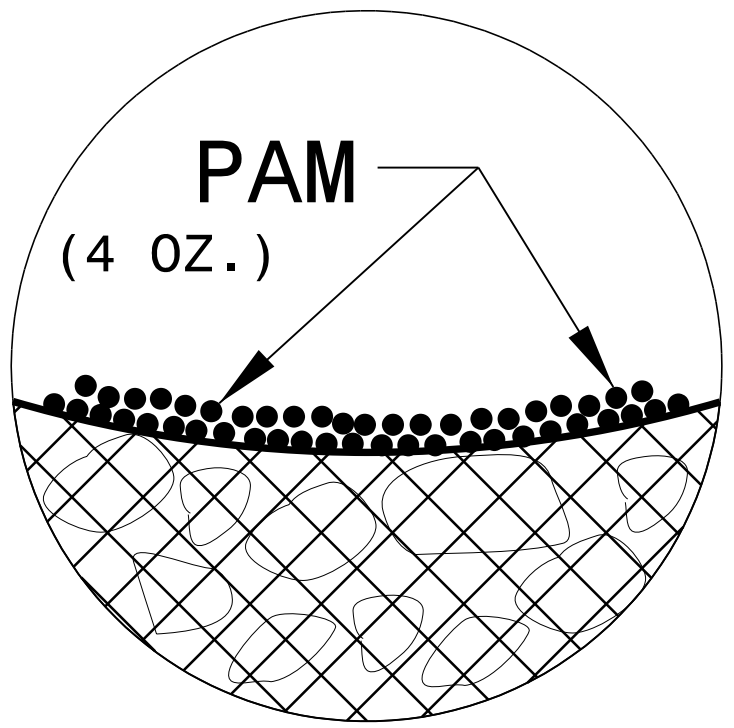
SECTION A-A

NOTES

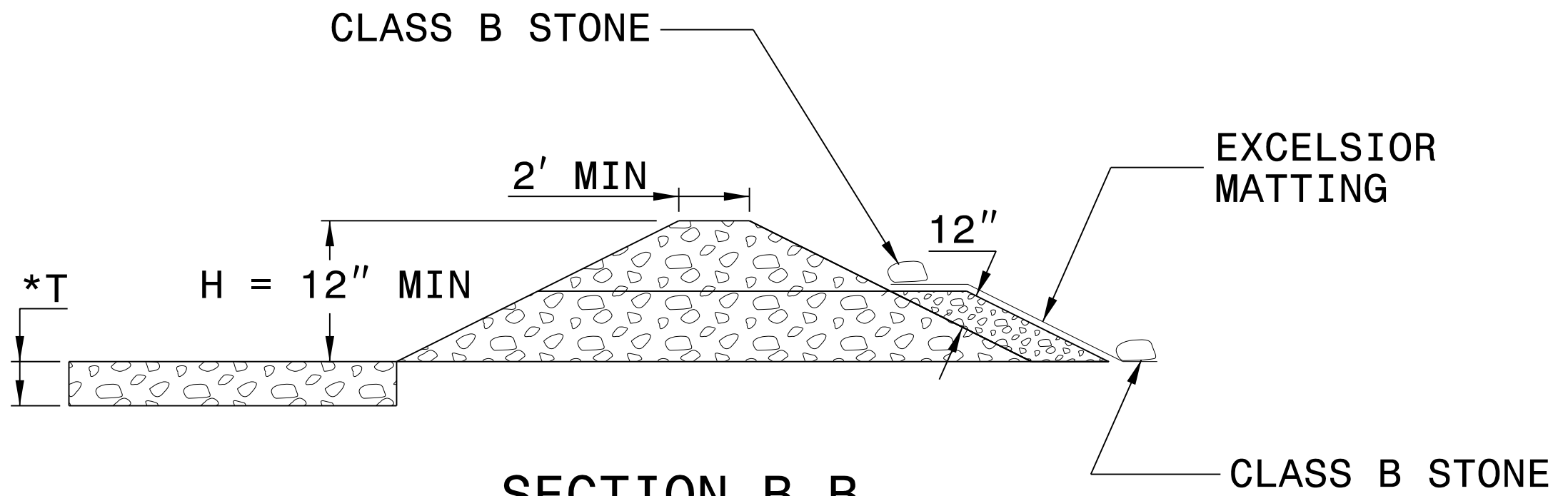
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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



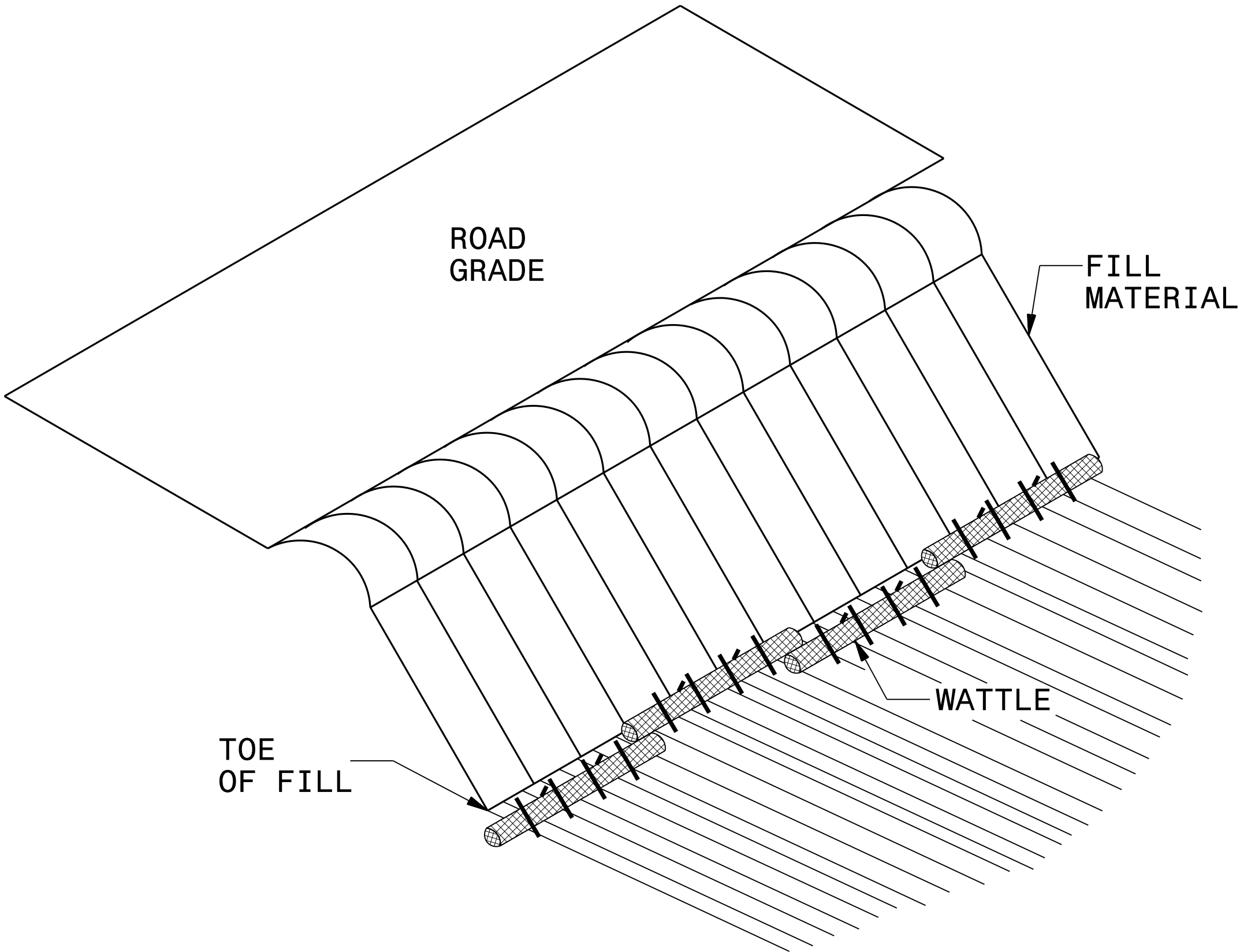
SECTION B-B

*T = 12" MIN., 18" MAX.

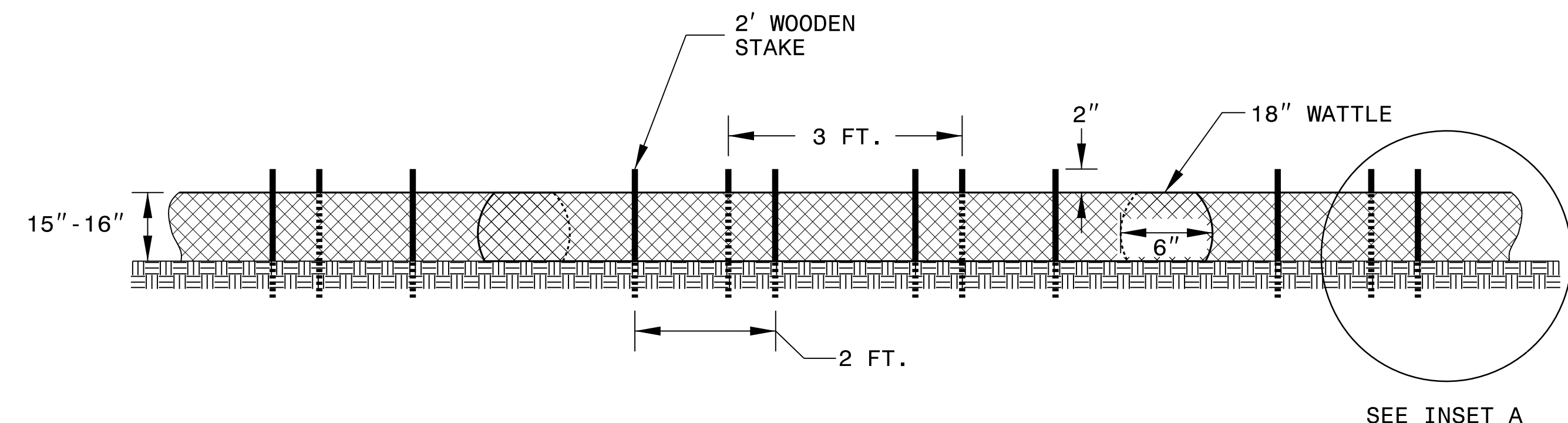
NOT TO SCALE

COIR FIBER WATTLE BARRIER DETAIL

PROJECT REFERENCE NO.	SHEET NO.
020265	EC-6B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

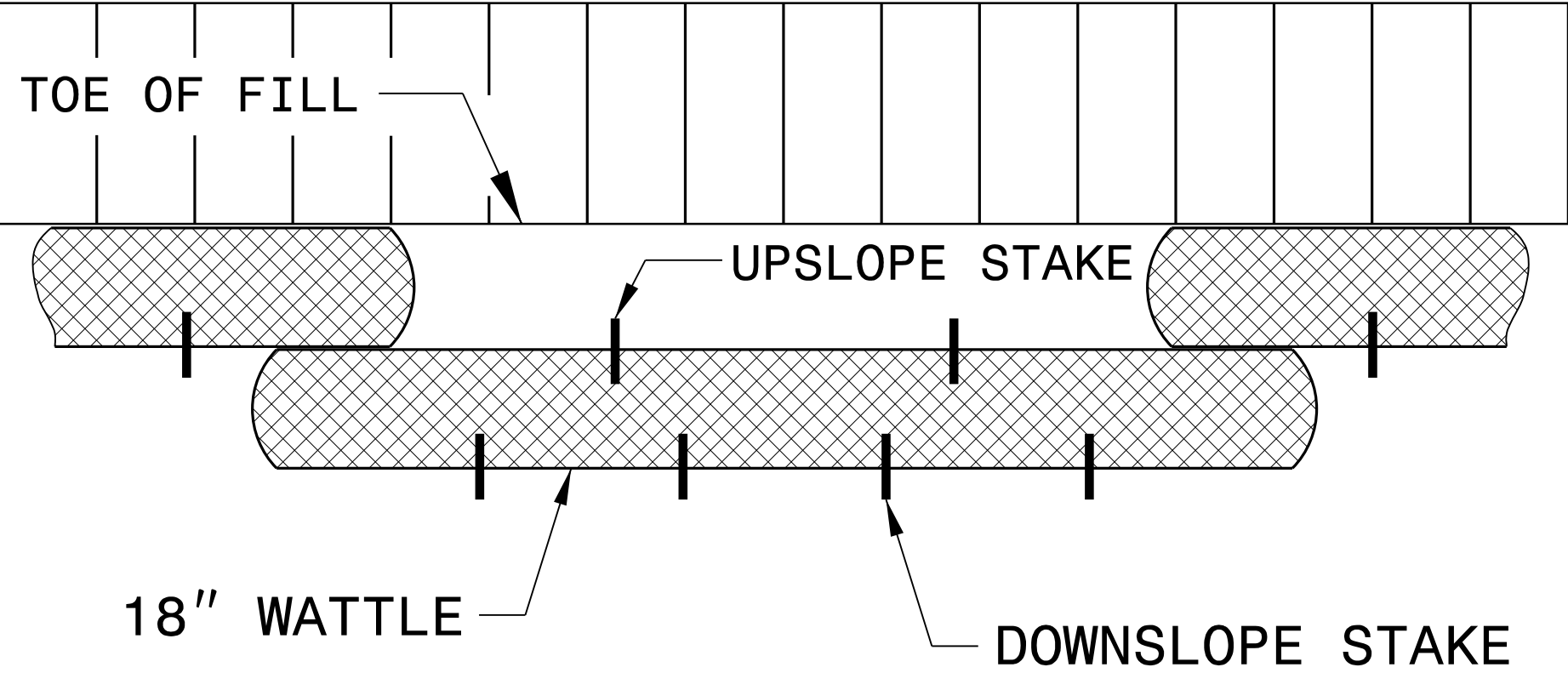
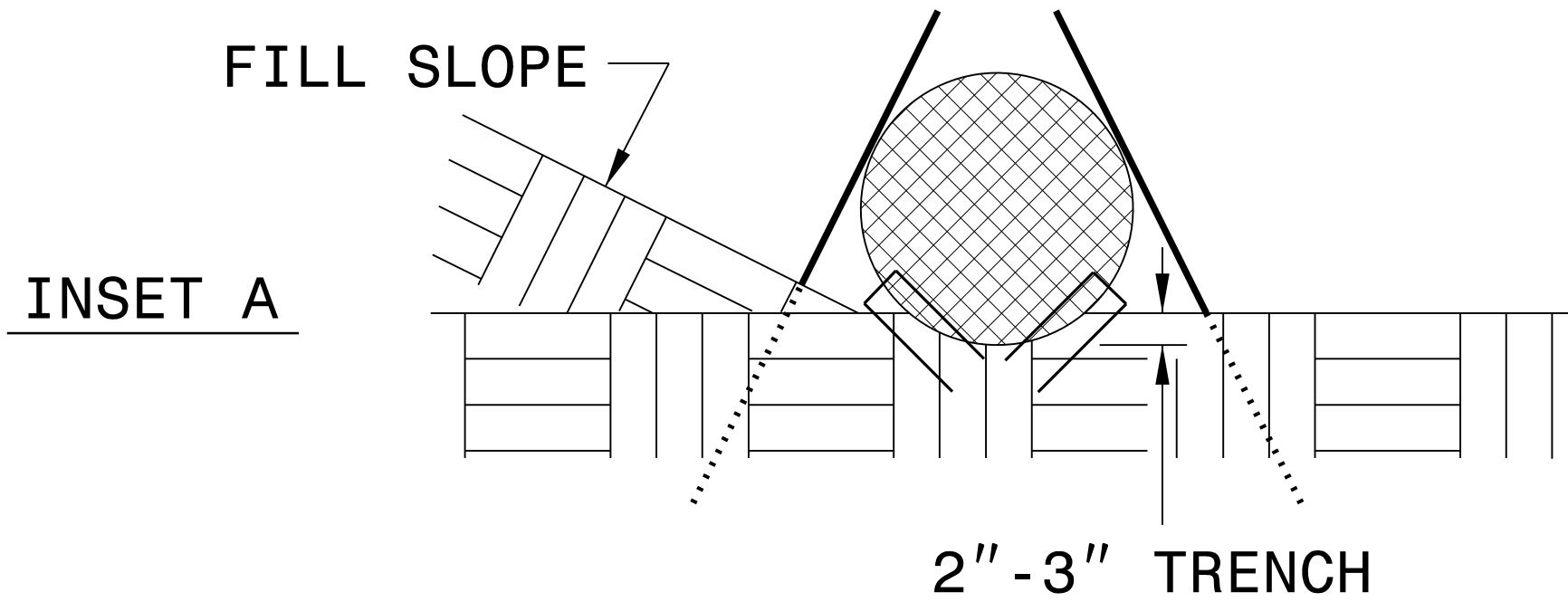


ISOMETRIC VIEW



FRONT VIEW

- NOTES:
- USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.
 - EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.
 - DO NOT PLACE WATTLES ON TOE OF SLOPE.
 - USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
 - INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
 - PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
 - INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
 - FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 20 FT.



TOP VIEW

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.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
<i>SF-020265</i>	<i>EC-7A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

[illegible]

PERMANENT SOIL REINFORCEMENT MAT

[illegible]

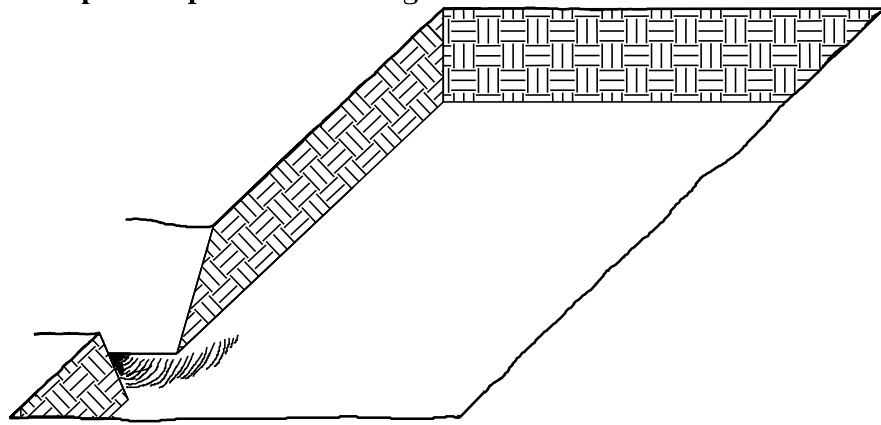
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	020265	RF-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

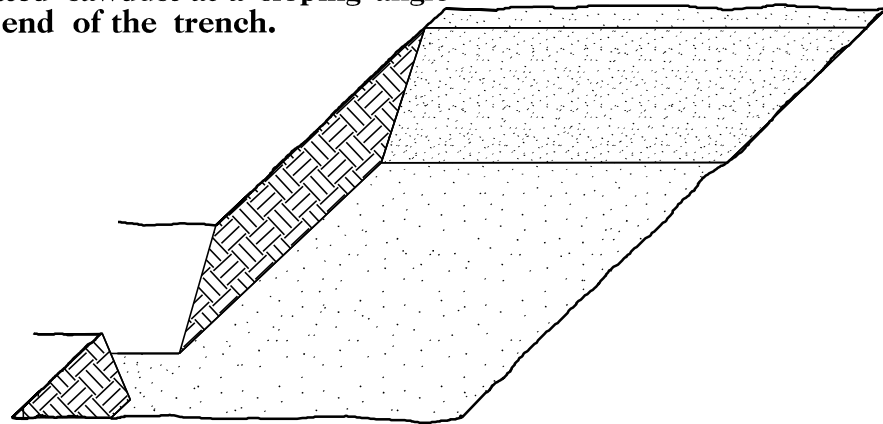
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

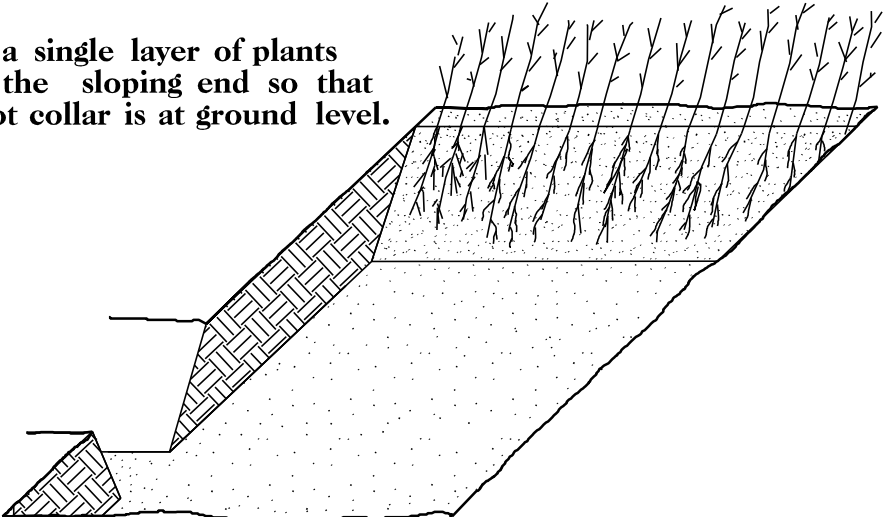
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



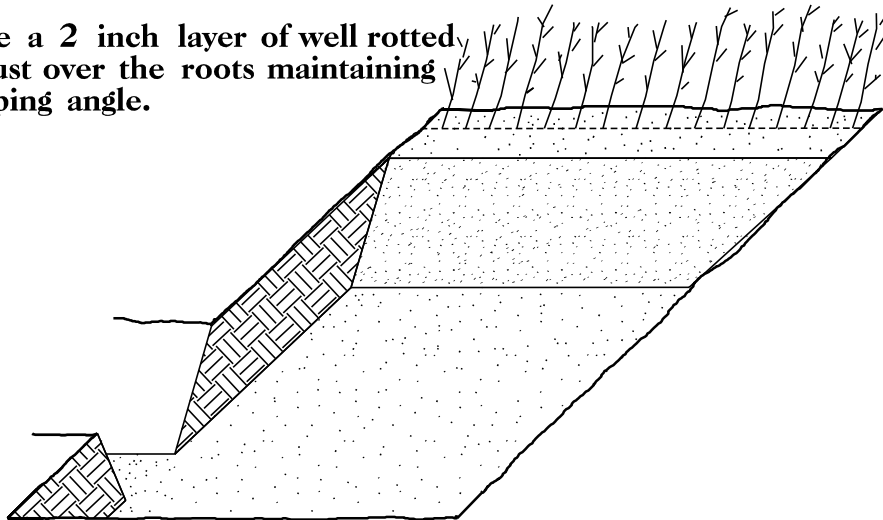
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

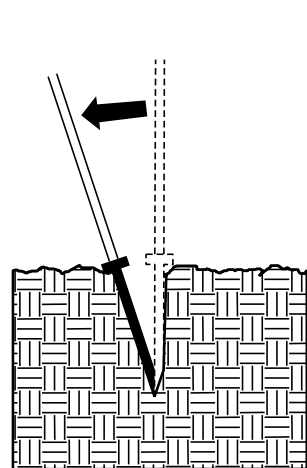


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

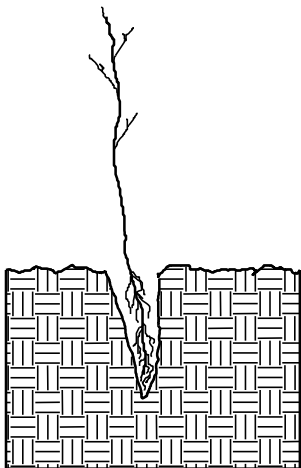


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

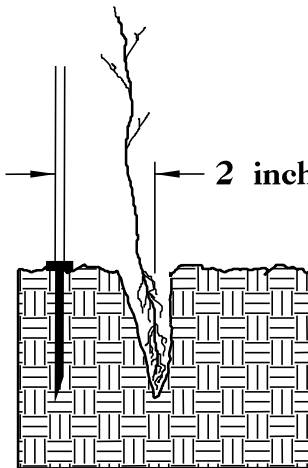
DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



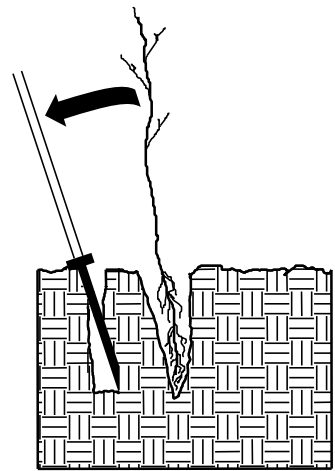
1. Insert planting bar as shown and pull handle toward planter.



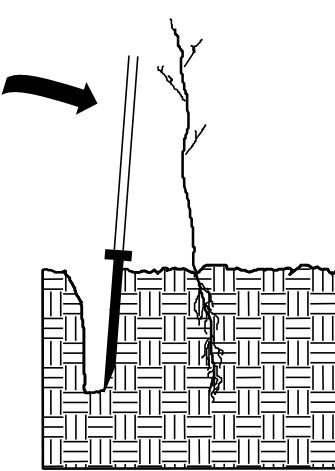
2. Remove planting bar and place seedling at correct depth.



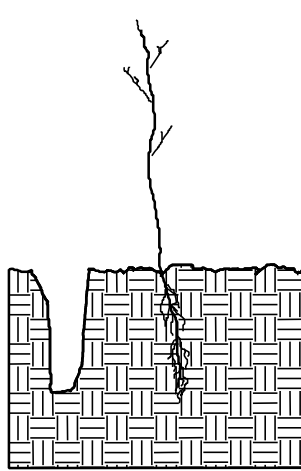
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



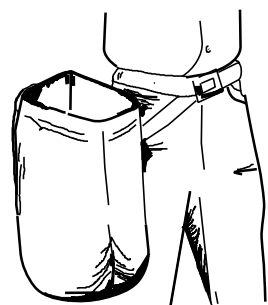
5. Push handle forward firming soil at top.



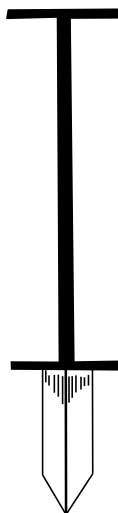
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

- ☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

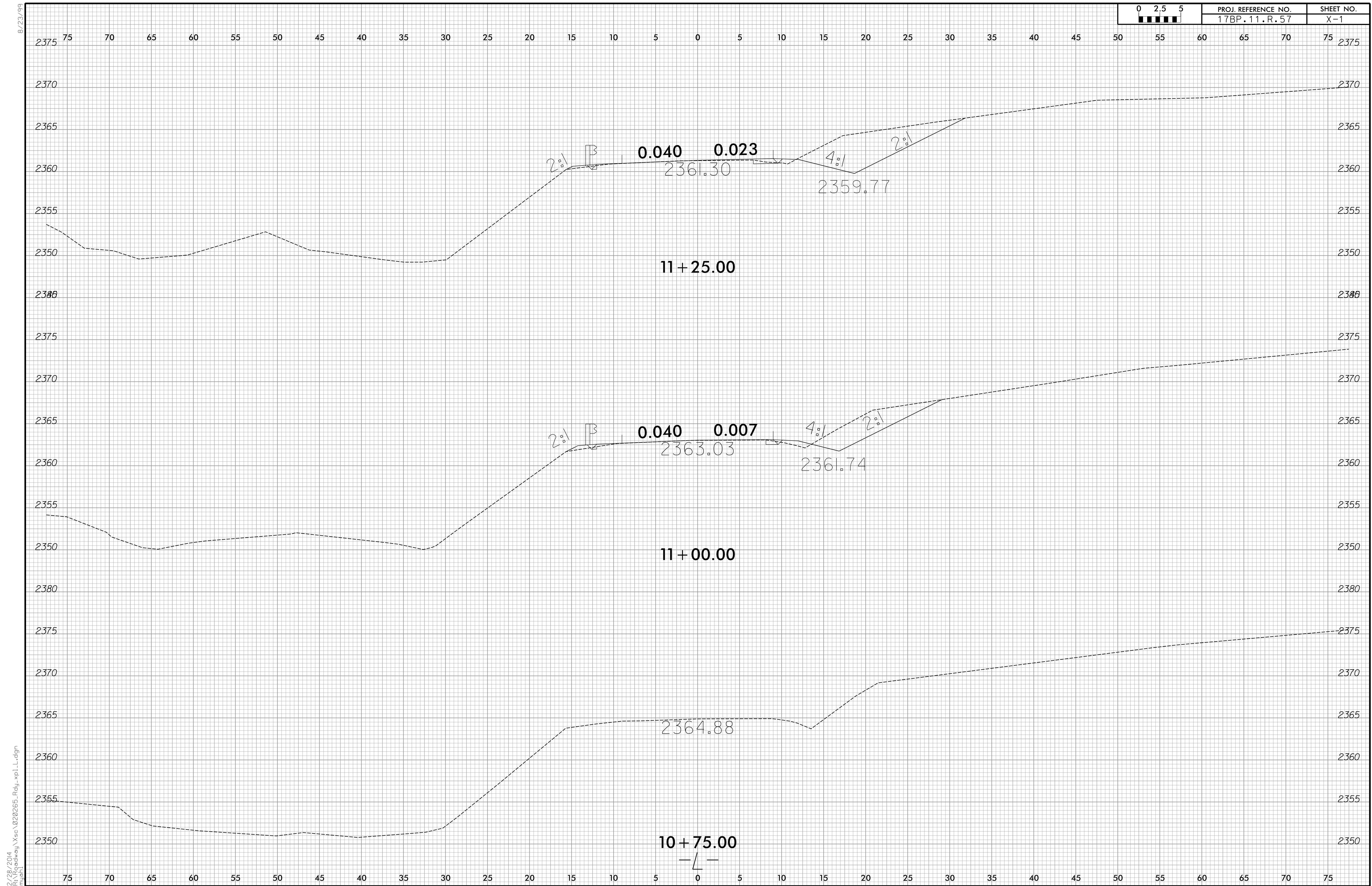
REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25%	PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25%	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

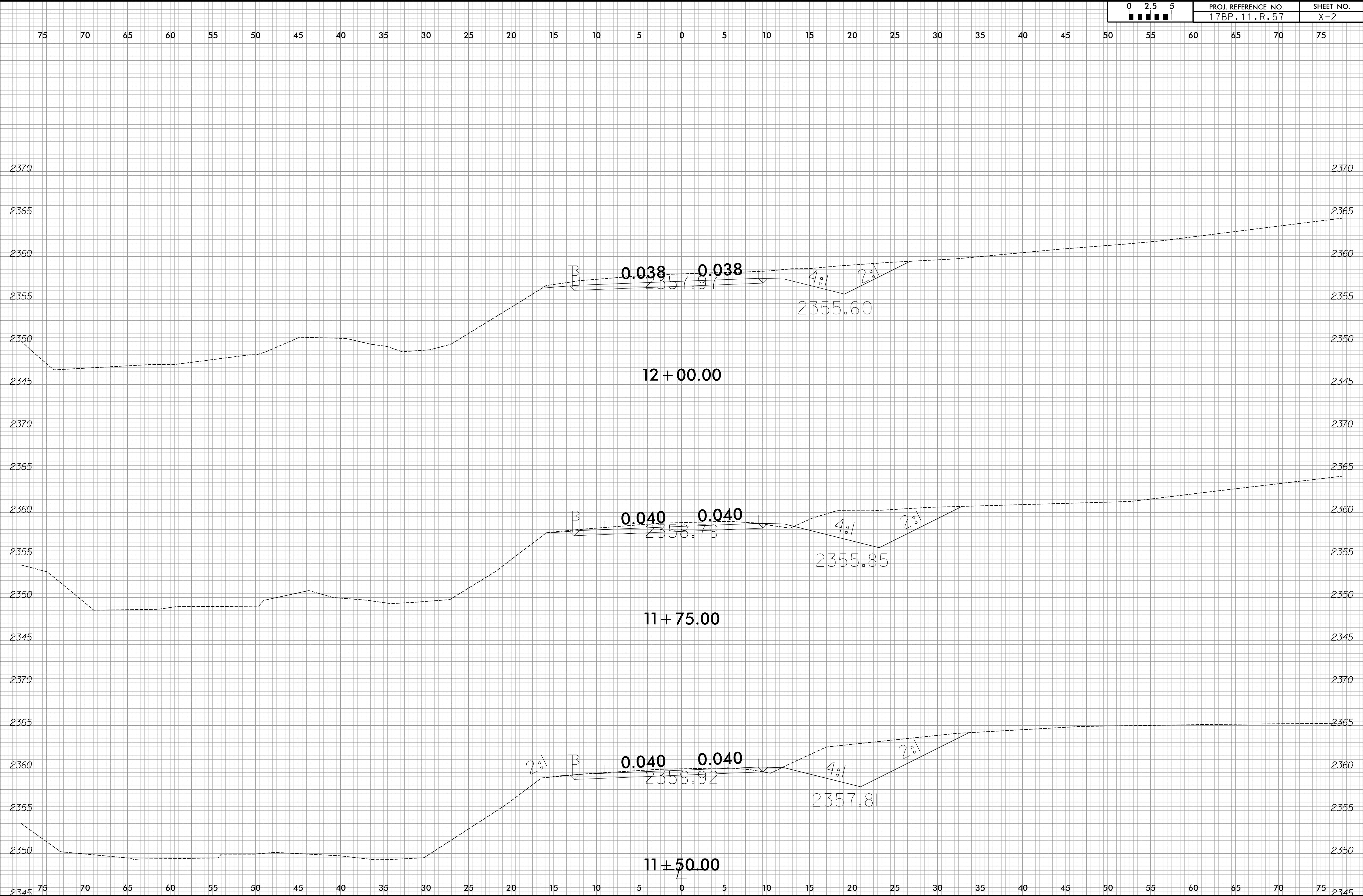
REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

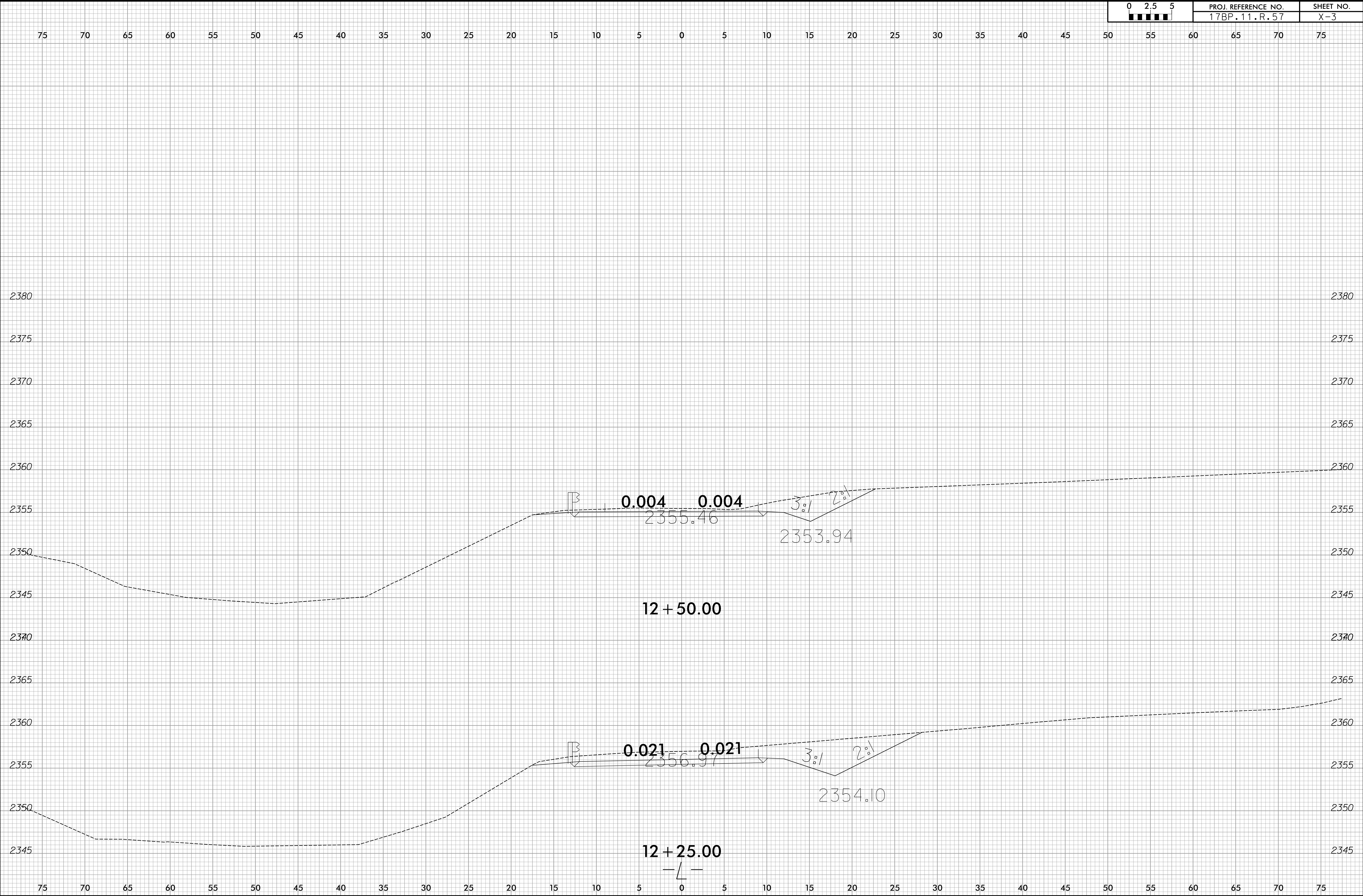


8/23/99
2/28/2014
H:\Roadway\Xsec\020265_Rdu_xpl.L.dgn
msh

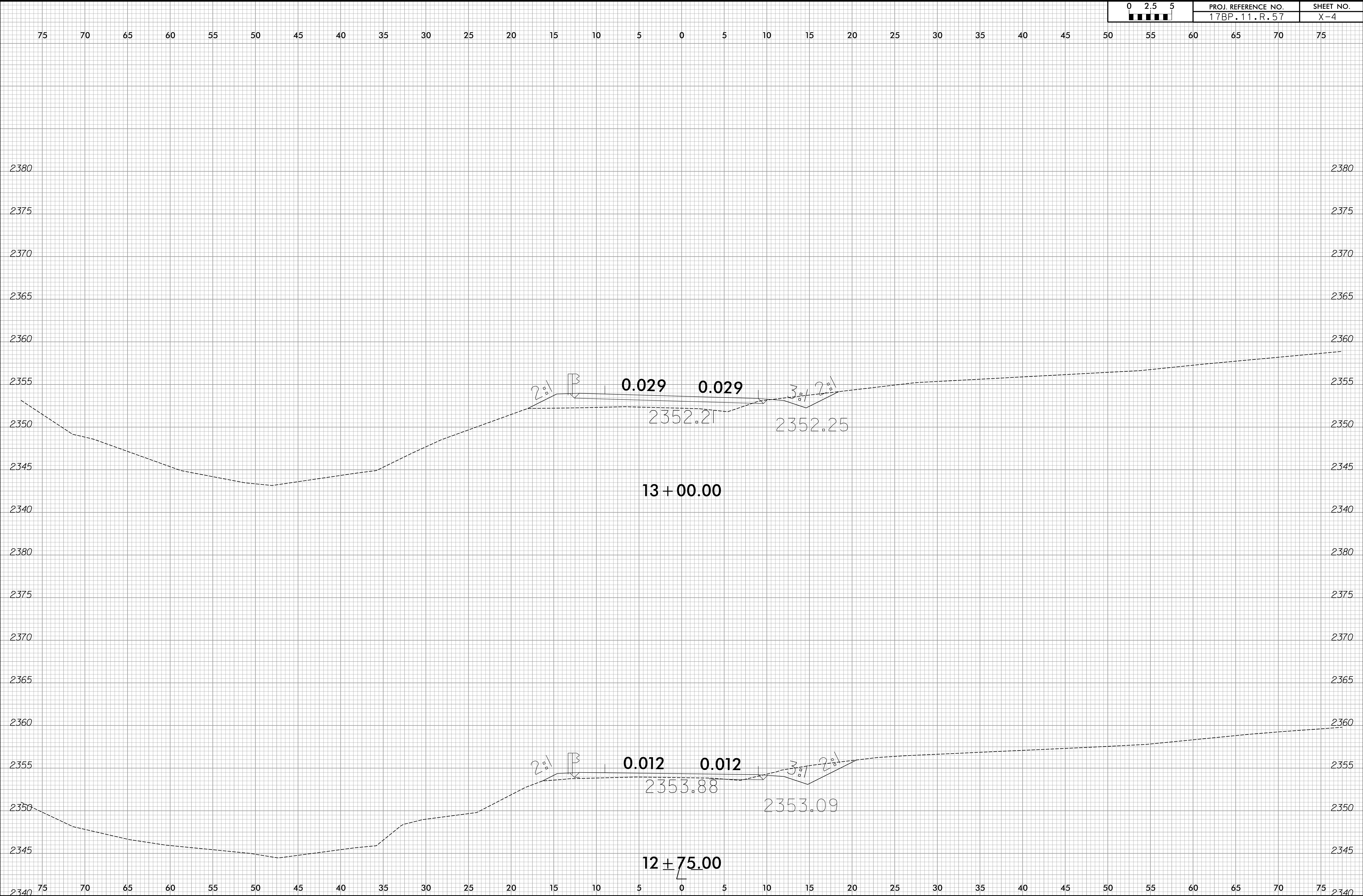
0 2.5 5 ■■■	PROJ. REFERENCE NO. 17BP.11.R.57	SHEET NO. X-2
----------------	-------------------------------------	------------------



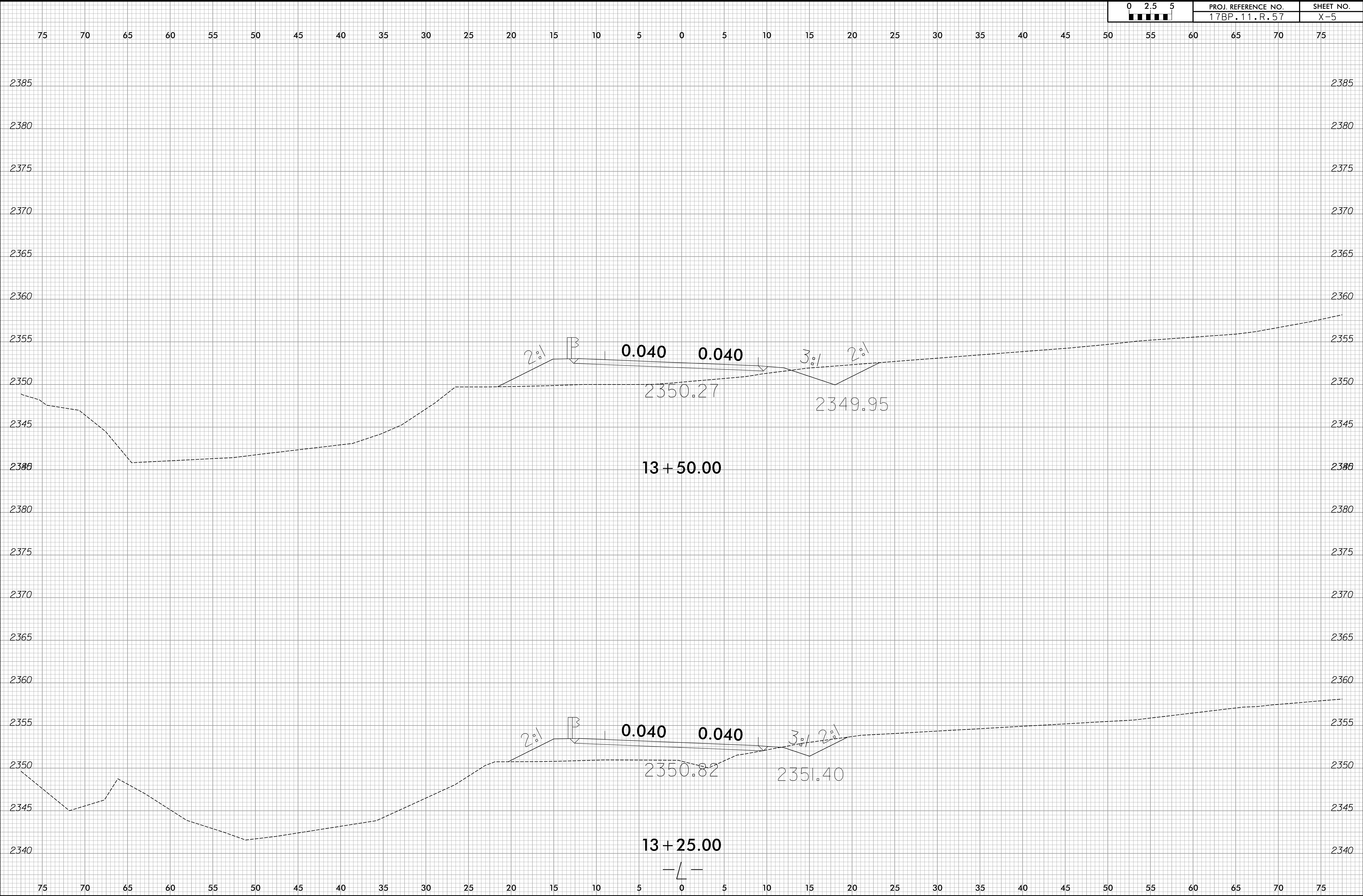
8/23/99
2/28/2014
H:\Roadway\Xsc\020255_Rdu_xpl.L.dgn
msh

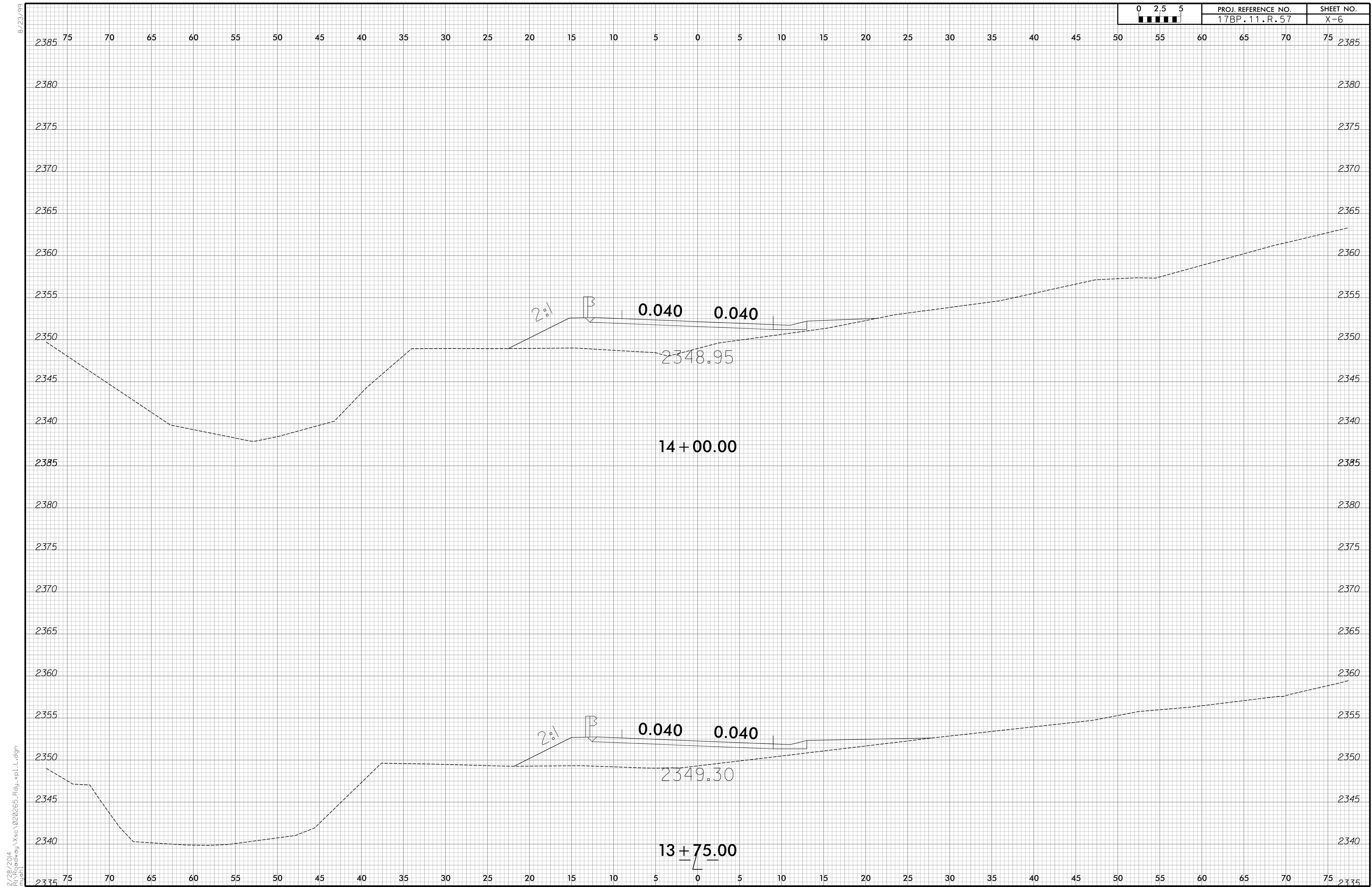


8/23/99
2/28/2014
H:\Roadway\Xsc\020255_Rdu_xpl.L.dgn
msh

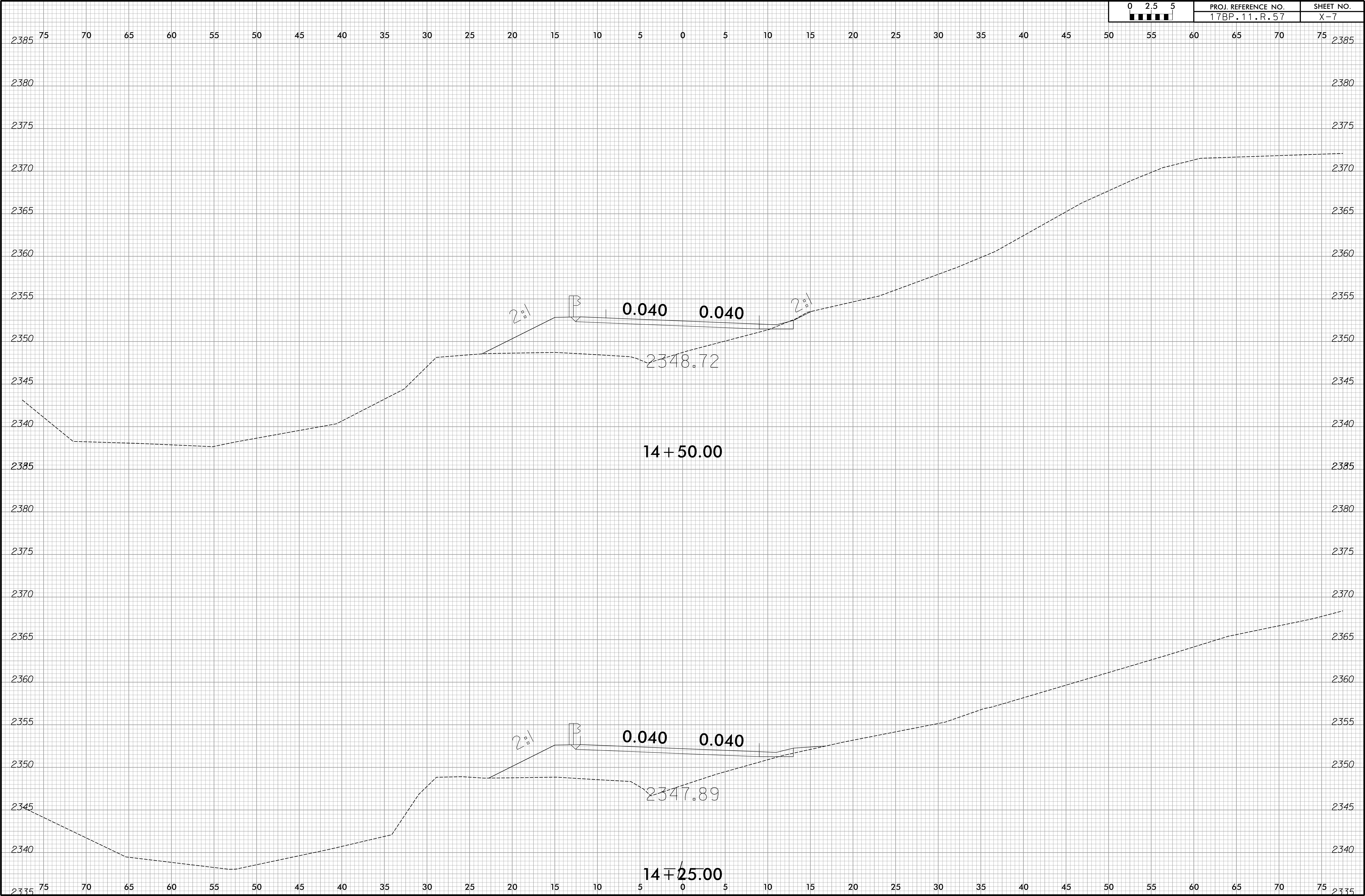


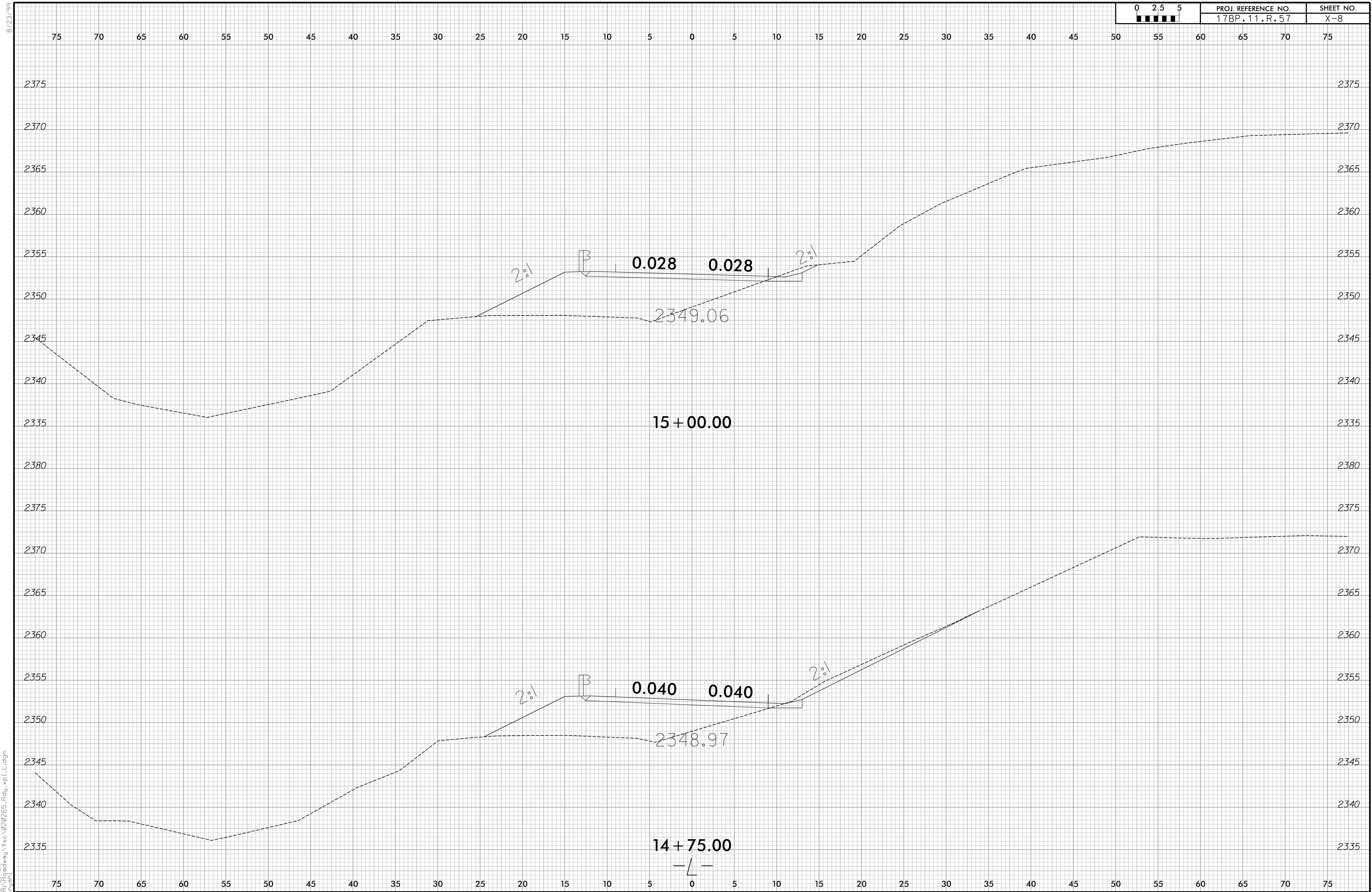
8/23/99
2/28/2014
H:\Roadway\Xsc\020265_Rdu_xpl.dgn
msh

