STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2304AF	1	

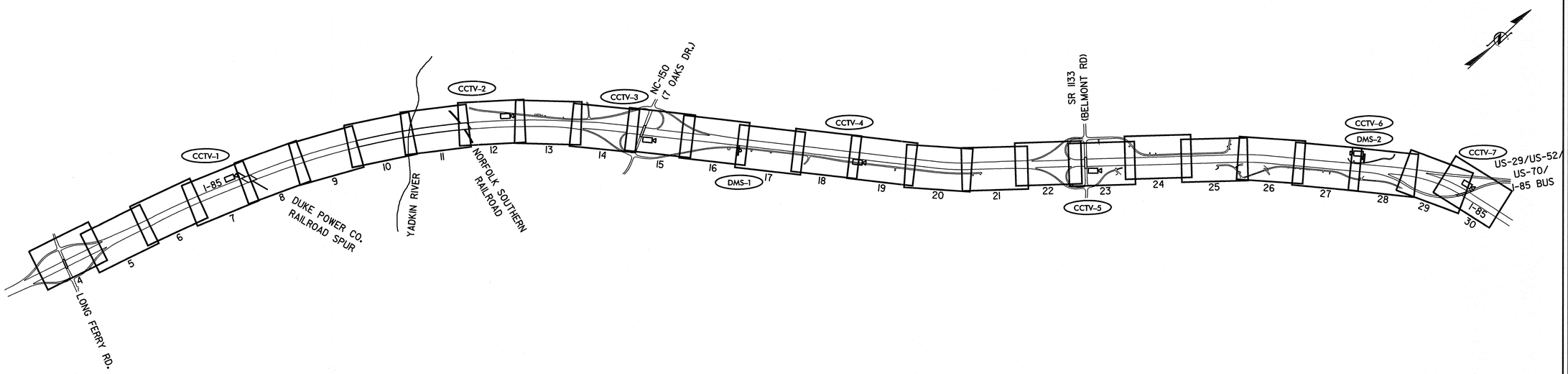
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
		PE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROWAN & DAVIDSON COUNTIES

LOCATION: *I-85 FROM NORTH OF SR 2120 (LONG FERRY ROAD, EXIT 81) IN ROWAN COUNTY TO JUST NORTH OF I-85 BUSINESS EXIT 87 IN DAVIDSON COUNTY*

TYPE OF WORK: *FIBER OPTIC COMMUNICATIONS AND CONDUIT ROUTING, CCTV CAMERAS, DYNAMIC MESSAGE SIGNS, AND INTEGRATION*



FINAL PLANS

2012 STANDARD SPECIFICATIONS

PROJECT LENGTH

PROJECT LENGTH = 7.3 MILES

LETTING DATE:

SEPTEMBER, 2013

INDEX OF SHEETS

SHEET 1 ..... TITLE SHEET
SHEET 1A ..... CONSTRUCTION NOTES AND LEGEND
SHEET 2 ..... TYPICAL DETAILS
SHEET 2A-2E ..... CCTV AND DMS DETAILS
SHEET 2F ..... SYSTEM BLOCK DIAGRAM
SHEET 3 ..... NOT USED
SHEET 4 - 30 ..... CABLE ROUTING PLANS
SHEET 31 - 36 ..... SPLICING DETAILS

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 JANUARY 2012 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 CLOSURES
1700.01	ELECTRICAL SERVICE OPTIONS
1700.02	ELECTRICAL SERVICE GROUNDING
1715.01	UNDERGROUND CONDUIT-TRENCHING
1716.01	JUNCTION BOXES
1720.01	WOOD POLES
1730.01	FIBER OPTIC CABLE
1751.01	CONTROLLER AND CABINETS
1751.02	CONTROLLER AND CABINETS

NCDOT CONTACTS:
TRANSPORTATION SAFETY AND MOBILITY
INTELLIGENT TRANSPORTATION SYSTEMS SECTION
THOMAS G. PARKER - ITS PROJECT ENGINEER
SHERRY C. YOW - ITS PROJECT DESIGN ENGINEER

750 Greenfield Pkwy., Garner, NC 27529

PLANS PREPARED BY:

Kimley-Horn and Associates, Inc.
NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

KIMLEY-HORN CONTACTS: T.F. BURCHETT, P.E. - PROJECT MANAGER
KEVIN W. SMITH, P.E. - PROJECT ENGINEER

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

SEAL

SIGNATURE DATE

WBS: 34156.3.74

TIP PROJECT: I-2304AF

8/29/2013 8:53:24 AM jerry.cross K:\RAL_TPTO_ITS\401036227 I-85 ITS\Plans\sh101.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	1A

1. INSTALL 3-WIRE COPPER SERVICE ENTRANCE CONDUCTORS
2. INSTALL 4-WIRE COPPER FEEDER CONDUCTORS
3. INSTALL 3-WIRE COPPER FEEDER CONDUCTORS
4. INSTALL SMFO CABLE
5. REUSE EXISTING SMFO CABLE
6. INSTALL FIBER OPTIC DROP CABLE
7. INSTALL TRACER WIRE
8. TRENCH
9. INSTALL PVC CONDUIT
10. INSTALL RIGID, GALVANIZED STEEL CONDUIT
11. INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
12. INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
13. INSTALL POLYETHYLENE CONDUIT IN EXISTING OUTERDUCT
14. INSTALL POLYETHYLENE CONDUIT
15. DIRECTIONAL DRILL CONDUIT
16. BORE AND JACK CONDUIT
17. INSTALL CABLE(S) IN EXISTING CONDUIT
18. INSTALL CABLE(S) IN NEW CONDUIT
19. INSTALL CABLE(S) IN EXISTING RISER
20. INSTALL CABLE(S) IN NEW RISER
21. INSTALL CABLE(S) IN EXISTING CONDUIT STUBOUTS
22. INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
23. INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
24. INSTALL NEW CONDUIT INTO NEW POLE MOUNTED CABINET
25. INSTALL NEW RISER INTO EXISTING POLE MOUNTED CABINET
26. TERMINATE COMMUNICATIONS CABLE ON EXISTING TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
27. INSTALL NEW TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
28. INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET
29. INSTALL UNDERGROUND SPLICE ENCLOSURE
30. MODIFY EXISTING UNDERGROUND SPLICE ENCLOSURE
31. INSTALL POLE MOUNTED SPLICE CABINET
32. INSTALL BASE MOUNTED SPLICE CABINET
33. REMOVE EXISTING SPLICE CABINET
34. INSTALL CABINET FOUNDATION
35. REMOVE EXISTING CABINET FOUNDATION
36. INSTALL CCTV CAMERA ASSEMBLY
37. INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
38. INSTALL STANDARD JUNCTION BOX
39. INSTALL SPECIAL OVERSIZED JUNCTION BOX
40. INSTALL OVERSIZED JUNCTION BOX
41. REMOVE EXISTING JUNCTION BOX
42. INSTALL WOOD POLE
43. INSTALL WOOD PEDESTAL
44. INSTALL AERIAL GUY ASSEMBLY
45. INSTALL STANDARD GUY ASSEMBLY
46. INSTALL SIDEWALK GUY ASSEMBLY
47. INSTALL MESSENGER CABLE
48. REMOVE EXISTING COMMUNICATIONS CABLE AND MESSENGER CABLE
49. REMOVE EXISTING COMMUNICATIONS CABLE
50. INSTALL TELEPHONE SERVICE
51. INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
52. INSTALL DELINEATOR MARKER
53. STORE 30 FEET OF COMMUNICATIONS CABLE
54. LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE
55. LASH CABLE(S) TO EXISTING MESSENGER CABLE
56. LASH CABLE(S) TO NEW MESSENGER CABLE
57. MODIFY EXISTING ELECTRICAL SERVICE
58. INSTALL NEW ELECTRICAL SERVICE

58A. INSTALL NEW EQUIPMENT CABINET DISCONNECT

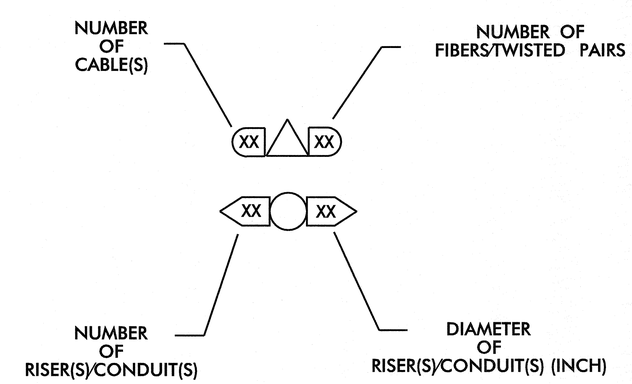
59. INSTALL NEW POLE MOUNTED CABINET
60. INSTALL FIELD ETHERNET SWITCH
61. INSTALL VIDEO ENCODER UNIT
62. INSTALL PEDESTAL STRUCTURE FOR DMS
63. INSTALL DMS ASSEMBLY
64. INSTALL DMS CONTROLLER
65. INSTALL SOLAR PANEL ASSEMBLY

LEGEND

- NEW FIBER OPTIC COMMUNICATIONS CABLE
- NEW CONDUIT
- EXISTING CONDUIT
- NEW DIRECTIONAL DRILLED CONDUIT
- NEW BORED AND JACKED CONDUIT
- EXISTING GUARDRAIL
- NEW JUNCTION BOX
- EXISTING JUNCTION BOX
- NEW WOOD POLE
- EXISTING WOOD POLE
- NEW SPLICE ENCLOSURE
- EXISTING SPLICE ENCLOSURE
- NEW METAL POLE
- EXISTING METAL POLE
- NEW CCTV CAMERA ASSEMBLY
- NEW 6"x6" PEDESTAL FOR ELECTRIC SERVICE
- NEW STANDARD GUY ASSEMBLY
- NEW STANDARD GUY USING EXISTING ANCHOR
- NEW SIDEWALK GUY ASSEMBLY
- NEW CABLE STORAGE RACKS (SNOW SHOES)
- EXISTING FIELD EQUIPMENT CABINET
- NEW FIELD EQUIPMENT CABINET
- SP — SIGNAL POLE
- XX-XXXX — SIGNAL INVENTORY NUMBER

CONSTRUCTION NOTE SYMBOLOGY KEY

- XX — INDICATES NUMBER OF CABLES, LOOPS, ETC.
- XX — INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.
- XX — INDICATES NUMBER OF RISER(S)/CONDUIT(S)
- XX — INDICATES DIAMETER OF RISER(S)/CONDUIT(S) (INCH)



PLANS PREPARED IN THE OFFICE OF:
Kimley-Horn and Associates, Inc.
NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CONSTRUCTION NOTES

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH
SIGNATURE 8/28/13 DATE
CADD Filename:

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PROJECT REFERENCE NO.	SHEET NO.
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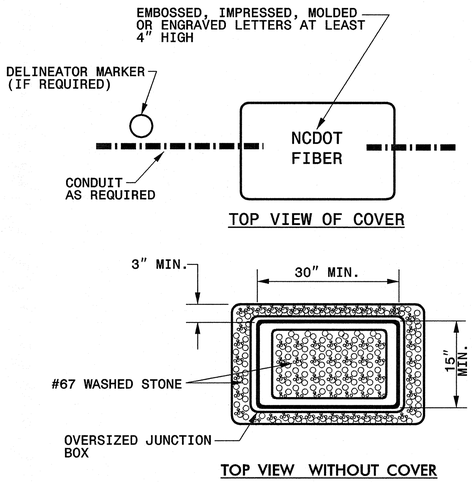
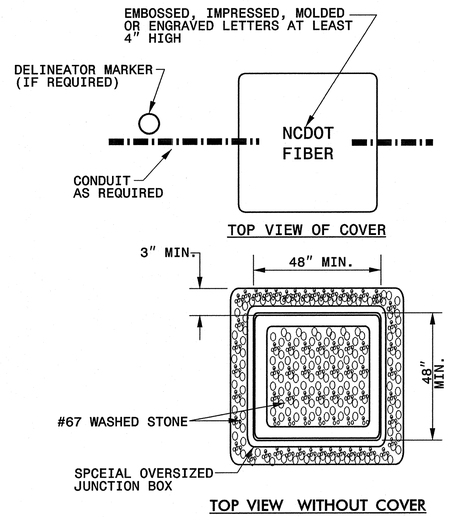


