

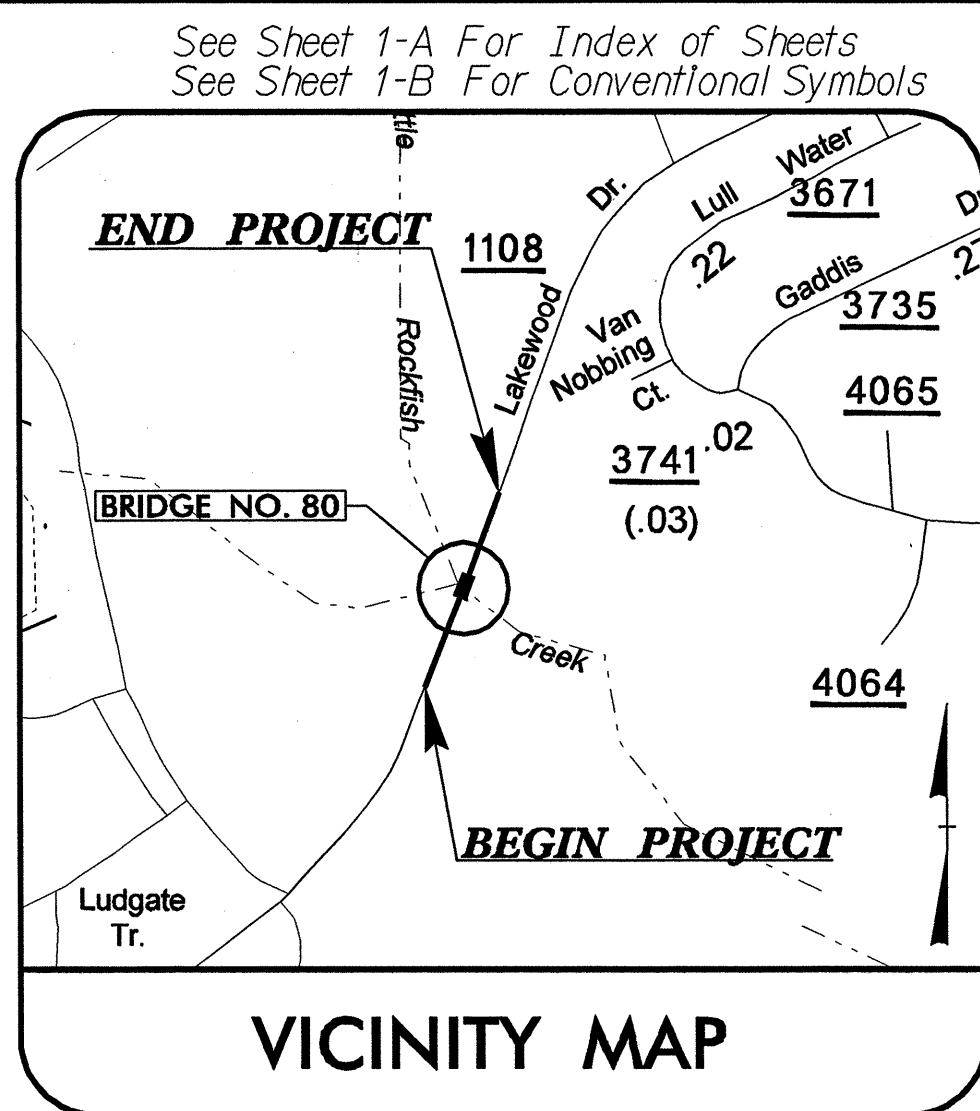
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4092	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33450.1.1	BRZ-1108 (9)	PE	
33450.2.2	BRZ-1108 (9)	R/W & UTIL.	
33450.3.2	BRZ-1108 (9)	CONST.	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

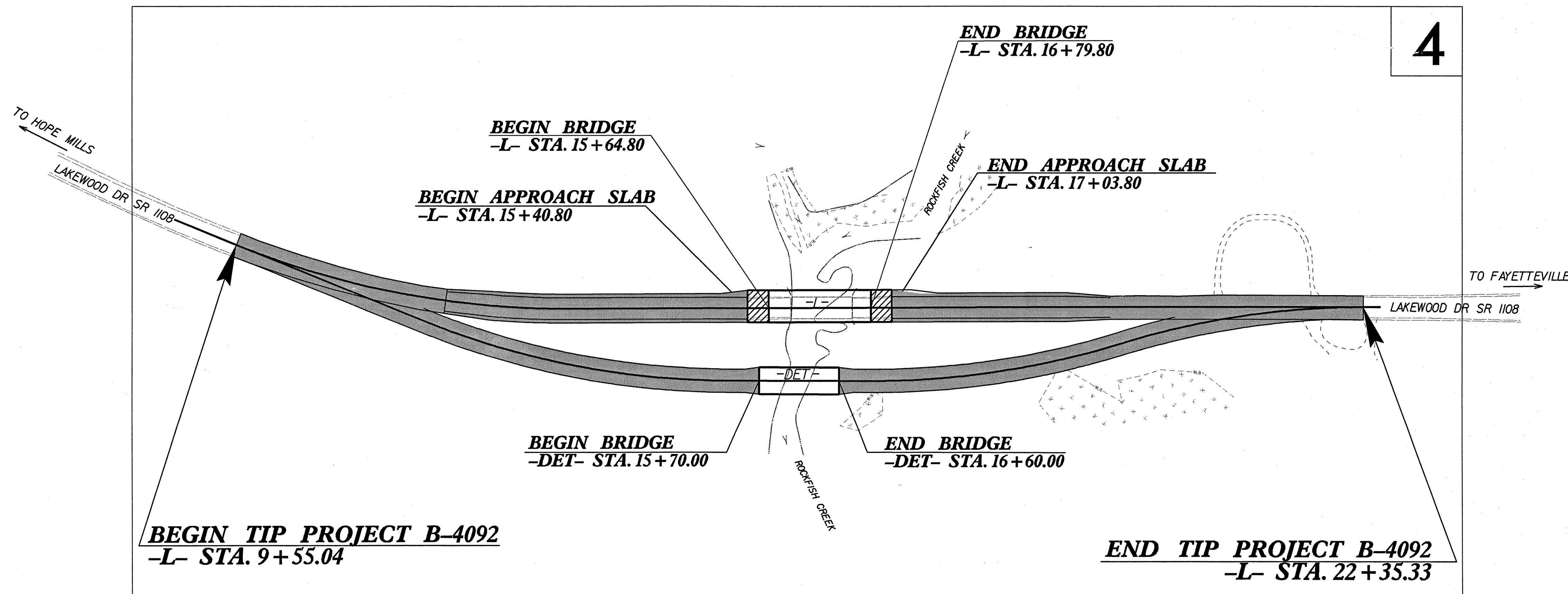
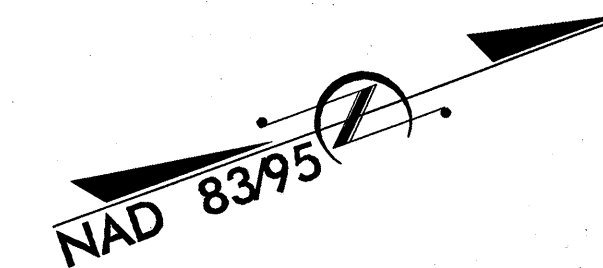
# CUMBERLAND COUNTY

LOCATION: BRIDGE NO. 80 OVER LITTLE ROCKFISH CREEK ON SR 1108 (LAKEWOOD DR.)

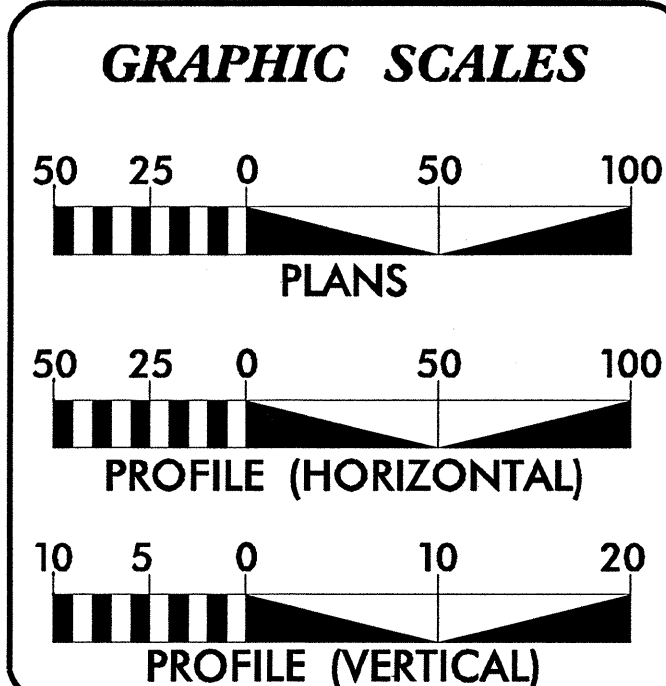
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



\*\* DESIGN EXCEPTION REQUIRED FOR HORIZONTAL ALIGNMENT, VERTICAL ALIGNMENT, HORIZONTAL STOPPING SIGHT DISTANCE, AND VERTICAL STOPPING SIGHT DISTANCE.



