STATE PROJECT REFERENCE NO.	SHEET NO.
R-2417AA	TCP-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED TRAFFIC CONTROL, MARKING & DELINEATION

LEE COUNTY

R-2417AA

TIP PROJECT:

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"-ROADWAY DESIGN UNIT-N.C. DEPARTMENT OF TRANSPORTATION-RALEIGH, N.C., DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURE
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW PANELS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGERS
1160.01	TEMPORARY CRASH CUSHION
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.03	PAVEMENT MARKINGS - INTERCHANGES
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS (TEMPORARY & PERMANENT)
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS
1267.01	FLEXIBLE DELINEATOR INSTALLATION
1267.02	FLEXIBLE DELINEATOR SPACING
1267.03	FLEXIBLE DELINEATOR-INTERCHANGES

INDEX OF SHEETS

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TCP-5 THRU TCP-9	PHASE I DETAILS
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TCP-11	PHASE II OVERVIEW
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TCP-18 THRU TCP-21	PHASE II, STEP 3c DETAILS
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TCP-49	DETOUR SIGN DESIGNS
TCP-50 AND TCP-51	WORK ZONE DETAIL SHEETS
PM-1	FINAL PAVEMENT MARKING SCHEDULE
PM-2 THRU 7	FINAL PAVEMENT MARKING PLAN

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- NORTH ARROW
- PROPOSED PVMT.
- EXIST. PVMT.
- WORK AREA
- REMOVAL OF EXISTING PAVEMENT

TRAFFIC CONTROL DEVICES

- TYPE III BARRICADE
- CONE
- DRUM
- FLASHING ARROW PANEL (TYPE C)
- TYPE 'B' WARNING LIGHT
- STATIONARY SIGN
- PORTABLE SIGN
- STATIONARY OR PORTABLE SIGN
- WARNING FLAGS
- CRASH CUSHION
- CHANGEABLE MESSAGE SIGN
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- POLICE
- FLAGGER

PAVEMENT MARKINGS

- CRYSTAL/CRYSTAL PAVEMENT MARKER
- YELLOW/YELLOW PAVEMENT MARKER
- CRYSTAL/RED PAVEMENT MARKER
- PAVEMENT MARKING SYMBOLS

PLAN REVIEWED BY: N.C.D.O.T. WORK ZONE TRAFFIC CONTROL UNIT

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G. L.GETTIER, PE — TRAFFIC CONTROL PROJECT ENGINEER
J. W. WOOLARD, PE — TRAFFIC CONTROL PROJ. DESIGN ENGINEER
TRAFFIC CONTROL DESIGN ENGINEER
TRAFFIC CONTROL DESIGN TECHNICIAN

APPROVED: Michael T. Rzepka
DATE: 12-9-09

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PLAN PREPARED FOR N.C.D.O.T. BY:

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B. L. MARIOTTE — DESIGN TECHNICIAN

10/20/2009
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PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-2

TEMP. PAV'T MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM
	PAVEMENT MARKING LINES	
		PAINT (4")
PA	WHITE EDGELINE	
PB	YELLOW EDGELINE	
PC	10 ft. WHITE SKIP	
PD	2 ft. WHITE MINISKIP	
PE	WHITE SOLID LANE LINE	
PI	YELLOW DOUBLE CENTER LINE	
		PAINT (8")
PR	WHITE GORE LINE	
PV	YELLOW DIAGONAL	
		PAINT (24")
P4	WHITE STOP BAR	
		REMOVABLE TAPE (4")
RA	WHITE EDGELINE	
RB	YELLOW EDGELINE	
RC	10 ft. WHITE SKIP	
RD	2 ft. WHITE MINISKIP	
RI	YELLOW DOUBLE CENTERLINE	
		REMOVABLE TAPE (24")
R3	WHITE STOPBAR	
	PAVEMENT MARKING SYMBOLS	
		PAINT
QA	LEFT TURN ARROW	
QB	RIGHT TURN ARROW	
QC	STRAIGHT ARROW	
	PAVEMENT MARKING CHARACTERS	
		PAINT
QI	ALPHANUMERIC CHARACTER	
	PAVEMENT MARKERS	
		TEMPORARY RAISED
MH	YELLOW AND YELLOW	
MI	CRYSTAL AND RED	

APPROVED: Michael T. Rzepka DATE: 12-22-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

TEMPORARY PAVEMENT MARKING SCHEDULE

SCALE:	NONE
DATE:	10-09
DWG. BY:	BLM
DESIGN BY:	MTR
REVIEWED BY:	MSA

DIVISION OF HIGHWAYS NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL

REVISIONS

CADD FILE

12/22/2009
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Florence & Hutcheson, Inc.

PROJECT NOTES

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-3

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 CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

US 421

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 6:00 P.M. DECEMBER 31st TO 7:00 A.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 TO 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 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

B) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DURATION AND OPERATION
1. US 421	15 MIN. PAVEMENT MARKING TIE - IN / TRAFFIC SHIFT
2. CUMNOCK RD.	15 MIN. PAVEMENT MARKING TIE - IN / TRAFFIC SHIFT

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) 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.

D) 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..

E) 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.

F) 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 REMAIN WITHIN THE CLOSED TRAVEL LANE.

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 A 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 FT 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) CONTRACTOR WILL BE RESPONSIBLE FOR PERMANENT SIGNING.

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

TRAFFIC BARRIER

M) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRAFFIC CONTROL 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 TRAFFIC CONTROL 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 TRAFFIC CONTROL 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 TEMPORARY 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 TEMPORARY BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF TEMPORARY BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS:

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) SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY, WHEN LANE CLOSURES ARE NOT IN EFFECT. WHEN SKINNY DRUMS ARE ALLOWED, REFER TO SECTION 1180 OF STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OR AS SHOWN IN THE PLANS.

P) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

Q) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES DRUMS PERPENDICULAR TO THE EDGE OF THE TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

R) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
1. ALL ROADS	THERMOPLASTIC	PERMANENT RAISED
2. BRIDGE DECKS	PAINT	PERMANENT RAISED

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

ROAD NAME	MARKING	MARKER
1. ALL ROADS	PAINT	TEMPORARY RAISED
2. BRIDGES	REMOVABLE TAPE	TEMPORARY RAISED

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

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

V) TRACE THE EDGE OF PROPOSED MONOLITHIC ISLANDS WITH THE PROPER COLOR PAVEMENT MARKING PRIOR TO INSTALLATION OF A PROPOSED MONOLITHIC ISLAND.

W) 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(6) MONTHS AS DIRECTED BY THE ENGINEER.

TEMPORARY / FINAL SIGNALS

X) SHIFT AND REVISE ALL SIGNAL HEADS AS SHOWN ON THE SIGNAL PLANS.

MISCELLANEOUS

Y) POLICE MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS, AS DIRECTED BY THE ENGINEER.

APPROVED: Michael T. Rzepka DATE: 12-3-10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PROJECT NOTES

SCALE:	NONE
DATE:	12-10
DWG. BY:	BLM
DESIGN BY:	MTR
REVIEWED BY:	MSA

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

REVISIONS

CADD FILE

12/3/2010
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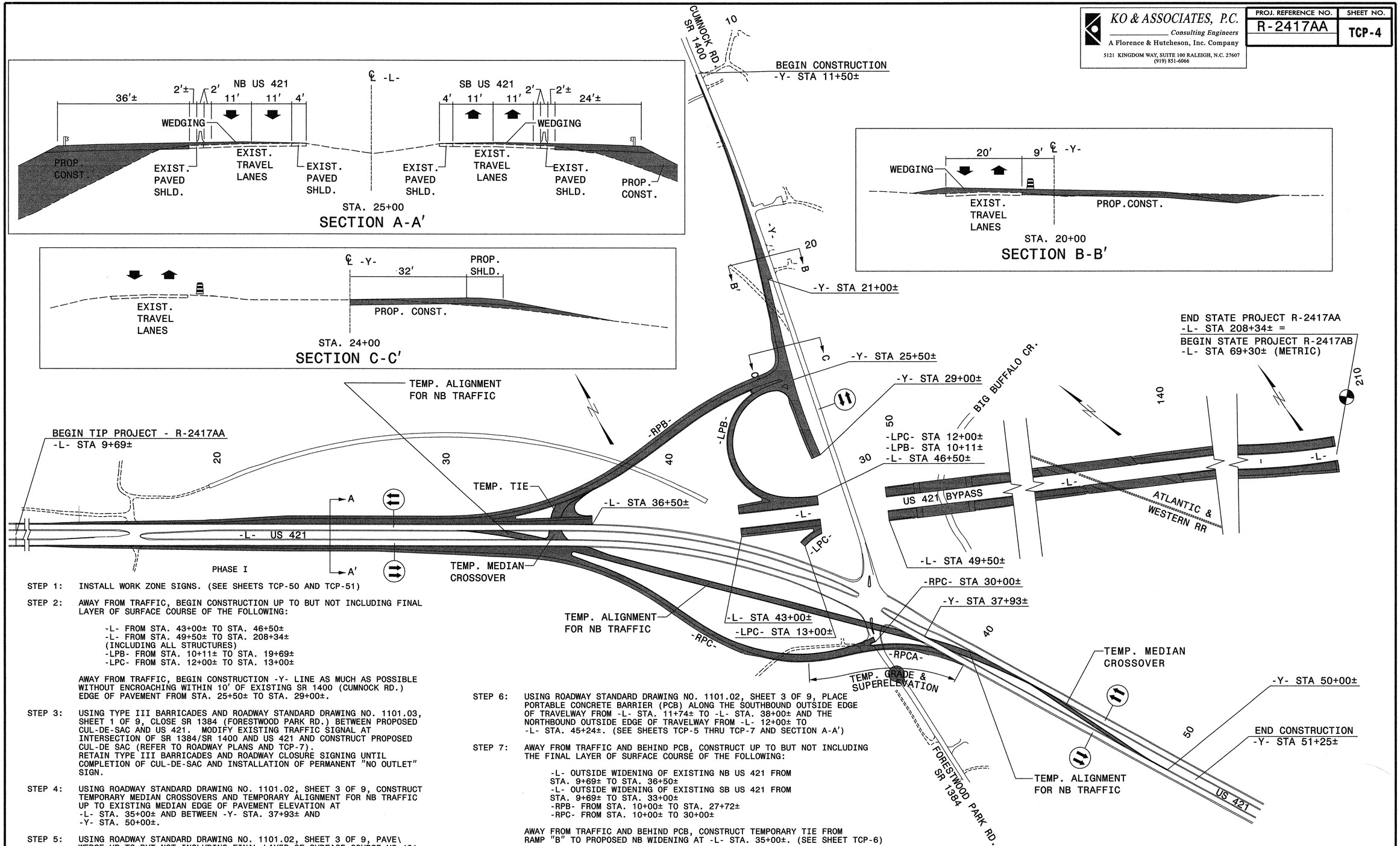
PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-4

SECTION A-A′

SECTION C-C′

SECTION B-B′



STEP 1: INSTALL WORK ZONE SIGNS. (SEE SHEETS TCP-50 AND TCP-51)

STEP 2: AWAY FROM TRAFFIC, BEGIN CONSTRUCTION UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE OF THE FOLLOWING:

-L- FROM STA. 43+00± TO STA. 46+50±
-L- FROM STA. 49+50± TO STA. 208+34±
(INCLUDING ALL STRUCTURES)
-LPB- FROM STA. 10+11± TO STA. 19+69±
-LPC- FROM STA. 12+00± TO STA. 13+00±

AWAY FROM TRAFFIC, BEGIN CONSTRUCTION -Y- LINE AS MUCH AS POSSIBLE WITHOUT ENCROACHING WITHIN 10′ OF EXISTING SR 1400 (CUMNOCK RD.) EDGE OF PAVEMENT FROM STA. 25+50± TO STA. 29+00±.

STEP 3: USING TYPE III BARRICADES AND ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9, CLOSE SR 1384 (FORESTWOOD PARK RD.) BETWEEN PROPOSED CUL-DE-SAC AND US 421. MODIFY EXISTING TRAFFIC SIGNAL AT INTERSECTION OF SR 1384/SR 1400 AND US 421 AND CONSTRUCT PROPOSED CUL-DE SAC (REFER TO ROADWAY PLANS AND TCP-7).
RETAIN TYPE III BARRICADES AND ROADWAY CLOSURE SIGNING UNTIL COMPLETION OF CUL-DE-SAC AND INSTALLATION OF PERMANENT "NO OUTLET" SIGN.

STEP 4: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 3 OF 9, CONSTRUCT TEMPORARY MEDIAN CROSSOVERS AND TEMPORARY ALIGNMENT FOR NB TRAFFIC UP TO EXISTING MEDIAN EDGE OF PAVEMENT ELEVATION AT
-L- STA. 35+00± AND BETWEEN -Y- STA. 37+93± AND
-Y- STA. 50+00±.

STEP 5: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 3 OF 9, PAVE\ WEDGE UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE US 421 NB (FULL WIDTH) FROM -L- STA. 9+69± TO -L- STA. 36+50± AND US 421 SB (FULL WIDTH) FROM -L- STA. 9+69± TO -L- STA. 33+00±. (REFER TO ROADWAY PLANS AND SEE SECTION A-A′)
INSTALL PAVEMENT MARKING SKIP CENTER AND OUTSIDE EDGELINES AND MARKERS BETWEEN -L- STA. 10+00± AND -L- STA. 46+30±. (SEE SHEETS TCP-5 THRU TCP-7)

USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 9, PAVE\ WEDGE EXISTING SR 1400 (CUMNOCK RD.)(FULL WIDTH) UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE FROM -Y- STA. 11+50± TO -Y- STA. 21+00±. (REFER TO ROADWAY PLANS AND SEE SECTION B-B′)
USING PAINT, REPLACE PAVEMENT MARKINGS LINES.

STEP 6: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 3 OF 9, PLACE PORTABLE CONCRETE BARRIER (PCB) ALONG THE SOUTHBOUND OUTSIDE EDGE OF TRAVELWAY FROM -L- STA. 11+74± TO -L- STA. 38+00± AND THE NORTHBOUND OUTSIDE EDGE OF TRAVELWAY FROM -L- 12+00± TO -L- STA. 45+24±. (SEE SHEETS TCP-5 THRU TCP-7 AND SECTION A-A′)

STEP 7: AWAY FROM TRAFFIC AND BEHIND PCB, CONSTRUCT UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE OF THE FOLLOWING:

-L- OUTSIDE WIDENING OF EXISTING NB US 421 FROM STA. 9+69± TO STA. 36+50±
-L- OUTSIDE WIDENING OF EXISTING SB US 421 FROM STA. 9+69± TO STA. 33+00±
-RPB- FROM STA. 10+00± TO STA. 27+72±
-RPC- FROM STA. 10+00± TO 30+00±

AWAY FROM TRAFFIC AND BEHIND PCB, CONSTRUCT TEMPORARY TIE FROM RAMP "B" TO PROPOSED NB WIDENING AT -L- STA. 35+00±. (SEE SHEET TCP-6)

BEHIND DRUMS, CONSTRUCT RIGHT SIDE OF -Y- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM STA. 21+00± TO STA. 25+50 (SEE SECTION C-C′ AND SHEETS TCP-7 AND TCP-9)

CONSTRUCT THE TEMPORARY ALIGNMENT FOR NB TRAFFIC AND -RPCA- (TEMPORARY GRADE AND SUPER ELEVATION) FROM RAMP "C" TO EXISTING US 421 AT -Y- STA. 40+00±. (REFER TO ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 3 OF 9)(SEE SHEETS TCP-6 THRU TCP-8)

USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 9, CONSTRUCT WIDENING ON RIGHT SIDE OF -Y- FROM STA. 11+50± TO STA. 21+00± UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE. (SEE SECTION B-B′)(SEE SHEET TCP-9)

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE I OVERVIEW & PHASING

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
TRAFFIC ENGINEERING BRANCH
TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

11/4/2009
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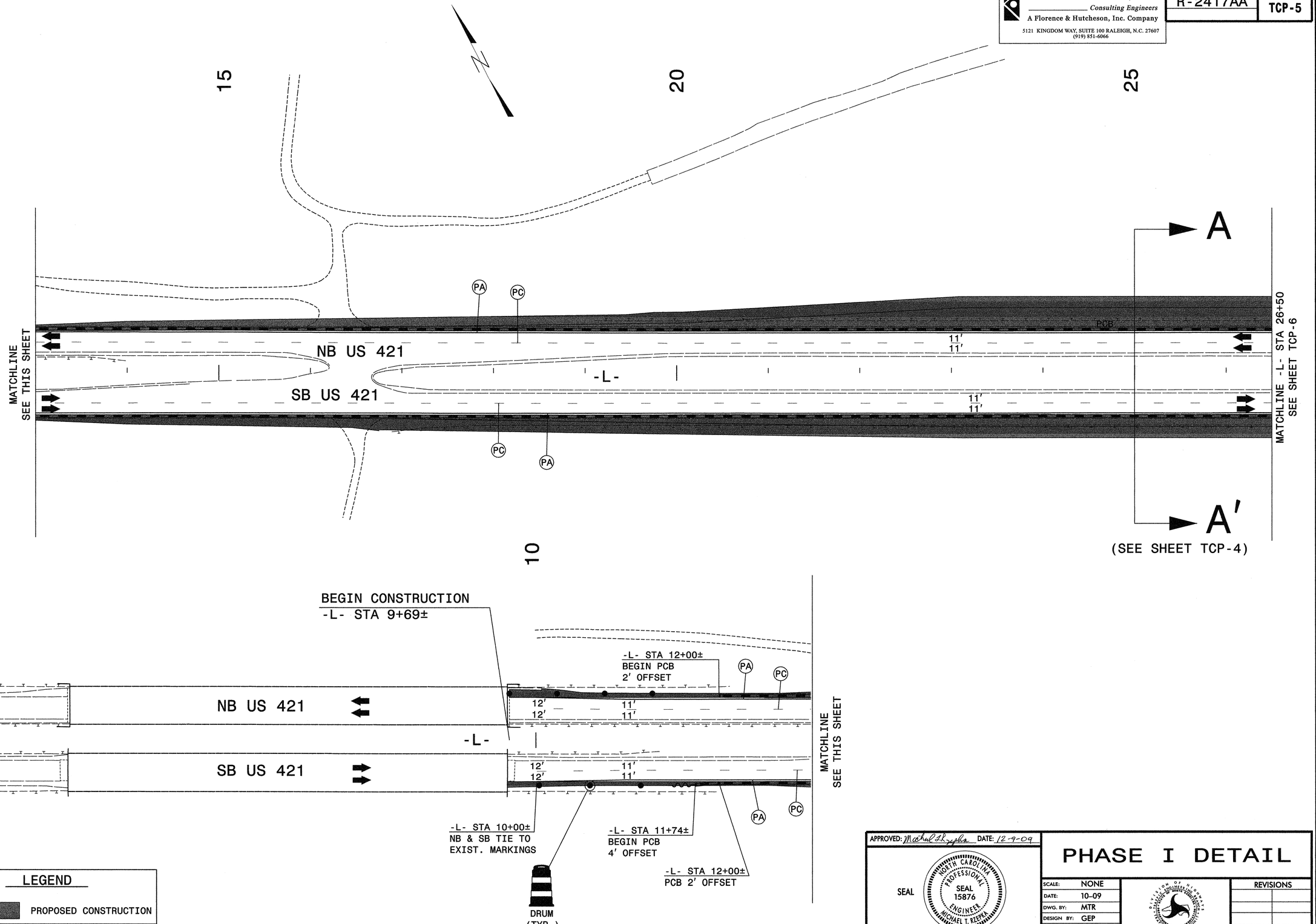
PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-5



APPROVED: Michael T. Kepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. KEPKA

PHASE I DETAIL

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY AND SAFETY DIVISION
TRAFFIC CONTROL

REVISIONS

CADD FILE

10/21/2009
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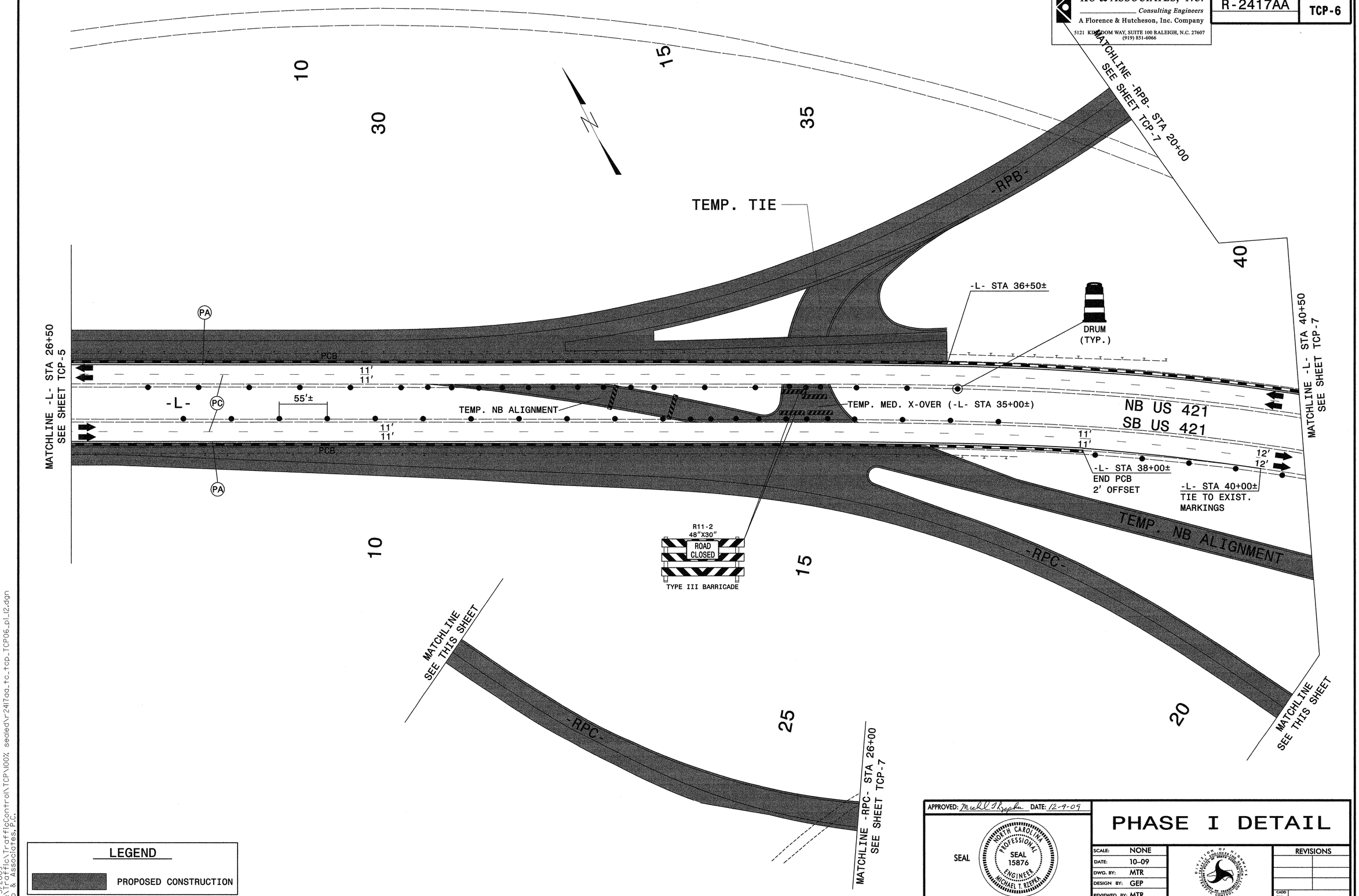
PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-6



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Kiepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. KIEPKA

PHASE I DETAIL

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
TRANSPORTATION MANAGEMENT UNIT
TRAFFIC CONTROL

REVISIONS

CADD FILE

11/3/2009
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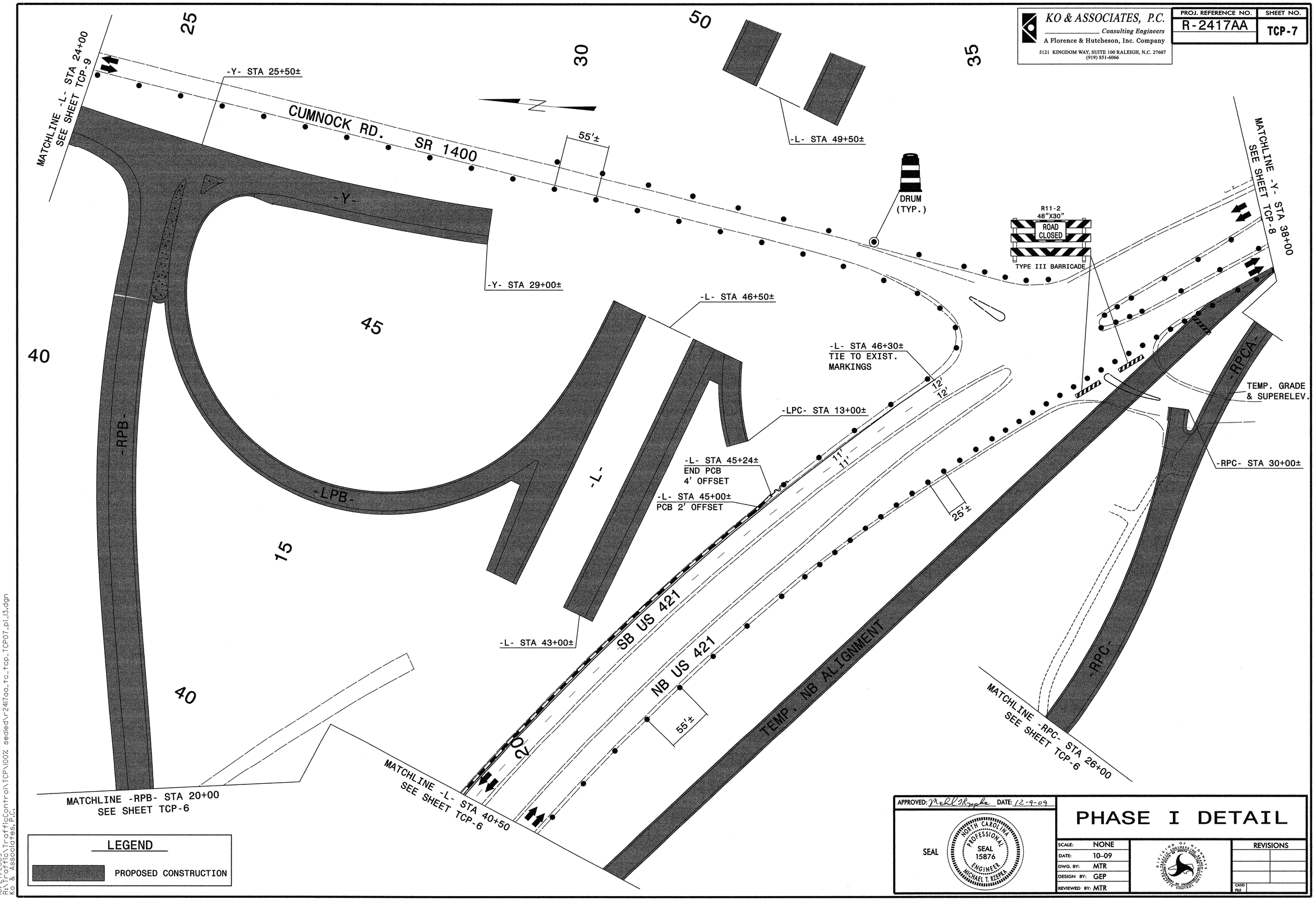
KO & Associates, P.C.