OVERSIZED HEAVY DUTY JUNCTION BOX
TYPICAL DETAIL

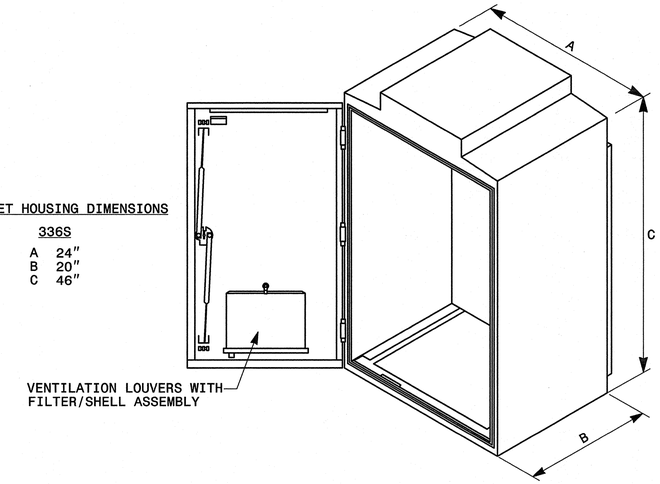


SPECIAL OVERSIZED JUNCTION BOX
TYPICAL DETAIL

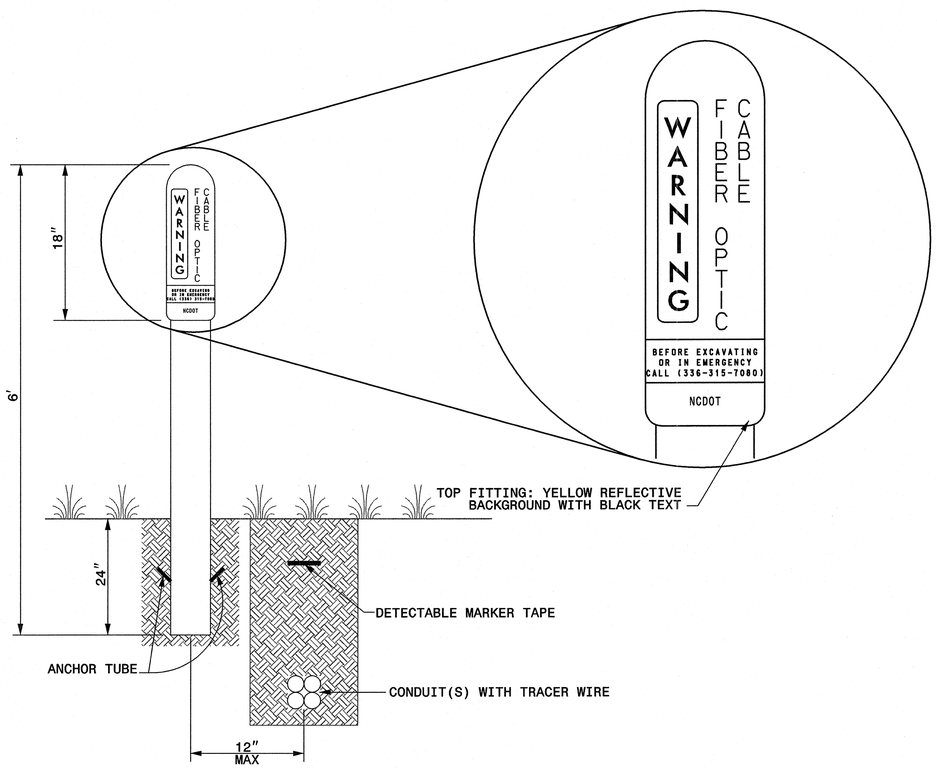
CABINET HOUSING DIMENSIONS

336S

A 24"
B 20"
C 46"



EQUIPMENT CABINET SIZES



PVC POST-MOUNTED DELINEATOR MARKER

NOTE:
BACKFILL WITH EXCAVATED MATERIAL AND COMPACT THE SOIL TO 95% OF ITS ORIGINAL DENSITY. REMOVE ROCK AND DEBRIS FROM BACKFILL MATERIAL.

PLANS PREPARED IN THE OFFICE OF:

Kimley-Horn and Associates, Inc.
NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Mobility and Safety Division
Intelligent Transportation Systems
Transportation Management Unit
DEPARTMENT OF TRANSPORTATION
STATE OF NORTH CAROLINA
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE: 0

I-85 INTELLIGENT TRANSPORTATION SYSTEM
TYPICAL DETAILS

DIVISION 09 — ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE: K.W. Smith — DATE: 8/29/13

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PROJECT REFERENCE NO.	SHEET NO.
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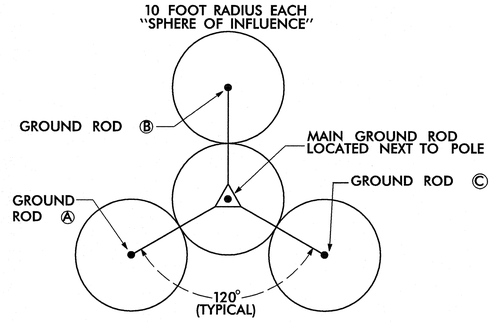
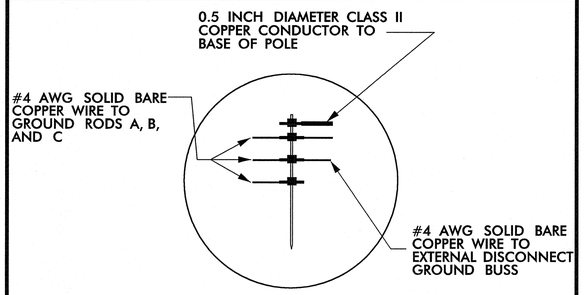


GROUND ROD PLACEMENT DETAIL
(TYPICAL EACH POLE)



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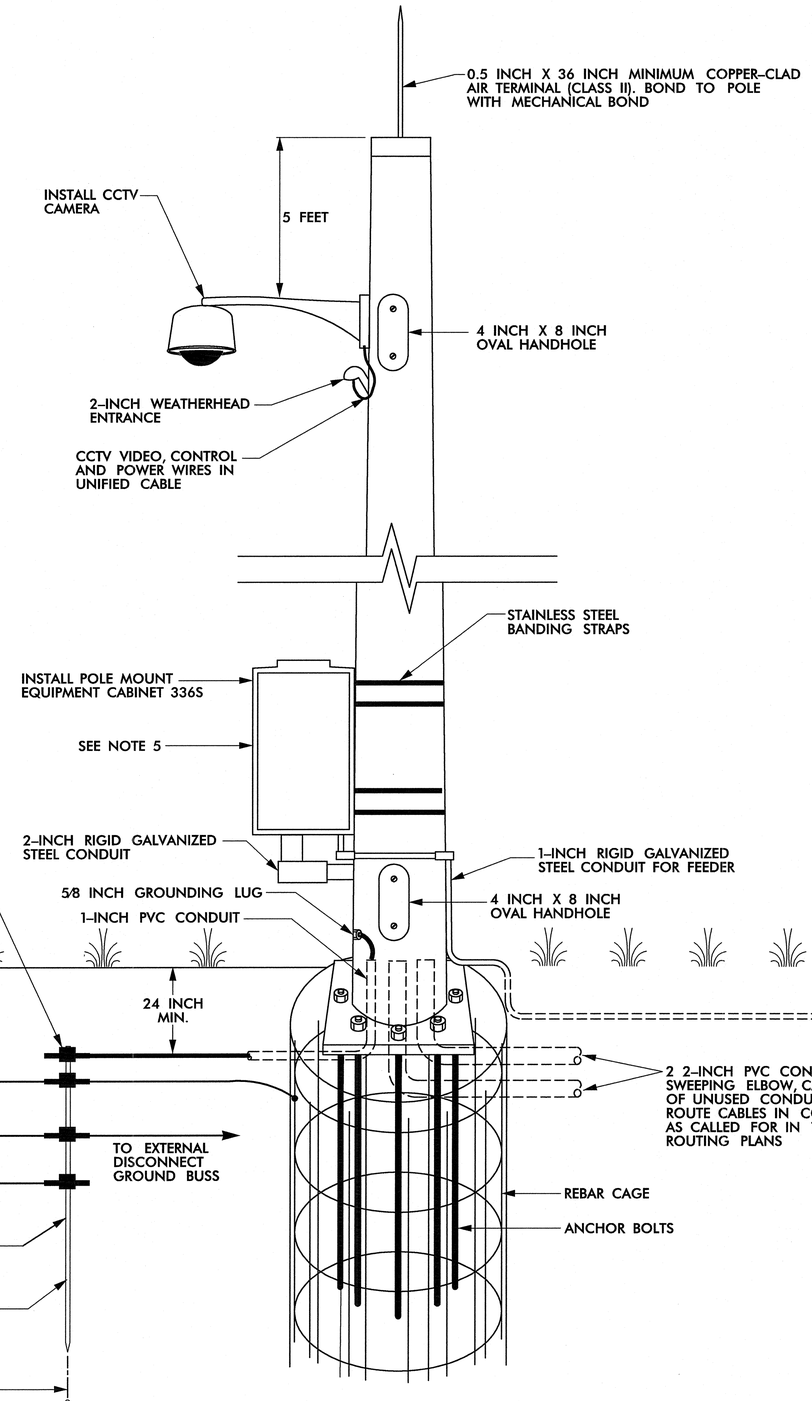
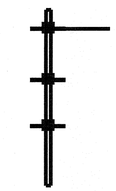


NOTES

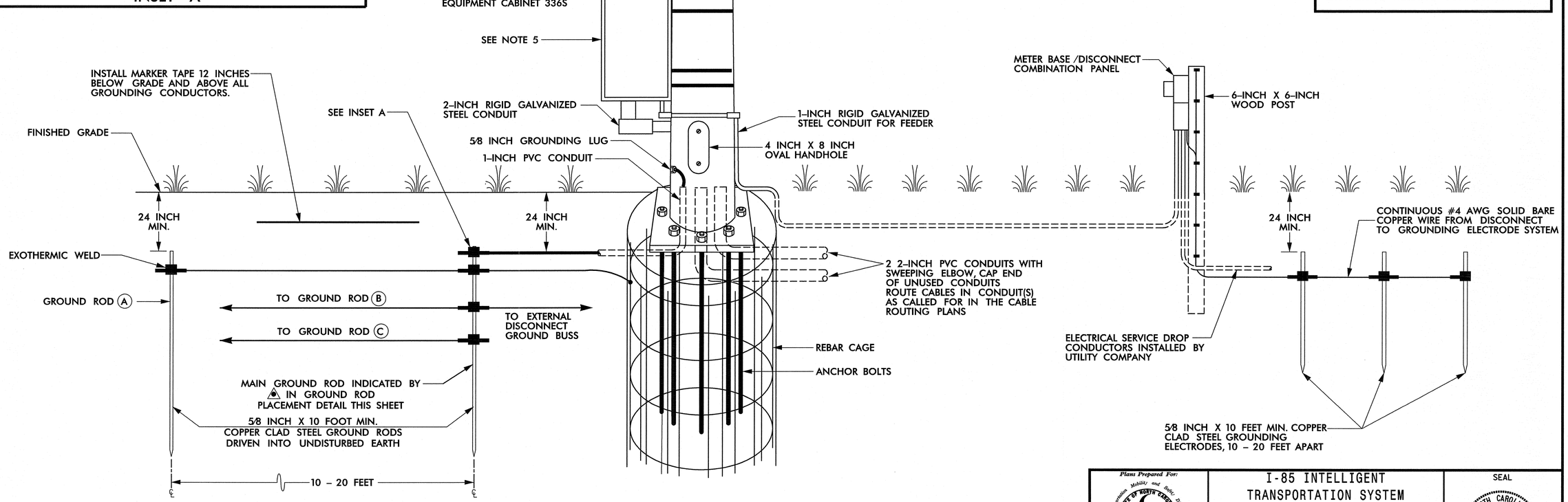
1. BOND 0.5 INCH DIAMETER, 28 STRAND (MINIMUM) CLASS II COPPER CONDUCTOR TO THE MAIN GROUND ROD BY AN EXOTHERMIC WELD METHOD.
2. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
3. BOND #4 AWG SOLID BARE COPPER WIRE TO REBAR CAGE AND THE MAIN GROUND ROD BY AN EXOTHERMIC WELD METHOD.
4. ENSURE CAMERA HOUSING, CAMERA, AND PAN -TILT UNIT ARE BONDED TO POLE.
5. REMOVE BONDING JUMPER BETWEEN EQUIPMENT CABINET GROUND BUSS AND NEUTRAL BUSS.
6. THE CONTRACTOR MAY, UPON APPROVAL OF THE ENGINEER, INSTALL A 30-FOOT SECTIONAL GROUND ROD WHEN CONDITIONS WILLNOT ALLOW FOR THE INSTALLATION OF THE 3 - RADIALGROUND RODS.
7. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.

ALTERNATE GROUNDING METHOD

IF SPACE IS NOT AVAILABLE TO DRIVE MULTIPLE RODS, DRIVE SECTIONAL GROUND RODS A MINIMUM OF 30 FEET.



