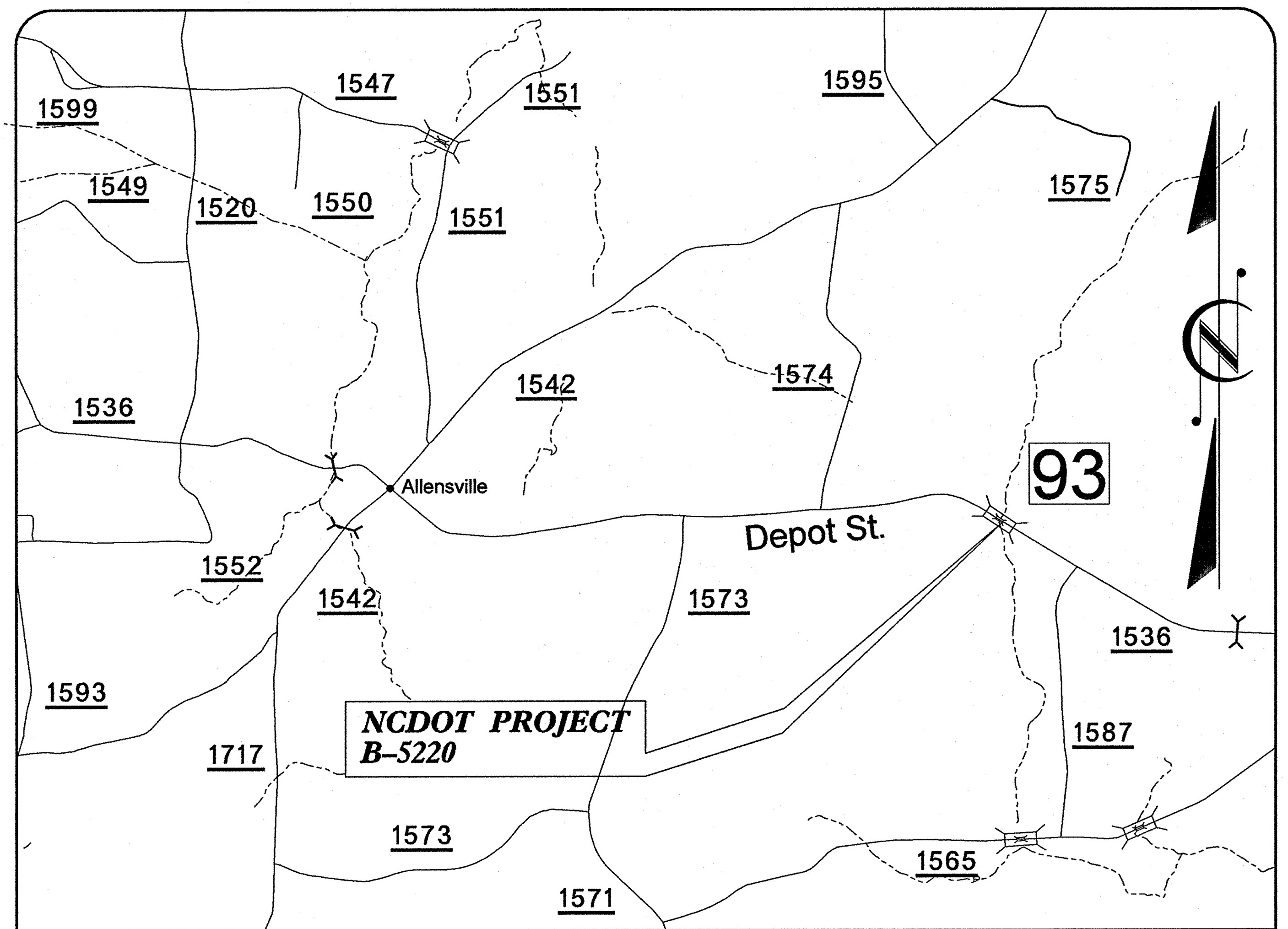
See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

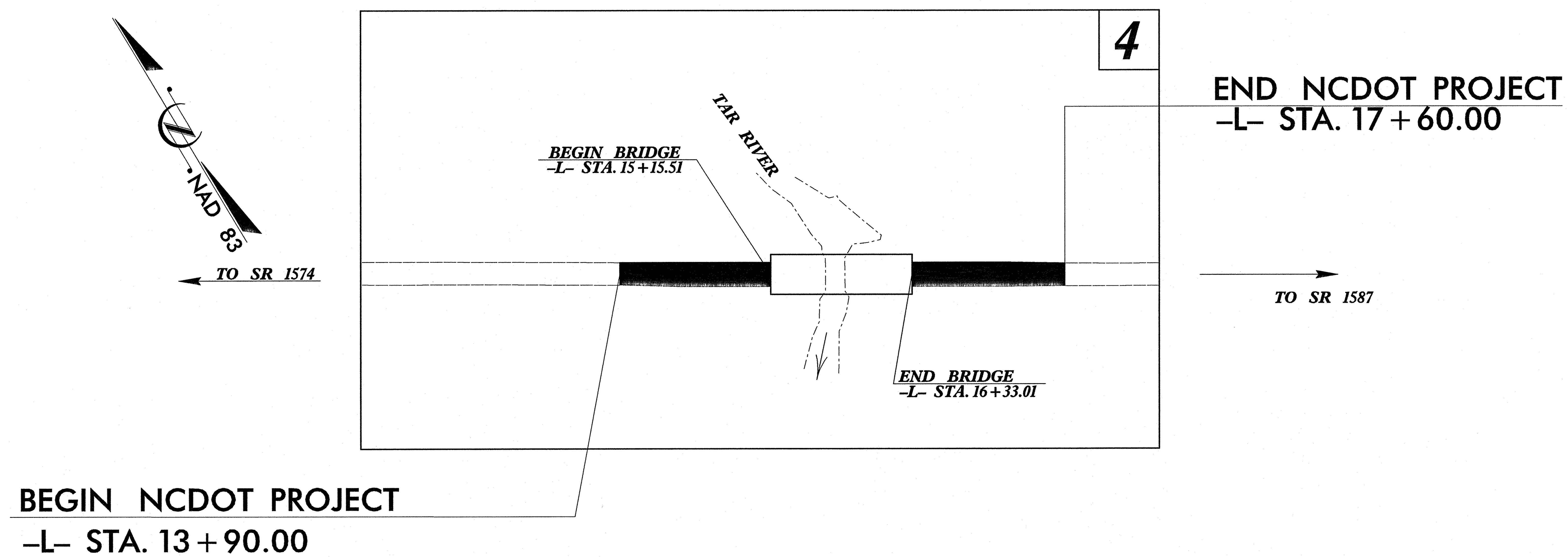
PERSON COUNTY

LOCATION: BRIDGE #93 OVER TAR RIVER ON SR 1536 (DEPOT ST.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5220	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
42817.1.1		P.E.



DESIGN EXCEPTION REQUIRED
FOR SAG VERTICAL CURVE K VALUE

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

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2009 = 750
ADT 2029 = 910
DHV = 50 %
D = 10 %
V = 45 MPH

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5220 =	0.048 MILES
LENGTH STRUCTURE TIP PROJECT B-5220 =	0.022 MILES
TOTAL LENGTH TIP PROJECT B-5220 =	0.070 MILES

WETHERILL ENGINEERING
Prepared for the North Carolina Department of Transportation in the Office of:
559 JONES FRANKLIN ROAD
SUITE 164
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

GREG S. PURVIS, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
6/17/10 P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER
6/17/10 P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

TIP PROJECT: B-5220

CONTRACT:

09/08/99

6:51:49 AM
P:\4100\MA05013B\roadway\proj\B5220_Rdy_tsh.dgn
6/17/2010

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

GENERAL NOTES

GENERAL NOTES: 2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-30-08

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 II.

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.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS 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.

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: PROGRESS ENERGY & CENTURYLINK

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

LIST ROADWAY STANDARD DRAWINGS

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

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

DIVISION 2 - EARTHWORK

200.02 Method of Clearing - Method II
225.02 Guide for Grading Subgrade - Secondary and Local
225.04 Method of Obtaining Superelevation - Two Lane Pavement

DIVISION 5 - SUBGRADE, BASES AND SHOULDERS

560.01 Method of Shoulder Construction - High Side of Superelevated Curve - Method I

DIVISION 6 - ASPHALT BASES AND PAVEMENTS

654.01 Pavement Repairs

DIVISION 8 - INCIDENTALS

840.00 Concrete Base Pad for Drainage Structures
840.29 Frames and Narrow Slot Flat Grates
840.35 Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46 Traffic Bearing 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
876.02 Guide for Rip Rap at Pipe Outlets
1101.03 Temporary Road Closures
1110.01 Stationary Work Zone Signs - Mounting Height & Lateral Clearance
1145.01 Barricades - Type III
1205.12 Pavement Markings - Bridge
1250.01 Pavement Marker Spacing
1251.01 Raised Pavement Markers - Permanent and Temporary
1261.01 Guardrail and Barrier Delineator Spacing
1261.02 Guardrail and Barrier Delineator Types
1262.01 Guardrail End Delineation

INDEX OF SHEETS

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
B-5220	1-B

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
- 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 — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — 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 — R/W
- Proposed Right of Way Line with Iron Pin and Cap Marker — R/W
- Proposed Right of Way Line with Concrete or Granite Marker — R/W
- Existing Control of Access — C/A
- Proposed Control of Access — C/A
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- 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 Wheel Chair Ramp — WCR
- 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 — 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 — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- 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 — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- 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 — W
- 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 — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- 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:

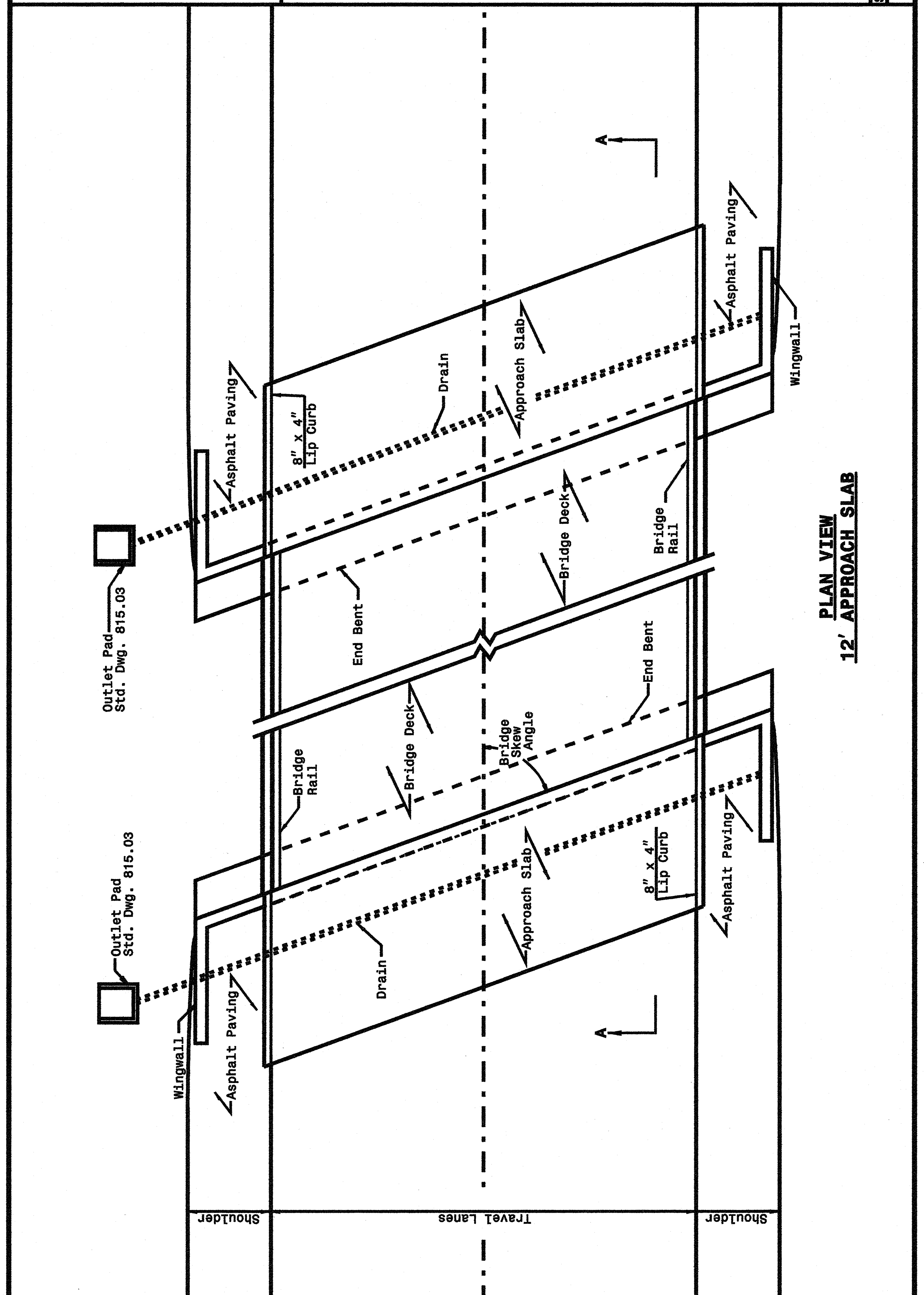
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- 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.

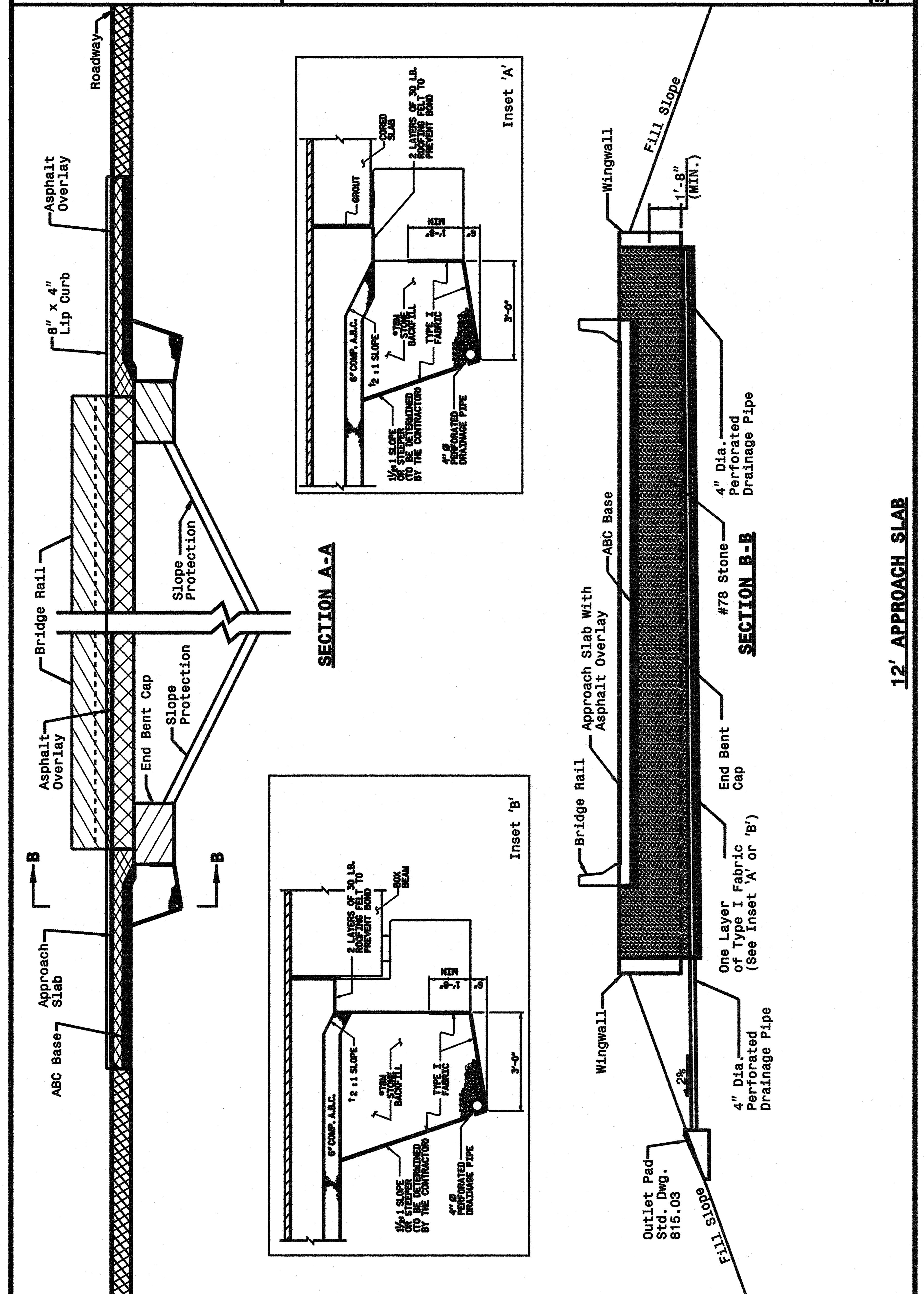
PROJECT REFERENCE NO.	SHEET NO.
B-5220	2

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 1 OF 2 422D11



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR **BRIDGE APPROACH FILLS** CORED SLAB & BOX BEAM BRIDGES SUB REGIONAL TIER	SHEET 1 OF 2 **422D11**

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 2 OF 2 422D11



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR **BRIDGE APPROACH FILLS** CORED SLAB & BOX BEAM BRIDGES SUB REGIONAL TIER	SHEET 2 OF 2 **422D11**

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

BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

ORIGINAL BY: K. A. Kempf DATE: 6-10-08
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: kkempf\english\bridge approach fills.dgn

01-JUN-2009 14:15
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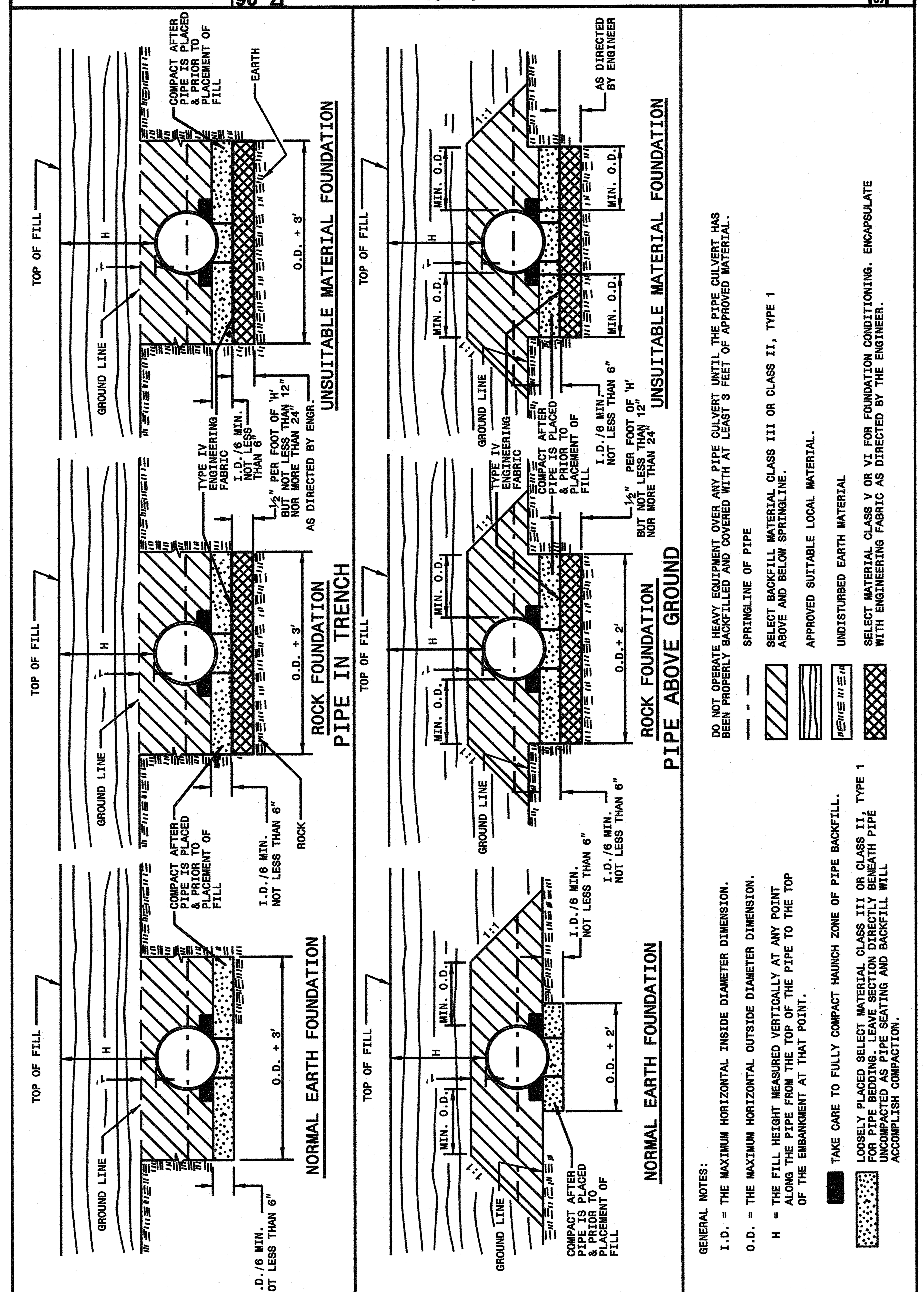
jhowerton AT PS23750I

PROJECT REFERENCE NO.	SHEET NO.
B-5220	2-A



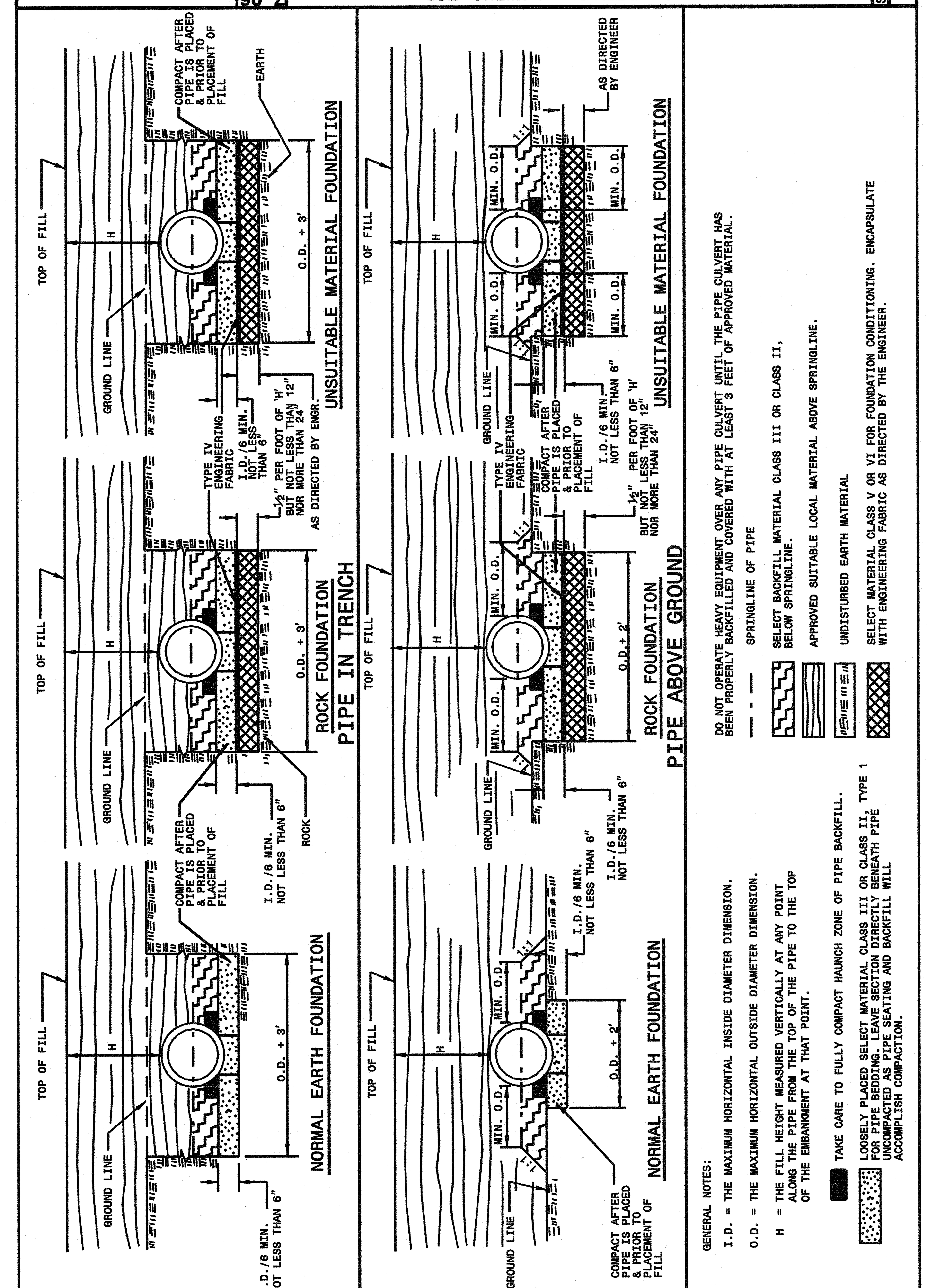
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 3
300D01



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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 3
300D01

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

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC: /ericward/stds/stdstodetails/30001/0300d01.dgn

5/14/99

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jhowerton AT PS23750I

05-NOV-2009 11:36
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jhowerton AT PS237501

5/14/99

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					69

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	123	155	218	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

HDPE - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 60"
* (Maximum fill) 20' for pipe diameters ≤ 24"
17' for pipe diameters ≥ 30" and ≤ 60"

PVC - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 36"
* (Maximum fill) 30' for pipe diameters ≥ 12" and ≤ 36"

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

RCP - * (Minimum fill) 1' for Class IV & CLASS V
2' for Class III & Class II

* (Maximum fill) 10' - Class II pipe
20' - Class III pipe
30' - Class IV pipe
40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

PROJECT REFERENCE NO. B-5220 | SHEET NO. 2-B

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

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC: /ericward/stds/stdstodetails/30001/0300d01.dgn

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- 13+90.00	-L- 15+15.51	12	40	28	
SUBTOTALS:		12	40	28	
-L- 16+33.01	-L- 17+60.00	6	100	94	
SUBTOTALS:		6	100	94	
PROJECT TOTALS:		18	140	122	
5% TO REPLACE TOPSOIL ON BORROW PIT				6	
GRAND TOTALS:		18		128	
SAY		25		150	

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.

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	14+15.51	EX. BRIDGE	CL	286.54
-L-	EX. BRIDGE	17+33.01	CL	306.95
			TOTAL:	593.49
			SAY:	600.00

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-	16+44.01	16+58.01	14.00
-L-	16+44.01	16+58.01	14.00
		TOTAL:	28.00
		SAY:	30.00

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, SHOULDER BORROW, FINE GRADING, CLEARING & GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL OF EXISTING PAVEMENT WILL TO BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

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

STATION (SIZE / THICKNESS OR GAUGE)	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
16+55.86	LT	1		562.6															
16+55.86	RT	2		562.6															
16+55.86	LT	1	2		559.5	558.1			28										
16+55.86	RT	2	3		558.1	558.0			20										
16+85	LT									4									
PROJECT SUBTOTAL									48	4									

STATION	C. S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R. C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R. C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
16+55.86																								
16+55.86																								
16+55.86																								
16+55.86																								
16+85																								
PROJECT SUBTOTAL																								

STATION	**" RC PIPE, (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G			T.B.D.I. STD. 840.35			G.D.I. (N.S.) FRAME WITH GRATE STD. 840.29		CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
16+55.86								1									1			1						
16+55.86								1									1			1						
16+55.86																										
16+55.86																										
16+85																							0.5			
PROJECT SUBTOTAL								2									2			2			0.5			

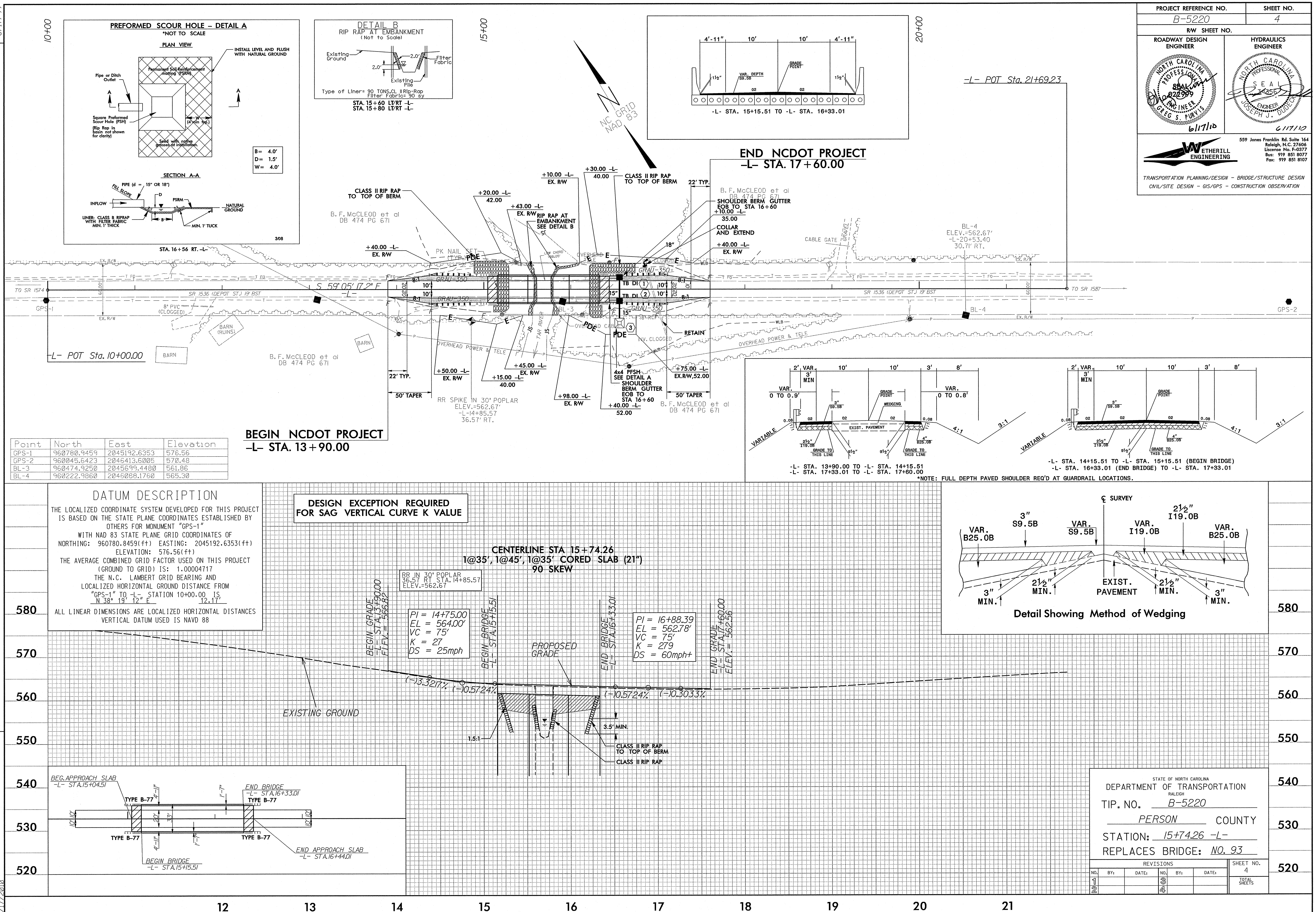
ABBREVIATIONS

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.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPROACH END	TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	TRAILING END	W APPROACH END	TRAILING END	ANCHORS XI MOD	XI	GRAU 350	M-350	B-77	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	14+40.51	15+15.51	RT	75			15+15.51		4.92	6.92	50		1				1		1											
-L-	14+40.51	15+15.51	LT	75				15+15.51	4.92	6.92		50		1			1		1											
-L-	16+33.01	17+08.01	RT	75				16+33.01	4.92	6.92		50		1			1		1											
-L-	16+33.01	17+08.01	LT	75			16+33.01		4.92	6.92	50		1				1		1											
			PROJECT SUBTOTAL	300													4		4	ANCHOR DEDUCTIONS										
			LESS ANCHORS	(-) 275																B-77 = 4 @		18.75 =	75.00							
																				GRAU 350 = 4 @		50.00 =	200.00							
																						=	275.00							
			PROJECT TOTAL	25																										
			SAY	50			ADDITIONAL GUARDRAIL POSTS = 5 EA.																							



Point	North	East	Elevation
GPS-1	960780.9459	2045192.6353	576.56
GPS-2	960045.6423	2046413.6005	570.48
BL-3	960474.9250	2045699.4480	561.86
BL-4	960222.9860	2046088.1760	565.30

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "GPS-1"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 960780.8459(ft) EASTING: 2045192.6353(ft)
ELEVATION: 576.56(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00004717
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-1" TO -L- STATION 10+00.00 IS N 38° 19' 12" E 12.17'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

PROJECT REFERENCE NO. B-5220 — SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER
WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164, Raleigh, N.C. 27606, License No. F-0377, Bus: 919 851 8077, Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN – BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN – GIS/GPS – CONSTRUCTION OBSERVATION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TIP. NO. B-5220
PERSON COUNTY
STATION: 15+74.26 -L-
REPLACES BRIDGE: NO. 93
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5220	EC-1 (CONST. 4)
RW SHEET NO.	

Level III-A EC Certified by:
Joseph Dudeck
Certification Number: 403

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

CONSTRUCTION SEQUENCE

1. ACCESS AND MOBILIZATION: STABILIZE BARE AREAS IMMEDIATELY WITH TEMPORARY VEGETATION AND/OR GRAVEL AS CONSTRUCTION TAKES PLACE.
2. INSTALL SILT FENCE, SPECIAL SEDIMENT CONTROL FENCE, AND TURBIDITY CURTAIN. SILT FENCE SHALL BE INSTALLED UP TO THE EXISTING BRIDGE ABUTMENTS TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE. SILT FENCE SHALL BE INSTALLED AT THE PERIMETER OF DISTURBED AREAS.
3. PROCEED WITH CONSTRUCTION OF THE NEW BRIDGE. ADDITIONAL GRAVEL STABILIZATION OR SILT FENCE MAY BE REQUIRED BEHIND THE OLD ABUTMENTS WHEN THE OLD BRIDGE IS REMOVED AND BEFORE THE NEW BRIDGE IS INSTALLED.
4. MAINTENANCE INSPECTIONS SHALL BE PERFORMED WEEKLY AND AFTER PERIODS OF RAINFALL. REPAIRS SHALL BE MADE IMMEDIATELY.
5. ONCE THE SITE IS STABILIZED, REMOVE ALL EROSION CONTROL DEVICES.