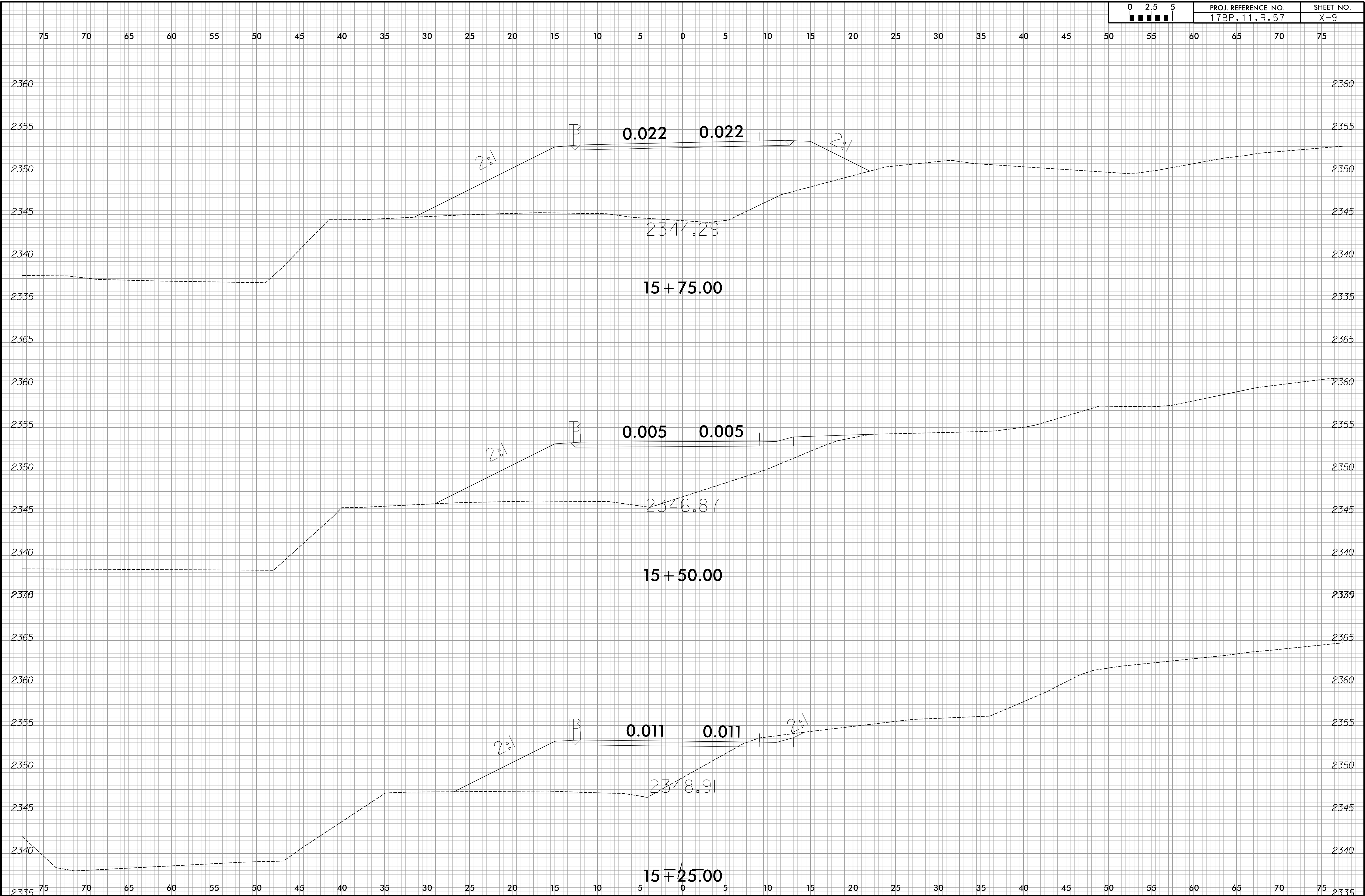




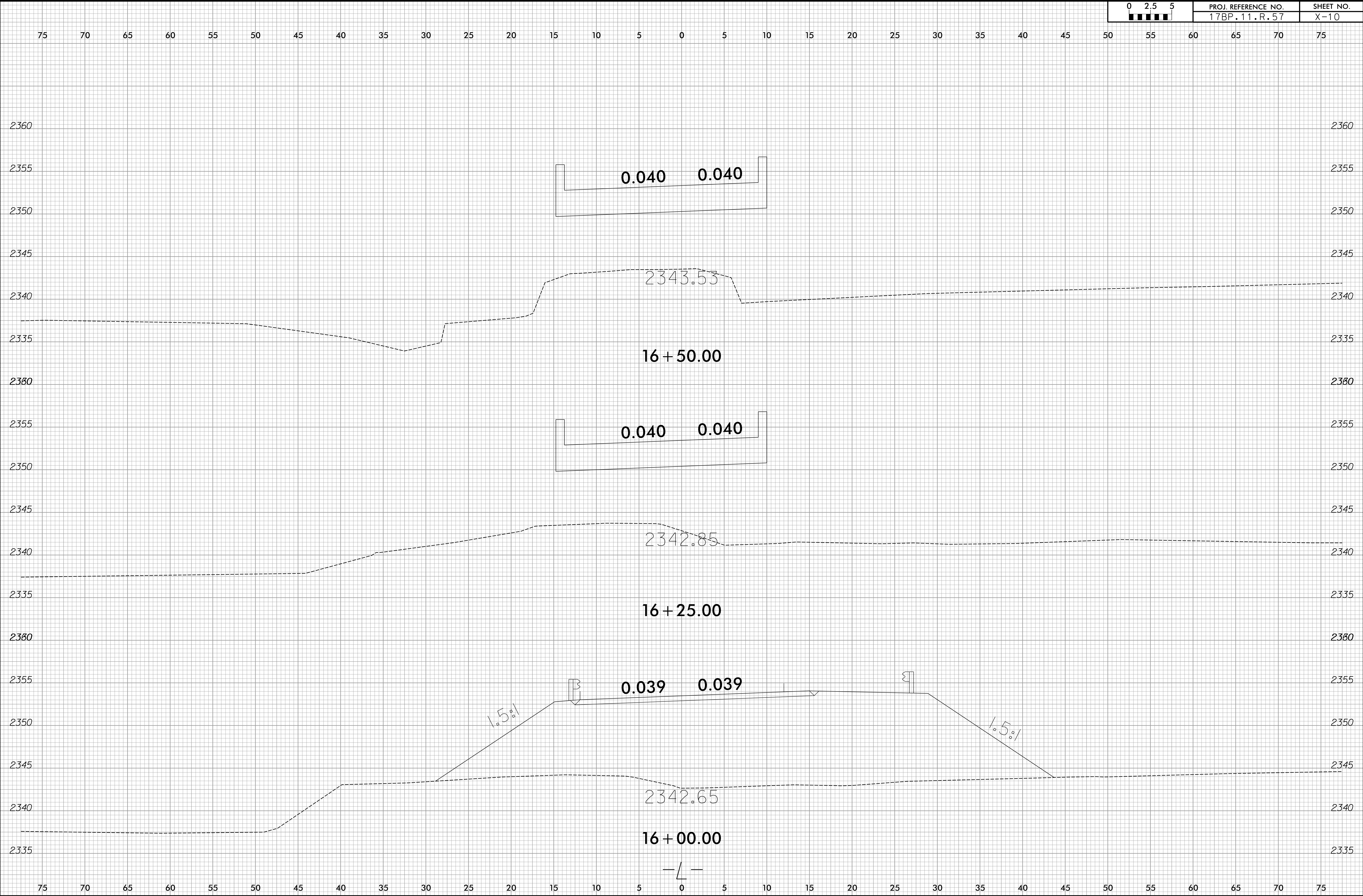
8/23/99





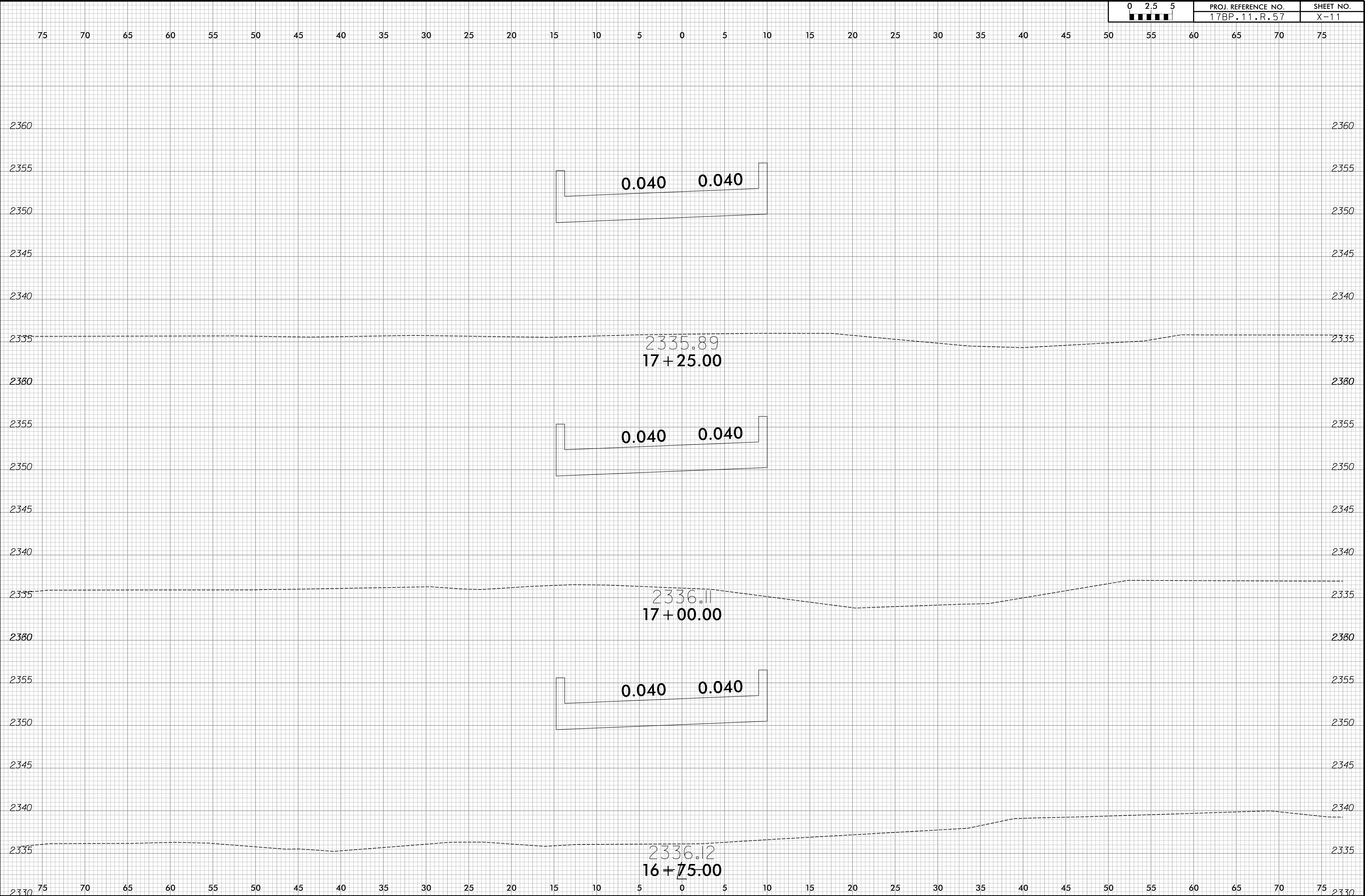


8/23/99
2/28/2014
H:\Roadway\Xsec\020265_Rdu_xpl.L.dgn
msh

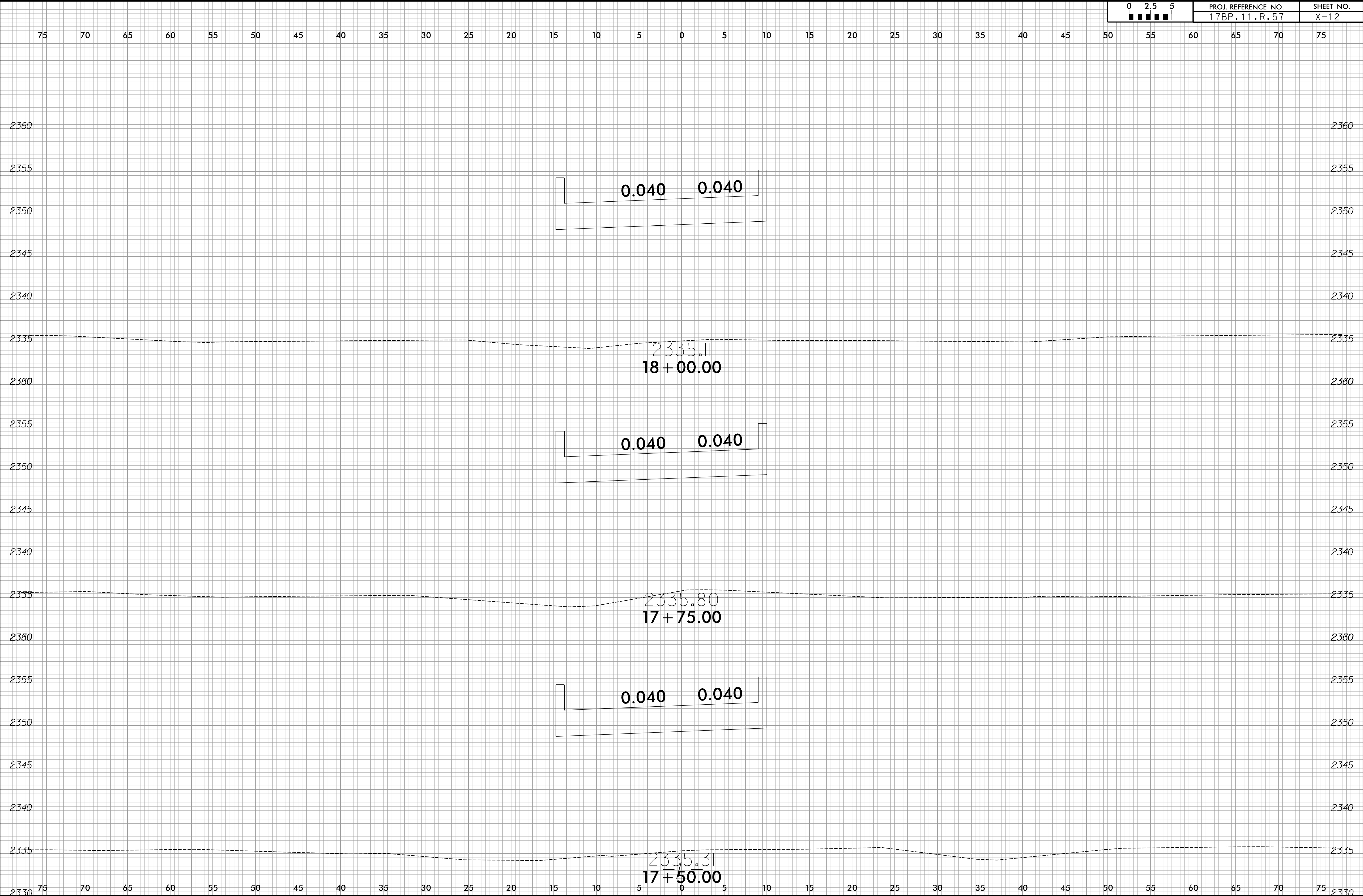


8/23/99
2/28/2014
H:\Roadway\Xsc\020265.Rdu.xpl.L.dgn
msh

0 2.5 5 ■■■	PROJ. REFERENCE NO. 17BP.11.R.57	SHEET NO. X-11
----------------	-------------------------------------	-------------------



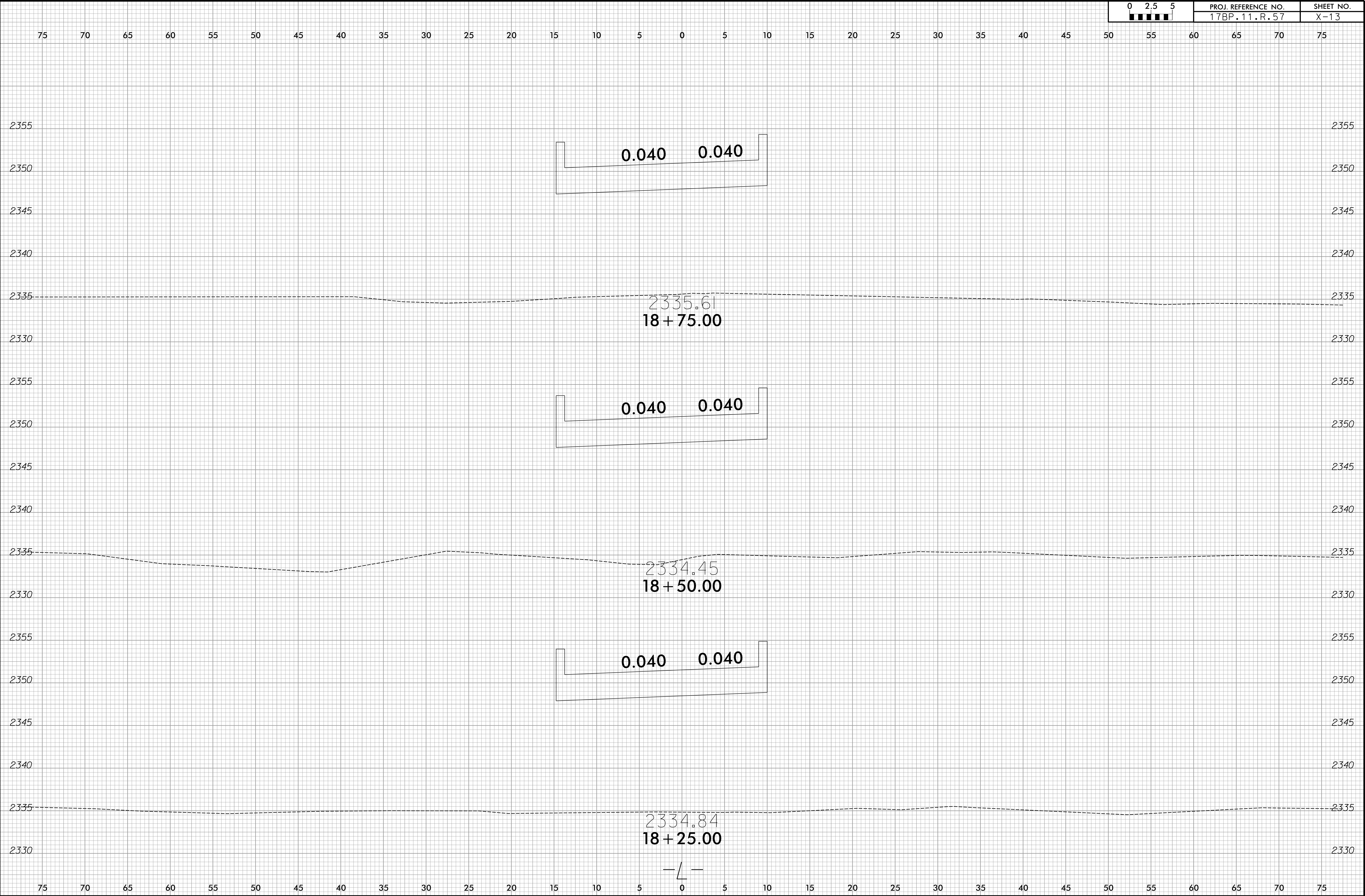
8/23/99
2/28/2014
H:\Roadway\Xsc\020265.Rdu.xpl.L.dgn
msh



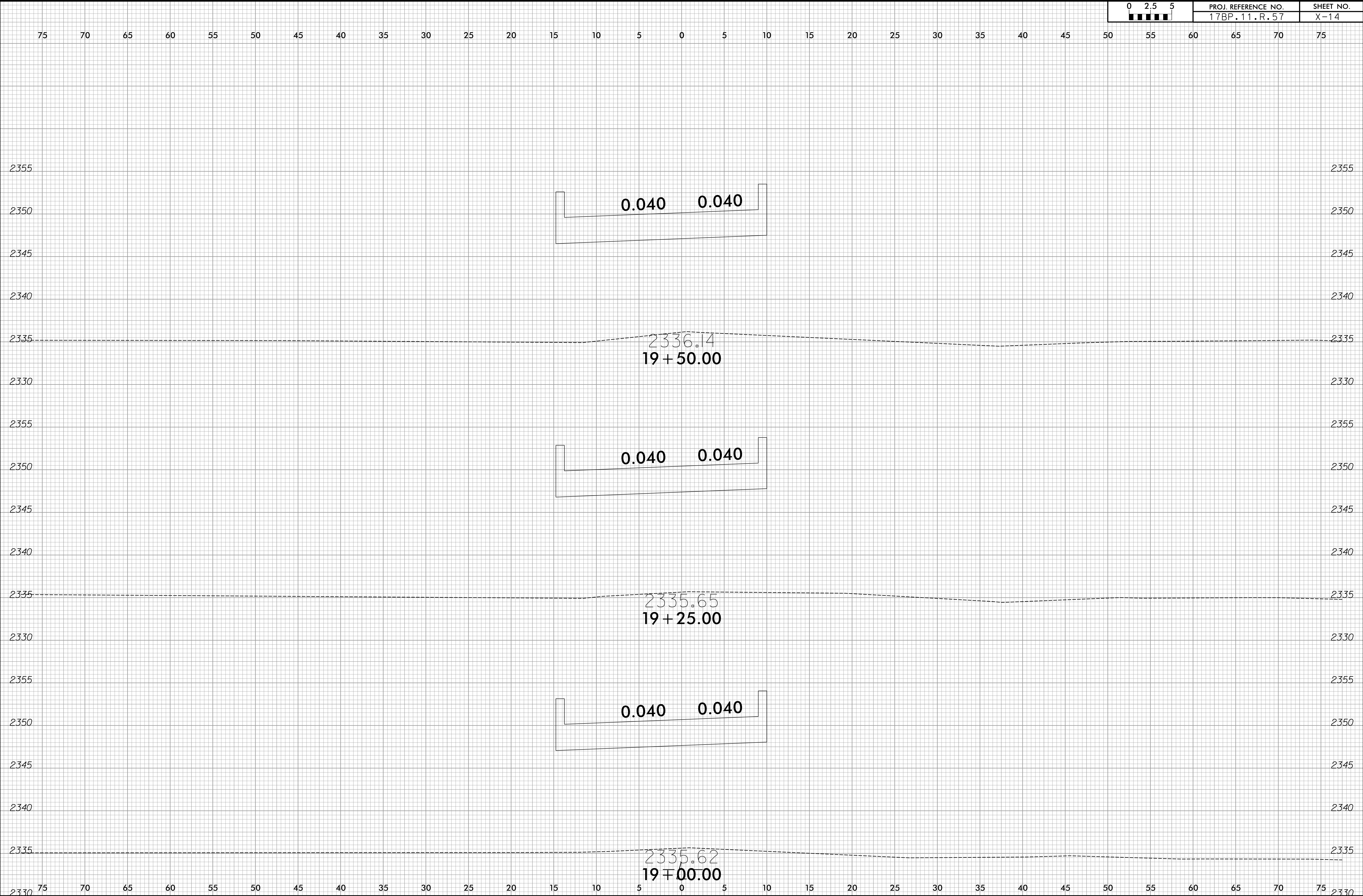
0 2.5 5 ■■■■■	PROJ. REFERENCE NO. 17BP.11.R.57	SHEET NO. X-12
------------------	-------------------------------------	-------------------

8/23/99
2/28/2014
H:\Roadway\Xsec\020265-Rdu-xpl.L.dgn
mjb

0 2.5 5 ■■■	PROJ. REFERENCE NO. 17BP.11.R.57	SHEET NO. X-13
----------------	-------------------------------------	-------------------

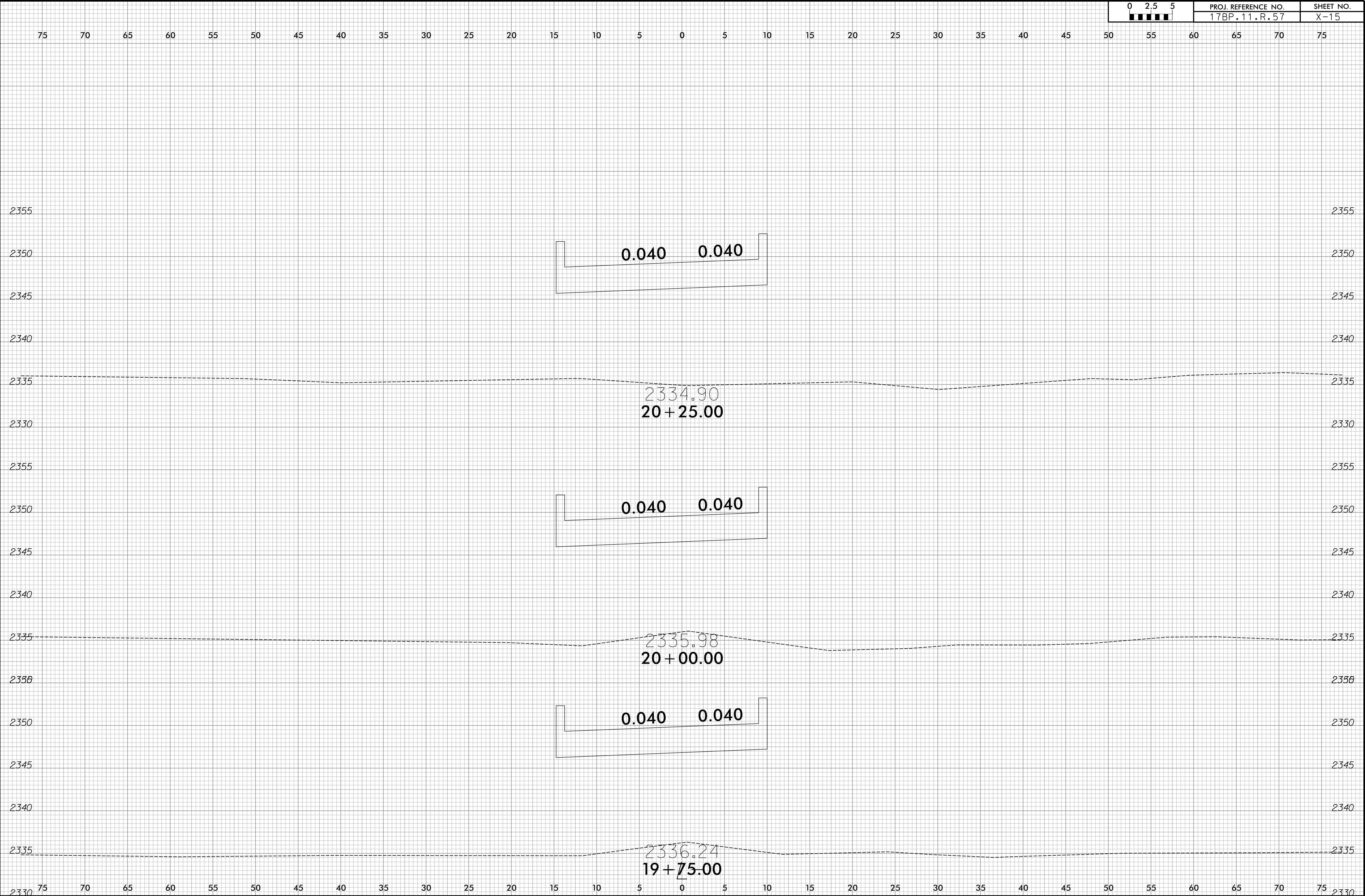


8/23/99
2/28/2014
H:\Roadway\Xsc\020265.Rdu_xpl.L.dgn
msh



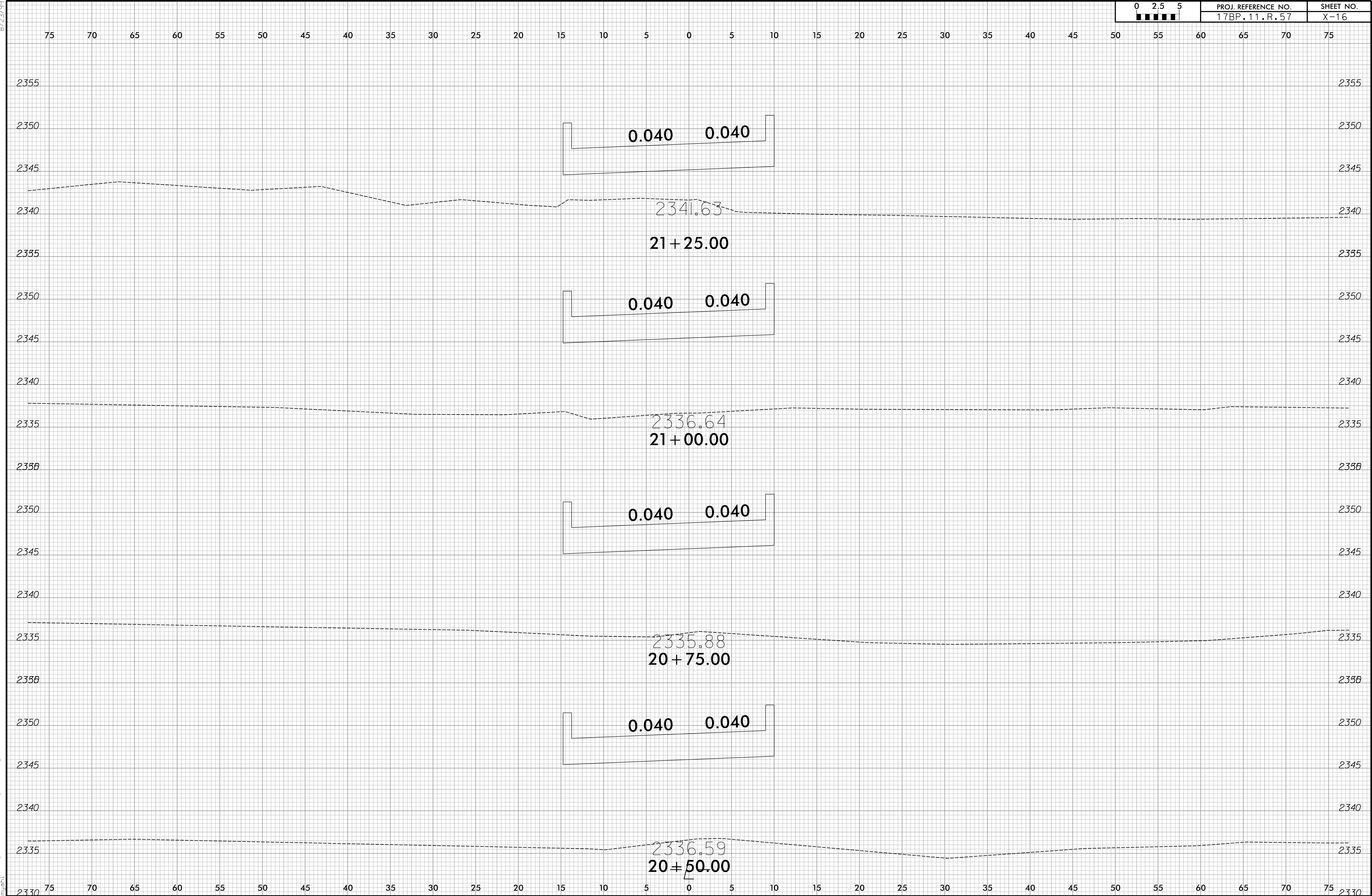
8/23/99
2/28/2014
H:\Roadway\Xsc\020265.Rdu.xpl.L.dgn

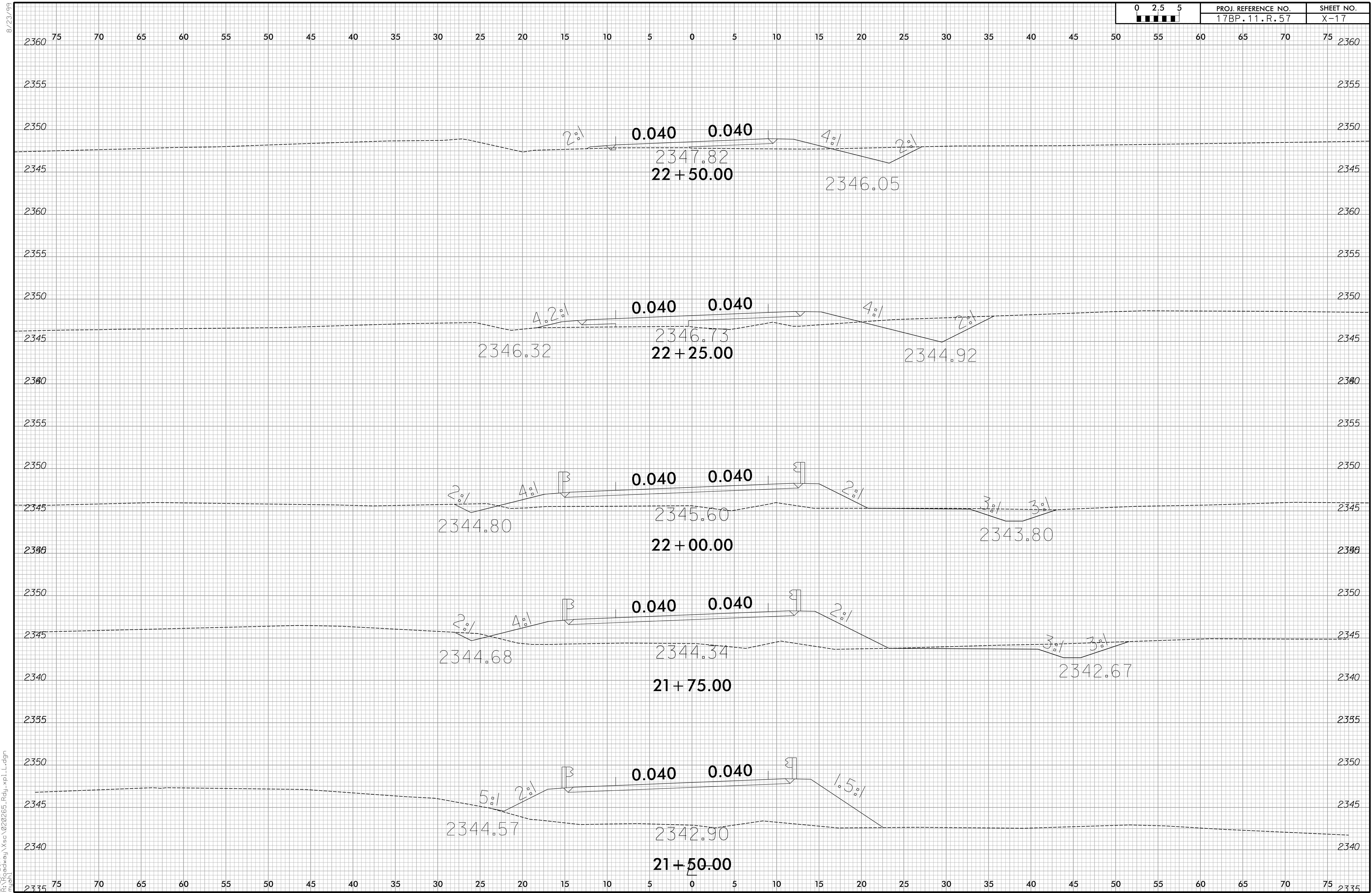
0 2.5 5 ■■■	PROJ. REFERENCE NO. 17BP.11.R.57	SHEET NO. X-15
----------------	-------------------------------------	-------------------



8/23/99
2/28/2014
H:\Roadway\Xsc\020265.Rdu.xpl.L.dgn

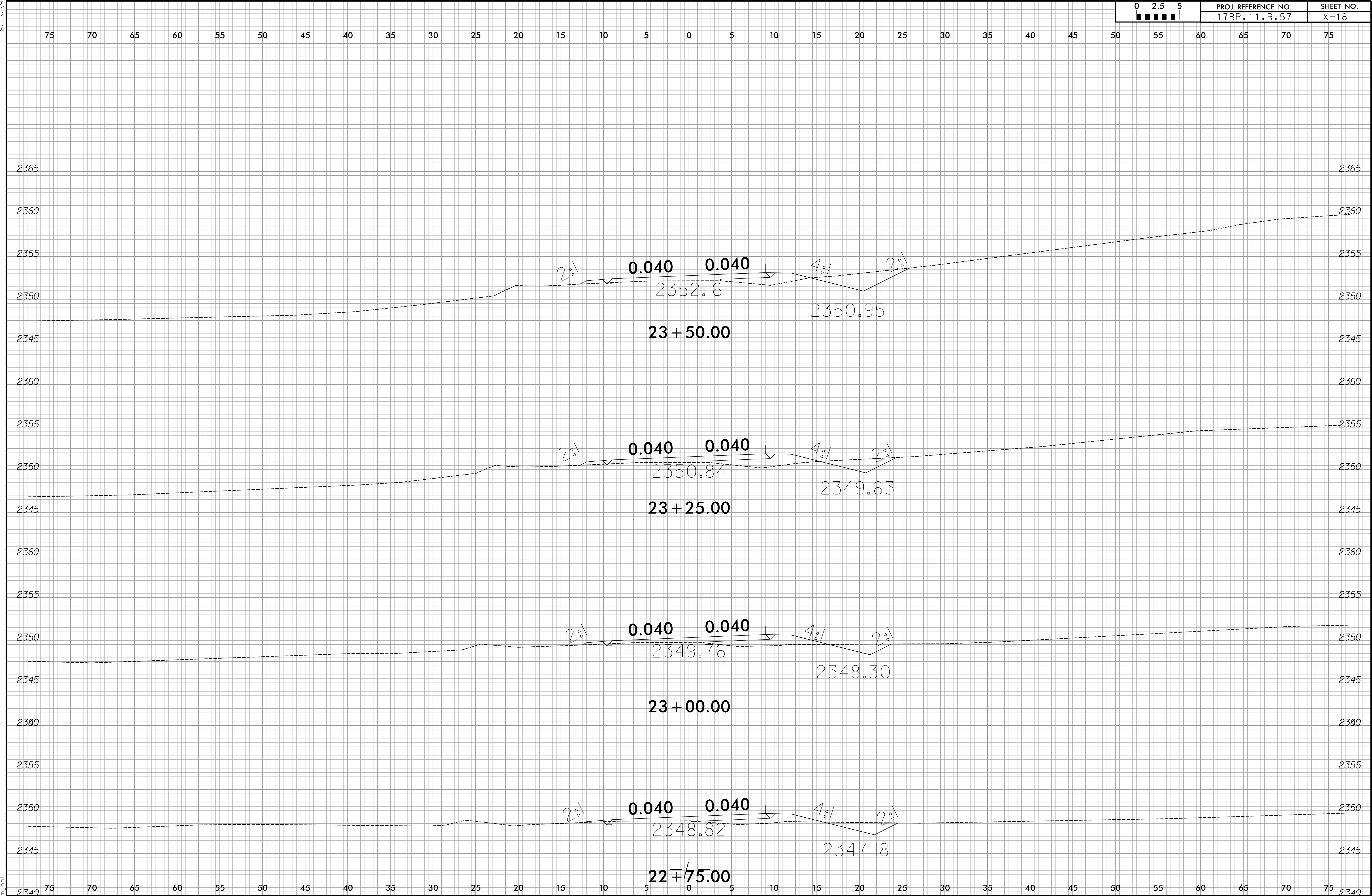
0 2.5 5 ■■■	PROJ. REFERENCE NO. 17BP.11.R.57	SHEET NO. X-16
----------------	-------------------------------------	-------------------



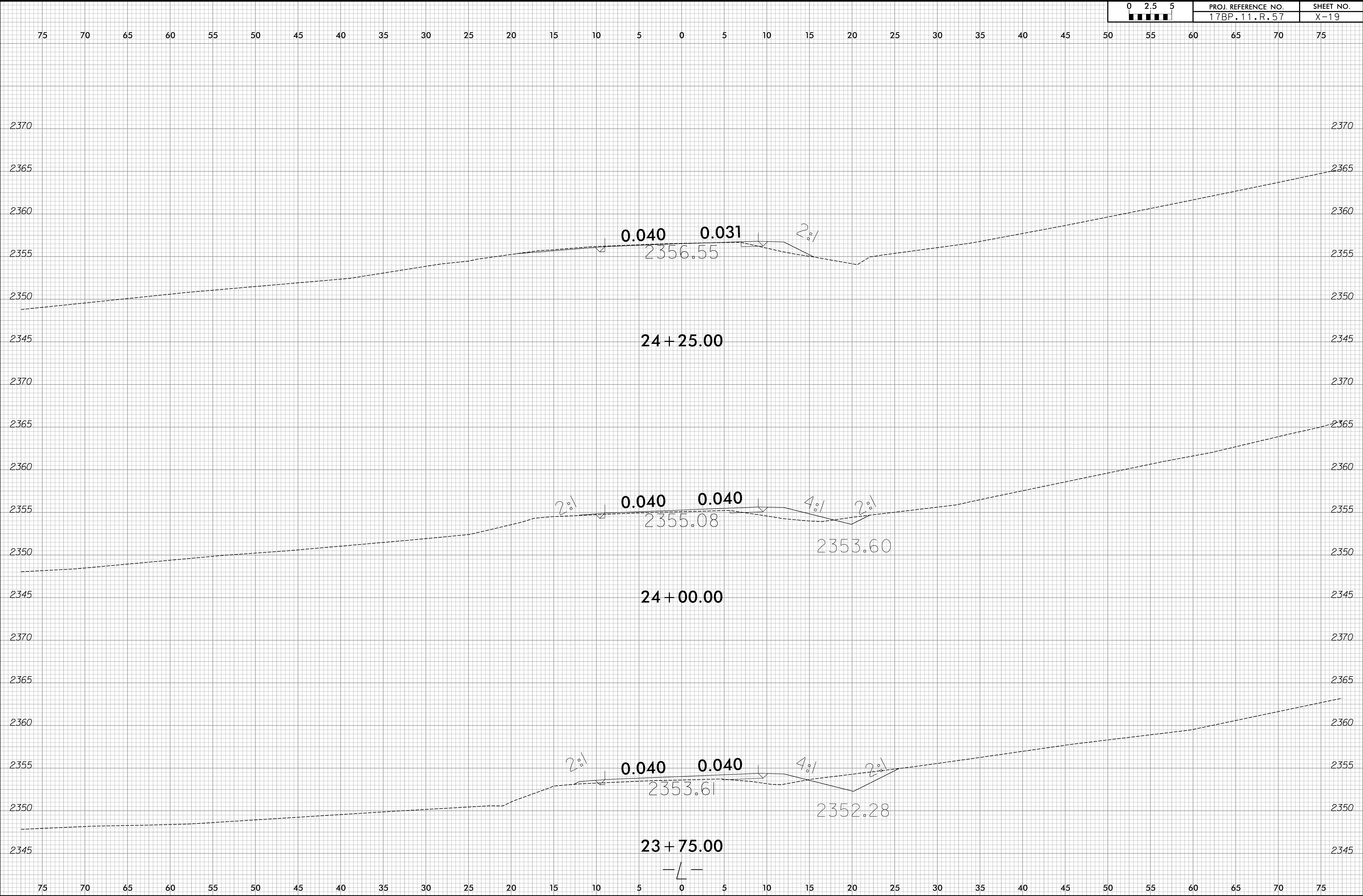


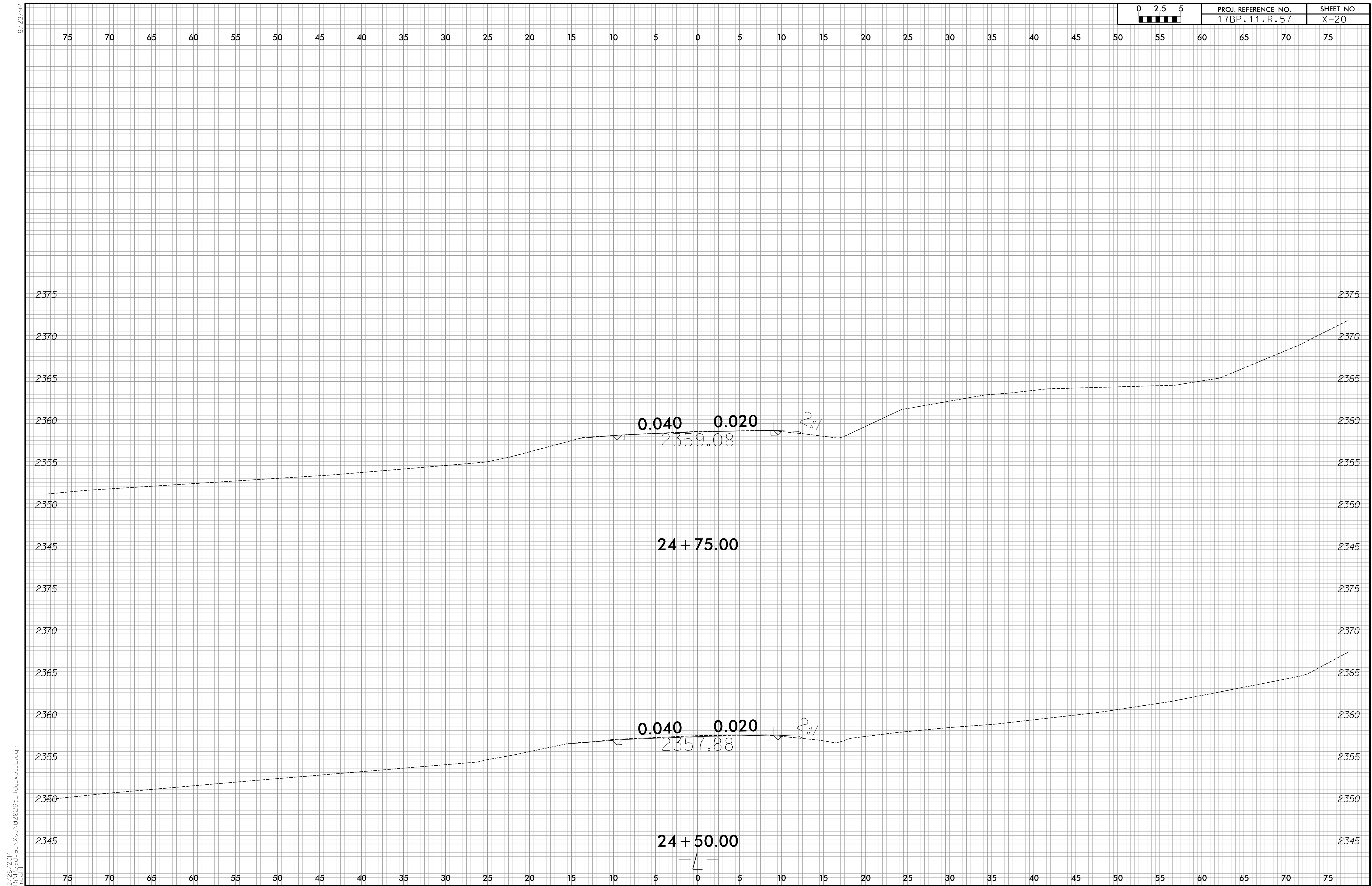
8/23/99
2/28/2014
H:\Roadway\Xsc\020265_Rdu_xpl.L.dgn

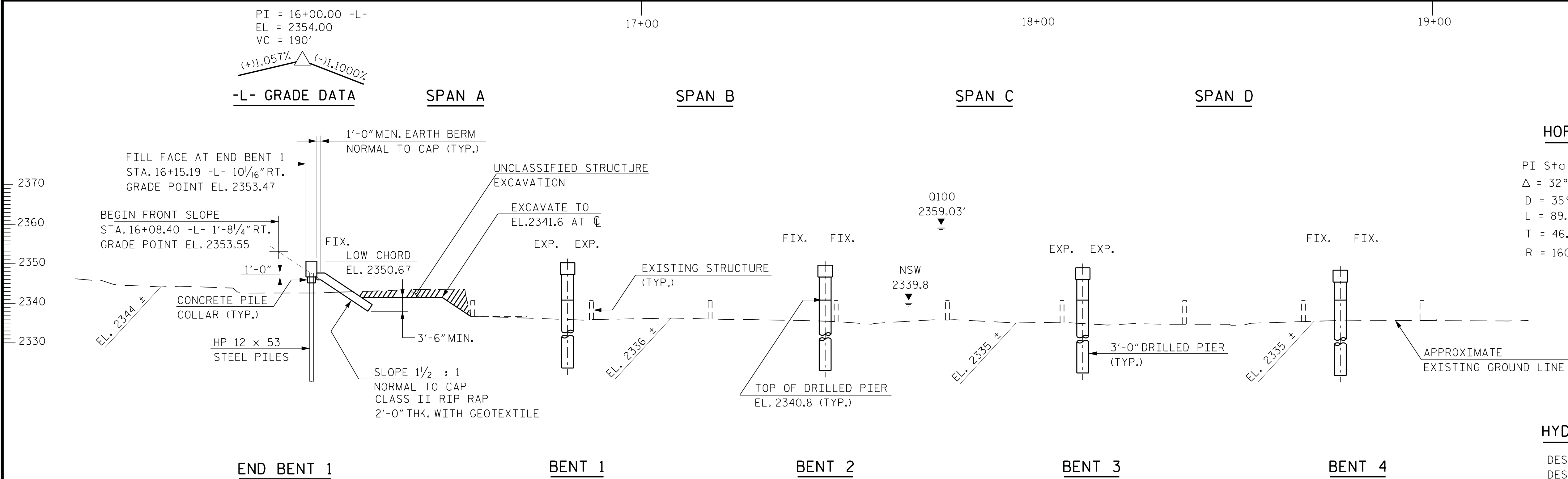
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.11.R.57	X-18



8/23/99
2/28/2014
H:\Roadway\Xsec\020255_Rdu_xpl.L.dgn
msh







HORIZONTAL CURVE DATA

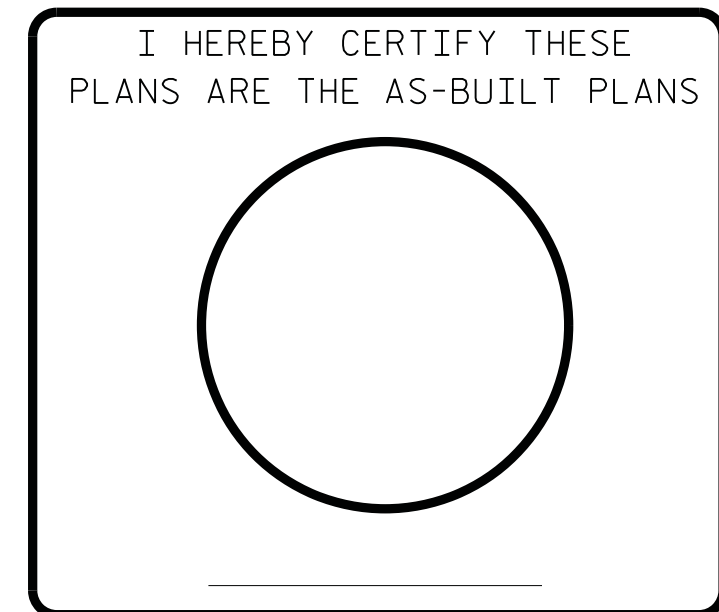
PI Sta 15+87.96	PI Sta 22+95.94
Δ = 32°04' 59.8" (LT)	Δ = 43°34' 11.7" (LT)
D = 35° 48' 35.5"	D = 15° 16' 43.9"
L = 89.59'	L = 285.16'
T = 46.01'	T = 149.88'
R = 160.00'	R = 375.00'

HYDRAULIC DATA

DESIGN DISCHARGE = 21,000 cfs
DESIGN FREQUENCY = 2 yr.
DESIGN HIGH WATER ELEVATION = 2348.3'
DRAINAGE AREA = 827.6 sq. mi.
BASE DISCHARGE (Q 100) = 69,000 cfs
BASE HIGH WATER ELEVATION = 2359.03'

OVERTOPPING FLOOD DATA

DISCHARGE = 21,125 cfs
FREQUENCY = 2± yr.
EL. = 2348.3

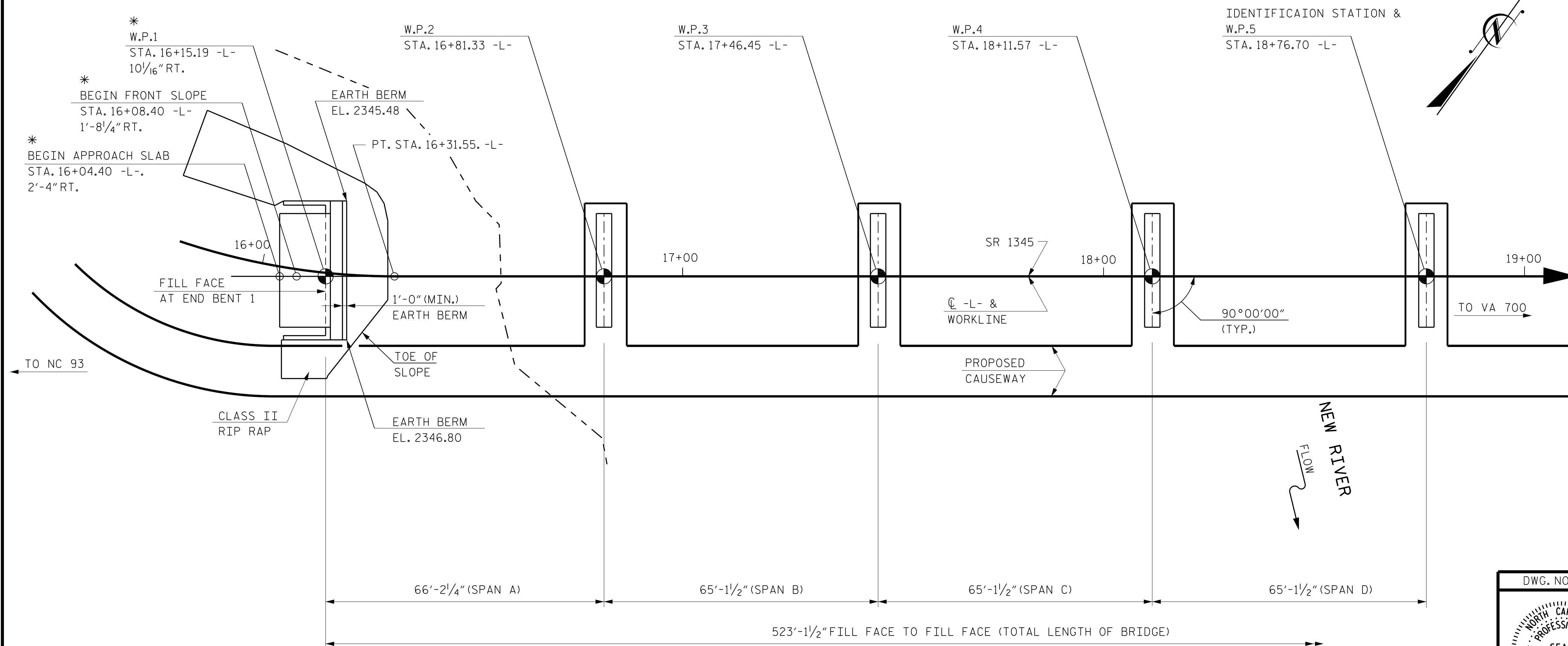


PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 1 OF 7 REPLACES BRIDGE NO. 265

