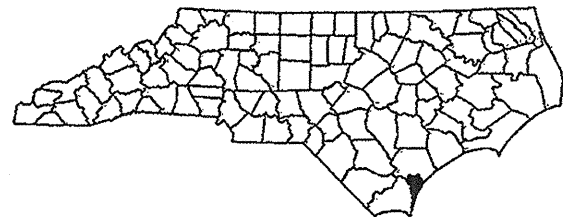


17BP.3.H.3

CONTRACT: C203069

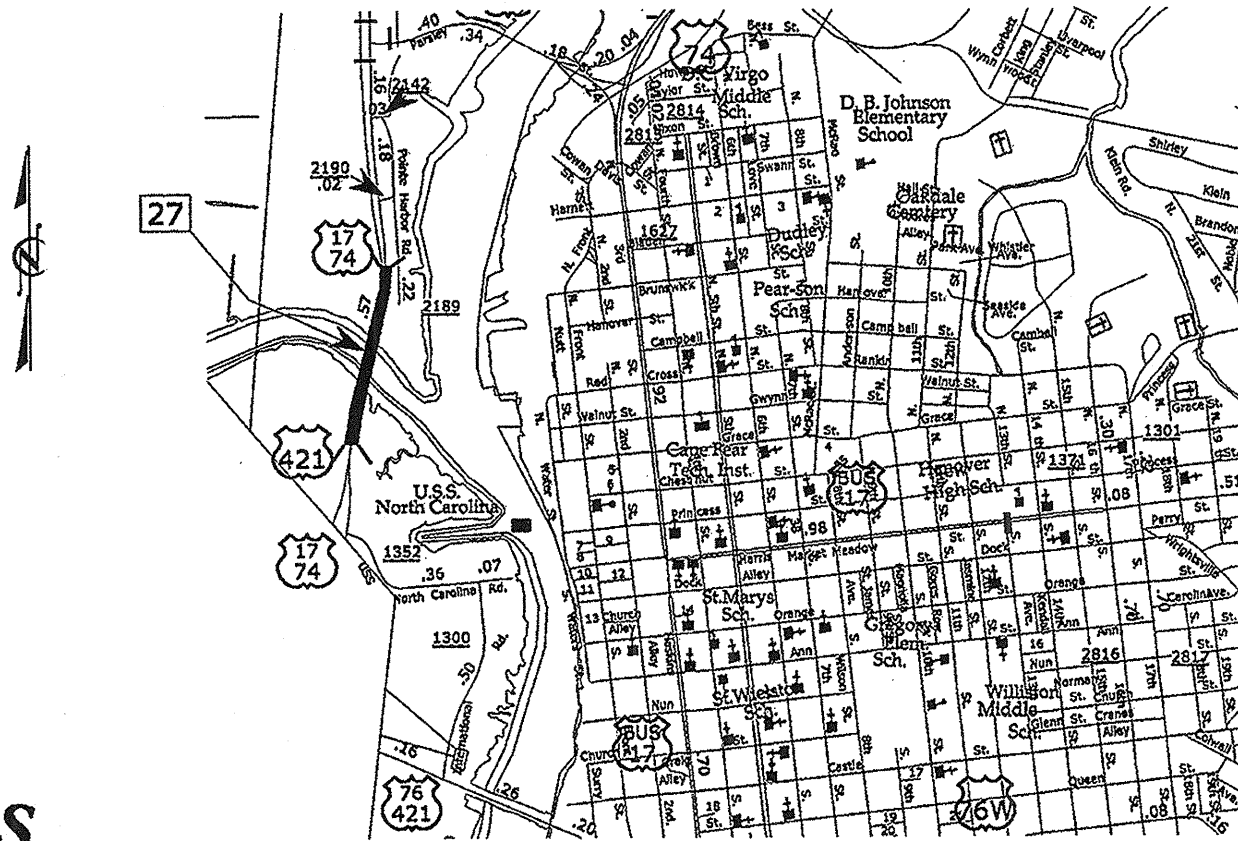


STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
**NEW HANOVER COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.H.3	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DISCIPLINE	
17BP.3.H.3		P.E.	
17BP.3.H.3		CONST.	

LOCATION: BRIDGE NO. 27 ON US 421 AND NC 133 OVER CAPE FEAR RIVER

TYPE OF WORK: BRIDGE PRESERVATION: HYDRODEMOLITION, LMC OVERLAY, JOINT REPLACEMENT, CLEANING & PAINTING OF STRUCTURAL STEEL, CONCRETE GIRDER REPAIRS & SUBSTRUCTURE REPAIRS

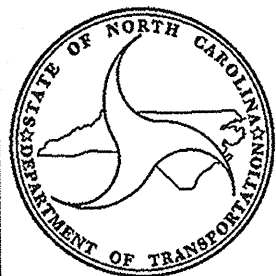


**STRUCTURES**

Prepared in the Office of:  
 HDN Engineering, Inc. of the Carolinas  
 3701 Kilduff Drive, Suite 107, Raleigh, NC 27613  
 N.C.E.L.S. License Number: F-0114

PENTABLE: SPENTBL55  
 TIME: 811G5

PLOT DRIVER: #PLTDV56  
 USER: #USER4 DATE: #DATE5  
 FILE: #PWRVAULT.PATHOS5C1



**DESIGN DATA**  
 BRIDGE #27  
 ADT = 34000  
 IN 2009

**PROJECT LENGTH**  
 LENGTH ROADWAY OF PROJECT = 0.05 MILES  
 LENGTH STRUCTURE OF PROJECT = 0.40 MILES  
 TOTAL LENGTH OF STATE PROJECT = 0.45 MILES

**STRUCTURES MANAGEMENT UNIT**  
 1000 BIRCH RIDGE DR.  
 RALEIGH, N.C. 27610

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2012 STANDARD SPECIFICATIONS

LETTING DATE :  
**NOV. 20, 2012**

**MATTHEW MOYER, P.E.**  
 PROJECT ENGINEER

**RICK NELSON, P.E.**  
 PROJECT ENGINEER

**FARZIN ASEFNIA, P.E.**  
 PROJECT DESIGN ENGINEER

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.H.3	1A	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
17BP.3.H.3		P.E.	
17BP.3.H.3		CONST.	

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**NEW HANOVER COUNTY**

LOCATION: BRIDGE NO. 27 ON US 421 AND NC 133 OVER CAPE FEAR RIVER

TYPE OF WORK: BRIDGE PRESERVATION: HYDRODEMOLITION, LMC OVERLAY, JOINT REPLACEMENT, CLEANING & PAINTING OF STRUCTURAL STEEL, CONCRETE GIRDER REPAIRS & SUBSTRUCTURE REPAIRS

INDEX OF SHEETS

DWG. #	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEETS
2	SUMMARY OF QUANTITIES
S-1 THRU S-47	STRUCTURE PLANS
TMP-1 THRU TMP-3	TRANSPORTATION MANAGEMENT PLAN

**STRUCTURES**

Prepared In the Office of:  
 HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.B.E.L.S. License Number: F-0116

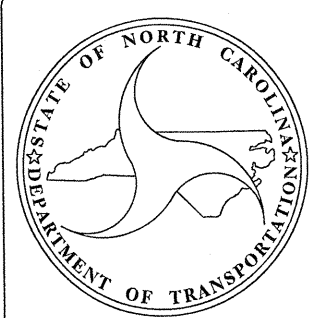
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PENTABLE: \$PENTBL\$  
 TIME: \$TIME\$

PLOT DRIVER: \$PLTDRV\$  
 USER: \$USER\$ DATE: \$DATE\$  
 FILE: \$PWVARVAL.TPA THESC\$

17BP.3.H.3

CONTRACT: C203069



STRUCTURES MANAGEMENT UNIT  
 1000 BIRCH RIDGE DR.  
 RALEIGH, N.C. 27610

---

2012 STANDARD SPECIFICATIONS

LETTING DATE :  
**NOV. 20, 2012**

**MATTHEW MOYER, P.E.**  
 PROJECT ENGINEER

**RICK NELSON, P.E.**  
 PROJECT ENGINEER

**FARZIN ASEFNIA, P.E.**  
 PROJECT DESIGN ENGINEER

**P.E.**  
 BRIDGE DESIGN ENGINEER

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**SUMMARY OF QUANTITIES**

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
1330000000-E	607	1,729	SY	INCIDENTAL MILLING
1523000000-E	610	204	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C
1575000000-E	620	15	TON	ASPHALT BINDER FOR PLANT MIX
4400000000-E	1110	48	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	160	SF	WORK ZONE SIGNS (PORTABLE)
4415000000-N	1115	2	EA	FLASHING ARROW BOARD
4420000000-N	1120	2	EA	PORTABLE CHANGEABLE MESSAGE SIGN
4480000000-N	1165	2	EA	TMA
4516000000-N	1180	84	EA	SKINNY DRUM
4726040000-E	1205	15	LF	HEATED-IN-PLACE THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4810000000-E	1205	15,691	LF	PAINT PAVEMENT MARKING LINES (4")
4847000000-E	1205	15,691	LF	POLYUREA PAVEMENT MARKING LINES (4", *****) (HIGHLY REFLECTIVE ELEMENTS)
4900000000-N	1251	182	EA	PERMANENT RAISED PAVEMENT MARKERS
5255000000-N	1413	Lump Sum		PORTABLE LIGHTING
8161000000-E	420	124,004	SF	GROOVING BRIDGE FLOORS
8296000000-N	442	Lump Sum		POLLUTION CONTROL
8664000000-E	SP	93	CF	SHOTCRETE REPAIRS
8678000000-E	SP	5	LF	EPOXY RESIN INJECTION
8692000000-N	SP	Lump Sum		FOAM JOINT SEALS
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CLEANING AND REPAINTING OF BRIDGE #27
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM EPOXY COATING
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM RUBBER EXPANSION JOINT SEAL

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DESIGN AND CONSTRUCTION SPECIFICATIONS

STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES (2012)

GENERAL

EXISTING DIMENSIONS AND BRIDGE CONDITIONS ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

THE LOCATION AND EXTENT OF REPAIRS SHOWN ON THE PLANS ARE GENERAL IN NATURE. THE ENGINEER WILL DETERMINE THE EXACT EXTENT OF REMOVAL IN THE FIELD BASED ON AN EVALUATION OF THE CONDITION OF THE EXPOSED SURFACES.

CONSTRUCTION METHODS, PROCEDURES AND SEQUENCES ARE THE CONTRACTOR'S RESPONSIBILITY AND THE CONTRACTOR SHALL TAKE ALL THE NECESSARY MEANS TO MAINTAIN AND PROTECT THE STRUCTURAL INTEGRITY OF ALL CONSTRUCTION AT ALL STAGES.

THE MANUFACTURER'S CERTIFIED DRAWINGS AND SPECIFICATION FOR EQUIPMENT ANCHORAGE AND DETAILS SHALL BE SUBMITTED FOR APPROVAL.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

REPAIR AREAS INACCESSIBLE BY POWER TOOLS SHALL BE CLEANED WITH HAND TOOLS.

CONCRETE REPAIRS

FOR CLASS I, CLASS II AND CLASS III BRIDGE DECK SURFACE PREPARATION, SEE HYDRO-DEMOLITION OF BRIDGE DECK SPECIAL PROVISION.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROTECT THE BEARING FROM SHOTCRETE OVERSPRAY WHEN PERFORMING SHOTCRETE REPAIRS NEAR THE GIRDER ENDS.

FOR "UNDERSIDE OF DECK AND DIAPHRAGM REPAIR DETAIL", SEE DRAWING "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

FOR "CONCRETE GIRDER REPAIR DETAIL", SEE DRAWING "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

FOR "BENT CAP REPAIR DETAIL", SEE DRAWING "SUBSTRUCTURE REPAIR DETAILS".

FOR "COLUMN AND STRUT REPAIR DETAIL", SEE DRAWING "SUBSTRUCTURE REPAIR DETAILS".

DECK REHABILITATION

FOR SCARIFYING BRIDGE DECK, SEE HYDRO-DEMOLITION OF BRIDGE DECK SPECIAL PROVISION.

FOR HYDRO-DEMOLITION OF BRIDGE DECK, SEE SPECIAL PROVISIONS.

EXISTING JOINTS AND BRIDGE DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE MANAGING HYDRO-DEMOLITION WATER SPECIAL PROVISION.

WATER AND CONCRETE SLURRY FROM HYDRO-DEMOLITION SHALL NOT BE ALLOWED TO DRAIN ACROSS TRAVEL LANES. CONTRACTOR SHALL PROVIDE A METHOD TO CONTROL WATER.

THE BOUNDARIES OF AREA IDENTIFIED FOR CLASS III SURFACE PREPARATION ARE APPROXIMATE. IF ANY CLASS III LOCATIONS ARE ENCOUNTERED PRIOR TO OR DURING HYDRO-DEMOLITION, SEE "BLOW THRU CONTAINMENT AND FORMWORK" DETAIL. THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK.

BLOW THROUGH CONTAINMENT AND FORMWORK ARE NOT REQUIRED AT BAYS FORMED USING PRESTRESSED CONCRETE DECK PANELS.

LATEX MODIFIED CONCRETE SHALL BE LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH.

FOR LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.

FOR GROOVING BRIDGE FLOORS INFORMATION, SEE LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH SPECIAL PROVISION.

JOINT REPLACEMENT

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 3/16" AT BENT 13.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR RUBBER EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

STRUCTURAL STEEL REHABILITATION

FOR CLEANING AND REPAINTING OF BRIDGE #27, SEE SPECIAL PROVISIONS.

**TOTAL BILL OF MATERIAL**

SCARIFYING BRIDGE DECK	* CLASS I SURFACE PREPARATION	* CLASS II SURFACE PREPARATION	* CLASS III SURFACE PREPARATION	* CLASS AA CONCRETE	EPOXY RESIN INJECTION	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH OVERLAY	PLACING & FINISHING LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH OVERLAY	FOAM JOINT SEALS	RUBBER EXPANSION JOINT SEAL	GROOVING BRIDGE FLOORS	SHOTCRETE REPAIRS	CLEANING AND REPAINTING OF BRIDGE #27	POLLUTION CONTROL	INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE S 9.5C	ASPHALT BINDER FOR PLANT MIX	EPOXY COATING
SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	CU. YDS.	L.F.	SO. YDS.	CU. YDS.	SO. YDS.	LUMP SUM	LUMP SUM	SO. FT.	CU. FT.	LUMP SUM	LUMP SUM	SO. YDS.	TONS	TONS	LUMP SUM
14,699	10	1	0	0	5	14,699	613	14,699	LUMP SUM	LUMP SUM	124,004	93	LUMP SUM	LUMP SUM	1,729	204	15	LUMP SUM

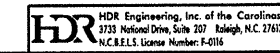
\* QUANTITY SHOWN IS FOR INFORMATION ONLY.

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL NOTES  
 AND TOTAL  
 BILL OF MATERIAL**

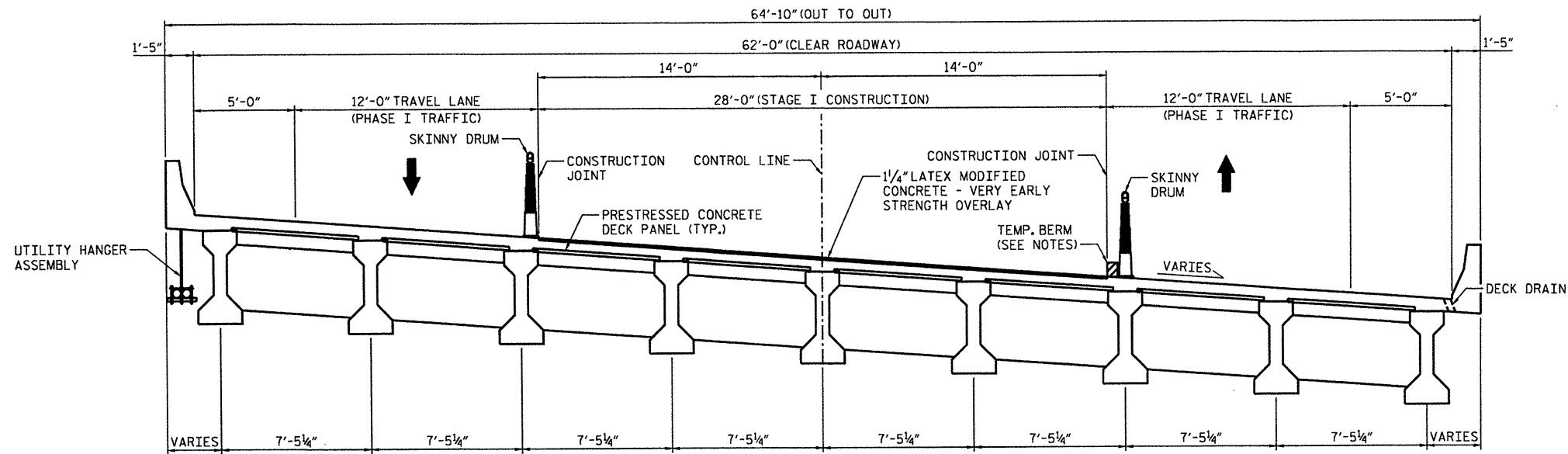
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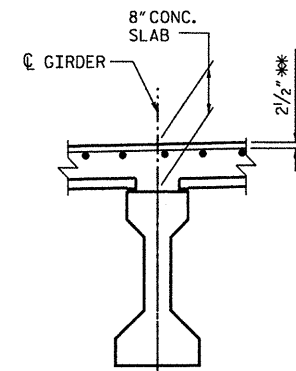
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NOTES  
 FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".



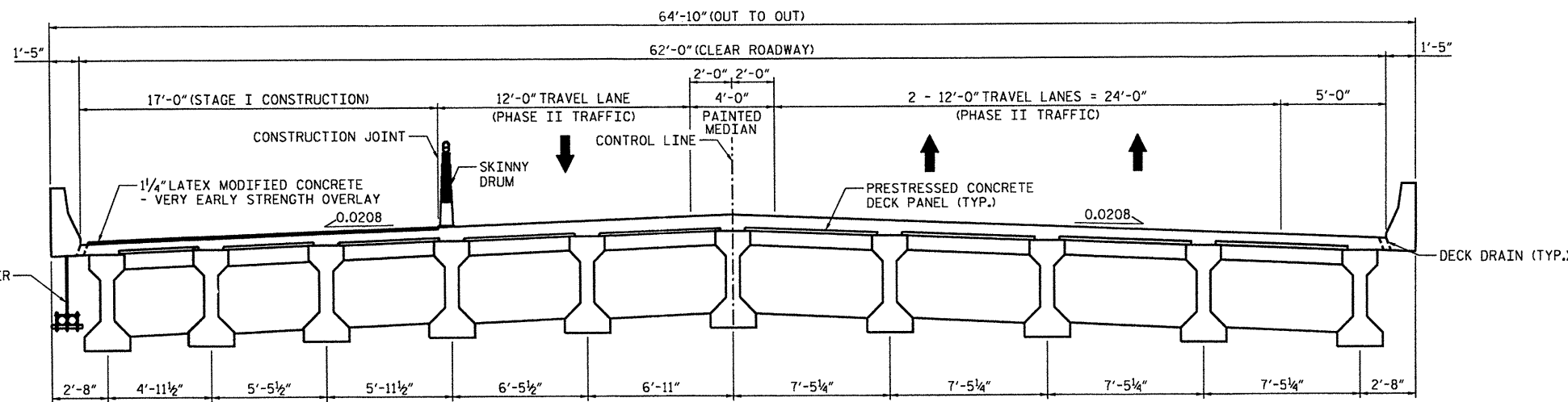
TYPICAL SECTION - STAGE I

SPAN 2 SHOWN, SPANS 1, 3 - 9 AND 15 - 23 STRUCTURALLY SIMILAR.  
 STAGE I CONSTRUCTION AND PHASE I TRAFFIC APPLIES AT ALL SPANS.



EXISTING SLAB SECTION

FOR SPANS 1 - 10 AND 14 - 23  
 \*\* CONCRETE COVER PER "AS-BUILT PLANS"



TYPICAL SECTION - STAGE II

SPAN 10 SHOWN, SPAN 14 STRUCTURALLY SIMILAR BY ROTATION.  
 STAGE II CONSTRUCTION AND PHASE II TRAFFIC APPLIES AT ALL SPANS.

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



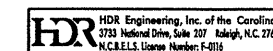
2-17-12

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

TYPICAL SECTION  
 (1 OF 2)  
 (US 421 AND NC 133 OVER CAPE FEAR RIVER)

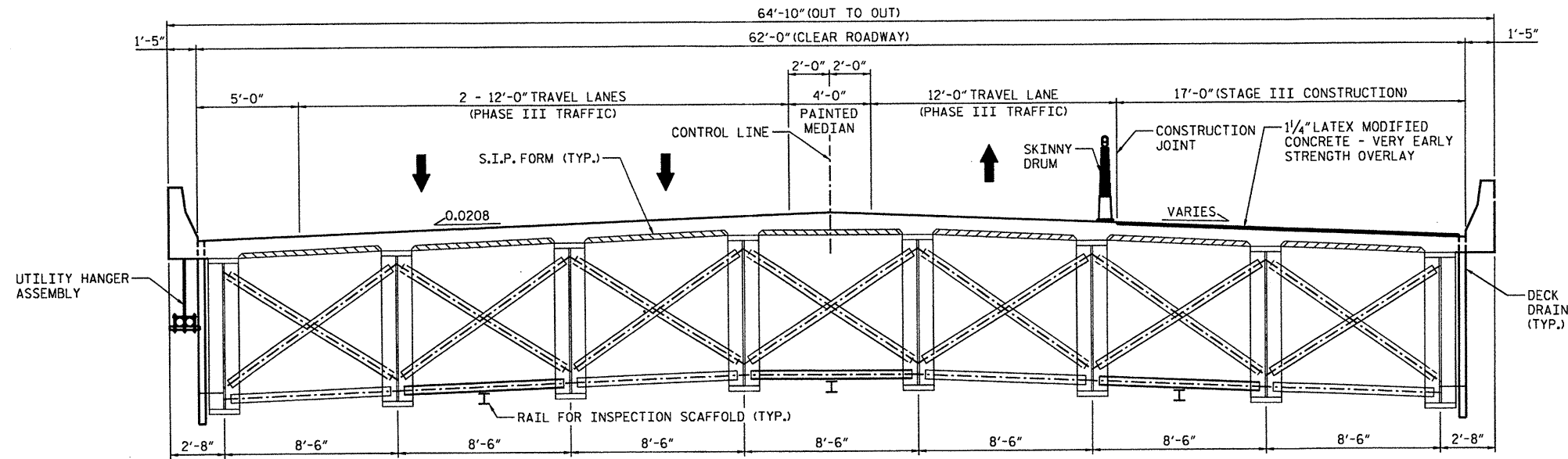
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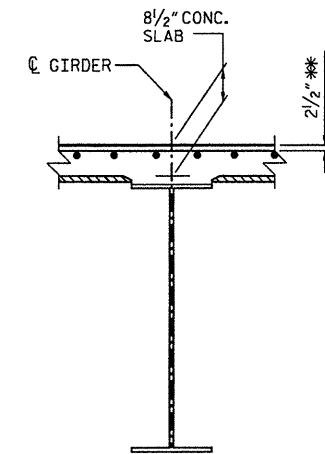
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NOTES  
 FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".



**TYPICAL SECTION - STAGE III**

SPANS 11, 12 AND 13 SHOWN.  
 STAGE III CONSTRUCTION AND PHASE III TRAFFIC APPLIES AT ALL SPANS.



**EXISTING SLAB SECTION**

FOR SPANS 11, 12 AND 13  
 BOTTOM MAT OF REINFORCING  
 NOT SHOWN FOR CLARITY  
 \*\* CONCRETE COVER PER "AS-BUILT PLANS"

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

TYPICAL SECTION  
 (2 OF 2)  
 (US 421 AND NC 133 OVER CAPE FEAR RIVER)

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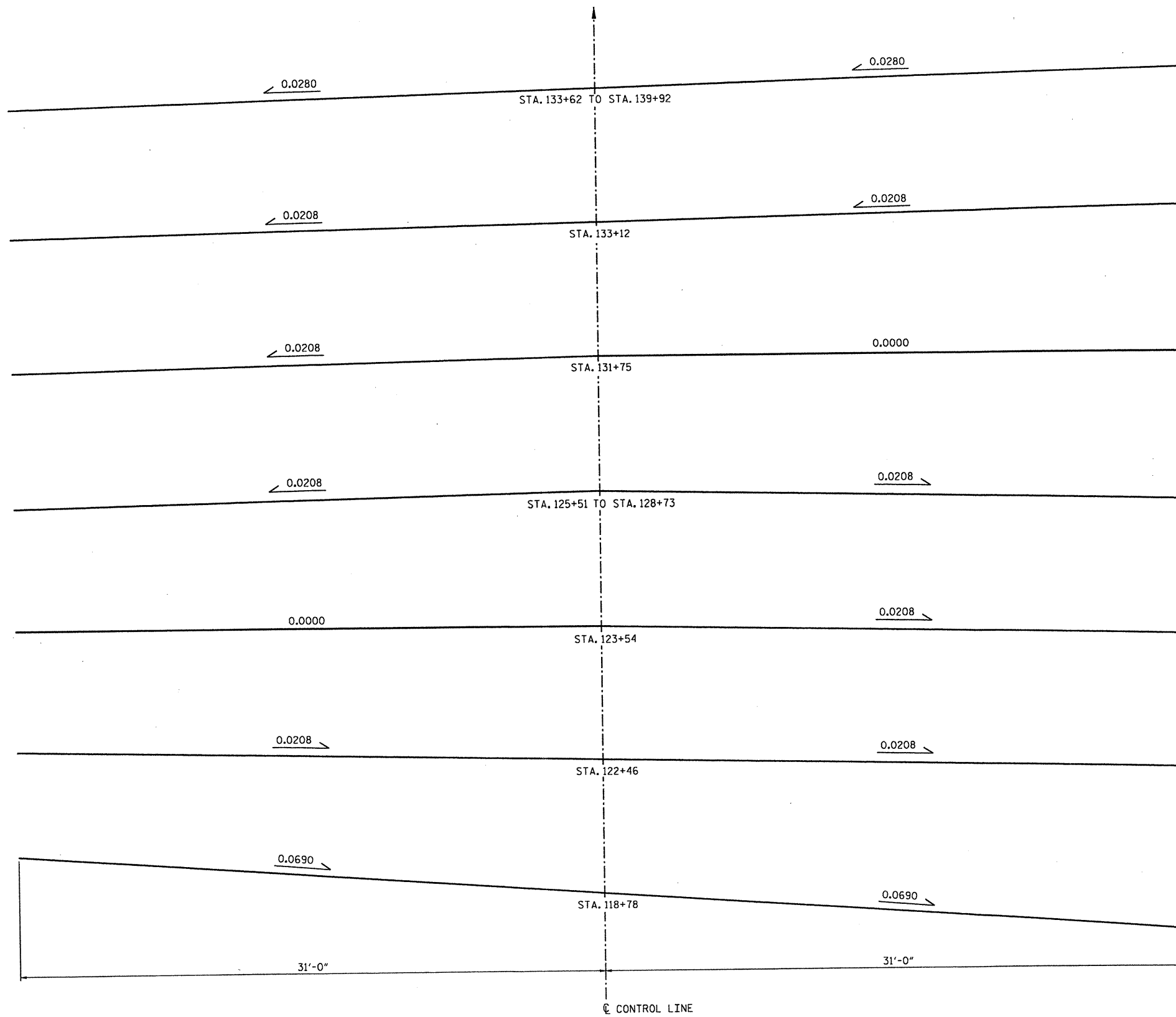
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**NOTES**

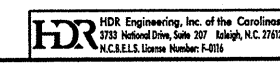
STATIONS AND SLOPES ARE APPROXIMATE.  
ACTUAL LOCATIONS MAY VARY IN THE FIELD.  
MATCH EXISTING SLOPES AS CLOSELY AS  
POSSIBLE.



PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
BRIDGE NO.: 27

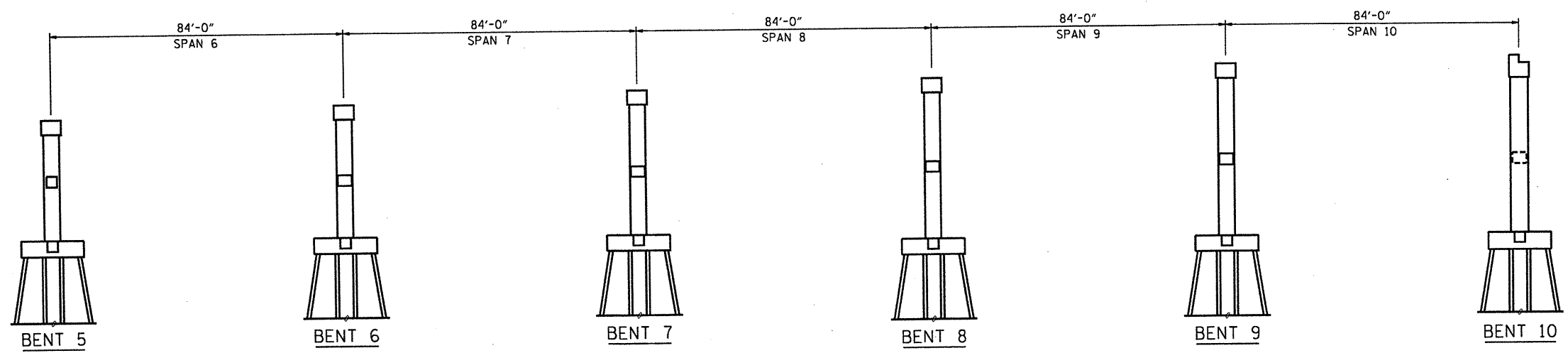
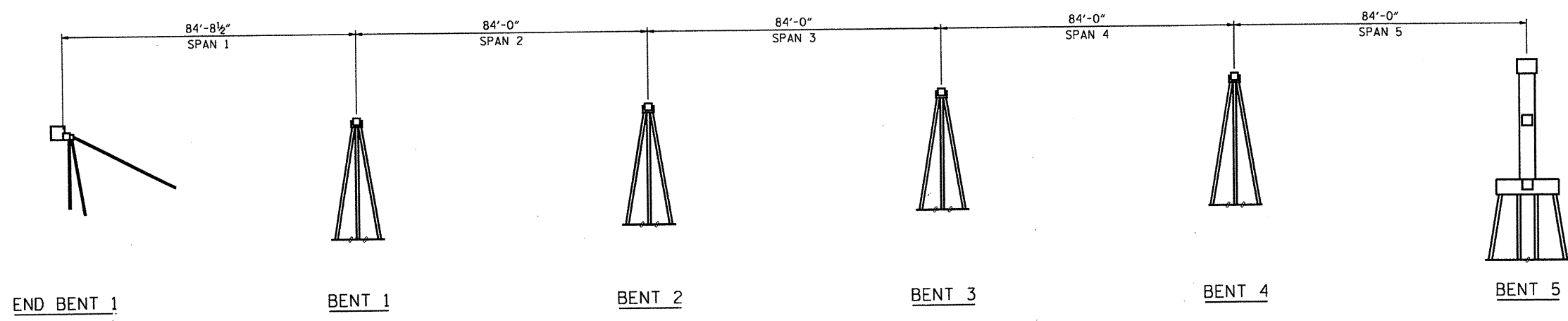


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>DECK SUPERELEVATION DIAGRAM</b>					
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1			3		
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**BRIDGE PROFILE**  
 SECTIONS AT END BENTS AND BENTS ARE AT RIGHT ANGLES TO BENTS  
 SPANS 1 - 10  
 ALL DIMENSIONS MEASURED ALONG CONTROL LINE

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BRIDGE PROFILE**  
 SPANS 1 - 10

REVISIONS						SHEET NO. 5-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			

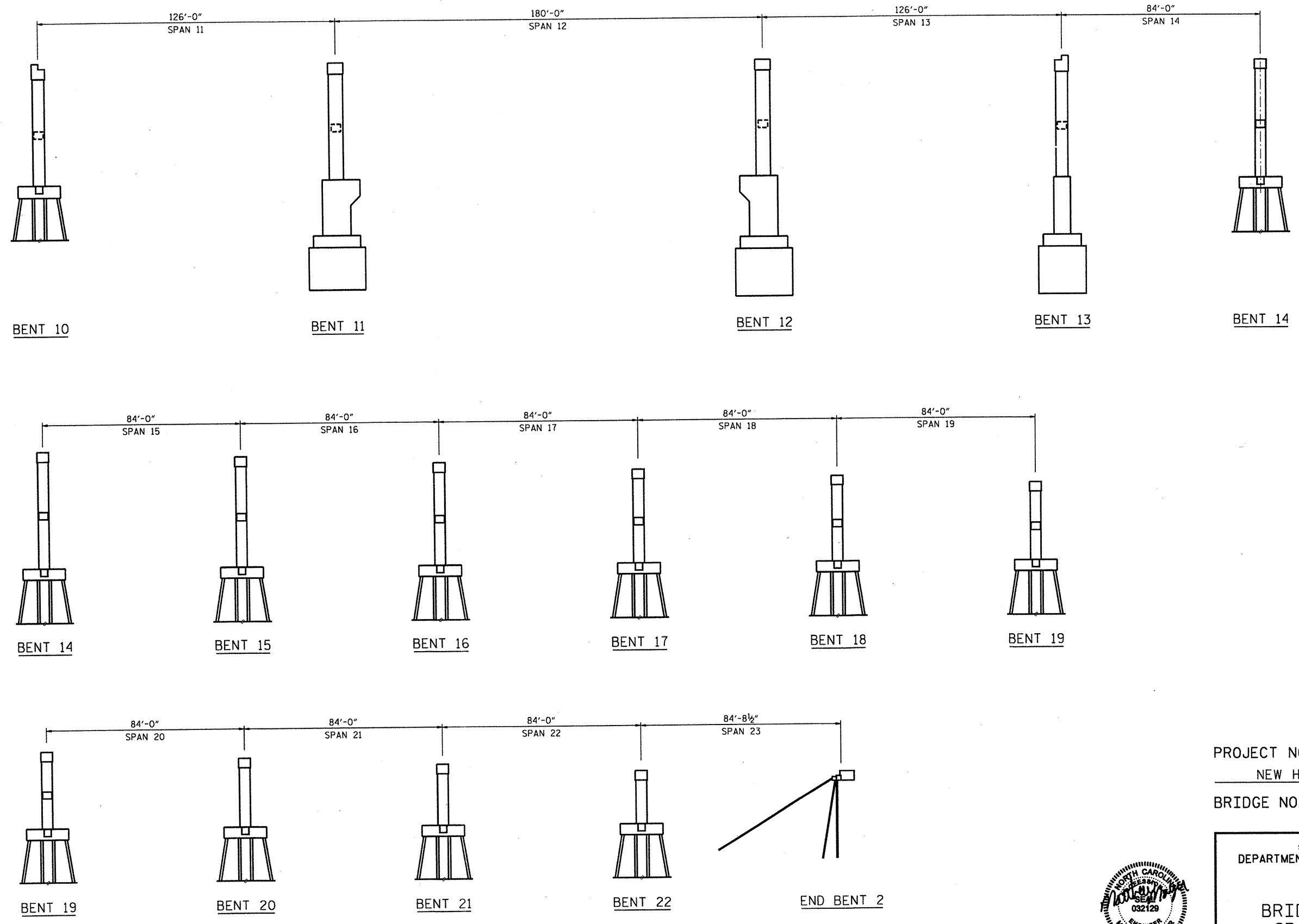
**HDR** HDR Engineering, Inc. of the Carolinas  
 3723 National Drive, Suite 207 Raleigh, NC 27612  
 N.C. E.L.E. License Number: F-0114

DRAWN BY : D.MAST DATE : 12/2011  
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PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BRIDGE PROFILE  
 SPANS 11 - 23

**BRIDGE PROFILE**  
 SECTIONS AT END BENTS AND BENTS ARE AT RIGHT ANGLES TO BENTS  
 SPANS 11 - 23  
 ALL DIMENSIONS MEASURED ALONG CONTROL LINE

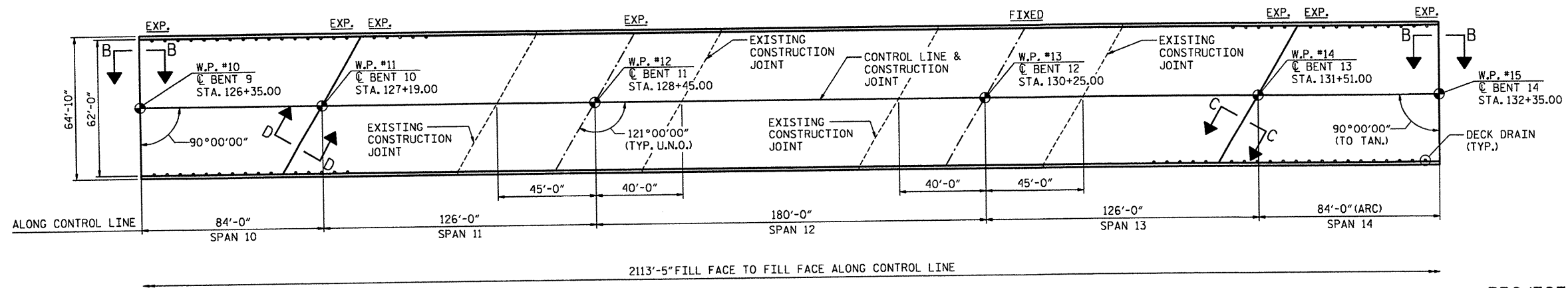
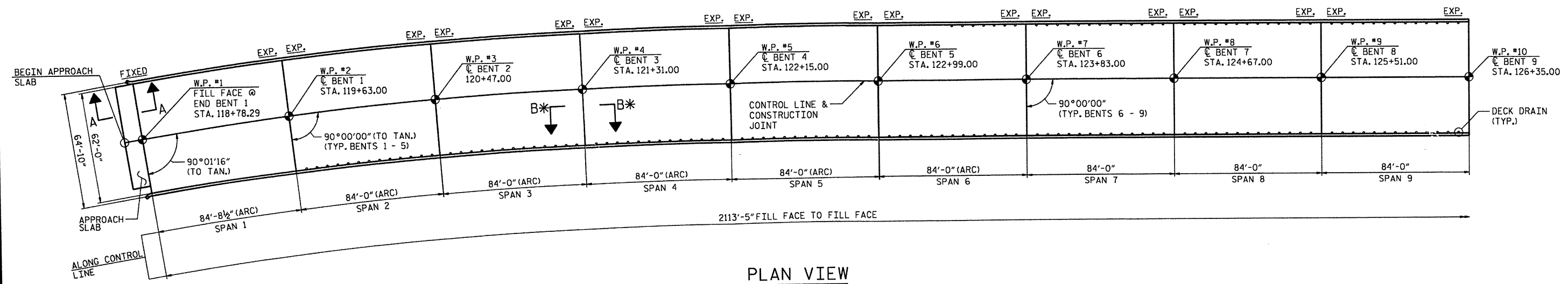
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REVISIONS						SHEET NO. 5-6 <hr/> TOTAL SHEETS 47
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1			3			
2			4			



FDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.E.L.S. License Number: F-0116

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**NOTE**  
 FOR SECTIONS A-A, B-B, C-C AND D-D, SEE "JOINT DETAILS".

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

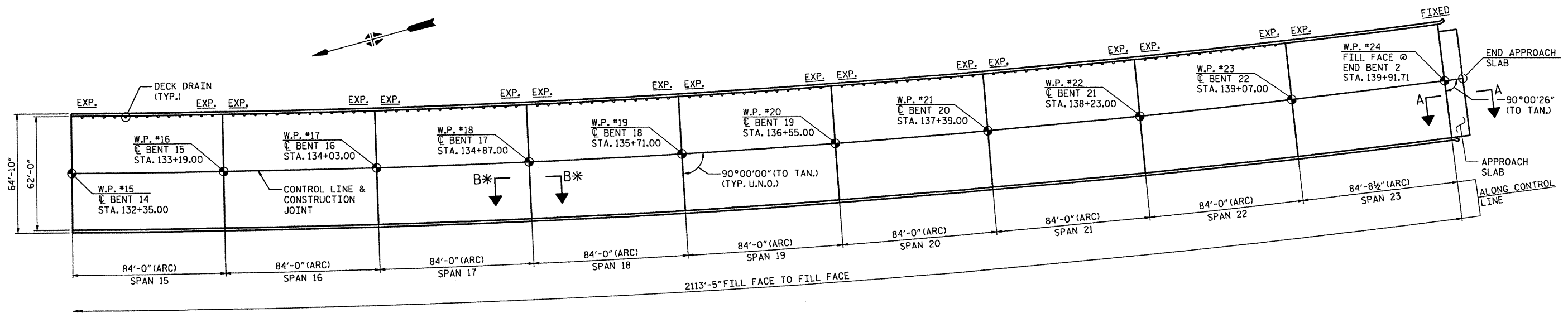


HDR Engineering, Inc. of the Carolinas  
 3783 Heford Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.E.E.S. License Number: F-0116

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN VIEW SPANS 1 - 14					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-7
					TOTAL SHEETS 47

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**PLAN VIEW**

SPANS 15 - 23  
 \* SECTION B-B TYPICAL FOR INTERIOR BENTS 14 - 22

**NOTE**

FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS".

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27

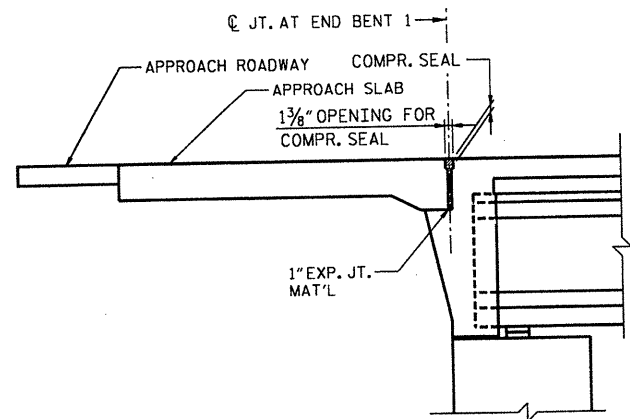


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

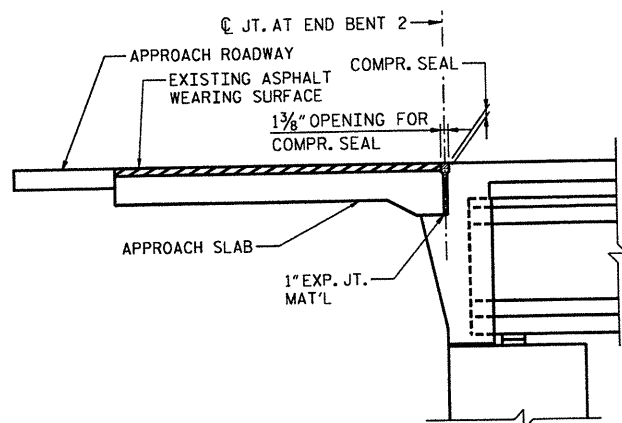
**PLAN VIEW  
 SPANS 15 - 23**



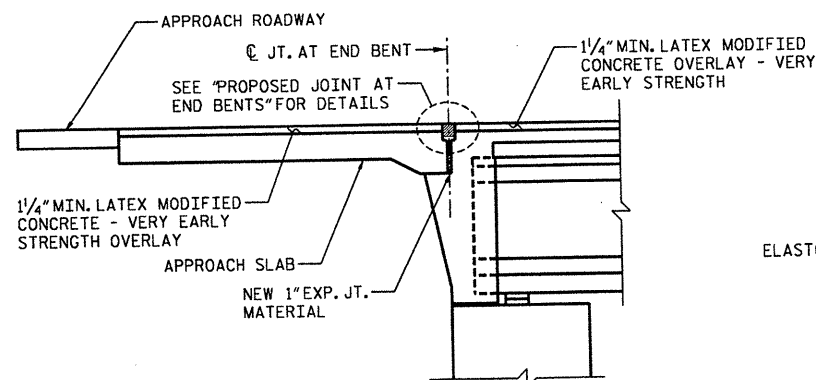
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 47
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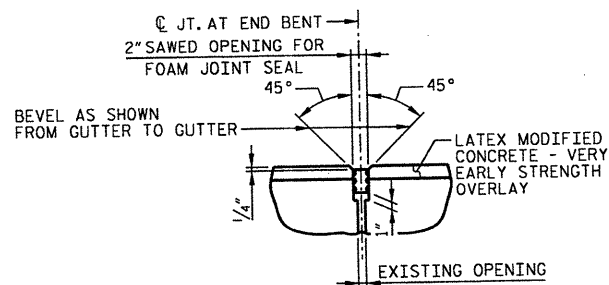
EXISTING SECTION AT END BENT 1



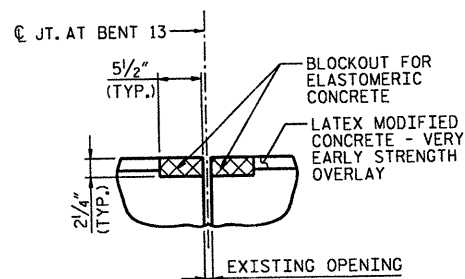
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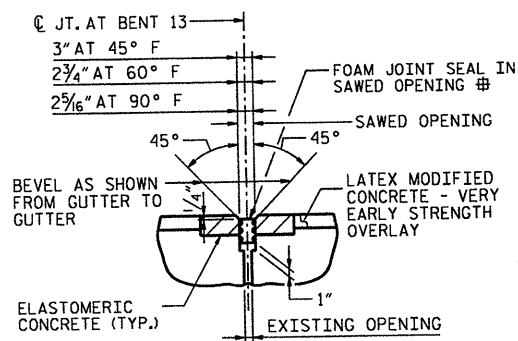
SECTION A-A



PROPOSED JOINT AT END BENTS  
FOAM JOINT SEAL WITHOUT ELASTOMERIC  
CONCRETE HEADERS

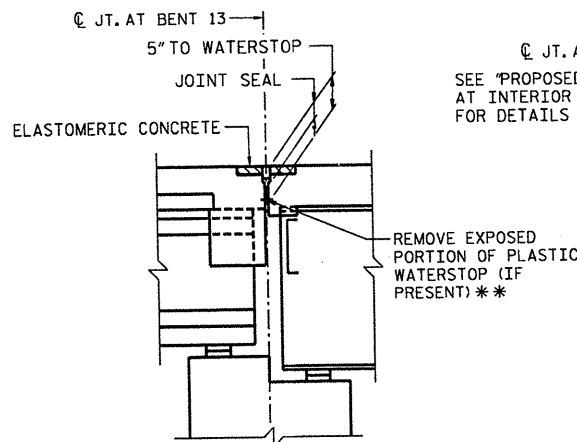


DETAIL A  
PRE-SAWED ELASTOMERIC  
CONCRETE

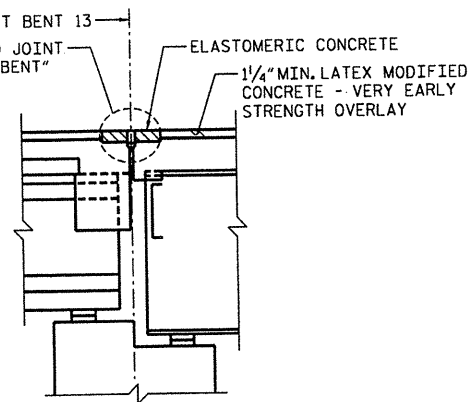


DETAIL B  
SAWED OPENING  
DETAILS

PROPOSED JOINT AT INTERIOR BENT  
AT BENT 13

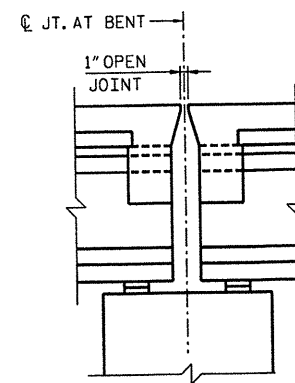


EXISTING JOINT AT BENT

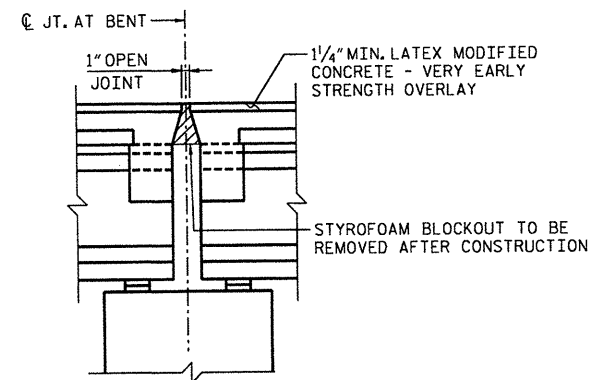


PROPOSED JOINT AT BENT

SECTION C-C  
AT BENT 13



EXISTING JOINT AT BENTS

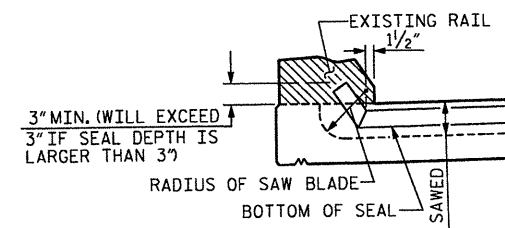


PROPOSED JOINT AT BENTS

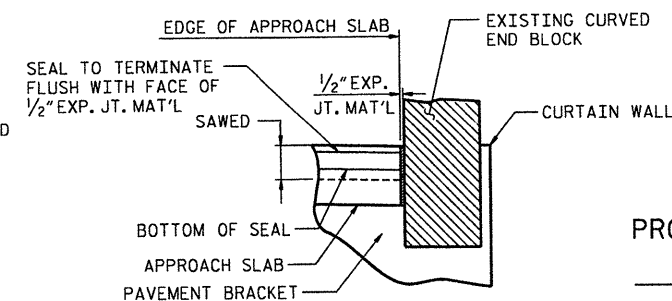
SECTION B-B  
AT BENTS 1 - 9 AND 14 - 22

ELASTOMERIC CONCRETE	
BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
BENT 13	12.4
TOTAL	12.4

\* BASED ON THE MINIMUM BLOCKOUT SHOWN  
# SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL" FOR NOMINAL UNCOMPRESSED SEAL WIDTH.