QUANTITIES:

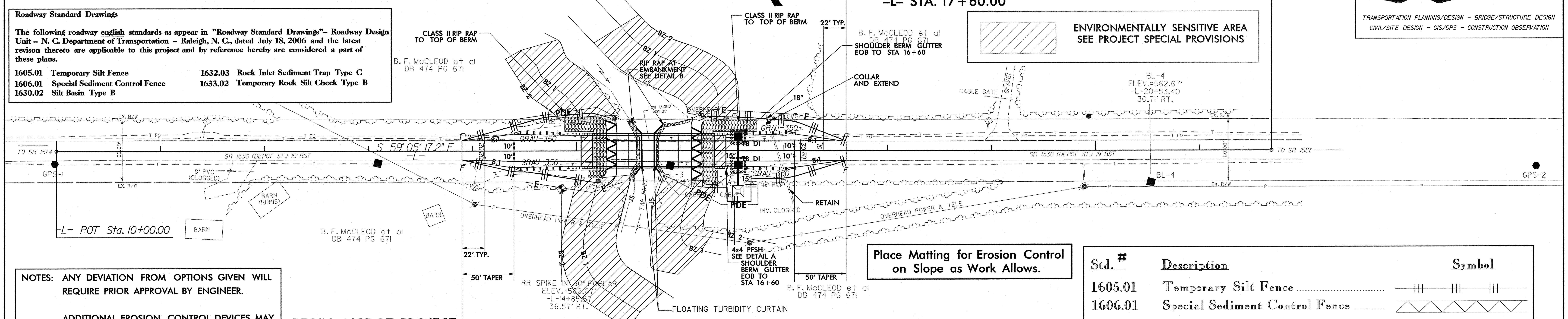
Temporary Silt Fence	895 LF
Turbidity Curtain	75 SY
Sediment Control Stone	70 TNS
Matting for Erosion Control	1800 SY
1/4" Hardware Cloth	340 LF
Reforestation	0.1 AC

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated July 18, 2006 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1605.01	Temporary Silt Fence	1632.03	Rock Inlet Sediment Trap Type C
1606.01	Special Sediment Control Fence	1633.02	Temporary Rock Silt Check Type B
1630.02	Silt Basin Type B		

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS



NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

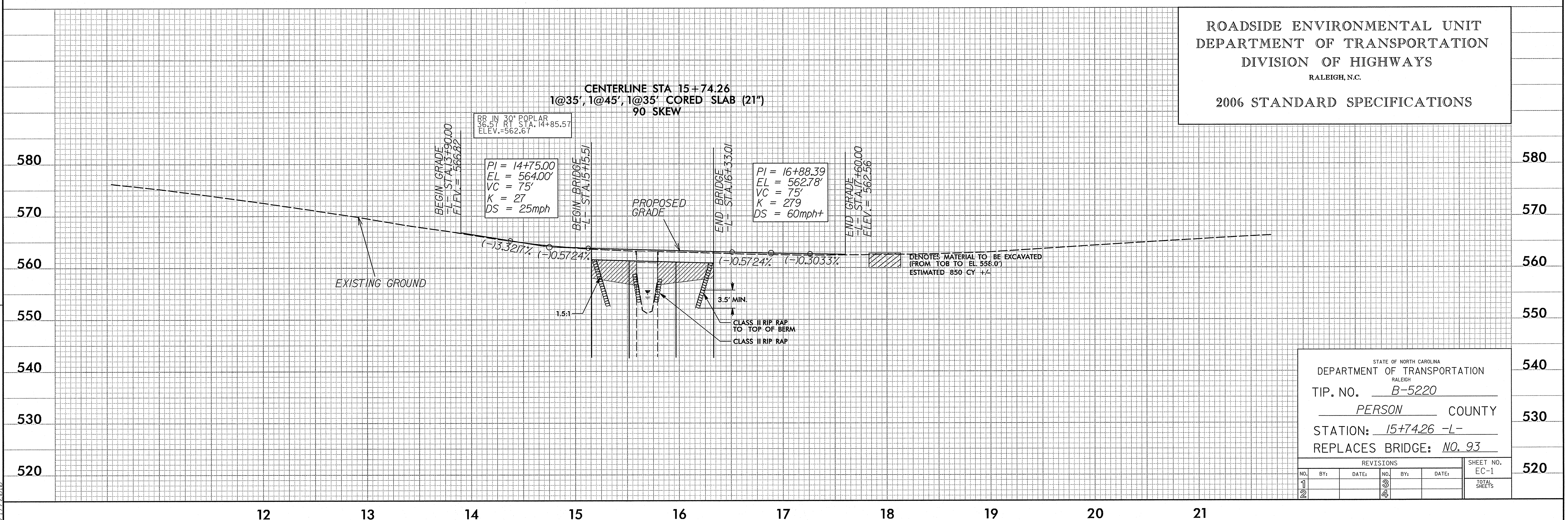
Place Matting for Erosion Control on Slope as Work Allows.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1632.03	Rock Inlet Sediment Trap Type C	

EROSION CONTROL PLANS

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

2006 STANDARD SPECIFICATIONS



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TIP. NO. B-5220
PERSON COUNTY
STATION: 15+74.26 -L-
REPLACES BRIDGE: NO. 93

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

REVISIONS

8/17/99

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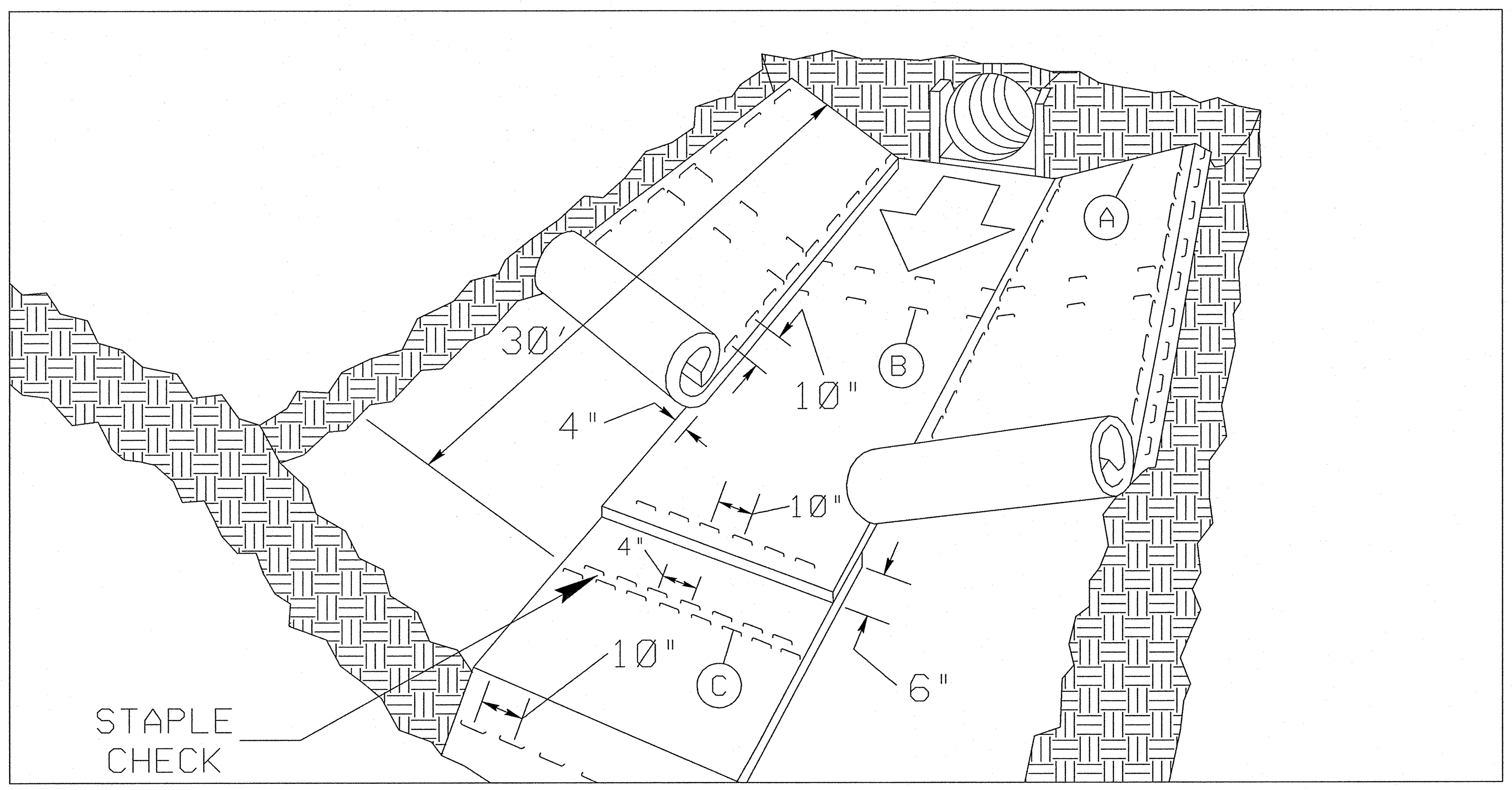
PROJECT REFERENCE NO.	SHEET NO.
B-5220	EC-2
R/W SHEET NO.	

MATTING INSTALLATION DETAIL



MATTING IN DITCHES

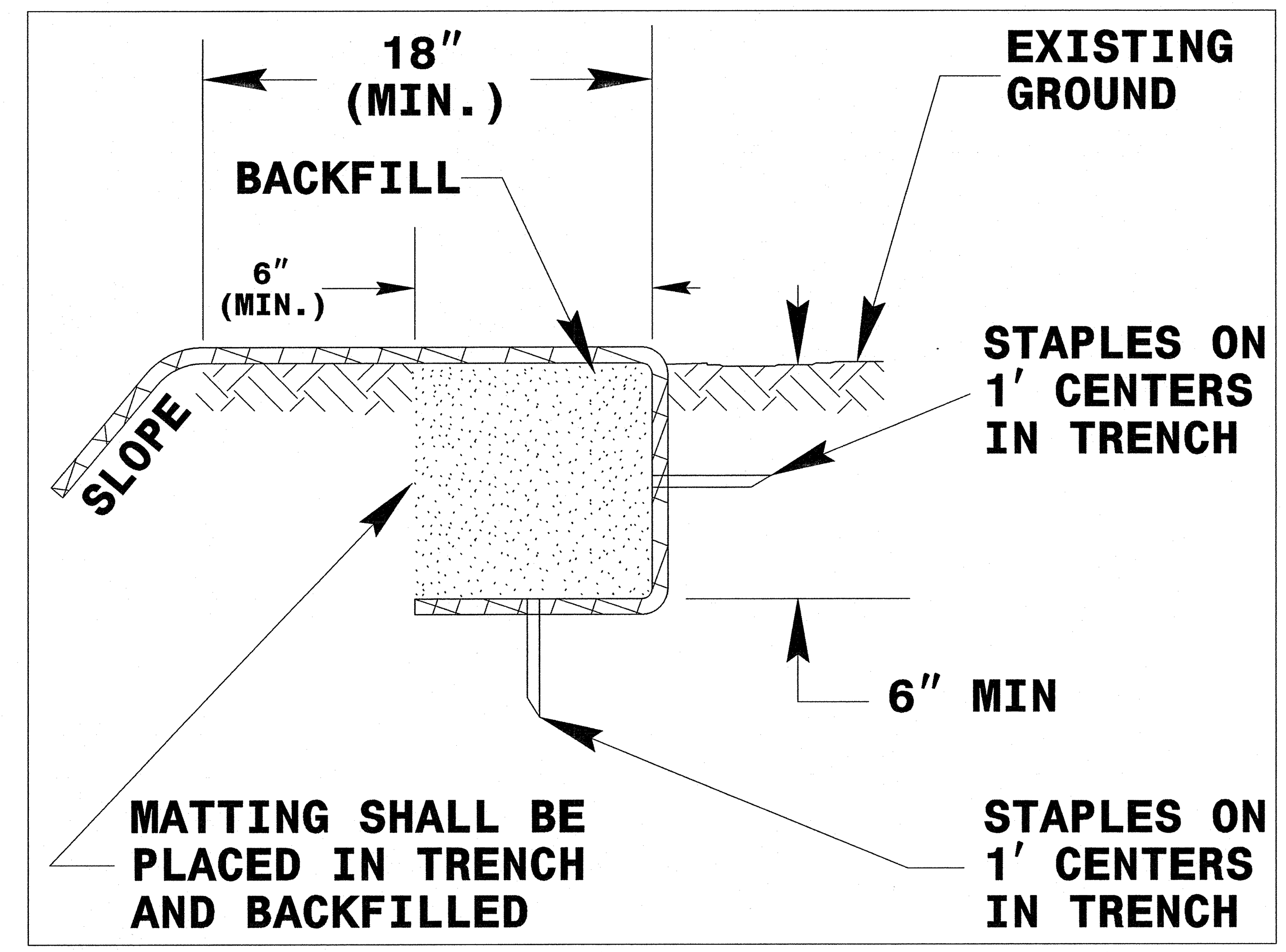
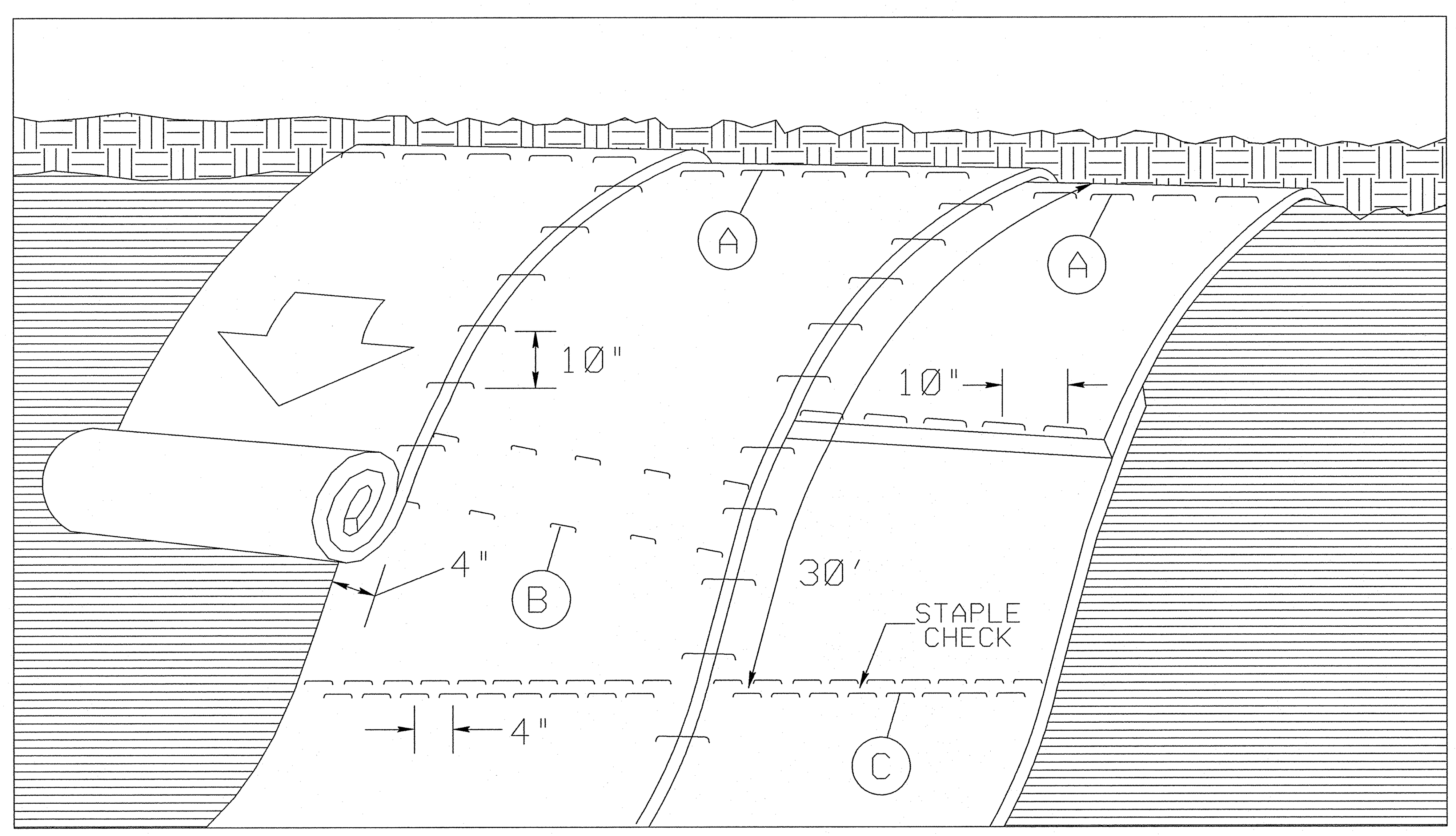


DIAGRAM (A)



MATTING ON SLOPES

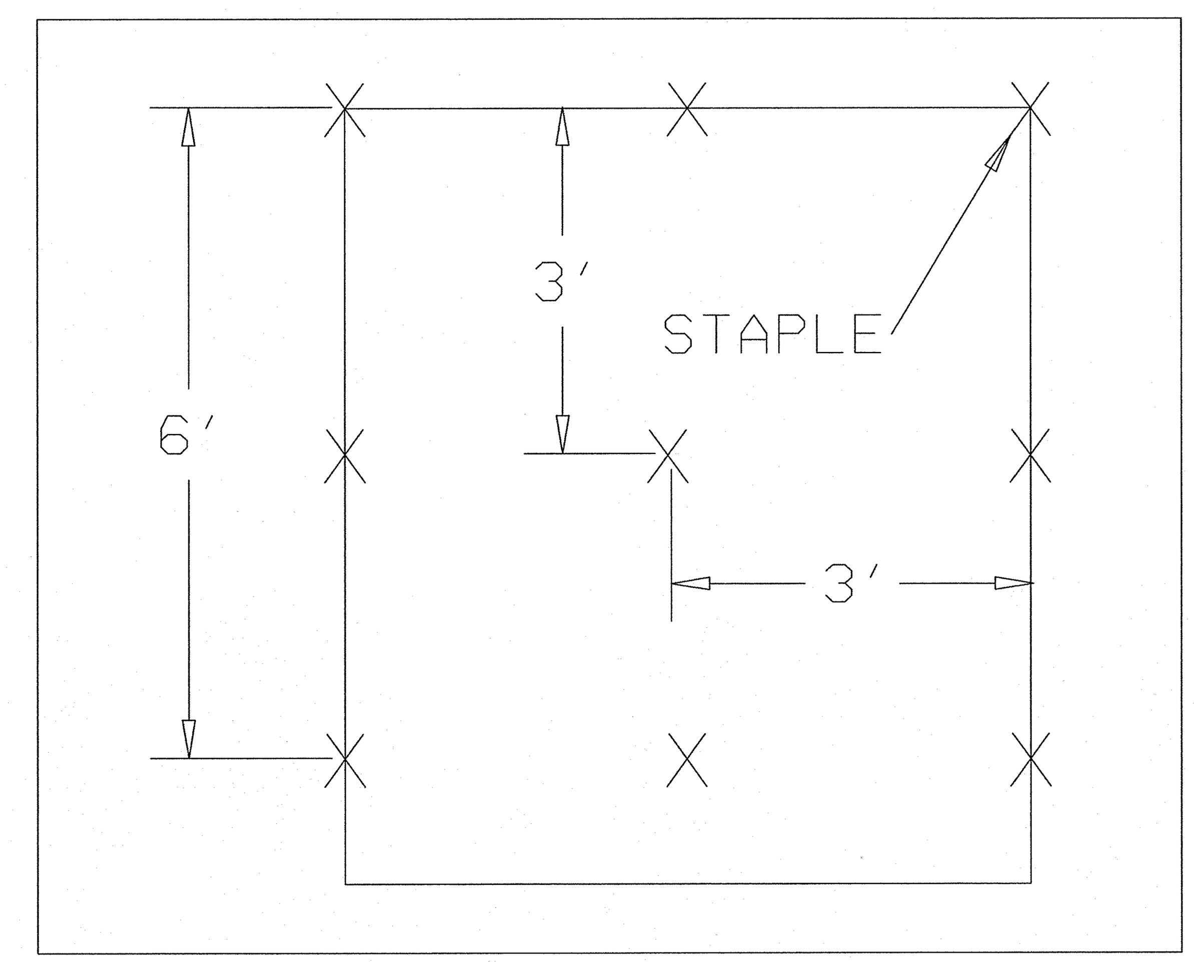


DIAGRAM (B)

STAPLE CHECK PATTERN

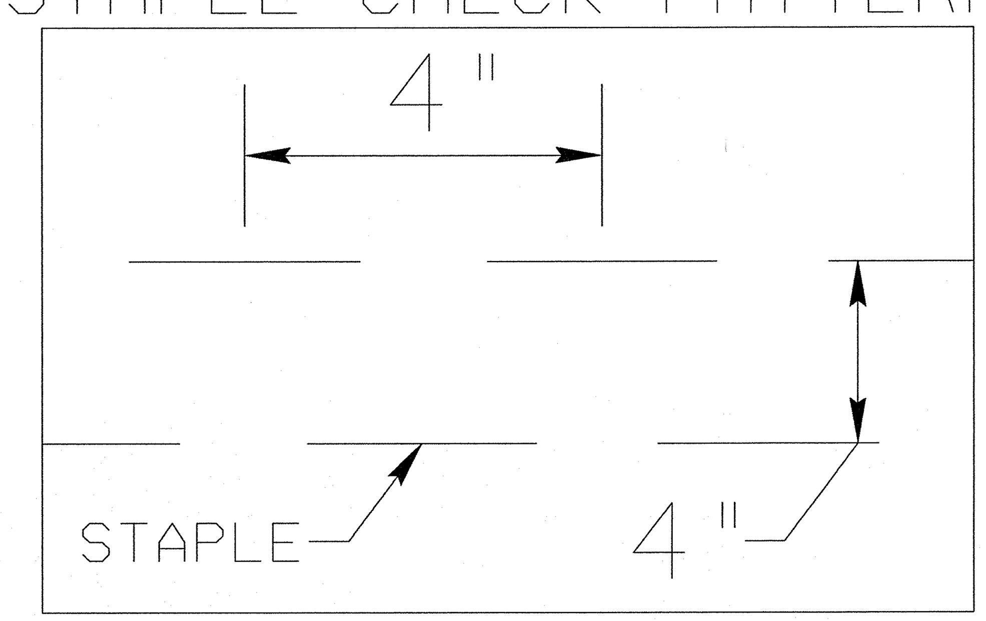


DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.

STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

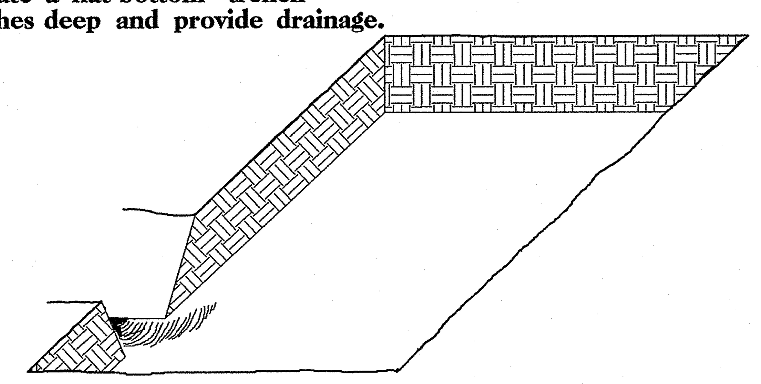
NOT TO SCALE

PLANTING DETAILS

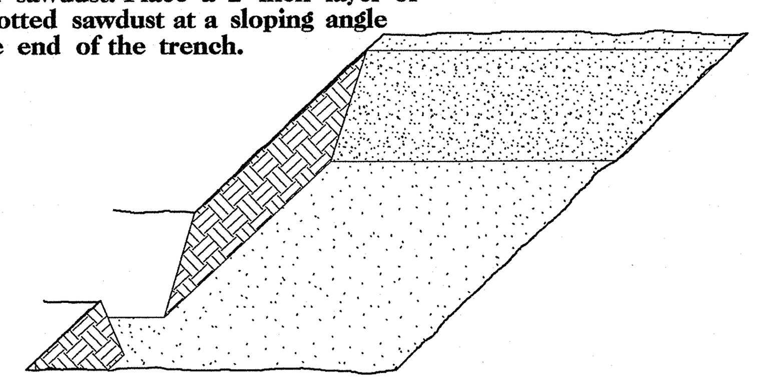
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

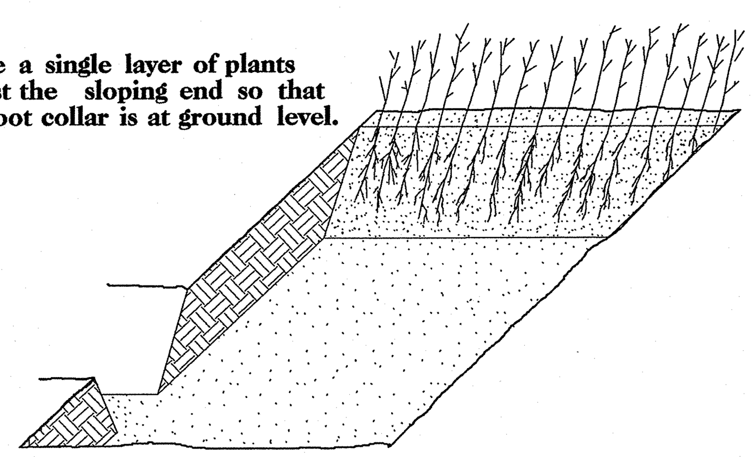
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



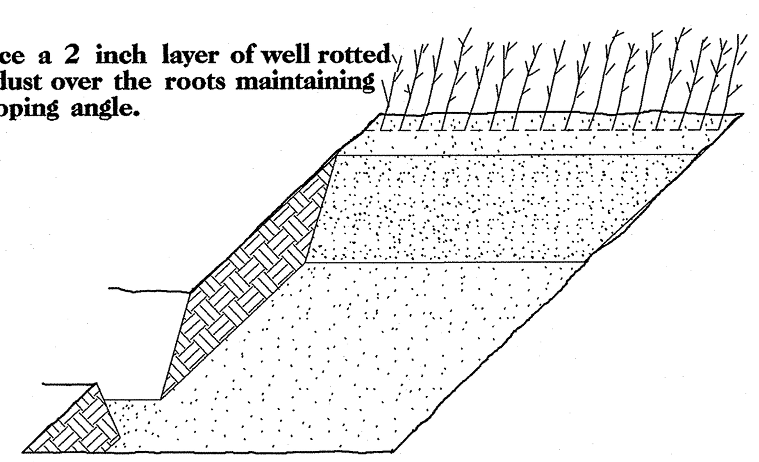
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

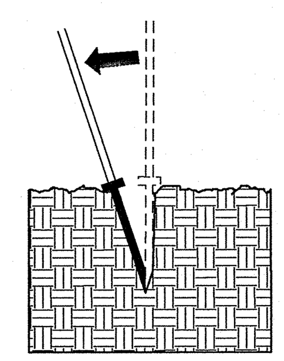


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

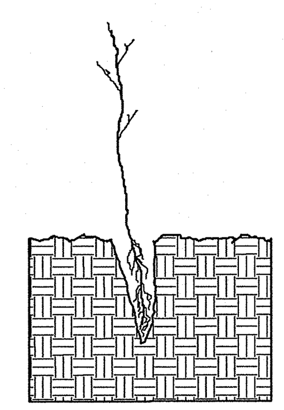


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

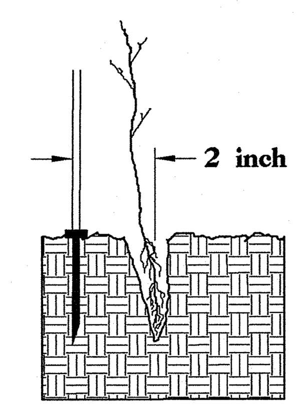
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



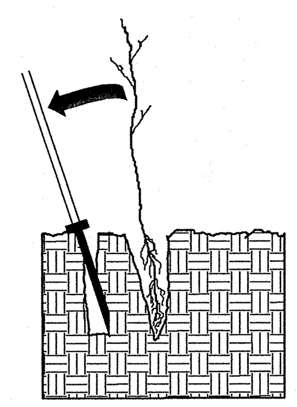
1. Insert planting bar as shown and pull handle toward planter.



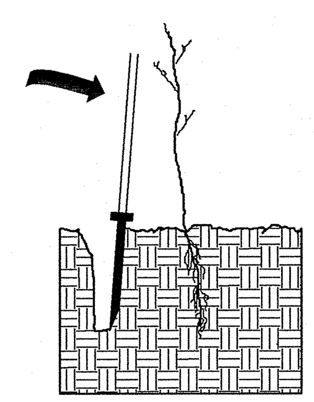
2. Remove planting bar and place seedling at correct depth.



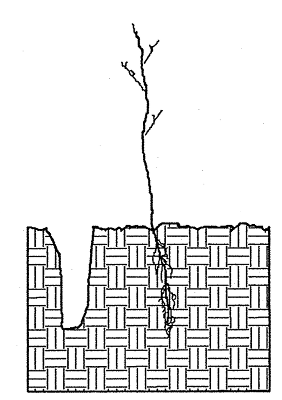
3. Insert planting bar 2 inches toward planter from seedling.



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



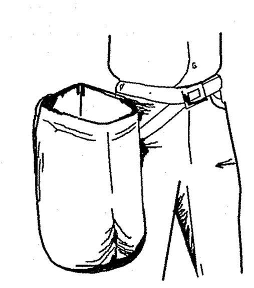
5. Push handle forward firming soil at top.



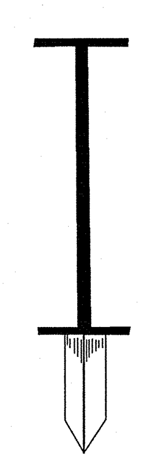
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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



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



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

REFORESTATION

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

REFORESTATION

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

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

NOT TO SCALE

REFORESTATION DETAIL SHEET

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

PROJ. REFERENCE NO.	SHEET NO.
B-5220	X-1

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
14+40.00	3	6
14+50.00	1	2
15+00.00	5	17

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
16+50.00	1	8
17+00.00	3	45
17+10.00	1	9

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

0 5 10
PROJ. REFERENCE NO.
B-5220
SHEET NO.
X-2
15+15.51
0.020 0.020
563.59
15+00.00
S.S.561.72
2:1
0.020 0.020
2:1
S.S.559.06
563.84
14+50.00
S.S.562.16
3:1
0.020 0.020
S.S.563.38
3:1
564.86
14+40.00
S.S.562.29
3:1
0.020 0.020
4:1
S.S.563.78
565.13
13+90.00
0.015 0.018
566.70
13+50.00
567.88
-L-
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TIP. NO. B-5220
PERSON COUNTY
STATION: 15+74.26 -L-
REPLACES BRIDGE: NO. 93
REVISIONS
NO. BY: DATE: NO. BY: DATE:
1 2 3 4
SHEET NO. X-2
TOTAL SHEETS
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PROJ. REFERENCE NO.	SHEET NO.
B-5220	X-3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TIP. NO. B-5220

PERSON COUNTY

STATION: 15+74.26 -L-

REPLACES BRIDGE: NO. 93

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

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5220	X-4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TIP. NO. B-5220

PERSON COUNTY

STATION: 15+74.26 -L-

REPLACES BRIDGE: NO. 93

REVISIONS						SHEET NO.
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2			4			

8/23/99

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6/17/2010

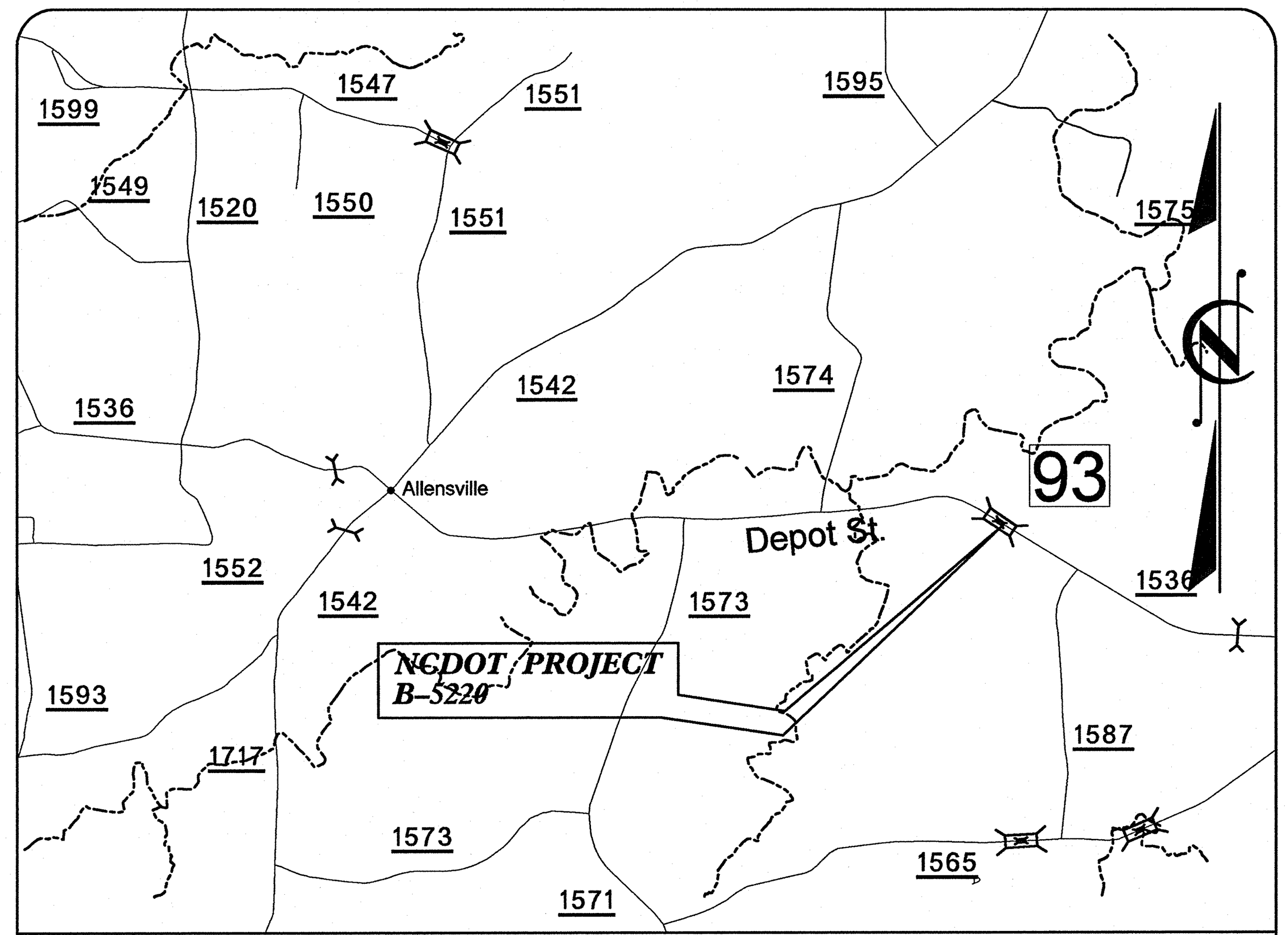
TIP PROJECT: B-5220

CONTRACT:

09/08/99

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.
NC	B-5220	UO-1
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42817.1.1		PE
		R/W & UTILITIES

See Sheet 1-A For Index of Sheets



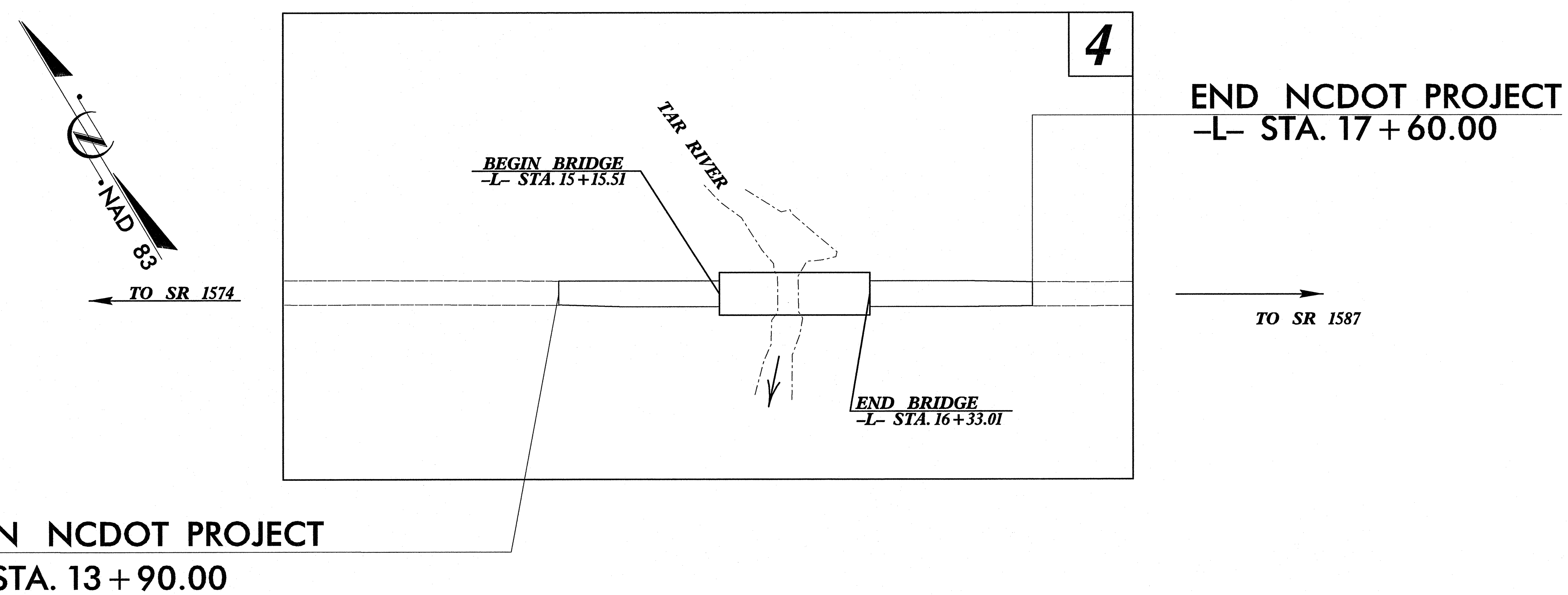
VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERSON COUNTY

LOCATION: BRIDGE #93 OVER TAR RIVER ON SR 1536 (DEPOT ST.)