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						
GENERAL DRAWING FOR BRIDGE OVER NEW RIVER ON SR 1345 (FARMERS FISH CAMP RD.) BETWEEN NC 93 AND VA 700						
REVISIONS					SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			30

* WORKLINE
TO BE LAYED OUT ALONG EXTENDED TANGENT



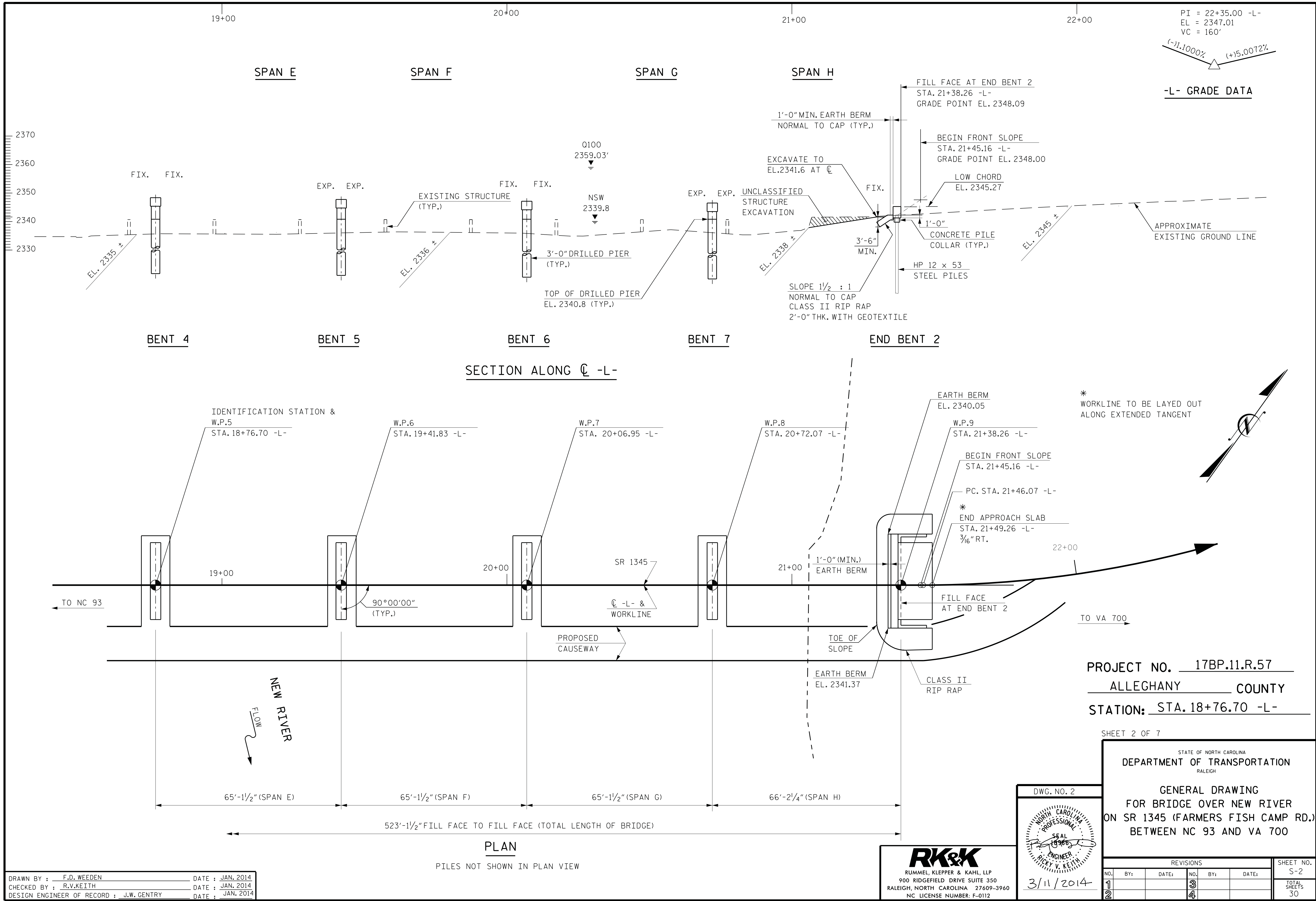
PLAN

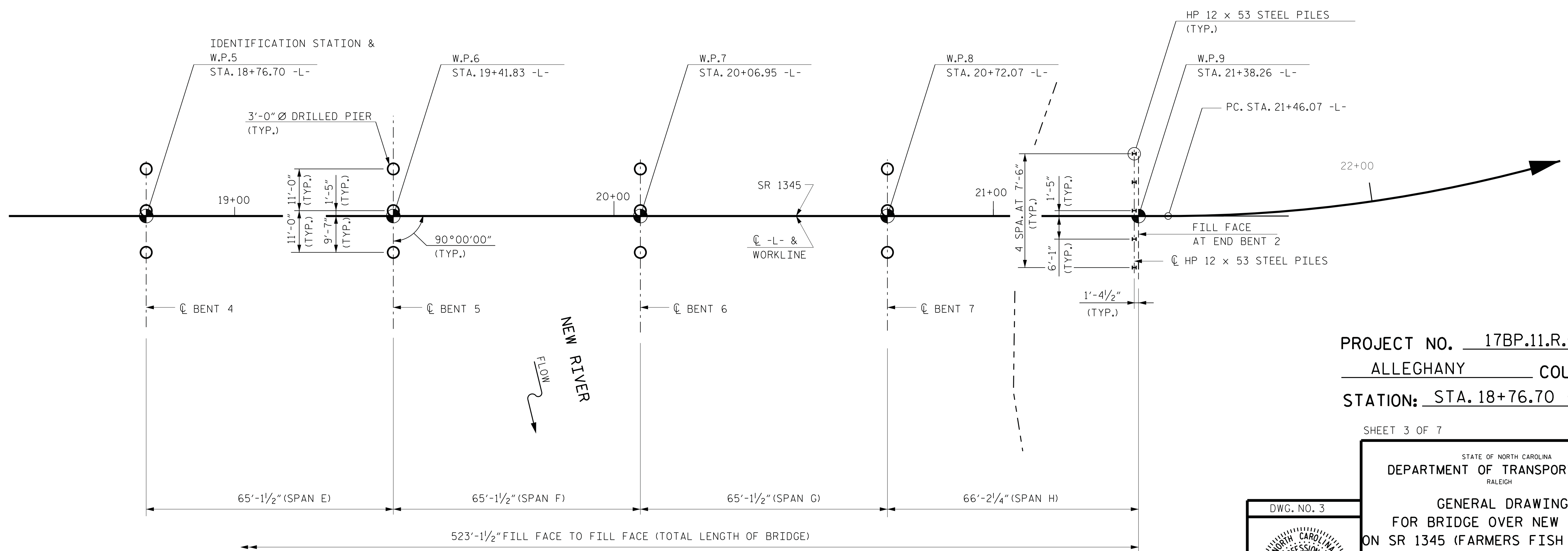
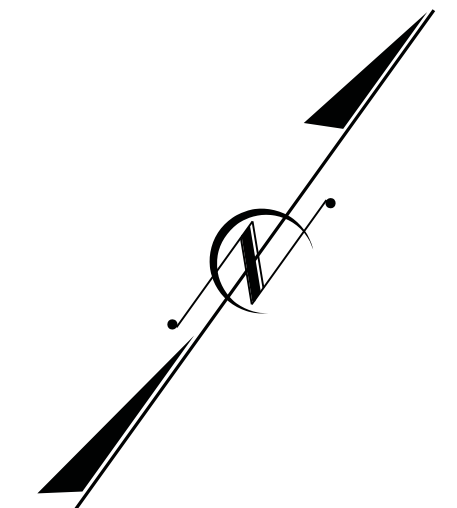
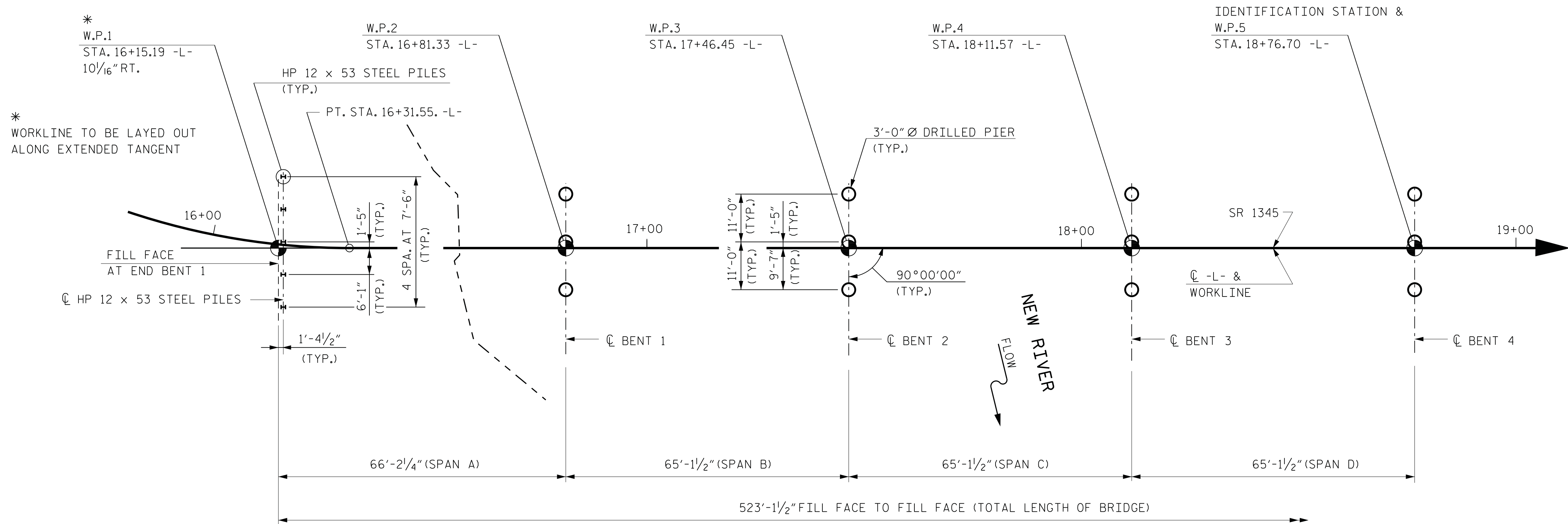
PILES NOT SHOWN IN PLAN VIEW

DRAWN BY : F.D. WEEDEN DATE : JAN. 2014
CHECKED BY : R.V. KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W. GENTRY DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 1
3/11/2014





PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 3 OF 7

FOUNDATION LAYOUT

DRAWN BY : F.D.WEEDEN DATE : JAN. 2014
CHECKED BY : R.V.KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W.GENTRY DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 3
3/11/2014

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER NEW RIVER
ON SR 1345 (FARMERS FISH CAMP RD.)
BETWEEN NC 93 AND VA 700

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

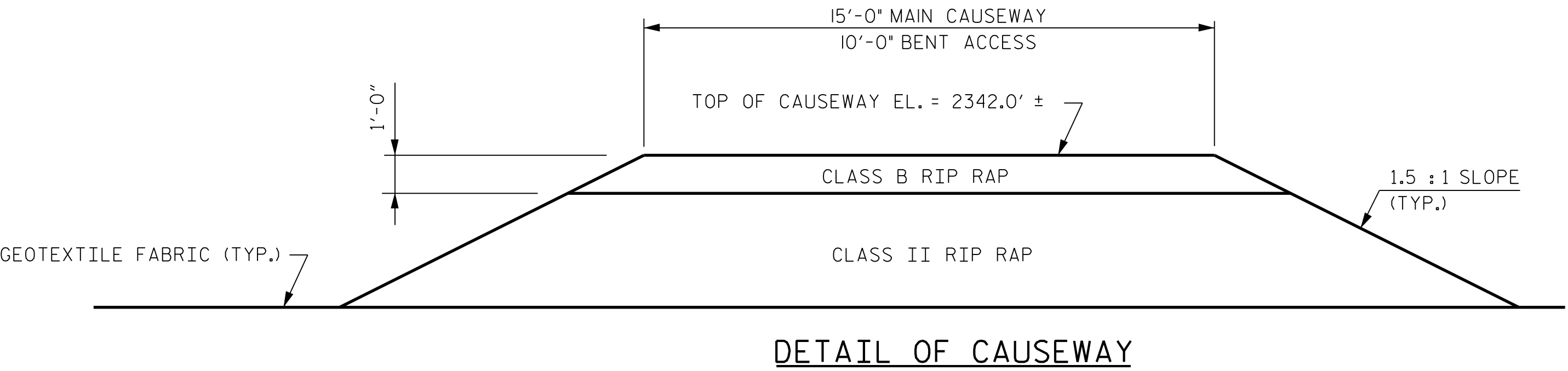
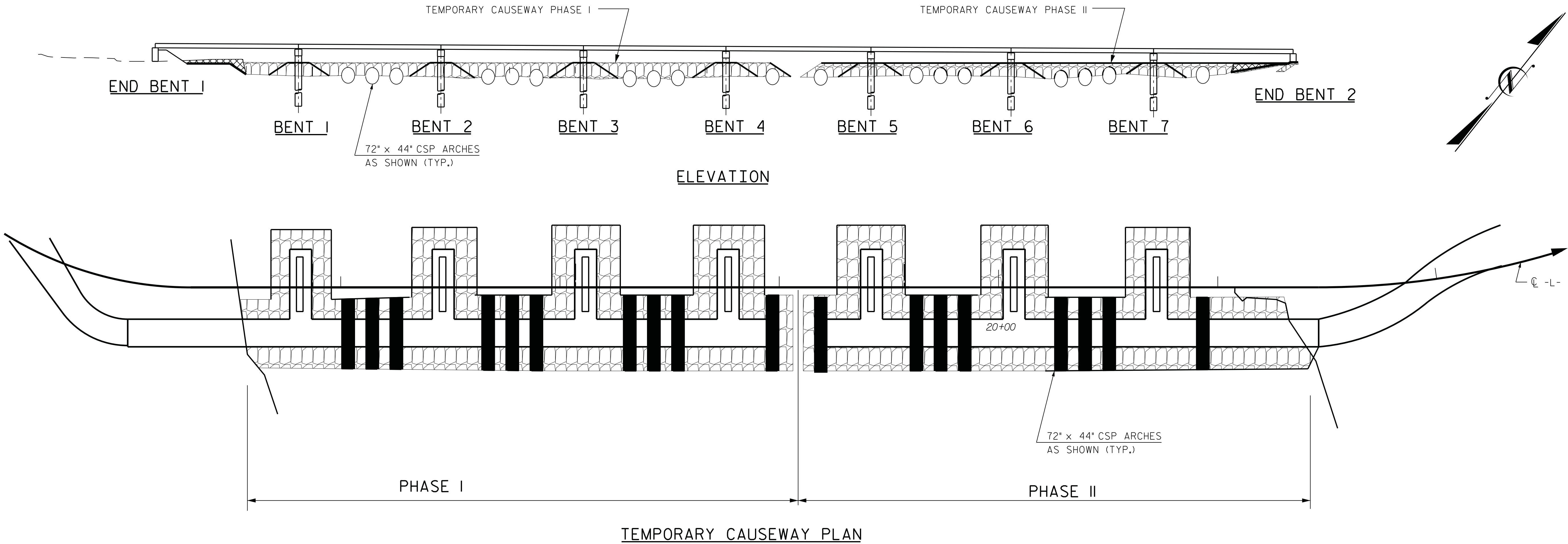
SHEET NO. S-3
TOTAL SHEETS 30

CAUSEWAY CONSTRUCTION SEQUENCE FOR PHASE I:

1. CONSTRUCT MAIN CAUSEWAY, WITH FLOW THRU PIPES, AS SHOWN ON PLAN.
NO MORE THAN HALF OF THE STREAM SHALL BE BLOCKED DURING PHASE I CONSTRUCTION.
2. DRIVEWAY ACCESS TO PROPERTY NO. 6 SHALL BE MAINTAINED 24-HR DURING PHASE I CONSTRUCTION.
3. REMOVE EXISTING CONCRETE PIERS AND ABUTMENT.
4. CONSTRUCT FINGERS OF CAUSEWAY AS SHOWN ON PLAN.
5. BEGIN CONSTRUCTION OF INTERIOR BENTS 1 THROUGH 4 AND END BENT 1.
INSTALL (3)-3.0' DIAMETER SHAFTS PER BENT AS DETAILED ON THE STRUCTURES PLANS.
6. REMOVE BENT ACCESS PORTION OF THE CAUSEWAY AFTER COMPLETION OF BENT CONSTRUCTION.
7. INSTALL 21" CORED SLABS FROM MAIN CAUSEWAY.
8. REMOVE MAIN CAUSEWAY BEFORE BEGINNING CONSTRUCTION OF PHASE II CAUSEWAY.
9. INSTALL BANK STABILIZATION AS SHOWN ON PLANS UPON REMOVAL OF MAIN CAUSEWAY.

CAUSEWAY CONSTRUCTION SEQUENCE FOR PHASE II:

1. CONSTRUCT MAIN CAUSEWAY, WITH FLOW THRU PIPES, AS SHOWN ON PLAN.
NO MORE THAN HALF OF THE STREAM SHALL BE BLOCKED DURING PHASE II CONSTRUCTION.
2. REMOVE EXISTING CONCRETE PIERS AND ABUTMENT.
3. CONSTRUCT FINGERS OF CAUSEWAY AS SHOWN ON PLAN.
4. BEGIN CONSTRUCTION OF INTERIOR BENTS 5 THROUGH 7 AND END BENT 2. INSTALL
(3)-3.0' DIAMETER SHAFTS PER BENT, AS DETAILED ON STRUCTURE PLANS.
5. AFTER COMPLETION OF BENT CONSTRUCTION, REMOVE BENT ACCESS PORTION OF CAUSEWAY.
6. INSTALL 21" CORED SLABS FROM MAIN CAUSEWAY. REMOVE MAIN CAUSEWAY UPON COMPLETION.
7. INSTALL BANK STABILIZATION AS SHOWN UPON COMPLETION AFTER REMOVING CAUSEWAY.



PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 4 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER NEW RIVER
ON SR 1345
(FARMERS FISH CAMP RD.)
BETWEEN NC 93 AND VA 700

REVISIONS						SHEET NO. S-4
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 30
2			4			

DRAWN BY : F.D.WEEDEN DATE : JAN. 2014
CHECKED BY : R.V.KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W.GENTRY DATE : JAN. 2014

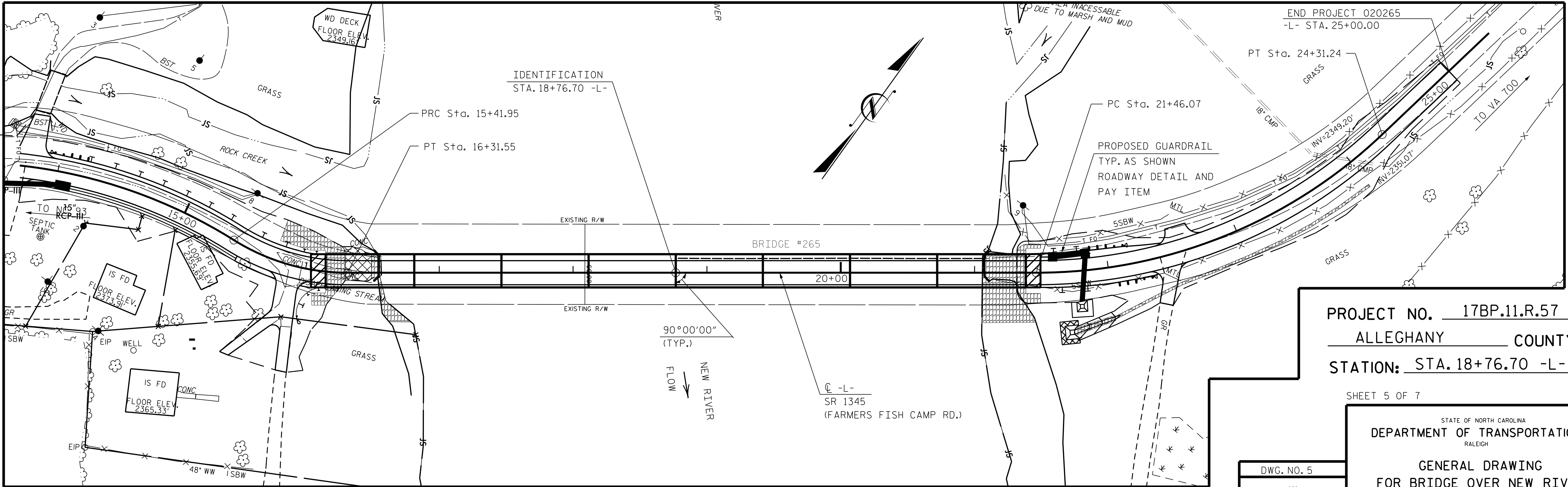
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 4
3/11/2014
RICKY V. KEITH
ENGINEER

TOTAL BILL OF MATERIALS

	CONST., MAINT. & REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	3'-0" Ø DRILLED PIERS IN SOIL	3'-0" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIERS	PDA TESTING	SID INSPCT.	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONC.	BRIDGE APPROACH SLABS	REINF. STEEL	SPIRAL COLUMN REING. STEEL	HP 12 X 53 STEEL PILES		STEEL PILES POINTS	ONE BAR METAL RAIL	1'-11 3/4" x 1'-0" CONC. PARAPET	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	FOAM JOINT SEALS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE	LUMP SUM	LUMP SUM								12,935	11,752		LUMP SUM						1,026.75	1,041.75					72	4,680.0
END BENT NO. 1												18.8		2,270		5	100.0	5			130	140				
BENT NO. 1			26.4	24	29.4							17.5		7,198	1,348											
BENT NO. 2			17.4	30	26.4							16.9		6,928	1,253											
BENT NO. 3			17.4	30	26.4							16.4		6,813	1,211											
BENT NO. 4			17.4	33	26.4							15.9		6,862	1,225											
BENT NO. 5			14.4	30	23.4							15.4		6,429	1,075											
BENT NO. 6			17.4	36	23.4							14.8		6,791	1,195											
BENT NO. 7			14.4	30	23.4							14.2		6,198	992											
END BENT NO. 2												18.8		2,270		5	100.0	5			50	55				
TOTAL	LUMP SUM	LUMP SUM	124.8	213	178.8	1	3	7	LUMP SUM	12,935	11,752	148.70	LUMP SUM	51,759	8,299	10	200.0	10	1,026.75	1,041.75	180	195	LUMP SUM	LUMP SUM	72	4,680.0

BENCH MARK : BM1 ON -L- 12+05.31, 12.86' RT. 8" SPIKE IN ROOT OF SYCAMORE TREE N 102671, E 1358520 ELEV. 2361.59'



PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 5 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER NEW RIVER
ON SR 1345 (FARMERS FISH CAMP RD.)
BETWEEN NC 93 AND VA 700

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-5
2			4			
TOTAL SHEETS 30						

DRAWN BY : F.D.WEEDEN
CHECKED BY : R.V.KEITH
DESIGN ENGINEER OF RECORD : J.W.GENTRY

DATE : JAN. 2014
DATE : JAN. 2014
DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 5
3/11/2014
PROFESSIONAL ENGINEER
RICKY V. KEITH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

FOR OTHER DESIGN DATA AND GENERAL NOTES,SEE SHEET SN.

FOR EROSION CONTROL MEASURES,SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THE SUPERSTRUCTURE ON THIS "LOW WATER TYPE" STRUCTURE HAS PREVIOUSLY BEEN REMOVED.THE EXISTING SUBSTRUCTURE CONSISTING OF TWO REINFORCED CONCRETE ABUTMENTS AND FOURTEEN REINFORCED CONCRETE INTERMEDIATE BENTS AND LOCATED AT THE PROPOSED STRUCTURE LOCATION SHALL BE REMOVED.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSSHATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FEET EACH SIDE OF CENTERLINE ROADWAY AT END BENT NO.2 AND LEFT OF THE EXISTING ROCK OUT-CROP WHICH IS TO REMAIN IN PLACE AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 EVALUATING SCOUR AT BRIDGES."

FOR SUBMITTAL OF WORKING DRAWINGS,SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK,SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY,SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES,SEE SPECIAL PROVISIONS.

AT THE CONTRACTOR'S OPTION,AND UPON REMOVAL OF THE CAUSEWAY,THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION.SEE SPECIAL PROVISIONS FOR CONSTRUCTION,MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 18+76.70 -L-.

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE PARAPET.THE COST OF THE #3 & #4 BARS CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE.FOR CONCRETE WEARING SURFACE,SEE SPECIAL PROVISIONS.

FOUNDATION NOTES:

FOR DRILLED PIERS,SEE SECTION 411 OF THE STANDARD SPECIFICATIONS

DRILLED PIERS AT BENTS NO.1,2,3,4,5,6,AND 7 ARE DESIGNED FOR A FACTORED RESISTANCE OF 400 TONS PER PIER,CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 75,70,67,61,59,63,AND 60 TSF,RESPECTIVELY.

PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENTS NO.1,2,3,4,5,6,AND 7.DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 2331,2332,2332,2332,2333,2333,AND 2333 FT,RESPECTIVELY,WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

INSTALL DRILLED PIERS AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN 2324 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 7 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT NO.2 TO A TIP ELEVATION NO HIGHER THAN 2325 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 7 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT NO.3 TO A TIP ELEVATION NO HIGHER THAN 2325 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 7 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT NO.4 TO A TIP ELEVATION NO HIGHER THAN 2324 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 8 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT NO.5 TO A TIP ELEVATION NO HIGHER THAN 2326 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF LEAST 7 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT NO.6 TO A TIP ELEVATION NO HIGHER THAN 2323 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 10 FT.INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT NO.7 TO A TIP ELEVATION NO HIGHER THAN 2326 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 7 FT.INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATIONS FOR BENTS NO.1,2,3,4,5,6,AND 7 ARE 2331,2334,2334,2334,2335,2334,AND 2335,RESPECTIVELY. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

DO NOT USE SLURRY CONSTRUCTION FOR DRILLED PIERS AT BENTS NO.1 THROUGH 7.

SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS.THE ENGINEER WILL DETERMINE THE NEED FOR SID INPECTIONS.FOR SID INSPECTIONS SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS.THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING.FOR CSL TESTING SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

FOR PILES,SEE SECTION 450 OF THE STANDARD SPECIFICATION.

PILES AT END BENTS NO.1 AND 2 TO A DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.

DRIVE PILES AT END BENTS NO.1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1 AND END BENT NO.2.FOR STEEL PILE POINTS,SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY CHOOSE TO CONSTRUCT END BENTS NO.1 AND 2 BEFORE PLACING FILL.PLACE FILL IN ACCORDANCE WITH ARTICLE 410-8 OF THE STANDARD SPECIFICATIONS.

TESTING PILES WITH THE PDA DURING DRIVING MAY BE REQUIRED.THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING.FOR PDA TESTING,SEE SECTION 450 OF THE STANDARD SPECIFICATION,AND FOR PILE DRIVING CRITERIA,SEE PILE DRIVING CRITERIA PROVISION.

PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

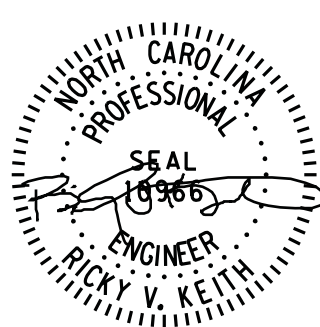
SHEET 6 OF 7

DRAWN BY : F.D.WEEDEN	DATE : JAN. 2014
CHECKED BY : R.V.KEITH	DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W.GENTRY	DATE : JAN. 2014



RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 6



3/11/2014

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER NEW RIVER
ON SR 1345 (FARMERS FISH CAMP RD.)
BETWEEN NC 93 AND VA 700

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS 30
2			4			

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.37	--	1.75	0.282	1.41	65'	EL	32.0	0.600	1.37	65'	I	6	0.80	0.282	1.45	65'	EL	32.0		
	HL-93(0pr)	N/A	--	1.83	--	1.35	0.282	1.83	65'	EL	32.0	0.600	1.84	65'	I	6	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.74	62.640	1.75	0.282	1.81	65'	EL	32.0	0.600	1.74	65'	I	6	0.80	0.282	1.86	65'	EL	32.0		
	HS-20(0pr)	36.000	--	2.31	83.160	1.35	0.282	2.35	65'	EL	32.0	0.600	2.31	65'	I	6	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	4.08	55.080	1.4	0.282	4.97	65'	EL	32.0	0.600	5.46	65'	I	6	0.80	0.282	4.08	65'	EL	32.0	
		SNGARBS2	20.000	--	3.09	61.800	1.4	0.282	3.76	65'	EL	32.0	0.600	3.85	65'	I	6	0.80	0.282	3.09	65'	EL	32.0	
		SNAGRIS2	22.000	--	2.94	64.680	1.4	0.282	3.59	65'	EL	32.0	0.600	3.57	65'	I	6	0.80	0.282	2.94	65'	EL	32.0	
		SNCOTTS3	27.250	--	2.03	55.318	1.4	0.282	2.47	65'	EL	32.0	0.600	2.62	65'	I	6	0.80	0.282	2.03	65'	EL	32.0	
		SNAGGRS4	34.925	--	1.71	59.722	1.4	0.282	2.09	65'	EL	32.0	0.600	2.17	65'	I	6	0.80	0.282	1.71	65'	EL	32.0	
		SNS5A	35.550	--	1.68	59.724	1.4	0.282	2.04	65'	EL	32.0	0.600	2.21	65'	I	6	0.80	0.282	1.68	65'	EL	32.0	
		SNS6A	39.950	--	1.54	61.523	1.4	0.282	1.88	65'	EL	32.0	0.600	2.01	65'	I	6	0.80	0.282	1.54	65'	EL	32.0	
		SNS7B	42.000	--	1.47	61.740	1.4	0.282	1.79	65'	EL	32.0	0.600	1.98	65'	I	6	0.80	0.282	1.47	65'	EL	32.0	
	TTST	TNAGRIT3	33.000	--	1.89	62.370	1.4	0.282	2.30	65'	EL	32.0	0.600	2.42	65'	I	6	0.80	0.282	1.89	65'	EL	32.0	
		TNT4A	33.075	--	1.90	62.843	1.4	0.282	2.31	65'	EL	32.0	0.600	2.33	65'	I	6	0.80	0.282	1.90	65'	EL	32.0	
		TNT6A	41.600	--	1.56	64.896	1.4	0.282	1.90	65'	EL	32.0	0.600	2.13	65'	I	6	0.80	0.282	1.56	65'	EL	32.0	
		TNT7A	42.000	--	1.57	65.940	1.4	0.282	1.91	65'	EL	32.0	0.600	2.05	65'	I	6	0.80	0.282	1.57	65'	EL	32.0	
		TNT7B	42.000	--	1.63	68.460	1.4	0.282	1.99	65'	EL	32.0	0.600	1.92	65'	I	6	0.80	0.282	1.63	65'	EL	32.0	
		TNAGRIT4	43.000	--	1.55	66.650	1.4	0.282	1.89	65'	EL	32.0	0.600	1.84	65'	I	6	0.80	0.282	1.55	65'	EL	32.0	
		TNAGT5A	45.000	--	1.46	65.700	1.4	0.282	1.77	65'	EL	32.0	0.600	1.83	65'	I	6	0.80	0.282	1.46	65'	EL	32.0	
		TNAGT5B	45.000	3	1.43	64.350	1.4	0.282	1.75	65'	EL	32.0	0.600	1.73	65'	I	6	0.80	0.282	1.43	65'	EL	32.0	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.

2.

3.

4.

CONTROLLING LOAD RATING

1

DESIGN LOAD RATING (HL-93)

2

DESIGN LOAD RATING (HS-20)

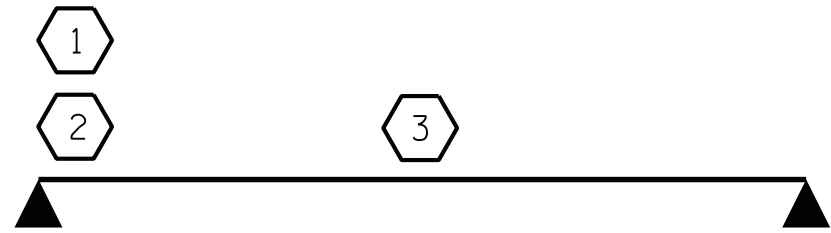
3

LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

FOR SPANS "A" THROUGH "H"

PROJECT NO. 17BP.11.R.57

ALLEGHANY COUNTY

STATION: STA. 18+76.70 -L-

SHEET 7 OF 7

DRAWN BY : F.D.WEEDEN

CHECKED BY : R.V.KEITH

DESIGN ENGINEER OF RECORD : J.W.GENTRY

DATE : JAN. 2014

DATE : JAN. 2014

DATE : JAN. 2014

RK&K

RUMMEL, KLEPPER & KAHL, LLP

900 RIDGEFIELD DRIVE SUITE 350

RALEIGH, NORTH CAROLINA 27609-3960

NC LICENSE NUMBER: F-0112

DWG. NO. 7

STATE OF NORTH CAROLINA

PROFESSIONAL ENGINEER

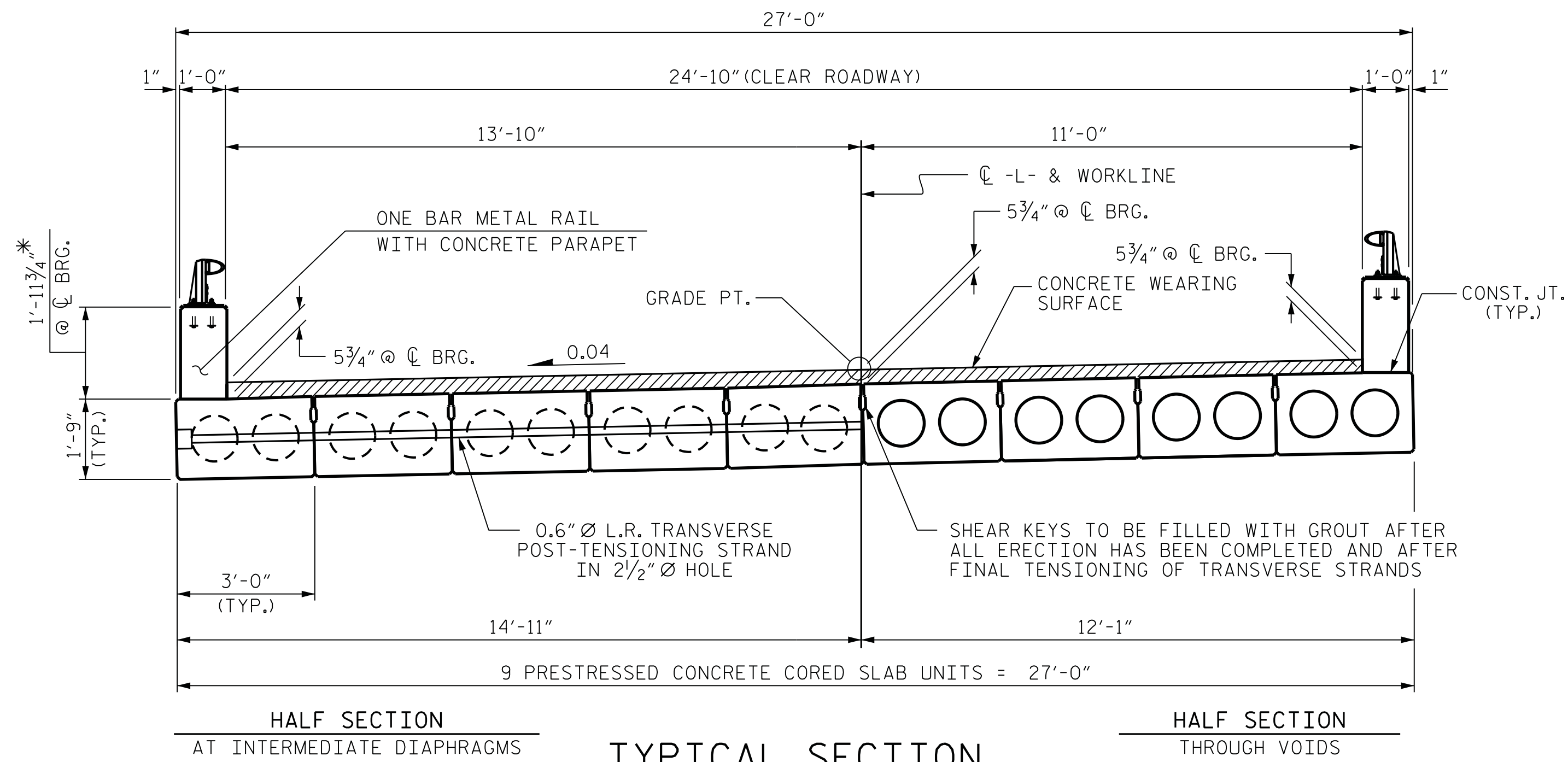
SEAL

10966

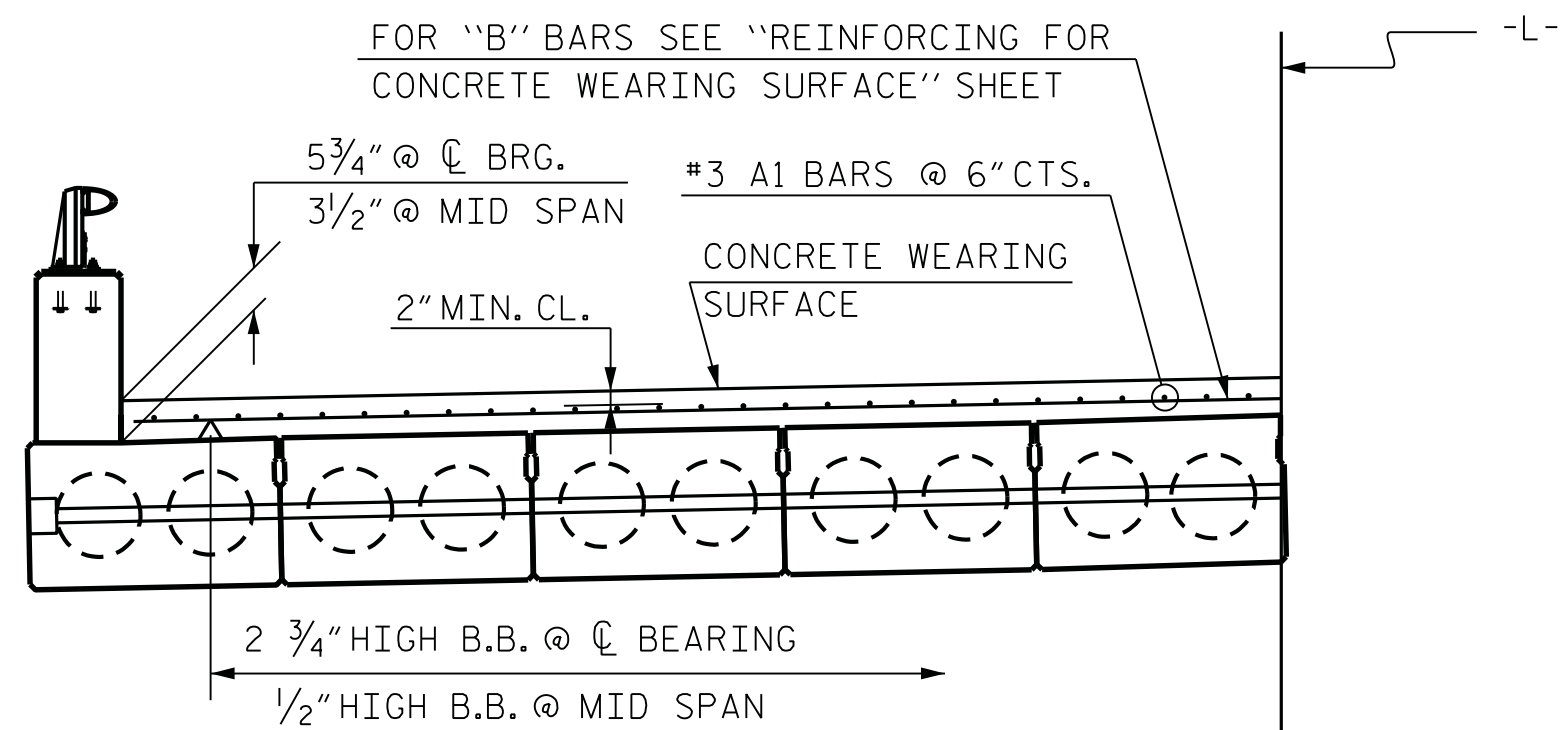
RICKY V. KEITH

3/11/2014

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD LRFR SUMMARY FOR 65' CORED SLAB UNIT 90° SKEW (NON-INTERSTATE TRAFFIC)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-7					TOTAL SHEETS 30



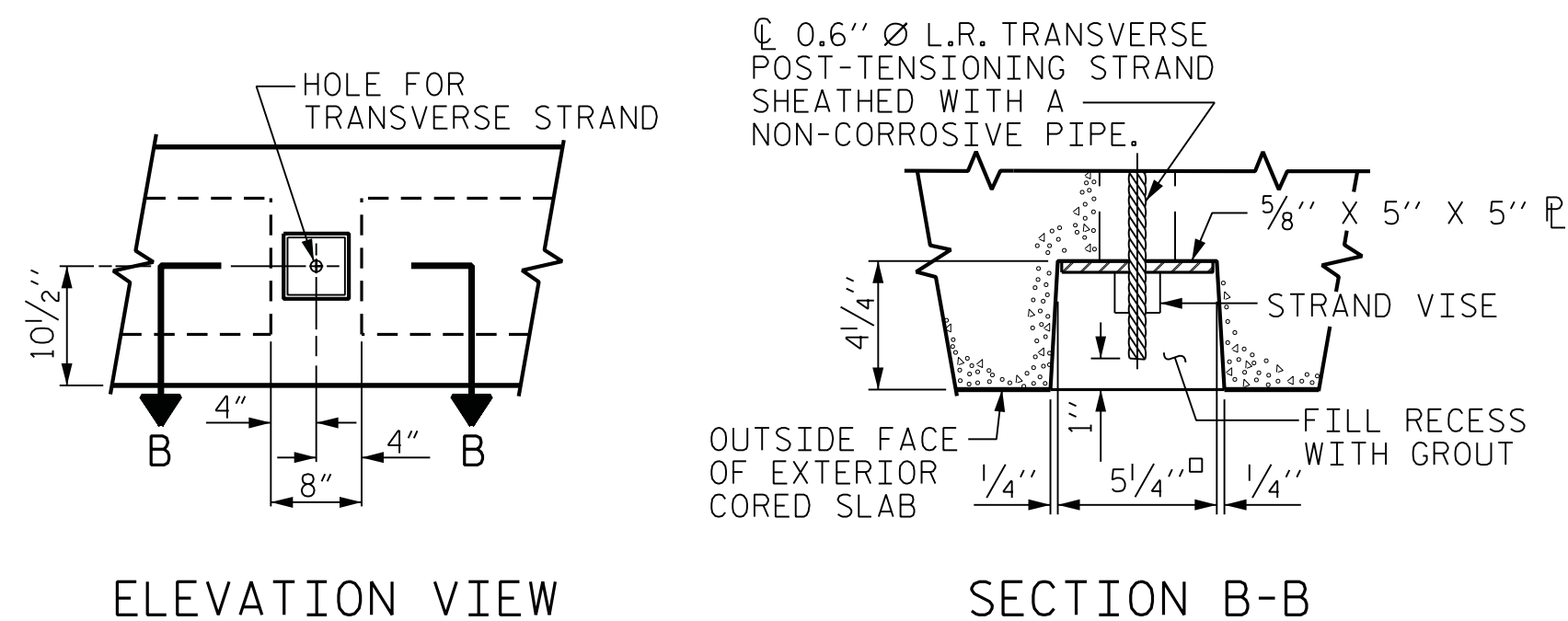
*-THE MAXIMUM PARAPET HEIGHT AND CONCRETE WEARING SURFACE THICKNESS IS SHOWN. THE HEIGHT OF THE PARAPET AND CONCRETE WEARING SURFACE THICKNESS VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND CONCRETE WEARING SURFACE THICKNESS SEE THE CONCRETE PARAPET DETAIL.



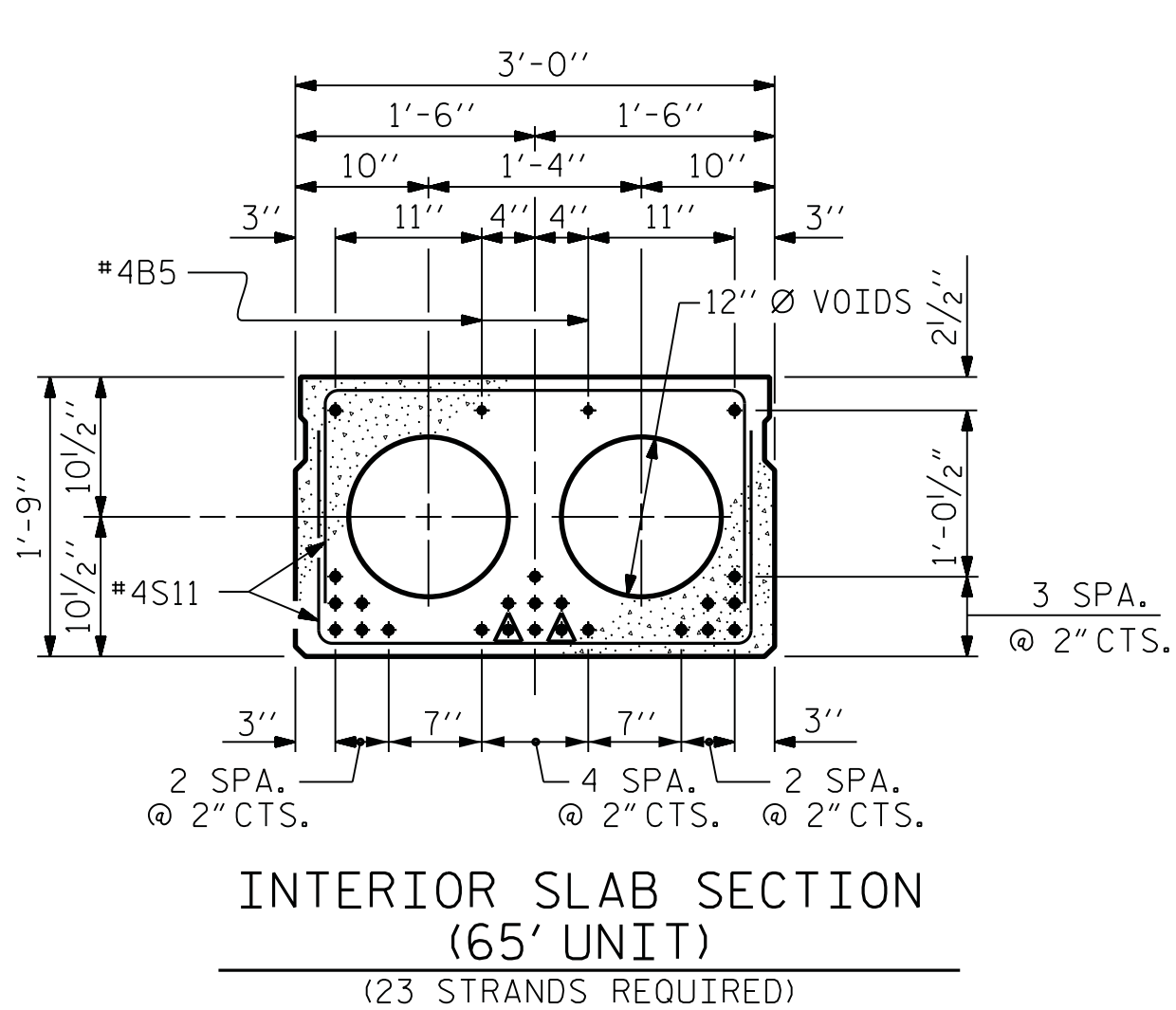
REINFORCING FOR
CONCRETE WEARING SURFACE
(PART TYPICAL SECTION)

(SEE "REINFORCING FOR CONCRETE WEARING SURFACE" SHEET)

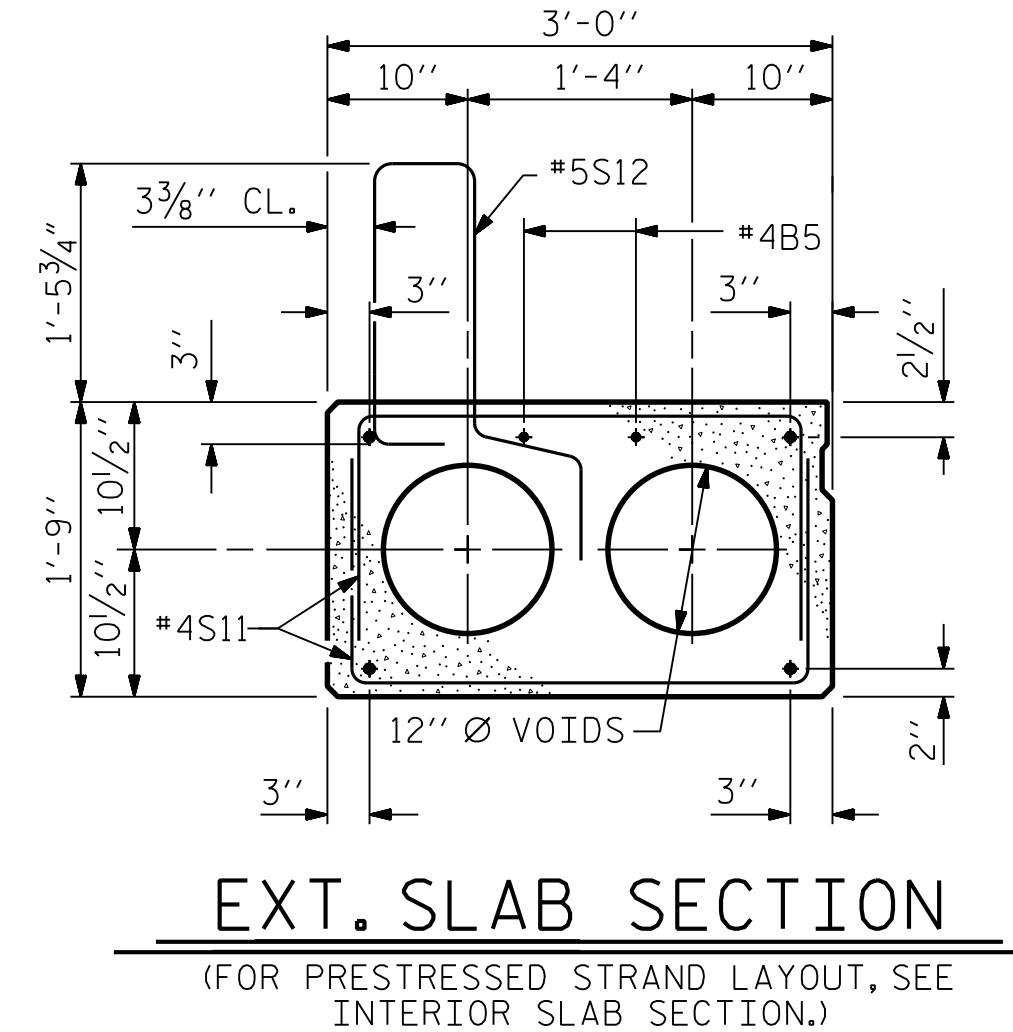
PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE PARAPET. THE COST OF THE REINFORCING STEEL CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.



