

PROJECT: B-5545

CONTRACT: C203130

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5545	1A	
STATE PROGRAM	F.A. PROGRAM	DESCRIPTION	
45528.1.1	NA	FE	
45528.3.1	NA	CONSTR.	

HARNETT COUNTY

LOCATION: BRIDGE #57 ON SR1002 OVER I-95
BRIDGE #66 ON SR1793 OVER I-95
BRIDGE #80 ON SR1808 OVER I-95

TYPE OF WORK: GIRDER REPLACEMENT, BEARING REPLACEMENT

INDEX OF SHEETS

1	TITLE SHEET
1A	INDEX OF SHEETS
2	SUMMARY OF QUANTITIES
	STRUCTURES
S-1 - S-7	BRIDGE #57
S-8 - S-14	BRIDGE #66
S-15 - S-21	BRIDGE #80
TMP-1 - TMP-8	TRAFFIC MANAGEMENT PLANS

4DATE\$
\$TIMES\$
\$FILES\$



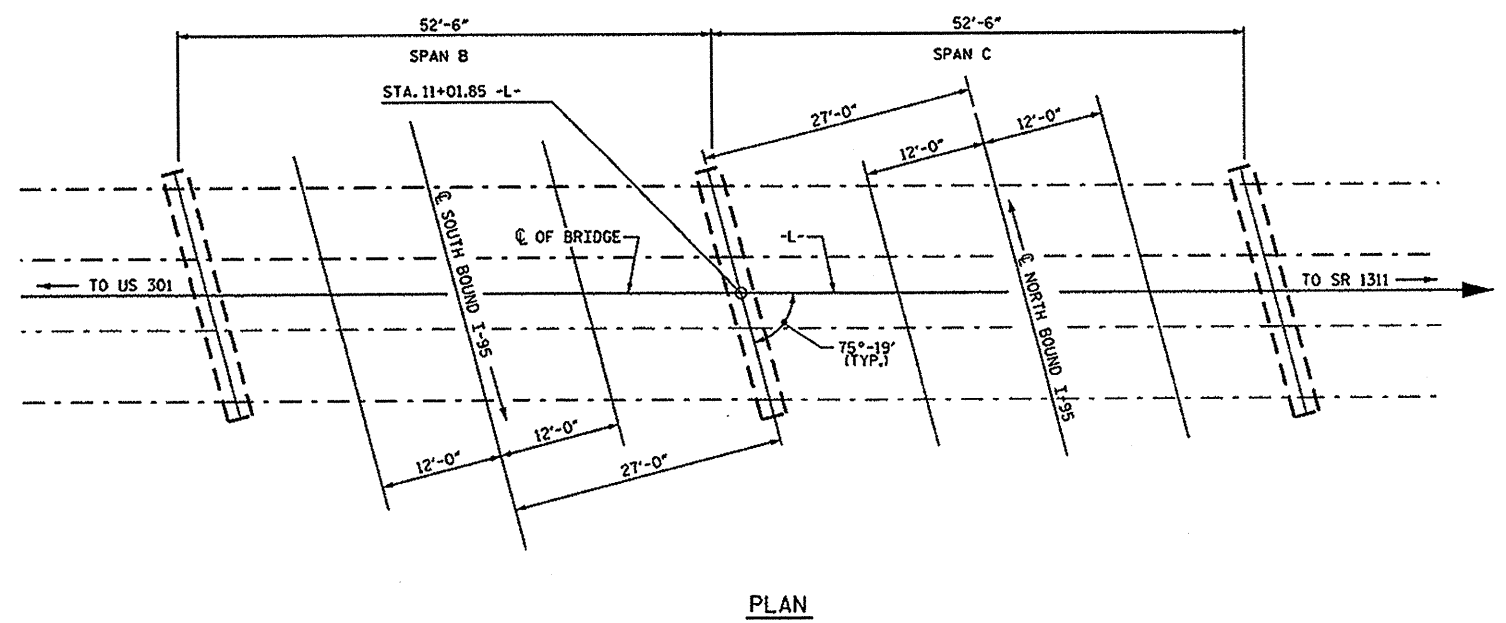
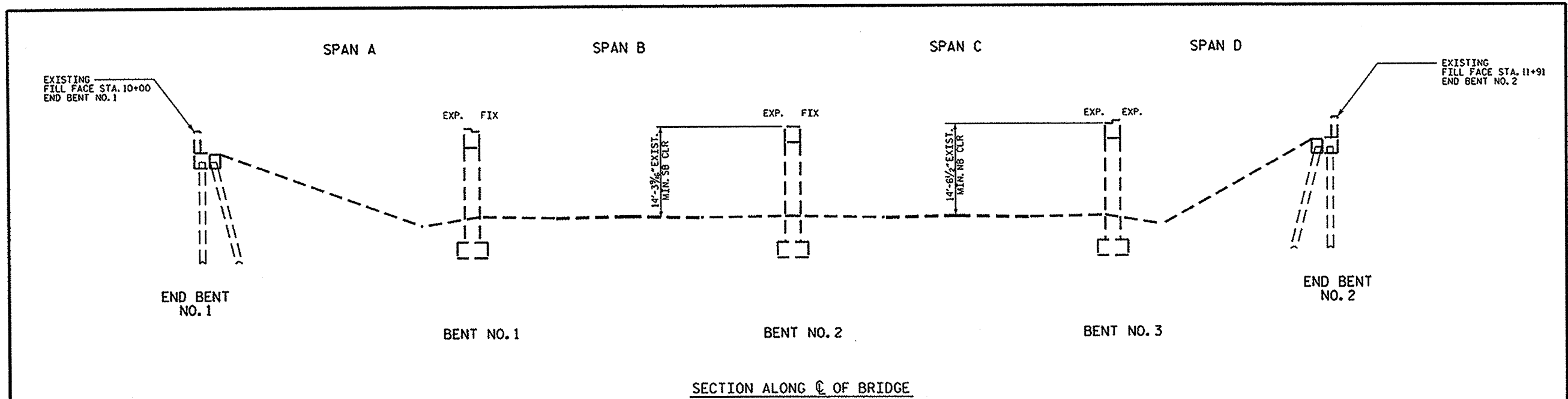
Prepared For
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR. RALEIGH, NC 27610

LETTING DATE:
SEPTEMBER 18, 2012

RICK NELSON, P.E.
PROJECT ENGINEER

ENGINEER

FARZIN ASEFNIA, P.E.



PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 11+01.85 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

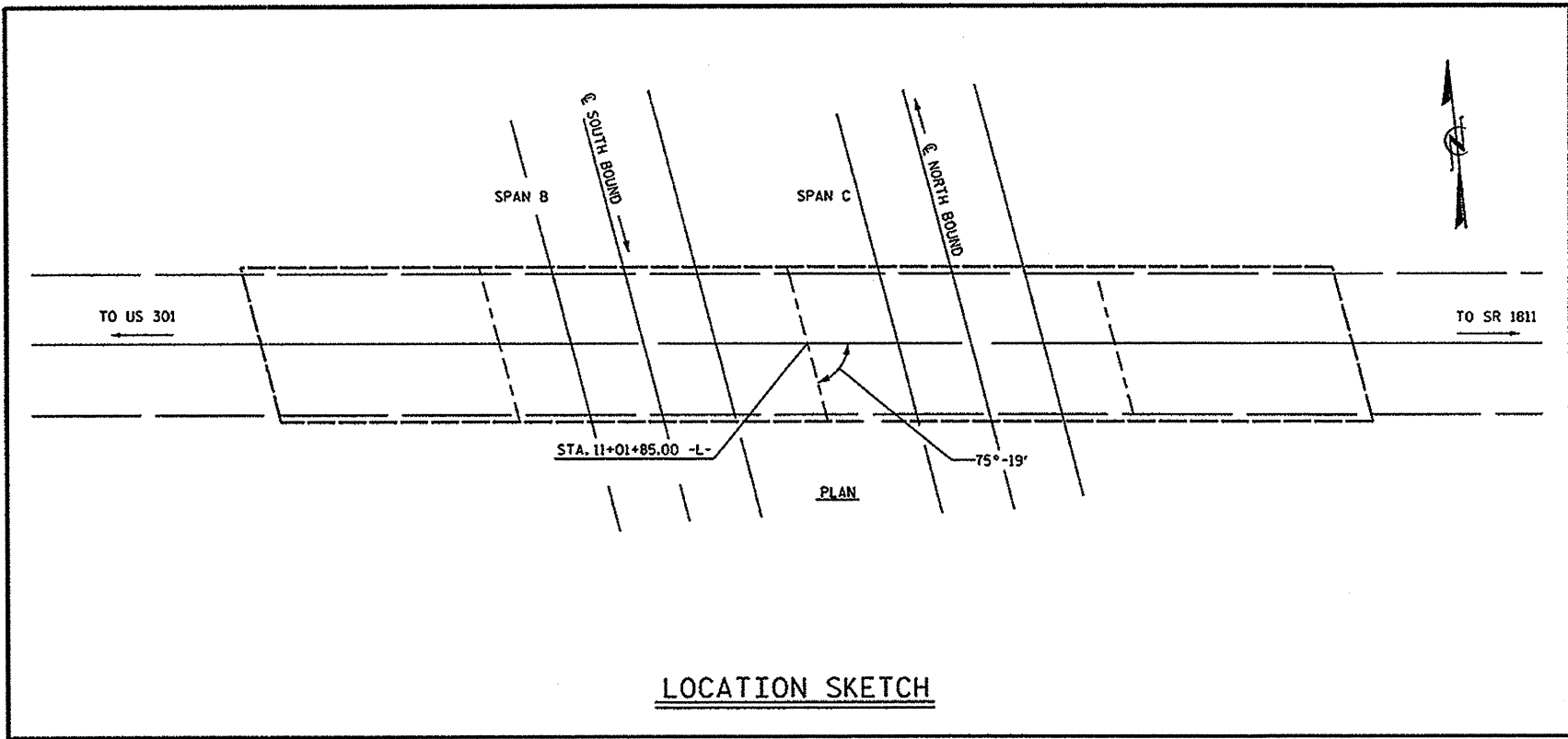
GENERAL DRAWING
 BRIDGE NO. 57 OVER I-95
 ON SR 1002 BETWEEN
 SR 1811 AND US 301

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-1
1			3			10/2/12
2			4			21



DRAWN BY: M. WELDON DATE: 7/2012
 CHECKED BY: F. ASEFNIA DATE: 7/2012

23-Jul-2012 15:01
 S:\PRES-PDC\Squad C\Preservation\Projects\B-5545, Harnett\57, 66, 80\Final\7.13.12\0gn_files\B-5545.dwg, 57_harnett.dgn
 mwe/gon



NOTES:

- REMOVAL OF THE EXISTING GIRDERS SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE ROADWAY.
- THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.
- THE ANCHOR BOLTS SHALL BE BASED ON A MINIMUM OF 9" EMBEDMENT INTO EXISTING CONCRETE CAP AND SHALL BE INSTALLED BASED ON MANUFACTURER'S RECOMMENDATION.
- EXISTING ANCHOR BOLTS ARE TO BE CUT FLUSH WITH THE EXISTING CAP. BOLT ENDS SHALL BE COATED WITH AN APPROVED EPOXY PAINT.
- FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL		
	APPROXIMATE LBS. STRUCTURAL STEEL	ELASTOMERIC BEARING
SUPERSTRUCTURE	LBS.	LUMP SUM
TOTAL	54,814	LUMP SUM

PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 11+01.85 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE NO. 57 OVER I-95
 ON SR 1002 BETWEEN
 SR 1811 AND US 301

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-2
1			1			TOTAL SHEETS
2			2			21



DRAWN BY: D.V. JOYNER DATE: 7/2012
 CHECKED BY: F. ASEFNIA DATE: 7/2012

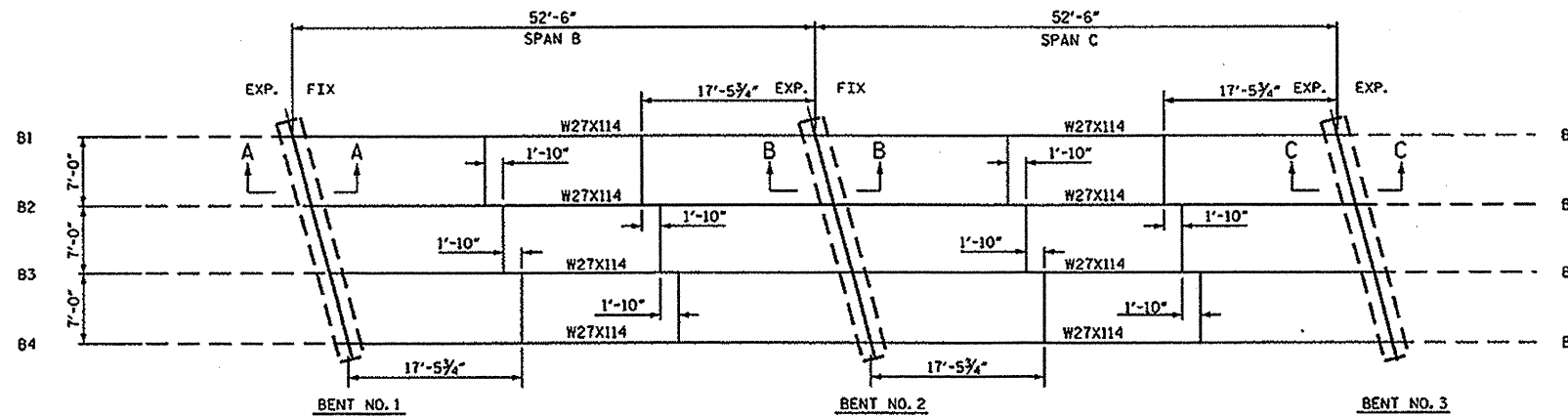
23-JUL-2012 15:02
 S:\PRES\POC\Squad C\Preservation\Projects\B-5545, Harnett\ 57, 66, 80\Final\7,13,12\0gn_files\B-5545.smu.57.harnett.dgn
 revision

NOTES:

THE CONTRACTOR SHALL RETAIN THE EXISTING INTERMEDIATE DIAPHRAGM FOR RE-USE.

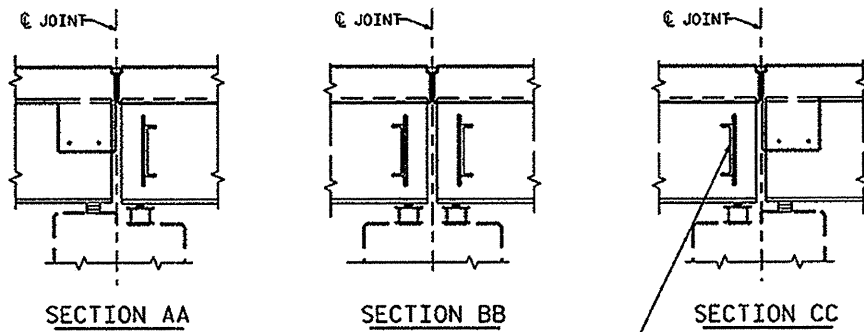
THE CONTRACTOR IS RESPONSIBLE TO EVALUATE THE STRUCTURAL CONDITION OF THE EXISTING INTERMEDIATE DIAPHRAGM.

THE CONTRACTOR SHALL DRILL NEW HOLES IN DIAPHRAGM TO ATTACH THE DIAPHRAGM TO THE BEAM.

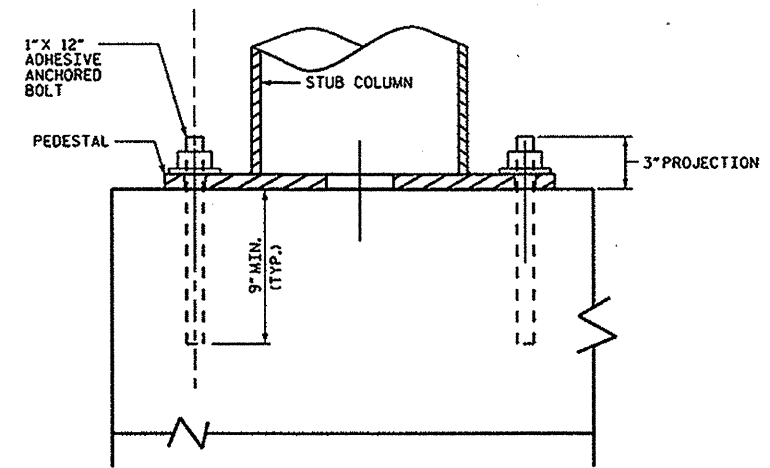
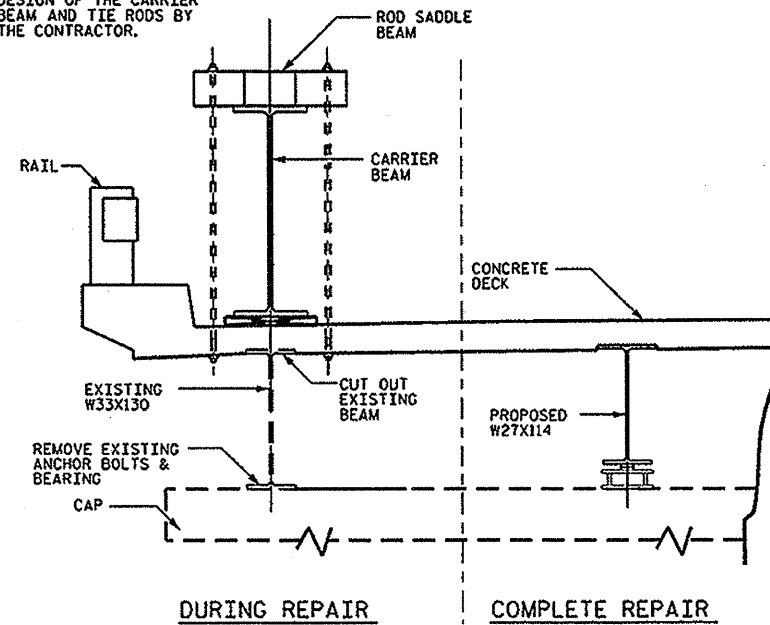


NOTE: EXIST. W33X130'S TO BE REPLACED WITH W27X114'S IN SPAN'S B AND C.

FRAMING PLAN



DESIGN OF THE CARRIER BEAM AND TIE RODS BY THE CONTRACTOR.



PROPOSED ADHESIVE ANCHOR DETAIL

PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 11+01.85 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

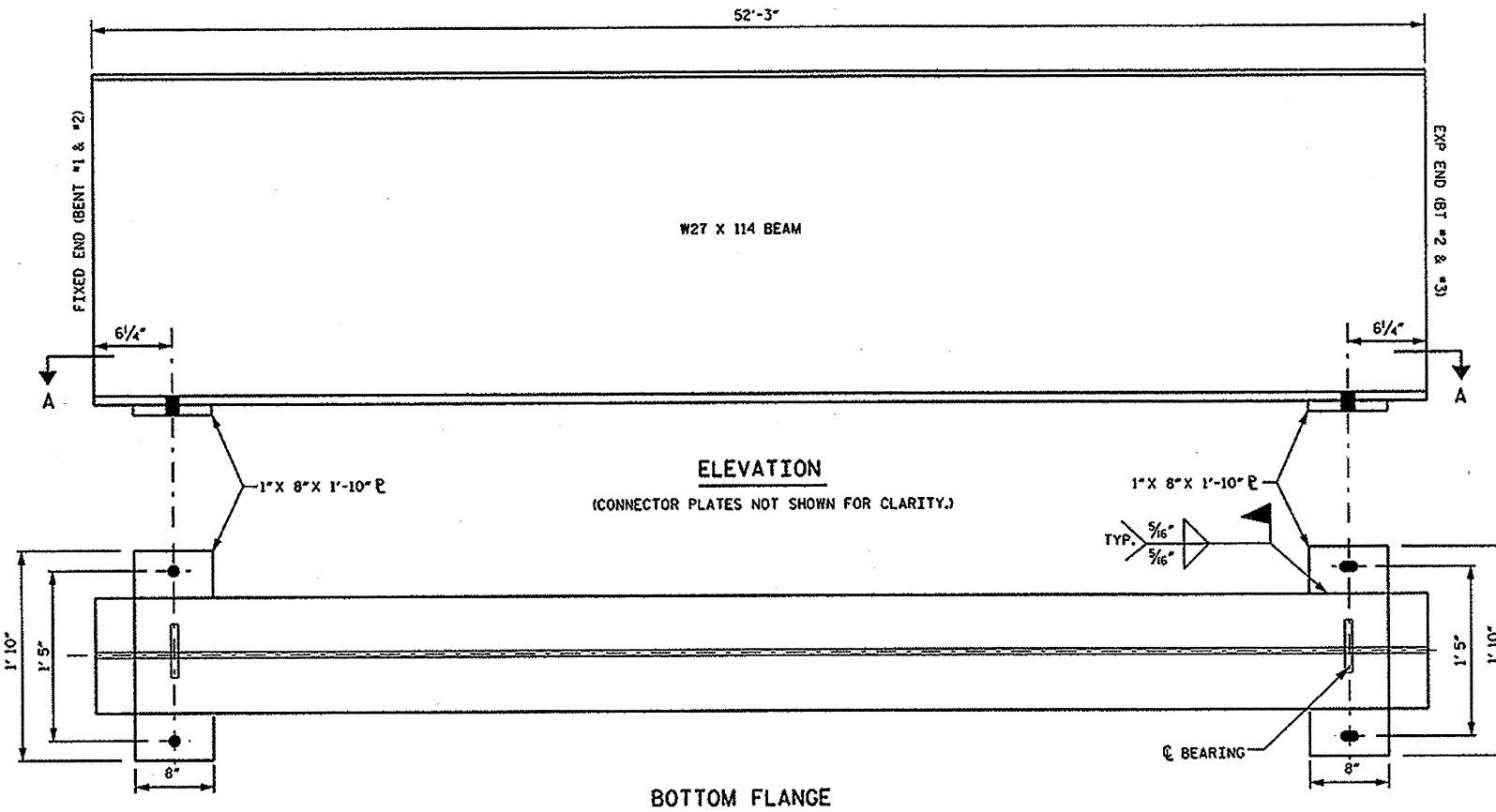
EXISTING SUPERSTRUCTURE FRAMING PLAN
 TYPICAL SECTIONS
 BRIDGE NO. 57

REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			20		
2			46		

TOTAL SHEETS: 21



DRAWN BY: M. WELDON DATE: 7/2012
 CHECKED BY: F. ASEFNIA DATE: 7/2012



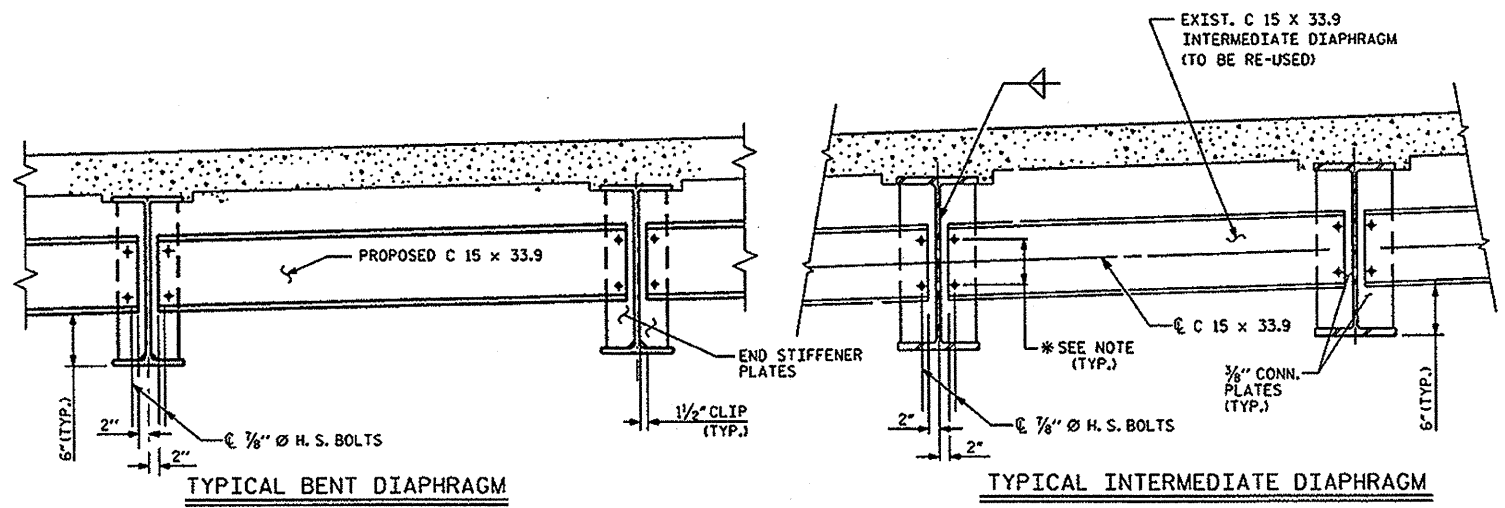
ELEVATION
(CONNECTOR PLATES NOT SHOWN FOR CLARITY.)