TYPE OF WORK: UTILITIES RELOCATION



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

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

UTILITY OWNERS ON PROJECT

1) PROGRESS ENERGY CAROLINAS (POWER)
2) CENTURYLINK (TELEPHONE)

WETHERILL ENGINEERING

Prepared for the North Carolina Department of Transportation in the Office of:
559 JONES FRANKLIN ROAD
SUITE 164
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

GREG S. PURVIS, PE
PROJECT DESIGN ENGINEER

DANNY PURYEAR
UTILITY COORDINATOR

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

FOR:
DIVISION OF HIGHWAYS
UTILITIES and ENCROACHMENT ENGINEERING UNIT
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

Ed Reams, Jr. — AREA UTILITY AGENT

Steven Cummings — UTILITY AGENT

7:30:00 AM
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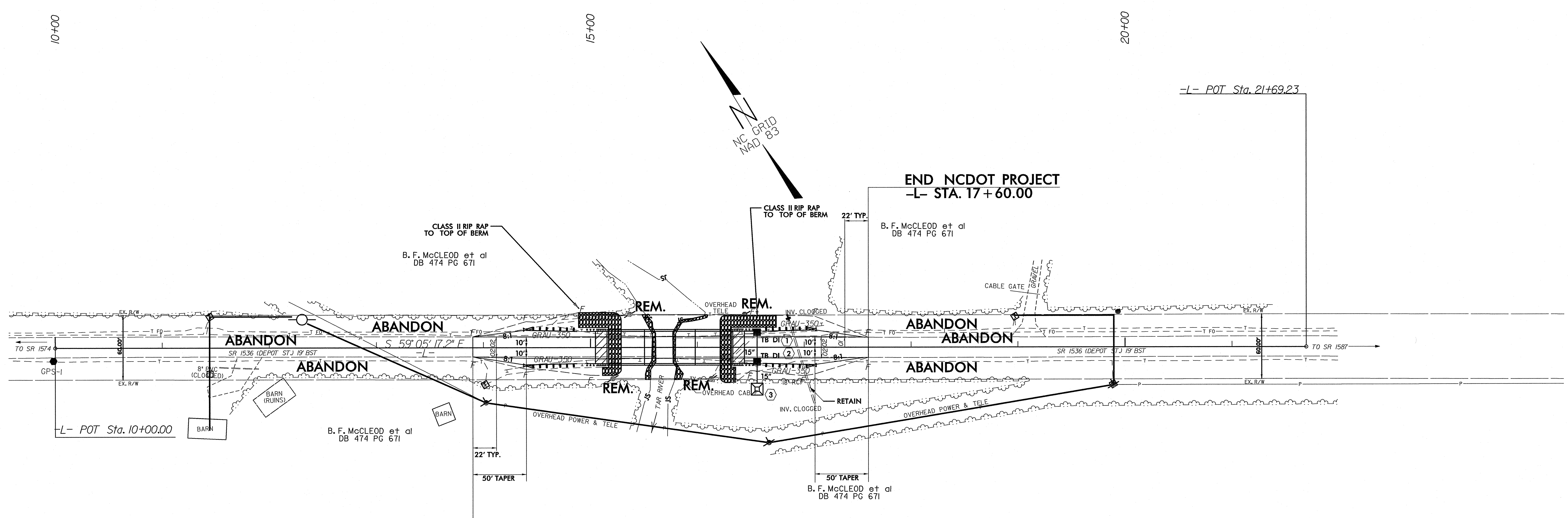
6/17/2010

PROJECT REFERENCE NO.	SHEET NO.
B-5220	UO-2

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS



Note: Proposed Fiber Optic and Copper Telephone Lines Will be Attached to Existing Power Poles Between Sta. 14+00 and Sta. 19+90.

5/14/99

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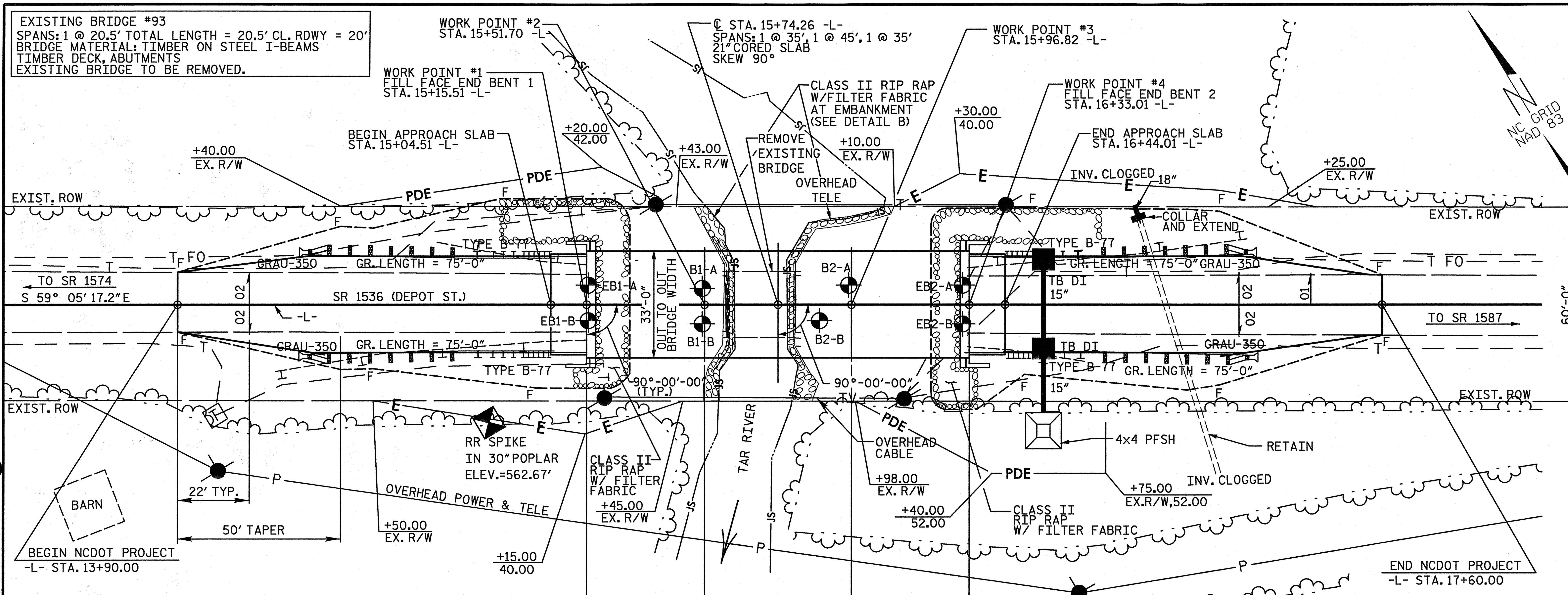
6/17/2010

#93 PERSON TIP PROJECT # B-5220

EXISTING BRIDGE #93
SPANS: 1 @ 20.5' TOTAL LENGTH = 20.5' CL. RDWY = 20'
BRIDGE MATERIAL: TIMBER ON STEEL I-BEAMS
TIMBER DECK, ABUTMENTS
EXISTING BRIDGE TO BE REMOVED.



PLAN
SCALE = 1" = 20'

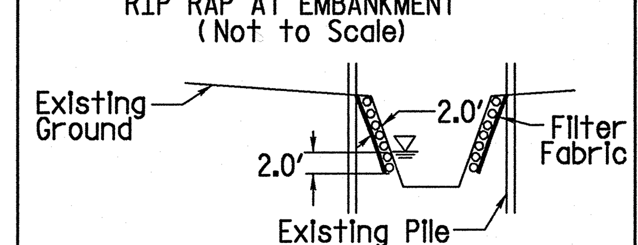
HYDRAULIC DATA

DESIGN DISCHARGE	=	1200 CFS
FREQUENCY OF DESIGN FLOOD	=	25 YR.
DESIGN HIGH WATER ELEVATION	=	560.8
DRAINAGE AREA	=	4.4 SQ. MI.
BASIC DISCHARGE (Q100)	=	1900 CFS
BASIC HIGH WATER ELEVATION	=	562.6

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	1900 CFS
FREQUENCY OF OVERTOPPING FLOOD	=	100 YR.
OVERTOPPING FLOOD ELEVATION	=	562.22

DETAIL B
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= 90 TONS, CL II Rip-Rap
Filter Fabric= 90 sy
STA. 15+60 LT/ RT -L-
STA. 15+80 LT/ RT -L-

NOTES

1. FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.
2. DRILLED PIERS AT INTERIOR BENT NO. 1 AND 2 ARE DESIGNED FOR AN APPLIED LOAD OF 305 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING OF 50 TSF.
3. INSTALL DRILLED PIERS AT INTERIOR BENT NO. 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 541.0 FEET. SATISFY THE REQUIRED END BEARING CAPACITY AND HAVE A MINIMUM PENETRATION OF 10 FEET INTO ROCK AS DEFINED BY THE DRILLED PIER SPECIAL PROVISIONS.
4. PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT INTERIOR BENT NO. 1. DO NOT EXTEND CASING BELOW ELEVATION 551 FEET.
5. INSTALL DRILLED PIERS AT INTERIOR BENT NO. 2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 531.5 FEET, LEFT AND 527.5 FEET, RIGHT. SATISFY THE REQUIRED END BEARING CAPACITY AND HAVE A MINIMUM PENETRATION OF 5 FEET, LEFT AND 11.5 FEET, RIGHT, INTO ROCK AS DEFINED BY THE DRILLED PIER SPECIAL PROVISIONS.
6. PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT INTERIOR BENT NO. 2. DO NOT EXTEND CASING BELOW ELEVATION 547 FEET.
7. THE SCOUR CRITICAL ELEVATION FOR INTERIOR BENTS NO. 1 AND 2 ARE 549 AND 539 FEET, RESPECTIVELY. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF STRUCTURE.
8. CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS AT INTERIOR BENT 1 AND 2. THE DEPARTMENT WILL DETERMINE WHICH PIERS WILL BE CSL TESTED. FOR CROSSHOLE SONIC LOGGING, SEE SPECIAL PROVISION.
9. SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS AT INTERIOR BENT NO. 1 AND 2. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS IF CLEANLINESS OF THE SHAFT IS IN QUESTION.
10. PILES AT END BENTS 1 AND 2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 60 TONS EACH.
11. PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT BOTH END BENT NO. 1 AND 2. FOR PILE EXCAVATION, SEE SPECIAL PROVISIONS.
12. INSTALL PILES AT END BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN 540.5 FEET.
13. INSTALL PILES AT END BENT NO. 2 TO A TIP ELEVATION NO HIGHER THAN 540.7 FEET.
14. FOR PILE EXCAVATION, SEE SPECIAL PROVISIONS.
15. THE QUANTITY OF RIP RAP TO BE PAID FOR WILL BE THE ACTUAL NUMBER OF TONS OF EACH CLASS OF RIP RAP WHICH HAS BEEN INCORPORATED INTO THE COMPLETED AND ACCEPTED WORK. THE RIP RAP WILL BE MEASURED BY BEING WEIGHED IN TRUCKS CERTIFIED WEIGHING DEVICES. THE QUANTITY OF RIP RAP WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON.

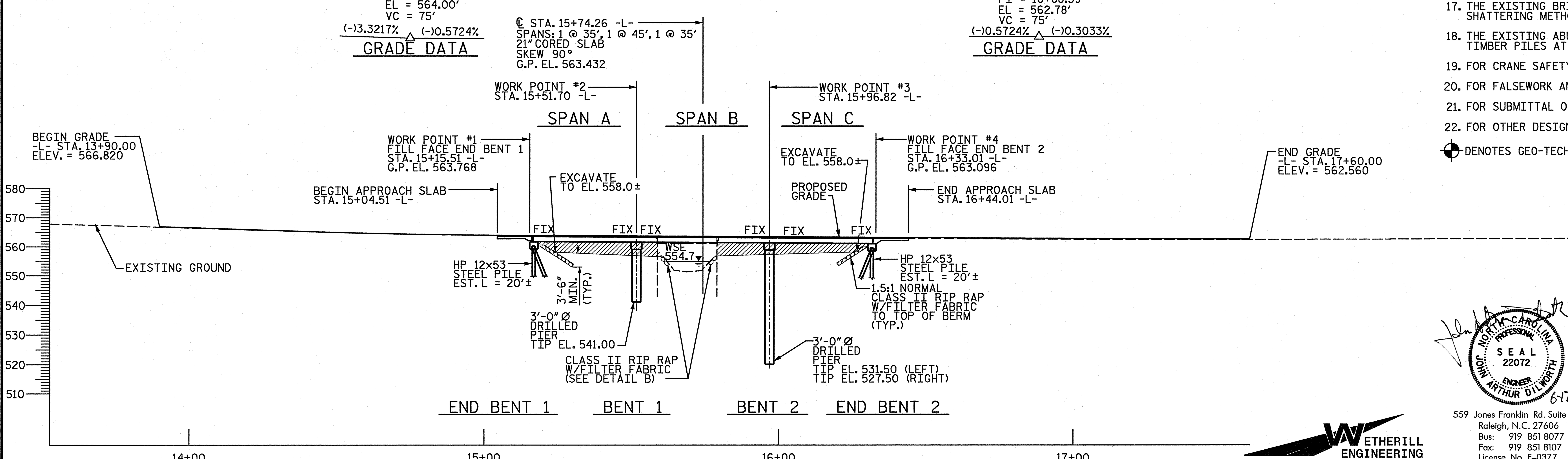
	PLAIN RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC
END BENT NO. 1	= 140 TONS	148 SY
WEST EMBANKMENT	= 35 TONS	37 SY
EAST EMBANKMENT	= 55 TONS	58 SY
END BENT NO. 2	= 150 TONS	159 SY
TOTAL:	= 380 TONS	403 SY

16. THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH FHWA'S TECHNICAL ADVISORY T5140.20 (SCOUR AT BRIDGES).
17. THE EXISTING BRIDGE SHALL BE REMOVED BY SAWING AND/OR NON SHATTERING METHODS SUCH THAT DEBRIS WILL NOT FALL INTO THE WATER.
18. THE EXISTING ABUTMENT CONCRETE FOOTINGS TO REMAIN. CUT EXISTING TIMBER PILES AT GROUND LINE.
19. FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
20. FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
21. FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
22. FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

⊕ DENOTES GEO-TECH BORING HOLE LOCATIONS.

PI = 14+75.00
EL = 564.00'
VC = 75'
(-)3.3217% (-)0.5724%
GRADE DATA

PI = 16+88.39
EL = 562.78'
VC = 75'
(-)0.5724% (-)0.3033%
GRADE DATA



PROFILE ALONG ℄ SURVEY -L-
SCALE = 1" = 20'

6/17/2010 7:11:48 AM
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DRAWN BY : J.C. PENDERGRAFT DATE : 12/09
CHECKED BY : J. DILWORTH DATE : 12/09

WBS NO. 42817.1.1
PERSON COUNTY
STATION: 15+74.26
REPLACES BRIDGE NO. 93

NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH
6-17-10

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
License No. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE # 93 ON SR 1536
OVER TAR RIVER

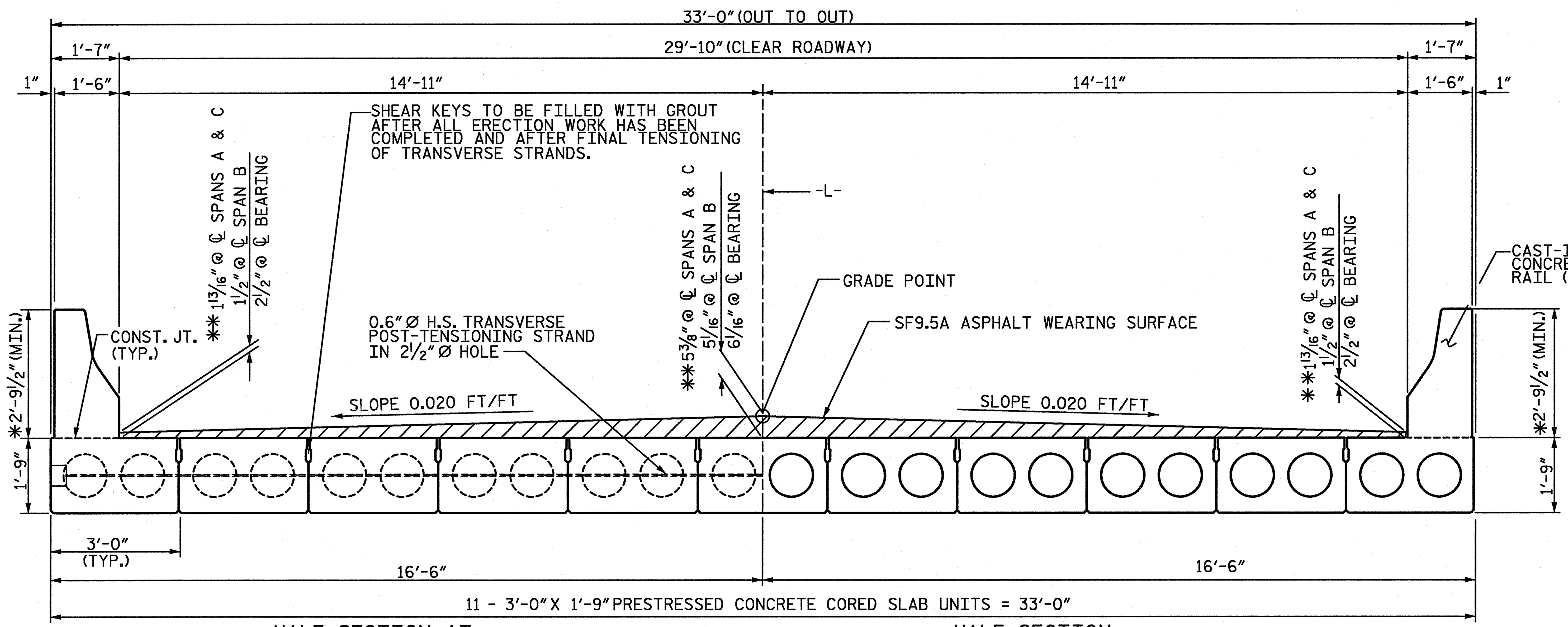
REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-1
1			3				TOTAL SHEETS
2			4				15

GENERAL NOTES:

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING. EXCEPT THAT THE BEAMS HAVE BEEN DESIGNED FOR HS 25.

ALL MATERIAL AND WORKMANSHIP SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OF THE NC DEPARTMENT OF TRANSPORTATION DATED JULY 2006 AND WITH THE SPECIAL PROVISIONS.

UNLESS OTHERWISE NOTED ON PLANS, ALL EXPOSED CORNERS ON STRUCTURE SHALL BE CHAMFERED ¾″.



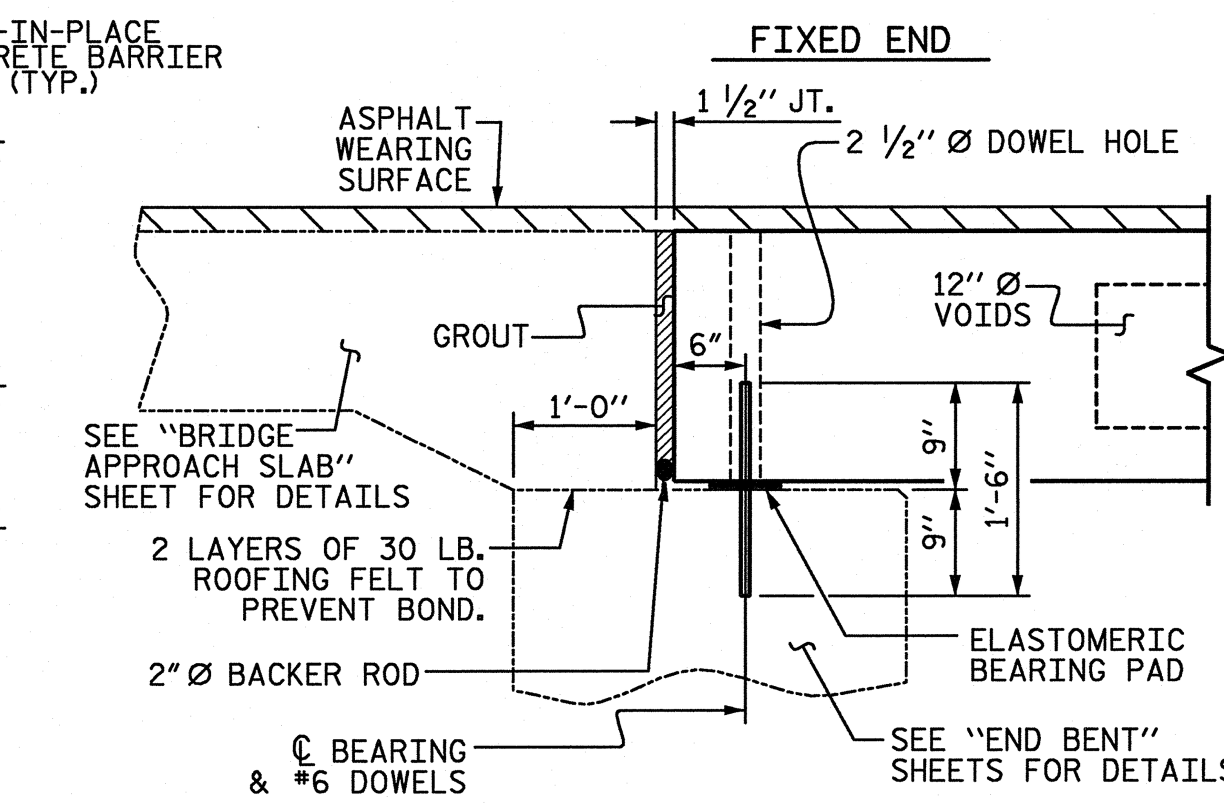
HALF SECTION AT INTERMEDIATE DIAPHRAGM

HALF SECTION THROUGH VOIDS

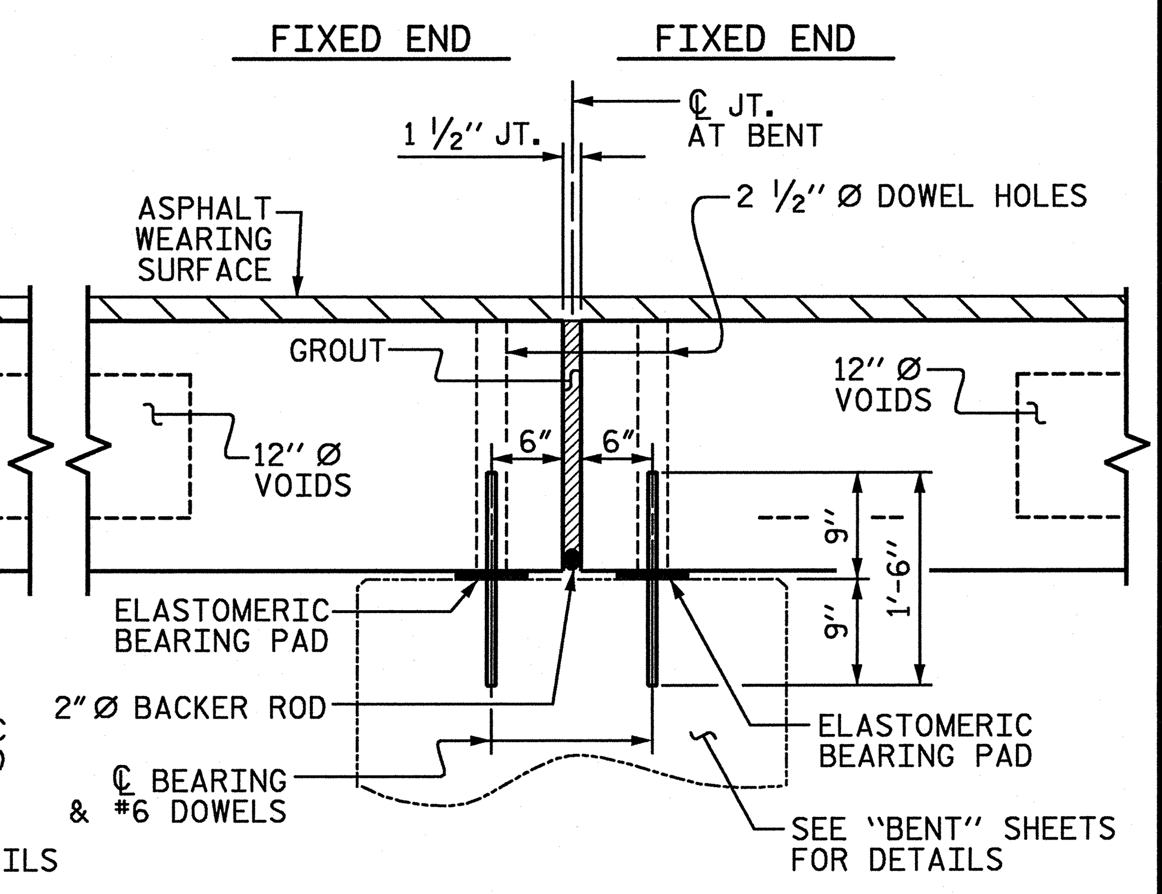
TYPICAL SECTION

* THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.

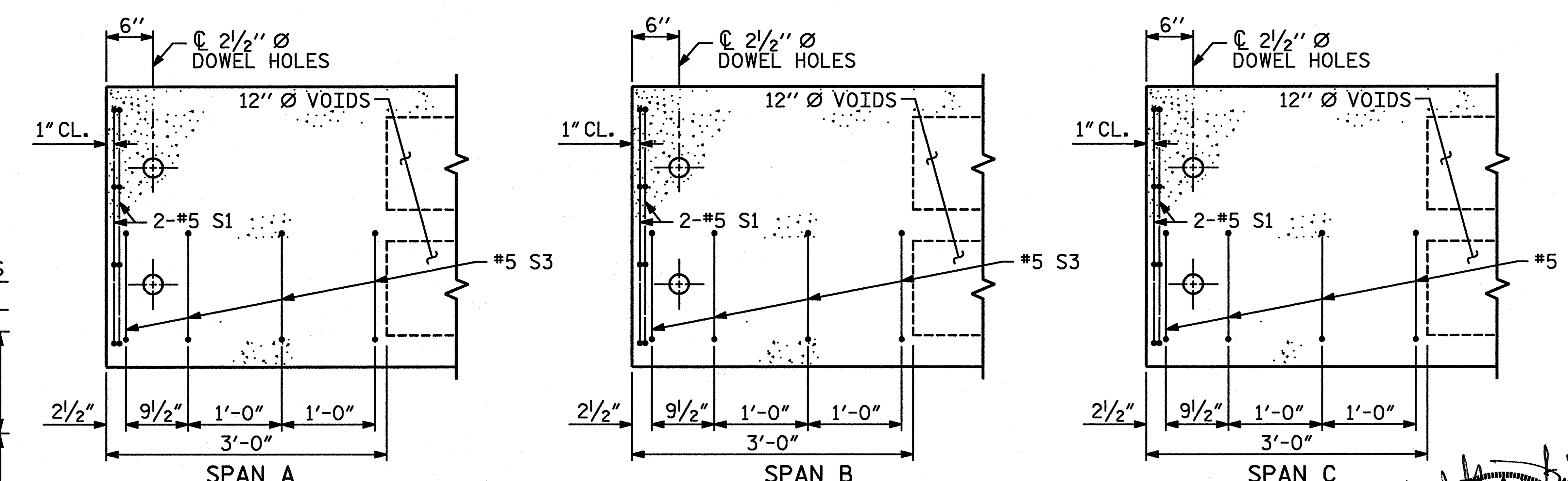
** BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.



SECTION AT END BENT

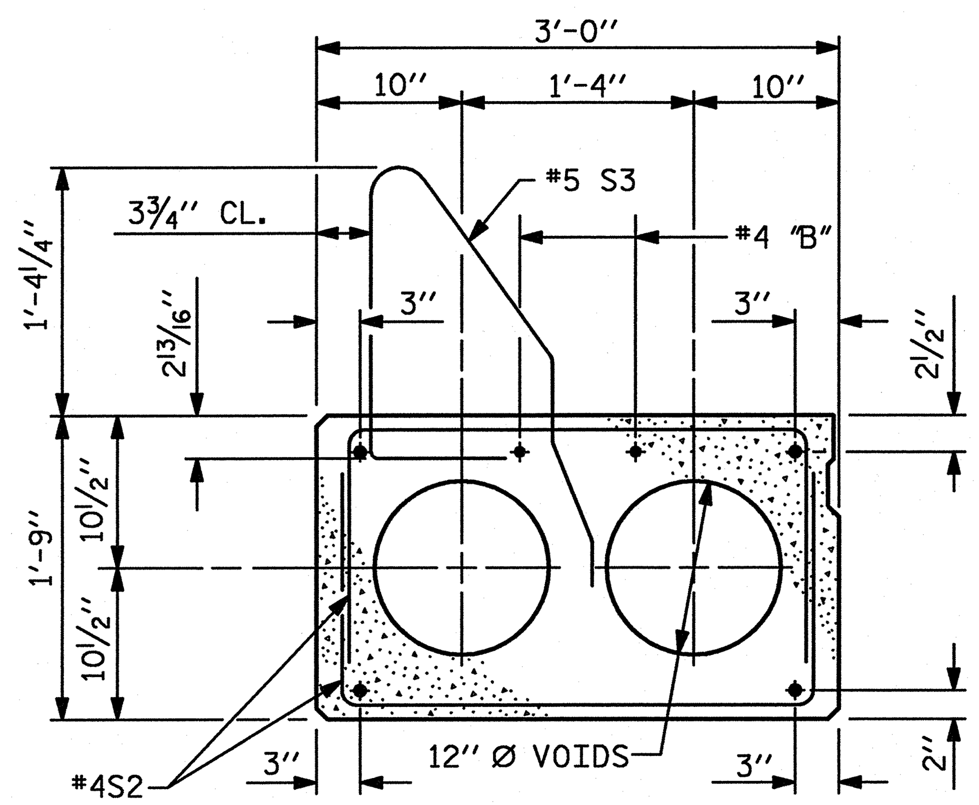


SECTION AT BENT



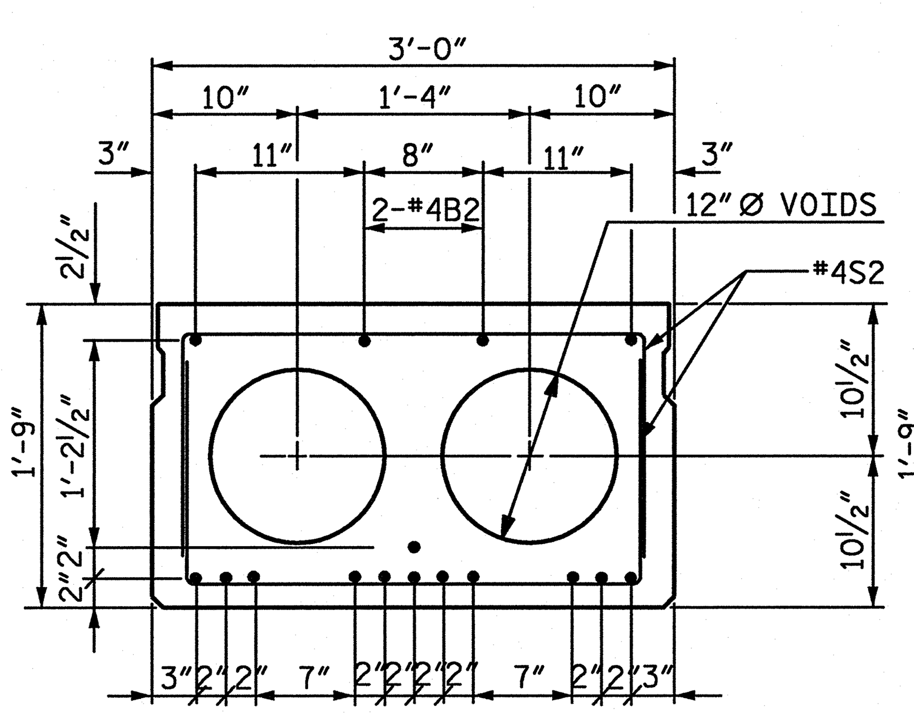
PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.