GROUTED RECESS AT END OF
POST-TENSIONED STRAND OF CORED SLABS

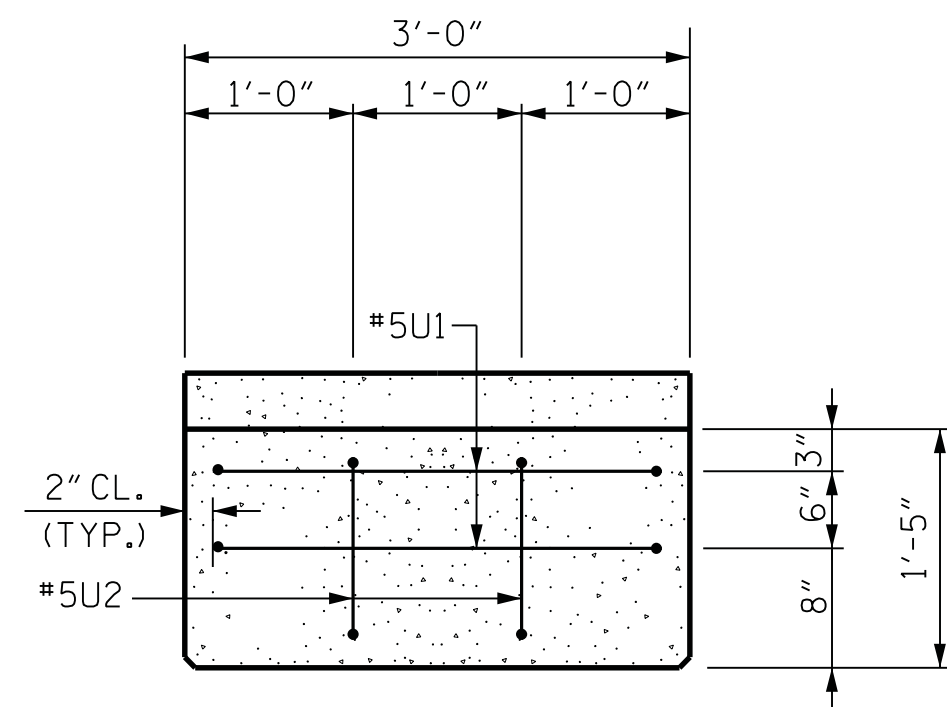


0.6" Ø LOW
RELAXATION STRAND LAYOUT

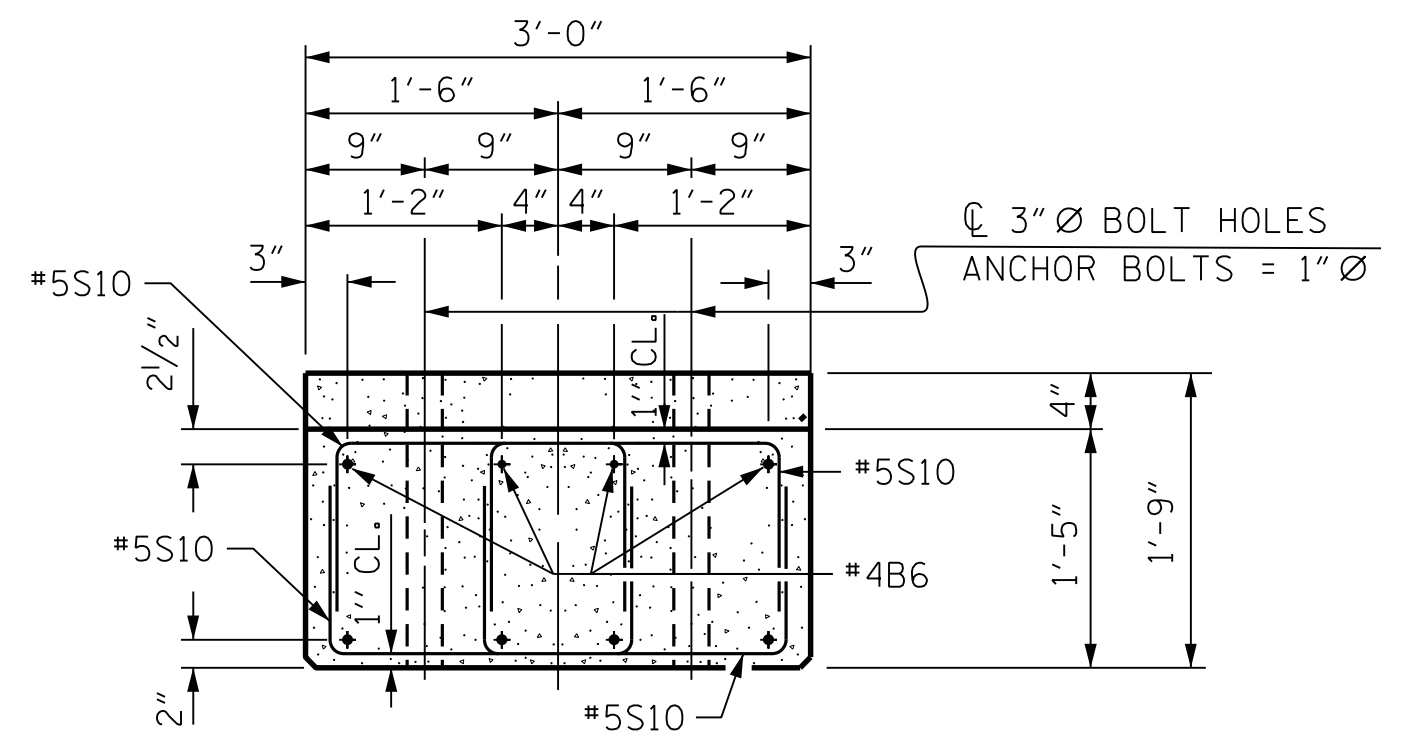


△ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

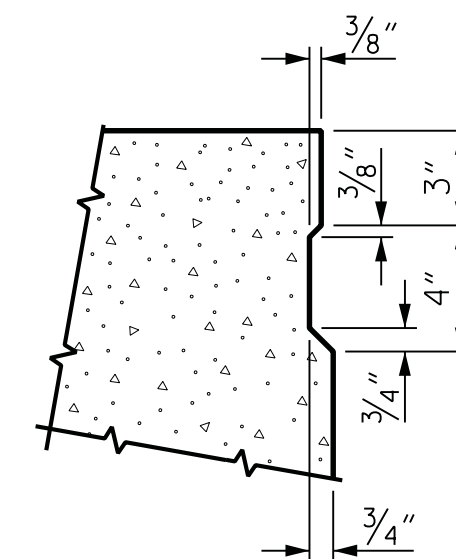


END VIEW



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF BOLT HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 1 OF 3

DRAWN BY : F.D. WEEDEN DATE : JAN. 2014
CHECKED BY : R.V. KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W. GENTRY DATE : JAN. 2014

M:\projects\2012\12094_NCD01_Division_0n-Coll\B01_Alleghany_265\Design\Structures\06N\17bp_str_typ.dgn

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 8
NORTH CAROLINA
PROFESSIONAL
ENGINEER
RICKY V. KEITH
3/11/2014

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-8
2			4			
TOTAL SHEETS						30

NOTES

CONTRACTOR MAY SUBMIT ALTERNATE METHOD OF ISOLATING TIE DOWN SYSTEM FOR CORED SLABS FOR APPROVAL BY THE ENGINEER.

NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

ALL POLYSTYRENE SHALL BE DOW STYROFOAM 60 HIGH-LOAD. UC INDUSTRIES FOAMULAR 600 OR APPROVED EQUAL.

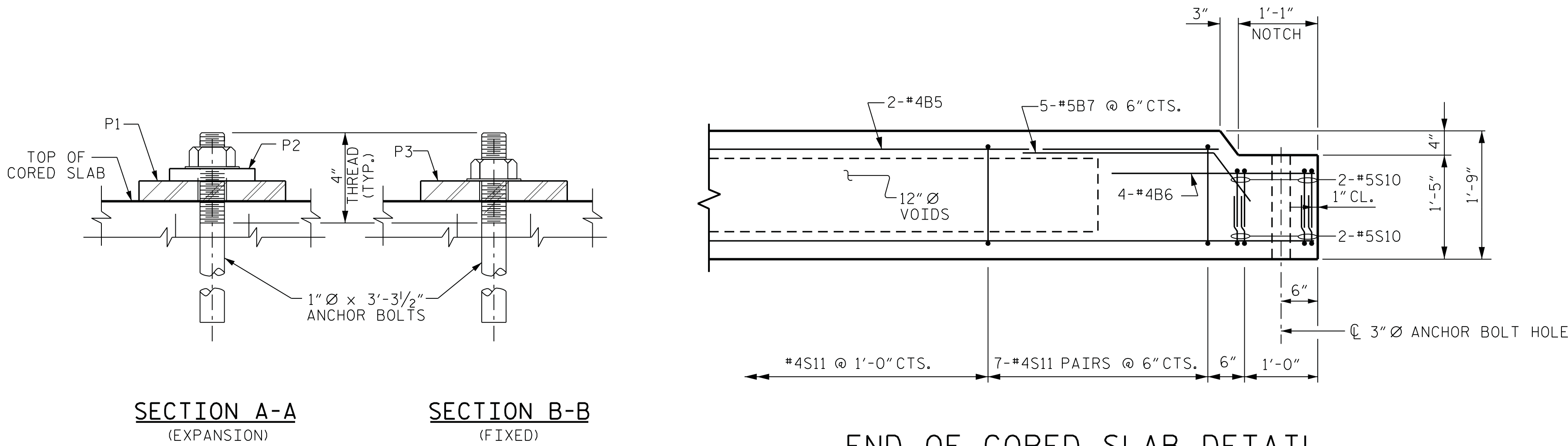
ADHESIVE, AS APPROVED BY THE ENGINEER, SHALL BE APPLIED IN A CONTINUOUS BEAD AND IN SUFFICIENT AMOUNT TO PREVENT THE POLYSTYRENE FROM MOVING WHILE POURING THE CONCRETE WEARING SURFACE.

A LUBRICANT SHALL BE APPLIED BETWEEN PLATES P1 AND P2 AS DIRECTED BY THE ENGINEER. CARE SHALL BE TAKEN TO PREVENT LUBRICANT FROM CONTACT WITH THE TOP SURFACE OF THE CORED SLABS.

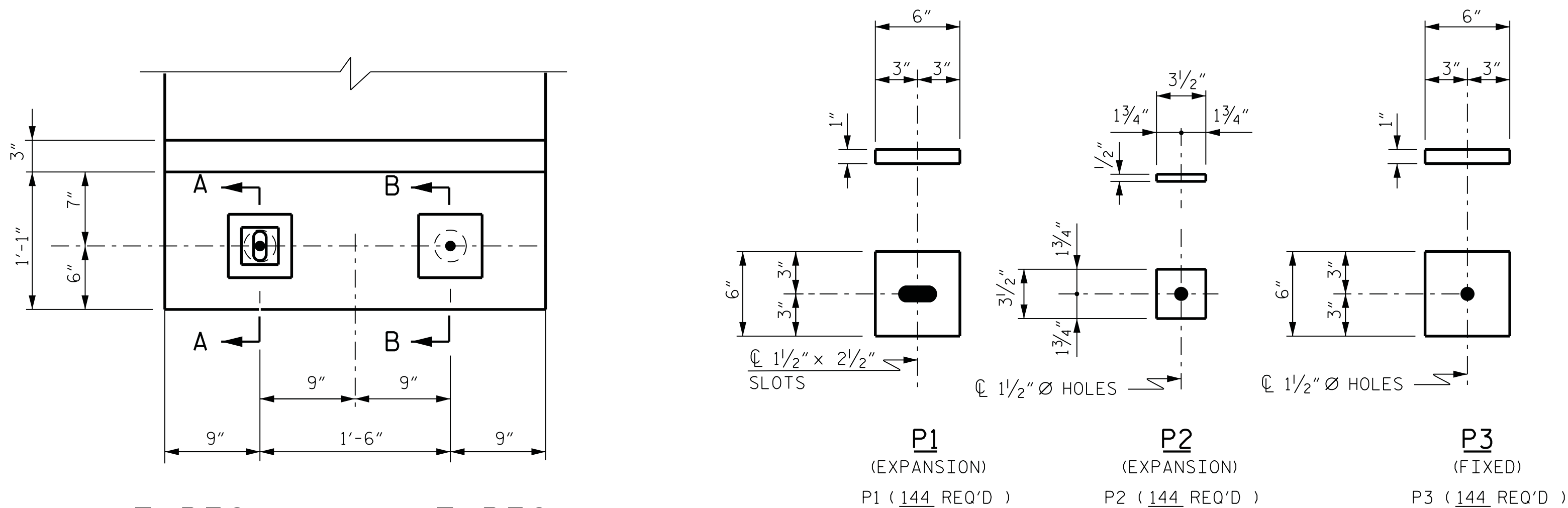
SLIDING PLATES P1 AND P2 SHALL BE SMOOTH AND STRAIGHT.

ANCHOR BOLTS, NUTS, WASHERS, AND PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH STANDARD SPECIFICATIONS.

A 1 1/2" DEEP CONTRACTION JOINT AT EACH END BENT AND AT EACH FIXED/FIXED BENT CONTROL LINE. SHALL BE SAWN WITHIN 24 HOURS OF POURING THE DECK. THE JOINT SHALL BE FILLED WITH JOINT SEALER MATERIAL. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE B LOW MODULUS SILICONE SEALANT. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.



END OF CORED SLAB DETAIL



TYPICAL HALF PLAN

(SHOWING EXPANSION ENDS)

TYPICAL HALF PLAN

(SHOWING FIXED ENDS)

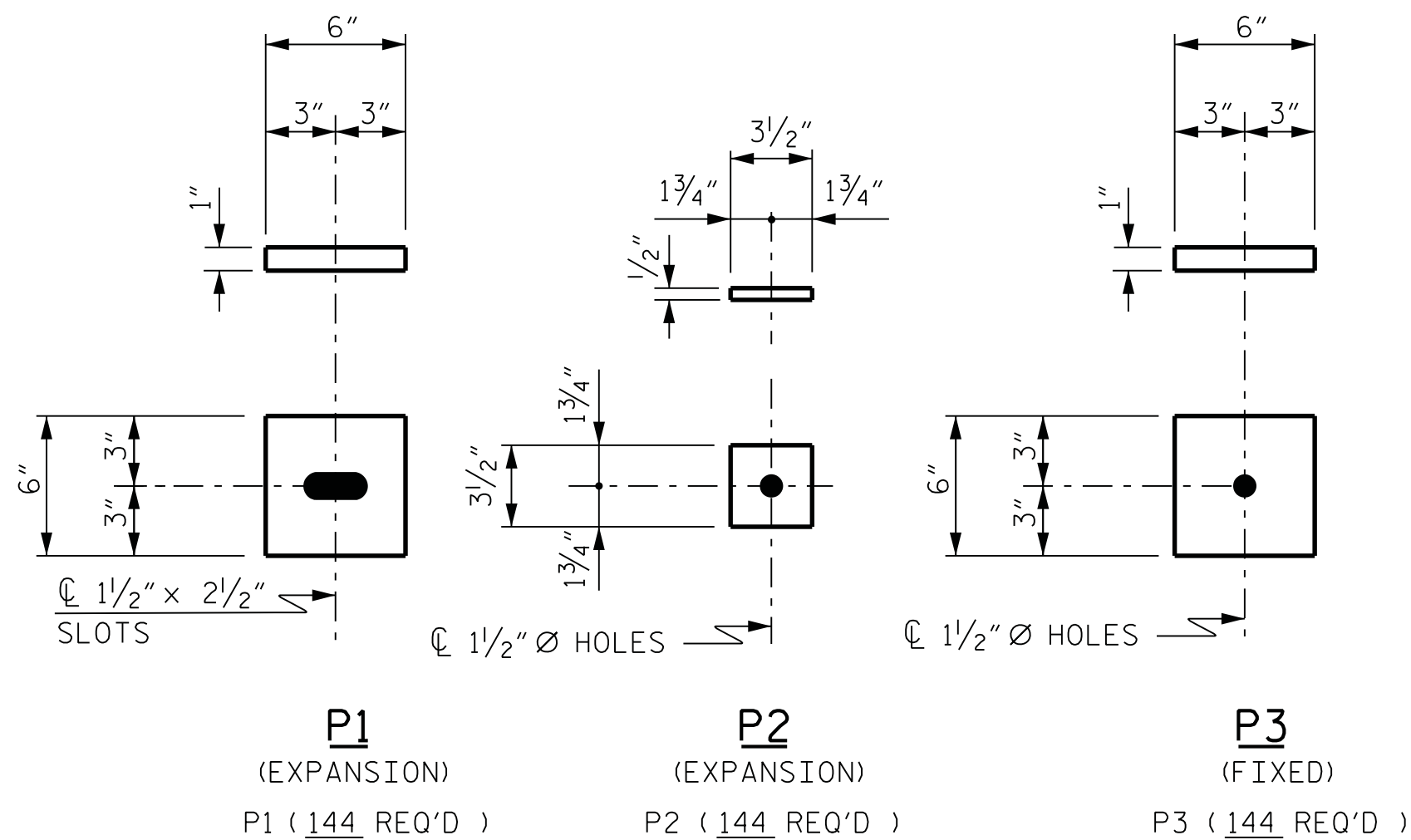
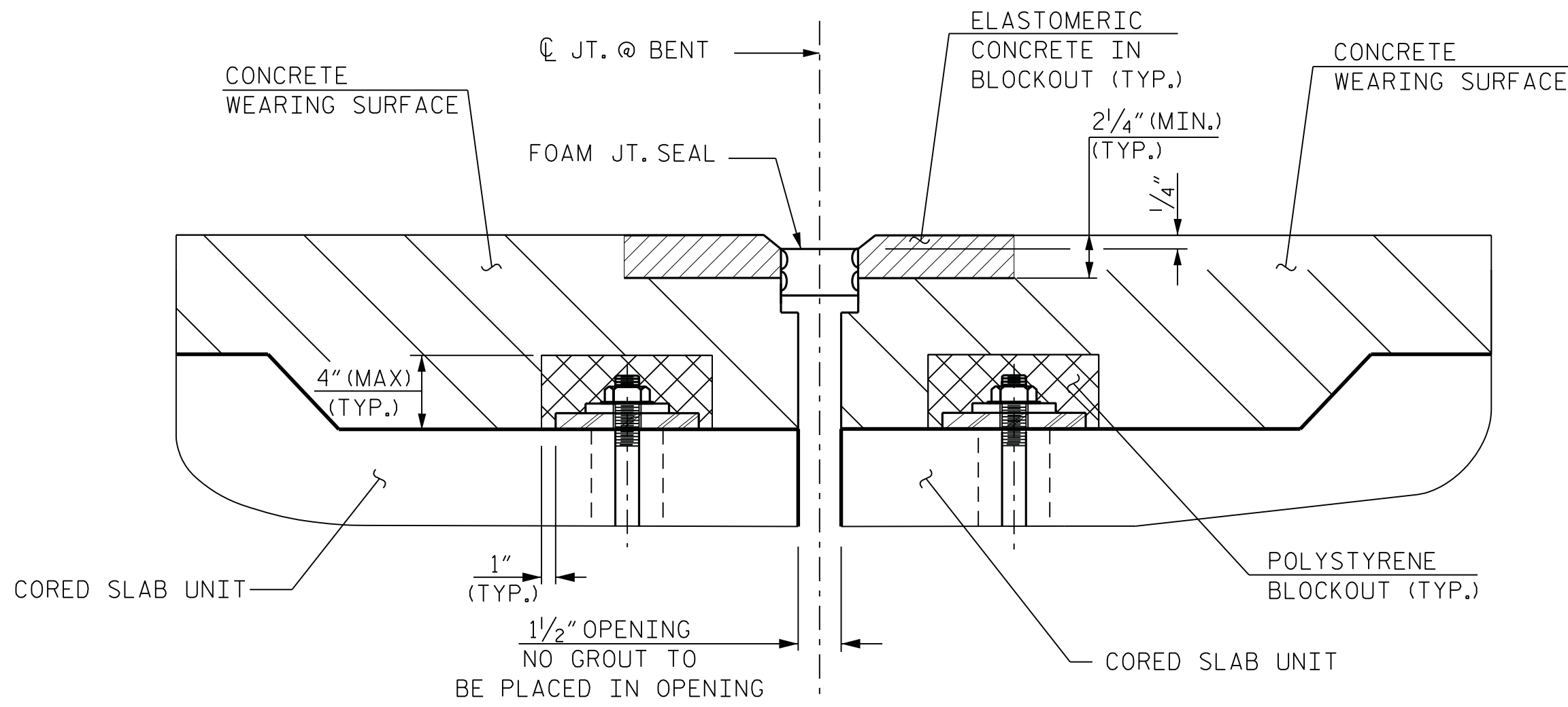
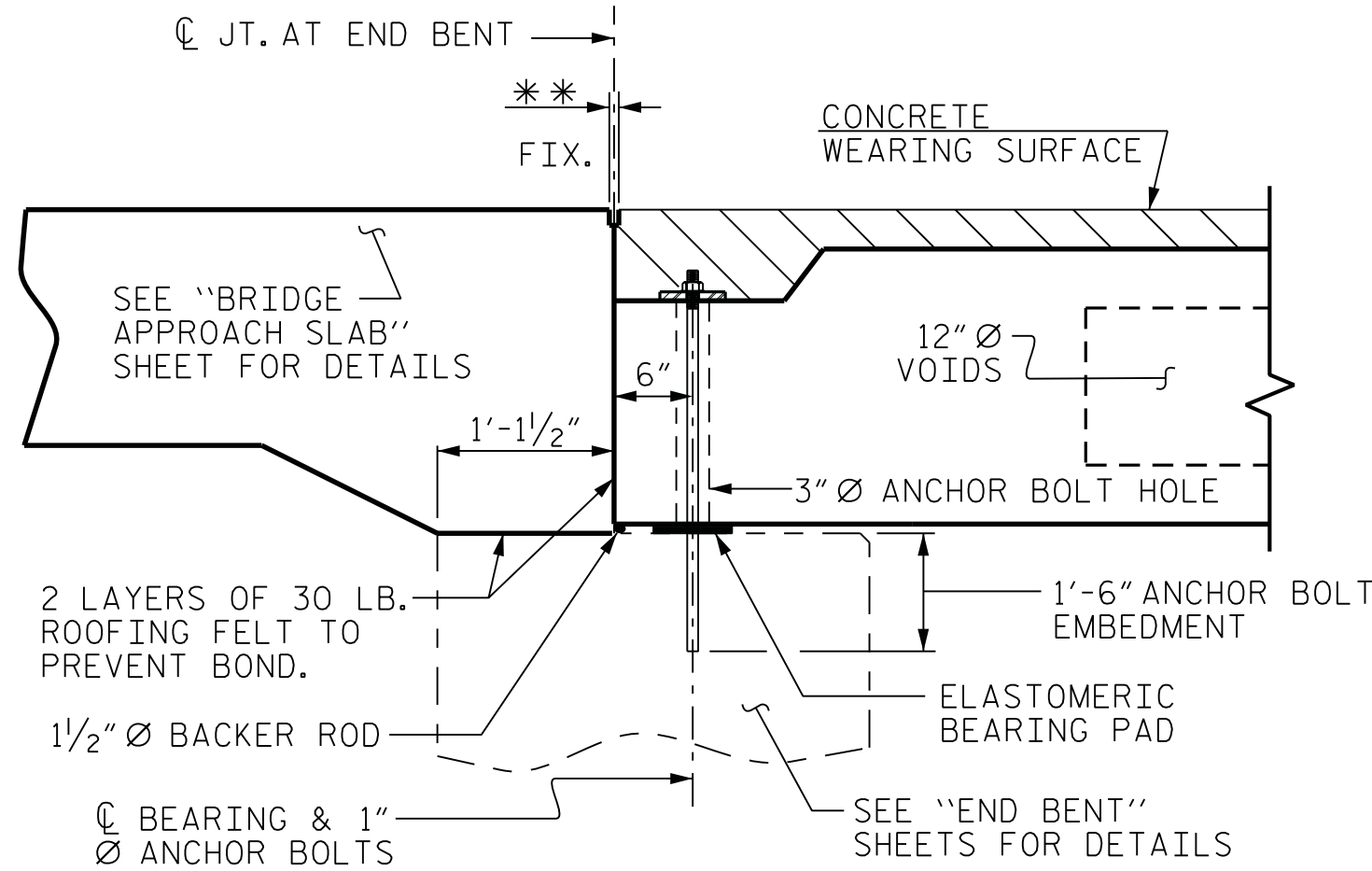


PLATE DETAILS



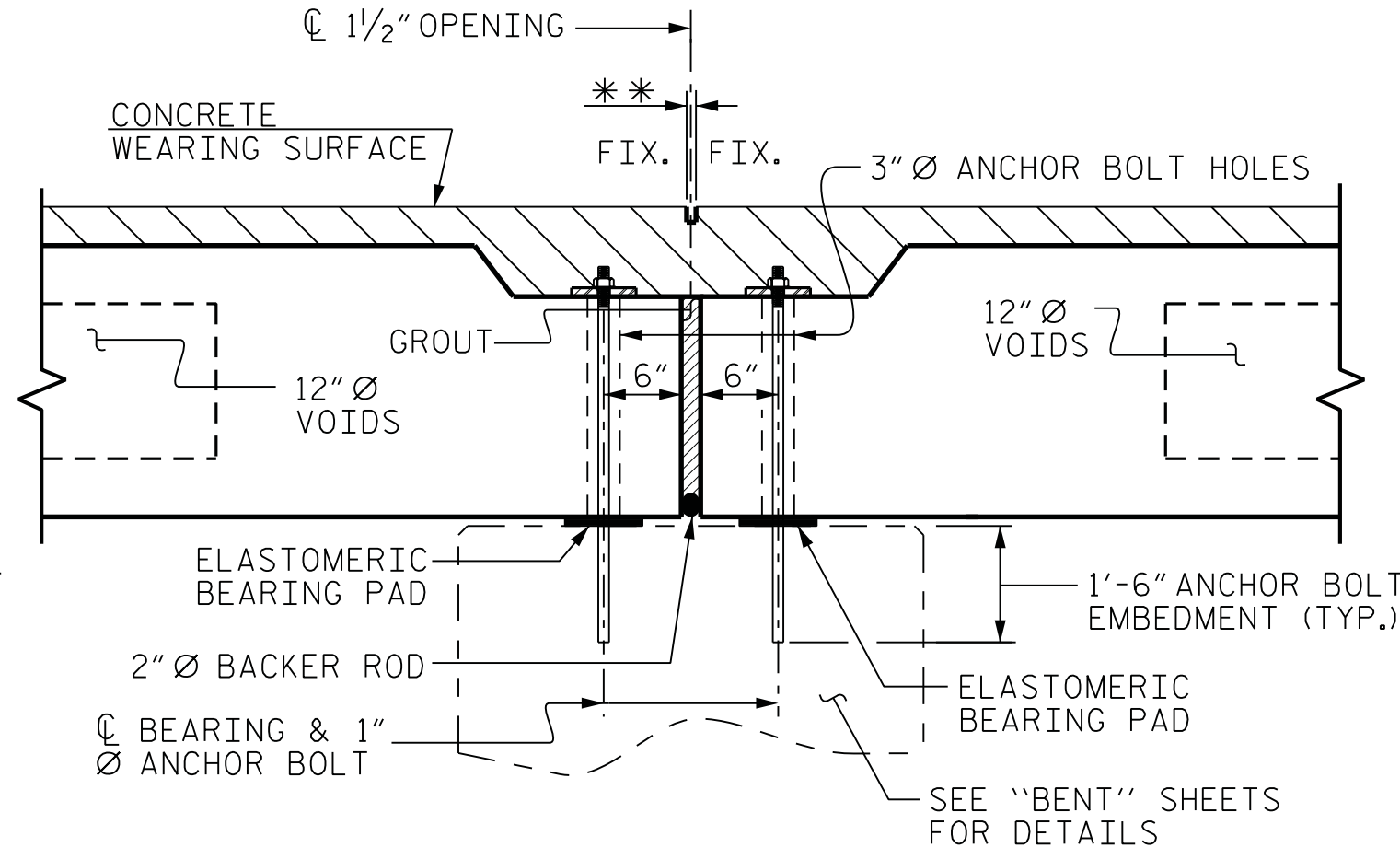
BLOCKOUT DETAIL FOR ANCHOR BOLTS

(EXPANSION END - EXPANSION END)



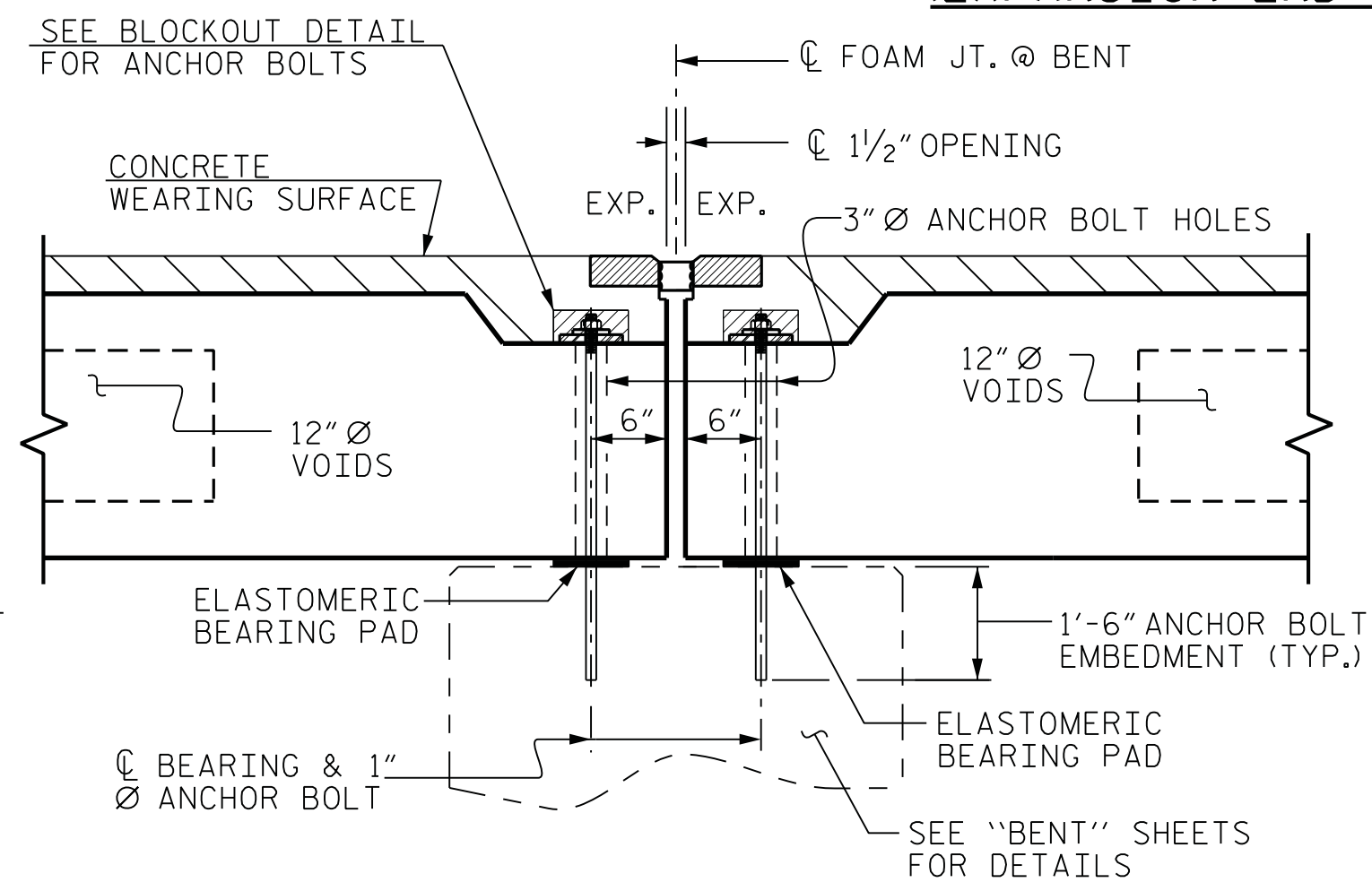
SECTION AT END BENT

END BENT 1 SHOWN, END BENT 2 SIMILAR



SECTION AT BENTS

BENTS 2, 4 AND 6



SECTION AT BENTS

BENTS 1, 3, 5 AND 7

PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-9
2			4			
TOTAL SHEETS						30

DRAWN BY : F.D.WEEDEN
CHECKED BY : R.V.KEITH
DESIGN ENGINEER OF RECORD : J.W.GENTRY

DATE : JAN. 2014
DATE : JAN. 2014
DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

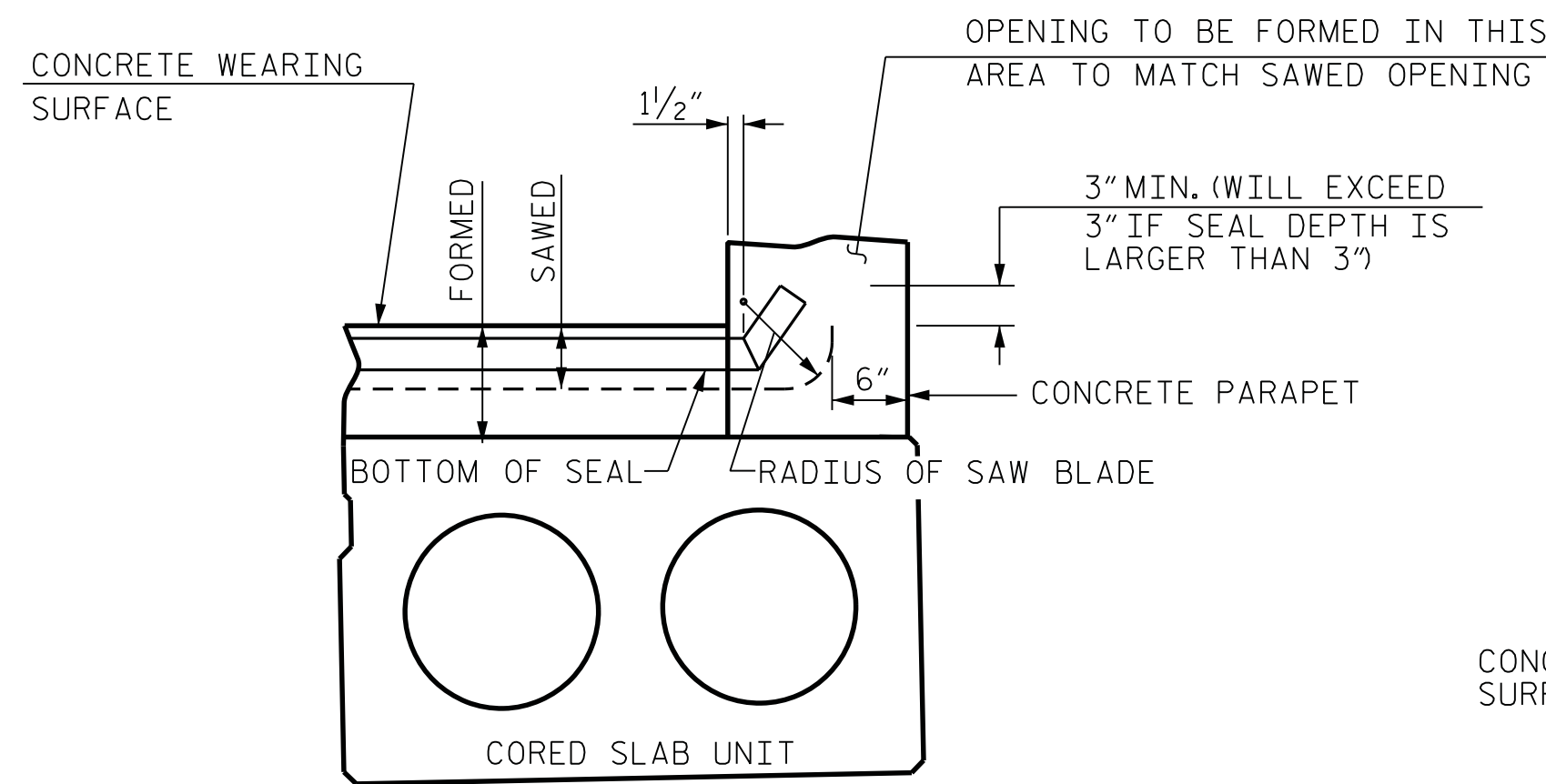
DWG. NO. 9
3/11/2014

NOTES

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2 1/2".

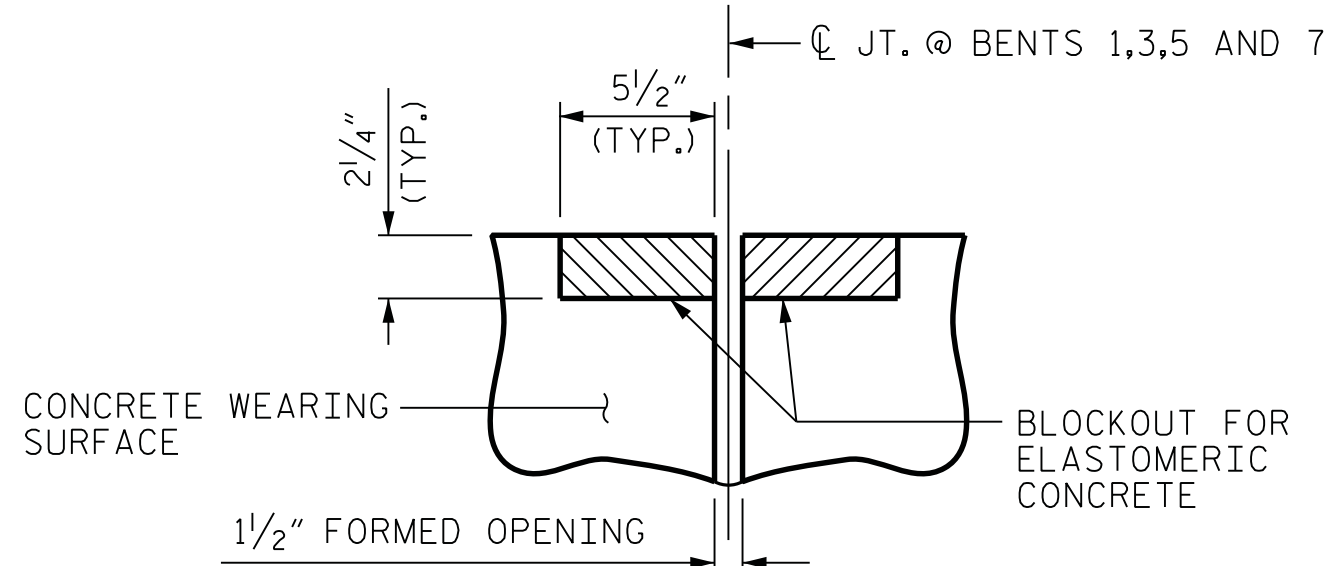
FOR FOAM JOINT SEAL, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.



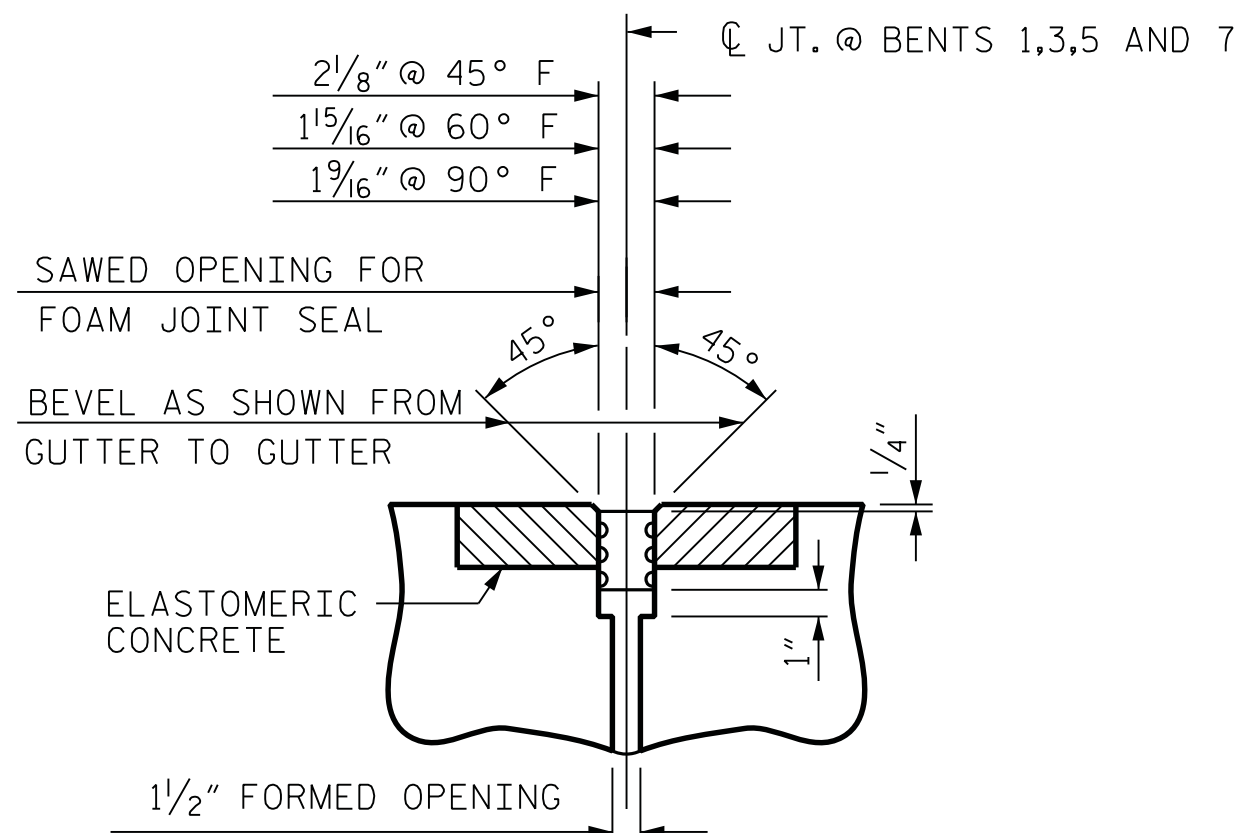
SECTION A-A

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP INTO PARAPET AS SHOWN.



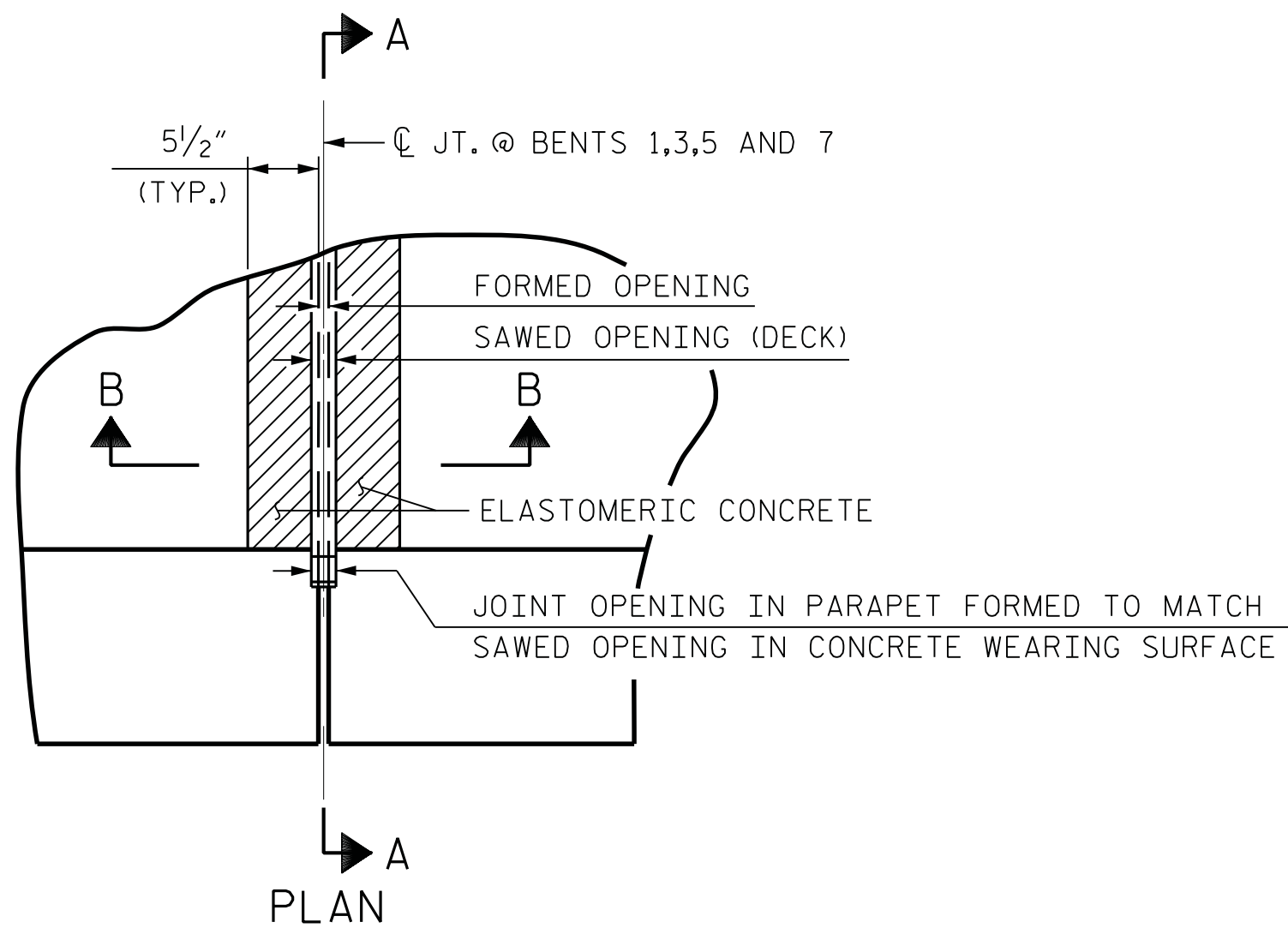
SECTION B-B

FOAM JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



SECTION B-B

FOAM JOINT SEAL
(EXPANSION)



PLAN

FOAM JOINT SEAL DETAILS

ELASTOMERIC CONCRETE	
BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	4.3
3	4.3
5	4.3
7	4.3
TOTAL	17.2

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

PROJECT NO. 17BP.11.R.57

ALLEGHANY COUNTY

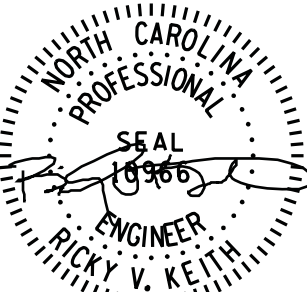
STATION: STA. 18+76.70 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL DETAILS
FOR FOAM JOINT SEAL
AT BENTS 1, 3, 5, AND 7

DWG. NO. 10

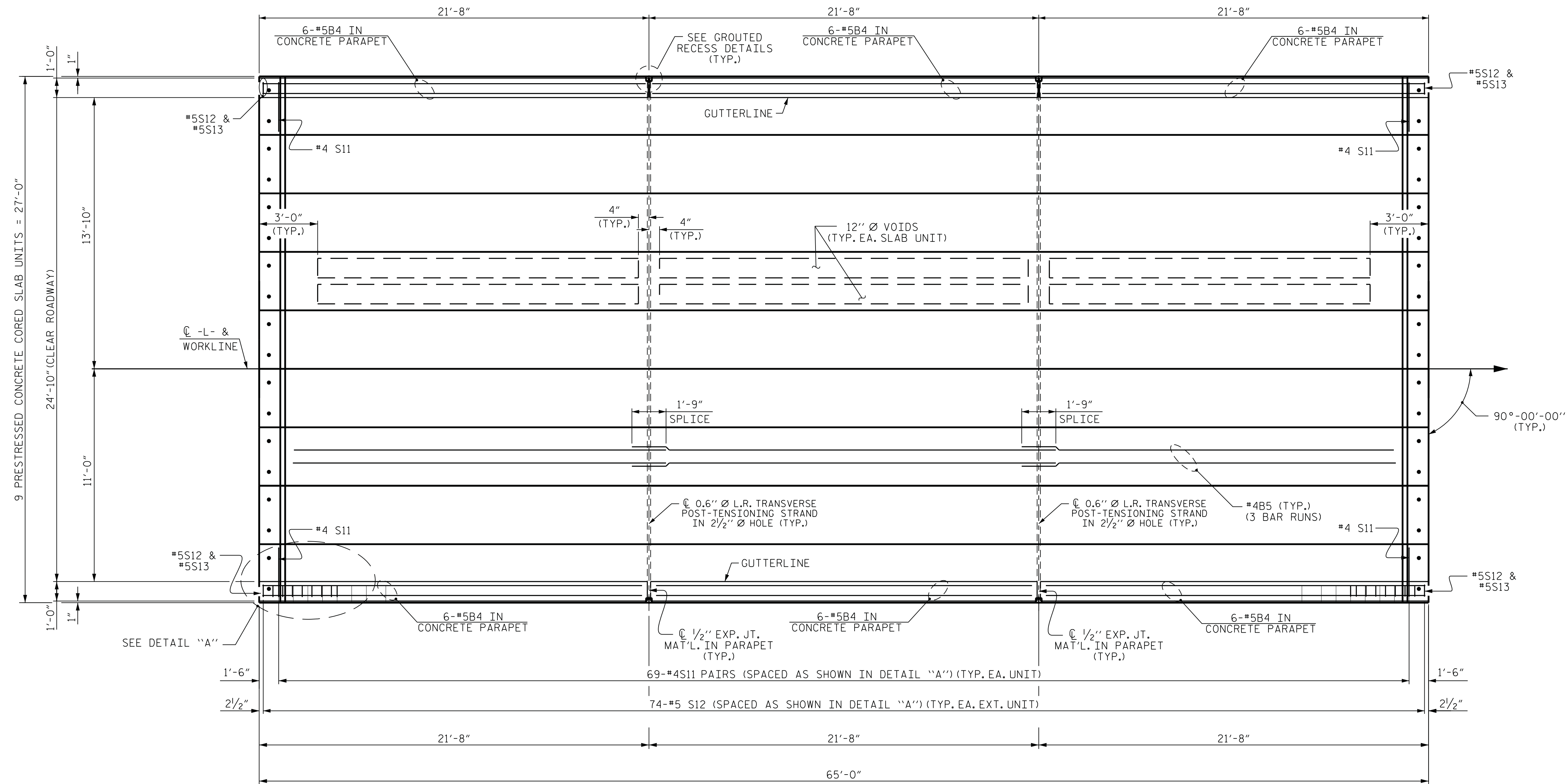


REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

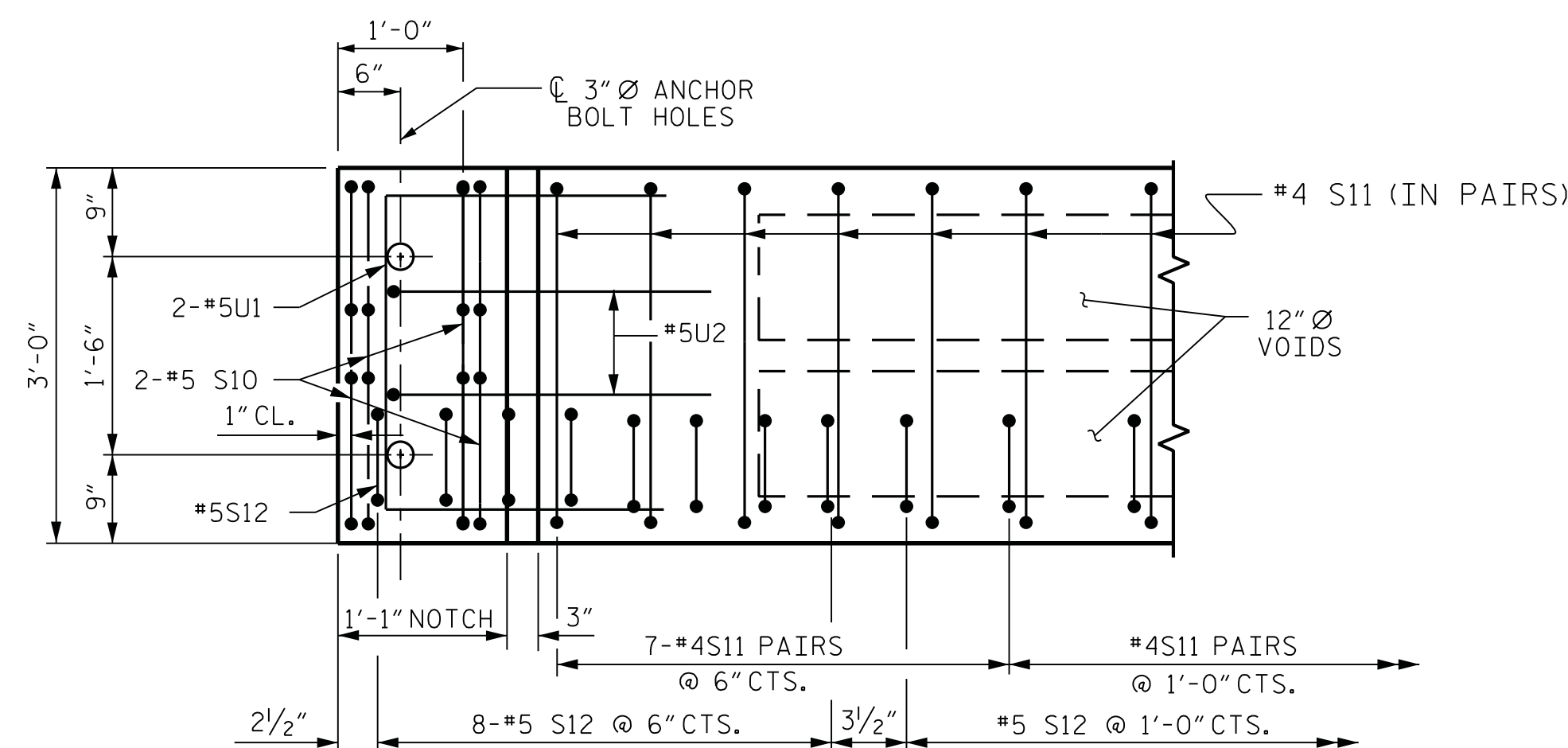
SHEET NO.
S-10
TOTAL
SHEETS
30

DRAWN BY : F.D.WEEDEN DATE : JAN. 2014
CHECKED BY : R.V.KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W.GENTRY DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112



PLAN OF UNIT



DETAIL "A"

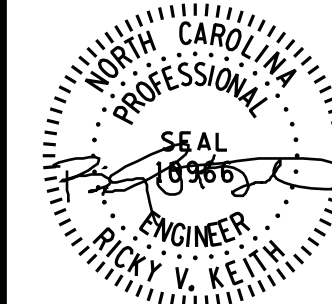
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.

