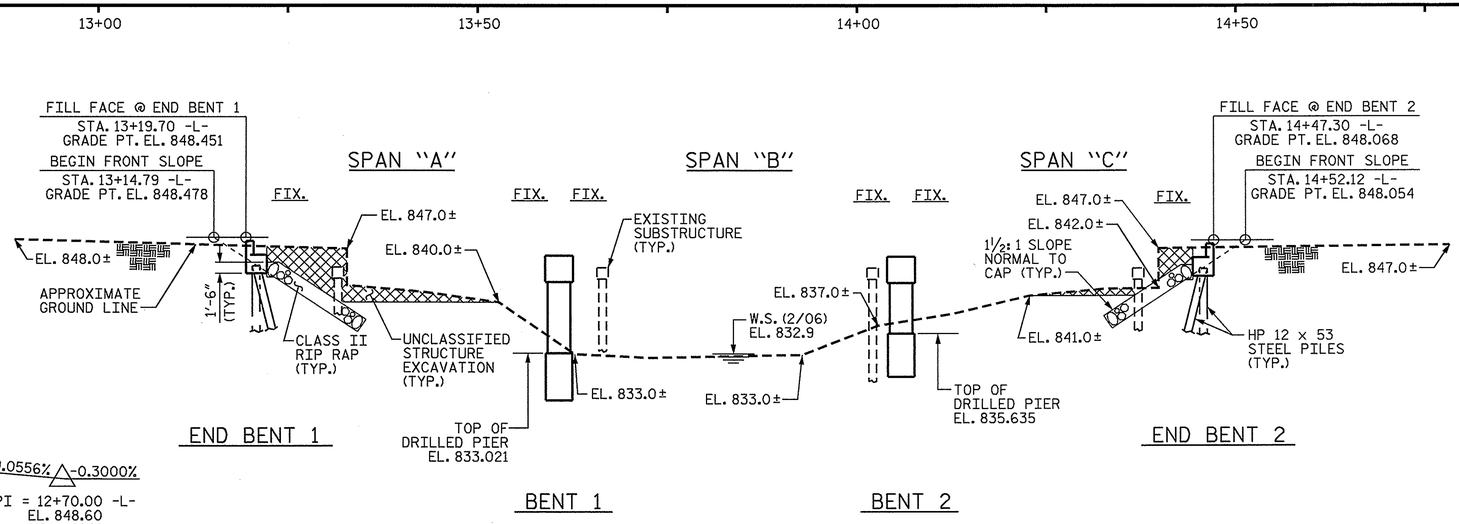
B-4573 + 33777

#183 + LINCOLN



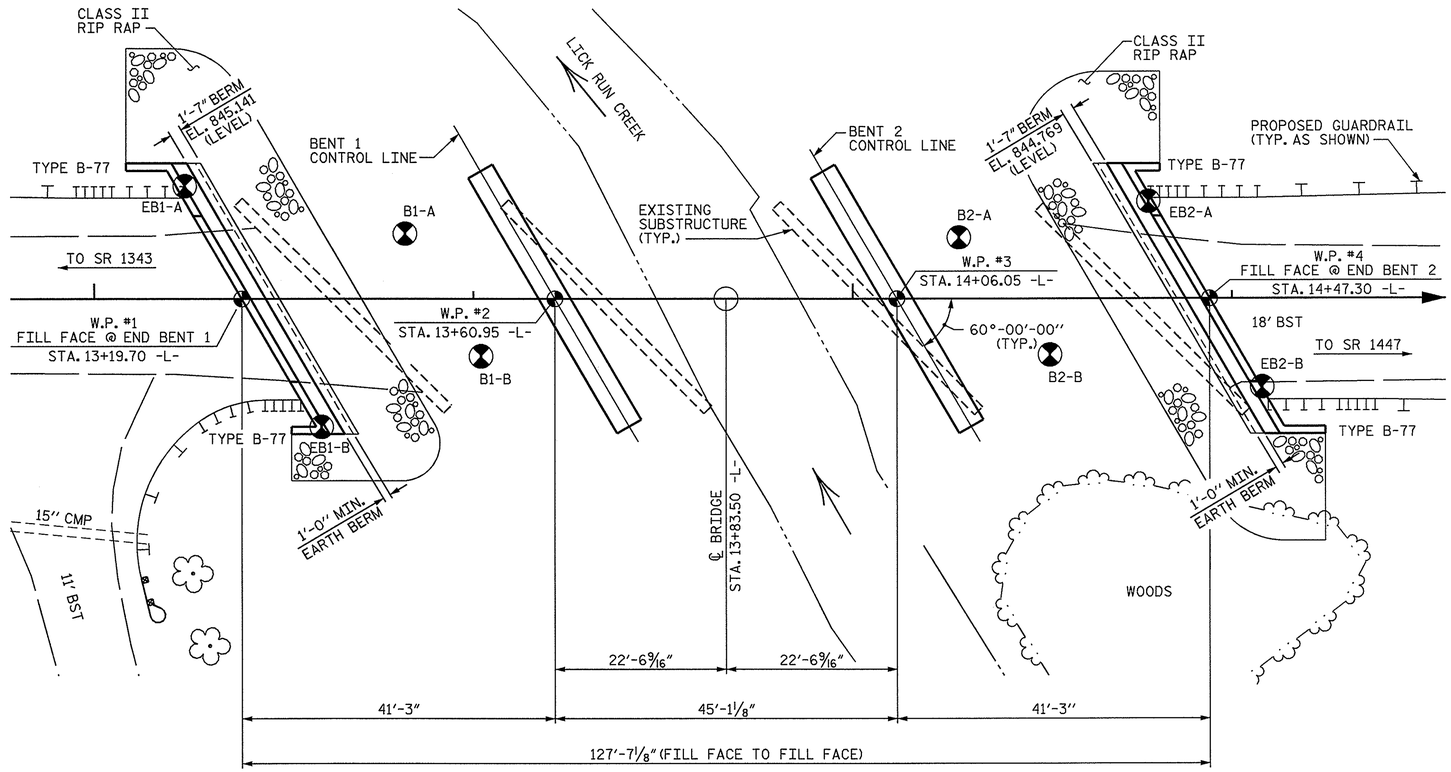
-9.0556% -0.3000%

PI = 12+70.00 -L-
EL. 848.60
VC = 100'

GRADE DATA -L-

SECTION ALONG -L-

SECTION @ END BENTS & BENTS ARE @ RIGHT ANGLES.



PLAN

DENOTES GEOTECH BORING HOLE LOCATIONS.

NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT THAT CORED SLAB UNITS HAVE BEEN DESIGNED FOR HS25.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

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

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE MATERIAL SHOWN IN THE CROSS HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 20 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR UNCLASSIFIED STRUCTURE EXCAVATION.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.

SEE SPECIAL PROVISIONS FOR:
- SUBMITTAL OF WORKING DRAWINGS
- FALSEWORK AND FORMWORK
- CRANE SAFETY
- GROUT FOR STRUCTURES
- PRESTRESSED CONCRETE MEMBERS.

DRIVE PILES AT END BENTS 1 & 2 TO A REQUIRED BEARING CAPACITY OF 120 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENTS 1 & 2 IS 60 TONS PER PILE.

DRILLED PIERS AT BENT 1 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 20 TSF.

DRILLED PIERS AT BENT 2 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 35 TSF (LEFT) AND 20 TSF (RIGHT).

DRILLED PIERS AT BENTS 1 & 2 ARE DESIGNED FOR AN APPLIED LOAD OF 154 TONS EACH AT THE TOP OF THE COLUMN.

INSTALL DRILLED PIERS AT BENT 1 TO AN ELEVATION NO HIGHER THAN 827 FEET AND SATISFY THE REQUIRED END BEARING CAPACITY.

INSTALL DRILLED PIERS AT BENT 2 TO AN ELEVATION NO HIGHER THAN 830 FEET AND SATISFY THE REQUIRED END BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS 832 FEET (LEFT) AND 831.5 FEET (RIGHT). SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT 2 IS 835 FEET (LEFT) AND 834.5 FEET (RIGHT). SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISION.

SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. SEE CROSSHOLE SONIC LOGGING SPECIAL PROVISION.

	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	127	142
END BENT 2	94	104

EXISTING BRIDGE NO. 183
(TO BE REMOVED)

24.2' CLEAR ROADWAY, 3 SPANS (35'-3", 35'-0", 35'-3")
SUPERSTRUCTURE: TIMBER DECK ON I-BEAMS
SUBSTRUCTURE: TIMBER CAPS AND PILES

BM #1: 78.57' LT.
STA. 12+68.94 -L-,
EL. 842.78

NORTH CAROLINA PROFESSIONAL SEAL 9804 ENGINEER ROY M. GINDLAM
9-29-08

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON
9/29/08

PROJECT NO. 33777
LINCOLN COUNTY
STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER
LICK RUN CREEK ON
SR 1346 BETWEEN
SR 1343 AND SR 1447

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	1
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.S. CALLAWAY DATE : 2/20/08
CHECKED BY : L.E. SUTTON DATE : 7/08/08

26-SEP-2008 10:38
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LSUTTON

RD226363 7/8/2008 b4573_rdy_pshF mjjacobs RD-Oce34

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
33777	3

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16903 ENGINEER GREGORY E. BREW 7-8-08

HYDRAULICS ENGINEER

BM #1
-L- STA. 12+68.94 78.57' LT
-BL- STA. 7+29.00 83' LT
ELEV. = 842.78

BM#2
-BL-STA. 17+03.00 26' LT
ELEV. = 880.66

BEGIN GRADE
-L- STA 12+20.00
ELEV. = 853.13

-L-

END GRADE
-L- STA. 15+75.00
ELEV. = 848.84

PI = 12+70.00
EL = 848.60'
VC = 100'
K = 11

PI = 15+35.00
EL = 847.81'
VC = 50'
K = 17

853.13

848.84

(-)9.0526%

(-)0.3000%

(-)0.3000%

(+)2.4500%

920 910 900 890 880 870 860 850 840 830 820 810 800 790 780 770 760

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

08-JUL-2008 10:22
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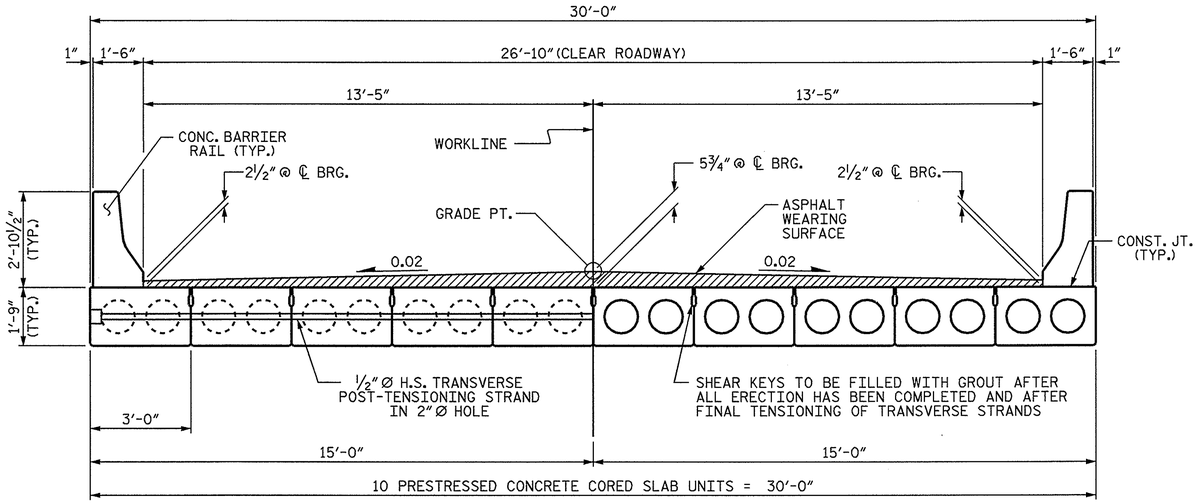
$$$$USERNAME$$$$

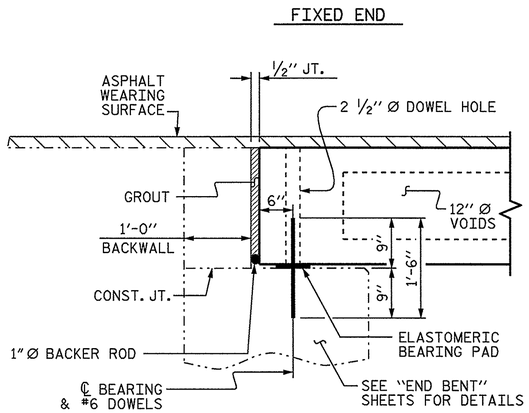
RD226363 7/8/2008 b4573_rdy_pfl mjjacobs RD-Oce34



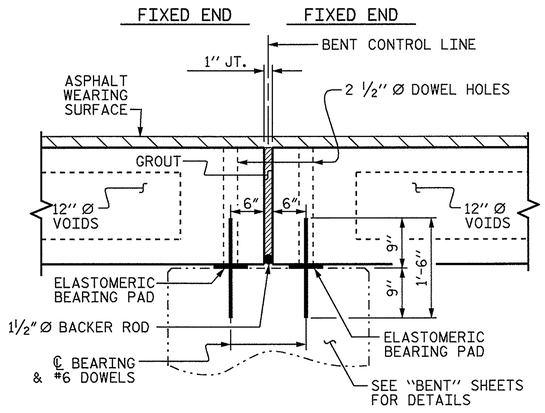
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

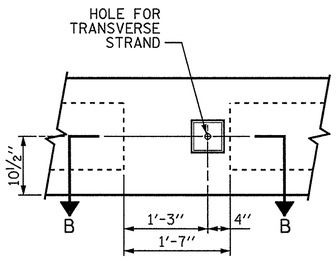
TYPICAL SECTION



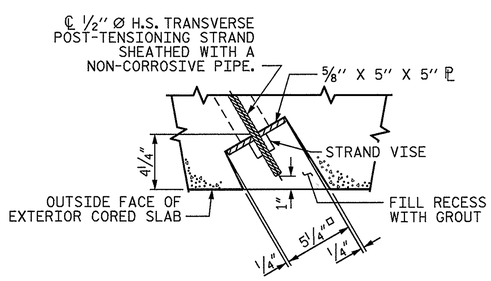
SECTION AT END BENT



SECTION AT BENT

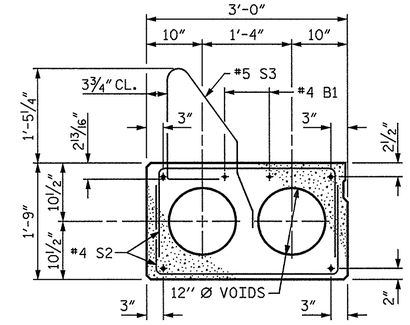


ELEVATION VIEW

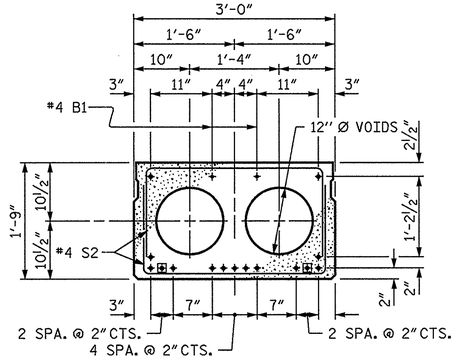


SECTION B-B

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



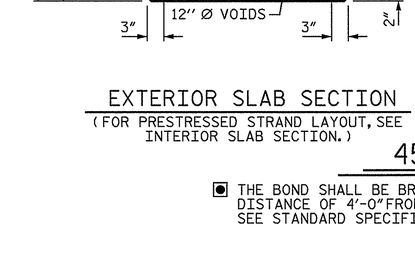
EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



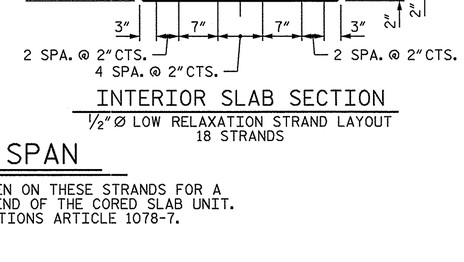
INTERIOR SLAB SECTION
½" Ø LOW RELAXATION STRAND LAYOUT
15 STRANDS

40' SPAN

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



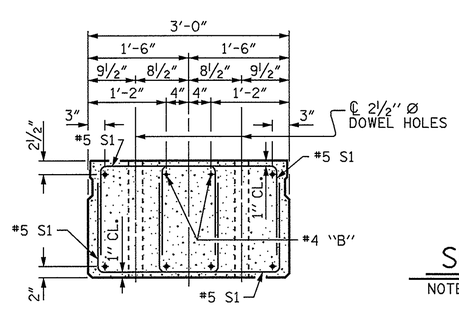
EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION
½" Ø LOW RELAXATION STRAND LAYOUT
18 STRANDS

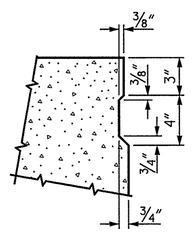
45' SPAN

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



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.

