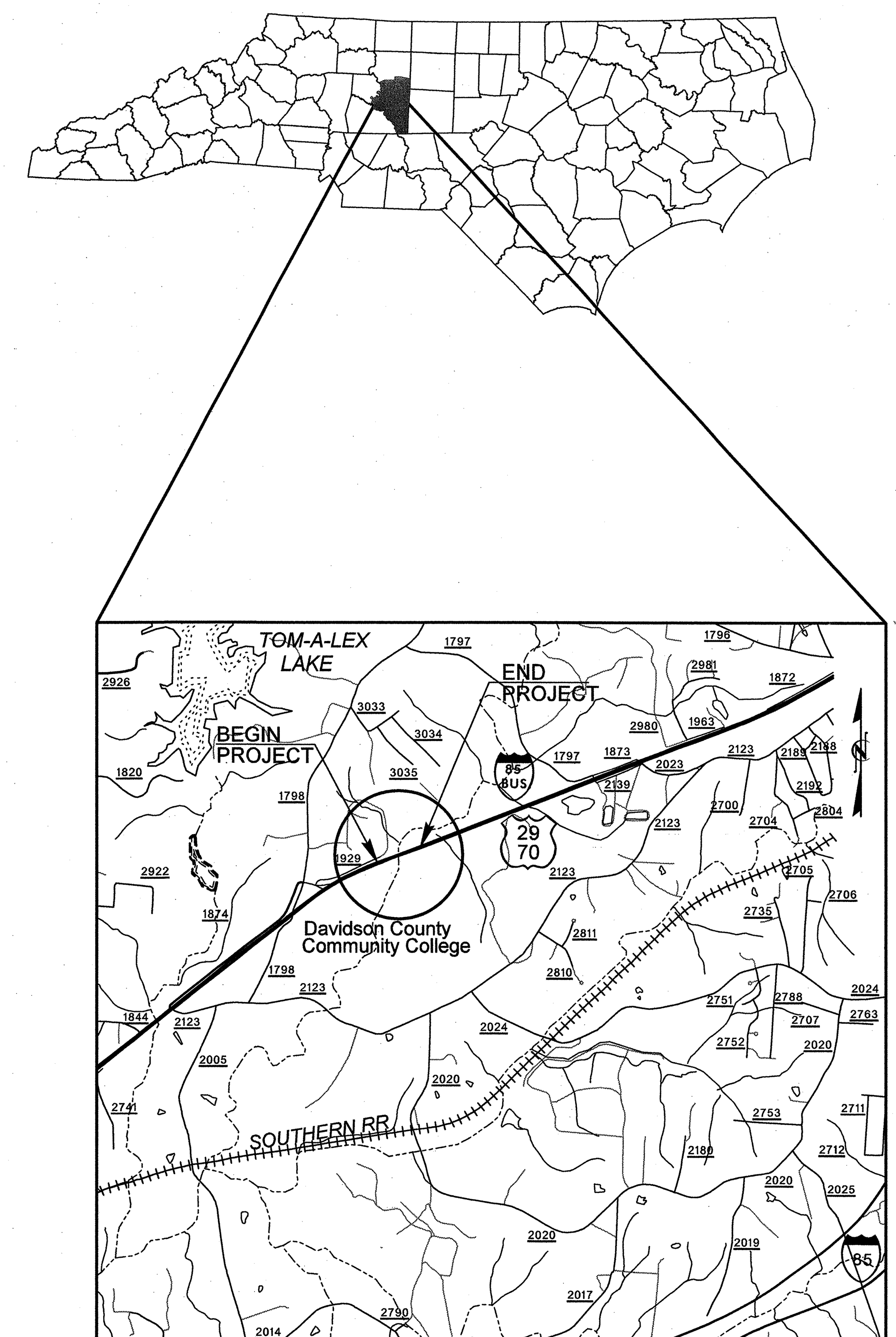
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

DAVIDSON COUNTY



VICINITY MAP

INDEX OF SHEETS

HNTB NORTH CAROLINA, P.C.
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NC License No: C-1554

R. B. EARLY, PE — *TRAFFIC CONTROL PROJECT ENGINEER*

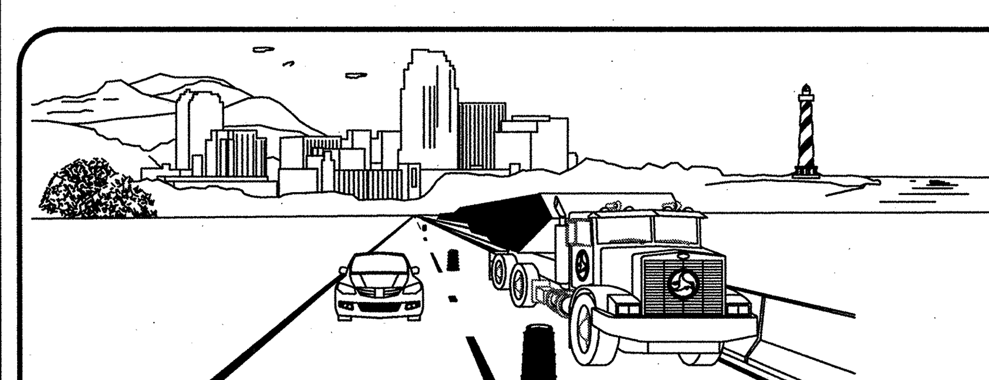
R. B. EARLY, PE — *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*

J. A. PHILLIPS — *TRAFFIC CONTROL DESIGN ENGINEER*

APPROVED: Rhonda B. Early
DATE: 12.14.12

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023521 ENGINEER RHONDA B. EARLY



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

Plans Prepared for:

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
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DAVID BISSETTE, P.E. — *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

SHEET NO. TMP-1

TIP PROJECT: B-4859

QA/QC STAGE:
REVIEW:
CONCUR:
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VERIFY:

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8/17/99

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANAUARY 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
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	POSITIVE PROTECTION
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

DIRECTION OF TRAFFIC FLOW

DIRECTION OF PEDESTRIAN TRAFFIC FLOW

EXIST. PVMT.

NORTH ARROW

PROPOSED PVMT.

WORK AREA

REMOVAL

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION	PAY ITEM
	PAVEMENT MARKINGS	PAINT (4")
PA	WHITE EDGELINE	
PB	YELLOW EDGELINE	
PC	10 FT WHITE SKIP	
	PAVEMENT MARKERS	TEMPORARY RAISED
MK	YELLOW	
MI	CRYSTAL/RED	

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

CONE

DRUM   SKINNY DRUM   TUBULAR MARKER

TEMPORARY CRASH CUSHION

FLASHING ARROW PANEL (TYPE C)

FLAGGER

LAW ENFORCEMENT

TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)

CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

PORTABLE SIGN

STATIONARY SIGN

STATIONARY OR PORTABLE SIGN

SIGNALS

EXISTING   PROPOSED   TEMP TEMPORARY

PAVEMENT MARKINGS

EXISTING LINES

TEMPORARY LINES

PAVEMENT MARKERS

CRYSTAL/CRYSTAL

CRYSTAL/RED

YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

REVISIONS

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CONCUR:
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APPROVED: [signature] DATE: 12.14.12

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023521 RHONDA B. EARLY

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TRANSPORTATION MANAGEMENT PLAN

ROADWAY STANDARD DRAWINGS & LEGENDS

GENERAL NOTES

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

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

TIME RESTRICTIONS

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

B) 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.