NCDOT CONTACT : CATHY HOUSER, P.E.  
ROADWAY DESIGN-ENGINEERING COORDINATION



**DESIGN DATA**

ADT 2008 =	14,100
ADT 2028 =	24,800
DHV =	10 %
D =	60 %
T =	4 % *
**V =	60 MPH
FUNC. CLASS =	URBAN LOCAL
* TTST 1% +	DUALS 3%

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4092 =	0.220 Miles
LENGTH STRUCTURE TIP PROJECT B-4092 =	0.022 Miles
TOTAL LENGTH TIP PROJECT B-4092 =	0.242 Miles

Prepared In the Office of:

**THE LPA GROUP**  
TRANSPORTATION CONSULTANTS

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUG. 17, 2007

LETTING DATE: AUG. 19, 2008

THE LPA GROUP of North Carolina, p.a.  
5000 Falls of Neuse Rd., Suite 304  
Raleigh, North Carolina 27609

Jeanne K. Richter P.E.  
PROJECT ENGINEER

Jody L. Cole  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

Professional Engineer Seal: 9334, 5/25/08

Signature: [Signature]

**ROADWAY DESIGN ENGINEER**

Professional Engineer Seal: 24277, 5-23-08

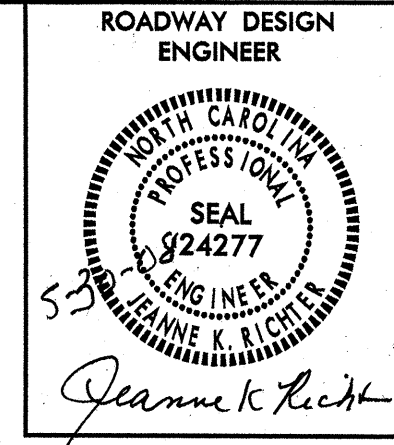
Signature: [Signature]

**DIVISION OF HIGHWAYS**  
STATE OF NORTH CAROLINA

Signature: [Signature] P.E.  
STATE HIGHWAY DESIGN ENGINEER

89/08/99  
 22-MAY-2008 16:26  
 I:\Projects\NCDOT\Bridges\Group 46 Final Design\B4092\Roadway\Proj\B4092-RDY\_TSH.dgn  
 jcole AT LPA20625  
**TIP PROJECT: B-4092**  
**CONTRACT: C201893**

8/17/99



SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2 THRU 2A	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2B	DETOUR PLAN AND PROFILE SHEET
2C	ANCHORAGE FOR FRAMES (DETAIL)
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF EARTHWORK, AND SUMMARY OF ASPHALT PAVEMENT REMOVAL
3B	SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY, AND TEMPORARY GUARDRAIL SUMMARY
4	PLAN AND PROFILE SHEET
TCP-1 THRU TCP-5	TRAFFIC CONTROL PLANS
EC-1 THRU EC-6	EROSION CONTROL PLANS
RF-1 SIGN-1 THRU SIGN-3 UO-1 THRU UO-2	REFORESTATION PLANS SIGNING PLANS UTILITIES BY OTHERS PLANS
X-1 THRU X-10	CROSS-SECTIONS
S-1 THRU S-22	STRUCTURE PLANS

**GENERAL NOTES:** 2006 SPECIFICATIONS  
EFFECTIVE: 07-18-06  
REVISED: 07-18-06

**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. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF 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.

**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. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

**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.

**SUBSURFACE PLANS:**  
NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

**END BENTS:**  
THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

**UTILITIES:**  
UTILITY OWNERS ON THIS PROJECT ARE Emborq  
City of Fayetteville  
Lumber River EMC  
Time Warner Cable  
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 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
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Super-elevation - Two Lane Pavement
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation - Method 'A'
<b>DIVISION 4 - MAJOR STRUCTURES</b>	
422.10	Reinforced Bridge Approach Fills
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Super-elevated Curve - Method I
<b>DIVISION 8 - INCIDENTALS</b>	
840.00	Concrete Base Pad for Drainage Structures
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.01	Rip Rap in Channels
876.04	Drainage Ditches with Class 'B' Rip Rap

EFF. 07-18-06  
REV. 01-02-07

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Group 46 Final Design\B4092\Roadway\Pro\1\B4092\_r.dwg-psh01A.dgn

3/15/06

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	○ EIP
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	----- WLB
Proposed Wetland Boundary	----- WLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB

### BUILDINGS AND OTHER CULTURE:

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

### HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	□
Jurisdictional Stream	----- 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	○
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	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite Marker	-----
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	----- E
Proposed Temporary Construction Easement	----- E
Proposed Temporary Drainage Easement	----- TDE
Proposed Permanent Drainage Easement	----- PDE
Proposed Permanent Utility Easement	----- PUE

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- C
Proposed Slope Stakes Fill	----- F
Proposed Wheel Chair Ramp	○ WCR
Proposed Wheel Chair Ramp Curb Cut	○ WCC
Curb Cut for Future Wheel Chair Ramp	○ CCFR
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	□
U/G Power Cable Hand Hole	□
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	-----
Designated U/G Water Line (S.U.E.*)	-----
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	----- TUTL
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

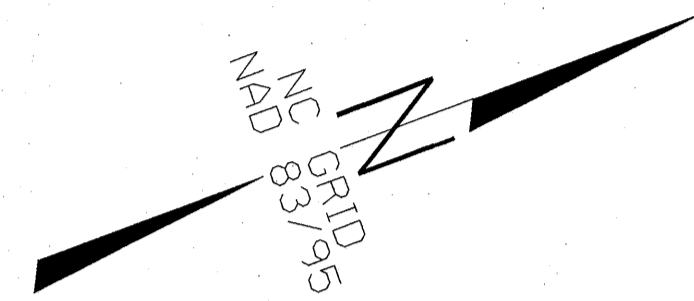
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# SURVEY CONTROL SHEET B-4092

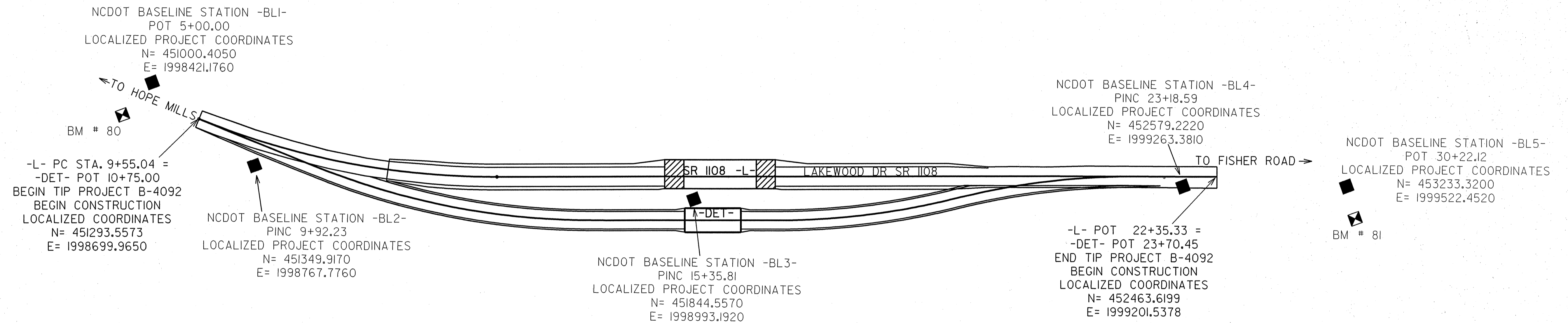
PROJECT REFERENCE NO.	SHEET NO.
B-4092	I-C
Location and Surveys	

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4092	-BL1-	451000.4050	1998421.1760	170.94	OUTSIDE PROJECT LIMITS	
2	B4092	-BL2-	451349.9170	1998767.7760	159.06	10+40.97	16.51 RT
3	B4092	-BL3-	451844.5570	1998993.1920	128.25	15+82.31	15.63 RT
4	B4092	-BL4-	452579.2220	1999263.3810	132.26	23+65.14	18.34 RT
5	B4092	-BL5-	453233.3200	1999522.4520	137.32	OUTSIDE PROJECT LIMITS	



\*\*\*\*\*  
 BM80 ELEVATION - 173.79  
 N 450904 E 1998405  
 L STATION 8+80  
 S 36° 11' 46.4" W DIST 414.19  
 RAILROAD SPIKE IN BASE OF 15 INCH PINE TREE  
 \*\*\*\*\*

\*\*\*\*\*  
 BM81 ELEVATION - 137.45  
 N 453256 E 1999663  
 L STATION 24+10  
 N 32° 34' 21.3" E DIST 746.30  
 RAILROAD SPIKE IN BASE OF 15 INCH PINE  
 \*\*\*\*\*



### NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/)  
 THE FILES TO BE FOUND ARE AS FOLLOWS:  
 TIP B4092\_LS\_CONTROL\_060717.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.

**DATUM DESCRIPTION**

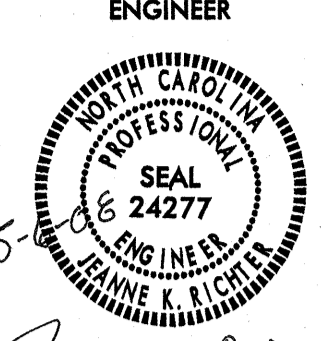
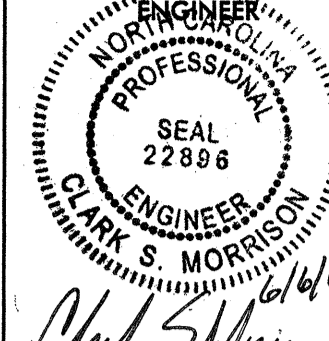
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B4092-I" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 470471.2933(ft) EASTING: 2011708.9490(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .999882380

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4092-I" TO -L- STATION POT STA 9+55.04 IS  
 S 34° 9' 2" W 23173.68'

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

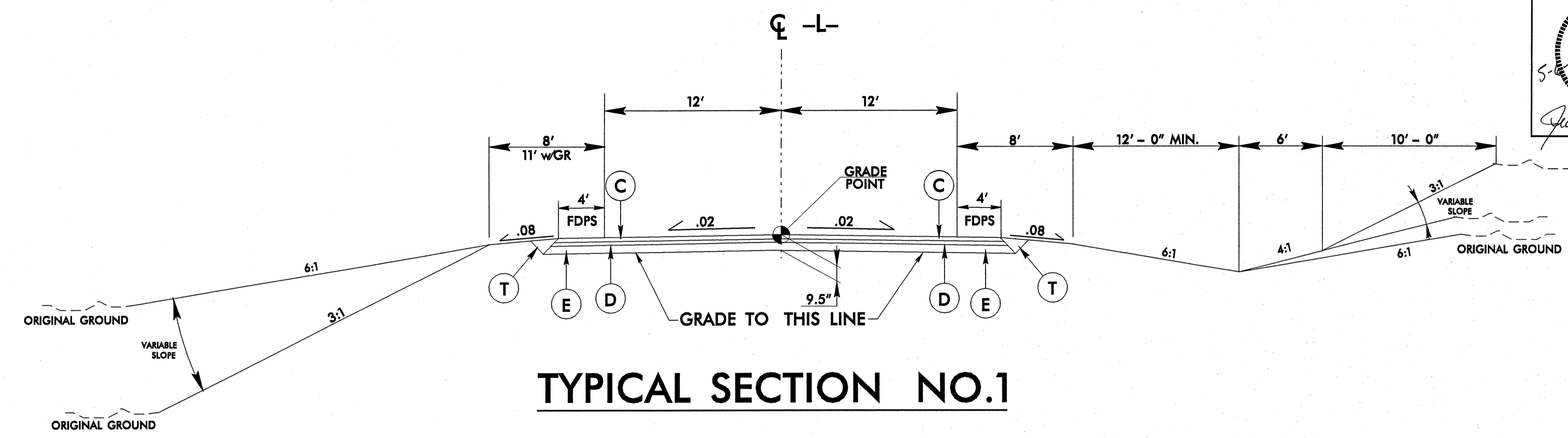
NOTE: DRAWING NOT TO SCALE

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 At LPA30660

PROJECT REFERENCE NO. B-4092	SHEET NO. 2
ROADWAY DESIGN ENGINEER  JEANNE K. RICHT 6/16/08	PAVEMENT DESIGN ENGINEER  CLARK S. MORRISON 6/16/08