JOINT DETAIL AT RAIL  
AT BENT 13



JOINT DETAIL AT RAIL  
AT END BENTS

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
BRIDGE NO.: 27

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

JOINT DETAILS  
(1 OF 2)



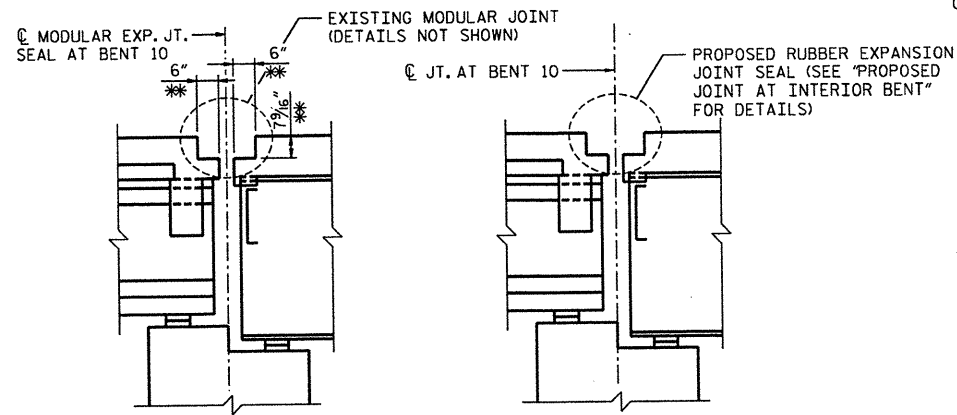
HDR Engineering, Inc. of the Carolinas  
1723 National Drive, Suite 207 Raleigh, N.C. 27612  
N.C.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			

DRAWN BY: D.MAST DATE: 12/2011  
CHECKED BY: M.MOYER DATE: 12/2011

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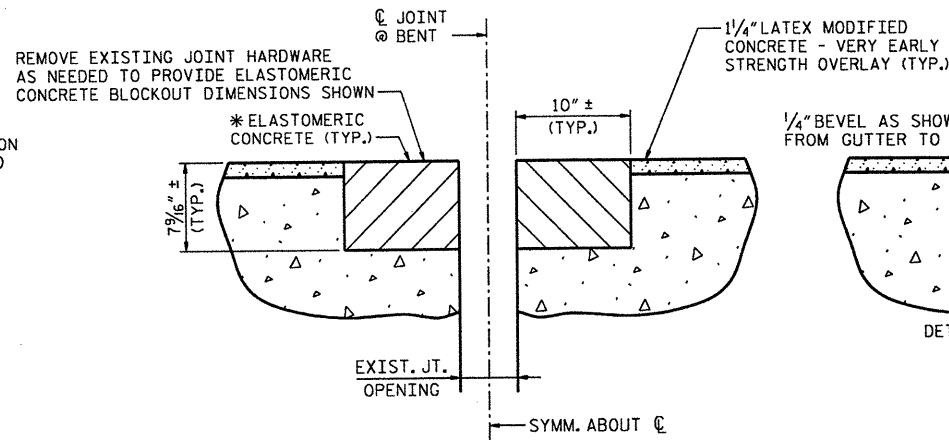
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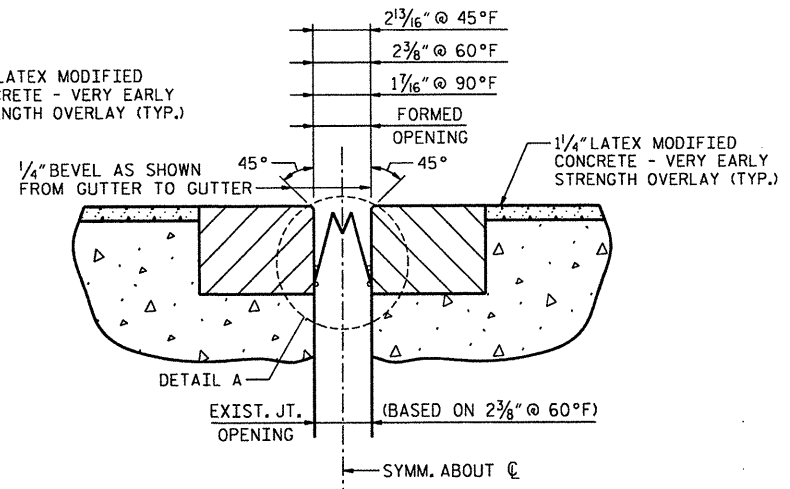
**EXISTING JOINT AT BENT**  
\*DIMENSIONS PER "AS-BUILT PLANS"

**PROPOSED JOINT AT BENT**  
SEE JOINT REPLACEMENT NOTES ON "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

**SECTION D-D**  
AT BENT 10



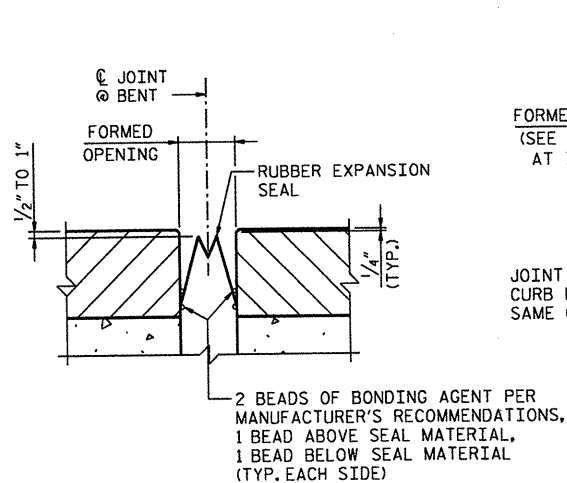
**PROPOSED JOINT DETAIL (BEFORE SAWING)**



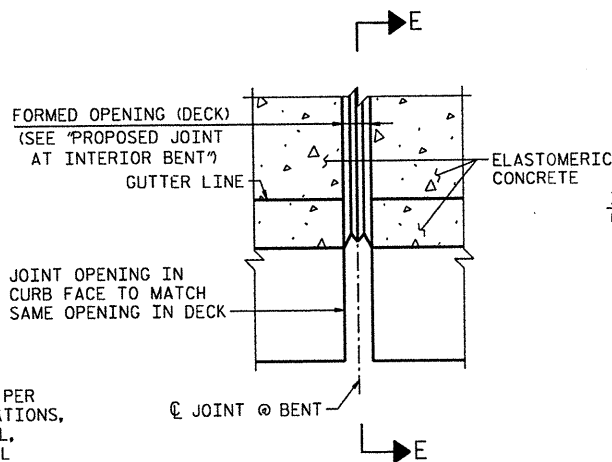
**PROPOSED JOINT DETAIL (AFTER SAWING)**

**PROPOSED JOINT AT INTERIOR BENT**  
AT BENT 10

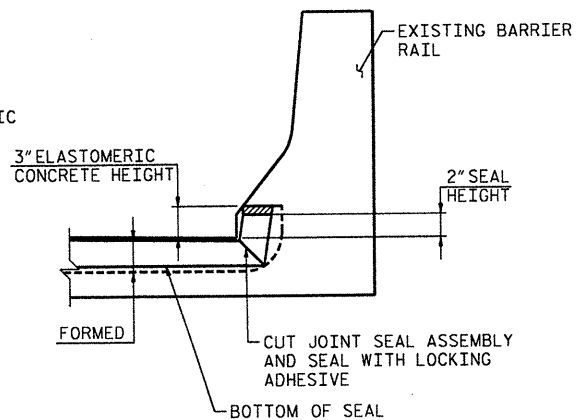
\*ELASTOMERIC CONCRETE SHALL BE CAST AFTER LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH HAS BEEN PLACED AND HAS REACHED SUFFICIENT STRENGTH TO CARRY LOAD. PROPOSED ELASTOMERIC CONCRETE SHALL RUN FROM GUTTER TO GUTTER. FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.



**DETAIL A**  
PROPOSED JOINT DETAIL  
AT BENT 10



**PLAN OF JOINT SEAL AT CURB**  
AT BENT 10



**SECTION E-E**  
AT BENT 10

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

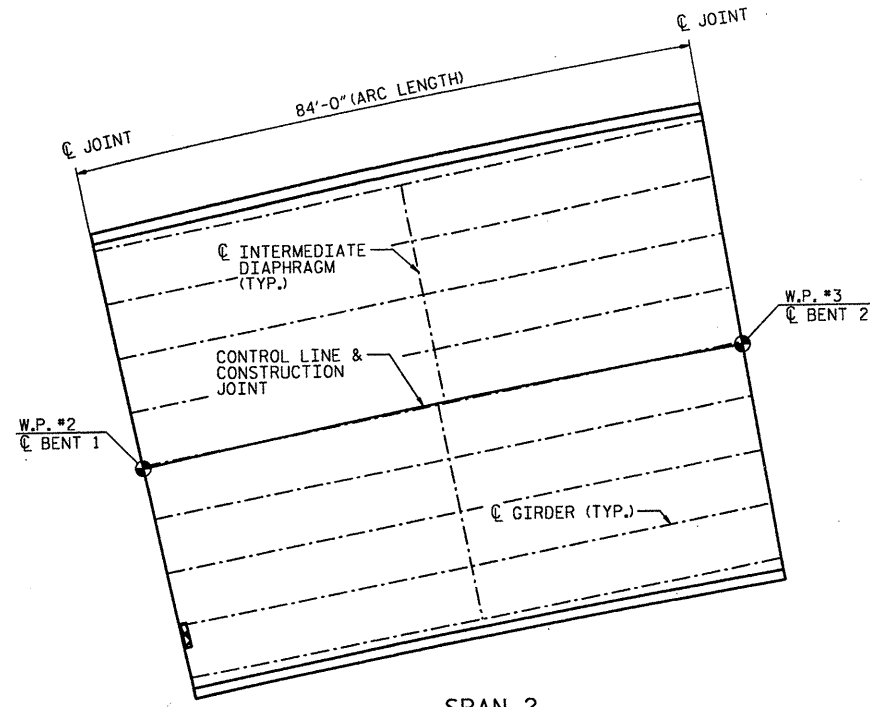
**JOINT DETAILS**  
(2 OF 2)

DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011

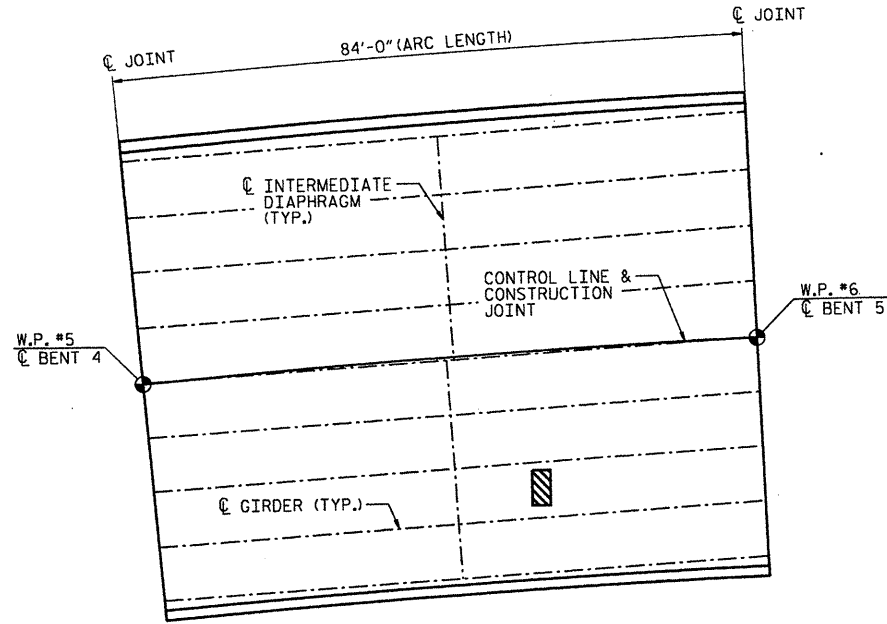
**HDR** HDR Engineering, Inc. of the Carolinas  
 3733 Medford Drive, Suite 207 Raleigh, N.C. 27607  
 N.C. E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-9A
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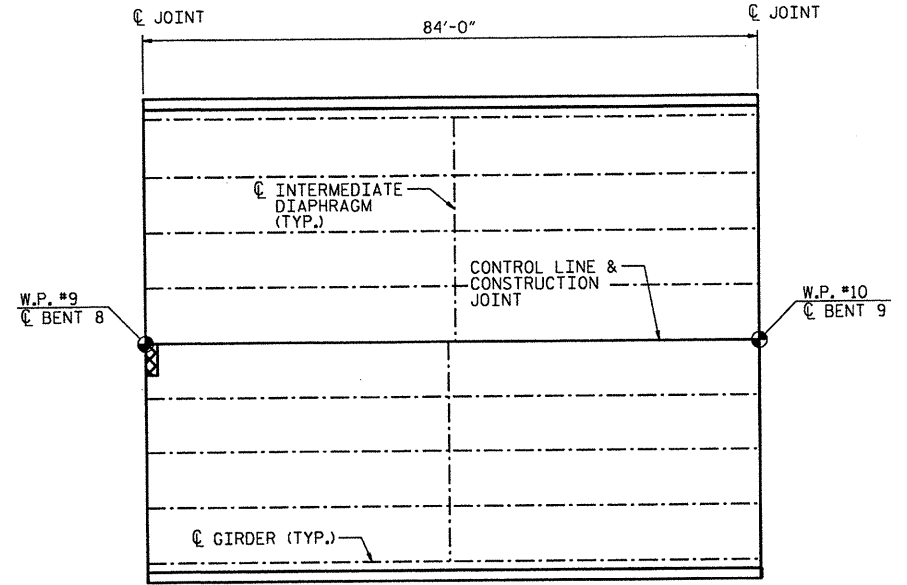
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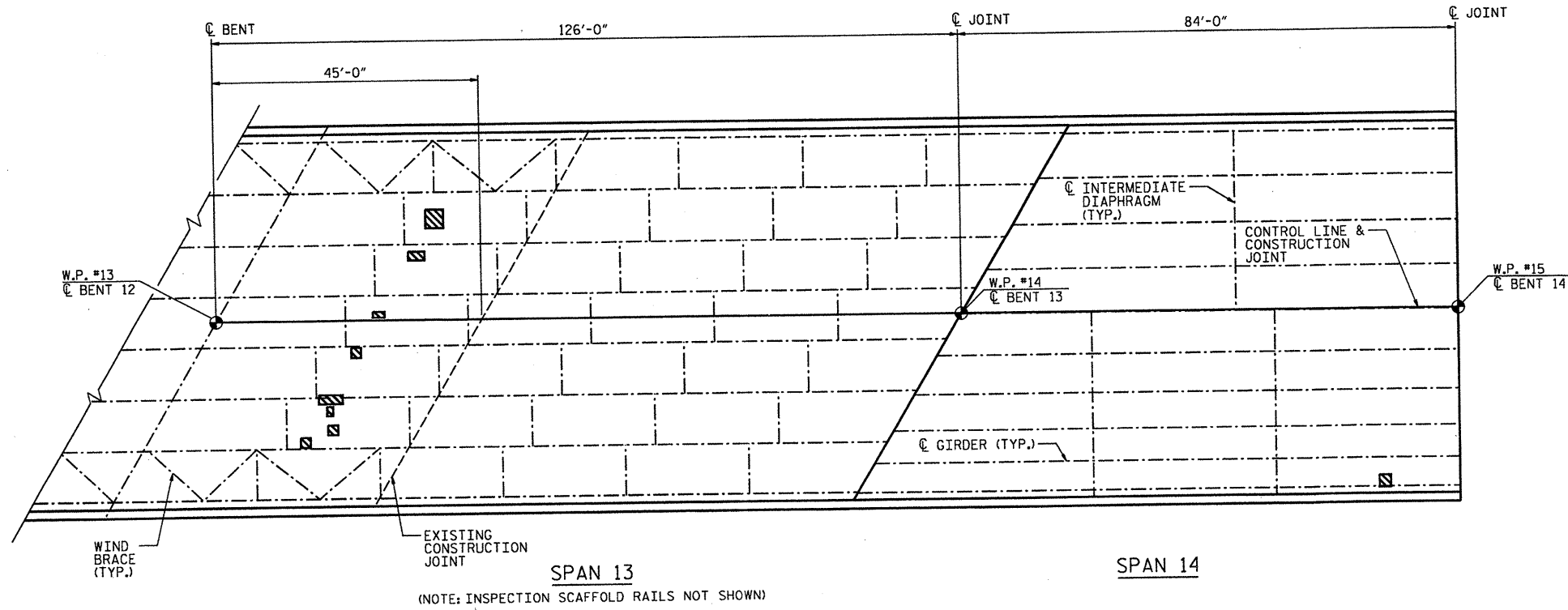
SPAN 2



SPAN 5



SPAN 9



SPAN 13

SPAN 14

**PLAN OF SPANS - DECK REPAIRS**  
 (ALL DIMENSIONS MEASURED ALONG CONTROL LINE)

- APPROX. AREA: CLASS I REPAIR
- APPROX. AREA: CLASS II REPAIR
- APPROX. AREA: CLASS III REPAIR



PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27

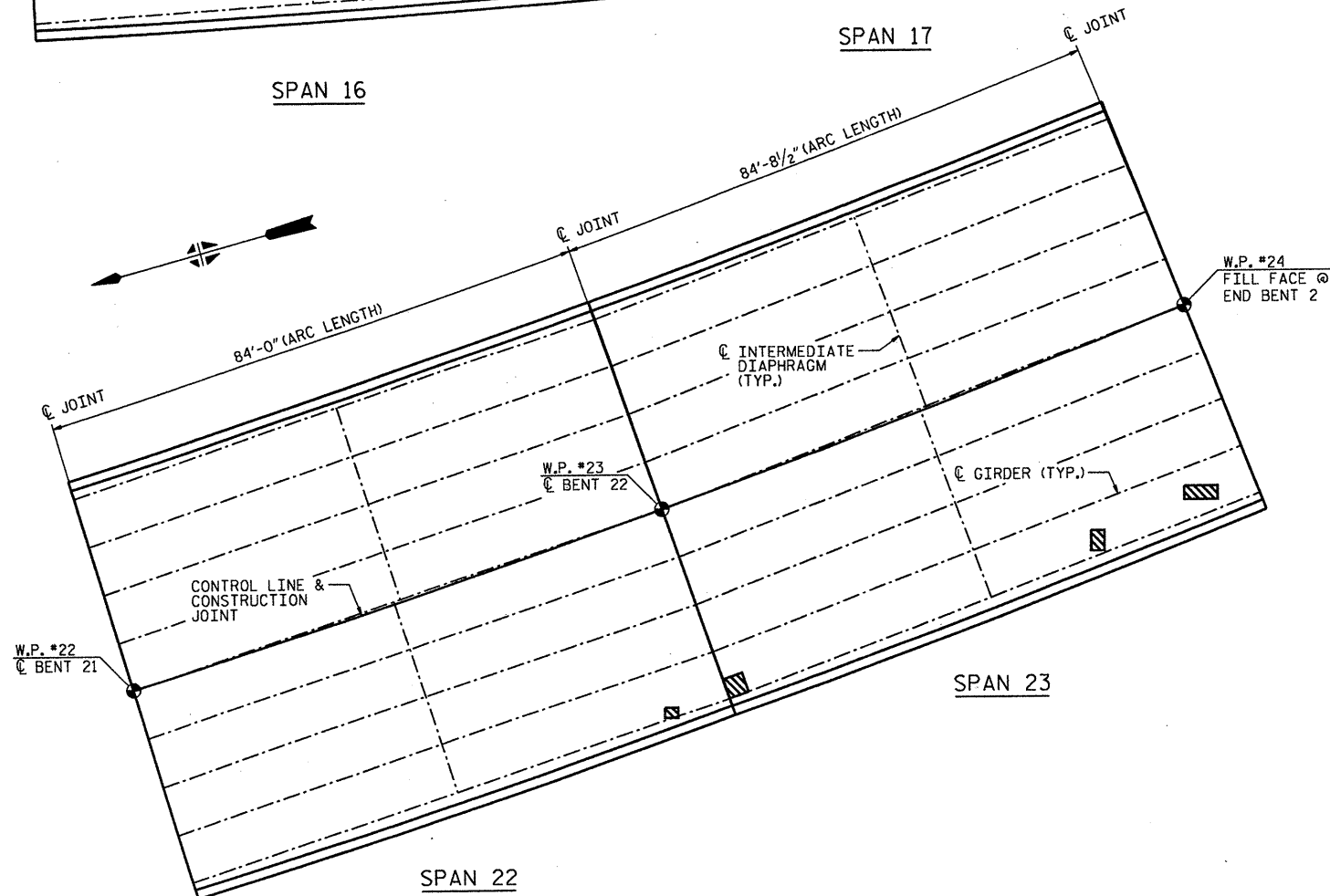
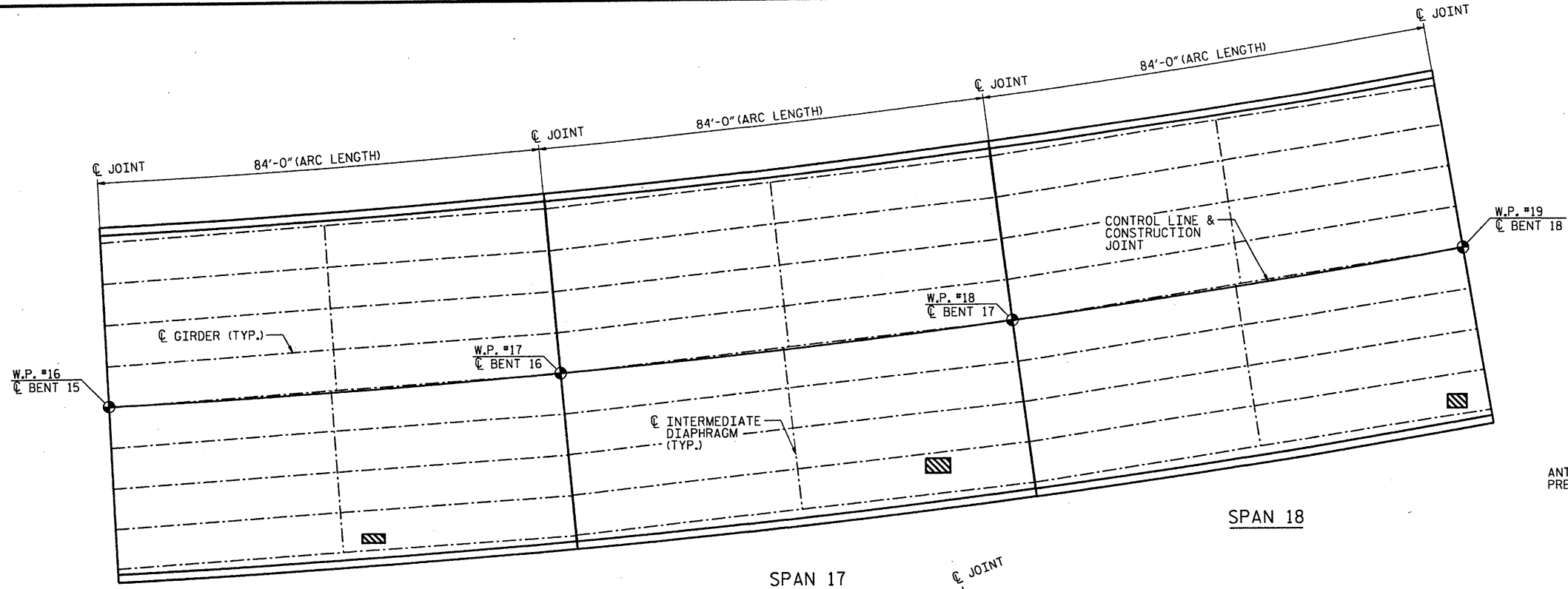


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN VIEW DECK REPAIRS SPANS 2, 5, 9, 13 & 14					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. 5-10
					TOTAL SHEETS 47

DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011

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 N.C. E.L.S. License Number: F-0016

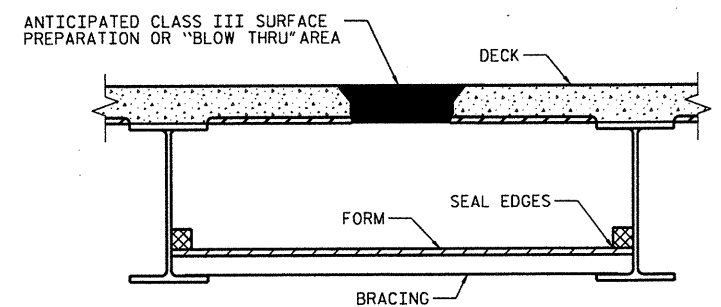
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**PLAN OF SPANS - DECK REPAIRS**  
(ALL DIMENSIONS MEASURED ALONG CONTROL LINE)

- APPROX. AREA: CLASS I REPAIR
- APPROX. AREA: CLASS II REPAIR
- APPROX. AREA: CLASS III REPAIR

DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011



**SPANS 11, 12 AND 13**

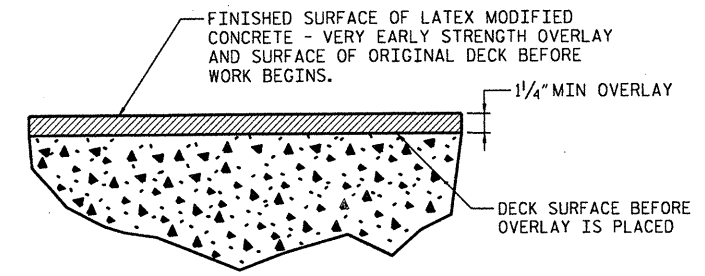
NOTE: ALL OTHER SPANS EXEMPT DUE TO PRESTRESSED CONCRETE DECK PANELS.

**"BLOW THRU" CONTAINMENT AND FORMWORK**

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COST FOR INSTALLING REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PER SQ. YARD OF HYDRO-DEMOLITION.



**DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY**



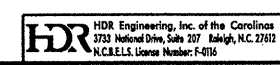
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PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27

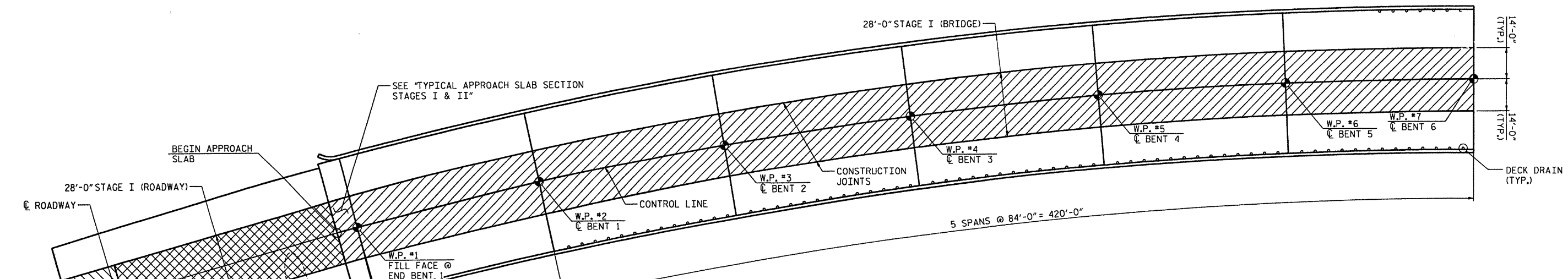
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**PLAN VIEW  
 DECK REPAIRS  
 SPANS 16, 17, 18, 22 & 23**

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2			4			



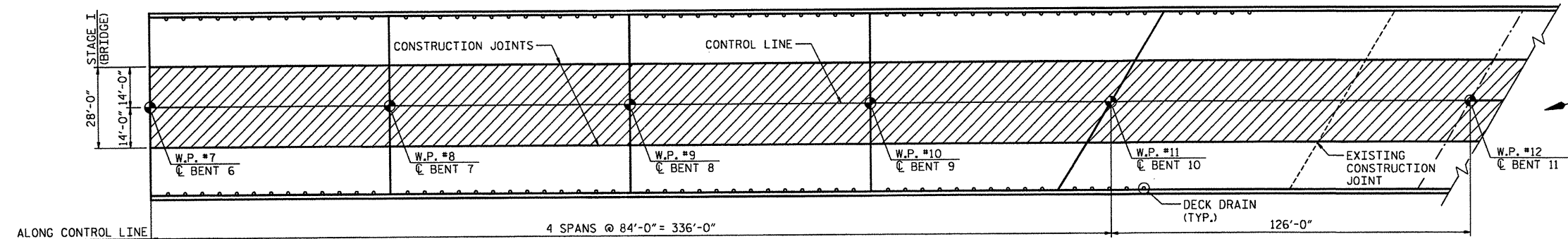
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**PLAN - STAGE I CONSTRUCTION**

BEGIN APPROACH THRU SPAN 6

- DECK SCARIFICATION AND HYDRO-DEMOLITION (INCLUDES APPROACH SLAB)
- MILL EXISTING ASPHALT WEARING SURFACE. TAPER FROM 1 1/2" AT 100'-0" FROM APPROACH SLAB TO 3" AT APPROACH SLAB AND REPLACE WITH NEW 1 1/2" MIN. ASPHALT SURFACE COURSE.
- MILL EXISTING ASPHALT WEARING SURFACE 1 1/2" AND REPLACE WITH NEW 1 1/2" ASPHALT SURFACE COURSE



**PLAN - STAGE I CONSTRUCTION**

SPANS 7 - 11

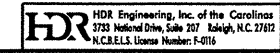
- DECK SCARIFICATION AND HYDRO-DEMOLITION

PROJECT NO. 17BP.3.H.3  
 \_\_\_\_\_ NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 DECK SCARIFICATION  
 STAGE I  
 SPANS 1 - 11

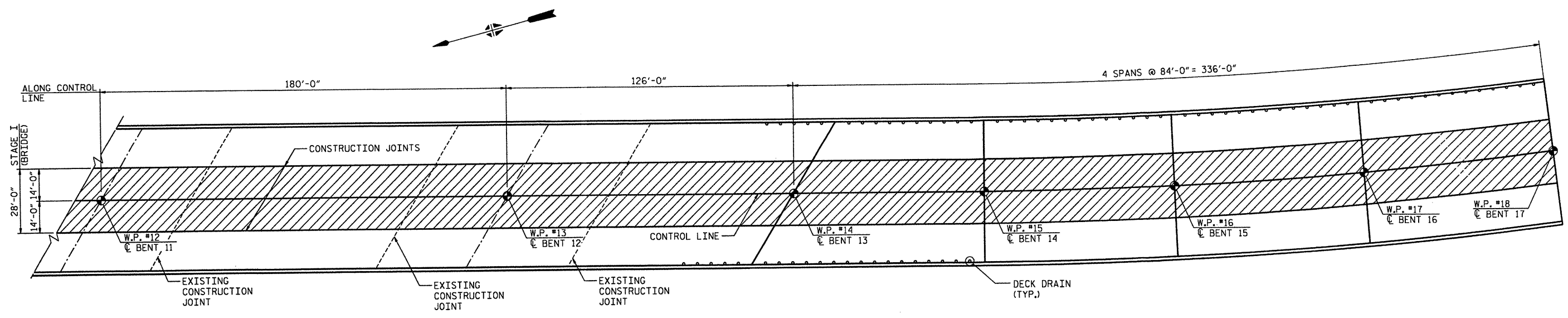
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 CHECKED BY : M.MOYER DATE : 12/2011



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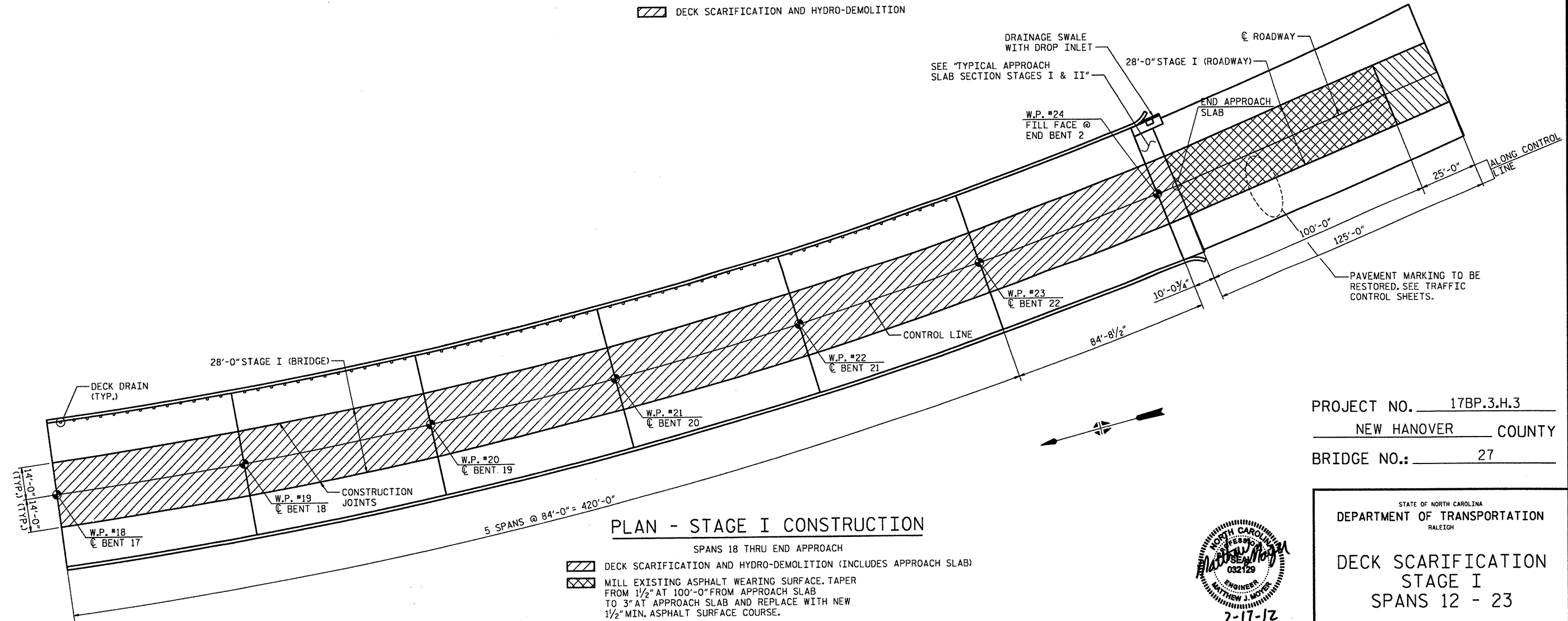


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**PLAN - STAGE I CONSTRUCTION**

SPANS 12 - 17  
 [Hatched Box] DECK SCARIFICATION AND HYDRO-DEMOLITION



**PLAN - STAGE I CONSTRUCTION**

SPANS 18 THRU END APPROACH  
 [Hatched Box] DECK SCARIFICATION AND HYDRO-DEMOLITION (INCLUDES APPROACH SLAB)  
 [Cross-hatched Box] MILL EXISTING ASPHALT WEARING SURFACE. TAPER FROM 1 1/2" AT 100'-0" FROM APPROACH SLAB TO 3" AT APPROACH SLAB AND REPLACE WITH NEW 1 1/2" MIN. ASPHALT SURFACE COURSE.  
 [Diagonal-hatched Box] MILL EXISTING ASPHALT WEARING SURFACE 1 1/2" AND REPLACE WITH NEW 1 1/2" ASPHALT SURFACE COURSE

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



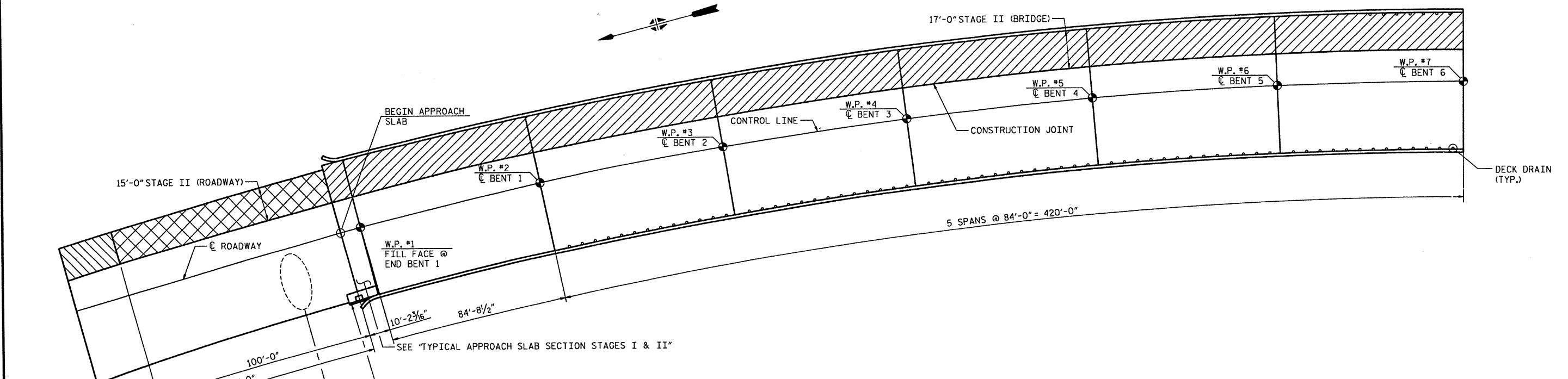
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**DECK SCARIFICATION  
 STAGE I  
 SPANS 12 - 23**

DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011

REVISIONS				SHEET NO. S-13
NO.	BY:	DATE:	DATE:	
1		3		TOTAL SHEETS 47
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 3733 National Drive, Suite 207 Raleigh, N.C. 27604  
 N.C. REG. License Number: F-0718

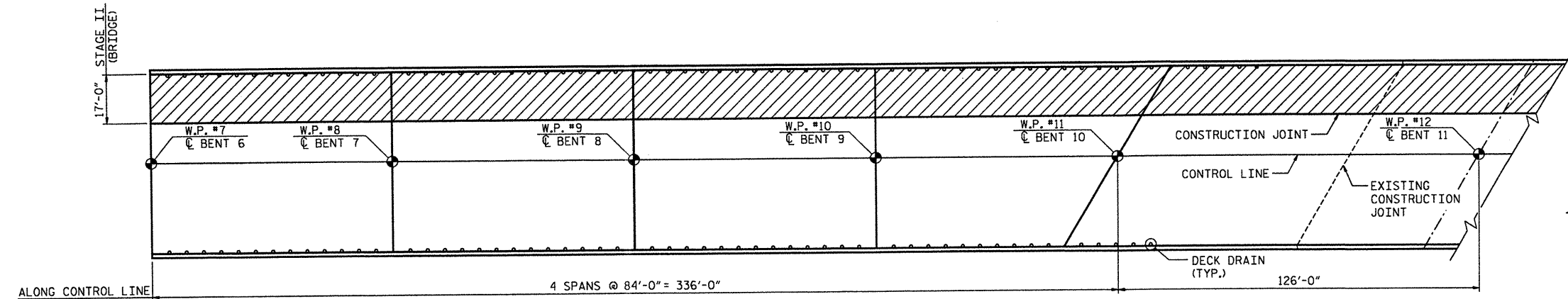
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**PLAN - STAGE II CONSTRUCTION**

BEGIN APPROACH THRU SPAN 6

- DECK SCARIFICATION AND HYDRO-DEMOLITION (INCLUDES APPROACH SLAB)
- MILL EXISTING ASPHALT WEARING SURFACE. TAPER FROM 1 1/2" AT 100'-0" FROM APPROACH SLAB TO 3" AT APPROACH SLAB AND REPLACE WITH NEW 1 1/2" MIN. ASPHALT SURFACE COURSE.
- MILL EXISTING ASPHALT WEARING SURFACE 1 1/2" AND REPLACE WITH NEW 1 1/2" ASPHALT SURFACE COURSE.