C) 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.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

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

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAINS WITHIN THE CLOSED TRAVEL LANE.

F) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

G) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

L) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500′ IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

M) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW, BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW, BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

N) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED IMPACT ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO RSD 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

TRAFFIC CONTROL DEVICES

O) WHEN LANE CLOSURES ARE NOT IN EFFECT, SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPENED TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

PAVEMENT MARKINGS AND MARKERS

P) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKER
US 29-70/I-85 BUS	TEMPORARY RAISED
STRUCTURES	TEMPORARY RAISED

Q) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

R) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

S) RESIDENT ENGINEER SHALL NOTIFY THE OVERSIZE/OVERWEIGHT PERMIT UNIT AT 919-733-4740 (MS. TAMMY C. DENTON) WHEN TRAFFIC IS PLACED IN THE TWO-LANE, TWO-WAY PATTERN AND WHEN THE PROJECT IS OPEN TO THE FINAL TRAFFIC PATTERN.

T) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

MANAGEMENT STRATEGIES

THE OBJECTIVE OF THIS PROJECT IS TO REPLACE THE EXISTING NORTH-BOUND BRIDGE. THIS CONCEPT UTILIZES THE EXISTING MEDIAN CROSS-OVERS TO SHIFT TRAFFIC TO A TWO-LANE, TWO-WAY PATTERN ON THE EXISTING SOUTH BOUND LANES WITH PORTABLE CONCRETE BARRIER (PCB) PROVIDED WHEN TO SEPARATE OPPOSING TRAFFIC FLOW.

DURING PHASE I, IMPROVEMENTS AND MODIFICATIONS ARE MADE TO THE EXISTING SOUTHBOUND LANE. TRAFFIC IS REDUCED TO ONE LANE IN EACH DIRECTION, PCB AND MARKERS ARE INSTALLED, AND TRAFFIC IS SHIFTED TO EXISTING NORTHBOUND LANES.

DURING PHASE II, THE NORTH BOUND BRIDGE AND PAVEMENT IS REPACED AWAY FROM TRAFFIC. UPON COMPLETION OF ROADWAY AND BRIDGE WORK, THE TRAFFIC IS RETURNED TO A MEDIAN DIVIDED PATTERN WITH ONE LANE IN EACH DIRECTION, PCB AND MARKERS ARE REMOVED AND TEMPORARY MEDIAN CROSS-OVERS ARE REMOVED. ONCE LANE CLOSURES ARE COMPLETE AND FINAL MARKINGS ARE PLACED ALL LANES WILL BE OPENED TO TRAFFIC.

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APPROVED: [signature] DATE: 12.14.12

SEAL — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023521 RHONDA B. EARLY

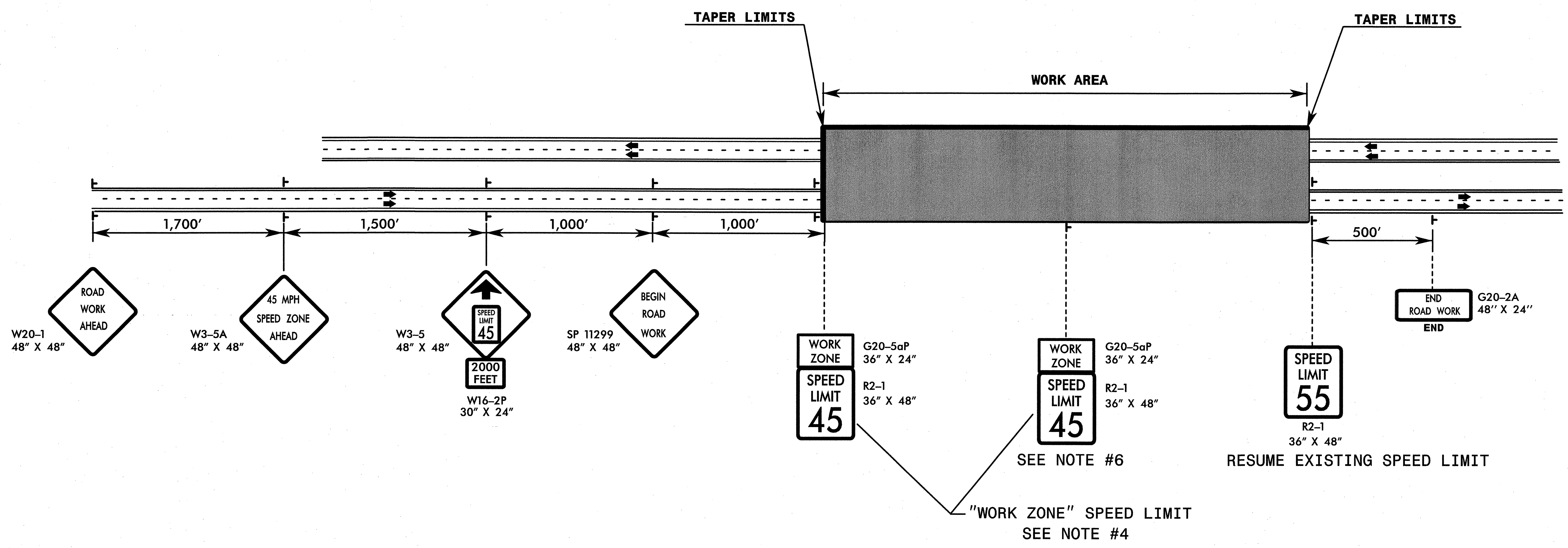
DIVISION OF HIGHWAYS — STATE OF NORTH CAROLINA — DEPARTMENT OF TRANSPORTATION — WORK ZONE TRAFFIC CONTROL

TRANSPORTATION MANAGEMENT PLAN

TRANSPORTATION OPERATIONS PLAN

8/17/99
REVISIONS
QA/QC STAGE: REVIEW: CONCUR: REVISE: VERIFY:
$$$$SYSTIME$$$$ $$$$DGN$$$$$$$$$$$$$$$$$$$$ $$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
B-4859	TMP-2



NOTES

1) THE WORK ZONE SPEED LIMIT WILL BE ESTABLISHED IN COLLABORATON BETWEEN THE REGIONAL TRAFFIC ENGINEER, THE DIVISION AND THE WORK ZONE TRAFFIC CONTROL SECTION. THIS DRAWING SHOWS THE TYPICAL APPLICATION OF REDUCING THE "WORK ZONE SPEED LIMIT" TO 45 MPH.

2) IF THE "WORK ZONE SPEED LIMIT" ONLY APPLIES TO A SPECIFIC PORTION AND NOT THE ENTIRE PROJECT, THE EXISTING SPEED LIMIT IS TO BE REESTABLISHED INSIDE THE PROJECT LIMITS. THE EXISTING SPEED LIMIT SIGNS ARE TO BE INSTALLED AT THE LOCATION WHERE THE EXISTING SPEED LIMIT IS TO RESUME. (SEE GUIDELINE- D)

3) IF THE WORK ZONE SPEED LIMIT REDUCTION IS INSIDE THE WORK AREA, SIGNS W3-5A, W3-5, AND THE R2-1'S ARE TO BE INSTALLED AT THE DISTANCE SHOWN ABOVE IN ADVANCE OF WHERE THE SPEED LIMIT IS REDUCED.

4) THE WORK ZONE SPEED LIMIT SIGNS ARE TO BE MOUNTED FROM 7' ABOVE EDGE OF PAVEMENT ELEVATION.

5) WHEN TEMPORARY LANE CLOSURES ARE INSTALLED AT THE BEGINNING OF THE PROJECT LIMITS, THE PORTABLE LANE CLOSURE SIGNS ARE TO BE ADJUSTED TO AVOID SIGN OVERLAP/CLUTTER

6) THE NEED AND LOCATION OF ADDITIONAL POSTED "WORK ZONE SPEED LIMIT" SIGNS WITHIN THE WORK AREA IS TO BE DETERMINED BY THE REGIONAL TRAFFIC ENGINEER.

GUIDELINES

A) THIS DRAWING IS FOR USE ONLY AFTER AN ENGINEERING INVESTIGATION AND CRITERIA REVIEW HAS BEEN PERFORMED BY THE REGIONAL TRAFFIC ENGINEER AND THE WORK ZONE TRAFFIC CONTROL SECTION.

B) THE STATE TRAFFIC ENGINEER HAS TO ORDINANCE THE SPEED LIMIT REDUCTION IN ORDER FOR THE REDUCTION TO BE VALID AND ENFORCEABLE. NO SPEED LIMIT SIGNS SHALL BE INSTALLED PRIOR TO RECEIVING A SIGNED ORDINANCE.

C) EACH DIRECTION OF THE PROJECT IS TO BE EVALUATED FOR THE "WORK ZONE" SPEED LIMIT REDUCTION. THIS DRAWING INTENTIONALLY HAS 1 DIRECTION SIGNED AS A REMINDER TO CAREFULLY CONSIDER WHETHER BOTH DIRECTIONS OF THE PROJECT NEED TO HAVE THE SPEED LIMIT REDUCED.

D) FOR PROJECTS THAT EXCEED 2 MILES IN LENGTH, AN EVALUATION IS TO BE MADE TO DETERMINE IF THE "WORK ZONE" SPEED LIMIT REDUCTION APPLIES TO THE ENTIRE PROJECT LENGTH OR IF ONLY A PORTION OF THE PROJECT LENGTH. THE "WORK ZONE" SPEED LIMIT REDUCTION MAY TERMINATE BEFORE THE END OF THE PROJECT LIMITS. THE DRAWING IS TO BE MODIFIED AS NEEDED TO REFLECT THESE CONDITIONS.

E) ALL "WORK ZONE" SPEED LIMIT REDUCTION SIGNAGE SHALL BE REMOVED WHEN THE CONDITION/S THAT WARRANTED THE REDUCTION AND FINE IS REMOVED. THE REGIONAL TRAFFIC ENGINEER WILL BE NOTIFIED BY THE RESIDENT ENGINEER AT THIS TIME TO RESCIND THE ORDINANCES AND RETURN THE EXISTING POSTED SPEED LIMIT. THIS SHOULD TAKE PLACE BEFORE THE PROJECT IS 100% COMPLETE AND ACCEPTED FOR MAINTENANCE.

8/17/99

REVISIONS

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SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023521 RHONDA B. EARLY

DIVISION OF HIGHWAYS, STATE OF NORTH CAROLINA, DEPARTMENT OF TRANSPORTATION, WORK ZONE TRAFFIC CONTROL

TRANSPORTATION MANAGEMENT PLAN

"WORK ZONE" SPEED LIMIT REDUCTION

PROJECT PHASING

PHASE I (REFER TO SHEET TMP-4)

STEP 1: INSTALL WORK ZONE ADVANCE WARNING SIGNS ON -L- (US 29/70/I-85 BUS), ACCORDING TO RSD 1101.01.

INSTALL WIDE LOAD DETOUR & NARROW BRIDGE SIGNS AS SHOWN ON TMP-4 AND TMP-5.

STEP 2: USING DRUMS AND ROADWAY STANDARD DRAWING 1101.02 (SHEET 3 OF 15), CLOSE THE INSIDE LANE OF NORTHBOUND AND SOUTHBOUND -L- (US 29/70/I-85 BUS), REMOVE TUBULAR MARKERS AND CONSTRUCT TEMPORARY OVERLAY ON THE MEDIAN DETOURS. INSTALL SPEED REDUCTION SIGNS AS SHOWN ON TMP-2.

USING DRUMS AND ROADWAY STANDARD DRAWING 1101.02 (SHEET 3 OF 15) AS NEEDED, COMPLETE THE FOLLOWING IN ORDER:

* CLOSE THE OUTSIDE LANE OF SOUTHBOUND -L- (US 29/70/I-85 BUS) AND INSTALL TEMPORARY RAISED MARKERS ALONG LEFT AND RIGHT SIDE OF TEMP SOUTHBOUND -L- (US 29/70/I-85 BUS) FROM STA 10+46+/- TO STA 30+29+/-. (REMOVE CONFLICTING PAVEMENT MARKING.)
* SHIFT SB TRAFFIC TO A ONE-LANE, ONE-WAY PATTERN ON THE OUTSIDE LANE/SHLDR OF SOUTHBOUND -L- (US 29/70/I-85 BUS) FROM STA 10+46+/- TO STA 30+29+/-.
* USING ROADWAY STANDARD DRAWING NO 1101.02 (SHEET 3 OF 15) AS NEEDED, INSTALL PORTABLE CONCRETE BARRIER (PCB) ON SB -L- (US 29/70/I-85 BUS) AND ANY REMAINING TEMPORARY MARKERS FOR SB -L- FROM STA 11+56+/- TO STA 29+19+/-.

STEP 3: USING DRUMS AND ROADWAY STANDARD DRAWING 1101.02 (SHEET 3 OF 15) AS NEEDED, SHIFT SOUTHBOUND -L- (US 29/70/I-85 BUS) TO ONE LANE PATTERN FROM STA 10+46+/- TO STA 30+29+/-. INSTALL PORTABLE CONCRETE BARRIER (PCB) ON SB -L- (US 29/70/I-85 BUS). SHIFT NORTHBOUND -L- (US 29/70/I-85 BUS) TO THE INSIDE LANE/SHOULDER OF SOUTHBOUND -L- (US 29/70/I-85 BUS) IN A TEMPORARY TWO-LANE, TWO-WAY PATTERN. COMPLETE INSTALLATION OF TEMPORARY RAISED MARKERS. (REMOVE CONFLICTING MARKINGS.)

STEP 4: WITH TRAFFIC SHIFTED, CONSTRUCT PROPOSED ROADWAY, INCLUDING PROPOSED STRUCTURE, ON NORTHBOUND -L- (US 29/70/I-85 BUS) FROM STA 15+00+/- TO STA 25+00+/-, UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE. (SEE CONSTRUCTION PLANS AND SHEET TMP-4.)

PHASE II (NOT SHOWN)

STEP 1: USING ROADWAY STANDARD DRAWING 1101.02 (SHEET 3 OF 15), RETURN -L- NBL TO NORTHBOUND OUTSIDE LANE AND REMOVE CONFLICTING PAVEMENT MARKERS. REMOVE SPEED REDUCTION SIGNS THAT WERE PLACE IN PHASE I, STEP 2.

STEP 2: PLACE FINAL MARKINGS AND MARKERS ON NORTHBOUND INSIDE LANE. (REMOVE TEMPORARY MARKERS.)

USING ROADWAY STANDARD DRAWING 1101.02 (SHEET 3 OF 15), REMOVE PCB AND PLACE FINAL MARKINGS AND MARKERS ON THE SOUTHBOUND INSIDE LANE. (REMOVE TEMPORARY MARKERS.)

STEP 3: USING ROADWAY STANDARD DRAWING 1101.02 (SHEET 3 OF 15), REMOVE TEMPORARY MEDIAN CROSSOVER PAVEMENT.

STEP 4: USING ROADWAY STANDARD DRAWING 1101.02 (SHEET 3 OF 15), SHIFT NB TRAFFIC TO INSIDE LANES AND PLACE THE FINAL MARKINGS ON THE NB OUTSIDE LANES. (REMOVE TEMPORARY MARKERS.)

USING ROADWAY STANDARD DRAWING 1101.02 (SHEET 3 OF 15), SHIFT SB TRAFFIC TO THE INSIDE LANES AND PLACE MARKINGS ON THE SB OUTSIDE LANES. (REMOVE ANY REMAINING TEMPORARY MARKERS.)

STEP 5: OPEN BOTH -L- NORTHBOUND AND SOUTHBOUND (US 29/70/I-85 BUS) TO THE FINAL FOUR-LANE DIVIDED PATTERN, REMOVE ALL WORK ZONE ADVANCE WARNING SIGNS, ALL TRAFFIC CONTROL DEVICES AND ALL WIDE LOAD DETOUR SIGNS.

8/17/99

REVISIONS

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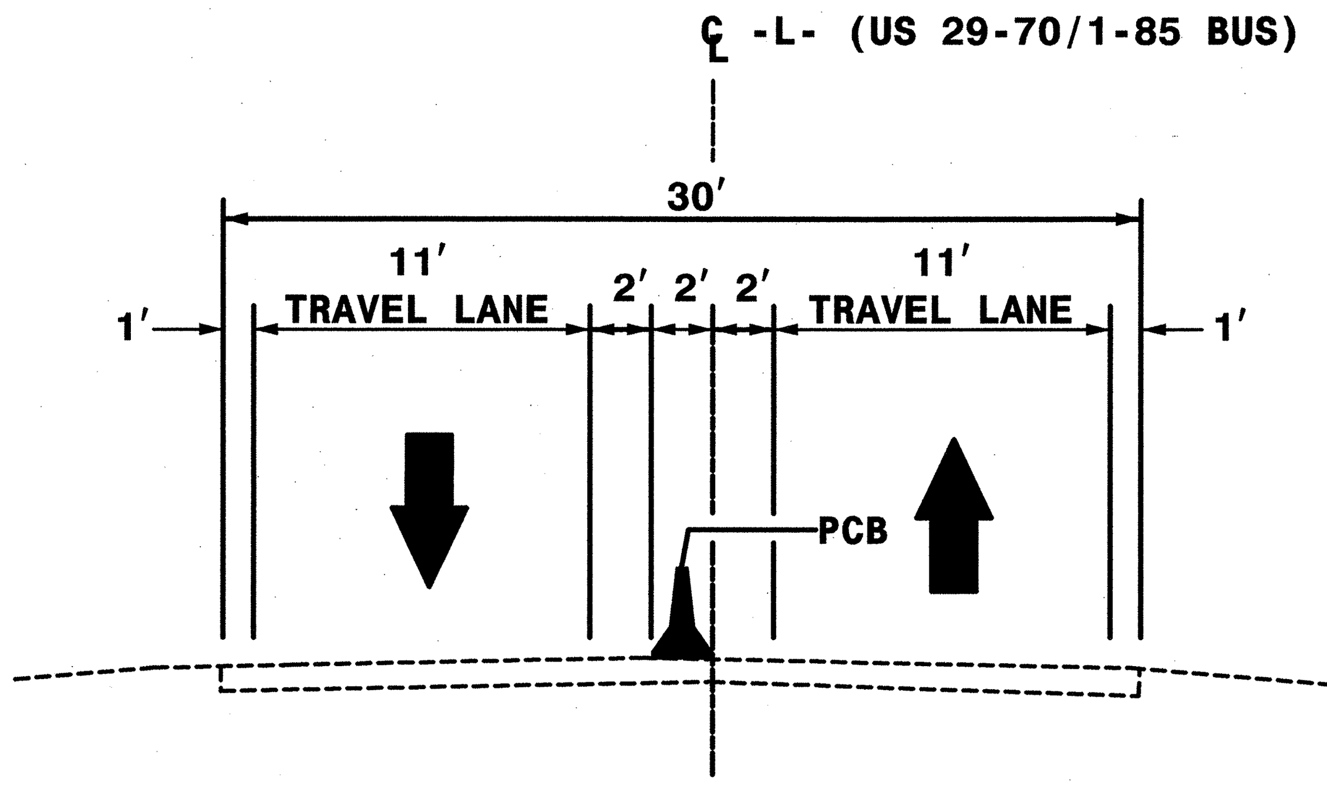
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