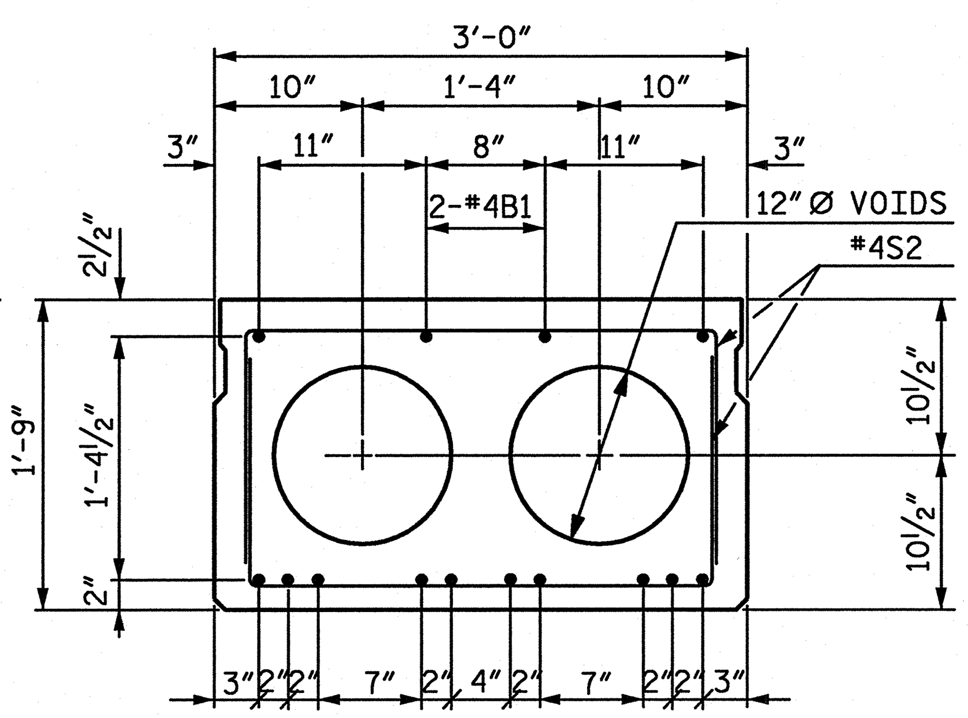
EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



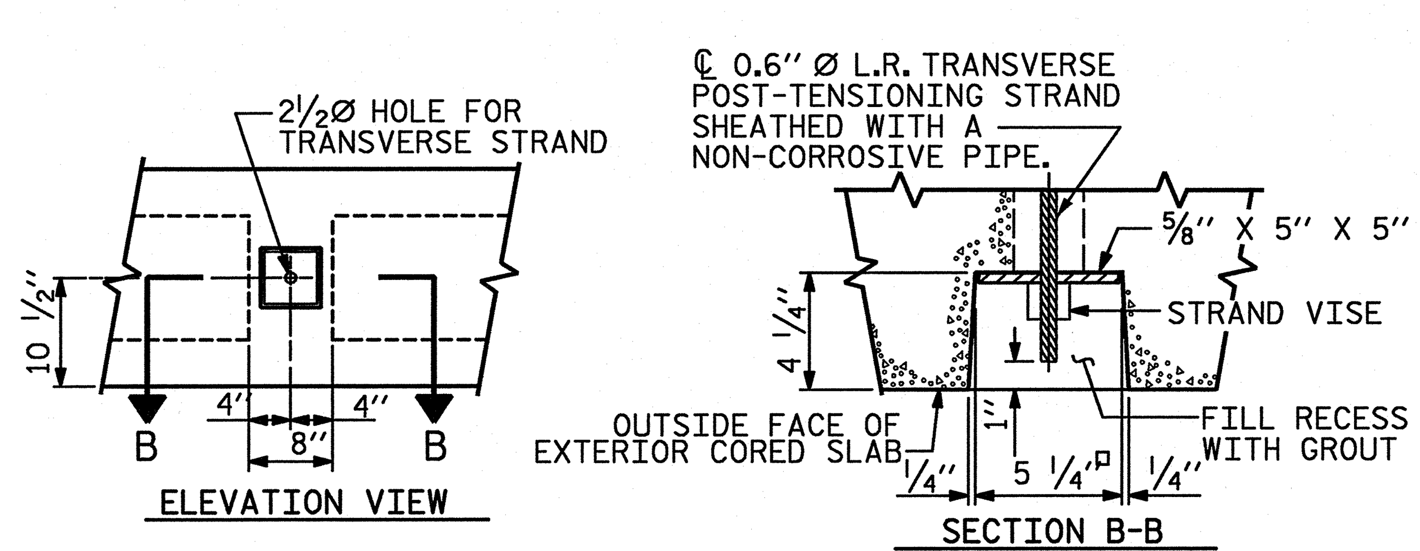
45′-SPAN B

14 - 0.6″Ø LOW RELAXATION STRANDS INTERIOR SLAB SECTIONS

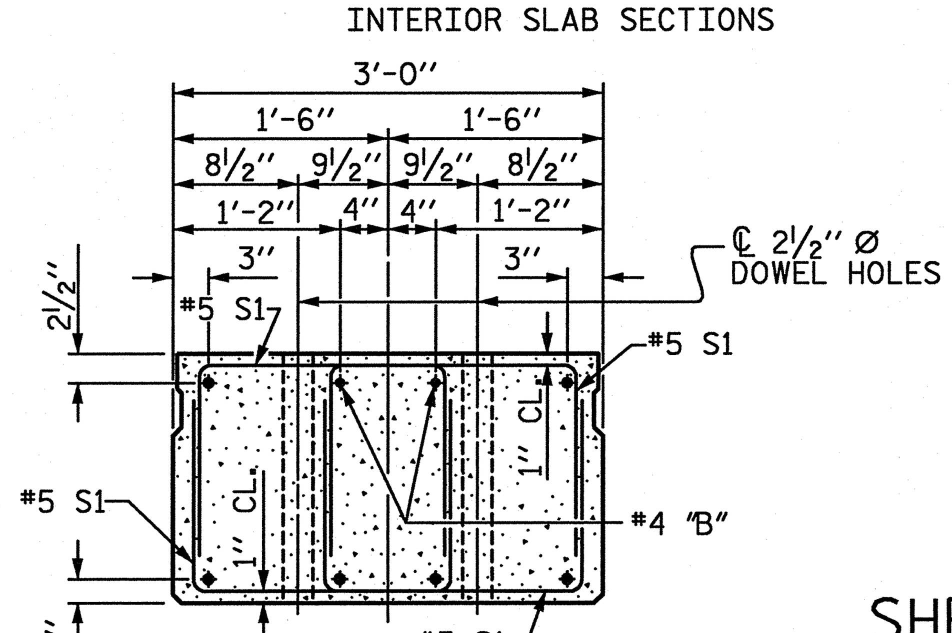


35′-SPANS A & C

12 - 0.6″Ø LOW RELAXATION STRANDS INTERIOR SLAB SECTIONS

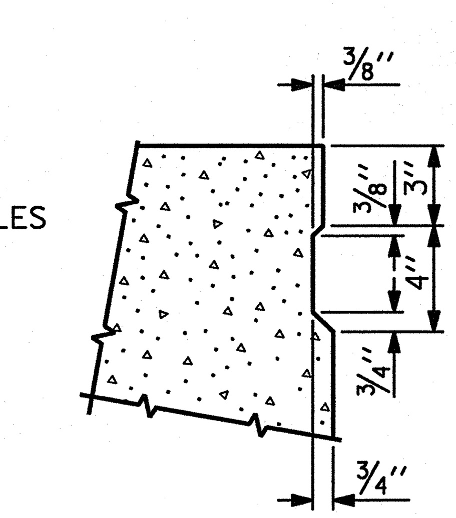


GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



END ELEVATION

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



SHEAR KEY DETAIL

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

WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3′-0″X 1′-9″ PRESTRESSED CONCRETE CORED SLAB UNIT

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
License No. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

DRAWN BY : J.C. PENDERGRAFT DATE : 12/09
CHECKED BY : J.A. DILWORTH DATE : 12/09

SEAL 22072 NORTH CAROLINA PROFESSIONAL ENGINEER JOHN ARTHUR DILWORTH 6-17-10

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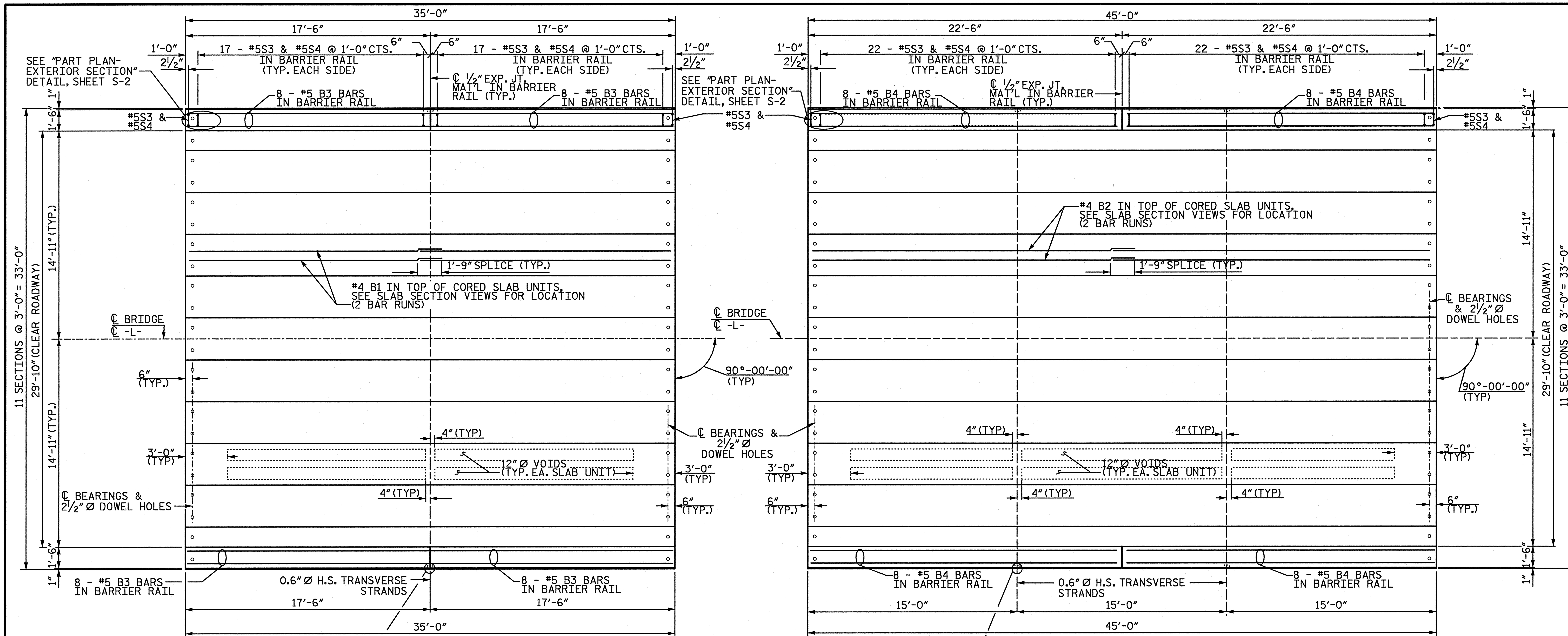
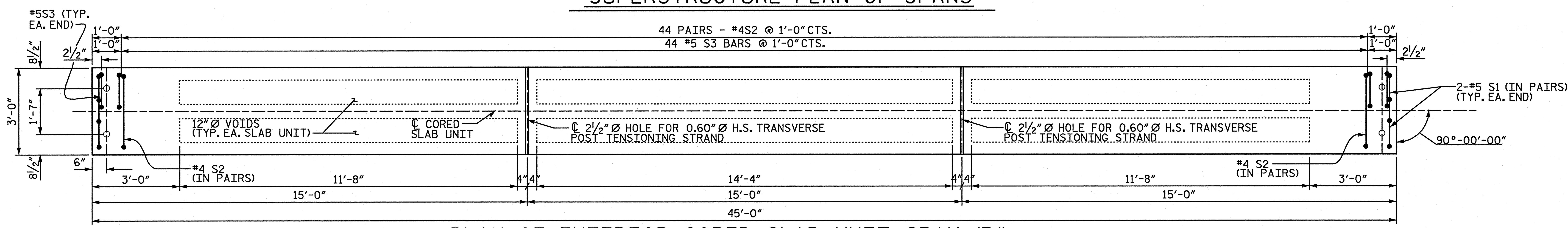


PLAN OF SPANS A & C

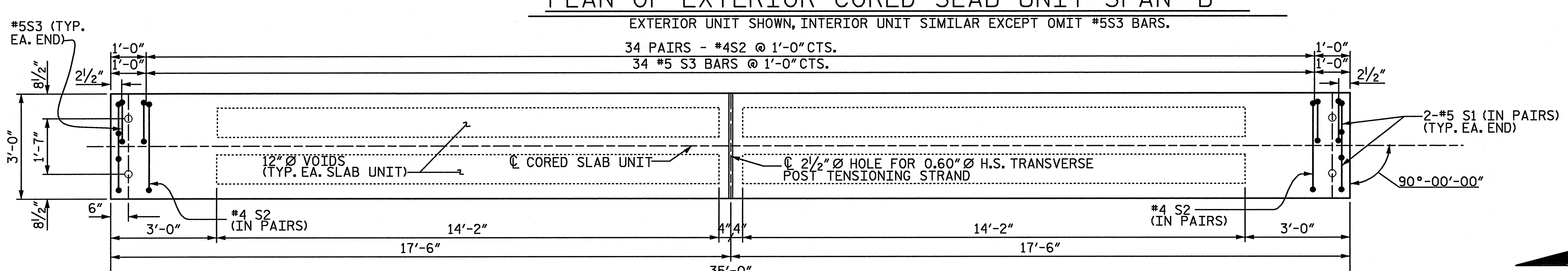
PLAN OF SPAN B

SUPERSTRUCTURE PLAN OF SPANS



PLAN OF EXTERIOR CORED SLAB UNIT SPAN "B"

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5S3 BARS.



PLAN OF EXTERIOR CORED SLAB UNIT SPANS "A" & "C"

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5S3 BARS.

NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH 6-17-10

WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE PLAN OF SPANS AND CAST-IN-PLACE BARRIER RAIL

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
License No. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

DRAWN BY : J.C. PENDERGRAFT DATE : 12/09
CHECKED BY : J.A. DILWORTH DATE : 12/09

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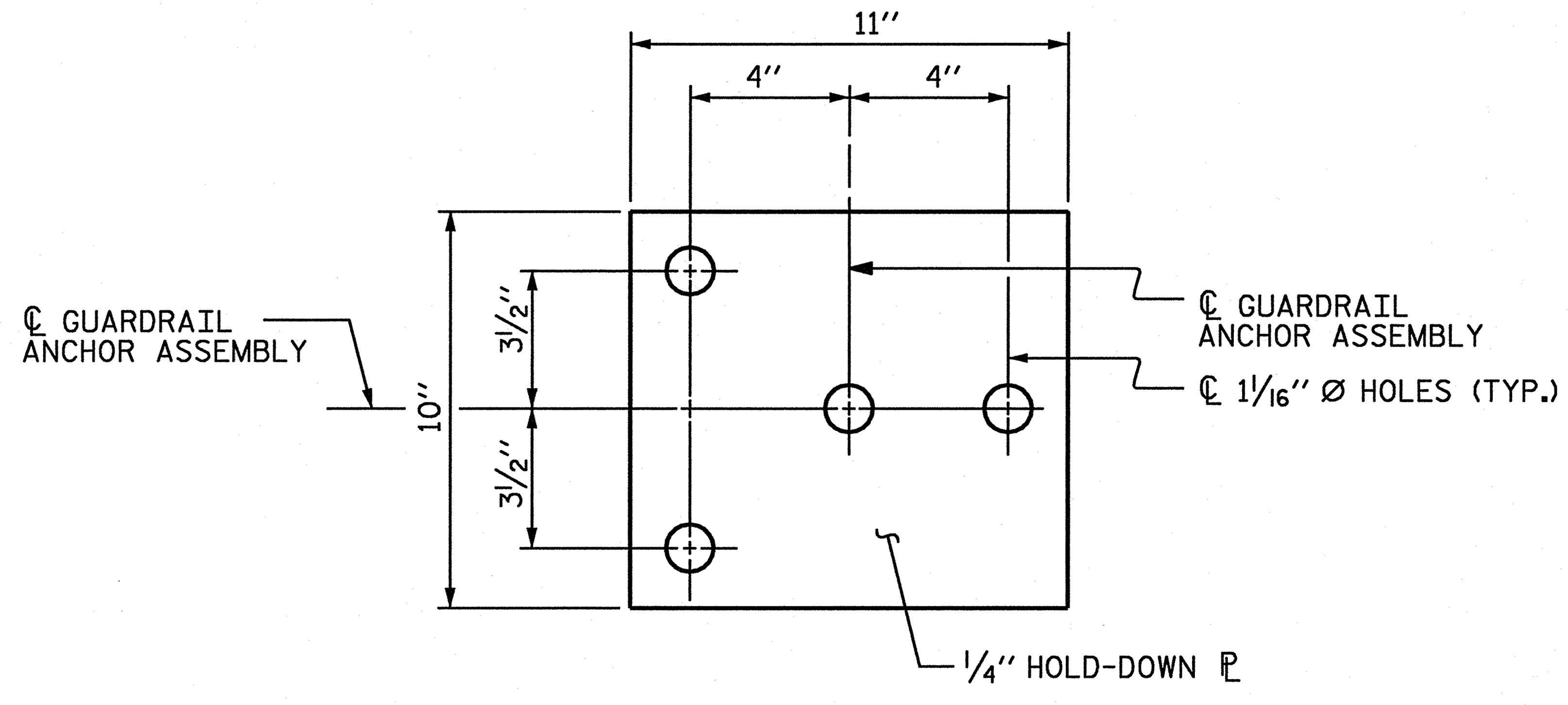
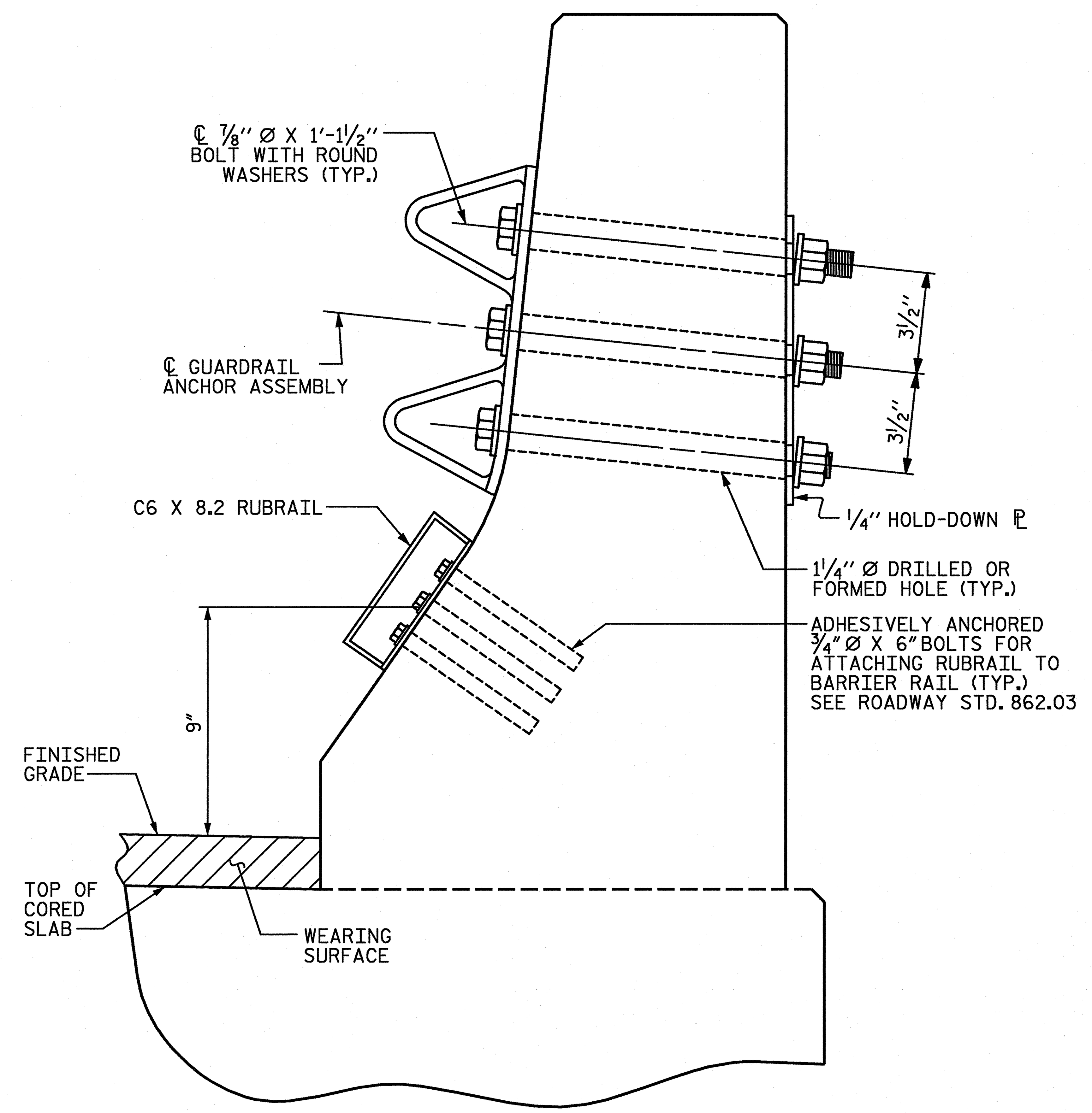
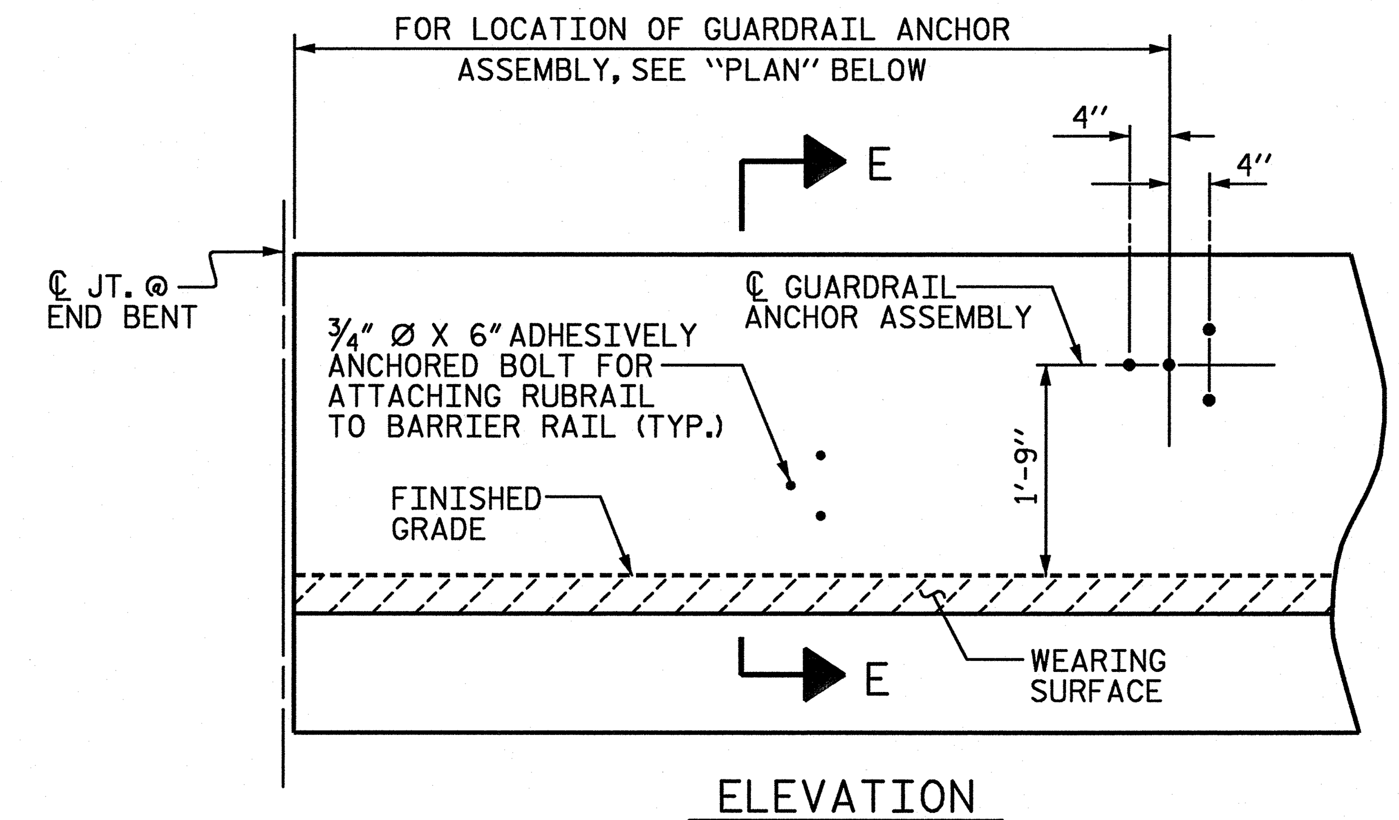


PLAN



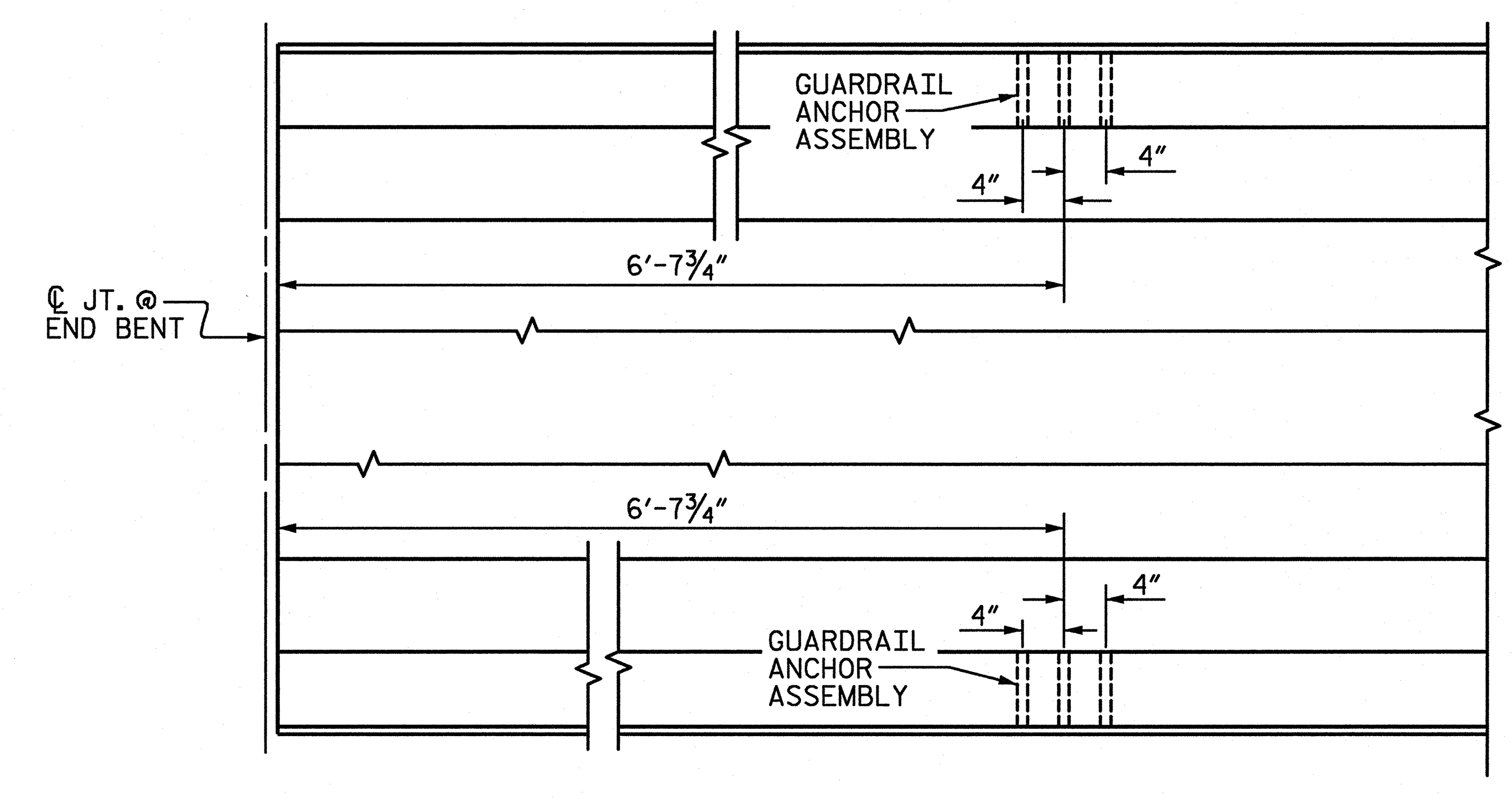
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A ¼" HOLD DOWN PLATE AND 4 - ⅞" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE ⅞" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

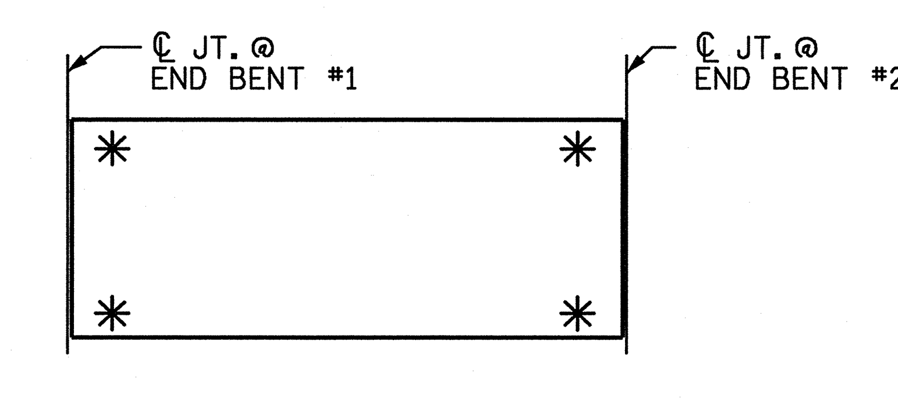
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

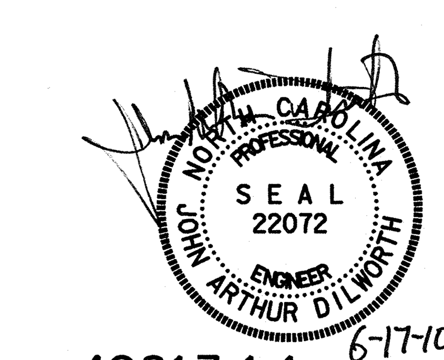
THE 1 ¼" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE ¾"Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE ¾"Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



SKETCH SHOWING POINTS OF ATTACHMENTS

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY



WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

WETHERILL ENGINEERING

559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
License No. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE
FOR BARRIER RAIL

STD. NO. GRA2

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

DRAWN BY : J.C. PENDERGRAFT DATE : 12/09
CHECKED BY : J.A. DILWORTH DATE : 12/09

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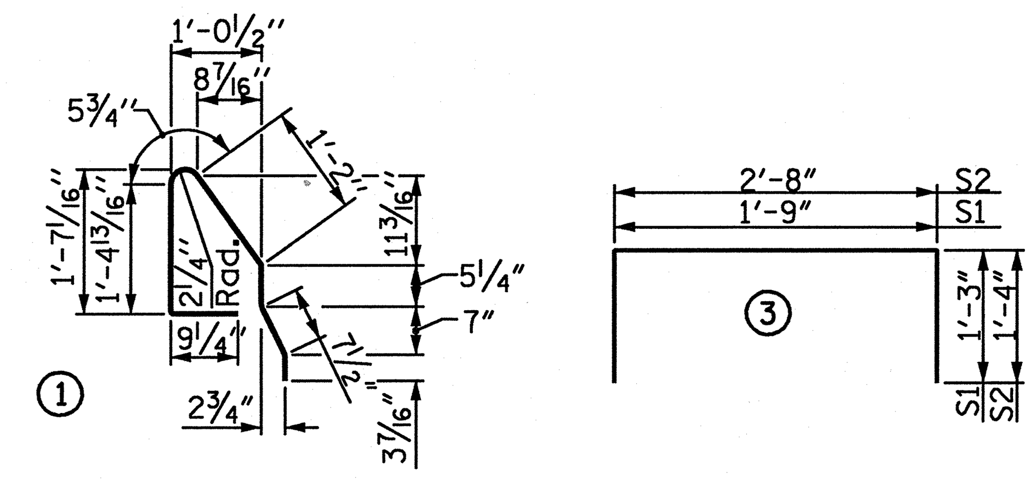
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT
✻ DENOTES EPOXY COATED

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

			SPANS A & C						SPAN B					
			EXTERIOR UNIT			INTERIOR UNIT			EXTERIOR UNIT			INTERIOR UNIT		
BAR	SIZE	TYPE	NUMBER	LENGTH	WEIGHT	NUMBER	LENGTH	WEIGHT	NUMBER	LENGTH	WEIGHT	NUMBER	LENGTH	WEIGHT
B1	#4	STR	4	18'-3"	49	4	18'-3"	49						
B2	#4	STR							4	23'-3"	62	4	23'-3"	62
S1	#5	3	8	4'-3"	35	8	4'-3"	35	8	4'-3"	35	8	4'-3"	35
S2	#4	3	68	5'-4"	242	68	5'-4"	242	88	5'-4"	314	88	5'-4"	314
✻ S3	#5	1	36	5'-2"	194				46	5'-2"	248			
REINFORCING STEEL		LBS.			326			326			411			411
✻EPOXY COATED REINFORCING STEEL		LBS.			194						248			
5000 P.S.I. CONCRETE		CU. YDS.			5.2			5.2						
6000 P.S.I. CONCRETE		CU. YDS.									6.6			6.6
0.6"Ø L.R. STRANDS No.					12			12			14			14

SPANS A & C

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	4	35'-0"	140'-0"
INTERIOR C.S.	18	35'-0"	630'-0"
TOTAL	22		770'-0"

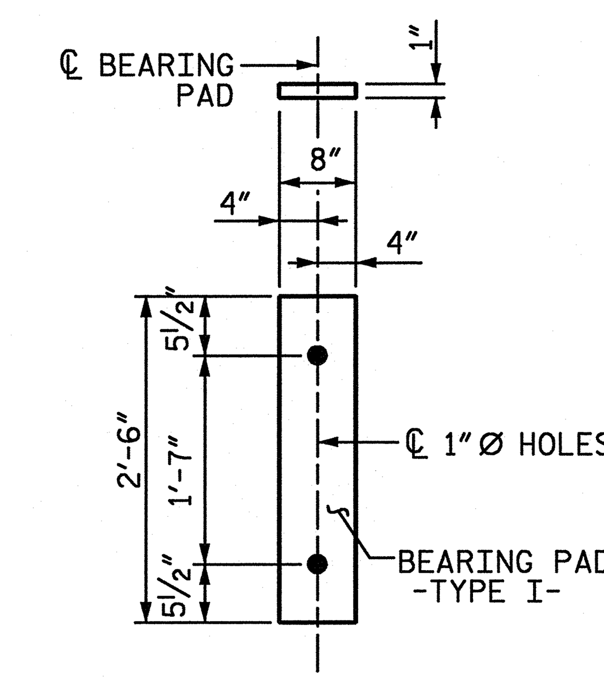
SPAN B

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	45'-0"	90'-0"
INTERIOR C.S.	9	45'-0"	405'-0"
TOTAL	11		495'-0"

GRADE 270 STRANDS

	0.6"Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,590
APPLIED PRESTRESS (LBS. PER STRAND)	43,940



FIXED END
(TYPE I - 66 REQ'D)

ELASTOMERIC BEARING DETAILS

(50 DUROMETER HARDNESS)

NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING. EXCEPT THAT THE BEAMS HAVE BEEN DESIGNED FOR HS 25.