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Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066
PROJ. REFERENCE NO.
R-2417AA
SHEET NO.
TCP-7
MATCHLINE -L- STA 24+00
SEE SHEET TCP-9
-Y- STA 25+50±
CUMNOCK RD. SR 1400
55'±
-L- STA 49+50±
DRUM
(TYP.)
R11-2
48"X30"
ROAD
CLOSED
TYPE III BARRICADE
MATCHLINE -Y- STA 38+00
SEE SHEET TCP-8
-Y-
-Y- STA 29+00±
-L- STA 46+50±
-L- STA 46+30±
TIE TO EXIST.
MARKINGS
12'
12'
-LPC- STA 13+00±
TEMP. GRADE
& SUPERELEV.
-RPCA-
-RPB-
-L-
-L- STA 45+24±
END PCB
4' OFFSET
11'
11'
-L- STA 45+00±
PCB 2' OFFSET
-RPC- STA 30+00±
-LPB-
25'±
-L- STA 43+00±
SB US 421
NB US 421
TEMP. NB ALIGNMENT
-RPC-
55'±
MATCHLINE -RPC- STA 26+00
SEE SHEET TCP-6
MATCHLINE -RPB- STA 20+00
SEE SHEET TCP-6
MATCHLINE -L- STA 40+50
SEE SHEET TCP-6
25
30
35
40
45
50
15
20
40
LEGEND
PROPOSED CONSTRUCTION
APPROVED: Michael T. Rzepka DATE: 12-9-09
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA
PHASE I DETAIL
SCALE: NONE
DATE: 10-09
DWG. BY: MTR
DESIGN BY: GEP
REVIEWED BY: MTR
REVISIONS
CADD FILE
10/27/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp_TCP07_pl_13.dgn
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Consulting Engineers
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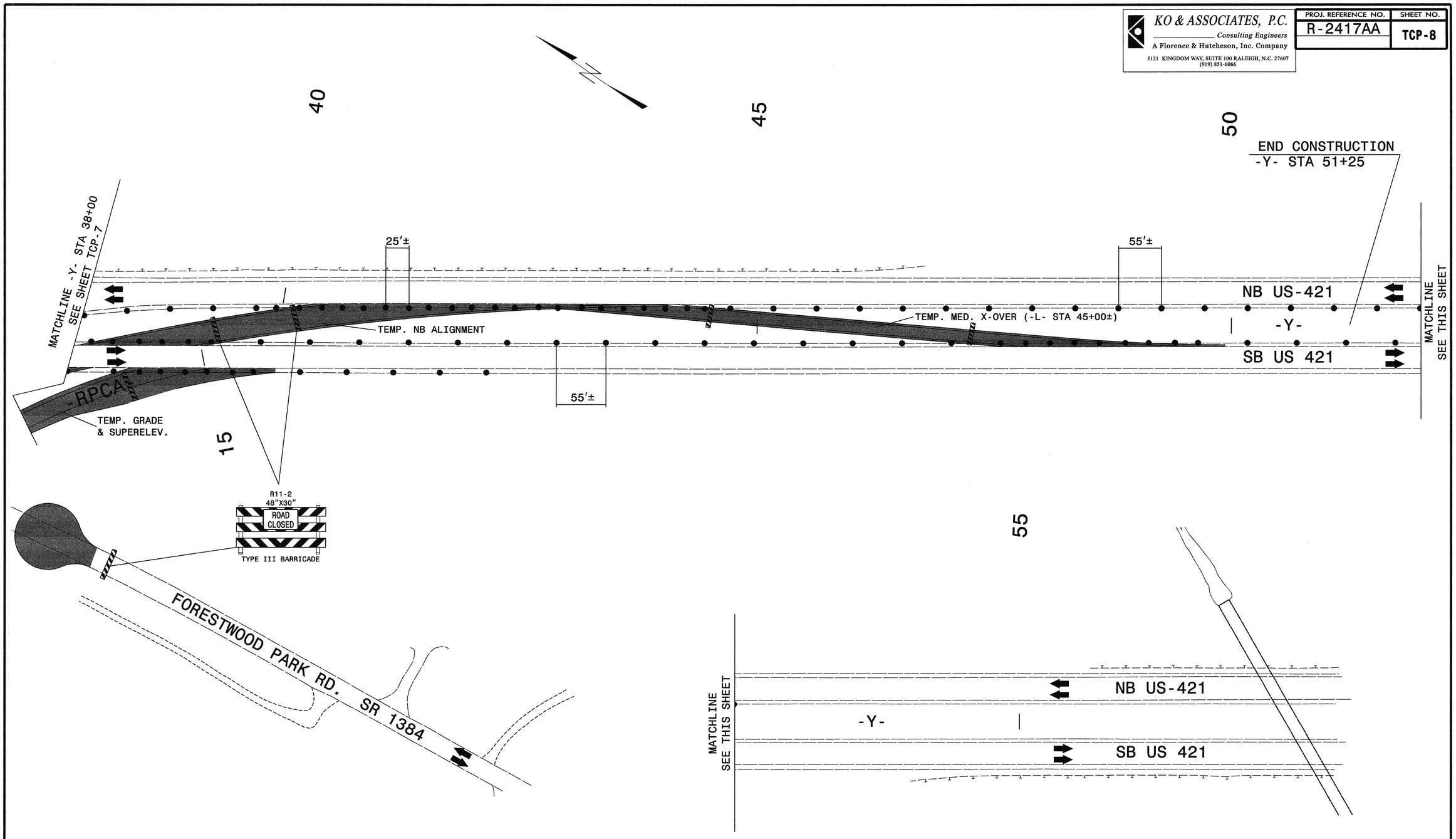
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-8



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

PHASE I DETAIL

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

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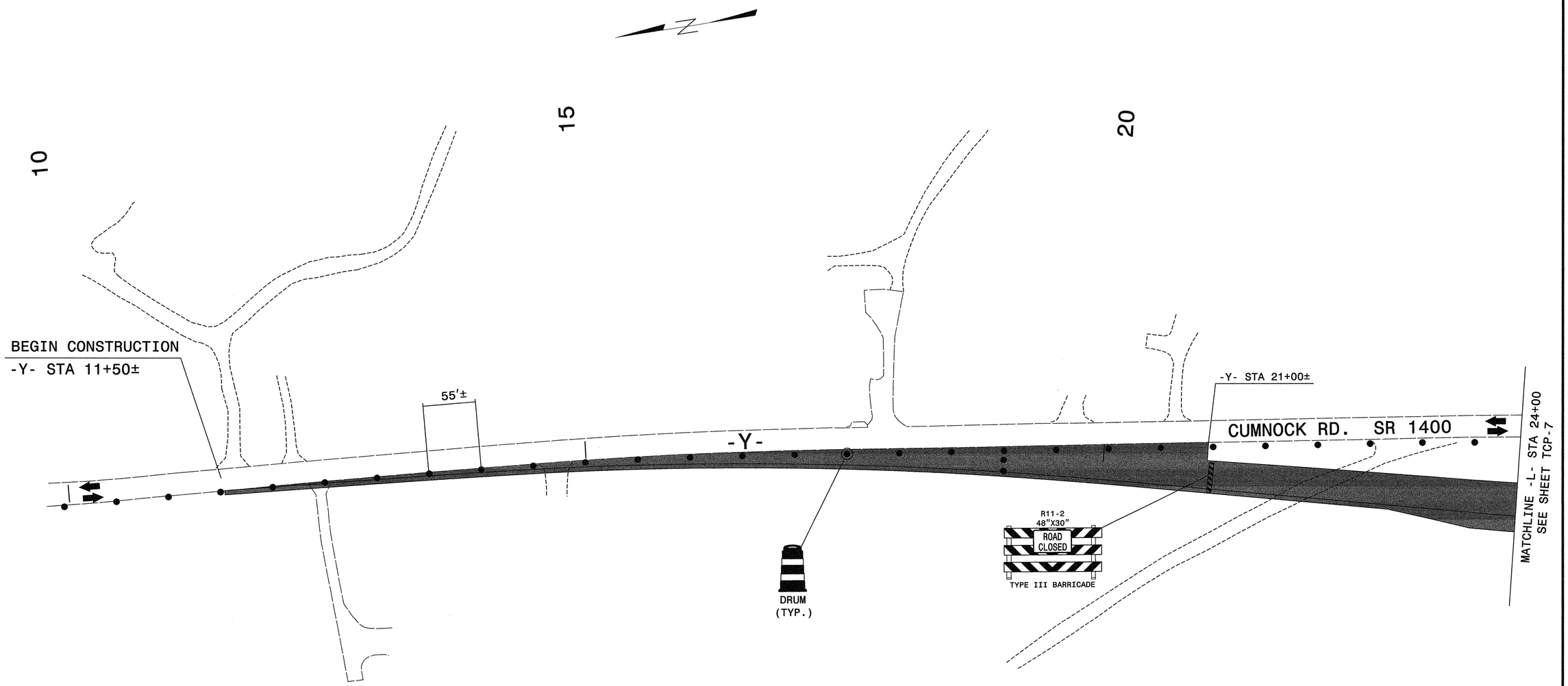
KO & Associates, P.C.

KO & ASSOCIATES, P.C. Consulting Engineers A Florence & Hutcheson, Inc. Company 5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607 (919) 851-6066	PROJ. REFERENCE NO.	SHEET NO.
	R-2417AA	TCP-9



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE I DETAIL

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC ENGINEERING BRANCH TRAFFIC CONTROL UNIT

REVISIONS

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R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp_TCP09_pl_yl.dgn
Ko & Associates, P.C.

PHASE II

STEP 1: INSTALL PAVEMENT MARKING LINES, SYMBOLS AND MARKERS AS SHOWN ON SHEET TCP-27 THRU TCP-31 WHICH CAN BE PLACED BEHIND PCB AND WITHOUT INTERFERING WITH EXISTING MARKINGS.

INSTALL AND COVER TEMPORARY ROUTE MARKERS AND TYPE "D" GUIDE SIGNS FOR CUMNOCK RD. AS SHOWN ON SHEETS TCP-12 THRU TCP-15.

STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 3 OF 9, REMOVE PCB ALONG THE SOUTHBOUND OUTSIDE EDGE OF TRAVEL WAY FROM -L- STA. 11+74± TO -L- STA. 38+00± AND THE NB OUTSIDE EDGE OF TRAVEL WAY FROM -L- STA. 12+00± TO -L- STA. 45+24±.

COMPLETE THE WORK REQUIRED OF PHASE II, STEP 3 FROM 6:00 P.M. FRIDAY TO 6:00 A.M. MONDAY. (SEE SPECIAL PROVISIONS AND LIQUIDATED DAMAGES)

STEP 3: PLACE US 421 AND SR 1400 (CUMNOCK RD.) TRAFFIC INTO THE PATTERN SHOWN ON SHEETS TCP-27 THRU TCP-31 ACCORDING TO THE FOLLOWING SEQUENCE:

a) USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 3 OF 9, SHIFT US 421 SOUTHBOUND TRAFFIC ONTO RAMP "C" AND -RPCA-. INSTALL REMAINING PAVEMENT MARKING LINES, SYMBOLS AND MARKERS AND REMOVE ALL EXISTING PAVEMENT MARKING LINES WHICH CONFLICT WITH NEW PAVEMENT MARKING LINES. SIMULTANEOUSLY, USING TYPE III BARRICADES, CLOSE MEDIAN OPENING IN FRONT OF SR 1400 (CUMNOCK RD.) AND UNCOVER TEMPORARY ROUTE MARKERS AND TYPE "D" GUIDE SIGNS.(SEE SHEET TCP-11, SECTION A-A' AND SHEETS TCP-12 THRU TCP-15)

b) USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 3 OF 9, CLOSE OUTSIDE US 421 NOTRHBOUND LANE AND REMOVE EXISTING 10' WHITE SKIPS AND OUTSIDE EDGE LINE BETWEEN STA. 9+69± AND STA. 20+10±. (SEE SHEET TCP-17)

c) USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 3 OF 9, PLACE US 421 NORTHBOND INTO THE EXISTING OUTSIDE LANE FROM STA. 34+00± TO STA. 56+00± (SEE SHEETS TCP-19 THRU TCP-21). USING DRUMS LATERALY SHIFT US 421 NORTHBOUND FROM EXISTING OUTSIDE LANE INTO PROPOSED RAMP "B" ALIGNMENT AS SHOWN ON SHEETS TCP-18 AND TCP-19.

PAVE/WEDGE AS MUCH OF THE TEMPORARY NB ALIGNMENT TIE-IN WITH -L- NORTHBOUND LANES AS POSSIBLE WITHOUT INTERFERING WITH US 421 TRAFFIC (SEE SHEET TCP-19).

REMOVE EXISTING 10' WHITE SKIPS AND OUTSIDE EDGE LINE BETWEEN STA. 20+10± AND STA. 27+00±. (SEE SHEETS TCP-18 AND TCP-19)

AWAY FROM TRAFFIC, INSTALL PCB BETWEEN TEMPORARY NB ALIGNMENT AND -RPCA- FROM -RPC- STA. 30+79± TO -RPCA- STA. 14+58± (SEE SHEETS TCP-29 AND TCP-30).

USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 3 OF 9, INSTALL PCB BETWEEN TEMPORARY NB ALIGNMENT AND -RPCA- FROM -RPCA- STA. 14+58± TO -Y- STA. 45+00± (SEE SHEET TCP-30).

d) USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 3 OF 9, PLACE US 421 NORTHBOUND TRAFFIC INTO THE INSIDE LANE FROM -L- STA. 25+00± TO -Y- STA. 56+00± AS SHOWN ON SHEETS TCP-22 THRU TCP-25. SIMULTANEOUSLY, USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 9, SHIFT SR 1400 (CUMNOCK RD.) TRAFFIC ONTO RAMP "B" AND TEMPORARY TIE (SEE SHEETS TCP-23, TCP-24 AND TCP-26).

PAVE/WEDGE THE REMAINDER OF THE TEMPORARY NB ALIGNMENT TIE-IN WITH -L- NORTHBOUND LANES (SEE SHEET TCP-23). USE FLAGGER AND "FLAGGER AHEAD" SIGN IF WEDGING INTERFERES WITH RAMP "B" TRAFFIC.

INSTALL REMAINDER OF TEMPORARY PAVEMENT MARKING LINES, SYMBOLS AND MARKERS AND OPEN ALL LANES UP TO TRAFFIC. (SEE SHEETS TCP-27 THRU TCP-31)

STEP 4: AWAY FROM TRAFFIC, BEGIN CONSTRUCTION OF -LPC- UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE FROM STA. 13+00± TO STA. 15+00±.

STEP 5: AWAY FROM TRAFFIC AND BEHIND DRUMS, CONSTRUCT UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE OF THE FOLLOWING: (SEE SHEETS TCP-28 THRU TCP-31)

-L- NB AND SB FROM STA. 36+50± TO STA. 43+00±
-L- NB AND SB FROM STA. 46+50± TO STA. 49+50±
-Y- LEFT FROM STA. 21+00± TO STA. 29+00±
(SEE SHEET TCP-11, SECTION B-B')
-Y- FULL WIDTH FROM STA. 29+00± TO STA. 38+18±
(INCLUDING STRUCTURE AND -RPC- TURNOUT)
-Y- LEFT FROM STA. 38+18± TO STA. 40+50±
TEMPORARY TIE FROM -Y- STA. 40+50± TO EXISTING NB US 421

USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 9, CONSTRUCT WIDENING ON LEFT SIDE OF SR 1400 (CUMNOCK RD.) UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE FROM STA. 11+50± TO STA. 21+00±. (SEE SHEET TCP-31)

STEP 6: COMPLETE THE FOLLOWING:

-L- FROM STA. 43+00± TO STA. 46+50±
-L- FROM STA. 49+50± TO STA. 208+34±
(INCLUDING ALL STRUCTURES)
-Y- RIGHT FROM STA. 25+50± TO STA. 29+00±.

APPROVED: Michael Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II PHASING

SCALE:	NONE
DATE:	10-06
DWG. BY:	GEP
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

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10/21/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r-2417aa_tc_tcp_TCP10_PIIPHASING.dgn
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Consulting Engineers
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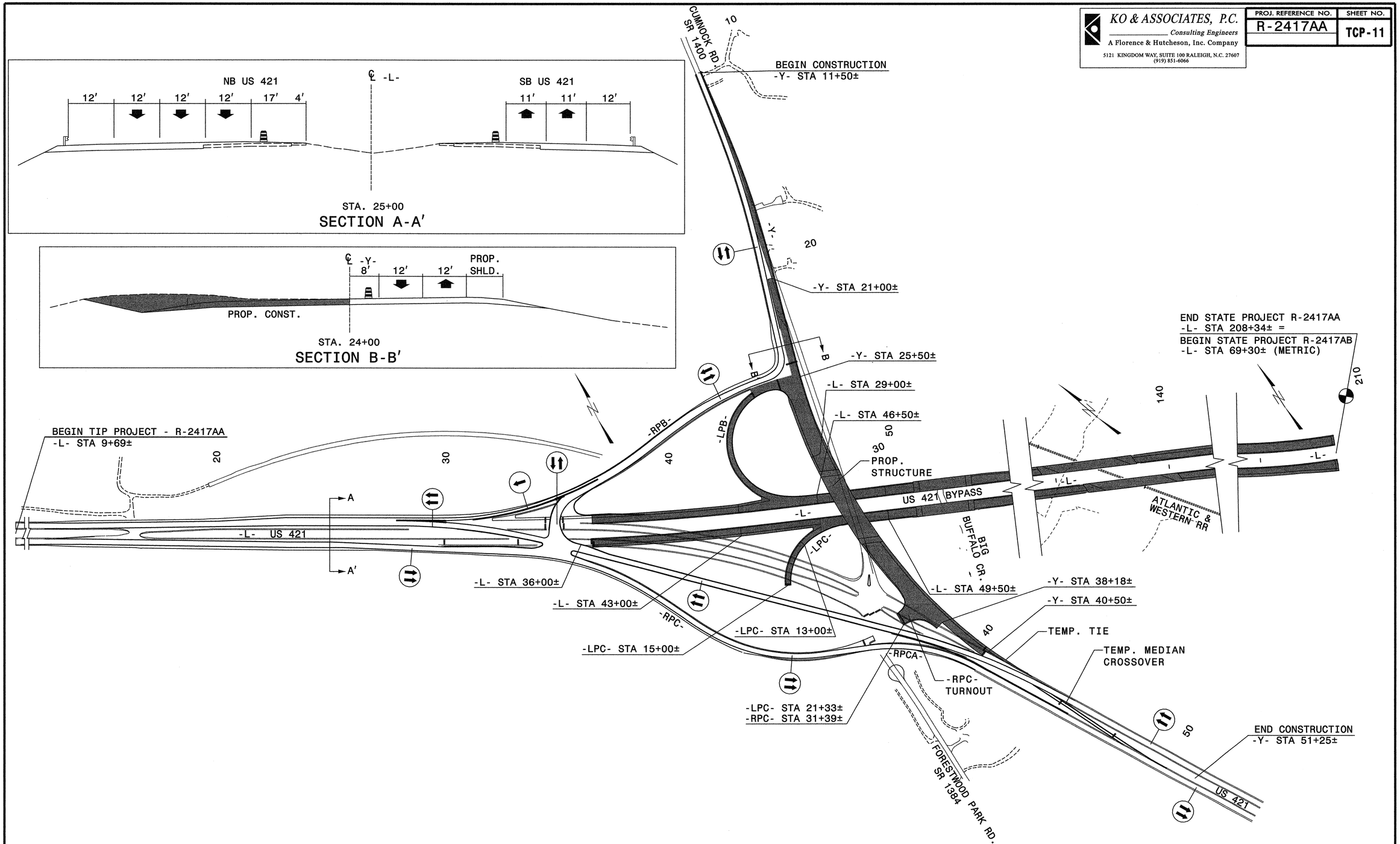
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-11



APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II OVERVIEW

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

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11/3/2009
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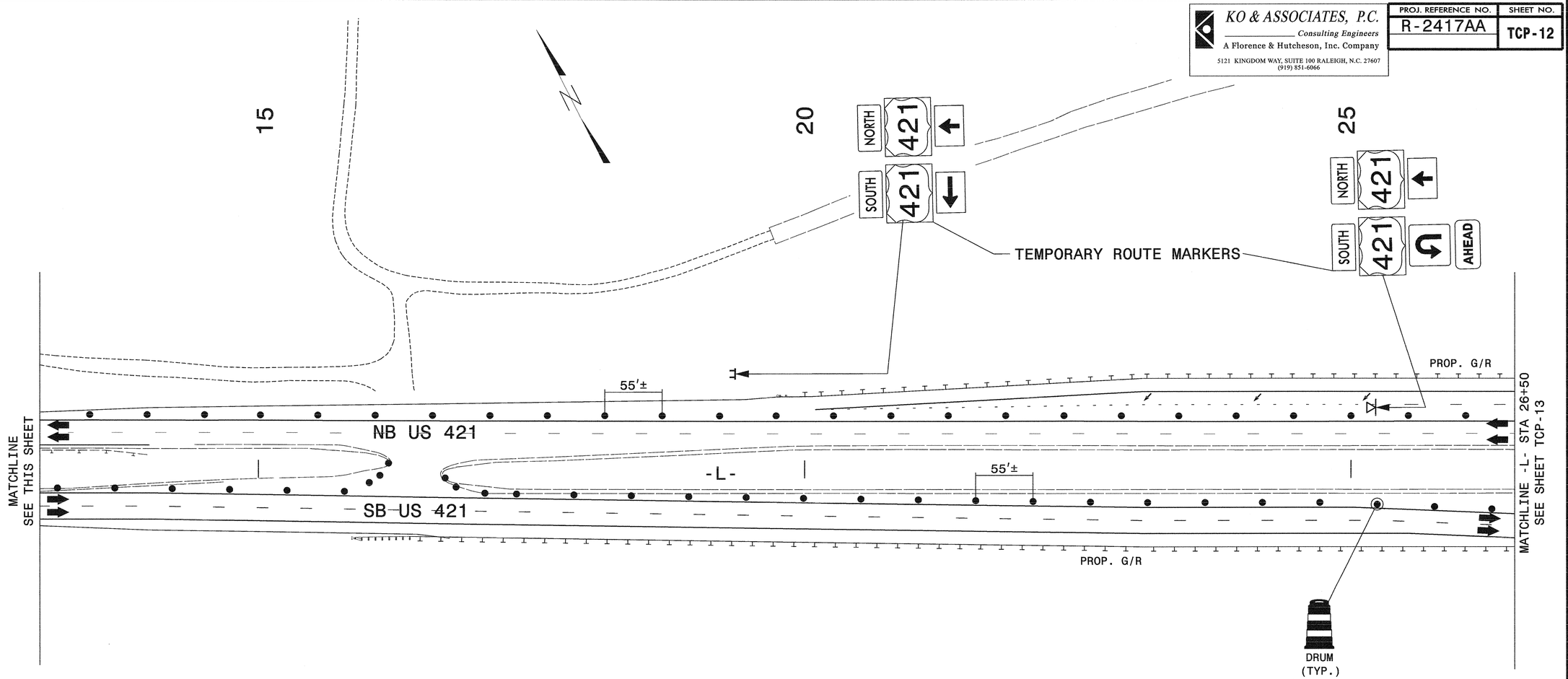
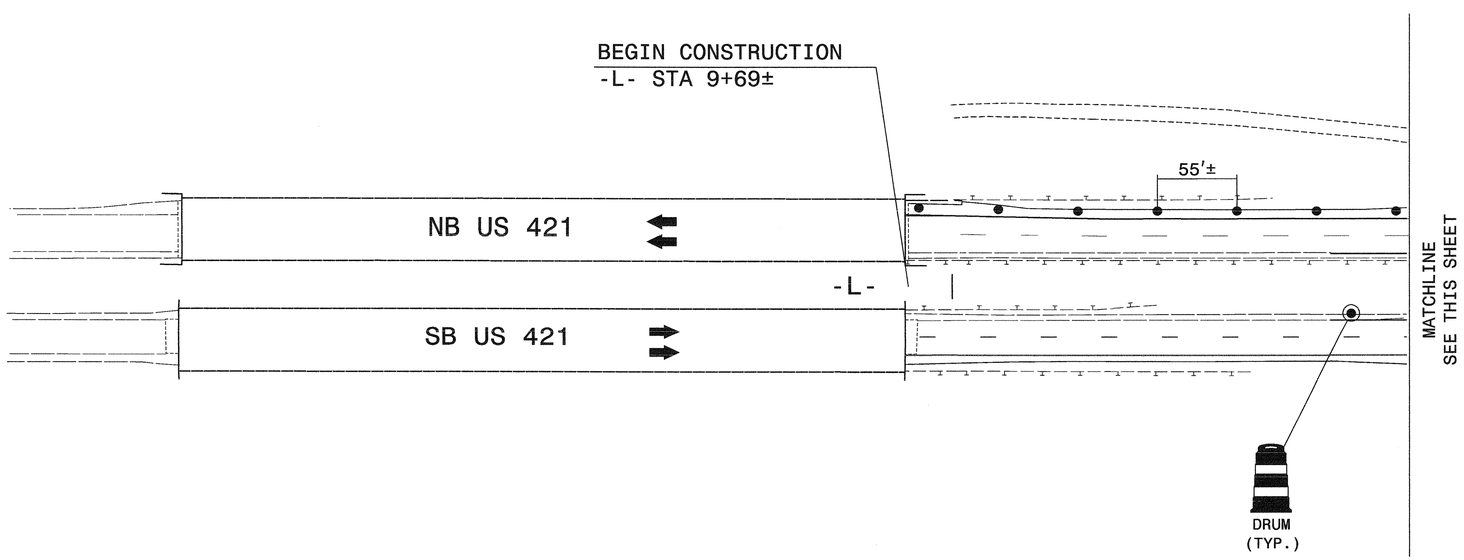
(919) 851-6066

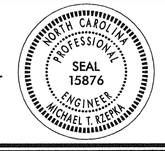
PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-12





APPROVED: Michael T. Rizepka DATE: 12-9-09

SEAL



PHASE II
STEP 3a

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

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10/21/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_to_tcp_TCP12_p11_11a.dgn
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Consulting Engineers
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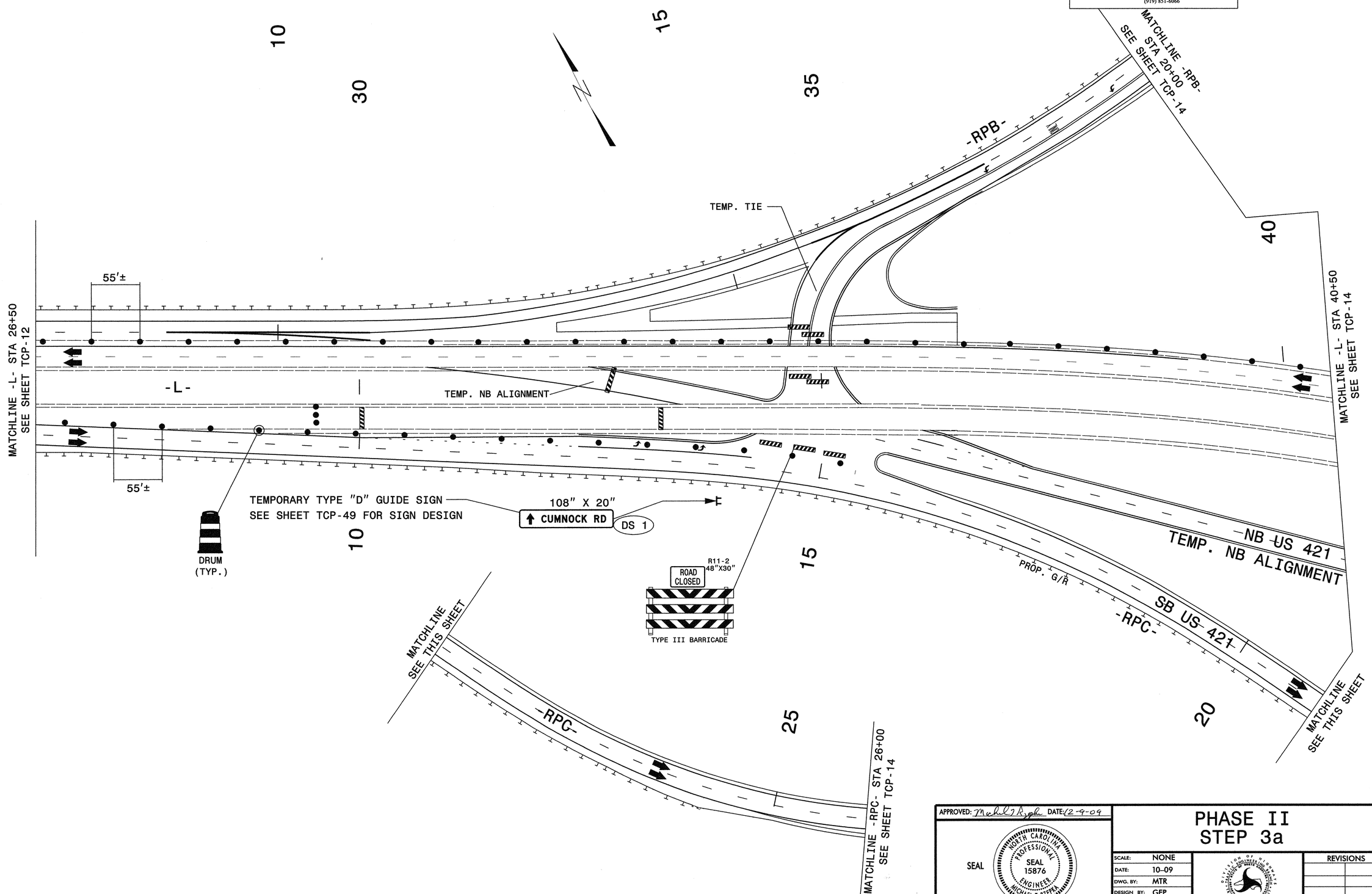
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-13