PROJECT NO. 17BP.11.R.57
 ALLEGHANY COUNTY
 STATION: STA. 18+76.70 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF 65' UNIT
 24'-10" CLEAR ROADWAY
 90° SKEW

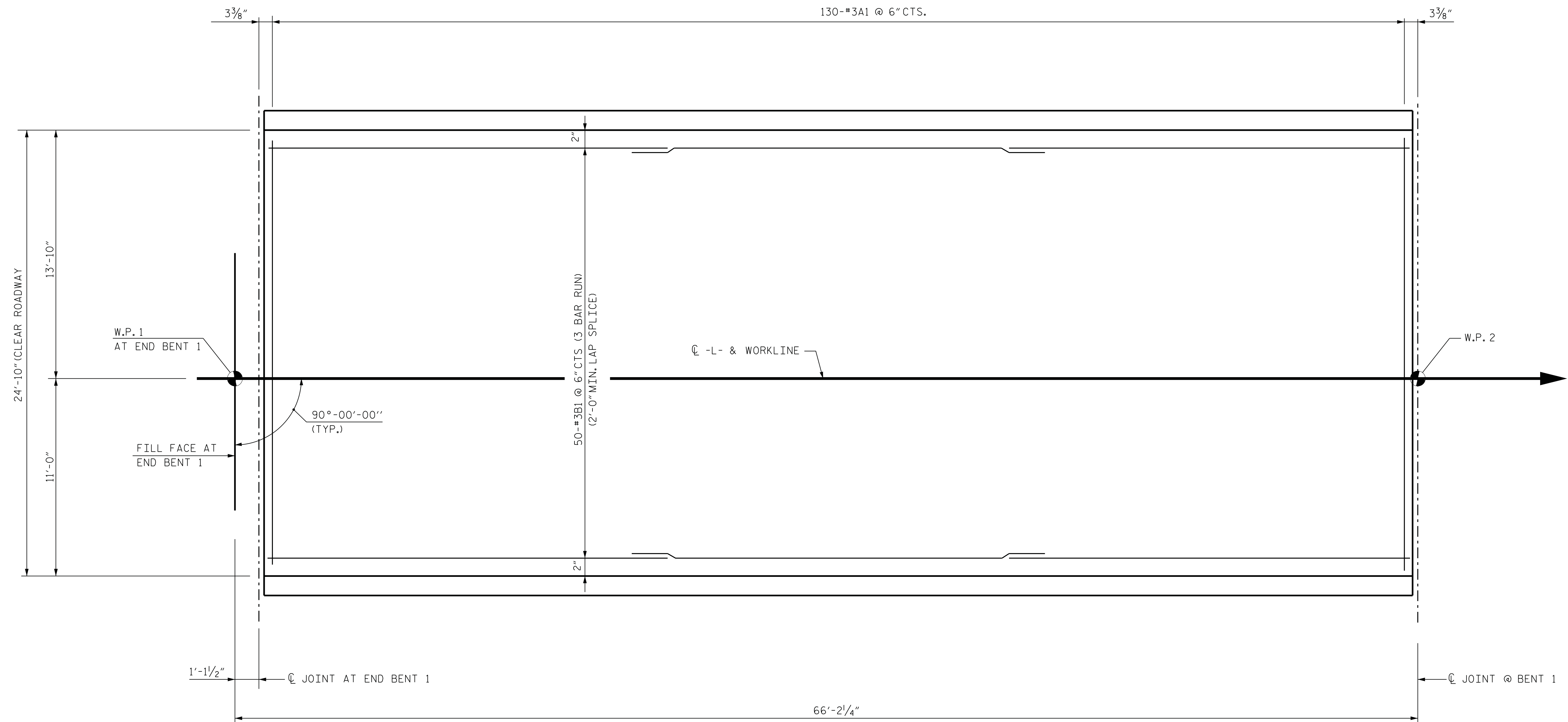
DWG. NO. 11



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-11
2			4			
						TOTAL SHEETS
						30

DRAWN BY : F.D. WEEDEN DATE : JAN. 2014
 CHECKED BY : R.V. KEITH DATE : JAN. 2014
 DESIGN ENGINEER OF RECORD : J.W. GENTRY DATE : JAN. 2014

RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEFIELD DRIVE SUITE 350
 RALEIGH, NORTH CAROLINA 27609-3960
 NC LICENSE NUMBER: F-0112



PLAN OF REINFORCING CONCRETE WEARING SURFACE

NOTE: PLACEMENT OF THE CONCRETE OVERLAY SHALL OCCUR AFTER CASTING THE CONCRETE PARAPET. THE COST OF THE REINFORCING STEEL CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

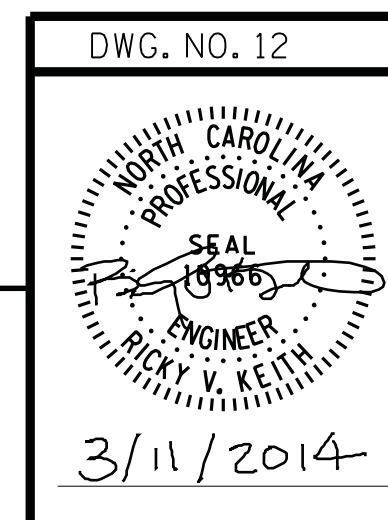
PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

REINFORCING FOR
CONCRETE WEARING
SURFACE
SPAN A

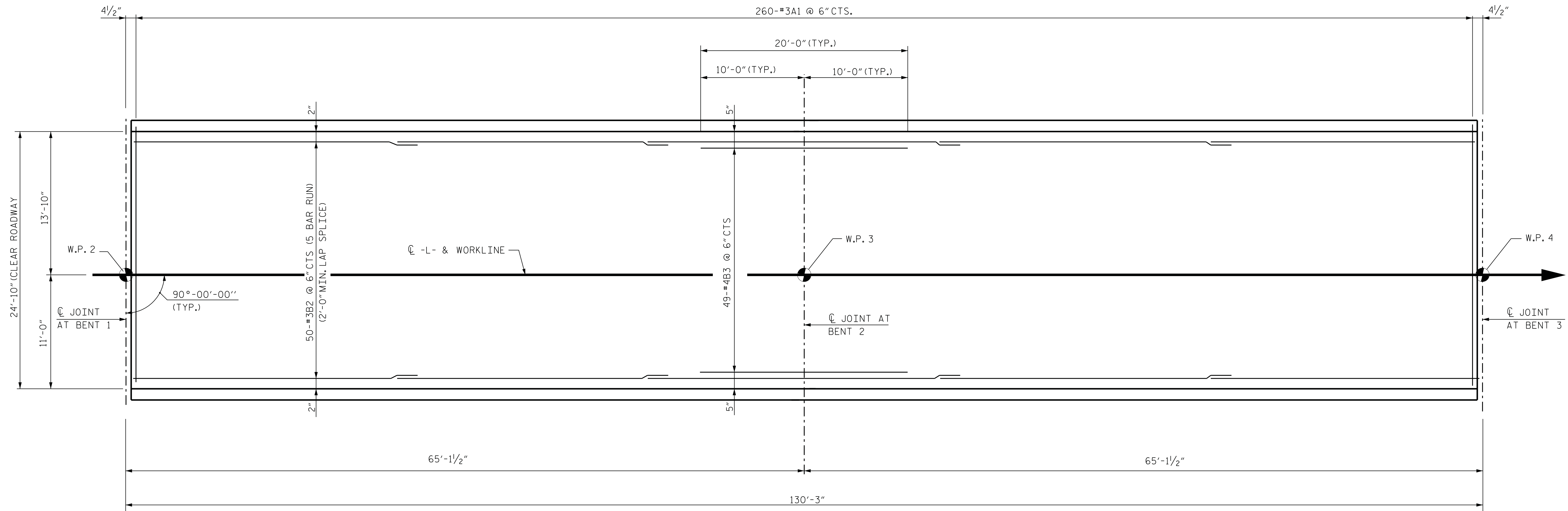
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS 30
2			4			



RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DRAWN BY : F.D. WEEDEN DATE : JAN. 2014
CHECKED BY : R.V. KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W. GENTRY DATE : JAN. 2014

M:\projects\2012\12094_NCD01_Division_0n-Cali\B01_Alleghany_265\Design\Structures\06N\17bp_str_pos.dgn



PLAN OF REINFORCING CONCRETE WEARING SURFACE
(SPANS B&C SHOWN, SPANS D&E AND SPANS F&G SIMILAR)

NOTE: PLACEMENT OF THE CONCRETE OVERLAY SHALL OCCUR AFTER CASTING THE CONCRETE PARAPET. THE COST OF THE REINFORCING STEEL CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

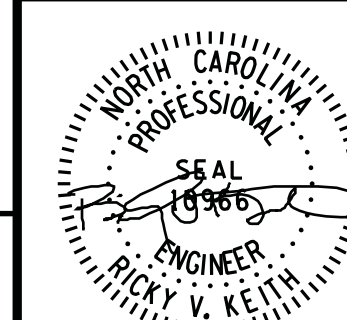
PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

REINFORCING FOR
CONCRETE WEARING
SURFACE
SPANS B&C, D&E, F&G

DWG. NO. 13

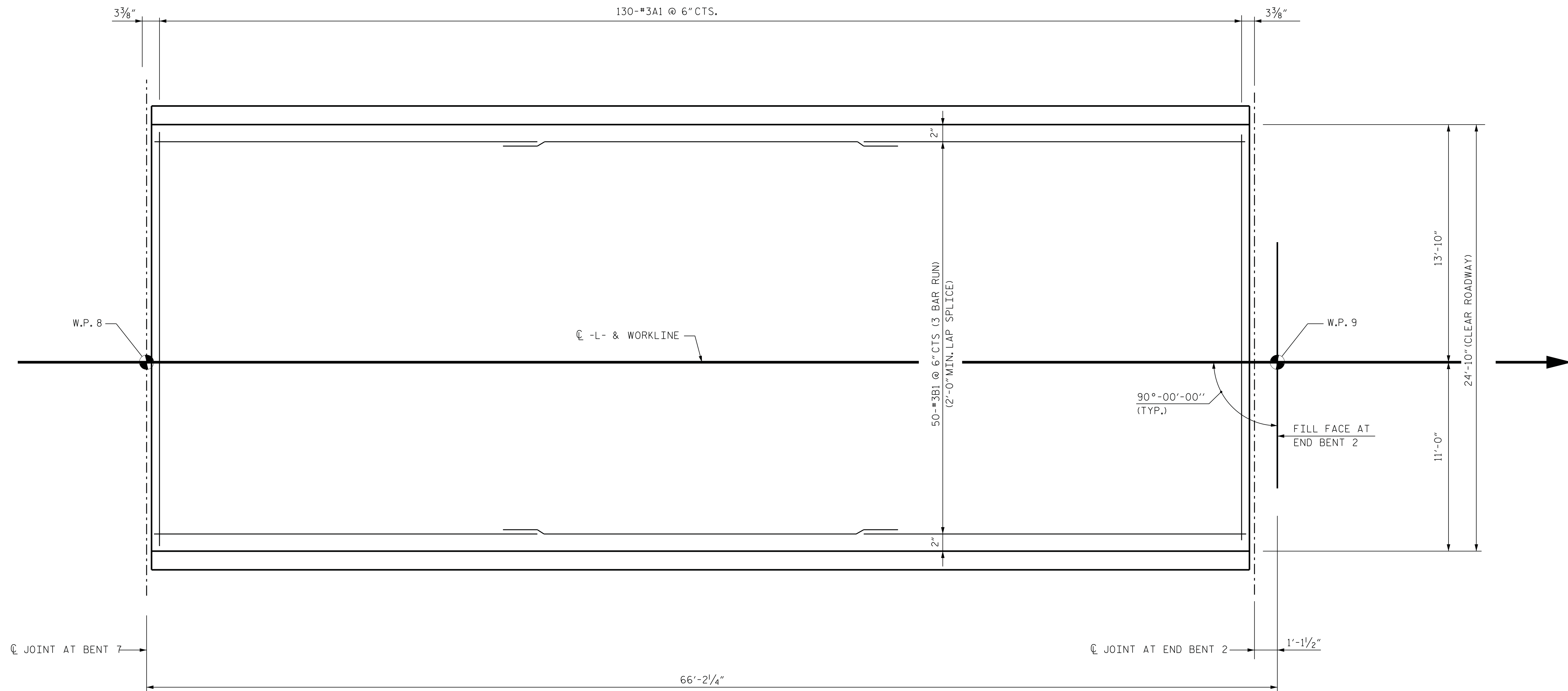


3/11/2014

DRAWN BY : F.D. WEEDEN DATE : JAN. 2014
CHECKED BY : R.V. KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W. GENTRY DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-13
2			4			
TOTAL SHEETS						30



PLAN OF REINFORCING CONCRETE WEARING SURFACE

NOTE: PLACEMENT OF THE CONCRETE OVERLAY SHALL OCCUR AFTER CASTING THE CONCRETE PARAPET. THE COST OF THE REINFORCING STEEL CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 3 OF 3

DRAWN BY : F.D. WEEDEN DATE : JAN. 2014
CHECKED BY : R.V. KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W. GENTRY DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 14
SEAL
ENGINEER
RICKY V. KEITH
3/11/2014

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
REINFORCING FOR CONCRETE WEARING SURFACE SPAN H					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-14					TOTAL SHEETS 30

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B221 ALLOY 6061-T6.

MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIALS AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

CLOSURE PLATES: CLOSURE PLATES SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

MATERIAL FOR ANCHOR STUDS SHALL BE ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. STUDS TO BE EMBEDDED 7" IN CONCRETE. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK, CLASS 2B THREAD, AND MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. ANCHOR PLUG SHALL BE AASHTO M270 GRADE 36.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE ANCHOR ASSEMBLY. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS, NUTS AND WASHERS SHALL MEET THE SAME REQUIREMENTS AS THE ANCHOR STUDS, NUTS AND WASHERS FOR USE WITH THE ANCHOR ASSEMBLY.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

PAY LENGTH = 1,026.75 LIN. FT.

PROJECT NO. 17BP.11.R.57

ALLEGHANY COUNTY

STATION: STA. 18+76.70 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

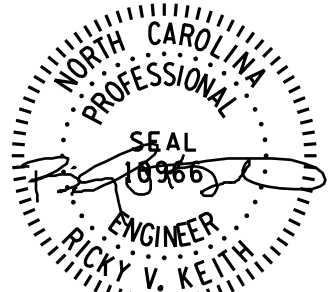
STANDARD

1 BAR METAL RAIL

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-15
2			4			TOTAL SHEETS 30

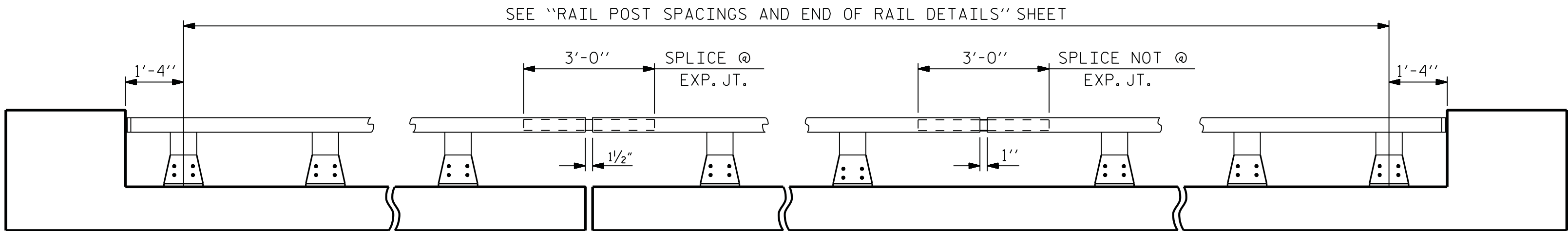
DWG. NO. 15



3/11/2014

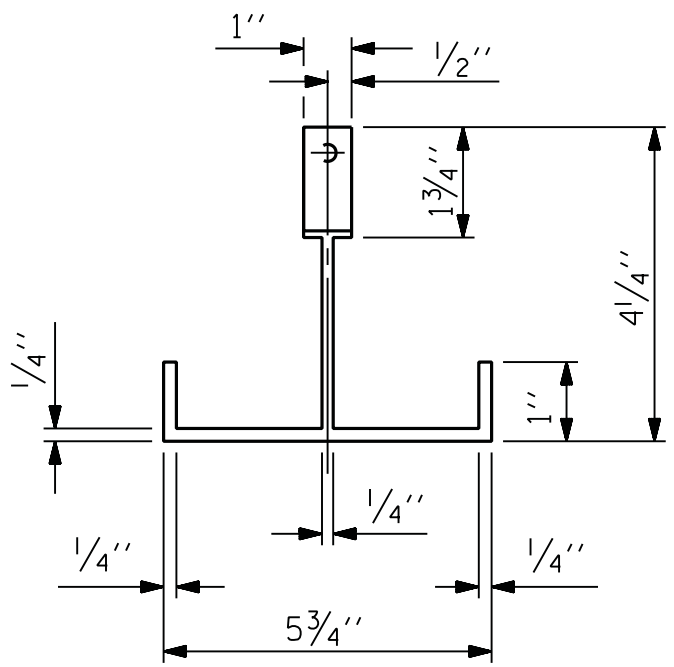
RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112



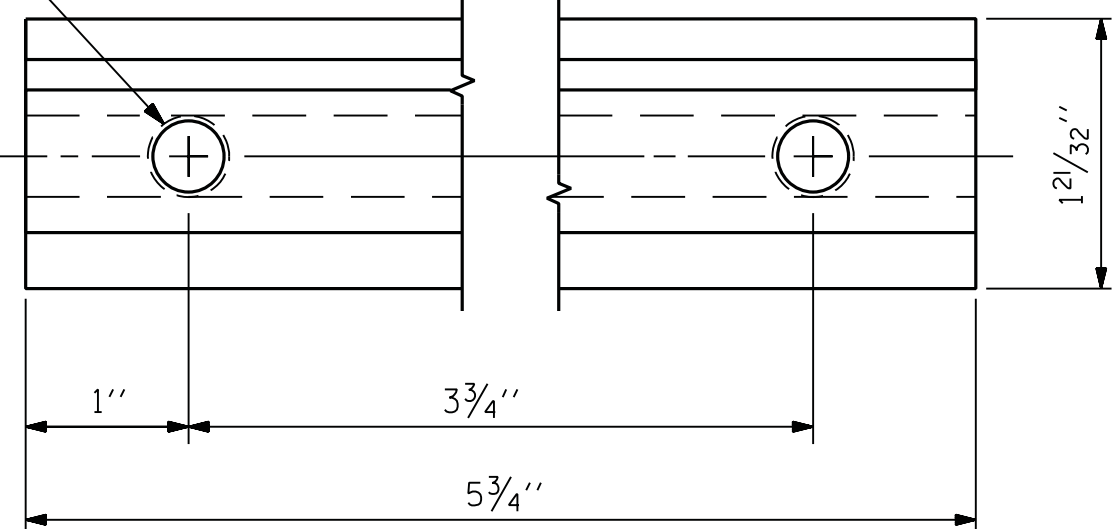
ELEVATION

NOTE:
FOR ATTACHMENT OF METAL RAIL TO END
POST, SEE SHEET 3 OF 4.



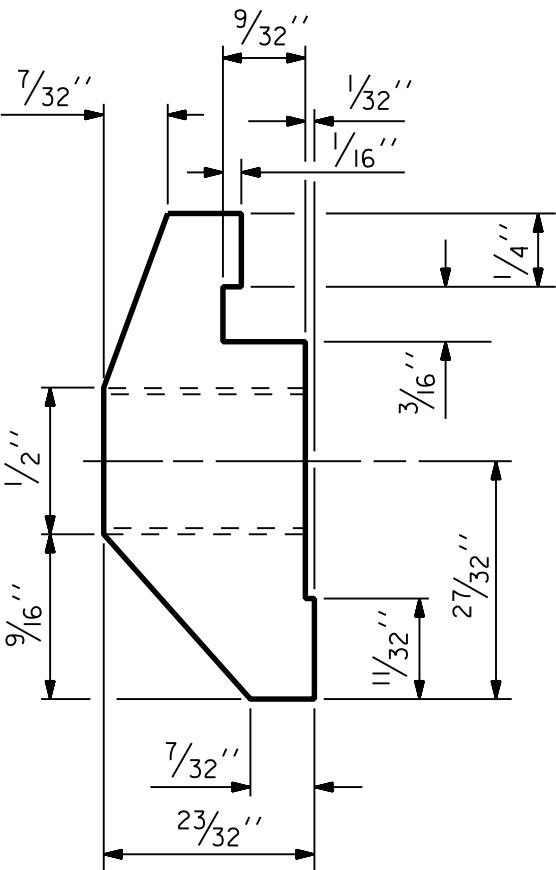
PLAN

1/2" Ø [13 THREAD] HOLE FOR
1/2" Ø X 1" STAINLESS STEEL
HEX HEAD CAP SCREW & 1/16" O.D., 1 7/32" I.D.,
1/16" THICK WASHER (TYP.)

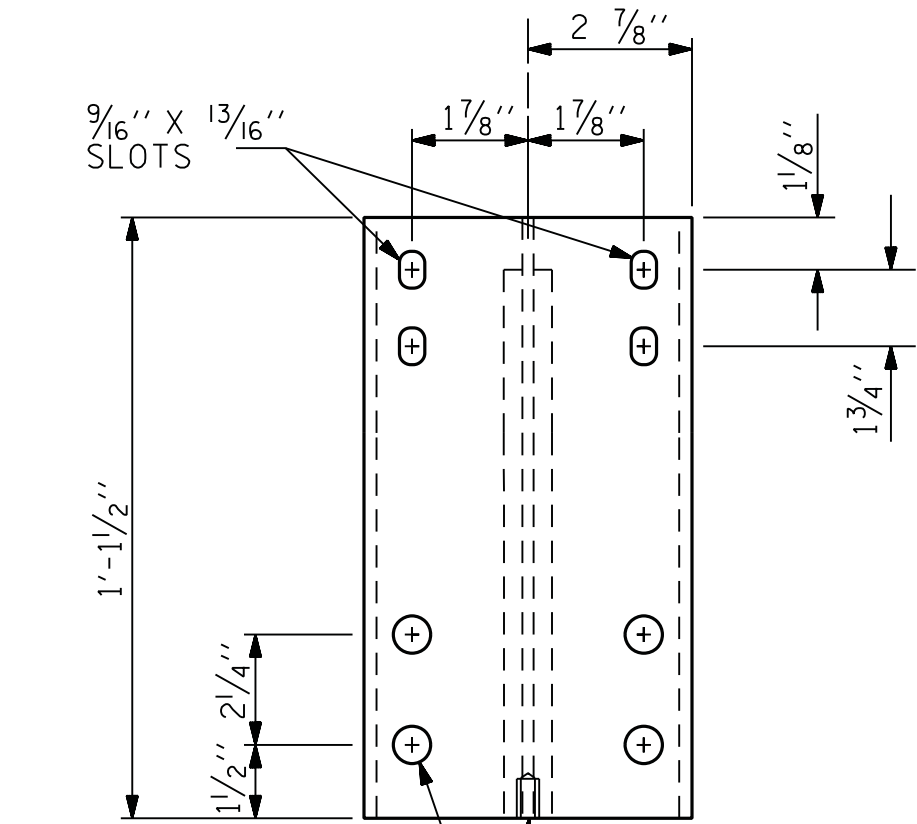
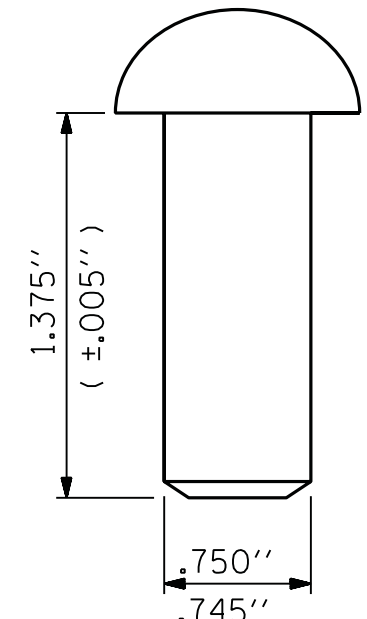


CLAMP BAR DETAIL

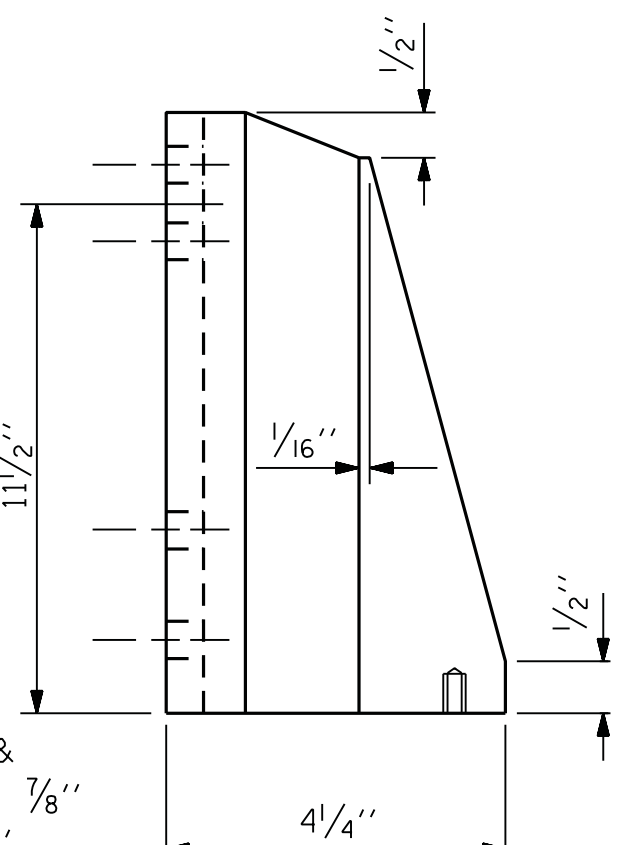
(2 REQUIRED PER POST)



RIVET DETAIL

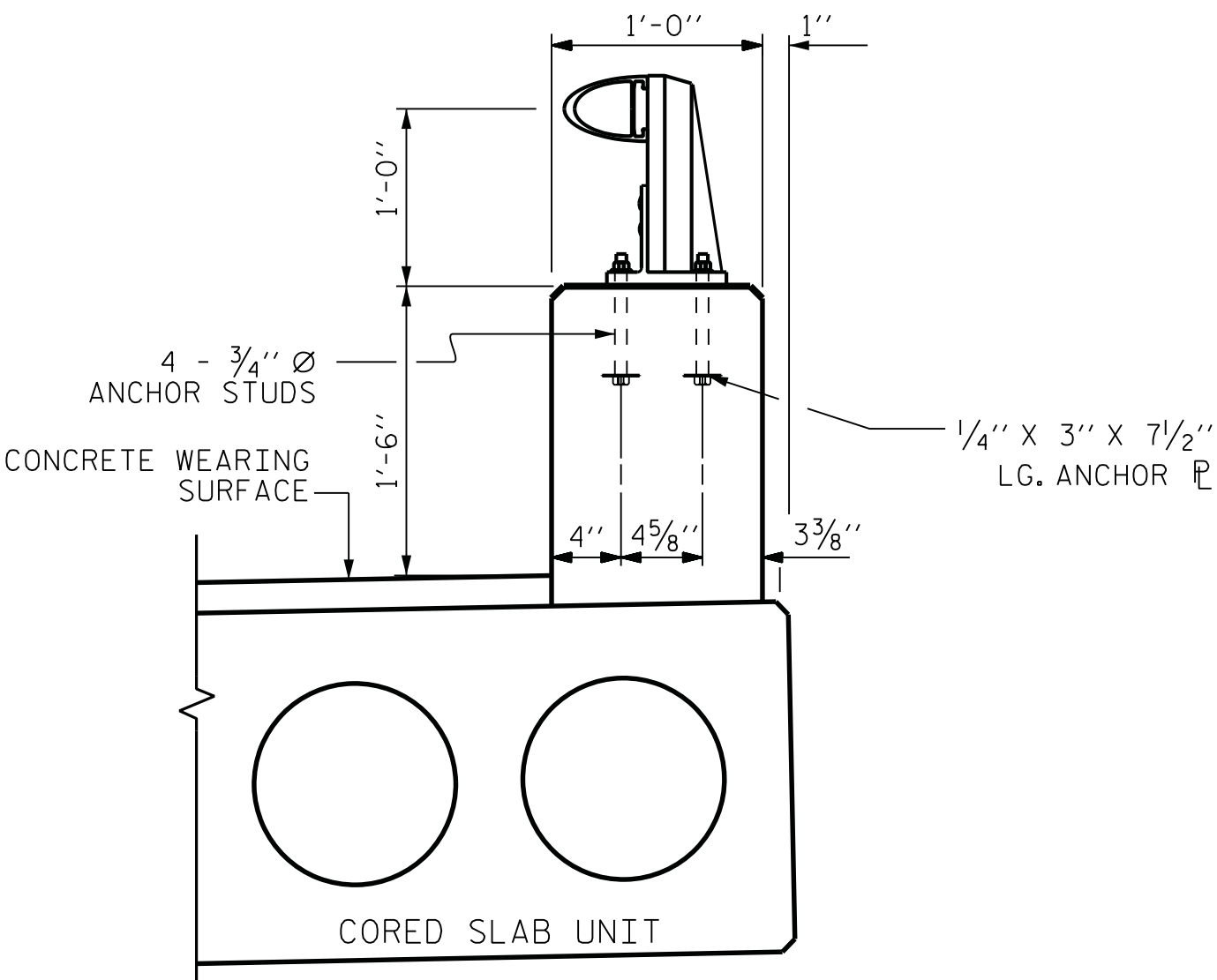


FRONT ELEVATION



SIDE ELEVATION

DETAILS OF POST



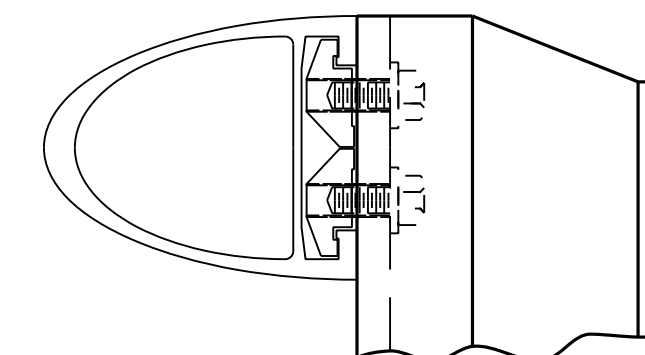
SECTION THRU
PARAPET AND RAIL

DRAWN BY : F.D.WEEDEN DATE : JAN. 2014
CHECKED BY : R.V.KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W.GENTRY DATE : JAN. 2014

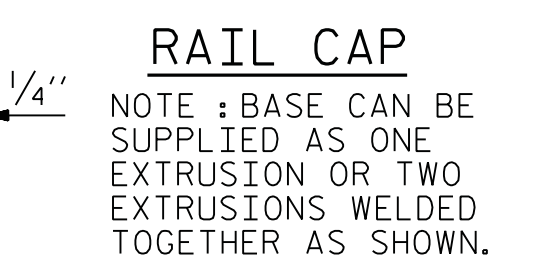
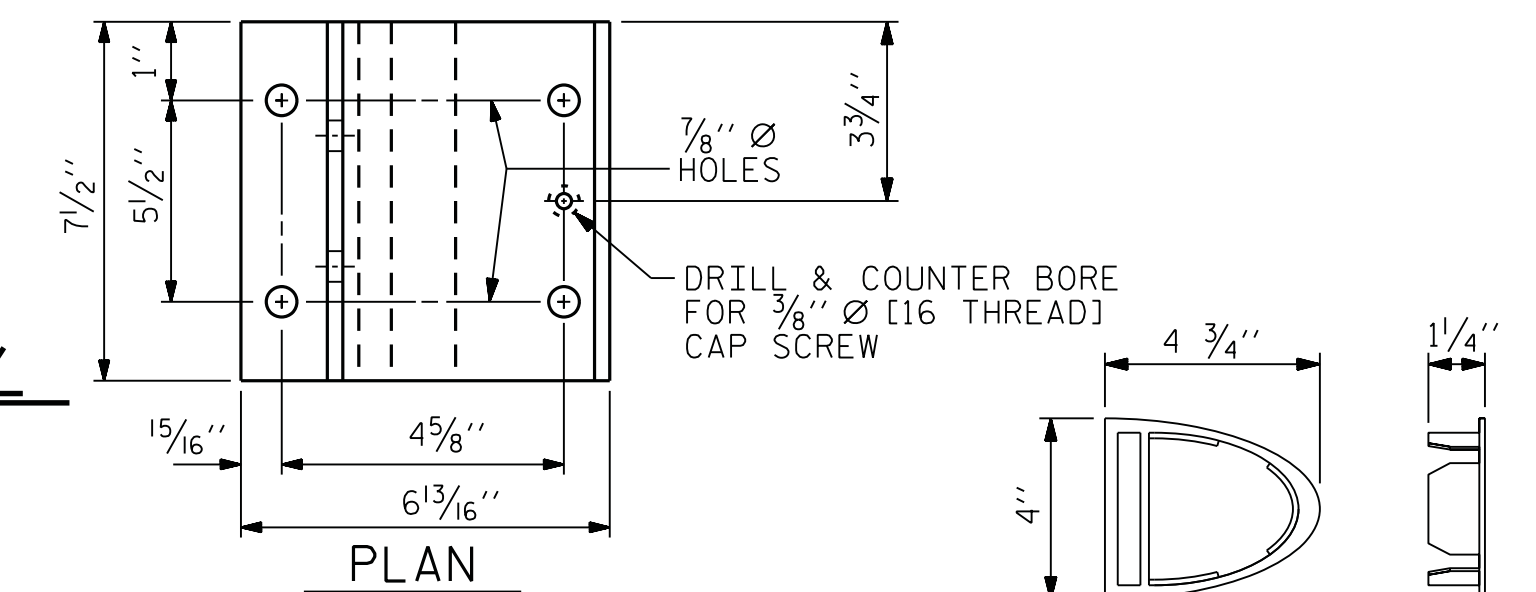
M:\projects\2012\12094_NCD01_Division_0n-Cali\B01_Alleghany_265\Design\Structures\06N\17bp_str_rail.dgn



NOTE : SHIMS MAY BE CUT ALONG PERMITTED
OUTLINE OR SLOTTED TO EDGE OF PLATE
TO FACILITATE PLACEMENT.

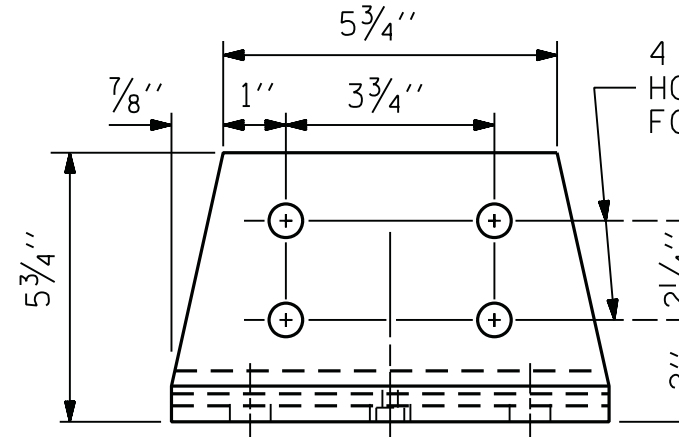


CLAMP & RAIL ASSEMBLY

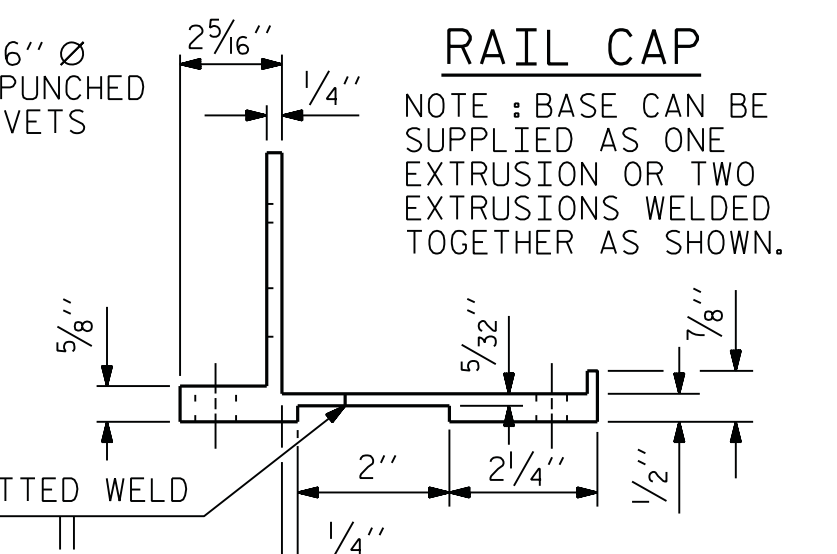


NOTE PAGE CAN BE

NOTE : BASE CAN BE
SUPPLIED AS ONE
EXTRUSION OR TWO
EXTRUSIONS WELDED
TOGETHER AS SHOWN.

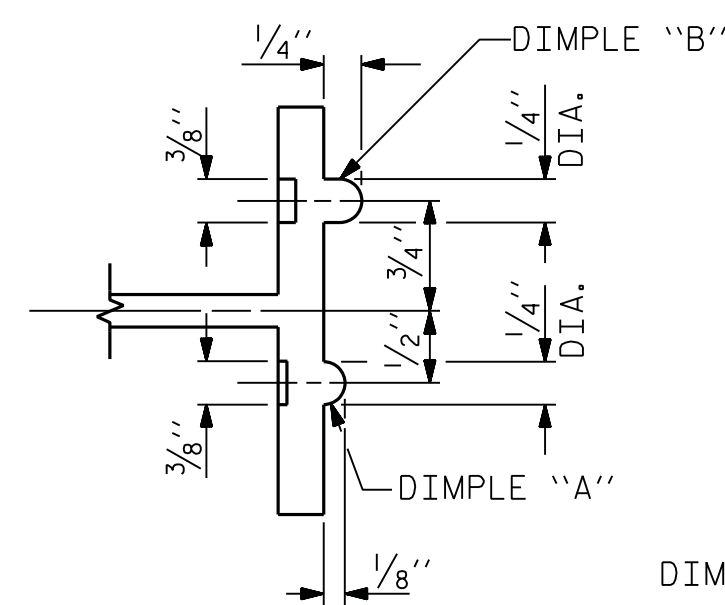


FRONT ELEVATION

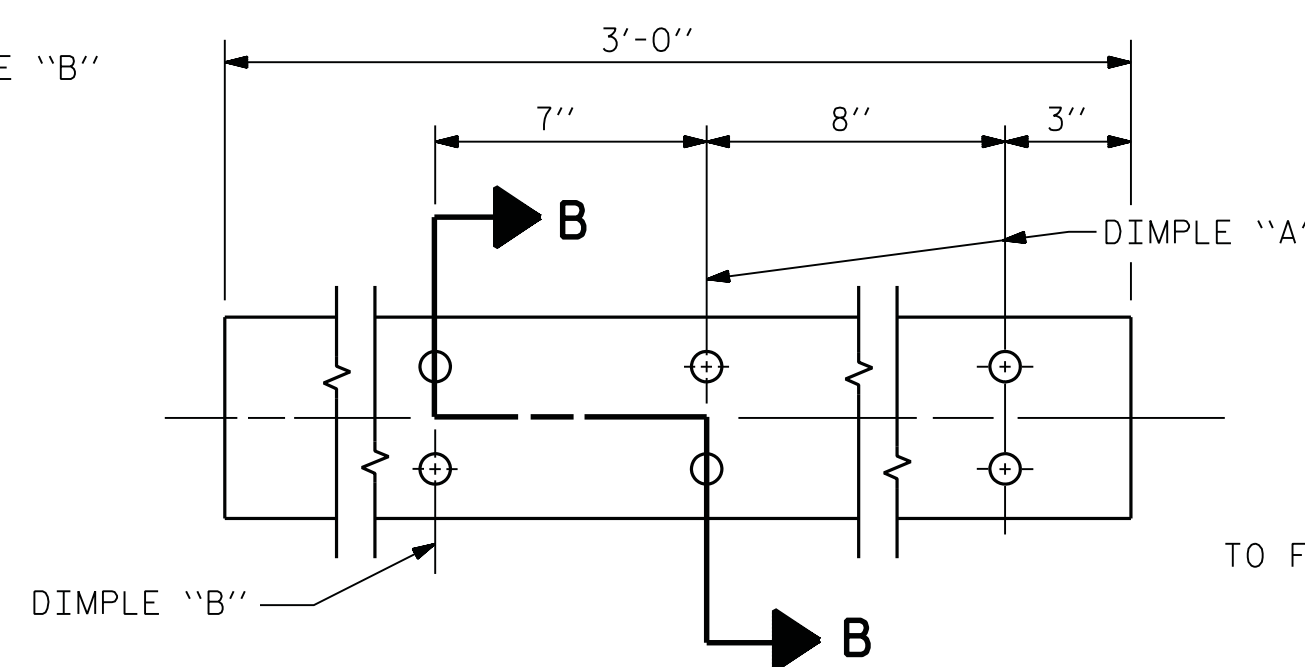


SIDE ELEVATION

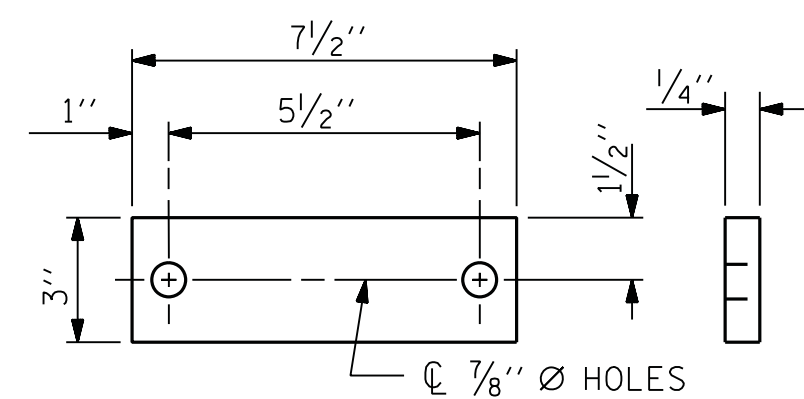
POST BASE DETAILS



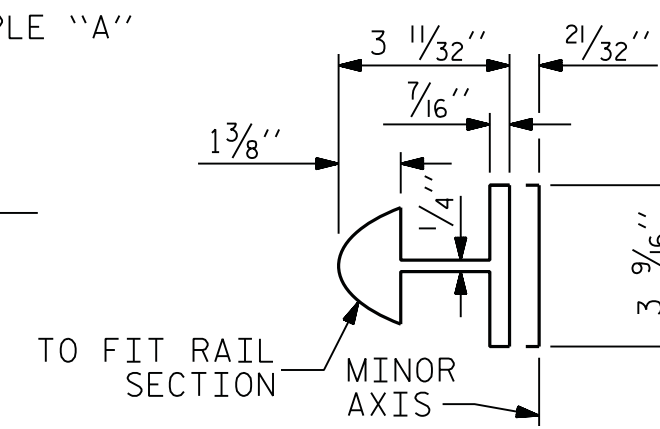
SECTION B - B



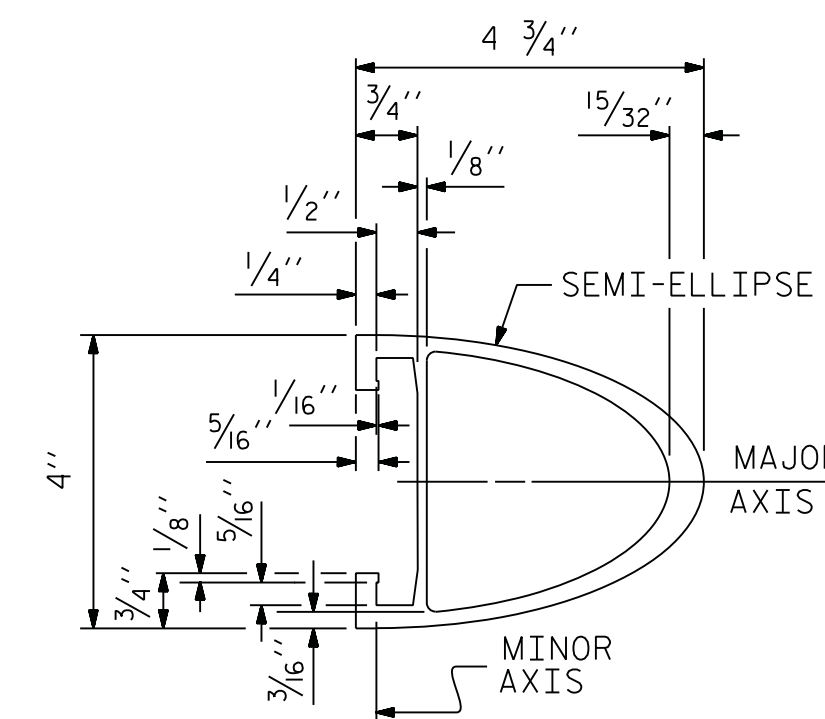
EXPANSION BAR DETAILS



ANCHOR PLATE



BAR SECTION



RAIL SECTION

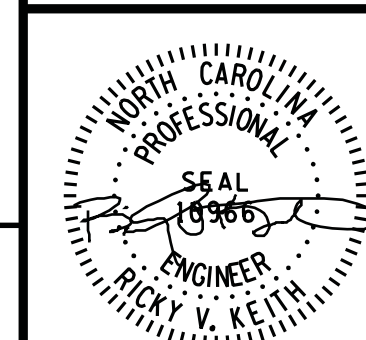
PROJECT NO. 17BP.11.R.57

ALLEGHANY COUNTY

STATION: STA. 18+76.70 -L-

SHEET 2 OF 4

DWG. NO. 16



3/11/2014

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

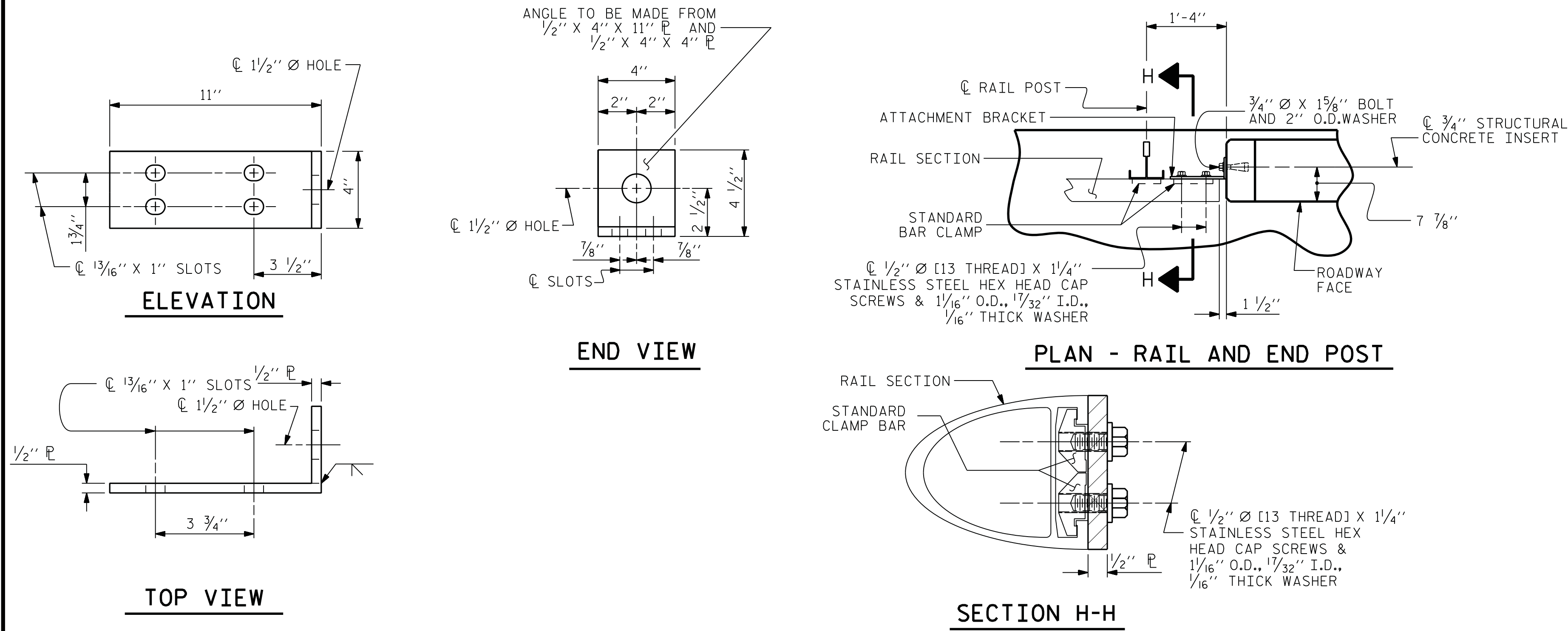
1 BAR METAL RAIL

REVISIONS						SHEET NO. S-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 30
2			4			

DRAWN BY : F.D. WEEDEN DATE : JAN. 2014
CHECKED BY : R.V. KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W. GENTRY DATE : JAN. 2014

M:\projects\2012\12094_NCDOT_Division-On-Call\B01-Alleghany_265\Design\Structures\DGN\17bp_str_rail.dgn

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112



DETAILS FOR ATTACHING METAL RAIL TO END POST

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".

B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.

B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N.C. THREADS.

C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.

D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).

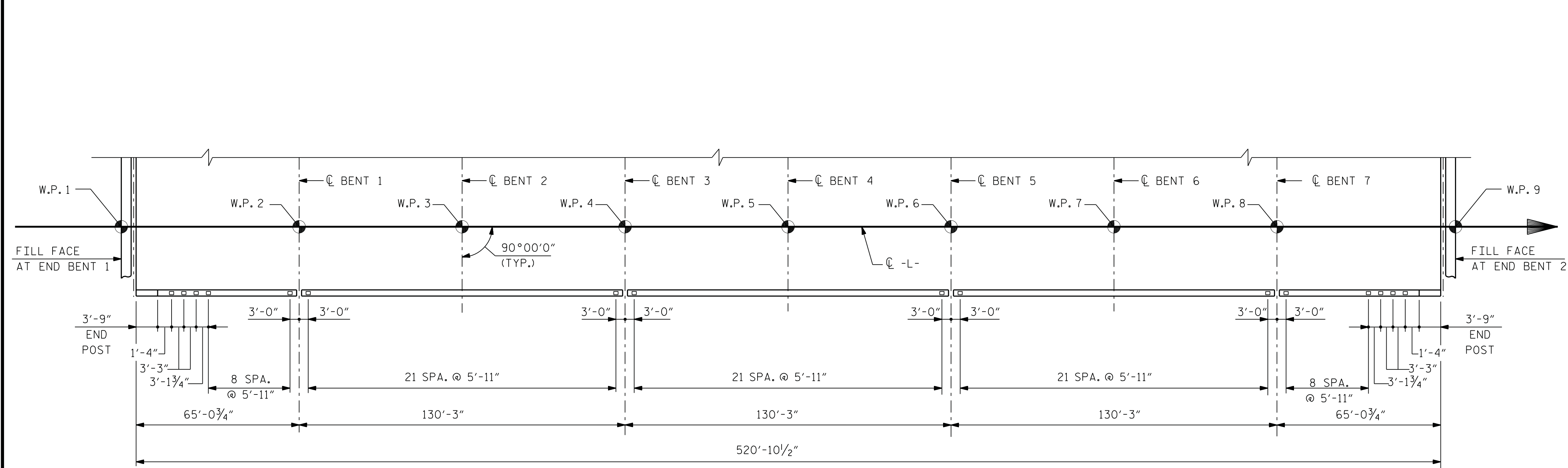
E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

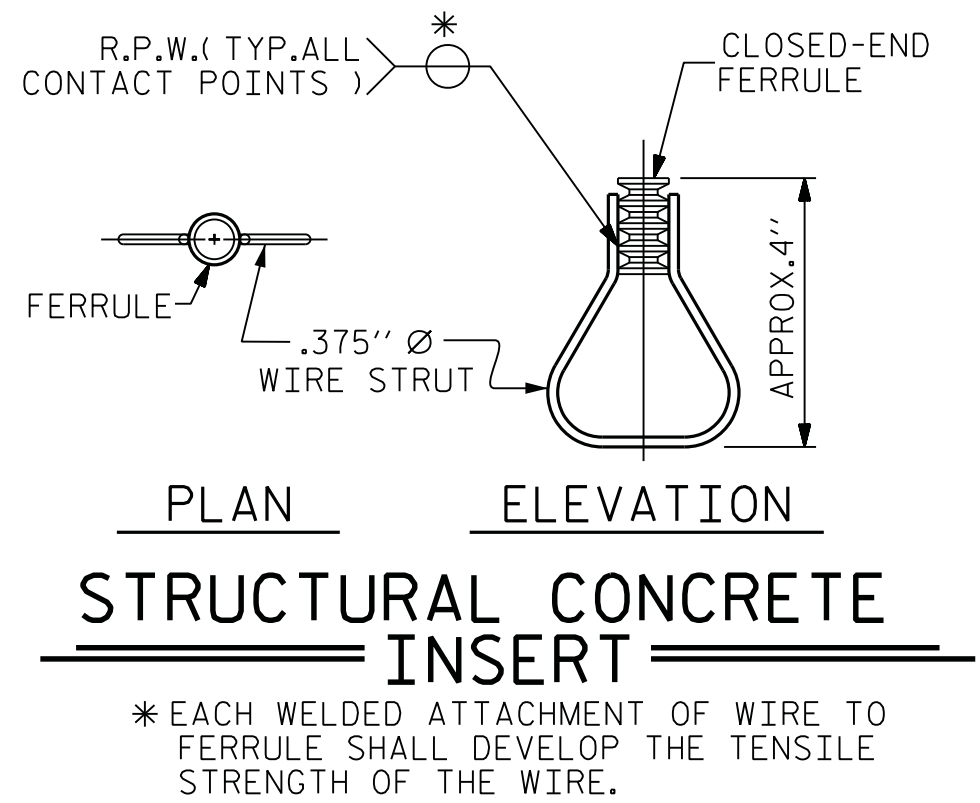


DRAWN BY : F.D. WEEDEN DATE : JAN. 2014
CHECKED BY : R.V. KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W. GENTRY DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 17

STATE OF NORTH CAROLINA
PROFESSIONAL ENGINEER
RICKY V. KEITH
3/11/2014



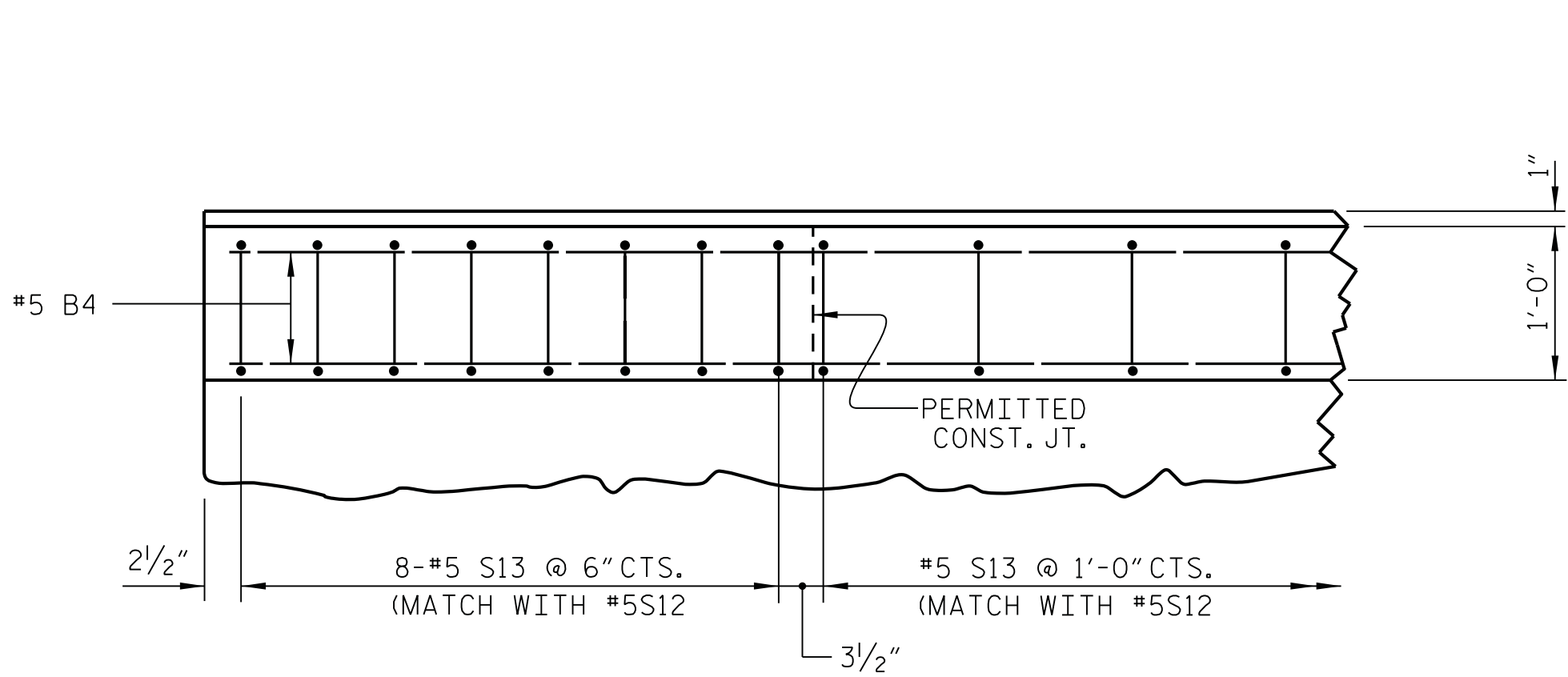
PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 3 OF 4