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON
7/15/08

PROJECT NO. 33777
LINCOLN COUNTY
STATION: 13+83.50 -L-
REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	4
1			3			TOTAL SHEETS
2			4			27

ASSEMBLED BY : A.S. CALLAWAY	DATE : 2/20/08	
CHECKED BY : L.E. SUTTON	DATE : 5/16/08	
DRAWN BY : WJH 4/89	REV. 10/17/00	RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/01RR	RWW/LES
	REV. 5/1/06	TLA/GM

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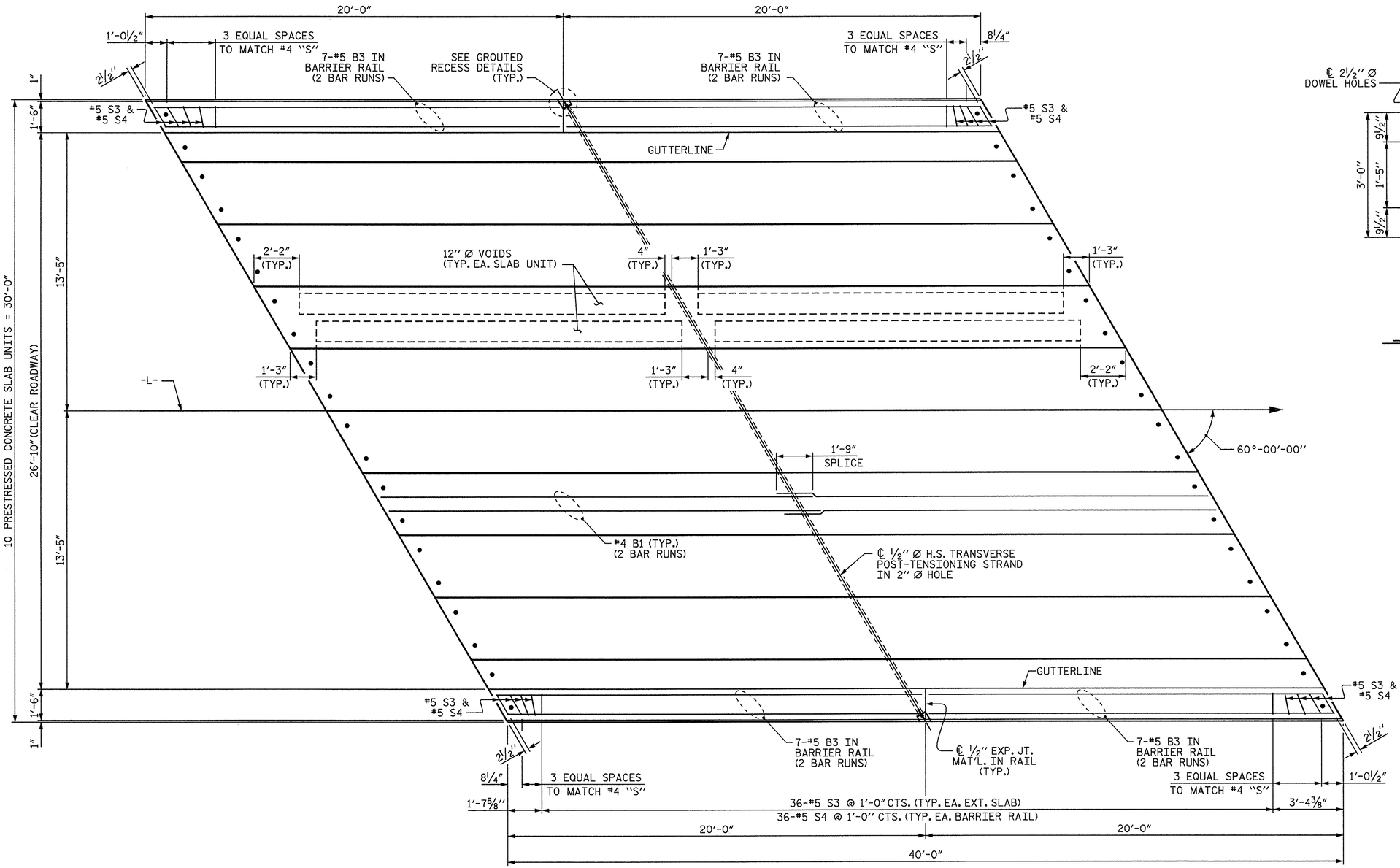
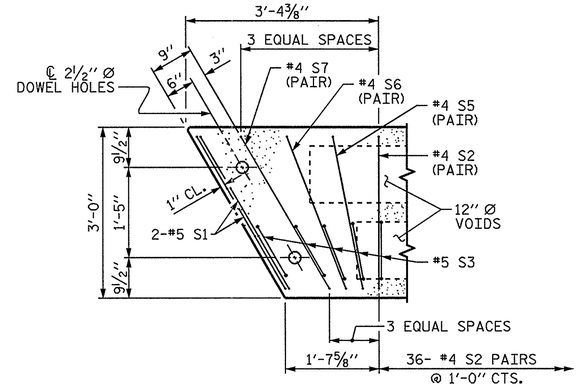
LSUTTON

STD. NO. PCS2



PLAN OF SPAN
SPANS "A" & "C"



PART PLAN - SLAB SECTION
NOTE: EXTERIOR SECTION SHOWN - INTERIOR SECTION SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN
26'-10" CLEAR ROADWAY
60° SKEW - 40' SPAN

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON
7/15/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.S. CALLAWAY DATE : 2/20/08
CHECKED BY : L.E. SUTTON DATE : 5/16/08

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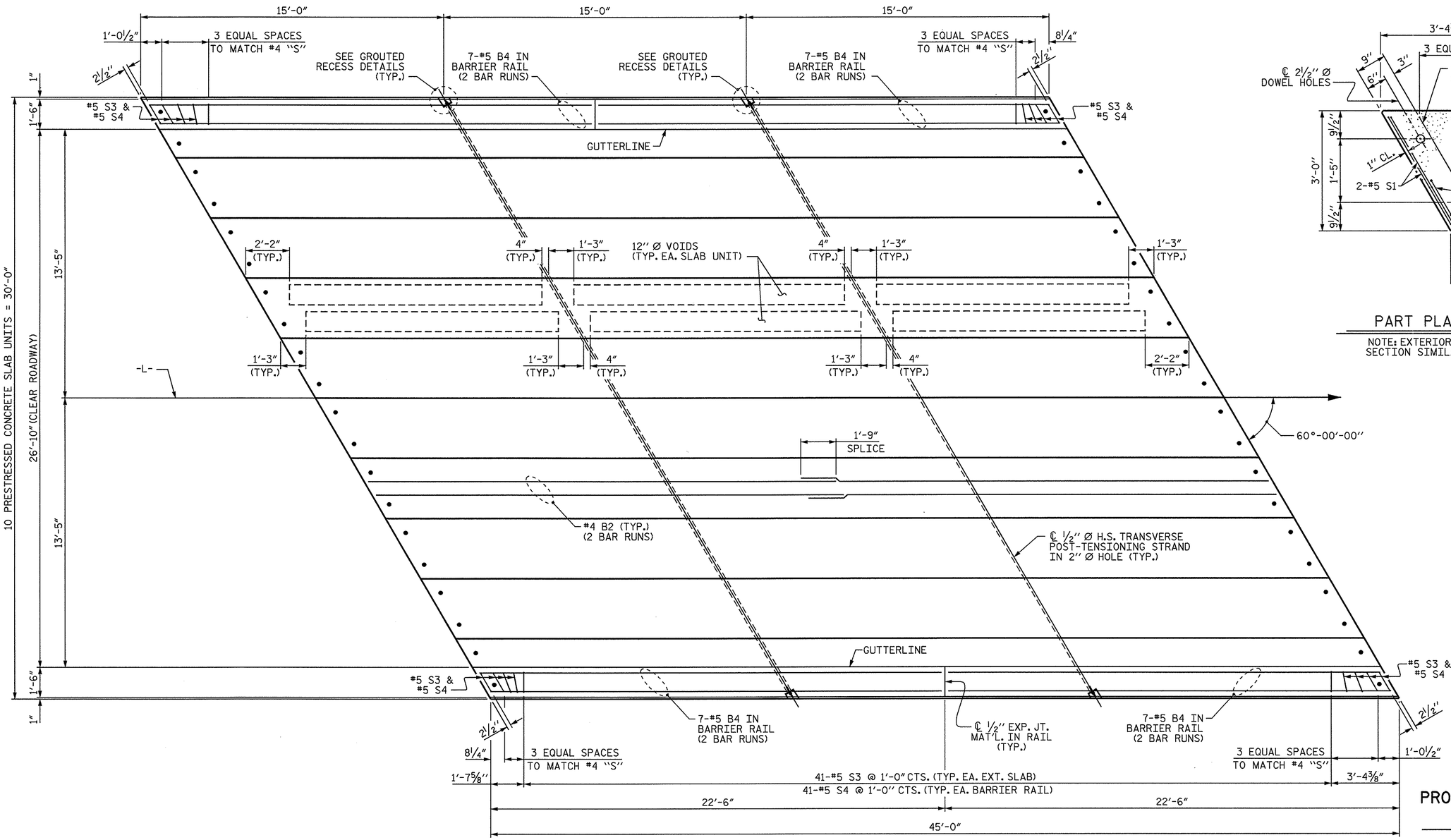

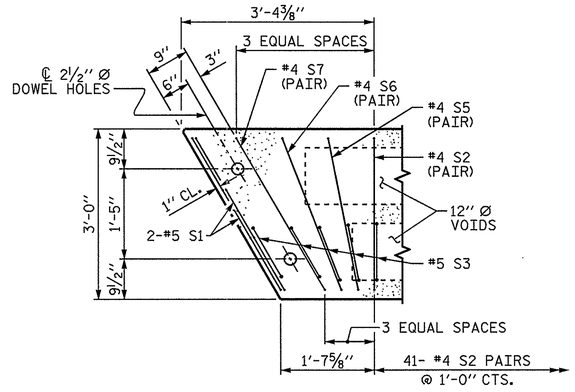

PART PLAN - SLAB SECTION

NOTE: EXTERIOR SECTION SHOWN - INTERIOR SECTION SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF SPAN

SPAN "B"

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN
26'-10" CLEAR ROADWAY
60° SKEW - 45' SPAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	6
1			3			TOTAL SHEETS
2			4			27

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON

DRAWN BY : A.S. CALLAWAY DATE : 2/20/08
CHECKED BY : L.E. SUTTON DATE : 5/16/08

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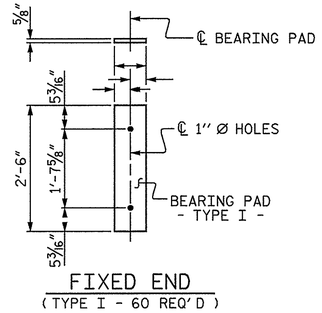


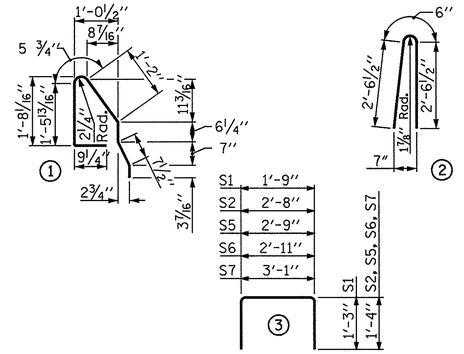
FIXED END
(TYPE I - 60 REQ'D)

ELASTOMERIC BEARING DETAILS

GRADE 270 STRANDS	
	½" Ø L.R.
AREA (SQUARE INCHES)	0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980

CORED SLAB UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
40' SPAN			
EXTERIOR C.S.	4	40'-0"	160'-0"
INTERIOR C.S.	16	40'-0"	640'-0"
45' SPAN			
EXTERIOR C.S.	2	45'-0"	90'-0"
INTERIOR C.S.	8	45'-0"	360'-0"
TOTAL	30	——	1250'-0"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE 40' CORED SLAB SECTION

BAR	NO.	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B1	4	#4	STR	20'-9"	55	20'-9"	55
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	72	#4	3	5'-4"	257	5'-4"	278
✳S3	44	#5	1	5'-4"	245	——	——
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-7"	15	5'-7"	15
S7	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL				LBS.	391	LBS.	391
✳EPOXY COATED REINFORCING STEEL				LBS.	245		——
5000 P.S.I. CONCRETE				CU. YDS.	5.7	CU. YDS.	5.7
½" Ø L.R. STRANDS				NO.	15	NO.	15

BILL OF MATERIAL FOR ONE 45' CORED SLAB SECTION

BAR	NO.	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B2	4	#4	STR	23'-3"	62	23'-3"	62
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	82	#4	3	5'-4"	292	5'-4"	292
✳S3	49	#5	1	5'-4"	273	——	——
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-7"	15	5'-7"	15
S7	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL				LBS.	433	LBS.	433
✳EPOXY COATED REINFORCING STEEL				LBS.	273		——
5000 P.S.I. CONCRETE				CU. YDS.	6.5	CU. YDS.	6.4
½" Ø L.R. STRANDS				NO.	18	NO.	18

NOTES

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

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 JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, 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.

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.

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.

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

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

BAR	BARS PER SPAN SPAN A	SPAN B	SPAN C	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
✳B3	56	——	56	112	#5	STR	11'-11"	1392
✳B4	——	56	——	56	#5	STR	13'-2"	769
✳S4	88	98	88	274	#5	2	5'-7"	1596
✳EPOXY COATED REINFORCING STEEL							LBS.	3,757
CLASS AA CONCRETE							CU.YDS.	28.0
TOTAL CONCRETE BARRIER RAIL							LIN. FT.	250.48

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 1'-9" ½" Ø L.R. STRAND 40' SPAN	45' SPAN
CAMBER (SLAB ALONE IN PLACE) ↑	0.942"	1.389"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ✳✳ ↓	0.134"	0.217"
FINAL CAMBER ↑	0.808"	1.172"

✳✳ INCLUDES FUTURE WEARING SURFACE.

PROJECT NO. 33777
LINCOLN COUNTY
STATION: 13+83.50 -L-
REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
60° SKEW

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

SHEET NO. 7
TOTAL SHEETS 27

STD. NO. PCS3

ASSEMBLED BY : A.S. CALLAWAY DATE : 2/20/08
CHECKED BY : L.E. SUTTON DATE : 5/16/08
DRAWN BY : WJH 4/89
CHECKED BY : FCJ 5/89
REV. 7/10/01 RWW/LES
REV. 5/7/03RRR RWW/JTE
REV. 5/1/06 TLA/GM

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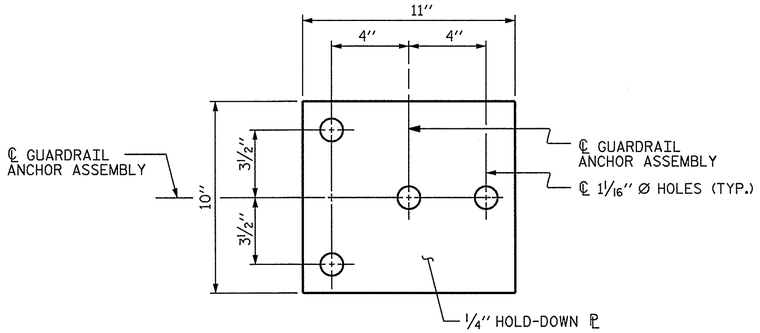
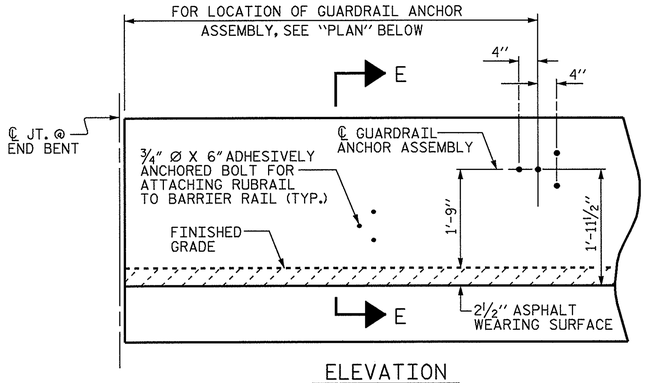
LSUTTON