APPROVED: Michael T Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 3a

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

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11/4/2009
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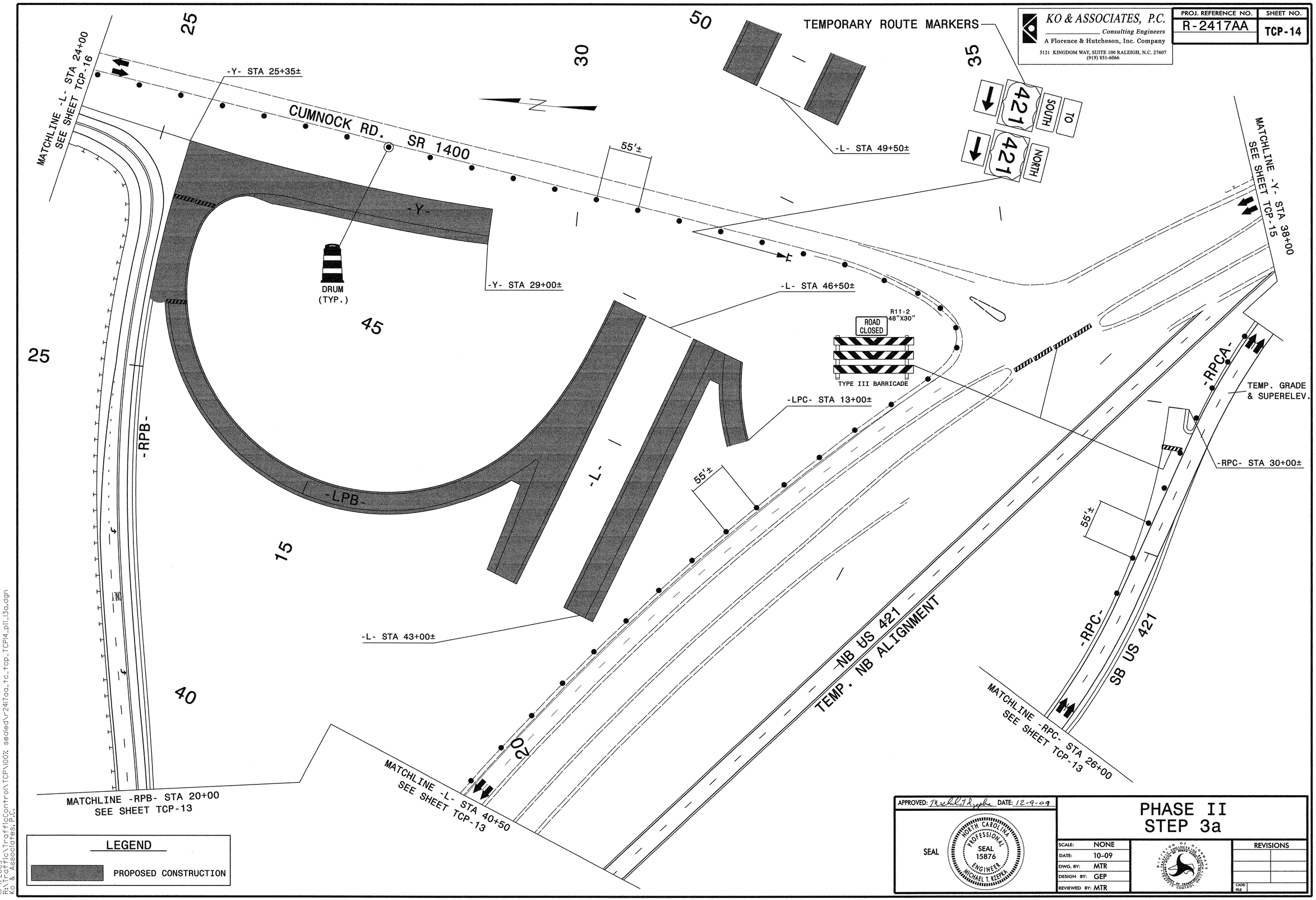
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-14



APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 3a

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
TRAFFIC ENGINEERING BRANCH
TRAFFIC CONTROL UNIT

REVISIONS

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11/4/2009
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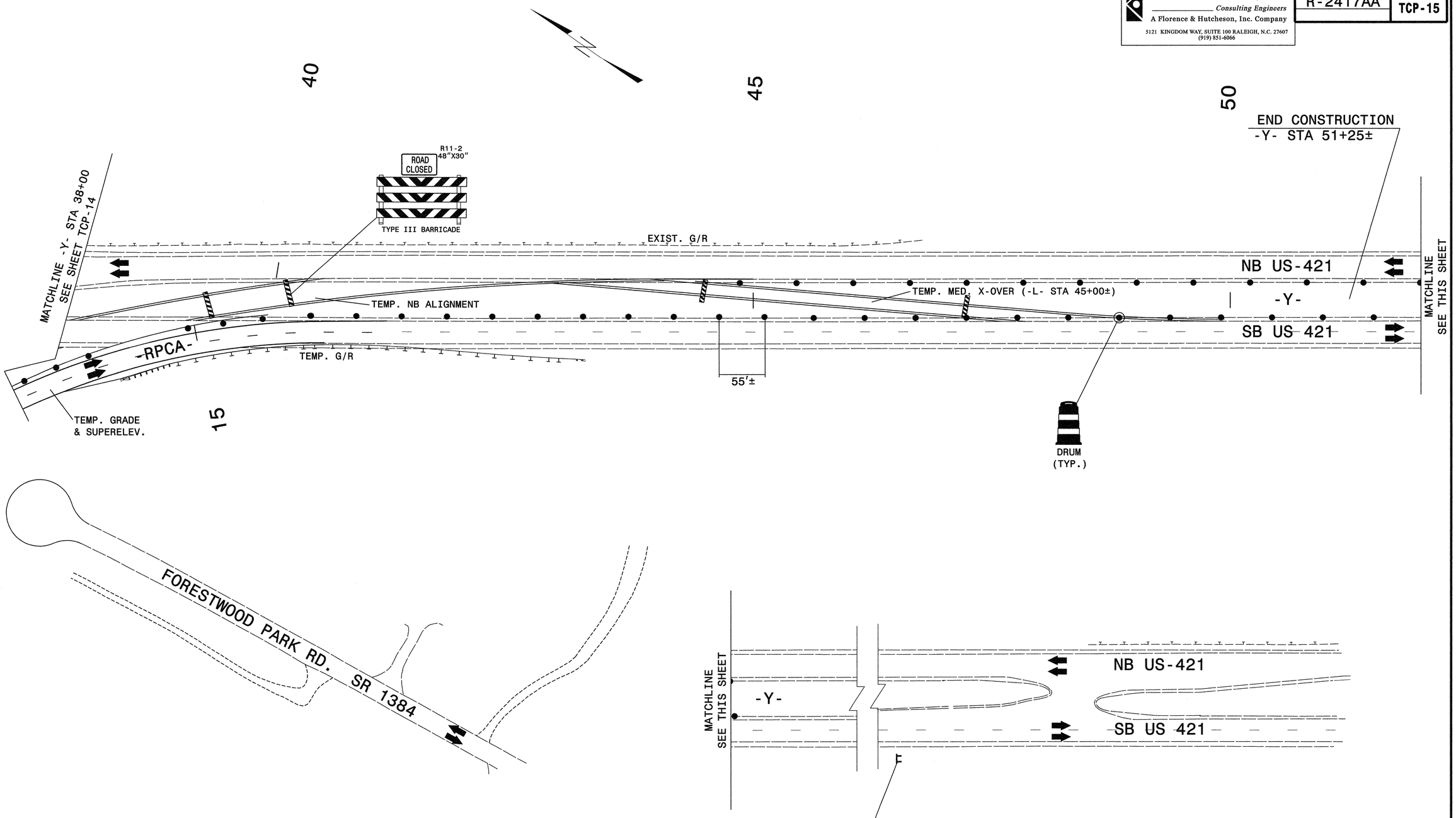
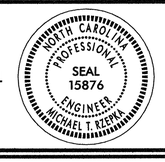
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-15



APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL



PHASE II
STEP 3a

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

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10/21/2009
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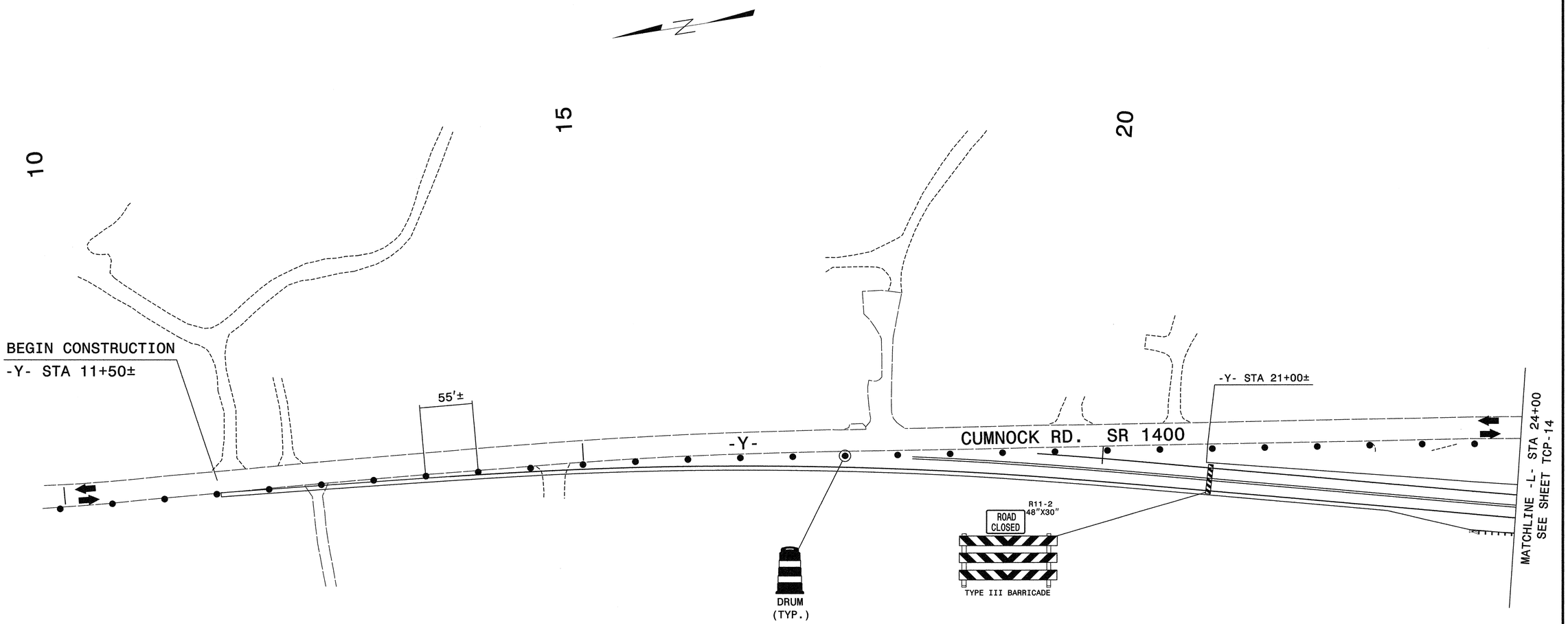
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-16



APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 3a

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
TRAFFIC ENGINEERING BRANCH
TRAFFIC CONTROL UNIT

REVISIONS

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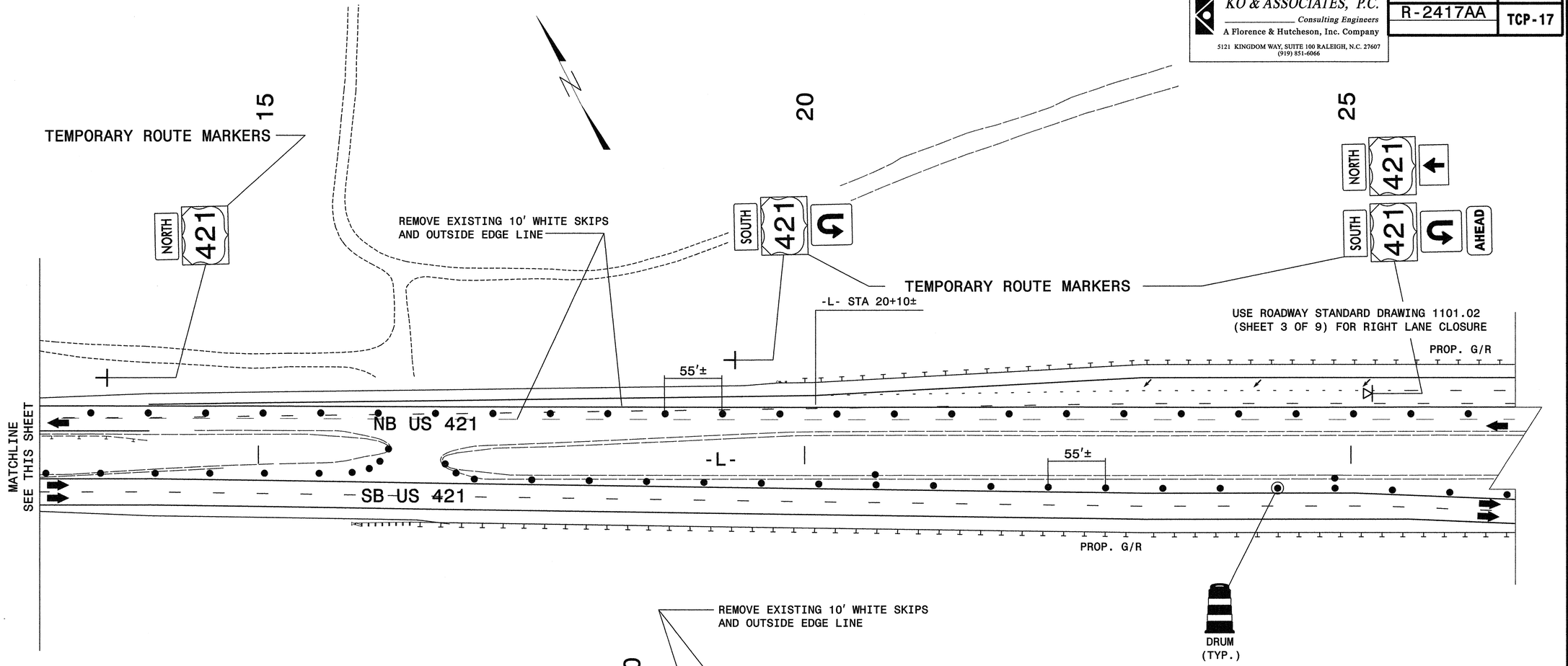
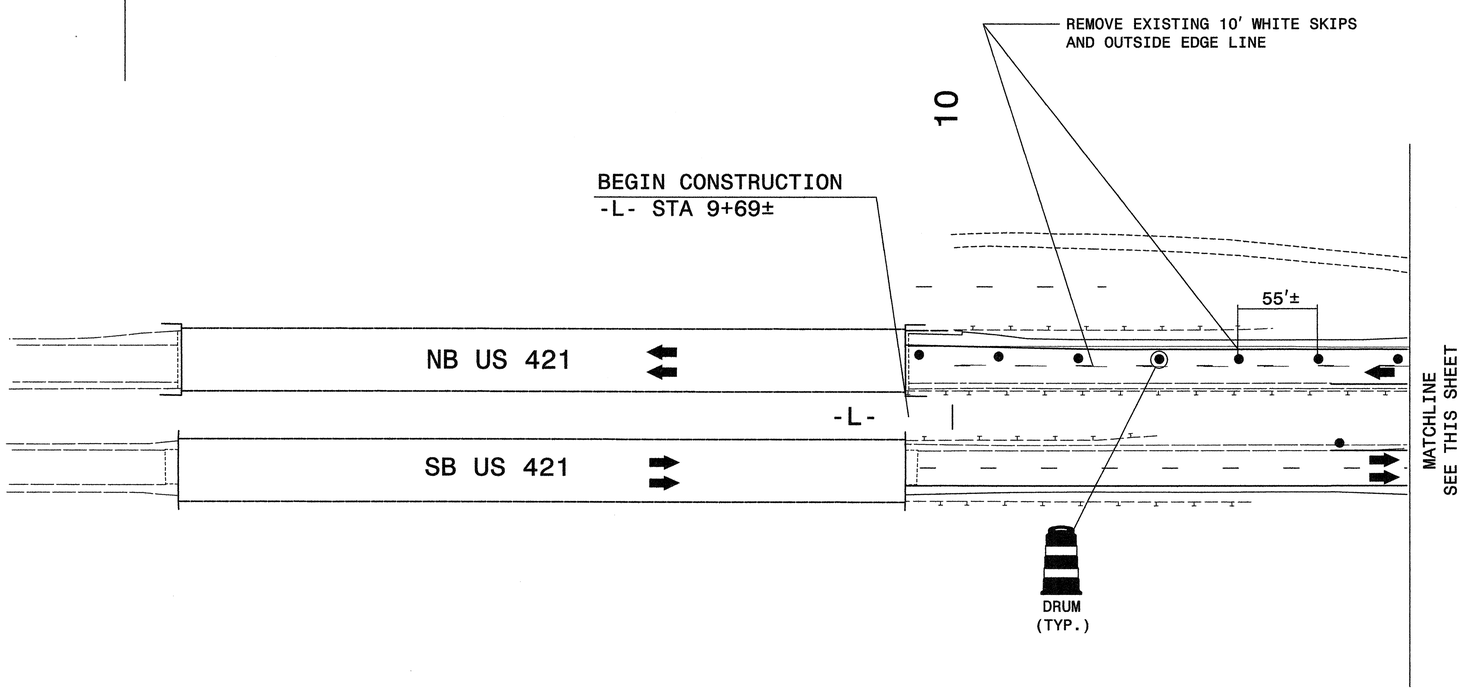
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-17





APPROVED: Michael T. Kzerka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. KZERKA

PHASE II
STEP 3b

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
TRAFFIC ENGINEERING BRANCH
TRAFFIC CONTROL UNIT

REVISIONS

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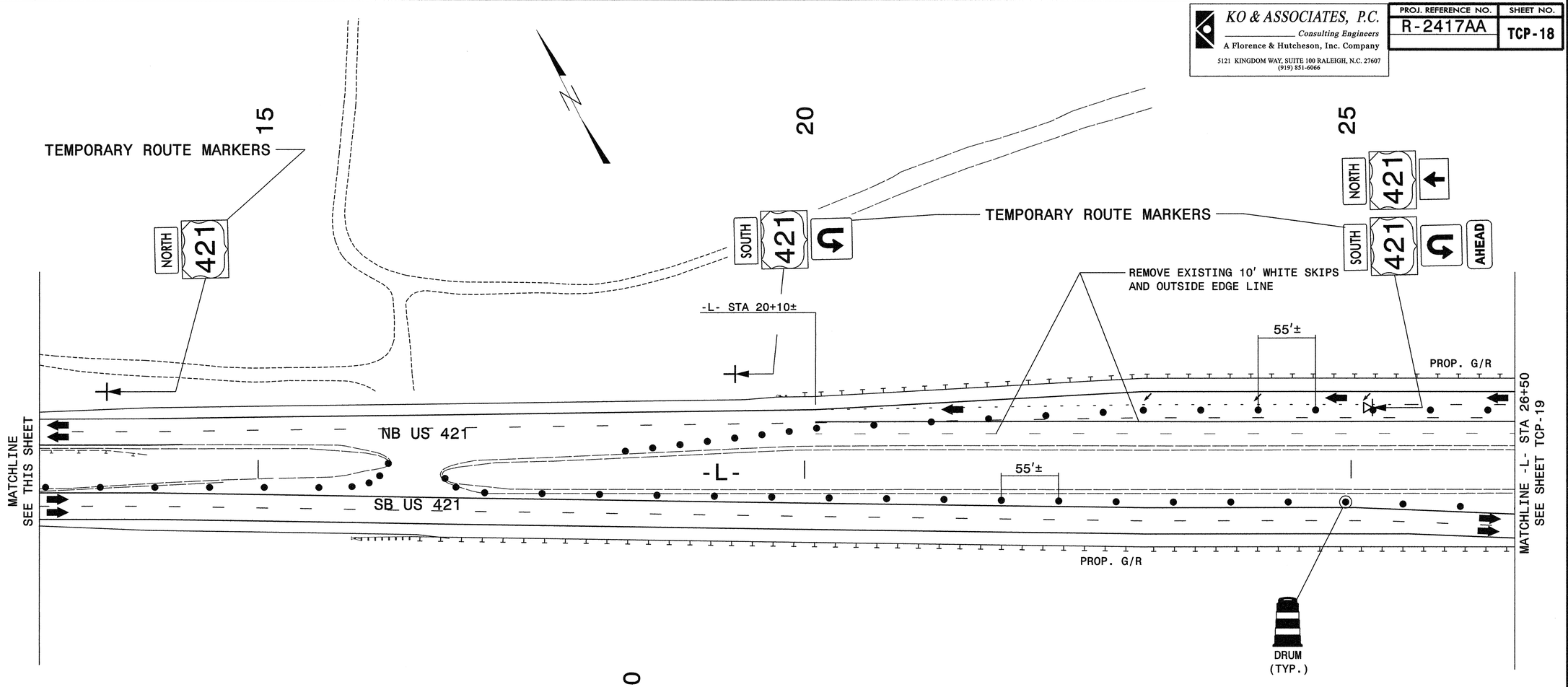
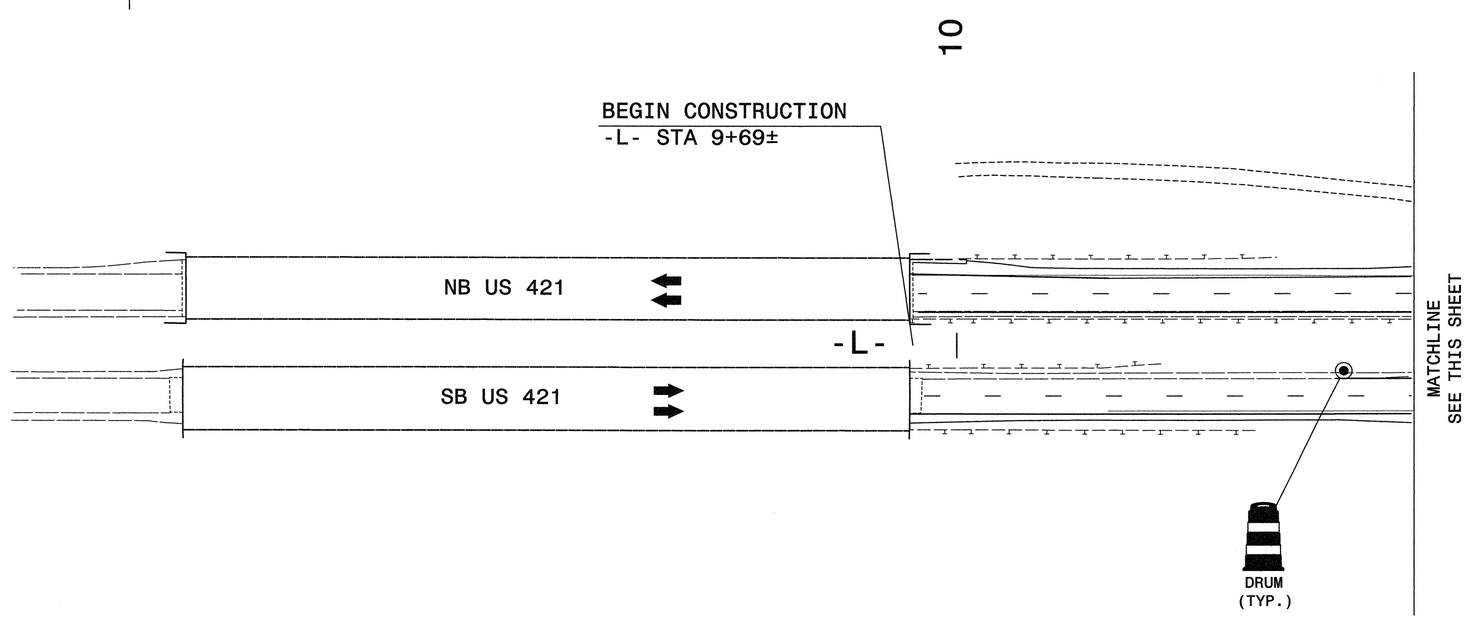
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp_TCP-17_pll_jlb.dgn
Florence & Hutcheson, Inc.

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-18



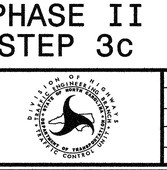


APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

PHASE II
STEP 3c

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR



REVISIONS	
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10/21/2009
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Ko & Associates, P.C.

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Consulting Engineers
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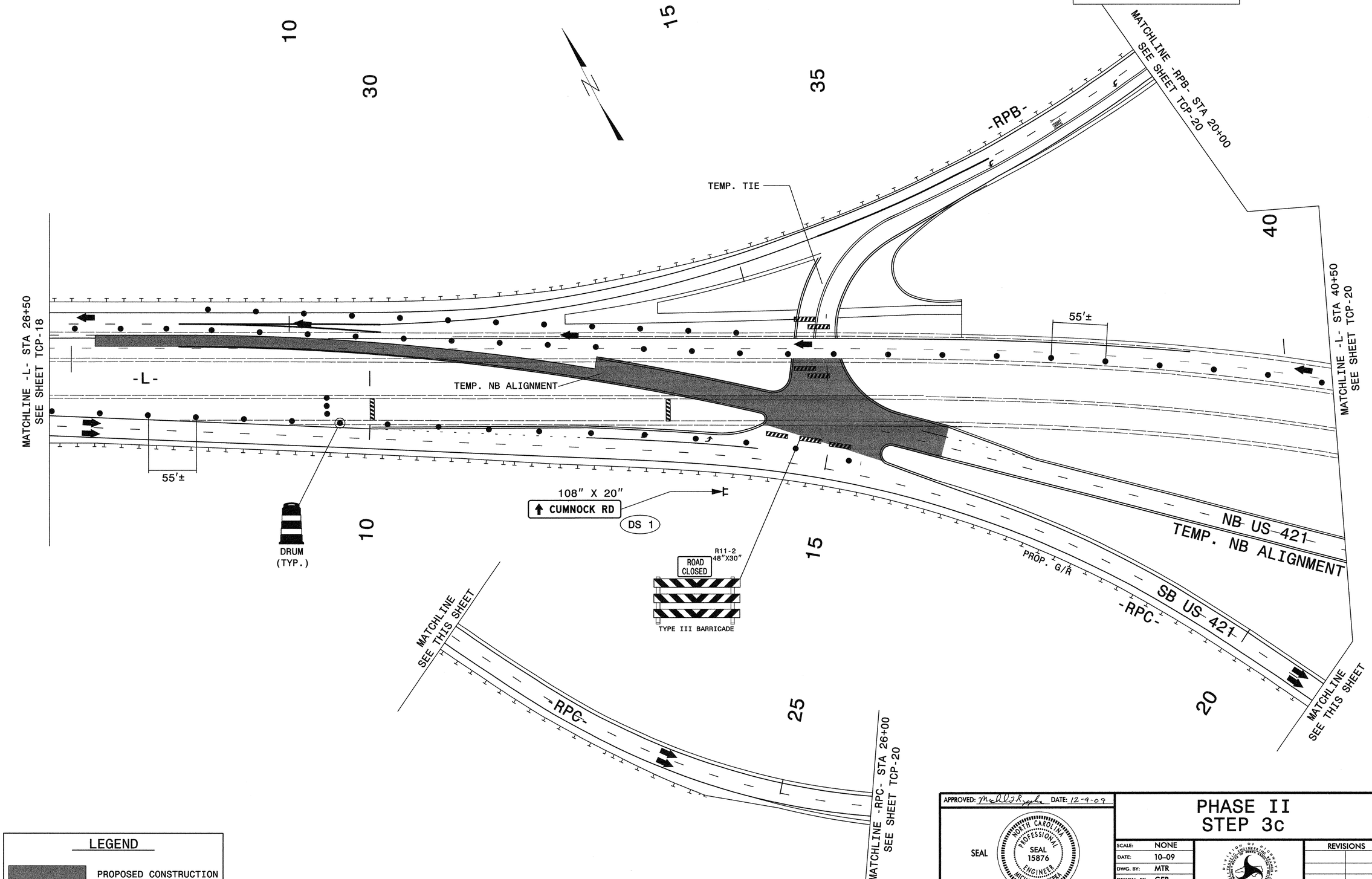
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-19



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 3c

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
TRAFFIC ENGINEERING BRANCH
TRAFFIC CONTROL UNIT

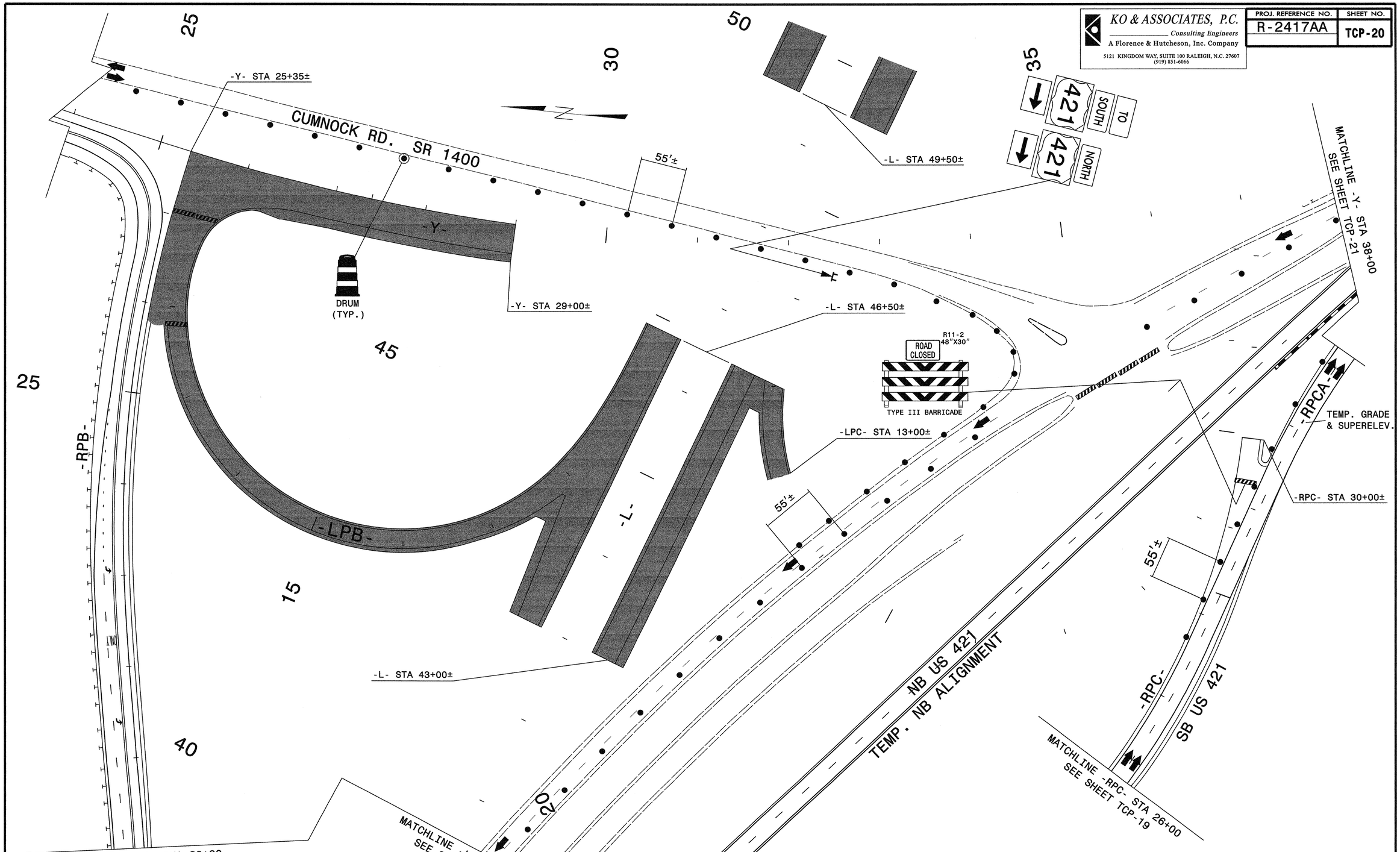
REVISIONS

CADD FILE

11/4/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r-2417aa_to_tap_TCP19_p11_12c.dgn
KO & Associates, P.C.