JOIN SECTIONAL GROUND RODS BY EXOTHERMIC WELDING CONNECTION



PLANS PREPARED IN THE OFFICE OF:

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NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE: 0

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CCTV CAMERA WITH CABINET ON METAL POLE

DIVISION 09 — ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE — DATE 8/28/13

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PROJECT REFERENCE NO.	SHEET NO.
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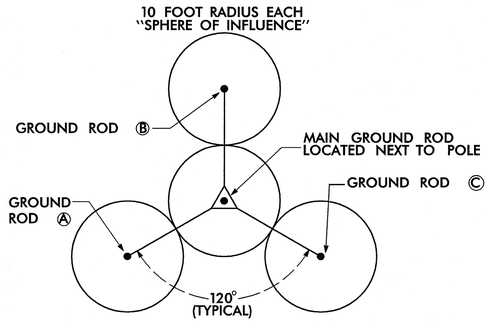
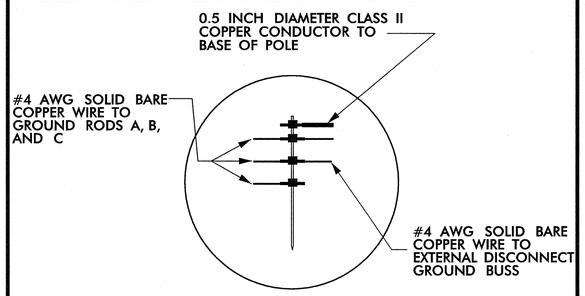


GROUND ROD PLACEMENT DETAIL
(TYPICAL EACH POLE)



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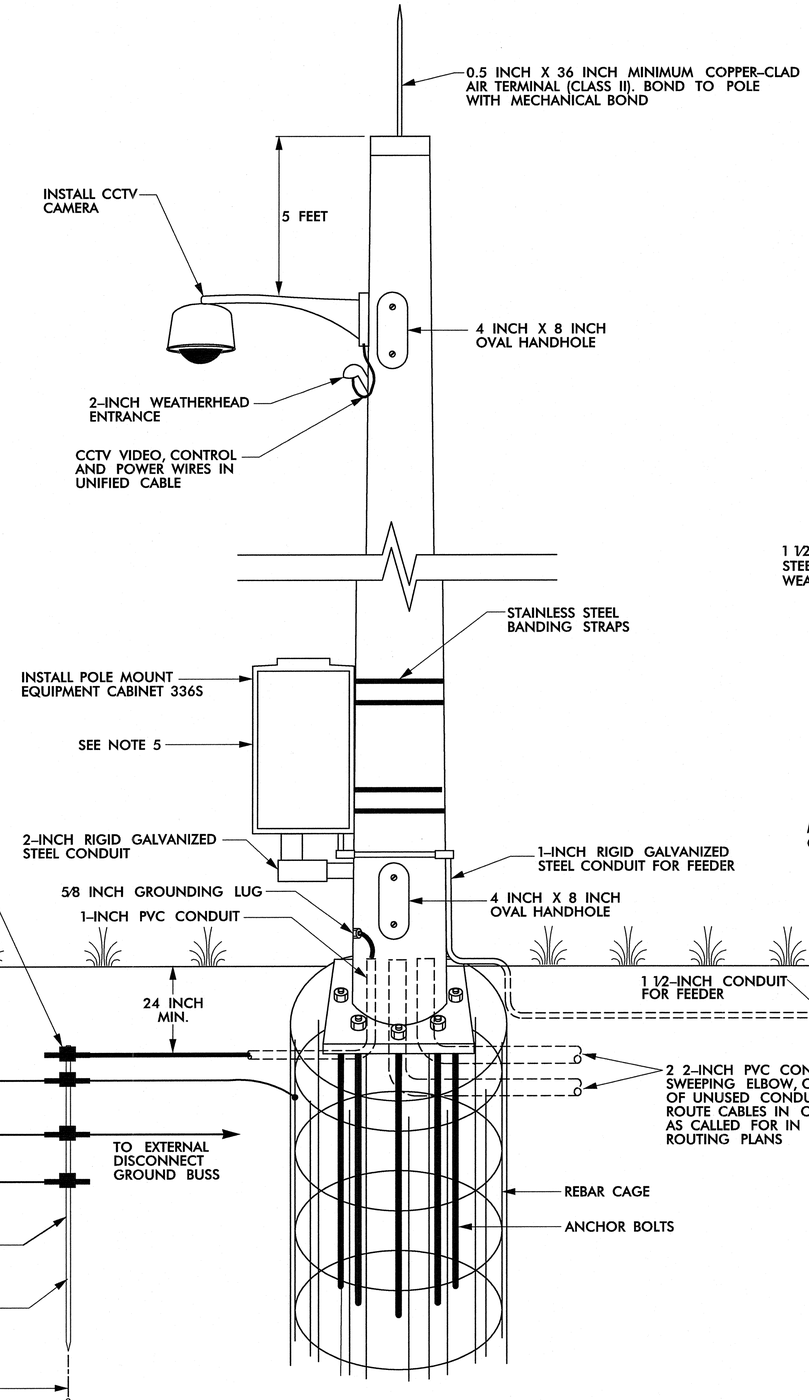


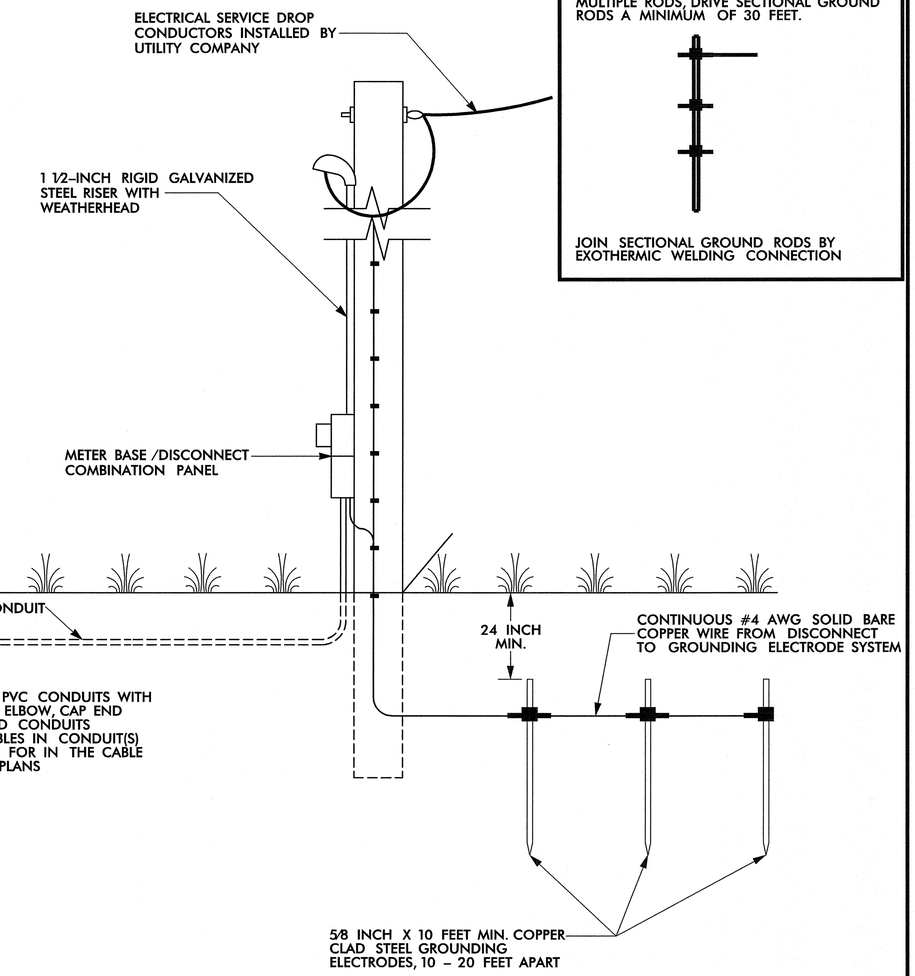
NOTES

1. BOND 0.5 INCH DIAMETER, 28 STRAND (MINIMUM) CLASS II COPPER CONDUCTOR TO THE MAIN GROUND ROD BY AN EXOTHERMIC WELD METHOD.
2. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
3. BOND #4 AWG SOLID BARE COPPER WIRE TO REBAR CAGE AND THE MAIN GROUND ROD BY AN EXOTHERMIC WELD METHOD.
4. ENSURE CAMERA HOUSING, CAMERA, AND PAN -TILT UNIT ARE BONDED TO POLE.
5. REMOVE BONDING JUMPER BETWEEN EQUIPMENT CABINET GROUND BUSS AND NEUTRAL BUSS.
6. THE CONTRACTOR MAY, UPON APPROVAL OF THE ENGINEER, INSTALL A 30-FOOT SECTIONAL GROUND ROD WHEN CONDITIONS WILLNOT ALLOW FOR THE INSTALLATION OF THE 3 - RADIALGROUND RODS.
7. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.

ALTERNATE GROUNDING METHOD

IF SPACE IS NOT AVAILABLE TO DRIVE MULTIPLE RODS, DRIVE SECTIONAL GROUND RODS A MINIMUM OF 30 FEET.

JOIN SECTIONAL GROUND RODS BY EXOTHERMIC WELDING CONNECTION



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Plans Prepared For:
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750 N. Greenfield Pkwy., Garner, NC 27529

SCALE: 0

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CCTV CAMERA WITH CABINET ON METAL POLE

DIVISION 09 — ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE — DATE 8/29/13

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PROJECT REFERENCE NO.	SHEET NO.
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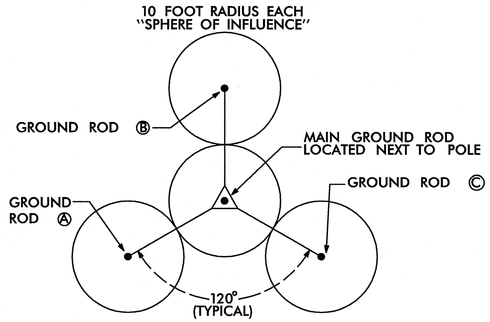
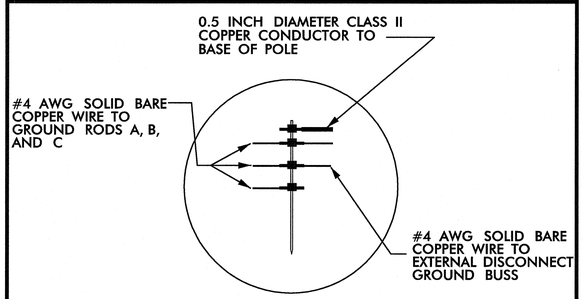


GROUND ROD PLACEMENT DETAIL
(TYPICAL EACH POLE)



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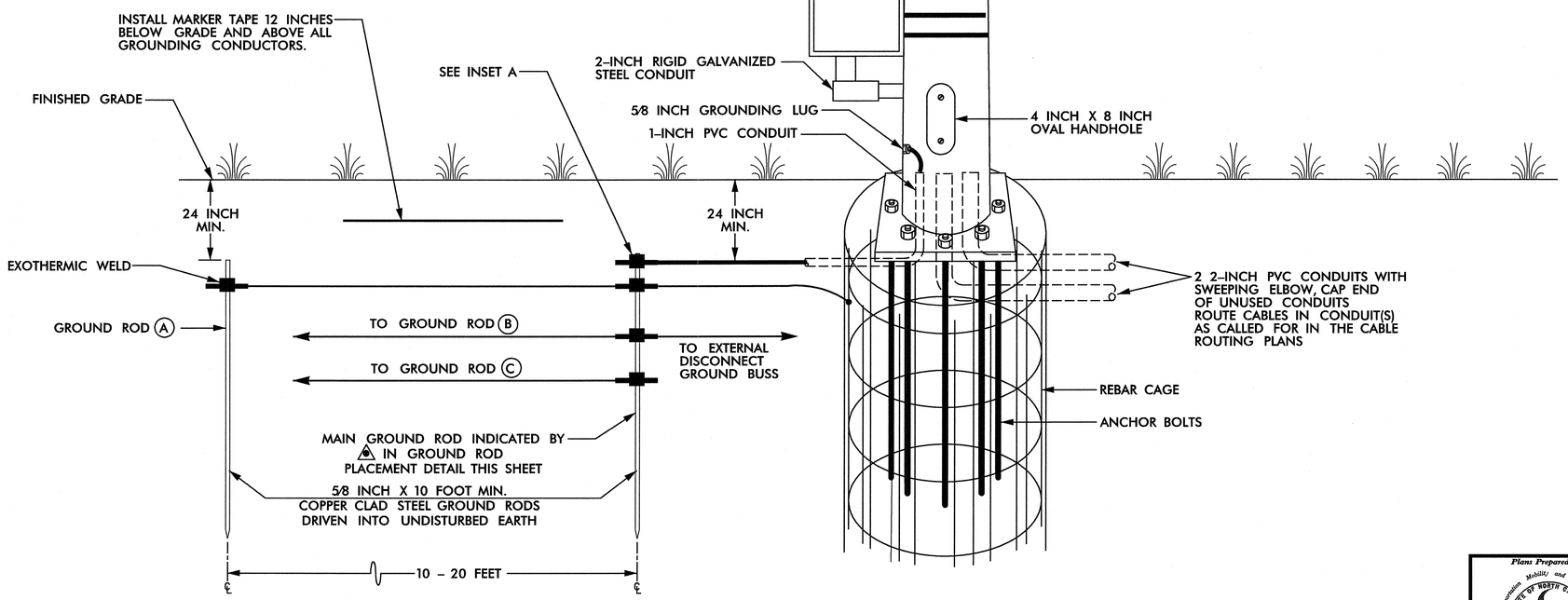
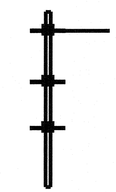


NOTES

1. BOND 0.5 INCH DIAMETER, 28 STRAND (MINIMUM) CLASS II COPPER CONDUCTOR TO THE MAIN GROUND ROD BY AN EXOTHERMIC WELD METHOD.
2. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
3. BOND #4 AWG SOLID BARE COPPER WIRE TO REBAR CAGE AND THE MAIN GROUND ROD BY AN EXOTHERMIC WELD METHOD.
4. ENSURE CAMERA HOUSING, CAMERA, AND PAN -TILT UNIT ARE BONDED TO POLE.
5. REMOVE BONDING JUMPER BETWEEN EQUIPMENT CABINET GROUND BUSS AND NEUTRAL BUSS.
6. THE CONTRACTOR MAY, UPON APPROVAL OF THE ENGINEER, INSTALL A 30-FOOT SECTIONAL GROUND ROD WHEN CONDITIONS WILLNOT ALLOW FOR THE INSTALLATION OF THE 3 - RADIALGROUND RODS.
7. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.