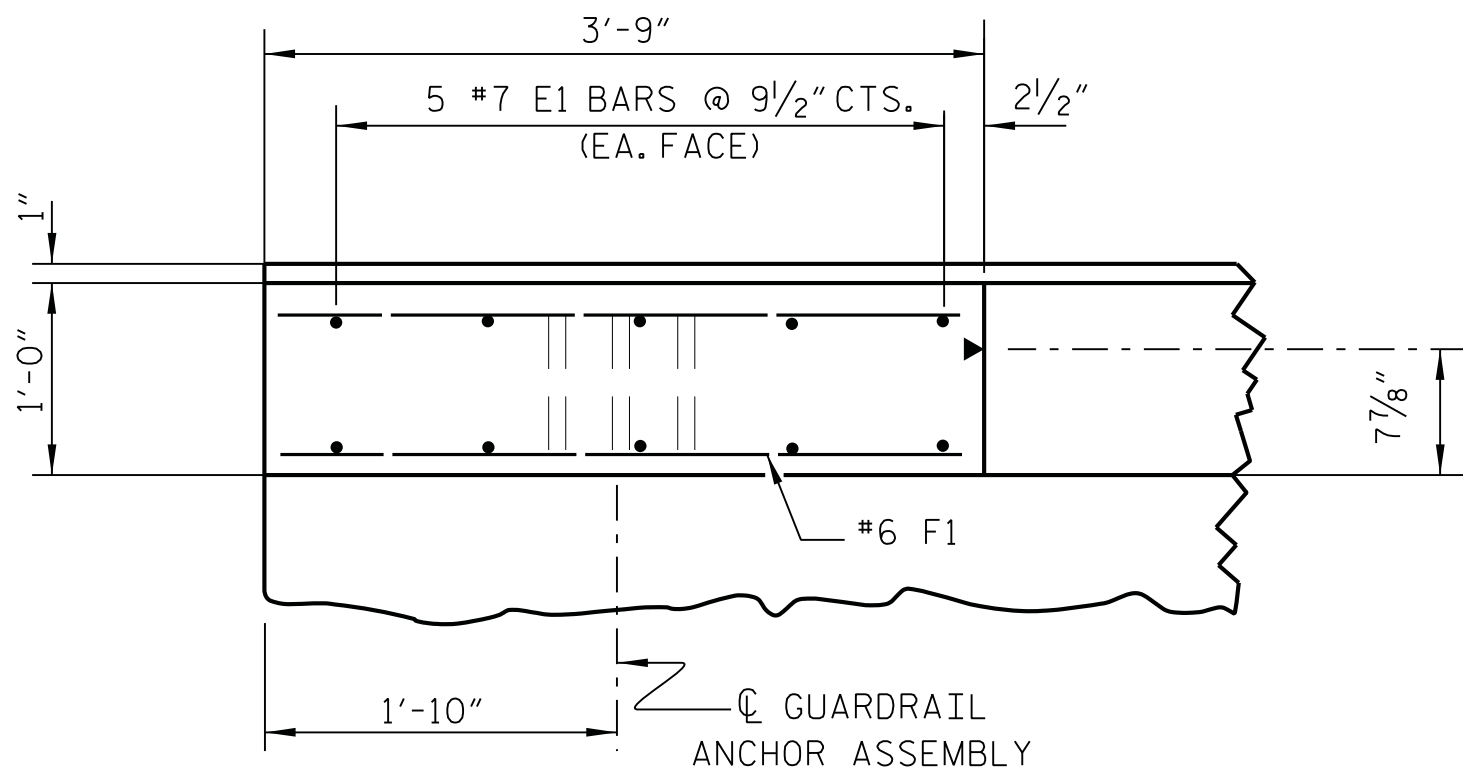
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RAIL POST SPACINGS
AND
END OF RAIL DETAILS

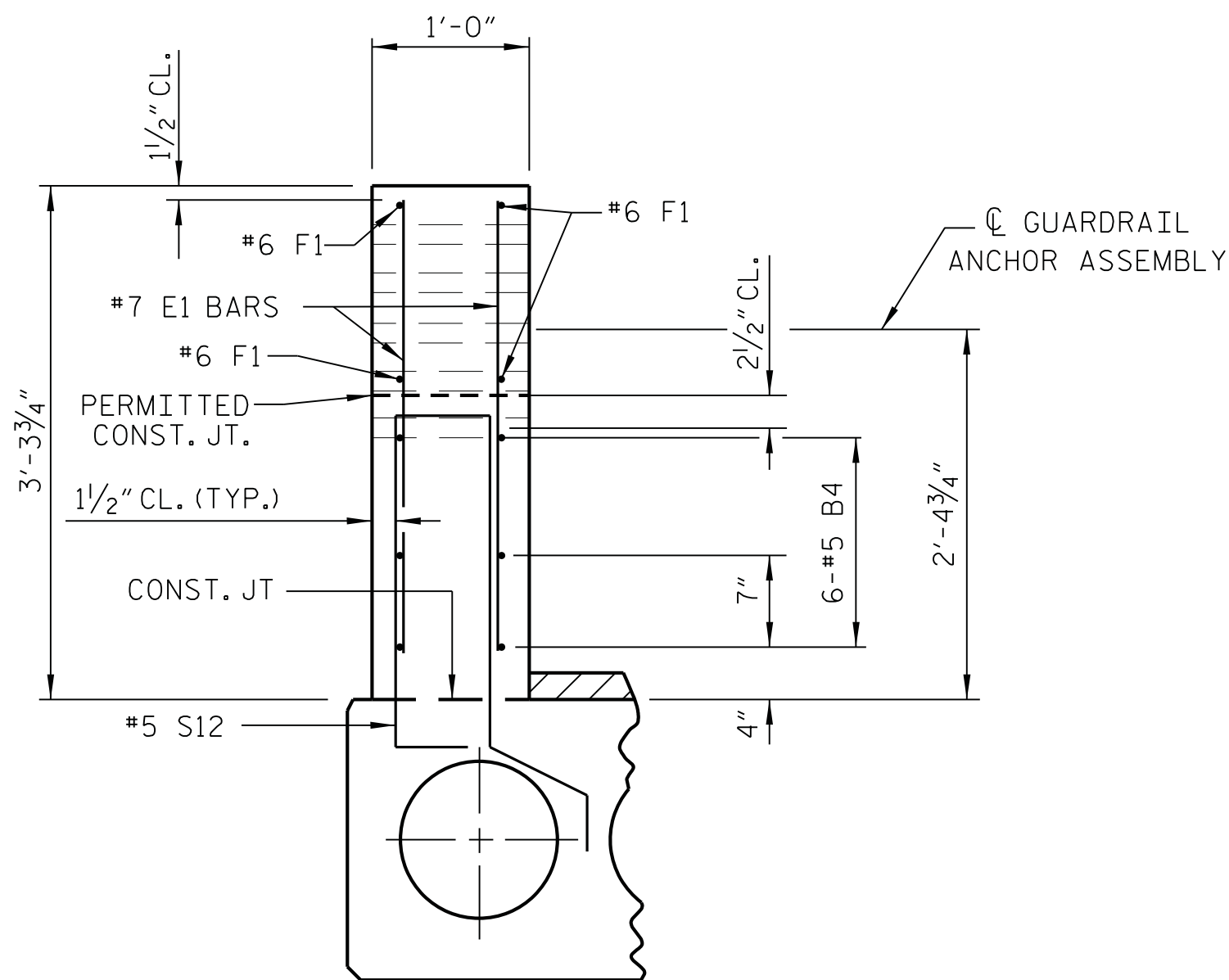
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-17
2			4			
TOTAL SHEETS						30



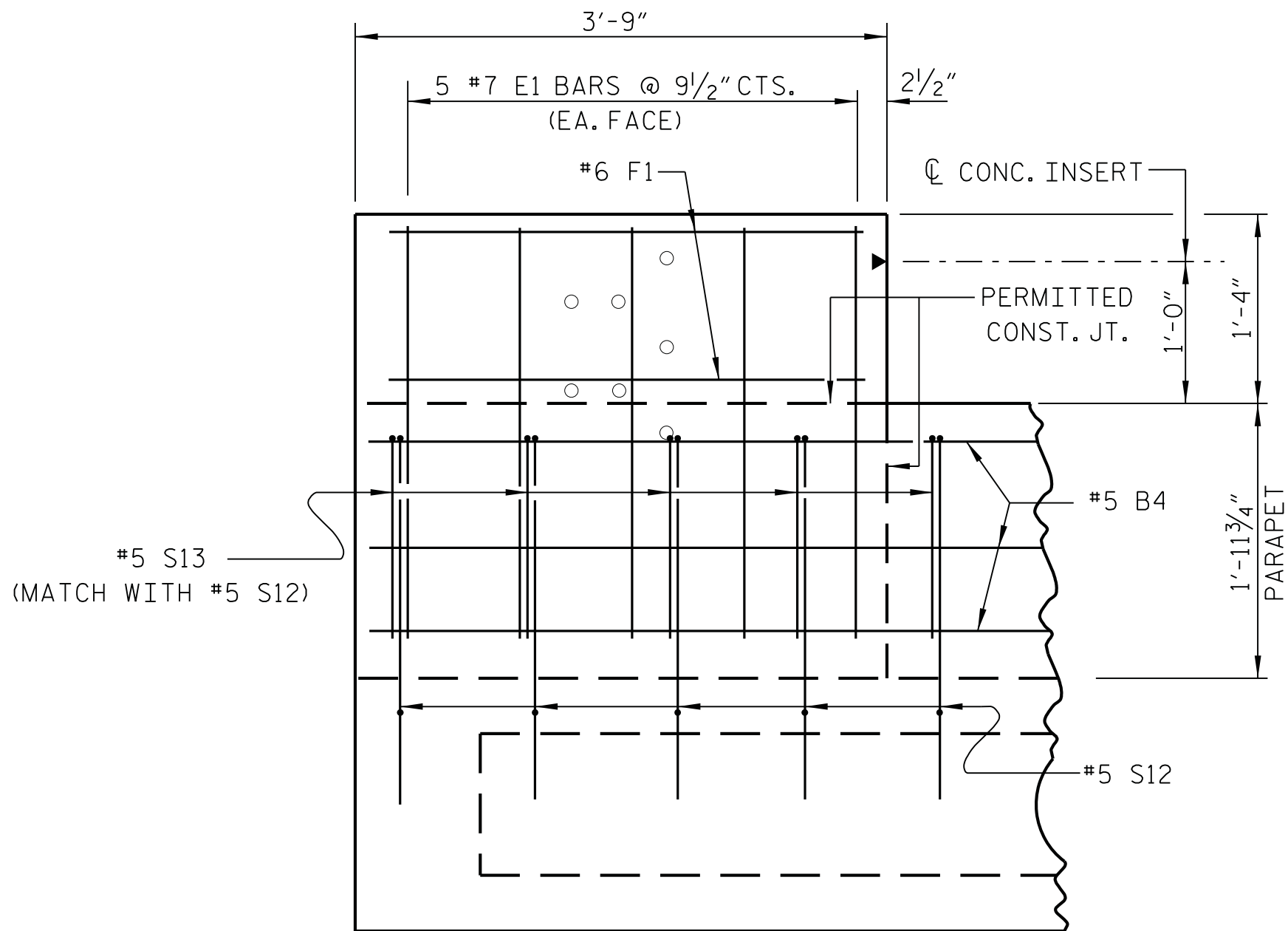
PLAN OF PARAPET



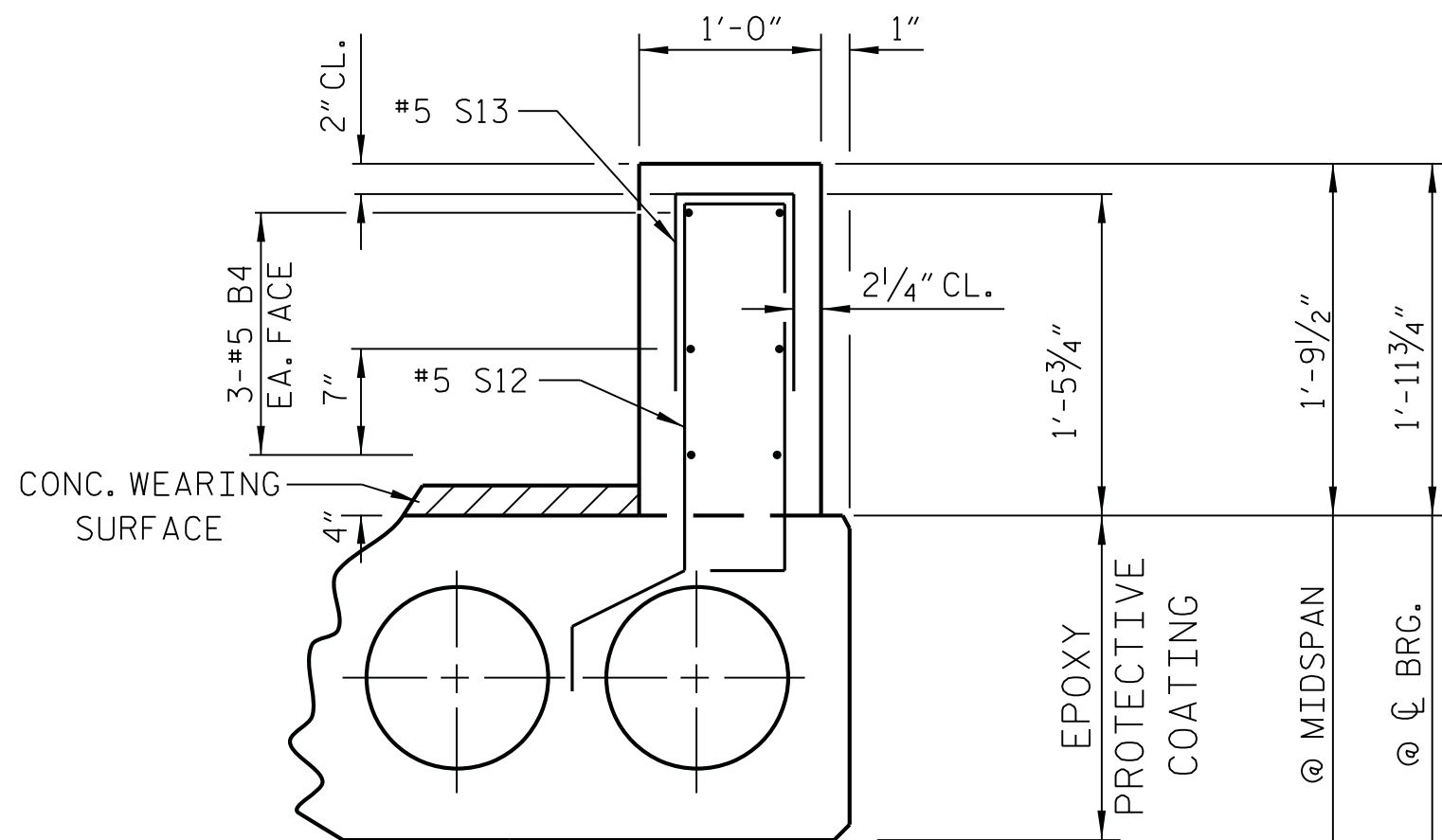
PLAN OF END POST



END VIEW

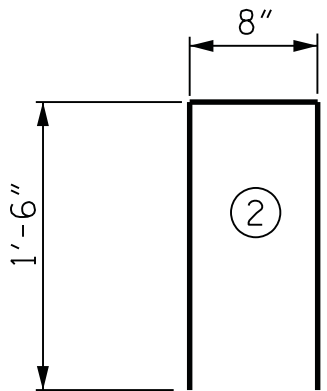


ELEVATION



ONE BAR METAL
RAIL PARAPET SECTION

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR
PARAPET & END POSTS

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B4	288	#5	STR.	21'-4"	6408
* E1	40	#7	STR.	2'-10"	232
* F1	16	#6	STR.	3'-5"	82
* S13	1184	#5	2	3'-8"	4528

* EPOXY COATED
REINFORCING STEEL 11,250 LBS.

CLASS AA CONCRETE 73.5 CY

1'-11 3/4" x 1'-0" CONCRETE
PARAPET 1,041.75 LIN.FT.

PROJECT NO. 17BP.11.R.57

ALLEGHANY COUNTY

STATION: STA. 18+76.70 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
CONCRETE PARAPET
AND END POST DETAILS

REVISIONS						SHEET NO. S-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 30
2			4			

DRAWN BY : F.D.WEEDEN DATE : JAN. 2014
CHECKED BY : R.V.KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W.GENTRY DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 18
3/11/2014
RICKY V. KEITH
ENGINEER

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 1/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

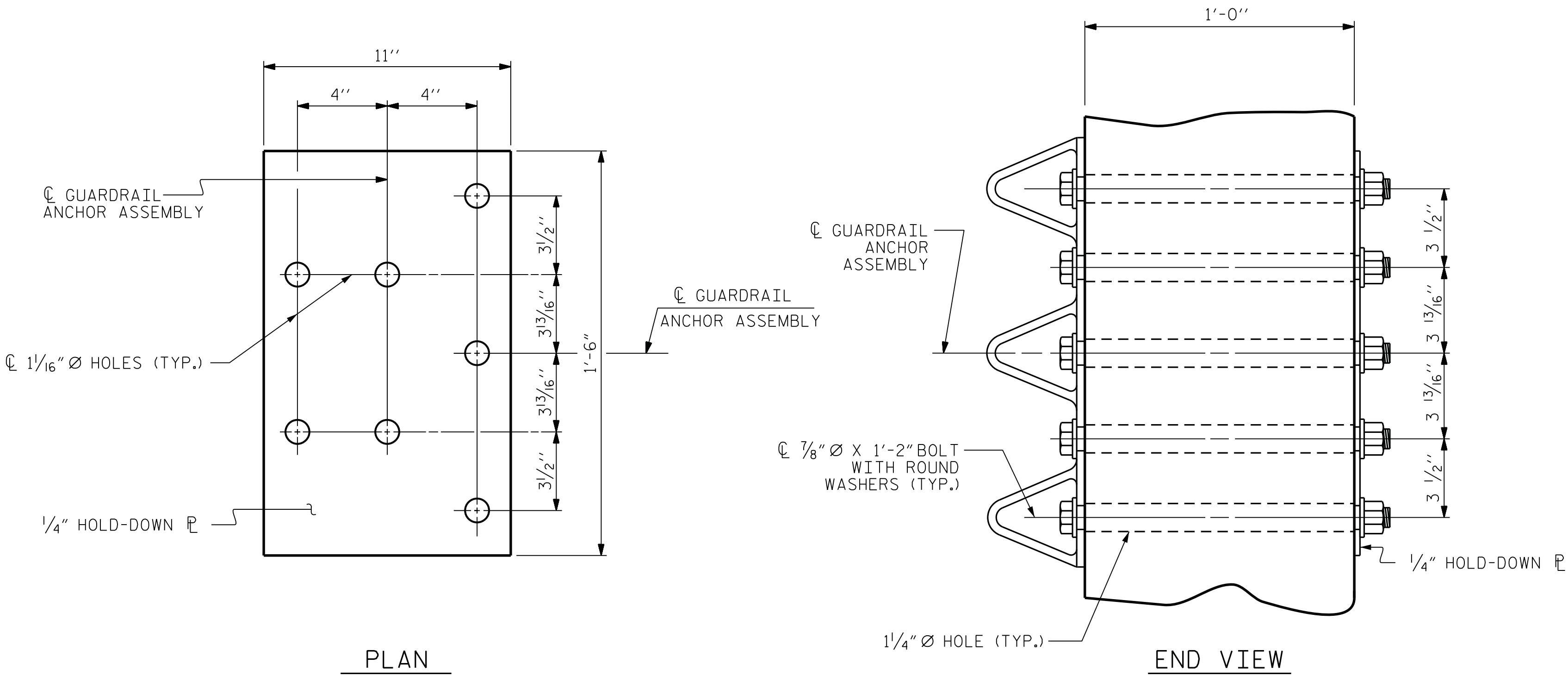
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

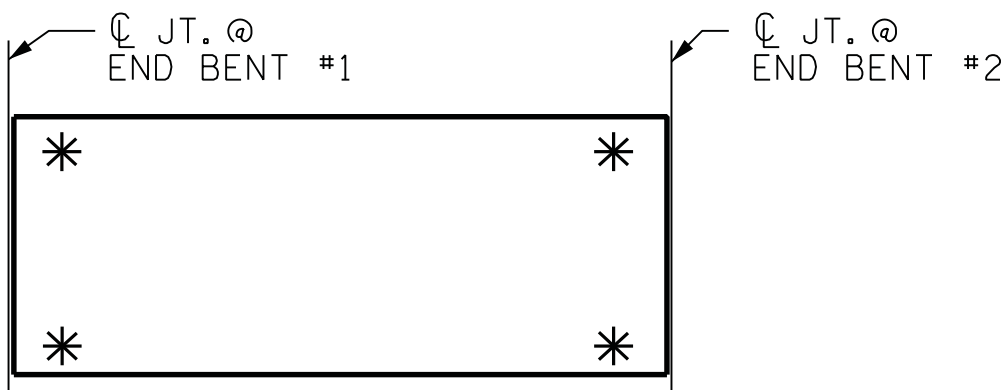
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

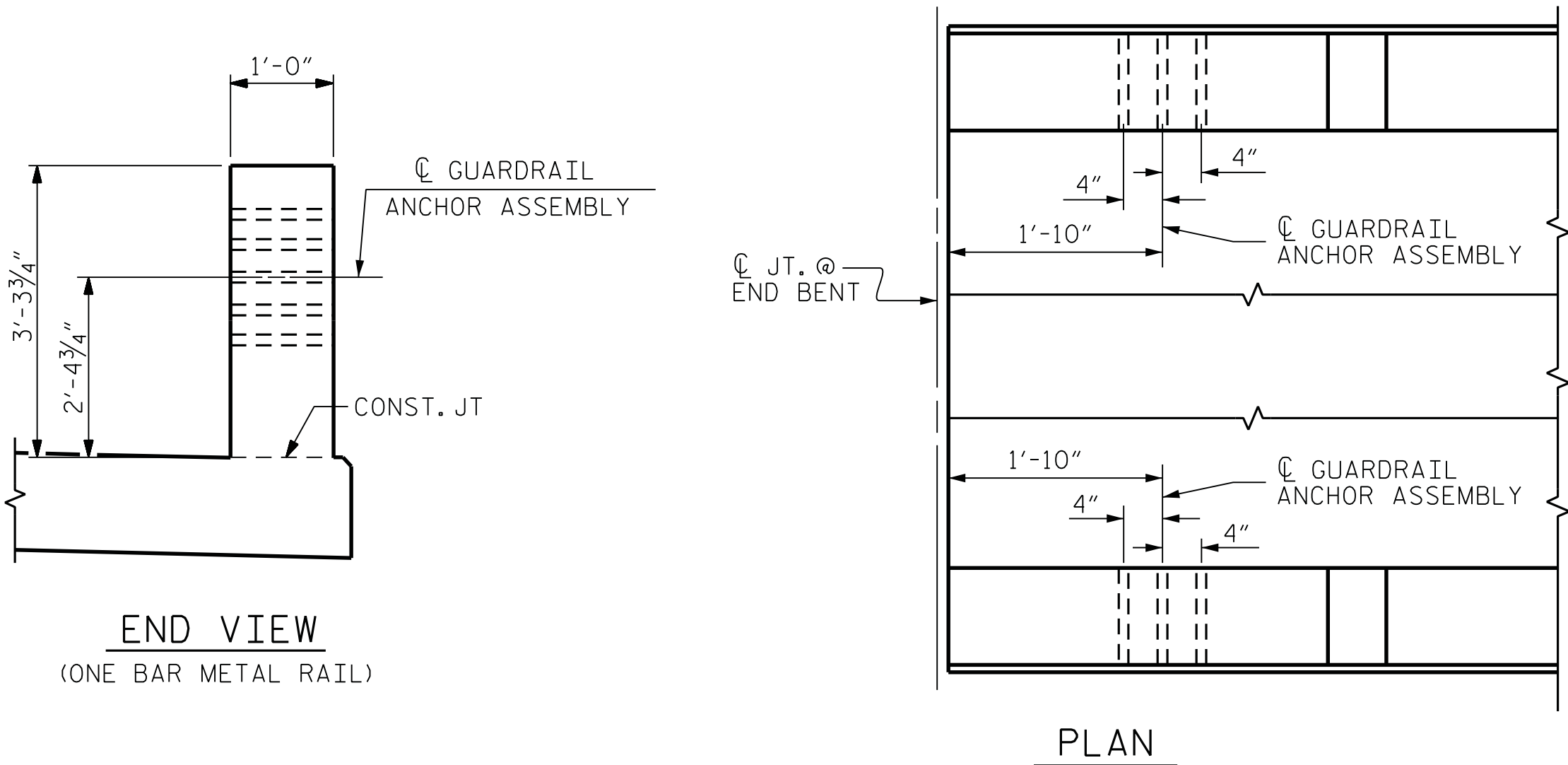


GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

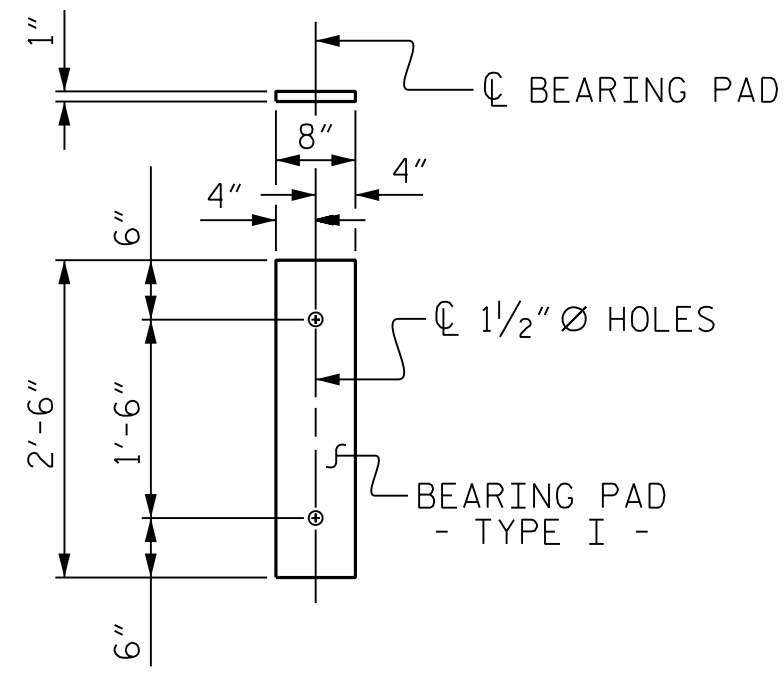
DRAWN BY : F.D.WEEDEN DATE : JAN. 2014
CHECKED BY : R.V.KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W.GENTRY DATE : JAN. 2014

M:\projects\2012\12094_NCD01_Division_0n-Cali\B01-Alleghany_265\Design\Structures\06N\17bp_str_gra.dgn

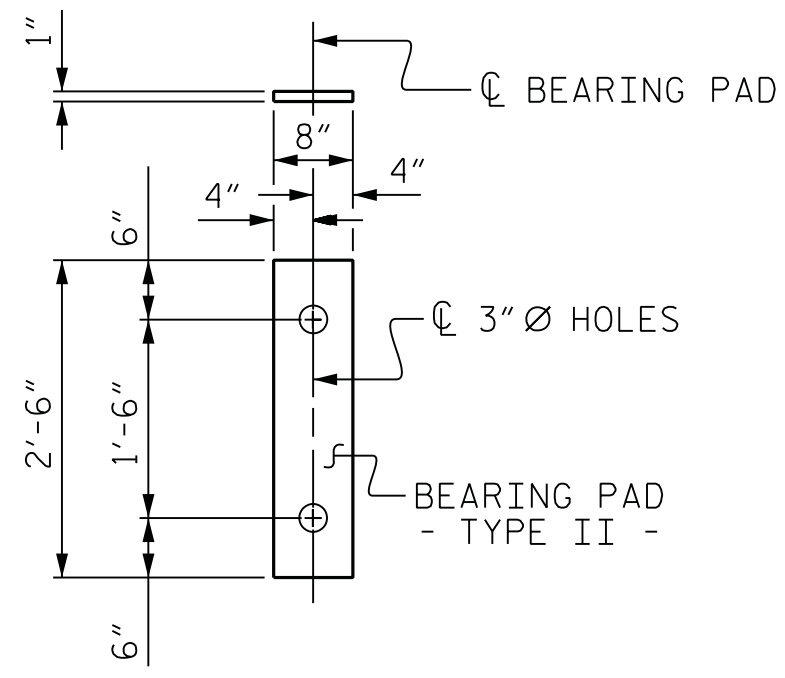
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 19
3/11/2014
RICKY V. KEITH
ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-19					TOTAL SHEETS 30



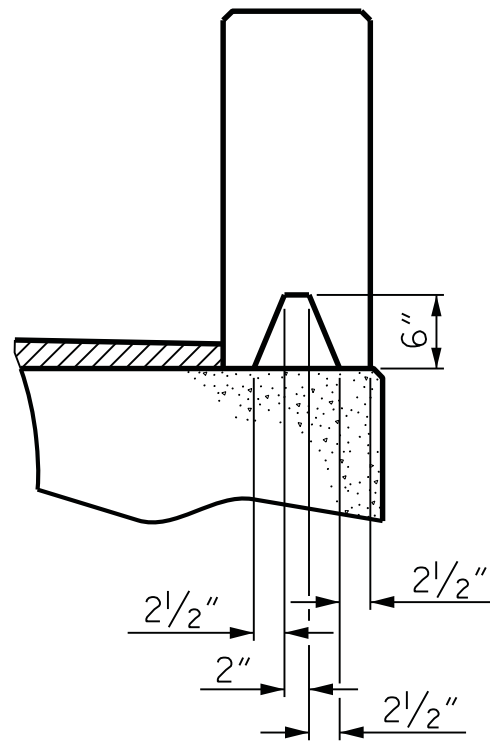
FIXED END
(TYPE I - 72 REQ'D)



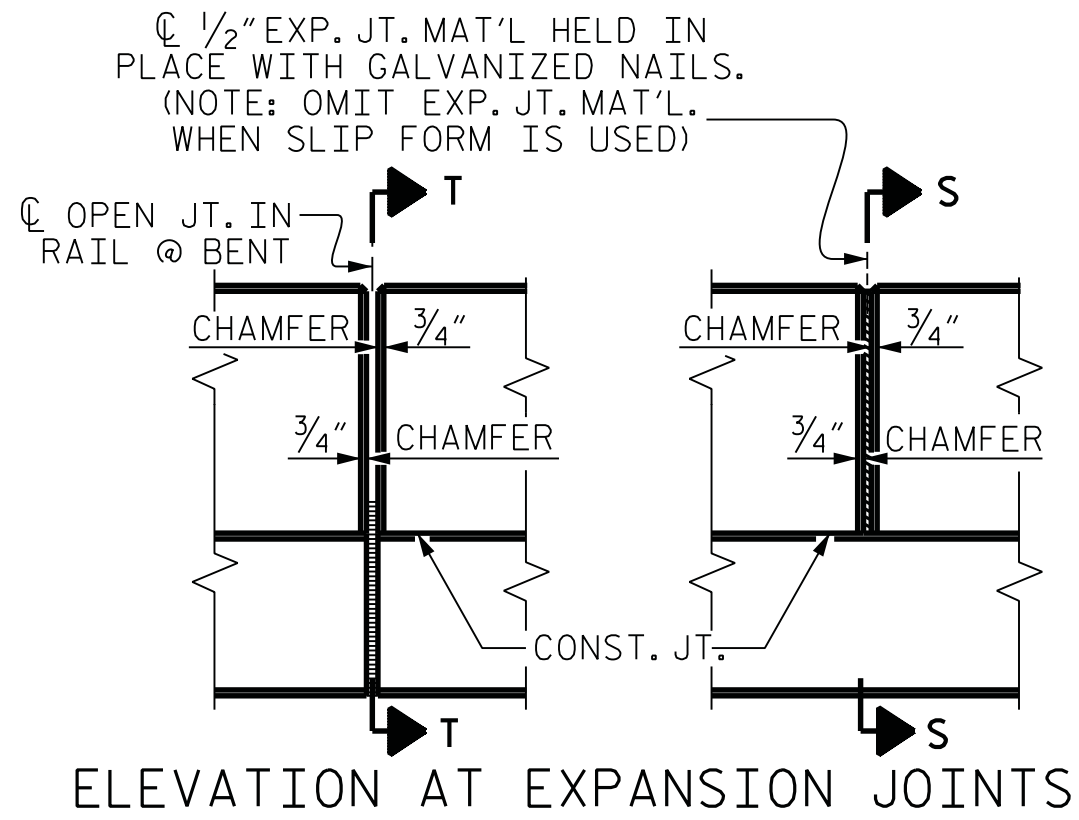
EXPANSION END
(TYPE II - 72 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
65' UNIT			
EXTERIOR C.S.	16	65'-0"	1040
INTERIOR C.S.	56	65'-0"	3640
TOTAL	72		4680

CONCRETE RELEASE STRENGTH	
UNIT	PSI
65' UNITS	8000

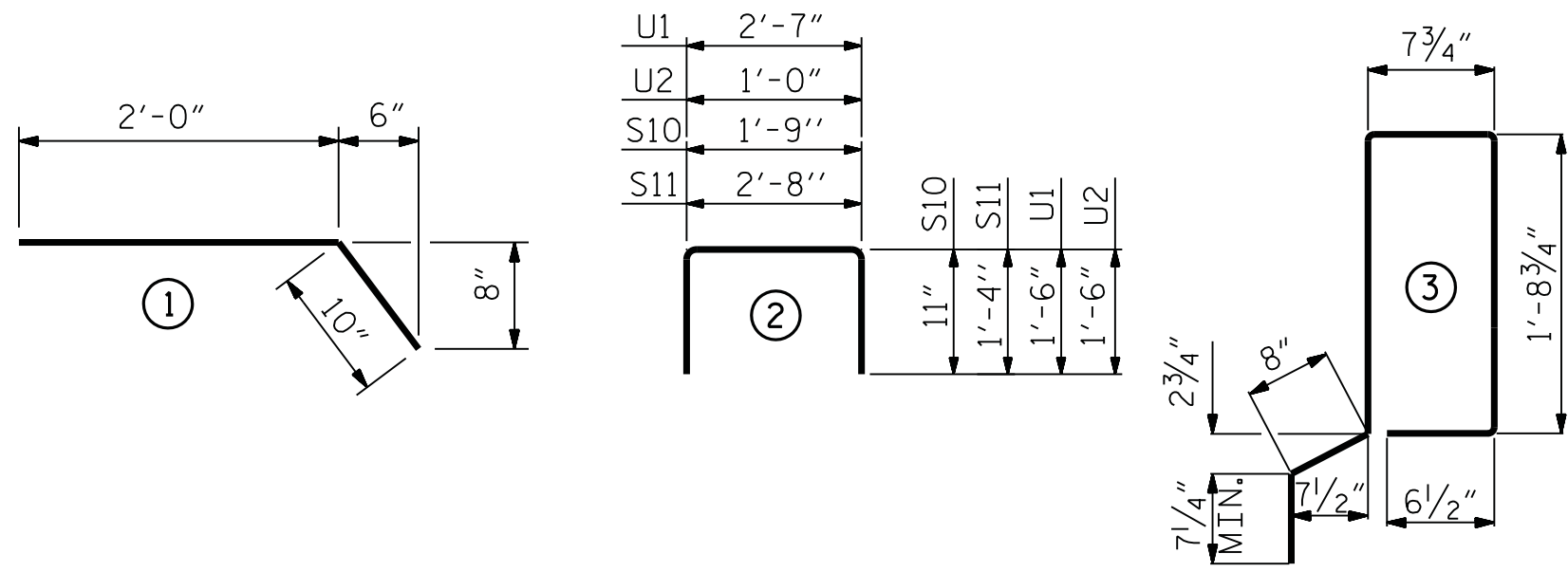
GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9"
65' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/4" ↓
FINAL CAMBER	2 1/4" ↑

** INCLUDES FUTURE WEARING SURFACE

GROOVING BRIDGE FLOORS	
BRIDGE DECK	11,252 SQ FT
APPROACH SLABS	500 SQ FT
TOTAL	11,752 SQ FT

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE 65' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	WEIGHT	INTERIOR UNIT LENGTH	WEIGHT
B5	6	#4	STR	22'-0"	88	22'-0"	88
B6	8	#4	STR	2'-6"	13	2'-6"	13
B7	10	#5	1	2'-10"	30	2'-10"	30
U1	4	#5	2	5'-7"	23	5'-7"	23
U2	4	#5	2	4'-0"	17	4'-0"	17
S10	16	#5	2	3'-7"	60	3'-7"	60
S11	138	#4	2	5'-4"	492	5'-4"	492
*S12	74	#5	3	5'-11"	457		
REINFORCING STEEL				LBS.	723		723
*EPOXY COATED REINFORCING STEEL				LBS.	457		
10,000 P.S.I. CONCRETE				CU. YDS.	9.3		9.3
0.60 Ø L.R. STRANDS				No.	23		23

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
* A1	1040	#3	STR	24'-6"	9580
* B1	300	#3	STR	23'-0"	2594
* B2	750	#3	STR	27'-7"	7778
* B3	147	#4	STR	20'-0"	1964
*EPOXY COATED REINFORCING STEEL					21,916 LBS.
CONCRETE WEARING SURFACE					12,935 SQ FT

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE TOP SURFACE OF THE CORED SLAB UNITS SHALL RECEIVE A RAKED FINISH TO A DEPTH OF 3/8" SEE SECTION 1078-15 OF THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 3"Ø ANCHOR BOLT HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDeways. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN THE PARAPETS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPETS AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPETS EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPETS SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

DRAWN BY : F.D. WEEDEN DATE : JAN. 2014
CHECKED BY : R.V. KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W. GENTRY DATE : JAN. 2014

M:\projects\2012\12094_NCD01_Division_0n-Call\B01_Alleghany_265\Design\Structures\06N\17bp_str_bom.dgn

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 20
NORTH CAROLINA
PROFESSIONAL
SEAL
ENGINEER
RICKY V. KEITH
3/11/2014

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW
REVISIONS
NO. BY: DATE: NO. BY: DATE:
1 2 3 4
SHEET NO. S-20
TOTAL SHEETS 30

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPlice DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

TOP OF PILE ELEVATIONS

①	2348.54
②	2348.84
③	2349.14
④	2349.44
⑤	2349.74

PROJECT NO. 17BP.11.R.57

ALLEGHANY COUNTY

STATION: STA. 18+76.70 -L-

SHEET 1 OF 4

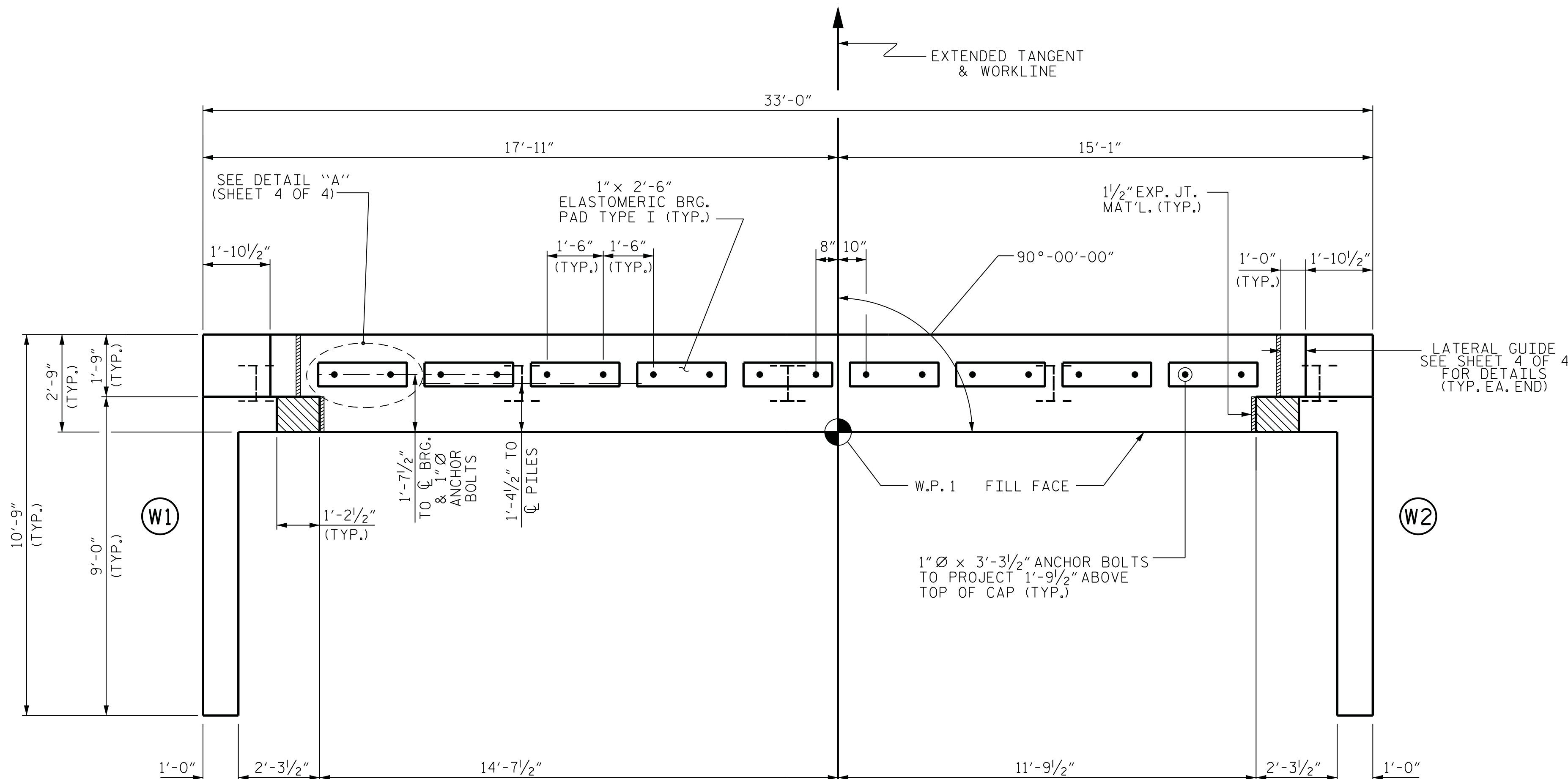
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1

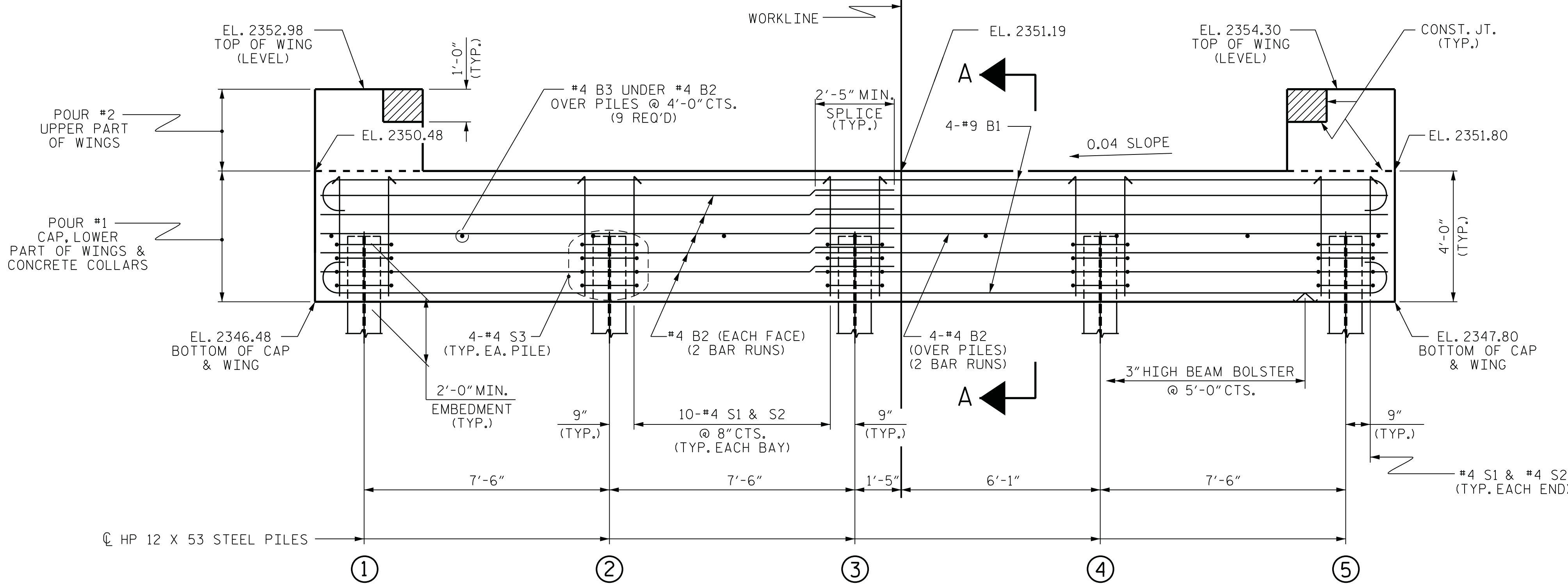
REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
S-21
TOTAL
SHEETS
30



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

DRAWN BY : F.D. WEEDEN
CHECKED BY : R.V. KEITH
DESIGN ENGINEER OF RECORD : J.W. GENTRY
DATE : JAN. 2014
DATE : JAN. 2014
DATE : JAN. 2014

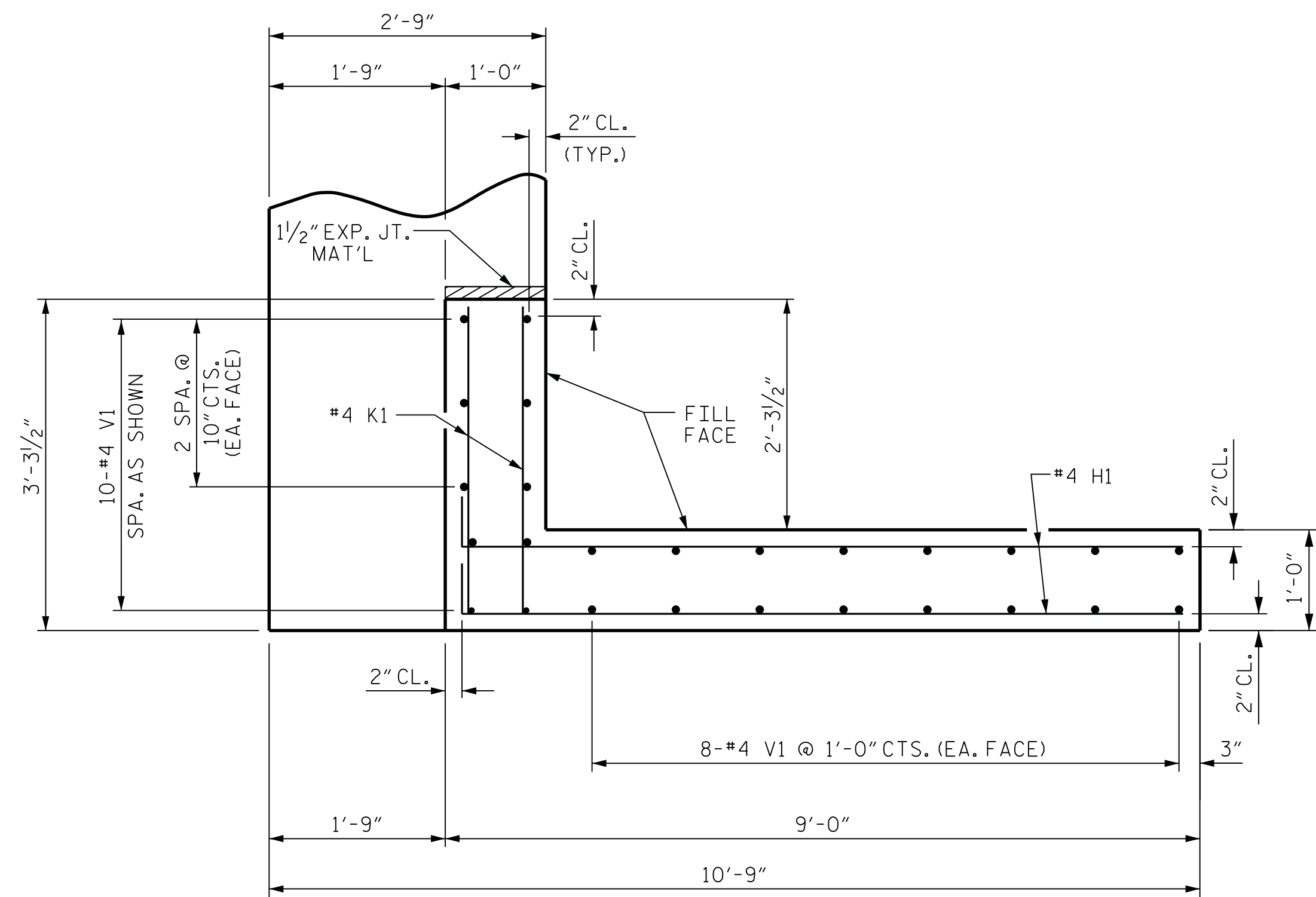
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 21
3/11/2014

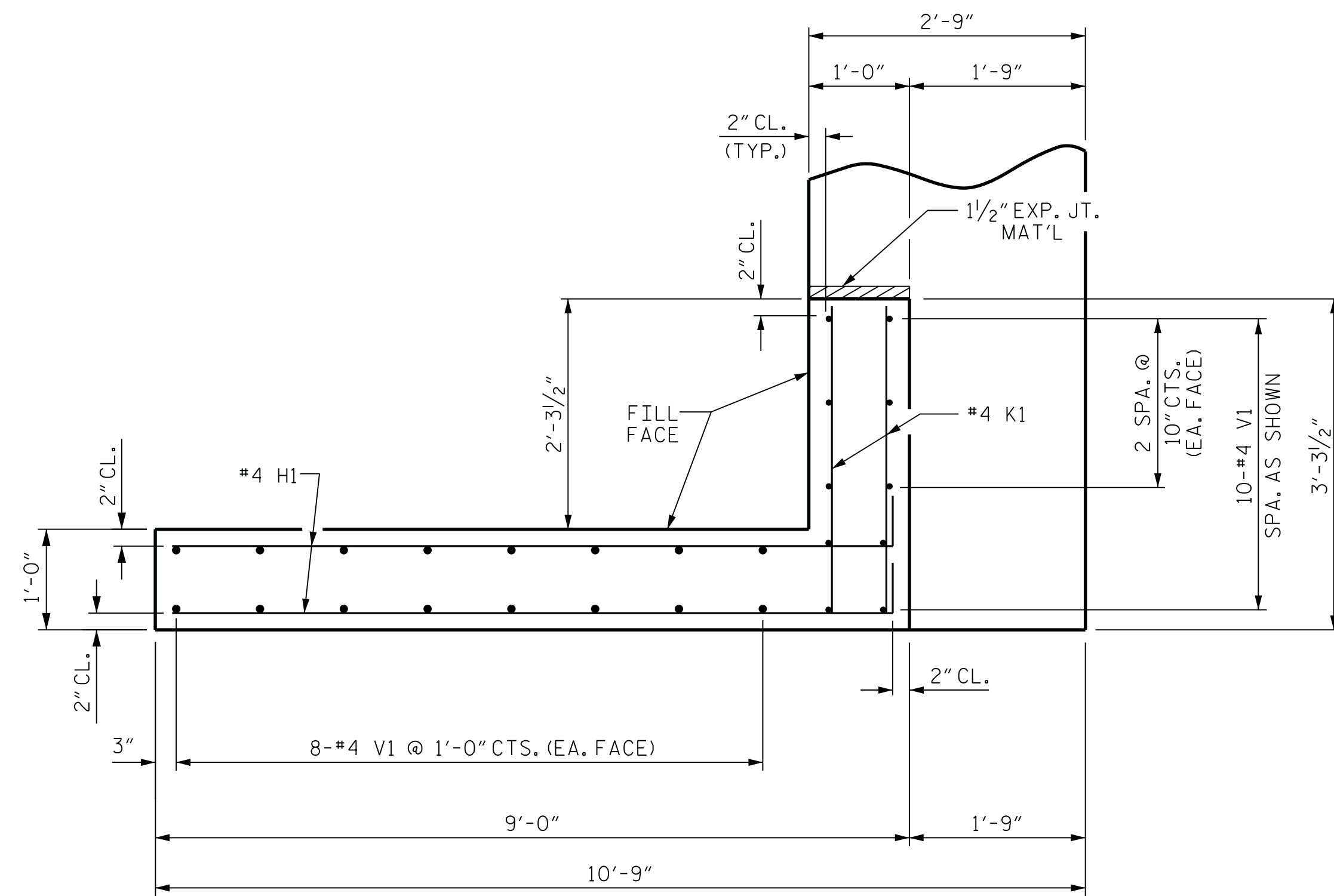
FOR WING DETAILS, SEE SHEET 3 OF 4.