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-20



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 3c

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
TRAFFIC ENGINEERING BRANCH
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
TRAFFIC CONTROL

REVISIONS

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11/4/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r-2417aa_tc_tcp_TCP20_pli_l3c.dgn
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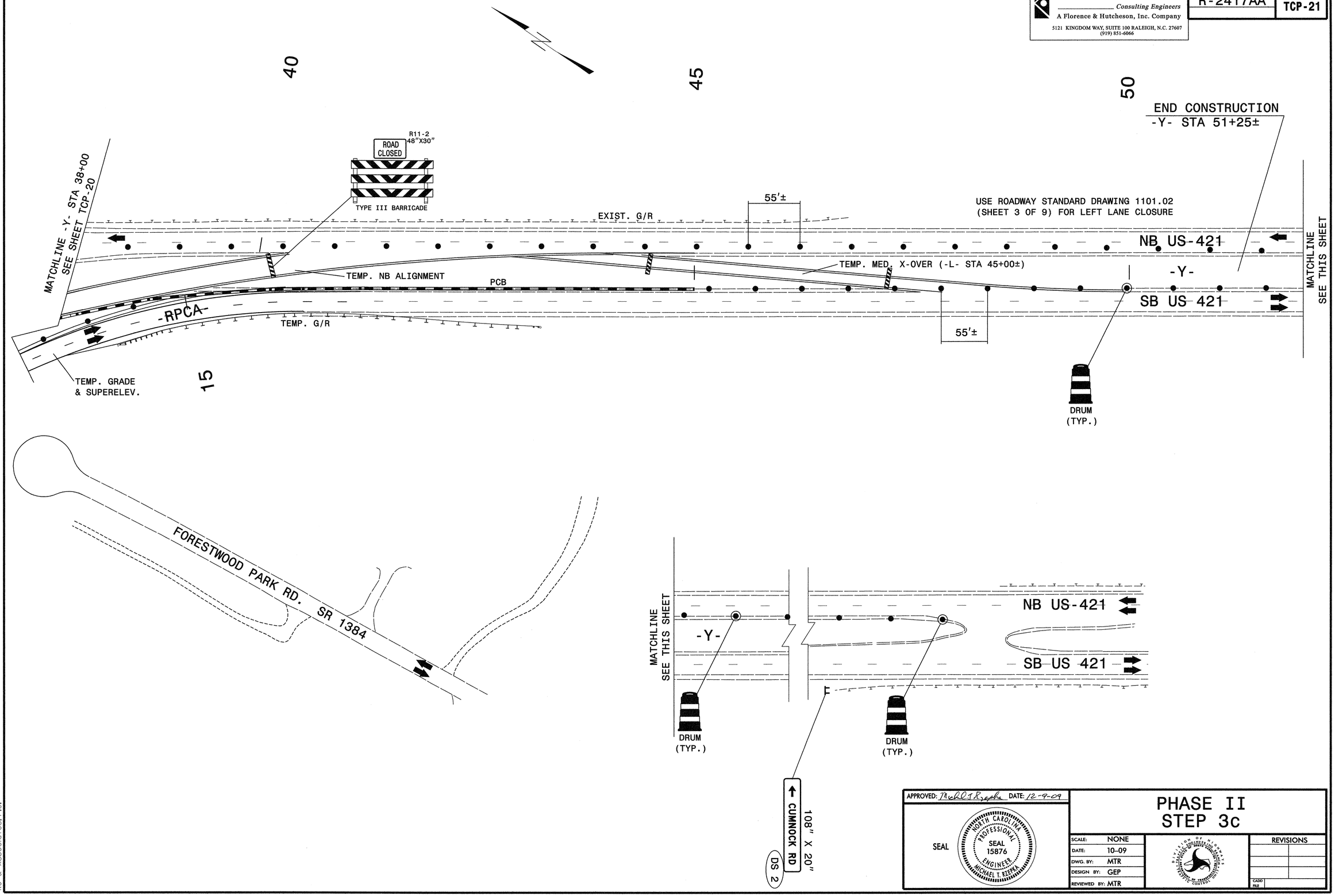
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-21



APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 3c

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

CADD FILE

10/26/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r-2417aa_tc_tcp2l_pil_y2c.dgn
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Consulting Engineers
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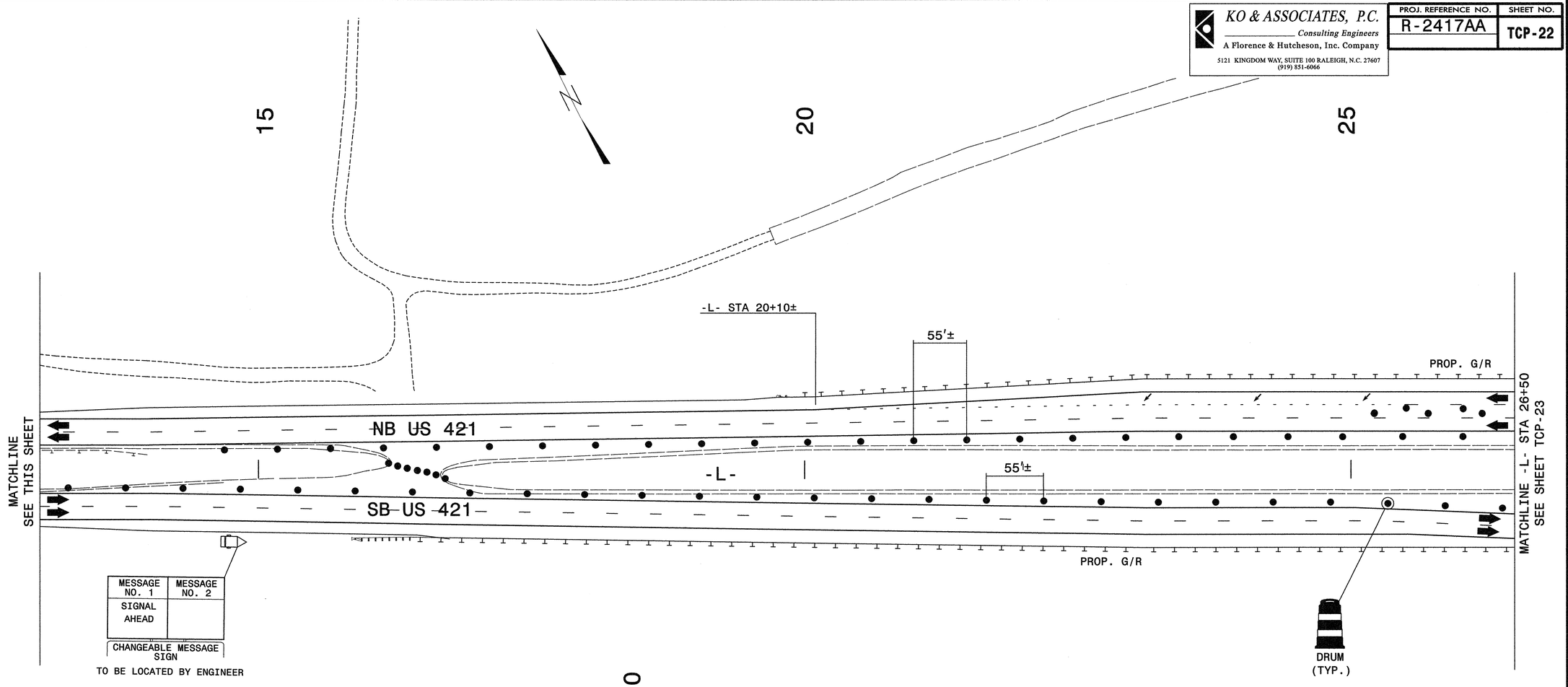
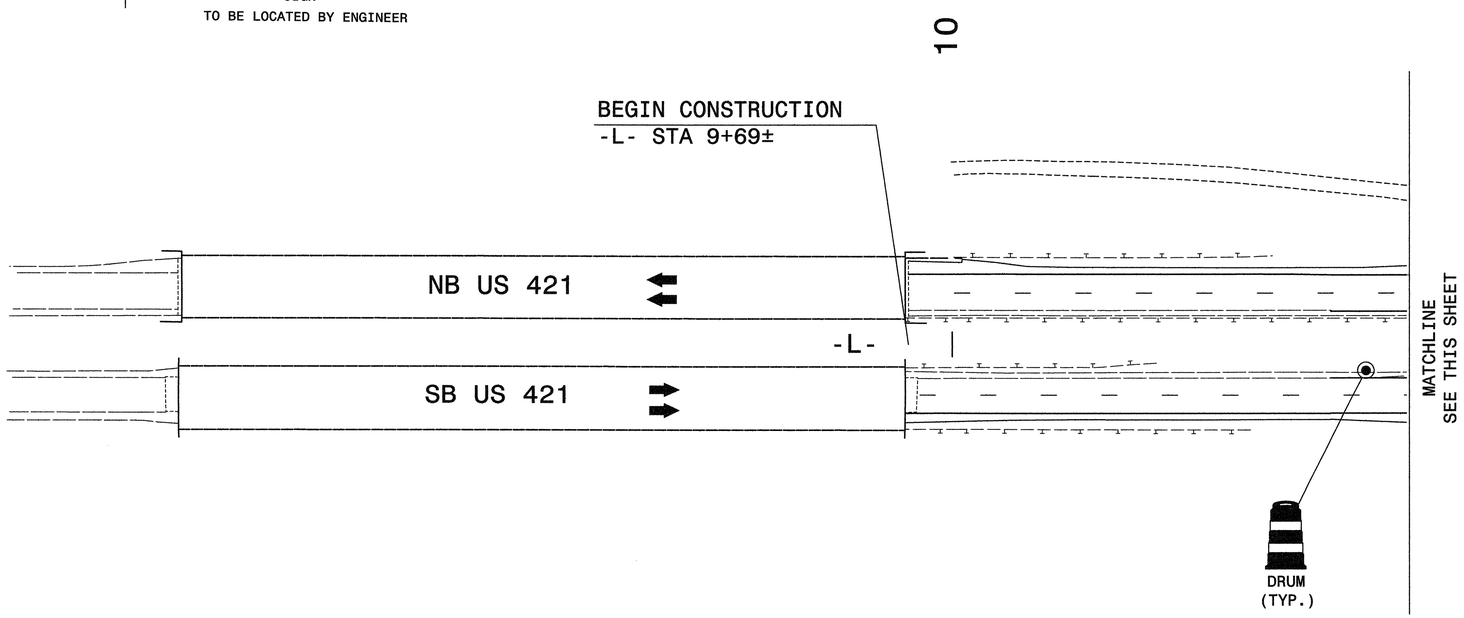
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

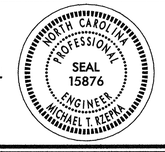
PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-22





APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL



PHASE II
STEP 3d

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

CADD FILE

10/26/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_top22_pil_lld.dgn
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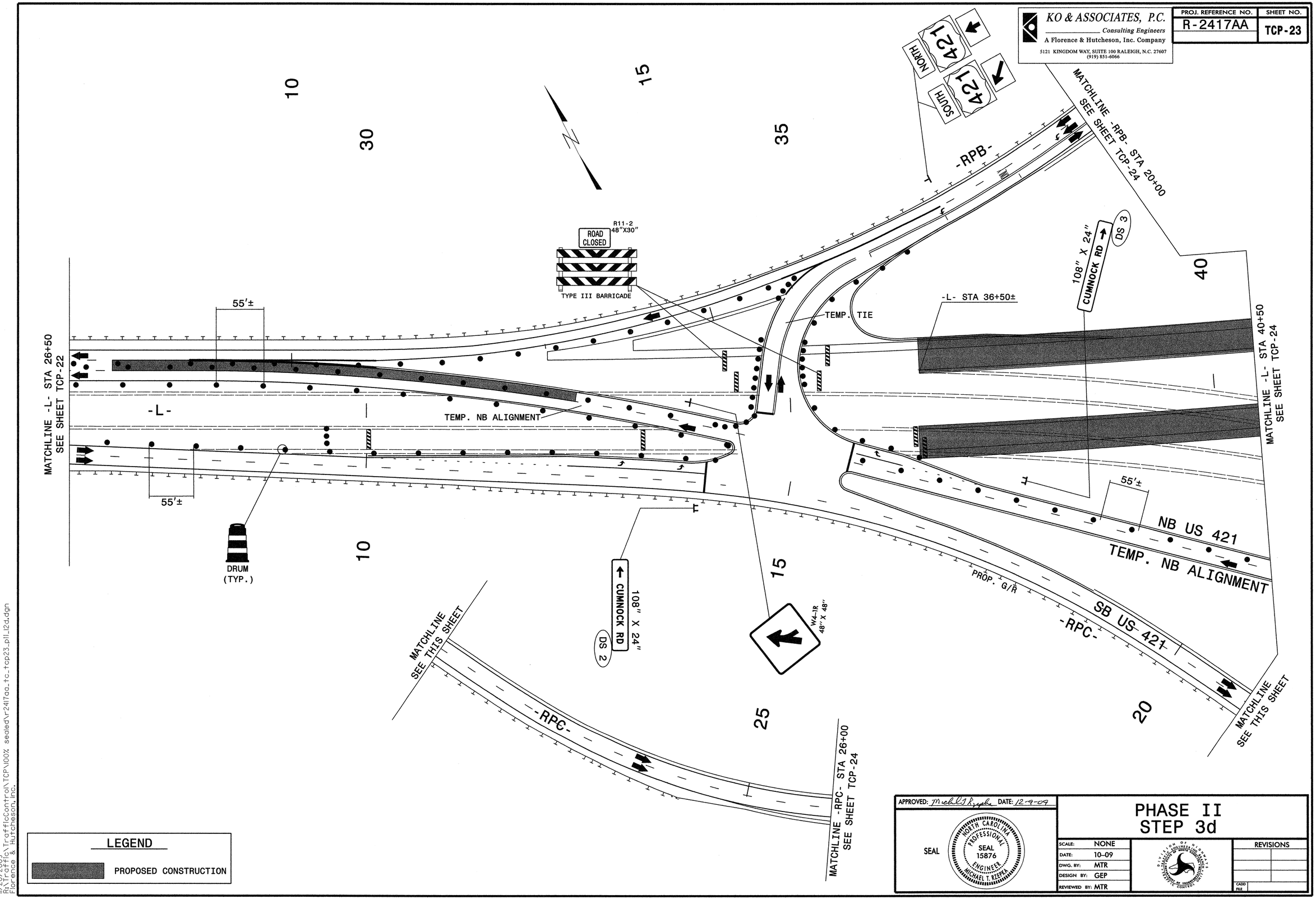
PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-23



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 3d

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

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11/20/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp23_pli_l2d.dgn
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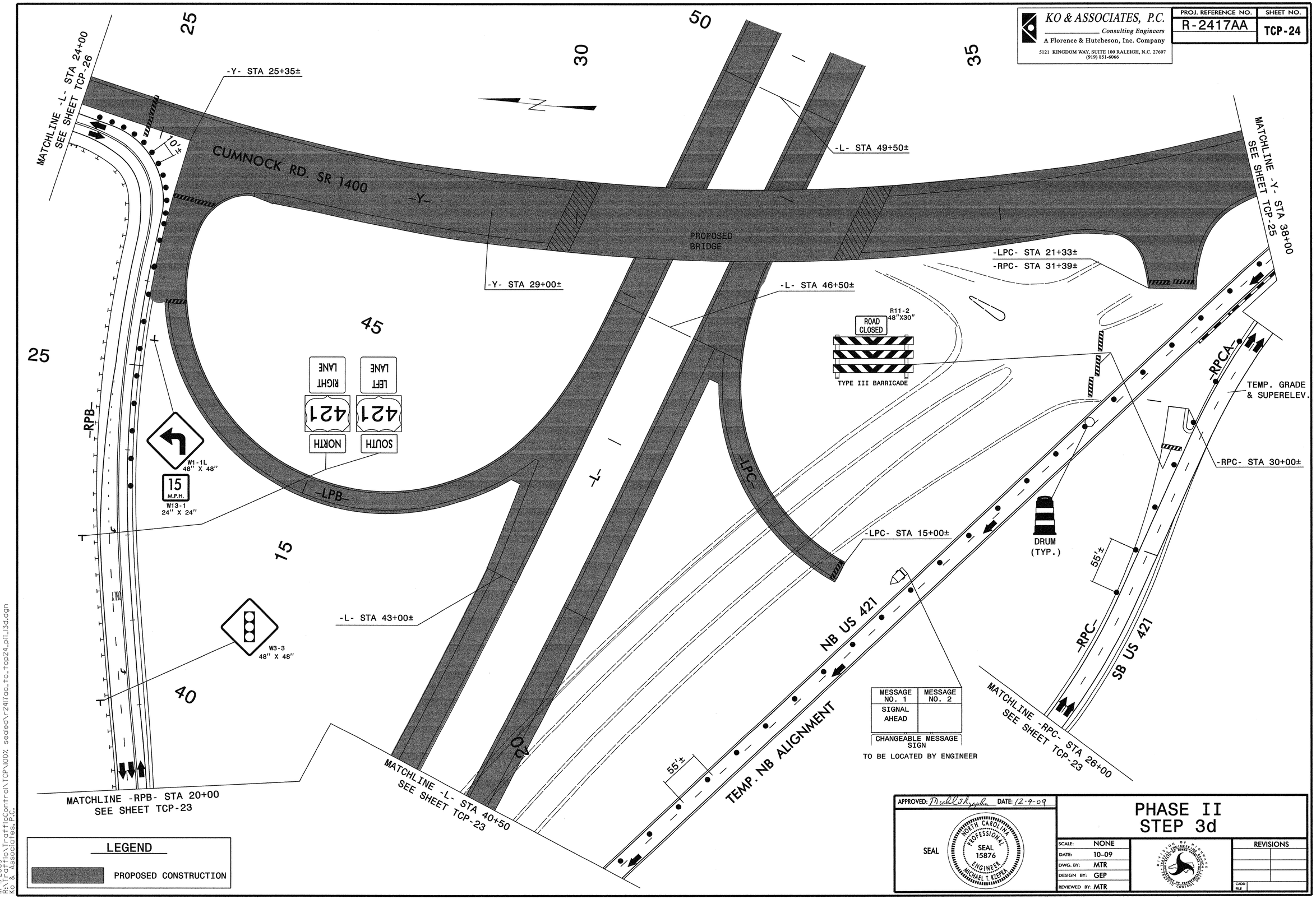
PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-24



APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 3d

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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REVISIONS

CADD FILE

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R:\Traffic\TrafficControl\TCP\100% seeded\r-2417aa_tc_tcp24_pll_l3d.dgn
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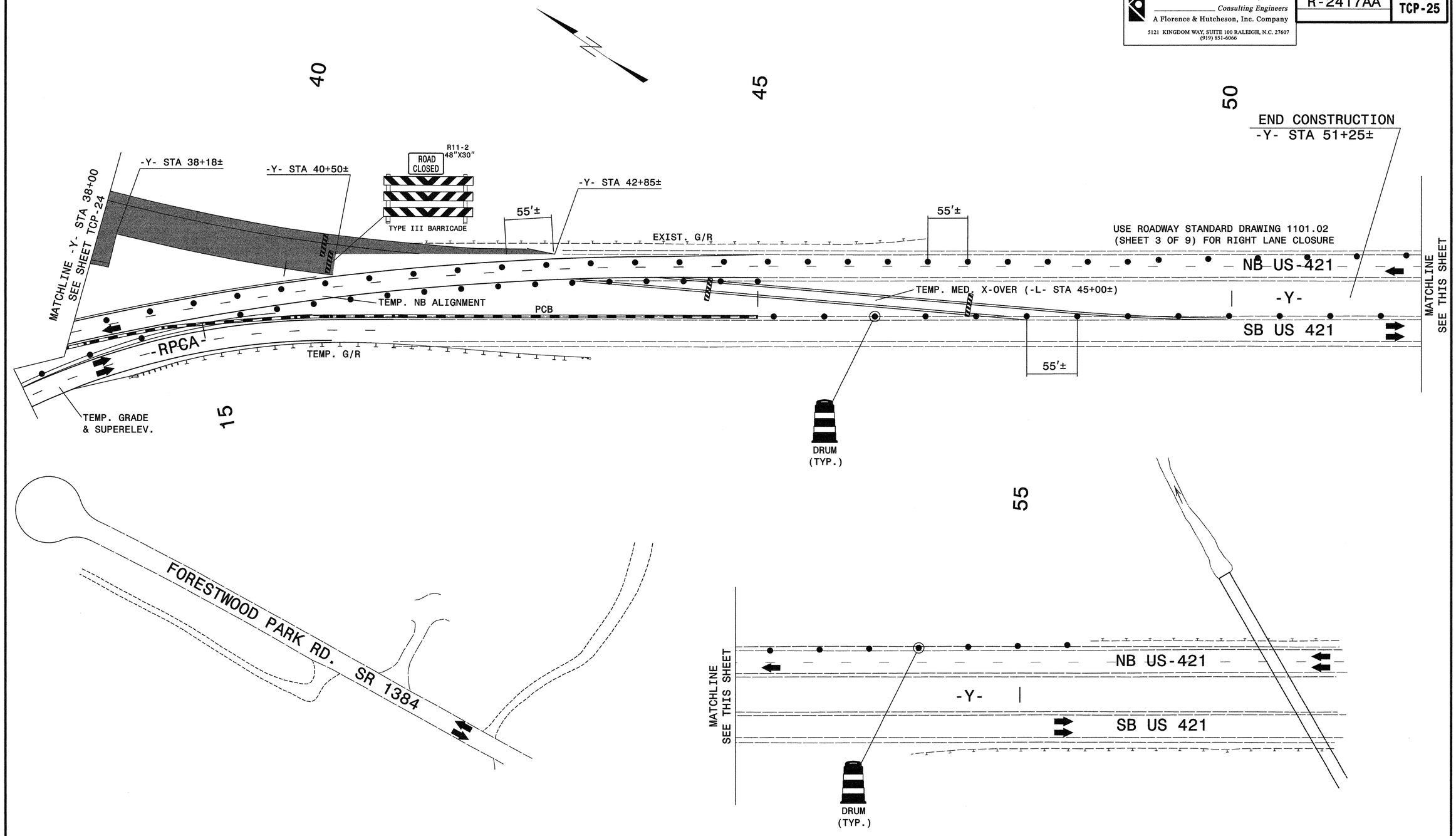
PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-25



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 3d

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
TRANSPORTATION MANAGEMENT UNIT
TRAFFIC ENGINEERING BRANCH
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REVISIONS

CADD FILE

10/27/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r-2417aa_tc_tcp25_pll_y2d.dgn
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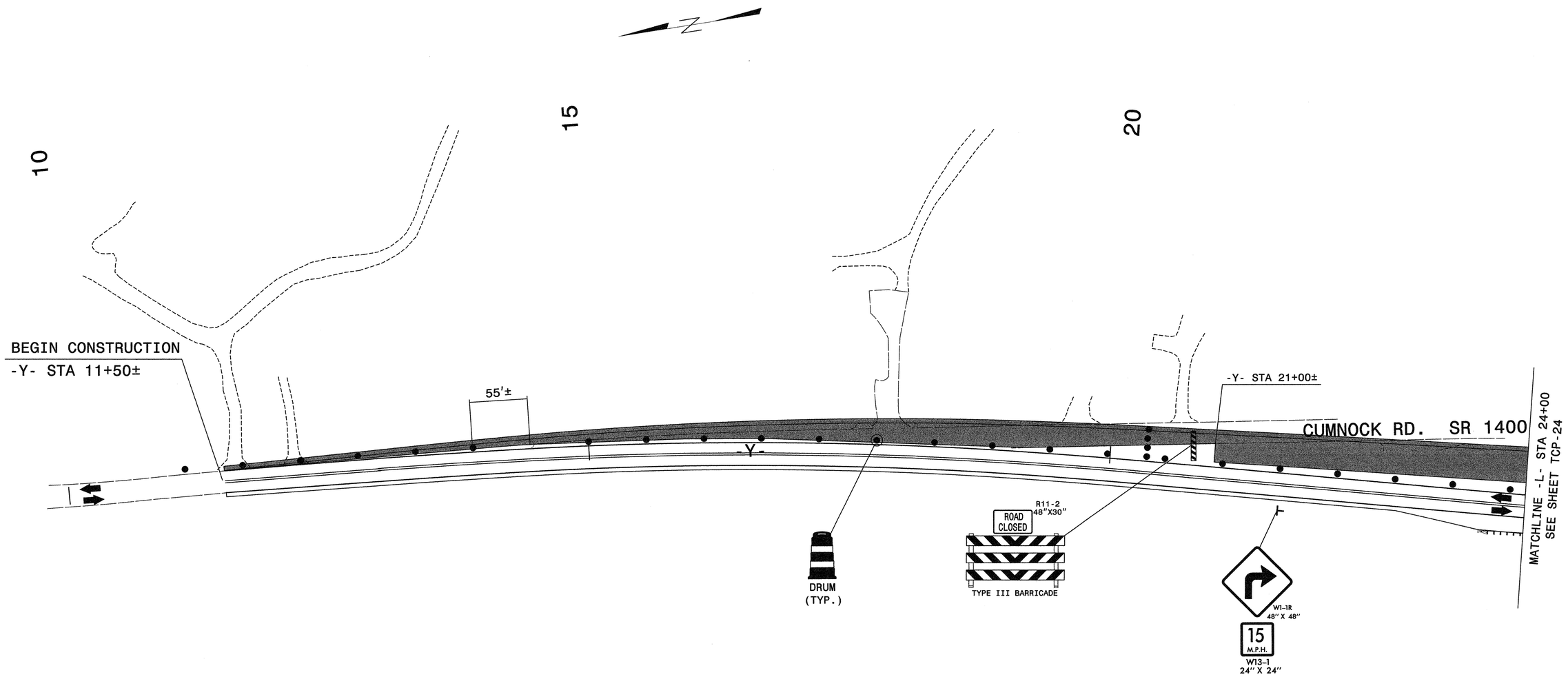
KO & ASSOCIATES, P.C. Consulting Engineers A Florence & Hutcheson, Inc. Company 5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607 (919) 851-6066	PROJ. REFERENCE NO.	SHEET NO.
	R-2417AA	TCP-26