ALTERNATE GROUNDING METHOD

IF SPACE IS NOT AVAILABLE TO DRIVE MULTIPLE RODS, DRIVE SECTIONAL GROUND RODS A MINIMUM OF 30 FEET.



JOIN SECTIONAL GROUND RODS BY EXOTHERMIC WELDING CONNECTION

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Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE: 0

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CCTV CAMERA WITH CABINET ON METAL POLE

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

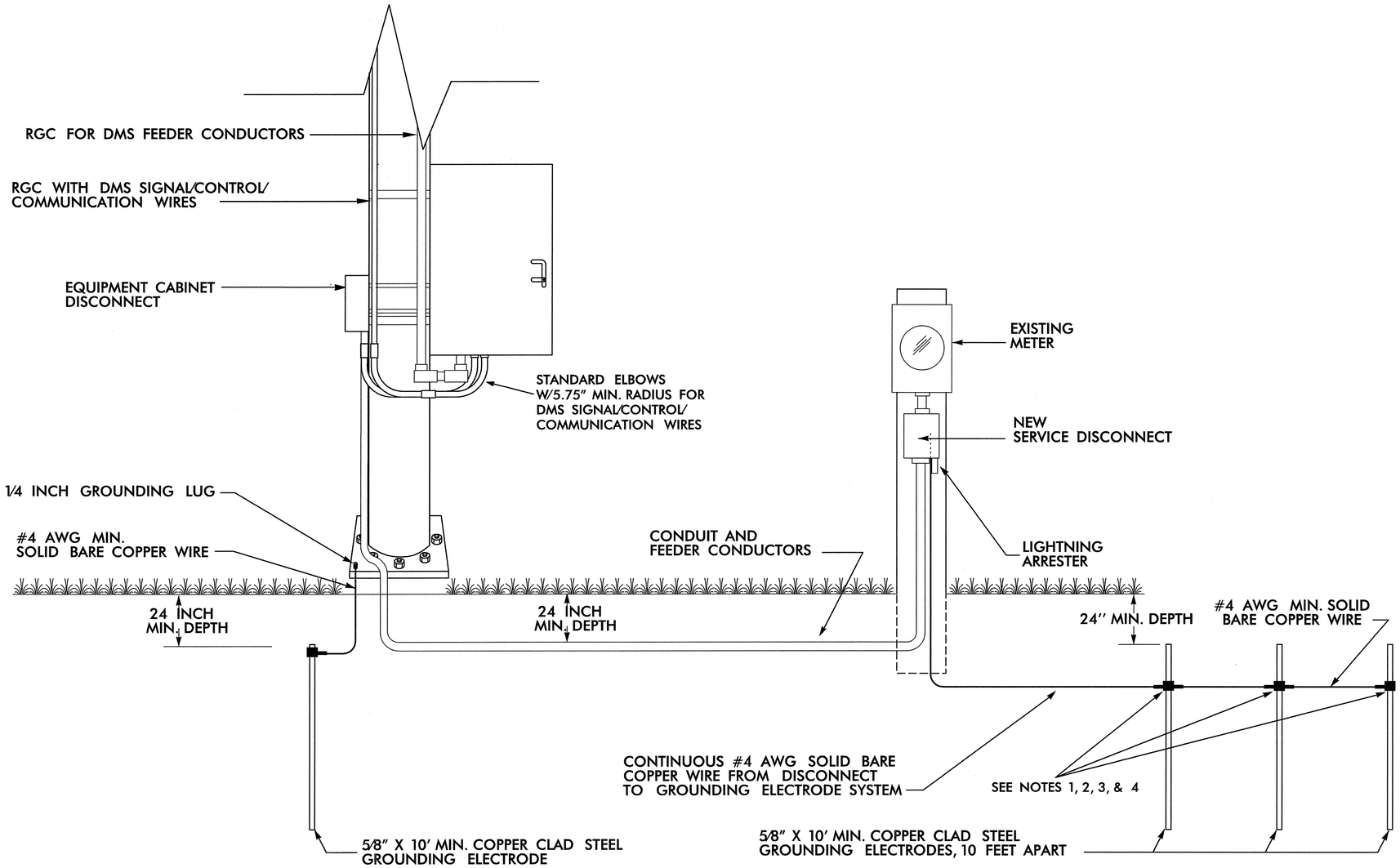
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

CADD Filename:

8/29/2013 8:29:21 AM jerry.cross K:\RAL_TPTD_ITS\01103227 I-85 ITS\Plans\sheh102c.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	2D



NOTES

1. INSTALL A MINIMUM OF THREE (3) GROUNDING ELECTRODES SPACED A MINIMUM OF 10 FEET APART. ENSURE THAT EXISTING UNDERGROUND FACILITIES ARE NOT DAMAGED DURING INSTALLATION.
2. TEST GROUNDING SYSTEM USING AN APPROVED METHOD. SYSTEM SHOULD MEASURE TWENTY (20) OHMS OR LESS. ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER TO MEET THIS REQUIREMENT.
3. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
4. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.
5. REMOVE BONDING JUMPER IN EQUIPMENT CABINET IF INSTALLED BETWEEN AC NEUTRAL AND EQUIPMENT GROUND.
6. BOND ALL RIGID GALVANIZED STEEL CONDUITS ENTERING THE CABINET TO "EQUIPMENT GROUND".
7. INSTALL CONDUIT BETWEEN DISCONNECT AND CABINET.
8. ENSURE EQUIPMENT GROUND IS ELECTRICALLY BONDED TO CABINET.

PLANS PREPARED IN THE OFFICE OF:
Kimley-Horn and Associates, Inc.
NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE: 0

I-85 INTELLIGENT TRANSPORTATION SYSTEM DMS ELECTRICAL SERVICE AND GROUNDING TYPICAL DETAIL

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH
SIGNATURE 8/29/13 DATE
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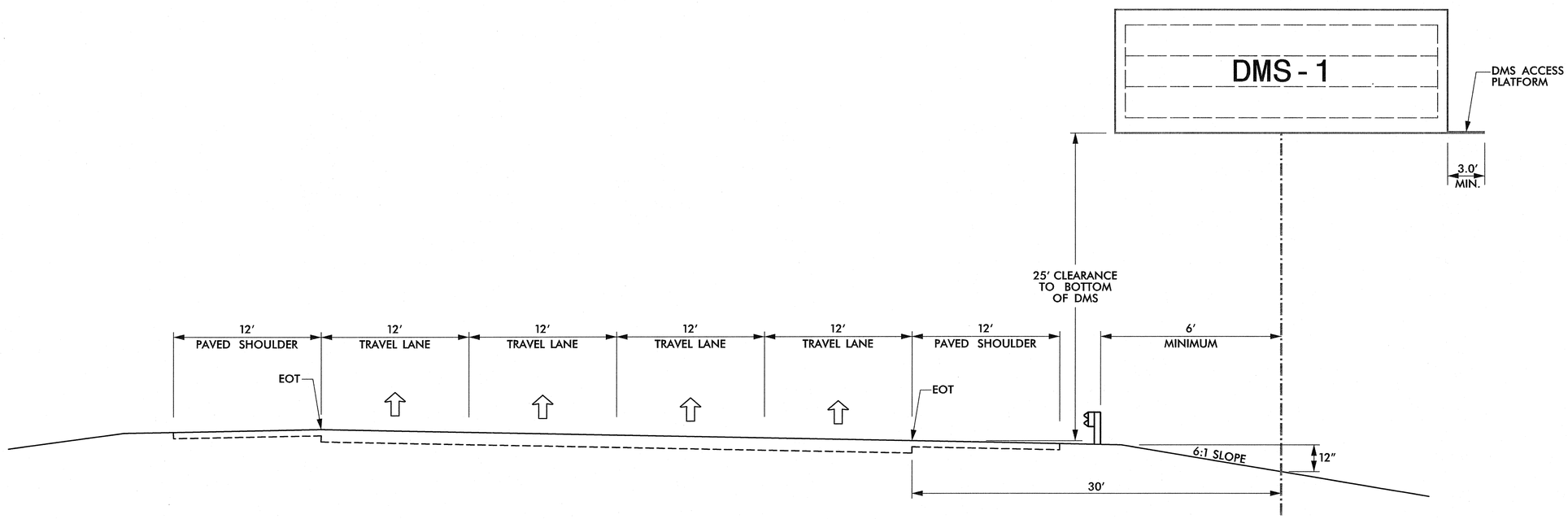
PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	2E

ESTIMATED DIMENSION : 27′ X 10′
MAXIMUM DEADLOAD : 5200 LBS



NOTES

1. PROVIDE A FIXED LADDER LEADING TO THE ACCESS PLATFORM.
2. EQUIP THE LADDER WITH A SECURITY COVER (LADDER GUARD). START THE FIRST LADDER RUNG NO MORE THAN 18 INCHES ABOVE A CONCRETE LANDING PAD. DESIGN RUNGS ON 12 INCH CENTER-TO-CENTER TYPICAL SPACING.
3. INSTALL A CONCRETE LANDING PAD MEASURING A MINIMUM 4 INCHES DEEP, 24 INCHES WIDE, AND 36 INCHES LONG DIRECTLY BENEATH THE LADDER.
4. USE ACTUAL DIMENSIONS AND WEIGHT OF THE DMS TO COMPLETE THE DESIGN OF THE DMS STRUCTURE.
5. FIELD VERIFY ALL FOOTING ELEVATIONS AND GROUND SLOPES AT THE FOOTING USING THE LATEST NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
6. ENSURE THAT THE TOP OF THE FOOTING EXTENDS AT LEAST 6 INCHES AND NOT MORE THAN 24 INCHES ABOVE THE HIGHEST POINT OF THE GROUND SURFACE AT THE FOOTING.
7. DESIGN AND CONSTRUCT THE PEDESTAL STRUCTURE AND DMS ENCLOSURE TO WITHSTAND WIND VELOCITIES OF 90 MPH.
8 VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.

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NC License #F-0102
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Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE: 0

I-85 INTELLIGENT TRANSPORTATION SYSTEM
DMS-1 INSTALLATION

DIVISION 09 — ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

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NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE — DATE: 8/29/13

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PROJECT REFERENCE NO.	SHEET NO.
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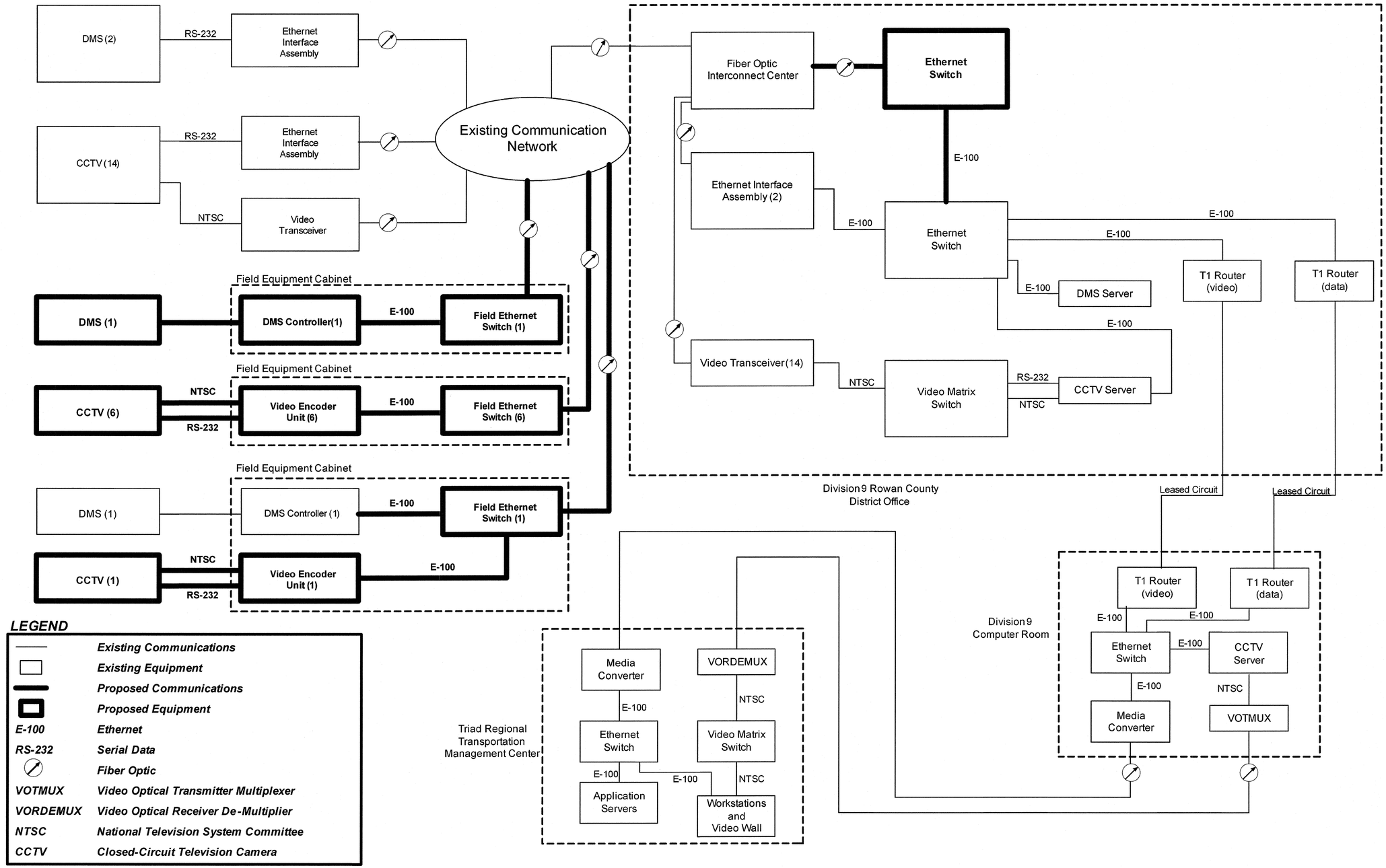