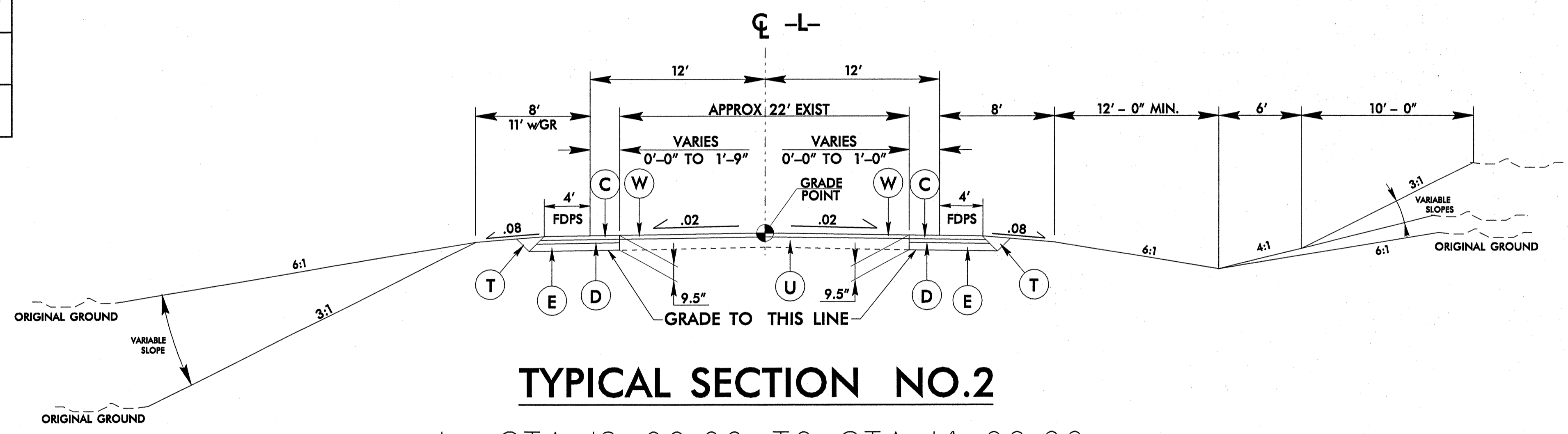
PAVEMENT SCHEDULE	
A	5" PORTLAND CEMENT CONCRETE PAVEMENT.
C	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 188 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 188 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D1	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	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 5 1/2" IN DEPTH.
J	PROP. 6" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET No. 2A)