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

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

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

THE 2½"Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE 2"Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI FOR SPANS A & C, AND NOT LESS THAN 4800 PSI FOR SPAN B.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

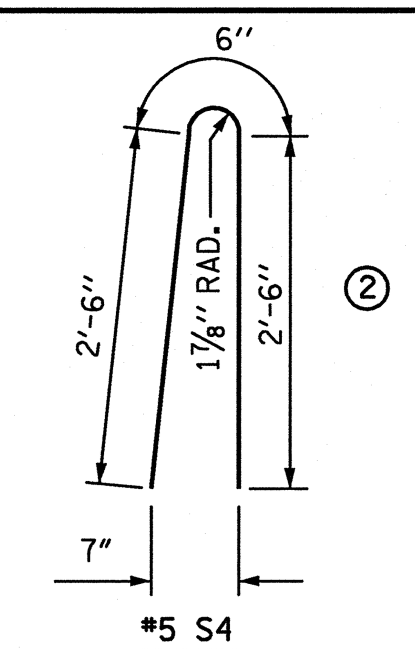
APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

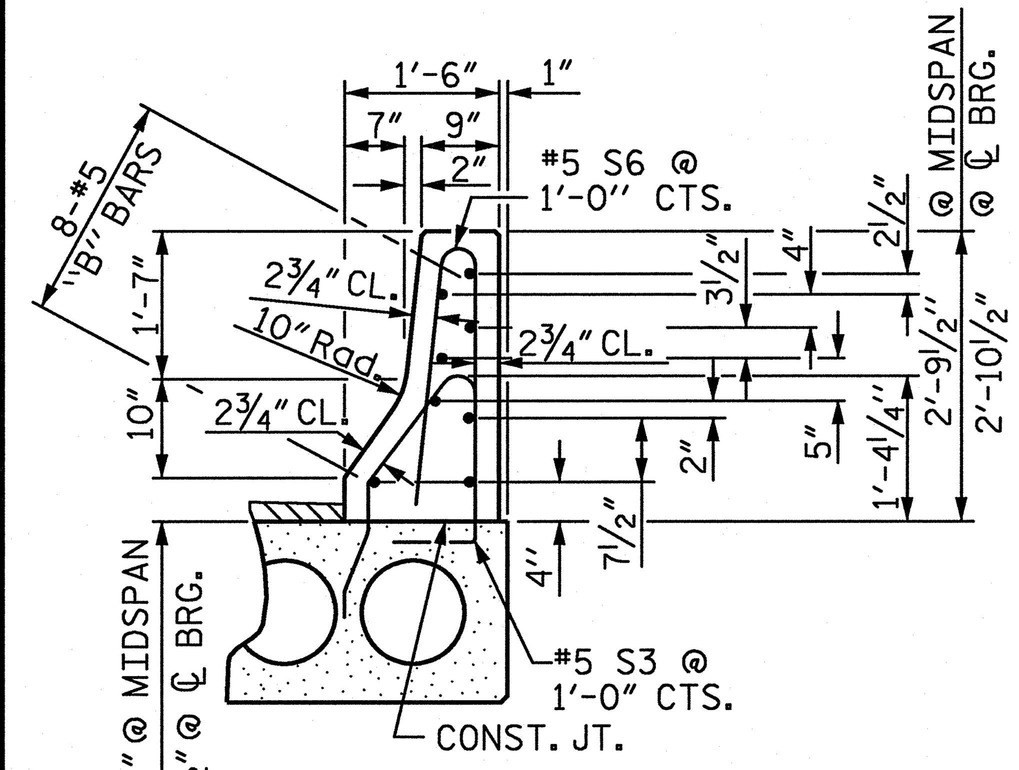
TRANSVERSE POST TENSIONING OF THE CORED SLAB SECTIONS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE 0.6"Ø STRANDS SHALL BE TENSIONED TO 43,950 POUNDS.

THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTER LINE.

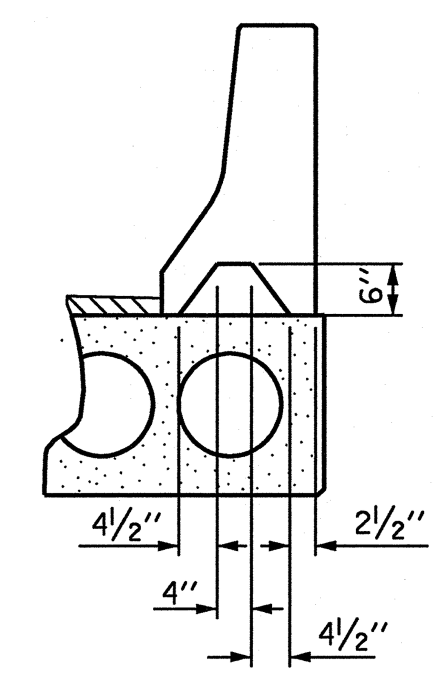


BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

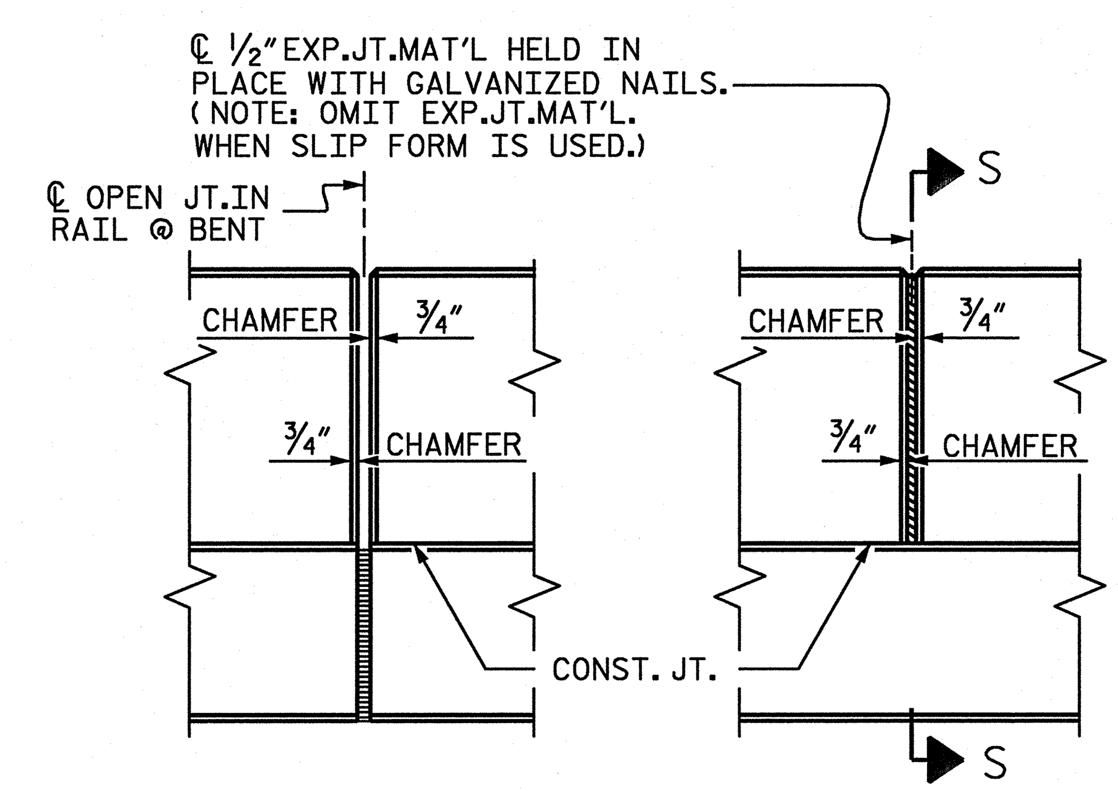
BAR	BARS PER SPAN			TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C					
✻ B3	32		32	64	#5	STR	17'-1"	1140
✻ B4		32		32	#5	STR	22'-1"	737
✻ S4	72	92	72	236	#5	2	5'-6"	1354
✻EPOXY COATED REINFORCING STEEL 3231 LBS.								
CLASS AA CONCRETE 25.2 CU.YDS.								
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL = 230.00 LIN. FT.								



SECTION THRU RAIL



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



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

DEAD LOAD DEFLECTION AND CAMBER

	SPANS A&C	SPAN B
	0.6"Ø L.R. STRAND	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	¾" ↑	1 3/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD✻✻	1/16" ↓	3/16" ↓
FINAL CAMBER	11/16" ↑	1" ↑

✻✻ INCLUDES FUTURE WEARING SURFACE

NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH
6-7-10

WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

WETHERILL ENGINEERING

559 Jones Franklin Rd. Suite 164
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Fax: 919 851 8107
License No. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE BILL OF MATERIAL

STD. NO. PCS3

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-5
1			3					TOTAL SHEETS
2			4					15

DRAWN BY : J.C. PENDERGRAFT DATE : 12/09
CHECKED BY : J.A. DILWORTH DATE : 12/09

NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

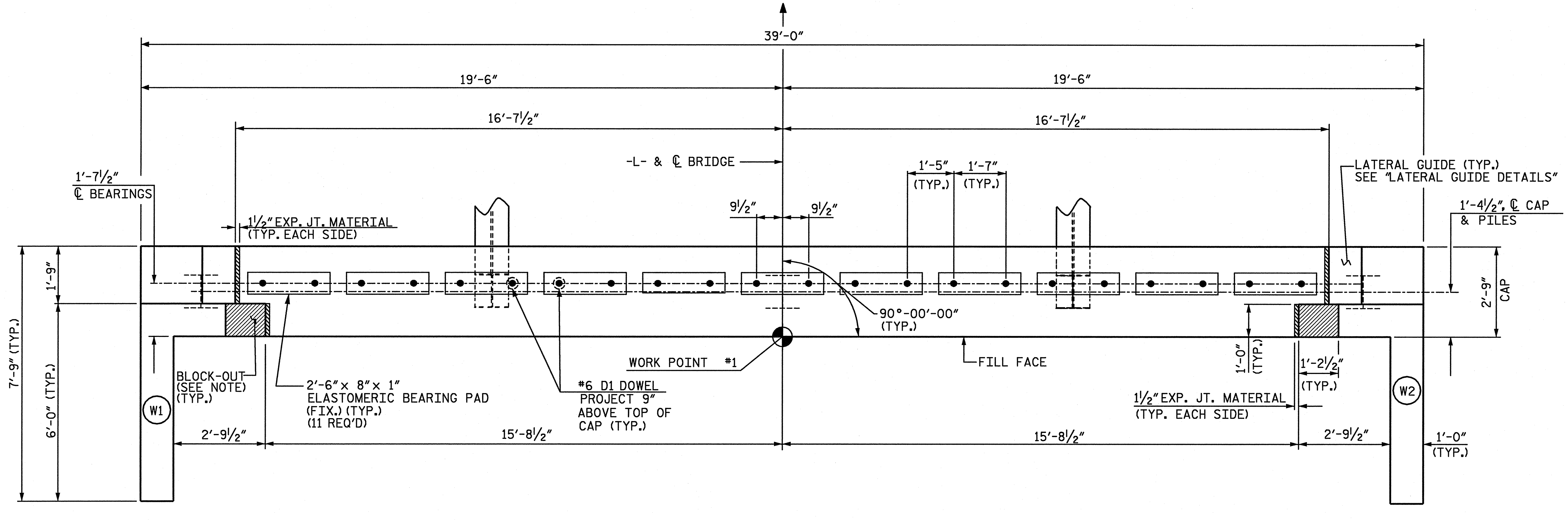
FOR SECTION A-A, SEE SHT. 2 OF 3.

FOR MISC. DETAILS, SEE SHT. 2 OF 3.

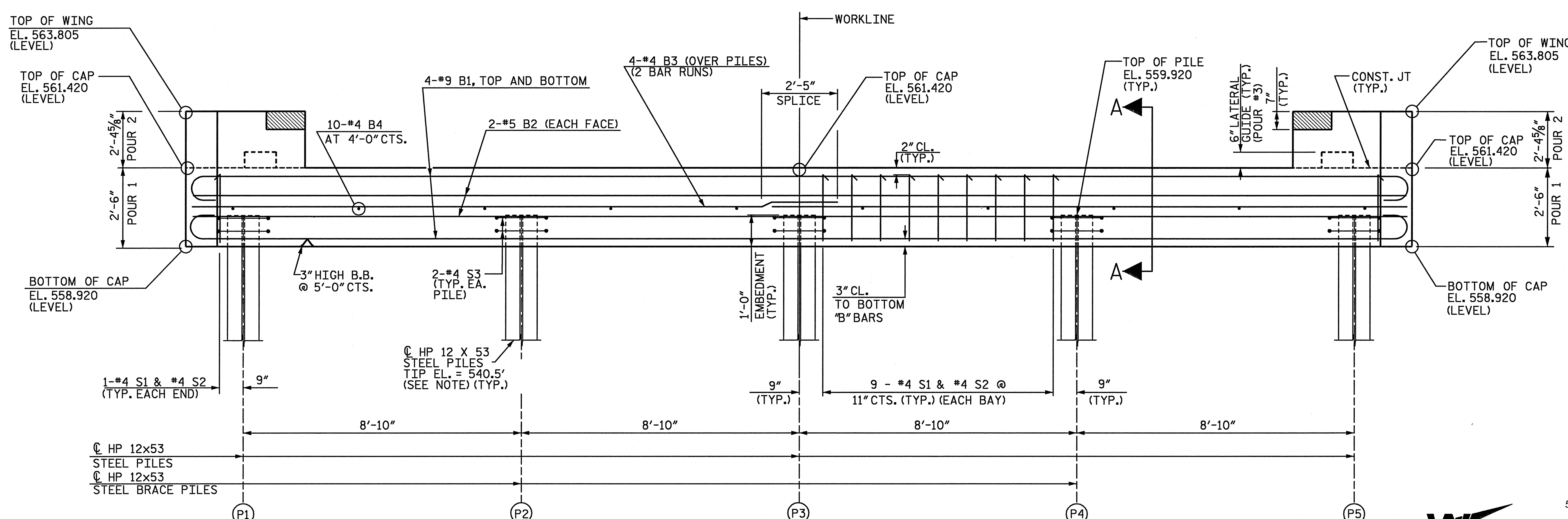
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

INSTALL PILES AT END BENT 1 TO A TIP ELEVATION NO HIGHER THAN 540.5 FEET.

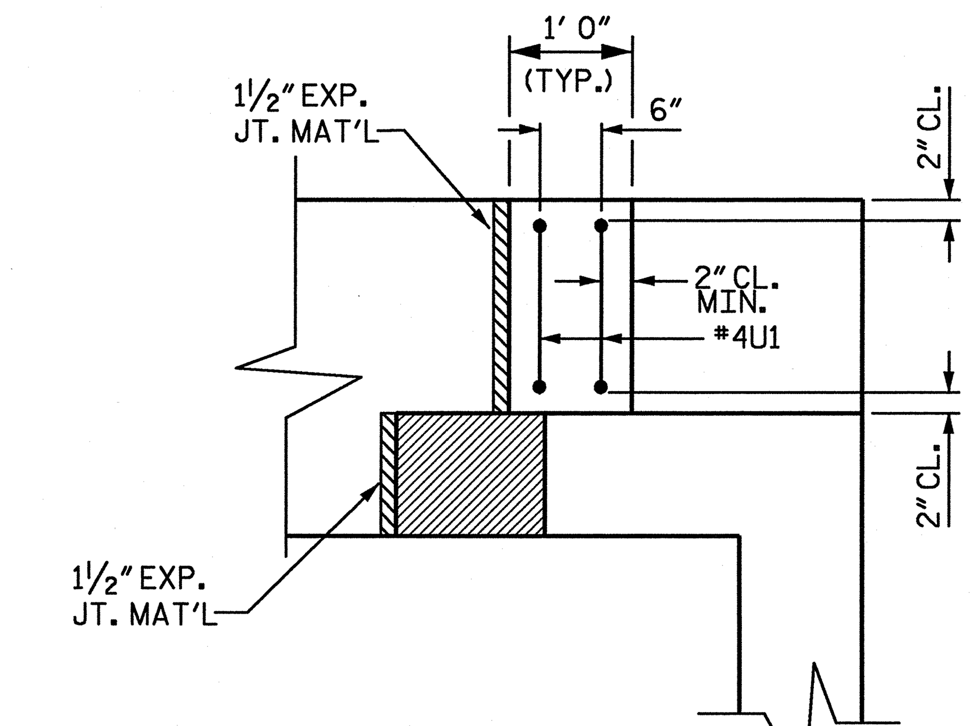


PLAN

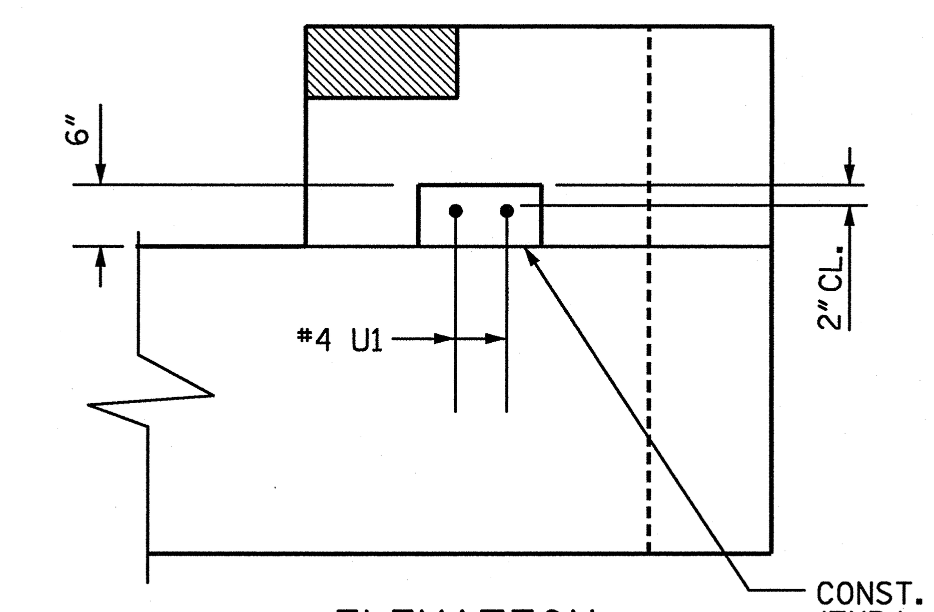


ELEVATION

NOTE: ALL PILES ARE HP 12x53 GALVANIZED STEEL PILES.



PLAN



ELEVATION

LATERAL GUIDE DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH 6-17-10

WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

SHEET 1 OF 3

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : J.C. PENDERGRAFT DATE : 12/09
CHECKED BY : J.A. DILWORTH DATE : 12/09

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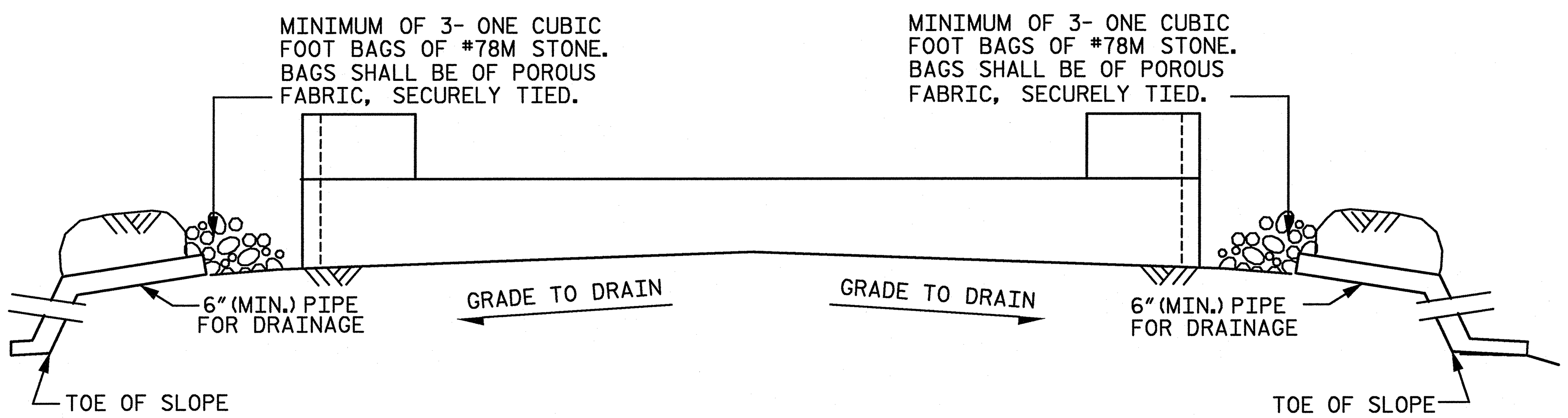
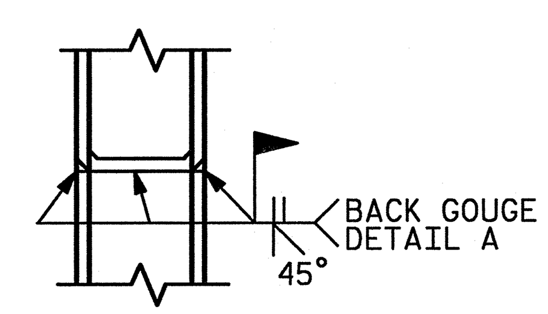


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

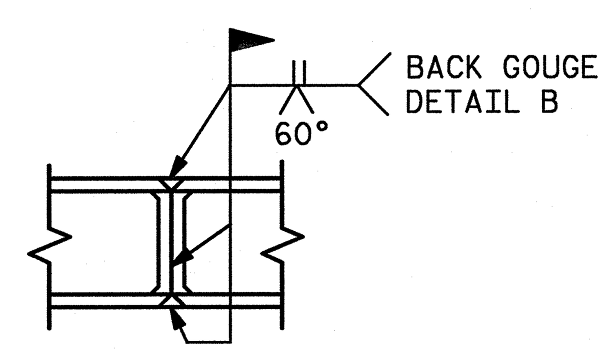
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

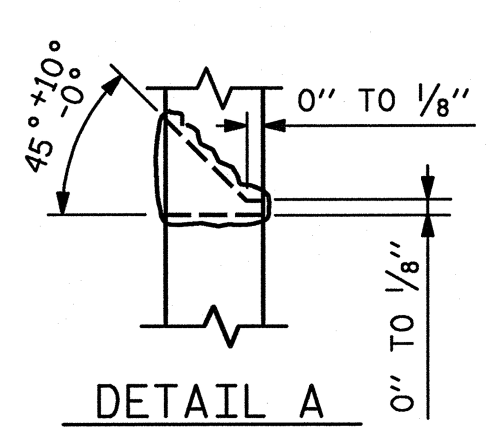
TEMPORARY DRAINAGE AT END BENT



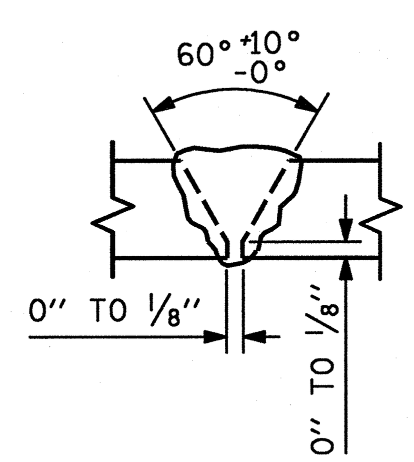
*PILE VERTICAL



*PILE HORIZONTAL OR VERTICAL



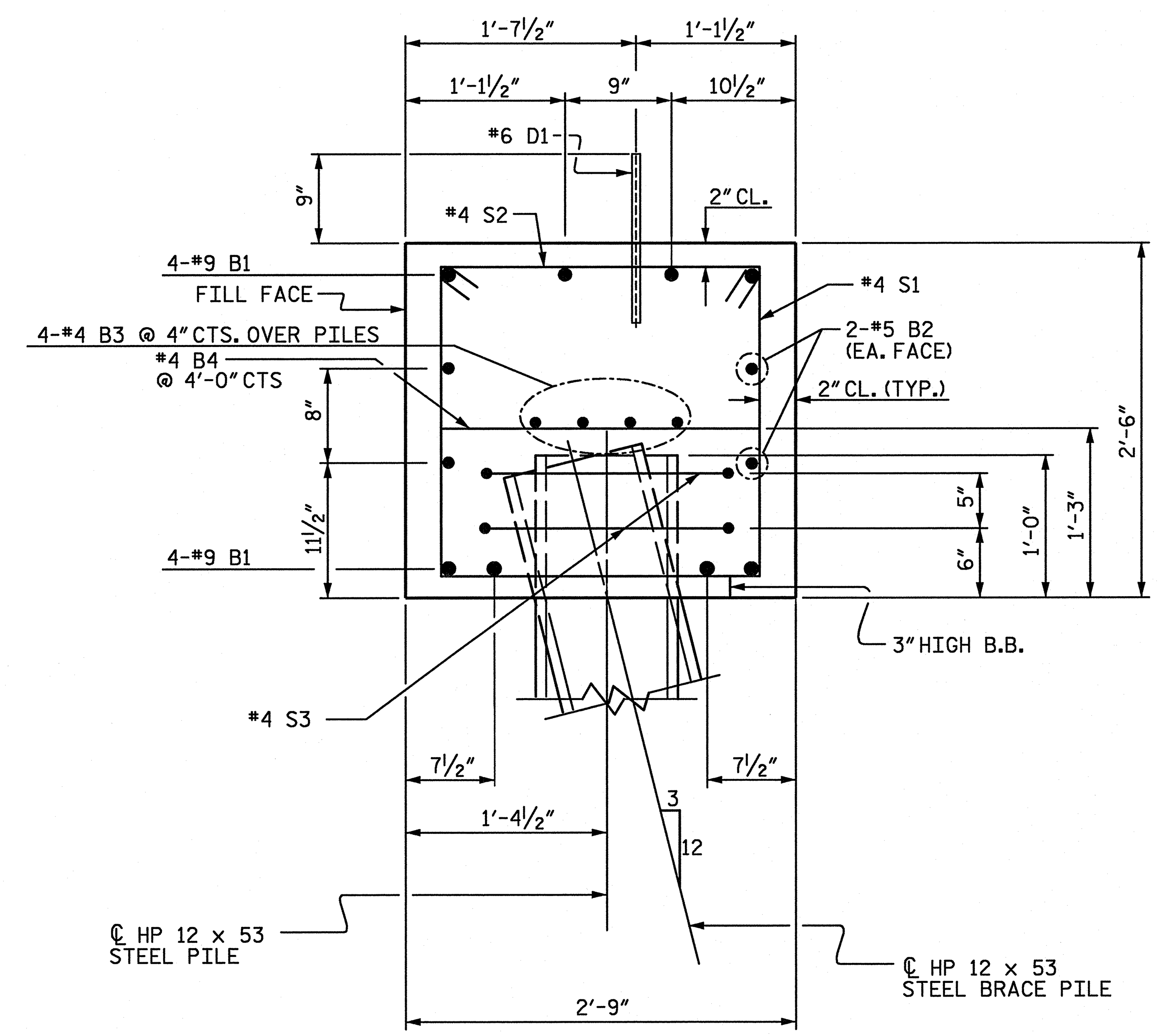
DETAIL A



DETAIL B

PILE SPLICE DETAILS

*POSITION OF PILE DURING WELDING.



SECTION A-A

WBS NO. 42817.1.1
PERSON COUNTY
STATION: 15+74.26
REPLACES BRIDGE NO. 93

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1

WETHERILL ENGINEERING
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License No. F-0377

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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-7
1			3					TOTAL SHEETS
2			4					15

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CHECKED BY : J.A. DILWORTH DATE : 12/09

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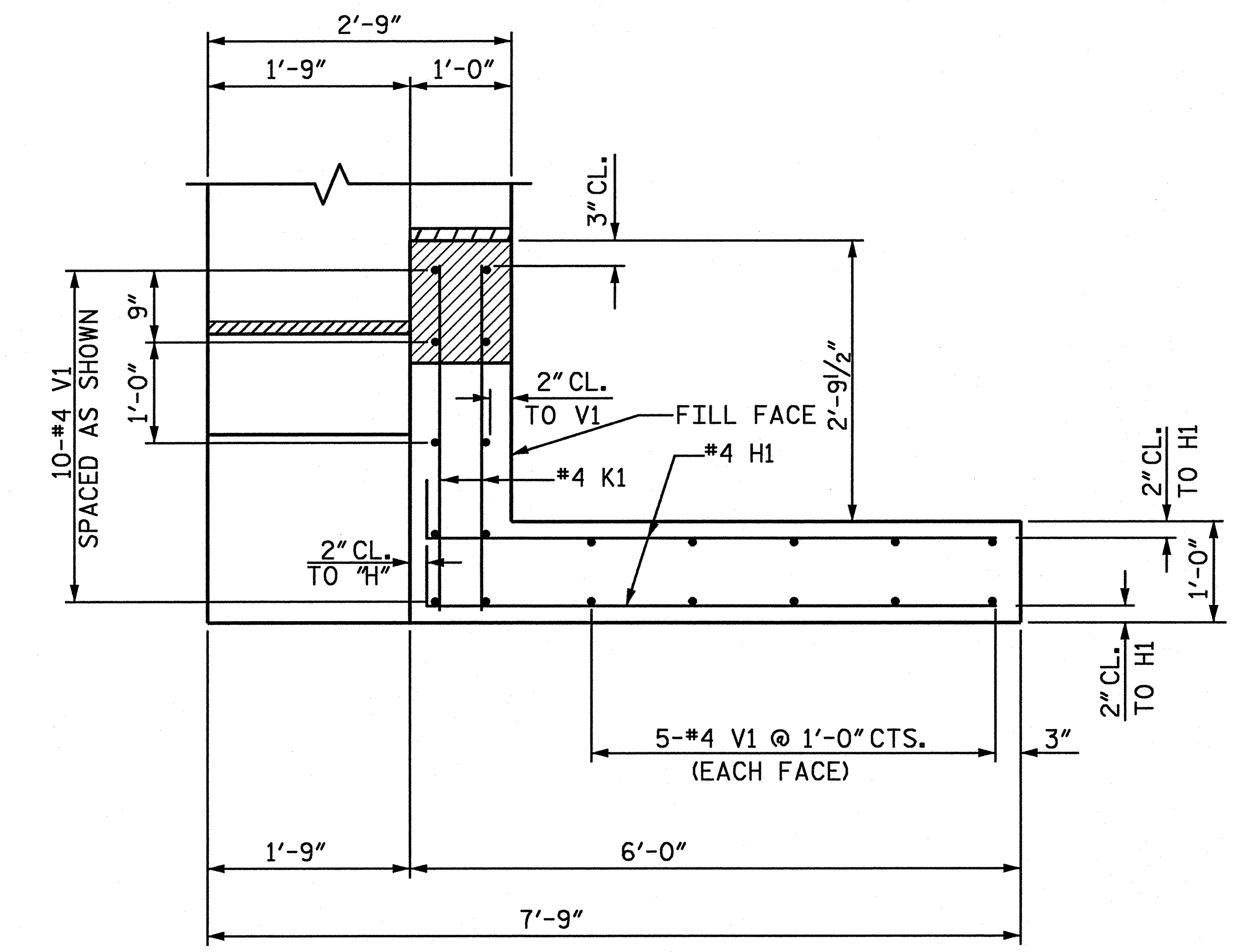
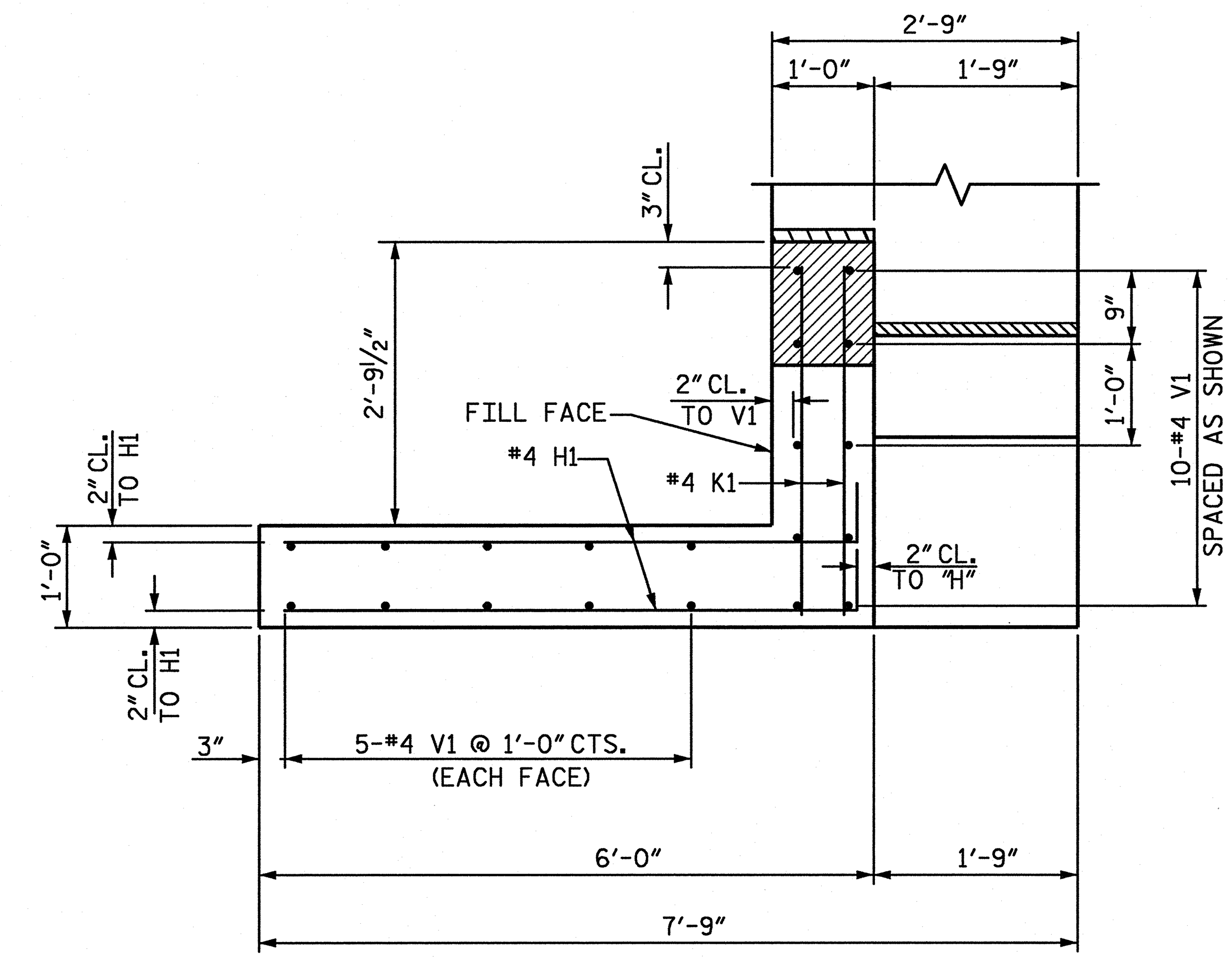
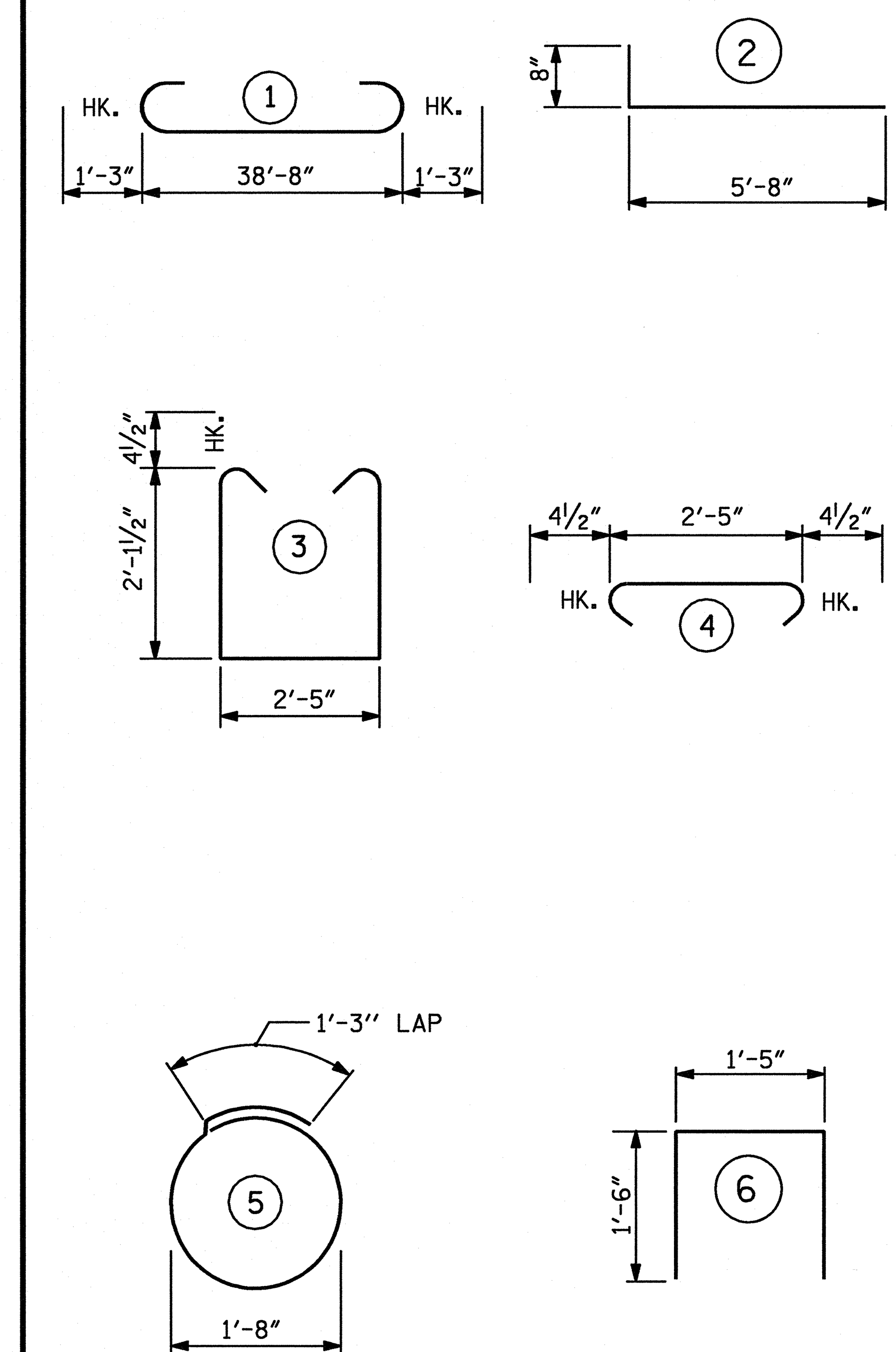


PLAN OF WING W1



PLAN OF WING W2

BAR TYPES



(ALL BAR DIMENSIONS ARE OUT TO OUT.)