**PLAN - STAGE II CONSTRUCTION**

SPANS 7 - 11

- DECK SCARIFICATION AND HYDRO-DEMOLITION

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27

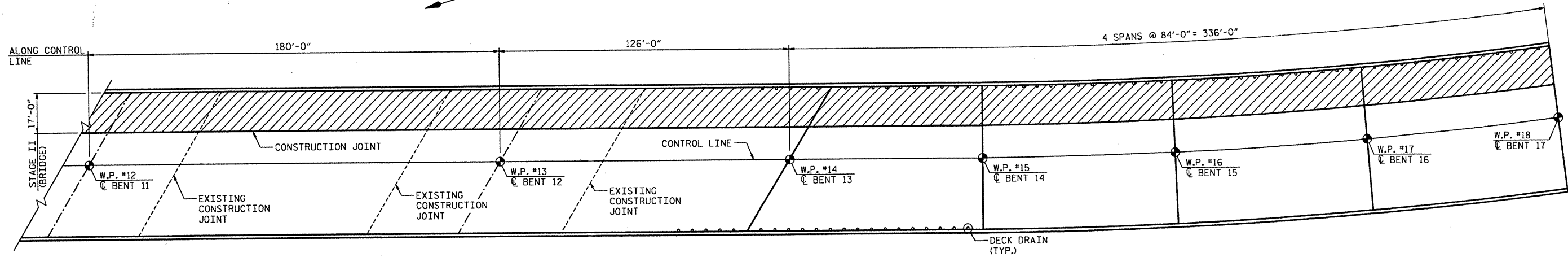


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**DECK SCARIFICATION  
 STAGE II  
 SPANS 1 - 11**

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

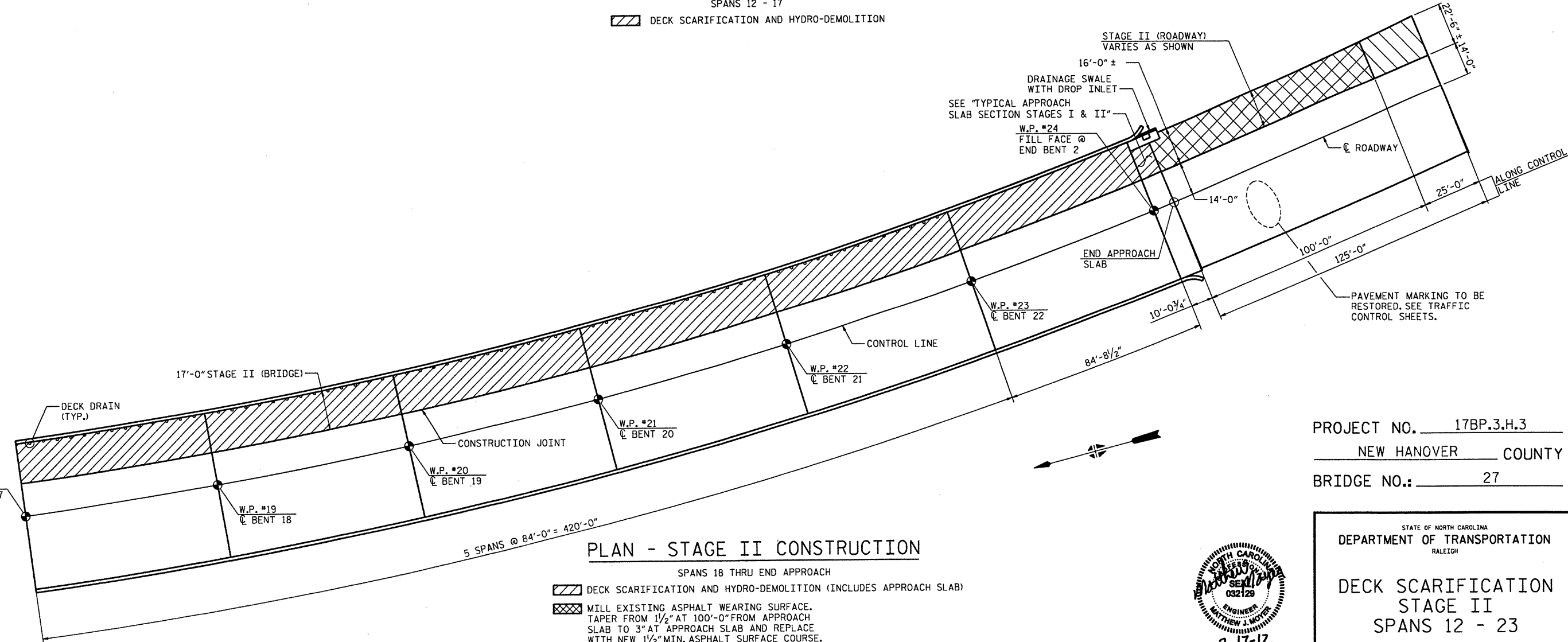
HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, NC 27612  
 N.C.E.L.S. License Number: F-0718

REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			



**PLAN - STAGE II CONSTRUCTION**

SPANS 12 - 17  
 DECK SCARIFICATION AND HYDRO-DEMOLITION



**PLAN - STAGE II CONSTRUCTION**

SPANS 18 THRU END APPROACH

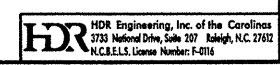
- DECK SCARIFICATION AND HYDRO-DEMOLITION (INCLUDES APPROACH SLAB)
- MILL EXISTING ASPHALT WEARING SURFACE. TAPER FROM 1 1/2" AT 100'-0" FROM APPROACH SLAB TO 3" AT APPROACH SLAB AND REPLACE WITH NEW 1 1/2" MIN. ASPHALT SURFACE COURSE.
- MILL EXISTING ASPHALT WEARING SURFACE 1 1/2" AND REPLACE WITH NEW 1 1/2" ASPHALT SURFACE COURSE

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



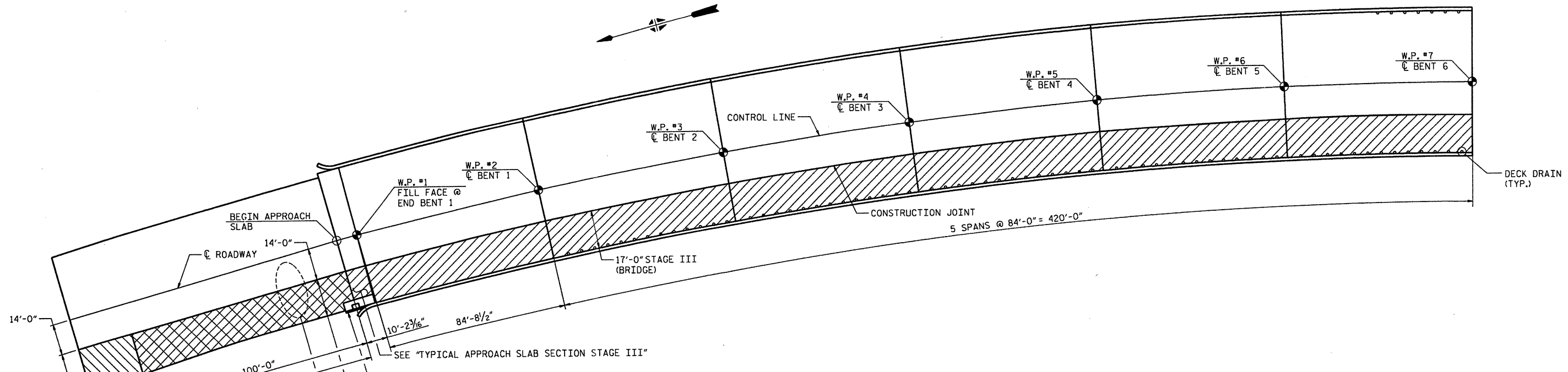
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>DECK SCARIFICATION STAGE II SPANS 12 - 23</b>					
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NO.	BY:	DATE:	NO.	BY:	DATE:
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DRAWN BY : D.MAST DATE : 12/2011  
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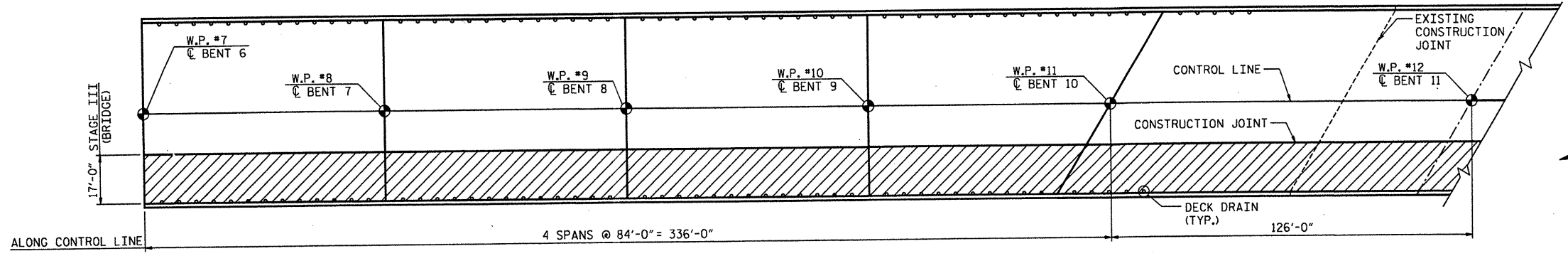
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**PLAN - STAGE III CONSTRUCTION**

- DECK SCARIFICATION AND HYDRO-DEMOLITION (INCLUDES APPROACH SLAB)
- MILL EXISTING ASPHALT WEARING SURFACE. TAPER FROM 1/2" AT 100'-0" FROM APPROACH SLAB TO 3" AT APPROACH SLAB AND REPLACE WITH NEW 1/2" MIN. ASPHALT SURFACE COURSE.
- MILL EXISTING ASPHALT WEARING SURFACE 1/2" AND REPLACE WITH NEW 1/2" ASPHALT SURFACE COURSE.



**PLAN - STAGE III CONSTRUCTION**

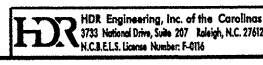
- DECK SCARIFICATION AND HYDRO-DEMOLITION

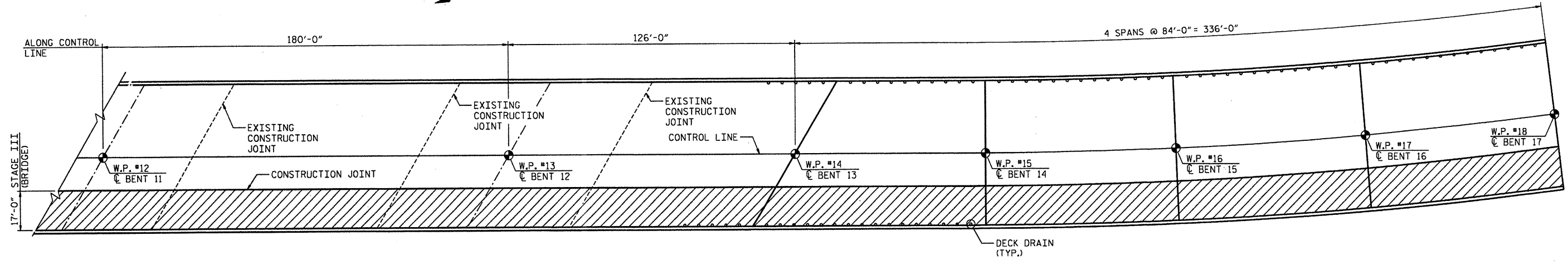
PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
<b>DECK SCARIFICATION</b>					
<b>STAGE III</b>					
<b>SPANS 1 - 11</b>					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. 5-16
					TOTAL SHEETS 47

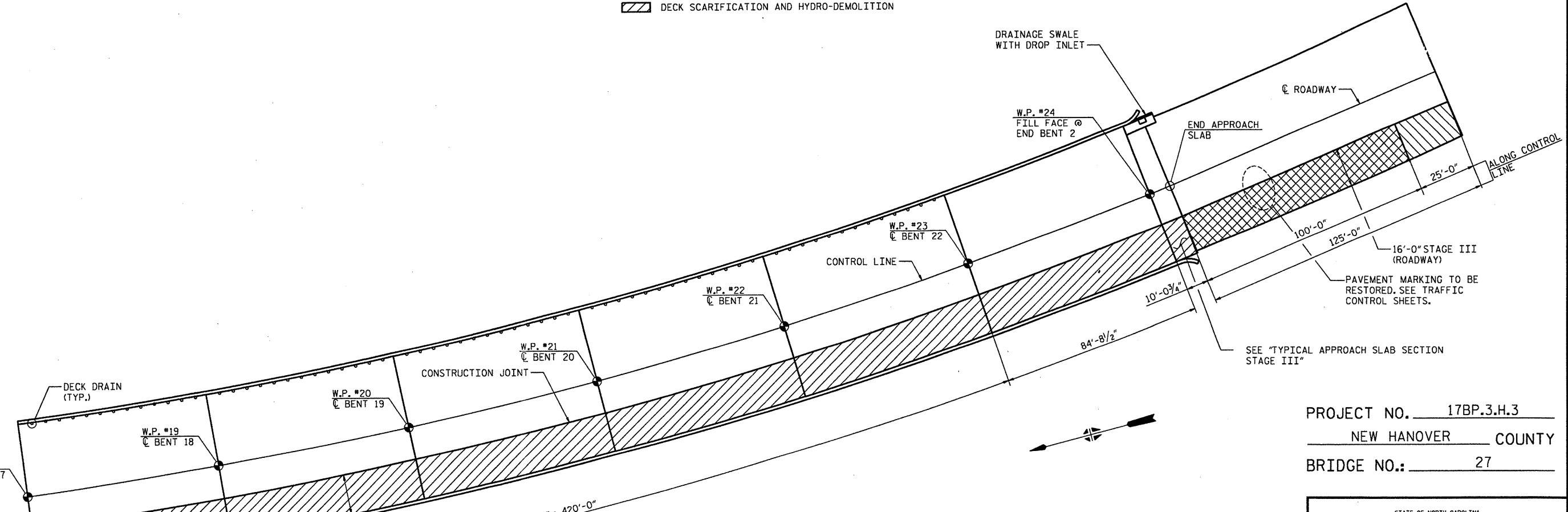
DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011





**PLAN - STAGE III CONSTRUCTION**

SPANS 12 - 17  
 [Hatched Box] DECK SCARIFICATION AND HYDRO-DEMOLITION



**PLAN - STAGE III CONSTRUCTION**

SPANS 18 THRU END APPROACH  
 [Hatched Box] DECK SCARIFICATION AND HYDRO-DEMOLITION (INCLUDES APPROACH SLAB)  
 [Cross-hatched Box] MILL EXISTING ASPHALT WEARING SURFACE. TAPER FROM 1 1/2" AT 100'-0" FROM APPROACH SLAB TO 3" AT APPROACH SLAB AND REPLACE WITH NEW 1 1/2" MIN. ASPHALT SURFACE COURSE.  
 [Diagonal Hatched Box] MILL EXISTING ASPHALT WEARING SURFACE 1 1/2" AND REPLACE WITH NEW 1 1/2" ASPHALT SURFACE COURSE

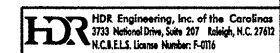
PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**DECK SCARIFICATION  
 STAGE III  
 SPANS 12 - 23**

REVISIONS						SHEET NO. 5-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			



DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011

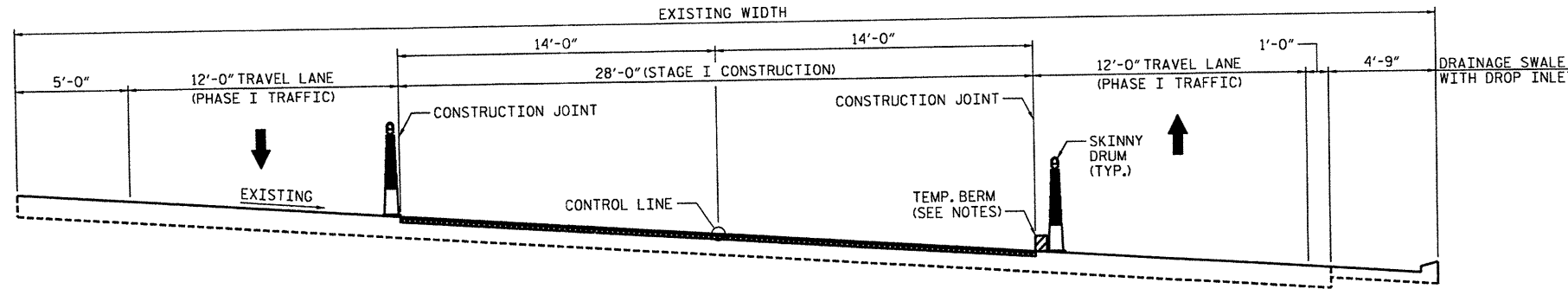
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 USER: msells  
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 TIME: 10:51:18 PM  
 DATE: 2/17/2012

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

THE EXISTING ASPHALT WEARING SURFACE ON APPROACH SLAB 2 IS NOT SHOWN IN THESE SECTION VIEWS. REFER TO "JOINT DETAILS" SECTION A-A.

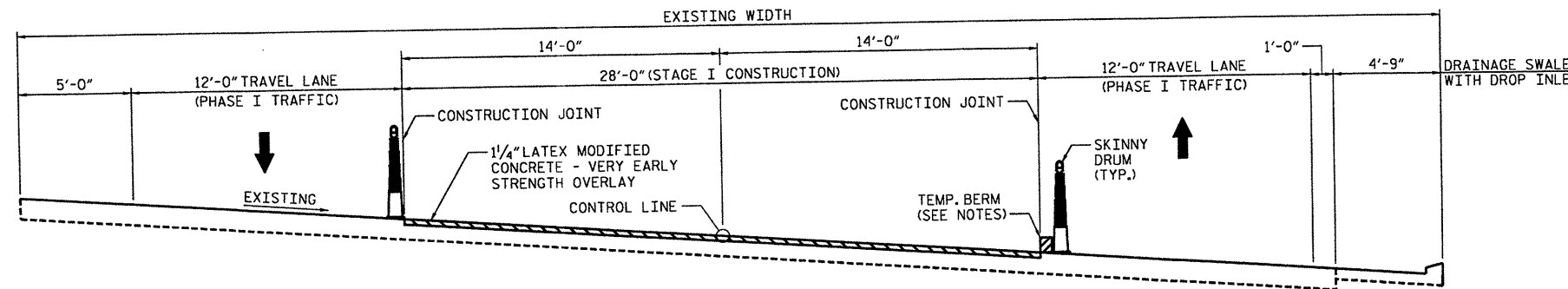
EXISTING ASPHALT WEARING SURFACE ON APPROACH SLAB 2 SHALL BE REMOVED.



**APPROACH SLAB HYDRO-DEMOLITION SECTION - STAGE I CONSTRUCTION**

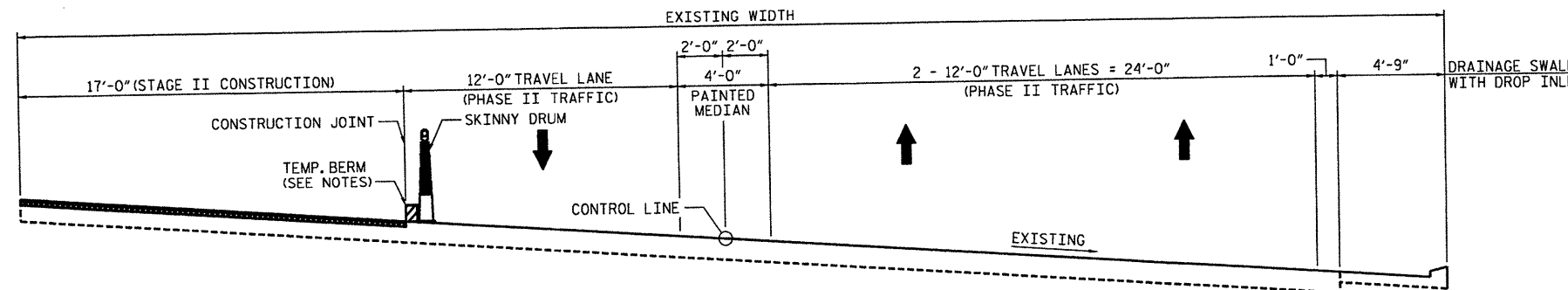
APPROACH SLAB 1 SHOWN. APPROACH SLAB 2 SIMILAR BY ROTATION. SEE NOTES.

☒ APPROACH SCARIFICATION AND HYDRO-DEMOLITION



**APPROACH SLAB SECTION - STAGE I CONSTRUCTION**

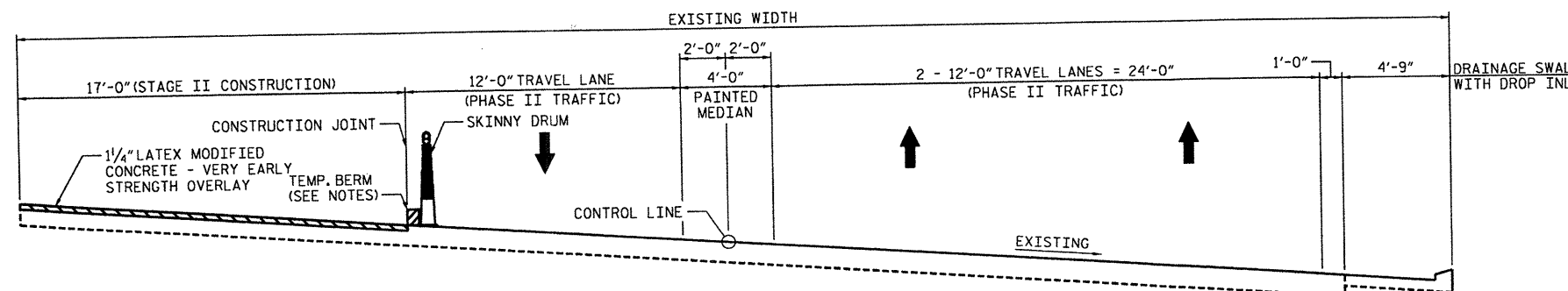
APPROACH SLAB 1 SHOWN. APPROACH SLAB 2 SIMILAR BY ROTATION.



**APPROACH SLAB HYDRO-DEMOLITION SECTION - STAGE II CONSTRUCTION**

APPROACH SLAB 1 SHOWN. APPROACH SLAB 2 SIMILAR BY ROTATION. SEE NOTES.

☒ APPROACH SCARIFICATION AND HYDRO-DEMOLITION



**APPROACH SLAB SECTION - STAGE II CONSTRUCTION**

APPROACH SLAB 1 SHOWN. APPROACH SLAB 2 SIMILAR BY ROTATION.

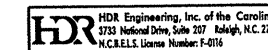
PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**TYPICAL APPROACH SLAB SECTION STAGES I & II**



REVISIONS						SHEET NO. S-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			



DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011

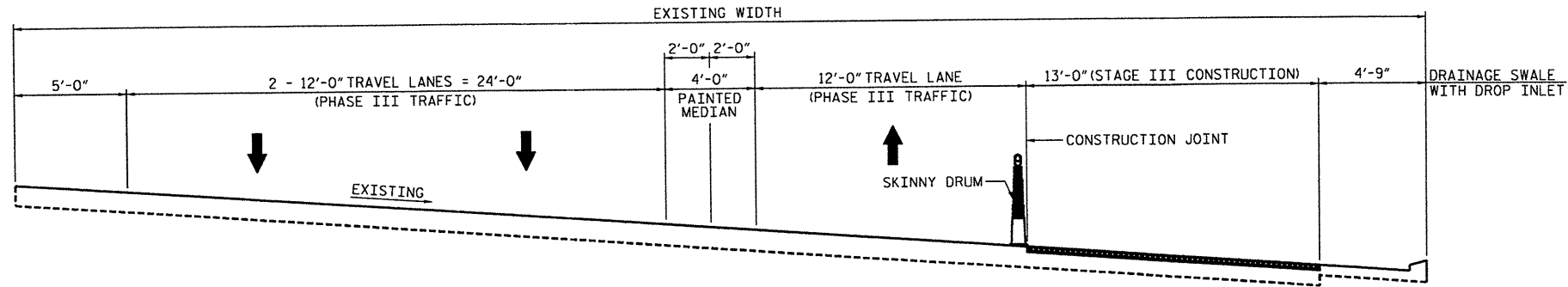
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 USER: msells  
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 DATE: 2/17/2012

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

THE EXISTING ASPHALT WEARING SURFACE ON APPROACH SLAB 2 IS NOT SHOWN IN THESE SECTION VIEWS. REFER TO "JOINT DETAILS" SECTION A-A.

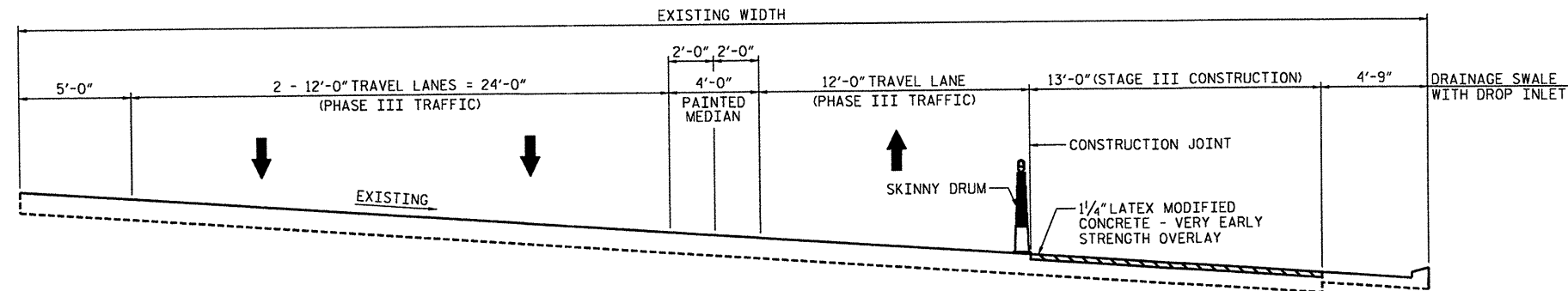
EXISTING ASPHALT WEARING SURFACE ON APPROACH SLAB 2 SHALL BE REMOVED.



**APPROACH SLAB HYDRO-DEMOLITION SECTION - STAGE III CONSTRUCTION**

APPROACH SLAB 1 SHOWN. APPROACH SLAB 2 SIMILAR BY ROTATION. SEE NOTES.

APPROACH SCARIFICATION AND HYDRO-DEMOLITION



**APPROACH SLAB SECTION - STAGE III CONSTRUCTION**

APPROACH SLAB 1 SHOWN. APPROACH SLAB 2 SIMILAR BY ROTATION.

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

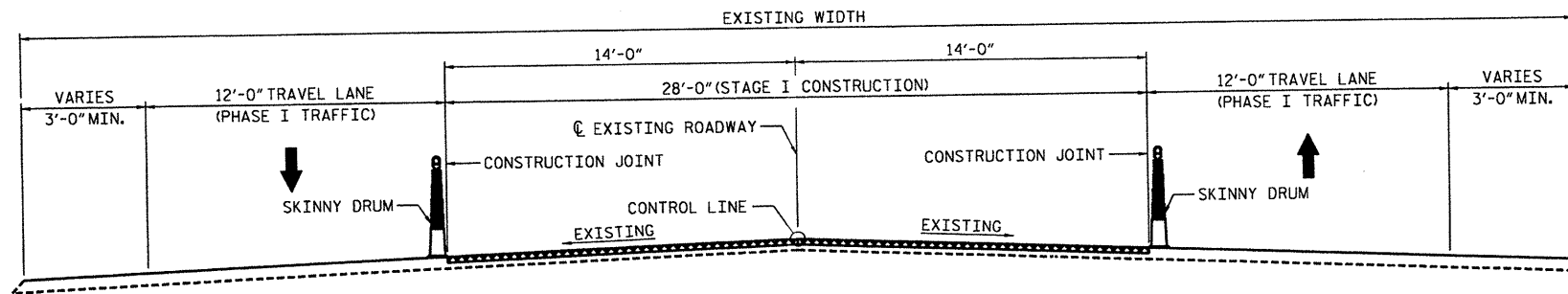
**TYPICAL APPROACH SLAB SECTION STAGE III**

REVISIONS						SHEET NO. 5-19
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			



DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

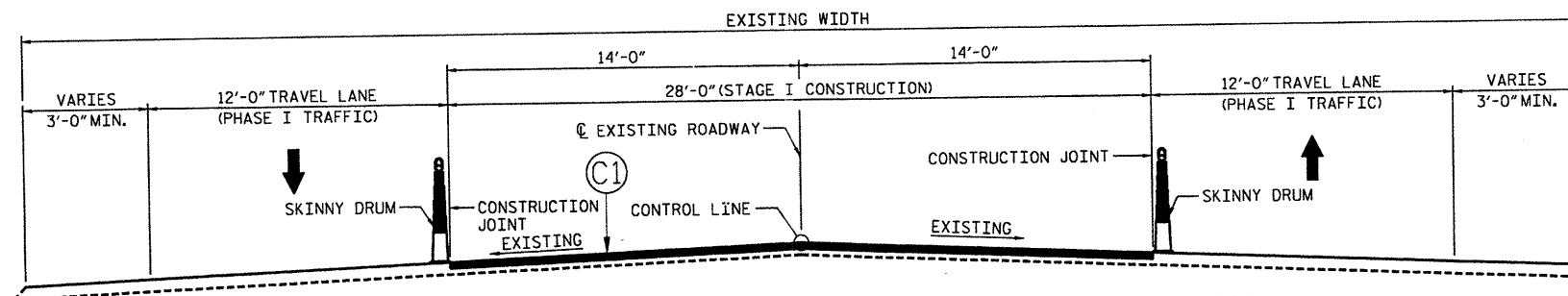
PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
 USER: msells  
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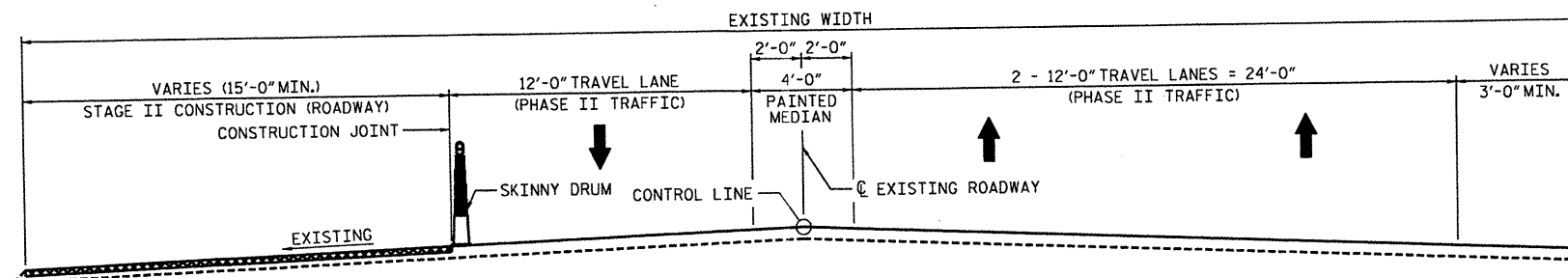
TYPICAL ROADWAY MILLING SECTION - STAGE I CONSTRUCTION

(MILLING DEPTH VARIES, SEE PLAN)

ASPHALT MILLING



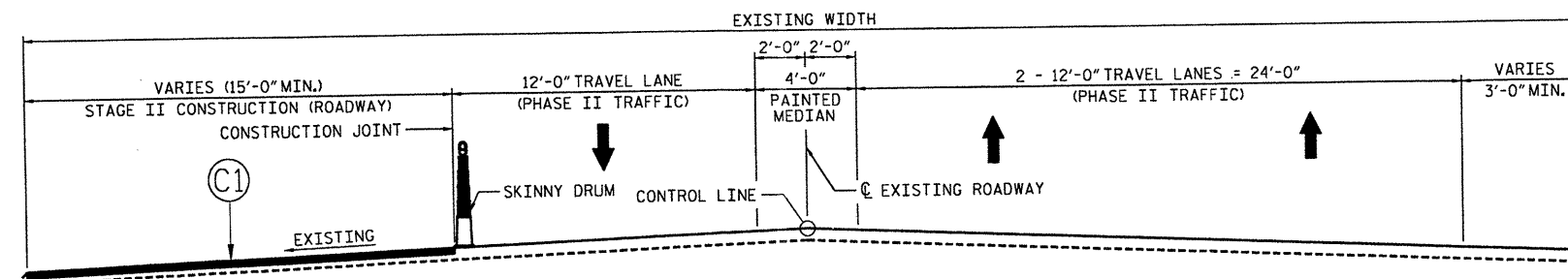
TYPICAL ROADWAY SECTION - STAGE I CONSTRUCTION



TYPICAL ROADWAY MILLING SECTION - STAGE II CONSTRUCTION

(MILLING DEPTH VARIES, SEE PLAN)

ASPHALT MILLING



TYPICAL ROADWAY SECTION - STAGE II CONSTRUCTION

C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S 9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH.

NOTE

ASPHALT CONCRETE SURFACE COURSE, TYPE S 9.5C TO BE PLACED IN LIFTS NOT TO EXCEED 2".

PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
 USER: msells  
 FILE: North Carolina Dept. of Transportation\NCDOT\_000\_CCI\_BM\_LSC\_MASTER\NCDOT\_27\13.00\_CAD\DIV31\_SD\_NEWHANOVER27\_20.dgn  
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 TIME: 9:15:55 AM

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

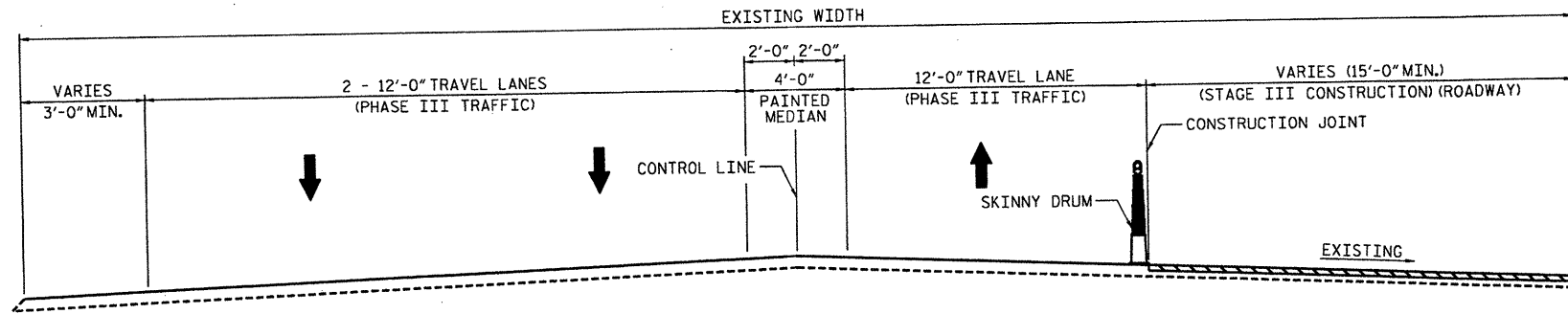
PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
TYPICAL ROADWAY SECTION STAGES I & II					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-20					TOTAL SHEETS 47

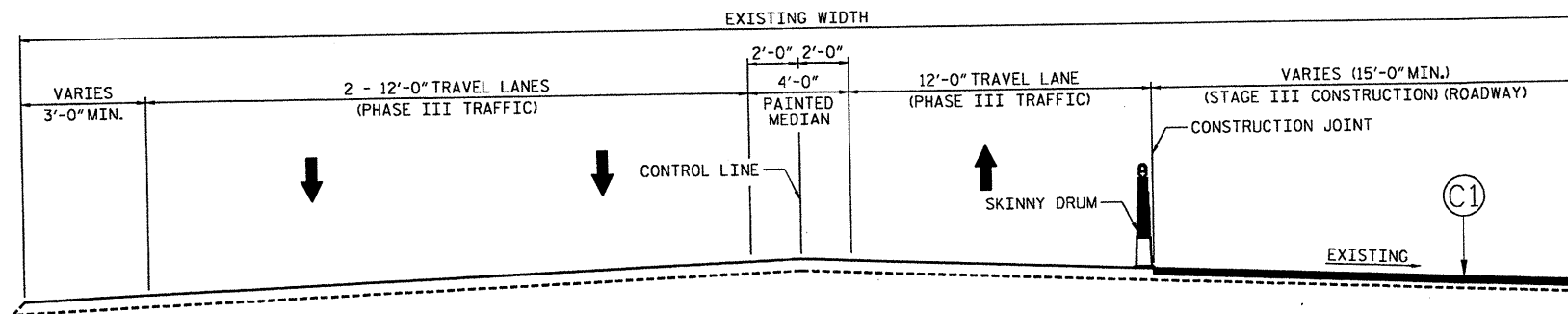
HDR Engineering, Inc. of the Carolinas  
 1733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.E.L.E. License Number: F-0716





TYPICAL ROADWAY MILLING SECTION - STAGE III CONSTRUCTION

(MILLING DEPTH VARIES, SEE PLAN)  
 ASPHALT MILLING



TYPICAL ROADWAY SECTION - STAGE III CONSTRUCTION

C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S 9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH.

NOTE

ASPHALT CONCRETE SURFACE COURSE, TYPE S 9.5C TO BE PLACED IN LIFTS NOT TO EXCEED 2".

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 FILE: North Carolina Dept. of Transportation\NCDOT\_DDO\_CEI\_BM\_LSC\_MASTER\NCDOT\_DDO\_CEI\_BM\_LSC\_MASTER\NCDOT\_New\_Hanover\_27\13.00\_CAD\DIV3\1\_SD\_NEWHANOVER27\_21.dgn  
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PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

TYPICAL ROADWAY  
 SECTION  
 STAGE III

DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011

**HDR** HDR Engineering, Inc. of the Carolinas  
 3720 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			

BILL OF MATERIAL		
SPANS 1 - 4		
SHOTCRETE REPAIR SPAN 1	CF	0.1
SHOTCRETE REPAIR SPAN 2	CF	0.0
SHOTCRETE REPAIR SPAN 3	CF	0.0
SHOTCRETE REPAIR SPAN 4	CF	0.0


**NOTES**

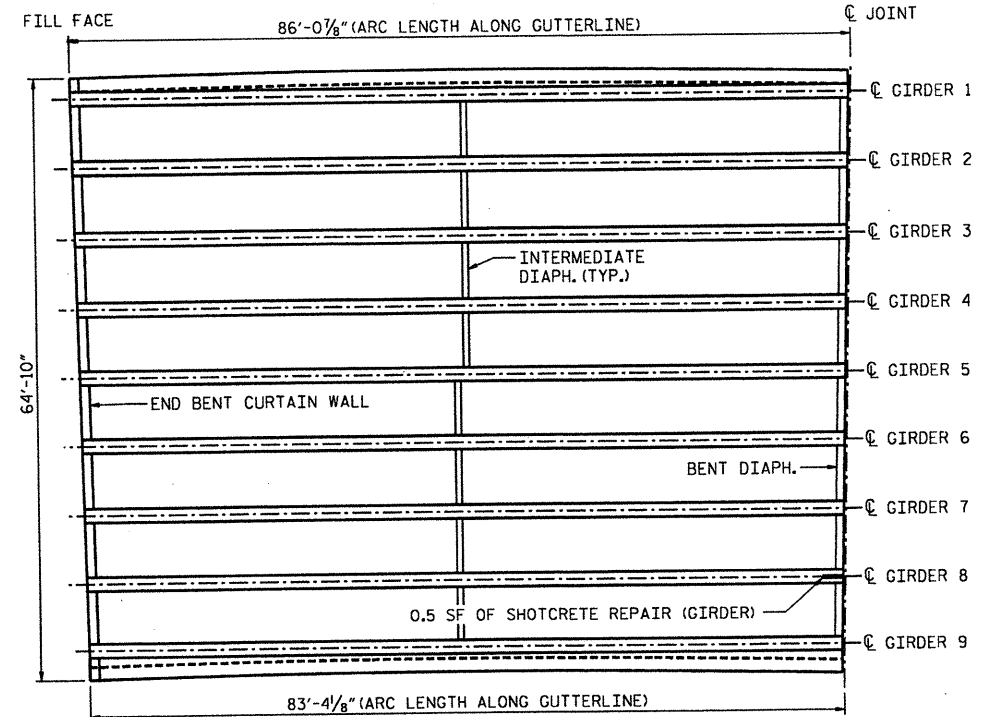
FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITY CONDUITS MOUNTED TO BOTTOM OF OVERHANG ADJACENT TO GIRDER 1 NOT SHOWN.

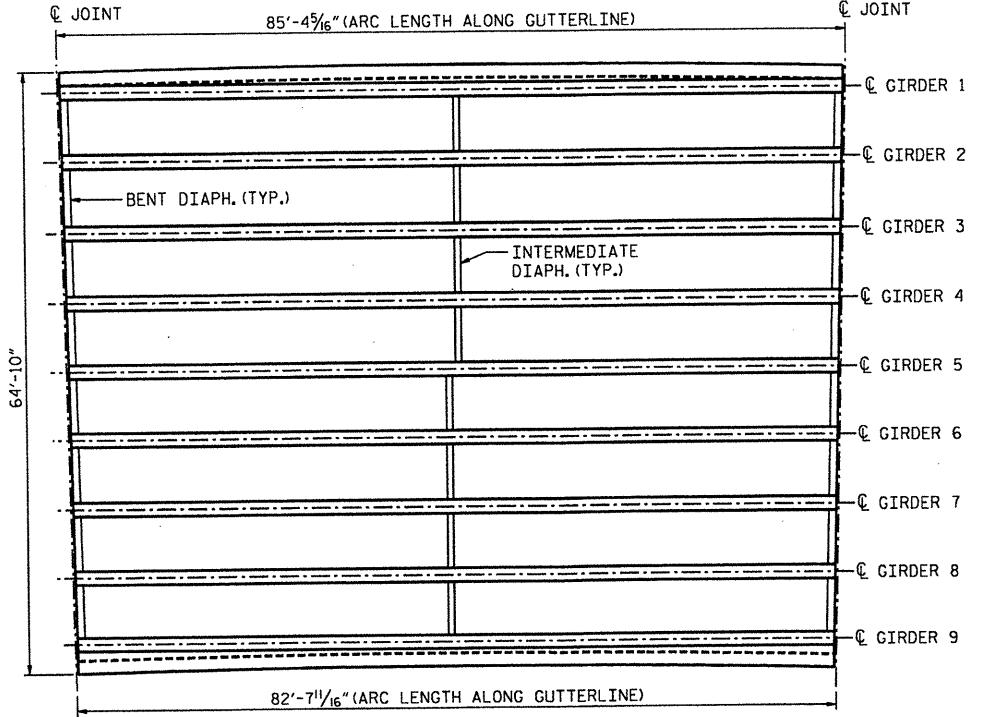
DECK DRAINS NOT SHOWN.

 SHOTCRETE REPAIR



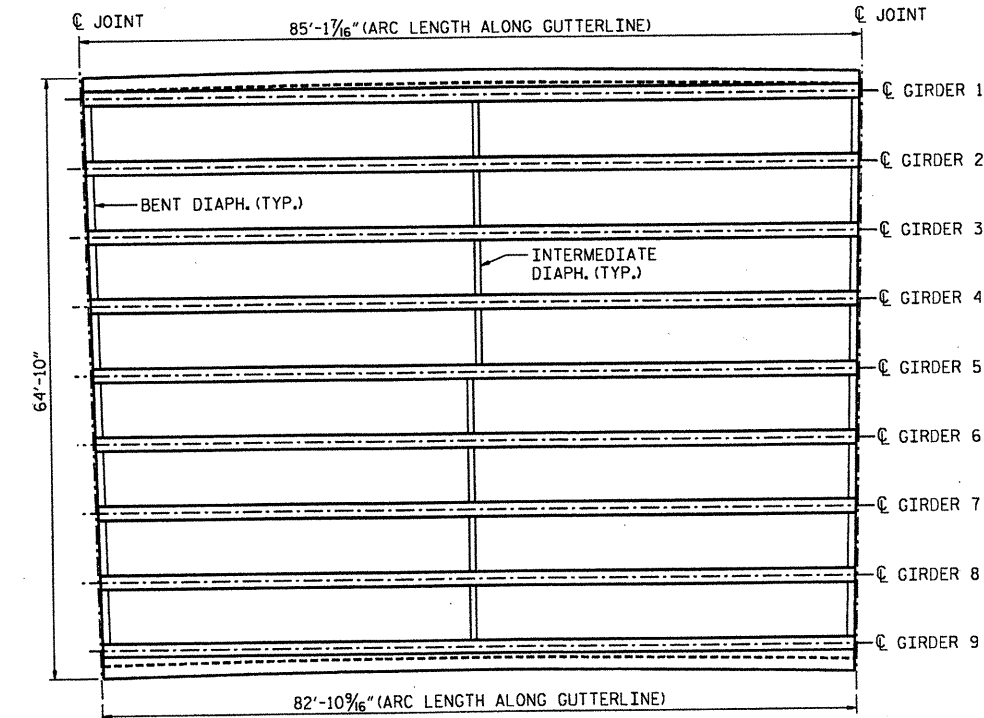
END BENT 1

SPAN 1 - UNDERSIDE



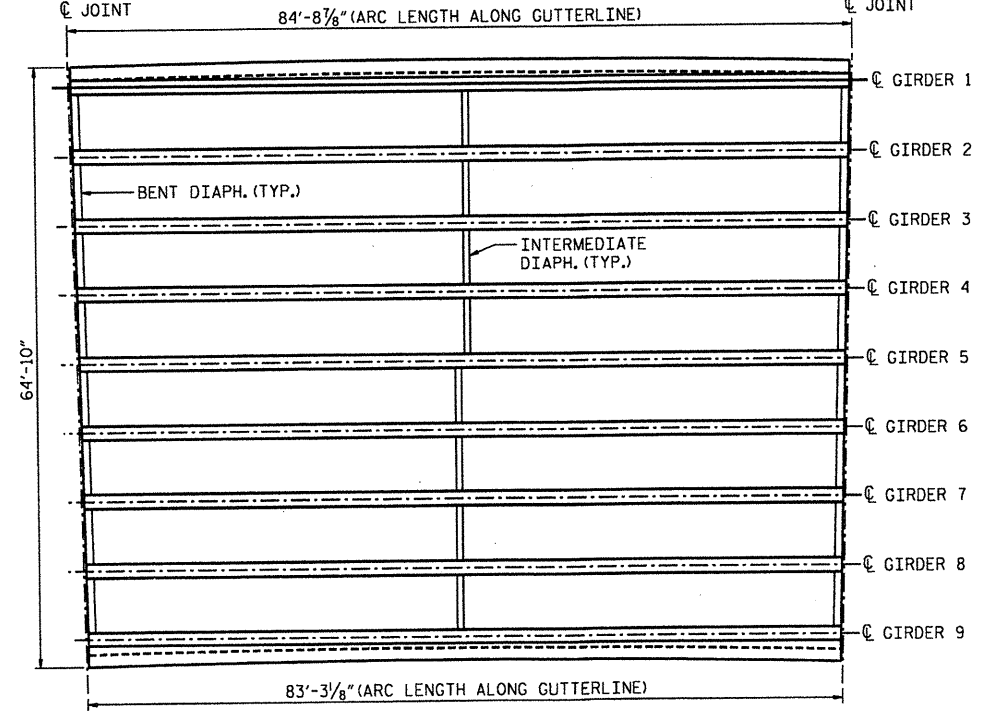
BENT 2

SPAN 2 - UNDERSIDE



BENT 2

SPAN 3 - UNDERSIDE



BENT 4

SPAN 4 - UNDERSIDE



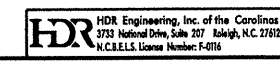
PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE UNDERSIDE REPAIR SPANS 1 - 4					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. 5-22
TOTAL SHEETS 47

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011



PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
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 TIME: 1:06:23 PM  
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BILL OF MATERIAL		
SPANS 5 - 8		
SHOTCRETE REPAIR SPAN 5	CF	0.8
SHOTCRETE REPAIR SPAN 6	CF	0.7
SHOTCRETE REPAIR SPAN 7	CF	0.5
SHOTCRETE REPAIR SPAN 8	CF	0.7


**NOTES**

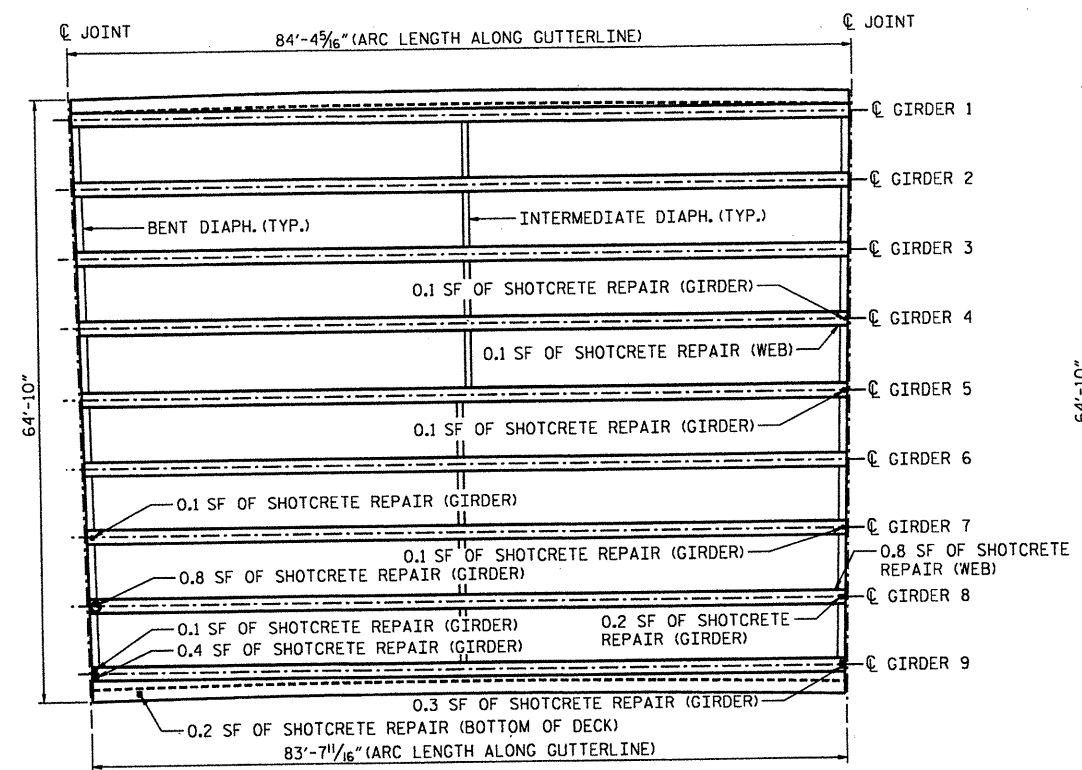
FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

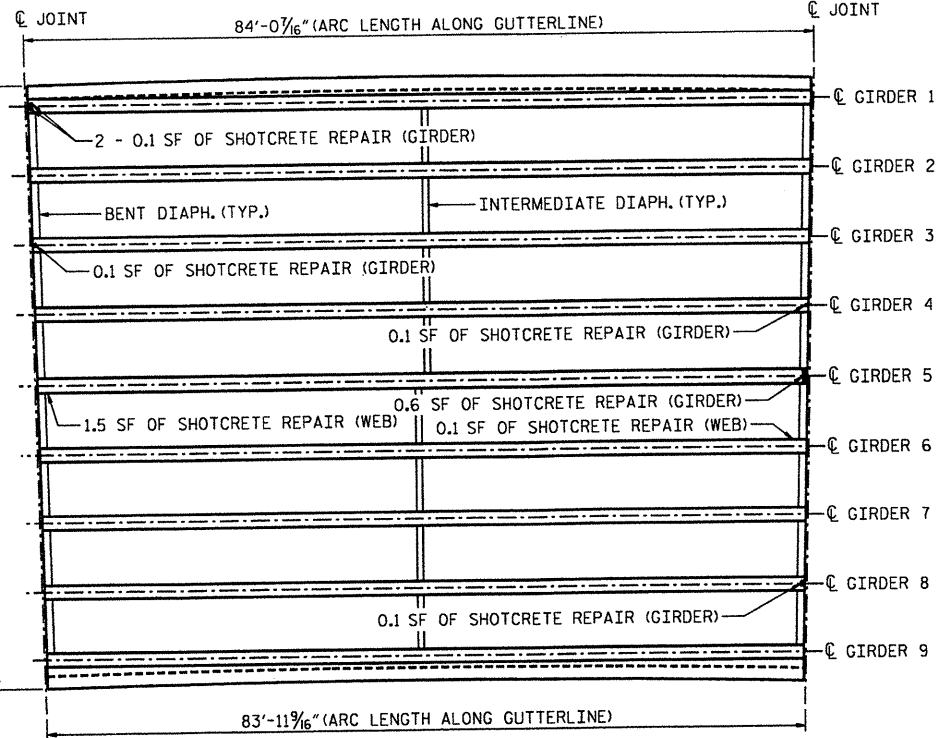
UTILITY CONDUITS MOUNTED TO BOTTOM OF OVERHANG ADJACENT TO GIRDER 1 NOT SHOWN.