BOTTOM FLANGE

GENERAL NOTES:

- 1) ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
- 2) ALL STEEL IS TO BE SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 OF THE STANDARD SPECIFICATIONS.
- 3) UNLESS NOTED OTHERWISE, ALL STEEL ON THIS DRAWING SHALL MEET THE REQUIREMENTS OF AASHTO M270 (GRADE 50) AND ITS SUPPLEMENTARY LONGITUDINAL CHARPY V-NOTCH TEST REQUIREMENTS (FOR AASHTO M270 ZONE II, ASTM A-572 (GR 50) OR A-588 (GR 50) STEEL MAY BE SUBSTITUTED AS LONG AS THE SUPPLEMENTARY REQUIREMENTS TO THE ABOVE AASHTO SPECS ARE MET.
- 4) WEB STIFFENERS AND CONNECTOR PLATES AS NECESSARY PER DESIGN.
- 5) THE CONTRACTOR SHALL USE EXISTING UNDAMAGED INTERMEDIATE DIAPHRAGMS. THESE MEMBERS SHALL BE CLEANED AND NEW HOLES SHALL BE DRILLED ON THE WELDED SIDED AFTER SPACING VERIFICATION.
- 6) WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.
- 7) REMOVE GALVANIZING OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS AND PREPARE THE WELD AREAS AS PER ARTICLE 440-T OF THE STANDARD SPECIFICATION.
- 8) AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE GALVANIZING HAS BEEN REMOVED OR DAMAGED SHALL BE REPAIRED AS PER STANDARD SPECIFICATIONS.

* THE CONTRACTOR SHALL VERIFY THE BOLT SPACING PRIOR TO FABRICATION.



TYPICAL BENT DIAPHRAGM

TYPICAL INTERMEDIATE DIAPHRAGM

PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 11+01.85 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**REPLACEMENT BEAM
 AND DIAPHRAGMS**

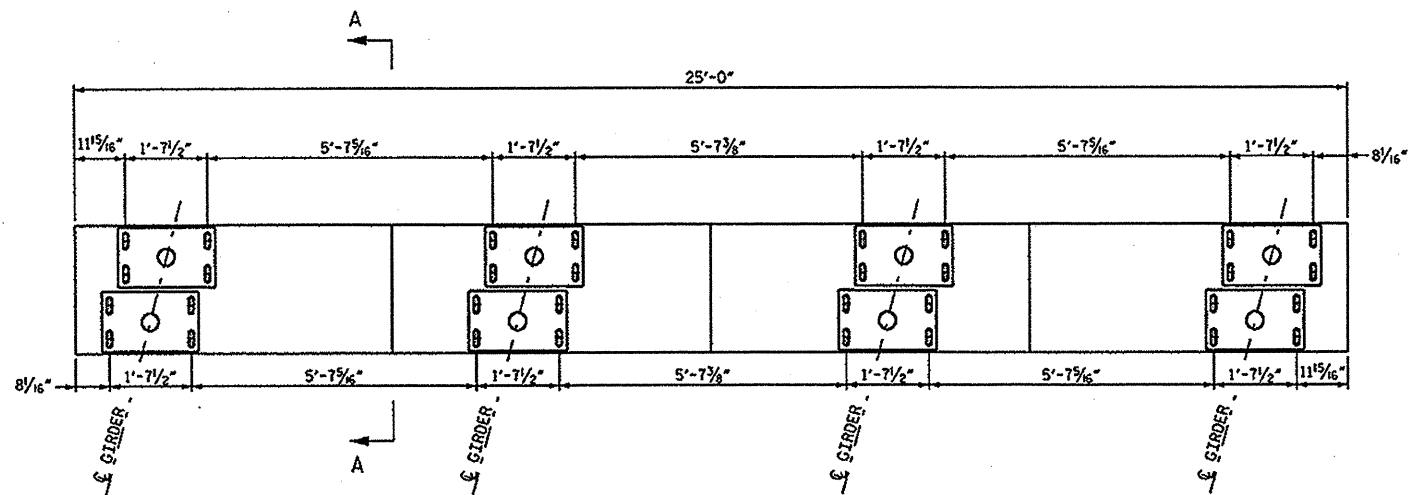
BRIDGE NO. 57

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

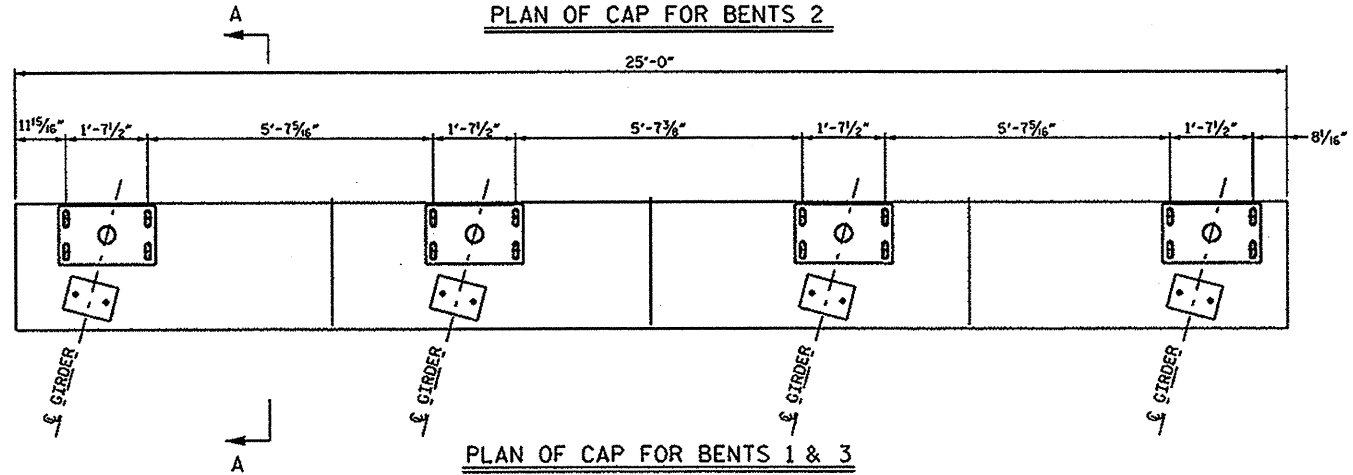
TOTAL SHEETS: 21



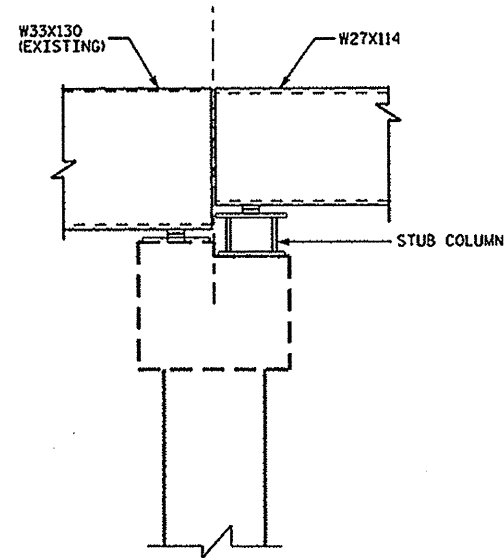
DRAWN BY: M. WELDON DATE: 7/2012
 CHECKED BY: F. ASEFINA DATE: 7/2012



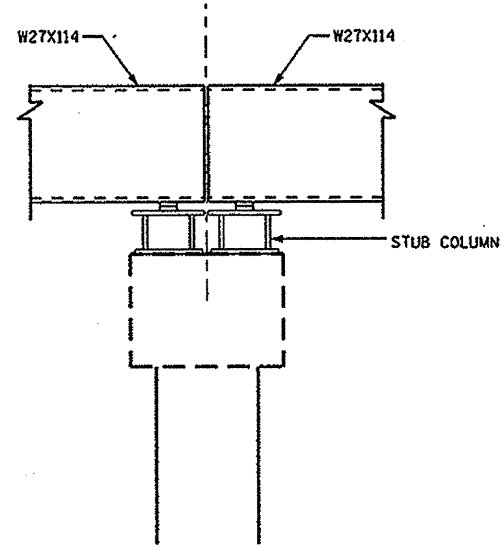
PLAN OF CAP FOR BENTS 2



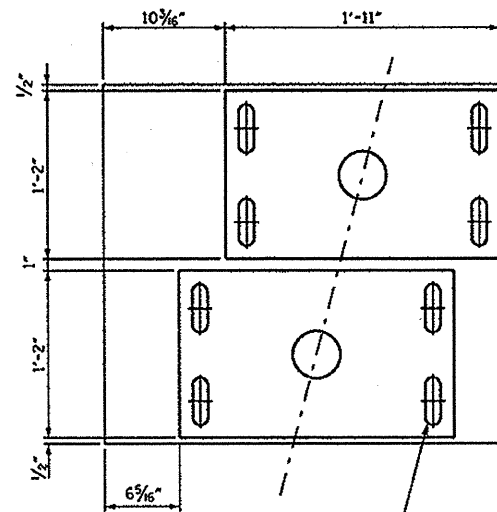
PLAN OF CAP FOR BENTS 1 & 3



SECTION A-A
BENTS 1 & 3
(TYPICAL)



SECTION A-A
BENT 2



4- 1" Ø APPROVED ADHESIVE ANCHORS
WITH A MINIMUM TENSILE STRENGTH
OF 6,000 LBS AND A MINIMUM SHEAR
STRENGTH OF 14,000 LBS (TYP)

DETAIL OF BOTTOM
PLATE ORIENTATION

NOTES

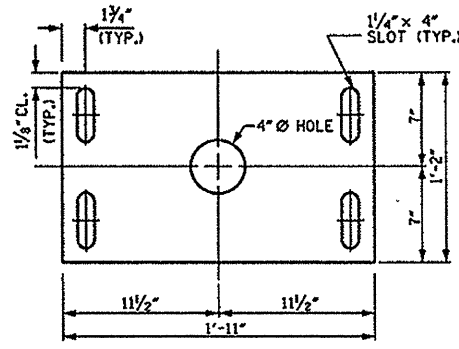
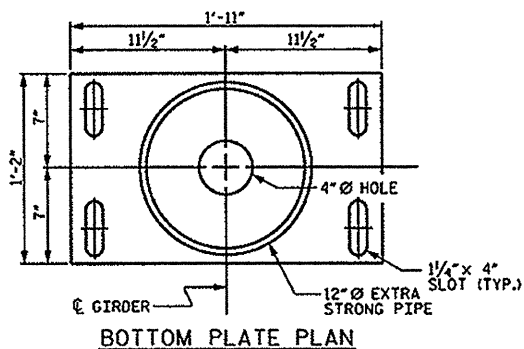
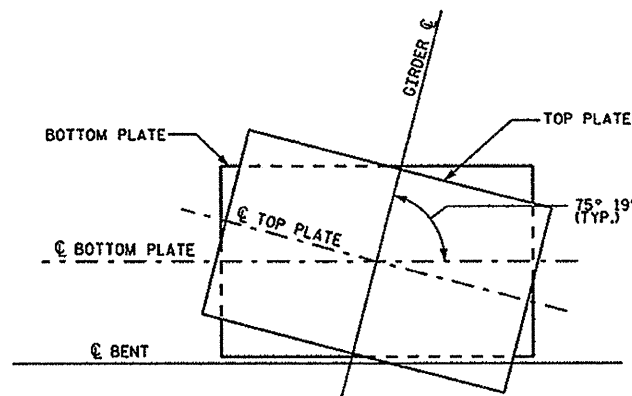
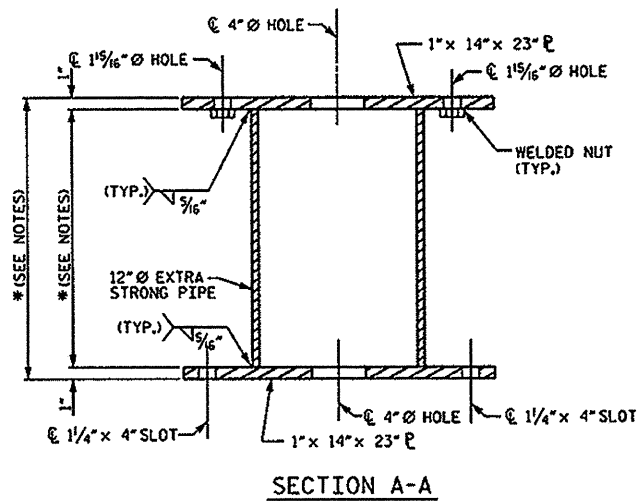
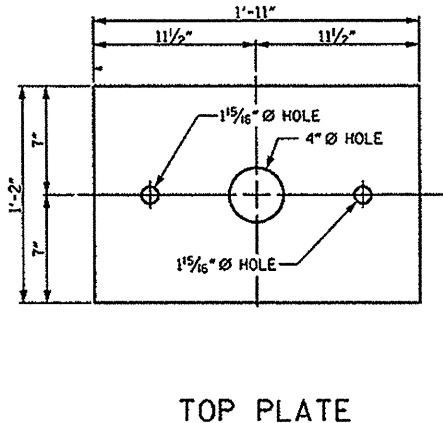
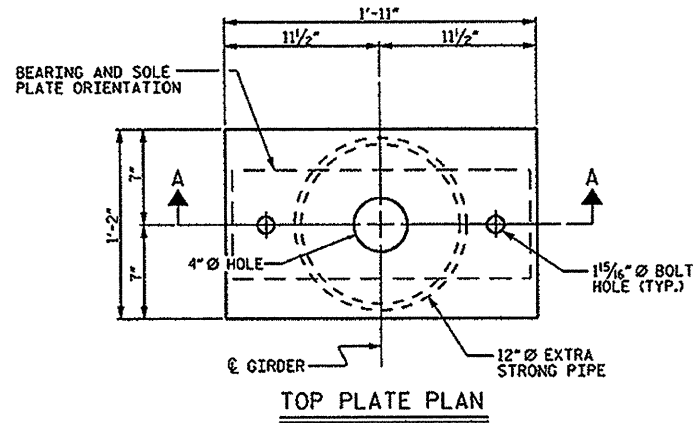
CUT EXISTING ANCHOR BOLTS FLUSH TO THE TOP OF CONCRETE.
BOLT ENDS SHALL BE COATED WITH AN APPROVED EPOXY PAINT.

PROJECT NO. B-5545
HARNETT COUNTY
STATION: 11+01.85 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
INTERIOR BENTS			
BRIDGE NO. 57			
REVISIONS			SHEET NO.
NO.	BY:	DATE:	5-5
1			TOTAL SHEETS 21
2			



DRAWN BY: M. WELDON DATE: 07/12
CHECKED BY: E. ASEFNIA DATE: 07/12



STUB COLUMN DETAILS
(STUB COLUMN - 16 REQUIRED)

BOTTOM PLATE

NOTES:

- ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.
- ALL 12" Ø PIPES SHALL BE EXTRA STRONG ASTM SPECIFICATION A53 GRADE B OR A501 OR APPROVED EQUAL.
- ALL STRUCTURAL STEEL PLATES SHALL CONFORM TO AASHTO M270 GRADE 50 STEEL OR APPROVED EQUAL.
- ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.
- ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.
- AFTER LOWERING EACH SPAN ONTO THE STUB COLUMN ASSEMBLY, TIGHTEN THE ANCHOR BOLTS AT BOTTOM PLATE PER MANUFACTURERS RECOMMENDATIONS.
- ALL GALVANIZED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE PREPARED AND SHALL RECEIVE TWO COATS OF ORGANIC ZINC REPAIR PAINT, AS OUTLINED IN ARTICLE 1076-7 OF THE STANDARD SPECIFICATIONS.
- THE TOP OF THE DECK ELEVATION SHALL REMAIN THE SAME DURING AND AFTER CONSTRUCTION.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE BEAM PEDESTAL AND ALL OTHER STRUCTURAL STEEL PRIOR TO FABRICATION.
- THE CONTRACTOR SHALL FIELD VERIFY THE STUB COLUMN ASSEMBLY HEIGHTS PRIOR TO FABRICATION.

* THE PROPOSED PEDESTALS ARE INTENDED TO ADD 6" TO THE CLEARANCE OF THE BRIDGE. IN ORDER TO DETERMINE THE HEIGHT OF THE PEDESTAL, THE CONTRACTOR SHALL VERIFY THE DIFFERENCE OF ELEVATION FROM TOP OF THE BENTS TO THE BOTTOM OF THE EXISTING GIRDER AT EACH BEARING AND ADD 6".

PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 11+01.85 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STRUCTURAL STEEL DETAILS

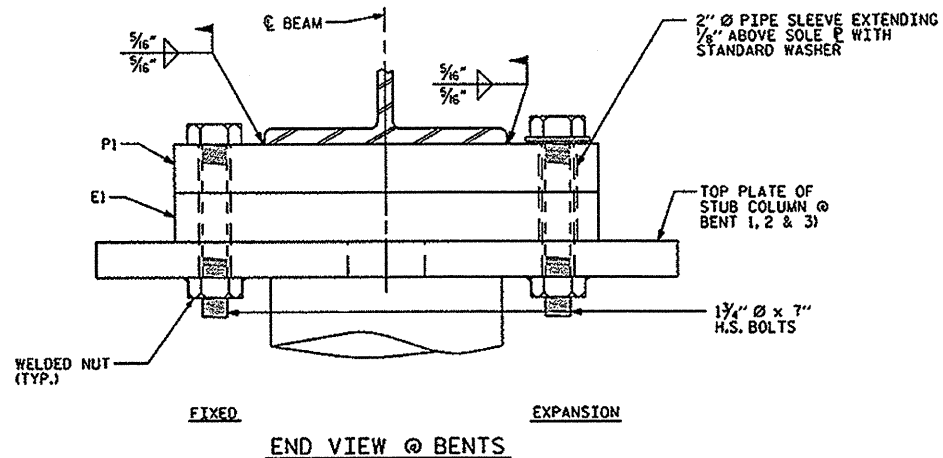
BRIDGE NO. 57

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

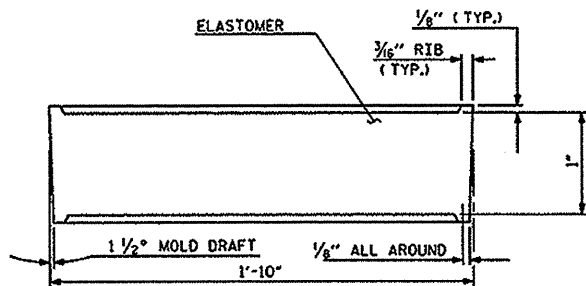
TOTAL SHEETS: 21



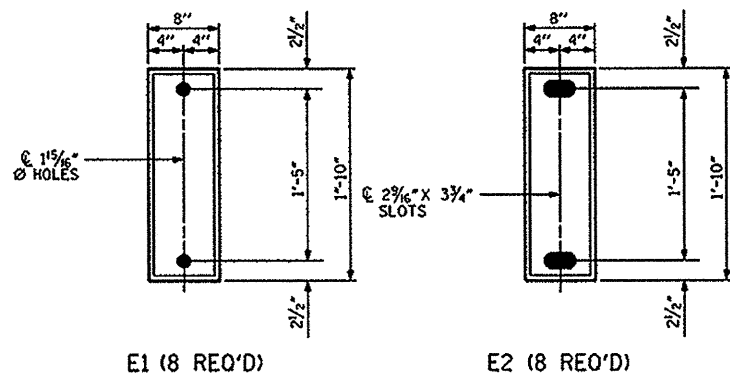
DRAWN BY: M. WELDON DATE: 7/2012
 CHECKED BY: F. ASEFNIA DATE: 7/2012



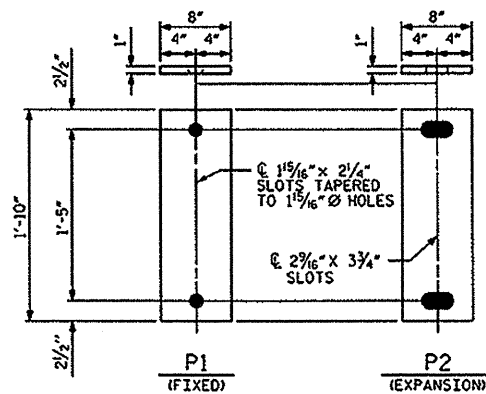
END VIEW @ BENTS



TYPICAL SECTION OF ELASTOMERIC BEARINGS



PLAN VIEW OF ELASTOMERIC BEARING
TYPE I



SOLE PLATE DETAILS ("P")

NOTES

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

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

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

SOLE PLATES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

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

REMOVE GALVANIZING OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS AND PREPARE THE WELD AREAS AS PER ARTICLE 440-7 OF THE STANDARD SPECIFICATION.

AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE GALVANIZING HAS BEEN REMOVED OR DAMAGED SHALL BE STANDARD SPECIFICATIONS.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

FOR HIGH STRENGTH BOLTS, SEE STANDARD SPECIFICATIONS.

PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 11+01.85 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

ELASTOMERIC BEARING
 DETAILS

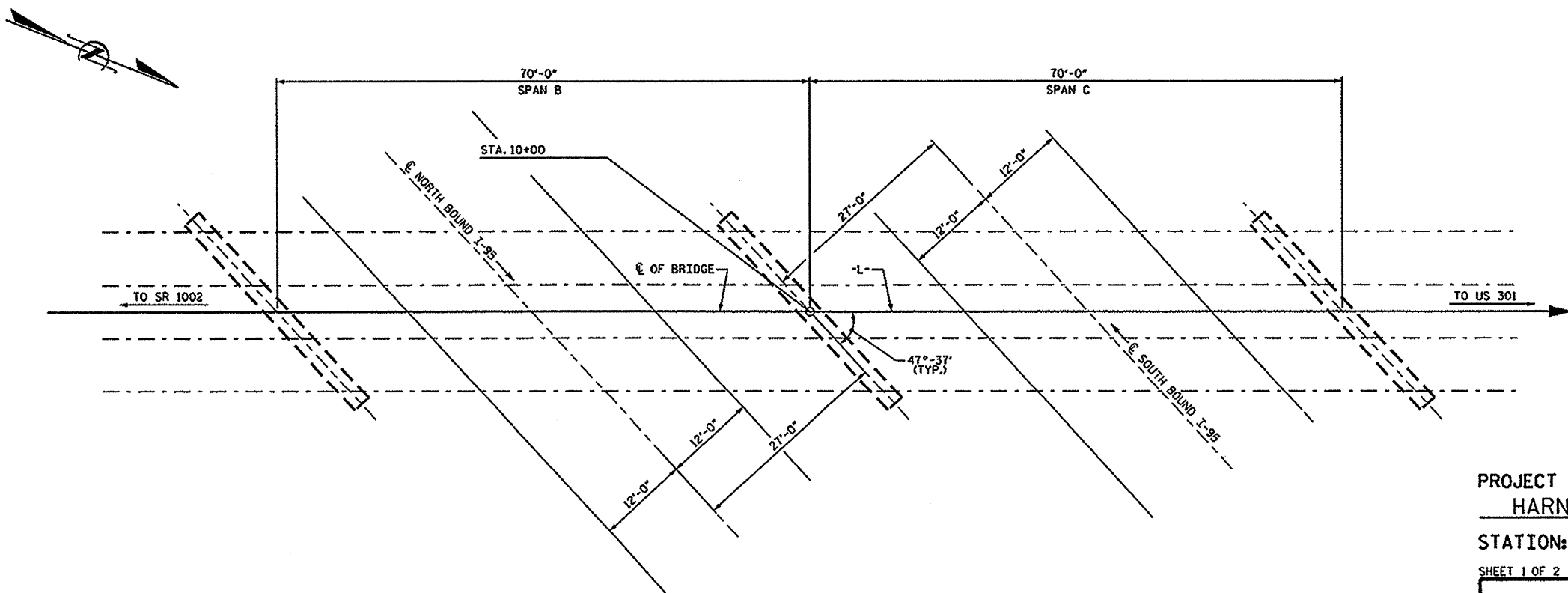
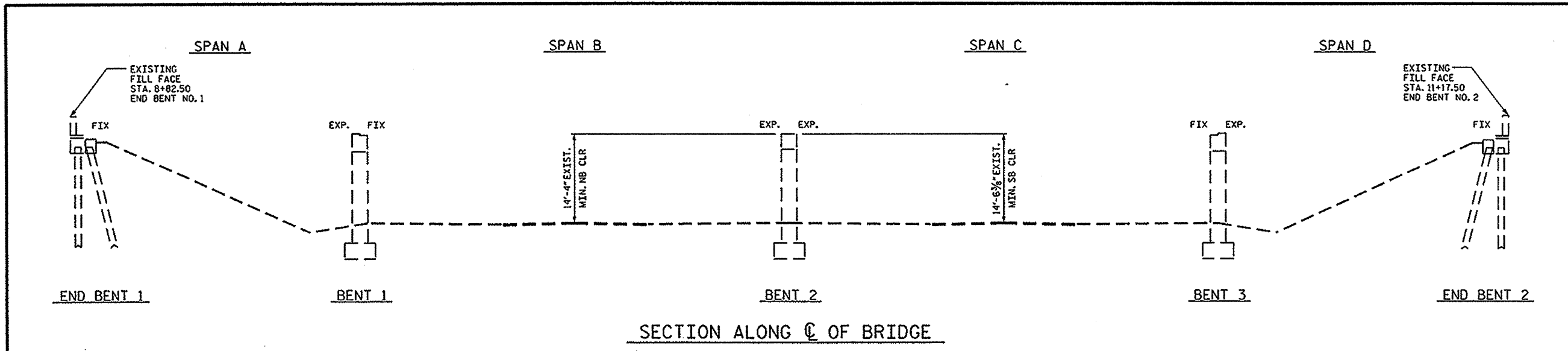
BRIDGE NO. 57

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

S-7
 TOTAL SHEETS 21



DRAWN BY: M. WELDON DATE: 07/12
 CHECKED BY: E. ASEÑIA DATE: 07/12



PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 10+00 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE NO. 66 OVER I-95
 ON SR 1793 BETWEEN
 SR 1002 AND US 301

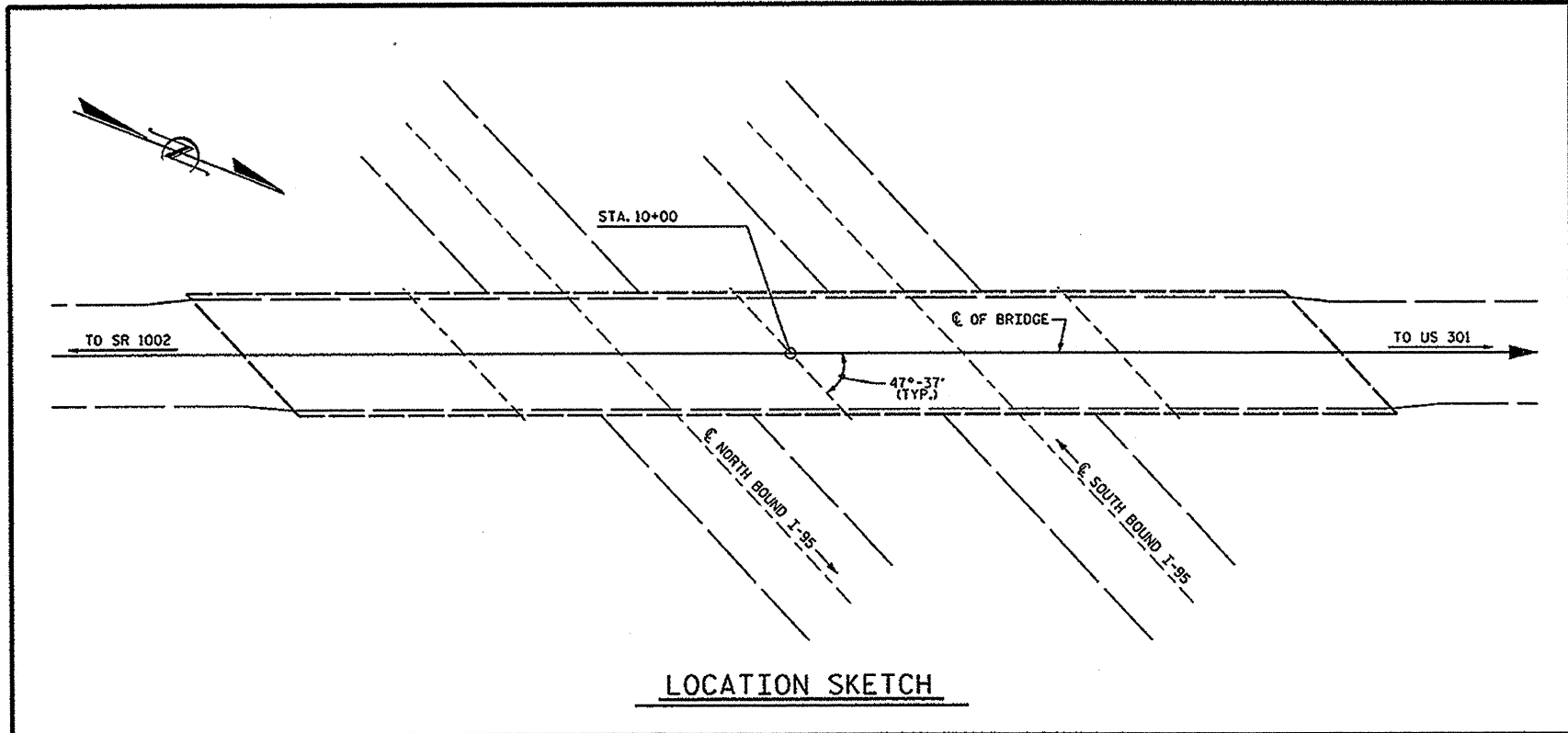
REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			5		
2			6		

TOTAL SHEETS: 21



DRAWN BY: D.V. JOYNER DATE: 6/12
 CHECKED BY: F. ASEFNIA DATE: 7/12

23-JUL-2012 15:10
 S:\PDS\POC\Squad C\Preservation\Project\B-5545, Harnett\57, 66, 80\Final\7.13.12\Dgn_files\B-5545_enu_66_harnett.dgn
 mwj/cor



NOTES:

REMOVAL OF THE EXISTING GIRDERS SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE ROADWAY.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

THE ANCHOR BOLTS SHALL BE BASED ON A MINIMUM OF 9" EMBEDMENT INTO EXISTING CONCRETE CAP AND SHALL BE INSTALLED BASED ON MANUFACTURER'S RECOMMENDATIONS.

EXISTING ANCHOR BOLTS ARE TO BE CUT FLUSH WITH THE EXISTING CAP. BOLTS ENDS SHALL BE COATED WITH AN APPROVED EPOXY PAINT.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL		
	APPROXIMATE LBS. STRUCTURAL STEEL	ELASTOMERIC BEARING
SUPERSTRUCTURE	LBS.	LUMP SUM
TOTAL	73,304	LUMP SUM

PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 10+00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE NO. 66 OVER I-95
 ON SR 1793 BETWEEN
 SR 1002 AND US 301

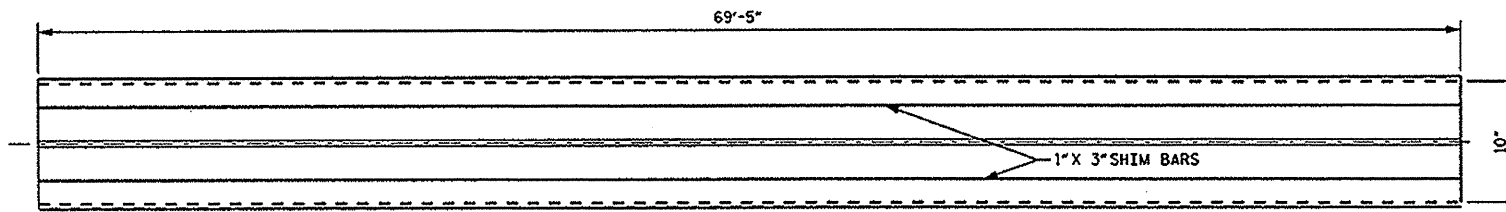
REVISIONS				SHEET NO.
NO.	BY	DATE	NO.	DATE
1			2	
2			4	

TOTAL SHEETS: 21

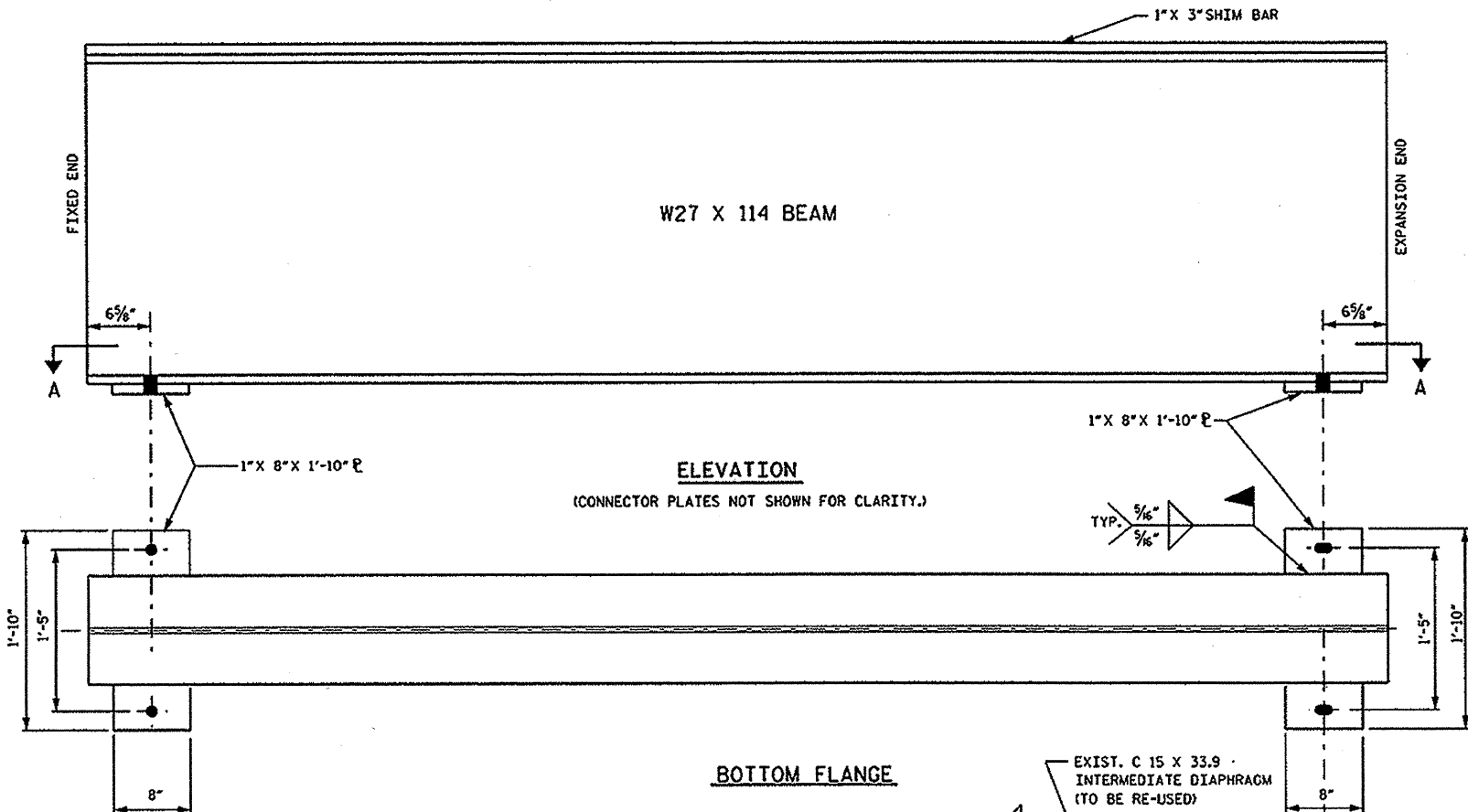


DRAWN BY: D.V. JOYNER DATE: 6/12
 CHECKED BY: F. ASEFNIA DATE: 7/12

23-82-2012 15:10
 S:\PDS\POC\Squad C\Preservation\Project\B-5545, Harnett ST, 66, 80\Final.7.13.12\0gn_files\B-5545.smu.66.harnett.dgn
 mvelton

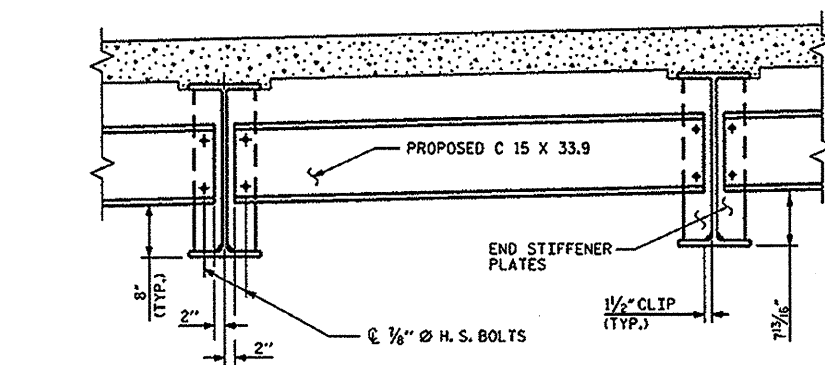


TOP FLANGE

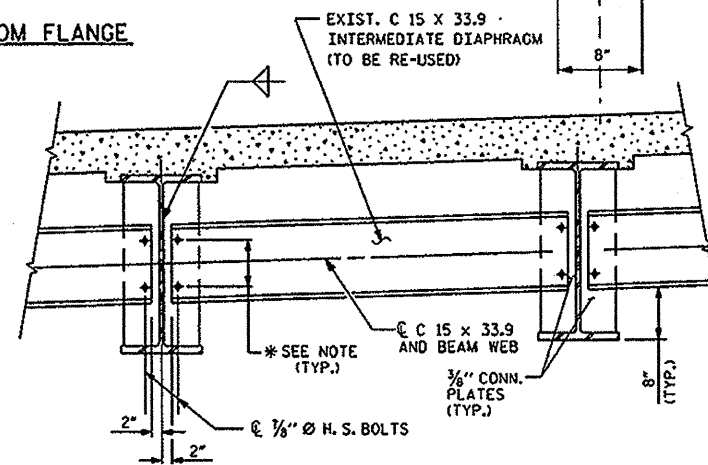


ELEVATION

(CONNECTOR PLATES NOT SHOWN FOR CLARITY.)



TYPICAL BENT DIAPHRAGM



TYPICAL INTERMEDIATE DIAPHRAGM

GENERAL NOTES:

- 1) ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
- 2) ALL STEEL IS TO BE SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 OF THE STANDARD SPECIFICATIONS. DO NOT PAINT THE EXTERIOR SIDE OF 1"x3" SHIM BARS ALONG THE TOP FLANGE OF BEAMS, FIELDS WELOS AND SIDES OF SHIM BARS SHALL BE PREPARED AND FIELD PAINTED AS PER ARTICLE 1076-7 OF THE STANDARD SPECIFICATIONS.
- 3) UNLESS NOTED OTHERWISE, ALL STEEL ON THIS DRAWING SHALL MEET THE REQUIREMENTS OF AASHTO M270 (GRADE 50) AND IT'S SUPPLEMENTARY LONGITUDINAL CHARPY V-NOTCH TEST REQUIREMENTS (FOR AASHTO M270 ZONE 1). ASTM A-572 (GR 50) OR A-588 (GR 50) STEEL MAY BE SUBSTITUTED AS LONG AS THE SUPPLEMENTARY REQUIREMENTS TO THE ABOVE AASHTO SPECS ARE MET.
- 4) WEB STIFFENERS AND CONNECTOR PLATES AS NECESSARY PER DESIGN.
- 5) THE CONTRACTOR SHALL USE EXISTING UNDAMAGED INTERMEDIATE DIAPHRAGMS. THESE MEMBERS SHALL BE CLEANED AND NEW HOLES SHALL BE DRILLED ON THE WELDED SIDED AFTER SPACING VERIFICATION.
- 6) WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.
- 7) REMOVE GALVANIZING OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS AND PREPARE THE WELD AREAS AS PER ARTICLE 440-7 OF THE STANDARD SPECIFICATION.
- 8) AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE GALVANIZING HAS BEEN REMOVED OR DAMAGED SHALL BE REPAIRED AS PER STANDARD SPECIFICATIONS.

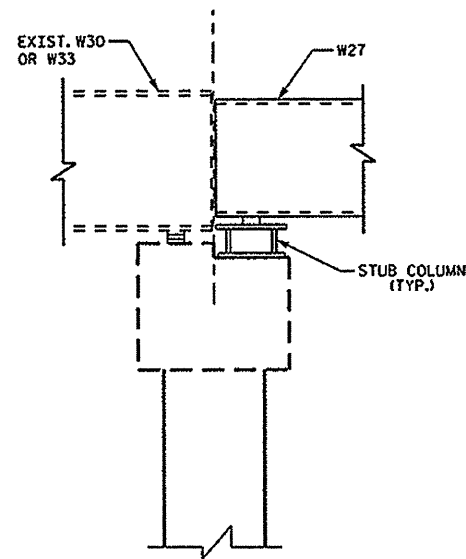
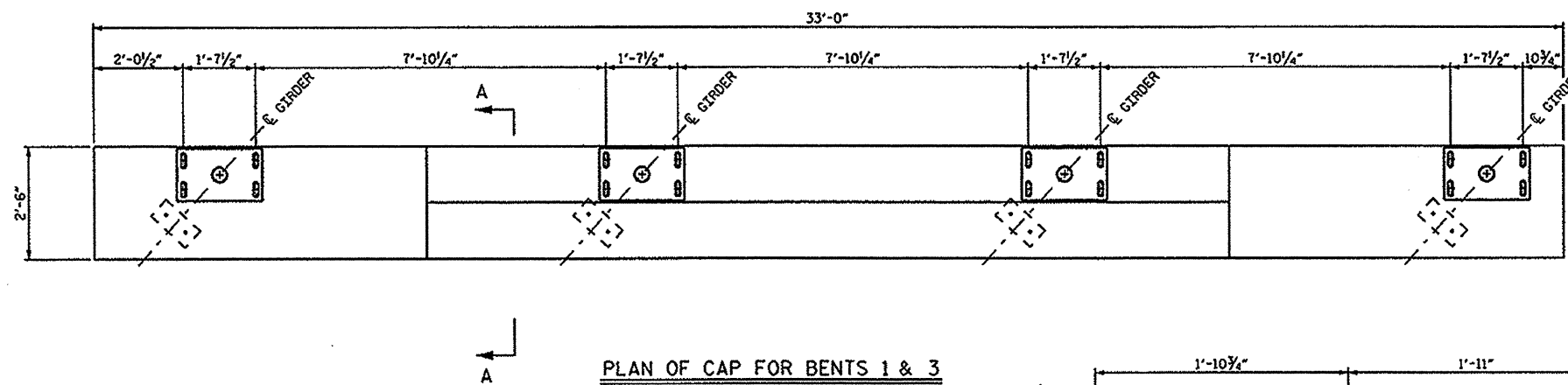
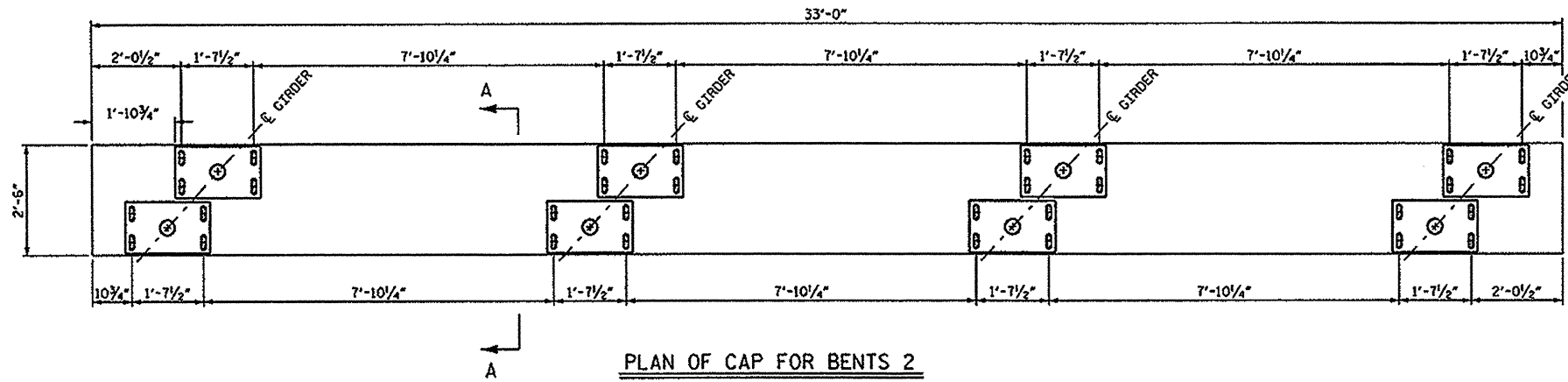
*THE CONTRACTOR SHALL VERIFY THE BOLT SPACING PRIOR TO FABRICATION.

PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 10+00 -L-

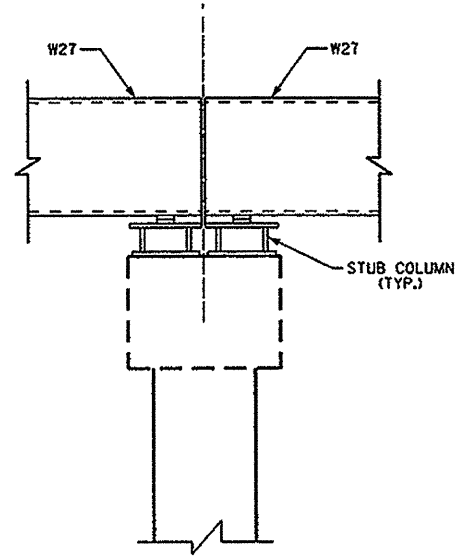


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
REPLACEMENT BEAM AND DIAPHRAGMS					
BRIDGE NO. 66					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			2		
2			3		
			SHEET NO. S-11		
			TOTAL SHEETS 21		

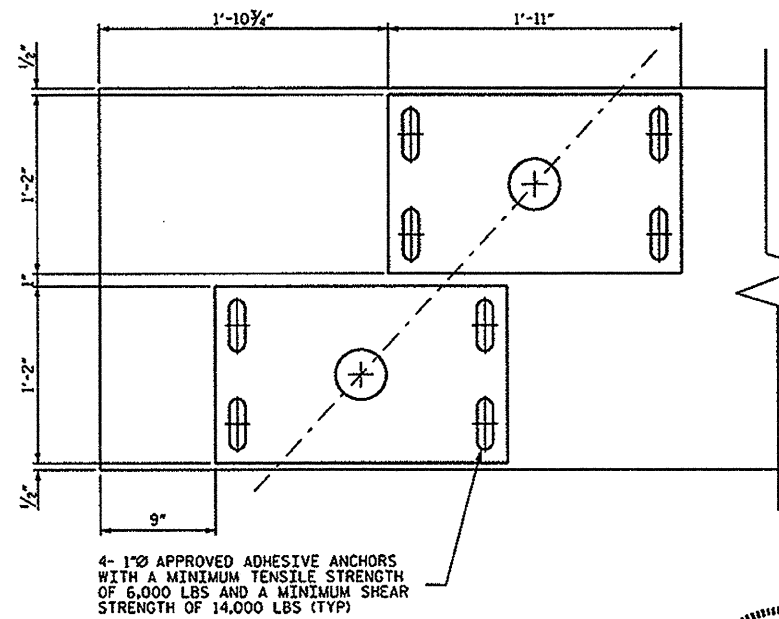
DRAWN BY: D.V. JOYNER DATE: 6/12
 CHECKED BY: F. ASEFNIA DATE: 7/12



SECTION A-A
BENTS 1 & 3



SECTION A-A
BENT 2



DETAIL OF BOTTOM PLATE ORIENTATION

NOTES
CUT EXISTING ANCHOR BOLTS FLUSH TO THE TOP OF CONCRETE.
BOLT ENDS SHALL BE COATED WITH AN APPROVED EPOXY PAINT.