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



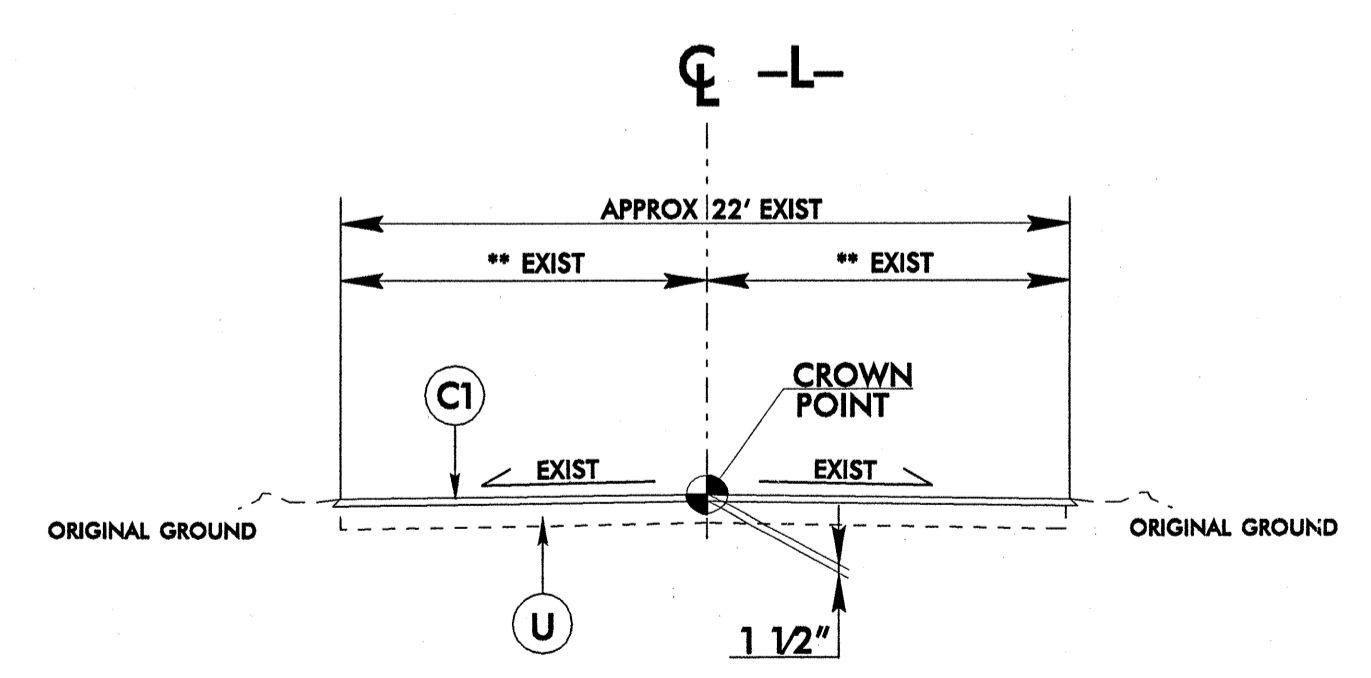
### TYPICAL SECTION NO.1

-L- STA. 14+00.00 TO STA. 15+64.80 (BEGIN BRIDGE)  
 -L- STA. 16+79.80 (END BRIDGE) TO STA. 18+50.00



### TYPICAL SECTION NO.2

-L- STA. 12+00.00 TO STA. 14+00.00  
 -L- STA. 18+50.00 TO STA. 19+50.00



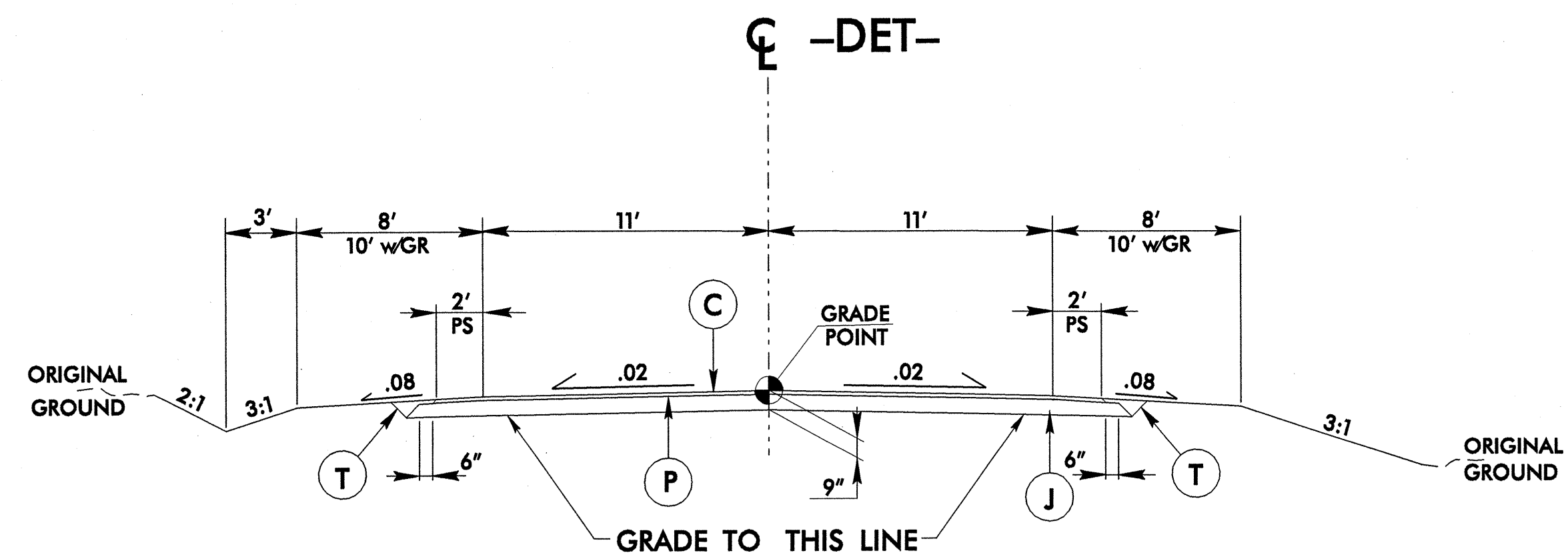
### TYPICAL SECTION NO.3

-L- STA. 9+55.04 TO STA. 12+00.00  
 -L- STA. 19+50.00 TO STA. 22+35.33

\*\* OVERLAY EXISTING PAVEMENT ONLY

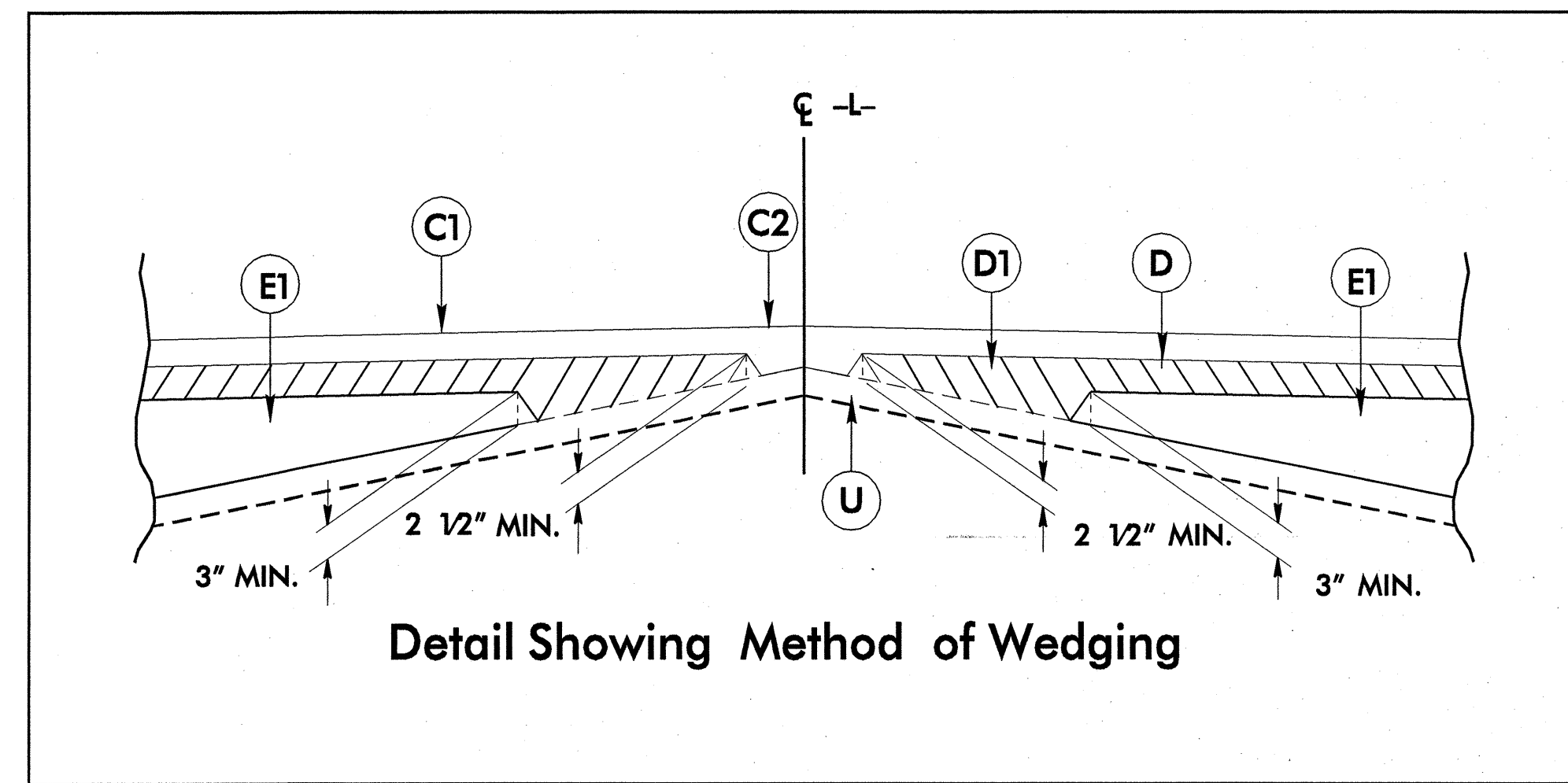
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PAVEMENT SCHEDULE	
A	5" PCCP
C	3" S9.5B
C1	1 1/2" S9.5B
C2	VAR. S9.5B
D	2 1/2" I19.0B
D1	VAR. I19.0B
E	4" B25.0B
E1	VAR. B25.0B
J	6" ABC
P	.35 PRIME COAT
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

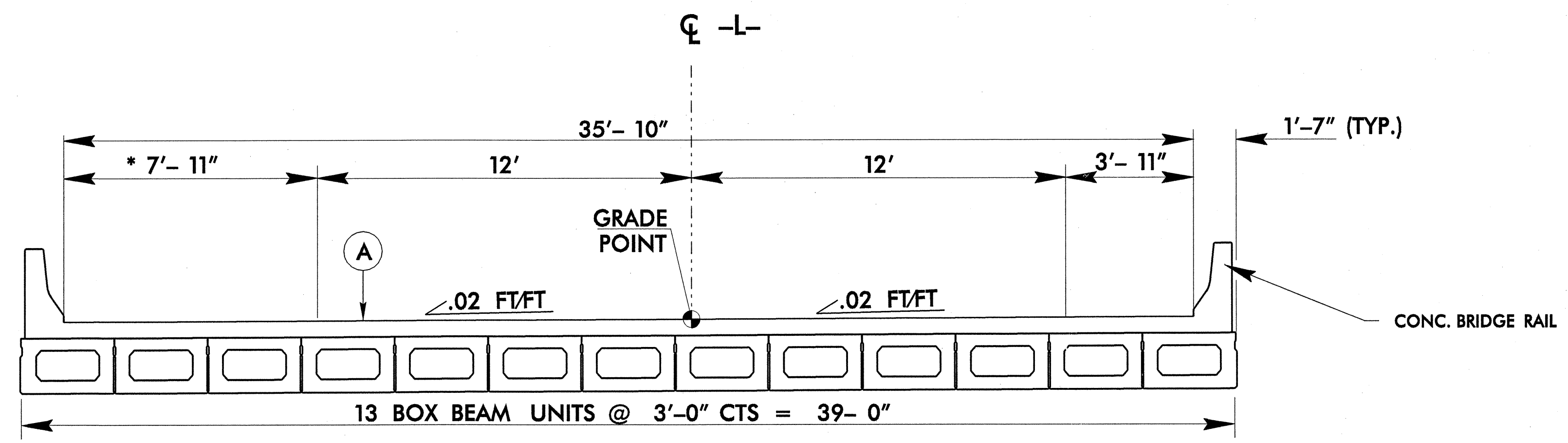


**TYPICAL SECTION NO.4**

-DET- STA. 9+55.04 TO STA. 15+70.00 (BEGIN BRIDGE)  
 -DET- STA. 16+60.00 (END BRIDGE) TO STA. 22+59.64



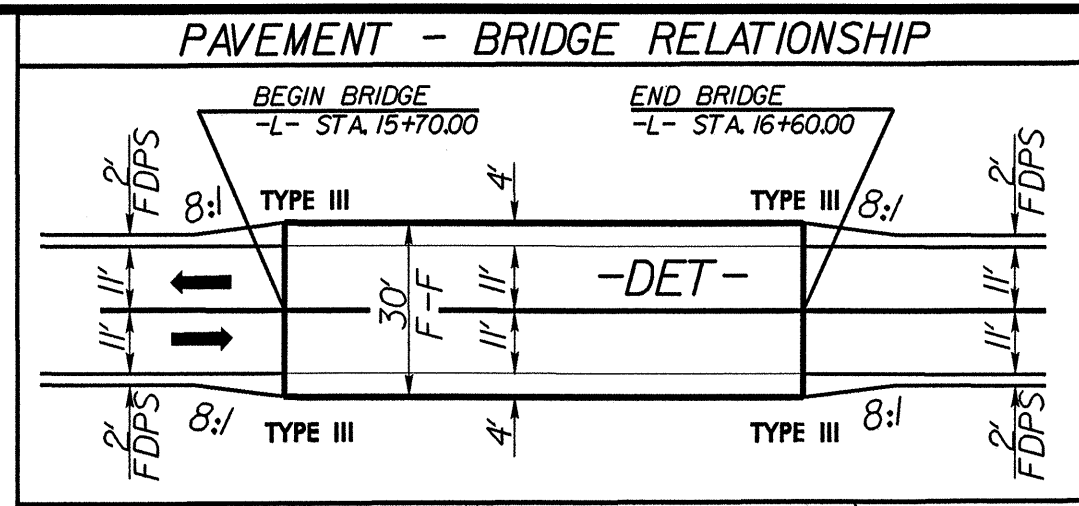
Detail Showing Method of Wedging



**TYPICAL SECTION NO.5**

-L- STA. 15+64.80 (BEGIN BRIDGE) TO STA. 16+79.80 (END BRIDGE)  
 \* WIDENED SHOULDER DUE TO HYDRAULIC SPREAD

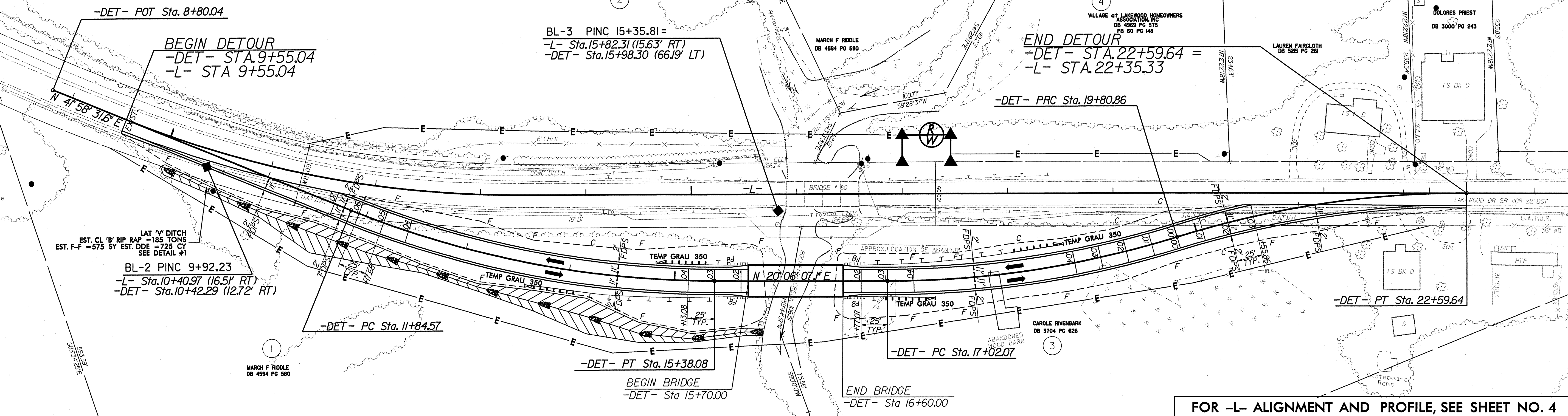
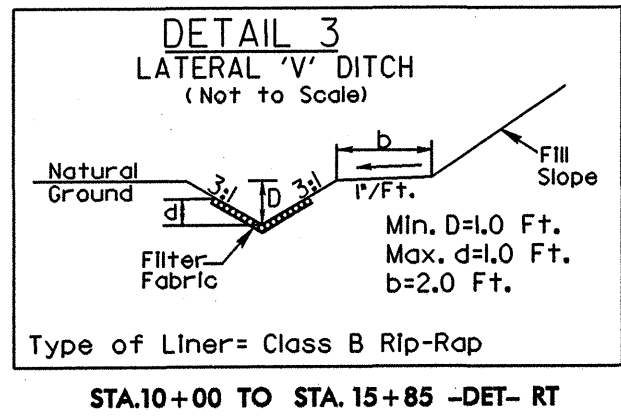
PROJECT REFERENCE NO. B-4092	SHEET NO. 2A
ROADWAY DESIGN ENGINEER <i>Jeanne K. Reichen</i>	PAVEMENT DESIGN ENGINEER <i>Clayton S. Morrison</i>



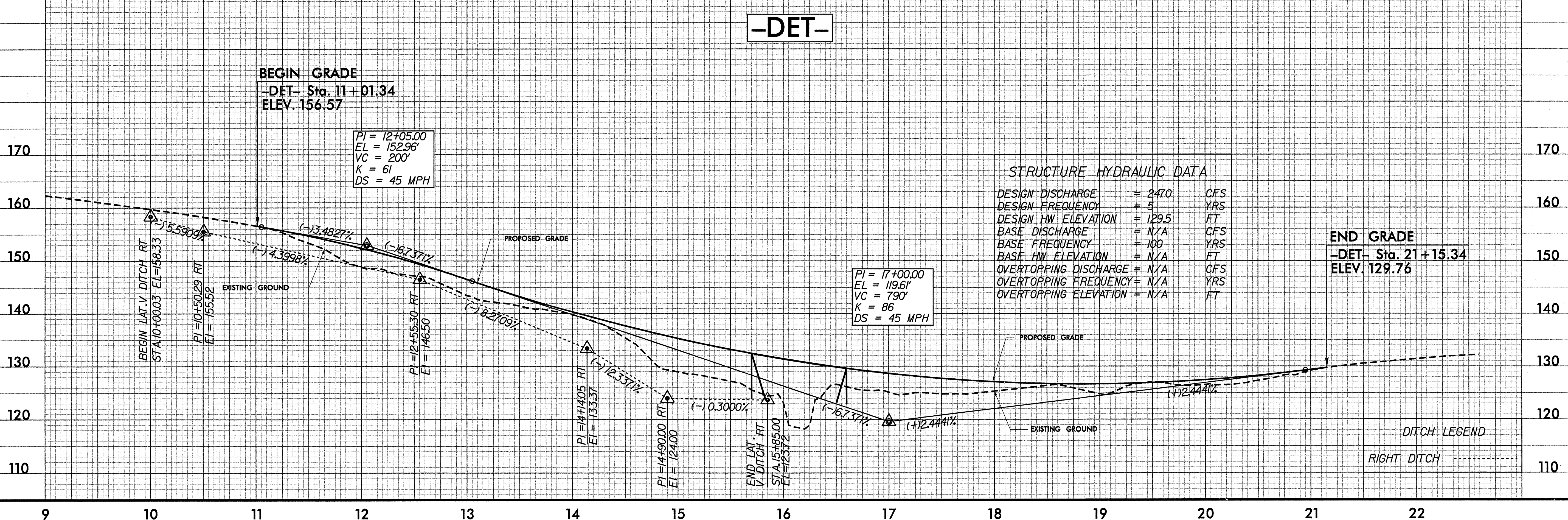
-DET-  
 PI Sta 18+42.53 Δ = 17' 14" 58.8" (LT)  
 D = 6' 11" 14.8" L = 278.78'  
 T = 140.45' R = 926.00'  
 e(max) = 0.04 FT/FT

PI Sta 21+21.31 Δ = 17' 14" 58.8" (RT)  
 D = 6' 11" 14.8" L = 278.78'  
 T = 140.45' R = 926.00'  
 e(max) = 0.04 FT/FT

-DET-  
 PI Sta 13+63.50 Δ = 21' 52" 24.5" (LT)  
 D = 6' 11" 14.8" L = 353.51'  
 T = 178.94' R = 926.00'  
 e(max) = 0.04 FT/FT



FOR -L- ALIGNMENT AND PROFILE, SEE SHEET NO. 4



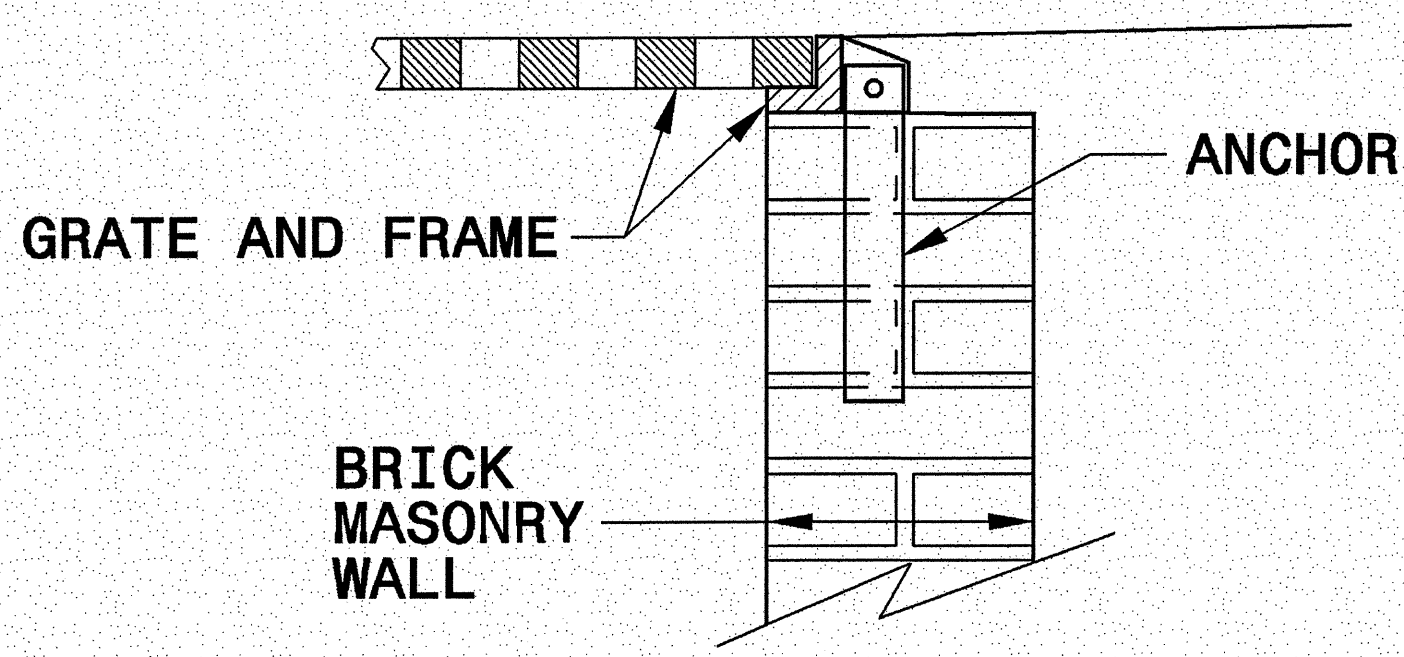
DITCH LEGEND  
 RIGHT DITCH - - - - -

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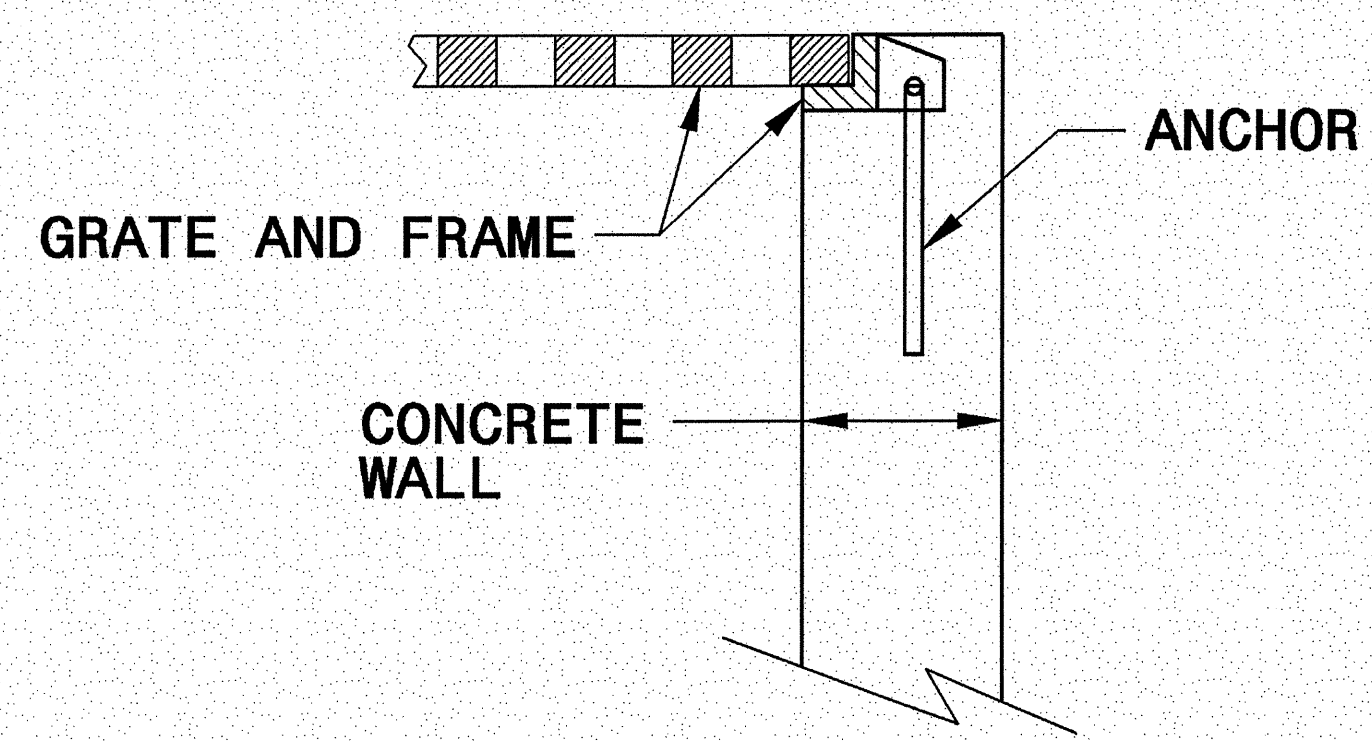
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

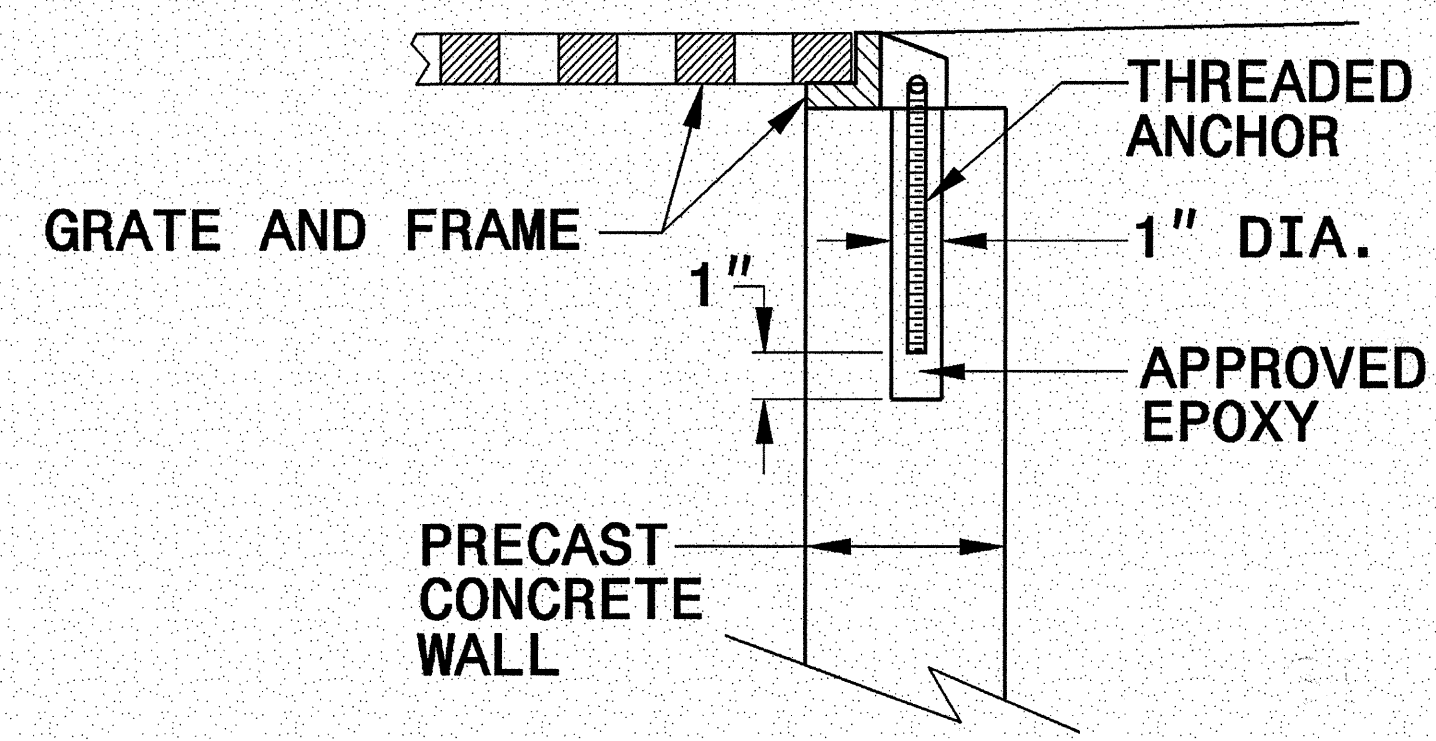
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



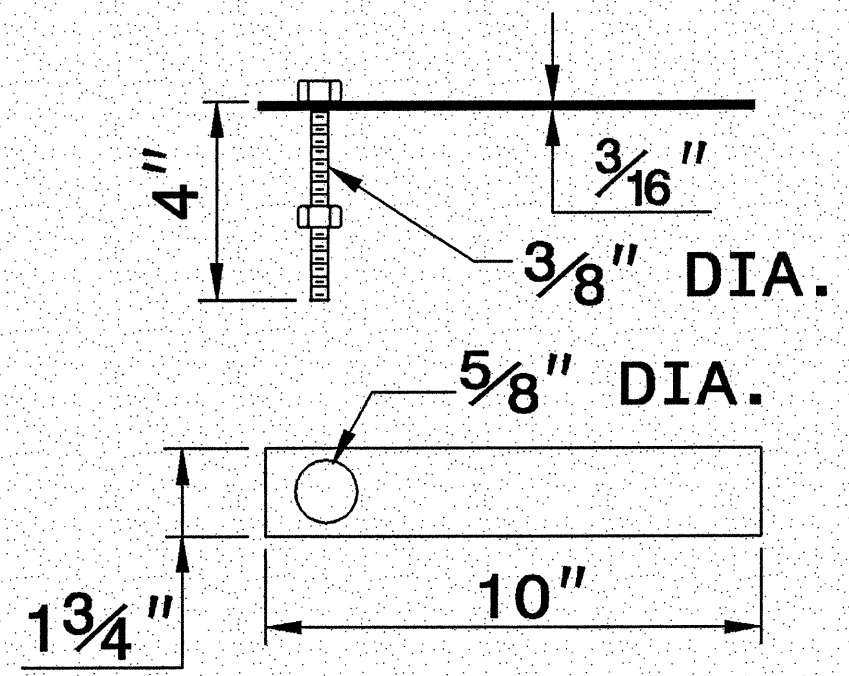
**CONCRETE CONSTRUCTION**



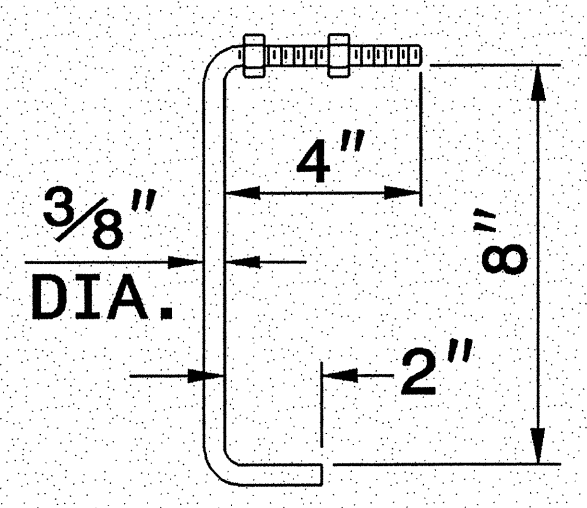
**PRECAST CONCRETE CONSTRUCTION**

**DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET**

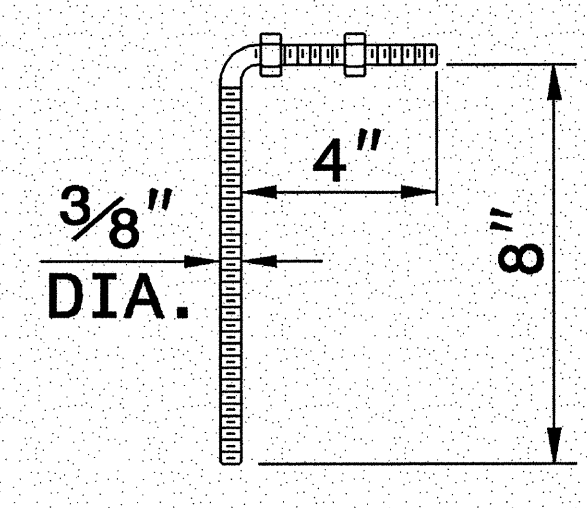
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



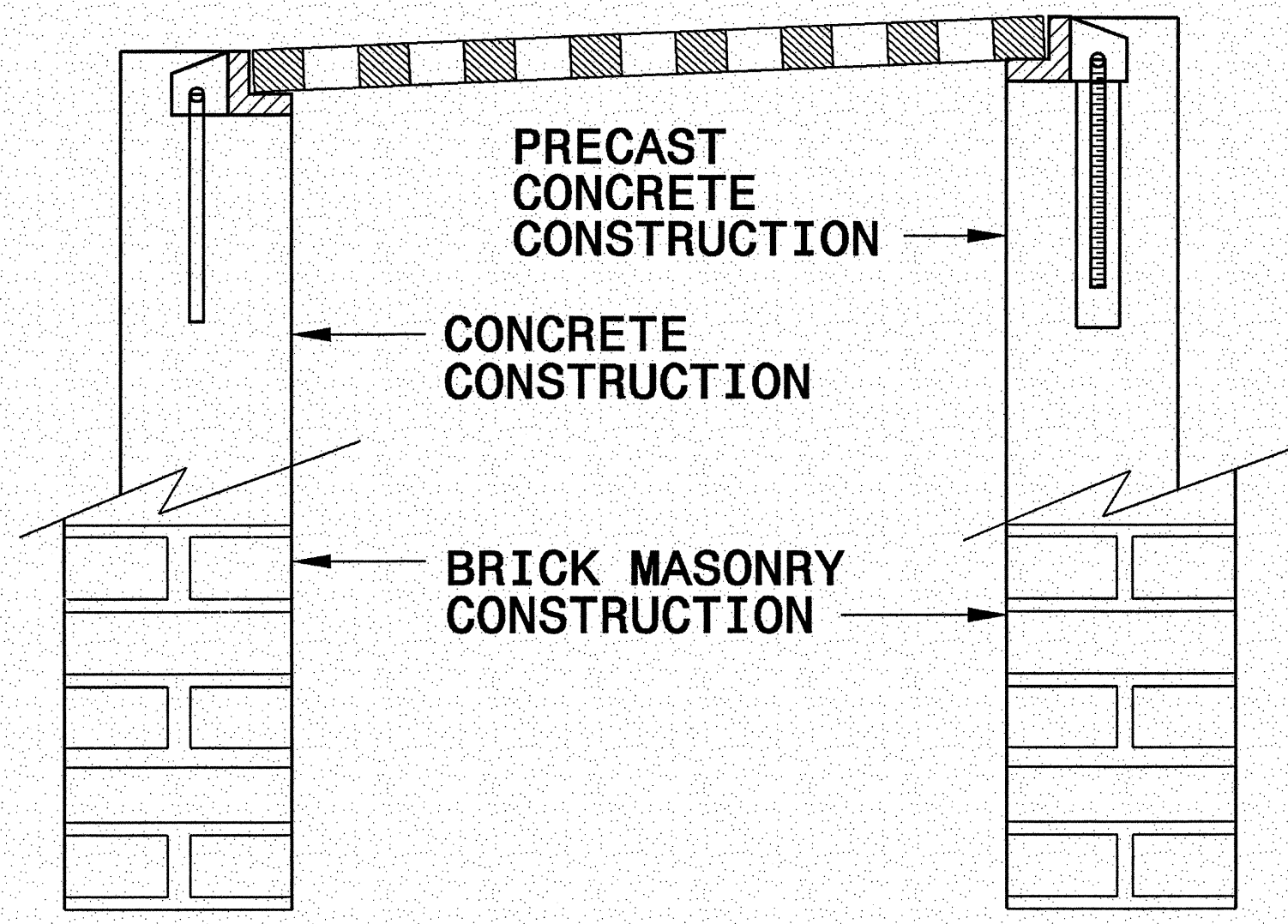
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