DECK DRAINS NOT SHOWN.

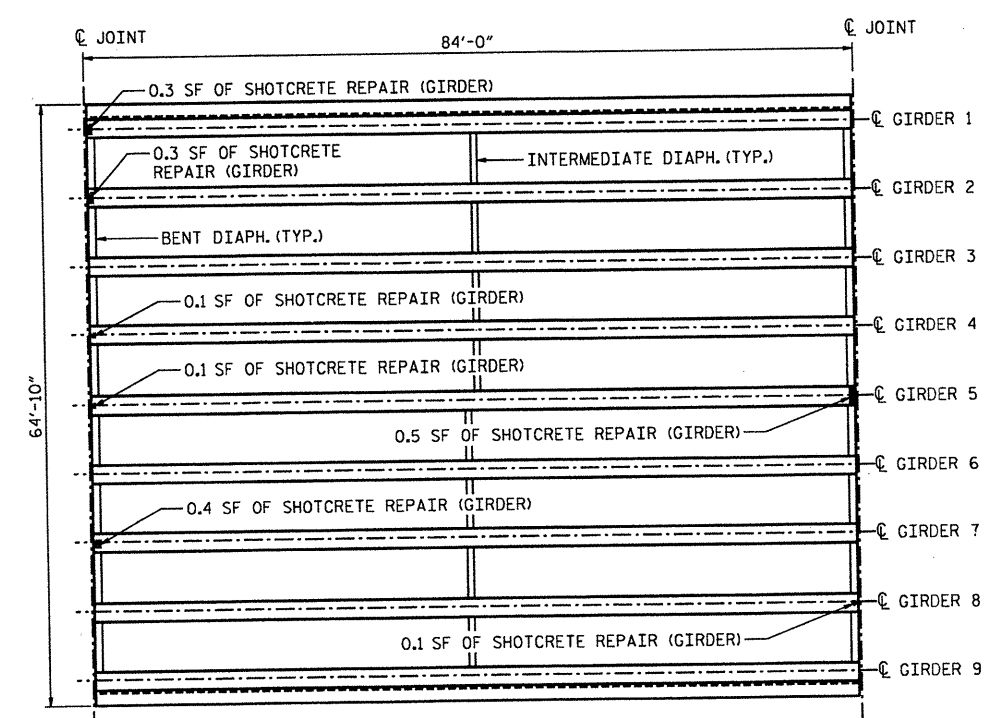
 SHOTCRETE REPAIR



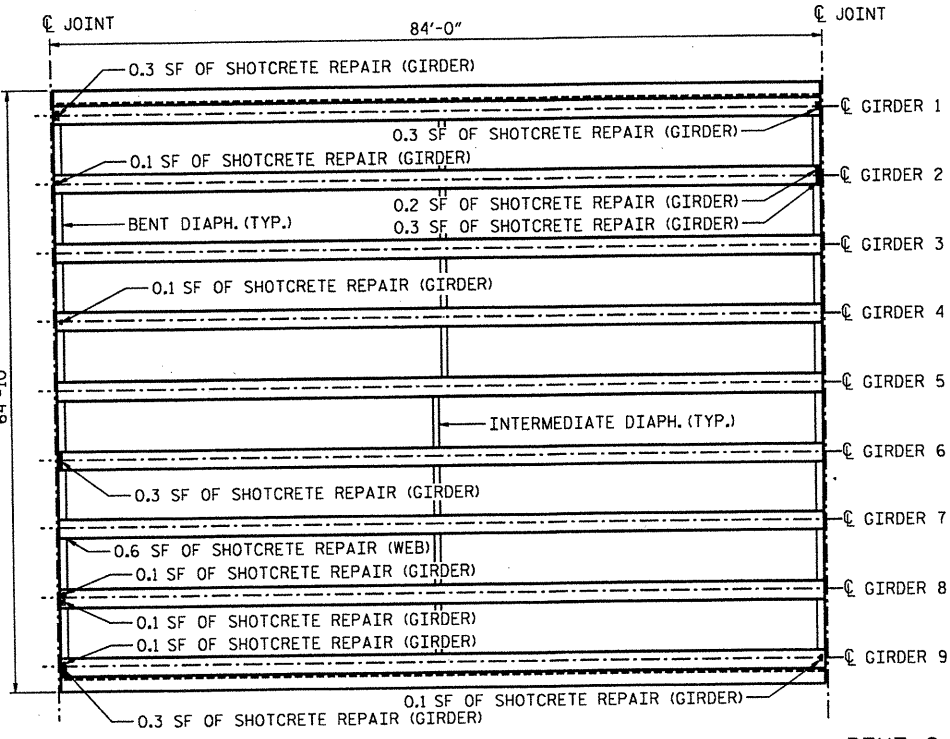
**SPAN 5 - UNDERSIDE**



**SPAN 6 - UNDERSIDE**



**SPAN 7 - UNDERSIDE**



**SPAN 8 - UNDERSIDE**



PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



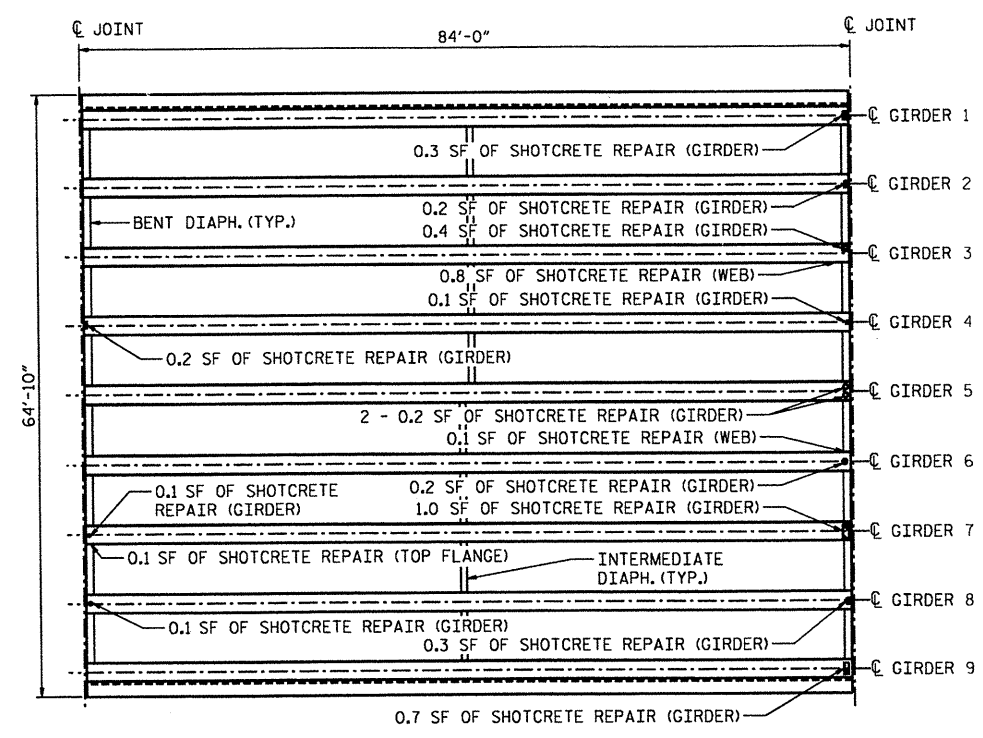
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE UNDERSIDE REPAIR SPANS 5 - 8					
REVISIONS					SHEET NO. 5-23
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS 47
2			4		

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

**HDR** HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C. P.E. License Number: F-6114

PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
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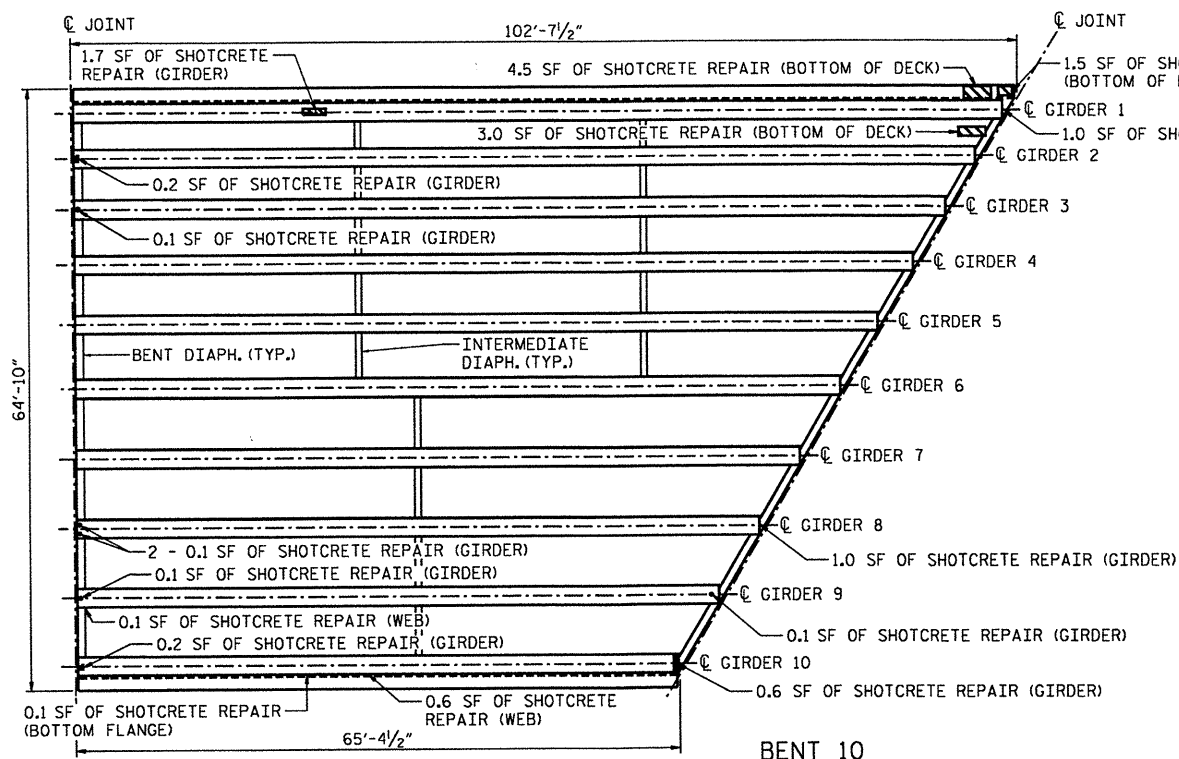
BILL OF MATERIAL		
SPANS 9 - 11		
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SHOTCRETE REPAIR SPAN 11	CF	0.8



BENT 8

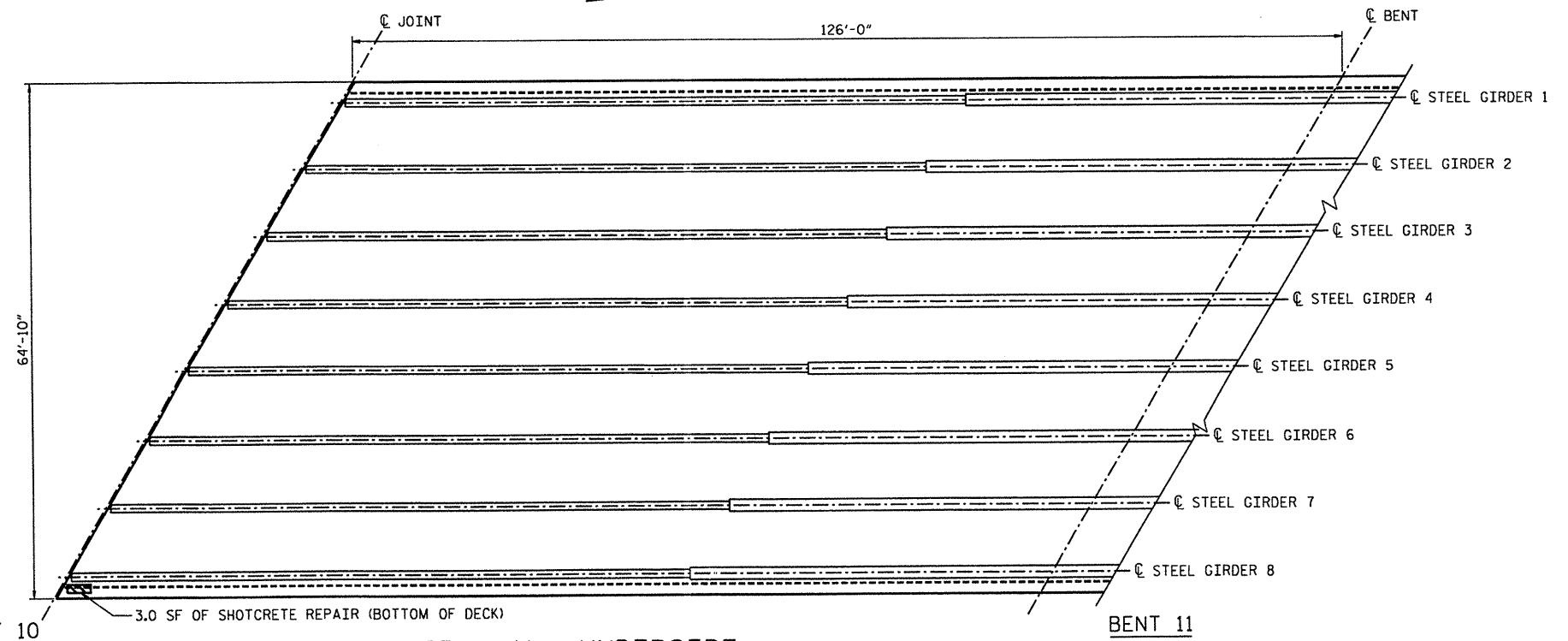
SPAN 9 - UNDERSIDE

BENT 9



SPAN 10 - UNDERSIDE

BENT 10



BENT 10

SPAN 11 - UNDERSIDE

(INTERMEDIATE DIAPHRAGMS AND INSPECTION SCAFFOLD RAILS NOT SHOWN)

BENT 11

**NOTES**

- FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".
- FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".
- UTILITY CONDUITS MOUNTED TO BOTTOM OF OVERHANG ADJACENT TO GIRDER 1 NOT SHOWN.
- DECK DRAINS NOT SHOWN.
- SHOTCRETE REPAIR

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 UNDERSIDE REPAIR  
 SPANS 9 - 11

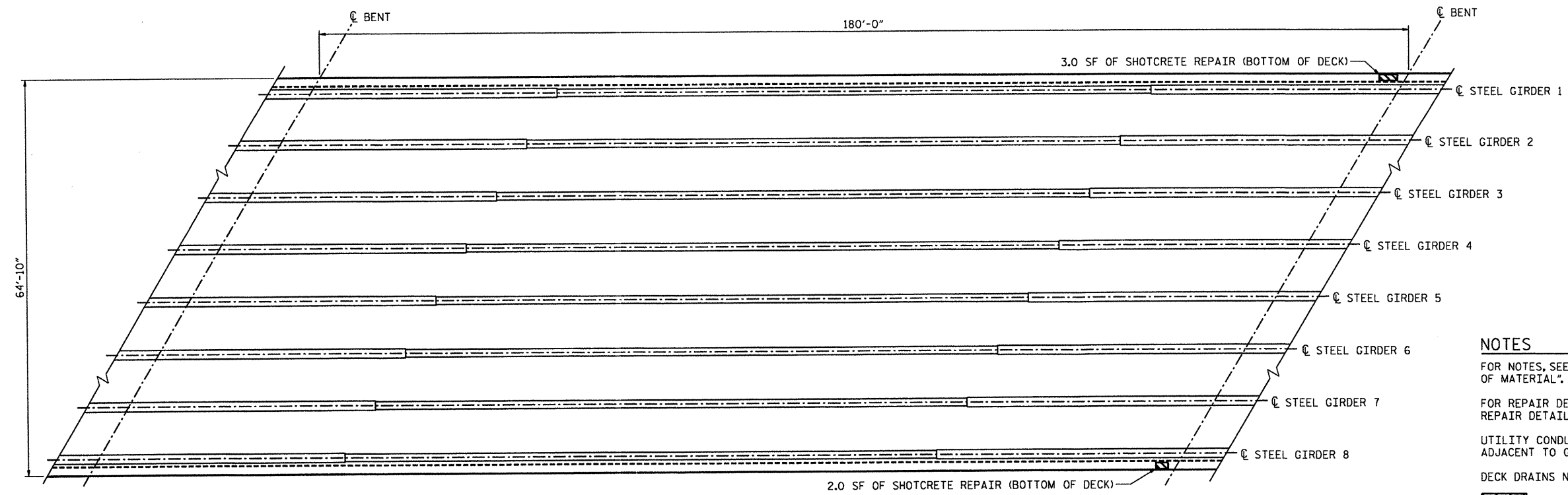
REVISIONS						SHEET NO. S-24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

**HDR** HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.E.L.S. License Number: F-0715

PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
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 TIME: 1:06:52 PM  
 DATE: 2/17/2012

BILL OF MATERIAL			
SPANS 12 - 13			
SHOTCRETE REPAIR SPAN 12	CF	5.0	
SHOTCRETE REPAIR SPAN 13	CF	2.3	



**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITY CONDUITS MOUNTED TO BOTTOM OF OVERHANG ADJACENT TO GIRDER 1 NOT SHOWN.

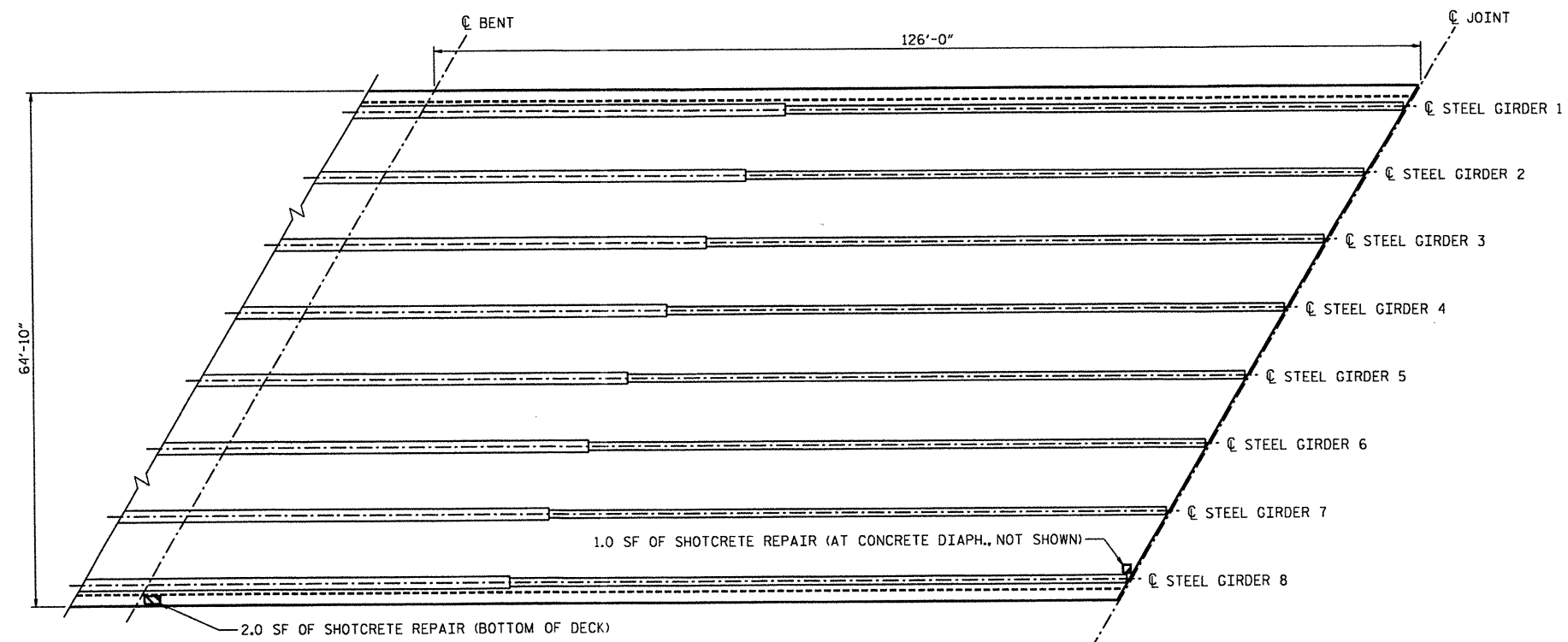
DECK DRAINS NOT SHOWN.

SHOTCRETE REPAIR

BENT 11

BENT 12

**SPAN 12 - UNDERSIDE**  
(INTERMEDIATE DIAPHRAGMS AND INSPECTION SCAFFOLD RAILS NOT SHOWN)



BENT 12

BENT 13

**SPAN 13 - UNDERSIDE**  
(INTERMEDIATE DIAPHRAGMS AND INSPECTION SCAFFOLD RAILS NOT SHOWN)

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



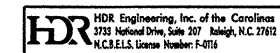
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE  
 UNDERSIDE REPAIR  
 SPANS 12 & 13**

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

SHEET NO. S-25  
TOTAL SHEETS 47

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011



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 USER: msells DATE: 2/17/2012  
 FILE: North Carolina Dept. of Transportation\NCDOT\_DDO\_CEI.BM.LSC\_MASTER\NCDOT\_DDO\_CEI.BM.LSC\_MASTER\NCDOT\_27\13.00\_CAD\DIV3.1.SD\_NEWHANOVER27.25.dgn  
 PENTABLE: NEWHANOVER27.pen.tbl  
 TIME: 1:07:08 PM

BILL OF MATERIAL			
SPANS 14 - 17			
SHOTCRETE REPAIR SPAN 14	CF	0.6	
SHOTCRETE REPAIR SPAN 15	CF	1.7	
SHOTCRETE REPAIR SPAN 16	CF	4.2	
SHOTCRETE REPAIR SPAN 17	CF	1.3	


**NOTES**

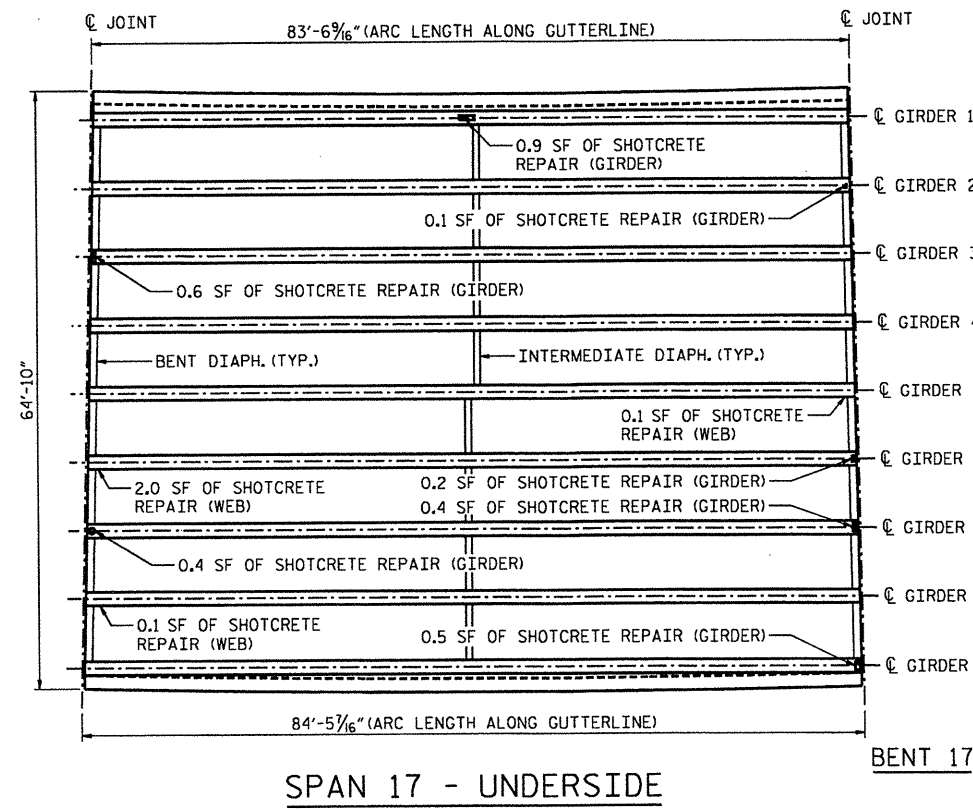
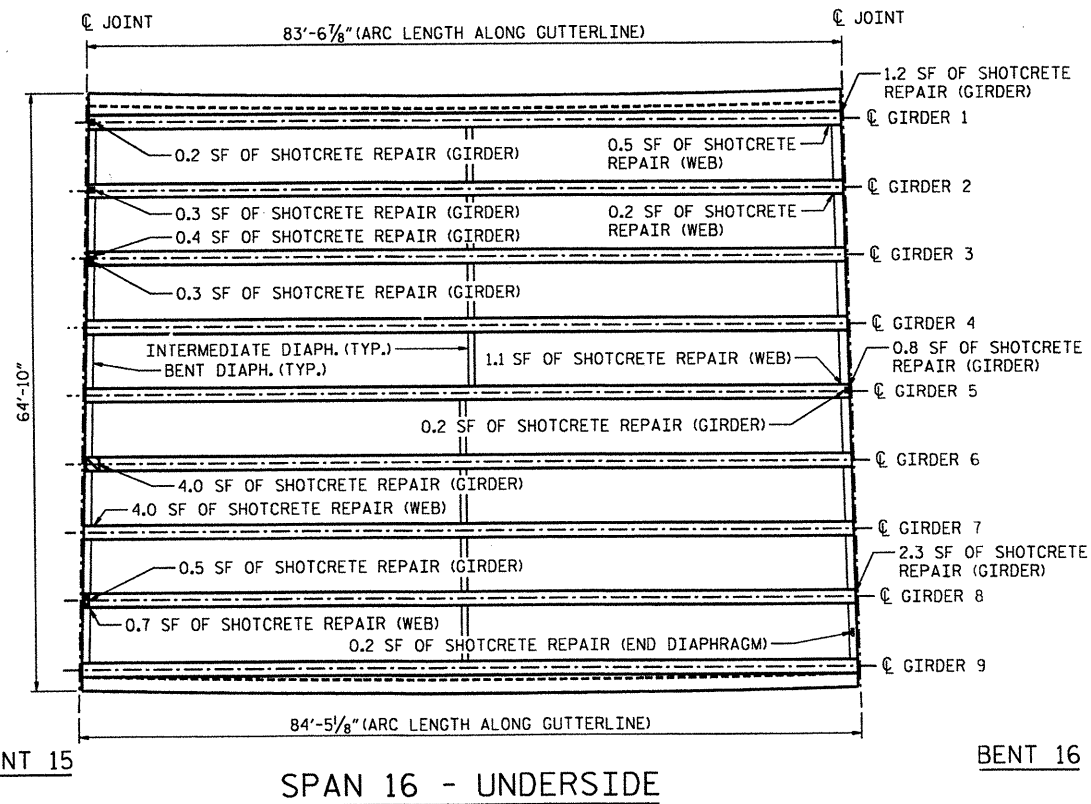
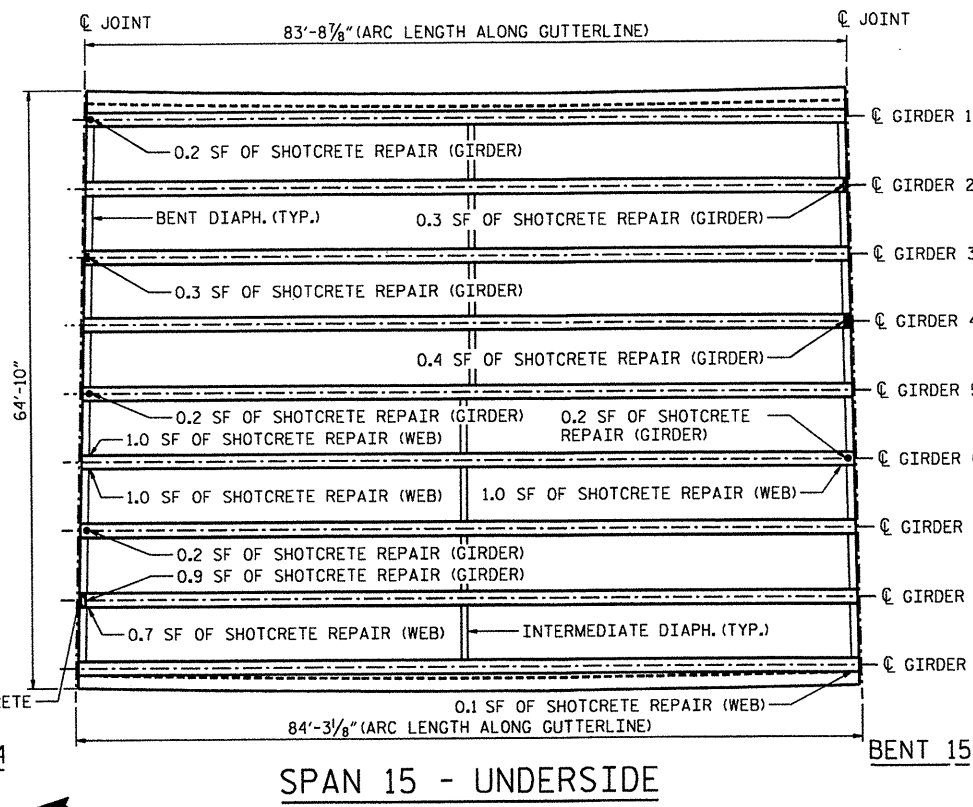
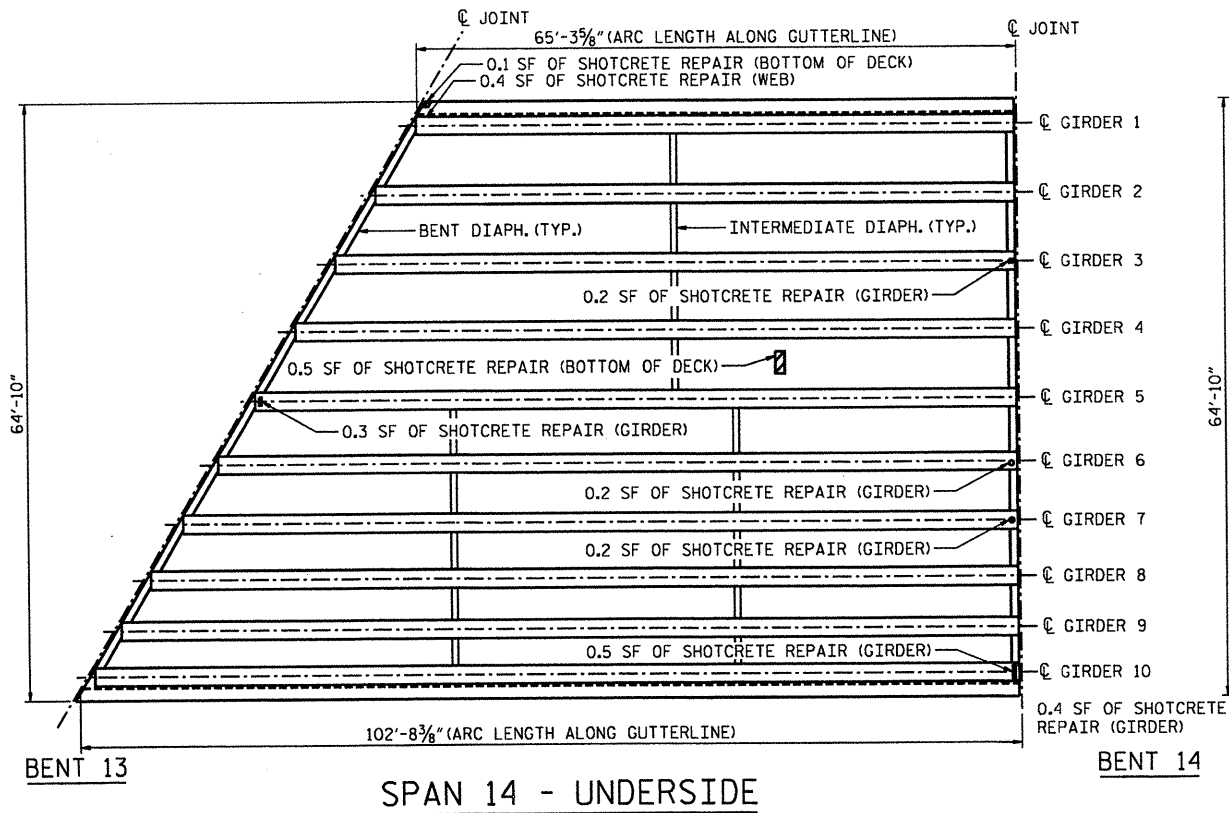
FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITY CONDUITS MOUNTED TO BOTTOM OF OVERHANG ADJACENT TO GIRDER 1 NOT SHOWN.

DECK DRAINS NOT SHOWN.

 SHOTCRETE REPAIR



PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27

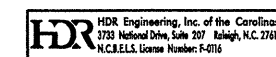
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE  
 UNDERSIDE REPAIR  
 SPANS 14 - 17**



REVISIONS						SHEET NO. 5-26
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			

DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011



PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.ppt  
 USER: msells  
 FILE: North Carolina Dept. of Transportation\NCDOT\_DDO\_CEI\_BM\_LSC\_MASTER\NCDOT\_New\_Hanover\_27\13.00\_CAD\DIV3\1\_SD\_NEWHANOVER27\_26.dgn  
 PENTABLE: NEWHANOVER27\_pen.tbl  
 TIME: 1:07:23 PM  
 DATE: 2/17/2012

BILL OF MATERIAL			
SPANS 18 - 21			
SHOTCRETE REPAIR SPAN 18	CF	0.8	
SHOTCRETE REPAIR SPAN 19	CF	2.6	
SHOTCRETE REPAIR SPAN 20	CF	1.8	
SHOTCRETE REPAIR SPAN 21	CF	1.3	


**NOTES**

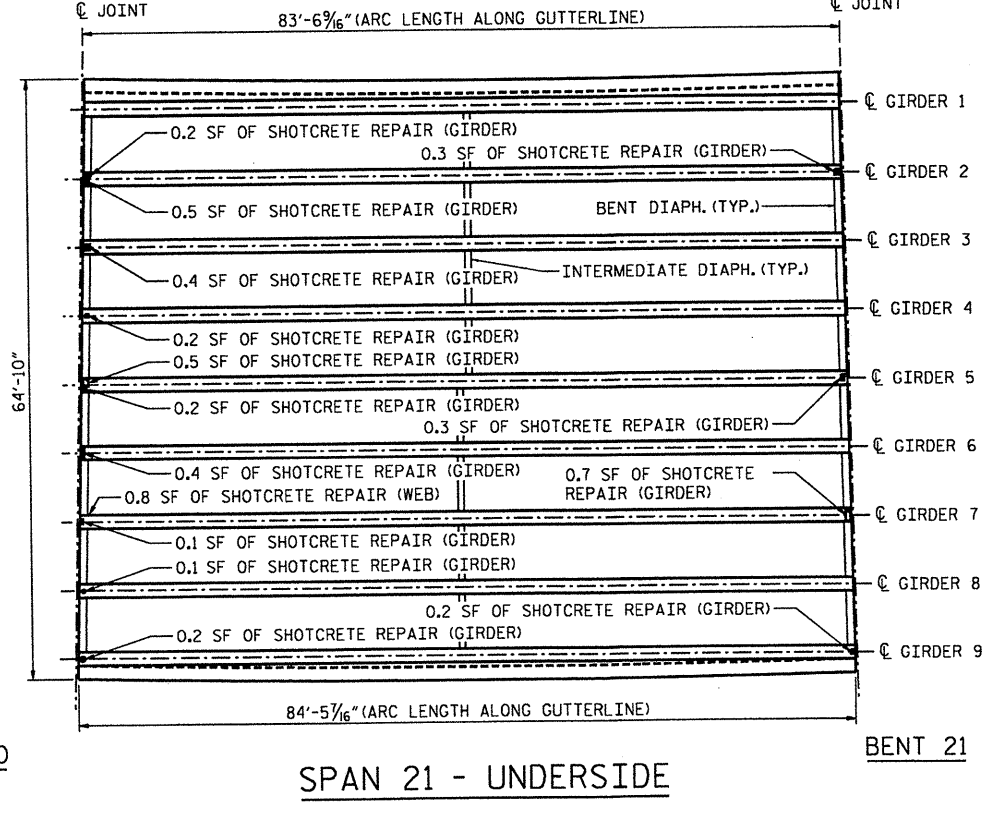
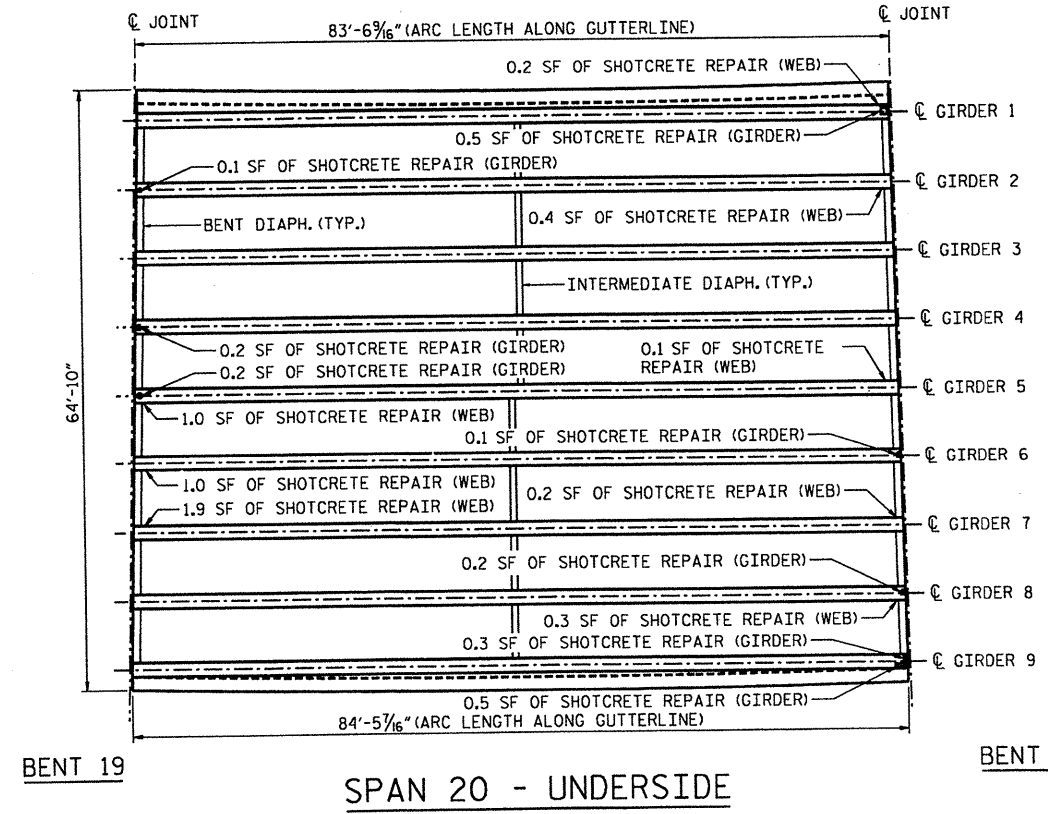
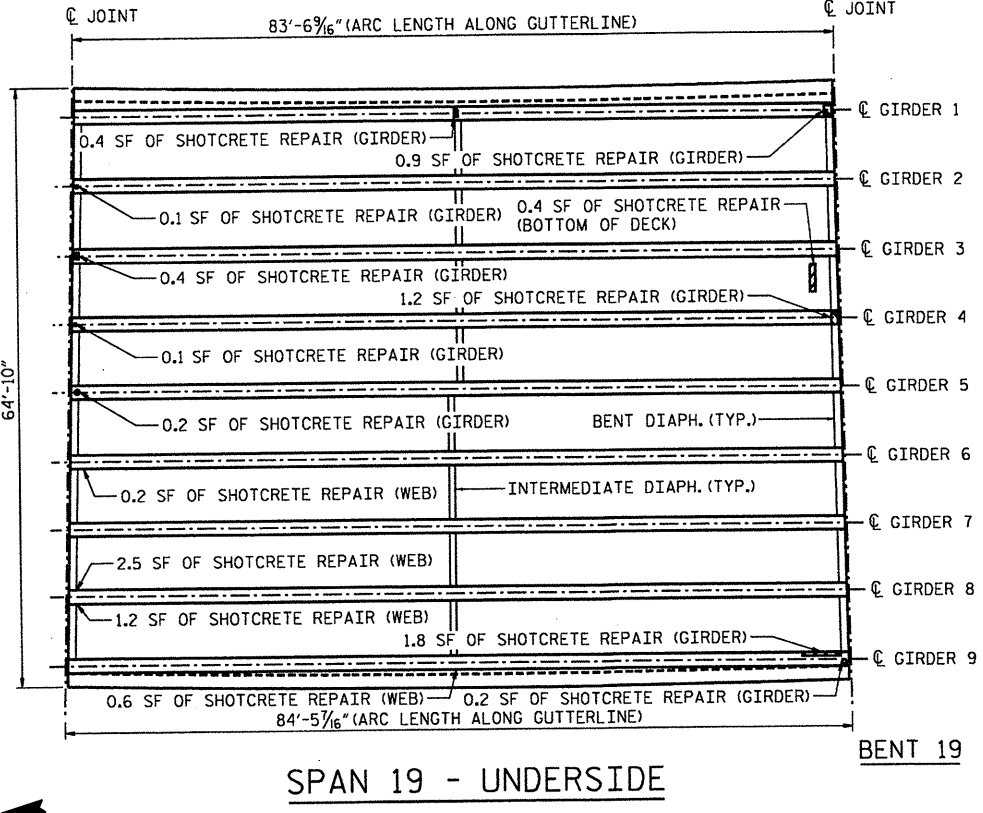
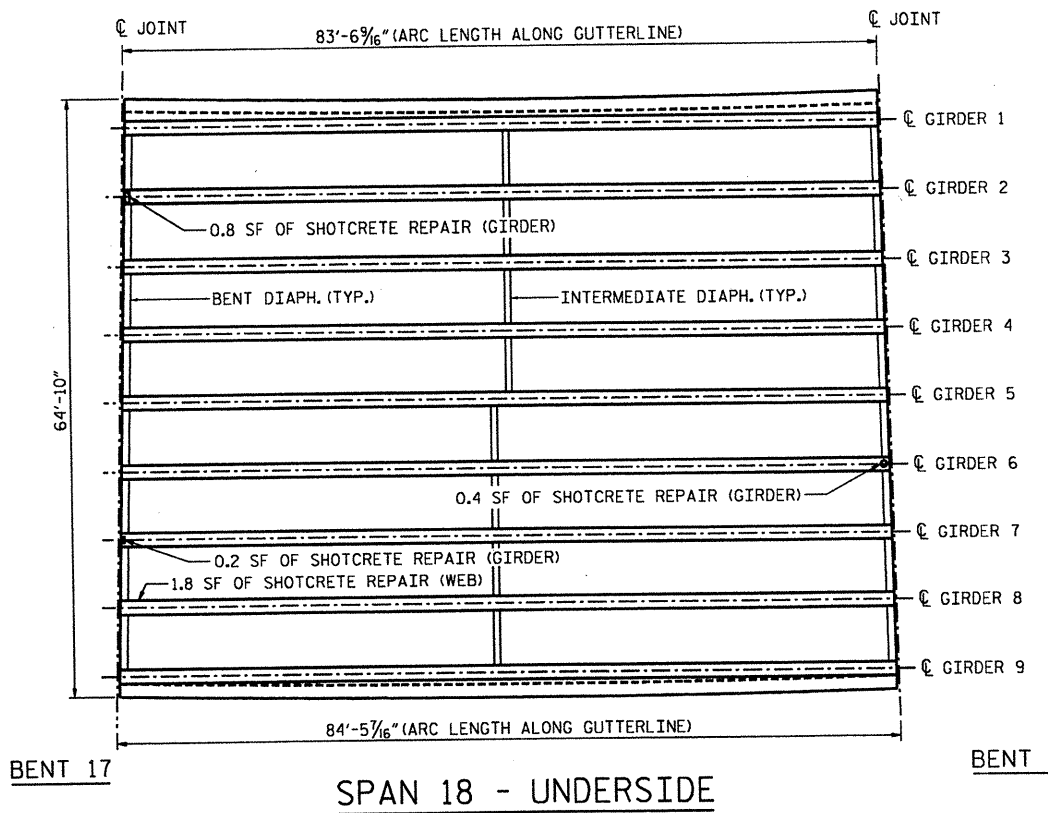
FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITY CONDUITS MOUNTED TO BOTTOM OF OVERHANG ADJACENT TO GIRDER 1 NOT SHOWN.

DECK DRAINS NOT SHOWN.

 SHOTCRETE REPAIR



PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



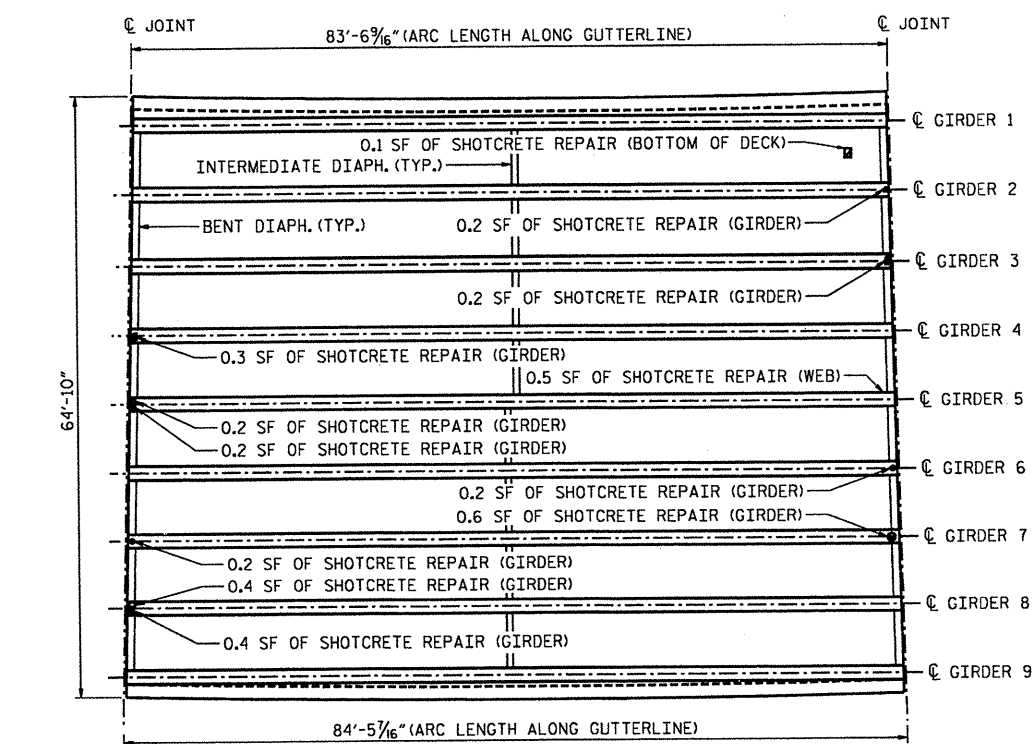
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE UNDERSIDE REPAIR SPANS 18 - 21					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY: <u>D.MAST</u> DATE: <u>12/2011</u>	SHEET NO. <u>5-27</u>
CHECKED BY: <u>M.MOYER</u> DATE: <u>12/2011</u>	TOTAL SHEETS <u>47</u>

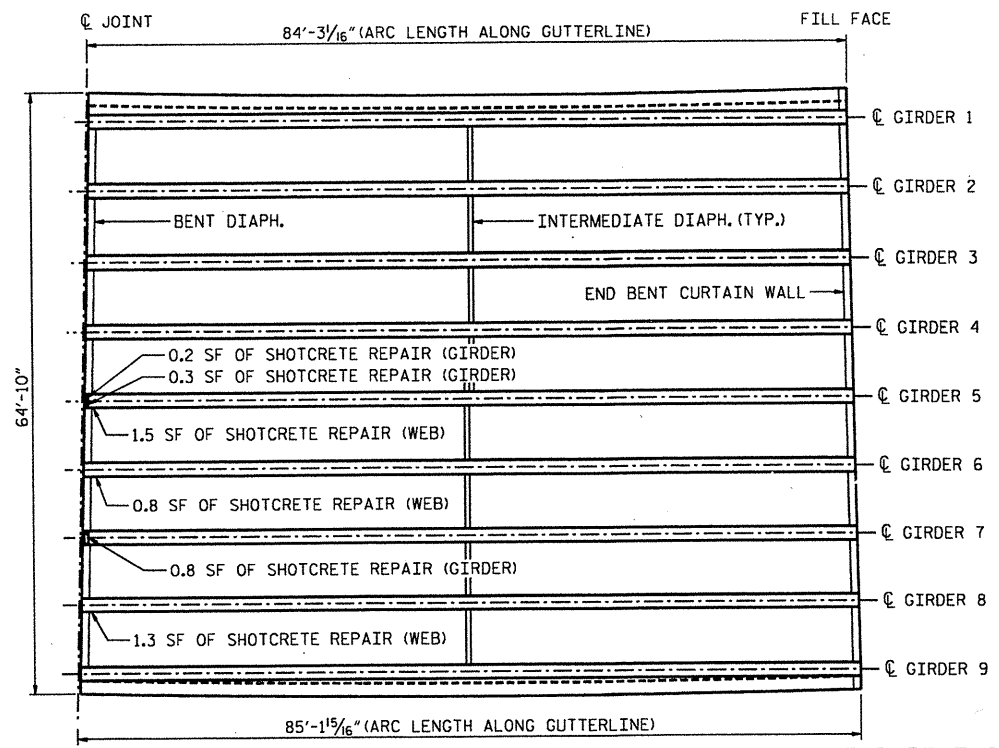
**HDR** HDR Engineering, Inc. of the Carolinas  
 2725 National Drive, Suite 307 Raleigh, N.C. 27603  
 N.C. E.L.S. License Number: F-0116

PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
 USER: msellis  
 FILE: North\_Carolina\_Dept\_of\_Transportation\NCDOT\_DDO\_CEI\_BML\SC\_MASTER\NCDOT\_New\_Hanover\_27\13.00\_CAD\DTV3.1.LD\_NEWHANOVER027\_27.dgn  
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 TIME: 10:41 PM  
 DATE: 2/17/2012

BILL OF MATERIAL		
SPANS 22 - 23		
SHOTCRETE REPAIR SPAN 22	CF	0.9
SHOTCRETE REPAIR SPAN 23	CF	1.2



BENT 21 SPAN 22 - UNDERSIDE



BENT 22 SPAN 23 - UNDERSIDE END BENT 2

**NOTES**

- FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".
- FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".
- UTILITY CONDUITS MOUNTED TO BOTTOM OF OVERHANG ADJACENT TO GIRDER 1 NOT SHOWN.
- DECK DRAINS NOT SHOWN.
- SHOTCRETE REPAIR

PLOT DRIVER: NCDOT\pdf\_mono\_eng\_50.pit  
 USER: msellis  
 FILE: North Carolina\Dept. of Transportation\NCDOT\_DDO\_CEI\_BM\_LSC\_MASTER\NCDOT\_New\_Hanover\_27\13.00\_CAD\DIV3\1\_SD\_NEWHANOVER27.28.dgn  
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 DATE: 2/17/2012

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



2-17-12

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

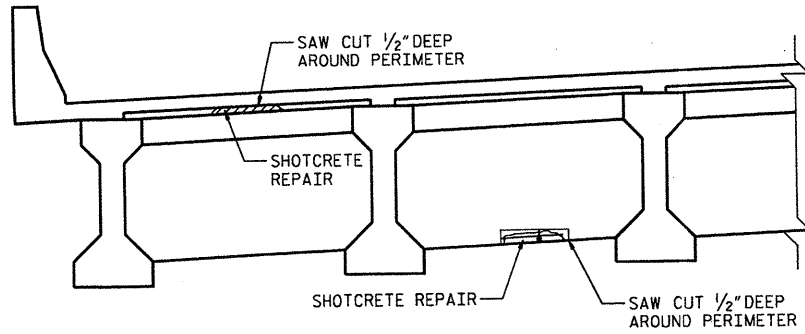
**SUPERSTRUCTURE  
UNDERSIDE REPAIR  
SPANS 22 & 23**

REVISIONS					SHEET NO. S-28
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS 47
2			4		

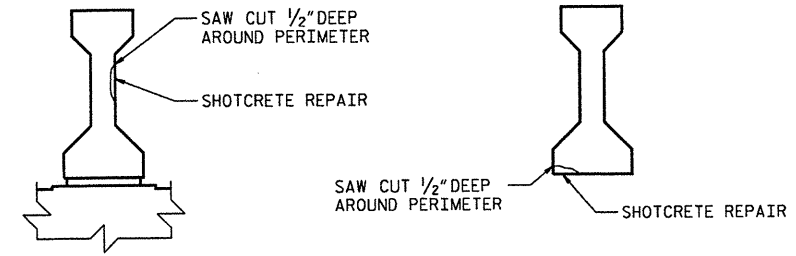
HDR Engineering, Inc. of the Carolinas  
 3723 National Drive, Suite 207 Raleigh, N.C. 27604  
 N.C.E.L.S. License Number: F-6016



NOTE  
 FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

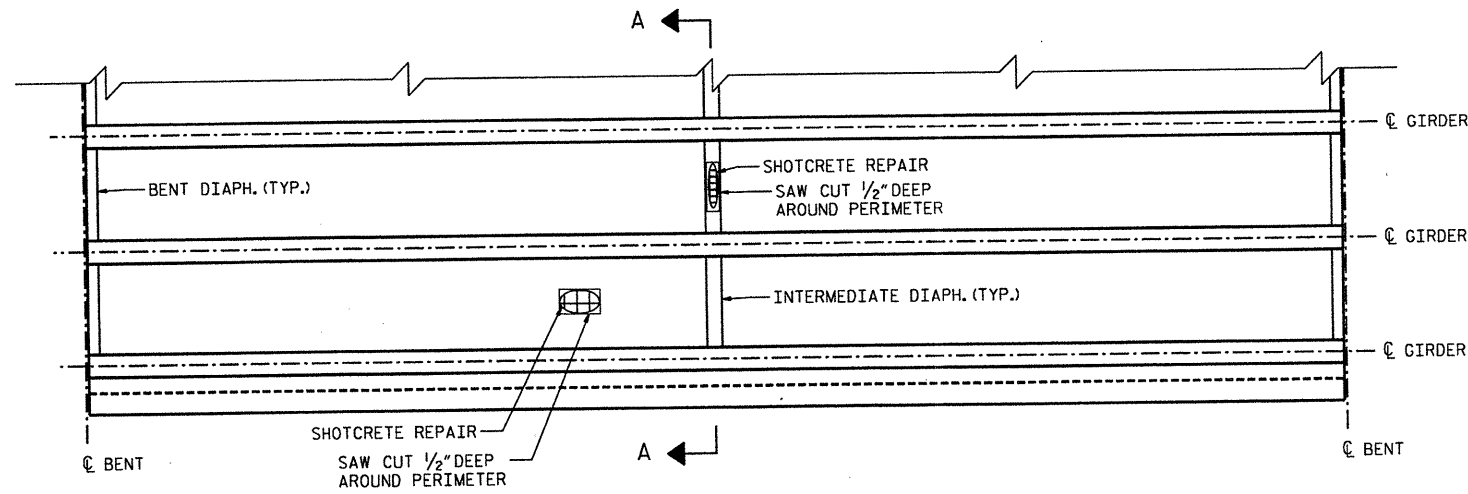


SECTION A-A

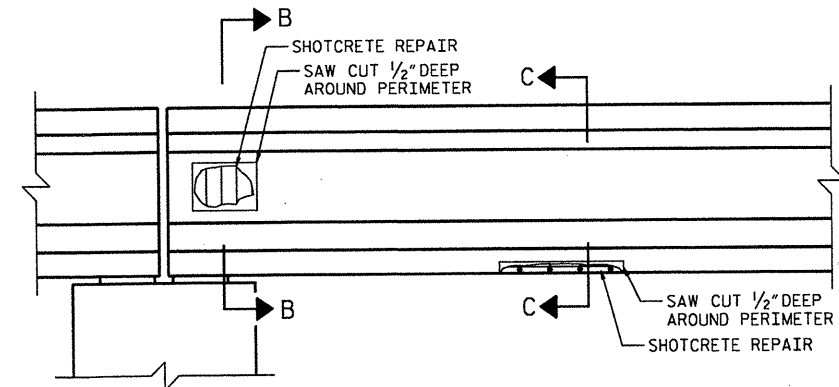


SECTION B-B

SECTION C-C



UNDERSIDE OF DECK AND DIAPHRAGM REPAIR DETAIL



CONCRETE GIRDER REPAIR DETAIL

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. 5-29 TOTAL SHEETS 47

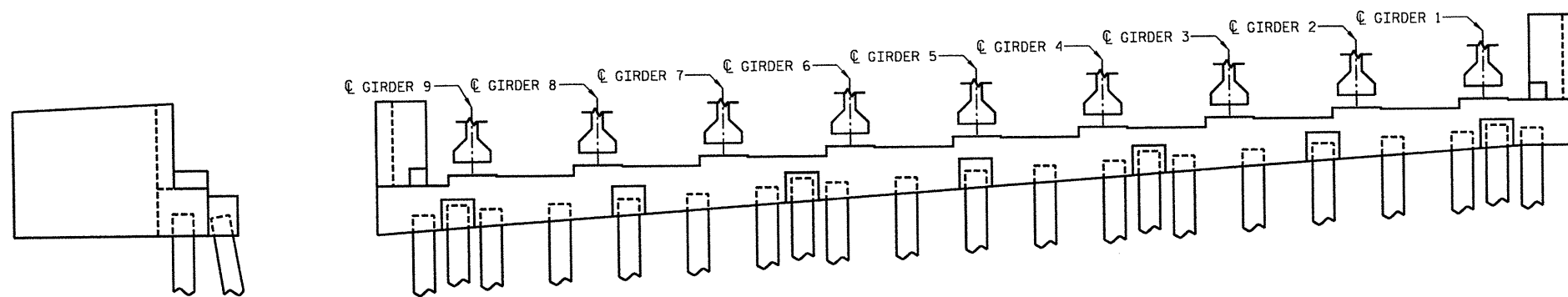
HDR Engineering, Inc. of the Carolinas  
 3753 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.E.L.S. License Number: F-0116

DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011

PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.dwt  
 USER: msells DATE: 2/17/2012  
 FILE: North Carolina Dept. of Transportation\NCDOT\_DDO\_CEL.BM.LSC\_MASTER\NCDOT\_New\_Hanover\_27\_13.00\_CAD\DTV3.1\_SD\_NEWHANOVER027\_29.dgn

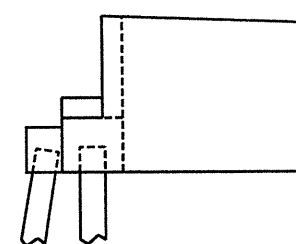
BILL OF MATERIAL

END BENT 1	
SHOTCRETE REPAIR	CF 0.0
EPOXY RESIN INJECTION	LF 0.0
DEBRIS REMOVAL	CF 0.0
BENT 1	
SHOTCRETE REPAIR	CF 0.0
EPOXY RESIN INJECTION	LF 5.0
DEBRIS REMOVAL	CF 15.0

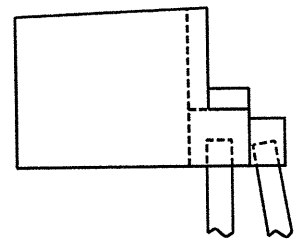


SOUTH ELEVATION

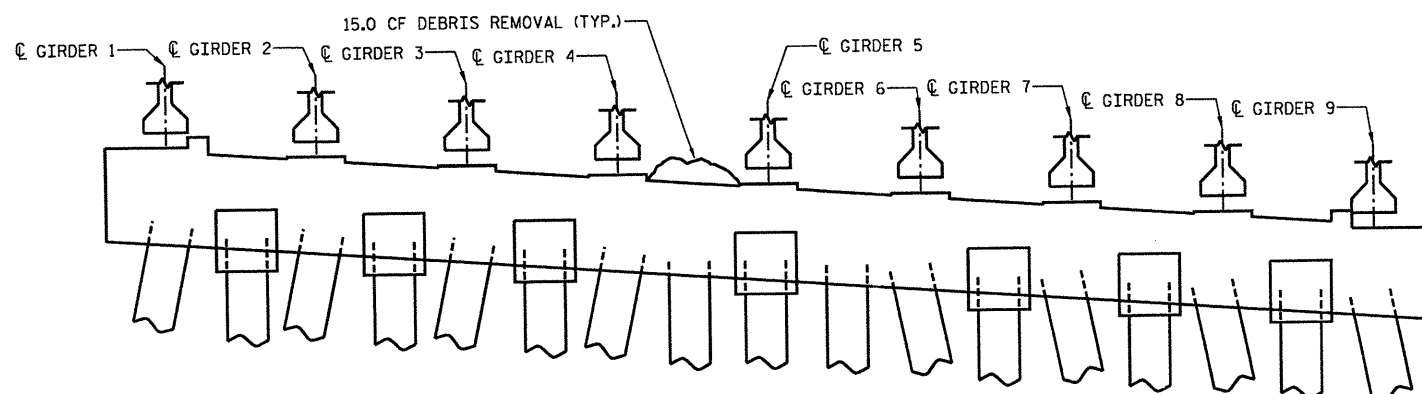
END BENT 1



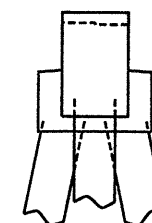
EAST ELEVATION



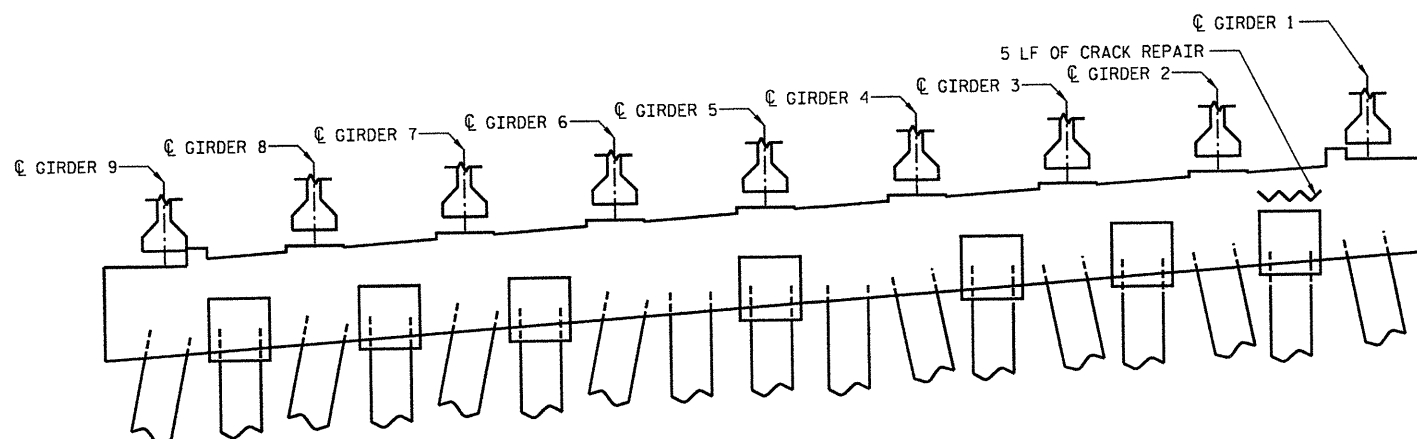
WEST ELEVATION



NORTH ELEVATION

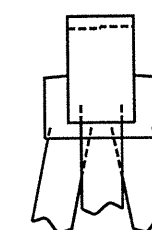


WEST ELEVATION



SOUTH ELEVATION

BENT 1



EAST ELEVATION

NOTES

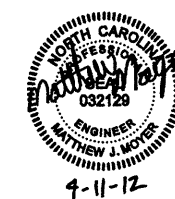
FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

SHOTCRETE REPAIR

EPOXY RESIN INJECTION

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27

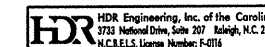


4-11-12

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 CAP REPAIR  
 END BENT 1 & BENT 1

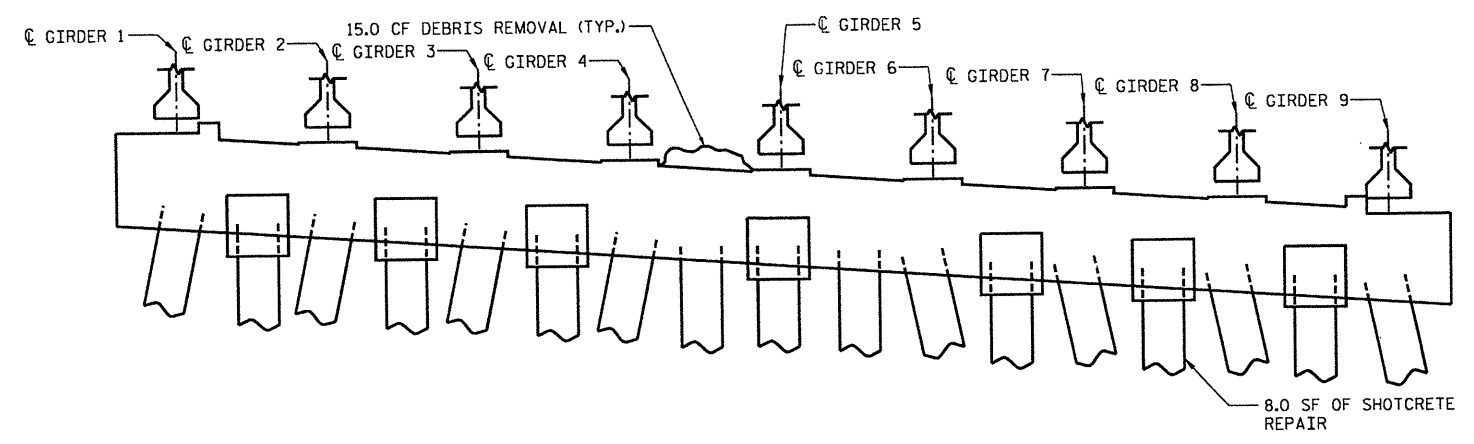
REVISIONS						SHEET NO. S-30
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			



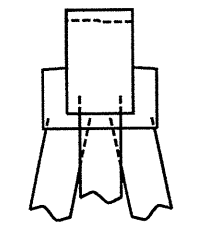
DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

PLOT DRIVER: NCDOT\_pdfs\_mono\_eng\_50.plt  
 USER: msells DATE: 4/11/2012  
 FILE: North Carolina Dept. of Transportation\NCDOT\_DDO\_CET.BM.LSC\_MASTER\NCDOT\_DDO\_CET.BM.LSC\_MASTER\NCDOT\_New\_Hanover\_27\13.00\_CAD\01\13.1\_SD\_NEWHANOVER027\_30.dgn

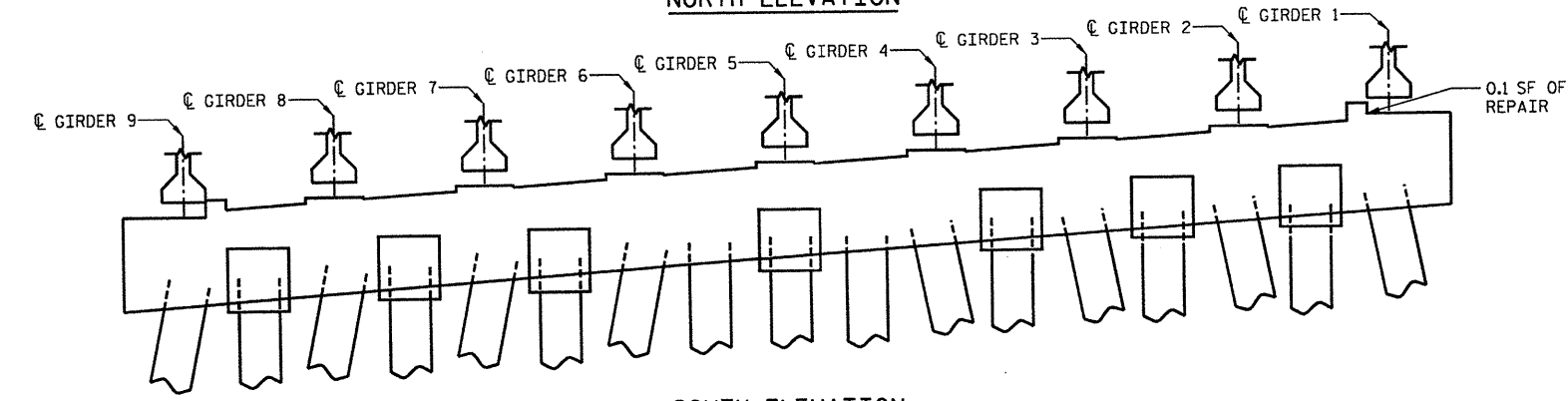
BILL OF MATERIAL	
<b>BENT 2</b>	
SHOTCRETE REPAIR	CF 2.7
EPOXY RESIN INJECTION	LF 0.0
DEBRIS REMOVAL	CF 15.0
<b>BENT 3</b>	
SHOTCRETE REPAIR	CF 0.0
EPOXY RESIN INJECTION	LF 0.0
DEBRIS REMOVAL	CF 20.0



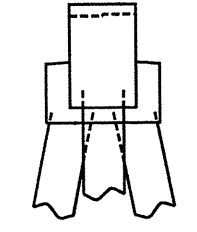
NORTH ELEVATION



WEST ELEVATION

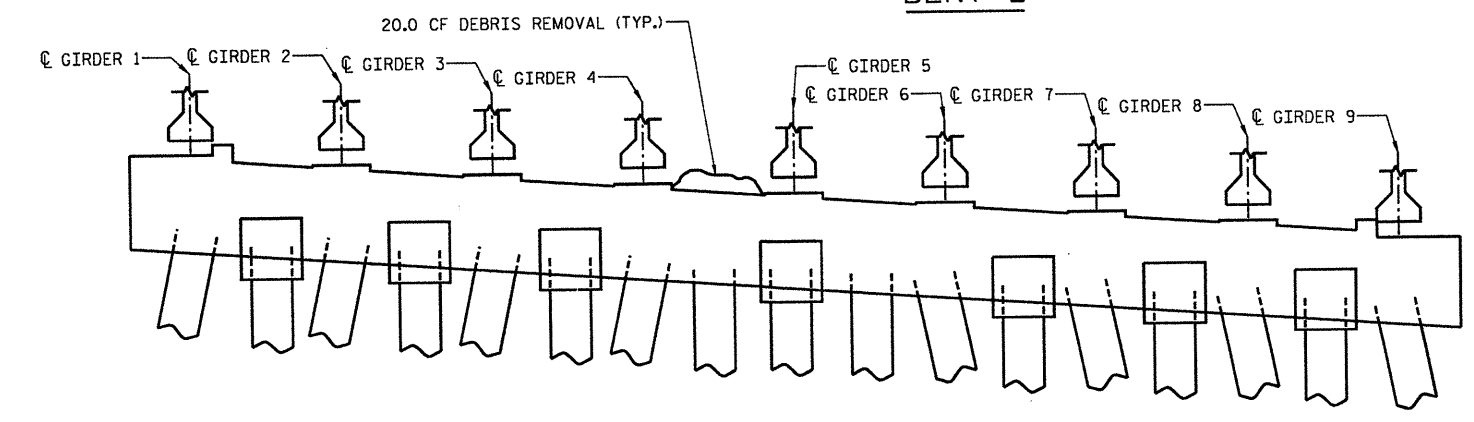


SOUTH ELEVATION

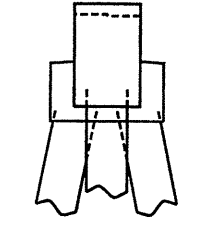


EAST ELEVATION

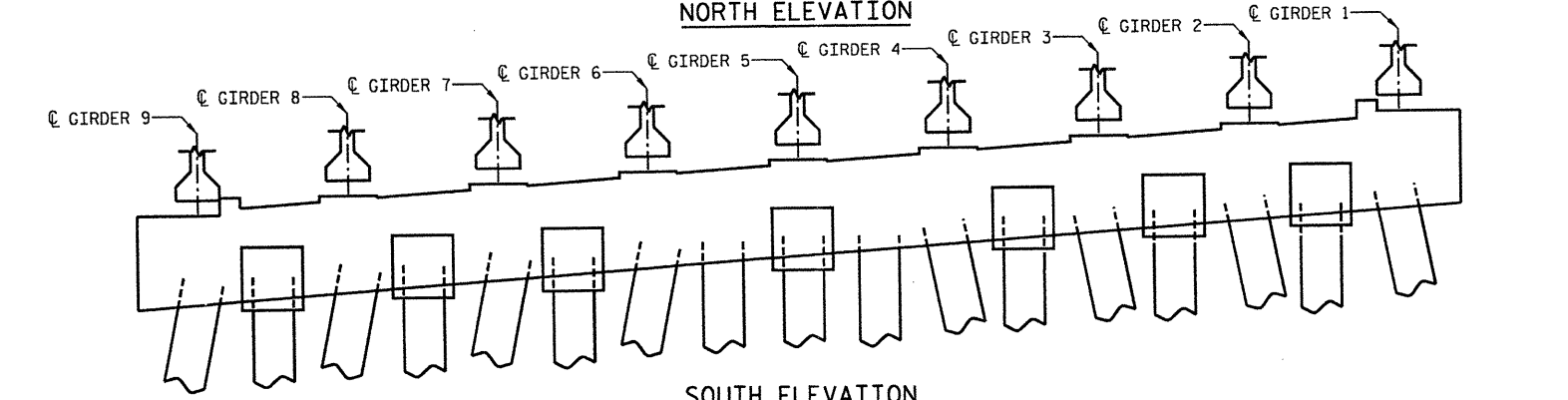
BENT 2



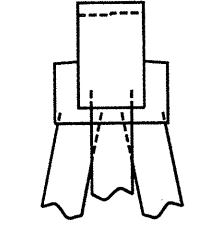
NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

BENT 3

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

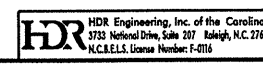
SHOTCRETE REPAIR

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 CAP REPAIR  
 BENTS 2 & 3

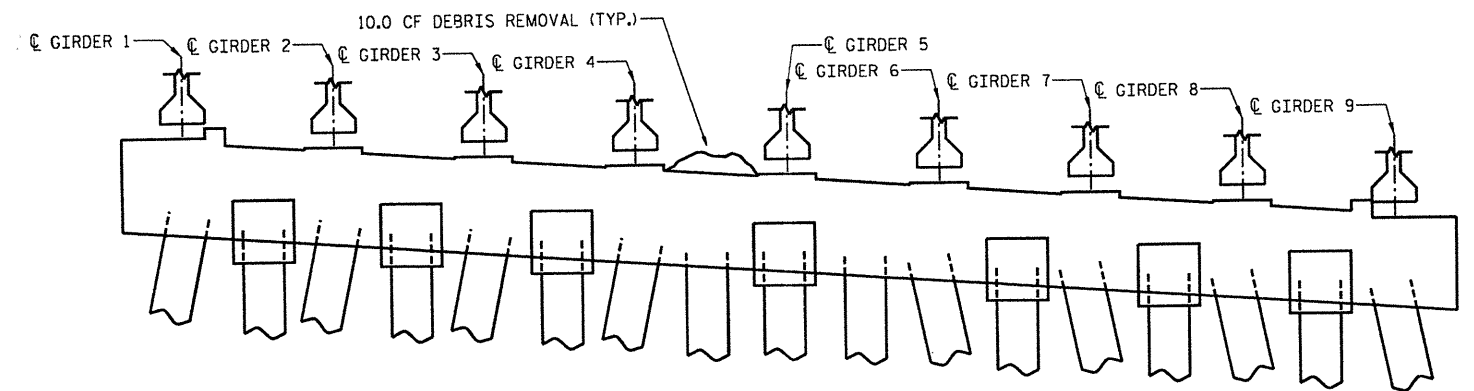
REVISIONS						SHEET NO. S-31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			



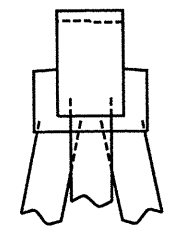
DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
 USER: msells  
 FILE: North Carolina Dept. of Transportation\NCDOT\_DDO\_CCI\_BN.LSC\_MASTER\NCDOT\_DDO\_CCI\_BN.LSC\_MASTER\NCDOT\_27\13.00\_CAD\DIV31\_SD\_NEWHANOVER27\_31.dgn  
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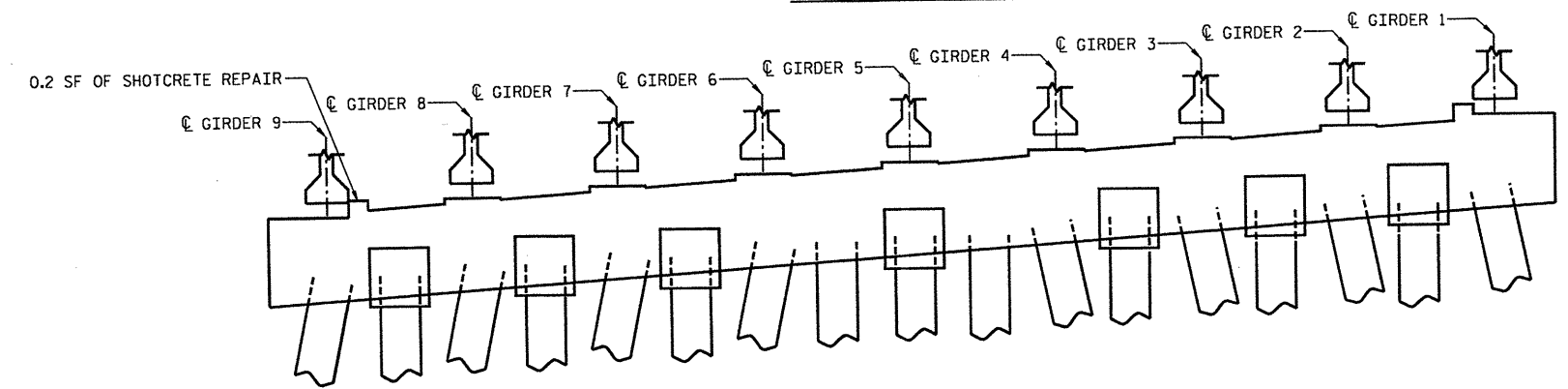
BILL OF MATERIAL		
<b>BENT 4</b>		
SHOTCRETE REPAIR	CF	0.1
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	10.0
<b>BENT 5</b>		
SHOTCRETE REPAIR	CF	0.1
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	10.0



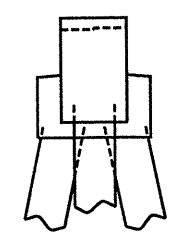
NORTH ELEVATION



WEST ELEVATION

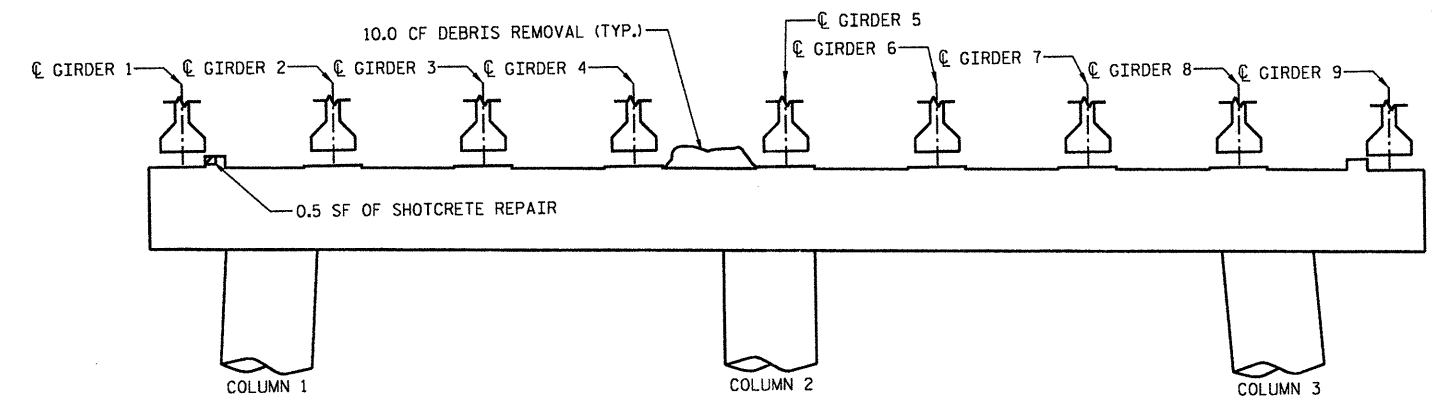


SOUTH ELEVATION

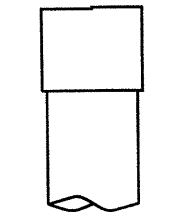


EAST ELEVATION

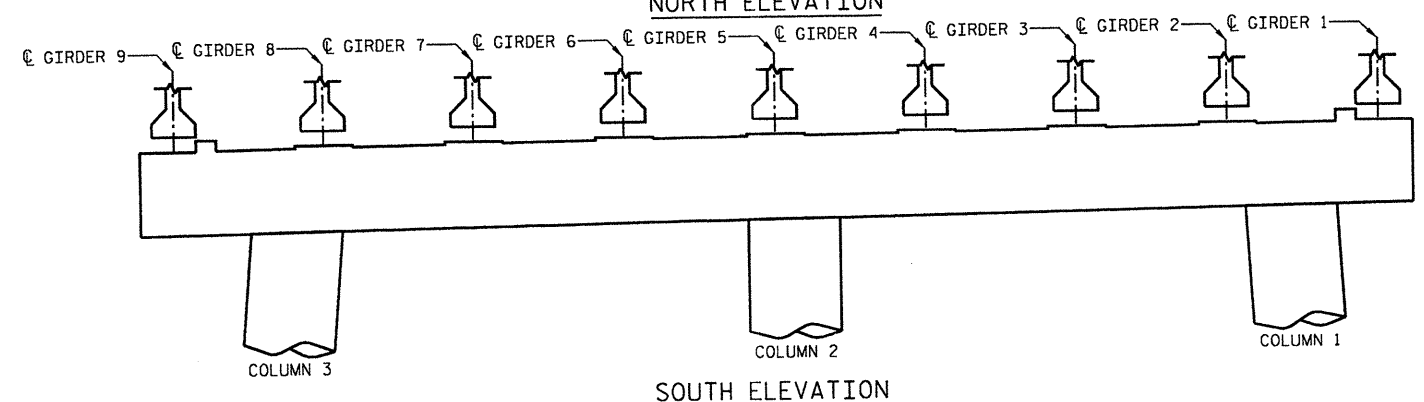
**BENT 4**



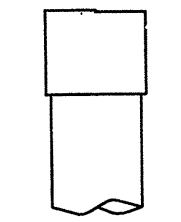
NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

**BENT 5**

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

SHOTCRETE REPAIR

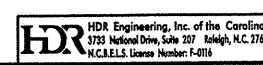
PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

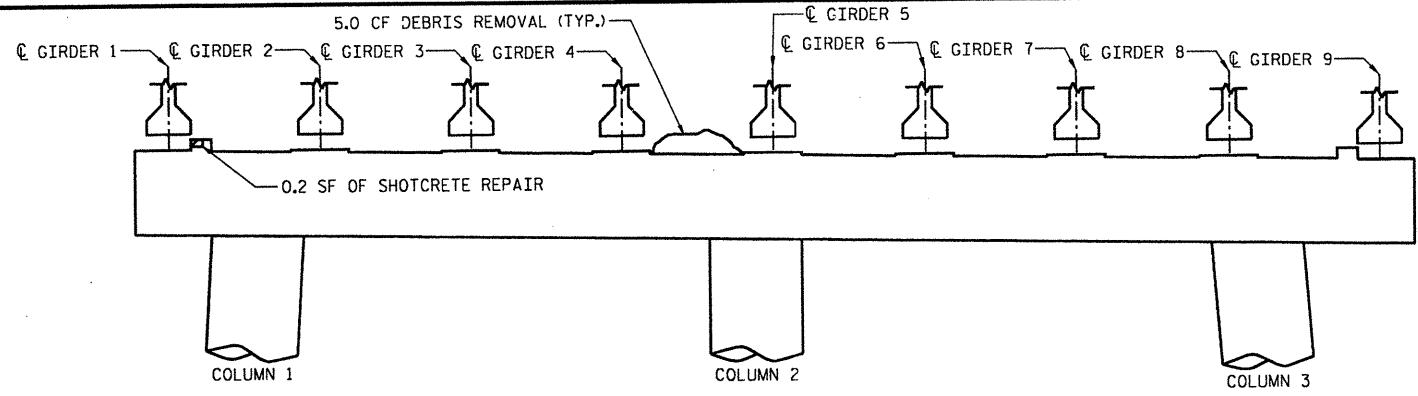
**SUBSTRUCTURE  
 CAP REPAIR  
 BENTS 4 & 5**

REVISIONS						SHEET NO. S-32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			

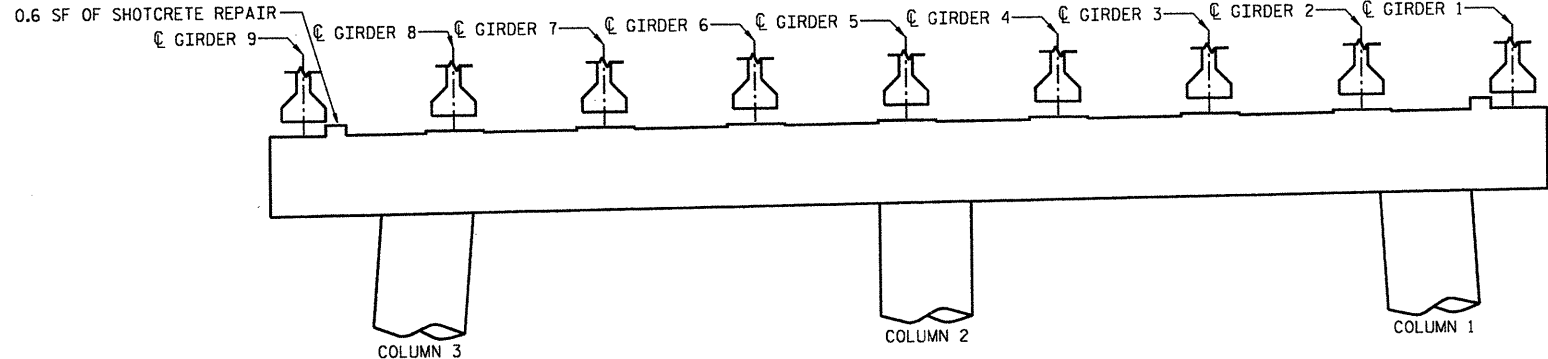


DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011

PLOT DRIVER: NCDOT\_dpaf\_mono\_eng\_50.plt  
 USER: msells  
 FILE: North Carolina Dept. of Transportation\NCDOT\_DDO\_CEL\_BM\_LSC\_MASTER\NCDOT\_New\_Hanover\_27\13.00\_CAD\DIV3\1\_SD\_NEWHANOVER027\_32.dgn  
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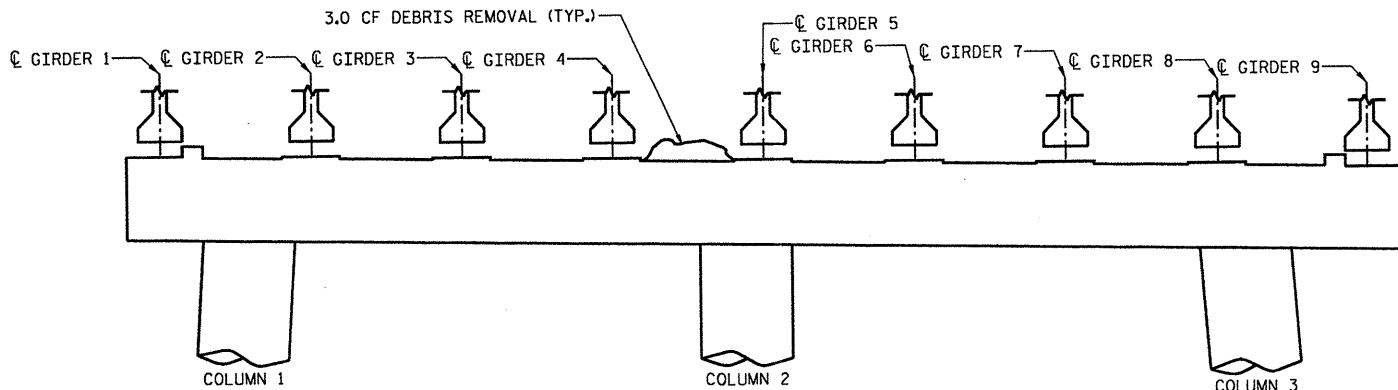


NORTH ELEVATION

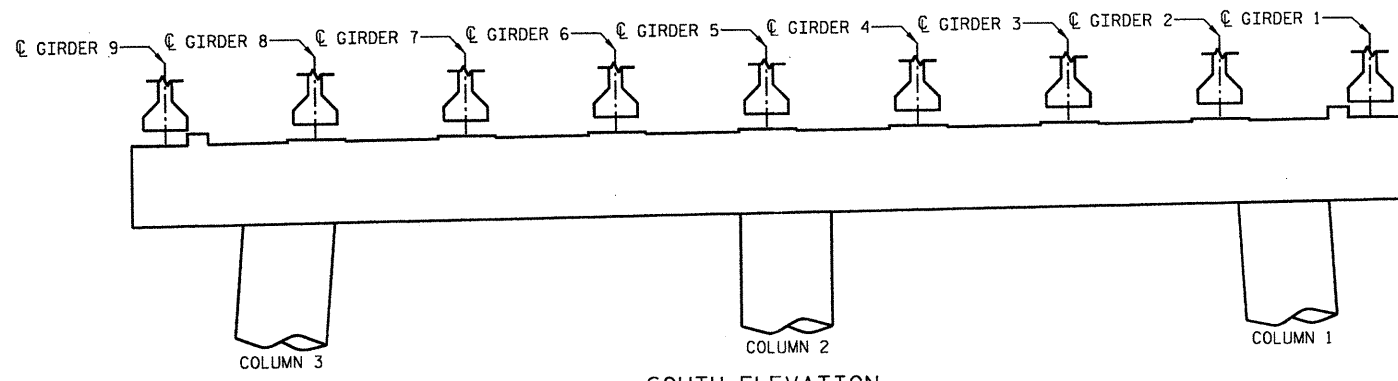


SOUTH ELEVATION

BENT 6

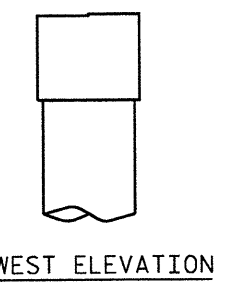


NORTH ELEVATION

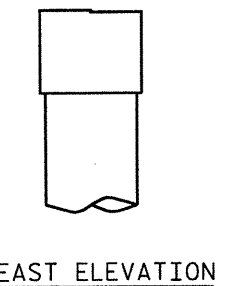


SOUTH ELEVATION

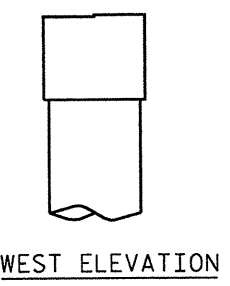
BENT 7



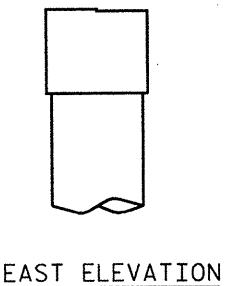
WEST ELEVATION



EAST ELEVATION



WEST ELEVATION



EAST ELEVATION

BILL OF MATERIAL		
BENT 6		
SHOTCRETE REPAIR *	CF	0.4
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	5.0
BENT 7		
SHOTCRETE REPAIR *	CF	0.2
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	3.0

\* INCLUDES SHOTCRETE REPAIRS SHOWN ON "SUBSTRUCTURE COLUMN, STRUT & PILE CAP REPAIR BENTS 6, 7 & 9".

