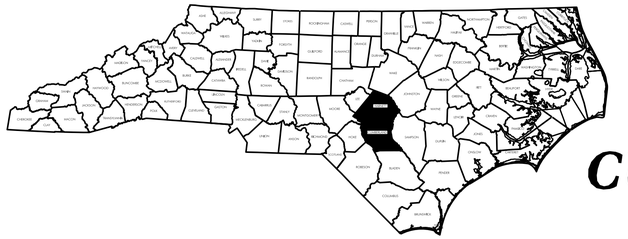
This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

TIP PROJECT: I-5788

CONTRACT: C203818

STRUCTURES



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND & HARNETT COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5788		

STATE PROJECT NO.	F. A. PROJ. NO.	DESCRIPTION
53028.1.1	NHPIM-0095(018)63	PE
53028.2.1	NHPIM-0095(018)63	R /W
53028.3.1	NHPIM-0095(018)63	CONSTR.

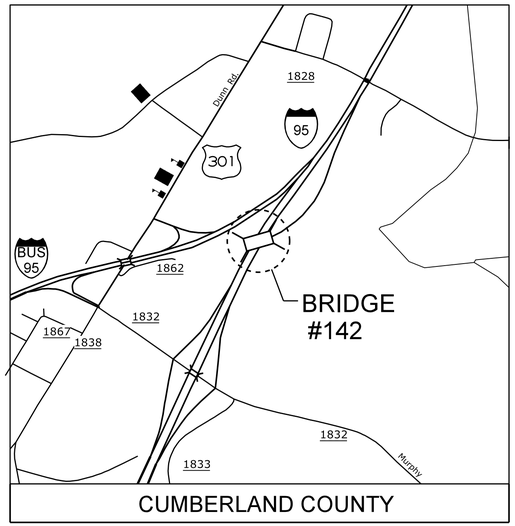
LOCATION: CUMBERLAND COUNTY:
BRIDGE #142 ON I-95 BUSNESS LOOP FLYOVER I-95
BRIDGE #157 ON I-95 NBL OVER BLACK RIVER
BRIDGE #158 ON I-95 SBL OVER BLACK RIVER

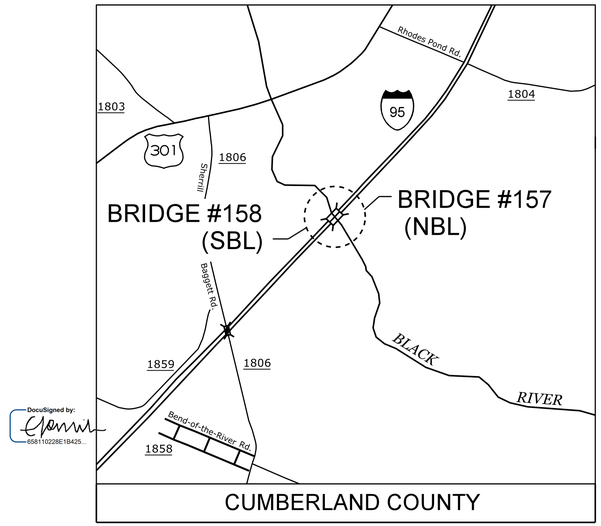
HARNETT COUNTY:
BRIDGE #73 ON I-95 NBL OVER US 421 & NC 55
BRIDGE #77 ON I-95 SBL OVER US 421 & NC 55

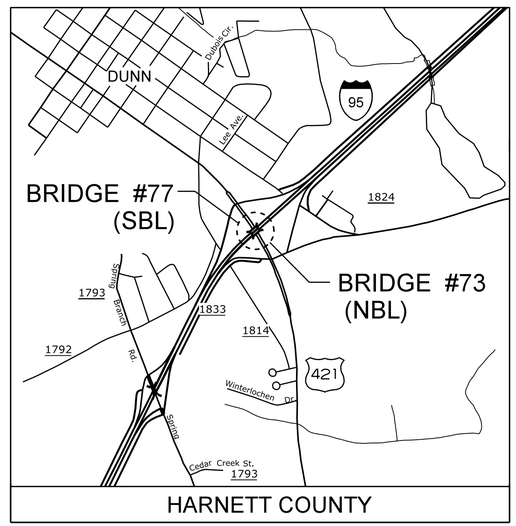
TYPE OF WORK: SCARIFICATION, HYDRO-DEMOLITION, DECK REPAIRS, JOINT DEMOLITION, LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH, POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY, REPAIR AND PAINTING OF EXISTING WEATHERING STEEL STRUCTURE, SUPERSTRUCTURE & SUBSTRUCTURE REPAIRS.

N

S







STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT LENGTH

CUMBERLAND COUNTY
PROJECT LENGTH #142 = 0.077 MI
PROJECT LENGTH #157 = 0.033 MI
PROJECT LENGTH #158 = 0.033 MI

HARNETT COUNTY
PROJECT LENGTH #73 = 0.033 MI
PROJECT LENGTH #77 = 0.033 MI

Prepared In the Office of:
STRUCTURES MANAGEMENT UNIT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

LETTING DATE:
MARCH 15, 2016

J. M. BAILEY, PE
PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

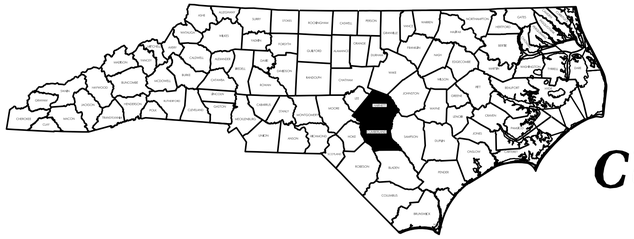
DocuSigned by:
E72088A0D9774350...
1/28/2016

TING FANG, PE
PROJECT DESIGN ENGINEER

28-JAN-2016 12:21
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
tfang

TIP PROJECT: I-5788

CONTRACT: 203818



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND & HARNETT COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5788		

STATE PROJECT NO.	F. A. PROJ. NO.	DESCRIPTION
53028.1.1	NHPIM-0095(018)63	PE
53028.2.1	NHPIM-0095(018)63	R /W
53028.3.1	NHPIM-0095(018)63	CONSTR.

LOCATION: CUMBERLAND COUNTY:
BRIDGE #142 ON I-95 BUSNESS LOOP FLYOVER I-95
BRIDGE #157 ON I-95 NBL OVER BLACK RIVER
BRIDGE #158 ON I-95 SBL OVER BLACK RIVER

HARNETT COUNTY:
BRIDGE #73 ON I-95 NBL OVER US 421 & NC 55
BRIDGE #77 ON I-95 SBL OVER US 421 & NC 55

INDEX OF SHEETS

STRUCTURE NO.	DESCRIPTION	SHEET NUMBER
	TITLE SHEET	S-1
	INDEX OF SHEETS & SUMMARY OF QUANTITIES	S-1A
142	BRIDGE ON FLYOVER OVER I-95 BY-PASS	S-2 TO S-16
157	BRIDGE ON I-95 NBL OVER BLACK RIVER	S-17 TO S-34
158	BRIDGE ON I-95 SBL OVER BLACK RIVER	S-35 TO S-46
73	BRIDGE ON I-95 NBL OVER US 421	S-47 TO S-61
77	BRIDGE ON I-95 SBL OVER US 421	S-62 TO S-72
	STANDARD NOTES	SN

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by:
E720884009774 35...
2/2/2016

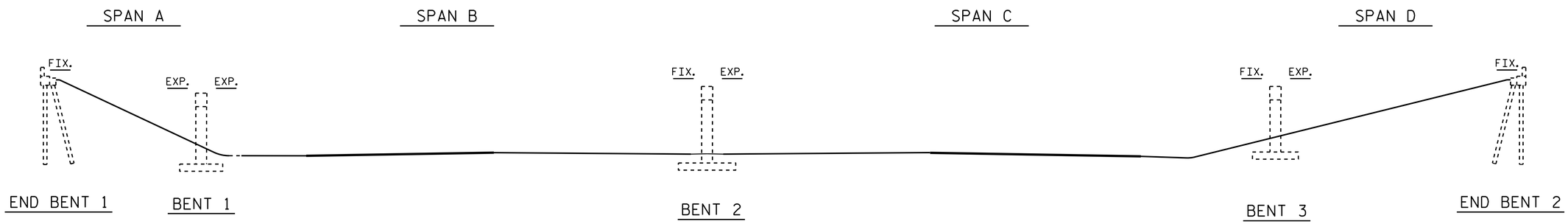
SUMMARY OF TOTAL BILL OF MATERIAL (CONTINUED)

BRIDGE NO.	PLACING & FINISHING PPC OVERLAY	SCARIFYING BRIDGE DECK	BRIDGE JACKING
	SQ. YDS.	SQ. YDS.	EA.
CUMBERLAND COUNTY			
142	-	2,070	4
157	-	725	-
158	-	725	-
HARNETT COUNTY			
73	730	-	-
77	730	-	-
TOTAL			
TOTAL	1,460	3,520	4

SUMMARY OF TOTAL BILL OF MATERIAL

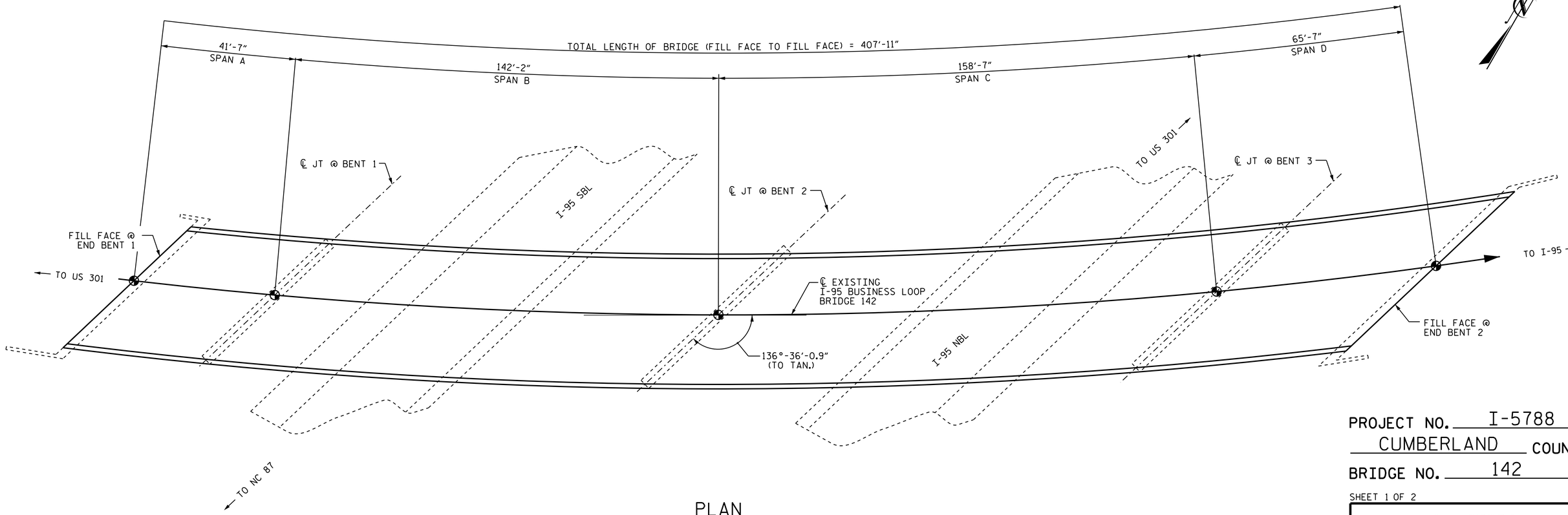
BRIDGE NO.	GROOVING BRIDGE FLOORS	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	CLASS III SURFACE PREPARATION	CONCRETE REPAIR	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS	PAINTING EXISTING WEATHERING STEEL STRUCTURE	VOLUMETRIC MIXER	LATEX MODIFIED CONCRETE-VES	POLYESTER POLYMER CONCRETE MATERIALS	CONCRETE FOR DECK REPAIR	ELASTOMERIC CONCRETE	STRUCTURAL STEEL GIRDER REPAIR	BRIDGE JOINT DEMOLITION	EPOXY COATING	CONCRETE DECK REPAIR FOR PPC OVERLAY	HYDRO-DEMOLITION OF BRIDGE DECK	INCIDENTAL MILLING	PLACING & FINISHING LATEX MODIFIED CONCRETE OVERLAY-VES
	SQ. FT.	LUMP SUM	SQ.YDS.	SQ.YDS.	CU. FT.	CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	CU. YDS.	CU. FT.	CU. FT.	LBS.	SQ. FT.	SQ. FT.	SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.
CUMBERLAND COUNTY																					
142	17,200	LUMP SUM	1.0	1.0	0.8	11.6	168.0	LUMP SUM	LUMP SUM	LUMP SUM	86.2	-	5	44.2	1,000	176.6	807	-	2,070	-	2,070
157	5,780	-	1.0	1.0	0.6	13.9	14.5	LUMP SUM	-	LUMP SUM	45.3	-	5	28.0	-	112.0	350	-	725	-	725
158	5,780	-	1.0	1.0	1.0	7.4	15.5	LUMP SUM	-	LUMP SUM	45.3	-	5	28.0	-	112.0	350	-	725	-	725
	HARNETT COUNTY																				
73	5,780	-	1.0	1.0	2.4	7.9	116.3	LUMP SUM	-	LUMP SUM	-	30.4	5	-	-	-	340	1.0	-	730	-
77	5,780	-	1.0	1.0	5.3	56.7	96.8	LUMP SUM	-	LUMP SUM	-	30.4	5	-	-	-	340	1.0	-	730	-
TOTAL																					
TOTAL	40,320	LUMP SUM	5.0	5.0	10.1	97.5	411.1	LUMP SUM	LUMP SUM	LUMP SUM	176.8	60.8	25	100.2	1,000	400.6	2,187	2.0	3,520	1460	3,520

02-FEB-2016 09:02
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
tipno



ELEVATION

SECTIONS AT BENTS AND END BENTS ARE AT RIGHT ANGLES



PLAN

COLUMNS AND FOOTINGS NOT SHOWN FOR CLARITY

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 142

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE OVER I-95 BY-PASS ON FLYOVER BETWEEN US 301 AND I-95

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774351...

1/28/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : S. B. WILLIAMS DATE : 11-9-15
CHECKED BY : T. H. FANG DATE : 11-9-15

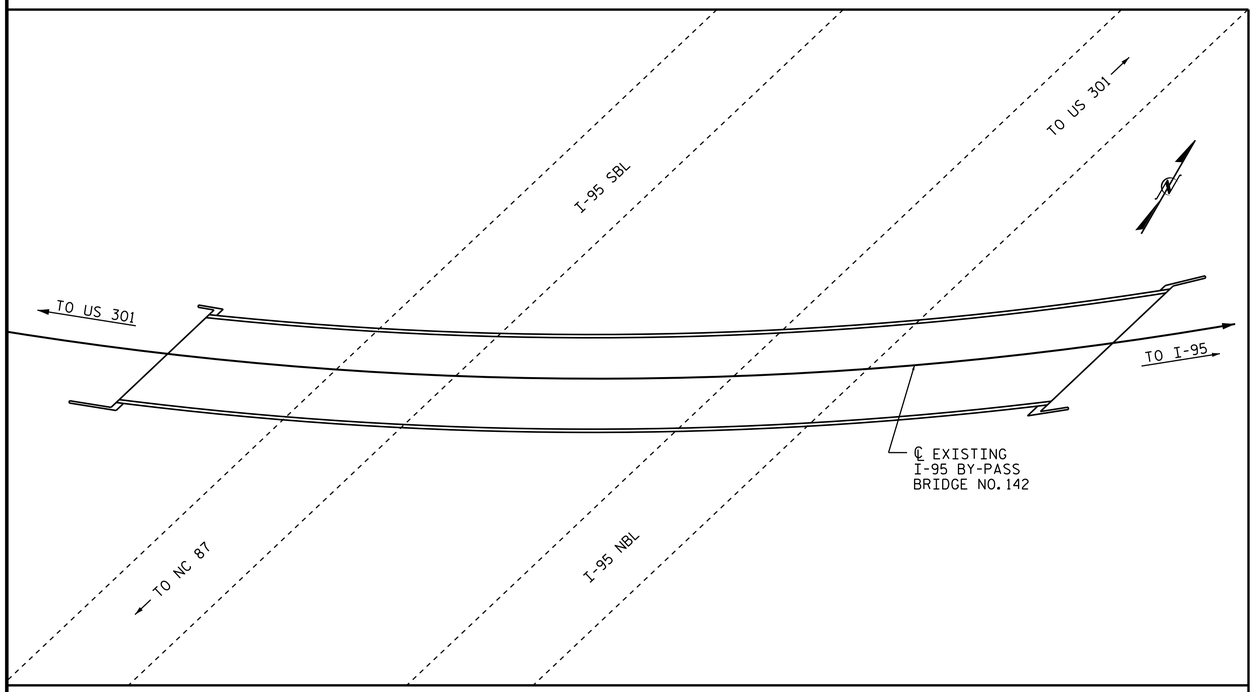
28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250142_plans.dgn
ttfang

TOTAL BILL OF MATERIAL

BRIDGE NO.	GROOVING BRIDGE FLOORS	POLLUTION CONTROL	* CLASS II SURFACE PREPARATION	* CLASS III SURFACE PREPARATION	CONCRETE REPAIR	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS	PAINTING EXISTING WEATHERING STEEL STRUCTURE	* VOLUMETRIC MIXER	LATEX MODIFIED CONCRETE -VES	CONCRETE FOR DECK REPAIR	ELASTOMERIC CONCRETE	** STRUCTURAL STEEL GIRDER REPAIR	BRIDGE JOINT DEMOLITION	EPOXY COATING	HYDRO-DEMOLITION OF BRIDGE DECK	PLACING & FINISHING OF LATEX MODIFIED CONCRETE OVERLAY-VES	SCARIFYING BRIDGE DECK	BRIDGE JACKING
	SQ. FT.	LUMP SUM	SQ.YDS.	SQ.YDS.	CU. FT.	CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	C.Y.	CU. FT.	CU. FT.	LBS.	SQ. FT.	SQ. FT.	SQ.YDS.	SQ.YDS.	SQ.YDS.	EA.
142	17,200	LUMP SUM	1	1	0.8	11.6	168.0	LUMP SUM	LUMP SUM	LUMP SUM	86.2	5	44.2	1,000	176.6	807	2,070	2,070	2,070	4

* CLASS II AND CLASS III SURFACE PREPARATIONS, VOLUMETRIC MIXER AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED.
TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES, IN CASE UNANTICIPATED CLASS II AND CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

** FOR INFORMATION ONLY. FOLLOWING SANDBLASTING, PRIMER SHALL NOT BE APPLIED UNTIL THE STRUCTURE HAS BEEN INSPECTED BY DEPARTMENT PERSONNEL AND A QUANTITY OF STRUCTURAL STEEL FOR GIRDER REPAIR HAS BEEN DETERMINED.



LOCATION SKETCH

NOTES:

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING THE BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

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

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

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

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

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES. THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

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

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

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

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR, SEE SPECIAL PROVISION.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 142

SHEET 2 OF 2

1/29/2016

DocuSigned by:
Ting H. Fang
E72088400977435...

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE OVER I-95 BY-PASS ON FLYOVER BETWEEN US 301 AND I-95

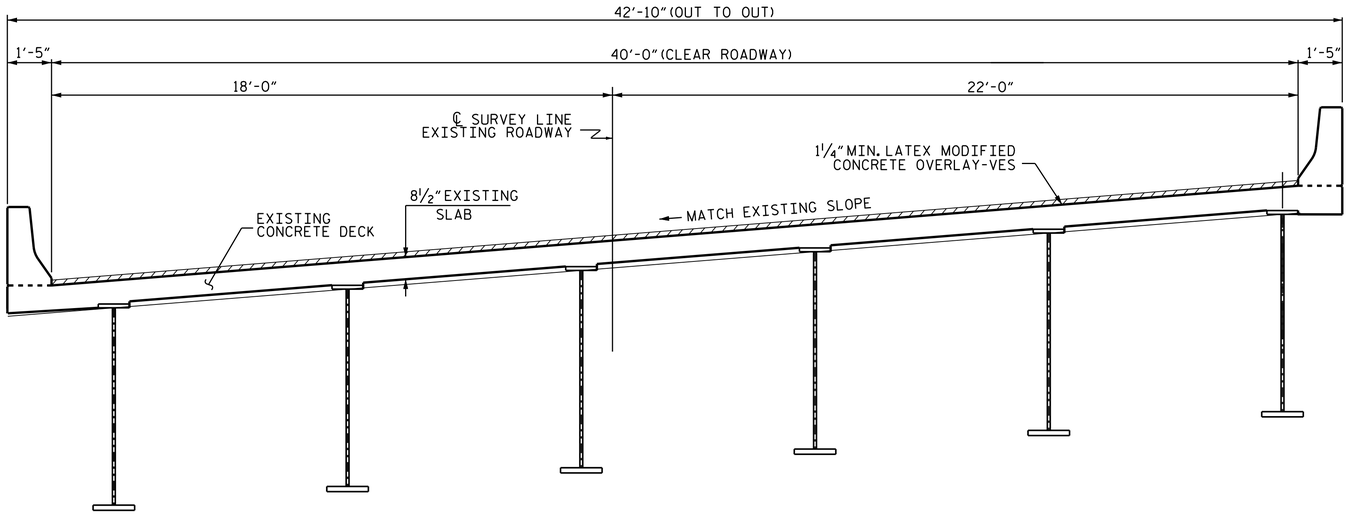
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : S. B. WILLIAMS DATE : 11-9-15
CHECKED BY : T. H. FANG DATE : 11-12-15

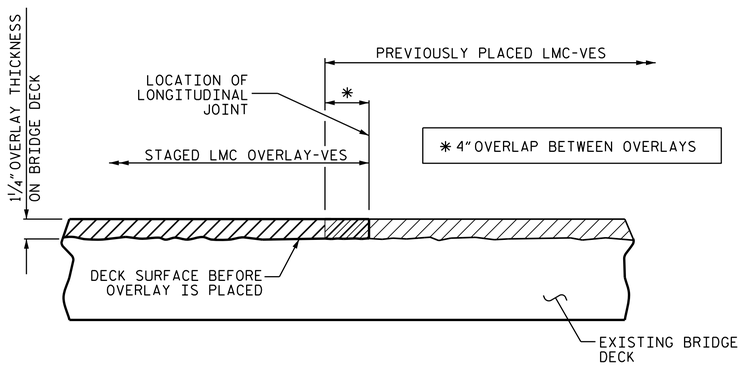
29-JAN-2016 12:00
K:\TIPProjects-I\I5788\Structures\Finalplans\250142_plans.dgn
tfang

NOTES

WHEN PREPARING THE SURFACE FOR LMC OVERLAY-VES ADJACENT TO A PREVIOUSLY PLACED LMC-VES STAGE, THE PREVIOUSLY PLACED LMC-VES SHALL BE REMOVED FOR A DISTANCE OF 4-INCHES FROM THE LMC-VES EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC-VES SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF NEW LMC-VES STAGE PLACEMENT.



TYPICAL SECTION



SECTION THRU DECK

STAGED LMC-VES OVERLAY JOINT

(AS NEEDED)

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO.: 142

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION & LATEX MODIFIED CONCRETE-VES DETAILS

SPANS A THRU D

NORTH CAROLINA PROFESSIONAL SEAL 25461 ENGINEER EMANUEL L. OMILE

DocuSigned by:
6581102 28E1B425...

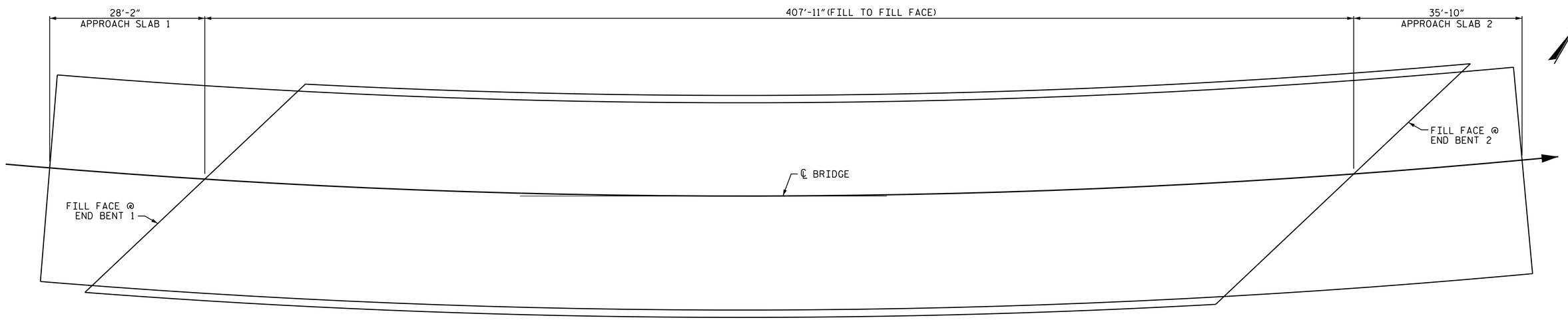
1/29/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 11/5/15

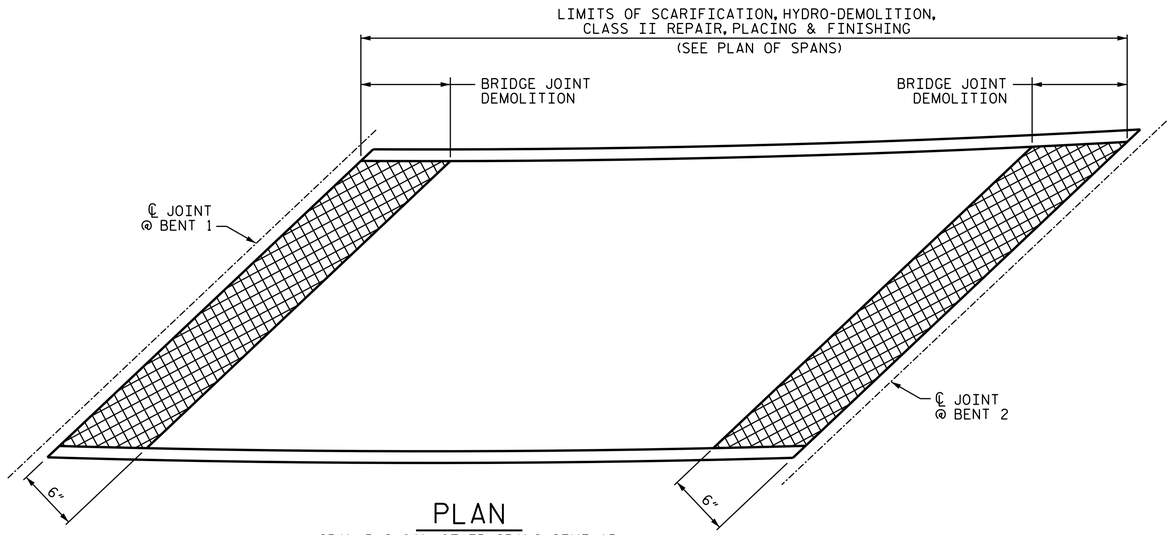
CHECKED BY : E. I. OMILE DATE : 11/23/15

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250142_plans.dgn
ttfang



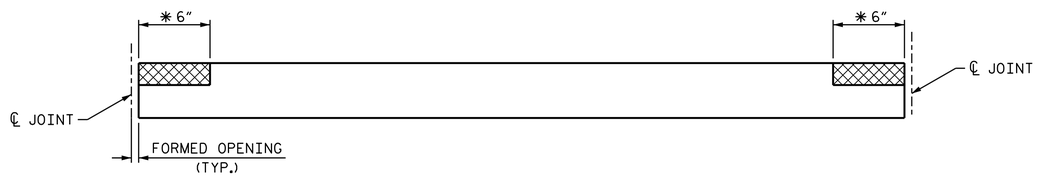
DECK AND APPROACH SLABS SCARIFICATION, HYDRO-DEMOLITION, AND LATEX MODIFIED CONCRETE OVERLAY-YES

PLAN VIEW OF BRIDGE



PLAN

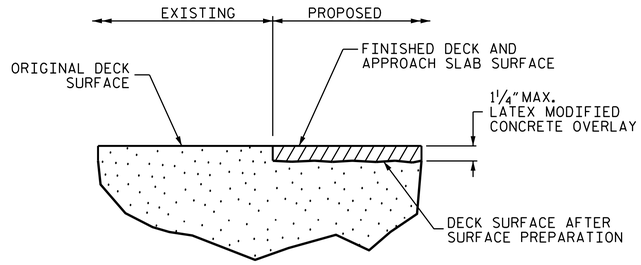
SPAN B SHOWN, OTHER SPANS SIMILAR.



ELEVATION

* DIMENSION MEASURED PERPENDICULAR TO JOINT

BRIDGE JOINT DEMOLITION



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO.: 142

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SURFACE PREPERATION

NORTH CAROLINA PROFESSIONAL SEAL 25461 ENGINEER EMMANUEL I. OMILE

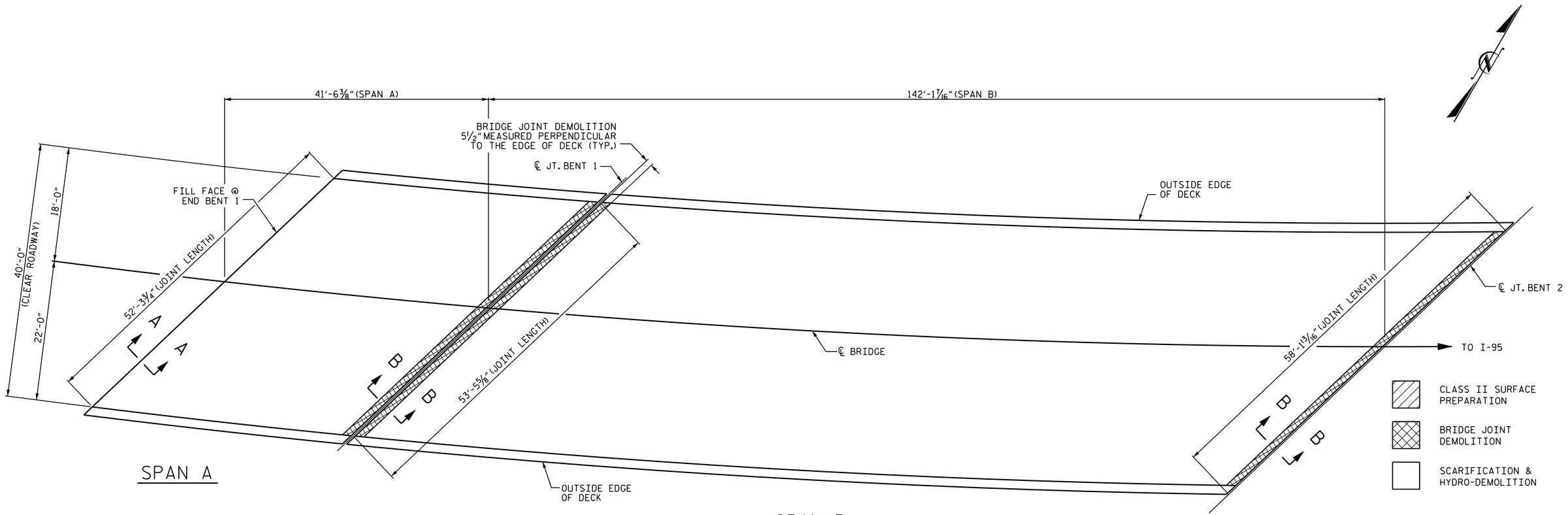
DocuSigned by:
6581102286184 25...

1/29/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 11/18/15
CHECKED BY : E. I. OMILE DATE : 11/23/15

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250142_plans.dgn
tfang



PLAN OF SPAN

TOP OF DECK SLAB SHOWN, FOR LIMITS OF APPROACH SLABS, SEE SHEET 1 OF 3.

REPAIR QUANTITY TABLE

TOP OF DECK & APPROACH SLABS REPAIRS

ITEMS	APPROACH SLAB 1		SPAN A		SPAN B	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
HYDRO-DEMOLITION OF BRIDGE DECK	125 SY		180 SY		622 SY	
CLASS II SURFACE PREPARATION	1.0 SY		1.0 SY		1.0 SY	
CLASS III SURFACE PREPARATION	1.0 SY		1.0 SY		1.0 SY	
BRIDGE JOINT DEMOLITION	-		26.7 SF		55.8 SF	
SCARIFYING BRIDGE DECK	125 SY		180 SY		622 SY	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQ. FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK REPAIRS, SEE "SUPERSTRUCTURE REPAIRS" SHEETS.

FOR DECK JOINT REPAIR DETAILS, SEE SHEET S-8.

NORTH CAROLINA PROFESSIONAL SEAL 25461 ENGINEER EMMANUEL I. OMILE

DocuSigned by:
658110228E18425...

1/29/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 142

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SURFACE PREPARATION
TOP OF DECK

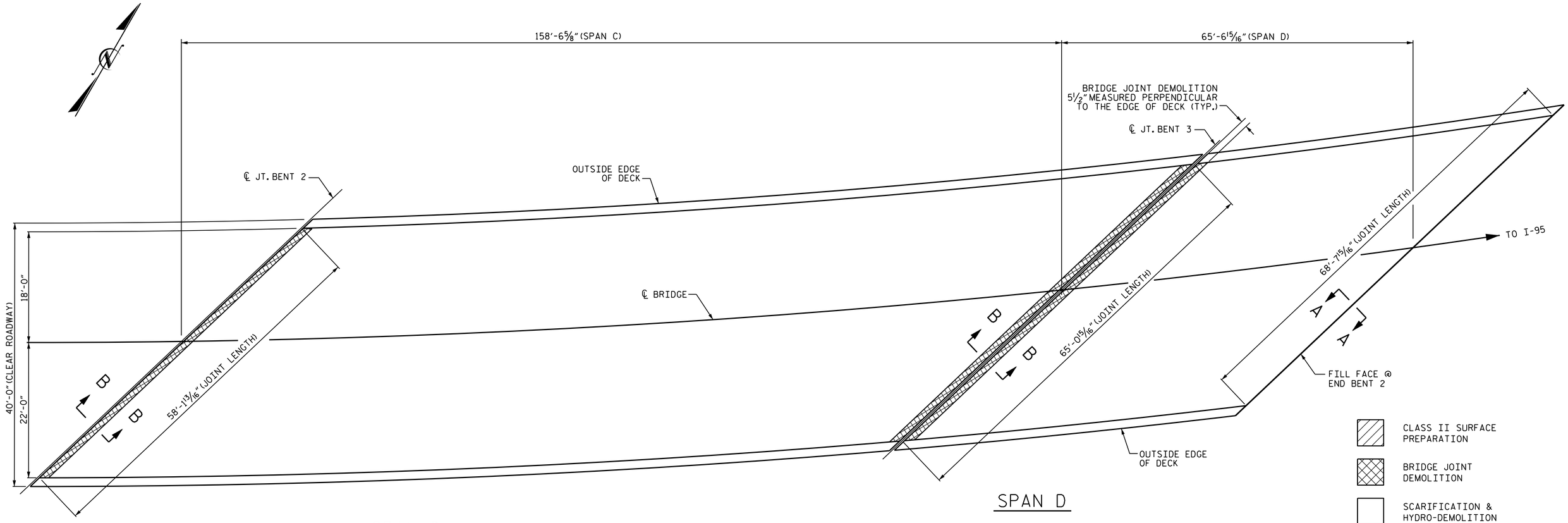
SPANS A & B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 10/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250142_plans.dgn
tfang

NCDOT



SPAN C

SPAN D

PLAN OF SPAN

TOP OF DECK SLAB SHOWN, FOR LIMITS OF APPROACH SLABS, SEE SHEET 1 OF 3.

REPAIR QUANTITY TABLE

TOP OF DECK & APPROACH SLABS REPAIRS

ITEMS	SPAN C		SPAN D		APPROACH SLAB 2	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
HYDRO-DEMOLITION OF BRIDGE DECK	695 SY		287 SY		160 SY	
CLASS II SURFACE PREPARATION	1.0 SY		1.0 SY		1.0 SY	
CLASS III SURFACE PREPARATION	1.0 SY		1.0 SY		1.0 SY	
BRIDGE JOINT DEMOLITION	61.6 SF		32.5 SF		-	
SCARIFYING BRIDGE DECK	695 SY		287 SY		160 SY	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQ. FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK REPAIRS, SEE "SUPERSTRUCTURE REPAIRS" SHEETS.

FOR DECK JOINT REPAIR DETAILS, SEE SHEET S-8.

NORTH CAROLINA PROFESSIONAL SEAL 25461 ENGINEER EMMANUEL I. OMALE

DocuSigned by: 65811022BE1B425...

1/29/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 142

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SURFACE PREPARATION
TOP OF DECK

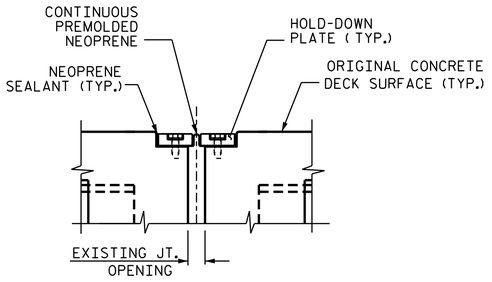
SPANS C & D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			72

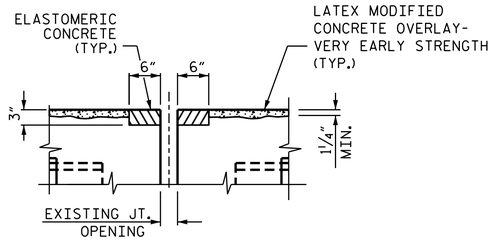
DRAWN BY : A. SORSENGINH DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 10/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Final plans\250142_plans.dgn
tfang

NCDOT



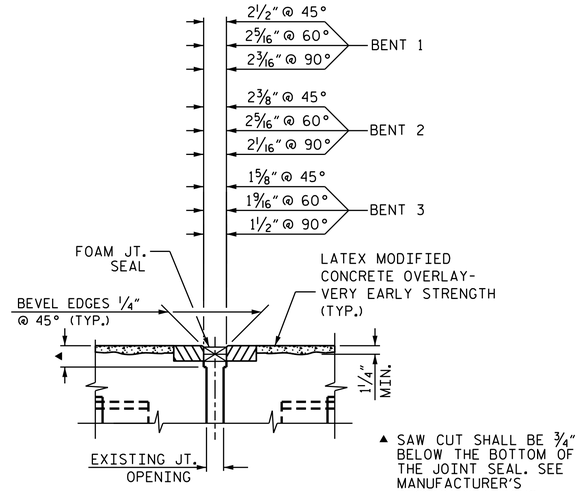
EXISTING JOINT



PROPOSED JOINT
PRE-SAWED DIMENSIONS

JOINT INSTALLATION SEQUENCE AT BENTS

SECTION B-B



PROPOSED FOAM JOINT
SEAL EXPANSION

NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.

IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE OR IF UNSOUND CONCRETE IS REMOVED TO WITHIN 2" OF THE WATERSTOP, THE ENTIRE WATERSTOP SHALL BE REMOVED.

HYDRO-DEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OF ELASTOMERIC CONCRETE.

THE CONTRACTOR SHALL REMOVE THE EXISTING JOINT MATERIAL AND CLEAN UP THE AREA. CONTAMINATED CONCRETE SHALL BE REMOVED TO THE DEPTH OF MINIMUM 2¾" OR SOUND CONCRETE. THE EXISTING ANCHOR BOLTS SHALL BE CUT FLASH PRIOR TO POURING OF THE ELASTOMERIC CONCRETE.

RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

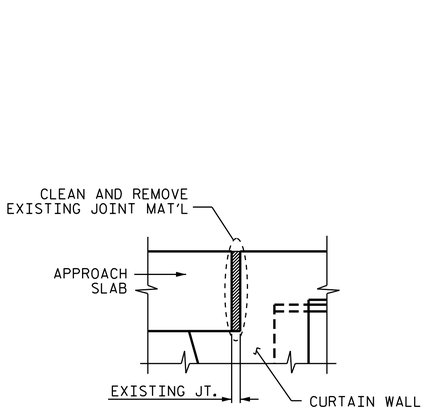
FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS. THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2¾" FOR BENT 1 AND BENT 2, 2" FOR BENT 3.

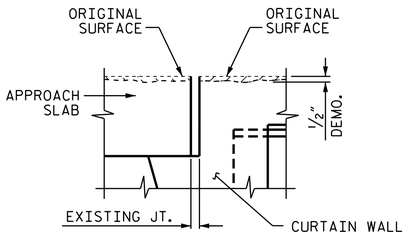
THE SELF LEVELING SILICONE SHALL BE ON NCDOT APPROVED LIST OF PRODUCTS OR APPROVED EQUAL.

ELASTOMERIC CONCRETE		
	UNIT	BRIDGE 142
BENT 1	CU. FT.	13.4
BENT 2	CU. FT.	14.5
BENT 3	CU. FT.	16.3
* TOTAL	CU. FT.	44.2

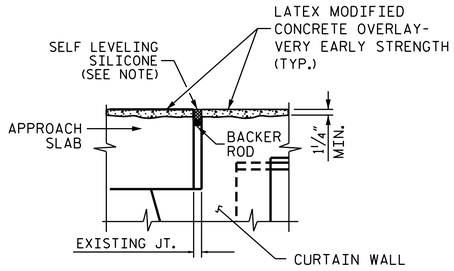
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



EXISTING COLD JOINT



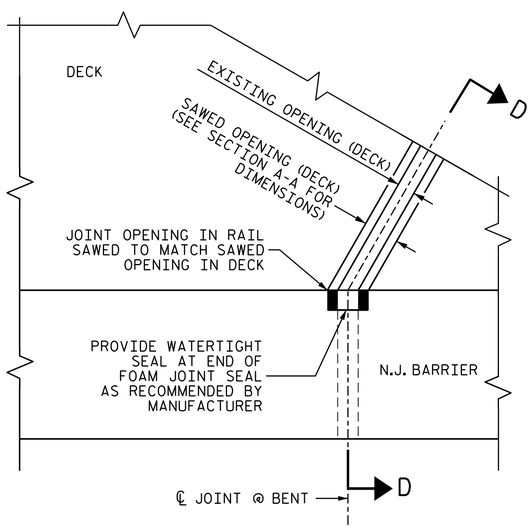
MINIMUM EXISTING
JOINT DEMOLITION



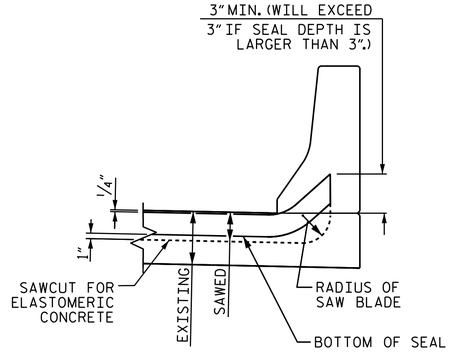
PROPOSED JOINT

JOINT INSTALLATION SEQUENCE AT END BENTS

SECTION A-A



PLAN



SECTION D-D

JOINT SEAL DETAILS AT BENT

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO.: 142

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

JOINT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

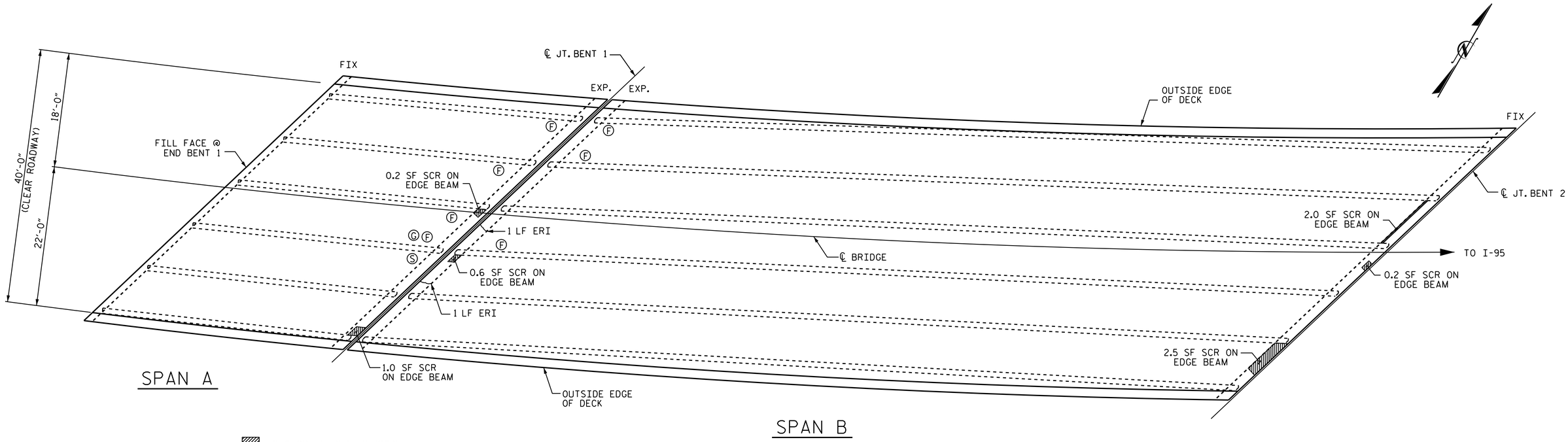
DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			72

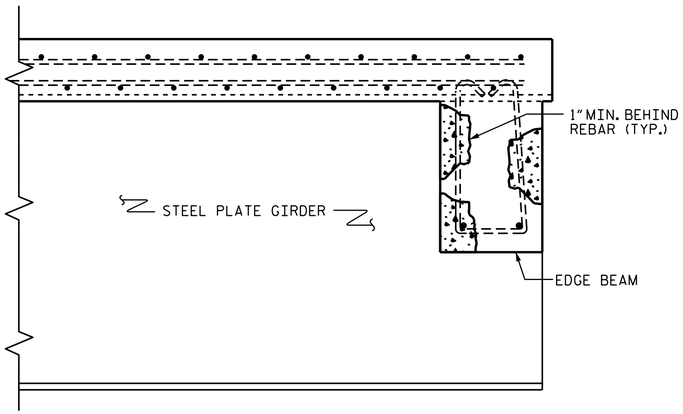
DRAWN BY : T. H. FANG DATE : 11/6/15
CHECKED BY : E. I. OMILE DATE : 11/19/15

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250142_plans.dgn
tfang



PLAN OF SPAN
(UNDERSIDE)

- SHOTCRETE REPAIR (SCR)
- ERI EPOXY RESIN INJECTION
- (G) STEEL PLATING REPAIR
- (F) FLANGE REPAIR
- (S) STIFFNER REPAIR



SHOTCRETE REPAIR DETAILS

IF REMOVAL OF UNSOUND CONCRETE RESULTS IN EXPOSING MORE THAN HALF THE DEPTH OF A REINFORCING BAR, REMOVE ADDITIONAL CONCRETE TO 1" BEHIND THE BAR WITHOUT DAMAGE TO REINFORCING BAR.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	SPAN A				SPAN B			
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANGS	0.0	0.0			0.0	0.0		
EDGE BEAMS	1.2	0.3			5.3	1.3		
EPOXY RESIN INJECTION	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF				2.0 LF			

STEEL PLATE GIRDER REPAIRS

	SPAN A		SPAN B	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
	LBS.	LBS.	LBS.	LBS.
PLATING REPAIRS	100		40	
BOTTOM FLANGE REPAIRS	150		100	
STIFFNER REPAIRS	50		10	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR GIRDER REPAIR DETAILS, SEE "STRUCTURAL STEEL REPAIR DETAILS." SHEET ON S-11.

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR STEEL GIRDER REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENTS OF REPAIR AREAS PRIOR TO STEEL FABRICATION.

REPAIR CONCRETE EDGE BEAM AS DIRECTED BY THE ENGINEER.

PROJECT NO. I-5788
CUMBERLAND COUNTY
BRIDGE NO. 142

SHEET 1 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 25461 ENGINEER EMMANUEL I. OMILE

DocuSigned by: 658110228E1B425...

1/29/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIRS

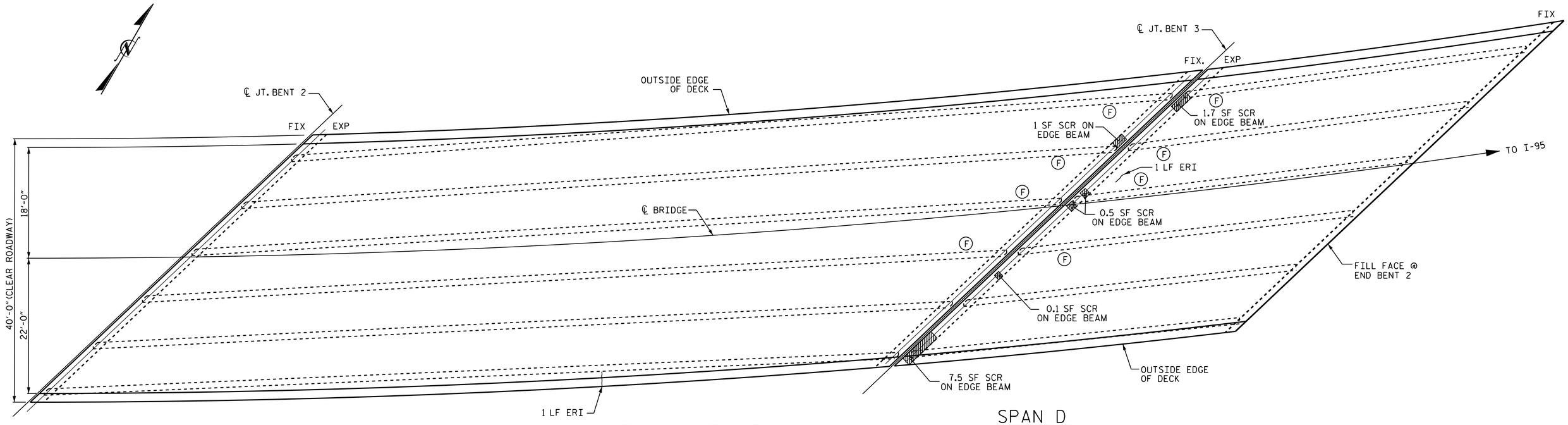
SPANS A & B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 10/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250142_plans.dgn
ttang

NCDOT



PLAN OF SPAN
(UNDERSIDE)

SHOTCRETE REPAIR (SCR)

ERI EPOXY RESIN INJECTION

Ⓒ STEEL PLATING REPAIR

Ⓕ FLANGE REPAIR

Ⓢ STIFFNER REPAIR

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR GIRDER REPAIR DETAILS, SEE "STRUCTURAL STEEL REPAIR DETAILS." SHEET ON S-11.

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR STEEL GIRDER REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENTS OF REPAIR AREAS PRIOR TO STEEL FABRICATION.

FOR DECK, OVERHANG AND EDGE BEAM SHORTCRETE REPAIR DETAILS, SEE SHEET S-9.

REPAIR CONCRETE EDGE BEAM AS DIRECTED BY THE ENGINEER.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	SPAN C				SPAN D			
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANGS	0.0	0.0			0.0	0.0		
EDGE BEAMS	1.0	0.3			9.8	2.5		
EPOXY RESIN INJECTION	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	1.0 LF				1.0 LF			

STEEL PLATE GIRDER REPAIRS

	SPAN C		SPAN D	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
	LBS.	LBS.	LBS.	LBS.
PLATING REPAIRS	100		0	
BOTTOM FLANGE REPAIRS	400		0	
STIFFNER REPAIRS	50		0	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 25461 ENGINEER EMMANUEL I. OMILE

DocuSigned by: 05811D228E1B425...

1/29/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 142

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIRS

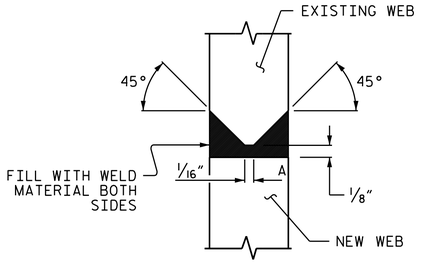
SPANS C & D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			72

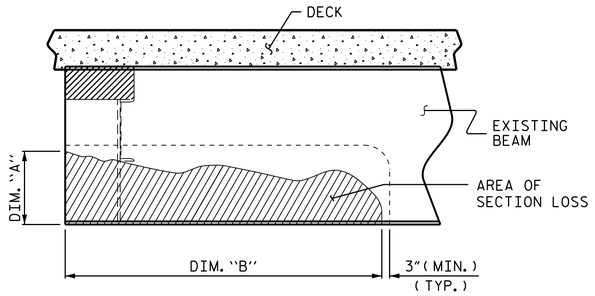
NC6DS

DRAWN BY : A. SORSENGINH DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 10/2015

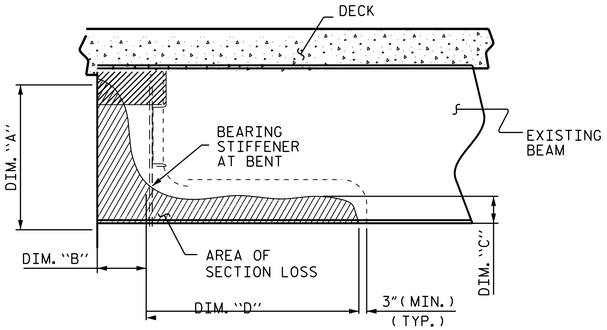
28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250142_plans.dgn
ttang



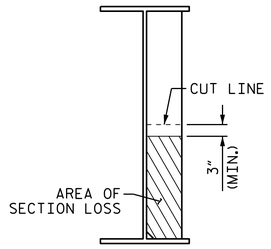
DETAIL ''A''



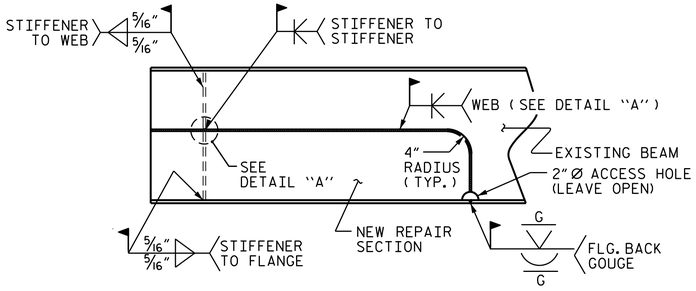
SECTION LOSS
BEAM END REPAIR



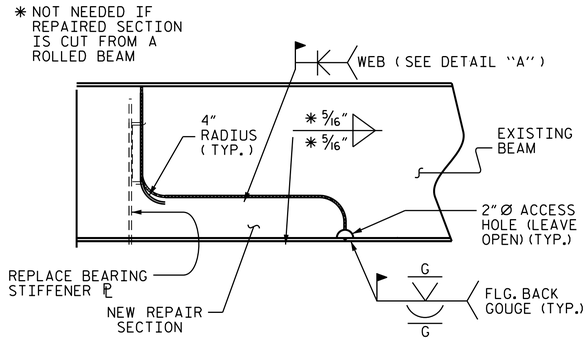
SECTION LOSS
BEAM END REPAIR



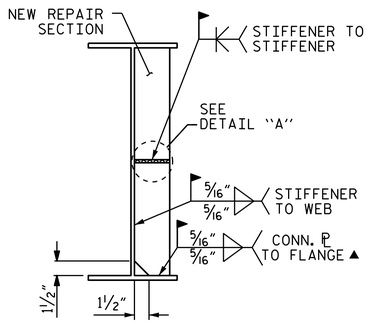
SECTION LOSS
STIFFENER/CONN. ℄
REPAIR



SECTION LOSS BEAM
END REPAIR SECTION



SECTION LOSS BEAM
END REPAIR SECTION



SECTION LOSS
STIFFENER/CONN. ℄
REPAIR SECTION

▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD

NOTES:

FOR LOCATIONS OF BEAM AND BEARING STIFFENER REPAIRS, SEE SHEETS S-9, S-10.

ALL PLATES SHALL BE AASHTO M270 GRADE 50.

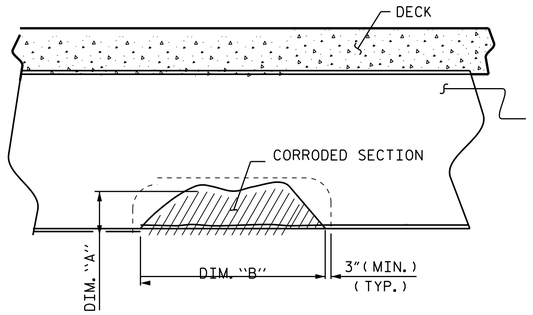
FOR GIRDER REPAIR, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

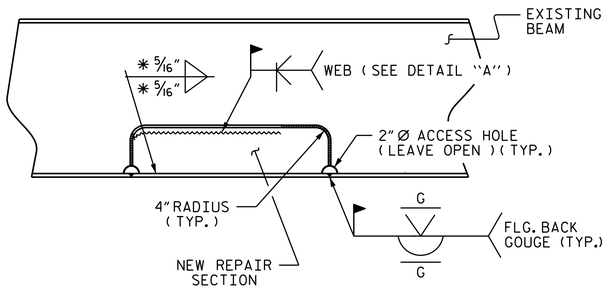
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.



SECTION LOSS
INTERMEDIATE BEAM REPAIR



SECTION LOSS INTERMEDIATE
BEAM REPAIR SECTION

BEAM REPAIR

AFTER THE STRUCTURAL STEEL HAS BEEN BLASTED AND PRIMED, THE STRUCTURAL STEEL AND BEARING SHALL BE INSPECTED FOR EXCESSIVE SECTION LOSS. AREAS THAT EXHIBIT AN EXCESS OF 35% SECTION LOSS SHALL BE REVIEWED BY THE ENGINEER TO DETERMINE IF AREA OF SECTION LOSS SHOULD BE REPAIRED.

AS DETERMINED BY THE ENGINEER, AREAS WITH EXCESSIVE SECTION LOSS OR AREAS WITH TEMPORARY REPAIRS SHALL BE REMOVED AND THE BEAMS SHALL BE REPAIRED AS INDICATED ON THIS PLAN SHEET. CONTRACTOR AND ENGINEER TO DETERMINE ACTUAL DIMENSIONS OF AREA TO BE REMOVED AND REPLACED. REMOVE CONCRETE BENT DIAPHRAGMS AS NEEDED TO EVALUATE LIMITS OF REPAIR.

PAYMENT FOR THE SECTION REPAIR SHALL BE BASED ON THAT AMOUNT OF REPAIR ACTUALLY PERFORMED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

GOUGES AND INDENTIONS FROM IMPACT ON GIRDERS SHALL BE GROUND SMOOTH PRIOR TO BLASTING AND PAINTING OPERATION.

REPAIR SEQUENCE:

REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.

REMOVE DEAD LOAD FROM BEAM BY JACKING AND BLOCKING. CONTRACTOR SHALL SUBMIT JACKING PLAN FOR APPROVAL, PRIOR TO BEGINNING WORK. SEE BRIDGE JACKING SPECIAL PROVISIONS.

STEEL DIAPHRAGM CHANNELS AND/OR STIFFENERS MAY BE TEMPORARILY REMOVED, IF NECESSARY, AND REPLACED AFTER BEAM REPAIR.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE. CUT OUT BY APPROPRIATE MEANS THE DAMAGED BEAM AREA AND/OR BEARING STIFFENER.

MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

REPLACEMENT CUT-TO-FIT BEAM SECTION SHALL BE NEW AND FROM SIMILAR SIZE ROLLED BEAM OR APPROVED EQUIVALENT PLATES. THE GRADE OF STEEL SHALL BE AASHTO M270, GRADE 36 OR BETTER.

INSTALL THE CUT-TO-FIT SECTION, FULLY WELD ALONG TOP AND SIDES OF PLATE USING FULL PENETRATION WELDS.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS WILL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM REPAIR PROCESS,

CLEANING AND PAINTING OF REPAIRED STRUCTURAL STEEL SHALL BE PERFORMED AS PART OF THE OVERALL CLEANING AND PAINTING CONTRACT.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE'', SEE SPECIAL PROVISIONS.

AFTER GIRDERS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE CAST BACK. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM ''STRUCTURAL STEEL GIRDER REPAIR.''

LOWER SPAN TO BEAR, CHECK FOR DISTRESS.

REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO.: 142

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STRUCTURAL STEEL REPAIR DETAILS

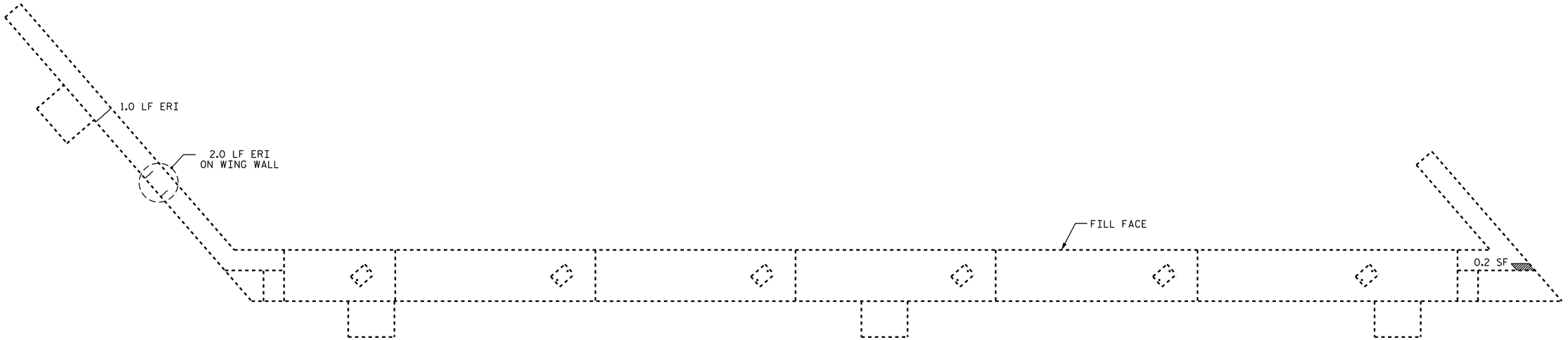
NORTH CAROLINA PROFESSIONAL SEAL 25461 ENGINEER EMMANUEL I. OMILE

DocuSigned by:
058110228E1B425...

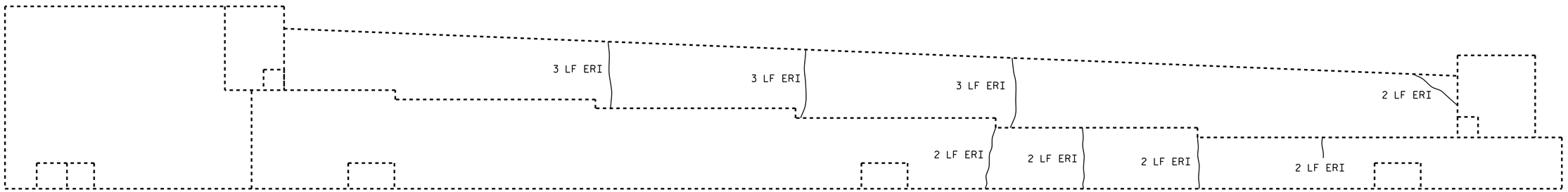
1/29/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 11/4/15
CHECKED BY : E. I. OMILE DATE : 11/18/15



PLAN



ELEVATION

LOOKING FRONT FACE OF END BENT

1. CONCRETE REPAIR
2. SHOTCRETE REPAIR
3. ERI EPOXY RESIN INJECTION

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE END BENT CAP.

REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)	0.2	0.1		
CURTAIN WALL				
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		8.0		
CURTAIN WALL		12.0		
WING WALL		2.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		89.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 25461 ENGINEER EMMANUEL I. ONILE

DocuSigned by: 658110228E1B425...

1/29/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 142

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

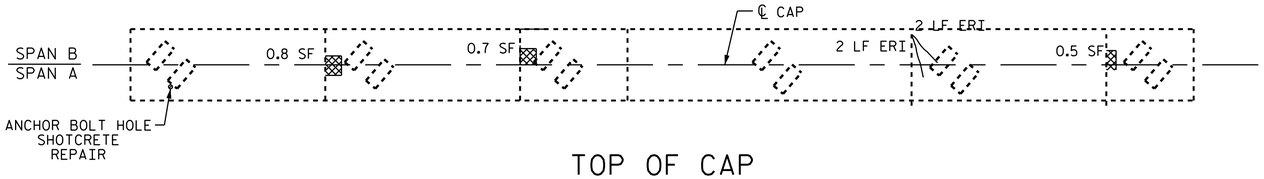
END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			72

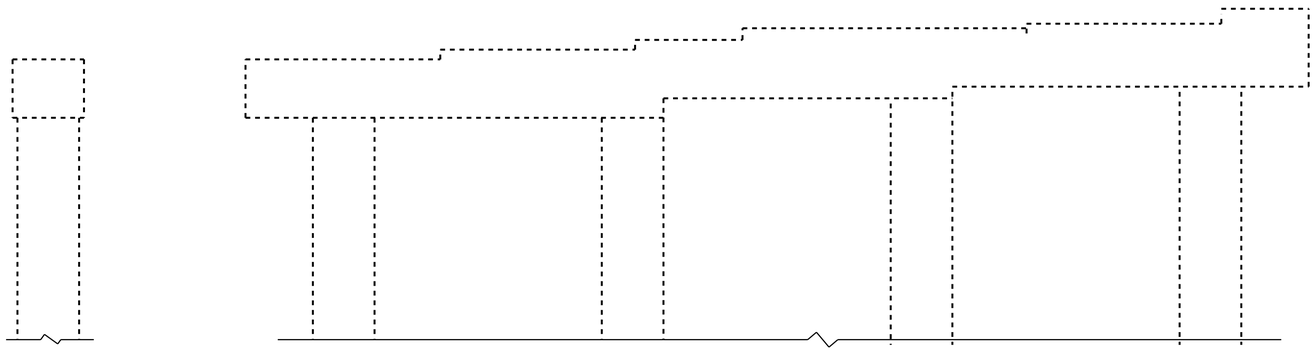
DRAWN BY : A. SORSENGINH DATE : 10/23/15
CHECKED BY : S. B. WILLIAMS DATE : 10/30/15

28-JAN-2016 12:22
K:\TIPProjects-1\I5788\Structures\Finalplans\250142_plans.dgn
ttang

NCDOT



TOP OF CAP

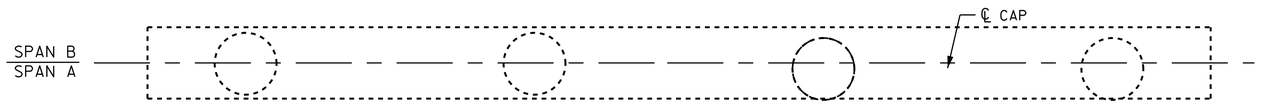


END VIEW
NORTH FACE

ELEVATION
WEST FACE

END VIEW
SOUTH FACE

ELEVATION
EAST FACE



BOTTOM OF CAP

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

▨ CONCRETE REPAIR

▨ SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
COLUMN (VERTICAL FACE)				
CONCRETE REPAIRS	3.0	0.3		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		11.0		
COLUMN				
EPOXY COATING		SQ. FT.		SQ. FT.
CAP		180.6		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 142

NORTH CAROLINA PROFESSIONAL SEAL 25461 ENGINEER EMMANUEL L. OMILE

DocuSigned by: 1/29/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

REPAIR

BENT 1

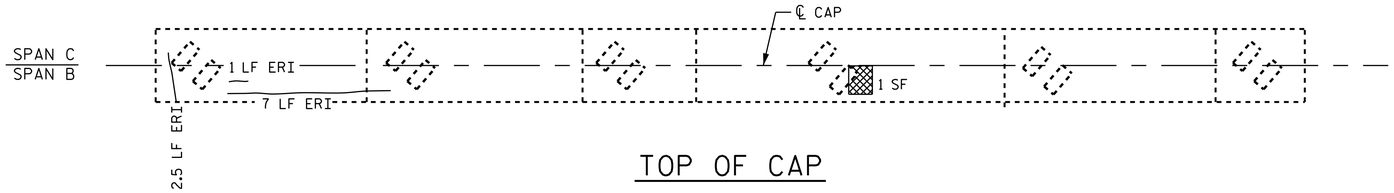
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-13

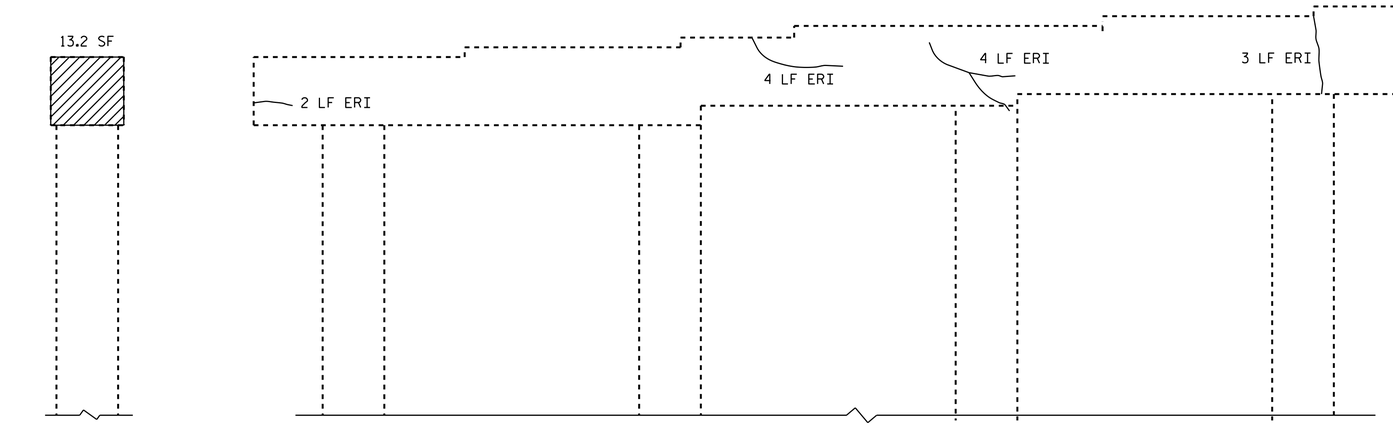
TOTAL SHEETS 72

DRAWN BY : A. SORSENGINH DATE : 10/26/15
CHECKED BY : S. B. WILLIAMS DATE : 10/30/15

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250142_plans.dgn
tfang

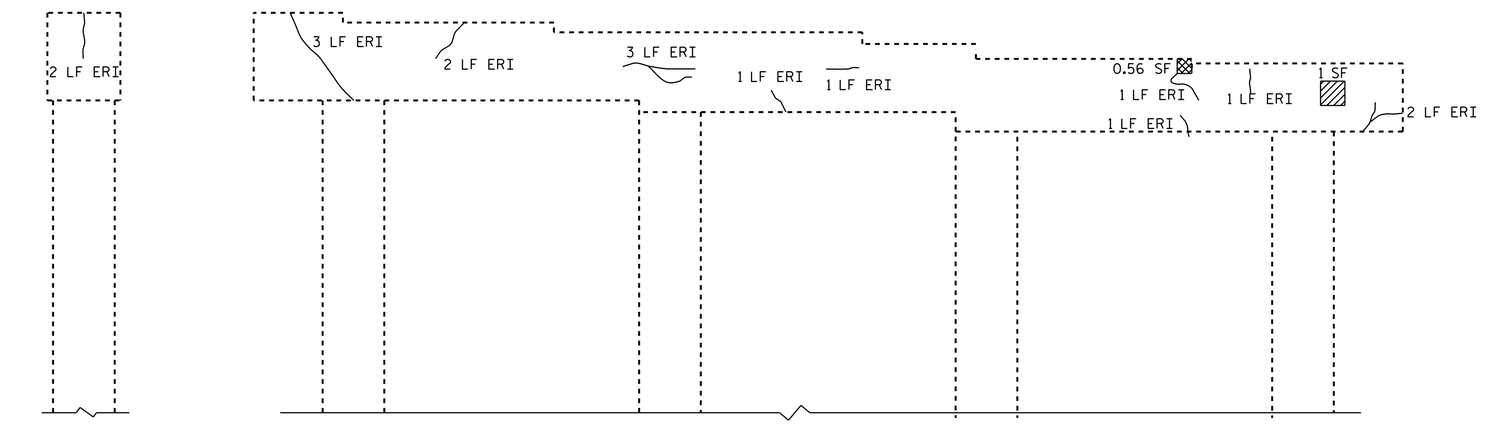


TOP OF CAP



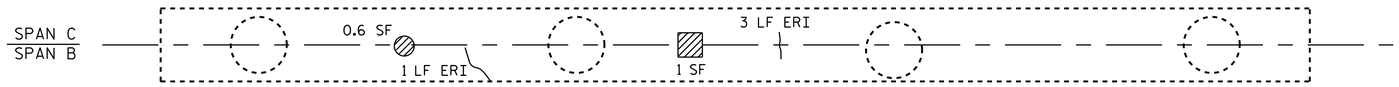
END VIEW
NORTH FACE

ELEVATION
WEST FACE



ELEVATION
EAST FACE

END VIEW
SOUTH FACE



BOTTOM OF CAP

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)	14.2	3.6		
CAP (HORIZONTAL FACE)				
COLUMN (VERTICAL FACE)				
CONCRETE REPAIRS	1.6	0.4		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		45.5		
COLUMN				
EPOXY COATING		SQ. FT.		SQ. FT.
CAP		196.5		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 142

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

REPAIR

BENT 2

NORTH CAROLINA PROFESSIONAL SEAL 25461 ENGINEER EMANUEL C. OMALE

DocuSigned by:
658110228E1B425...

1/29/2016

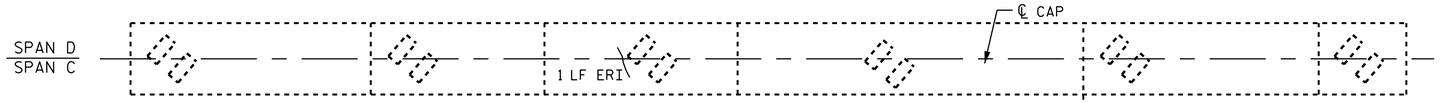
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-14

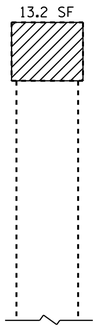
TOTAL SHEETS 72

DRAWN BY : A. SORSENGINH DATE : 10/26/15
CHECKED BY : S. B. WILLIAMS DATE : 10/30/15

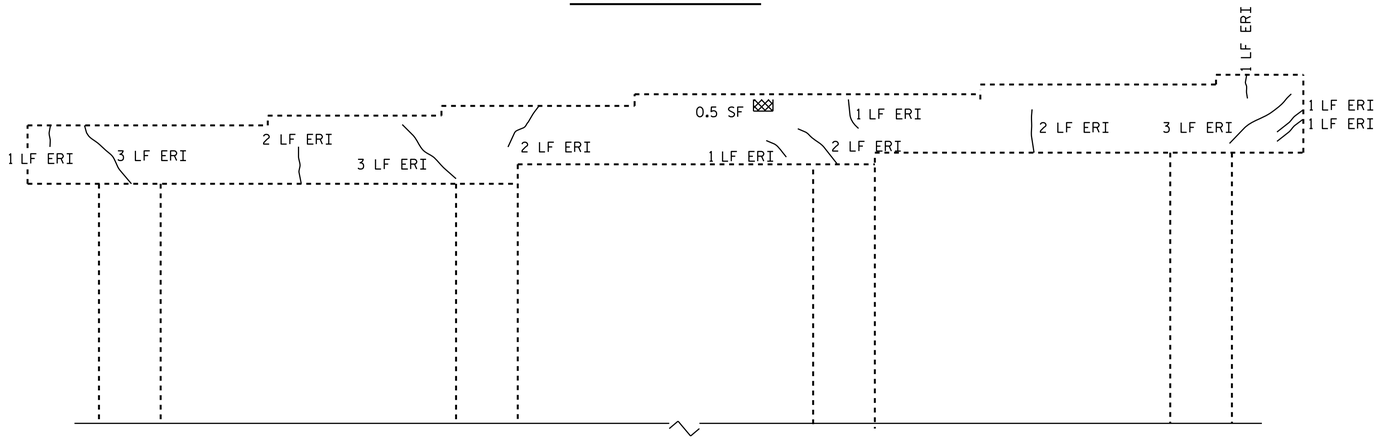
28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250142_plans.dgn
ttfang



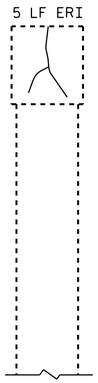
TOP OF CAP



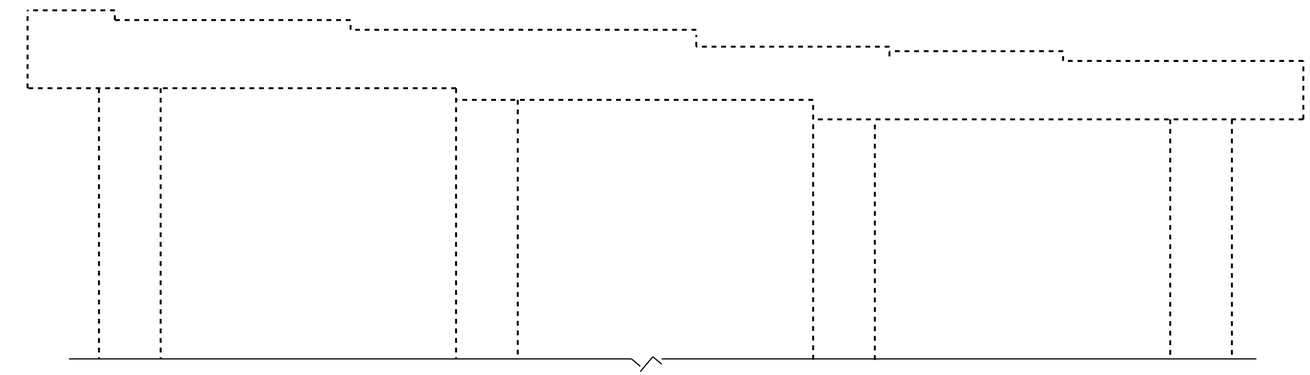
END VIEW
NORTH FACE



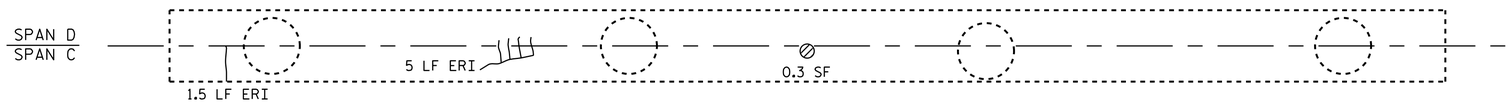
ELEVATION
WEST FACE



END VIEW
SOUTH FACE



ELEVATION
EAST FACE



BOTTOM OF CAP

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

REPAIR QUANTITY TABLE

REPAIRS BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)	13.2	3.3		
CAP (HORIZONTAL FACE)	0.8	0.2		
COLUMN (VERTICAL FACE)				
CONCRETE REPAIRS	0.5	0.1		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		35.5		
COLUMN				
EPOXY COATING		SQ. FT.		SQ. FT.
CAP		220.7		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. I-5788
CUMBERLAND COUNTY
BRIDGE NO. 142

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
REPAIR
BENT 3

NORTH CAROLINA PROFESSIONAL SEAL 25461 ENGINEER EMMANUEL I. OMALE

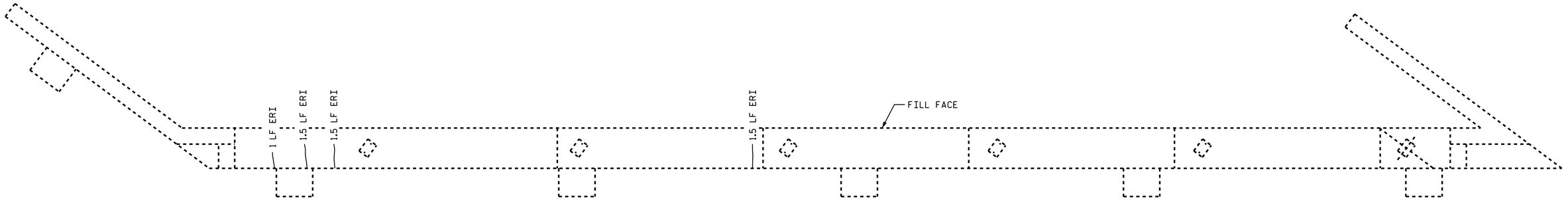
DocuSigned by:
1/29/2016
65811022BE1B425...

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

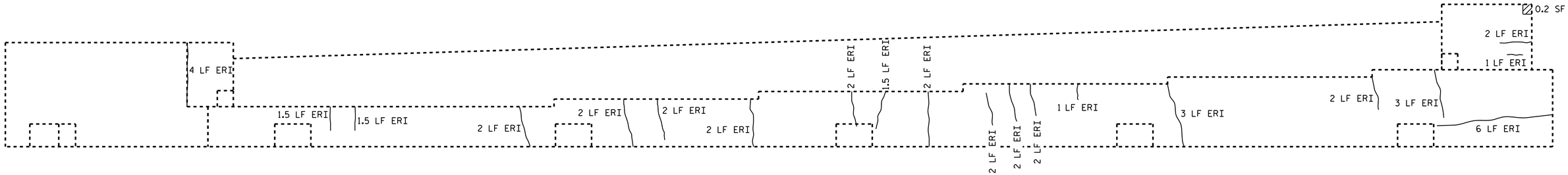
SHEET NO. S-15
TOTAL SHEETS 72

DRAWN BY : A. SORSENGINH DATE : 10/26/15
CHECKED BY : S. B. WILLIAMS DATE : 10/30/15

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250142_plans.dgn
ttang



PLAN



ELEVATION

LOOKING FRONT FACE OF END BENT

① CONCRETE REPAIR

② SHOTCRETE REPAIR

③ ERI EPOXY RESIN INJECTION

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE END BENT CAP.

REPAIR QUANTITY TABLE

REPAIRS END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)	0.2	0.1		
CAP (HORIZONTAL FACE)				
CURTAIN WALL				
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		43.0		
CURTAIN WALL		7.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		119.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 142

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

END BENT 2

NORTH CAROLINA PROFESSIONAL SEAL 25461 ENGINEER EMMANUEL I. OMILE

DocuSigned by: 658110228E1B425...

1/29/2016

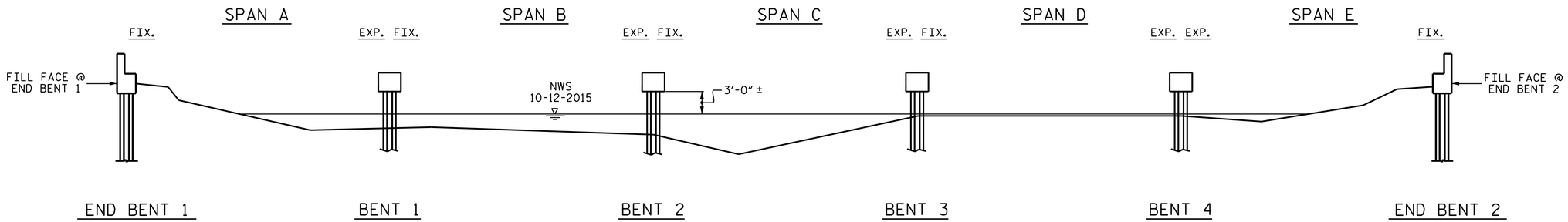
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/23/15

CHECKED BY : S. B. WILLIAMS DATE : 10/30/15

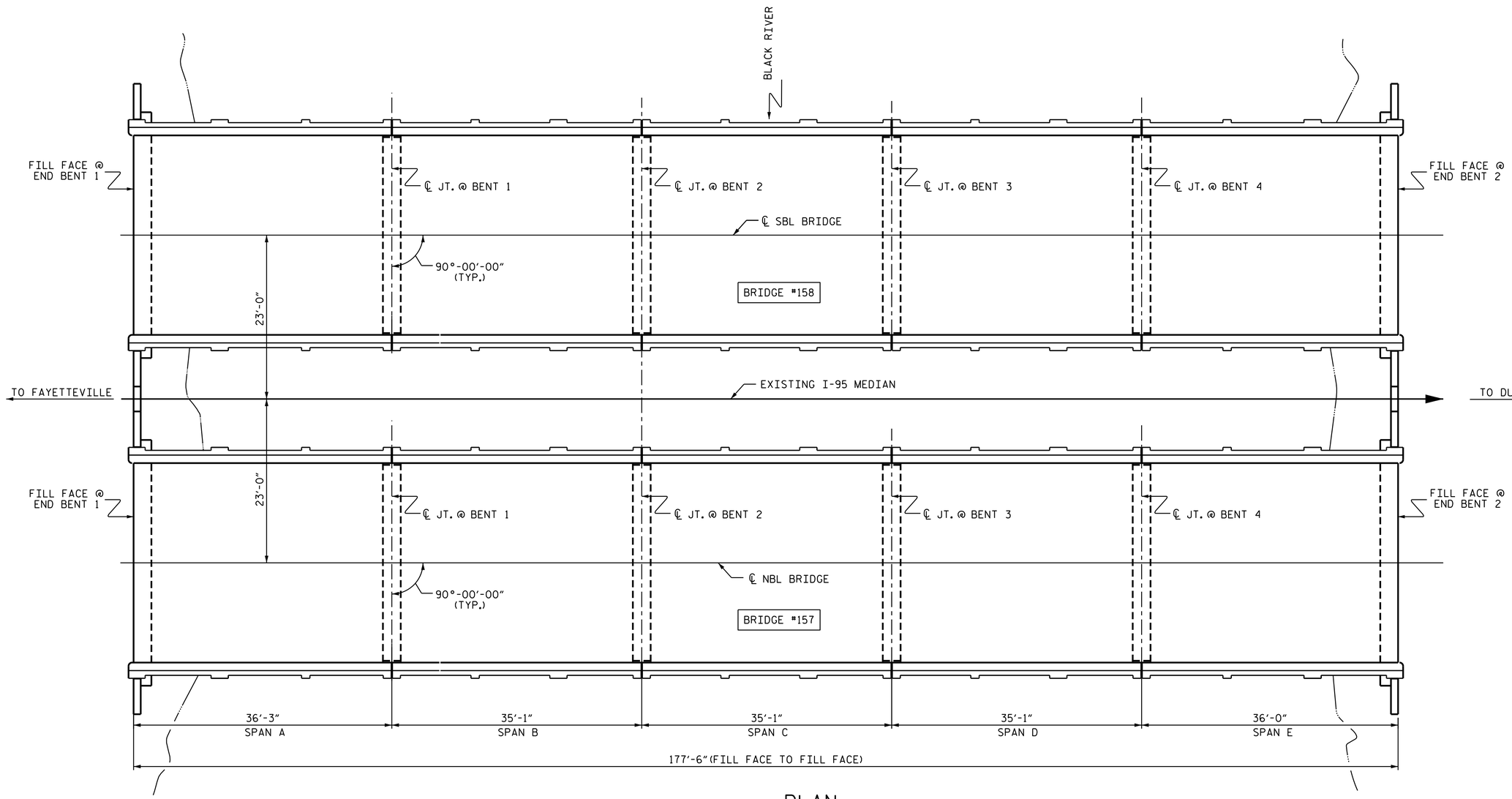
DESIGN ENGINEER OF RECORD: DATE :

28-JAN-2016 12:22
K:\TIPProjects-1\I5788\Structures\Finalplans\250142_plans.dgn
ttang



SECTION ALONG EXISTING I-95 MEDIAN

SECTIONS AT BENTS AND END BENTS ARE AT RIGHT ANGLES



PLAN

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER HSIUNG T FANG

DocuSigned by: Tung H Fang E720884009774 35...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 157 & 158

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

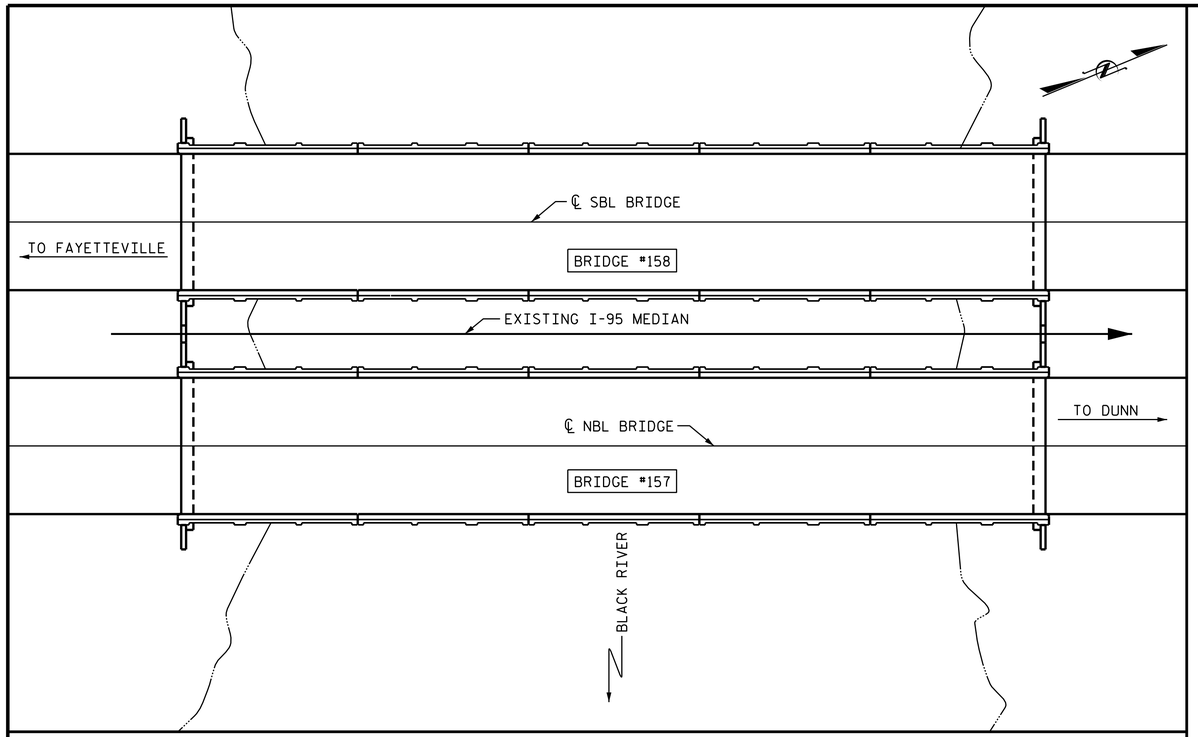
GENERAL DRAWING

BRIDGE OVER BLACK RIVER
ON I-95 BETWEEN
SR 1804 AND SR 1806

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : S. B. WILLIAMS DATE : 11/15
CHECKED BY : T. H. FANG DATE : 11/15

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Final plans\250157_plans.dgn
tfang



LOCATION SKETCH

NOTES:

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

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

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK.

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

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE MANAGING HYDRO-DEMOLITION WATER SPECIAL PROVISION.
IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

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

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING THE BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRAFFIC CONTROL PLANS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING EXISTING BEARING PLATES, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

BRIDGE NO.	GROOVING BRIDGE FLOORS	✳ CLASS II SURFACE PREPARATION	✳ CLASS III SURFACE PREPARATION	CONCRETE REPAIR	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS	✳ VOLUMETRIC MIXER	LATEX MODIFIED CONCRETE -VES	CONCRETE FOR DECK REPAIR	ELASTOMERIC CONCRETE	BRIDGE JOINT DEMOLITION	EPOXY COATING	HYDRO-DEMOLITION OF BRIDGE DECK	PLACING & FINISHING LATEX MODIFIED CONCRETE OVERLAY-VES	SCARIFYING BRIDGE DECK
	SQ. FT.	SQ. YDS.	SQ. YDS.	CU. FT.	CU. FT.	LN. FT.	LUMP SUM	LUMP SUM	CU. YDS.	CU. FT.	CU. FT.	SQ. FT.	SQ. FT.	SQ. YDS.	SQ.YDS.	SQ. YDS.
157	5,780	1.0	1.0	0.6	13.9	14.5	LUMP SUM	LUMP SUM	45.3	5.0	28.0	112.0	350	725	725	725
158	5,780	1.0	1.0	1.0	7.4	15.5	LUMP SUM	LUMP SUM	45.3	5.0	28.0	112.0	350	725	725	725

✳ CLASS II AND CLASS III SURFACE PREPARATIONS, VOLUMETRIC MIXER AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED.
TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES, IN CASE UNANTICIPATED CLASS II AND CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 157 & 158

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE OVER BLACK RIVER
ON I-95 BETWEEN
SR 1804 AND SR 1806

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

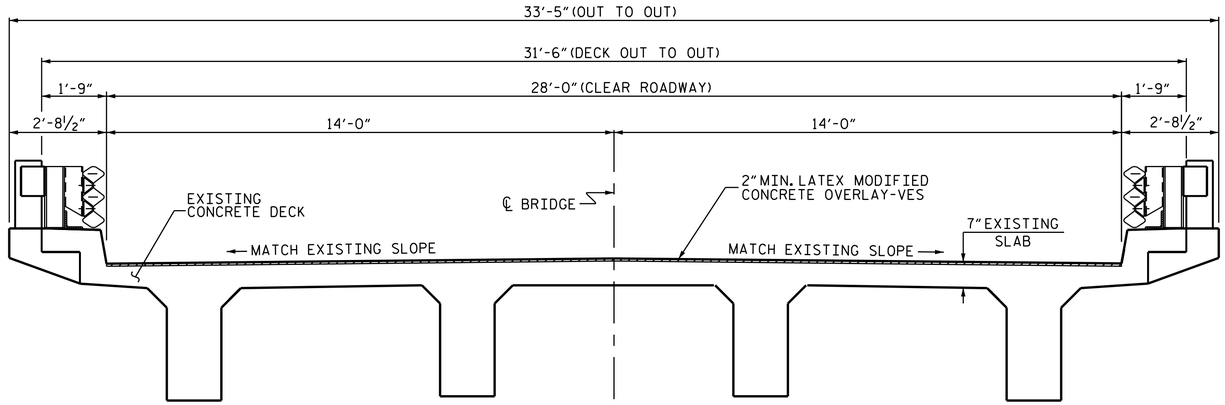
1/29/2016

DocuSigned by: Ting H. Fang
E720884000774355...

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			72

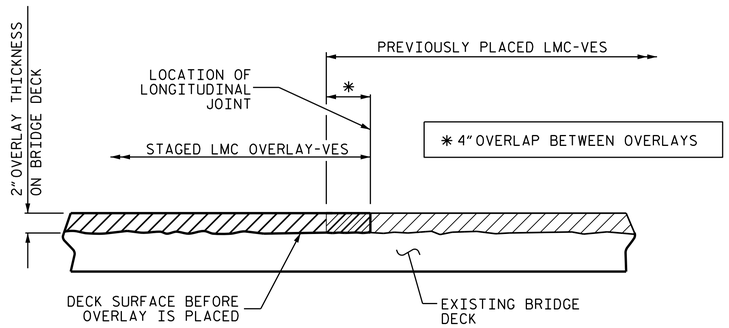
DRAWN BY : S. B. WILLIAMS DATE : 11/15
CHECKED BY : T. H. FANG DATE : 11/15

29-JAN-2016 12:00
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
ttfang



TYPICAL SECTION

FOR BOTH BRIDGES #157 & #158



SECTION THRU DECK

STAGED LMC-VES OVERLAY JOINT

(AS NEEDED)

NOTES

WHEN PREPARING THE SURFACE FOR LMC OVERLAY-VES ADJACENT TO A PREVIOUSLY PLACED LMC-VES STAGE, THE PREVIOUSLY PLACED LMC-VES SHALL BE REMOVED FOR A DISTANCE OF 4-INCHES FROM THE LMC-VES EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC-VES SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF NEW LMC-VES STAGE PLACEMENT.

THE EXISTING LATEX MODIFIED CONCRETE OVERLAY ON THE BRIDGE DECK SHALL BE COMPLETELY REMOVED. THE OVERLAY THICKNESS IS ESTIMATED TO BE 1¾"± THICK BASED ON AVAILABLE INFORMATION.

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO.: 157 & 158

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSILING FANG

DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION & LATEX MODIFIED CONCRETE-VES DETAILS

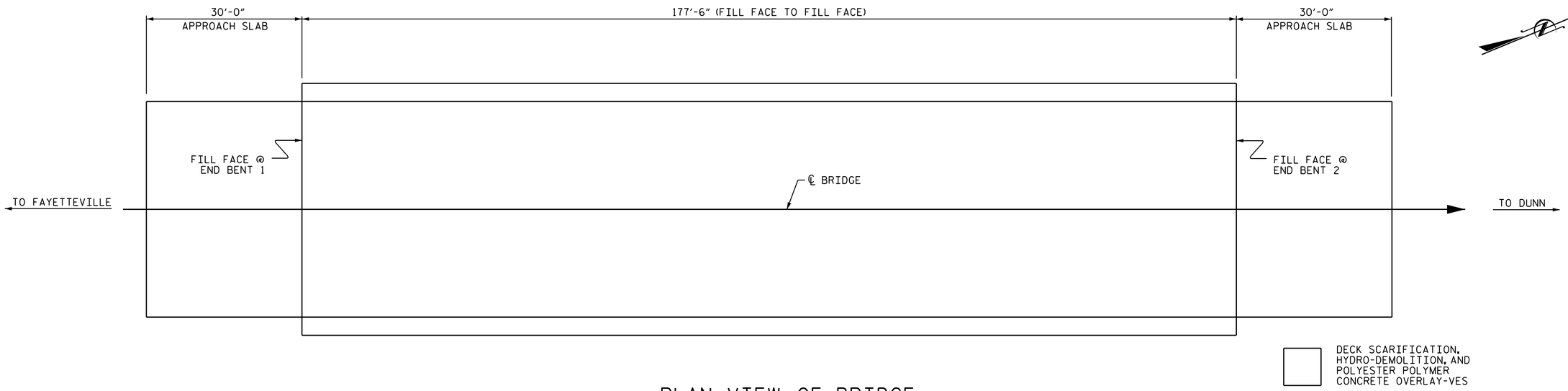
SPANS A THRU E

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 9/2015

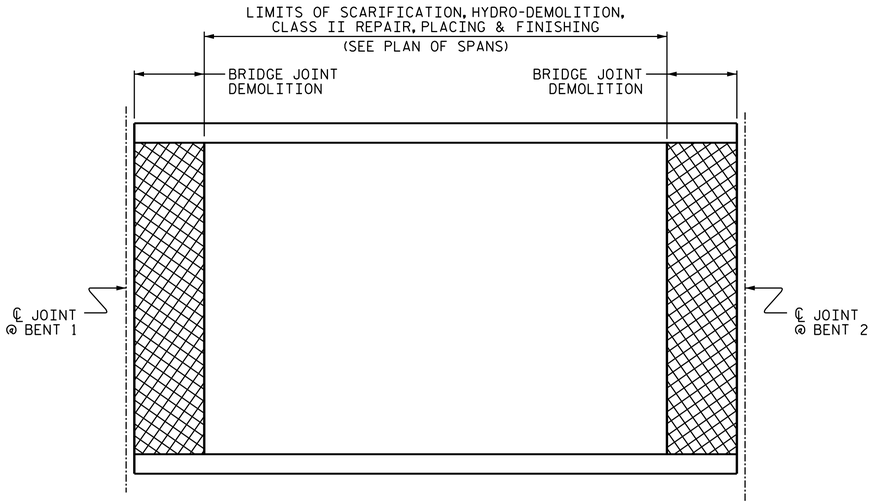
CHECKED BY : A. SORSENGINH DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
ttfang



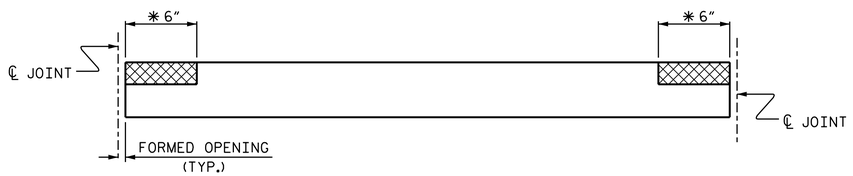
PLAN VIEW OF BRIDGE

FOR BOTH BRIDGES #157 & #158



PLAN

SPAN B SHOWN, OTHER SPANS SIMILAR.



ELEVATION

* DIMENSION MEASURED PERPENDICULAR TO JOINT

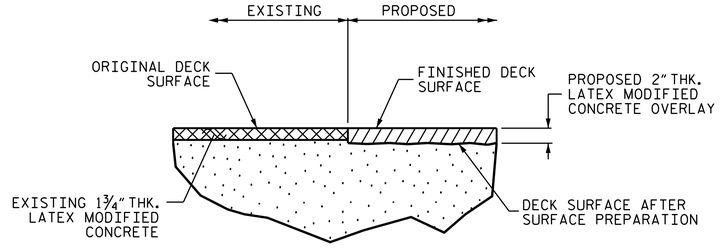
BRIDGE JOINT DEMOLITION

NOTES

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

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

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO.: 157 & 158

SHEET 1 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TANG-HSILING FANG

DocuSigned by: Tang H. Fang E720884009774355...

1/28/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

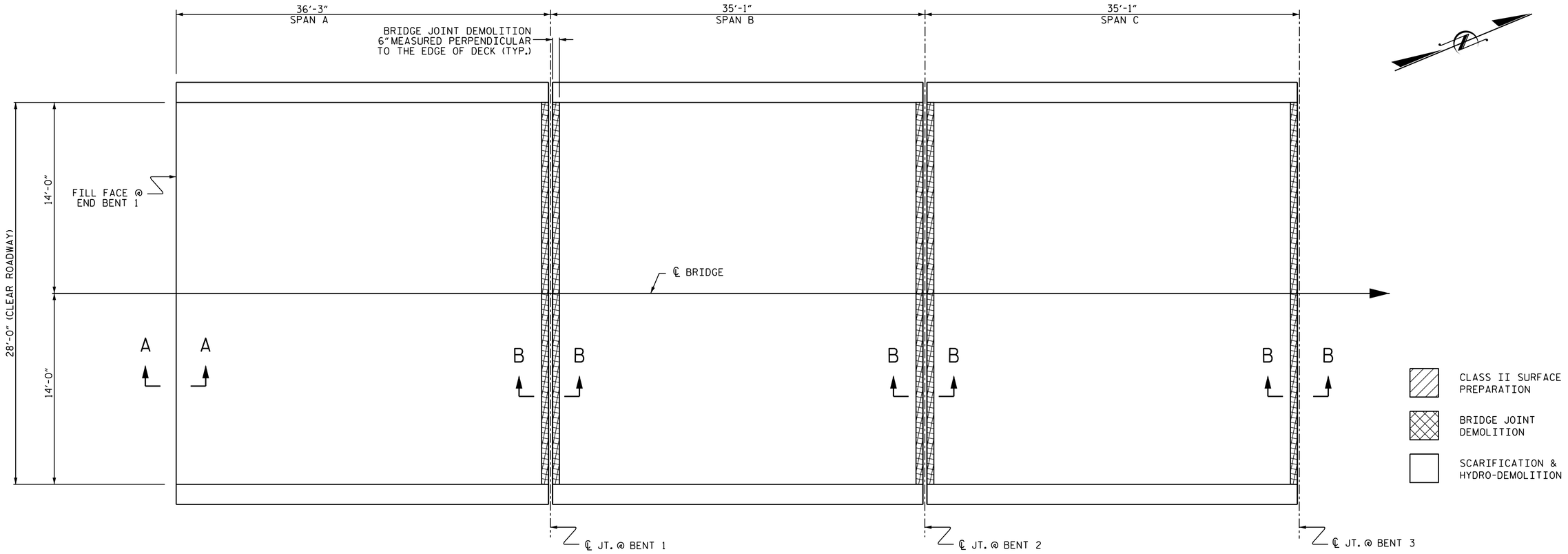
SURFACE PREPERATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 9/2015

CHECKED BY : S. B. WILLIAMS DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
ttfang



PLAN OF SPAN

TOP OF DECK SLAB SHOWN. FOR LIMITS OF APPROACH SLABS, SEE SHEET 1 OF 3.

REPAIR QUANTITY TABLE

TOP OF DECK & APPROACH SLAB REPAIRS

ITEMS	APPROACH SLAB 1		SPAN A		SPAN B		SPAN C	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
HYDRO-DEMOLITION OF BRIDGE DECK	93 SY		111 SY		106 SY		106 SY	
CLASS II SURFACE PREPARATION	1.0 SY		1.0 SY		1.0 SY		1.0 SY	
CLASS III SURFACE PREPARATION	1.0 SY		1.0 SY		1.0 SY		1.0 SY	
BRIDGE JOINT DEMOLITION	-		14.0 SF		28 SF		28 SF	
SCARIFYING BRIDGE DECK	93 SY		111 SY		106 SY		106 SY	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQ. FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR DECK JOINT REPAIR DETAILS, SEE SHEET S-23.

FOR UNDERSIDE OF DECK REPAIRS, SEE "SUPERSTRUCTURE REPAIRS" SHEETS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG FANG

DocuSigned by: Ting H. Fang E720884D09774...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 157

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

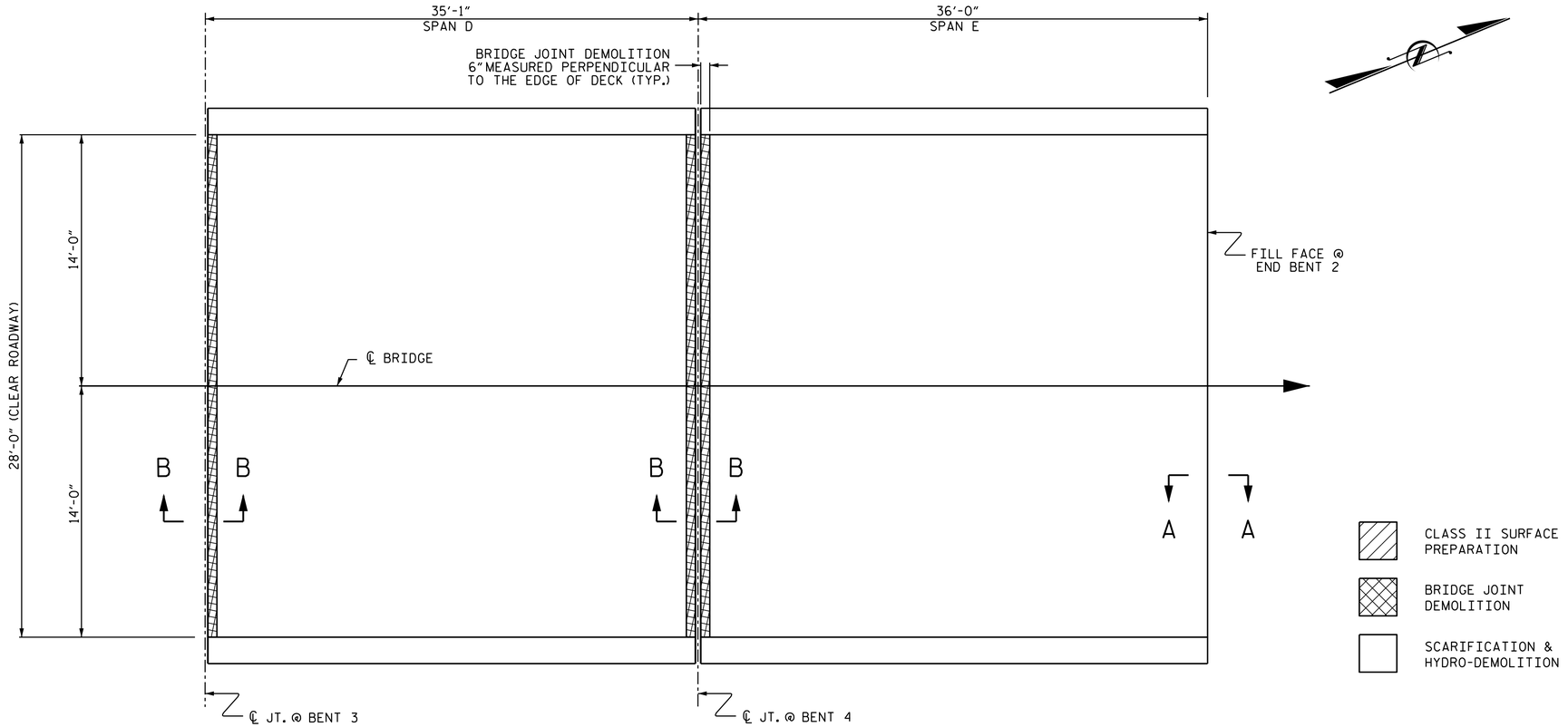
SURFACE PREPARATION
TOP OF DECK
NBL
SPANS A, B & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			72

NCDOT

DRAWN BY : A. SORSENGINH DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 10/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
tfang



PLAN OF SPAN

TOP OF DECK SLAB SHOWN. FOR LIMITS OF APPROACH SLABS, SEE SHEET 1 OF 3.

REPAIR QUANTITY TABLE

TOP OF DECK & APPROACH SLAB REPAIRS

ITEMS	SPAN D		SPAN E		APPROACH SLAB 2	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
HYDRO-DEMOLITION OF BRIDGE DECK	106 SY		110 SY		93 SY	
CLASS II SURFACE PREPARATION	1.0 SY		1.0 SY		1.0 SY	
CLASS III SURFACE PREPARATION	1.0 SY		1.0 SY		1.0 SY	
BRIDGE JOINT DEMOLITION	28 SF		14 SF		-	
SCARIFYING BRIDGE DECK	106 SY		110 SY		93 SY	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQ. FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE. FOR DECK JOINT REPAIR DETAILS, SEE SHEET S-23.

FOR UNDERSIDE OF DECK REPAIRS, SEE "SUPERSTRUCTURE REPAIRS" SHEETS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG FANG

DocuSigned by: Ting H. Fang E720884D0977435...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 157

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

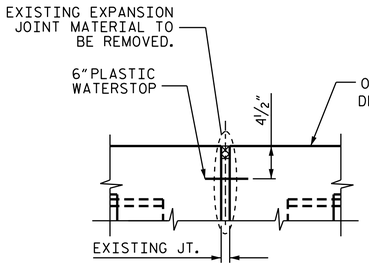
SURFACE PREPARATION
TOP OF DECK
NBL
SPANS D & E

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			72

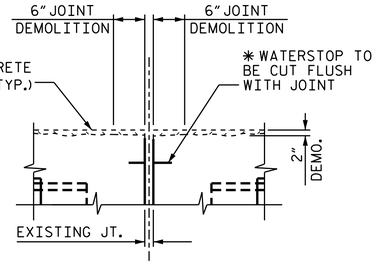
NCDOT

DRAWN BY : A. SORSENGINH DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 10/2015

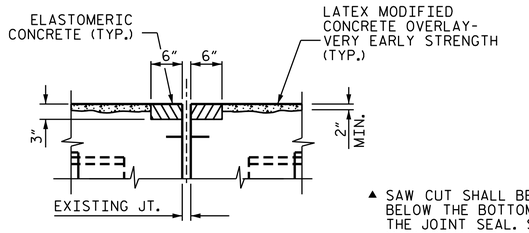
28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
tfang



EXISTING JOINT

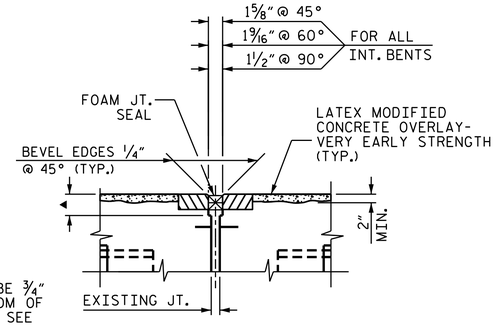


MINIMUM EXISTING JOINT DEMOLITION



▲ SAW CUT SHALL BE ¾" BELOW THE BOTTOM OF THE JOINT SEAL. SEE MANUFACTURER RECOMMENDATIONS

PROPOSED JOINT PRE-SAWED DIMENSIONS



PROPOSED FOAM JOINT SEAL EXPANSION

FOR BOTH #157 & #158 BRIDGES

NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.

IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE OR IF UNSOUND CONCRETE IS REMOVED TO WITHIN 2" OF THE WATERSTOP, THE ENTIRE WATERSTOP SHALL BE REMOVED.

HYDRO-DEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OF ELASTOMERIC CONCRETE.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

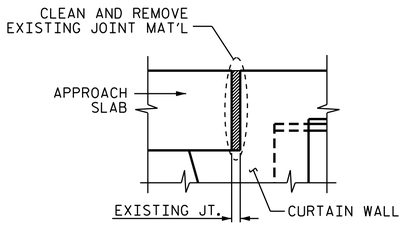
THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2".

ELASTOMERIC CONCRETE			
	UNIT	BRIDGE 157	BRIDGE 158
BENT 1	CU. FT.	7.0	7.0
BENT 2	CU. FT.	7.0	7.0
BENT 3	CU. FT.	7.0	7.0
BENT 4	CU. FT.	7.0	7.0
✱ TOTAL	CU. FT.	28.0	28.0

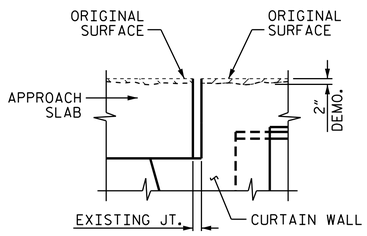
✱ BASED ON THE MINIMUM BLOCKOUT SHOWN.

JOINT INSTALLATION SEQUENCE AT BENTS

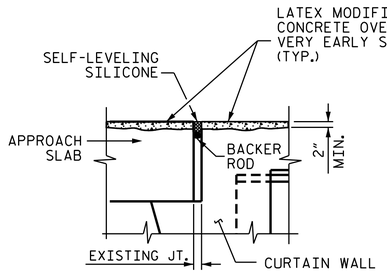
SECTION B-B



EXISTING COLD JOINT



MINIMUM EXISTING JOINT DEMOLITION

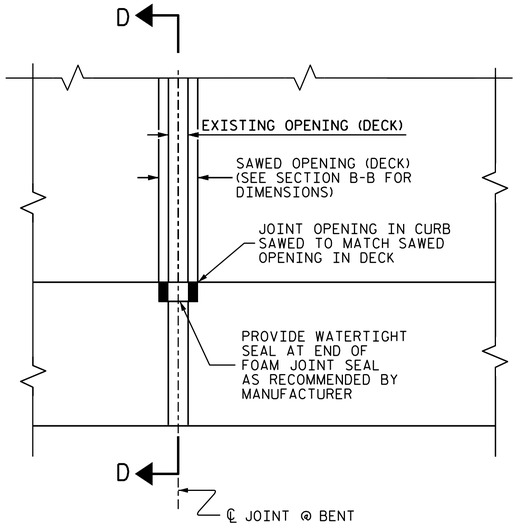


PROPOSED JOINT

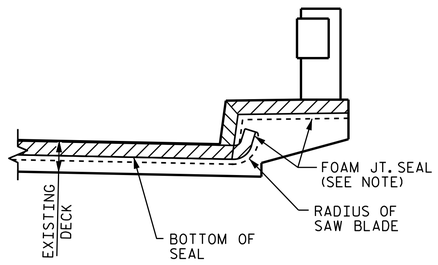
JOINT INSTALLATION SEQUENCE AT END BENTS

SECTION A-A

✱✱ ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL, THE ENTIRE WATERSTOP SHALL BE REMOVED.



PLAN



SECTION D-D

FOAM JOINT SEAL SHALL BE FACTORY FORMED OR CUT, HEAT WELDED AND TURNED UP.

JOINT SEAL DETAILS AT BENT

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO.: 157 & 158

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

JOINT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

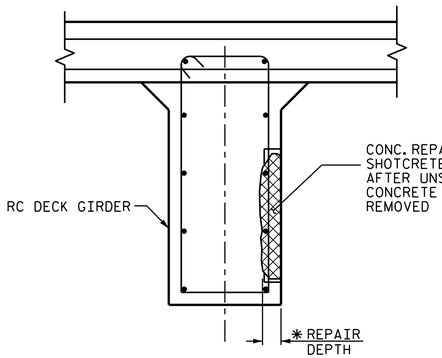
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-23

TOTAL SHEETS 72

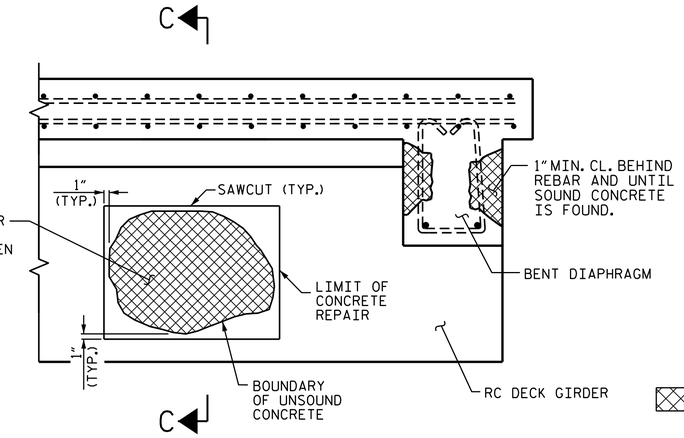
DRAWN BY : T. H. FANG DATE : 11/2015
CHECKED BY : S. B. WILLIAMS DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
ttfang

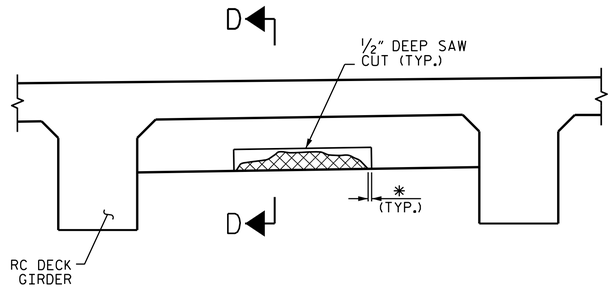


SECTION C-C

EXISTING REINFORCING STEEL LOCATIONS ARE FROM BEST INFORMATION AVAILABLE.

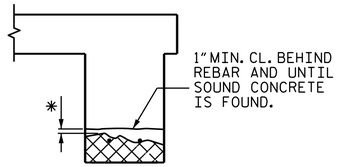


ELEVATION



TYPICAL SECTION

EXISTING REBAR TO REMAIN IN PLACE. CLEAN AND REPAIR AS NECESSARY.



SECTION D-D

DAMAGED AREA

* IF REMOVAL OF UNSOUND CONCRETE RESULTS IN EXPOSING MORE THAN HALF THE DEPTH OF A REINFORCING BAR, REMOVE ADDITIONAL CONCRETE TO 1" BEHIND THE BAR WITHOUT DAMAGE TO REINFORCING BAR.

BENT DIAPHRAGM REPAIR DETAILS

RC DECK GIRDER REPAIR DETAILS

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 157 & 158

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RC DECK GIRDER AND BENT DIAPHRAGM REPAIR DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG FANG

DocuSigned by: Ting H. Fang E72088400977435...

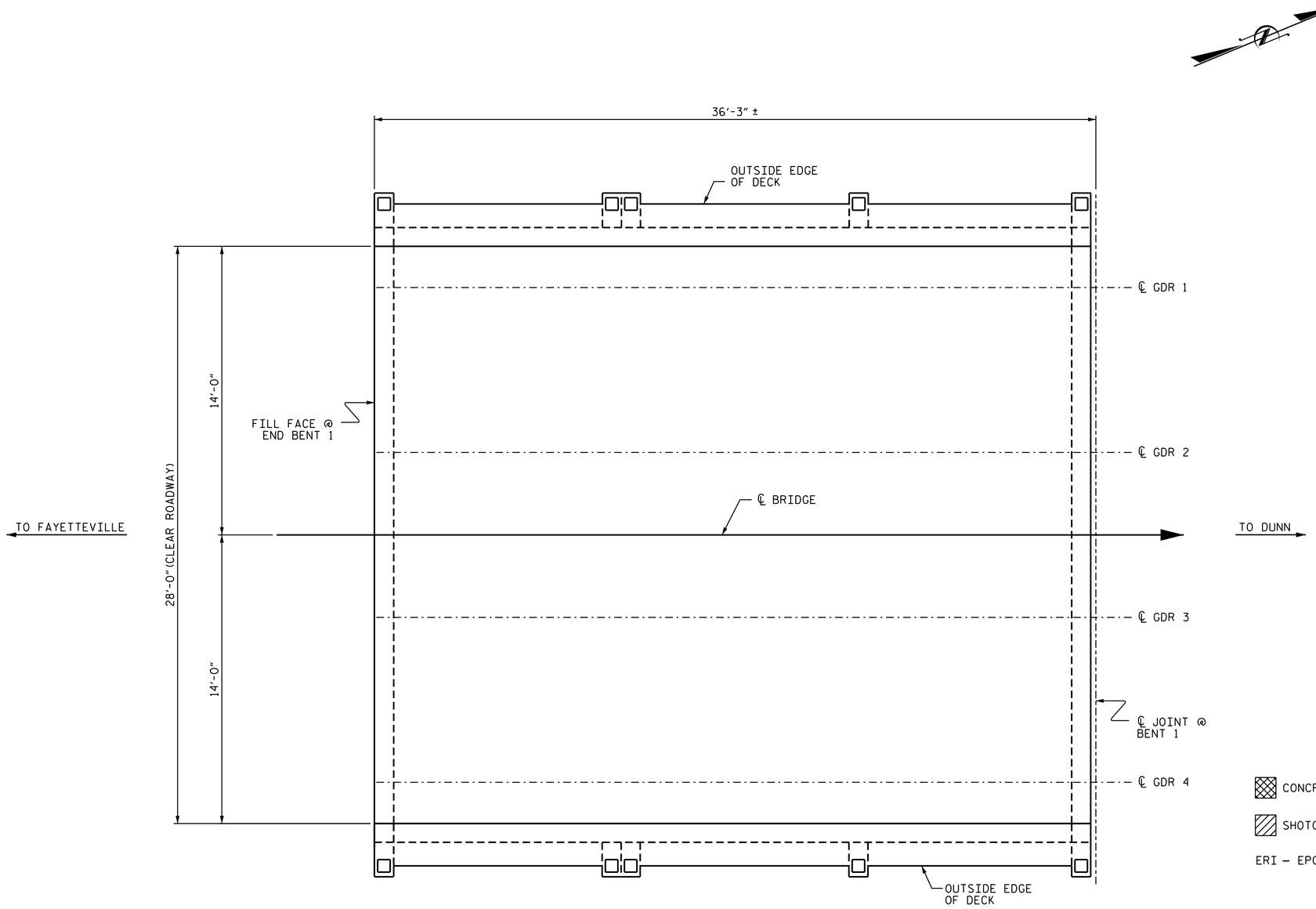
1/28/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 10/2015

CHECKED BY : S. B. WILLIAMS DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
ttfang



PLAN OF SPAN A

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK & OVERHANGS	0.0	0.0		
BENT DIAPHRAGMS				
RC DECK GIRDERS				

	ESTIMATE	ACTUAL
EPOXY RESIN INJECTION	0.0 LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS SEE SHEET S-24.

REPAIR CONCRETE BENT DIAPHRAGMS AS DIRECTED BY THE ENGINEER.

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER JING HSIUNG FANG

DocuSigned by: Jing H. Fang E720884009774356...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 157

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

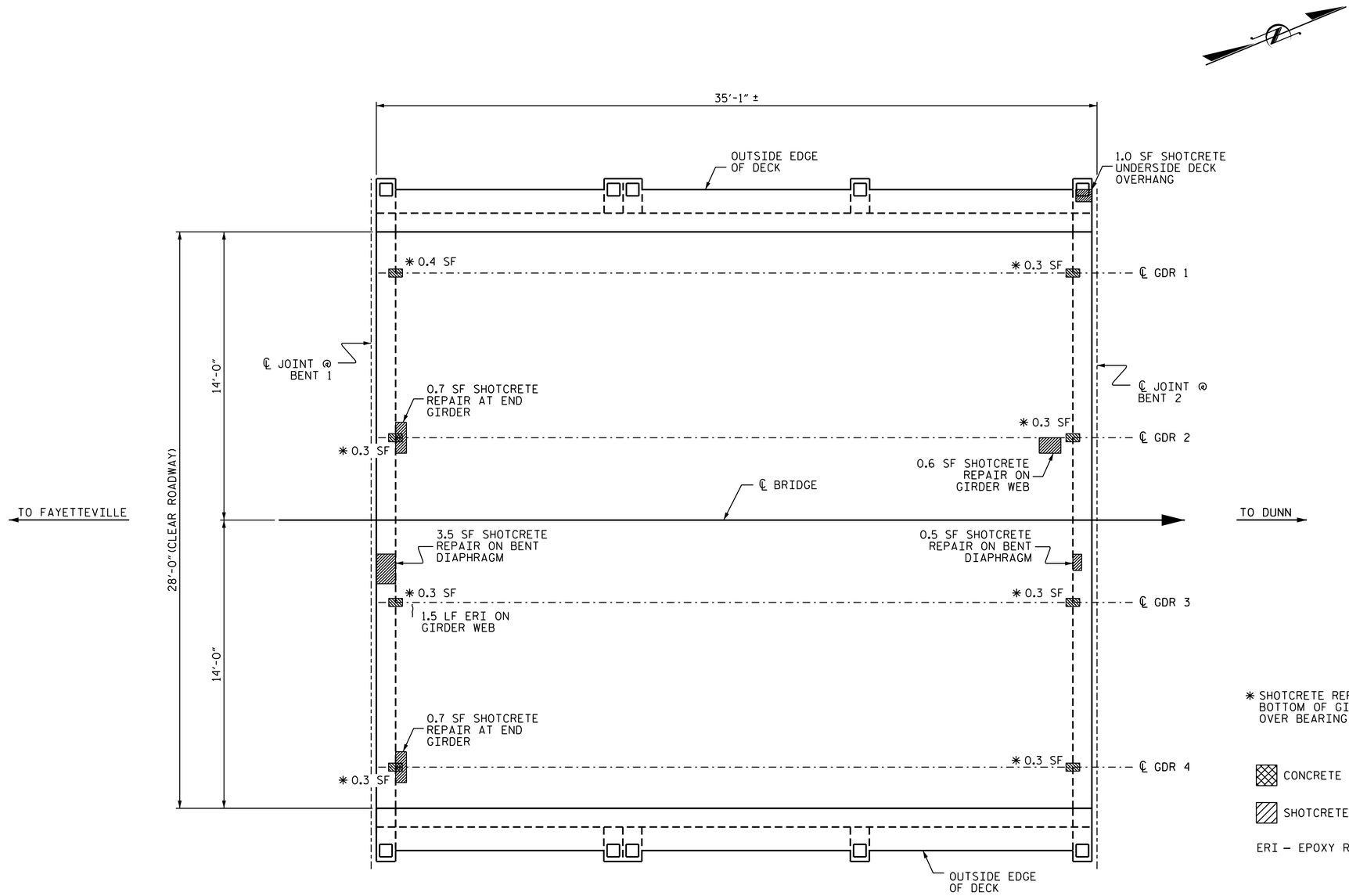
SUPERSTRUCTURE REPAIR SPAN A NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 10/2015

CHECKED BY : S. B. WILLIAMS DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Final plans\250157_plans.dgn
ttfang



PLAN OF SPAN B

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK & OVERHANGS	1.0	0.3		
BENT DIAPHRAGMS	4.0	1.0		
RC DECK GIRDERS	4.5	1.2		
	ESTIMATE		ACTUAL	
EPOXY RESIN INJECTION	1.5 LF			

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS SEE SHEET S-24.

REPAIR CONCRETE BENT DIAPHRAGMS AS DIRECTED BY THE ENGINEER.

✱ SHOTCRETE REPAIR AT BOTTOM OF GIRDER OVER BEARING

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 157

SHEET 2 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774357...

1/28/2016

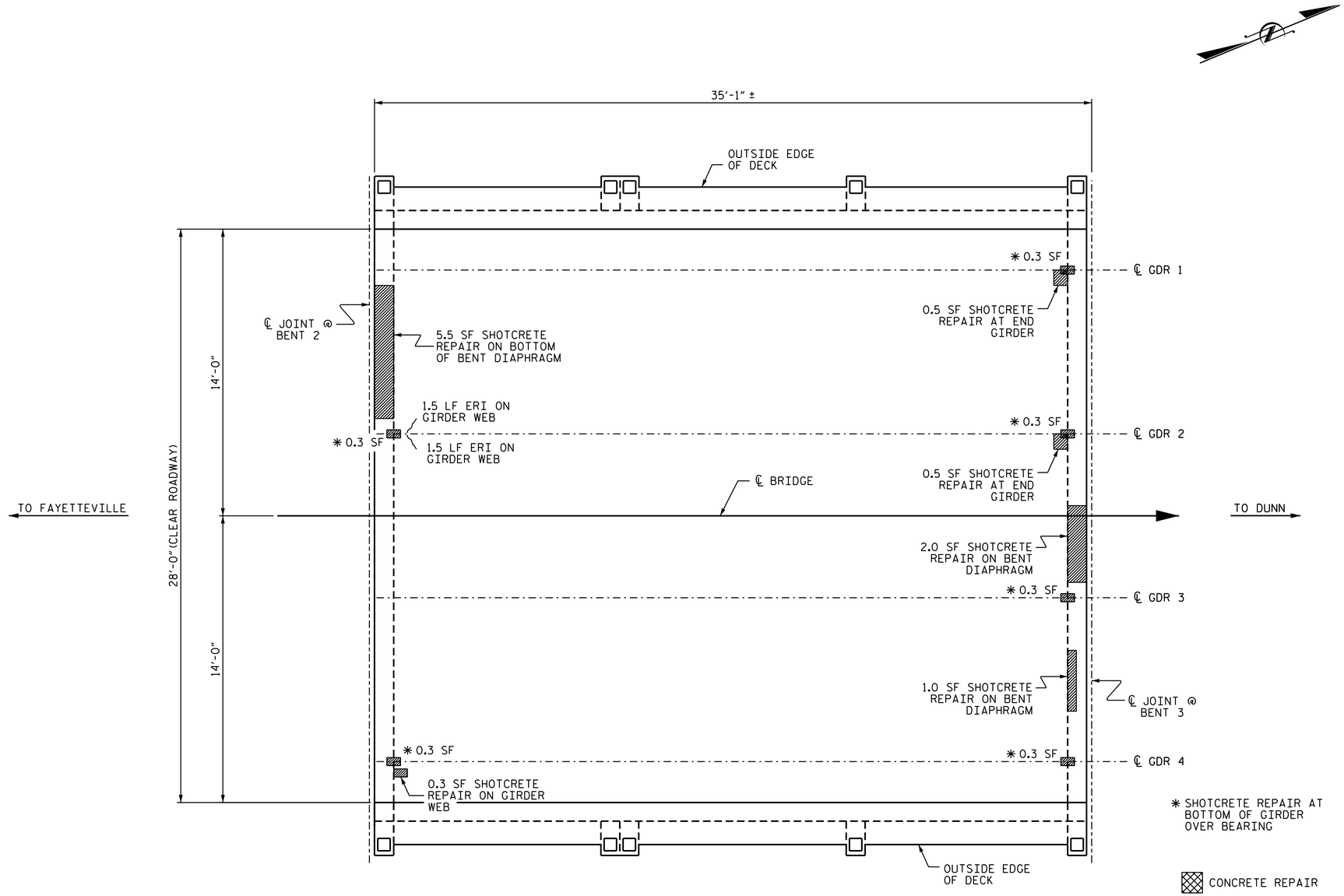
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN B NBL

REVISIONS NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-26
2			4			TOTAL SHEETS 72

DRAWN BY : T. H. FANG DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
tfang



PLAN OF SPAN C

✱ SHOTCRETE REPAIR AT BOTTOM OF GIRDER OVER BEARING

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK & OVERHANGS				
BENT DIAPHRAGMS	8.5	2.1		
RC DECK GIRDERS	3.1	0.8		
	ESTIMATE		ACTUAL	
EPOXY RESIN INJECTION	3.0 LF			

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS SEE SHEET S-24.

REPAIR CONCRETE BENT DIAPHRAGMS AS DIRECTED BY THE ENGINEER.

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 157

SHEET 3 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884D0977435...

1/28/2016

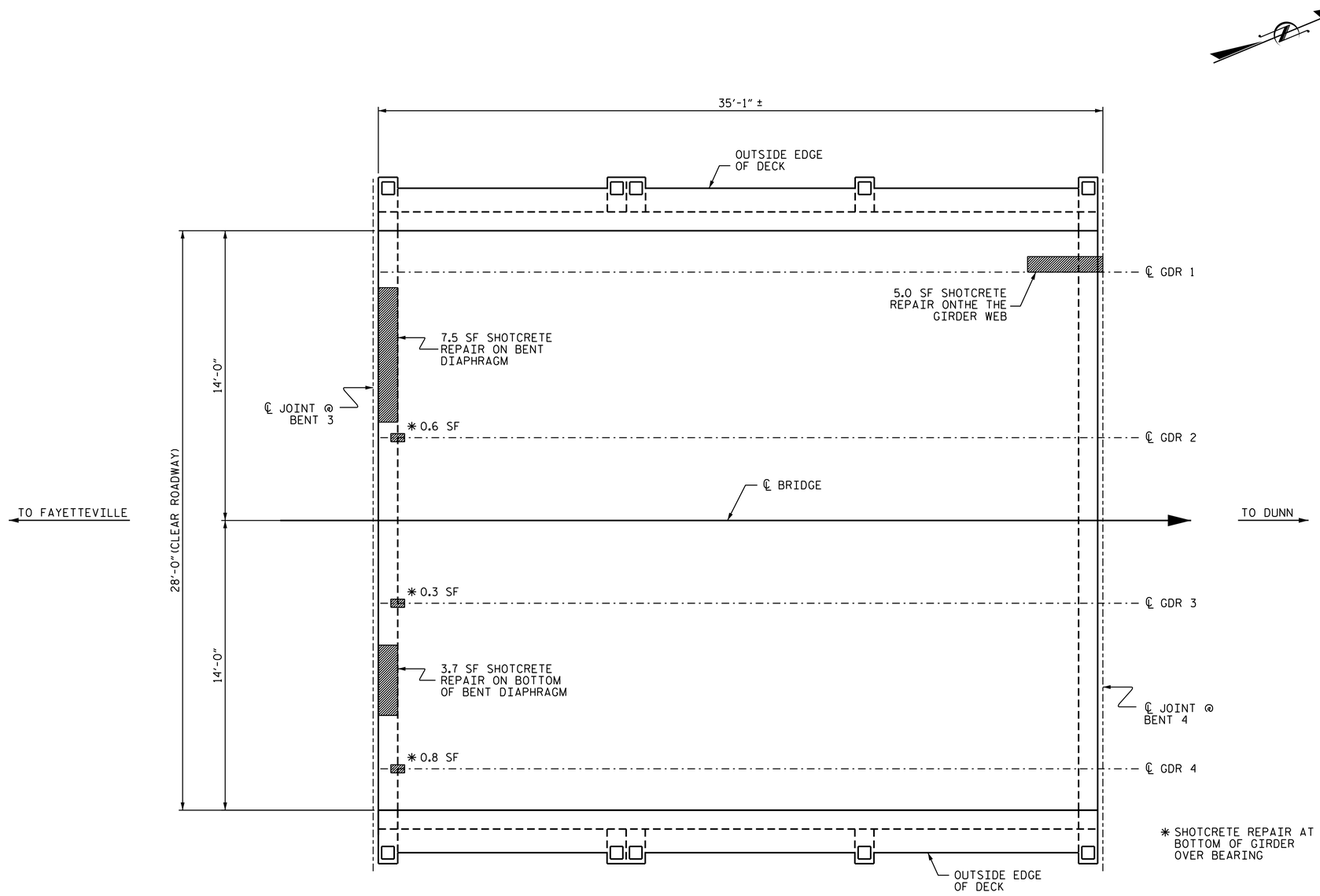
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN C NBL

REVISIONS NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-27
2			4			TOTAL SHEETS 72

DRAWN BY : T. H. FANG DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
ttfang



PLAN OF SPAN D

✱ SHOTCRETE REPAIR AT BOTTOM OF GIRDER OVER BEARING

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK & OVERHANGS				
BENT DIAPHRAGMS	11.2	2.8		
RC DECK GIRDERS	6.7	1.7		
	ESTIMATE		ACTUAL	
EPOXY RESIN INJECTION	0.0 LF			

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS SEE SHEET S-24.

REPAIR CONCRETE BENT DIAPHRAGMS AS DIRECTED BY THE ENGINEER.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 157

SHEET 4 OF 5

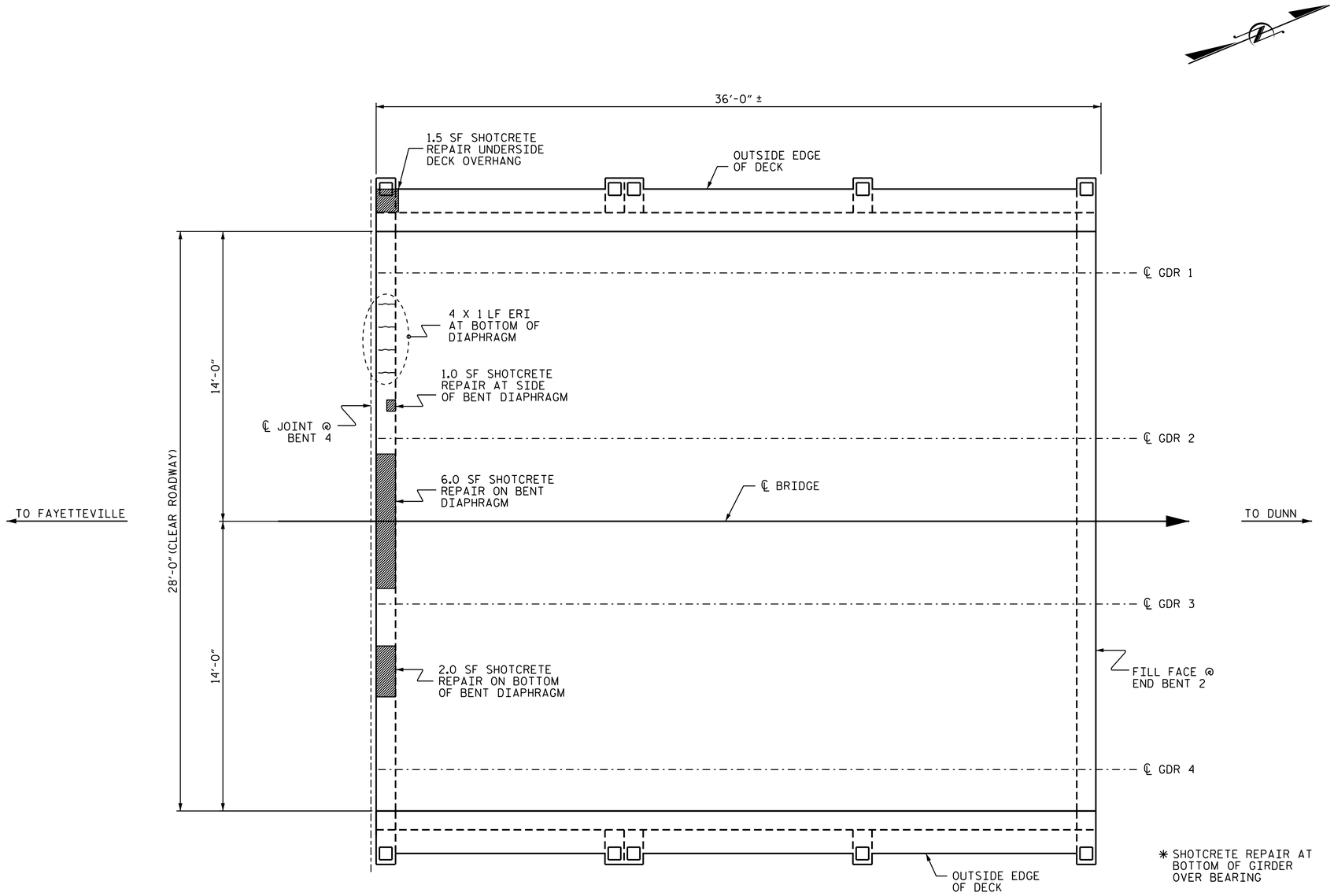
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN D NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Final plans\250157_plans.dgn
ttfang



PLAN OF SPAN E

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK & OVERHANGS	1.5	0.4		
BENT DIAPHRAGMS	9.0	2.3		
RC DECK GIRDERS				
	ESTIMATE		ACTUAL	
EPOXY RESIN INJECTION	4.0 LF			

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS SEE SHEET S-24.

REPAIR CONCRETE BENT DIAPHRAGMS AS DIRECTED BY THE ENGINEER.

* SHOTCRETE REPAIR AT BOTTOM OF GIRDER OVER BEARING

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E72088402877435...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 157

SHEET 5 OF 5

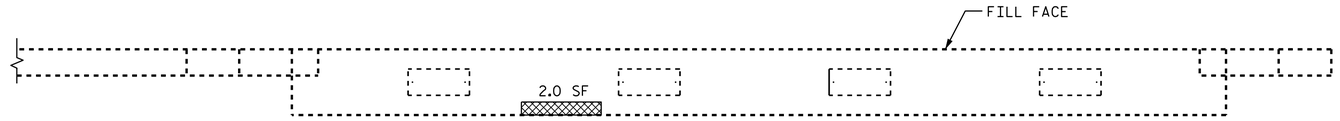
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN E NBL

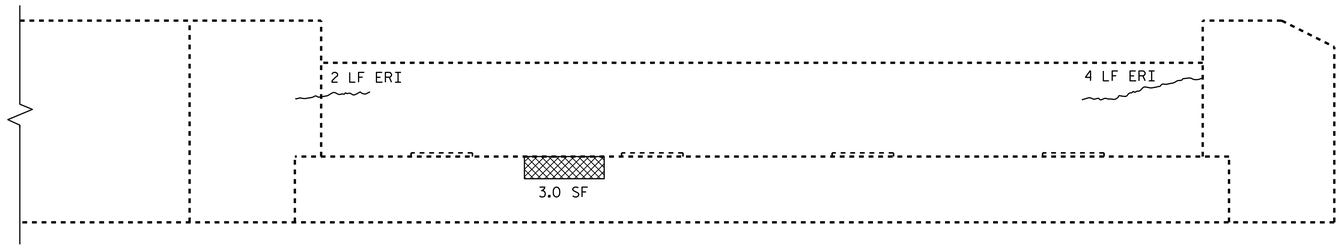
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Final plans\250157_plans.dgn
ttfang



PLAN



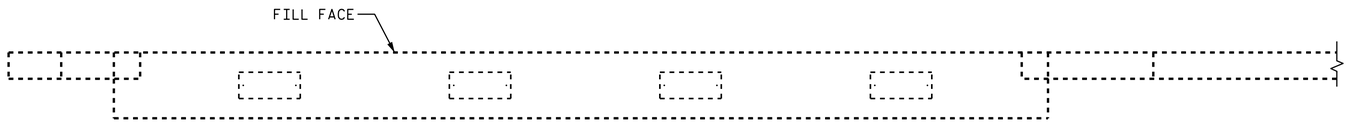
ELEVATION
LOOKING AT FRONT FACE

CONCRETE REPAIR

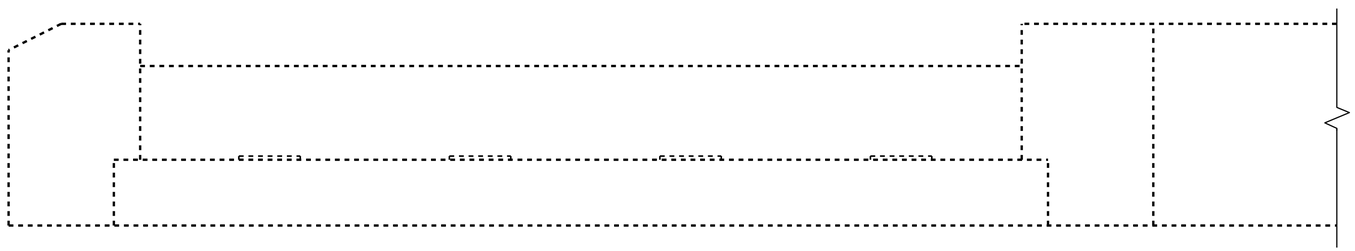
SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

END BENT 1



PLAN



ELEVATION
LOOKING AT FRONT FACE

END BENT 2

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE END BENT CAP.

REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
CURTAIN WALL				
CONCRETE REPAIRS	5.0	1.3		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
CURTAIN WALL		6.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		43.9		

REPAIRS END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
CURTAIN WALL				
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
CURTAIN WALL				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		43.9		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 157

SHEET 1 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG F. FANG

DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

END BENTS 1 & 2 NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 11/2015

K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
ttfang

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

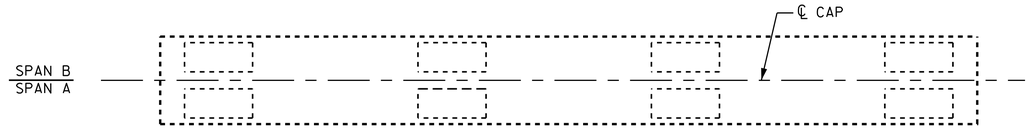
FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

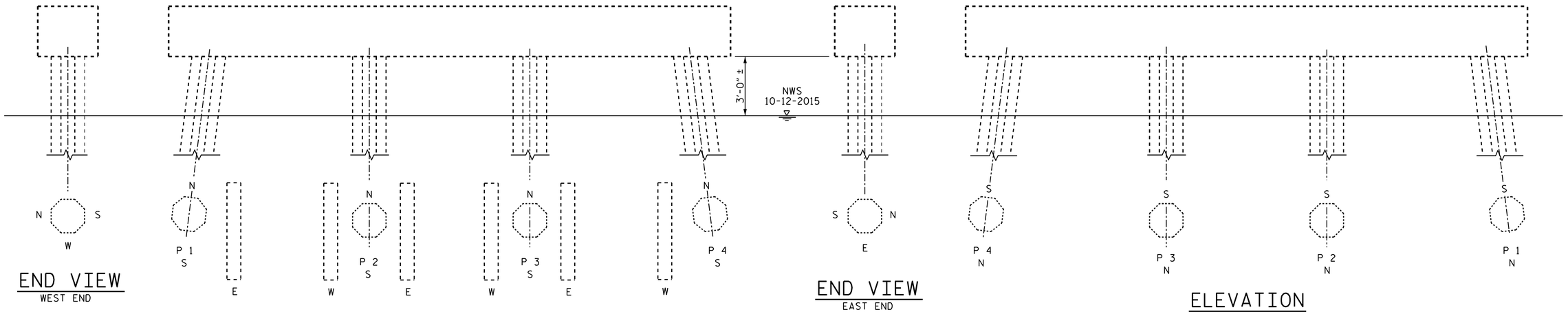
CONCRETE REPAIR

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



TOP OF CAP

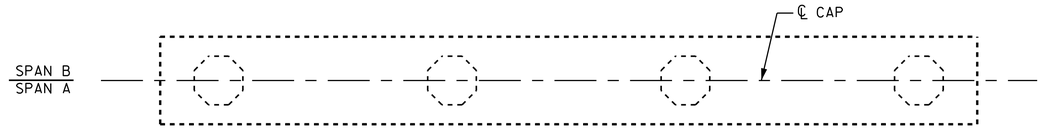


END VIEW
WEST END

END VIEW
EAST END

ELEVATION
LOOKING NORTH

ELEVATION
LOOKING SOUTH



BOTTOM OF CAP

REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
PILE (VERTICAL FACE)				
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
PILE				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		65.3		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884D0977435...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

STATION: 157

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

BENT 1
NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 9/2015
CHECKED BY : S. B. WILLIAMS DATE : 9/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
ttfang

NCDOT

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

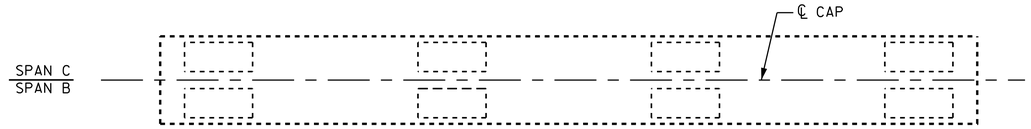
FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

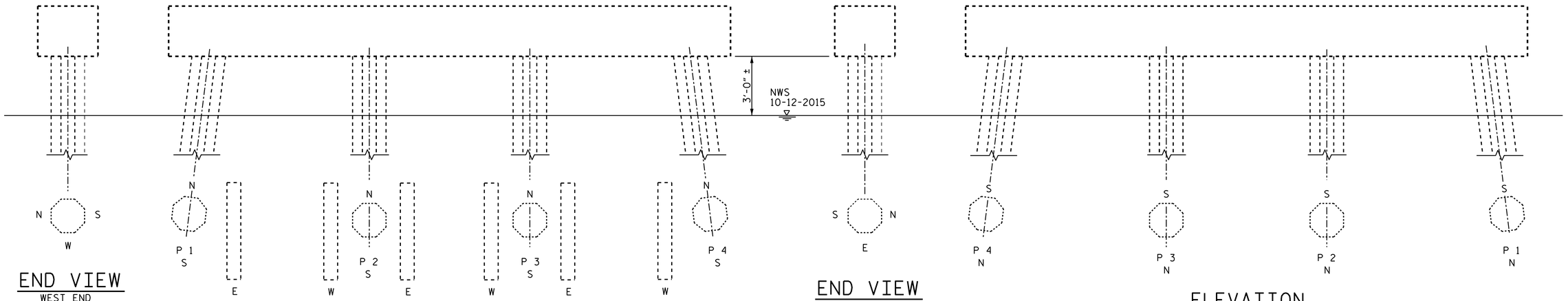
CONCRETE REPAIR

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



TOP OF CAP

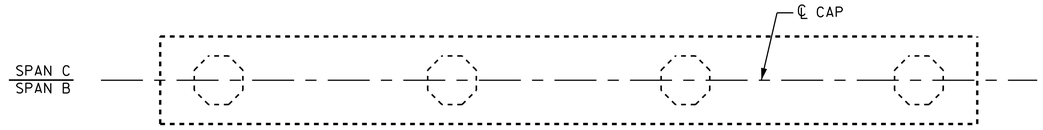


END VIEW
WEST END

END VIEW
EAST END

ELEVATION
LOOKING SOUTH

ELEVATION
LOOKING NORTH



BOTTOM OF CAP

REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
PILE (VERTICAL FACE)				
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
PILE				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		65.3		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884D09774355...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

STATION: 157

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

BENT 2
NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 9/2015
CHECKED BY : S. B. WILLIAMS DATE : 9/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
ttfang

NCDOT

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

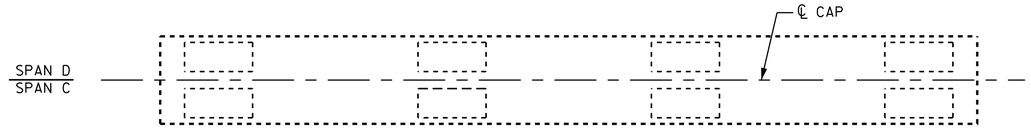
FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

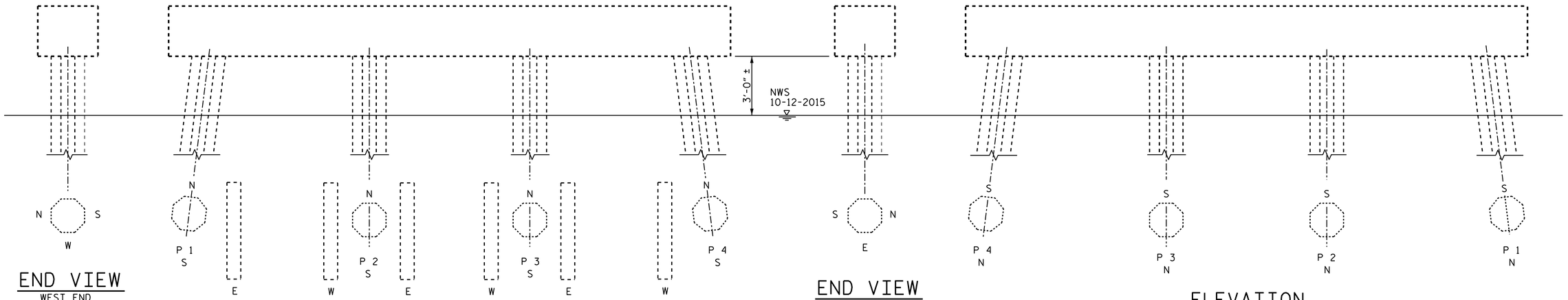
CONCRETE REPAIR

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



TOP OF CAP

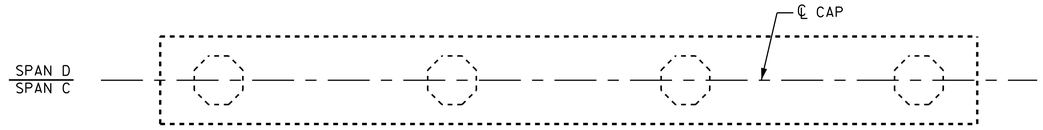


END VIEW
WEST END

END VIEW
EAST END

ELEVATION
LOOKING NORTH

ELEVATION
LOOKING SOUTH



BOTTOM OF CAP

REPAIR QUANTITY TABLE				
REPAIRS BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
PILE (VERTICAL FACE)				
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
PILE				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		65.3		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774351... 1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

STATION: 157

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

BENT 3
NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 9/2015
CHECKED BY : S. B. WILLIAMS DATE : 9/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
ttfang

NCDOT

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

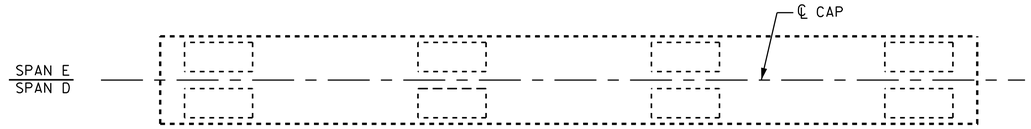
FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

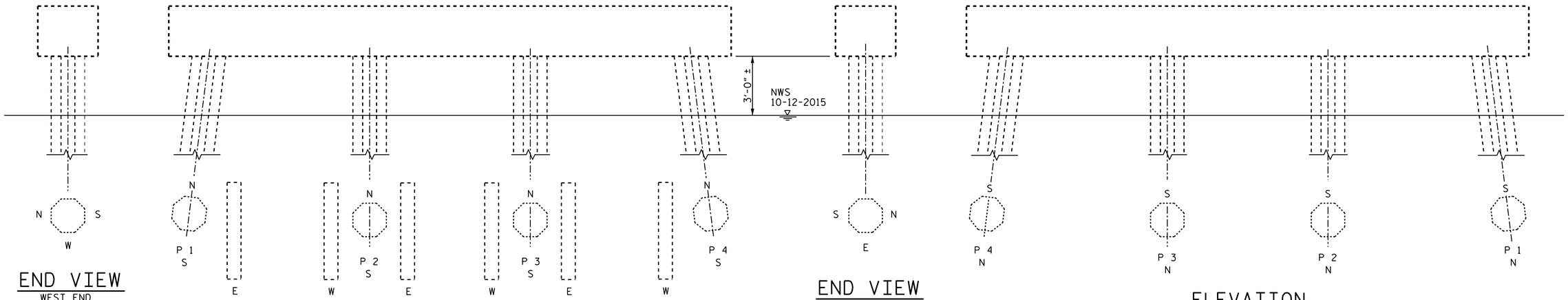
CONCRETE REPAIR

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



TOP OF CAP

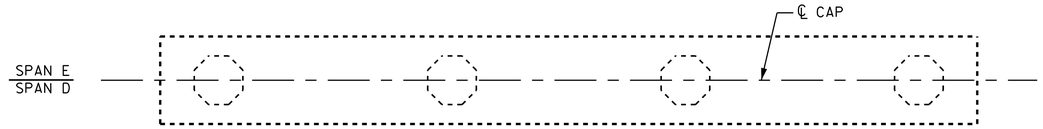


END VIEW
WEST END

END VIEW
EAST END

ELEVATION
LOOKING NORTH

ELEVATION
LOOKING SOUTH



BOTTOM OF CAP

REPAIR QUANTITY TABLE

REPAIRS BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
PILE (VERTICAL FACE)				
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
PILE				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		65.3		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774 35...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

STATION: 157

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

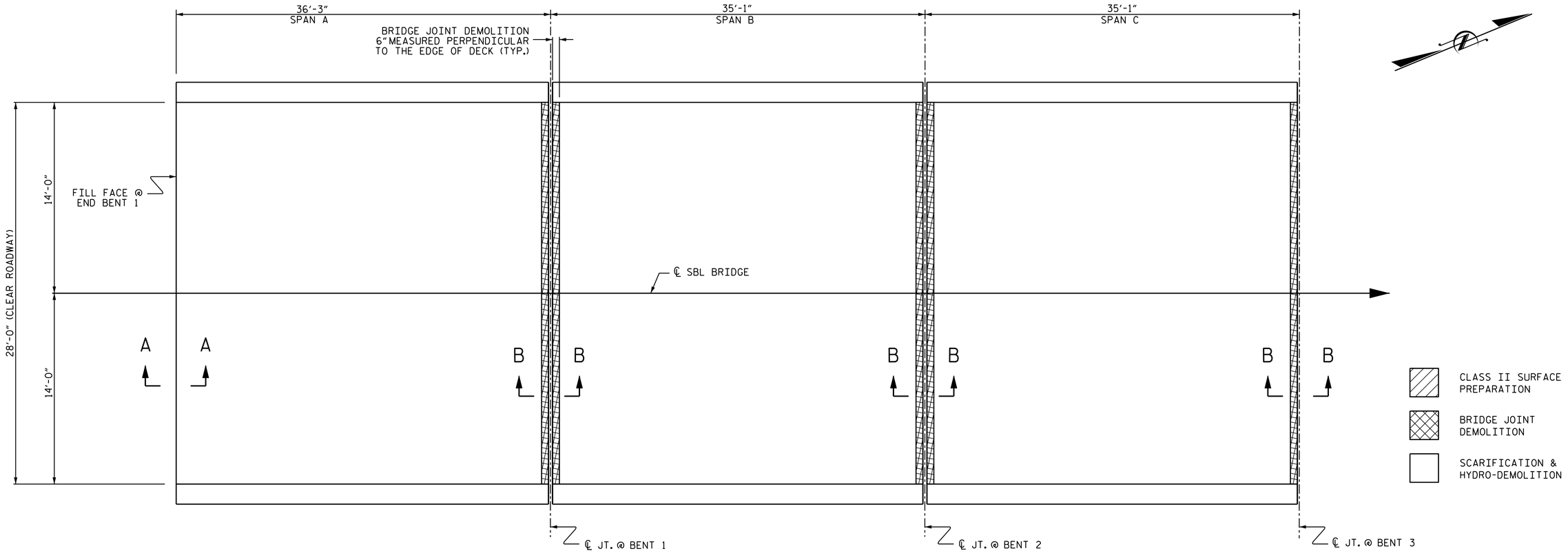
BENT 4
NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 9/2015
CHECKED BY : S. B. WILLIAMS DATE : 9/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250157_plans.dgn
ttfang

NCDOT



PLAN OF SPAN

TOP OF DECK SLAB SHOWN, FOR LIMITS OF APPROACH SLABS, SEE SHEET S-20.

REPAIR QUANTITY TABLE

TOP OF DECK & APPROACH SLAB REPAIRS

ITEMS	APPROACH SLAB 1		SPAN A		SPAN B		SPAN C	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
HYDRO-DEMOLITION OF BRIDGE DECK	93 SY		111 SY		106 SY		106 SY	
CLASS II SURFACE PREPARATION	1.0 SY		1.0 SY		1.0 SY		1.0 SY	
CLASS III SURFACE PREPARATION	1.0 SY		1.0 SY		1.0 SY		1.0 SY	
BRIDGE JOINT DEMOLITION	-		14.0 SF		28 SF		28 SF	
SCARIFYING BRIDGE DECK	93 SY		111 SY		106 SY		106 SY	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQ. FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK REPAIRS, SEE "SUPERSTRUCTURE REPAIRS" SHEETS.

FOR DECK JOINT REPAIR DETAILS, SEE SHEET S-23.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSILING FANG

DocuSigned by: Ting H. Fang E720884009774356...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 158

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

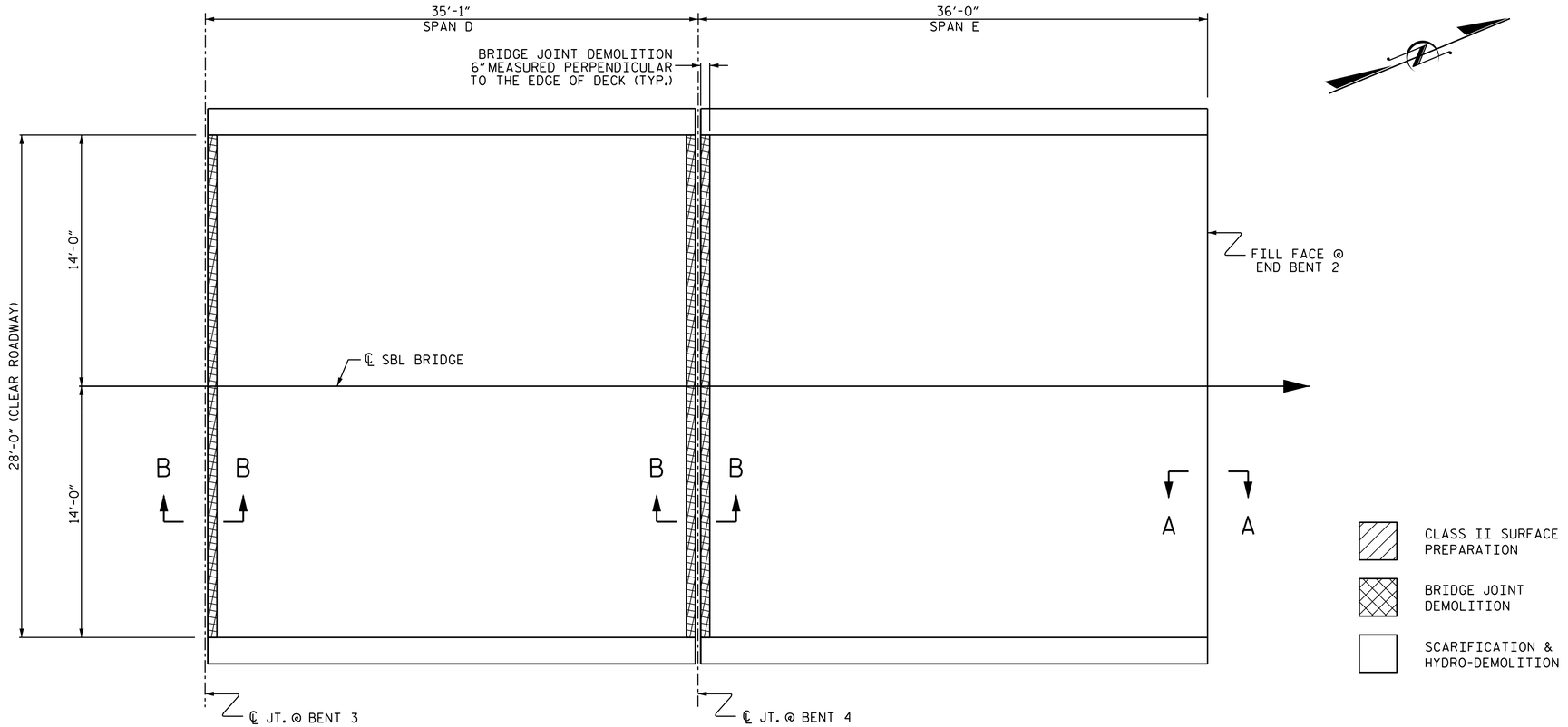
SURFACE PREPARATION TOP OF DECK SBL SPANS A, B & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 10/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250158_plans.dgn
tfang

NCDOT



PLAN OF SPAN

TOP OF DECK SLAB SHOWN, FOR LIMITS OF APPROACH SLABS, SEE SHEET S-20.

REPAIR QUANTITY TABLE

TOP OF DECK & APPROACH SLAB REPAIRS

ITEMS	SPAN D		SPAN E		APPROACH SLAB 2	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
HYDRO-DEMOLITION OF BRIDGE DECK	106 SY		110 SY		93 SY	
CLASS II SURFACE PREPARATION	1.0 SY		1.0 SY		1.0 SY	
CLASS III SURFACE PREPARATION	1.0 SY		1.0 SY		1.0 SY	
BRIDGE JOINT DEMOLITION	28 SF		14 SF		-	
SCARIFYING BRIDGE DECK	106 SY		110 SY		93 SY	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQ. FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK REPAIRS, SEE "SUPERSTRUCTURE REPAIRS" SHEETS.

FOR DECK JOINT REPAIR DETAILS, SEE SHEET S-23.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG FANG

DocuSigned by: Ting H. Fang E720884D0977435...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 158

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

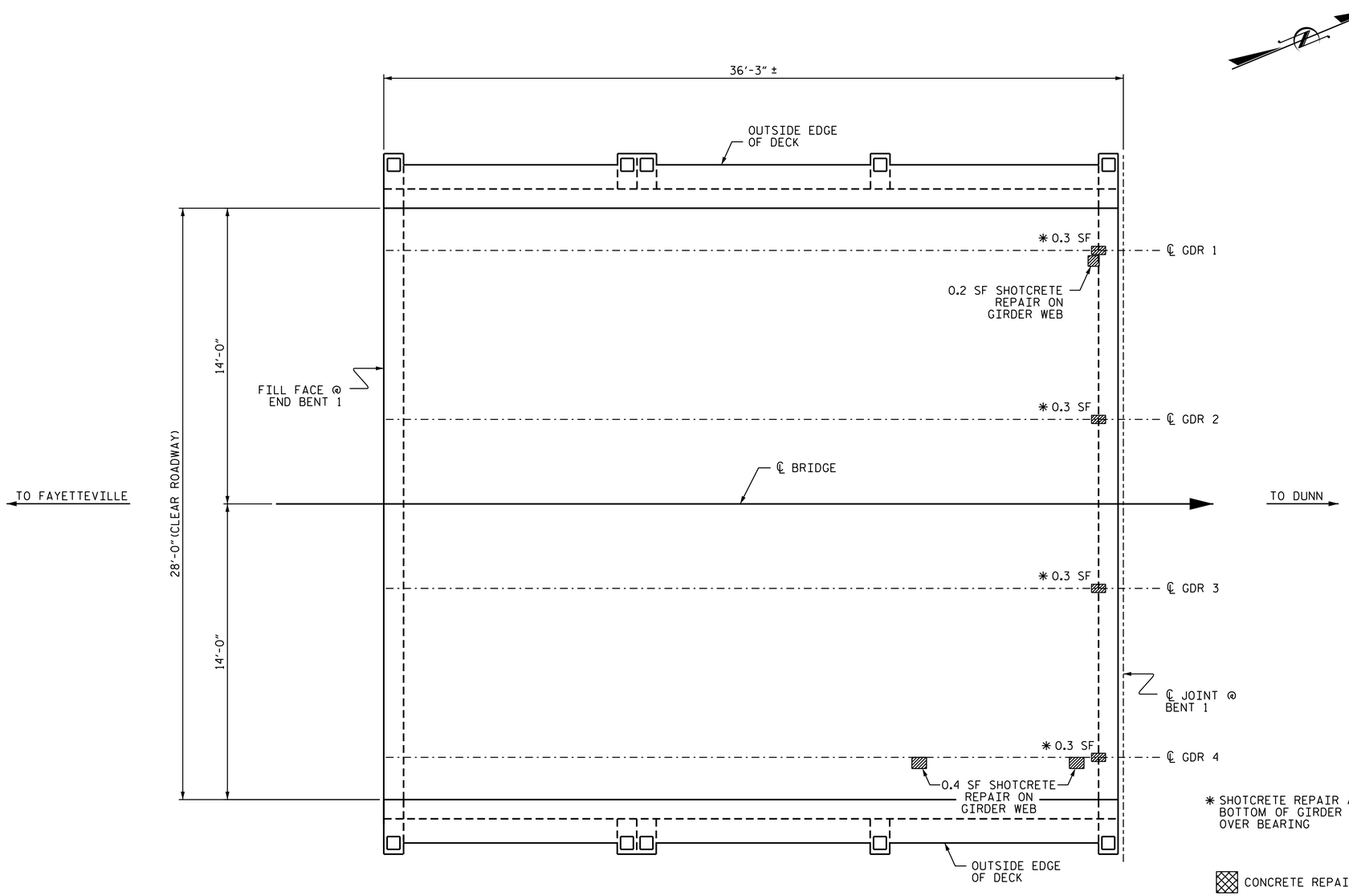
SURFACE PREPARATION
TOP OF DECK
SBL
SPANS D & E

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 10/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250158_plans.dgn
tfang

NCDOS



PLAN OF SPAN A

✱ SHOTCRETE REPAIR AT BOTTOM OF GIRDER OVER BEARING

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK & OVERHANGS				
BENT DIAPHRAGMS				
RC DECK GIRDERS	2.2	0.6		

	ESTIMATE	ACTUAL
EPOXY RESIN INJECTION	0.0 LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS SEE SHEET S-24.

REPAIR CONCRETE BENT DIAPHRAGMS AS DIRECTED BY THE ENGINEER.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774355...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 158

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN A SBL

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

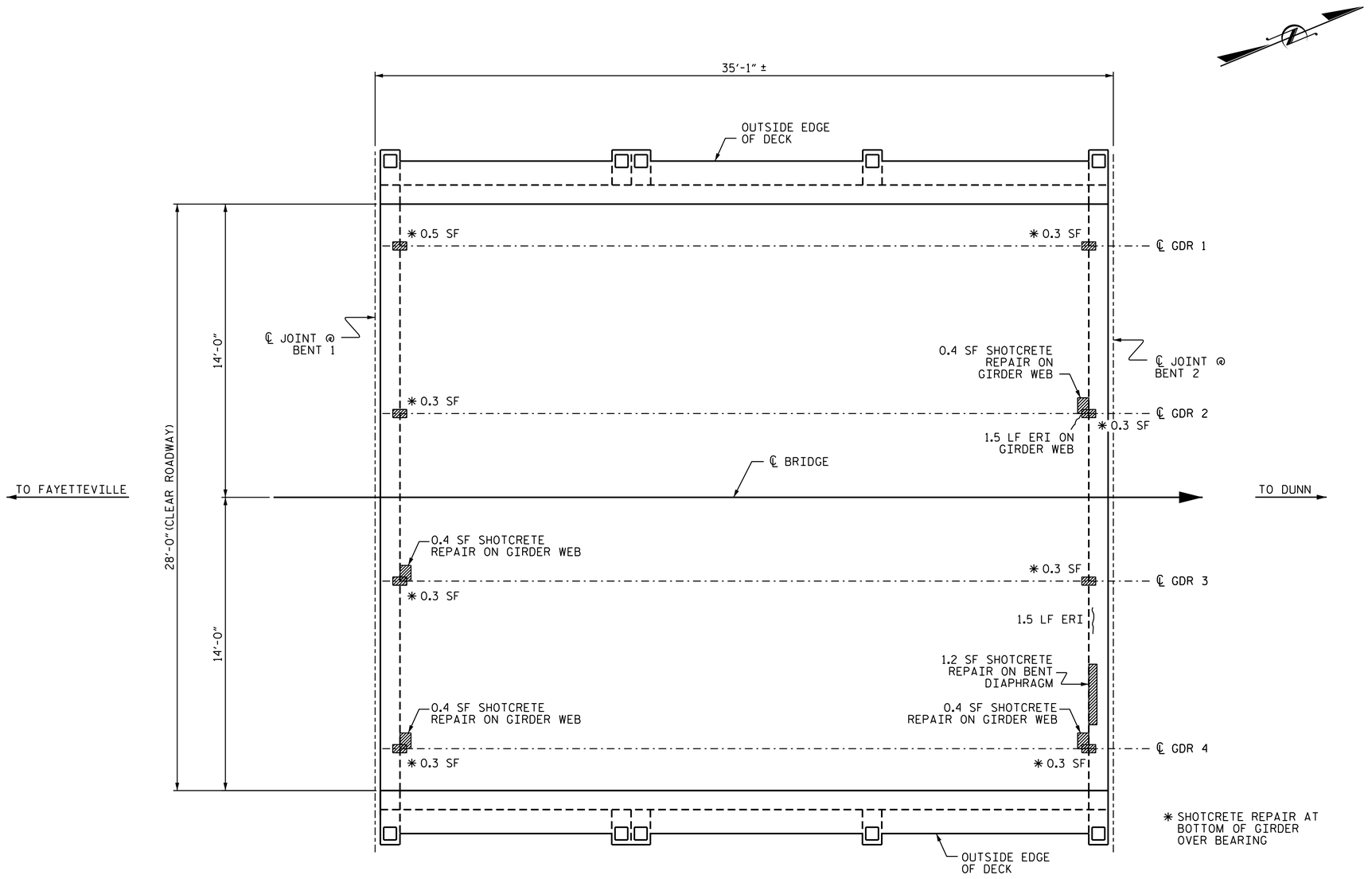
SHEET NO. S-37

TOTAL SHEETS 72

DRAWN BY : T. H. FANG DATE : 10/2015

CHECKED BY : T. FANG DATE : 11/2015

K:\TIPProjects-I\I5788\Structures\Final plans\250158_plans.dgn
ttfang



PLAN OF SPAN B

* SHOTCRETE REPAIR AT BOTTOM OF GIRDER OVER BEARING

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK & OVERHANGS				
BENT DIAPHRAGMS	1.2	0.3		
RC DECK GIRDERS	4.2	1.1		

	ESTIMATE	ACTUAL
EPOXY RESIN INJECTION	3.0 LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS SEE SHEET S-24.

REPAIR CONCRETE BENT DIAPHRAGMS AS DIRECTED BY THE ENGINEER.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774350...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 158

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN B SBL

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

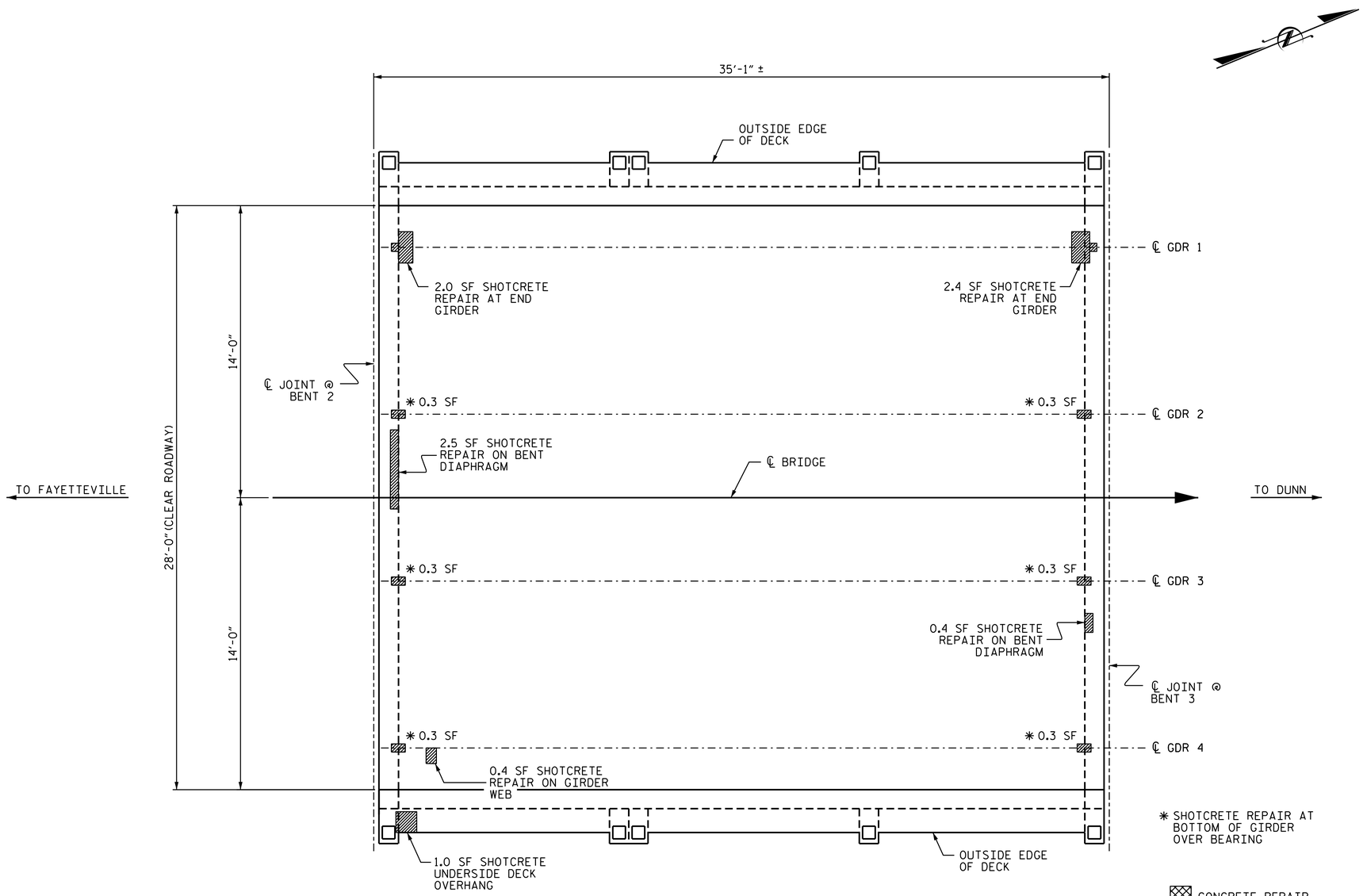
SHEET NO. S-38

TOTAL SHEETS 72

DRAWN BY : T. H. FANG DATE : 10/2015

CHECKED BY : T. FANG DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-1\I5788\Structures\Finalplans\250158_plans.dgn
tfang



PLAN OF SPAN C

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK & OVERHANGS	1.0	0.3		
BENT DIAPHRAGMS	2.9	0.7		
RC DECK GIRDERS	6.6	1.7		

	ESTIMATE	ACTUAL
EPOXY RESIN INJECTION	0.0 LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS SEE SHEET S-24.

REPAIR CONCRETE BENT DIAPHRAGMS AS DIRECTED BY THE ENGINEER.

✱ SHOTCRETE REPAIR AT BOTTOM OF GIRDER OVER BEARING

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 158

SHEET 3 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774 35...

1/28/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN C SBL

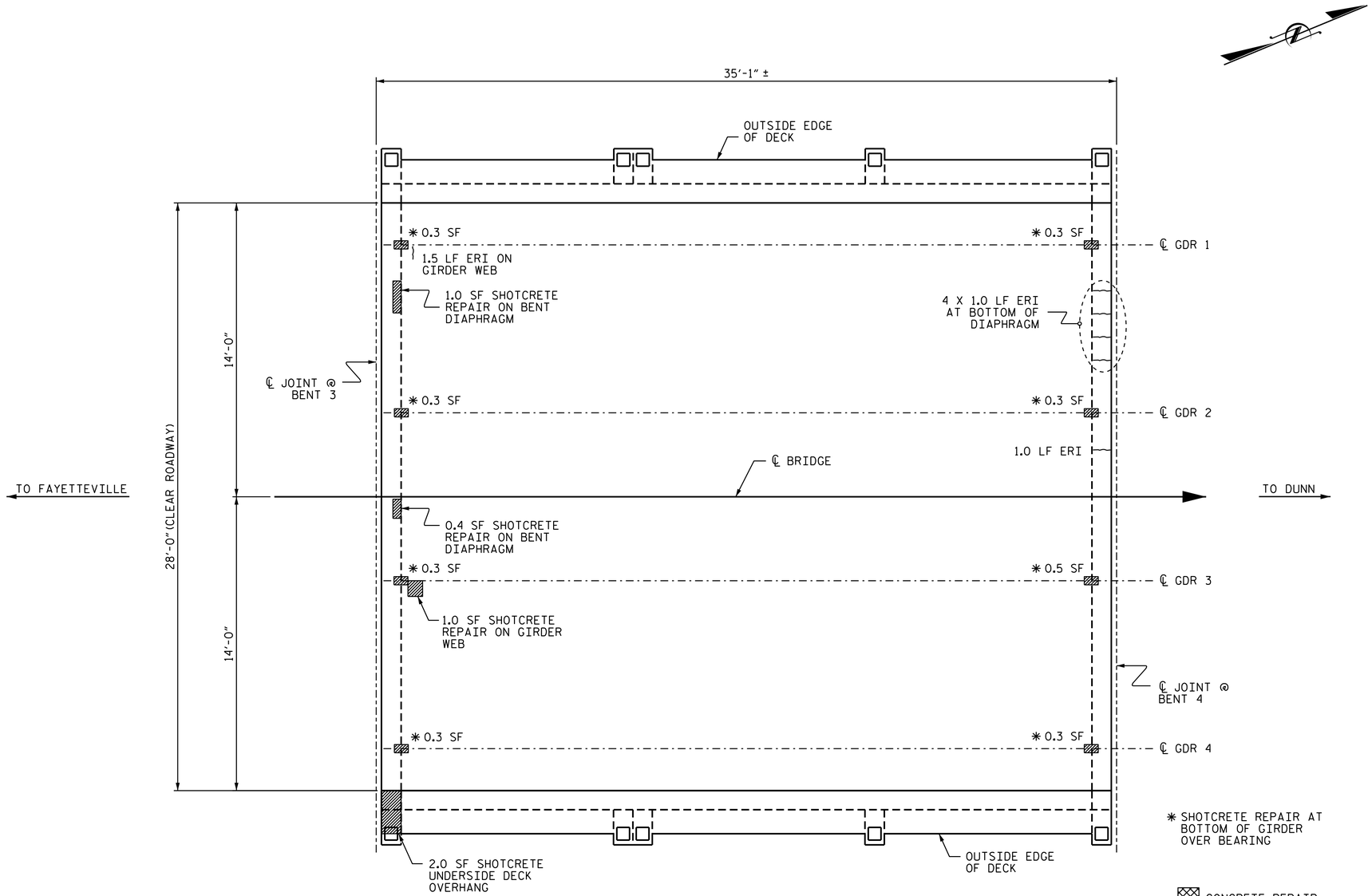
REVISIONS NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-39

TOTAL SHEETS 72

DRAWN BY : T. H. FANG DATE : 10/2015
CHECKED BY : T. FANG DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Final plans\250158_plans.dgn
ttfang



PLAN OF SPAN D

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK & OVERHANGS	2.0	0.5		
BENT DIAPHRAGMS	1.4	0.4		
RC DECK GIRDERS	3.6	0.9		
	ESTIMATE		ACTUAL	
EPOXY RESIN INJECTION	6.5 LF			

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS SEE SHEET S-24.

REPAIR CONCRETE BENT DIAPHRAGMS AS DIRECTED BY THE ENGINEER.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774355...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 158

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN D SBL

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

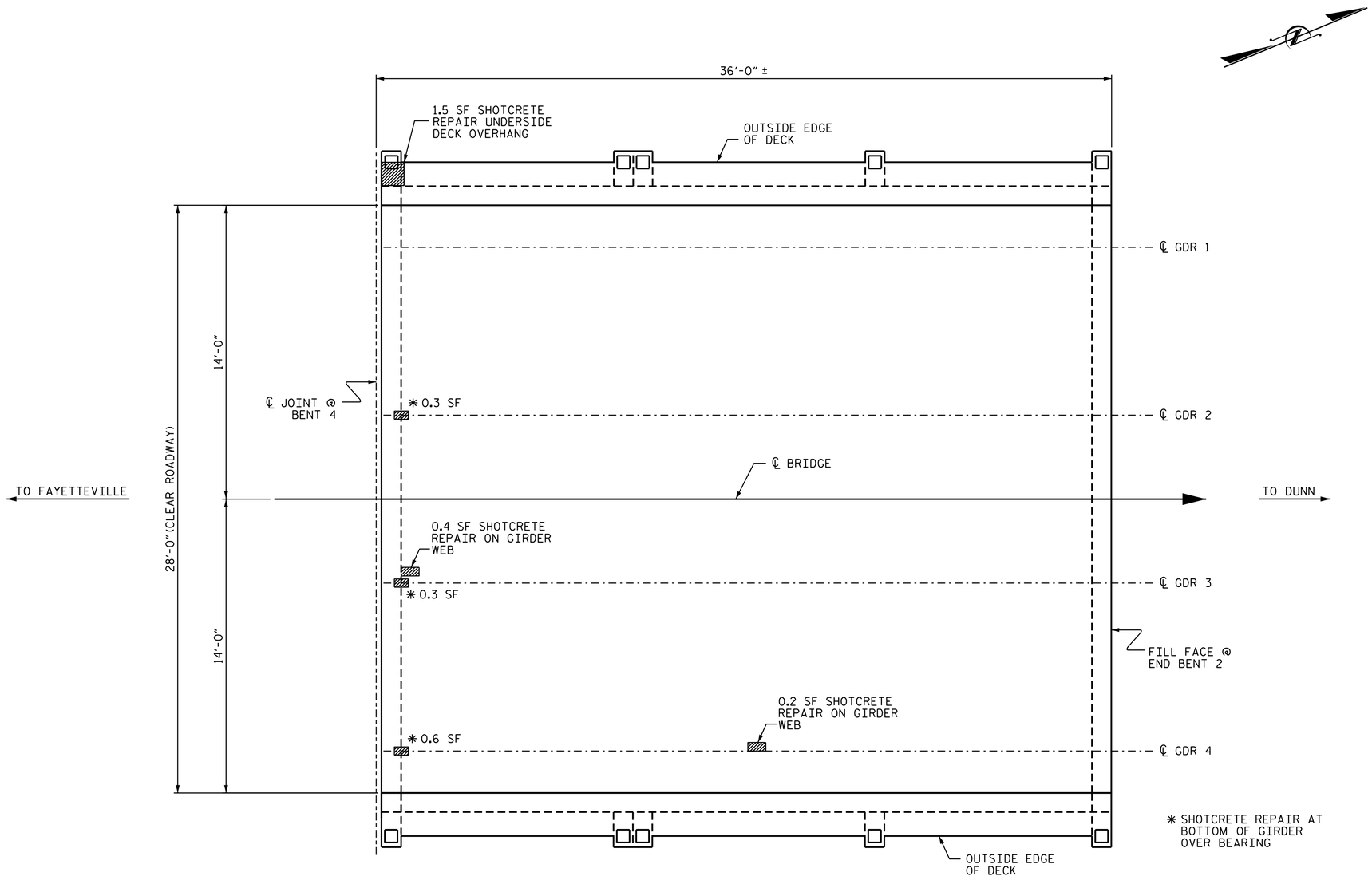
SHEET NO. S-40

TOTAL SHEETS 72

DRAWN BY : T. H. FANG DATE : 10/2015

CHECKED BY : T. FANG DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250158_plans.dgn
tfang



PLAN OF SPAN E

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK & OVERHANGS	1.5	0.4		
BENT DIAPHRAGMS				
RC DECK GIRDERS	1.8	0.5		

	ESTIMATE	ACTUAL
EPOXY RESIN INJECTION	0.0 LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS SEE SHEET S-24.

REPAIR CONCRETE BENT DIAPHRAGMS AS DIRECTED BY THE ENGINEER.

* SHOTCRETE REPAIR AT BOTTOM OF GIRDER OVER BEARING

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E72086400977435...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO. 158

SHEET 5 OF 5

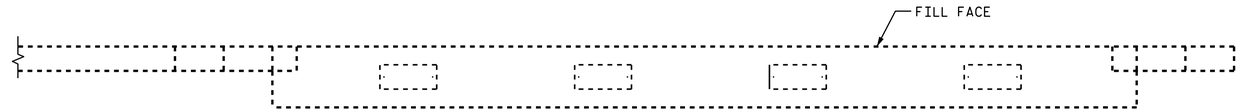
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN E SBL

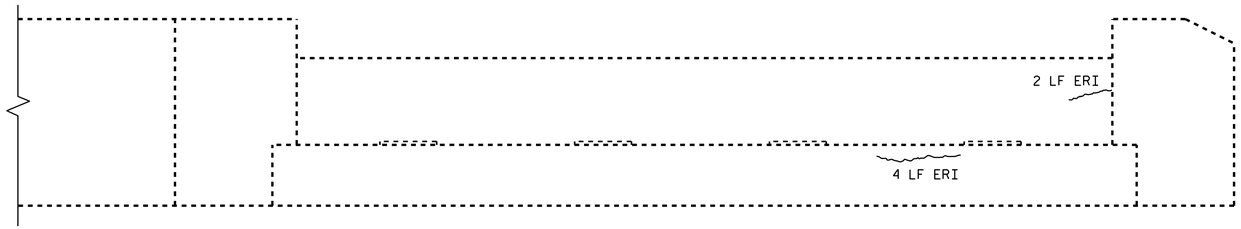
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 10/2015
CHECKED BY : T. FANG DATE : 11/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250158_plans.dgn
ttfang

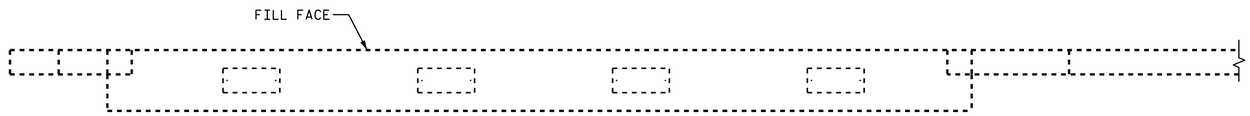


PLAN

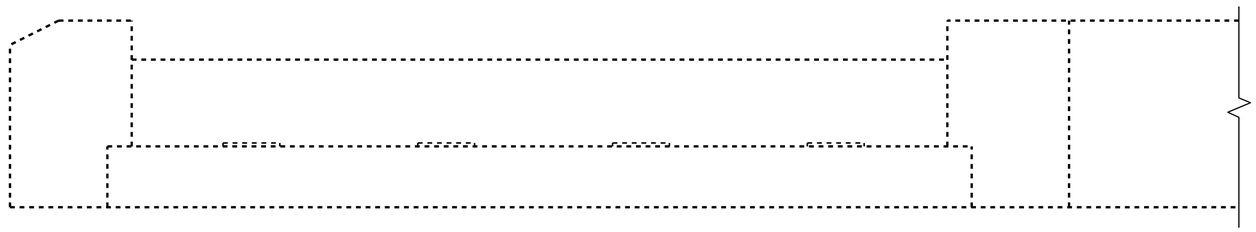


ELEVATION
LOOKING AT FRONT FACE

END BENT 1



PLAN



ELEVATION
LOOKING AT FRONT FACE

END BENT 2

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE END BENT CAP.

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI – EPOXY RESIN INJECTION

REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
CURTAIN WALL				
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		4.0		
CURTAIN WALL		2.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		43.9		

REPAIRS END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
CURTAIN WALL				
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
CURTAIN WALL				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		43.9		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. I-5788

CUMBERLAND COUNTY

BRIDGE NO.: 158

SHEET 1 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774357...

1/28/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

END BENTS 1 & 2

SBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 10/16/15
CHECKED BY : E. I. OMILE DATE : 10/21/15
DESIGN ENGINEER OF RECORD: _____ DATE : _____

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250158_plans.dgn
ttfang

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

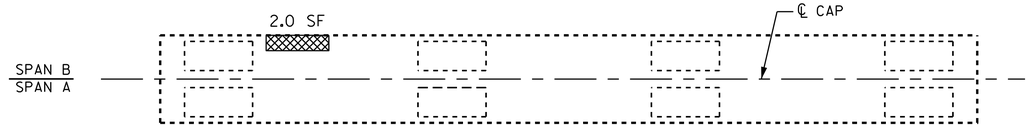
FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

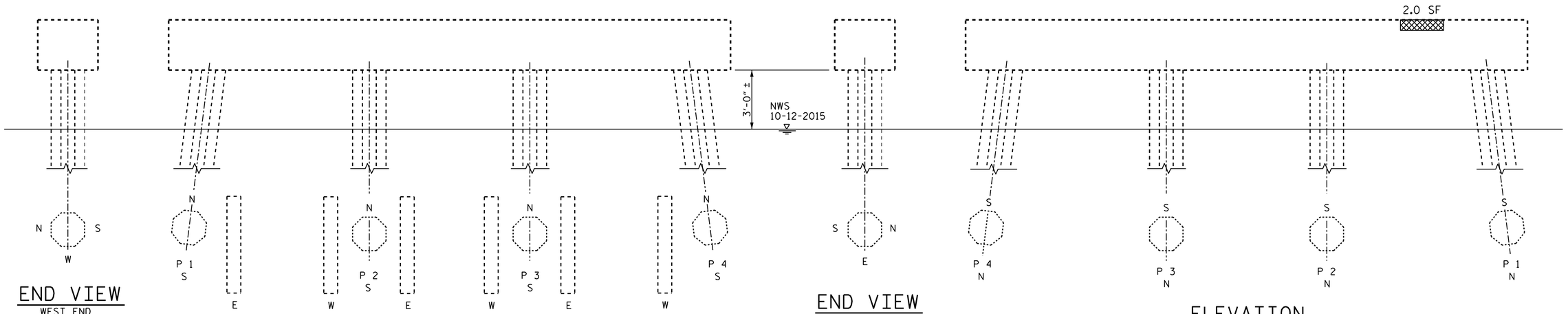
CONCRETE REPAIR

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



TOP OF CAP

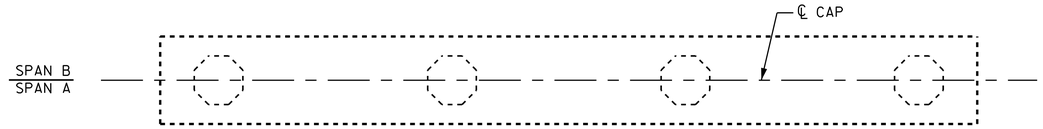


END VIEW
WEST END

END VIEW
EAST END

ELEVATION
LOOKING SOUTH

ELEVATION
LOOKING NORTH



BOTTOM OF CAP

REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
PILE (VERTICAL FACE)				
CONCRETE REPAIRS	4.0	1.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
PILE				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		65.3		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774 35...
1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

STATION: 158

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

BENT 1
SBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 9/2015
CHECKED BY : T. FANG DATE : 9/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250158_plans.dgn
ttfang

NCDOT

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

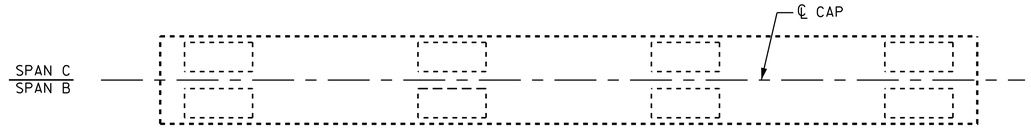
FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

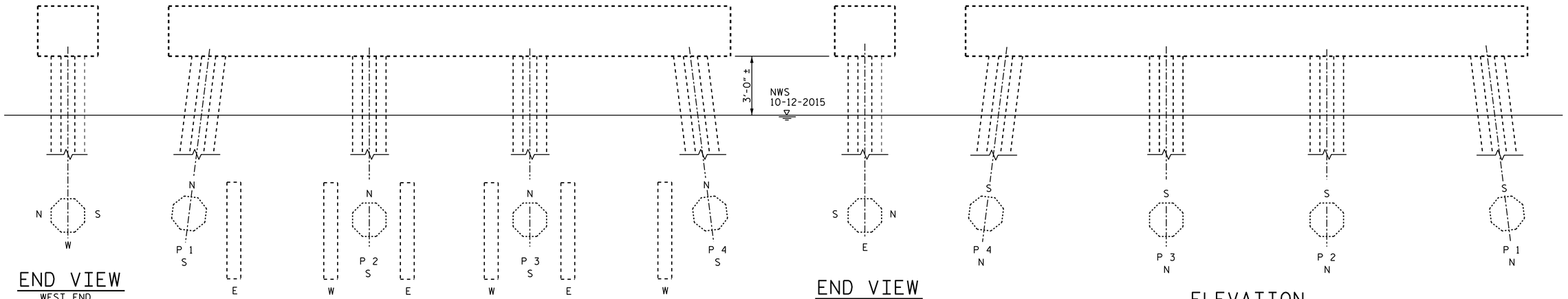
CONCRETE REPAIR

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



TOP OF CAP

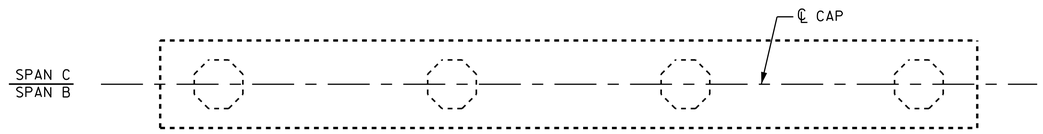


END VIEW
WEST END

END VIEW
EAST END

ELEVATION
LOOKING SOUTH

ELEVATION
LOOKING NORTH



BOTTOM OF CAP

REPAIR QUANTITY TABLE

BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
PILE (VERTICAL FACE)				
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
PILE				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		65.3		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774355... 1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

STATION: 158

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

BENT 2
SBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 9/2015
CHECKED BY : T. FANG DATE : 9/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250158_plans.dgn
ttfang

NCDOT

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

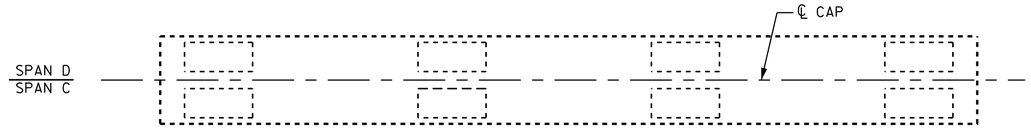
FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

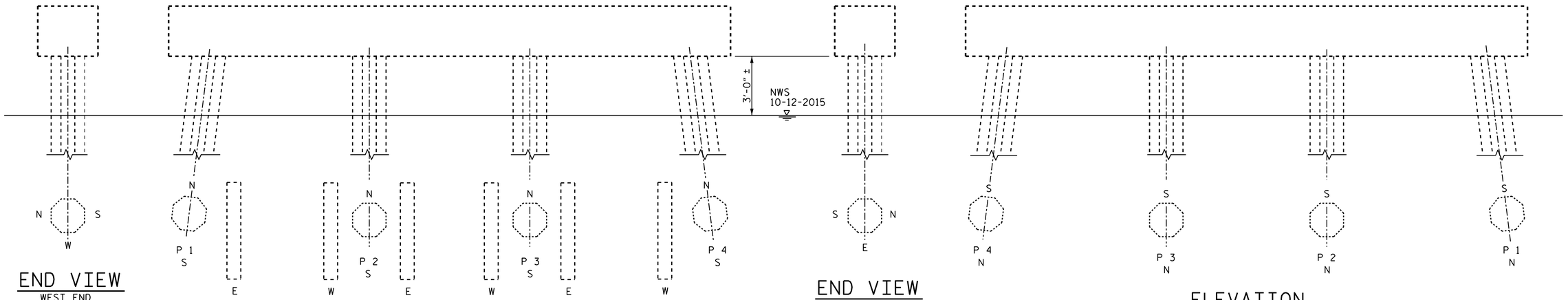
CONCRETE REPAIR

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



TOP OF CAP

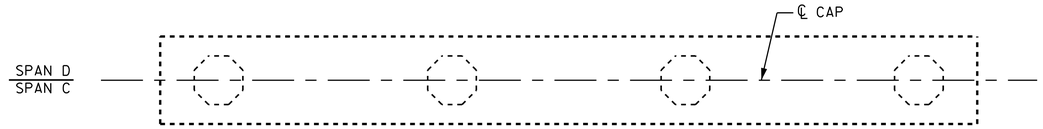


END VIEW
WEST END

END VIEW
EAST END

ELEVATION
LOOKING SOUTH

ELEVATION
LOOKING NORTH



BOTTOM OF CAP

REPAIR QUANTITY TABLE				
BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
PILE (VERTICAL FACE)				
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
PILE				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		65.3		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