PROJECT NO. B-5545
HARNETT COUNTY
STATION: 10+00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

INTERIOR BENTS

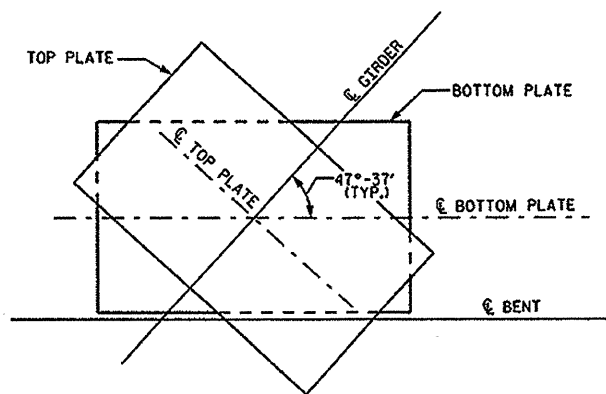
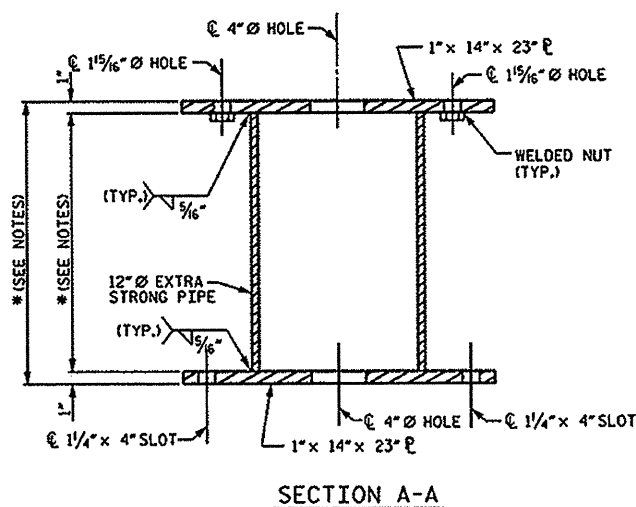
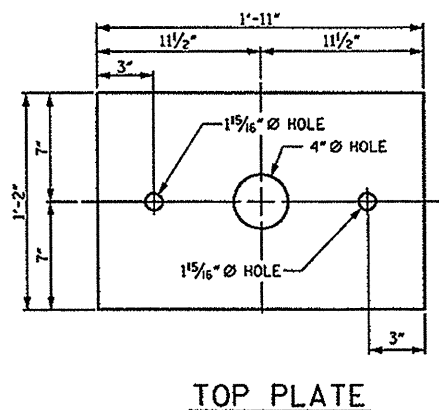
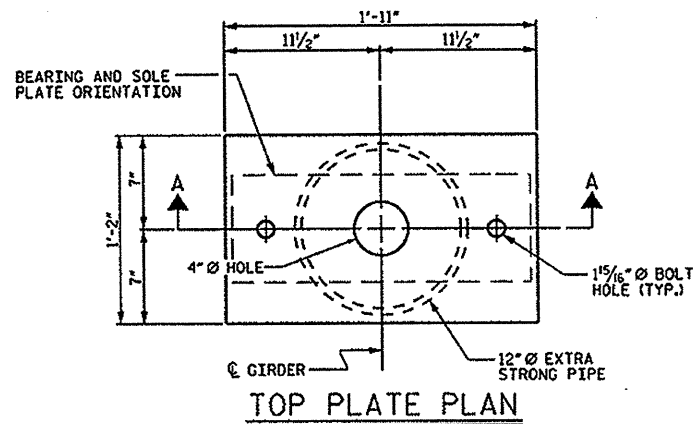
BRIDGE NO. 66

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-12
1			3			TOTAL SHEETS 21
2			4			

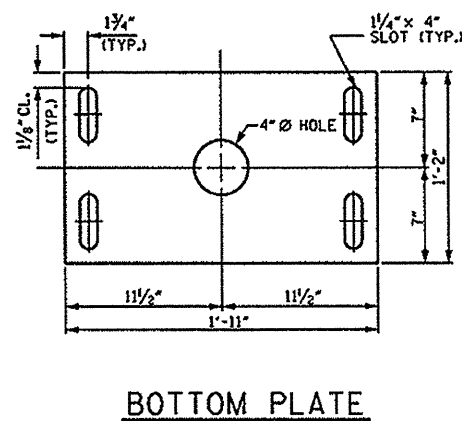
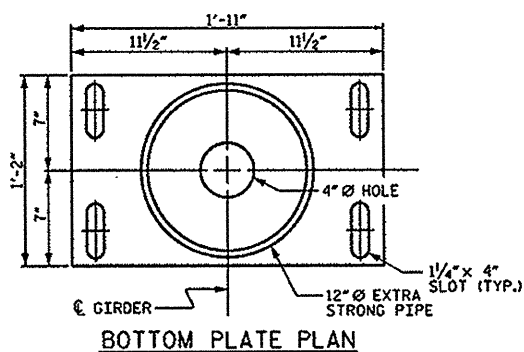
DRAWN BY: D.V. JOYNER DATE: 7/12
CHECKED BY: F. ASEFNIA DATE: 7/12

23-JUL-2012 15:13
S:\PDS\POC\Squad C\Preservation\Projects\B-5545, Harnett ST, 66, 80\Final_7.15.12\0gn_files\B-5545.emu.66.harnett.dgn
mweidm





TOP PLATE TO BOTTOM PLATE ORIENTATION (TYP.)
(HOLES, SLOTS, & SOLE PLATE HAVE BEEN OMITTED FOR CLARITY)



STUB COLUMN DETAILS
(STUB COLUMN - 16 REQUIRED)

BOTTOM PLATE

NOTES:

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL 12" Ø PIPES SHALL BE EXTRA STRONG ASTM SPECIFICATION A53 GRADE B OR A501 OR APPROVED EQUAL.

ALL STRUCTURAL STEEL PLATES SHALL CONFORM TO AASHTO M270 GRADE 50 STEEL OR APPROVED EQUAL.

ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

AFTER LOWERING EACH SPAN ONTO THE STUB COLUMN ASSEMBLY, TIGHTEN THE ANCHOR BOLTS AT BOTTOM PLATE PER MANUFACTURERS RECOMMENDATIONS.

ALL GALVANIZED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE PREPARED AND SHALL RECEIVE TWO COATS OF ORGANIC ZINC REPAIR PAINT, AS OUTLINED IN ARTICLE 1076-7 OF THE STANDARD SPECIFICATIONS.

THE TOP OF THE DECK ELEVATION SHALL REMAIN THE SAME DURING AND AFTER CONSTRUCTION.

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE BEAM PEDESTAL AND ALL OTHER STRUCTURAL STEEL PRIOR TO FABRICATION.

THE CONTRACTOR SHALL FIELD VERIFY THE STUB COLUMN ASSEMBLY HEIGHTS PRIOR TO FABRICATION.

* IN ORDER TO DETERMINE THE HEIGHT OF THE PEDESTAL, THE CONTRACTOR SHALL VERIFY THE DIFFERENCE OF ELEVATION FROM TOP OF THE BENTS TO THE BOTTOM OF THE EXISTING GIRDER AT EACH BEARING AND ADD 4".

PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 10+00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STRUCTURAL STEEL
 DETAILS

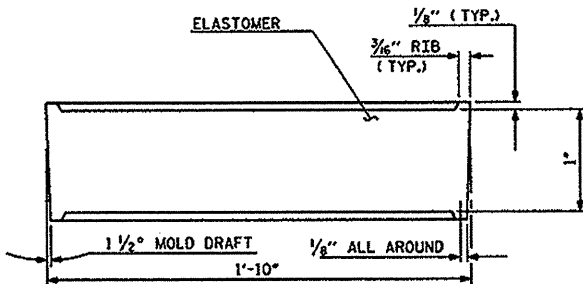
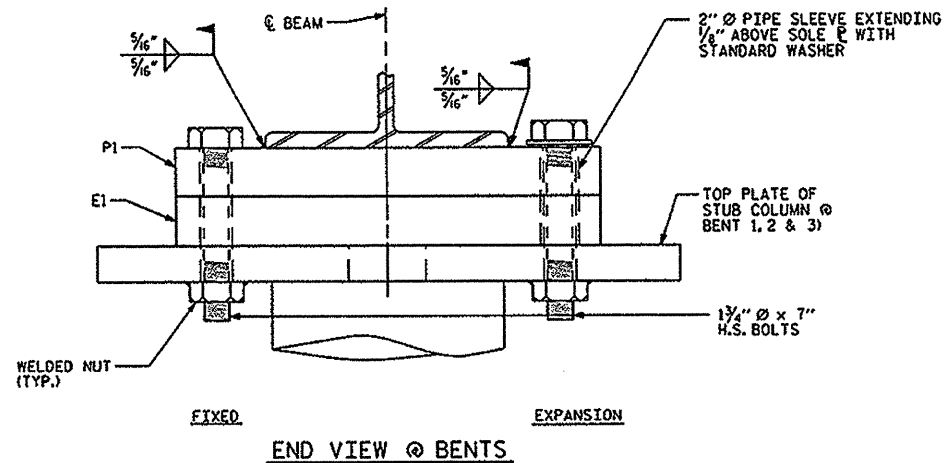
BRIDGE NO. 66

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

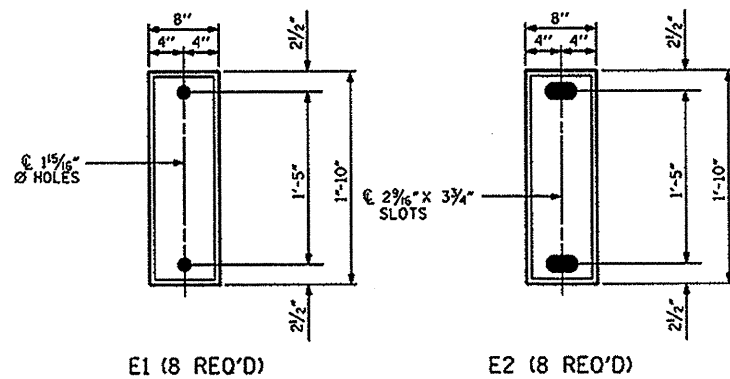
TOTAL SHEETS: 21



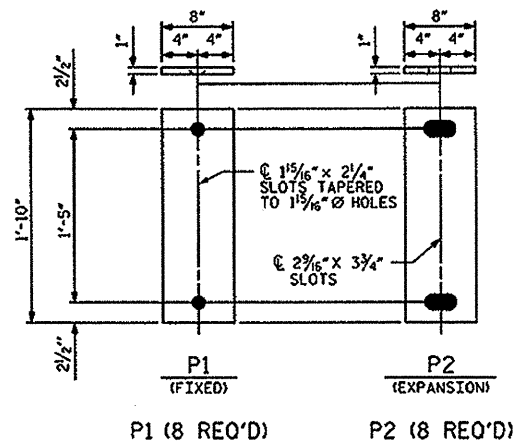
DRAWN BY: D.V. JOYNER DATE: 7-12
 CHECKED BY: F. ASEFNIA DATE: 7-12



TYPICAL SECTION OF ELASTOMERIC BEARINGS



PLAN VIEW OF ELASTOMERIC BEARING
TYPE I



SOLE PLATE DETAILS ("P")

NOTES

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

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

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

SOLE PLATES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

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

REMOVE GALVANIZING OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS AND PREPARE THE WELD AREAS AS PER ARTICLE 440-7 OF THE STANDARD SPECIFICATION.

AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE GALVANIZING HAS BEEN REMOVED OR DAMAGED SHALL BE STANDARD SPECIFICATIONS.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

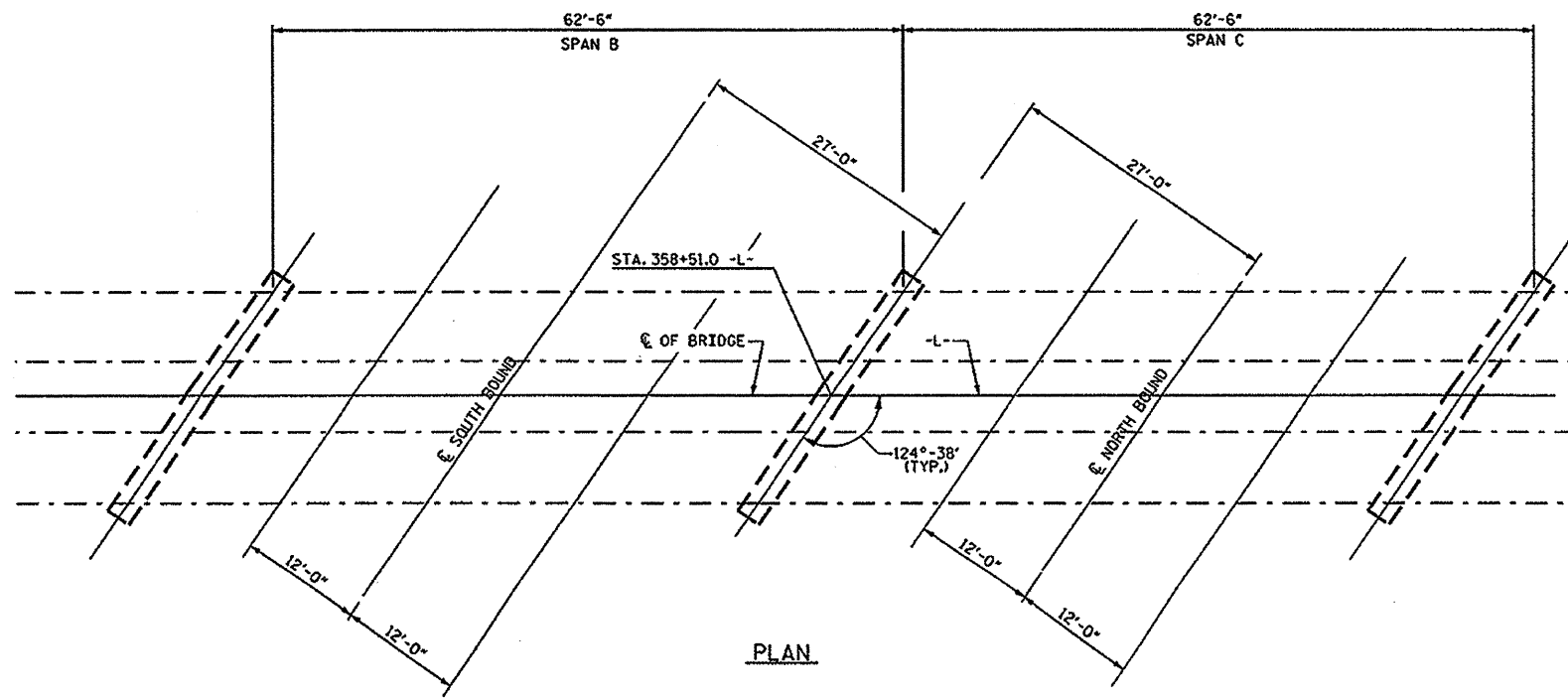
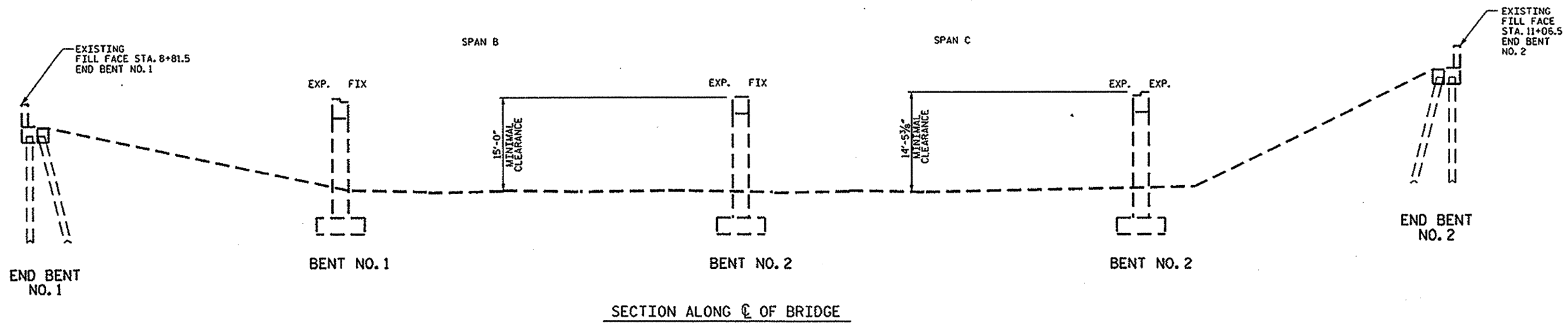
FOR HIGH STRENGTH BOLTS, SEE STANDARD SPECIFICATIONS.

PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 10+00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
ELASTOMERIC BEARING DETAILS			
BRIDGE NO. 66			
REVISIONS			SHEET NO.
NO.	BY	DATE	5-14
1		3	10/76
2		4	21



DRAWN BY: M. WELDON DATE: 07/12
 CHECKED BY: E. ASEFINA DATE: 07/12



PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 358+51.0 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE NO. 80 OVER I-95
 ON SR 1808 BETWEEN
 SR 1806 AND US 301

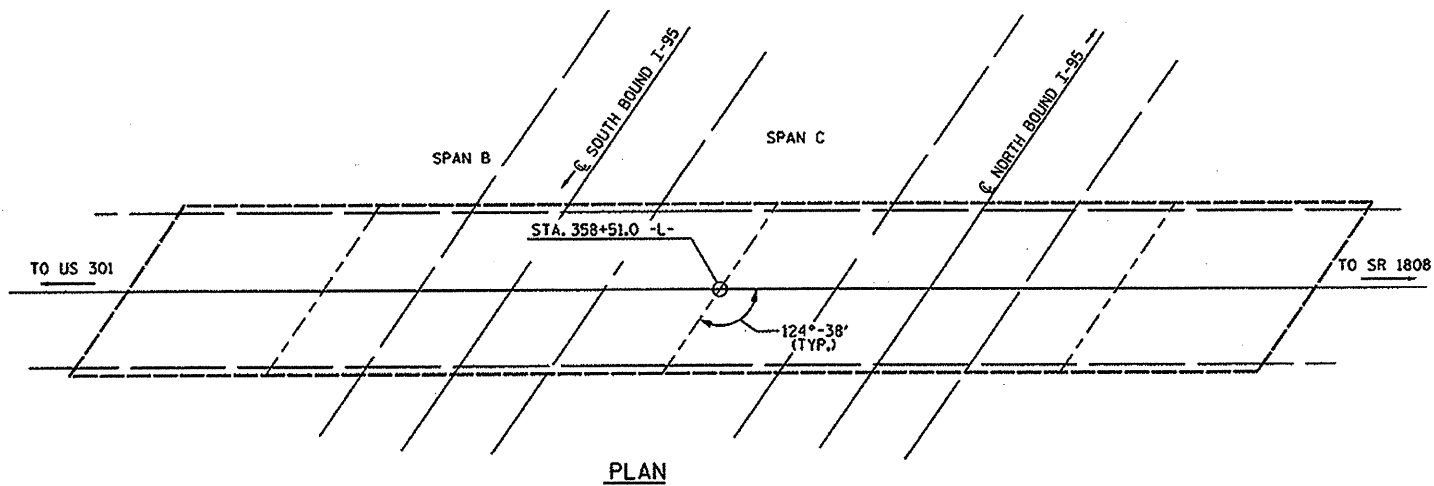
REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			20		
2			41		

TOTAL SHEETS 21



DRAWN BY: M. WELDON DATE: 7/2012
 CHECKED BY: F. ASEFNIA DATE: 7/2012

23-JUL-2012 15:16
 S:\PDS\POC\Squad C\Preservation\Projects\B-5545, Harnett ST, 66, 80\Ind, 7, 13, 12\0gn, files\B-5545, amu, 80, harnett.dgn
 thepilot



LOCATION SKETCH

NOTES:

REMOVAL OF THE EXISTING GIRDERS SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE ROADWAY.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

THE ANCHOR BOLTS SHALL BE BASED ON A MINIMUM OF 9" EMBEDMENT INTO EXISTING CONCRETE CAP AND SHALL BE INSTALLED BASED ON MANUFACTURER'S RECOMMENDATION.

EXISTING ANCHOR BOLTS ARE TO BE CUT FLUSH WITH THE EXISTING CAP. BOLT ENDS SHALL BE COATED WITH AN APPROVED EPOXY PAINT.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	APPROXIMATE LBS. STRUCTURAL STEEL	ELASTOMERIC BEARING
SUPERSTRUCTURE	LBS.	LUMP SUM
TOTAL	76,124	LUMP SUM

PROJECT NO. B-5545

HARNETT COUNTY

STATION: 358+51.0 -L-

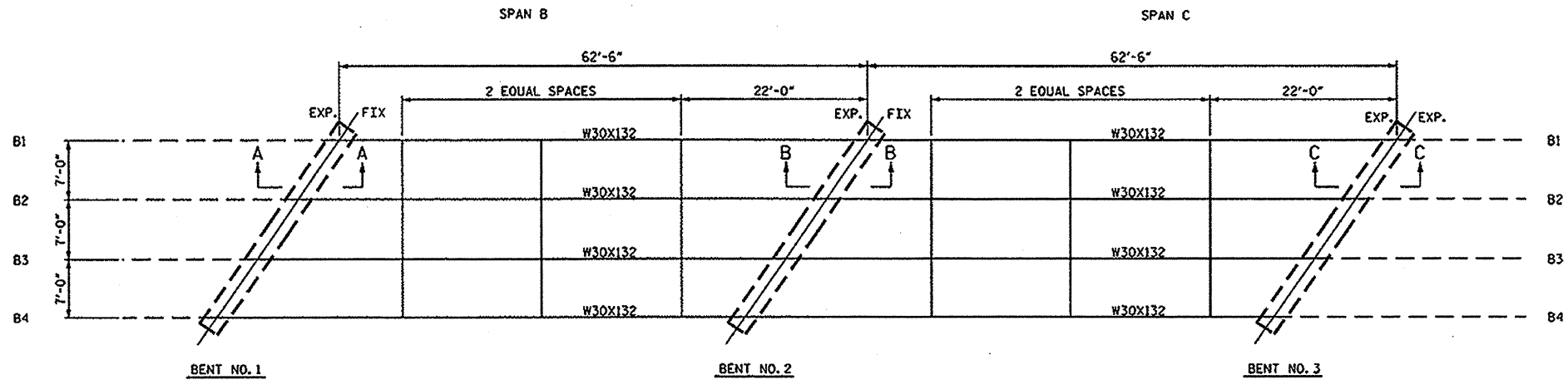
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE NO. 80 OVER I-95
ON SR 1808 BETWEEN
SR 1806 AND US 301

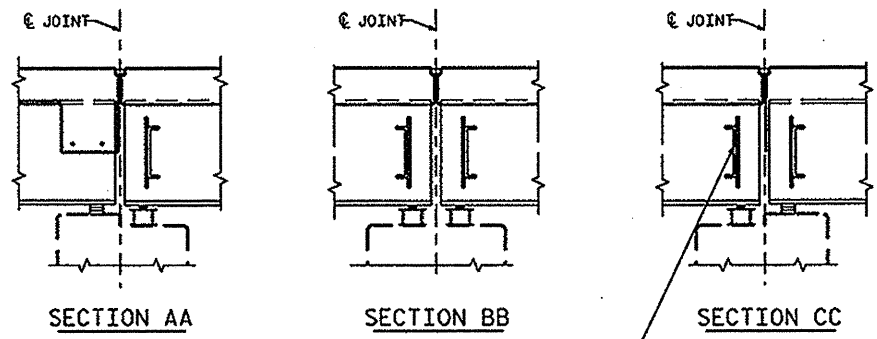


REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-16
1			2			TOTAL SHEETS 21
2			4			

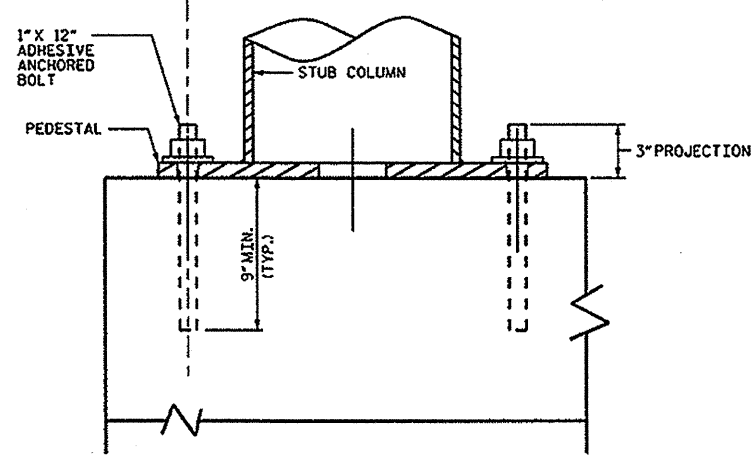
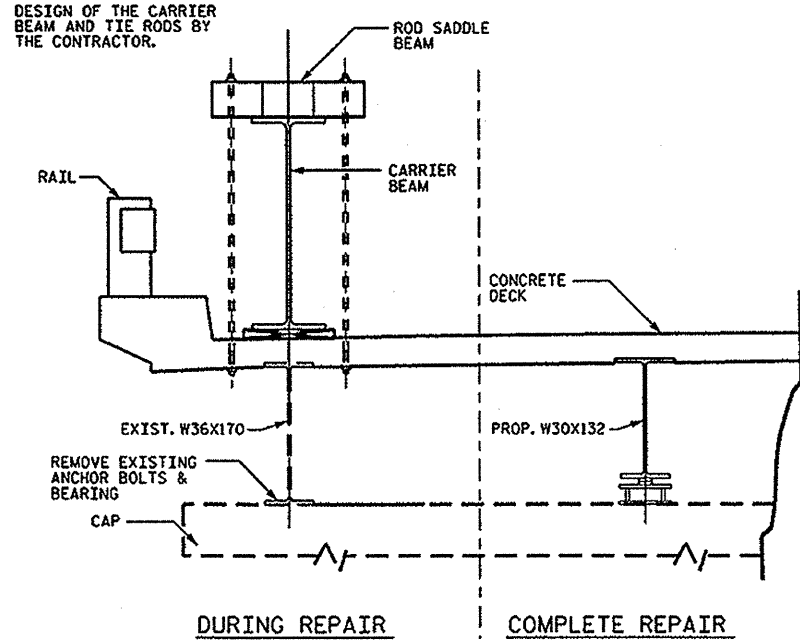
DRAWN BY: M. WELDON DATE: 7/2012
CHECKED BY: F. ASEFNIA DATE: 7/2012



FRAMING PLAN



PROPOSED NEW BENT DIAPHRAGM (TYP.)