NOTES

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

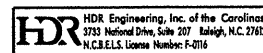
SHOTCRETE REPAIR

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 CAP REPAIR  
 BENTS 6 & 7

REVISIONS						SHEET NO. 5-33
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			

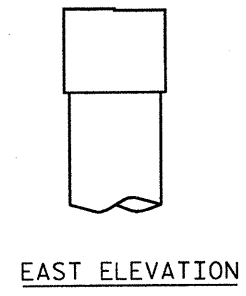
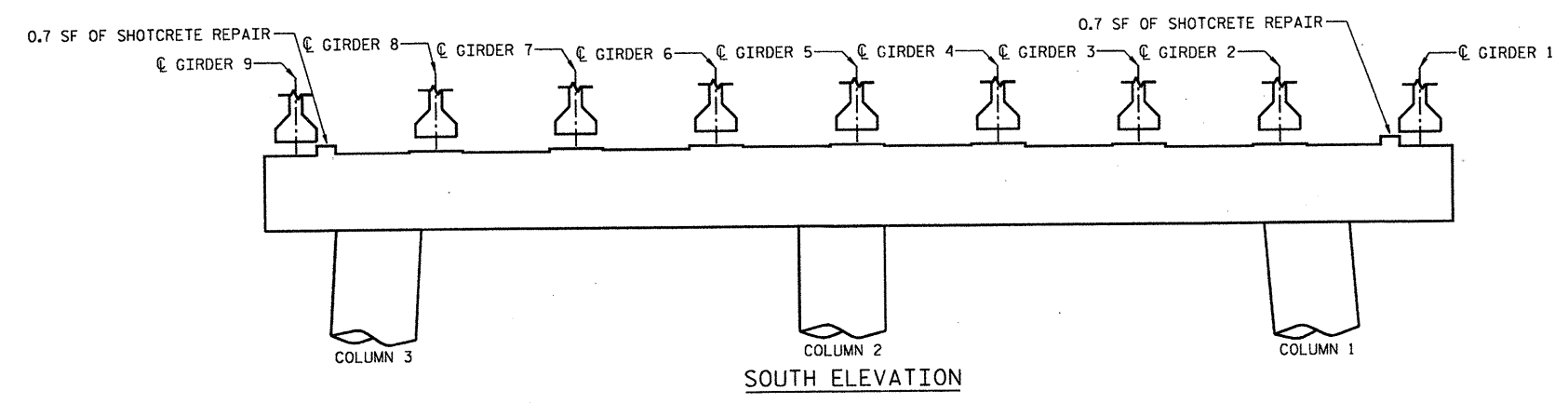
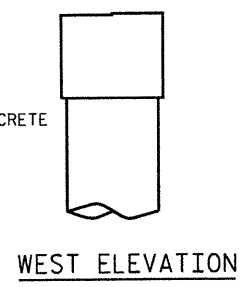
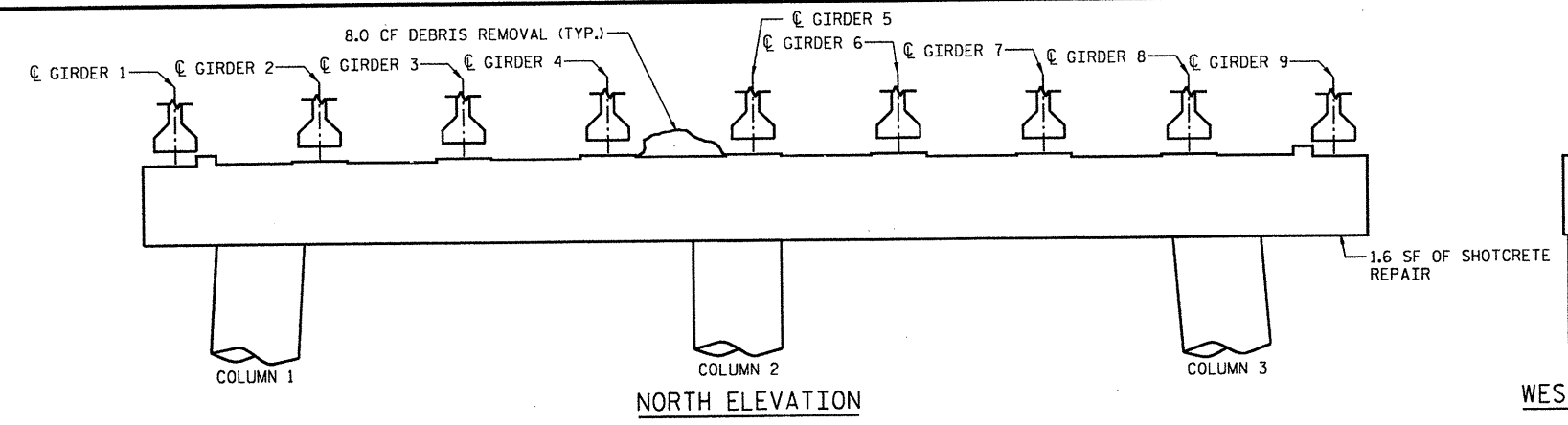


DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011

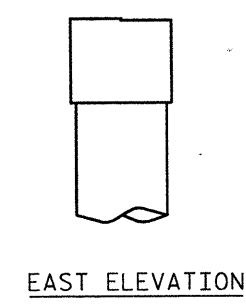
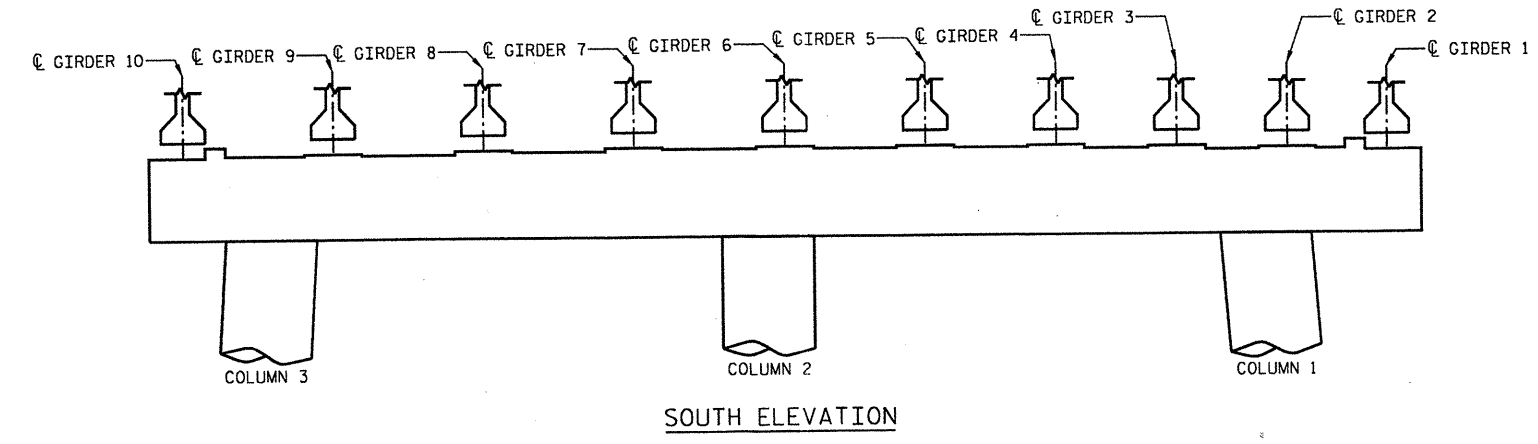
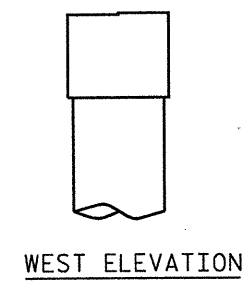
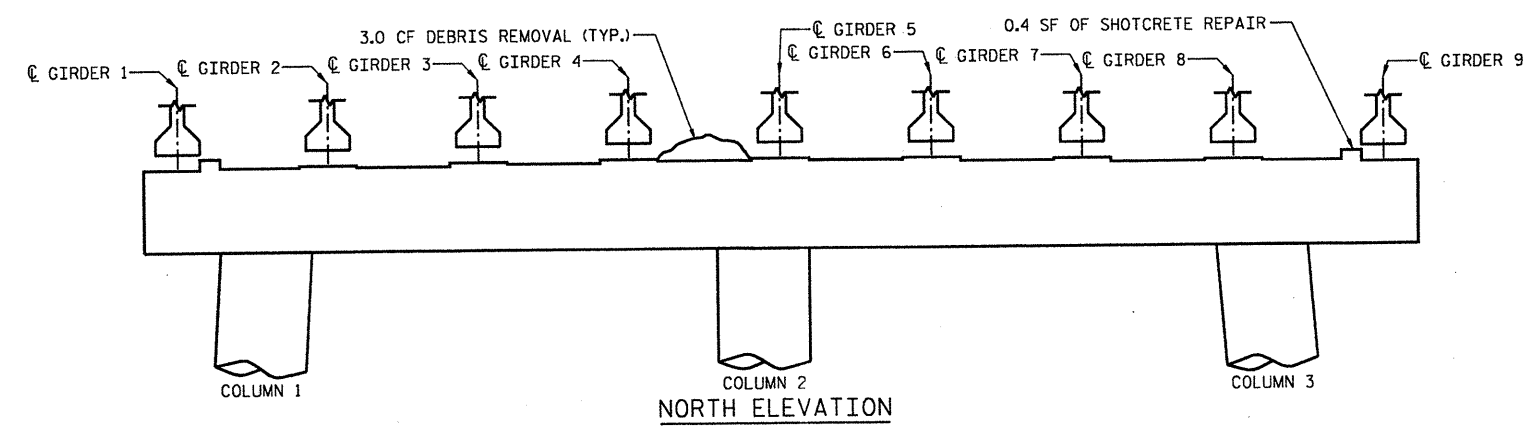
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 USER: msells  
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 TIME: 2:14:47 PM  
 DATE: 4/11/2012

BILL OF MATERIAL		
<b>BENT 8</b>		
SHOTCRETE REPAIR	CF	0.9
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	8.0
<b>BENT 9</b>		
SHOTCRETE REPAIR *	CF	2.6
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	3.0

\* INCLUDES SHOTCRETE REPAIRS SHOWN ON "SUBSTRUCTURE REPAIR COLUMN, STRUT & PILE CAP REPAIR BENTS 6, 7 & 9".



**BENT 8**



**BENT 9**

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

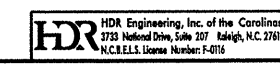
FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

SHOTCRETE REPAIR

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH		
<b>SUBSTRUCTURE CAP REPAIR BENTS 8 &amp; 9</b>		
REVISIONS		
NO.	BY:	DATE:
1		
2		
3		
4		
SHEET NO. 5-34		
TOTAL SHEETS 47		



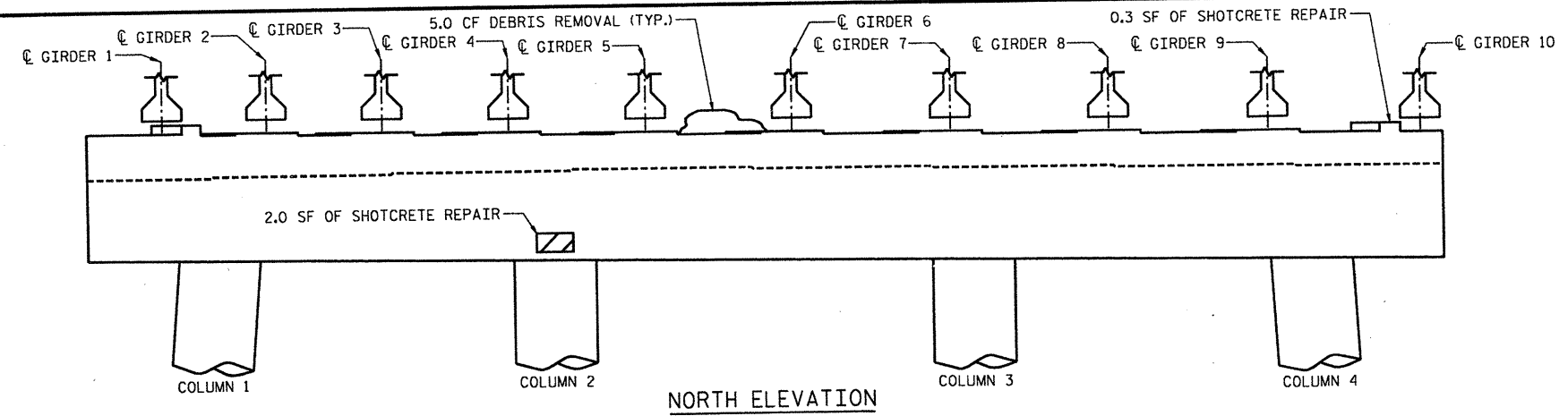
DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

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 USER: msellis  
 FILE: North Carolina Dept. of Transportation\NCDOT\_DDO\_CEI\_BALLSC\_MASTER\NCDOT\_New\_Hanover\_27\13.00\_CAD\DIV31\_SD\_NEWHANOVER27\_34.dgn  
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 DATE: 4/11/2012

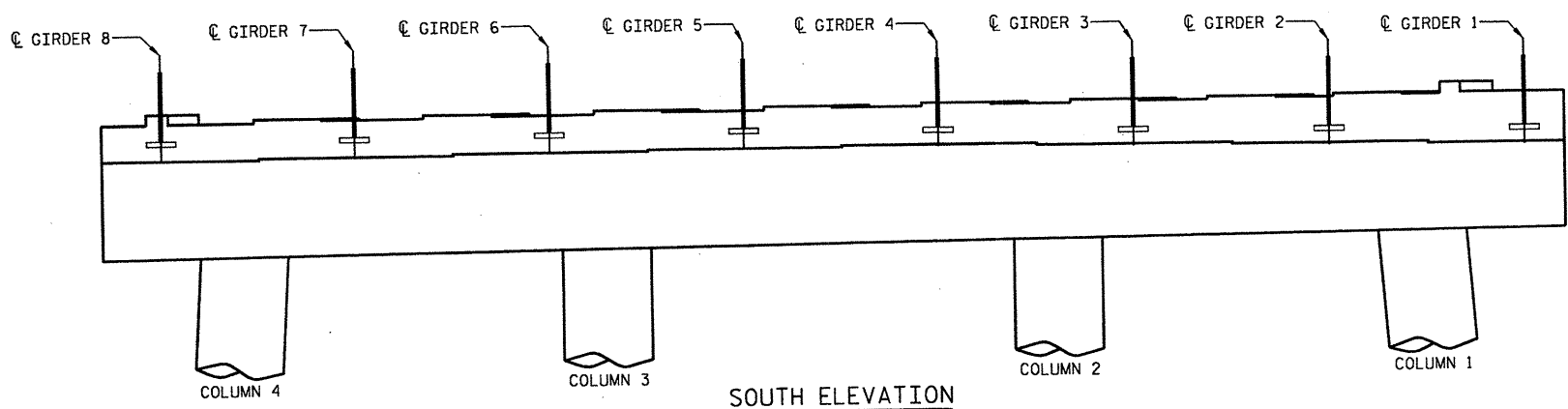
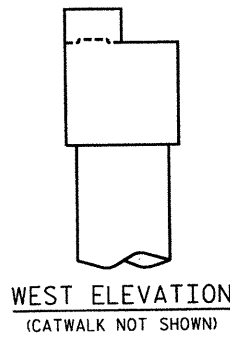
**BILL OF MATERIAL**

BENT 10		
SHOTCRETE REPAIR *	CF	0.8
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	5.0
BENT 11		
SHOTCRETE REPAIR *	CF	11.6
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	5.0

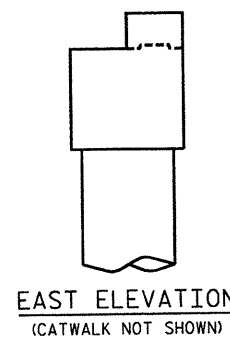
\* INCLUDES SHOTCRETE REPAIRS SHOWN ON "SUBSTRUCTURE COLUMN, STRUT & PILE CAP REPAIR BENTS 10 & 11".



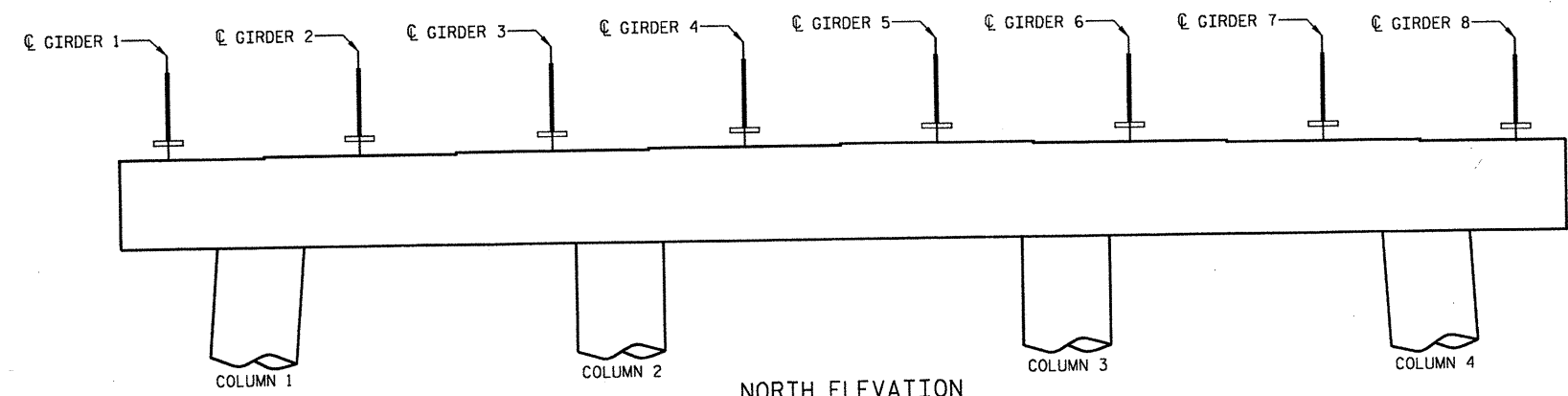
**NORTH ELEVATION**



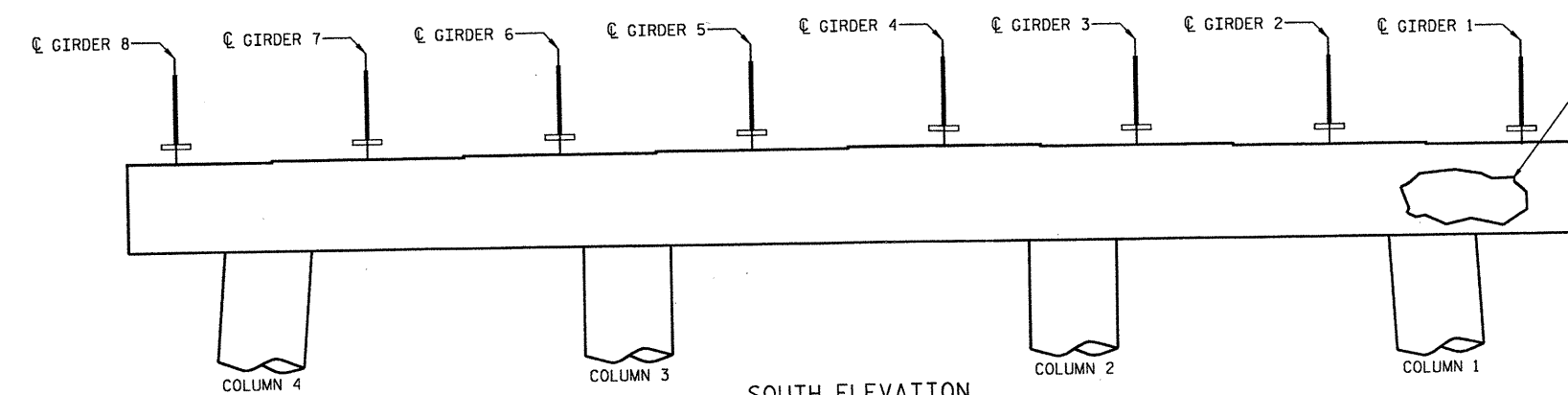
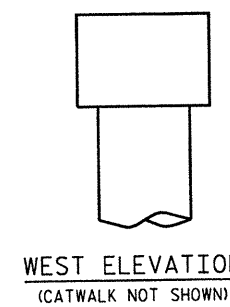
**SOUTH ELEVATION**



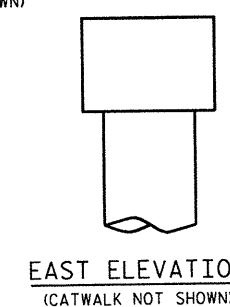
**BENT 10**



**NORTH ELEVATION**



**SOUTH ELEVATION**



**BENT 11**

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

SHOTCRETE REPAIR

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE CAP REPAIR BENTS 10 & 11**

REVISIONS						SHEET NO. 5-35
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			



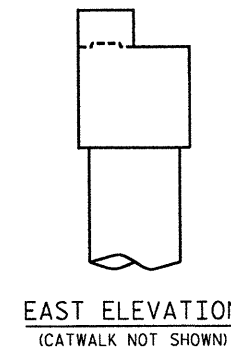
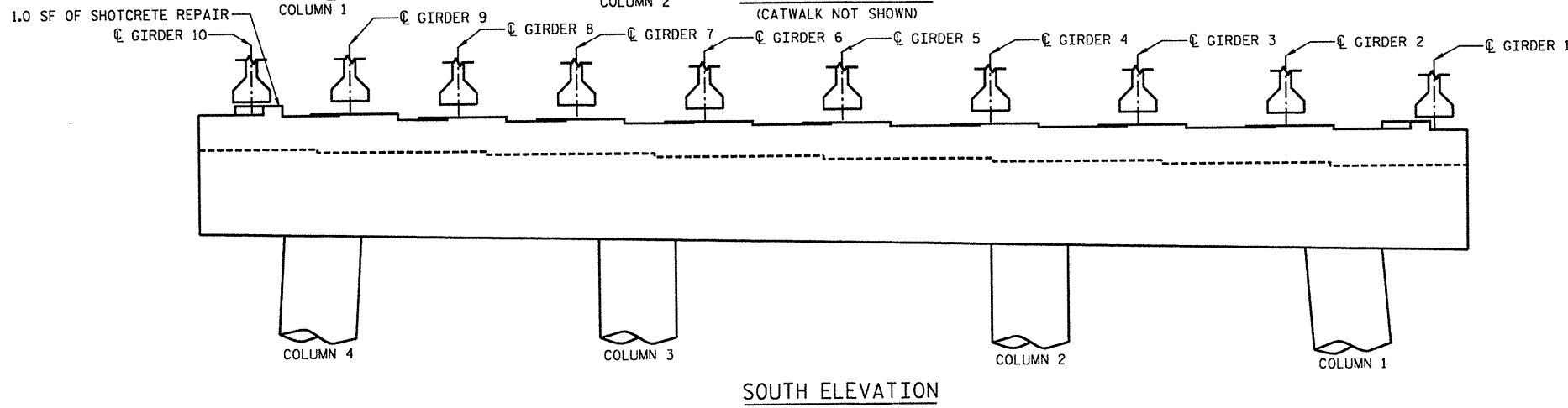
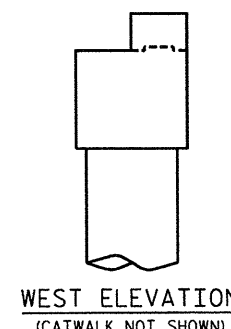
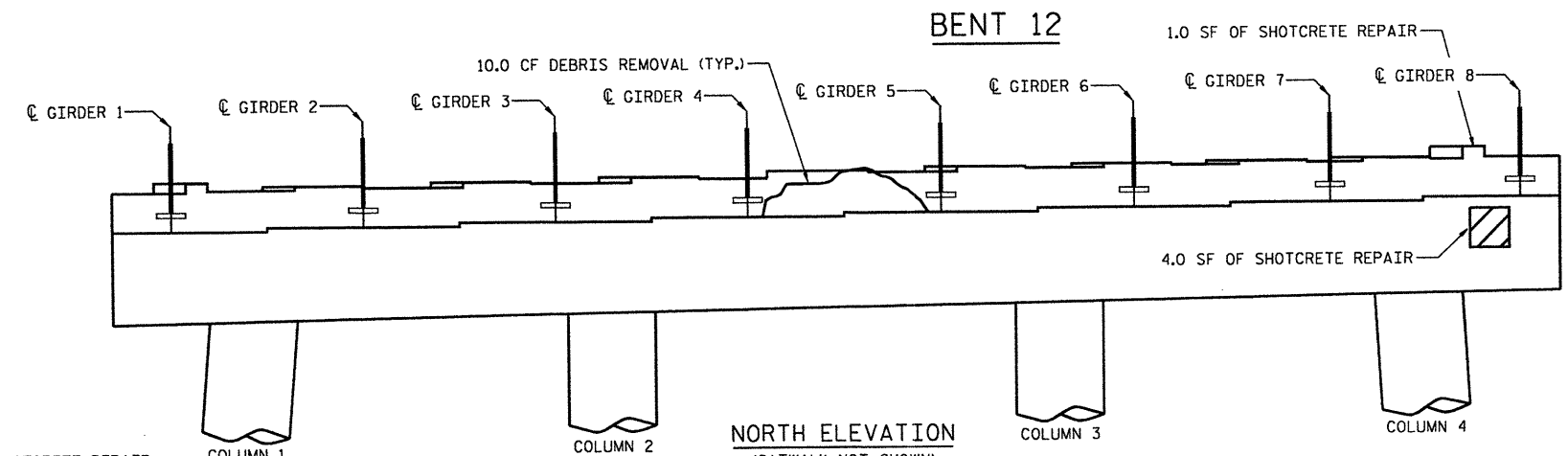
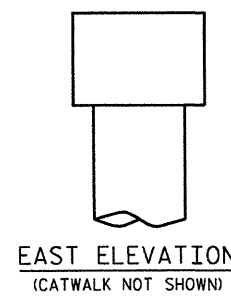
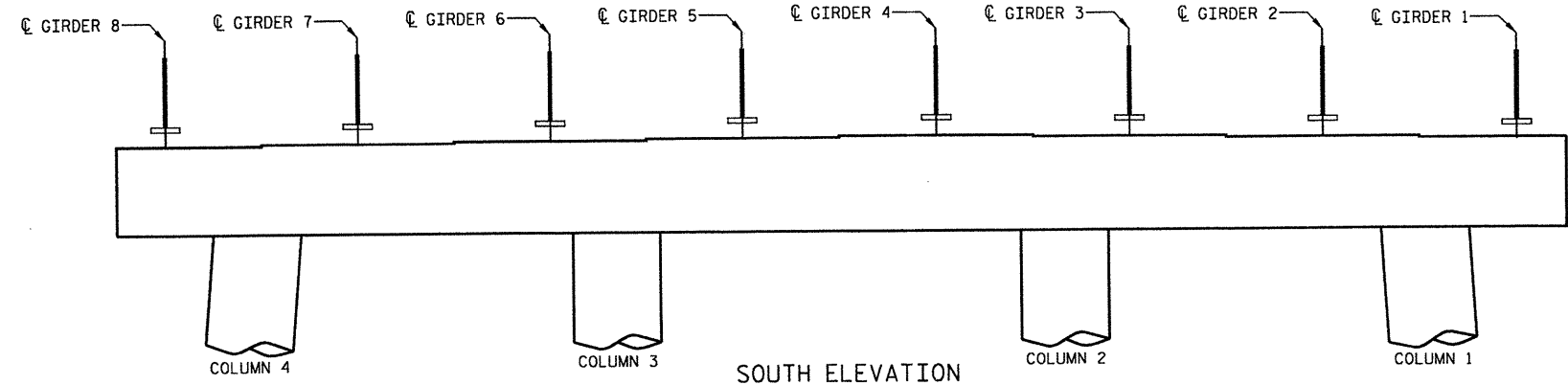
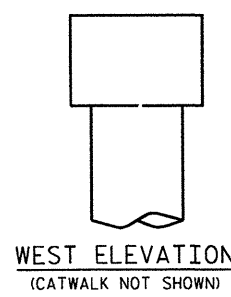
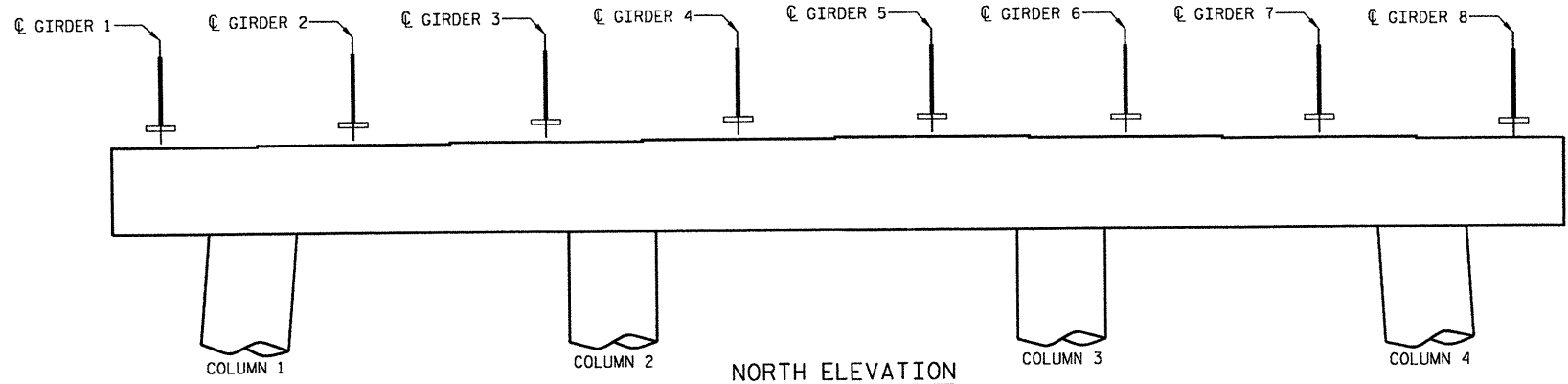
DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011

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 DATE: 4/11/2012

BILL OF MATERIAL

BENT 12	
SHOTCRETE REPAIR	CF 0.0
EPOXY RESIN INJECTION	LF 0.0
DEBRIS REMOVAL	CF 0.0
BENT 13	
SHOTCRETE REPAIR *	CF 1.8
EPOXY RESIN INJECTION	LF 0.0
DEBRIS REMOVAL	CF 10.0

\* INCLUDES SHOTCRETE REPAIRS SHOWN ON "SUBSTRUCTURE COLUMN, STRUT & PILE CAP REPAIR BENTS 13 & 14".



NOTES

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

SHOTCRETE REPAIR

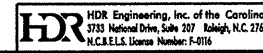
PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
CAP REPAIR  
BENTS 12 & 13

REVISIONS						SHEET NO. S-36
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			



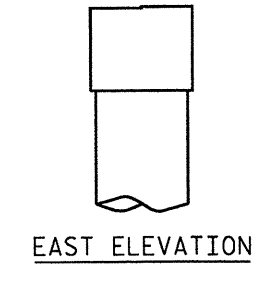
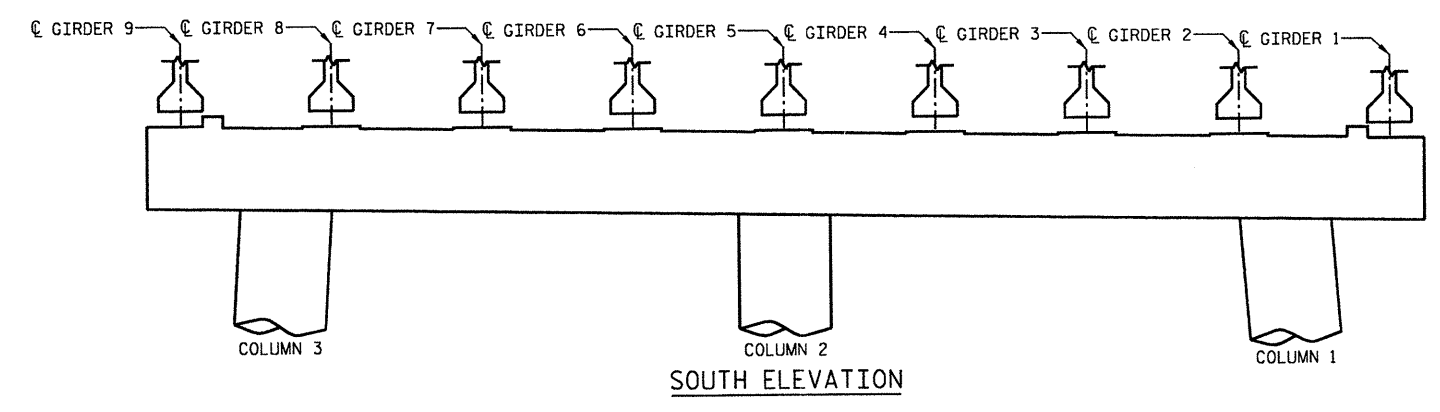
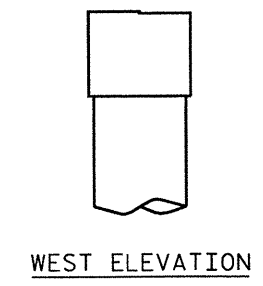
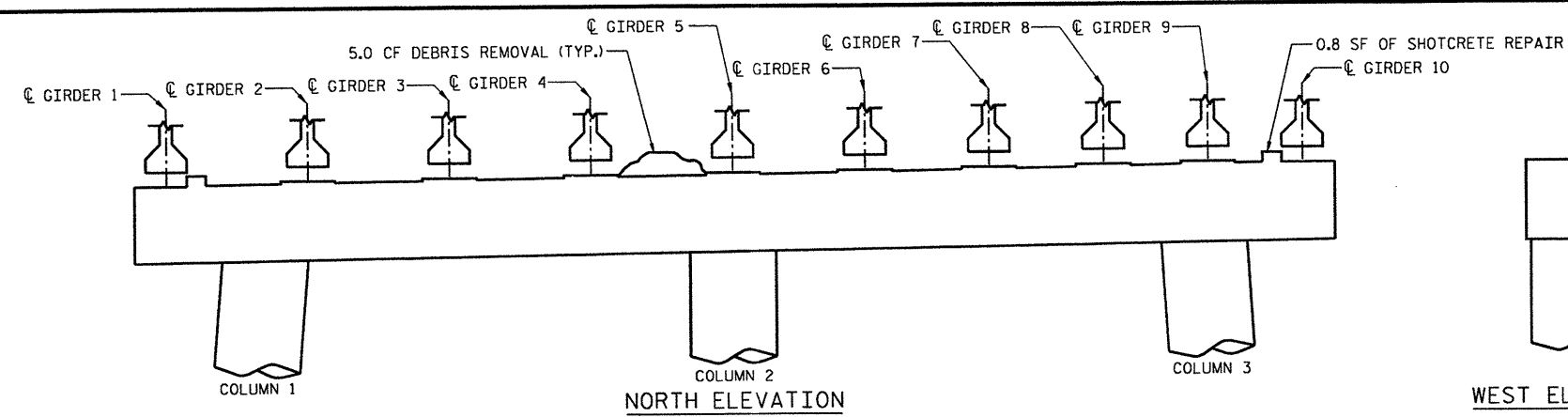
HDR Engineering, Inc. of the Carolinas  
3733 National Drive, Suite 207 Raleigh, N.C. 27612  
N.C. E.L.A. License Number: F-0716

DRAWN BY : D.MAST DATE : 12/2011  
CHECKED BY : M.MOYER DATE : 12/2011

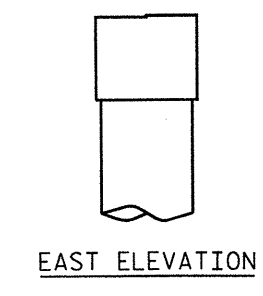
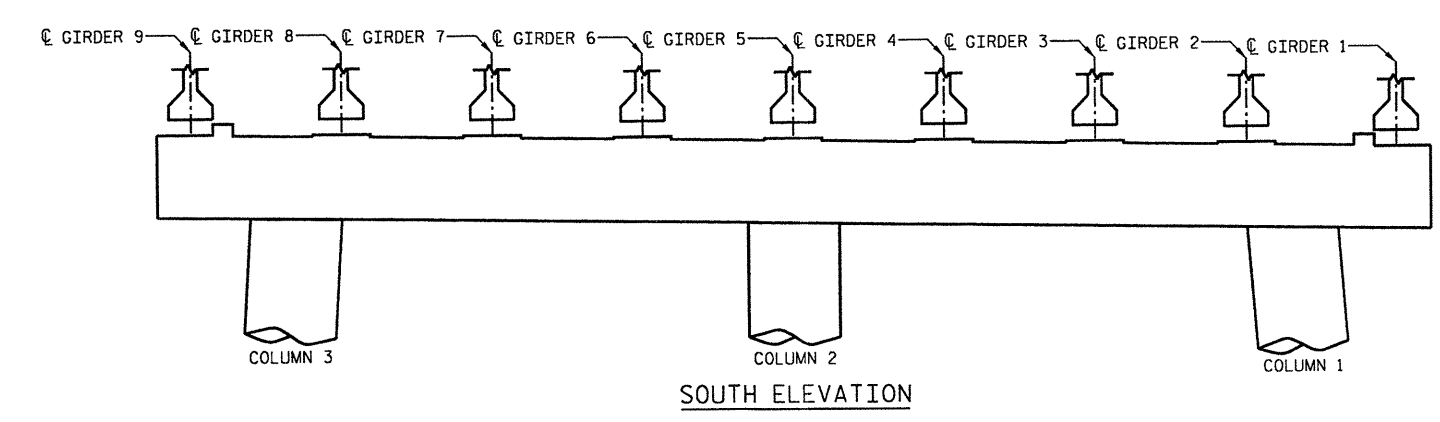
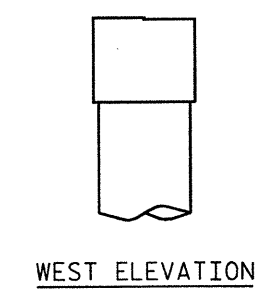
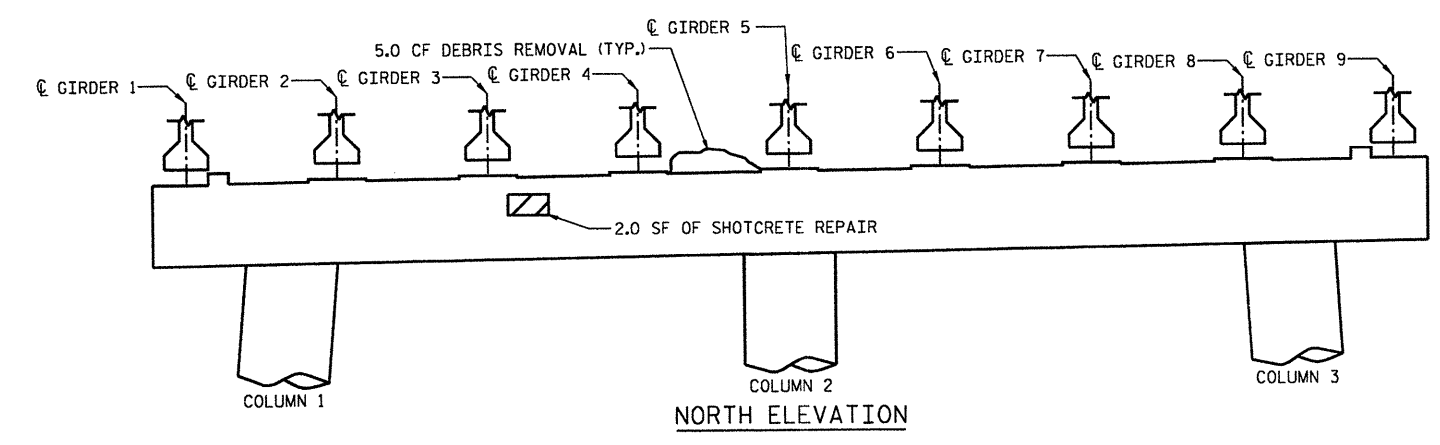
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 TIME: 2:15:34 PM  
 DATE: 4/11/2012



BENT 14



BENT 15

BILL OF MATERIAL

BENT 14	
SHOTCRETE REPAIR *	CF 0.9
EPOXY RESIN INJECTION	LF 0.0
DEBRIS REMOVAL	CF 5.0

BENT 15	
SHOTCRETE REPAIR **	CF 2.3
EPOXY RESIN INJECTION	LF 0.0
DEBRIS REMOVAL	CF 5.0

\* INCLUDES SHOTCRETE REPAIRS SHOWN ON "SUBSTRUCTURE COLUMN, STRUT & PILE CAP REPAIR BENTS 13 & 14".

\*\* INCLUDES SHOTCRETE REPAIRS SHOWN ON "SUPERSTRUCTURE COLUMN, STRUT & PILE CAP REPAIR BENTS 15, 17 & 18".

