

CONTRACT: C203008 TIP PROJECT: WBS 17BP.3.H.1

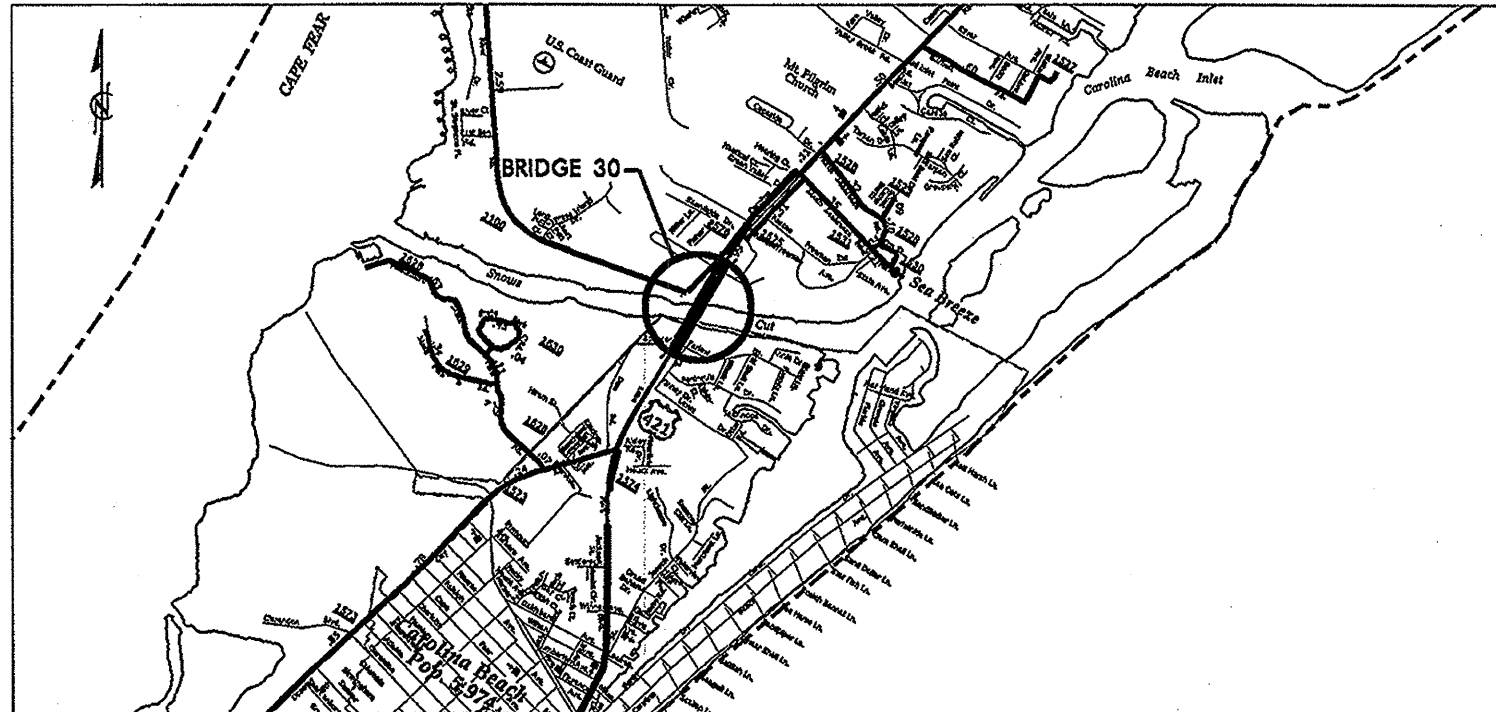
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS



NEW HANOVER COUNTY

LOCATION: BRIDGE 30 ON US 421 OVER SNOWS CUT (INTRACOASTAL WATERWAY)
TYPE OF WORK: BRIDGE REHABILITATION; LATEX MODIFIED CONCRETE OVERLAY,
STRUCTURAL STEEL REPAIR, BEARING REPLACEMENT,
SUBSTRUCTURE REPAIRS AND PAINTING STRUCTURAL STEEL

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



PROJECT LENGTH



PREPARED IN THE OFFICE OF:

Stantec
 10000 North Carolina Highway 70
 Raleigh, NC 27617
 Tel: 919 851-4400
 Fax: 919 851-7204
 www.stantec.com
 License No. P-0023

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
2012 STANDARD SPECIFICATIONS

LETTING DATE:

MAY 15, 2012

JOE KELVINGTON, PE
PROJECT ENGINEER

RICK NELSON, PE
NCDOT PROJECT ENGINEER



FARZIN ASEFNIA, PE
PROJECT DESIGN ENGINEER

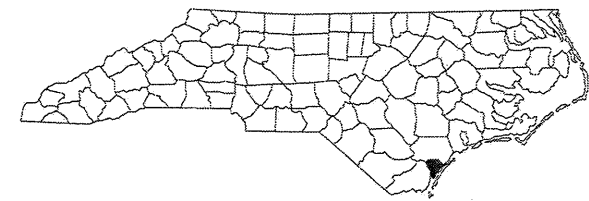
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



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CONTRACT: XXXXX TIP PROJECT: WBS 17BP.3.H.1

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS



NEW HANOVER COUNTY

LOCATION: BRIDGE 30 ON US 421 OVER SNOWS CUT (INTRACOASTAL WATERWAY)
TYPE OF WORK: BRIDGE DECK PRESERVATION WITH LATEX MODIFIED CONCRETE
BRIDGE REHABILITATION

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

INDEX OF SHEETS

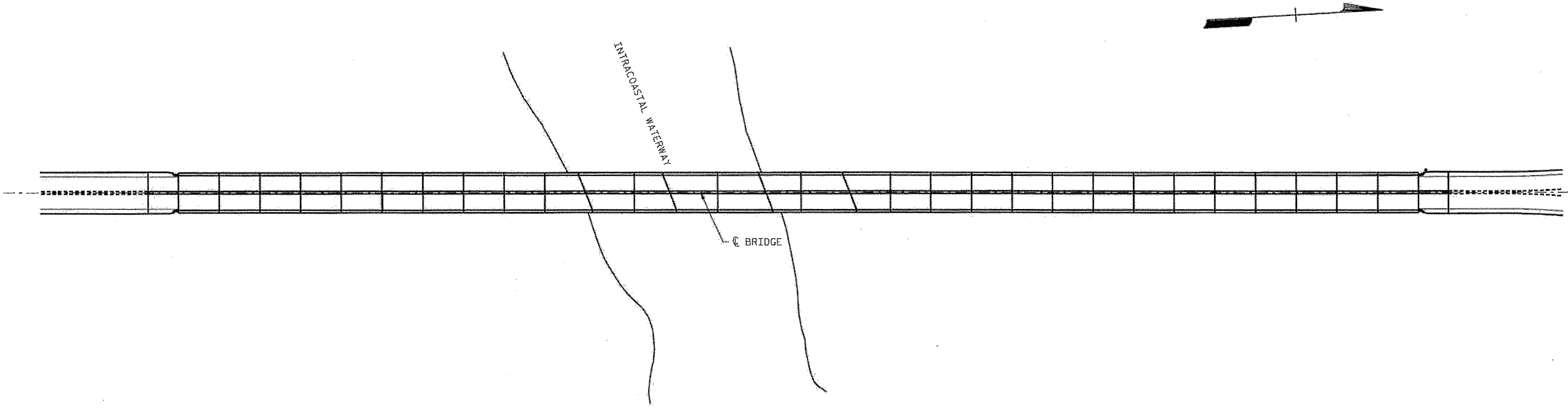
DWG.	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEET
2	SUMMARY OF QUANTITIES
S-1 THRU S-36	STRUCTURE PLANS
TMP-1 THRU TMP-4	TRANSPORTATION MANAGEMENT PLANS

ROADWAY STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS
 THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"
 HIGHWAY DESIGN BRANCH -N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C.
 DATED JANUARY 17, 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY
 ARE CONSIDERED A PART OF THESE PLANS:

STD. NO	TITLE
852.01	CONCRETE ISLAND (AS MODIFIED IN PROJECT PLANS)

U:\Structures\Bridges\Group 20\NHS\17BP.3.H.1-New Hanover\Bridge 30\Drawing\NewHanover-30_L.S.-BOM.dgn 3/19/2012 4:13:30 PM 1ddeck



BRIDGE 30 ON US 421
ACROSS SR 1532 & INTRACOASTAL WATERWAY
 LOCATION: BRIDGE 640030 ON US 421
 6 MILES SOUTH OF JCT NC 132

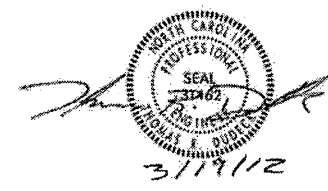
TOTAL BILL OF MATERIAL														
	MILLING ASPHALT PAVEMENT, 2" DEPTH	MILLING ASPHALT PAVEMENT, 0" TO 3"	ASPHALT CONC. BASE COURSE TYPE B25.0C	ASPHALT CONC. SURF. COURSE TYPE S9.5C	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	EPOXY COATED REINFORCING STEEL (BRIDGE)	STRUCTURAL STEEL REPAIR	POT BEARINGS	ELASTOMERIC BEARINGS	CONCRETE REPAIRS	SHOTCRETE REPAIRS	FOAM JOINT SEALS
	SO.YDS.	SO.YDS.	TON	TON	SO.YDS.	SO.FT.	SO.FT.	LBS	LUMP SUM	LUMP SUM	LUMP SUM	CU.FT.	CU.FT.	LUMP SUM
BRIDGE #30	622	622	25	62	7.1	1,412	92,281.2	5,791	LUMP SUM	LUMP SUM	LUMP SUM	21.5	63.5	LUMP SUM
TOTAL QTY.	622	622	25	62	7.1	1,412	92,281.2	5,791	LUMP SUM	LUMP SUM	LUMP SUM	21.5	63.5	LUMP SUM

TOTAL BILL OF MATERIAL															
	HYDRO-DEMOLITION OF BRIDGE DECK	CLASS I* SURFACE PREPARATION	CLASS II* SURFACE PREPARATION	CLASS III* SURFACE PREPARATION	CLASS AA* CONCRETE	CLEANING AND REPAINTING NEW HANOVER CO. BRIDGE #30	LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH	PARTIAL REMOVAL OF EXISTING STRUCTURE	RUBBER EXPANSION JOINT SEALS	PLACING & FINISHING LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH	POLLUTION CONTROL	SCAFFOLDING BRIDGE DECK	SPAN JACKING NEW HANOVER CO. BRIDGE #30	TEMP. STEEL COVER FOR EXP. JT. SEAL REPAIR	UNDER STRUCTURE WORK PLATFORM
	SO.YDS.	SO.YDS.	SO.YDS.	SO.YDS.	CU.YDS.	LUMP SUM	CU.YDS.	LUMP SUM	LUMP SUM	SO.YDS.	LUMP SUM	SO.YDS.	E.A.	LUMP SUM	LUMP SUM
BRIDGE #30	11,773.2	0.0	160.8	0.0	0.0	LUMP SUM	672.1	LUMP SUM	LUMP SUM	11,906.3	LUMP SUM	11,773.2	28	LUMP SUM	LUMP SUM
TOTAL QTY.	11,773.2	0.0	160.8	0.0	0.0	LUMP SUM	672.1	LUMP SUM	LUMP SUM	11,906.3	LUMP SUM	11,773.2	28	LUMP SUM	LUMP SUM

* QUANTITIES ARE ESTIMATES FROM BEST AVAILABLE DATA, AND SHOULD BE CONSIDERED FOR INFORMATION PURPOSES ONLY. IF ANY CLASS III LOCATIONS ARE ENCOUNTERED PRIOR TO OR DURING HYDRO-DEMOLITION, SEE "TYP. BLOW-THRU" CONTAINMENT AND FORMWORK" DETAIL. NO SEPARATE MEASUREMENT OR PAYMENT FOR THESE ITEMS WILL BE MADE. ALL COSTS FOR THIS WORK WILL BE INCLUDED IN THE UNIT PRICE BID FOR HYDRO-DEMOLITION.

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

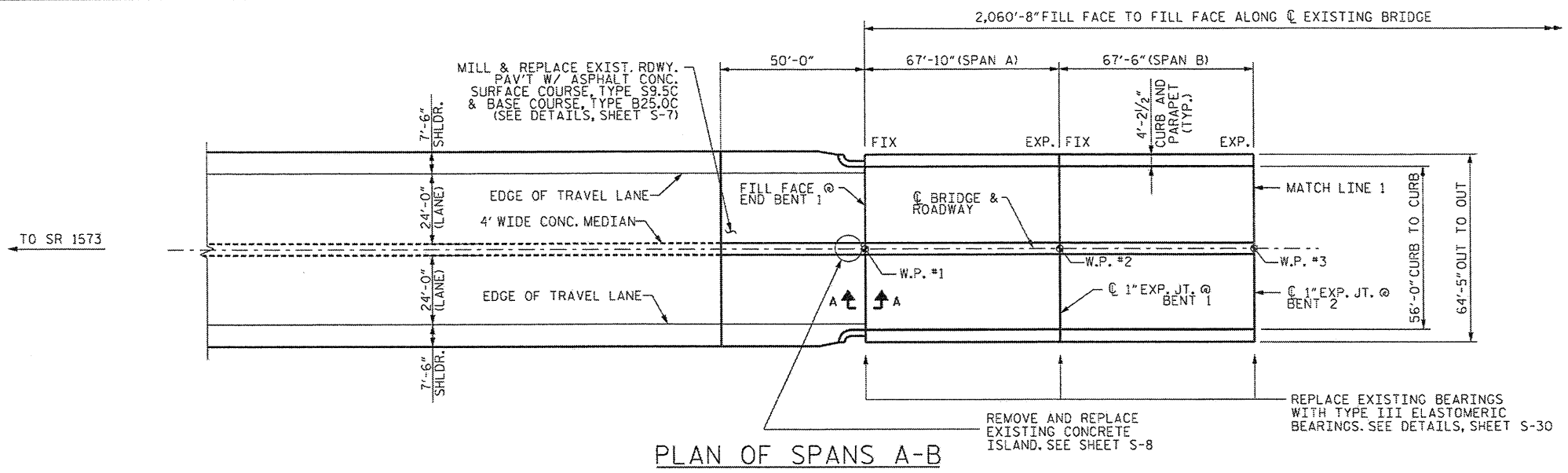
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
LOCATION SKETCH AND DECK REHABILITATION BILL OF MATERIALS
 REHABILITATE BRIDGE NO. 30



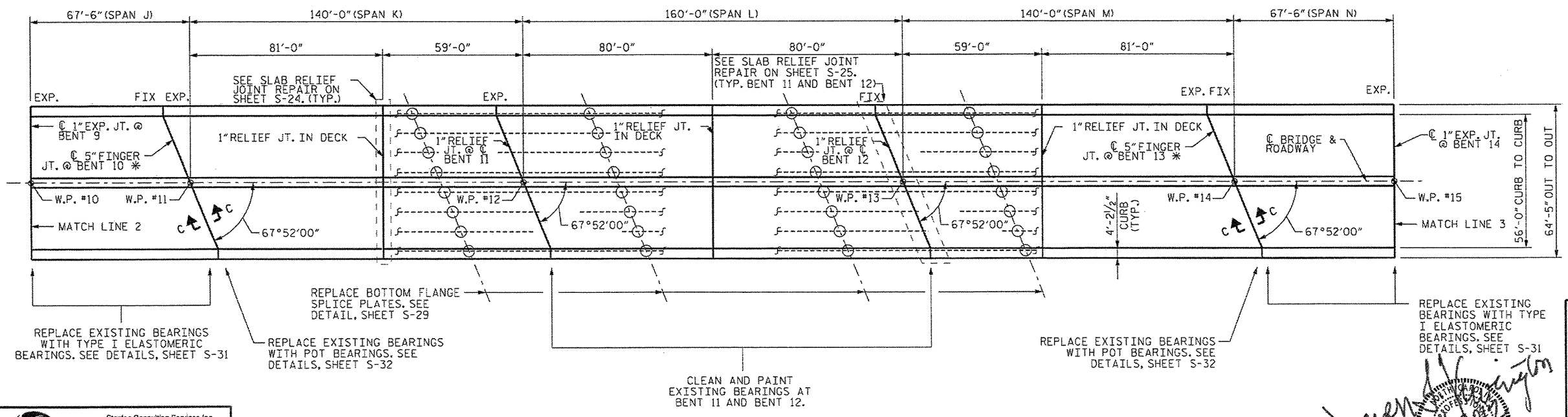
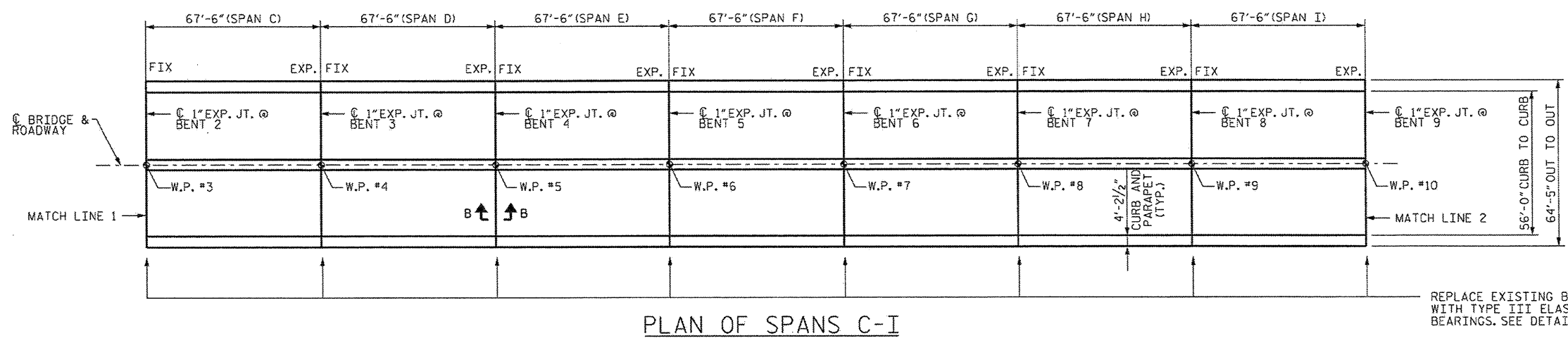
DRAWN BY : B. T. LATON DATE : 10/11
 CHECKED BY : J. I. KELVINGTON DATE : 10/11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-1
2			4			36

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FOR SECTION A-A, SEE SHEET S-7
 FOR SECTION B-B, SEE SHEET S-23
 SECTION B-B IS TYPICAL AT BENTS 1-9 AND BENT 14.
 FOR SECTION C-C, SEE SHEET S-26



PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF BRIDGE
 REHABILITATE BRIDGE NO. 30

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

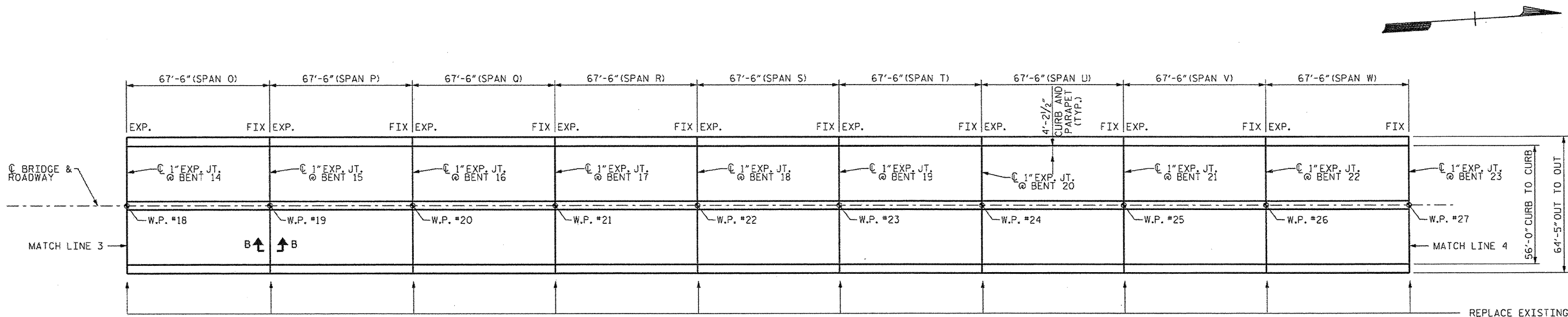
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 PROFESSIONAL ENGINEER
 NO. 13406
 STATE OF NORTH CAROLINA

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DRAWN BY: B. T. LATON DATE: 10/11
 CHECKED BY: J. T. KELVINGTON DATE: 10/11

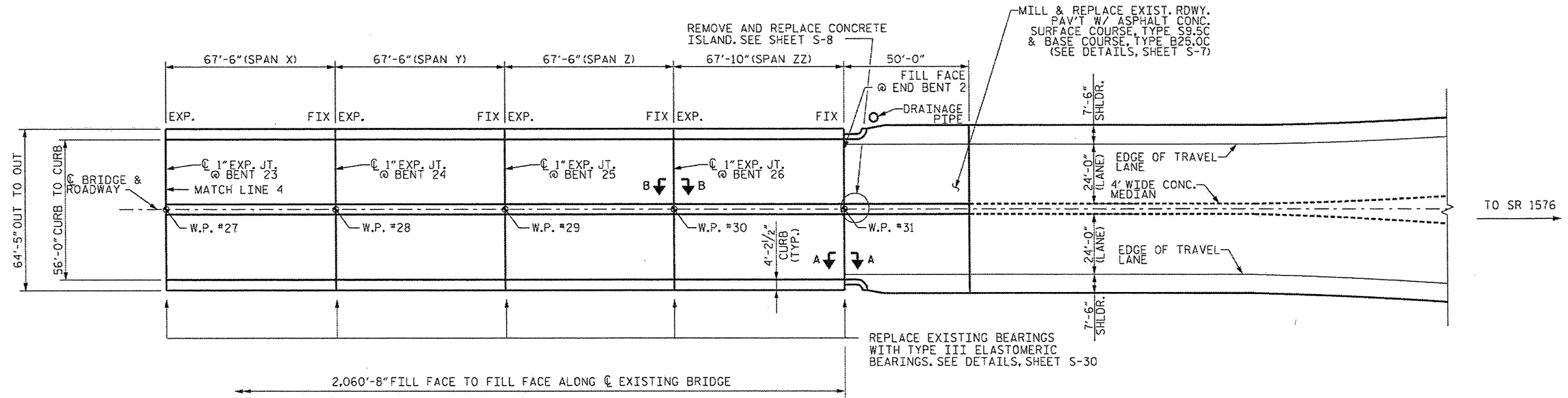
PLAN OF SPANS J-N
 *EXISTING FINGER JOINTS SHALL BE REPLACED. SEE SHEET S-26
 NOTE: ALL DIMENSIONS SHOWN ARE APPROXIMATE.

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REPLACE EXISTING BEARINGS WITH TYPE III ELASTOMERIC BEARINGS. SEE DETAILS, SHEET S-30

PLAN OF SPANS O-W

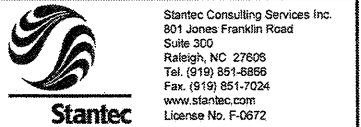


PLAN OF SPANS X-ZZ

NOTE: ALL DIMENSIONS SHOWN ARE APPROXIMATE.

FOR SECTION A-A, SEE SHEET S-7
 FOR SECTION B-B, SEE SHEET S-23
 SECTION B-B IS TYPICAL AT BENTS 15-26.

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____



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Joseph J. Kelvington
 2/11/11
 SEAL 13406
 PROFESSIONAL ENGINEER
 JOSEPH J. KELVINGTON

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
PLAN OF BRIDGE					
REHABILITATE BRIDGE NO. 30					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-3
TOTAL SHEETS					36


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GENERAL NOTES:

1. INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR POLLUTION CONTROL.
2. THE CONTRACTOR SHALL PAINT ALL STRUCTURAL STEEL ON THE BRIDGE. THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS.
3. WORK ON THIS BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION ACCESS IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.
4. EXISTING BRIDGE AND REPAIR DETAILS INDICATED ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE AND REPAIR DETAILS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE SITE.
5. DIMENSIONS IN THESE PLANS ARE BASED ON ORIGINAL PLANS. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
6. ALL VISUAL AND NON-DESTRUCTIVE TESTING WILL BE PERFORMED BY NCDOT.
7. WORK, AS DESCRIBED IN THESE PLANS, IS TO BE COMPLETED WITHOUT INTERRUPTION OF TRAFFIC ON THE BRIDGE. SEE TRANSPORTATION MANAGEMENT PLANS.
8. CONTRACTOR SHALL COORDINATE WITH INSPECTION PERSONNEL OF THE ENGINEER TO CAREFULLY EXAMINE HEAVILY RUSTED AREAS. AFTER SURFACE PREPARATION, TO DETERMINE IF ANY SUBSTANTIAL SECTION LOSS HAS OCCURRED. THE ENGINEER WILL DETERMINE THE COURSE OF ACTION TAKEN FOR CASES OF EXCESSIVE SECTION LOSS.
9. ALL THE COST ASSOCIATED WITH PREPARING ENGINEERING SUBMITTALS FOR JACKING, ANY ASSOCIATED TEMPORARY SUPPORTS, EQUIPMENT AND MISCELLANEOUS COMPONENTS SHALL BE CONSIDERED INCIDENTAL TO THE PAY ITEM FOR "SPAN JACKING NEW HANOVER COUNTY BRIDGE #30." NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE.
10. THE COST OF LABOR, MATERIALS, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY FOR REMOVAL AND DISPOSAL OF EXISTING STRUCTURE COMPONENTS SHALL BE INCLUDED IN THE BID PRICE FOR PARTIAL REMOVAL OF EXISTING STRUCTURE
11. FOR BRIDGE JACKING AT BENTS, SEE SPECIAL PROVISIONS.
12. FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
13. DEBRIS SHALL BE REMOVED FROM EXISTING BENT CAPS. ALL COST ASSOCIATED WITH DEBRIS REMOVAL SHALL BE CONSIDERED INCIDENTAL TO "CONCRETE REPAIRS."
14. DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS WITH LATEX MODIFIED CONCRETE. SEE SPECIAL PROVISIONS.
15. FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.
16. THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
17. THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS II AND CLASS III SURFACE PREPARATION ARE APPROXIMATE. ACTUAL CONDITIONS FOUND AT THE PROJECT SITE DURING CONSTRUCTION SHOULD BE EXPECTED TO VARY FROM PROJECT PLANS.
18. LATEX MODIFIED CONCRETE SHALL BE LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH.
19. FOR LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.
20. FOR END BENT JOINT SEAL DETAILS, SEE SHEET S-7.
21. FOR SUBSTRUCTURE REPAIRS, SEE SPECIAL PROVISIONS FOR CONCRETE REPAIRS AND SHOTCRETE REPAIRS.
22. SUBSTRUCTURE REPAIRS TO TOP OF CAP SHALL BE PLACED USING FORMWORK AND AREAS UNDERNEATH BEARINGS IN ACCORDANCE WITH THE SPECIAL PROVISION "CONCRETE REPAIRS."
23. SUBSTRUCTURE REPAIRS TO COLUMNS AND ALL OTHER VERTICAL FACES MAY BE REPAIRED USING SHOTCRETE AND HAND TROWELING.
24. REMOVE EXISTING STRUCTURES IN ACCORDANCE WITH SECTION 402 OF THE STANDARD SPECIFICATIONS EXCEPT AS NOTED HEREIN.
25. THE CONTRACTOR SHALL EXERCISE CARE TO ENSURE THAT EXISTING STRUCTURAL ELEMENTS THAT ARE TO REMAIN IN PLACE ARE UNDAMAGED BY BRIDGE CONSTRUCTION ACTIVITIES. ALL DAMAGE TO EXISTING STRUCTURAL ELEMENTS THAT ARE TO REMAIN SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE DEPARTMENT.
26. FOR CLEANING AND REPAINTING EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.
27. CONTRACTOR SHALL RAISE EXISTING BEAMS A MINIMUM OF 1" AND A MAXIMUM OF 2" TO REPLACE BEARINGS.
28. ALTERNATIVES FOR BEARING REPLACEMENT TO THOSE SHOWN IN THE PLANS MAY BE SUBMITTED FOR REVIEW AND ACCEPTANCE BY THE DEPARTMENT.
29. FOR POLLUTION CONTROL, SEE SPECIAL PROVISIONS.
30. EXISTING STRUCTURAL STEEL SHALL BE REPAIRED IN THE BRIDGE SUPERSTRUCTURE. FOR STRUCTURAL STEEL REPAIR, SEE SPECIAL PROVISIONS.

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL NOTES					
REHABILITATE BRIDGE NO. 30					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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					SHEET NO. S-4
					TOTAL SHEETS 36

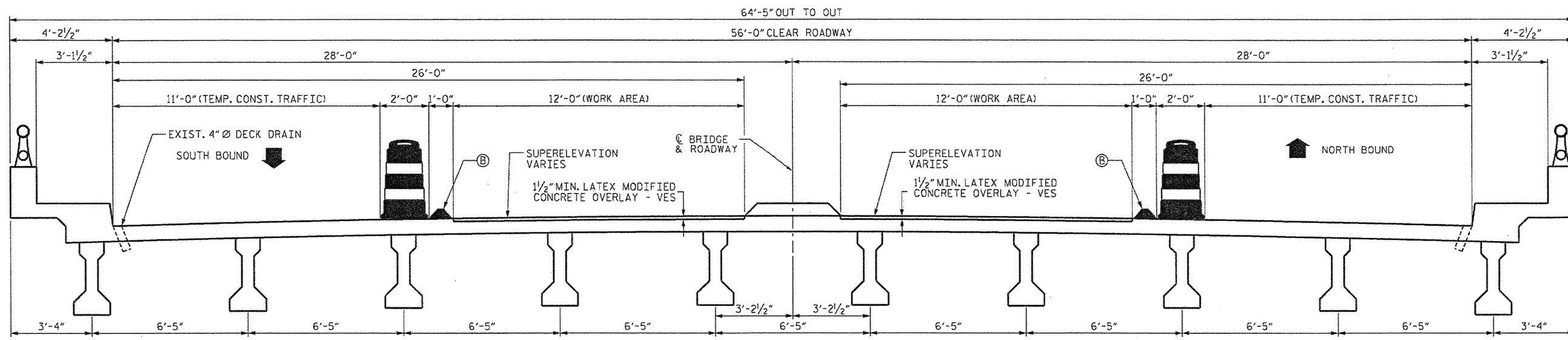
Joseph Kelvington




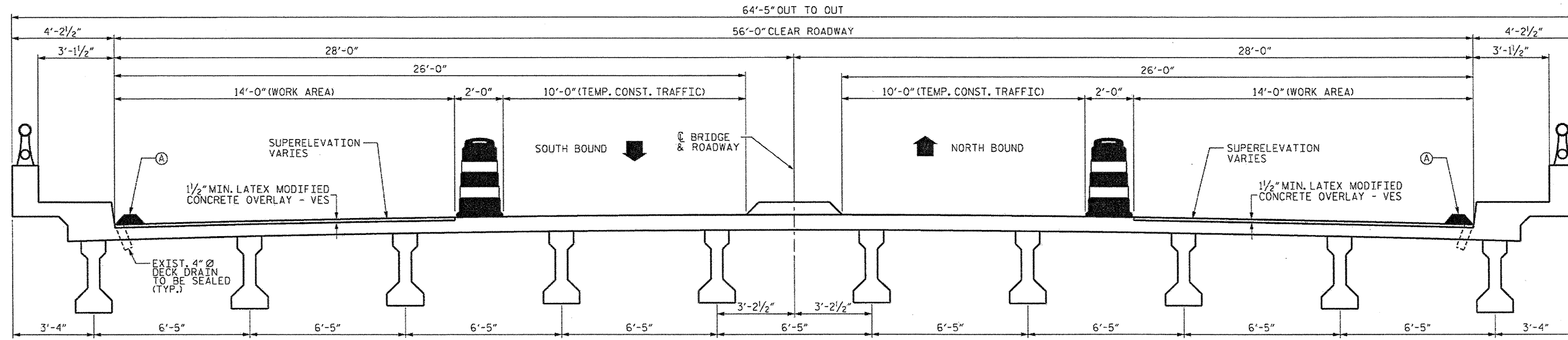
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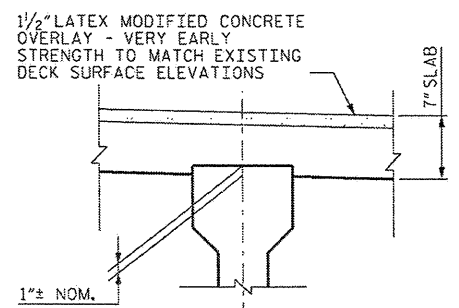
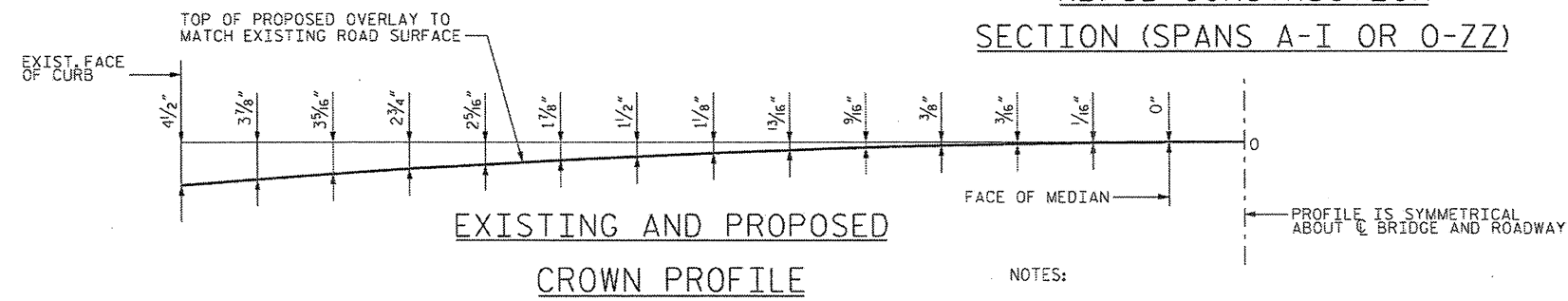
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**NB/SB CONSTRUCTION
SECTION (SPANS A-J OR N-ZZ)**



**NB/SB CONSTRUCTION
SECTION (SPANS A-I OR O-ZZ)**



SLAB BUILD-UP DETAIL

Joseph Kelvington
 JOSEPH KELVINGTON
 PROFESSIONAL ENGINEER
 STATE OF NORTH CAROLINA
 LICENSE NO. 3498

PROJECT NO. WBS 17BP.3.H.1
 NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE TYPICAL SECTION

REHABILITATE BRIDGE NO. 30

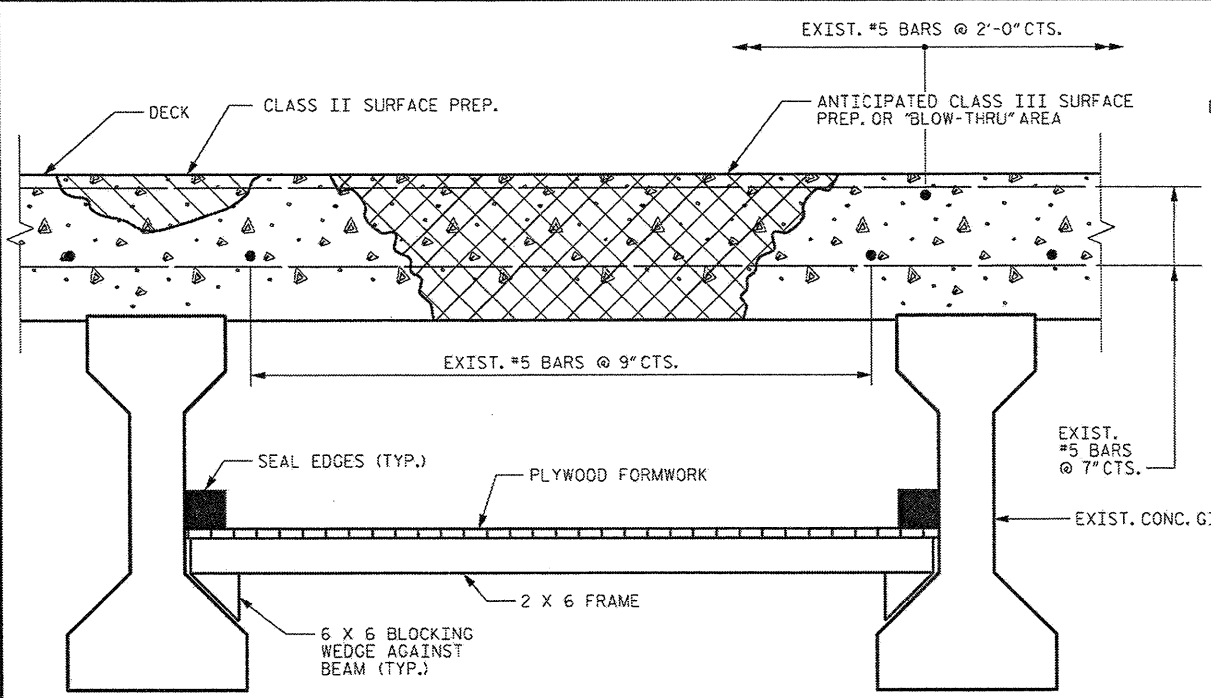
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-5	
1			3			TOTAL SHEETS	
2			4			36	

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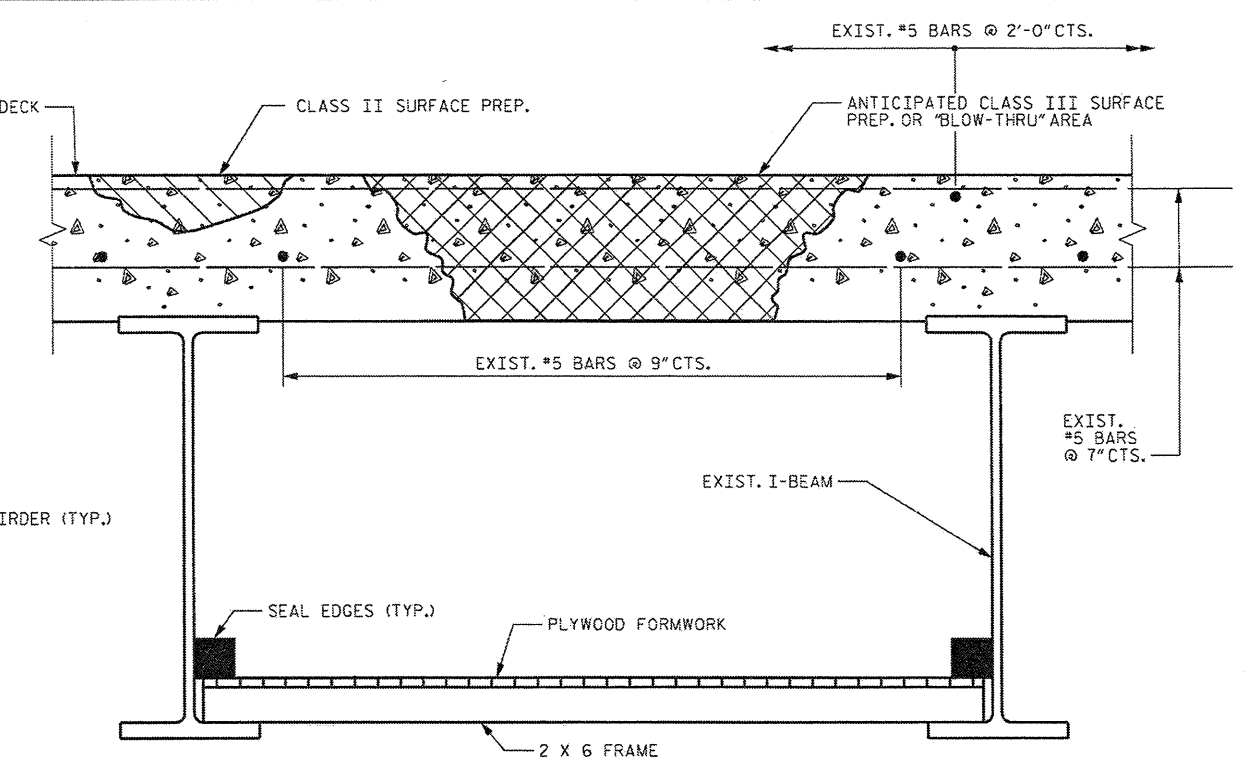
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 CHECKED BY : J T KELVINGTON DATE : 10/11

- NOTES:**
- VES DENOTES VERY EARLY STRENGTH
 - WATER & CONCRETE SLURRY FROM HYDRO-DEMOLITION SHALL NOT BE ALLOWED TO DRAIN ACROSS TRAVEL LANES. CONTRACTOR SHALL PROVIDE A METHOD TO CONTROL THE WATER.
 - FOR TRAFFIC CONTROL AND CONSTRUCTION PHASING, SEE TRANSPORTATION MANAGEMENT PLANS.
 - (A) DAM IS REQUIRED TO CAPTURE CONCRETE SLURRY @ DRAINS AND EXPANSION JOINTS.
 - (B) DAM CONTINUOUSLY THRU WORK ZONE TO CAPTURE RUN OFF.

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TYPICAL SECTION THRU INTERIOR BAY



TYP. "BLOW THRU" CONTAINMENT AND FORMWORK

NOTES:

CONTRACTOR SHALL FURNISH FORMWORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.

COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO DEMOLITION.

SEE HYDRO DEMOLITION SPECIAL PROVISIONS.

CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.