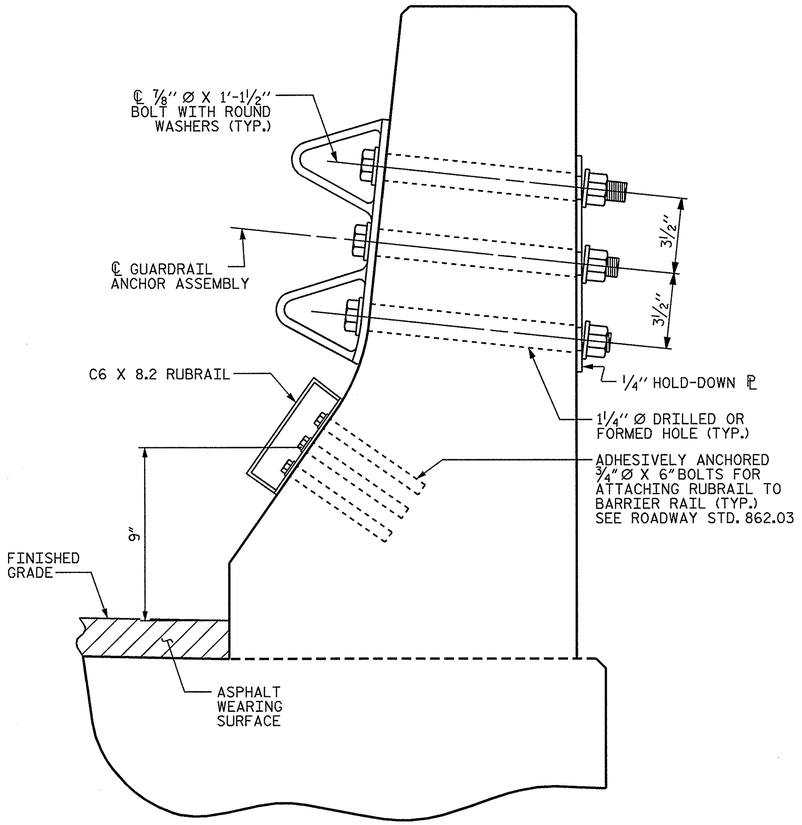


PLAN



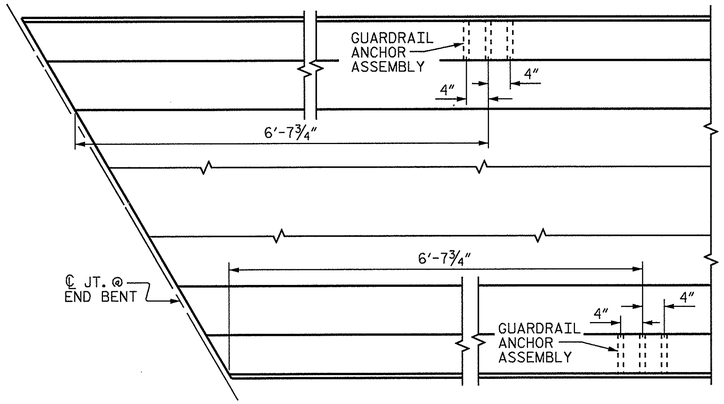
ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4'' HOLD DOWN PLATE AND 4 - 7/8'' 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 7/8'' Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

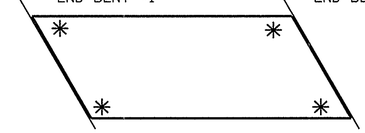
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4'' Ø X 6'' BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4'' 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

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

GUARDRAIL ANCHORAGE FOR BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	8
1			3			TOTAL SHEETS
2			4			27

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON
7/15/08

STD. NO. GRA2

ASSEMBLED BY : A.S. CALLAWAY	DATE : 2/20/08
CHECKED BY : L.E. SUTTON	DATE : 5/16/08
DRAWN BY : TLA 5/06	ADDED 5/1/06R KMM/GM
CHECKED BY : GM 5/06	

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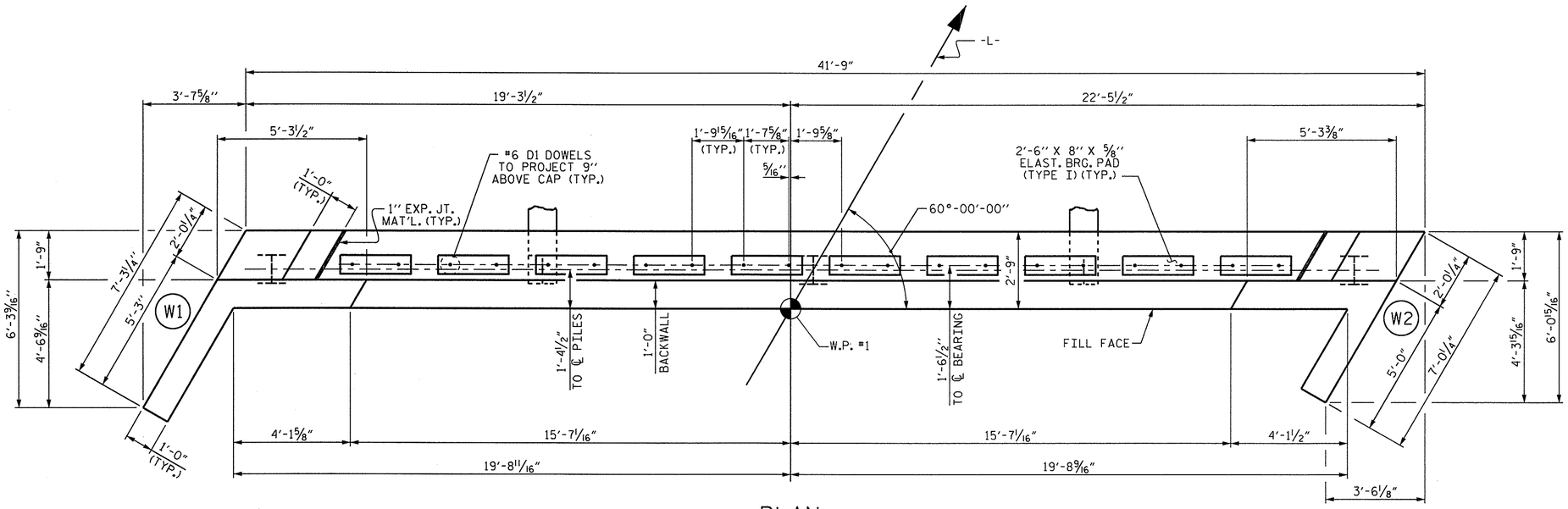
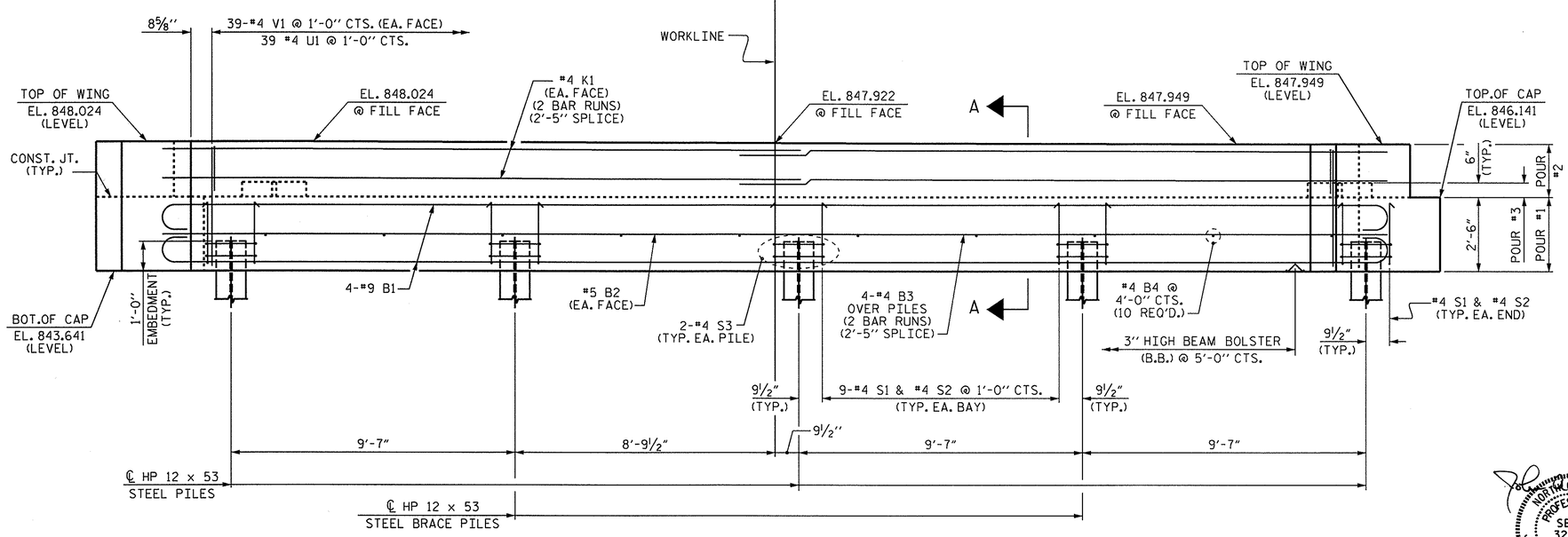


PLAN



ELEVATION

NOTES

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

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

THE #4 V1 BARS IN THE BACKWALL SHALL BE PLACED 2" CLEAR FROM THE TOP OF THE BACKWALL.

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1
26'-10" CLEAR ROADWAY
60° SKEW - 40' SPAN

NORTH CAROLINA PROFESSIONAL SEAL 32492 ENGINEER JAY A. YANNACCONE
3/8/11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	9
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.S. CALLAWAY DATE : 3/4/08
CHECKED BY : L.E. SUTTON DATE : 7/11/08

08-MAR-2011 09:17
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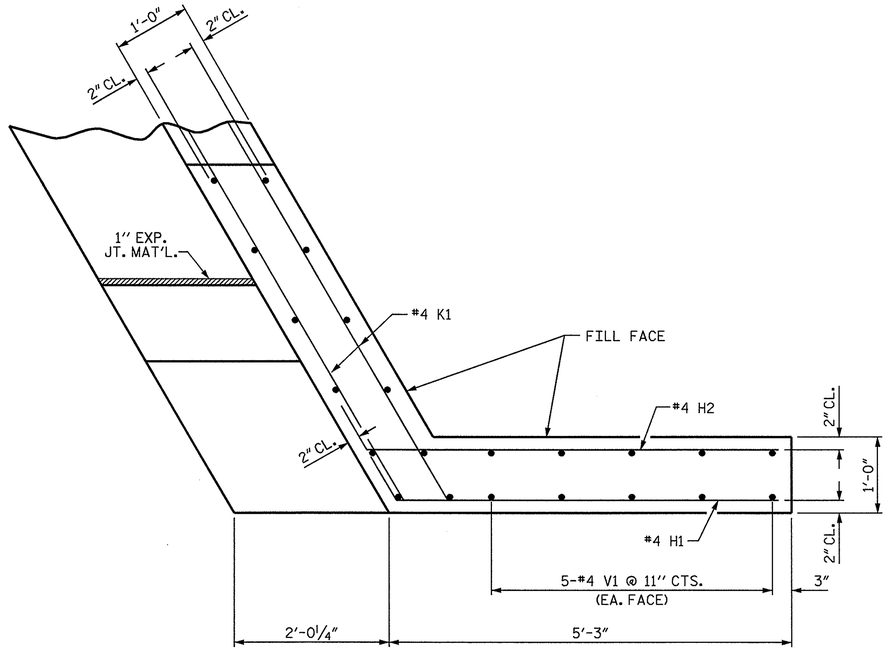
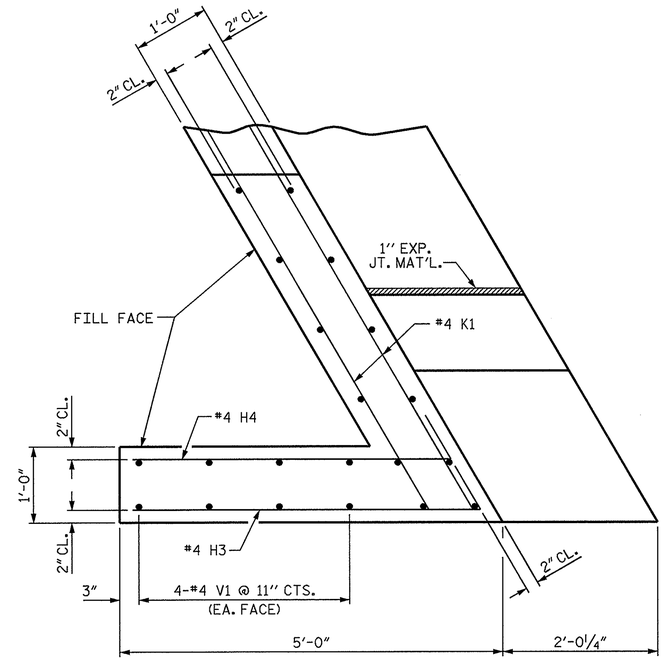
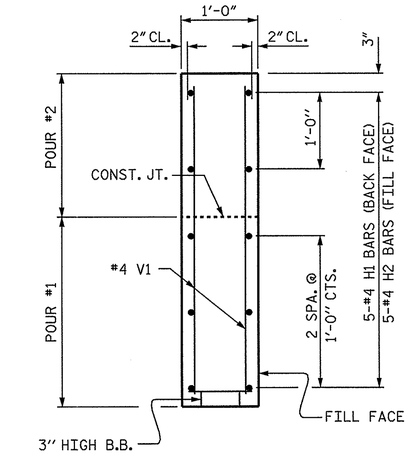
JAYannaccone



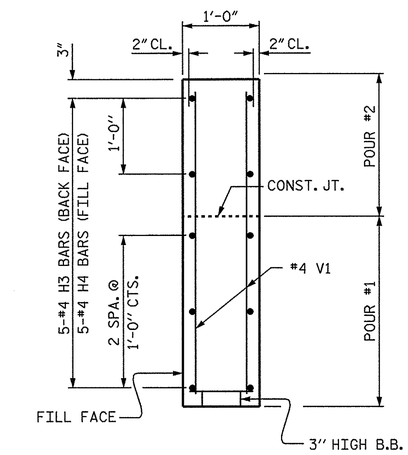
PLAN OF WING (W1)



PLAN OF WING (W2)



SECTION X-X



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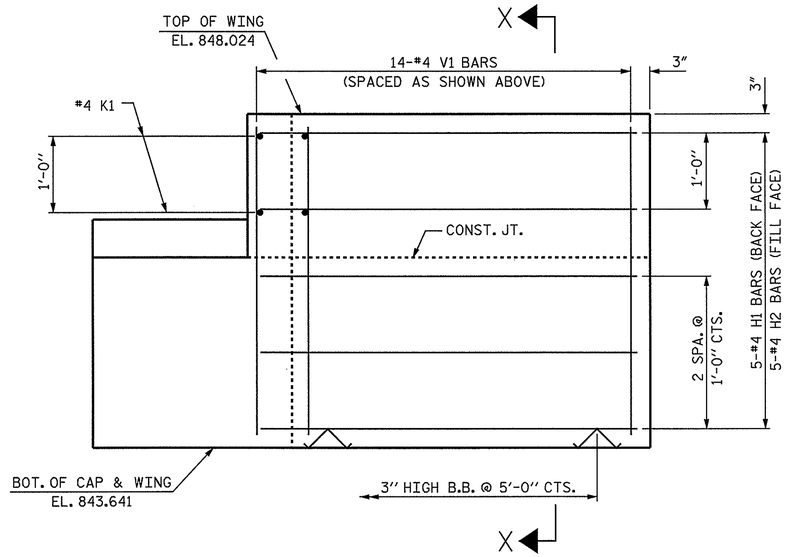
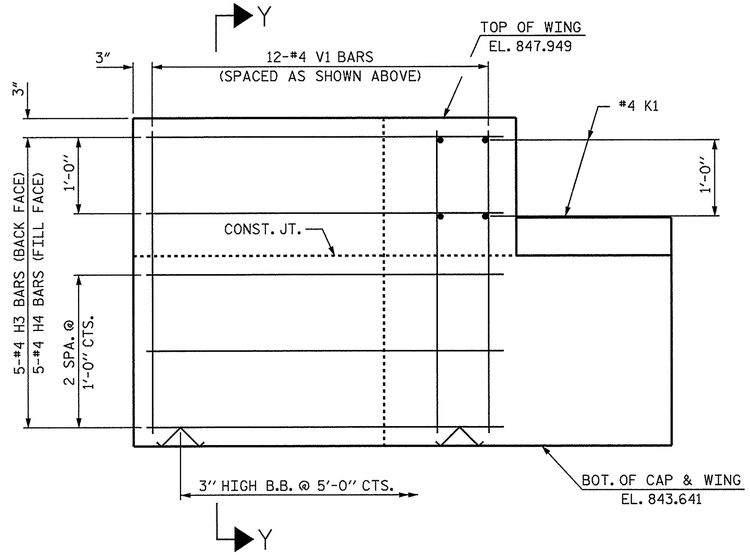


ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1
26'-10" CLEAR ROADWAY
60° SKEW - 40' SPAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	10
1			3			TOTAL SHEETS
2			4			27

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON
7/15/08

DRAWN BY : A.S. CALLAWAY DATE : 3/4/08
CHECKED BY : L.E. SUTTON DATE : 7/11/08

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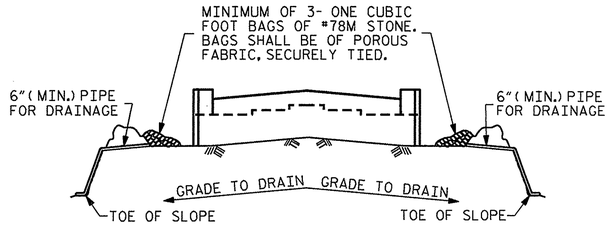
LSUTTON

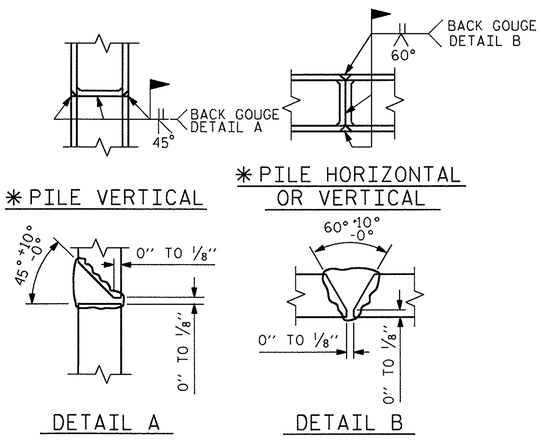


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

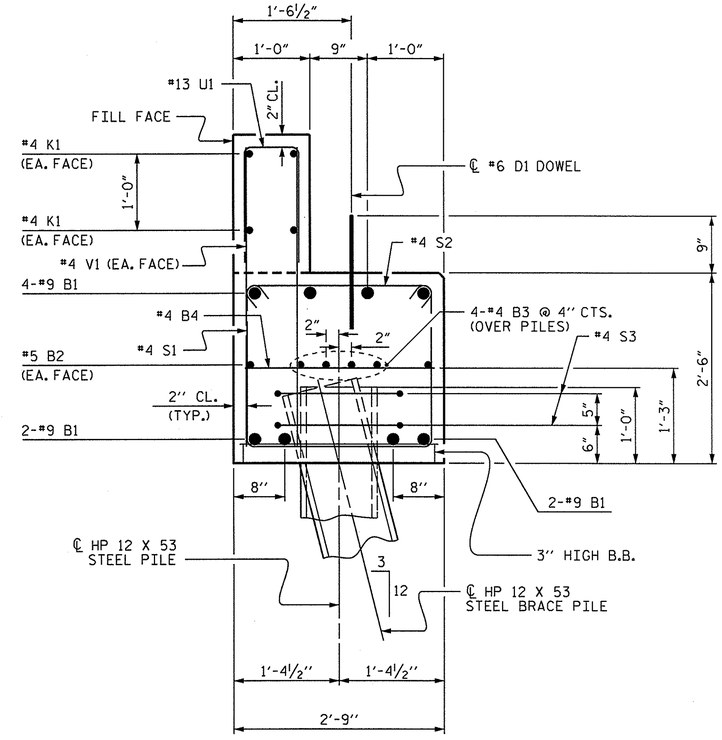
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

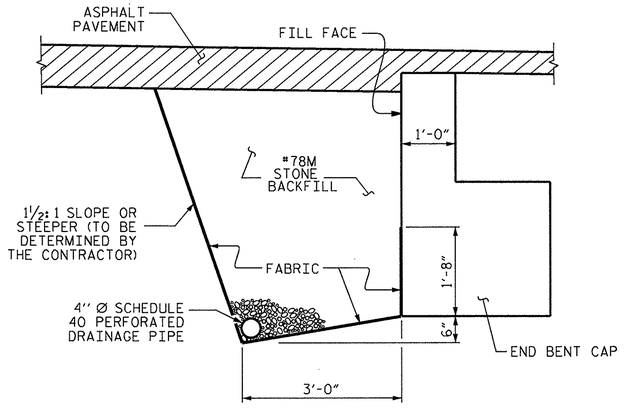


* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAIL

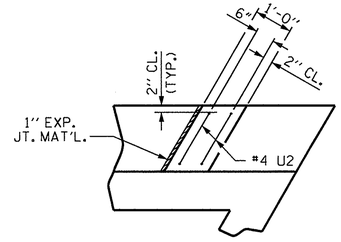


SECTION A-A

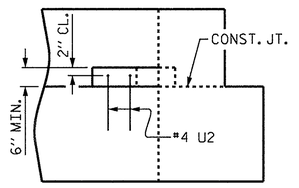


BACK FILL DETAILS

SEE SPECIAL PROVISION FOR "BRIDGE APPROACH FILLS"



PLAN

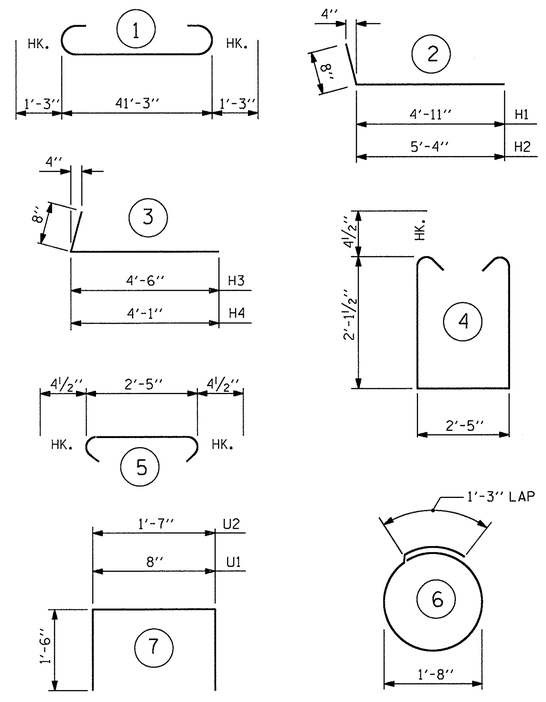


ELEVATION

LATERAL GUIDE DETAIL

(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

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	43'-9"	1190
B2	2	#5	STR	41'-5"	86
B3	8	#4	STR	21'-11"	117
B4	10	#4	STR	2'-5"	16
D1	20	#6	STR	1'-6"	45
H1	5	#4	2	5'-7"	19
H2	5	#4	2	6'-0"	20
H3	5	#4	3	5'-2"	17
H4	5	#4	3	4'-9"	16
K1	8	#4	STR	21'-11"	117
S1	38	#4	4	7'-5"	188
S2	38	#4	5	3'-2"	80
S3	10	#4	6	6'-6"	43
U1	39	#4	7	3'-8"	96
U2	4	#4	7	4'-7"	12
V1	104	#4	STR	3'-11"	272

REINFORCING STEEL	LBS.	2,334
CLASS A CONCRETE BREAKDOWN :		
POUR #1 - CAP & LOWER WINGS	CU. YDS.	11.4
POUR #2 - BACKWALL & UPPER WINGS	CU. YDS.	3.4
POUR #3 - LATERAL GUIDES	CU. YDS.	0.1
TOTAL	CU. YDS.	14.9
HP 12 x 53 STEEL PILES NO. = 5	LIN. FT.	50

NORTH CAROLINA PROFESSIONAL SEAL 32492 ENGINEER JOHN A. YANNACCONE 3/8/11

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1
26'-10" CLEAR ROADWAY
60° SKEW - 40' SPAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	11
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.S. CALLAWAY DATE : 3/4/08
CHECKED BY : L.E. SUTTON DATE : 7/11/08

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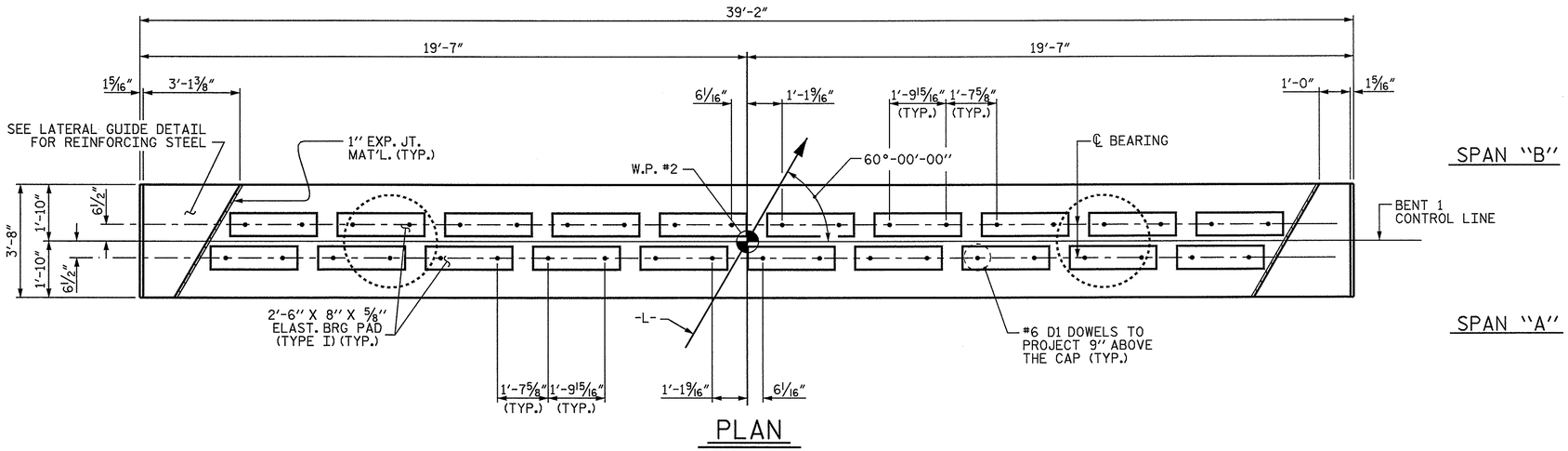
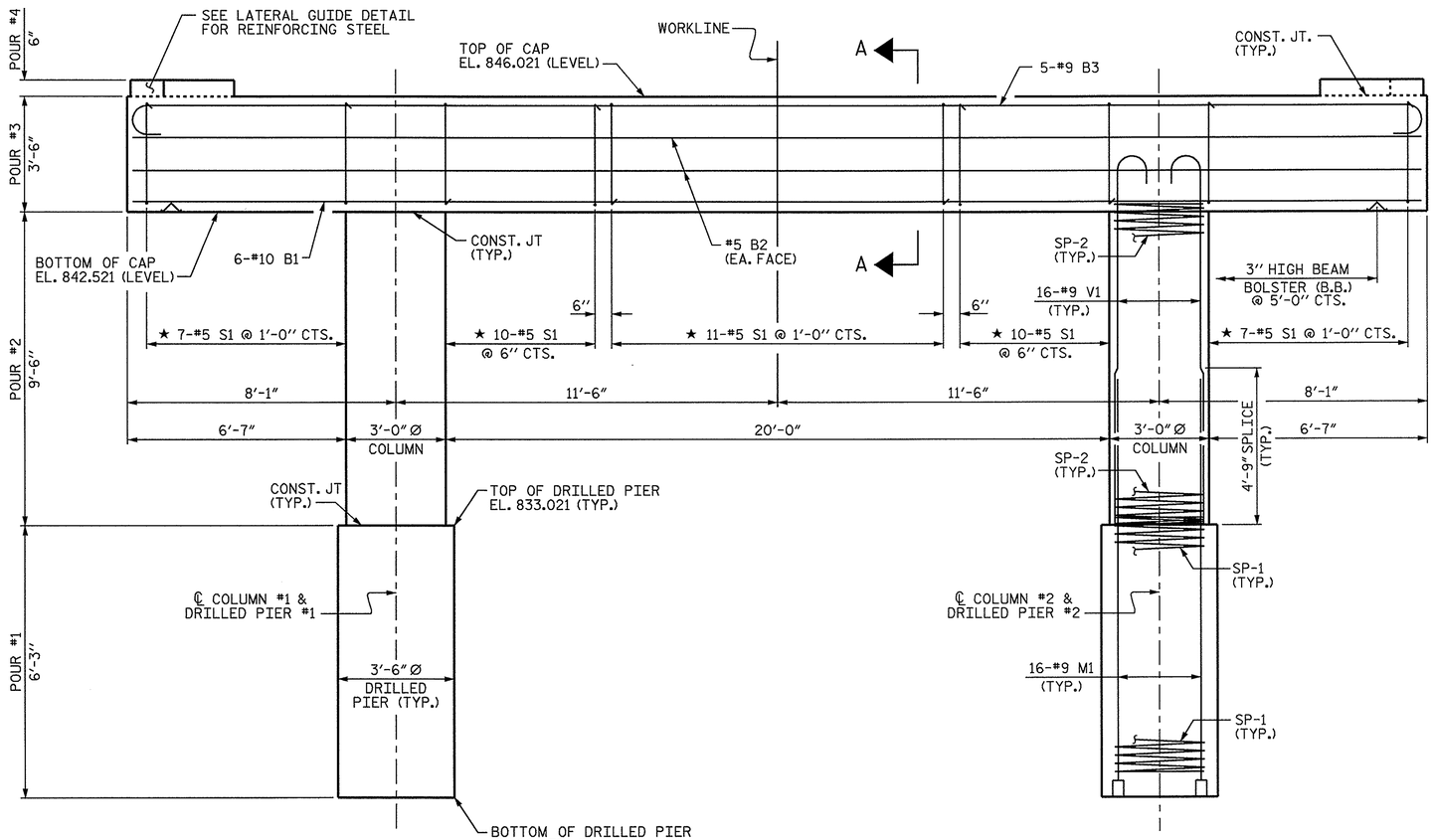
JAYannaccone

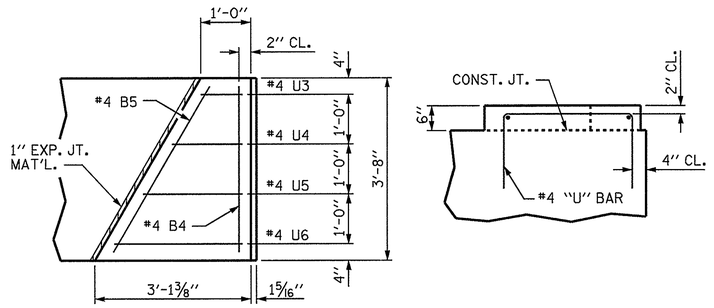


PLAN



ELEVATION

★ INVERT ALTERNATE STIRRUPS.



PLAN ELEVATION

LATERAL GUIDE DETAIL

(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

NOTES

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

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

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

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

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FOOT BELOW THE GROUND LINE.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	12
1			3			TOTAL SHEETS
2			4			27

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 7/15/08

DRAWN BY : A.S. CALLAWAY DATE : 2/27/08
CHECKED BY : L.E. SUTTON DATE : 7/11/08

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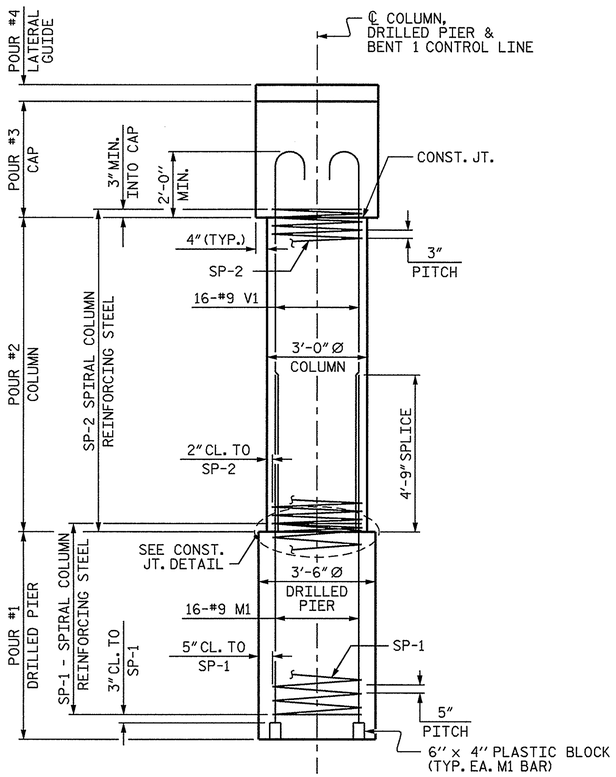
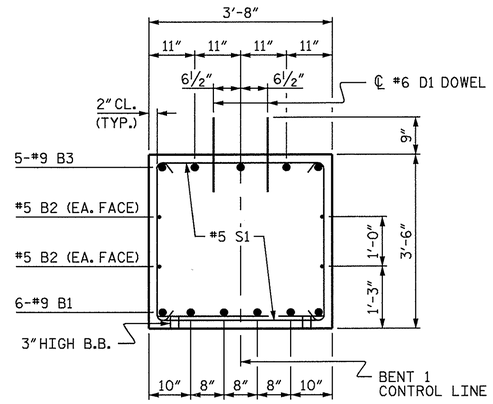
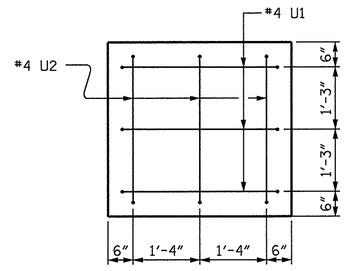
LSUTTON



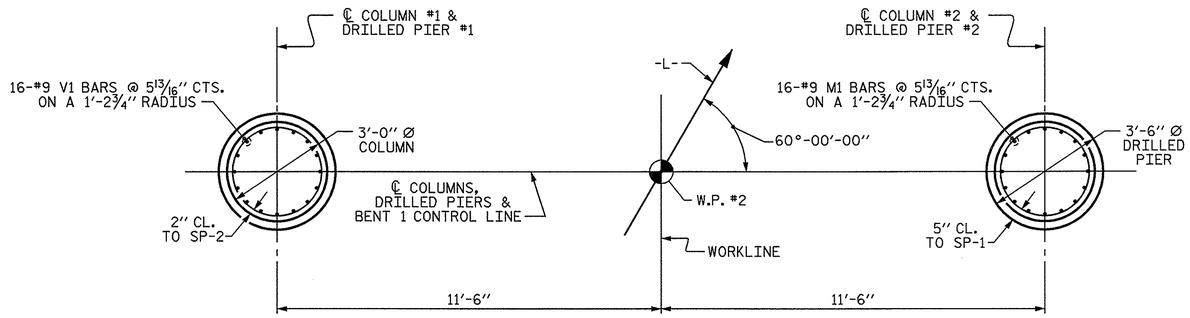
END ELEVATION



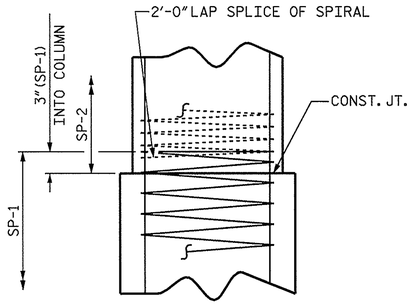
SECTION A-A



END VIEW
(TYP. EA. END)