NOTES

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

SHOTCRETE REPAIR

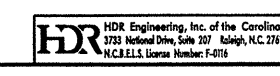
PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 CAP REPAIR  
 BENTS 14 & 15

DRAWN BY :	D.MAST	DATE :	12/2011
CHECKED BY :	M.MOYER	DATE :	12/2011



REVISIONS						SHEET NO. S-37
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			

BILL OF MATERIAL

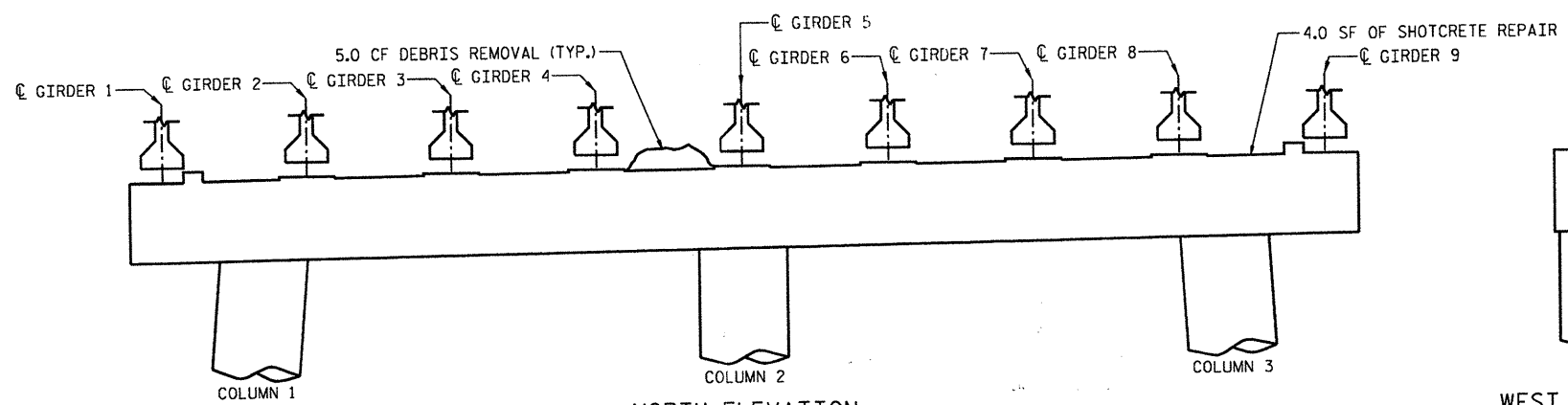
BENT 16

SHOTCRETE REPAIR	CF	3.1
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	5.0

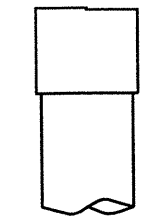
BENT 17

SHOTCRETE REPAIR *	CF	22.4
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	8.0

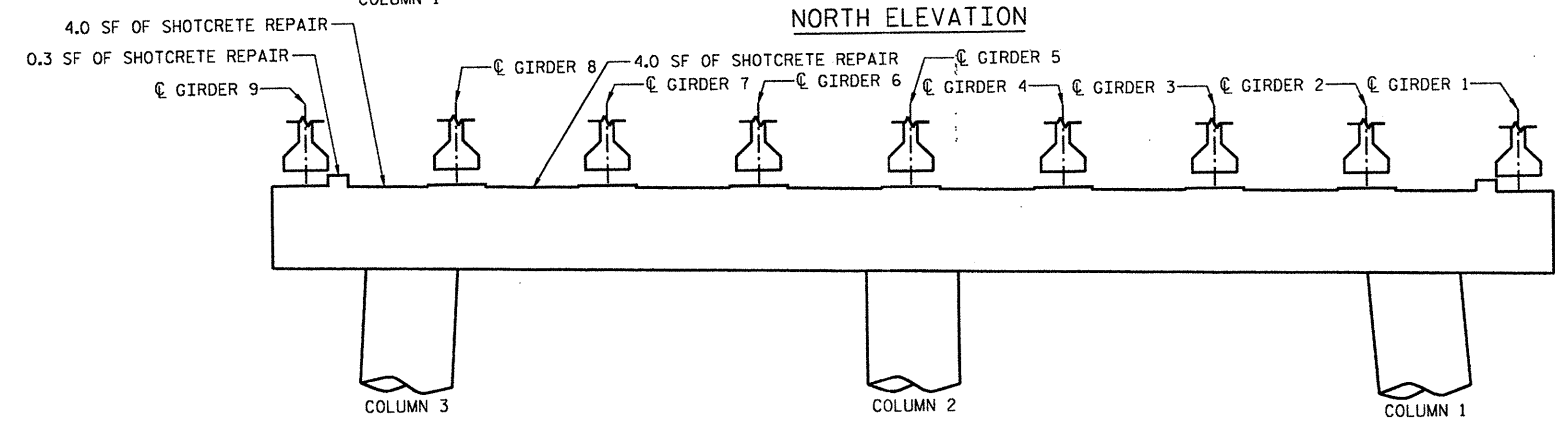
\* INCLUDES SHOTCRETE REPAIRS SHOWN ON "SUBSTRUCTURE COLUMN, STRUT & PILE CAP REPAIR BENTS 16, 17 & 18".



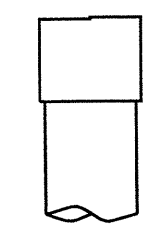
NORTH ELEVATION



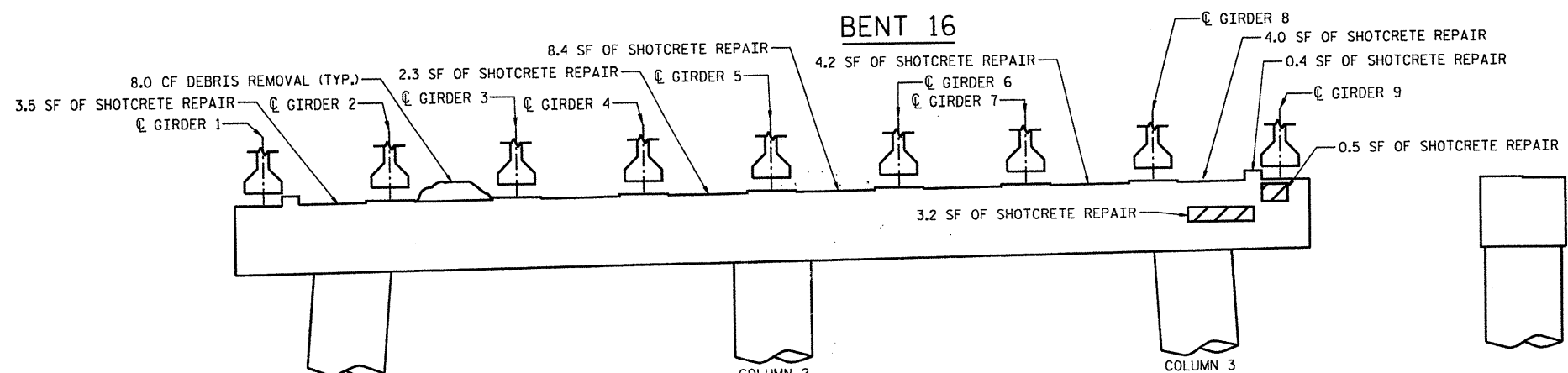
WEST ELEVATION



SOUTH ELEVATION

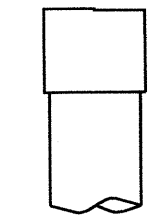


EAST ELEVATION

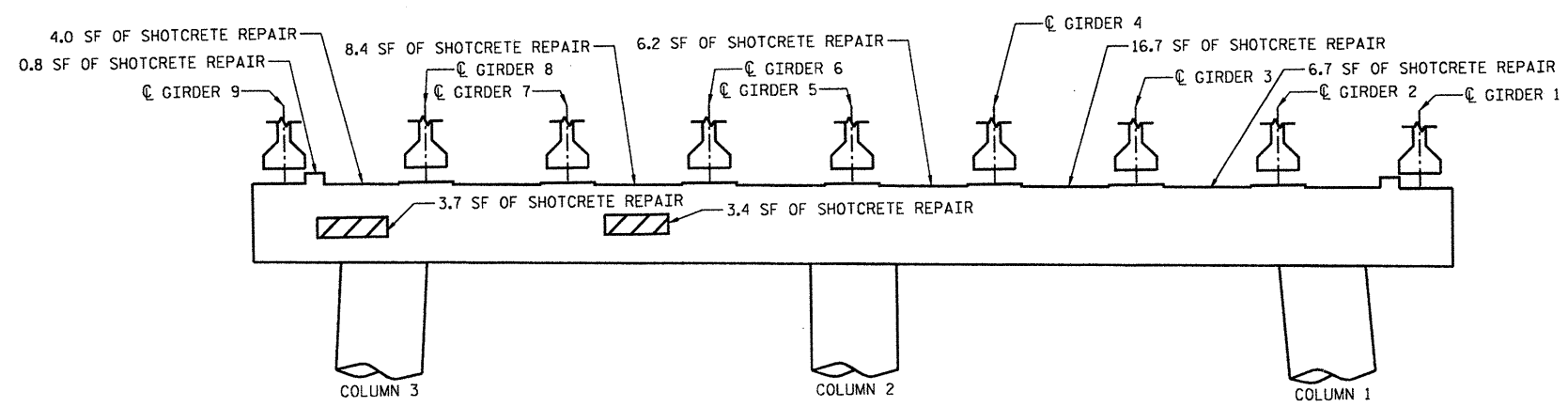


BENT 17

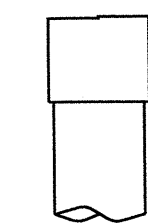
NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

BENT 17

NOTES

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

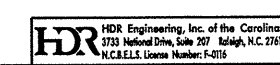
SHOTCRETE REPAIR

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 CAP REPAIR  
 BENTS 16 & 17

REVISIONS						SHEET NO. S-38
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			



DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011

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BILL OF MATERIAL

BENT 18

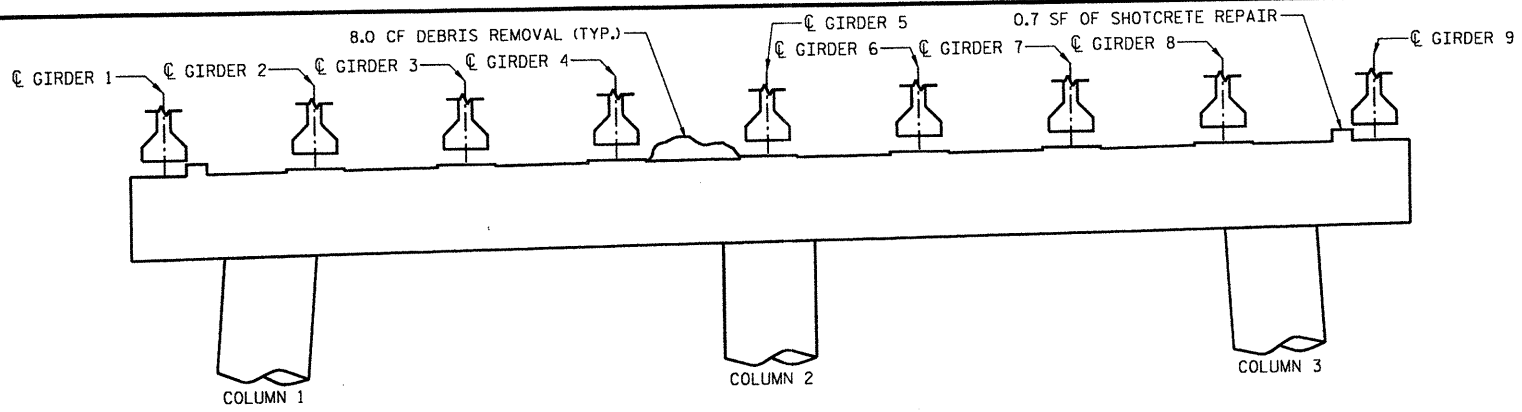
SHOTCRETE REPAIR *	CF	3.9
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	8.0

BENT 19

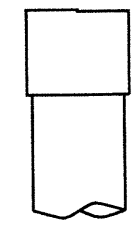
SHOTCRETE REPAIR **	CF	0.1
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	10.0

\* INCLUDES SHOTCRETE REPAIRS SHOWN ON "SUBSTRUCTURE COLUMN, STRUT & PILE CAP REPAIR BENTS 15, 17 & 18".

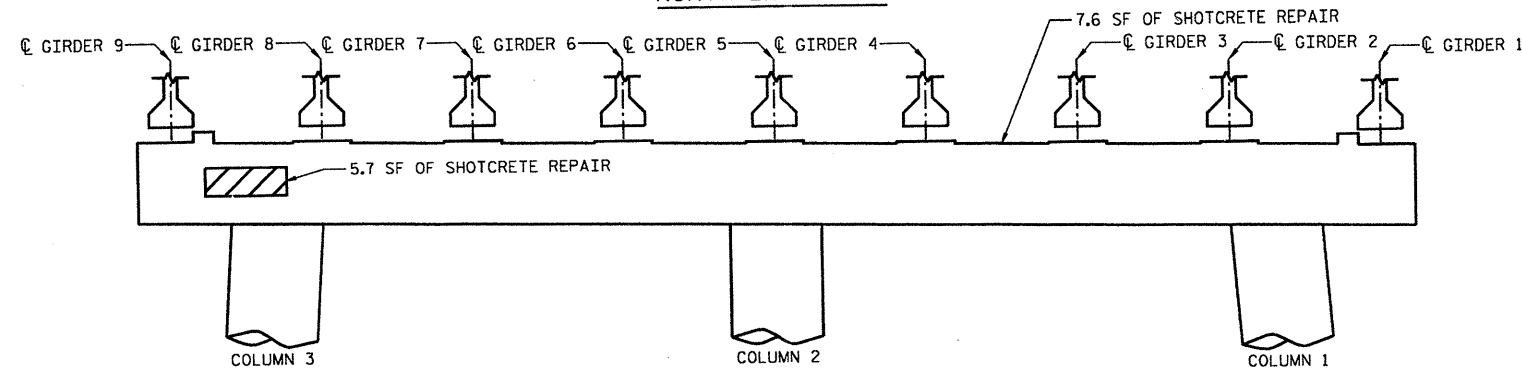
\*\* INCLUDES SHOTCRETE REPAIRS SHOWN ON "SUPERSTRUCTURE COLUMN, STRUT & PILE CAP REPAIR BENT 19".



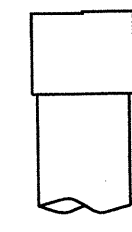
NORTH ELEVATION



WEST ELEVATION

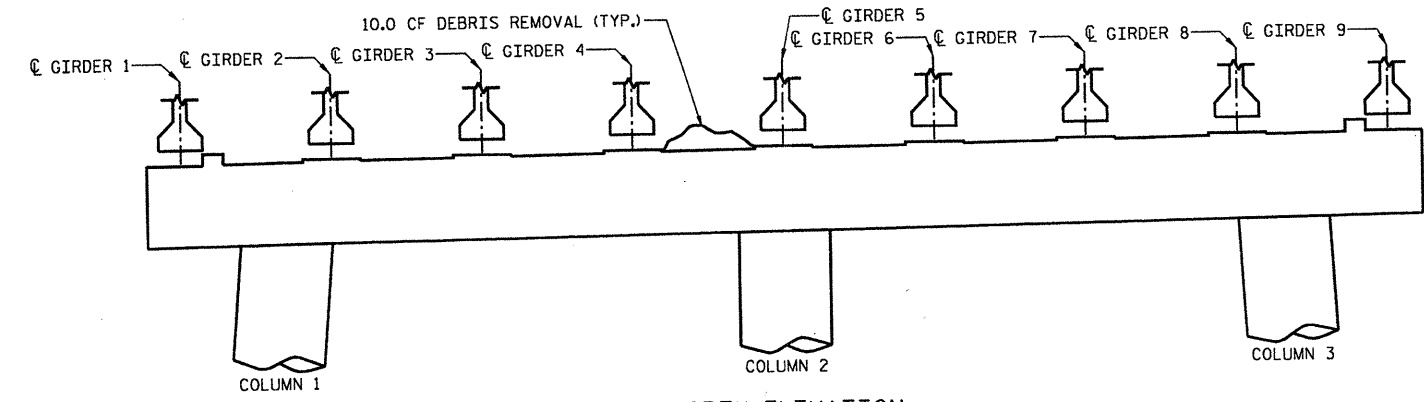


SOUTH ELEVATION

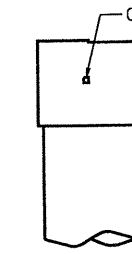


EAST ELEVATION

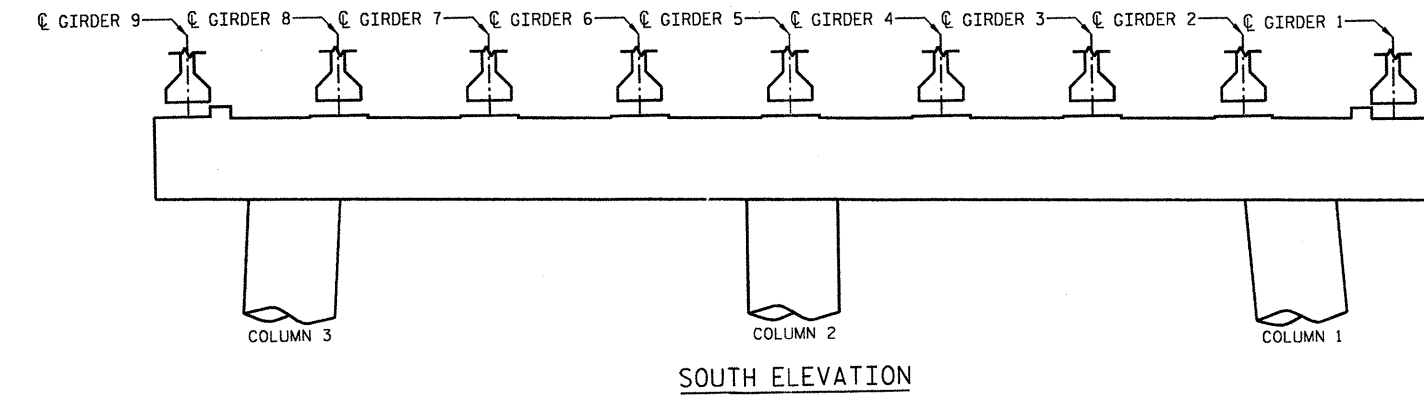
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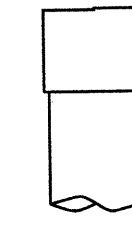
NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

BENT 19

NOTES

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

SHOTCRETE REPAIR

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27

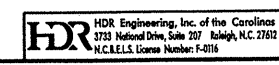


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 CAP REPAIR  
 BENTS 18 & 19

4-11-12

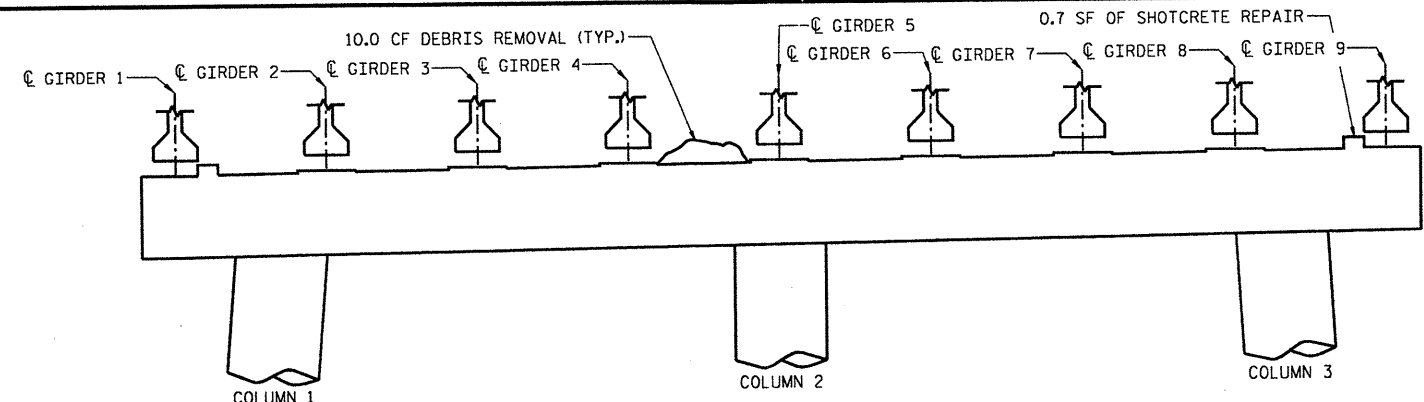
REVISIONS						SHEET NO. S-39
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			



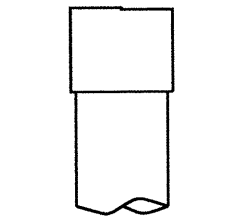
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 CHECKED BY: M.MOYER DATE: 12/2011

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 USER: msells DATE: 4/11/2012  
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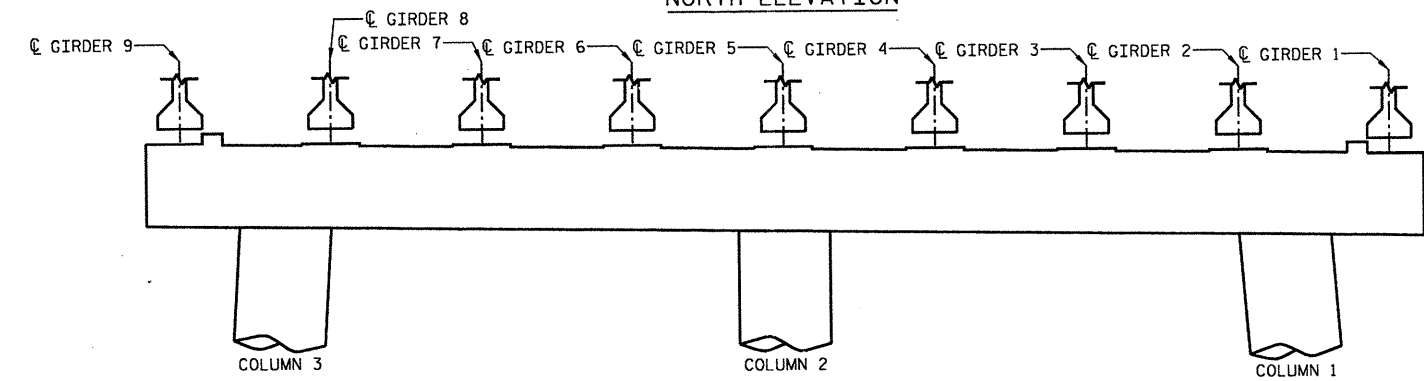
BILL OF MATERIAL			
BENT 20			
SHOTCRETE REPAIR	CF	0.5	
EPOXY RESIN INJECTION	LF	0.0	
DEBRIS REMOVAL	CF	10.0	
BENT 21			
SHOTCRETE REPAIR	CF	0.2	
EPOXY RESIN INJECTION	LF	0.0	
DEBRIS REMOVAL	CF	10.0	



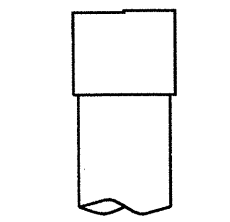
NORTH ELEVATION



WEST ELEVATION

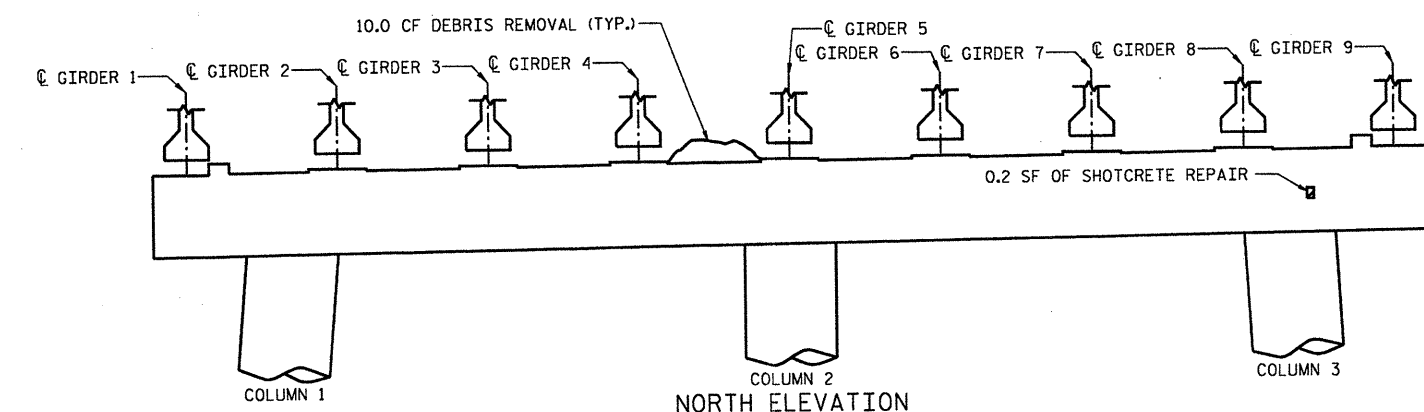


SOUTH ELEVATION

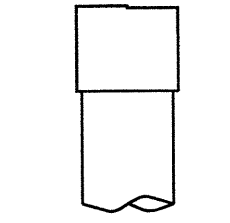


EAST ELEVATION

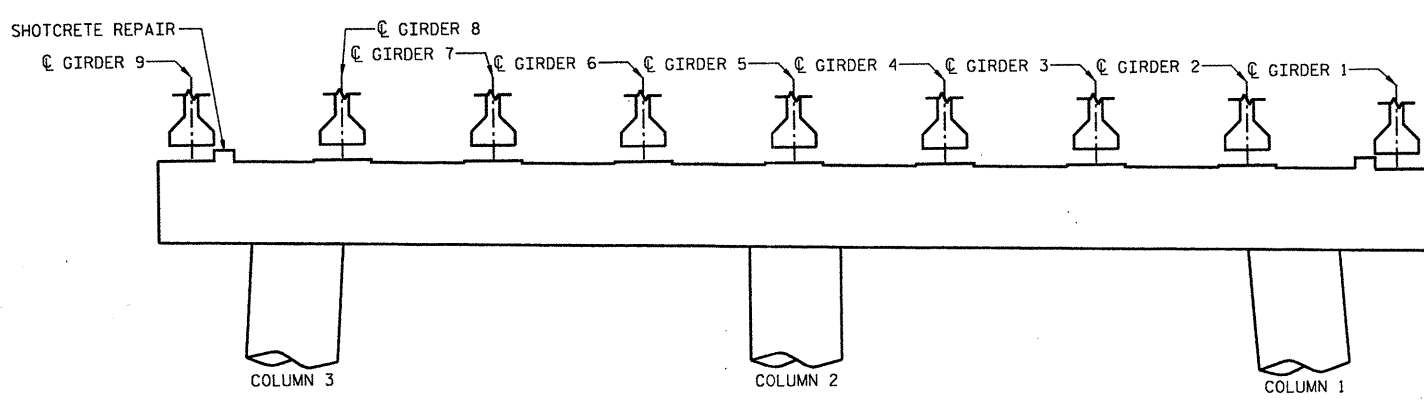
BENT 20



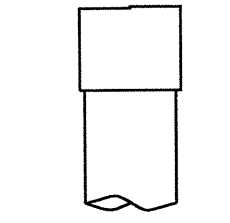
NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

BENT 21

NOTES

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

SHOTCRETE REPAIR

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



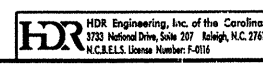
4-11-12

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 CAP REPAIR  
 BENTS 20 & 21

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

SHEET NO.	5-40
TOTAL SHEETS	47



DRAWN BY: D.MAST DATE: 12/2011  
 CHECKED BY: M.MOYER DATE: 12/2011

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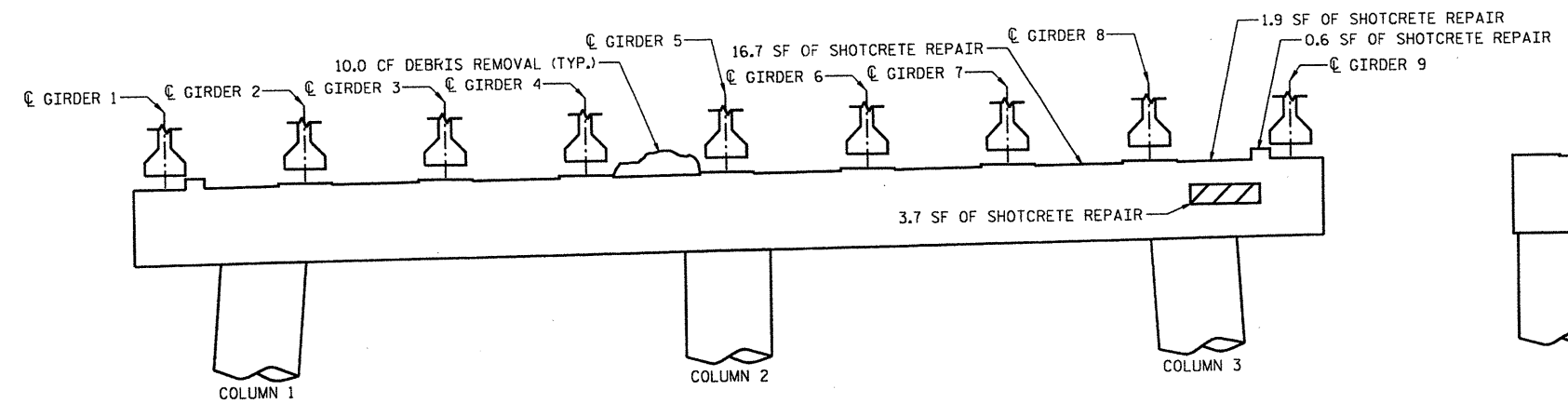
BILL OF MATERIAL

BENT 22

SHOTCRETE REPAIR	CF	15.0
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	10.0

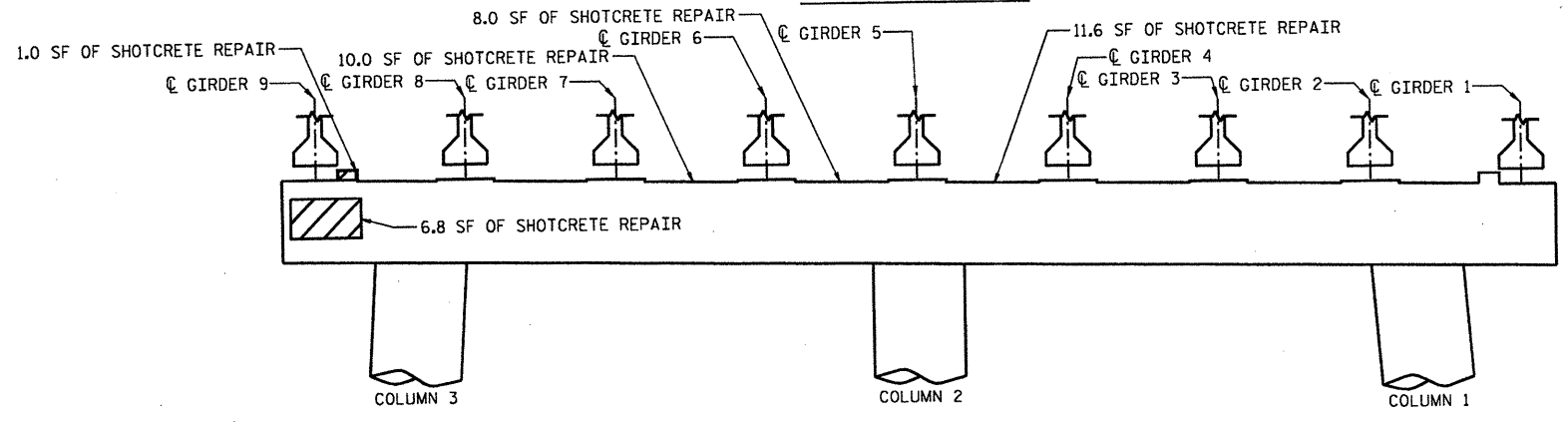
END BENT 2

SHOTCRETE REPAIR	CF	0.1
EPOXY RESIN INJECTION	LF	0.0
DEBRIS REMOVAL	CF	0.0



NORTH ELEVATION

WEST ELEVATION



SOUTH ELEVATION

EAST ELEVATION

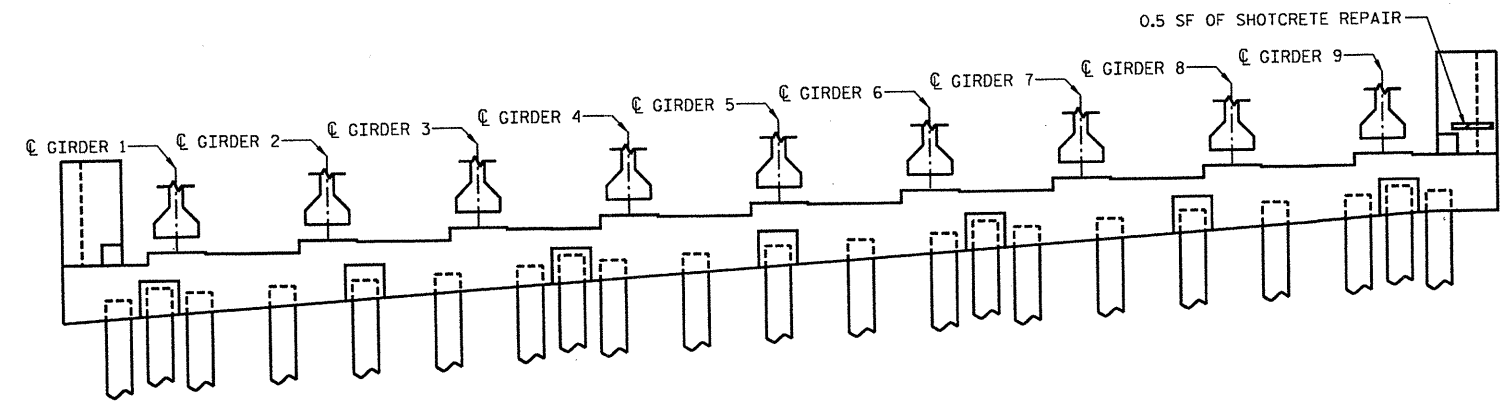
BENT 22

NOTES

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

SHOTCRETE REPAIR



NORTH ELEVATION

WEST ELEVATION

END BENT 2

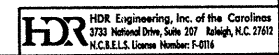
PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 CAP REPAIR  
 BENT 22 & END BENT 2

REVISIONS						SHEET NO. S-41
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			



DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011


PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
 USER: msellis  
 FILE: North Carolina Dept. of Transportation\NCDOT\_DDO.CEI.BM.LSC\_MASTER\NCDOT\_New\_Hanover\_27\13.00.CAD\DIV31.SD\_NEWHANOVER27\_41.dgn  
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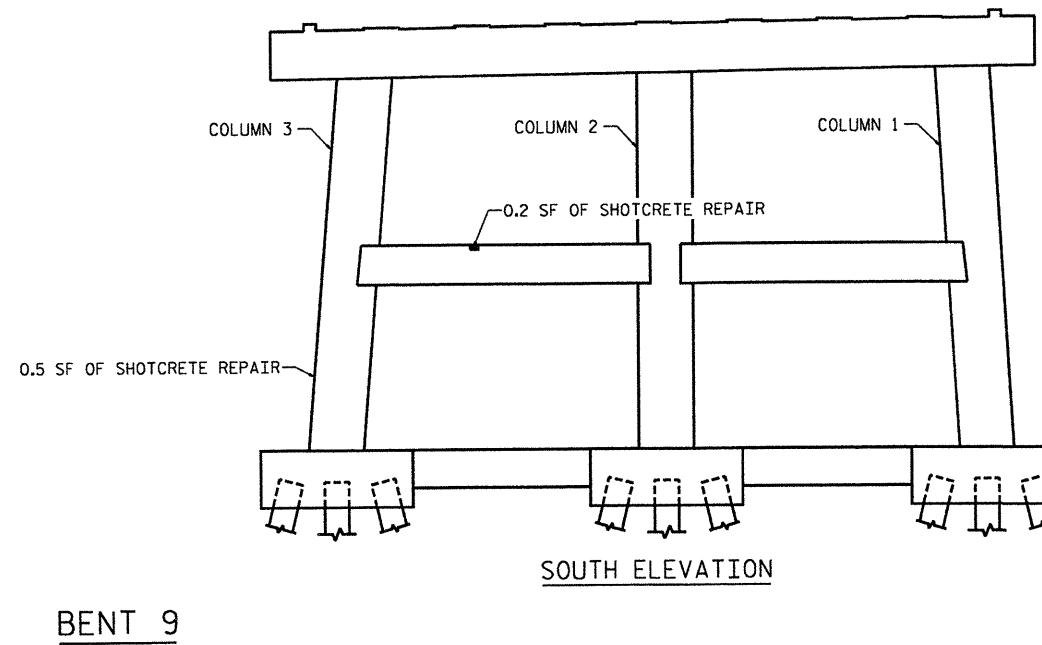
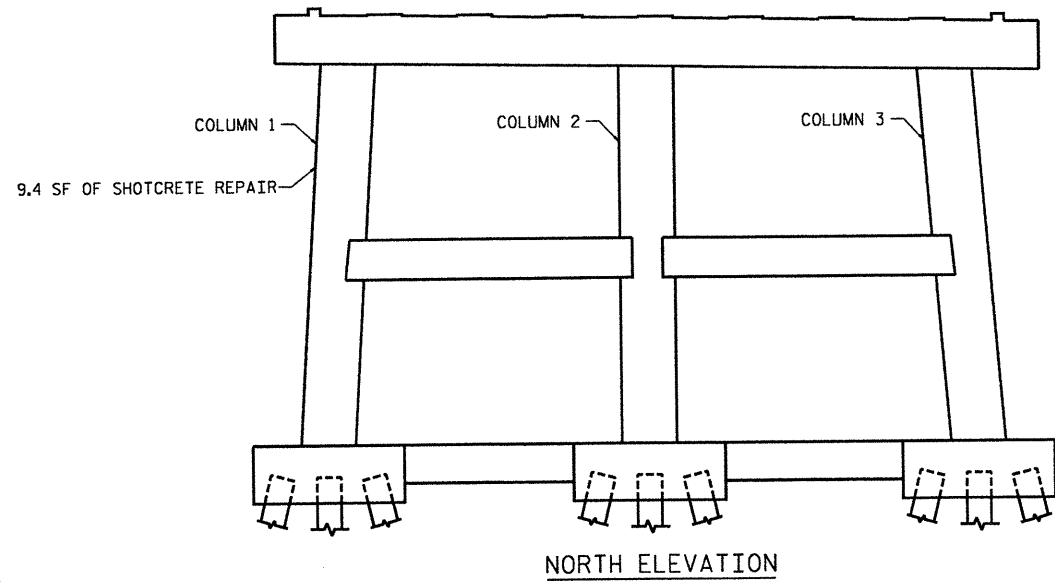
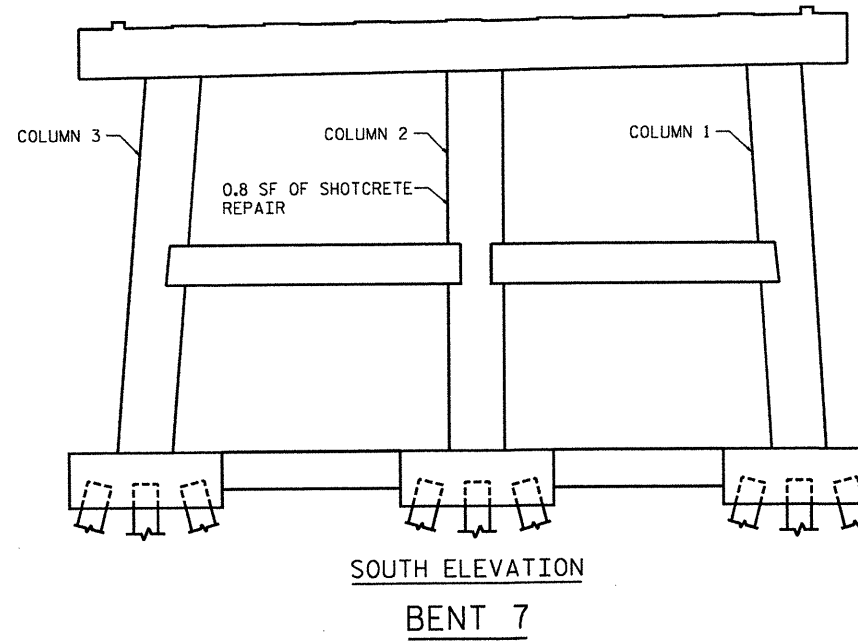
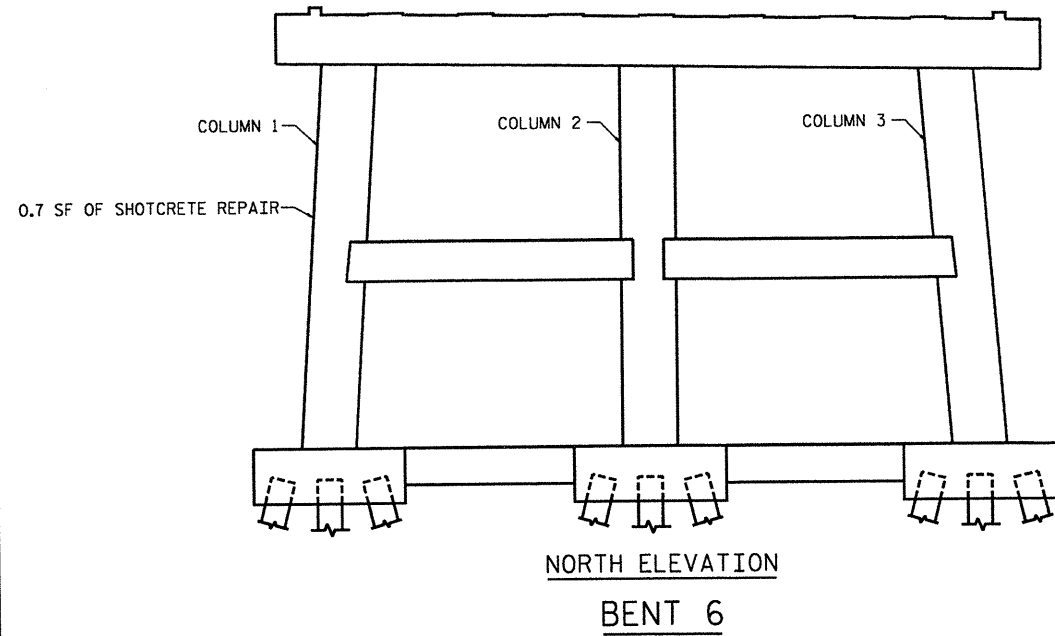
**NOTES**

SHOTCRETE REPAIR QUANTITIES ARE INCLUDED IN THE BILL OF MATERIAL SHOWN ON THE "SUBSTRUCTURE CAP REPAIR" SHEETS WITH THE RESPECTIVE BENT NUMBERS.

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

 SHOTCRETE REPAIR



PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE  
 COLUMN, STRUT &  
 PILE CAP REPAIR  
 BENTS 6, 7 & 9**

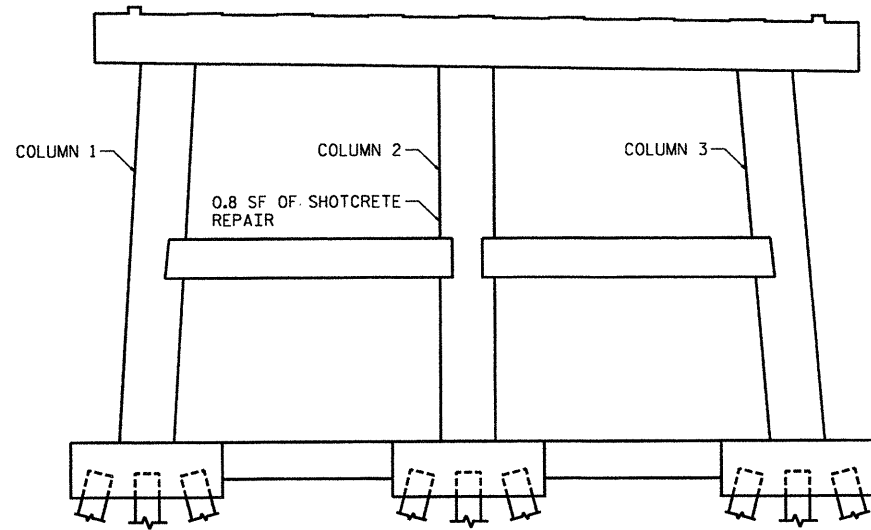
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

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 CHECKED BY : M.MOYER DATE : 12/2011

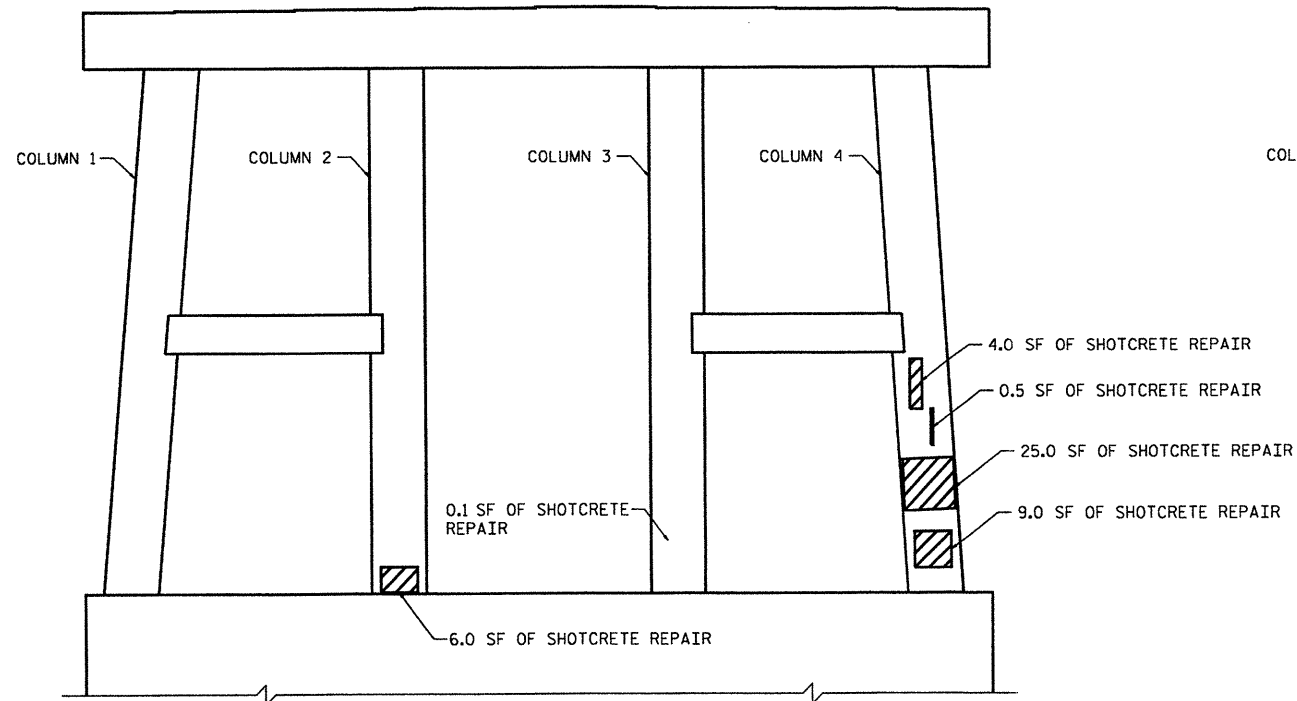
**HDR** HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.E.L.S. License Number: F-8016

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 USER: msells DATE: 2/17/2012  
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 DATE: 2/17/2012

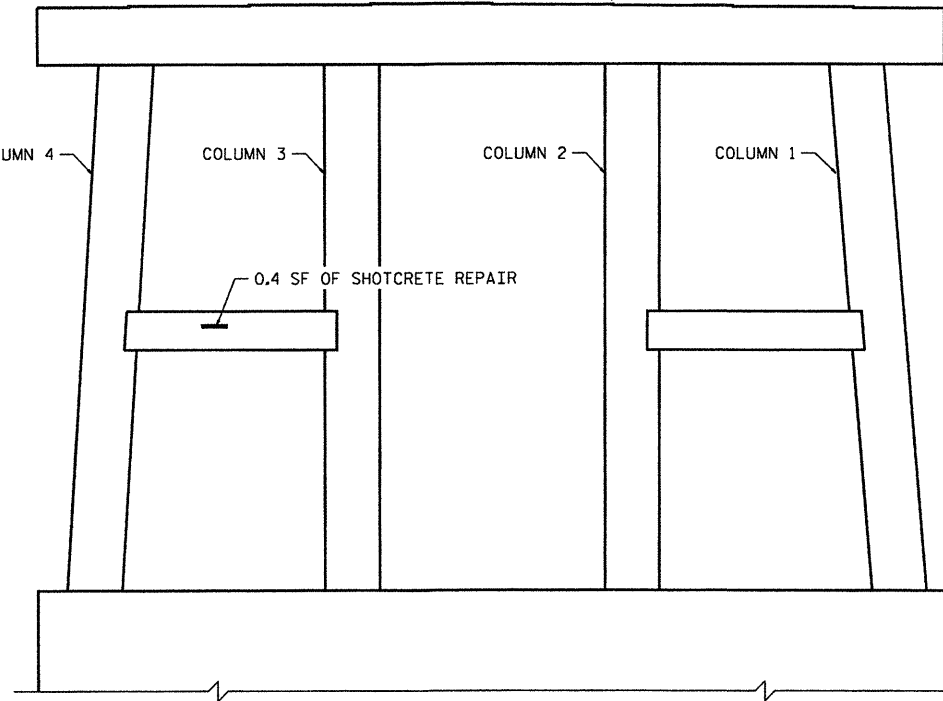


NORTH ELEVATION  
BENT 10



NORTH ELEVATION

BENT 11



SOUTH ELEVATION

NOTES

SHOTCRETE REPAIR QUANTITIES ARE INCLUDED IN THE BILL OF MATERIAL SHOWN ON THE "SUBSTRUCTURE CAP REPAIR" SHEETS WITH THE RESPECTIVE BENT NUMBERS.

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

SHOTCRETE REPAIR

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 COLUMN, STRUT &  
 PILE CAP REPAIR  
 BENTS 10 & 11

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

**HDR** HDR Engineering, Inc. of the Carolinas  
 1733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.E.L.S. License Number: F-0116


REVISIONS						SHEET NO. 5-43
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			

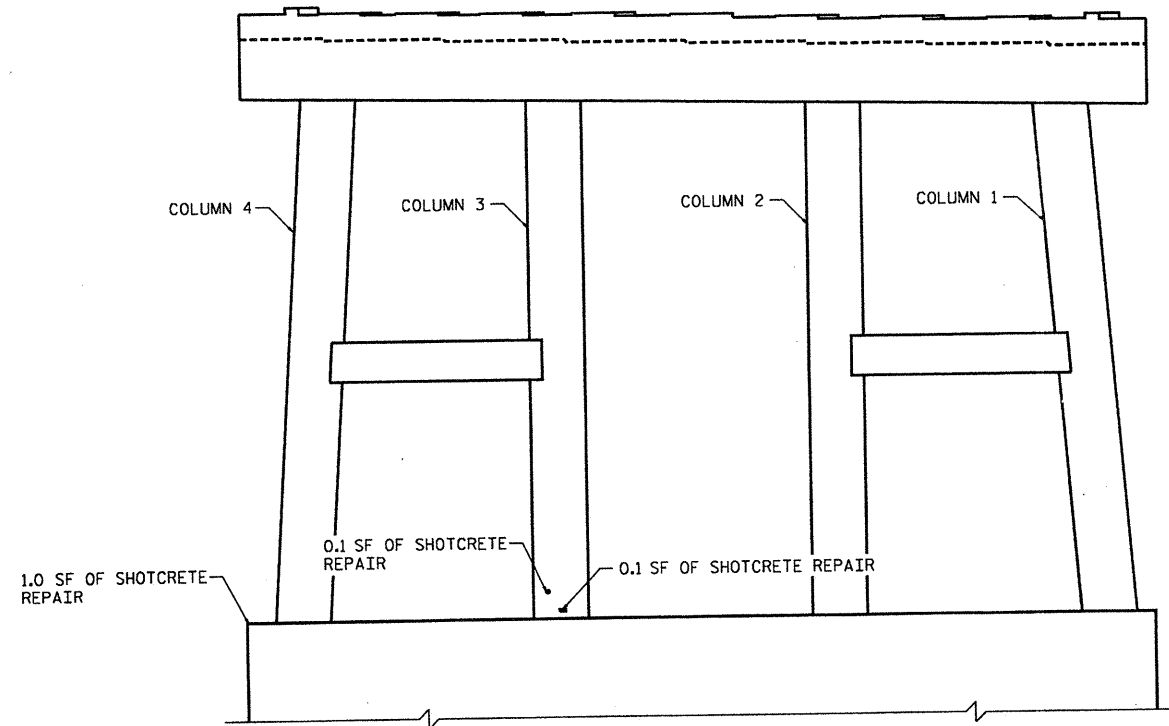
**NOTES**

SHOTCRETE REPAIR QUANTITIES ARE INCLUDED IN THE BILL OF MATERIAL SHOWN ON THE "SUBSTRUCTURE CAP REPAIR" SHEETS WITH THE RESPECTIVE BENT NUMBERS.

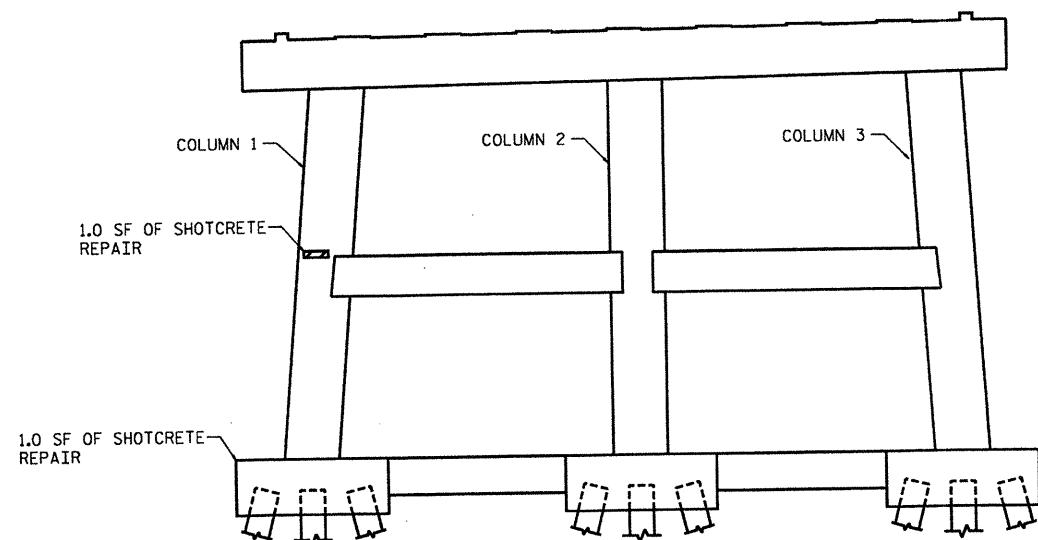
FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

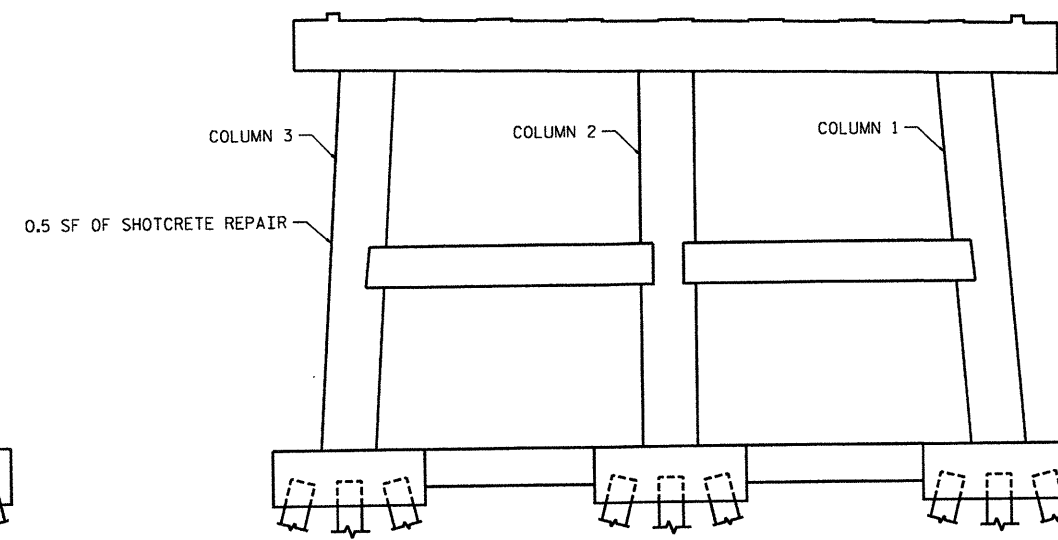
 SHOTCRETE REPAIR



**SOUTH ELEVATION  
BENT 13**



**NORTH ELEVATION**



**SOUTH ELEVATION**

**BENT 14**

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 COLUMN, STRUT &  
 PILE CAP REPAIR  
 BENTS 13 & 14**

REVISIONS						SHEET NO. S-44
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			

**HDR** HDR Engineering, Inc. of the Carolinas  
 3733 Personal Drive, Suite 207 Raleigh, N.C. 27612  
 N.C. E.L.S. License Number: F-6116

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

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 DATE: 2/17/2012




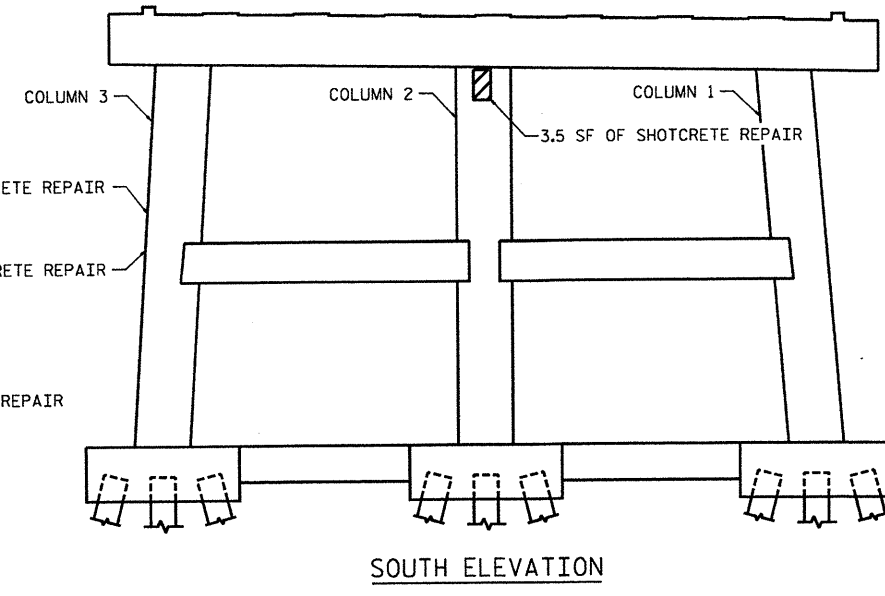
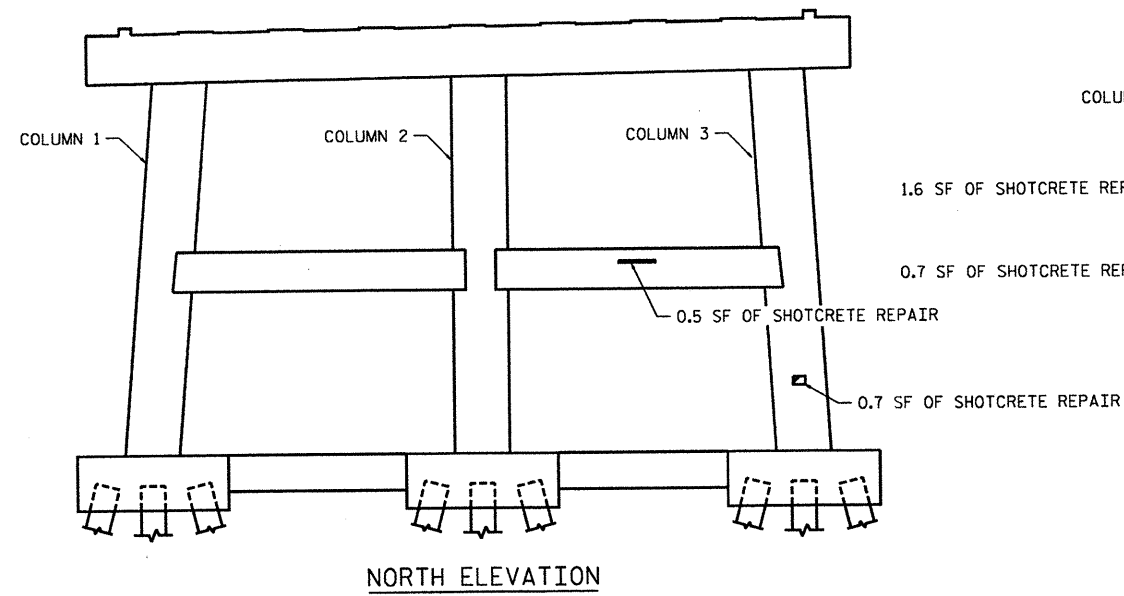
**NOTES**

SHOTCRETE REPAIR QUANTITIES ARE INCLUDED IN THE BILL OF MATERIAL SHOWN ON THE "SUBSTRUCTURE CAP REPAIR" SHEETS WITH THE RESPECTIVE BENT NUMBERS.

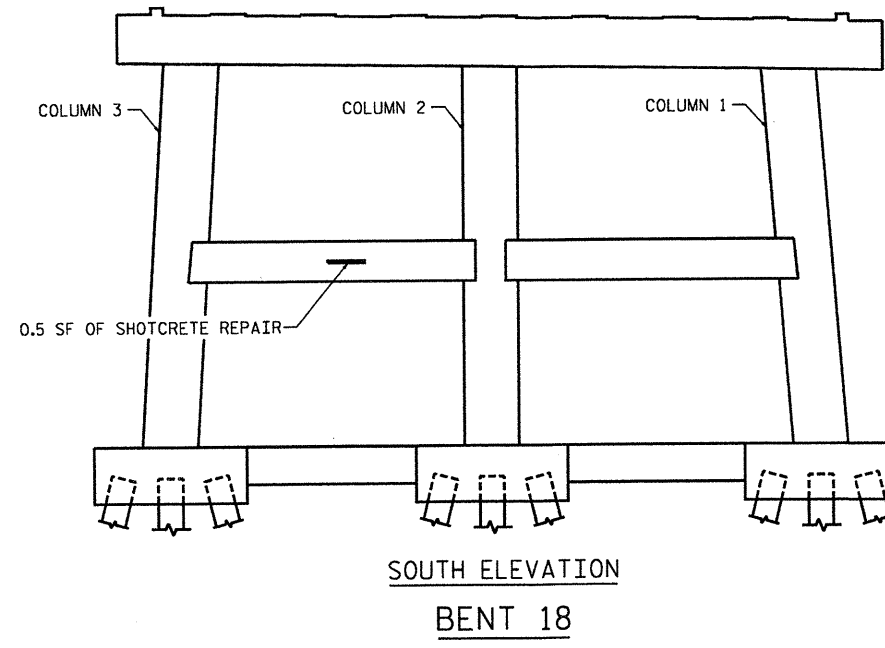
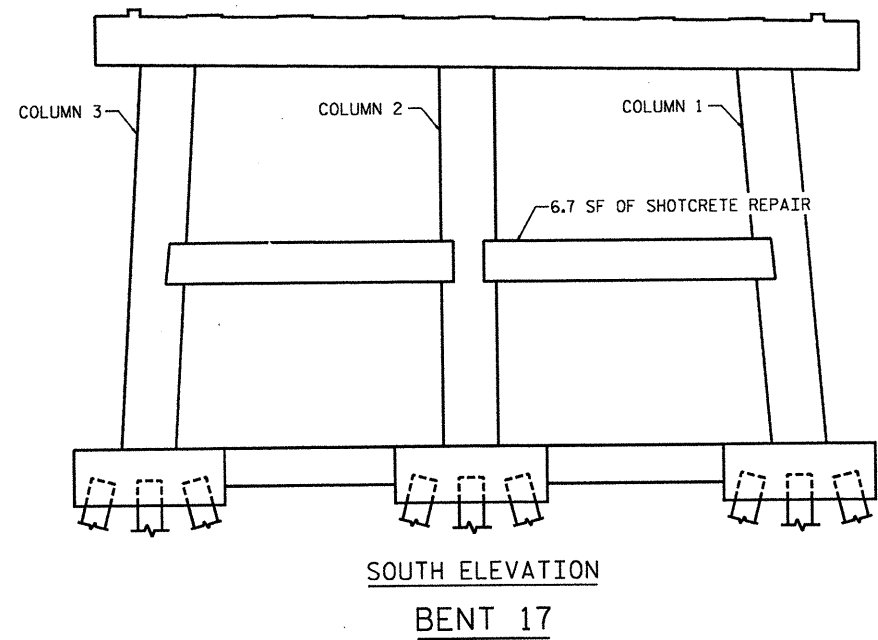
FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

 SHOTCRETE REPAIR



**BENT 15**



**BENT 17**

**BENT 18**

PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE  
 COLUMN, STRUT &  
 PILE CAP REPAIR  
 BENTS 15, 17 & 18**

REVISIONS						SHEET NO. S-45
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			

**HDR** HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27608  
 N.C.E.L.S. License Number: F-0716

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011


PLOT DRIVER: NCDOT...pdf\_mono\_eng\_50.pif  
 USER: msells DATE: 2/17/2012  
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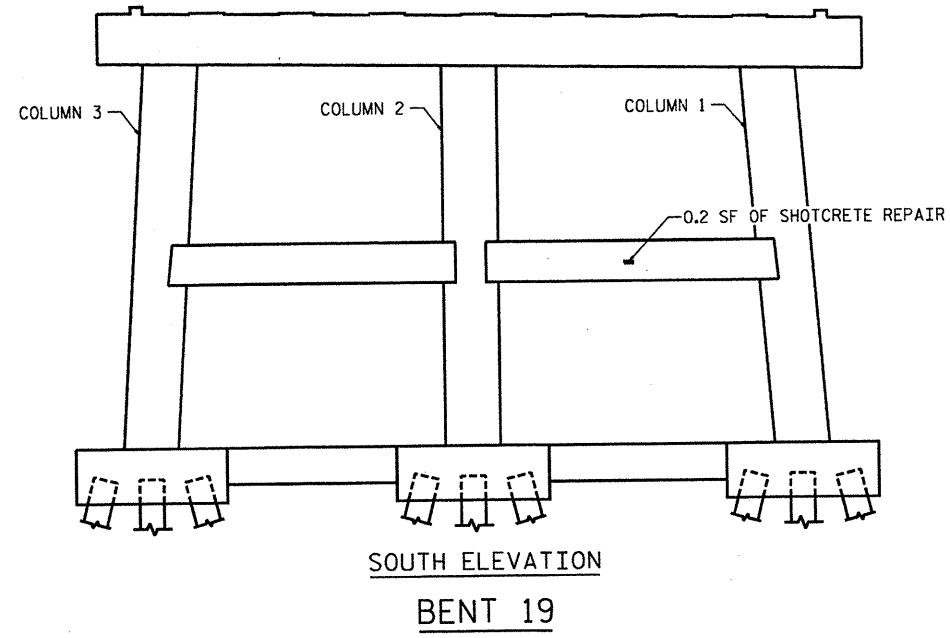
**NOTES**

SHOTCRETE REPAIR QUANTITIES ARE INCLUDED IN THE BILL OF MATERIAL SHOWN ON THE "SUBSTRUCTURE CAP REPAIR" SHEETS WITH THE RESPECTIVE BENT NUMBERS.

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

 SHOTCRETE REPAIR



PROJECT NO. 17BP.3.H.3  
NEW HANOVER COUNTY  
 BRIDGE NO.: 27



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 COLUMN, STRUT &  
 PILE CAP REPAIR  
 BENT 19

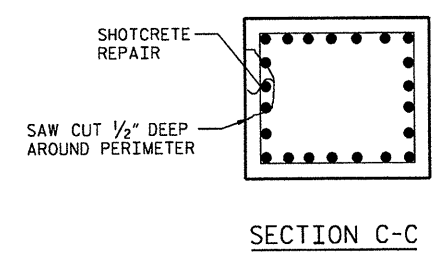
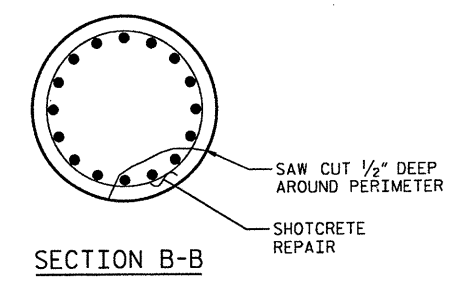
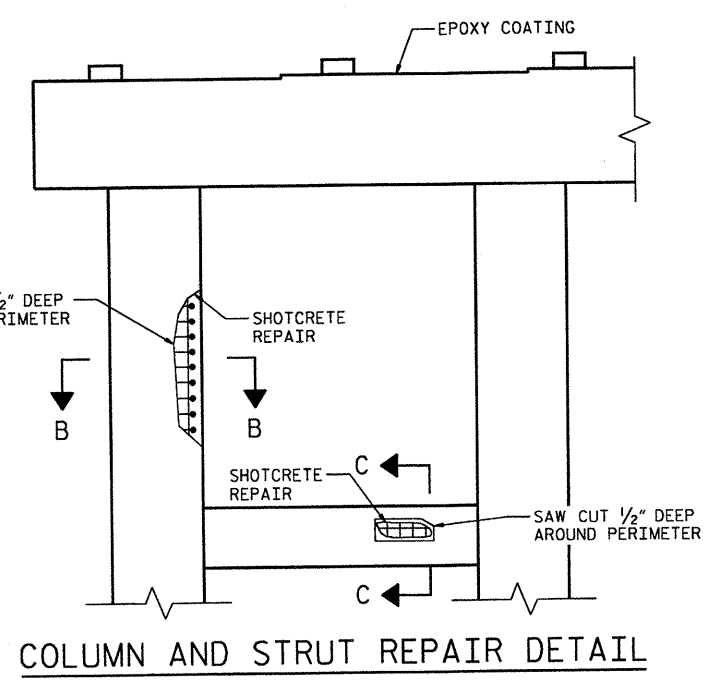
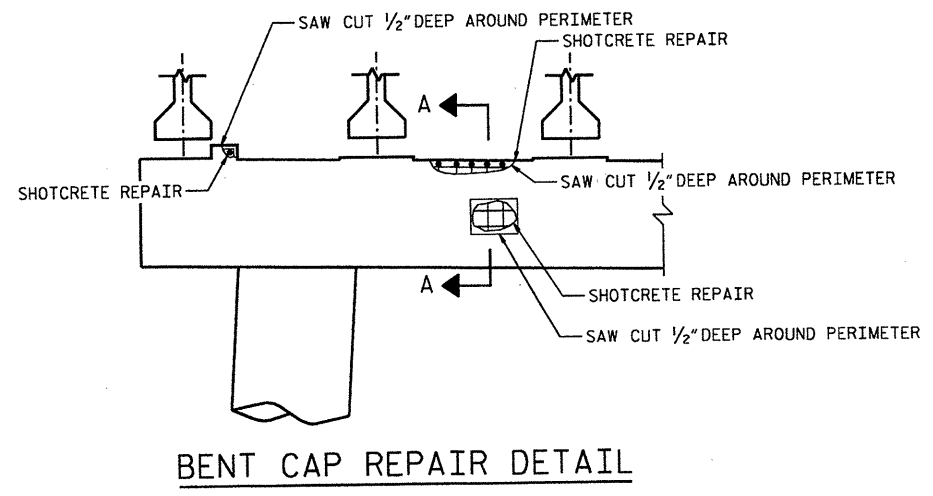
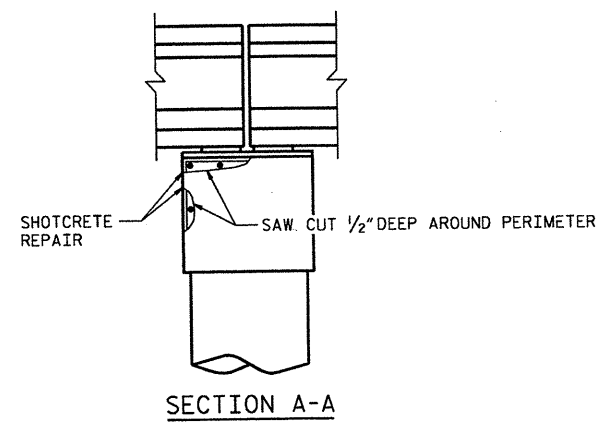
REVISIONS						SHEET NO. 5-46
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 47
2			4			

**HDR** HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27603  
 N.C. E.L.S. License Number: F-0116

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

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NOTES  
 FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".



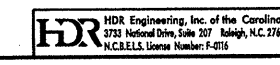
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 DATE: 3/30/2012  
 TIME: 9:16:22 AM

DRAWN BY : D.MAST DATE : 12/2011  
 CHECKED BY : M.MOYER DATE : 12/2011

PROJECT NO. 17BP.3.H.3  
 NEW HANOVER COUNTY  
 BRIDGE NO.: 27



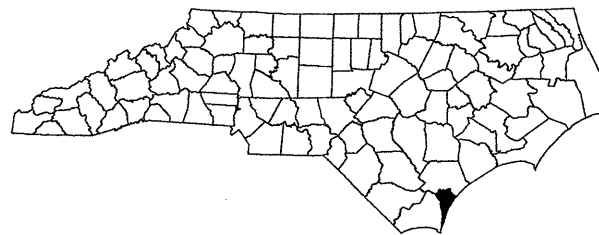
STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUBSTRUCTURE REPAIR DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. 5-47
					TOTAL SHEETS 47



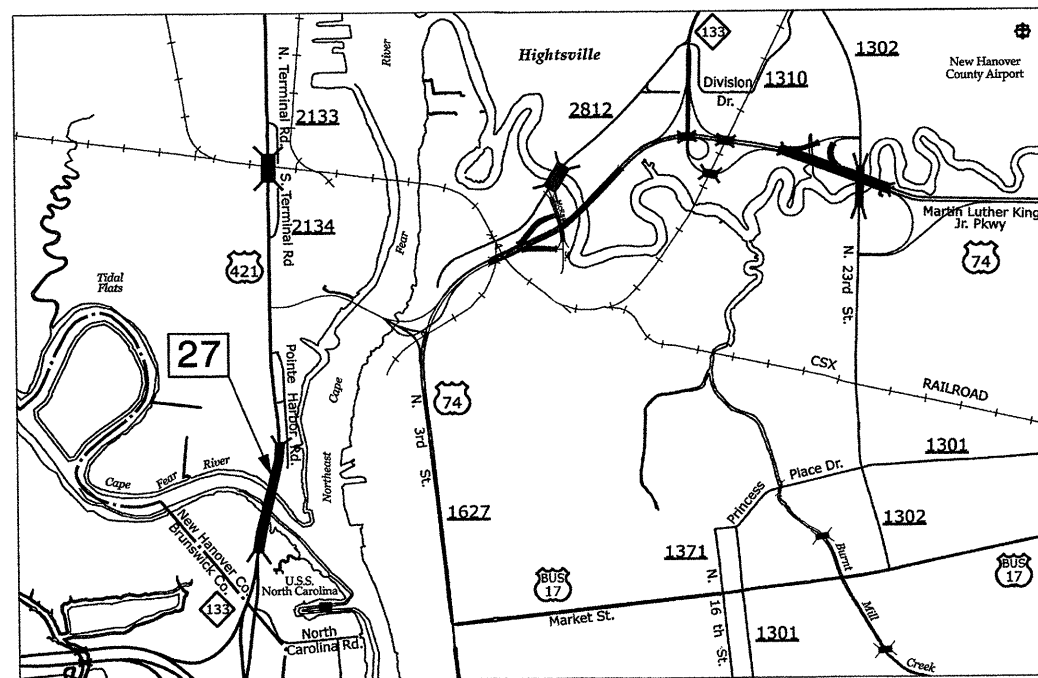
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**NEW HANOVER COUNTY**



**LOCATION: BRIDGE NO. 27 ON US 421 & NC 133 OVER CAPE FEAR RIVER**  
**TYPE OF WORK: TRAFFIC CONTROL FOR BRIDGE PRESERVATION**



**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-2 & 2A	PROJECT NOTES
TMP-3	TYPICALS & STAGING - BRIDGE 27

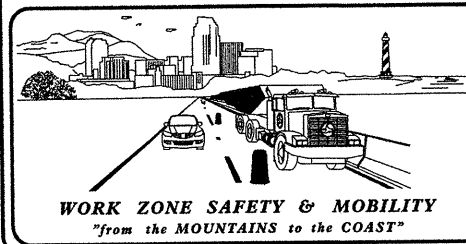
SHEET NO.

TMP-1

**17BP.3.H.3**

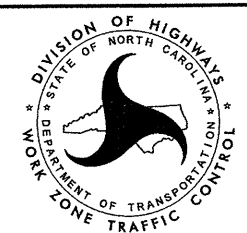
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**N.C.D.O.T. WORK ZONE TRAFFIC CONTROL**  
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561  
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)  
PHONE: (919) 773-2800 FAX: (919) 771-2745

**J. S. BOURNE, P.E.** STATE TRAFFIC MANAGEMENT ENGINEER  
**MATTHEW MOYER, P.E.** PROJECT MANAGER  
**MICHELLE WARD, P.E.** TRAFFIC CONTROL PROJECT DESIGN ENGINEER  
**CHRIS HARNDEN** TRAFFIC CONTROL DESIGN ENGINEER



PLAN PREPARED BY:  
**HDR** HDR Engineering, Inc. of the Carolinas  
3733 National Drive, Suite 207 Raleigh, N.C. 27612  
N.C.B.E.L.S. License Number: F-0116

SEAL  
MICHELLE WARD  
3/28/12






## ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

<u>STD. NO.</u>	<u>TITLE</u>
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1145.01	BARRICADES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE & MULTILANE ROADWAYS
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)












## LEGEND

### GENERAL




-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  EXIST. PVMT.
-  NORTH ARROW
-  PROPOSED PVMT.

-  WORK AREA

### TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM  SKINNY DRUM  TUBULAR MARKER
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW PANEL (TYPE C)
-  FLAGGER
-  LAW ENFORCEMENT
-  TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
-  CHANGEABLE MESSAGE SIGN

### TEMPORARY SIGNING

-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN




### SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY

### PAVEMENT MARKINGS

-  EXISTING LINES
-  TEMPORARY LINES


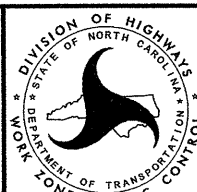
### PAVEMENT MARKERS

-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW

### PAVEMENT MARKING SYMBOLS

-  PAVEMENT MARKING SYMBOLS

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		<h2 style="margin: 0;">ROADWAY STANDARD DRAWINGS &amp; LEGEND</h2>
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## PROJECT NOTES

### GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS, OR RESULT IN DUPLICATE, OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATIONS MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR AS DIRECTED BY THE ENGINEER.

### TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAMES	DAY & TIME RESTRICTIONS
US 421 NORTHBOUND	MONDAY-SUNDAY: 6:00 AM TO 6:00 PM
US 421 SOUTHBOUND	MONDAY-SUNDAY: 7:00 AM TO 7:00 PM

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

- | ROAD NAMES |
|------------|
| ALL ROADS  |
- 1) FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
  - 2) FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31ST TO 7:00 P.M. JANUARY 2ND. IF NEW YEARS DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OF MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.
  - 3) FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
  - 4) FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.
  - 5) FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
  - 6) FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.
  - 7) FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY AND 7:00 P.M. MONDAY.
  - 8) FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
  - 9) FOR THE AZALEA FESTIVAL, BETWEEN THE HOURS OF 3:00 PM THE TUESDAY BEFORE THE WEEKEND OF THE AZALEA FESTIVAL AND 9:00 AM THE MONDAY AFTER THE AZALEA FESTIVAL.
  - 10) FOR RIVERFEST HELD IN OCTOBER, BETWEEN THE HOURS OF 7:00 AM THE FRIDAY OF THE WEEKEND OF RIVERFEST AND 9:00 AM THE MONDAY AFTER RIVERFEST.

C) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY & TIME RESTRICTIONS	DURATION & OPERATION
US 421	MONDAY-SUNDAY: 5:00 AM TO MIDNIGHT	30 MINUTES FOR INSTALLATION OF RUBBER EXPANSION JOINT SEAL

D) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- E) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

- H) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- I) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT. ON BOTH SIDES OF AN OPEN TRAVELWAY RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH BARRIER OR GUARDRAIL.
- J) DO NOT INSTALL MORE THAN 1/2 MILE OF LANE CLOSURE ON US421/NC133 MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.
- K) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON US421/NC133.



### PAVEMENT EDGE DROP OFF REQUIREMENTS

- L) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 FT. IN ADVANCE AND A MINIMUM OF ONCE EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

### TRAFFIC PATTERN ALTERATIONS

- M) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

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		<b>PROJECT NOTES</b> <b>(SHEET 1 OF 2)</b>
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## PROJECT NOTES

### GENERAL NOTES

#### SIGNING

- N) INSTALL ADVANCE WORK ZONE SIGNS WHEN WORK IS WITHIN 40 FT. FROM THE EDGE OF TRAVEL LANE AND NO MORE THAT THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- O) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

#### TRAFFIC CONTROL DEVICES

- P) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- Q) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT. CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

#### PAVEMENT MARKINGS AND MARKERS

- R) INSTALL FINAL PAVEMENT MARKINGS AND PAVEMENT MARKERS AS FOLLOWS:
 



<u>ROAD NAME</u>	<u>MARKING</u>	<u>MARKER</u>
ALL ROADS	POLYUREA THERMOPLASTIC (FOR SHORTLINE APPLICATIONS)	PERMANENT RAISED
- S) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS AS FOLLOWS:
 


<u>ROAD NAME</u>	<u>MARKING</u>	<u>MARKER</u>
ALL ROADS	PAINT	NONE
- T) TIE PROPOSED MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- U) REMOVE/REPLACE ANY CONFLICTING OR DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATIONS, WITH ONE APPLICATION OF PAINT.

### MISCELLANEOUS

- V) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA, INCLUDING ROADS UNDER BRIDGES, AND/OR INTERSECTIONS, AS DIRECTED BY THE ENGINEER.
- W) DO NOT ALLOW WATER AND CONCRETE SLURRY FROM HYDRO-DEMOLITION TO DRAIN ACROSS TRAVEL LANES.
- X) COMPLETE PROPOSED CONSTRUCTION IN SUCH A MANNER THAT PONDING OF WATER WILL NOT OCCUR IN THE TRAVEL LANES.
- Y) ENGINEER WILL NOTIFY THE OVERSIZE/OVERWEIGHT PERMIT UNIT AT 919-733-7154 OR 919-733-4740 TWO WEEKS PRIOR TO TRAFFIC BEING PLACED IN A ONE-LANE TRAFFIC PATTERN IN EITHER DIRECTION, IF NECESSARY, AND WHEN TRAFFIC IS RESTORED TO THE EXISTING PATTERN.
- Z) RECORD ALL EXISTING MARKINGS ON THE BRIDGE AND APPROACH ROADWAY (125'), INCLUDING THE US SHIELD MARKINGS, IN ORDER TO REPLACE MARKINGS AT THE END OF THE WORKDAY AND ONCE CONSTRUCTION IS COMPLETE. THE US SHIELDS WILL BE FURNISHED AND PAID FOR BY THE DIVISION AND INSTALLED BY THE CONTRACTOR.

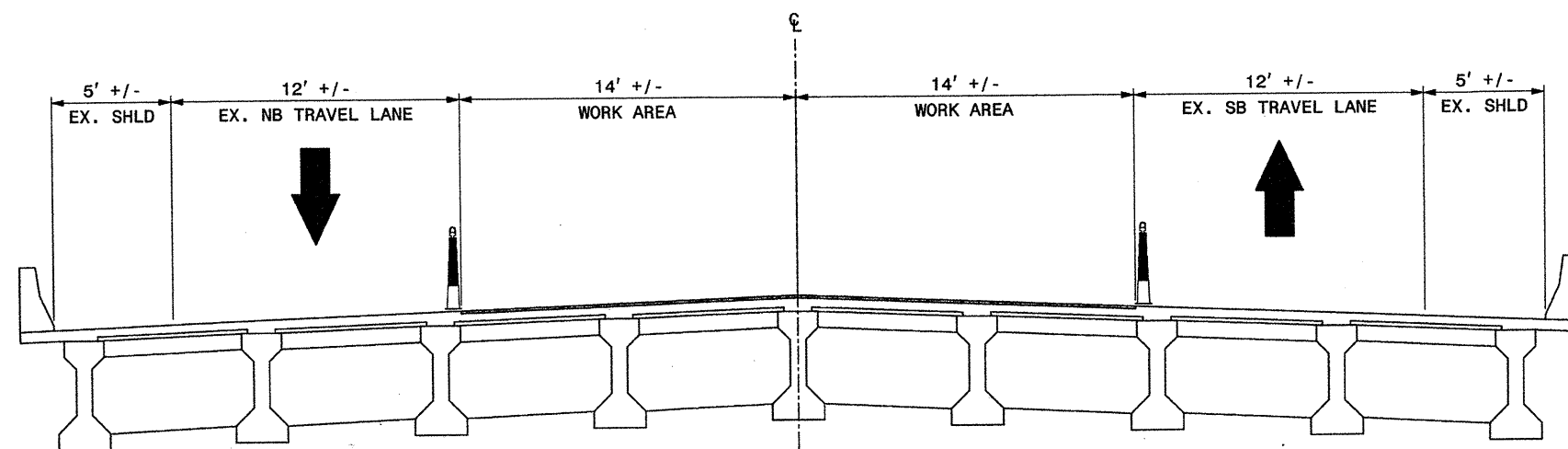
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		<h3>PROJECT NOTES</h3> <h3>(SHEET 2 OF 2)</h3>
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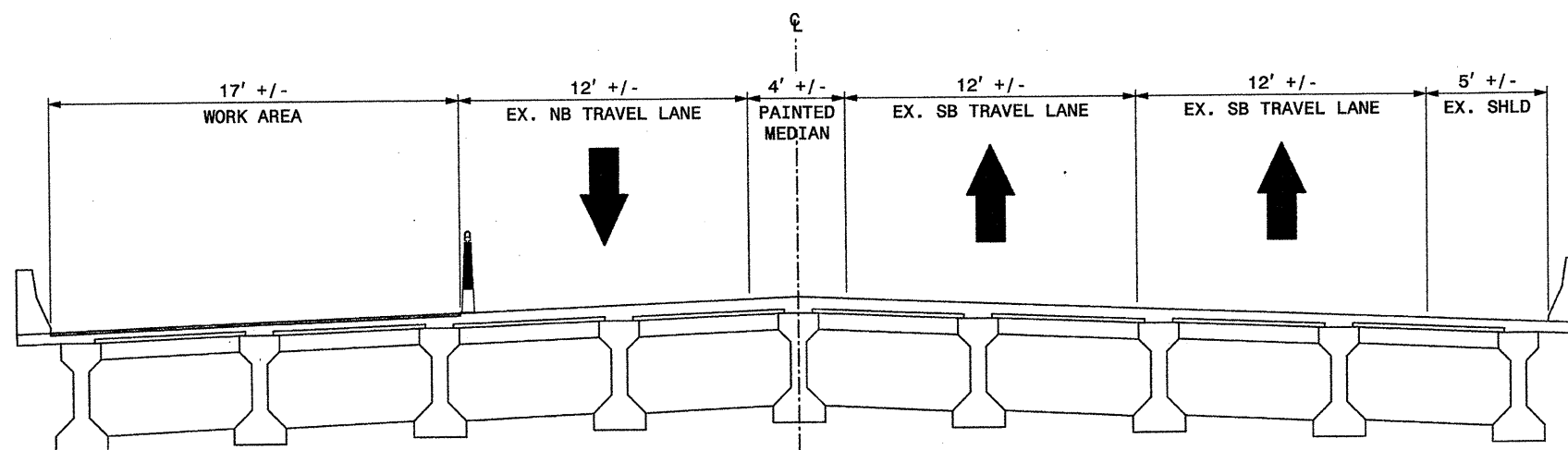
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17BP.3.H.3	TMP-3
 HDR Engineering, Inc. of the Carolinas 3733 National Drive, Suite 207 Raleigh, N.C. 27612 N.C.B.E.L.S. License Number: F-0116	

**TRAFFIC CONTROL STAGING**

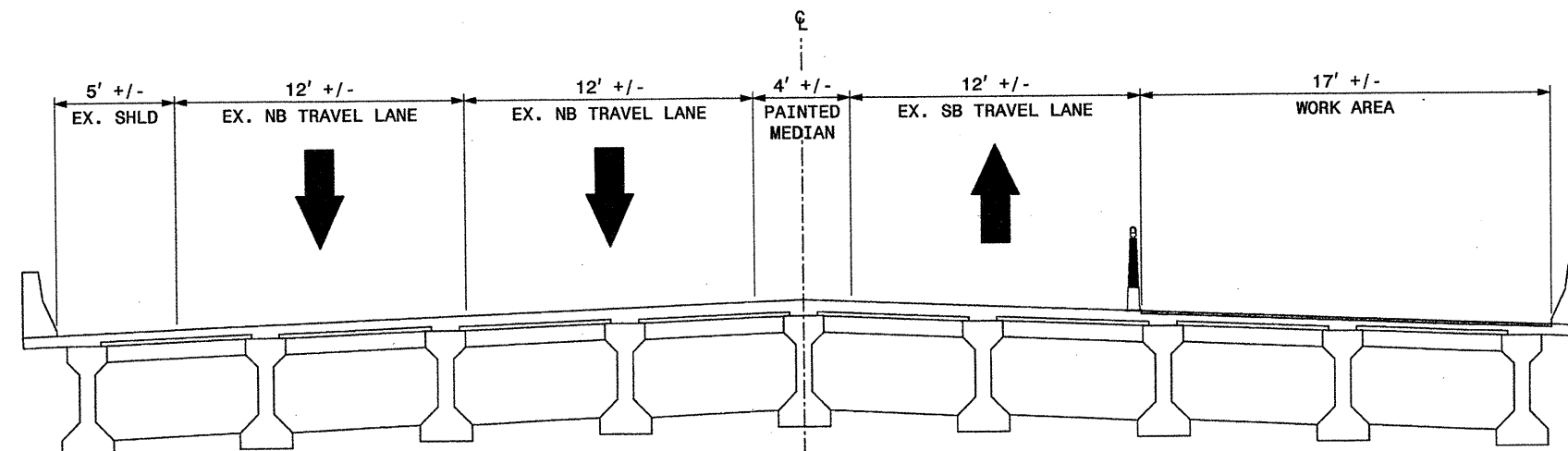
NOTE: AT THE END OF THE WORK DAY, REMOVE ALL TRAFFIC CONTROL DEVICES, COVER OR REMOVE ALL ADVANCED TRAFFIC CONTROL SIGNS FOR THE LANE CLOSURE OPERATION, AND RETURN TRAFFIC TO ITS EXISTING PATTERN.



TYPICAL SECTION - STAGE I



TYPICAL SECTION - STAGE II



TYPICAL SECTION - STAGE III

**STAGE I:**

STEP 1: USING THIS SHEET AND RSD 1101.02, SHEET 3, 5, OR 7 OF 15, COMPLETE BRIDGE WORK ON THE MEDIAN LANE OF BOTH SIDES OF THE BRIDGE.

USING RSD 1101.02, SHEET 3 OF 15 OR 1101.04, SHEET 1 OF 1, COMPLETE THE SUPERSTRUCTURE AND SUBSTRUCTURE WORK.

**STAGE II:**

STEP 1: USING THIS SHEET AND RSD 1101.02, SHEET 3 OF 15, COMPLETE BRIDGE WORK ON THE NB OUTSIDE LANE OF THE BRIDGE.



**STAGE III:**

STEP 1: USING THIS SHEET AND RSD 1101.02, SHEET 3 OF 15, COMPLETE BRIDGE WORK ON THE SB OUTSIDE LANE OF THE BRIDGE.

STEP 2: USING THIS SHEET AND RSD 1101.02, SHEET 3, 5, 6 OR 7 OF 15, COMPLETE ROADWAY APPROACH WORK.

STEP 3: USING RSD 1101.02, SHEET 3 OR 12 OF 15, PLACE FINAL PAVEMENT MARKINGS AND MARKERS AND OPEN TO TRAFFIC. REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES.

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 TIME: 11:13:48 AM

		<p>NEW HANOVER CO.          BRIDGE NO. 27          (US421/NC133 OVER          CAPE FEAR RIVER)          TYPICALS &amp; STAGING</p>
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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. FINIS 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

STD. NO. SN