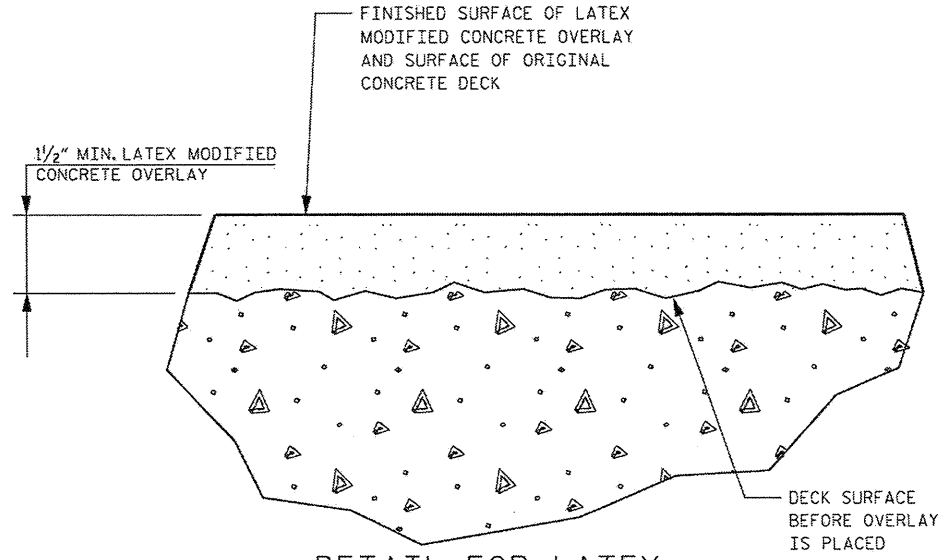
A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

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

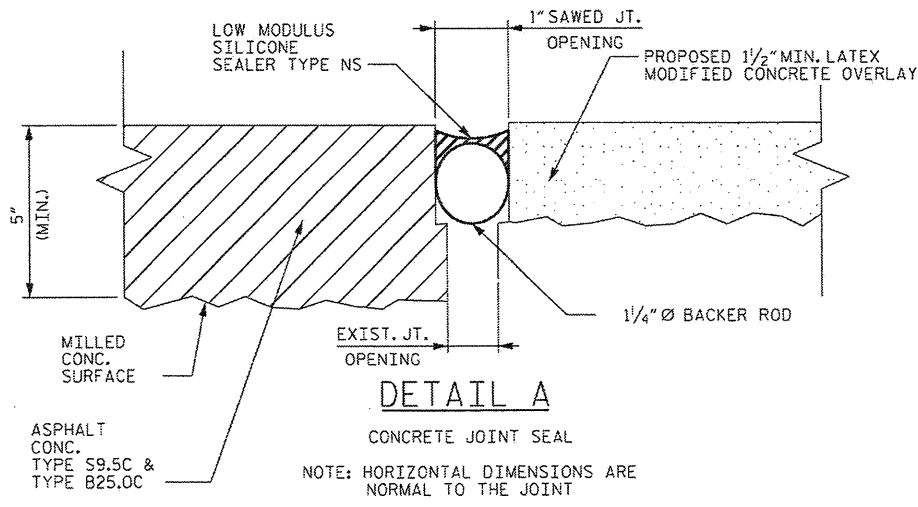
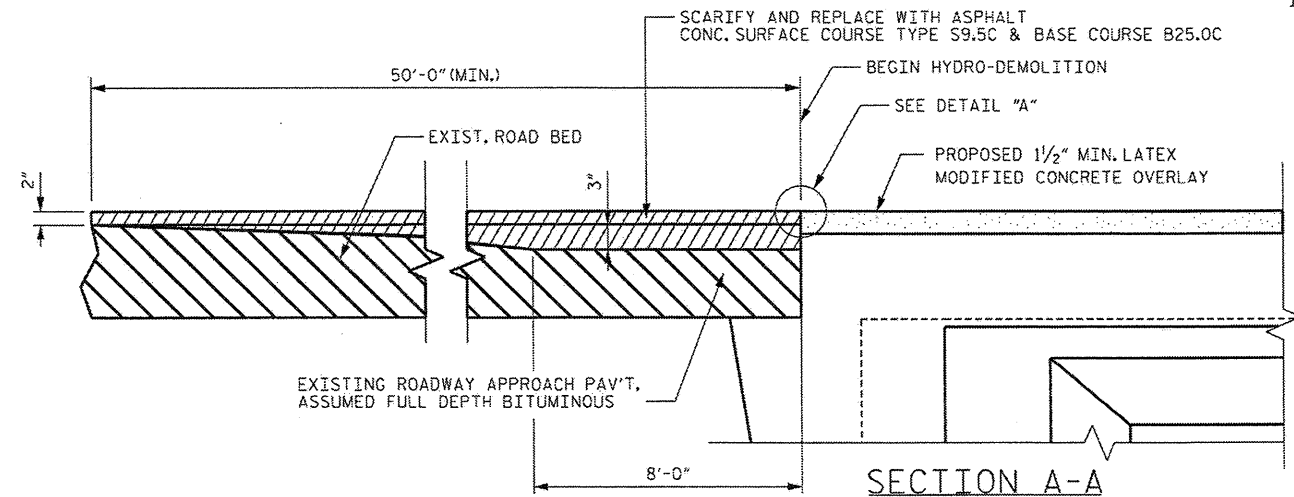
CONTRACTOR, AT HIS OPTION, MAY CHOOSE TO MONITOR HYDRO-DEMOLITION WORK AND CONTROL TRAFFIC UNDER THE BRIDGE IN LIEU OF BLOW THRU CONTAINMENT.

PLACE PLYWOOD AND FRAMING TO CLEAR INTERMEDIATE CONCRETE DIAPHRAGMS. IN SPANS A-I AND O-ZZ, PROVIDE SEAL @ INTERMEDIATE DIAPHRAGM LOCATIONS.

1/4" BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE I. PLACE BACKER ROD TO WITHIN 2"-6" OF EXISTING CURB FACE. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT NEEDED TO CONSTRUCT CONCRETE JOINT SEALS SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY



DETAIL A

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DETAILS AND NOTES

DECK REHAB. FOR BRIDGE NO. 30

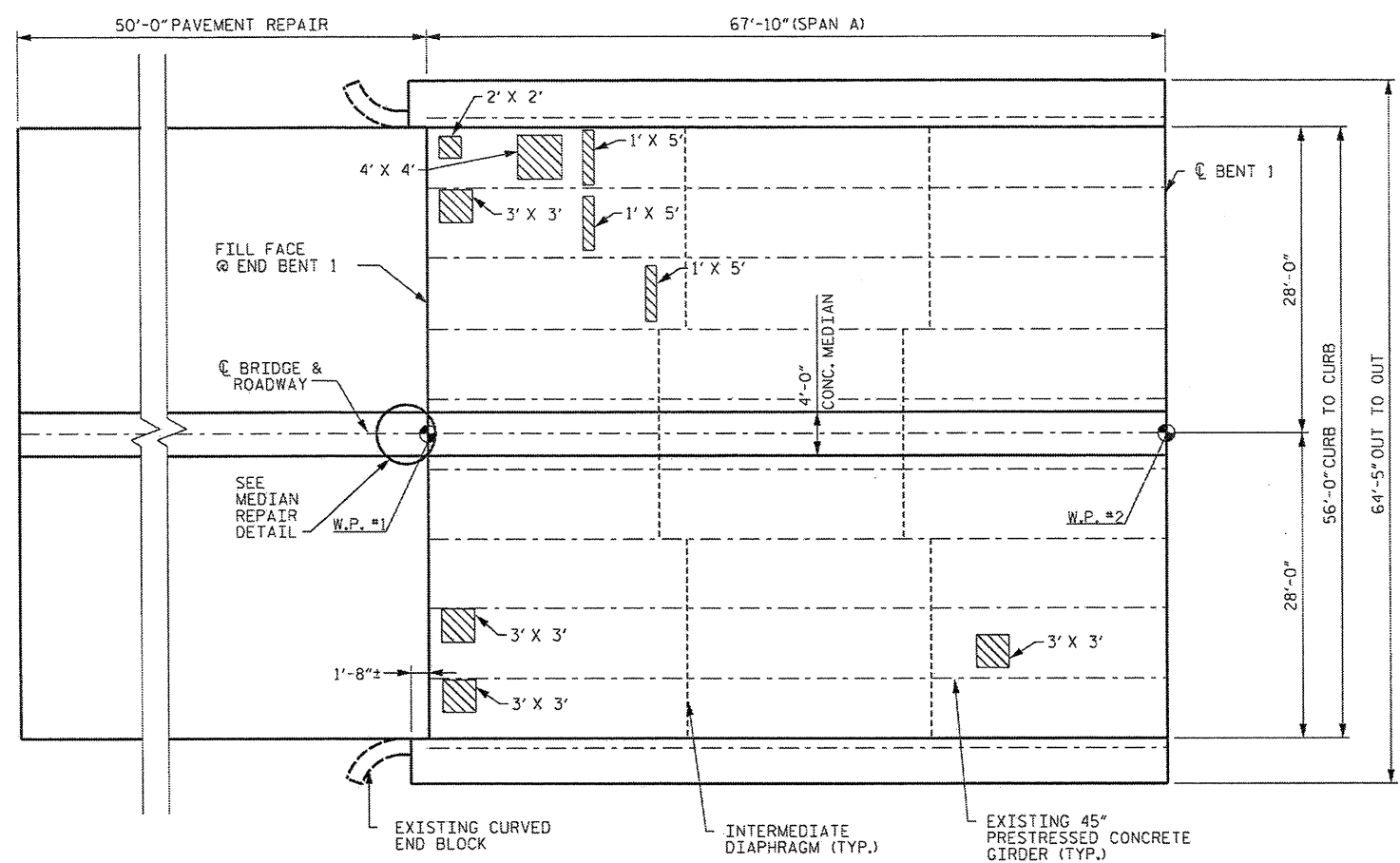
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1			3			TOTAL SHEETS	
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 SEAL 13406
 ENGINEER
 JOSEPH J. KELVINGTON

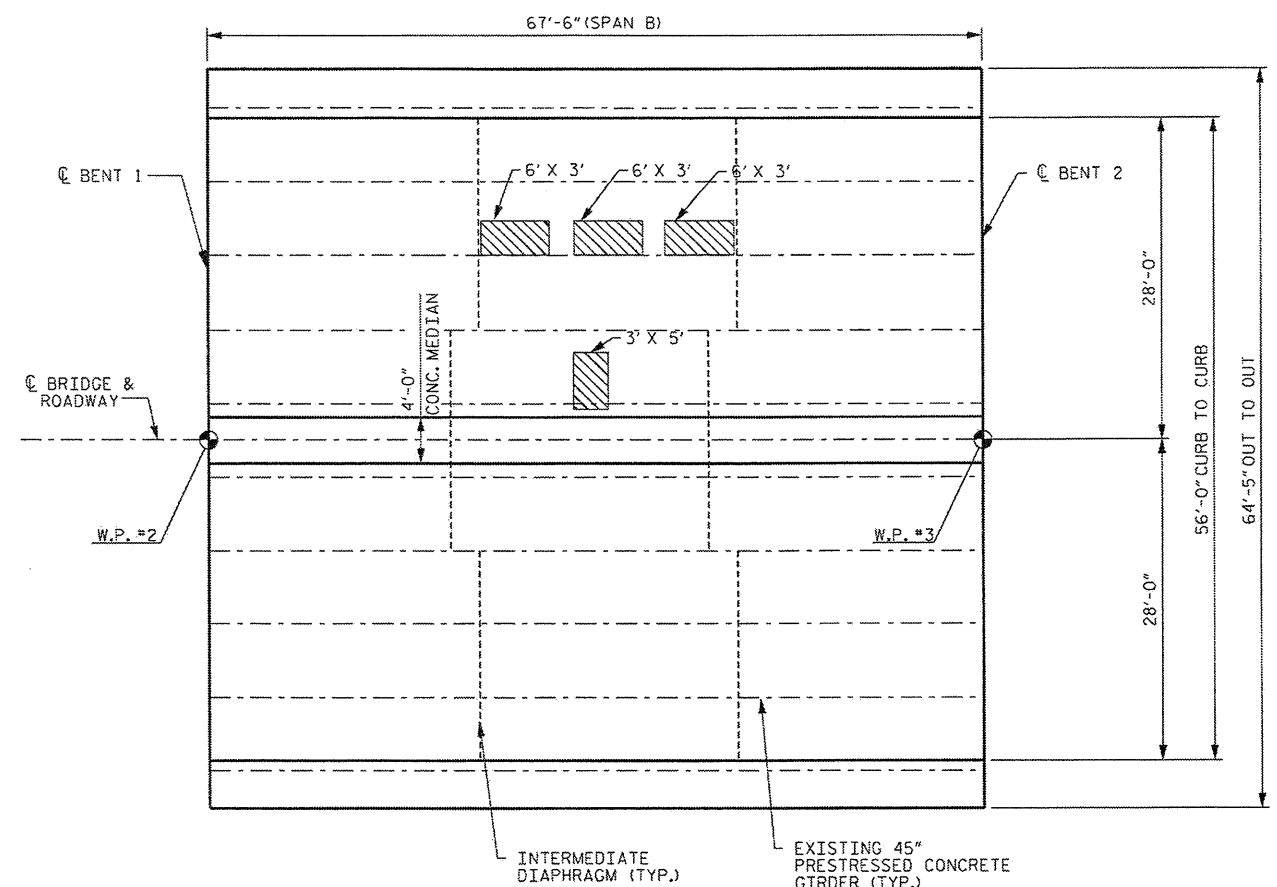
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 Raleigh, NC 27606
 Tel. (919) 851-6896
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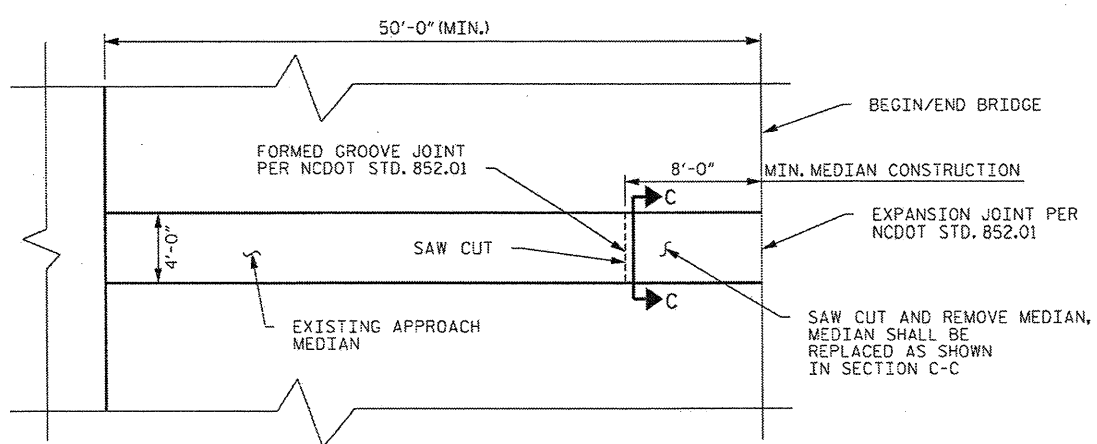
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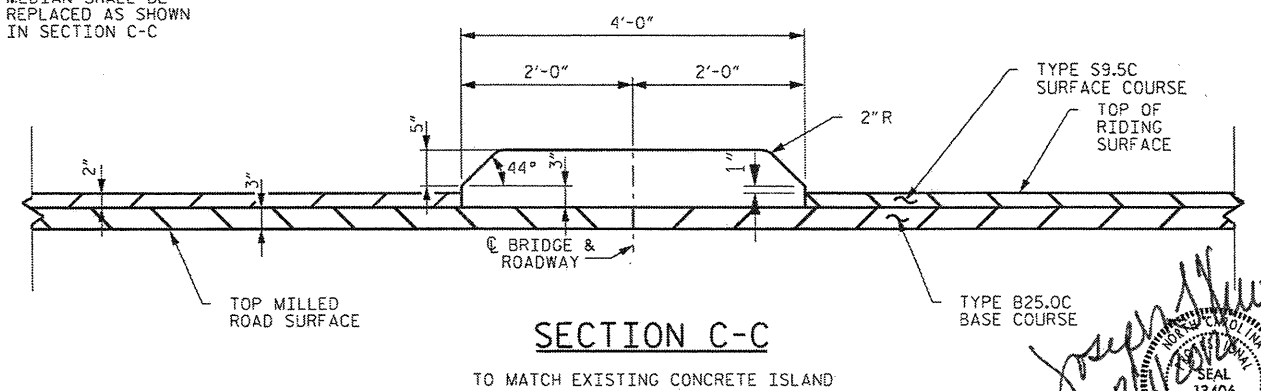
PLAN OF SPAN A - DECK REPAIRS



PLAN OF SPAN B - DECK REPAIRS



MEDIAN REPAIR DETAIL



SECTION C-C

TO MATCH EXISTING CONCRETE ISLAND

NOTES:

CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED AT THE PROJECT SITE.

ALL DIMENSIONS ARE APPROXIMATE.

CONTRACTOR SHALL FURNISH FORMWORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.

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



COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO DEMOLITION.

SEE HYDRO DEMOLITION SPECIAL PROVISIONS.

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

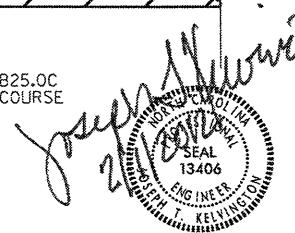
SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

CONTRACTOR, AT HIS OPTION, MAY CHOOSE TO MONITOR HYDRO-DEMOLITION WORK AND ADJUST PRODUCTION TO PREVENT DISCHARGE INTO THE WATERWAY IN LIEU OF BLOW THRU CONTAINMENT. SEE TRANSPORTATION MANAGEMENT PLANS.


 CLASS II SURFACE PREPARATION
 CLASS III SURFACE PREPARATION
 NOTES:
 L' X W' = LENGTH OF AREA ALONG @ BRIDGE X WIDTH OF AREA NORMAL TO @ BRIDGE

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DECK REPAIR DETAILS
 SPANS A & B
 DECK REHAB. FOR BRIDGE NO. 30

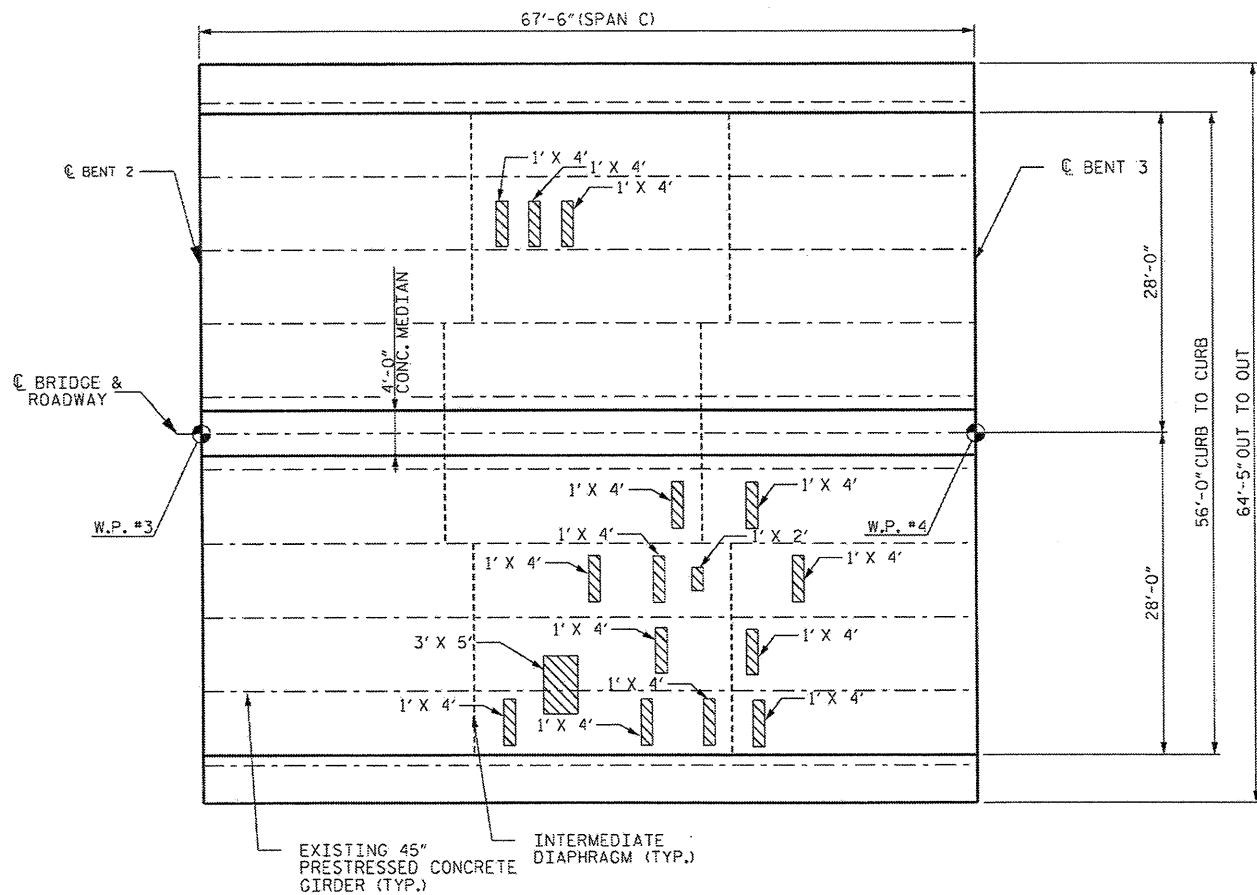


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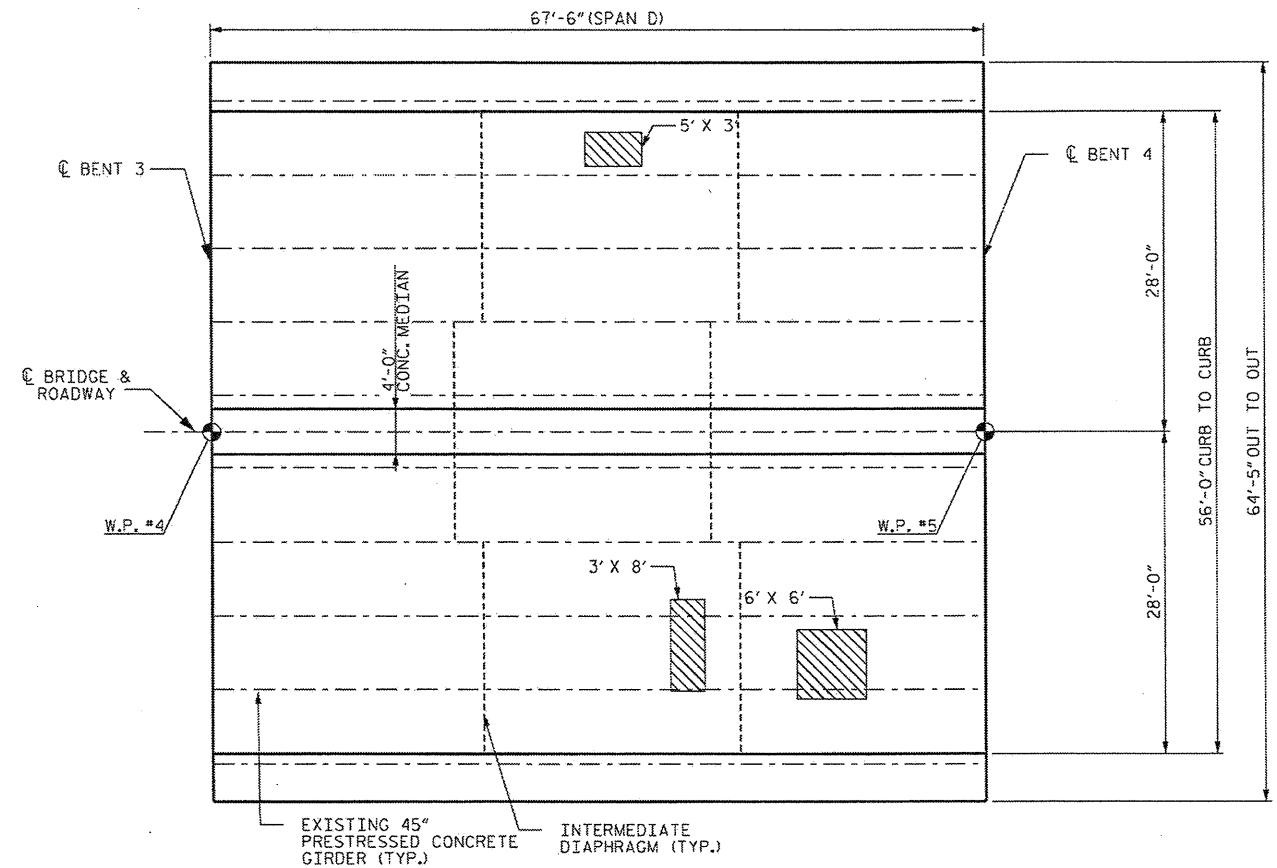

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PLAN OF SPAN C - DECK REPAIRS



PLAN OF SPAN D - DECK REPAIRS

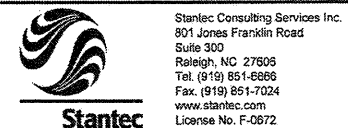
CLASS II SURFACE PREPARATION
 CLASS III SURFACE PREPARATION

NOTES:
 L' X W' = LENGTH OF AREA ALONG @ BRIDGE X
 WIDTH OF AREA NORMAL TO @ BRIDGE

NOTES:
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PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

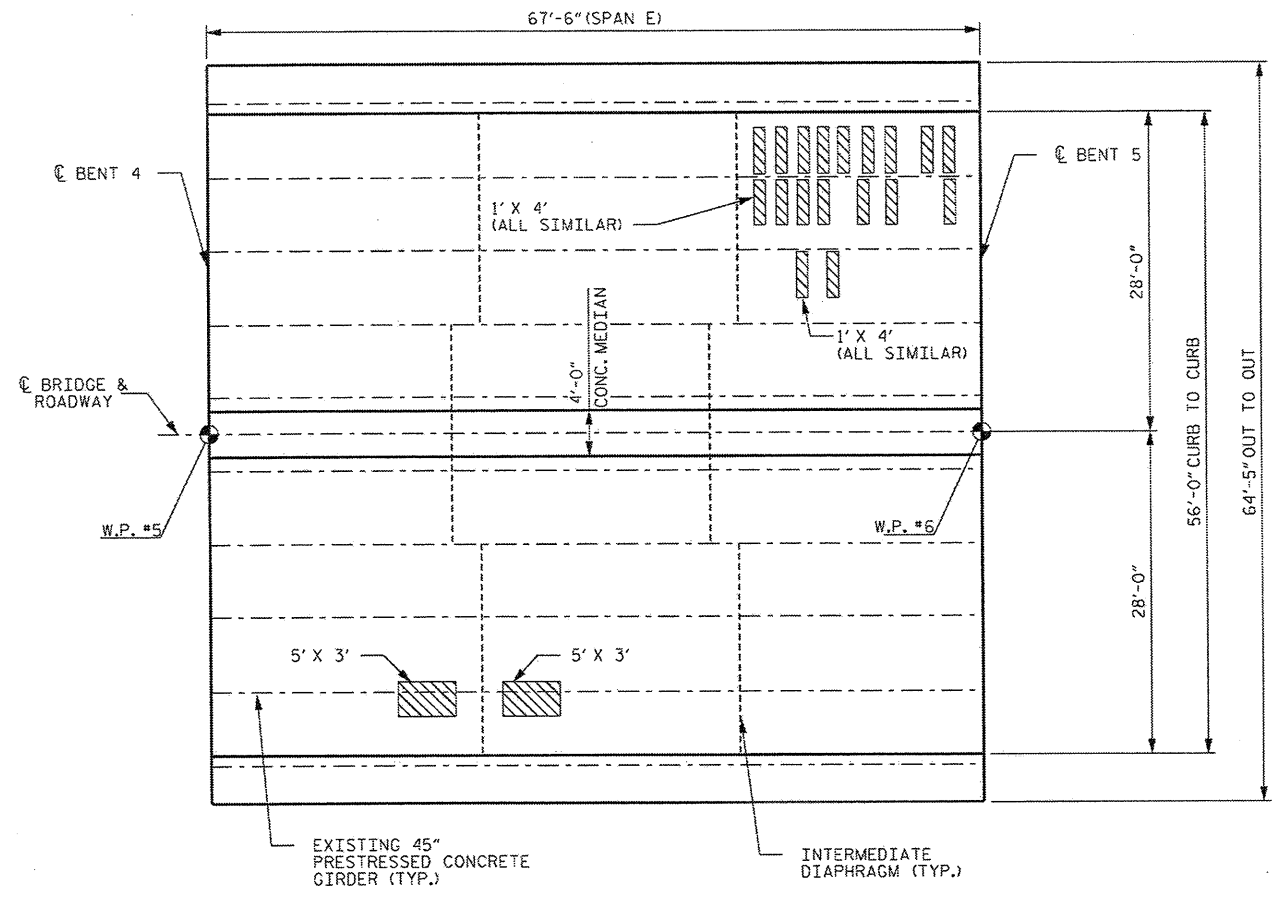


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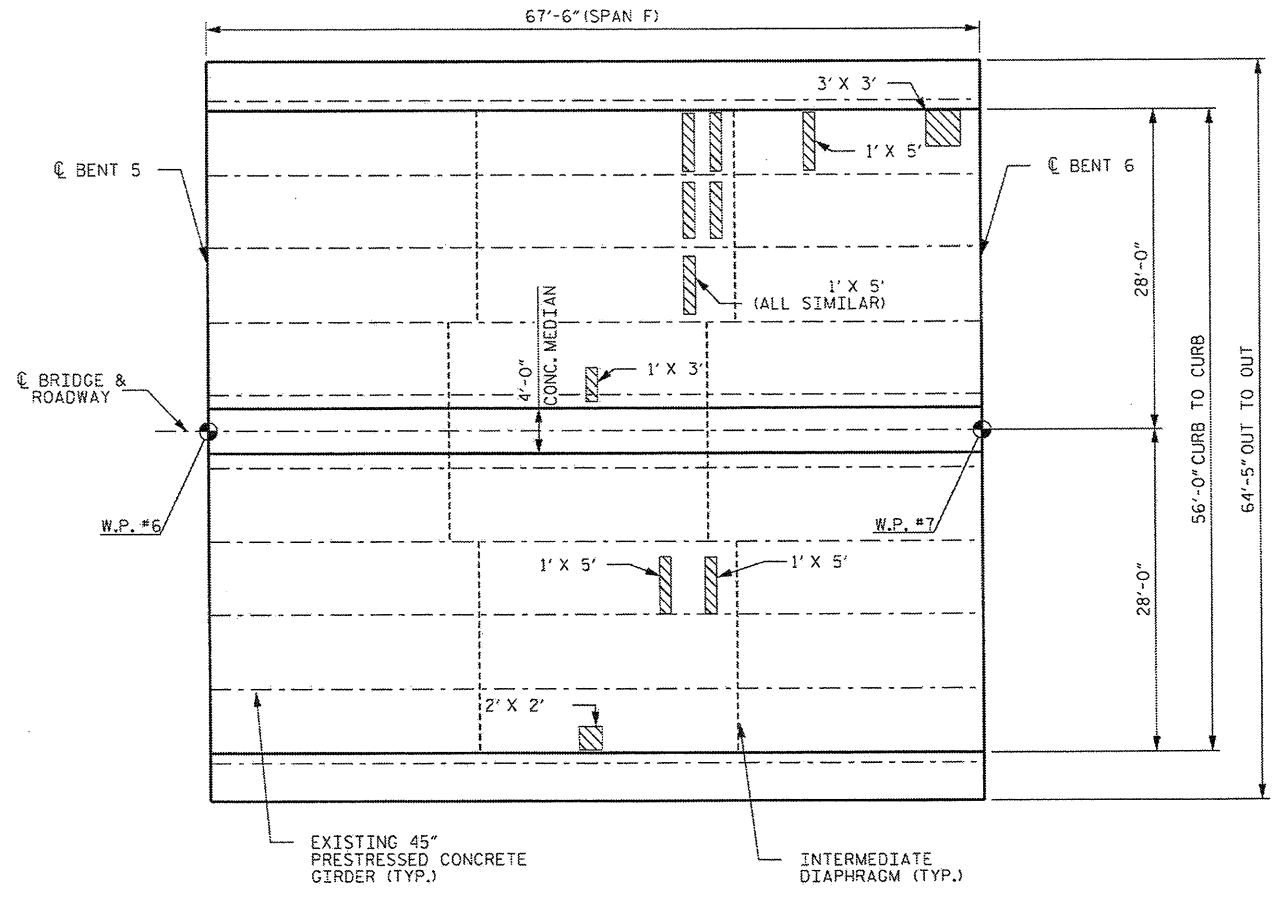
Joseph Kelvington
 2/1/12

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
DECK REPAIR DETAILS					
SPANS C & D					
DECK REHAB. FOR BRIDGE NO. 30					
REVISIONS					
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PLAN OF SPAN E - DECK REPAIRS



PLAN OF SPAN F - DECK REPAIRS

NOTES:

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CLASS II SURFACE PREPARATION
 CLASS III SURFACE PREPARATION
 NOTES:
 L' X W' = LENGTH OF AREA ALONG @ BRIDGE X WIDTH OF AREA NORMAL TO @ BRIDGE

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
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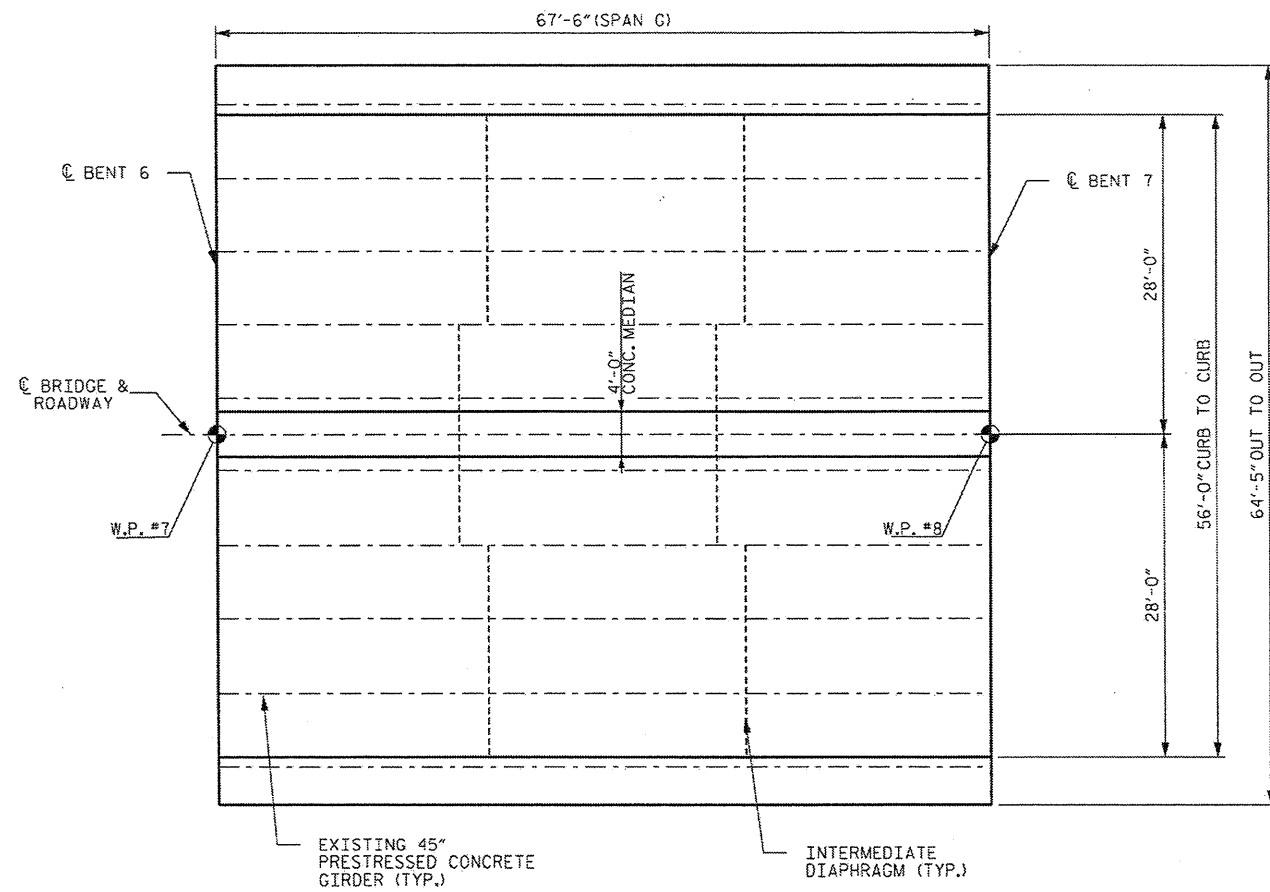
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DECK REPAIR DETAILS
 SPANS E & F**

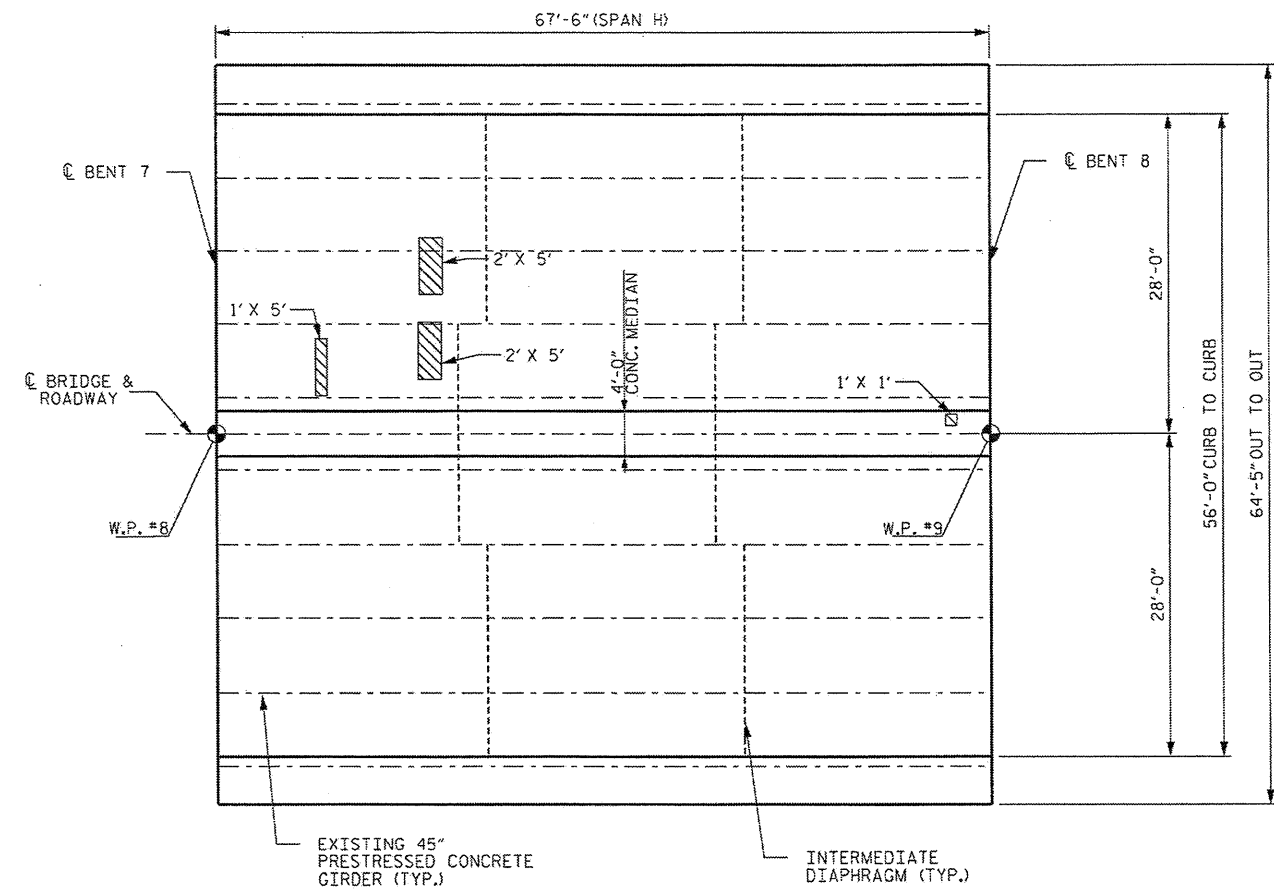
DECK REHAB. FOR BRIDGE NO. 30

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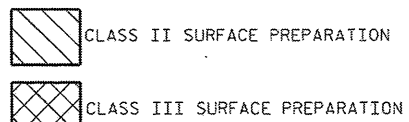
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PLAN OF SPAN G - DECK REPAIRS



PLAN OF SPAN H - DECK REPAIRS



NOTES:
 L' X W' = LENGTH OF AREA ALONG @ BRIDGE X
 WIDTH OF AREA NORMAL TO @ BRIDGE

NOTES:

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PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