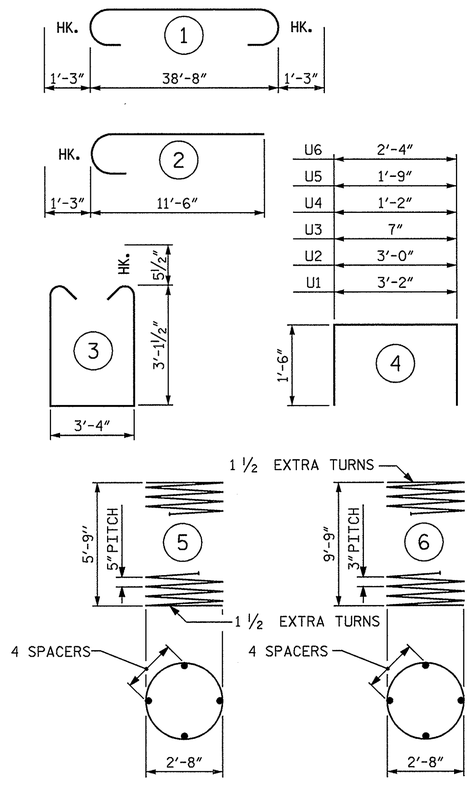


PLAN OF DRILLED PIERS & COLUMNS
(REINFORCING STEEL IS TYPICAL FOR EACH COLUMN & DRILLED PIER)



CONSTRUCTION JOINT DETAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	STR	38'-10"	1003
B2	4	#5	STR	38'-10"	162
B3	5	#9	1	41'-2"	700
B4	2	#4	STR	3'-4"	4
B5	2	#4	STR	3'-10"	5
D1	40	#6	STR	1'-6"	90
M1	32	#9	STR	10'-6"	1142
S1	45	#5	3	10'-6"	493
U1	6	#4	4	6'-2"	25
U2	6	#4	4	6'-0"	24
U3	2	#4	4	3'-7"	5
U4	2	#4	4	4'-2"	6
U3	2	#4	4	4'-9"	6
U4	2	#4	4	5'-4"	7
V1	32	#9	2	12'-9"	1387
REINFORCING STEEL				LBS.	5,059
SP-1	2	*	5	131'-8"	275
SP-2	2	**	6	338'-4"	452
SPIRAL COLUMN REINFORCING STEEL				LBS.	727

CLASS A CONCRETE		
POUR #2 - COLUMNS	CU. YDS.	5.0
POUR #3 - CAP	CU. YDS.	18.6
POUR #4 - LATERAL GUIDES	CU. YDS.	0.3
TOTAL	CU. YDS.	23.9
DRILLED PIER QUANTITIES:		
DRILLED PIER CONCRETE POUR #1 - DRILLED PIERS	CU. YDS.	4.5
3'-6"Ø DRILLED PIERS IN SOIL	LIN. FT.	1.50
3'-6"Ø DRILLED PIERS NOT IN SOIL	LIN. FT.	11.00
CSL TUBES	LIN. FT.	70.00

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

**THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 7/11/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	13
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.S. CALLAWAY DATE : 2/27/08
CHECKED BY : L.E. SUTTON DATE : 7/11/08

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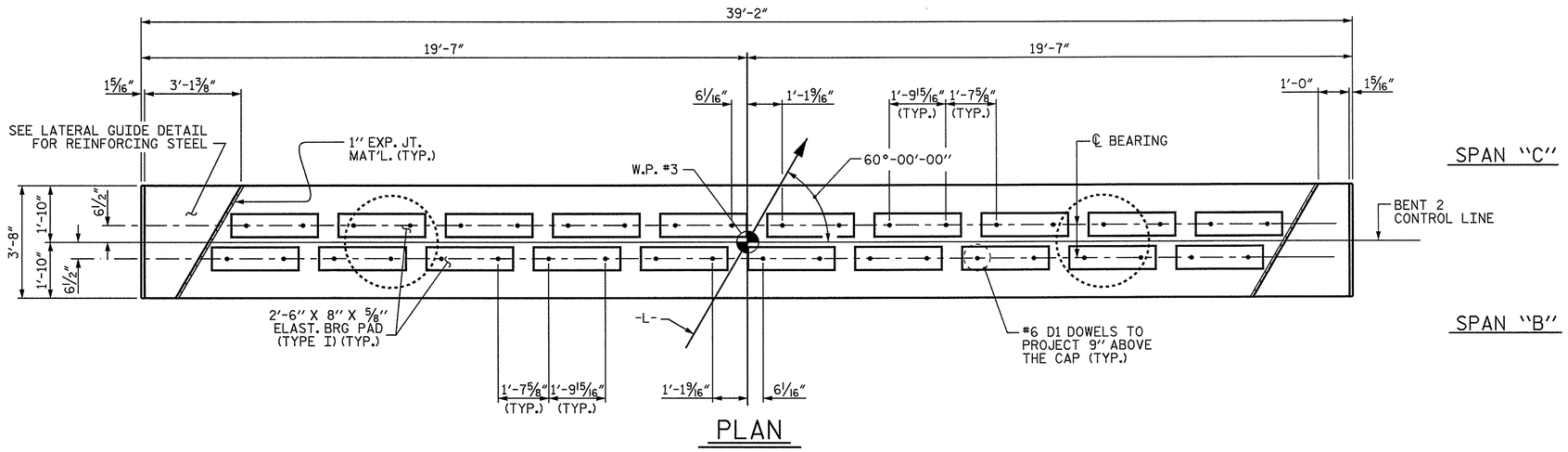
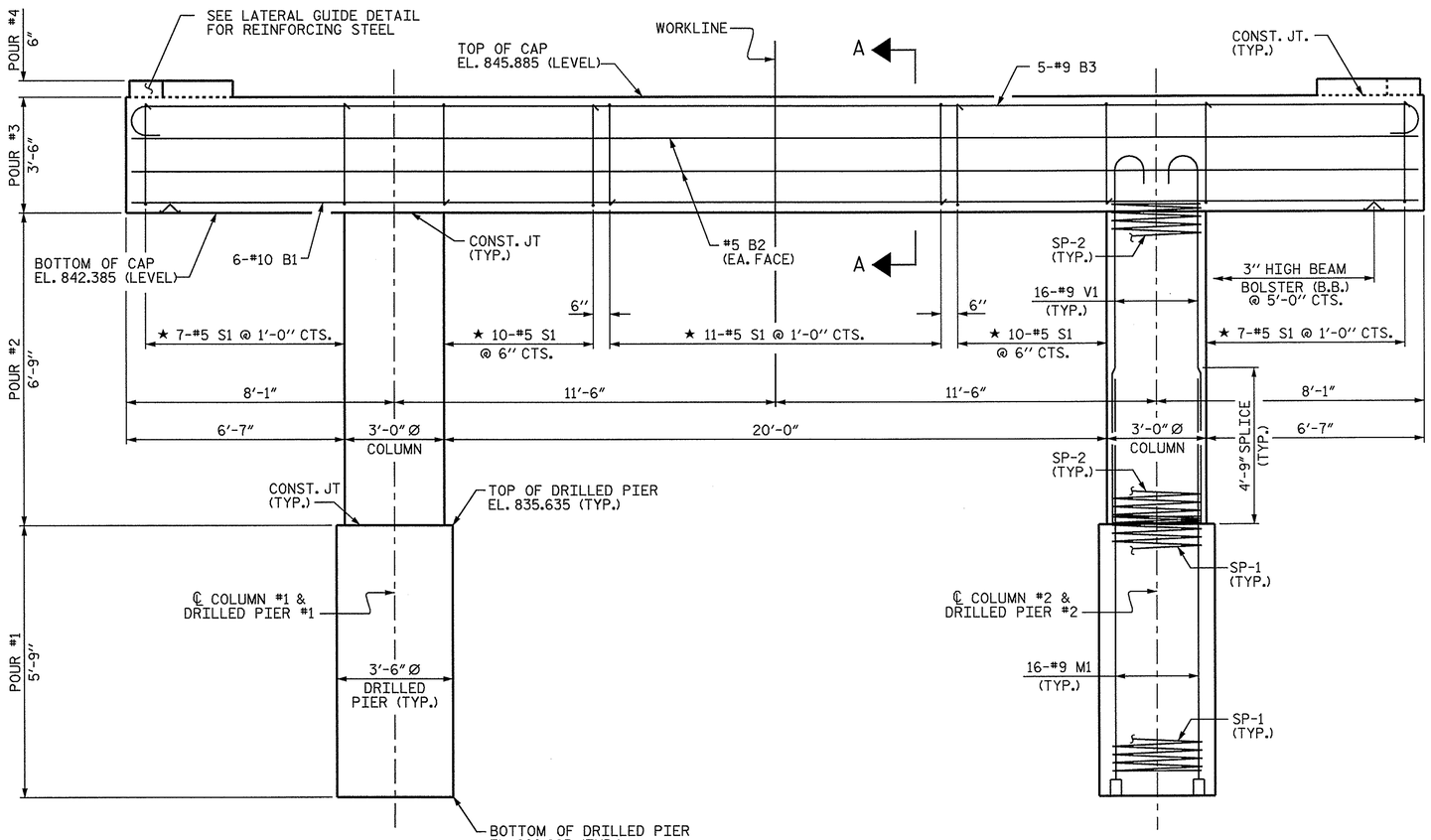
LSUTTON

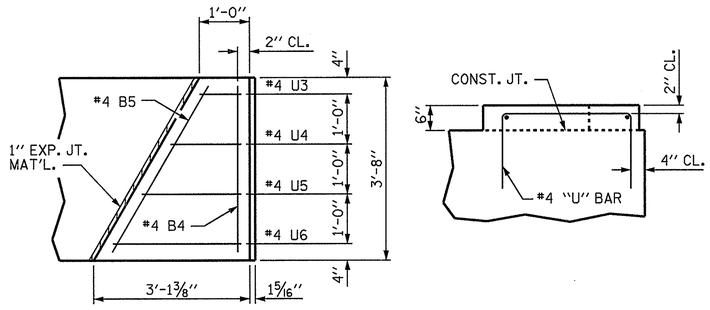


PLAN



ELEVATION

★ INVERT ALTERNATE STIRRUPS.



PLAN ELEVATION

LATERAL GUIDE DETAIL

(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

NOTES

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

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

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

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

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FOOT BELOW THE GROUND LINE.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 2

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON
7/15/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	14
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.S. CALLAWAY DATE : 2/27/08
CHECKED BY : L.E. SUTTON DATE : 7/11/08

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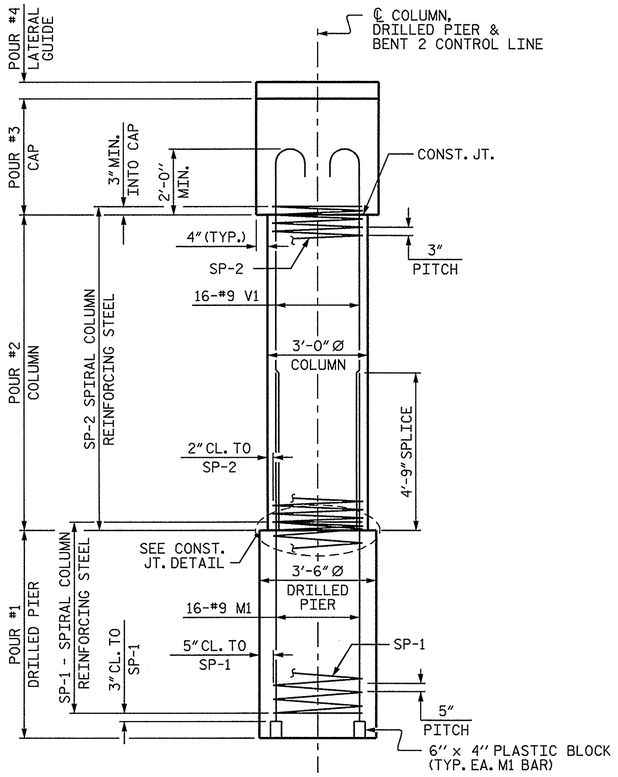
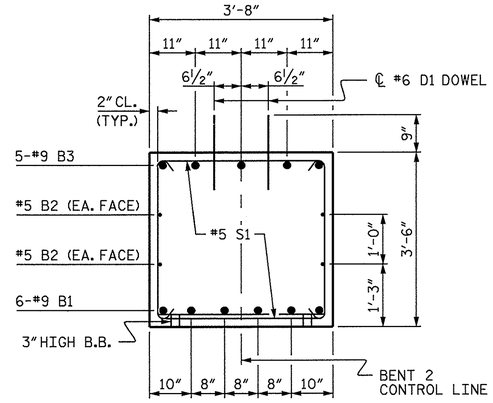
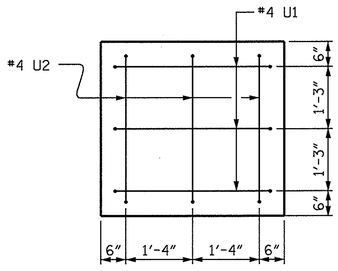


END ELEVATION

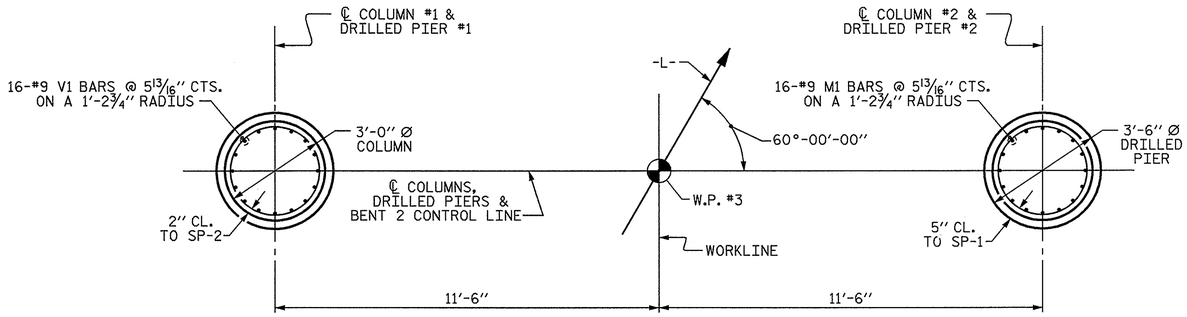


SECTION A-A



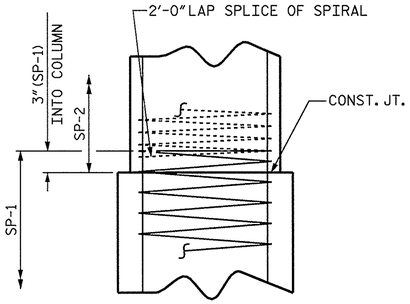
END VIEW

(TYP. EA. END)



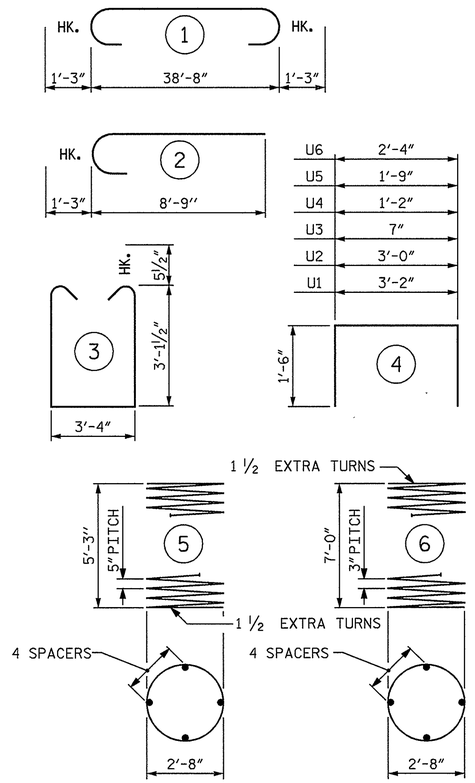
PLAN OF DRILLED PIERS & COLUMNS

(REINFORCING STEEL IS TYPICAL FOR EACH COLUMN & DRILLED PIER)



CONSTRUCTION JOINT DETAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	STR	38'-10"	1003
B2	4	#5	STR	38'-10"	162
B3	5	#9	1	41'-2"	700
B4	2	#4	STR	3'-4"	4
B5	2	#4	STR	3'-10"	5
D1	40	#6	STR	1'-6"	90
M1	32	#9	STR	10'-0"	1088
S1	45	#5	3	10'-6"	493
U1	6	#4	4	6'-2"	25
U2	6	#4	4	6'-0"	24
U3	2	#4	4	3'-7"	5
U4	2	#4	4	4'-2"	6
U3	2	#4	4	4'-9"	6
U4	2	#4	4	5'-4"	7
V1	32	#9	2	10'-0"	1088
REINFORCING STEEL				LBS.	4,706
SP-1	2	*	5	123'-5"	257
SP-2	2	**	6	247'-7"	331
SPIRAL COLUMN REINFORCING STEEL				LBS.	588