LEGEND

———	*Existing Communications*
▭	*Existing Equipment*
▬	*Proposed Communications*
▭	*Proposed Equipment*
E-100	*Ethernet*
RS-232	*Serial Data*
⊘	*Fiber Optic*
VOTMUX	*Video Optical Transmitter Multiplexer*
VORDEMUX	*Video Optical Receiver De-Multiplier*
NTSC	*National Television System Committee*
CCTV	*Closed-Circuit Television Camera*

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy., Garner, NC 27529

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0

I-85 INTELLIGENT TRANSPORTATION SYSTEM
SYSTEM BLOCK DIAGRAM

DIVISION 09 — ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

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NOT USED

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NC License #F-0102
P.O. Box 33068
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Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

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I-85 INTELLIGENT TRANSPORTATION SYSTEM
SUMMARY OF QUANTITIES

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

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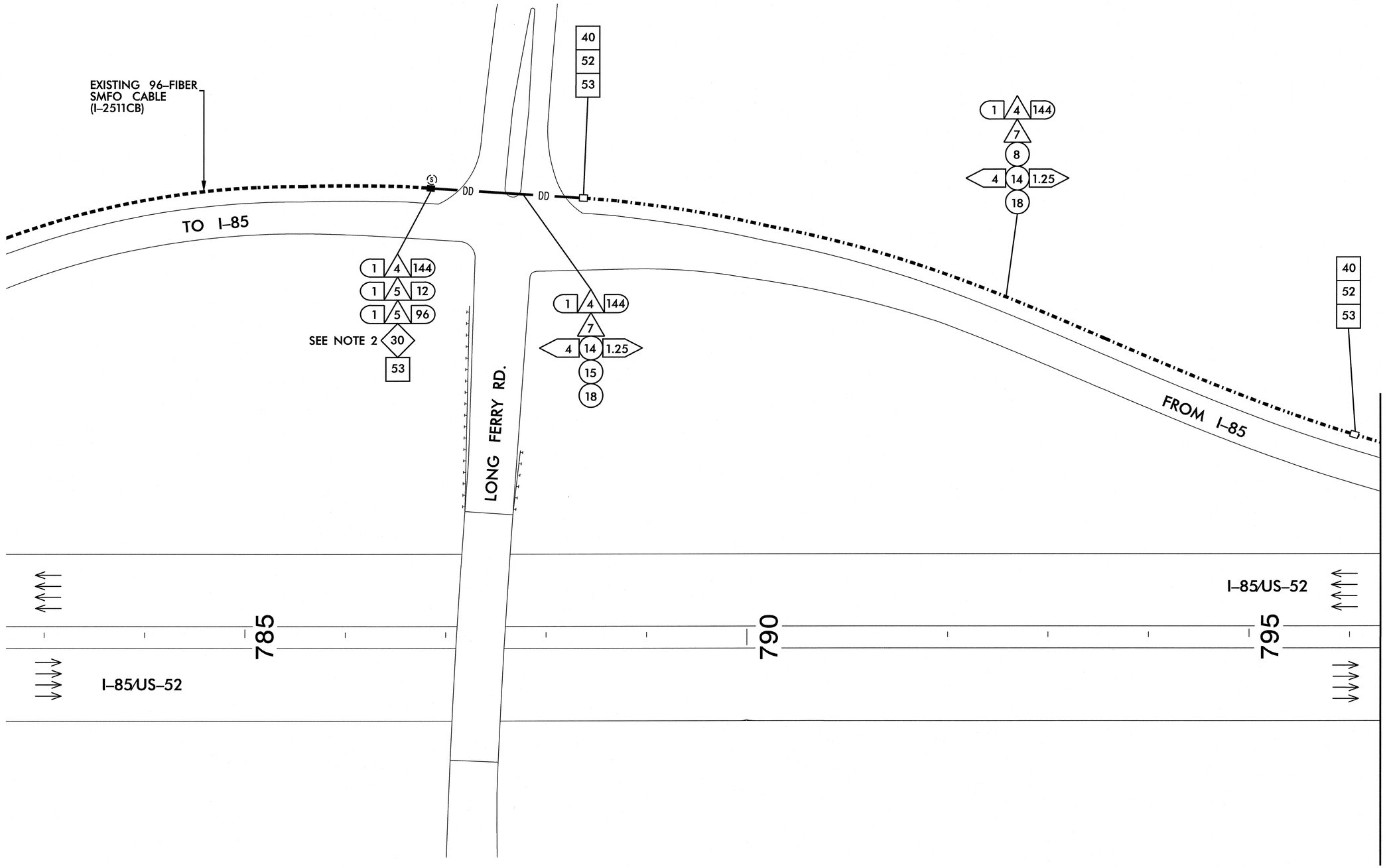

NOTES:
1. MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
2. REMOVE ANY EXISTING FIBER OPTIC CABLES FROM THE EXISTING SPLICE ENCLOSURE NOT BEING REUSED AND LEAVE COILED IN THE JUNCTION BOX.

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NC License #F-0102
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750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
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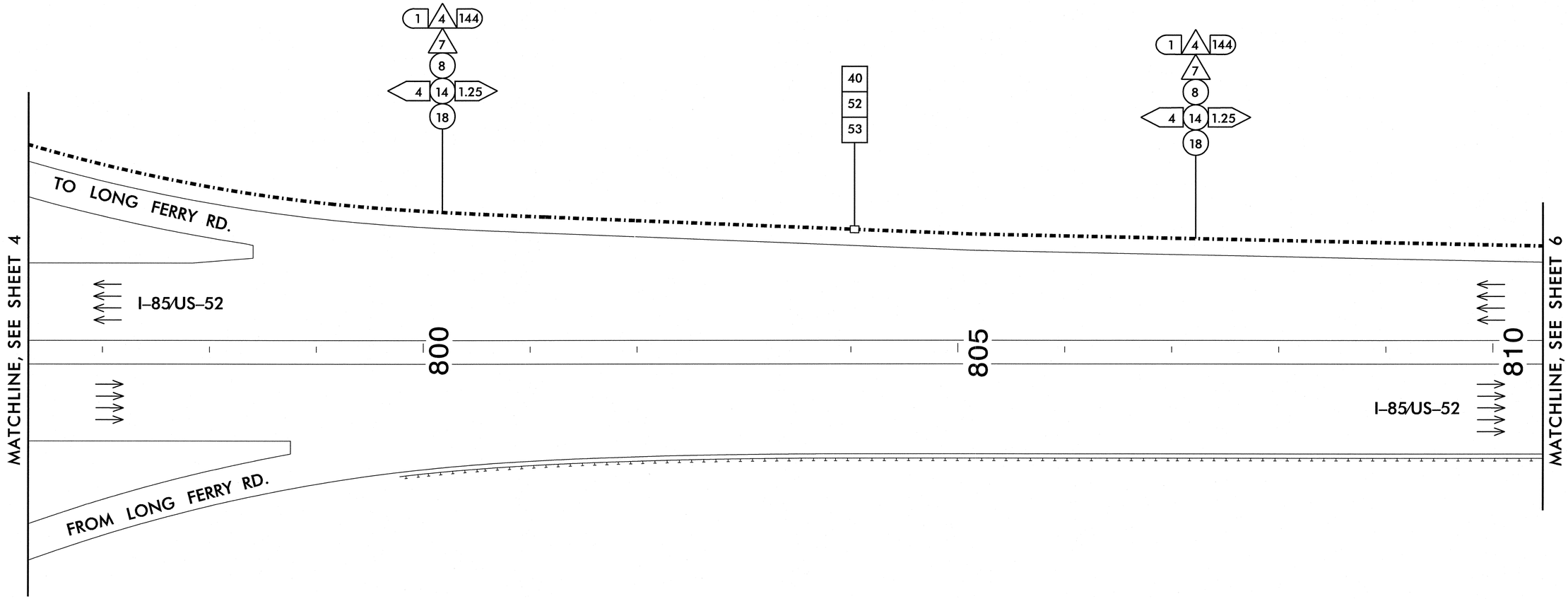

NOTE:
MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY

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NC License #F-0102
P.O. Box 33068
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Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

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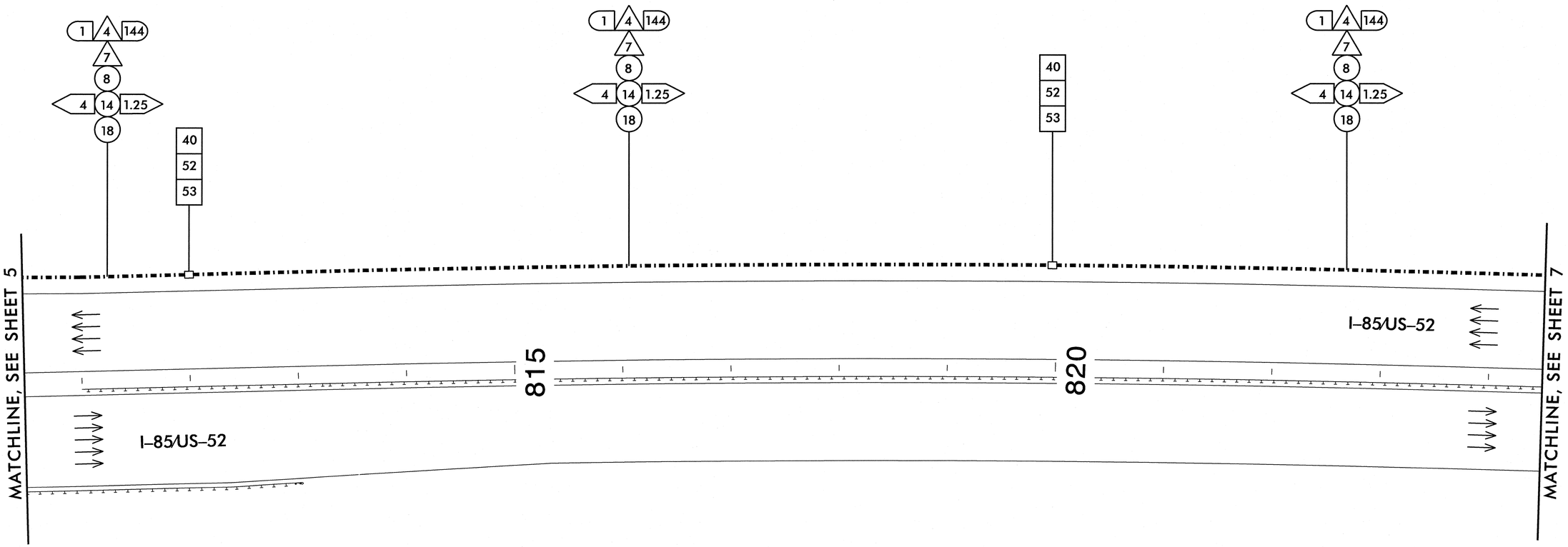

NOTE:
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NC License #F-0102
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(919) 677-2000

Plans Prepared For:
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE
0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
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REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