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 3d

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

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R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp26_pll_yld.dgn
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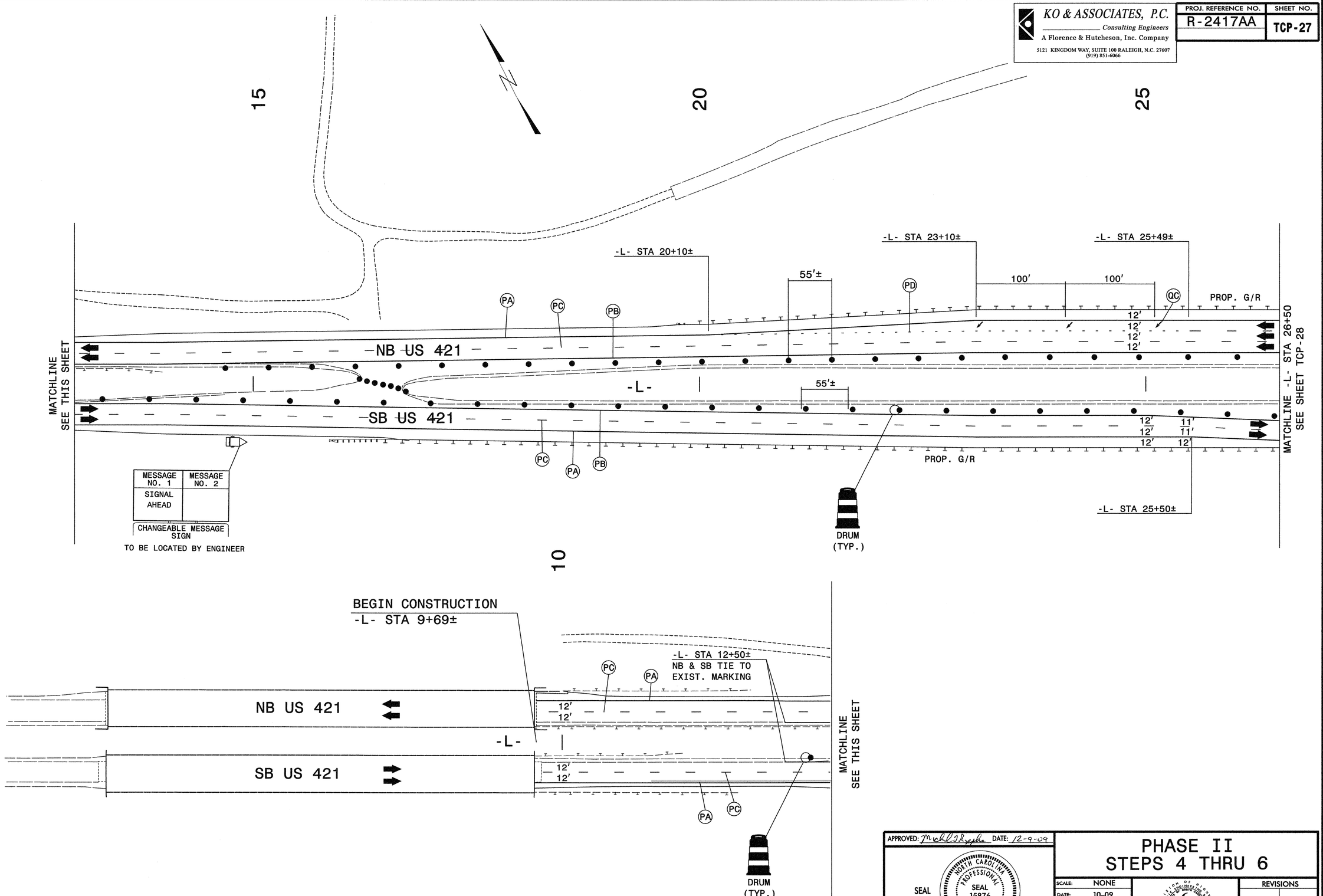
PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-27



APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEPS 4 THRU 6

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

CADD FILE

10/27/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp27_pii_ii.dgn
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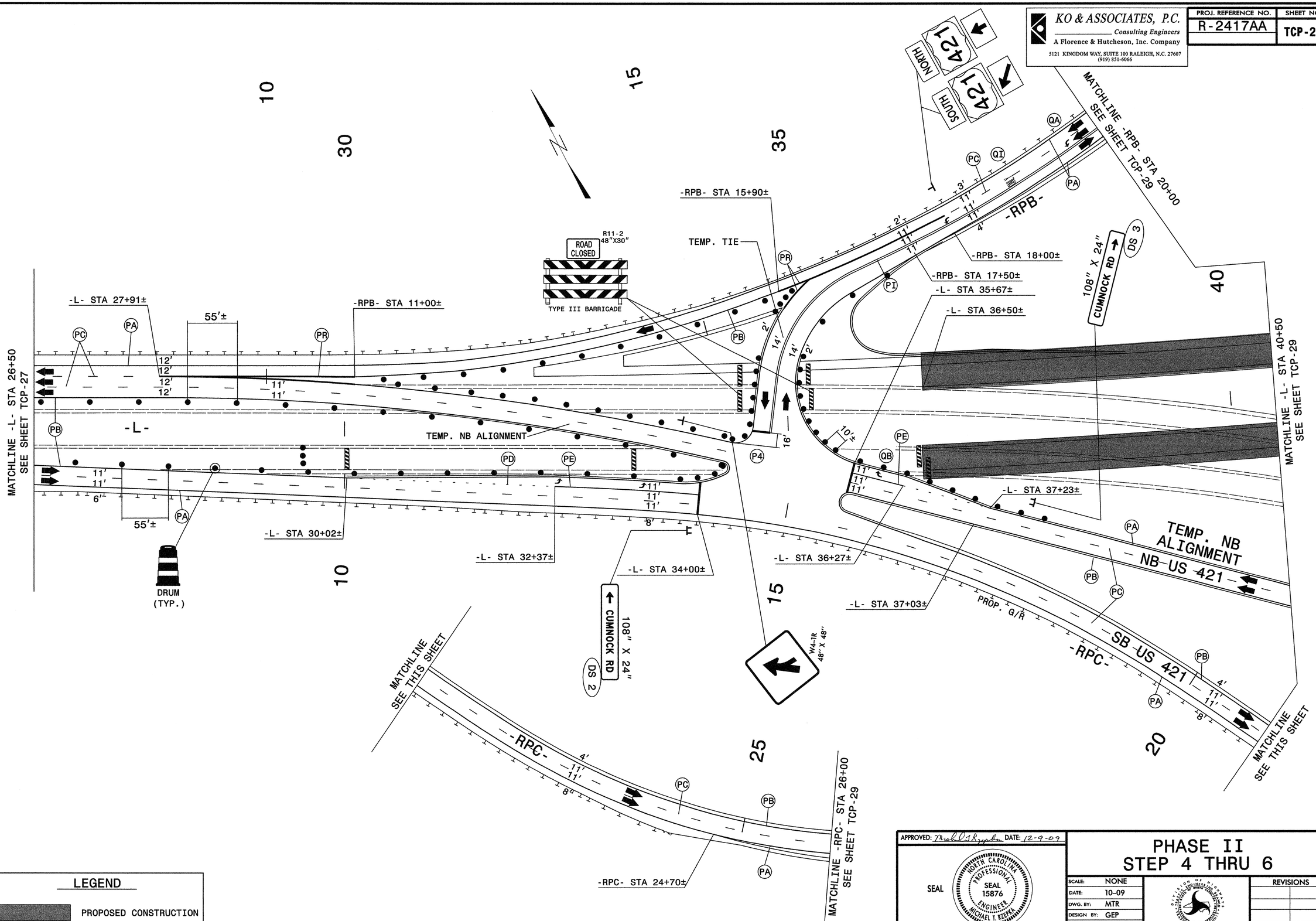
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-28



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 4 THRU 6

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

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12/2/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp28_pll_l2.dgn
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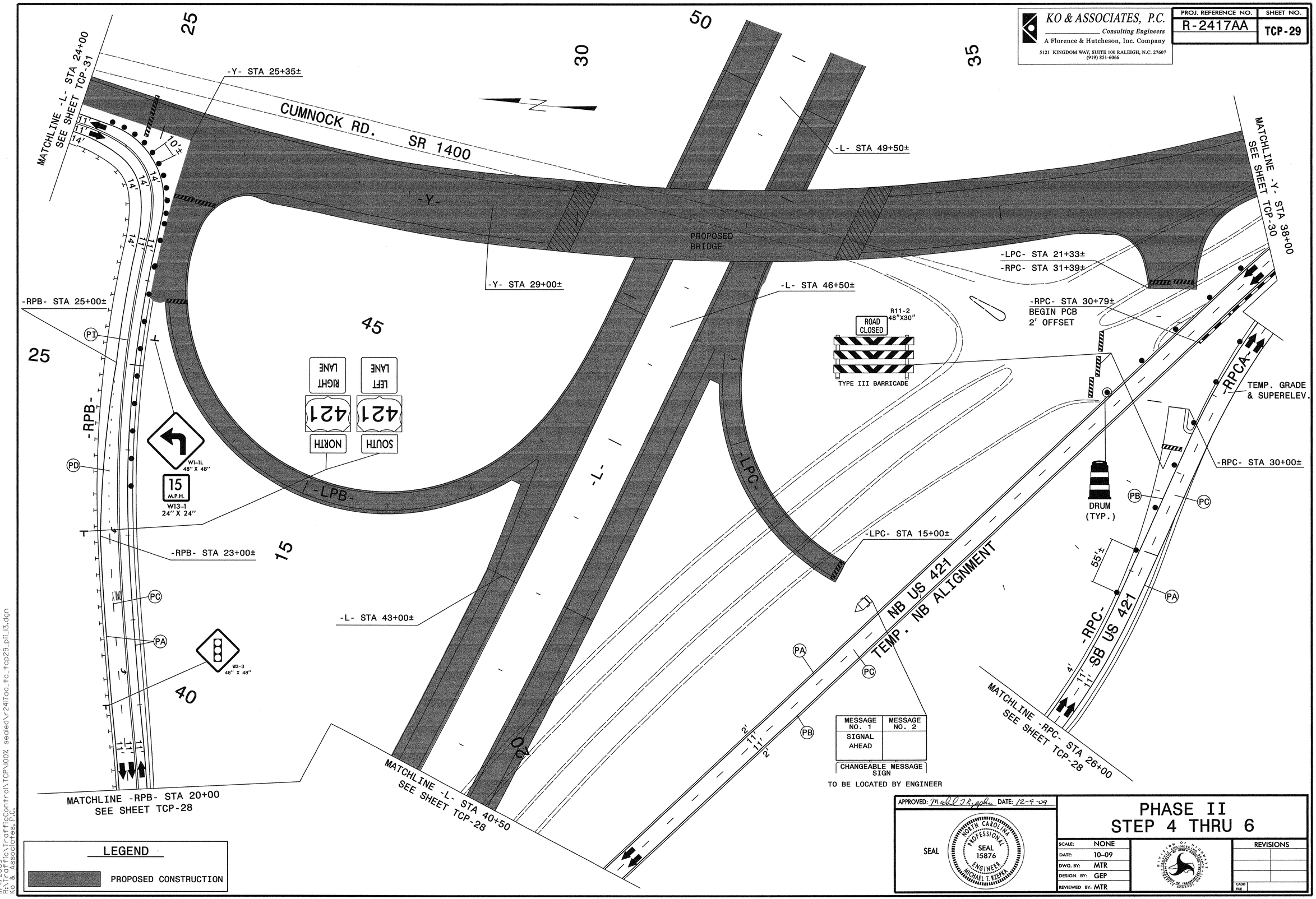
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-29



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 4 THRU 6

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

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

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R:\Traffic\TrafficControl\TCP\100% sealed\r-2417aa_to_tcp29_pll_13.dgn
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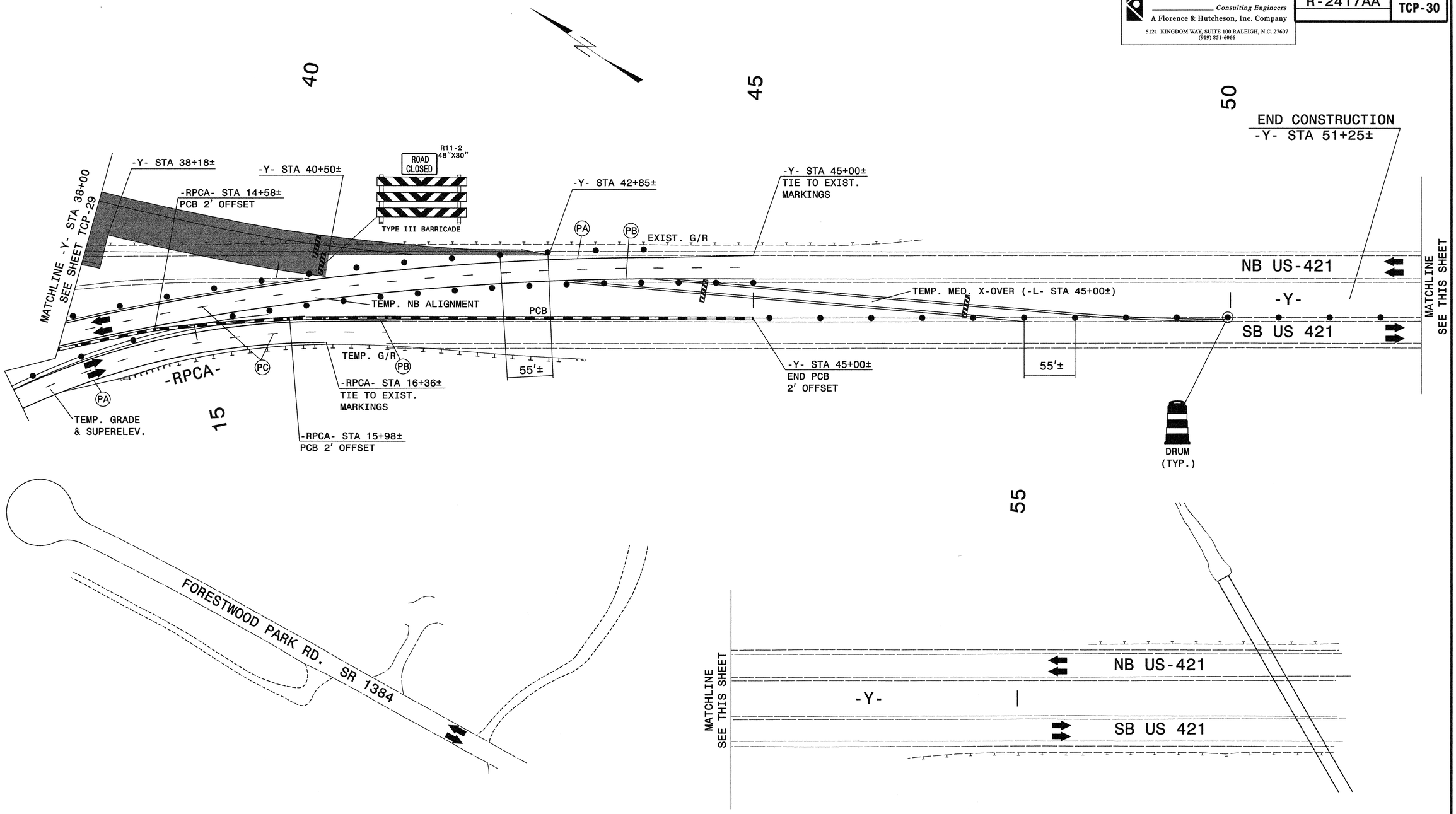
PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-30



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 4 THRU 6

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
TRAFFIC ENGINEERING BRANCH
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

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10/27/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp30_pil_y2.dgn
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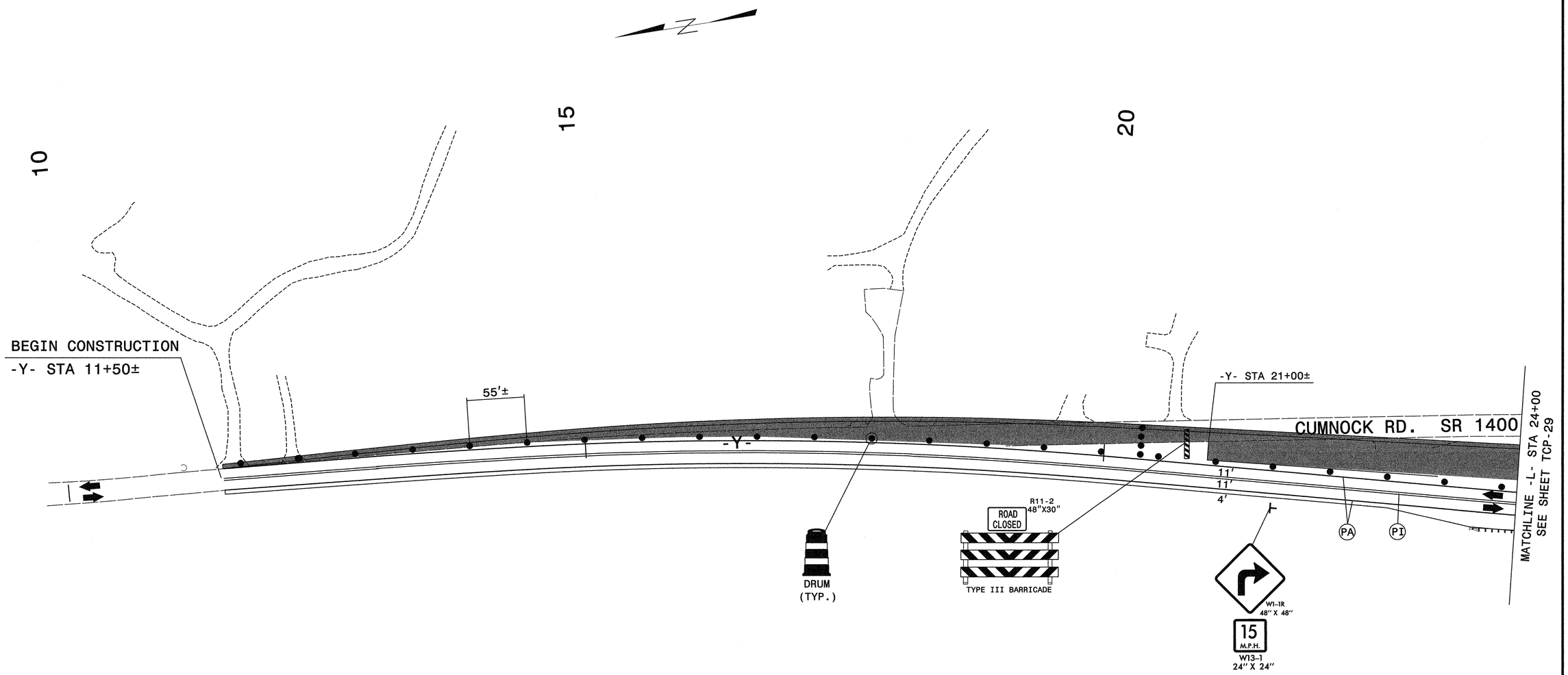
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-31



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE II
STEP 4 THRU 6

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

10/27/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp31_pll_yl.dgn
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(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-32

PHASE III

STEP 1: AWAY FROM TRAFFIC, PLACE TEMPORARY PAVEMENT MARKING LINES, SYMBOLS, AND MARKERS FROM -L- STA. 36+50± TO -L- STA. 208+34± (REFER TO SHEETS PM-3 THRU PM-5 AND TCP-34 AND TCP-35) AND FROM -Y- STA. 21+00± TO -Y- STA. 40+50± AS SHOWN ON SHEETS TCP-35 THRU TCP-37. ALSO, PLACE TEMPORARY PAVEMENT MARKING LINES, SYMBOLS, AND MARKERS ON US 421 BYPASS (-L-) THROUGH THE RESURFACING LIMITS ON THE R-2417AB PROJECT. (SEE ROADWAY PLANS)

INSTALL AND COVER TEMPORARY TRAFFIC SIGNAL AT -Y- AND -RPB- INTERSECTION. (SEE SHEET TCP-35)

INSTALL AND COVER TEMPORARY ROUTE MARKERS ALONG -Y- LINE AS SHOWN ON SHEETS TCP-35 AND TCP-37.

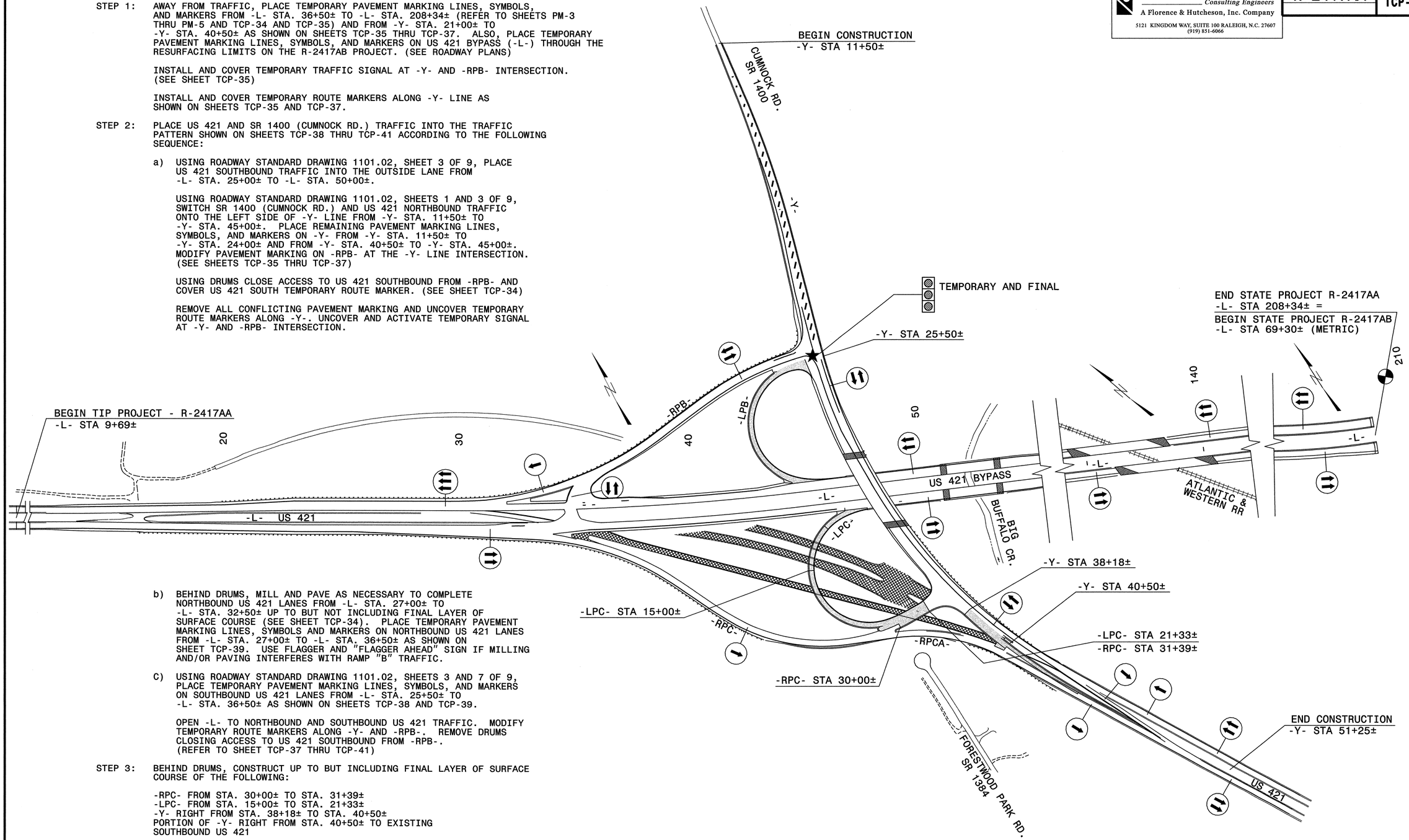
STEP 2: PLACE US 421 AND SR 1400 (CUMNOCK RD.) TRAFFIC INTO THE TRAFFIC PATTERN SHOWN ON SHEETS TCP-38 THRU TCP-41 ACCORDING TO THE FOLLOWING SEQUENCE:

a) USING ROADWAY STANDARD DRAWING 1101.02, SHEET 3 OF 9, PLACE US 421 SOUTHBOUND TRAFFIC INTO THE OUTSIDE LANE FROM -L- STA. 25+00± TO -L- STA. 50+00±.

USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 3 OF 9, SWITCH SR 1400 (CUMNOCK RD.) AND US 421 NORTHBOUND TRAFFIC ONTO THE LEFT SIDE OF -Y- LINE FROM -Y- STA. 11+50± TO -Y- STA. 45+00±. PLACE REMAINING PAVEMENT MARKING LINES, SYMBOLS, AND MARKERS ON -Y- FROM -Y- STA. 11+50± TO -Y- STA. 24+00± AND FROM -Y- STA. 40+50± TO -Y- STA. 45+00±. MODIFY PAVEMENT MARKING ON -RPB- AT THE -Y- LINE INTERSECTION. (SEE SHEETS TCP-35 THRU TCP-37)

USING DRUMS CLOSE ACCESS TO US 421 SOUTHBOUND FROM -RPB- AND COVER US 421 SOUTH TEMPORARY ROUTE MARKER. (SEE SHEET TCP-34)

REMOVE ALL CONFLICTING PAVEMENT MARKING AND UNCOVER TEMPORARY ROUTE MARKERS ALONG -Y-. UNCOVER AND ACTIVATE TEMPORARY SIGNAL AT -Y- AND -RPB- INTERSECTION.



b) BEHIND DRUMS, MILL AND PAVE AS NECESSARY TO COMPLETE NORTHBOUND US 421 LANES FROM -L- STA. 27+00± TO -L- STA. 32+50± UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE (SEE SHEET TCP-34). PLACE TEMPORARY PAVEMENT MARKING LINES, SYMBOLS AND MARKERS ON NORTHBOUND US 421 LANES FROM -L- STA. 27+00± TO -L- STA. 36+50± AS SHOWN ON SHEET TCP-39. USE FLAGGER AND "FLAGGER AHEAD" SIGN IF MILLING AND/OR PAVING INTERFERES WITH RAMP "B" TRAFFIC.

C) USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 3 AND 7 OF 9, PLACE TEMPORARY PAVEMENT MARKING LINES, SYMBOLS, AND MARKERS ON SOUTHBOUND US 421 LANES FROM -L- STA. 25+50± TO -L- STA. 36+50± AS SHOWN ON SHEETS TCP-38 AND TCP-39.

OPEN -L- TO NORTHBOUND AND SOUTHBOUND US 421 TRAFFIC. MODIFY TEMPORARY ROUTE MARKERS ALONG -Y- AND -RPB-. REMOVE DRUMS CLOSING ACCESS TO US 421 SOUTHBOUND FROM -RPB-. (REFER TO SHEET TCP-37 THRU TCP-41)

STEP 3: BEHIND DRUMS, CONSTRUCT UP TO BUT INCLUDING FINAL LAYER OF SURFACE COURSE OF THE FOLLOWING:

-RPC- FROM STA. 30+00± TO STA. 31+39±
-LPC- FROM STA. 15+00± TO STA. 21+33±
-Y- RIGHT FROM STA. 38+18± TO STA. 40+50±
PORTION OF -Y- RIGHT FROM STA. 40+50± TO EXISTING SOUTHBOUND US 421

STEP 4: COMPLETE THE FOLLOWING:

-LPB-
-LPC FROM STA. 12+00± TO STA. 15+00±

STEP 5: INSTALL AND COVER TRAFFIC SIGNAL AT -Y- AND -RPB-/-LPB- INTERSECTION.

APPROVED: Michael T. Rzepka DATE: 12-3-10

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15876 MICHAEL T. RZEPKA

PHASE III OVERVIEW & PHASING

SCALE:	NONE
DATE:	12-10
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

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PROFESSIONAL ENGINEERING SERVICES UNIT
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Consulting Engineers
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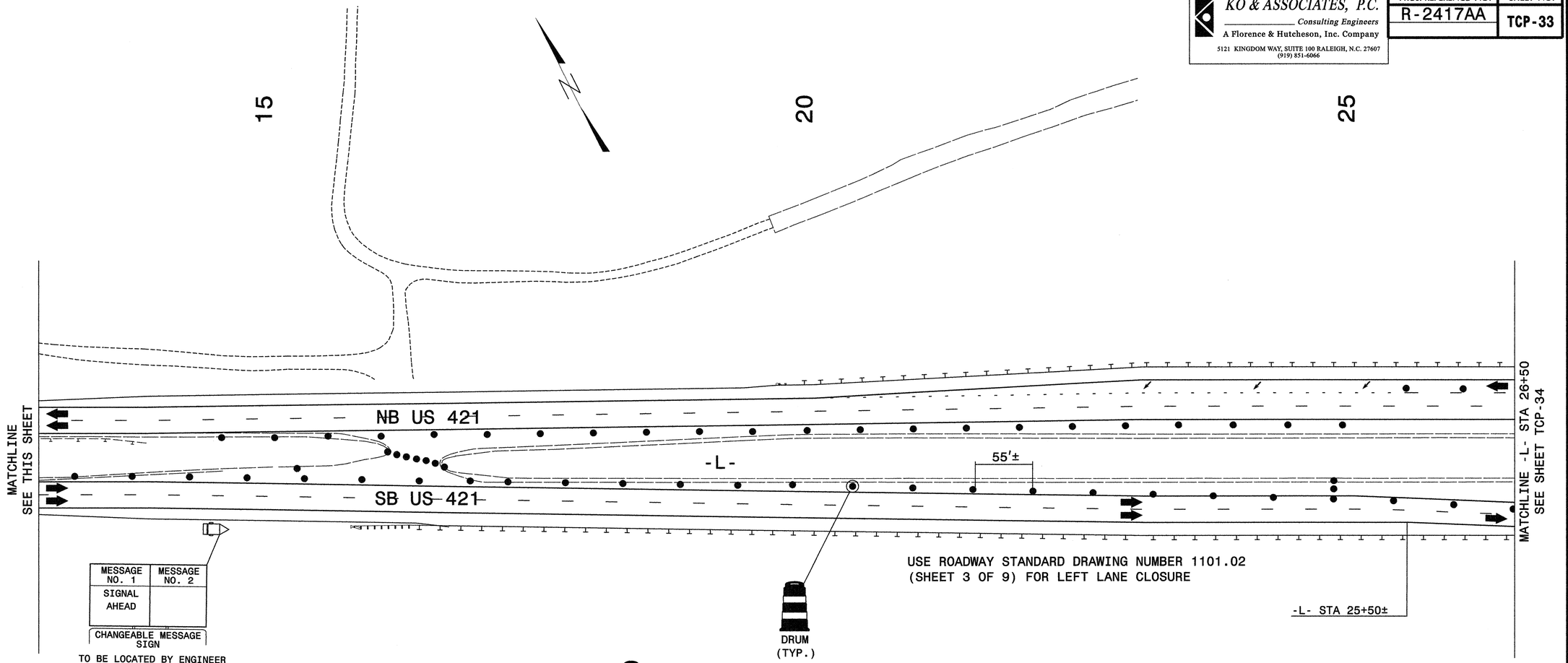
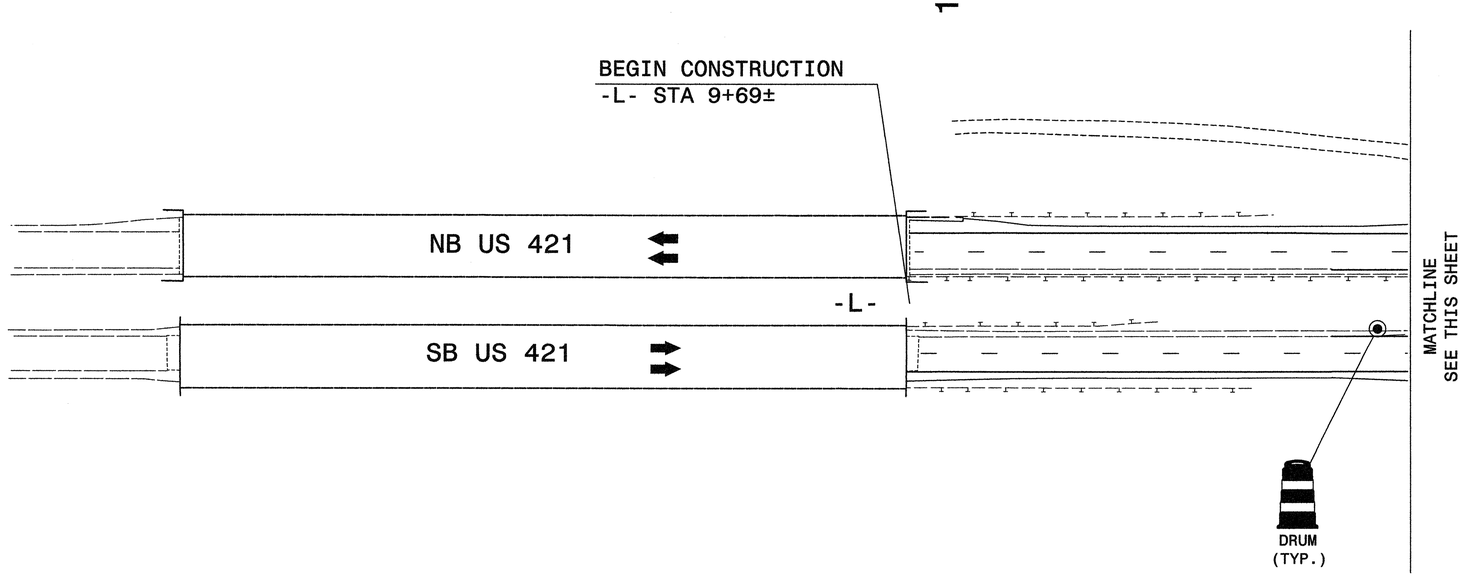
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-33





APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE III
STEPS 2a AND 2b

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

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11/24/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp33_pIII_IIa.dgn
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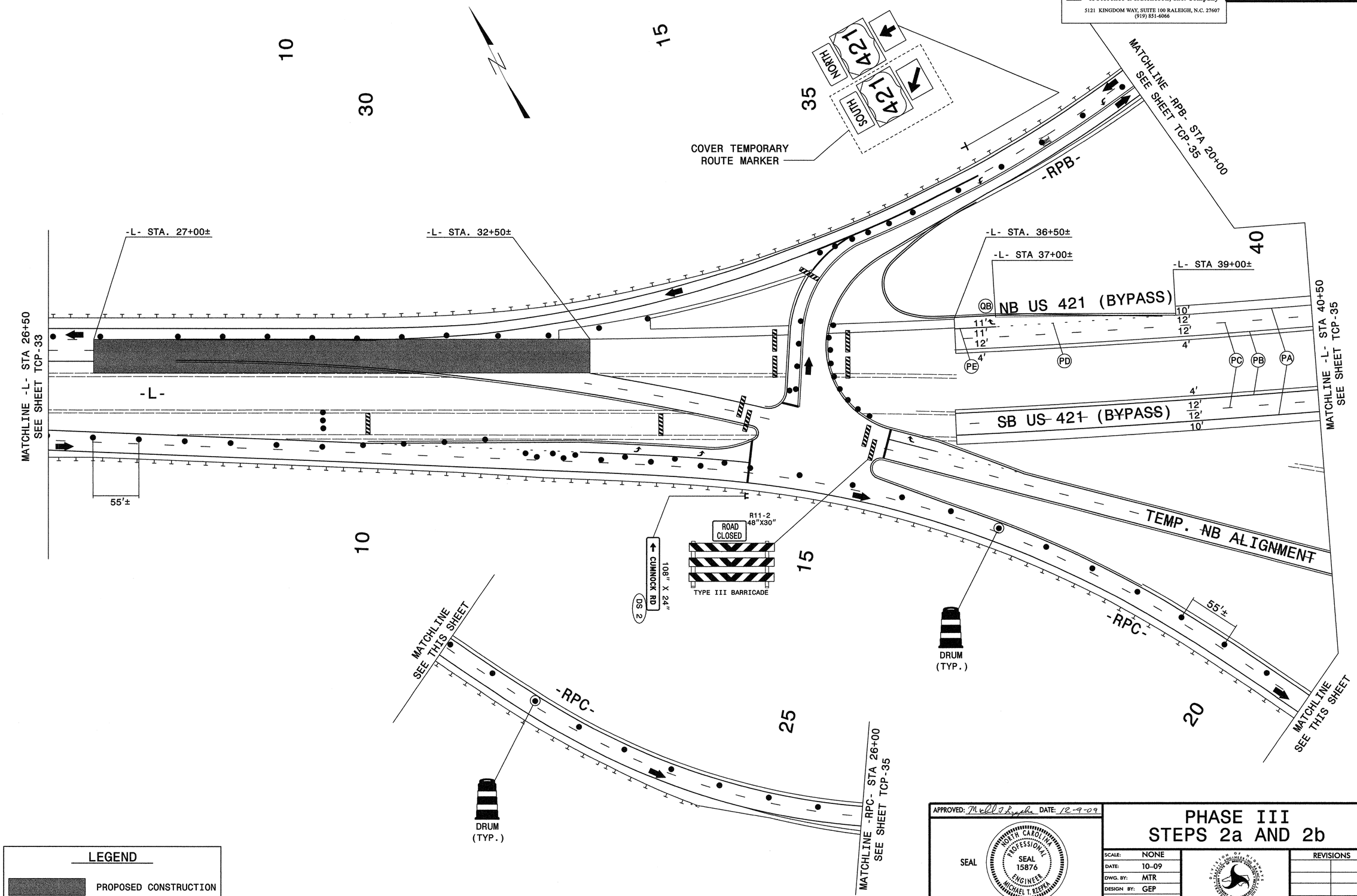
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-34



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Kzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. KZEPKA

PHASE III
STEPS 2a AND 2b

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

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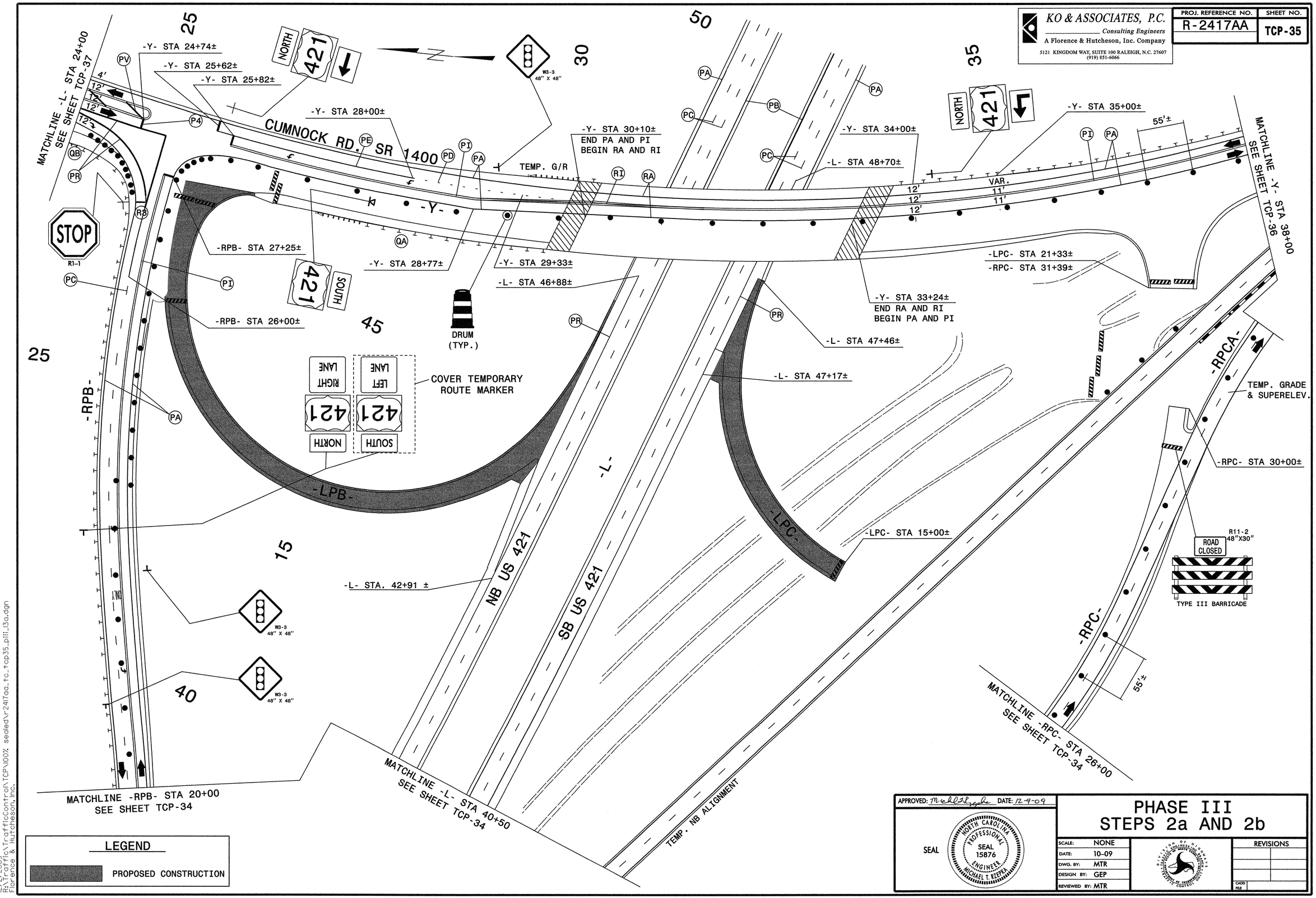
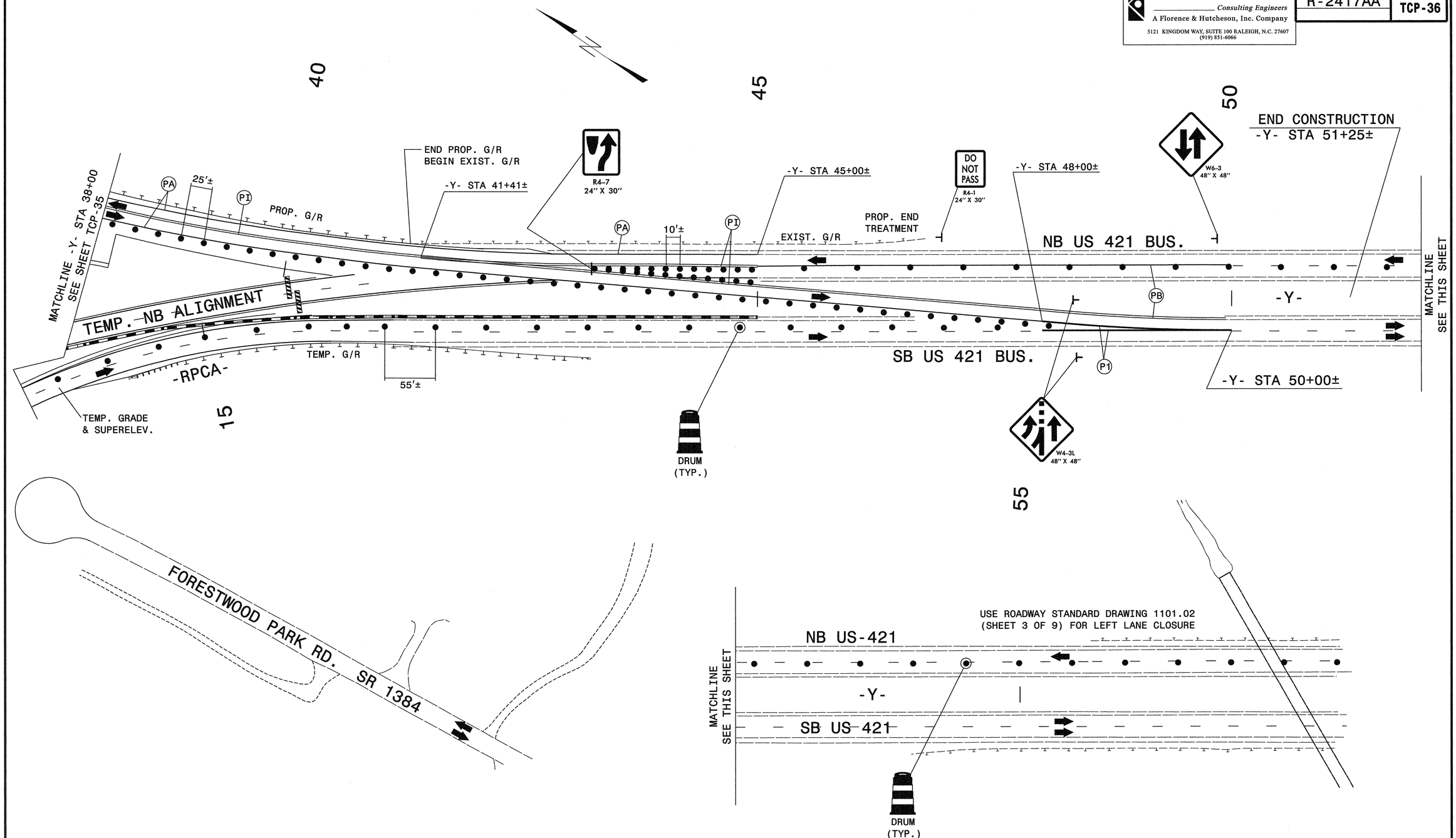

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066
PROJ. REFERENCE NO.
R-2417AA
SHEET NO.
TCP-35
MATCHLINE -L- STA 24+00
SEE SHEET TCP-37
-Y- STA 24+74±
-Y- STA 25+62±
-Y- STA 25+82±
-Y- STA 28+00±
CUMNOCK RD. SR 1400
NORTH
421
W3-3
48" X 48"
TEMP. G/R
-Y- STA 30+10±
END PA AND PI
BEGIN RA AND RI
-Y- STA 34+00±
-L- STA 48+70±
-Y- STA 35+00±
55'±
MATCHLINE -Y- STA 38+00
SEE SHEET TCP-36
VAR.
STOP
R1-1
-RPB- STA 27+25±
-Y- STA 28+77±
-Y- STA 29+33±
-L- STA 46+88±
-LPC- STA 21+33±
-RPC- STA 31+39±
-Y- STA 33+24±
END RA AND RI
BEGIN PA AND PI
-RPB- STA 26+00±
DRUM
(TYP.)
-L- STA 47+46±
-L- STA 47+17±
COVER TEMPORARY
ROUTE MARKER
RIGHT LANE
LEFT LANE
NORTH
SOUTH
-RPB-
-LPB-
-L-
-LPC-
-RPCA-
TEMP. GRADE
& SUPERELEV.
-RPC- STA 30+00±
-LPC- STA 15+00±
R11-2
48"X30"
ROAD
CLOSED
TYPE III BARRICADE
-L- STA. 42+91 ±
NB US 421
SB US 421
-RPC-
55'±
MATCHLINE -RPC- STA 26+00
SEE SHEET TCP-34
MATCHLINE -RPB- STA 20+00
SEE SHEET TCP-34
MATCHLINE -L- STA 40+50
SEE SHEET TCP-34
TEMP. NB ALIGNMENT
LEGEND
PROPOSED CONSTRUCTION
APPROVED: DATE: 12-9-09
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA
PHASE III
STEPS 2a AND 2b
SCALE: NONE
DATE: 10-09
DWG. BY: MTR
DESIGN BY: GEP
REVIEWED BY: MTR
REVISIONS
12/2/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp35_pii1_l3a.dgn
Florence & Hutcheson, Inc.

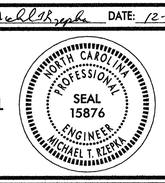
KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-36



APPROVED: Michael T. Kzepka DATE: 12-9-09

SEAL



PHASE III
STEPS 2a AND 2b

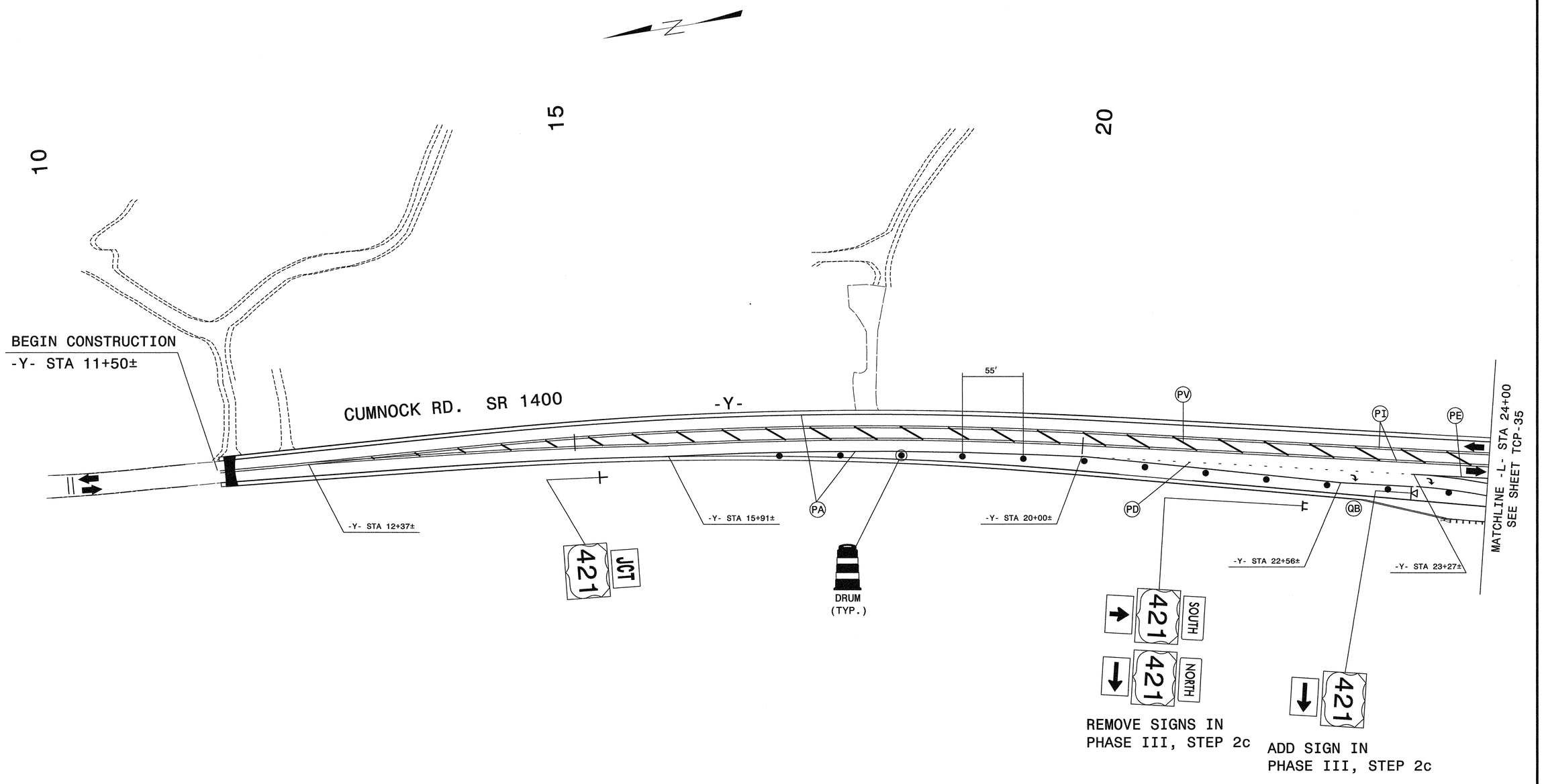
SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

CADD FILE

11/5/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp36_pill_y2a.dgn
KO & Associates, P.C.

KO & ASSOCIATES, P.C. Consulting Engineers A Florence & Hutcheson, Inc. Company 5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607 (919) 851-6066	PROJ. REFERENCE NO.	SHEET NO.
	R-2417AA	TCP-37



APPROVED: Michael T. Kiepke DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. KIEPKE

PHASE III
STEPS 2a AND 2b

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
TRAFFIC ENGINEERING BRANCH
TRAFFIC CONTROL UNIT

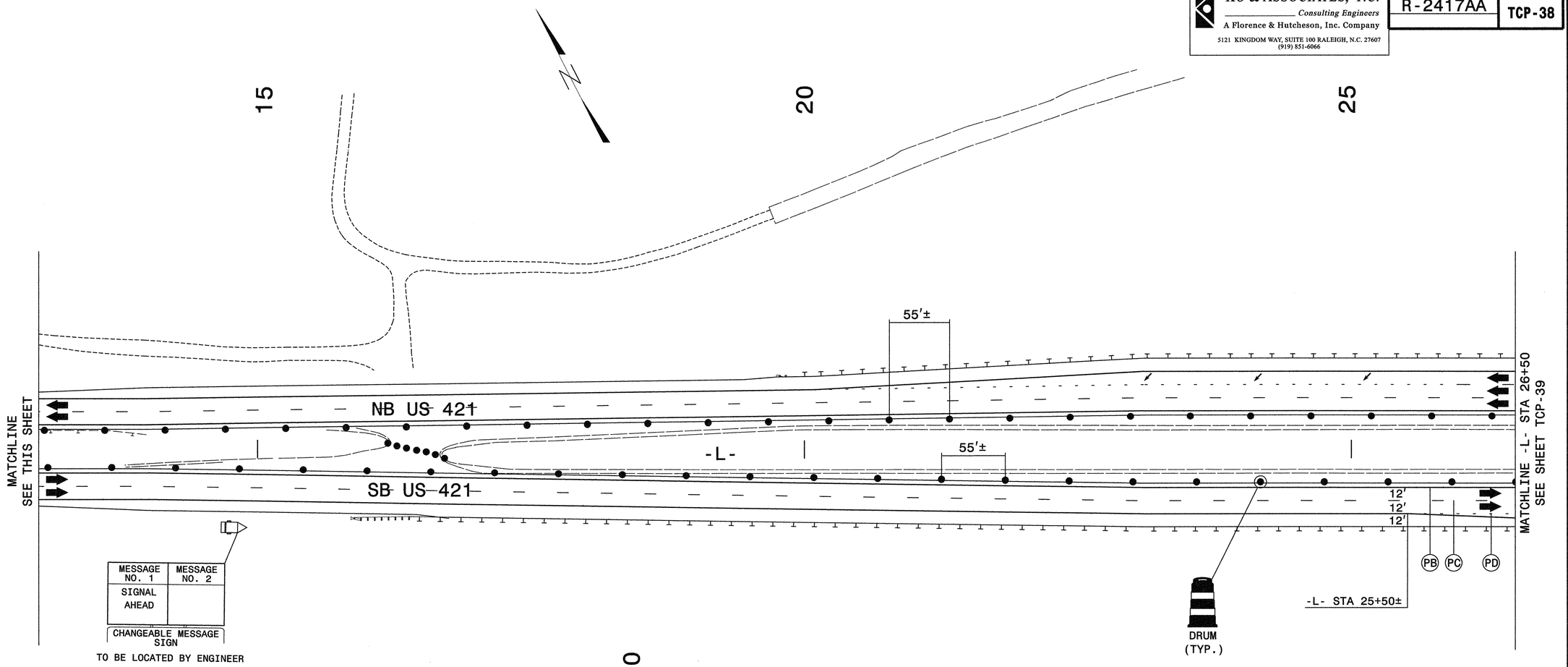
REVISIONS

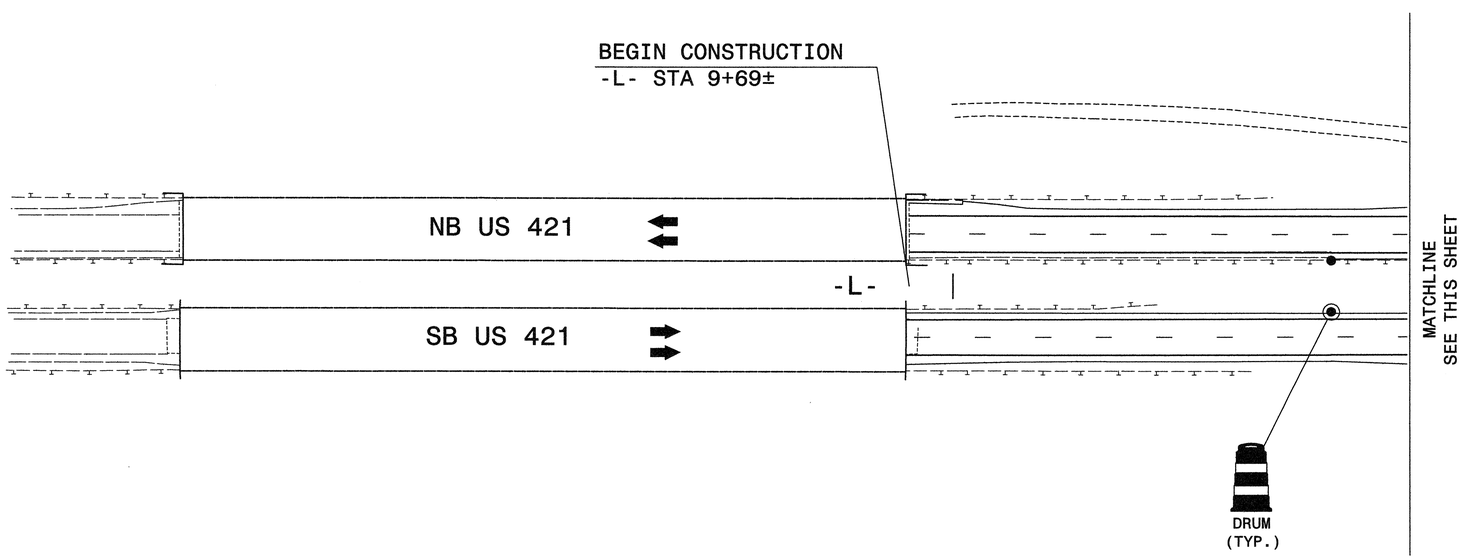
CADD FILE

11/5/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp37_plll_yla.dgn
Ko & Associates, P.C.