CLASS A CONCRETE		
POUR #2 - COLUMNS	CU. YDS.	3.5
POUR #3 - CAP	CU. YDS.	18.6
POUR #4 - LATERAL GUIDES	CU. YDS.	0.3
TOTAL	CU. YDS.	22.4
DRILLED PIER QUANTITIES:		
DRILLED PIER CONCRETE POUR #1 - DRILLED PIERS	CU. YDS.	4.1
3'-6" Ø DRILLED PIERS IN SOIL	LIN. FT.	1.50
3'-6" Ø DRILLED PIERS NOT IN SOIL	LIN. FT.	10.00
CSL TUBES	LIN. FT.	66.00

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

**THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 2

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 7/15/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	15
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.S. CALLAWAY DATE : 2/27/08
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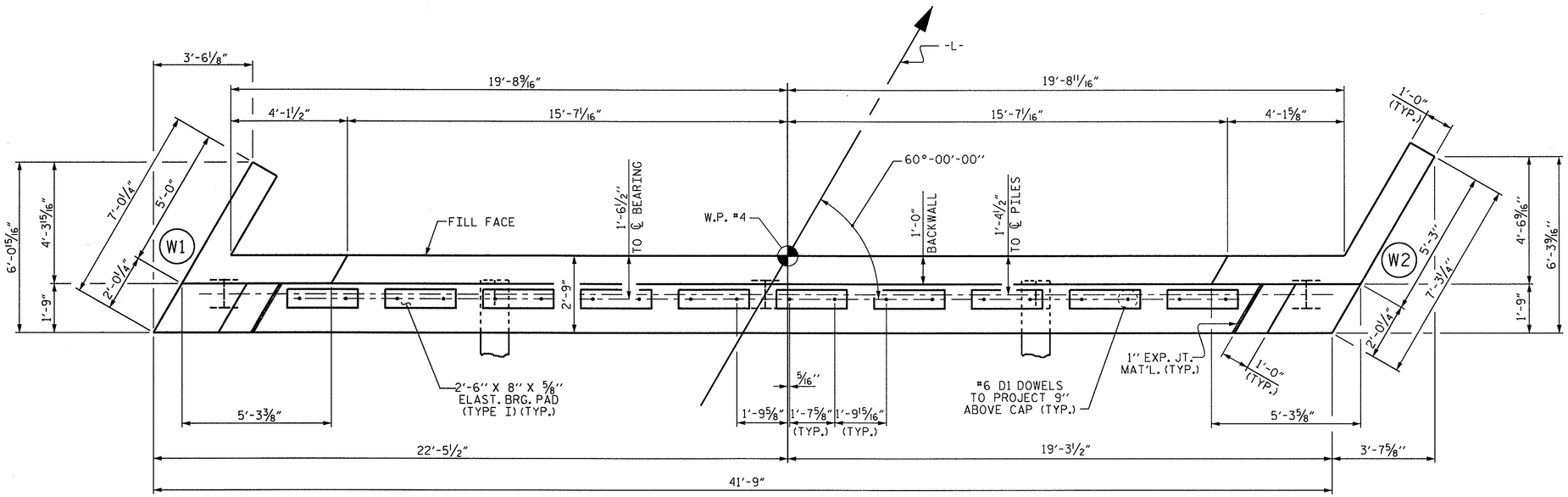
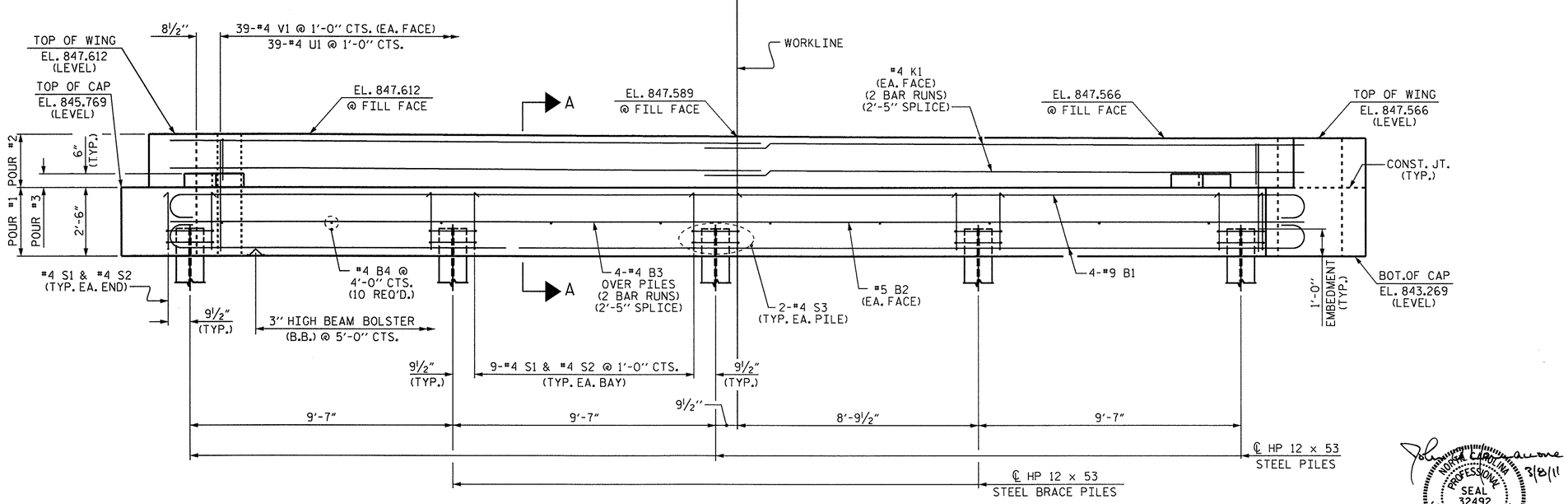


PLAN



ELEVATION

NOTES

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

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

THE #4 V1 BARS IN THE BACKWALL SHALL BE PLACED 2" CLEAR FROM THE TOP OF THE BACKWALL.

NORTH CAROLINA PROFESSIONAL SEAL 32492 ENGINEER JOHN A. YANNACCONE 3/8/11

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2
26'-10" CLEAR ROADWAY
60° SKEW - 40' SPAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	16
1			3			TOTAL SHEETS
2			4			27

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CHECKED BY : L.E. SUTTON DATE : 7/11/08

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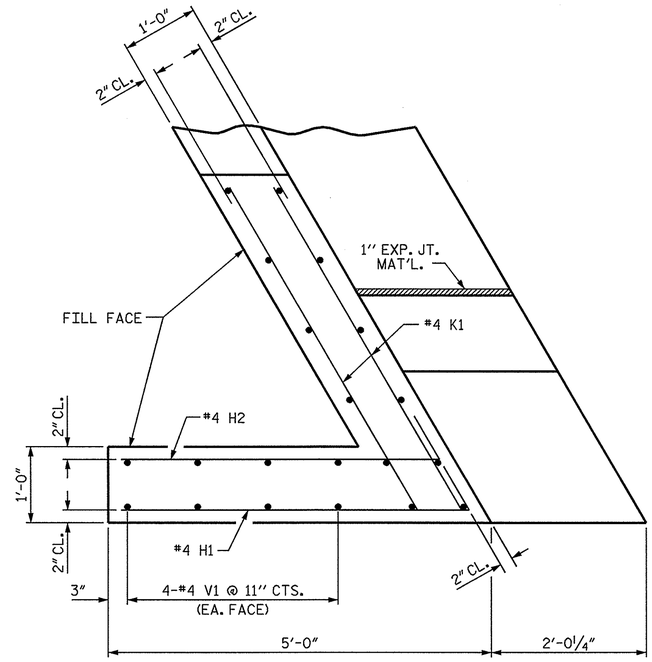
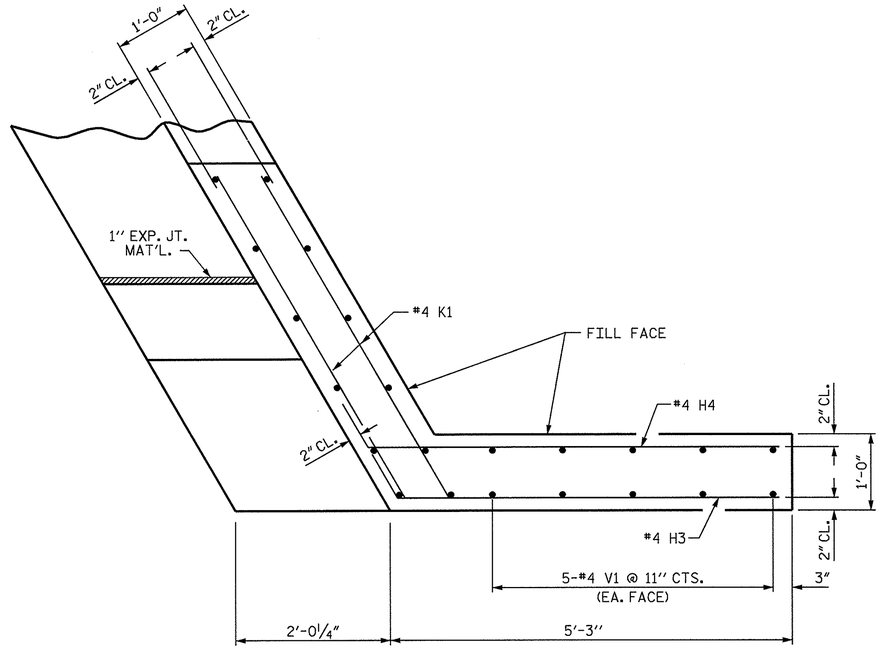
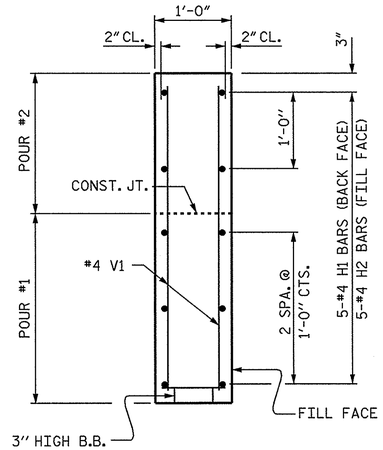
JAYannaccone



PLAN OF WING W1



PLAN OF WING W2



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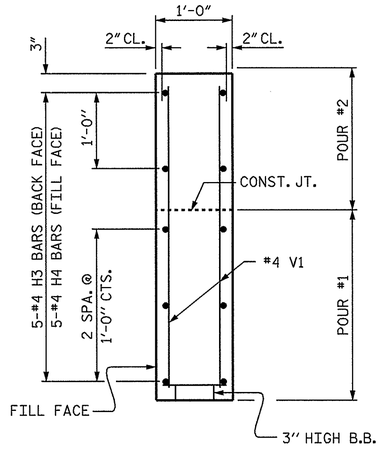
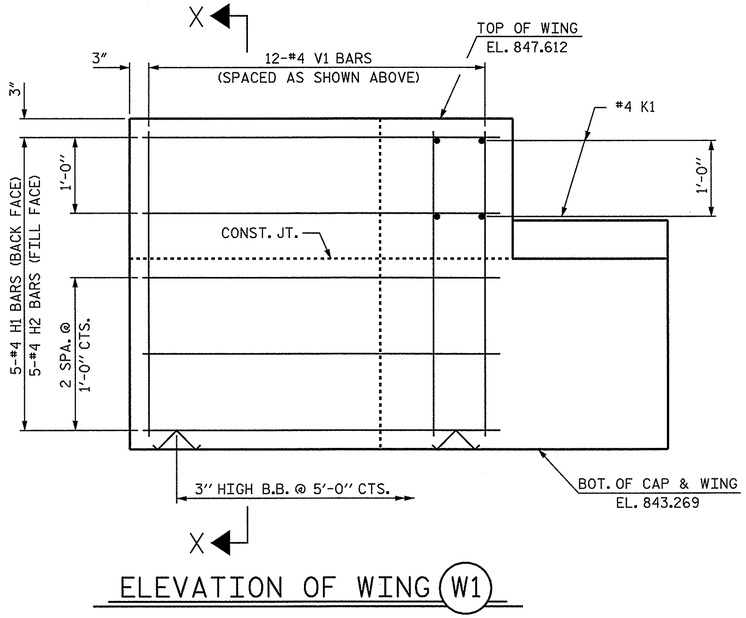
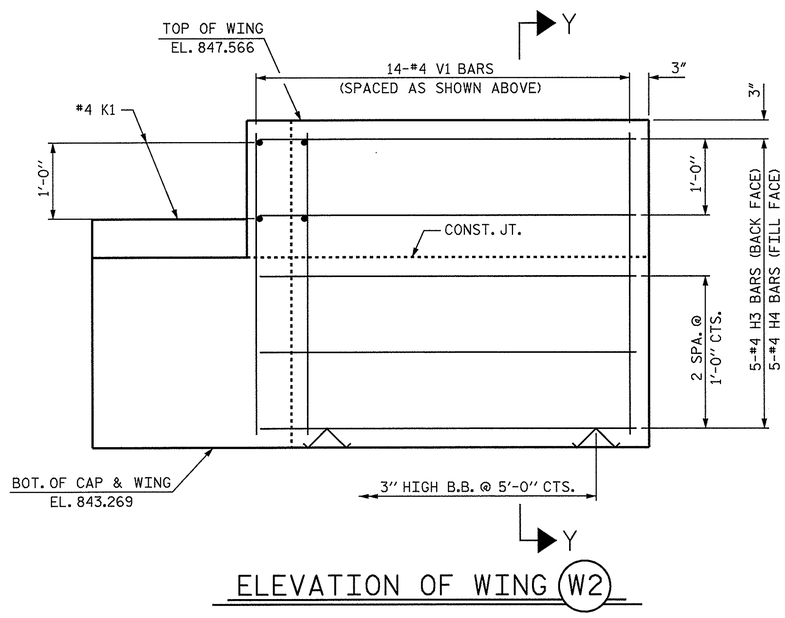


SECTION Y-Y



ELEVATION OF WING W1



ELEVATION OF WING W2

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2
26'-10" CLEAR ROADWAY
60° SKEW - 40' SPAN

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON
7/15/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	17
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.S. CALLAWAY DATE : 3/4/08
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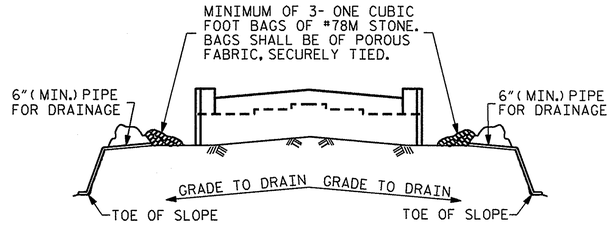
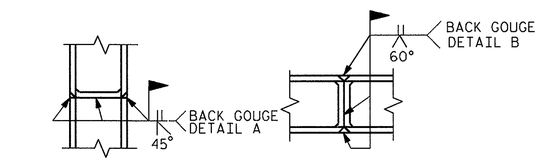


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

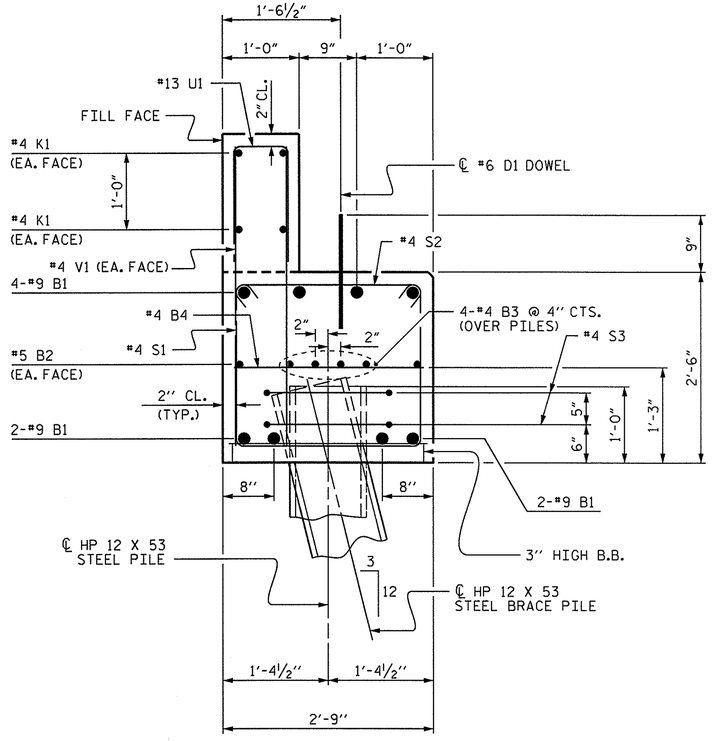
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