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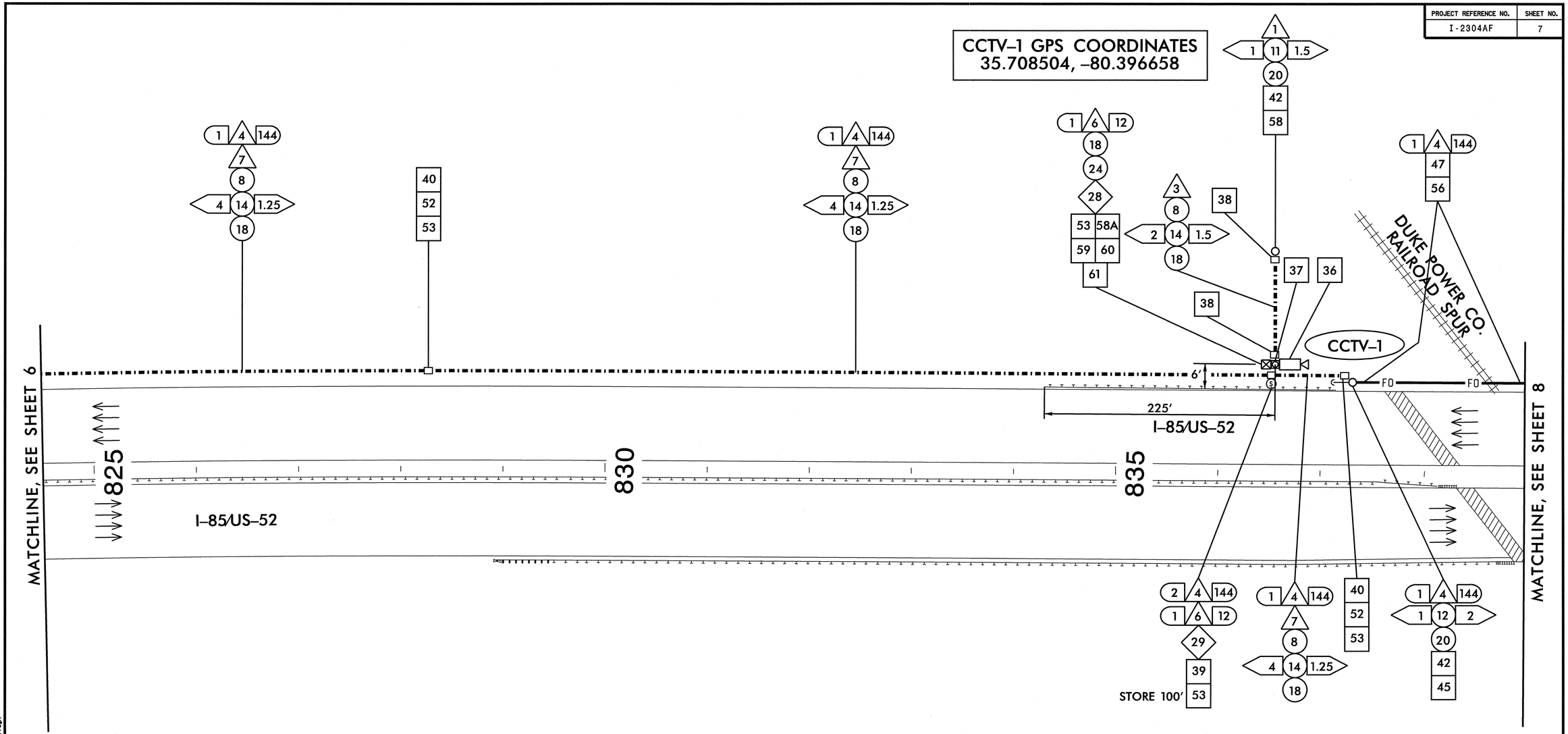
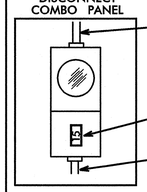


NEW ELECTRICAL SERVICE EQUIPMENT



INSTALL 3-WIRE #3 COPPER SERVICE ENTRANCE CONDUCTORS IN NEW 1½" RIGID GALVANIZED RISER WITH WEATHERHEAD. INSTALL 1½" RAINPROOF CONDUIT HUB ON TOP OF NEW SERVICE METER/DISCONNECT COMBO PANEL.

INSTALL NEW SERVICE DISCONNECT WITH 1 DOUBLE POLE, 15 AMP CIRCUIT BREAKER

INSTALL ONE 1½" CONDUIT WITH THREE #12 COPPER FEEDER CONDUCTORS TO EQUIPMENT CABINET DISCONNECT

NOTES:
1. MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
2. CONTACT THE ENGINEER TO VERIFY DEVICE LOCATION PRIOR TO CONSTRUCTION.
3. MOUNT CCTV CAMERA 45' ABOVE GRADE.
4. INSTALL NEW FIELD EQUIPMENT CABINET ON NEW CCTV POLE.
5. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET 2B AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.
6. CONTACT RANDY DAUGHTRY FROM DUKE ENERGY AT (704) 638-4037 TO OBTAIN POWER FOR ELECTRICAL SERVICE.

PLANS PREPARED IN THE OFFICE OF:
Kimley-Horn and Associates, Inc.
NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intermodal Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

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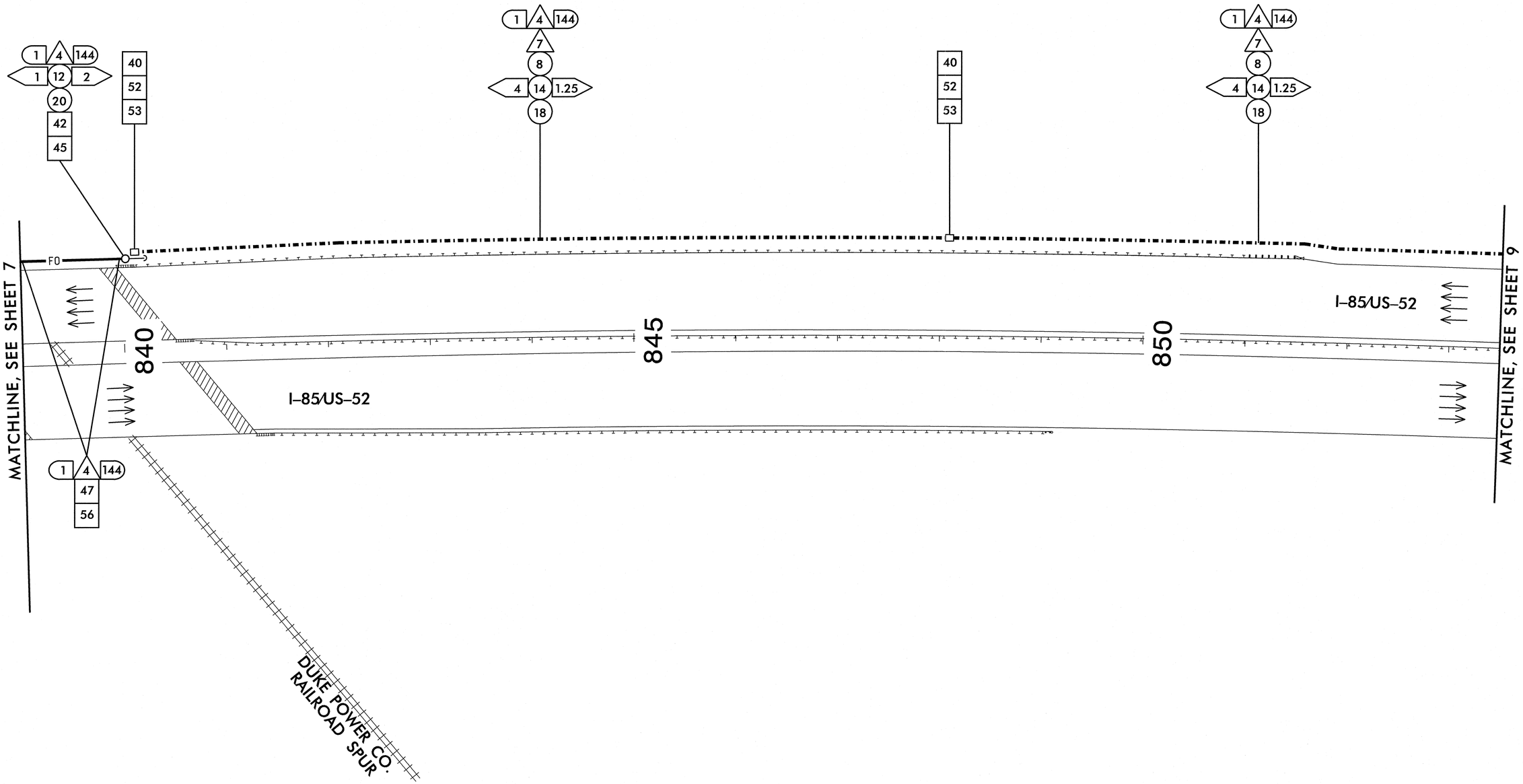

NOTE:
MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY

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Plans Prepared For:
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Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

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PROJECT REFERENCE NO.	SHEET NO.
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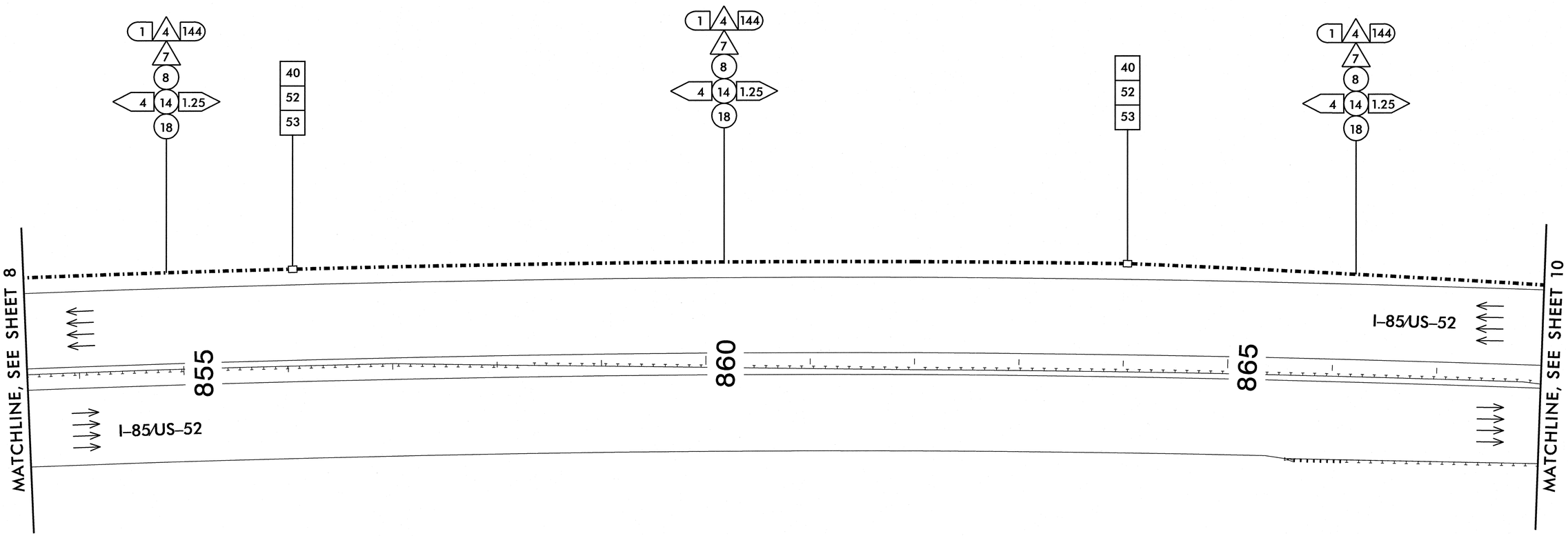

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NC License #F-0102
P.O. Box 33068
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(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

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PROJECT REFERENCE NO.	SHEET NO.
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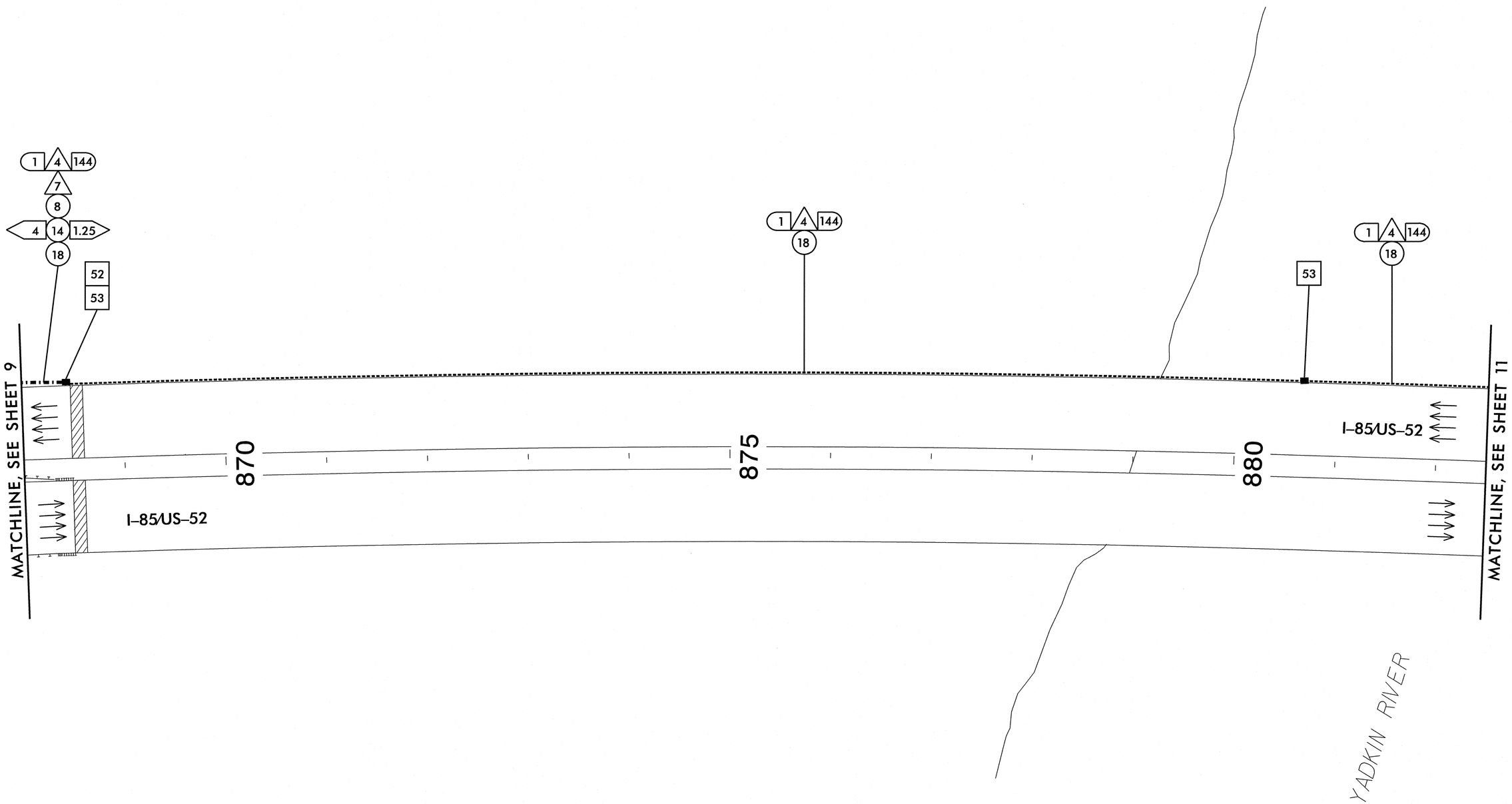

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SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
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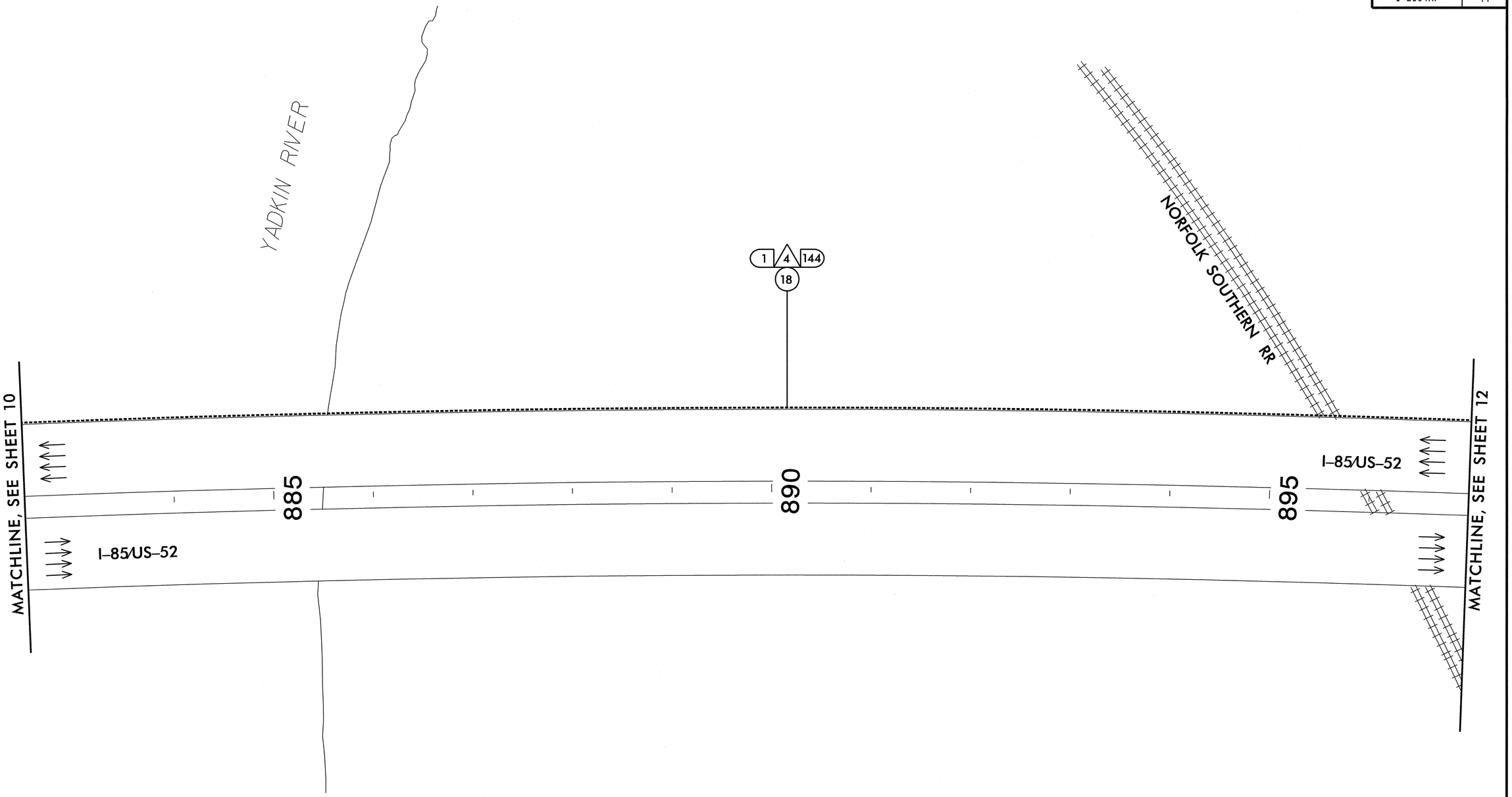

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PLANS PREPARED IN THE OFFICE OF:

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NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Mobility and Safety Division
Transportation Management Unit
Intelligent Transportation Systems Section
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
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PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	12

CCTV-2 GPS COORDINATES
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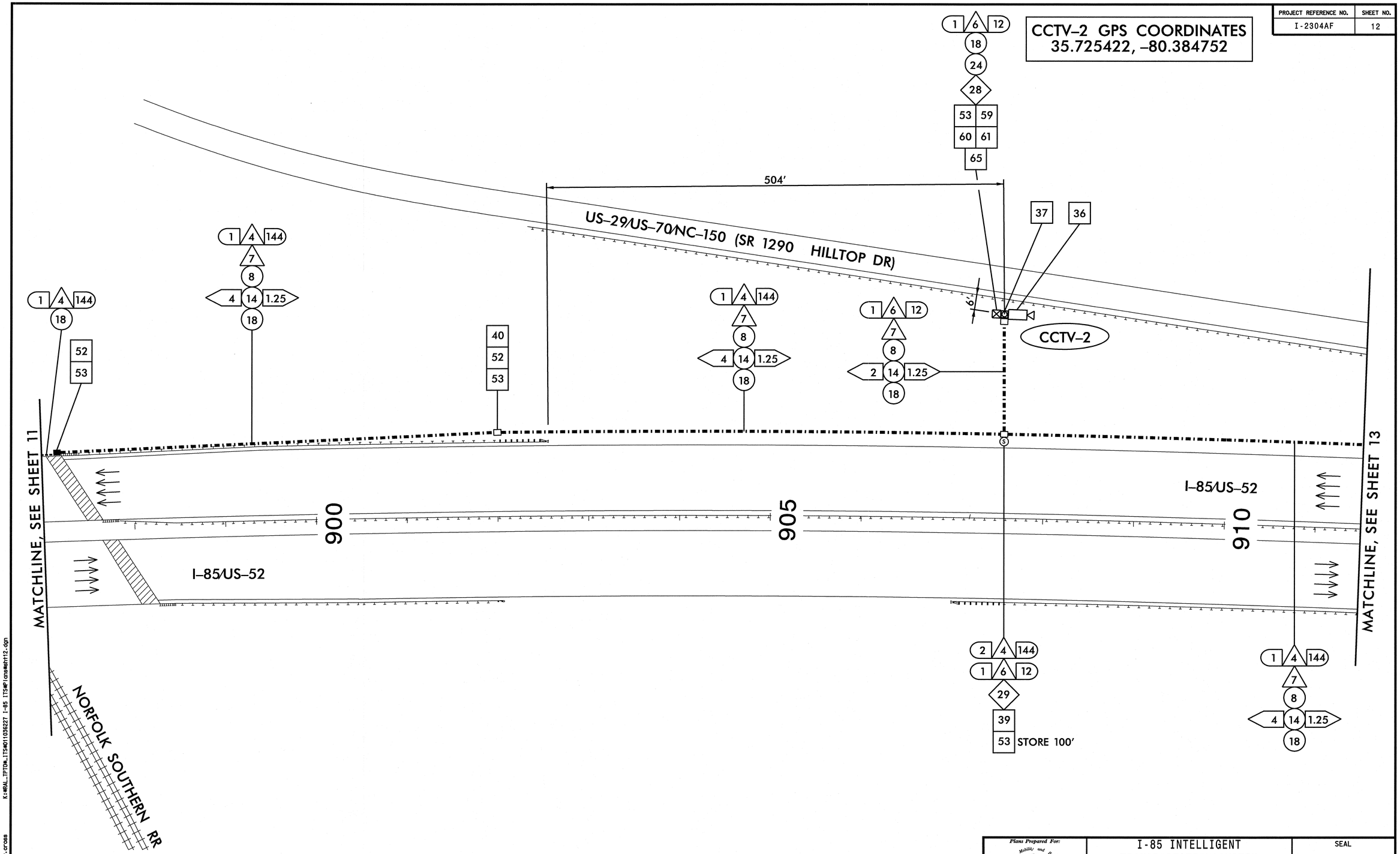

NOTES:
1. MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
2. CONTACT THE ENGINEER TO VERIFY DEVICE LOCATION PRIOR TO CONSTRUCTION.
3. MOUNT CCTV CAMERA 35' ABOVE GRADE.
4. INSTALL NEW FIELD EQUIPMENT CABINET ON NEW CCTV POLE.
5. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET 2C AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.

PLANS PREPARED IN THE OFFICE OF:
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P.O. Box 33068
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Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529
SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
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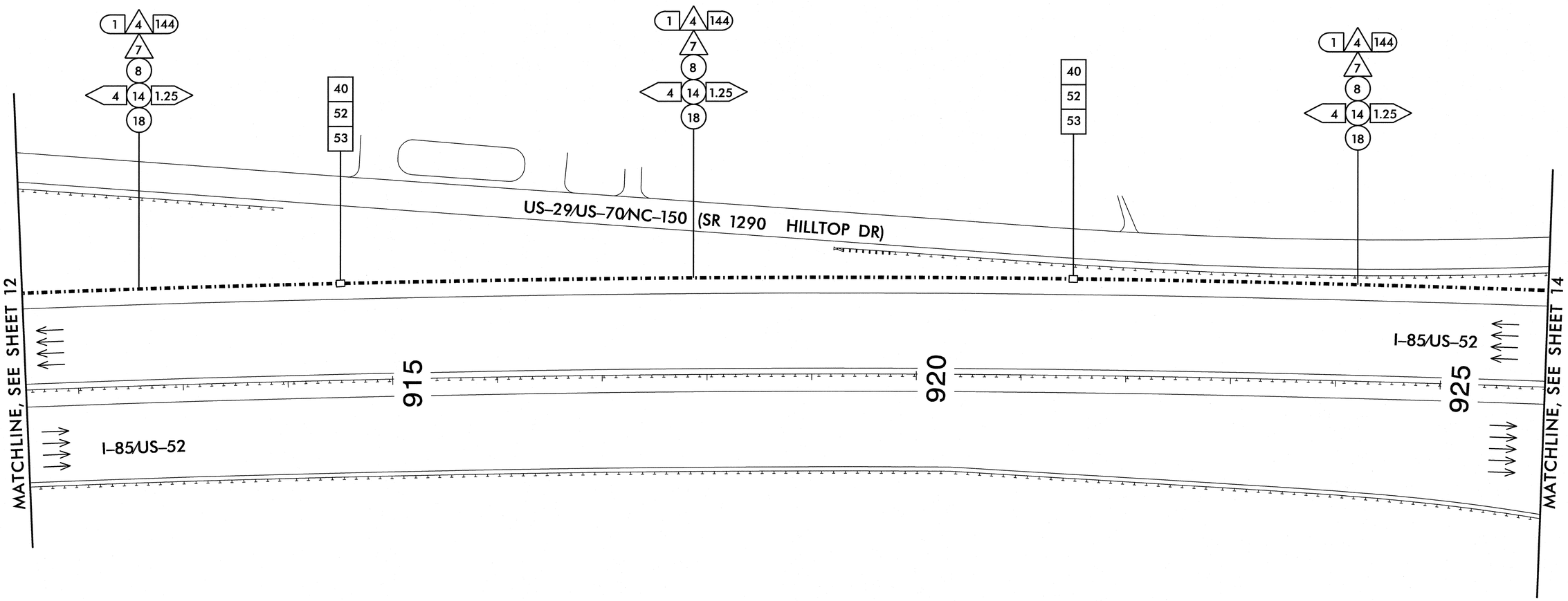

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NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