PROPOSED ADHESIVE ANCHOR DETAIL

PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 358+51.0 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 EXISTING
 SUPERSTRUCTURE
 FRAMING PLAN
 TYPICAL SECTIONS
 BRIDGE NO. 80

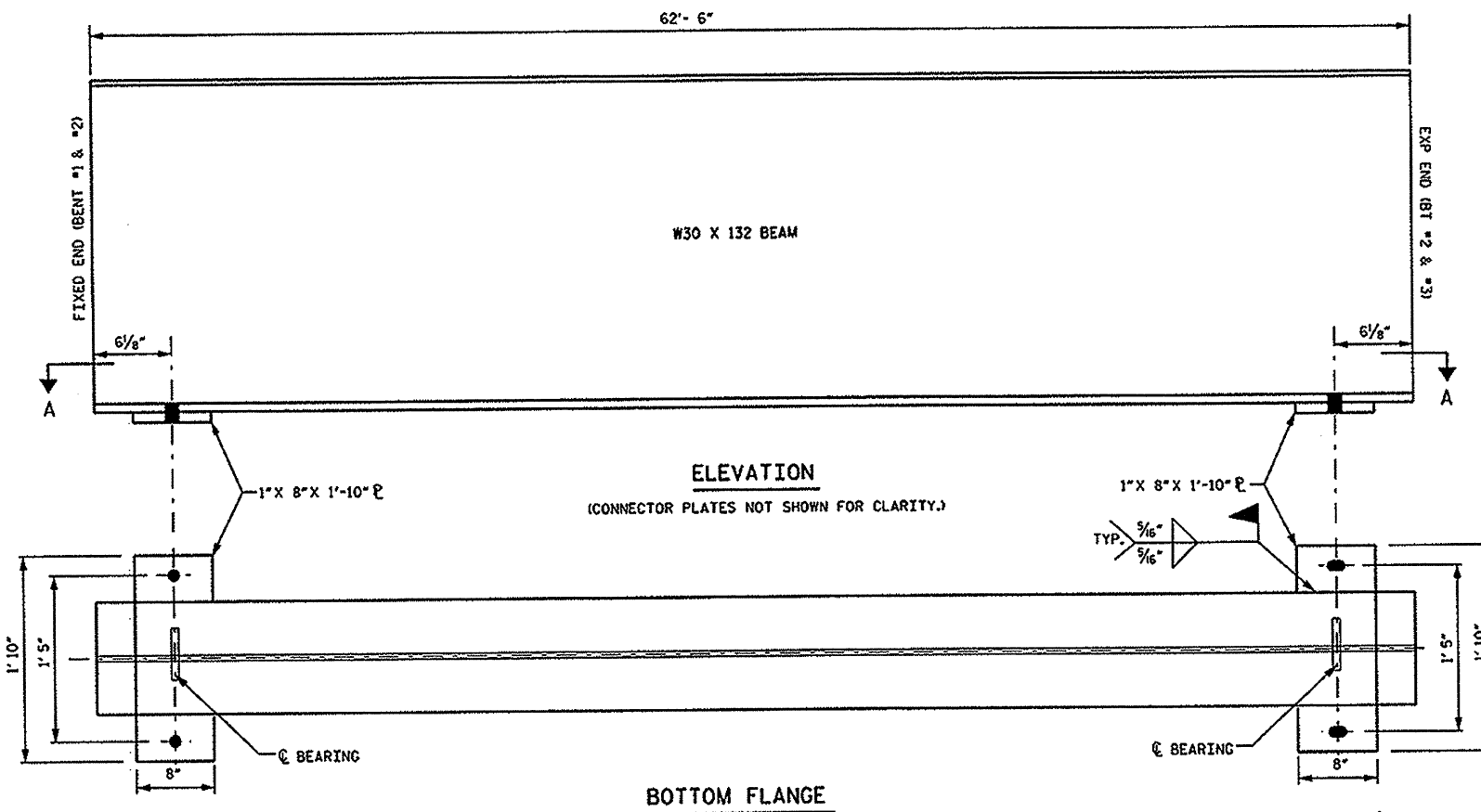
REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

TOTAL SHEETS 21



DRAWN BY: M. WELDON DATE: 7/2012
 CHECKED BY: F. ASEFNIA DATE: 7/2012

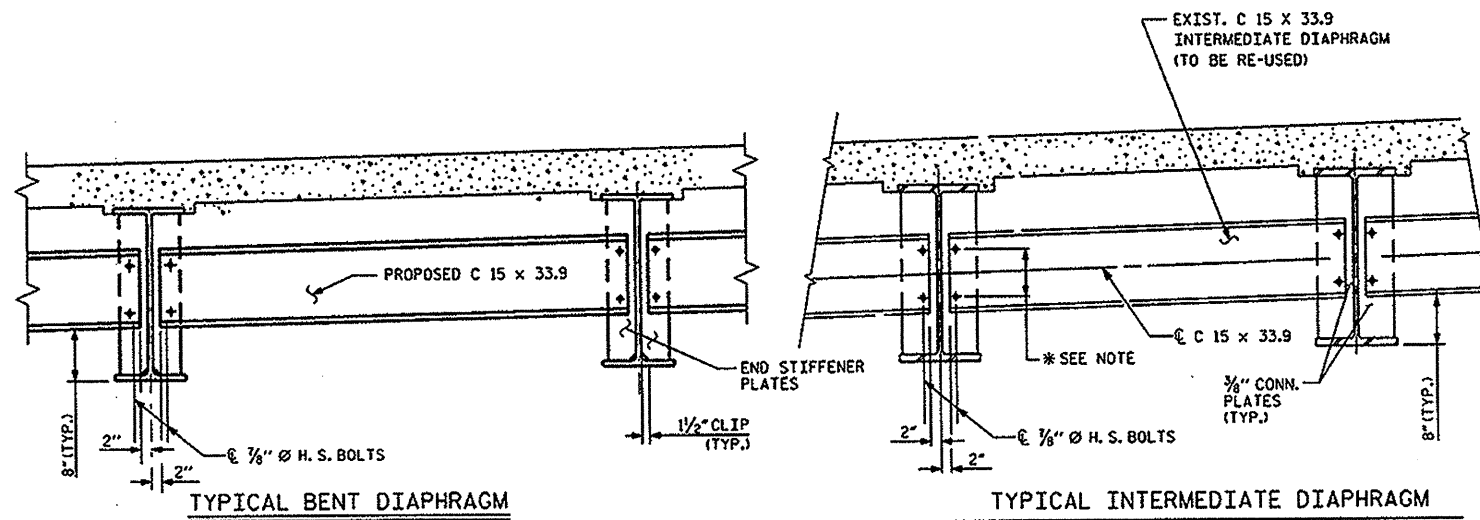
23-JUL-2012 15:17
 S:\PROJ\04\Squad C\Preservation\Projects\B-5545, Harnett\51, 66, 80\Final\7.13.12\09n_files\B-5545.smu.80.harnett.dgn
 mweldon



GENERAL NOTES:

- 1) ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
- 2) ALL STEEL IS TO BE SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 OF THE STANDARD SPECIFICATIONS.
- 3) UNLESS NOTED OTHERWISE, ALL STEEL ON THIS DRAWING SHALL MEET THE REQUIREMENTS OF AASHTO M270 (GRADE 50) AND ITS SUPPLEMENTARY LONGITUDINAL CHARPY V-NOTCH TEST REQUIREMENTS (FOR AASHTO M270 ZONE 1). ASTM A-572 (GR 50) OR A-588 (GR 50) STEEL MAY BE SUBSTITUTED AS LONG AS THE SUPPLEMENTARY REQUIREMENTS TO THE ABOVE AASHTO SPECS ARE MET.
- 4) WEB STIFFENERS AND CONNECTOR PLATES AS NECESSARY PER DESIGN.
- 5) THE CONTRACTOR SHALL USE EXISTING UNDAMAGED INTERMEDIATE DIAPHRAGMS. THESE MEMBERS SHALL BE CLEANED AND NEW HOLES SHALL BE DRILLED ON THE WELDED SIDED AFTER SPACING VERIFICATION.
- 6) WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.
- 7) REMOVE GALVANIZING OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS AND PREPARE THE WELD AREAS AS PER ARTICLE 440-7 OF THE STANDARD SPECIFICATION.
- 8) AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE GALVANIZING HAS BEEN REMOVED OR DAMAGED SHALL BE REPAIRED AS PER STANDARD SPECIFICATIONS.

* THE CONTRACTOR SHALL VERIFY THE BOLT SPACING PRIOR TO FABRICATION.



PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 358+051.0 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**REPLACEMENT BEAM
 AND DIAPHRAGMS**

BRIDGE NO. 80

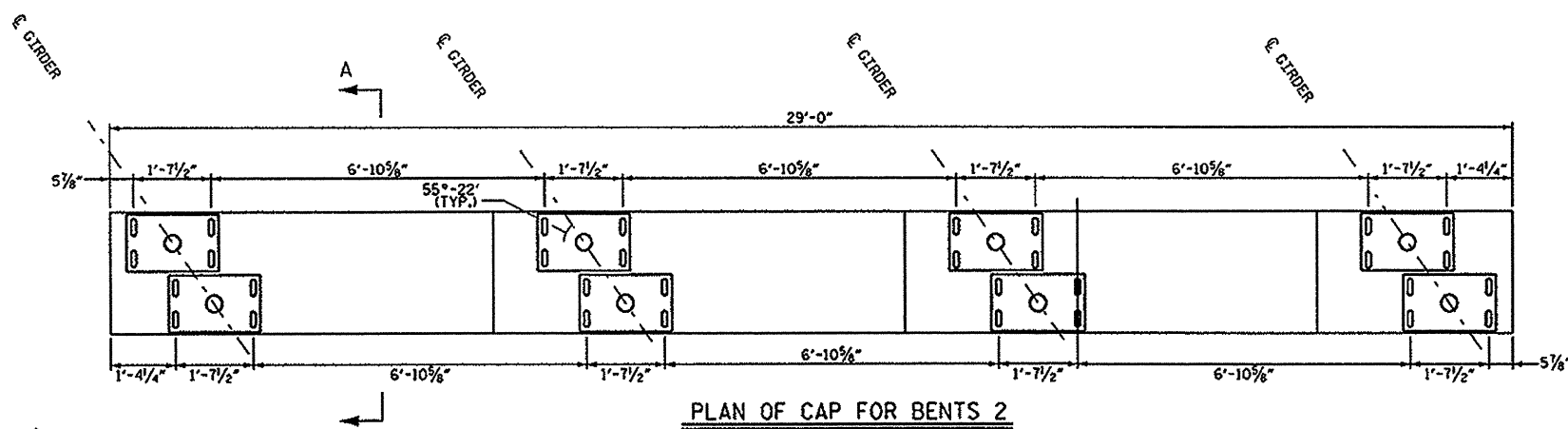
REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-18
 TOTAL SHEETS 21

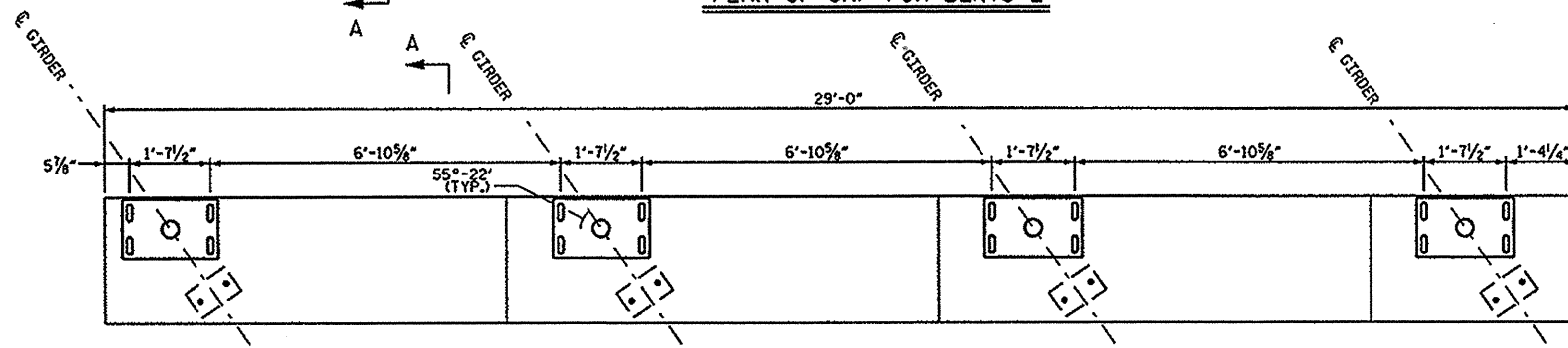


DRAWN BY: M. WELDON DATE: 7/2012
 CHECKED BY: F. ASEFNIA DATE: 7/2012

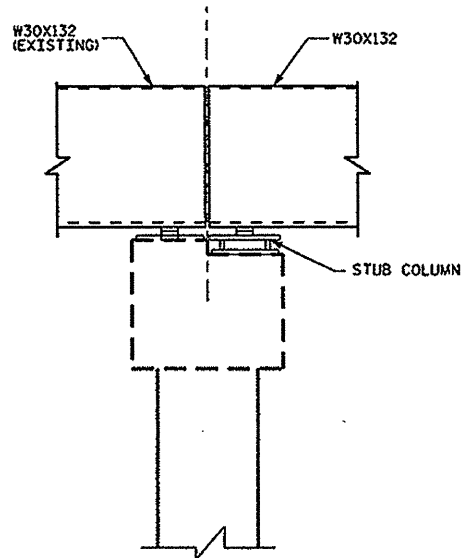
NOTES
 CUT EXISTING ANCHOR BOLTS FLUSH TO THE TOP OF CONCRETE.
 BOLT ENDS SHALL BE COATED WITH AN APPROVED EPOXY PAINT.



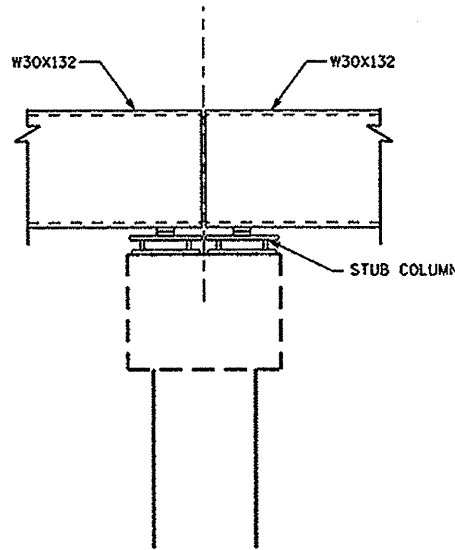
PLAN OF CAP FOR BENTS 2



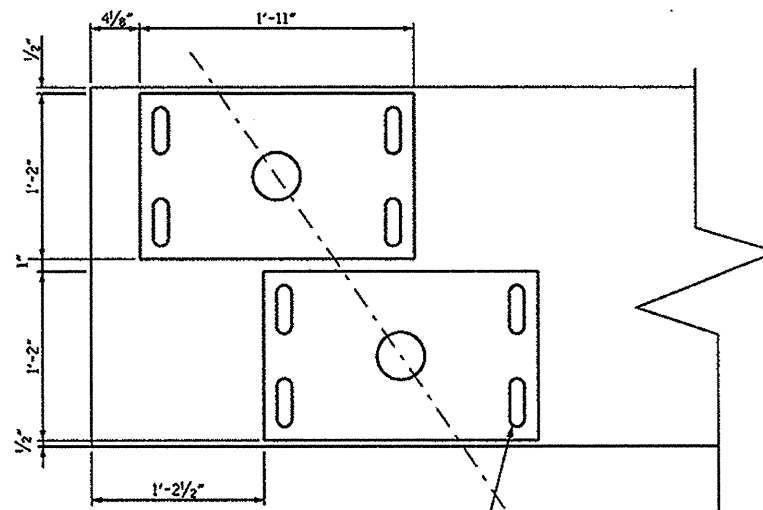
PLAN OF CAP FOR BENTS 1 & 3



SECTION A-A
 BENTS 1 & 3
 (TYPICAL)



SECTION A-A
 BENT 2



4- 1/2" APPROVED ADHESIVE ANCHORS
 WITH A MINIMUM TENSILE STRENGTH
 OF 6,000 LBS AND A MINIMUM SHEAR
 STRENGTH OF 14,000 LBS (TYP)

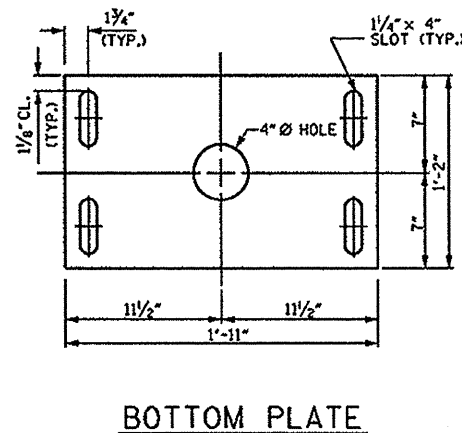
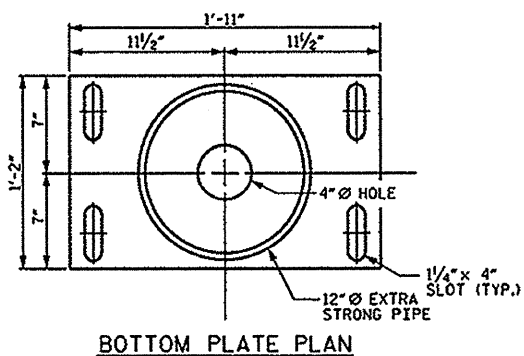
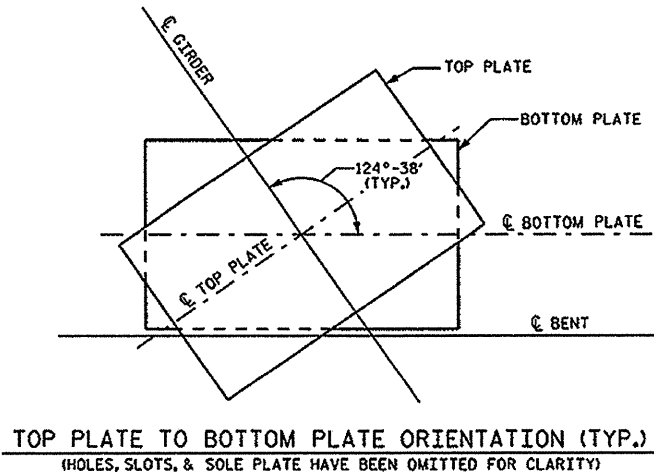
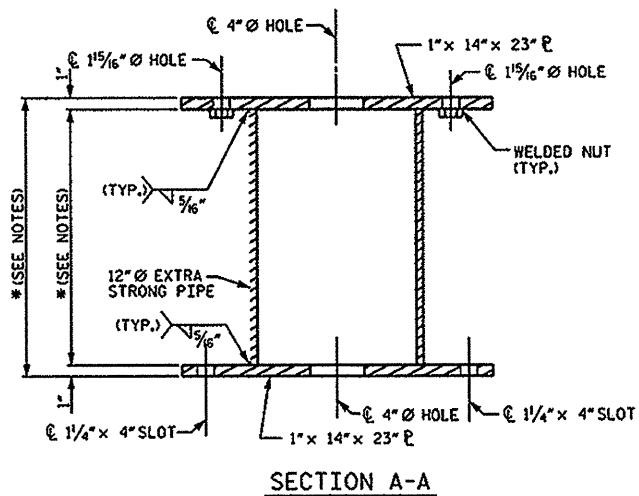
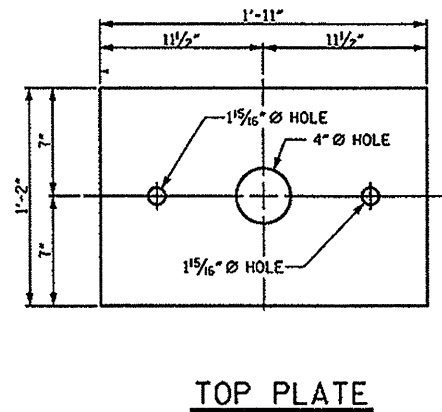
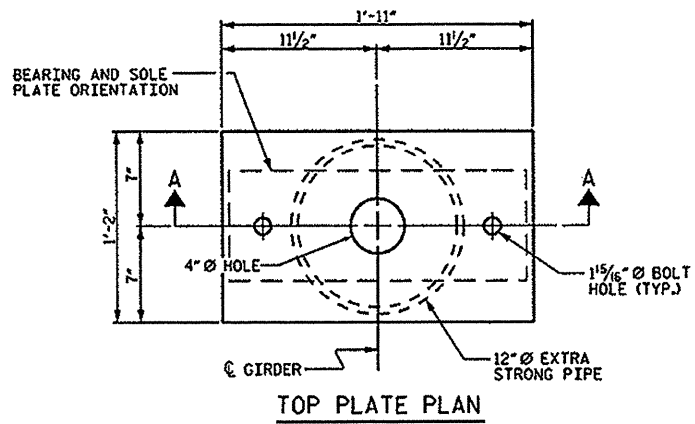
**DETAIL OF BOTTOM
 PLATE ORIENTATION**

PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 358+51.0 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
INTERIOR BENTS			
BRIDGE NO. 80			
REVISIONS			
NO.	BY	DATE	NO.
1			2
2			4
SHEET NO. S-19			TOTAL SHEETS 21



DRAWN BY: M. WELDON DATE: 7/12
 CHECKED BY: E. ASEFITA DATE: 7/12



STUB COLUMN DETAILS
(STUB COLUMN - 16 REQUIRED)

NOTES:

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL 12" Ø PIPES SHALL BE EXTRA STRONG ASTM SPECIFICATION A53 GRADE B OR A501 OR APPROVED EQUAL.

ALL STRUCTURAL STEEL PLATES SHALL CONFORM TO AASHTO M270 GRADE 50 STEEL OR APPROVED EQUAL.

ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

AFTER LOWERING EACH SPAN ONTO THE STUB COLUMN ASSEMBLY, TIGHTEN THE ANCHOR BOLTS AT BOTTOM PLATE PER MANUFACTURERS RECOMMENDATIONS.

ALL GALVANIZED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE PREPARED AND SHALL RECEIVE TWO COATS OF ORGANIC ZINC REPAIR PAINT, AS OUTLINED IN ARTICLE 1076-7 OF THE STANDARD SPECIFICATIONS.

THE TOP OF THE DECK ELEVATION SHALL REMAIN THE SAME DURING AND AFTER CONSTRUCTION.

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE BEAM PEDESTAL AND ALL OTHER STRUCTURAL STEEL PRIOR TO FABRICATION.

THE CONTRACTOR SHALL FIELD VERIFY THE STUB COLUMN ASSEMBLY HEIGHTS PRIOR TO FABRICATION.