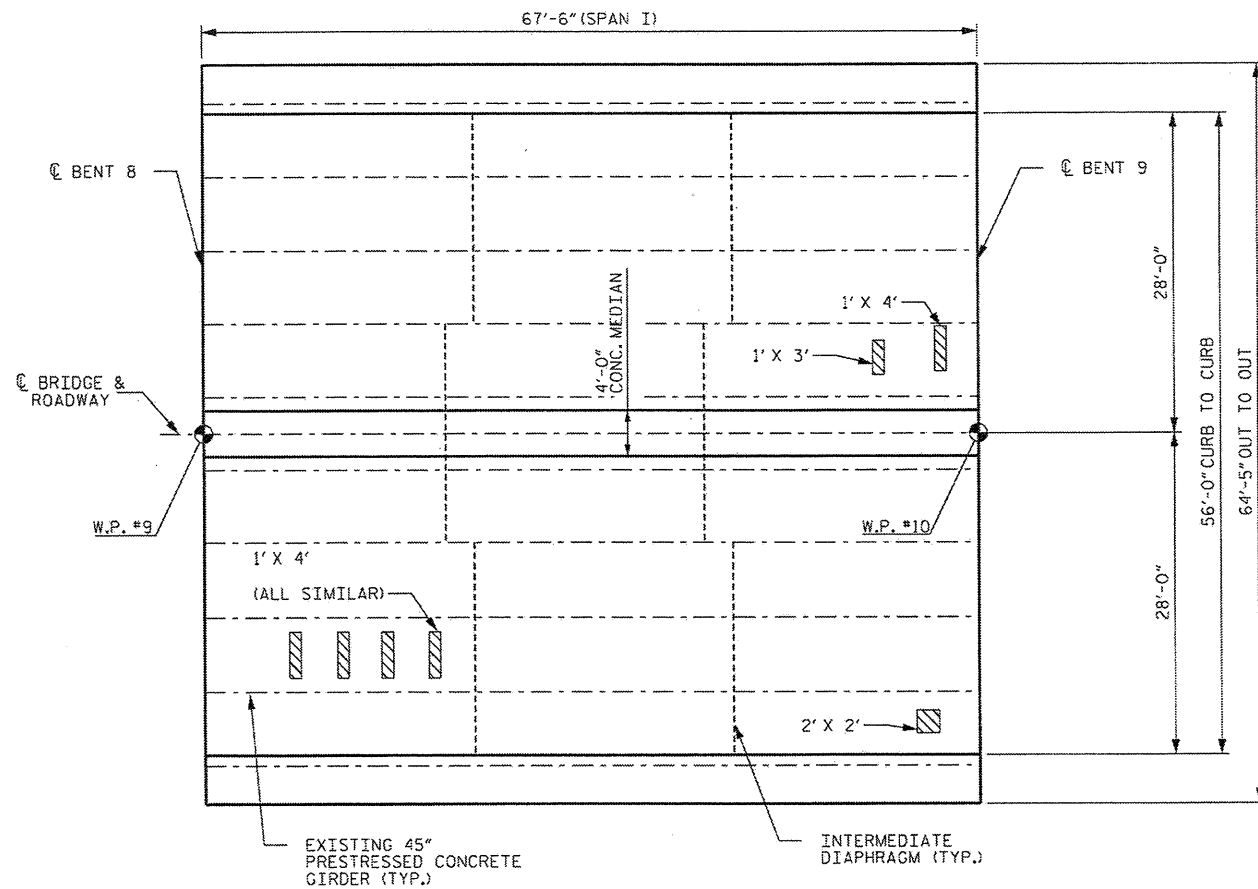


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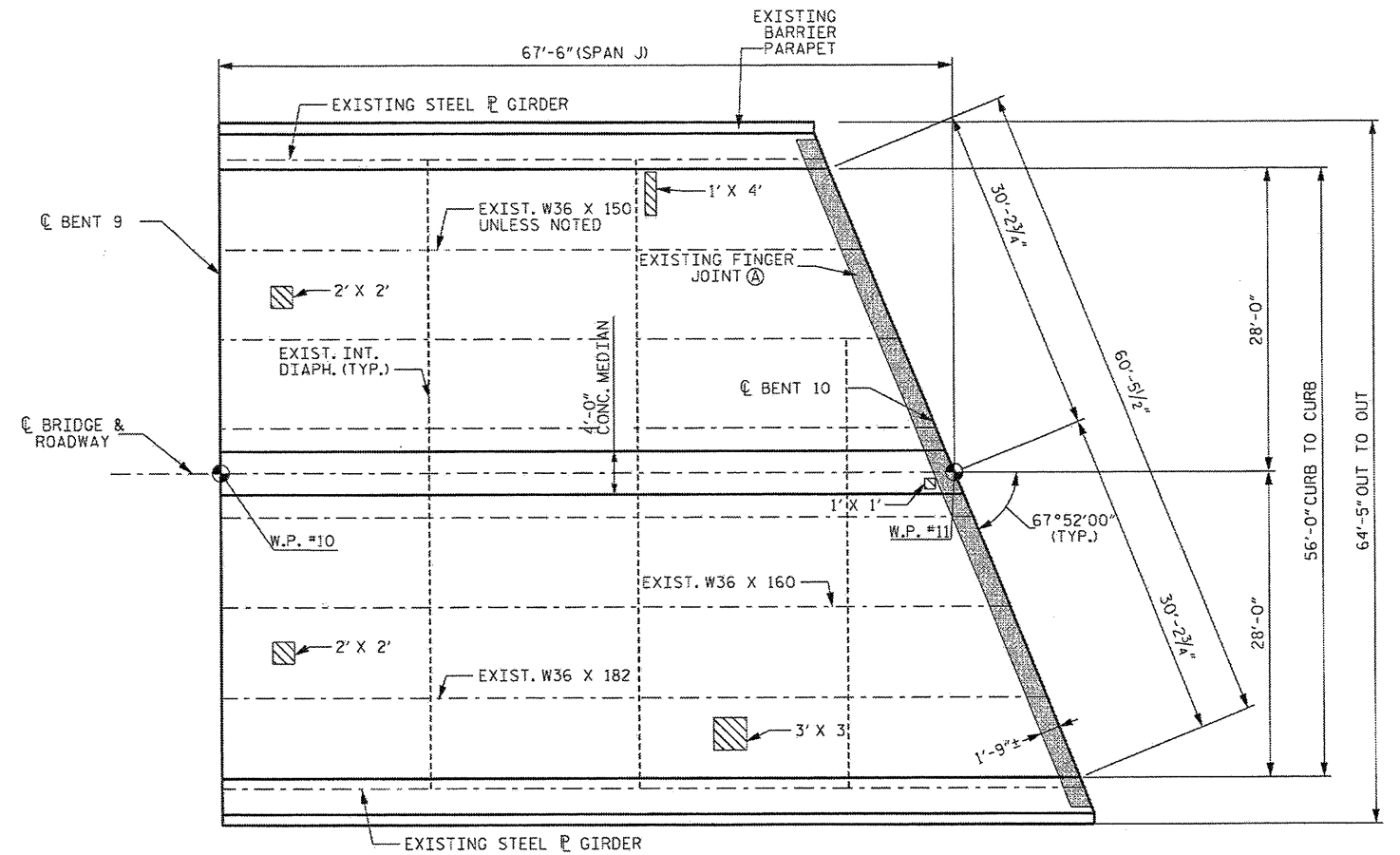
Joseph J. Kelvington
 2/1/2012
 PROFESSIONAL ENGINEER
 SEAL 13406
 STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DECK REPAIR DETAILS
 SPANS G & H
 DECK REHAB. FOR BRIDGE NO. 30




REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS	36
2			4				



PLAN OF SPAN I - DECK REPAIRS



PLAN OF SPAN J - DECK REPAIRS

-  EXISTING JOINT REPAIR
-  CLASS II SURFACE PREPARATION
-  CLASS III SURFACE PREPARATION

NOTES:
 L' X W' = LENGTH OF AREA ALONG ϕ BRIDGE X
 WIDTH OF AREA NORMAL TO ϕ BRIDGE

NOTES:

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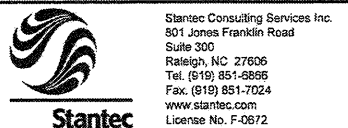
SEE HYDRO DEMOLITION SPECIAL PROVISIONS.

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PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

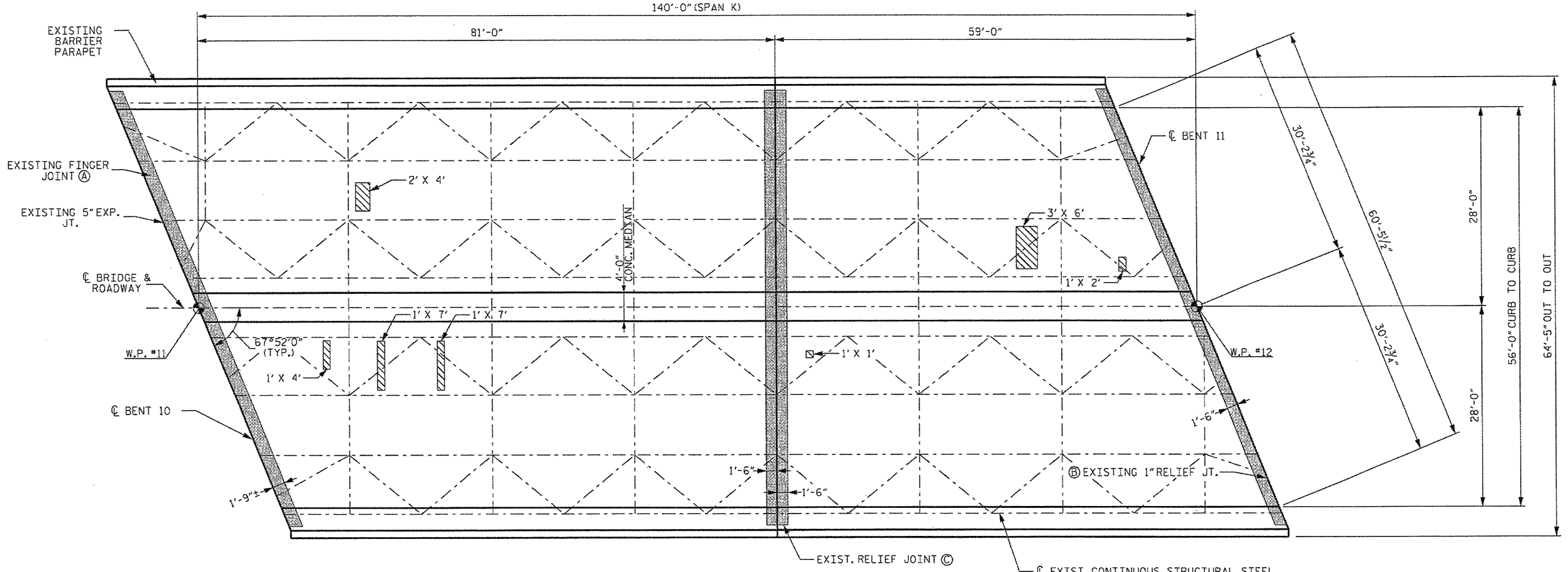


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Joseph Kelvington
 SEAL 13406
 ENGINEER
 NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DECK REPAIR DETAILS SPANS I & J					
DECK REHAB. FOR BRIDGE NO. 30					
REVISIONS					
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PLAN OF SPAN K - DECK REPAIRS

- EXISTING JOINT REPAIR
- CLASS II SURFACE PREPARATION
- CLASS III SURFACE PREPARATION

NOTES:
 L' X W' = LENGTH OF AREA ALONG C BRIDGE X
 WIDTH OF AREA NORMAL TO C BRIDGE

NOTES:
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- Ⓒ EXISTING CONCRETE IN JOINT AREAS SHALL BE REMOVED AS SHOWN ON JOINT REPAIR SHEET S-24. THIS WORK SHALL BE MEASURED AND PAID FOR AS PARTIAL REMOVAL OF EXISTING STRUCTURE.

SEE HYDRO DEMOLITION SPECIAL PROVISIONS.
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PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

Joseph J. Kelvington

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DECK REPAIR DETAILS
 SPAN K**

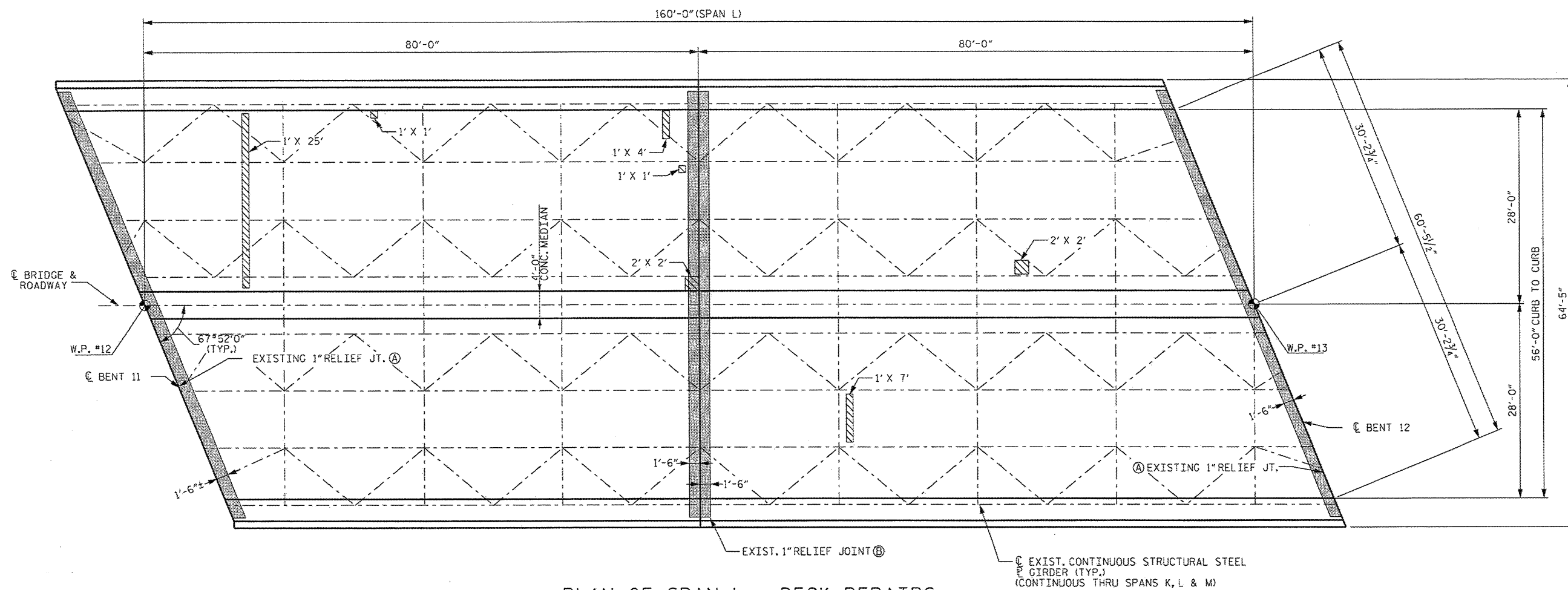
DECK REHAB. FOR BRIDGE NO. 30

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			36

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PLAN OF SPAN L - DECK REPAIRS

NOTES:

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- EXISTING JOINT REPAIR
- CLASS II SURFACE PREPARATION
- CLASS III SURFACE PREPARATION

NOTES:
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 WIDTH OF AREA NORMAL TO C BRIDGE



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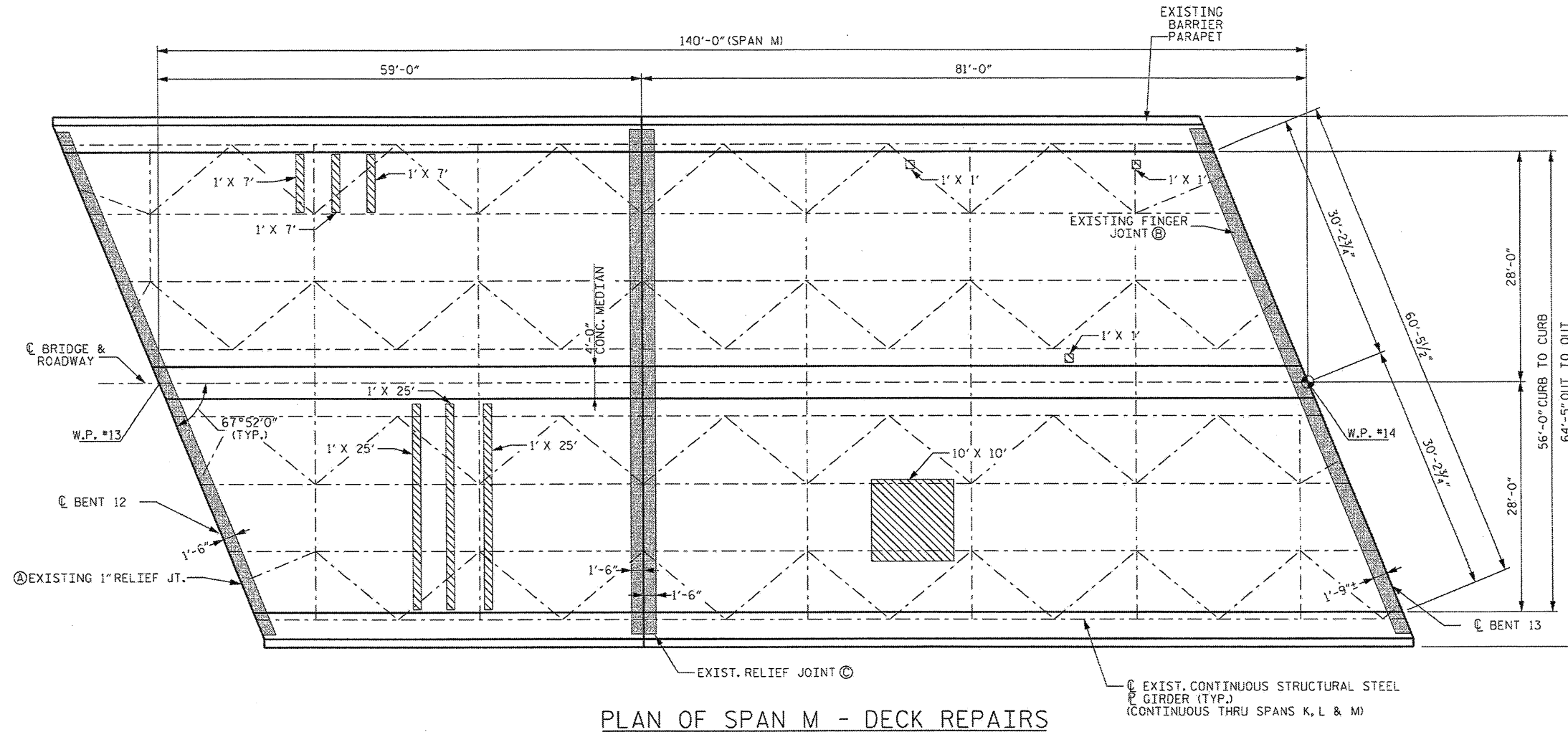
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NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DECK REPAIR DETAILS SPANS L					
DECK REHAB. FOR BRIDGE NO. 30					
REVISIONS					SHEET NO.
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Joseph J. Kelvington
 2/11/2012
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 J. KELVINGTON

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PLAN OF SPAN M - DECK REPAIRS

NOTES:

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EXISTING JOINT REPAIR
 CLASS II SURFACE PREPARATION
 CLASS III SURFACE PREPARATION

NOTES:
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PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

Joseph J. Kelvington
 2/1/11

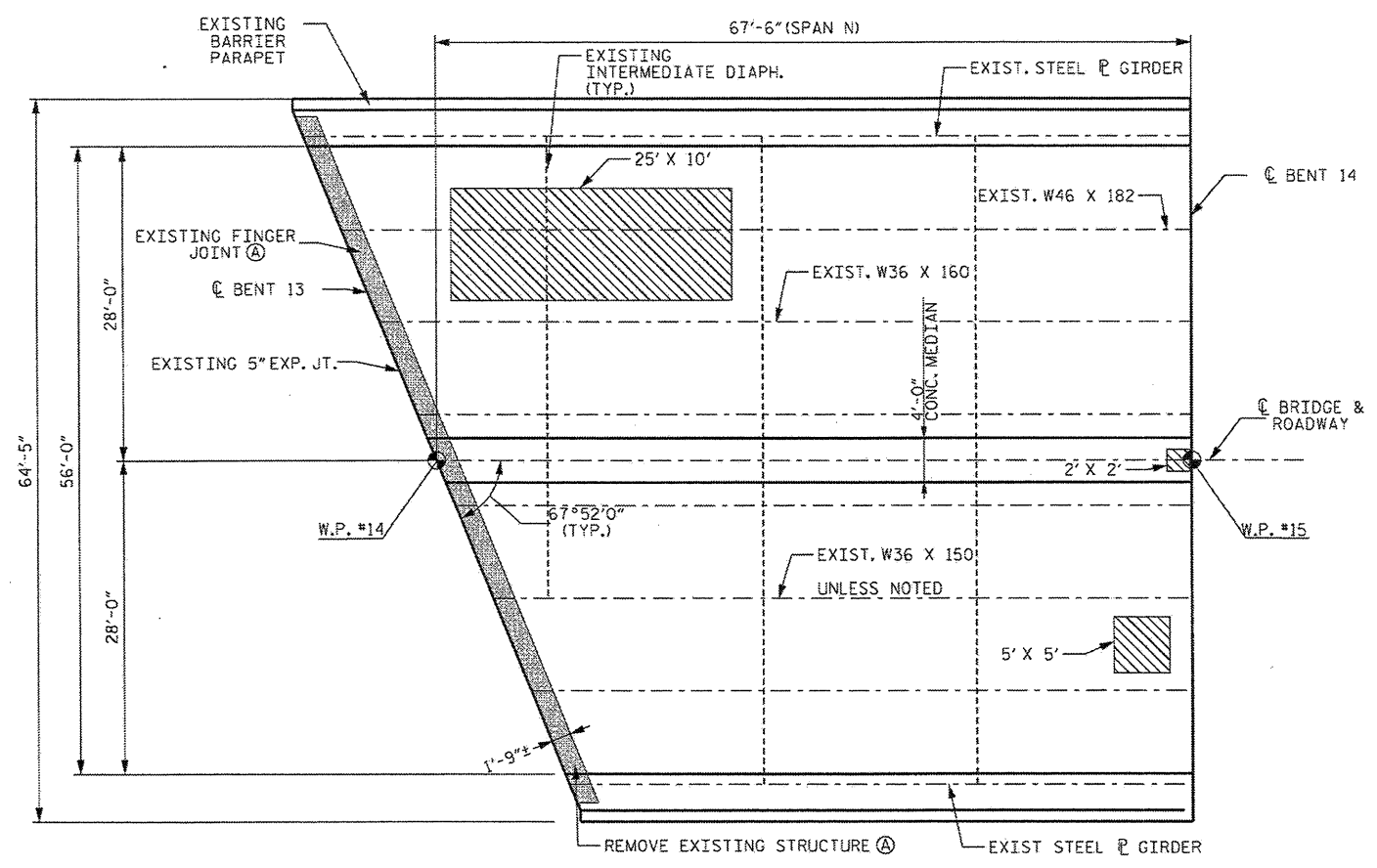
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK REPAIR DETAILS
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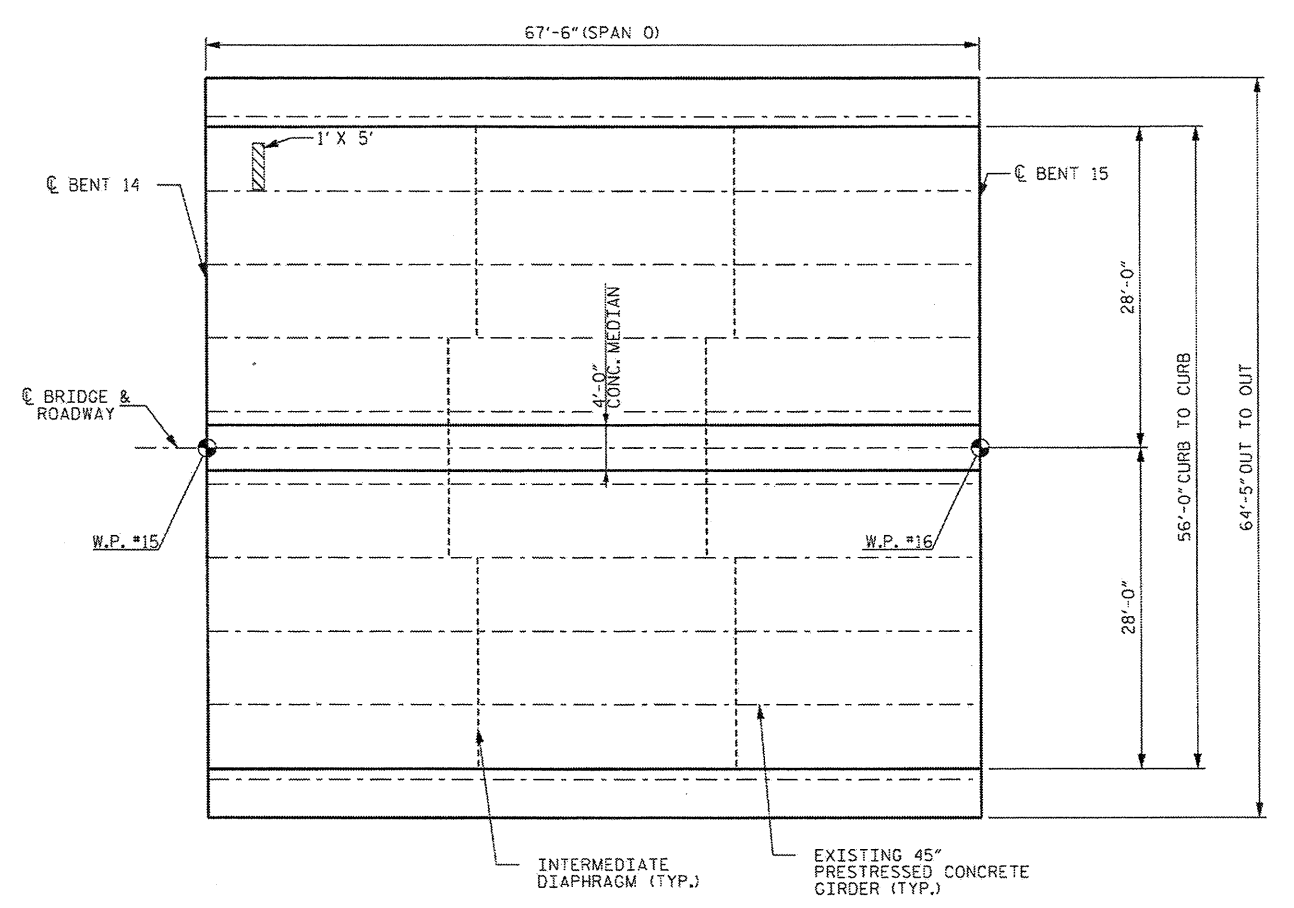
DECK REHAB. FOR BRIDGE NO. 30

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS 36	
2			4				

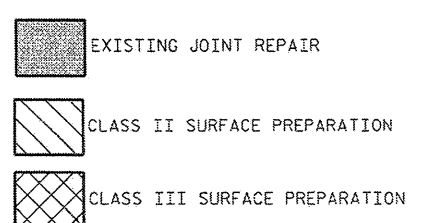
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PLAN OF SPAN N - DECK REPAIRS



PLAN OF SPAN O - DECK REPAIRS



NOTES:
 L' X W' = LENGTH OF AREA ALONG C BRIDGE X
 WIDTH OF AREA NORMAL TO C BRIDGE

NOTES:
 CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED AT THE PROJECT SITE.
 ALL DIMENSIONS ARE APPROXIMATE.
 CONTRACTOR SHALL FURNISH FORMWORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.
 SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.
 COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO DEMOLITION.
 Ⓐ EXISTING CONCRETE IN JOINT AREAS SHALL BE REMOVED AS SHOWN ON JOINT REPAIR SHEETS S-26 AND S-27. THIS WORK SHALL BE MEASURED AND PAID FOR AS PARTIAL REMOVAL OF EXISTING STRUCTURE.

SEE HYDRO DEMOLITION SPECIAL PROVISIONS.
 A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.
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PROJECT NO. WBS 17BP.3.H.1
 NEW HANOVER COUNTY
 STATION: _____

Joseph J. Kelvington
 SEAL
 13406
 ENGINEER
 JOSEPH J. KELVINGTON

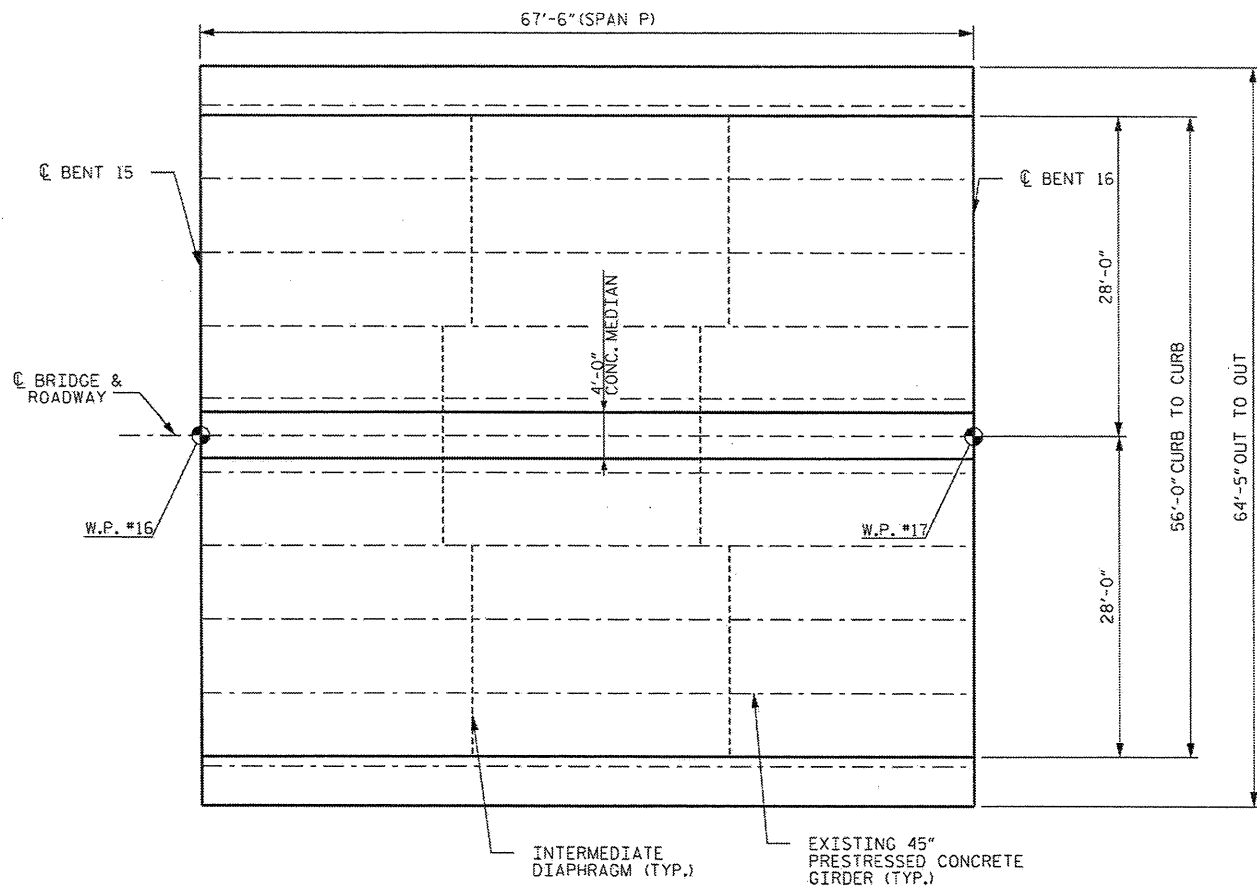
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DECK REPAIR DETAILS
 SPANS N & O
 DECK REHAB. FOR BRIDGE NO. 30

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16	
1			3			TOTAL SHEETS 36	
2			4				

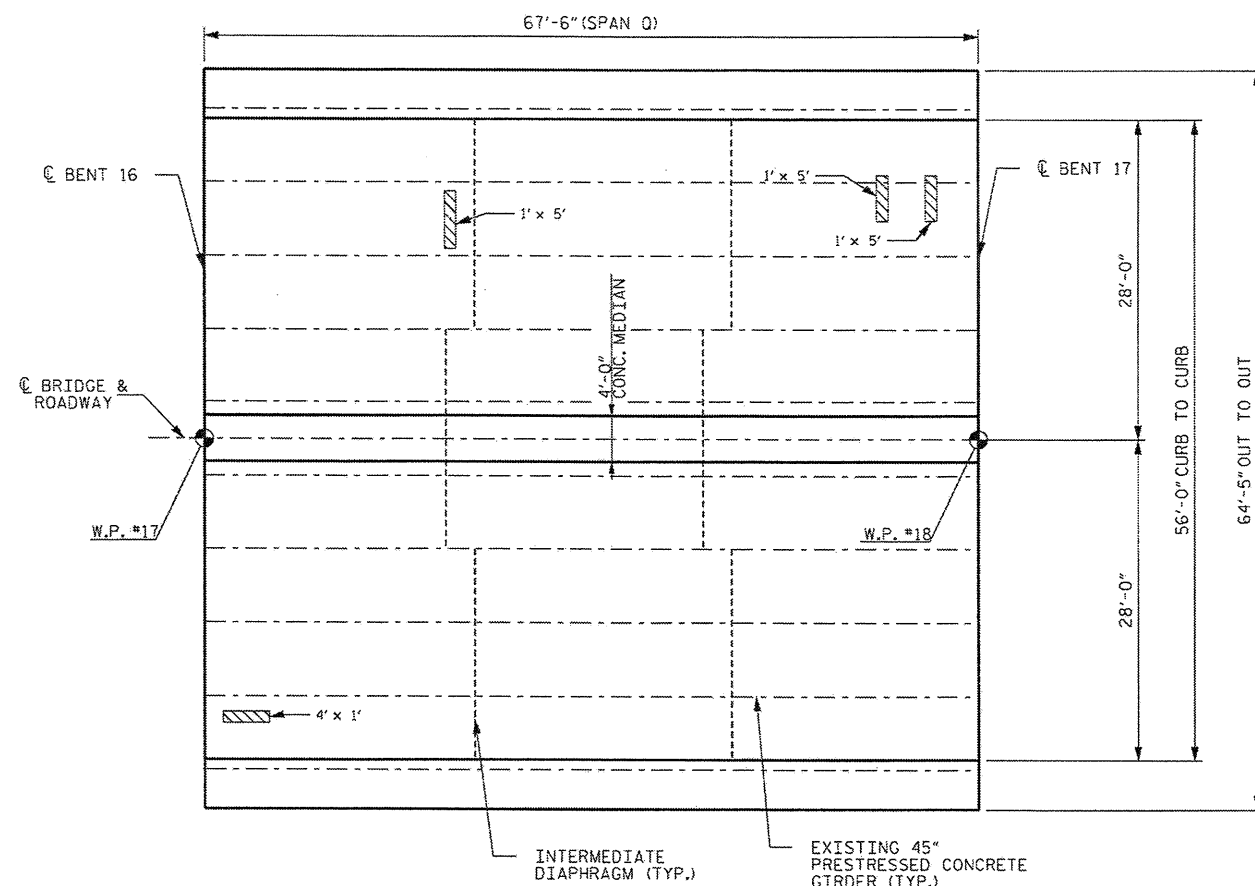
Stantec Consulting Services Inc.
 801 Jones Franklin Road
 Suite 300
 Raleigh, NC 27606
 Tel. (919) 851-6888
 Fax. (919) 851-7024
 www.stantec.com
 License No. F-0672

DRAWN BY: B T LATON DATE: 11/11
 CHECKED BY: J T KELVINGTON DATE: 11/11

J:\11000103\Transportation\Design\Structures\Bridges\Group 2011\WBS 17BP.3.H.1\New Hanover\Bridges 30\Drawings\DECK REPAIR SHEETS\NewHanover_30_DeckRepair_P_0.dgn 1/31/2012 5:46:38 PM D:\OTON



PLAN OF SPAN P - DECK REPAIRS



PLAN OF SPAN Q - DECK REPAIRS

- CLASS II SURFACE PREPARATION
- CLASS III SURFACE PREPARATION

NOTES:
 L' X W' = LENGTH OF AREA ALONG @ BRIDGE X
 WIDTH OF AREA NORMAL TO @ BRIDGE

NOTES:

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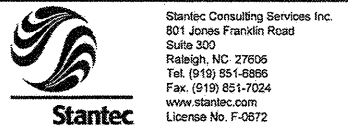
SEE HYDRO DEMOLITION SPECIAL PROVISIONS.

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PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____



DRAWN BY: B. T. LATON DATE: 11/11
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

Joseph Kelvington

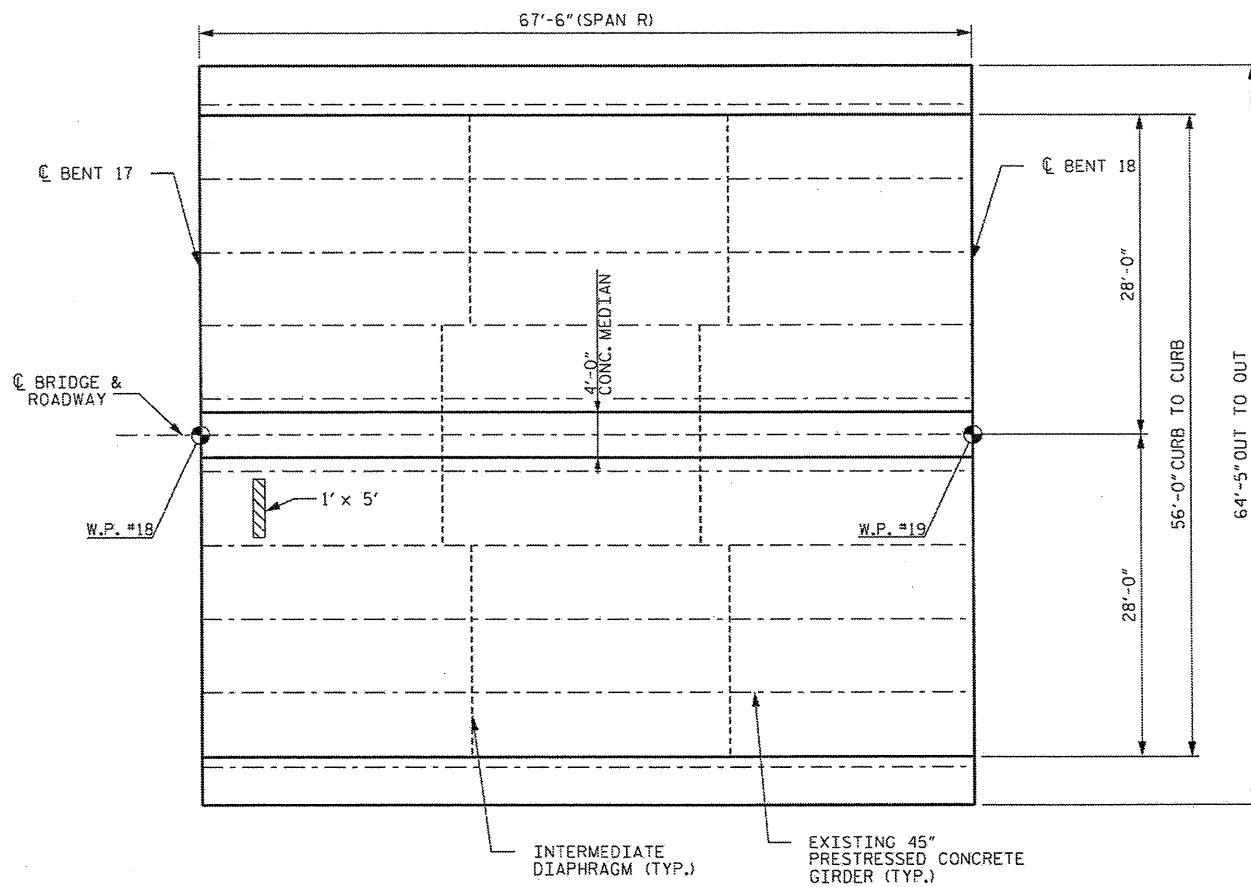
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DECK REPAIR DETAILS
 SPANS P & Q**

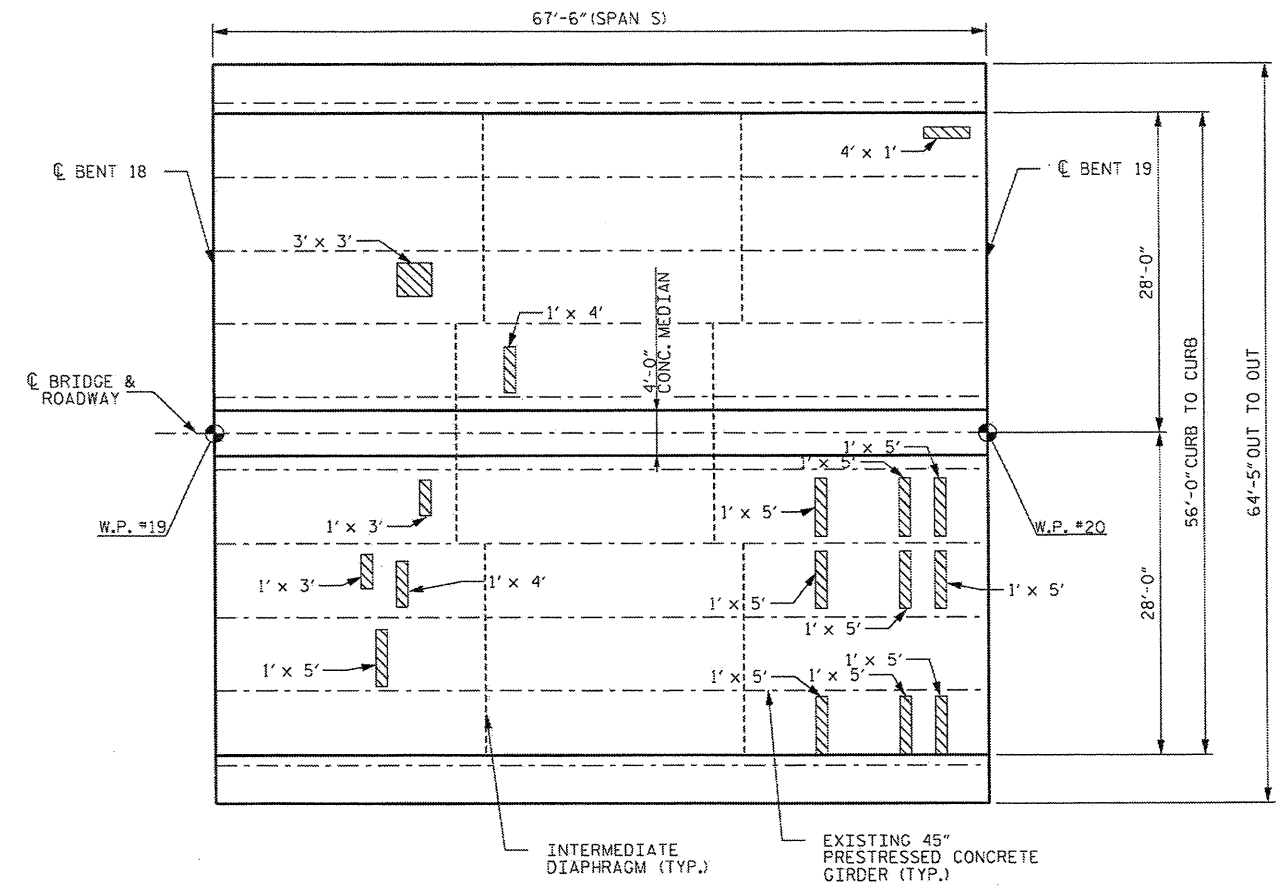
DECK REHAB. FOR BRIDGE NO. 30

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	5-17	
1			3			TOTAL SHEETS	36
2			4				

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PLAN OF SPAN R - DECK REPAIRS



PLAN OF SPAN S - DECK REPAIRS

NOTES:

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

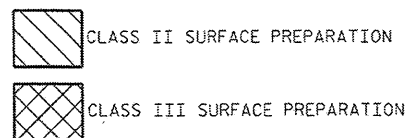
COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO DEMOLITION.