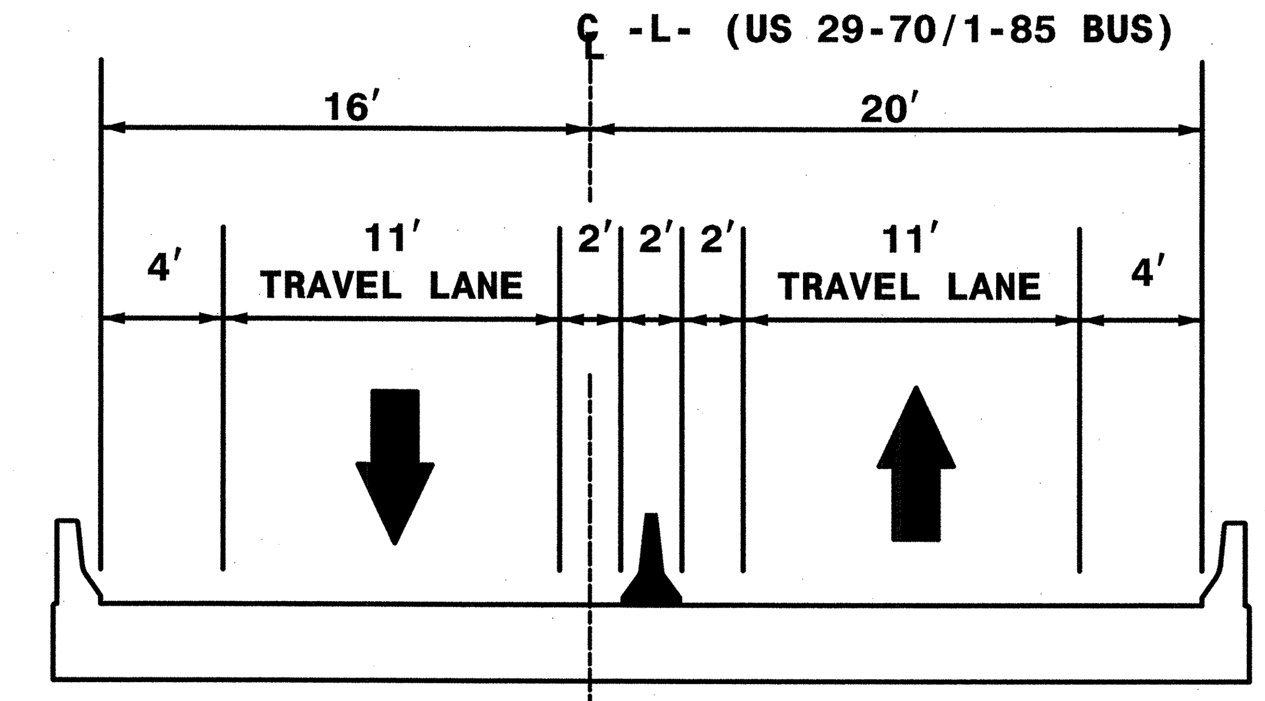
TRANSPORTATION MANAGEMENT PLAN

PHASING

8/17/99

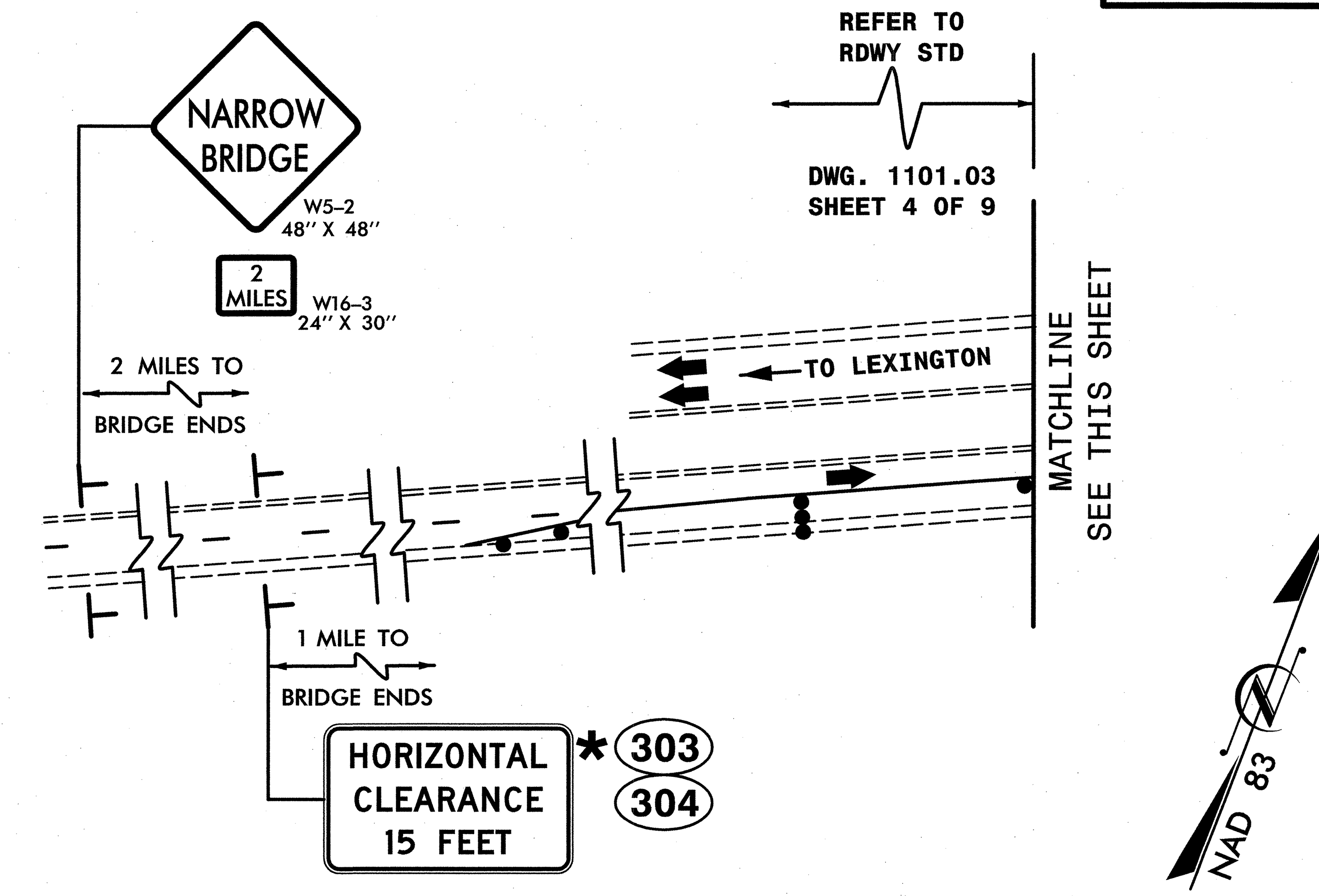


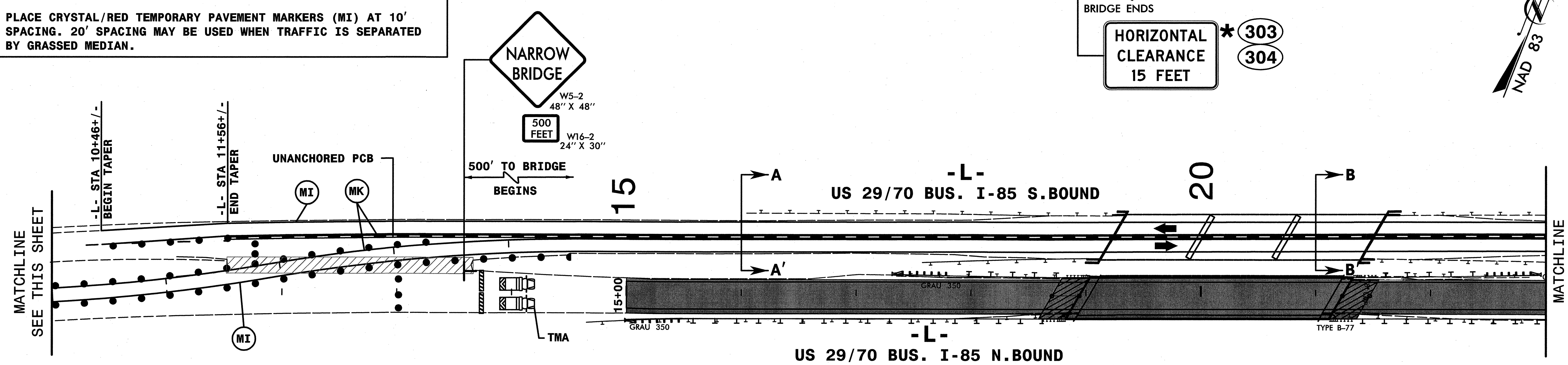
SECTION A-A′

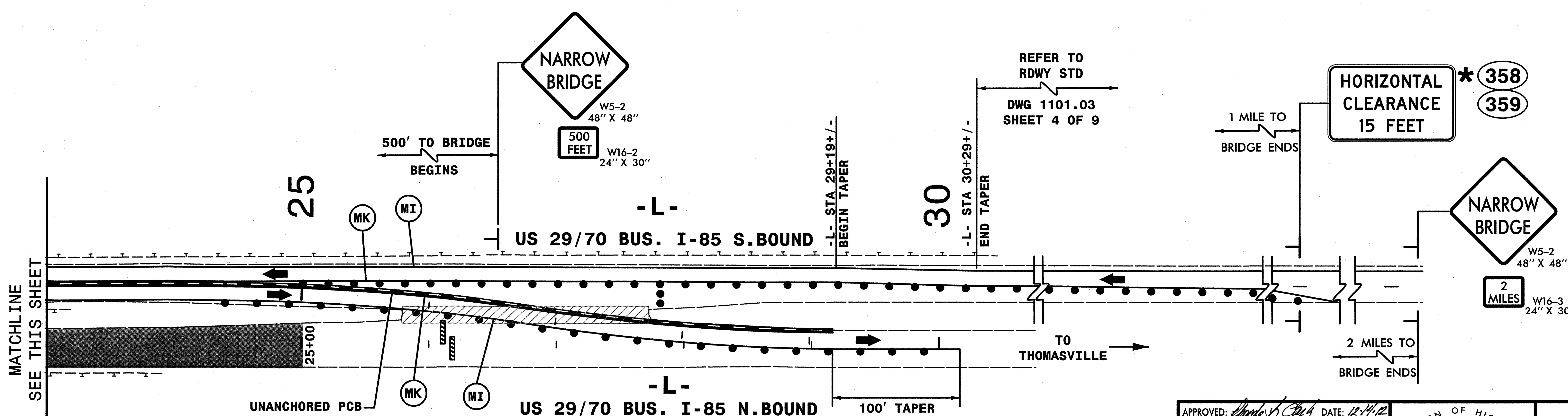


SECTION B-B′

NOTE:
* PLACE YELLOW TEMPORARY PAVEMENT MARKERS (MK) AT 10′ SPACING.
* PLACE CRYSTAL/RED TEMPORARY PAVEMENT MARKERS (MI) AT 10′ SPACING. 20′ SPACING MAY BE USED WHEN TRAFFIC IS SEPARATED BY GRASSED MEDIAN.







* ALL SIGNS ARE ON BLACK AND ORANGE. SEE SHEET TMP-6 FOR SIGN DESIGN.

$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

APPROVED: [signature] DATE: 12-14-12

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023521 RHONDA B. EARLY

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TRANSPORTATION MANAGEMENT PLAN

PHASE I DETAIL

PROJ. REFERENCE NO.	SHEET NO.
B-4859	TMP-5

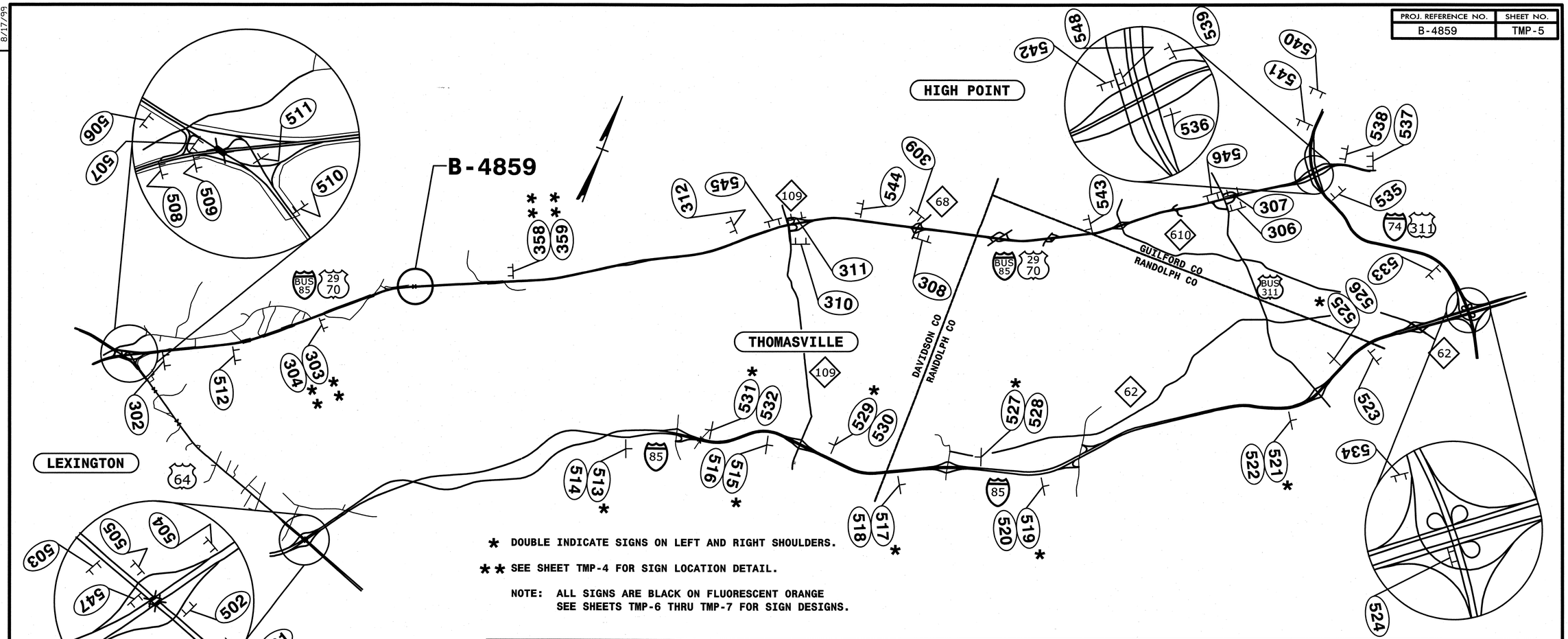
8/17/99

REVISIONS

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$

QA/QC STAGE:

REVIEW:
CONCUR:
REVISE:
VERIFY:



* DOUBLE INDICATE SIGNS ON LEFT AND RIGHT SHOULDERS.

** SEE SHEET TMP-4 FOR SIGN LOCATION DETAIL.

NOTE: ALL SIGNS ARE BLACK ON FLUORESCENT ORANGE
SEE SHEETS TMP-6 THRU TMP-7 FOR SIGN DESIGNS.

501, 506, 508, 510, 512

M3–1 24"x12"
M1–2 24"x24"
M3–1,M3–2 24"x12"
M1–4 24"x24"
SIGNS 313–317

503

M3–3 24"x12"
M1–2 24"x24"
M5–1(L) 21"x15"
M3–3,M3–4 24"x12"
M1–4 24"x24"
M5–1(L) 21"x15"
SIGN 319

502

M3–1 24"x12"
M1–2 24"x24"
M6–1(R) 21"x15"
M3–1,M3–2 24"x12"
M1–4 24"x24"
M6–1(R) 21"x15"
SIGN 318

504, 533, 534, 538

M3–3 24"x12"
M1–2 24"x24"
M6–2 21"x15"
M3–3,M3–4 24"x12"
M1–4 24"x24"
M6–2 21"x15"
SIGNS 320–323

505

M3–3 24"x12"
M1–2 24"x24"
M6–1(R) 21"x15"
M3–3,M3–4 24"x12"
M1–4 24"x24"
M6–1(R) 21"x15"
SIGN 324

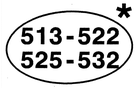
507, 509, 524

M3–1 24"x12"
M1–2 24"x24"
M6–2 21"x15"
M3–1,M3–2 24"x12"
M1–4 24"x24"
M6–2 21"x15"
SIGNS 325, 326,347

511, 536

M4–8 A 24" X 18"

513-522, 525-532 *



SIGN 329–346
M6–3 21" X 15"

523

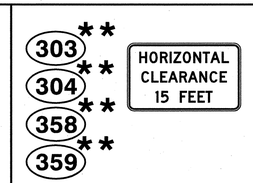
M3–1 24"x12"
M1–2 24"x24"
M3–1,M3–2 24"x12"
M1–4 24"x24"
SIGN 327
SIGN 328

535, 544, 537, 545, 540, 546, 543

M3–3 24"x12"
M1–2 24"x24"
M3–3,M3–4 24"x12"
M1–4 24"x24"
SIGNS 348–354

302, 312

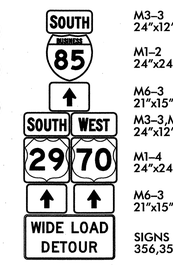
303, 304, 358, 359 **



306, 307, 308, 309, 310, 311

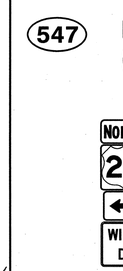
MOUNT SIGN ON EXISTING F-ASSEMBLY SEE TMP-8 FOR DETAIL

539, 541, 542



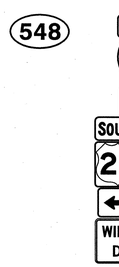
M3–3 24"x12"
M1–2 24"x24"
M6–3 21"x15"
M3–3,M3–4 24"x12"
M1–4 24"x24"
M6–3 21"x15"
SIGNS 355, 356,357

547



M3–1 24"x12"
M1–2 24"x24"
M6–1(L) 21"x15"
M3–1,M3–2 24"x12"
M1–4 24"x24"
M6–1(L) 21"x15"
SIGN 301

548



M3–3 24"x12"
M1–2 24"x24"
M6–1(L) 21"x15"
M3–3,M3–4 24"x12"
M1–4 24"x24"
M6–1(L) 21"x15"
SIGN 305

APPROVED: _____ DATE: 12-14-12

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20675 ENGINEER CHARLES A. JOHNSON III

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

TRANSPORTATION MANAGEMENT PLAN

DETOUR ROUTE FOR OVERSIZED VEHICLES

8/17/99

REVISIONS

PROJ. REFERENCE NO.	SHEET NO.
B-4859	TMP-6

SIGN NUMBER: 301,305,318,319, 320,321,322,323, 324,325,326,327, 347,355,356,357
BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

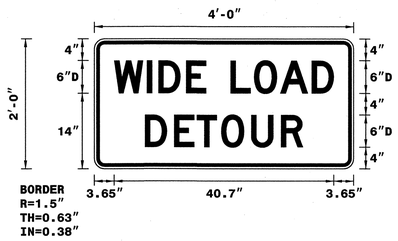
TYPE: D
QUANTITY: 16
SIGN WIDTH: 4′-0″
HEIGHT: 2′-0″
TOTAL AREA: 8.0 Sq.Ft.
BORDER TYPE: RECESSED
RECESS: 0.38″
WIDTH: 0.63″
RADII: 1.5″
NO. Z BARS:
LENGTH:

SYMBOL	X	Y	WID	HT

MAT'L: 0.125″ ALUMINUM

NOTES:
1. Legend and border shall be direct applied non-reflective sheeting.
2. Background shall be Grade B reflective sheeting.

DESIGN BY: ADK CHECKED BY: TRT/CAJ
PROJECT ID: B-4859 DIV: 09 DATE: December 2012



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																															Series/Size Text Length
		W	I	D	E		L	O	A	D																					D 2000
	3.7	6.1	2.1	5.1	3.7	4.5	4.3	4.9	5.8	4.1	3.7																				40.7
		D	E	T	O	U	R																								D 2000
	9.4	5.4	4.2	4.5	5.6	5.5	4.1	9.4																							29.3

SIGN NUMBER: 302,312
BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

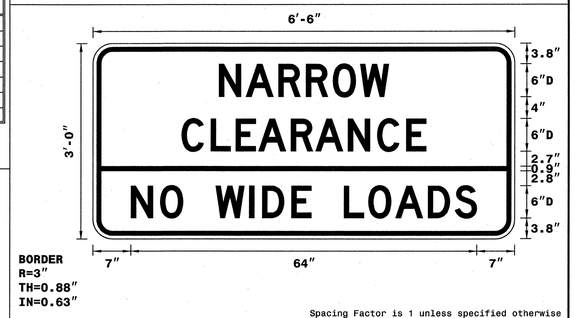
TYPE: D
QUANTITY: 2
SIGN WIDTH: 6′-6″
HEIGHT: 3′-0″
TOTAL AREA: 19.5 Sq.Ft.
BORDER TYPE: RECESSED
RECESS: 0.63″
WIDTH: 0.88″
RADII: 3″
NO. Z BARS:
LENGTH:

SYMBOL	X	Y	WID	HT

MAT'L: 0.125″ ALUMINUM

NOTES:
1. Legend and border shall be direct applied non-reflective sheeting.
2. Background shall be Grade B reflective sheeting.

DESIGN BY: ADK CHECKED BY: TRT/CAJ
PROJECT ID: B-4859 DIV: 09 DATE: December 2012



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																															Series/Size Text Length
		N	A	R	R	O	W																								D 2000
	23.3	5	6	5.1	5	5	5.3	23.3																							31.4
		C	L	E	A	R	A	N	C	E																					D 2000
	16.3	5.4	4.6	4.2	6	4.6	6	5.4	5.4	3.7	16.4																				45.3
		N	O		W	I	D	E		L	O	A	D	S																	D 2000
	7	5.4	4.3	6	6.2	2.4	5.4	3.7	6	4.5	5	6	5	4.1	7																64

SIGN NUMBER: 303,304,358,359
BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

TYPE: D
QUANTITY: 4
SIGN WIDTH: 5′-0″
HEIGHT: 3′-0″
TOTAL AREA: 15.0 Sq.Ft.
BORDER TYPE: RECESSED
RECESS: 0.63″
WIDTH: 0.88″
RADII: 3″
NO. Z BARS:
LENGTH:

SYMBOL	X	Y	WID	HT

MAT'L: 0.125″ ALUMINUM

NOTES:
1. Legend and border shall be direct applied non-reflective sheeting.
2. Background shall be Grade B reflective sheeting.

DESIGN BY: ADK CHECKED BY: TRT/CAJ
PROJECT ID: B-4859 DIV: 09 DATE: December 2012

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																															Series/Size Text Length
		H	O	R	I	Z	O	N	T	A	L																				D 2000
	6.3	5.4	5.6	5.1	2	5	5.6	5	4.1	6	3.7	6.3																			47.4
		C	L	E	A	R	A	N	C	E																					D 2000
	7.3	5.4	4.6	4.2	6	4.6	6	5.4	5.4	3.7	7.3																				45.3
		1	5		F	E	E	T																							D 2000
	14.9	2.8	4.1	6	4.6	4.7	4.2	3.7	14.9																						30.2

SIGN NUMBER: 306-311,313-317, 348,349,350,351, 352,353,354
BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

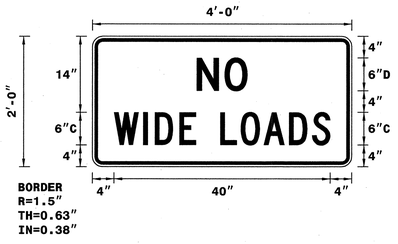
TYPE: D
QUANTITY: 18
SIGN WIDTH: 4′-0″
HEIGHT: 2′-0″
TOTAL AREA: 8.0 Sq.Ft.
BORDER TYPE: RECESSED
RECESS: 0.38″
WIDTH: 0.63″
RADII: 1.5″
NO. Z BARS:
LENGTH:

SYMBOL	X	Y	WID	HT

MAT'L: 0.125″ ALUMINUM

NOTES:
1. Legend and border shall be direct applied non-reflective sheeting.
2. Background shall be Grade B reflective sheeting.

DESIGN BY: ADK CHECKED BY: TRT/CAJ
PROJECT ID: B-4859 DIV: 09 DATE: December 2012



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																															Series/Size Text Length
		N	O																												D 2000
	19.3	5.1	4.3	19.3																											9.4
		W	I	D	E		L	O	A	D	S																				C 2000
	4	5.4	2.2	4.6	3.1	4.5	3.8	4.3	4.7	4.3	3.4	4																			40

APPROVED: _____ DATE: 12-17-12

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20675 ENGINEER CHARLES A. JOHNSON III

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

TRANSPORTATION MANAGEMENT PLAN

SIGN DESIGNS

SHEET 1 OF 2

$$$$$$$$SYSTIME$$$$$
$$$$$$$$USERNAME$$$$$
$$$$$$$$DGN$$$$$$$$$$

QA/QC STAGE:
REVIEW:
CONCUR:
REVISE:
VERIFY:

8/17/99

REVISIONS

PROJ. REFERENCE NO.	SHEET NO.
B-4859	TMP-7

SIGN NUMBER: 329-346
TYPE: D
QUANTITY: 18
SIGN WIDTH: 3'-0"
HEIGHT: 2'-0"
TOTAL AREA: 6.0 Sq.Ft.
BORDER TYPE: RECESSED
RECESS: 0.38"
WIDTH: 0.63"
RADII: 1.5"
NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

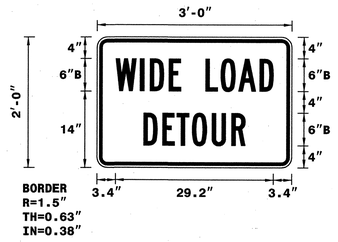
SYMBOL	X	Y	WID	HT

MAT'L: 0.125" ALUMINUM

DESIGN BY: ADK CHECKED BY: TRT/CAJ
PROJECT ID: B-4859 DIV: 09 DATE: December 2012

NOTES:

1. Legend and border shall be direct applied non-reflective sheeting.
3. Background shall be Grade B reflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

	W	I	D	E		L	O	A	D																		Series/Size Text Length
3.4	4.5	1.8	3.5	2.3	4.5	2.8	3.3	3.9	2.6	3.4																	B 2000 29.2
	D	E	T	O	U	R																					B 2000
8.6	3.5	2.7	2.8	3.7	3.6	2.6	8.6																				18.9

SIGN NUMBER: 328
TYPE: D
QUANTITY: 1
SIGN WIDTH: 4'-0"
HEIGHT: 1'-6"
TOTAL AREA: 6.0 Sq.Ft.
BORDER TYPE: RECESSED
RECESS: 0.38"
WIDTH: 0.63"
RADII: 1.5"
NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

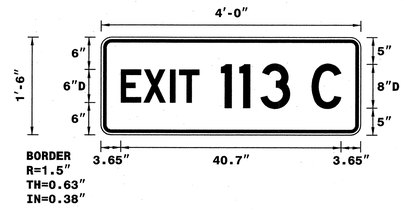
SYMBOL	X	Y	WID	HT

MAT'L: 0.125" ALUMINUM

DESIGN BY: ADK CHECKED BY: TRT/CAJ
PROJECT ID: B-4859 DIV: 09 DATE: December 2012

NOTES:

1. Legend and border shall be direct applied non-reflective sheeting.
2. Background shall be Grade B reflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

	E	X	I	T		1	1	3		C																	Series/Size Text Length
3.6	4.2	4.9	1.7	3.7	4	3.4	3.9	5.4	4	5.4	3.6																D 2000 40.7

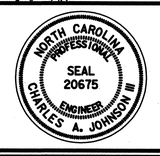
QA/QC STAGE:
REVIEW:
CONCUR:
REVISE:
VERIFY:

$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$

HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

APPROVED: _____ DATE: 12-14-12

SEAL



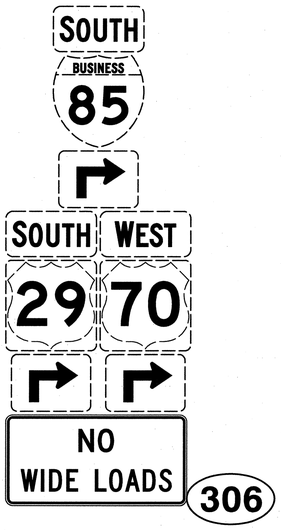
TRANSPORTATION MANAGEMENT PLAN

SIGN DESIGNS

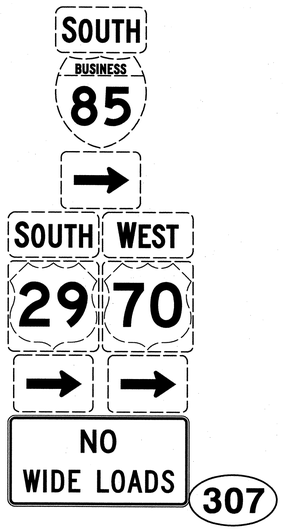
SHEET 2 OF 2

PROJ. REFERENCE NO.	SHEET NO.
B-4859	TMP-8

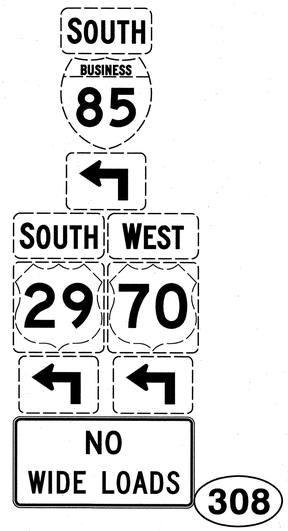
US 311 NB



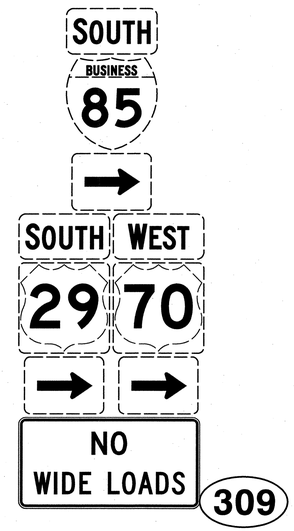
US 311 NB



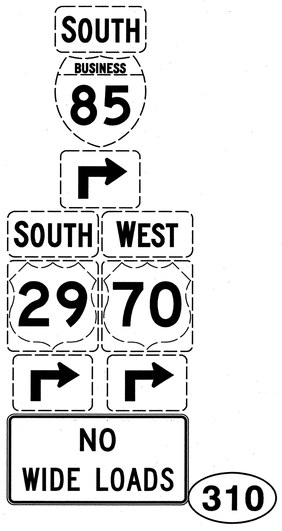
NATIONAL HIGHWAY NB



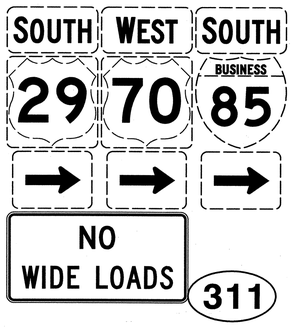
NC-68 SB



NC-109 NB



NC-109 NB



APPROVED: _____ DATE: 12-14-12

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20675 ENGINEER CHARLES A. JOHNSON III

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TRANSPORTATION MANAGEMENT PLAN

EXISTING F-ASSEMBLIES DETOUR SIGNING

REVISIONS

8/17/99

QA/QC STAGE:

REVIEW:
CONCUR:
REVISE:
VERIFY:

$$$$$$$$SYSTIME$$$$$
$$$$$$$$USERNAME$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$