

09/08/99

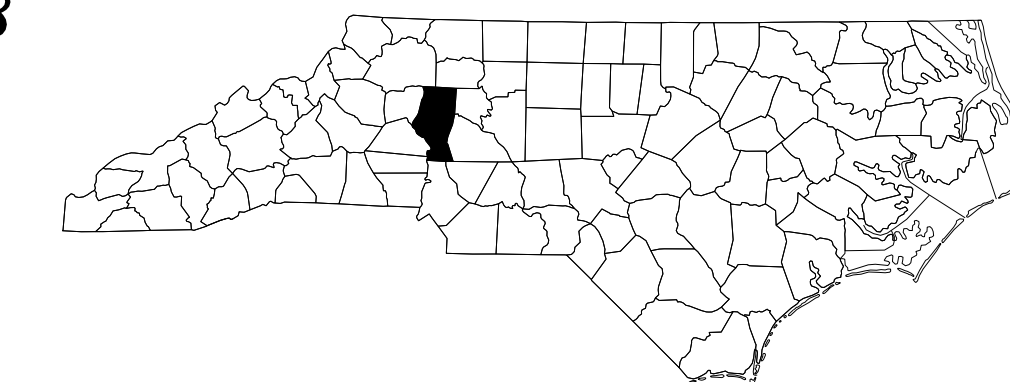
See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**IREDELL COUNTY**

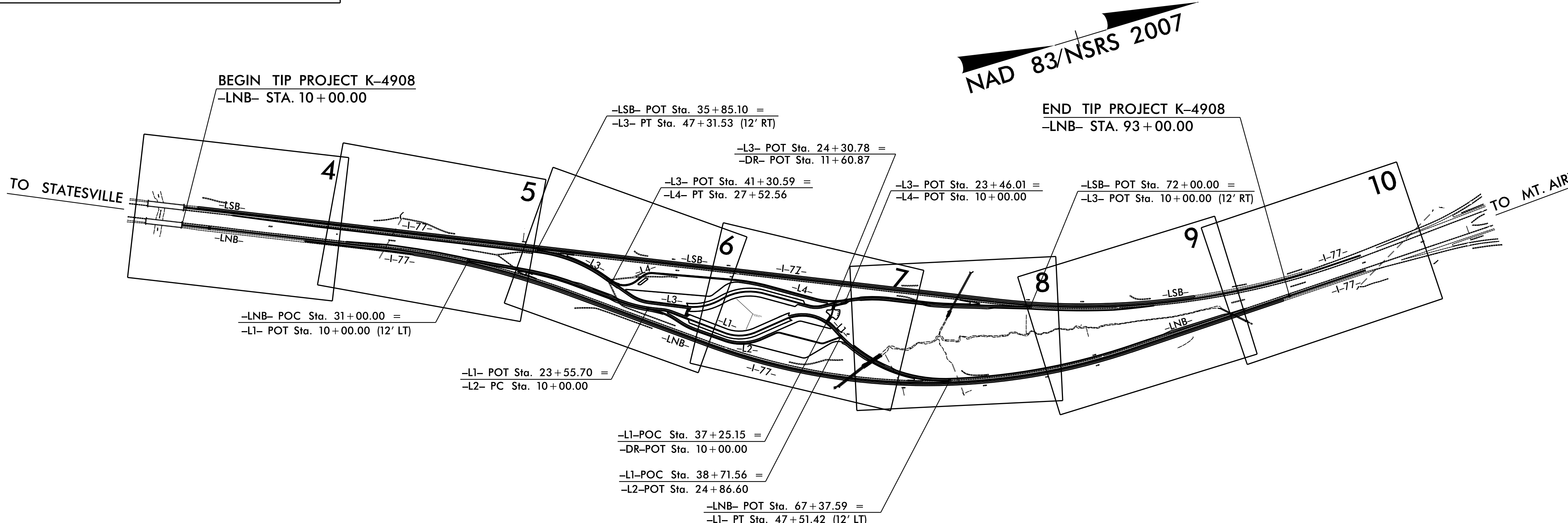
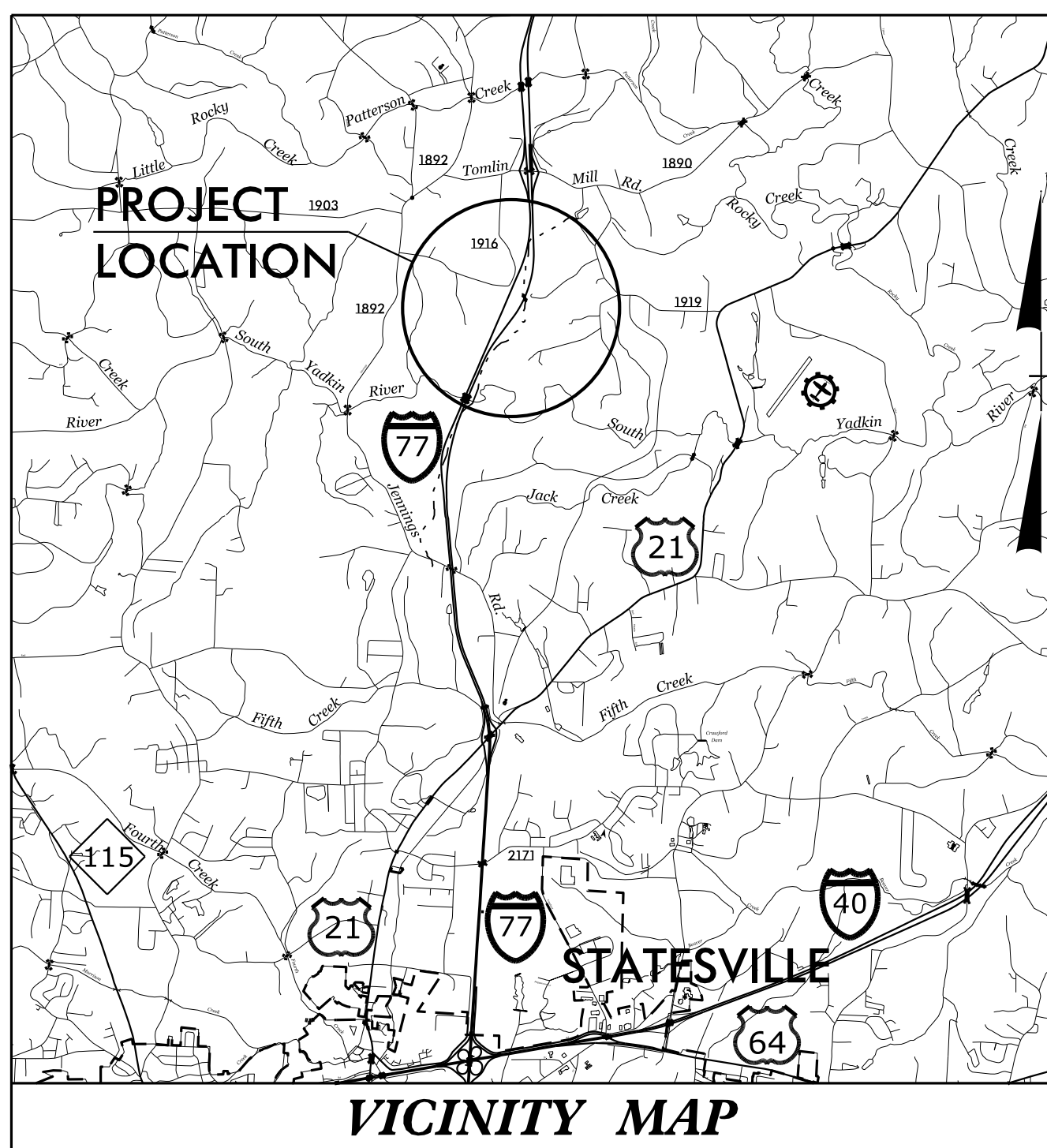
**LOCATION: I-77 REST AREA ON NEW LOCATION AT MILE MARKER #58**  
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING,**  
**LIGHTING, REST AREA, CULVERTS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	K-4908	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
39894.1.1	IMS-77-1(177)39	PE	
39894.2.FS1	IMS-77-1(177)39	RAW	
39894.2.FSU2	IMS-77-1(177)39	UTIL	
39894.3.FS1	IMS-77-1(177)39	CONST.	

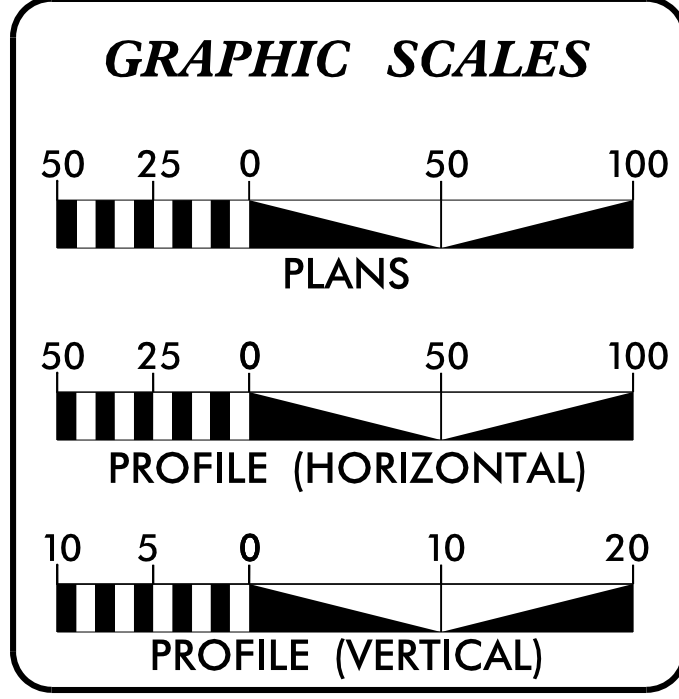


**TIP PROJECT: K-4908**

**CONTRACT: C203566**



THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.



**DESIGN DATA**

ADT 2015 =	35,200
ADT 2040 =	56,200
K =	10 %
D =	60 %
T =	14 %
V =	70 MPH
FUNC CLASS =	INTERSTATE
STATEWIDE TIER	

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT K-4908 =	1.572 MILES
TOTAL LENGTH TIP PROJECT K-4908 =	1.572 MILES

(I-77 NORTHBOUND LANE USED FOR PROJECT LENGTH)

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr., Raleigh NC, 27610

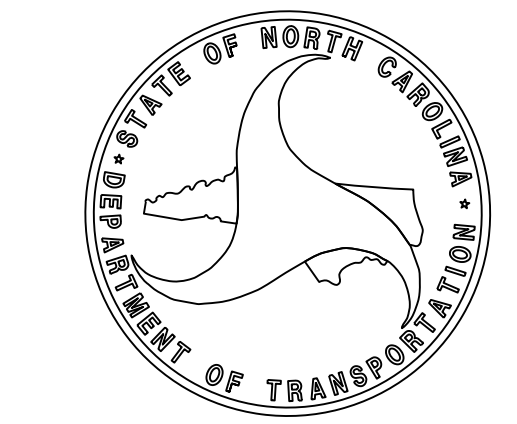
2012 STANDARD SPECIFICATIONS	
<b>RIGHT OF WAY DATE:</b> * DECEMBER 31, 2013	<b>JASON MOORE, PE</b> PROJECT ENGINEER
<b>LETTING DATE:</b> APRIL 21, 2015	<b>JEANIE TYSON</b> PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

DocuSigned by:  
Ryan M. Mullins  
2/19/2015 2:19 PM

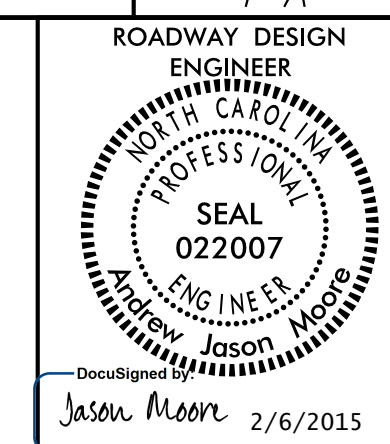
**ROADWAY DESIGN ENGINEER**

DocuSigned by:  
Jason Moore  
2/6/2015 2:06 PM



28-JAN-2015 11:36 R:\Roadway\Proj\K4908\_Rdy-t sh.dgn





**INDEX OF SHEETS**

SHEET NUMBER	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C	SURVEY CONTROL SHEET
2A-1 THRU 2A-4	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2B-1 THRU 2B-7	CONCRETE JOINT LAYOUT DETAILS
2B-8	LAYOUT DETAILS FOR -L4- ISLAND AND -DR-
2C-1 THRU 2C-5	DRAINAGE STRUCTURE DETAILS
2C-6	SHOULDER BERM GUTTER TO 2'-6" CURB & GUTTER TRANSITION SECTION DETAIL
2D-1 THRU 2D-2	HAZARDOUS SPILL BASIN DETAILS
3B-1 THRU 3B-2	SUMMARY OF EARTHWORK QUANTITIES, SHOULDER DRAINS, ASPHALT PAVEMENT REMOVAL, SHOULDER BERM GUTTER, AND GUARDRAIL
3D-1 THRU 3D-4	SUMMARY OF DRAINAGE PLANS
3G-1	SUMMARY OF GEOTECHNICAL QUANTITIES
4 THRU 10	PLAN SHEETS
11 THRU 17	PROFILE SHEETS
TMP-1 THRU TMP-8	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-9	PAVEMENT MARKING PLANS
E1 THRU E6	LIGHTING/ELECTRICAL CONSTRUCTION
EC-1 THRU EC-19	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-10	SIGNING PLANS
X-0	CROSS SECTION INDEX SHEET
X-1A THRU X-1B	CROSS-SECTION SUMMARY
X-1 THRU X-92	CROSS-SECTIONS
C-1 THRU C-9	STRUCTURE PLANS * CULVERTS
<b>REST AREA ARCHITECTURAL &amp; SITE DEVELOPMENT PLANS</b>	
1	REST AREA TITLE SHEET
A000 THRU A003	GENERAL SHEETS
A100 THRU A802	ARCHITECTURAL SHEETS
S100 THRU S401	STRUCTURAL SHEETS
P100 THRU P500	PLUMBING SHEETS
M100 THRU M400	MECHANICAL SHEETS
E100 THRU E600	ELECTRICAL SHEETS
L-01 THRU LD-11	LANDSCAPE DESIGN & DEVELOPMENT SITE DEVELOPMENT PLANS

**GENERAL NOTES:**

2012 SPECIFICATIONS  
EFFECTIVE: 01-17-2012  
REVISED: 10-31-2014

**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. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

**CLEARING:**

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

**SUPERELEVATION:**

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.05 USING THE RATE OF SUPERELEVATION AND RUNDFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

**SHOULDER CONSTRUCTION:**

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01 OR 560.02.

**SUBSURFACE DRAINS:**

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

**SHOULDER DRAINS:**

SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 816.02 AND DETAILS IN PLANS AT LOCATIONS DIRECTED BY THE ENGINEER.

**DRIVEWAYS:**

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 900 MM RADIUS OR RADIUS AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

**GUARDRAIL:**

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

**TEMPORARY SHORING:**

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

**CURB RAMPS**

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH DETAIL SHEET LD-9.

2012 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-17-2012  
REV. 10-30-2012

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
<b>DIVISION 2 - EARTHWORK</b>	
200.03	Method of Clearing - Method III
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.05	Method of Obtaining Superelevation - Divided Highways
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II (Sheet 2 of 3 is no longer applicable)
<b>DIVISION 6 - ASPHALT BASES AND PAVEMENTS</b>	
665.01	Asphalt Shoulders - Milled Rumble Strips
<b>DIVISION 7 - CONCRETE PAVEMENTS AND SHOULDERS</b>	
700.01	Concrete Pavement Joints - Construction and Contraction Joints
700.03	Dowel Assembly
700.04	Concrete Pavement Header Board
700.05	Tying Proposed Pavement to Existing
<b>DIVISION 8 - INCIDENTALS</b>	
815.02	Subsurface Drain
816.01	Concrete Pads - for Shoulder Drain Installation
816.02	Aggregate Shoulder Drain
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

8/17/99

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12/05/11

Note: Not to Scale

\*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	----->
Property Monument	□ ECM
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- MLB
Proposed Wetland Boundary	----- MLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ? ☠ ?

### 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	-----
False Sump	-----

### RAILROADS:

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

### RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	----- RW
Proposed Right of Way Line with Iron Pin and Cap Marker	----- RW ▲
Proposed Right of Way Line with Concrete or Granite RW Marker	----- RW ●
Proposed Control of Access Line with Concrete CA Marker	----- CA
Existing Control of Access	----- CA
Proposed Control of Access	----- CA
Existing Easement Line	----- E
Proposed Temporary Construction Easement	----- E
Proposed Temporary Drainage Easement	----- TDE
Proposed Permanent Drainage Easement	----- PDE
Proposed Permanent Drainage / Utility Easement	----- DUE
Proposed Permanent Utility Easement	----- PUE
Proposed Temporary Utility Easement	----- TUE
Proposed Aerial Utility Easement	----- AUE
Proposed Permanent Easement with Iron Pin and Cap Marker	----- ◆

### 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	☼
Hedge	-----
Woods Line	-----

Orchard	-----
Vineyard	-----

### EXISTING STRUCTURES:

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

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
H-Frame Pole	●
Recorded U/G Power Line	----- P
Designated U/G Power Line (S.U.E.*)	----- P

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Booth	□
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	□
Recorded U/G Telephone Cable	----- T
Designated U/G Telephone Cable (S.U.E.*)	----- T
Recorded U/G Telephone Conduit	----- TC
Designated U/G Telephone Conduit (S.U.E.*)	----- TC
Recorded U/G Fiber Optics Cable	----- T FO
Designated U/G Fiber Optics Cable (S.U.E.*)	----- T FO

### WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	----- W
Designated U/G Water Line (S.U.E.*)	----- W
Above Ground Water Line	----- A/G Water

### TV:

TV Satellite Dish	☼
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	□
Recorded U/G TV Cable	----- TV
Designated U/G TV Cable (S.U.E.*)	----- TV
Recorded U/G Fiber Optic Cable	----- TV FO
Designated U/G Fiber Optic Cable (S.U.E.*)	----- TV FO

### GAS:

Gas Valve	◇
Gas Meter	⊕
Recorded U/G Gas Line	----- G
Designated U/G Gas Line (S.U.E.*)	----- G
Above Ground Gas Line	----- A/G Gas

### SANITARY SEWER:

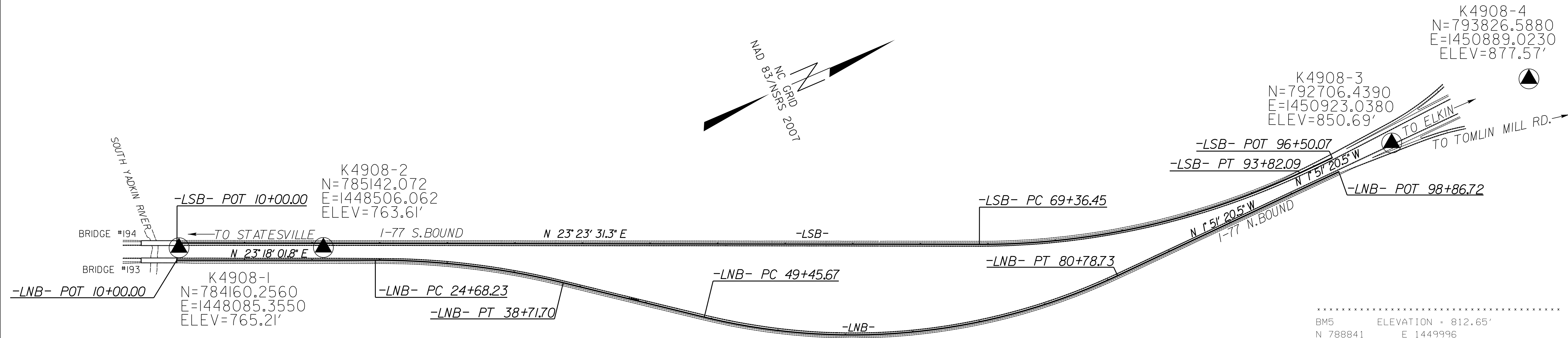
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	----- SS
Above Ground Sanitary Sewer	----- A/G Sanitary Sewer
Recorded SS Forced Main Line	----- FSS
Designated SS Forced Main Line (S.U.E.*)	----- FSS

### MISCELLANEOUS:

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

# SURVEY CONTROL SHEET K-4908

PROJECT REFERENCE NO. K-4908	SHEET NO. IC
Location and Surveys	



BLN POINT	DESC.	NORTH	EAST	ELEVATION	LNB STATION	OFFSET
1	K4908-1	784160.2560	1448085.3550	765.21	10+15.93	92.07 LT
2	K4908-2	785142.0720	1448506.0620	763.61	20+84.09	94.03 LT
5	BL-5	786170.3604	1449065.9933	765.65	32+47.19	38.46 LT
6	BL-6	787099.2093	1449733.6020	790.36	43+87.87	30.86 LT
7	BL-7	788008.1894	1450379.7608	795.76	55+07.45	27.94 LT
8	BL-8	788970.5603	1450867.0901	787.28	65+85.37	38.53 RT
9	BL-9	790007.1535	1451049.6762	798.33	76+31.83	35.09 RT
10	BL-10	791368.3485	1450961.5609	818.80	89+92.47	30.66 LT
3	K4908-3	792706.4390	1450923.0380	850.69	OUTSIDE PROJECT LIMITS	
4	K4908-4	793826.5880	1450889.0230	877.57	OUTSIDE PROJECT LIMITS	

BLS POINT	DESC.	NORTH	EAST	ELEVATION	LSB STATION	OFFSET
2	K4908-2	785142.0720	1448506.0620	763.61	20+83.46	30.74 RT
16	BL-16	786382.2897	1449045.8680	768.25	34+36.06	33.79 RT
15	BL-15	787353.9173	1449466.1077	790.48	44+94.67	33.73 RT
14	BL-14	788440.7325	1449933.1013	803.01	56+77.57	30.86 RT
13	BL-13	789545.7270	1450412.4510	791.67	68+82.05	32.10 RT
12	BL-12	790573.9644	1450751.8825	799.78	79+60.81	30.18 RT
11	BL-11	791669.6121	1450893.9815	826.15	90+60.97	35.06 RT
3	K-4908-3	792706.4390	1450923.0380	850.69	OUTSIDE PROJECT LIMITS	

\*\*\*\*\*  
 BM5 ELEVATION = 812.65'  
 N 788841 E 1449996  
 LSB STATION 60+70.00 70' LEFT  
 R/R SPIKE SET IN BASE OF 18" ELM WEST  
 OF SOUTH BOUND I-77  
 \*\*\*\*\*

\*\*\*\*\*  
 BM1 ELEVATION = 766.47'  
 N 783908 E 1447966  
 LSB STATION 10+00.00  
 S 17°58'12.32" W DIST 264.78'  
 CHISLED SQUARE IN SE WW OF SOUTH BOUND  
 BRIDGE OF I-77 OVER THE SOUTH YADKIN  
 RIVER  
 \*\*\*\*\*

\*\*\*\*\*  
 BM3 ELEVATION = 800.22'  
 N 787217 E 1449934  
 LSB STATION 45+55.00 518' RIGHT  
 R/R SPIKE SET IN 36" MAPLE EAST OF  
 NORTH BOUND I-77 AND 232' FROM BL-6  
 \*\*\*\*\*

\*\*\*\*\*  
 BM4 ELEVATION = 808.20'  
 N 789567 E 1451027  
 LSB STATION 71+25.00 591' RIGHT  
 R/R SPIKE SET IN ROOT OF 12" OAK EAST  
 OF NORTH BOUND I-77 AND BETWEEN BL-8  
 AND BL-9  
 \*\*\*\*\*

\*\*\*\*\*  
 BM6 ELEVATION = 813.22'  
 N 790823 E 1450654  
 LSB STATION 81+87.00 116' LEFT  
 R/R SPIKE SET IN ROOT OF 36" QUADRUPLE  
 FORKED MAPLE WEST OF SOUTH BOUND I-77  
 \*\*\*\*\*

\*\*\*\*\*  
 BM7 ELEVATION = 877.57'  
 N 793826.5880 E 1450889.0230  
 LNB STATION 98+86.72  
 N 02°43'05.09" E DIST 1565.23'  
 K4908-4 ALUMINUM CAP SET FLUSH W/  
 THE GROUND STAMPED ACCORDINGLY  
 \*\*\*\*\*

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "K4908-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 784160.256(ft) EASTING: 1448085.355(ft) ELEVATION: 765.21'(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999031524

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "K4908-1" TO -LNB- STATION 10+00.00 IS S 56°52'55.85" 93.43'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

- NOTES:**
- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/)  
 THE FILES TO BE FOUND ARE AS FOLLOWS:  
 K4908\_LS\_CONTROL.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- ▲ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.  
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION  
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

6/2/09 15 JAN 2015 10:26 AM \\s01\proj\1040000\K4908.Ls.Lc.dgn

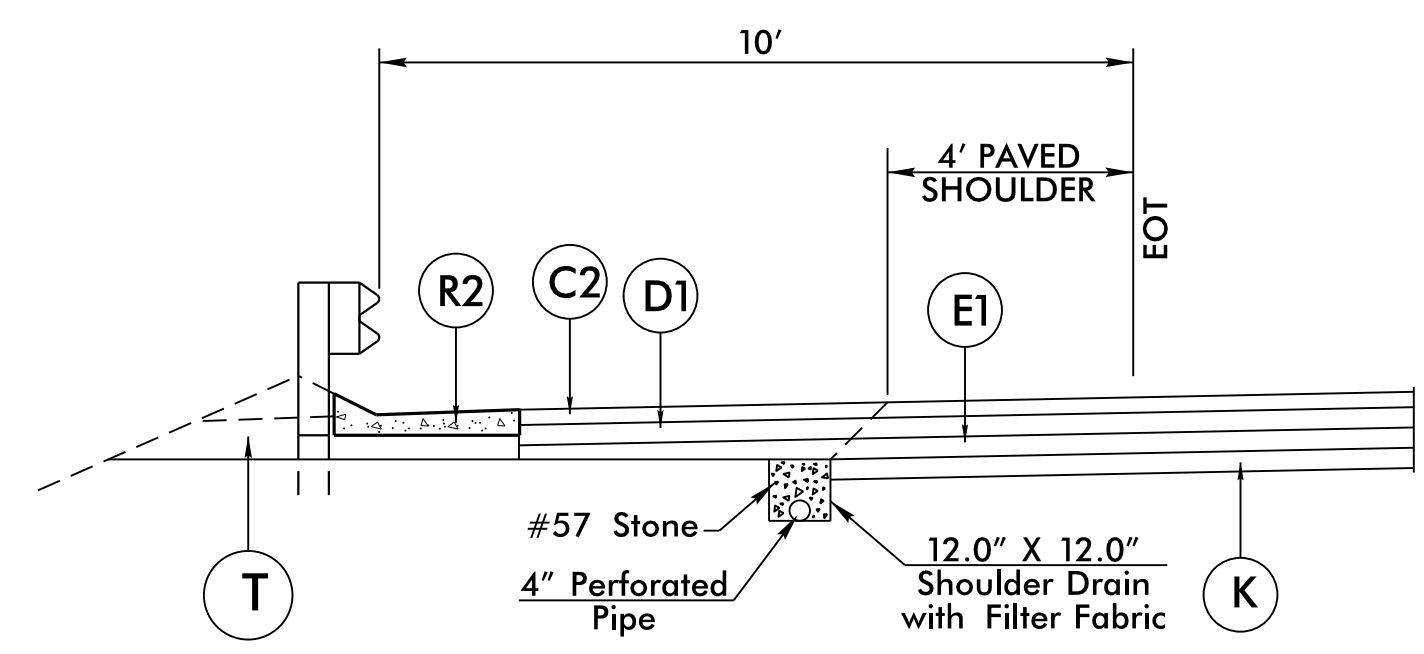


8/17/99

REVISIONS

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
A	9" JOINTED CONCRETE WITH DOWELS.
C1	PROP. APPROX. 1½" ASPHALT CONCRETE BASE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. FOR -LNB- AND -LSB- OVERLAY.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E3	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
K	BASE TO BE TREATED WITH LIME TO A DEPTH OF 8", AT A RATE OF 20 LBS. PER SQ. YD. AS DIRECTED BY THE ENGINEER. OR BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7", AT A RATE OF 55 LBS. PER SQ. YD. AS DIRECTED BY THE ENGINEER.
N	GEOTEXTILE FOR PAVEMENT STABILIZATION.
R1	2'-6" CURB AND GUTTER.
R2	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

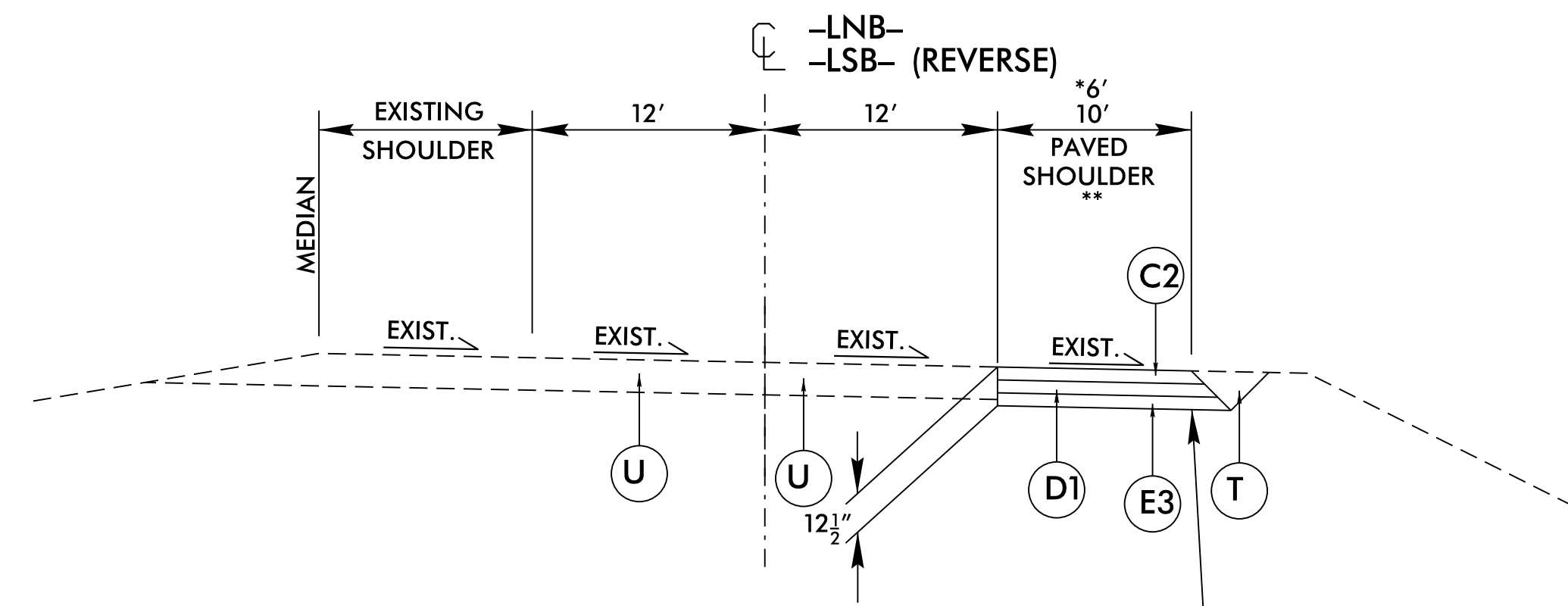
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



**OUTSIDE SHOULDER DRAIN DETAIL**  
SEE SHEET 3B-1 FOR LOCATIONS

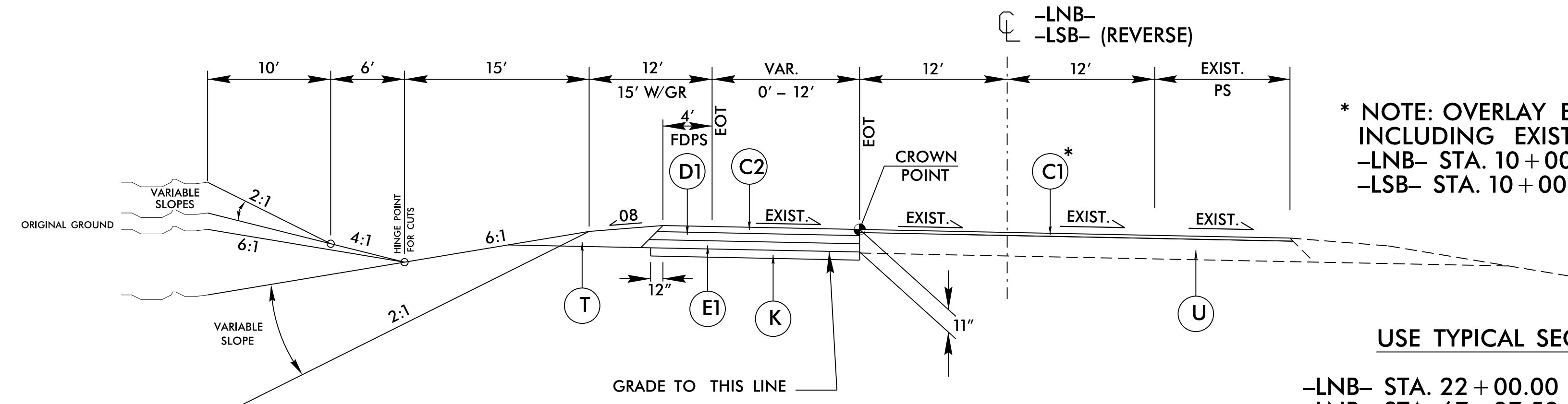
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PROJECT REFERENCE NO. K-4908	SHEET NO. 2A-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 022007 ANDREW JASON MOORE	PAVEMENT ENGINEER SEAL 031484 VADIMIR G. MITCHELL
DocuSigned by: Jason Moore 2/6/2015	DocuSigned by: Vadimir Mitchell 2/6/2015



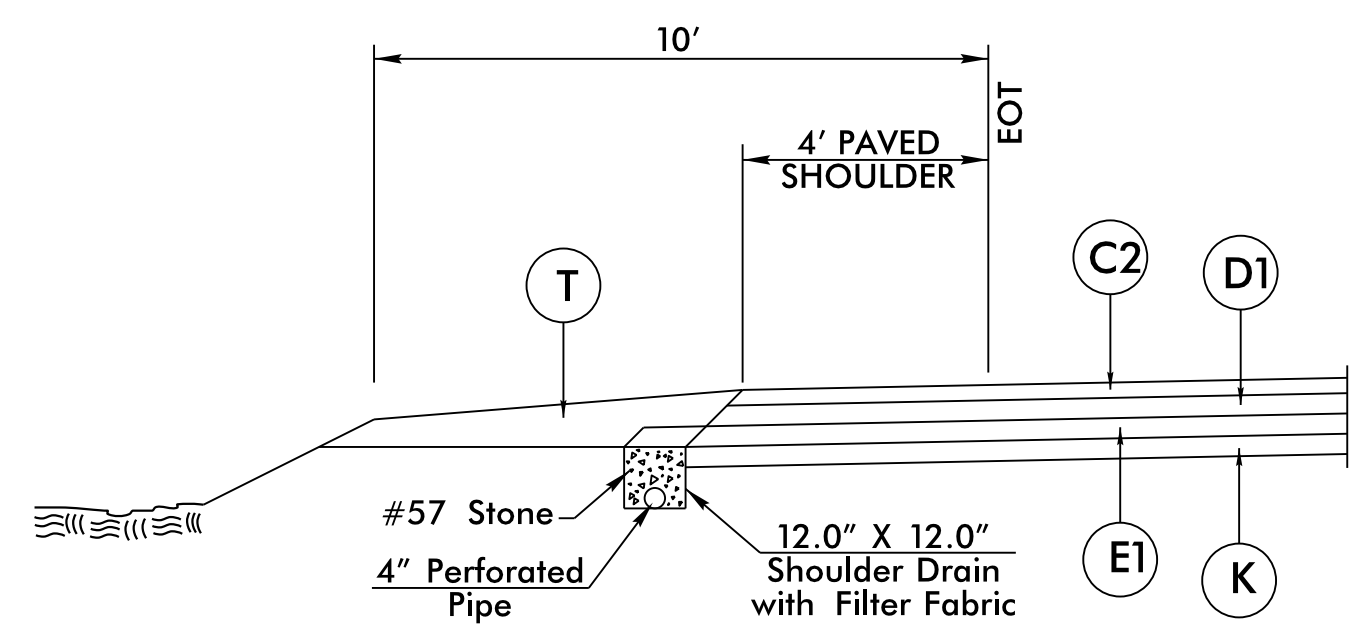
**TYPICAL SECTION NO. 1**

USE TYPICAL SECTION NO. 1  
\* -LNB- STA. 19+00 TO STA. 27+00 (RT)  
-LNB- STA. 27+00 TO STA. 92+50 (RT)  
-LSB- STA. 11+00 TO STA. 84+00 (LT)  
\*\* NOTE: STABILIZE EXISTING SUBGRADE WITH AGGREGATE STABILIZER AND GEOTEXTILE SOIL STABILIZATION WHERE NEEDED AS DIRECTED BY THE ENGINEER.