SEE HYDRO DEMOLITION SPECIAL PROVISIONS.

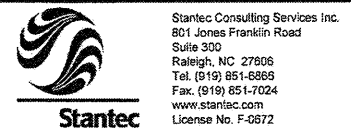
A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

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NOTES:
 L' X W' = LENGTH OF AREA ALONG @ BRIDGE X
 WIDTH OF AREA NORMAL TO @ BRIDGE



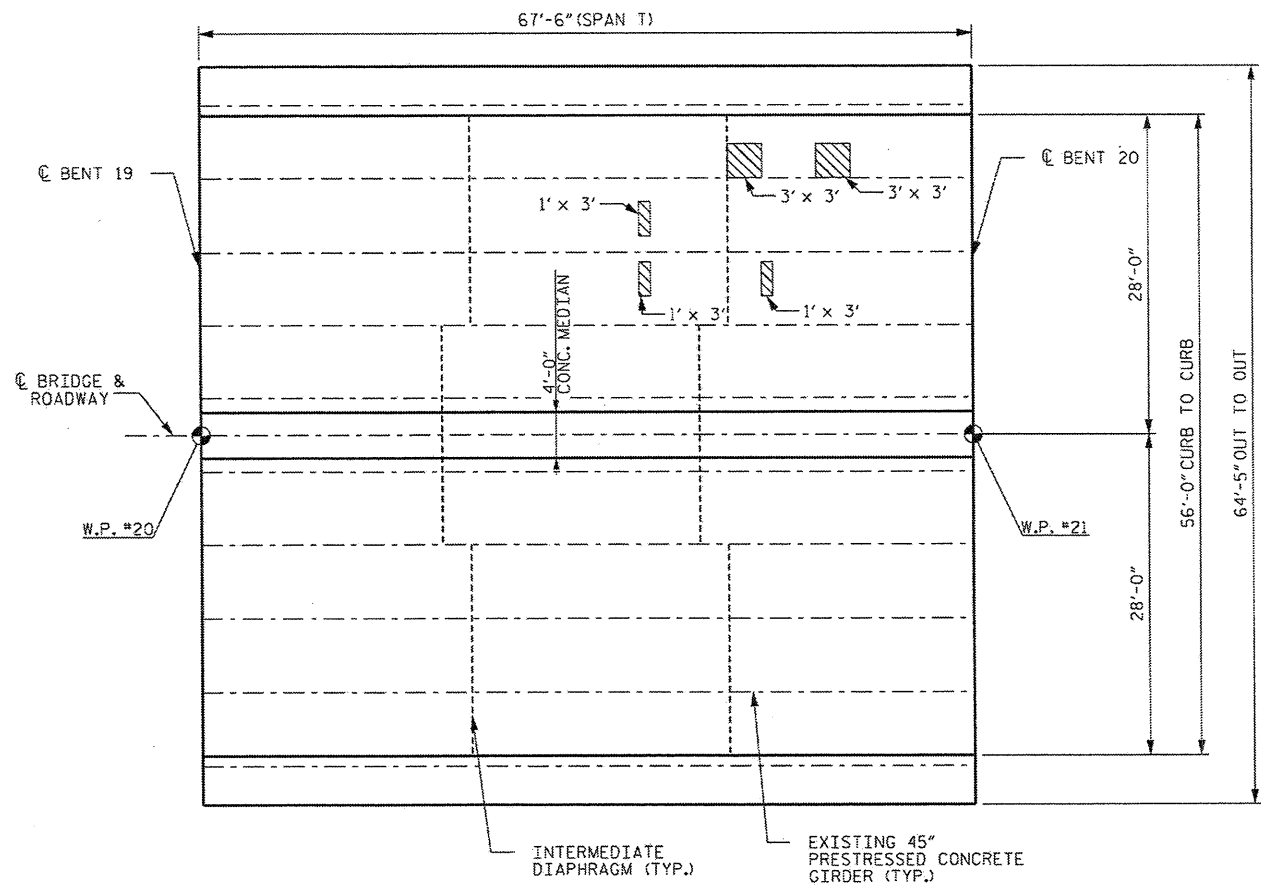
DRAWN BY: B. T. LATON DATE: 11/11
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

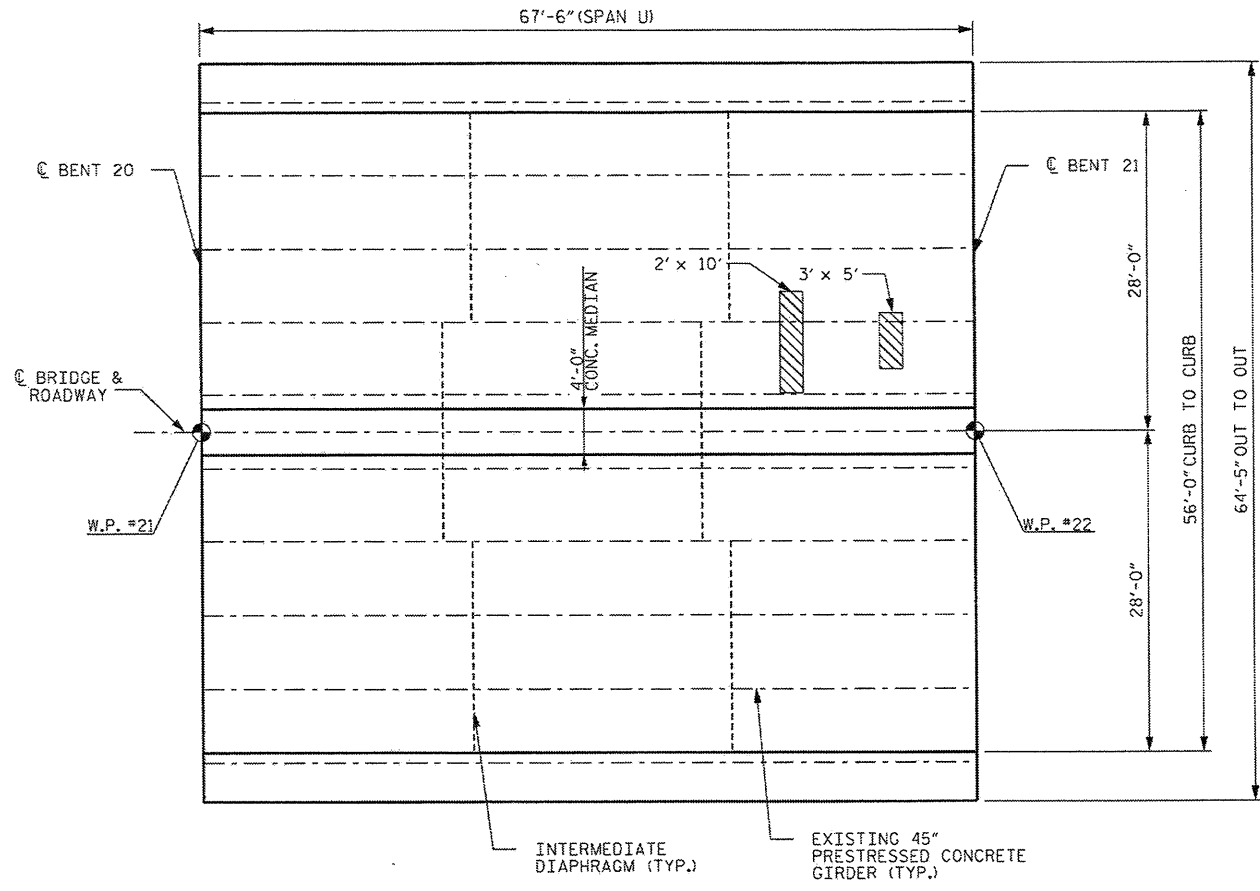
Joseph J. Kelvington
 2/1/12
 SEAL 13406
 ENGINEER
 J. T. KELVINGTON

STATE OF NORTH CAROLINA		SHEET NO.	
DEPARTMENT OF TRANSPORTATION		S-18	
RALEIGH		TOTAL SHEETS	
DECK REPAIR DETAILS		36	
SPANS R & S			
DECK REHAB. FOR BRIDGE NO. 30			
REVISIONS			
NO.	BY:	DATE:	NO.
1			3
2			4

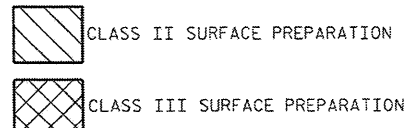
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PLAN OF SPAN T - DECK REPAIRS



PLAN OF SPAN U - DECK REPAIRS



NOTES:
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WIDTH OF AREA NORMAL TO C BRIDGE

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PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
STATION: _____

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 303
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0572

DRAWN BY: B. T. LATON DATE: 11/11
CHECKED BY: J. T. KELVINGTON DATE: 11/11

Joseph Kelvington
Professional Engineer Seal
SEAL 13406
ENGINEER
JOSEPH T. KELVINGTON

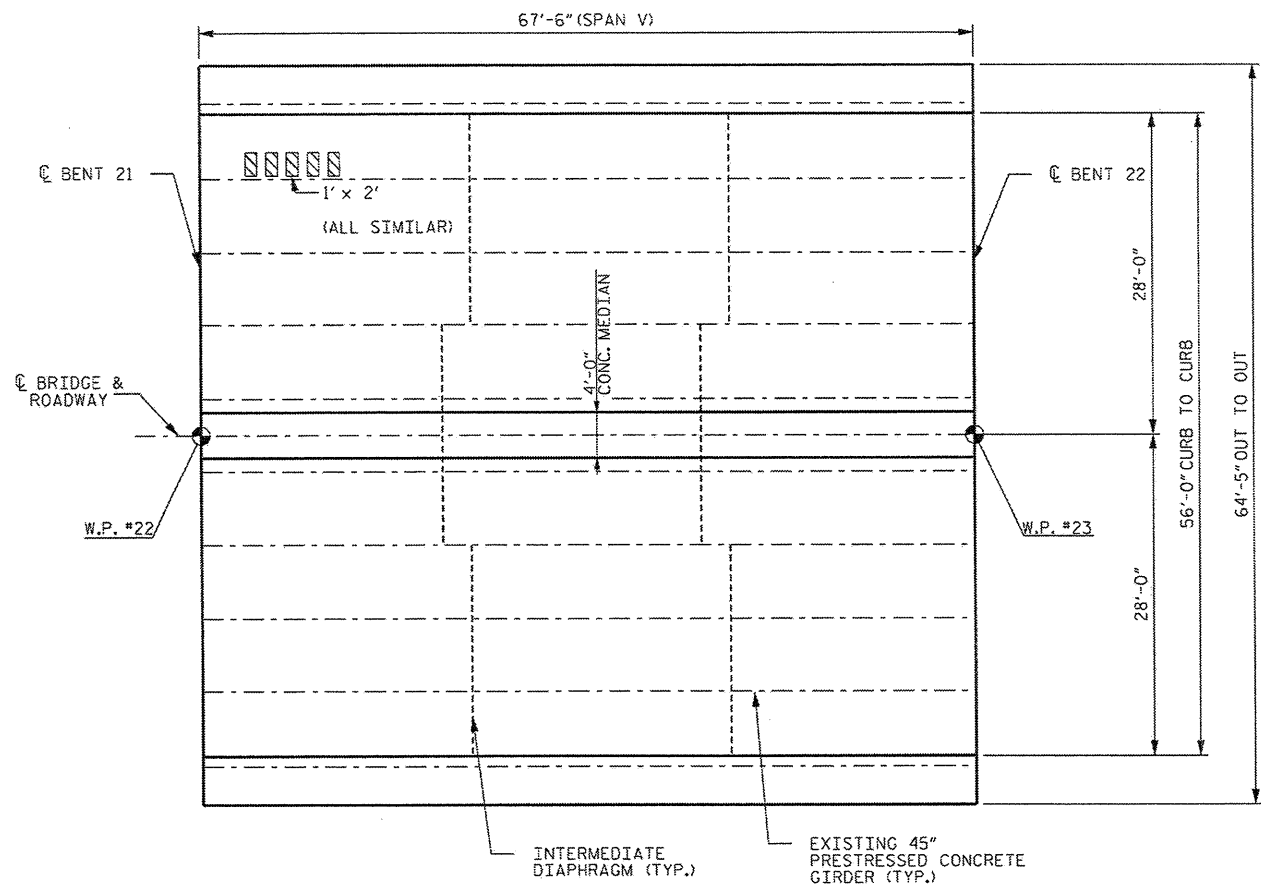
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIR DETAILS
SPANS T & U

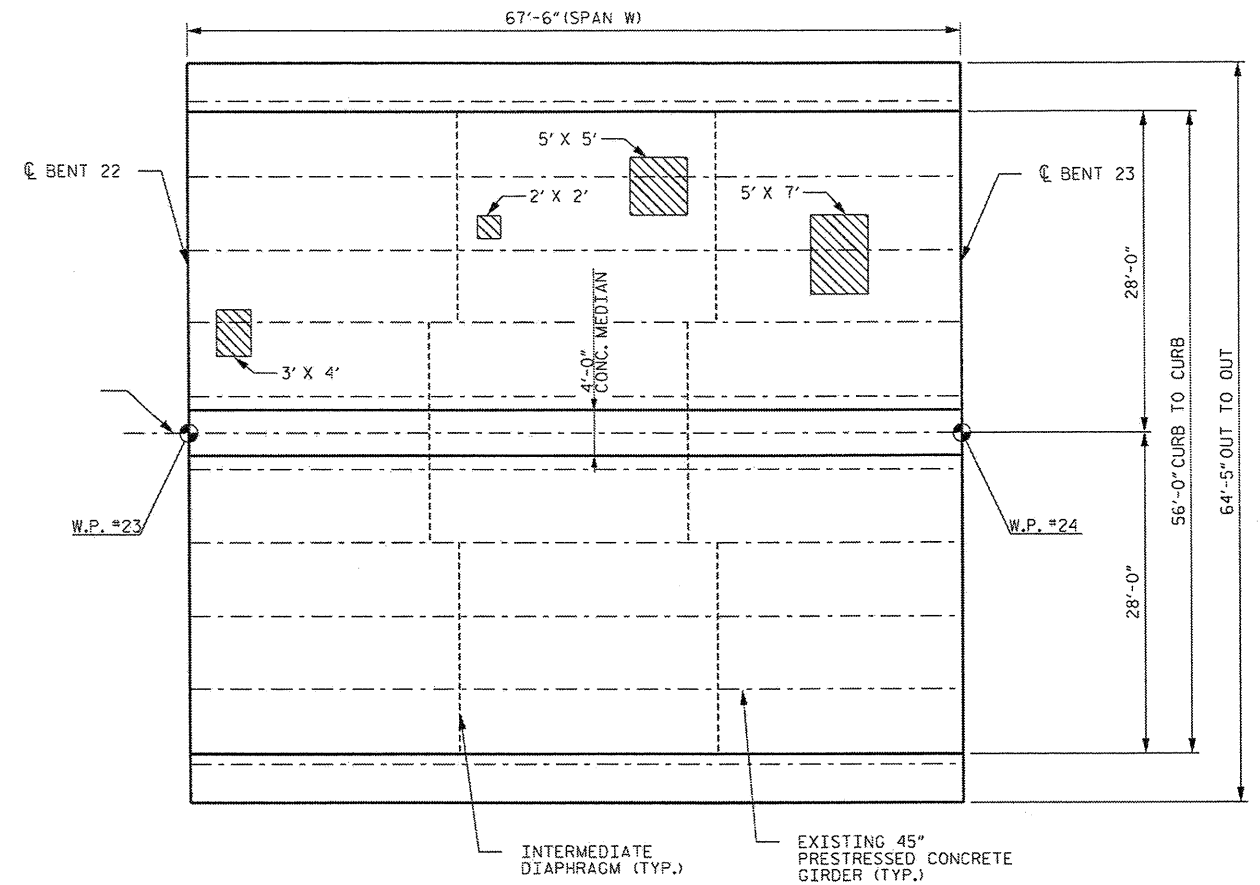
DECK REHAB. FOR BRIDGE NO. 30

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			

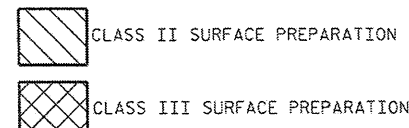
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PLAN OF SPAN V - DECK REPAIRS



PLAN OF SPAN W - DECK REPAIRS



NOTES:
L' X W' = LENGTH OF AREA ALONG C BRIDGE X
WIDTH OF AREA NORMAL TO C BRIDGE

NOTES:
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PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
STATION: _____

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
DECK REPAIR DETAILS
SPANS V & W
DECK REHAB. FOR BRIDGE NO. 30

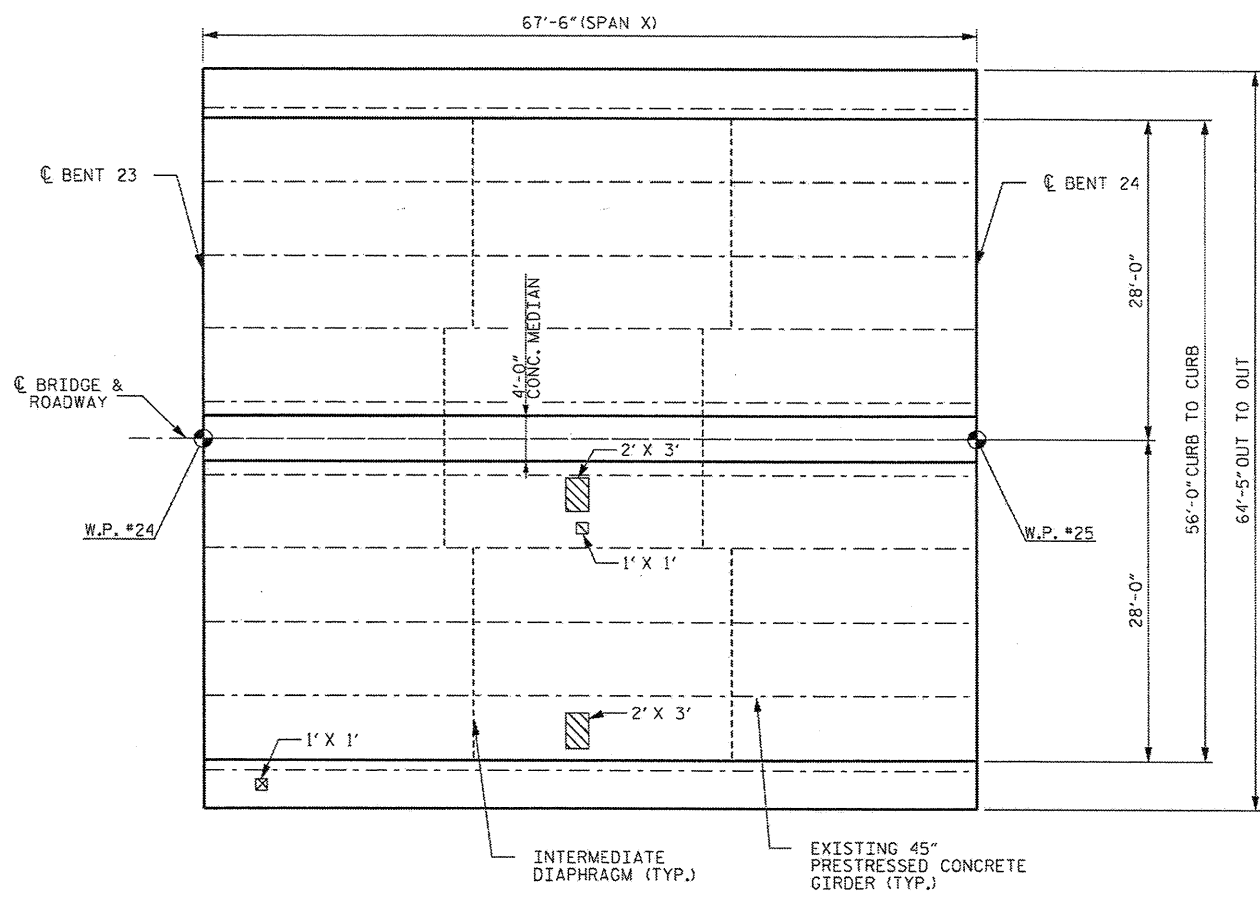
Joseph J. Kelvington
2/16/12
SEAL
13406
REGISTERED PROFESSIONAL ENGINEER
STATE OF NORTH CAROLINA
EXPIRES 12/31/12

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20	
1			3			TOTAL SHEETS	
2			4			36	

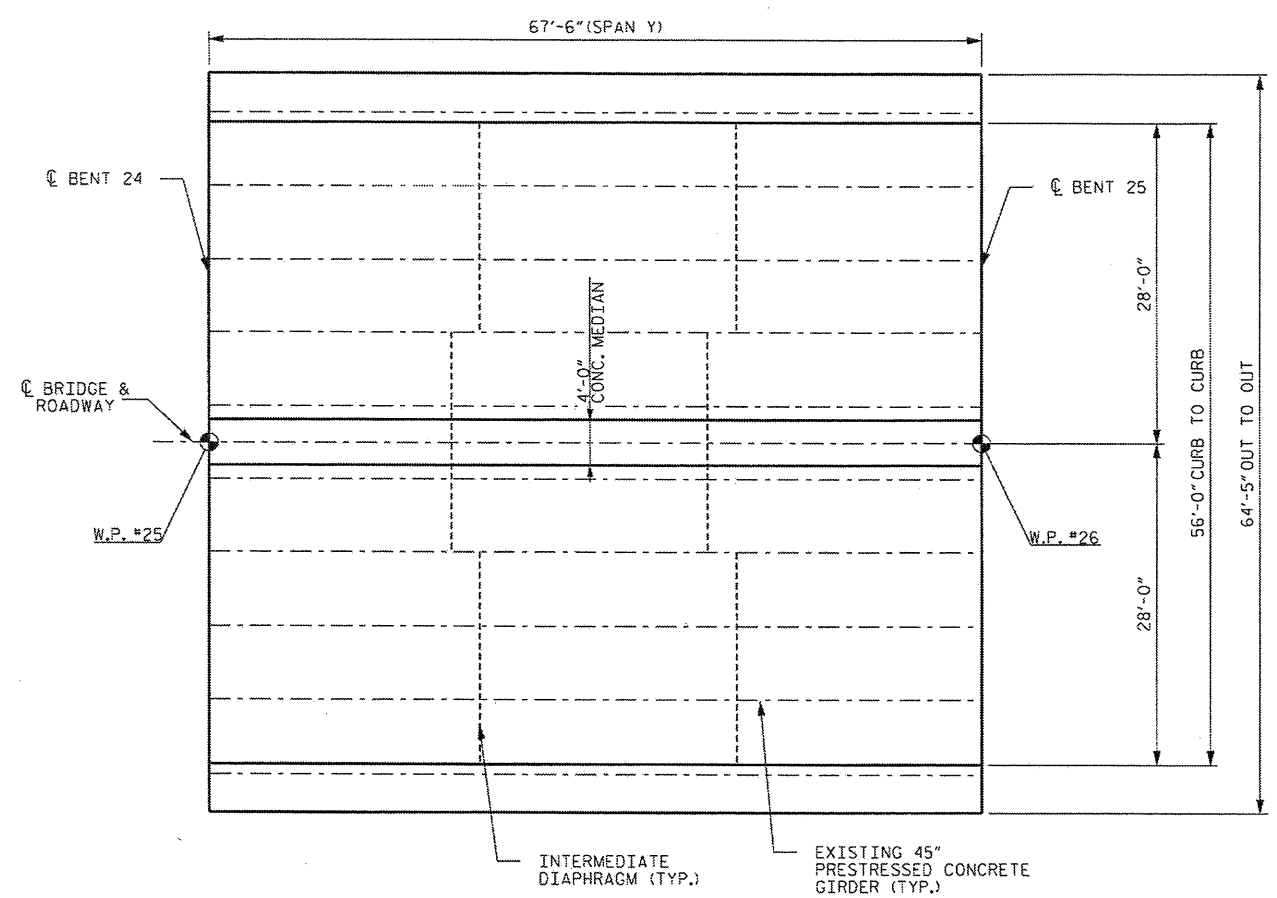
Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0872

DRAWN BY: B T LATON DATE: 11/11
CHECKED BY: J T KELVINGTON DATE: 11/11

J:\VTD0007\Transportation\Design\Structures\Bridges\Group 2010\WBS 17BP.3.H.1-New Hanover\Bridges 3D\Drawing\DECK REPAIR SHEETS\NewHanover3D_DeckRepair_X-Y.dgn 1/31/2012 5:46:45 PM blaton



PLAN OF SPAN X - DECK REPAIRS



PLAN OF SPAN Y - DECK REPAIRS

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PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

CLASS II SURFACE PREPARATION
 CLASS III SURFACE PREPARATION
 NOTES:
 L' X W' = LENGTH OF AREA ALONG © BRIDGE X WIDTH OF AREA NORMAL TO © BRIDGE

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK REPAIR DETAILS
 SPANS X & Y

DECK REHAB. FOR BRIDGE NO. 30

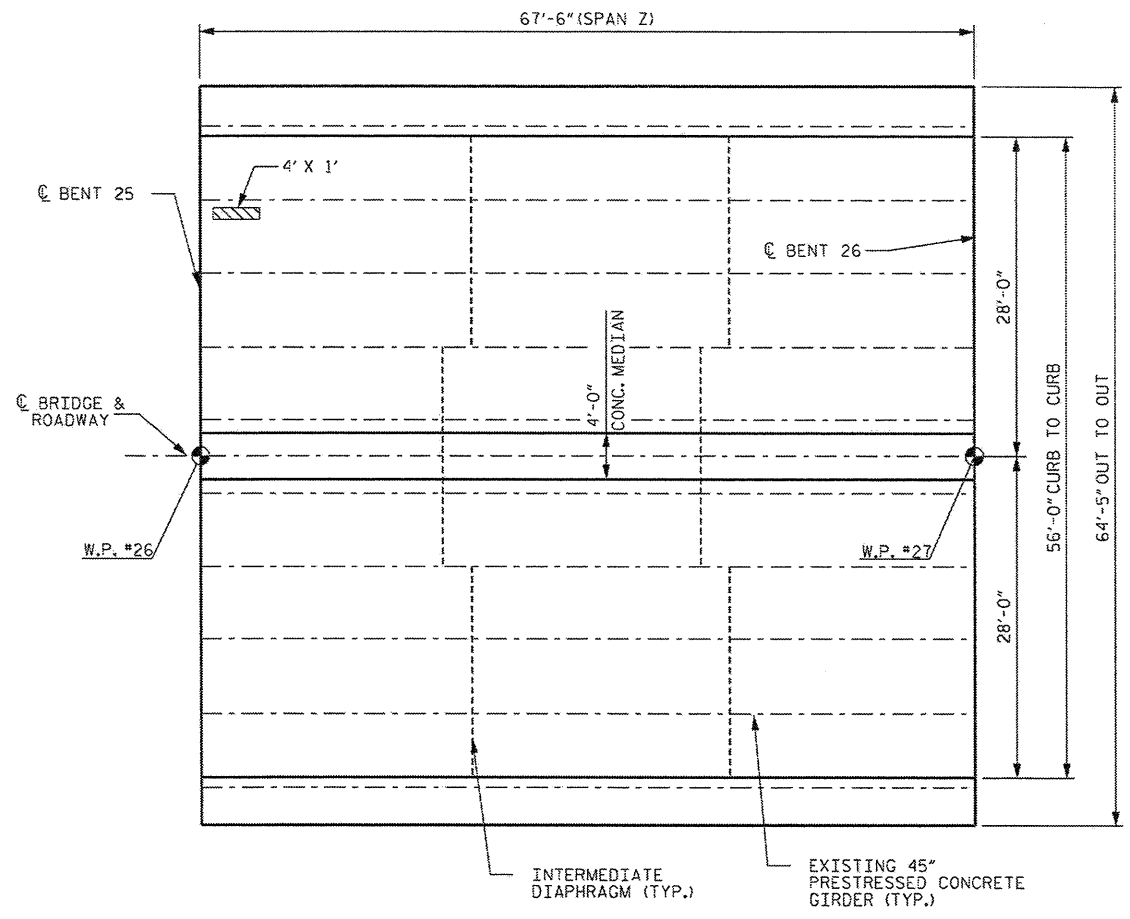
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	5-21	
1			3			TOTAL SHEETS	
2			4			36	

Joseph J. Kelvington
 SEAL 13406
 PROFESSIONAL ENGINEER
 STATE OF NORTH CAROLINA

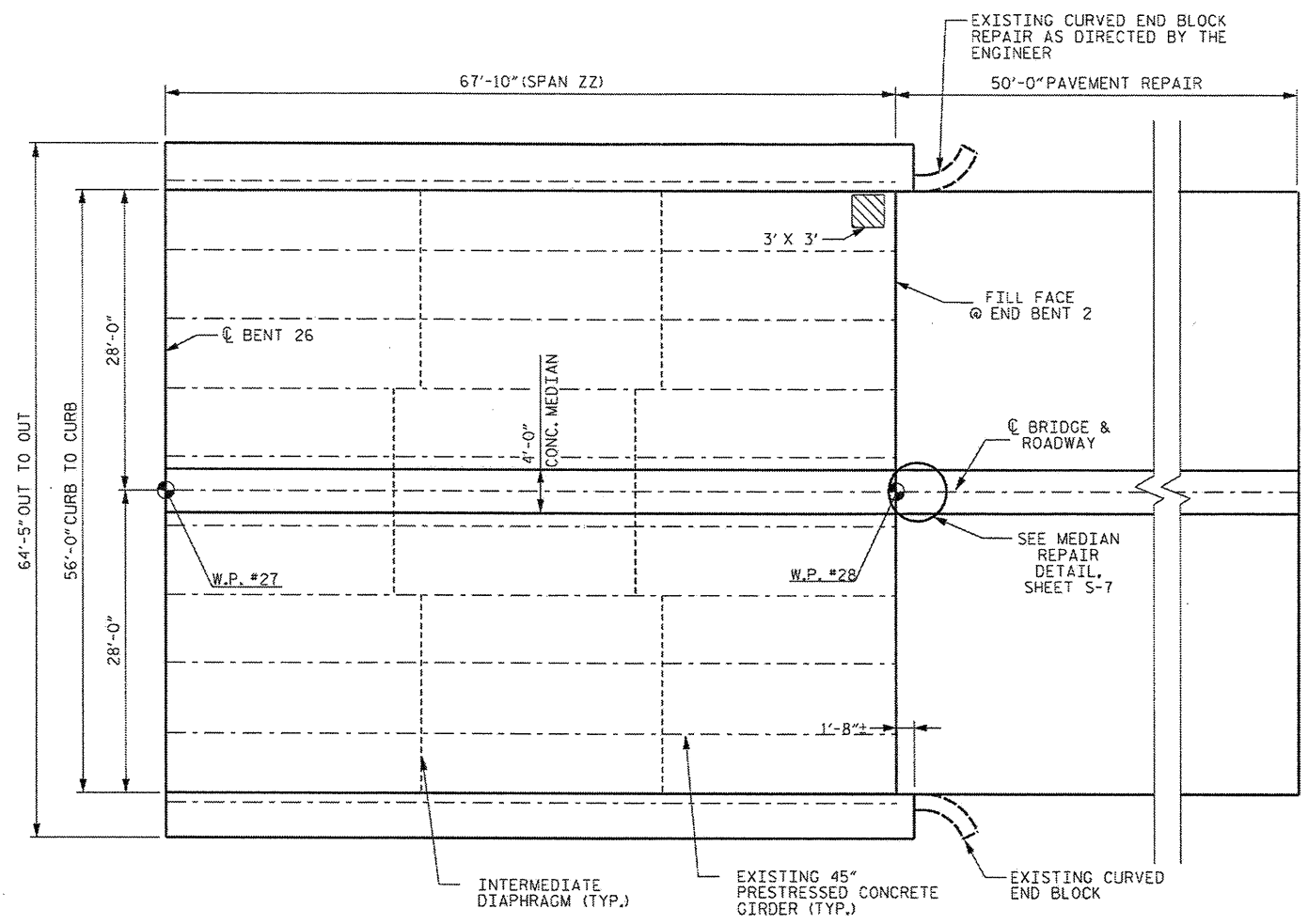
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 Raleigh, NC 27606
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 Fax. (919) 851-7024
 www.stantec.com
 License No. F-0672

DRAWN BY: B T LATON DATE: 11/11
 CHECKED BY: J T KELVINGTON DATE: 11/11

J:\17010107\Transportation\Design\Structures\Bridges\Group 2011\WBS 17BP.3.H.1-New Hanover\Bridges\Homover\Bridges\30-Dr-Dring\DECK REPAIR SHEETS\NewHomover\30-DeckRepair_Z.ZZ.dgn 5:46:47 PM Diotson 1/31/2012



PLAN OF SPAN Z - DECK REPAIRS



PLAN OF SPAN ZZ - DECK REPAIRS

CLASS II SURFACE PREPARATION
 CLASS III SURFACE PREPARATION
NOTES:
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PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

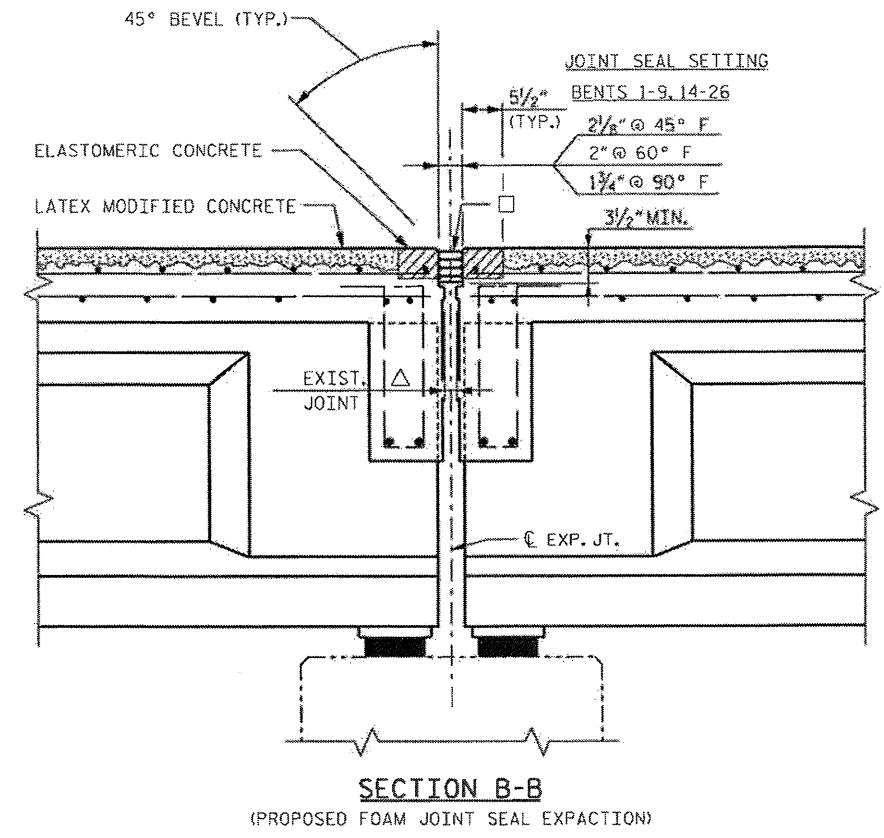
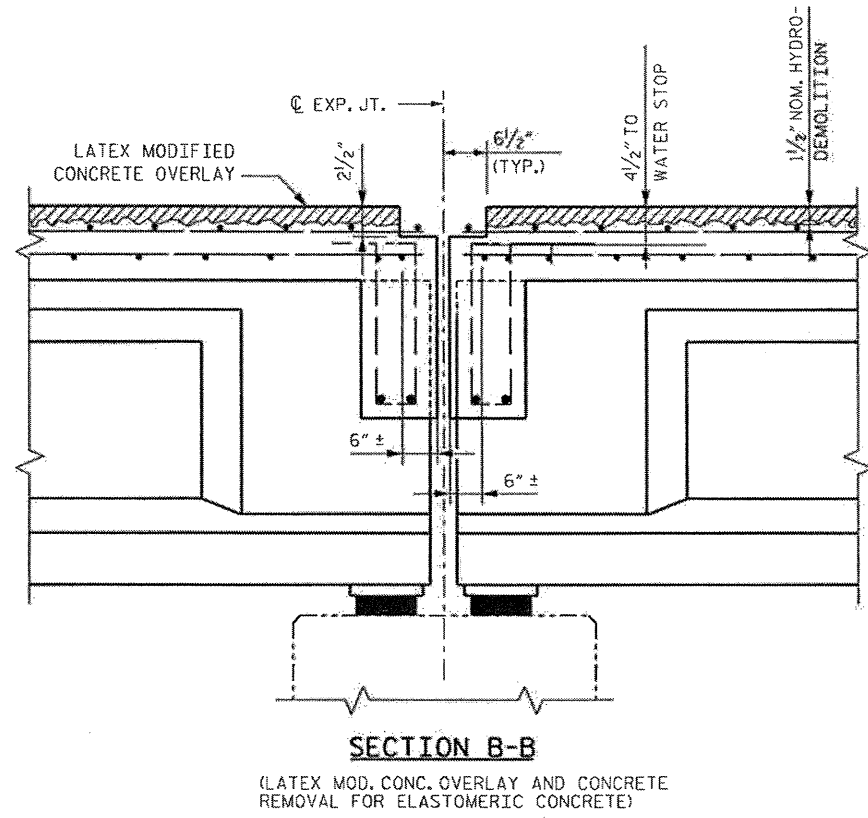
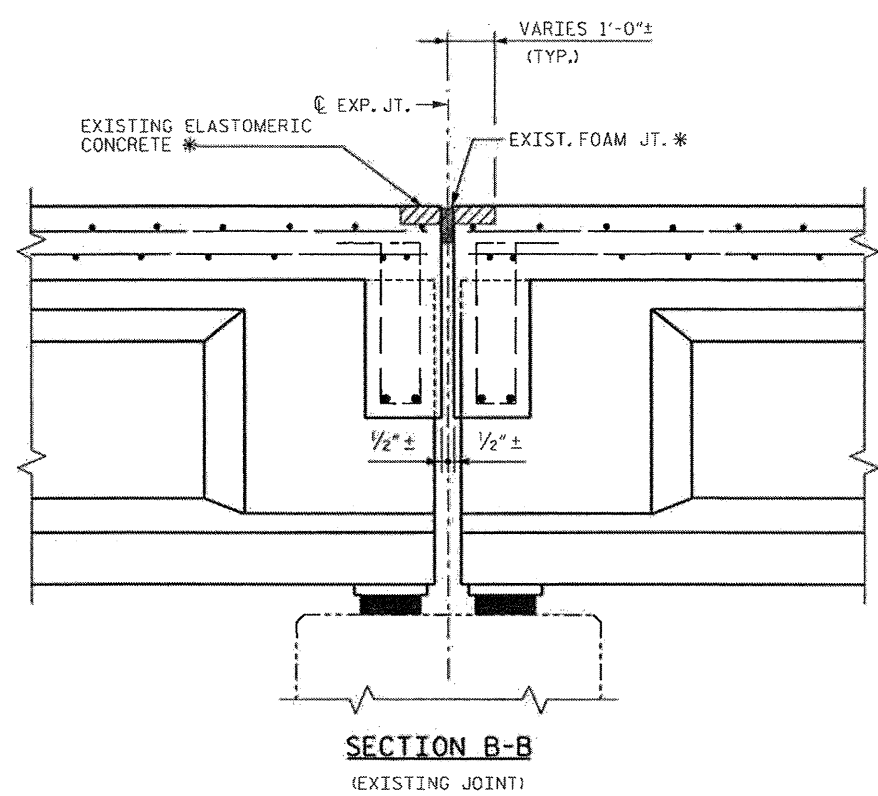
Stantec Consulting Services Inc.
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 www.stantec.com
 License No. F-0672

DRAWN BY: B T LATON DATE: 11/11
 CHECKED BY: J T KELVINGTON DATE: 11/11

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
DECK REPAIR DETAILS
SPANS Z & ZZ
DECK REHAB. FOR BRIDGE NO. 30

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	5-22	
1			3			TOTAL SHEETS	
2			4			36	

U:\Structures\Bridges\Group 2011\WBS 17BP.3.H.1\New Hanover\Bridges\Deck Repair Sheets\EXPANSION JOINT DETAIL.dwg 4/26/2012 4:56:20 PM jps/ib



REMOVE ALL EXISTING ELASTOMERIC CONCRETE AND FOAM JOINT SEALS. NO SEPARATE PAYMENT FOR THIS WORK SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR HYDRO-DEMOLITION.