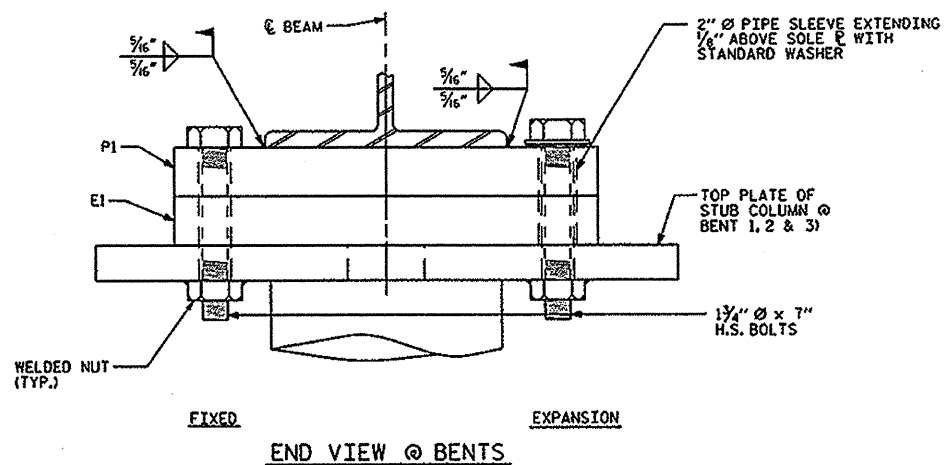
* THE PROPOSED PEDESTALS ARE INTENDED TO ADD 6" TO THE CLEARANCE OF THE BRIDGE, IN ORDER TO DETERMINE THE HEIGHT OF THE PEDESTAL, THE CONTRACTOR SHALL VERIFY THE DIFFERENCE OF ELEVATION FROM TOP OF THE BENTS TO THE BOTTOM OF THE EXISTING GIRDER AT EACH BEARING AND ADD 6".

PROJECT NO. B-5545
HARNETT COUNTY
 STATION: 358+51.0 -L-

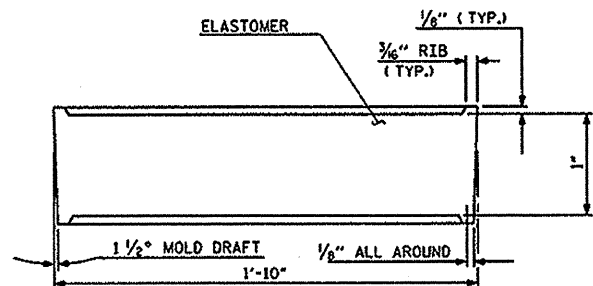
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
STRUCTURAL STEEL DETAILS			
BRIDGE NO. 80			
REVISIONS			SHEET NO.
NO.	BY	DATE	S-20
1			TOTAL SHEETS
2			21



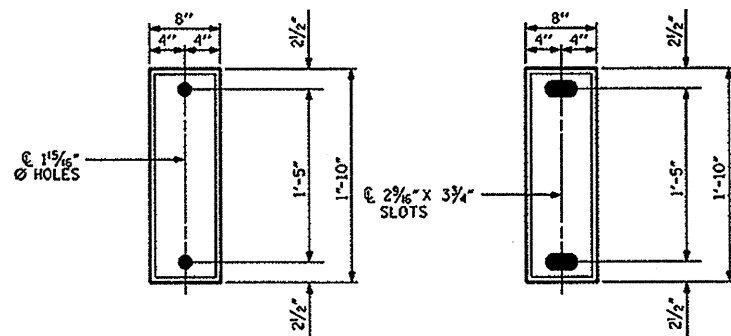
DRAWN BY: M. WELDON DATE: 7/2012
 CHECKED BY: E. ASEFIA DATE: 7/2012



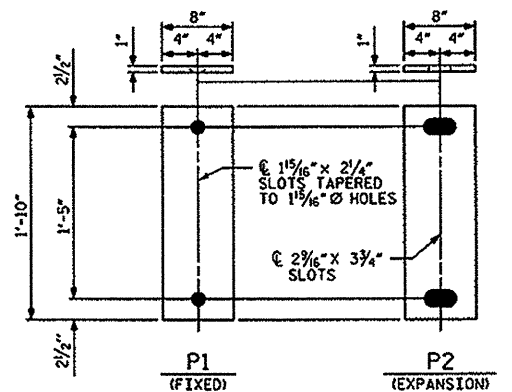
FIXED EXPANSION
END VIEW @ BENTS



TYPICAL SECTION OF ELASTOMERIC BEARINGS



E1 (8 REQ'D) E2 (8 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE I



SOLE PLATE DETAILS ("P")

NOTES

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

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

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

SOLE PLATES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

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

REMOVE GALVANIZING OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS AND PREPARE THE WELD AREAS AS PER ARTICLE 440-7 OF THE STANDARD SPECIFICATION.

AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE GALVANIZING HAS BEEN REMOVED OR DAMAGED SHALL BE STANDARD SPECIFICATIONS.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

FOR HIGH STRENGTH BOLTS, SEE STANDARD SPECIFICATIONS.

PROJECT NO. B-5545
HARNETT COUNTY
STATION: 358+51.0 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELASTOMERIC BEARING
DETAILS

BRIDGE NO. 80

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

TOTAL SHEETS: 21



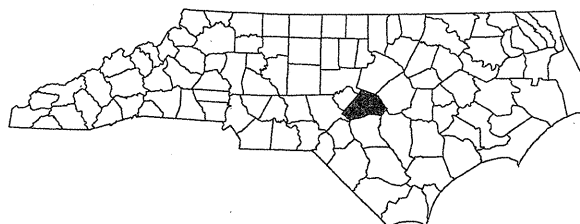
DRAWN BY: M. WELDON DATE: 07/2012
CHECKED BY: F. ASSENI DATE: 07/2012

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

HARNETT COUNTY

DIVISION 6



BRIDGE GIRDER REPLACEMENT

BRIDGE #57 – SR 1002 (LONG BRANCH RD.) OVER I-95

BRIDGE #66 – SR 1793 (POPE RD.) OVER I-95

BRIDGE #80 – SR 1808 (JONESBORO RD.) OVER I-95

INDEX OF SHEETS

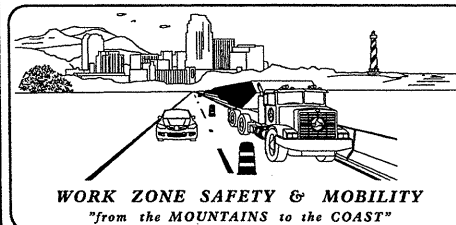
SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LEGEND AND LIST OF ROADWAY STANDARD DRAWINGS
TMP-2	GENERAL NOTES
TMP-3	PHASING
TMP 4-4A	BRIDGE #57 - LONG BRANCH RD. ROAD CLOSURE
TMP-4B	BRIDGE #57 - LONG BRANCH RD. DETOUR ROUTE
TMP 5-5A	BRIDGE #66 - POPE RD. ROAD CLOSURE
TMP-5B	BRIDGE #66 - POPE RD. DETOUR ROUTE
TMP 6-6A	BRIDGE #80 - JONESBORO RD. ROAD CLOSURE
TMP-6B	BRIDGE #80 - JONESBORO RD. DETOUR ROUTE
TMP-7	I-95 TEMPORARY ROAD CLOSURE-TRAFFIC DETOURED VIA INTERCHANGE RAMPS
TMP-8	I-95 SOUTHBOUND AT BRIDGE #66 - TEMPORARY ROAD CLOSURE TRAFFIC DETOURED VIA INTERCHANGE RAMPS

SHEET NO.
TMP-1

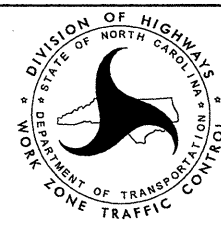
TRAFFIC MANAGEMENT STRATEGY

PROPOSED REPAIRS TO BRIDGES WILL BE PERFORMED USING A COMBINATION OF DAY AND TIME RESTRICTED ROAD CLOSURES. REFER TO SHEET TMP-3 FOR PHASING.

6/1/2012 U:\Traffic\TrafficControl\B-5545 Harnett\TCP\Plan Sheets\B-5545_TC_TMP_01_TITLE.dgn Coulter



PLAN PREPARED FOR NCDOT BRIDGE MANAGEMENT UNIT
RALEIGH, NC



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

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

APPROVED: *Betsy L. Watson*
DATE: *June 6, 2012*



B-5545

LEGEND

- DIRECTION OF TRAFFIC FLOW
 - DIRECTION OF PEDESTRIAN TRAFFIC FLOW
 - WORK AREA PAVEMENT REMOVAL
 - NORTH ARROW
 - TYPE III BARRICADE
 - CONE
 - DRUM SKINNY DRUM TUBULAR MARKER
 - CHANGEABLE MESSAGE SIGN (CMS)
 - FLAGGER
 - AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)
 - FLASHING ARROW BOARD (TYPE C)
 - LAW ENFORCEMENT
 - TRUCK MOUNTED ATTENUATOR (TMA)
 - PORTABLE CONCRETE BARRIER (PCB)
 - TEMPORARY CRASH CUSHION
 - TEMPORARY SHORING
 - WORK ZONE SIGN-PORTABLE
 - WORK ZONE SIGN-STATIONARY
 - WORK ZONE SIGN-STATIONARY OR PORTABLE
- SIGNALS**
- EXISTING PROPOSED TEMPORARY
- PAVEMENT MARKINGS**
- EXISTING PAVEMENT MARKING (GRAY)
 - SKIP LINES
 - MINI-SKIP LINES
 - SOLID LINES
- PAVEMENT MARKING SYMBOLS**
- PAVEMENT MARKING SYMBOLS
 - EXISTING PAVEMENT MARKING SYMBOLS (HOLLOW)
 - ONLY PAVEMENT MARKING ALPHANUMERIC CHARACTERS
- PAVEMENT MARKERS**
- CRYSTAL/CRYSTAL
 - CRYSTAL/RED
 - YELLOW/YELLOW

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS

6/1/2012 Us:\Traffic\Control\B-5545 Harnett\TCP\Plan Sheets\B-5545_TC_TMP_OIA_RDWYSTDSLEGEND.dgn

<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	<p>APPROVED: _____ DATE: _____</p>		<p>LEGEND & ROADWAY STANDARD DRAWINGS</p>
--	------------------------------------	--	--

GENERAL NOTES

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

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

LANE CLOSURE TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
I-95	6:00 A.M. - 9:00 P.M. MONDAY THRU THURSDAY AND 6:00 A.M. FRIDAY - 9:00 P.M. SUNDAY

B) DO NOT CLOSE OR NARROW A LANE OF TRAFFIC, DETAIN AND/OR ALTER THE TRAFFIC FLOW ON OR DURING HOLIDAYS, HOLIDAY WEEKENDS, OR ANY OTHER TIME WHEN TRAFFIC IS UNUSUALLY HEAVY, INCLUDING THE FOLLOWING SCHEDULES:

ROAD NAME
ALL ROADS

HOLIDAY & HOLIDAY WEEKEND LANE CLOSURE TIME RESTRICTIONS

- 1) FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- 2) FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31ST TO 9:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 9:00 P.M. THE FOLLOWING TUESDAY.
- 3) FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 9:00 P.M. MONDAY.
- 4) FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 9:00 P.M. TUESDAY.
- 5) FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 9:00 P.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY; THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
- 6) FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 9:00 P.M. TUESDAY.
- 7) FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 9:00 P.M. MONDAY.
- 8) FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
- 9) FOR DAYTONA 500 CAR RACE, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF THE DAYTONA 500 CAR RACE TO 9:00 P.M. MONDAY AFTER THE WEEK OF THE DAYTONA 500 CAR RACE.
- 10) FOR THE DAYTONA BIKE WEEK, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY BEFORE THE WEEK OF THE DAYTONA BIKE WEEK TO 9:00 P.M. MONDAY AFTER THE WEEK OF THE DAYTONA BIKE WEEK.
- 11) FOR THE MYRTLE BEACH BIKE WEEKEND, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY BEFORE THE WEEK OF THE MYRTLE BEACH BIKE WEEKEND TO 9:00 P.M. MONDAY AFTER THE WEEKEND OF THE MYRTLE BEACH BIKE WEEKEND.

HOLIDAYS AND HOLIDAY WEEKENDS SHALL INCLUDE NEW YEARS, EASTER, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING, CHRISTMAS, DAYTONA 500, DAYTONA BIKE WEEKS, AND MYRTLE BEACH BIKE WEEKENDS. THE CONTRACTOR SHALL SCHEDULE HIS WORK SO THAT LANE CLOSURES ARE NOT REQUIRED DURING THESE PERIODS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

C) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
I-95	6:00 A.M. - 10:00 P.M. MONDAY THRU THURSDAY AND 6:00 A.M. FRIDAY - 10:00 P.M. SUNDAY

LANE AND SHOULDER CLOSURE REQUIREMENTS

- D) LANE CLOSURES ARE REQUIRED WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN ANY PORTION OF A TRAVEL LANE. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E) INSTALL ALL LANE CLOSURES ACCORDING TO THE PLANS, ROADWAY STANDARD DRAWINGS (1101.02), OR AS DIRECTED BY THE ENGINEER.
- F) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER. COVER OR LAY DOWN SIGNS, AND TURN OFF ARROW BOARDS AND MESSAGE BOARDS.
- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- H) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- I) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.


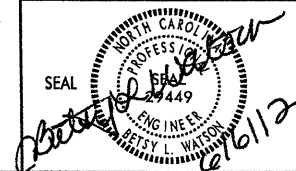
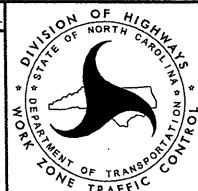
ROAD CLOSURES

- J) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY ROAD CLOSURE.
- K) FURNISH AND INSTALL SIGNING AND DEVICES FOR ROAD CLOSURES ACCORDING TO THE TRANSPORTATION MANAGEMENT PLAN. COVER OR REMOVE ALL SIGNS AND DEVICES FOR ROAD CLOSURES WHEN NOT IN EFFECT.
- L) FURNISH AND INSTALL OFFSITE-DETOUR ROUTE SIGNING AS SHOWN IN THE TRANSPORTATION MANAGEMENT PLAN. COVER OR REMOVE OFFSITE-DETOUR SIGNING WHEN THE DETOUR IS NOT IN OPERATION. ALL DETOUR ROUTES MUST BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTING.
- M) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- N) WHEN CLOSING A ROADWAY OR DRIVEWAY PLACE TYPE III BARRICADES COMPLETELY ACROSS THE ROADWAY OR FROM CURB TO CURB. ATTACH BARRICADE MOUNTED "ROAD CLOSED" SIGN R11-2 AT ALL CLOSURE LOCATIONS. IF LOCAL TRAFFIC IS TO BE MAINTAINED STAGGER THE BARRICADES TO ALLOW ACCESS.
- O) INSTALL SIGNS BEFORE BARRICADES WHEN CLOSING A ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING A ROADWAY TO TRAFFIC. INSTALL/REMOVE ROAD CLOSURE SIGNS AND BARRICADES IN A CONTINUOUS OPERATION AND WITHIN THE SAME CALENDAR DAY.

MISCELLANEOUS

- P) USE LAW ENFORCEMENT TO DIRECT TRAFFIC AND ENFORCE ROAD CLOSURES. LOCATIONS SHOWN IN THE PLANS ARE APPROXIMATE AND MAY BE REVISED AS THE OFFICER OR THE ENGINEER DEEM NECESSARY.
- Q) ALL DIMENSIONS AND STATIONS IN THE TRANSPORTATION MANAGEMENT PLAN AND PHASING ARE APPROXIMATE (+/-); FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
- R) PLACE ALL CHANGEABLE MESSAGE SIGNS AS NEEDED IN THE LOCATIONS AND WITH THE WORD MESSAGES AS SHOWN IN THE PLAN OR AS DIRECTED BY THE ENGINEER TO PROVIDE ADVANCE WARNING TO THE PUBLIC DURING CONSTRUCTION.
- S) ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919) 733-4740 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.
- T) REPLACE ANY PAVEMENT MARKINGS ERADICATED OR DAMAGED BY CONSTRUCTION OPERATIONS WITH PAINT, BEFORE OPENING LANES TO TRAFFIC.

6/1/2012 U:\Traffic\TrafficControl\B-5545 Harrnet\TCP\Plan Sheets\B-5545_TC_TMP_02_GENERALNOTES.dgn

 Stantec Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27609 Tel. (919) 851-6868 Fax. (919) 851-7024 www.stantec.com License No. F-0672	APPROVED: _____ DATE: _____ 		<h2 style="margin: 0;">GENERAL NOTES</h2>
---	--	---	---

PHASING

DO NOT CLOSE BRIDGE #57, #66 OR #80 SIMULTANEOUSLY.

DO NOT CLOSE MORE THAN ONE DIRECTION OF I-95 SIMULTANEOUSLY AND ONLY AT ONE BRIDGE LOCATION AT A TIME.

PERFORM BRIDGE WORK SEQUENTIALLY, STARTING WITH BRIDGE #57, FOLLOWED BY #66, THEN #80. COMPLETE WORK ON EACH BRIDGE BEFORE PROCEEDING TO THE NEXT BRIDGE.

PHASE I

BRIDGE NO. 57-LONG BRANCH RD.

FOR REPLACEMENT OF GIRDERS CLOSE LONG BRANCH RD. FOR A PERIOD NOT TO EXCEED 28 CONSECUTIVE CALENDAR DAYS (SEE INTERMEDIATE CONTRACT TIMES) AS SHOWN ON SHEETS TMP-4, 4A, 4B.

FOR ROAD CLOSURES OF I-95 REFER TO SHEET TMP-7.

PHASE II

BRIDGE NO. 66-POPE RD.

FOR REPLACEMENT OF GIRDERS CLOSE POPE RD. FOR A PERIOD NOT TO EXCEED 42 CONSECUTIVE CALENDAR DAYS (SEE INTERMEDIATE CONTRACT TIMES) AS SHOWN ON SHEETS TMP-5, 5A, 5B.

FOR ROAD CLOSURES OF I-95 NORTHBOUND REFER TO SHEET TMP-7.
FOR ROAD CLOSURES OF I-95 SOUTHBOUND REFER TO SHEET TMP-8.


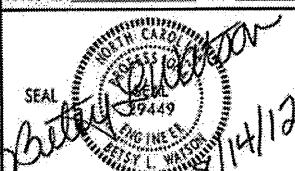

PHASE III

BRIDGE NO. 80-JONESBORO RD.

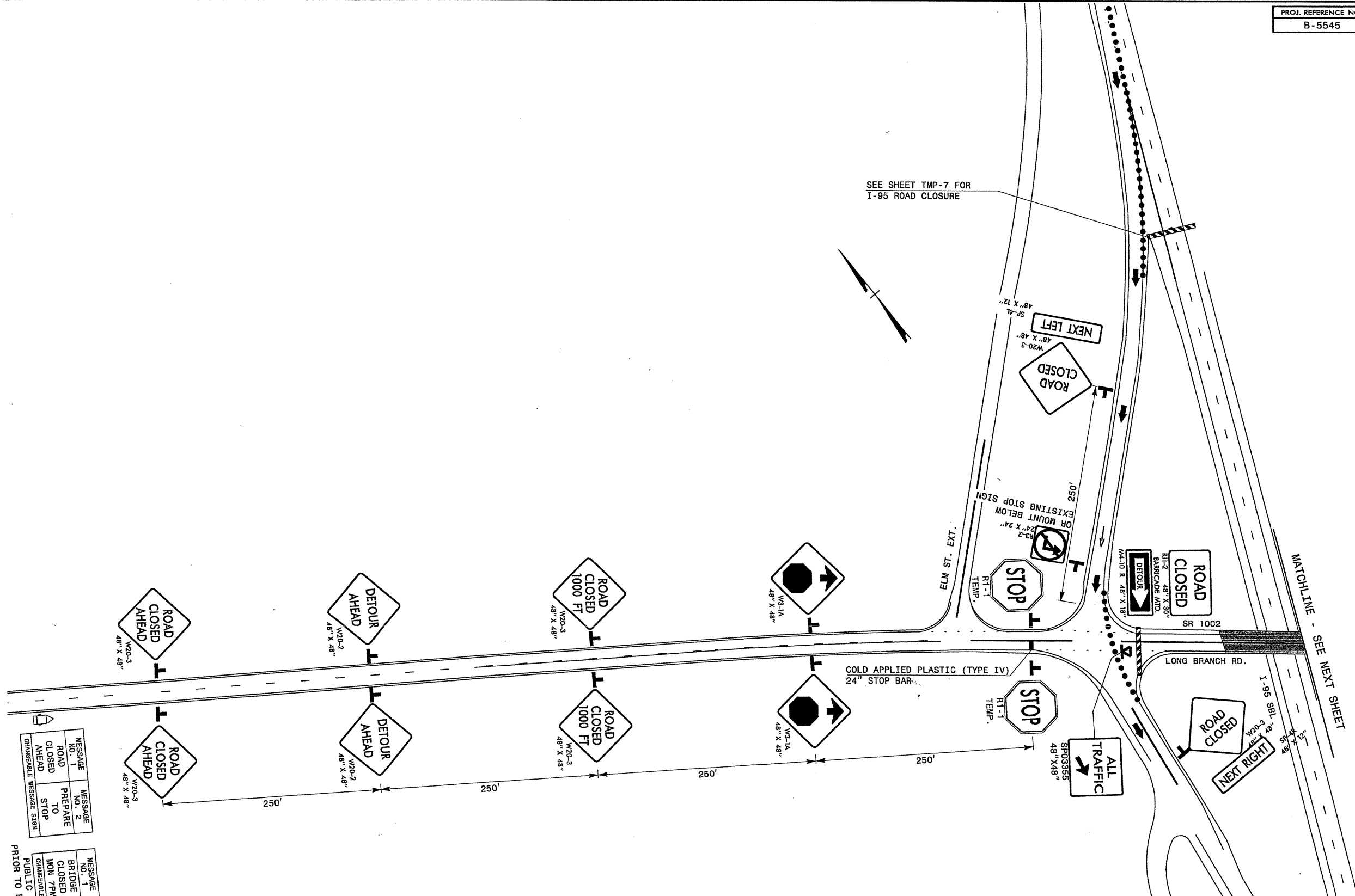
FOR REPLACEMENT OF GIRDERS CLOSE JONESBORO RD. FOR A PERIOD NOT TO EXCEED 28 CONSECUTIVE CALENDAR DAYS (SEE INTERMEDIATE CONTRACT TIMES) AS SHOWN ON SHEETS TMP-6, 6A, 6B.

FOR ROAD CLOSURES OF I-95 REFER TO SHEET TMP-7.