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-2"	1120
B2	4	#5	STR	38'-8"	161
B3	8	#4	STR	20'-7"	110
B4	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	24	#4	2	6'-4"	102
K1	12	#4	STR	3'-5"	27
S1	38	#4	3	7'-5"	188
S2	38	#4	4	3'-2"	80
S3	10	#4	5	6'-6"	43
U1	4	#4	6	4'-5"	12
V1	40	#4	STR	4'-5"	118

REINFORCING STEEL = 2027 LBS

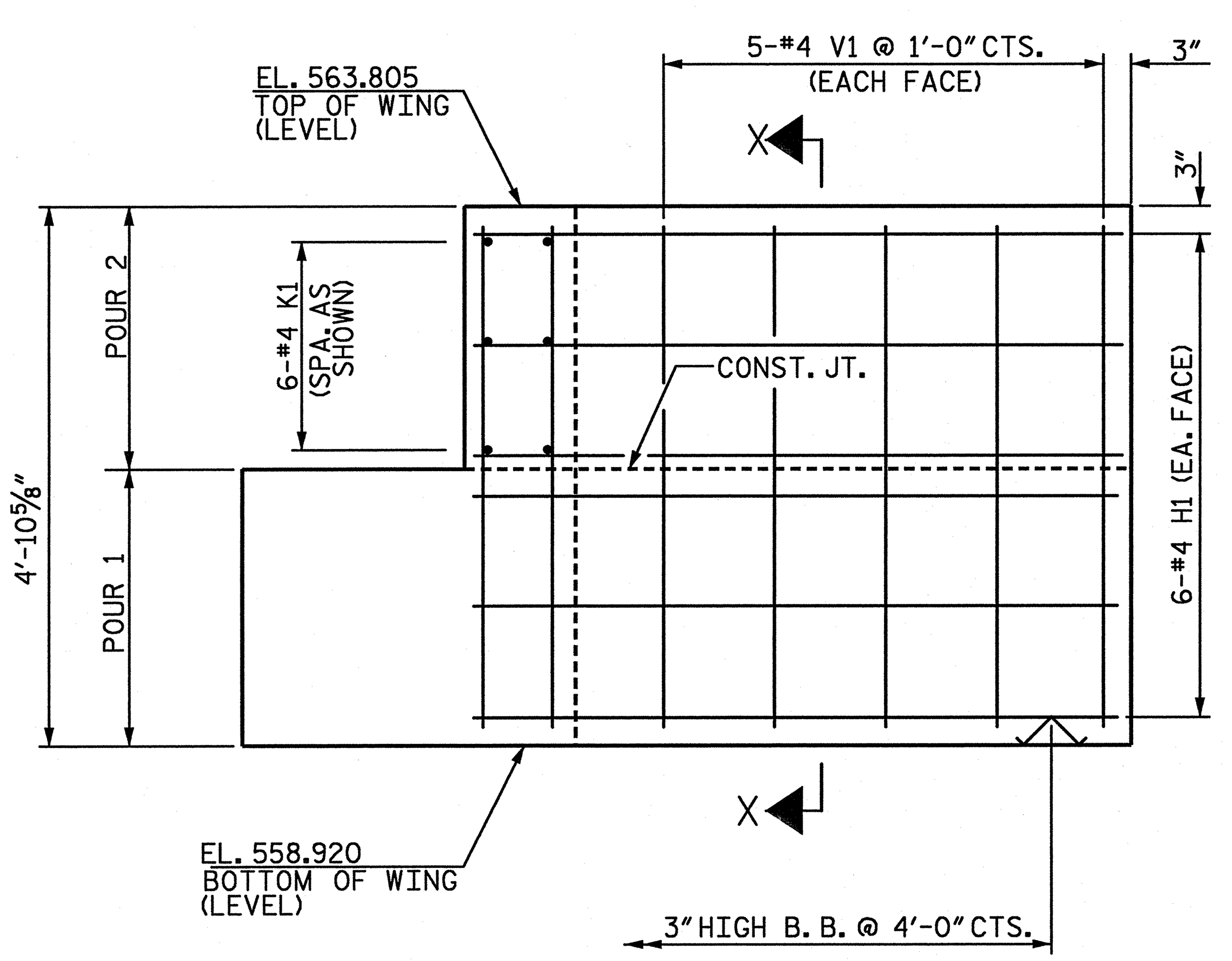
CLASS A CONCRETE

POUR 1	CAP & LOWER PART OF WINGS	C.Y. 10.9
POUR 2	UPPER PART OF WINGS	C.Y. 1.6
POUR 3	LATERAL GUIDES	C.Y. 0.1
	TOTAL	C.Y. 12.6

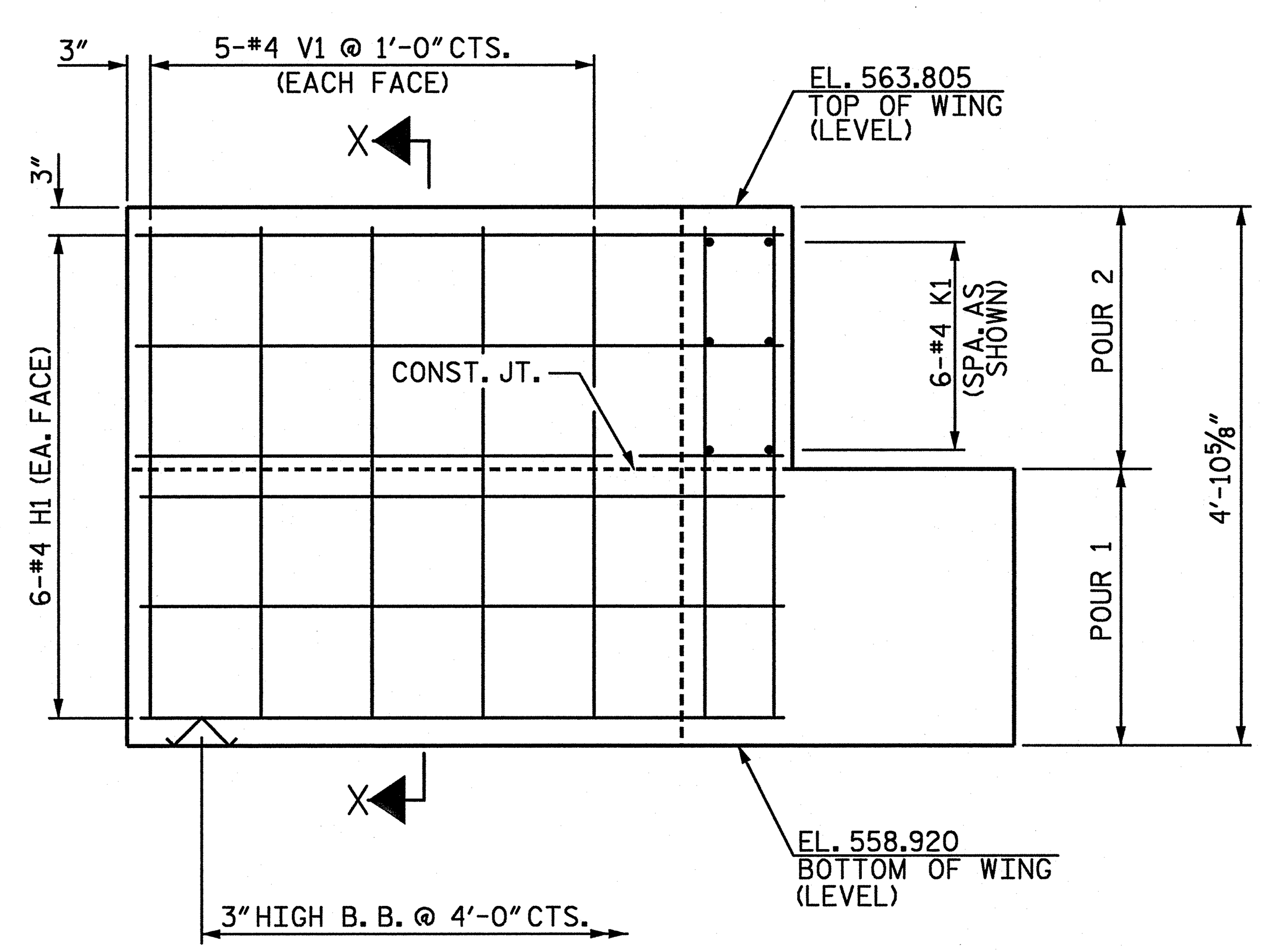
HP 12 X 53 GALVANIZED STEEL PILES NO. 5 (LIN. FT.) 100

PILE EXCAVATION IN SOIL 53 LF

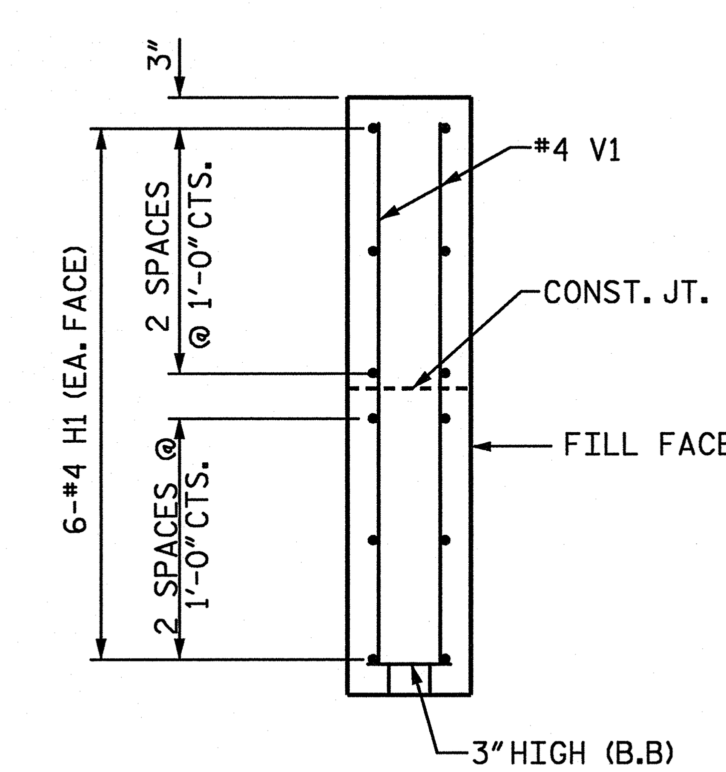
PILE EXCAVATION NOT IN SOIL 47 LF



ELEVATION OF WING W1



ELEVATION OF WING W2



SECTION X-X

NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH 6-17-10

WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1

WETHERILL ENGINEERING

559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
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License No. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : J.C. PENDERGRAFT DATE : 12/09
CHECKED BY : J.A. DILWORTH DATE : 12/09

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NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

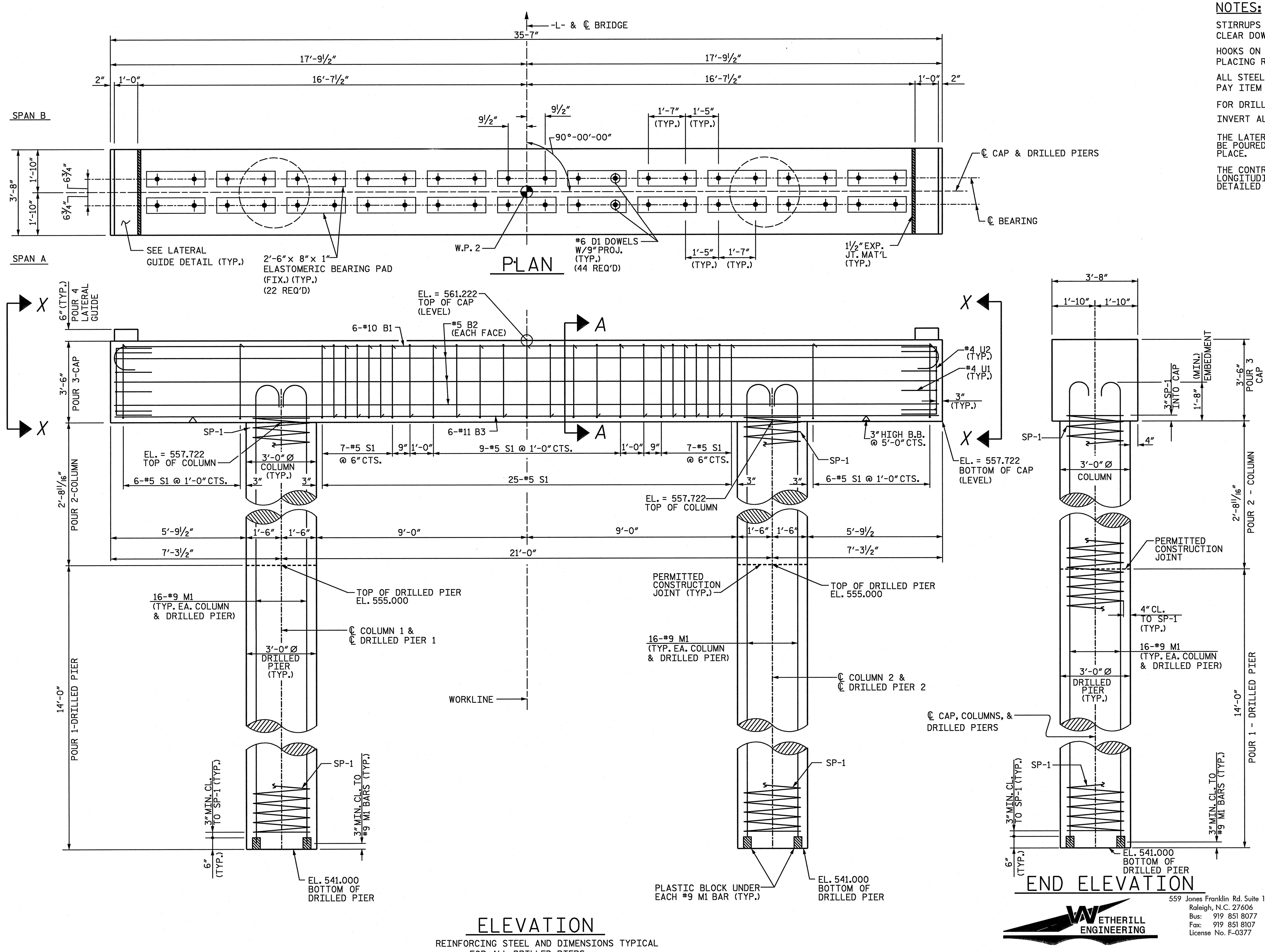
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEM FOR "PLACEMENT OF SUBSTRUCTURE".

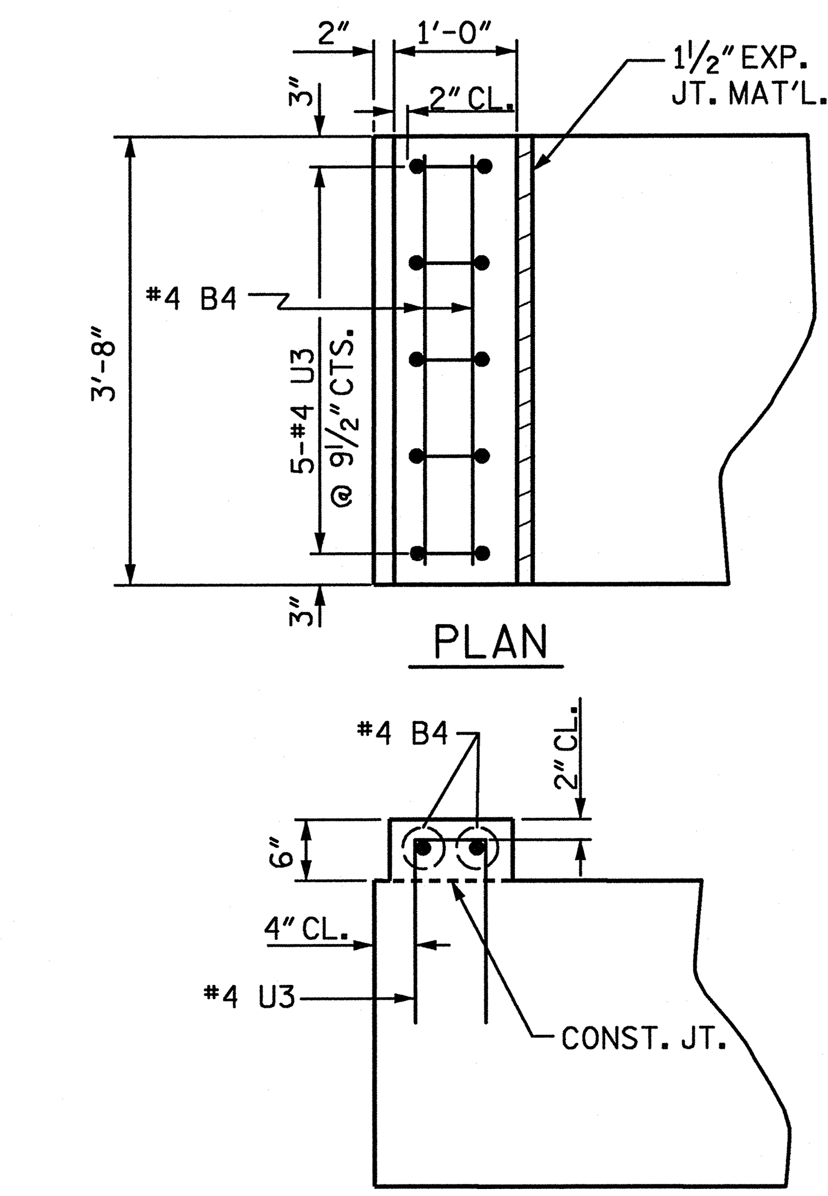
FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

INVERT ALTERNATE STIRRUPS.

THE LATERAL GUIDE AT EACH END OF THE CAP SHALL NOT BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

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





LATERAL GUIDE DETAIL
(EACH END SIMILAR)

NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH 6-17-10

WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
License No. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : J.C. PENDERGRAFT DATE : 12/09
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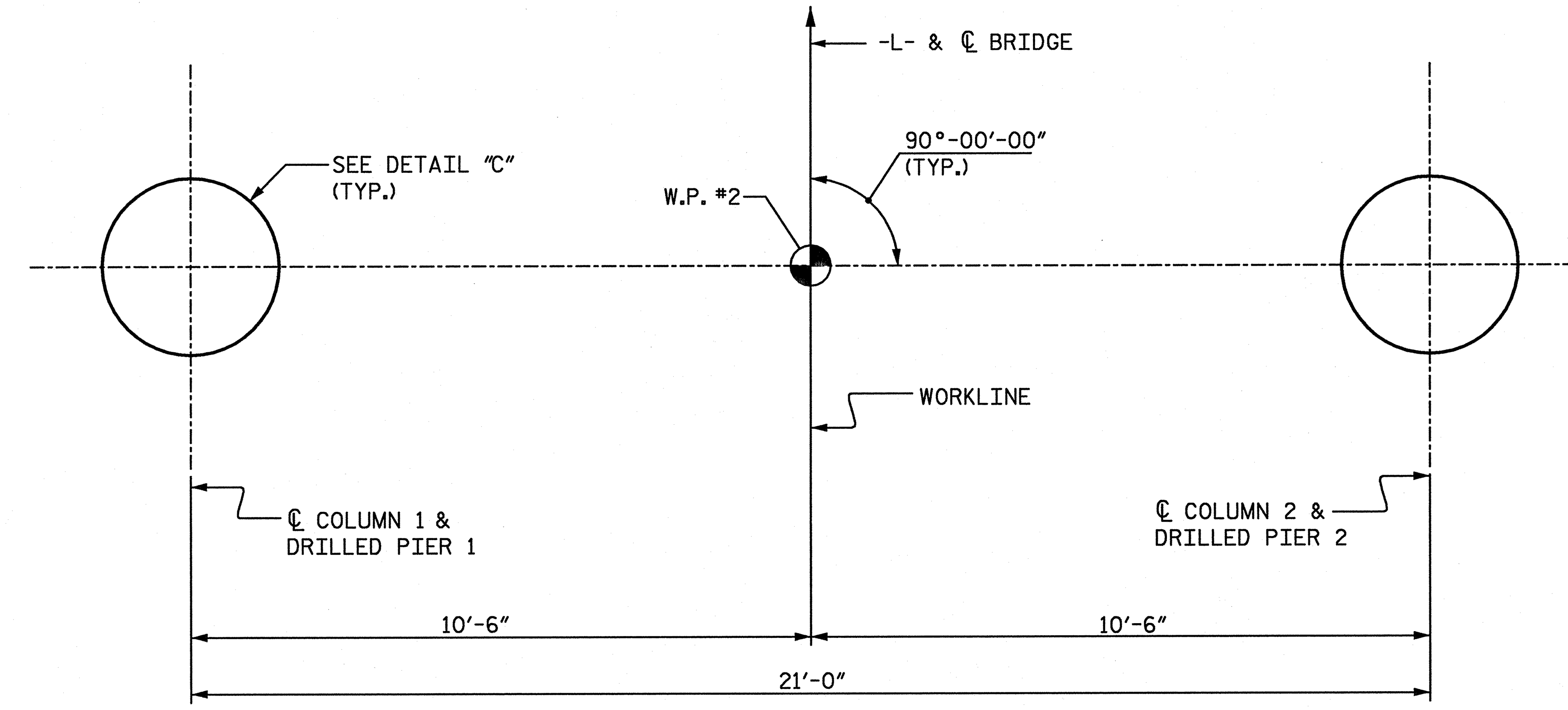
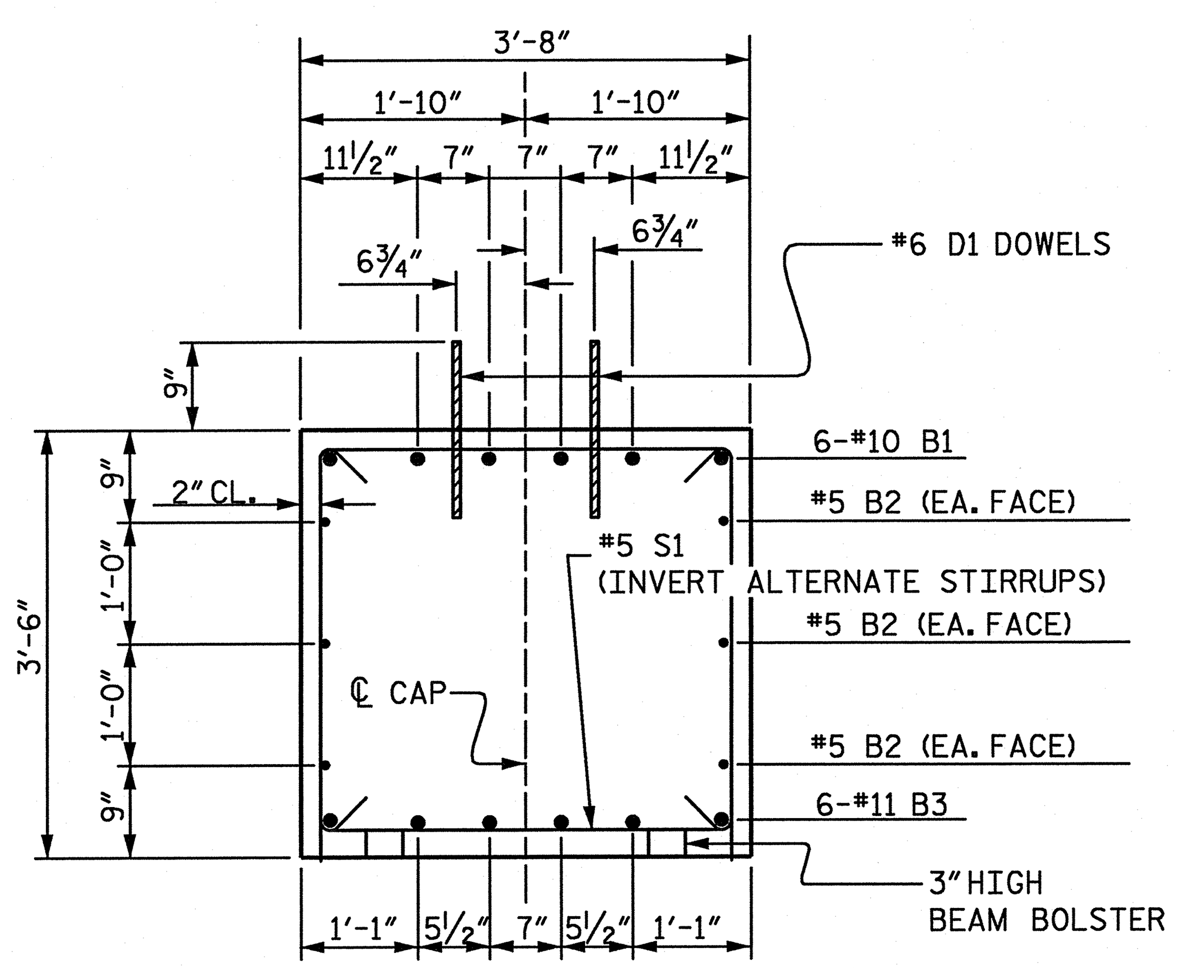
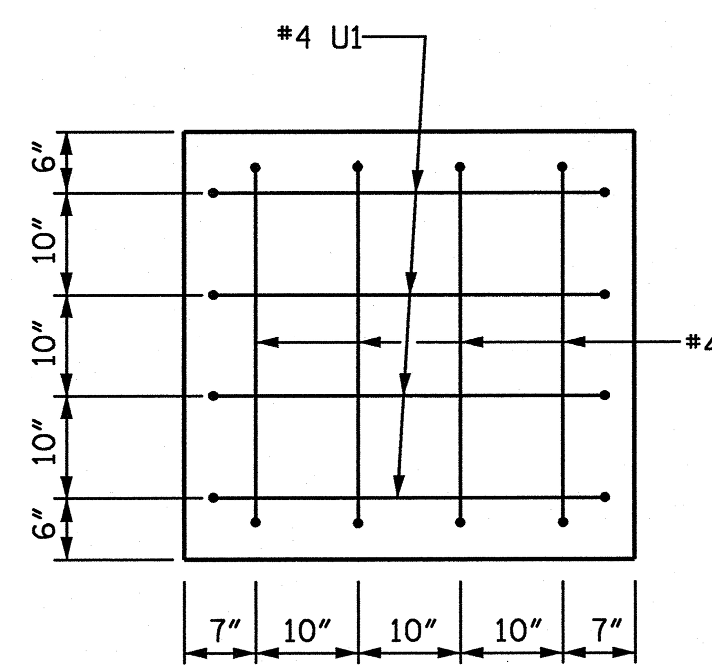


PLAN OF COLUMNS & DRILLED PIERS

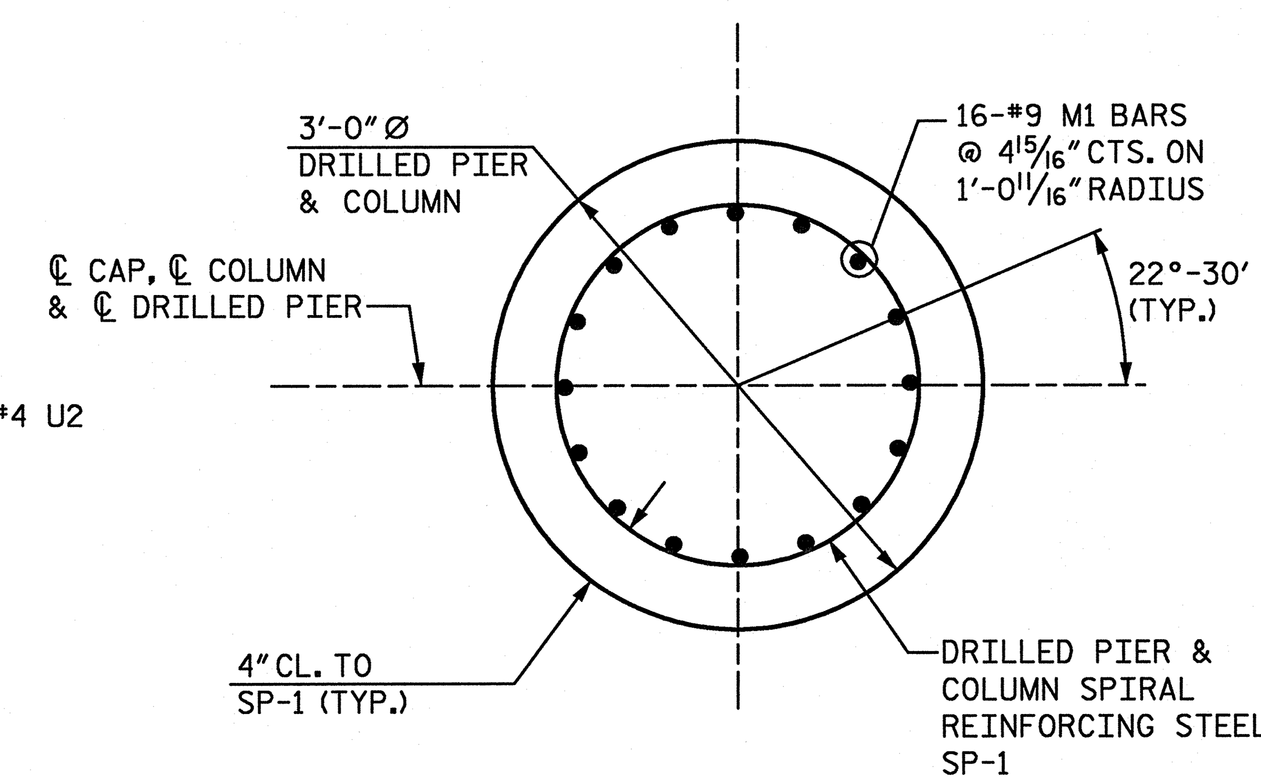
REINFORCING STEEL AND DIMENSIONS ARE
TYPICAL FOR ALL COLUMNS & DRILLED PIERS



SECTION A-A

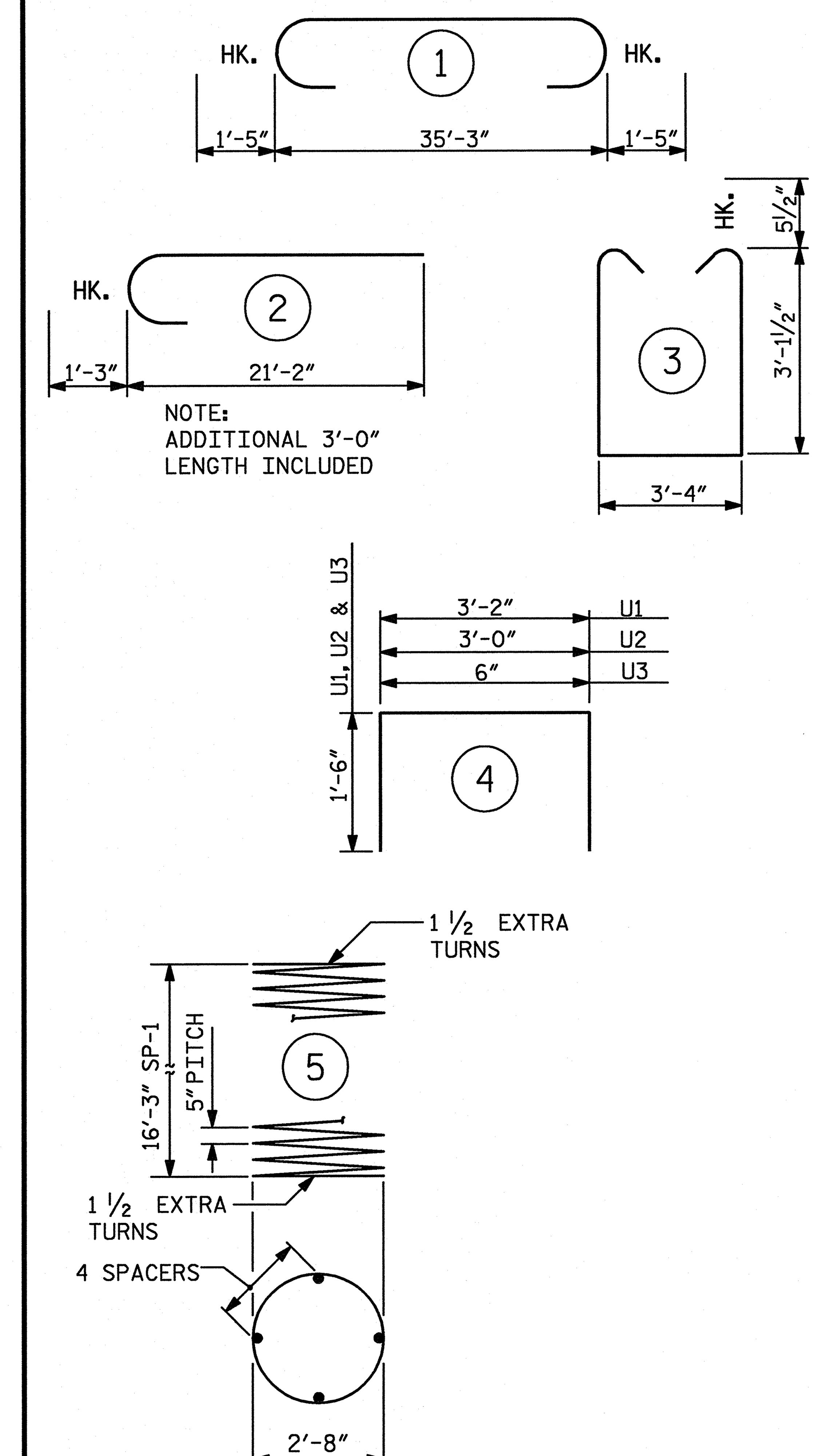


END VIEW X-X



DETAIL "C"

BAR TYPES



(ALL BAR DIMENSIONS ARE OUT TO OUT.)