STATION: 158

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

BENT 3
SBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-45
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 9/2015
CHECKED BY : T. FANG DATE : 9/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250158_plans.dgn
ttfang

NCDOT

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

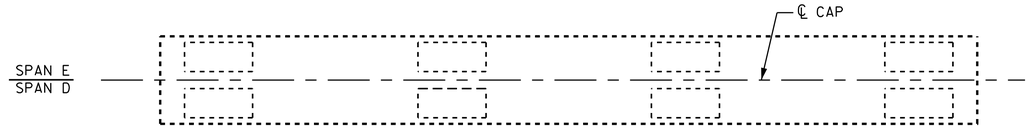
FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

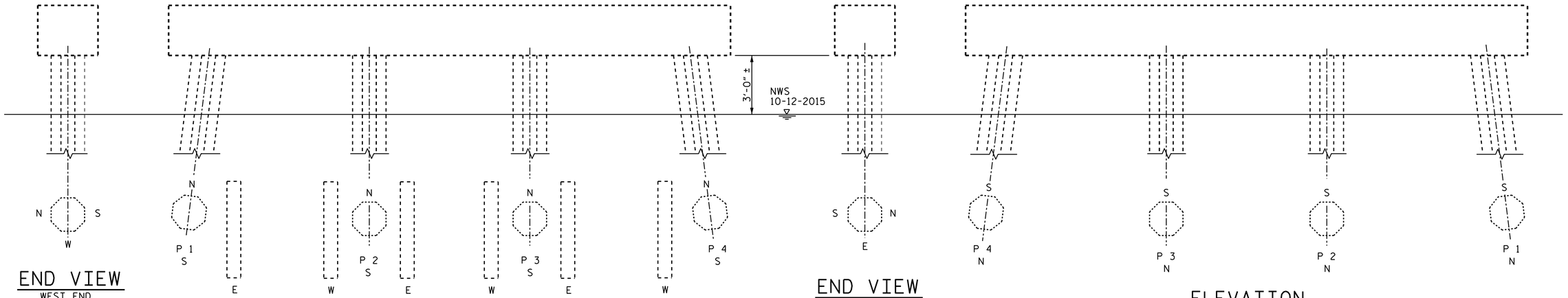
CONCRETE REPAIR

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



TOP OF CAP

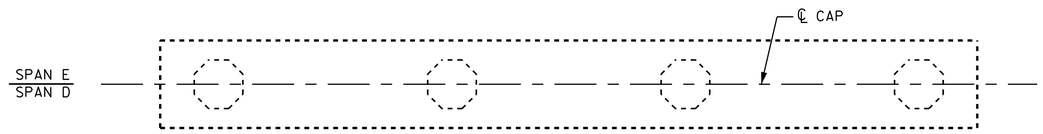


END VIEW
WEST END

END VIEW
EAST END

ELEVATION
LOOKING SOUTH

ELEVATION
LOOKING NORTH



BOTTOM OF CAP

REPAIR QUANTITY TABLE				
BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
PILE (VERTICAL FACE)				
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
PILE				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		65.3		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E72088A00977435... 1/28/2016

PROJECT NO. I-5788

CUMBERLAND COUNTY

STATION: 158

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

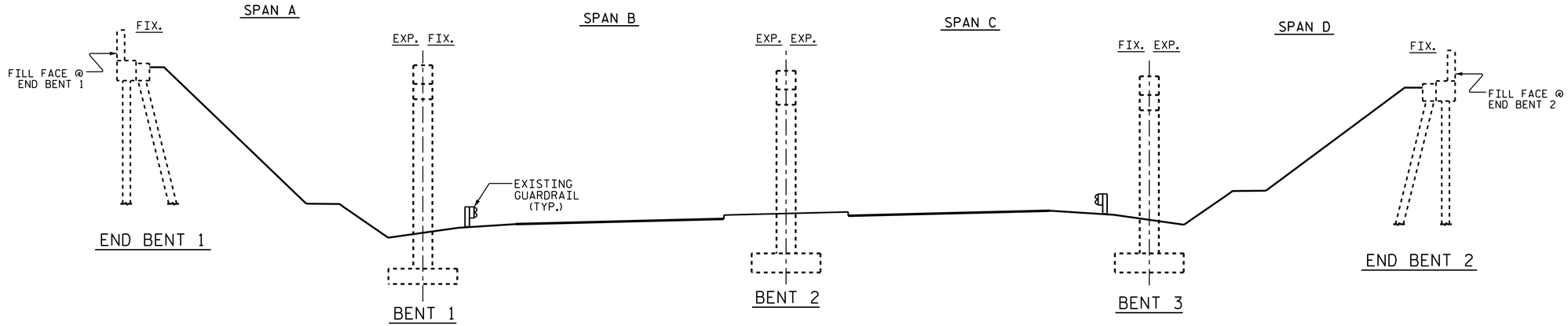
BENT 4
SBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-46
1			3			TOTAL SHEETS
2			4			72

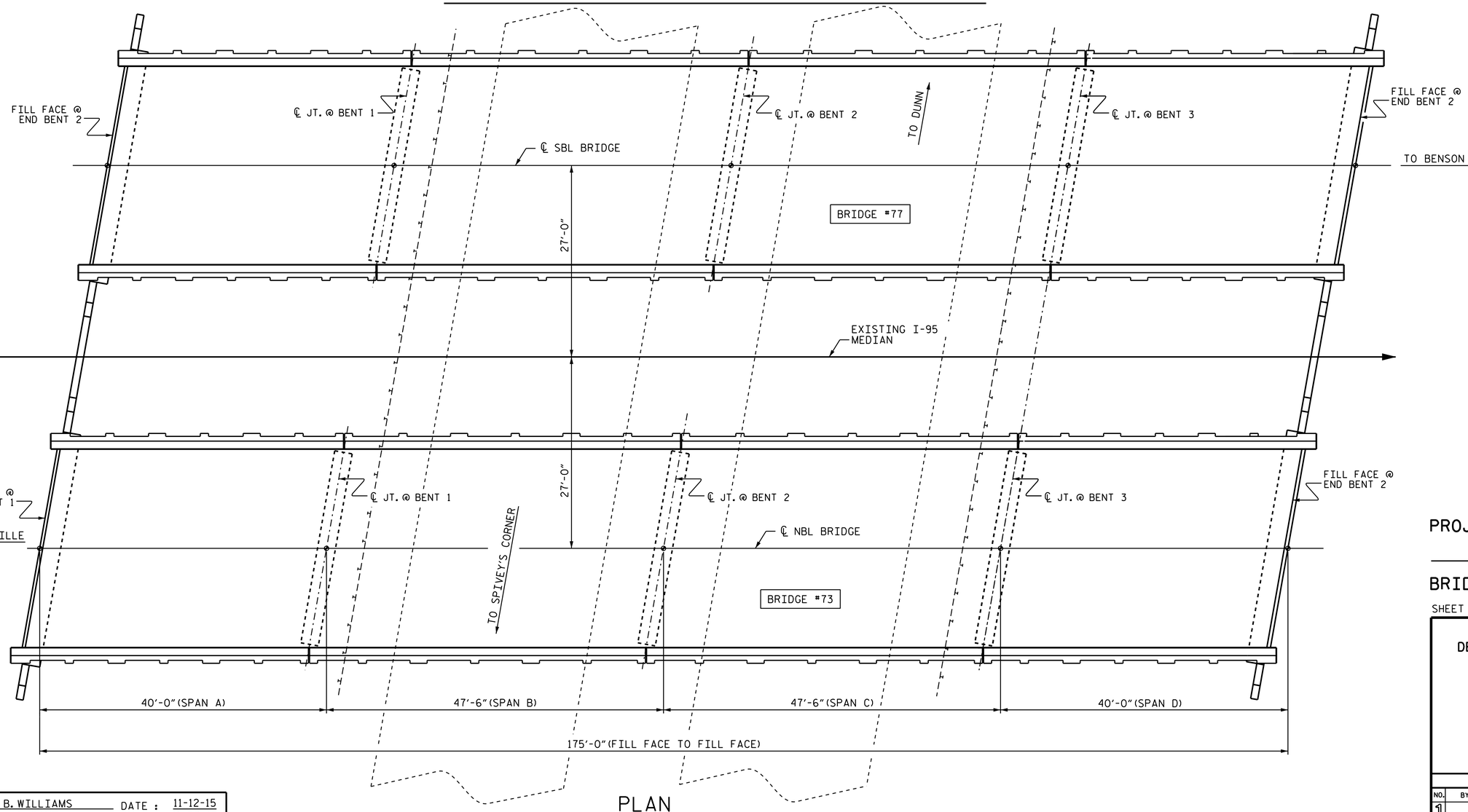
DRAWN BY : T. H. FANG DATE : 9/2015
CHECKED BY : T. FANG DATE : 9/2015

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\250158_plans.dgn
ttfang

NCDOT



SECTION ALONG EXISTING I-95 MEDIAN



PLAN

DRAWN BY : S. B. WILLIAMS DATE : 11-12-15
CHECKED BY : T. H. FANG DATE : 11-30-15

28-JAN-2016 12:22
K:\TIPProjects-I\I5788\Structures\Finalplans\420073_plans.dgn
ttfang

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E72088400977436...

1/28/2016

PROJECT NO. I-5788
HARNETT COUNTY
BRIDGE NO. 73 & 77

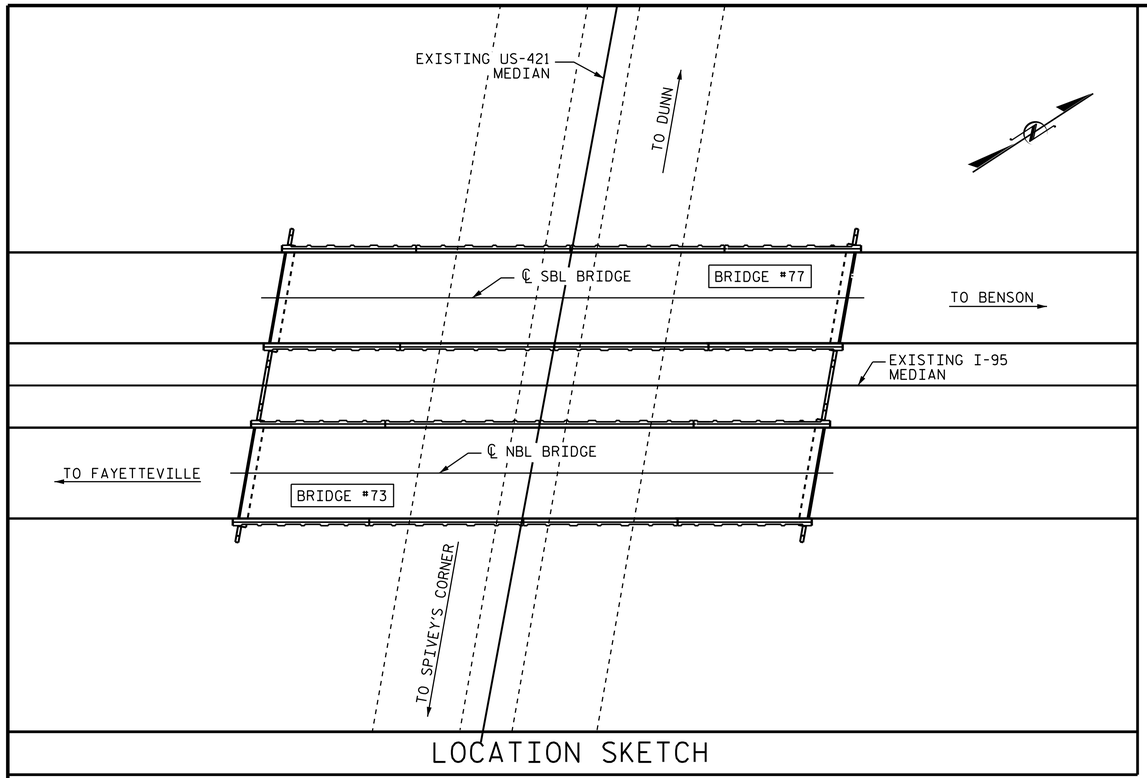
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE OVER US 421
ON I-95 BETWEEN
SR 1832 AND SR 1793

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47
1			3			TOTAL SHEETS
2			4			15



LOCATION SKETCH

NOTES

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

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

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK,

FOR CLASS II SURFACE PREPARATION SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.

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

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING THE BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

FOR CONCRETE DECK REPAIR FOR POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY, SEE SPECIAL PROVISIONS.

FOR OVERLAY OF BRIDGE DECK WITH POLYESTER POLYMER CONCRETE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

BRIDGE NUMBER	GROOVING BRIDGE FLOORS	✳ CLASS II SURFACE PREPARATION	✳ CLASS III SURFACE PREPARATION	CONCRETE REPAIR	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS	✳ VOLUMETRIC MIXER	POLYESTER POLYMER CONCRETE MATERIALS	CONCRETE FOR DECK REPAIR	EPOXY COATING	CONCRETE DECK REPAIR FOR PPC OVERLAY	INCIDENTAL MILLING	PLACING & FINISHING PPC
	SQ. FT.	SQ. YDS.	SQ. YDS.	CU. FT.	CU. FT.	LN. FT.	LUMP SUM	LUMP SUM	CU. YDS.	CU. FT.	SQ. FT.	SQ. YDS.	SQ. YDS.	SQ. YDS.
73	5,780	1.0	1.0	2.4	7.9	116.3	LUMP SUM	LUMP SUM	30.4	5.0	340.0	1.0	730	730
77	5,780	1.0	1.0	5.3	56.7	96.8	LUMP SUM	LUMP SUM	30.4	5.0	340.0	1.0	730	730

✳ CLASS II AND CLASS III SURFACE PREPARATIONS, VOLUMETRIC MIXER AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES, IN CASE UNANTICIPATED CLASS II AND CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO. 73 & 77

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

1/29/2016

DocuSigned by: Ting H. Fang E72088400977435...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE OVER US 421
ON I-95 BETWEEN
SR 1832 AND SR 1793

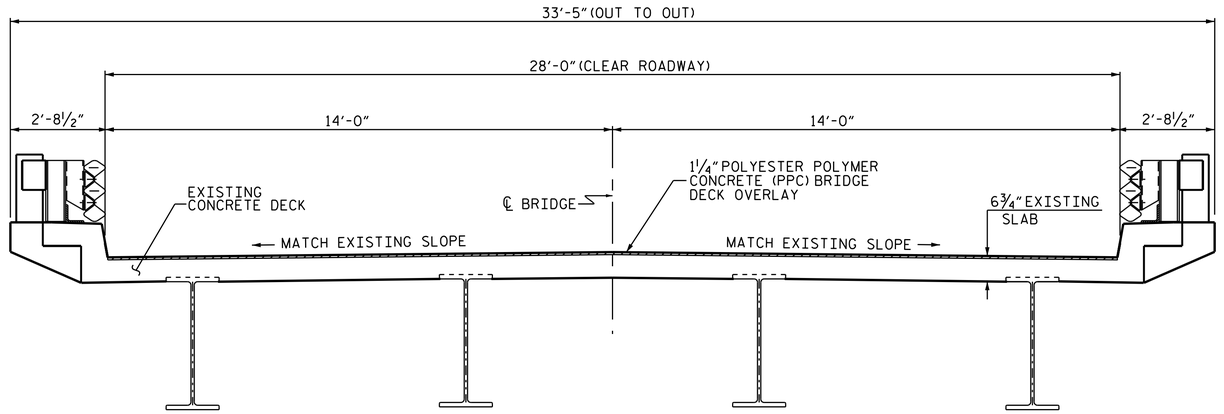
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-48
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : S. B. WILLIAMS DATE : 11-12-15
CHECKED BY : T. H. FANG DATE : 11-30-15

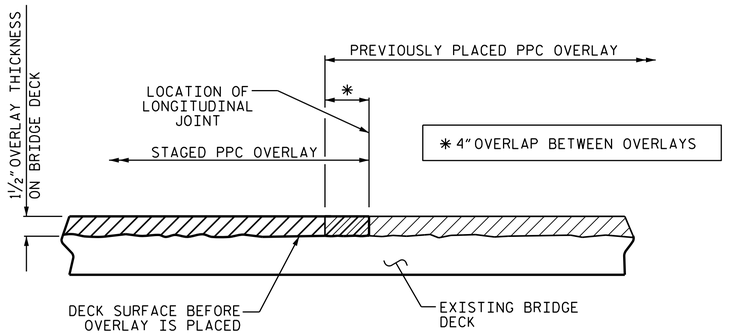
29-JAN-2016 12:00
K:\TIPProjects-I\I5788\Structures\Finalplans\420073_plans.dgn
ttfang

NOTES

WHEN PREPARING THE SURFACE FOR POLYESTER POLYMER CONCRETE (PPC) OVERLAY ADJACENT TO A PREVIOUSLY PLACED PPC STAGE, THE PREVIOUSLY PLACED PPC SHALL BE REMOVED FOR A DISTANCE OF 4-INCHES FROM THE PPC EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW PPC SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF NEW PPC STAGE PLACEMENT.



TYPICAL SECTION



SECTION THRU DECK

STAGED POLYESTER POLYMER CONCRETE OVERLAY JOINT

(AS NEEDED)

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 73 & 77

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION & POLYESTER POLYMER CONCRETE OVERLAY DETAILS

SPANS A THRU D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-49
1			3			TOTAL SHEETS
2			4			72

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

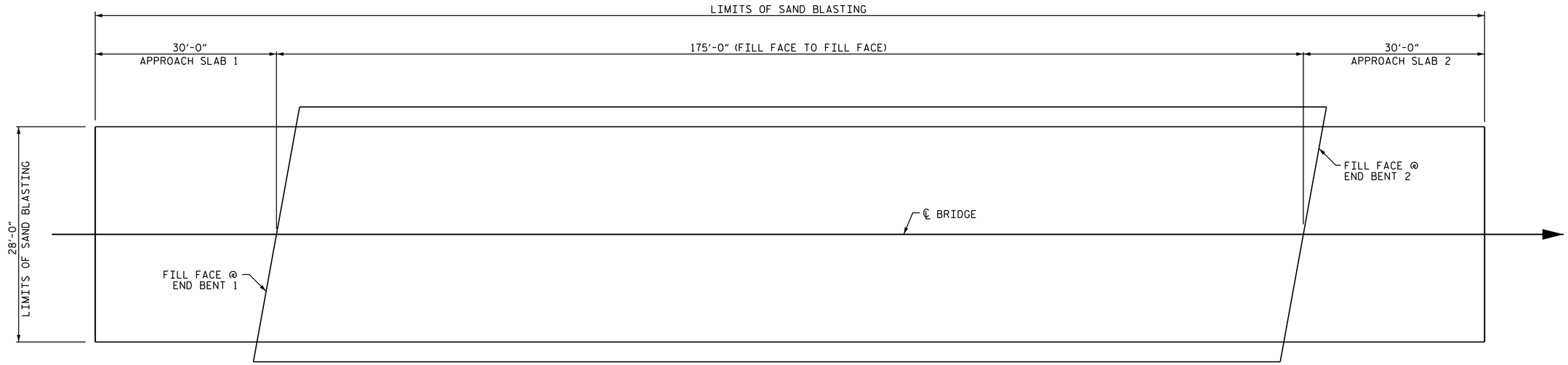
DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

DRAWN BY : T. H. FANG DATE : 11/5/15

CHECKED BY : S. B. WILLIAMS DATE : 12/1/15

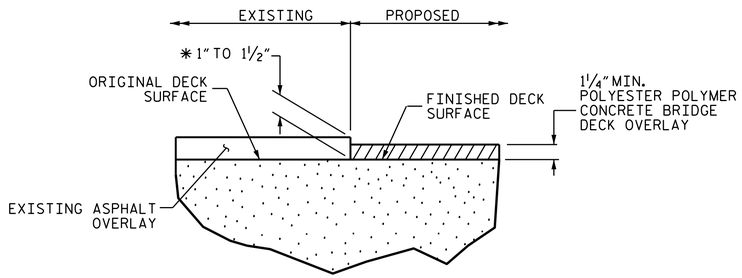
28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420073_plans.dgn
ttfang



PLAN VIEW OF BRIDGE

FOR BOTH BRIDGE #73 & #77

SAND BLASTING, AND POLYESTER POLYMER CONCRETE OVERLAY



DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

* ASSUMES 1" TO 1½" EXISTING ASPHALT OVERLAY ON THE BRIDGE. THE CONTRACTOR SHALL CONFIRM EXISTING ASPHALT THICKNESS AND ADJUST AS NECESSARY.

NOTES

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

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

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 73 & 77

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

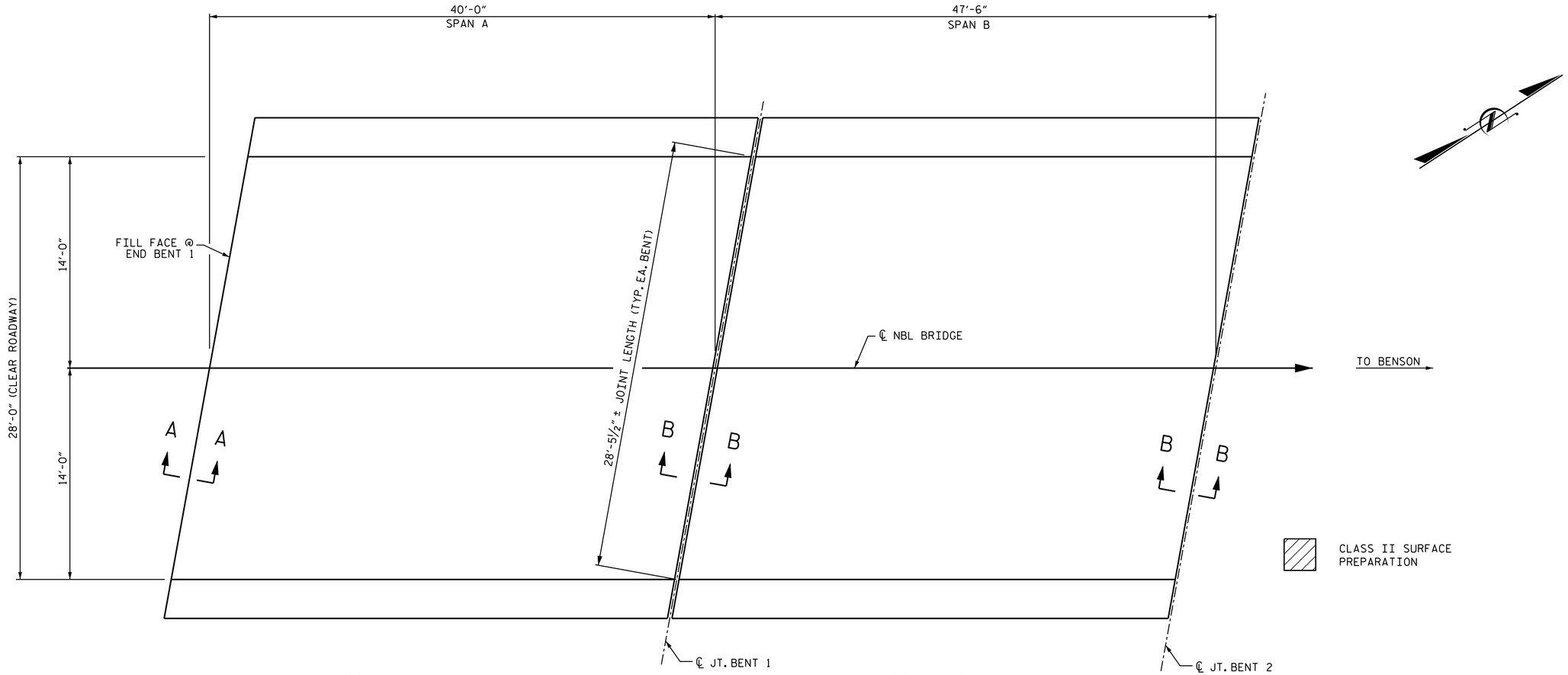
SUPERSTRUCTURE

SURFACE PREPERATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : T. H. FANG DATE : 11/6/13
CHECKED BY : S. B. WILLIAMS DATE : 12/1/15

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Final plans\420073_plans.dgn
tfang



PLAN OF SPAN

TOP OF DECK SLAB SHOWN, FOR LIMITS OF APPROACH SLABS, SEE SHEET 1 OF 3.

REPAIR QUANTITY TABLE

TOP OF DECK & APPROACH SLAB REPAIRS

ITEMS	APPROACH SLAB 1		SPAN A		SPAN B	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1.0 CY		1.0 CY		1.0 CY	
CLASS III SURFACE PREPARATION	1.0 CY		1.0 CY		1.0 CY	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQ. FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR DECK JOINT REPAIR DETAILS, SEE SHEET S-53.

FOR CONCRETE DECK REPAIR FOR POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY, SEE SPECIAL PROVISIONS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774355...

1/28/2016

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO. 73

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

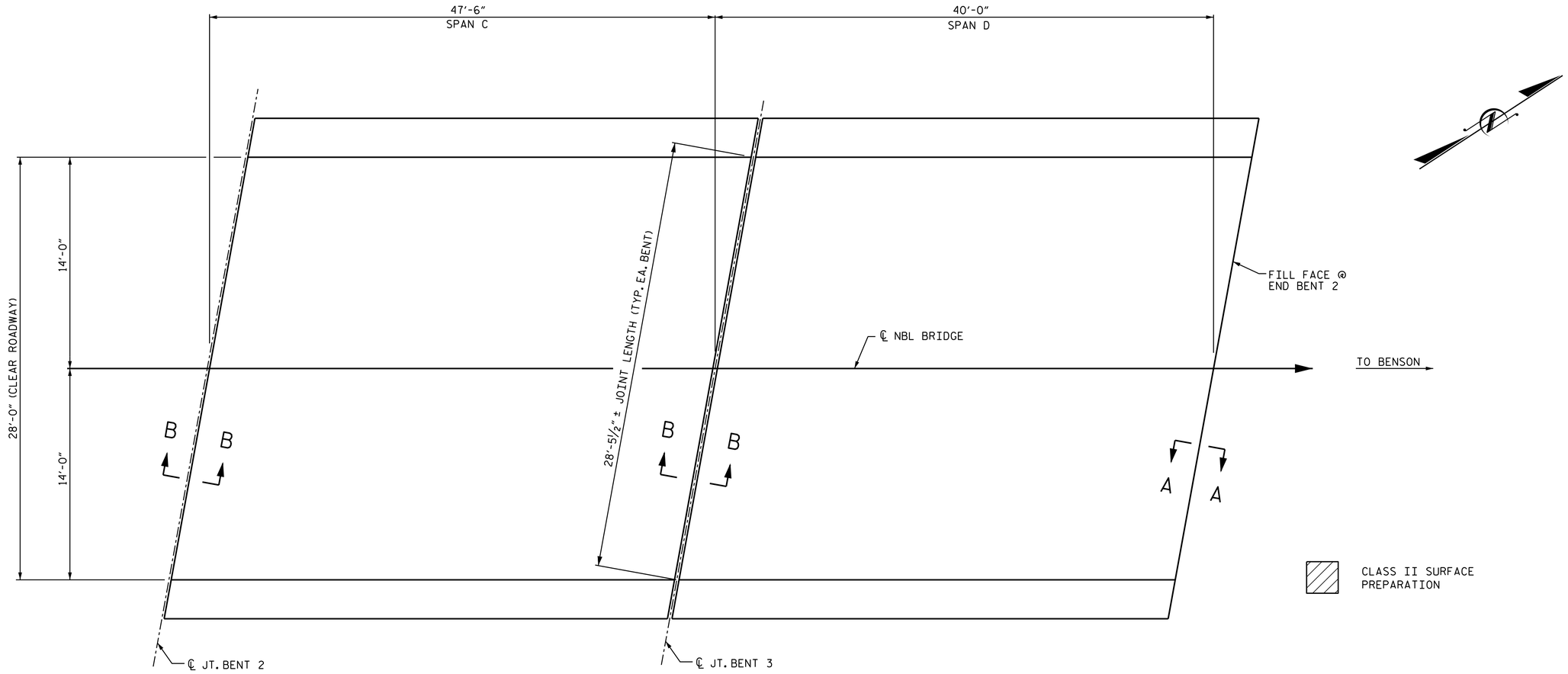
SURFACE PREPARATION
TOP OF DECK
NBL
SPANS A & B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-51
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 10/2015

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420073_plans.dgn
ttfang

NCDOT



PLAN OF SPAN

TOP OF DECK SLAB SHOWN, FOR LIMITS OF APPROACH SLABS, SEE SHEET 1 OF 3.

CLASS II SURFACE PREPARATION

REPAIR QUANTITY TABLE

TOP OF DECK & APPROACH SLAB REPAIRS

ITEMS	SPAN C		SPAN D		APPROACH SLAB 2	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1.0 CY		1.0 CY		1.0 CY	
CLASS III SURFACE PREPARATION	1.0 CY		1.0 CY		1.0 CY	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQ. FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE. FOR DECK JOINT REPAIR DETAILS, SEE SHEET S-53.

FOR CONCRETE DECK REPAIR FOR POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY, SEE SPECIAL PROVISIONS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO. 73

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

SURFACE PREPARATION
TOP OF DECK
NBL
SPANS C & D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-52
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 10/2015

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420073_plans.dgn
ttang

NC005

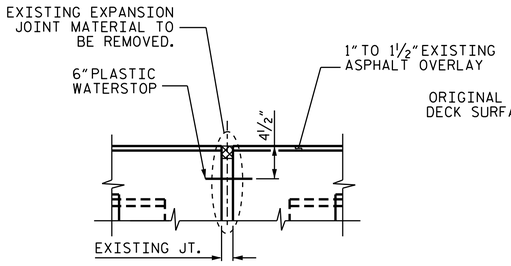
NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.

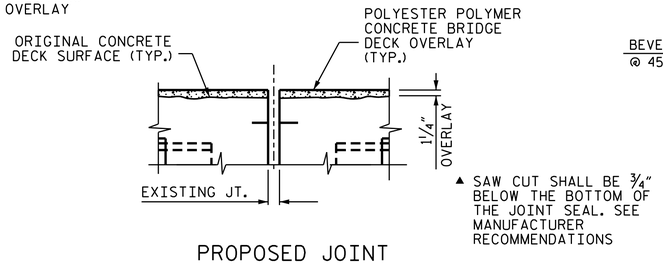
IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE OR IF UNSOUND CONCRETE IS REMOVED TO WITHIN 2" OF THE WATERSTOP, THE ENTIRE WATERSTOP SHALL BE REMOVED.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

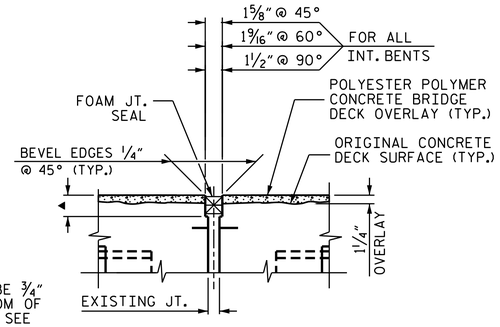
THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2".



EXISTING JOINT

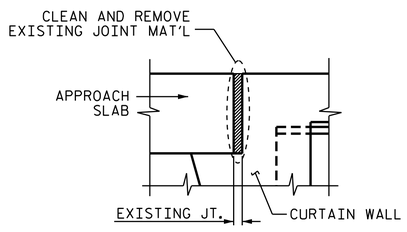


PROPOSED JOINT
PRE-SAWED DIMENSIONS

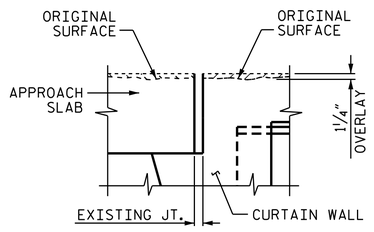


PROPOSED FOAM JOINT
SEAL EXPANSION
FOR BOTH #73 & #77 BRIDGES

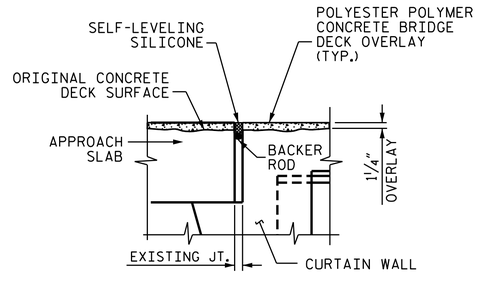
JOINT INSTALLATION SEQUENCE AT BENTS
SECTION B-B



EXISTING COLD JOINT

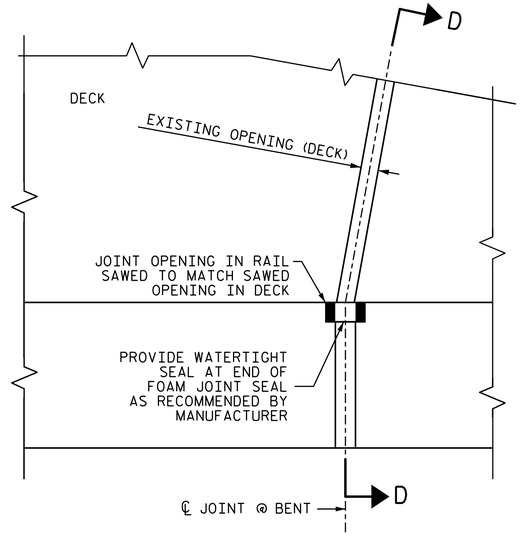


MINIMUM EXISTING
JOINT DEMOLITION

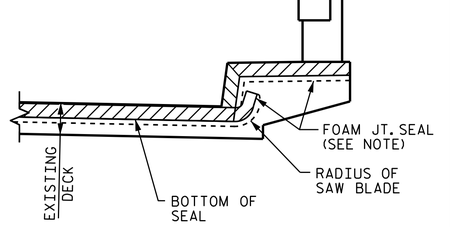


PROPOSED JOINT

JOINT INSTALLATION SEQUENCE AT END BENTS
SECTION A-A



PLAN



SECTION D-D

FOAM JOINT SEAL SHALL BE FACTORY FORMED OR CUT, HEAT WELDED AND TURNED UP.

JOINT SEAL DETAILS AT BENT

PROJECT NO. I-5788
HARNETT COUNTY
BRIDGE NO.: 73 & 77

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

JOINT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E72088400977435...
1/28/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-53
1			3			TOTAL SHEETS
2			4			72

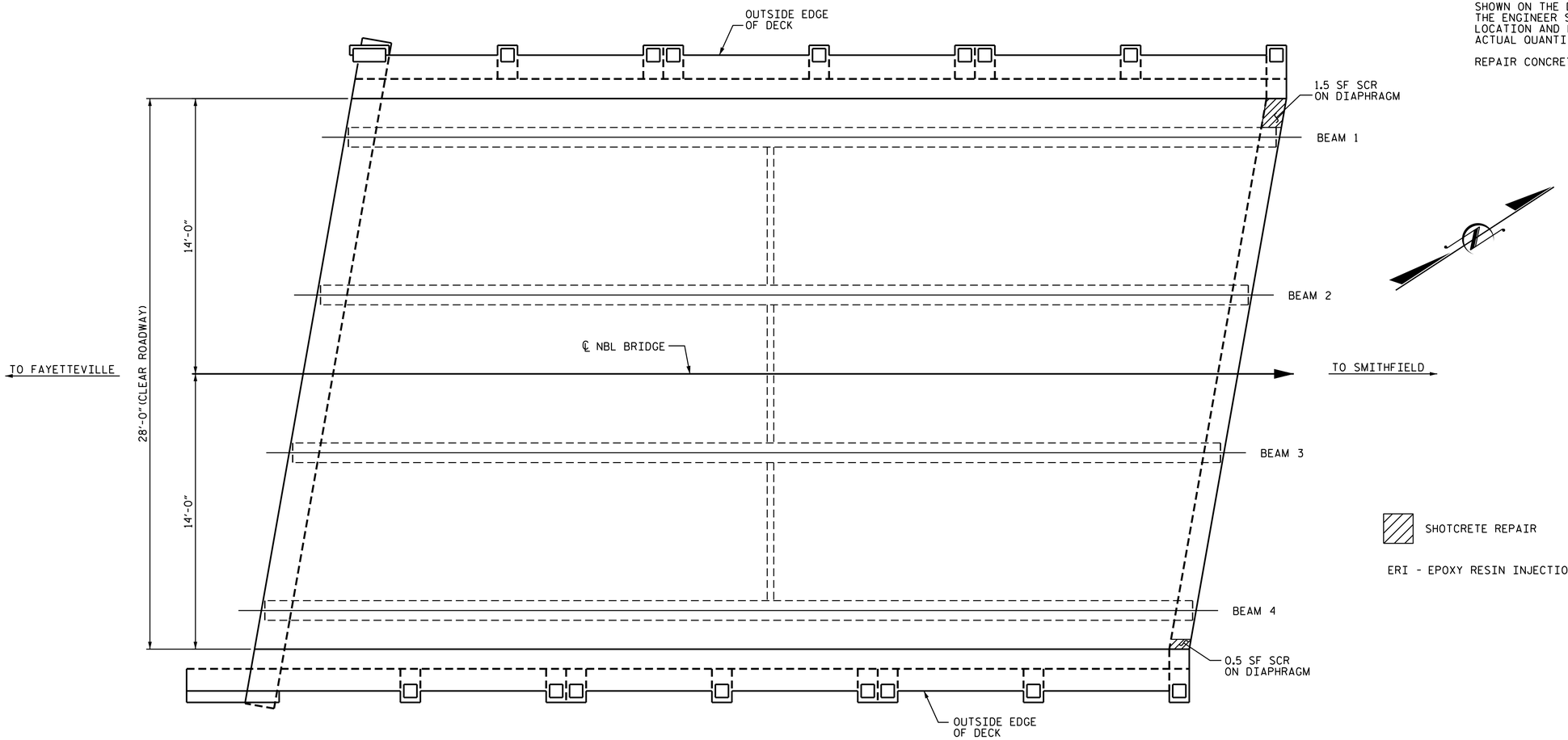
DRAWN BY : T. H. FANG DATE : 11/6/15
CHECKED BY : S. B. WILLIAMS DATE : 12/1/15

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420073_plans.dgn
tfang

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

REPAIR CONCRETE BENT DIAPHRAGMS AS DIRECTED BY THE ENGINEER.

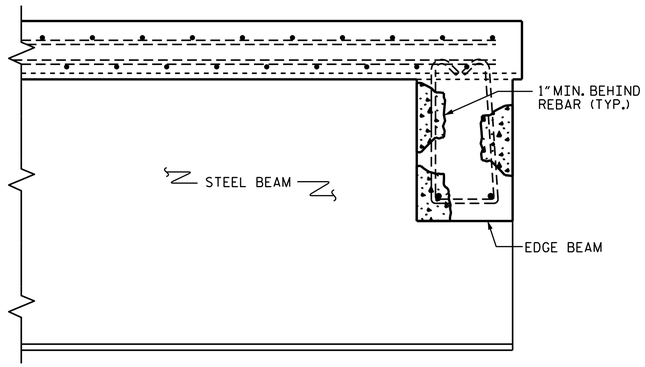


PLAN OF SPAN A

UNDERSIDE

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



SHOTCRETE REPAIR DETAILS

IF REMOVAL OF UNSOUND CONCRETE RESULTS IN EXPOSING MORE THAN HALF THE DEPTH OF A REINFORCING BAR, REMOVE ADDITIONAL CONCRETE TO 1" BEHIND THE BAR WITHOUT DAMAGE TO REINFORCING BAR.

REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
BENT DIAPHRAGMS	2.0	0.5		
	ESTIMATE		ACTUAL	
EPOXY RESIN INJECTION				

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG FANG

DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 73

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR

NBL

SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-54
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 11/2/15

CHECKED BY : S. B. WILLIAMS DATE : 11/4/15

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Final plans\420073_plans.dgn
tfang

REPAIR QUANTITY TABLE

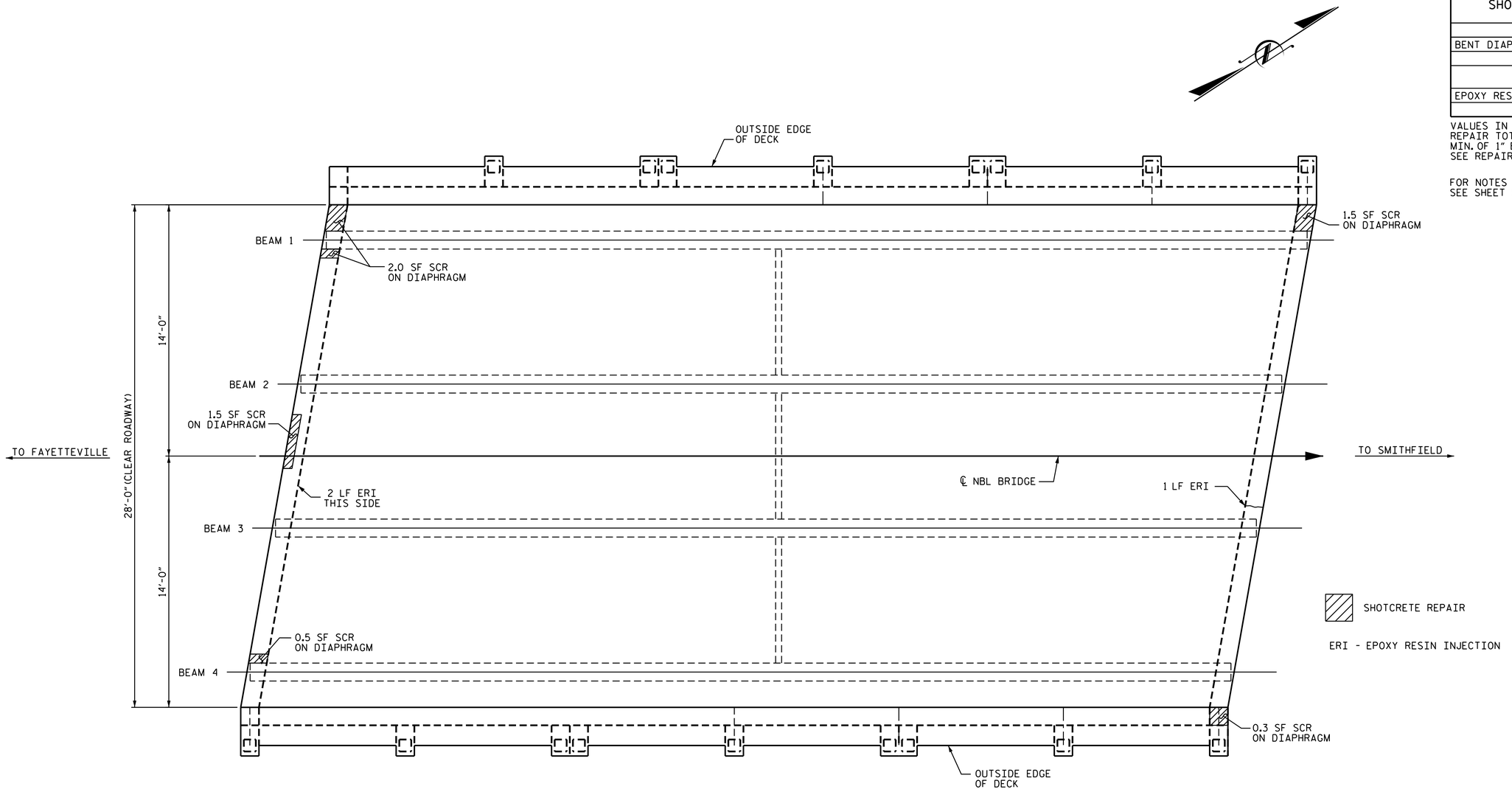
UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
BENT DIAPHRAGMS	5.8	1.5		

	ESTIMATE	ACTUAL
EPOXY RESIN INJECTION	3.0 LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

FOR NOTES AND SHOTCRETE REPAIRS ON BENT DIAPHRAGM DETAILS, SEE SHEET S-54.



PLAN OF SPAN B

UNDERSIDE

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 73

SHEET 2 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: E720884009774 35...

1/28/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR

NBL

SPAN B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-55
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 11/2/15

CHECKED BY : S. B. WILLIAMS DATE : 11/4/15

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420073_plans.dgn
ttfang

REPAIR QUANTITY TABLE

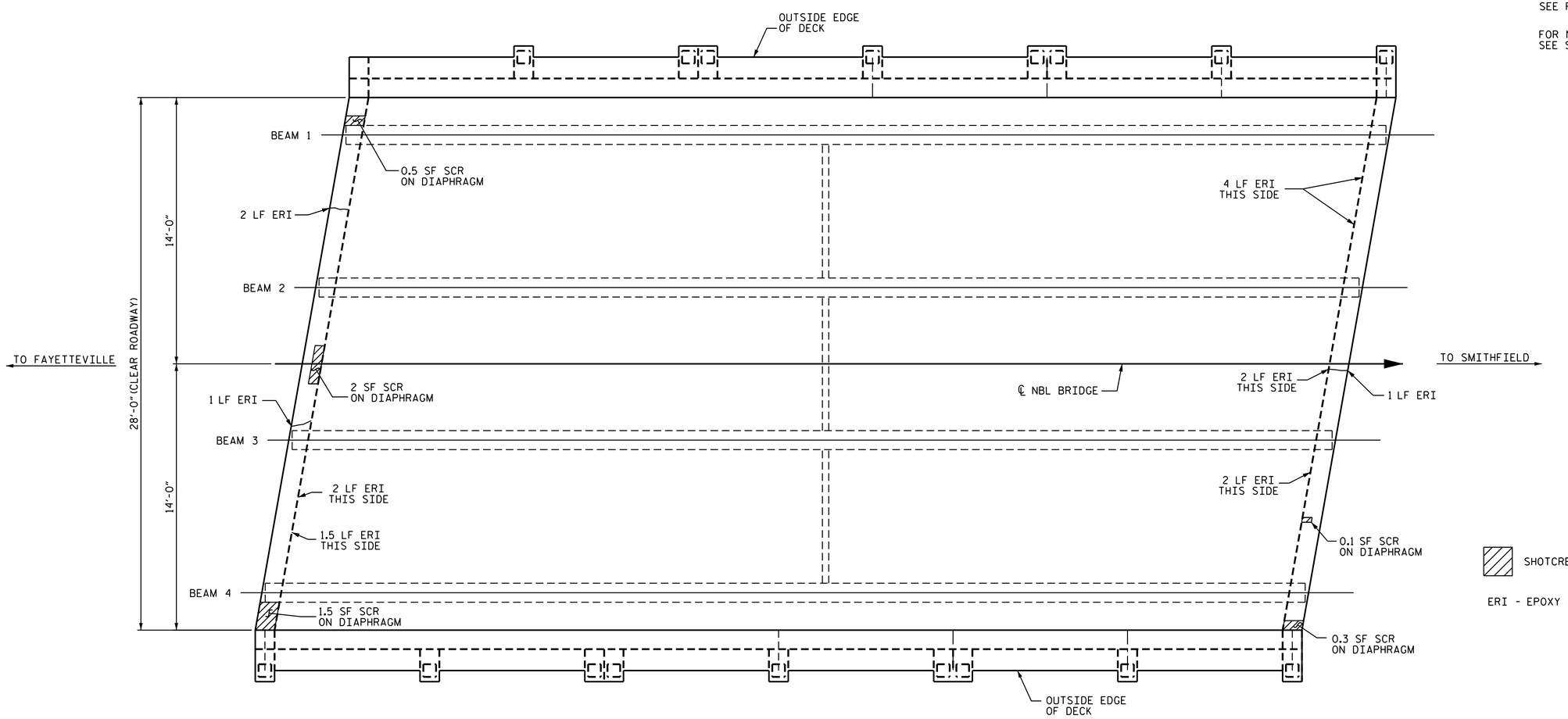
UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
BENT DIAPHRAGMS	4.4	1.1		

	ESTIMATE	ACTUAL
EPOXY RESIN INJECTION	15.5 LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

FOR NOTES AND SHOTCRETE REPAIRS ON BENT DIAPHRAGM DETAILS, SEE SHEET S-54.



SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PLAN OF SPAN C

UNDERSIDE

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 73

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR

NBL

SPAN C

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774355...

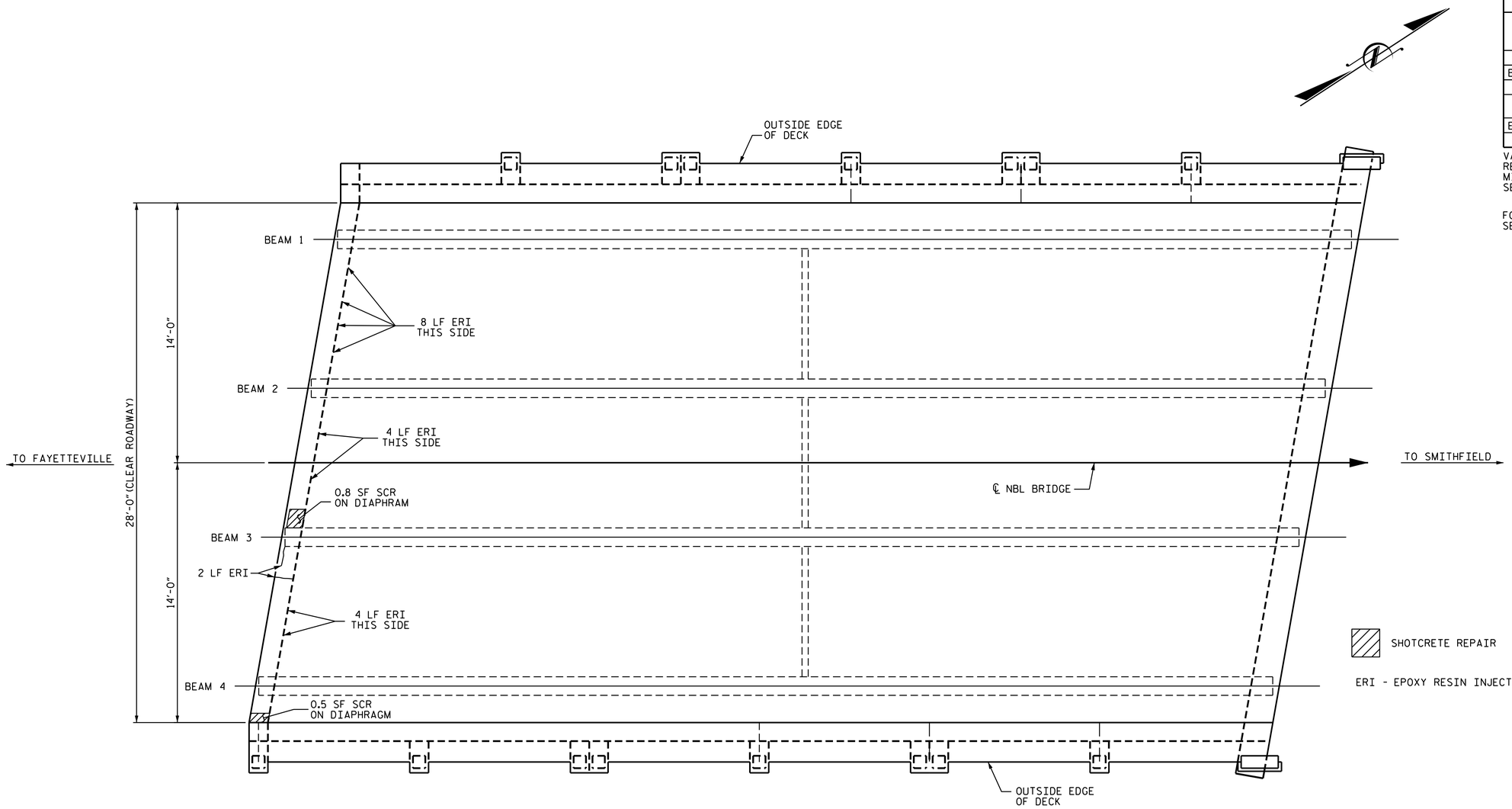
1/28/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-56
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 11/2/15

CHECKED BY : S. B. WILLIAMS DATE : 11/4/15

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420073_plans.dgn
ttang



PLAN OF SPAN D
UNDERSIDE

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
BENT DIAPHRAGMS	1.3	0.5		

	ESTIMATE	ACTUAL
EPOXY RESIN INJECTION	18.0 LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

FOR NOTES AND SHOTCRETE REPAIRS ON BENT DIAPHRAGM DETAILS, SEE SHEET S-54.

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 73

SHEET 4 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774355...

1/28/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR
NBL
SPAN D

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

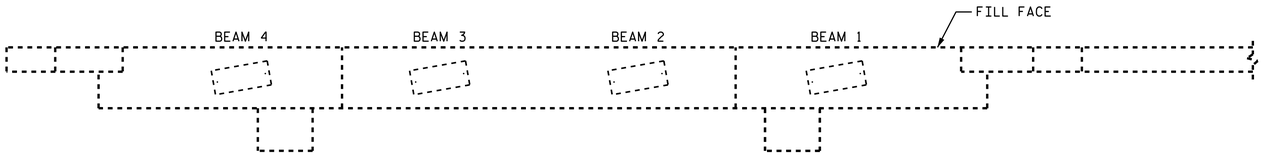
SHEET NO. S-57

TOTAL SHEETS 72

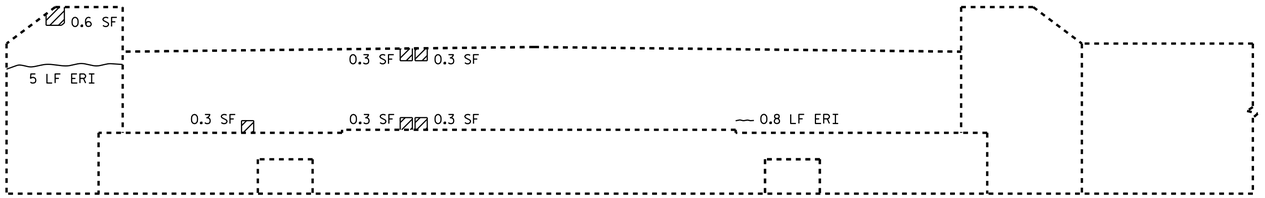
DRAWN BY : A. SORSENGINH DATE : 11/2/15

CHECKED BY : S. B. WILLIAMS DATE : 11/4/15

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420073_plans.dgn
ttfang



PLAN



ELEVATION
LOOKING AT FRONT FACE
(NORTH SIDE)

END BENT 1

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

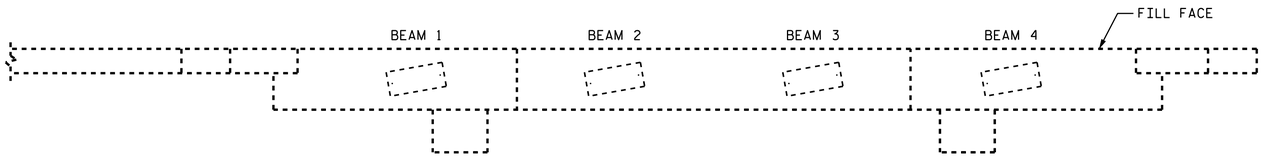
EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE END BENT CAP.

REPAIR QUANTITY TABLE

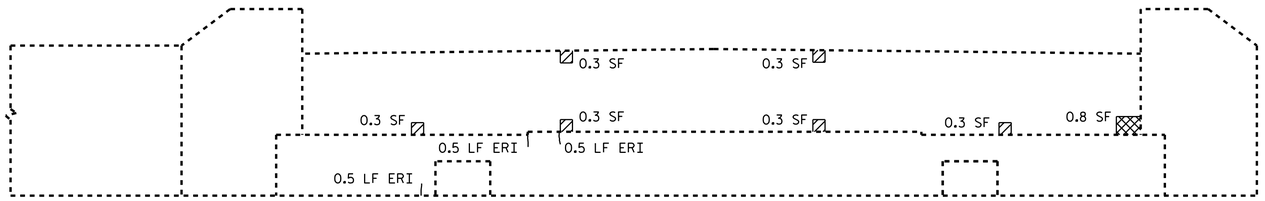
REPAIRS END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
CURTAIN WALL	2.1	0.5		
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
CURTAIN WALL & WING WALLS		5.8		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		49.4		

REPAIRS END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
CURTAIN WALL	1.8	0.5		
CONCRETE REPAIRS	0.8	0.2		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		1.5		
CURTAIN WALL & WING WALLS				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP	49.4			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.



PLAN



ELEVATION
LOOKING AT FRONT FACE
(SOUTH SIDE)

END BENT 2

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 73

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR
END BENTS 1 & 2
NBL

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

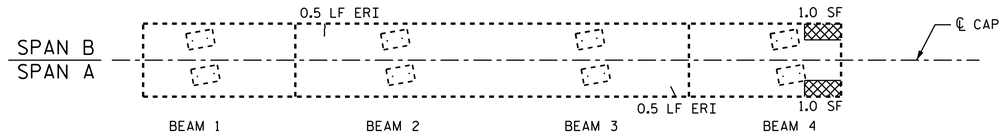
DocuSigned by:
E72088400977435...

1/28/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-58
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/30/15
CHECKED BY : S. B. WILLIAMS DATE : 11/4/15

28-JAN-2016 12:23
K:\TIPProjects-1\I5788\Structures\Finalplans\420073_plans.dgn
ttfang



TOP OF CAP

CONCRETE REPAIR

SHOTCRETE REPAIR

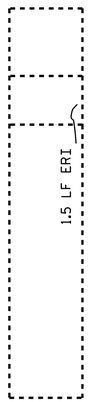
ERI - EPOXY RESIN INJECTION

NOTE:

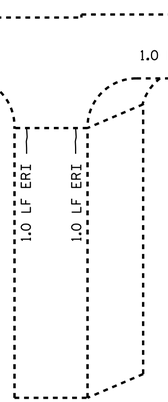
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

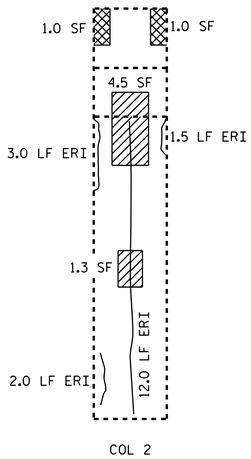
EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.



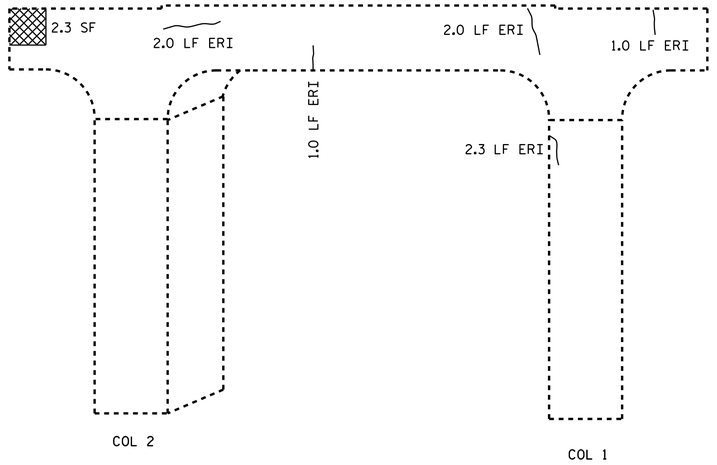
END VIEW
WEST FACE



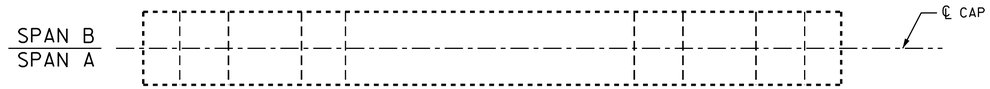
ELEVATION
SOUTH FACE



END VIEW
EAST FACE



ELEVATION
NORTH FACE



BOTTOM OF CAP

REPAIR QUANTITY TABLE				
REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
COLUMN (VERTICAL FACE)	5.8	1.5		
CONCRETE REPAIRS	8.6	2.2		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		14.0		
COLUMN		31.3		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		80.2		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: E720884009774...

1/28/2016

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 73

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

BENT 1

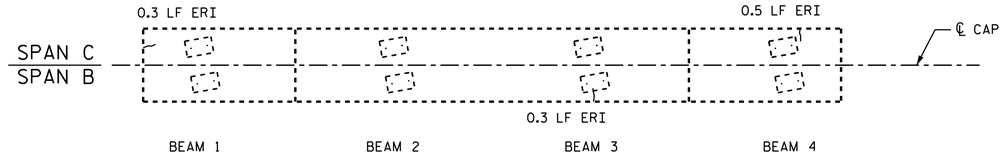
NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-59
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/30/15

CHECKED BY : S. B. WILLIAMS DATE : 11/4/15

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420073_plans.dgn
ttfang



TOP OF CAP

CONCRETE REPAIR

SHOTCRETE REPAIR

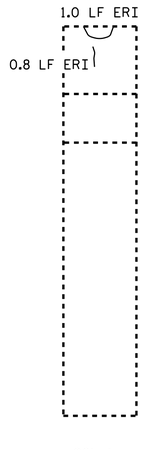
ERI - EPOXY RESIN INJECTION

NOTE:

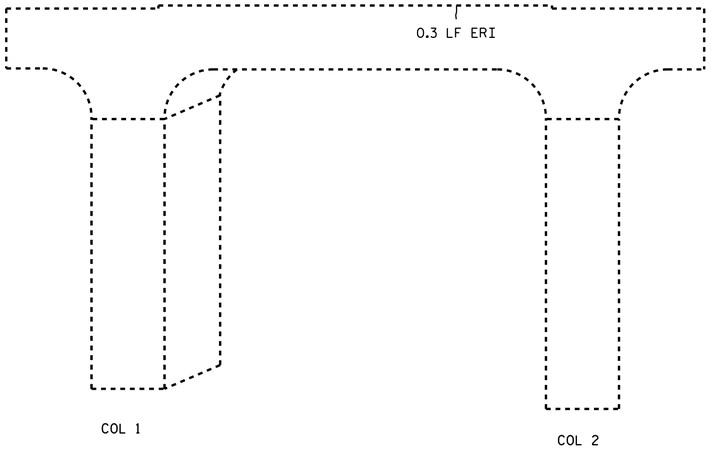
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

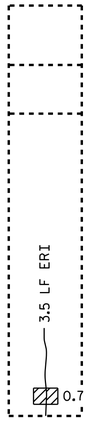
EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.



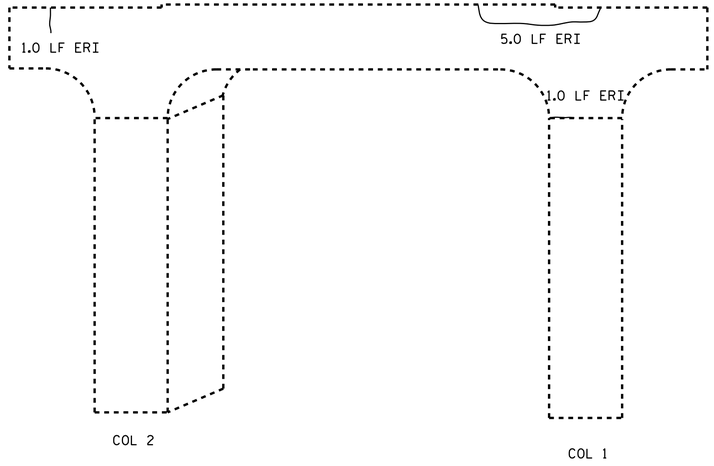
END VIEW
WEST FACE



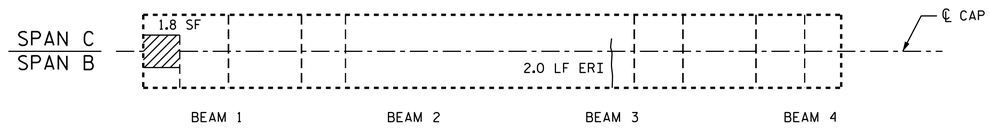
ELEVATION
SOUTH FACE



END VIEW
EAST FACE



ELEVATION
NORTH FACE



BOTTOM OF CAP

REPAIR QUANTITY TABLE				
REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)	1.8	0.5		
COLUMN (VERTICAL FACE)	0.7	0.2		
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		12.2		
COLUMN		3.5		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		80.2		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774355...

1/28/2016

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 73

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

BENT 2

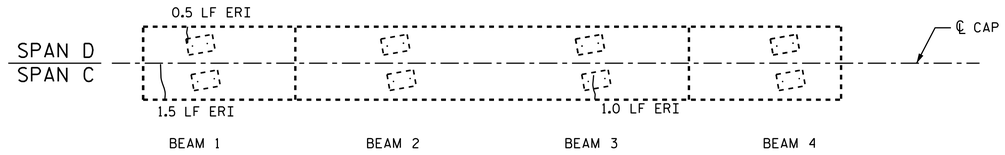
NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-60
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/30/15

CHECKED BY : S. B. WILLIAMS DATE : 11/4/15

28-JAN-2016 12:23
K:\TIPProjects-1\I5788\Structures\Finalplans\420073_plans.dgn
ttfang



TOP OF CAP

CONCRETE REPAIR

SHOTCRETE REPAIR

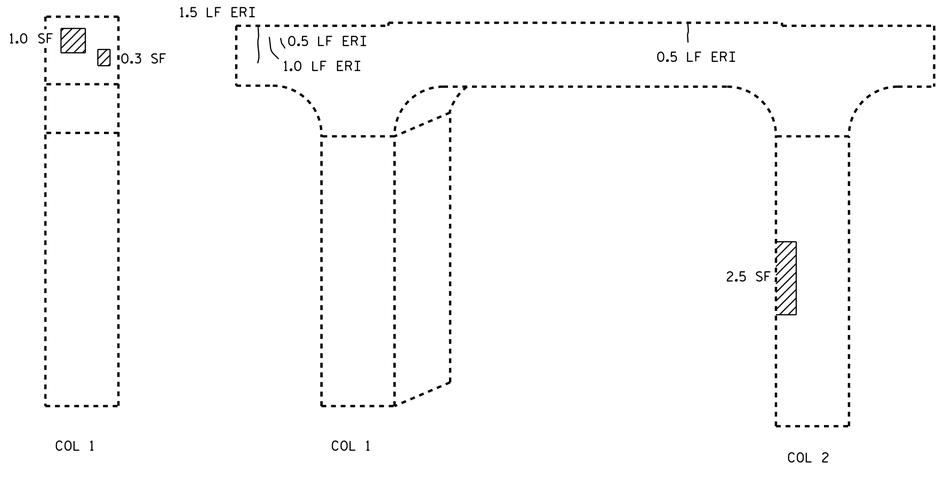
ERI - EPOXY RESIN INJECTION

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

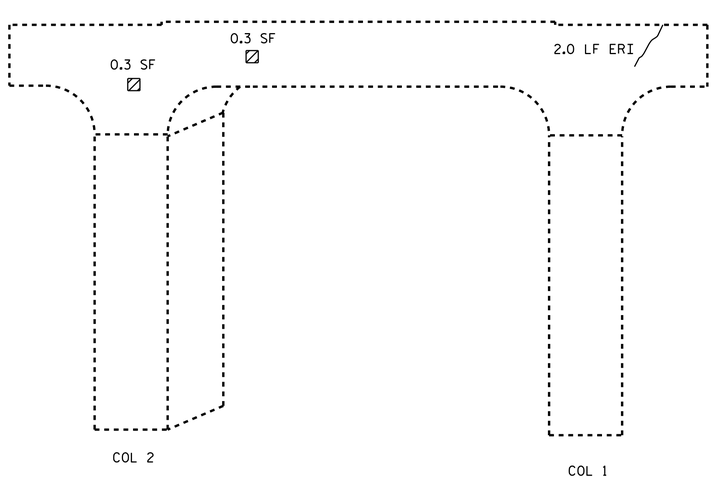
EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.



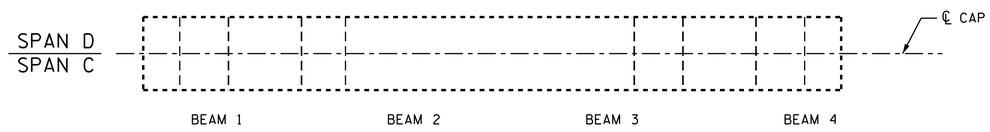
END VIEW
WEST FACE

ELEVATION
SOUTH FACE

END VIEW
EAST FACE



ELEVATION
NORTH FACE



BOTTOM OF CAP

REPAIR QUANTITY TABLE				
REPAIRS BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)	1.9	0.5		
CAP (HORIZONTAL FACE)				
COLUMN (VERTICAL FACE)	2.5	0.6		
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		8.5		
COLUMN		0.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		82.2		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG FANG

DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 73

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR

BENT 3

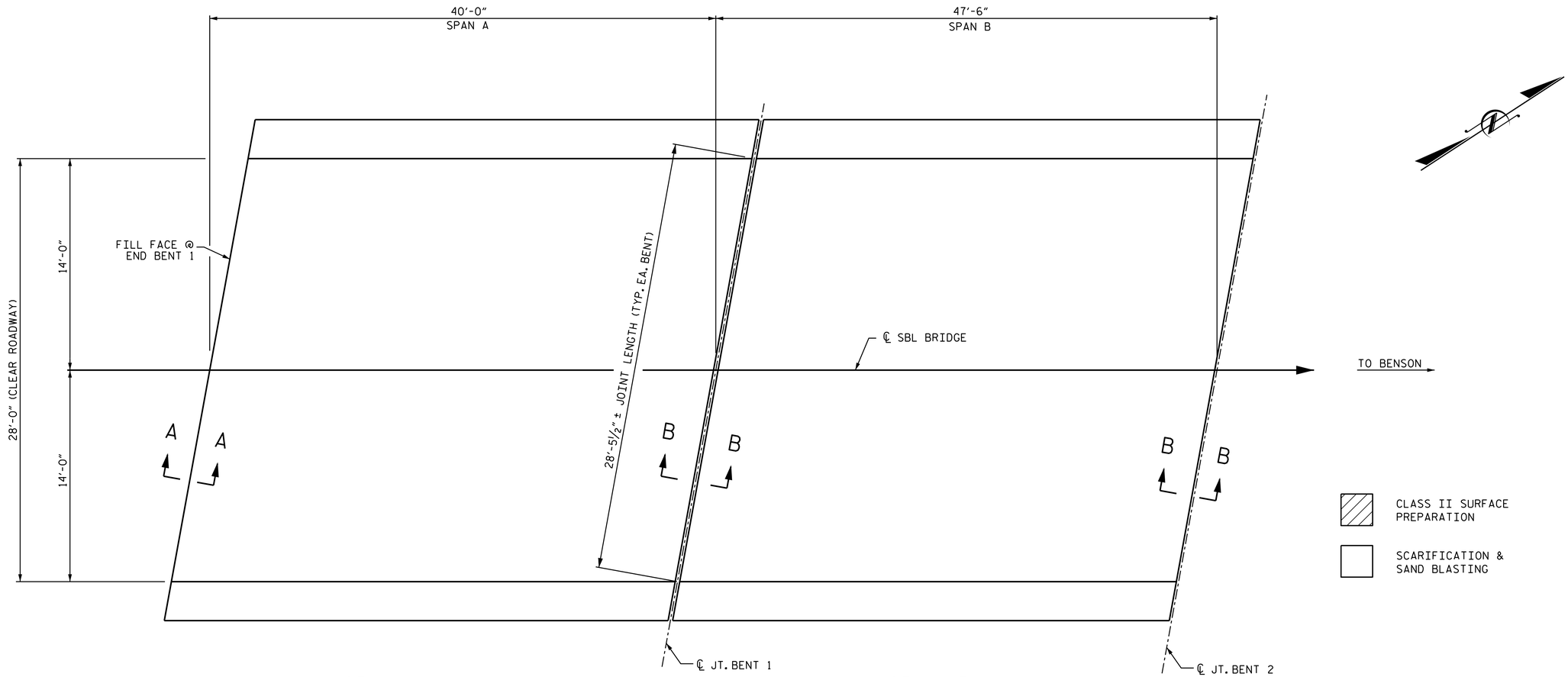
NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-61
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/30/15

CHECKED BY : S. B. WILLIAMS DATE : 11/4/15

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Final plans\420073_plans.dgn
ttfang



PLAN OF SPAN

TOP OF DECK SLAB SHOWN, FOR LIMITS OF APPROACH SLABS, SEE SHEET S-50.

REPAIR QUANTITY TABLE

TOP OF DECK & APPROACH SLAB REPAIRS

ITEMS	APPROACH SLAB 1		SPAN A		SPAN B	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1.0 CY		1.0 CY		1.0 CY	
CLASS III SURFACE PREPARATION	1.0 CY		1.0 CY		1.0 CY	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQ. FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

CLASS II SURFACE PREPARATION

SCARIFICATION & SAND BLASTING

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR DECK JOINT REPAIR DETAILS, SEE SHEET S-53.

FOR CONCRETE DECK REPAIR FOR POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY, SEE SPECIAL PROVISIONS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO. 77

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

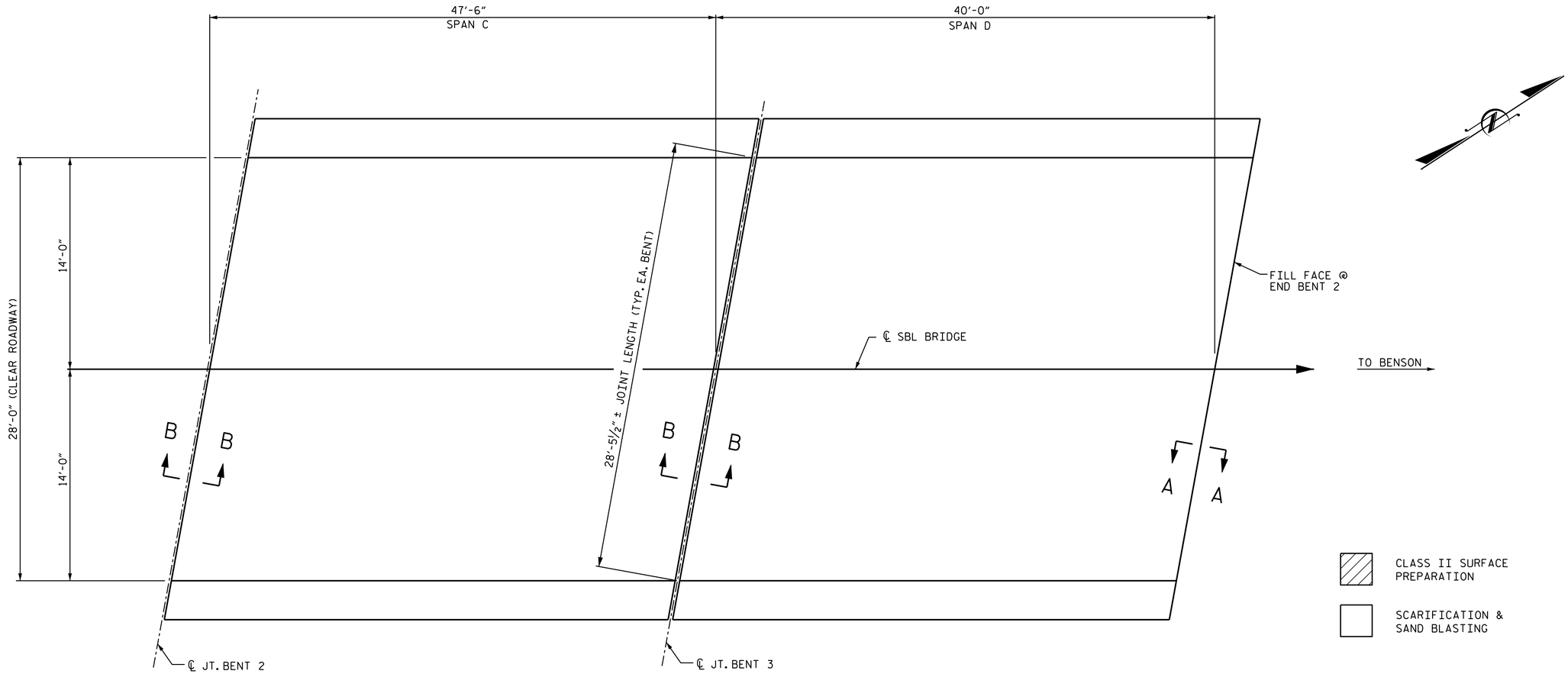
SURFACE PREPARATION TOP OF DECK SBL SPANS A & B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-62
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 10/2015

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420077_plans.dgn
tfang

NCDOT



CLASS II SURFACE PREPARATION

SCARIFICATION & SAND BLASTING

PLAN OF SPAN

TOP OF DECK SLAB SHOWN, FOR LIMITS OF APPROACH SLABS, SEE SHEET S-50.

REPAIR QUANTITY TABLE

TOP OF DECK & APPROACH SLAB REPAIRS

ITEMS	SPAN C		SPAN D		APPROACH SLAB 2	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1.0 CY		1.0 CY		1.0 CY	
CLASS III SURFACE PREPARATION	1.0 CY		1.0 CY		1.0 CY	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQ. FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR DECK JOINT REPAIR DETAILS, SEE SHEET S-53.

FOR CONCRETE DECK REPAIR FOR POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY, SEE SPECIAL PROVISIONS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774351...

1/28/2016

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO. 77

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

SURFACE PREPARATION
TOP OF DECK
SBL
SPANS C & D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-63
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/2015
CHECKED BY : S. B. WILLIAMS DATE : 10/2015

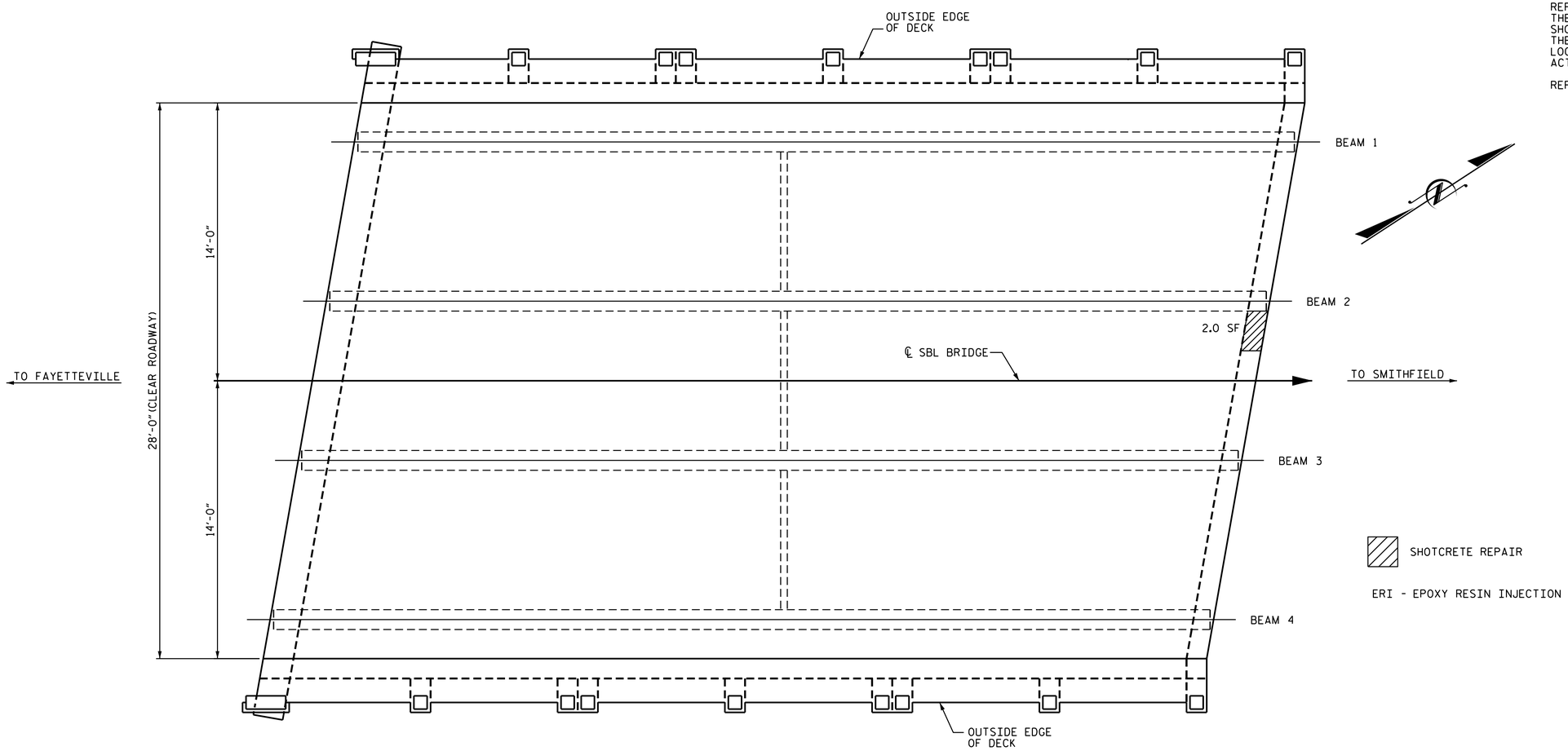
28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Final plans\420077_plans.dgn
tfang

NC605

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

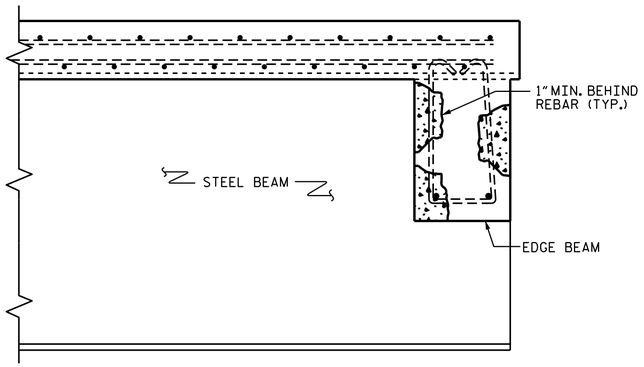
REPAIR CONCRETE BENT DIAPHRAGMS AS DIRECTED BY THE ENGINEER.



SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PLAN OF SPAN A
UNDERSIDE



SHOTCRETE REPAIR DETAILS

IF REMOVAL OF UNSOUND CONCRETE RESULTS IN EXPOSING MORE THAN HALF THE DEPTH OF A REINFORCING BAR, REMOVE ADDITIONAL CONCRETE TO 1" BEHIND THE BAR WITHOUT DAMAGE TO REINFORCING BAR.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
BENT DIAPHRAGMS	2.0	0.5		
	ESTIMATE		ACTUAL	
EPOXY RESIN INJECTION				

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 77

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG FANG

DocuSigned by: Ting H. Fang E720884D0977435...

1/28/2016

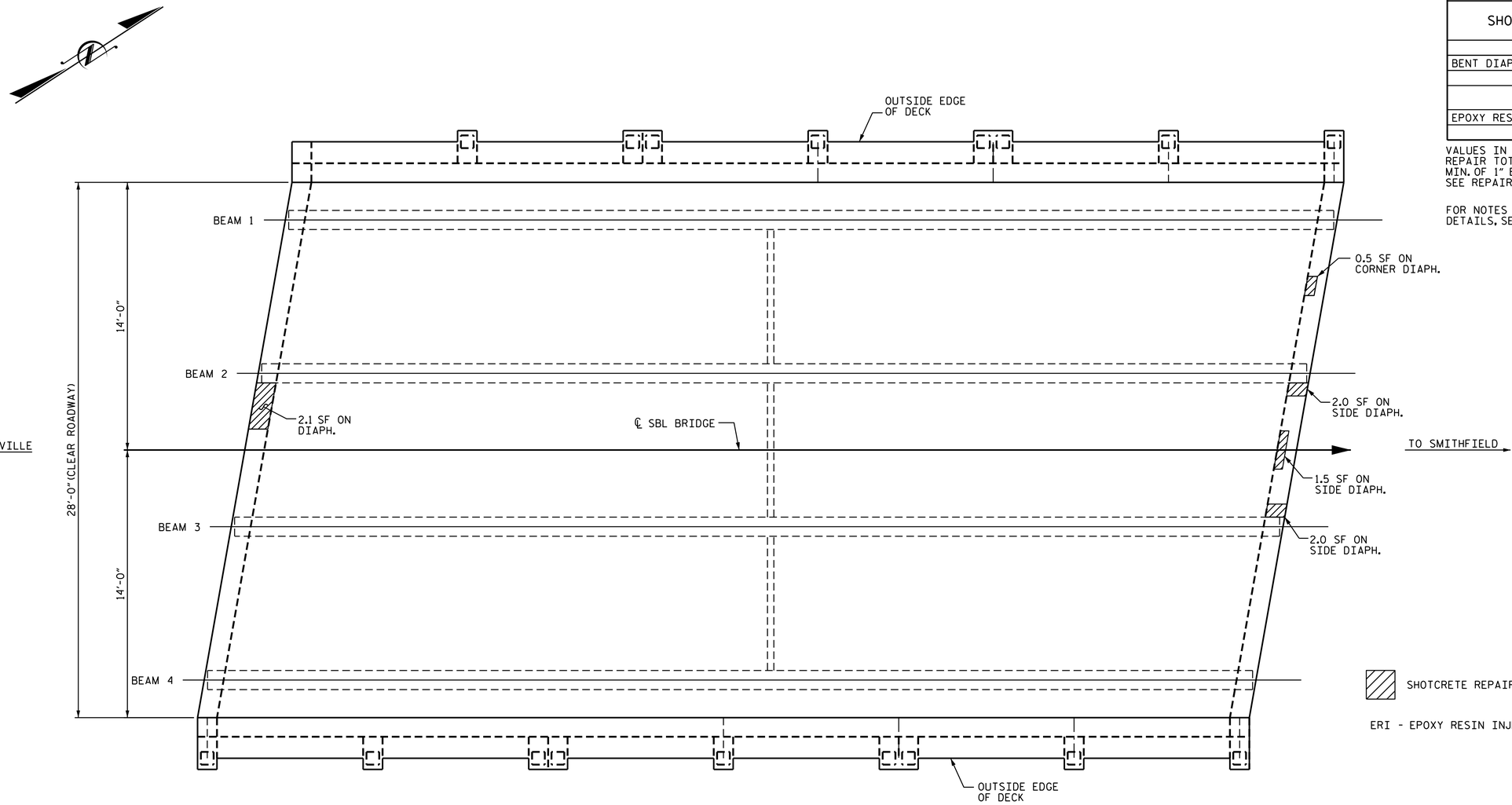
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN A SBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-64
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 11/2/15
CHECKED BY : S. B. WILLIAMS DATE : 11/5/15

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Final plans\420077_plans.dgn
ttfang



PLAN OF SPAN B
UNDERSIDE

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
BENT DIAPHRAGMS	8.1	2.0		

	ESTIMATE	ACTUAL
EPOXY RESIN INJECTION		

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

FOR NOTES AND SHOTCRETE REPAIRS ON BENT DIAPHRAGM DETAILS, SEE SHEET S-64.

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 77

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG FANG

DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN B SBL

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

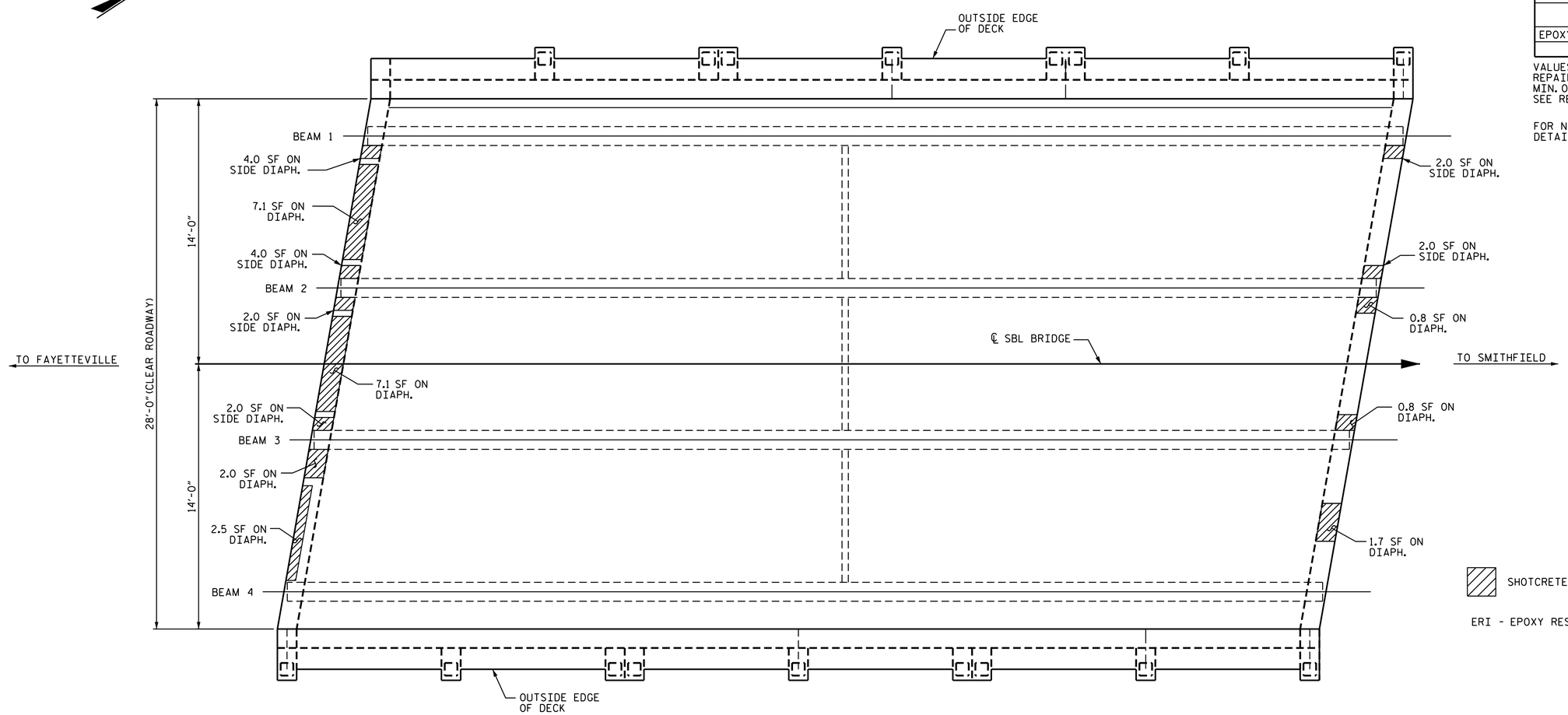
SHEET NO. S-65

TOTAL SHEETS 72

DRAWN BY : A. SORSENGINH DATE : 11/2/15

CHECKED BY : S. B. WILLIAMS DATE : 11/5/15

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420077_plans.dgn
tfang



PLAN OF SPAN C
UNDERSIDE

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
BENT DIAPHRAGMS	38.0	9.5		

	ESTIMATE	ACTUAL
EPOXY RESIN INJECTION		

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

FOR NOTES AND SHOTCRETE REPAIRS ON BENT DIAPHRAGM DETAILS, SEE SHEET S-64.

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 77

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSILING FANG

DocuSigned by: Ting H. Fang E72088400977435...

1/28/2016

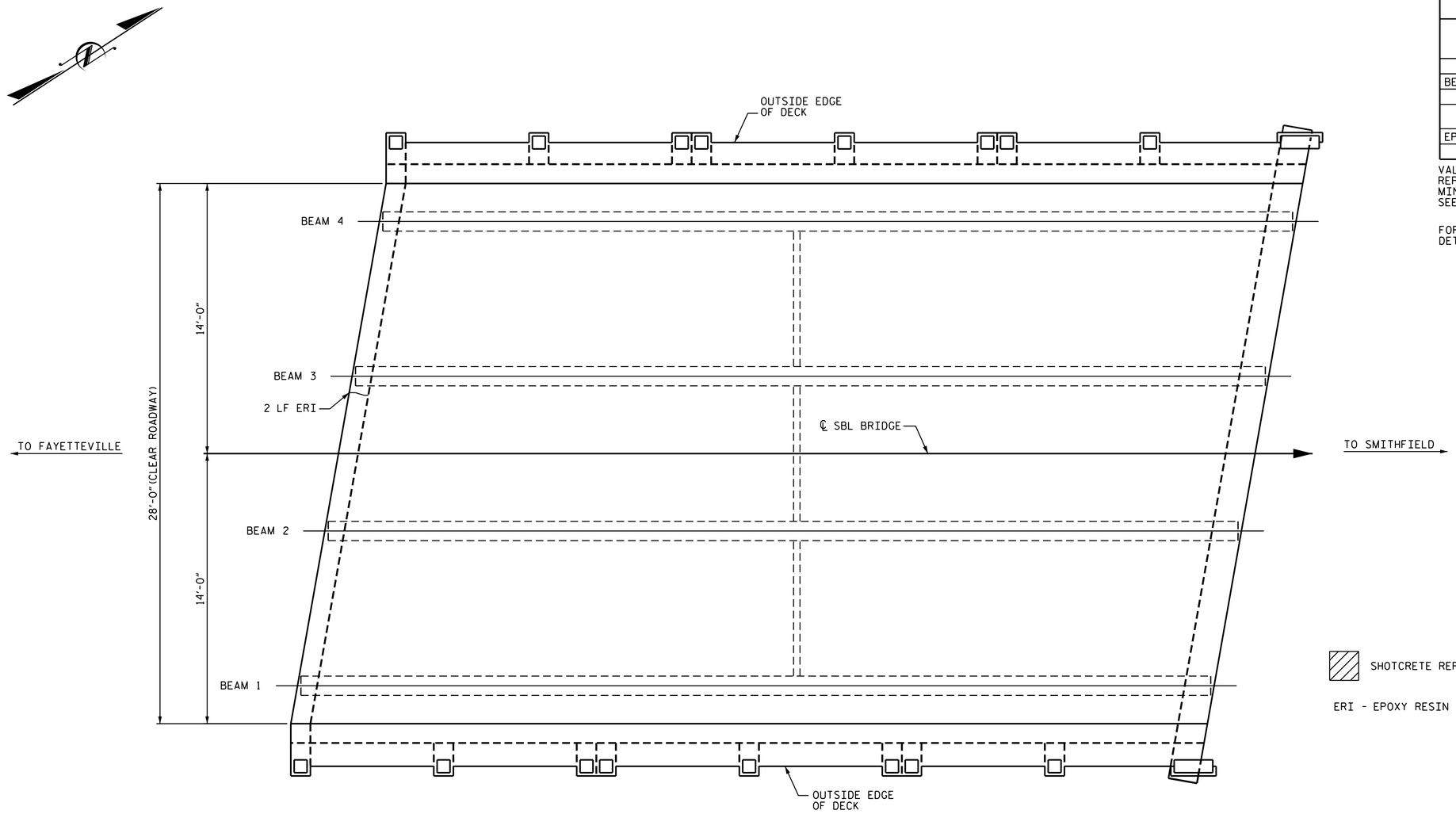
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN C SBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-66
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 11/2/15
CHECKED BY : S. B. WILLIAMS DATE : 11/5/15

28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420077_plans.dgn
ttang



PLAN OF SPAN D
UNDERSIDE

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
BENT DIAPHRAGMS				

	ESTIMATE	ACTUAL
EPOXY RESIN INJECTION	2.0 LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

FOR NOTES AND SHOTCRETE REPAIRS ON BENT DIAPHRAGM DETAILS, SEE SHEET S-64.

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 77

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774355...

1/28/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIR SPAN D SBL

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

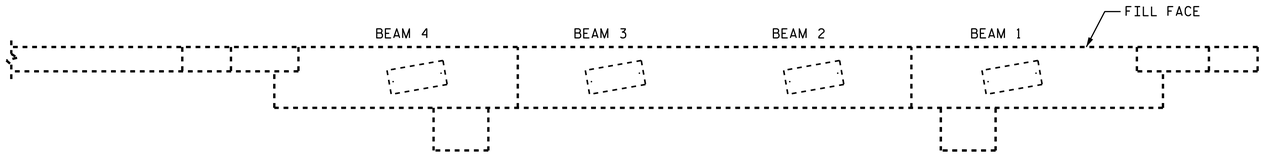
SHEET NO. S-67

TOTAL SHEETS 72

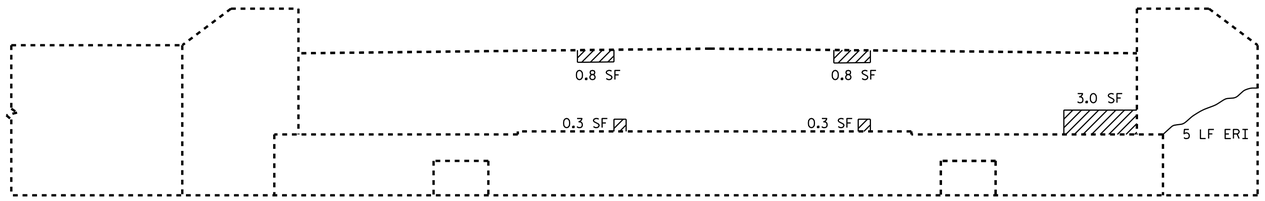
DRAWN BY : A. SORSENGINH DATE : 11/2/15

CHECKED BY : S. B. WILLIAMS DATE : 11/5/15

28-JAN-2016 12:23
K:\TIPProjects-1\I5788\Structures\Finalplans\420077_plans.dgn
ttfang



PLAN



ELEVATION
LOOKING AT FRONT FACE
(NORTH SIDE)

END BENT 1

CONCRETE REPAIR

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

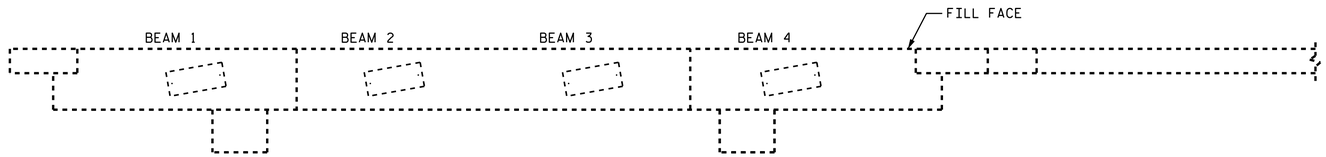
EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE END BENT CAP.

REPAIR QUANTITY TABLE

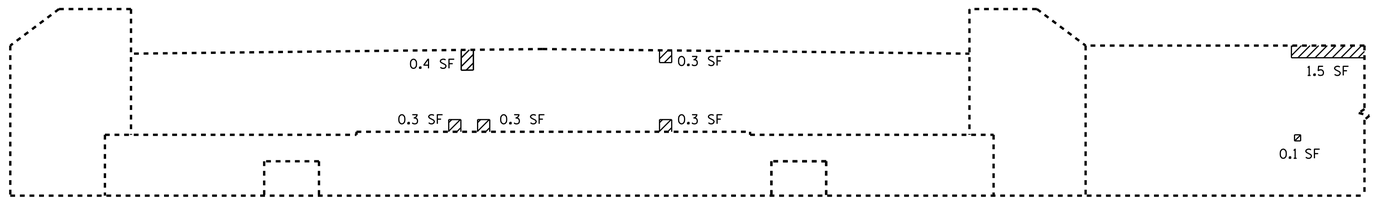
REPAIRS END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
CURTAIN WALL	5.2	1.3		
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
CURTAIN WALL		5.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		49.4		

REPAIRS END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)				
CAP (HORIZONTAL FACE)				
CURTAIN WALL	3.2	0.8		
CONCRETE REPAIRS				
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP				
CURTAIN WALL				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP	49.4			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.



PLAN



ELEVATION
LOOKING AT FRONT FACE
(SOUTH SIDE)

END BENT 2

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 77

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR
END BENTS 1 & 2
SBL

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774358...

1/28/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-68
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 11/3/15
CHECKED BY : S. B. WILLIAMS DATE : 11/5/15

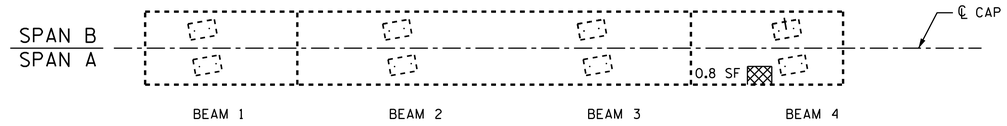
28-JAN-2016 12:23
K:\TIPProjects-1\I5788\Structures\Finalplans\420077_plans.dgn
ttfang

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

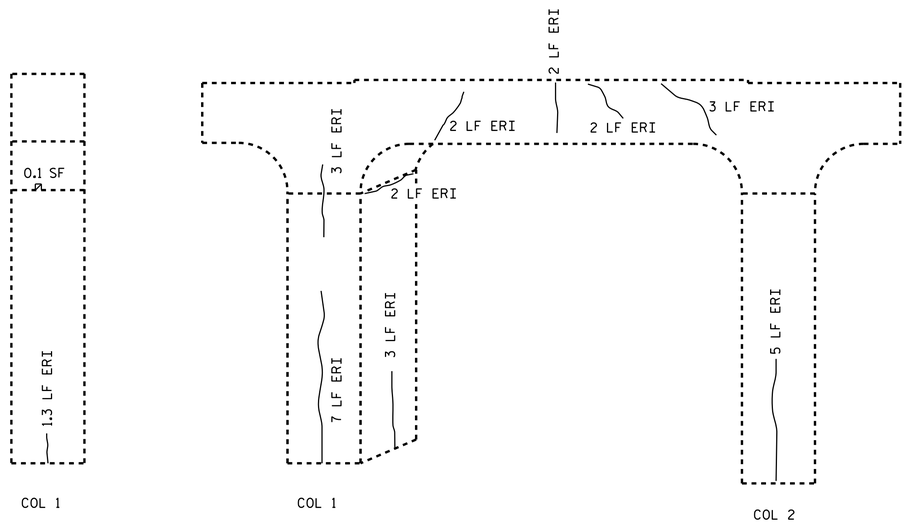


TOP OF CAP

CONCRETE REPAIR

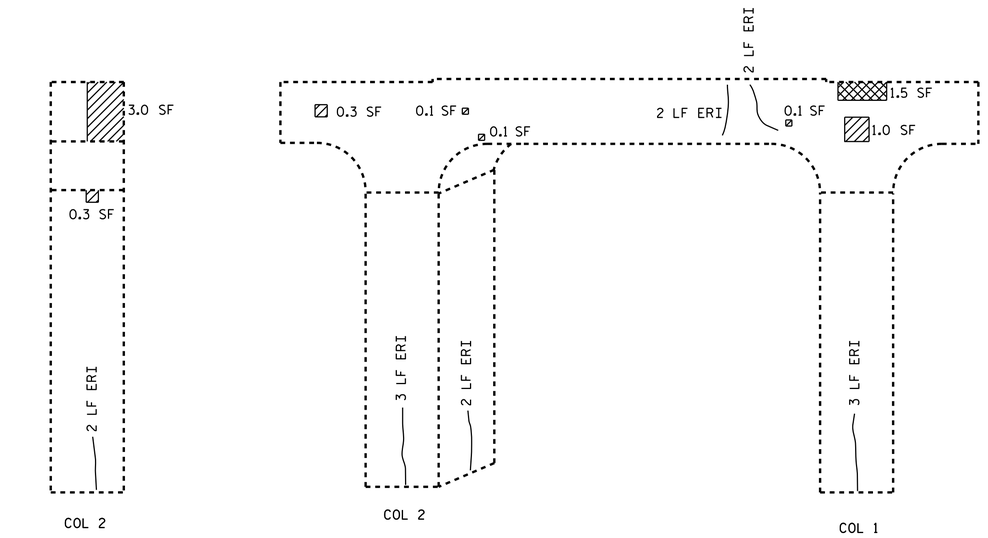
SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



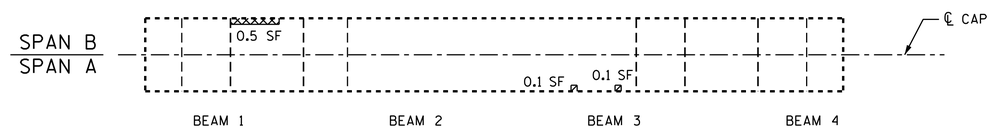
END VIEW
WEST FACE

ELEVATION
SOUTH FACE



END VIEW
EAST FACE

ELEVATION
NORTH FACE



BOTTOM OF CAP

REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)	4.7	1.2		
CAP (HORIZONTAL FACE)	0.2	0.1		
COLUMN (VERTICAL FACE)	0.3	0.1		
CONCRETE REPAIRS	2.8	0.7		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		14.5		
COLUMN		29.8		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		80.2		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSILING FANG

DocuSigned by: Ting H. Fang E720884009774 35...

1/28/2016

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 77

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR
BENT 1
SBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-69
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 11/3/15
CHECKED BY : S. B. WILLIAMS DATE : 11/5/15

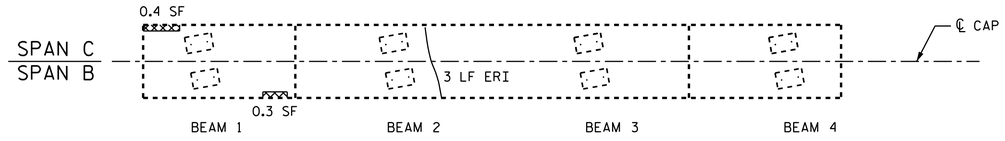
28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420077_plans.dgn
ttfang

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

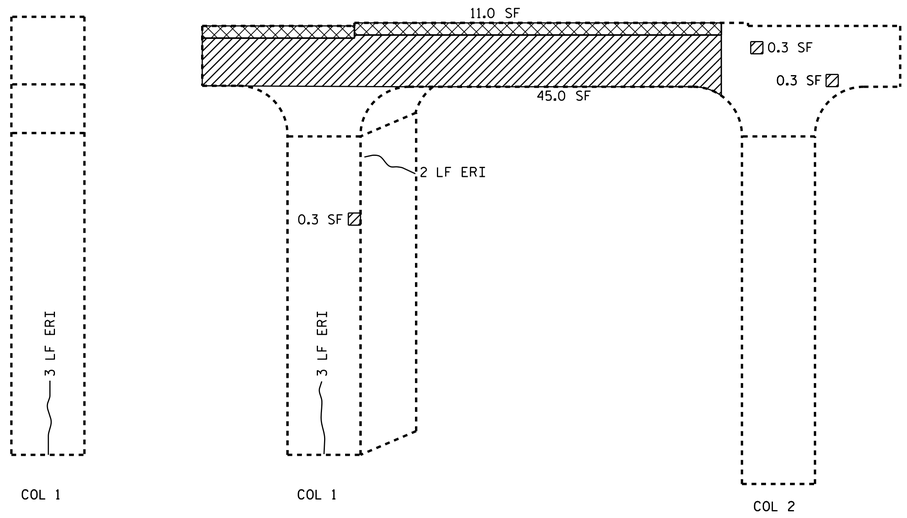


TOP OF CAP

CONCRETE REPAIR

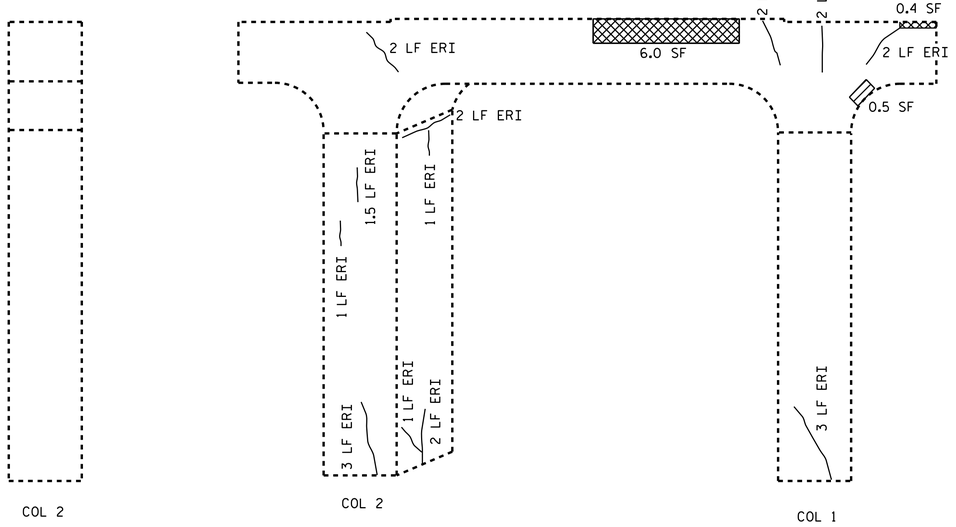
SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



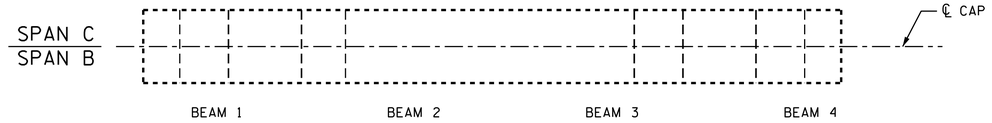
END VIEW
WEST FACE

ELEVATION
SOUTH FACE



END VIEW
EAST FACE

ELEVATION
NORTH FACE



BOTTOM OF CAP

REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)	46.1	11.5		
CAP (HORIZONTAL FACE)				
COLUMN (VERTICAL FACE)	0.3	0.1		
CONCRETE REPAIRS	18.1	4.5		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		11.0		
COLUMN		22.5		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		80.2		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774...

1/28/2016

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 77

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR
BENT 2
SBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-70
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 11/3/15
CHECKED BY : S. B. WILLIAMS DATE : 11/5/15

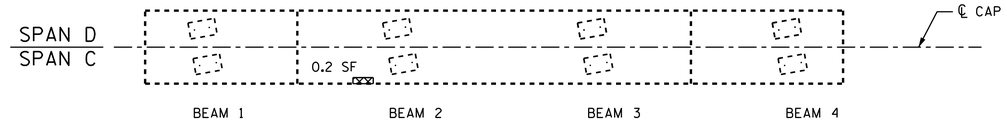
28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420077_plans.dgn
ttfang

NOTE:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR STRUCTURE REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S-72.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE BENT CAP.

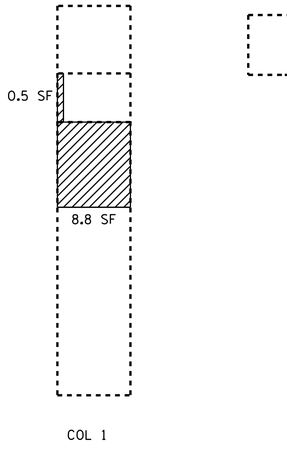


TOP OF CAP

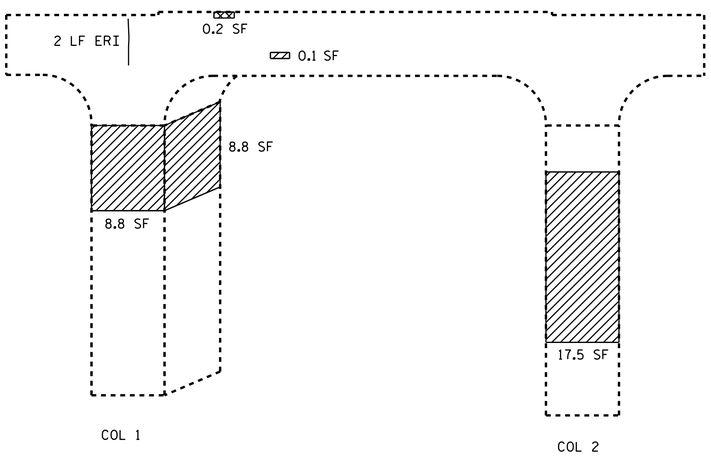
CONCRETE REPAIR

SHOTCRETE REPAIR

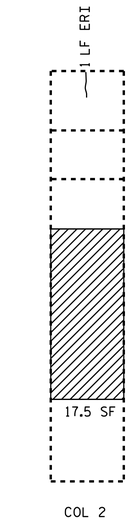
ERI - EPOXY RESIN INJECTION



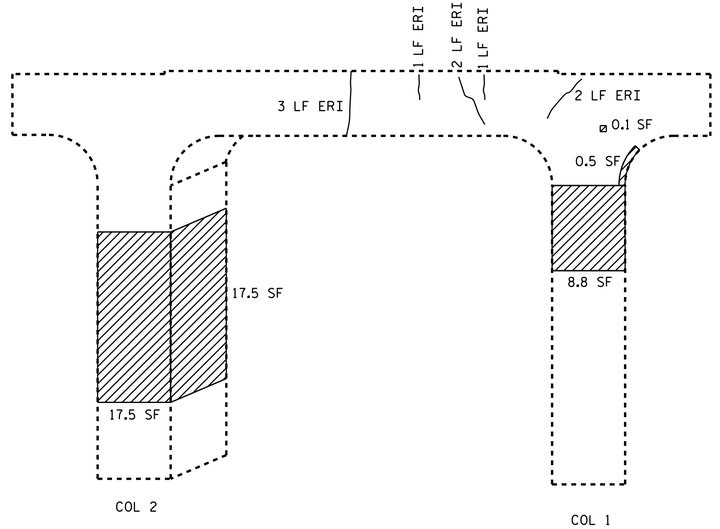
END VIEW
WEST FACE



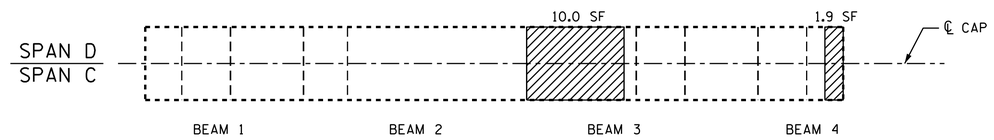
ELEVATION
SOUTH FACE



END VIEW
EAST FACE



ELEVATION
NORTH FACE



BOTTOM OF CAP

REPAIR QUANTITY TABLE

REPAIRS BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CAP (VERTICAL FACE)	1.2	0.3		
CAP (HORIZONTAL FACE)	11.9	3.0		
COLUMN (VERTICAL FACE)	105.2	26.3		
CONCRETE REPAIRS	0.4	0.1		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		12.0		
COLUMN				
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF CAP		80.2		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: Ting H. Fang E720884009774355...

1/28/2016

PROJECT NO. I-5788

HARNETT COUNTY

BRIDGE NO.: 77

SHEET 4 OF 4

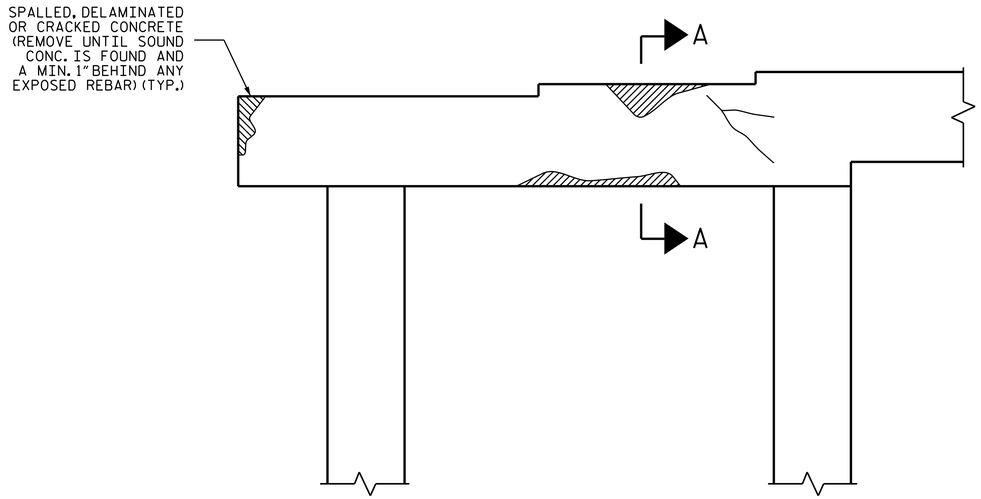
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR
BENT 3
SBL

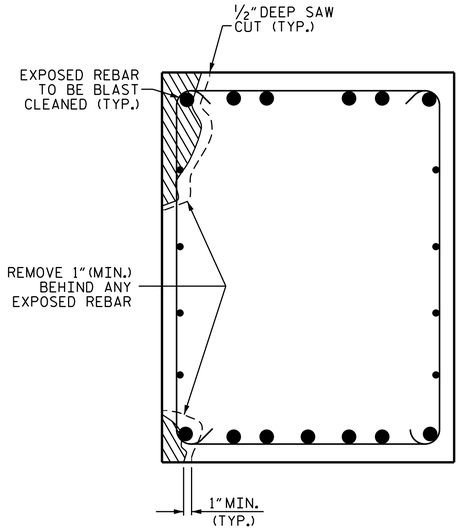
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-71
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 11/3/15
CHECKED BY : S. B. WILLIAMS DATE : 11/5/15

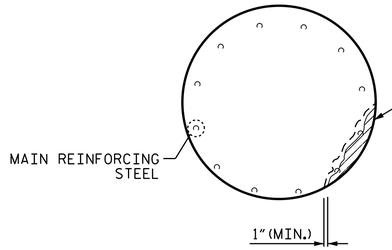
28-JAN-2016 12:23
K:\TIPProjects-I\I5788\Structures\Finalplans\420077_plans.dgn
ttfang



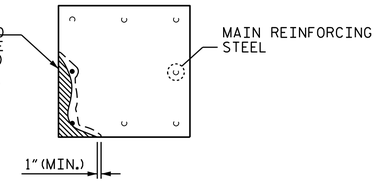
BENT CAP REPAIRS



CAP REPAIR
SECTION THRU CAP

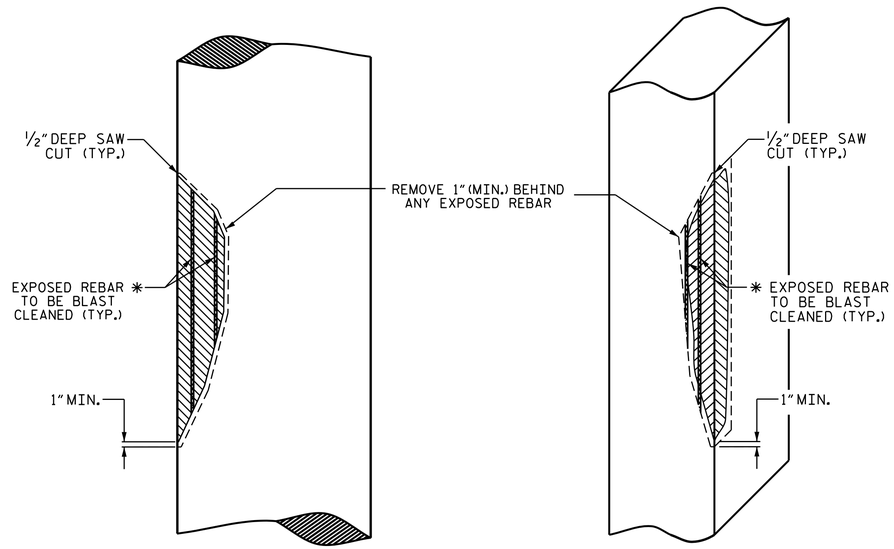


FOR BRIDGE #142



FOR BRIDGES #73 & #77

PLAN



* DUE TO LACK OF CONFINEMENT, STEEL REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

ELEVATION

COLUMN REPAIR
SQUARE AND ROUND COLUMNS SHOWN, OTHER SHAPES OF COLUMN SIMILAR

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG FANG

DocuSigned by: Ting H. Fang E720B6A0977435...

1/28/2016

PROJECT NO. I-5788

CUMBERLAND & HARNETT COUNTY

BRIDGE NO.: 142, 157, 158
73 & 77

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL CAP AND COLUMN REPAIR DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-72
1			3			TOTAL SHEETS
2			4			72

DRAWN BY : A. SORSENGINH DATE : 10/26/15
CHECKED BY : S. B. WILLIAMS DATE : 10/30/15

NCDDS

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 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

REV. 6-16-95 EEM (c) RGW REV. 5-7-03 RWW (c) JTE REV. 10-1-11 MAA (c) GM
REV. 8-16-99 RWW (c) LES REV. 5-1-06 TLA (c) GM