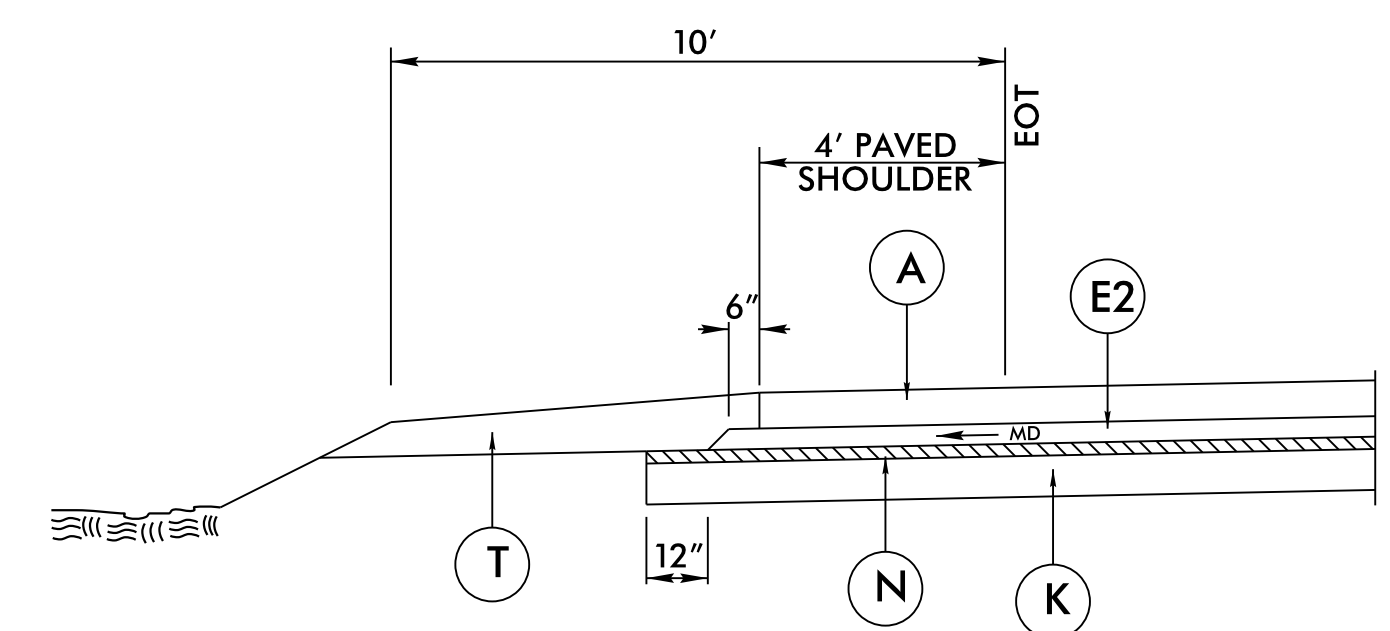


**TYPICAL SECTION NO. 2**  
ACCELERATION AND DECELERATION LANES

USE TYPICAL SECTION NO. 2  
\* NOTE: OVERLAY EXISTING PAVEMENT INCLUDING EXISTING PAVED SHOULDERS FROM -LNB- STA. 10+00.00 TO STA. 93+00.00 AND -LSB- STA. 10+00.00 TO STA. 90+70.11  
-LNB- STA. 22+00.00 TO STA. 31+00.00 (LT)  
-LNB- STA. 67+37.59 TO STA. 89+67.59 (LT)  
-LSB- STA. 13+55.10 TO STA. 35+85.10 (RT) REVERSE  
-LSB- STA. 72+00.00 TO STA. 81+00.00 (RT) REVERSE



**OUTSIDE SHOULDER DRAIN DETAIL**  
SEE SHEET 3B-1 FOR LOCATIONS



**GEOTEXTILE FOR PAVEMENT STABILIZATION DETAIL**

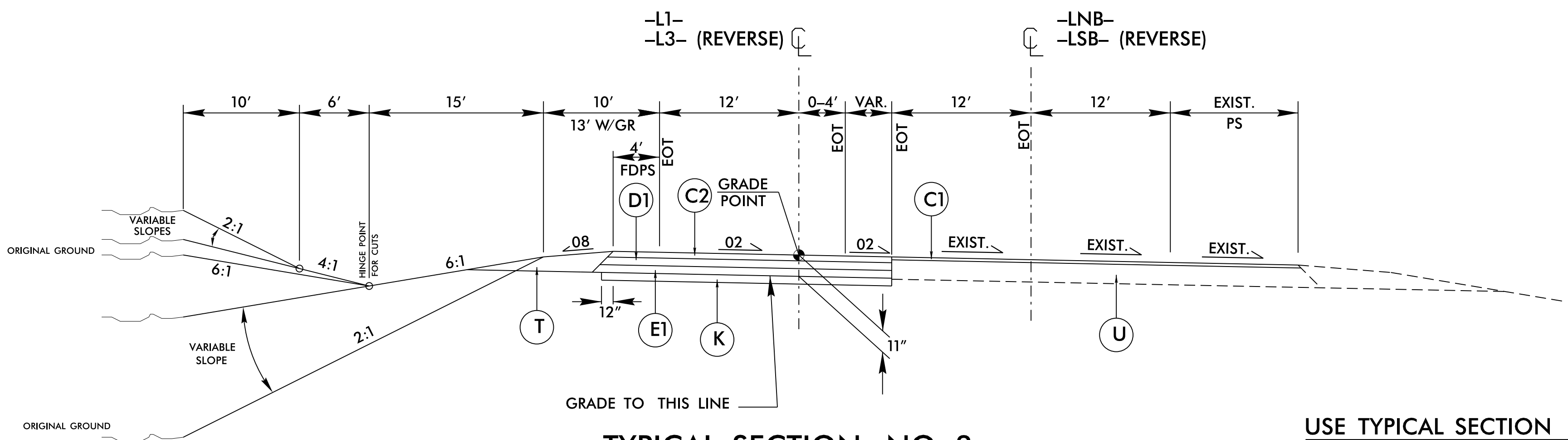
MD = MACHINE DIRECTION

USE DETAIL

-L1- STA. 39+50.00 TO 43+50.00  
-L3- STA. 16+00.00 TO 18+50.00  
-L3- STA. 40+50.00 TO 42+50.00  
-L4- STA. 23+00.00 TO 27+52.00

PAVEMENT SCHEDULE

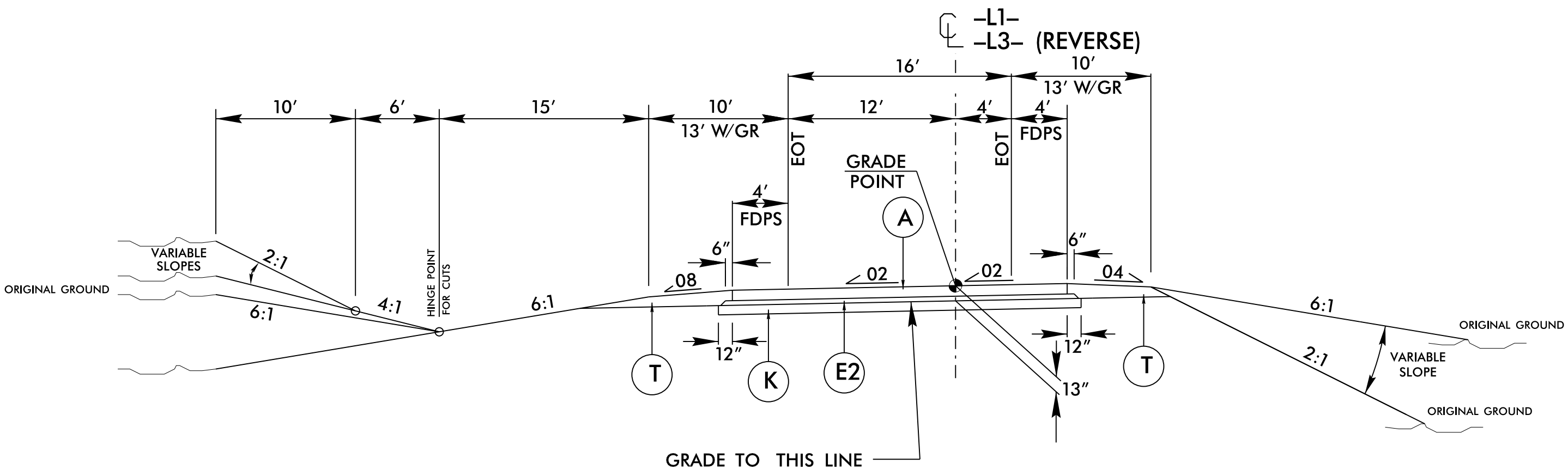
A	9" CONCRETE
E2	4" B25.0B
E1	4" B25.0C
E4	VAR, B25.0B
K	STABILIZED SUB-GRADE
R1	2'-6" C & G
T	EARTH MATERIAL



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

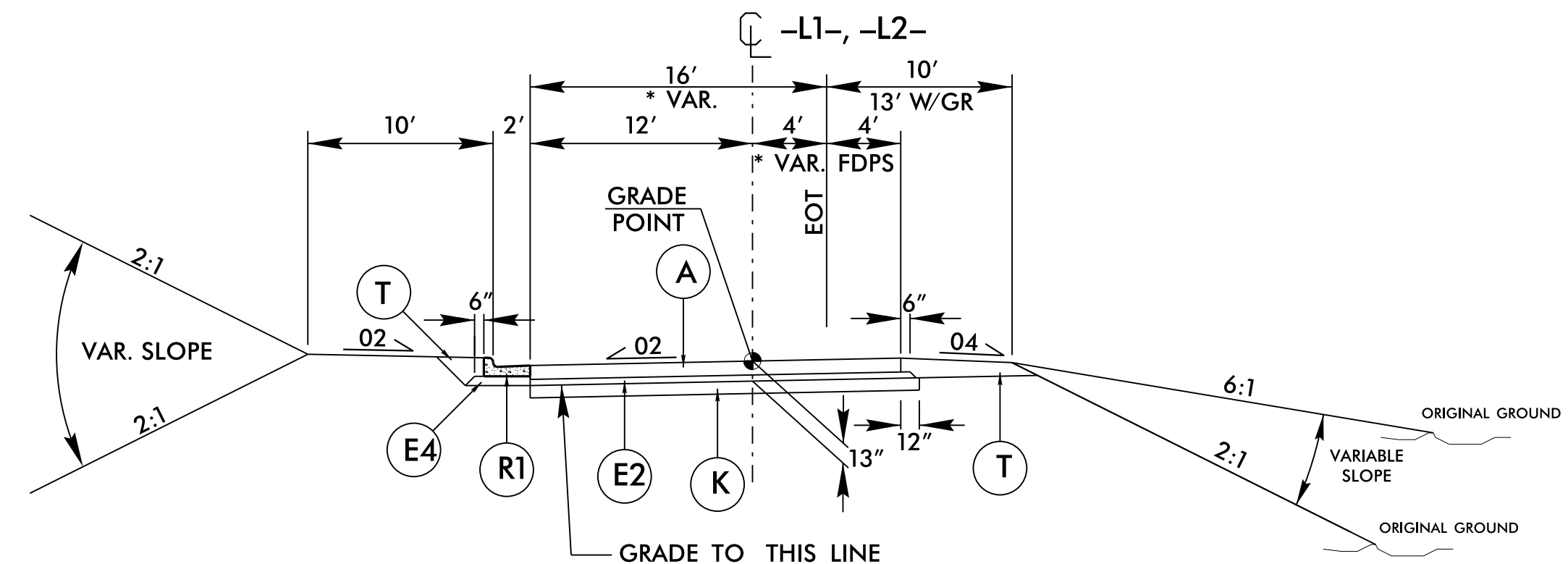
- L1- STA. 10+00.00 TO STA. 14+30.20
- L1- STA. 44+94.80 TO STA. 47+51.42
- L3- STA. 10+00.00 TO STA. 14+38.81
- L3- STA. 45+06.39 TO STA. 47+31.53



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

- L1- STA. 14+30.20 TO STA. 21+40.00
- L1- STA. 39+86.52 TO STA. 44+94.80
- L3- STA. 14+38.81 TO STA. 22+64.00
- L3- STA. 40+70.00 TO STA. 45+06.39



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

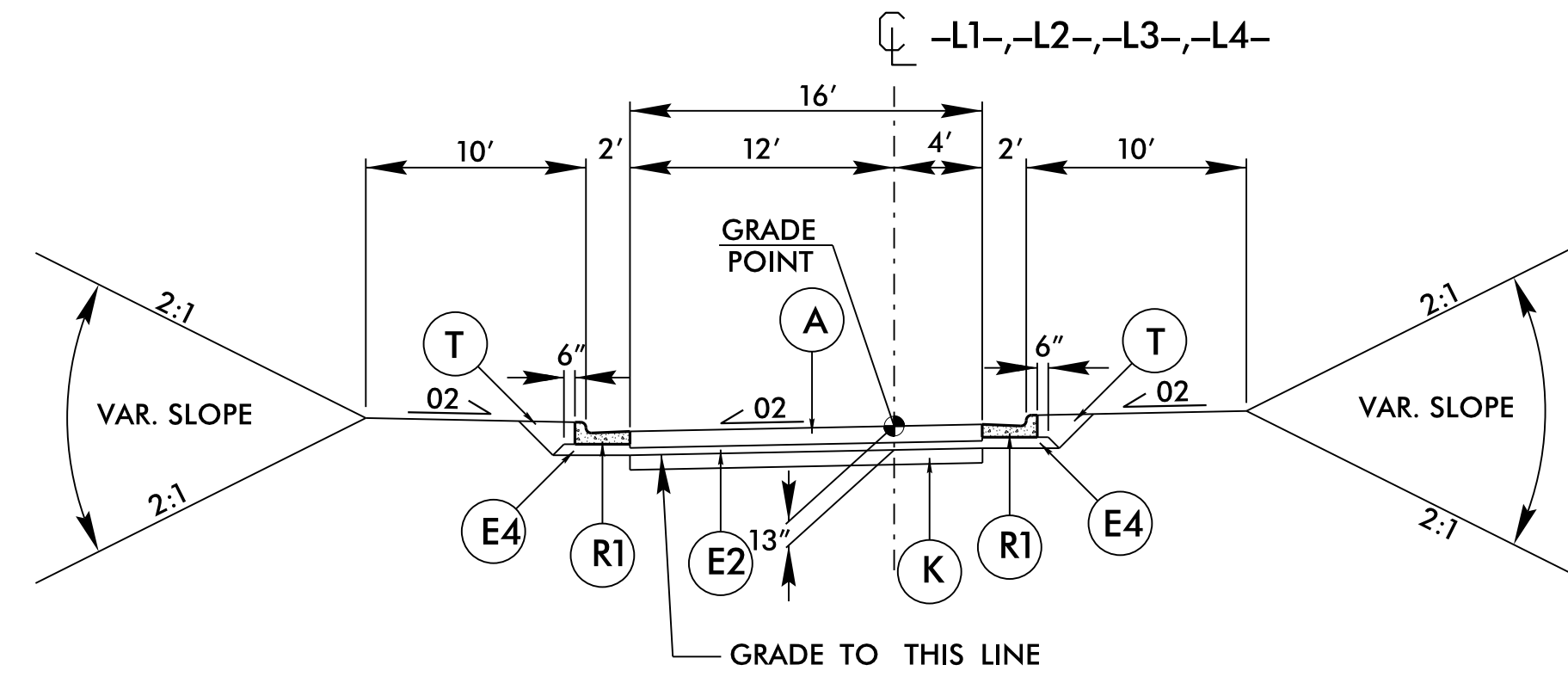
- L1- STA. 21+40.00 TO STA. 23+55.70
- L1- STA. 39+04.52 TO STA. 39+86.52 (REVERSE)
- L2- STA. 10+00.00 TO STA. 11+20.00
- \* -L1- STA. 23+55.70 TO STA. 24+72.49

REVISIONS

8/17/99

28 JAN 2015 11:31  
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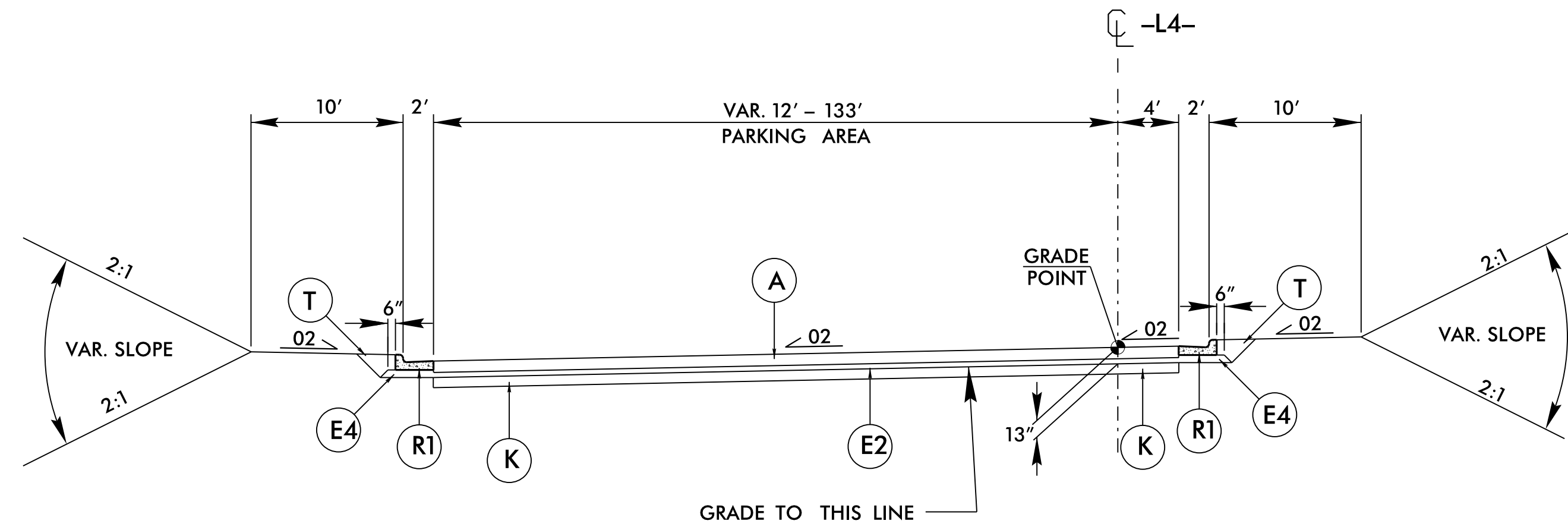
**TYPICAL SECTION NO. 6**

**USE TYPICAL SECTION NO. 6**

- L1- STA. 24+72.49 TO STA. 26+24.38
- L1- STA. 34+48.61 TO STA. 37+72.90
- L2- STA. 11+20.00 TO STA. 17+72.19
- L3- STA. 22+64.00 TO STA. 26+52.13
- L3- STA. 35+42.17 TO STA. 40+70.00
- L4- STA. 11+36.78 TO STA. 17+97.97

**PAVEMENT SCHEDULE**

A	9" CONCRETE
E2	4" B25.0B
E4	VAR, B25.0B
K	STABILIZED SUB-GRADE
R1	2'-6" C & G
T	EARTH MATERIAL



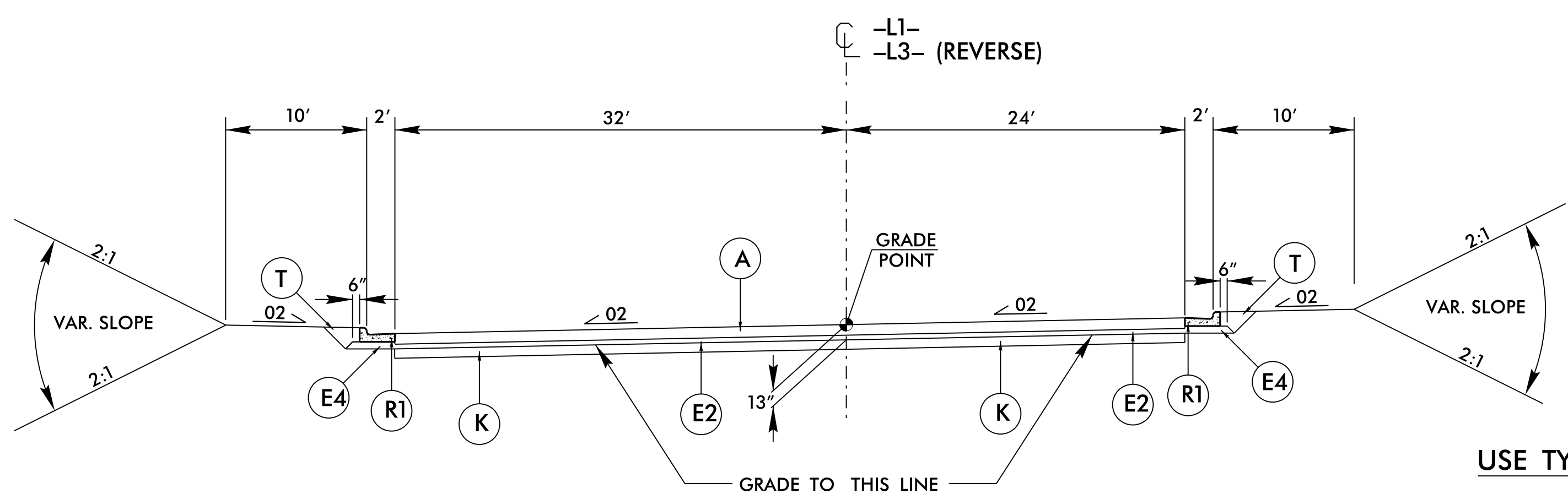
**TYPICAL SECTION NO. 7**

**USE TYPICAL SECTION NO. 7**

- L4- STA. 17+97.97 TO STA. 26+95.00 (SB TRUCK PARKING AREA)

REVISIONS

8/17/99

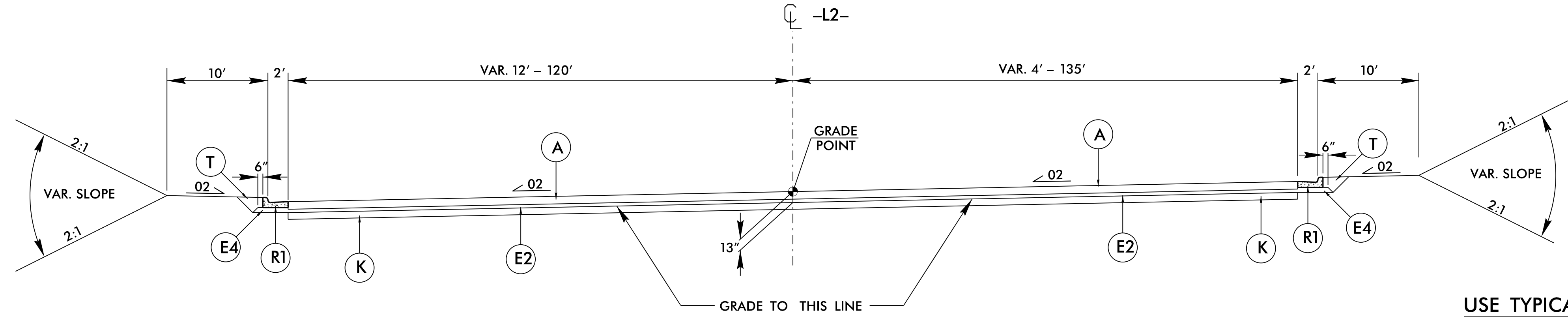


**TYPICAL SECTION NO. 8**

USE TYPICAL SECTION NO. 8  
 -L1- STA. 26+24.38 TO 34+48.61 (NB CAR PARKING AREA)  
 -L3- STA. 26+52.13 TO 35+42.17 (SB CAR PARKING AREA)

**PAVEMENT SCHEDULE**

A	9" CONCRETE
E2	4" B25.0B
E4	VAR, B25.0B
K	STABILIZED SUB-GRADE
R1	2'-6" C & G
T	EARTH MATERIAL



**TYPICAL SECTION NO. 9**

USE TYPICAL SECTION NO. 9  
 -L2- STA. 17+72.19 TO 24+85.00 (NB TRUCK PARKING AREA)

REVISIONS

8/17/99

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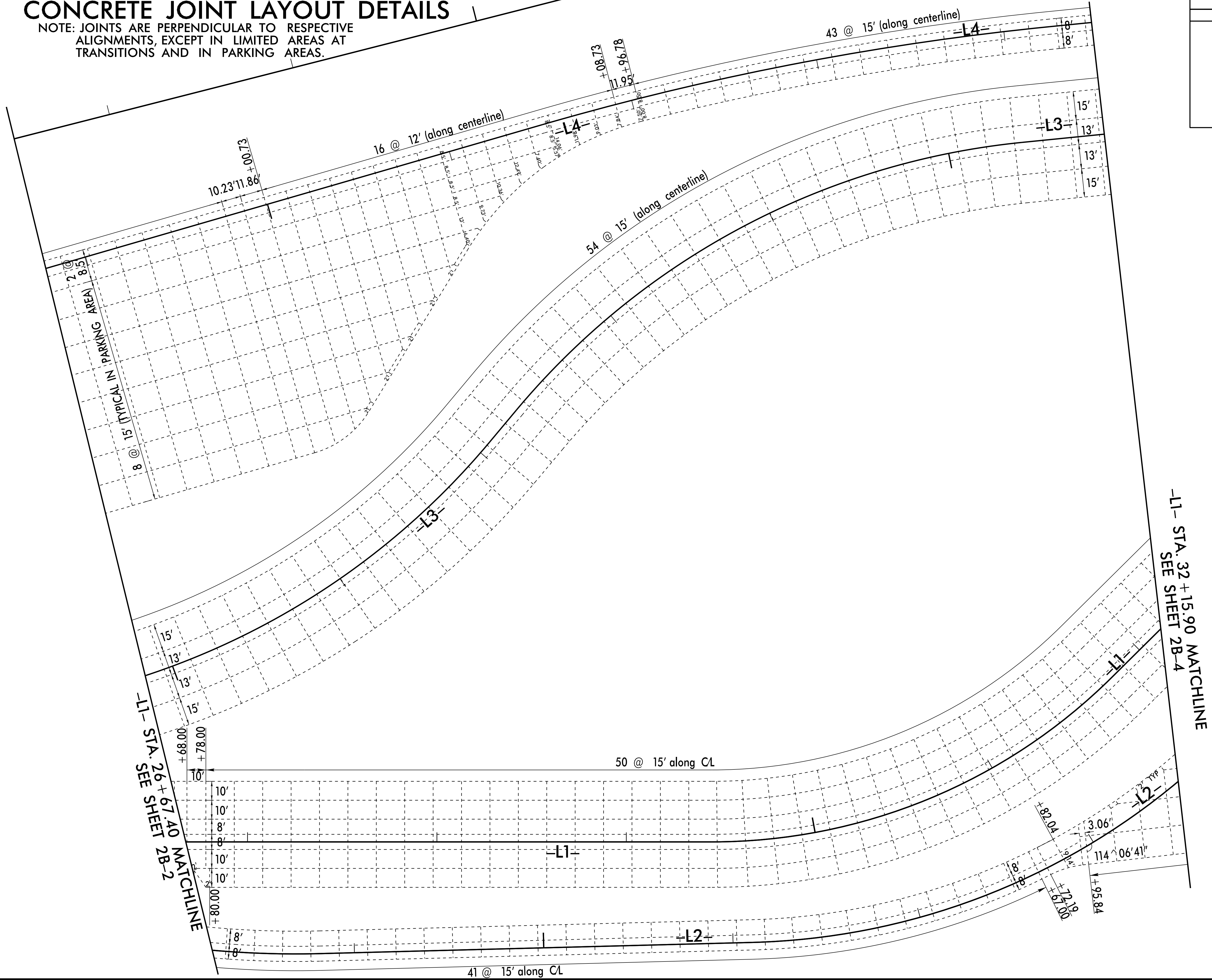


# CONCRETE JOINT LAYOUT DETAILS

NOTE: JOINTS ARE PERPENDICULAR TO RESPECTIVE ALIGNMENTS, EXCEPT IN LIMITED AREAS AT TRANSITIONS AND IN PARKING AREAS.

PROJECT REFERENCE NO. K-4908	SHEET NO. 2B-3
R/W SHEET NO.	

REVISIONS



8/17/99

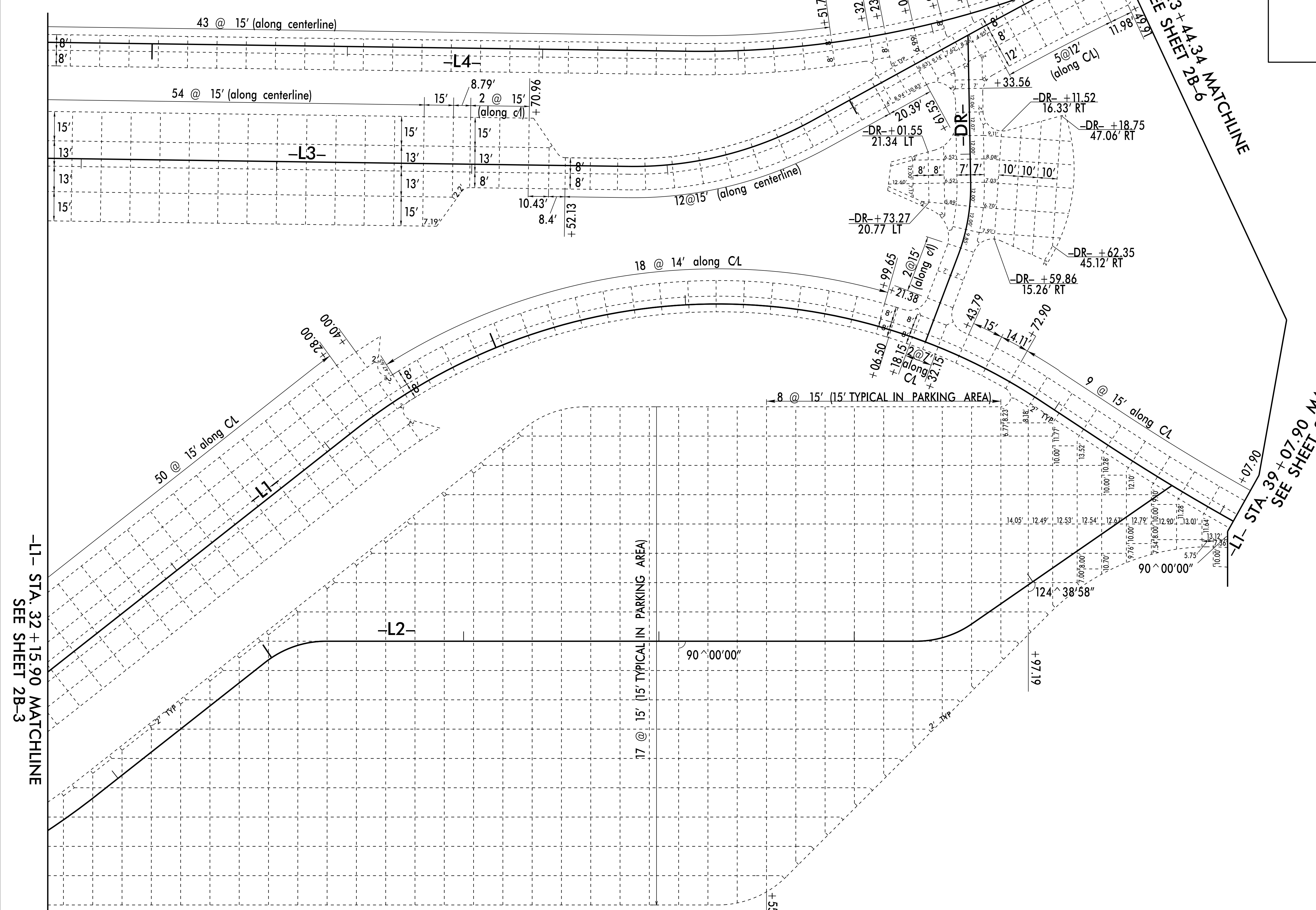
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# CONCRETE JOINT LAYOUT DETAILS

NOTE: JOINTS ARE PERPENDICULAR TO RESPECTIVE ALIGNMENTS, EXCEPT IN LIMITED AREAS AT TRANSITIONS AND IN PARKING AREAS.

PROJECT REFERENCE NO. K-4908	SHEET NO. 2B-4
RW SHEET NO.	