8/14/2018 10:30 AM C:\Users\harrnett\OneDrive\Documents\B-5545\TrafficControl\B-5545\TC_TMP_03_PHASING.dgn
 harrnett\TCN\Plan Sheets\B-5545\TC_TMP_03_PHASING.dgn

 Stantec	Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27605 Tel. (919) 851-6886 Fax. (919) 851-7024 www.stantec.com License No. F-6972	APPROVED: _____ DATE: _____ 		<h1 style="margin: 0;">PHASING</h1>
---	--	--	---	-------------------------------------

6/7/2012
 U:\Traffic\TrafficControl\B-5545 Harnett\TCP\Plan Sheets\B-5545-TC-TMP_04_BRIDGE-57_CLOSURE.dgn
 Coulter

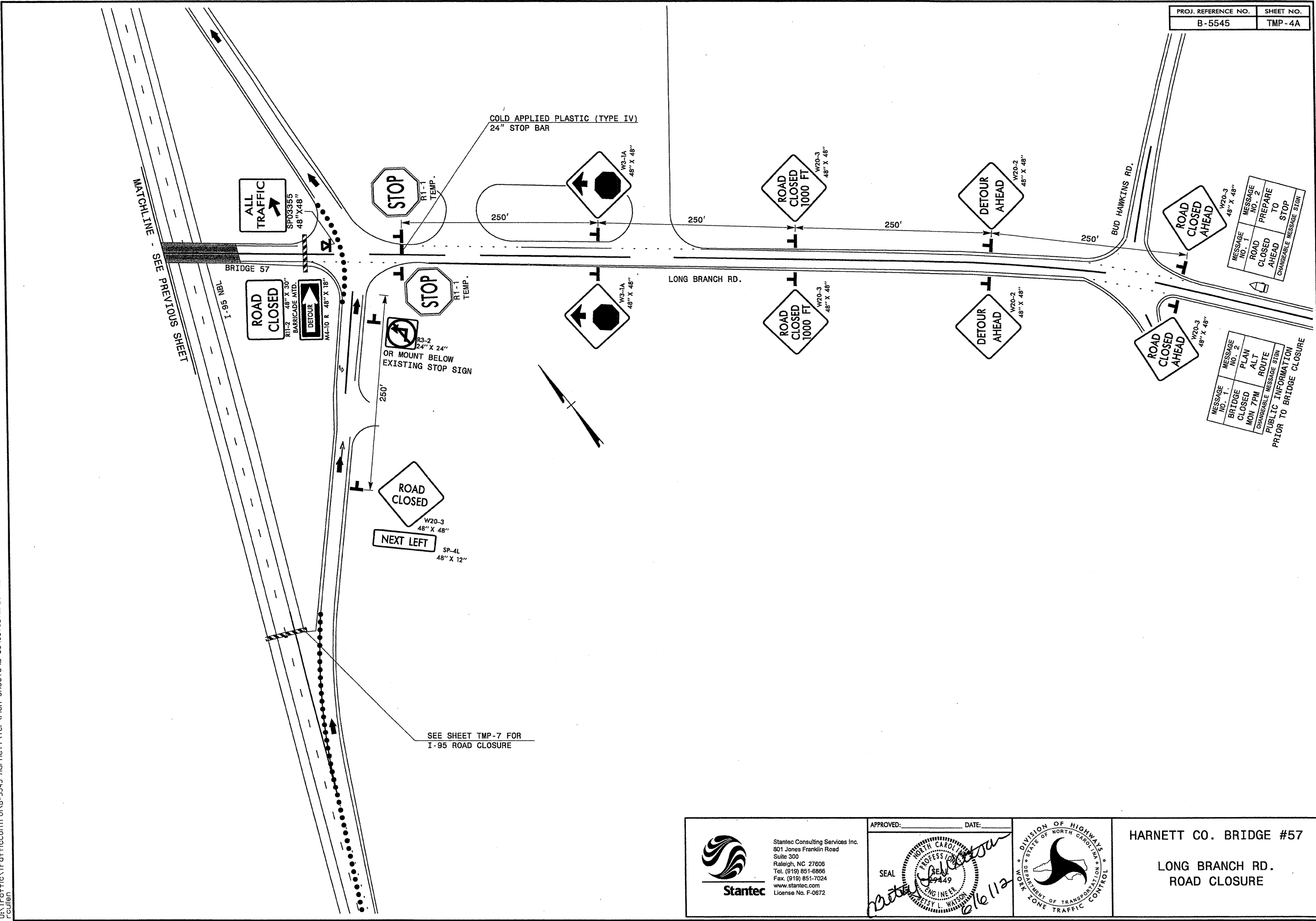


MESSAGE NO. 1	ROAD CLOSED AHEAD	MESSAGE NO. 2	PREPARE TO STOP
CHANGEABLE MESSAGE SIGN		CHANGEABLE MESSAGE SIGN	
MESSAGE NO. 1	BRIDGE CLOSED MON 7PM	MESSAGE NO. 2	ALT ROUTE
CHANGEABLE MESSAGE SIGN		CHANGEABLE MESSAGE SIGN	

PUBLIC INFORMATION PRIOR TO BRIDGE CLOSURE

<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6888 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 	<p>DIVISION OF HIGHWAYS DEPARTMENT OF TRANSPORTATION NORTH CAROLINA WORK ZONE TRAFFIC CONTROL</p>	<p>HARNETT CO. BRIDGE #57</p> <p>LONG BRANCH RD. ROAD CLOSURE</p>

6/1/2012 U:\Traffic\TrafficControl\B-5545 Harnett\TCP\Plan Sheets\B-5545_TC_TMP_04A_BRIDGE_57_CLOSURE.dgn






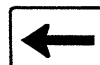

MESSAGE NO. 1
ROAD CLOSED AHEAD
CHANGEABLE MESSAGE SIGN

MESSAGE NO. 2
PREPARE TO STOP

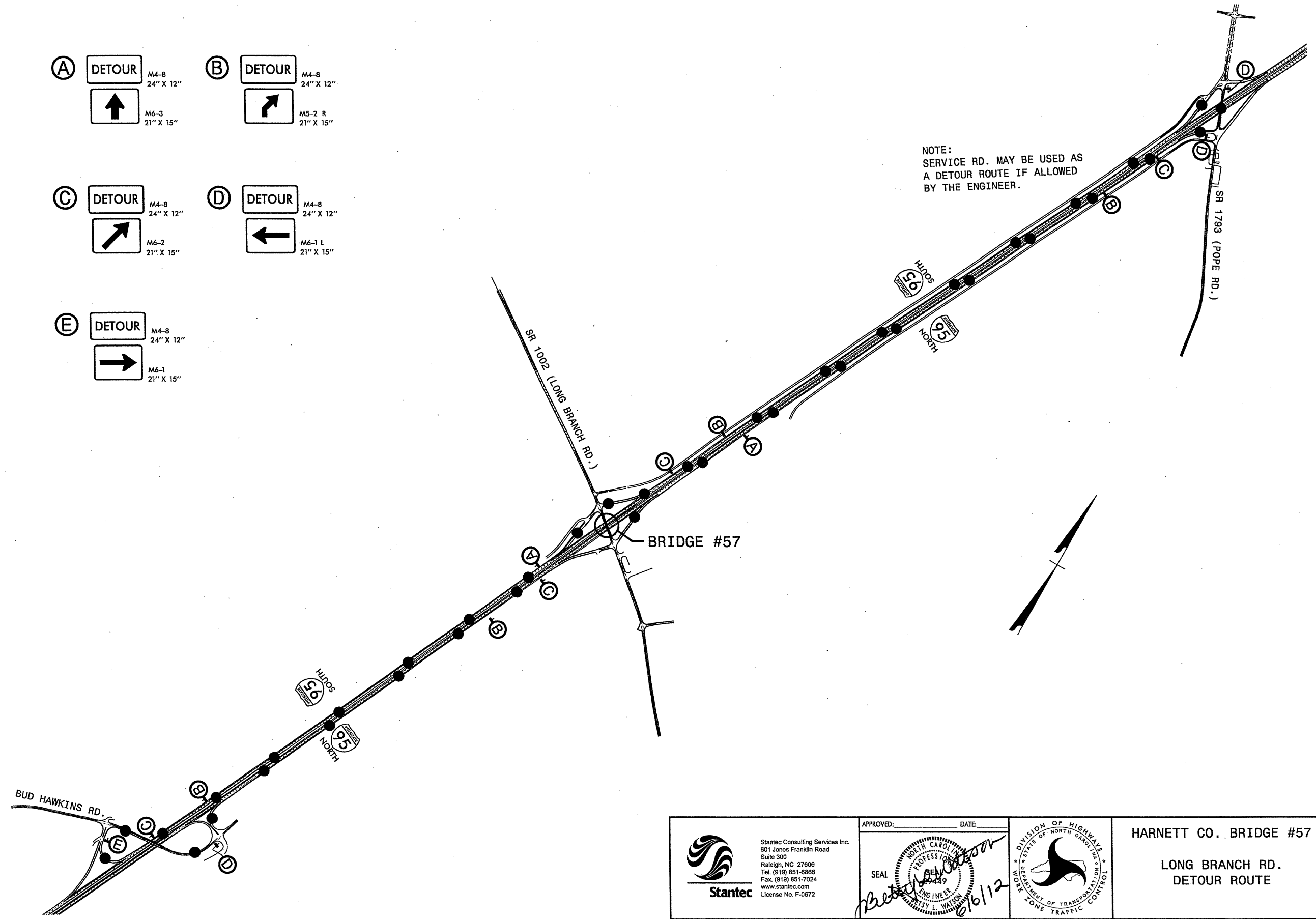
MESSAGE NO. 1
BRIDGE CLOSED
MON 7PM
CHANGEABLE MESSAGE SIGN
PUBLIC INFORMATION
PRIOR TO BRIDGE CLOSURE

MESSAGE NO. 2
PLAN ALT. ROUTE


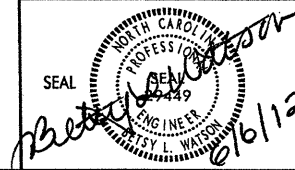

<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 		HARNETT CO. BRIDGE #57 LONG BRANCH RD. ROAD CLOSURE

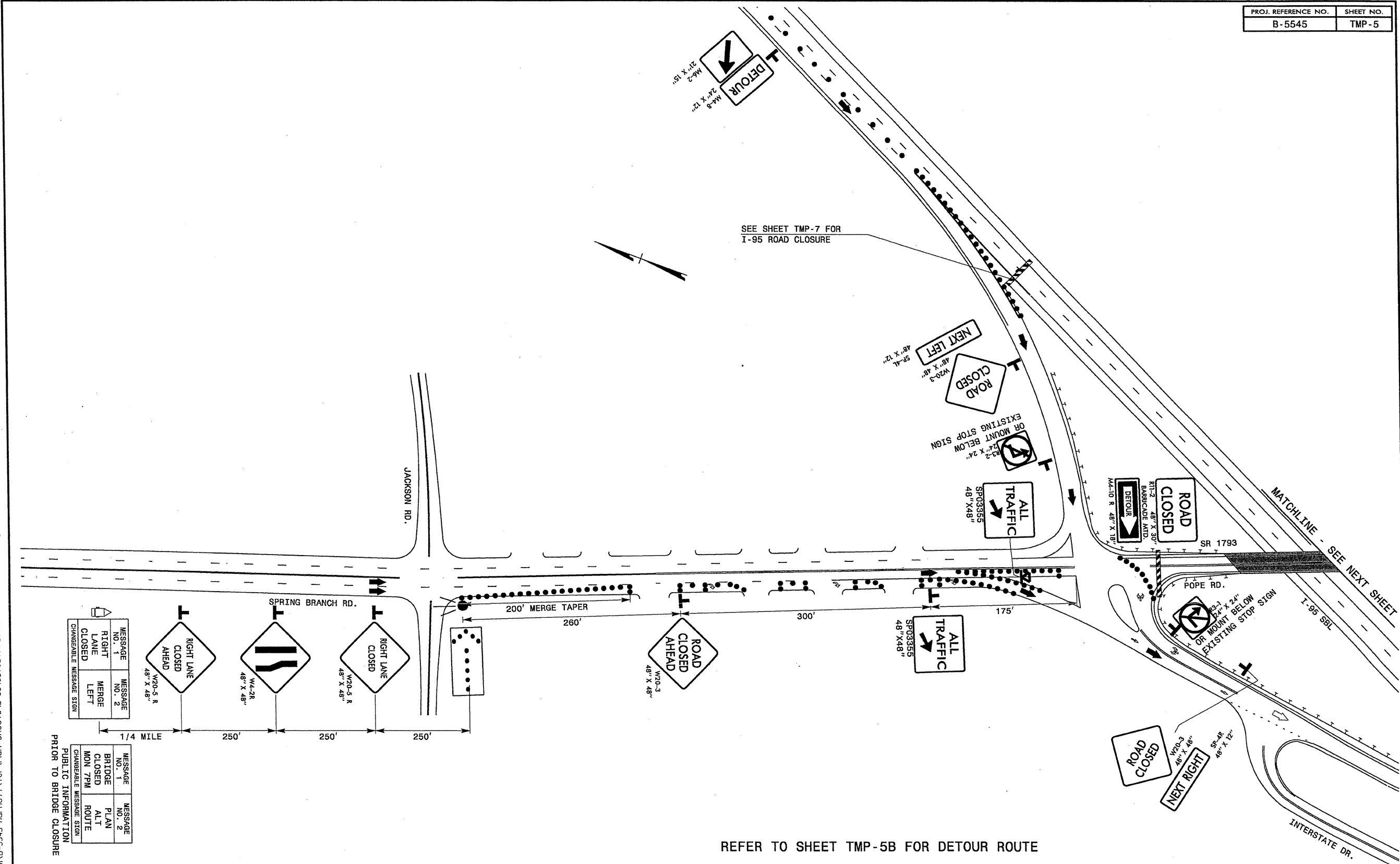
- (A)** DETOUR M4-8 24" X 12"
 M6-3 21" X 15"
- (B)** DETOUR M4-8 24" X 12"
 M5-2 R 21" X 15"
- (C)** DETOUR M4-8 24" X 12"
 M6-2 21" X 15"
- (D)** DETOUR M4-8 24" X 12"
 M6-1 L 21" X 15"
- (E)** DETOUR M4-8 24" X 12"
 M6-1 21" X 15"

NOTE:
 SERVICE RD. MAY BE USED AS
 A DETOUR ROUTE IF ALLOWED
 BY THE ENGINEER.



6/1/2012 U:\TrafficControl\B-5545 Harnett\TCP\Plan Sheets\B-5545_TC_TMP_04B_BRIDGE_57_DETOUR.dgn
 roulien

 <p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-8888 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 		HARNETT CO. BRIDGE #57 LONG BRANCH RD. DETOUR ROUTE
	SEAL L. WATSON 6/6/12		



SEE SHEET TMP-7 FOR
I-95 ROAD CLOSURE

MATCHLINE - SEE NEXT SHEET

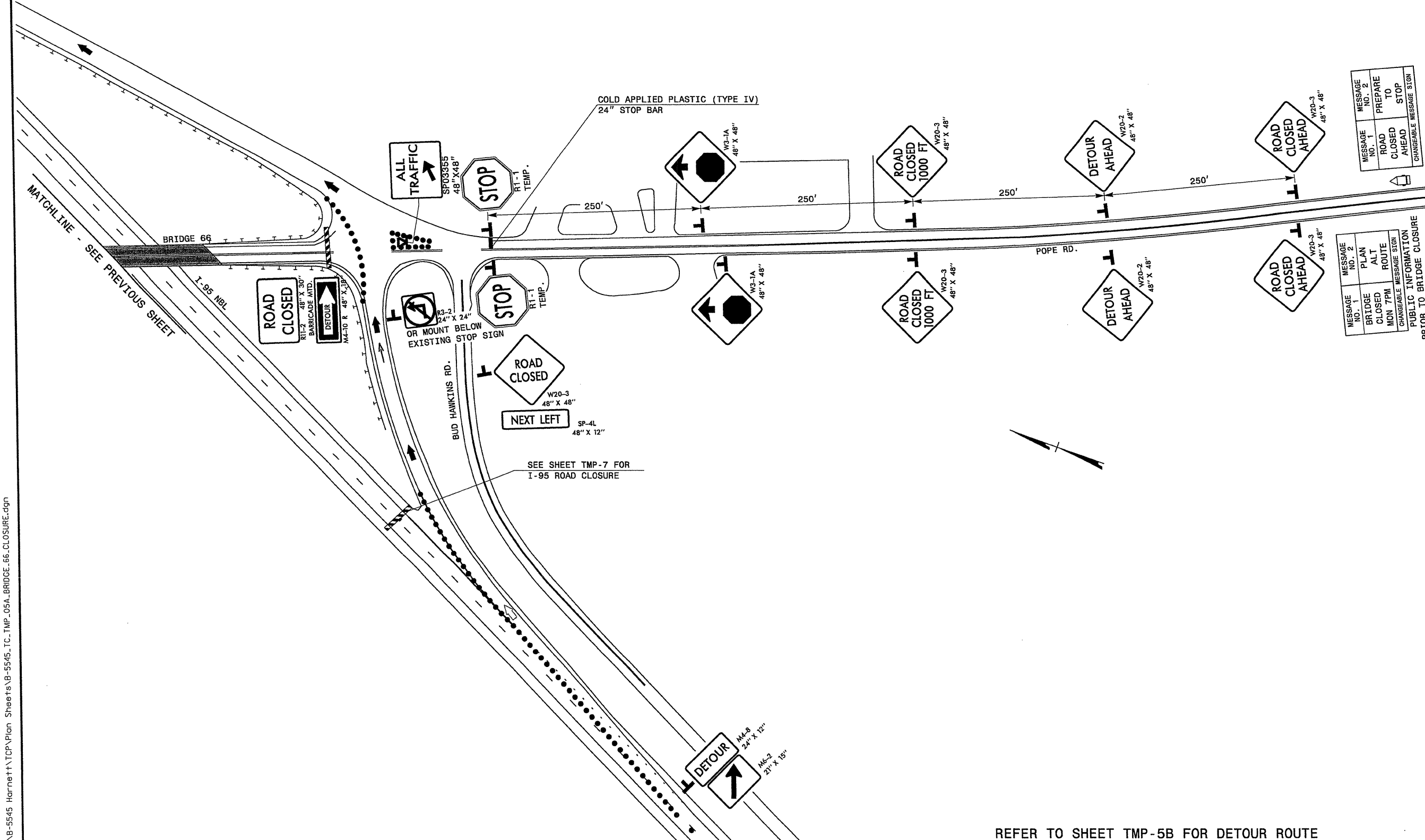
REFER TO SHEET TMP-5B FOR DETOUR ROUTE

MESSAGE NO. 1	MESSAGE NO. 2
RIGHT LANE CLOSED AHEAD	MERGE LEFT
CHANGEBAR MESSAGE SIGN	CHANGEBAR MESSAGE SIGN

MESSAGE NO. 1	MESSAGE NO. 2
BRIDGE CLOSED MON 7PM	PLAN ALT ROUTE
CHANGEBAR MESSAGE SIGN	CHANGEBAR MESSAGE SIGN

PUBLIC INFORMATION PRIOR TO BRIDGE CLOSURE

<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-8866 Fax (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ZONE TRAFFIC CONTROL</p>	<p>HARNETT CO. BRIDGE #66</p> <p>POPE RD. ROAD CLOSURE</p>
	<p>6/6/12</p>		



6/1/2012
 U:\TrafficControl\B-5545 Harnett\TCP\Plan Sheets\B-5545_TC_TMP_05A_BRIDGE_66_CLOSURE.dgn
 rcullen

MESSAGE NO. 1	ROAD CLOSED AHEAD
MESSAGE NO. 2	PREPARE TO STOP

CHANGEABLE MESSAGE SIGN

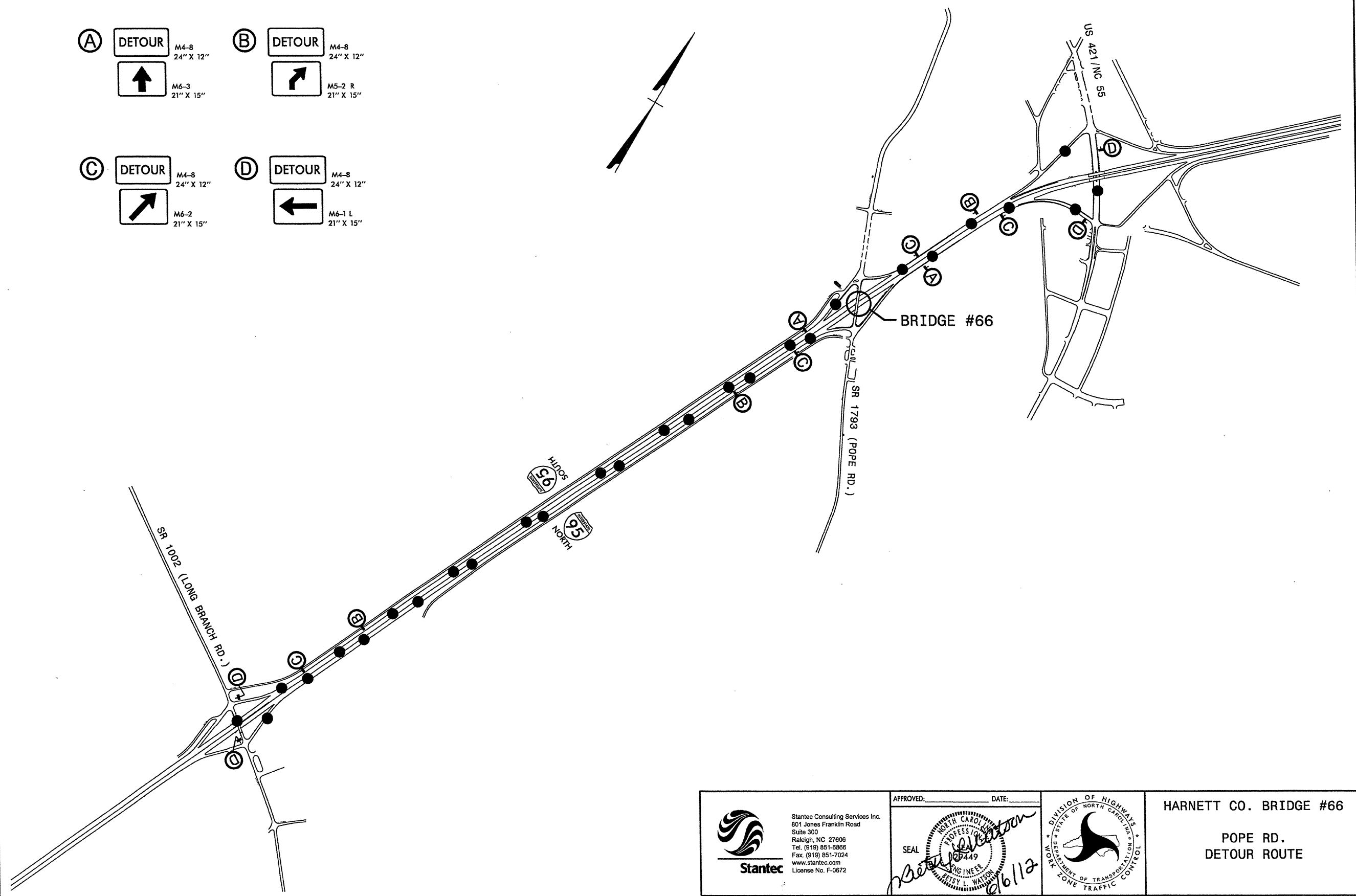
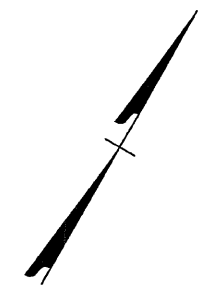
MESSAGE NO. 1	BRIDGE CLOSED MON 7PM
MESSAGE NO. 2	PLAN ALT ROUTE

CHANGEABLE MESSAGE SIGN
 PUBLIC INFORMATION
 PRIOR TO BRIDGE CLOSURE

REFER TO SHEET TMP-5B FOR DETOUR ROUTE

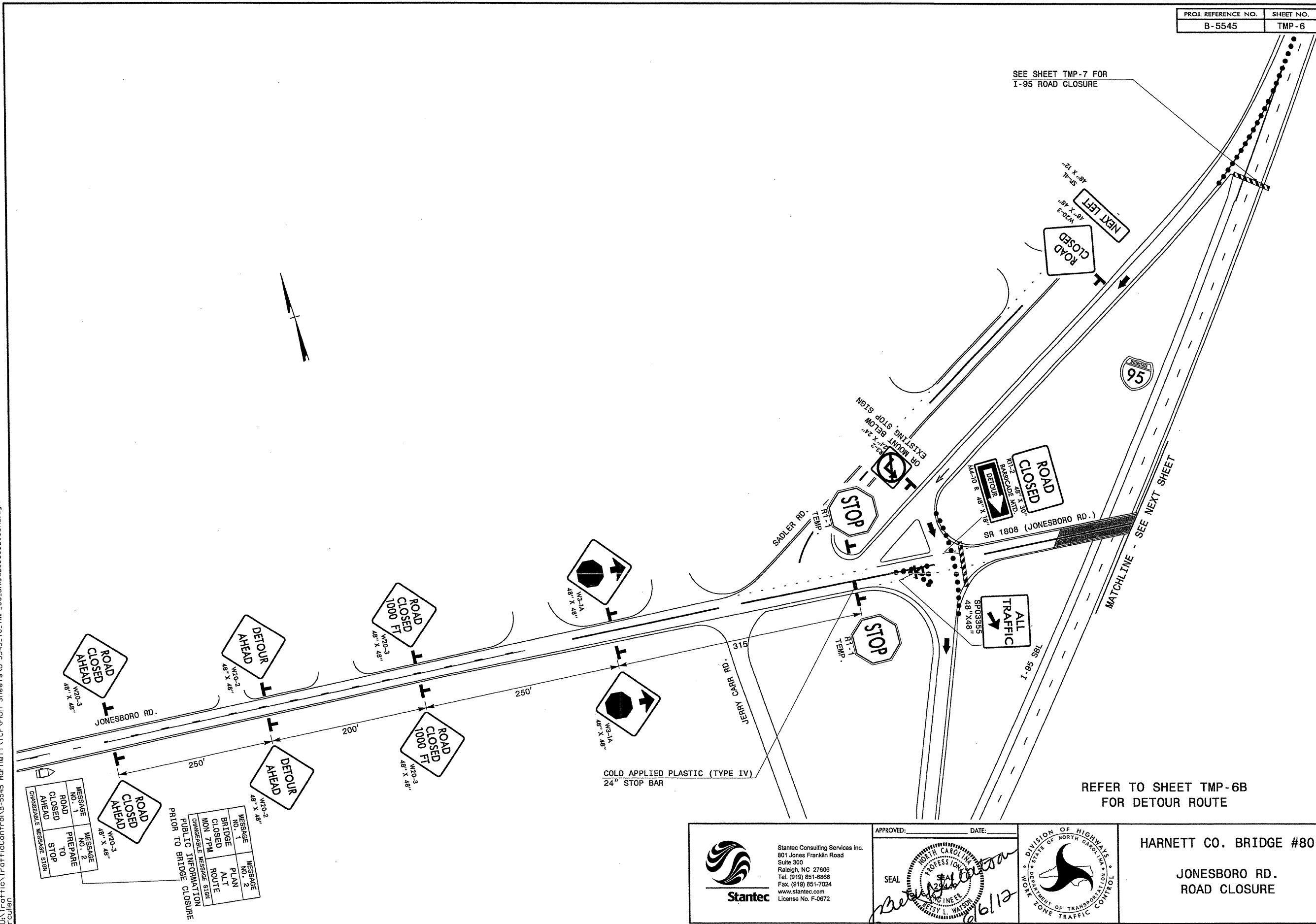
<p>Stantec Consulting Services Inc. 901 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 		HARNETT CO. BRIDGE #66 POPE RD. ROAD CLOSURE

- | | |
|--|--|
| <p>(A) DETOUR M4-8
24" X 12"
M6-3
21" X 15"</p> | <p>(B) DETOUR M4-8
24" X 12"
M5-2 R
21" X 15"</p> |
| <p>(C) DETOUR M4-8
24" X 12"
M6-2
21" X 15"</p> | <p>(D) DETOUR M4-8
24" X 12"
M6-1 L
21" X 15"</p> |



6/1/2012
 J:\Tr\at\fic\TrafficControl\B-5545 Horne\1\TCP\Plan Sheets\B-5545-TC.TMP_05B-BRIDGE_66-DETOUR.dgn
 reullen

<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-8866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 		HARNETT CO. BRIDGE #66 POPE RD. DETOUR ROUTE



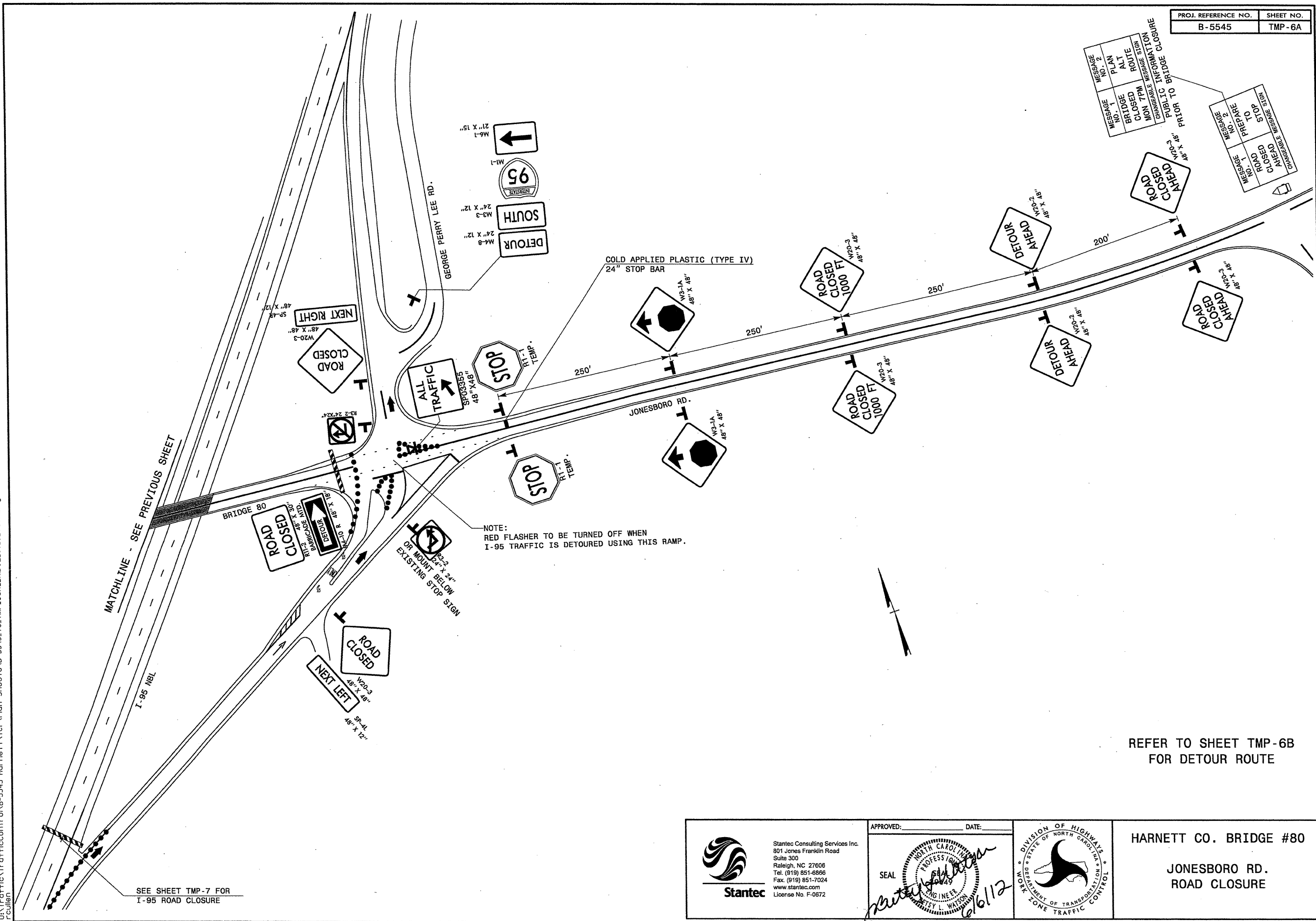
6/1/2012 UN:\Traffic\TrafficContr\B-5545 Harnett\TCP\Plan Sheets\B-5545-TC-TMP_06-BRIDGE_80-CLOSURE.dgn

MESSAGE NO. 1	ROAD CLOSED AHEAD	MESSAGE NO. 2	ROAD CLOSED AHEAD
MESSAGE NO. 2	ROAD CLOSED AHEAD	MESSAGE NO. 1	ROAD CLOSED AHEAD
MESSAGE NO. 3	ROAD CLOSED AHEAD	MESSAGE NO. 2	ROAD CLOSED AHEAD
MESSAGE NO. 4	ROAD CLOSED AHEAD	MESSAGE NO. 3	ROAD CLOSED AHEAD
MESSAGE NO. 5	ROAD CLOSED AHEAD	MESSAGE NO. 4	ROAD CLOSED AHEAD
MESSAGE NO. 6	ROAD CLOSED AHEAD	MESSAGE NO. 5	ROAD CLOSED AHEAD
MESSAGE NO. 7	ROAD CLOSED AHEAD	MESSAGE NO. 6	ROAD CLOSED AHEAD
MESSAGE NO. 8	ROAD CLOSED AHEAD	MESSAGE NO. 7	ROAD CLOSED AHEAD
MESSAGE NO. 9	ROAD CLOSED AHEAD	MESSAGE NO. 8	ROAD CLOSED AHEAD
MESSAGE NO. 10	ROAD CLOSED AHEAD	MESSAGE NO. 9	ROAD CLOSED AHEAD

MESSAGE NO. 1
 PLAN
 BRIDGE
 CLOSED
 MON 7PM
 ROUTE
 CHANGEABLE MESSAGE SIGN
 PUBLIC INFORMATION
 PRIOR TO BRIDGE CLOSURE

<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel: (919) 851-6868 Fax: (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL</p>	HARNETT CO. BRIDGE #80 JONESBORO RD. ROAD CLOSURE
	SEAL Betsy L. Watson 6/1/12		

6/12/2012 U:\TrafficControl\B-5545 Harnett\TCP\Plan Sheets\B-5545_TC_TMP_06A_BRIDGE_80_CLOSURE.dgn

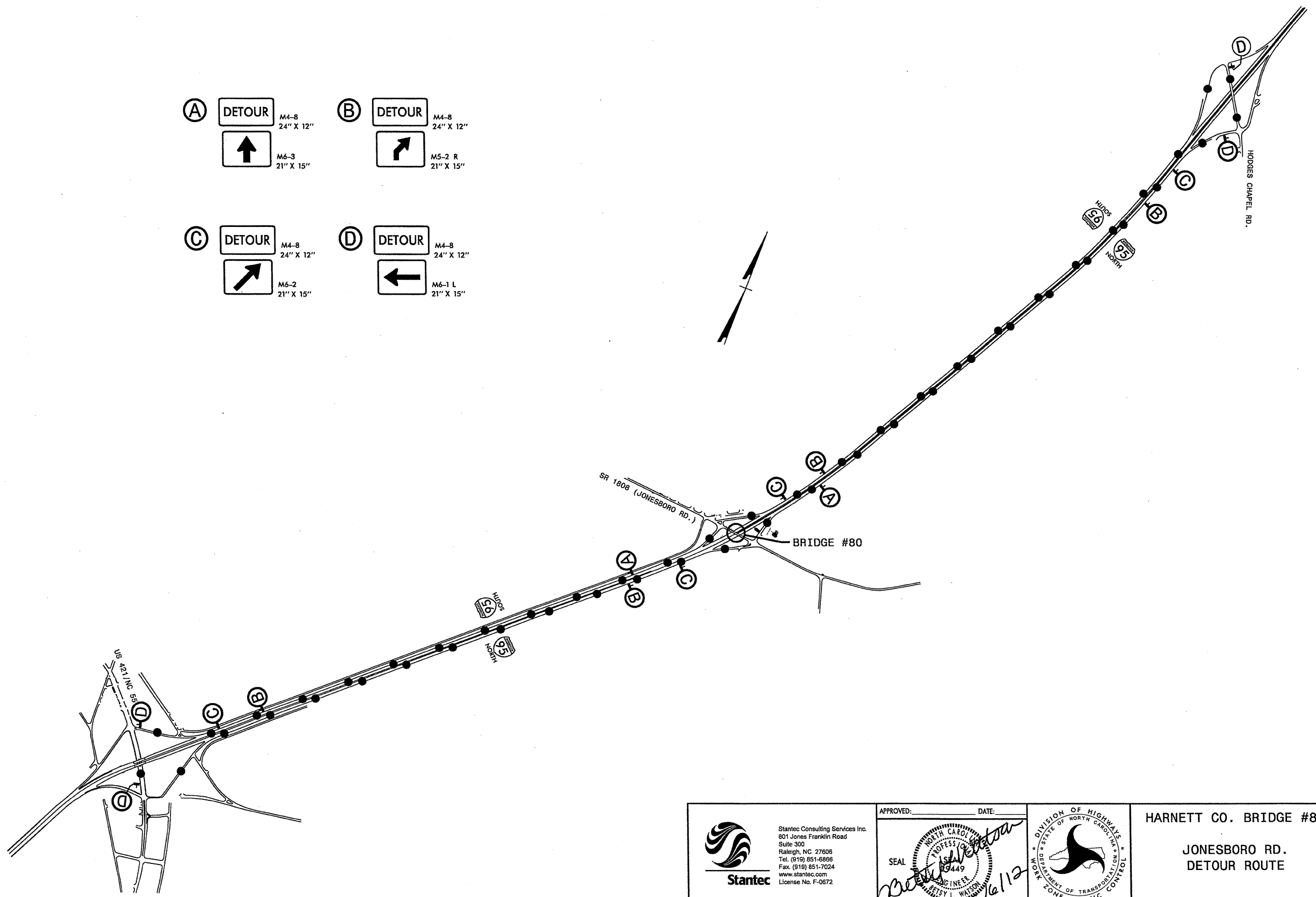
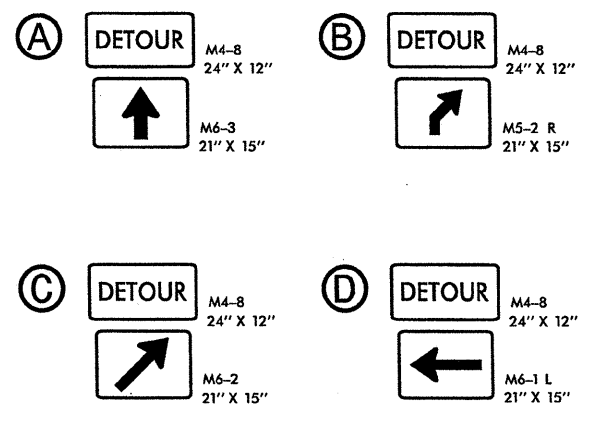


MESSAGE NO. 1	BRIDGE CLOSED	MON 7PM	CHANGIBLE MESSAGE SIGN
MESSAGE NO. 2	PLAN ALT ROUTE		
PUBLIC INFORMATION			
PRETOR BRIDGE CLOSURE			




MESSAGE NO. 1	ROAD CLOSED AHEAD	200'
MESSAGE NO. 2	DETOUR AHEAD	200'
MESSAGE NO. 3	ROAD CLOSED AHEAD	200'

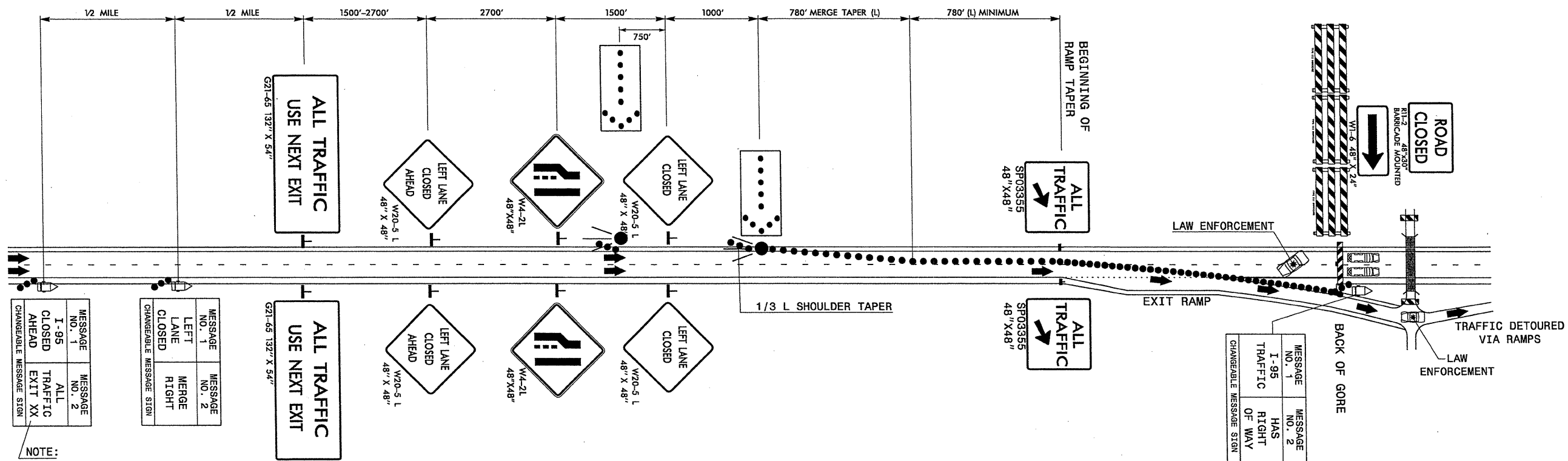
REFER TO SHEET TMP-6B FOR DETOUR ROUTE

<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 		HARNETT CO. BRIDGE #80 JONESBORO RD. ROAD CLOSURE
	SEE SHEET TMP-7 FOR I-95 ROAD CLOSURE		



6/1/2012
 U:\TrafficControl\B-5545 Harnett\TCP\Plan Sheets\B-5545_TC_TMP_06B_BRIDGE_80_DETOUR.dgn
 Faulen

 Stantec	APPROVED: _____ DATE: _____ 	 DIVISION OF HIGHWAYS DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	HARNETT CO. BRIDGE #80 JONESBORO RD. DETOUR ROUTE
	Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672		



NOTE:
 LONG BRANCH RD. - EXIT 71
 POPE RD. - EXIT 72
 JONESBORO RD. - EXIT 75

EXAMPLE MESSAGES PRIOR TO ROAD CLOSURE FOR ADVANCE PUBLIC INFO

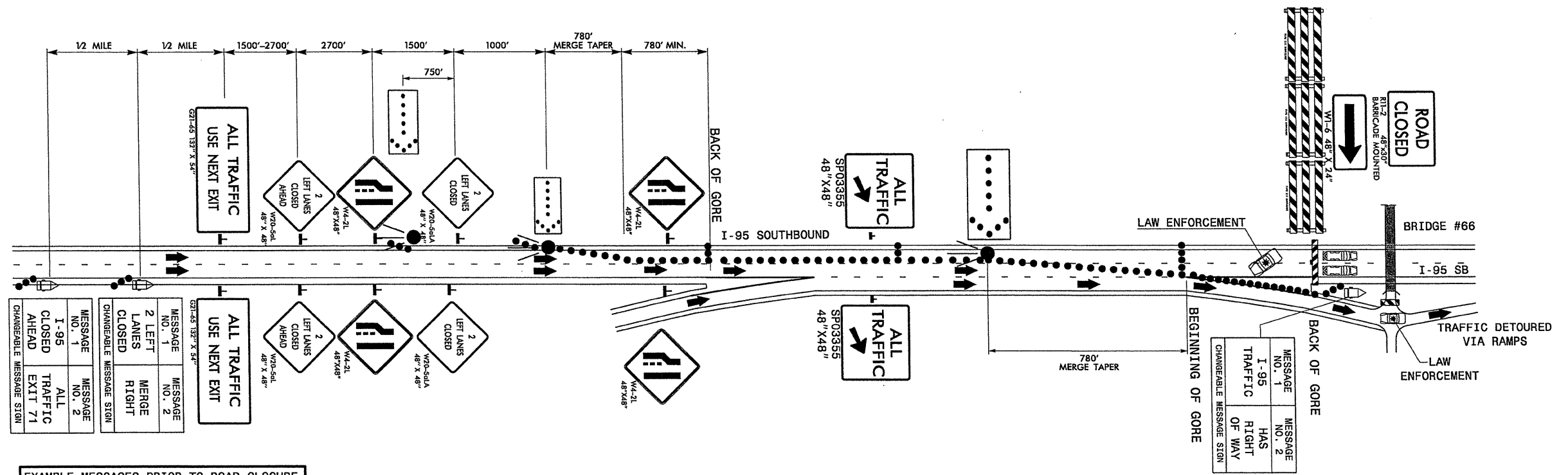
MESSAGE NO. 1 I-95 SB CLOSURE MON 10PM	MESSAGE NO. 2 EXPECT DELAYS
MESSAGE NO. 1 I-95 NB CLOSURE MON 10PM	MESSAGE NO. 2 EXPECT DELAYS

NOTES

1. INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
2. WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, REMOVE LANE CLOSURE DEVICES, COVER OR LAY DOWN SIGNS, AND TURN OFF ARROW BOARDS AND CHANGEABLE MESSAGE SIGNS.
3. STATIONARY SIGNS SHOULD BE USED IF THE LANE CLOSURE WILL BE IN PLACE FOR LONGER THAN 3 CONSECUTIVE DAYS OR IF REPEATEDLY USED. FOR REPEATED USE COVER THE SIGNS WHEN ROAD CLOSURE IS NOT IN EFFECT, OR USE PORTABLE SIGNS AS DIRECTED BY THE ENGINEER.
4. PLACE ARROW BOARDS ON THE SHOULDER. IF NEEDED, EXTEND LANE CLOSURES TO PROVIDE STOPPING SIGHT DISTANCE TO THE ARROW BOARD.
5. PLACE LANE CLOSURE DRUMS IN TAPERS AT A MAXIMUM SPACING EQUAL IN FEET TO THE POSTED SPEED LIMIT (MPH). ALONG BUFFER SPACES AND WORK AREAS SPACE DRUMS AT A MAXIMUM SPACING EQUAL IN FEET TO TWICE THE POSTED SPEED LIMIT (MPH). IN ALL CASES, CHANNELIZING DEVICES ARE TO BE SPACED IN SUCH A MANNER AS TO POSITIVELY ACHIEVE THE INTENDED VISUAL CHANNELIZATION. CHANNELIZING DEVICES SHOULD BE LATERALLY OFFSET 3 FT INSIDE THE CLOSED LANE AS ROOM PERMITS.
6. POSITION TMA'S TO MAINTAIN A ROLL-AHEAD DISTANCE AS RECOMMENDED BY THE MANUFACTURER.
7. PLACE CHANGEABLE MESSAGE SIGN (CMS) ON THE OUTSIDE OF THE TRAVELWAY, OR AS SHOWN IN THE PLANS. INITIALLY, PLACE CMS APPROXIMATELY 1/2 MILE IN ADVANCE OF THE W20-5 SIGNS AS ROOM PERMITS. IF TRAFFIC BACKS UP TO WHERE THE CMS IS INITIALLY PLACED, RELOCATE CMS 1/2 MILE FROM ANTICIPATED BACKUP. CONTINUE TO MONITOR TRAFFIC AND MOVE CMS APPROXIMATELY 1/2 MILE IN CONJUNCTION WITH ANTICIPATED BACKUP.

6/1/2012 U:\TrafficControl\B-5545_Hornett\TCP\Plan Sheets\B-5545_TC_TMP_07_ALL_TRAFFIC_EXIT_TYP.dgn Paulien

<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 		I-95 TEMPORARY ROAD CLOSURE TRAFFIC DETOURED VIA INTERCHANGE RAMPs



EXAMPLE MESSAGES PRIOR TO ROAD CLOSURE FOR ADVANCE PUBLIC INFO

MESSAGE NO. 1 I-95 NB CLOSURE MON 10PM CHANGEABLE MESSAGE SIGN	MESSAGE NO. 2 EXPECT DELAYS
MESSAGE NO. 1 I-95 SB CLOSURE MON 10PM CHANGEABLE MESSAGE SIGN	MESSAGE NO. 2 I-95 SB CLOSURE MON 10PM CHANGEABLE MESSAGE SIGN

NOTES

1. INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
2. WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, REMOVE LANE CLOSURE DEVICES, COVER OR LAY DOWN SIGNS, AND TURN OFF ARROW BOARDS AND CHANGEABLE MESSAGE SIGNS.
3. STATIONARY SIGNS SHOULD BE USED IF THE LANE CLOSURE WILL BE IN PLACE FOR LONGER THAN 3 CONSECUTIVE DAYS OR IF REPEATEDLY USED. FOR REPEATED USE COVER THE SIGNS WHEN ROAD CLOSURE IS NOT IN EFFECT, OR USE PORTABLE SIGNS AS DIRECTED BY THE ENGINEER.
4. PLACE ARROW BOARDS ON THE SHOULDER AND PROVIDE A 1/3 L DRUM SHOULDER TAPER IN ADVANCE OF THE ARROW BOARD. IF NEEDED, EXTEND LANE CLOSURES TO PROVIDE STOPPING SIGHT DISTANCE TO THE ARROW BOARD.
5. PLACE LANE CLOSURE DRUMS IN TAPERS AT A MAXIMUM SPACING EQUAL IN FEET TO THE POSTED SPEED LIMIT (MPH). ALONG BUFFER SPACES AND WORK AREAS SPACE DRUMS AT A MAXIMUM SPACING EQUAL IN FEET TO TWICE THE POSTED SPEED LIMIT (MPH). IN ALL CASES, CHANNELIZING DEVICES ARE TO BE SPACED IN SUCH A MANNER AS TO POSITIVELY ACHIEVE THE INTENDED VISUAL CHANNELIZATION. CHANNELIZING DEVICES SHOULD BE LATERALLY OFFSET 3 FT INSIDE THE CLOSED LANE AS ROOM PERMITS.
6. POSITION TMA'S TO MAINTAIN A ROLL-AHEAD DISTANCE AS RECOMMENDED BY THE MANUFACTURER.
7. PLACE CHANGEABLE MESSAGE SIGN (CMS) ON THE OUTSIDE OF THE TRAVELWAY, OR AS SHOWN IN THE PLANS. INITIALLY, PLACE CMS APPROXIMATELY 1/2 MILE IN ADVANCE OF THE W20-5 SIGNS AS ROOM PERMITS. IF TRAFFIC BACKS UP TO WHERE THE CMS IS INITIALLY PLACED, RELOCATE CMS 1/2 MILE FROM ANTICIPATED BACKUP. CONTINUE TO MONITOR TRAFFIC AND MOVE CMS APPROXIMATELY 1/2 MILE IN CONJUNCTION WITH ANTICIPATED BACKUP.

6/1/2012 D:\TrafficControl\B-5545_Harnett\TCP\Plan Sheets\B-5545_TC_TMP_08_ALL_TRAFFIC_EXIT_TYP.dgn

<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27608 Tel. (919) 851-6868 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 	<p>DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL</p>	<p>I-95 SOUTHBOUND BRIDGE #66 TEMPORARY ROAD CLOSURE TRAFFIC DETOURED VIA INTERCHANGE RAMP</p>

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN