HAYWOOD #126

HENDERSON #33



HAYWOOD, HENDERSON AND POLK COUNTIES

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

N.C. 1 I-5214A 47060.1.2 IMPP-0074(150) P.E. CONST. 47060.3.2 IMPP-0074(150)

POLK CO.

LOCATION: BRIDGE #126, HAYWOOD CO., ON SR 1660 /US 74 (GREAT SMOKY MOUNTAIN EXPY.) OVER 1-40

BRIDGE #33, HENDERSON CO., ON I-26 /US 74 EB OVER SR 1834 (MACEDONIA RD.)
BRIDGE #183, HENDERSON CO., ON US 64 (4 SEASON BLVD./CHIMNEY ROCK RD.)
OVER I 26 /US 74
BRIDGE #228, HENDERSON CO., ON I-26 /US 74 WB OVER SOUTHERN RAILROAD
BRIDGE #230, HENDERSON CO., ON I-26 /US 74 WB OVER SOUTHERN RAILROAD
BRIDGE #231, HENDERSON CO., ON I-26 /US 74 WB OVER CANE CREEK
BRIDGE #234, HENDERSON CO., ON I-26 /US 74 EB OVER CANE CREEK

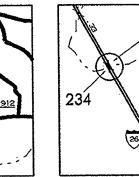
BRIDGE #32, POLK CO., ON NC 108 (W. MILLS ST.) OVER I-26
BRIDGE #98, POLK CO., ON I-26 /US 74 WB OVER HOLBERT COVE RD.
BRIDGE #99, POLK CO., ON I-26 /US 74 EB OVER HOLBERT COVE RD.

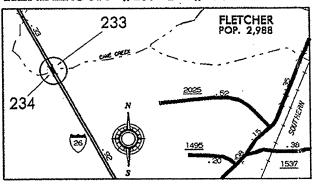
TYPE OF WORK: BRIDGE PRESERVATION - CLEANING AND PAINTING OF EXISTING STRUCTURES, REPAIR OF STRUCTURAL STEEL, REPLACEMENT OF BEARINGS.

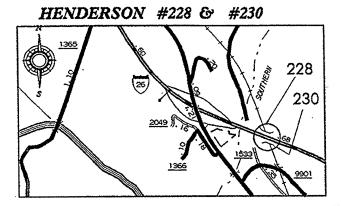


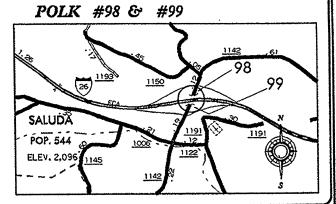
POLK #32 COLUMBUS POP. 818 1514

HENDERSON #233 & #234 HENDERSON #183

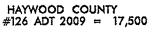








DESIGN DATA



1897

HENDERSON COUNTY #33 ADT 2009 = 17,500 #183 ADT 2008 = 33,000 #228 ADT 2009 = 13,500 #230 ADT 2009 = 13,500 #233 ADT 2009 = 27,000 #234 ADT 2009 = 27,000 #32 ADT 2010 = 8,700 #98 ADT 2010 = 16,500 #99 ADT 2010 = 16,500

PROJECT LENGTH BRIDGE HAYWOOD #126 BRIDGE HENDERSON #33 BRIDGE HENDERSON #183 100 0.04 MILE BRIDGE HENDERSON #228 0.04 MILE = 0.04 MILE BRIDGE HENDERSON #230 BRIDGE HENDERSON #233 0.04 MILE BRIDGE HENDERSON #234 0.04 MILE BRIDGE POLK #32 BRIDGE POLK #98 BRIDGE POLK #99

= 0.04 MILE

= 0.04 MILE

Prepared in the Office of DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

STRUCTURES MANAGEMENT UNIT - PRESERVATION & REPAIR GROUP 1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610

RICK NELSON, P.E.

2012 STANDARD SPECIFICATIONS

LETTING DATE:





STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

HAYWOOD, HENDERSON

STATE	87	ATE PROJECT REFERENCE NO.	SHEET TOTAL SHEETS		
N.C.		I-5214A			
STAT	E PROJ.NO.	P. A. PROJ. NO.	DESCRIPT	ION	
47	060.1.2	IMPP-0074(150)	P.E.		
470	060.3.2	IMPP-0074(150)	CON	ST.	

AND POLK COUNTIES

LOCATION: BRIDGE #126, HAYWOOD CO., ON SR 1660 /US 74 (GREAT SMOKY MOUNTAIN EXPY.) OVER 1-40

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TYPE OF WORK: BRIDGE PRESERVATION – CLEANING AND PAINTING OF EXISTING STRUCTURES, REPAIR OF STRUCTURAL STEEL, REPLACEMENT OF BEARINGS.

INDEX OF SHEETS

IA

2

S-1 THRU S-3
TMP-1 THRU TMP-5

TITLE SHEET

INDEX OF SHEETS

SUMMARY OF QUANTITIES

STRUCTURAL PLANS

TRAFFIC MANAGEMENT PLANS

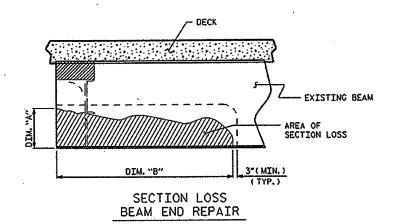
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203243

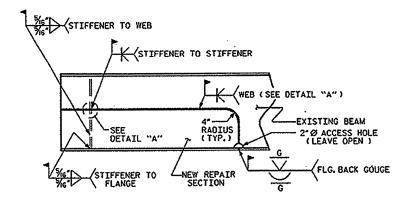
ItemNumber	Sec	Quantity	Unit	TIES FOR CONTRACT - C203243 Description
	#			
0000100000-N	800	Lump Sum		MOBILIZATION
4400000000-E	1110	260	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	594	SF	WORK ZONE SIGNS (PORTABLE)
4415000000-N	1115	2	EA	FLASHING ARROW BOARD
4420000000-N	1120	2	EA	PORTABLE CHANGEABLE MESSAGE SIGN
4430000000-N	1130	400	EA	DRUMS
4435000000-N	1135	20	EA	CONES
4450000000-N	1150	288	HR	FLAGGER
4480000000-N	1165	1	EA	TMA
4510000000-N	SP	192	HR	LAW ENFORCEMENT
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #126
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #183
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #33
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #233
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #126
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #183
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #228
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #230
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #234
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #32
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #33

ItemNumber	Sec #	Quantity	Unit	Description
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #98
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #99
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #126
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #183
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #228
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #230
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #233
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #234
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #32
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #33
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #98
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #99
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDER STRUCTURE WORK PLATFORM BRIDGE #126
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDER STRUCTURE WORK PLATFORM BRIDGE #183
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDER STRUCTURE WORK PLATFORM BRIDGE #228
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDER STRUCTURE WORK PLATFORM BRIDGE #230
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDER STRUCTURE WORK PLATFORM BRIDGE #233
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDER STRUCTURE WORK PLATFORM BRIDGE #234

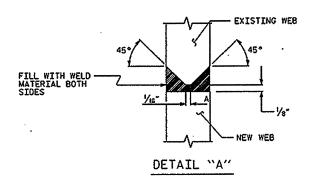
SUMMARY OF QUANTITIES - I-5214A

ItemNumber	Sec #	Quantity	Unit	Description
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDER STRUCTURE WORK PLATFORM BRIDGE #32
886000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDER STRUCTURE WORK PLATFORM BRIDGE #33
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDER STRUCTURE WORK PLATFORM BRIDGE #98
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDER STRUCTURE WORK PLATFORM BRIDGE #99
8889000000-E	SP	2,333	LB	GENERIC STRUCTURE ITEM GIRDER REPAIR
8897000000-N	SP	5	EA	GENERIC STRUCTURE ITEM REPLACE EXPANSION BEARINGS
8897000000-N	SP	9	EA	GENERIC STRUCTURE ITEM REPLACE FIXED BEARINGS

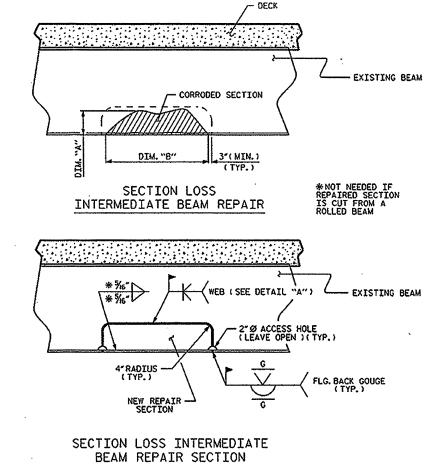




SECTION LOSS BEAM END REPAIR SECTION



T (OTAL BILL	OF MATER	[AL
SPAN JACKING	STRUCTURAL STEEL FOR GIRDER REPAIR	FIXED BEARING REPLACEMENT	EXPANSION BEARING REPLACEMENT
LUMP SUM	LBS.	EACH	EACH
LUMP SUM	2,333	9	5



A۱	NTICIPA	ATED	BEAM	REPAIR	LOCATION	ONS
COUNTY	BRIDGE	SPAN	BEAM	LOCATION	DIM. "A"	DIM. "B"
HAYWOOD	126	A	9	END BENT 1	1'-0"	4′-0″
1.57.15.55.55.5	I			A 7117 A		74.45
HENDERSON	33 .	8	2	BENT 2	10"	3′-0″
		8	3	BENT 2	10"	3′-0″
		8	4	BENT 2	10"	3′-0″
		8	5	BENT 2	10~	3′-0″
		С	2	BENT 2	10~	3′-0*
	·	Ċ	3	BENT 2	10~	· 3°-0°
		c ·	4	BENT 2	10"	3′-0 ″
		c ·	5	BENT 2	10"	3′-0″
HENDERSON	183	A	1	END BENT 1	10*	3′-0″
		Α	15	END BENT 1	10~	3′-0″
		Ð	12	BENT 3	15″	4'-0"
,		D	1	END BENT 2	10"	3′-0″
		0	12	END BENT 2	10"	3'-0"

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 FVAILBET INTITS OF REPAIR. 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.

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 SLOCKING.

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 NCOOT 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 CLEANING AND PAINTING, SEE PROJECT SPECIAL PROVISIONS.

AFTER GIRDERS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE CAST BACK. ANY REINFORCING STELL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMLAR 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 "GIRDER REPAIR."

LOWER SPAN TO BEAR: CHECK FOR DISTRESS.

REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

I-5214A PROJECT NO.__ HAYWOOD COUNTY HENDERSON/POLK

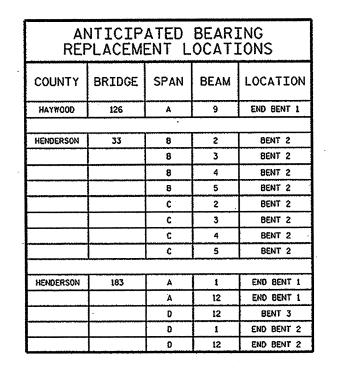


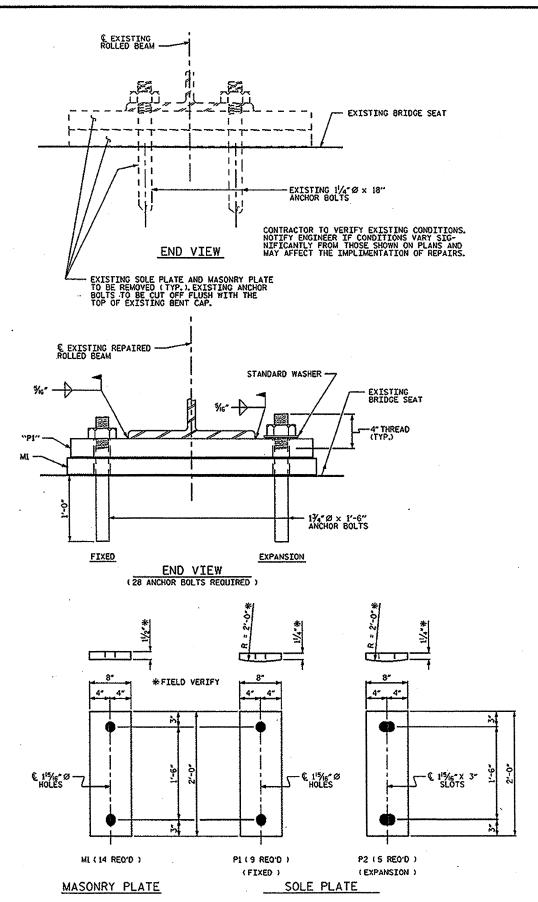
DEPARTMENT OF TRANSPORTATION

BEAM END AND INTERMEDIATE REPAIR DETAILS

		SHEET NO.				
Ŧ	BYs	DA TE:	NO	87:	DATE	S-1
ī			3			382ets
2			48		-	3

DRAWN BY : P.C. BREWER DATE : 12/12
CHECKED BY : T. SHERRILL DATE : 12/12





BEARING REPAIR SEQUENCE

THE EXISTING BEARINGS DETERMINED FOR REPLACEMENT SHALL BE REMOVED AND REPLACED WITH BEARINGS AS SHOWN.

AT ALL POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF V_2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

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

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.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 13," ANCHOR BOLTS. BOLTS SHALL BE ADMESIVELY ANCHORED, SEE STANDARD SPECIFICATIONS, ADMESIVE FOR NEW ANCHOR BOLTS SHALL BE AN NCOOT-APPROVED PRODUCT, FIELD TESTING WILL NOT BE REQUIRED FOR INSTALLATION OF ADMESIVELY ANCHORED BOLTS.



PROJECT NO. I-5214A

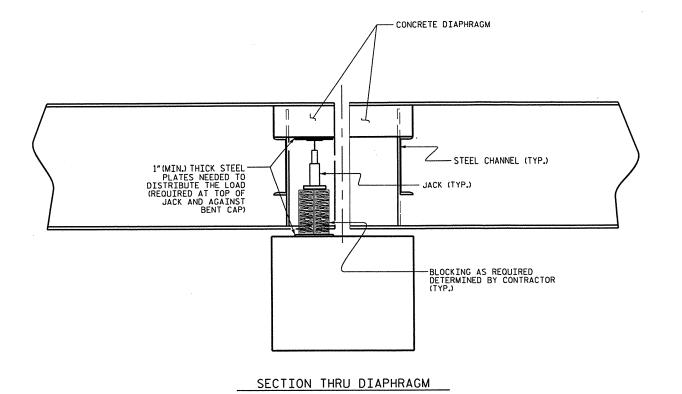
HAYWOOD COUNTY
HENDERSON/POLK

STATE OF HORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEARING REPAIR DETAILS

Г	REVISIONS						
NO.	841	DATE	NO.	₿Y₂	DATES	S-2	
1			3			spects.	
2		-	43			3	

ASSEMBLED BY: P.C. BREWER DATE: 12/12
CHECKED BY: T. SHERRILL DATE: 12/12



JACKING NOTES:

THE CONTRACTOR SHALL SUBMIT JACKING PLANS AND CALCULATIONS FOR REVIEW AND APPROVAL PRIOR TO TO MATERIAL PURCHASE OR FABRICATION OF THE JACKING SYSTEM.

THE CONTRACTOR SHALL JACK ALL GIRDERS IN A SPAN ON AN INDIVIDUAL BENT SIMULTANEOUSLY BY MEANS OF A DUAL-FLOW PRESSURIZED PUMP CONTROLLING THE JACKS.

THE SPAN SHALL BE LIFTED ENOUGH THAT THE BEAMS CLEAR THE BEARINGS AND ALL LOAD IS SUPPORTED BY THE JACKS. AFTER JACKING IS COMPLETE THE CONTRACTOR SHALL PROVIDE A METHOD TO SUPPORT THE SPAN FOR DEAD AND LIVE LOADS AND REMOVE THE JACKS DURING BEAM REPAIR OR IF JACKS REMAIN IN PLACE DURING THE ENTIRE JACKING AND REPAIR OPERATION IT SHALL HAVE MECHANICAL LOCK OFF CAPABILITIES.

IF DURING THE JACKING PROCESS OR WHILE THE SPAN IS BEING SUPPORTED THE BEAMS SHIFT FROM THEIR ORIGINAL POSTION, ALL WORK WILL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

PRIOR TO JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE SPAN FROM BEING LIFTED.

ALL ADJACENT BEARINGS OF BEAMS NOT BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARINGS LOOSENED SHALL BE TIGHTENED BACK AFTER THE BEAMS ARE REPAIRED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

PAYMENT OF JACKING WILL BE MADE AT THE LUMP SUM PRICE BID FOR BRIDGE JACKING. SUCH LUMP SUM PRICE WILL BE FULL COMPENSATION FOR ALL MATERIALS, EOUIPMENT, TOOLS, LABOR, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

PROJECT NO. I-5214A HAYWOOD COUNTY HENDERSON/POLK

DEPARTMENT OF TRANSPORTATION

BEAM END REPAIR AND BEARING REPLACEMENT

JACKING DETAILS

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

P.C. BREWER T. SHERRILL DATE : 12/12 DRAWN BY : DATE : 12/12

TRANSPORTATION MANAGEMENT PLAN

HAYWOOD, HENDERSON, & POLK COUNTIES DIVISION 14



HAYWOOD COUNTY

BRIDGE #126 - SR 1660/US 74 (Great Smoky Mountain Expy) over I-40

HENDERSON COUNTY

BRIDGE #33 - I-26/US 74 EB over SR 1834 (Macedonia Rd)

BRIDGE #183 - US 64 (4 Seasons Blvd/Chimney Rock Rd) over I-26/US 74

BRIDGE #228 - I-26/US 74 WB over Railroad

BRIDGE #230 - I-26/US 74 EB over Railroad

BRIDGE #233 - I-26/US 74 WB over Cane Creek

BRIDGE #234 - I-26/US 74 EB over Cane Creek

POLK COUNTY

BRIDGE #32 - NC 108 (W Mills St) over I-26

BRIDGE #98 - I-26/US 74 WB over Holbert Cove Rd

BRIDGE #99 - I-26/US 74 EB over Holbert Cove Rd

INDEX OF SHEETS

TMP-1

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 HAYWOOD BRIDGE #126 I-40 WB LEFT, CENTER, AND RIGHT

ANE WORK AREAS

TMP-5 HENDERSON BRIDGE #183 I-26 LEFT, RIGHT, AND AUXILIARY

LANE WORK AREAS

TRAFFIC MANAGEMENT STRATEGY

BRIDGE PAINTING OPERATIONS WILL BE ACCOMPLISHED USING TIME RESTRICTED LANE CLOSURES. REFER TO SHEET TMP-3 FOR PHASING.



PLAN PREPARED FOR NCDOT STRUCTURES 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.

N, P.E. TRAFFIC ENGINEER

SEAL SEAL 29449

-5214

GE KARAGEORGE
SH. THANSPORTATION DES

LEGEND

DIRECTION OF TRAFFIC FLOW DIRECTION OF PEDESTRIAN TRAFFIC FLOW WORK AREA PAVEMENT REMOVAL

NORTH ARROW

TYPE III BARRICADE

DRUM SKINNY DRUM STUBULAR 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







PAVEMENT MARKINGS

EXISTING PAVEMENT MARKING (GRAY)

- SKIP LINES

- - - - - MINI-SKIP LINES

SOLID LINES

PAVEMENT MARKING SYMBOLS

↑ ↑ ↑ PAVEMENT MARKING SYMBOLS



EXISTING PAVEMENT MARKING SYMBOLS (HOLLOW)

PAVEMENT MARKING ALPHANUMERIC CHARACTERS

PAVEMENT MARKERS

CRYSTAL/CRYSTAL

CRYSTAL/RED

YELLOW/YELLOW

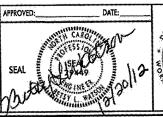
PROJ. REFERENCE NO.	SHEET NO.
I-5214A	TMP-1A

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
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION







LEGEND ROADWAY STANDARD DRAWINGS

| Solita Solita

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

LANE CLOSURE TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW A LANE OF TRAFFIC DURING THE FOLLOWING TIME RESTRICTIONS

ROAD NAME I-40 I-26 US 74 US 64

THE ENGINEER.

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

ROAD NAME MACEDONIA RD HOLBERT COVE RD NC 108

DAY AND TIME RESTRICTIONS 6:00 A.M.-9:00 A.M. MONDAY THRU FRIDAY AND 4:00 P.M.-7:00 P.M. MONDAY THRU FRIDAY

HOLIDAY, HOLIDAY WEEKEND AND SPECIAL EVENT LANE CLOSURE AND ROAD CLOSURE TIME RESTRICTIONS

B) DO NOT CLOSE A ROADWAY, 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 BOADS

- 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.
- 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.
- 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.

GENERAL NOTES

LANE AND SHOULDER CLOSURE REQUIREMENTS

- C) LANE CLOSURES ARE REQUIRED WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN ANY PORTION OF A TRAVEL LANE. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL
- D) INSTALL ALL LANE CLOSURES ACCORDING TO THE PLANS, ROADWAY STANDARD DRAWINGS (1101.02), OR AS DIRECTED BY THE ENGINEER.
- E) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER. COVER OR LAY DOWN SIGNS, AND TURN OFF ARROW BOARDS AND MESSAGE SIGNS.
- F) 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.
- 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.
- J) UNLESS OTHERWISE SHOWN IN THE PLANS, PLACE ARROW BOARDS ON THE ROADWAY SHOULDER. IF SHOULDERS DO NOT EXIST, PLACE ARROW BOARDS WITHIN THE MERGE TAPER BEHIND THE CHANNELIZING DEVICES OF THE LANE CLOSURE. IF NEEDED, EXTEND LANE CLOSURES TO PROVIDE STOPPING SIGHT DISTANCE TO THE ARROW BOARD (REFER TO ROADWAY STANDARD DRAWING 1101.11 SHEET 2).
- K) 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.
- L) WHENEVER TAPERS ARE TO BE USED IN CLOSE PROXIMITY TO AN INTERCHANGE RAMP, CROSSROADS, CURVES, OR OTHER INFLUENCING FACTORS, THE LENGTH OF STANDARD TAPERS MAY BE ADJUSTED, IF APPROVED BY THE ENGINEER.

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PROJ. REFERENCE NO. SHEET NO.

FLAGGER OPERATIONS

- M) DURING FLAGGER OPERATIONS DO NOT STOP TRAFFIC FOR MORE THAN 5 MINUTES AT A TIME.
- N) LOCATE FLAGGER STATIONS SUCH THAT APPROACHING TRAFFIC WILL HAVE SUFFICIENT DISTANCE TO STOP AT THE INTENDED STOPPING POINT. IF NEEDED, EXTEND THE LANE CLOSURE SUCH THAT THE FLAGGER STATION IS POSITIONED BEFORE A HORIZONTAL OR CREST VERTICAL CURVE WHERE ADEQUATE STOPPING SIGHT DISTANCE TO THE FLAGGER IS PROVIDED. REFER TO ROADWAY STANDARD DRAWING 1101.11 SHEET 2.
- O) FLAGGERS SHALL NOT STAND IN THE ROADWAY.
- P) USE FLAGGERS TO CONTROL VEHICLES AT INTERSECTIONS OR RAILROAD GRADE CROSSINGS AFFECTED BY THE LANE CLOSURE. USE FLAGGER SIGN W20-7A IN ADVANCE OF ALL FLAGGER STATIONS. WHEN AN INTERSECTION IS SIGNALIZED HAVE AUTHORIZED PERSONNEL PLACE THE SIGNAL IN FLASH MODE WHEN DIRECTED BY THE ENGINEER.
- Q) PROVIDE ILLUMINATION FOR FLAGGER STATIONS DURING NIGHT HOURS. ILLUMINATION FOR FLAGGER STATIONS WILL NOT BE PAID FOR SEPARATELY AND WILL BE CONSIDERED INCIDENTAL TO OTHER ITEMS IN THE CONTRACT.
- R) PLACE CHANNELIZING DEVICES FOR FLAGGER OPERATION LANE CLOSURES AT A MAXIMUM SPACING OF 20 FEET IN TAPERS AND AT A MAXIMUM SPACING OF 80 FEET ALONG THE BUFFER SPACE AND WORK AREA,
- S) DRUMS OR SKINNY DRUMS MAY BE USED INSTEAD OF CONES AT NO ADDITIONAL COST.
- T) USE PILOT VEHICLES IN CONJUNCTION WITH FLAGGERS WHEN SHOWN IN THE PLAN OR WHEN DIRECTED BY THE ENGINEER. MOUNT SIGN G20-4 "PILOT CAR FOLLOW ME" AT A VISIBLE LOCATION ON THE REAR OF PILOT VEHICLES.
- U) ADVISÉ RESIDENTS AND BUSINESSES AFFECTED BY THE LANE CLOSURE ABOUT METHODS OF SAFE INGRESS AND EGRESS FROM DRIVEWAYS DURING FLAGGING AND PILOT CAR OPERATIONS.

MISCELLANEOUS

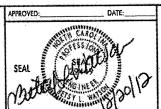
- V) USE LAW ENFORCEMENT TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS SHOWN IN THE PLAN OR AS DIRECTED BY THE ENGINEER. LOCATIONS SHOWN IN THE PLANS ARE APPROXIMATE AND MAY BE REVISED AS THE OFFICER OR THE ENGINEER DEEM NECESSARY.
- W) ALL DIMENSIONS AND STATIONS IN THE TRAFFIC MANAGEMENT PLAN AND PHASING ARE APPROXIMATE (+/-); FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
- X) ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919) 733-4740 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.
- Y) CHANGEABLE MESSAGE SIGN MESSAGES SHOWN ARE EXAMPLES. OTHER MESSAGES MAY BE USED AS CONDITIONS WARRANT. ALL MESSAGES AND LOCATIONS MUST BE APPROVED BY THE ENGINEER PRIOR TO INCORPORATING.
- Z) DO NOT PERFORM WORK FROM THE ROADWAY ON TOP OF ANY BRIDGE, EXCEPT HENDERSON 228, 230, 233, AND 234, UNLESS SPECIFICALLY ALLOWED IN THE PLAN OR BY THE ENGINEER.

TRAFFIC SIGNALS

AA) COORDINATE WITH LAW ENFORCEMENT IF TRAFFIC SIGNALS ARE TO BE PLACED IN FLASH MODE.



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GENERAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
T-5214A	TMP-3

PHASING

PERFORM BRIDGE PAINTING OPERATIONS USING THE TRAFFIC CONTROL METHODS OUTLINED BELOW:

HAYWOOD COUNTY

BRIDGE #126 - SR 1660/US 74 (GREAT SMOKY MOUNTAIN EXPY) OVER I-40 USE LANE CLOSURES ON I-40 EB PER ROADWAY STANDARD DRAWING 1101.02 SHEETS

USE LANE CLOSURES ON I-40 WB PER SHEETS TMP-4, AND TMP-4A.

HENDERSON COUNTY

BRIDGE #33 - I-26/US 74 EB OVER SR 1834 (MACEDONIA RD) USE FLAGGING OPERATIONS ON MACEDONIA ROAD PER ROADWAY STANDARD DRAWING 1101.02 SHEET 1.

BRIDGE #183 - US 64 (4 SEASONS BLVD/CHIMNEY ROCK RD) OVER I-26/US 74 USE LEFT LANE CLOSURES ON I-26 FOR LEFT LANE WORK AREA.

USE LEFT LANE CLOSURES WITH SHIFT FOR RIGHT LANE/RAMP LANE WORK AREAS PER SHEET TMP-5.

BRIDGE #228 - I-26/US 74 WB OVER RAILROAD
USE LANE CLOSURES ON I-26/US 74 WB PER ROADWAY STANDARD DRAWING 1101.02 SHEETS 4 OR 6.

BRIDGE #230 - I-26/US 74 EB OVER RAILROAD
USE LANE CLOSURES ON I-26/US 74 EB PER ROADWAY STANDARD DRAWING 1101.02 SHEETS 4 OR 6.

BRIDGE #233 - I-26/US 74 WB OVER CANE CREEK USE LANE CLOSURES ON I-26/US 74 WB PER ROADWAY STANDARD DRAWING 1101.02 SHEET 4 OR 6.

BRIDGE #234 - I-26/US 74 EB OVER CANE CREEK
USE LANE CLOSURES ON I-26/US 74 EB PER ROADWAY STANDARD DRAWING 1101.02 SHEET 4 OR 6.

POLK COUNTY

BRIDGE #32 - NC 108 (W MILLS ST) OVER I-26 USE LEFT LANE CLOSURE WITH SWITCH ON I-26 PER ROADWAY STANDARD DRAWING 1101.02 SHEET 6.

BRIDGE #98 - I-26/US 74 WB OVER HOLBERT COVE RD
USE FLAGGING OPERATIONS ON HOLBERT COVE ROAD PER ROADWAY STANDARD DRAWING 1101.02 SHEET 1.

BRIDGE #99 - I-26/US 74 EB OVER HOLBERT COVE RD USE FLAGGING OPERATIONS ON HOLBERT COVE ROAD PER ROADWAY STANDARD DRAWING