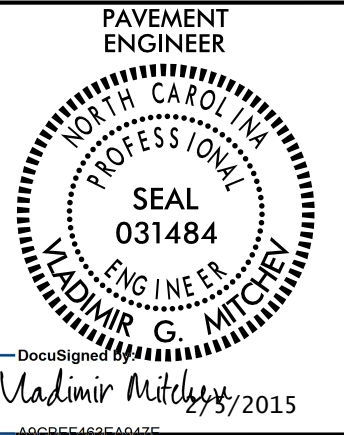


REVISIONS

8/17/99

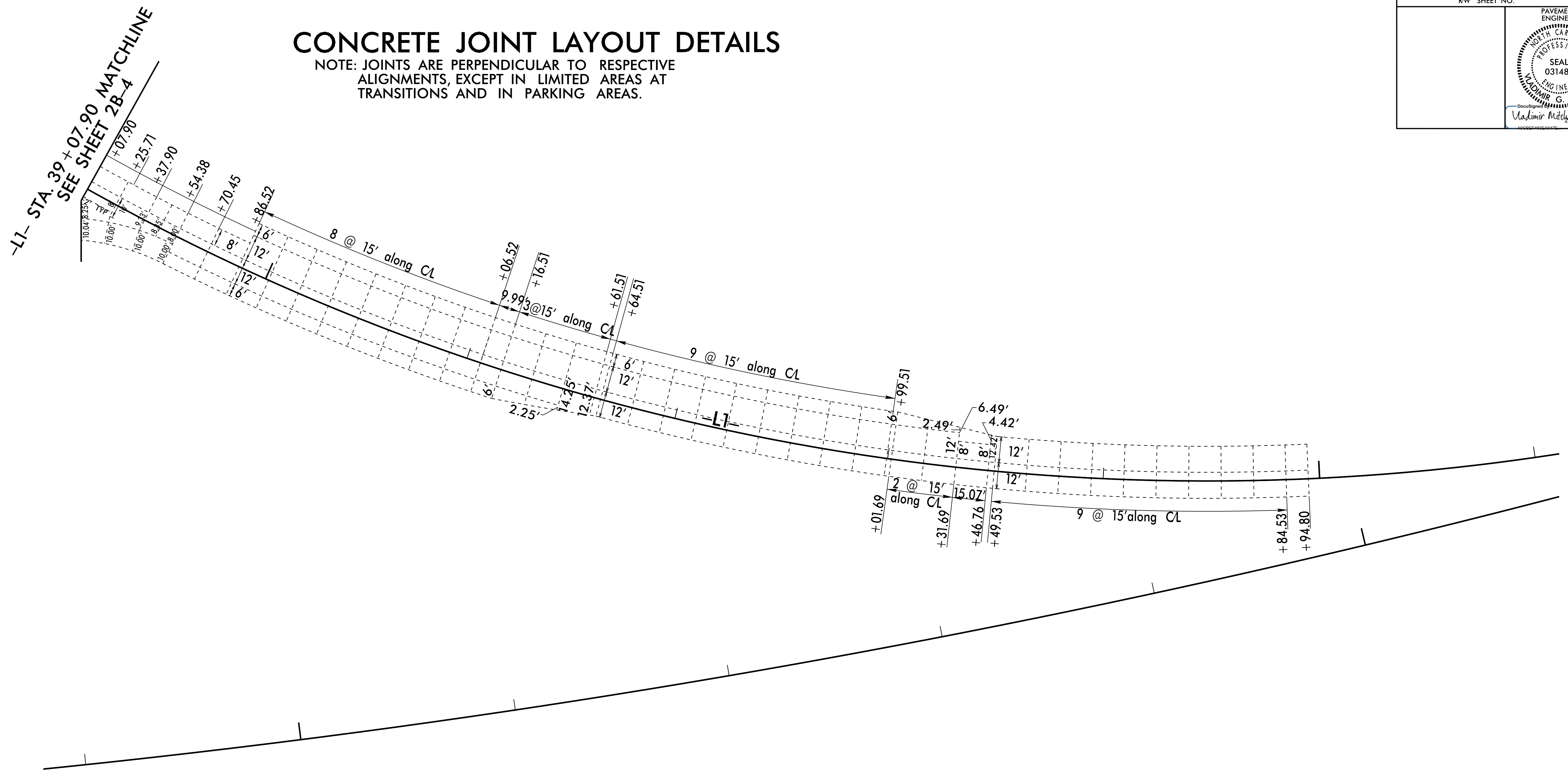
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# CONCRETE JOINT LAYOUT DETAILS

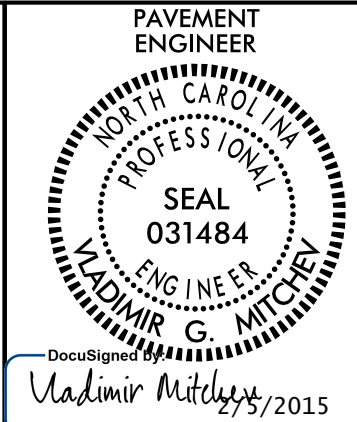
NOTE: JOINTS ARE PERPENDICULAR TO RESPECTIVE ALIGNMENTS, EXCEPT IN LIMITED AREAS AT TRANSITIONS AND IN PARKING AREAS.



NO.	DESCRIPTION

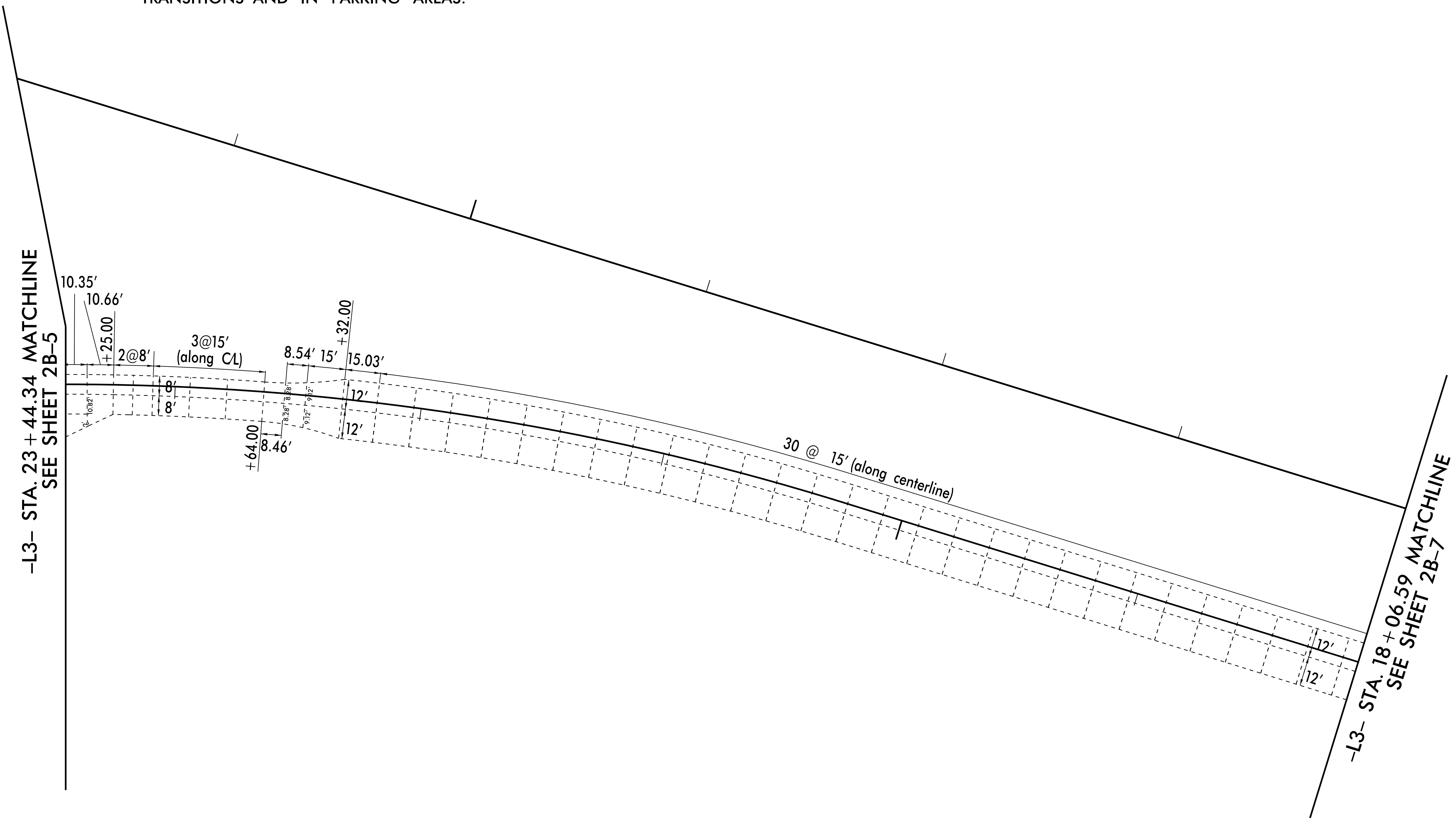
8/17/99

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# CONCRETE JOINT LAYOUT DETAILS

NOTE: JOINTS ARE PERPENDICULAR TO RESPECTIVE ALIGNMENTS, EXCEPT IN LIMITED AREAS AT TRANSITIONS AND IN PARKING AREAS.



-L3- STA. 23 + 44.34 MATCHLINE  
SEE SHEET 2B-5

-L3- STA. 18 + 06.59 MATCHLINE  
SEE SHEET 2B-7

30 @ 15' (along centerline)

3@15'  
(along CL)

2@8'

+64.00'

+32.00'

8.54'

15'

15.03'

12'

12'

8.46'

10.35'

10.66'

+25.00'

8'

8'

8.46'

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REVISIONS

8/17/99

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8/17/99

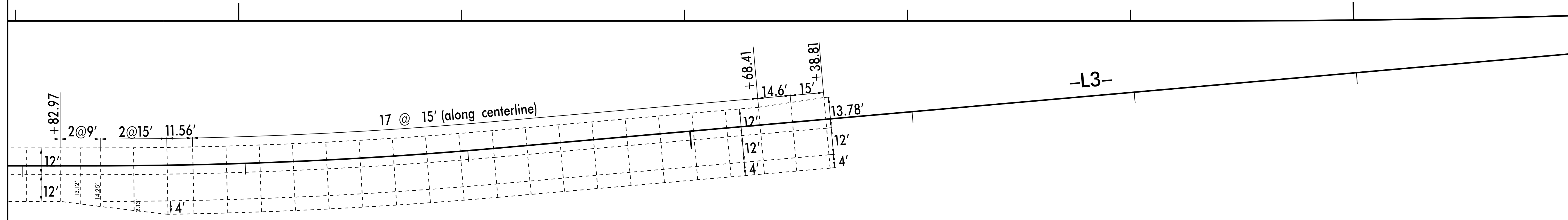
PROJECT REFERENCE NO.	SHEET NO.
K-4908	2B-7
RW SHEET NO.	
PAVEMENT ENGINEER SEAL 031484 VADIMIR G. MITCHELL 2015	

# CONCRETE JOINT LAYOUT DETAILS

NOTE: JOINTS ARE PERPENDICULAR TO RESPECTIVE ALIGNMENTS, EXCEPT IN LIMITED AREAS AT TRANSITIONS AND IN PARKING AREAS.

REVISIONS

-L3- STA. 18 + 06.59 MATCHLINE  
SEE SHEET 2B-6

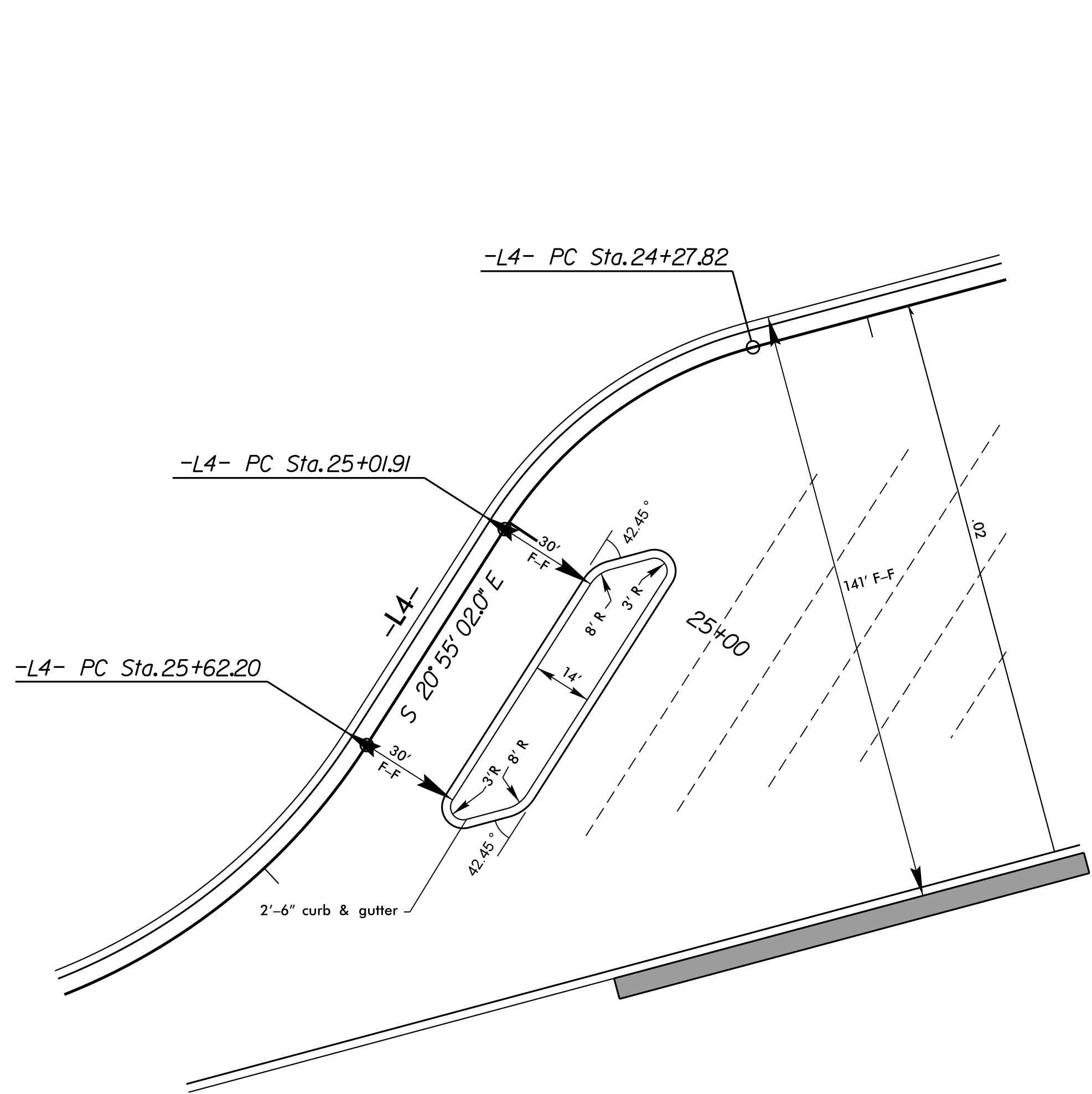


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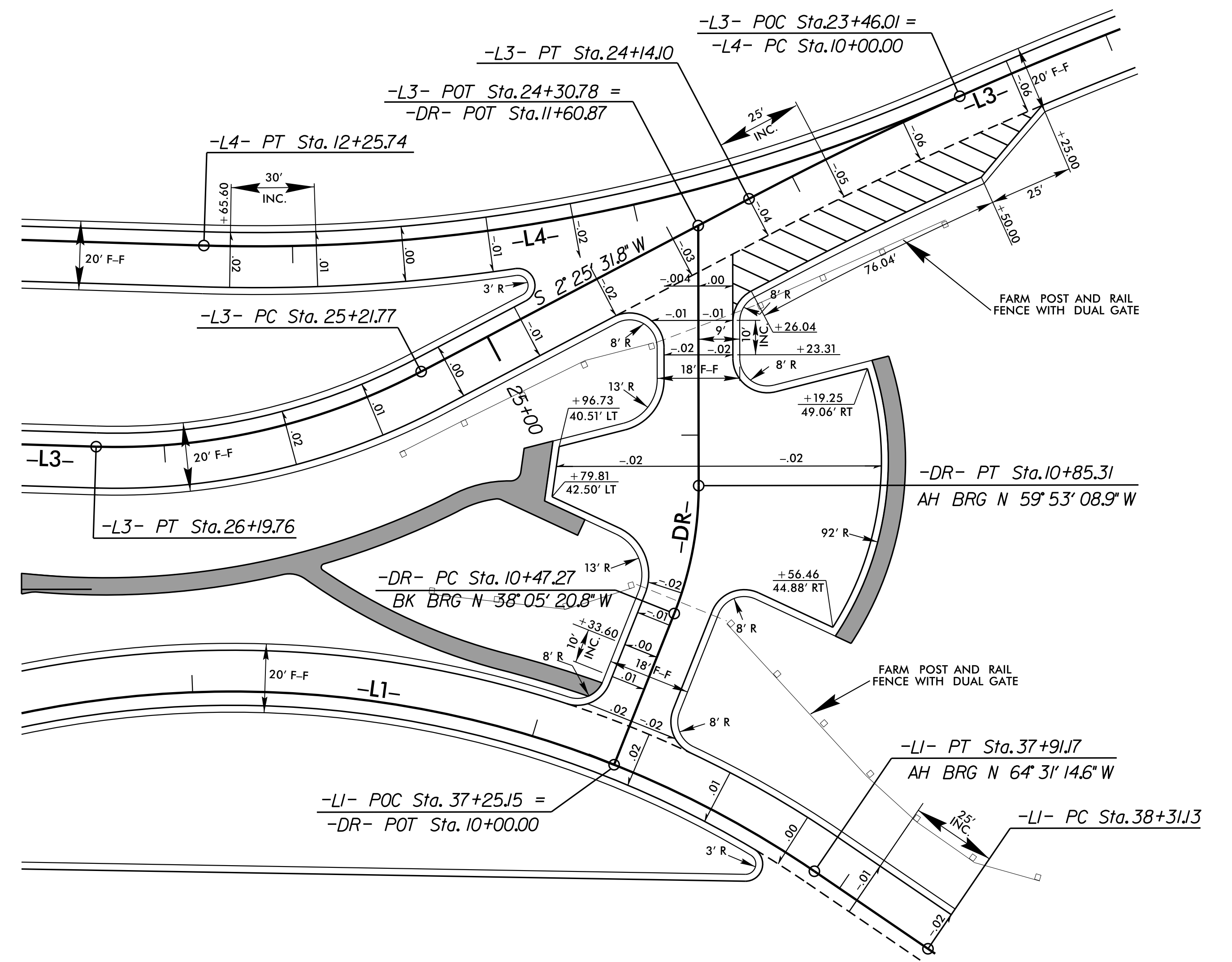
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**NOT TO SCALE**



LAYOUT DETAIL FOR -L4- ISLAND



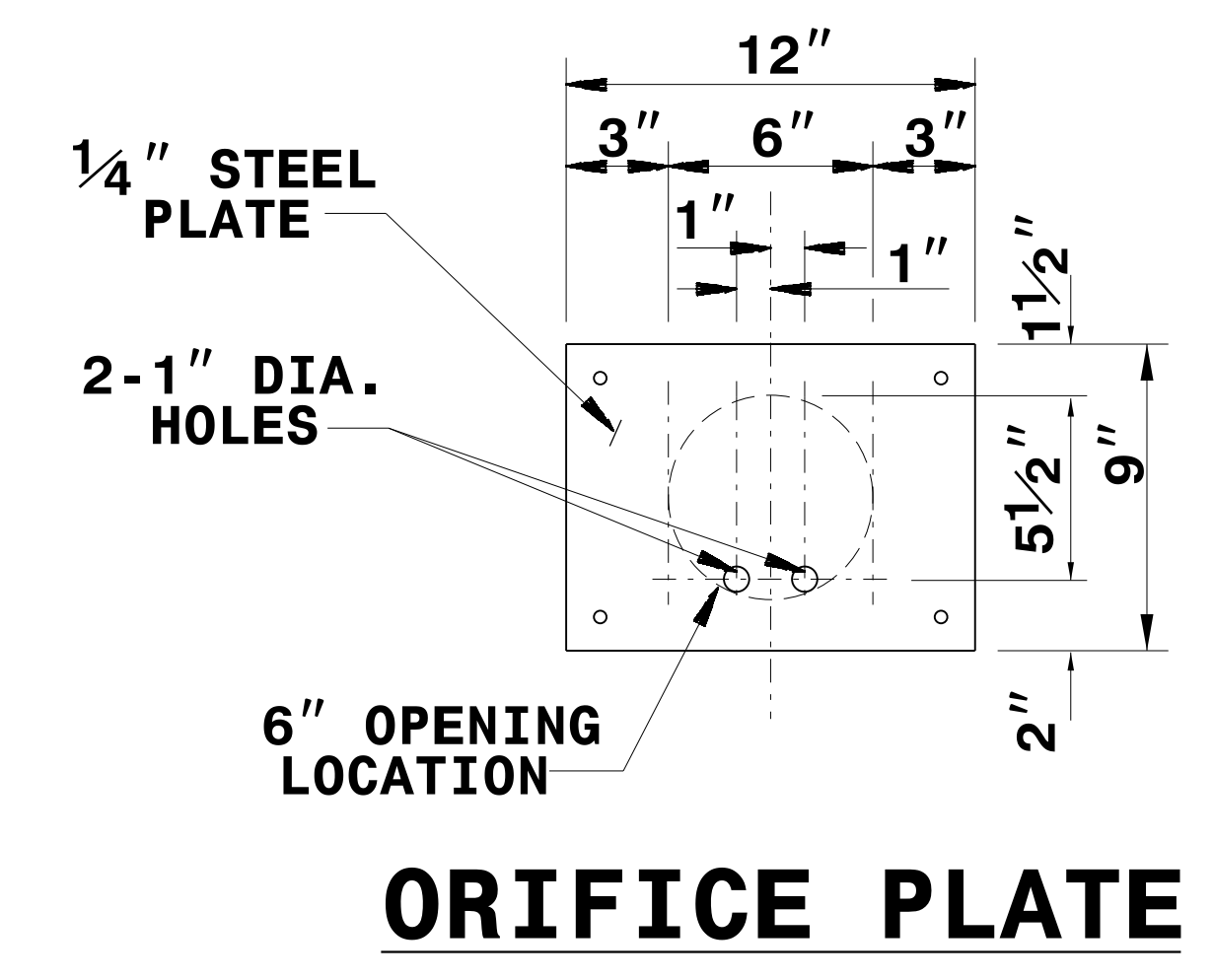
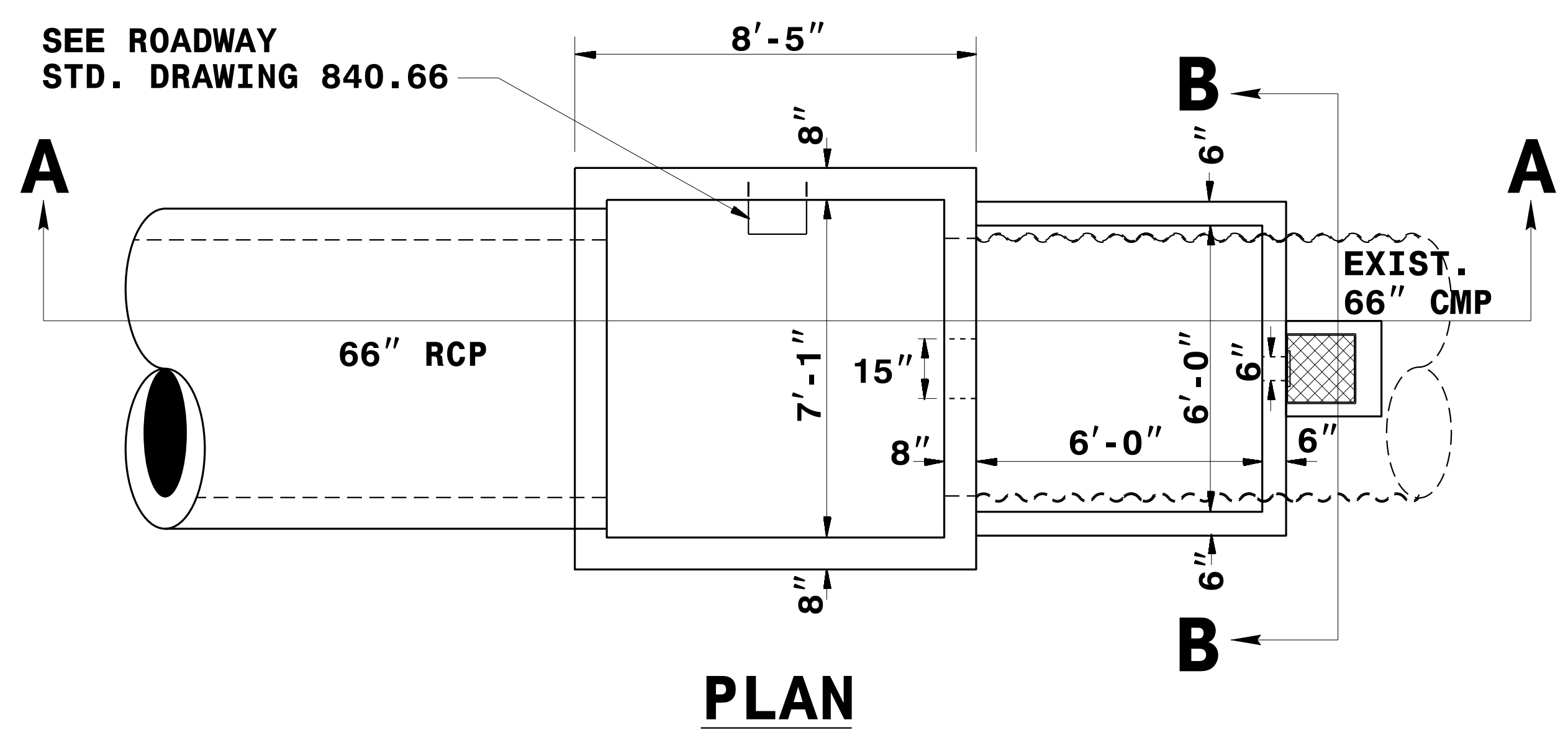
LAYOUT DETAIL FOR -DR-  
(SEE L-02 AND LD-04 FOR FARM POST AND RAIL FENCE WITH DUAL GATE LOCATIONS AND DETAILS)

PROP CONC SIDEWALK

REVISIONS

8/17/99

16 JAN 2015 13:24  
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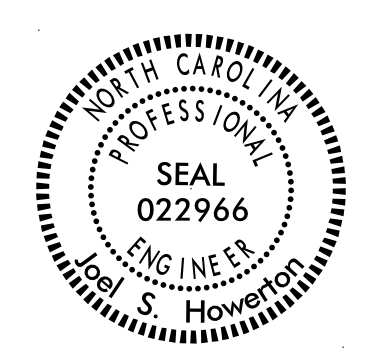
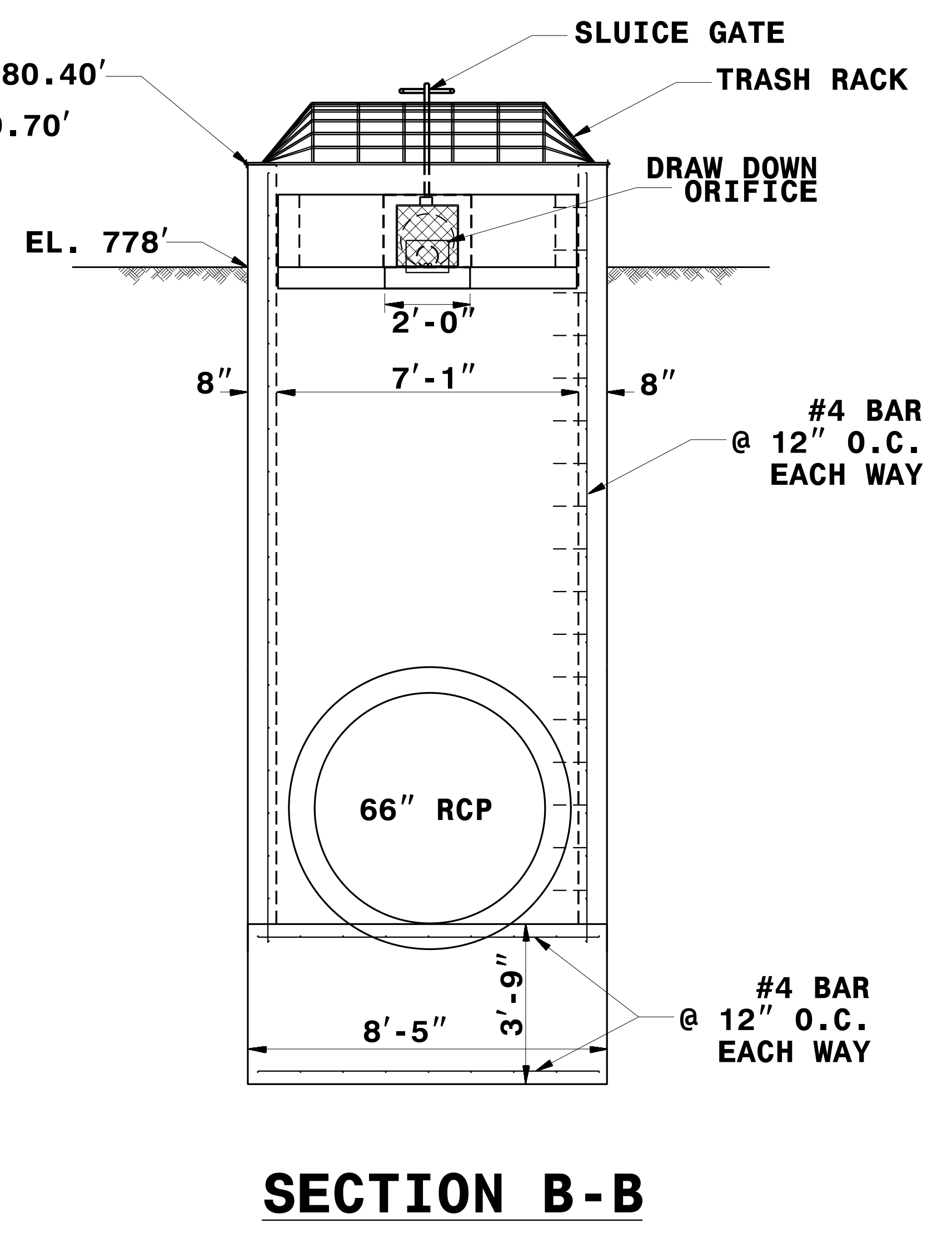
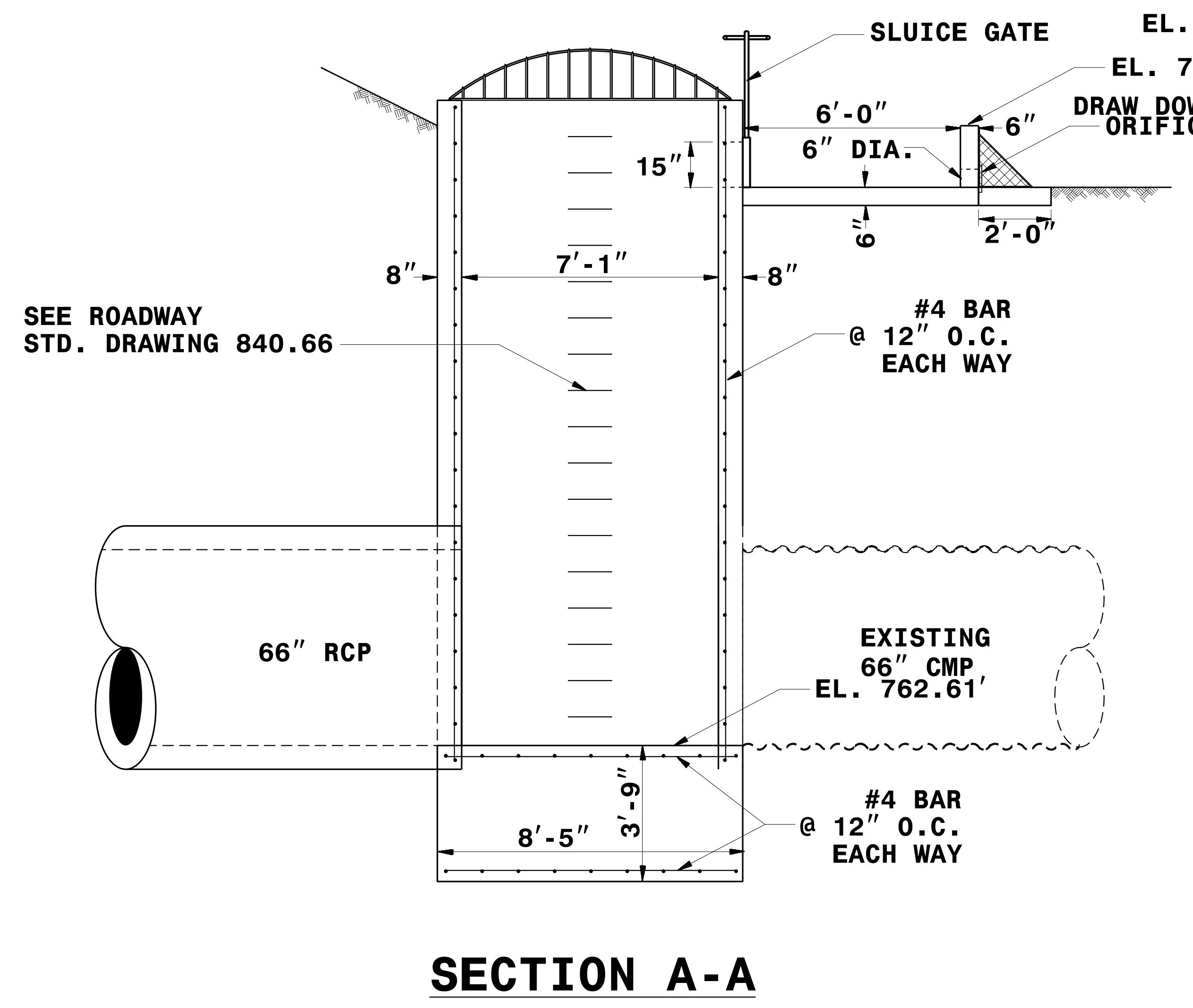
**GENERAL NOTES:**

- \* CHANGES IN ELEVATIONS MUST BE APPROVED BY THE ENGINEER.
- \* CLASS 'B' CONCRETE TO BE USED THROUGHOUT. PRECAST CONCRETE STRUCTURES TO BE SUBMITTED FOR APPROVAL. USE STD 840.45.
- \* OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2 INCH KEYWAY, OR #4 BAR DOWELS AT 12 INCH CENTERS, AS DIRECTED BY THE ENGINEER.
- \* 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 STANDARD 840.00.
- \* ALL DRAWDOWN STRUCTURES OVER 3 FEET IN DEPTH TO BE PROVIDED WITH STEPS 12 INCH ON CENTERS. STEPS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD 840.66.

**BILL OF MATERIAL**

BAR	NO.	SIZE	LENGTH	WEIGHT
H	112	#4	8'-1"	605
V	36	#4	18'-0"	433
TOTAL REINF. STEEL (lbs.)				1038
CLASS "B" CONC. (cu. yds.)				23.5
DEDUCTION FOR ONE PIPE (CY)				
66" RCP				0.87

NO DEDUCTIONS HAVE BEEN MADE FOR PIPE OPENINGS



Structure # 631  
Sheet 1 of 2

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

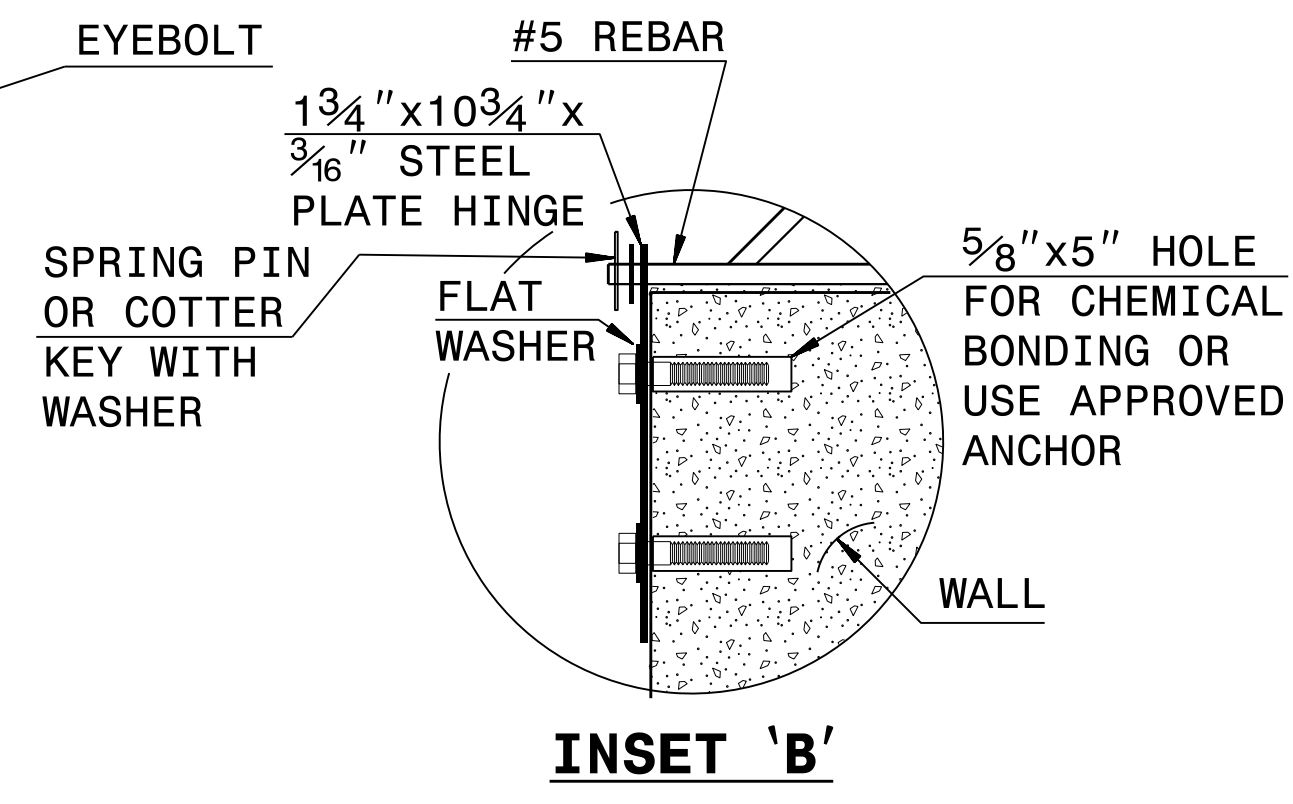
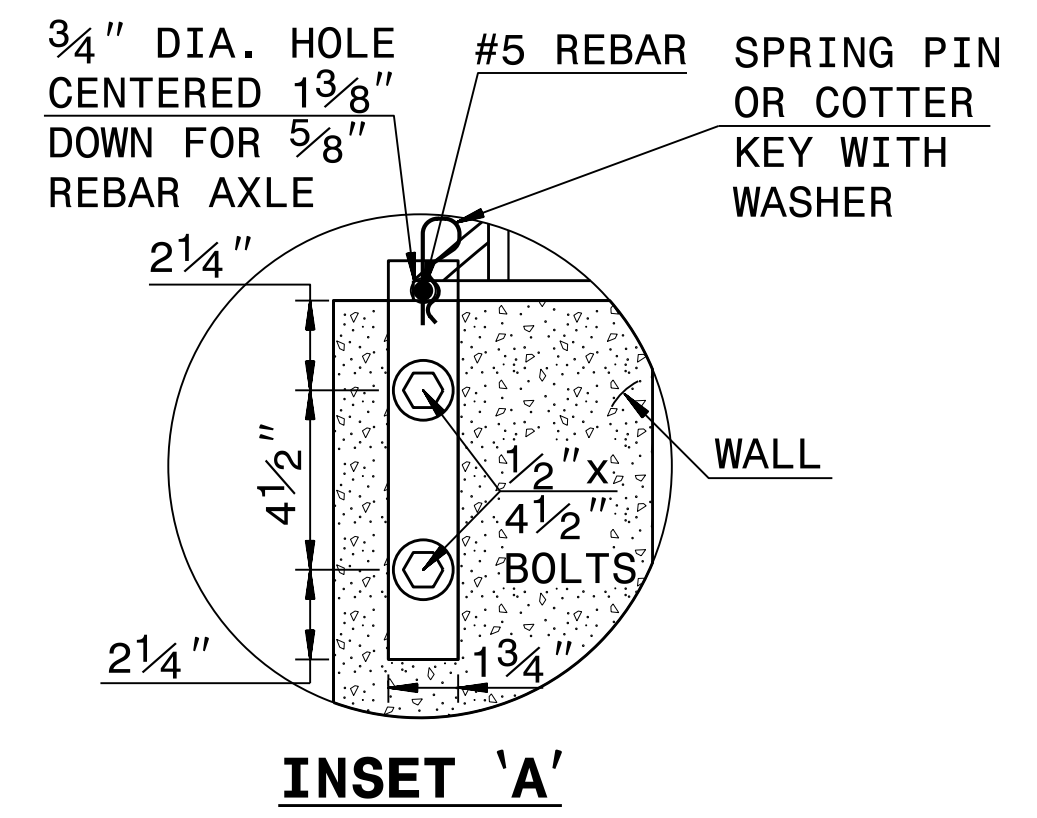
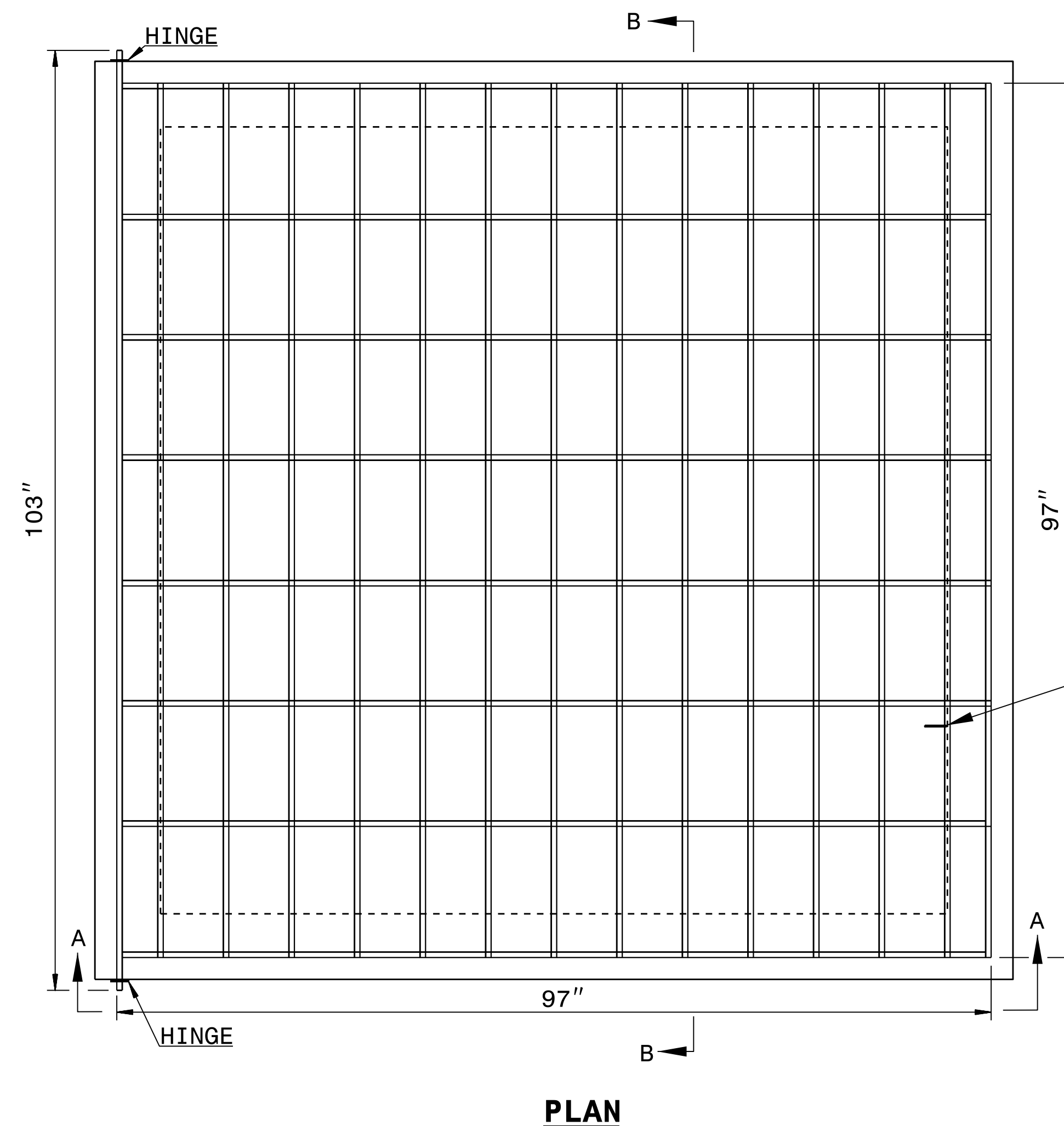
**DETAIL OF DRAWDOWN STRUCTURE**

ORIGINAL BY: K. KEMPF DATE: JAN 2015  
 MODIFIED BY: DATE:  
 CHECKED BY: DATE:  
 FILE SPEC.:

C:\TIME\DESIGN\CON\DESIGN\USER\NAME\\$\$\$\$\$.DWG

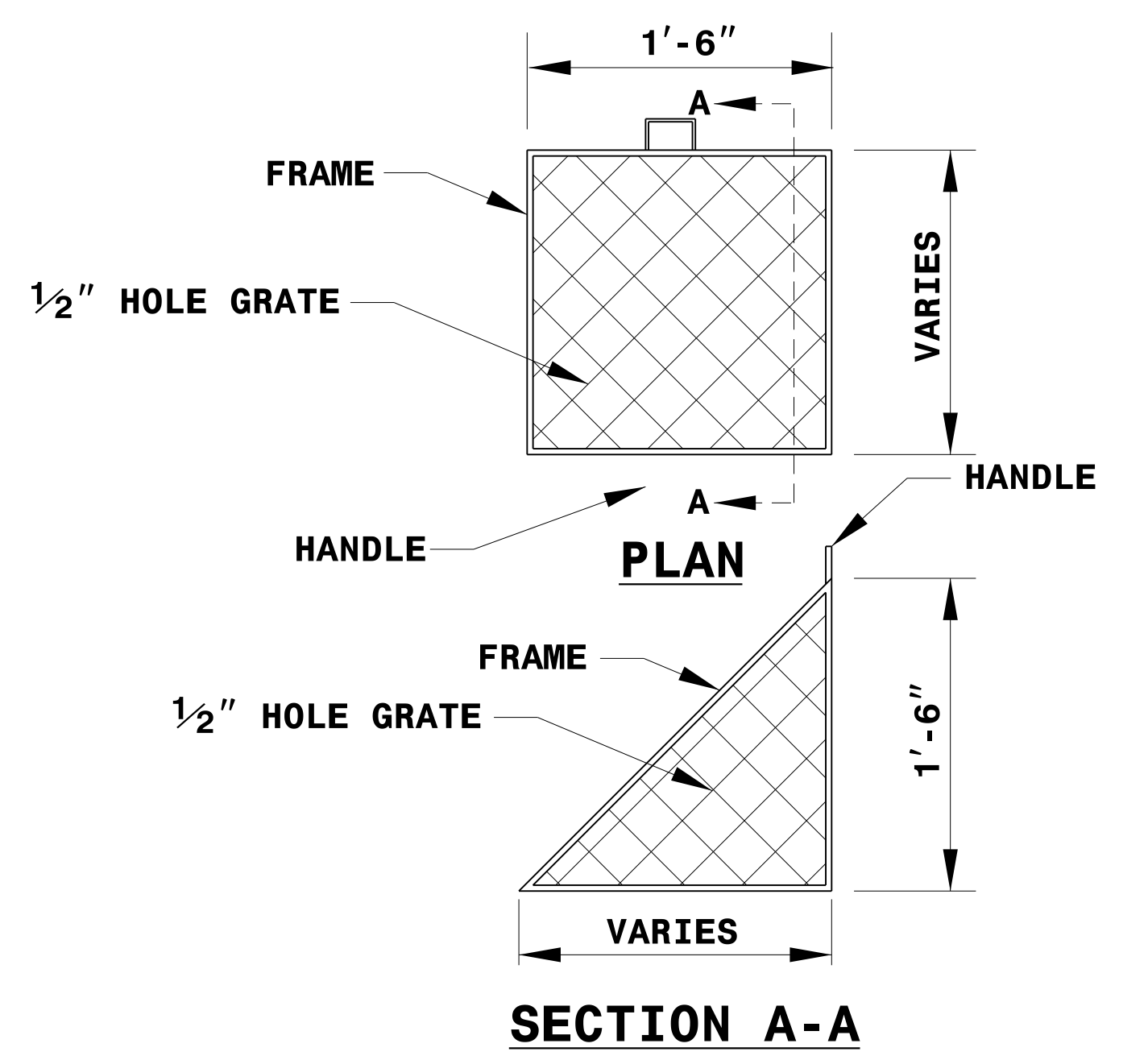


\* NOT TO SCALE



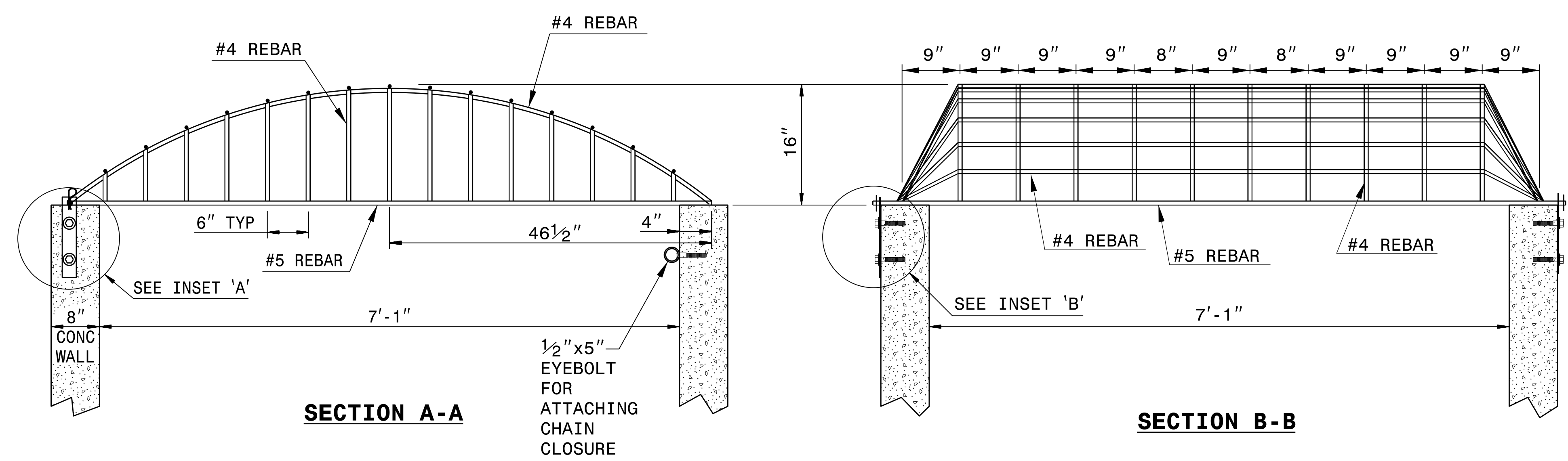
TOTALS:	
#4 REBAR LENGTH	220'-2"
WEIGHT	147 LBS
#5 REBAR LENGTH	32'-10"
WEIGHT	34 LBS
TOTAL WEIGHT	181 LBS

- GENERAL NOTES:
1. ALL REBAR JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
  2. IF BOLTS ARE CHEMICALLY ANCHORED, FOLLOW STD. DWG. 862.04 FOR ANCHORING PROCEDURE.
  3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
  4. RACK AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM 153.
  5. THIS DETAIL IS TO BE USED IN CONJUNCTION WITH A 8'-1" x 8'-1" CONCRETE OUTLET STRUCTURE DETAIL.



**REMOVABLE ORIFICE TRASH RACK**

- ORIFICE TRASH RACK NOTES:
1. FULLY WELD AROUND ALL JOINTS WITH A MINIMUM OF 1/4" BEAD.
  2. IF BOLTS ARE CHEMICALLY ANCHORED, FOLLOW STD. DWG. 862.04 FOR ANCHORING PROCEDURE.
  3. ATTACH REMOVABLE ORIFICE TRASH RACK TO THE CONCRETE SLAB BY HINGE OR SLIDE RAIL SYSTEM.
  4. RACK AND HARDWARE SHALL BE ALUMINUM OR GALVANIZED IN ACCORDANCE WITH ASTM 153.



**REBAR TRASH RACK**



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

**DETAIL OF REBAR TRASH RACK & BLOCKOUT TRASH RACK**

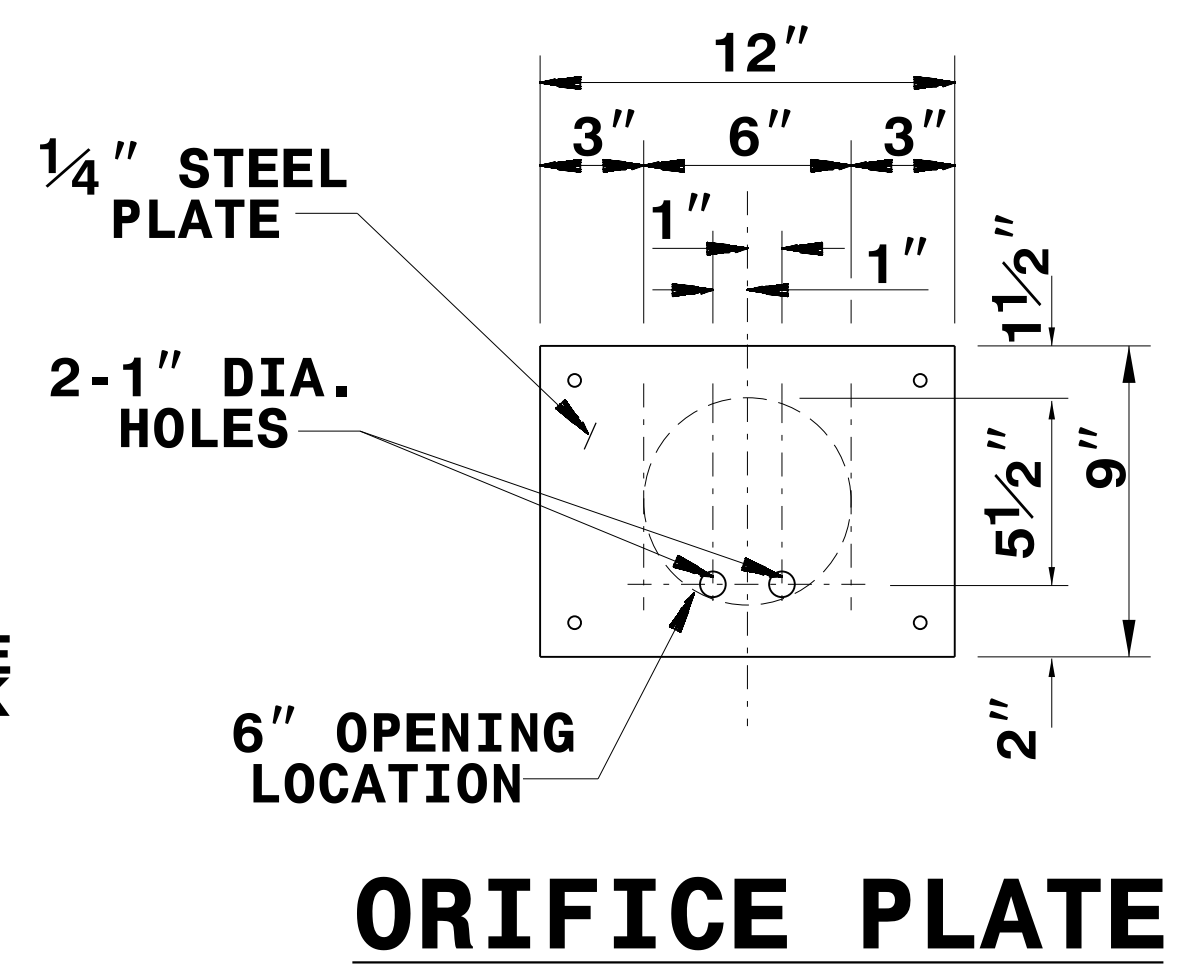
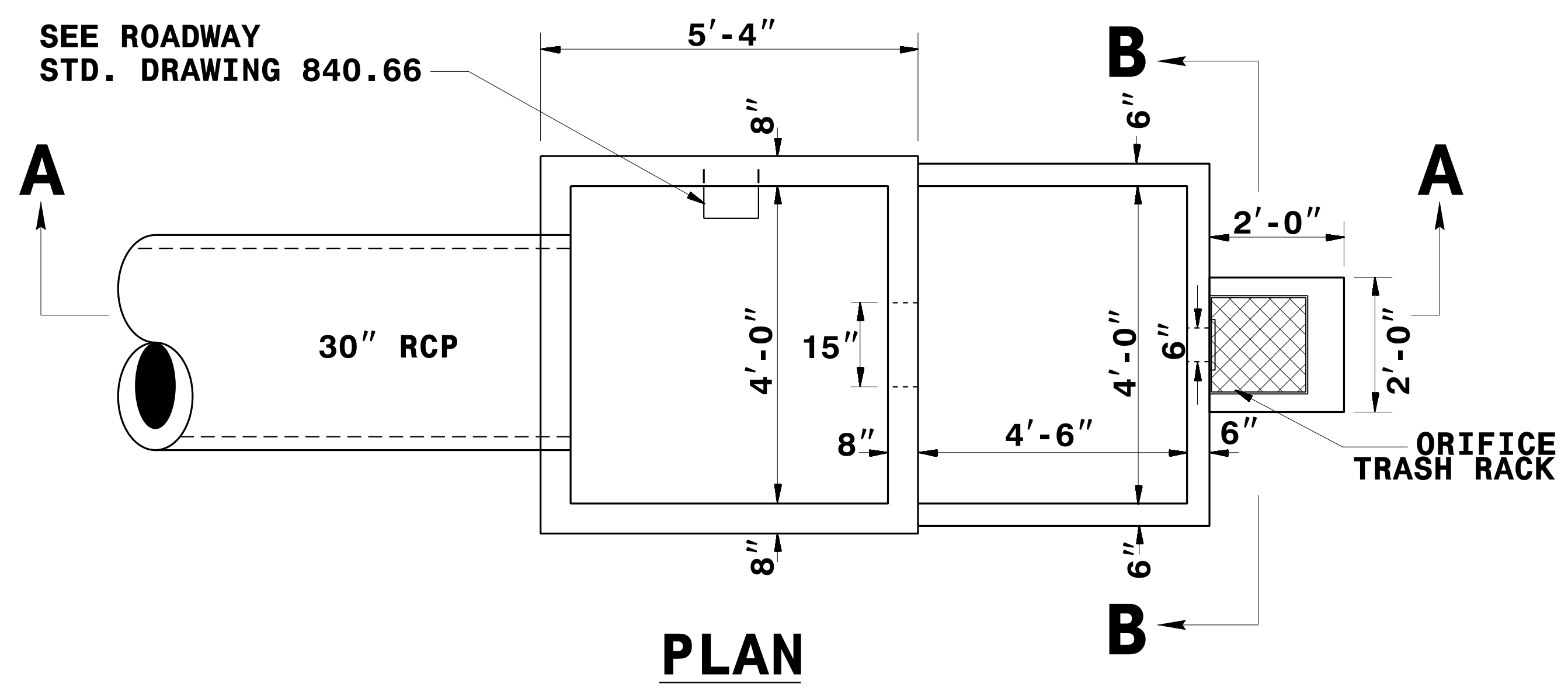
Structure # 631  
Sheet 2 of 2

ORIGINAL BY: _____	DATE: _____
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: _____	

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**GENERAL NOTES:**

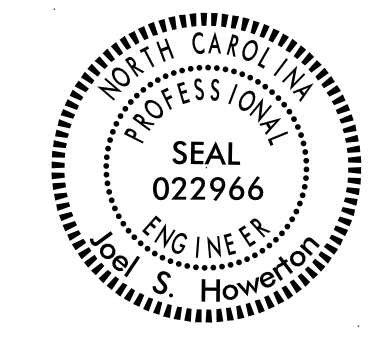
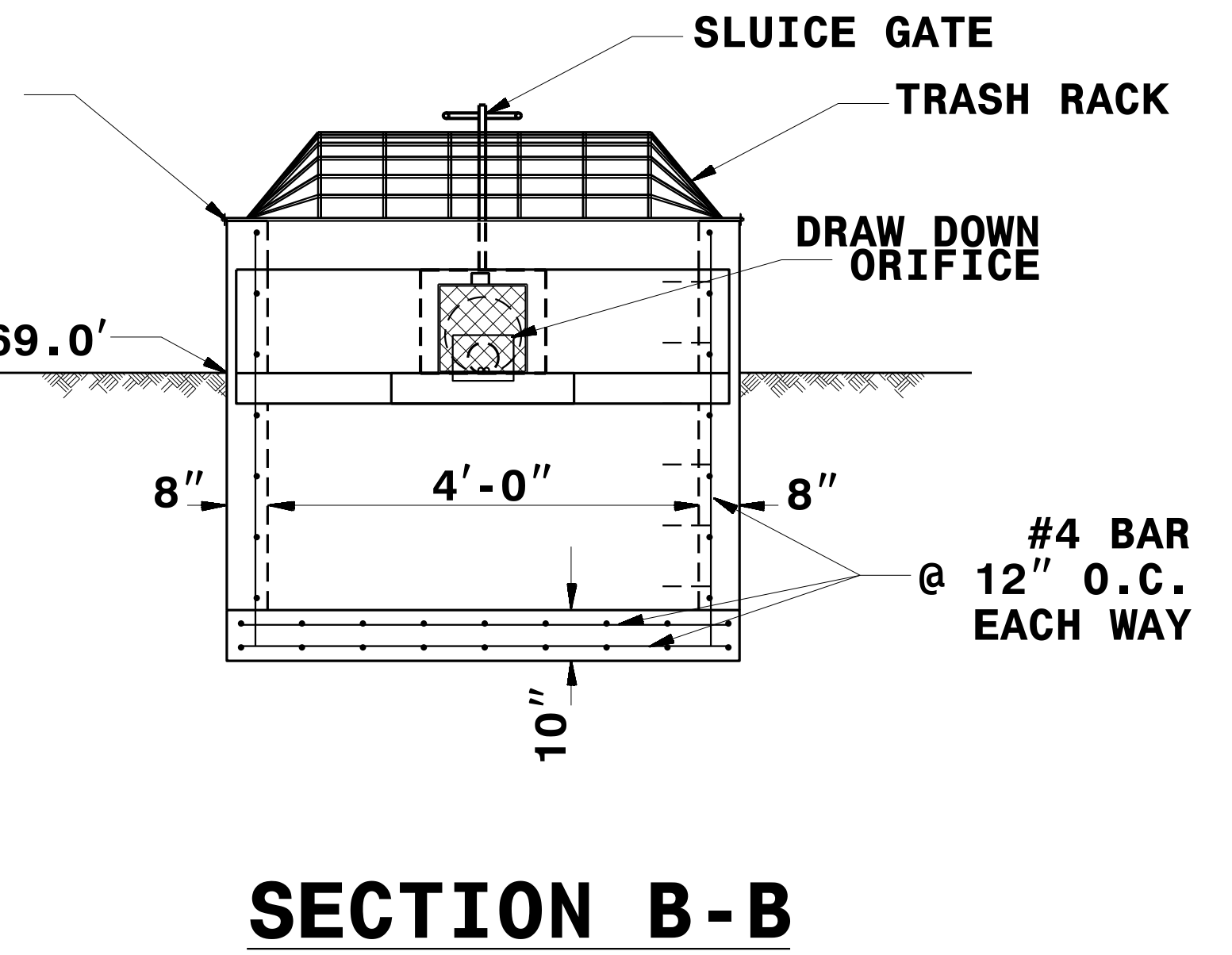
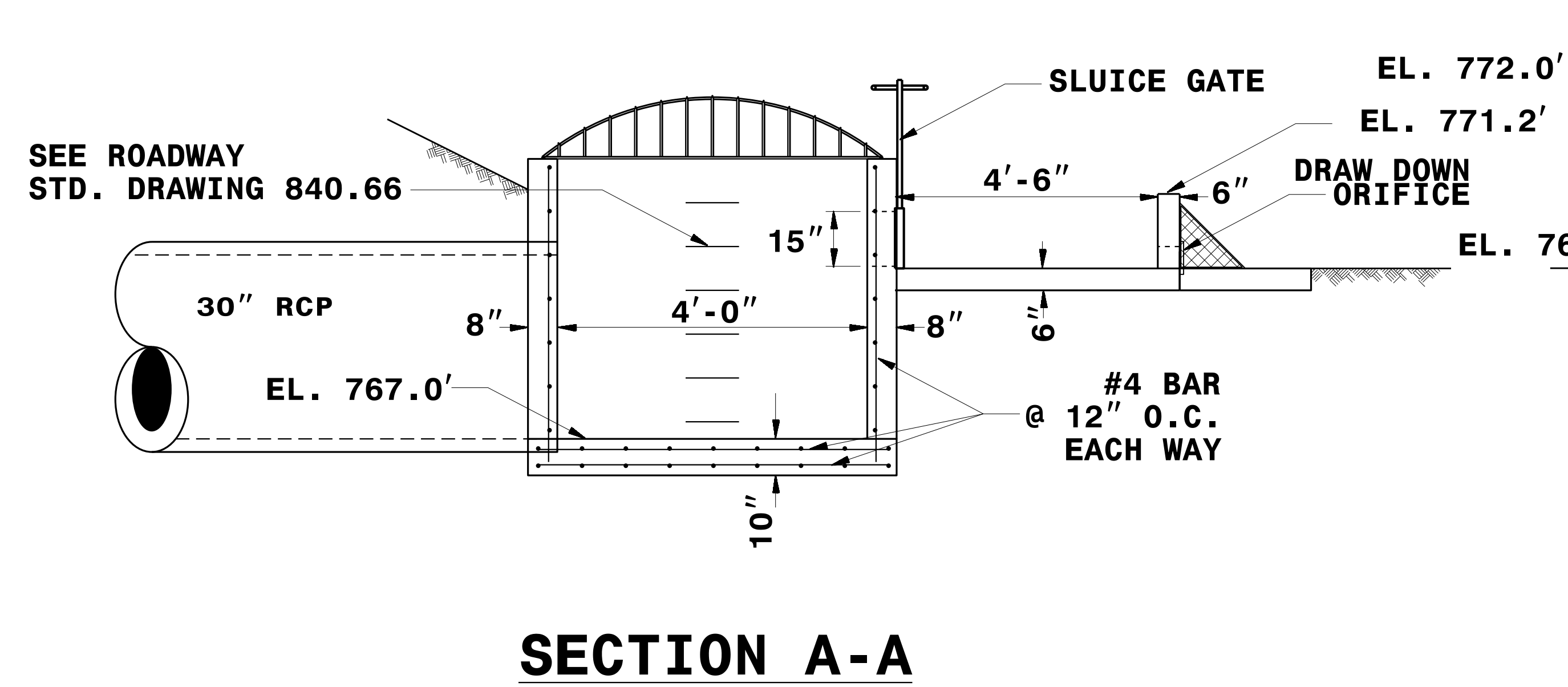
- \* CHANGES IN ELEVATIONS MUST BE APPROVED BY THE ENGINEER.
- \* CLASS 'B' CONCRETE TO BE USED THROUGHOUT. PRECAST CONCRETE STRUCTURES TO BE SUBMITTED FOR APPROVAL. USE STD 840.45.
- \* OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2 INCH KEYWAY, OR #4 BAR DOWELS AT 12 INCH CENTERS, AS DIRECTED BY THE ENGINEER.
- \* 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 STANDARD 840.00.
- \* ALL DRAWDOWN STRUCTURES OVER 3 FEET IN DEPTH TO BE PROVIDED WITH STEPS 12 INCH ON CENTERS. STEPS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD 840.66.



**BILL OF MATERIAL**

BAR	NO.	SIZE	LENGTH	WEIGHT
H	40	#4	5'-0"	134
V	20	#4	5'-2"	69
TOTAL REINF. STEEL (lbs.)				203
CLASS "B" CONC. (cu. yds.)				4.2
DEDUCTION FOR ONE PIPE (CY)				
30" RCP				0.19

NO DEDUCTIONS HAVE BEEN MADE FOR PIPE OPENINGS



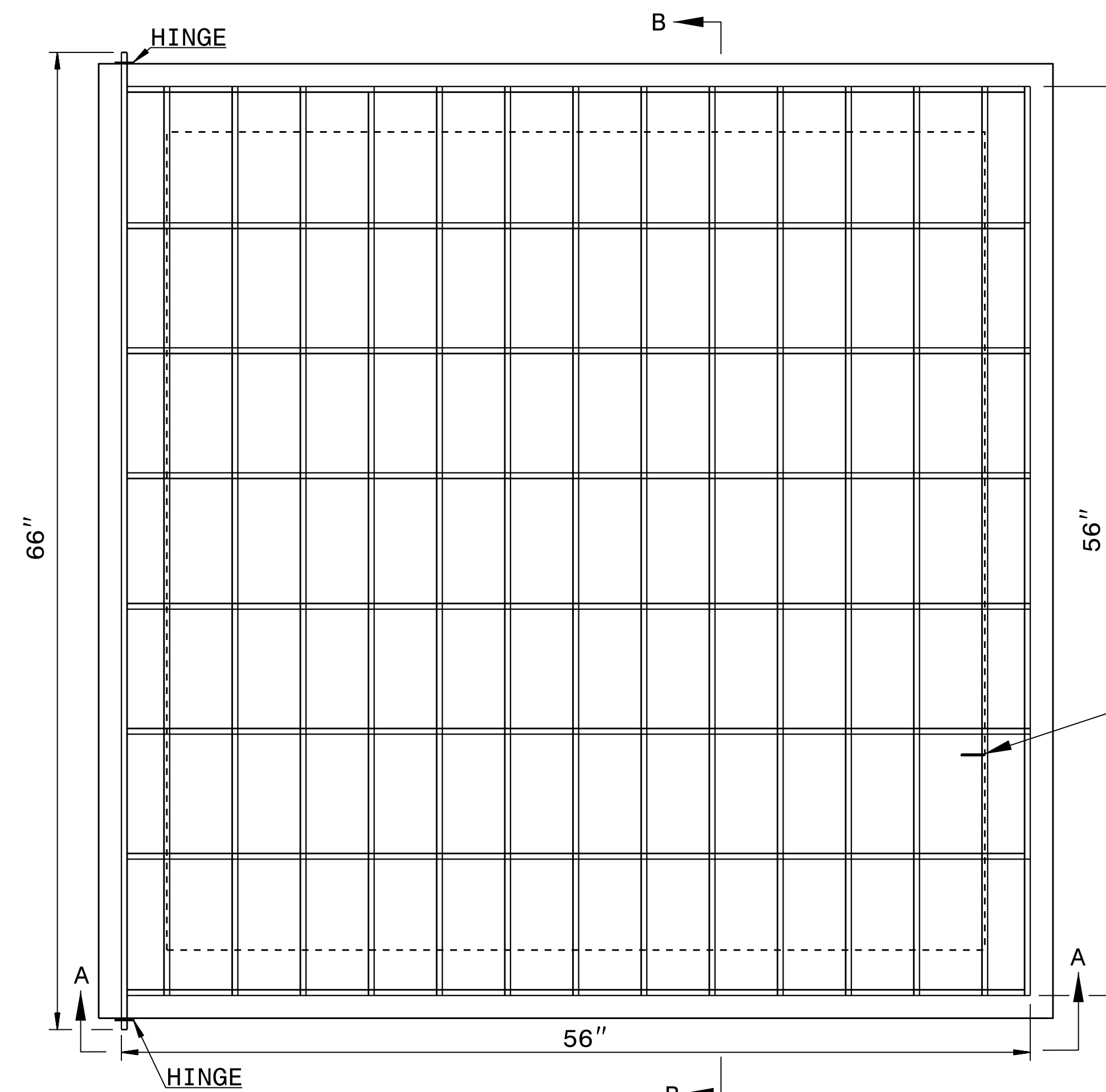
Structure # 729  
Sheet 1 of 2

<b>CONTRACTS STANDARDS AND DEVELOPMENT UNIT</b>	
Office 919-707-6950 FAX 919-250-4119	
<b>DETAIL OF DRAWDOWN STRUCTURE</b>	
ORIGINAL BY: K. KEMPF	DATE: JAN 2015
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

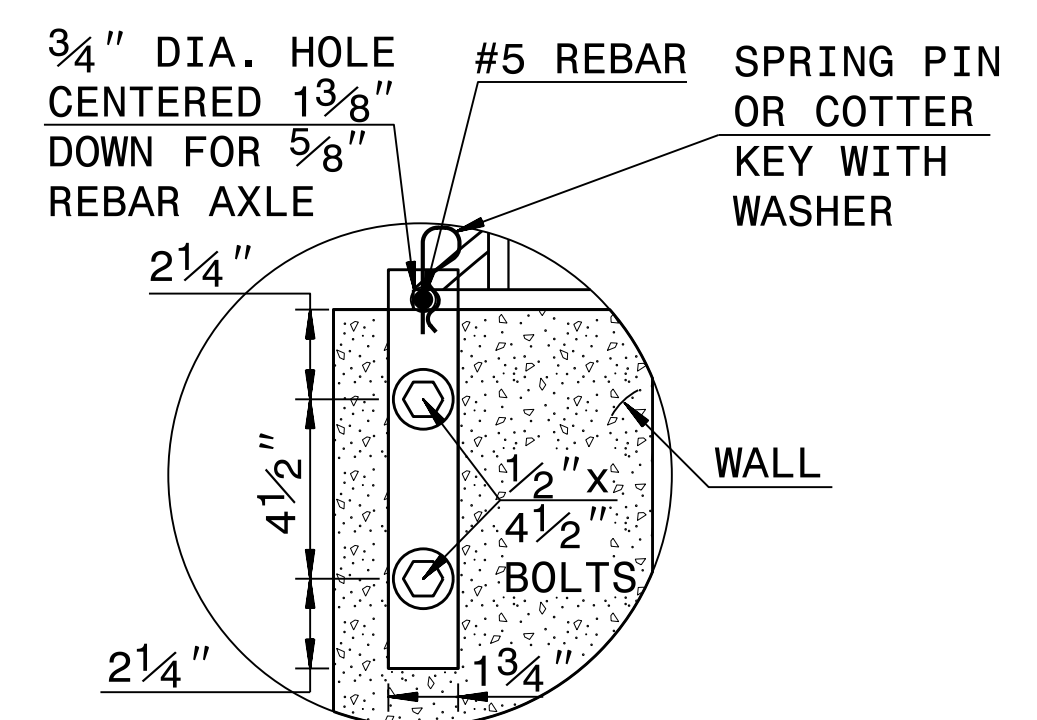
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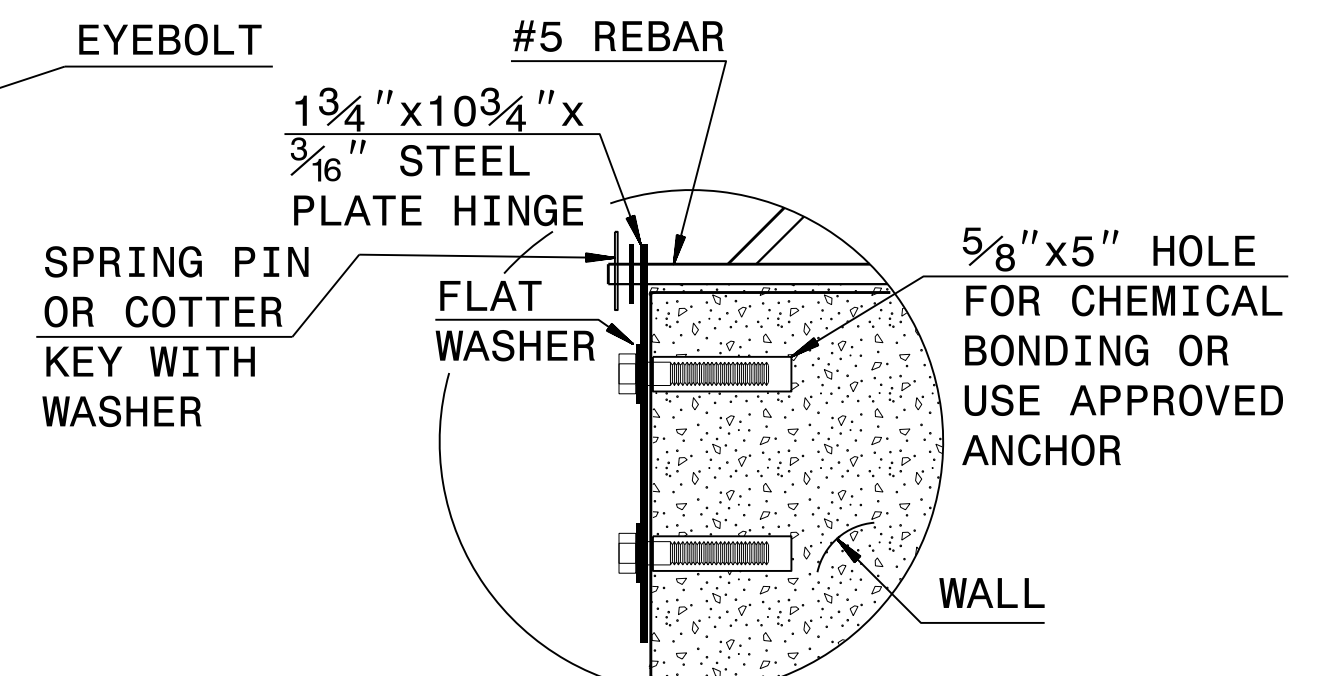
\* NOT TO SCALE



**PLAN**



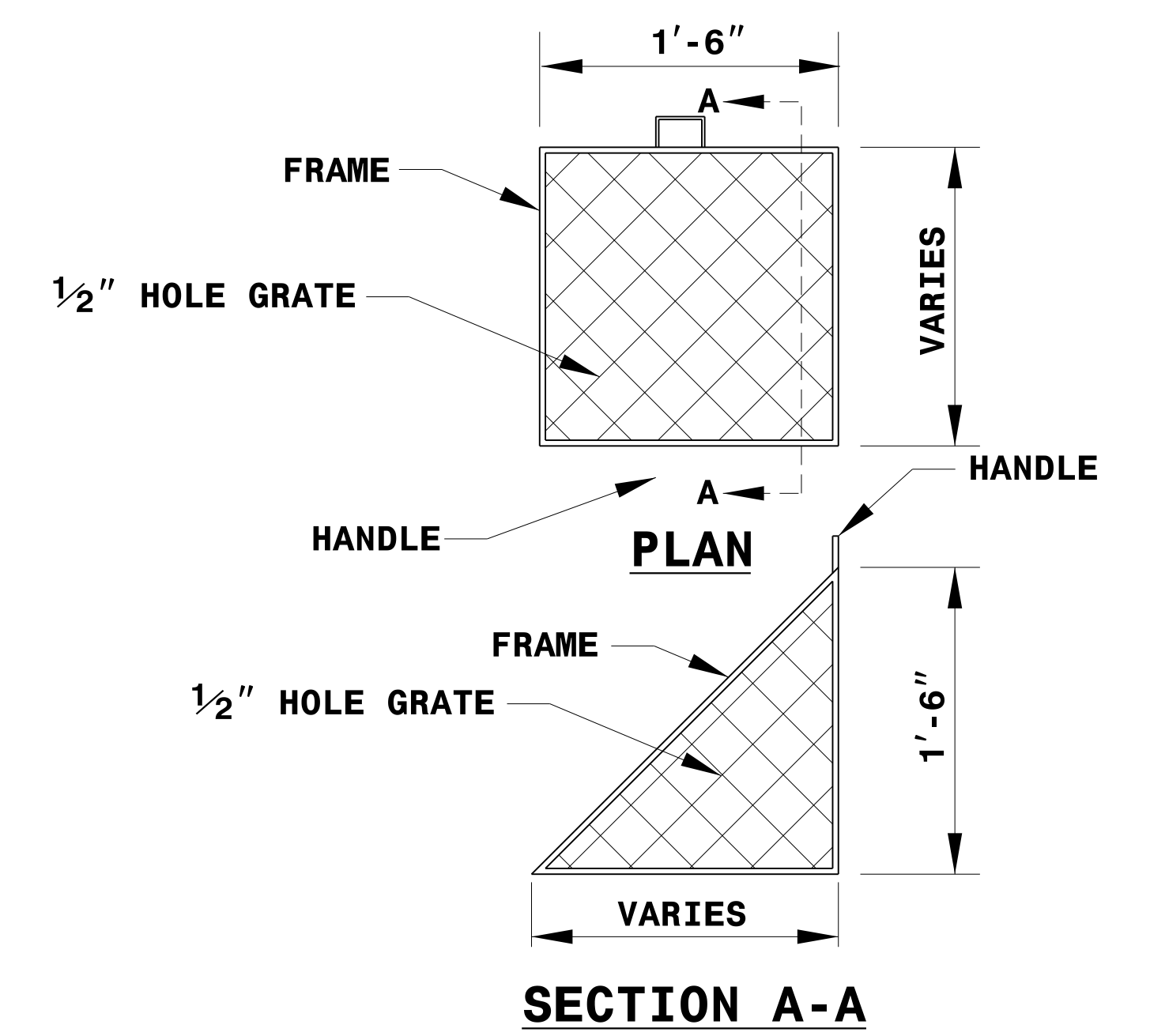
**INSET 'A'**



**INSET 'B'**

TOTALS:	
#4 REBAR LENGTH	70'-0"
WEIGHT	47 LBS
---PLUS---	
#5 REBAR LENGTH	19'-6"
WEIGHT	20 LBS
<b>TOTAL WEIGHT</b>	<b>67 LBS</b>

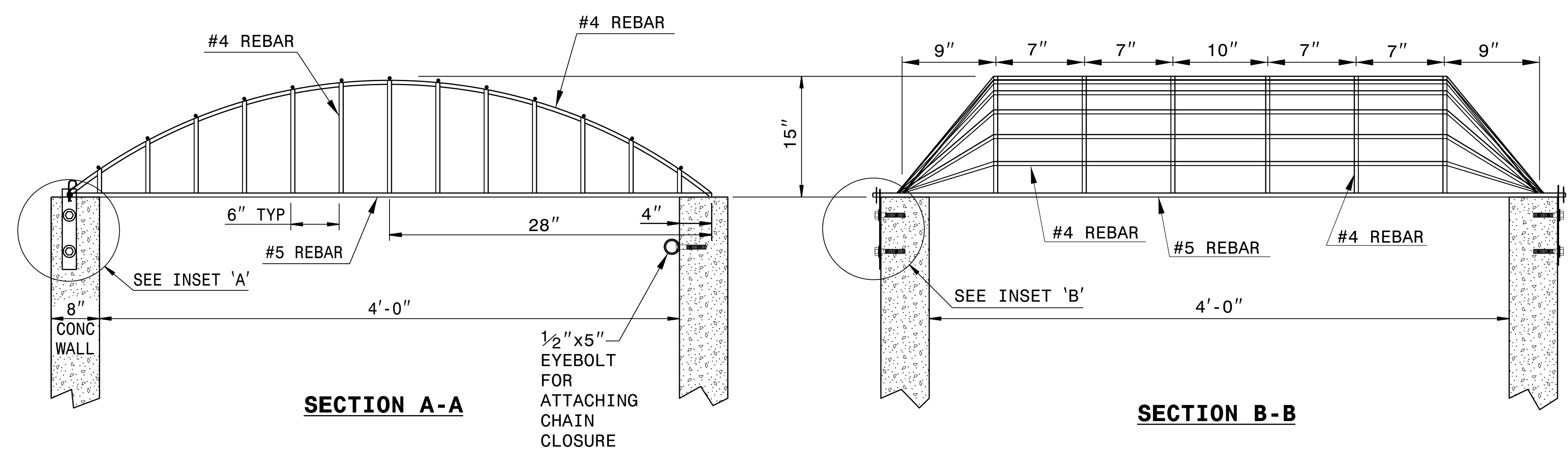
- GENERAL NOTES:
1. ALL REBAR JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
  2. IF BOLTS ARE CHEMICALLY ANCHORED, FOLLOW STD. DWG. 862.04 FOR ANCHORING PROCEDURE.
  3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
  4. RACK AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM 153.
  5. THIS DETAIL IS TO BE USED IN CONJUNCTION WITH A 5'-4" x 5'-4" CONCRETE OUTLET STRUCTURE DETAIL.



**SECTION A-A**

**REMOVABLE ORIFICE TRASH RACK**

- ORIFICE TRASH RACK NOTES:
1. FULLY WELD AROUND ALL JOINTS WITH A MINIMUM OF 1/4" BEAD.
  2. IF BOLTS ARE CHEMICALLY ANCHORED, FOLLOW STD. DWG. 862.04 FOR ANCHORING PROCEDURE.
  3. ATTACH REMOVABLE ORIFICE TRASH RACK TO THE CONCRETE SLAB BY HINGE OR SLIDE RAIL SYSTEM.
  4. RACK AND HARDWARE SHALL BE ALUMINUM OR GALVANIZED IN ACCORDANCE WITH ASTM 153.



**SECTION A-A**

**SECTION B-B**

**REBAR TRASH RACK**



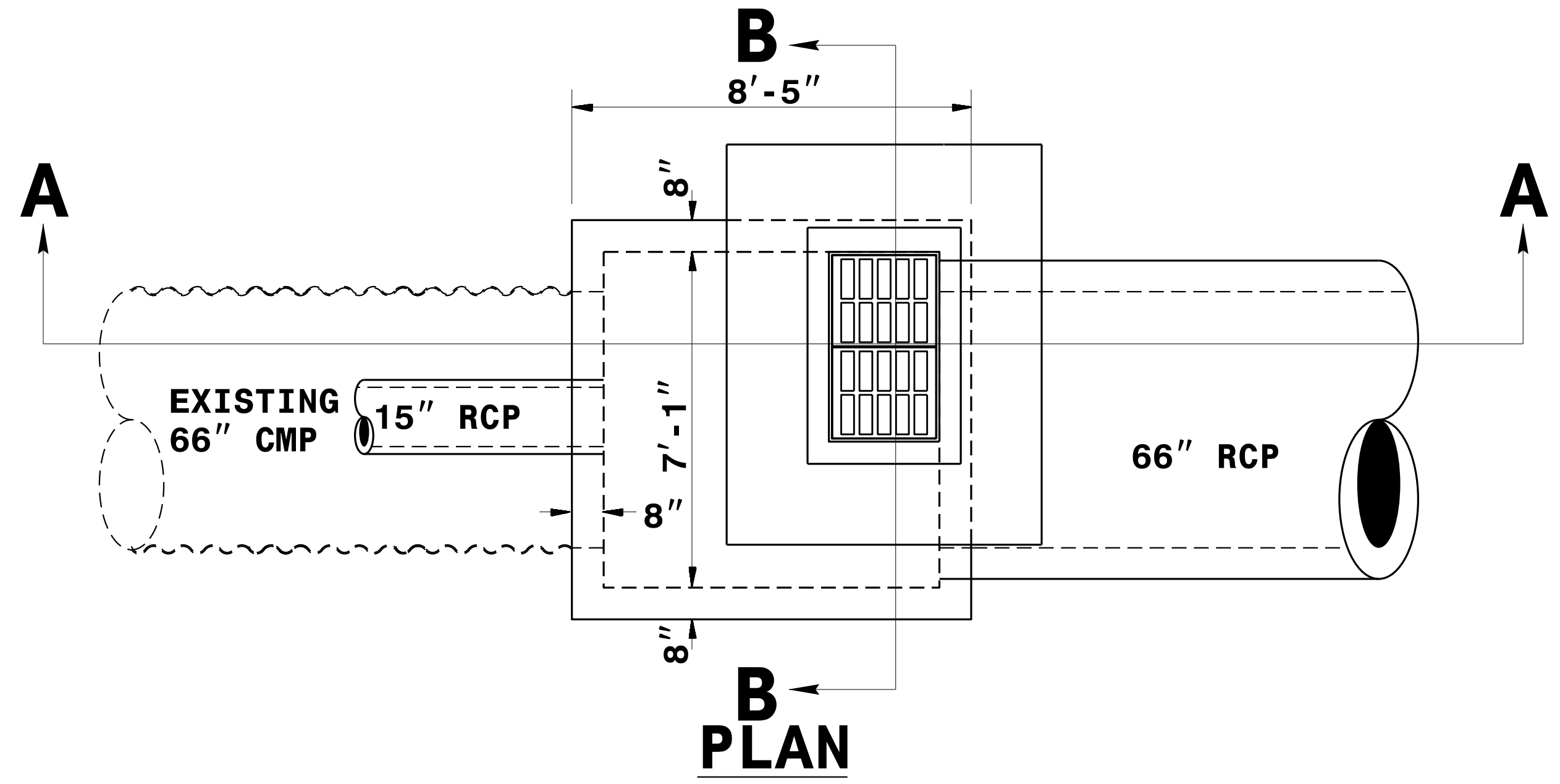
CONTRACT STANDARDS & DEVELOPMENT UNIT  
STANDARDS AND SPECIAL DESIGN  
Office 919-707-6950 FAX 919-250-4119

**DETAIL OF REBAR TRASH RACK & BLOCKOUT TRASH RACK**

Structure # 729  
Sheet 2 of 2

ORIGINAL BY: _____	DATE: _____
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: _____	

C:\TIME\DESIGN\CON\DESIGN\USER\NAME\$\$\$\$\$  
 Y-CHEK-DESIGN-CON-DESIGN-USER-NAME\$\$\$\$\$



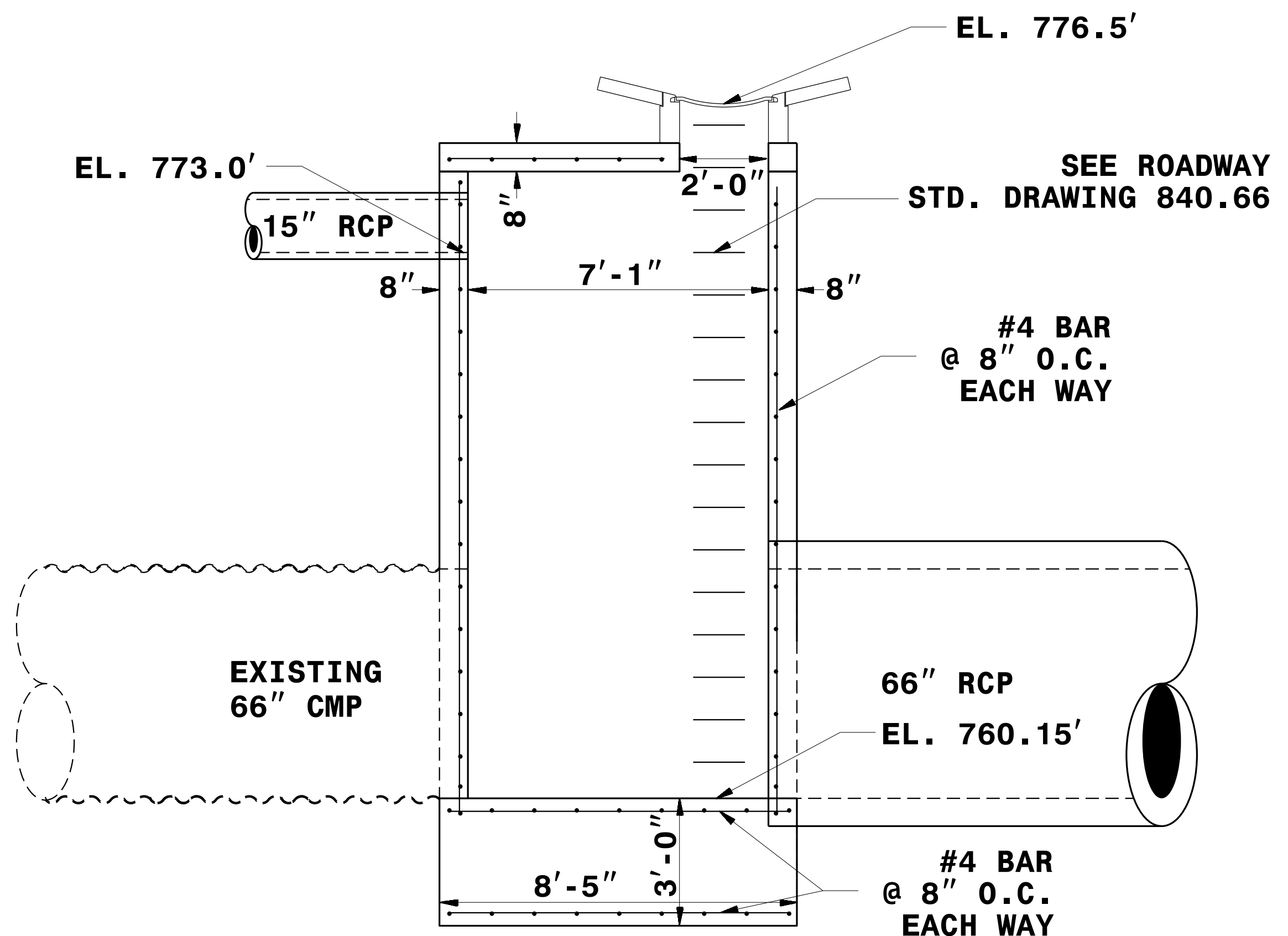
**GENERAL NOTES:**

- \* CHANGES IN ELEVATIONS MUST BE APPROVED BY THE ENGINEER.
- \* CLASS 'B' CONCRETE TO BE USED THROUGHOUT. PRECAST CONCRETE STRUCTURES TO BE SUBMITTED FOR APPROVAL. USE STD 840.45.
- \* OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2 INCH KEYWAY, OR #4 BAR DOWELS AT 12 INCH CENTERS, AS DIRECTED BY THE ENGINEER.
- \* 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 STANDARD 840.00.
- \* ALL STRUCTURES OVER 3 FEET IN DEPTH TO BE PROVIDED WITH STEPS 12 INCH ON CENTERS. STEPS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD 840.66.
- \* USE STANDARD FRAMES AND GRATES 840.22, 840.24, 840.20, OR 840.29
- \* SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES.

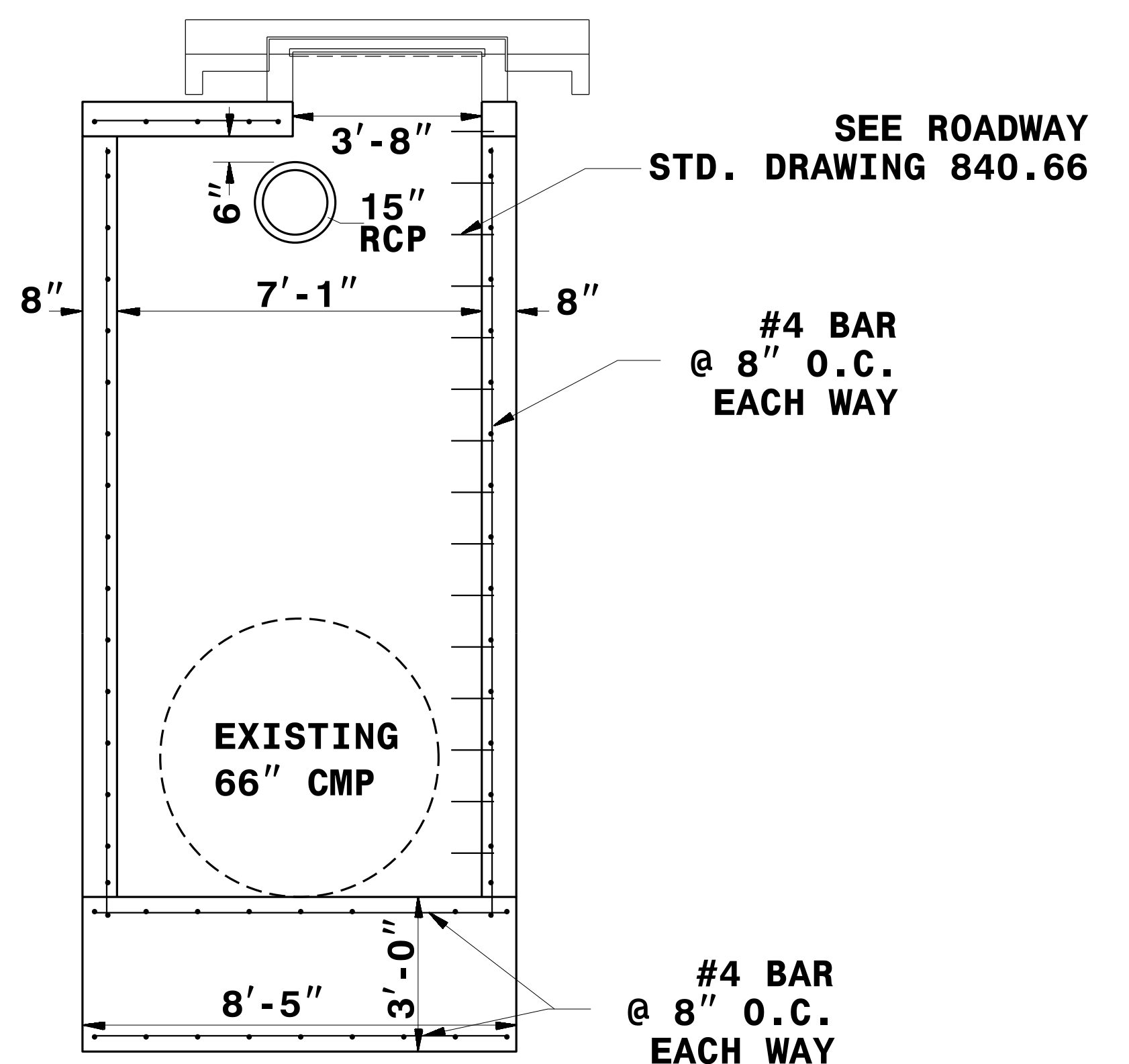
**BILL OF MATERIAL**

BAR	NO.	SIZE	LENGTH	WEIGHT
H	128	#4	8'-1"	691
V	48	#4	13'-6"	433
TOTAL REINF. STEEL (lbs.)				1124
CLASS "B" CONC. (cu. yds.)				19.9
DEDUCTION FOR ONE PIPE (CY)				
66" RCP				0.87

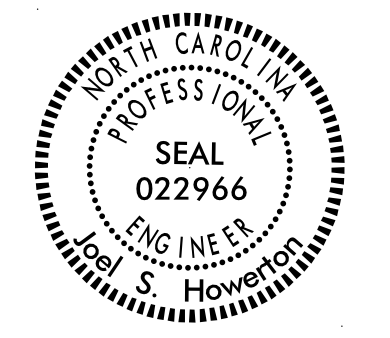
NO DEDUCTIONS HAVE BEEN MADE FOR PIPE OPENINGS



**SECTION A-A**



**SECTION B-B**



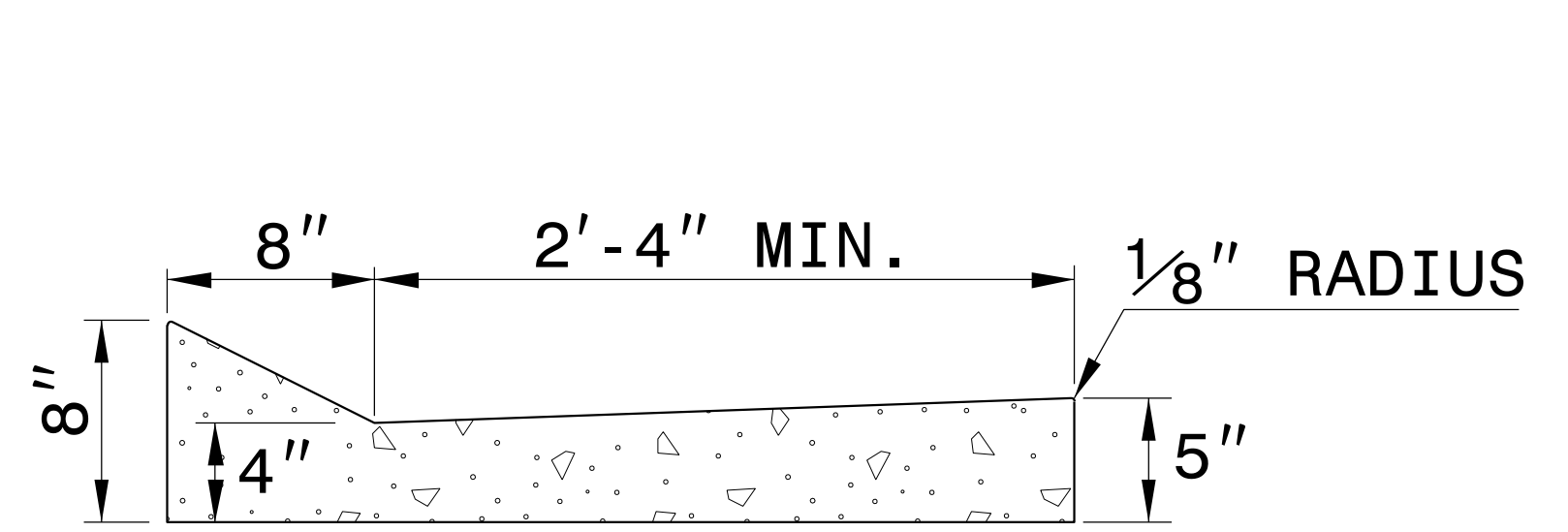
**CONTRACTS STANDARDS AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**DETAIL OF SPECIAL 2-GI**

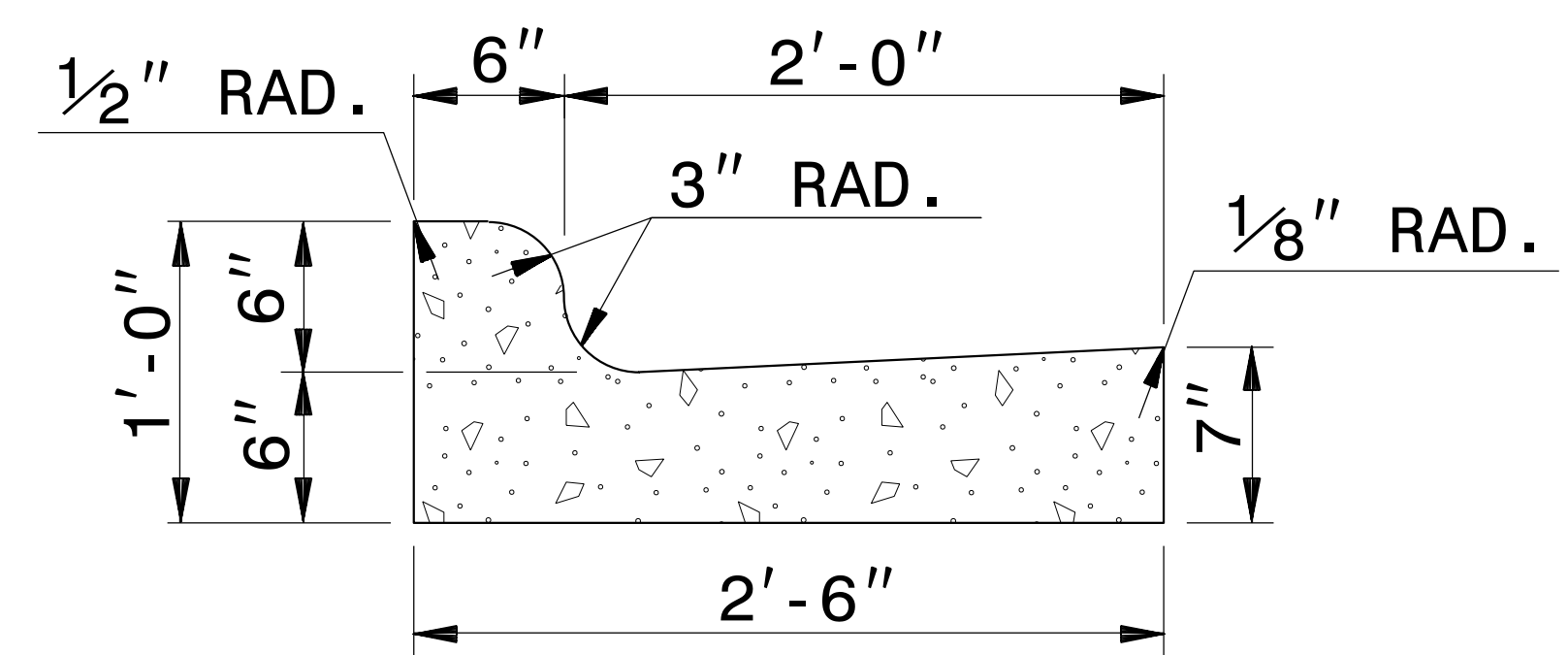
ORIGINAL BY: K. KEMPF	DATE: JAN 2015
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

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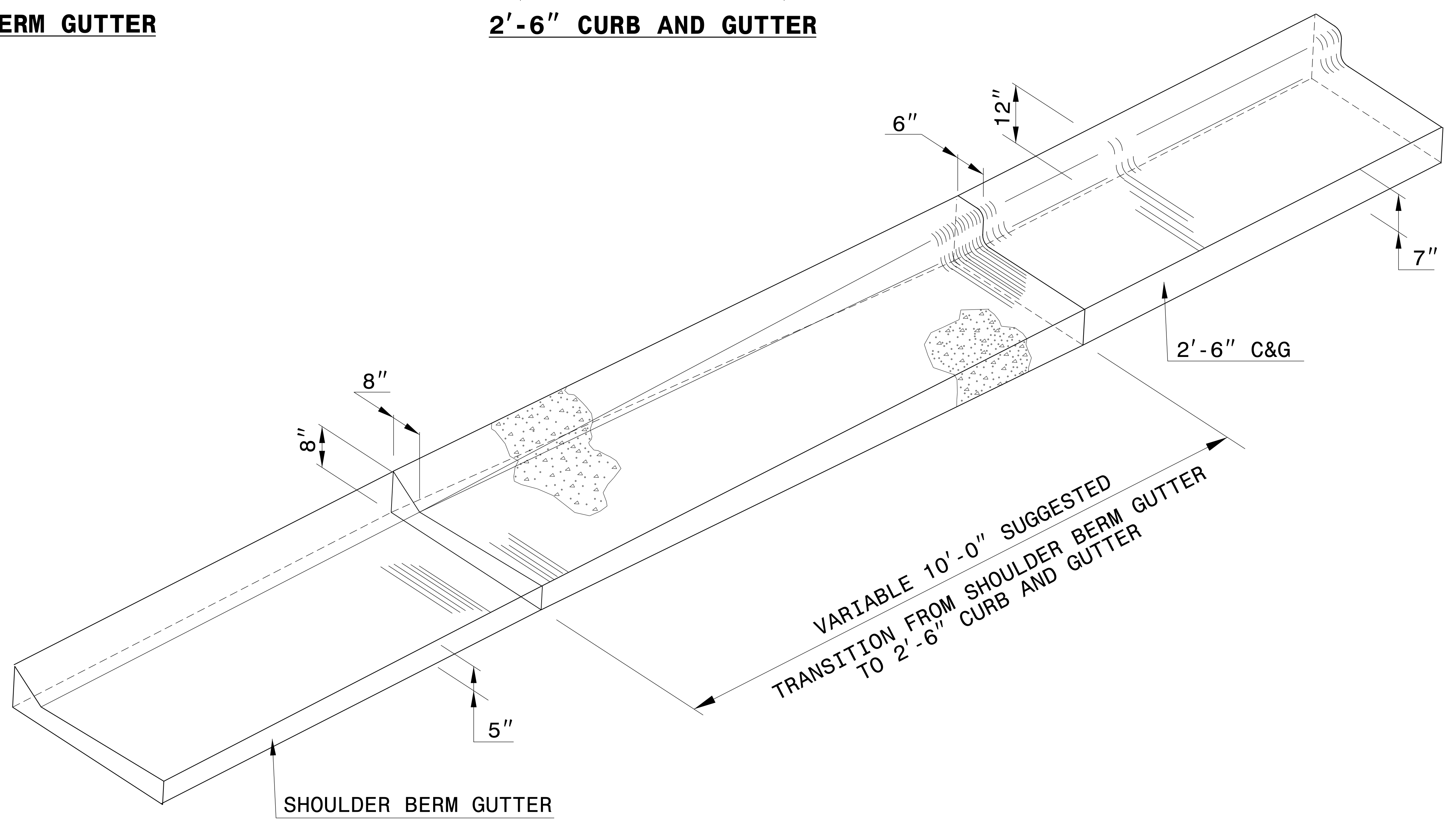


**SHOULDER BERM GUTTER**

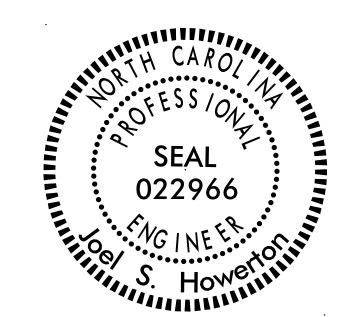


**2'-6" CURB AND GUTTER**

\*NOTE: SEE STD. DWG. 846.01 FOR GENERAL NOTES



**ISOMETRIC VIEW OF TRANSITION**



<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>	
Office 919-707-6950	FAX 919-250-4119
<b>DETAIL OF SHOULDER BERM GUTTER TO 2'-6" CURB &amp; GUTTER TRANSITION SECTION</b>	
ORIGINAL BY: E.E. WARD	DATE: 5-29-02
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: /usr/details/stand/cgtransit.dgn	

5/14/99  
\$\$\$\$\$C:\TIME\$\$\$\$\$  
\$\$\$\$\$C:\CADD\DRAWING\$\$\$\$\$  
\$\$\$\$\$C:\CADD\USER\NAME\$\$\$\$\$

### MATERIALS

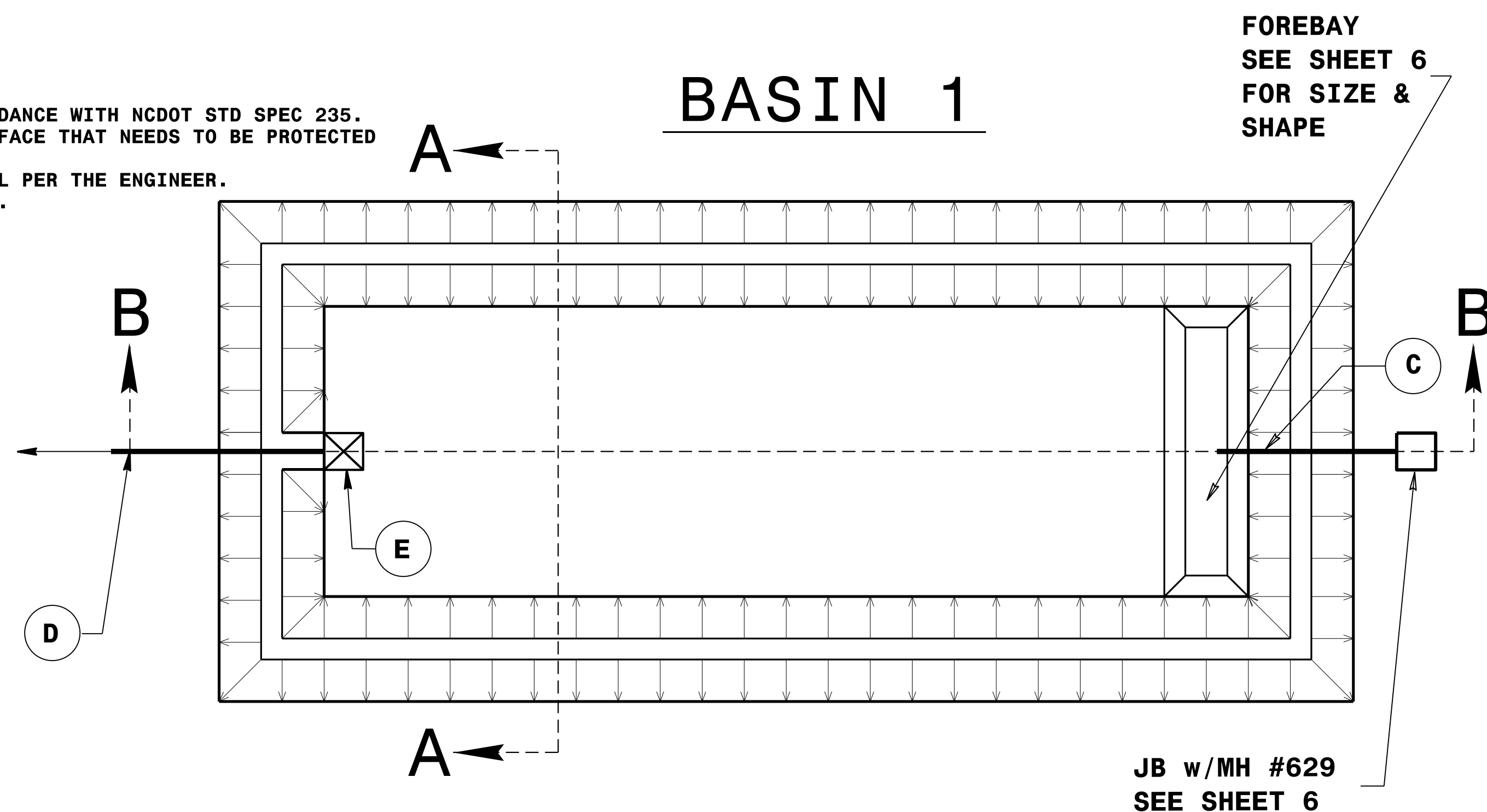
A	GEOTEXTILE FOR DRAINAGE
B	TOP SOIL AND SOD
C	30" ALTERNATE INLET PIPE
D	66" RCP OUTLET PIPE
E	OUTLET CONTROL STRUCTURE (SEE SPECIAL DETAIL SHEETS "2C-1" & "2C-2")
F	CLASS I RIP RAP

# HAZARDOUS SPILL BASIN 1 DETAIL

**NOTES:**

- SEE PLAN SHEET #6 FOR SHAPE AND SIZE OF BASIN.
- BOTTOM OF BASIN SURFACE AREA AT EL 778.0 = 7,555 SF. SURFACE AREA AT ELEV. 780.4 = 12,624 SF.
- ALL FILL MATERIAL SHALL BE COMPACTED AND TESTED IN ACCORDANCE WITH NCDOT STD SPEC 235.
- INSTALL SOD ON BERM AND BASIN BOTTOM AND ANY EXPOSED SURFACE THAT NEEDS TO BE PROTECTED AGAINST IMMEDIATE POTENTIAL STORM EVENT.
- THE BERM SHALL BE CONSTRUCTED WITH SUITABLE FILL MATERIAL PER THE ENGINEER.
- ENTIRE SEDIMENT FOREBAY WILL BE LINED WITH FILTER FABRIC.

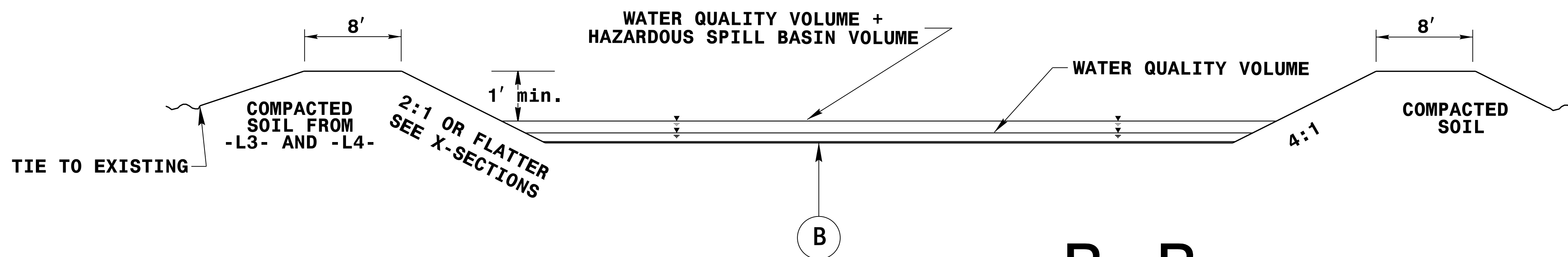
## BASIN 1



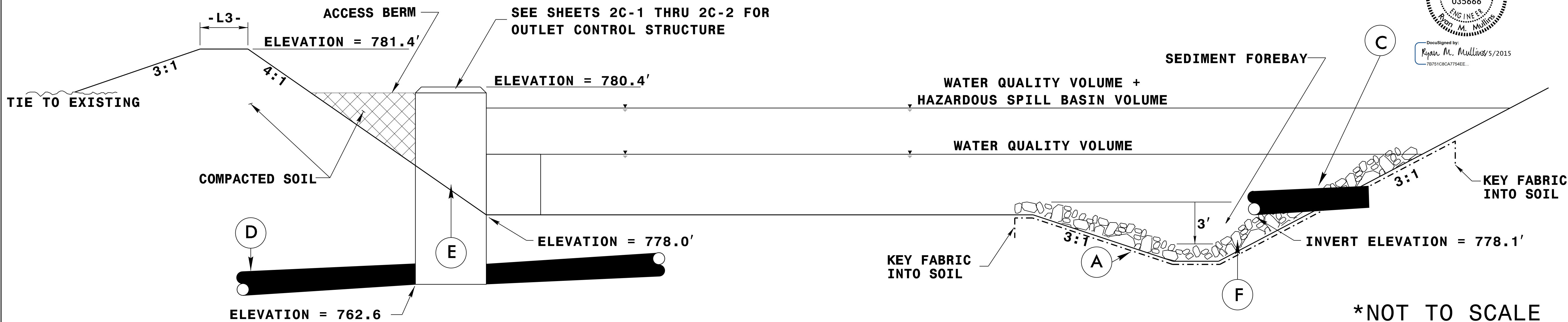
**DRY-DETENTION HAZARDOUS SPILL BASIN**

- BASIN BOTTOM EL= 778.0
- BASIN TOP OF BERM EL= 781.4
- DESIGN STORM = PEAK DISCHARGE FOR 2-YR STORM + 10,000 GALLONS
- DESIGN VOLUME = 23,811 CF
- VOLUME PROVIDED = 25,562 CF

### A-A



### B-B



### SUMMARY OF QUANTITIES

115 SY	GEOTEXTILE FOR DRAINAGE
1 EA	15" SLUICE GATE OUTLET CONTROL
70 TONS	CLASS I RIP RAP
780 CY	DDE



DocuSigned by:  
Ryan M. Mullins 5/2015  
7B751C8C4754EE

\*NOT TO SCALE



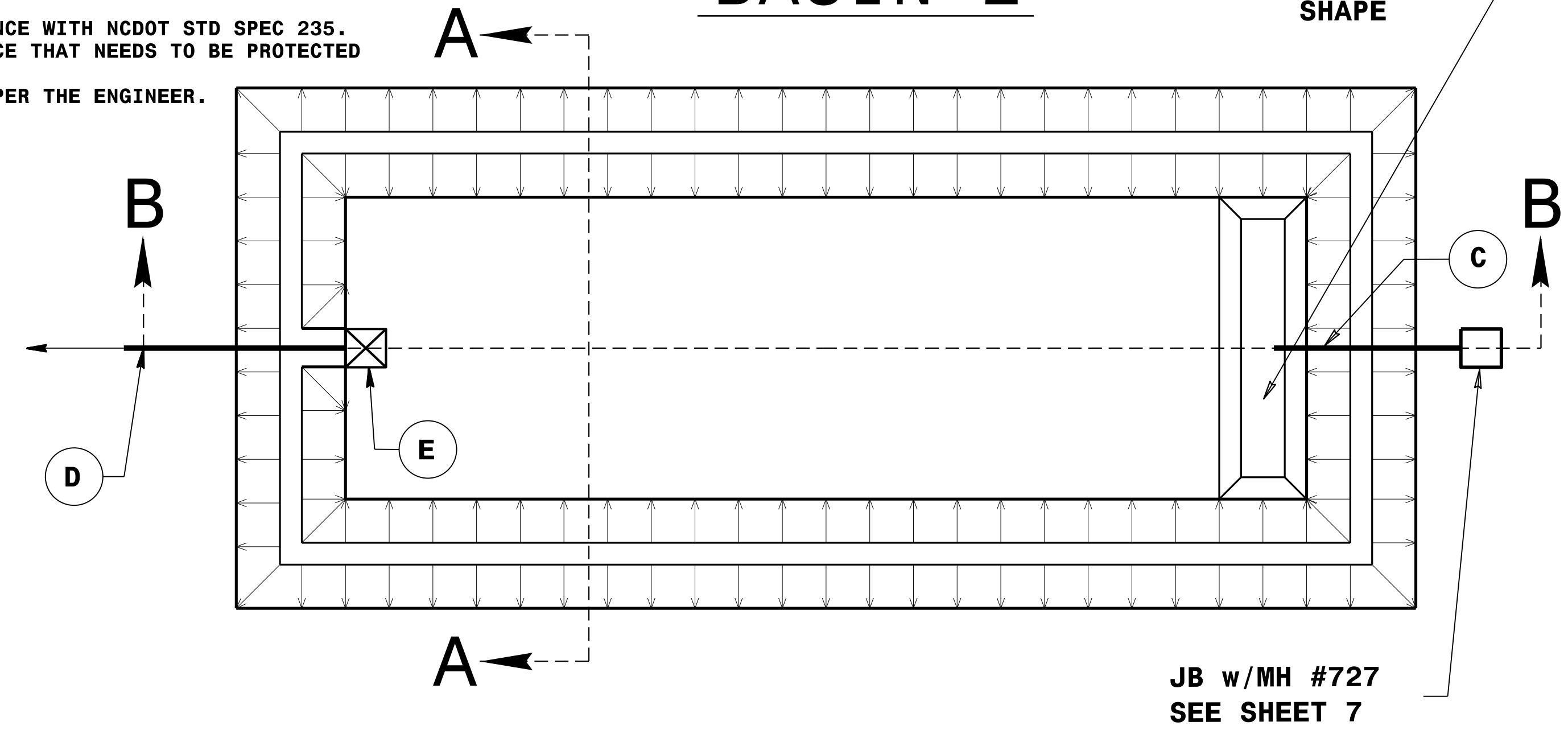
# HAZARDOUS SPILL BASIN 2 DETAIL

MATERIALS	
A	GEOTEXTILE FOR DRAINAGE
B	TOP SOIL AND SOD
C	30" ALTERNATE INLET PIPE
D	30" ALTERNATE OUTFALL PIPE
E	OUTLET CONTROL STRUCTURE (SEE SPECIAL DETAIL SHEETS "2C-3" & "2C-4")
F	CLASS I RIP RAP

**NOTES:**

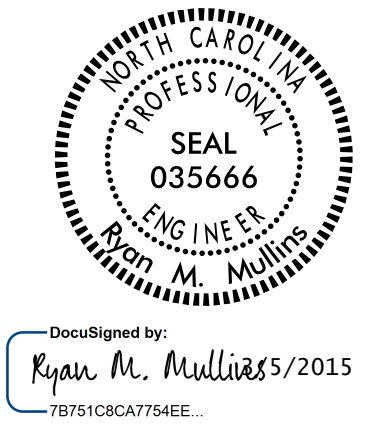
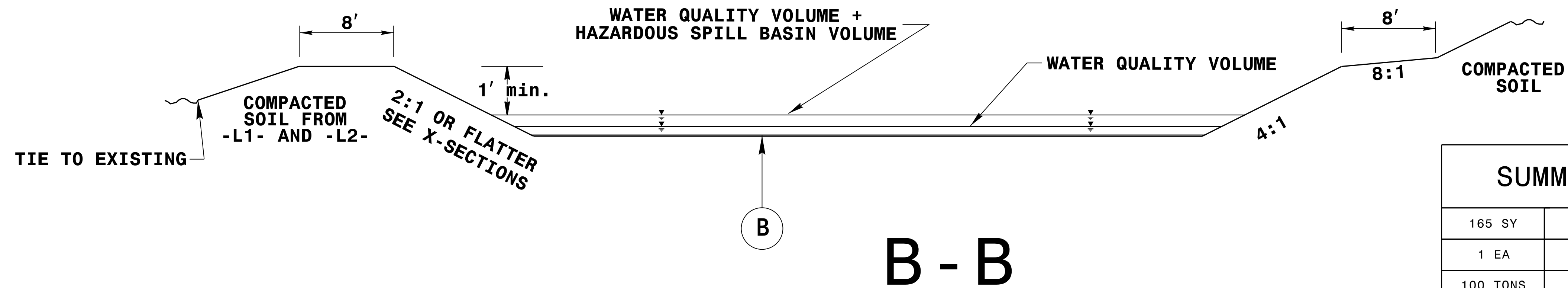
- SEE PLAN SHEET #7 FOR SHAPE AND SIZE OF BASIN.
- BOTTOM OF BASIN SURFACE AREA AT EL 769.0 = 6,119 SF.  
SURFACE AREA AT ELEV. 772.0 = 10,616 SF.
- ALL FILL MATERIAL SHALL BE COMPACTED AND TESTED IN ACCORDANCE WITH NCDOT STD SPEC 235.
- INSTALL SOD ON BERM AND BASIN BOTTOM AND ANY EXPOSED SURFACE THAT NEEDS TO BE PROTECTED AGAINST IMMEDIATE POTENTIAL STORM EVENT.
- THE BERM SHALL BE CONSTRUCTED WITH SUITABLE FILL MATERIAL PER THE ENGINEER.
- ENTIRE SEDIMENT FOREBAY WILL BE LINED WITH FILTER FABRIC.

## BASIN 2

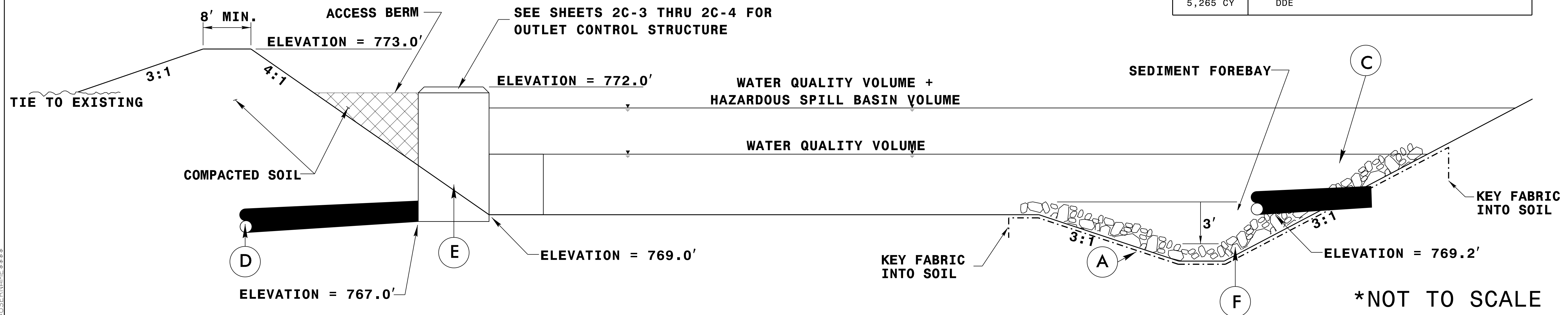


**DRY-DETENTION HAZARDOUS SPILL BASIN**

- BASIN BOTTOM EL= 769.0
- BASIN TOP OF BERM EL= 773.0
- DESIGN STORM = PEAK DISCHARGE FOR 2-YR STORM + 10,000 GALLONS
- DESIGN VOLUME = 24,125 CF
- VOLUME PROVIDED = 27,347 CF



SUMMARY OF QUANTITIES	
165 SY	GEOTEXTILE FOR DRAINAGE
1 EA	15" SLUICE GATE OUTLET CONTROL
100 TONS	CLASS I RIP RAP
5,265 CY	DDE



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 05-MAR-2015 11:08:09\_Hyd\_DET\_HSB2.dgn  
 8658 SUCCESSION/NAME: 8658

COMPUTED BY: TMW DATE: 1/6/15  
 CHECKED BY: SEC DATE: 1/8/15

PROJECT NO. K-4908 SHEET NO. 3B-1

**STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS**

**SUMMARY OF EARTHWORK**

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
L1	10+00 to 47+50	198,910	31,563		167,347
L2	10+00 to 24+50	97,828	1,074		100,941
L3	10+00 to 47+00	138,746	21,500		117,246
L4	10+00 to 27+50	29,228	26,056		3,172
SBL	14+00 to 35+50	451	1,521	1,070	
SBL	72+00 to 80+50	116	1,467	1,351	
NBL	22+00 to 31+00	145	721	576	
NBL	67+50 to 89+50	4,955	1,653		3,302
<b>SUBTOTALS:</b>		470,379	85,555	2,998	392,008
<b>PROJECT TOTALS:</b>		470,379	85,555	2,998	392,008
LOSS DUE TO CLEARING & GRUBBING		-6,700			-6,700
WASTE IN LIEU OF BORROW				-2,998	-2,998
<b>PROJECT TOTALS:</b>		463,679	85,555		382,310
<b>GRAND TOTALS:</b>		463,679			
<b>SAY:</b>		<b>473,000</b>			
UNDERCUT		1,000			
DDE		6,125			
SHOULDER BORROW		3,000			

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.

**SHOULDER DRAINS**

LINE	STATION TO STATION	SHOULDER DRAIN PIPE (FT)	4" SHLD DRAINS (FT)	4" OUTLET PIPES (FT)	CONCRETE PADS (EA)
LNB	67+00 to 89+50	2250	2250		
	67+00			23	1
	70+50			22	1
	74+00			22	1
	77+50			22	1
	81+00			19	1
	85+00			12	1
<b>TOTAL</b>		2250	2250	120	6
<b>SAY</b>		<b>2250</b>	<b>2250</b>	<b>120</b>	<b>10</b>

**SHOULDER BERM GUTTER SUMMARY**

LINE	Station	Station	LENGTH (ft)
L1	19+28.00	20+55.00	127
L1	39+86.52	42+60.00	273.5
<b>TOTAL:</b>			400.5
<b>SAY:</b>			405

**PAVEMENT REMOVAL SUMMARY**

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
LNB	19+23.00	26+66.00	RT	495.33			
LNB	26+66.00	92+14.00	RT	7,275.56			
LNB	22+00.00	36+15.00	LT	628.89			
LNB	64+80.00	89+68.00	LT	1,105.78			
LSB	11+08.00	83+81.00	LT	8,081.11			
LSB	13+55.00	38+10.00	RT	1,091.11			
LSB	66+82.00	81+00.00	RT	630.22			
<b>TOTAL:</b>				19,308.00			
<b>SAY:</b>				19,310			

RD261649





RD261649

COMPUTED BY: SEC DATE: 12/8/14  
CHECKED BY: TMW DATE: 12/16/2014

PROJECT NO. K-4908 SHEET NO. 3D-1

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

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

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

Table with columns for Station, Structure No., Top Invert, Invert, Slope Critical, Pipe Size, Material, Endwalls, Quantities, Frame and Hood, Concrete Section, and Abbreviations. Includes a SHEET TOTALS row at the bottom.



COMPUTED BY: SEC DATE: 12/8/14  
CHECKED BY: TMW DATE: 12/16/2014

PROJECT NO. SHEET NO.  
K-4908 3D-3

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

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

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

Table with columns for Station, Location, Structure No., Top Elevation, Invert Elevation, Slope Critical, Pipe Size (12"-48"), Pipe Material (R.C.P., C.S.P., R.C. Pipe Class III/V), Endwalls, Quantities for Drainage Structures, Frame, Grates, and Hood Standard, Concrete Transitional Section, Drop Inlet, Catch Basin, Side Drain Pipe Elbows, Conc. & Brick Pipe Plug, Conc. Collars, Pipe Removal Lin. Ft., and Remarks. Includes a SHEET TOTALS row at the bottom.

ABBREVIATIONS

- C.B. CATCH BASIN
N.D.I. NARROW DROP INLET
D.I. DROP INLET
G.D.I. GRATED DROP INLET
G.D.I.(N.S.) (NARROW SLOT) JUNCTION BOX
J.B. MANHOLE
M.H. TRAFFIC BEARING DROP INLET
T.B.D.I. TRAFFIC BEARING JUNCTION BOX
T.B.J.B. TRAFFIC BEARING JUNCTION BOX

REMARKS

SEE DETAIL SHEETS 2C-3 THRU 2C-4  
TIE TO CULVERT



RD261649

COMPUTED BY: SEC DATE: 12/8/14  
CHECKED BY: TMW DATE: 12/16/2014

PROJECT NO. SHEET NO.  
K-4908 3D-4

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

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

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

Table with columns for Station, Location, Structure No., Top Elevation, Invert Elevation, Slope Critical, Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC), C.S. Pipe, R.C. Pipe Class III, R.C. Pipe Class V, Endwalls, Quantities for Drainage Structures, Frame, Grates, and Hood Standard 840.03, Concrete Transitional Section, Drop Inlet, Catch Basin, D.I. STD. 840.14 OR STD. 840.15, D.I. FRAME WITH TWO GRATES STD. 840.16, G.D.I. TYPE "A" STD. 840.17 OR 840.26, G.D.I. TYPE "B" STD. 840.18 OR 840.27, G.D.I. TYPE "D" STD. 840.19 OR 840.28, G.D.I. FRAME WITH TWO GRATES STD. 840.20, G.D.I. FRAME WITH TWO GRATES STD. 840.22, G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24, G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24, J.B. STD. 840.31 OR 840.32, J.B.I. FRAME WITH TWO NARROW SLOT PLATE GRATES STD. 840.32, MANHOLE COVER STD. 840.34, DRAWDOWN STRUCTURE (DETAILS 2C-3 & 2C-4), TRASH RACK SPECIAL DETAIL, SIDE DRAIN PIPE ELBOWS NO. & SIZE, CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71, CONC. COLLARS CL. "B" C.Y. STD. 840.72, PIPE REMOVAL LIN. FT., and Remarks.

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

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

Table with columns for Station, Location, Structure No., Top Elevation, Invert Elevation, Slope Critical, Class V R.C. Pipe (Unless Noted Otherwise), C.S. Pipe, Structural Plate Pipe, Reinforced Endwalls, Frames, Grates & Hood Standard 840.03, Concrete Transitional Section, Drop Inlet, Catch Basin, G.D.I. FRAME WITH TWO GRATES STD. 840.22, TRASH RACK SPECIAL DETAIL, DRAWDOWN STRUCTURE (DETAILS 2C-1 & 2C-2), SPECIAL 2-GI (DETAIL 2C-5), REINFC. CONC. FLARED END SECTIONS NO. & SIZE, CORR. STEEL FLARED END SECTIONS NO. & SIZE, CORR. STEEL ELBOWS NO. & SIZE, CONC. COLLARS CL. "B" C.Y. STD. 840.72, PIPE REMOVAL LIN. FT., and Remarks.

COMPUTED BY: TMW DATE: 1/6/15  
 CHECKED BY: SEC DATE: 1/6/15

PROJECT NO. K-4908 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
CONTINGENCY				SD	1000
				<b>TOTAL LF:</b>	1000

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

**SUMMARY OF GEOTEXTILE  
 FOR PAVEMENT STABILIZATION**

LINE	Station	Station	SY
* L1	39+50	43+50	1067
* L3	16+00	18+50	667
* L3	40+50	42+50	533
* L4	23+00	27+52	6027
CONTINGENCY			
			<b>TOTAL SY:</b> 8294

\* Estimated areas only. Areas should be investigated during construction. The need for geotextile placement will be determined by the Engineer.

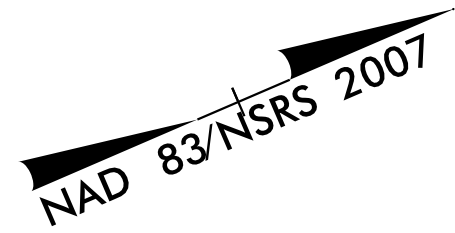
**SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION**

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			AST	3	2000	4000	7000	1000	
					<b>TOTAL CY/TONS/SY:</b>	2000	4000	7000*	0

ASU = Aggregate Subgrade, AST = Aggregate Stabilization  
 \*Total square yards of Geotextile for Soil Stabilization is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

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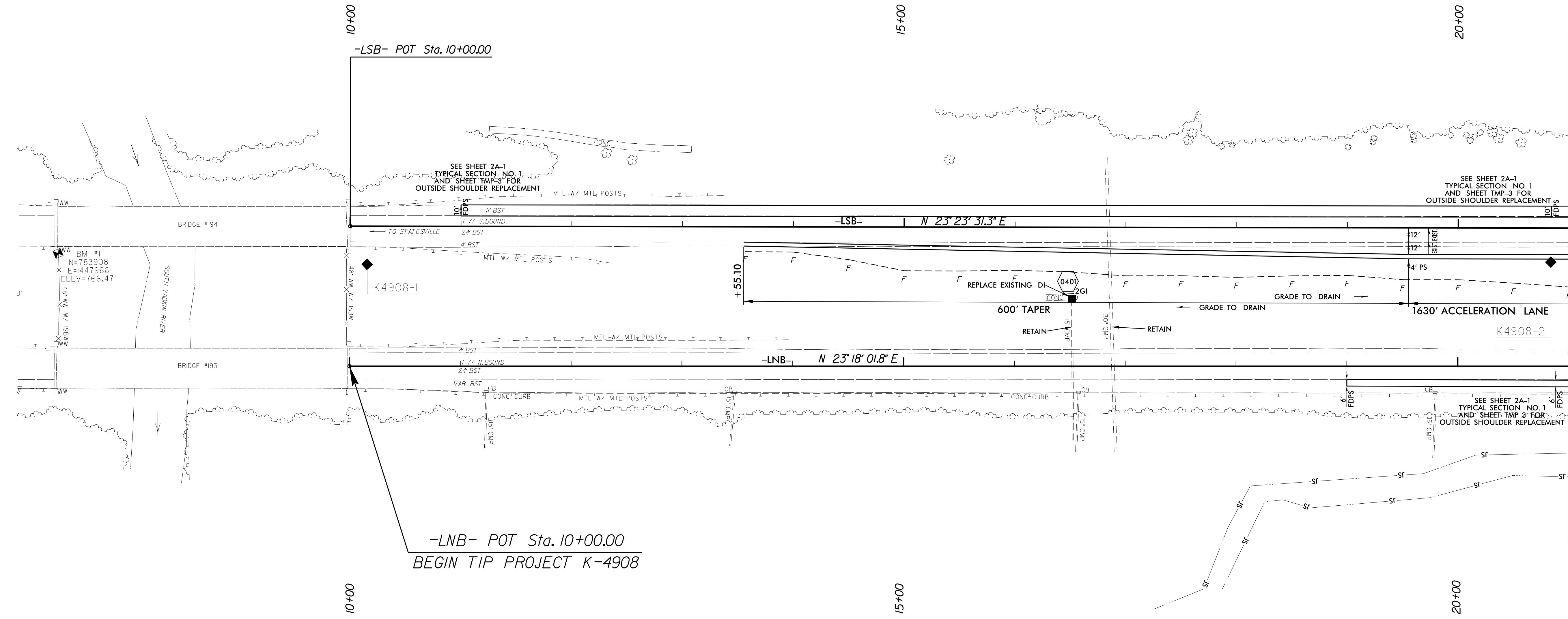
PROJECT REFERENCE NO. <b>K-4908</b>	SHEET NO. <b>4</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 022007 Andrew Jason Moore	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 035666 Ryan M. Mullins
DocuSigned by: Jason Moore 2/6/2015	DocuSigned by: Ryan M. Mullins 2/19/2015



REVISIONS

8/17/99

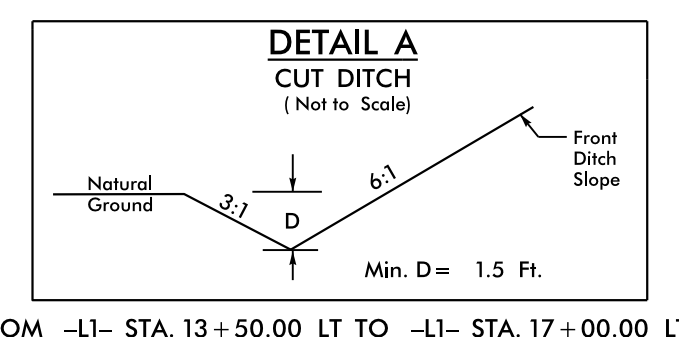
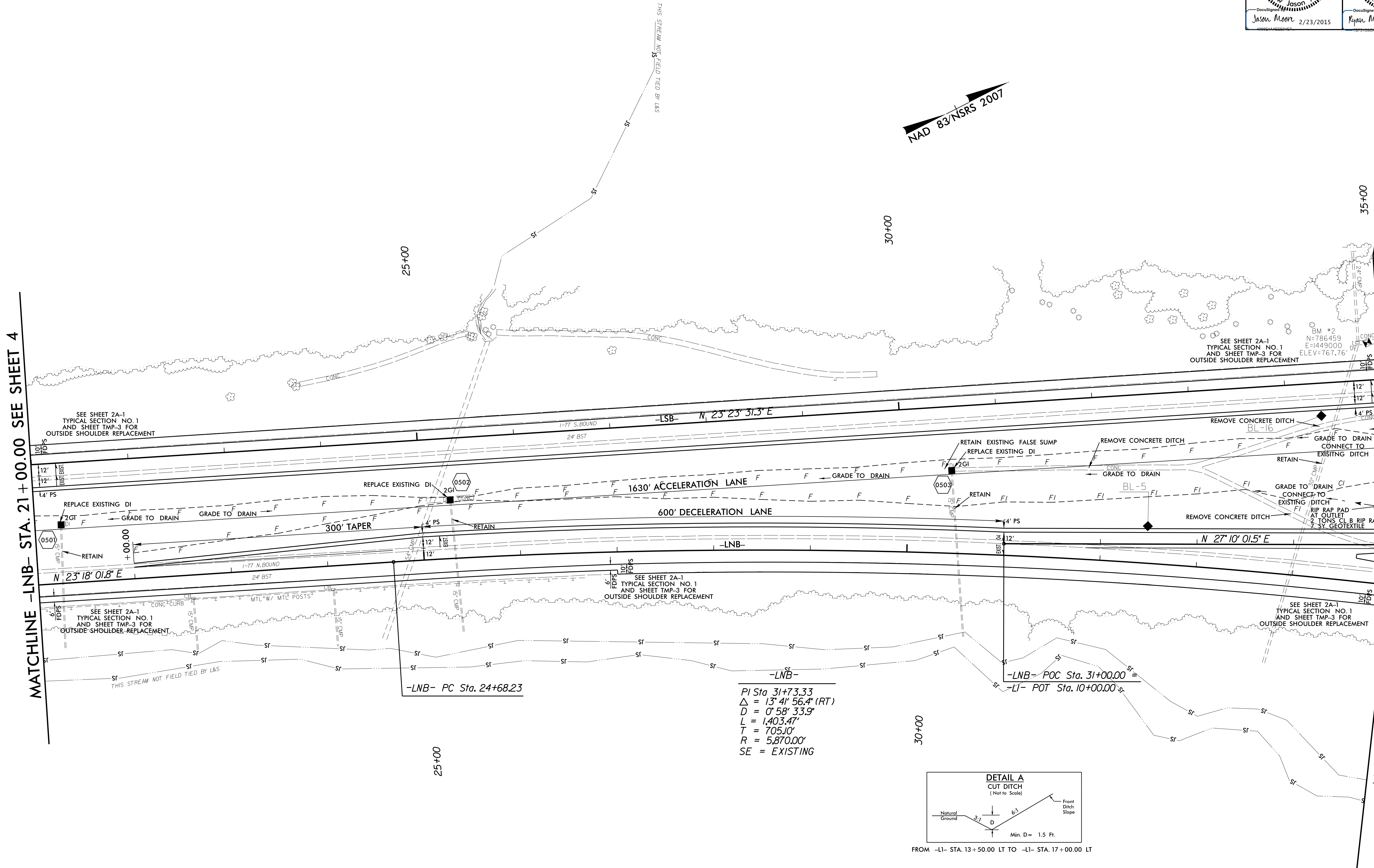
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MATCHLINE -LNB- STA. 21+00.00 SEE SHEET 5

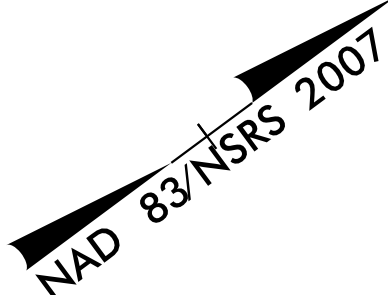


REVISIONS  
 20-FEB-2015 JJ-40 N:\14908\_Rdly-psh5.dgn  
 8/17/99



FOR -LI- PROFILE, SEE SHEET NO. 11



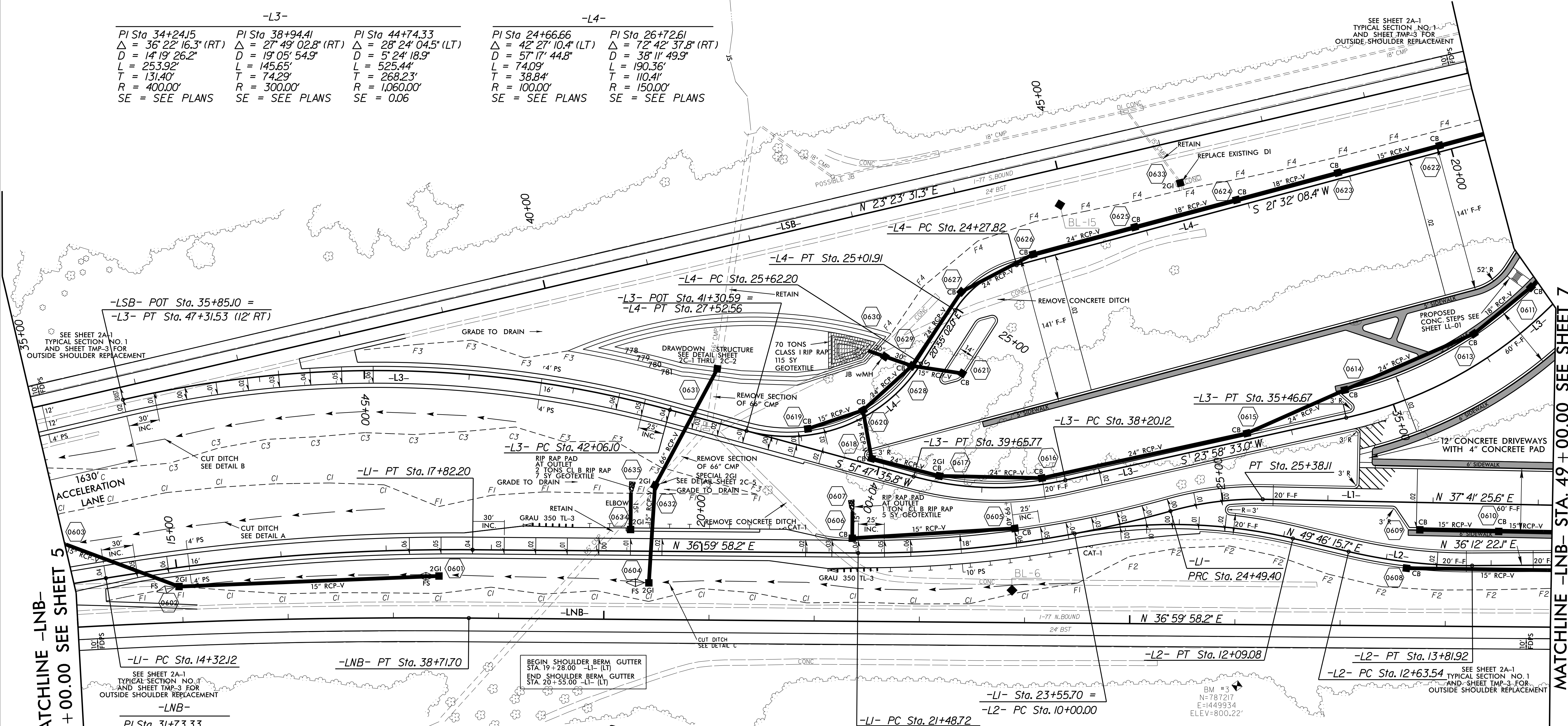


NOTE: SEE SHEET 2B-8 FOR  
-L4- ISLAND LAYOUT DETAIL

-L1-			-L2-	
PI Sta 16+07.59	PI Sta 23+00.08	PI Sta 24+94.08	PI Sta 11+06.09	PI Sta 13+23.01
$\Delta = 9^\circ 49' 56.7''$ (RT)	$\Delta = 16^\circ 15' 07.7''$ (LT)	$\Delta = 16^\circ 56' 35.0''$ (RT)	$\Delta = 23^\circ 57' 32.7''$ (RT)	$\Delta = 13^\circ 33' 53.5''$ (LT)
D = 2' 48' 31.0"	D = 5' 24' 18.9"	D = 19' 05' 54.9"	D = 11' 27' 33.0"	D = 11' 27' 33.0"
L = 350.08'	L = 300.67'	L = 88.71'	L = 209.08'	L = 118.38'
T = 175.47'	T = 151.35'	T = 44.68'	T = 106.09'	T = 59.47'
R = 2,040.00'	R = 1,060.00'	R = 300.00'	R = 500.00'	R = 500.00'
SE = 0.06	SE = 0.06	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS

-L3-			-L4-	
PI Sta 34+24.15	PI Sta 38+94.41	PI Sta 44+74.33	PI Sta 24+66.66	PI Sta 26+72.61
$\Delta = 36^\circ 22' 16.3''$ (RT)	$\Delta = 27^\circ 49' 02.8''$ (RT)	$\Delta = 28^\circ 24' 04.5''$ (LT)	$\Delta = 42^\circ 27' 10.4''$ (LT)	$\Delta = 72^\circ 42' 37.8''$ (RT)
D = 14' 19' 26.2"	D = 19' 05' 54.9"	D = 5' 24' 18.9"	D = 57' 17' 44.8"	D = 38' 11' 49.9"
L = 253.92'	L = 145.65'	L = 525.44'	L = 74.09'	L = 190.36'
T = 131.40'	T = 74.29'	T = 268.23'	T = 38.84'	T = 110.41'
R = 400.00'	R = 300.00'	R = 1,060.00'	R = 100.00'	R = 150.00'
SE = SEE PLANS	SE = SEE PLANS	SE = 0.06	SE = SEE PLANS	SE = SEE PLANS

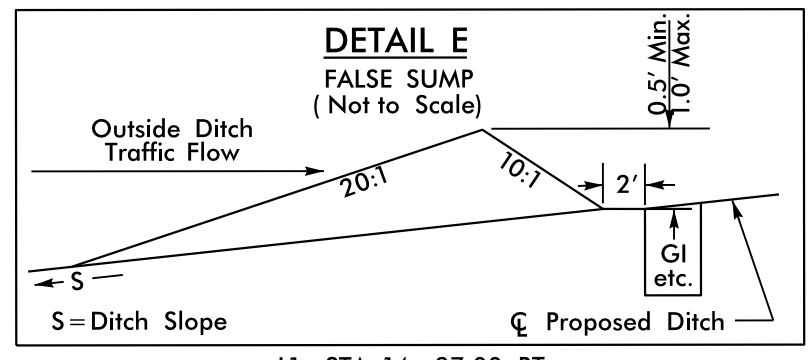
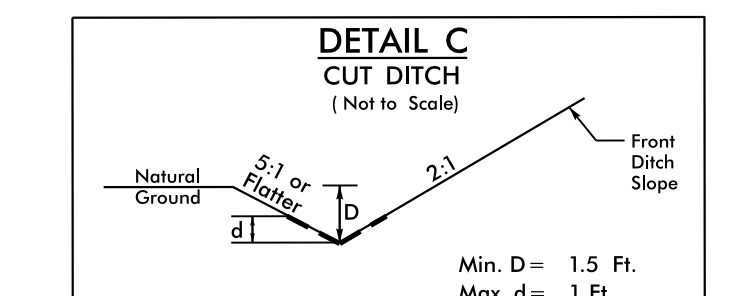
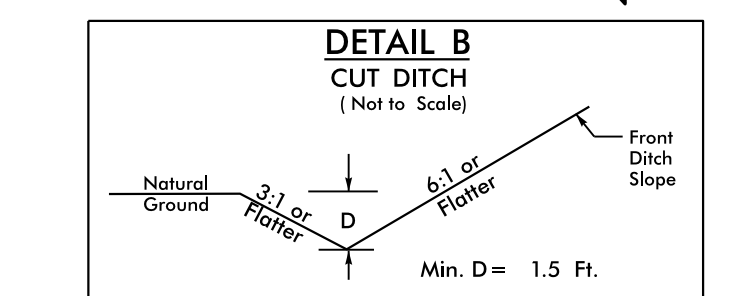
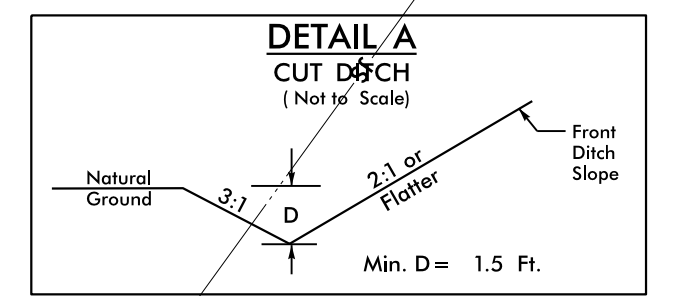


MATCHLINE -LNB- STA. 35+00.00 SEE SHEET 5

MATCHLINE -LNB- STA. 49+00.00 SEE SHEET 7

SEE SHEET 2A-1  
TYPICAL SECTION NO. 1  
AND SHEET TMP-3 FOR  
OUTSIDE SHOULDER REPLACEMENT

-LNB-  
PI Sta 31+73.33  
 $\Delta = 13^\circ 41' 56.4''$  (RT)  
D = 0' 58' 33.9"  
L = 1,403.47'  
T = 705.10'  
R = 5,870.00'  
SE = EXISTING



- PROP CONC SIDEWALK
- FOR -L1- PROFILE, SEE SHEET NO. 11
- FOR -L2- PROFILE, SEE SHEET NO. 13
- FOR -L3- PROFILE, SEE SHEET NO. 14&15
- FOR -L4- PROFILE, SEE SHEET NO. 16
- FOR CR LOCATIONS, SEE SITE PLAN SHEET L-01&L-02
- FOR FINISHED GRADING, SEE LG-01 THRU LG-02

REVISIONS

20-FEB-2015 11:40 AM K:\4908\_Rdly-ps-h6.dgn

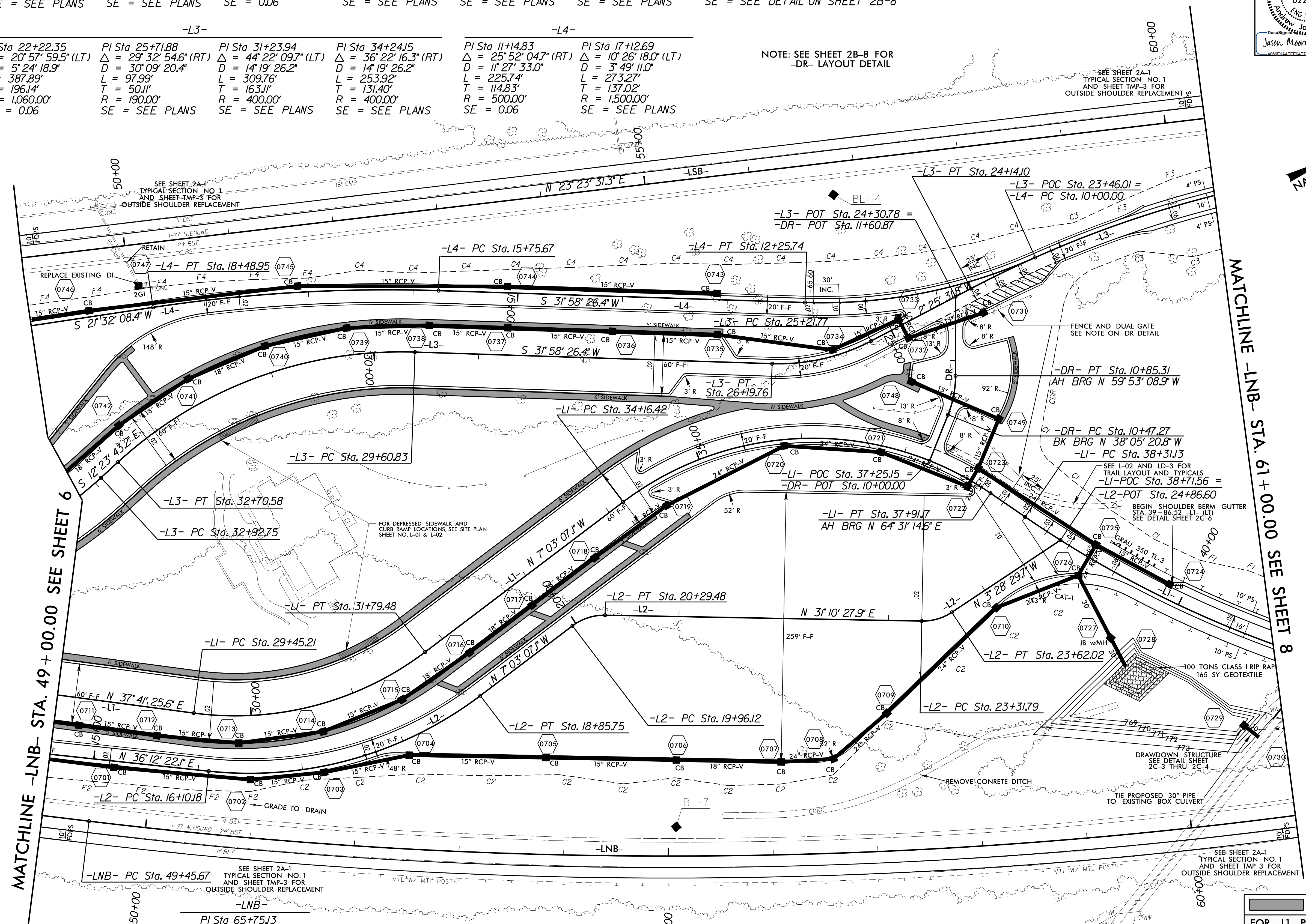


-L1-			-L2-			-DR-		
PI Sta 30+68.69	PI Sta 30+68.69	PI Sta 36+32.67	PI Sta 17+54.91	PI Sta 20+13.44	PI Sta 23+47.38	PI Sta 10+66.53		
$\Delta = 44^\circ 44' 32.7" (LT)$	$\Delta = 44^\circ 44' 32.7" (LT)$	$\Delta = 71^\circ 34' 21.7" (RT)$	$\Delta = 43^\circ 15' 29.3" (LT)$	$\Delta = 38^\circ 13' 35.0" (RT)$	$\Delta = 34^\circ 38' 57.6" (LT)$	$\Delta = 21^\circ 47' 48.1" (LT)$		
D = 19' 05' 54.9"	D = 19' 05' 54.9"	D = 19' 05' 54.9"	D = 15' 41' 50.9"	D = 15' 41' 50.9"	D = 114' 35' 29.6"	D = 57' 17' 44.8"		
L = 234.27'	L = 234.27'	L = 374.75'	L = 275.57'	L = 33.36'	L = 30.24'	L = 38.04'		
T = 123.47'	T = 123.47'	T = 216.26'	T = 144.73'	T = 17.33'	T = 15.60'	T = 19.25'		
R = 300.00'	R = 300.00'	R = 300.00'	R = 365.00'	R = 50.00'	R = 50.00'	R = 100.00'		
SE = SEE PLANS	SE = SEE PLANS	SE = 0.06	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE DETAIL ON SHEET 2B-8		

-L3-			-L4-		
PI Sta 22+22.35	PI Sta 25+71.88	PI Sta 31+23.94	PI Sta 34+24.15	PI Sta 11+4.83	PI Sta 17+12.69
$\Delta = 20^\circ 57' 59.5" (LT)$	$\Delta = 29^\circ 32' 54.6" (RT)$	$\Delta = 44^\circ 22' 09.7" (LT)$	$\Delta = 36^\circ 22' 16.3" (RT)$	$\Delta = 25^\circ 52' 04.7" (RT)$	$\Delta = 10^\circ 26' 18.0" (LT)$
D = 5' 24' 18.9"	D = 30' 09' 20.4"	D = 14' 19' 26.2"	D = 14' 19' 26.2"	D = 11' 27' 33.0"	D = 3' 49' 11.0"
L = 387.89'	L = 97.99'	L = 309.76'	L = 253.92'	L = 225.74'	L = 273.27'
T = 196.14'	T = 50.11'	T = 163.11'	T = 131.40'	T = 114.83'	T = 137.02'
R = 1,060.00'	R = 190.00'	R = 400.00'	R = 400.00'	R = 500.00'	R = 1,500.00'
SE = 0.06	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = 0.06	SE = SEE PLANS

NOTE: SEE SHEET 2B-8 FOR -DR- LAYOUT DETAIL



MATCHLINE -LNB- STA. 49 + 00.00 SEE SHEET 6

MATCHLINE -LNB- STA. 61 + 00.00 SEE SHEET 8

	PROP CONC SIDEWALK
	FOR -L1- PROFILE, SEE SHEET NO. 11&12
	FOR -L2- PROFILE, SEE SHEET NO. 13
	FOR -L3- PROFILE, SEE SHEET NO. 14
	FOR -L4- PROFILE, SEE SHEET NO. 16
	FOR -DR- PROFILE, SEE SHEET NO. 17

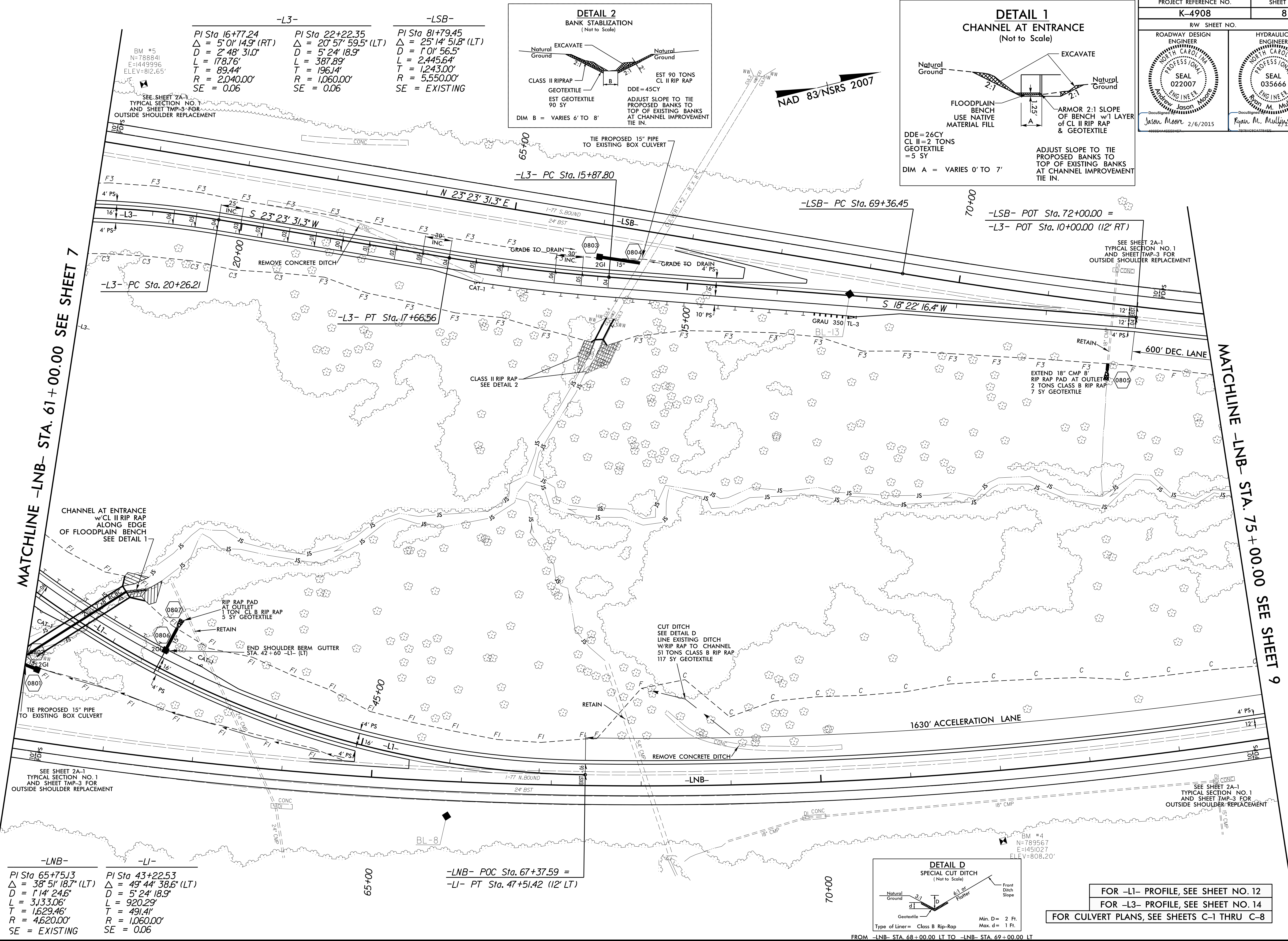
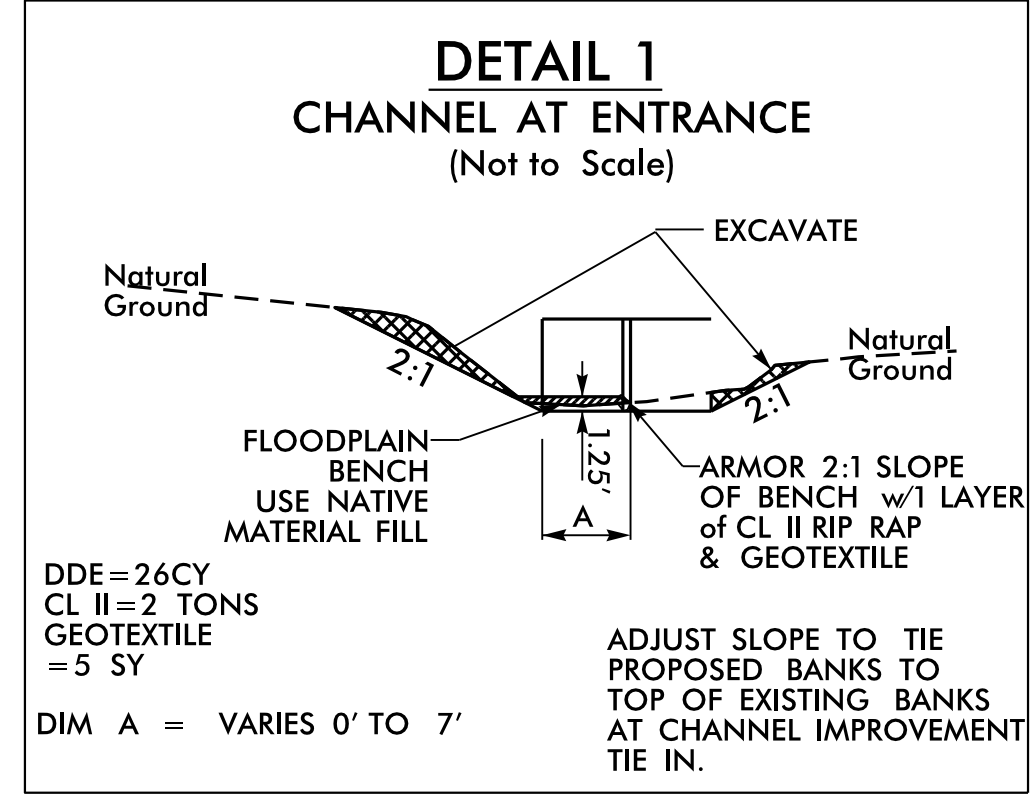
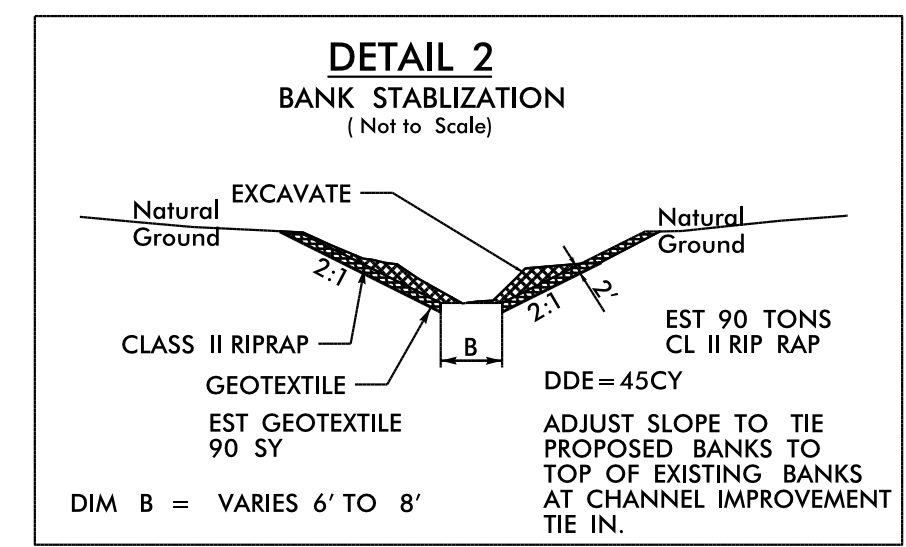
FOR FINISHED GRADING, SEE LG-01 THRU LG-02

REVISIONS

8/17/99

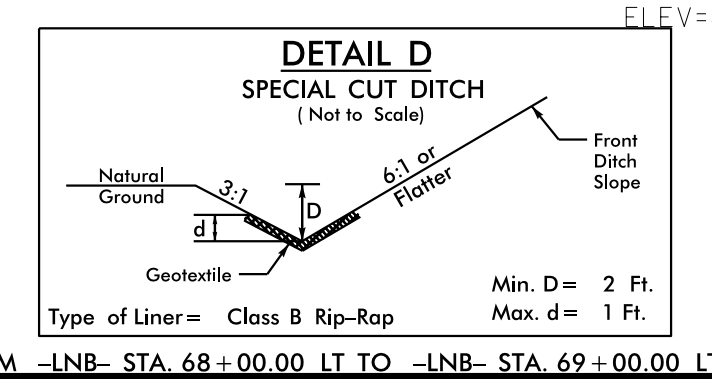
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-L3-	-LSB-	-LSB-
PI Sta 16+77.24	PI Sta 22+22.35	PI Sta 81+79.45
$\Delta = 5' 01" 14.9" (RT)$	$\Delta = 20' 57" 59.5" (LT)$	$\Delta = 25' 14" 51.8" (LT)$
$D = 2' 48" 31.0"$	$D = 5' 24" 18.9"$	$D = 1' 01" 56.5"$
$L = 178.76'$	$L = 387.89'$	$L = 2,445.64'$
$T = 89.44'$	$T = 196.14'$	$T = 1,243.00'$
$R = 2,040.00'$	$R = 1,060.00'$	$R = 5,550.00'$
$SE = 0.06$	$SE = 0.06$	$SE = EXISTING$

-LNB-	-LJ-
PI Sta 65+75.13	PI Sta 43+22.53
$\Delta = 38' 51" 18.7" (LT)$	$\Delta = 49' 44" 38.6" (LT)$
$D = 1' 14" 24.6"$	$D = 5' 24" 18.9"$
$L = 3,133.06'$	$L = 920.29'$
$T = 1,629.46'$	$T = 491.41'$
$R = 4,620.00'$	$R = 1,060.00'$
$SE = EXISTING$	$SE = 0.06$



FOR -L1- PROFILE, SEE SHEET NO. 12  
FOR -L3- PROFILE, SEE SHEET NO. 14  
FOR CULVERT PLANS, SEE SHEETS C-1 THRU C-8

REVISIONS

8/17/99

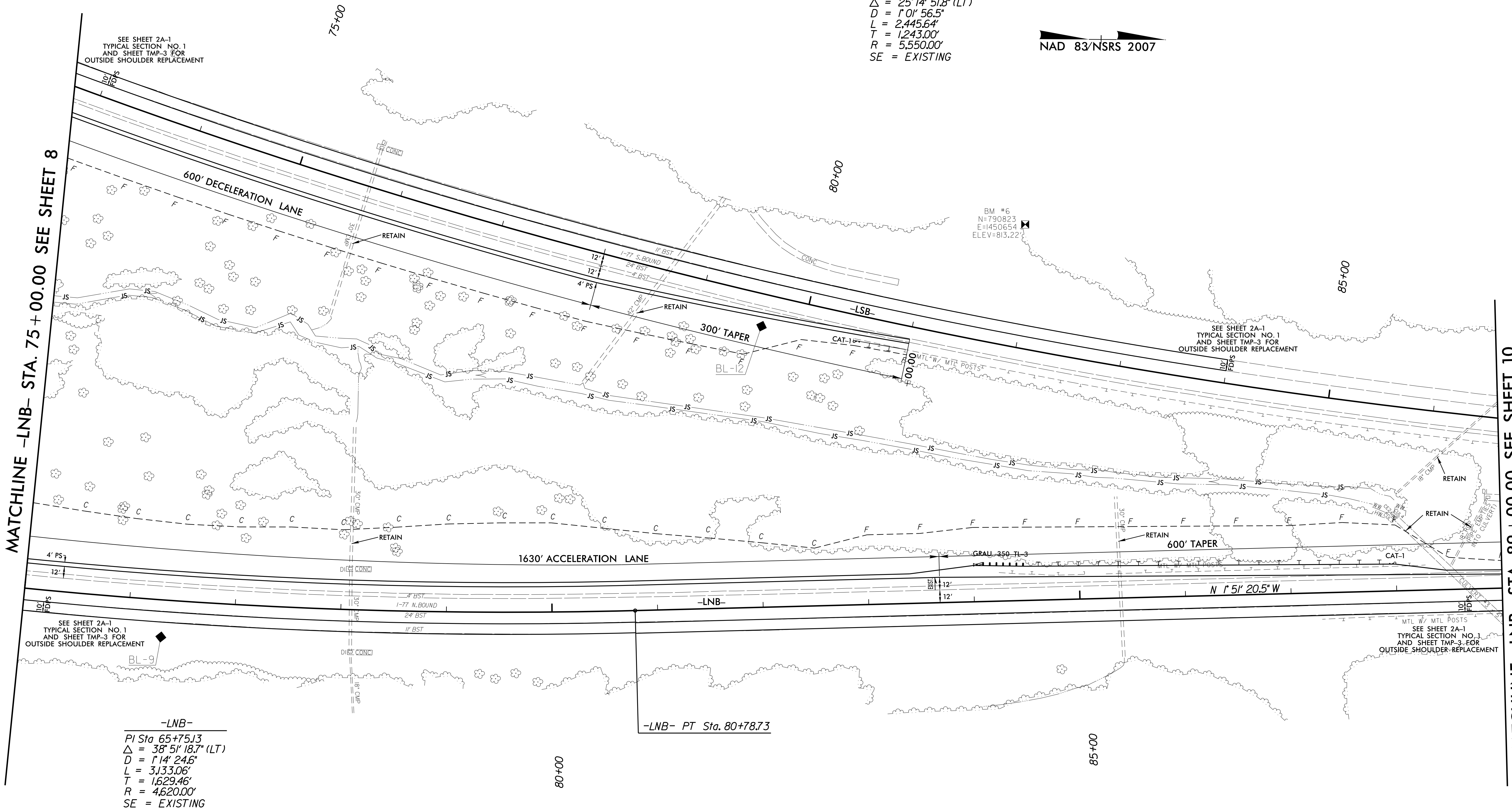
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FROM -LNB- STA. 68+00.00 LT TO -LNB- STA. 69+00.00 LT



-LSB-  
 PI Sta 81+79.45  
 $\Delta = 25' 14" 51.8" (LT)$   
 $D = 1' 01" 56.5"$   
 $L = 2,445.64'$   
 $T = 1,243.00'$   
 $R = 5,550.00'$   
 SE = EXISTING

NAD 83/NSRS 2007



-LNB-  
 PI Sta 65+75.13  
 $\Delta = 38' 51" 18.7" (LT)$   
 $D = 1' 14" 24.6"$   
 $L = 3,133.06'$   
 $T = 1,629.46'$   
 $R = 4,620.00'$   
 SE = EXISTING

-LNB- PT Sta. 80+78.73

MATCHLINE -LNB- STA. 75 + 00.00 SEE SHEET 8

MATCHLINE -LNB- STA. 89 + 00.00 SEE SHEET 10

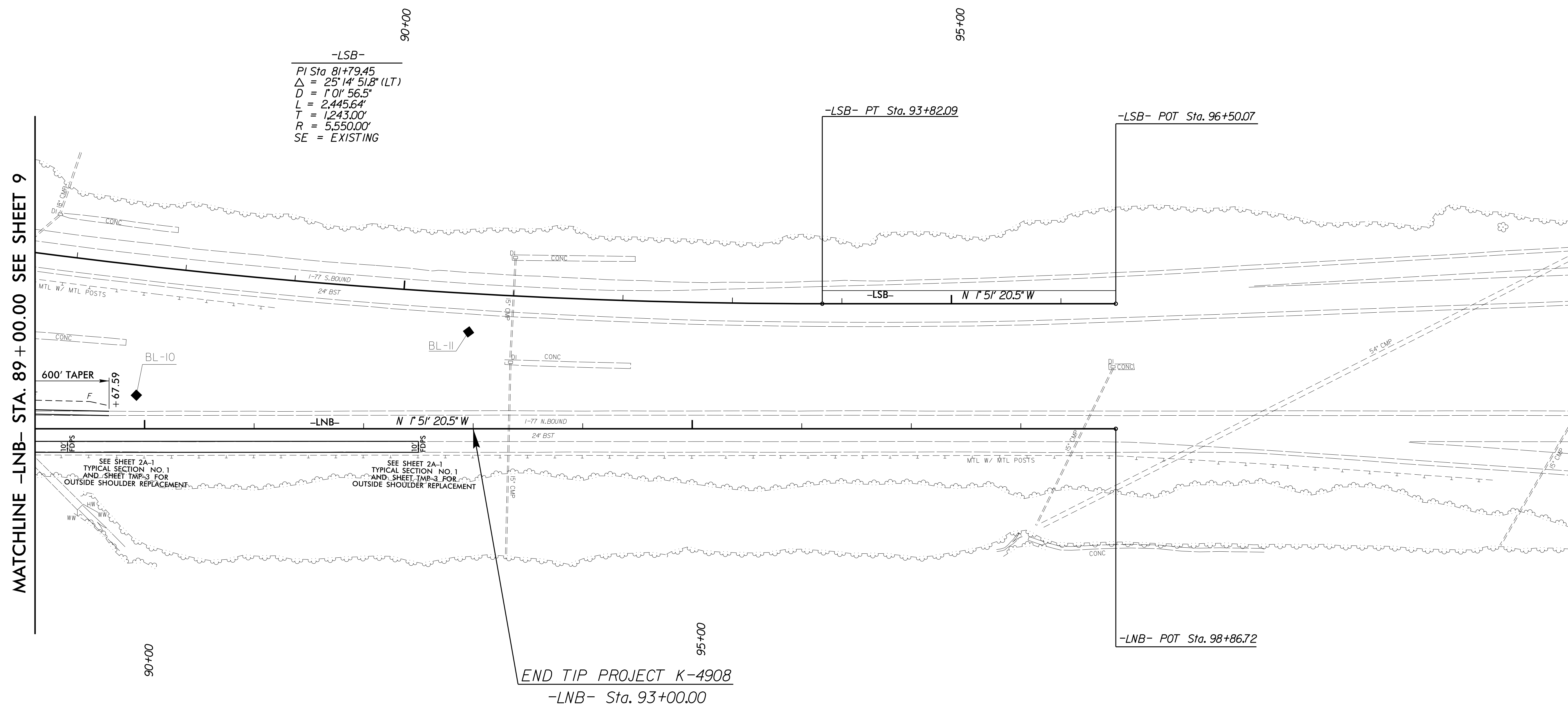
REVISIONS

8/17/99

28 JAN 2015 12:05 PM K:\4908\_RdJy\_psh9.dgn  
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PROJECT REFERENCE NO. <b>K-4908</b>	SHEET NO. <b>10</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 022007 Andrew Jason Moore	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 035666 Ryan M. Muljins
DocuSigned by: Jason Moore 2/6/2015	DocuSigned by: Ryan M. Muljins 2/19/2015

NAD 83/NSRS 2007



-LSB-  
 PI Sta 81+79.45  
 $\Delta = 25^\circ 14' 51.8''$  (LT)  
 $D = 1^\circ 01' 56.5''$   
 $L = 2,445.64'$   
 $T = 1,243.00'$   
 $R = 5,550.00'$   
 SE = EXISTING

-LSB- PT Sta. 93+82.09

-LSB- POT Sta. 96+50.07

MATCHLINE -LNB- STA. 89 + 00.00 SEE SHEET 9

SEE SHEET 2A-1  
 TYPICAL SECTION NO. 1  
 AND SHEET TMP-3 FOR  
 OUTSIDE SHOULDER REPLACEMENT

SEE SHEET 2A-1  
 TYPICAL SECTION NO. 1  
 AND SHEET TMP-3 FOR  
 OUTSIDE SHOULDER REPLACEMENT

END TIP PROJECT K-4908  
 -LNB- Sta. 93+00.00

-LNB- POT Sta. 98+86.72

REVISIONS

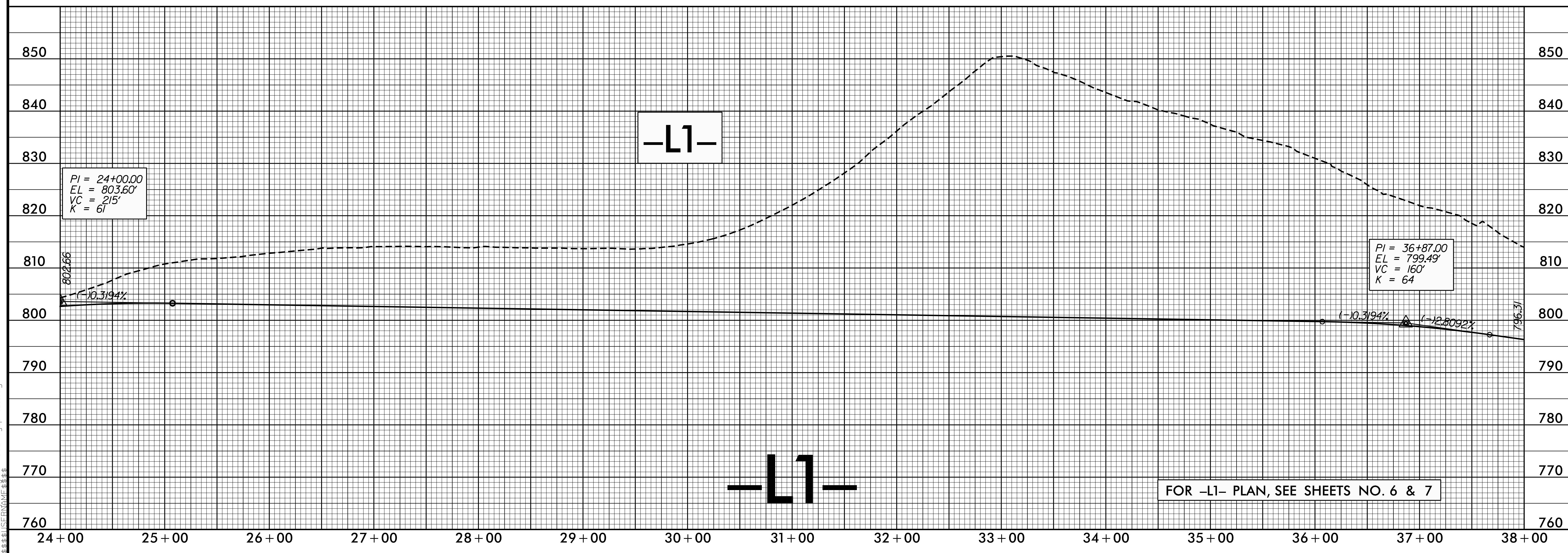
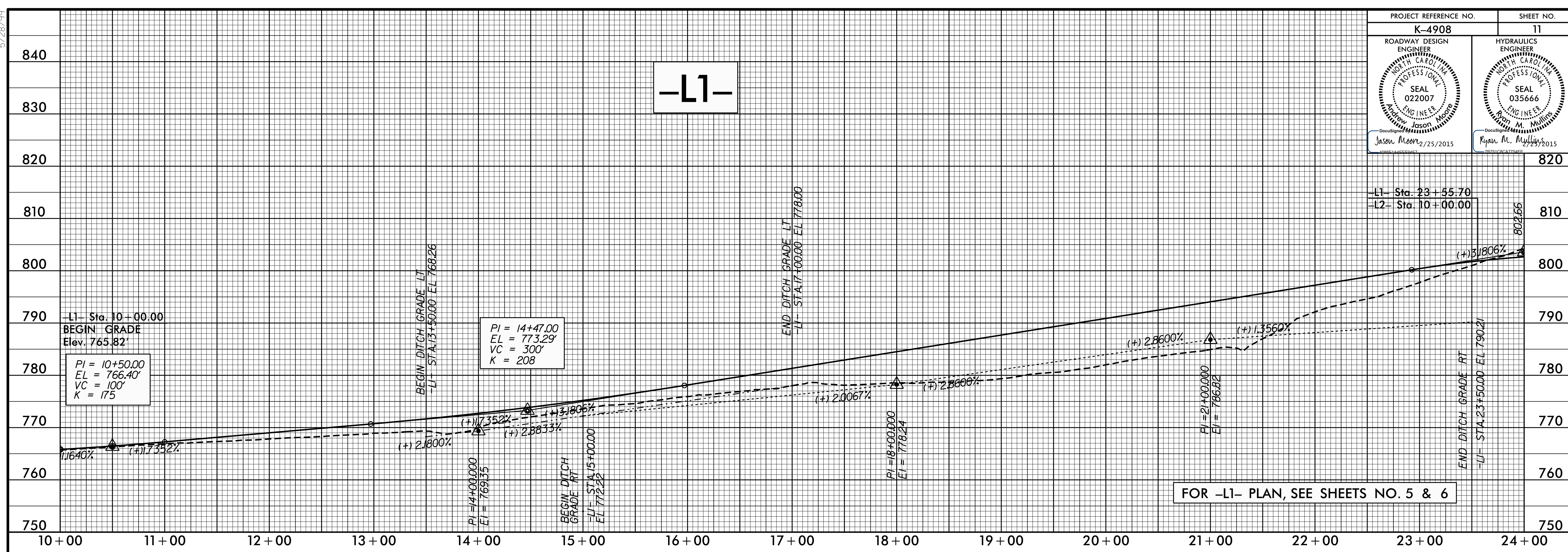
8/17/99

28 JAN 2015 12:05 PM  
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5/28/99

PROJECT REFERENCE NO. <b>K-4908</b>	SHEET NO. <b>11</b>
ROADWAY DESIGN ENGINEER SEAL 022007 Andrew Jason Moore	HYDRAULICS ENGINEER SEAL 035666 Ryan M. Mylly
DocuSigned by: Jason Moore 2/25/2015	DocuSigned by: Ryan M. Mylly 2/25/2015

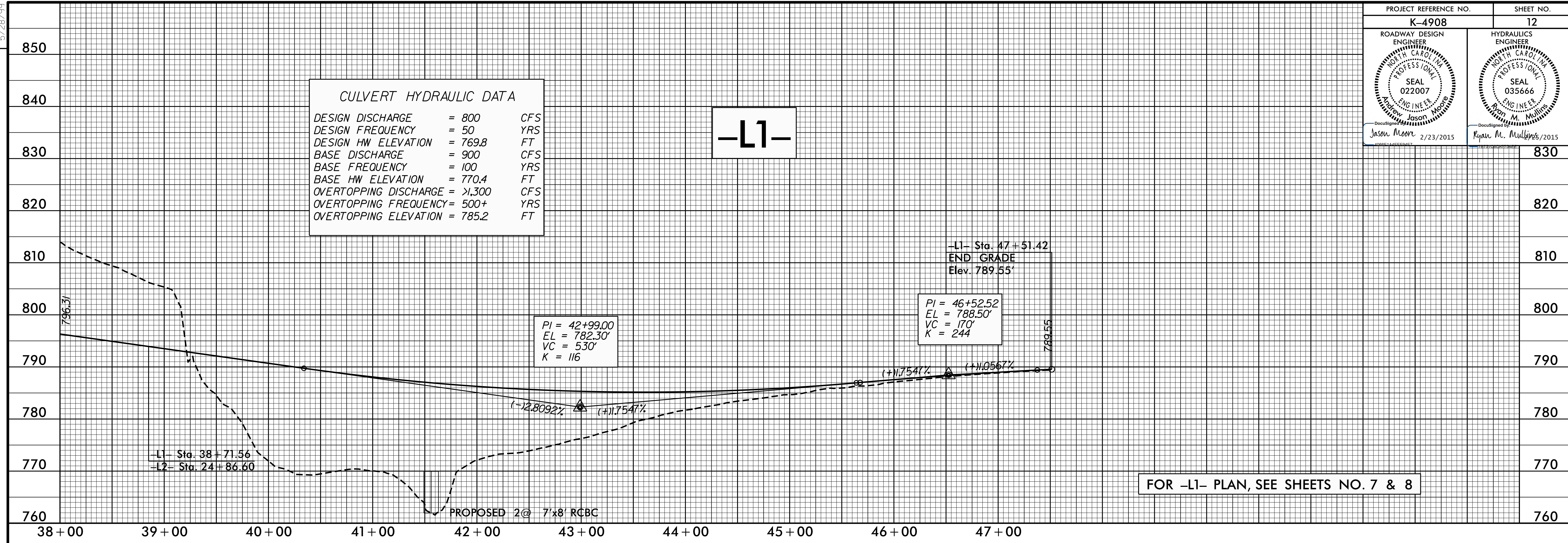


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CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	= 800	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 769.8	FT
BASE DISCHARGE	= 900	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 770.4	FT
OVERTOPPING DISCHARGE	= >1,300	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 785.2	FT

**-L1-**



**-L1-**

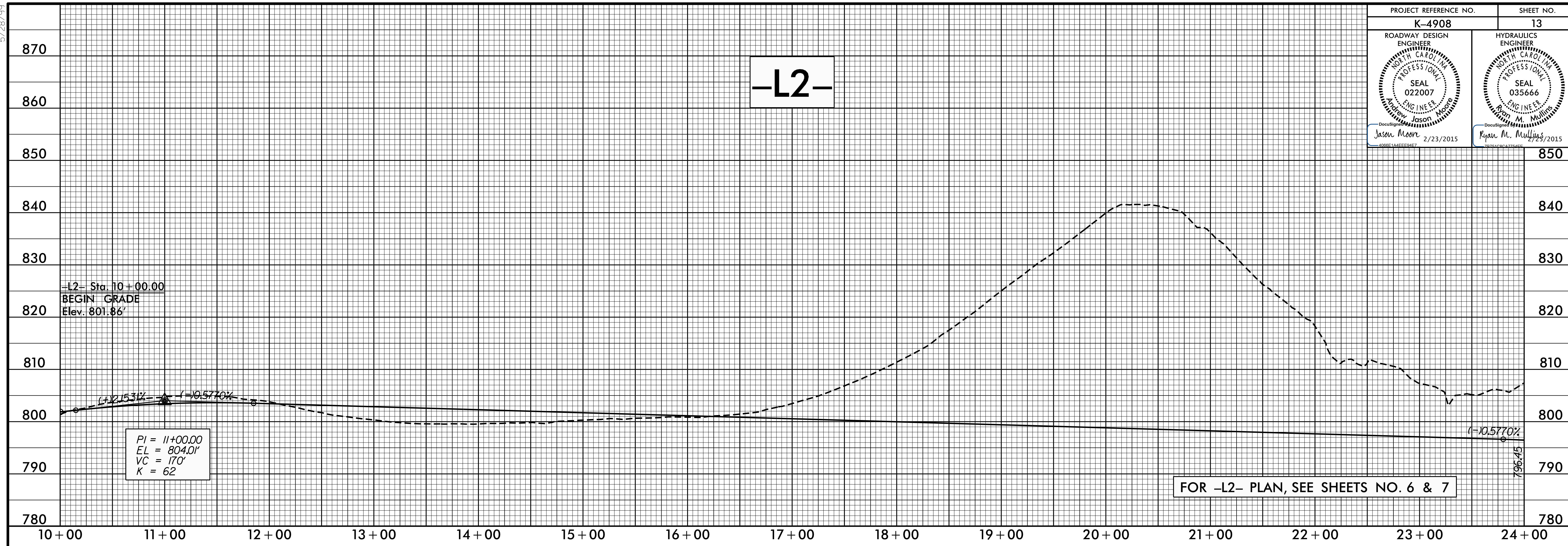
Design Revision : -L1- Profile adjusted due to -L1- horizontal alignment change. TMM 3/31/14

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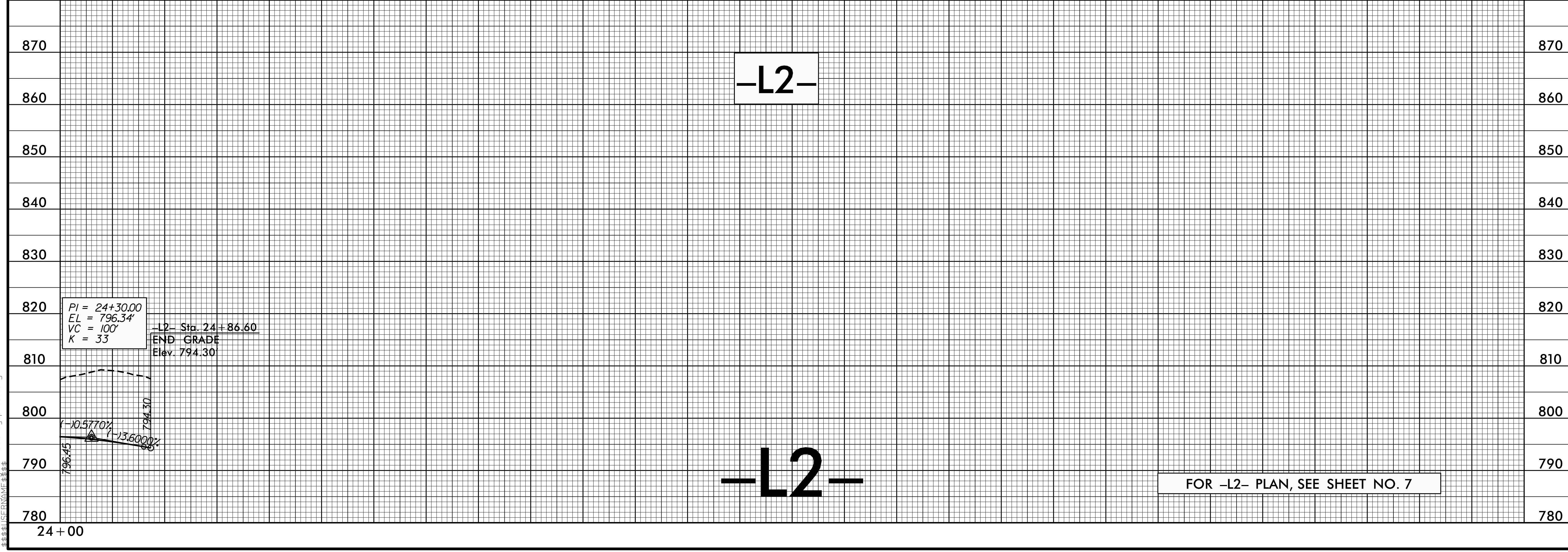
5/28/99

5/28/99

PROJECT REFERENCE NO. <b>K-4908</b>	SHEET NO. <b>13</b>
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 022007 Jason Moore	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 035666 Ryan M. Mullins
DocuSign Jason Moore 2/23/2015	DocuSign Ryan M. Mullins 2/23/2015



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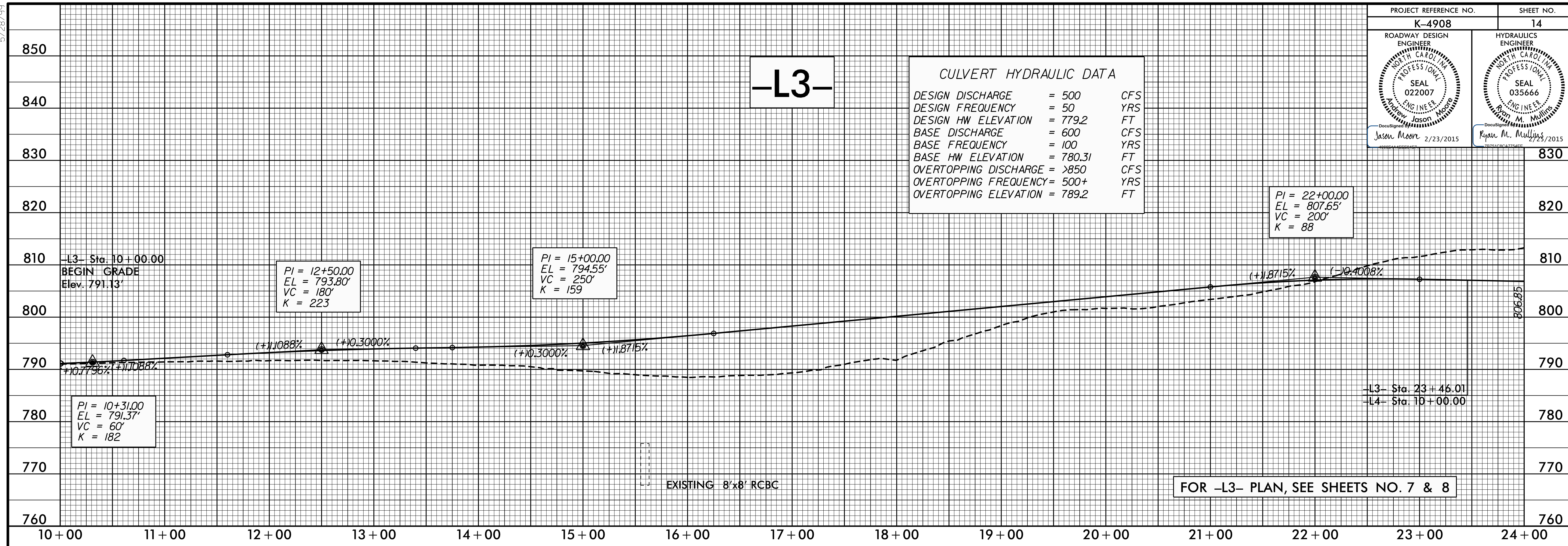


5/28/99

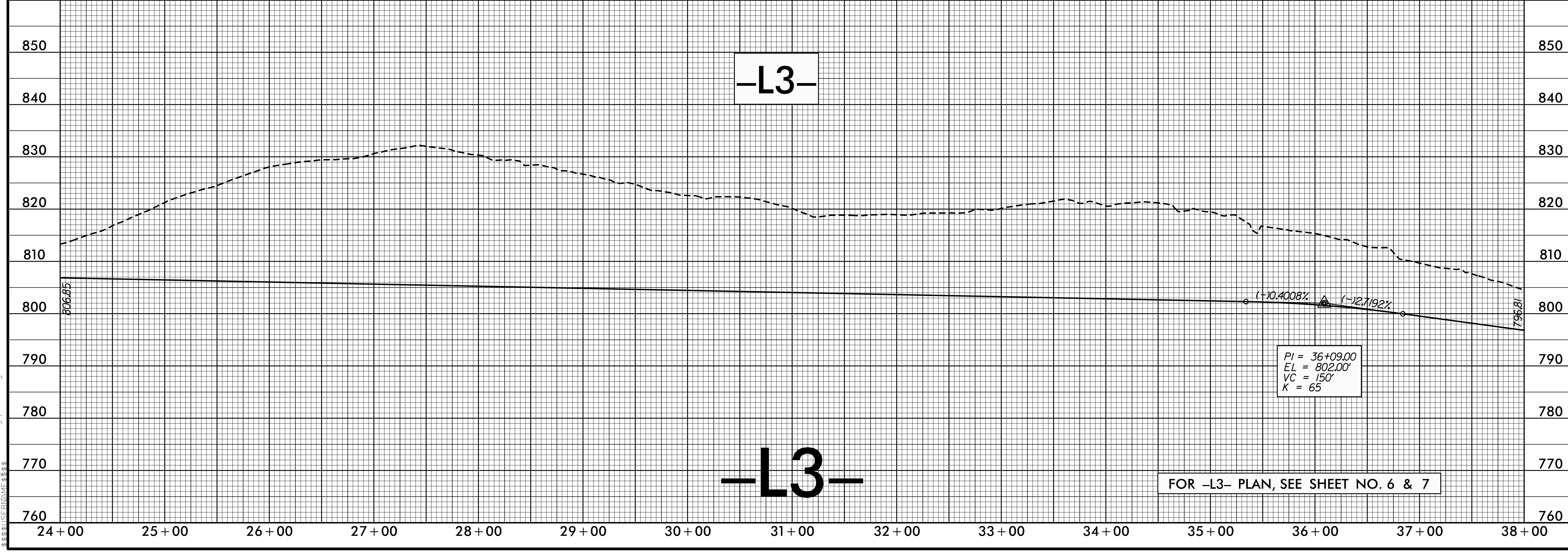
PROJECT REFERENCE NO. <b>K-4908</b>	SHEET NO. <b>14</b>
ROADWAY DESIGN ENGINEER JASON MOORE SEAL 022007 2/23/2015	HYDRAULICS ENGINEER RYAN M. MULLINS SEAL 035666 2/23/2015

**CULVERT HYDRAULIC DATA**

DESIGN DISCHARGE	= 500	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 779.2	FT
BASE DISCHARGE	= 600	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 780.31	FT
OVERTOPPING DISCHARGE	= >850	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 789.2	FT



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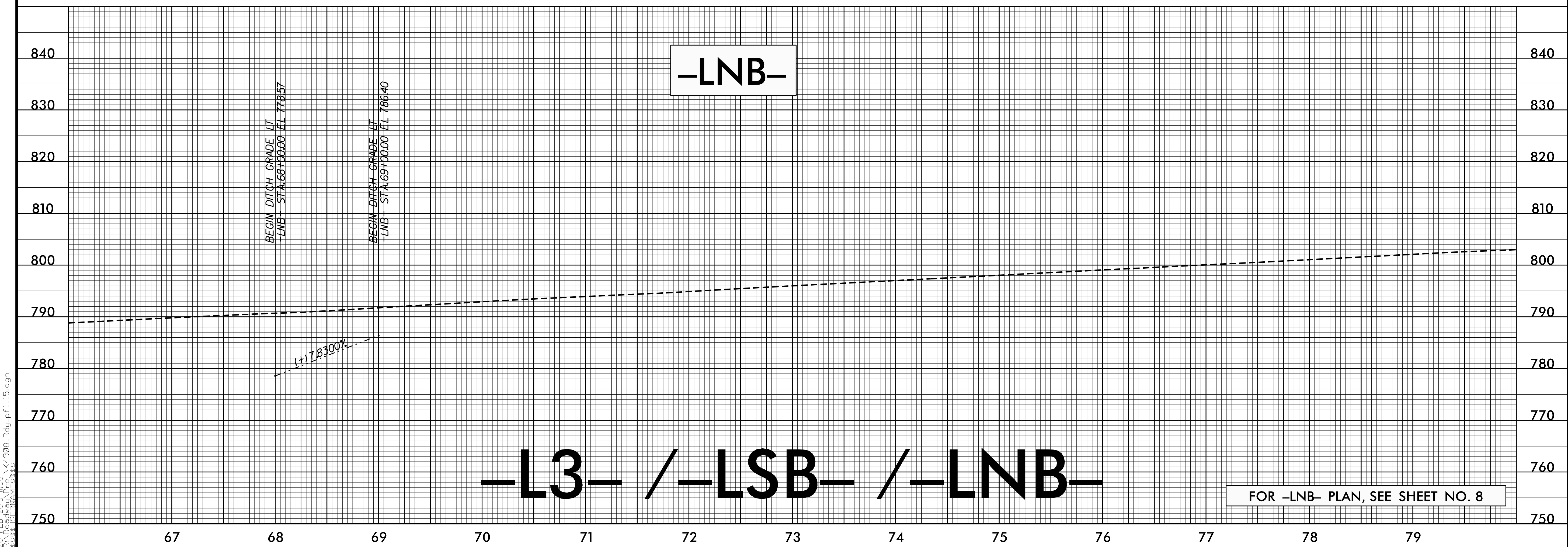
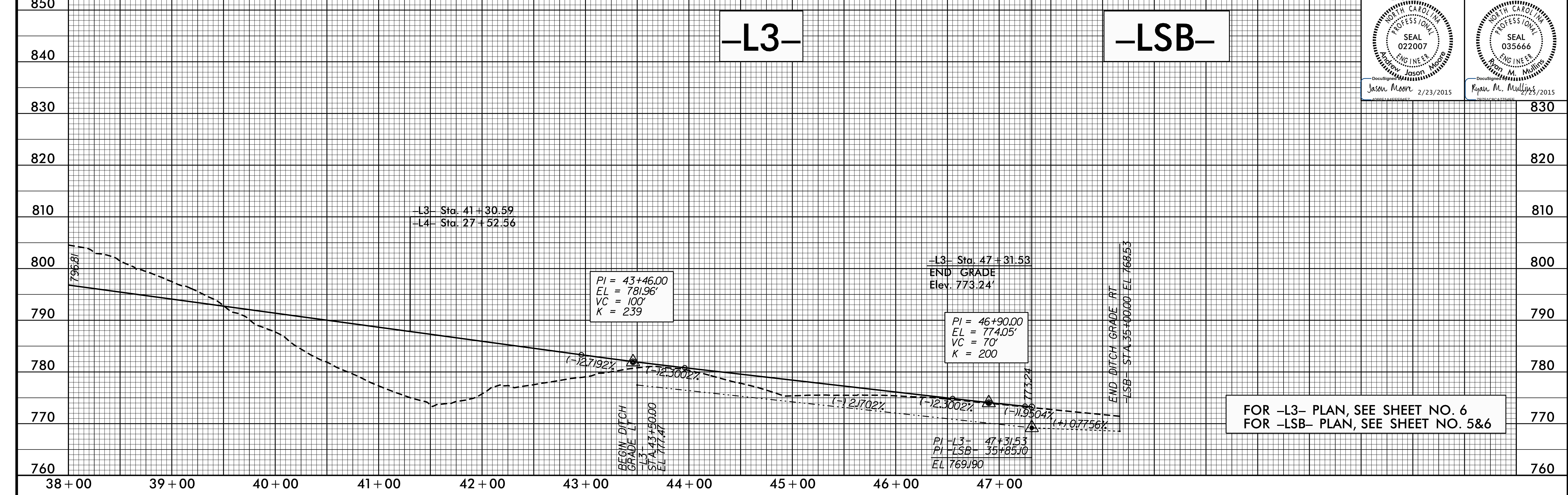
**-L3-**

**-L3-**

**-L3-**



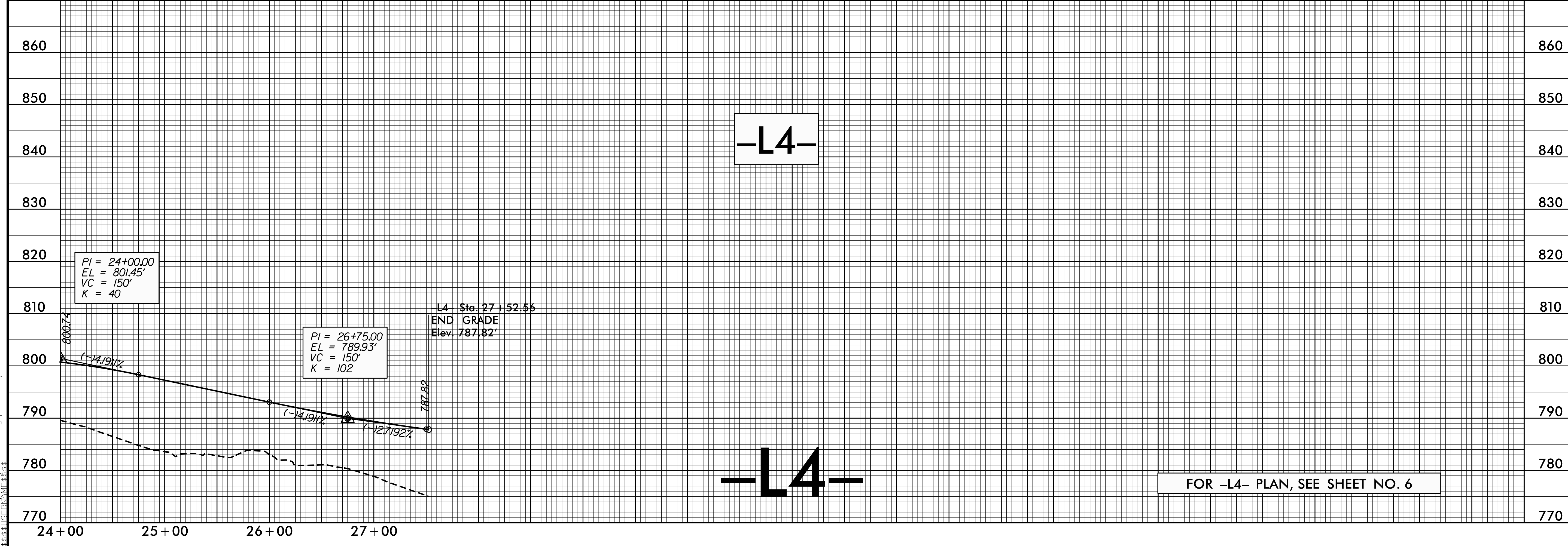
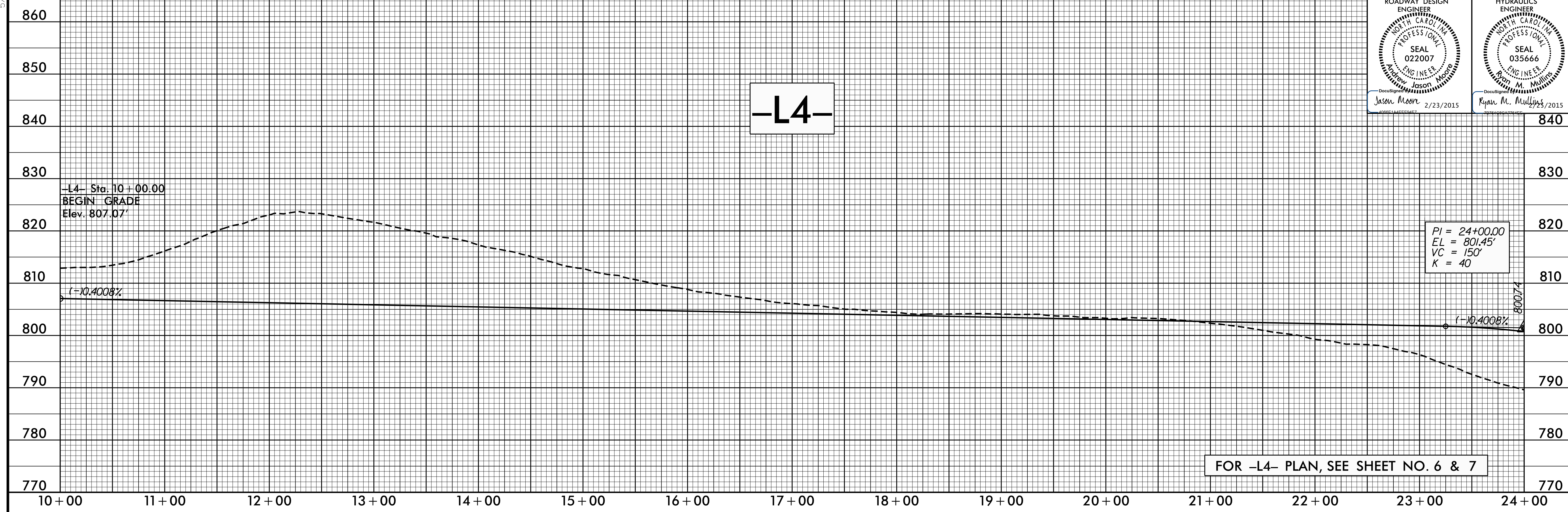
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5/28/99

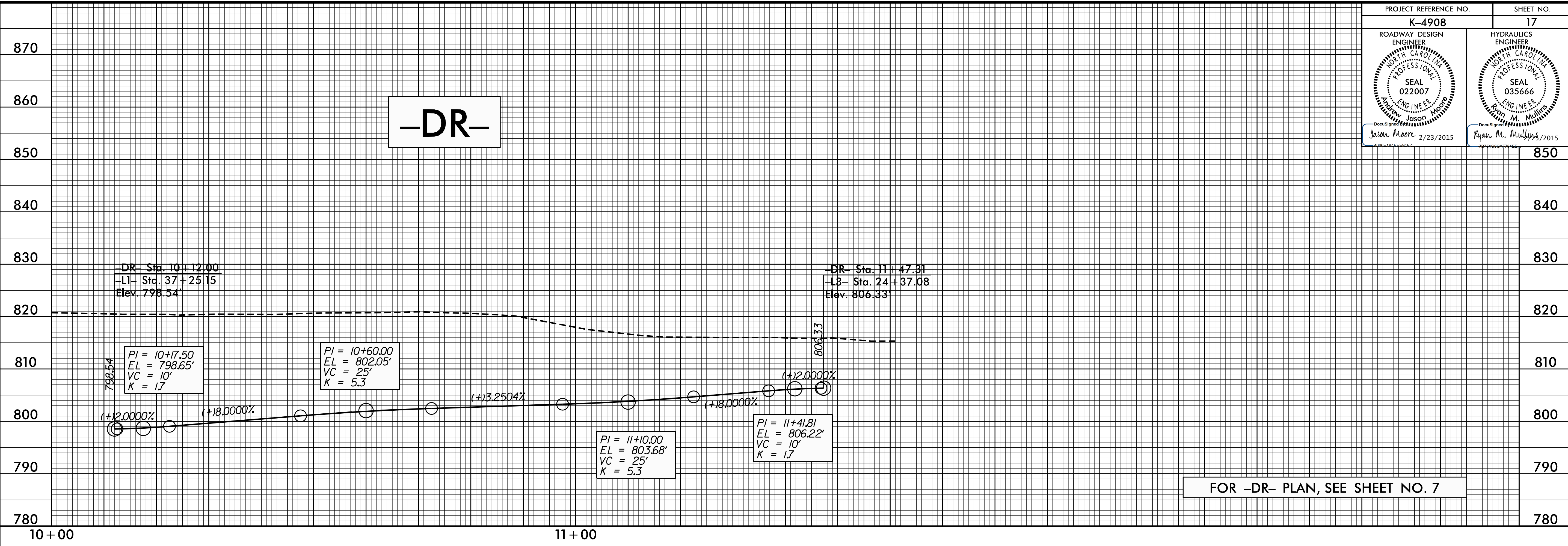
PROJECT REFERENCE NO. <b>K-4908</b>	SHEET NO. <b>16</b>
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 022007 Jason Moore	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 035666 Ryan M. Mullins
DocuSigned by: Jason Moore 2/23/2015	DocuSigned by: Ryan M. Mullins 2/23/2015



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5/28/99



Design Revision : Added -DR- profile. TMW 3/31/14

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44830 TSPR\JMW\8886

**-DR-**