NOTE: RETAIN ALL EXIST. REINF. STEEL, CLEAN AND REPAIR AS REQ'D.
 PRESTRESSED GIRDER SHOWN, DETAIL SIMILAR FOR STEEL GIRDER

* FROM BEST AVAILABLE INFORMATION.

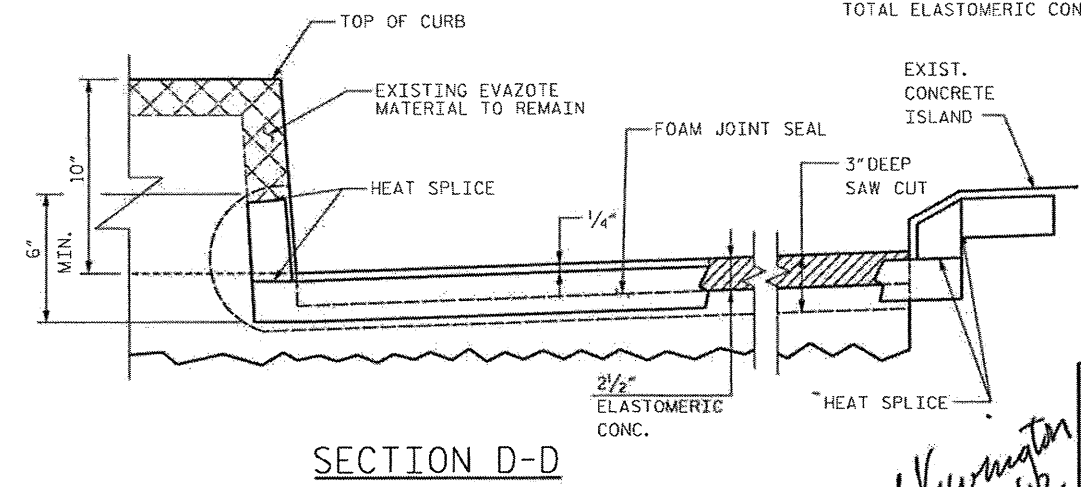
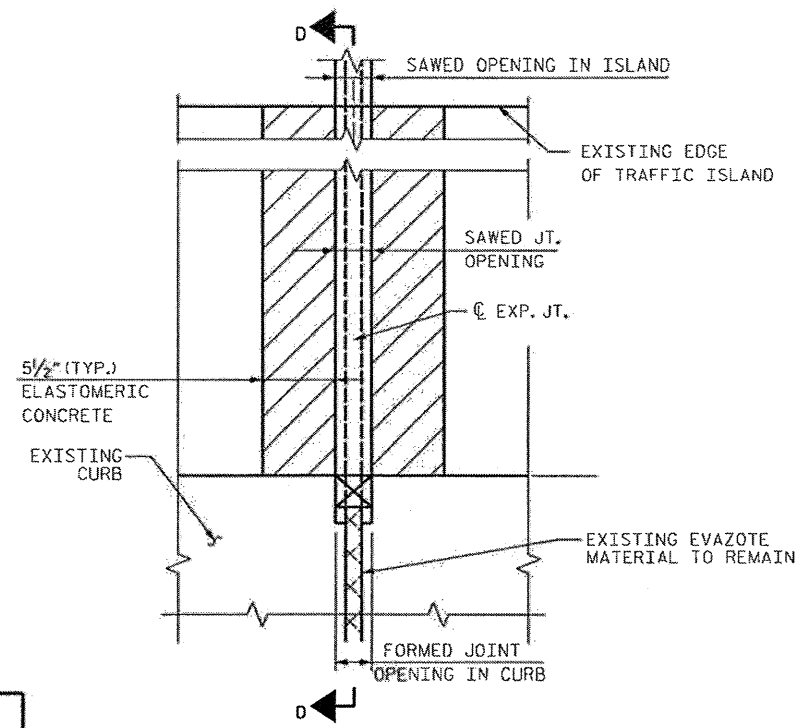
ALL EXISTING JOINT SEAL MATERIALS EXPOSED BY DECK REPAIRS SHALL BE REMOVED. OTHERWISE, LEAVE EXISTING MATERIALS IN PLACE.

□ USE 2.8125" X 2.5" UNCOMPRESSED FOAM JT. SEAL MATERIAL
 △ 1" FORMED OPENING
 FOR FOAM JOINT SEAL, SEE SPECIAL PROVISIONS.
 THE INSTALLED EVAZOTE JOINT SEALS SHALL BE WATERTIGHT
 THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.

EXPANSION JOINT REPLACEMENT DETAILS (BENTS 1-9, 14-26)

ELASTOMERIC CONCRETE			
LOCATION	QTY PER BENT	NO. OF BENT	TOTAL
BENTS 1 THRU 9	9.9 C.F.	9	89.1
BENTS 14 THRU 26	9.9 C.F.	13	128.7

TOTAL ELASTOMERIC CONC. = 217.8 C.F.
 TOTAL ELASTOMERIC CONC. = 8.1 C.Y.



CONTRACTOR SHALL EXERCISE CARE TO AVOID CUTTING OR DAMAGING EXISTING REINF. STEEL.

Joseph J. K... 11/30/12
 PROFESSIONAL SEAL
 SEAL 13406
 JOSEPH J. KELVINGTON
 CIVIL ENGINEER

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

EXPANSION JOINT DETAIL

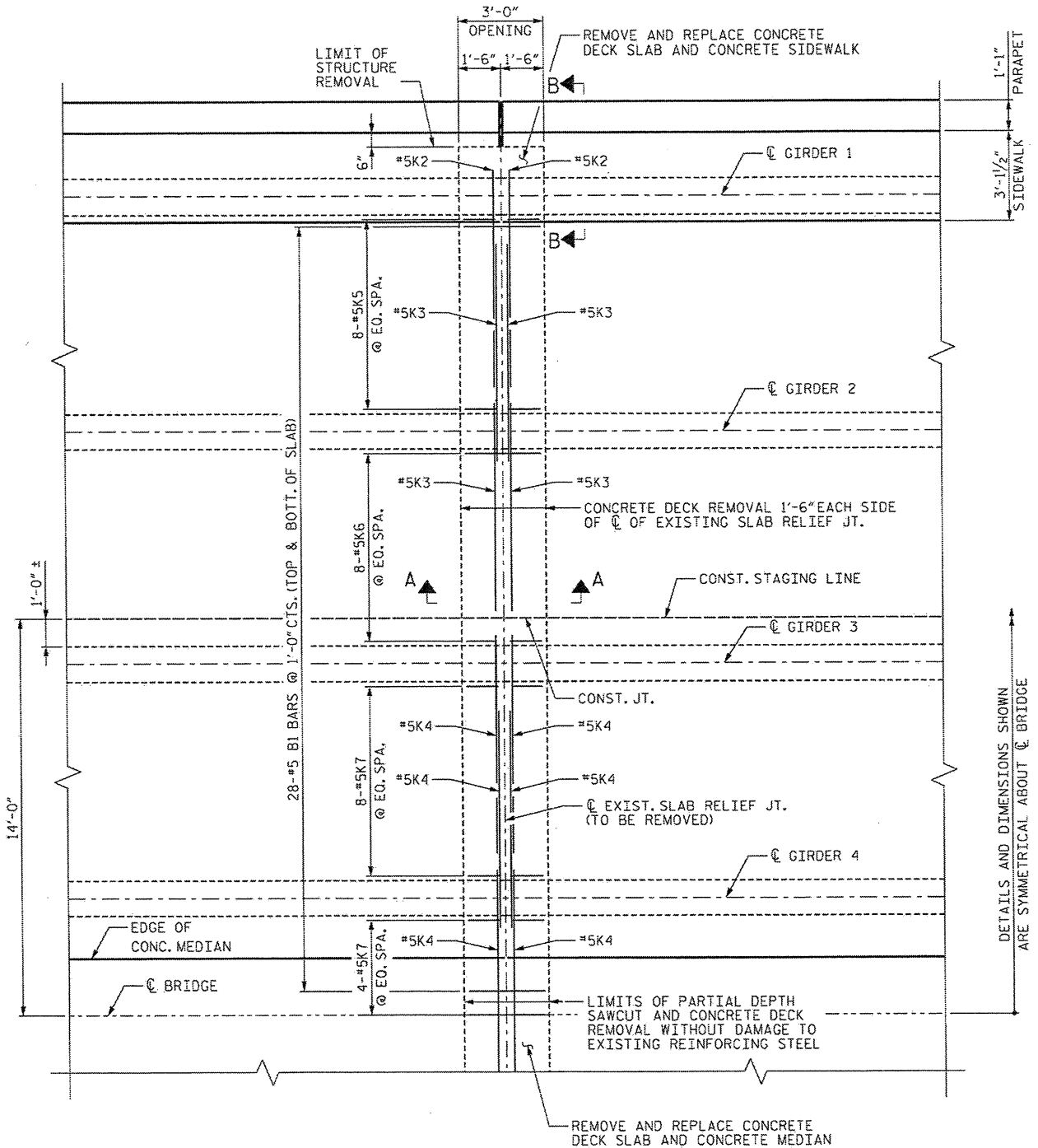
DECK REHAB. FOR BRIDGE NO. 30

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23	
1			3			TOTAL SHEETS	
2			4			36	

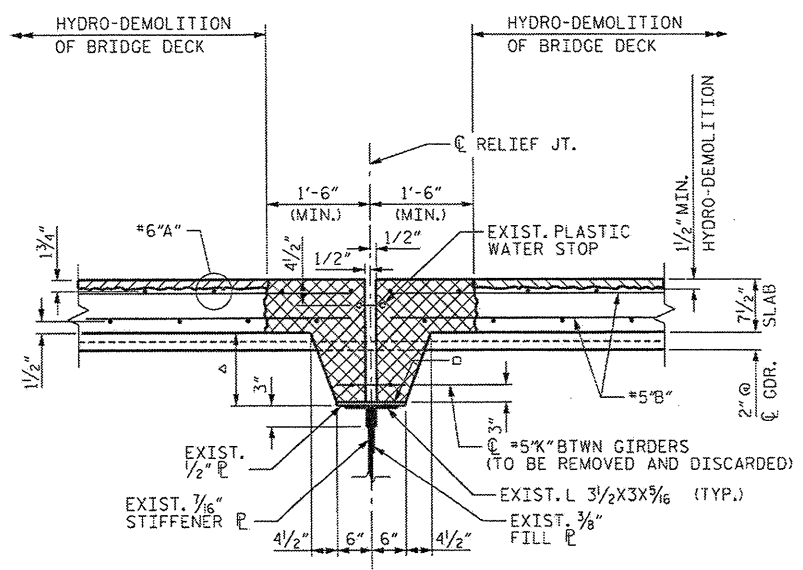
Stantec
 Stantec Consulting Services Inc.
 801 Jones Franklin Road
 Suite 300
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 Fax. (919) 851-7024
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DRAWN BY: B T LATON DATE: 11/11
 CHECKED BY: J T KELVINGTON DATE: 11/11

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HALF SLAB MID-SPAN JOINT REPAIR
SPANS K, L, AND M

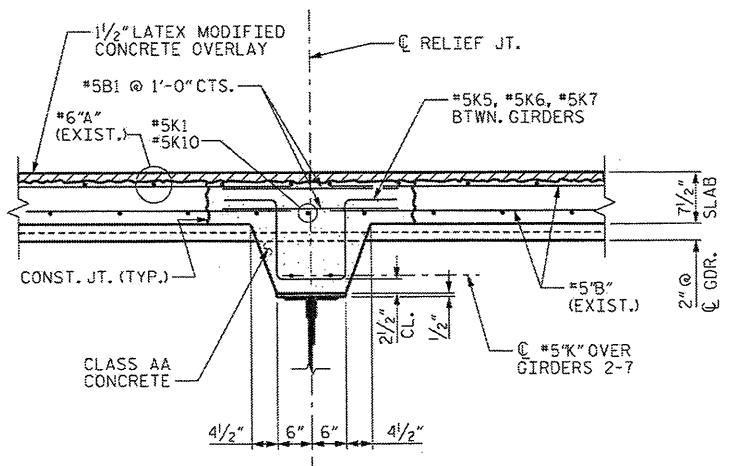


REMOVE ALL EXISTING CONCRETE IN CROSS-HATCHED AREA TO MIN. LIMITS SHOWN. RETAIN EXIST. STEEL EXCEPT AS NOTED. CONTRACTOR SHALL EXERCISE CARE TO ENSURE THAT EXIST. STEEL IS UNDAMAGED BY CONCRETE REMOVAL ACTIVITIES.

□ THOROUGHLY CLEAN EXPOSED STEEL SURFACES TO REMOVE ALL RUST AND CONTAMINATED CONCRETE.

▲ DIMENSION VARIES. (5 1/4" ± @ GRDR 1 & B, 10" ± @ GRDR. 4 & 5, 8" AVG.) CONTRACTOR SHALL VERIFY IN THE FIELD

EXISTING SECTION A-A



PROPOSED SECTION A-A

ALL PROPOSED REINFORCING STEEL SHALL BE EPOXY COATED.

CONCRETE IN SIDEWALK AND MEDIAN SHALL BE CAST AFTER DECK AND DIAPHRAGM HAS BEEN PLACED AND CURED A MINIMUM OF 7 DAYS.

CONCRETE DIAPHRAGMS, SIDEWALK, MEDIAN, AND DECK SLAB SHALL BE RECONSTRUCTED TO MATCH EXISTING SURFACES AS SHOWN. COSTS FOR ALL MATERIALS, LABOR AND INCIDENTALS REQUIRED FOR THIS WORK WILL BE PAID FOR AT THE UNIT PRICE BID FOR REINFORCED CONCRETE DECK SLAB.

BAR TYPES					
K2	2'-3"				
K3	5'-6"				
K4					
11" (GDRS. 1,8)					
1'-0" (GDRS. 2,7)					
1'-1" (GDRS. 3-6)					
1					
2					
BAY 1,7					
BAY 2,6					
BAY 3-5					
9"					
10"					
11 1/2"					
1'-0"					
K5					
K6					
K7					

ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
1 JOINT SHOWN (3 REQ'D.)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	112	#5	STR	2'-8"	312
*K1	1	#5	STR	27'-8"	29
*K2	4	#5	1	8'-8"	36
*K3	8	#5	1	8'-9"	73
*K4	12	#5	1	8'-10"	111
*K5	16	#5	2	4'-2"	70
*K6	16	#5	2	4'-5"	74
*K7	24	#5	2	4'-6"	113
*K10	2	#5	STR	15'-0"	31
REINFORCING STEEL					LBS.
*EPOXY COATED REINFORCING STEEL					LBS. 849
CLASS AA CONCRETE					C. Y. 6.1

NOTES:

DECK REMOVAL SHALL BE PERFORMED BY FIRST INTRODUCING A PARTIAL DEPTH SAWCUT (1" MAX DEPTH) FOLLOWED BY CONCRETE REMOVAL WITH A CHIPPING HAMMER IN THE RANGE OF 15 LBS.. CARE SHALL BE TAKEN SO AS TO PREVENT DAMAGE TO EXISTING DECK REINFORCING STEEL AND EXISTING GIRDERS.

WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL NOT BE PERMITTED.

REMOVE CONCRETE TO LIMITS SHOWN IN EXISTING SIDEWALK AND MEDIAN THRU THE DECK SLAB. RETAIN ALL EXISTING REINFORCING STEEL EXPOSED IN SIDEWALK AND MEDIAN. SIDEWALK AND MEDIAN SECTIONS SHALL BE RECONSTRUCTED TO MATCH EXISTING SURFACES.

FOR SECTION B-B, SEE SHEET S-28.

REINFORCED DECK SLAB (1 JOINT) = 184 SQ. FT.

PROJECT NO. **WBS 17BP.3.H.1**
 NEW HANOVER COUNTY
 STATION: _____

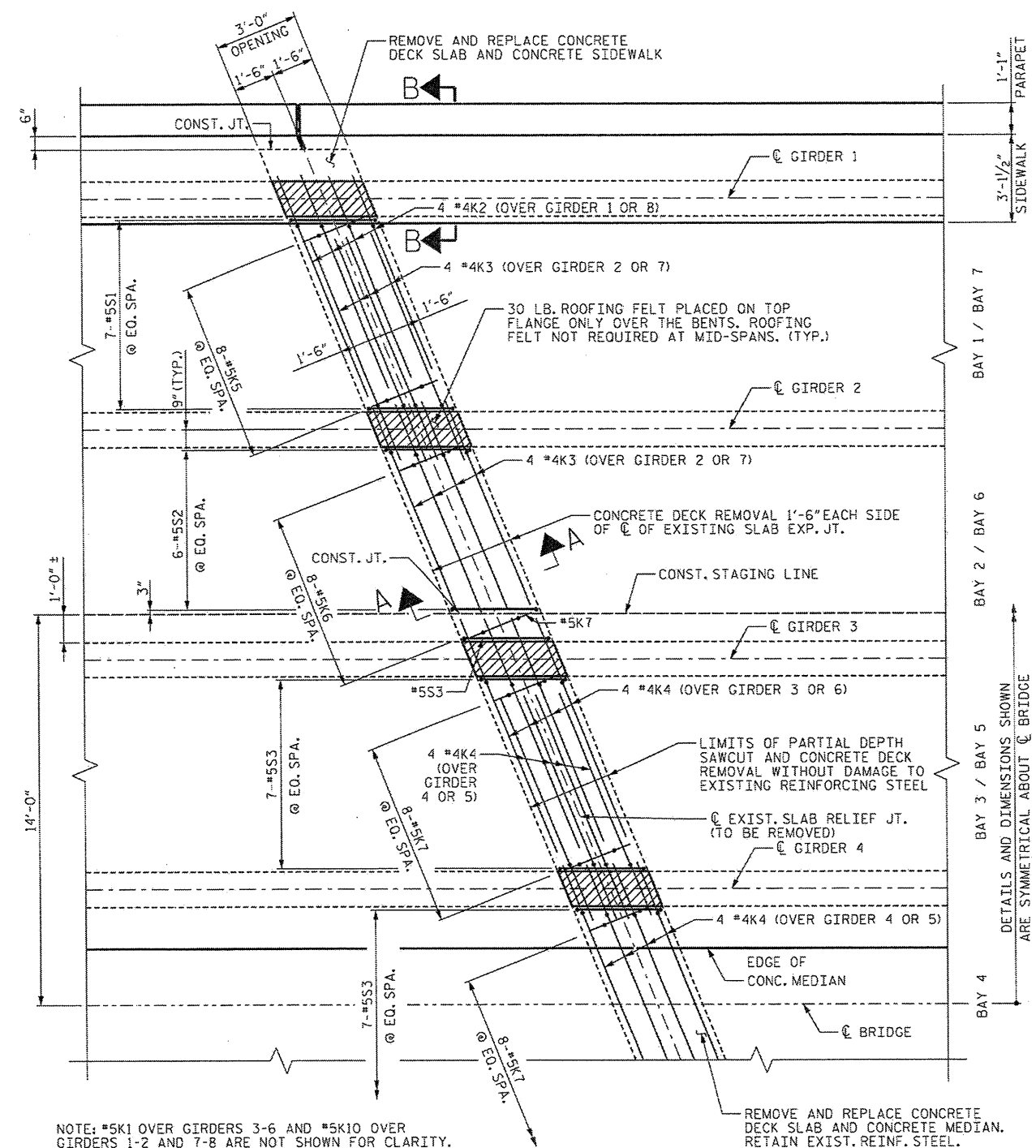
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE JOINT AND SLAB REPAIR DETAILS 1					
REHABILITATE BRIDGE NO. 30					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-24
TOTAL SHEETS					36

Joseph J. K... 10/11

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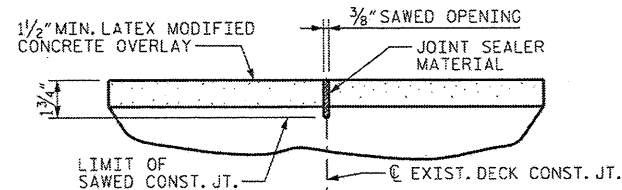
DRAWN BY: **B T LATON** DATE: **10/11**
 CHECKED BY: **J T KELVINGTON** DATE: **10/11**

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 2011\WBS 17BP.3.H.1-New Hanover\Bridges 30\Drawings\NewHanover\30_Sup\15\Kelp\12.dgn

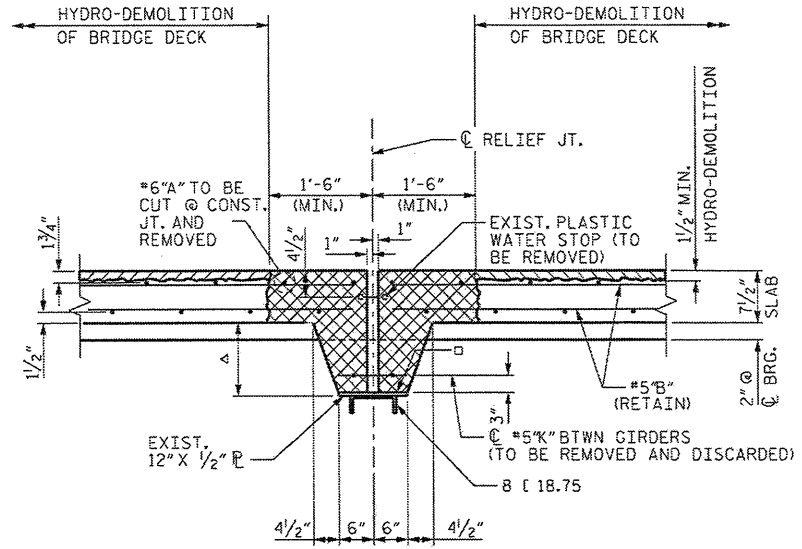


NOTE: #5K1 OVER GIRDERS 3-6 AND #5K10 OVER GIRDERS 1-2 AND 7-8 ARE NOT SHOWN FOR CLARITY.

**HALF SLAB BENT JOINT REPAIR
@ BENT 11 AND BENT 12**



DETAIL "A"

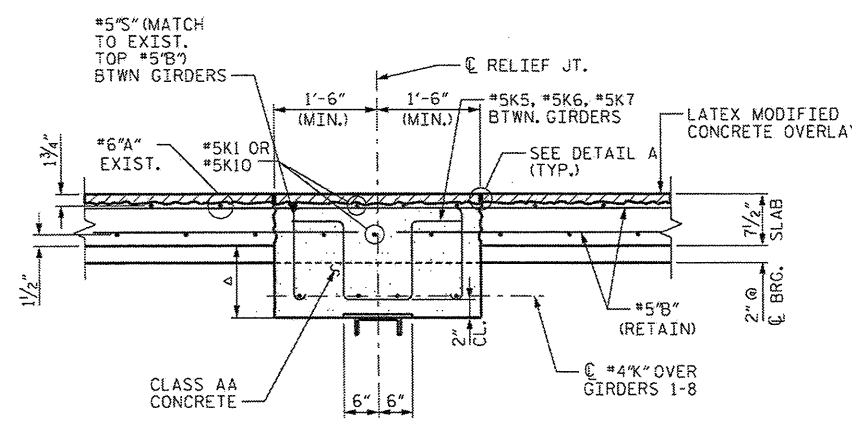


REMOVE ALL EXISTING CONCRETE IN CROSS-HATCHED AREA TO MIN. LIMITS SHOWN. RETAIN EXIST. STEEL EXCEPT AS NOTED. CONTRACTOR SHALL EXERCISE CARE TO ENSURE THAT EXIST. STEEL THAT IS TO REMAIN IS UNDAMAGED BY CONCRETE REMOVAL.

THOROUGHLY CLEAN EXPOSED STEEL SURFACE TO REMOVE ALL RUST AND CONTAMINATED CONCRETE.

△ DIMENSION VARIES. TO BE VERIFIED BY CONTRACTOR. SEE PROPOSED SECTION A-A FOR ESTIMATED DIMENSIONS.

EXISTING SECTION A-A



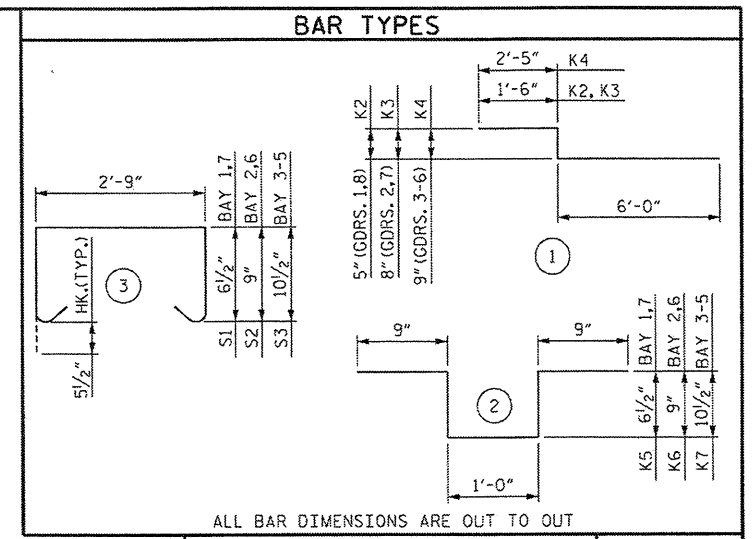
△ DIMENSION VARIES. TO BE VERIFIED BY CONTRACTOR. (2) 1/2" ± @ GRDR 1 & 8, 4 3/4" ± @ GRDR 2 & 7, 6 1/4" ± @ GRDR 3 & 6, 7" ± @ GRDR. 4 & 5, 5 1/8" AVG.)

PROPOSED SECTION A-A

ALL PROPOSED REINFORCING STEEL SHALL BE EPOXY COATED.

CONCRETE IN SIDEWALK AND MEDIAN SHALL BE CAST AFTER DECK AND DIAPHRAGM HAS BEEN PLACED AND CURED A MINIMUM OF 7 DAYS.

CONCRETE DIAPHRAGMS, SIDEWALK, MEDIAN, AND DECK SLAB SHALL BE RECONSTRUCTED TO MATCH EXISTING SURFACES AS SHOWN. COSTS FOR ALL MATERIALS, LABOR AND INCIDENTALS REQUIRED FOR THIS WORK WILL BE PAID FOR AT THE UNIT PRICE BID FOR REINFORCED CONCRETE DECK SLAB.



BILL OF MATERIAL

1 JOINT SHOWN (2 REQ'D.)

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
*K1	5	#5	29'-8"	158
*K2	8	#4	7'-11"	42
*K3	16	#4	8'-2"	87
*K4	24	#4	9'-2"	147
*K5	16	#5	3'-7"	61
*K6	16	#5	4'-0"	68
*K7	24	#5	4'-3"	109
*K10	10	#5	16'-2"	173
*S1	14	#5	4'-9"	71
*S2	12	#5	5'-2"	65
*S3	23	#5	5'-5"	130
REINFORCING STEEL				LBS. ---
* EPOXY COATED REINFORCING STEEL				LBS. 1,111
CLASS AA CONCRETE				C. Y. 7.4

NOTES:

DECK REMOVAL SHALL BE PERFORMED BY FIRST INTRODUCING A PARTIAL DEPTH SAWCUT (1" MAX DEPTH) FOLLOWED BY CONCRETE REMOVAL WITH A CHIPPING HAMMER IN THE RANGE OF 15 LBS. CARE SHALL BE TAKEN SO AS TO PREVENT DAMAGE TO EXISTING DECK REINFORCING STEEL AND EXISTING GIRDERS.

THE JOINT AT THE EXISTING/NEWLY PLACED LATEX MODIFIED CONCRETE INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE CONCRETE IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT.

WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL NOT BE PERMITTED.

REMOVE CONCRETE TO LIMITS SHOWN IN EXISTING SIDEWALK AND MEDIAN THRU THE DECK SLAB. RETAIN ALL EXISTING REINFORCING STEEL EXPOSED IN SIDEWALK AND MEDIAN. SIDEWALK AND MEDIAN SECTIONS SHALL BE RECONSTRUCTED TO MATCH EXISTING SURFACES.

FOR SECTION B-B, CONC. REMOVAL IN SLAB CANTILEVER, SEE SHEET S-28.

REINFORCED DECK SLAB (1 JOINT) = 198 SO.FT.

PROJECT NO. WBS 17BP.3.H.1
 NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 JOINT AND SLAB
 REPAIR DETAILS 2**

REHABILITATE BRIDGE NO. 30

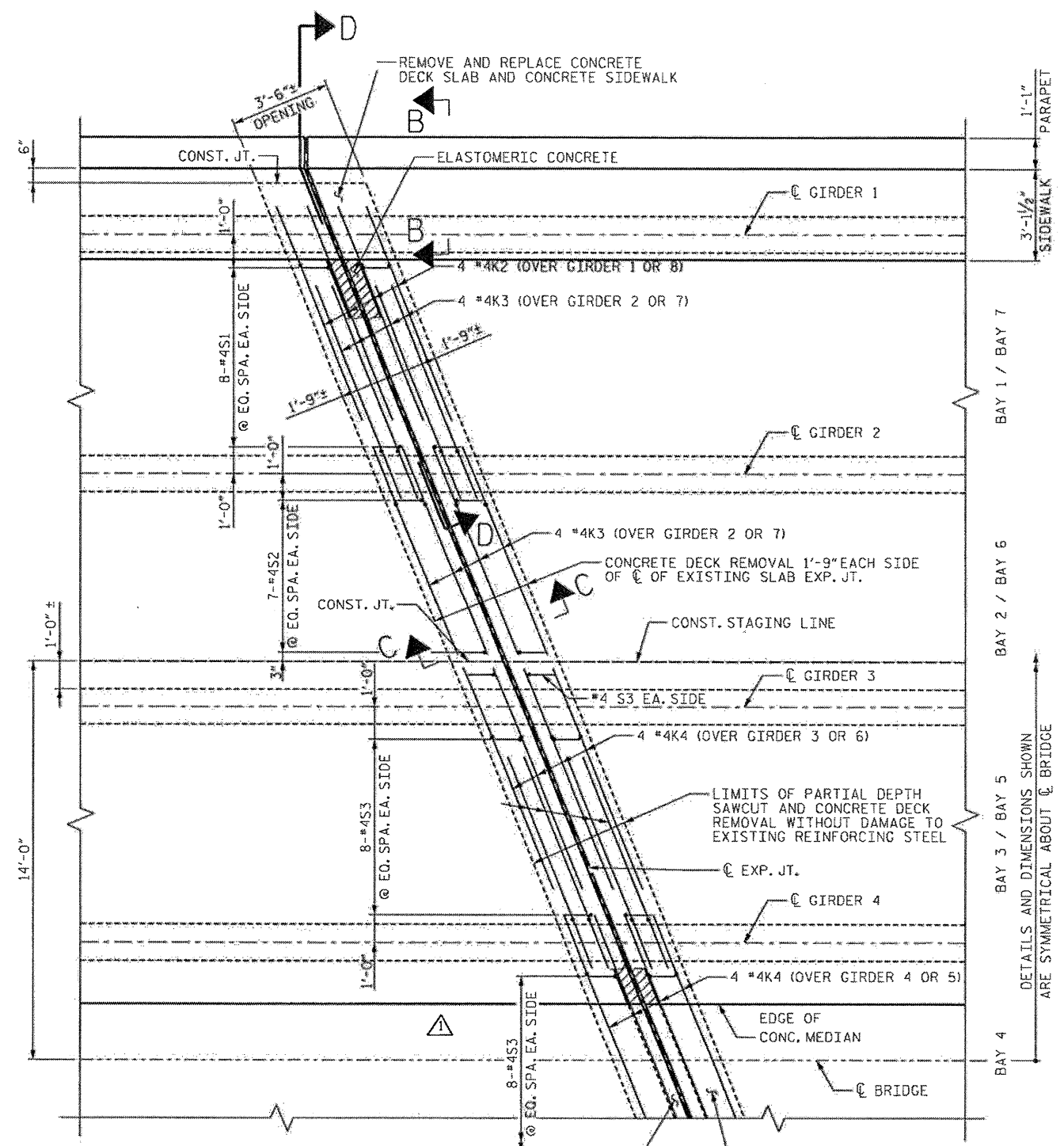
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

S-25
 TOTAL SHEETS 36

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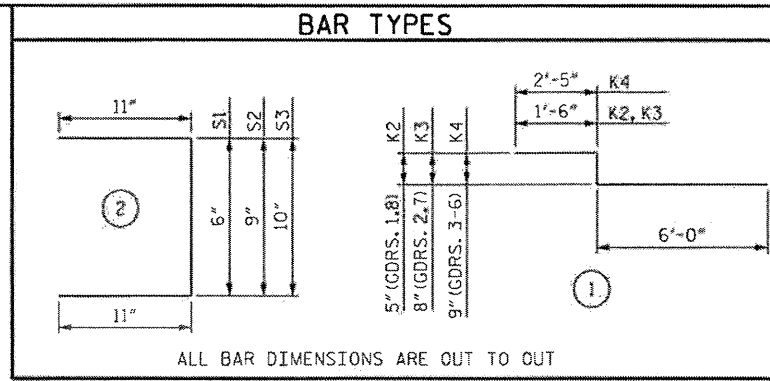
DRAWN BY: B. T. LATON DATE: 10/11
 CHECKED BY: J. T. KELYINGTON DATE: 10/11

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**HALF SLAB BENT JOINT REPAIR
 @ BENT 10 AND BENT 13**

NOTE: ELASTOMERIC CONC. HEADERS NOT SHOWN IN THEIR ENTIRETY FOR CLARITY



BILL OF MATERIAL

1 JOINT SHOWN (2 REQ'D.)

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*K2	#4	1	7'-11"	42	
*K3	#4	1	8'-2"	131	
*K4	#4	1	9'-2"	147	
*S1	#4	2	2'-4"	50	
*S2	#4	2	2'-7"	48	
*S3	#4	2	2'-8"	93	
REINFORCING STEEL				LBS.	---
*EPOXY COATED REINFORCING STEEL				LBS.	511
CLASS AA CONCRETE				C. Y.	7.6

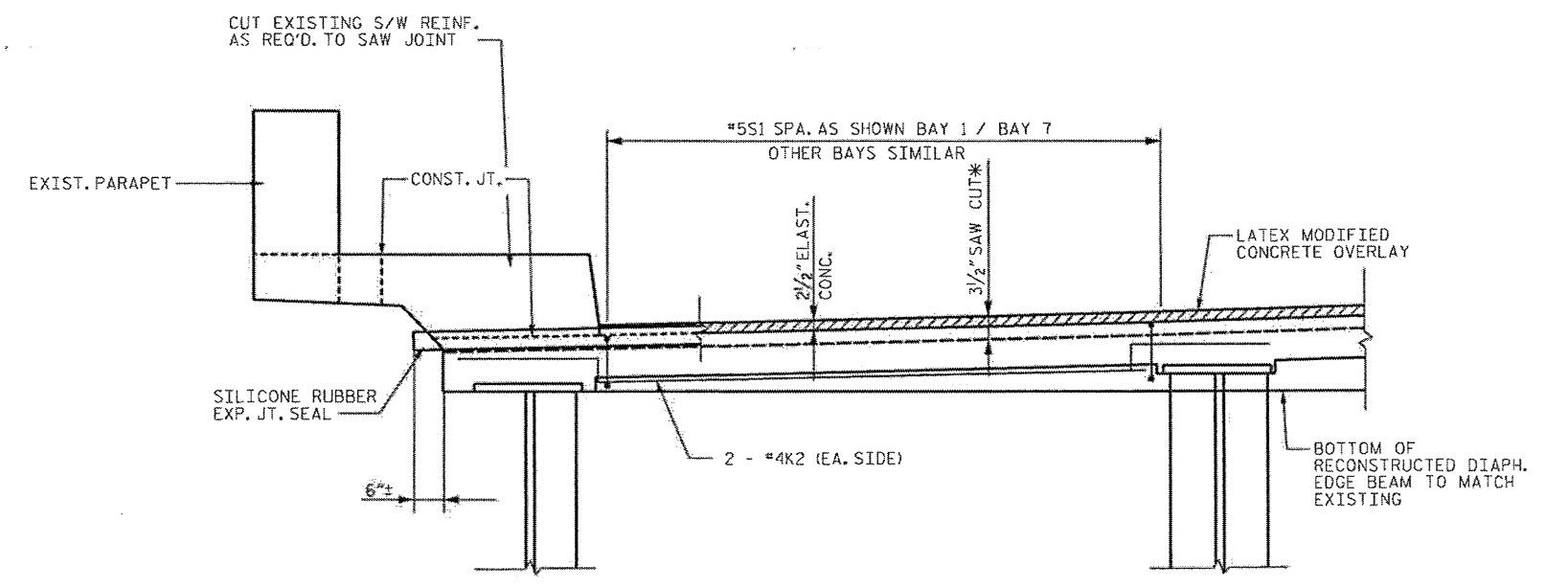
NOTES:

DECK REMOVAL SHALL BE PERFORMED BY FIRST INTRODUCING A PARTIAL DEPTH SAWCUT (1" MAX DEPTH) FOLLOWED BY CONCRETE REMOVAL WITH A CHIPPING HAMMER IN THE RANGE OF 15 LBS. CARE SHALL BE TAKEN SO AS TO PREVENT DAMAGE TO EXISTING DECK REINFORCING STEEL AND EXISTING GIRDERS.

WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL NOT BE PERMITTED.

REMOVE CONCRETE TO LIMITS SHOWN IN EXISTING SIDEWALK AND MEDIAN THRU THE DECK SLAB. RETAIN ALL EXISTING REINFORCING STEEL EXPOSED IN SIDEWALK AND MEDIAN, EXCEPT WHERE NOTED OTHERWISE. SIDEWALK AND MEDIAN SECTIONS SHALL BE RECONSTRUCTED TO MATCH EXISTING SURFACES.

FOR SECTION C-C SEE SHEET S-27.
 REINFORCED CONCRETE DECK SLAB (1 JOINT) = 232 SQ.FT.
 FOR SECTION B-B, CONC. REMOVAL IN SLAB CANTILEVER, SEE SHT S-28.



SECTION D-D

ALL PROPOSED REINFORCING STEEL SHALL BE EPOXY COATED.
 CONCRETE IN SIDEWALK AND MEDIAN SHALL BE CAST AFTER DECK AND DIAPHRAGM HAS BEEN PLACED AND CURED A MINIMUM OF 7 DAYS.
 CONCRETE DIAPHRAGMS, SIDEWALK, MEDIAN, AND DECK SLAB SHALL BE RECONSTRUCTED TO MATCH EXISTING SURFACES AS SHOWN. COSTS FOR ALL MATERIALS, LABOR AND INCIDENTALS REQUIRED FOR THIS WORK WILL BE PAID FOR AT THE UNIT PRICE BID FOR REINFORCED CONCRETE DECK SLAB.
 *SAW CUT DEPTH SET TO FIT SEAL REQUIREMENTS.