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-38





APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

PHASE III
STEPS 2c, 3, AND 4

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

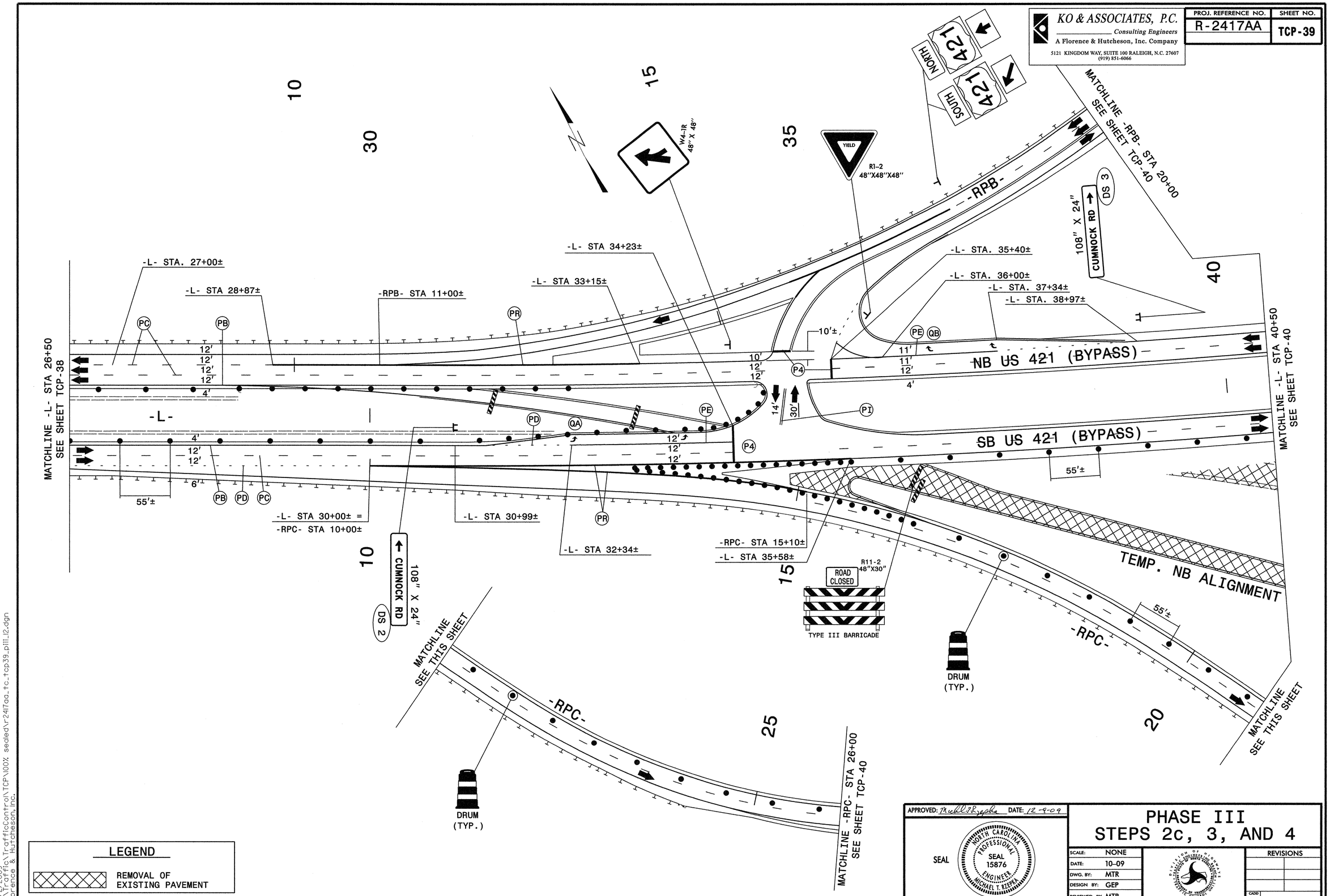
REVISIONS

CADD FILE

10/28/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp38_phIII.dgn
KO & Associates, P.C.

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-39



APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE III
STEPS 2c, 3, AND 4

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

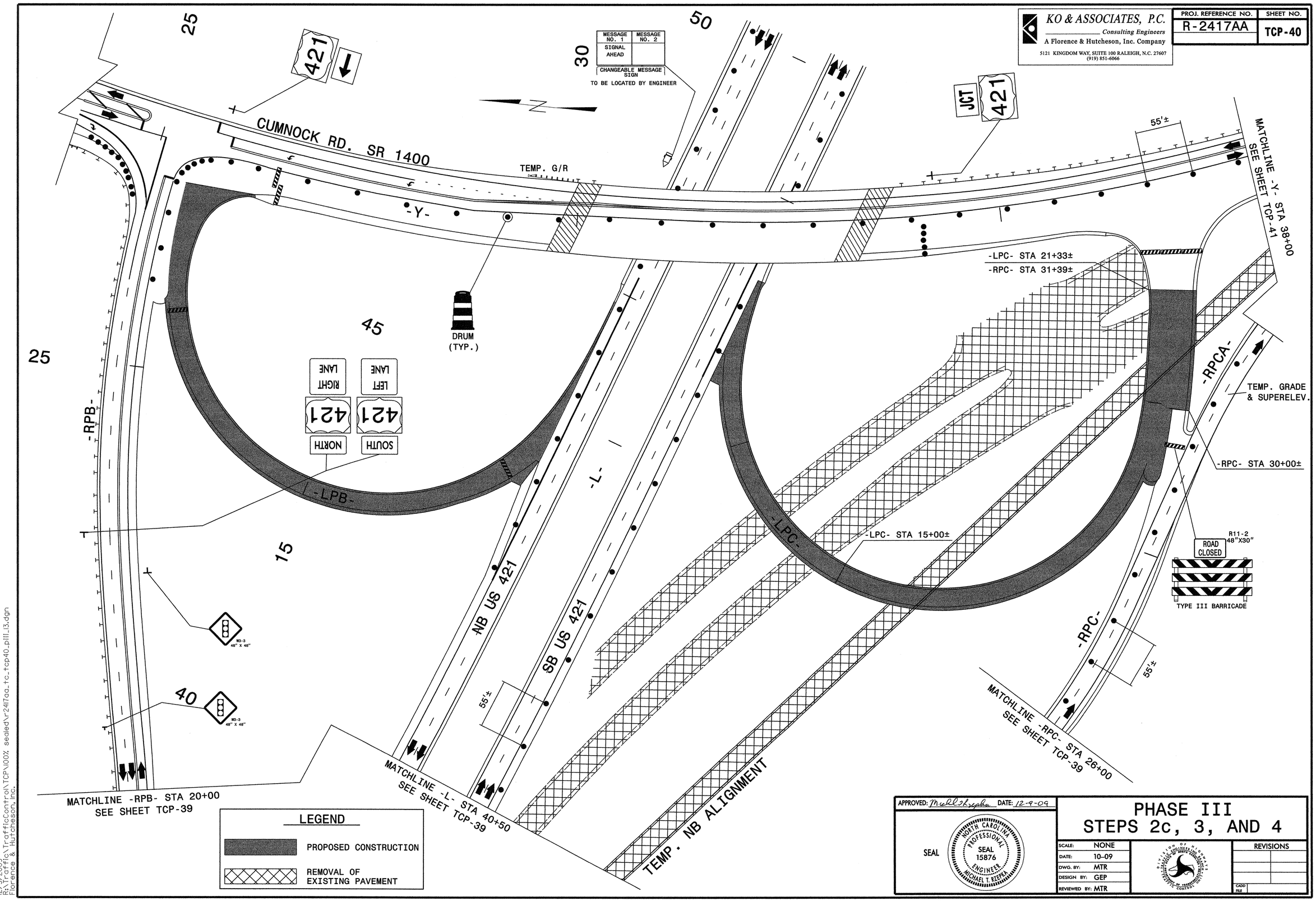
REVISIONS

CADD FILE

12/2/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp39_pill_l2.dgn
Florence & Hutcheson, Inc.

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-40



APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

PHASE III
STEPS 2c, 3, AND 4

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

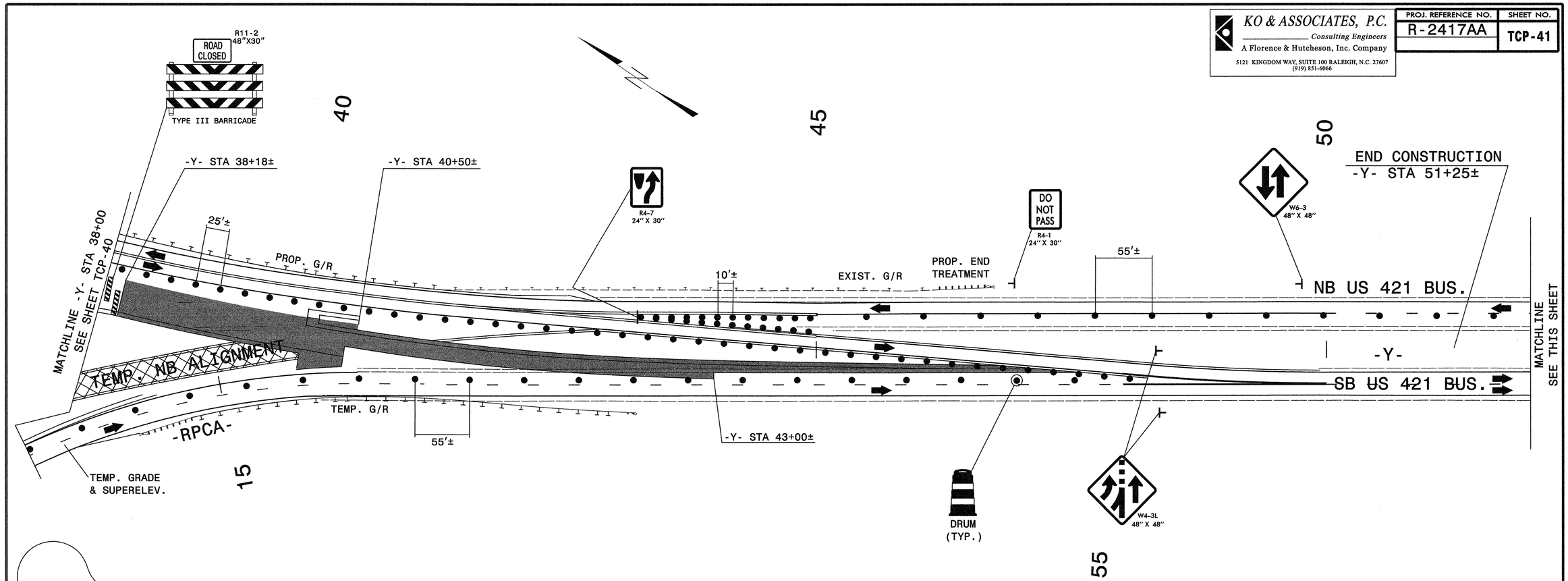
REVISIONS

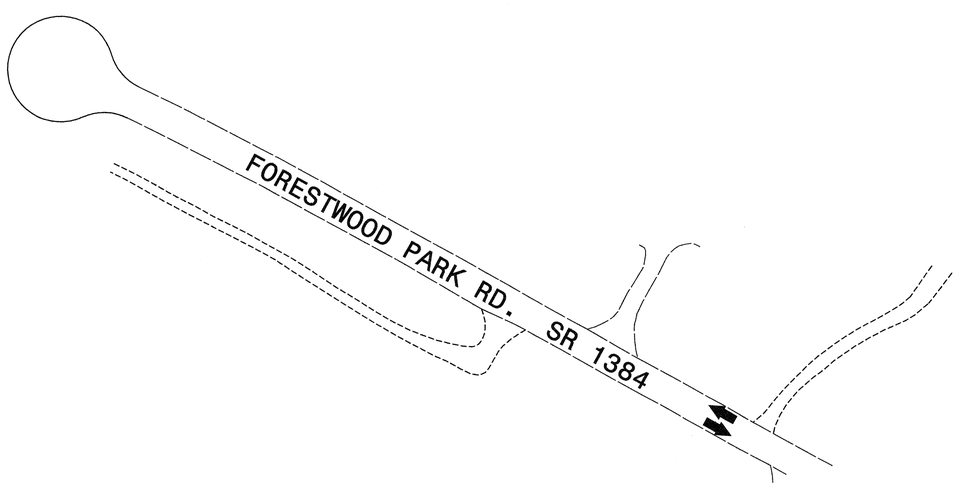
CADD FILE

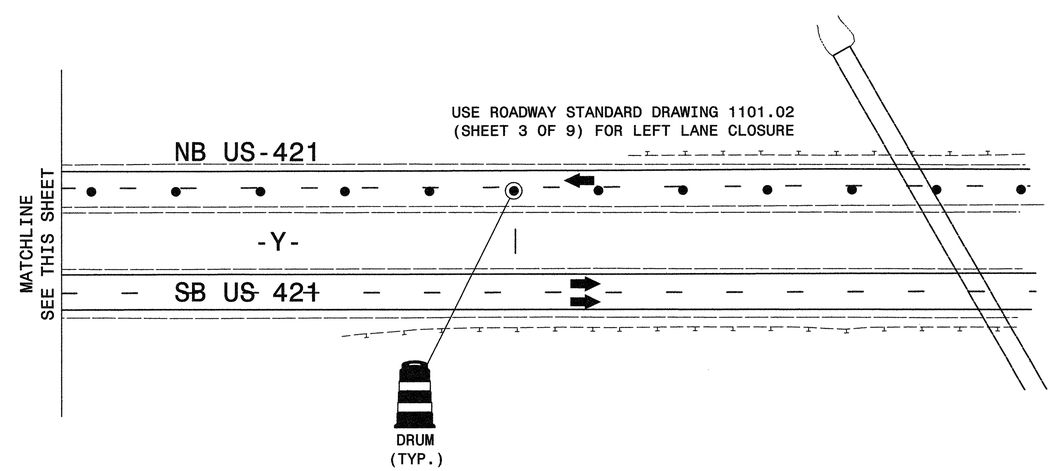
12/3/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp40_plll_l3.dgn
Florence & Hutcheson, Inc.

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-41







LEGEND

PROPOSED CONSTRUCTION

REMOVAL OF EXISTING PAVEMENT

APPROVED: Michael T. Kzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. KZEPKA

PHASE III
STEPS 2c, 3 AND 4

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

CADD FILE

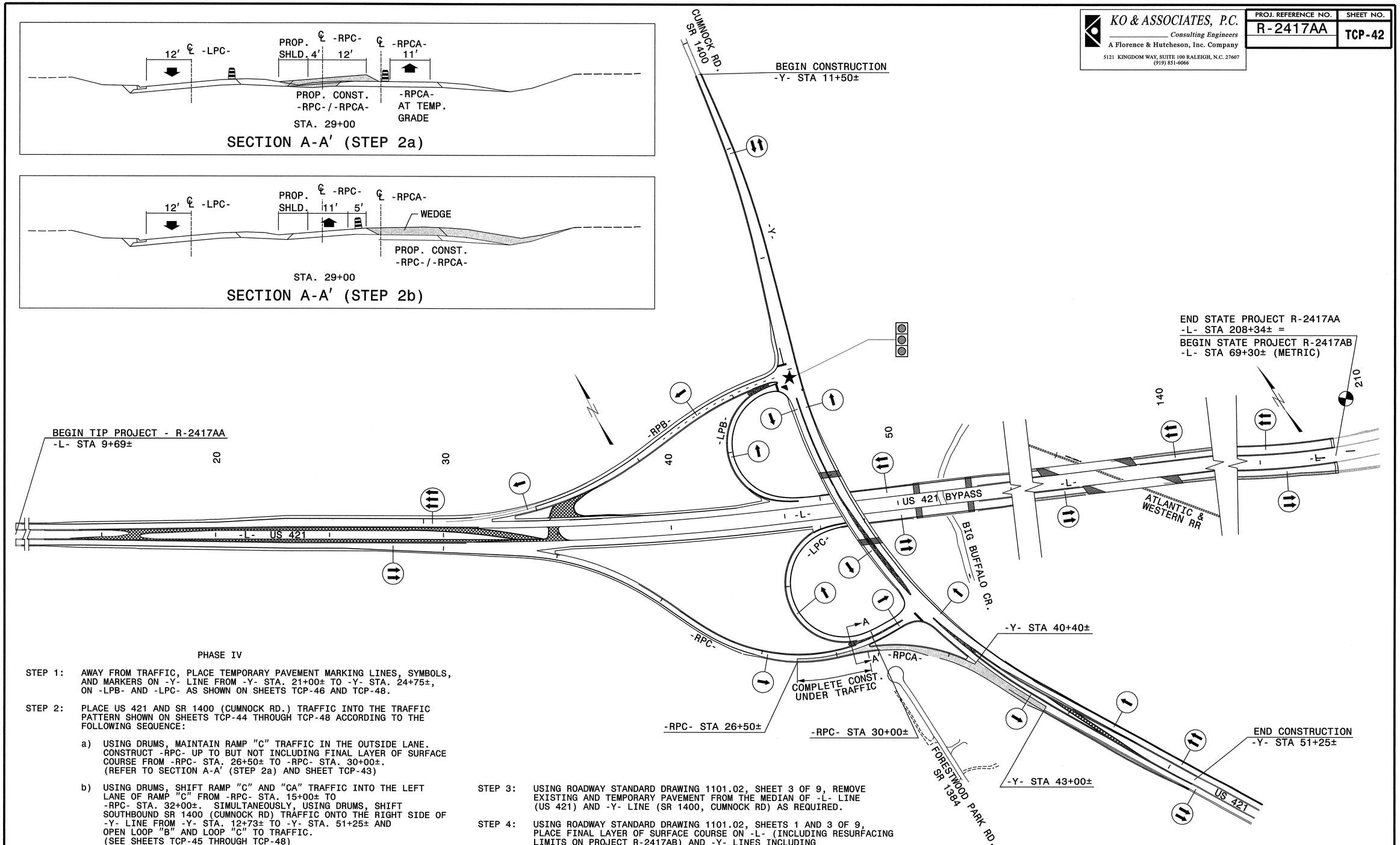
10/28/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp41_pill_y2.dgn
Ko & Associates, P.C.

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-42

SECTION A-A' (STEP 2a)

SECTION A-A' (STEP 2b)



PHASE IV

STEP 1: AWAY FROM TRAFFIC, PLACE TEMPORARY PAVEMENT MARKING LINES, SYMBOLS, AND MARKERS ON -Y- LINE FROM -Y- STA. 21+00± TO -Y- STA. 24+75±, ON -LPB- AND -LPC- AS SHOWN ON SHEETS TCP-46 AND TCP-48.

STEP 2: PLACE US 421 AND SR 1400 (CUMNOCK RD.) TRAFFIC INTO THE TRAFFIC PATTERN SHOWN ON SHEETS TCP-44 THROUGH TCP-48 ACCORDING TO THE FOLLOWING SEQUENCE:

a) USING DRUMS, MAINTAIN RAMP "C" TRAFFIC IN THE OUTSIDE LANE. CONSTRUCT -RPC- UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE FROM -RPC- STA. 26+50± TO -RPC- STA. 30+00±. (REFER TO SECTION A-A' (STEP 2a) AND SHEET TCP-43)

b) USING DRUMS, SHIFT RAMP "C" AND "CA" TRAFFIC INTO THE LEFT LANE OF RAMP "C" FROM -RPC- STA. 15+00± TO -RPC- STA. 32+00±. SIMULTANEOUSLY, USING DRUMS, SHIFT SOUTHBOUND SR 1400 (CUMNOCK RD) TRAFFIC ONTO THE RIGHT SIDE OF -Y- LINE FROM -Y- STA. 12+73± TO -Y- STA. 51+25± AND OPEN LOOP "B" AND LOOP "C" TO TRAFFIC. (SEE SHEETS TCP-45 THROUGH TCP-48)

USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 9, PLACE REMAINING TEMPORARY PAVEMENT MARKING LINES, SYMBOLS, AND MARKERS ON -Y- LINE FROM -Y- STA. 11+50± TO -Y- STA. 51+25±, AS SHOWN ON SHEETS TCP-46 THROUGH TCP-48.

BEHIND DRUMS, CONSTRUCT -RPC- AND -RPCA- UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE FROM -RPC- STA. 26+50± TO -Y- STA. 43+00±. (REFER TO SECTION A-A' (STEP 2b) AND SHEETS TCP-46 AND TCP-47)

STEP 3: USING ROADWAY STANDARD DRAWING 1101.02, SHEET 3 OF 9, REMOVE EXISTING AND TEMPORARY PAVEMENT FROM THE MEDIAN OF -L- LINE (US 421) AND -Y- LINE (SR 1400, CUMNOCK RD) AS REQUIRED.

STEP 4: USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 3 OF 9, PLACE FINAL LAYER OF SURFACE COURSE ON -L- (INCLUDING RESURFACING LIMITS ON PROJECT R-2417AB) AND -Y- LINES INCLUDING PAVEMENT MARKING LINES, SYMBOLS, AND MARKERS. (SEE SHEETS PMP-2 THROUGH PMP-7)

ACTIVATE PROPOSED SIGNAL AT THE INTERSECTION OF -Y- (SR 1400, CUMNOCK RD) AND -RPB-/-LPB-.

USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 3 OF 9, INSTALL 5" MONOLITHIC CONCRETE ISLAND ON -Y- LINE, BETWEEN -LPB- AND -RPB-, AND BETWEEN -LPC- AND -RPC- AS SHOWN IN ROADWAY PLANS.

APPROVED: Michael T. Rzepka DATE: 12-3-10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE IV OVERVIEW & PHASING

SCALE:	NONE
DATE:	12-10
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL UNIT

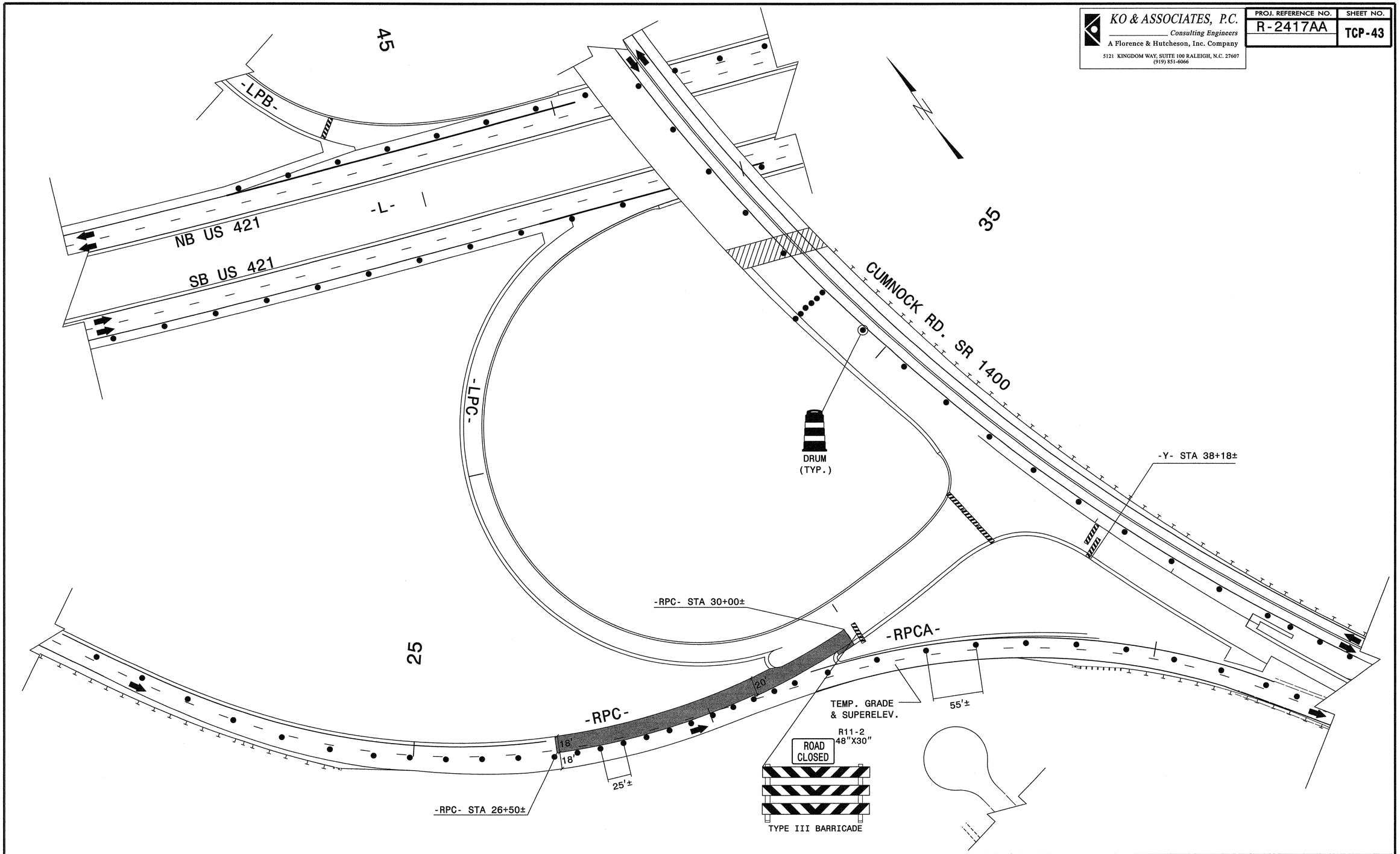
REVISIONS

CADD FILE

12/3/2010
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp42_plv_ovw.dgn
Ko & Associates, P.C.

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-43



LEGEND

PROPOSED CONSTRUCTION

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE IV
STEP 2a

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

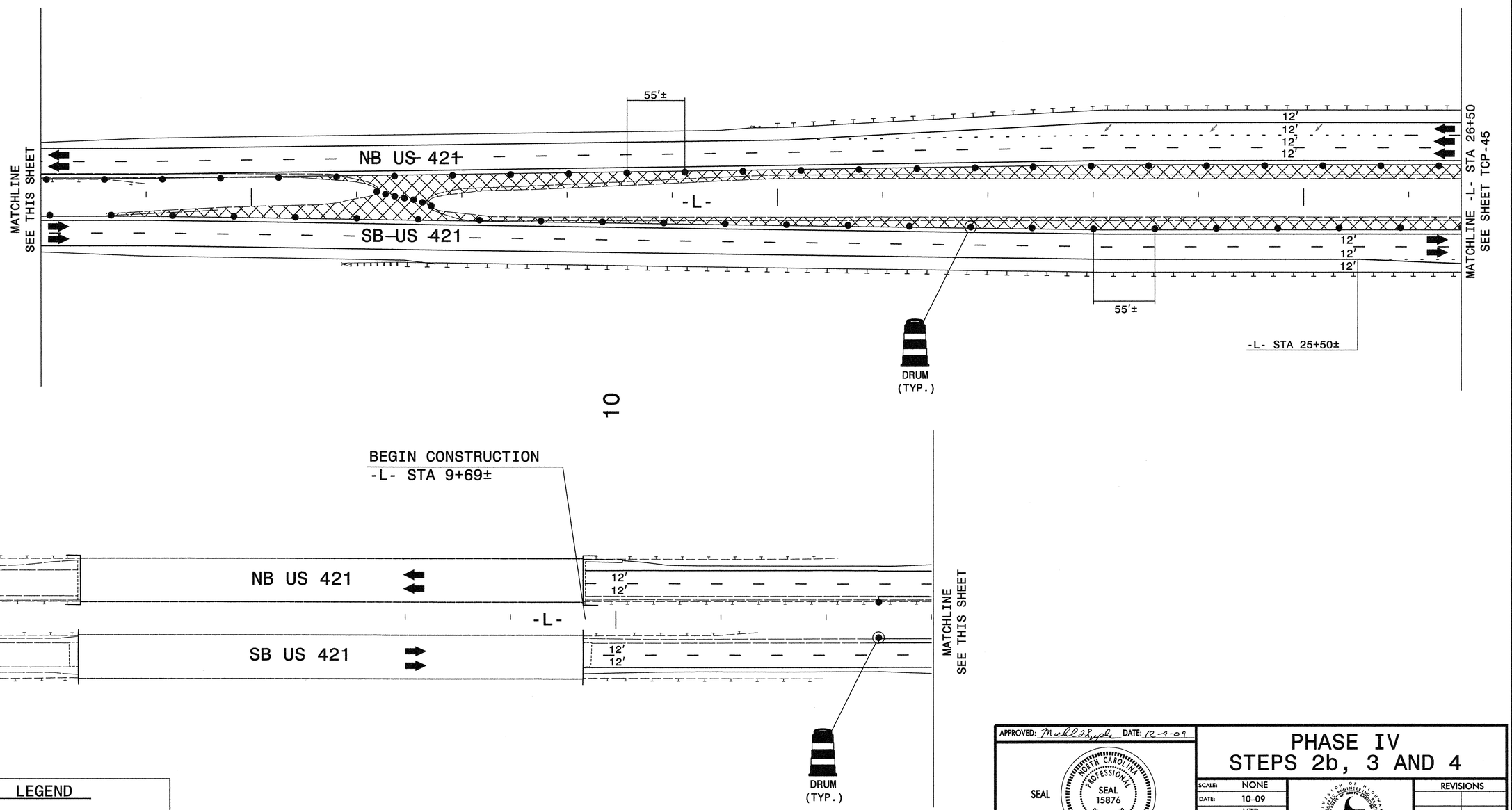
REVISIONS

CADD FILE

10/28/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp43_piiia_rpc.dgn
Ko & Associates, P.C.

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-44



LEGEND

REMOVAL OF EXISTING PAVEMENT

APPROVED: Michael Szyp DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. NZEPKA

PHASE IV
STEPS 2b, 3 AND 4

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

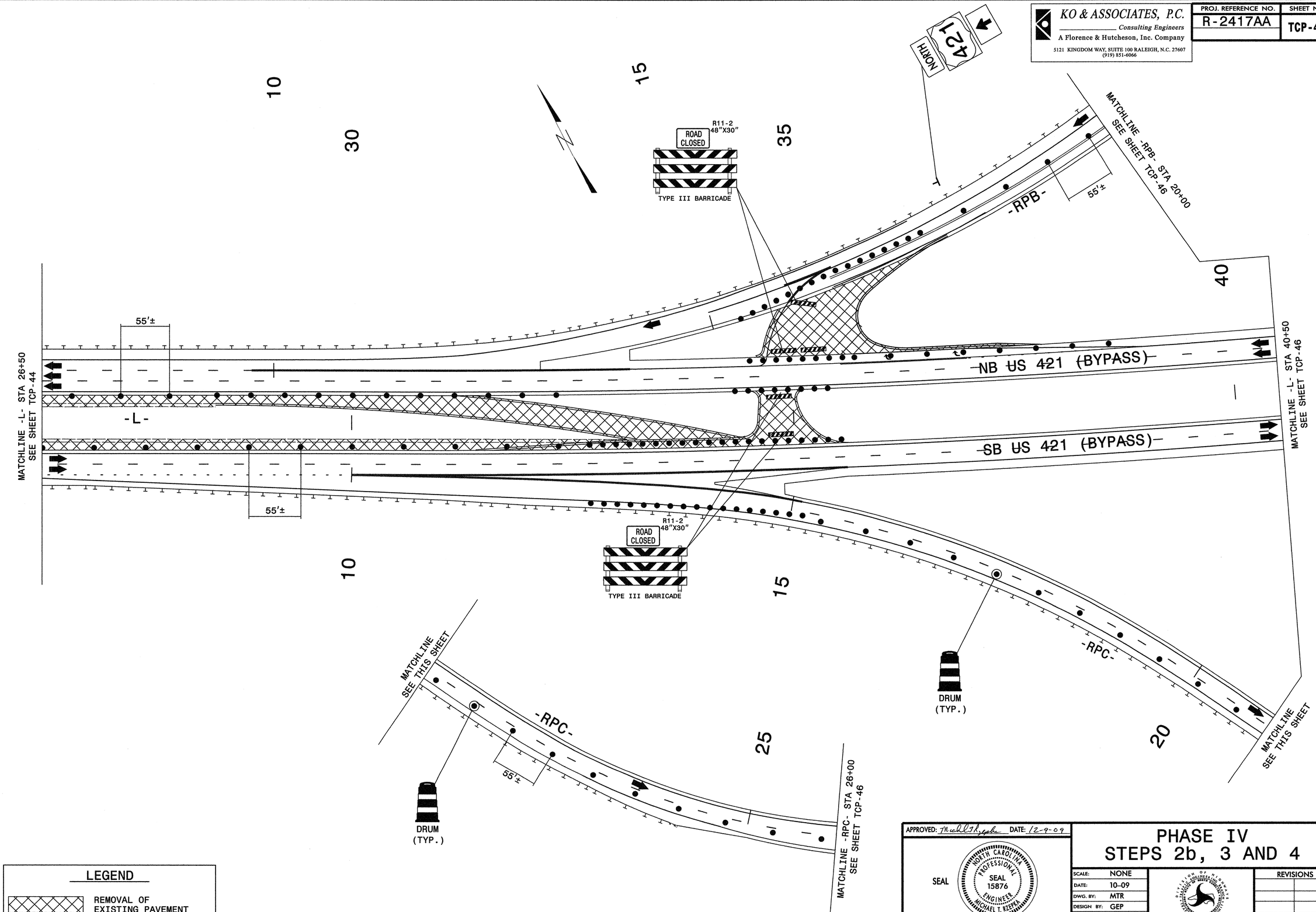
REVISIONS

CADD FILE

10/28/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r-2417aa_tc_tcp44_plv_ll.dgn
Ko & Associates, P.C.

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-45



LEGEND

REMOVAL OF EXISTING PAVEMENT

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

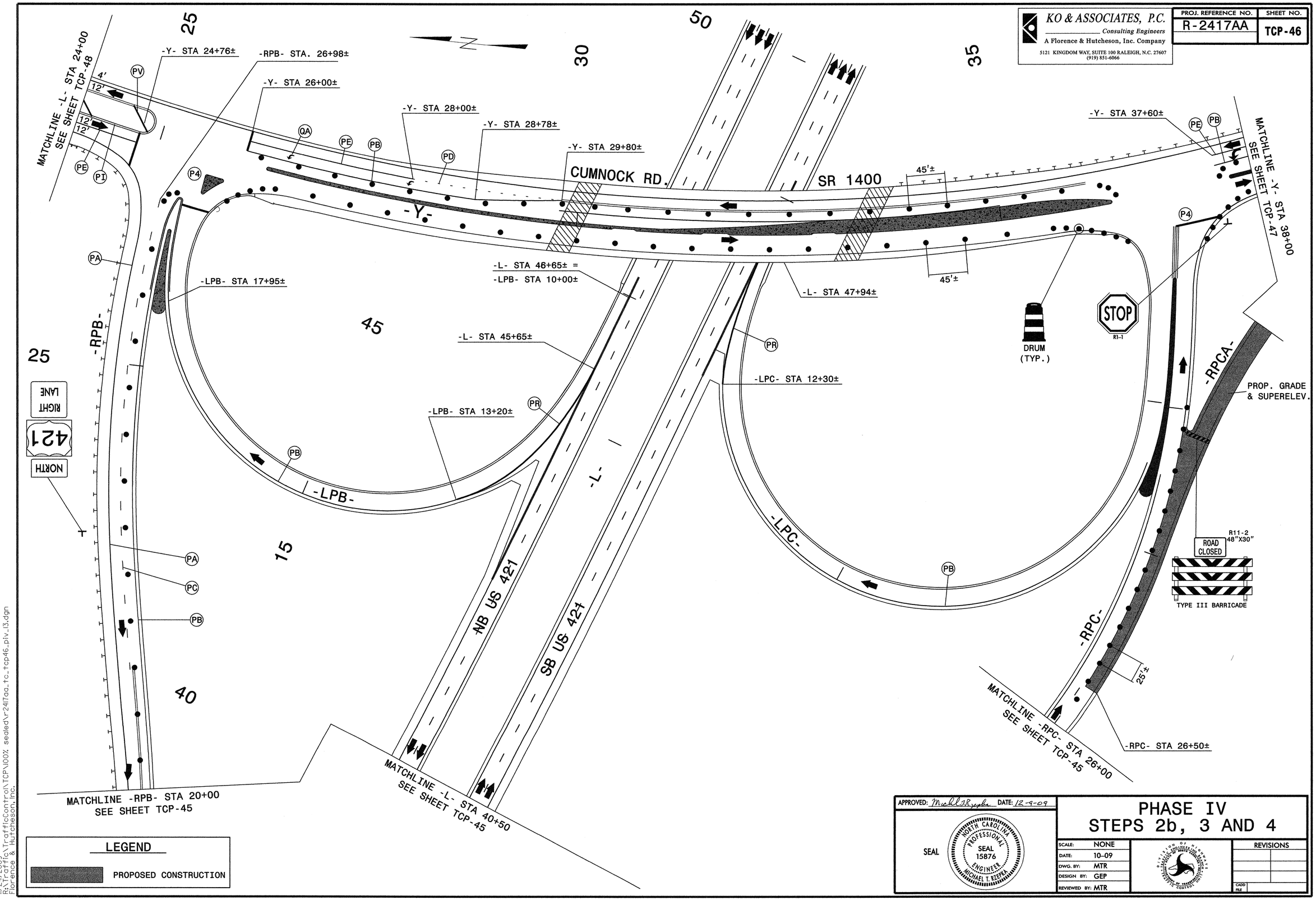
PHASE IV
STEPS 2b, 3 AND 4

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

CADD FILE

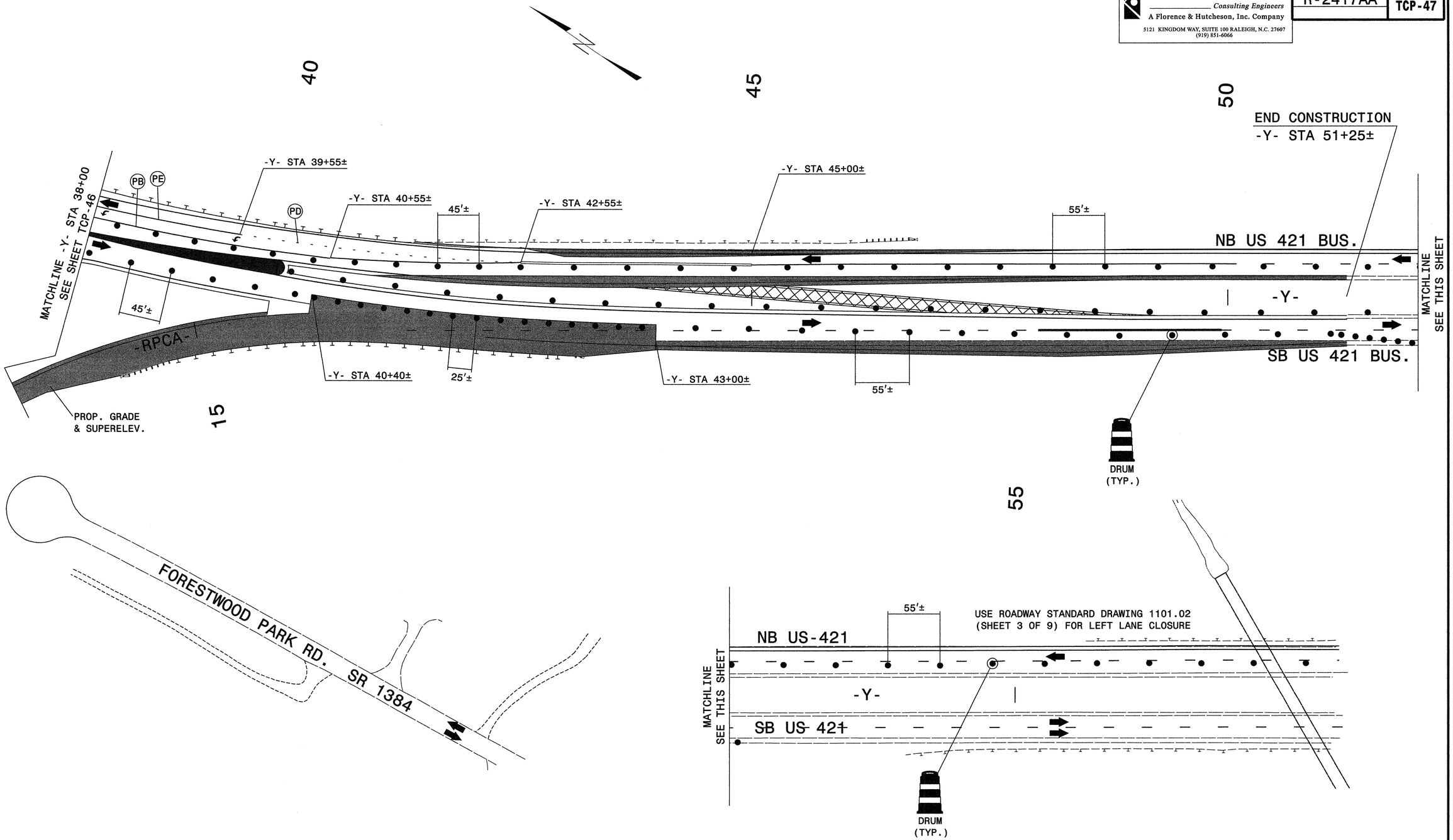
11/24/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp45_piv_12.dgn
Florence & Hutcheson, Inc.



KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066
PROJ. REFERENCE NO.
R-2417AA
SHEET NO.
TCP-46
MATCHLINE -L- STA 24+00
SEE SHEET TCP-48
-Y- STA 24+76±
-RPB- STA. 26+98±
-Y- STA 26+00±
-Y- STA 28+00±
-Y- STA 28+78±
-Y- STA 29+80±
-Y- STA 37+60±
CUMNOCK RD.
SR 1400
-Y-
-L- STA 46+65± =
-LPB- STA 10+00±
-L- STA 47+94±
-LPB- STA 17+95±
-L- STA 45+65±
-LPC- STA 12+30±
-LPB- STA 13+20±
-RPB-
-LPB-
-L-
-LPC-
-RPC-
-RPCA-
NB US 421
SB US 421
DRUM
(TYP.)
STOP
R1-1
PROP. GRADE
& SUPERELEV.
ROAD
CLOSED
R11-2
48"X30"
TYPE III BARRICADE
MATCHLINE -Y- STA 38+00
SEE SHEET TCP-47
MATCHLINE -RPC- STA 26+00
SEE SHEET TCP-45
-RPC- STA 26+50±
MATCHLINE -RPB- STA 20+00
SEE SHEET TCP-45
MATCHLINE -L- STA 40+50
SEE SHEET TCP-45
RIGHT
LANE
421
NORTH
25
30
35
50
45
15
40
LEGEND
PROPOSED CONSTRUCTION
APPROVED: Michael T. Rzepka DATE: 12-9-09
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA
PHASE IV
STEPS 2b, 3 AND 4
SCALE: NONE
DATE: 10-09
DWG. BY: MTR
DESIGN BY: GEP
REVIEWED BY: MTR
REVISIONS
CADD FILE
11/24/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp46_piv_13.dgn
Florence & Hutcheson, Inc.

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-47



LEGEND

PROPOSED CONSTRUCTION

REMOVAL OF EXISTING PAVEMENT

APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE IV
STEPS 2b, 3 AND 4

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING BRANCH
TRAFFIC CONTROL

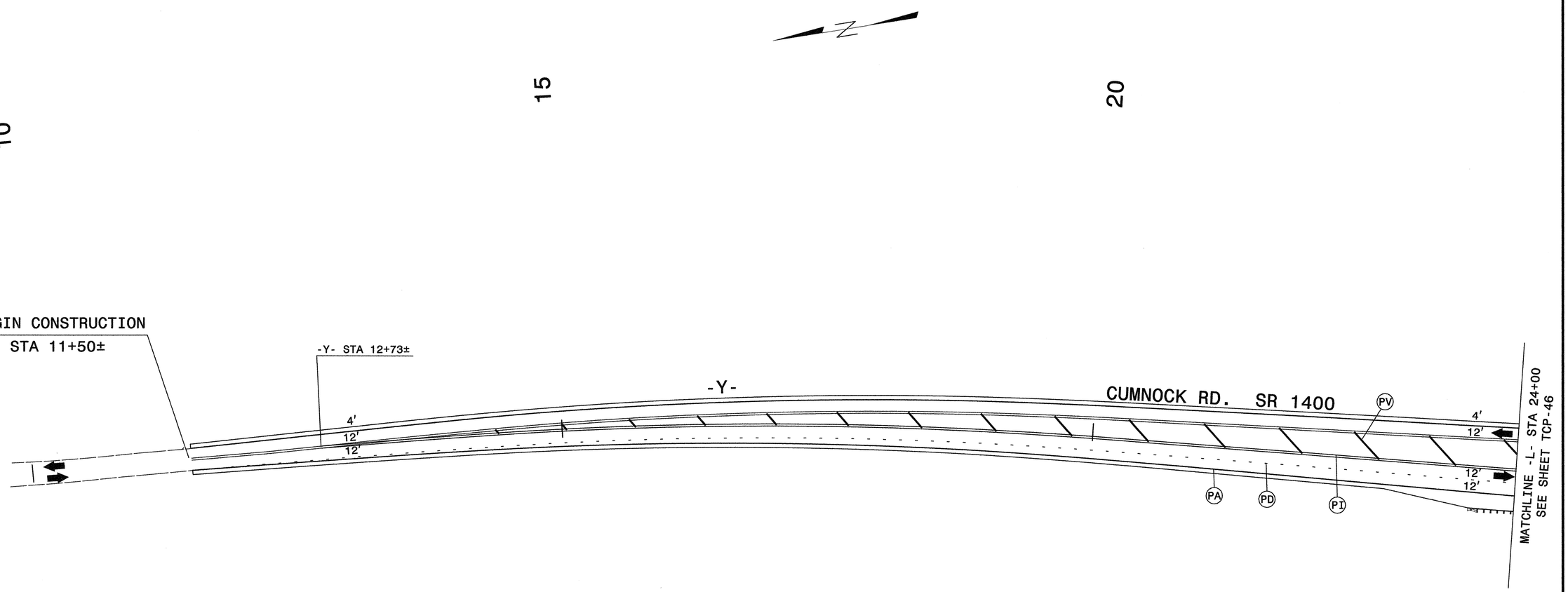
REVISIONS

CADD FILE

11/24/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r-2417aa_tc_tcp47_plv_y2.dgn
Florence & Hutcheson, Inc.

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-48



APPROVED: Michael T. Rzepka DATE: 12-9-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE IV
STEPS 2b, 3 AND 4

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS
REGISTERED PROFESSIONAL ENGINEERS & LAND SURVEYORS
TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

11/24/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r2417aa_tc_tcp48_plv_yl.dgn
Florence & Hutcheson, Inc.

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-49

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
For Division of Highways

SIGN NUMBER: DS 1
TYPE: D
QUANTITY: 1
SIGN WIDTH: 8'-6"
HEIGHT: 2'-0"
TOTAL AREA: 17.0 SF
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"
NO. Z BARS:
LENGTH:

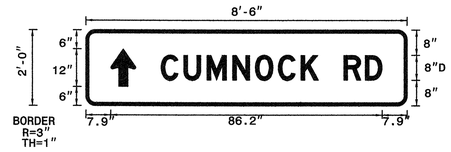
BACKG COLOR: ORANGE
COPY COLOR: BLACK

SYMBOL	X	Y	WID	HT
ARUP	7.9	6	8	12

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: Ko CHECKED BY: Ko STD #: $STN
PROJECT ID: R-2417AA DIV: 8 DATE: 3-27-07

USE NOTES: 1, 4, & 6
1. Legend and border shall be direct applied Type III reflective sheeting.
2. Legend and border shall be direct applied non-reflective sheeting.
3. Shields shall be Type III reflective sheeting on 0.032" (0.8mm) aluminum and demountable.
4. Background shall be Type III reflective sheeting.
5. Background shall be Type I reflective sheeting.
6. Center arrow(s) vertically on sign.



LETTER POSITIONS

Letter spacings are to start of next letter

	C	U	M	N	O	C	K		R	D	Series/Size Text Length
23.9	7.2	7.4	8.2	7.2	7.3	7.2	5.6	8	6.8	5.4	D 2000
7.9											70.2

Spacing Factor is 1 unless specified otherwise

SIGN NUMBER: DS 2
TYPE: D
QUANTITY: 2
SIGN WIDTH: 9'-0"
HEIGHT: 2'-0"
TOTAL AREA: 18.0 SF
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"
NO. Z BARS:
LENGTH:

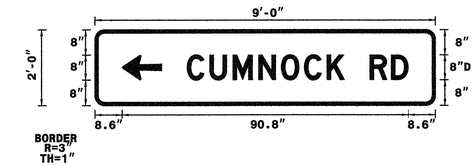
BACKG COLOR: ORANGE
COPY COLOR: BLACK

SYMBOL	X	Y	WID	HT
ARMED	8.6	8	8	12.6

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: Ko CHECKED BY: Ko
PROJECT ID: R-2417AA DIV: 8
STD #: $STN
DATE: 3-27-07

USE NOTES: 1, 4, & 6
1. Legend and border shall be direct applied Type III reflective sheeting.
2. Legend and border shall be direct applied non-reflective sheeting.
3. Shields shall be Type III reflective sheeting on 0.032" (0.8mm) aluminum and demountable.
4. Background shall be Type III reflective sheeting.
5. Background shall be Type I reflective sheeting.
6. Center arrow(s) vertically on sign.



LETTER POSITIONS

Letter spacings are to start of next letter

	C	U	M	N	O	C	K		R	D		Series/Size Text Length
29.2	7.2	7.4	8.2	7.2	7.3	7.2	5.6	8	6.8	5.4	8.6	D 2000
												70.2

Spacing Factor is 1 unless specified otherwise

SIGN NUMBER: DS 3
TYPE: D
QUANTITY: 1
SIGN WIDTH: 9'-0"
HEIGHT: 2'-0"
TOTAL AREA: 18.0 SF
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"
NO. Z BARS:
LENGTH:

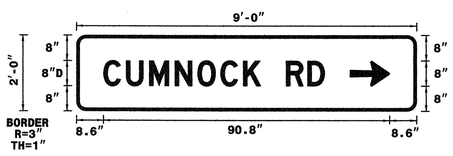
BACKG COLOR: ORANGE
COPY COLOR: BLACK

SYMBOL	X	Y	WID	HT
ARMED	86.8	8	8	12.6

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: Ko CHECKED BY: Ko STD #: $STN
PROJECT ID: R-2417AA DIV: 8 DATE: 3-27-07

USE NOTES: 1, 4, & 6
1. Legend and border shall be direct applied Type III reflective sheeting.
2. Legend and border shall be direct applied non-reflective sheeting.
3. Shields shall be Type III reflective sheeting on 0.032" (0.8mm) aluminum and demountable.
4. Background shall be Type III reflective sheeting.
5. Background shall be Type I reflective sheeting.
6. Center arrow(s) vertically on sign.



LETTER POSITIONS

Letter spacings are to start of next letter

	C	U	M	N	O	C	K		R	D		Series/Size Text Length
8.6	7.2	7.4	8.2	7.2	7.3	7.2	5.6	8	6.8	5.4	29.2	D 2000
												70.2

Spacing Factor is 1 unless specified otherwise

APPROVED: Michael T. Nzepka DATE: 12-9-09

SEAL

DETOUR SIGN DESIGNS

SCALE:	NONE
DATE:	10-09
DWG. BY:	MTR
DESIGN BY:	GEP
REVIEWED BY:	MTR

REVISIONS

CADD FILE

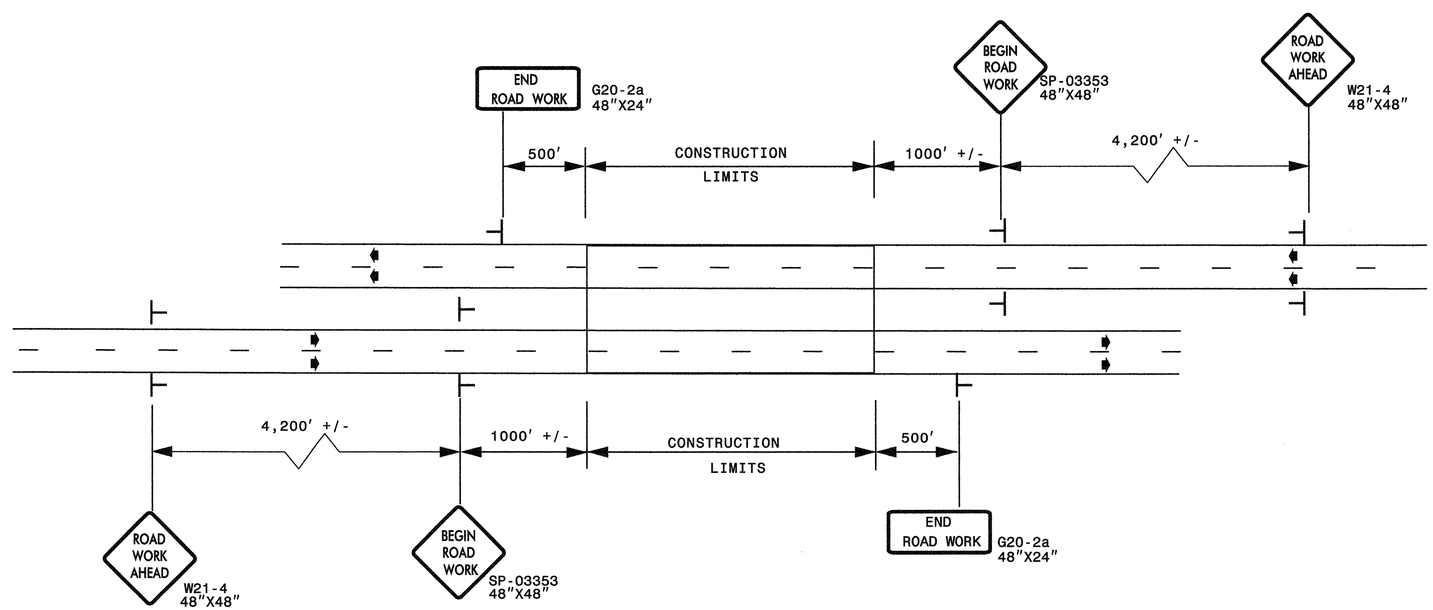
10/28/2009
R:\Traffic\TrafficControl\TCP\100% sealed\r-2417aa_tc_tcp49_DSDESIGN.dgn
Ko & Associates, P.C.

KO & ASSOCIATES, P.C.
Consulting Engineers
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-50

ADVANCED WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)

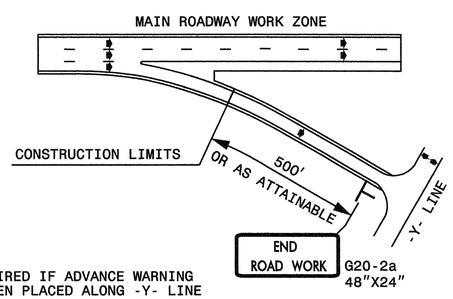
DETAIL A



LEGEND
- ├ STATIONARY SIGN
- ➧ DIRECTION OF TRAFFIC FLOW

DETAIL B

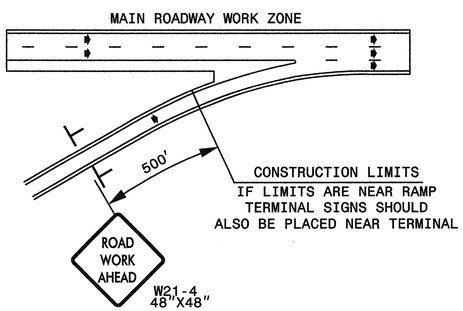
EXIT RAMPS



NOTE: SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

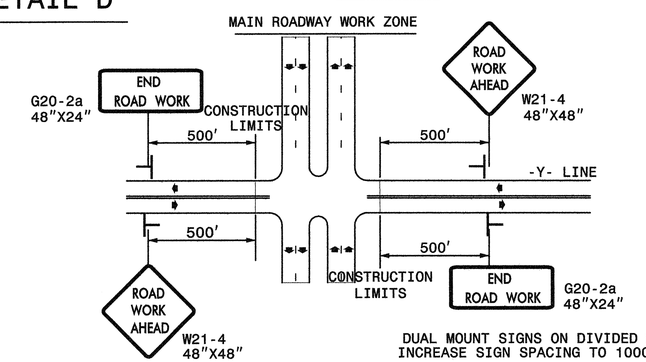
DETAIL C

ENTRANCE RAMPS



DETAIL D

-Y- LINES



DUAL MOUNT SIGNS ON DIVIDED HIGHWAYS AND INCREASE SIGN SPACING TO 1000'+/-.

GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B), MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.

APPROVED: Michael J. Rzepka DATE: 12-4-09

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

ADVANCED WORK ZONE WARNING SIGNS FOR FREEWAYS (4 LANES OR GREATER)

SCALE:	NONE
DATE:	9/09
DWG. BY:	JI
DESIGN BY:	JI
REVIEWED BY:	

DIVISION OF HIGHWAYS — TRANSPORTATION BUILDING RALEIGH, NORTH CAROLINA — DEPARTMENT OF TRANSPORTATION — CONTROL

REVISIONS	
03/04	
CADD FILE	

10/28/2009
R:\Traffic\TrafficControl\TCP\100% sealed\R2417_TC_TCP50_freeways_4lanes_or_greater.dgn
Ko & Associates, P.C.

PROJ. REFERENCE NO.	SHEET NO.
R-2417AA	TCP-51

SP 03353

SIGN NUMBER: SP-03353
TYPE: A
QUANTITY: 1

SIGN WIDTH: 4'-0"
HEIGHT: 4'-0"
TOTAL AREA: 16.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0.59"
WIDTH: 0.75"
RADII: 1.38"

NO. Z BARS: N/A
LENGTH: N/A

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

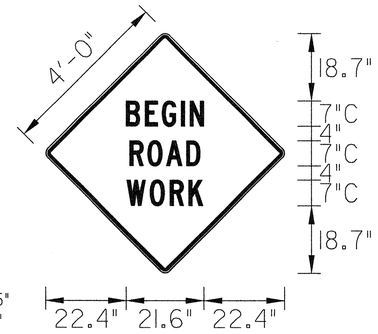
SYMBOL	X	Y	WID	HT

MAT'L:

DESIGN BY: CL DOWNEY
PROJECT ID: ALL PROJECTS
CHECKED BY: CHECKED
DIV: DIV
STD #: W20-1
DATE: Aug 20,2003

USE NOTES: 2, 4

1. Legend and border shall be direct applied Type VII reflective sheeting.
2. Legend and border shall be direct applied non-reflective sheeting.
3. Shields shall be Type VII reflective sheeting on 0.032" (0.8mm) aluminum and demountable.
4. Background shall be Type VII reflective sheeting.
5. Background shall be Type I reflective sheeting.
6. Center arrow(s) vertically on sign.
7. Bottom panel shall be yellow Type III sheeting. Legend shall be direct applied black non-reflective sheeting. Yellow panel is:



LETTER POSITIONS

Letter spacings are to start of next letter

								Series/Size Text Length
	B	E	G	I	N			C7
22.4	5.3	4.6	5.4	2.5	3.8	22.4		21.6
	R	O	A	D				C7
23.4	5	5.2	5.6	3.8	23.4			19.6
	W	O	R	K				C7
22.6	6.4	5.6	5.2	4	22.6			21.2

Spacing Factor is 1 unless specified otherwise

FILENAME: SPECISHAK

NORTH CAROLINA D.O.T. SIGN DETAIL

GENERAL NOTES FOR THE "BEGIN ROAD WORK" SIGN

-SIGN SP-03353 "BEGIN ROAD WORK" ONLY APPLIES TO FULL CONTROL AND PARTIAL CONTROL OF ACCESS ROADWAYS
-WHEN USED, INSTALL SIGN SP-03353 "BEGIN ROAD WORK" ACCORDING TO DETAIL A ON SHEET TCP-50.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

SHEET 1 OF 1

APPROVED: DATE: 12-8-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DETAIL DRAWING FOR
ADVANCED WORK ZONE WARNING
SIGN DESIGNS

SCALE:	NONE
DATE:	09 - 09
DWG. BY:	
DESIGN BY:	
REVIEWED BY:	

REVISIONS
04/04

CADD FILE

10/28/2009
R:\Traffic\TrafficControl\TCP\100% sealed\R2417AA_TC_TCP51_Sign_Designs.dgn
KG & Associates, P.C.