TOTAL
SHEETS
30

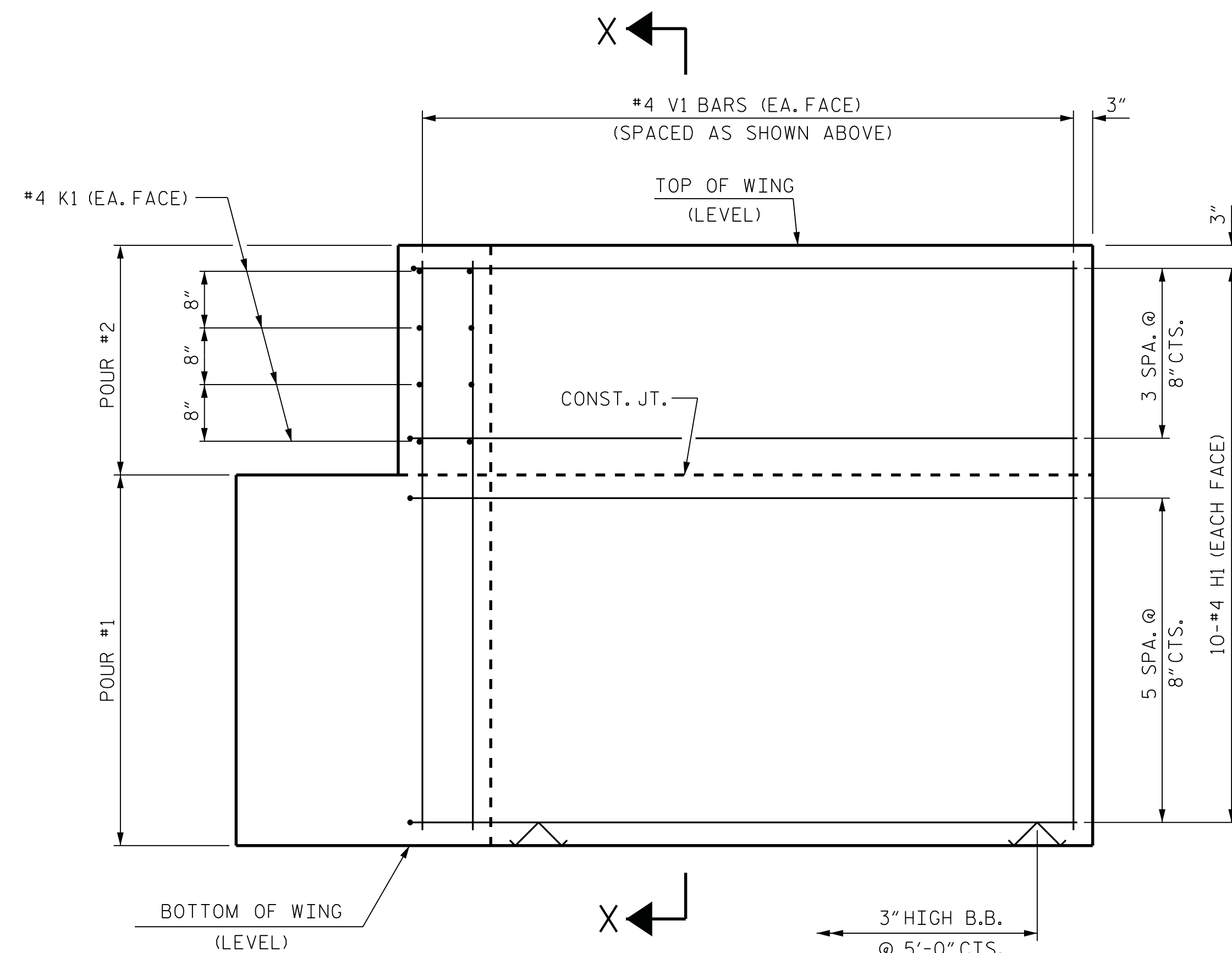




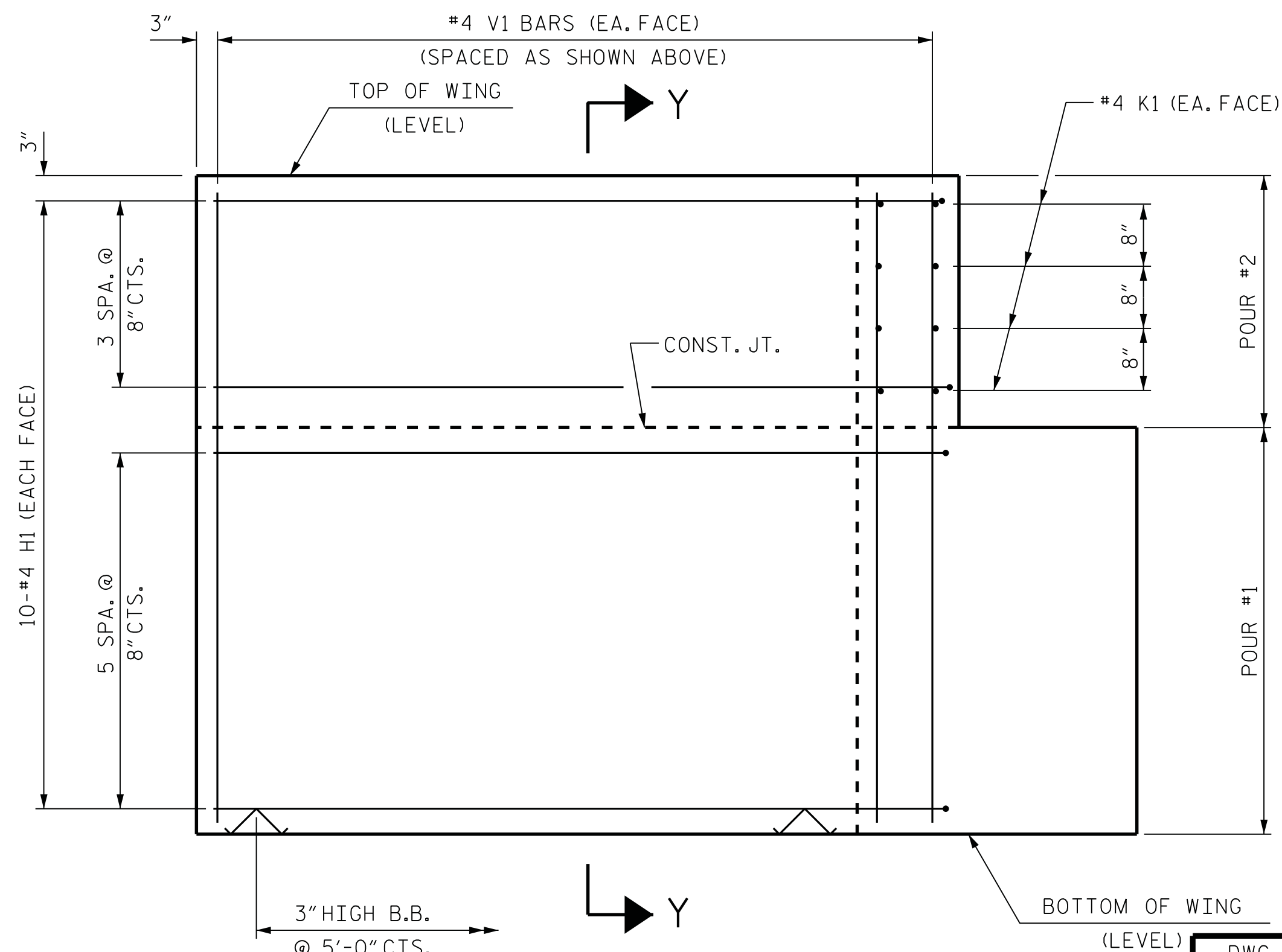
PLAN OF WING (W1)



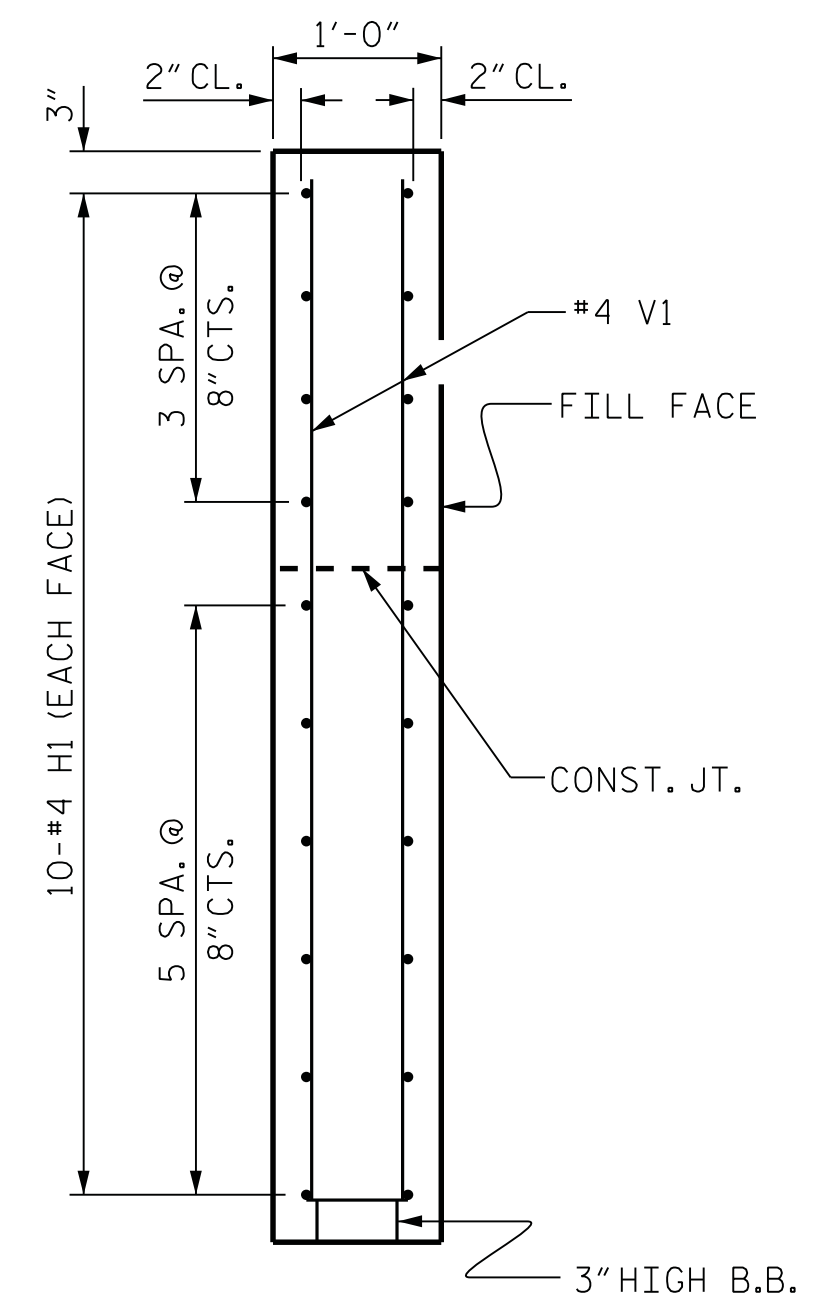
PLAN OF WING (W2)



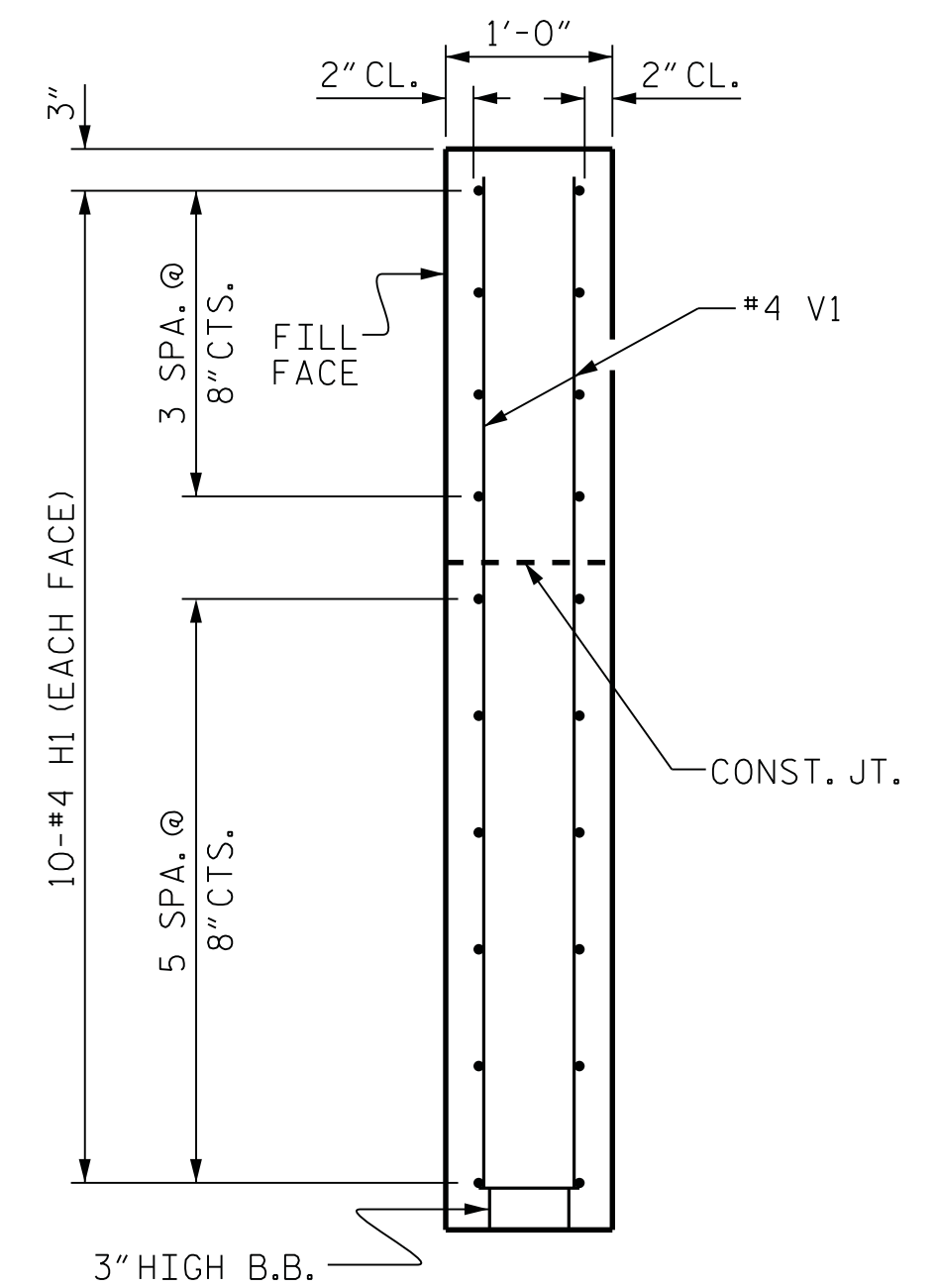
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



SECTION Y-Y

PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 3 OF 4

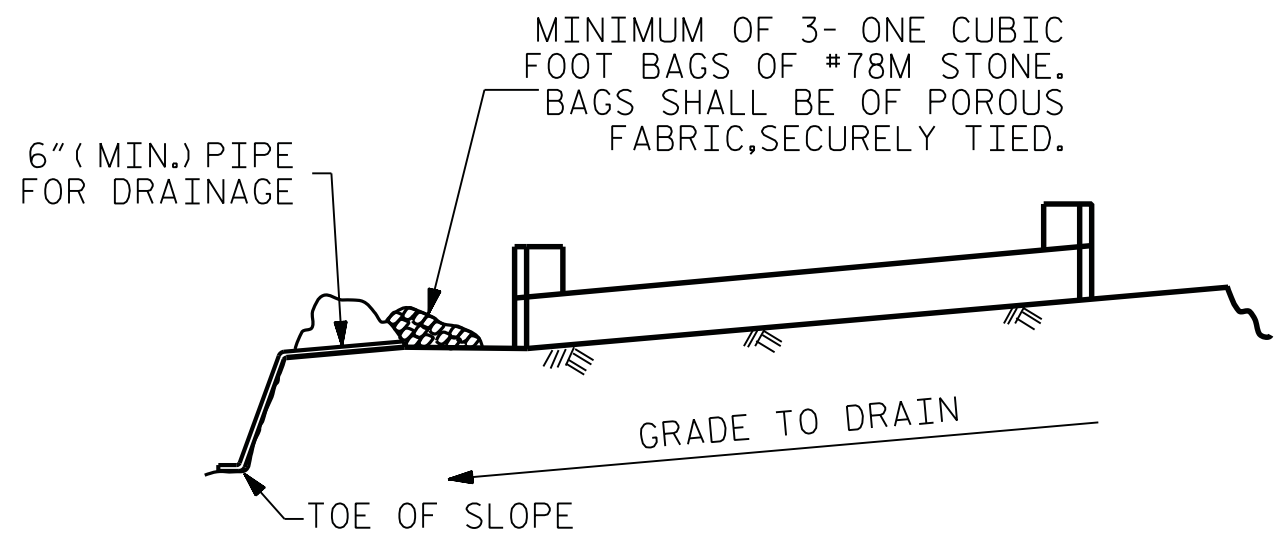
DRAWN BY : F.D.WEEDEN
CHECKED BY : R.V.KEITH
DESIGN ENGINEER OF RECORD : J.W.GENTRY

DATE : JAN. 2014
DATE : JAN. 2014
DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 23
3/11/2014
RICKY V. KEITH
ENGINEER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-23
2			4			TOTAL SHEETS 30

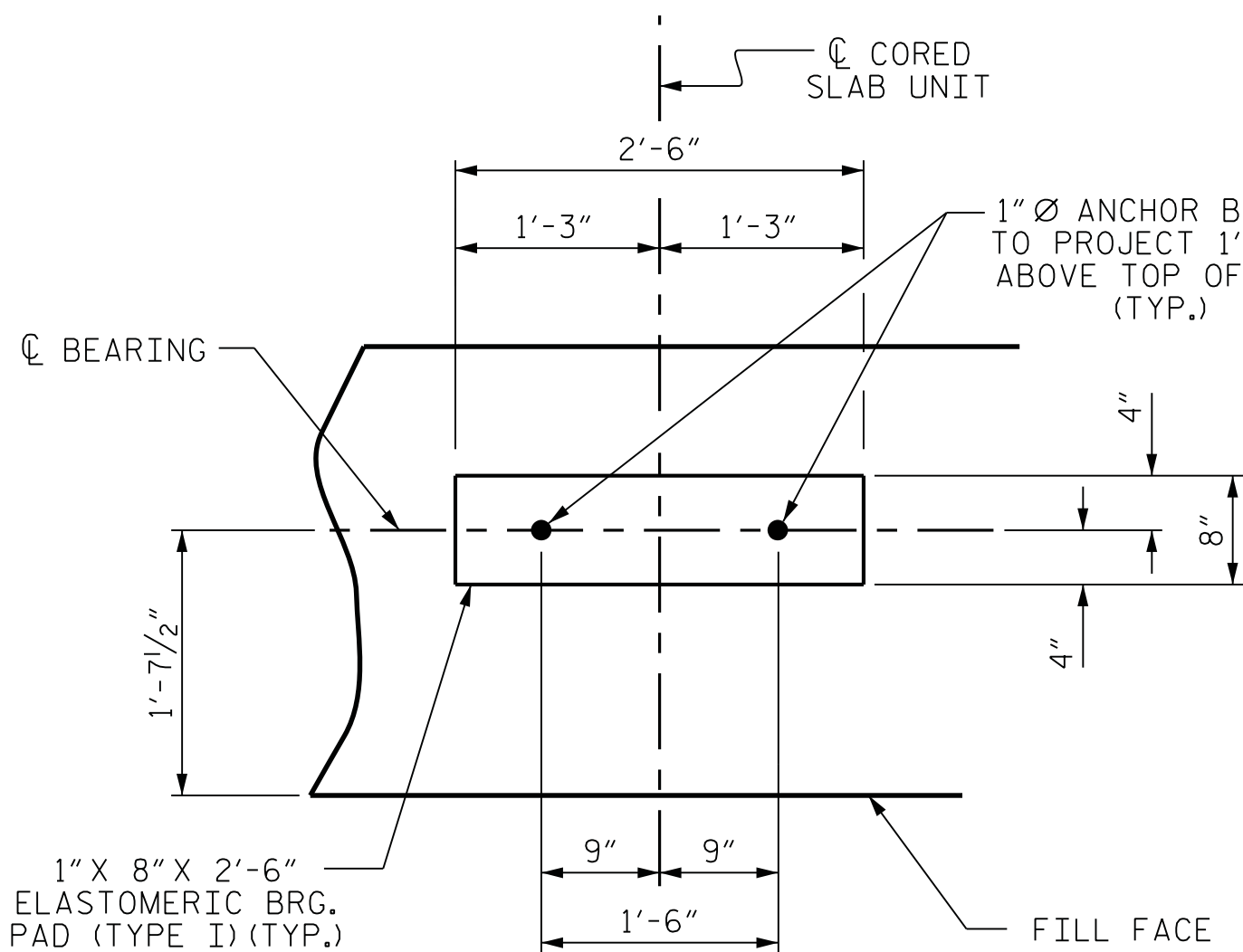


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

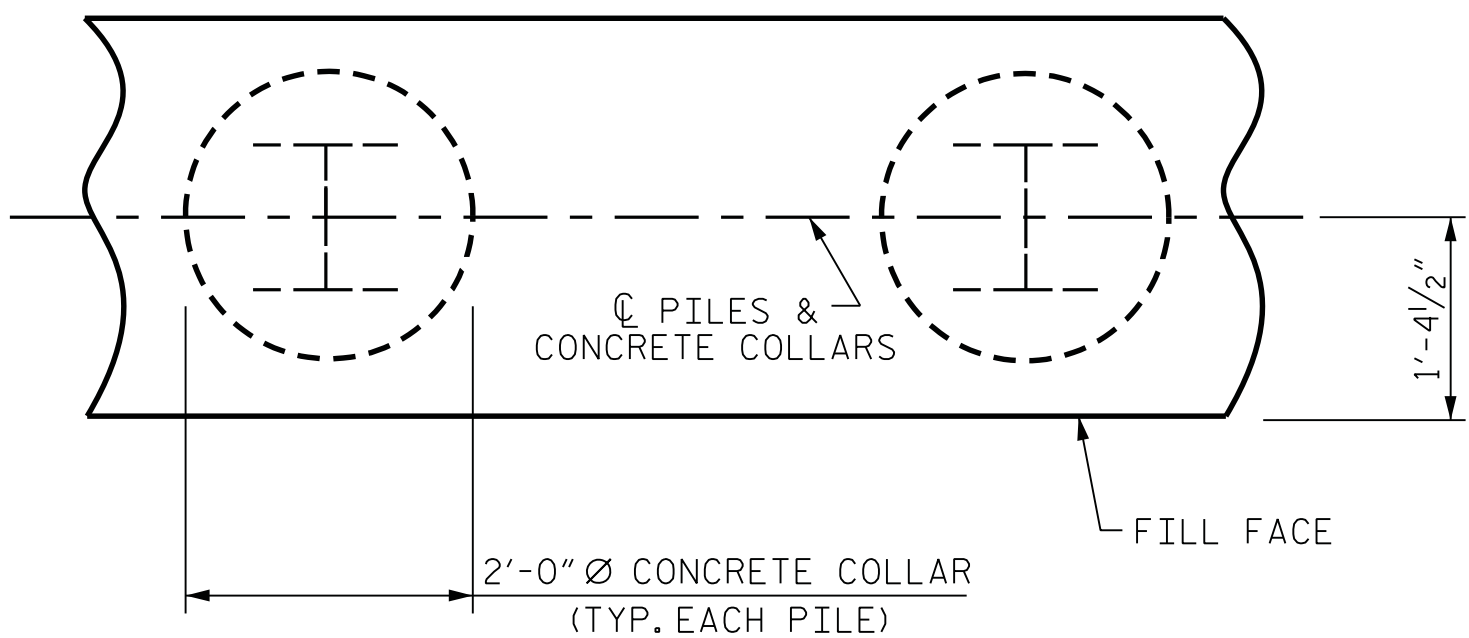
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"
(END BENT No.1 SHOWN, END BENT No.2 SIMILAR BY ROTATION)



PLAN

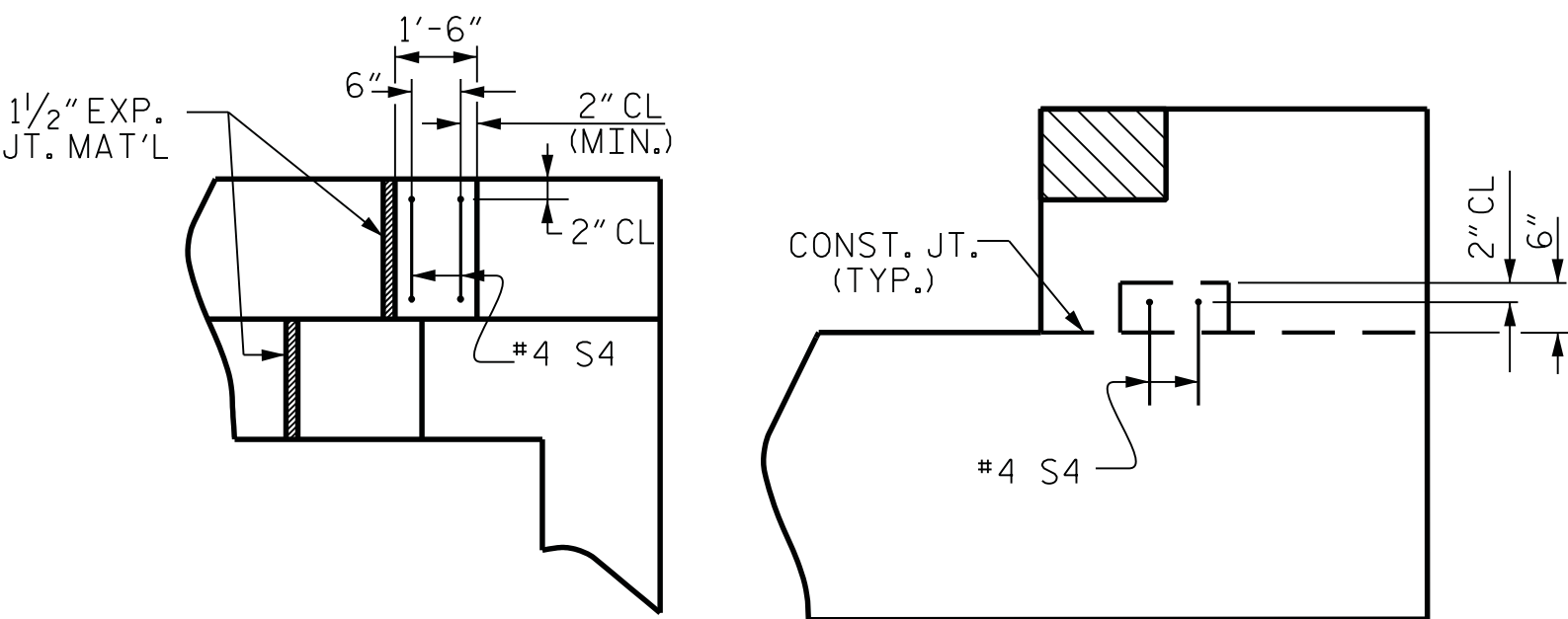
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No.1 SHOWN, END BENT No.2 SIMILAR BY ROTATION)



POSITION OF PILE DURING WELDING.

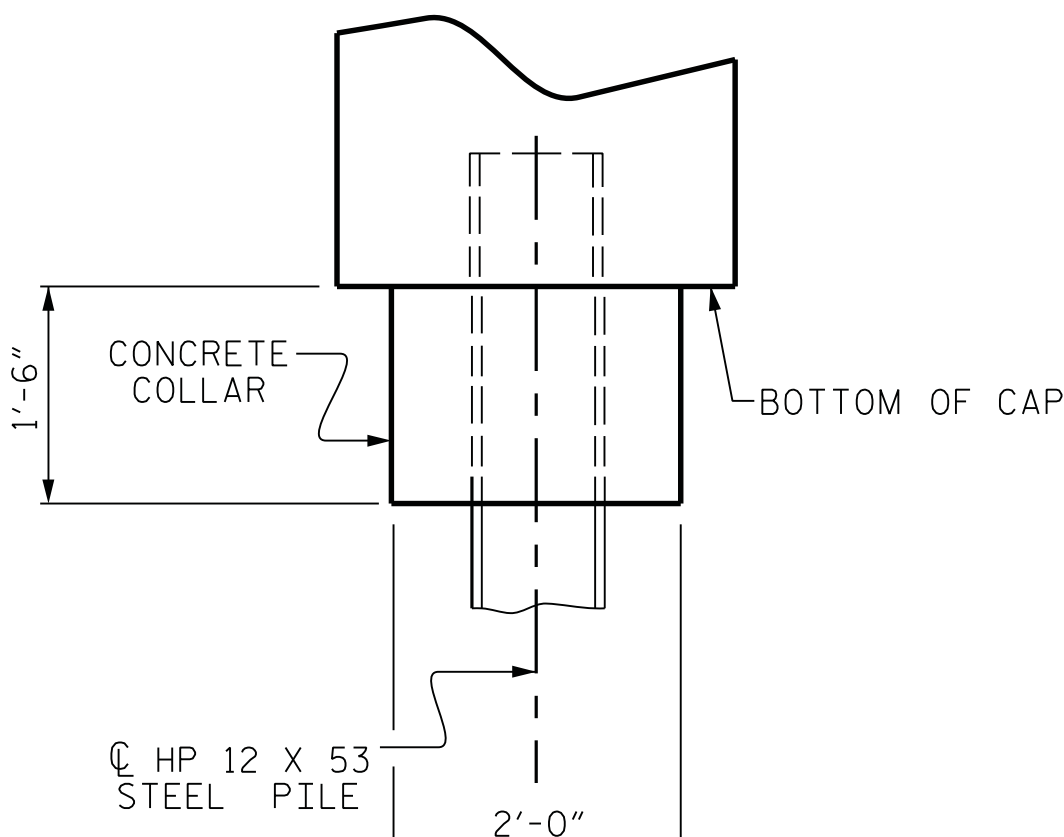
PILE SPLICE DETAILS



PLAN

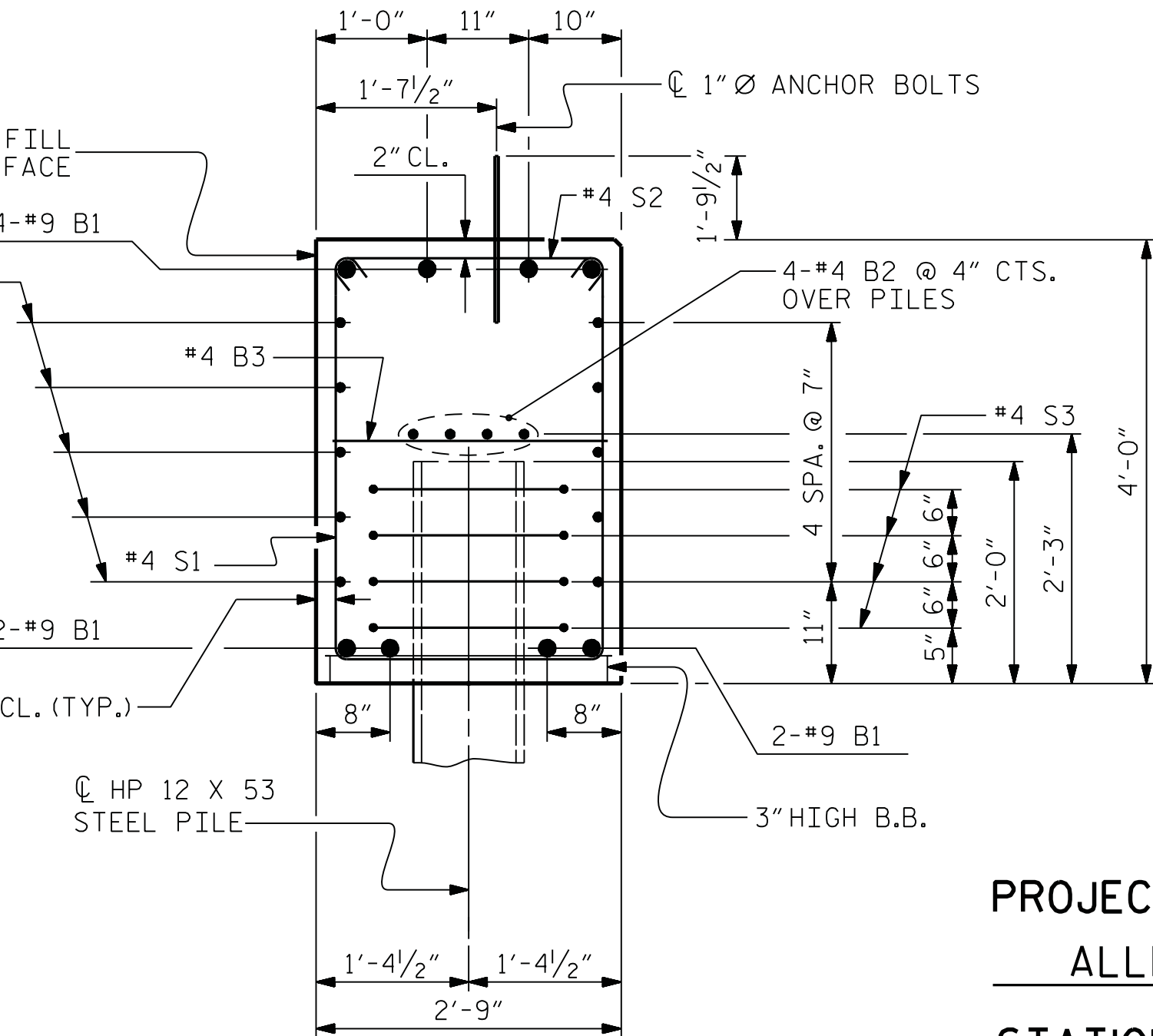
ELEVATION

LATERAL GIDE DETAILS



ELEVATION

BAR TYPES						BILL OF MATERIAL					
						FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		35'-0"	952	B1	8	#9		35'-0"	952
B2	28	#4	STR	17'-7"	329	B2	28	#4	STR	17'-7"	329
B3	9	#4	STR	2'-5"	15	B3	9	#4	STR	2'-5"	15
H1	40	#4		9'-4"	249	H1	40	#4		9'-4"	249
K1	16	#4	STR	2'-11"	31	K1	16	#4	STR	2'-11"	31
S1	42	#4	3	10'-5"	292	S1	42	#4	3	10'-5"	292
S2	42	#4	4	3'-2"	89	S2	42	#4	4	3'-2"	89
S3	20	#4	5	6'-6"	87	S3	20	#4	5	6'-6"	87
S4	4	#4	6	4'-5"	12	S4	4	#4	6	4'-5"	12
V1	52	#4	STR	6'-2"	214	V1	52	#4	STR	6'-2"	214
						REINFORCING STEEL (FOR ONE END BENT)					
						2,270 LBS.					
						CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
						POUR #1 CAP, LOWER PART OF WINGS & COLLARS					
						16.7 C.Y.					
						POUR #2 UPPER PART OF WINGS					
						2.1 C.Y.					
						TOTAL CLASS A CONCRETE					
						18.8 C.Y.					



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No.1 & 2
DETAILS

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-24
2			4			TOTAL SHEETS 30

DRAWN BY : F.D.WEEDEN DATE : JAN. 2014
CHECKED BY : R.V.KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W.GENTRY DATE : JAN. 2014

M:\projects\2012\12094_NCD01_Division_0n-Coll\B01-Alleghany_265\Design\Structures\06N\17bp_str_eb.dgn

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY
TO CLEAR ANCHOR BOLTS.

HOOKS ON "M" BARS MAY BE TURNED AS NECESSARY
FOR PLACING REINFORCING STEEL.

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD
SPECIFICATIONS.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE
PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL
COLUMN REINFORCING STEEL."

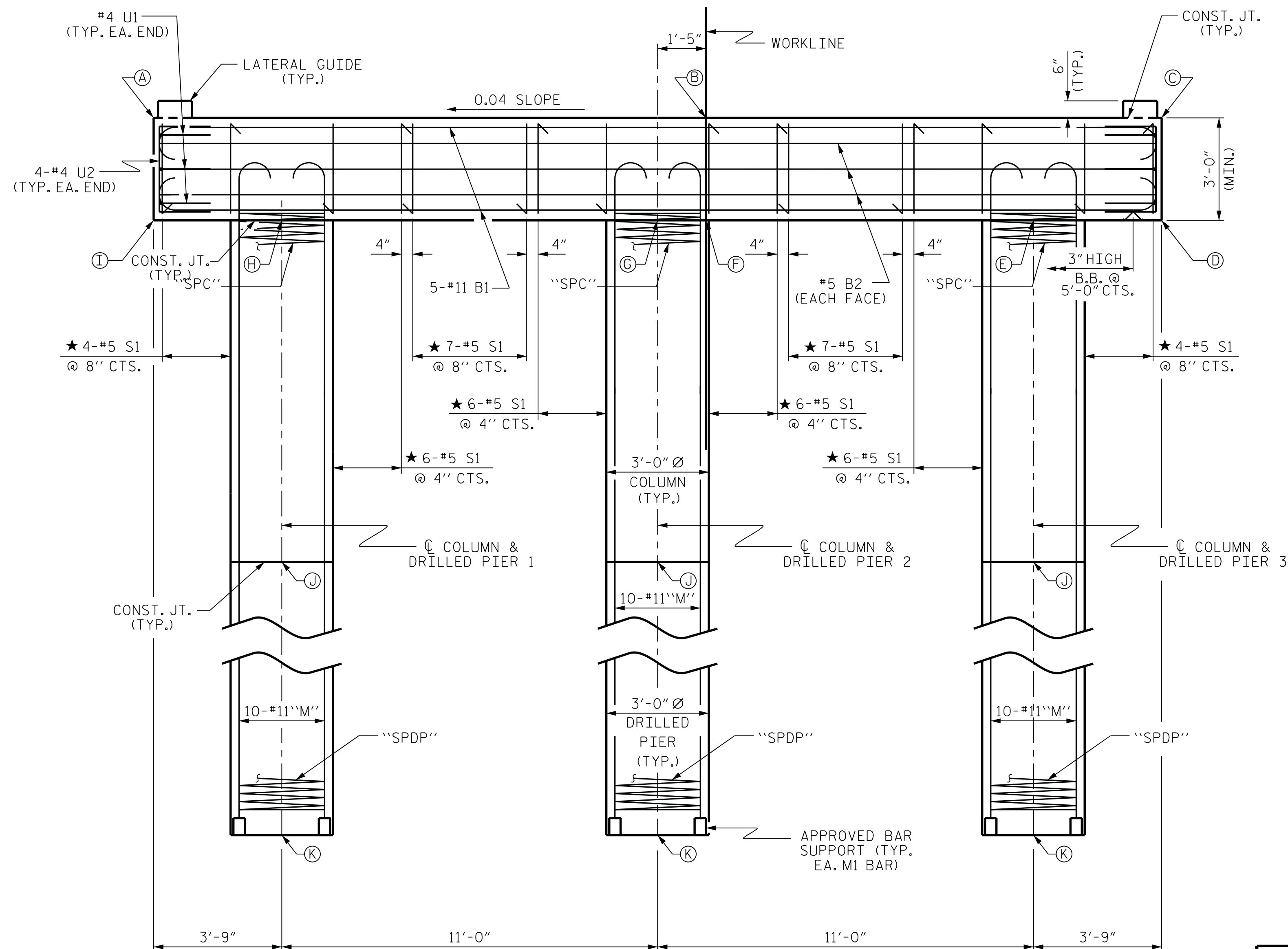
THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL
AFTER THE CORED SLAB UNITS ARE IN PLACE.

★ INVERT ALTERNATE STIRRUPS.

DRILLED PIERS SHALL BE TERMINATED ONE FOOT ± ABOVE
NORMAL WATER SURFACE ELEVATION FOR SHAFTS LOCATED
IN WATER.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT
THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS
DETAILED WITH 3 FEET OF EXTRA LENGTH.

FOR ELEVATIONS, SEE SHEET 3 OF 3.



DIMENSIONS & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER UNLESS OTHERWISE NOTED.



SHEET 1 OF 3

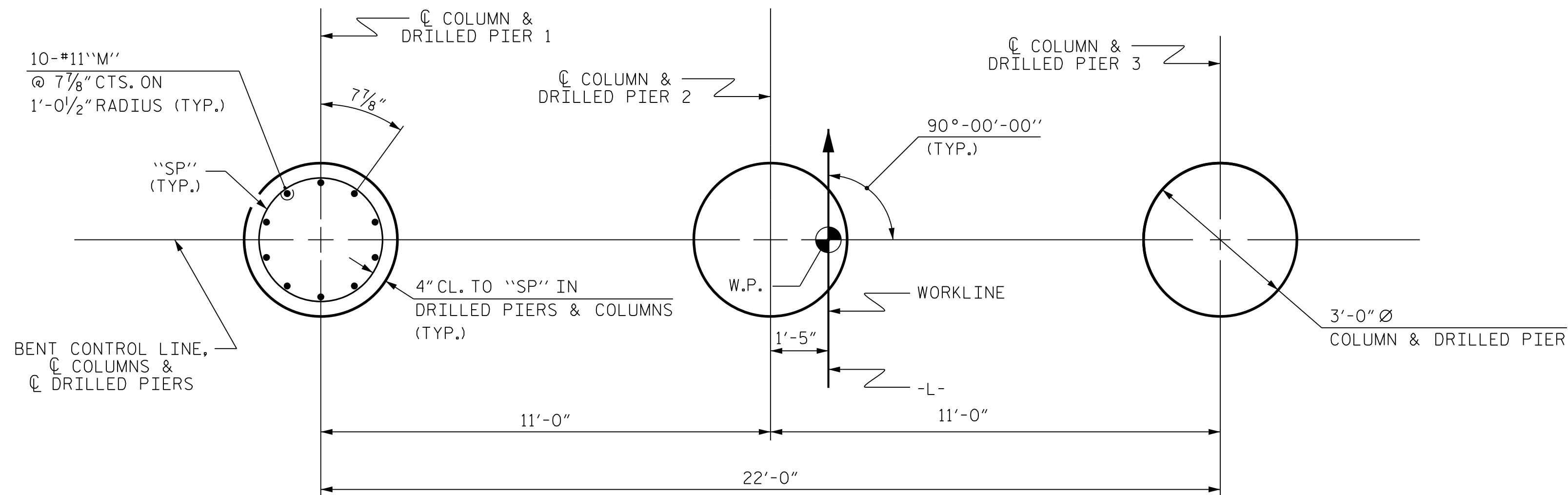
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS 30
2			4			

3/11/2014

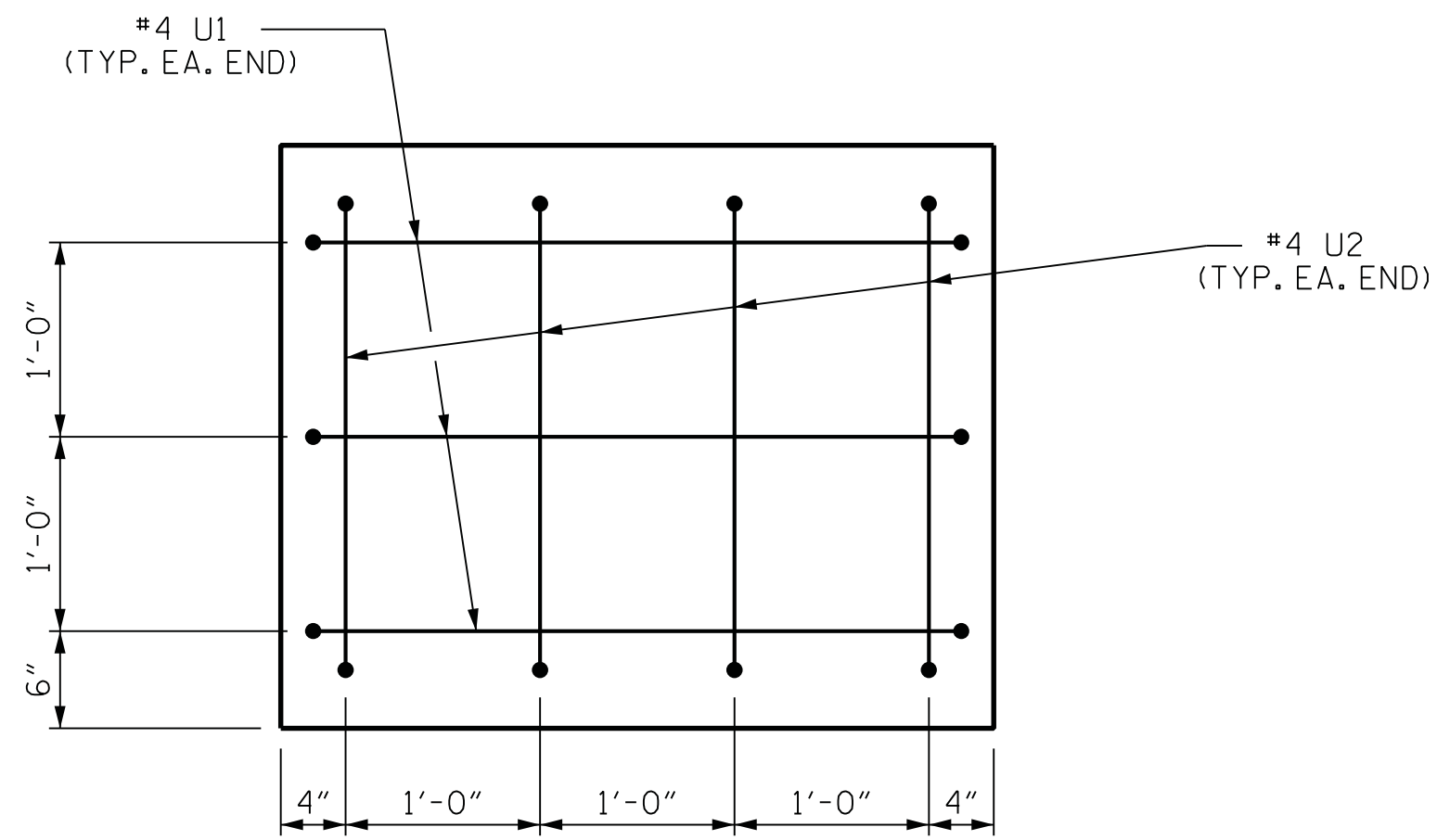
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DRAWN BY : F.D. WEEDEN DATE : JAN. 2014
CHECKED BY : R.V. KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W. GENTRY DATE : JAN. 2014

M:\projects\2012\12094_NCDOT_Division_On-Call\B01_Alleghany_265\Design\Structures\DGN\17bp_str_bt.dgn

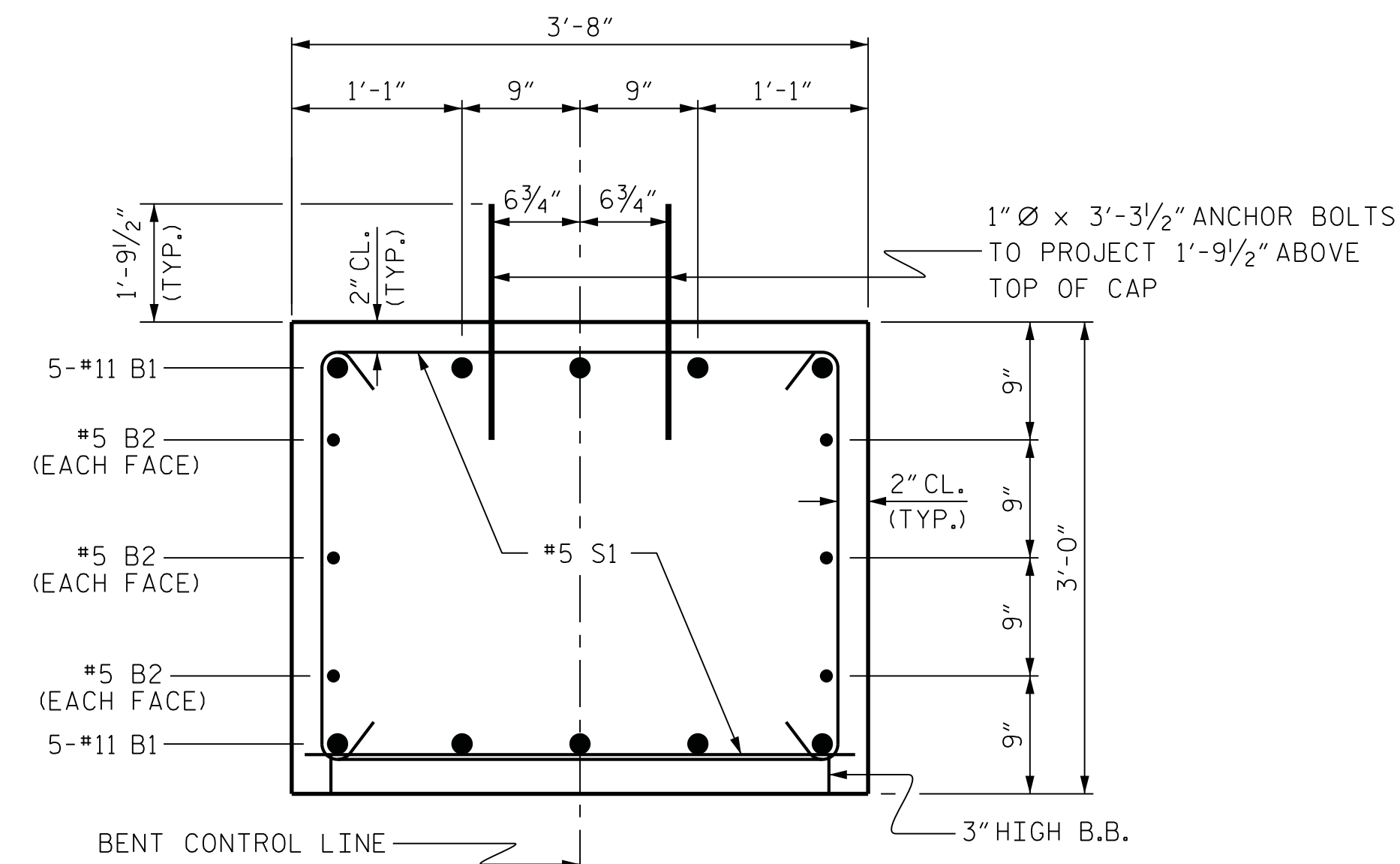


PLAN OF DRILLED PIERS & COLUMNS

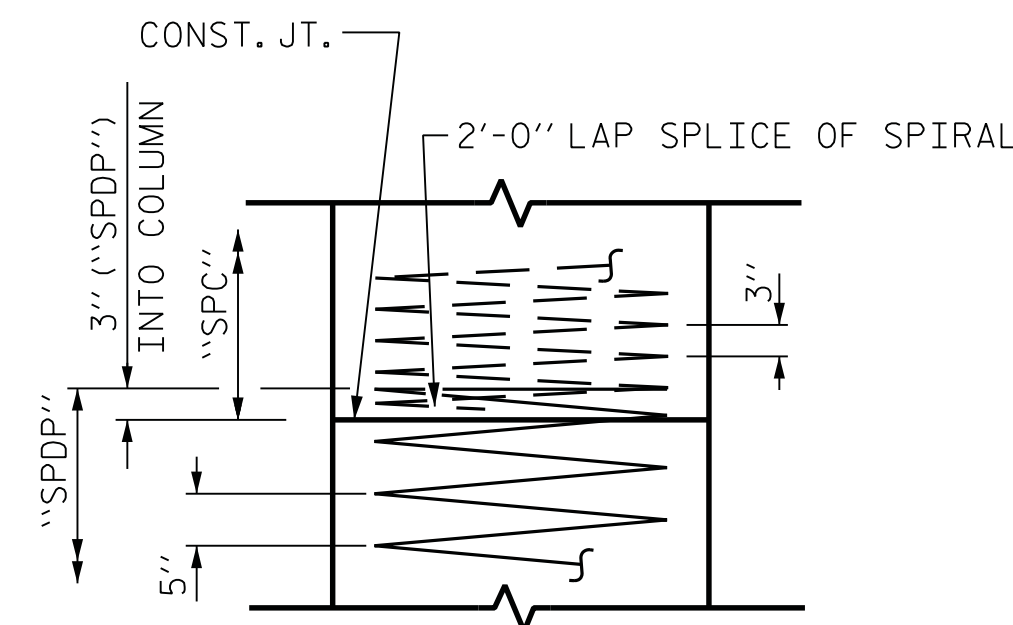


END OF CAP VIEW

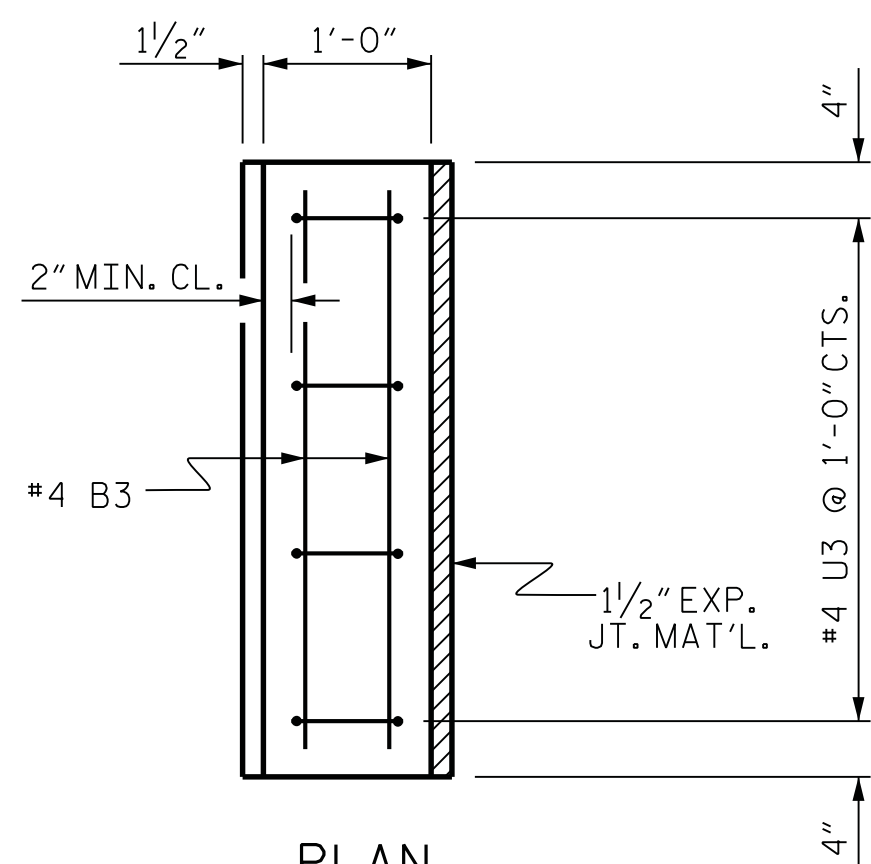
(TYPICAL BOTH ENDS)



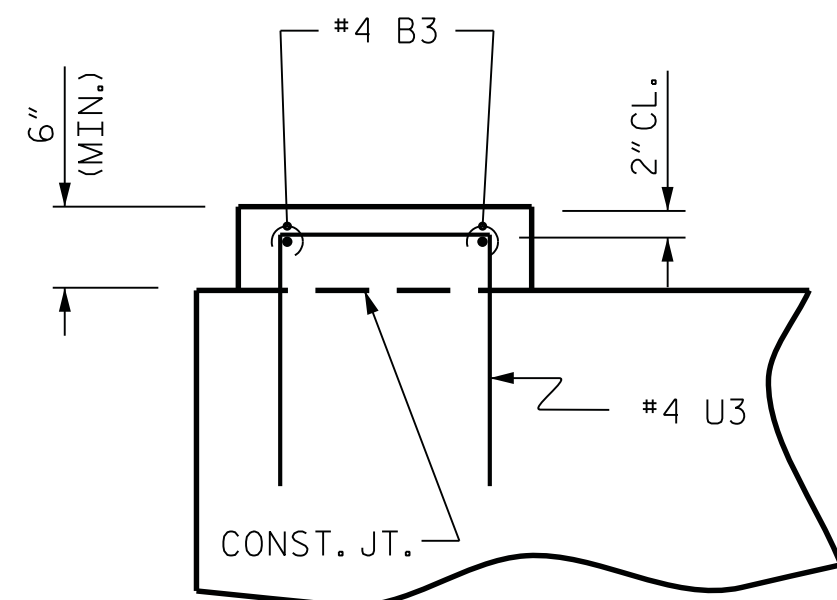
SECTION THRU CAP



CONSTRUCTION JOINT DETAIL



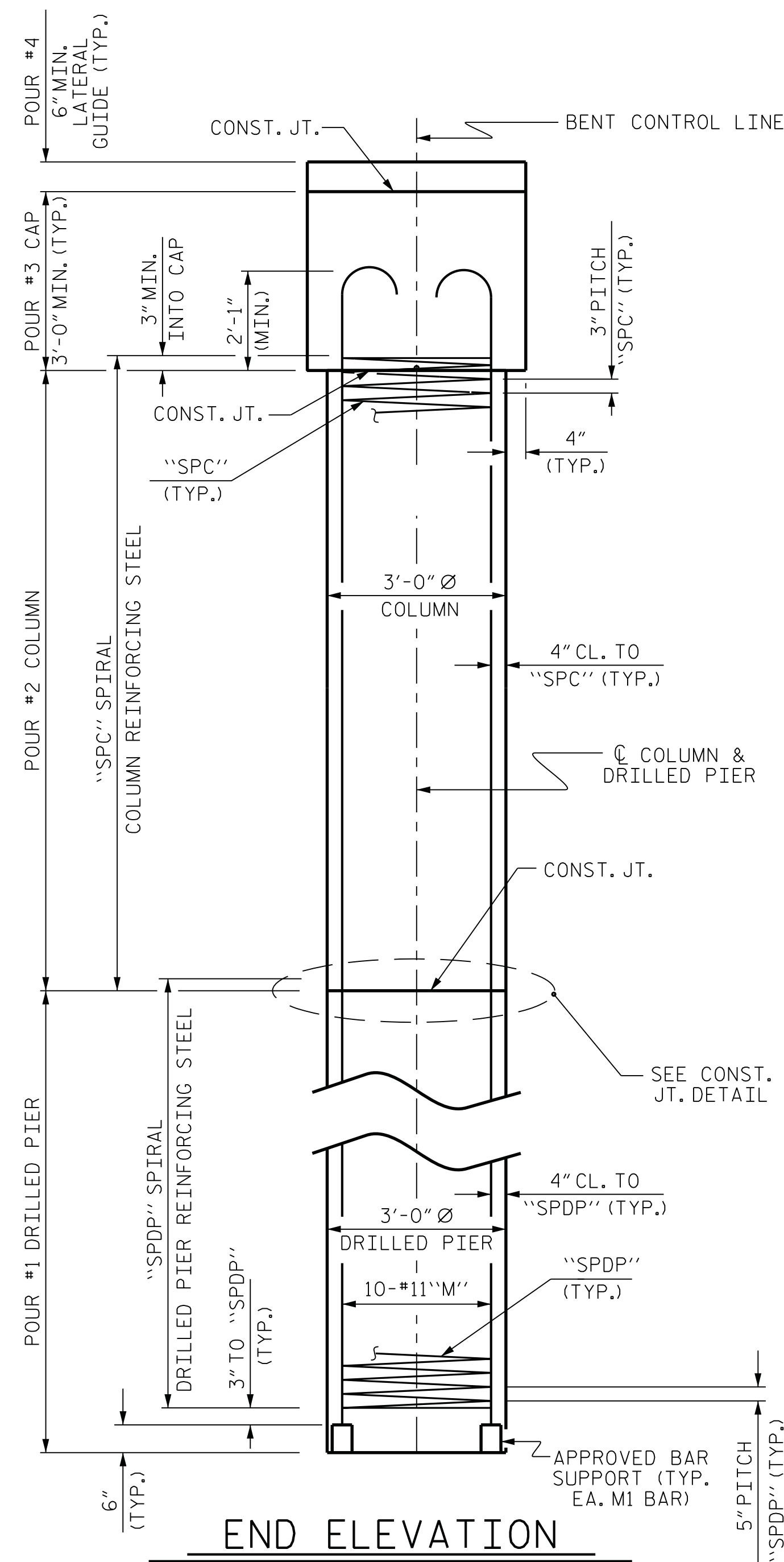
PLAN



ELEVATION

LATERAL GUIDE DETAILS

(LEFT LATERAL GUIDE SHOWN, RIGHT SIDE SIMILAR)



END ELEVATION

PROJECT NO. 17BP.11.R.57

ALLEGHANY COUNTY

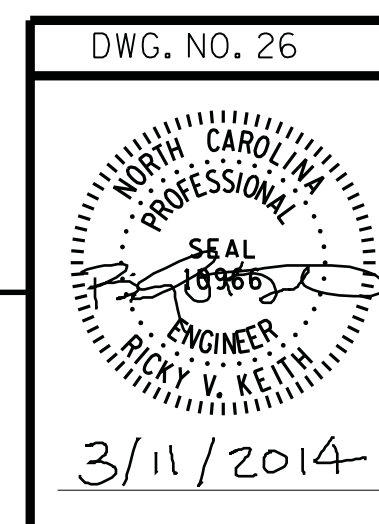
STATION: STA. 18+76.70 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT DETAILS

REVISIONS						SHEET NO. S-26
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 30
2			4			

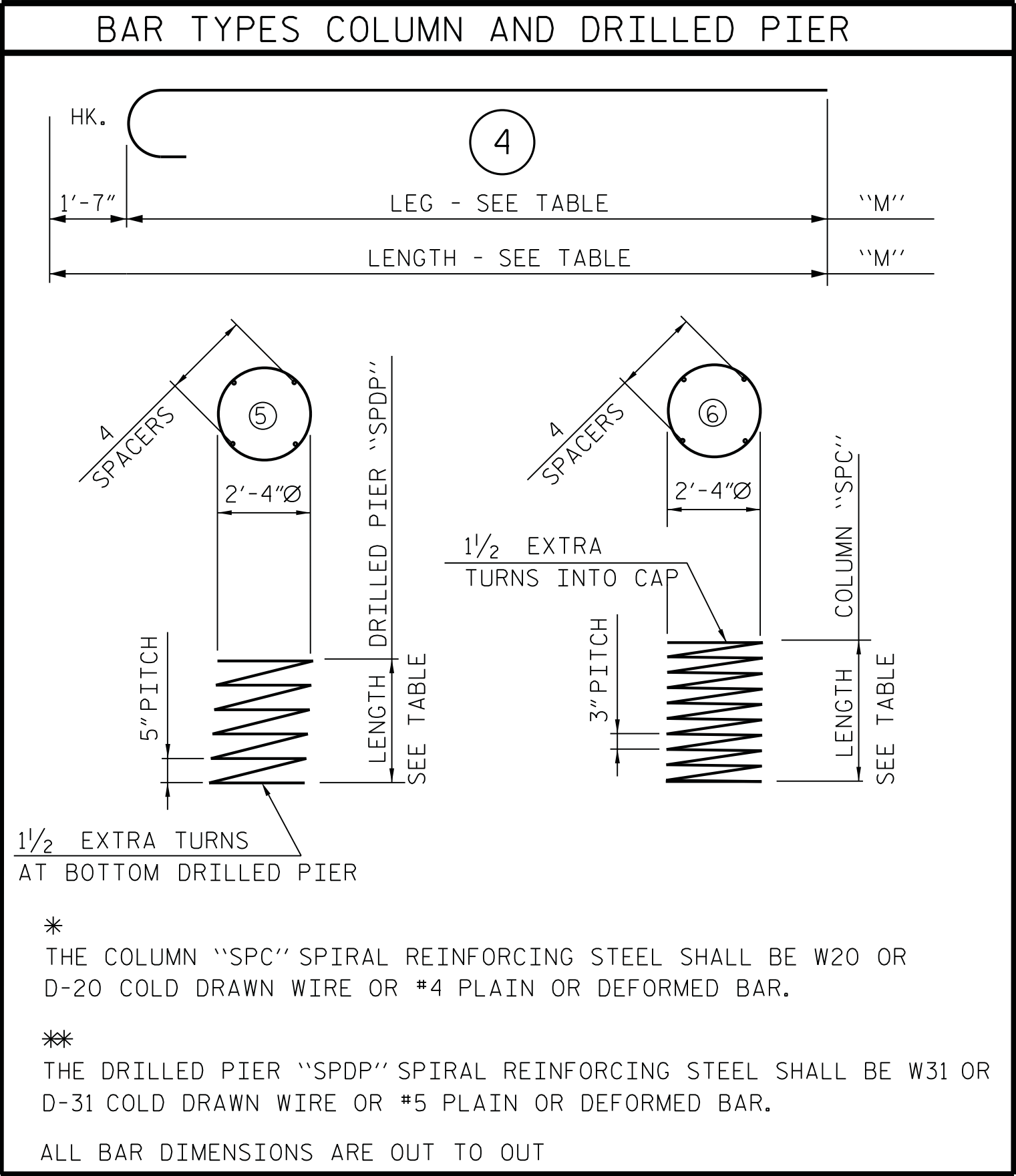


RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DRAWN BY : F.D. WEEDEN DATE : JAN. 2014
CHECKED BY : R.V. KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W. GENTRY DATE : JAN. 2014

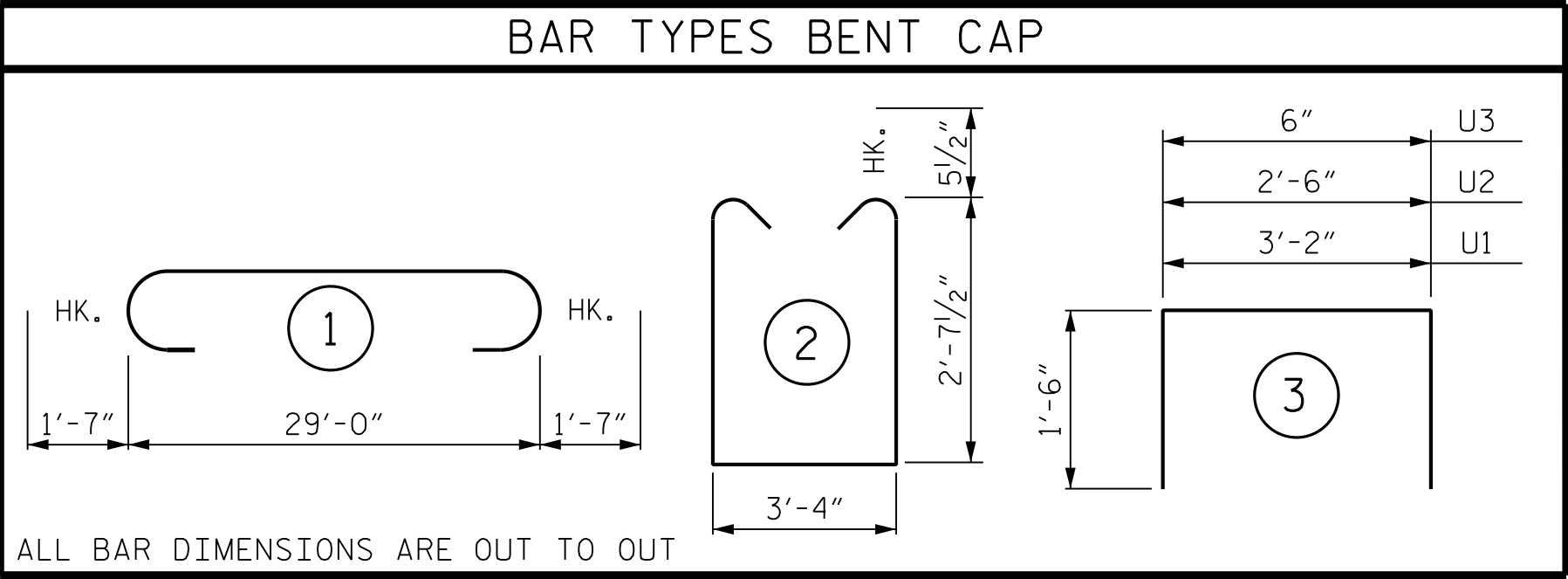
M:\projects\2012\12094_NCD01_Division_0n-Cali\B01_Alleghany_265\Design\Structures\06N\17bp_str_bt.dgn

COLUMN AND DRILLED PIER BILL OF MATERIAL																											
	"M" BARS IN DRILLED PIER / COLUMN							COLUMN SPIRAL "SPC"						DRILLED PIER SPIRAL "SPDP"						POUR 2 CLASS A CONCRETE	POUR 1 DRILLED PIER CONCRETE	3'-0" DRILLED PIERS NOT IN SOIL	3'-0" DRILLED PIERS IN SOIL	PERMANENT STEEL CASINGS 3'-0" DRILLED PIERS	CSL TUBES		
	BAR	NO.	SIZE	TYPE	LEG	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT								
BENT 1, COLUMN 1	M11	10	#11	4	27'-11"	29'-6"	1567	SPC11	1	*	6	204'-11"	137	SPDP11	1	*	*	5	291'-2"	304	1.7 C.Y.	4.4 C.Y.	8.0	8.8	9.8	73.2	
BENT 1, COLUMN 2	M12	10	#11	4	28'-4"	29'-11"	1589	SPC12	1	*	6	217'-7"	145	SPDP12	1	*	*	5	291'-2"	304	1.8 C.Y.	4.4 C.Y.	8.0	8.8	9.8	73.2	
BENT 1, COLUMN 3	M13	10	#11	4	28'-9"	30'-4"	1612	SPC13	1	*	6	230'-3"	154	SPDP13	1	*	*	5	291'-2"	304	1.9 C.Y.	4.4 C.Y.	8.0	8.8	9.8	73.2	
BENT 2, COLUMN 1	M21	10	#11	4	26'-2"	27'-9"	1474	SPC21	1	*	6	184'-6"	123	SPDP21	1	*	*	5	273'-11"	286	1.5 C.Y.	4.1 C.Y.	10.0	5.8	8.8	69.2	
BENT 2, COLUMN 2	M22	10	#11	4	26'-8"	28'-3"	1501	SPC22	1	*	6	197'-2"	132	SPDP22	1	*	*	5	273'-11"	286	1.6 C.Y.	4.1 C.Y.	10.0	5.8	8.8	69.2	
BENT 2, COLUMN 3	M23	10	#11	4	27'-1"	28'-8"	1523	SPC23	1	*	6	209'-10"	140	SPDP23	1	*	*	5	273'-11"	286	1.7 C.Y.	4.1 C.Y.	10.0	5.8	8.8	69.2	
BENT 3, COLUMN 1	M31	10	#11	4	25'-6"	27'-1"	1439	SPC31	1	*	6	163'-9"	109	SPDP31	1	*	*	5	273'-11"	286	1.3 C.Y.	4.1 C.Y.	10.0	5.8	8.8	69.2	
BENT 3, COLUMN 2	M32	10	#11	4	25'-11"	27'-6"	1461	SPC32	1	*	6	176'-5"	118	SPDP32	1	*	*	5	273'-11"	286	1.4 C.Y.	4.1 C.Y.	10.0	5.8	8.8	69.2	
BENT 3, COLUMN 3	M33	10	#11	4	26'-4"	27'-11"	1483	SPC33	1	*	6	189'-1"	126	SPDP33	1	*	*	5	273'-11"	286	1.6 C.Y.	4.1 C.Y.	10.0	5.8	8.8	69.2	
BENT 4, COLUMN 1	M41	10	#11	4	25'-9"	27'-4"	1452	SPC41	1	*	6	143'-2"	96	SPDP41	1	*	*	5	291'-2"	304	1.1 C.Y.	4.4 C.Y.	11.0	5.8	8.8	73.2	
BENT 4, COLUMN 2	M42	10	#11	4	26'-3"	27'-10"	1479	SPC42	1	*	6	155'-11"	104	SPDP42	1	*	*	5	291'-2"	304	1.3 C.Y.	4.4 C.Y.	11.0	5.8	8.8	73.2	
BENT 4, COLUMN 3	M43	10	#11	4	26'-8"	28'-3"	1501	SPC43	1	*	6	168'-8"	113	SPDP43	1	*	*	5	291'-2"	304	1.4 C.Y.	4.4 C.Y.	11.0	5.8	8.8	73.2	
BENT 5, COLUMN 1	M51	10	#11	4	23'-1"	24'-8"	1311	SPC51	1	*	6	122'-7"	82	SPDP51	1	*	*	5	256'-9"	268	1.0 C.Y.	3.9 C.Y.	10.0	4.8	7.8	65.2	
BENT 5, COLUMN 2	M52	10	#11	4	23'-6"	25'-1"	1333	SPC52	1	*	6	135'-3"	90	SPDP52	1	*	*	5	256'-9"	268	1.1 C.Y.	3.9 C.Y.	10.0	4.8	7.8	65.2	
BENT 5, COLUMN 3	M53	10	#11	4	23'-11"	25'-6"	1355	SPC53	1	*	6	147'-11"	99	SPDP53	1	*	*	5	256'-9"	268	1.2 C.Y.	3.9 C.Y.	10.0	4.8	7.8	65.2	
BENT 6, COLUMN 1	M61	10	#11	4	25'-4"	26'-11"	1430	SPC61	1	*	6	101'-10"	68	SPDP61	1	*	*	5	308'-4"	322	0.8 C.Y.	4.7 C.Y.	12.0	5.8	7.8	77.2	
BENT 6, COLUMN 2	M62	10	#11	4	25'-9"	27'-4"	1452	SPC62	1	*	6	114'-6"	76	SPDP62	1	*	*	5	308'-4"	322	0.9 C.Y.	4.7 C.Y.	12.0	5.8	7.8	77.2	
BENT 6, COLUMN 3	M63	10	#11	4	26'-3"	27'-10"	1479	SPC63	1	*	6	127'-2"	85	SPDP63	1	*	*	5	308'-4"	322	1.0 C.Y.	4.7 C.Y.	12.0	5.8	7.8	77.2	
BENT 7, COLUMN 1	M71	10	#11	4	21'-7"	23'-2"	1231	SPC71	1	*	6	81'-4"	54	SPDP71	1	*	*	5	256'-9"	268	0.6 C.Y.	3.9 C.Y.	10.0	4.8	7.8	65.2	
BENT 7, COLUMN 2	M72	10	#11	4	22'-1"	23'-8"	1257	SPC72	1	*	6	94'-0"	63	SPDP72	1	*	*	5	256'-9"	268	0.7 C.Y.	3.9 C.Y.	10.0	4.8	7.8	65.2	
BENT 7, COLUMN 3	M73	10	#11	4	22'-6"	24'-1"	1280	SPC73	1	*	6	106'-8"	71	SPDP73	1	*	*	5	256'-9"	268	0.8 C.Y.	3.9 C.Y.	10.0	4.8	7.8	65.2	
TOTALS	REINFORCING STEEL						30,209 LBS.	"SPC" STEEL						2,185 LBS.	"SPDP" STEEL						6,114 LBS.	26.4 C.Y.	88.5 C.Y.	213.0 LF	124.8 LF	178.8 LF	1477.2 LF



BILL OF MATERIAL FOR CAP OF ONE BENT 7 REQUIRED					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	32'-2"	1709
B2	6	#5	STR	29'-2"	183
B3	4	#4	STR	3'-4"	9
S1	46	#5	2	9'-6"	456
U1	6	#4	3	6'-2"	25
U2	8	#4	3	5'-6"	29
U3	8	#4	3	3'-6"	19
REINFORCING STEEL (FOR ONE BENT) (CAP AND LATERAL GUIDES)					2,430 LBS.
CLASS A CONCRETE (FOR ONE BENT) (CAP AND LATERAL GUIDES)					
POUR 3 CAP					12.0 CY.
POUR 4 LATERAL GUIDES					0.1 CY.

BENT ELEVATION TABLE											
BENT	A	B	C	D	E	F	G	H	I	J	K
BENT 1	2350.14	2350.73	2351.32	2348.32	2348.17	2347.73	2347.73	2347.29	2347.14	2340.8	2324.0
BENT 2	2349.43	2350.02	2350.61	2347.61	2347.46	2347.02	2347.02	2346.58	2346.43	2340.8	2325.0
BENT 3	2348.71	2349.30	2349.89	2346.89	2346.74	2346.30	2346.30	2345.86	2345.71	2340.8	2325.0
BENT 4	2348.00	2348.59	2349.18	2346.18	2346.03	2345.59	2345.59	2345.15	2345.00	2340.8	2324.0
BENT 5	2347.28	2347.87	2348.46	2345.46	2345.31	2344.87	2344.87	2344.43	2344.28	2340.8	2326.0
BENT 6	2346.56	2347.15	2347.74	2344.74	2344.59	2344.15	2344.15	2343.71	2343.56	2340.8	2323.0
BENT 7	2345.85	2346.44	2347.03	2344.03	2343.88	2343.44	2343.44	2343.00	2342.85	2340.8	2326.0



COLUMN HEIGHT TABLE			
BENT	COLUMN 1	COLUMN 2	COLUMN 3
BENT 1	6'-5 ⁷ / ₈ "	6'-11 ³ / ₁₆ "	7'-4 ⁷ / ₁₆ "
BENT 2	5'-9 ³ / ₈ "	6'-2 ⁵ / ₈ "	6'-7 ¹⁵ / ₁₆ "
BENT 3	5'-0 ¹³ / ₁₆ "	5'-6"	5'-11 ¹ / ₄ "
BENT 4	4'-4 ³ / ₁₆ "	4'-9 ¹ / ₂ "	5'-2 ³ / ₄ "
BENT 5	3'-7 ⁹ / ₁₆ "	4'-0 ¹³ / ₁₆ "	4'-6 ¹ / ₈ "
BENT 6	2'-10 ¹⁵ / ₁₆ "	3'-4 ³ / ₁₆ "	3'-9 ¹ / ₂ "
BENT 7	2'-2 ³ / ₈ "	2'-7 ¹¹ / ₁₆ "	3'-1"

PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT BILL OF MATERIAL
AND ELEVATION TABLE

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

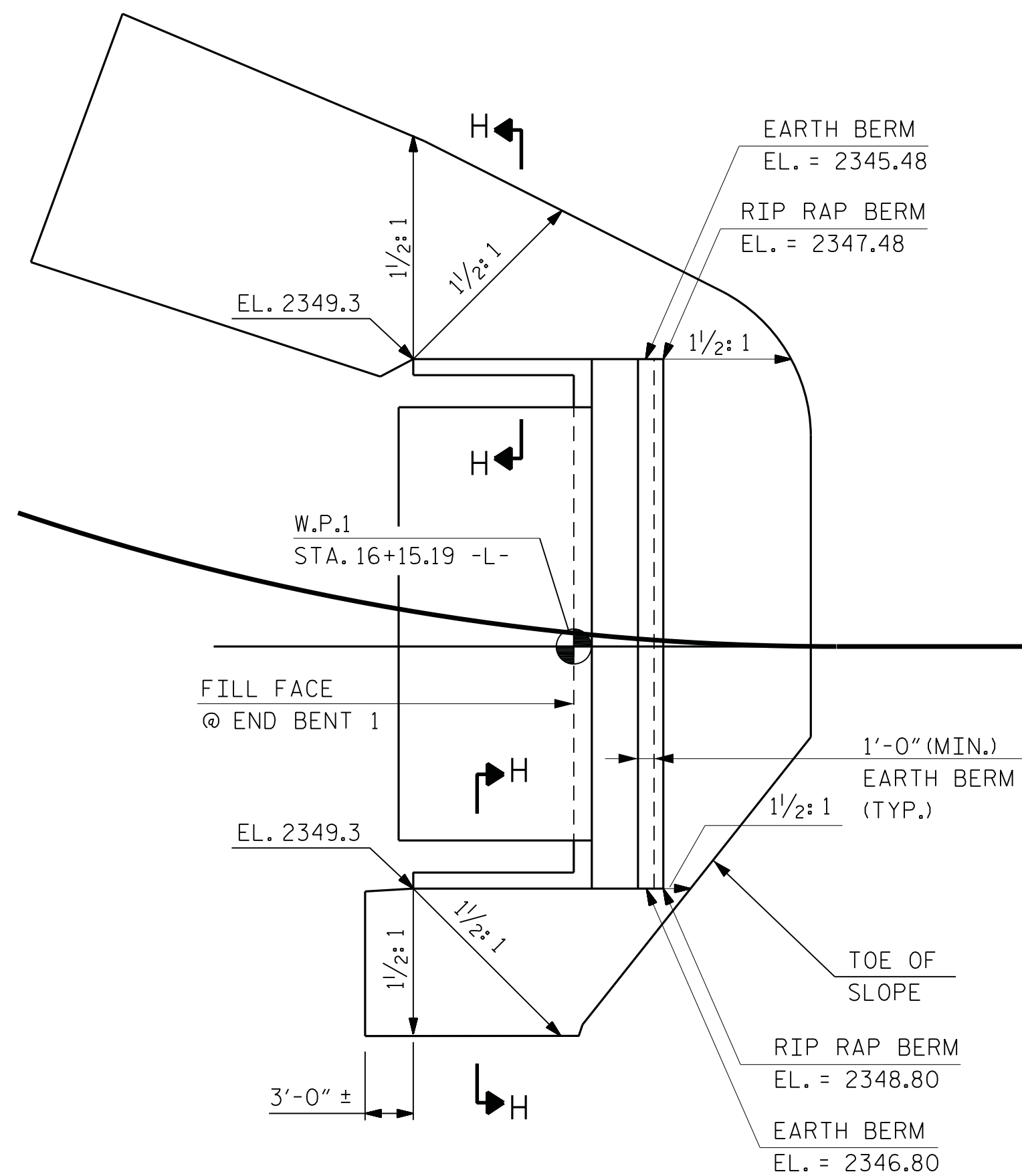
SHEET NO.
S-27
TOTAL SHEETS
30

DRAWN BY : F.D.WEEDEN
CHECKED BY : R.V.KEITH
DESIGN ENGINEER OF RECORD : J.W.GENTRY

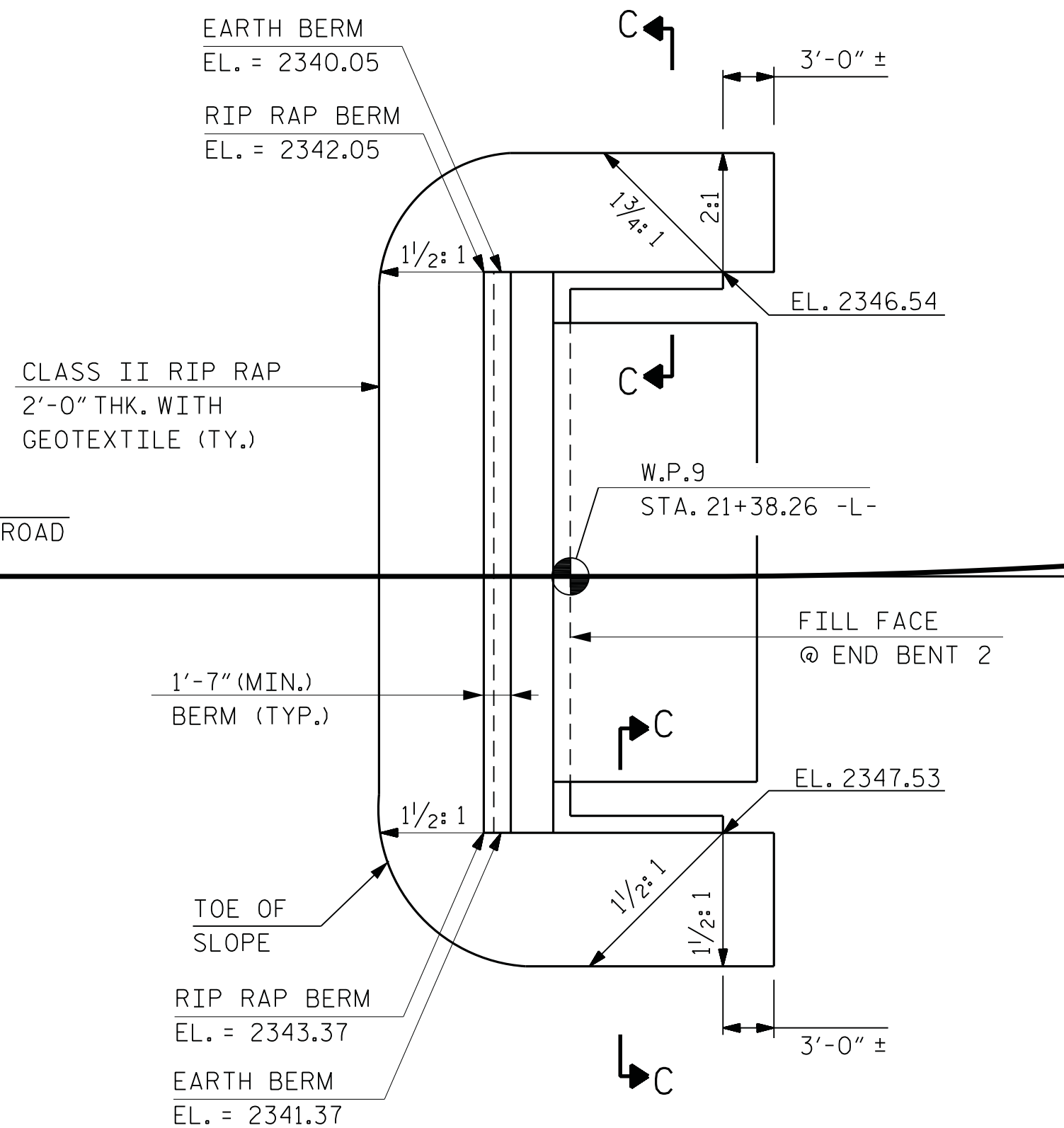
DATE : JAN. 2014
DATE : JAN. 2014
DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

3/11/2014

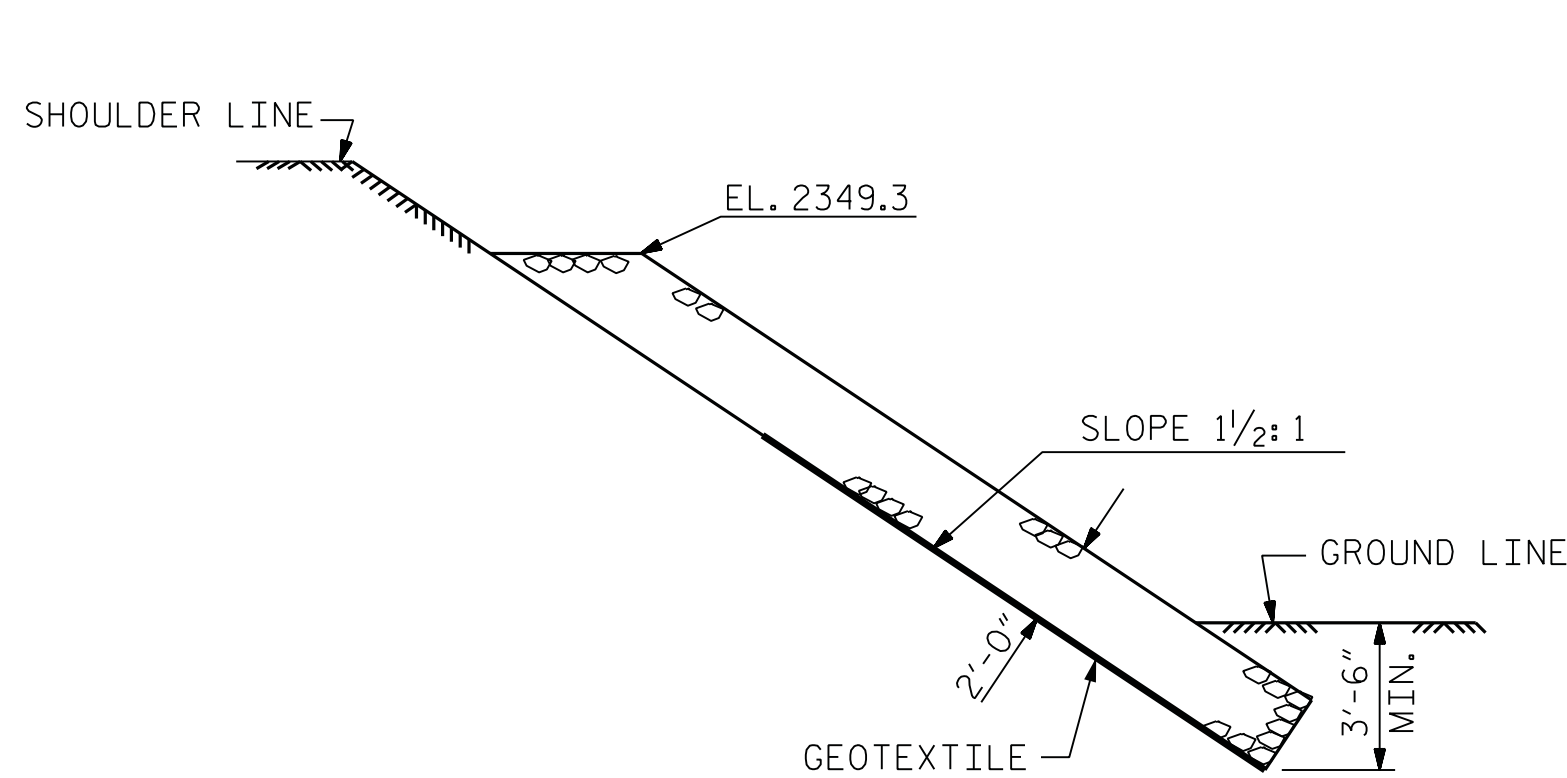


END BENT 1 PLAN

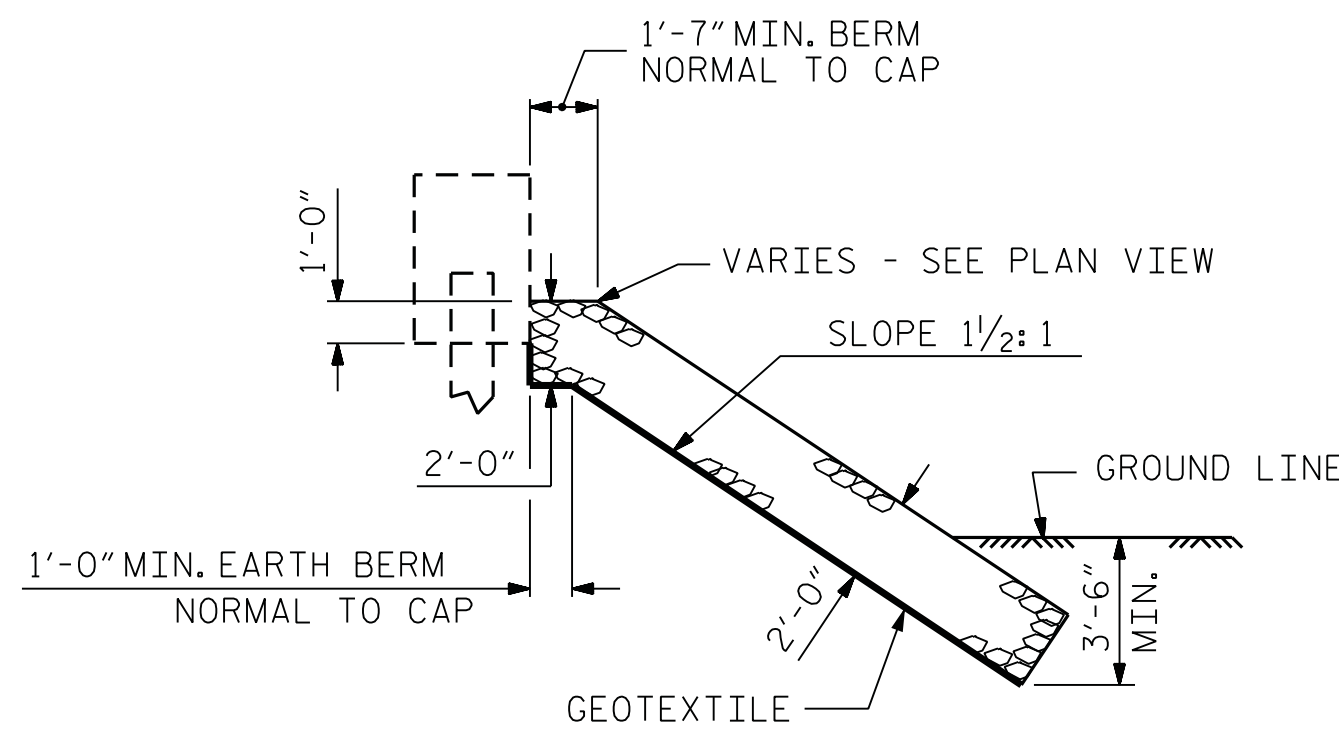


END BENT 2 PLAN

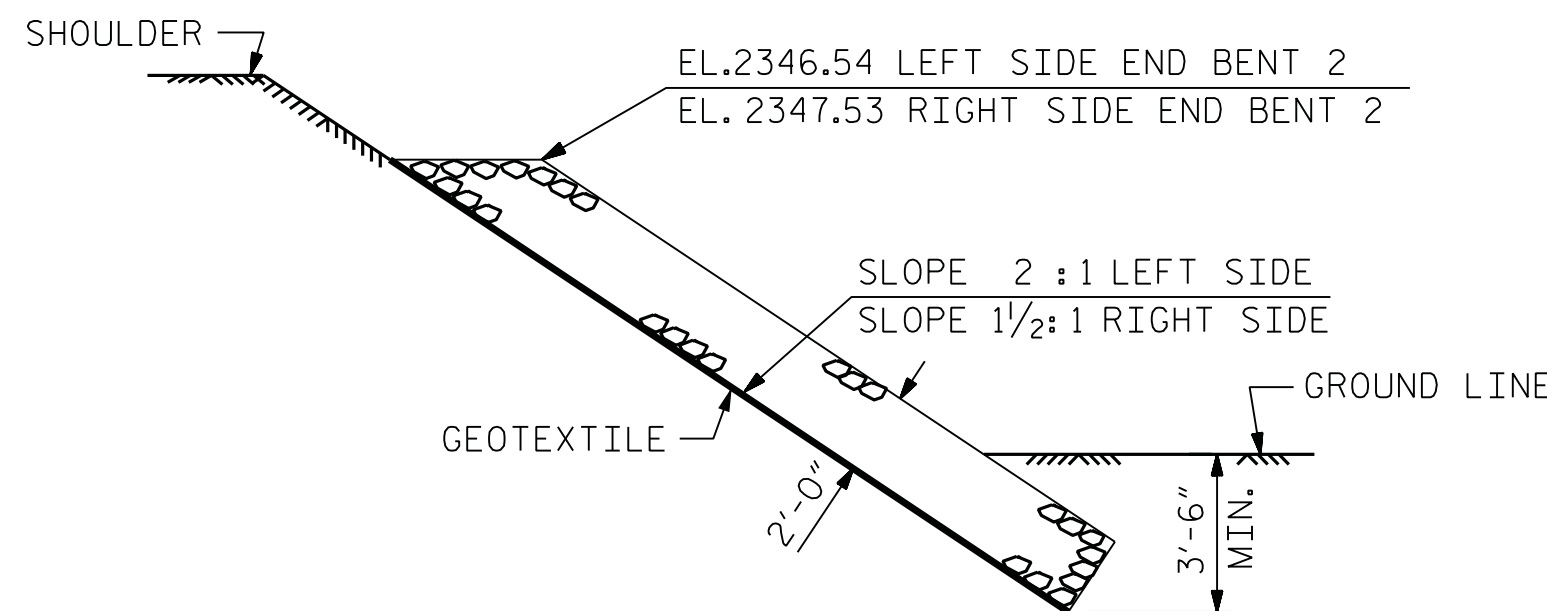
ESTIMATED QUANTITIES		
BRIDGE @ STA. 18+76.70 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	130	140
END BENT 2	50	55



SECTION H-H



SECTION C-C
BERM RIP RAPPED



SECTION C-C

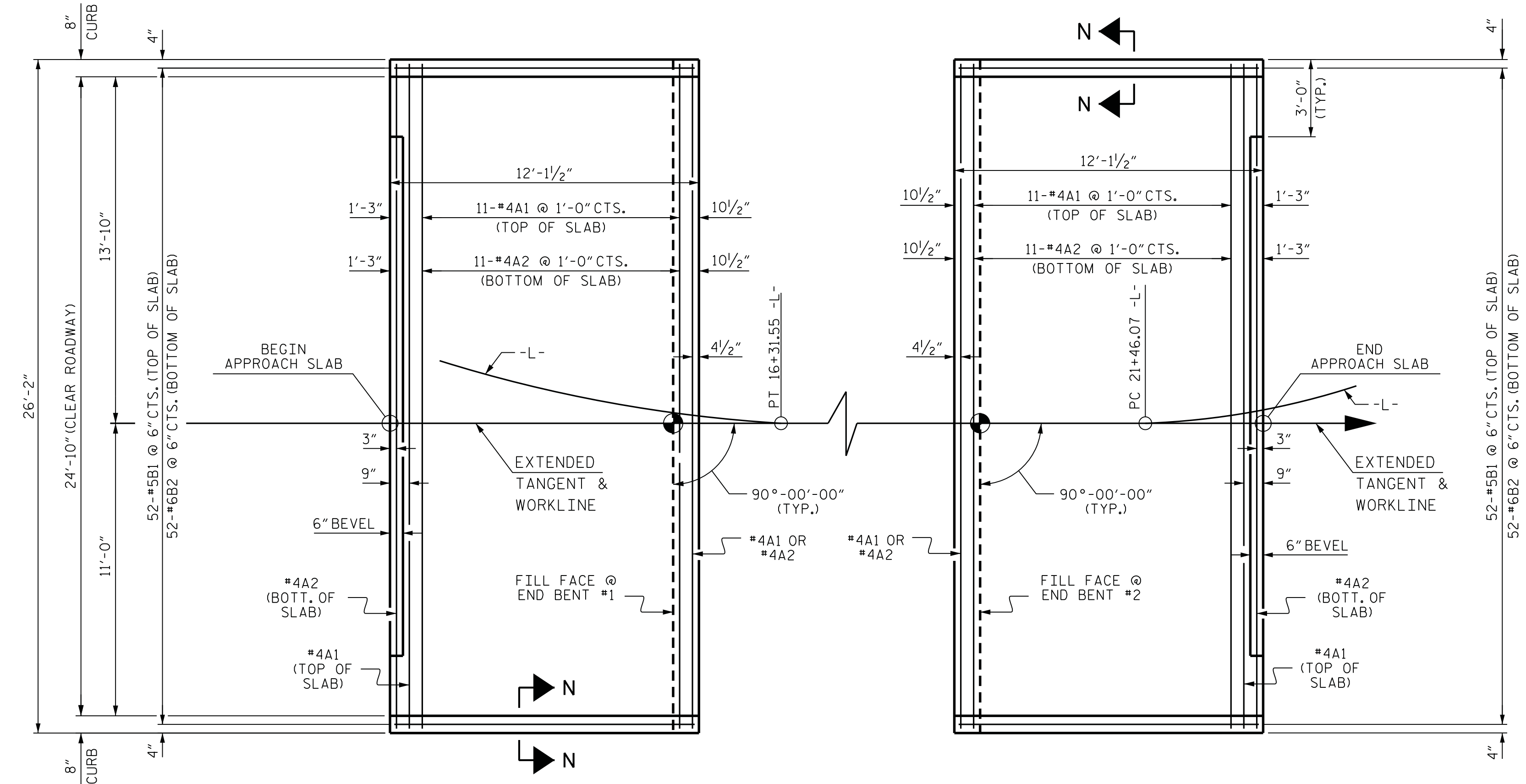
PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

DRAWN BY : F.D.WEEDEN DATE : JAN. 2014
CHECKED BY : R.V.KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W.GENTRY DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

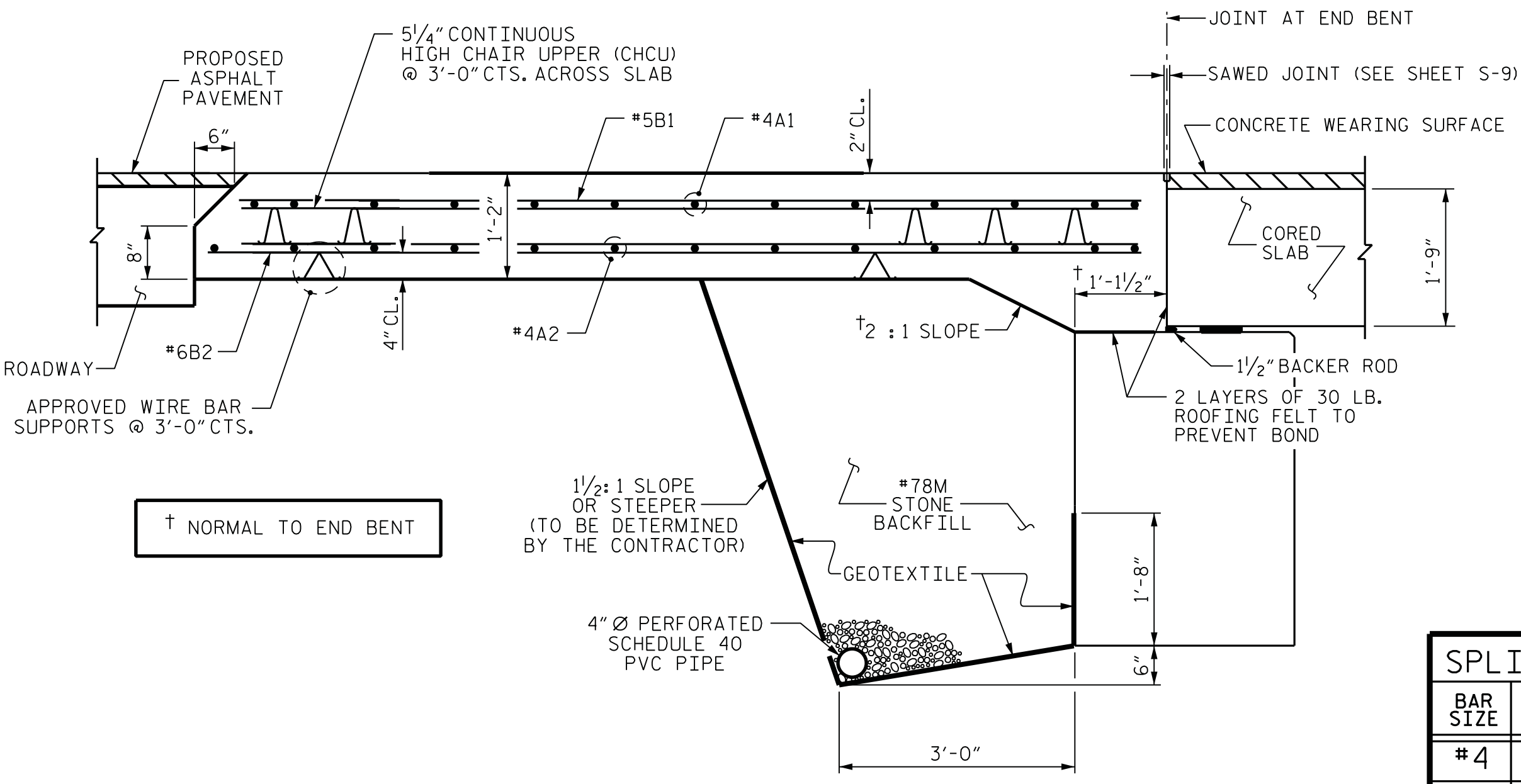
DWG. NO. 28
3/11/2014

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD RIP RAP DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-28					TOTAL SHEETS 30



PLAN @ END BENT #1 PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

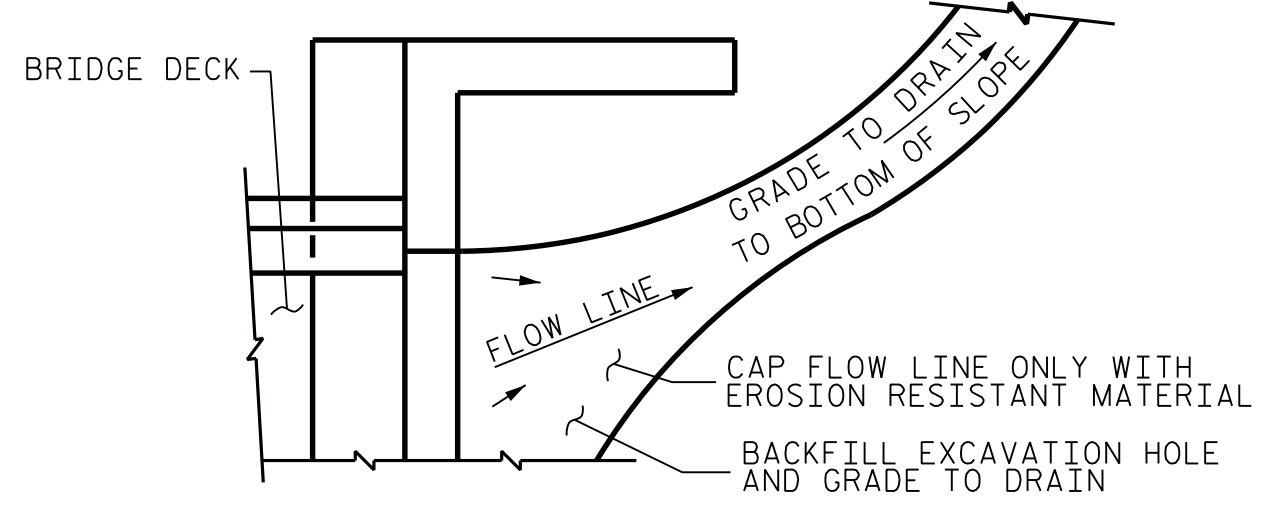
#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

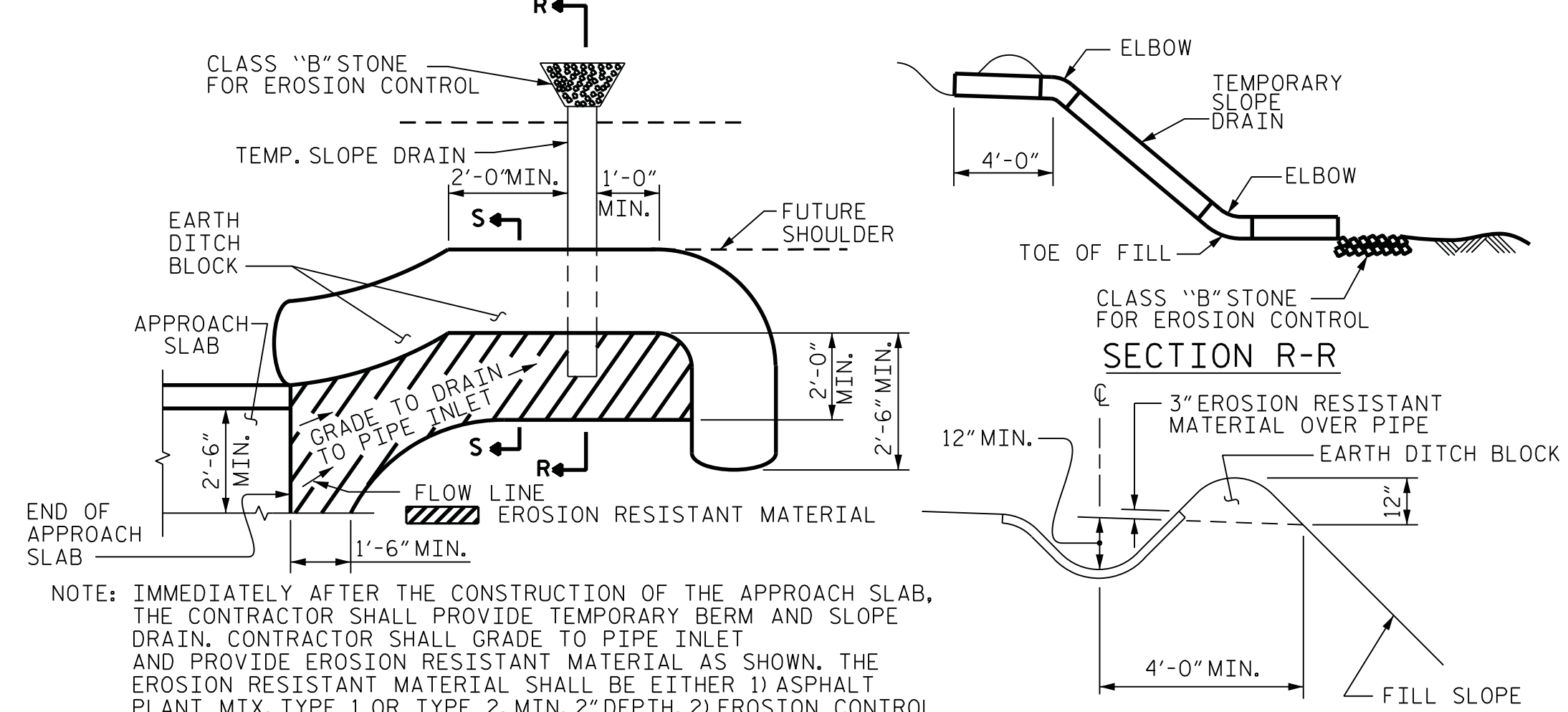
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

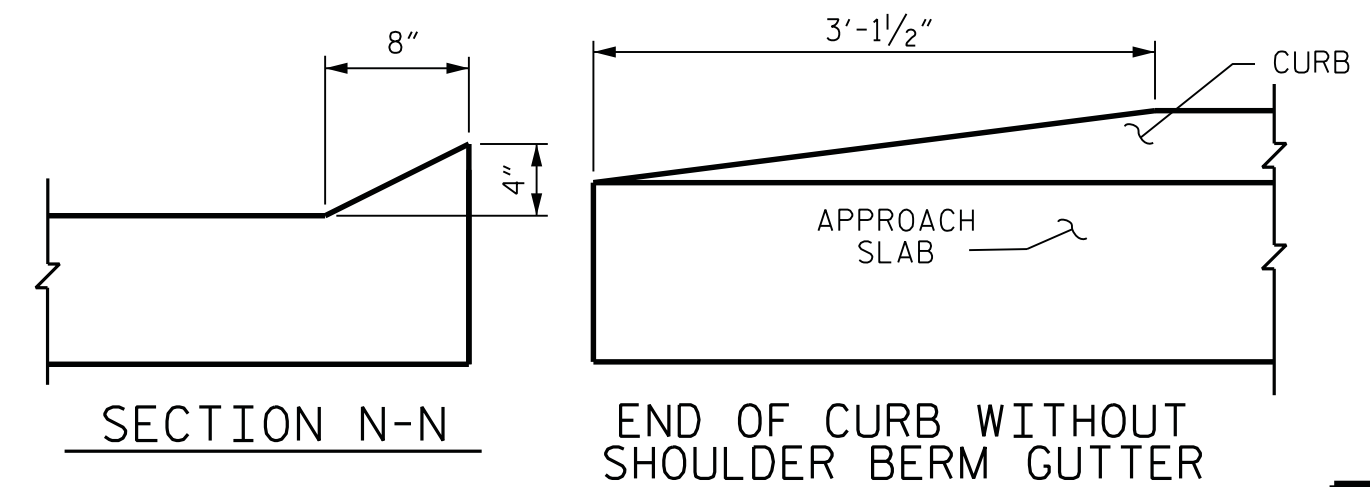
TEMPORARY DRAINAGE DETAIL



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



CURB DETAILS

PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

DRAWN BY : F.D. WEEDEN DATE : JAN. 2014
CHECKED BY : R.V. KEITH DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W. GENTRY DATE : JAN. 2014

M:\projects\2012\12094_NCD01_Division_0n-Cali\B01-Alleghany_265\Design\Structures\06N\17bp_str_ds.dgn

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 29
3/11/2014

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT
(SUB-REGIONAL TIER)
90° SKEW

REVISIONS						SHEET NO. S-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 30
2			4			

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	SEE PLANS
IMPACT ALLOWANCE	- - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	- -	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	- - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	- - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	- - - - -	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	- - - -	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	- - - - -	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER. DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS. WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0". EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED. WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

PROJECT NO. 17BP.11.R.57
ALLEGHANY COUNTY
STATION: STA. 18+76.70 -L-

DRAWN BY : F.D. WEEDEN	DATE : JAN. 2014
CHECKED BY : R.V. KEITH	DATE : JAN. 2014
DESIGN ENGINEER OF RECORD : J.W. GENTRY	DATE : JAN. 2014

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DWG. NO. 30

3/11/2014

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD NOTES					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-30
					TOTAL SHEETS 30