Joseph J. Kelvington
 10/30/12
 PROFESSIONAL ENGINEER
 SEAL 13406
 NORTH CAROLINA

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUPERSTRUCTURE
 JOINT AND SLAB
 REPAIR DETAILS 3
 (FINGER JOINT REPLACEMENT)**

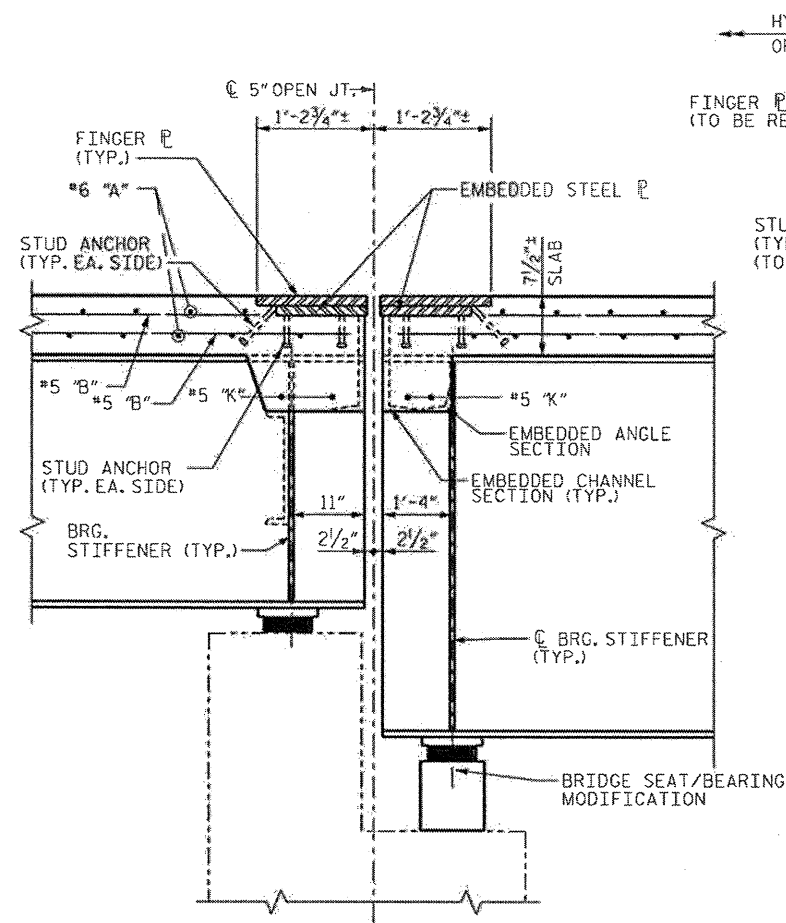
REHABILITATE BRIDGE NO. 30

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			36

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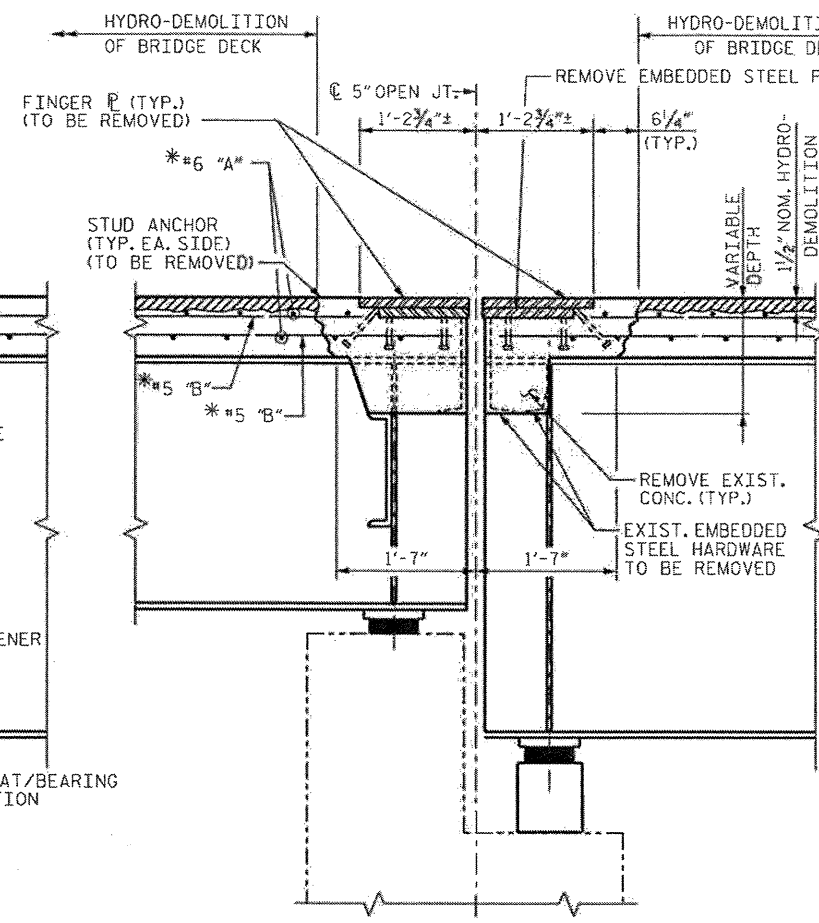
DRAWN BY : B. T. LATON DATE : 10/11
 CHECKED BY : J. T. KELVINGTON DATE : 10/11

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SECTION C-C
(EXISTING JOINT BENT)

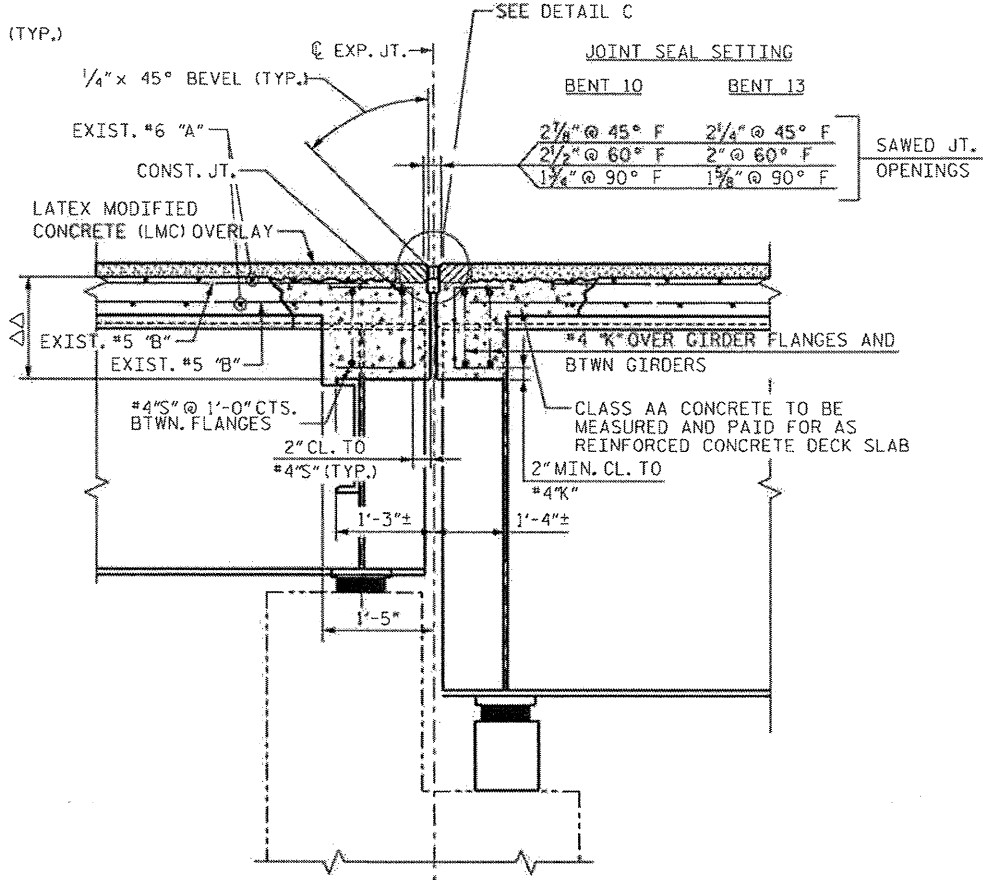
NOTE: DECK REINF. SHOWN IS TYP. EA. SIDE OF THE JOINT.



SECTION C-C
(MINIMUM EXISTING JOINT DEMOLITION)

NOTE: DIAPH. 'K' BARS NOT SHOWN FOR CLARITY. (TO BE REMOVED)

* DECK REINF. SHOWN IS TYP. EA. SIDE OF THE JOINT. (TO BE RETAINED)



SECTION C-C
(JOINT SEAL CONSTRUCTION)

△△ DIMENSION VARIES AND SHALL BE VERIFIED BY THE CONTRACTOR.

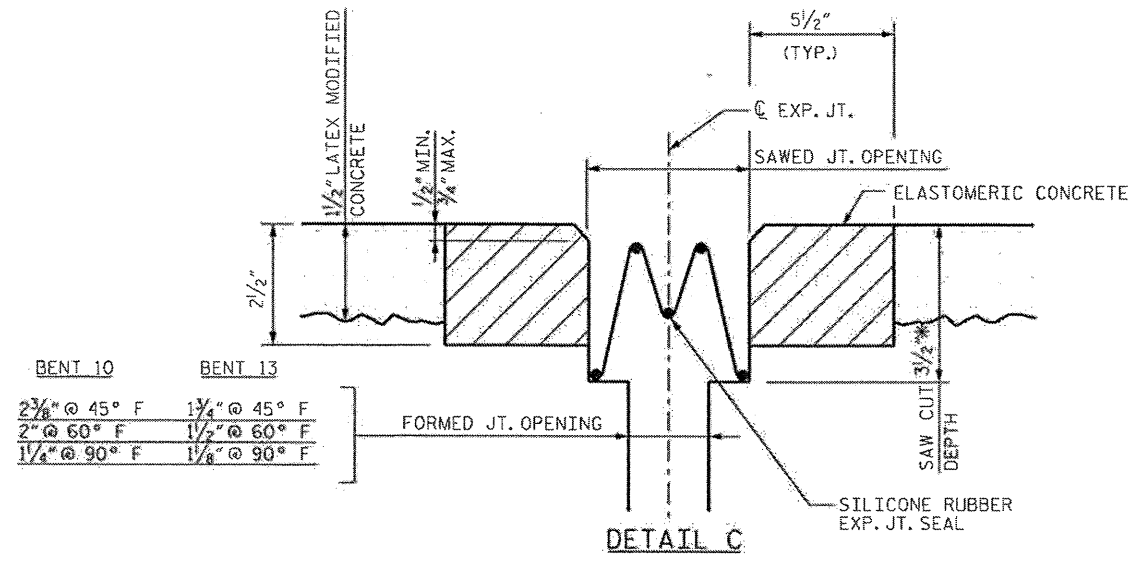
APPROX. DIMENSIONS:

GIRDER NO.	△△
1, 8	8 1/2" ±
2, 7	10 3/4" ±
3, 6	1'-0 1/4" ±
4, 5	1'-1" ±

FOR FINGER JOINT REPLACEMENT, SEE SPECIAL PROVISIONS ENTITLED "PARTIAL REMOVAL OF EXISTING STRUCTURE," AND "SILICONE RUBBER EXPANSION JOINT SEALS."

ALL REINFORCING STEEL ADDED TO EXISTING BENT DIAPHRAGM SHALL BE EPOXY COATED.

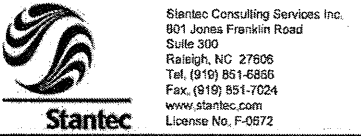
FINGER JOINT REPLACEMENT DETAILS
(BENTS 10 & 13)



* NOTE: CONTRACTOR SHALL ADJUST DEPTH OF SAW CUT AS REQUIRED BY SEAL SIZE.

ELASTOMERIC CONCRETE	
BENT NO.	QTY.
BENT 10	11.6 C.F.
BENT 13	11.6 C.F.
TOTAL = 23.2 C.F.	
TOTAL = 0.9 C.Y.	

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____



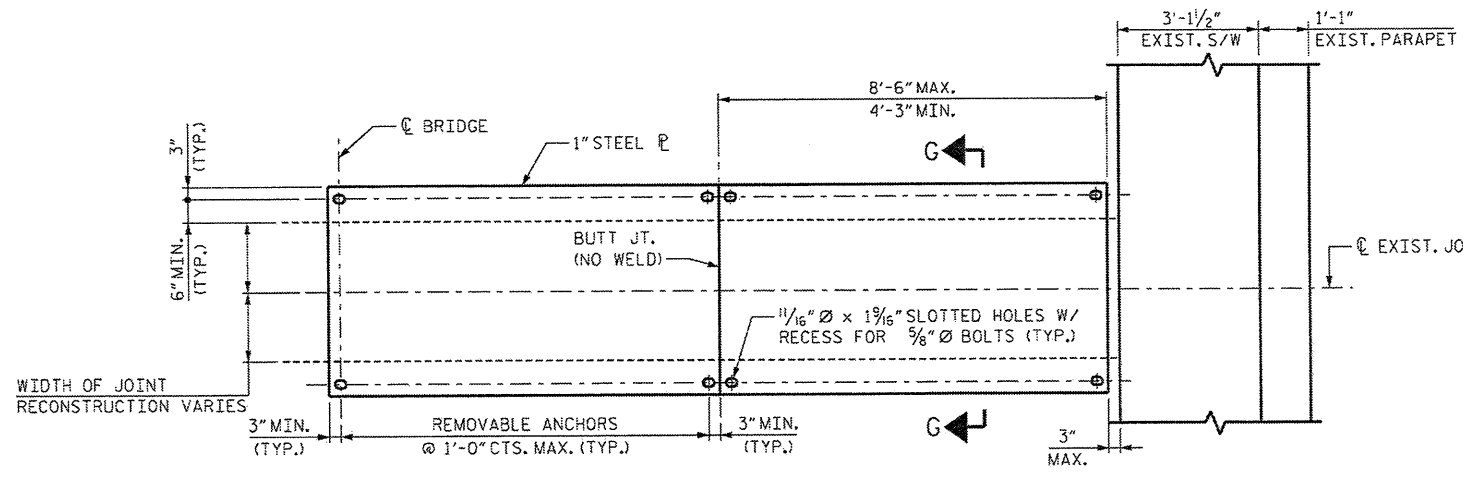
DRAWN BY: B. T. LATON DATE: 11/11
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

Joseph J. Kelvington
 11/30/12
 PROFESSIONAL SEAL 13406
 J. T. KELVINGTON
 ENGINEER

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE JOINT AND SLAB REPAIR DETAIL 3

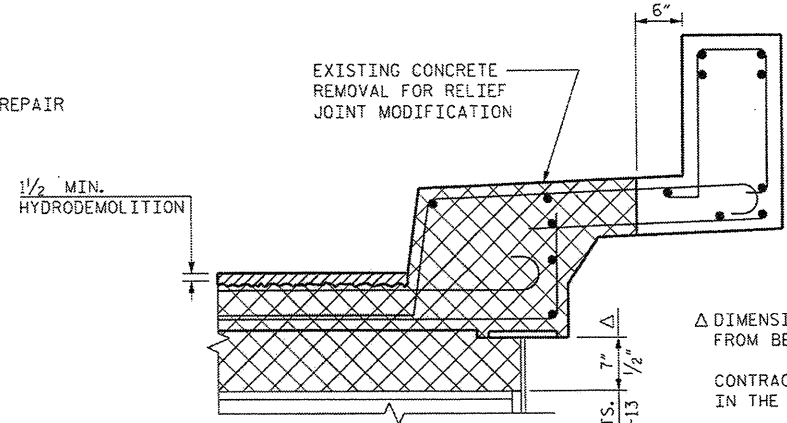
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27	
1			3			TOTAL SHEETS	
2			4			36	

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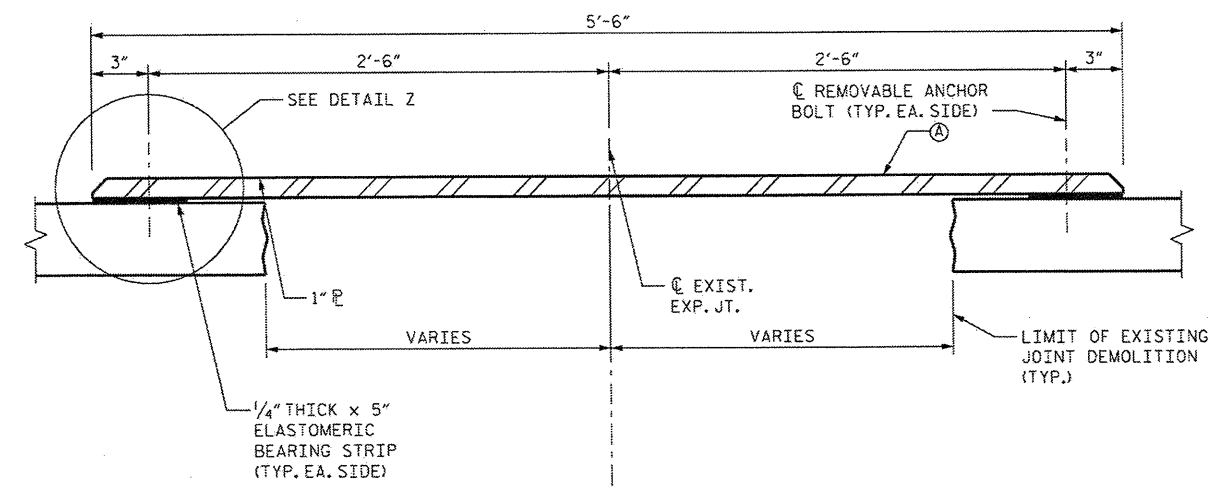
**TEMP. COVER PLATE DETAIL
PLAN**

PLAN @ RELIEF JT. SHOWN. PLAN @ INTERIOR BENTS 10-13 SIMILAR.

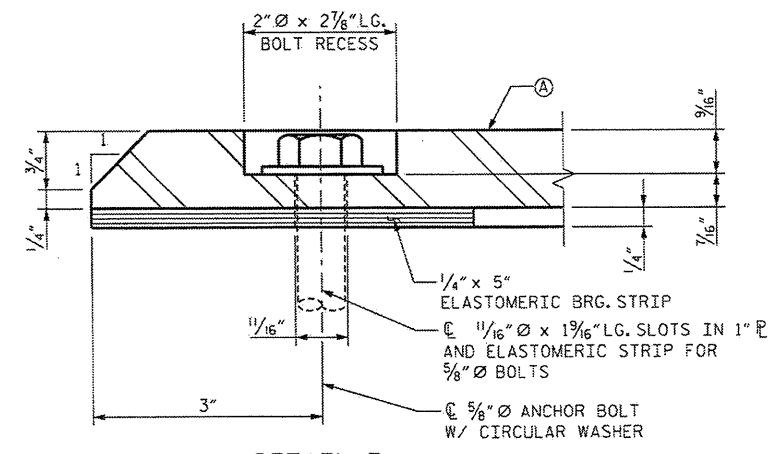


SECTION B-B

Δ DIMENSIONS ARE ESTIMATED FROM BEST AVAILABLE DATA.
CONTRACTOR SHALL CONFIRM IN THE FIELD.



SECTION G-G



DETAIL Z

FOR TEMPORARY STEEL COVER PLATE, SEE SPECIAL PROVISIONS.
 (A) SURFACE TREATMENT FOR SKID RESISTANCE BONDED TO PLATE
 REQUIRED ULTIMATE ANCHOR BOLT RESISTANCE:
 TENSION = 10.5k
 SHEAR = 1.0k
 ANCHOR BOLTS MAY BE SECURED IN EXISTING CONCRETE WITH EPOXY ADHESIVE ANCHOR, SEE SPECIAL PROVISIONS
 TESTING OF EPOXY ADHESIVE ANCHORS IS NOT REQUIRED
 ANCHOR BOLTS SECURED WITH EPOXY ADHESIVE ANCHORS SHALL BE COATED WITH A DEBONDING AGENT TO FACILITATE REMOVAL OF ANCHOR BOLTS. DEBONDING AGENT SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 EXPANSION JOINT DETAILS
 REHABILITATE BRIDGE NO. 30

Joseph Kelvington
 10/11/2012
 PROFESSIONAL SEAL
 13406
 ENGINEER
 JOSEPH T. KELVINGTON

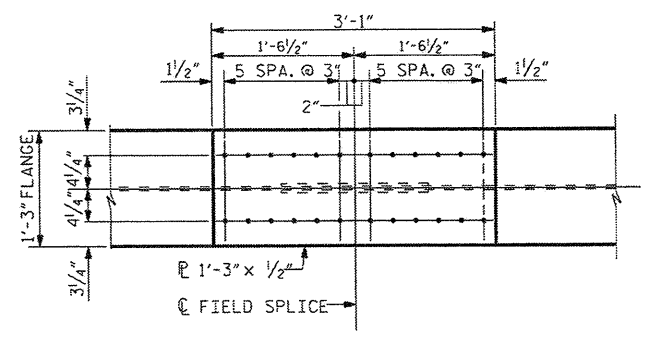
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					36

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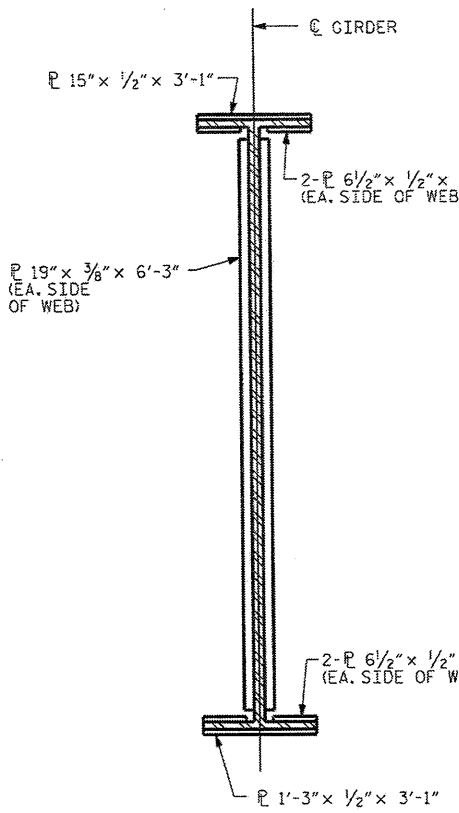
DRAWN BY: B. T. LATON DATE: 10/11
 CHECKED BY: J. T. KELVINGTON DATE: 10/11

**TEMPORARY COVER PLATE DETAILS
FOR JOINT SEAL CONSTRUCTION IN SPANS J-N**

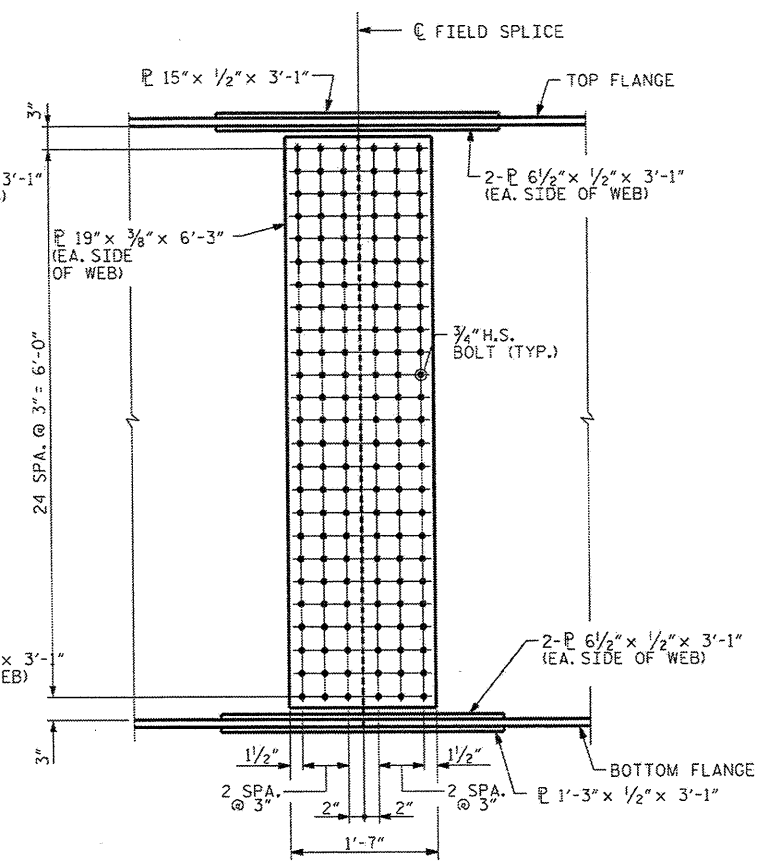
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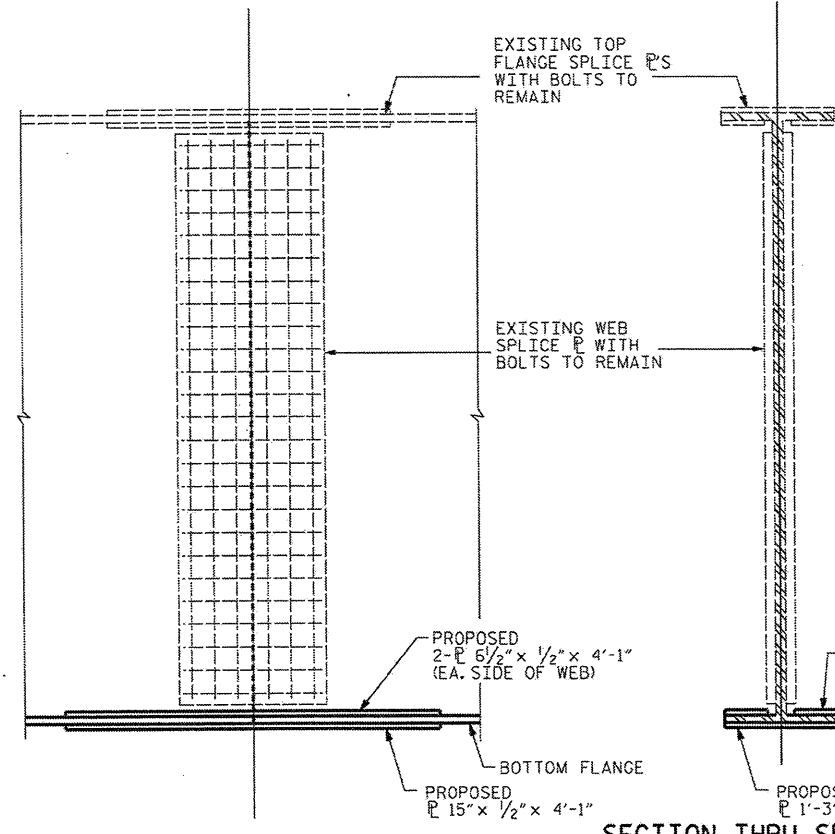
PLAN OF TOP FLANGE FIELD SPLICE



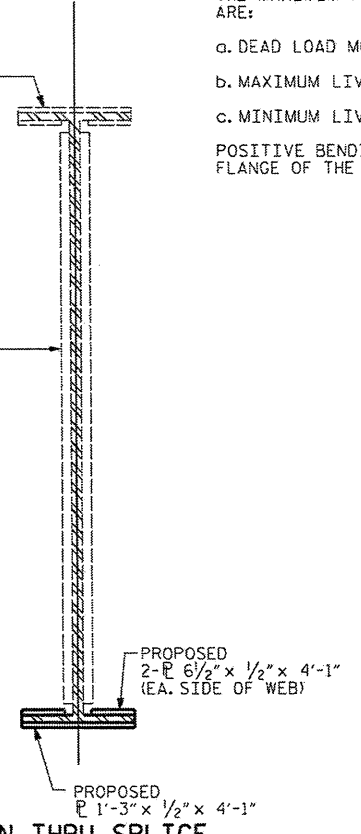
SECTION THRU SPLICE



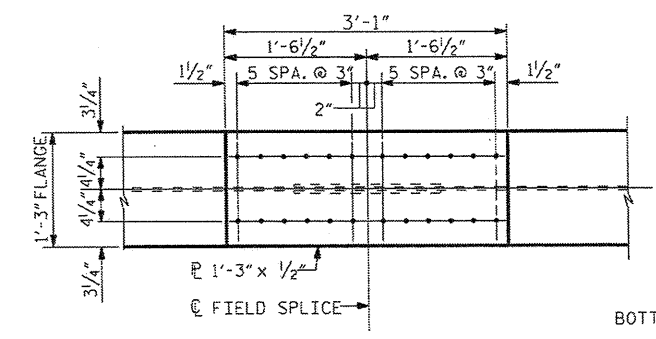
**SPLICE ELEVATION
(EXISTING CONDITIONS)**



**SPLICE ELEVATION
(PROPOSED BOTTOM FLANGE SPLICE MODIFICATION)**

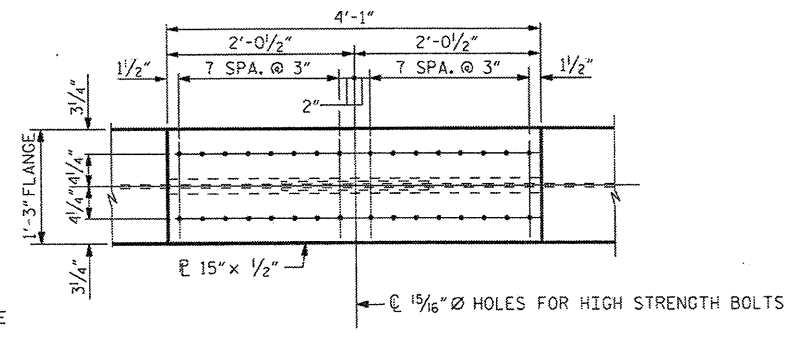


SECTION THRU SPLICE



PLAN OF BOTTOM FLANGE FIELD SPLICE

EXISTING BOLTED FIELD SPLICE



PLAN OF MODIFIED BOTTOM FLANGE FIELD SPLICE

PROPOSED BOLTED FIELD SPLICE

NOTES:

FOR STRUCTURAL STEEL REPAIR, SEE SPECIAL PROVISIONS.

ALL STRUCTURAL STEEL FOR REPAIRS SHALL BE AASHTO M270 GRADE 50 AND SHALL BE PAINTED. SEE SPECIAL PROVISIONS.

ALL FIELD CONNECTIONS TO BE 3/4" DIA. AASHTO M164 TYPE 1 HIGH STRENGTH BOLTS.

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS.

ALL BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED.

CONTRACTOR SHALL REPLACE SPLICE PLATES ON ONE GIRDER LINE AT A TIME.

SPLICE PLATES SHALL BE REPLACED ON GIRDER LINES SUCH THAT ACTIVE TRAFFIC LANES ARE NOT DIRECTLY OVER THE AFFECTED GIRDER LINES AT ANY TIME DURING REPLACEMENT OF SPLICE PLATES. SEE TRANSPORTATION MANAGEMENT PLANS.

THE MAXIMUM POSITIVE SERVICE DESIGN MOMENT AT THE SPLICES ARE:

a. DEAD LOAD MOMENT = +156 K-FT

b. MAXIMUM LIVE LOAD + IMPACT = +1682 K-FT

c. MINIMUM LIVE LOAD + IMPACT = +1503 K-FT

POSITIVE BENDING MOMENTS INDUCE TENSION IN THE BOTTOM FLANGE OF THE GIRDER.

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

Stantec
 Stantec Consulting Services Inc.
 801 Jones Franklin Road
 Suite 300
 Raleigh, NC 27806
 Tel. (919) 851-8866
 Fax. (919) 851-7024
 www.stantec.com
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DRAWN BY: B. T. LATON DATE: 10/11
 CHECKED BY: J. I. KELVINGTON DATE: 10/11

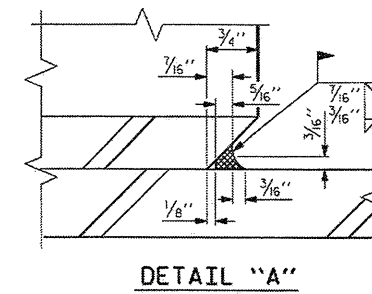
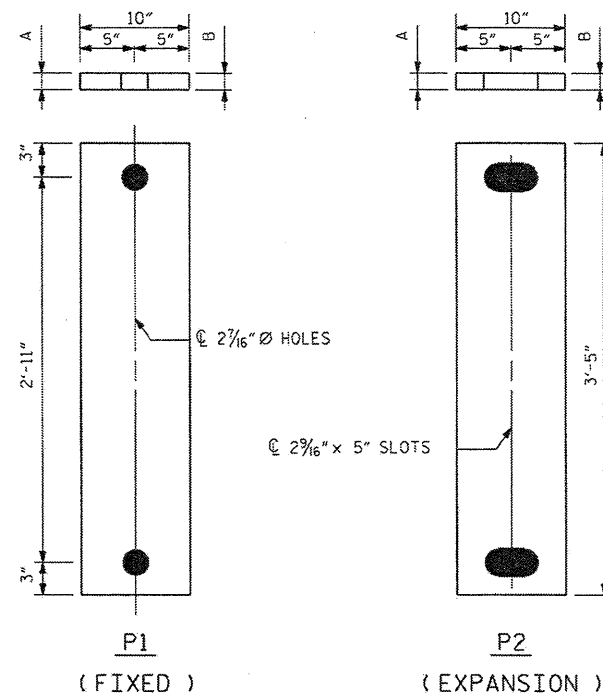
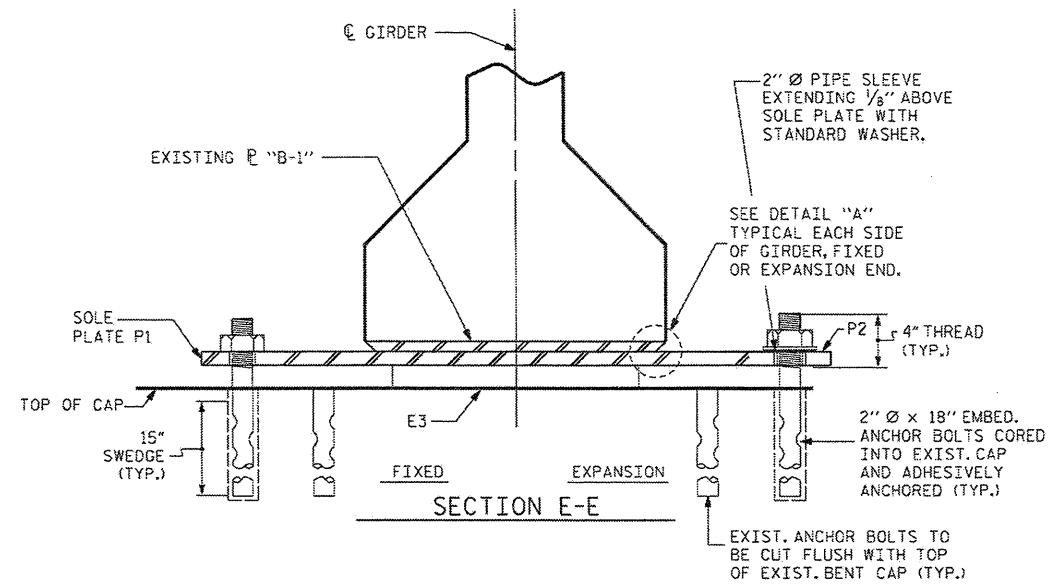
Joseph Kelvington
 J. I. KELVINGTON
 ENGINEER
 13406

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BOLTED FIELD SPLICE
 MODIFICATION DETAIL**

REHABILITATE BRIDGE NO. 30

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-29
1			3			TOTAL SHEETS
2			4			36



NOTES:

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

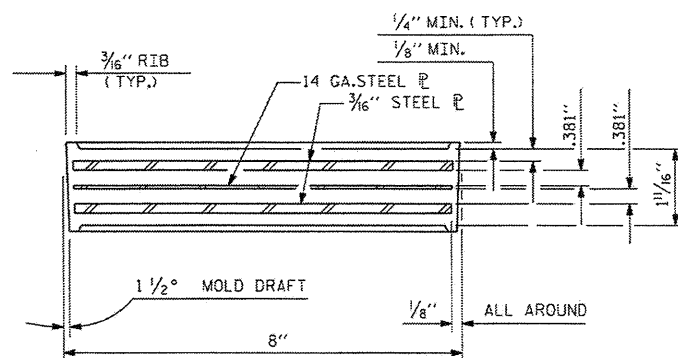
WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

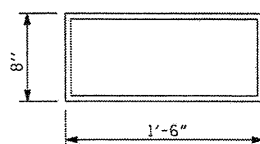
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 2" DIA. ANCHOR BOLTS AND SHALL BE ADHESIVELY ANCHORED, SEE SPECIAL PROVISIONS.

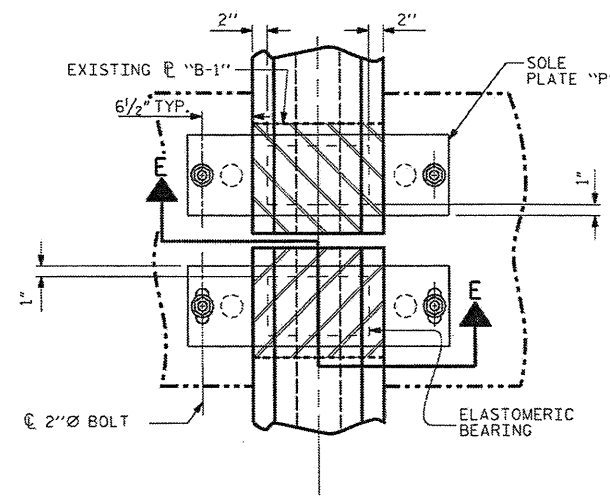
FOR ELASTOMERIC BEARING REPLACEMENT, SEE SPECIAL PROVISION ENTITLED "SPAN JACKING."



TYPICAL SECTION OF ELASTOMERIC BEARINGS



E3 (440 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE III

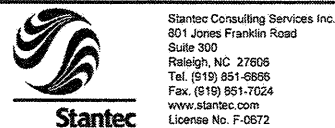


TYPICAL PLAN
(SHOWING SIMPLE SPAN BENT)

SOLE PLATE THICKNESS

		A	B	QTY
EB1 & EB2	FIX	5/8"	1	20
B1 to B4, B19 to B26	EXP	5/8"	1	120
	FIX	1 1/2"	1 7/8"	120
B5 & B18	EXP	5/8"	1	20
	FIX	1 7/16"	1 13/16"	20
B6 & B17	EXP	5/8"	1	20
	FIX	1 3/8"	1 11/16"	20
B7 & B16	EXP	1 1/16"	1 5/16"	20
	FIX	1 5/16"	1 9/16"	20
B8 & B15	EXP	1 1/16"	1 5/16"	20
	FIX	1 3/16"	1 7/16"	20
B9 & B14	EXP	1 1/16"	7/8"	20

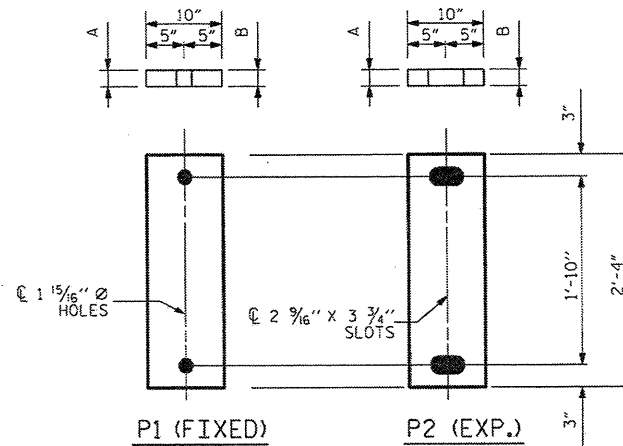
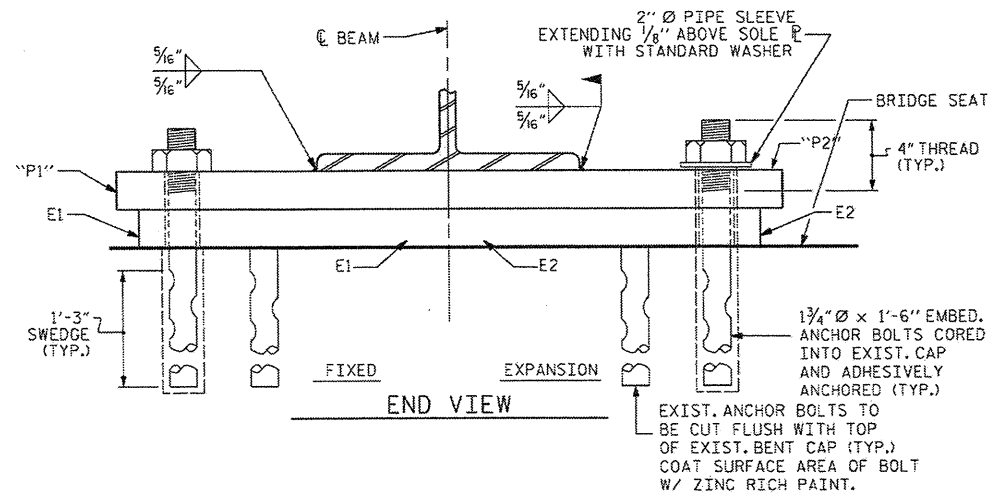
PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
STATION: _____



DRAWN BY: R. CORSA DATE: 10/11
CHECKED BY: R. VERRASTRO DATE: 10/11

Joseph J. Kington
Professional Engineer Seal 13406
I. KINGTON

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BEARING REPLACEMENT DETAILS SPANS A THROUGH I, O THROUGH ZZ					
DECK REHAB. FOR BRIDGE NO. 30					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 36



SOLE PLATE THICKNESS

BEAM		A	B	QTY
G1	FIX	1 5/8"	1 13/16"	2
	EXP	3/4"	1"	2
B2	FIX	3/4"	1"	2
	EXP	3/4"	1"	2
B3	FIX	3/4"	1"	2
	EXP	3/4"	1"	2
B4	FIX	1 3/8"	1 1/2"	2
	EXP	3/4"	1"	2
B5	FIX	1 1/4"	1 3/8"	2
	EXP	1"	1 1/4"	2
B6	FIX	3/4"	1"	2
	EXP	7/8"	1"	2
B7	FIX	3/4"	1"	2
	EXP	3/4"	1"	2
G8	FIX	3/4"	7/8"	2
	EXP	3/4"	1"	2

NOTES:

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR PAINTED STRUCTURAL STEEL (EXCLUDING AASHTO M270 GRADE 50W), SOLE PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

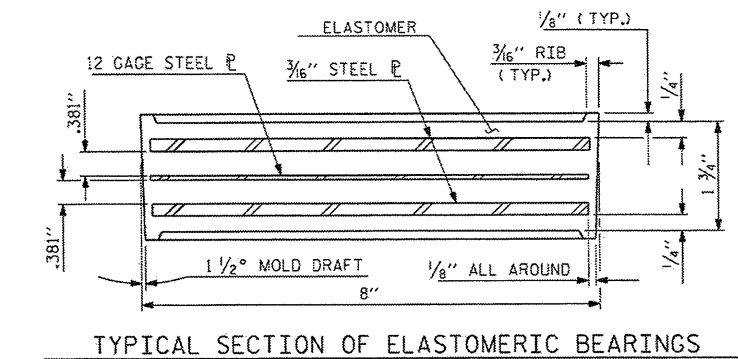
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

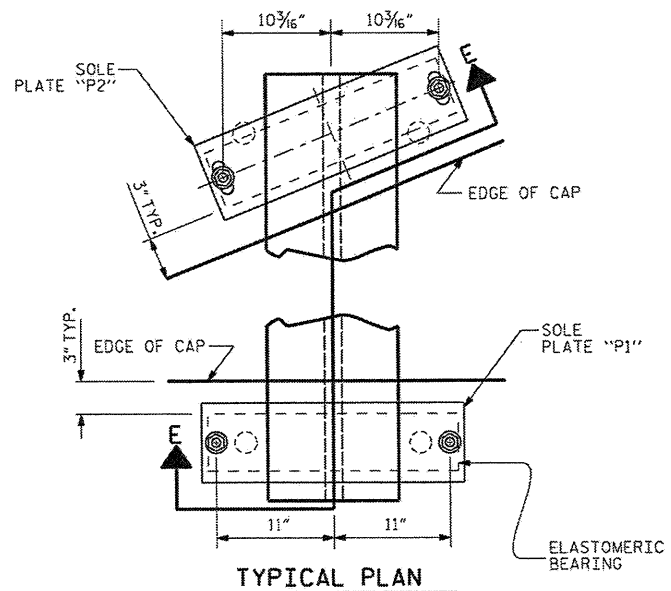
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1 3/4" DIA. ANCHOR BOLTS AND SHALL BE ADHESIVELY ANCHORED, SEE SPECIAL PROVISIONS.