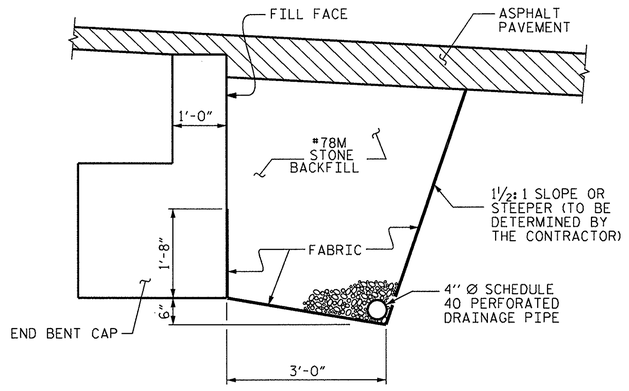


* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAIL

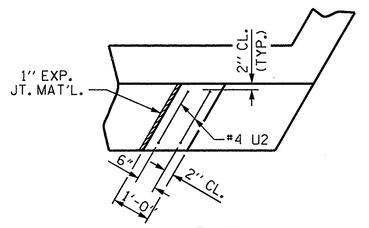


SECTION A-A

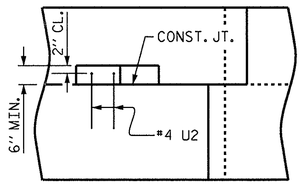


BACK FILL DETAILS

SEE SPECIAL PROVISION FOR "BRIDGE APPROACH FILLS"



PLAN

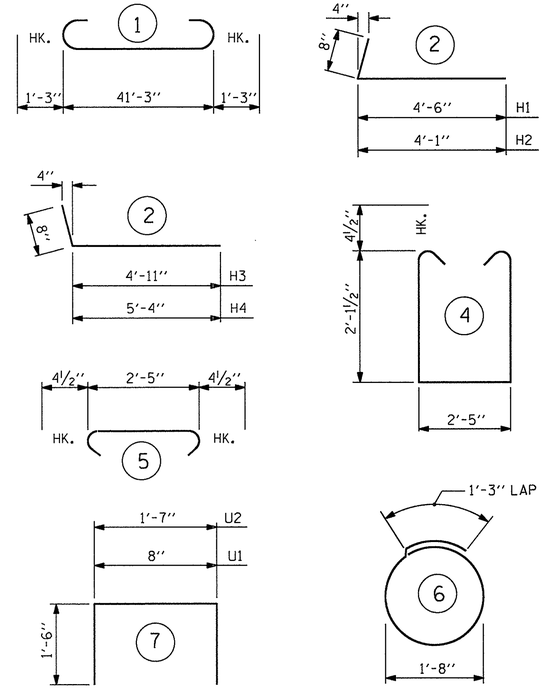


ELEVATION

LATERAL GUIDE DETAIL

(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

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	43'-9"	1190
B2	2	#5	STR	41'-5"	86
B3	8	#4	STR	21'-11"	117
B4	10	#4	STR	2'-5"	16
D1	20	#6	STR	1'-6"	45
H1	5	#4	2	5'-2"	17
H2	5	#4	2	4'-9"	16
H3	5	#4	3	5'-7"	19
H4	5	#4	3	6'-0"	20
K1	8	#4	STR	21'-11"	117
S1	38	#4	4	7'-5"	188
S2	38	#4	5	3'-2"	80
S3	10	#4	6	6'-6"	43
U1	39	#4	7	3'-8"	96
U2	4	#4	7	4'-7"	12
V1	104	#4	STR	3'-11"	272

REINFORCING STEEL	LBS.	2,334
CLASS A CONCRETE BREAKDOWN :		
POUR #1 - CAP & LOWER WINGS	CU. YDS.	11.4
POUR #2 - BACKWALL & UPPER WINGS	CU. YDS.	3.4
POUR #3 - LATERAL GUIDES	CU. YDS.	0.1
TOTAL	CU. YDS.	14.9
HP 12 x 53 STEEL PILES NO. = 5	LIN. FT.	75

PROJECT NO. 33777

LINCOLN COUNTY

STATION: 13+83.50 -L-

REPLACES BRIDGE NO. 183

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2
26'-10" CLEAR ROADWAY
60° SKEW - 40' SPAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	18
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.S. CALLAWAY DATE : 3/4/08
CHECKED BY : L.E. SUTTON DATE : 7/11/08

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14+00.00

0.020 0.020

840.61

13+50.00

2% 0.020 0.020 4% 2%

847.936 845.833

13+00.00

3% 4% 0.020 0.020 4% 2%

847.856 847.860

850.27

12+50.00

852.435

12+00.00

855.163

11+50.00

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RD226363 7/8/2008 B-4573_Rdy_xpl1 mjjacobs RD-Oce34

8/23/99

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853.15

17+00.00

850 840

851.09

16+50.00

850 840

845.33

16+00.00

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845.267

841.12

15+50.00

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2% 2%

841.104

15+00.00

850 840 830

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2%

841.14

14+50.00

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RD226363 7/8/2008 B-4573_Rdy_xpl2 mjjacobs RD-Oce34

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

SHEET NO. 21
TOTAL SHEETS 27

STD. NO. SN

REV. 6-16-95 EEM (W) RGW REV. 5-7-03 RWW (W) JTE
REV. 8-16-99 RWW (W) LES REV. 5-1-06 TLA (W) GM

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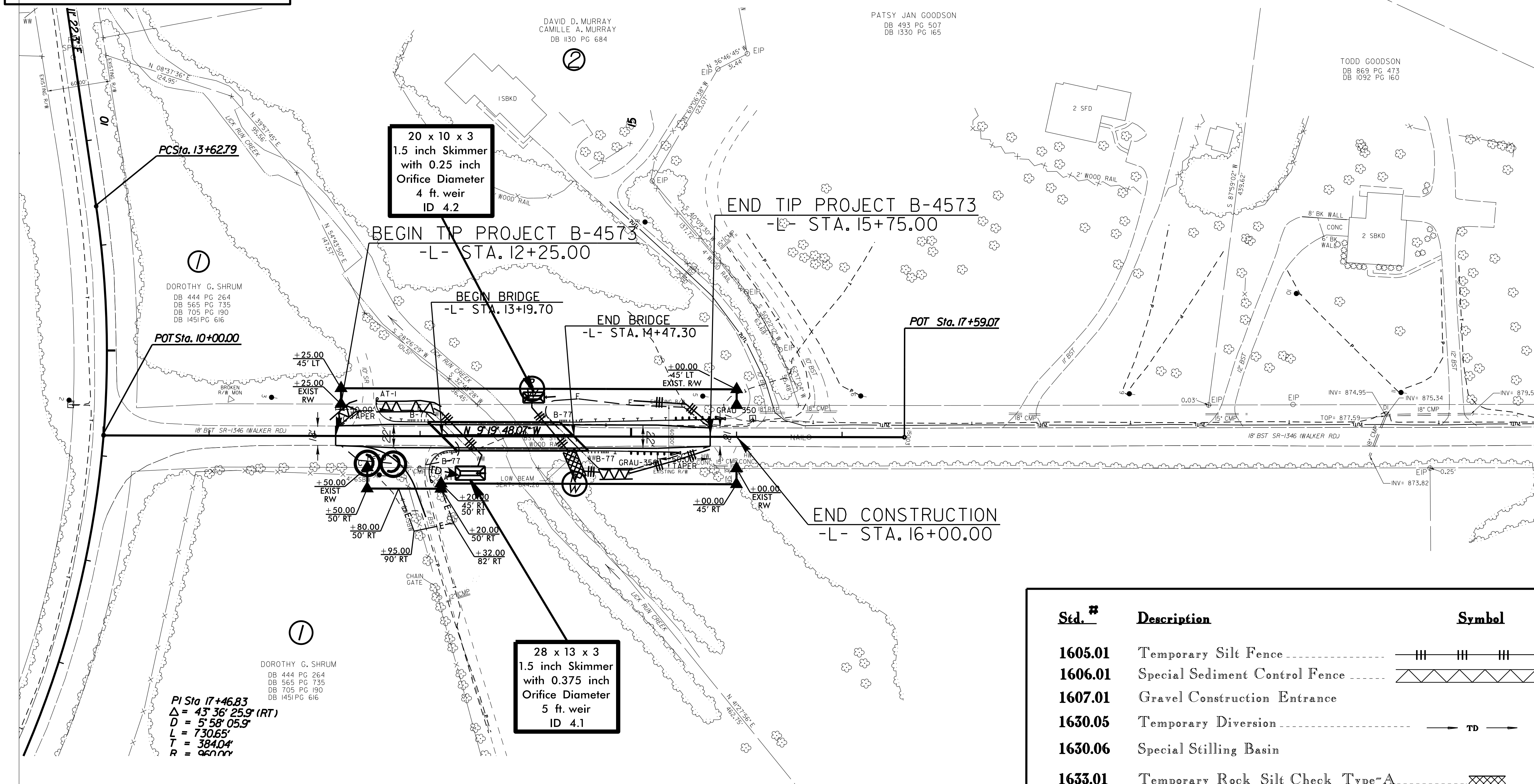
PROJECT REFERENCE NO.	SHEET NO.
33777	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EROSION CONTROL PLAN

NOTE:
UTILIZE SPECIAL STILLING BASIN OR SKIMMER BASIN AS STILLING BASIN WHERE APPLICABLE.



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2006 STANDARD SPECIFICATIONS

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.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1607.01	Gravel Construction Entrance	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-B	
	Wattle with Polyacrylamide (PAM)	
	Skimmer Basin	

REVISIONS

8/17/99

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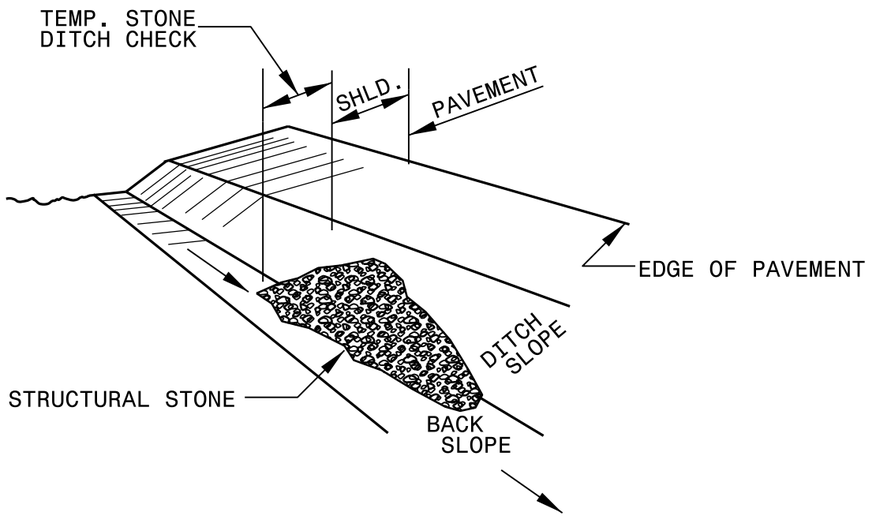
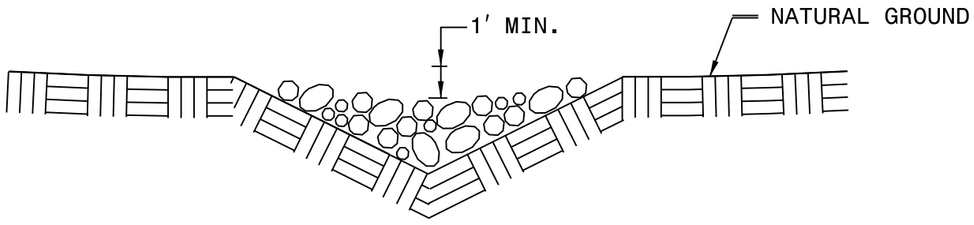
PROJECT REFERENCE NO.	SHEET NO.
33777	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

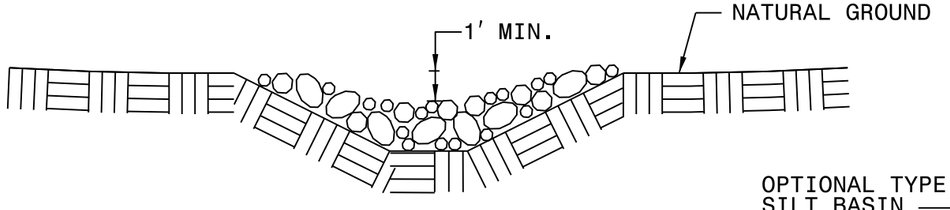
TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH

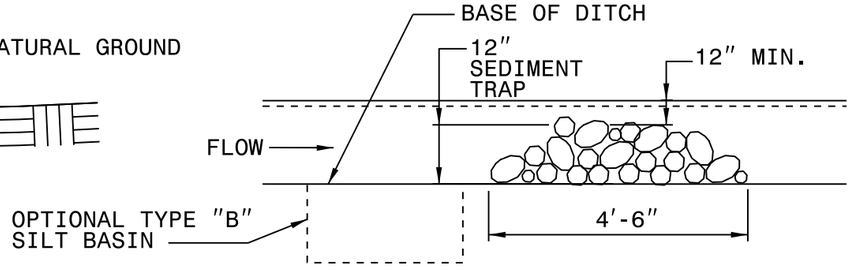


CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



ELEVATION VIEW

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RALEIGH, N.C.

2006 STANDARD SPECIFICATIONS

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

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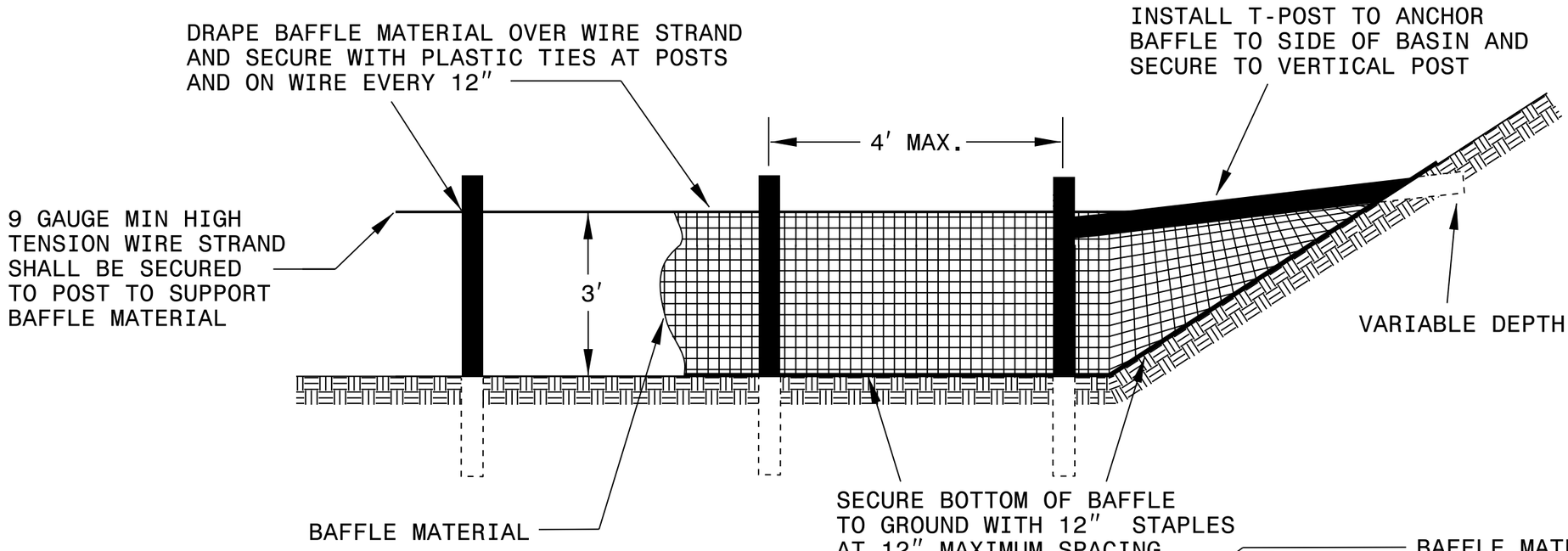
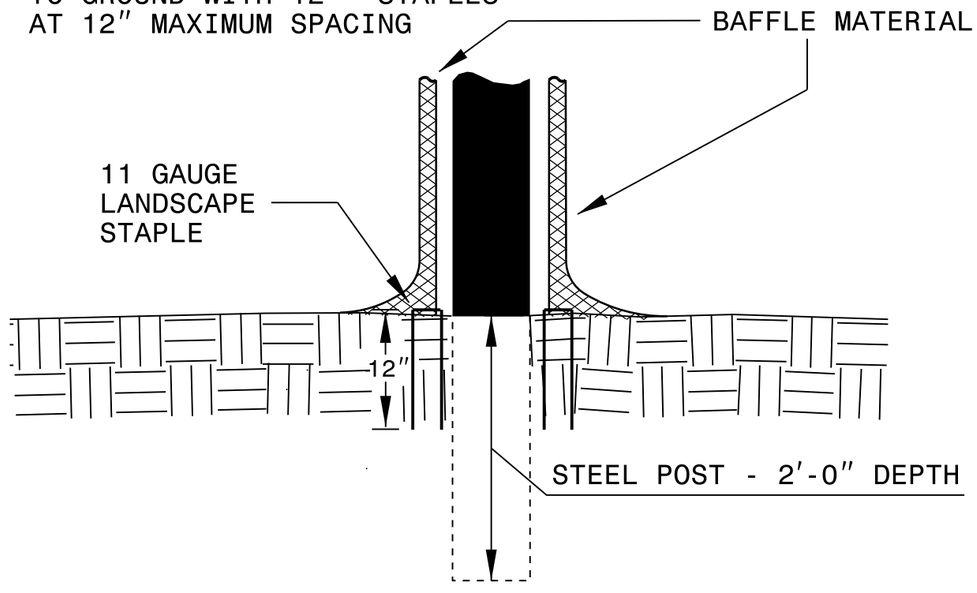
PROJECT REFERENCE NO.	SHEET NO.
33777	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER BAFFLE DETAIL





NOTES:

1. INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF ¼ THE BASIN LENGTH.

2. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.

3. TOP HEIGHT OF COIR FIBER BAFFLES SHALL NOT BE BELOW BASE OF EMERGENCY SPILLWAY ELEVATION.

BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 12″ LANDSCAPE STAPLES

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.

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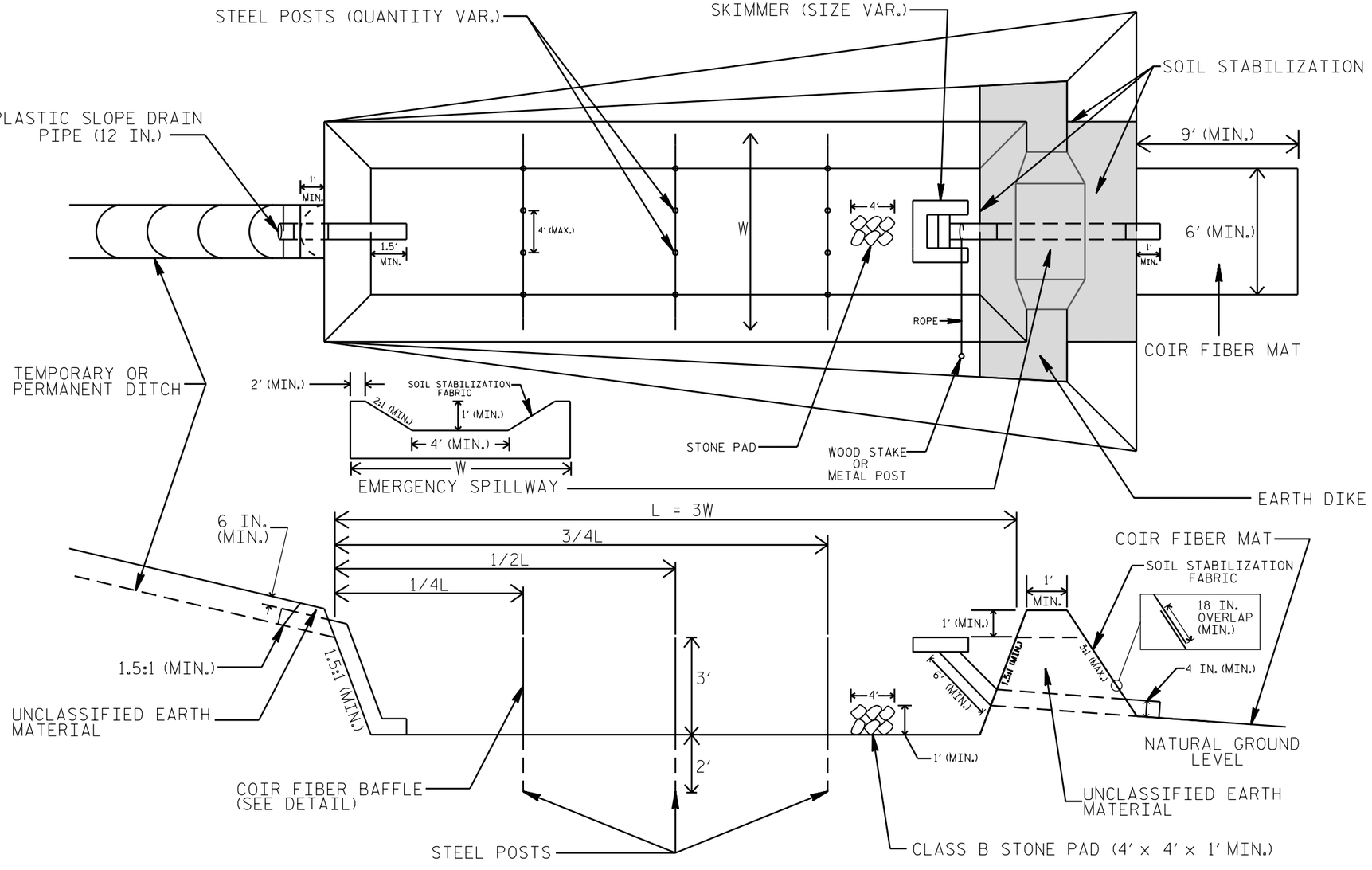
2006 STANDARD SPECIFICATIONS

SKIMMER BASIN WITH BAFFLES DETAIL

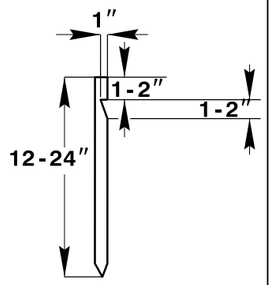
NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

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

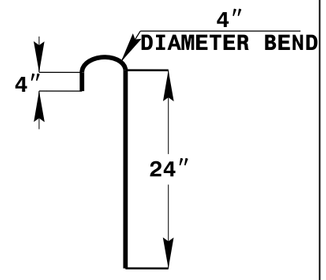
PROJECT REFERENCE NO.	SHEET NO.
33777	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



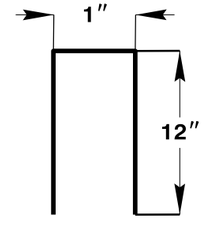
2" x 2" (nominal) WOODEN STAKE



#10 STEEL REINFORCEMENT BAR



1" (nominal) STAPLE



COIR FIBER MAT ANCHOR OPTIONS

NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE EMERGENCY SPILLWAY LENGTH (FT.) USING Q/0.8, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTER FABRIC AS DIRECTED.
6. SOIL STABILIZATION FABRIC FOR EMERGENCY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
3777	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

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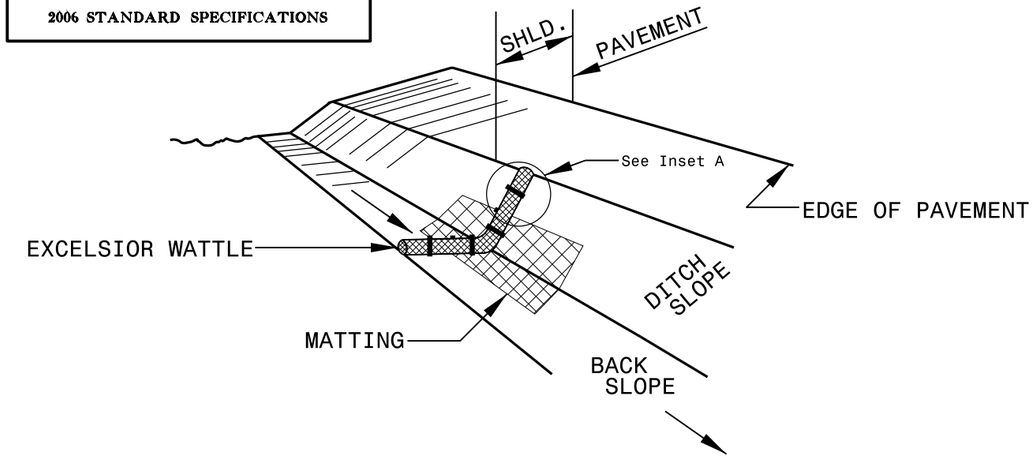
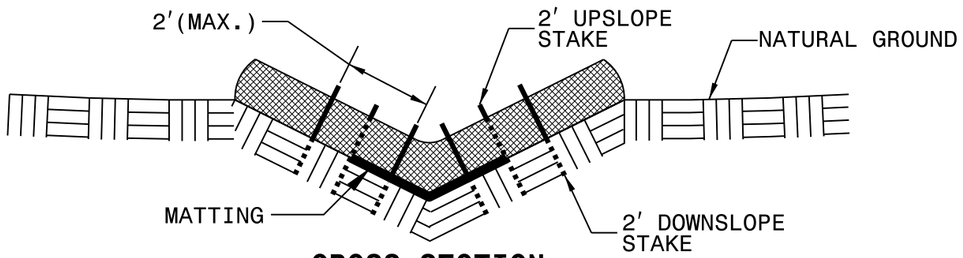
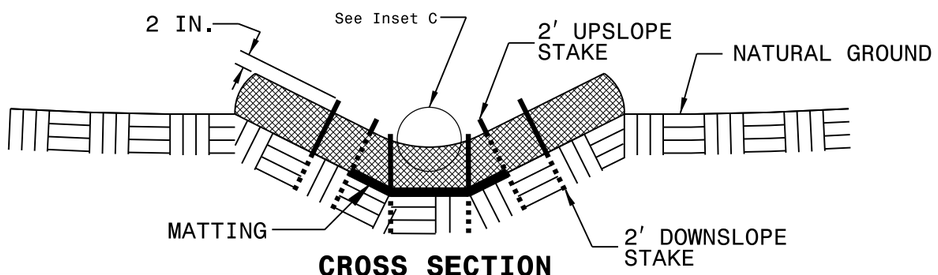
2006 STANDARD SPECIFICATIONS



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

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.

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

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

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

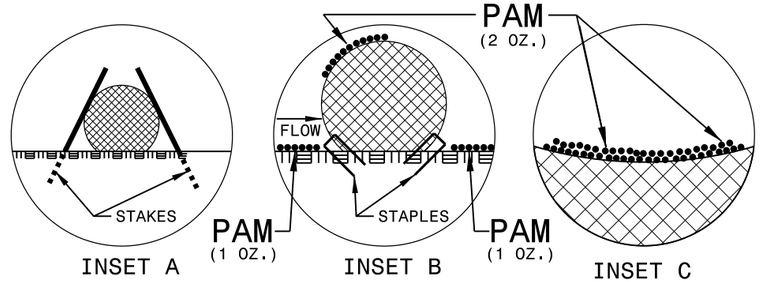
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

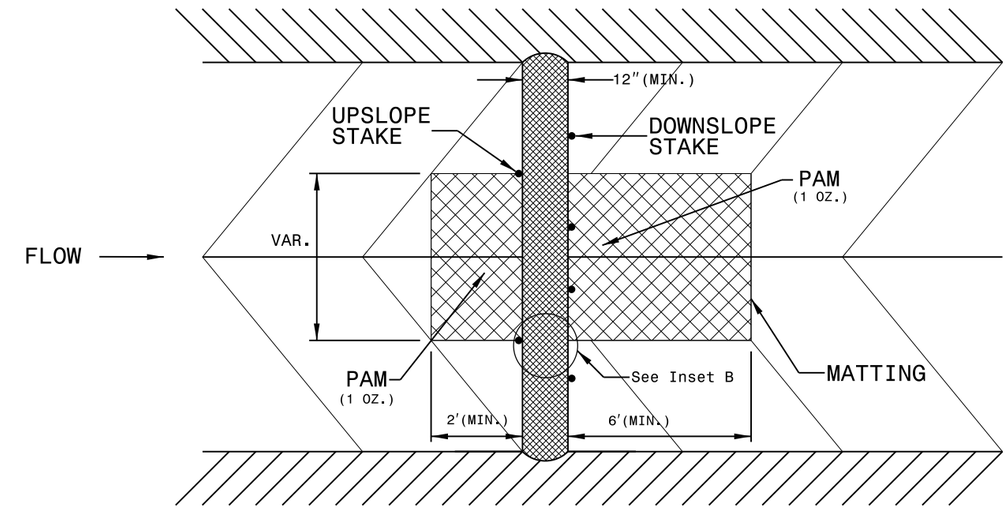
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

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

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





TOP VIEW

ROADSIDE ENVIRONMENTAL UNIT
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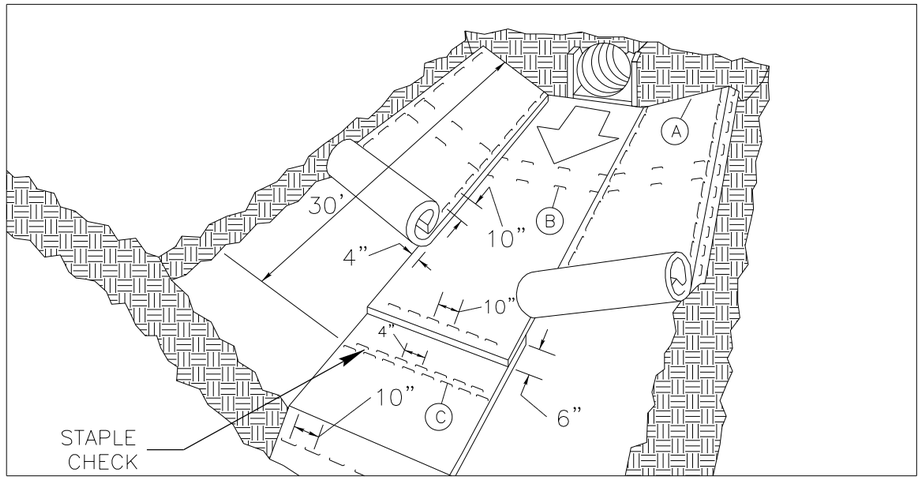
2006 STANDARD SPECIFICATIONS

PROJECT REFERENCE NO.	SHEET NO.
33777	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATTING INSTALLATION DETAIL



MATTING IN DITCHES

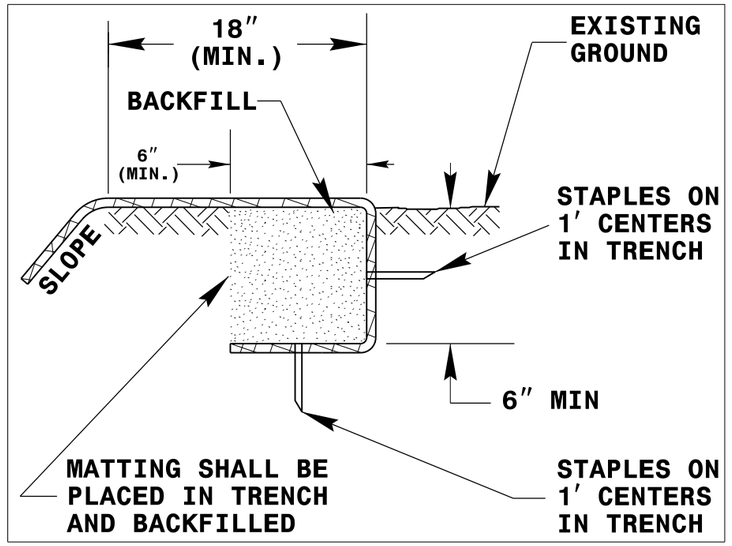
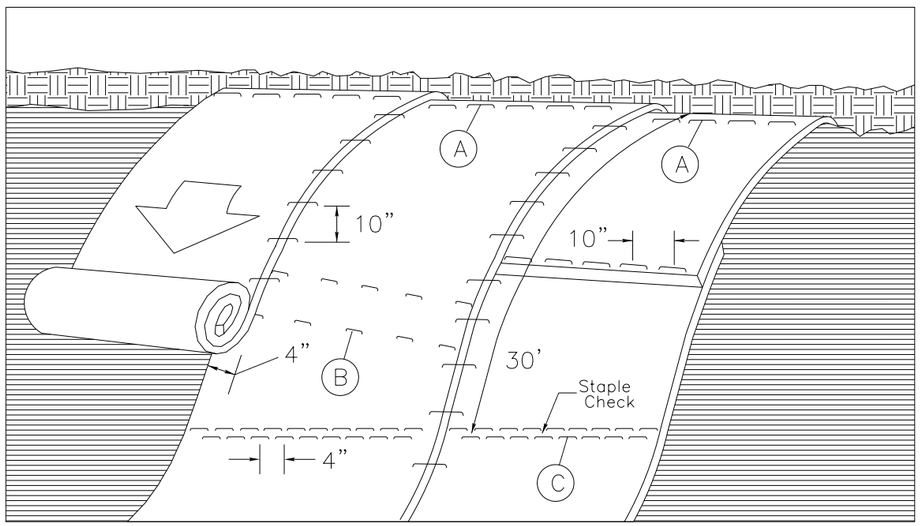


DIAGRAM (A)



MATTING ON SLOPES

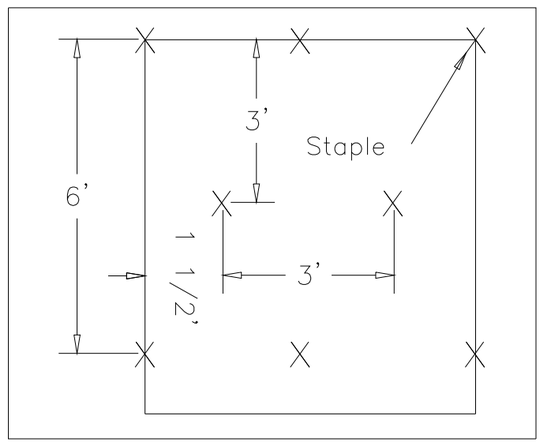


DIAGRAM (B)

Staple Check Pattern

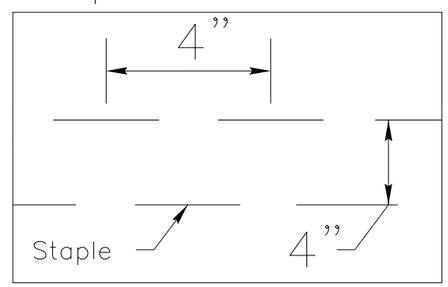


DIAGRAM (C)

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.

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