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

BILL OF MATERIAL

BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	1	38'-1"	983
B2	6	#5	STR	35'-3"	221
B3	6	#11	STR	35'-3"	1124
B4	4	#4	STR	3'-4"	9
D1	44	#6	STR	1'-6"	99
M1	32	#9	2	22'-5"	2439
S1	37	#5	3	10'-6"	405
U1	8	#4	4	6'-2"	33
U2	8	#4	4	6'-0"	32
U3	10	#4	4	3'-6"	23
REINFORCING STEEL					5368 LBS.
SP-1	2	*	5	301'-7"	629
SPIRAL DRILLED PIER & COLUMN REINFORCING STEEL					629 LBS.

CLASS A CONCRETE BREAKDOWN	
POUR 2 (COLUMNS)	1.4 C.Y.
POUR 3 (CAP)	16.9 C.Y.
POUR 4 (LATERAL GUIDES)	0.1 C.Y.
TOTAL CLASS A CONCRETE	18.4 C.Y.

3'-0"Ø DRILLED PIERS

DRILLED PIER CONCRETE	
POUR 1 (DRILLED PIERS)	7.3 C.Y.
3'-0"Ø DRILLED PIERS IN SOIL :	9.00 LIN. FT.
3'-0"Ø DRILLED PIERS NOT IN SOIL :	19.00 LIN. FT.
PERMANENT STEEL CASING FOR 3'-0"Ø DRILLED PIER:	15.20 LIN. FT.

NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH 6-17-10

WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

WETHERILL ENGINEERING
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Raleigh, N.C. 27606
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Fax: 919 851 8107
License No. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : J.C. PENDERGRAFT DATE : 12/09
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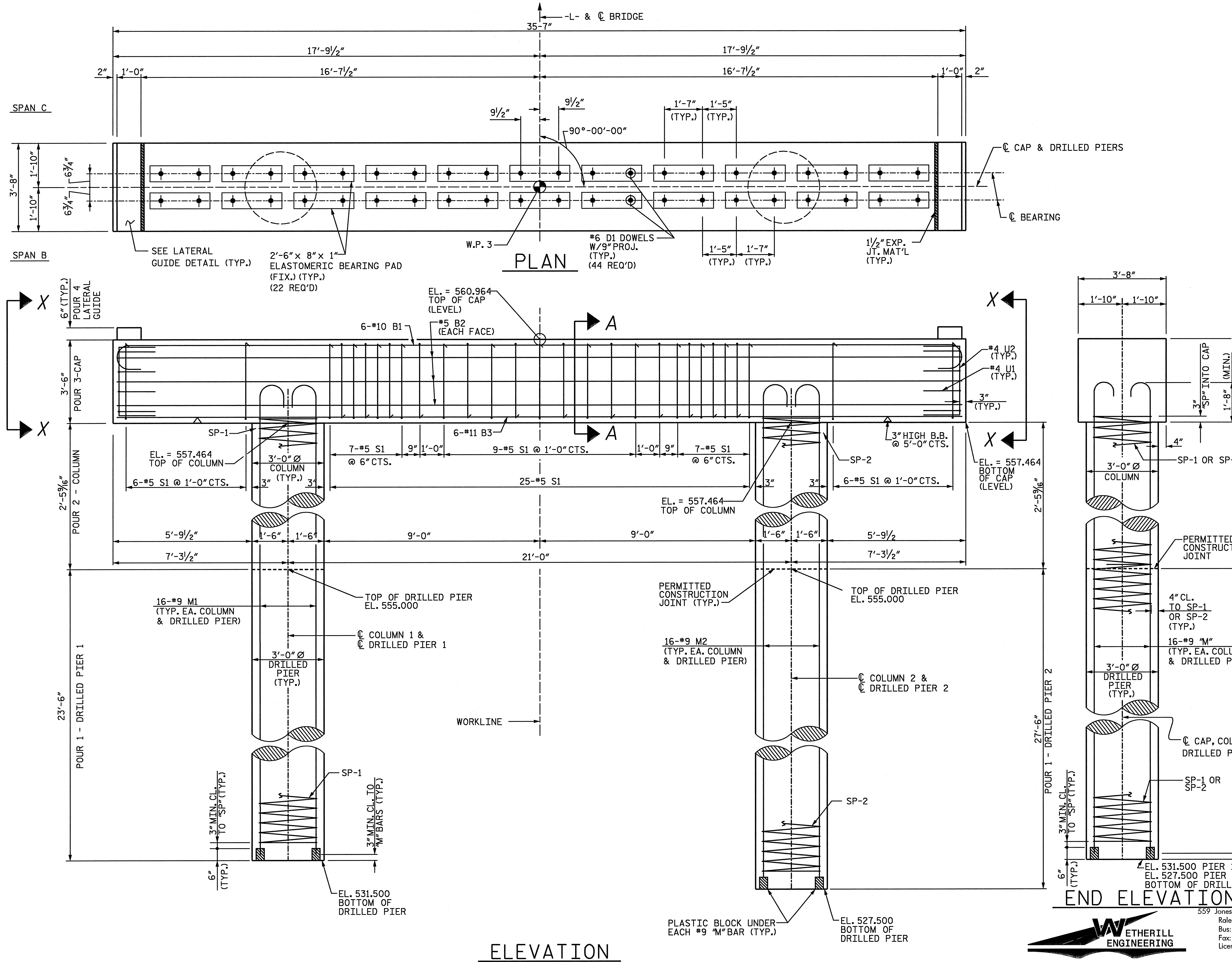

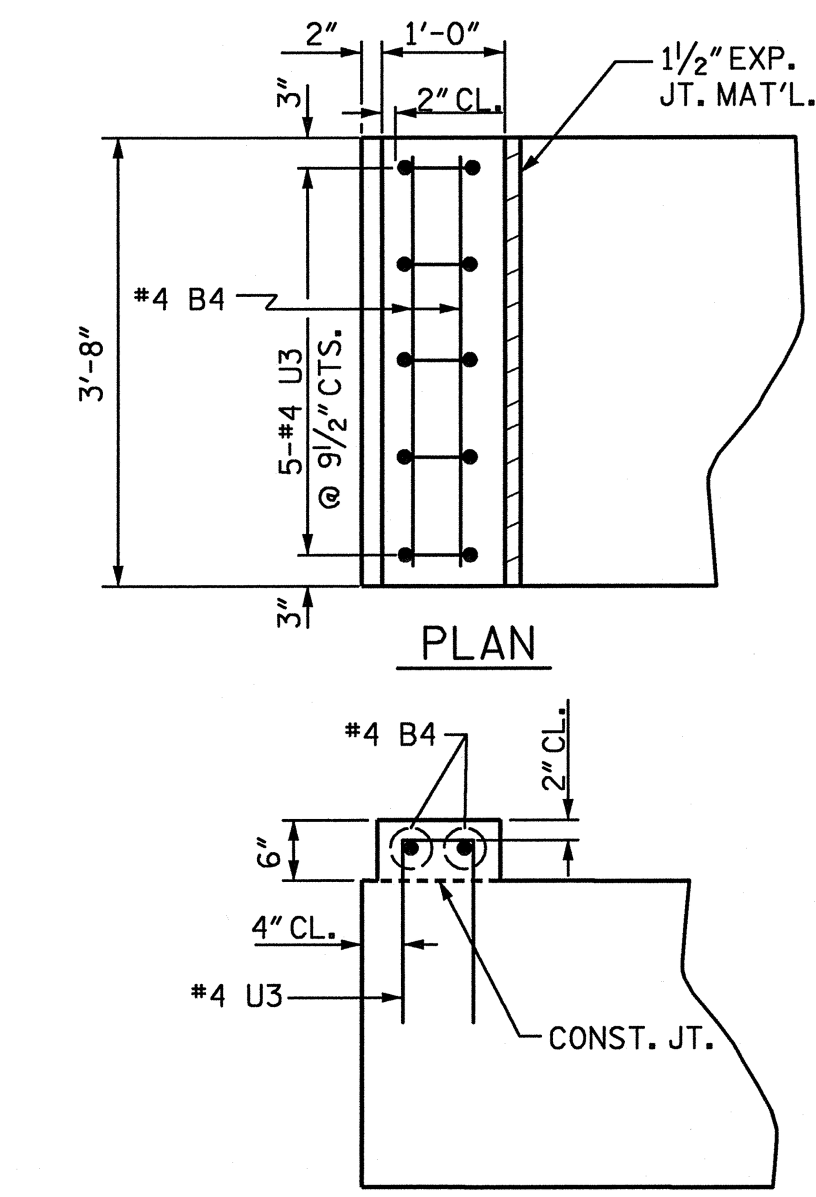

NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEM FOR "PLACEMENT OF SUBSTRUCTURE".

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

INVERT ALTERNATE STIRRUPS.

THE LATERAL GUIDE AT EACH END OF THE CAP SHALL NOT BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

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

LATERAL GUIDE DETAIL
(EACH END SIMILAR)

NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH 6/7/10

WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 2

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-11
1			3				TOTAL SHEETS
2			4				15

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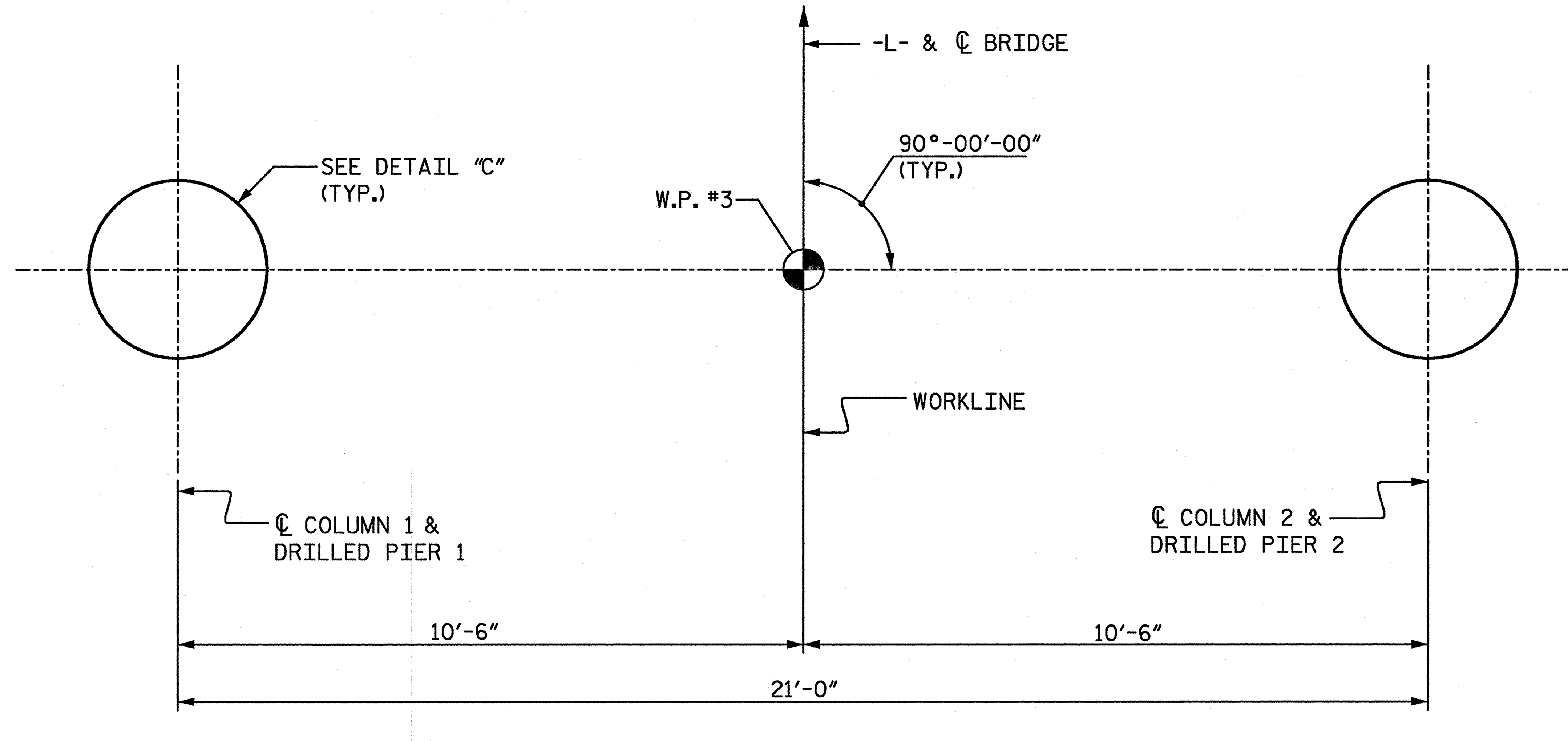
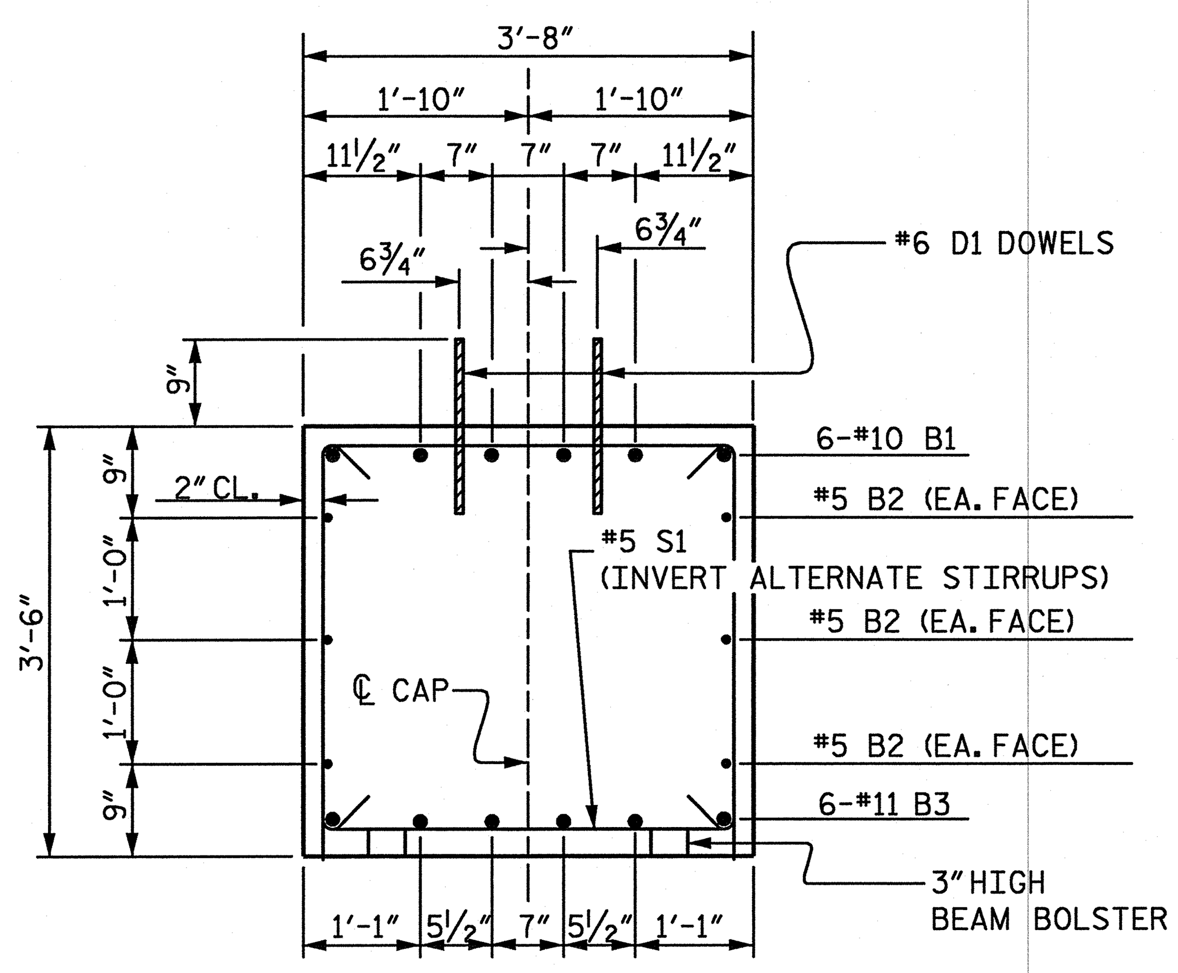
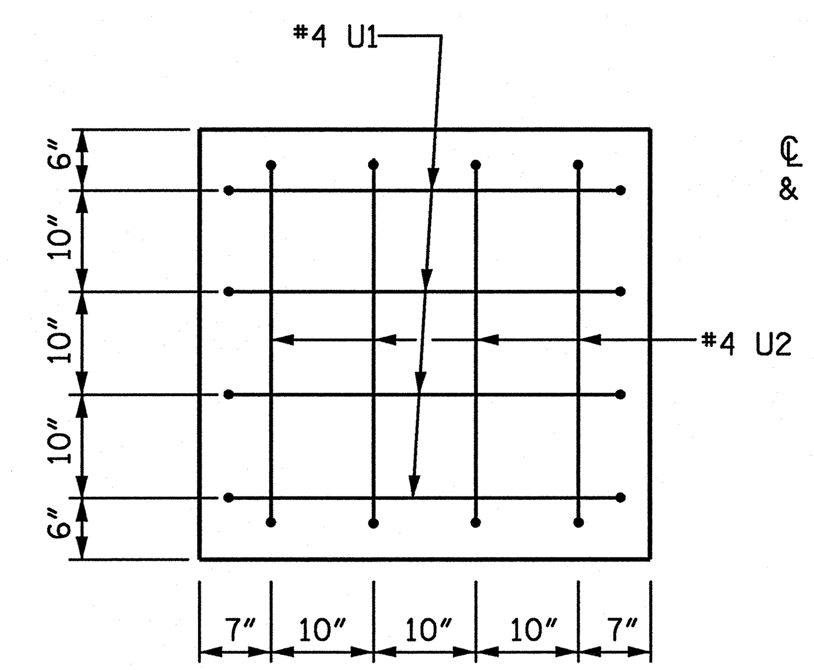


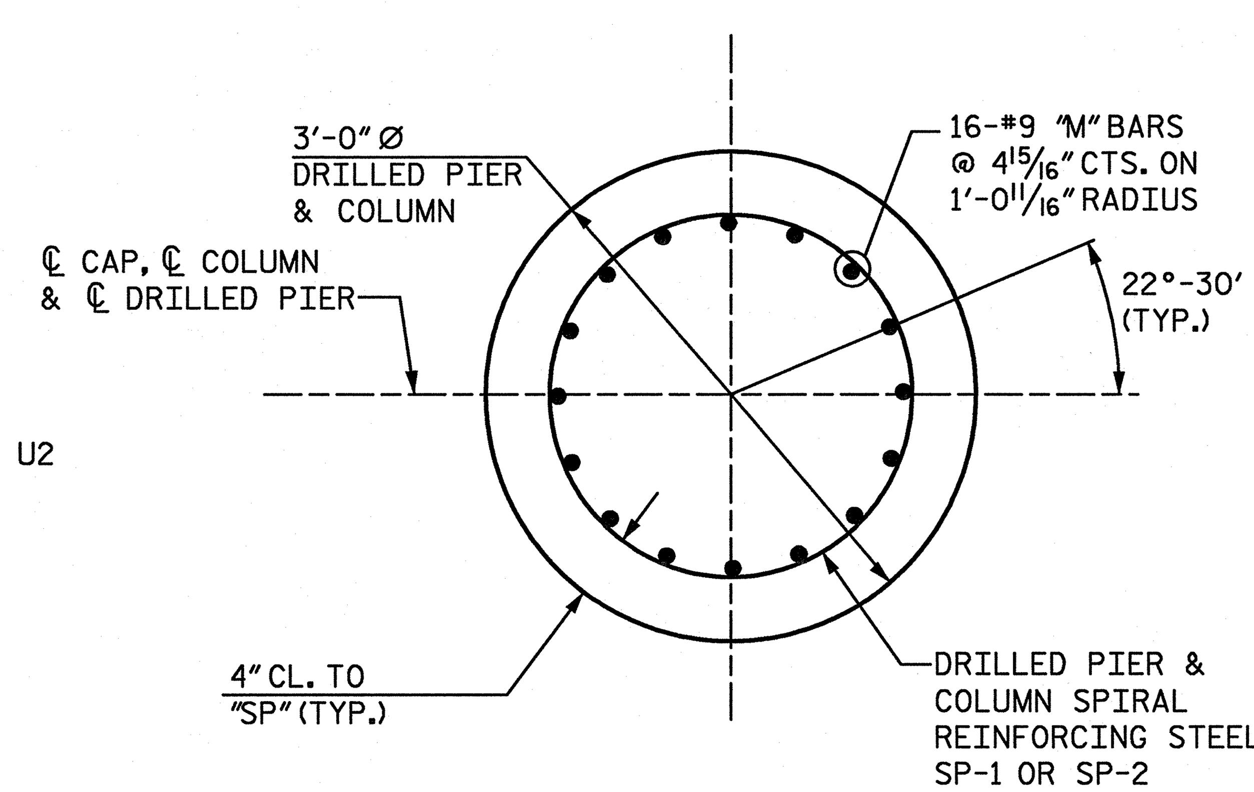
PLAN OF COLUMNS & DRILLED PIERS



SECTION A-A

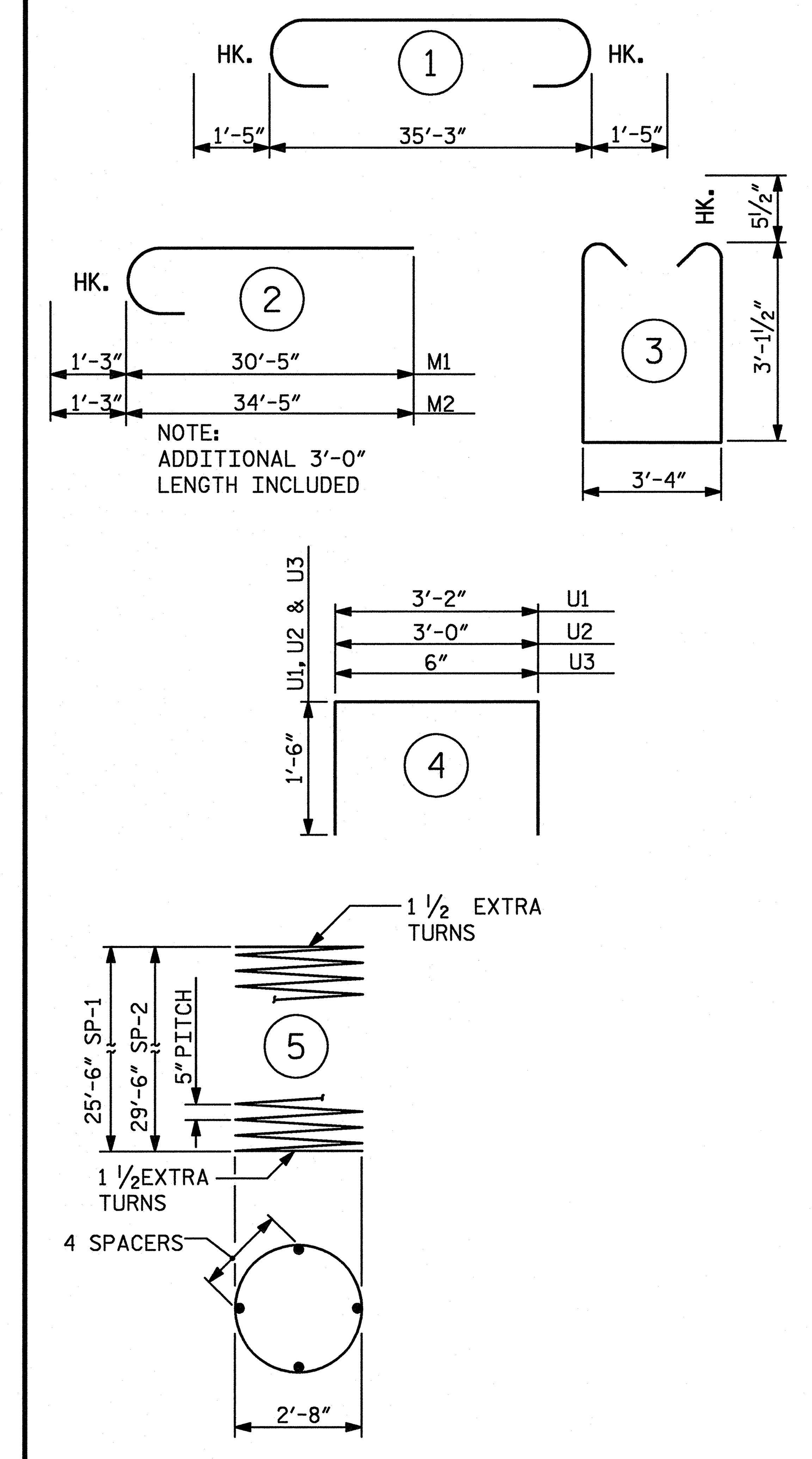


END VIEW X-X



DETAIL "C"

BAR TYPES



(ALL BAR DIMENSIONS ARE OUT TO OUT.)

✳ THE SP-1 & SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

BILL OF MATERIAL

BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	1	38'-1"	983
B2	6	#5	STR	35'-3"	221
B3	6	#11	STR	35'-3"	1124
B4	4	#4	STR	3'-4"	9
D1	44	#6	STR	1'-6"	99
M1	16	#9	2	31'-8"	1723
M2	16	#9	2	35'-8"	1940
S1	37	#5	3	10'-6"	405
U1	8	#4	4	6'-2"	33
U2	8	#4	4	6'-0"	32
U3	10	#4	4	3'-6"	23
REINFORCING STEEL					6592 LBS.
SP-1	1	✳	5	460'-11"	481
SP-2	1	✳	5	529'-10"	553
SPIRAL DRILLED PIER & COLUMN REINFORCING STEEL					1034 LBS.

CLASS A CONCRETE BREAKDOWN	
POUR 2 (COLUMNS)	1.3 C.Y.
POUR 3 (CAP)	16.9 C.Y.
POUR 4 (LATERAL GUIDES)	0.1 C.Y.
TOTAL CLASS A CONCRETE	18.3 C.Y.

3'-0"Ø DRILLED PIERS

DRILLED PIER CONCRETE	
POUR 1 (DRILLED PIERS)	13.4 C.Y.
3'-0"Ø DRILLED PIERS IN SOIL :	26.00 LIN. FT.
3'-0"Ø DRILLED PIERS NOT IN SOIL :	25.00 LIN. FT.
PERMANENT STEEL CASING FOR 3'-0"Ø DRILLED PIER:	18.80 LIN. FT.

NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH 6-17-10

WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 2

WETHERILL ENGINEERING

559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
License No. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-12
1			3					TOTAL SHEETS
2			4					15

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CHECKED BY : J.A. DILWORTH DATE : 12/09

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NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

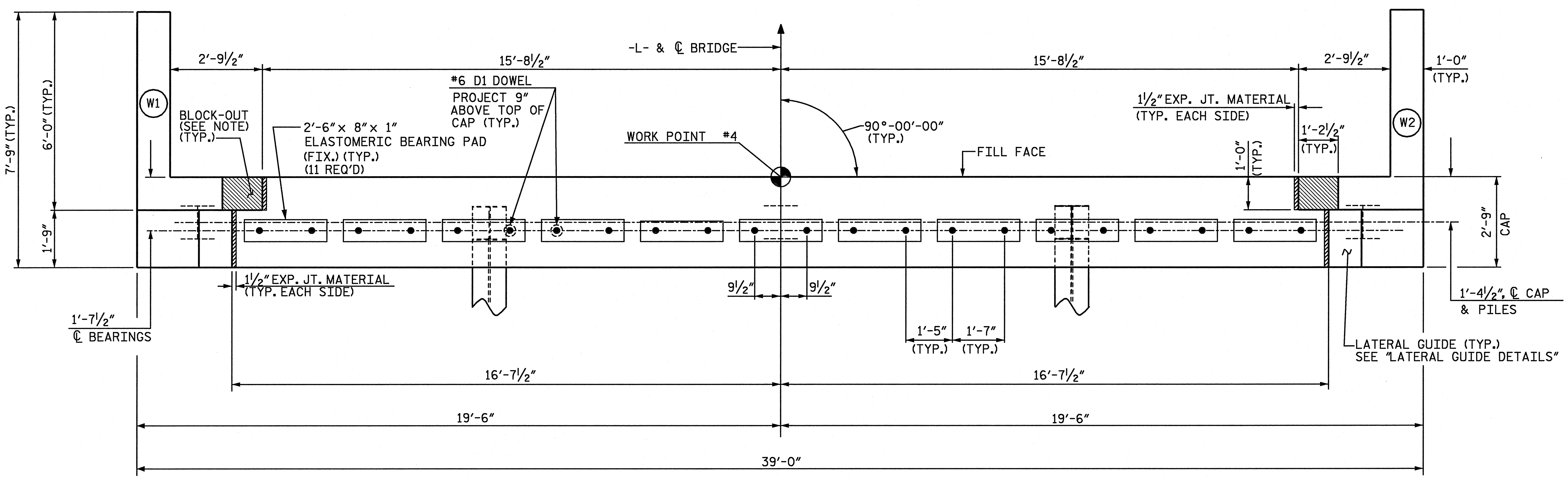
FOR SECTION A-A, SEE END BENT 1 SHEET 2 OF 3.

FOR MISC. DETAILS, SEE END BENT 1 SHEET 2 OF 3.

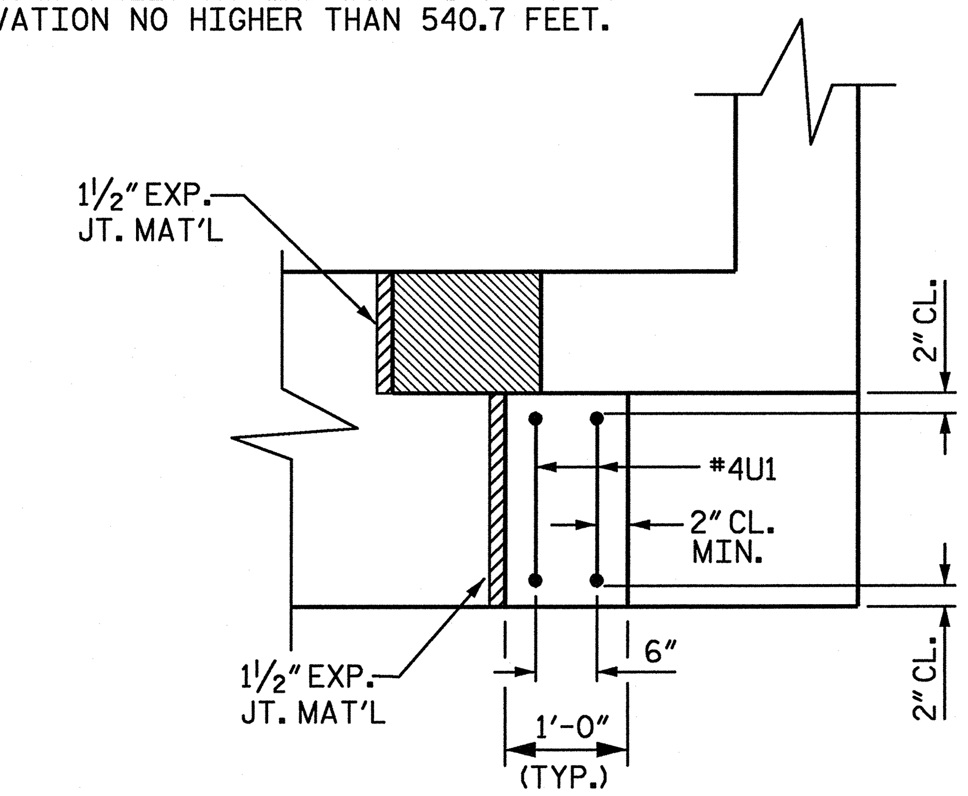
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

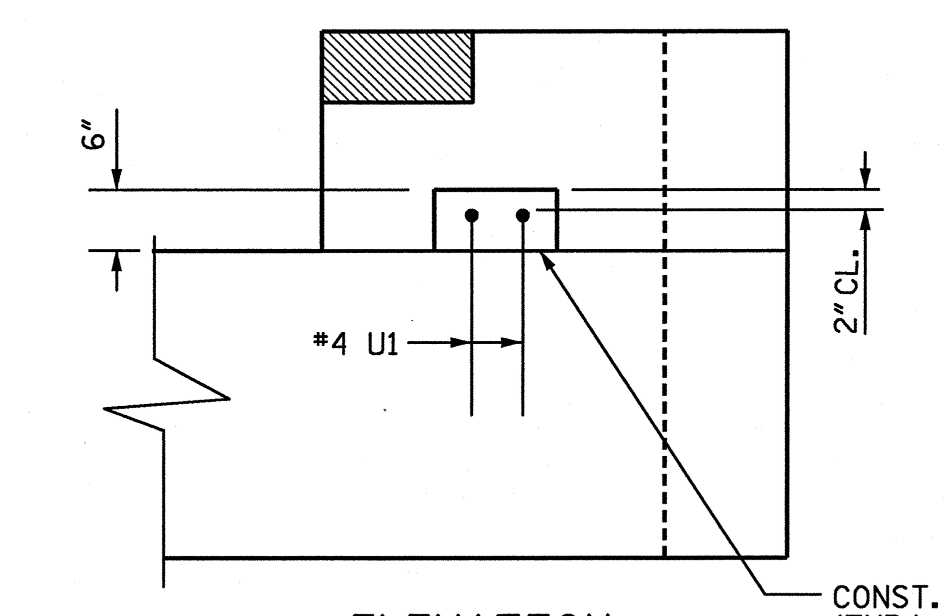
INSTALL PILES AT END BENT 2 TO A TIP ELEVATION NO HIGHER THAN 540.7 FEET.