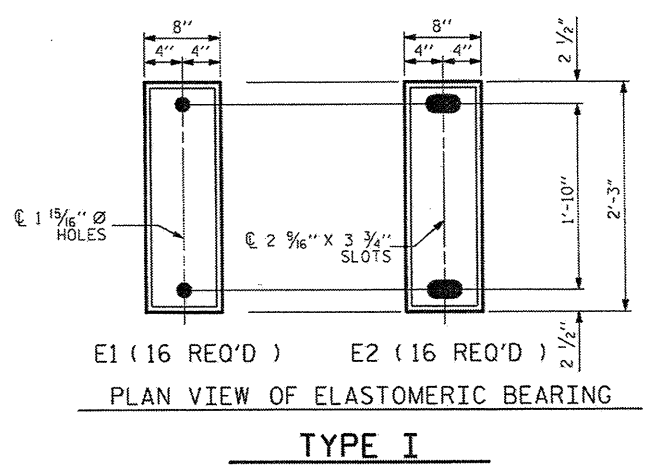
FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISION ENTITLED "SPAN JACKING."



TYPICAL SECTION OF ELASTOMERIC BEARINGS



TYPICAL PLAN



PLAN VIEW OF ELASTOMERIC BEARING TYPE I

-LOAD RATINGS-	
TYPE I	MAX.D.L.+L.L. 91 K

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

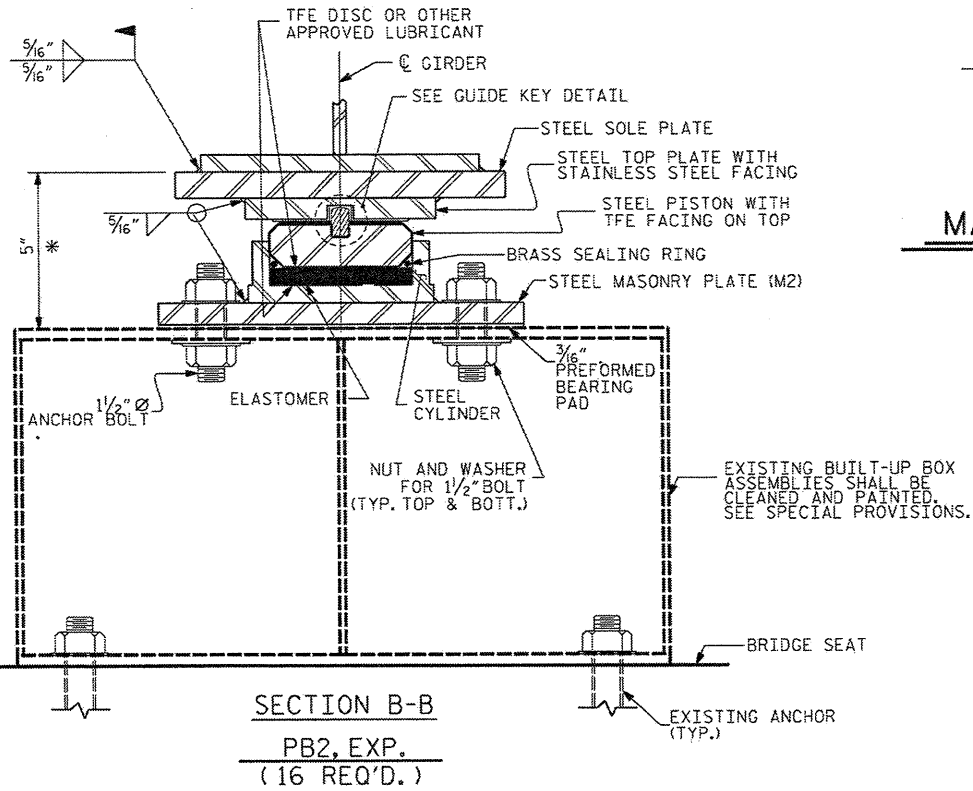
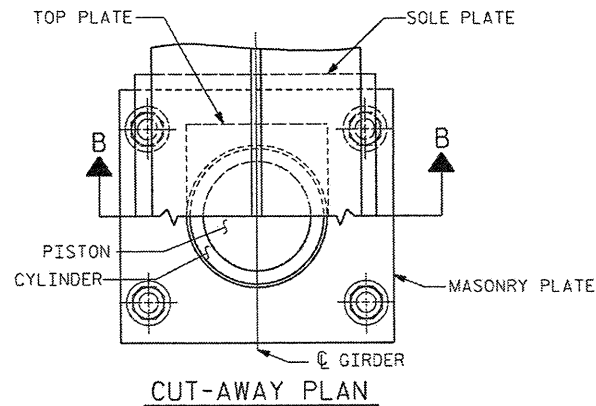
Joseph J. Keating
 10/12/2012



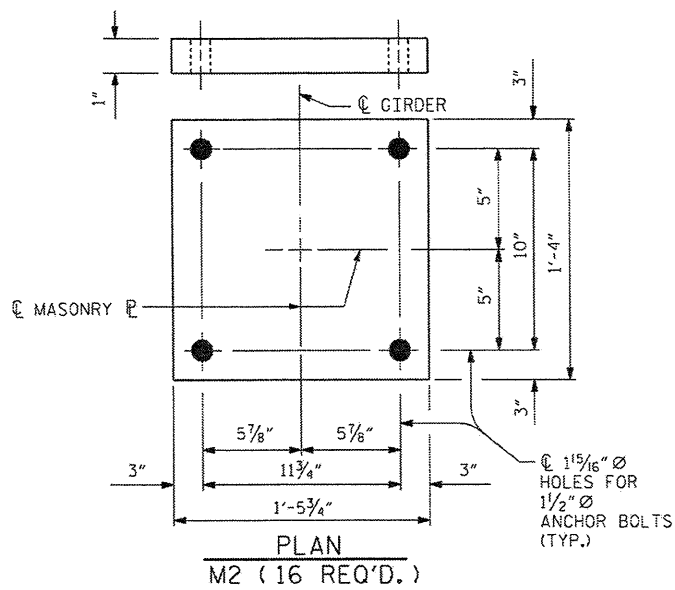
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				
BEARING REPLACEMENT DETAILS SPANS J & N				
DECK REHAB. FOR BRIDGE NO. 30				
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	
				TOTAL SHEETS 36

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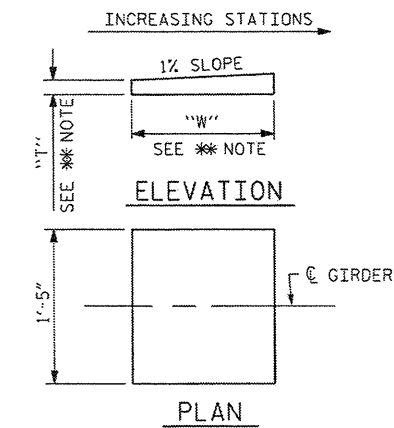
DRAWN BY: R. CORSA DATE: 10/11
 CHECKED BY: R. VERRASTRO DATE: 10/11



POT BEARING DETAILS

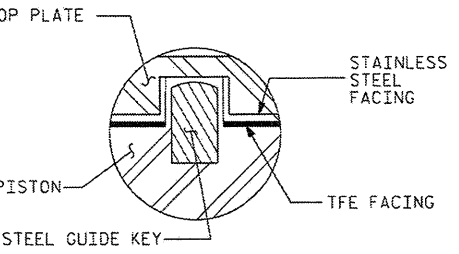
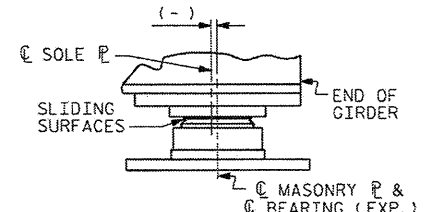


MASONRY PLATE DETAILS



SOLE PLATE DETAILS

NOTES:
 FOR POT BEARINGS, SEE SPECIAL PROVISIONS.
 AT ALL POINTS OF SUPPORT IN SPANS ..., NUTS FOR ANCHOR BOLTS SHALL BE TIGHTENED FINGER TIGHT AND GIVEN AN ADDITIONAL 1/4 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.
 WHEN WELDING THE SOLE PLATE TO THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE BEARING DOES NOT EXCEED 250°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE TFE OR ELASTOMER.
 ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.
 FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
 * CONTRACTOR SHALL REPLACE EXISTING POT BEARINGS WITH NEW POT BEARING OF IDENTICAL HEIGHT. HEIGHT OF EXISTING POT BEARINGS MUST BE FIELD VERIFIED.
 1/2" ANCHOR BOLT SHALL MEET THE MINIMUM MECHANICAL REQUIREMENTS OF ASTM A307.
 ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.
 ONCE 1/2" DIA. ANCHOR BOLTS AND NUTS HAVE BEEN SECURED, EXPOSED ENDS OF ANCHOR BOLTS SHALL BE BURRED WITH A SHARP POINTED TOOL.



GUIDE KEY DETAIL

BEARING	LOCATION	UNFACTORED VERTICAL LOAD (KIPS)				FACTORED LATERAL LOAD (KIPS)	TOTAL MOVEMENT (INCHES)
		DEAD		LIVE			
		DC	DW	LL+IM	TOTAL		
PB2 (EXP.)	BENT 10	64		122	186	31.25	3 1/2"
PB2 (EXP.)	BENT 13	64		122	186	31.25	1 5/8"

TABLE FOR PLATE SETTING DATA (EXPANSION POT BEARINGS)

TEMPERATURE AT TIME OF SETTING	45° F	60° F	90° F	*
BENT 10	-1"	0	1 3/8"	
BENT 13	-1 1/2"	0	5/8"	

* CORRECTION FOR END ROTATION DUE TO WEIGHT OF SLAB AND COMPOSITE DEAD LOAD.

TEMPERATURE SETTING DETAIL

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA		DEPARTMENT OF TRANSPORTATION	
RALEIGH		RALEIGH	
BEARING REPLACEMENT DETAILS			
SPANS J & N			
DECK REHAB. FOR BRIDGE NO. 30			
REVISIONS			SHEET NO.
NO.	BY:	DATE:	S-32
1			TOTAL SHEETS
2			36

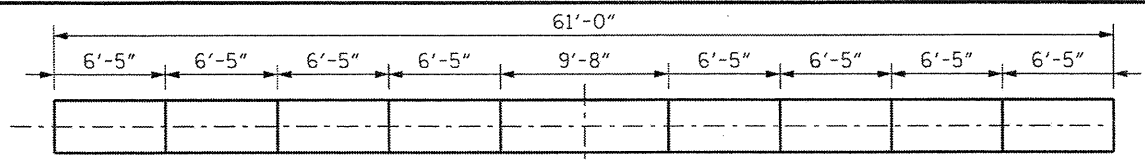
*Joseph J. K...
 PROFESSIONAL ENGINEER
 NO. 13406
 K... N.C.*

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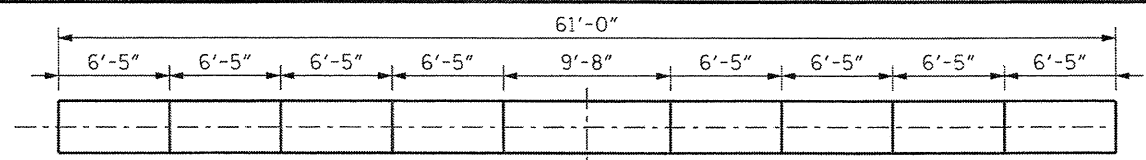
DRAWN BY: R. CORSA DATE: 10/11
 CHECKED BY: R. VERRASTRO DATE: 10/11

J:\1701010\Transportation\Design\Structures\Bridges\Group 20\WBS 17BP.3.H.1-New Hanover\Bridges 30\Drawings\BENT REPAIR SHEETS\NewHanover-30.bent.typ-18.05-25.dgn 1/31/2012 5:47:05 PM blotion

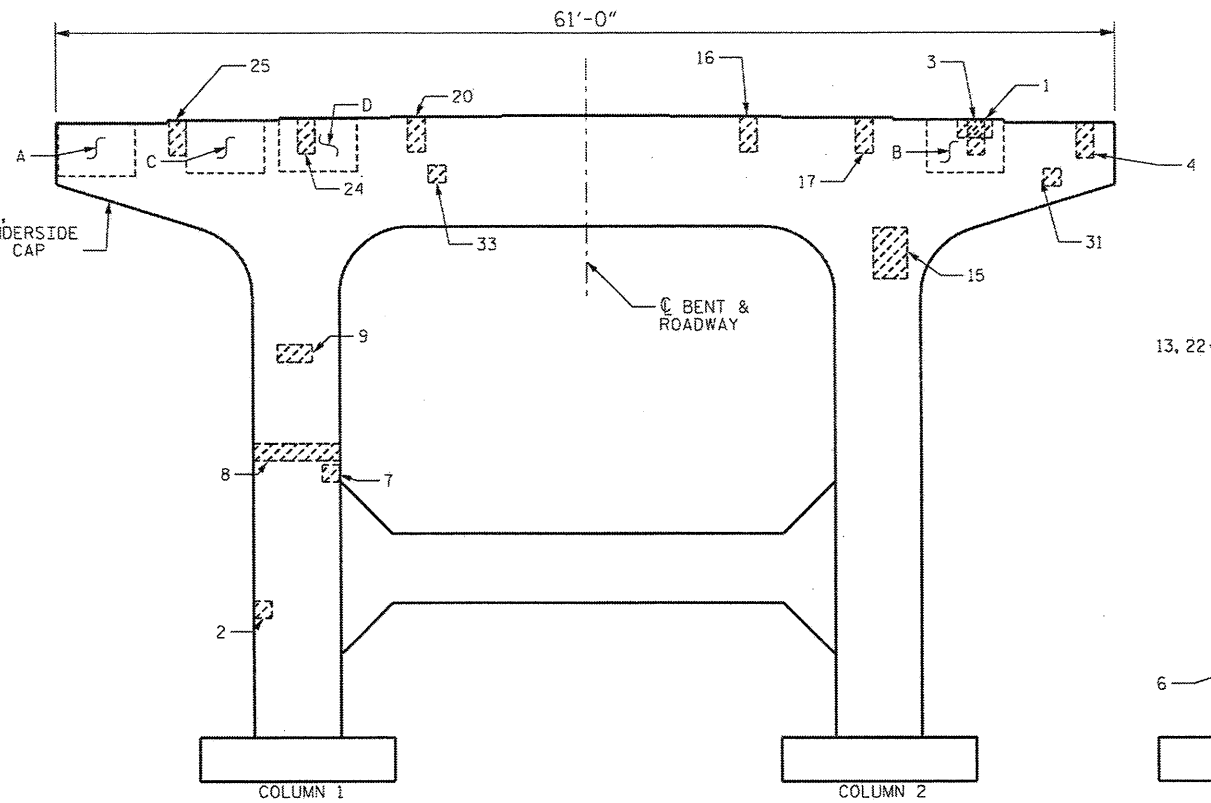
TOTAL ESTIMATED QUANTITIES
 CONCRETE REPAIR 10.0 CF
 SHOTCRETE REPAIR 28.5 CF



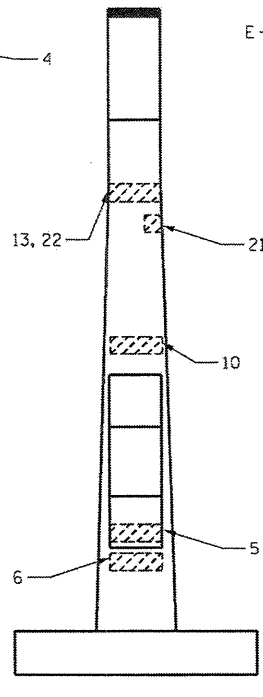
PLAN OF CAP
(SOUTH FACE)



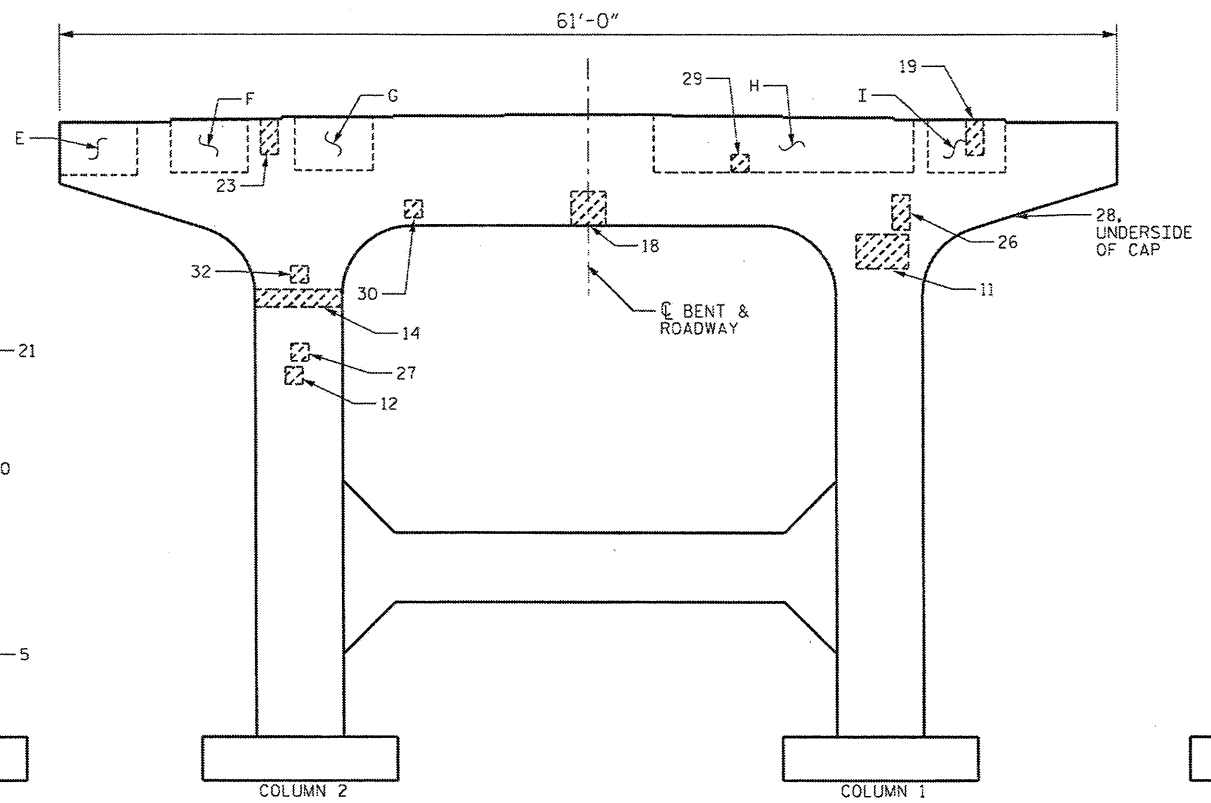
PLAN OF CAP
(NORTH FACE)



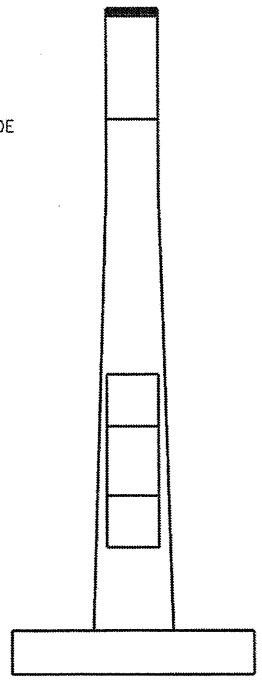
ELEVATION
(SOUTH FACE)



END ELEVATION
(EAST FACE)



ELEVATION
(NORTH FACE)



END ELEVATION
(WEST FACE)

REPAIR LOC.	BENT #	COLUMN#	DETAIL #S	L'	W'	D'	EST. VOL. (CF)
1*	2	N/A	1, 2	2	1	0.5	1
2	2	N/A	2	1	1	0.5	0.5
3*	3	N/A	1, 2	1	2	0.5	1
4*	4	N/A	1, 2	1	2	0.5	1
5	6	1	2	3	1	0.5	1.5
6	6	1	2	3	1	0.5	1.5
7	6	1	2	1	1	0.5	0.5
8	7	1	2	5	1	0.5	2.5
9	7	1	2	2	1	0.5	1
10	7	1	2	3	1	0.5	1.5

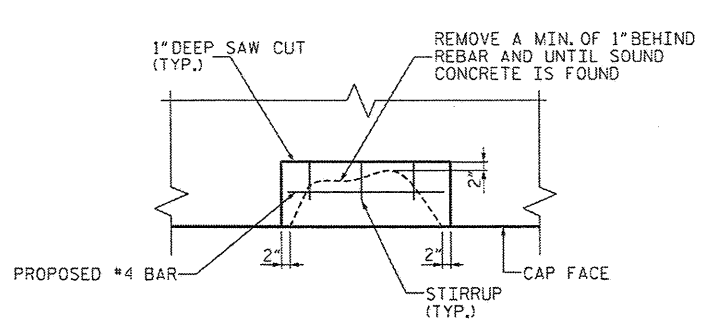
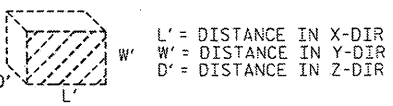
REPAIR LOC.	BENT #	COLUMN#	DETAIL #S	L'	W'	D'	EST. VOL. (CF)
11	7	1	2	3	2	0.5	3
12	7	1	2	1	1	0.5	0.5
13	8	1	2	3	1	0.5	1.5
14	8	N/A	2	5	1	0.5	2.5
15	15	N/A	2	2	3	0.5	3
16*	16	N/A	1, 2	1	2	0.5	1
17*	16	N/A	1, 2	1	2	0.5	1
18	16	N/A	1, 2	2	2	0.5	2
19*	16	N/A	1, 2	1	2	0.5	1
20*	17	N/A	1, 2	1	2	0.5	1
21	18	2	2	1	1	0.5	0.5

REPAIR LOC.	BENT #	COLUMN#	DETAIL #S	L'	W'	D'	EST. VOL. (CF)
22	20	1	2	3	1	0.5	1.5
23*	20	N/A	1, 2	1	2	0.5	1
24*	20	N/A	1, 2	1	2	0.5	1
25*	20	N/A	1, 2	1	2	0.5	1
26	21	N/A	2	1	2	0.5	1
27	21	N/A	2	1	1	0.5	0.5
28	21	N/A	1, 2	1	1	0.5	0.5
29	23	N/A	2	1	1	0.5	0.5
30	23	N/A	2	1	1	0.5	0.5
31	23	N/A	2	1	1	0.5	0.5
32	23	N/A	2	1	1	0.5	0.5
33	25	N/A	2	1	1	0.5	0.5
34	25	N/A	1, 2	1	1	0.5	0.5

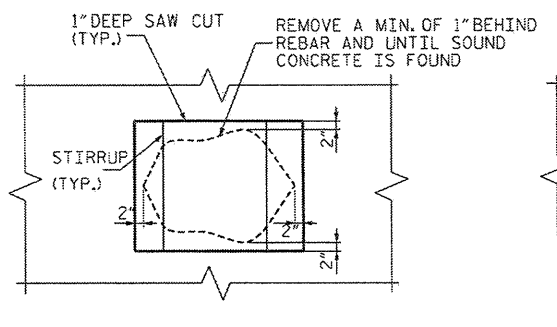
EXISTING SEAT REPAIRS **

REPAIR LOC.	BENT #	REPAIR TYPE	GIRDER #
A	22	REPAIR	1
B	2, 3	REPAIR	9
C	22	REPAIR	2
D	22	REPAIR	3
E	25	REPAIR	10
F	24, 25	REPAIR	9
G	24, 25	REPAIR	8
H	25	REPAIR	2-5
I	26	REPAIR	9

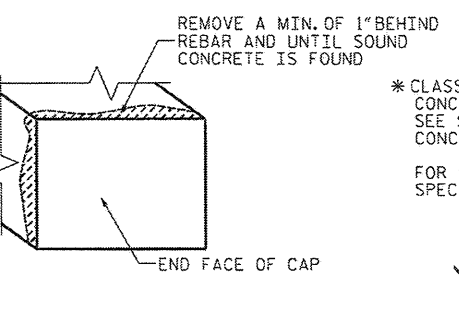
NOTES:
 REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.
 ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO THE SUBSTR. REPAIR AND SHALL BE GRADE 60.
 AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTORS' OPTION.



TYPICAL REPAIR DETAIL 1

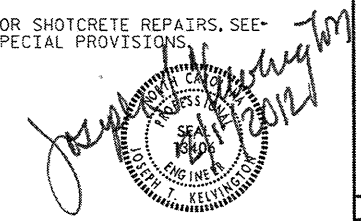


TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3

** CLASS A POLYMER MODIFIED CONCRETE REPAIR REQUIRED. SEE SPECIAL PROVISIONS FOR CONCRETE REPAIRS.
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.



PROJECT NO. WBS 17BP.3.H.1
 NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BENT REPAIR TYPICAL
 BENTS 1-8 & 15-26**

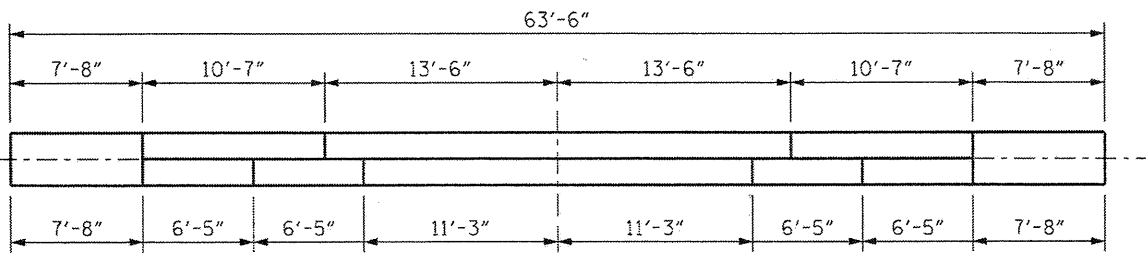
REHABILITATE BRIDGE NO. 30

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33	
1			3			TOTAL SHEETS 36	
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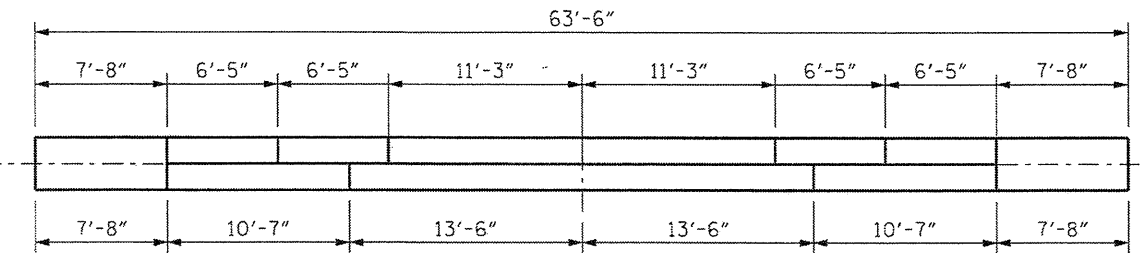
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DRAWN BY: B. T. LATON DATE: 10/11
 CHECKED BY: J. T. KELVINGTON DATE: 10/11

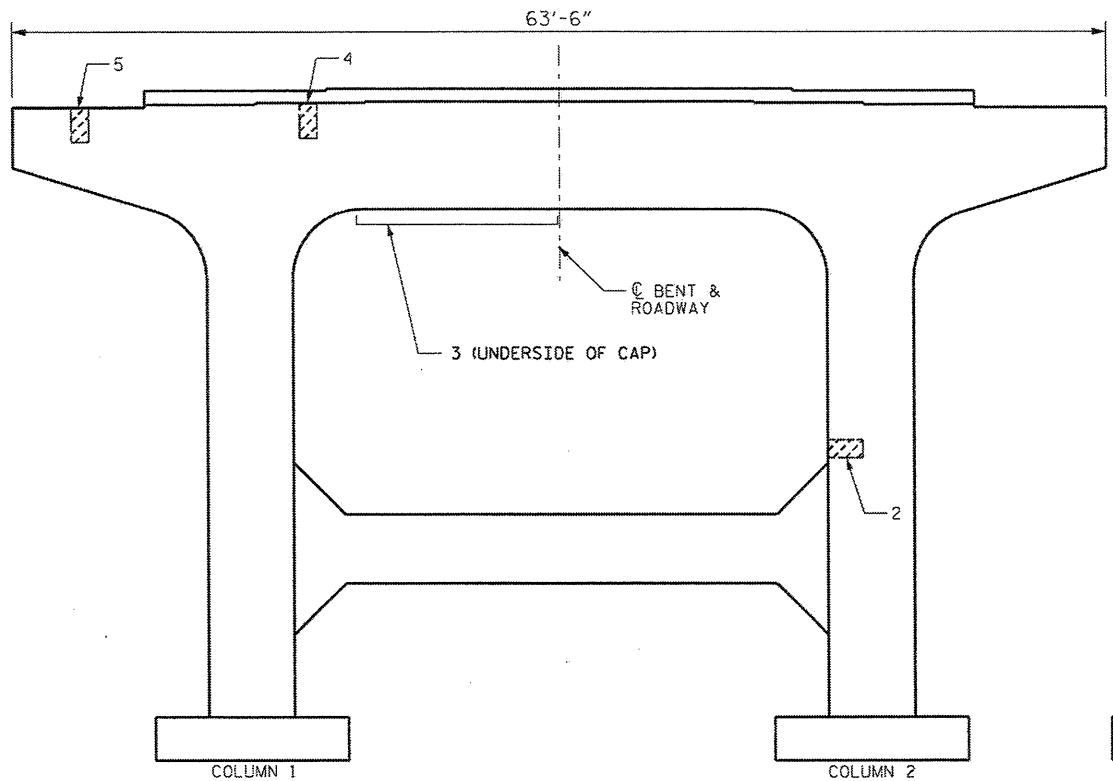
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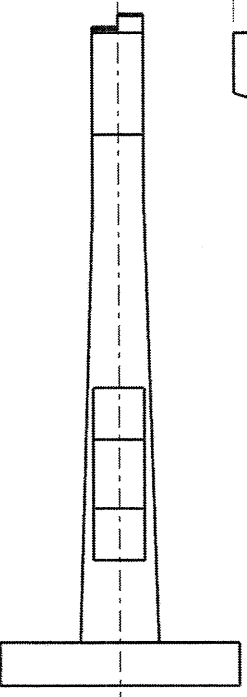
PLAN OF CAP
(SOUTH FACE)



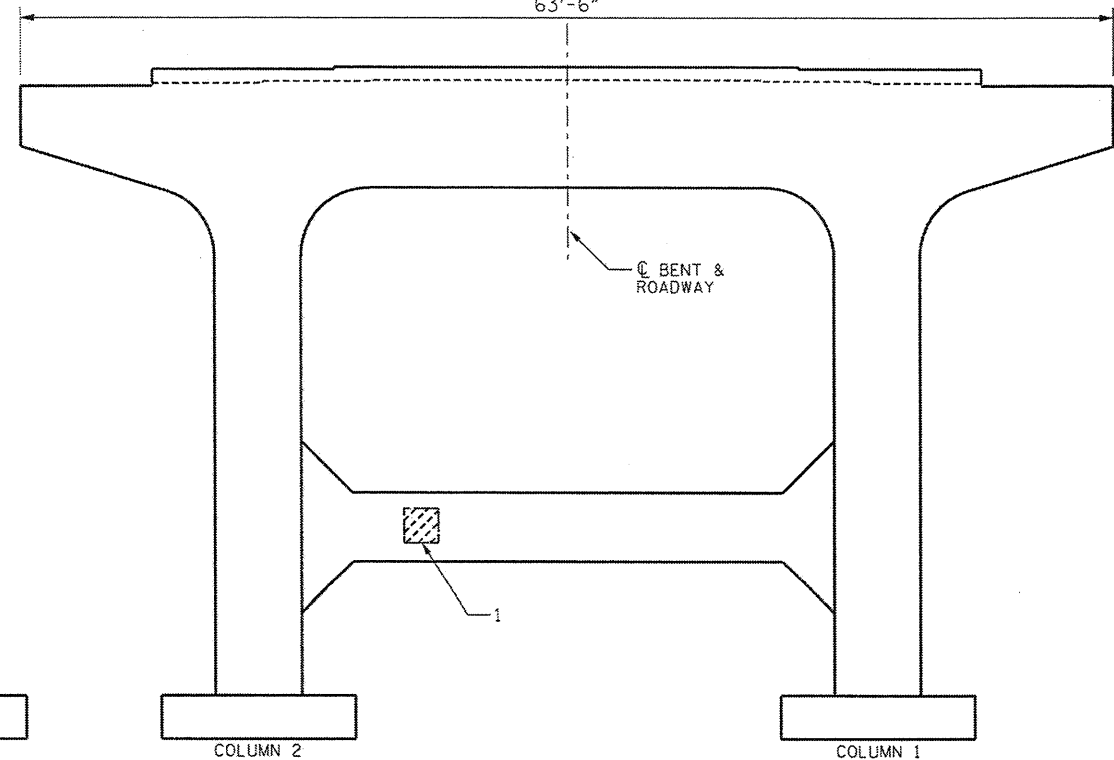
PLAN OF CAP
(NORTH FACE)



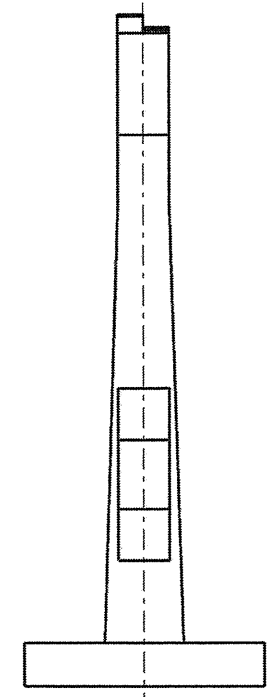
ELEVATION
(SOUTH FACE)



END ELEVATION
(EAST FACE)



ELEVATION
(NORTH FACE)



END ELEVATION
(WEST FACE)

TOTAL ESTIMATED QUANTITIES
 CONCRETE REPAIR 2.0 CF
 SHOTCRETE REPAIR 18.0 CF

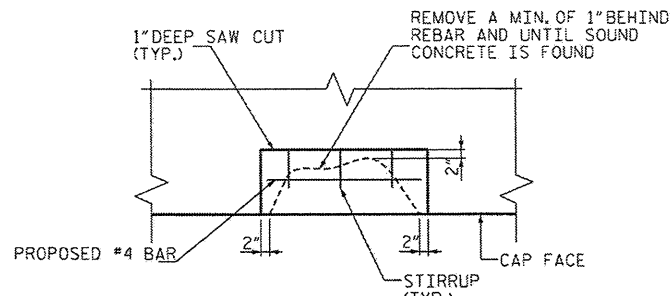
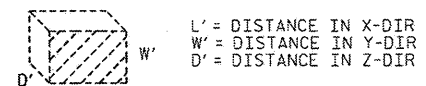
NOTES:
 REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.
 ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO THE SUBSTR. REPAIR AND SHALL BE GRADE 60.
 AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.

REPAIR LOC.	BENT#	COLUMN#	DETAIL#	L'	W'	D'	EST. VOL (CF)
1	9	N/A	2	2	2	0.5	2
2	9	2	2	2	1	0.5	1
3	9	N/A	1, 2	10	3	0.5	15
4 *	14	N/A	1, 2	1	2	0.5	1
5 *	14	N/A	1, 2	1	2	0.5	1

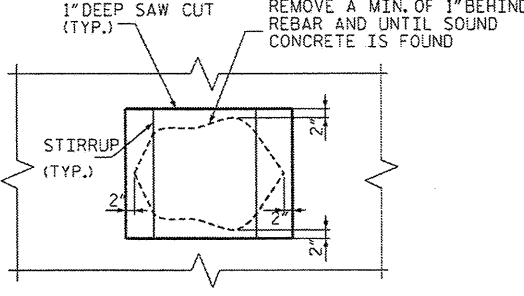
* CLASS A OR POLYMER MODIFIED CONCRETE REPAIR REQUIRED. SEE SPECIAL PROVISIONS FOR CONCRETE REPAIRS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

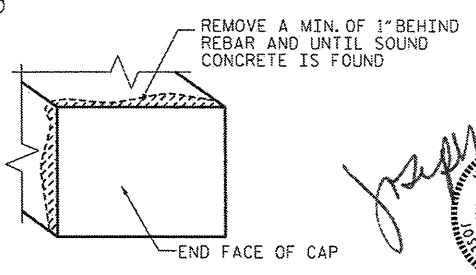
PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____



TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3

Joseph Kelvington
 PROFESSIONAL ENGINEER
 NO. 13406
 STATE OF NORTH CAROLINA
 KELVINGTON

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 801 Jones Franklin Road
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 Raleigh, NC 27606
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 www.stantec.com
 License No. F-0872

DRAWN BY: B. T. LATON DATE: 10/11
 CHECKED BY: J. T. KELVINGTON DATE: 10/11

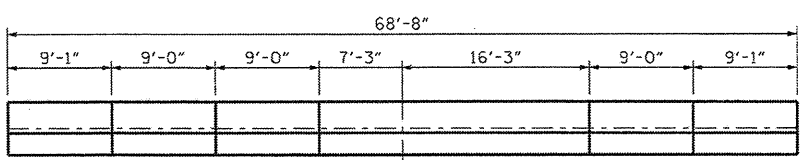
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT REPAIR TYPICAL
 BENTS 9 & 14

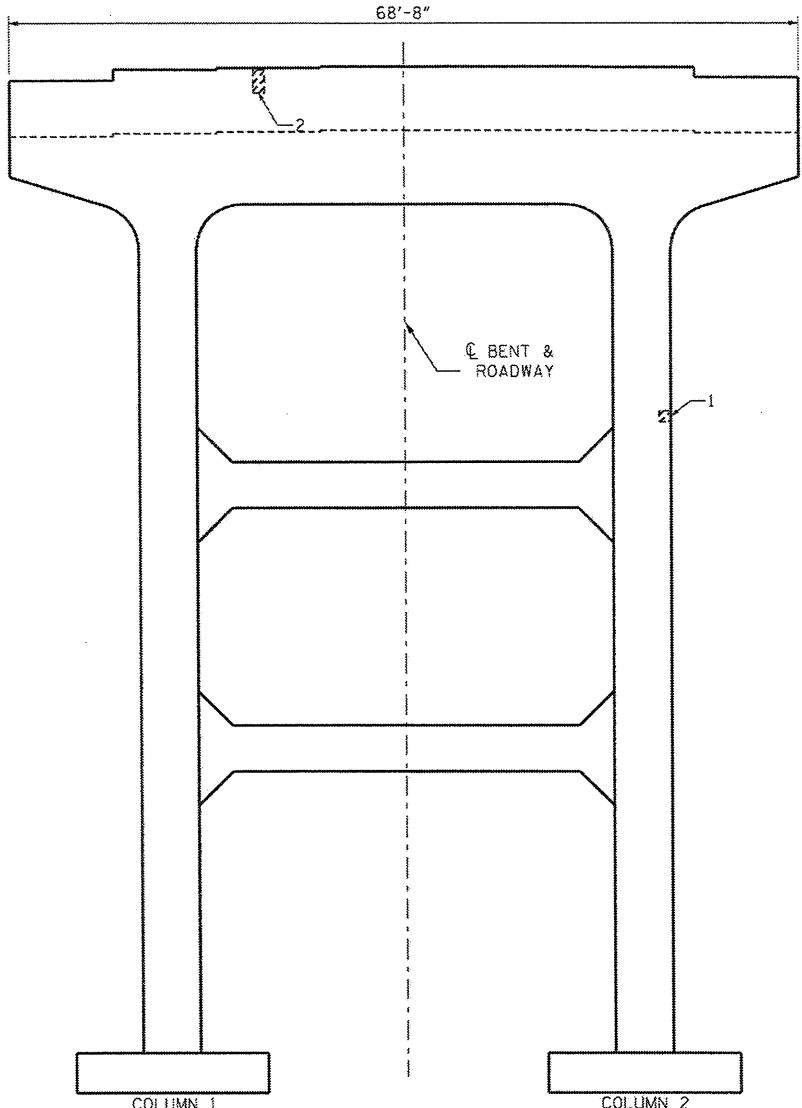
REHABILITATE BRIDGE NO. 30

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
1			3			TOTAL SHEETS 36
2			4			

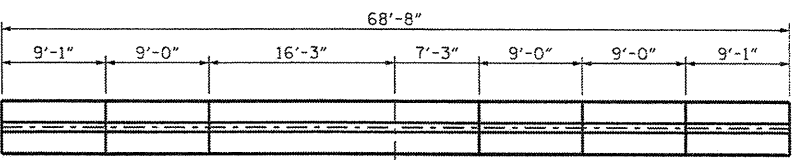
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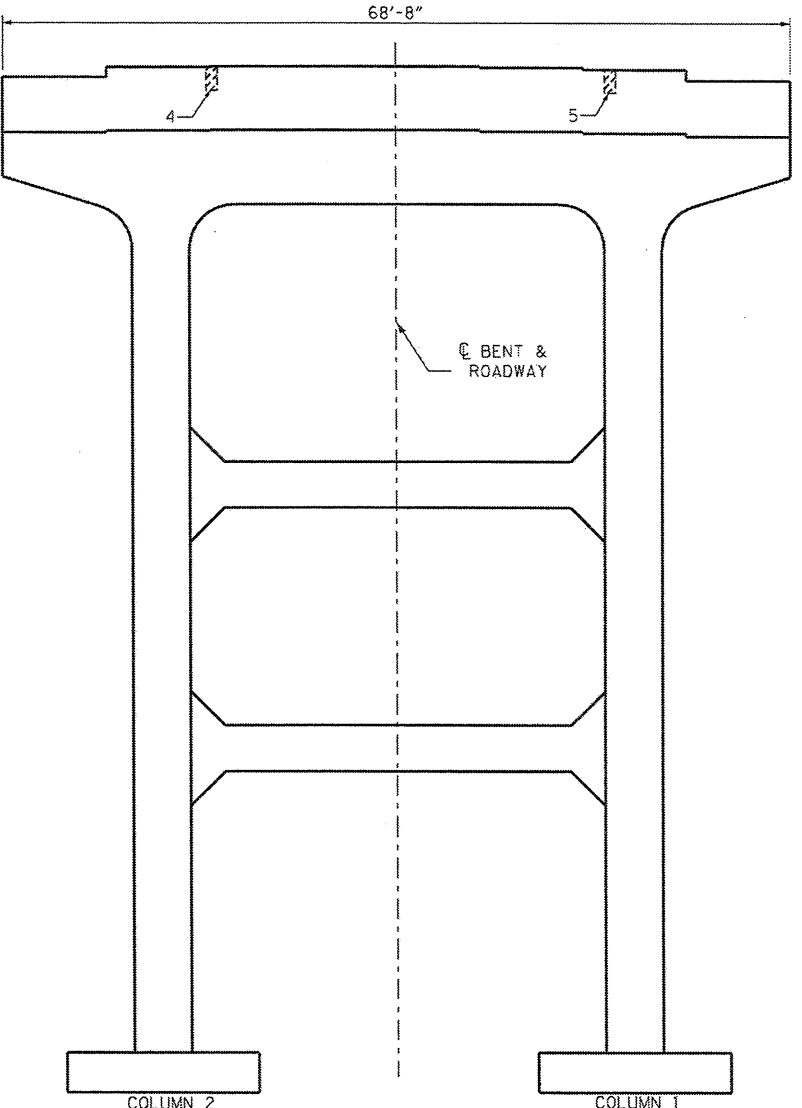
PLAN OF CAP
(SOUTH FACE)



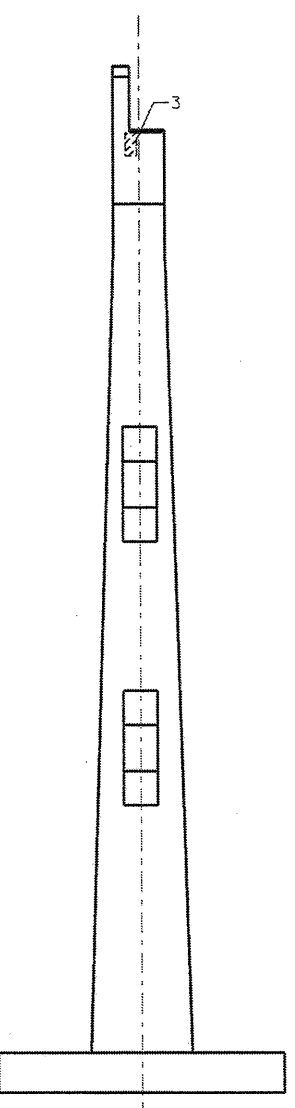
ELEVATION
(SOUTH FACE)



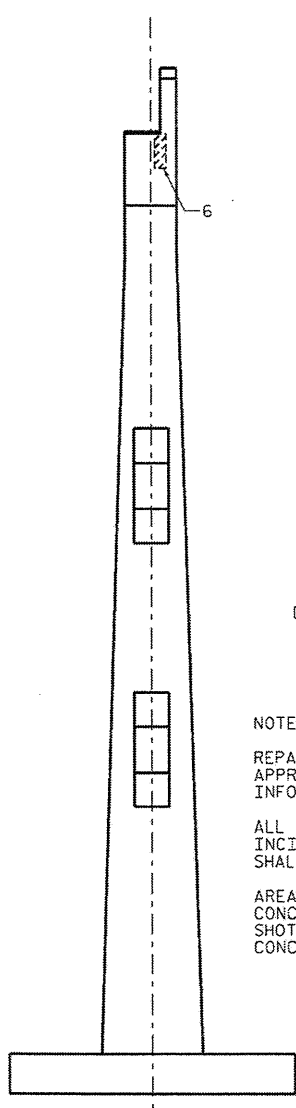
PLAN OF CAP
(NORTH FACE)



ELEVATION
(NORTH FACE)

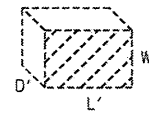


END ELEVATION
(EAST FACE)



END ELEVATION
(WEST FACE)

TOTAL ESTIMATED QUANTITIES
 CONCRETE REPAIR 3.0 CF
 SHOTCRETE REPAIR 3.0 CF



L' = DISTANCE IN X-DIR
 W' = DISTANCE IN Y-DIR
 D' = DISTANCE IN Z-DIR

NOTES:
 REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.
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 AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.

REPAIR LOC.	BENT #	COLUMN #	DETAIL #'S	L'	W'	D'	EST. VOL. (CF)
1	10	2	2	1	1	0.5	0.5
2*	10	N/A	1, 2	1	2	0.5	1
3	10	N/A	3	1	2	0.5	1
4*	13	N/A	1, 2	1	2	0.5	1
5*	13	N/A	1, 2	1	2	0.5	1
6	13	N/A	3	1	3	0.5	1.5

* CLASS A POLYMER MODIFIED CONCRETE REPAIR REQUIRED. SEE SPECIAL PROVISIONS FOR CONCRETE REPAIRS.
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT REPAIR TYPICAL
 BENTS 10 & 13

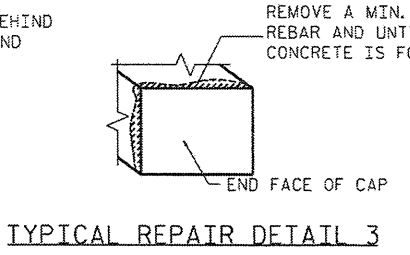
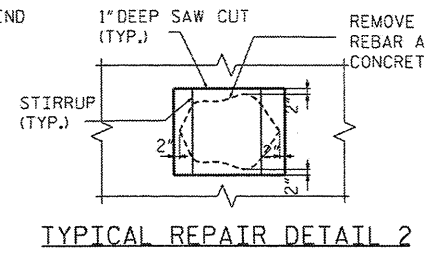
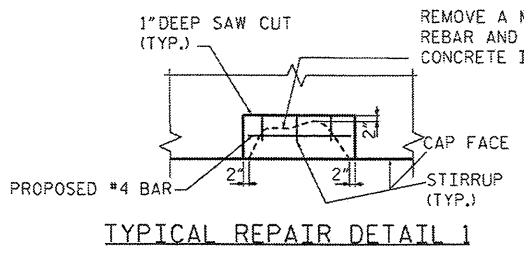
REHABILITATE BRIDGE NO. 30

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35	
1			3			TOTAL SHEETS	
2			4			36	

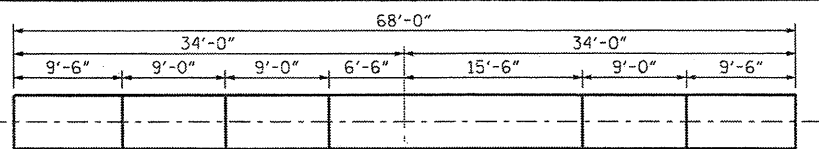
Joseph J. Kelvington
 2012
 NORTH CAROLINA
 PROFESSIONAL SEAL
 13406
 JOSEPH J. KELVINGTON
 ENGINEER

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 Fax. (919) 851-7024
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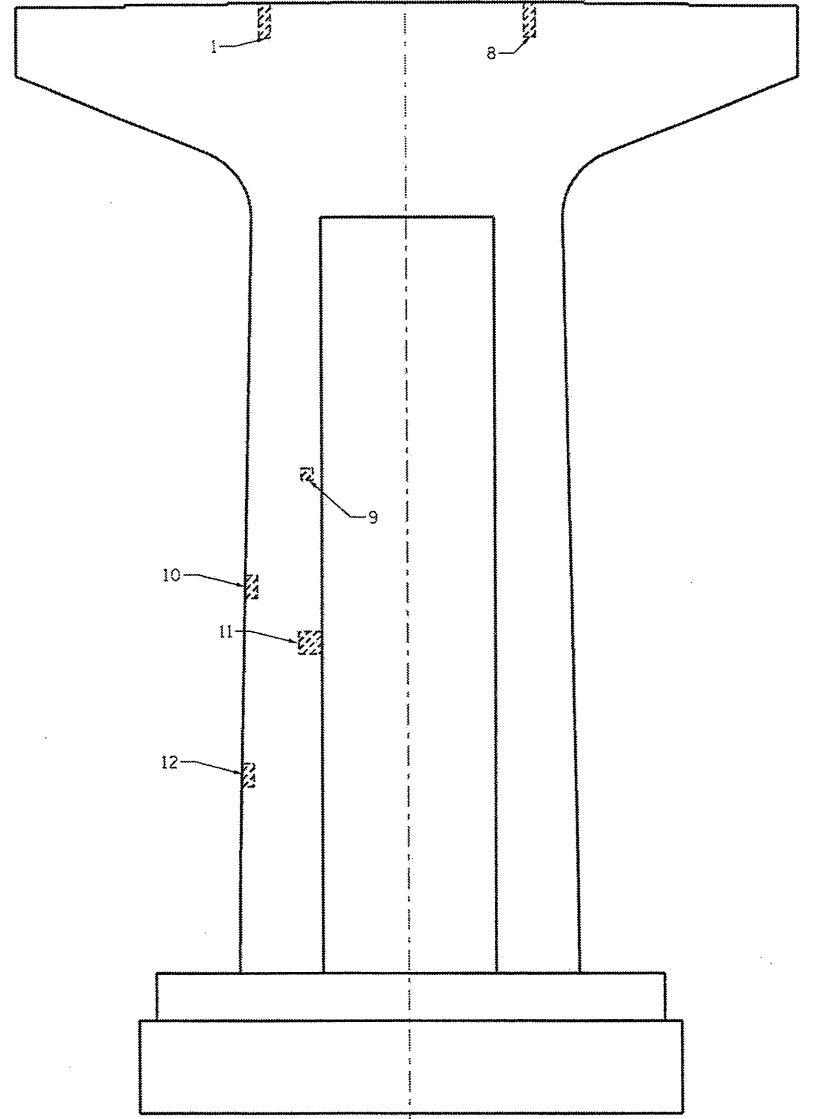
DRAWN BY: B. T. LATON DATE: 10/11
 CHECKED BY: J. T. KELVINGTON DATE: 10/11



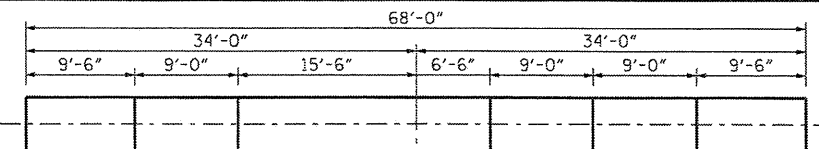
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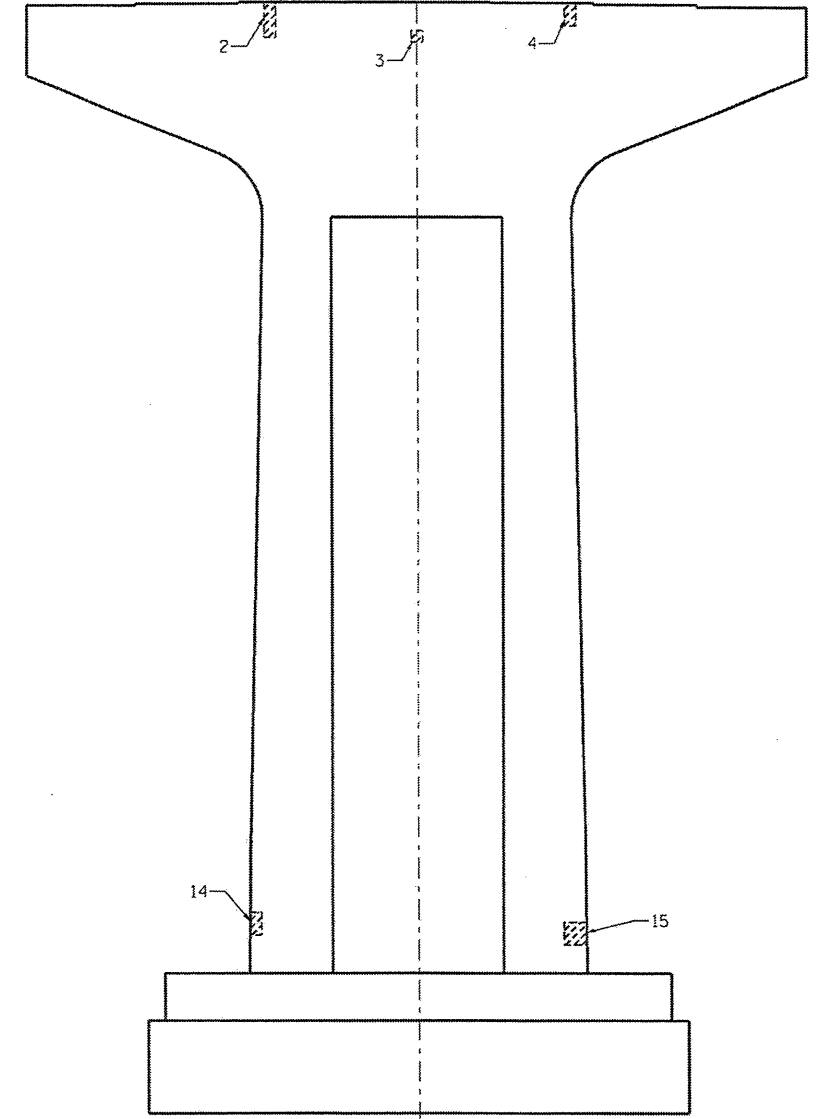
PLAN OF CAP
(SOUTH FACE)



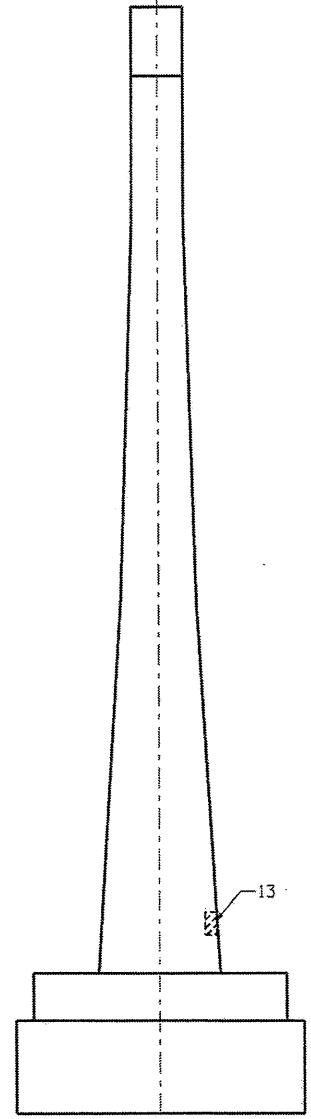
ELEVATION
(SOUTH FACE)



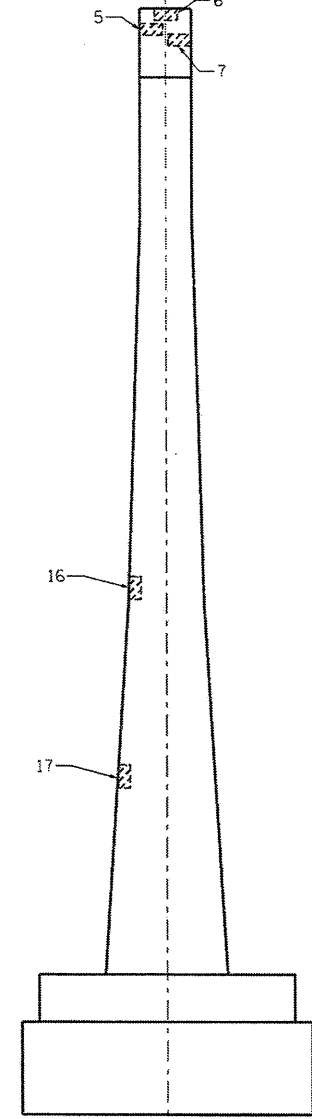
PLAN OF CAP
(NORTH FACE)



ELEVATION
(NORTH FACE)

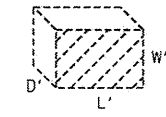


END ELEVATION
(EAST FACE)



END ELEVATION
(WEST FACE)

TOTAL ESTIMATED QUANTITIES
 CONCRETE REPAIR 5.5 CF
 SHOTCRETE REPAIR 14.0 CF



L' = DISTANCE IN X-DIR
 W' = DISTANCE IN Y-DIR
 D' = DISTANCE IN Z-DIR

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REPAIR LOC.	BENT #	DETAIL #'S	L'	W'	D'	EST. VOL. (CF)
1*	11	1, 2	1	3	0.5	1.5
2	11	1, 2	1	3	0.5	1.5
3	11	1, 2	1	1	0.5	0.5
4	11	1, 2	1	2	0.5	1
5	11	3	2	1	0.5	1

REPAIR LOC.	BENT #	DETAIL #'S	L'	W'	D'	EST. VOL. (CF)
6	11	3	2	1	0.5	1
7	11	3	2	1	0.5	1
8	12	1, 2	1	3	0.5	1.5
9	12	2	1	1	0.5	0.5
10	12	2	1	2	0.5	1

REPAIR LOC.	BENT #	DETAIL #'S	L'	W'	D'	EST. VOL. (CF)
11	12	2	2	2	0.5	2
12	12	2	1	2	0.5	1
13	12	2	1	2	0.5	1
14	12	2	1	2	0.5	1
15	12	2	2	2	0.5	2

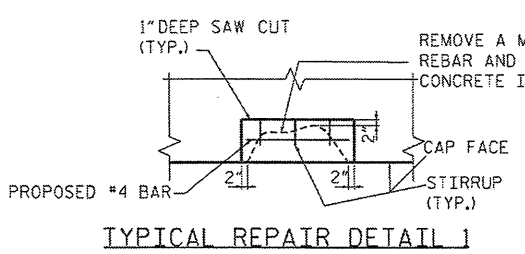
REPAIR LOC.	BENT #	DETAIL #'S	L'	W'	D'	EST. VOL. (CF)
16	12	2	1	2	0.5	1
17	12	2	1	2	0.5	1

* CLASS A POLYMER MODIFIED CONCRETE REPAIR REQUIRED. SEE SPECIAL PROVISIONS FOR CONCRETE REPAIRS.
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

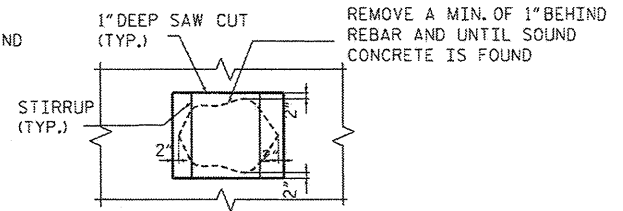
PROJECT NO. WBS 17BP.3.H.1
NEW HANOVER COUNTY
 STATION: _____

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 801 Jones Franklin Road
 Suite 300
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 Fax: (919) 851-7924
 www.stantec.com
 License No. F-0972

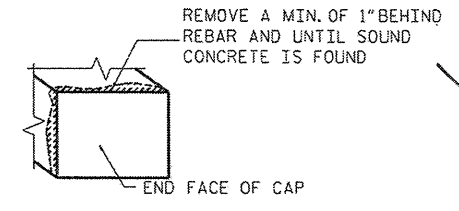
DRAWN BY: B.T. LATON DATE: 10/11
 CHECKED BY: J.T. KELVINGTON DATE: 10/11



TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3

Joseph J. Kelvington
 10/11/2012
 PE 13406
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT REPAIR TYPICAL
 BENTS 11 & 12

REHABILITATE BRIDGE NO. 30

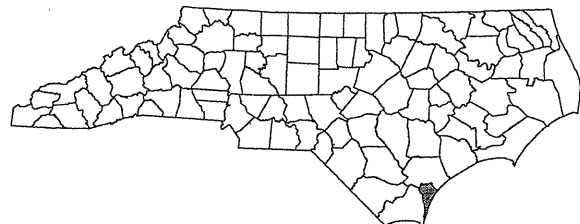
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36	
1			3			TOTAL	36
2			4			SHEETS	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

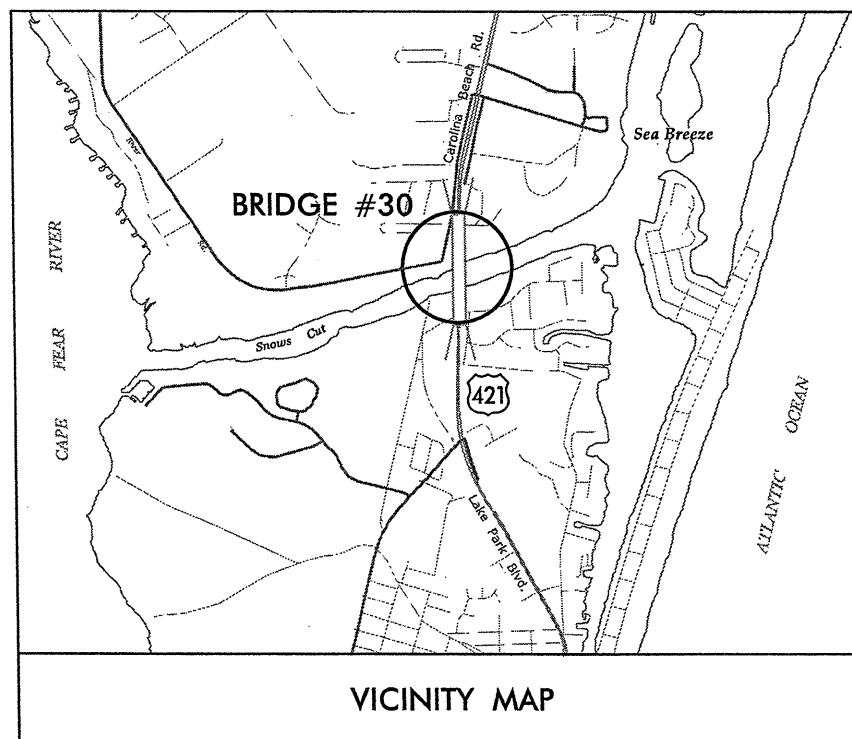
NEW HANOVER COUNTY

DIVISION 3



BRIDGE REHABILITATION

**BRIDGE #30 – US 421 (Carolina Beach Rd.)
over Intercoastal Waterway and SR 1532**



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	LEGEND AND LIST OF ROADWAY STANDARD DRAWINGS
TMP-2	GENERAL NOTES & PHASING
TMP-3	US 421 NB LEFT LANE CLOSURE
TMP-4	US 421 NB RIGHT LANE CLOSURE

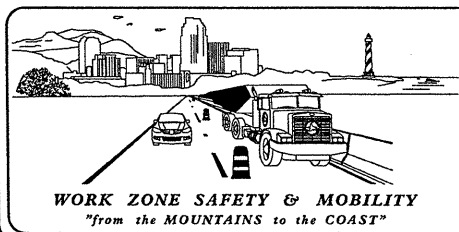
SHEET NO.
TMP-1

WBS 17BP.3.H.1

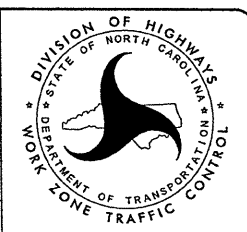
TRAFFIC MANAGEMENT STRATEGY

PROPOSED REPAIRS TO BRIDGE #30 WILL BE PERFORMED USING TIME RESTRICTED LANE CLOSURES AND FLAGGING OPERATIONS BELOW BRIDGE. REFER TO SHEET TMP-2 FOR PHASING.

I:\217\2012\UK\Traffic\TrafficControl\TCP\WBS 17BP.3.H.1\New Hanover 30\TCP\Plan Sheets\WBS 17BP.3.H.1.TC.TMP_01.TITLE.dgn
5/27/2012 10:49:00 AM



PLAN PREPARED FOR NCDOT BRIDGE MANAGEMENT UNIT
RALEIGH, NC















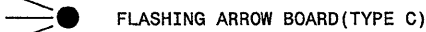




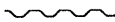



Stantec
PLAN PREPARED BY:
Stantec Consulting Services Inc.
801 Jones Franklin Road-Suite 300
Raleigh, NC 27606
Tel. 919.851.6866
Fax. 919.851.7024
www.stantec.com

BETSY L. WATSON, P.E. *TRAFFIC ENGINEER*
GEORGE KARAGEORGE *SR TRANSPORTATION DESIGNER*




APPROVED: *Betsy L. Watson*
DATE: *1/29/12*

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
29449
BETSY L. WATSON




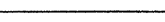
LEGEND

-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  WORK AREA
-  PAVEMENT REMOVAL
-  NORTH ARROW
-  TYPE III BARRICADE
-  CONE
-  DRUM
-  SKINNY DRUM
-  TUBULAR MARKER
-  CHANGEABLE MESSAGE SIGN (CMS)
-  FLAGGER
-  FLASHING ARROW BOARD (TYPE C)
-  LAW ENFORCEMENT
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  PORTABLE CONCRETE BARRIER (PCB)
-  TEMPORARY CRASH CUSHION
-  TEMPORARY SHORING
-  WORK ZONE SIGN-PORTABLE
-  WORK ZONE SIGN-STATIONARY
-  WORK ZONE SIGN-STATIONARY OR PORTABLE




SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY




PAVEMENT MARKINGS

-  EXISTING PAVEMENT MARKING (GRAY)
-  SKIP LINES
-  MINI-SKIP LINES
-  SOLID LINES

PAVEMENT MARKING SYMBOLS

-  PAVEMENT MARKING SYMBOLS
-  EXISTING PAVEMENT MARKING SYMBOLS (HOLLOW)
-  ONLY PAVEMENT MARKING ALPHANUMERIC CHARACTERS

PAVEMENT MARKERS

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

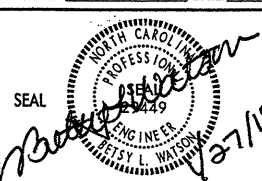
ROADWAY STANDARD DRAWINGS

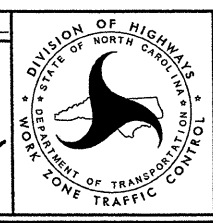
THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
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
1135.01	CONES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT)

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3/27/2012 9:58:00 AM


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Fax. (919) 851-7024
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APPROVED: _____ DATE: _____




LEGEND
&
ROADWAY STANDARD DRAWINGS

GENERAL NOTES

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

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. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

LANE CLOSURE TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES ON US 421 AS FOLLOWS:

DAY AND TIME RESTRICTIONS

FROM MARCH 1 THRU OCTOBER 15
7:00 A.M.-9:00 A.M. & 4:00 P.M.-6:00 P.M. MONDAY-THURSDAY AND
7:00 A.M. FRIDAY - 6:00 P.M. SUNDAY

FROM OCTOBER 16 THRU FEBRUARY 28
7:00 A.M. FRIDAY - 6:00 P.M. SUNDAY

HOLIDAY & HOLIDAY WEEKEND LANE CLOSURE TIME RESTRICTIONS

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND HOLIDAY WEEKENDS AS FOLLOWS:

ROAD NAME
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 7:00 A.M. DECEMBER 31st TO 6:00 P.M. JANUARY 2nd. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 6:00 P.M. THE FOLLOWING TUESDAY.
- 3) FOR EASTER, BETWEEN THE HOURS OF 7:00 A.M. THURSDAY AND 6:00 P.M. MONDAY.
- 4) FOR MEMORIAL DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.
- 5) FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 7:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY; THEN BETWEEN THE HOURS OF 7:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
- 6) FOR LABOR DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY AND 6:00 P.M. TUESDAY.
- 7) FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 A.M. TUESDAY TO 6:00 P.M. MONDAY.
- 8) FOR CHRISTMAS, BETWEEN THE HOURS OF 7:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- C) LANE CLOSURES ARE REQUIRED WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN ANY PORTION OF A TRAVEL LANE. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- D) INSTALL ALL LANE CLOSURES ACCORDING TO THE PLANS, ROADWAY STANDARD DRAWINGS (1101.02), OR AS DIRECTED BY THE ENGINEER.
- E) 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.
- F) 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 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- G) 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 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

PAVEMENT MARKINGS AND MARKERS

- H) RECORD ALL LOCATIONS AND TYPES OF EXISTING PAVEMENT MARKINGS AS THEY WILL BE REPLACED IN THE SAME LOCATION ON THE NEW SURFACE. ADD A 4" YELLOW EDGELINE ADJACENT TO THE EXISTING MEDIAN CONCRETE ISLAND. REPLACE THE EXISTING 4" WHITE SKIP LINES WITH 8" CONTRAST WHITE/BLACK COLD APPLIED PLASTIC-TYPE 2.
- I) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- J) UPON COMPLETION OF ALL OTHER CONSTRUCTION OPERATIONS INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	PAVEMENT MARKER
US 421	POLYUREA	PERMANENT RAISED
- K) REPLACE OBLITERATED OR DAMAGED PAVEMENT MARKINGS BEFORE OPENING LANES TO TRAFFIC. PAINT MAY BE USED INITIALLY UNTIL FINAL MARKINGS ARE PLACED.

MISCELLANEOUS

- L) MAINTAIN SIDEWALK ACCESS AT ALL TIMES.
- M) ALL DIMENSIONS AND STATIONS IN THE TRAFFIC MANAGEMENT PLAN AND PHASING ARE APPROXIMATE (+/-); FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
- N) ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919) 733-4740 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.

PHASING

BRIDGE #30 - US 421 OVER INTERCOASTAL WATERWAY AND SR 1532

USE LANE CLOSURES TO PERFORM BRIDGE WORK AS FOLLOWS:


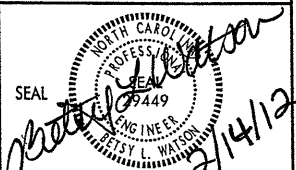

FOR US 421 SOUTHBOUND USE LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02, SHEET 3 OF 15.

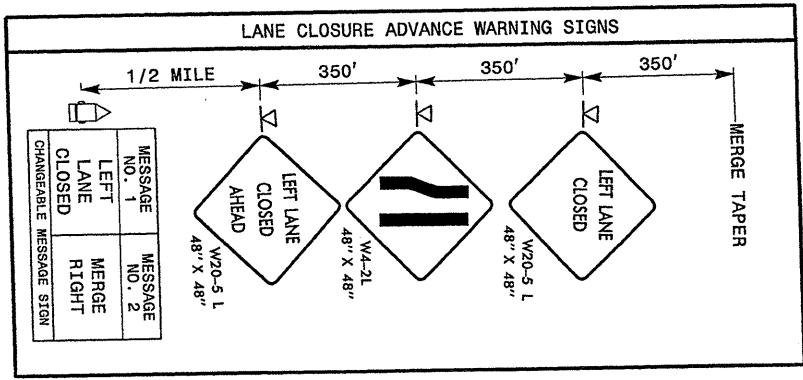
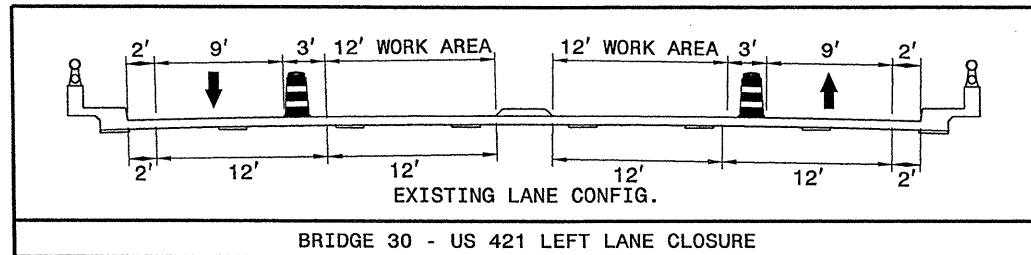
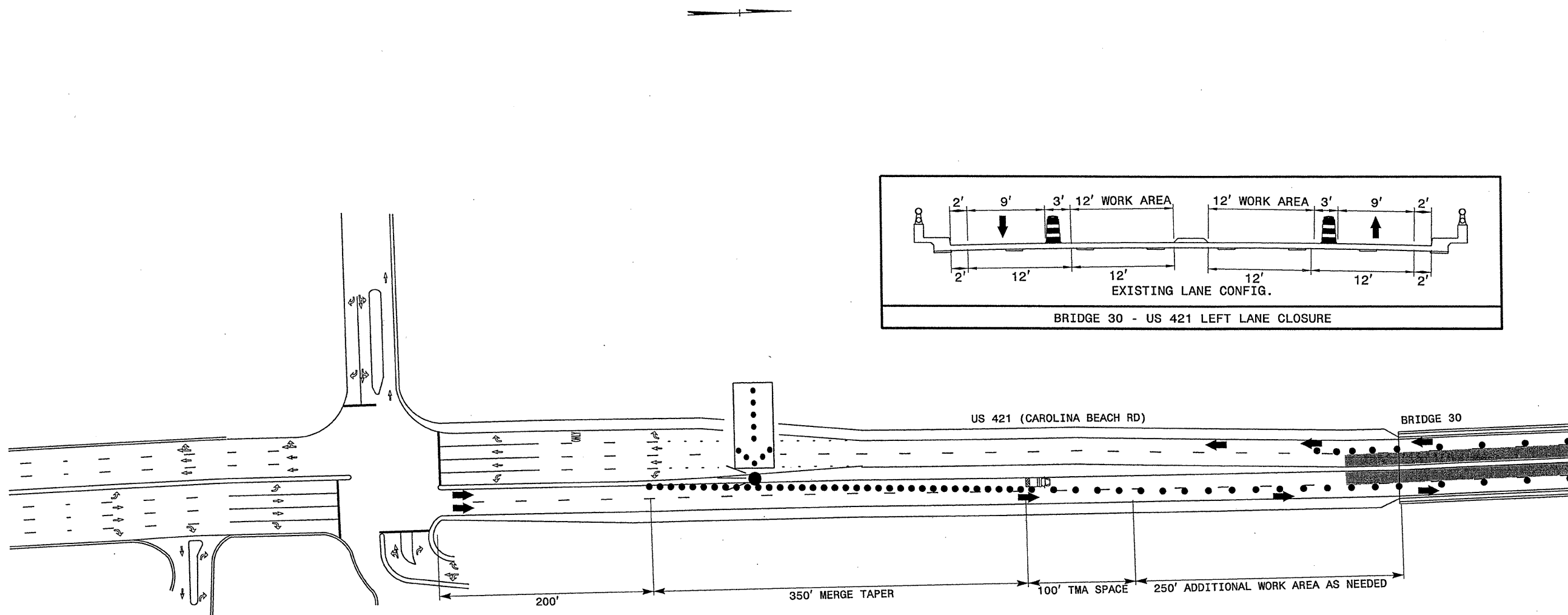
FOR US 421 NORTHBOUND USE LANE CLOSURES PER SHEETS TMP-3, 4.

WHEN WORKING IN THE INTERIOR LANES IMPLEMENT LEFT LANE CLOSURES IN BOTH DIRECTIONS OF US 421 SIMULTANEOUSLY.


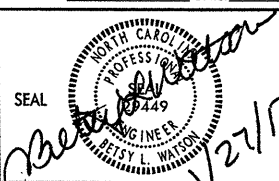

DURING HYDRO-DEMOLITION OPERATIONS, OR WHEN THERE MAY BE FALLING WATER OR DEBRIS, PROVIDE FLAGGING OPERATION ON SR 1532 AND PATHWAYS BELOW THE BRIDGE PER ROADWAY STANDARD DRAWING 1101.02 SHEET 1 OF 15.

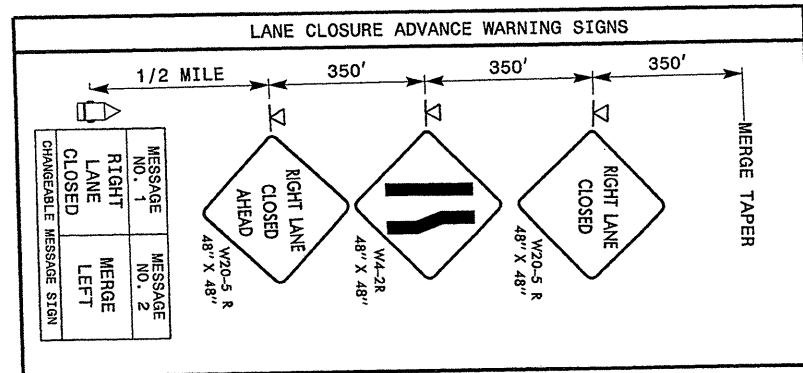
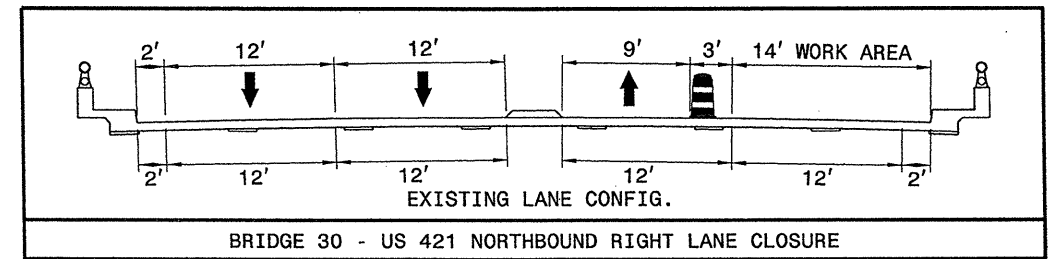
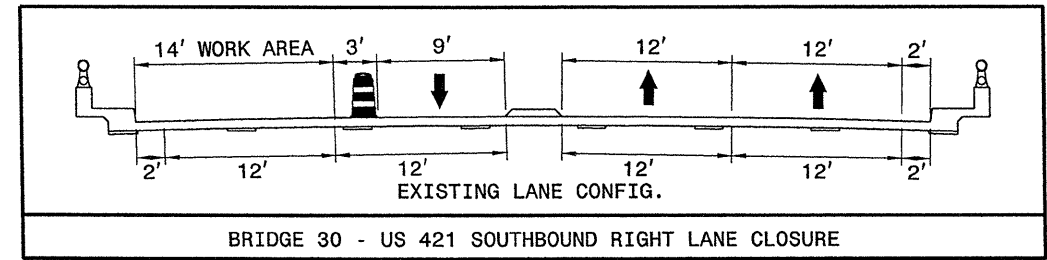
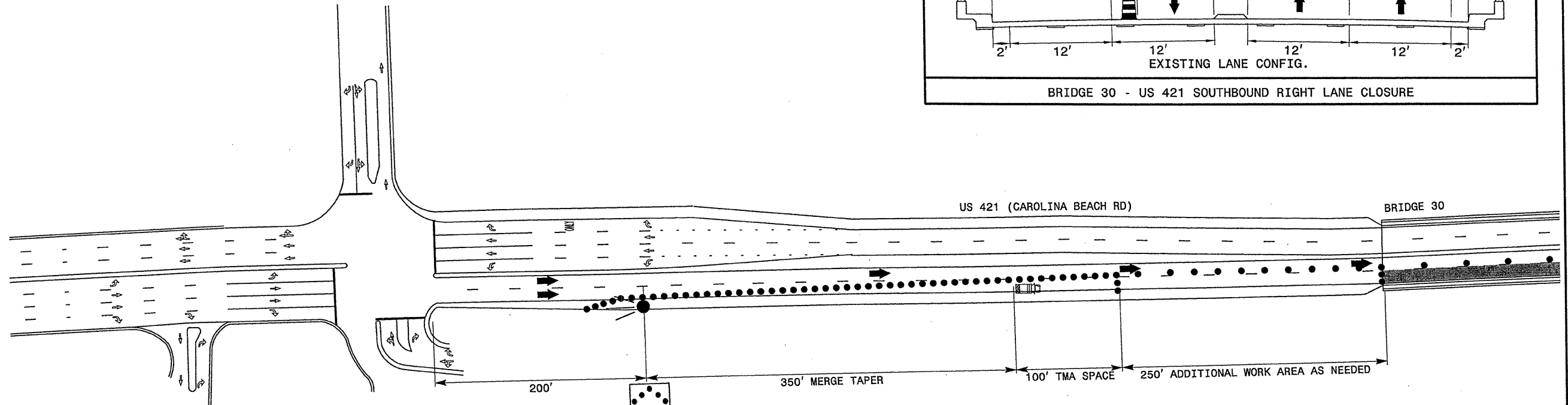
2/13/2012 11:41:00 AM C:\TrafficControl\TCP\WBS 17BP.3.H.1\New Hanover\30\TCP\Plan Sheets\WBS 17BP.3.H.1.TC.TMP.02.GENERALNOTES.dgn

 Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672	APPROVED: _____ DATE: _____ 		GENERAL NOTES & PHASING
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 Stantec	Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672	APPROVED: _____ DATE: _____  SEAL Patsy L. Watson 1/27/12	 DIVISION OF HIGHWAYS NORTH CAROLINA DEPARTMENT OF TRANSPORTATION K-9000 ZONE TRAFFIC CONTROL
US 421 NB LEFT LANE CLOSURE			



1/27/2012
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<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 		<p align="center">US 421 NB RIGHT LANE CLOSURE</p>
	SEAL 		

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 FLAT MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN