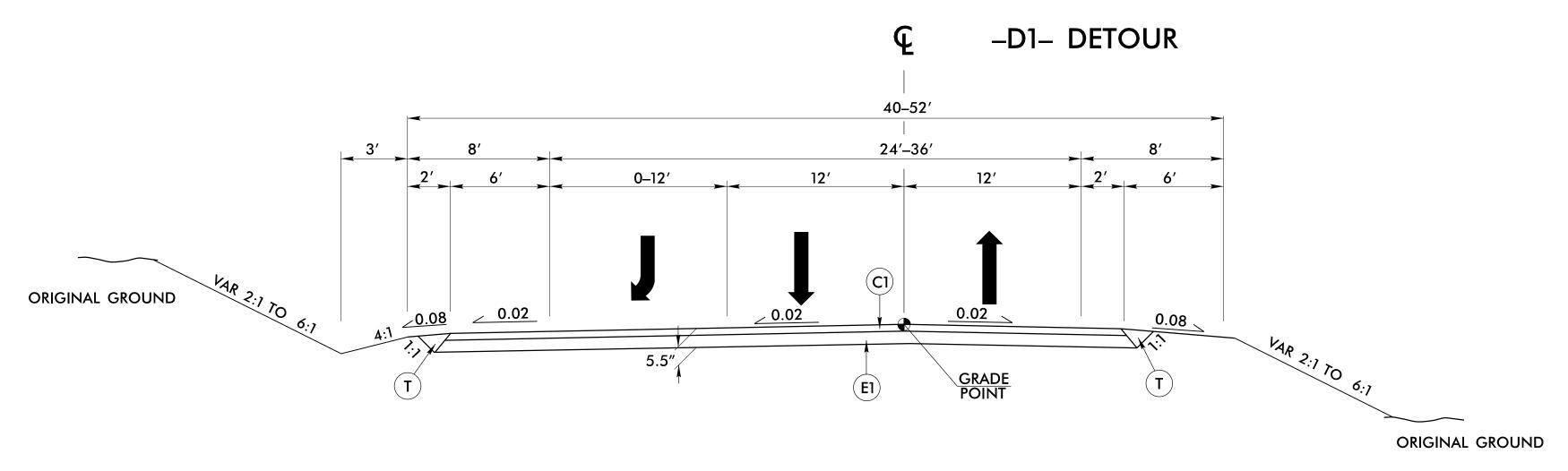


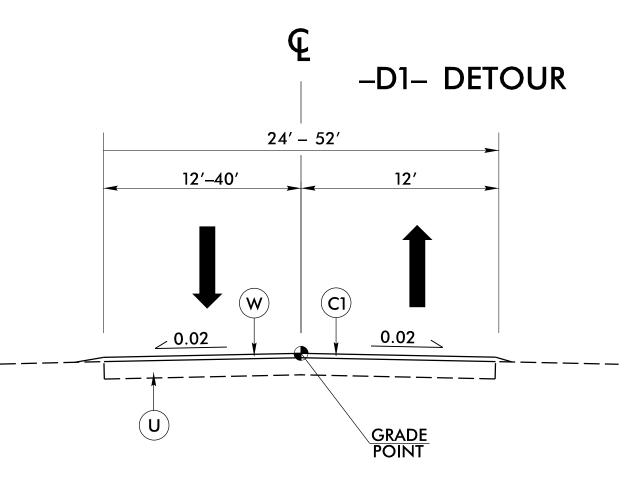
TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AS FOLLOWS: -R- STA. 10+57.86 TO STA. 12+70.47



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AS FOLLOWS: -D1- STA. 12+50.39 TO STA. 15+27.40



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8 AS FOLLOWS: -D1- STA. 10+00.00 TO STA. 12+50.39

PROJECT REFERENCE NO	O. SHEET NO.
17BP.3.R.28	2B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
SEAL 20107 NGINEER DOCUSIGNED BASS NOONE BASS NOO	SEAL 22896 24 NGINEE Docusigned by Clark S. Mannage 9/2015 B0A110DD1E004C4

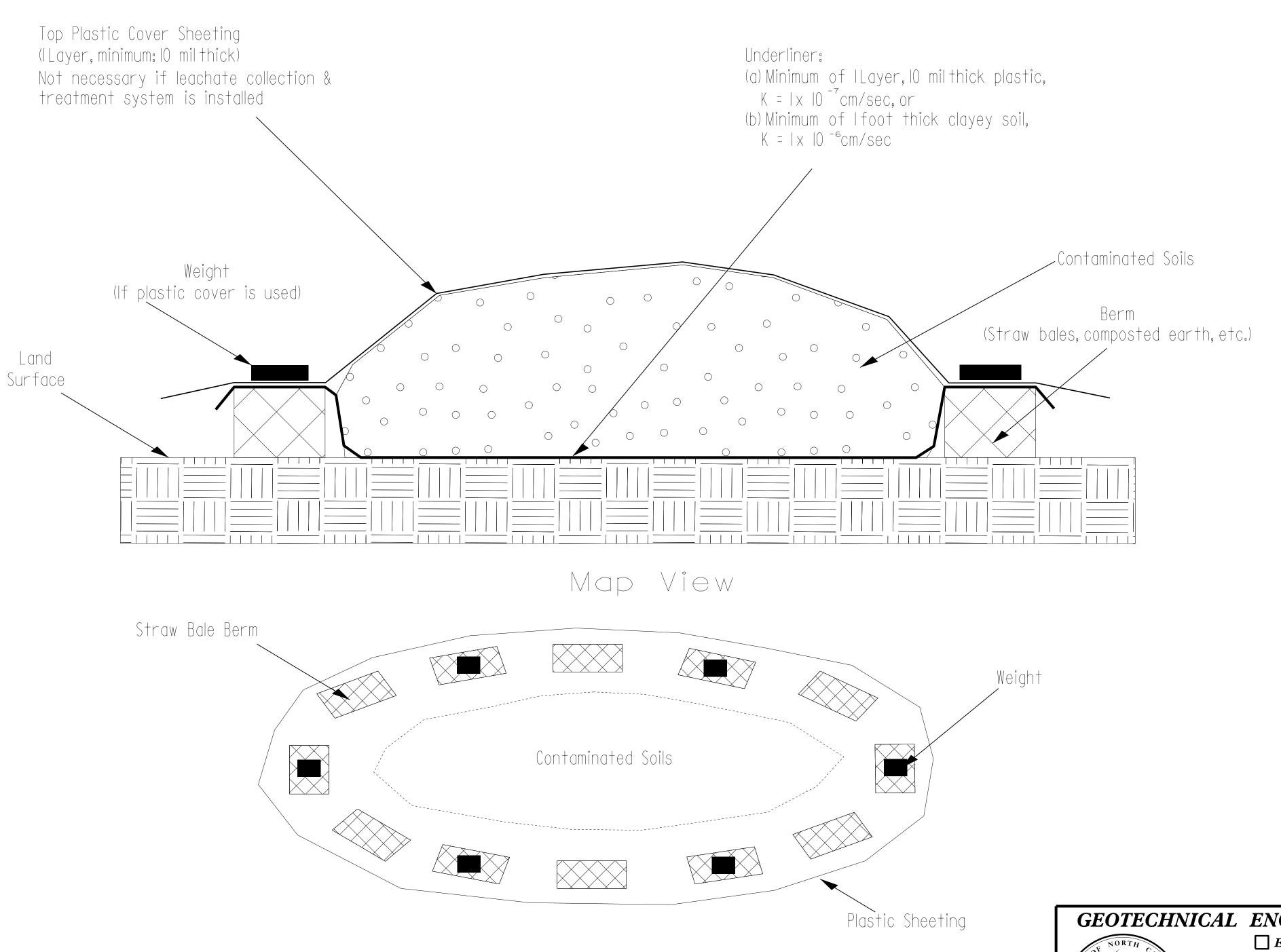
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

C1	1½" S9.5C
E1	5" B25.0C
R1	2'-6" C & G
S	4" SIDEWALK
Т	EARTH MAT.
U	EXIST PAVE.
W	WEDGING

PROJECT REFER	ENCE NO.	SHEET
17BP.3.R.	.28	2C
GEOENVIRONMENTAL ENGINEER	ENGINE	ER
SEAL 31499 NG INE ER DocuSigned by:		
7/14/201 C96492AF5E824DF	.1	

Detail for Temporary Containment of Contaminated Soil

Cross-Section View



NOTE.

The Contractor shallstockpile all contaminated soilexcavated from a property in a location within

the property boundaries of the source parcel. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDENR UST Section for off-site temporary storage.

GEOTECHNICAL ENGINEERING UNIT



STATE OF NORTH CAROLINA **DEPARTMENT OF TRANSPORTATION RALEIGH**

STOCKPILE CONTAINMENT DETAIL

REVISIONS						
BY	DATE	NO.	BY	DATE		
		3				
		4				

PREPARED BY: REVIEWED BY:

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

STD. NO.	TITLE
904.20 1101.01 1101.02	SECONDARY SIGN MOUNTING WORK ZONE ADVANCE WARNING SIGNS TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD 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	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
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 & OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE & MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
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

GREENFIELD	TMP-1A
OUTELINI TEED	1 1411 17 1

GENERAL

DIRECTION OF TRAFFIC FLOW

DIRECTION OF PEDESTRIAN TRAFFIC FLOW

----- EXIST. PVMT.

NORTH ARROW

— PROPOSED PVMT.

WORK AREA

REMOVAL

WEDGING/OVERLAY OF EXIST

ONGOING CONSTRUCTION

TEMPORARY PAVEMENT

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

DRUM SKINNY DRUM STUBULAR MARKER

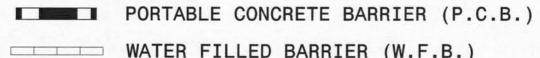
TEMPORARY CRASH CUSHION FLASHING ARROW BOARD (TYPE C)

FLAGGER

LAW ENFORCEMENT

TRUCK MOUNTED ATTENUATOR (TMA) PORTABLE CHANGEABLE MESSAGE SIGN





WATER FILLED BARRIER (W.F.B.)

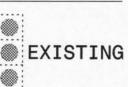
TEMPORARY SIGNING

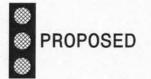
PORTABLE SIGN

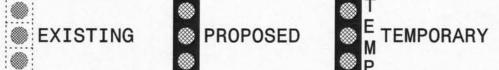
— STATIONARY SIGN

STATIONARY OR PORTABLE SIGN

SIGNALS







PAVEMENT MARKINGS

---EXISTING LINES ----TEMPORARY LINES

PAVEMENT MARKERS

CRYSTAL/CRYSTAL

CRYSTAL/RED ◆ YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

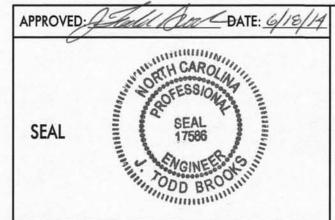
PAVEMENT MARKING SYMBOLS

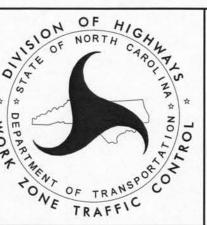
LEGEND

TEMPORARY PAVEMENT MARKING

PA	WHITE EDGE LINE	PAINT	(4")	LF
PB	YELLOW EDGE LINE	PAINT	(4")	LF
PC	10 FT. WHITE SKIP	PAINT	(4")	LF
PD	3 FT. WHITE MINISKIP	PAINT	(4")	LF
PE	WHITE LANE LINE	PAINT	(4")	LF
PF	10 FT. YELLOW SKIP	PAINT	(4")	LF
PH	YELLOW CENTER LINE	PAINT	(4")	LF
PI	YELLOW DOUBLE CENTER LINE	PAINT	(4")	LF
PN	WHITE GORELINE	PAINT	(8")	LF
PO	WHITE DIAGONAL	PAINT	(8")	LF
PP	YELLOW DIAGONAL	PAINT	(8")	LF
PQ	WHITE CROSSWALK LINE	PAINT	(8")	LF
PR	WHITE LANE LINE	PAINT	(8")	LF
PS	WHITE GORELINE	PAINT	(12")	LF
P2	WHITE STOP BAR	PAINT	(24")	LF
P9	2 FT. YELLOW MINISKIP	PAINT	(4")	LF
P13	3 FT. WHITE MINISKIP	PAINT	(8")	LF
QA	LEFT TURN ARROW MARKING SYMBOLS	PAINT	4	EA
QB	RIGHT TURN ARROW MARKING SYMBOLS	PAINT	7	EA
QC	STRAIGHT ARROW MARKING SYMBOLS	PAINT	†	EA
QD	COMBO. STRT / LT ARROW MARKING SYMBOLS	PAINT	4	EA
QE)	COMBO. STRT / RT ARROW MARKING SYMBOLS	PAINT	†	EA
QF	COMBO. LT / RT ARROW MARKING SYMBOLS	PAINT	4	EA
QG	LEFT/RIGHT/STRAIGHT/ MARKING SYMBOLS	PAINT	↔	EA
QI	ALPHANUMERIC CHARACTERS	PAINT	CHARACTER	EA
MH	YELLOW & YELLOW, TEMPORARY RAISED PAVEMENT MARKER			EA
MI	CRYSTAL & RED, TEMPORARY RAISED PAVEMENT MARKER			EA

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326





ROADWAY STANDARD DRAWINGS & LEGEND

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 CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

DOAD	BIABAT
ROAD	NAME

DAY AND TIME RESTRICTIONS

FRONT ST, CAROLINA
BEACH RD, BURNETT BLVD NORTHEAST OF CAROLINA
BEACH RD, 3RD ST - SOUTH
OF DAWSON ST

MONDAY - FRIDAY 7:00 A.M. - 9:00 A.M. AND 4:00 P.M. - 6:00 P.M.

MONDAY - THURSDAY 7:00 A.M. - 9:00 A.M. AND

DAWSON ST, WOOSTER ST, 17TH ST, SHIPYARD BLVD 4:00 P.M. - 6:00 P.M.

FROM 6:00 A.M. ON FRIDAY
THROUGH
9:00 P.M. ON SUNDAY

3RD ST - NORTH OF DAWSON ST

MONDAY - SUNDAY 7:00 A.M. - 6:00 P.M.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

CAROLINA BEACH RD

BURNETT BLVD - NORTHEAST OF CAROLINA BEACH RD

3RD ST - SOUTH OF DAWSON ST

DAWSON ST

WOOSTER ST

17TH ST

SHIPYARD BLVD

HOLIDAY

- 1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- 2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 7:00 A.M. DECEMBER 31st TO 6:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 6:00 P.M. THE FOLLOWING TUESDAY.

- 3. FOR EASTER, BETWEEN THE HOURS OF 7:00 A.M. THURSDAY AND 6:00 P.M. MONDAY.
- 4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.
- 5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 7:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 7:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

- 6. FOR LABOR DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY AND 6:00 P.M. TUESDAY.
- 7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 A.M.TUESDAY AND 6:00 P.M. MONDAY.
- 8. FOR CHRISTMAS, BETWEEN THE HOURS OF 7:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
- 9. FOR ANY SPECIAL EVENT OCCURING BETWEEN 3 HOURS BEFORE THE START AND 3 HOURS AFTER THE END OF THE SPECIAL EVENT, AS DIRECTED BY THE ENGINEER.
- 10. FOR THE WEEK OF THE ANNUAL NORTH CAROLINA AZALEA FESTIVAL IN APRIL, DO NOT PERFORM ANY WORK BETWEEN THE HOURS OF 7:00 AM THURSDAY THROUGH 9:00 AM MONDAY AFTER THE FESTIVAL WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND THE CITY OF WILMINGTON TRAFFIC ENGINEER. CALL (910) 794-4650 OR VISIT THE FESTIVAL'S WEBSITE AT WWW.NCAZALEAFESTIVAL.ORG TO CONFIRM THE DATES OF THE FESTIVAL.
- 11. FOR THE WEEKEND OF THE ANNUAL WILMINGTON RIVERFEST IN OCTOBER, DO NOT PERFORM ANY WORK BETWEEN THE HOURS OF 7:00 AM FRIDAY THROUGH 9:00 AM MONDAY AFTER THE RIVERFEST EVENT WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND THE CITY OF WILMINGTON TRAFFIC ENGINEER. CALL (910) 452-6862 OR VISIT THE FESTIVAL'S WEBSITE AT WWW.WILMINGTONRIVERFEST.COM TO CONFIRM THE DATES OF THE FESTIVAL.
- 12. FOR THE WEEKEND OF THE ANNUAL BATTLESHIP NORTH CAROLINA HALF MARATHON IN NOVEMBER, DO NOT PERFORM ANY WORK BETWEEN THE HOURS OF 7:00 AM FRIDAY THROUGH 9:00 AM MONDAY AFTER THE BATTLESHIP NORTH CAROLINA HALF MARATHON WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND THE CITY OF WILMINGTON TRAFFIC ENGINEER. CALL (910) 398-5539 OR VISIT THE HALF MARATHON'S WEBSITE AT WWW.BATTLESHIPHALFMARATHON.ACTIVE.COM TO CONFIRM THE DATES OF THE HALF MARATHON.
- 13. FOR THE WEEKEND OF THE ANNUAL BEACH2BATTLESHIP TRIATHLON IN OCTOBER, DO NOT PERFORM ANY WORK BETWEEN THE HOURS OF 7:00 AM FRIDAY THROUGH 9:00 AM MONDAY AFTER THE BEACH2 BATTLESHIP TRIATHLON WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND THE CITY OF WILMINGTON TRAFFIC ENGINEER. VISIT THE TRIATHLON'S WEBSITE AT WWW.BEACH2BATTLESHIP.COM TO CONFIRM THE DATES OF THE TRIATHLON.

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

PROJ. REFERENCE NO.	SHEET NO.
GREENFIELD	TMP-1B

ROAD NAME

3RD ST - NORTH OF DAWSON ST

HOLIDAY

- 1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- 2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 7:00 A.M.
 DECEMBER 31st TO 6:00 P.M. JANUARY 2ND. IF NEW
 YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR
 MONDAY THEN UNTIL 6:00 P.M. THE FOLLOWING TUESDAY.
- 3. FOR EASTER, BETWEEN THE HOURS OF 7:00 A.M. THURSDAY AND 6:00 P.M. MONDAY.
- 4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.
- 5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 7:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 7:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

- 6. FOR LABOR DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY AND 6:00 P.M. TUESDAY.
- 7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 A.M.TUESDAY AND 6:00 P.M. MONDAY.
- 8. FOR CHRISTMAS, BETWEEN THE HOURS OF 7:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
- 9. FOR ANY SPECIAL EVENT OCCURING BETWEEN 3 HOURS BEFORE THE START AND 3 HOURS AFTER THE END OF THE SPECIAL EVENT, AS DIRECTED BY THE ENGINEER.
- 10. FOR THE WEEK OF THE ANNUAL NORTH CAROLINA AZALEA FESTIVAL IN APRIL, DO NOT PERFORM ANY WORK BETWEEN THE HOURS OF 7:00 AM THURSDAY THROUGH 6:00 PM MONDAY AFTER THE FESTIVAL WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND THE CITY OF WILMINGTON TRAFFIC ENGINEER. CALL (910) 794-4650 OR VISIT THE FESTIVAL'S WEBSITE AT WWW.NCAZALEAFESTIVAL.ORG TO CONFIRM THE DATES OF THE FESTIVAL.





TRANSPORTATION OPERATIONS PLAN

12. FOR THE WEEKEND OF THE ANNUAL BATTLESHIP NORTH CAROLINA HALF MARATHON IN NOVEMBER, DO NOT PERFORM ANY WORK BETWEEN THE HOURS OF 7:00 AM FRIDAY THROUGH 6:00 PM MONDAY AFTER THE BATTLESHIP NORTH CAROLINA HALF MARATHON WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND THE CITY OF WILMINGTON TRAFFIC ENGINEER. CALL (910) 398-5539 OR VISIT THE HALF MARATHON'S WEBSITE AT WWW.BATTLESHIPHALFMARATHON.ACTIVE.COM TO CONFIRM THE DATES OF THE HALF MARATHON.

13. FOR THE WEEKEND OF THE ANNUAL BEACH2BATTLESHIP TRIATHLON IN OCTOBER, DO NOT PERFORM ANY WORK BETWEEN THE HOURS OF 7:00 AM FRIDAY THROUGH 6:00 PM MONDAY AFTER THE BEACH2 BATTLESHIP TRIATHLON WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND THE CITY OF WILMINGTON TRAFFIC ENGINEER. VISIT THE TRIATHLON'S WEBSITE AT WWW.BEACH2BATTLESHIP.COM TO CONFIRM THE DATES OF THE TRIATHLON.

C) DO NOT STOP TRAFFIC AS FOLLOWS:

ANY ROAD

MONDAY - SUNDAY

5:00 A.M. - 11:00 P.M.

DURATION AND
OPERATION

20 MINUTES
INSTALLATION OF
PAVEMENT MARKINGS

LANE AND SHOULDER CLOSURE REQUIREMENTS

- D) 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.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- H) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PROJ. REFERENCE NO. SHEET NO.

GREENFIELD TMP-1C

 DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON ANY ROAD.

PAVEMENT EDGE DROP OFF REQUIREMENTS

J) 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.

K) 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 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

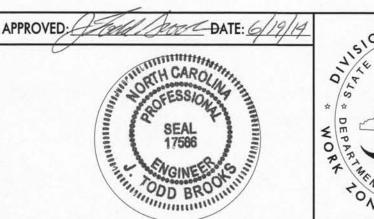
- M) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- N) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRANSPORTATION MANAGEMENT PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRANSPORTATION MANAGEMENT PLANS.

O) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

- P) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- Q) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.





TRAFFIC BARRIER

R) 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.

S) 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 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 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

- T) 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 OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- U) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- V) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES
 PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN
 UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME

MARKING

MARKER

PROJ. REFERENCE NO.

GREENFIELD

SHEET NO.

TMP-1D

ALL ROADS

PAINT

TEMPORARY RAISED

INSTALL TEMPORARY RAISED MARKERS FOR INTERMEDIATE TRAFFIC PATTERNS IN ACCORDANCE WITH RSD 1250.01 AND 1251.01 UNLESS DETAILED OTHERWISE IN THE TMP.

- X) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- Y) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- Z) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.
- AA) TRACE THE PROPOSED MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO INSTALLATION. PLACE DRUMS/SKINNY DRUMS TO DELINEATE ANY PROPOSED MONOLITHIC ISLANDS BEFORE INSTALLATION.

MISCELLANEOUS

- BB) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.
- CC) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.
- DD) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING.

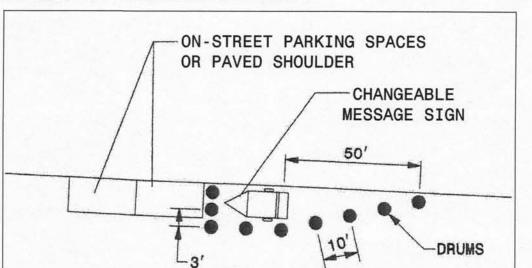
 CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALK (CONCRETE, ASPHALT, OR

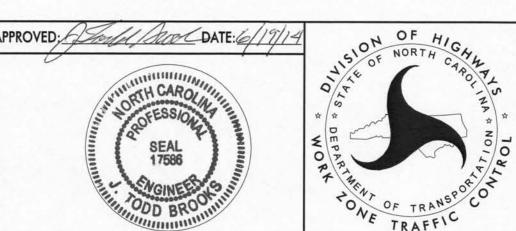
 OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN

 PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).

LOCAL NOTES

- LN-1 CONSTRUCT TEMPORARY/PERMANENT LATERAL WEDGING BETWEEN NEWLY CONSTRUCTED PAVEMENT AND EXISTING PAVEMENT TO MAINTAIN POSITIVE DRAINAGE OF EXISTING PAVEMENT (I.E., PREVENT PONDING OF WATER) AND PREVENT DROP-OFF BETWEEN NEW AND EXISTING PAVEMENT AS DIRECTED BY THE ENGINEER.
- LN-2 WHEN PLACING CMS ON PAVED SHOULDER OR IN PARKING LANE ADJACENT TO OPEN TRAVEL LANE, USE TYPICAL SHOWN BELOW FOR DEVICES TO DELINEATE CMS.





TRANSPORTATION OPERATIONS PLAN

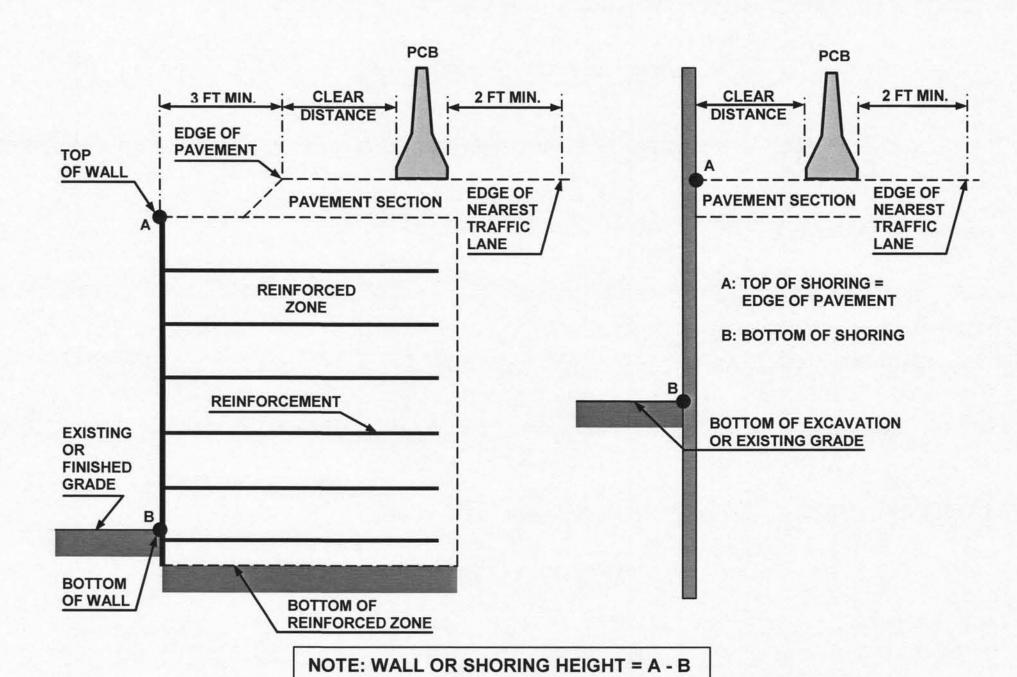


FIGURE A

NOTES

- 1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- 2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- 3- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

 (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).
- 4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.
- 5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.
- 6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- 7- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.
- 8- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.
- 9- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.
- 10- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

MINIMUM REQUIRED CLEAR DISTANCE	E. inches
---------------------------------	-----------

Barrier	Pavement	Offset *	Design Speed, mph					
Type	Type	ft	<30	31-40	41-50	51-60	61-70	71-80
		<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
	Asphalt	26-32	29	32	36	39	42	45
	rispitate	32-38	30	34	38	41	43	46
<u>m</u>		38-44	31	34	41	43	45	48
PCB		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
re		>56	32	36	42	45	47	51
Unanchored		<8	17	18	21	22	25	26
nc		8-14	19	20	23	25	26	29
na		14-20	22	22	24	26	28	31
n		20-26	23	24	26	27	30	34
	Concrete	26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
Anchored PCB	Asphalt	All Offsets		24 f	or All D	esign Sp	eeds	
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

^{*} See Figure Below

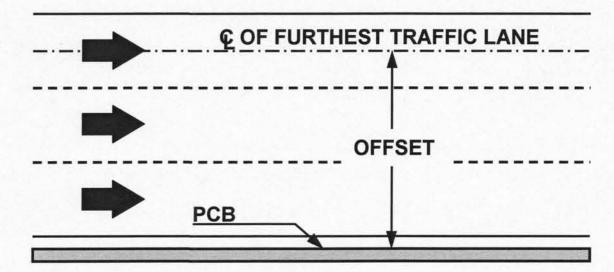
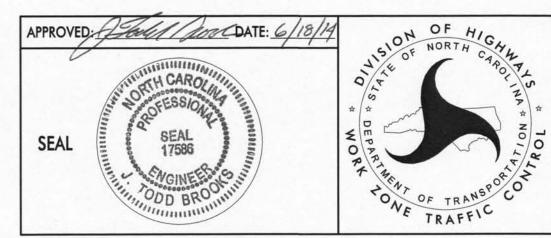


FIGURE B



PORTABLE CONCRETE BARRIER
AT
TEMPORARY SHORING LOCATIONS

TEMPORARY SHORING DATA

SHORING LOCATION NO. 1

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

USE CONTRACTOR DESIGNED TEMPORARY SHORING FROM STATION -L- 14+42±, 16 FT RIGHT, TO STATION -L- 14+62±, 16 FT RIGHT.

DESIGN TEMPORARY SHORING FROM STATION -L- 14+42 ±, 16.0 FT RIGHT, TO STATION -L- 14+62 ±, 16.0 FT RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

	S	OIL PARAMETERS		
	UNIT WEIGHT (PCF)	SUBMERGED UNIT WEIGHT (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PSF)
GROUND SURFACE TO EL3 FT	120	60	30	0
EL3 FT TO EL28 FT	80	20	11	150
BELOW EL28 FT	120	60	0	1000

ASSUME WATER TABLE ELEVATION = 0 FT ASSUME EXCAVATION WILL BE DEWATERED DOWN TO BOTTOM OF EXCAVATION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION -L- 14+42±, 16 FT RIGHT, TO STATION -L- 14+62±, 16 FT RIGHT, MAY NOT PENETRATE BELOW ELEVATION -35 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 14+42±, 16 FT RIGHT, TO STATION -L- 14+62±, 16 FT RIGHT.

SHORING LOCATION NO. 2

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

USE CONTRACTOR DESIGNED TEMPORARY SHORING FROM STATION -L- 14+29±, 25 FT RIGHT, TO STATION -L- 14+72±, 25 FT RIGHT.

DESIGN TEMPORARY SHORING FROM STATION -L- 14+29±, 25 FT RIGHT, TO STATION -L- 14+72±, 25 FT RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

	S	OIL PARAMETERS		
	UNIT WEIGHT (PCF)	SUBMERGED UNIT WEIGHT (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PSF)
GROUND SURFACE TO EL3 FT	120	60	30	0
EL3 FT TO EL28 FT	80	20	11	150
BELOW EL28 FT	120	60	0	1000

ASSUME WATER TABLE ELEVATION = 0 FT

ASSUME EXCAVATION WILL BE DEWATERED DOWN TO BOTTOM OF EXCAVATION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION -L- 14+29±, 25 FT RIGHT, TO STATION -L- 14+72±, 25 FT RIGHT, MAY NOT PENETRATE BELOW ELEVATION -35 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

SHORING LOCATION NO. 3

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

USE CONTRACTOR DESIGNED TEMPORARY SHORING FROM STATION -L- 14+85±, 25 FT RIGHT, TO STATION -L- 15+07±, 25 FT RIGHT.

DESIGN TEMPORARY SHORING FROM STATION -L- 14+85±, 25 FT RIGHT, TO STATION -L- 15+07±, 25 FT RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

	S	OIL PARAMETERS		
	UNIT WEIGHT (PCF)	SUBMERGED UNIT WEIGHT (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PSF)
GROUND SURFACE TO EL3 FT	120	60	30	0
EL3 FT TO EL28 FT	80	20	11	150
BELOW EL28 FT	120	60	0	1000

ASSUME WATER TABLE ELEVATION = 0 FT

ASSUME EXCAVATION WILL BE DEWATERED DOWN TO BOTTOM OF EXCAVATION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION -L- 14+85±, 25 FT RIGHT, TO STATION -L- 15+07±, 25 FT RIGHT, MAY NOT PENETRATE BELOW ELEVATION -35 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 14+85±, 25 FT RIGHT, TO STATION -L- 15+07±, 25 FT RIGHT.

SHORING LOCATION NO. 4

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

USE CONTRACTOR DESIGNED TEMPORARY SHORING FROM STATION -L- 14+85±, 16 FT RIGHT, TO STATION -L- 15+07±, 16 FT RIGHT.

DESIGN TEMPORARY SHORING FROM STATION -L- 14+85±, 16 FT RIGHT, TO STATION -L- 15+07±, 16 FT RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

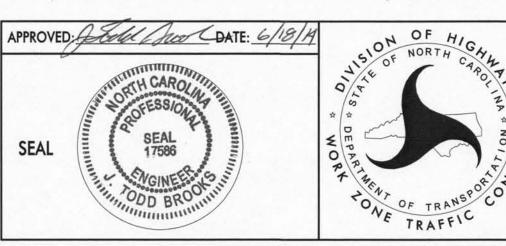
	S	OIL PARAMETERS		
	UNIT WEIGHT (PCF)	SUBMERGED UNIT WEIGHT (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PSF)
GROUND SURFACE TO EL3 FT	120	60	30	0
EL3 FT TO EL28 FT	80	20	11	150
BELOW EL28 FT	120	60	0	1000

ASSUME WATER TABLE ELEVATION = 0 FT

ASSUME EXCAVATION WILL BE DEWATERED DOWN TO BOTTOM OF EXCAVATION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION -L- 14+85±, 16 FT RIGHT, TO STATION -L- 15+07±, 16 FT RIGHT, MAY NOT PENETRATE BELOW ELEVATION -35 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

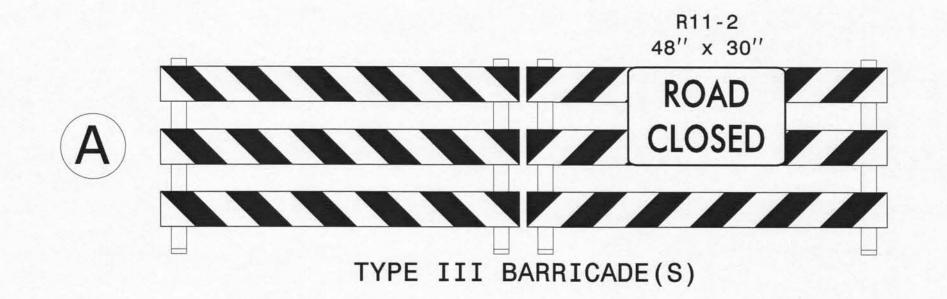
THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH SEALED DOCUMENTS FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENTS WERE SUBMITTED TO THE WZTC SECTION ON FEBRUARY 12, 2013 AND FEBRUARY 21, 2013 AND SEALED BY PROFESSIONAL ENGINEER, JINYOUNG PARK, P.E., LICENSE # 32171.

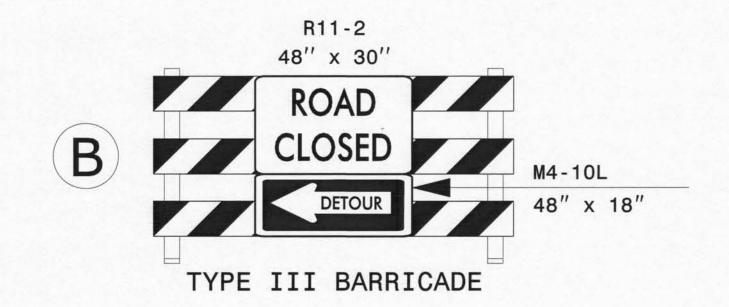


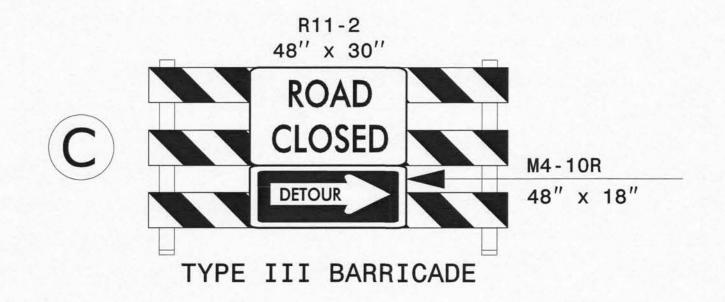
TEMPORARY SHORING NOTES

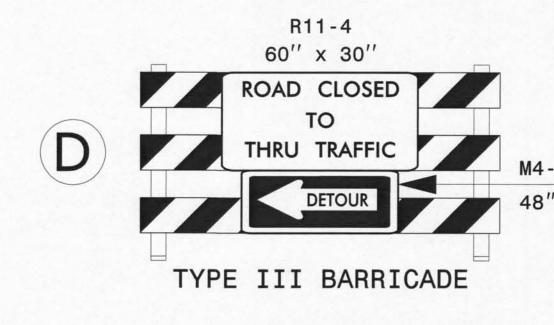
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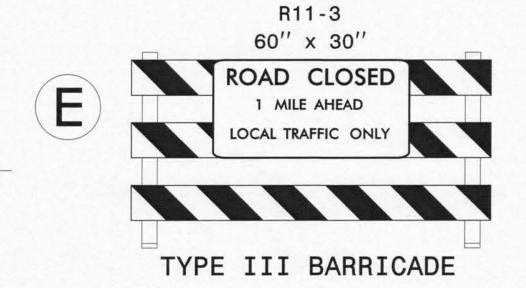
GREENFIELD TMP - 7

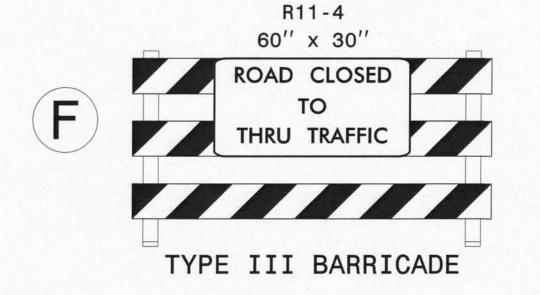




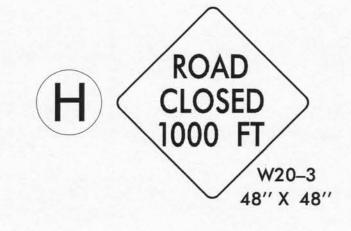


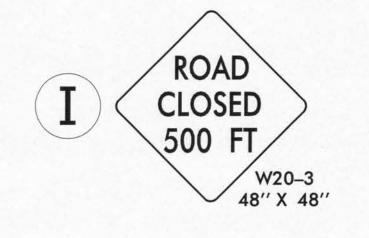


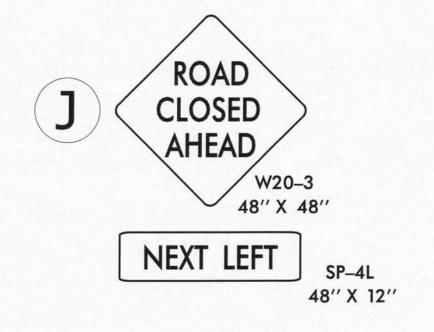


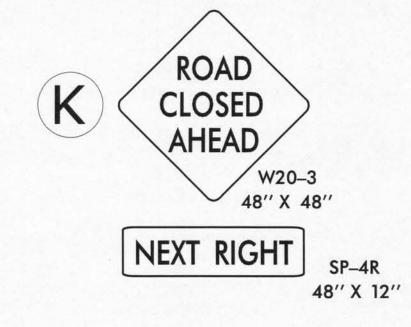




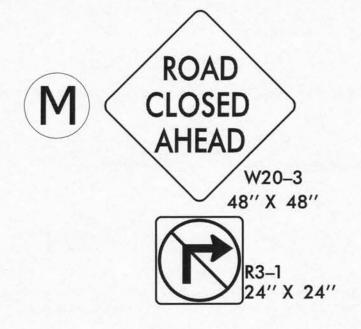


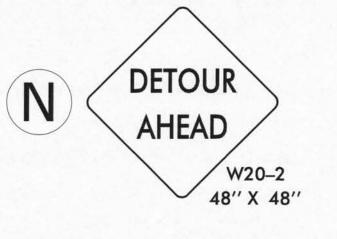


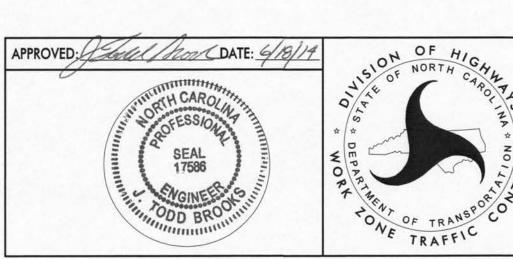


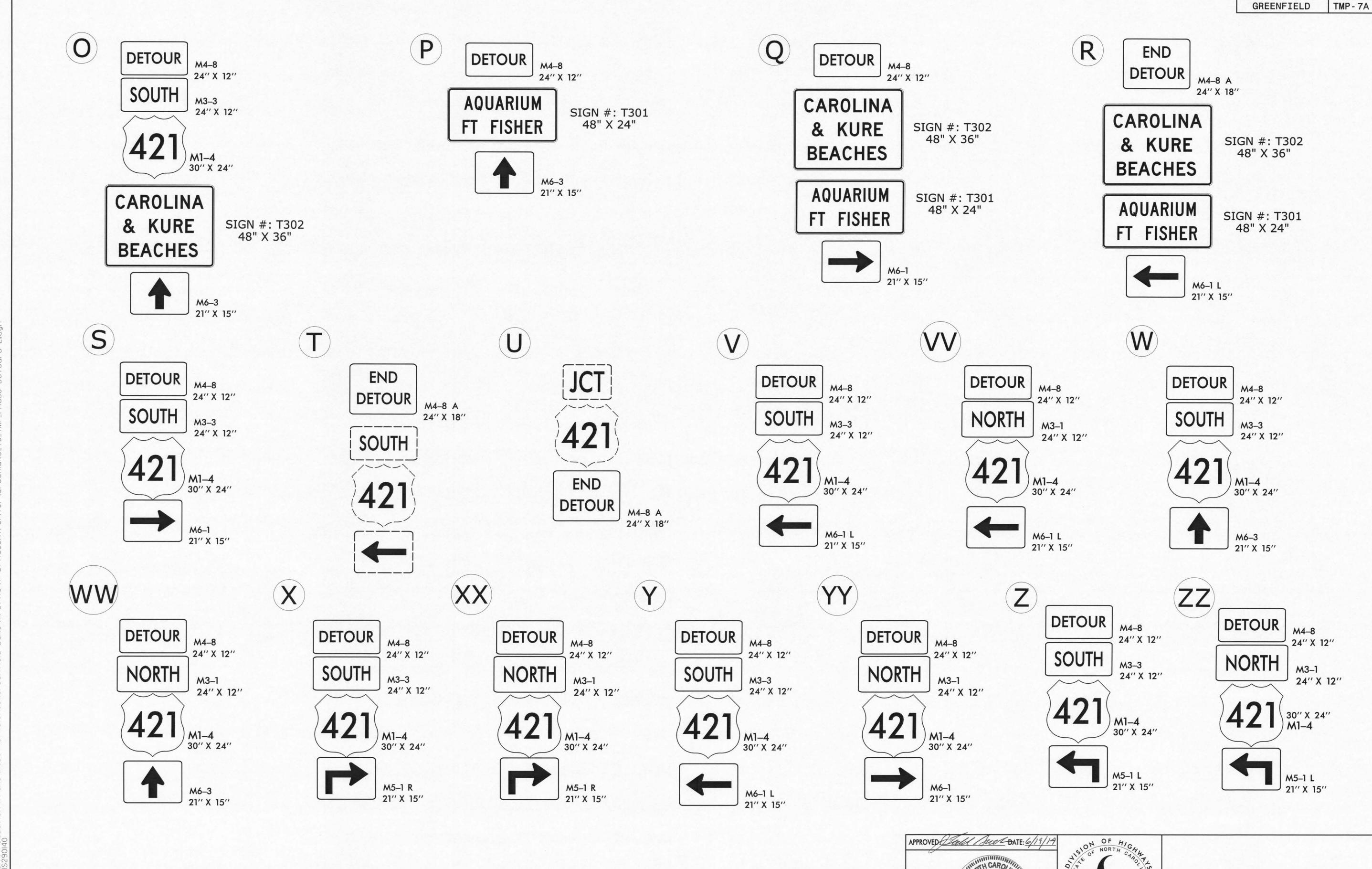




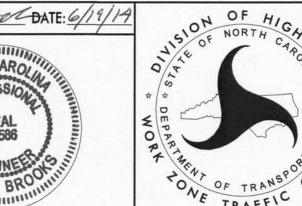








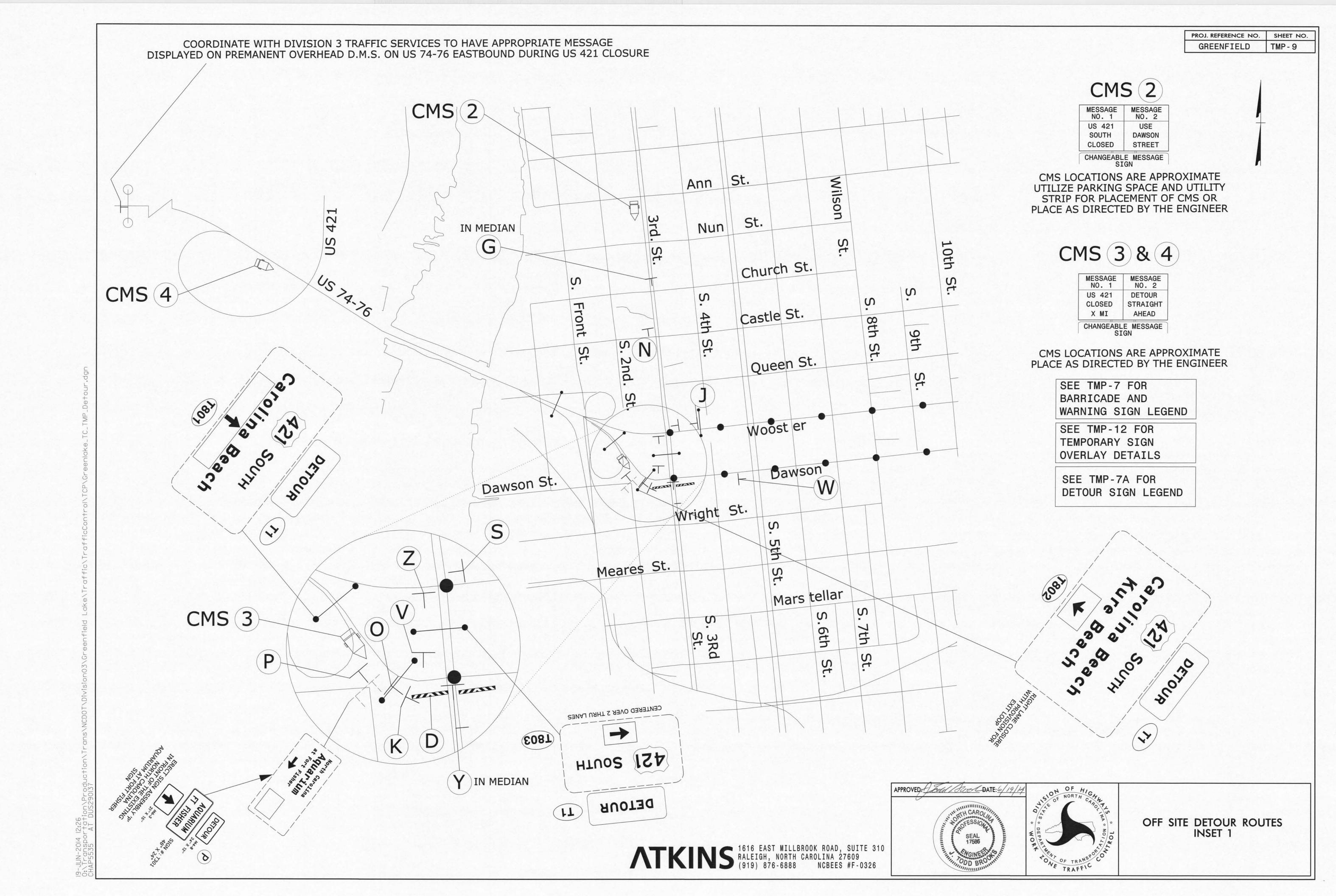
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326



OFF SITE DETOUR ROUTES SIGNS AND BARRICADES

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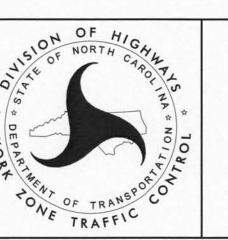
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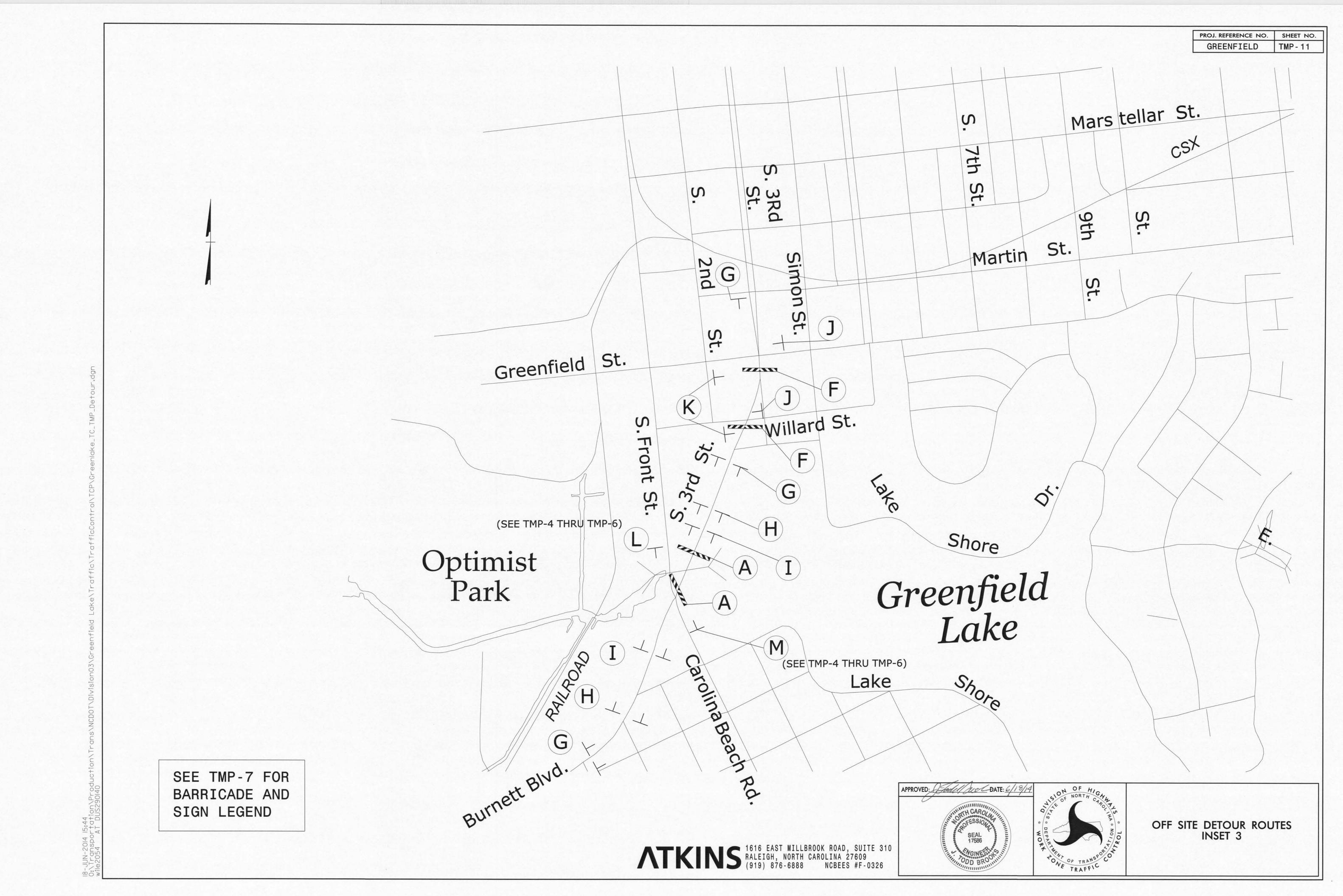
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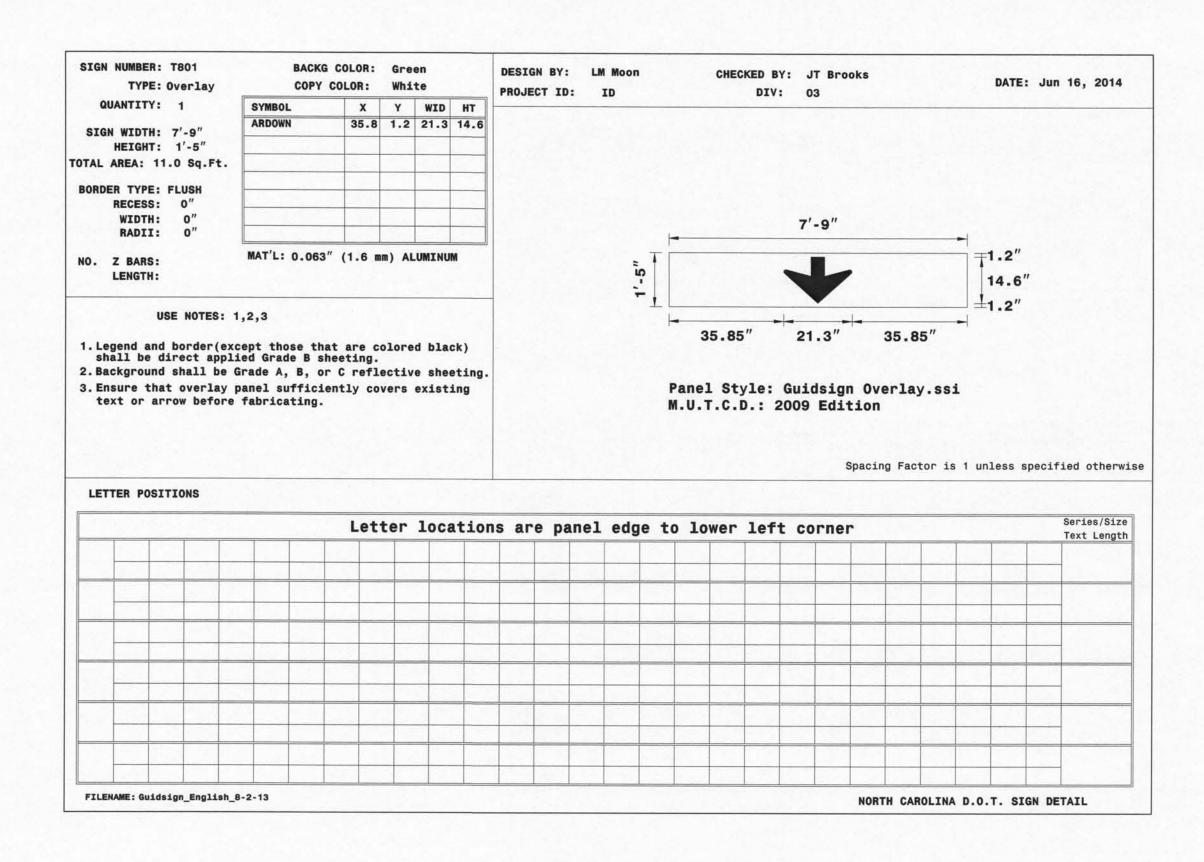


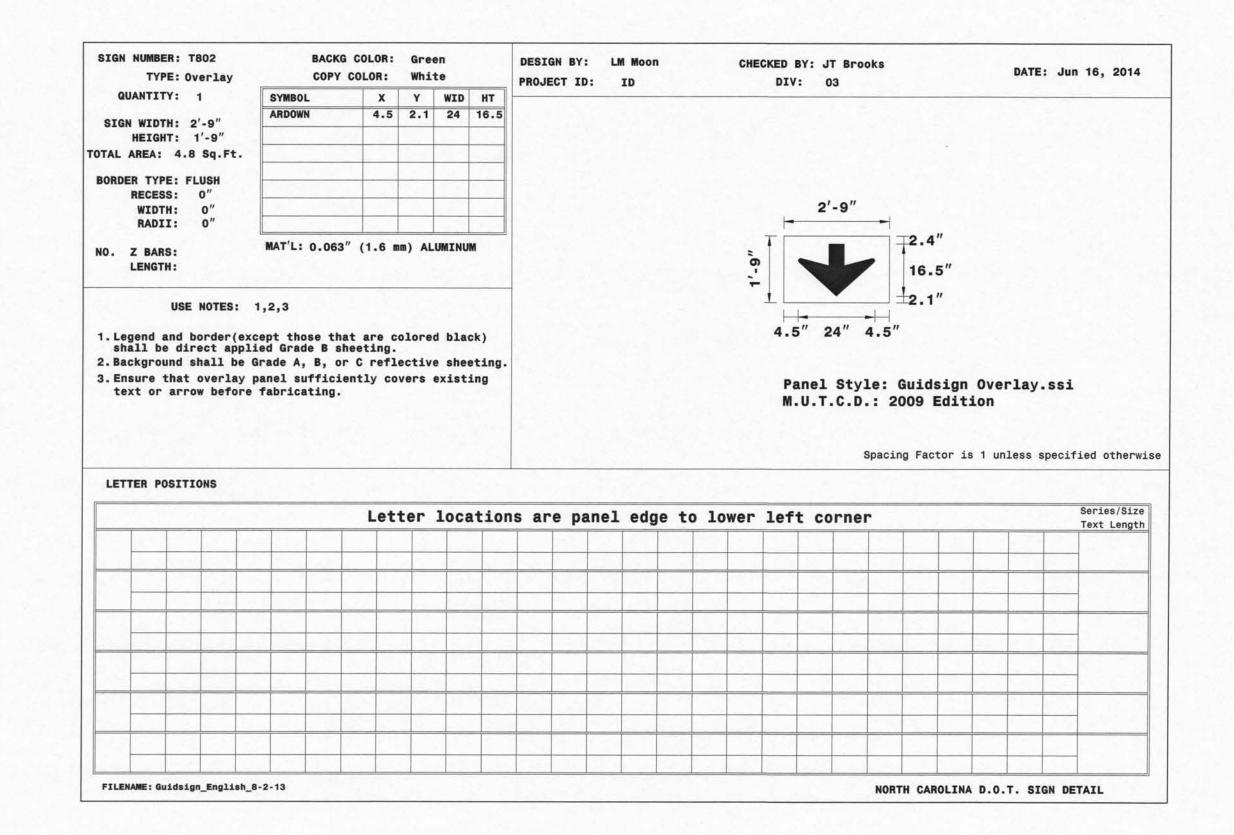


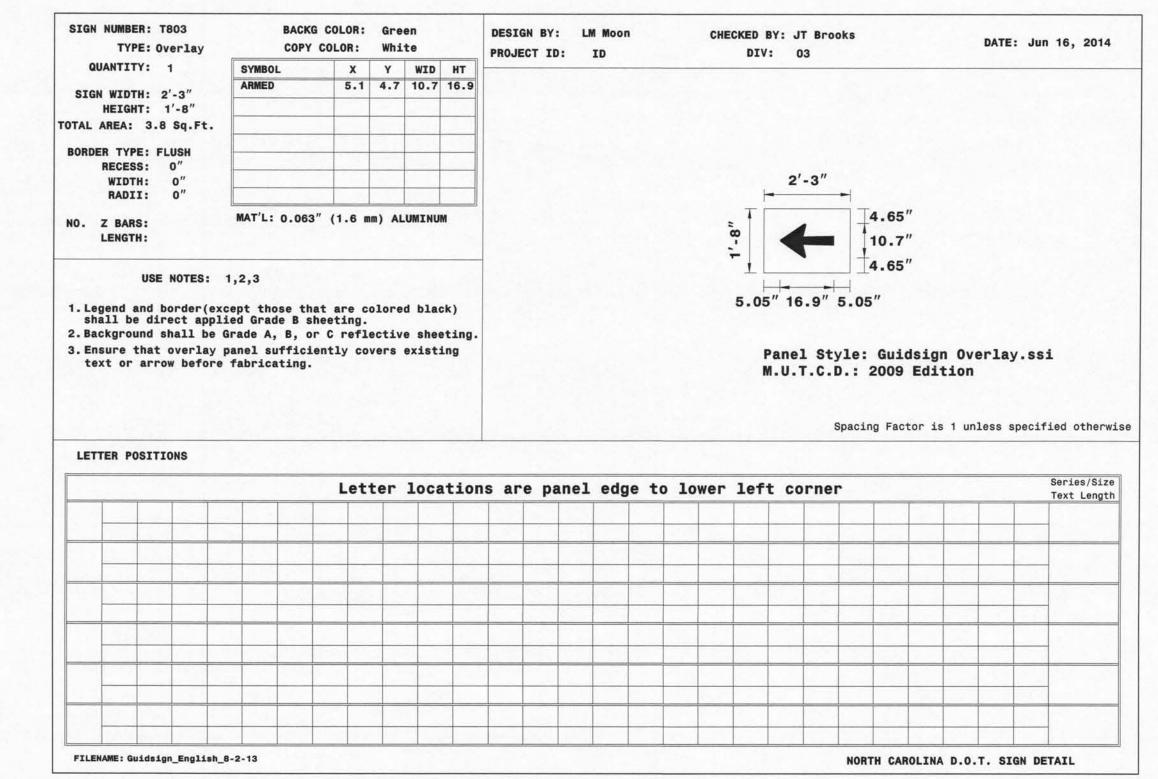
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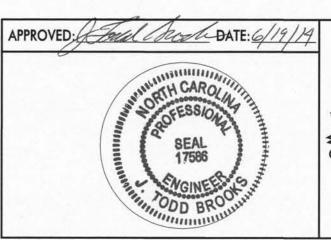


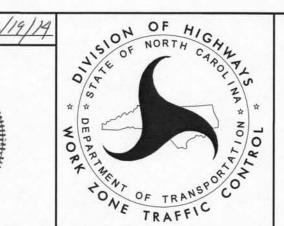
ROJ. REFERENCE NO.	SHEET NO.
GREENFIELD	TMP-13











OVERLAY DESIGNS