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See Sheet 1A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CLAY COUNTY

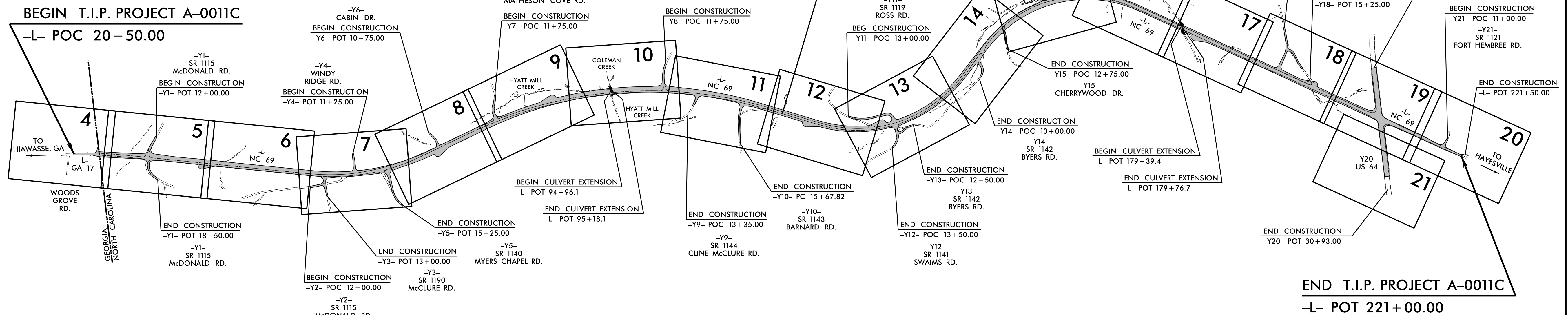
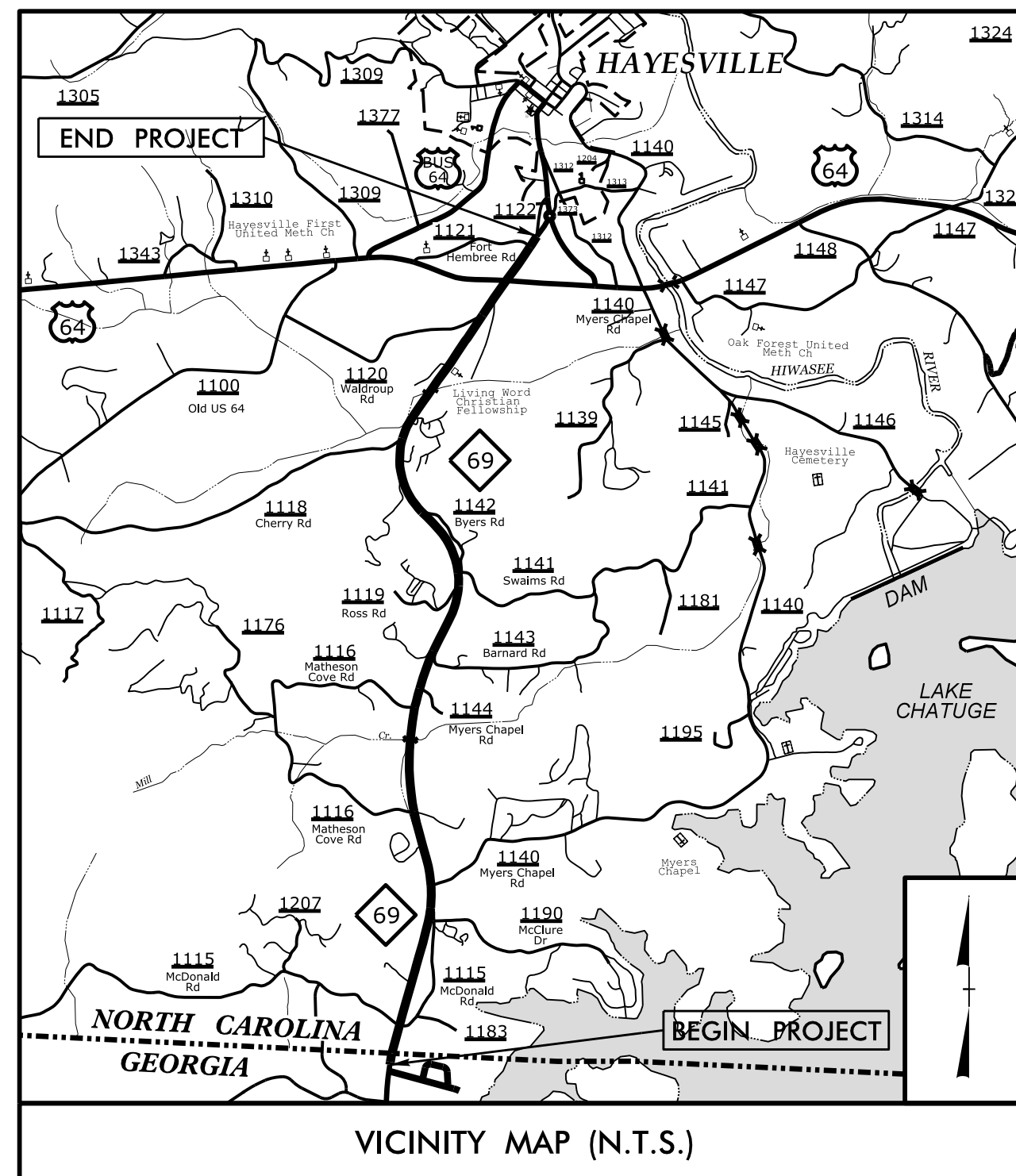
LOCATION: NC 69 FROM GEORGIA STATE LINE TO US 64

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS,
AND CULVERTS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	A-0011C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
32574.1.FD7	APD-0069(007)	PE	
32574.2.4	APD-0069(007)	RW, UTILITIES	
32574.3.8	APD-0069(007)	CONSTRUCTION	

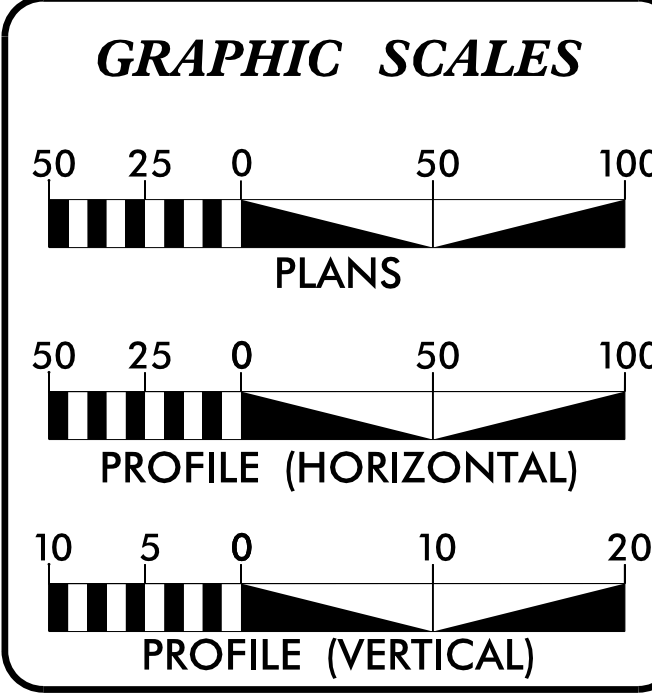
TIP PROJECT: A-0011C

CONTRACT: C204360



NCDOT CONTACT:
KENNETH McDOWELL
ASSISTANT DESIGN CONSTRUCTION
ENGINEER, DIV. 14
(828) 488-0902

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2020 =	11,730
ADT 2040 =	17,390
K =	9 %
D =	55 %
T =	9 % *
V =	50 MPH
* TTST = 2% DUAL 7%	
FUNC CLASS =	
MINOR ARTERIAL	
REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY PROJECT A-0011C	=	3.790 mile
LENGTH STRUCTURES PROJECT A-0011C	=	0.011 mile
TOTAL LENGTH PROJECT A-0011C	=	3.801 mile

Prepared For:
DIVISION OF HIGHWAYS
Division 14, 253 Webster Road, Sylva, NC 28779

By:
Weston & Sampson 588 East Chatham Street Suite 137
Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221
NC License: C-4647

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 30, 2018

LETTING DATE:
NOVEMBER 19, 2019

ROBERT W. PORTER, JR PE
PROJECT ENGINEER

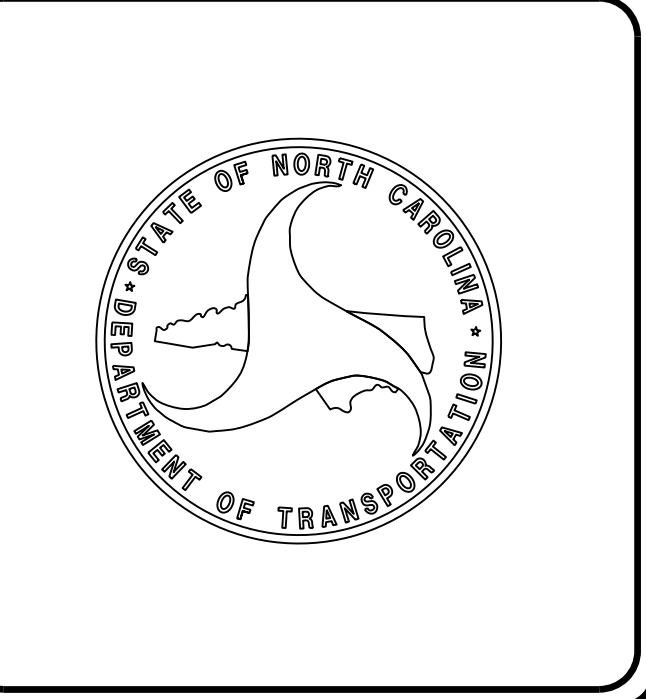
KEVIN S. HUTCHENS PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
9/12/2019

DocuSigned by:
Paul H. Cameron
E98DF4C2FEECAFF
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
9/12/2019

DocuSigned by:
Kevin S. Hutchens
2875EE72F10E430
SIGNATURE: P.E.



8/17/19

GENERAL NOTES: 2018 SPECIFICATIONS EFFECTIVE: 01-16-2018 REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING: THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

CLEARING: CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD 11.

SUPERELEVATION: ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS.

SHOULDER CONSTRUCTION: ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

SIDE ROADS: THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT.

BERM DITCHES: BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

SUBSURFACE DRAINS: SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS: DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADIUS OR RADIUS AS SHOWN ON THE PLANS.

STREET TURNOUT: STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADIUS NOTED ON PLANS.

GUARDRAIL: THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER.

TEMPORARY SHORING: SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

UTILITIES: UTILITY OWNERS ON THIS PROJECT ARE: Power - Blue Ridge Mountain EMC Water/Sewer - Clay County Water & Sewer Communications - Frontier Communications, Balsam West, & Winstream

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS: ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

2018 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 01-16-2018 REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

Table with 2 columns: STD.NO. and TITLE. Lists various engineering standards such as DIVISION 2 - EARTHWORK, DIVISION 3 - PIPE CULVERTS, DIVISION 5 - SUBGRADE, BASES AND SHOULDERS, etc.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED. Weston & Sampson logo and contact information.

PROJECT REFERENCE NO. A-0011C SHEET NO. 1A. ROADWAY DESIGN ENGINEER seal for Kevin S. Hutchen, NC License C-4847, dated 8/6/2019.

INDEX OF SHEETS. SHEET NUMBER SHEET. Lists sheet numbers and titles such as 1 TITLE SHEET, 1A INDEX OF SHEETS, 1B CONVENTIONAL PLAN SHEET SYMBOLS, etc.

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STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	-----x
Property Monument	□ ECM
Parcel/Sequence Number	⑩②③
Existing Fence Line	-x-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	---WLB---
Proposed Wetland Boundary	---WLB---
Existing Endangered Animal Boundary	---EAB---
Existing Endangered Plant Boundary	---EPB---
Existing Historic Property Boundary	---HPB---
Known Contamination Area: Soil	☠-S-☠
Potential Contamination Area: Soil	☠-S-☠
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	☠-W-☠
Contaminated Site: Known or Potential	☠?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	▬

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	---JS---
Buffer Zone 1	---BZ 1---
Buffer Zone 2	---BZ 2---
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	⋆
Proposed Lateral, Tail, Head Ditch	← FLOW
False Sump	▽

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Exist Permanent Easment Pin and Cap	◇
New Permanent Easment Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite R/W Marker	-----
New Control of Access Line with Concrete CA Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	-----
New Temporary Construction Easement	-----
New Temporary Drainage Easement	-----
New Permanent Drainage Easement	-----
New Permanent Drainage / Utility Easement	-----
New Permanent Utility Easement	-----
New Temporary Utility Easement	-----
New Aerial Utility Easement	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	---C---
Proposed Slope Stakes Fill	---F---
Proposed Curb Ramp	---CR---
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	⊠

VEGETATION:

Single Tree	☼
Single Shrub	☼

Note: Not to Scale *S.U.E. = *Subsurface Utility Engineering*

Hedge	-----
Woods Line	-----
Orchard	☼ ☼ ☼ ☼
Vineyard	-----

EXISTING STRUCTURES:

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

UTILITIES:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

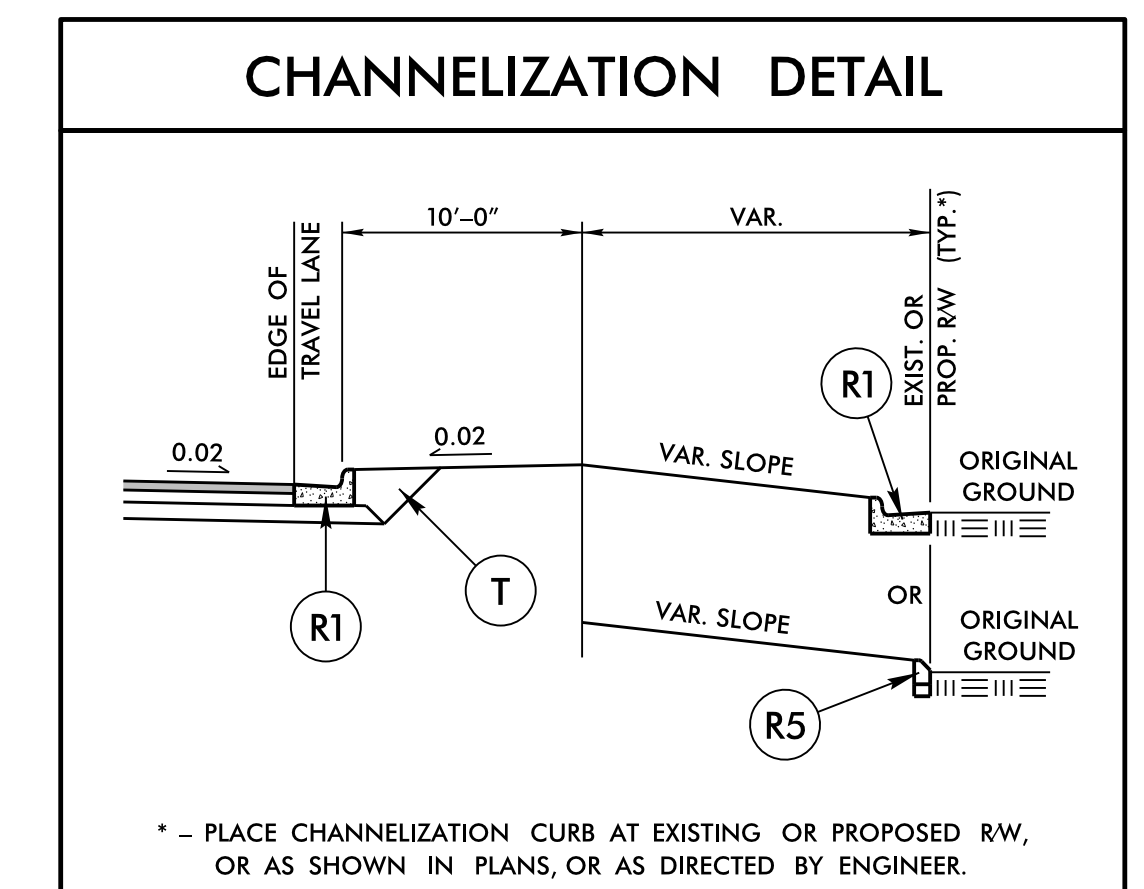
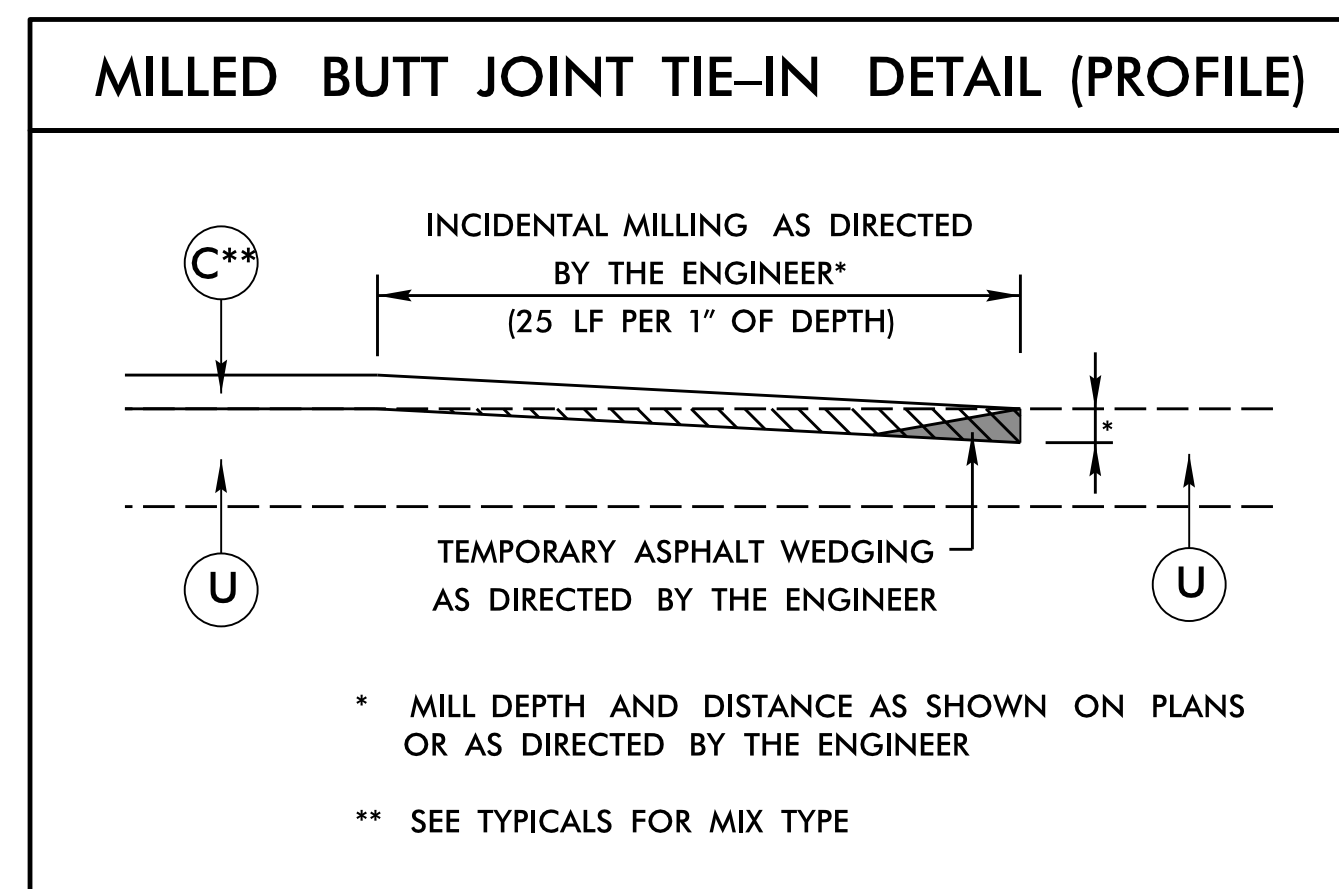
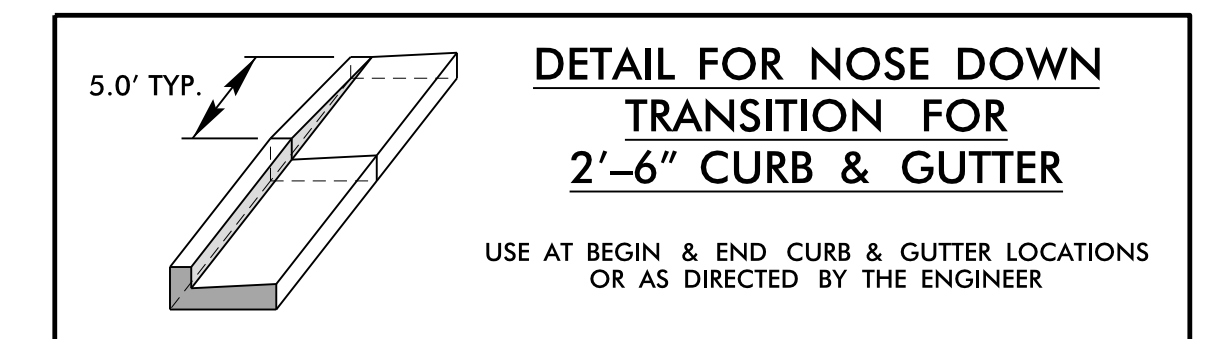
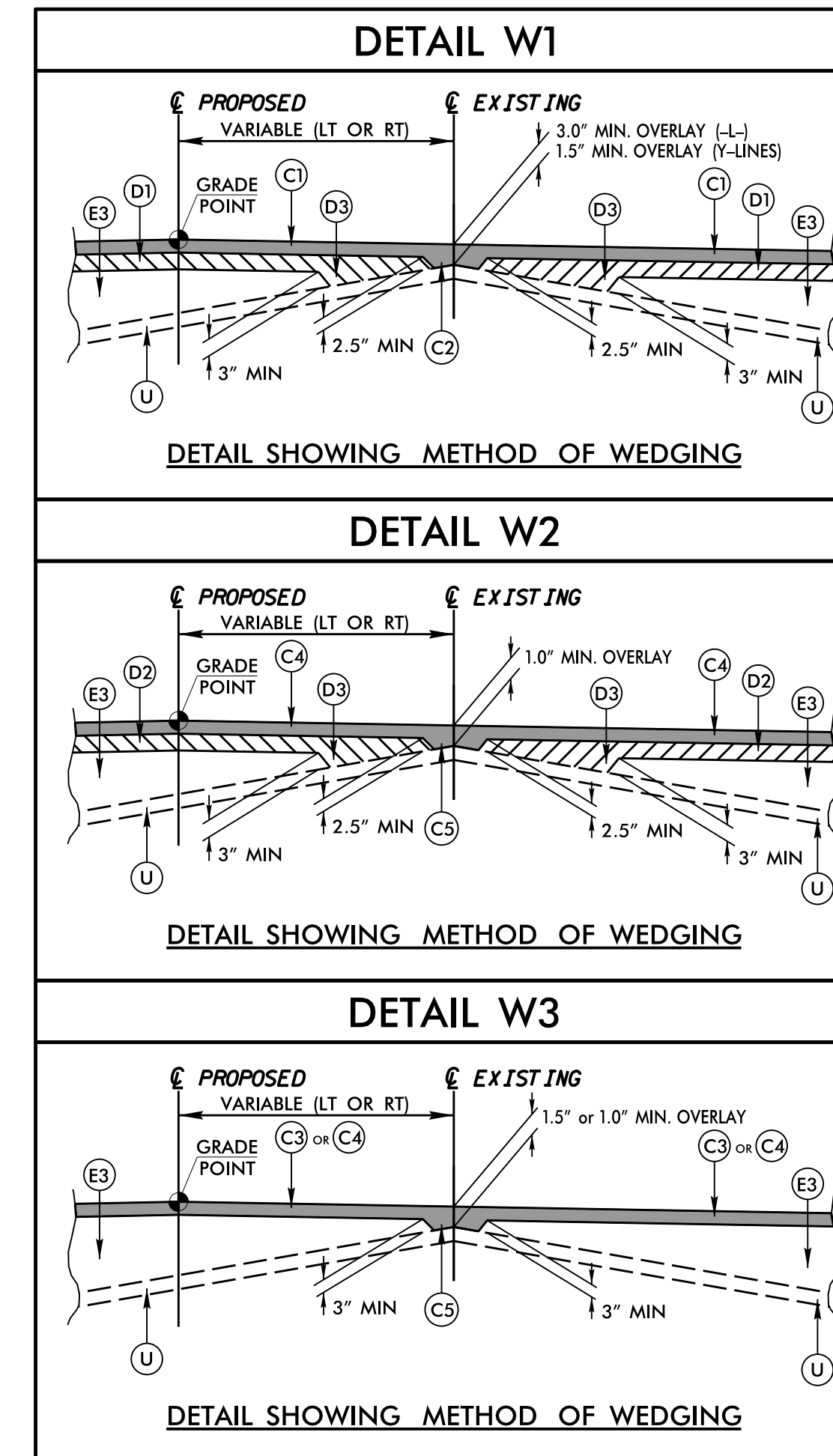
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
SS Forced Main Line LOS B (S.U.E.*)	-----
SS Forced Main Line LOS C (S.U.E.*)	-----
SS Forced Main Line LOS D (S.U.E.*)	-----

MISCELLANEOUS:

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

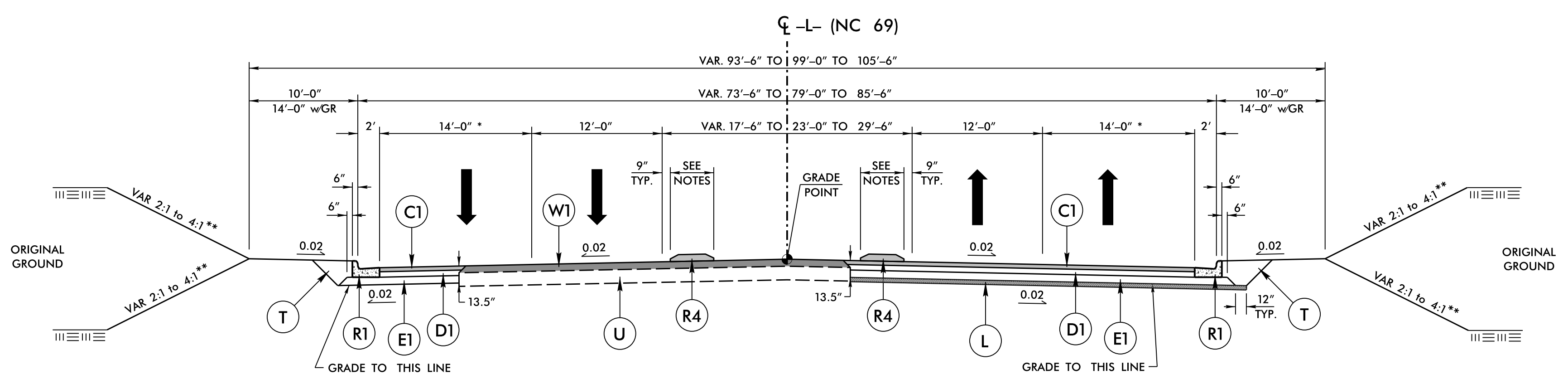
PAVEMENT SCHEDULE			
FINAL PAVEMENT DESIGN			
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.	L	BASE TO BE STABILIZED WITH 200 TO 400 LBS PER SQ. YD. OF STABILIZER AGGREGATE MIXED WITH THE TOP 3" OF SUBGRADE AT LOCATIONS DIRECTED BY THE ENGINEER.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2" IN DEPTH.	P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.	R1	2'-6" CONCRETE CURB & GUTTER
C4	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.	R2	1'-6" CONCRETE CURB & GUTTER
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1.0" OR GREATER THAN 1.5" IN DEPTH.	R3	2'-9" CONCRETE CURB & GUTTER
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.	R4	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YARD.	R5	8" x 18" CONCRETE CURB
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.	T	EARTH MATERIAL
E1	PROP. APPROX. 6.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 370.5 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.	U	EXISTING PAVEMENT
E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.	W#	WEDGING (VARIABLE DEPTH ASPHALT PAVEMENT, SEE DETAILS ON THIS SHEET)
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.		
J1	8" AGGREGATE BASE COURSE		

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



PROJECT REFERENCE NO. A-0011C	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER SEAL 39283 8/7/2019	PAVEMENT DESIGN ENGINEER SEAL 39779 8/7/2019
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Weston & Sampson 588 East Chatham Street Phone: 919.297.0220	
NC License: C-4647 Cary, NC 27511 Fax: 919.297.0221	

PROJECT REFERENCE NO. A-0011C	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 39283 8/6/2019	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 39779 8/6/2019
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Weston & Sampson WSE of North Carolina, PC 588 East Chatham Street Phone: 919.297.0220	
NC License: C-4847 Suite 137 Cary, NC 27511 Fax: 919.297.0221	

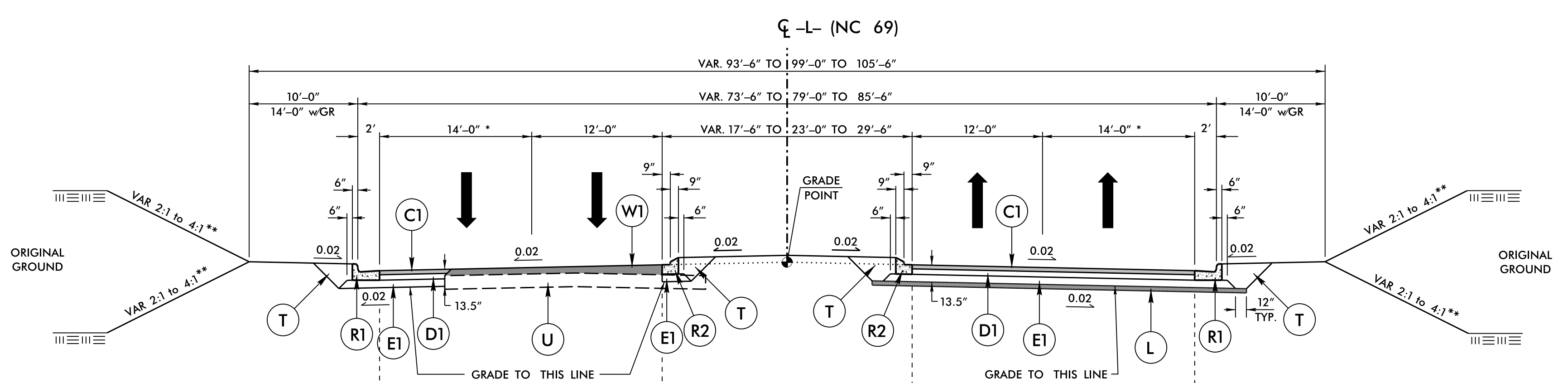


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1:
 FROM -L- STA. 23+90.36 TO 42+63.33
 FROM -L- STA. 54+05.00 TO 59+45.31
 FROM -L- STA. 62+53.00 TO 71+65.00
 FROM -L- STA. 77+24.89 TO 79+45.00
 FROM -L- STA. 85+40.00 TO 87+60.00
 FROM -L- STA. 100+25.00 TO 102+45.00
 FROM -L- STA. 112+54.00 TO 114+74.00
 FROM -L- STA. 121+25.00 TO 123+45.00
 FROM -L- STA. 130+50.00 TO 135+60.00
 FROM -L- STA. 147+50.00 TO 149+70.00
 FROM -L- STA. 164+40.00 TO 166+60.00
 FROM -L- STA. 181+10.00 TO 186+53.33
 FROM -L- STA. 194+06.67 TO 200+65.00
 FROM -L- STA. 202+16.67 TO 208+58.19

NOTES: 5' MONOLITHIC CONCRETE ISLANDS VARY IN WIDTH AND PLACEMENT, SEE PLANS FOR ACTUAL LOCATIONS.

- 14' OUTSIDE LANES TO ACCOMMODATE BICYCLES.
- USE STEEPER CUT/FILL SLOPES AS SHOWN IN CROSS SECTIONS:
 FROM -L- STA. 33+50.00 TO 35+00.00 LT (1.5:1 CUT SLOPES)
 FROM -L- STA. 149+00.00 TO 149+70.00 LT (1.5:1 FILL SLOPES)

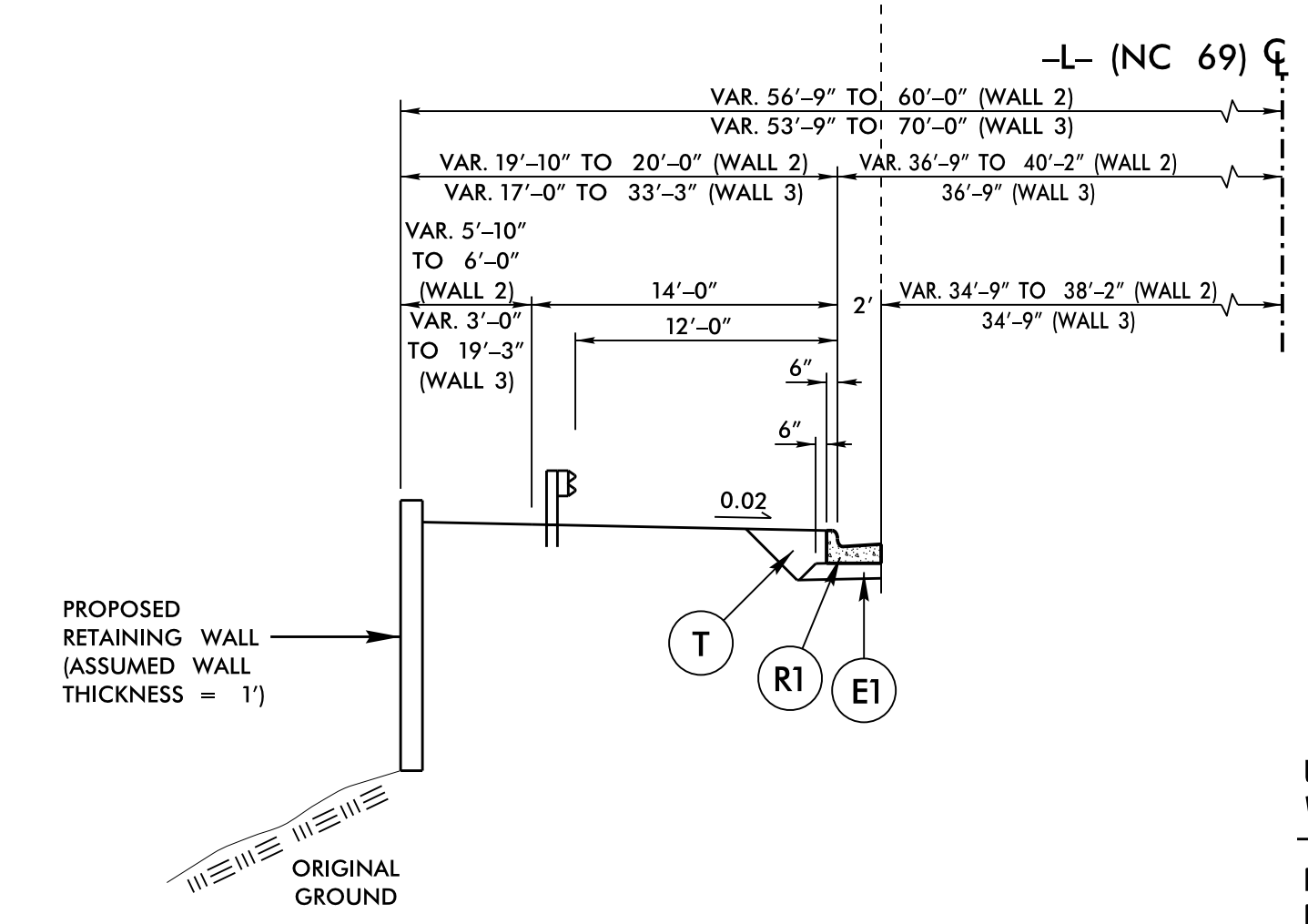


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2:
 FROM -L- STA. 42+63.33 TO 54+05.00
 FROM -L- STA. 59+45.31 TO 62+53.00
 FROM -L- STA. 71+65.00 TO 77+24.89
 FROM -L- STA. 79+45.00 TO 85+40.00
 FROM -L- STA. 87+60.00 TO 100+25.00
 FROM -L- STA. 102+45.00 TO 112+54.00
 FROM -L- STA. 114+74.00 TO 118+50.96 (LB)
 -L- POT STA. 118+50.96 LB =
 -L- POT STA. 118+32.70 LA
 FROM -L- STA. 118+32.70 (LA) TO 121+25.00
 FROM -L- STA. 123+45.00 TO 130+50.00
 FROM -L- STA. 135+60.00 TO 147+50.00
 FROM -L- STA. 149+70.00 TO 164+40.00
 FROM -L- STA. 166+60.00 TO 181+10.00
 FROM -L- STA. 186+53.33 TO 194+06.67
 FROM -L- STA. 200+65.00 TO 202+16.67

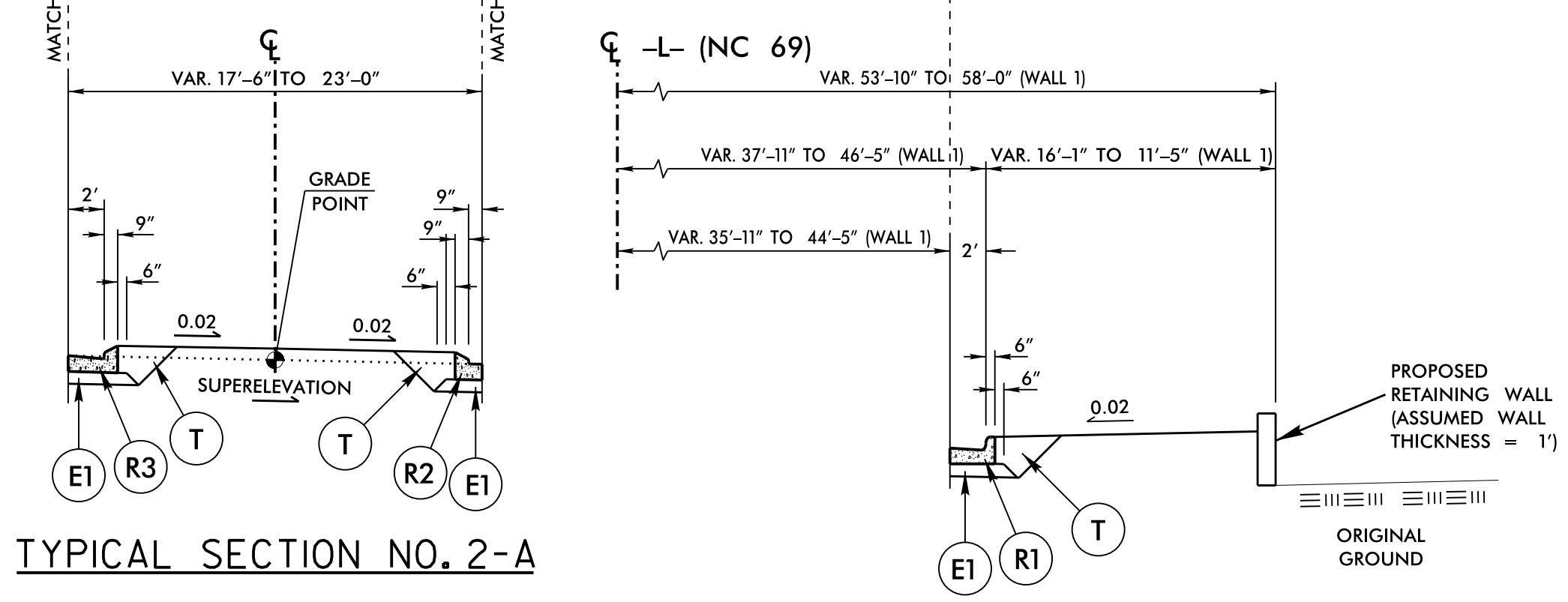
NOTE: EXISTING PAVEMENT LOCATION VARIES WITHIN THE TYPICAL SECTION FROM THE LEFT TO RIGHT SIDE OF THE PROPOSED TYPICAL SECTION, SEE PLANS AND CROSS SECTIONS FOR LOCATIONS.

- 14' OUTSIDE LANES TO ACCOMMODATE BICYCLES
- USE STEEPER CUT/FILL SLOPES AS SHOWN IN CROSS SECTIONS:
 FROM -L- STA. 46+00.00 TO 48+50.00 RT (1.75:1 FILL SLOPES)
 FROM -L- STA. 89+50.00 TO 91+50.00 LT (1.5:1 FILL SLOPES)
 FROM -L- STA. 149+70.00 TO 155+50.00 LT (1.5:1 FILL SLOPES)



TYPICAL SECTION NO. 2-B

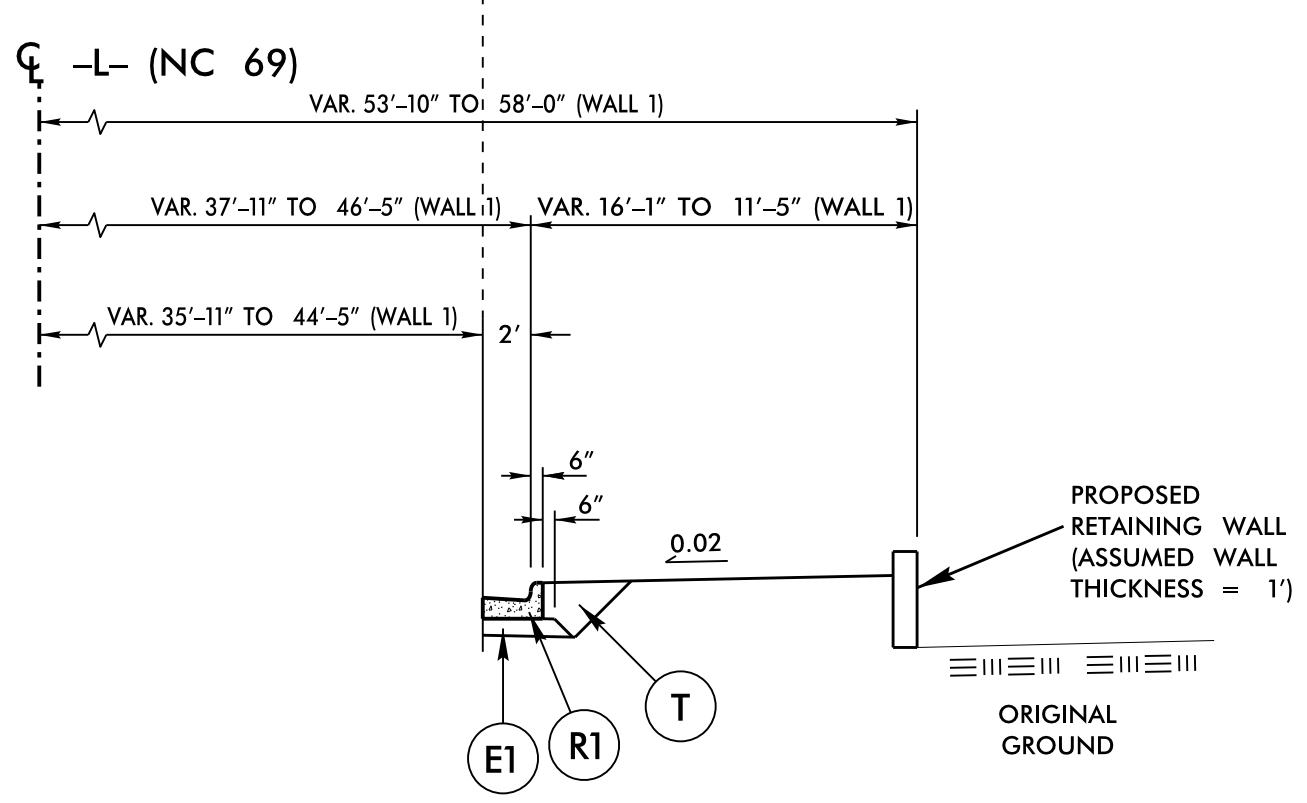
USE TYPICAL SECTION NO. 2-B IN CONJUNCTION WITH TYPICAL SECTION NO. 2:
 FROM -L- STA. 168+75.00 TO 172+25.00 LT (RET. WALL 2)
 FROM -L- STA. 186+60.00 TO 188+25.00 LT (RET. WALL 3)



TYPICAL SECTION NO. 2-A

USE TYPICAL SECTION NO. 2-A IN CONJUNCTION WITH TYPICAL SECTION 2:
 FROM -L- STA. 52+00.00 TO 53+80.00 (RT. MED.)
 FROM -L- STA. 59+60.00 TO 62+28.00 (RT. MED.)
 FROM -L- STA. 79+70.00 TO 85+40.00 (LT. MED.)
 FROM -L- STA. 87+85.00 TO 100+25.00 (LT. MED.)
 FROM -L- STA. 102+70.00 TO 112+54.00 (LT. MED.)
 FROM -L- STA. 114+74.00 TO 115+70.43 (LT. MED.)
 FROM -L- STA. 123+45.00 TO 130+50.00 (RT. MED.)
 FROM -L- STA. 135+70.00 TO 145+65.00 (RT. MED.)
 FROM -L- STA. 149+70.00 TO 164+40.00 (LT. MED.)
 FROM -L- STA. 166+85.00 TO 174+00.00 (LT. MED.)

MIRROR TYPICAL WHEN 2'-9" C&G IS ON RIGHT SIDE OF MEDIAN. SEE PLANS FOR 1'-6" C&G TO 2'-9" C&G TRANSITION STATION. SEE SHEET 2C-3 FOR TRANSITION DETAIL.



TYPICAL SECTION NO. 2-C

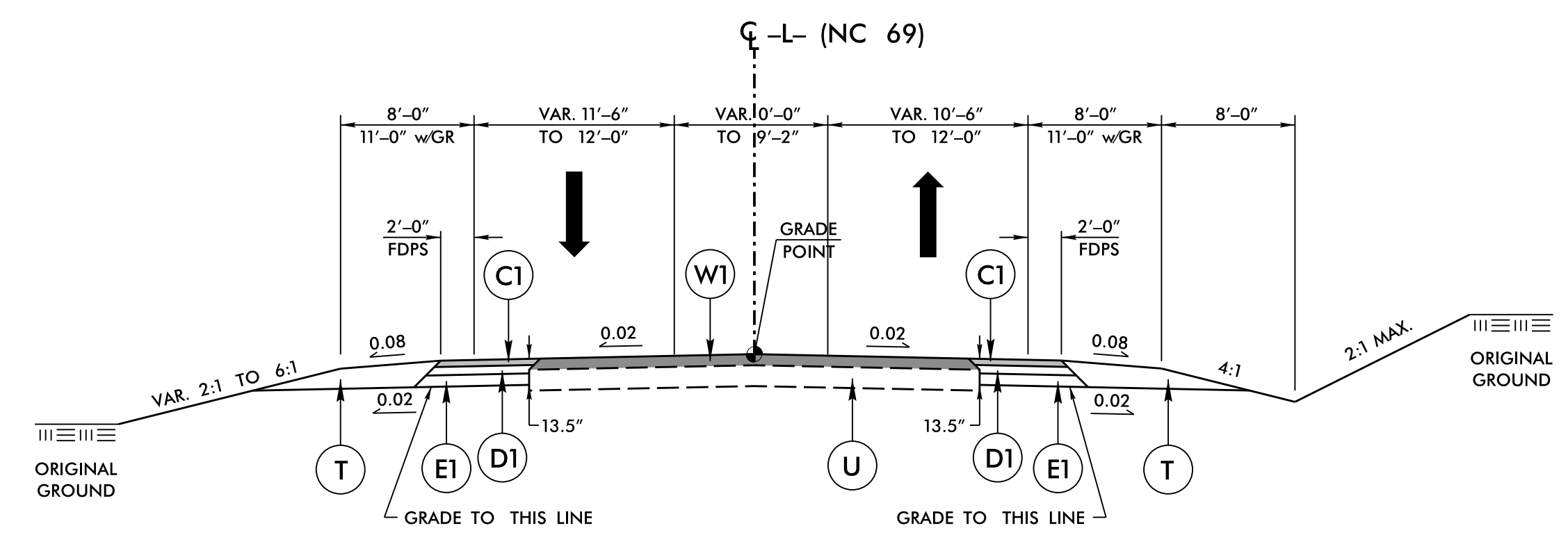
USE TYPICAL SECTION NO. 2-C IN CONJUNCTION WITH TYPICAL SECTION NO. 2:
 FROM -L- STA. 59+85.00 TO 61+75.00 RT (RET. WALL 1)

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	3" S9.5C
C2	VAR. S9.5C
C3	3" S9.5B
C4	2" S9.5B
C5	VAR. S9.5B
D1	4" I19.0C
D2	3" I19.0C
D3	VAR. I19.0C
E1	6.5" B25.0C
E2	4" B25.0C
E3	VAR. B25.0C
J1	8" ABC
L	STABILIZER AGGREGATE
P	PRIME COAT 0.35 GAL/SY
R1	2'-6" C & G
R2	1'-6" C & G
R3	2'-9" C & G
R4	5" MONO. CONC. ISLAND (KEYED IN)
R5	8"x18" CURB
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W#	WEDGING (SEE DETAILS, SHEET 2A-1)

PAVEMENT EDGE SLOPES 1:1 UNLESS NOTED OTHERWISE.

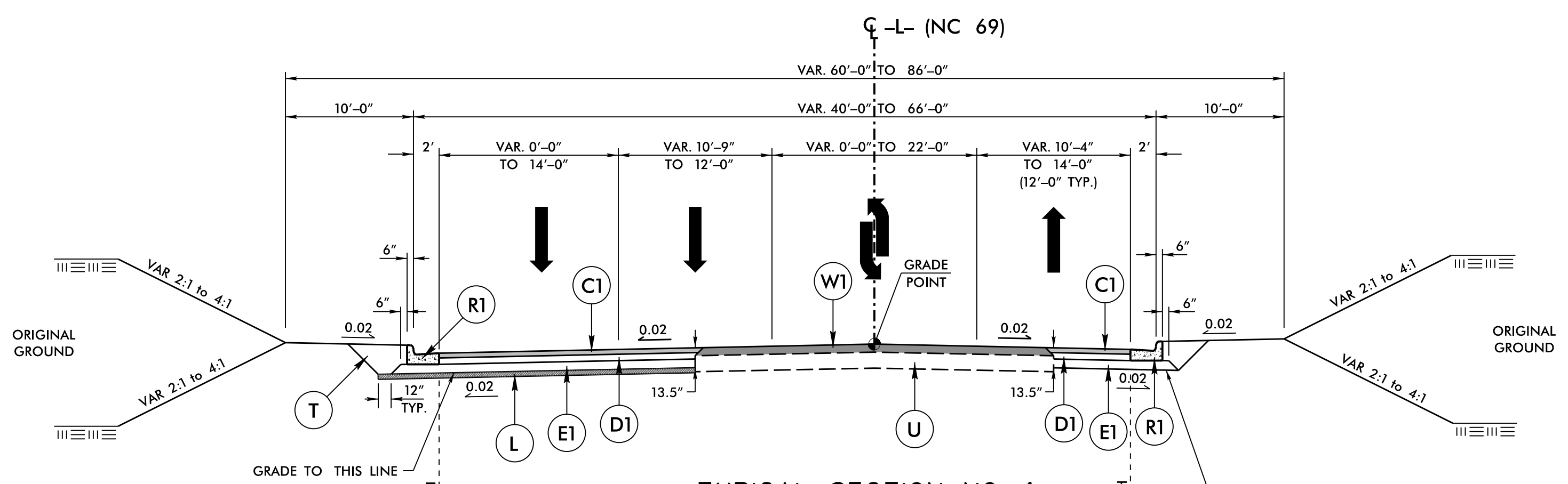
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PROJECT REFERENCE NO. A-0011C	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER SEAL 39283	PAVEMENT DESIGN ENGINEER SEAL 39779
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Weston & Sampson	
WSE of North Carolina, PC 588 East Chatham Street Phone: 919.297.0220	
NC License: C-4847 Cary, NC 27511 Fax: 919.297.0221	



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3:
FROM -L- STA. 20+50.00 TO 23+90.

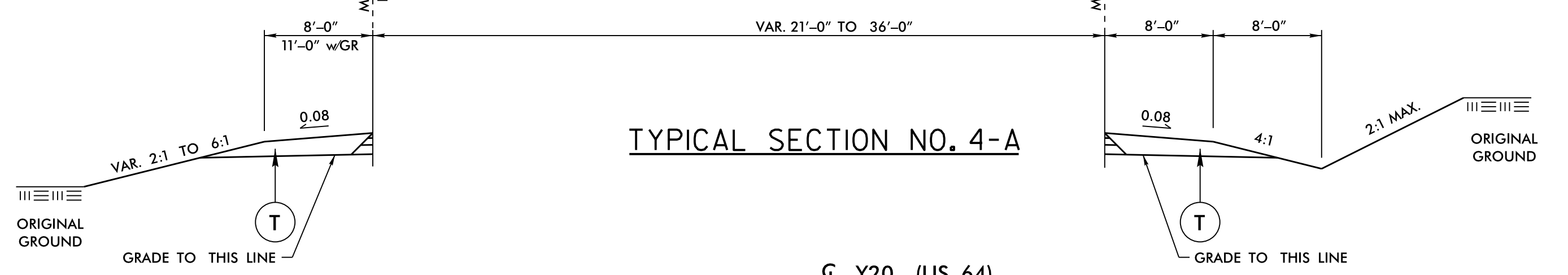


TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4:
FROM -L- STA. 209+28.48 TO 221+00.00

USE TYPICAL SECTION NO. 4 WITH FULL WIDTH
NEW PAVEMENT ON BOTH SIDES OF THE TYPICAL
SECTION IN LIEU OF WEDGING & WIDENING:

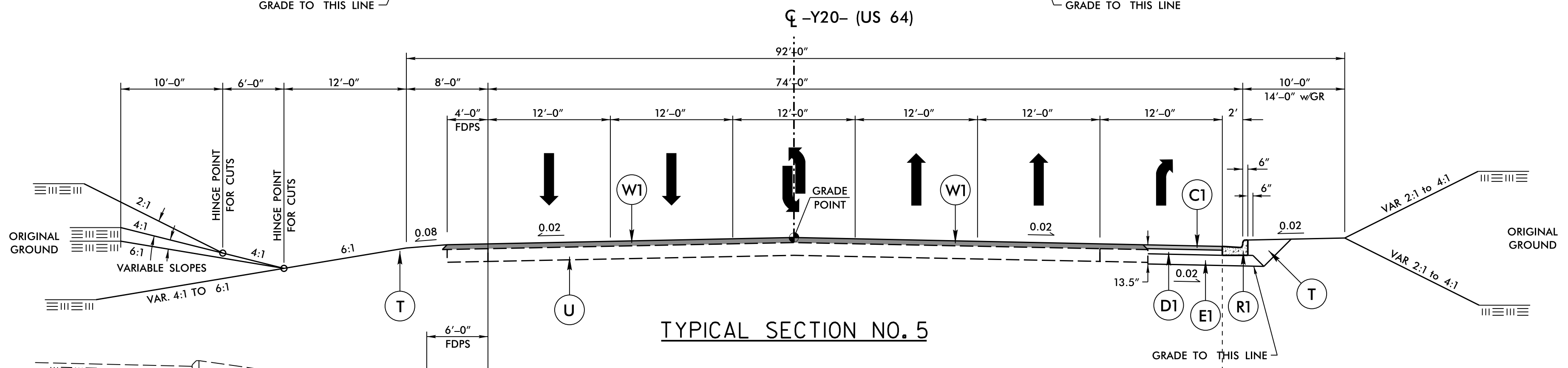
FROM -L- STA. 209+36 +/- TO 215+00 +/-



TYPICAL SECTION NO. 4-A

USE TYPICAL SECTION NO. 4-A IN CONJUNCTION WITH
TYPICAL SECTION NO. 4:

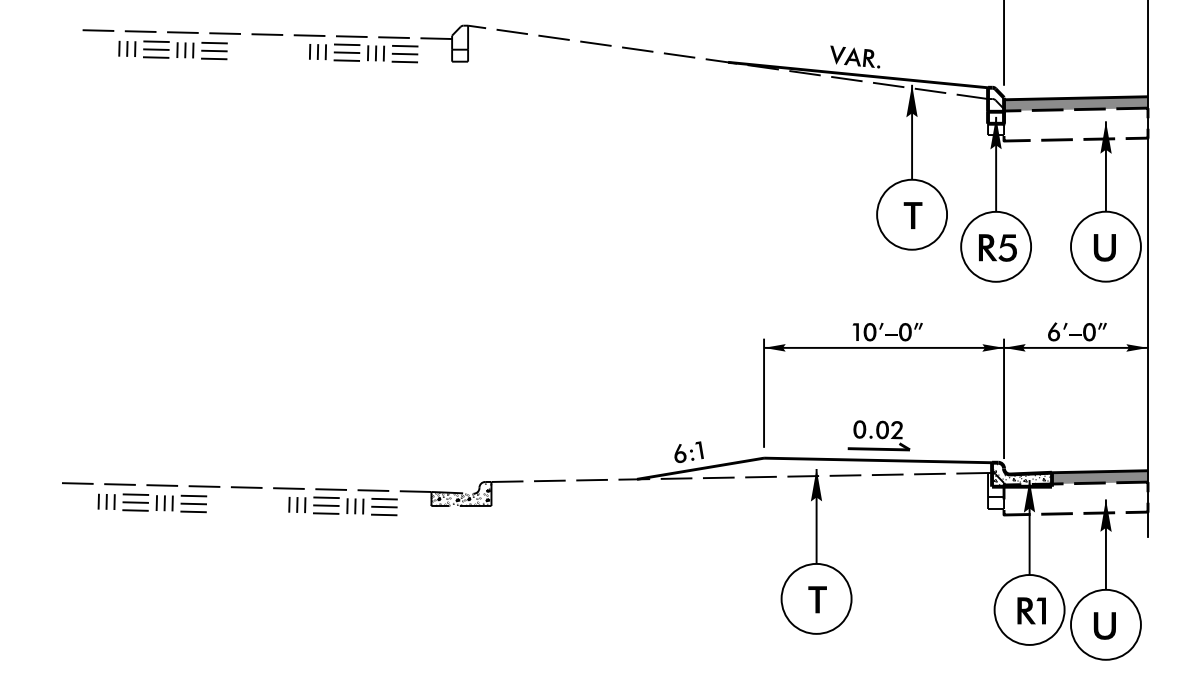
FROM -L- STA. 218+00.00 TO 221+00.00



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5:

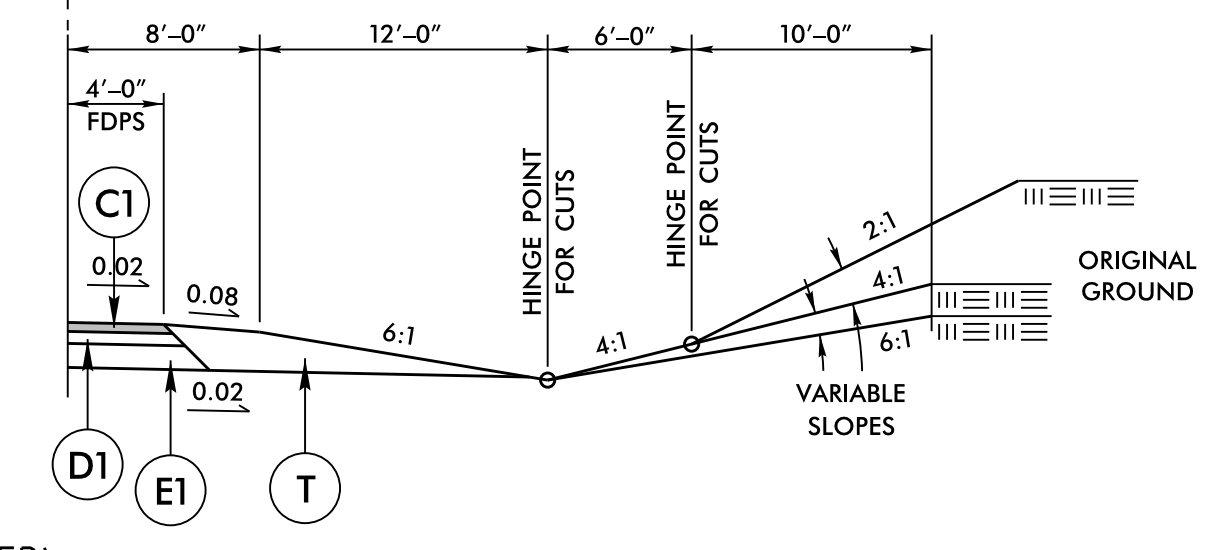
FROM -Y20- STA. 14+50.00 TO 20+10 (C&G RT)
FROM -Y20- STA. 22+58.00 TO 27+05.50 (C&G LT - MIRROR TYPICAL)



TYPICAL SECTION NO. 5-A

USE TYPICAL SECTION NO. 5-A IN CONJUNCTION WITH
TYPICAL SECTION NO. 5:
FROM -Y20- STA. 14+50.00 TO 19+56.36 LT (USE 8"x18" CURB TYPICAL)
FROM -Y20- STA. 19+56.36 TO 20+65.89 LT (USE FILL/CUT DITCH TYPICAL)
FROM -Y20- STA. 20+65.89 TO 21+10.00 LT (USE 2'-6" C&G TYPICAL)
FROM -Y20- STA. 21+74.00 TO 24+19.22 RT (USE 2'-6" C&G TYPICAL - MIRRORED)
FROM -Y20- STA. 24+19.22 TO 29+25.00 RT (USE FILL/CUT DITCH TYPICAL - MIRRORED)

SEE PLANS AND CROSS SECTIONS



TYPICAL SECTION NO. 5-B

USE TYPICAL SECTION NO. 5-B IN CONJUNCTION WITH
TYPICAL SECTION NO. 5:

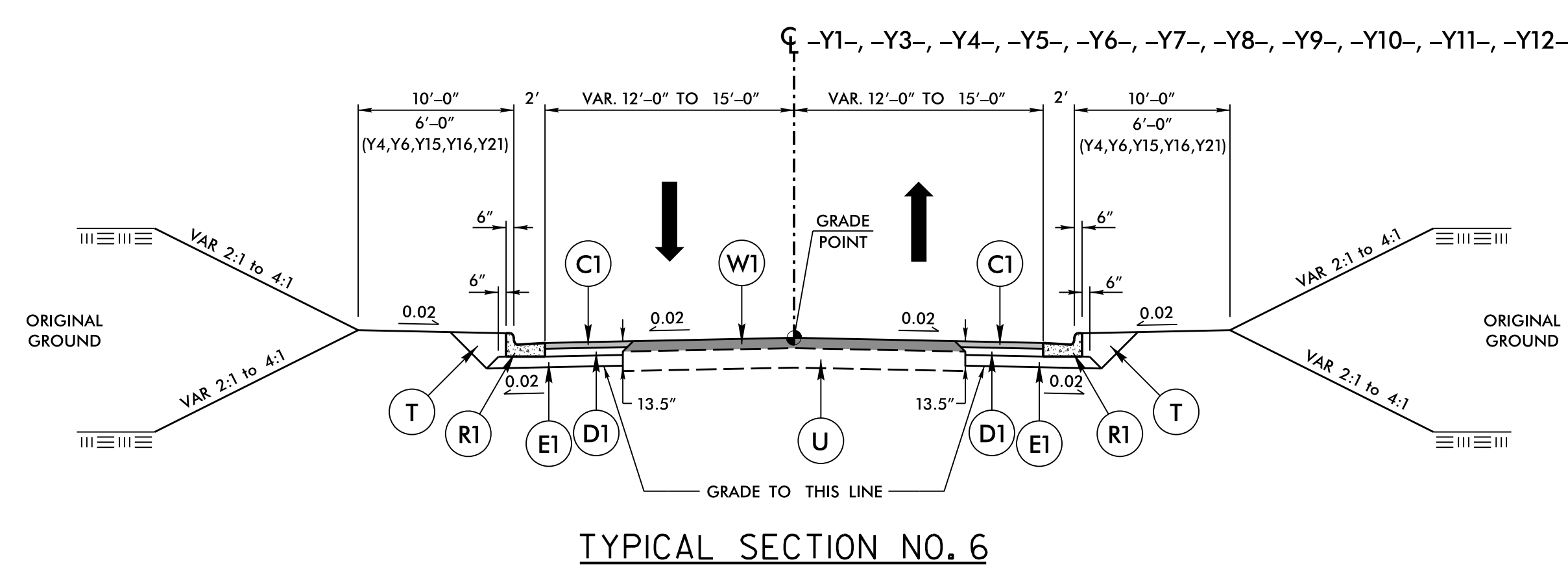
FROM -Y20- STA. 27+05.50 TO 29+25.00 LT (MIRROR TYPICAL)

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	3" S9.5C
C2	VAR. S9.5C
C3	3" S9.5B
C4	2" S9.5B
C5	VAR. S9.5B
D1	4" I19.0C
D2	3" I19.0C
D3	VAR. I19.0C
E1	6.5" B25.0C
E2	4" B25.0C
E3	VAR. B25.0C
J1	8" ABC
L	STABILIZER AGGREGATE
P	PRIME COAT 0.35 GAL/SY
R1	2'-6" C & G
R2	1'-6" C & G
R3	2'-9" C & G
R4	5" MONO. CONC. ISLAND (KEYED IN)
R5	8"x18" CURB
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W#	WEDGING (SEE DETAILS, SHEET 2A-1)

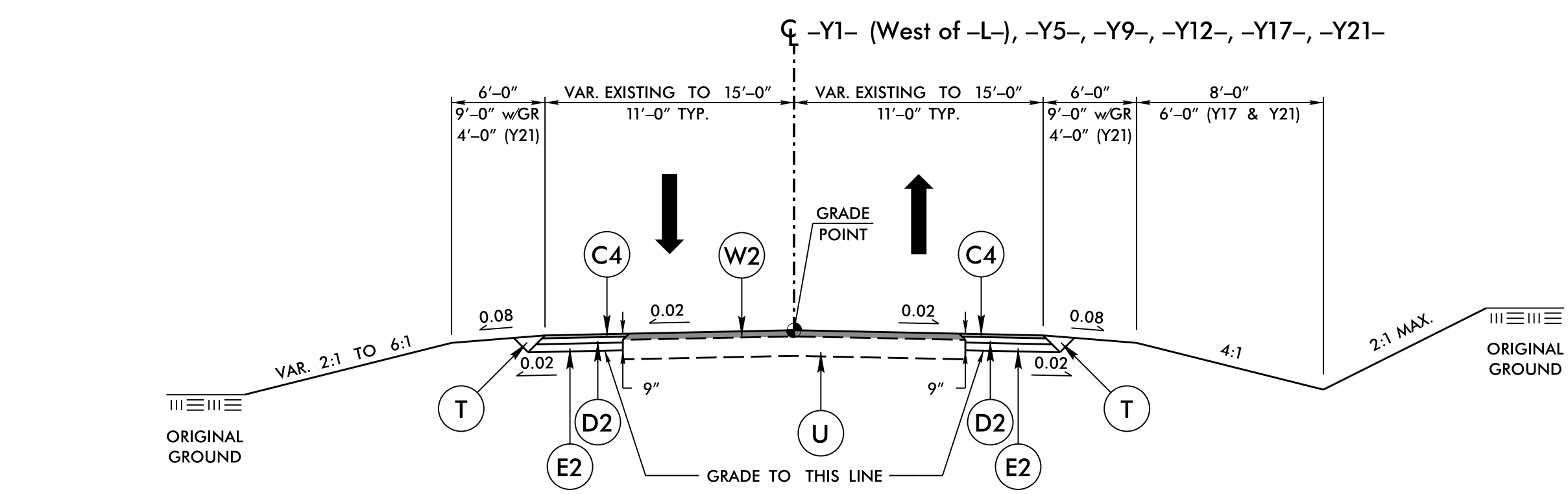
PAVEMENT EDGE SLOPES 1:1 UNLESS NOTED OTHERWISE.

5/14/19
8/5/2019
R:\P\2019\p\0011C\2A-3\2A-3.dgn

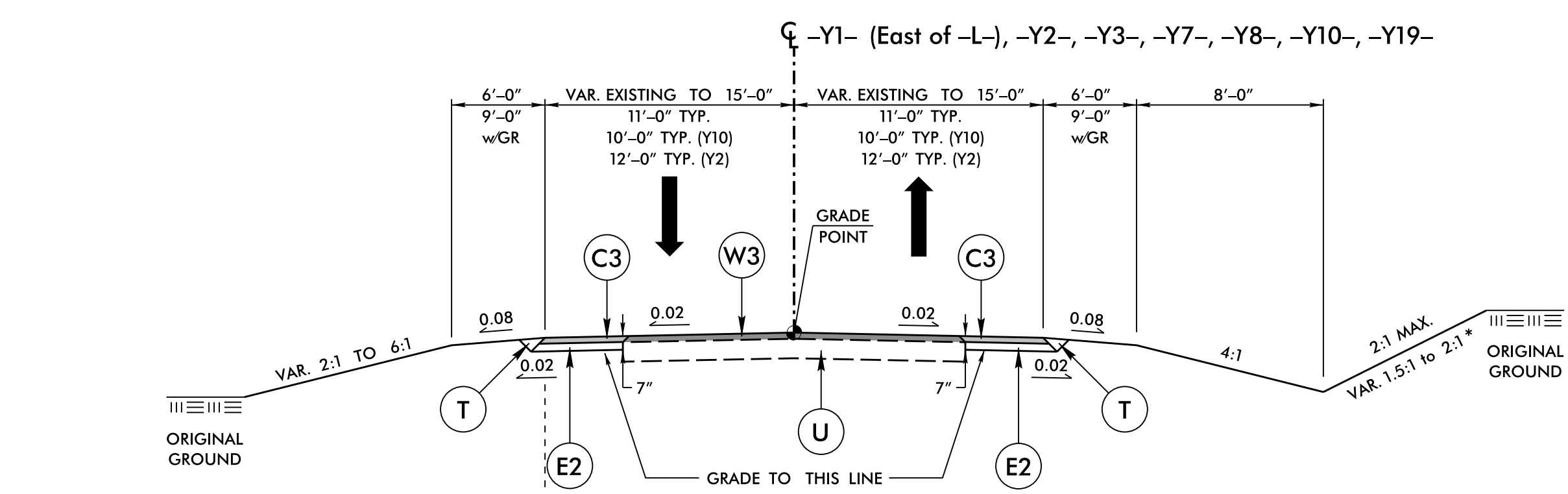
PROJECT REFERENCE NO. A-0011C	SHEET NO. 2A-4
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 39283 8/6/2019	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 39779 8/6/2019
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
WSE of North Carolina, PC 588 East Chatham Street Phone: 919.297.0220	
Suite 137 Cary, NC 27511 Fax: 919.297.0221	



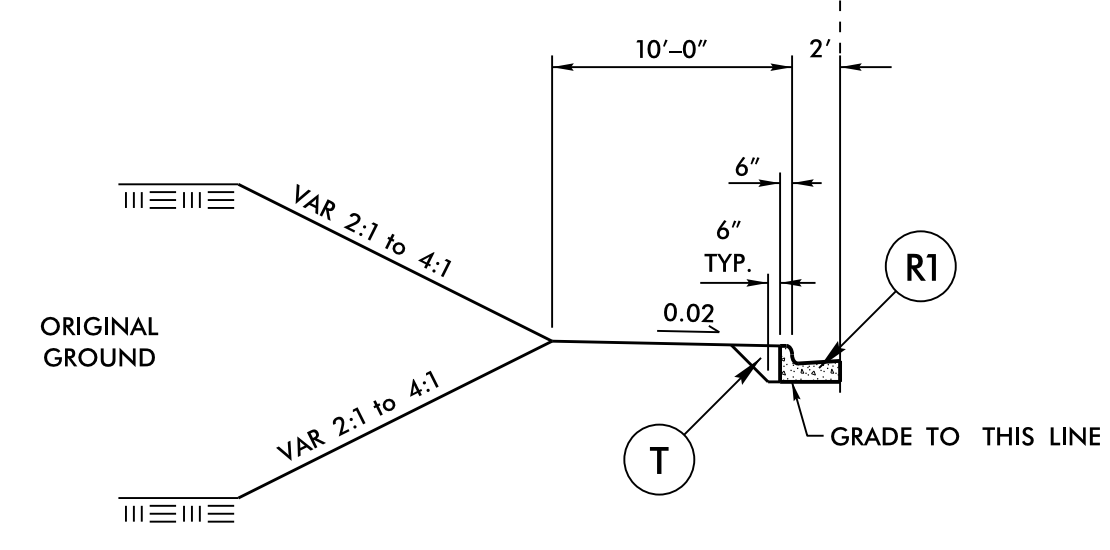
TYPICAL SECTION NO. 6



TYPICAL SECTION NO. 7



TYPICAL SECTION NO. 8



TYPICAL SECTION NO. 8-A

USE TYPICAL SECTION NO. 6:
 FROM -Y9- STA. 10+38.97 TO 11+13.80
 FROM -Y12- STA. 10+37.55 TO 11+15.00

USE TYPICAL SECTION NO. 6 WITH FULL WIDTH
 NEW PAVEMENT IN LIEU OF WEDGING AND WIDENING:

FROM -Y1- STA. 13+89.06 TO 14+68.57
 FROM -Y1- STA. 15+38.07 TO 16+00.00
 FROM -Y3- STA. 10+34.75 TO 10+92.17
 FROM -Y4- STA. 13+17.01 TO 13+59.57
 FROM -Y5- STA. 10+34.75 TO 11+00.00
 FROM -Y6- STA. 12+45.00 TO 13+04.91
 FROM -Y7- STA. 14+22.37 TO 14+96.86
 FROM -Y8- STA. 14+15.00 TO 14+84.88
 FROM -Y10- STA. 10+37.50 TO 11+05.00
 FROM -Y11- STA. 19+00.00 TO 19+76.95
 FROM -Y14- STA. 10+37.50 TO 11+00.00
 FROM -Y15- STA. 10+37.50 TO 10+80.00
 FROM -Y16- STA. 13+18.26 TO 13+58.68
 FROM -Y17- STA. 14+98.89 TO 15+86.71
 FROM -Y19- STA. 18+40.29 TO 19+04.29
 FROM -Y21- STA. 11+66.69 TO 12+16.40 RT

FROM -Y21- STA. 11+66.69 TO 12+16.40 LT USE SHOULDER SECTION WITH
 CUT OR FILL DESIGN AS SHOWN IN TYPICAL SECTION NO. 7.

USE TYPICAL SECTION NO. 7:
 FROM -Y1- STA. 12+00.00 TO 12+80 +/-
 FROM -Y5- STA. 12+55 +/- TO 14+75.00
 FROM -Y9- STA. 11+13.80 TO 12+00.00
 FROM -Y12- STA. 11+15.00 TO 13+50.00
 FROM -Y17- STA. 11+00.00 TO 12+00 +/-

USE TYPICAL SECTION NO. 7 WITH FULL WIDTH
 NEW PAVEMENT IN LIEU OF WEDGING AND WIDENING:

FROM -Y1- STA. 12+80 +/- TO 13+89.06
 FROM -Y5- STA. 11+00.00 TO 12+55 +/-
 FROM -Y17- STA. 12+00 +/- TO 15+00.00
 FROM -Y21- STA. 11+00.00 TO 11+66.69

USE TYPICAL SECTION NO. 8:
 FROM -Y1- STA. 17+50 +/- TO 18+50.00
 FROM -Y2- STA. 12+00.00 TO 13+87.06
 FROM -Y3- STA. 11+35 +/- TO 13+00.00
 FROM -Y7- STA. 11+75.00 TO 13+25 +/-
 FROM -Y10- STA. 14+05 +/- TO 15+67.82

USE TYPICAL SECTION NO. 8 WITH FULL WIDTH
 NEW PAVEMENT IN LIEU OF WEDGING AND WIDENING:

FROM -Y1- STA. 16+00.00 TO 17+50 +/-
 FROM -Y3- STA. 10+92.17 TO 11+35 +/-
 FROM -Y7- STA. 13+25 +/- TO 14+22.37
 FROM -Y8- STA. 11+75.00 TO 14+15.00
 FROM -Y10- STA. 11+05.00 TO 14+05 +/-
 FROM -Y19- STA. 13+25.00 TO 18+40.29

* USE VAR. 1.5:1 TO 2:1 CUT SLOPES:
 FROM -Y2- STA. 12+00.00 TO 12+50.00 LT
 FROM -Y2- STA. 13+35.00 TO 13+75.00 RT
 FROM -Y3- STA. 11+50.00 TO 13+00.00

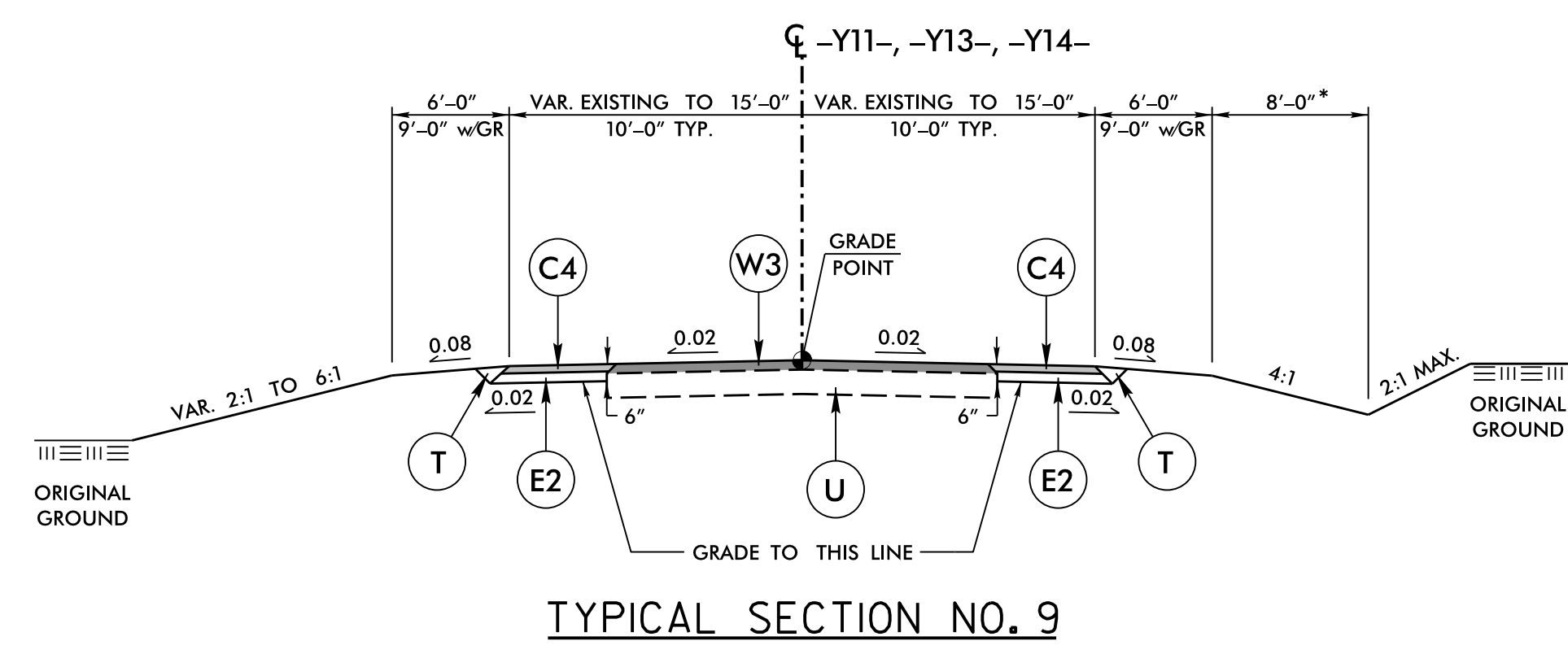
USE TYPICAL SECTION NO. 8-A IN CONJUNCTION
 WITH TYPICAL SECTION NO. 8:
 FROM -Y2- STA. 13+49.53 TO 13+87.06 LT

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	3" S9.5C
C2	VAR. S9.5C
C3	3" S9.5B
C4	2" S9.5B
C5	VAR. S9.5B
D1	4" I19.0C
D2	3" I19.0C
D3	VAR. I19.0C
E1	6.5" B25.0C
E2	4" B25.0C
E3	VAR. B25.0C
J1	8" ABC
L	STABILIZER AGGREGATE
P	PRIME COAT 0.35 GAL/SY
R1	2'-6" C & G
R2	1'-6" C & G
R3	2'-9" C & G
R4	5" MONO. CONC. ISLAND (KEYED IN)
R5	8"x18" CURB
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W#	WEDGING (SEE DETAILS, SHEET 2A-1)

PAVEMENT EDGE SLOPES 1:1 UNLESS NOTED OTHERWISE.

5/14/19
 8/5/2019
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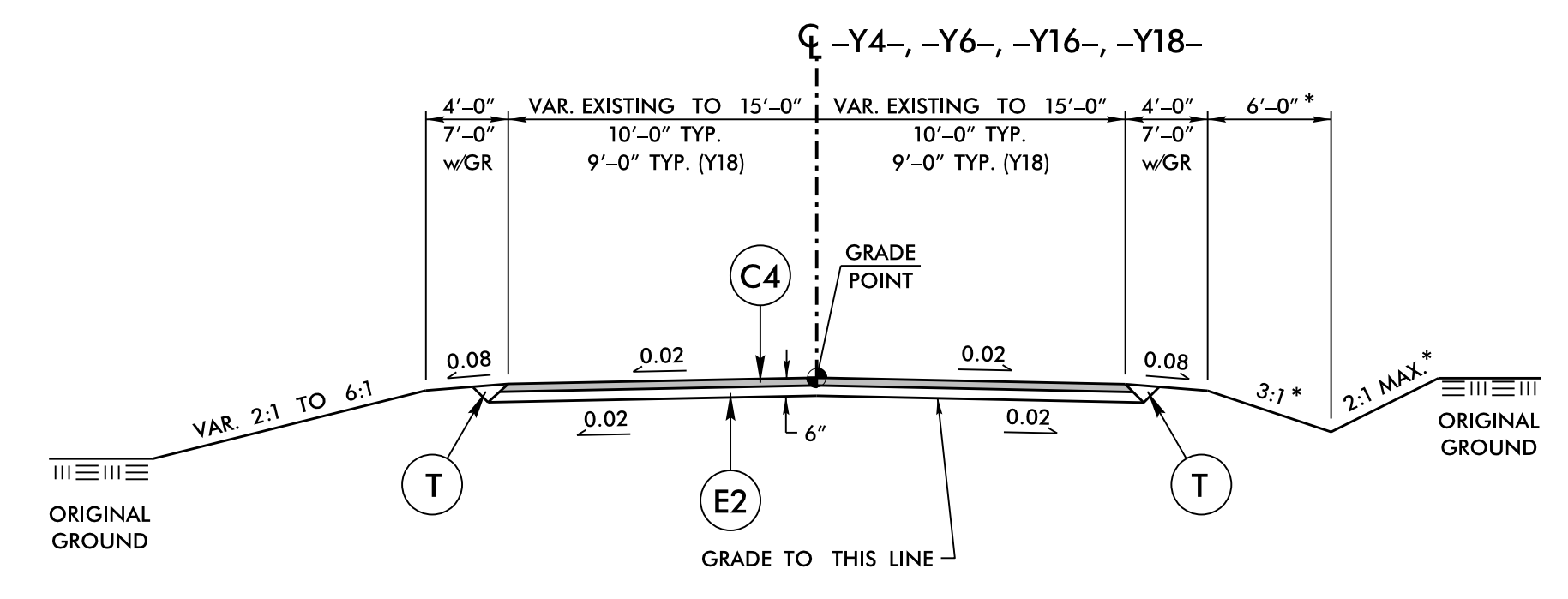
PROJECT REFERENCE NO. A-0011C	SHEET NO. 2A-5
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 39283 8/6/2019	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 39779 8/6/2019
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Weston & Sampson WSE of North Carolina, PC 588 East Chatham Street Phone: 919.297.0220	
NC License: C-4647 Cary, NC 27511 Suite 137 Fax: 919.297.0221	



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9:
 FROM -Y11- STA. 13+00.00 TO 14+00 +/-
 USE TYPICAL SECTION NO. 9 WITH FULL WIDTH
 NEW PAVEMENT IN LIEU OF WEDGING AND WIDENING:
 FROM -Y11- STA. 14+00 +/- TO 19+00.00
 FROM -Y13- STA. 10+15.00 TO 12+50.00
 FROM -Y14- STA. 11+00.00 TO 12+75.00

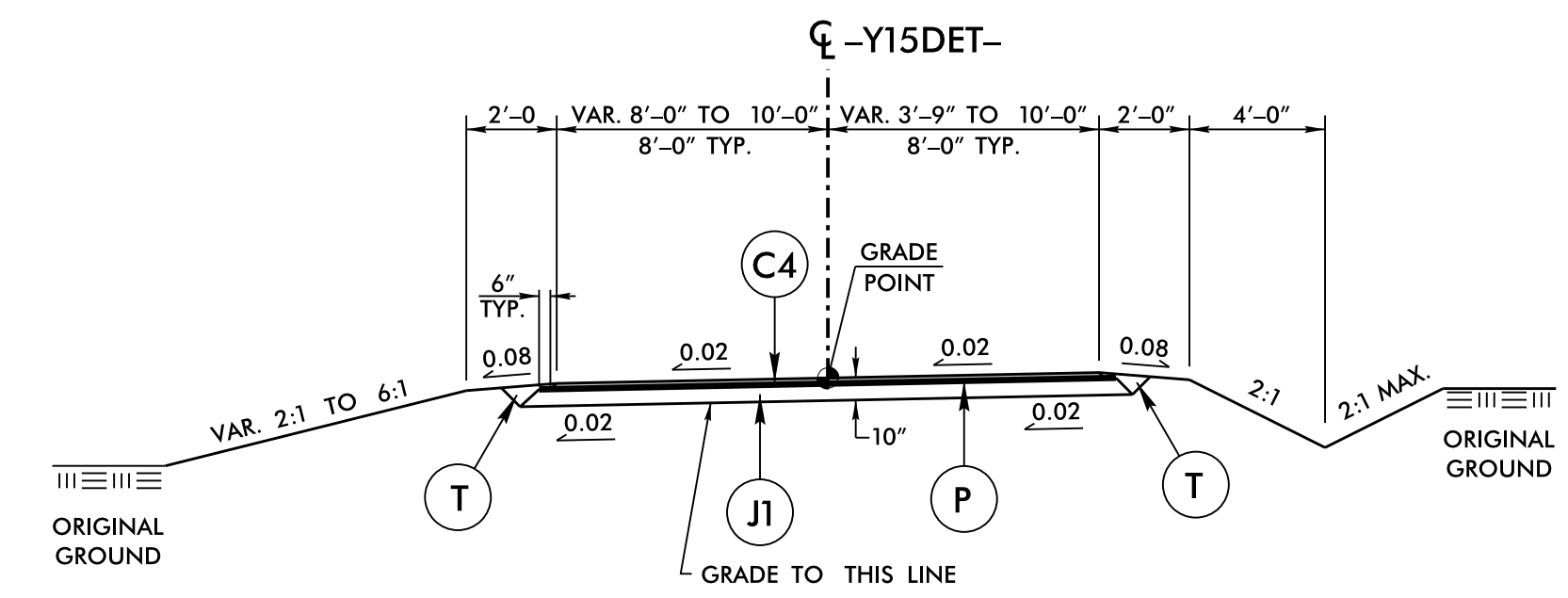
- USE 4' DITCH WIDTH:
 -Y13- STA. 12+00.00 TO 12+50.00 RT



TYPICAL SECTION NO. 10

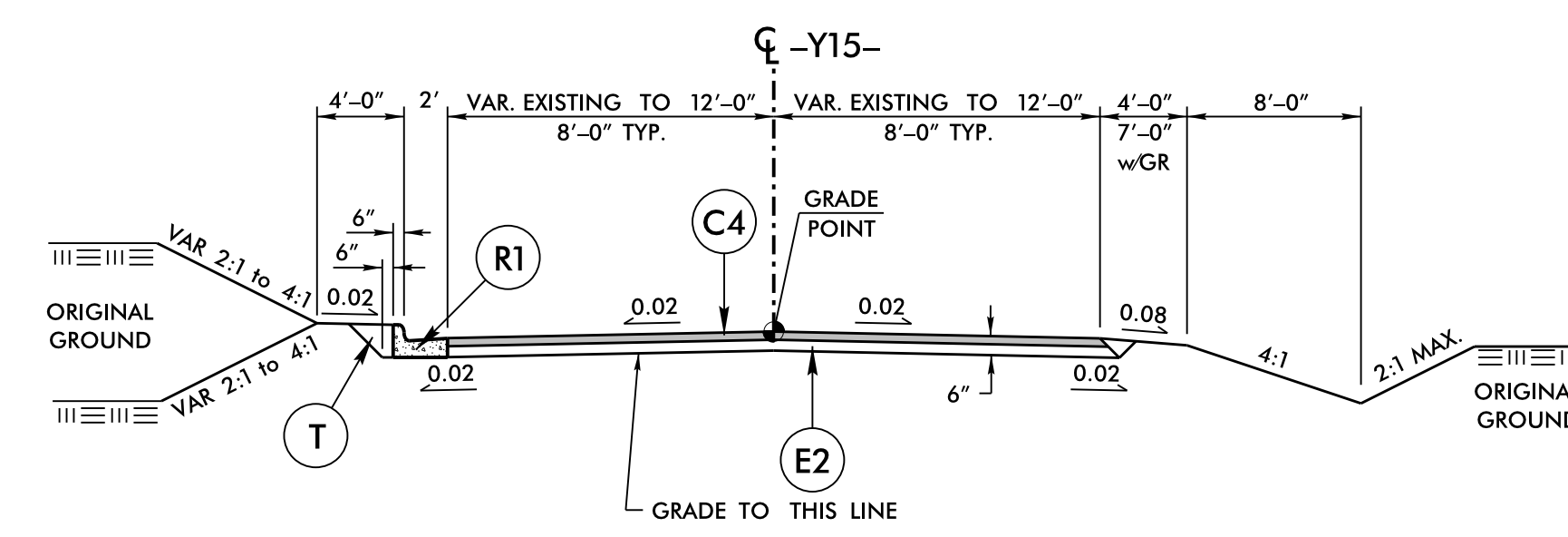
USE TYPICAL SECTION NO. 10:
 FROM -Y4- STA. 11+25.00 TO 13+17.01
 FROM -Y6- STA. 10+75.00 TO 12+45.00
 FROM -Y16- STA. 11+00.00 TO 13+18.26
 FROM -Y18- STA. 10+11.00 TO 13+50.00

- SEE SPECIAL CUT SWALE DETAIL SCS ON SHEET 18 AND CROSS SECTIONS FOR SHALLOW DITCH GRADING DETAIL:
 FROM -Y18- STA. 11+75.00 TO 13+00.00 RT
- USE 4' DITCH WIDTH & 4:1 DITCH SLOPE:
 FROM -Y16- STA. 11+00.00 TO 13+18.27 RT
- USE 1.5:1 CUT SLOPE:
 FROM -Y16- STA. 11+00.00 TO 11+50.00 RT



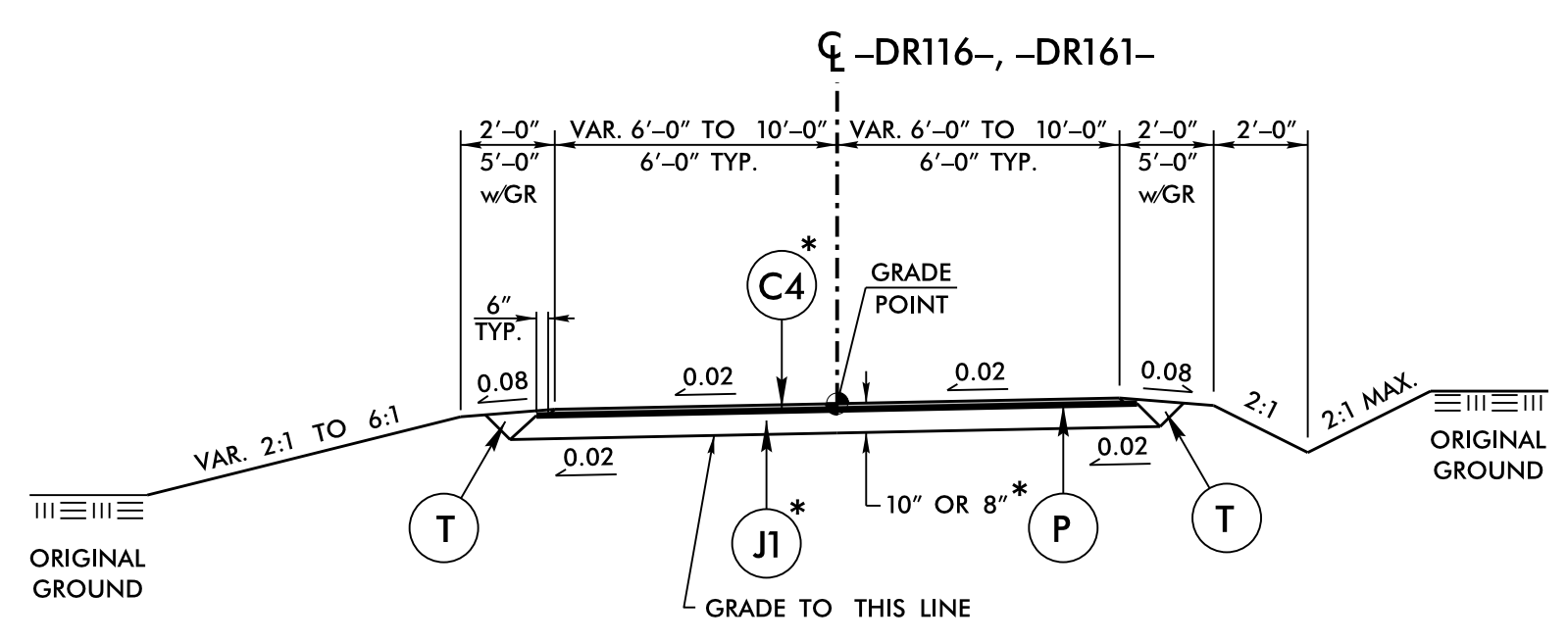
TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13:
 FROM -Y15DET- STA. 10+26.12 TO 12+29.87
 WIDEN EX. DRIVE USING EX. EOP AND SUPERELEVATION AS CONTROL:
 FROM -Y15DET- STA. 12+29+87 TO 12+75.00



TYPICAL SECTION NO. 11

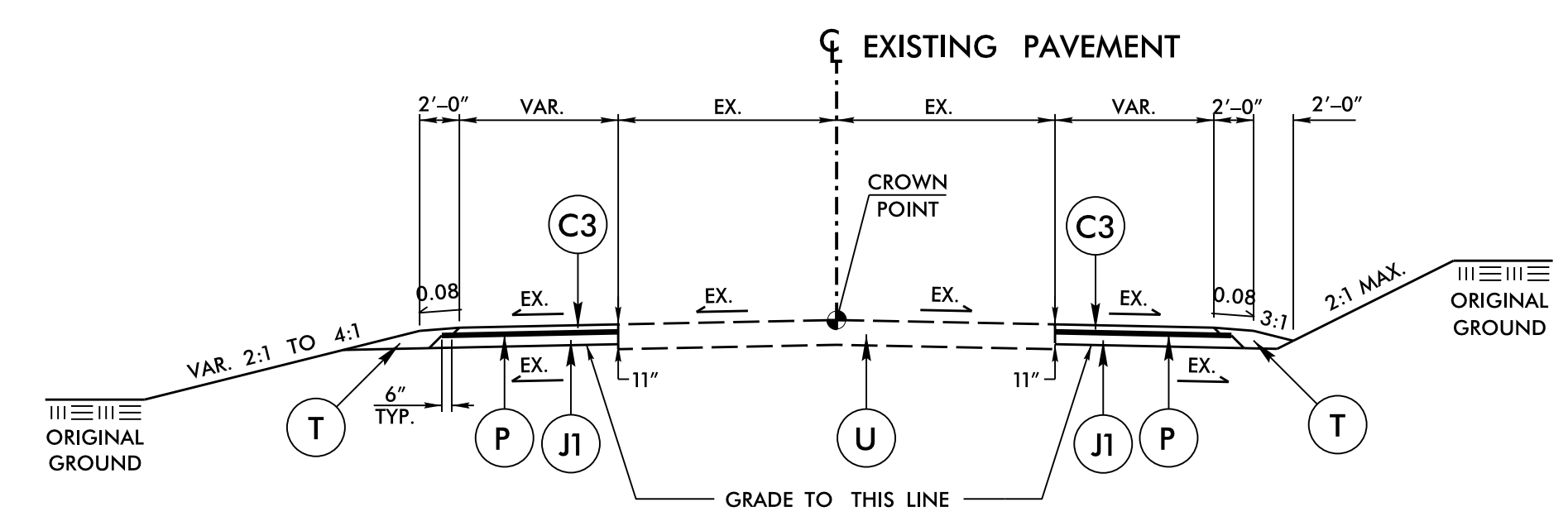
USE TYPICAL SECTION NO. 11:
 FROM -Y15- STA. 10+80.00 TO 12+00.00
 WIDEN EX. DRIVE USING EX. EOP AND SUPERELEVATION AS CONTROL:
 FROM -Y15- STA. 12+00.00 TO 12+75.00 RT



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12:
 FROM -DR116- STA. 12+73.41 TO 13+88.12
 FROM -DR161- STA. 10+37.50 TO 11+50.00

- * REPLACE DRIVE IN KIND WITH 8" ABC IN LIEU OF 10" ASPHALT/ABC DESIGN:
 FROM -DR116- STA. 10+40.00 TO 12+73.41
 FROM -DR161- STA. 11+50.00 TO 12+75.00



TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14:
 AT TEMPORARY WIDENING LOCATIONS AS SHOWN IN THE WORK ZONE TRAFFIC CONTROL PLANS.
 DIMENSIONS SHOWN ARE MINIMUMS AND SUBJECT TO CHANGE AS DIRECTED BY THE ENGINEER TO SUIT FIELD CONDITIONS.
 WIDENING IS SHOWN ON BOTH SIDES OF THE TYPICAL TO REFLECT THE CUT AND FILL OPTIONS, HOWEVER, ACTUAL TEMPORARY WIDENING WILL TYPICALLY OCCUR ONLY ON ONE SIDE OF THE EXISTING PAVEMENT.

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	3" S9.5C
C2	VAR. S9.5C
C3	3" S9.5B
C4	2" S9.5B
C5	VAR. S9.5B
D1	4" I19.0C
D2	3" I19.0C
D3	VAR. I19.0C
E1	6.5" B25.0C
E2	4" B25.0C
E3	VAR. B25.0C
J1	8" ABC
L	STABILIZER AGGREGATE
P	PRIME COAT 0.35 GAL/SY
R1	2'-6" C & G
R2	1'-6" C & G
R3	2'-9" C & G
R4	5" MONO. CONC. ISLAND (KEYED IN)
R5	8"x18" CURB
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W#	WEDGING (SEE DETAILS, SHEET 2A-1)
PAVEMENT EDGE SLOPES 1:1 UNLESS NOTED OTHERWISE.	

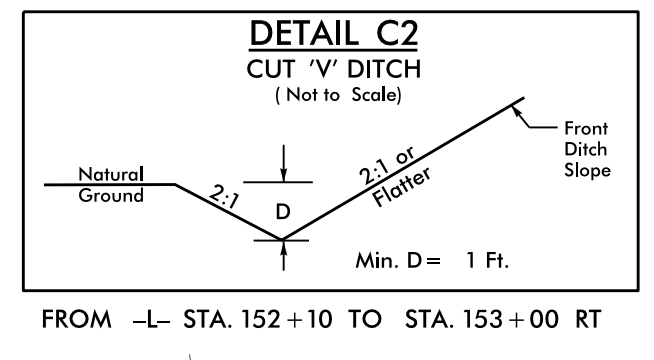
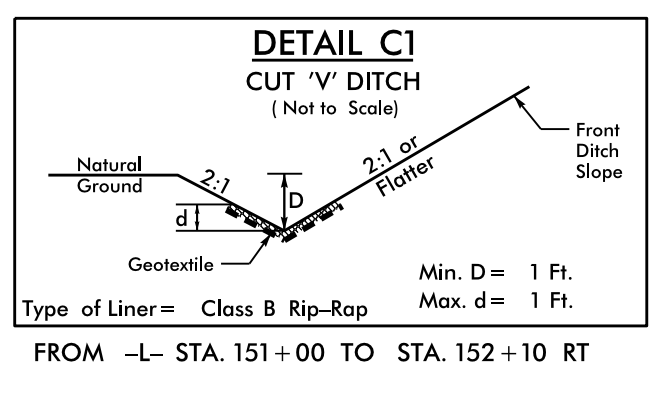
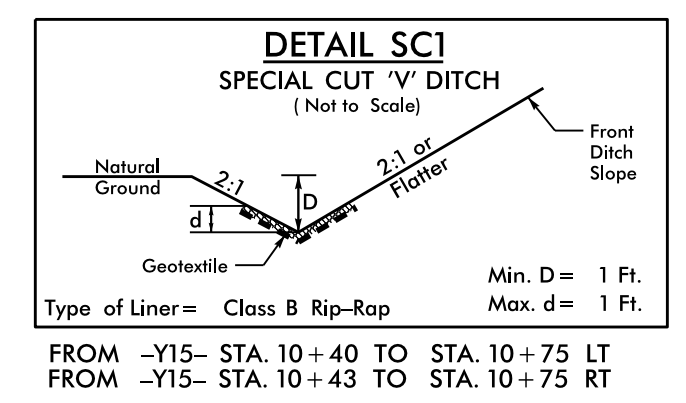
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 5/14/19

8/17/19

-Y15DET-

PI Sta 12+22.75	PI Sta 12+89.82
$\Delta = 34^{\circ} 55' 32.2''$ (RT)	$\Delta = 8^{\circ} 11' 07.3''$ (LT)
D = 57' 17" 44.8"	D = 10' 54" 48.5"
L = 60.96'	L = 75.00'
T = 31.46'	T = 37.57'
R = 100.00'	R = 525.00'

NOTE:
WHEN THE -Y15DET- DETOUR IS NO LONGER NEEDED, THE CONTRACTOR SHALL REMOVE THE PAVEMENT AND GRADE THE ROADBED AND DITCHES TO DRAIN TO THE PROPOSED -Y15- DITCH AND OPEN END PIPE #1419 TO LIMIT THE AMOUNT OF STORMWATER DRAINING TO THE -L- CURB & GUTTER AS MUCH AS PRACTICABLE.



-Y15DET- CHERRYWOOD DR. DETOUR

Weston Sampson
WSE of North Carolina, PC
598 East Chatham Street Suite 137
Phone: 919.287.0220

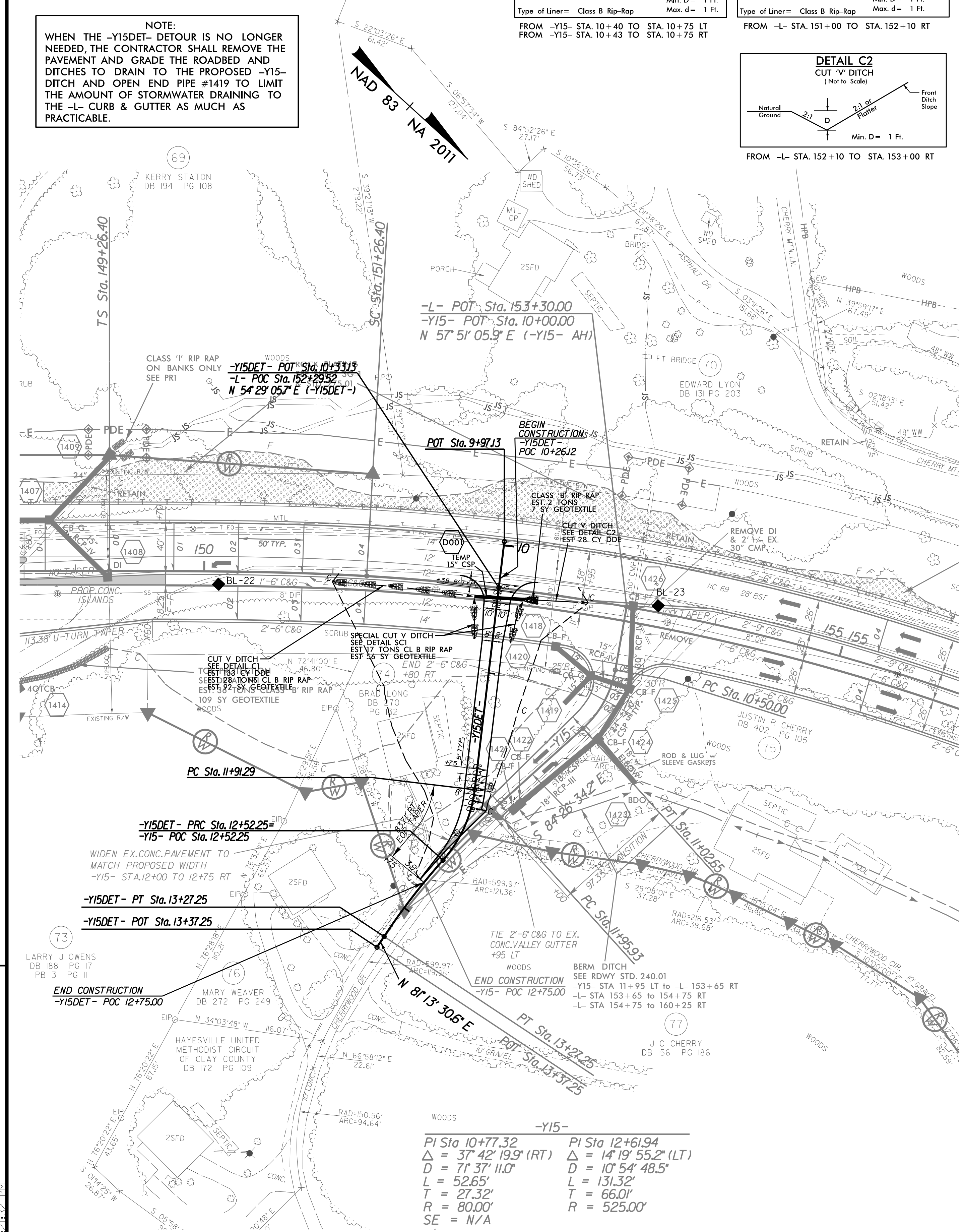
NC License: C-4847
Conj. NC. 27611
Fax: 919.287.0221

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

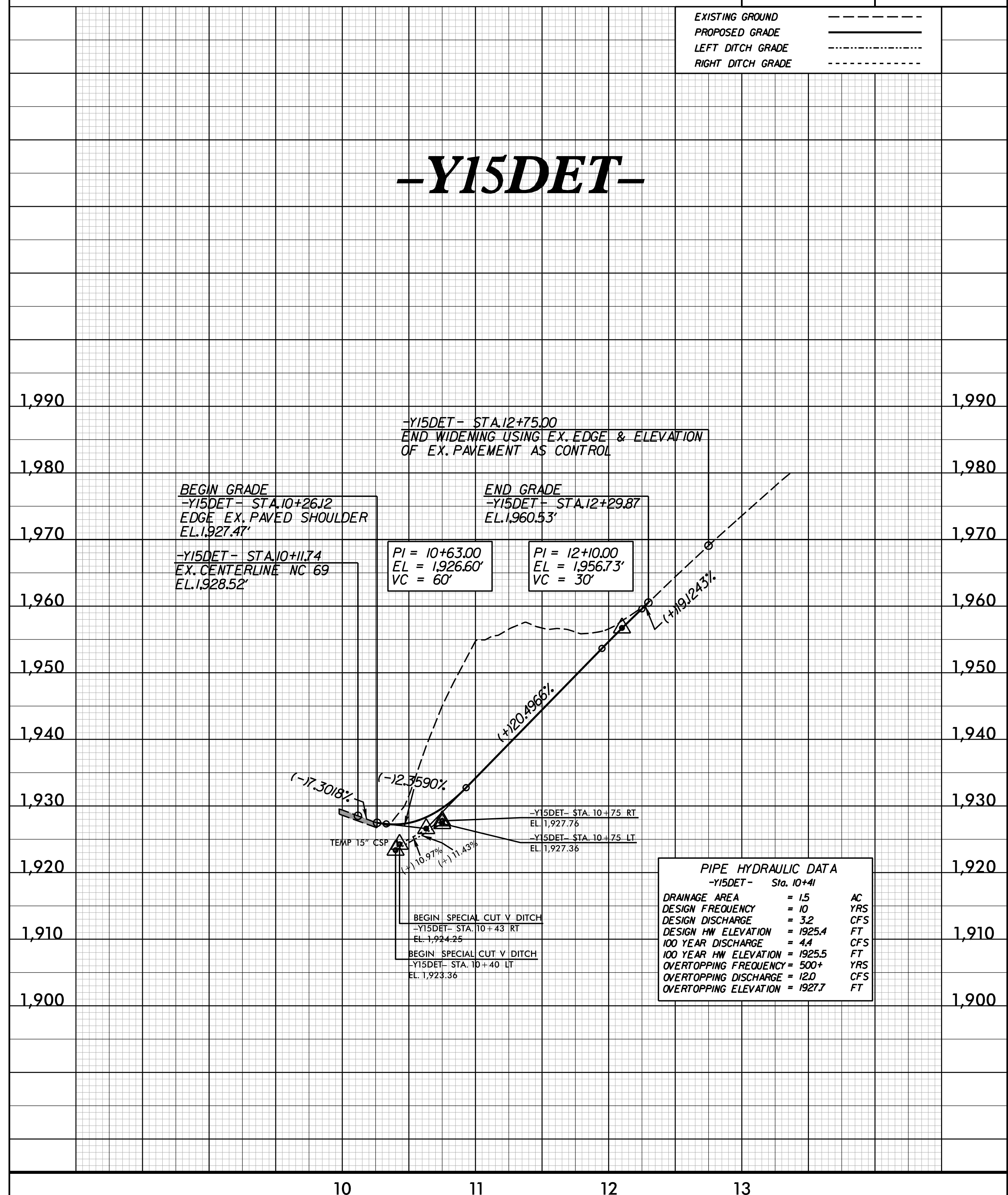
PROJECT REFERENCE NO. A-0011C	SHEET NO. 2B-1
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EXISTING GROUND	---
PROPOSED GRADE	---
LEFT DITCH GRADE	---
RIGHT DITCH GRADE	---

REVISIONS



-Y15DET-



PIPE HYDRAULIC DATA
-Y15DET- Sta. 10+41

DRAINAGE AREA	= 15	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 3.2	CFS
DESIGN HW ELEVATION	= 1925.4	FT
100 YEAR DISCHARGE	= 4.4	CFS
100 YEAR HW ELEVATION	= 1925.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 12.0	CFS
OVERTOPPING ELEVATION	= 1927.7	FT

8/15/2019
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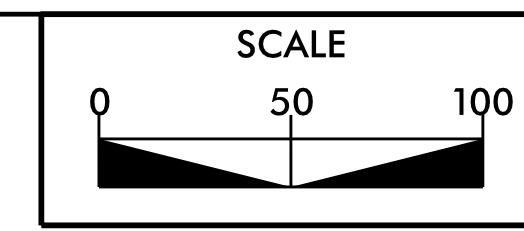
INTERSECTION DETAILS

Weston & Sampson
 WSE of North Carolina, PC
 588 East Chatham Street Suite 137
 Phone: 919.287.0220

NC License:
 C-4847
 Corj, NC. 27611
 Fax: 919.287.0221

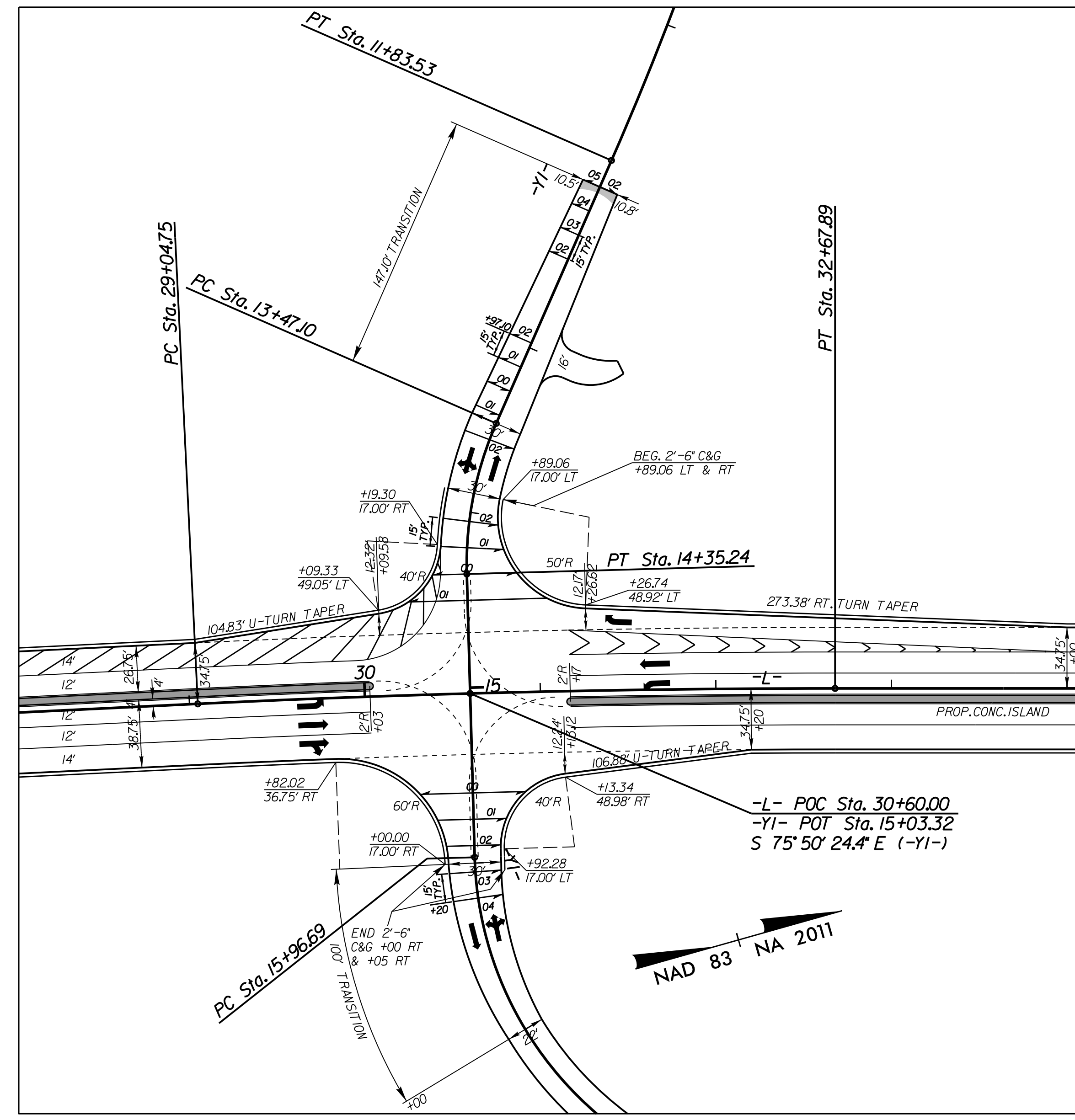
PROJECT REFERENCE NO.	SHEET NO.
A-0011C	2B-2

ROADWAY DESIGN ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL 39283
 KEVIN S. HUTCHENS
 DocuSigned by: Kevin S Hutchens
 28756E72F10E430
 8/6/2019

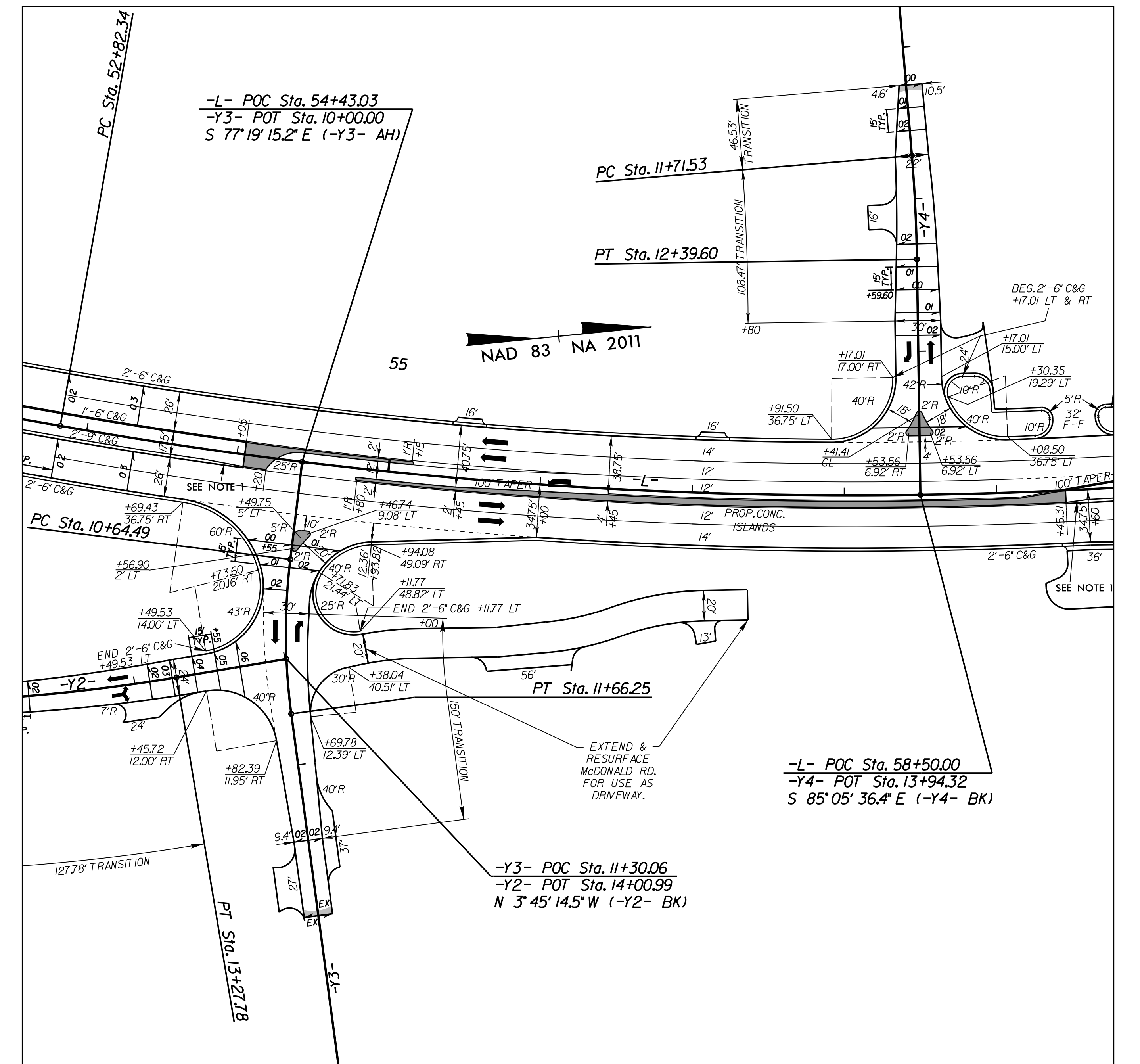


DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

REVISIONS



-L- (NC 69)/-Y1- (SR 1115 McDONALD RD.)
 INTERSECTION DETAIL
 SEE SHEET 5 FOR PLAN VIEW



-L- (NC 69)/-Y3- (SR 1190 McCURE RD.)
 -Y3- (SR 1190 McCURE RD.)/-Y2- (SR 1115 McDONALD RD.)
 INTERSECTION DETAILS
 SEE SHEET 7 FOR PLAN VIEW

-L- (NC 69)/-Y4- (WINDY RIDGE LN.)
 INTERSECTION DETAIL
 SEE SHEET 7 FOR PLAN VIEW

8/5/2019
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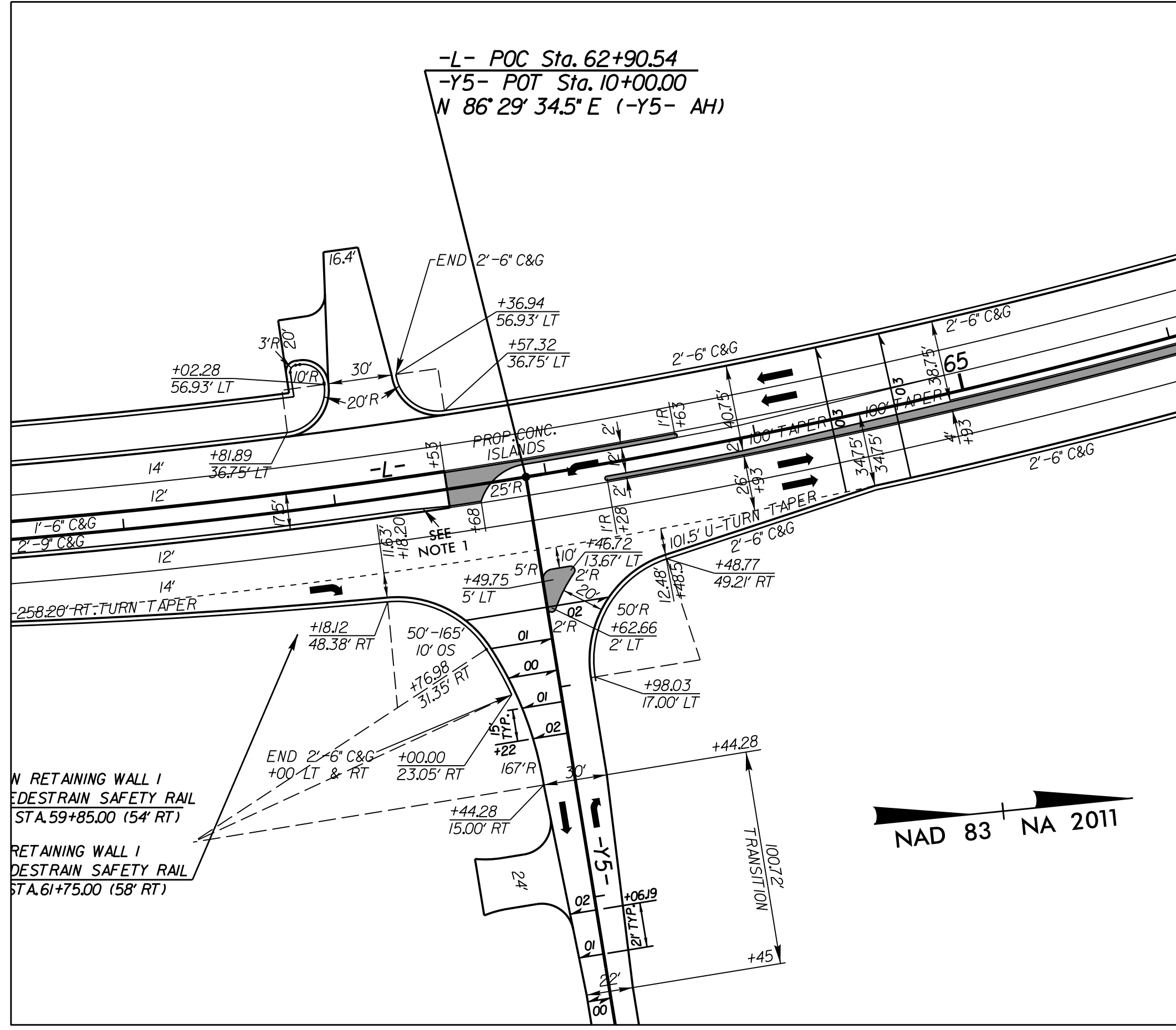
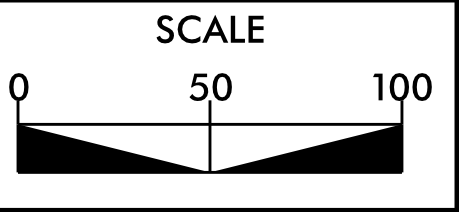
INTERSECTION DETAILS

ROADWAY DESIGN
ENGINEER

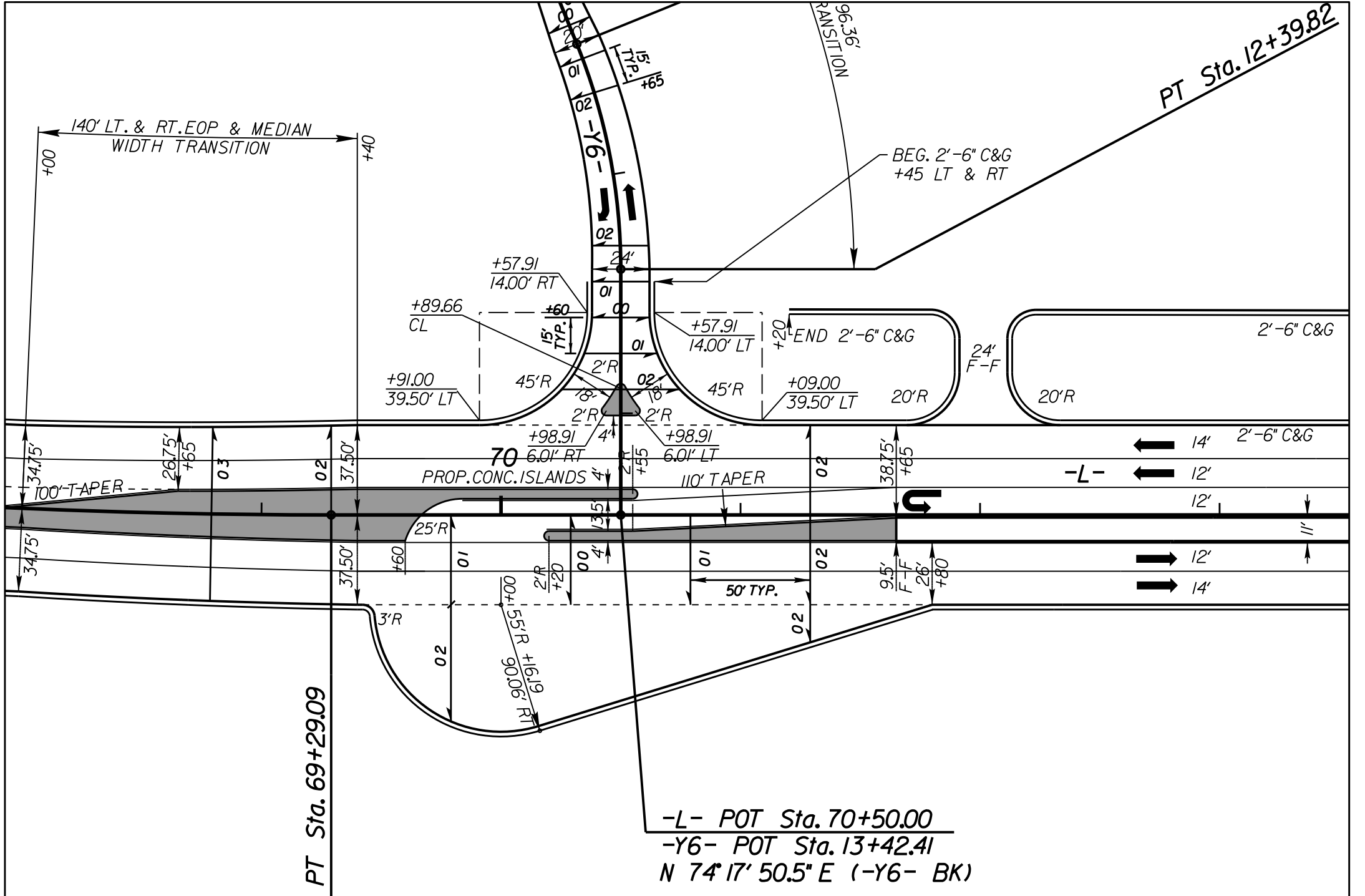
DocuSigned by:
Kevin S Hutchens
2875E72F10E43D... 8/6/2019

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

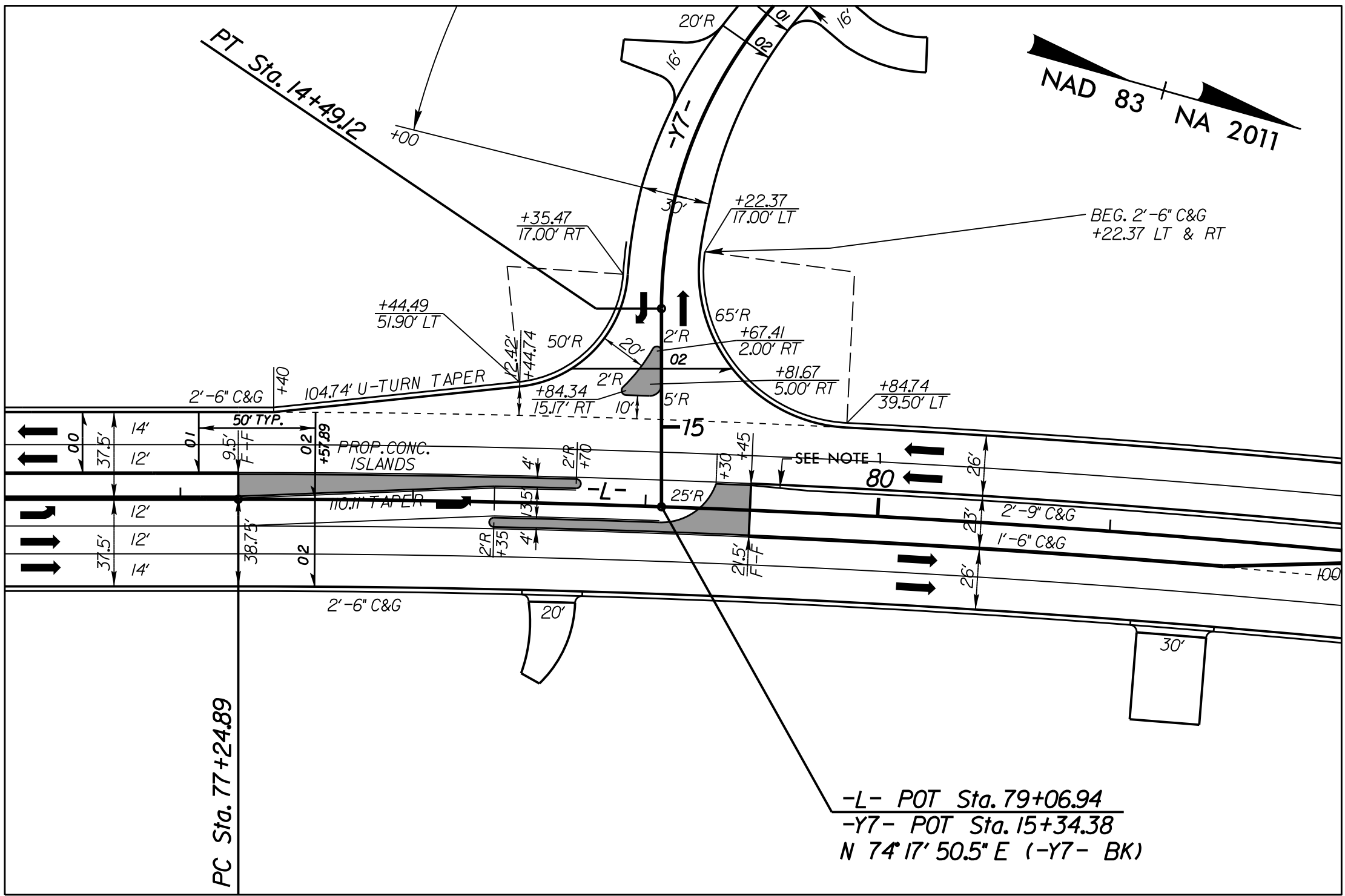
Weston & Sampson NC License: C-4847
 588 East Chatham Street Suite 137 Cary, NC 27511
 Phone: 919.297.0220 Fax: 919.297.0221



-L- (NC 69)/Y5- (SR 1140 MYERS CHAPEL RD.)
INTERSECTION DETAIL
SEE SHEET 7 FOR PLAN VIEW



-L- (NC 69)/Y6- (CABIN DR.)
INTERSECTION DETAIL
SEE SHEET 8 FOR PLAN VIEW



-L- (NC 69)/Y7- (SR 1116 MATHESON COVE RD.)
INTERSECTION DETAIL
SEE SHEET 9 FOR PLAN VIEW

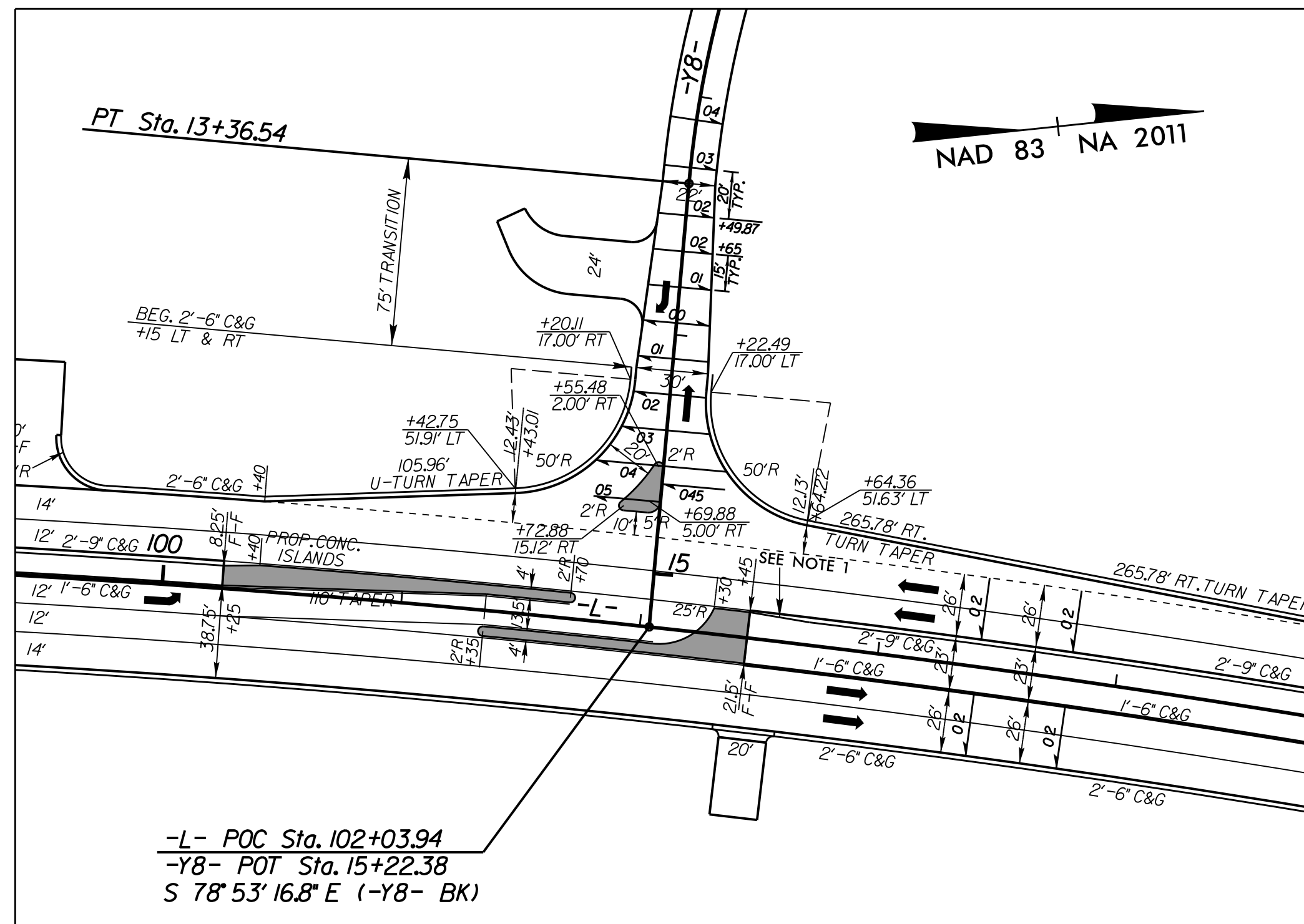
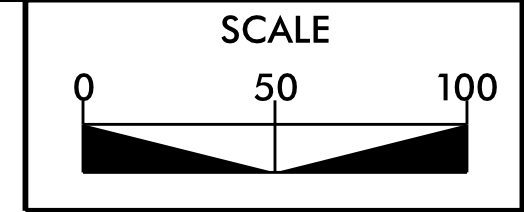
REVISIONS

8/17/19

8/5/2019
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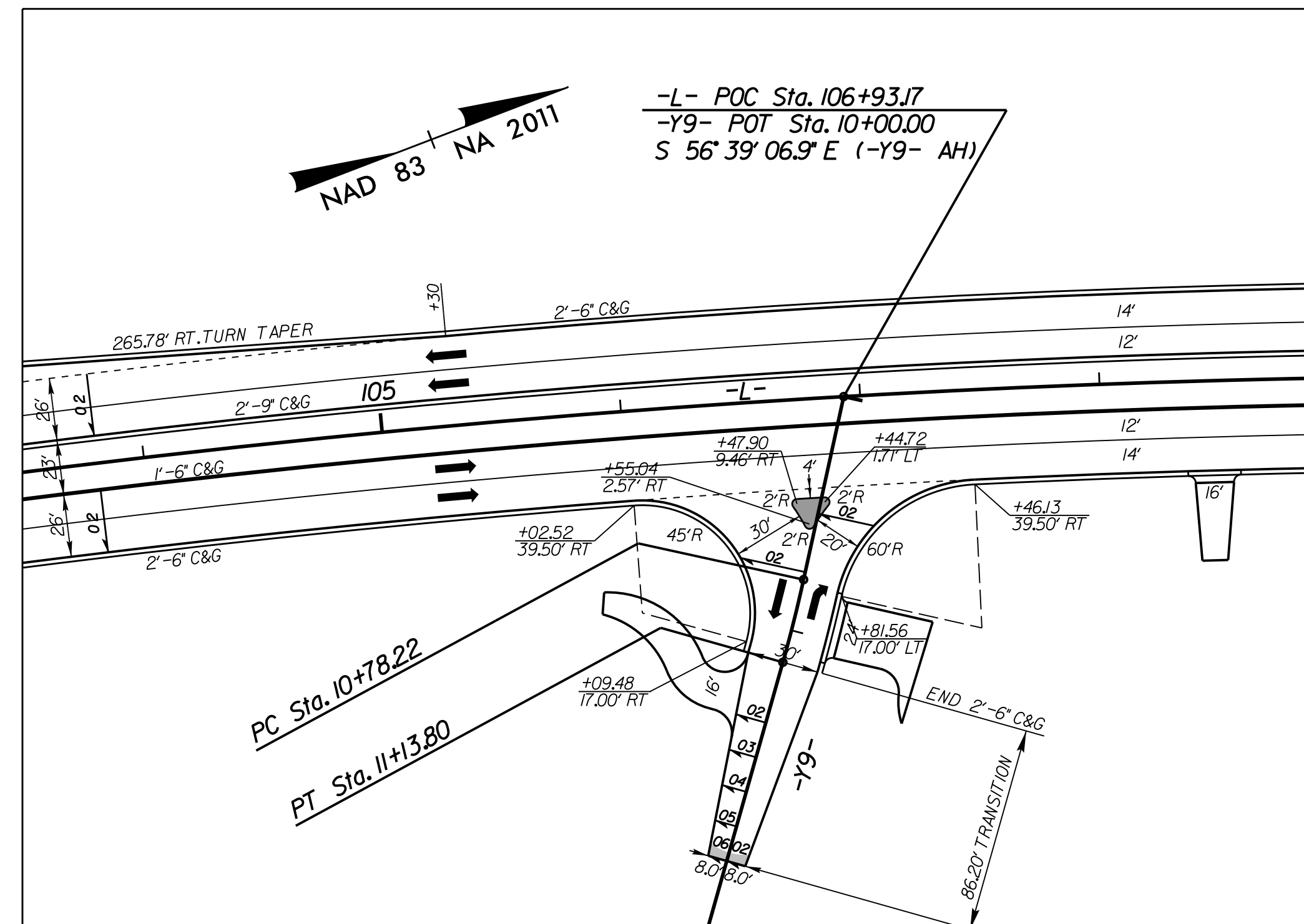
INTERSECTION DETAILS

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	2B-4
ROADWAY DESIGN ENGINEER WESTERN NORTH CAROLINA PROFESSIONAL SEAL 39283 KEVIN S. HUTCHENS	
DocuSigned by: Kevin S. Hutchens 28756E72F10E43D	
8/6/2019	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Weston & Sampson INC. License: C-4847 WSE of North Carolina, PC 588 East Chatham Street Phone: 919.297.0220	
Suite 137 Cary, NC 27511 Fax: 919.297.0221	



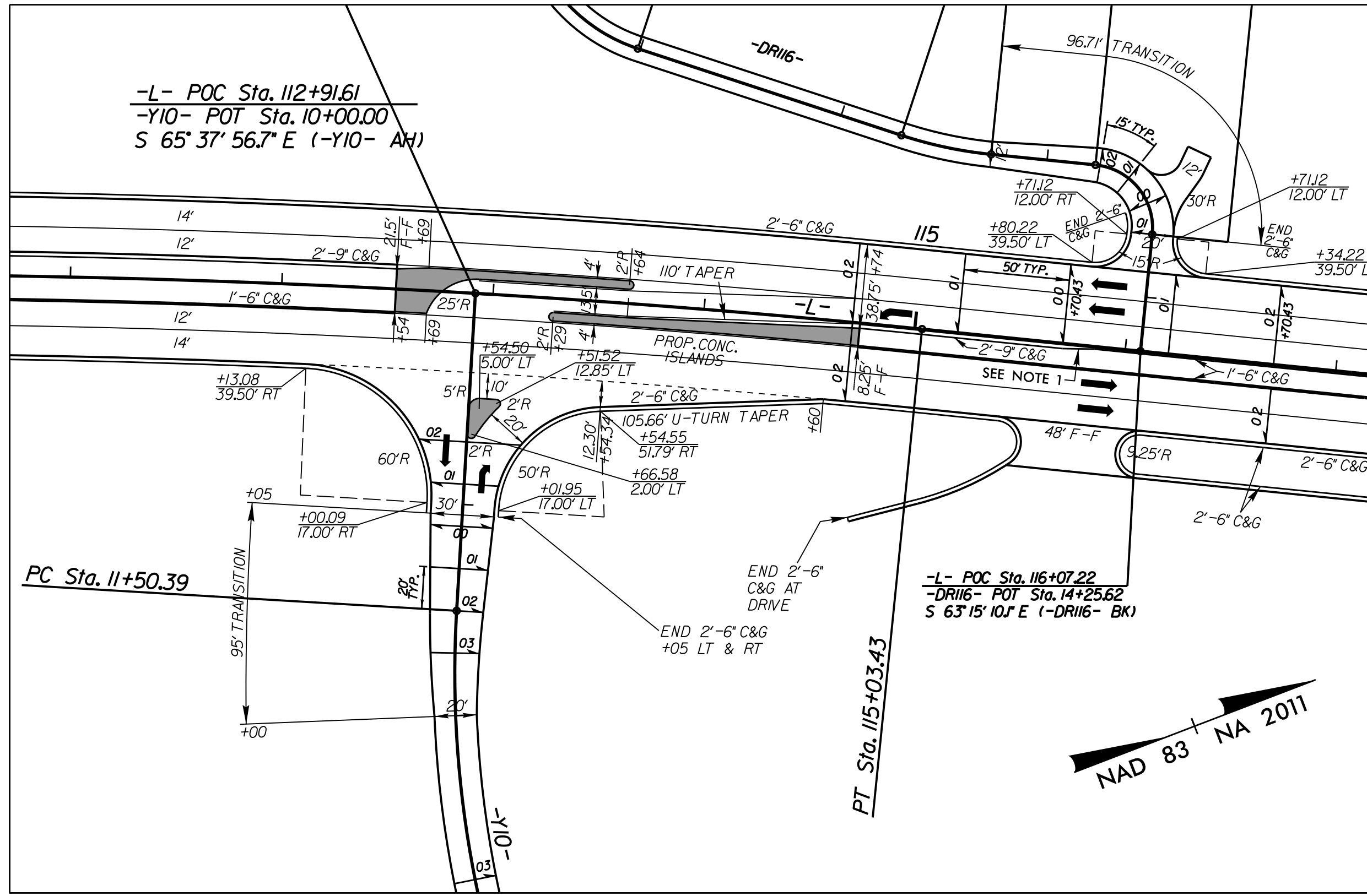
-L- (NC 69)/-Y8- (SR 1116 MATHESON COVE RD.)
INTERSECTION DETAIL

SEE SHEET 10 FOR PLAN VIEW



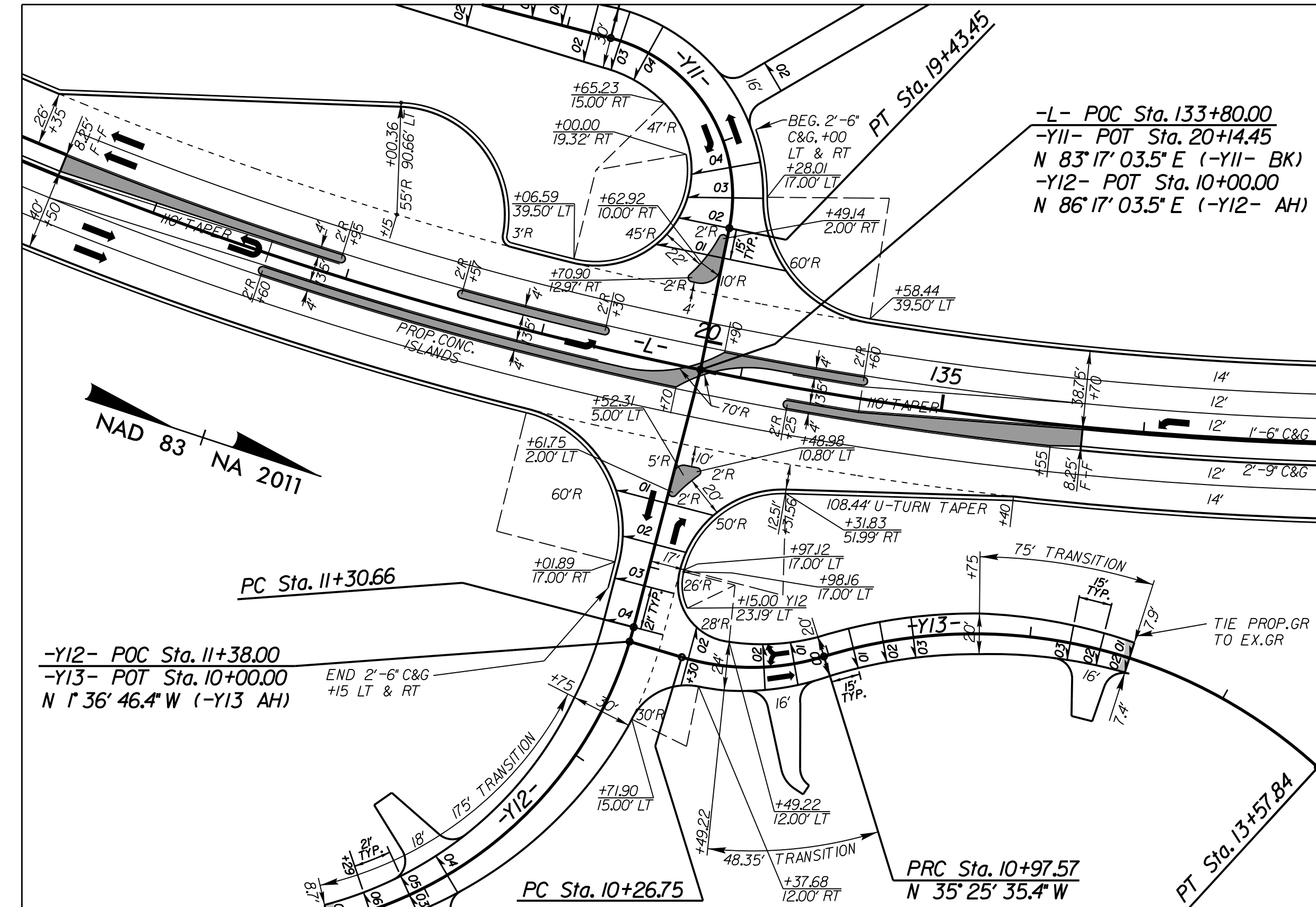
-L- (NC 69)/-Y9- (SR 1144 CLINE McCLURE RD.)
INTERSECTION DETAIL

SEE SHEET 11 FOR PLAN VIEW



-L- (NC 69)/-Y10- (SR 1143 BARNARD RD.)
-L- (NC 69)/-DR116- (CLYDE CURTIS DR.)
INTERSECTION DETAILS

SEE SHEET 11 FOR PLAN VIEW



-L- (NC 69)/-Y11- (SR 1119 ROSS RD.)/-Y12- (SR 1141 SWAIMS RD.)
-Y12- (SR 1141 SWAIMS RD.)/-Y13- (SR 1142 BYERS RD.)
INTERSECTION DETAILS

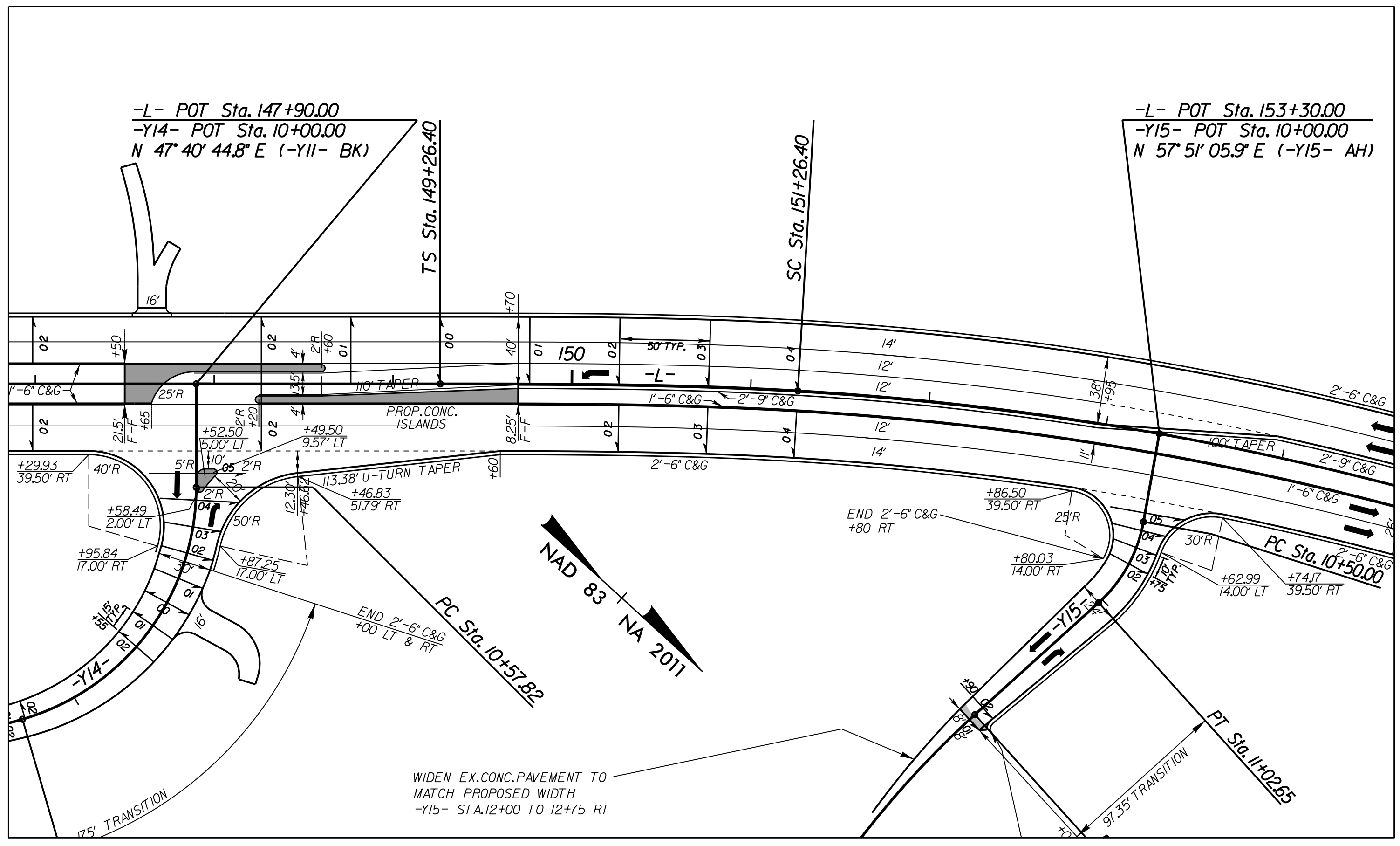
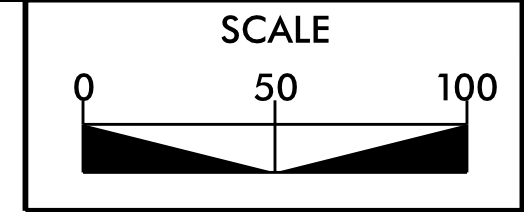
SEE SHEET 13 FOR PLAN VIEW

REVISIONS

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INTERSECTION DETAILS

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	2B-5
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 39283 KEVIN S. HUTCHENS	
DocuSigned by: Kevin S Hutchens 2875EE7F10E43D	8/6/2019
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Weston & Sampson WSE of North Carolina, PC 588 East Chatham Street Phone: 919.297.0220	
NC License: C-4847 Suite 137 Cary, NC 27511 Fax: 919.297.0221	

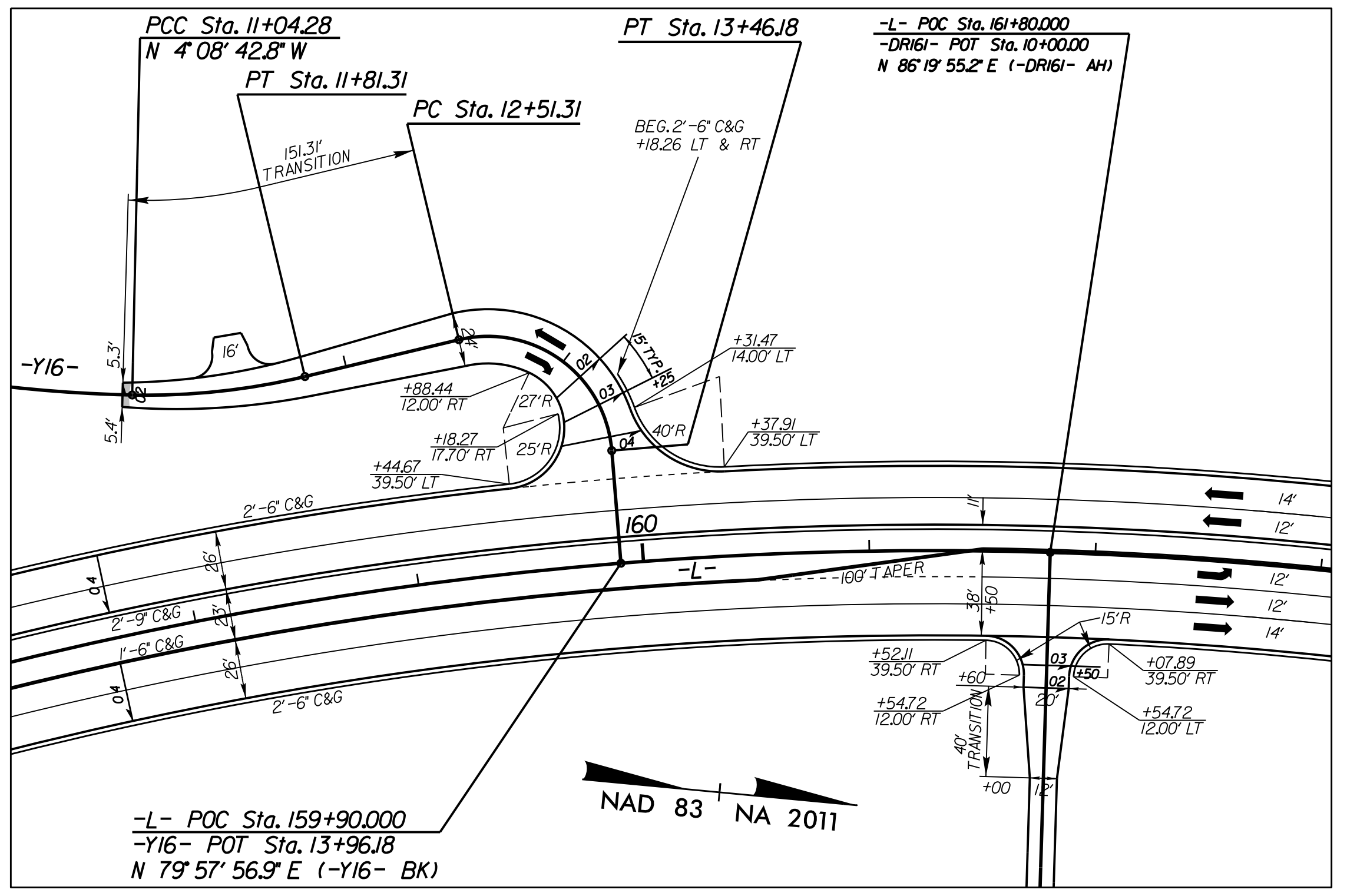


-L- (NC 69)/-Y14- (SR 1116 BYERS RD.) INTERSECTION DETAIL

-L- (NC 69)/-Y15- (CHERRYWOOD DR.) INTERSECTION DETAIL

SEE SHEET 14 FOR PLAN VIEW

SEE SHEET 14 FOR PLAN VIEW

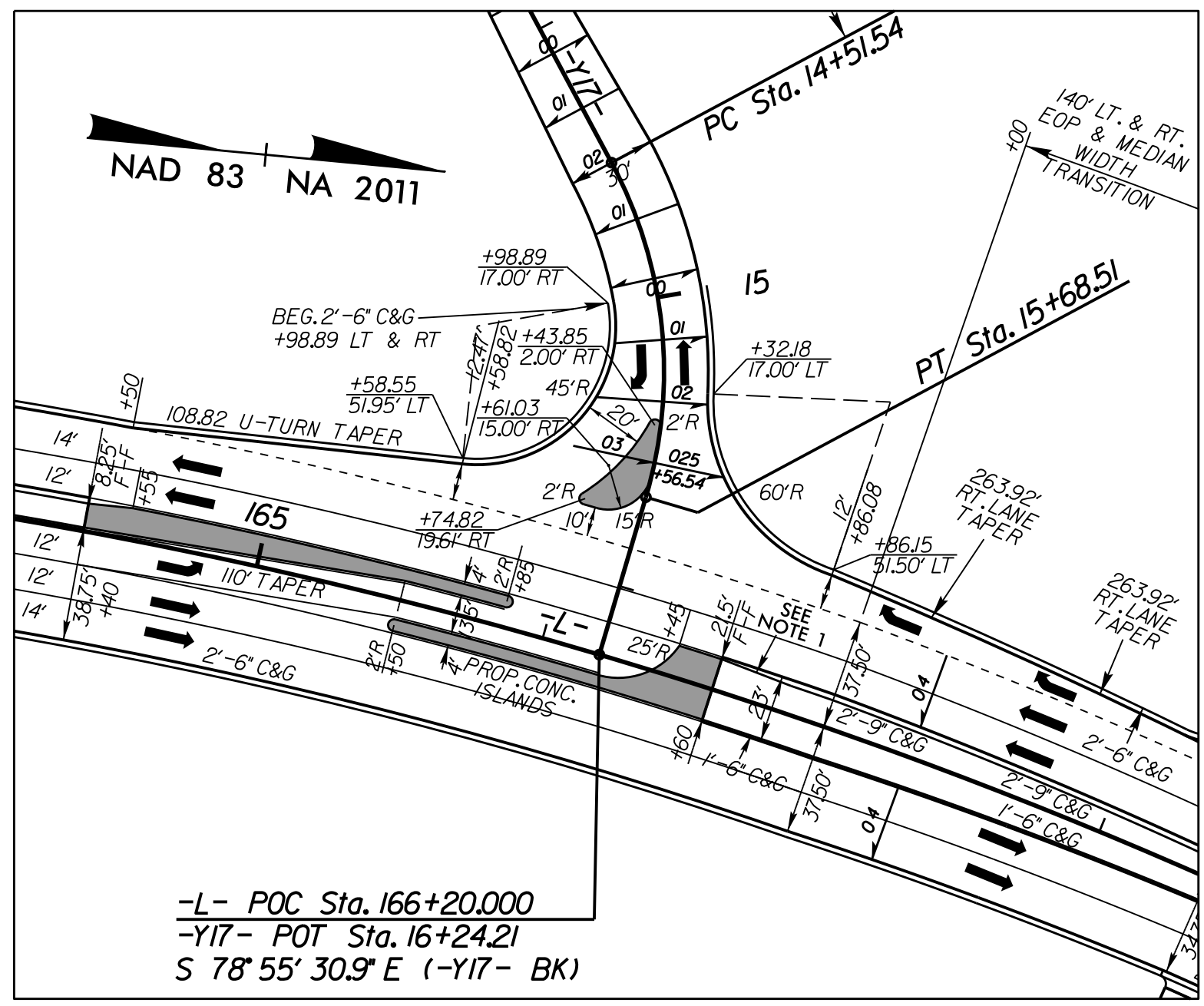


-L- (NC 69)/-Y16- (CHERRY MOUNTAIN LN.) INTERSECTION DETAIL

-L- (NC 69)/-DR161- (BOYDS PRAYER WAY) INTERSECTION DETAIL

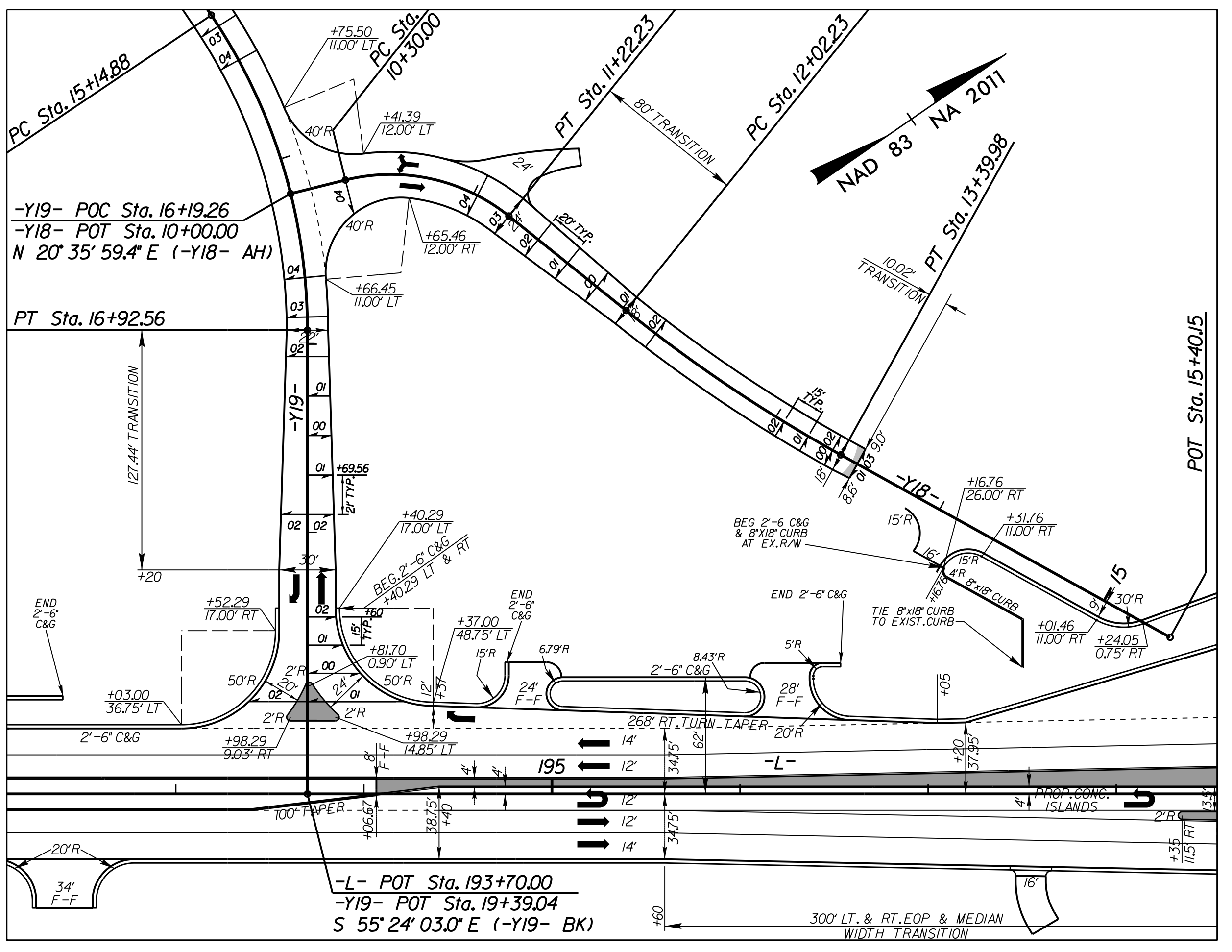
SEE SHEET 15 FOR PLAN VIEW

SEE SHEET 15 FOR PLAN VIEW



-L- (NC 69)/-Y17- (SR 1118 CHERRY RD.) INTERSECTION DETAIL

SEE SHEET 15 FOR PLAN VIEW



-L- (NC 69)/-Y19- (SR 1120 WALDRUP RD.) INTERSECTION DETAIL

-Y19- (SR 1120 WALDRUP RD.)/-Y18- (SR 1120 WALDRUP RD.) INTERSECTION DETAIL

SEE SHEET 18 FOR PLAN VIEW

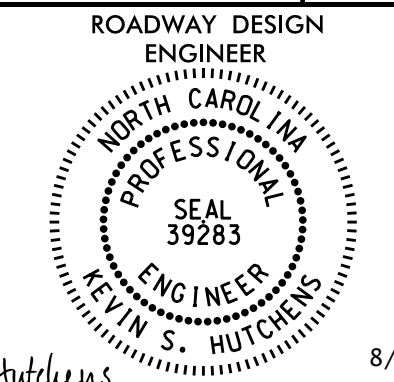

SEE SHEET 18 FOR PLAN VIEW

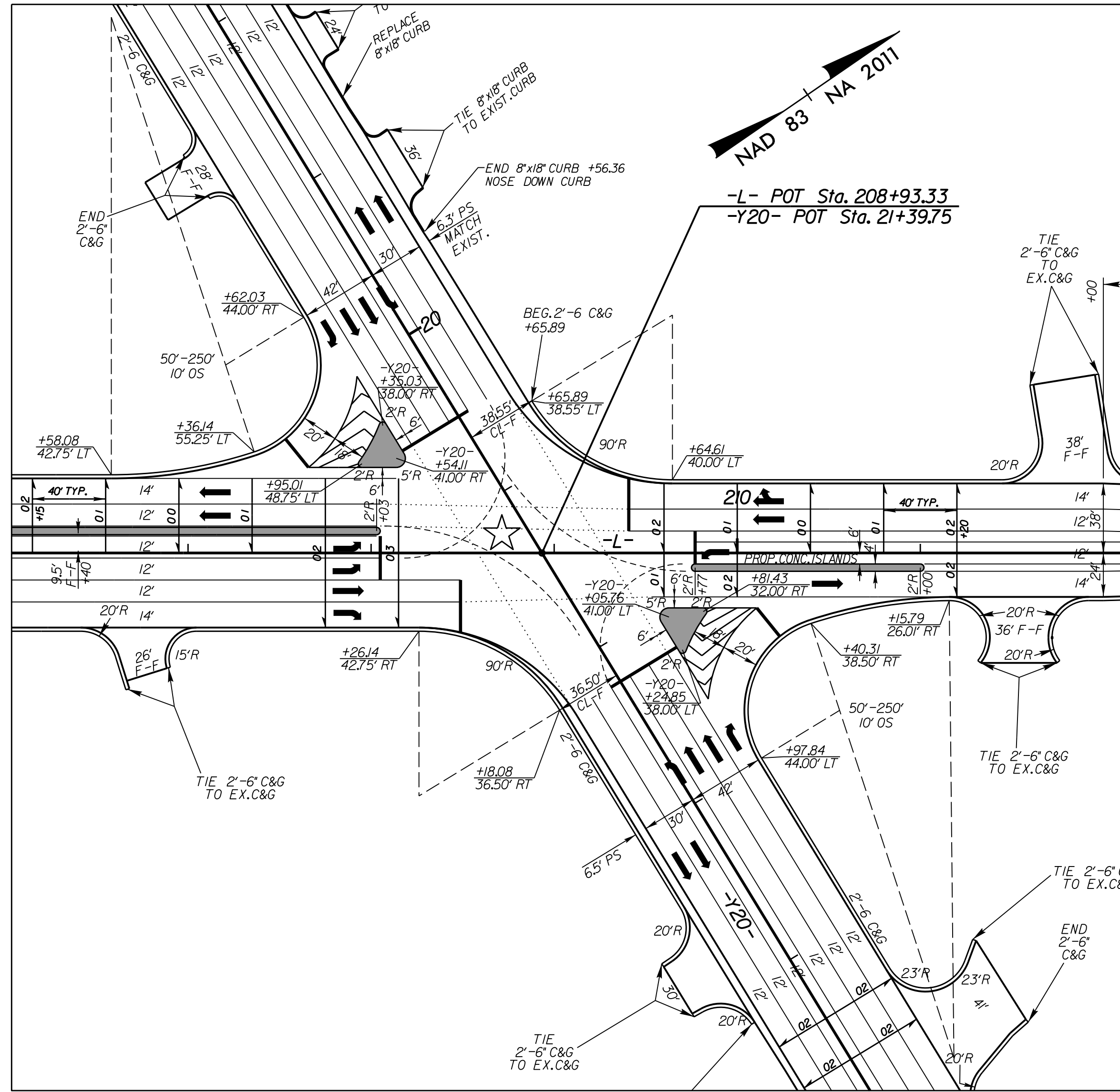
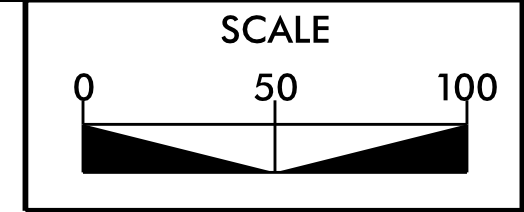
REVISIONS

8/17/19
8/5/2019
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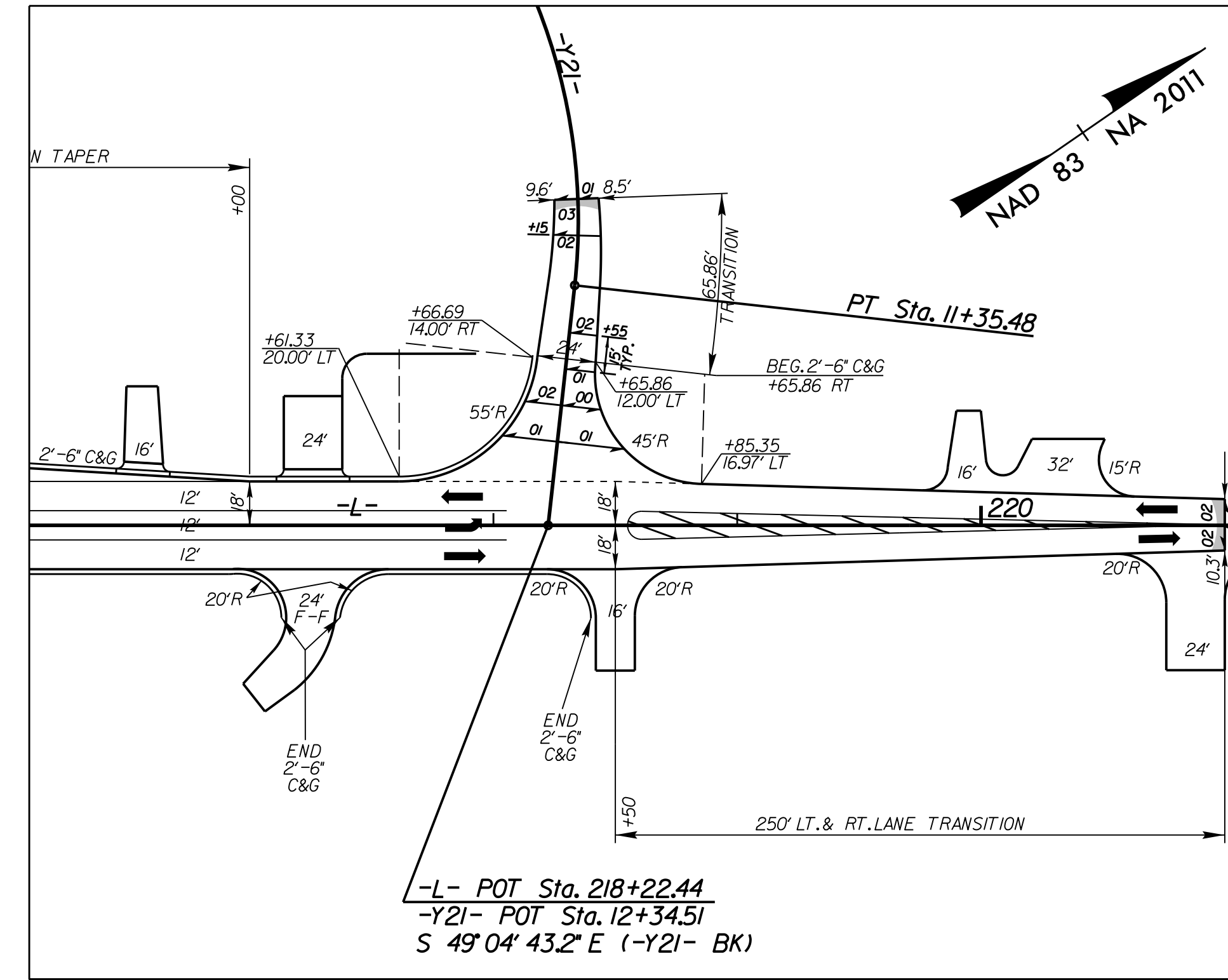
8/17/19

INTERSECTION DETAILS

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	2B-6
ROADWAY DESIGN ENGINEER  KEVIN S. HUTCHENS ENGINEER	
DocuSigned by: Kevin S Hutchens 2875EE72F10E43D	8/6/2019
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	
WSE of North Carolina, PC 588 East Chatham Street Suite 137 Cary, NC 27511 Phone: 919.297.0220 Fax: 919.297.0221	



-L- (NC 69)/-Y20- (US 64)
INTERSECTION DETAIL
SEE SHEET 19 FOR PLAN VIEW



-L- (NC 69)/-Y21- (SR 1121 FORT HEMBREE RD.)
INTERSECTION DETAIL
SEE SHEET 20 FOR PLAN VIEW

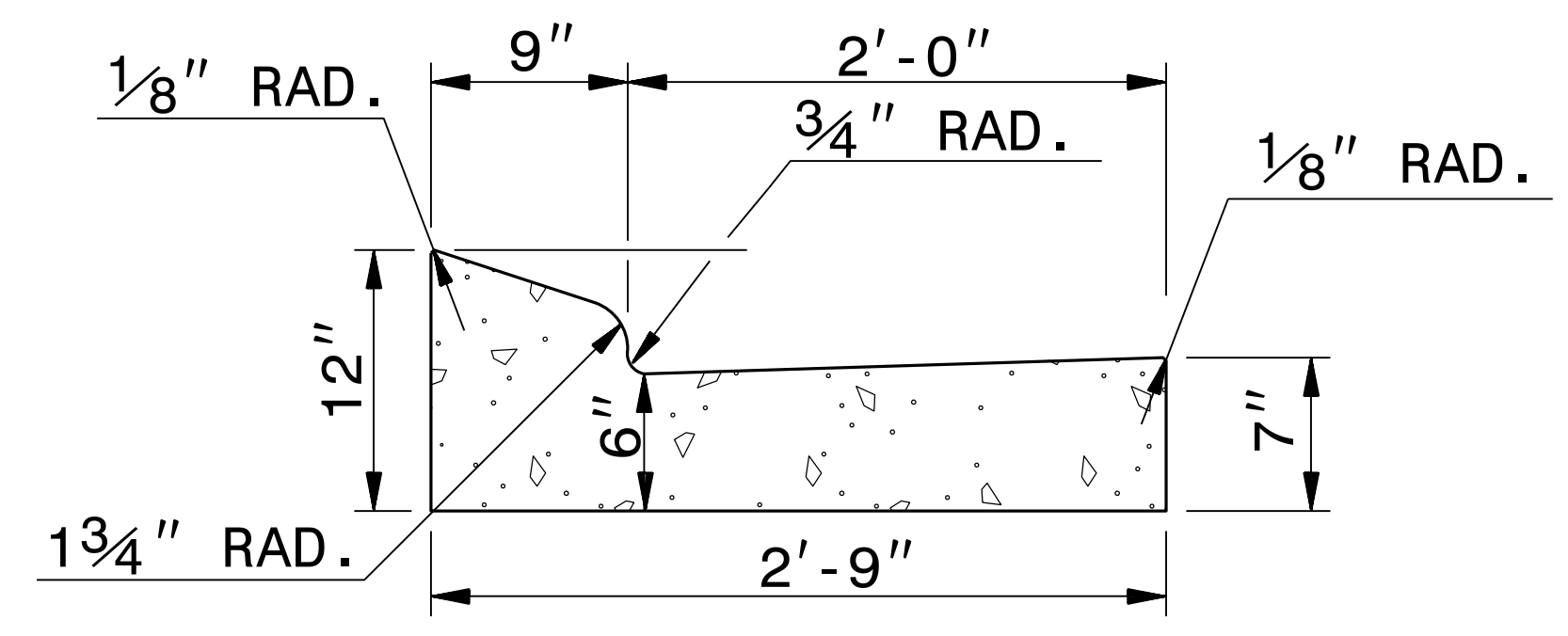
REVISIONS

8/5/2019
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STATE OF
 NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

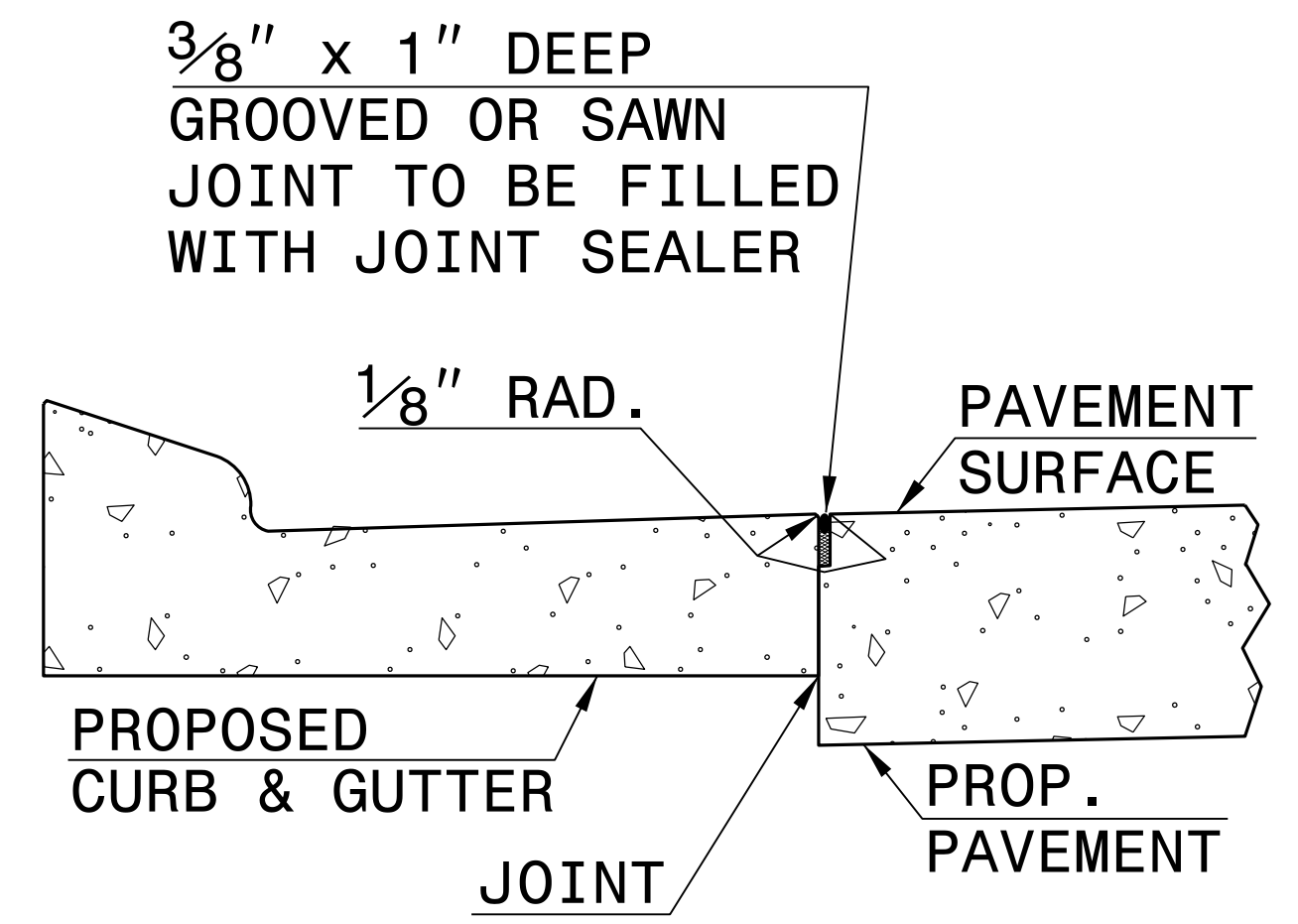
ENGLISH DETAIL DRAWING FOR
2'-9" CONCRETE CURB & GUTTER

- GENERAL NOTES:
- PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
 - JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
 - CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. MAKE NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
 - FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
 - SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.
 - SEE RDWY. STD. DWG. NO. 846.01, SHEET 2 OF 3 FOR PLACEMENT IN SUPERELEVATIONS. (USE 2'-6" CURB AND GUTTER RATES)

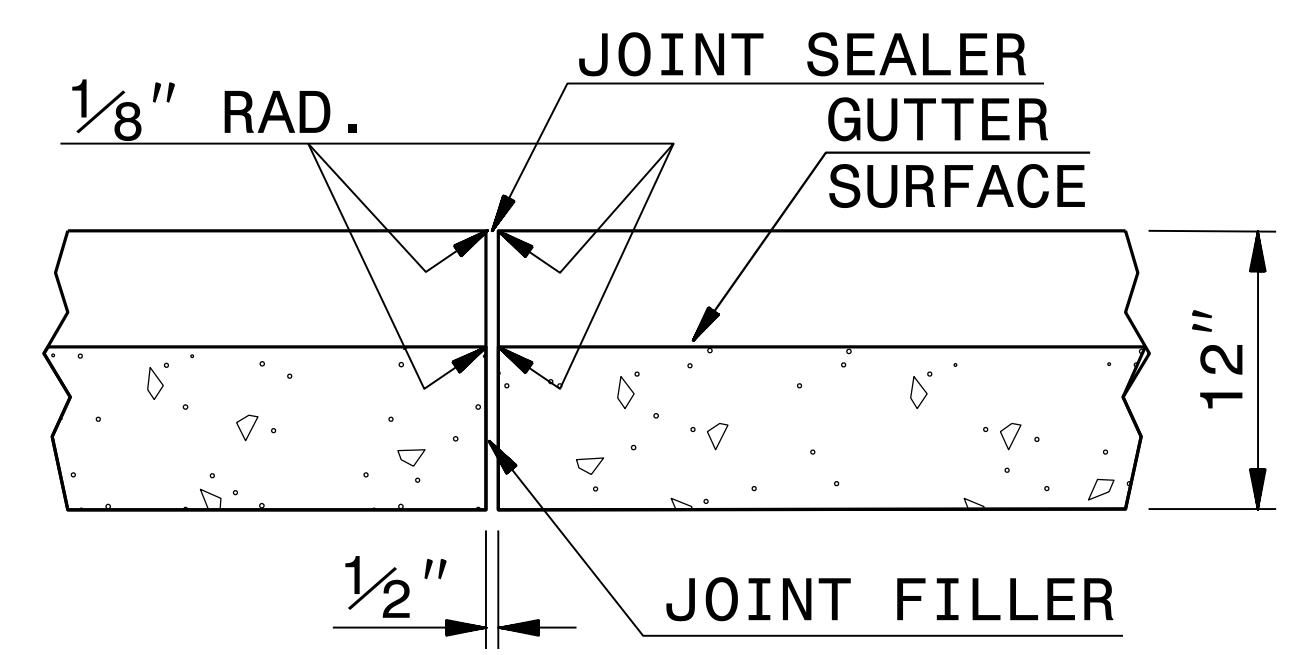


2'-9" CURB AND GUTTER

SECTION VIEW OF CURB AND GUTTER



LONGITUDINAL JOINT



TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER

SECTION VIEW OF JOINTS

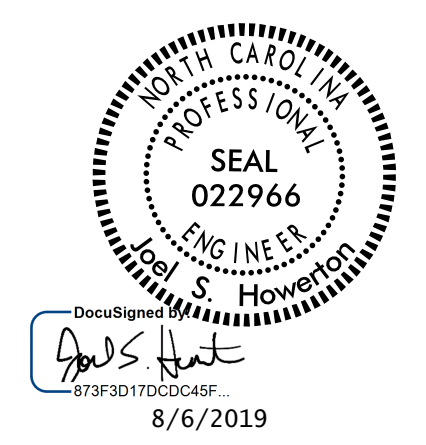
STATE OF
 NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
2'-9" CONCRETE CURB & GUTTER

SHEET 1 OF 1
846D01

SHEET 1 OF 1
846D01

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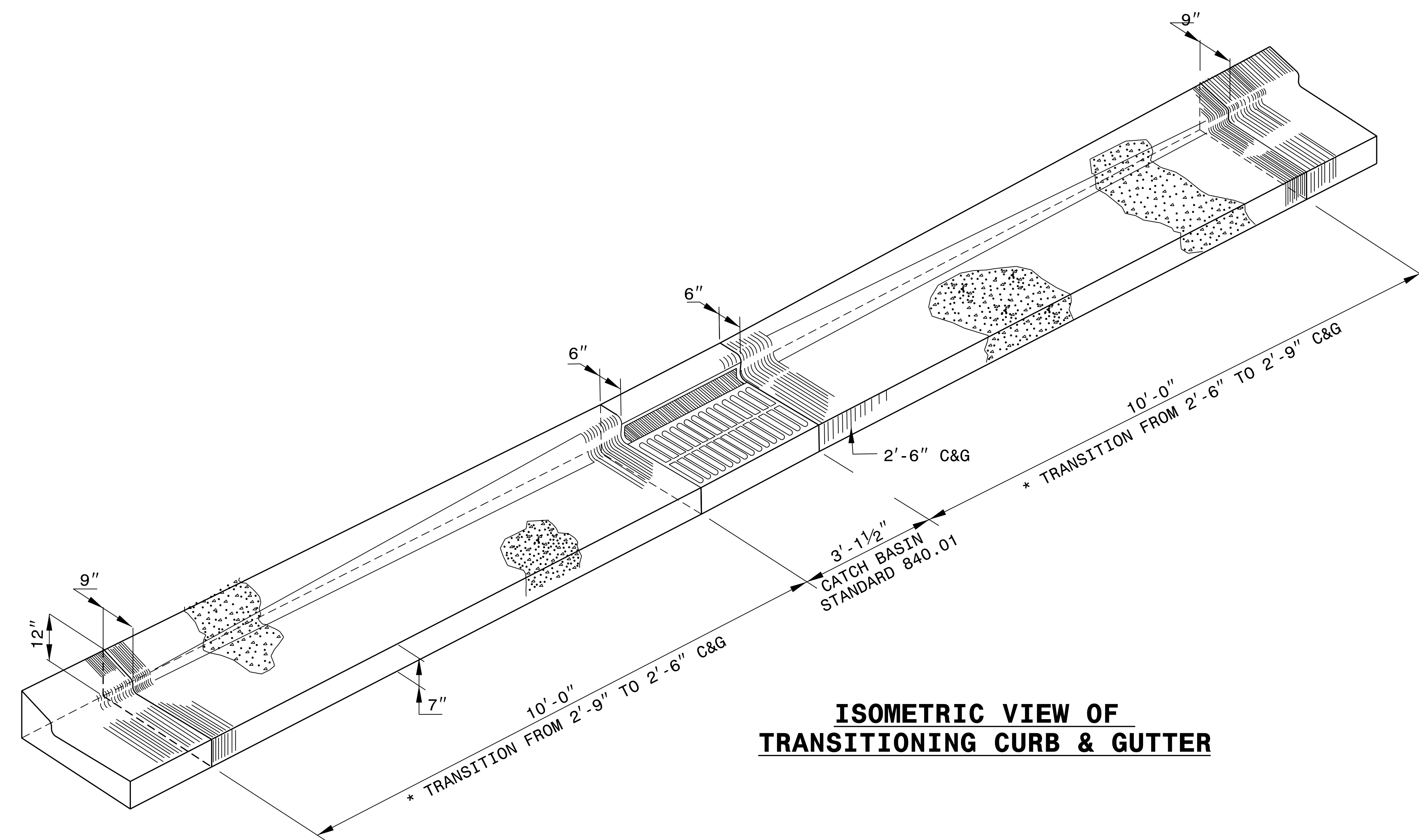


CONTRACT STANDARDS AND DEVELOPMENT UNIT
 Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

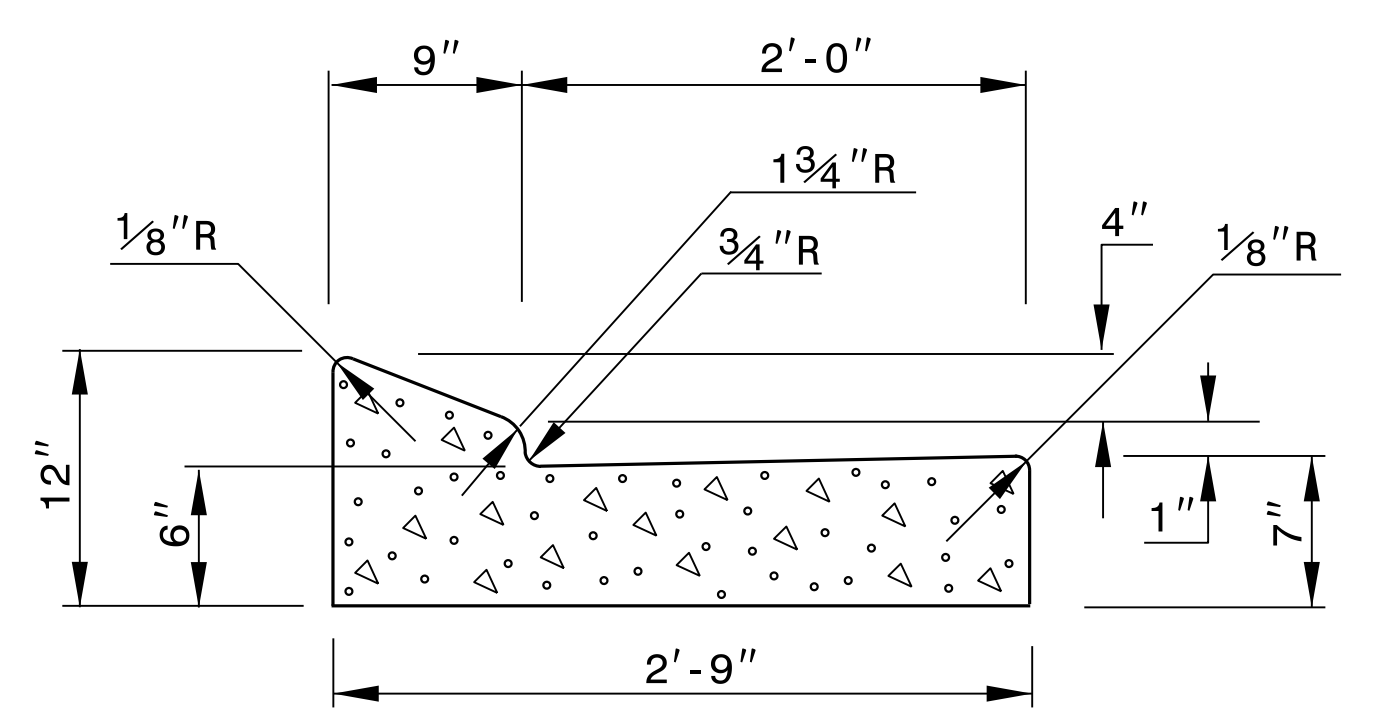
ORIGINAL BY: STD. 846.01 DATE: _____
 MODIFIED BY: E.E. WARD DATE: 8-15-00
 CHECKED BY: _____ DATE: _____
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DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

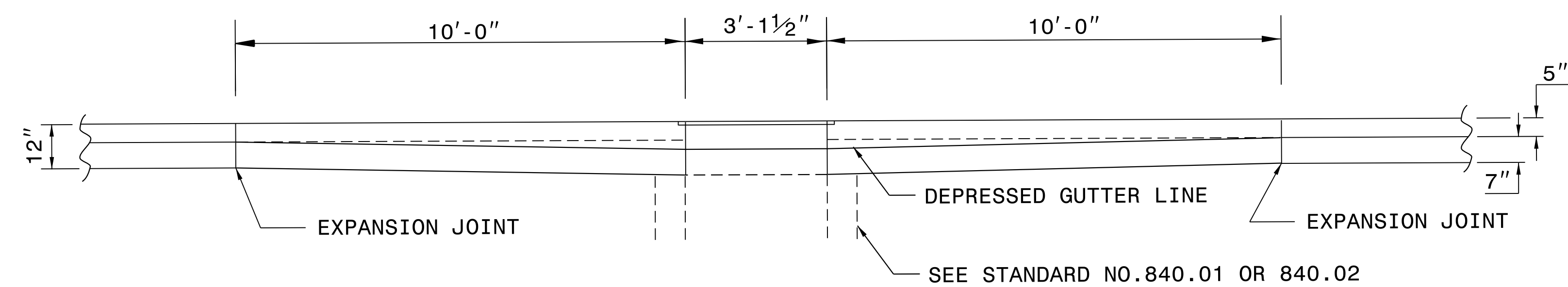


**ISOMETRIC VIEW OF
TRANSITIONING CURB & GUTTER**

NOTE: SEE STD.DWG. 846.01 FOR
2'-6" CURB AND GUTTER
INFORMATION.

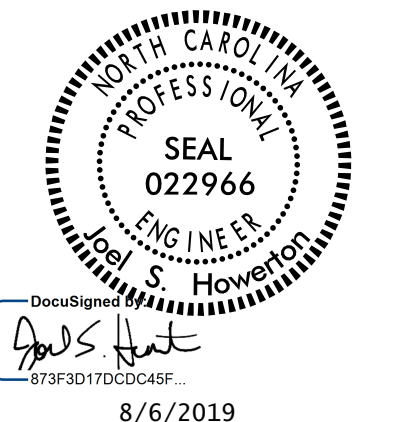


**PROPOSED
2'-9" CURB & GUTTER**



ELEVATION

* MAINTAIN THE EDGE OF PAVEMENT. TRANSITION THE CURB ALONG THE
BACK OF THE CURB.



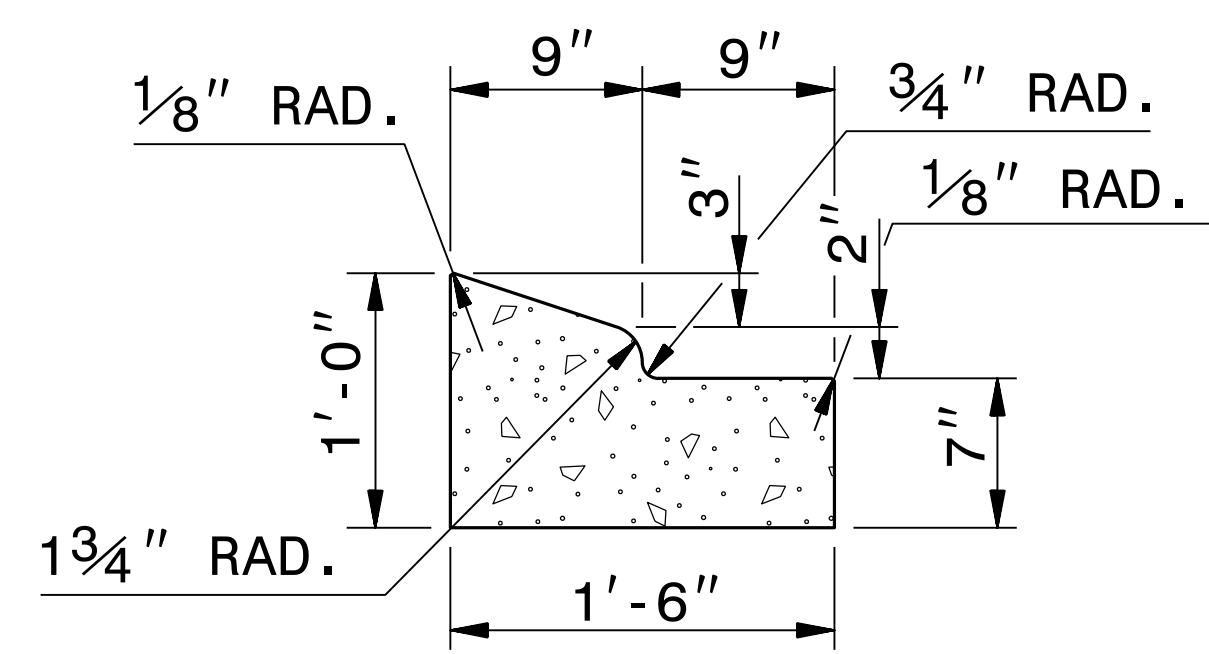
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

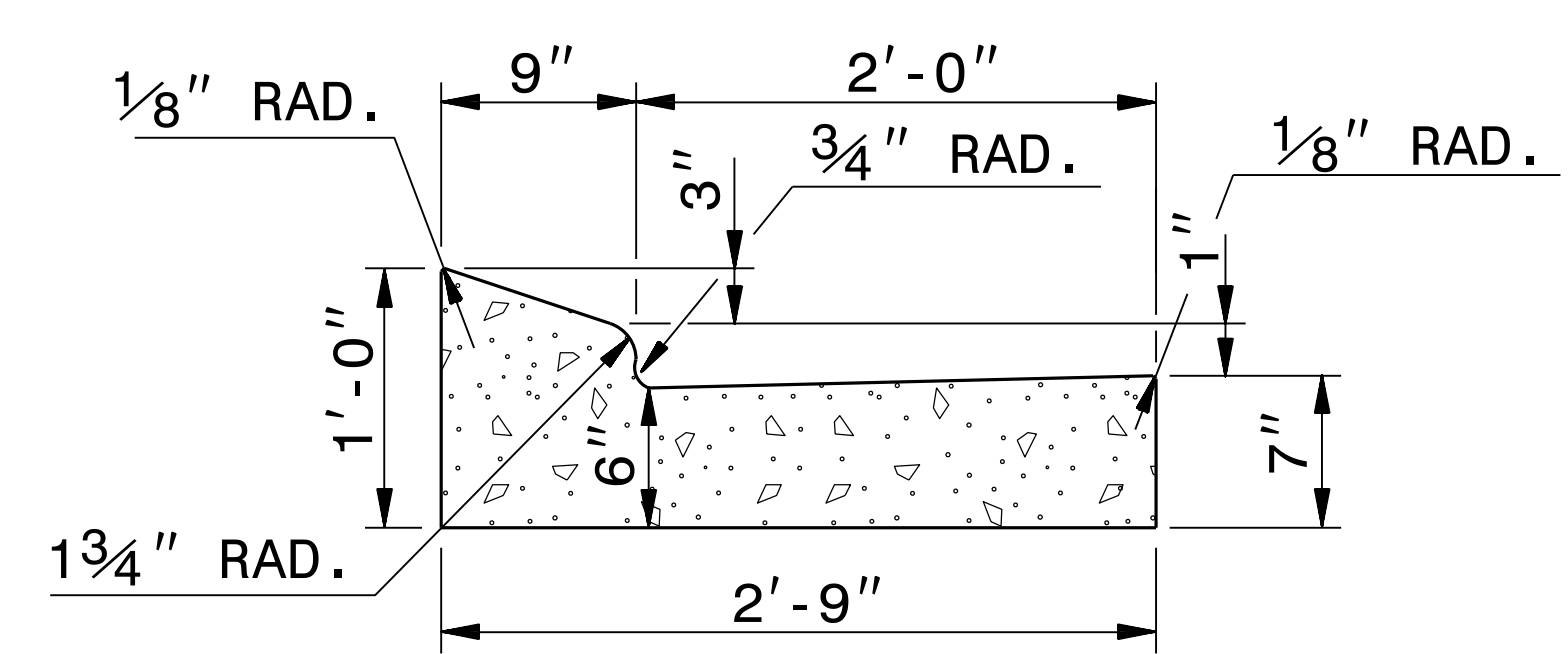
**DETAIL OF 2'-9"
TO 2'-6" CURB & GUTTER
TRANSITION SECTION**

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: tspell DATE: july 14,2009
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: s:eric/usr/details/stand/cqtranst.dgn

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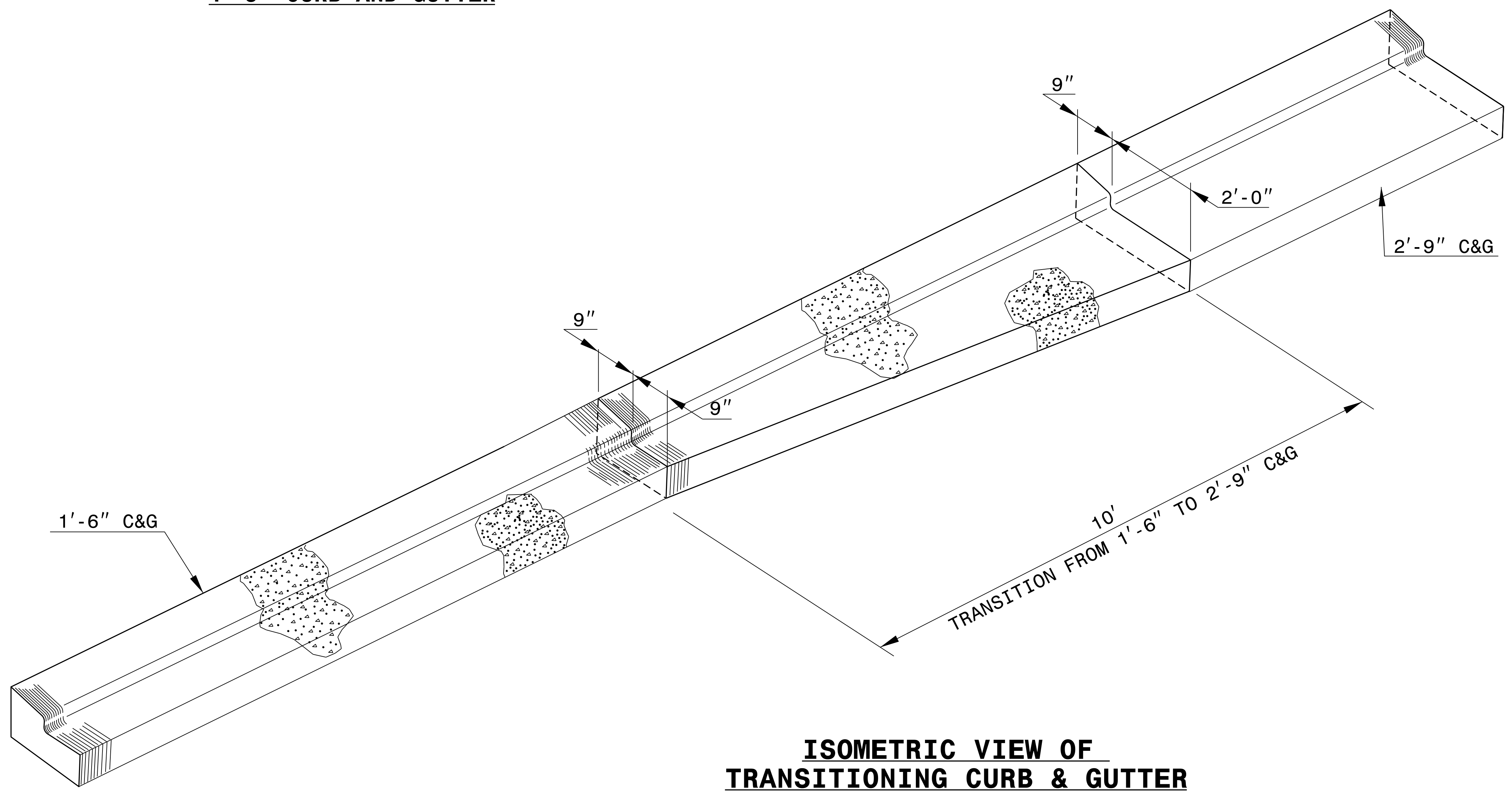
1'-6" CURB AND GUTTER



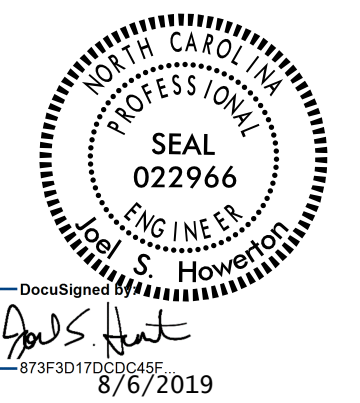
2'-9" CURB AND GUTTER

NOTE: SEE STD. DWG. 846.01 FOR ADDITIONAL CURB AND GUTTER INFORMATION.

SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.



**ISOMETRIC VIEW OF
TRANSITIONING CURB & GUTTER**



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

**DETAIL OF 1'-6"
TO 2'-9" CURB & GUTTER
TRANSITION SECTION**

ORIGINAL BY: T.S.SPELL DATE: NOV. 26, 2001
 MODIFIED BY: T.S.SPELL DATE: JAN. 23, 2007
 CHECKED BY: DATE:
 FILE SPEC.: DS174:/usr/details/stand/cotransit.dgn

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

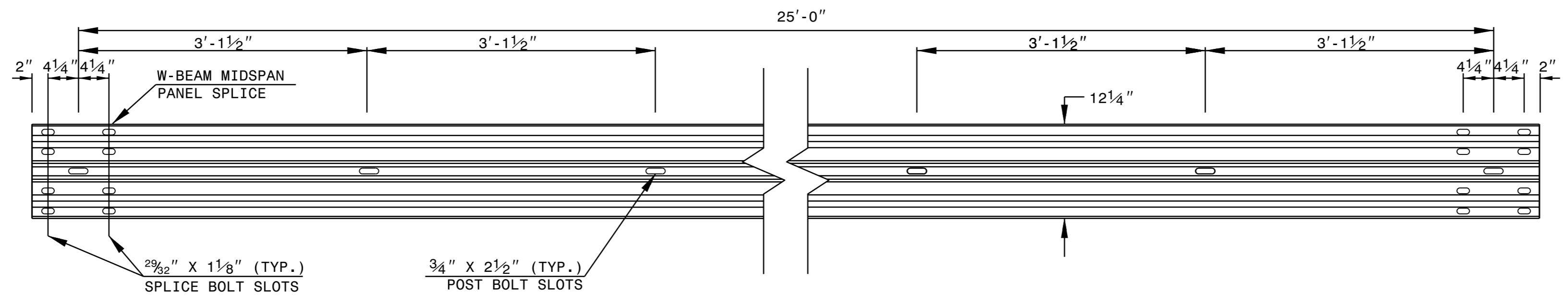
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

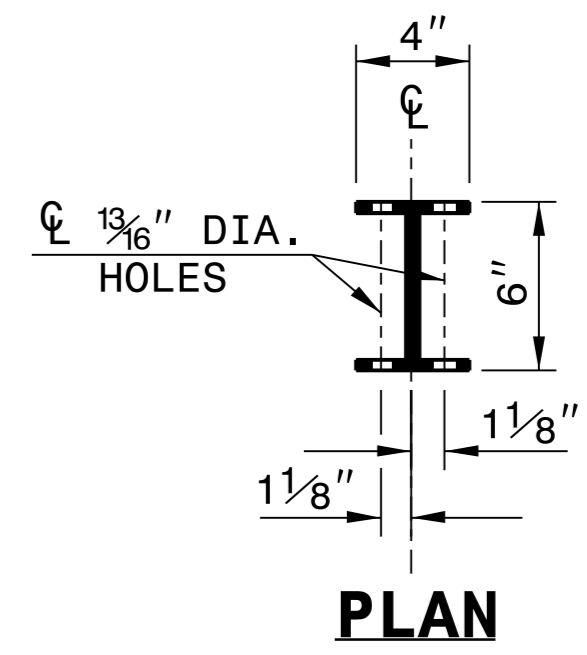
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

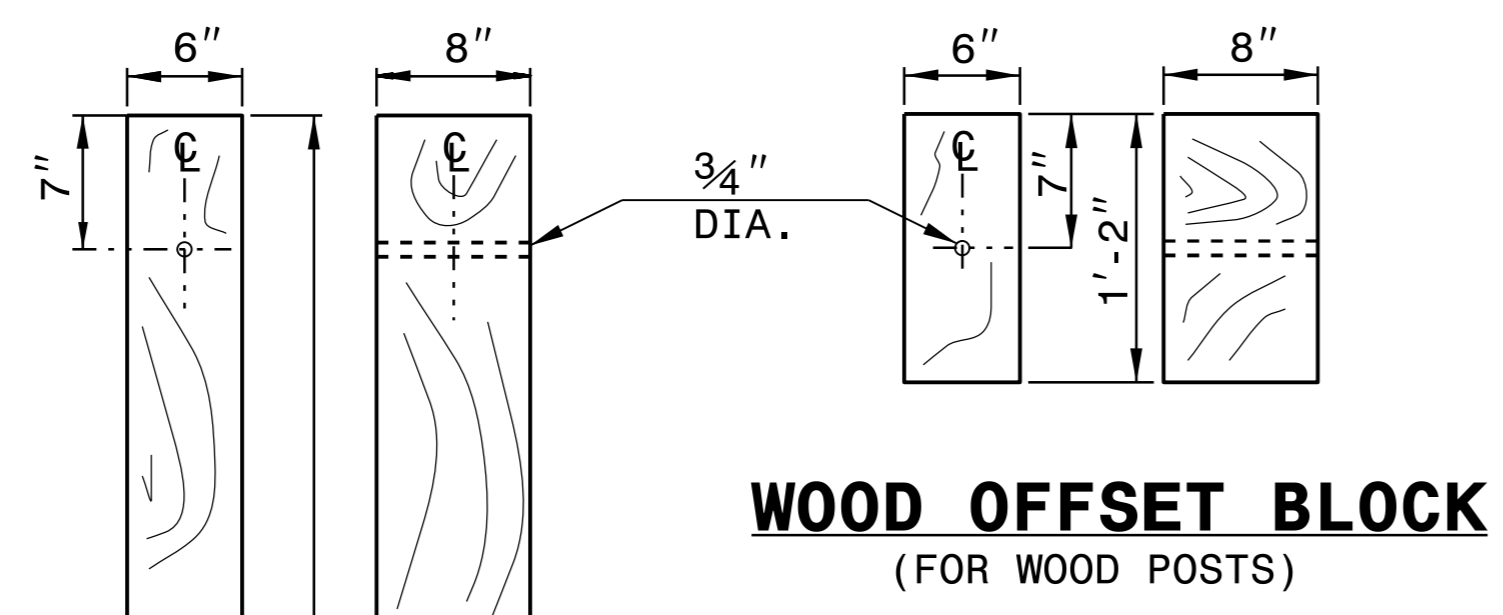
SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



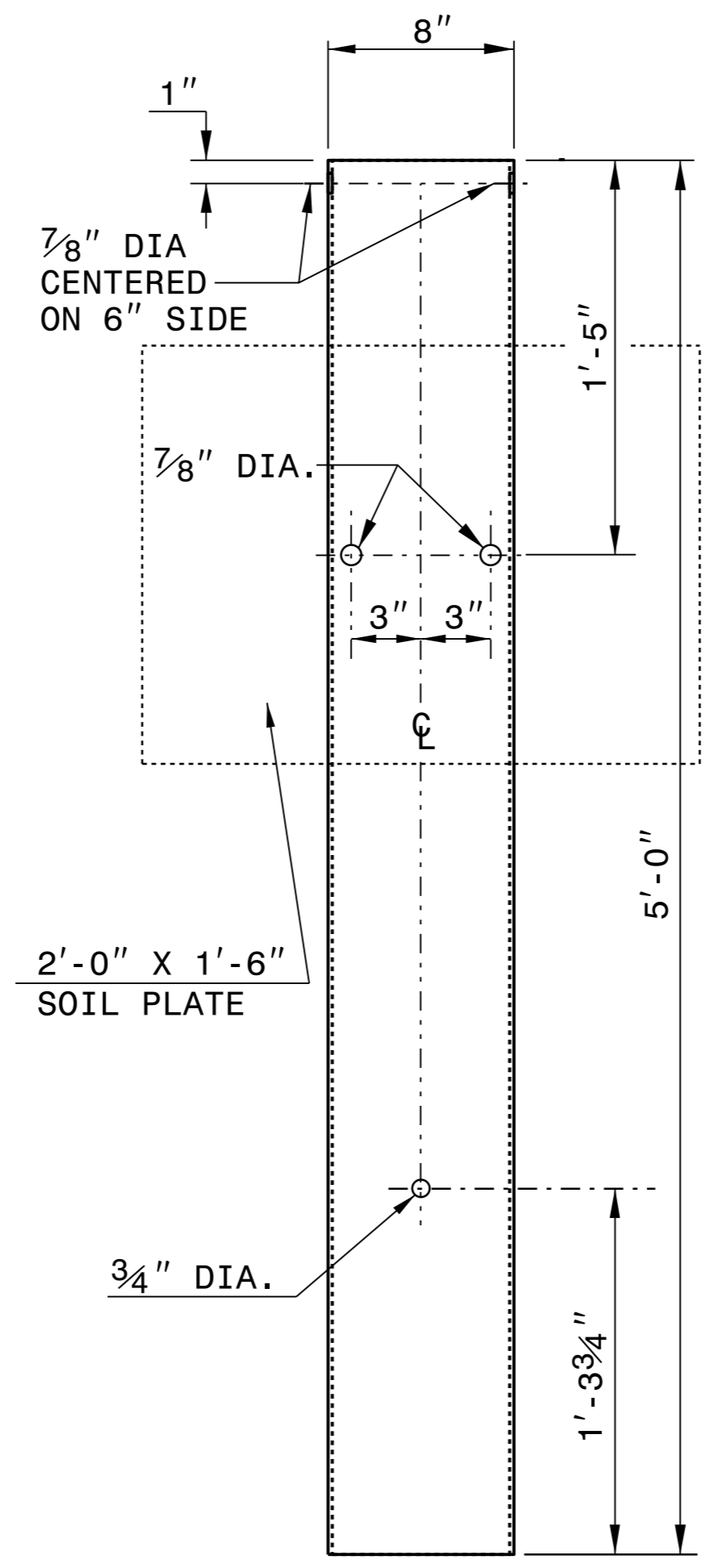
PLAN



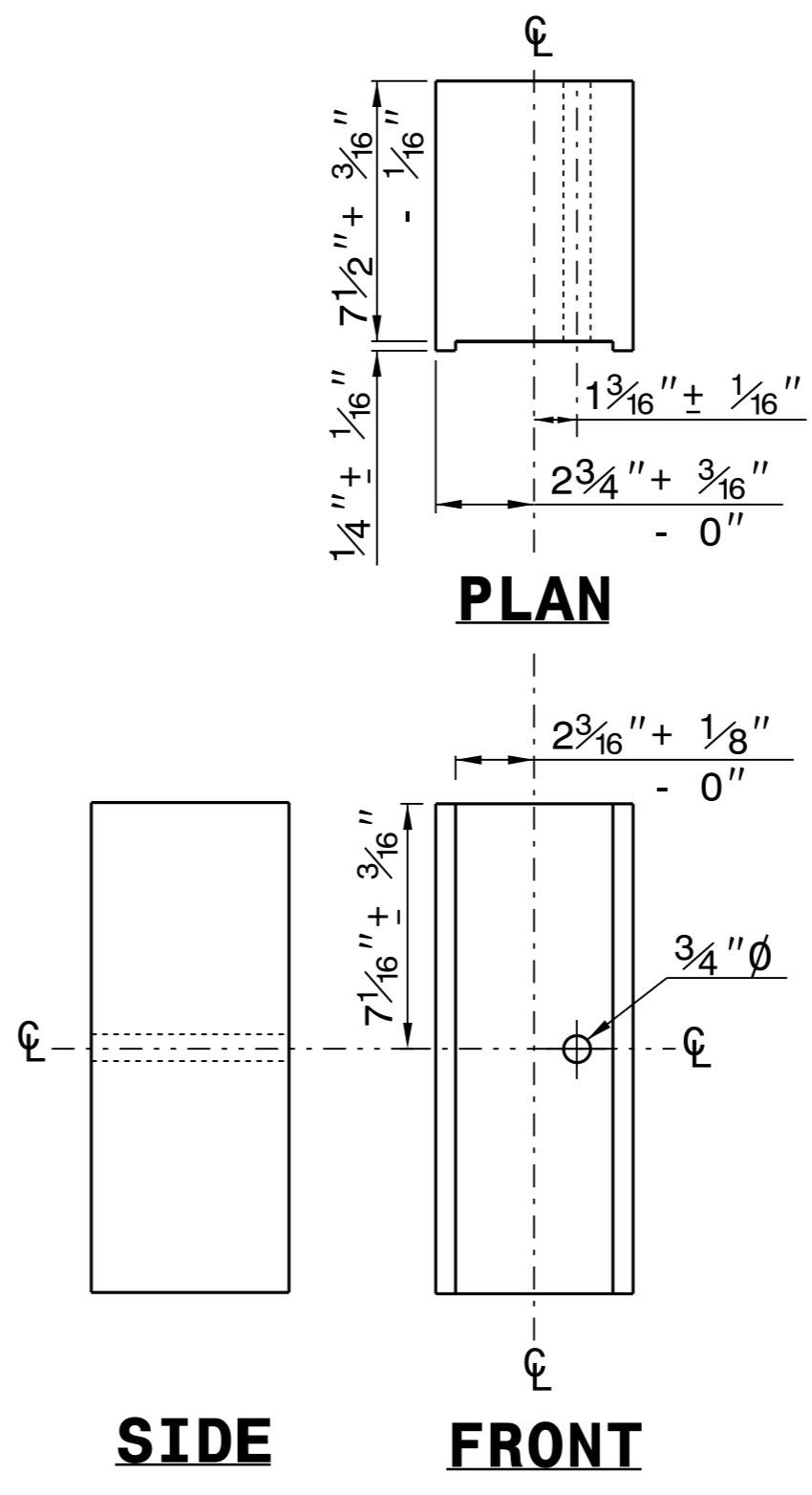
**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

**STANDARD
LINE POST**

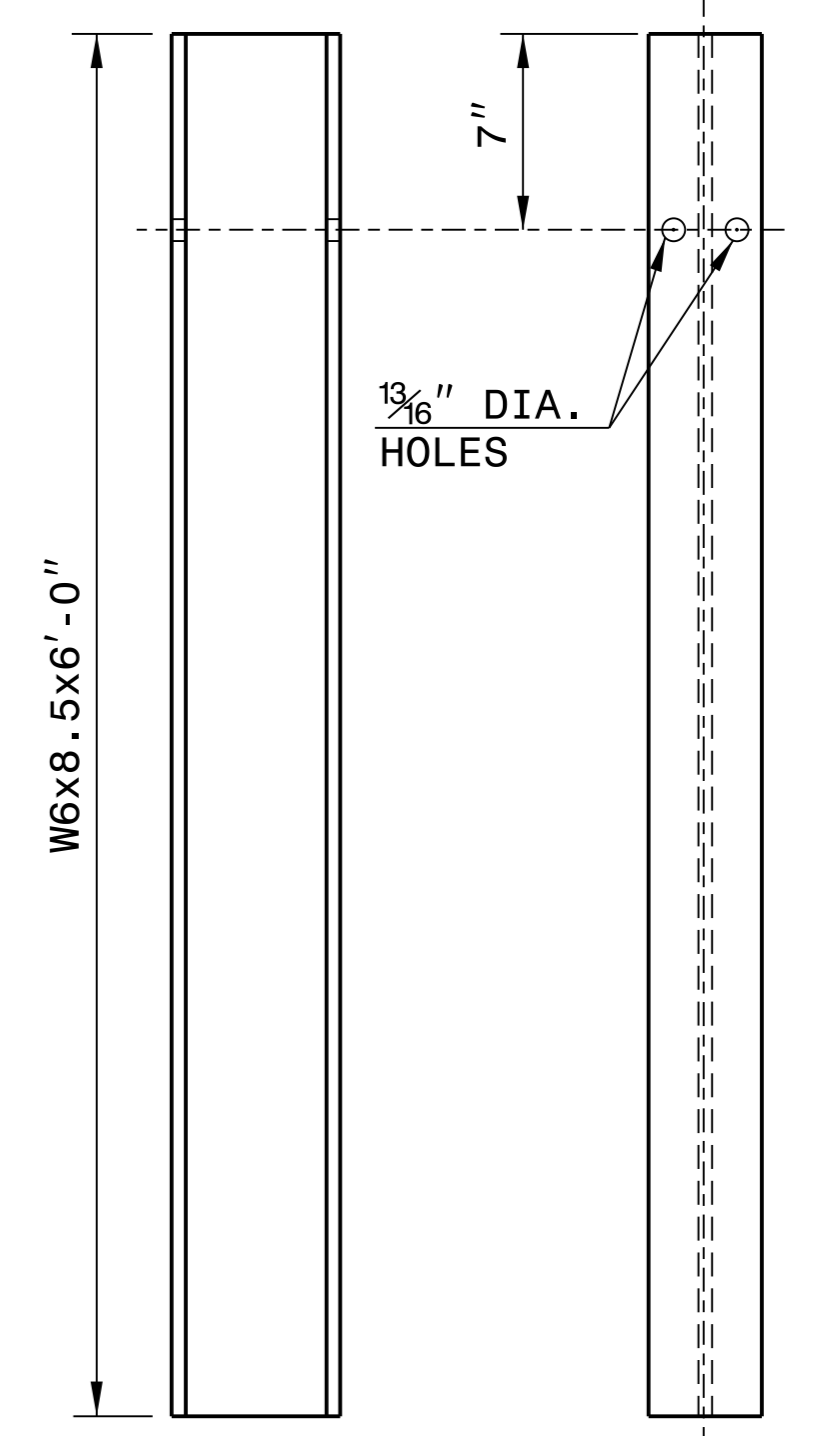
**SHORT WOOD
BREAKAWAY POST**



**STEEL TUBE
TS 6"x8"x0.1875"**

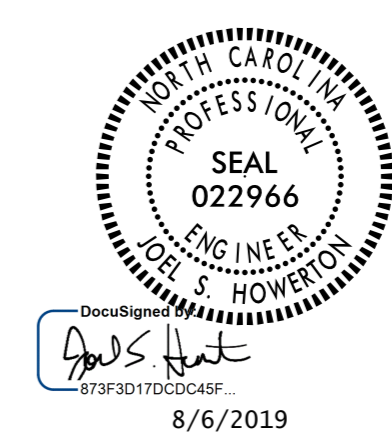


**SIDE
FRONT
ROUTED
OFFSET BLOCK**



**SIDE
FRONT
"W6" STEEL POST**

SYSTEM PARTS



**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J. HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC.: _____

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

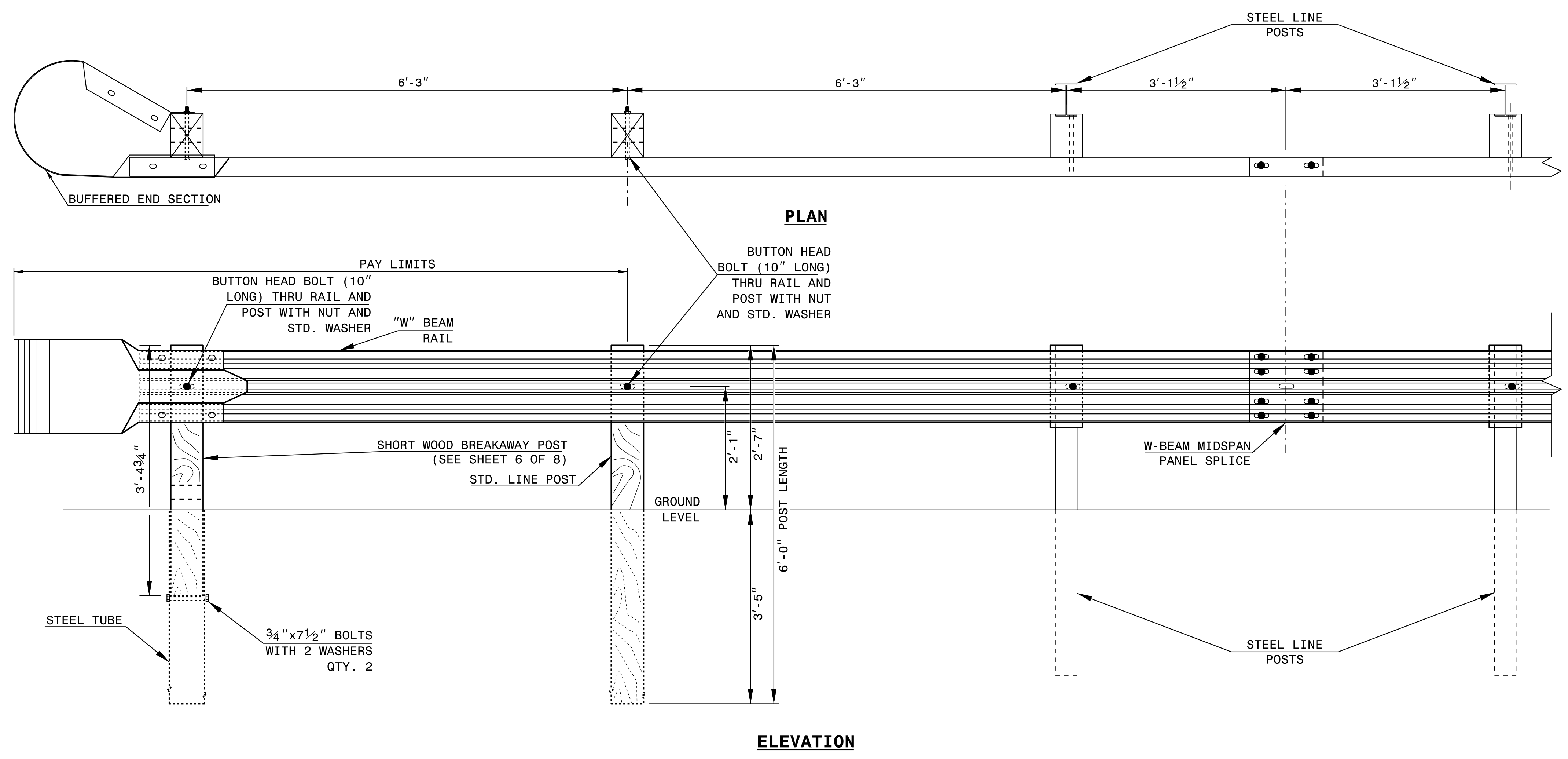
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

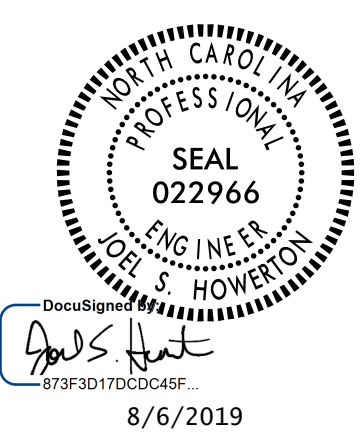
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

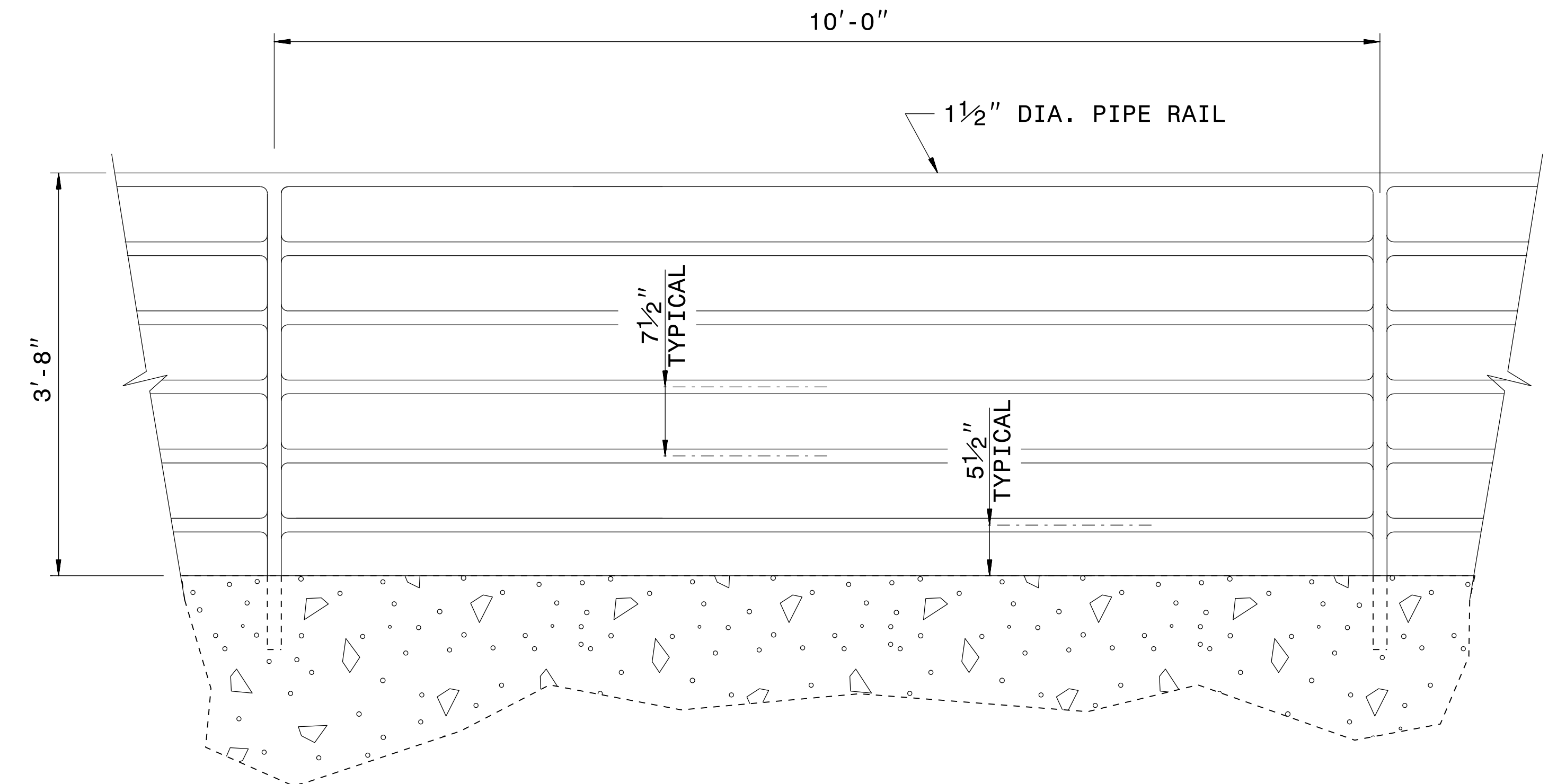


TRAILING END UNIT ASSEMBLY
A.T. - 1 SYSTEM

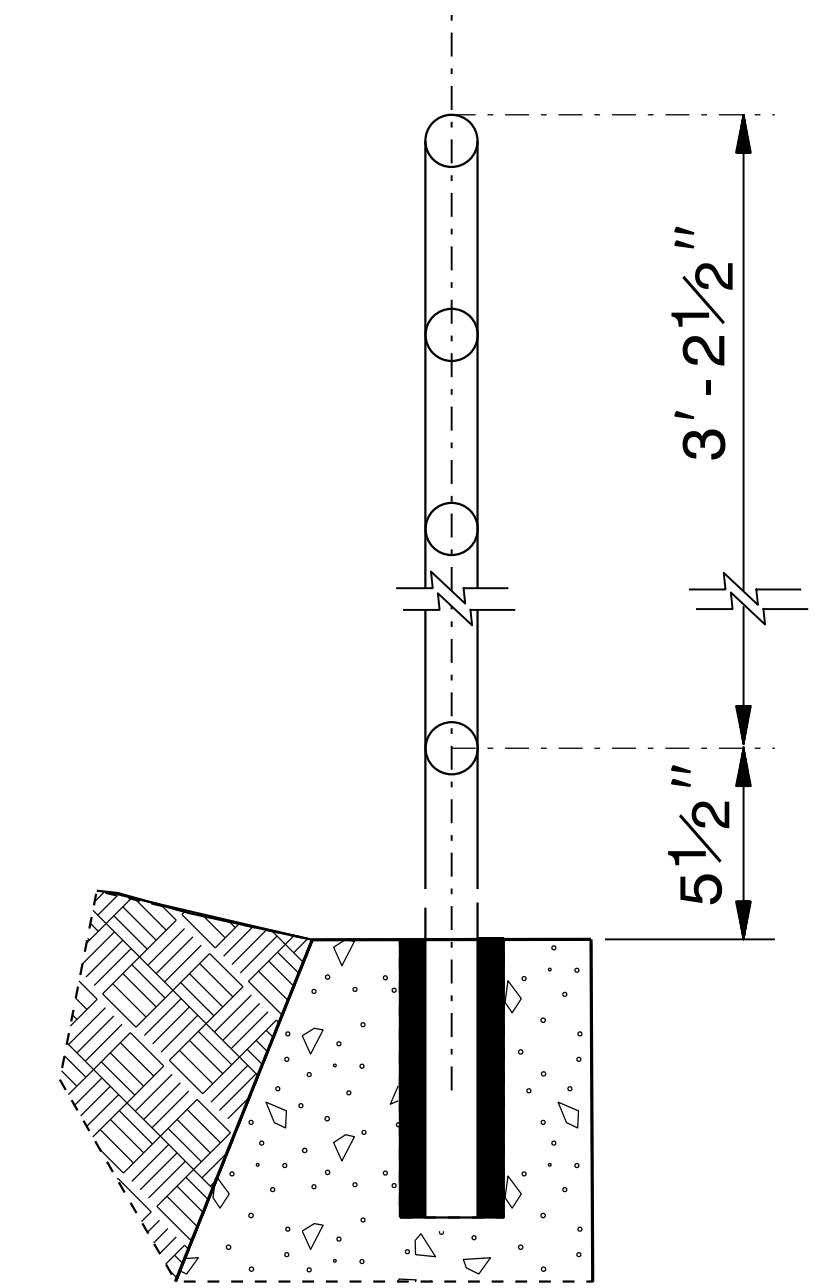


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACTS STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
A.T. - 1 SYSTEM	
ORIGINAL BY: _____	DATE: _____
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: _____	



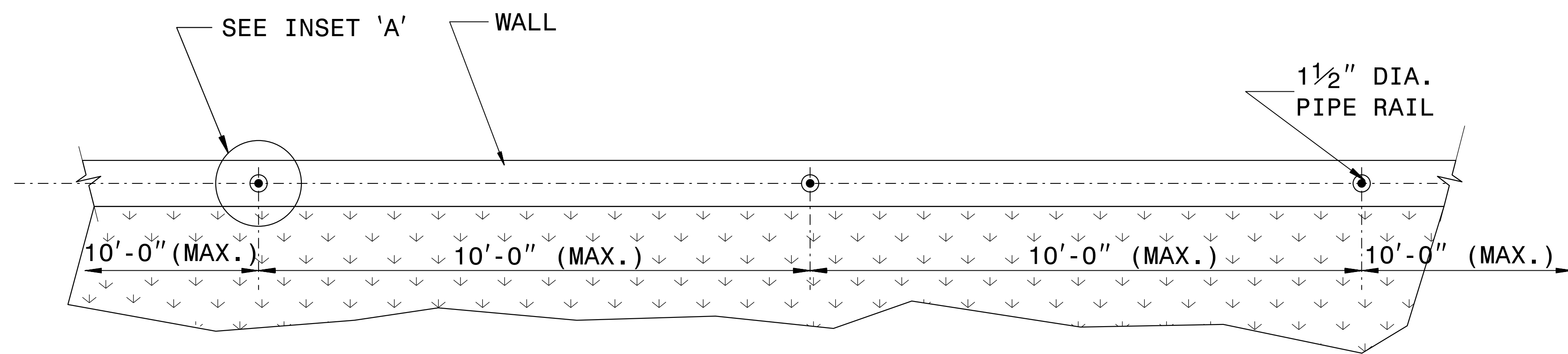
ELEVATION OF HANDRAIL



INSET 'A'

NOTES:

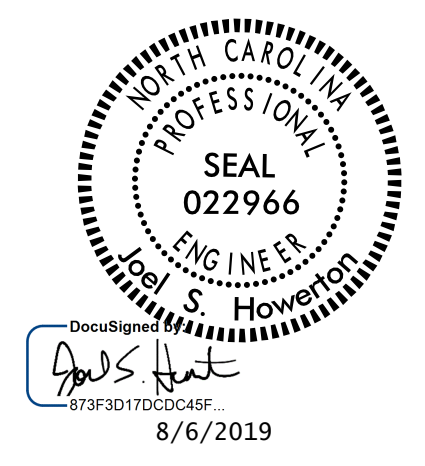
- CONSTRUCT PROPOSED STEEL PIPE RAIL 1 1/2" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.
- EMBED PIPE RAIL INTO PROPOSED WALL WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM PER THE WALL MANUFACTURER'S RECOMMENDATIONS.
- REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.
- PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.
- CENTER THE PROPOSED RAILING ON TOP OF THE WALL WITH POST SPACING SYMMETRICAL ABOUT THE CENTER-LINE OF THE WALL.
- WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.
- SUBMIT THE ATTACHMENT OF THE HANDRAIL TO THE RETAINING WALL TO THE CONTRACTS AND STANDARDS OFFICE FOR APPROVAL.



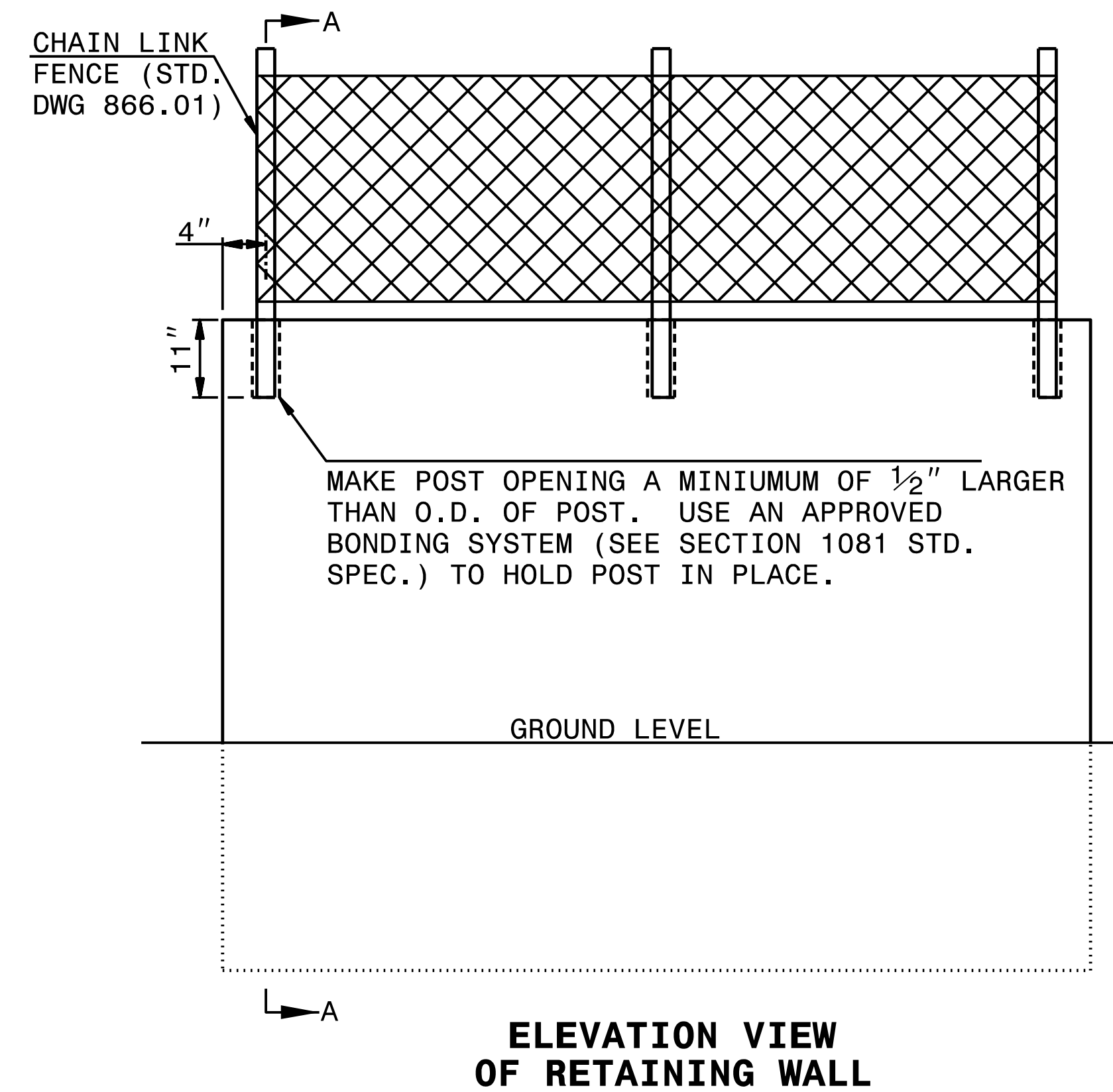
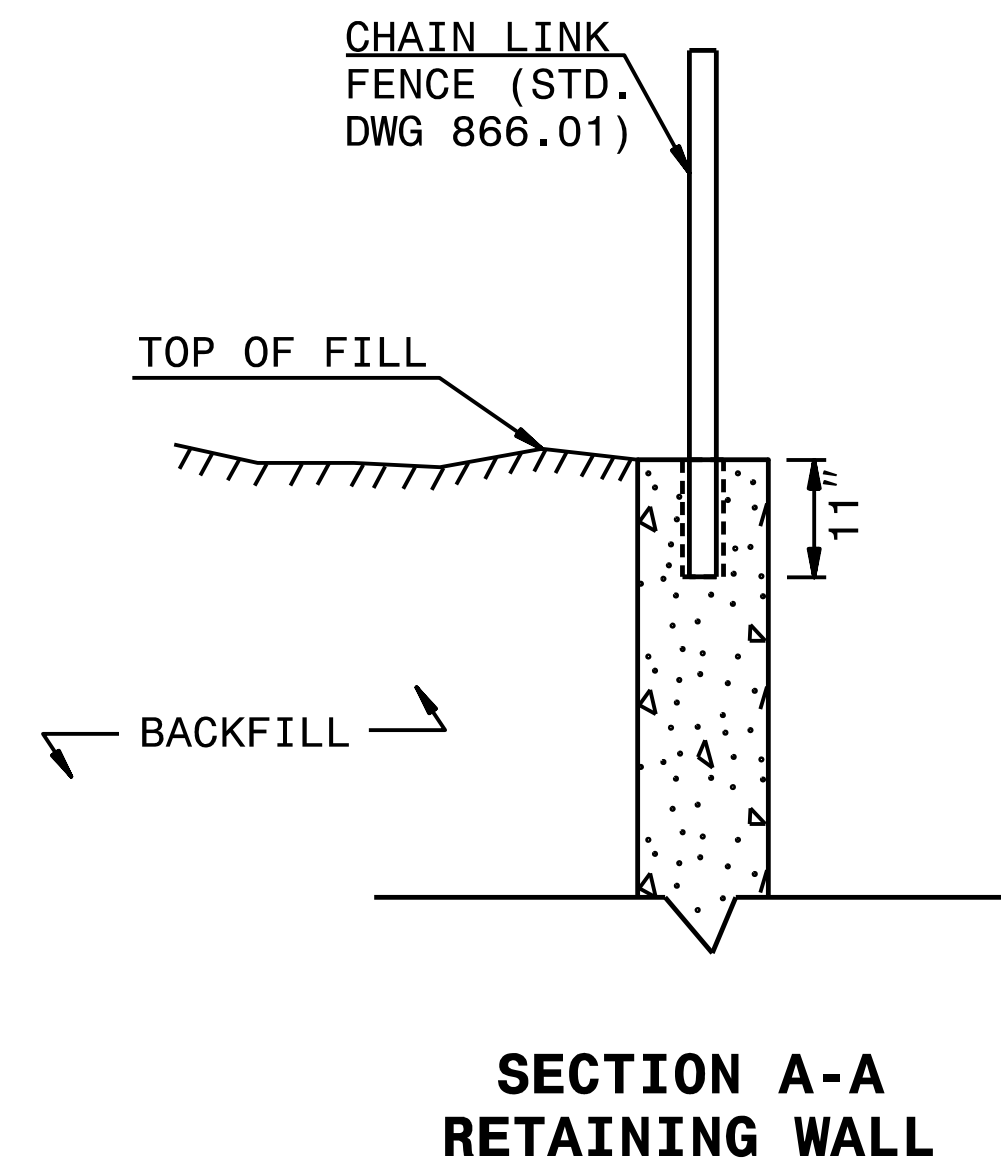
PLAN VIEW

24-MAY-2018 14:10 S:\Contracts\Special Details\Howerton\Handrail on Retaining Wall.dgn
Jhowerton AT USD-292595

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
DETAIL OF PIPE HANDRAIL MOUNTED ON A WALL	
ORIGINAL BY: E.E. WARD	DATE: 12-99
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: jhowerton/handrail_on_retaining_wall.dgn	



EMBED CHAIN LINK FENCE 11" INTO PROPOSED WALL IN A SLEEVE OR BLOCKOUT WITH EPOXY OR CONCRETE GROUT ANCHORING SYSTEM. PRE-MEASURE AND CENTER THE PROPOSED FENCE ON TOP OF WALL FOR POST SPACINGS. IFF DRILLING THE HOLES FOR POSTS, USE A ROTARY DRILL TO DRILL HOLES IN THE CONCRETE. NO IMPACT DRILLS WILL BE ALLOWED, TO ELIMINATE ANY POSSIBILITY OF STRUCTURAL DAMAGES TO THE PROPOSED WALL.



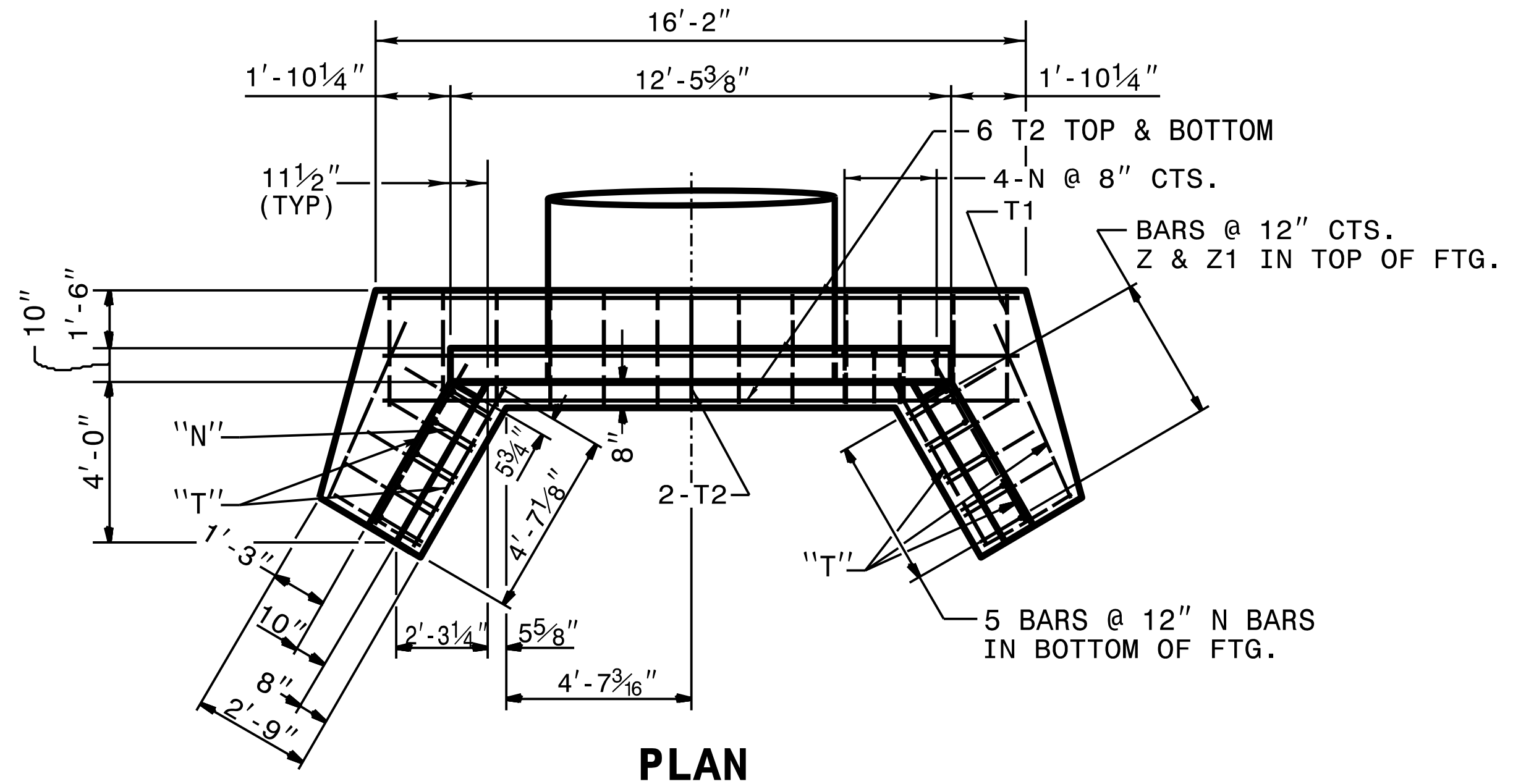
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

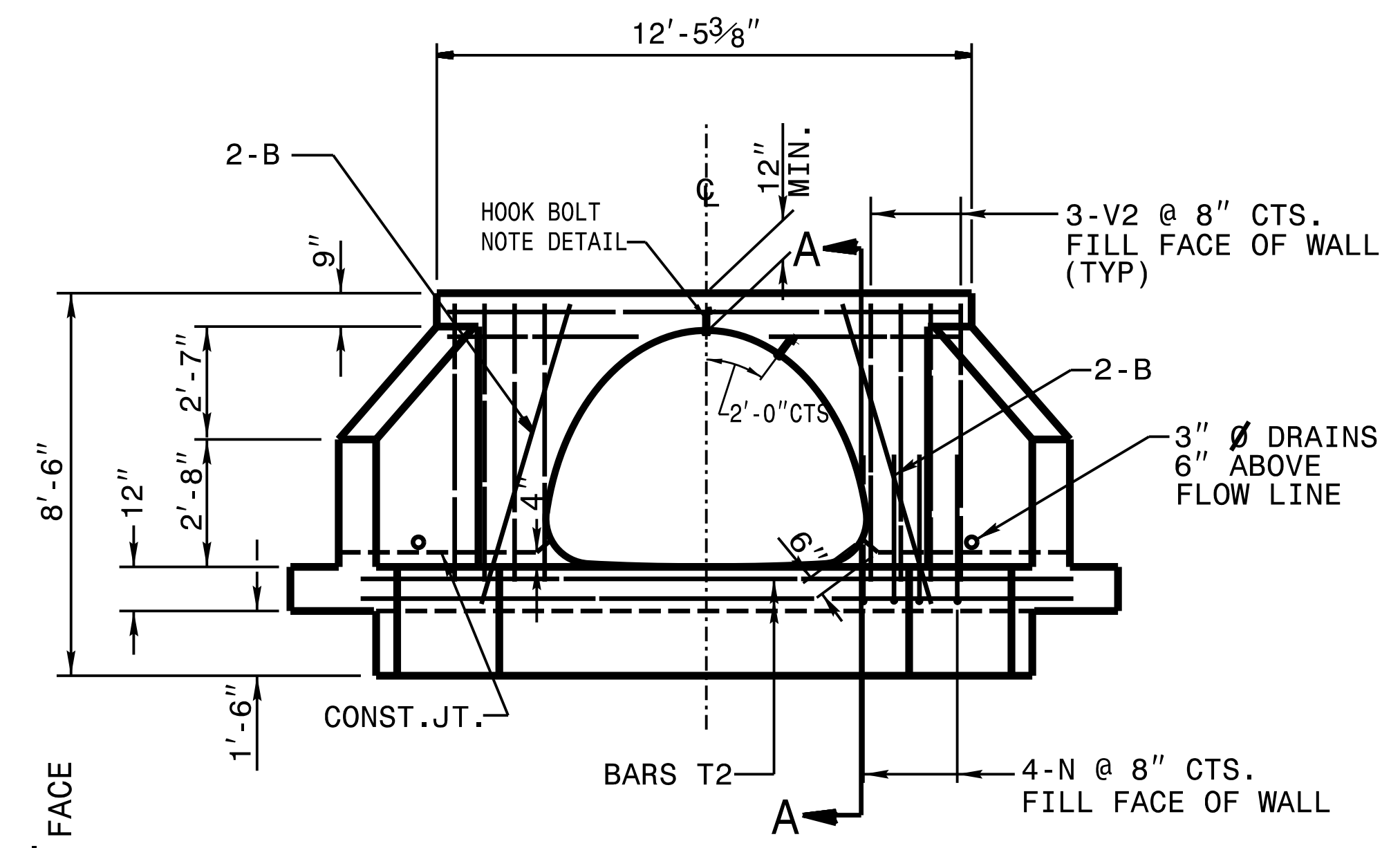
**CHAIN LINK FENCE ON
RETAINING WALL**

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: K.A. KEMPF DATE: SEP. 2017
 CHECKED BY: _____ DATE: _____
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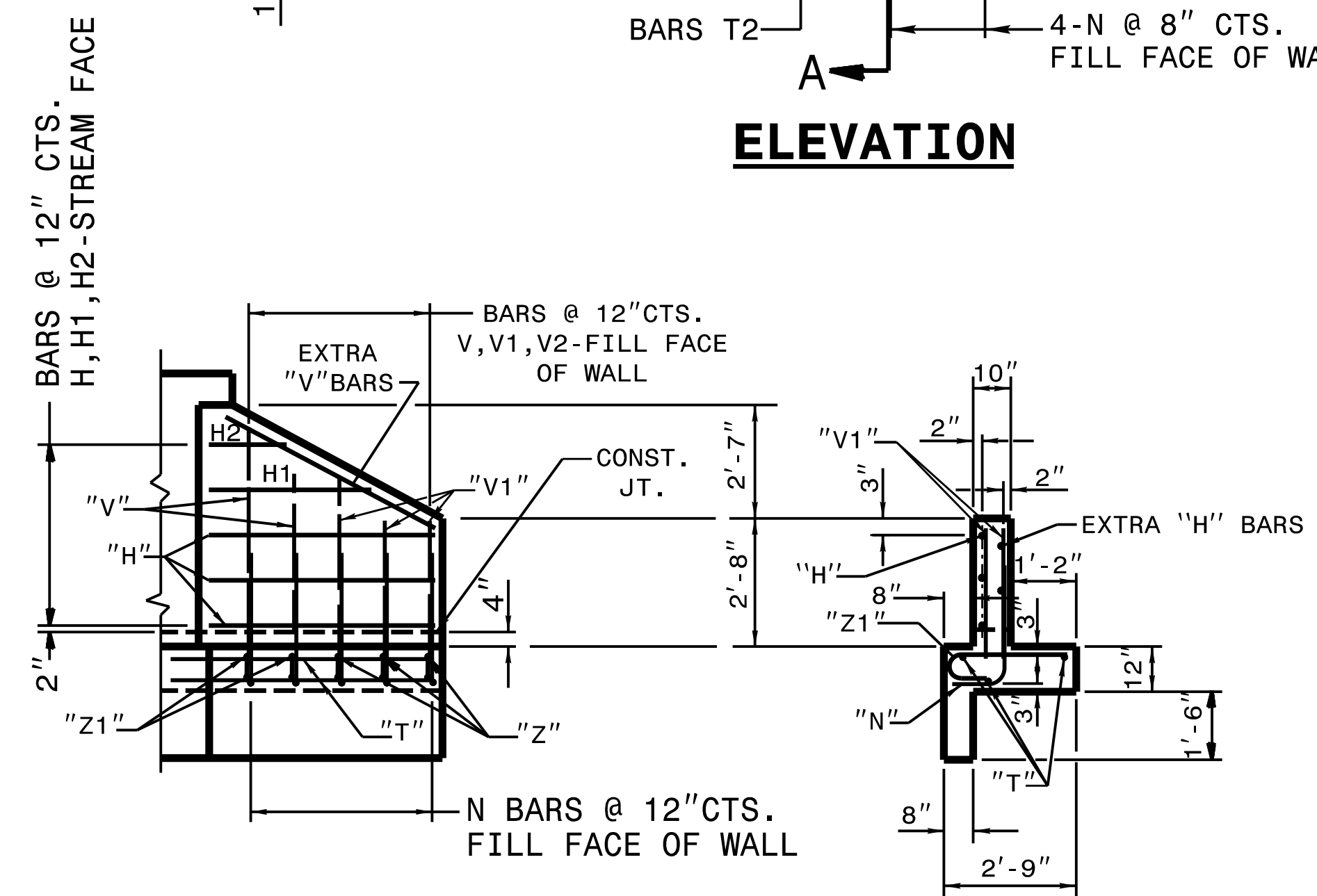
\$\$\$\$\$
 SCHEMATIC DEVELOPMENT
 8/6/2019



PLAN

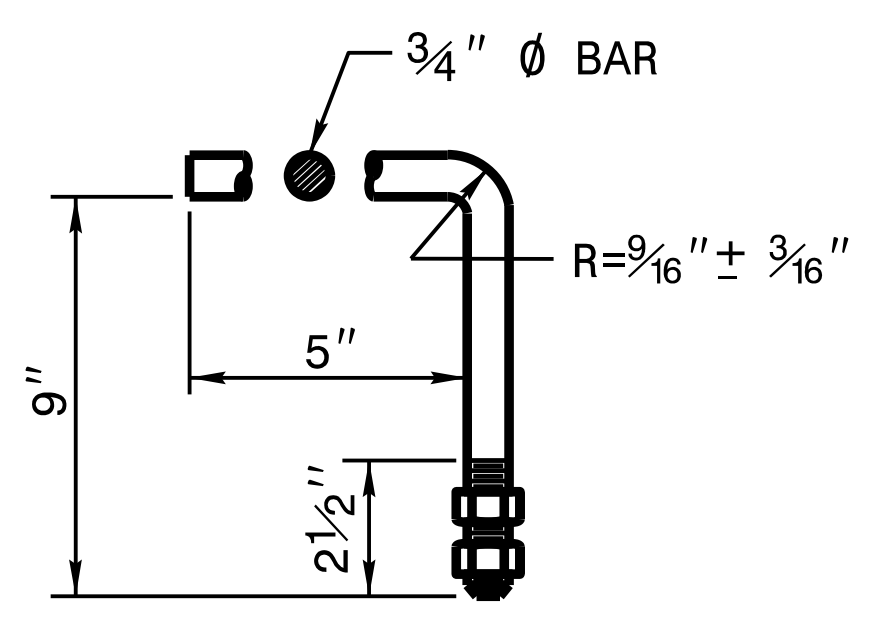


ELEVATION



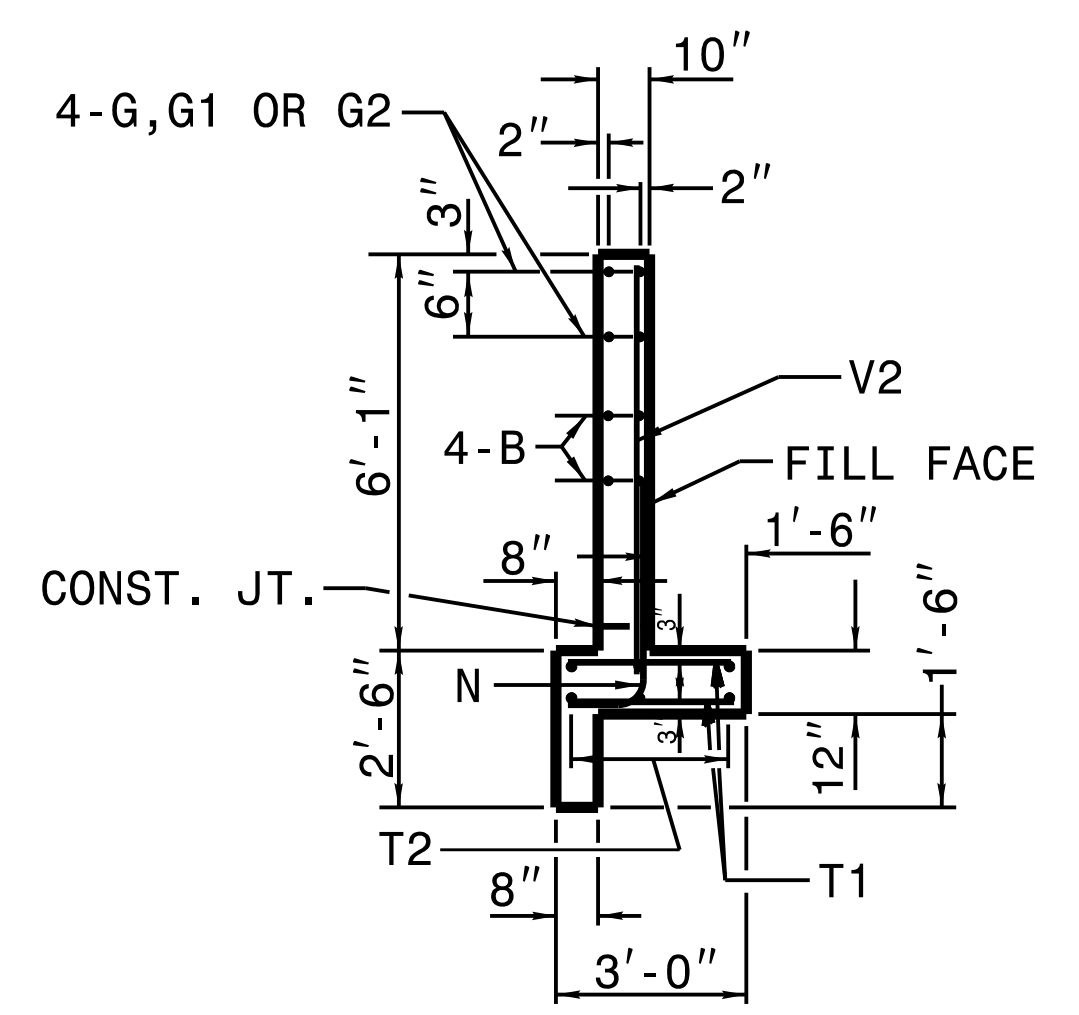
WING ELEVATION

END OF WING

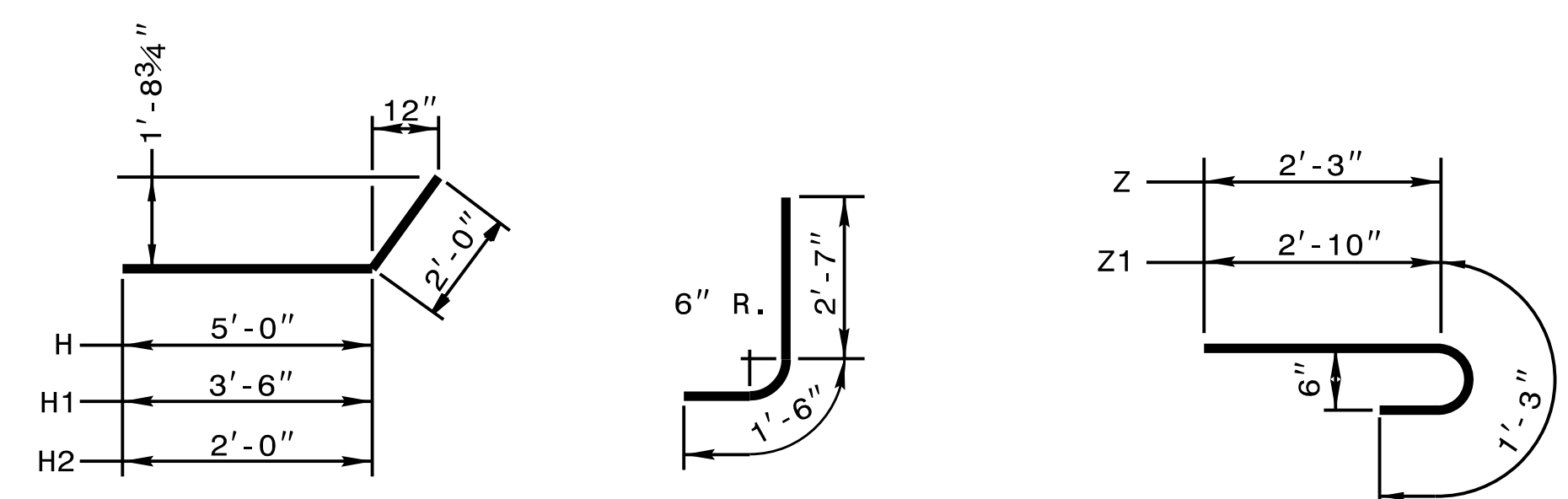


HOOK BOLT

NOTE: CONSTRUCT HOOK BOLTS (ANCHORS) AT 2'-0" CTS. ALONG THE CIRCUMFERENCE OF THE 95"X 67" CMP. EMBED THE HOOK BOLTS 6" IN DEPTH. THE GALVANIZED 3/4" DIA. HOOK BOLTS MUST MEET ASTM A-307 OR ASTM A-836. BOTH BOLTS AND NUTS MUST BE IN ACCORDANCE WITH ASTM A-153 FOR GALVANIZING.



SECTION - AA



"H" BARS

"N" BARS

"Z" BARS

"H", "N", & "Z" BAR DIMENSIONS ARE OUT TO OUT.

DESIGN DATA

Specifications	A.A.S.H.T.O.
Steel in tension	20,000 LBS. PER SQ. IN.
Concrete in compression	1,200 LBS. PER SQ. IN.
Shear Class "A" Concrete	SEE A.A.S.H.T.O.
Equiv. fluid pressure of earth	30 LBS. PER CU. FT.

NOTES:

ALL CONCRETE TO BE CLASS "A".

ALL REINFORCING STEEL SHALL BE ASTM A615-GRADE 60.

ALL REINFORCING STEEL SHALL BE DEFORMED BARS. WHERE SPLICING OF REINFORCEMENT IS NECESSARY, BARS ARE TO BE LAPPED 45 DIAMETERS. ALL DIMENSIONS RELATIVE TO REINFORCEMENT ARE TO CENTERS OF BARS.

THE FOOTING, CURTAIN WALL AND 4" OF WALL ARE TO BE POURED IN ONE OPERATION ALLOWING NO TIME FOR INITIAL SET TO TAKE PLACE BETWEEN THEM. THE REMAINING WALL SHALL THEN BE POURED IN ONE OPERATION.

ALL EXPOSED CORNERS ARE TO BE CHAMFERED 1".

3" DIAMETER DRAINS SHALL BE PLACED IN WALL AS SHOWN AND BE 6" ABOVE NORMAL FLOW LINE.

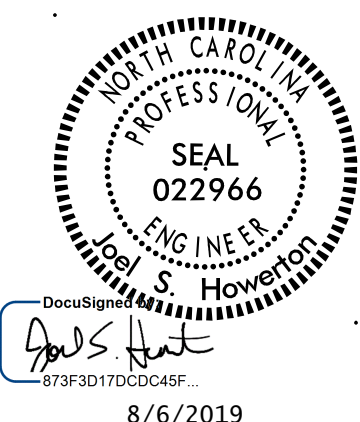
ALL MATERIAL AND WORKMANSHIP AS PER N.C. DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

THE EXTRA BARS ARE PROVIDED FOR HOLDING REINFORCING STEEL IN CORRECT POSITION IN WING.

BILL OF MATERIAL FOR ENDWALL

REINF. STEEL		1 PIPES	
BAR	SIZE	LENGTH	NO. WEIGHT
B	#4	7'-0"	4 18
H	#4	7'-0"	10 47
H1	#4	5'-6"	2 8
H2	#4	4'-0"	4 11
N	#4	4'-1"	18 50
T	#4	5'-0"	8 27
T1	#4	2'-9"	12 23
T2	#4	15'-10"	6 64
V	#4	5'-3"	8 29
V1	#4	4'-1"	8 22
V2	#4	6'-2"	6 33
Z	#4	3'-6"	5 12
Z1	#4	4'-1"	5 14

REINF. STEEL LBS.	358
TOTAL CON./R.C. CU. YDS.	6.8
95"X 67" CSAP DEDUCTION	0.9
CON./R.C. CU. YDS.	5.9



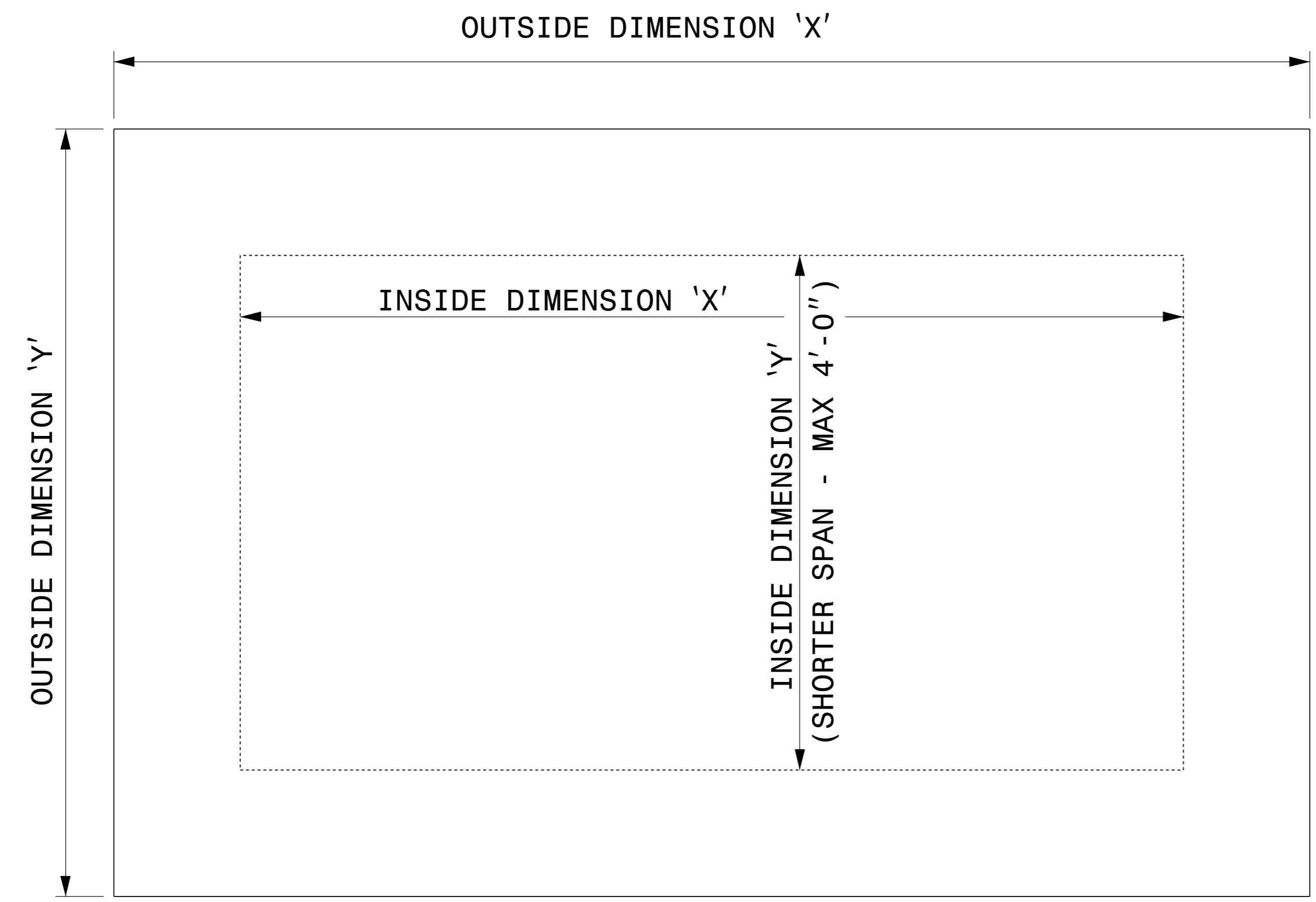
CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-707-6950 FAX 919-250-4119

DETAIL OF REINFORCED CONCRETE ENDWALL FOR 95" X 67" CSAP-90°

ORIGINAL BY:	DATE:
MODIFIED BY: rnbritt	DATE: 3-27-09
CHECKED BY:	DATE:
FILE SPEC.:	jhowerton_x67 Arch Pipe Endwall.dgn

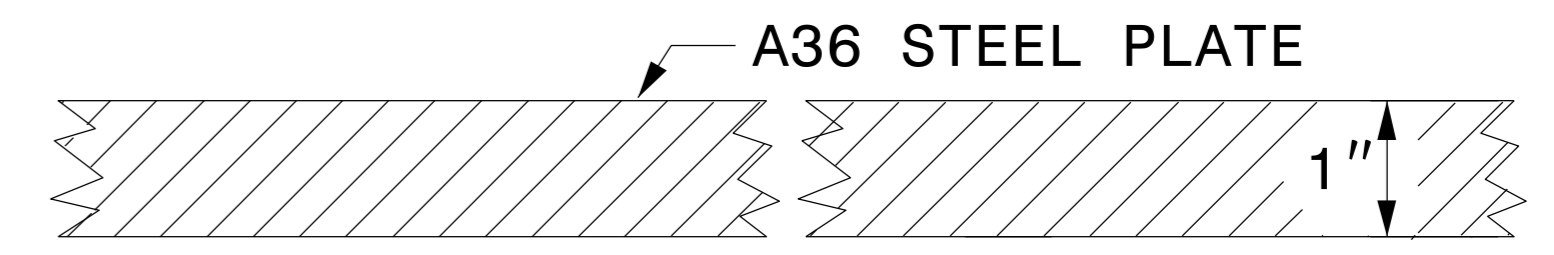
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SYTIME\$\$\$\$
VENDOR\$\$\$\$
CUSTNAME\$\$\$\$
\$\$\$\$



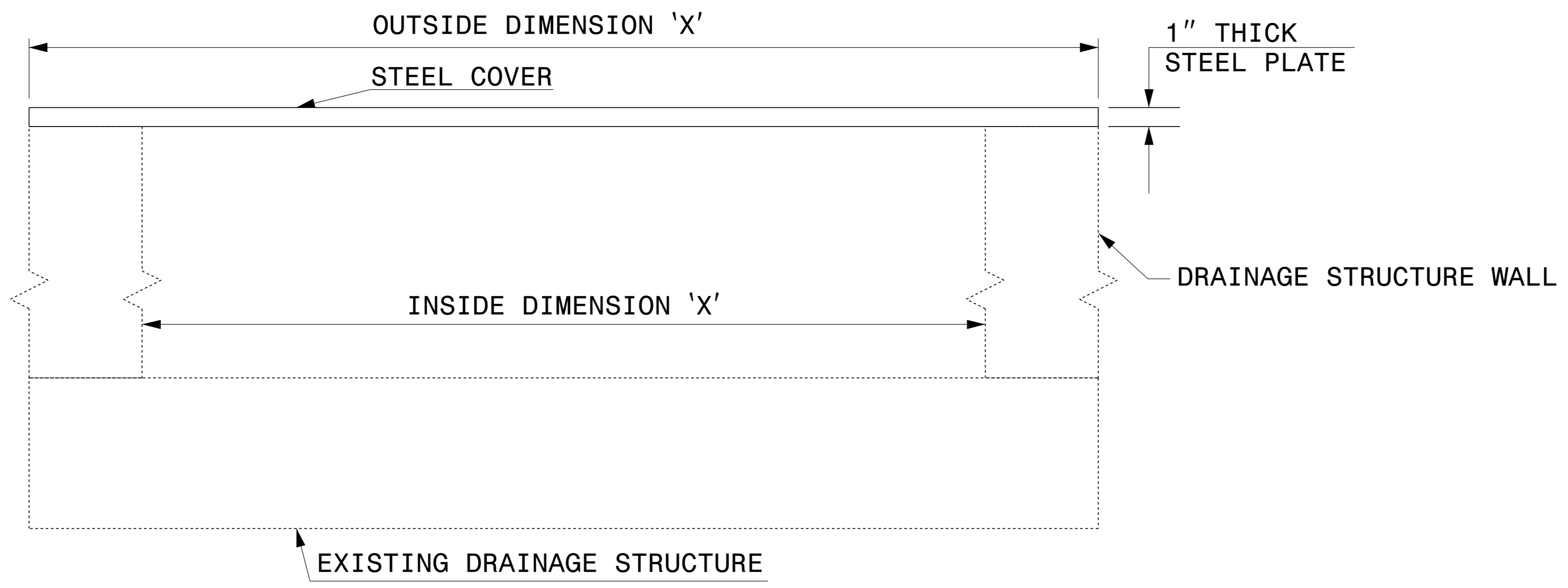
GENERAL NOTES:

- USE GRADE A36 STEEL
- STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
- FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
- SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
- QUANTITIES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.

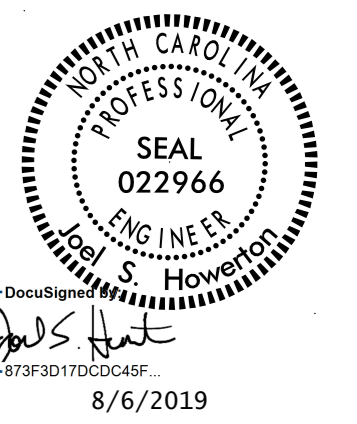


SECTION VIEW OF STEEL TOP PLATE

PLAN VIEWS



ELEVATION VIEWS



8/6/2019

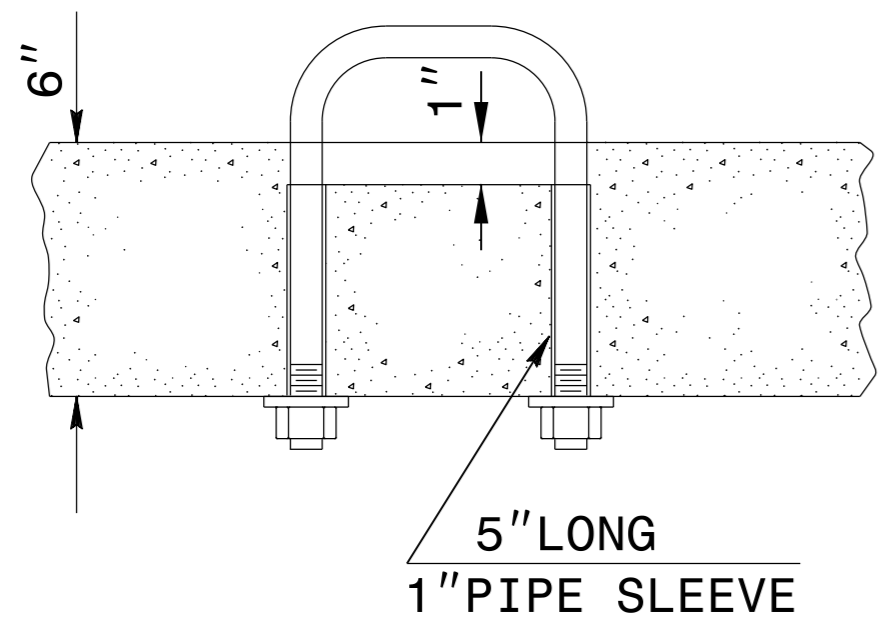
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

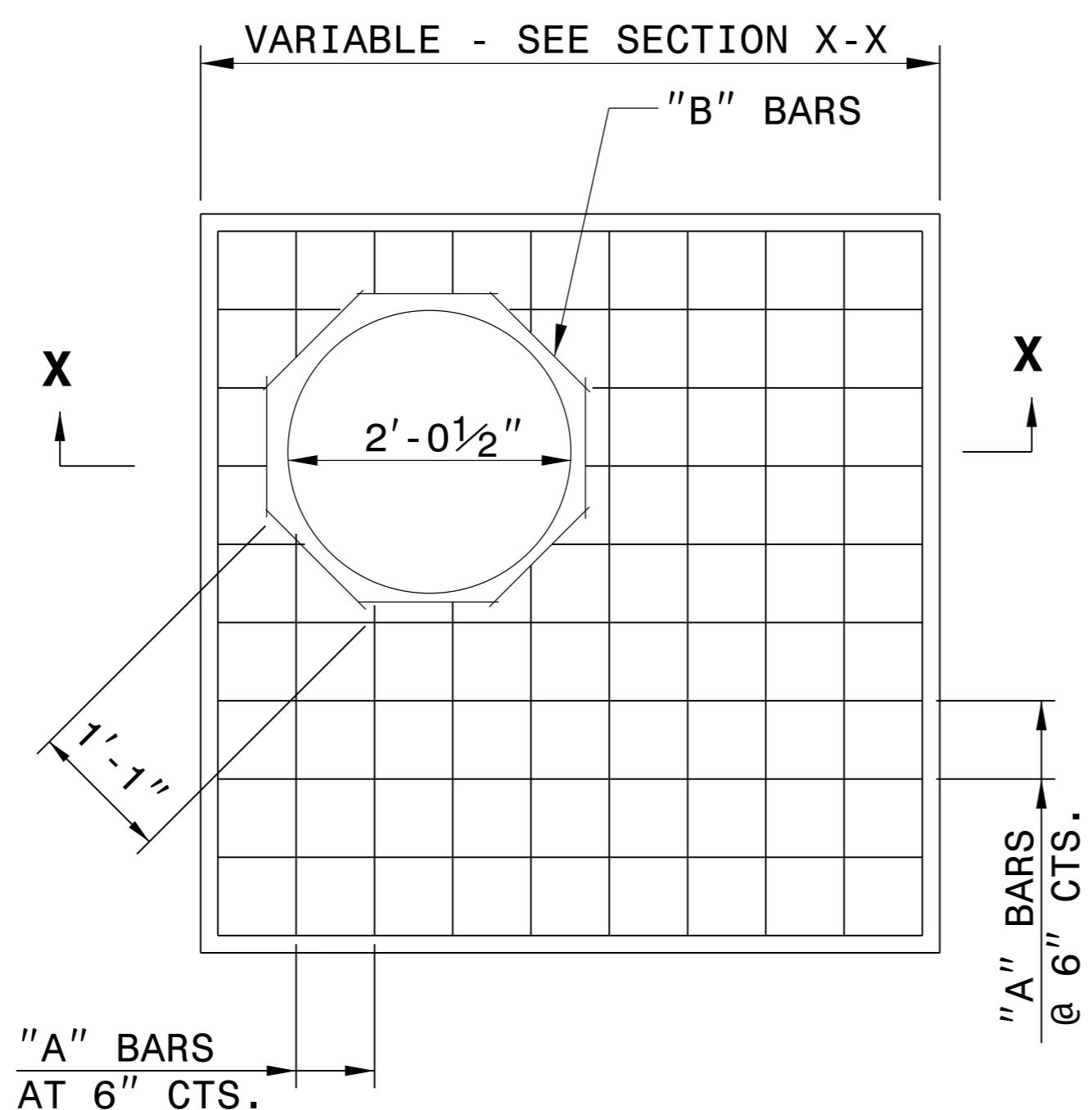
DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE

ORIGINAL BY: E.E. WARD DATE: 2-2-98
 MODIFIED BY: DATE: _____
 CHECKED BY: DATE: _____
 FILE SPEC.: eric:/usr/details/metric/stand/st1cvr2.dgn

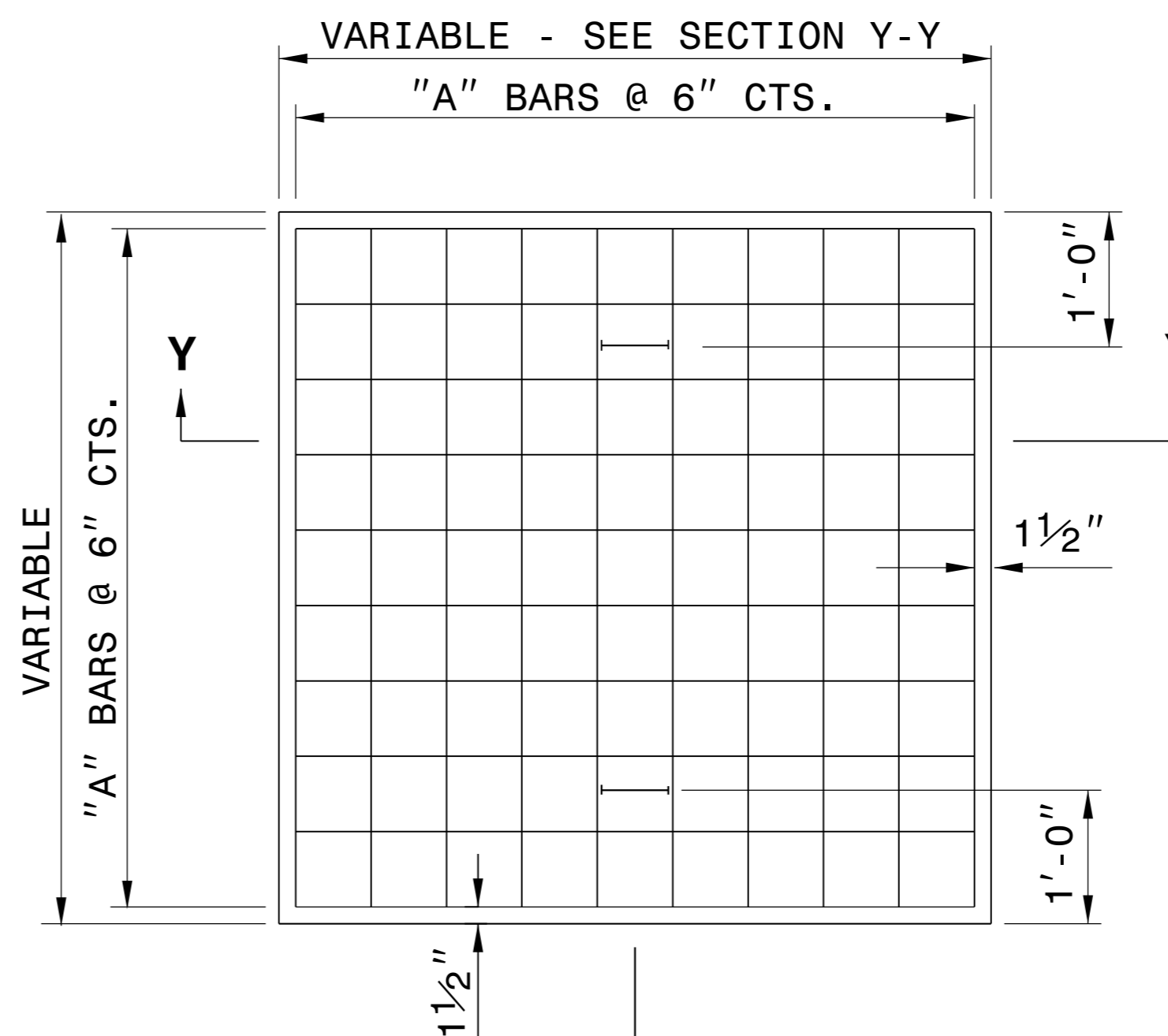
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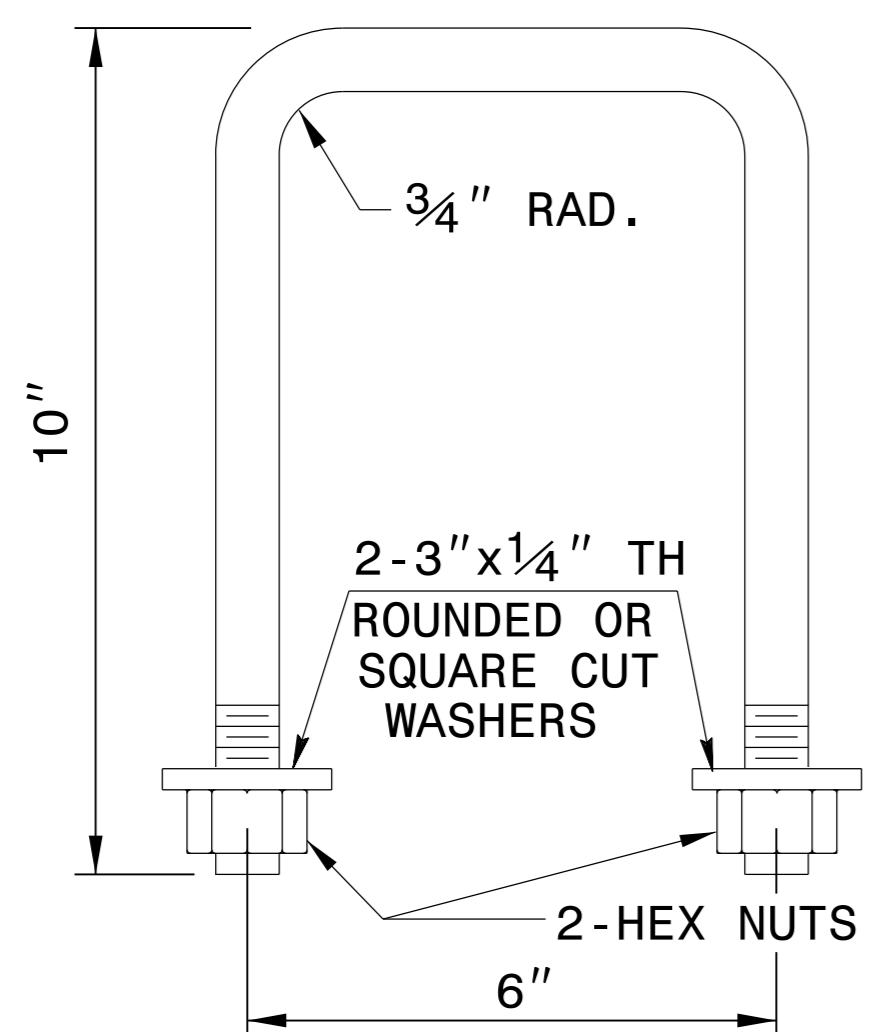
PARTIAL SECTION



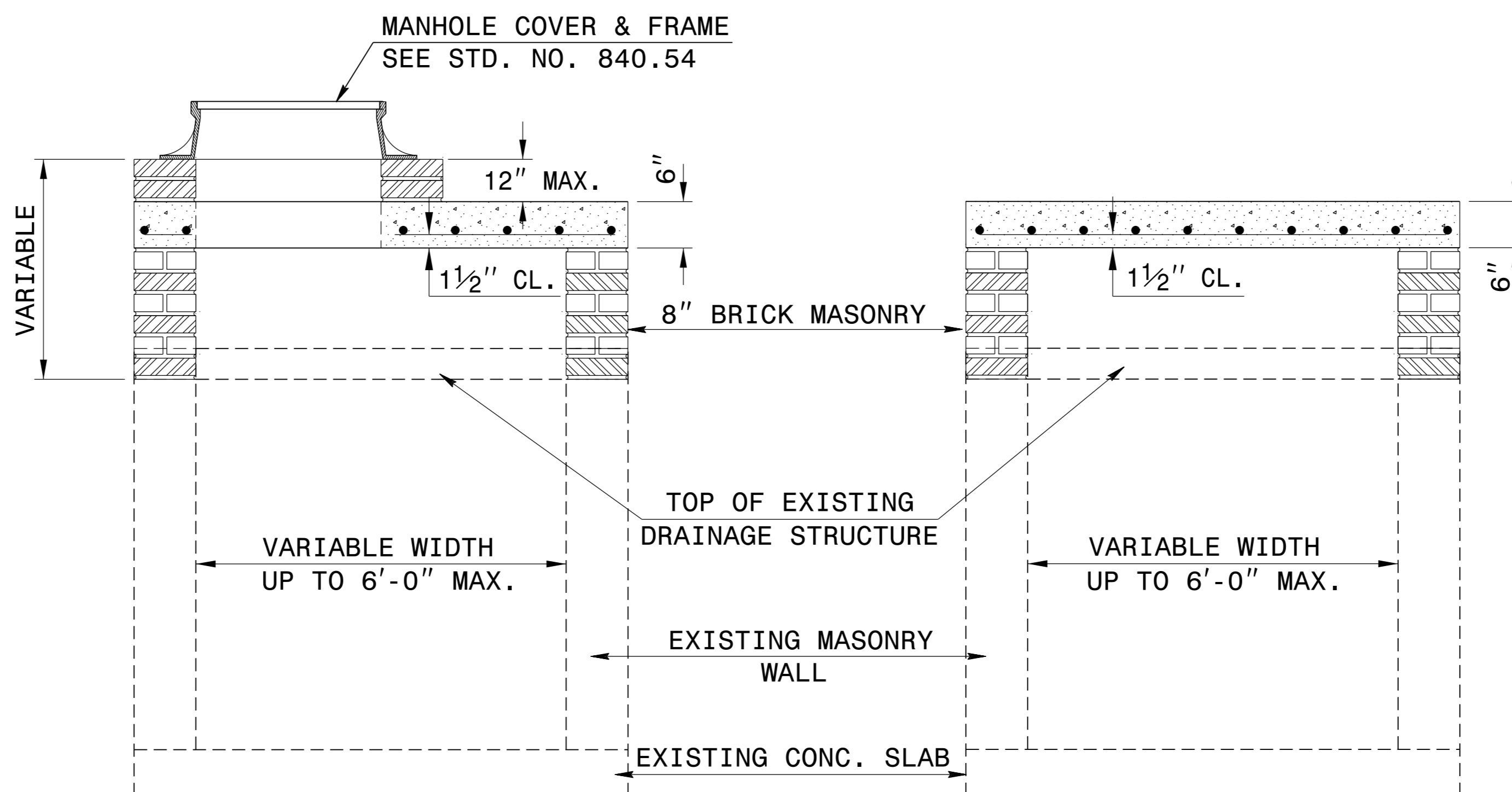
PLAN



PLAN



DETAIL OF HANDLE



SECTION X-X

SECTION Y-Y

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

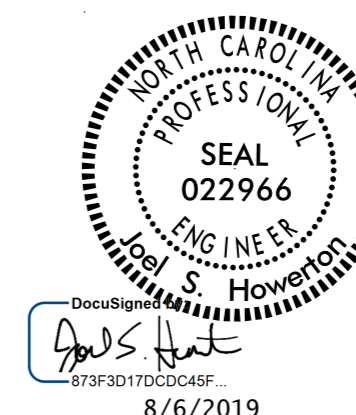
DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

BILL OF MATERIALS

REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *
MASONRY				CU YDS
TOP SLAB CONCRETE CLASS "B"				.4326 *
BRICK MASONRY PER FT HT (MIN)				.4111

*** NOTE:**
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

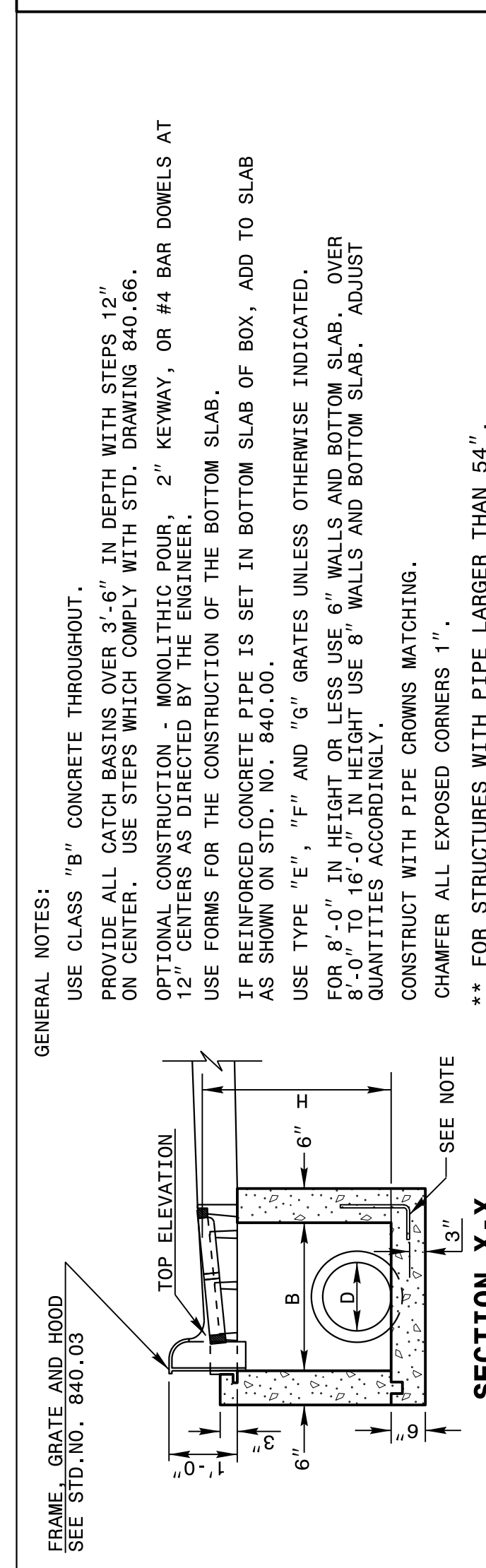
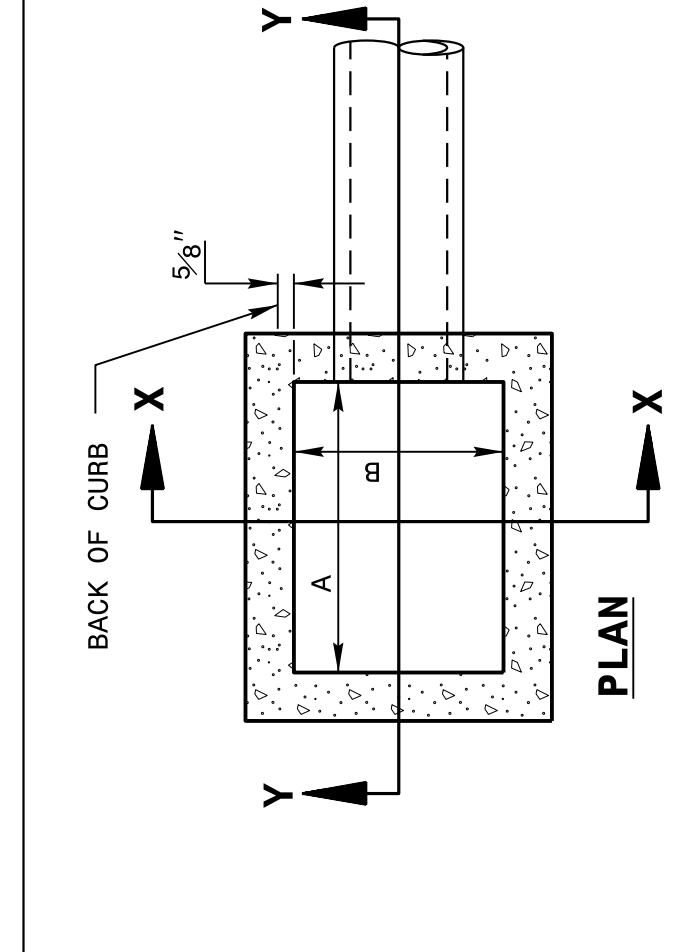


CONTRACT STANDARDS AND DEVELOPMENT UNIT			
Office 919-707-6950		FAX 919-250-4119	
DETAIL TO CONVERT EXISTING DI, CB, OTCB or GI TO JUNCTION BOX (MANHOLE OPTIONAL)			
ORIGINAL BY: T.S.S.	DATE: NOV. 1997		
MODIFIED BY: T.S.S.	DATE: FEB. 2000		
CHECKED BY:	DATE:		
FILE SPEC.: ds174:/usr/details/stand/boxtojbe.dgn			

10-AUG-2017 10:41
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 jhowerton AT CSD-292595

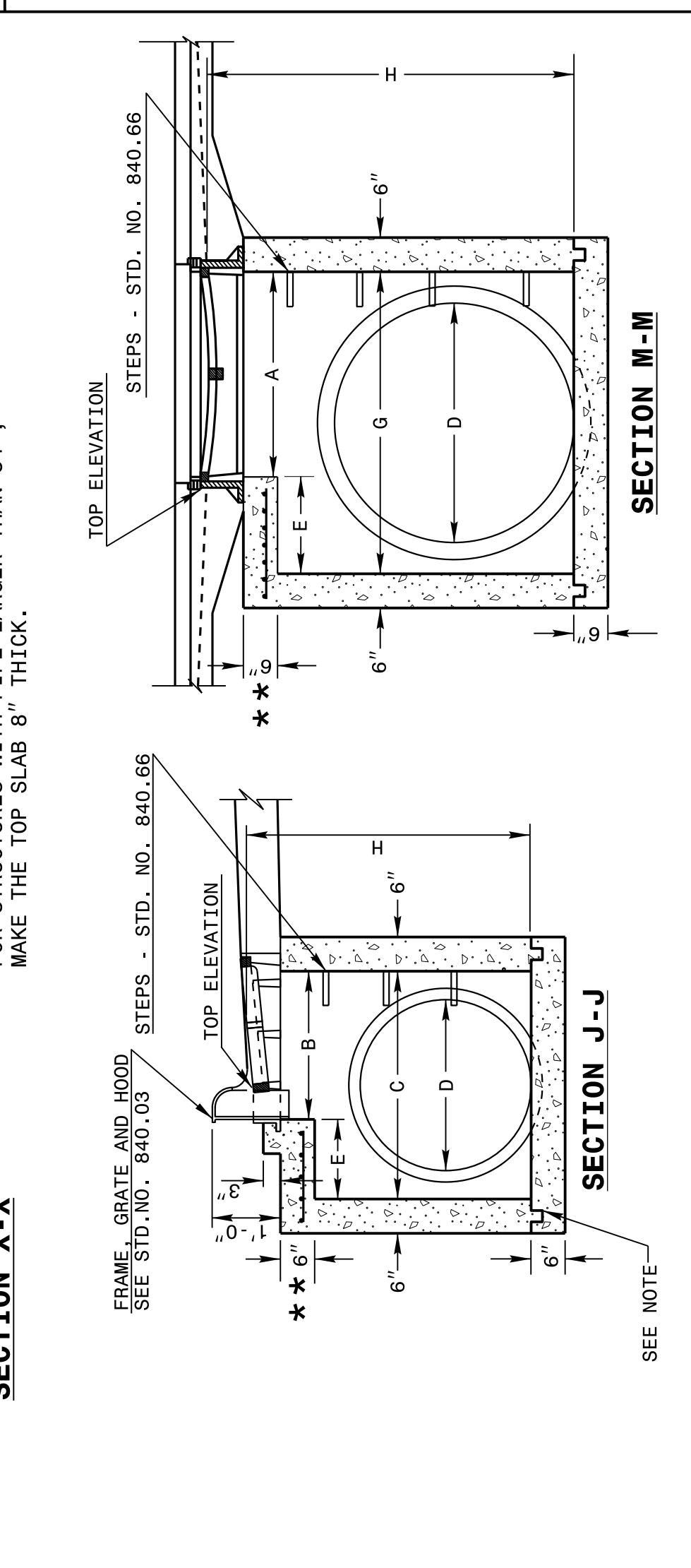
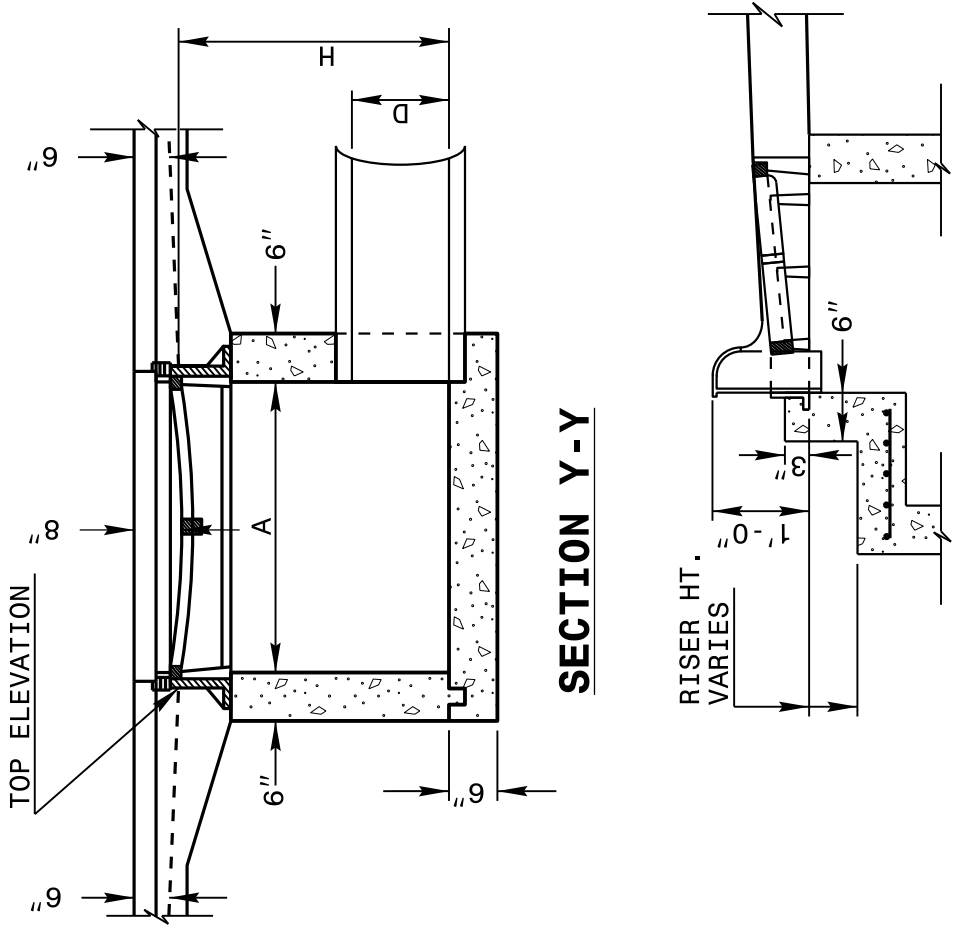
5/14/99

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**MINIMUM DEPTH
CONCRETE CATCH BASIN**
12" THRU 84" PIPE

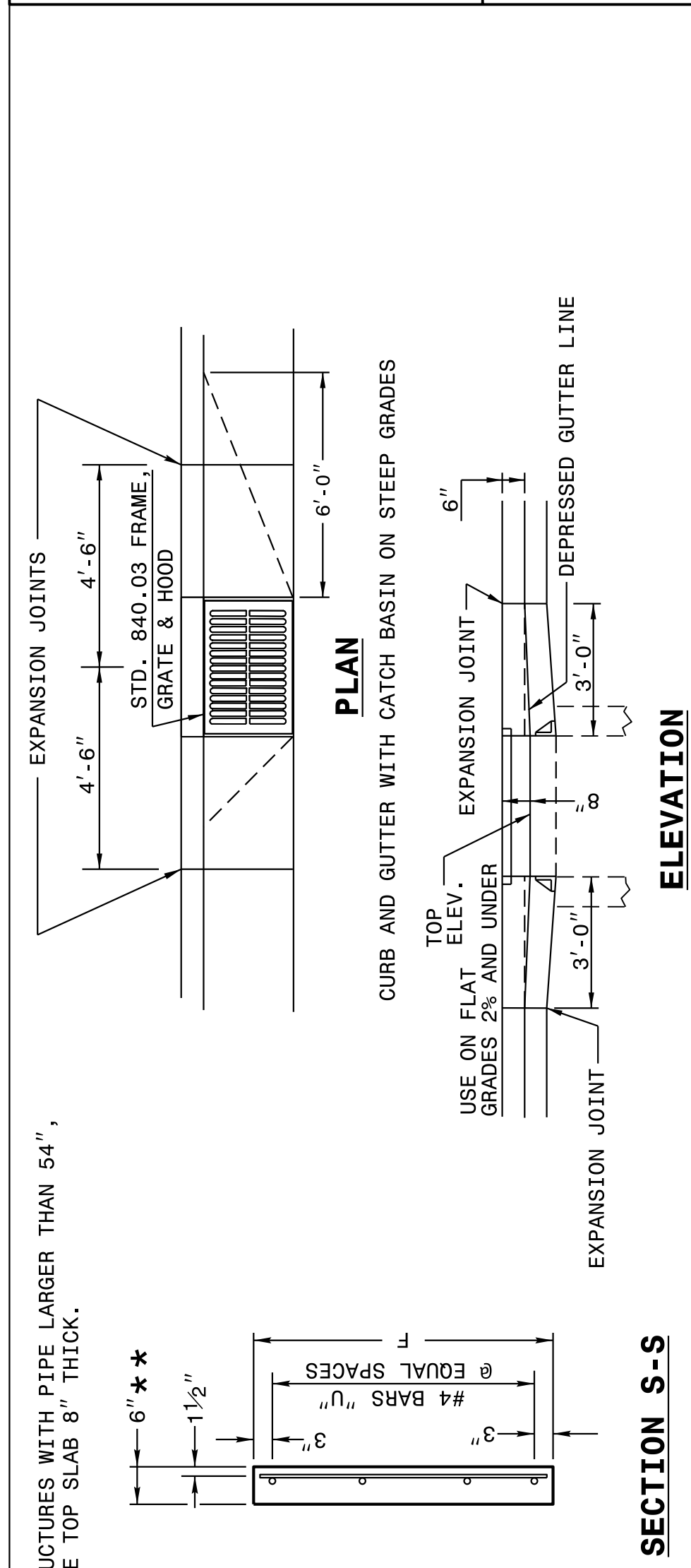
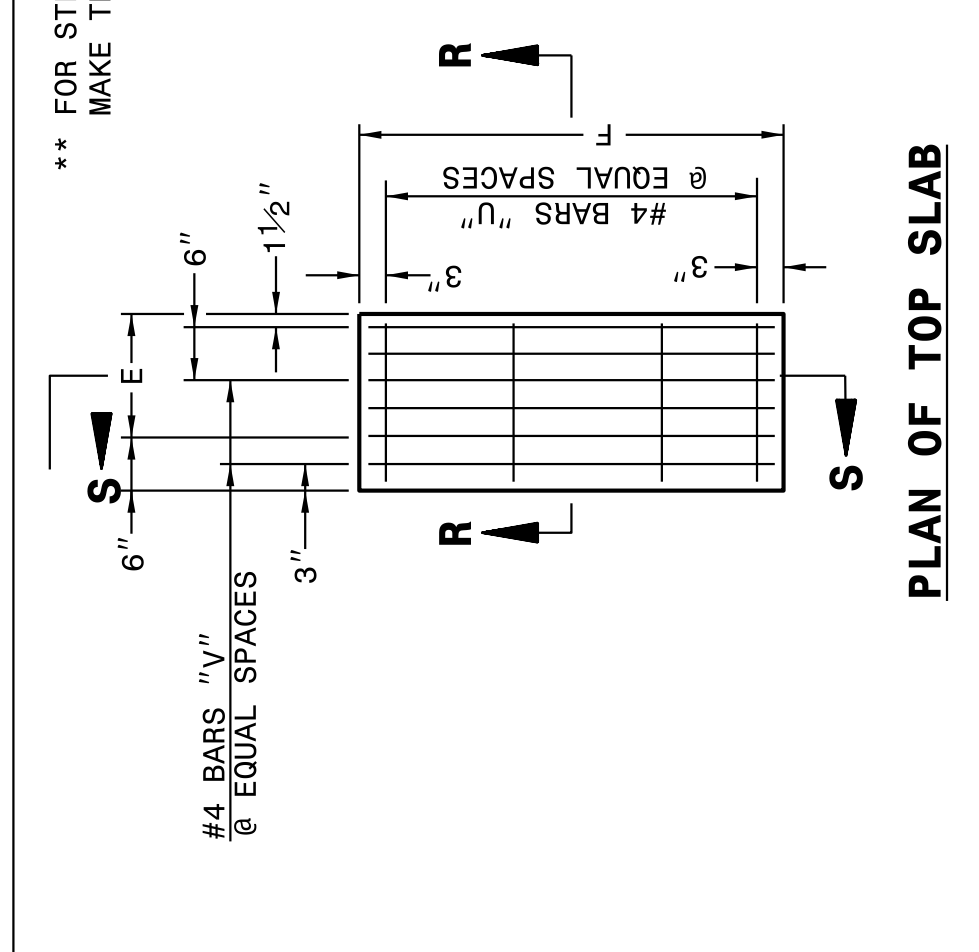


ENGLISH DETAIL DRAWING FOR
**MINIMUM DEPTH
CONCRETE CATCH BASIN**
12" THRU 84" PIPE

SHEET 1 OF 2
840D02

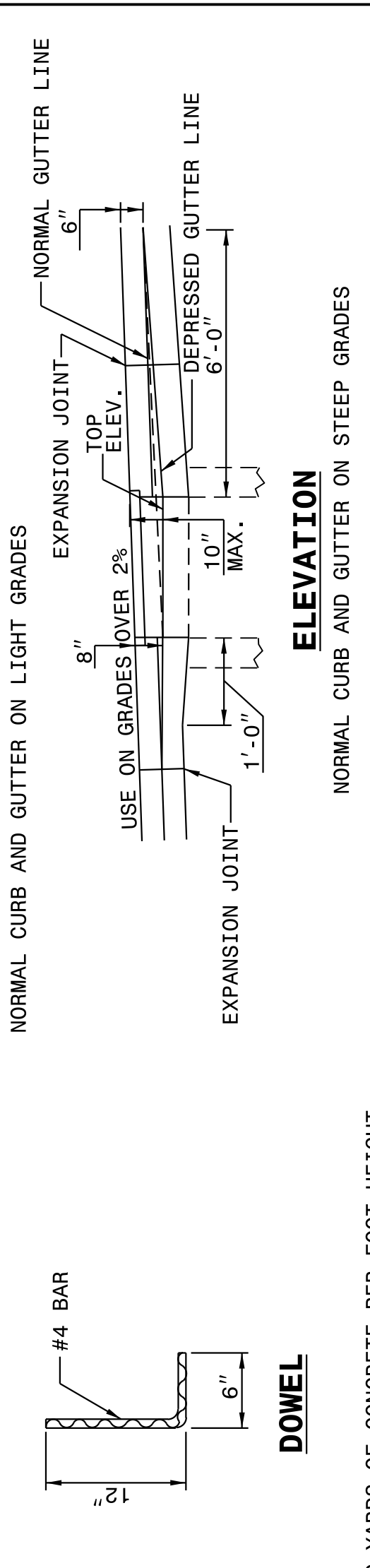
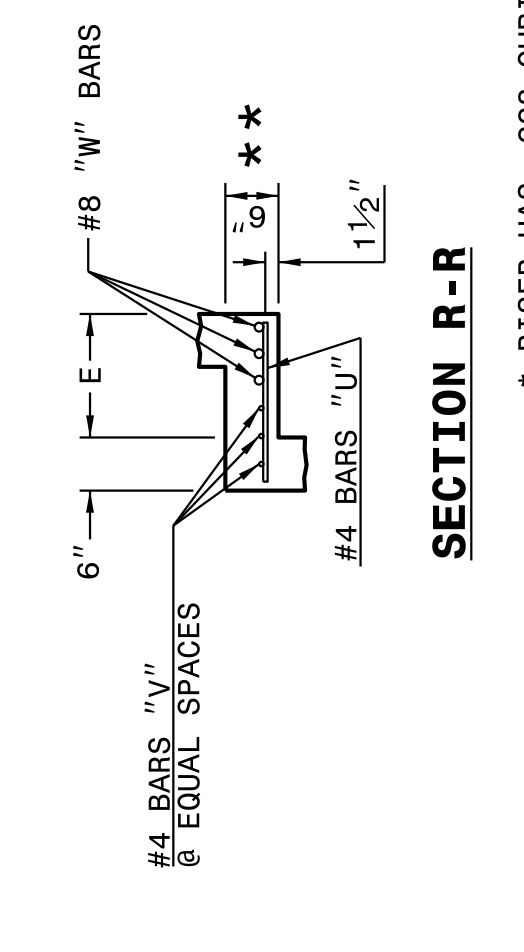
SHEET 1 OF 2
840D02

STATE OF NORTH CAROLINA
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DIVISION OF HIGHWAYS
RALEIGH, N.C.



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**MINIMUM DEPTH
CONCRETE CATCH BASIN**
12" THRU 84" PIPE



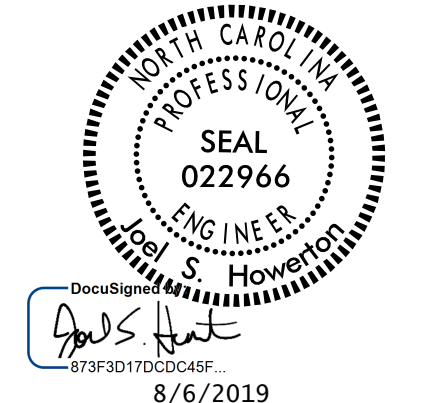
ENGLISH DETAIL DRAWING FOR
**MINIMUM DEPTH
CONCRETE CATCH BASIN**
12" THRU 84" PIPE

SHEET 2 OF 2
840D02

SHEET 2 OF 2
840D02

* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

PIPE D.	MINIMUM DIMENSIONS OF BOX AND PIPE				COVER DIMENSION				DIMENSIONS OF BOX AND PIPE				QUANTITIES AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER) *									
	SPAN	WIDTH	MIN.	HEIGHT	E	F	G	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	TOTAL LBS.	CU. YDS. CONC. IN BOX	TOP SLAB	BOTTOM SLAB	TOT. CONC. FOR MINIMUM HEIGHT, H	DEDUCTIONS ONE PIPE	R.C.	
12"	3'-0"	2'-2"	2'-2"	2'-0"	0.235	0.772	0.015	0.026	0.235	0.772	0.015	0.026
15"	3'-0"	2'-2"	2'-2"	2'-3"	0.235	0.829	0.023	0.036	0.235	0.829	0.023	0.036
18"	3'-0"	2'-2"	3'-1"	3'-1"	0.235	0.887	0.033	0.049	0.235	0.887	0.033	0.049
24"	3'-0"	2'-2"	3'-4"	3'-10"	1'-2"	4'-4"	4'-4"	4'-4"	4	1'-5"	2	4'-1"	3	4'-1"	39	0.123	0.347	1.433	0.092	0.127	0.059	0.085
36"	3'-0"	2'-2"	3'-10"	4'-6"	1'-8"	4'-10"	4'-10"	4	1'-11"	3	4'-7"	3	4'-7"	43	0.161	0.432	1.714	0.132	0.178	0.132	0.178	
42"	3'-0"	2'-2"	4'-5"	4'-5"	2'-2"	5'-5"	5'-5"	5	2'-5"	4	5'-2"	3	5'-2"	47	0.200	0.543	1.738	0.180	0.243	0.200	0.243	
48"	3'-0"	2'-2"	5'-0"	5'-0"	2'-10"	6'-0"	6'-0"	5	3'-1"	4	5'-9"	3	5'-9"	51	0.235	0.667	2.052	0.235	0.317	0.235	0.317	
54"	3'-0"	2'-2"	5'-7"	6'-0"	3'-5"	6'-7"	6'-7"	6	3'-8"	5	6'-4"	3	6'-4"	56	0.289	0.802	2.387	0.287	0.401	0.289	0.401	
60"	3'-0"	2'-2"	6'-3"	6'-6"	4'-1"	7'-3"	7'-3"	6	4'-4"	5	7'-0"	3	7'-0"	61	0.340	0.973	2.722	0.363	0.546	0.340	0.546	
66"	3'-0"	2'-2"	6'-11"	7'-0"	4'-9"	7'-11"	7'-11"	7	5'-0"	6	7'-8"	3	7'-8"	66	0.391	1.160	3.057	0.440	0.655	0.391	0.655	
72"	3'-0"	2'-2"	7'-6"	7'-6"	5'-3"	8'-6"	8'-6"	7	5'-6"	6	8'-3"	3	8'-3"	72	0.442	1.340	3.392	0.524	0.774	0.442	0.774	
78"	3'-0"	2'-2"	8'-1"	8'-1"	5'-11"	9'-1"	9'-1"	8	6'-2"	7	8'-10"	3	8'-10"	78	0.493	1.530	3.727	0.615	0.893	0.493	0.893	
84"	3'-0"	2'-2"	8'-9"	8'-9"	6'-7"	9'-9"	9'-9"	8	6'-10"	7	9'-6"	3	9'-6"	84	0.544	1.760	4.062	0.713	1.010	0.544	1.010	

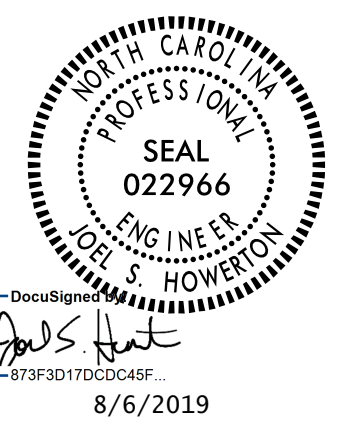


CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

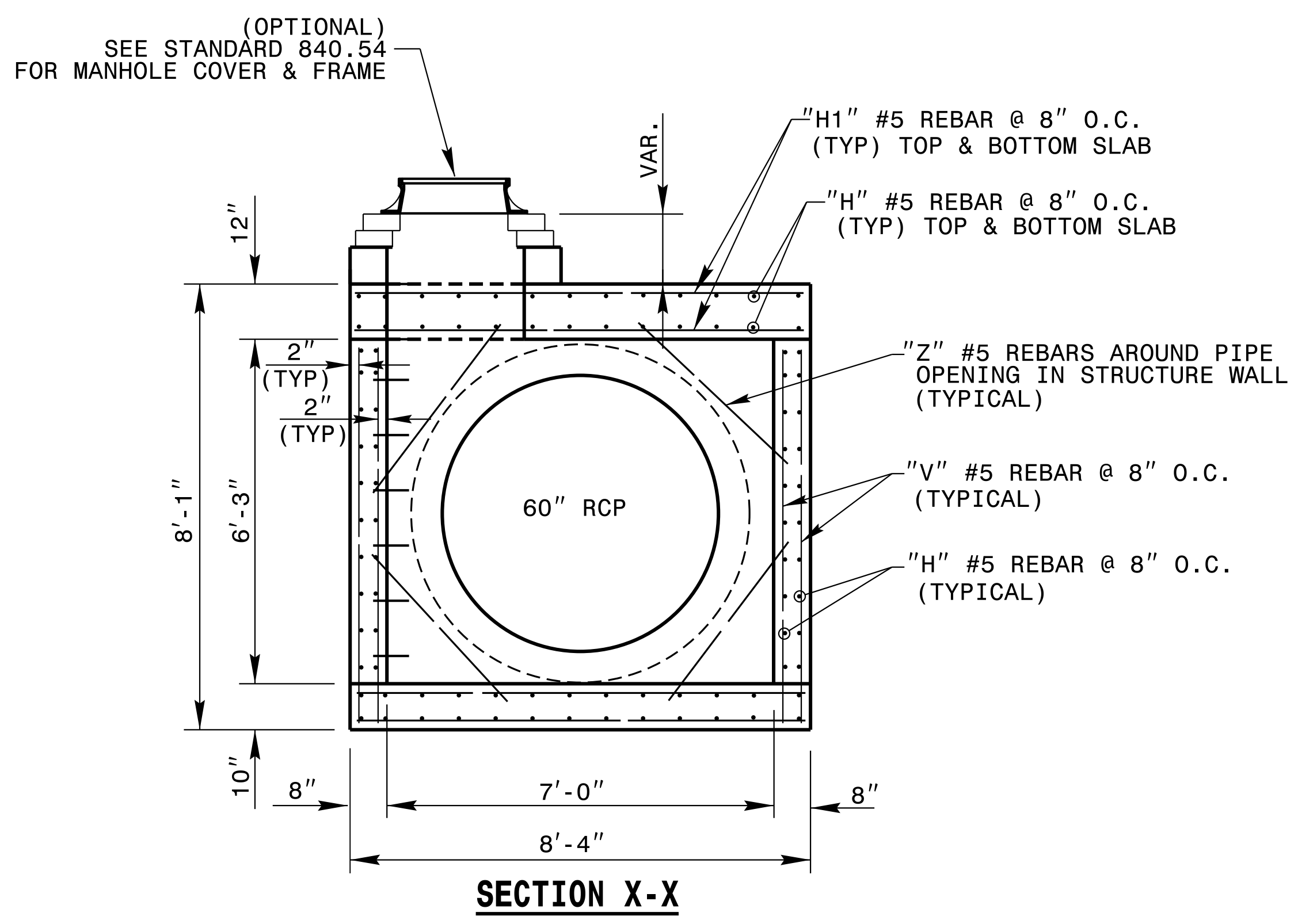
SEE PLATE FOR TITLE

ORIGINAL BY: 2002 Std.840.01 DATE: _____
 MODIFIED BY: E.E. WARD DATE: 3-1-02
 CHECKED BY: _____ DATE: _____
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



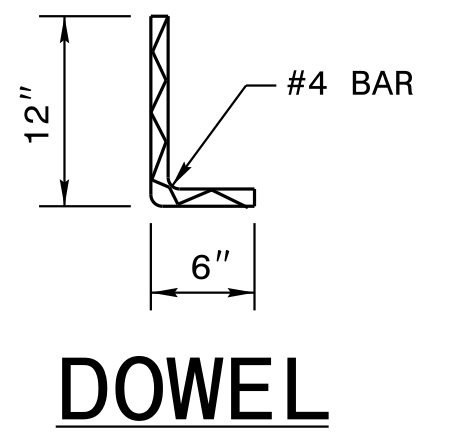
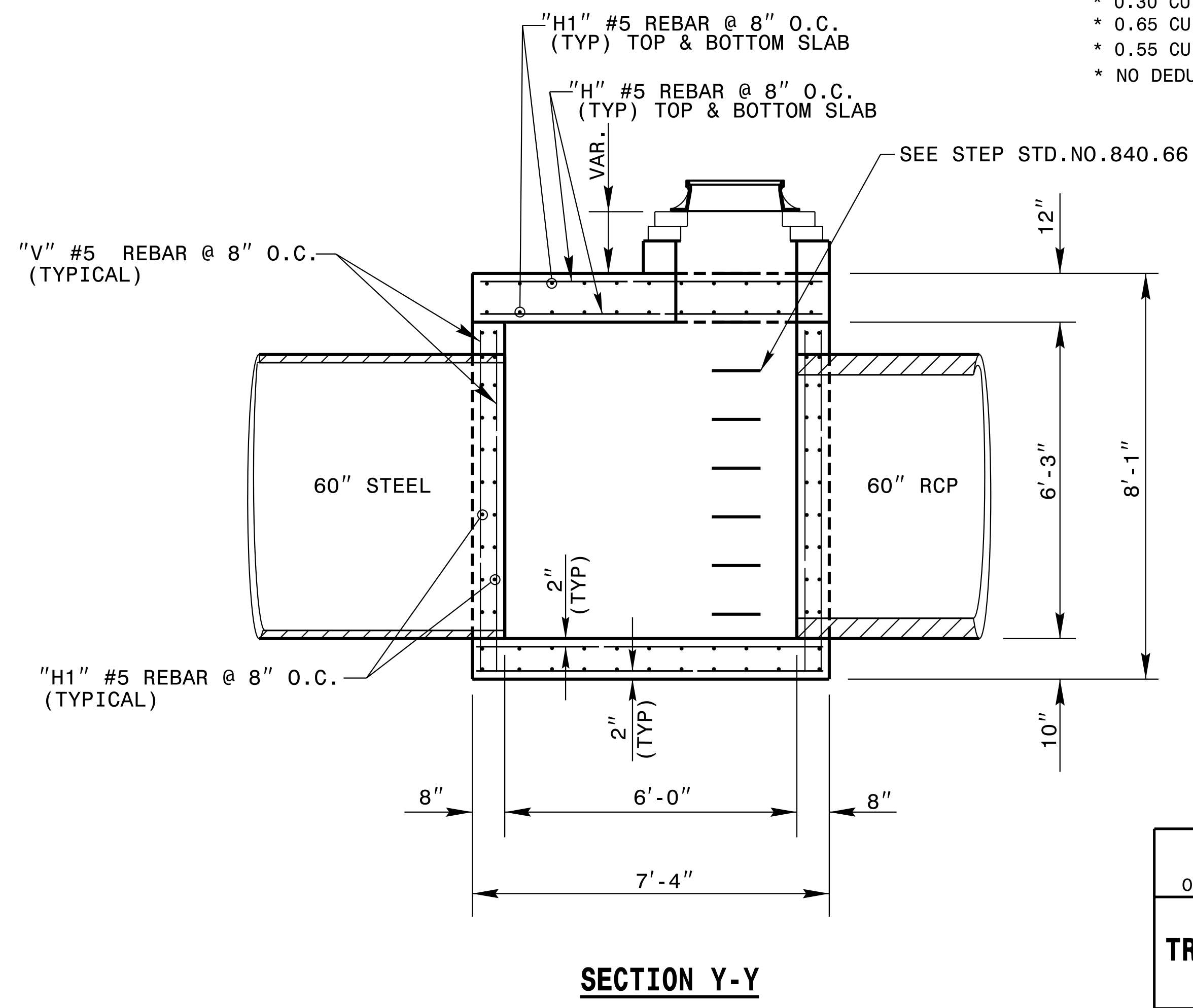
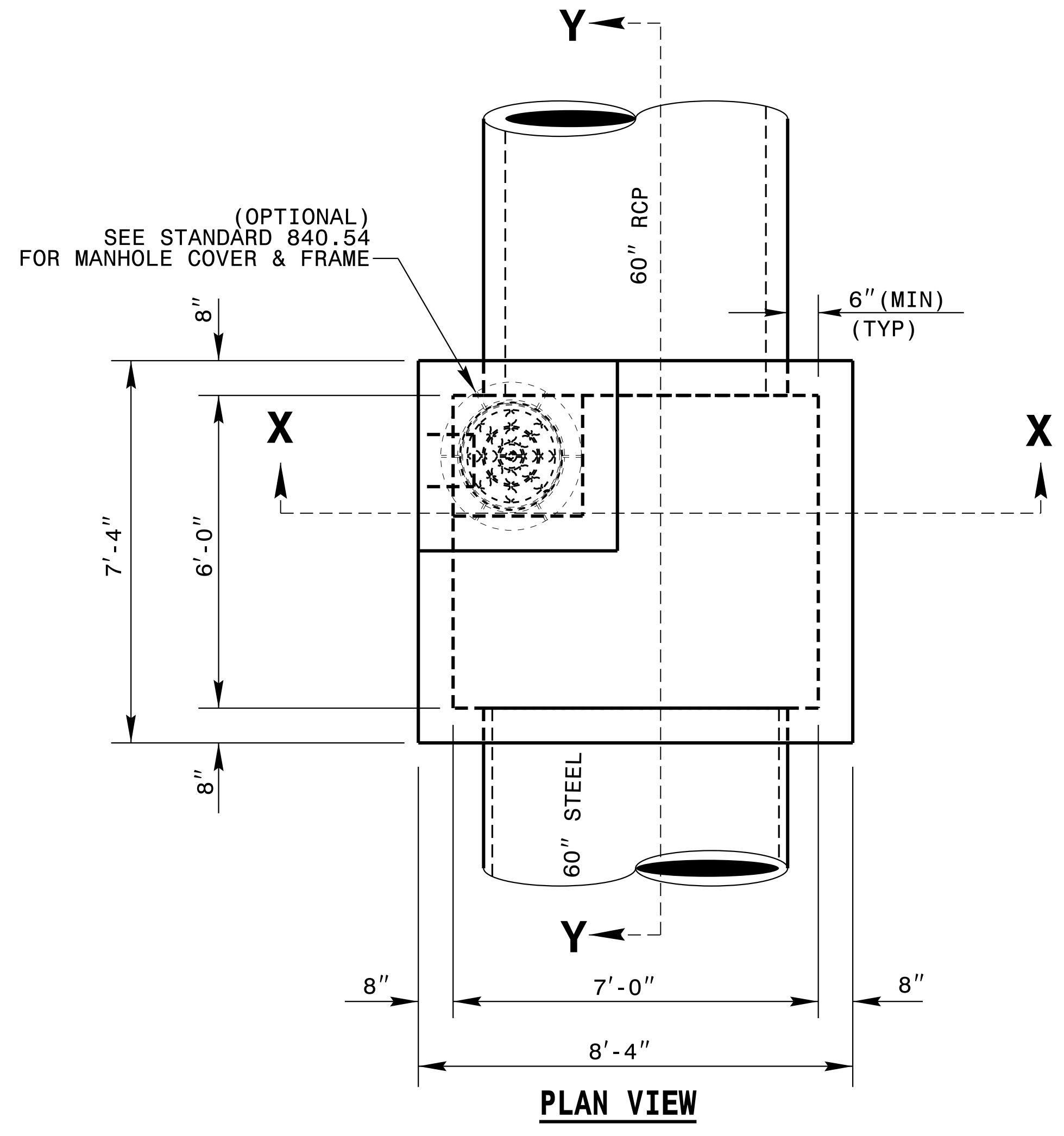
GENERAL NOTES:
 USE CLASS "AA" CONCRETE THROUGHOUT.
 PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 INSTALL MANHOLE IN POSITION AS DIRECTED BY THE ENGINEER. CUT AND BEND ALL REBAR CROSSING THIS OPENING TO ALLOW 2" MINIMUM CONCRETE COVERAGE.
 CHAMFER ALL EXPOSED CORNERS 1".
 2" MINIMUM CONCRETE COVERAGE ON ALL REBAR.



BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	WEIGHT
H	92	#5	7'-0"	672
H1	84	#5	8'-0"	701
V	92	#5	6'-9"	648
Z	16	#5	4'-0"	67
TOTAL REINF. STEEL (LBS.)				2088
TOTAL CONC. (CU. YDS.)				8.8

* 0.30 CU. YD. PER FOOT OF RISER HEIGHT
 * 0.65 CU. YD. DEDUCTION FOR 1-60" RC PIPE
 * 0.55 CU. YD. DEDUCTION FOR 1-60" STEEL PIPE
 * NO DEDUCTION HAS BEEN MADE FOR PIPES



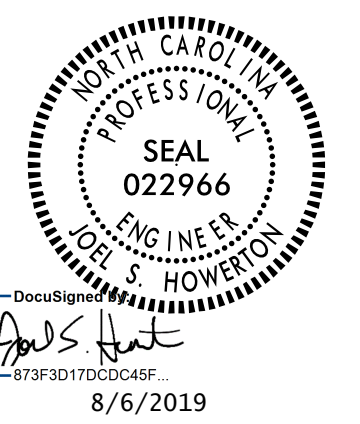
**CONTRACT, STANDARDS
AND DEVELOPMENT UNIT**
 Office 919-707-6900 FAX 919-250-4119

TRAFFIC BEARING JUNCTION BOX

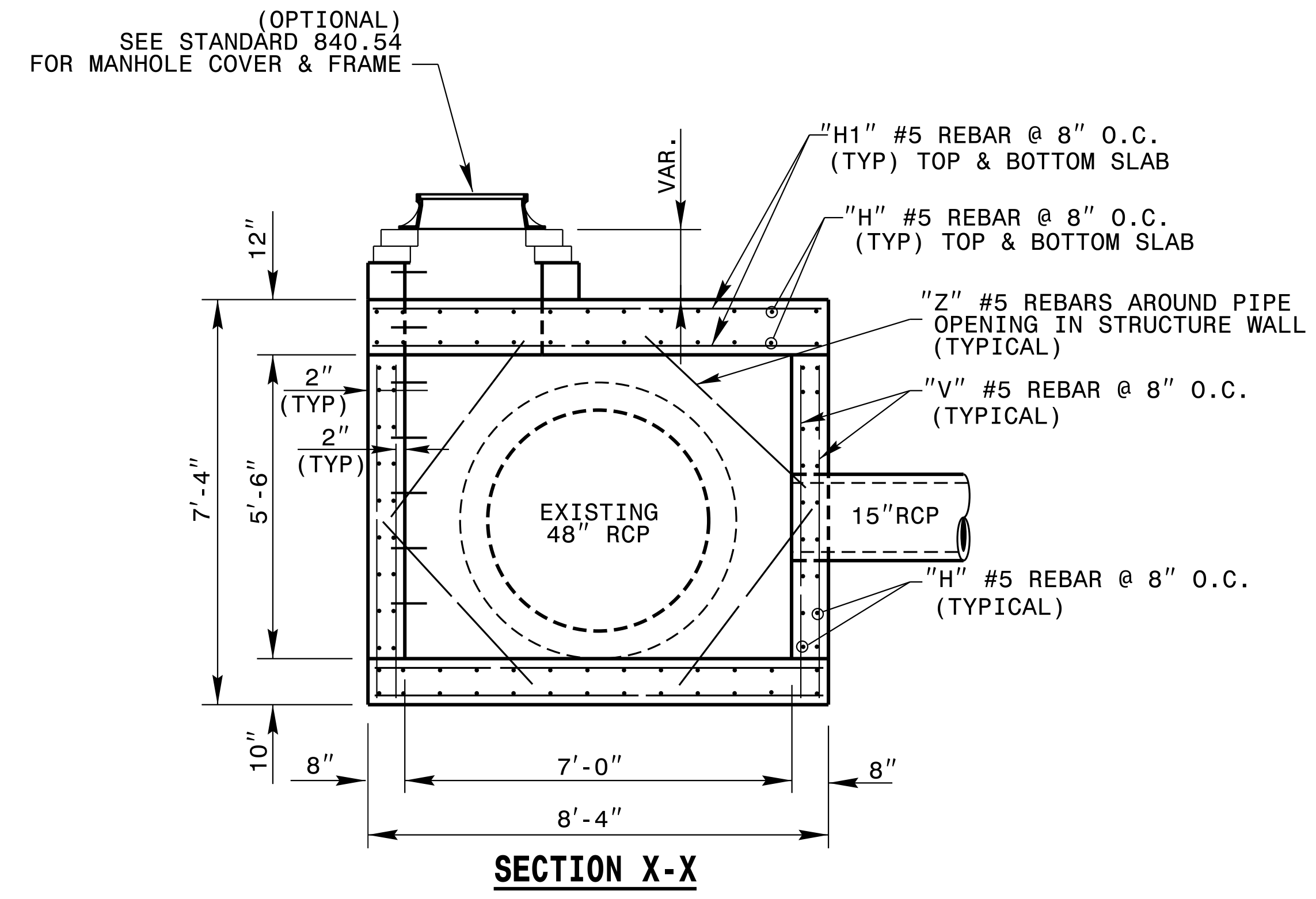
ORIGINAL BY: nbritt	DATE: 07/22/05
MODIFIED BY: kkempf	DATE: 07/01/19
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 kkempf AT CSD-2925%

5/14/99

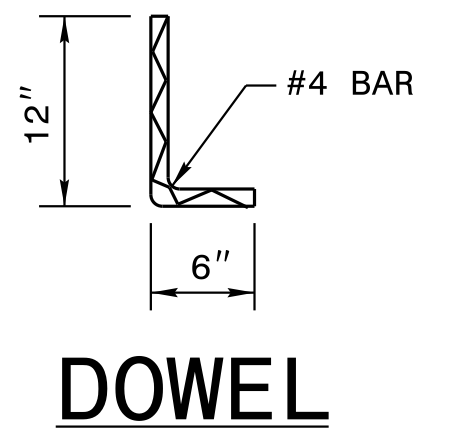
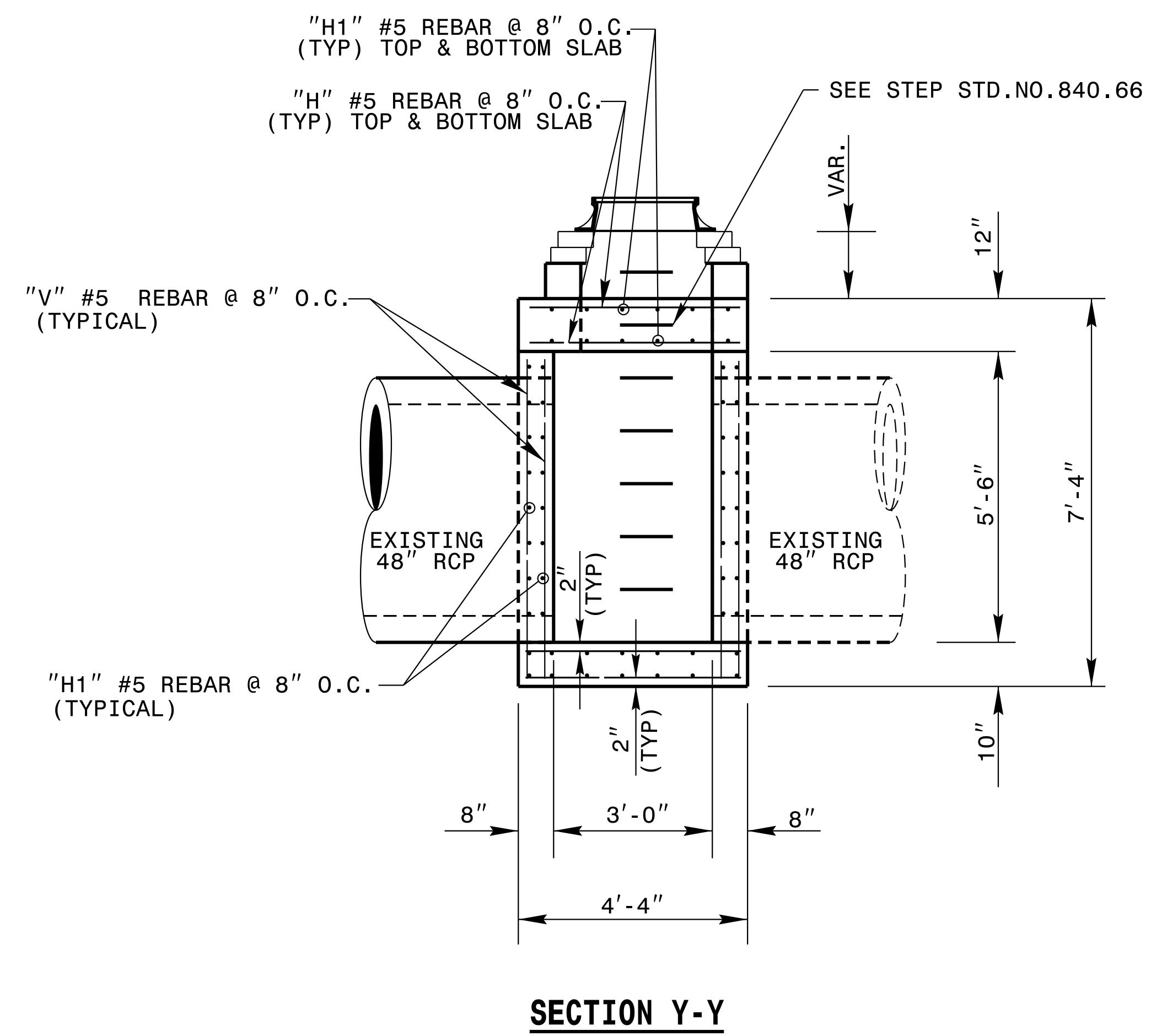
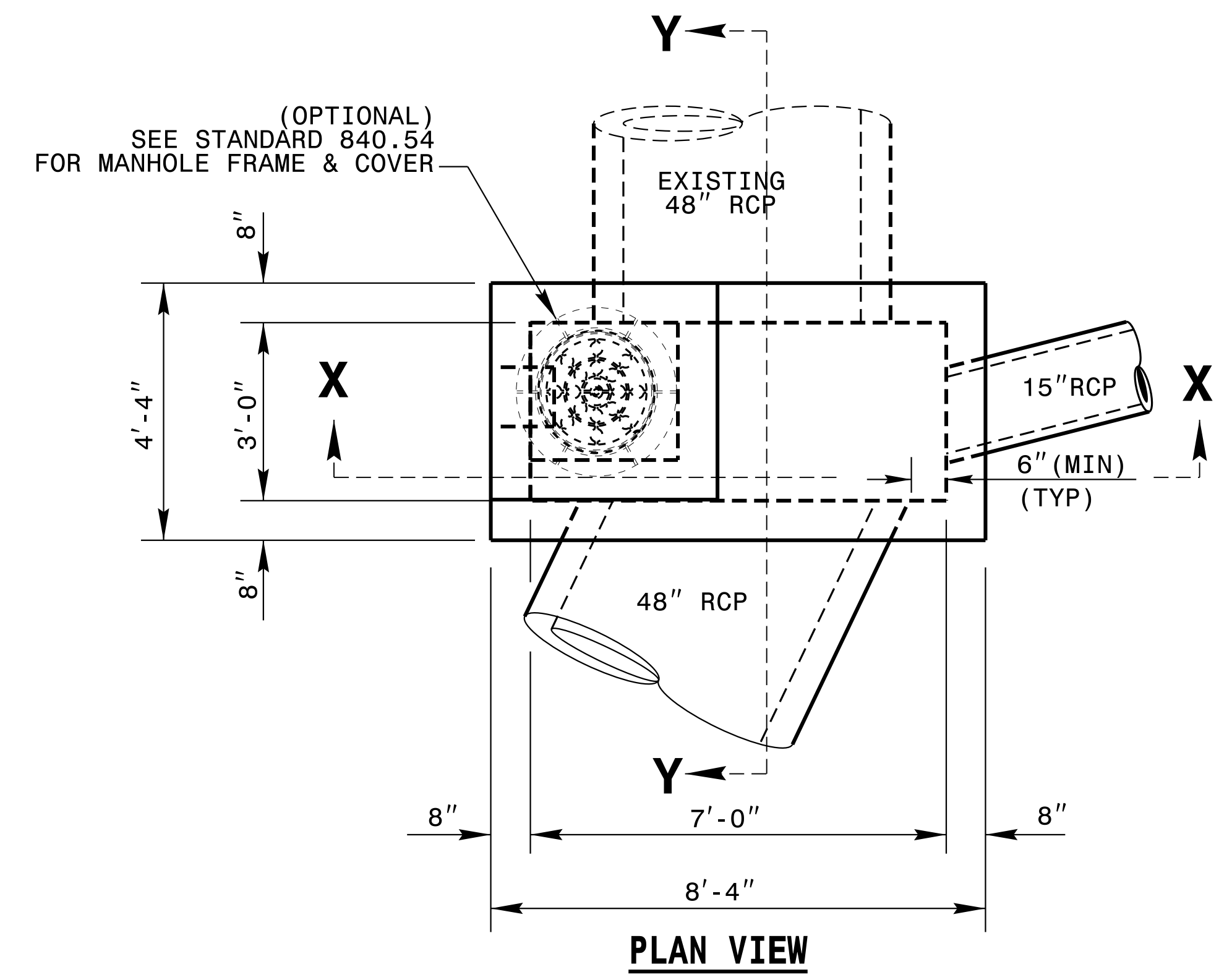


GENERAL NOTES:
 USE CLASS "AA" CONCRETE THROUGHOUT.
 PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 INSTALL MANHOLE IN POSITION AS DIRECTED BY THE ENGINEER. CUT AND BEND ALL REBAR CROSSING THIS OPENING TO ALLOW 2" MINIMUM CONCRETE COVERAGE.
 CHAMFER ALL EXPOSED CORNERS 1".
 2" MINIMUM CONCRETE COVERAGE ON ALL REBAR.



BILL OF MATERIALS				
BAR	NO.	SIZE	LENGTH	WEIGHT
H	88	#5	4'-0"	367
H1	64	#5	6'-8"	445
V	72	#5	6'-0"	451
Z	16	#5	4'-0"	67
TOTAL REINF. STEEL (LBS.)				1330
TOTAL CONC. (CU. YDS.)				5.5

* 0.30 CU. YD. PER FOOT OF RISER HEIGHT
 * 0.95 CU. YD. DEDUCTION FOR 2-48" RC PIPE
 * 0.05 CU. YD. DEDUCTION FOR 1-15" RC PIPE
 * NO DEDUCTION HAS BEEN MADE FOR PIPES

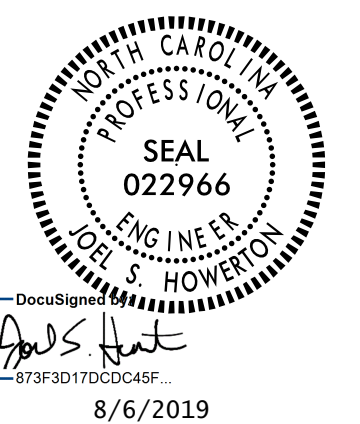


**CONTRACT STANDARDS & DEVELOPMENT UNIT
 STANDARDS AND SPECIAL DESIGN**
 Office 919-250-4128 FAX 919-250-4119

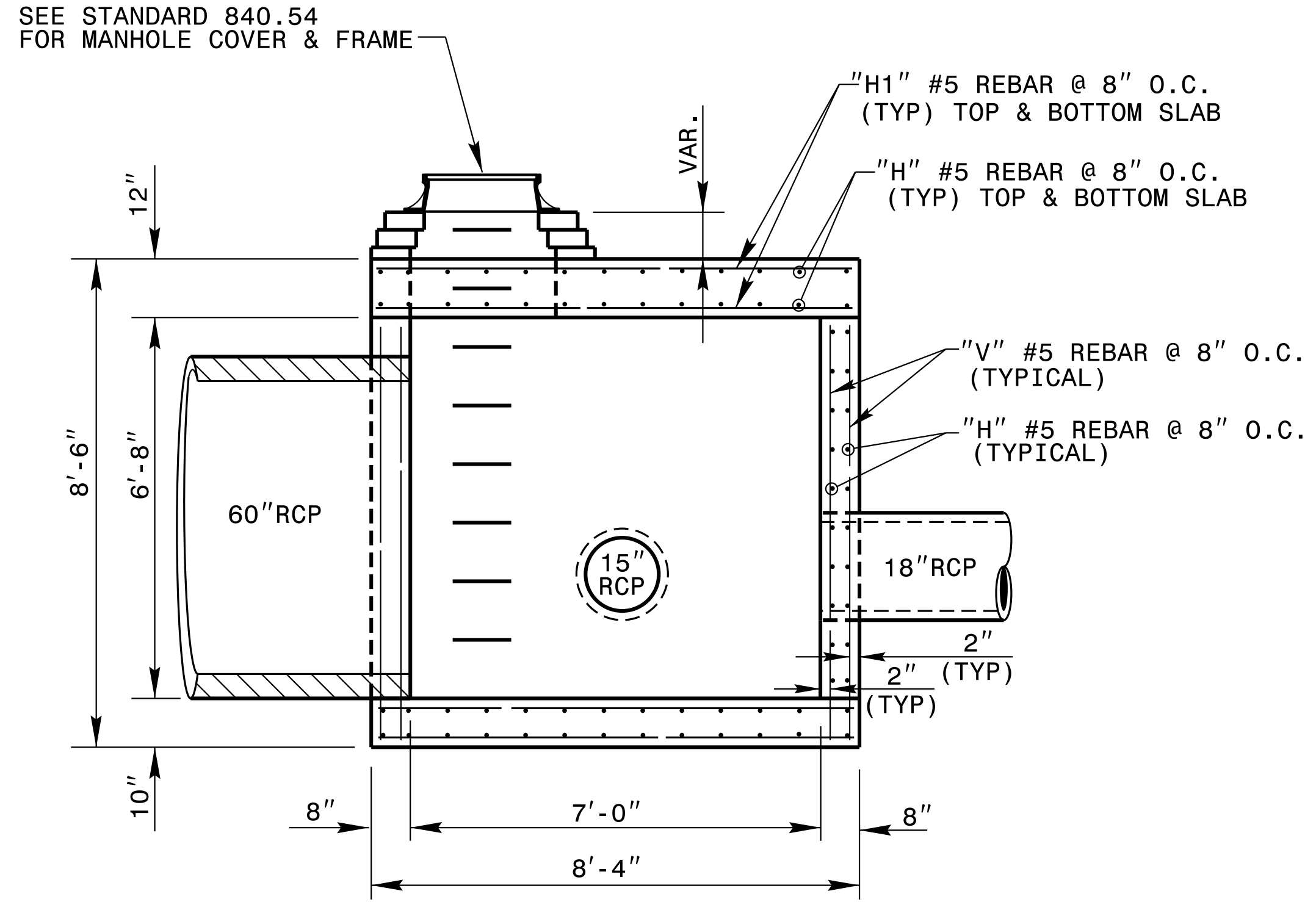
TRAFFIC BEARING JUNCTION BOX

ORIGINAL BY: nbritt DATE: 07/22/05
 MODIFIED BY: kkempf DATE: 07/05/19
 CHECKED BY: DATE:
 FILE SPEC.: detail/kkempf/english/A-0011C 60 tjb.dgn

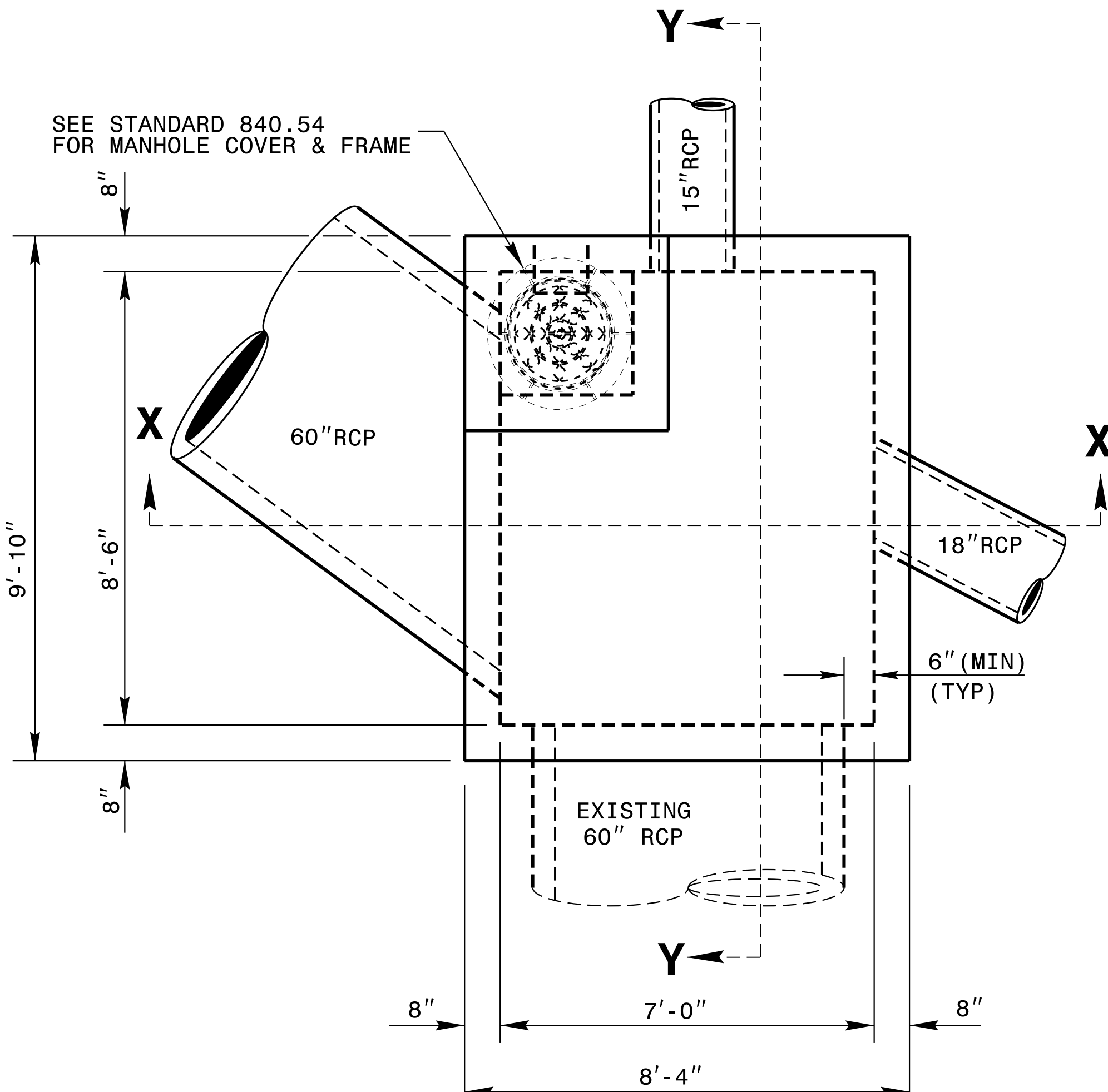
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 kkempf AT CSD-2925%



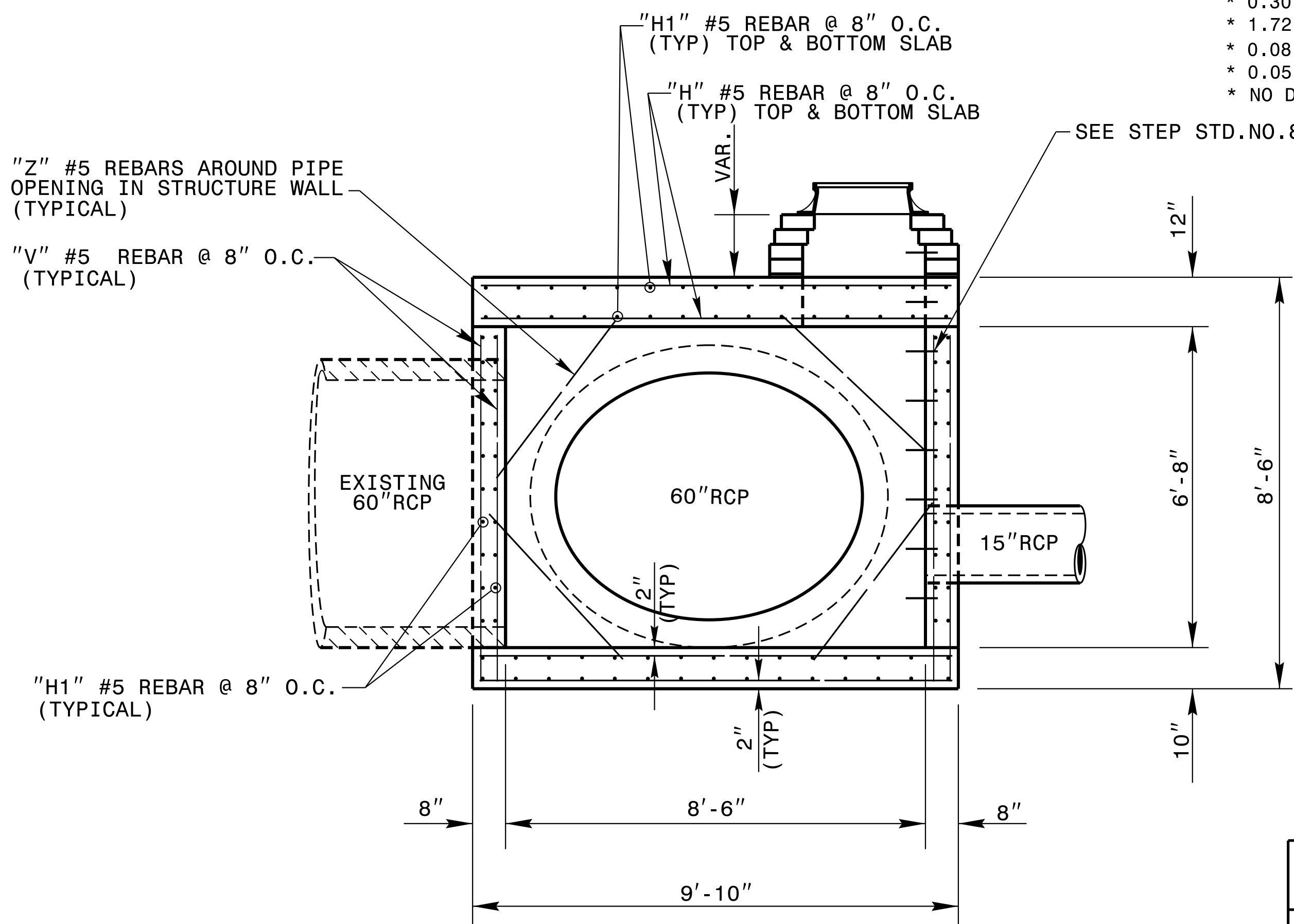
GENERAL NOTES:
 USE CLASS "AA" CONCRETE THROUGHOUT.
 PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 INSTALL MANHOLE IN POSITION AS DIRECTED BY THE ENGINEER. CUT AND BEND ALL REBAR CROSSING THIS OPENING TO ALLOW 2" MINIMUM CONCRETE COVERAGE.
 CHAMFER ALL EXPOSED CORNERS 1".
 2" MINIMUM CONCRETE COVERAGE ON ALL REBAR.



SECTION X-X



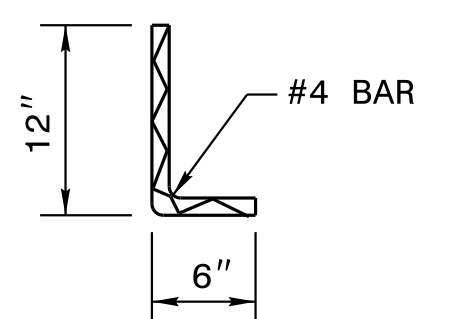
PLAN VIEW



SECTION Y-Y

BILL OF MATERIALS				
BAR	NO.	SIZE	LENGTH	WEIGHT
H	86	#5	9'-6"	852
H1	100	#5	8'-0"	834
V	92	#5	7'-2"	688
Z	16	#5	4'-0"	67
TOTAL REINF. STEEL (LBS.)				2441
TOTAL CONC. (CU. YDS.)				11.1

- * 0.30 CU. YD. PER FOOT OF RISER HEIGHT
- * 1.72 CU. YD. DEDUCTION FOR 2-60" RC PIPE
- * 0.08 CU. YD. DEDUCTION FOR 1-18" RC PIPE
- * 0.05 CU. YD. DEDUCTION FOR 1-15" RC PIPE
- * NO DEDUCTION HAS BEEN MADE FOR PIPES



DOWEL

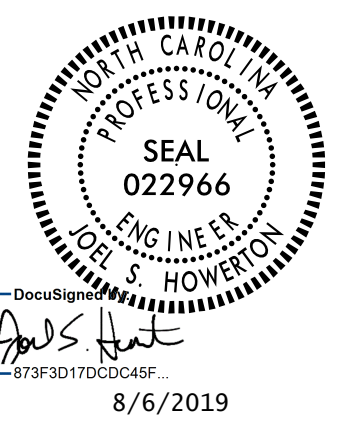
**CONTRACT STANDARDS & DEVELOPMENT UNIT
 STANDARDS AND SPECIAL DESIGN**
 Office 919-250-4128 FAX 919-250-4119

TRAFFIC BEARING JUNCTION BOX

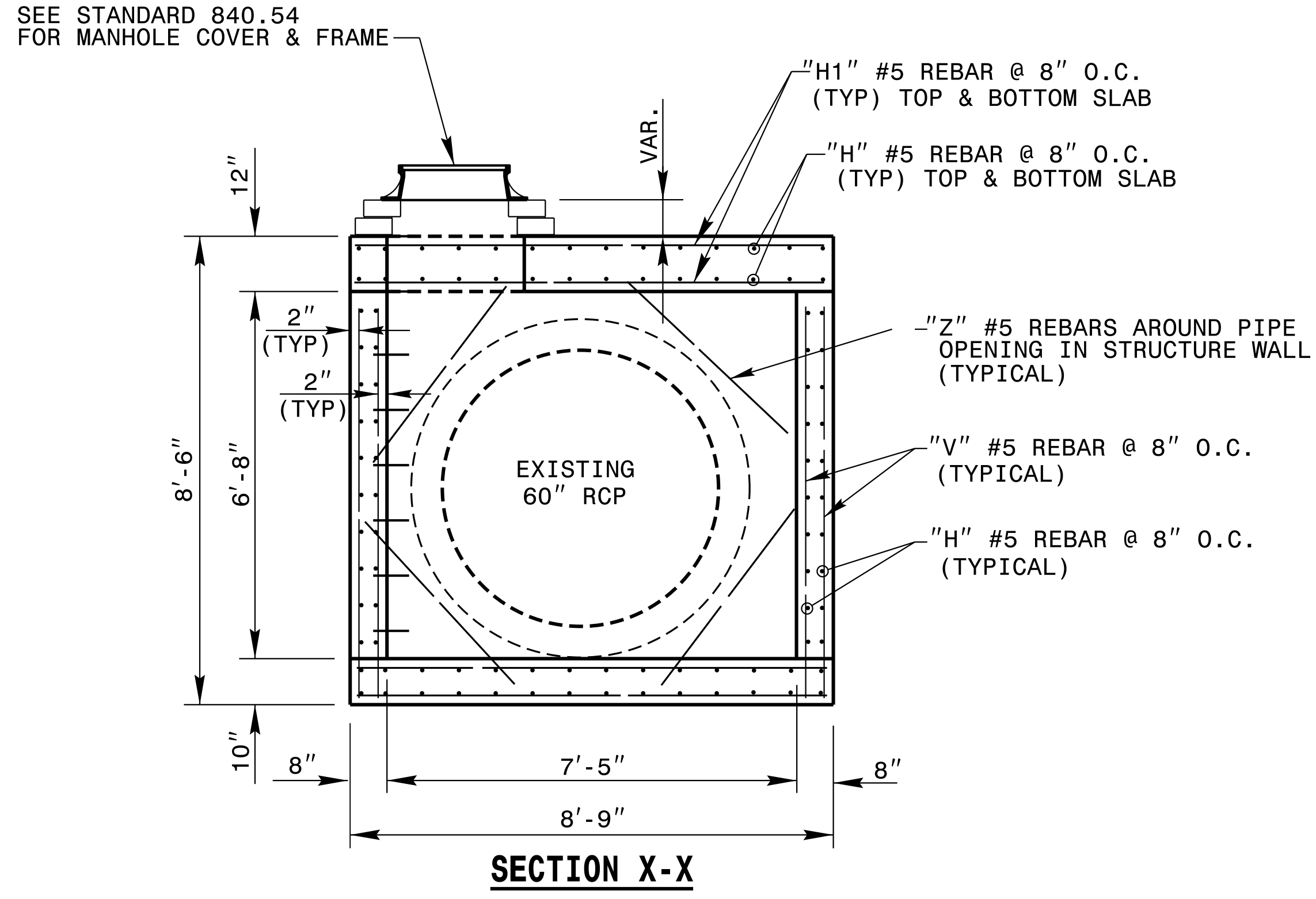
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 MODIFIED BY: kkempf DATE: 07/05/19
 CHECKED BY: DATE:
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05-JUL-2019 16:43
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 kkempf AT CSD-2925%

5/14/19

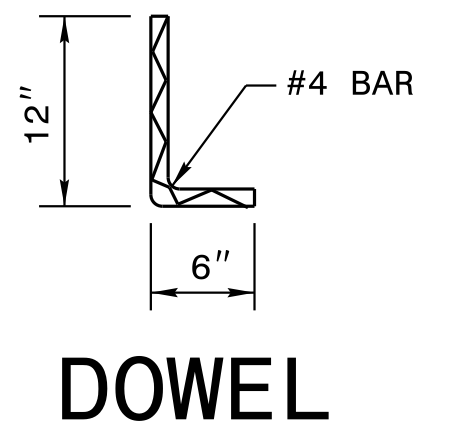
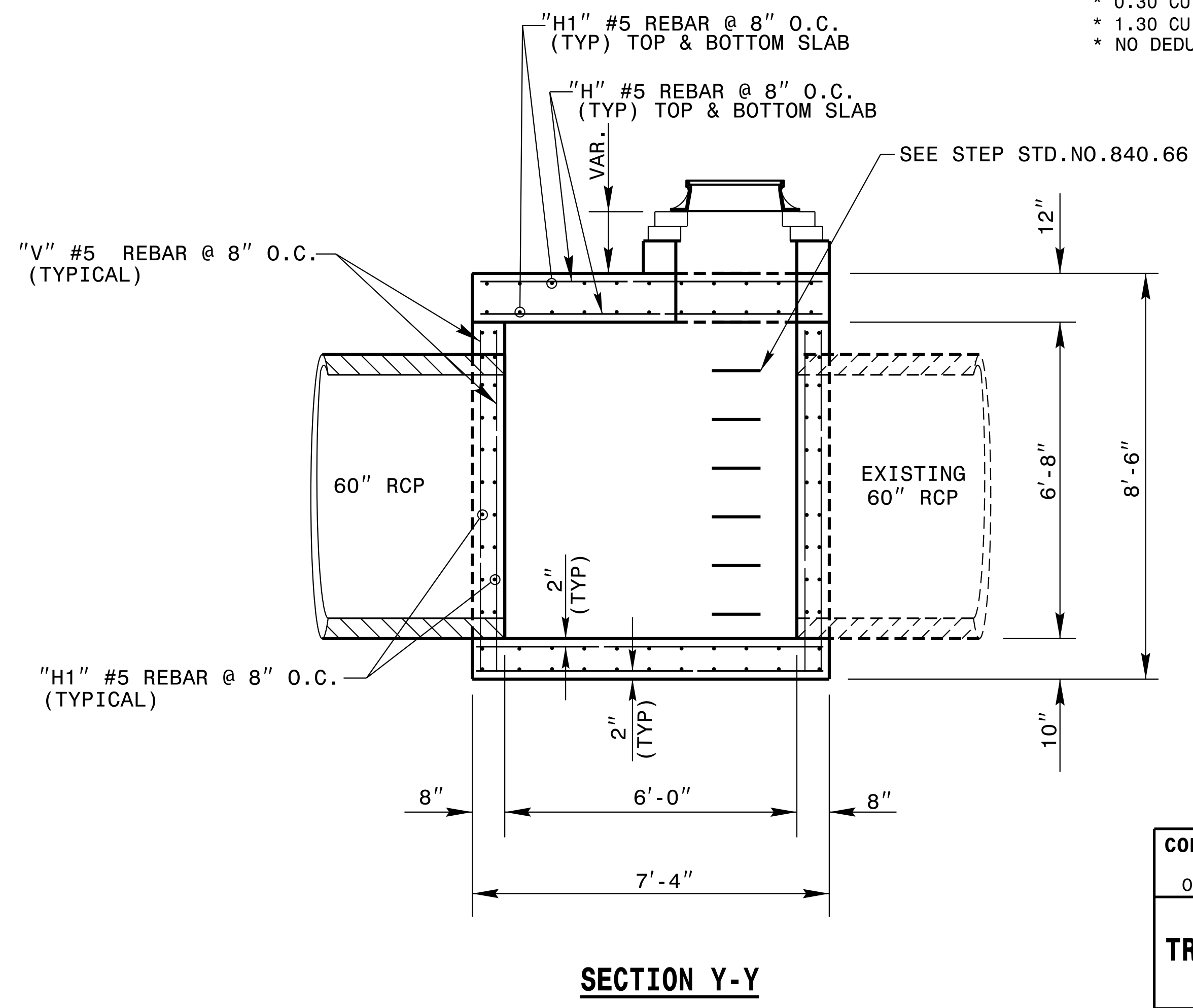
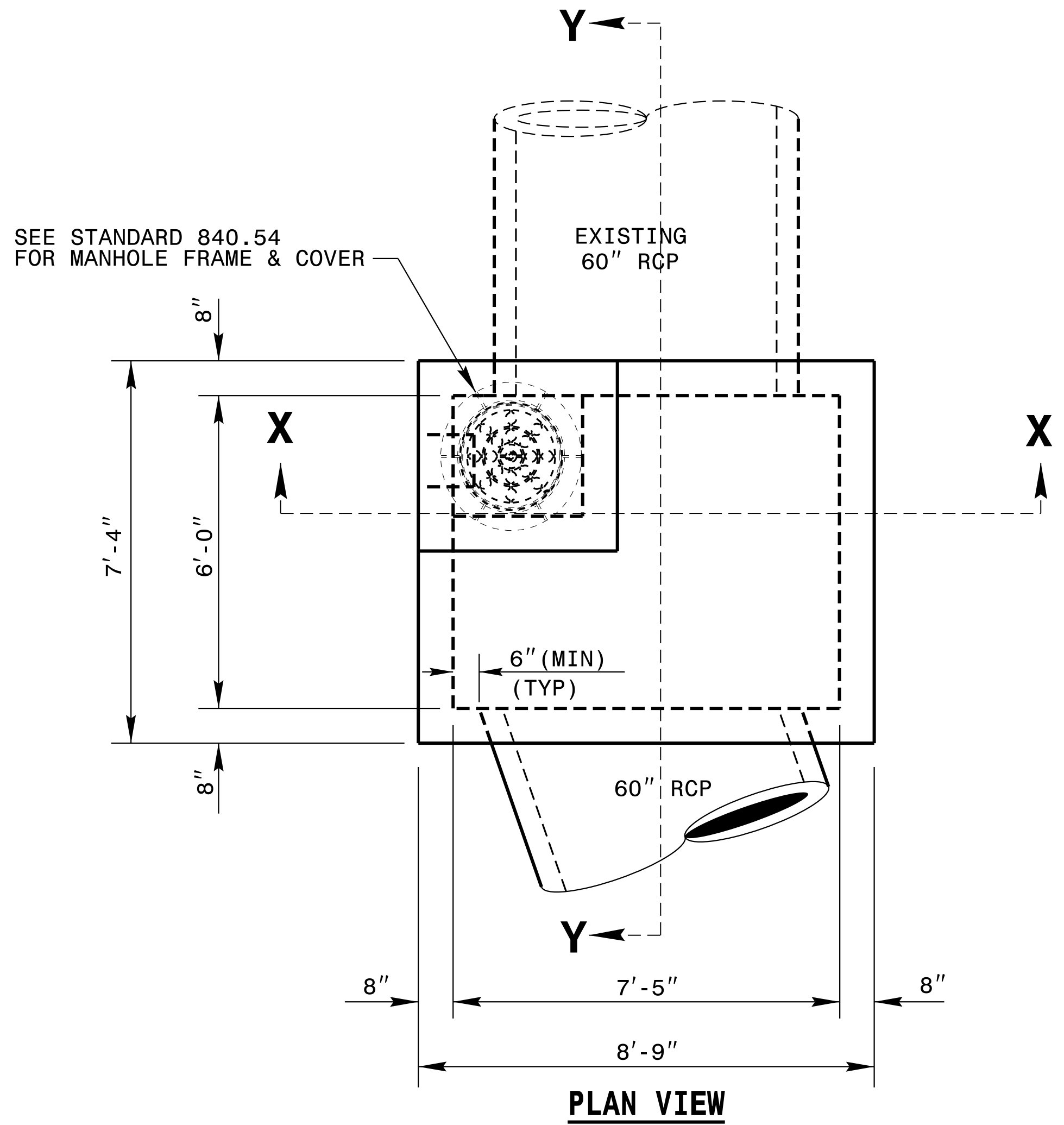


GENERAL NOTES:
 USE CLASS "AA" CONCRETE THROUGHOUT.
 PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 INSTALL MANHOLE IN POSITION AS DIRECTED BY THE ENGINEER. CUT AND BEND ALL REBAR CROSSING THIS OPENING TO ALLOW 2" MINIMUM CONCRETE COVERAGE.
 CHAMFER ALL EXPOSED CORNERS 1".
 2" MINIMUM CONCRETE COVERAGE ON ALL REBAR.



BILL OF MATERIALS				
BAR	NO.	SIZE	LENGTH	WEIGHT
H	96	#5	7'-0"	701
H1	84	#5	8'-5"	737
V	92	#5	7'-2"	688
Z	16	#5	4'-0"	67
TOTAL REINF. STEEL (LBS.)				2193
TOTAL CONC. (CU. YDS.)				8.8

* 0.30 CU. YD. PER FOOT OF RISER HEIGHT
 * 1.30 CU. YD. DEDUCTION FOR 2-60" RC PIPE
 * NO DEDUCTION HAS BEEN MADE FOR PIPES



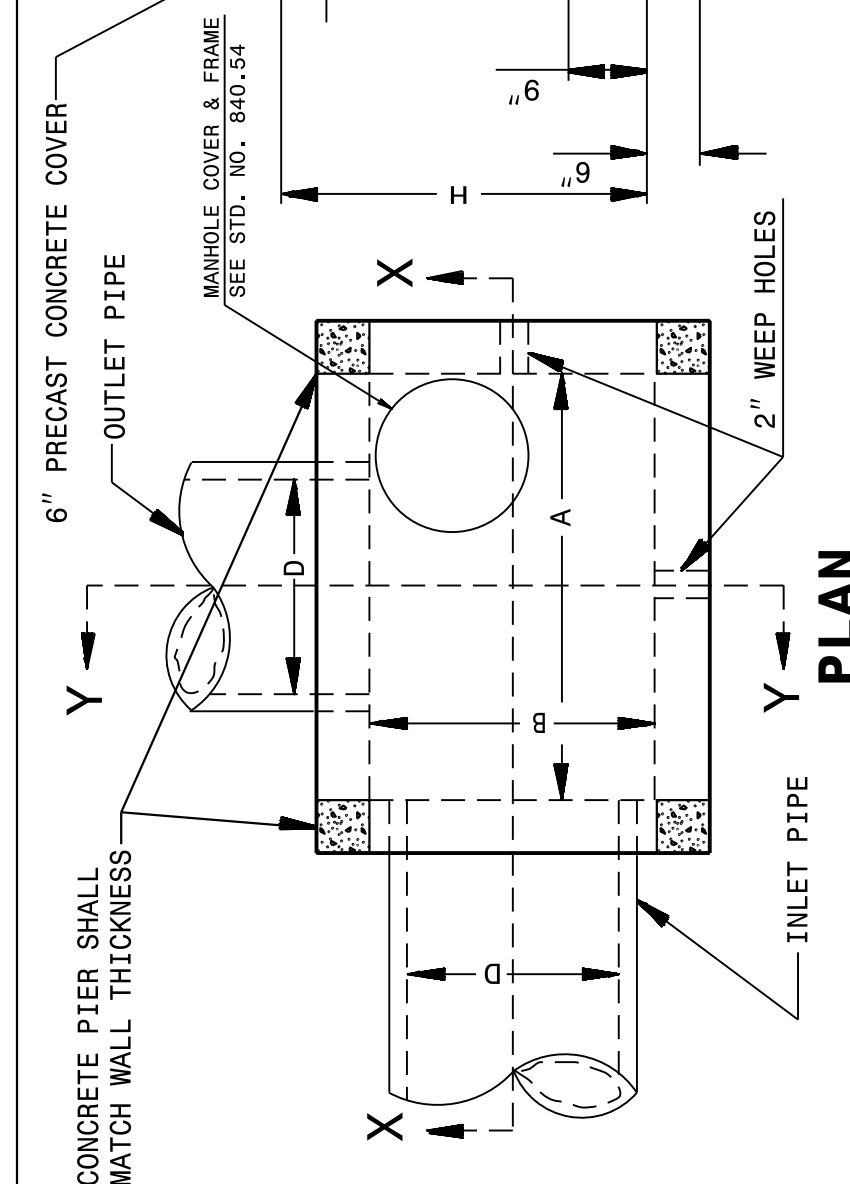
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Office 919-250-4128	FAX 919-250-4119
TRAFFIC BEARING JUNCTION BOX	
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MODIFIED BY: kkempf	DATE: 07/03/19
CHECKED BY:	DATE:
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 kkempf AT CSD-2925%

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5/14/99

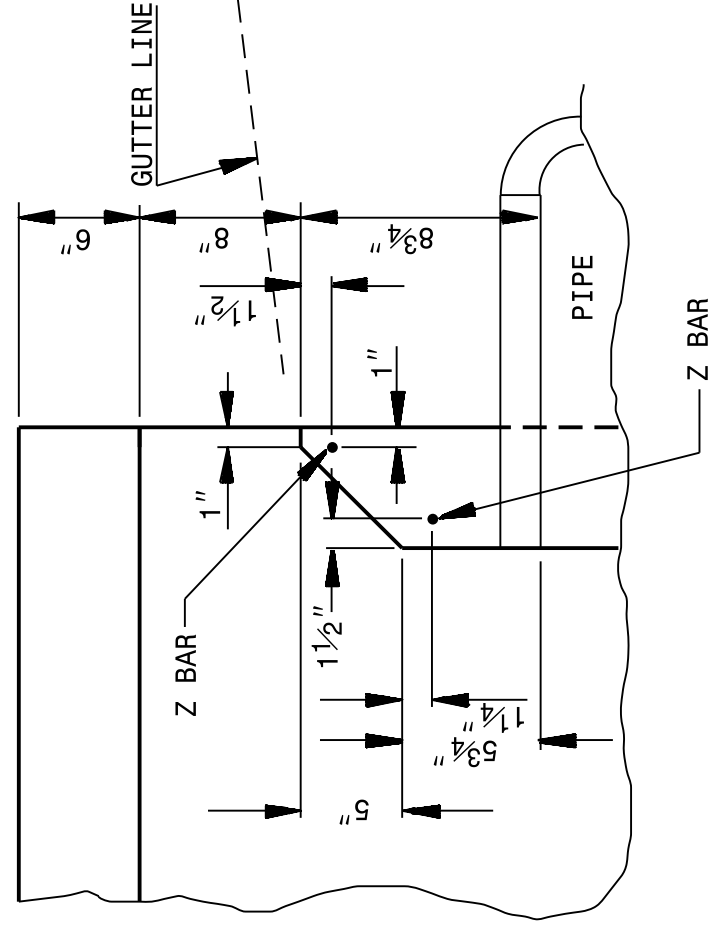
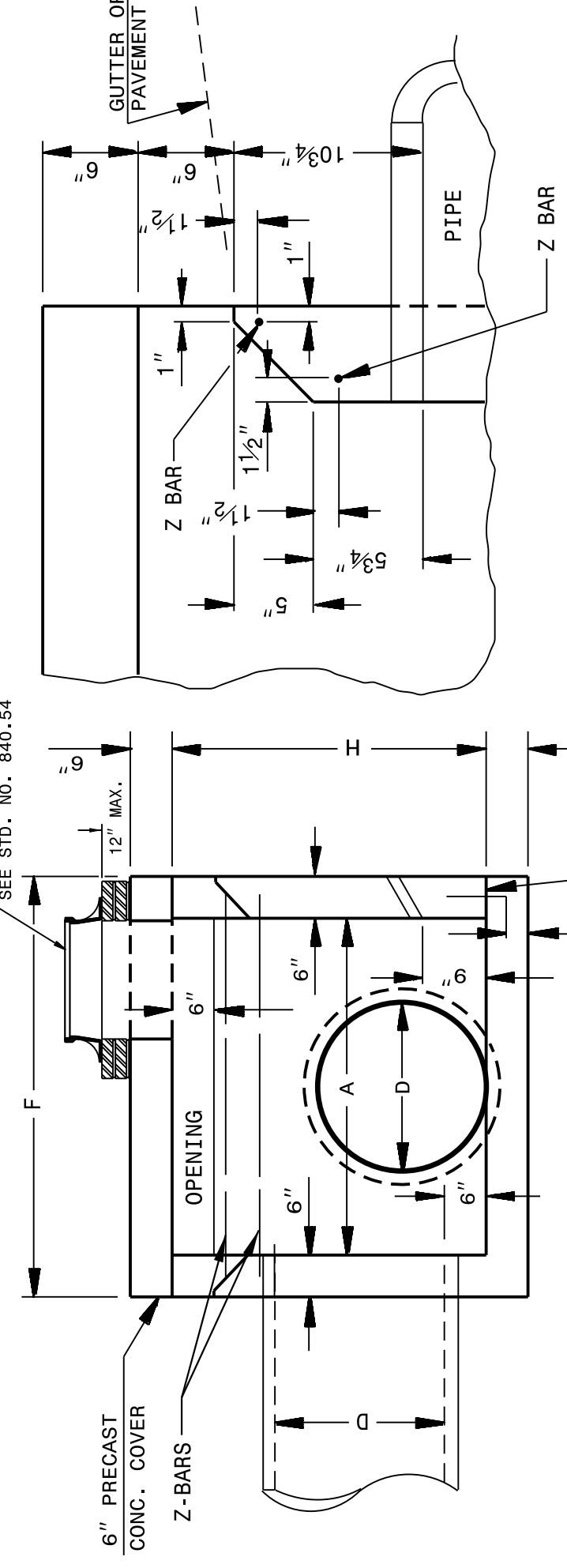
STATE OF
 NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.



GENERAL NOTES:
 ALL CATCH BASINS OVER 3'-6" IN DEPTH TO BE PROVIDED WITH STEPS 12" ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STD. 840.66. ALL EXPOSED CORNERS TO BE CHAMFERED 1". CLASS "B" CONCRETE TO BE USED THROUGHOUT.
 2" PIPE WEEPHOLES TO BE PLACED AS DIRECTED BY ENGINEER.
 THE 6" OPENING SHOWN MAY BE INCREASED TO 8" MAXIMUM IF DEEMED TO BE NECESSARY BY THE ENGINEER.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #5 BAR DOWELS FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STD. DWG. 840.00.
 A STONE DRAIN CONSISTING OF 1 CUBIC FOOT OF NO. 78M STONE CONTAINED IN A BAG OF POROUS FABRIC SHALL BE PLACED AT EACH WEEP HOLE.
 FOR 8" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB.
 OVER 8" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. QUANTITIES TO BE ADJUSTED ACCORDINGLY.
 DIMENSIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

STATE OF
 NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**CONCRETE CATCH BASIN
 (3 OR 4 SIDE OPEN THROAT)
 (MANHOLE OPTIONAL)**



ENGLISH DETAIL DRAWING FOR
**CONCRETE CATCH BASIN
 (3 OR 4 SIDE OPEN THROAT)
 (MANHOLE OPTIONAL)**

PART SECTION Y-Y
 SHOWING METHOD OF CONSTRUCTION FOR 6" OPENING

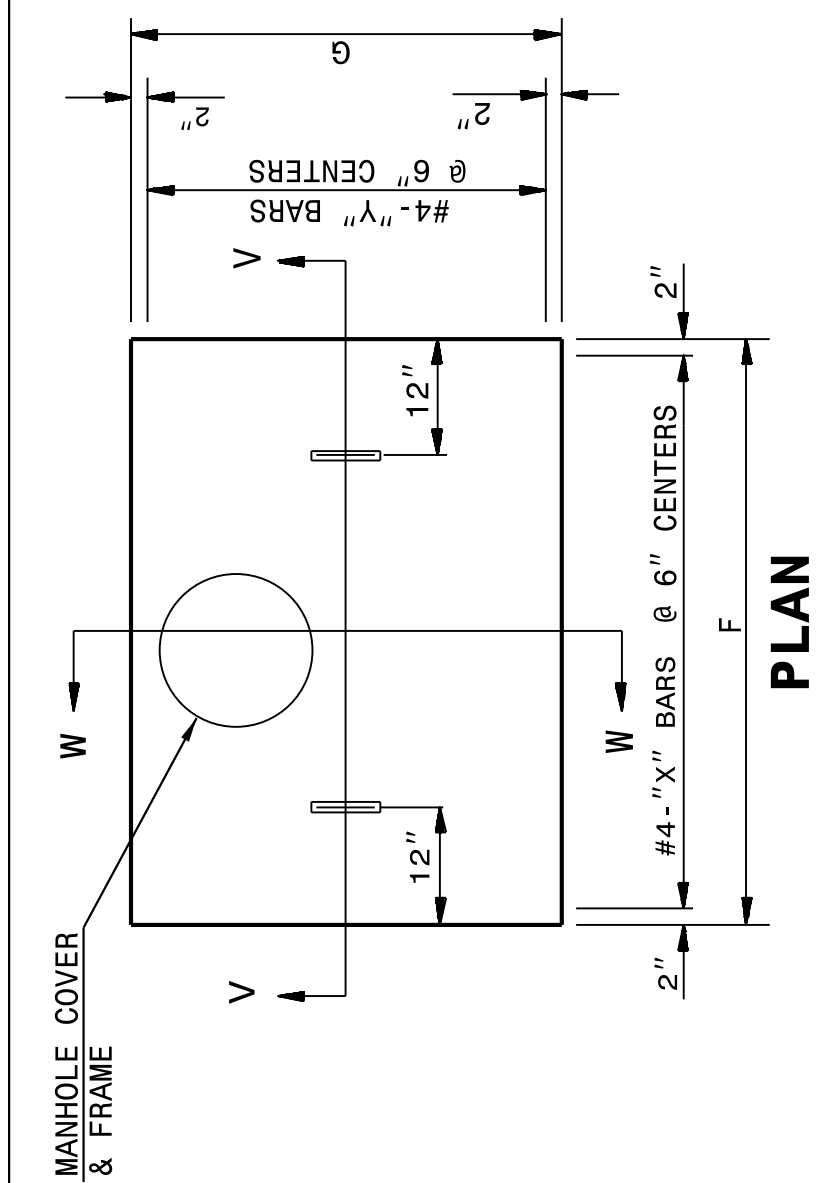
PART SECTION Y-Y
 SHOWING METHOD OF CONSTRUCTION IF INCREASED OPENING IS USED

PIPE DIM'S OF BOX & PIPE	MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H)				TOTAL QUANTITIES		DEDUCTION ONE PIPE THROUGH OPENING									
	SPAN	WIDTH	HEIGHT	REINFORCING	CU. YDS. CONC. IN BOX	BOX & SLABS		R. C.								
D	A	B	H	BAIRS - X	BAIRS - Y	BAIRS - Z	F	G	TOP SLAB (BOT. SLAB)	REINFORCING (LBS. REIN. YD ³)	C. S.	R. C.				
12"	3'-6"	2'-3"	1'-10"	4	3'-0"	6	4'-3"	4'-6"	0.181	0.271	0.250	27	1.046	0.015	0.032	0.046
15"	3'-6"	2'-3"	2'-1"	4	3'-0"	6	4'-3"	4'-6"	0.181	0.271	0.250	27	1.108	0.023	0.036	0.046
18"	4'-0"	2'-8"	2'-4"	5	3'-5"	7	4'-9"	5'-0"	0.226	0.340	0.284	35	1.379	0.033	0.049	0.053
24"	4'-0"	2'-8"	2'-10"	5	3'-5"	7	4'-9"	5'-0"	0.226	0.340	0.284	35	1.521	0.059	0.085	0.083
30"	4'-0"	3'-6"	3'-4"	5	4'-3"	9	4'-9"	5'-0"	0.278	0.417	0.315	43	1.916	0.092	0.127	0.053
36"	4'-0"	3'-6"	3'-10"	5	4'-9"	12	5'-3"	5'-6"	0.340	0.510	0.352	51	2.390	0.132	0.178	0.069
42"	5'-0"	4'-6"	4'-4"	5	5'-3"	12	5'-9"	6'-0"	0.407	0.611	0.389	64	2.914	0.180	0.243	0.066
48"	5'-0"	5'-0"	4'-10"	5	5'-9"	13	5'-9"	6'-0"	0.444	0.666	0.407	68	3.298	0.235	0.317	0.066

SHEET 1 OF 2
840D04

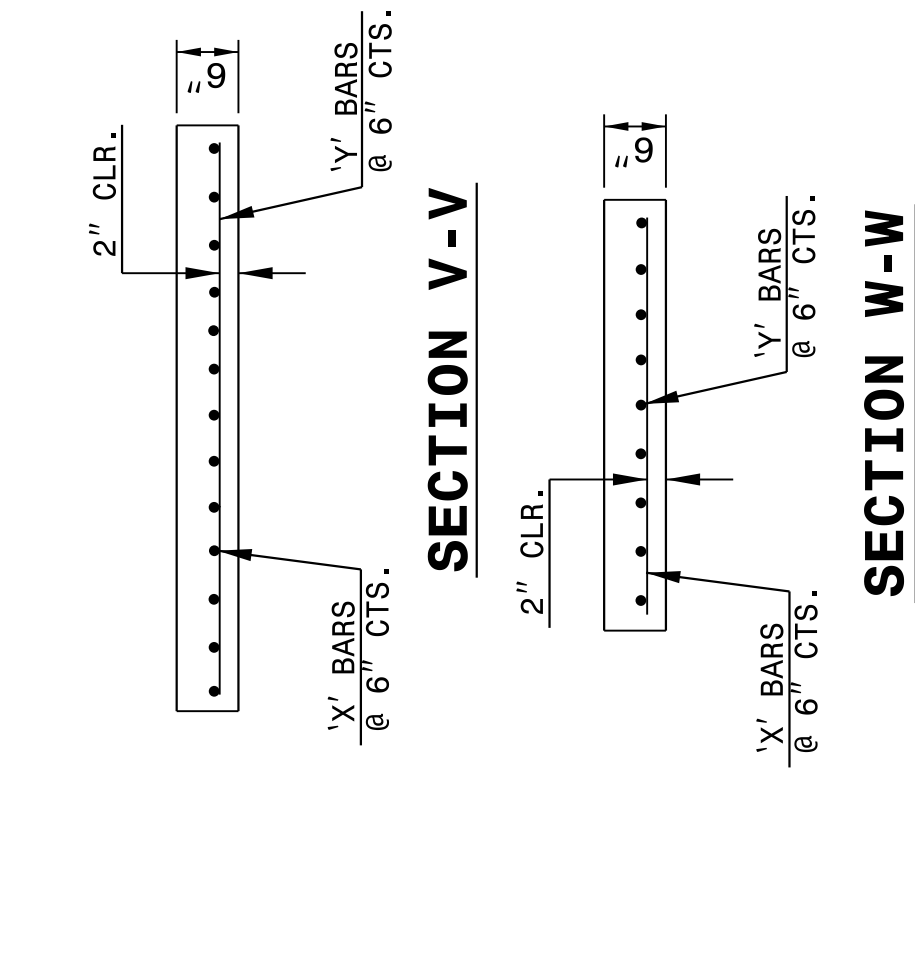
SHEET 1 OF 2
840D04

STATE OF
 NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.



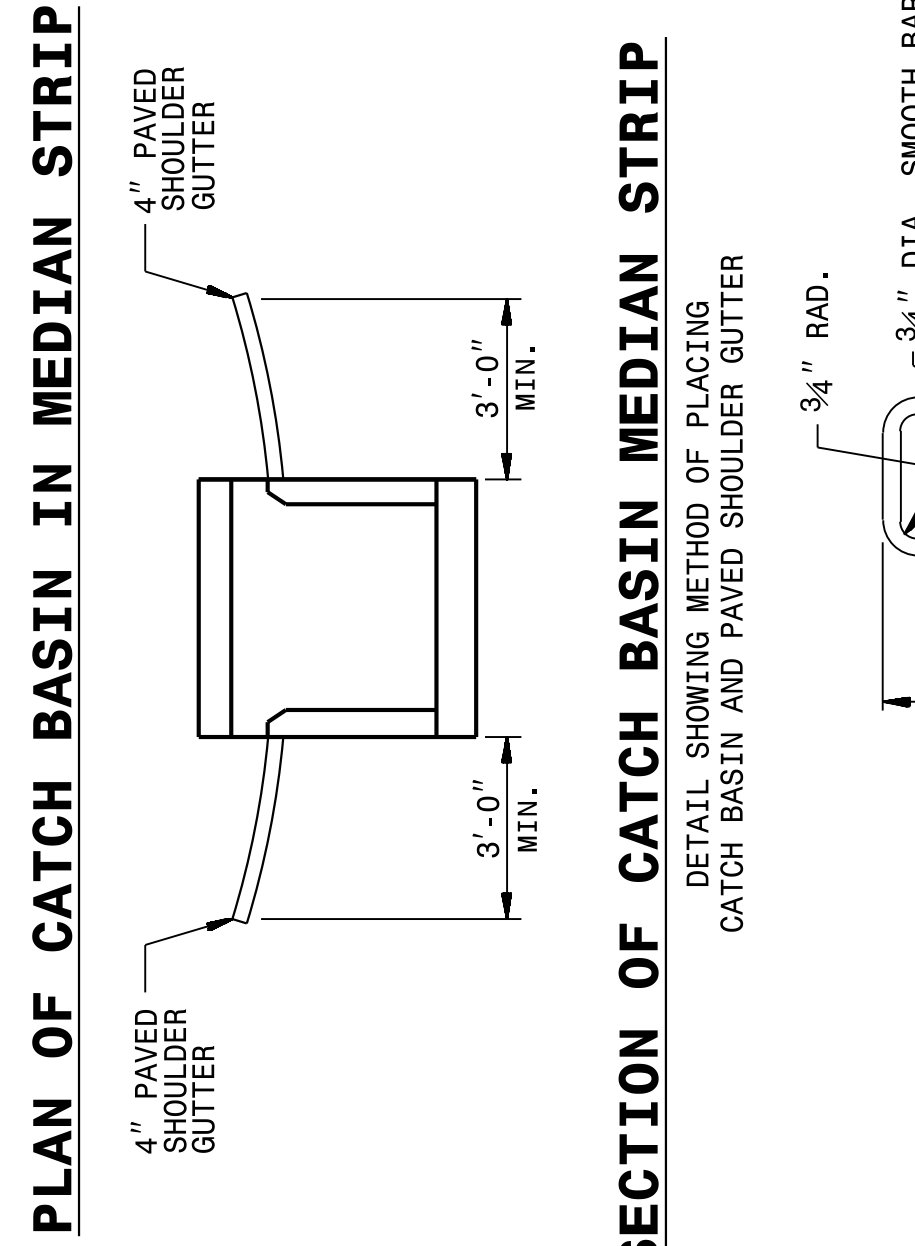
STATE OF
 NORTH CAROLINA
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 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**CONCRETE CATCH BASIN
 (3 OR 4 SIDE OPEN THROAT)
 (MANHOLE OPTIONAL)**



SECTION V-V
 PART WHERE HANDLE IS LOCATED SHALL BE COUNTERSUNK 1" AND HANDLE SHALL BE FREE TO MOVE UP AND DOWN.

SECTION W-W
 PART WHERE HANDLE IS LOCATED SHALL BE COUNTERSUNK 1" AND HANDLE SHALL BE FREE TO MOVE UP AND DOWN.



ENGLISH DETAIL DRAWING FOR
**CONCRETE CATCH BASIN
 (3 OR 4 SIDE OPEN THROAT)
 (MANHOLE OPTIONAL)**

SHEET 2 OF 2
840D04

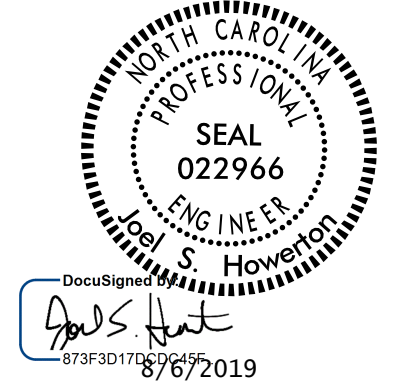
SHEET 2 OF 2
840D04

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 MODIFIED BY: rnbritt DATE: 07-03-2014
 CHECKED BY: _____ DATE: _____
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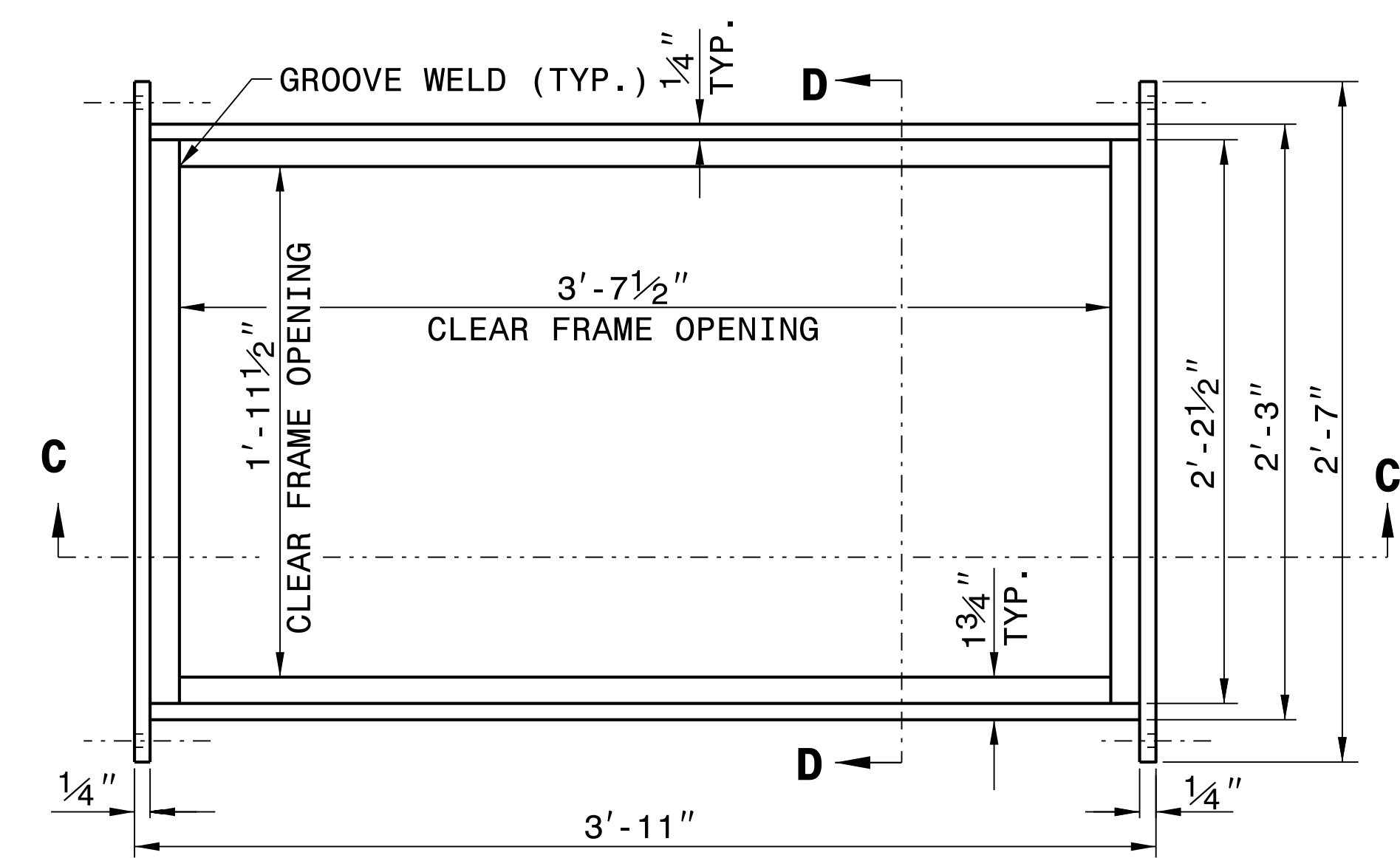
**CONTRACT STANDARDS
 AND DEVELOPMENT UNIT**
 Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

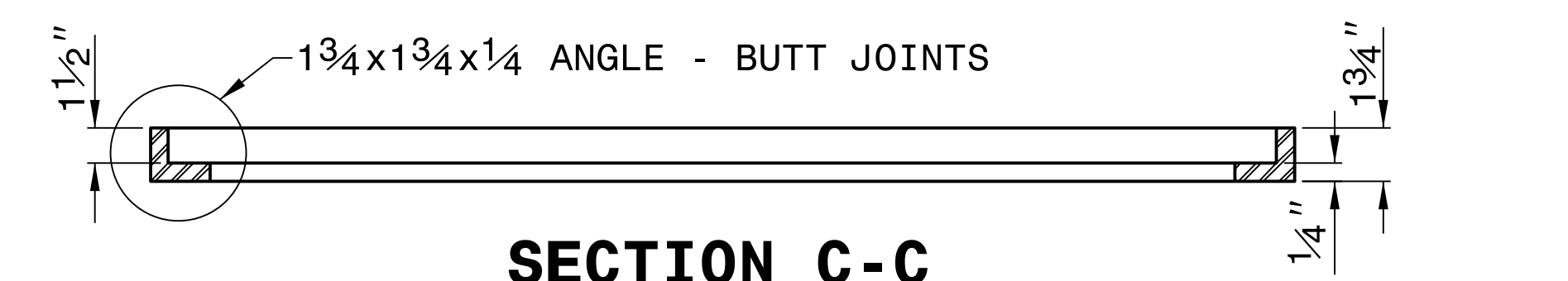
PROJECT REFERENCE NO. A-0011C SHEET NO. 2C-16



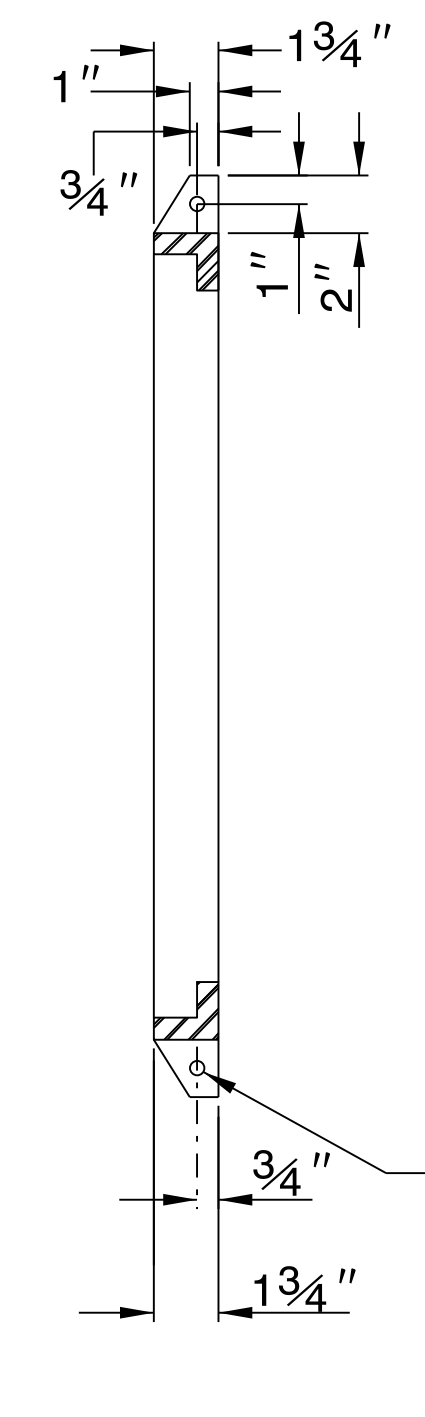
DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



PLAN VIEW



**SECTION C-C
FRAME**

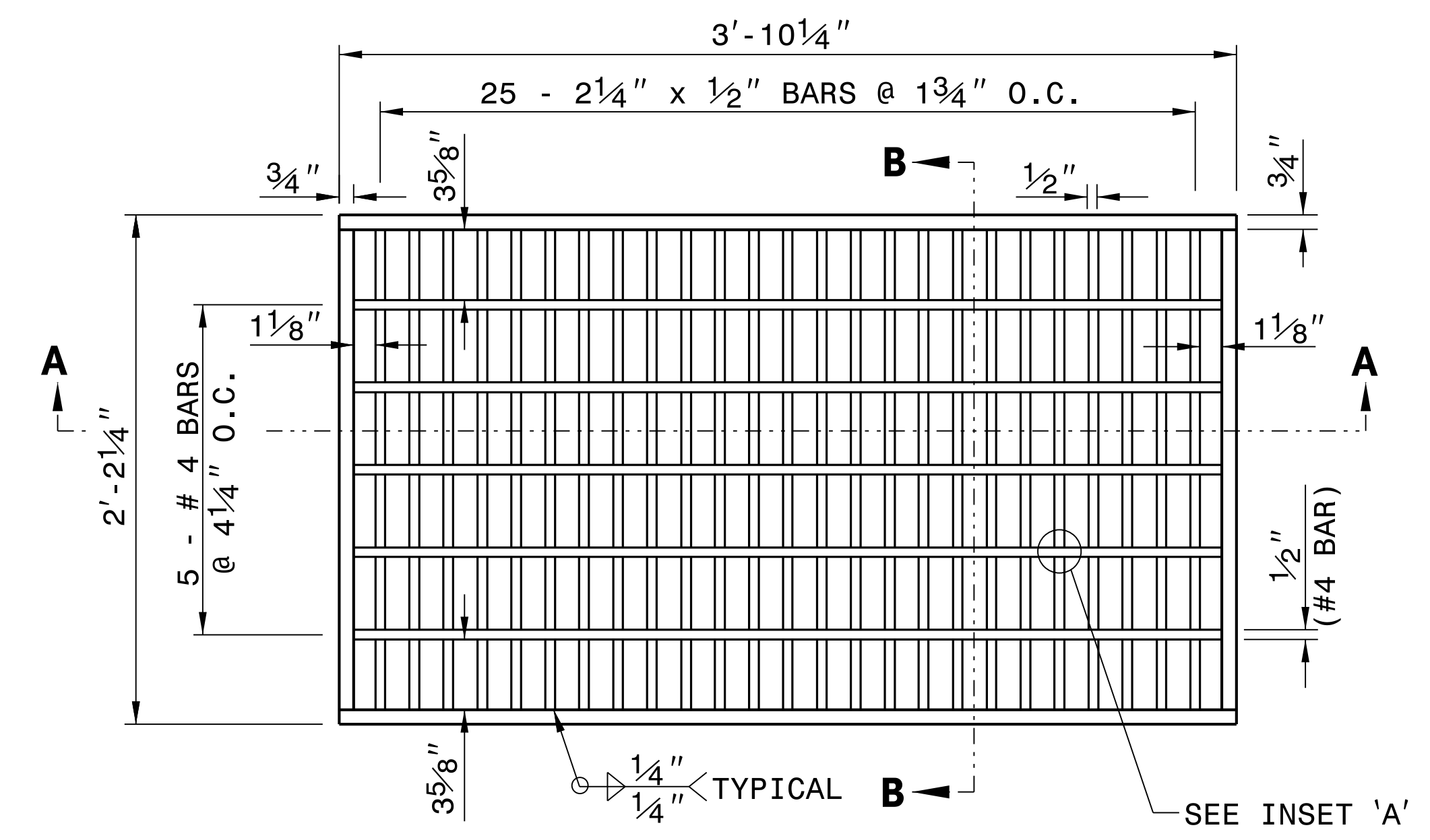


SECTION 'D-D'

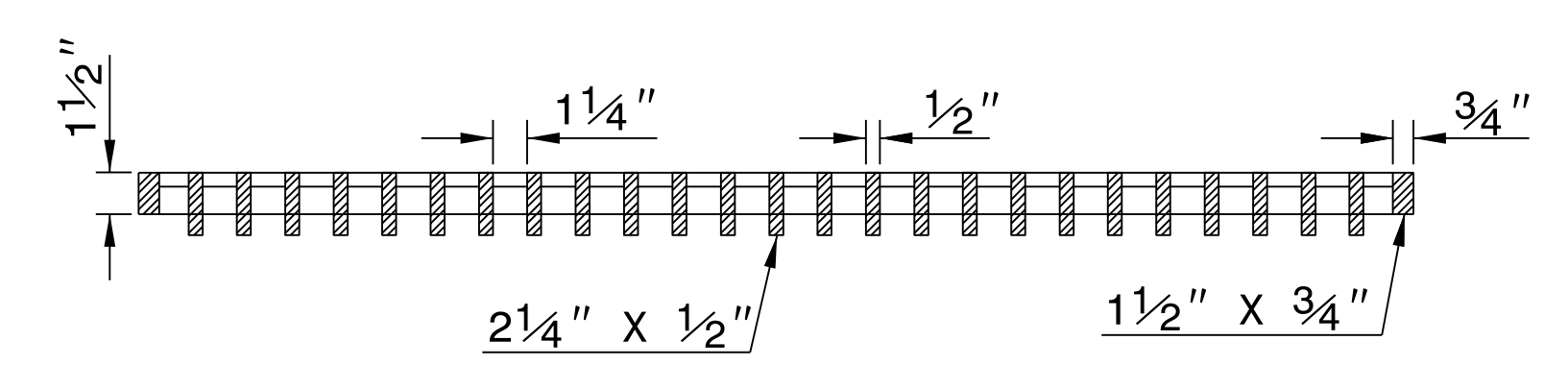
1/2" DIA. HOLE FOR
3/8" DIA. CONCRETE
ANCHOR (4 REQUIRED)
(SEE STANDARD 840.25
FOR FRAME ANCHORAGE)

NOTES:

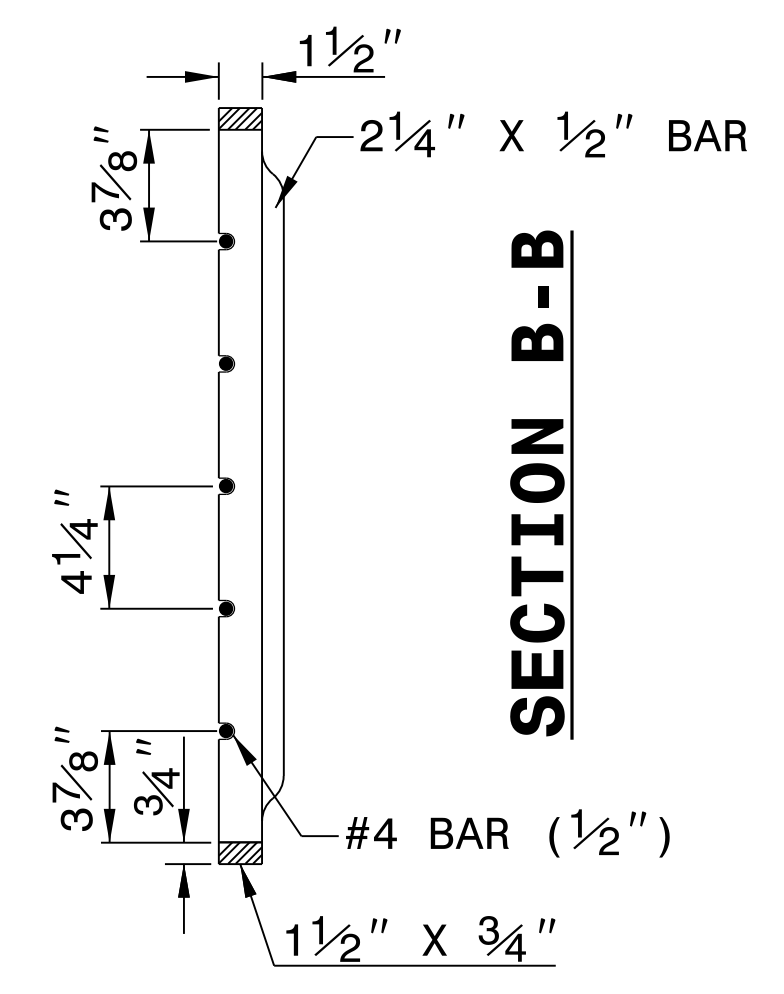
1. HOT DIP GALVANIZE FRAME AND GRATE IN ACCORDANCE WITH ASTM DESIGNATION A-123 AND AASHTO M-111.
2. GRATE SHOULD MEET HS-20 LOADING.
3. PROVIDE STEEL CONFORMING TO THE REQUIREMENTS OF A.S.T.M. DESIGNATION A-36.
4. WELD IN ACCORDANCE WITH THE ANSI/AASHTO/AWS D1.5 WELDING CODE. SEAL WELD ALL CONNECTIONS ALONG TOP AND BOTTOM HORIZONTAL SEAMS OF CONNECTIONS IN ADDITION TO ANY REQUIRED STRUCTURAL WELDS.
5. SEE STANDARD DRAWING 840.25 FOR FRAME ANCHORAGE.



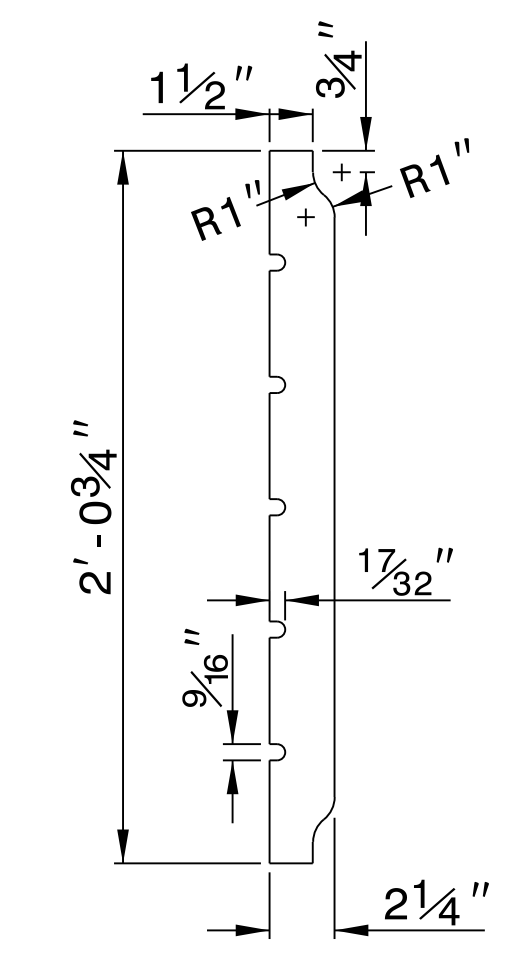
PLAN VIEW



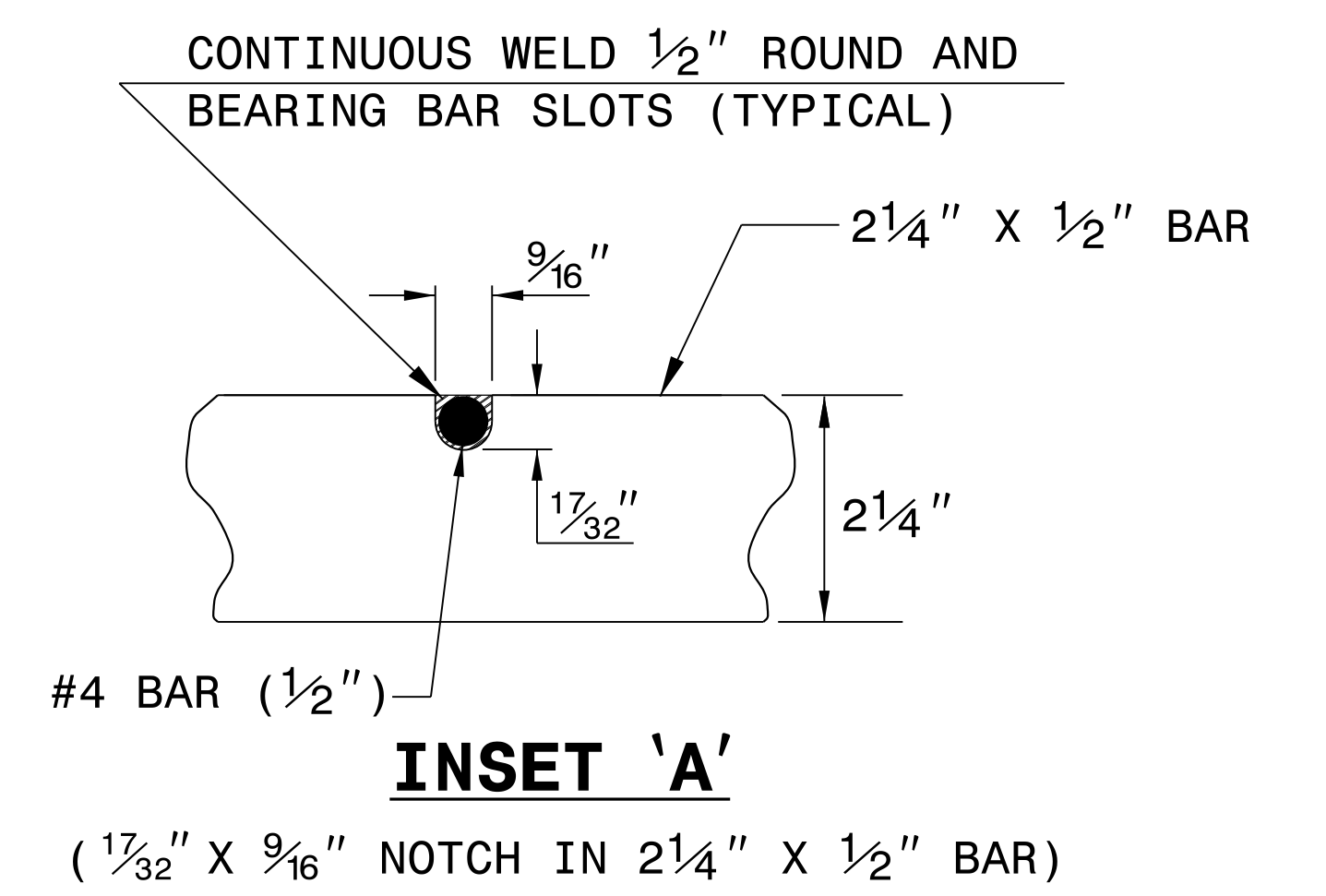
**SECTION A-A
GRATE**



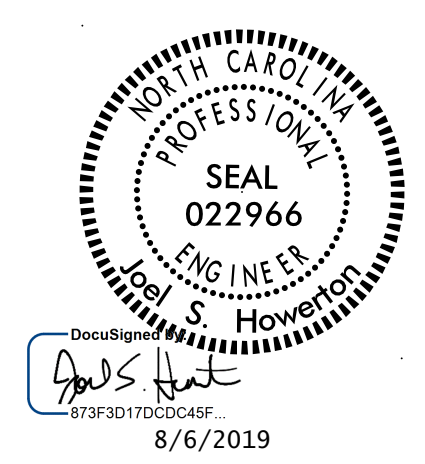
SECTION B-B



DETAIL OF BEARING BAR



INSET 'A'



REVISED 10-10-02
FOR HS-20 LOADING

**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

**BICYCLE SAFE
STEEL GRATE AND FRAME**

ORIGINAL BY: E.E. WARD DATE: 11-12-98
MODIFIED BY: E.E. WARD DATE: 10-10-02
CHECKED BY: DATE:
FILE SPEC.: /usr/stand/details/bicyclesafe.dgn

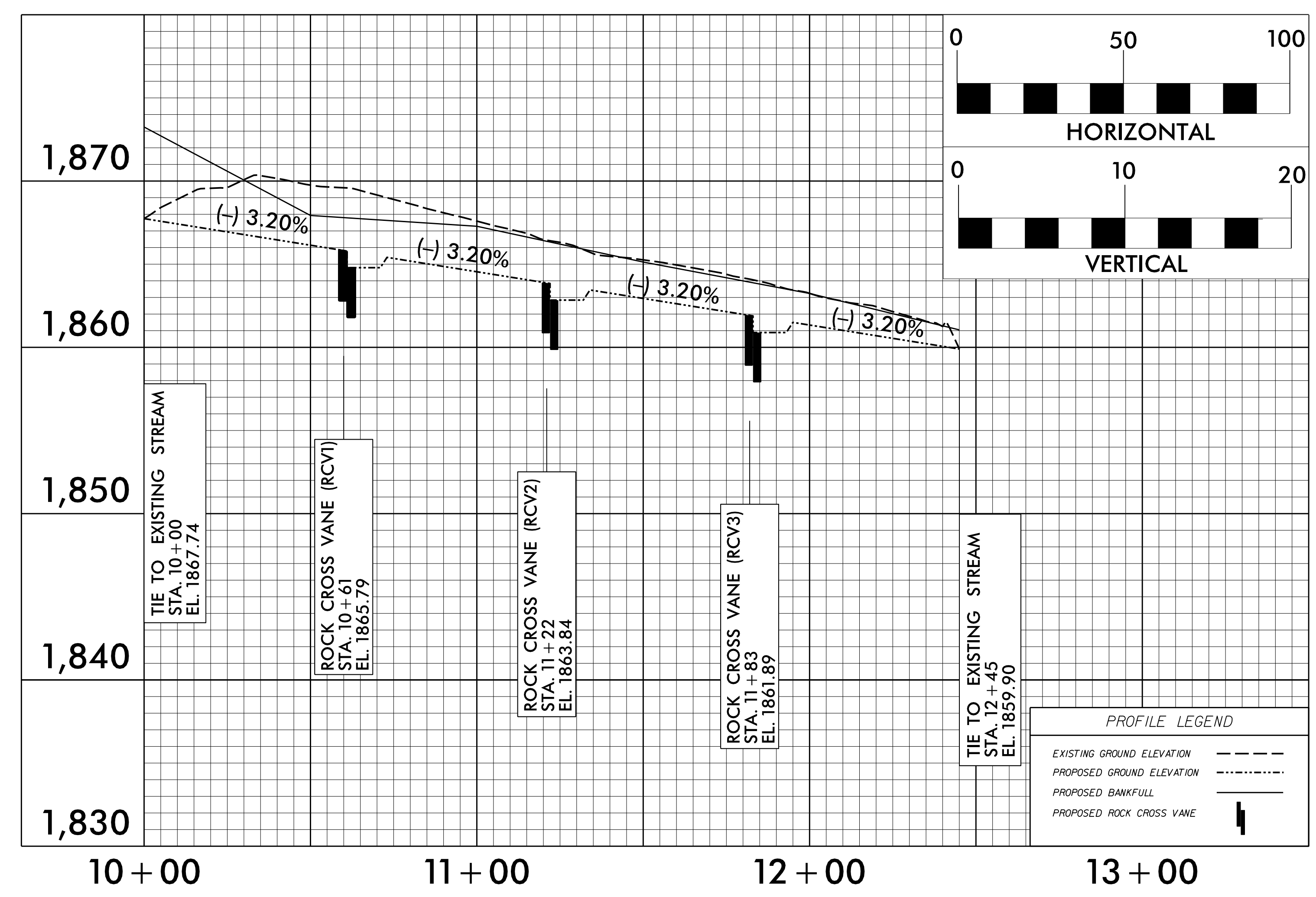
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UNLESS ALL SIGNATURES COMPLETED

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Jhowerton AT_CSD-252595

8/17/19

REVISIONS

8/16/2019
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STREAM RELOCATION DETAIL -Y16- LT

PROJECT REFERENCE NO. A-0011C	SHEET NO. 2D-1
HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 40801 PAUL H. CAMERON 8/6/2019	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Weston & Sampson WSE of North Carolina, PC 588 East Chatham Street Suite 137 Phone: 919.297.0220	
NC License: C-4847 Cary, NC 27511 Fax: 919.297.0221	

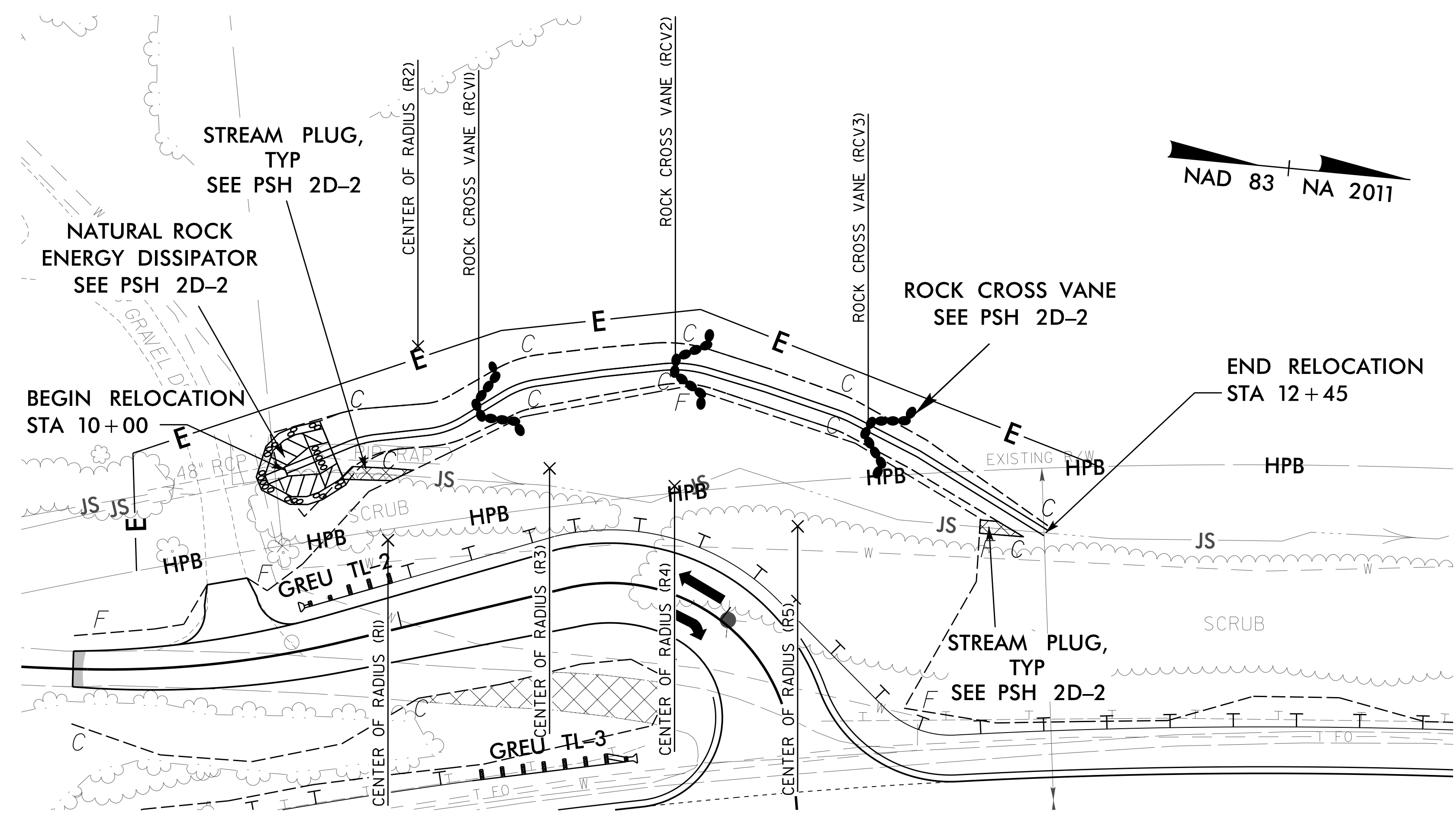
SUMMARY OF QUANTITIES

ITEM NUMBER	SECT	DESCRIPTION	QUANTITY	UNIT
1077000000-E	SP	#57 STONE	55	TONS
3642000000-E	876	RIP RAP, CLASS A	6	TONS
3651000000-E	SP	BOULDER	155	TONS
3656000000-E	876	GEOTEXTILE FOR DRAINAGE	180	SY
6133000000-N	SP	CONSTRUCTION SURVEYING FOR MITIGATION	1	LS
6133000000-N	SP	SITE GRADING FOR MITIGATION	1	LS

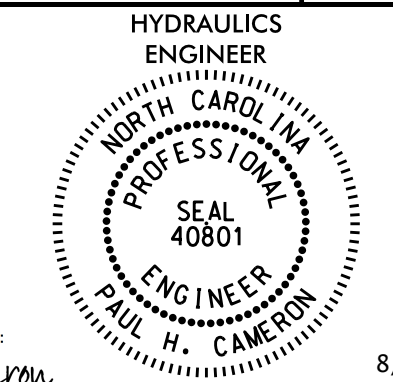
APPROXIMATE QUANTITIES ONLY.

SUMMARY OF EARTHWORK

LOCATION	UNCLASSIFIED EXCAV. (CU.YD.)	EMBANKMENT	BORROW (CU.YD.)	WASTE (CU.YD.)
Y16CHANNEL	177	2	0	175



DESC	STATION	NORTHING	EASTING	ELEV.	RADIUS
R1		498210.93	555141.70		30
R2		498214.42	555082.80		25
RCV1	10+61	498234.43	555100.27	1865.79	
R3		498257.31	555115.61		25
RCV2	11+22	498292.09	555081.36	1863.84	
R4		498295.25	555117.44		35
R5		498333.26	555125.95		35
RCV3	11+83	498351.62	555094.53	1861.89	

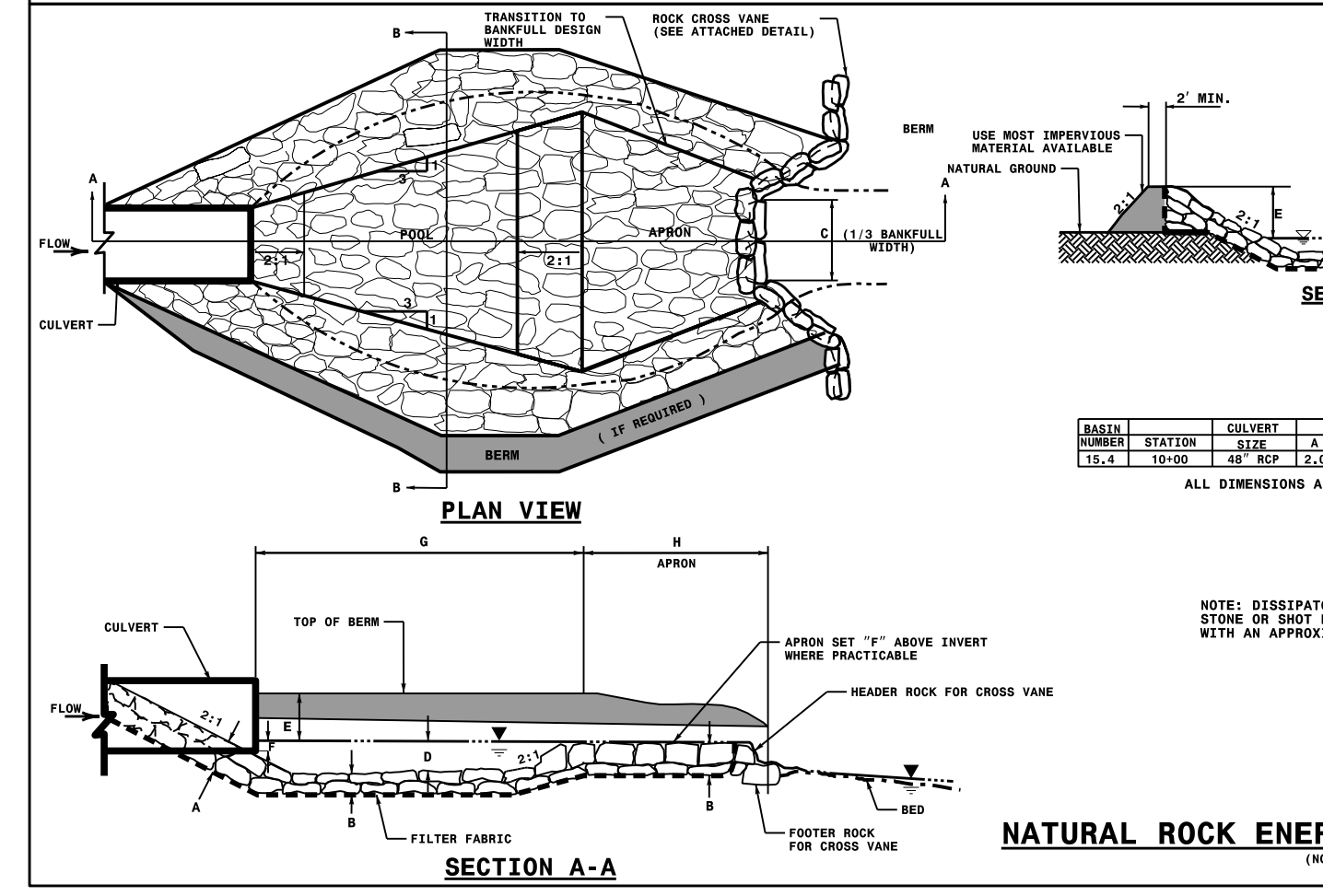
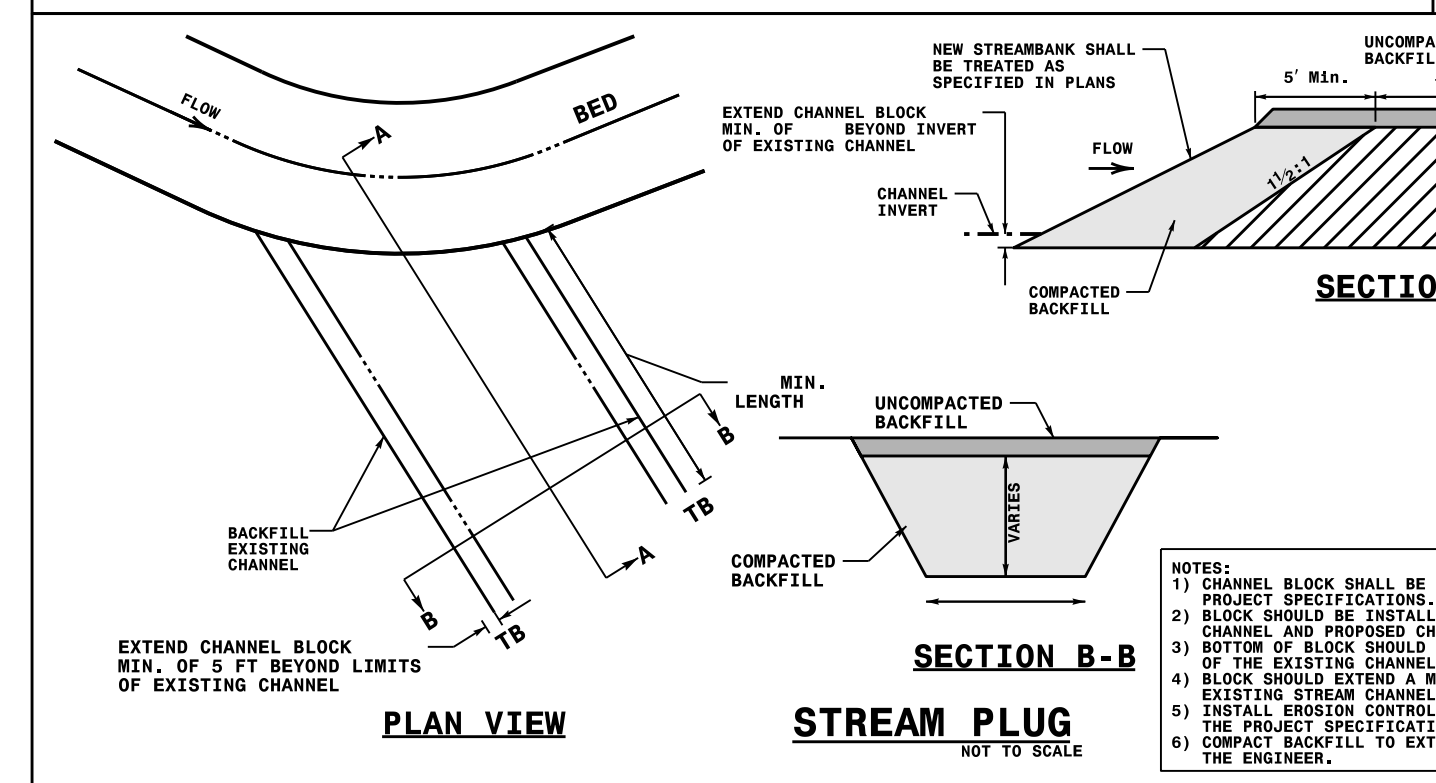
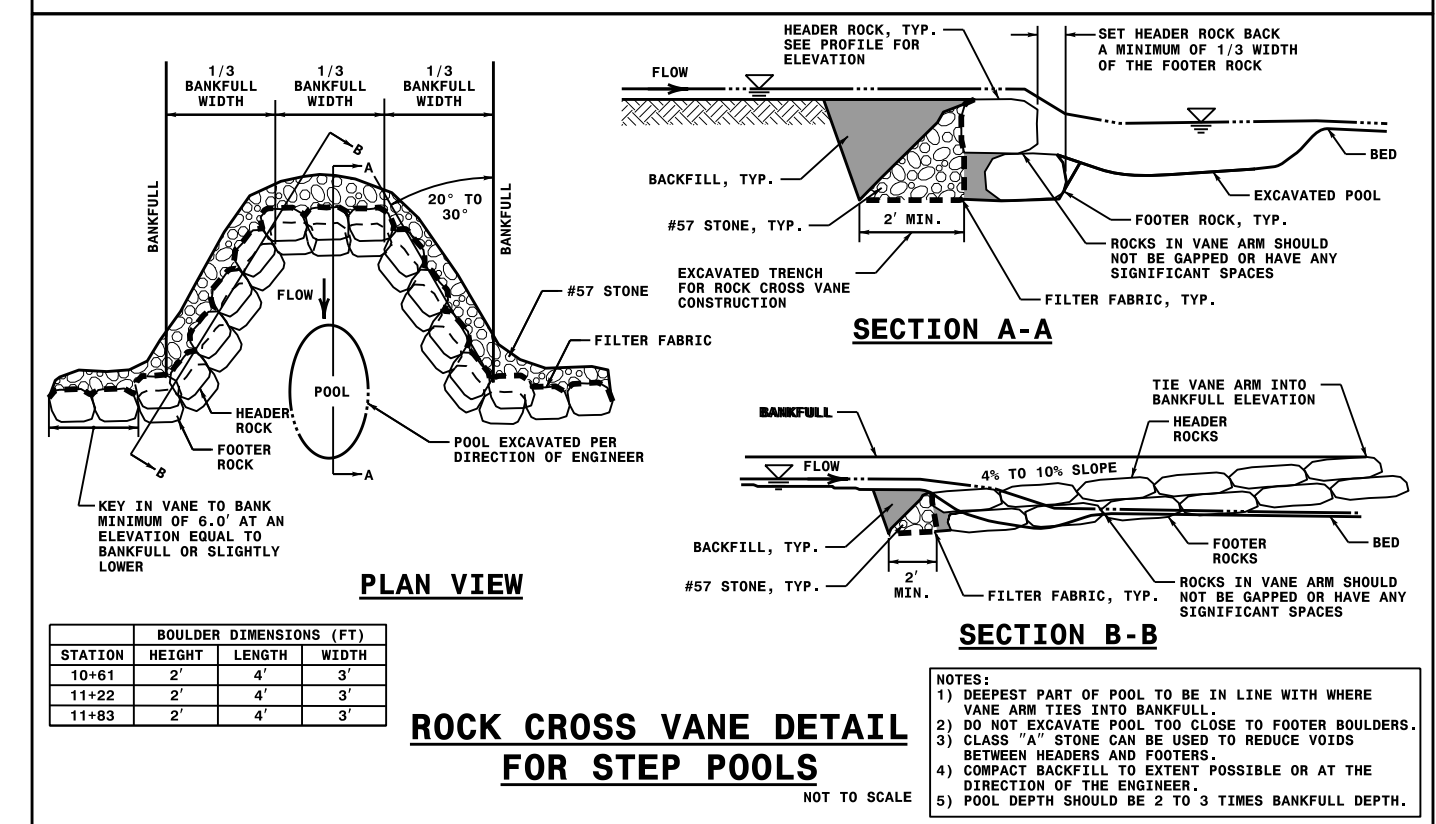
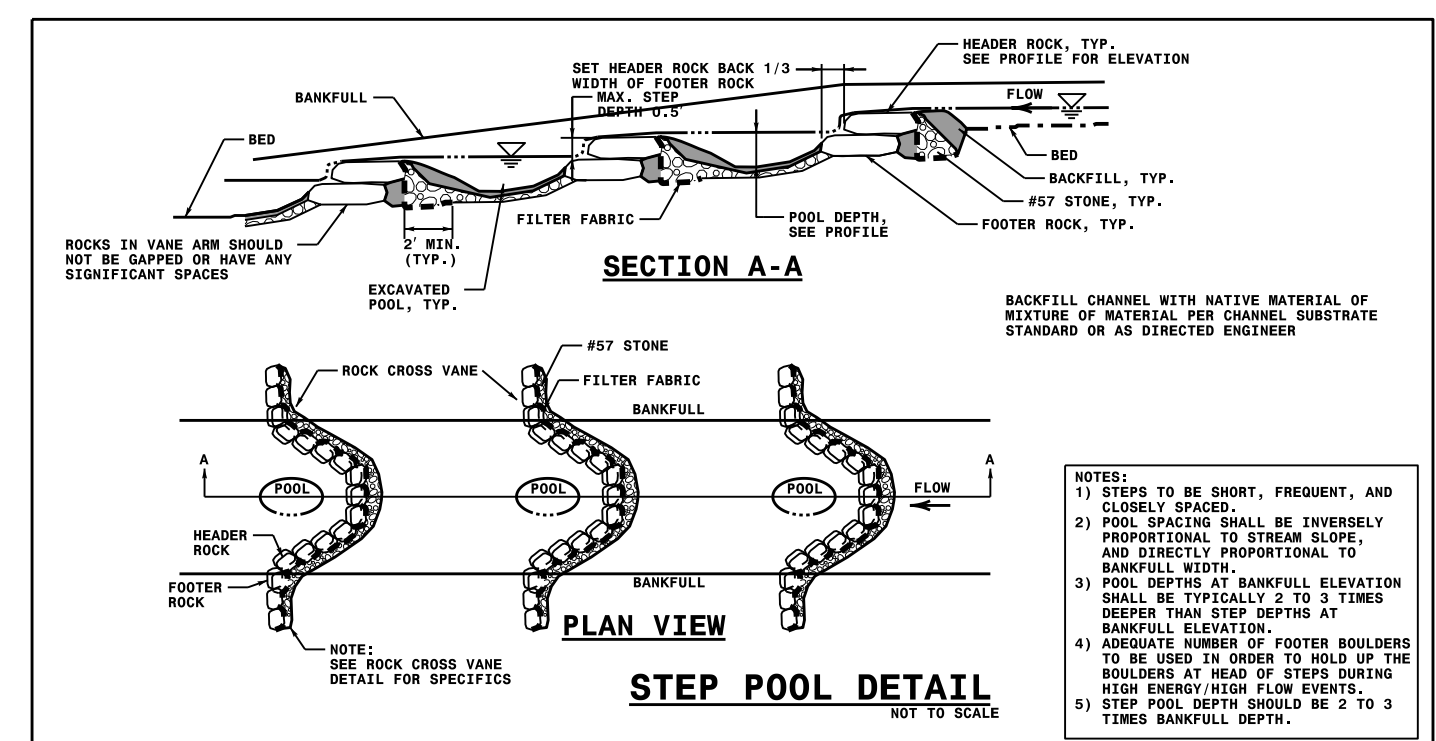
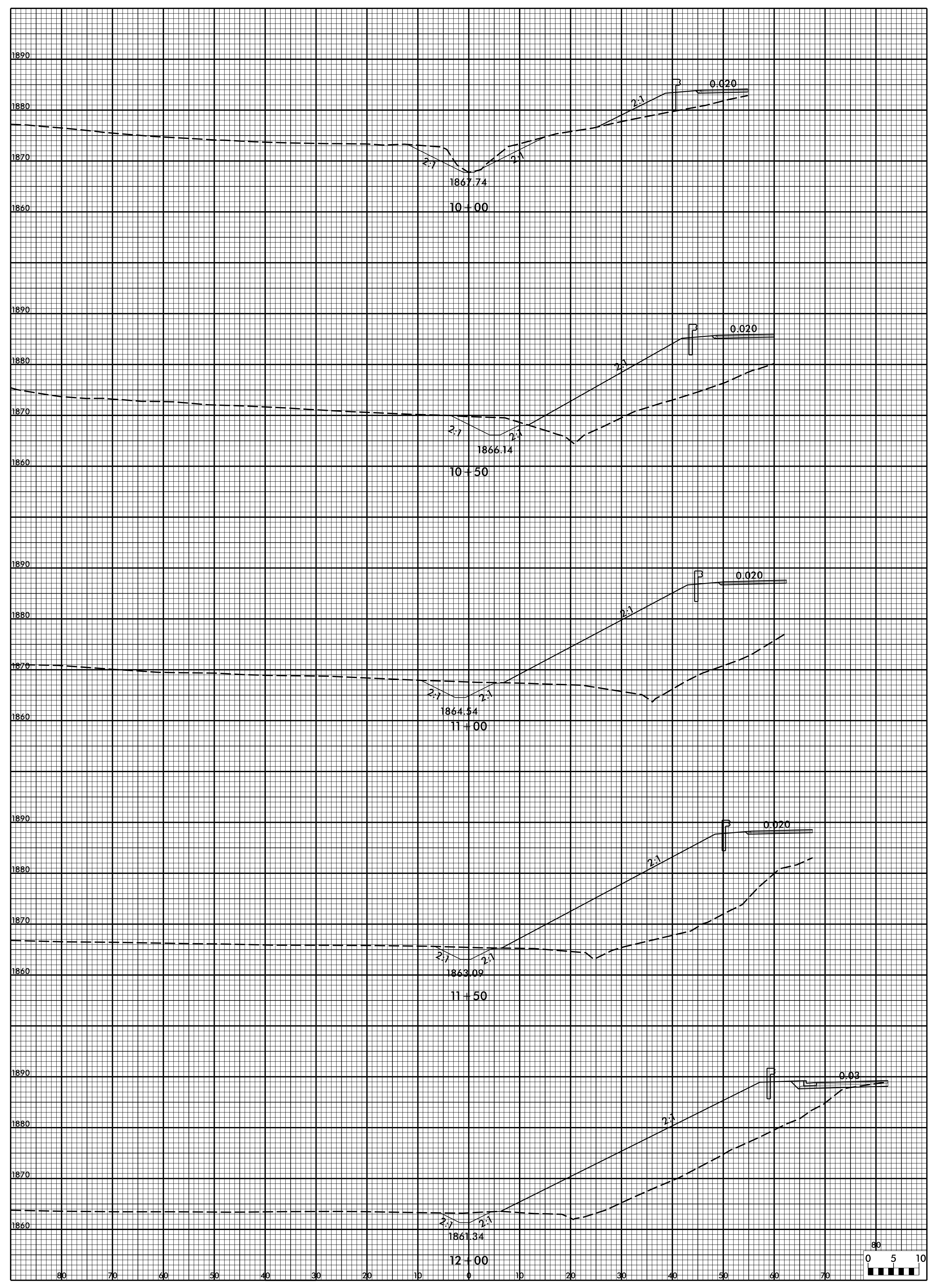


DocuSigned by: Paul Cameron 8/6/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Weston & Sampson, Inc. NC License: C-4847 588 East Chatham Street Suite 137 Cary, NC 27511 Phone: 919.297.0220 Fax: 919.297.0221

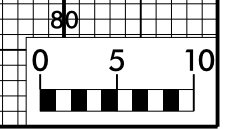
STREAM RELOCATION DETAIL -Y16- LT

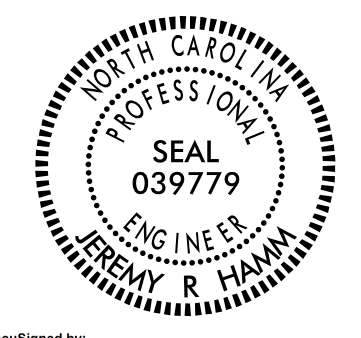


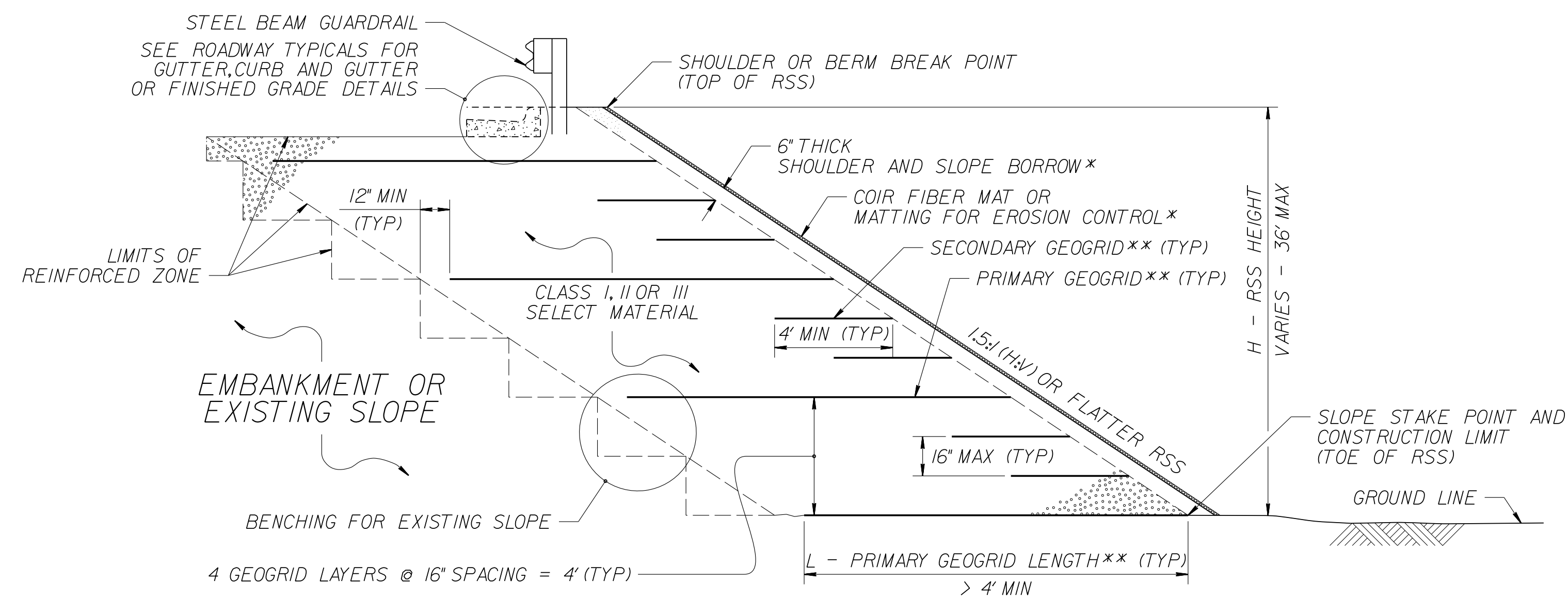
ADDITIONAL NOTES:
BACKFILL CHANNEL WITH NATIVE MATERIAL OF MIXTURE OF MATERIAL AS PER CHANNEL SUBSTRATE STANDARD OR AS DIRECTED BY ENGINEER

REVISIONS

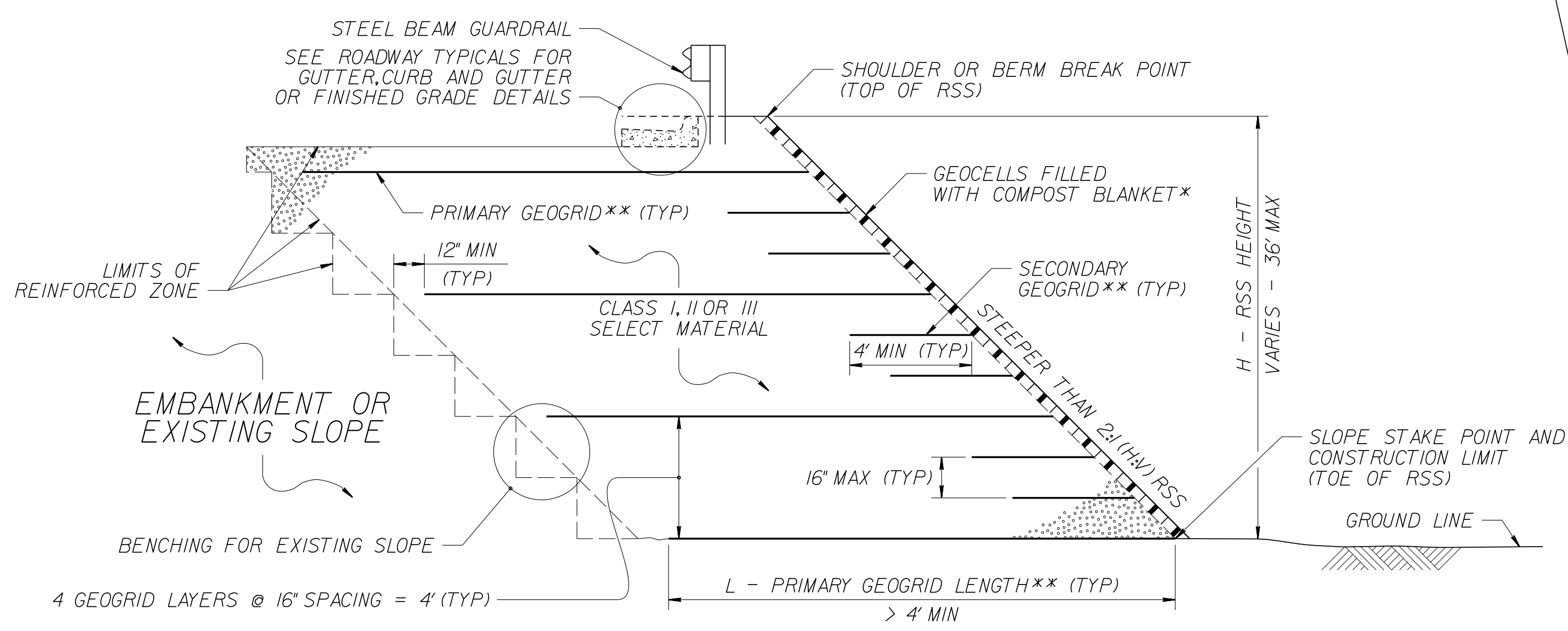
8/5/2019
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PROJECT REFERENCE NO. A-0011C	SHEET NO. 2G-1
GEOTECHNICAL ENGINEER  DocuSigned by: Jeremy R. Hamm 8/6/2019 SIGNATURE DATE SIGNATURE DATE	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

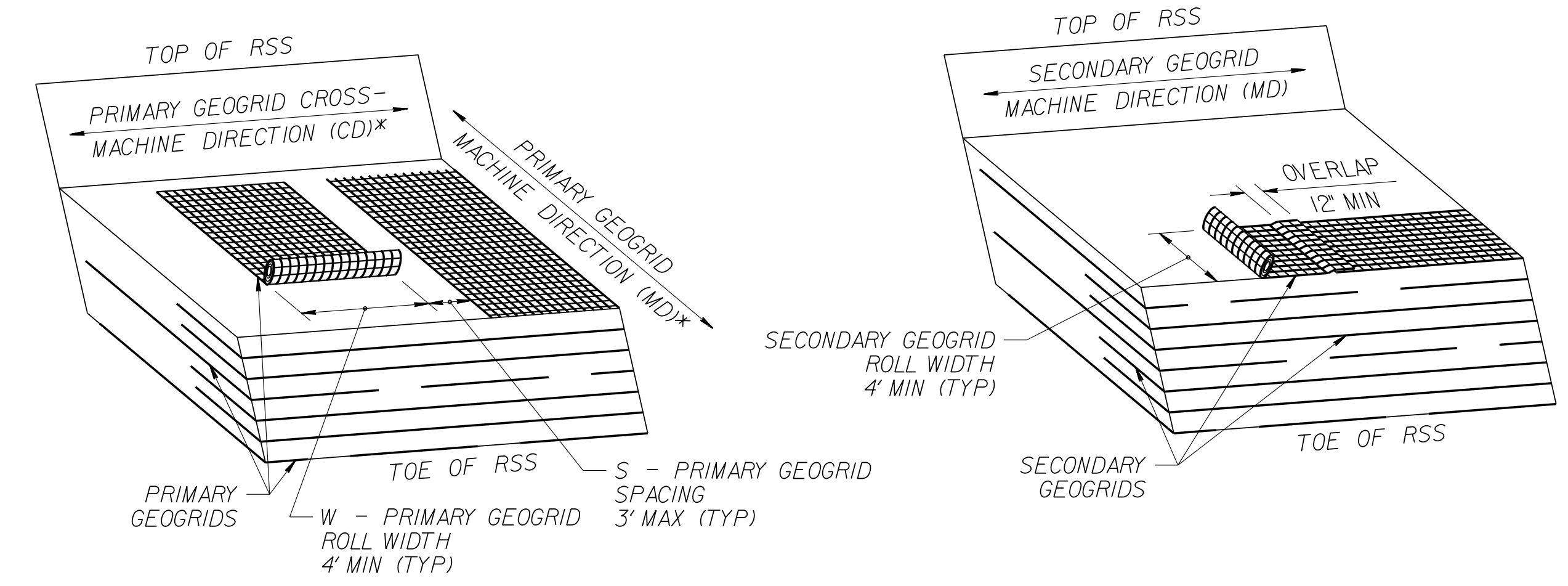


MATTING WITH SHOULDER AND SLOPE BORROW
*SEE NOTES 3 AND 11 ON SHEET 2.



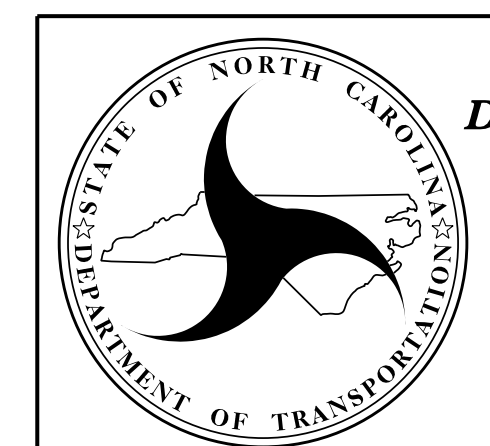
GEOCELLS WITH COMPOST BLANKET
*SEE NOTES 3 AND 11 ON SHEET 2.

STANDARD REINFORCED SOIL SLOPE (RSS)
**SEE TABLES ON SHEET 2 AND GEOGRID PLACEMENT DETAILS.



GEOGRID PLACEMENT DETAILS

$$(\% \text{ COVERAGE} = \frac{W}{W+S} \times 100 \geq 75\%)$$
 *SEE NOTES 8 AND 9 ON SHEET 2.

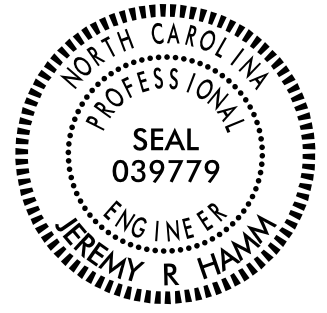


NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

STANDARD DETAIL NO. 1802.01

STANDARD
REINFORCED SOIL SLOPE (RSS)
WITH HIGH GROUNDWATER
SHEET 1 OF 2

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	2G-2
GEOTECHNICAL ENGINEER  SEAL 039779 JEREMY R. HAMM ENGINEER NORTH CAROLINA	
DocuSigned by: Jeremy R Hamm ED793856E22487	8/6/2019
SIGNATURE	DATE
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

GEOGRID TYPE, DIRECTION	H (FT)	0 - < 12		12 - 24		> 24 - 36	
	SELECT MATERIAL CLASS	I	II OR III	I	II OR III	I	II OR III
PRIMARY GEOGRID, MD (SUBSTITUTE SECONDARY GEOGRID FOR PRIMARY GEOGRID FOR 2:1 (H:V) OR FLATTER RSS)	1:1 TO < 1.5:1 (H:V) RSS	900	500	1200	900	1800	1200
	1.5:1 TO 1.75:1 (H:V) RSS	500	500	900	500	1400	1000
	> 1.75:1 TO < 2:1 (H:V) RSS	500	500	600	500	1000	800
SECONDARY GEOGRID, CD	1:1 (H:V) OR FLATTER RSS	185					

LTDS – MINIMUM REQUIRED LONG-TERM DESIGN STRENGTH (LB/FT)
(LTDS IS BASED ON 100% COVERAGE FOR PRIMARY GEOGRID.
SEE NOTE 9 FOR LESS THAN 100% COVERAGE.)

NOTES:

- SEE EROSION CONTROL AND ROADWAY PLANS AND SUMMARY SHEETS FOR REINFORCED SOIL SLOPE (RSS) AND SLOPE EROSION CONTROL LOCATIONS.
- FOR STANDARD REINFORCED SOIL SLOPES, SEE REINFORCED SOIL SLOPES PROVISION. FOR STEEL BEAM GUARDRAIL, SEE SECTION 862 OF THE STANDARD SPECIFICATIONS.
- FOR SHOULDER AND SLOPE BORROW, SEE ARTICLE 1019-2 OF THE STANDARD SPECIFICATIONS. FOR GEOCELLS, SEE CELLULAR CONFINEMENT SYSTEMS PROVISION. FOR COIR FIBER MAT, MATTING FOR EROSION CONTROL AND COMPOST BLANKET, SEE EROSION CONTROL PROVISIONS, SECTION 1631 OF THE STANDARD SPECIFICATIONS AND ROADWAY STANDARD DRAWING NO. 1631.01.
- STANDARD RSS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
 UNIT WEIGHT, $\gamma = 120$ PCF
 FRICTION ANGLE, $\phi = 30$ DEGREES
 COHESION, $c = 0$ PSF
- DO NOT USE STANDARD RSS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE TOE OF RSS.
- DO NOT USE STANDARD RSS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW RSS.
- GEOGRIDS ARE TYPICALLY APPROVED FOR ULTIMATE TENSILE STRENGTHS IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) OR LONG-TERM DESIGN STRENGTHS FOR A 75-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM:
connect.ncdot.gov/resources/Materials/Pages/Materials-Manual-by-Material.aspx
 DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SELECT MATERIAL AS FOLLOWS:

MATERIAL TYPE	SELECT MATERIAL
BORROW	CLASS I SELECT MATERIAL
FINE AGGREGATE	CLASS II OR III SELECT MATERIAL

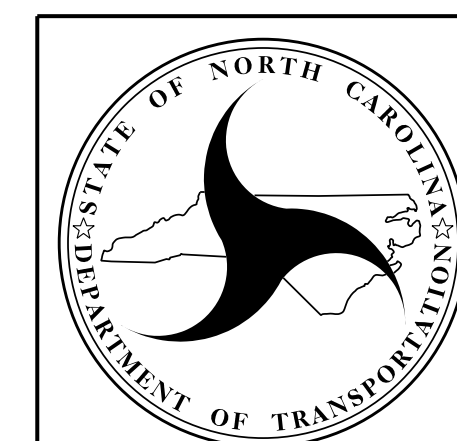
- IF THE WEBSITE DOES NOT LIST A LONG-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID IN THE MD, DO NOT USE THE GEOGRID FOR PRIMARY GEOGRID. IF THE WEBSITE DOES NOT LIST A LONG-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID IN THE CD, USE A LONG-TERM DESIGN STRENGTH EQUAL TO THE ULTIMATE TENSILE STRENGTH DIVIDED BY 7 FOR THE SECONDARY GEOGRID.
- DO NOT OVERLAP PRIMARY GEOGRIDS IN THE MD SO OVERLAPS ARE PARALLEL TO THE TOE OF RSS. POLYOLEFIN (e.g., HDPE OR PP) GEOGRIDS MAY BE SPLICED ONCE PER PRIMARY GEOGRID LENGTH IN ACCORDANCE WITH THE GEOGRID MANUFACTURER'S INSTRUCTIONS. USE POLYOLEFIN GEOGRID PIECES AT LEAST 4' LONG. DO NOT SPLICE POLYESTER TYPE (PET) GEOGRIDS.
 - FOR PRIMARY GEOGRIDS WITH 100% COVERAGE, PLACE PRIMARY GEOGRIDS SO GEOGRIDS ARE ADJACENT TO EACH OTHER IN THE CD. FOR PRIMARY GEOGRIDS WITH 75% TO LESS THAN 100% COVERAGE,
 MINIMUM REQUIRED LONG-TERM DESIGN STRENGTH = LTDS BASED ON 100% COVERAGE $\times (W + S) / W$
 SEE TABLE FOR LTDS BASED ON 100% COVERAGE AND GEOGRID PLACEMENT DETAILS FOR PRIMARY GEOGRID ROLL WIDTH (W) AND SPACING (S). FOR PRIMARY GEOGRIDS WITH LESS THAN 100% COVERAGE, STAGGER PRIMARY GEOGRIDS SO GEOGRIDS ARE CENTERED OVER GAPS IN THE PRIMARY GEOGRID LAYER BELOW. DO NOT USE LESS THAN 75% COVERAGE FOR PRIMARY GEOGRIDS.
 - DO NOT PLACE ANY GEOGRIDS UNTIL EXCAVATION DIMENSIONS AND IN-SITU MATERIAL ARE APPROVED.
 - FOR SLOPE EROSION CONTROL, USE GEOCELLS OR MATTING ON SLOPE FACES OF RSS AS FOLLOWS:

RSS ANGLE	SLOPE EROSION CONTROL
1:1 TO < 1.5:1 (H:V)	GEOCELLS WITH COMPOST BLANKET
1.5:1 TO < 2:1 (H:V)	GEOCELLS WITH COMPOST BLANKET OR COIR FIBER MAT WITH SHOULDER AND SLOPE BORROW*
2:1 (H:V) OR FLATTER	MATting FOR EROSION CONTROL WITH SHOULDER AND SLOPE BORROW

*SEE REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL SUMMARY TABLE IN THE ROADWAY SUMMARY SHEETS FOR SLOPE EROSION CONTROL ON SLOPE FACES OF RSS 1.5:1 (H:V) TO STEEPER THAN 2:1.

H (FT)	0 - < 12		12 - 24		> 24 - 36	
SELECT MATERIAL CLASS	I	II OR III	I	II OR III	I	II OR III
1:1 TO < 1.5:1 (H:V) RSS	1.25	1.20	1.15	1.10	1.10	1.00
1.5:1 TO 1.75:1 (H:V) RSS	1.10	1.00	0.95	0.90	0.90	0.85
> 1.75:1 TO < 2:1 (H:V) RSS	1.00	0.85	0.80	0.75	0.75	0.70

L / H RATIO (L > 4' MIN)
(IF L ≤ 4', USE SECONDARY GEOGRID
INSTEAD OF PRIMARY GEOGRID.)



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

STANDARD DETAIL NO. 1802.01

STANDARD
REINFORCED SOIL SLOPE (RSS)
WITH HIGH GROUNDWATER
SHEET 2 OF 2

COMPUTED BY: RWP DATE: 4/11/2019
 CHECKED BY: KSH DATE: 8/20/2019

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
SUMMARY OF EARTHWORK
 IN CUBIC YARDS

PROJECT REFERENCE NO. A-0011C SHEET NO. 3B-1
Weston & Sampson
 WSE of North Carolina, PC
 598 East Chatham Street Suite 137 Cary, NC 27511
 Phone: 919.297.0220 Fax: 919.297.0221
 NC License: C-4647

STATION to STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANK. +%	BORROW	WASTE
LEFT SIDE EARTHWORK					
-L- Sta. 20+50.00 to 50+00.00 LT	20,352		21,551	1,199	
-Y1- Sta. 12+00.00 to 14+68.57	1,326		453		873
Subtotal	21,678		22,004	1,199	873
-L- Sta. 50+00.00 to 80+00.00 LT	17,939		5,213		12,726
-Y4- Sta. 11+25.00 to 13+59.57	549		22		527
-Y6- Sta. 10+75.00 to 13+04.91	40		634	594	
-Y7- Sta. 11+75.00 to 14+96.86	128		1,772	1,644	
Subtotal	18,656		7,641	2,238	13,253
-L- Sta. 80+00.00 to 110+00.00 LT	12,450	1,050	33,813	21,363	1,050
-Y8- Sta. 11+75.00 to 14+84.88	2,297		41		2,256
Subtotal	14,747	1,050	33,854	21,363	3,306
-L- Sta. 110+00.00 to 140+00.00 LT	30,621		6,690		23,931
-DR116- Sta. 10+40.00 to 13+88.12	3,141				3,141
-Y11- Sta. 13+00.00 to 19+76.95	26,363		543		25,820
Subtotal	60,125		7,233		52,892
-L- Sta. 140+00.00 to 168+00.00 LT	48,749		4,869		43,880
-Y16- Sta. 11+00.00 to 13+58.68	165		3,114	2,949	
-Y17- Sta. 11+00.00 to 15+86.71	65		3,751	3,686	
Subtotal	48,979		11,734	6,635	43,880
-L- Sta. 168+00.00 to 190+00.00 LT	639		5,917	5,278	
Subtotal	639		5,917	5,278	
-L- Sta. 190+00.00 to 208+58.19 LT	4,393		1,689		2,704
-Y18- Sta. 10+11.00 to 13+50.00	2,355		442		1,913
-Y18- Sta. 14+16.76 to 15+25.00	10		185	175	
-Y19- Sta. 13+25.00 to 19+04.29	1,398		2,041	643	
-Y20- Sta. 14+50.00 to 20+50.00 RT	263		313	50	
Subtotal	8,419		4,670	868	4,617
-L- Sta. 209+28.48 to 215+00.00 (FULL WIDTH LT & RT)	5,079		299		4,780
-Y20- Sta. 14+50.00 to 21+50 LT	187		122		65
-Y20- Sta. 22+50.00 to 31+00 LT	1,452		152		1,300
Subtotal	6,718		573		6,145
-L- Sta. 215+00 to 221+00.00 LT	467		78		389
-Y21- Sta. 11+00.00 to 12+16.40	250		5		245
Subtotal	717		83		634
LEFT SIDE EARTHWORK SUBTOTAL	180,678	1,050	93,709	37,581	125,600
WASTE TO REPLACE BORROW				-37,581	-37,581
LEFT SIDE EARTHWORK TOTAL	180,678	1,050	93,709	0	88,019

STATION to STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANK. +%	BORROW	WASTE
RIGHT SIDE EARTHWORK					
-L- Sta. 20+50.00 to 50+00.00 RT	1,119		13,886		12,767
-Y1- Sta. 15+38.07 to 18+50.00	423		436		13
Subtotal	1,542		14,322		12,780
-L- Sta. 50+00.00 to 80+00.00 RT	5,974		10,644		4,670
-Y2- Sta. 12+00.00 to 13+87.06	178		124		54
-Y3- Sta. 10+34.75 to 13+00.00	164		490		326
-Y5- Sta. 10+34.75 to 15+25.00	1,010		2,300		1,290
Subtotal	7,326		13,558		6,286
-L- Sta. 80+00.00 to 110+00.00 RT	806		2,726		1,920
-Y9- Sta. 10+38.97 to 12+25.00	202		146		56
Subtotal	1,008		2,872		1,976
-L- Sta. 110+00.00 to 140+00.00 RT	1,390		29,710		28,320
-Y10- Sta. 10+37.50 to 15+67.82	10,180		66		10,114
-Y12- Sta. 10+37.55 to 13+50.00	139		649		510
-Y13- Sta. 10+15.00 to 12+50.00	1,112		144		968
Subtotal	12,821		30,569		11,082
-L- Sta. 140+00.00 to 168+00.00 RT	81,650		16,212		65,438
-Y15DET- Sta. 10+26.12 to 12+75.00	5,244				5,244
-Y14- Sta. 10+37.50 to 13+00.00	432		4,040		3,608
-Y15- Sta. 10+37.50 to 12+75.00	1,339		5		1,334
-DR161- Sta. 10+37.50 to 12+75.00	1,455		5		1,450
Subtotal	90,120		20,262		73,466
-L- Sta. 168+00.00 to 190+00.00 RT	2,106		5,477		3,371
Subtotal	2,106		5,477		3,371
-L- Sta. 190+00.00 to 208+58.19 RT	4,801		4,434		367
-Y20- Sta. 21+50.00 to 28+82.00 RT	342		97		245
Subtotal	5,143		4,531		612
-L- Sta. 209+28.48 to 215+00.00 (FULL WIDTH LT & RT) (SEE LEFT SIDE EARTHWORK)	--	--	--	--	--
-L- Sta. 215+00 to 221+00.00 RT	595		10		585
Subtotal	595		10		585
RIGHT SIDE EARTHWORK SUBTOTAL	120,661		91,601	56,795	85,855
ROCK WASTE TO REPLACE BORROW					-524
ADJUST ROCK WASTE FOR SWELL					-79
REMOVE EARTH SHRINKAGE DUE TO REPLACEMENT WITH ROCK					-90
WASTE TO REPLACE BORROW					-56,102
RIGHT SIDE EARTHWORK TOTAL	120,661		91,432	0	29,229
PROJECT TOTAL (LEFT SIDE EARTHWORK + RIGHT SIDE EARTHWORK)	301,339	1,050	185,141	0	117,248
ESTIMATED LOSS DUE TO CLEARING & GRUBBING	-31,000				-31,000
ADDITIONAL UNDERCUT		5,800	1,150		5,800
WASTE TO REPLACE BORROW					-1,150
GRAND TOTAL (CUBIC YARDS)	270,339	6,850	186,291	0	90,898
SAY (CUBIC YARDS)	270,400	6,850			

ESTIMATED DRAINAGE DITCH EXCAVATION = 6,300 CY
 ESTIMATED SHOULDER BORROW = 740 CY
 ESTIMATED PAVEMENT STRUCTURE VOLUME: -L- LINE = 17,658 CY -Y- LINES (-Y10-, -Y11-, & -Y15DET-) = 681 CY

THE FOLLOWING QUANTITIES ARE PER THE "ROADWAY SUBSURFACE INVESTIGATION - RECOMMENDATIONS" LETTER FROM FALCON ENGINEERING:

ESTIMATED SELECT GRANULAR MATERIAL = 7,600 CY (CONTINGENCY, 4,700 CY FOR UNDERCUT FOR EMBANKMENT STABILITY (RSS & OTHER) LOCATIONS & 2,900 CY FOR UNDERCUT FOR SUBGRADE STABILIZATION LOCATIONS, AS DIRECTED BY THE ENGINEER.)

ESTIMATED SHALLOW UNDERCUT = 2,300 CY (CONTINGENCY, FOR AGGREGATE SUBGRADE IN LOCATIONS AS DIRECTED BY THE ENGINEER.)

ESTIMATED CLASS IV SUBGRADE STABILIZATION = 4,600 CY (CONTINGENCY, FOR AGGREGATE SUBGRADE IN LOCATIONS AS DIRECTED BY THE ENGINEER.)

ESTIMATED STABILIZER AGGREGATE = 9,500 CY (CONTINGENCY, FOR AGGREGATE STABILIZATION IN LOCATIONS AS DIRECTED BY THE ENGINEER.)

Quantities are approximate only. The Resident Engineer will re-cross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid.

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These Earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

8/20/2019 5:30:51 PM
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COMPUTED BY: KSH DATE: 4/5/2019
 CHECKED BY: RWP DATE: 8/5/2019

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. SHEET NO.

A-0011C 3B-2

GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

G = GATING IMPACT ATTENUATOR TYPE 350
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

Weston Sampson
 WSE of North Carolina, PC
 598 East Chatham Street Suite 137 Cary, NC 27511
 Phone: 919.297.0220 Fax: 919.297.0221
 NC License: C-4647

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR			EXTRA LENGTH GUARDRAIL POSTS (8' LENGTH) (EA)	REMOVE EXISTING GUARDRAIL (LF)	REMARKS									
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	GREU TL-2	CAT-1	AT-1	NO.	PERMITTED	G				NG								
-L-	24+68	29+54	RT	493.75			25+50	29+50	14'	14' BERM															564								
-L-	27+75	30+10	LT	243.75			29+00	27+50	14'	14' BERM																391							
-L-	39+68	41+63	RT	193.75			40+50	41+50	14'	14' BERM																190							
-L-	40+51	43+00	LT	256.25			42+00	40+50	14'	14' BERM																228							
-L-	45+00	50+06	RT	506.25			46+00	50+00	14'	14' BERM																880							
-L-	67+30	70+84	LT																							351							
-L-	79+80	82+50	LT	281.25			81+50	80+00	14'	14' BERM																							
-L-	89+22	93+18	LT	406.25			92+00	89+00	14'	14' BERM																							
-L-	92+24	96+30	RT	406.25			93+00	96+00	14'	14' BERM																	592						
-L-	93+81	98+02	LT	431.25			97+00	93+75	14'	14' BERM																	578						
-L-	116+24	119+50	RT	343.75			117+50	119+50	14'	14' BERM																	465						
-L-	117+18	119+76	LT	281.25			118+50	117+25	14'	14' BERM																	327						
-L-	123+10	124+12	RT																								103						
-L-	126+49	133+04	RT	681.25			127+50	133+00	14'	14' BERM																	828						
-L-	137+99	-Y14- 11+03 RT	RT	956.25	50.00		139+00	11+00	14'	14' BERM																	930						
-L-	148+00	159+45	LT	1168.75			158+50	148+00	14'	14' BERM																	1,188						
-Y16-	11+71	-L- 165+35 LT	LT	637.50	100.00		163+00	12+00	4' / 14'	7' / 14' BERM																	428						
-L-	165+01	168+37	LT																								325						
-L-	168+73	172+27	LT	381.25	50.00		172+00	168+75	14' / 2'	14' BERM / 4'														5		316	GREU TL-2 ALONG PARCEL 87 DRIVE. USE 8' GUARDRAIL POSTS WHERE WALL #2 IS 4' TO 5'-6" AWAY FROM SHOP-CURVED GUARDRAIL.						
-L-	178+50	181+00	LT	256.25			179+50	178+50	14'	14' BERM																	454						
-L-	178+50	180+75	RT	231.25			179+50	180+75	14'	14' BERM																	254						
-L-	185+00	186+85	RT	193.75			186+50	186+75	14'	14' BERM																	179						
-L-	186+58	189+14	LT	256.25			188+00	186+50	14'	14' BERM														27		278	USE 8' GUARDRAIL POSTS FROM -L- STA. 186+70 TO 188+32 ADJACENT TO WALL #3.						
-L-	197+99	203+06	RT	506.25			199+00	203+00	14'	14' BERM																	318						
-L-	207+17	-Y20- 19+19 RT	LT																								204						
-Y13-	11+31	12+50	LT	125.00			12+50	11+75	3.5' - 6'	9'	50'	25'	2.5'	1'													184	TIE TO EXIST. GUARDRAIL AT APPROACH END					
-Y17-	12+00	12+86	LT	68.75	50.00			12+65	6'	9'																							
-Y17-	13+24	15+01	LT	181.25	50.00		14+75		6'	9'	37'		4'																				
-Y18-	15+26		CL	37.50																									BARRICADE AT END OF -Y18-				
-DR116-	10+61	13+01	RT	250.00			10+75	12+50	2'	5'	40.5'		9'														180						
SUBTOTAL (LF)				9,775.00	300.00						TOTAL ANCHORS OR ATTENUATORS (EA)				20	7	20	2							32		10,735	TOTAL					
LESS ANCHORS (LF)				1,312.50							ANCHOR UNIT LENGTH (LF)				50	25	6.25	6.25															
TOTAL GUARDRAIL (LF)				8,462.50	300.00						DEDUCTION PER TYPE (LF)				1000.00	175.00	125.00	12.50															
SAY GUARDRAIL (LF)				8,500.00	300.00		ADDITIONAL GUARDRAIL POSTS : 5 EA				TOTAL DEDUCTION (LF)				1312.50																		

COMPUTED BY: Hamm, J. R. DATE: 8/19/19
 CHECKED BY: Hunsberger, W. S. DATE: 4/24/19

(1-16-18)

PROJECT NO.
A-0011C

SHEET NO.
3G-1

**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
-L-	138+75	140+25	LT	SD	250
CONTINGENCY				SD	2500
TOTAL LF:					2750

*UD = Underdrain
 *BD = Blind Drain
 *SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU	18	2300	4600	4600		
			AST	3				9500	
TOTAL CY/TONS/SY:					2300	4600**	4600**	9500	0

*ASU = Aggregate Subgrade
 *AST = Aggregate Stabilization

**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Soil Stabilization" are only the estimated quantities for ASU/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-L-	1.5:1	33+25	1.5:1	35+25	LT	4		800
-L-	1.75:1	45+75	1.75:1	48+75	RT	2		1250
-L-	1.5:1	148+75	1.5:1	155+75	LT	1		1900
TOTAL SY:								3950

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

SUMMARY OF REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL

LINE	Beginning Slope/ RSS (H:V)	Approx. Station	Ending Slope/ RSS (H:V)	Approx. Station	Location LT/RT	Reinforced Soil Slope (RSS) SY	Geocells SY	Coir Fiber Mat SY	Matting for Erosion Control SY
-L-	1.5:1	89+25	1.5:1	91+75	LT	600		600	
TOTAL SY:						600	0	600*	0**

*Total square yards of "Coir Fiber Mat" is only the estimated quantity for slopes steeper than 2:1 (H:V) and may only represent a portion of the coir fiber mat quantity shown in the Item Sheets of the Proposal.

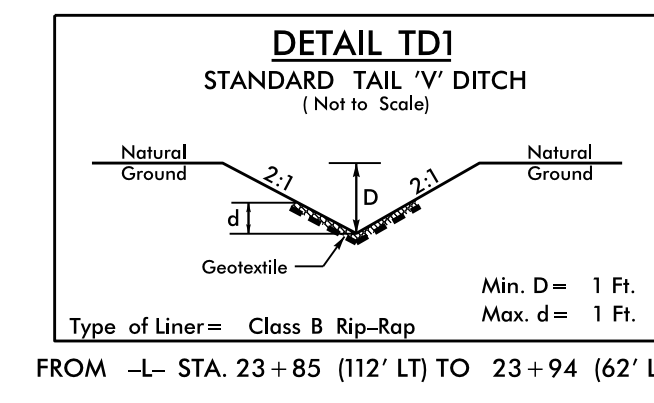
**Total square yards of "Matting for Erosion Control" is only the estimated quantity for RSS and may only represent a portion of the matting quantity shown in the Item Sheets of the Proposal.

**STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PARCEL INDEX SHEET**

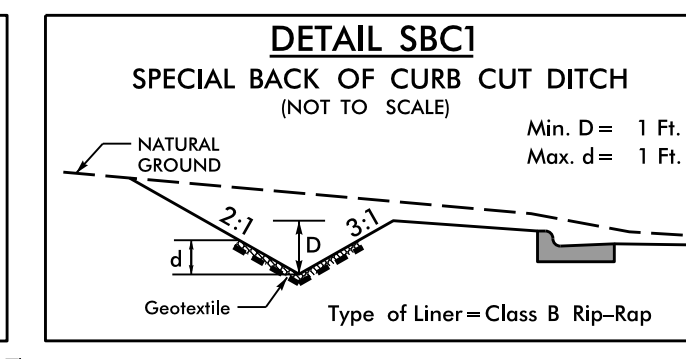
PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	LAUREL HILLS MEMORY GARDENS
2	4	LAUREL HILLS MEMORY GARDENS
3	4,5	BARRY R. McCLURE
4	4	TWIGGS INVESTMENTS, LLC
6	4,5	BARRY R. McCLURE
7	5	ANNETTE COOKE
8	5	ANNETTE H COOKE
9	5	ANNETTE COOKE
10	5,6	KENNETH J. McCLURE
10A	6	KENNETH R. McCLURE VIRGINIA McCLURE
11	5	KAY MOORE TRUSTEE
12	5,6	JEFFREY & JILL STAMEY
13	6,7	BARRY R. McCLURE
14	6,7	WILLIAM N HUBBARD
14A	7	WILLIAM N HUBBARD
14B	7	WILLIAM N HUBBARD
14C	7	WILLIAM N HUBBARD
15	7	SRP 2014-2RE1 LLC
16	6,7	JOYPHIL MOUNTAIN LLC
17	7	EMPIREGAS INC OF HIAWASSE
18	7	RICHARD WIEGOLD TRUSTEES
19	7	THREE PONDS HOLDINGS LLC
20	7	McALLISTER FAMILY PROP LLC
21	7,8	RICHARD M. WIEGOLD TRUSTEE
22	8	CITY ELECTRIC SUPPLY CO
23	7,8	J HAROLD McCLURE
24	8	LINDA J MILT
25	8	RICHARD ALLEN HORDER
26	8	WALLACE NICHOLS
27	8	HAYESVILLE RETAIL CONDOMINIUM PROPERTY OWNERS ASSOCIATION
28	8	SOLITUDE, LTD
29	8,9	RAY MURRAY
30	8	PHILLIP HONSINGER
31	8,9	ROBIN A. KAMROW
32	9	MICHAEL HAROLD McCLURE
33	8,9	TRACY McCLURE MONDAY
34	8,9	JENNIFFER FIGUEROA MORALES
35	9	BARRY WENGER
36	9,10	SOUTHERN CONCRETE MATERIALS
37	9	MARGARET SHOOK DONALDSON
38	9,10	TOMAS FIGUEROA
39	9,10	JAMES F COLEMAN
40	10	LEWIS M FAISON & CATHY FAISON
41	10	SHERRY JESSUP
42	10	RUFUS DONALDSON
43	10,11	JULIA W. WHEELER
44	11	BETTY R. CROW, ET AL
45	11,12	LOUISE TUCKER
46	11	RICHARD E OSBORN
47	11	ALLIANCE PARTNERS & RESOURCES LLC
48		NOT USED
49	11	EDGAR JONES
50	11,12	LAWRENCE BYERS
51	11	JAC TIRES, LLC
52	11,12	BJEJ OF CLAY COUNTY LLC
53	12	RODNEY HAL BURCH
54	12	MURPHY MEDICAL CENTER INC.
55	12	HAYESVILLE HOME FURNISHINGS INC
56	12	SOLITUDE, LTD
57	12,13	LB & MB PROPERTIES LLC
58	12,13	TRACY HOGSED
59	12,13	GERALD YATES
60	12,13	JIMMY ANDERSON
61	13	BOBBY BRISTOL, ET AL
62	13,14	GRANT NICHOLSON
63	13	THELMA HOWARD
64	13	THELMA HOWARD
65	13	PINE GROVE BAPTIST CHURCH
66	13,14	BRENDA MEADOWS

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
67	14	PEDRO GODINEZ
68	14	ROBERT BRISTOL
69	14	KERRY STATON
70	14,15	EDWARD LYON
71	14	NANCY G. LEDFORD
72	14	DAVID WEST
73	14	LARRY J OWENS
74	14	BRAD LONG
75	14,15	JUSTIN R CHERRY
76	14	MARY WEAVER
77	14,15	J C CHERRY
78	14,15	ROBERT BRISTOL
79	15	BARBARA CONWAY
80	15,16	ANNA B. GUTHRIE TRUSTEE
80A	15,16	DAVID AND SUZANNE DEERING
81	15	LYNN E. WALDROUP
82	15	JAMES BOOKER
83	15	SUSAN MORTON
84	15	MICHAEL L. JONES
84A	15	MICHAEL L. JONES
85	15	MONA BRADSHAW
86	15,16	LINDA OWENBY
87	16	MARCOT LLC
88	16	FRED C. NIENABER
89	16,17	FRANCES LEE WHITE
90	16	CPMP PROPERTIES LLC
91	16	CARL E. PATTERSON
92	16	LAWRENCE E BUTLER II
93, 93Z	16	MOUNTAIN STREAM CENTER, LLC
94	16,17	BETHEL ACQUISITIONS LLC
95	17	ROBERT TURNER JR
96, 96Z	17	HYER PROPERTIES LLC
97	17	WOODARD PROPERTY MANAGEMENT, LLC
98, 98Z	17	FRANCIS H GARRETT LIFE ESTATE
99	17	JOHN E CLEMONS III
100	17	MARK HILDEBRANDT, ET UX, ET AL
100A	17	MARK HILDEBRANDT, ET UX, ET AL
101	17,18	BLUE RIDGE MOUNTAIN EMC
102	17,18	RAINWATER INVESTMENTS LLC
103	18	THOMAS B. NICHOLS
104	18	SUSAN S. FISK
105	17,18	KENNETH W WOODARD TRUSTEE
106	18	LTCG LLC
107	18	NORMAN McCONNELL
108	18	WARNER ROBINS SUPPLY CO., INC.
109	18	DANIEL BURCH
110	18,19	UNION GENERAL HOSPITAL INC
111	18	SIXTY FOUR PARTNERSHIP LLC
112	18,19	REBECCA GARRETT
113	19	UCB NORTH CAROLINA PROPERTIES
114	19	KATHY M. DENTON
115	19	EDWIN REAMS
116	19	CSF PROPERTIES
117	19	JAMES LEDFORD V ETALS
118	19,20	JWJ OF CLAY COUNTY LLC
119	19	JAMES D HALLORAN
120	19,21	JAMES V LEDFORD ETALS
121	20	MARK STILES
122	20,21	HAYESVILLE FIRST UNITED METHODIST CHURCH, INC.
123		NOT USED
124	10	CLAY COUNTY, NC
125	7	JIMMY ASHE
126	21	BKBW LLC
127	20	FORT HEMBREE BAPTIST CHURCH
128		NOT USED
129		NOT USED
130, 130Z	17	DANIEL H BURCH
131	7	CHRISTOPHER JOHN GREBA & MAYLOCH LEE MAYFIELD

8/17/19

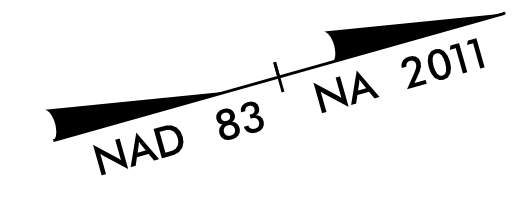


FROM -L- STA. 23+85 (112' LT) TO 23+94 (62' LT)



FROM -L- STA. 23+94 TO 25+00 LT

-L-
 PI Sta 22+42.68
 $\Delta = 4' 26'' 55.3'' (RT)$
 $D = 0' 59'' 59.7''$
 $L = 444.90'$
 $T = 222.56'$
 $R = 5730.00'$
 $SE = 0.03$
 $RO = 150'$
 $V = 60 \text{ mph}$



SEE SHEET 22 FOR -L- PROFILE

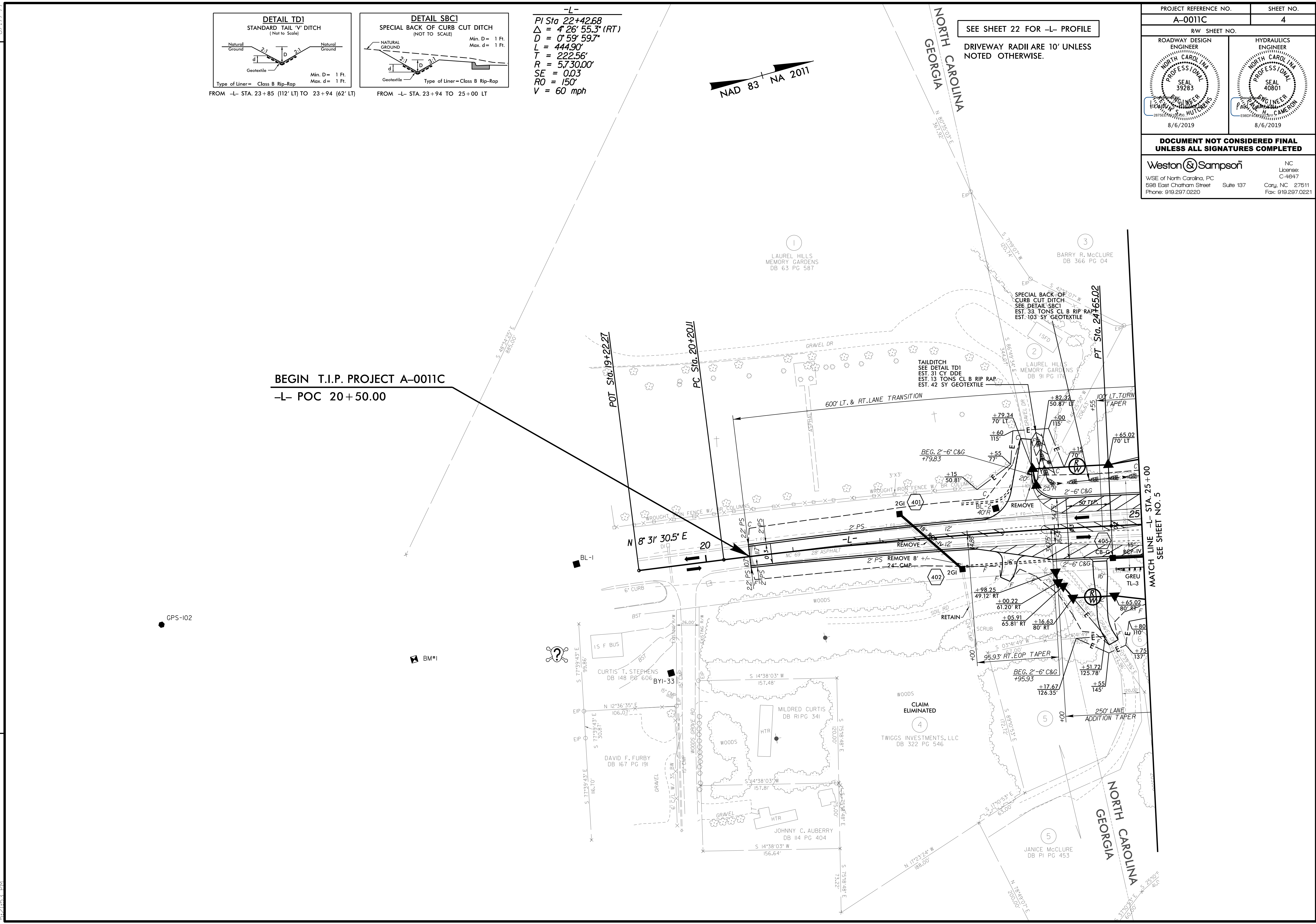
DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

PROJECT REFERENCE NO. A-0011C		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		PROFESSIONAL SEAL 39283	
PROFESSIONAL SEAL 39283		PROFESSIONAL SEAL 40801	
8/6/2019		8/6/2019	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Weston & Sampson		NC License: C-4847	
WSE of North Carolina, PC 598 East Chatham Street Suite 137 Phone: 919.297.0220		Cary, NC 27511 Fax: 919.297.0221	

REVISIONS

BEGIN T.I.P. PROJECT A-0011C
 -L- POC 20+50.00

8/15/2019
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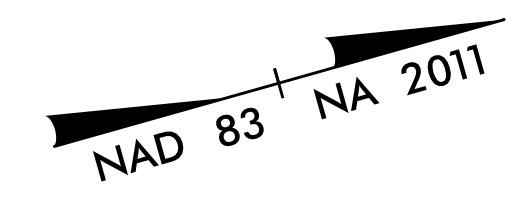
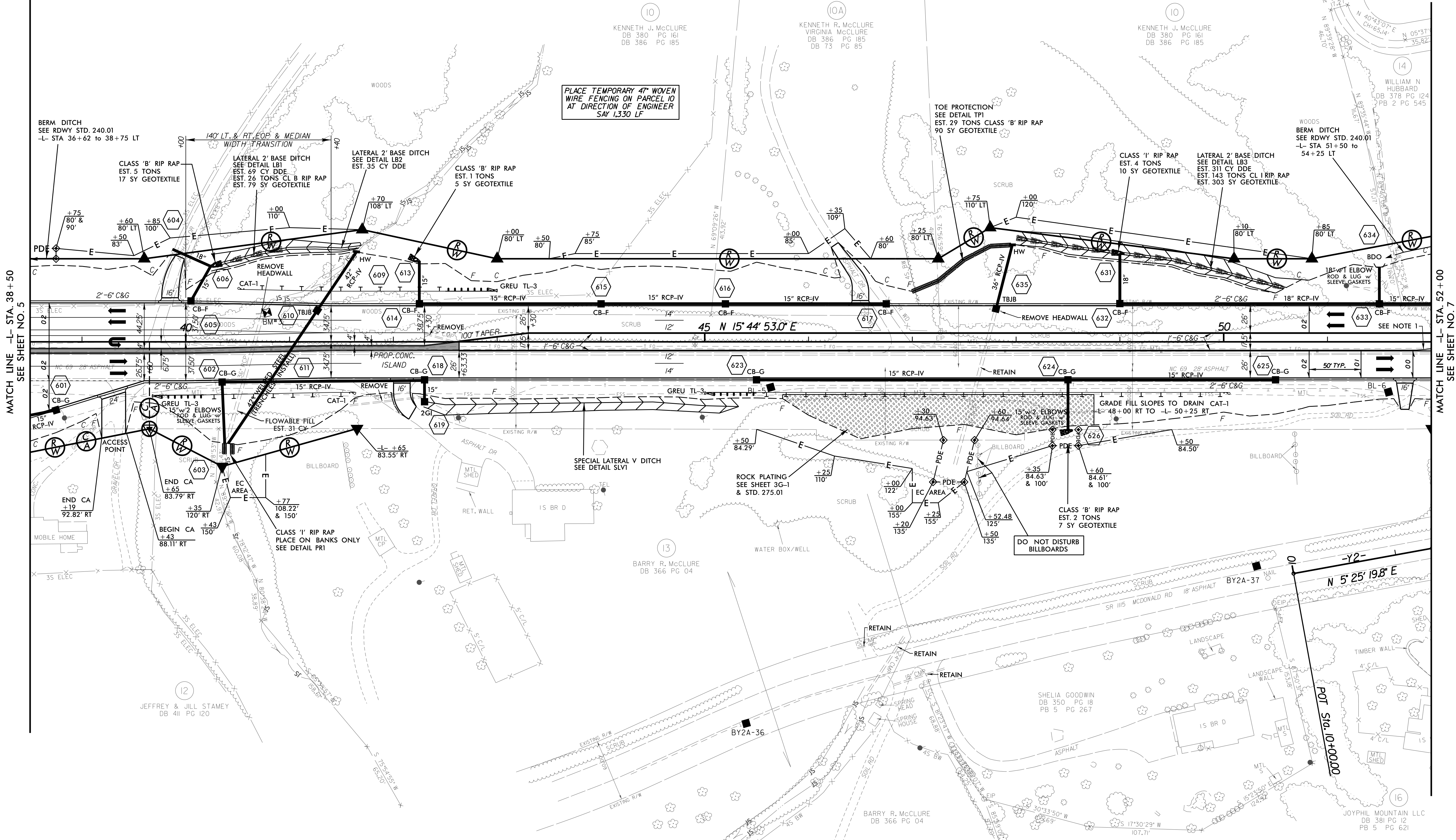
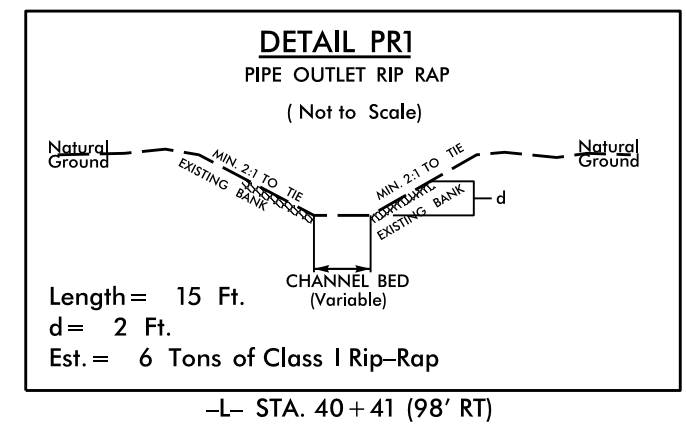
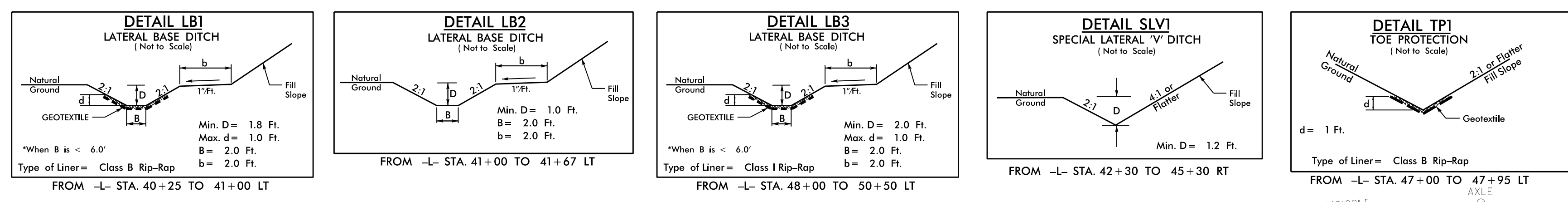
MATCH LINE -L- STA. 25+00 SEE SHEET NO. 5

PROJECT REFERENCE NO. A-0011C		SHEET NO. 6	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		PROFESSIONAL SEAL 39283	
PROFESSIONAL SEAL 39283		PROFESSIONAL SEAL 40801	
8/6/2019		8/6/2019	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Weston Sampson		NC License: C-4847	
598 East Chatham Street Suite 137		Cary, NC 27511	
Phone: 919.297.0220		Fax: 919.297.0221	

SEE SHEET 23 FOR -L- PROFILE

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

NOTE 1: TRANSITION 1'-6" C&G TO 2'-9" C&G
-L- STA. 51+85 TO 52+00 RT MED
SEE DETAIL SHEET 2C-3



REVISIONS

8/5/2019
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