PLAN

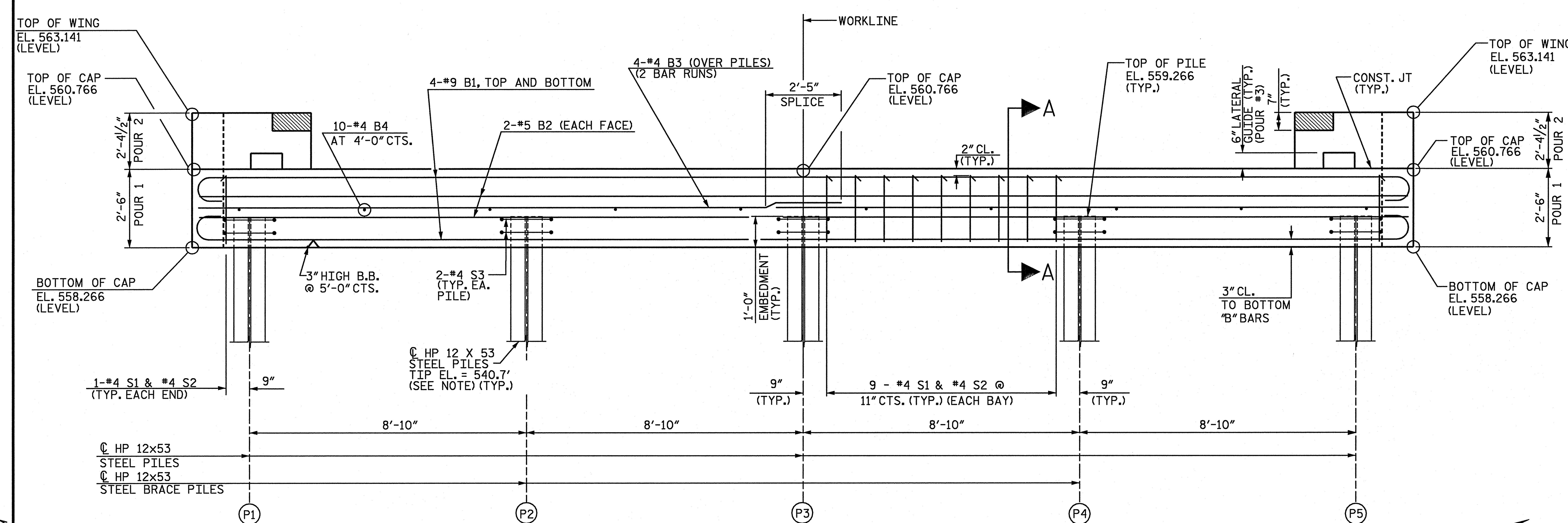


PLAN



ELEVATION

LATERAL GUIDE DETAILS



ELEVATION

NOTE: ALL PILES ARE HP 12x53 GALVANIZED STEEL PILES.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22072 JOHN ARTHUR DILWORTH 6-17-10

WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2

WETHERILL ENGINEERING

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License No. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		S-13
1				3				TOTAL SHEETS
2				4				15

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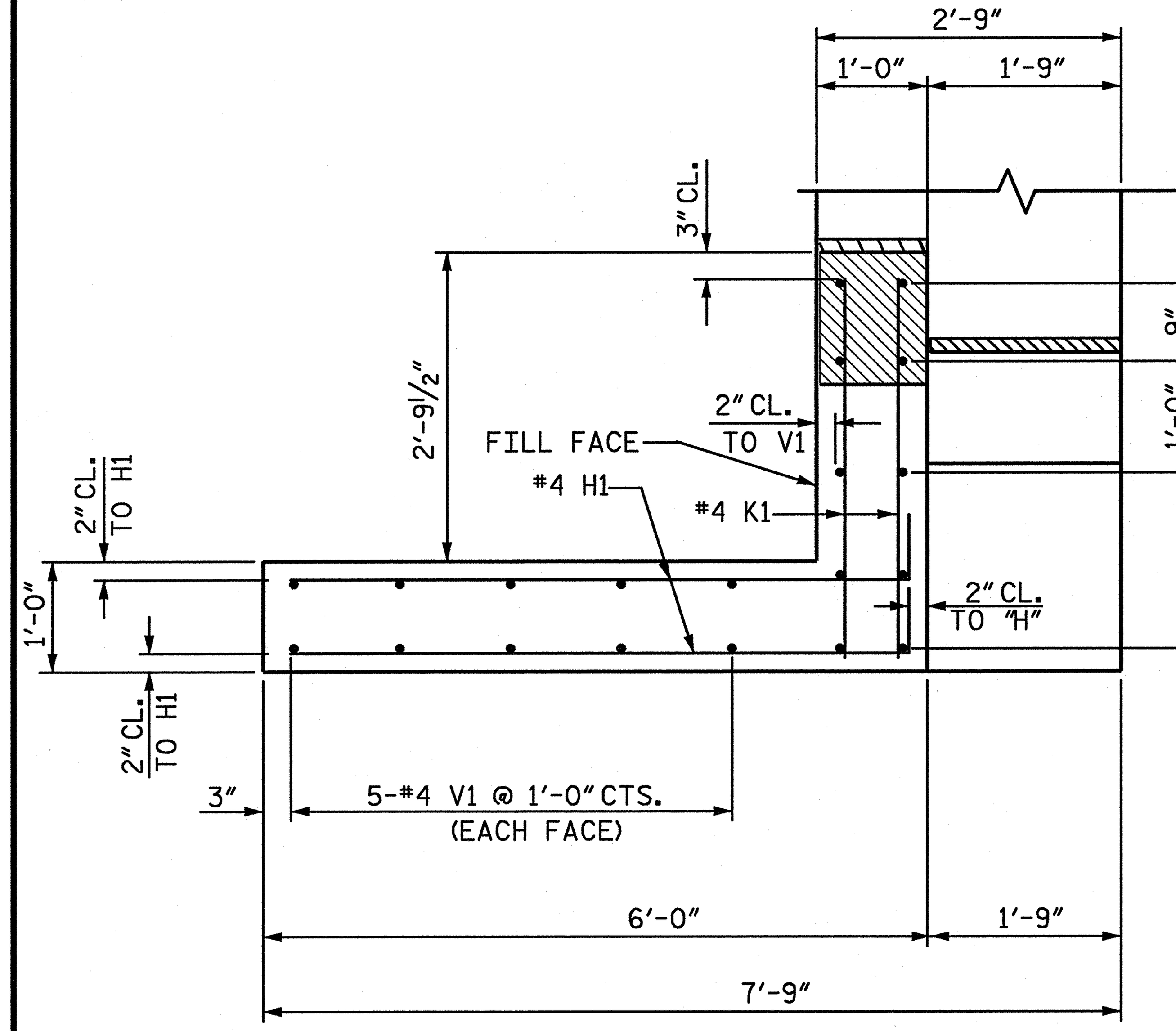
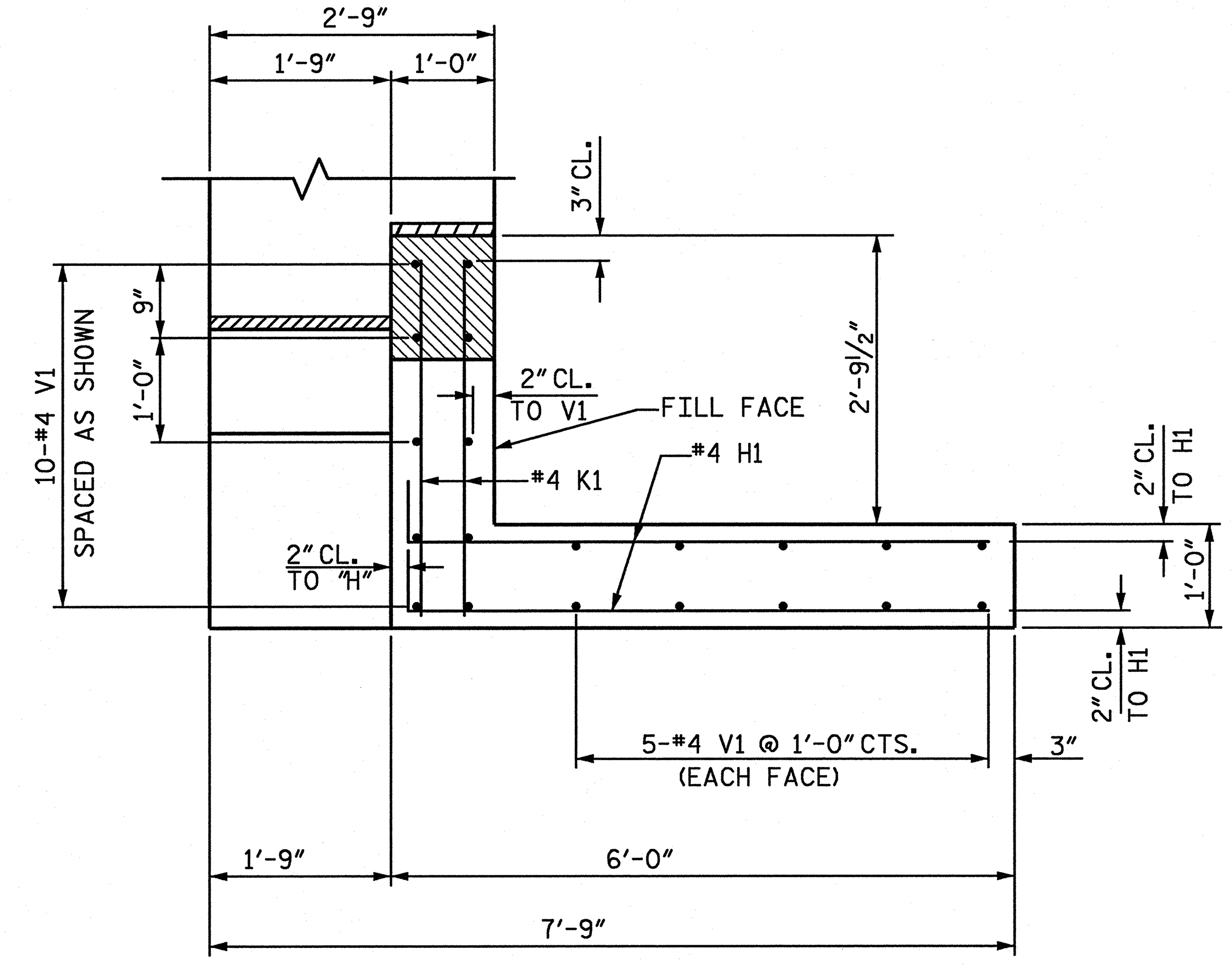
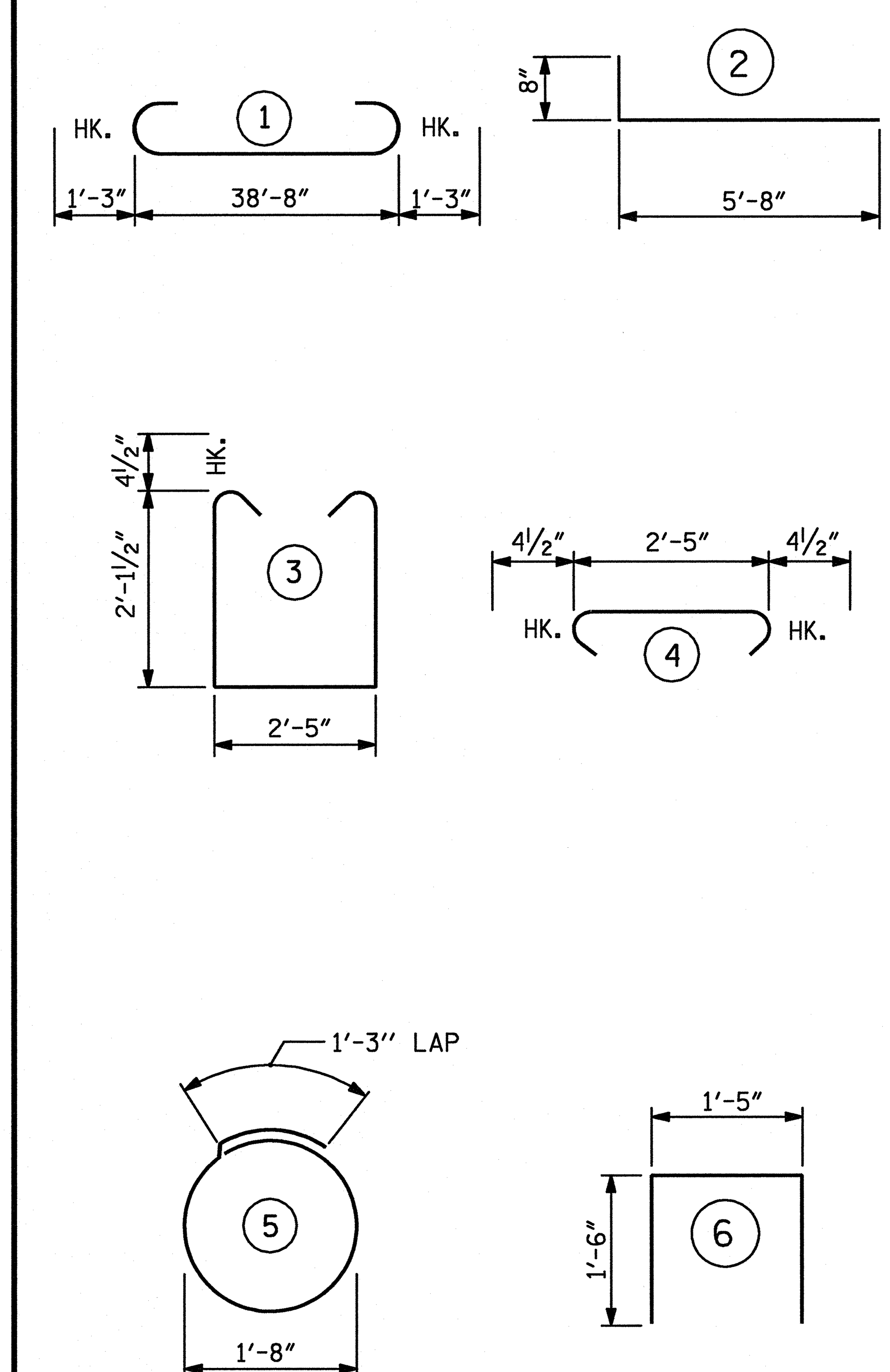


PLAN OF WING W1



PLAN OF WING W2

BAR TYPES



(ALL BAR DIMENSIONS ARE OUT TO OUT.)

BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-2"	1120
B2	4	#5	STR	38'-8"	161
B3	8	#4	STR	20'-7"	110
B4	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	24	#4	2	6'-4"	102
K1	12	#4	STR	3'-5"	27
S1	38	#4	3	7'-5"	188
S2	38	#4	4	3'-2"	80
S3	10	#4	5	6'-6"	43
U1	4	#4	6	4'-5"	12
V1	40	#4	STR	4'-5"	118

REINFORCING STEEL = 2027 LBS

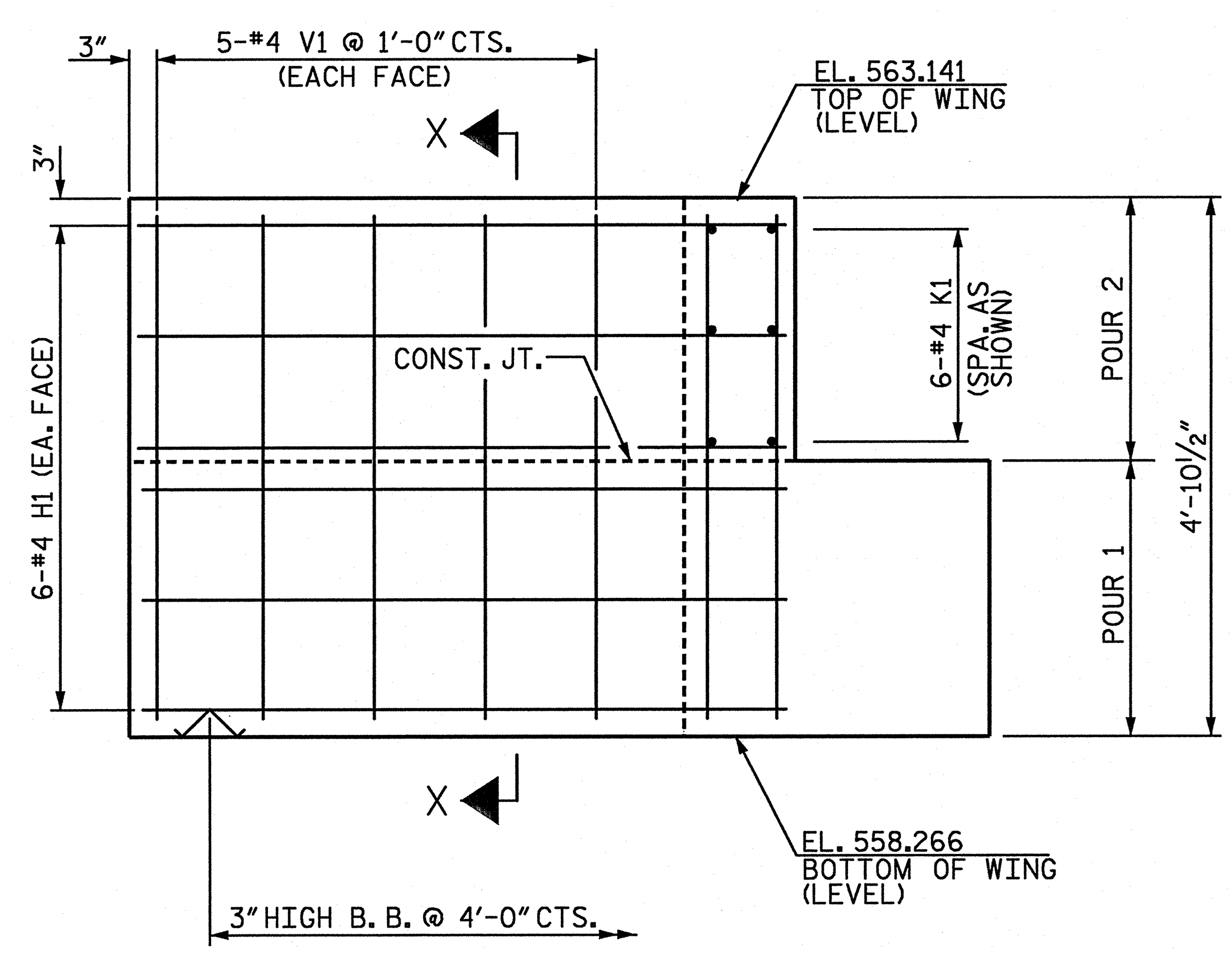
CLASS A CONCRETE

POUR 1	CAP & LOWER PART OF WINGS	C.Y. 10.9
POUR 2	UPPER PART OF WINGS	C.Y. 1.6
POUR 3	LATERAL GUIDES	C.Y. 0.1
	TOTAL	C.Y. 12.6

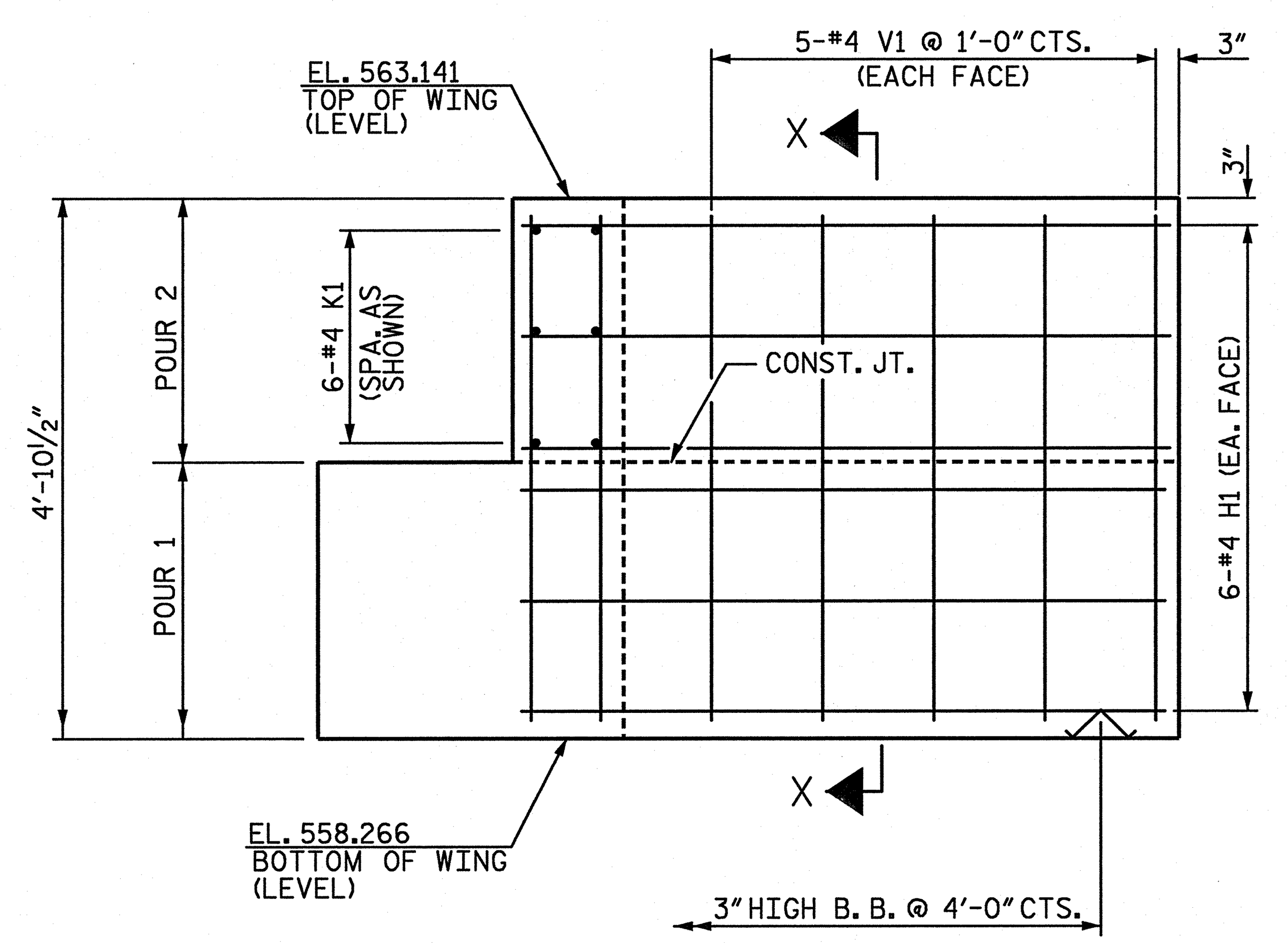
HP 12 X 53 GALVANIZED STEEL PILES NO. 5 (LIN. FT.) 100

PILE EXCAVATION IN SOIL 55 LF

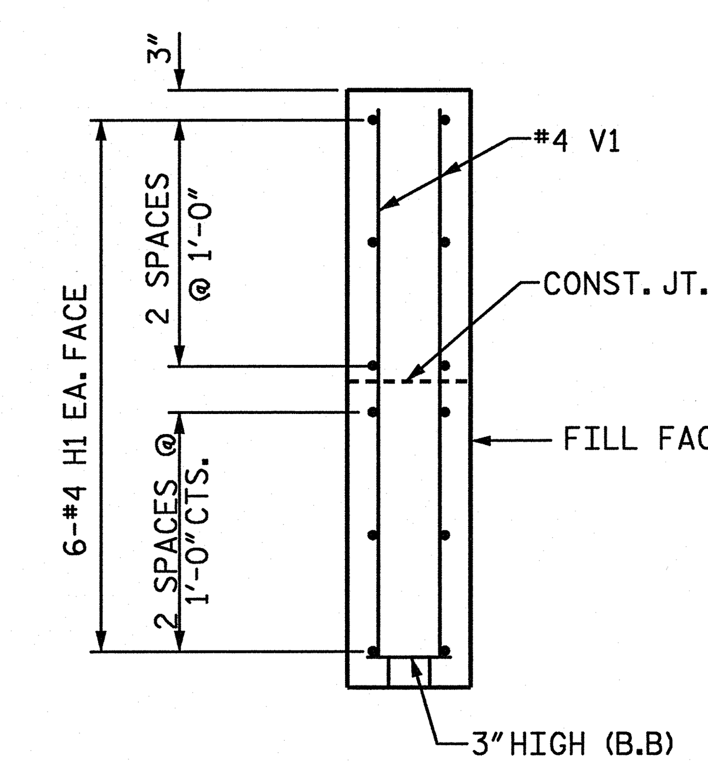
PILE EXCAVATION NOT IN SOIL 45 LF



ELEVATION OF WING W1



ELEVATION OF WING W2



SECTION X-X

NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH 6-17-10

WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

SHEET 2 OF 2

WETHERILL ENGINEERING
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2

REVISIONS

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

SHEET NO. S-14

TOTAL SHEETS 15

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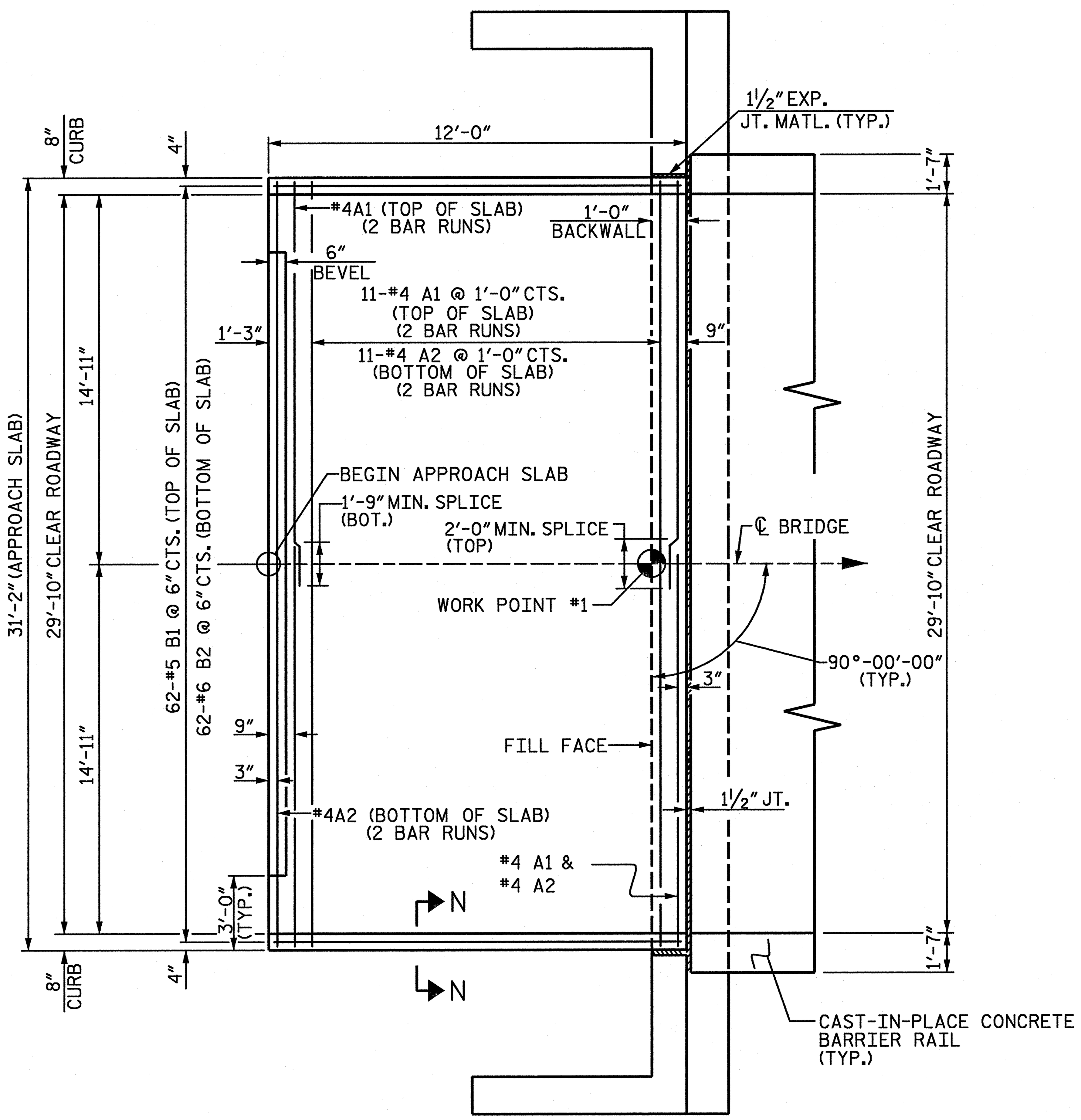


PLAN OF APPROACH SLAB @ END BENT 1

(END BENT 2 SIMILAR)

NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4"Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY STANDARDS 422.10.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

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

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

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

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

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED WITH 4" OF INTERMEDIATE OR SURFACE COURSE ASPHALT.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

FOR JOINT DETAILS, SEE "3'-0" × 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT" SHEET.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

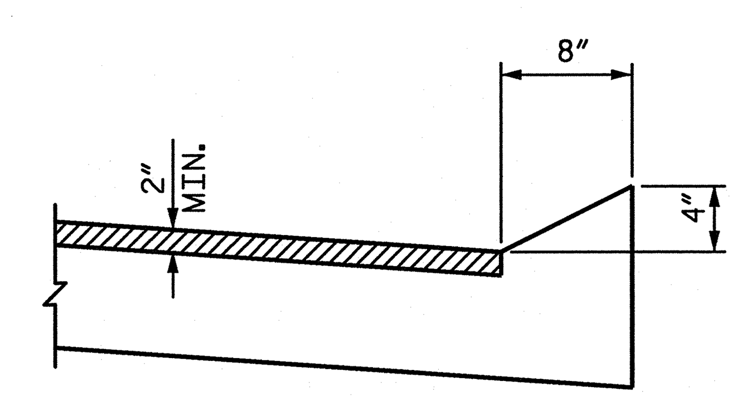
WORK SHOWN ON THIS DRAWING WILL BE PAID UNDER THE LUMP SUM PRICE FOR APPROACH SLABS.

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR APPROACH SLABS, SEE ROADWAY STANDARD 1622.01.

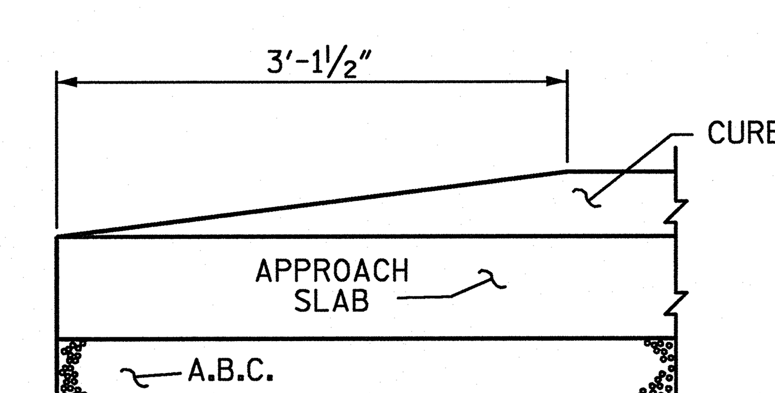
BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	16'-5"	285
A2	26	#4	STR	16'-4"	284
* B1	62	#5	STR	11'-2"	722
B2	62	#6	STR	11'-8"	1086
REINFORCING STEEL				LBS.	1370
* EPOXY COATED REINFORCING STEEL				LBS.	1007
CLASS AA CONCRETE				C. Y.	15.5

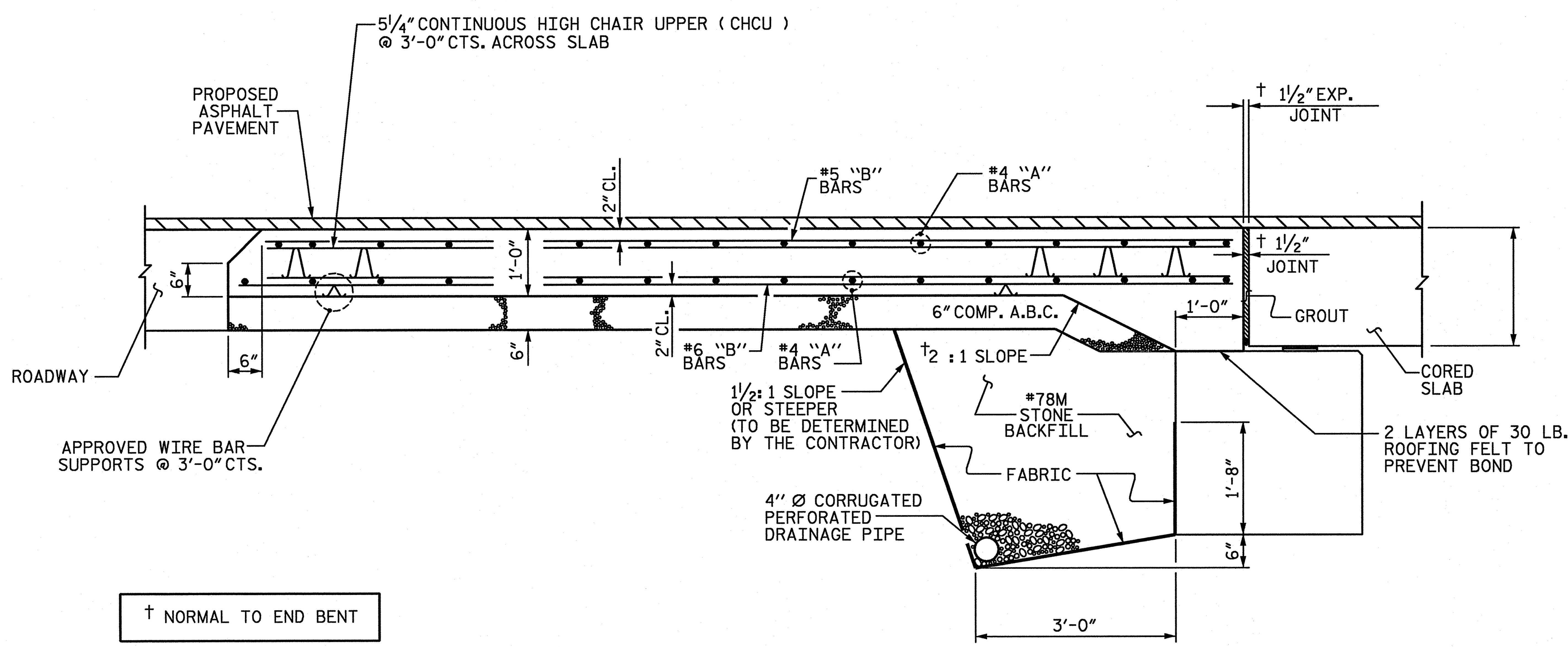


SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS



† NORMAL TO END BENT

SECTION THRU SLAB

WBS NO. 42817.1.1

PERSON COUNTY

STATION: 15+74.26

REPLACES BRIDGE NO. 93

559 Jones Franklin Rd. Suite 164
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB
(SUB-REGIONAL TIER)

STD. NO. BAS13

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

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CHECKED BY : J.A. DILWORTH DATE : 12/09

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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8"Ø SHEAR STUDS FOR THE 3/4"Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8"Ø STUDS FOR 4 - 3/4"Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8"Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4"Ø STUDS BASED ON THE RATIO OF 3 - 7/8"Ø STUDS FOR 4 - 3/4"Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

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