**CONCRETE ANCHOR**  
3/8" DIA. BENT BAR



**PRECAST CONCRETE ANCHOR**  
3/8" DIA. BENT BAR



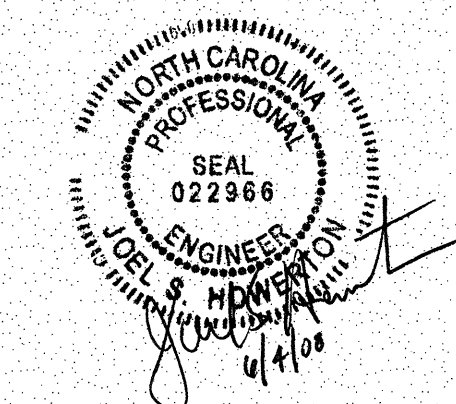
**FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS**

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

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1  
**840D25**

27-SEP-2006 08:59 S:\Contracts\Special\_Details\enward\stda\06' Stds to Special\_Details\84025 Anchorage For Frames\0840d25.dgn enward AT PS222233



**PROJECT SERVICES UNIT  
STANDARDS AND SPECIAL DESIGN**  
Office 919-250-4128 FAX 919-250-4119

**SEE PLATE FOR TITLE**

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06  
MODIFIED BY: E.E. WARD DATE: 9/25/06  
CHECKED BY: DATE:  
FILE SPEC.:



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**SUMMARY OF QUANTITIES**

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201893														
ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	338000000-E	862	325	LF	TEMPORARY STEEL BM GUARDRAIL	600900000-E	1610	170	TON	STONE FOR EROSION CONTROL, CLASS B
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL STATION ***** (16+22.30)	338700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (III)	601200000-E	1610	40	TON	SEDIMENT CONTROL STONE
0043000000-N	226	Lump Sum		GRADING	3389100000-N	SP	5	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY	601500000-E	1615	3.5	ACR	TEMPORARY MULCHING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING	3635000000-E	876	80	TON	RIP RAP, CLASS II	6018000000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
0057000000-E	226	250	CY	UNDERCUT EXCAVATION	3649000000-E	876	500	TON	RIP RAP, CLASS B	6021000000-E	1620	1.5	TON	FERTILIZER FOR TEMPORARY SEEDING
0134000000-E	240	1,660	CY	DRAINAGE DITCH EXCAVATION	3656000000-E	876	1,720	SY	FILTER FABRIC FOR DRAINAGE	6024000000-E	1622	50	LF	TEMPORARY SLOPE DRAINS
0195000000-E	265	250	CY	SELECT GRANULAR MATERIAL	3659000000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	6027000000-N	1622	2	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
0196000000-E	270	250	SY	FABRIC FOR SOIL STABILIZATION	4072000000-E	903	29	LF	SUPPORTS, 3-LB STEEL U-CHANNEL	6029000000-E	SP	400	LF	SAFETY FENCE
0318000000-E	300	2	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	4102000000-N	904	3	EA	SIGN ERECTION, TYPE E	6030000000-E	1630	720	CY	SILT EXCAVATION
0366000000-E	310	12	LF	15" RC PIPE CULVERTS, CLASS III	4155000000-N	907	6	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	6036000000-E	1631	1,275	SY	MATting FOR EROSION CONTROL
1121000000-E	520	1,098	TON	AGGREGATE BASE COURSE	4400000000-E	1110	88	SF	WORK ZONE SIGNS (STATIONARY)	6037000000-E	SP	50	SY	COIR FIBER MAT
1275000000-E	600	1,050	GAL	PRIME COAT	4405000000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)	6042000000-E	1632	20	LF	1/4" HARDWARE CLOTH
1489000000-E	610	330	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	4410000000-E	1110	32	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	6071030000-E	SP	330	LF	COIR FIBER BAFFLES
1498000000-E	610	220	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I119.0B	4430000000-N	1130	40	EA	DRUMS	6071050000-E	SP	1	EA	*** SKIMMER (1-1/2")
1519000000-E	610	990	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	4435000000-N	1135	25	EA	CONES	6071050000-E	SP	1	EA	*** SKIMMER (2")
1560000000-E	620	85	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	4445000000-E	1145	48	LF	BARRICADES (TYPE III)	6084000000-E	1660	4.5	ACR	SEEDING & MULCHING
2286000000-N	840	1	EA	MASONRY DRAINAGE STRUCTURES	4450000000-N	1150	560	HR	FLAGGER	6087000000-E	1660	2.5	ACR	MOWING
2367000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.29	4480000000-N	1165	1	EA	TMIA	6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
2556000000-E	846	22	LF	SHOULDER BERM GUTTER	4650000000-N	1251	16	EA	TEMPORARY RAISED PAVEMENT MARKERS	6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
3030000000-E	862	600	LF	STEEL BM GUARDRAIL	4810000000-E	1205	31,064	LF	PAINT PAVEMENT MARKING LINES (4")	6096000000-E	1662	100	LB	SEED FOR SUPPLEMENTAL SEEDING
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	4850000000-E	1205	1,920	LF	REMOVAL OF PAVEMENT MARKING LINES (4")	6108000000-E	1665	2.75	TON	FERTILIZER TOPDRESSING
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	4900000000-N	1251	16	EA	PERMANENT RAISED PAVEMENT MARKERS	6114000000-N	SP	3	HR	SPECIALIZED HAND MOWING
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77	6000000000-E	1605	1,195	LF	TEMPORARY SILT FENCE	6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
3360000000-E	863	721	LF	REMOVE EXISTING GUARDRAIL	6006000000-E	1610	50	TON	STONE FOR EROSION CONTROL, CLASS A	6123000000-E	1670	1.4	ACR	REFORESTATION

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DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

**SUMMARY OF EARTHWORK**

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
<b>PHASE I</b>					
-DET- 9+55.04 TO 15+70.00 (BEGIN BRIDGE)	65		2,739	2,674	
-DET- 16+60.00 (END BRIDGE) TO 22+59.64	94		1,129	1,035	
<b>SUBTOTAL</b>	<b>159</b>		<b>3,868</b>	<b>3,709</b>	
<b>PHASE II</b>					
-L- 12+00.00 TO 15+64.80 (BEGIN BRIDGE)	134		263	129	
-L- 16+79.80 (END BRIDGE) TO 19+50.00	151		303	152	
<b>SUBTOTAL</b>	<b>285</b>		<b>566</b>	<b>281</b>	
<b>PHASE III (-L- /W-DET- REMOVAL)</b>					
-L- 10+00.00 TO 15+53.77 (BEGIN BRIDGE)	2,166		76		2,090
-L- 16+43.77 (END BRIDGE) TO 21+50.00	903		86		817
<b>SUBTOTAL</b>	<b>3,069</b>		<b>162</b>		<b>2,907</b>
<b>TOTALS</b>	<b>3,513</b>		<b>4,596</b>	<b>3,990</b>	<b>2,907</b>
<b>PROJECT TOTALS</b>	<b>3,513</b>		<b>4,596</b>	<b>3,990</b>	<b>2,907</b>
EST. 5% FOR REPLACING TOPSOIL ON ON BORROW PIT				200	
<b>GRAND TOTALS</b>	<b>3,513</b>			<b>4,190</b>	
<b>SAY</b>	<b>3,550</b>			<b>4,200</b>	

EST. DDE = 1,660 C.Y.  
 EST. SELECT GRANULAR MATERIAL = 250 C.Y.  
 EST. UNDERCUT EXCAVATION = 250 C.Y.

**SUMMARY OF PAVEMENT REMOVAL**

IN SQUARE YARDS

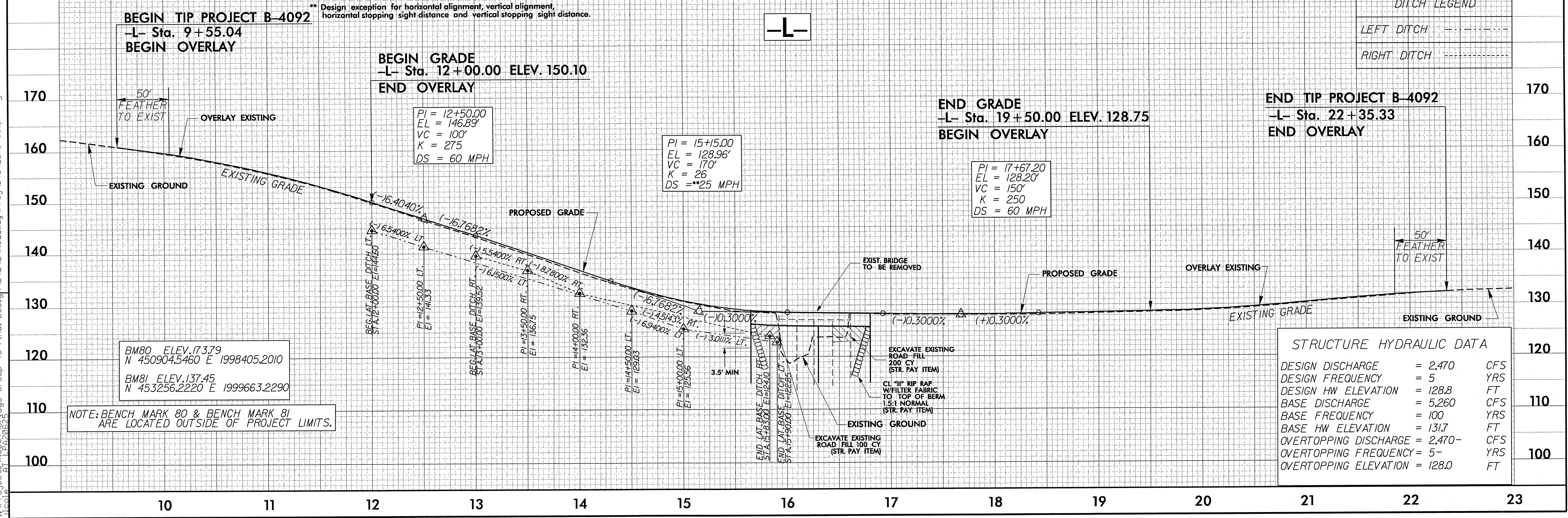
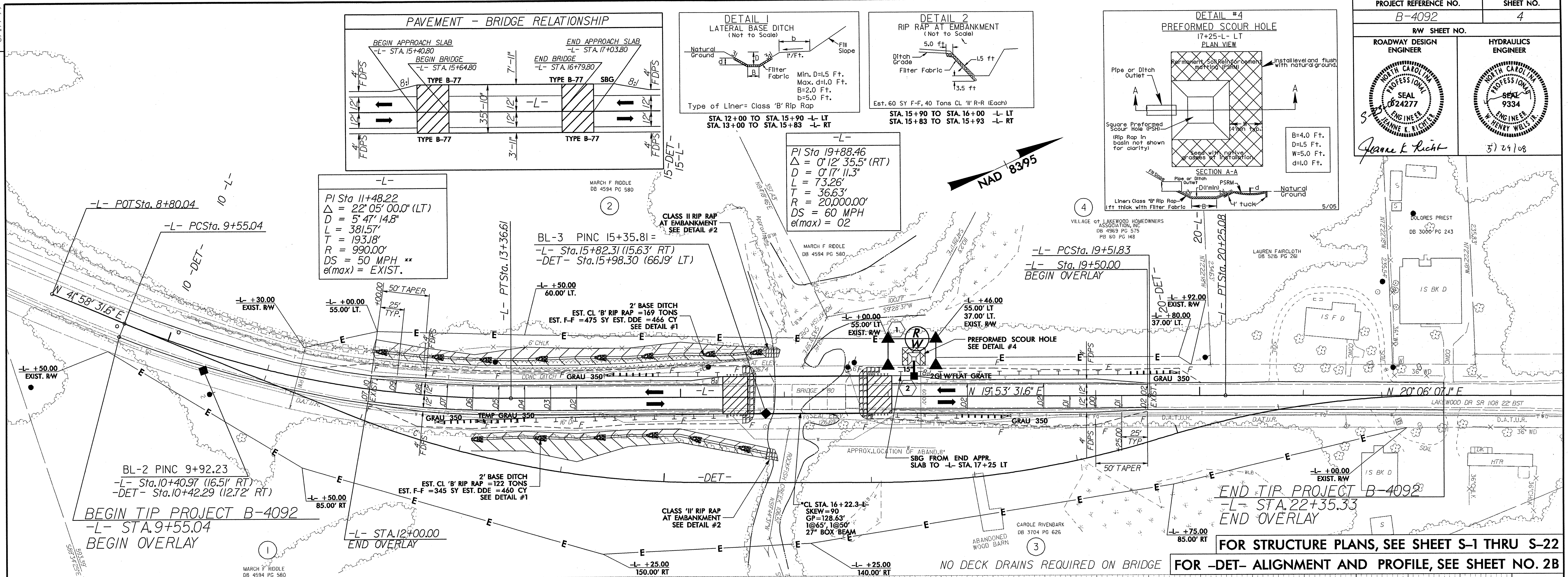
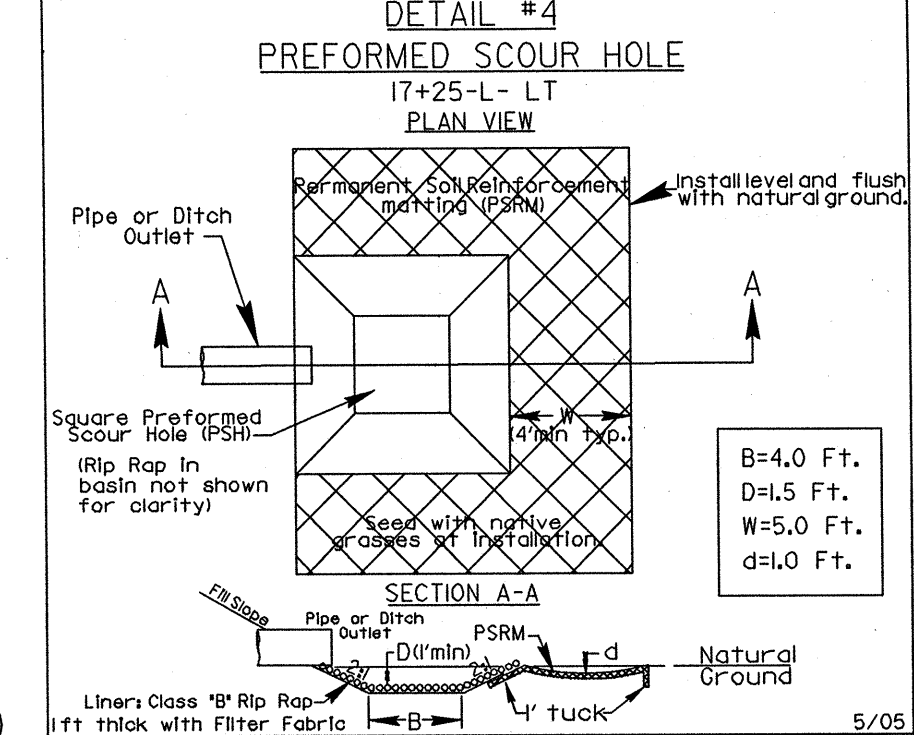
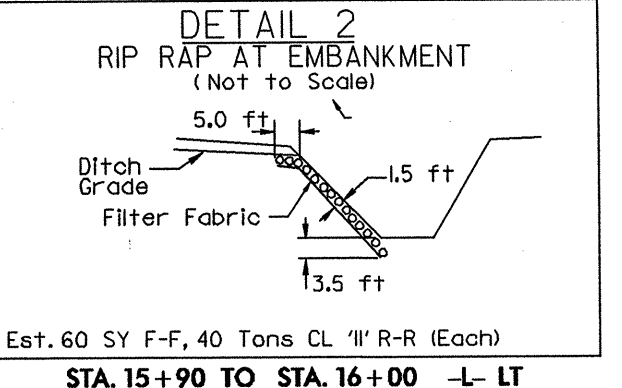
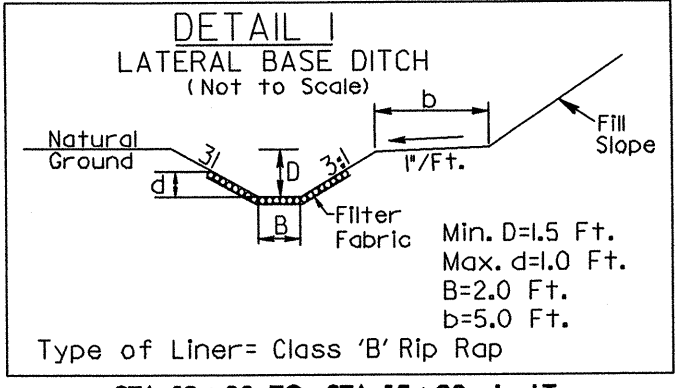
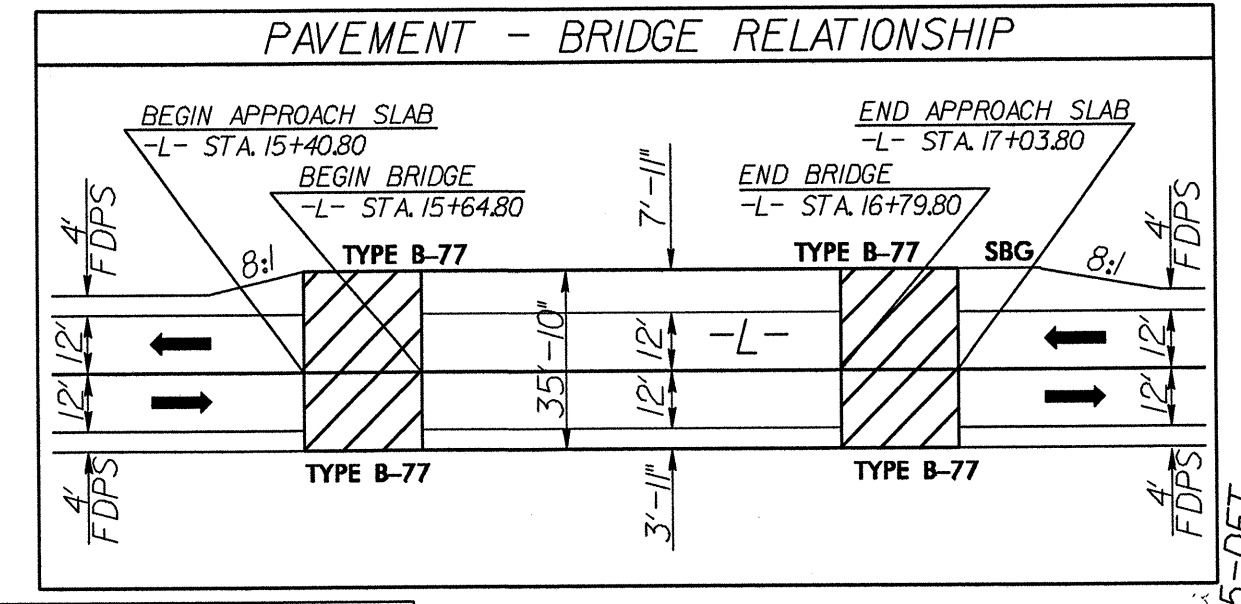
LOCATION	ASPHALT REMOVAL
-L- 14+00.00 TO 15+89.97	538.25
-L- 16+58.91 TO 18+50.00	554.16
-DET- 9+77.91 TO 11+86.16	230.02
-DET- 11+86.16 TO 15+70.00	1,108.87
-DET- 16+60.00 TO 20+38.06	1,092.17
-DET- 20+38.06 TO 22+33.00	202.02
<b>TOTAL</b>	<b>3,725.49</b>
<b>SAY</b>	<b>3,730</b>

NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

NOTE: 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.

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 REVISIONS