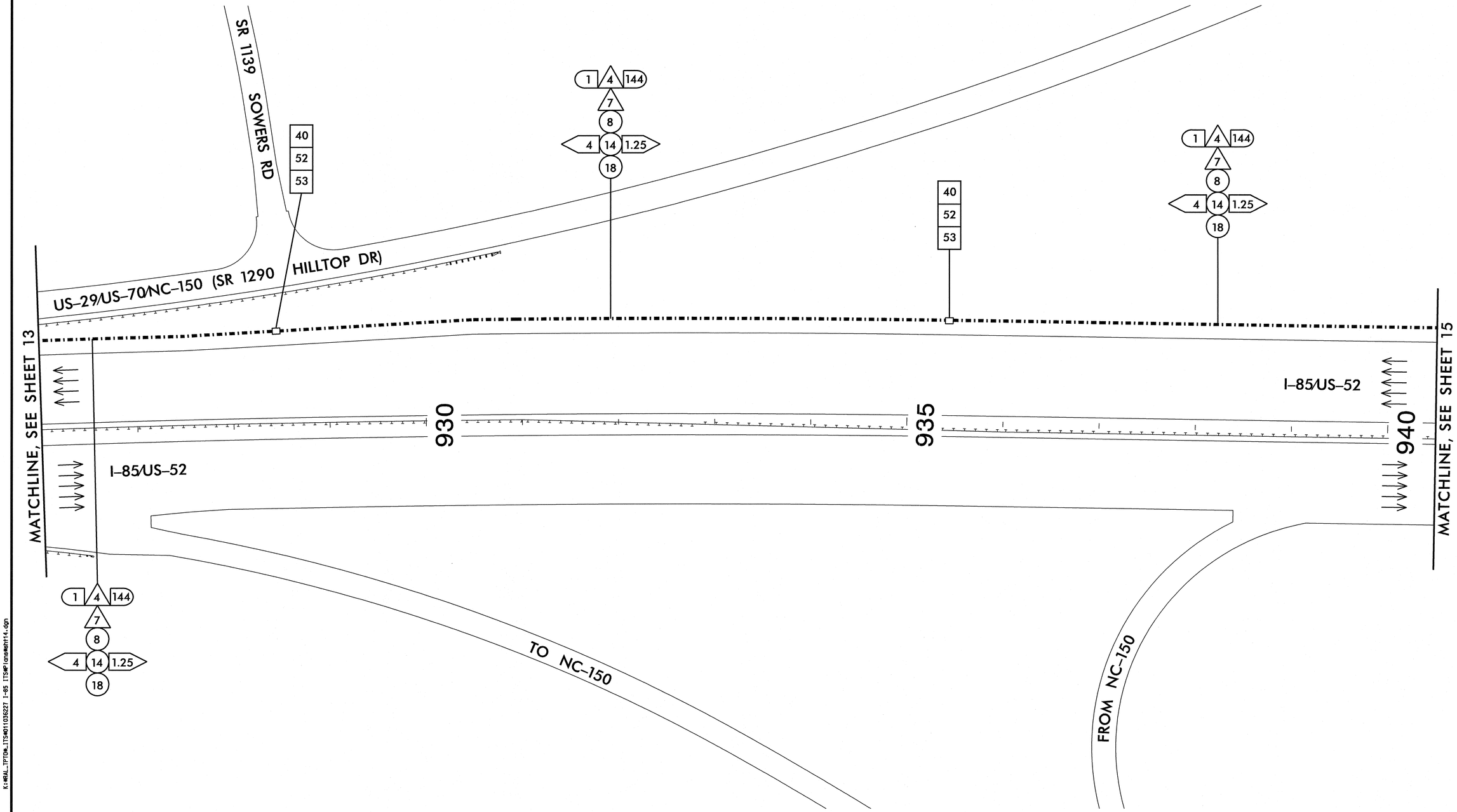
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

CADD Filename:

8/29/2013 8:31:10 AM jerry.cross K:\RAL_TPTDB_ITS\011036227 I-85 ITS\Plans\sht13.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	14



NOTE:
MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY

PLANS PREPARED IN THE OFFICE OF:

Kimley-Horn and Associates, Inc.
NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

CADD Filename:

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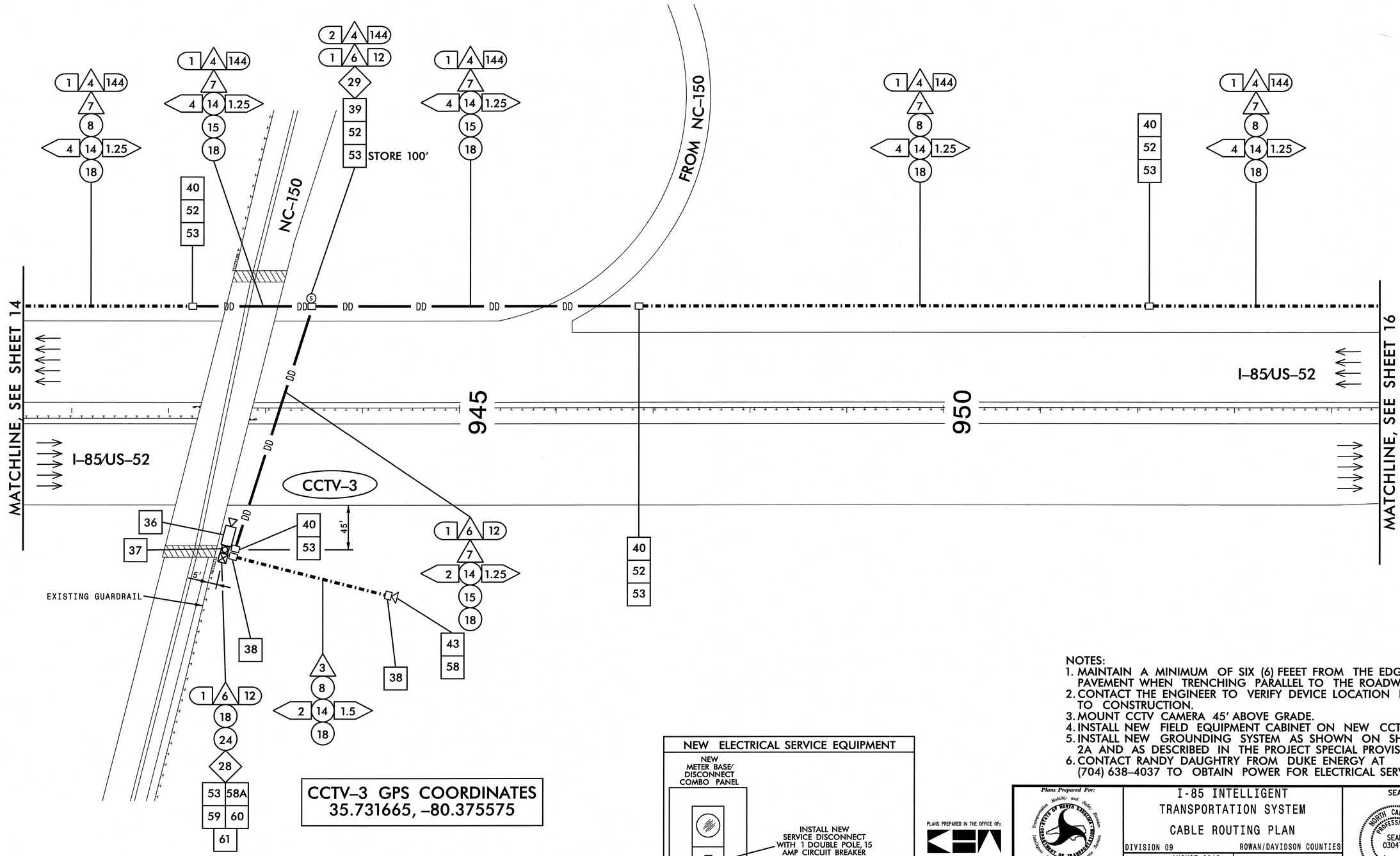
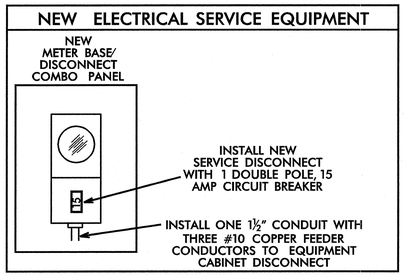
PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	15



NOTES:
1. MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
2. CONTACT THE ENGINEER TO VERIFY DEVICE LOCATION PRIOR TO CONSTRUCTION.
3. MOUNT CCTV CAMERA 45' ABOVE GRADE.
4. INSTALL NEW FIELD EQUIPMENT CABINET ON NEW CCTV POLE.
5. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET 2A AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.
6. CONTACT RANDY DAUGHTRY FROM DUKE ENERGY AT (704) 638-4037 TO OBTAIN POWER FOR ELECTRICAL SERVICE.

NEW ELECTRICAL SERVICE EQUIPMENT



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P.O. Box 33068
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Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

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PROJECT REFERENCE NO.	SHEET NO.
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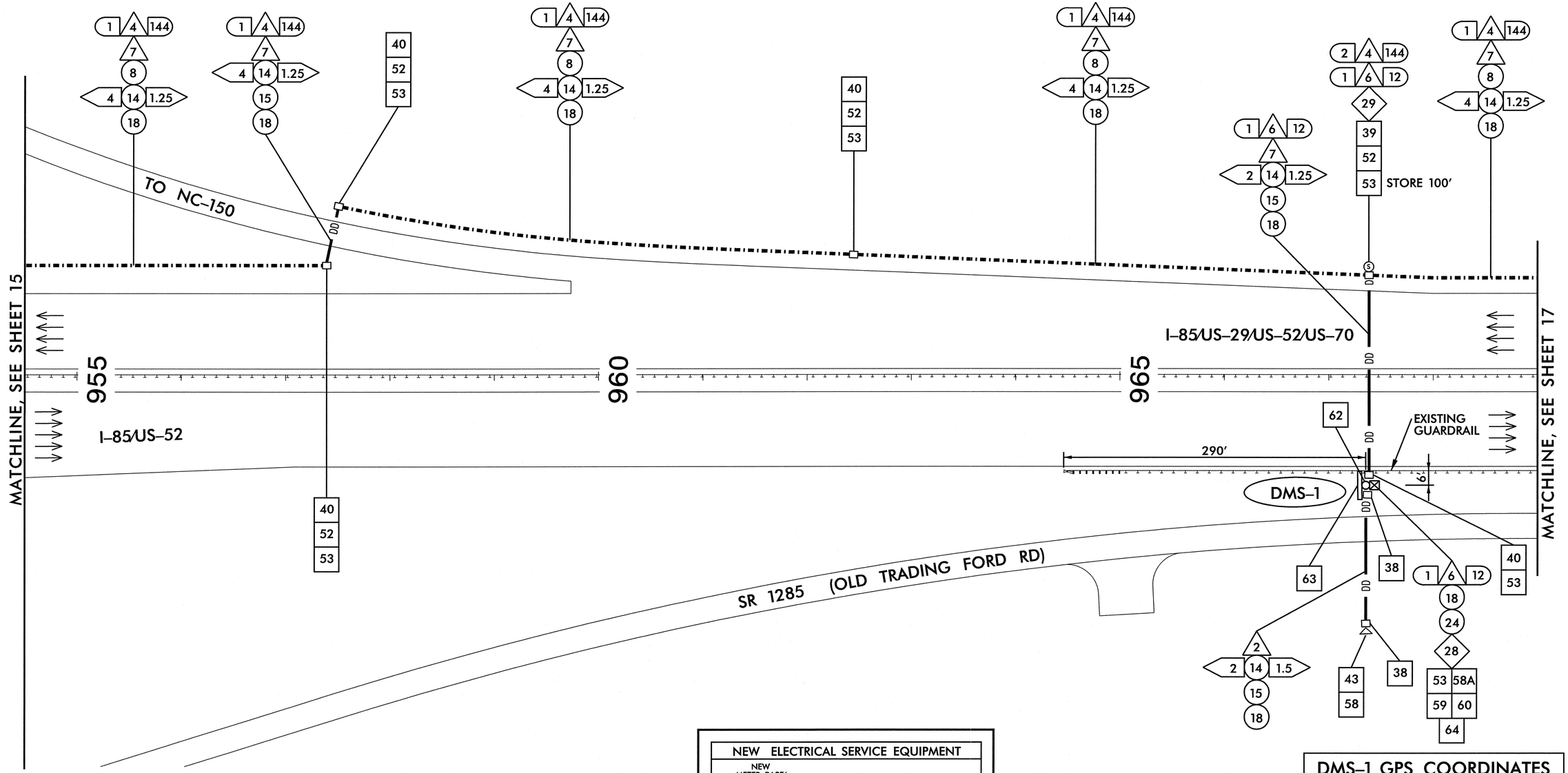
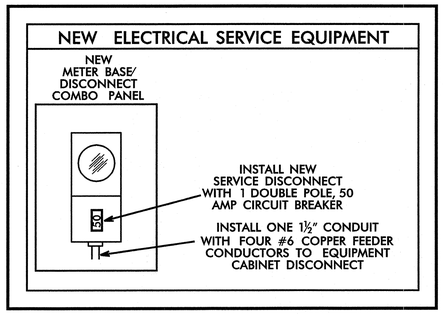


NEW ELECTRICAL SERVICE EQUIPMENT



DMS-1 GPS COORDINATES
35.736070, -80.369637

NOTES:
1. MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
2. CONTACT THE ENGINEER TO VERIFY DEVICE LOCATION PRIOR TO CONSTRUCTION.
3. INSTALL NEW DMS, WALKWAY, AND LADDER ON NEW DMS STRUCTURE.
4. INSTALL NEW POLE MOUNTED DMS CABINET ON NEW DMS STRUCTURE.
5. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET 2D AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.
6. CONTACT RANDY DAUGHTRY FROM DUKE ENERGY AT (704) 638-4037 TO OBTAIN POWER FOR ELECTRICAL SERVICE.

PLANS PREPARED IN THE OFFICE OF:
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Plans Prepared For:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH
SIGNATURE 8/29/13 DATE
CADD Filename:

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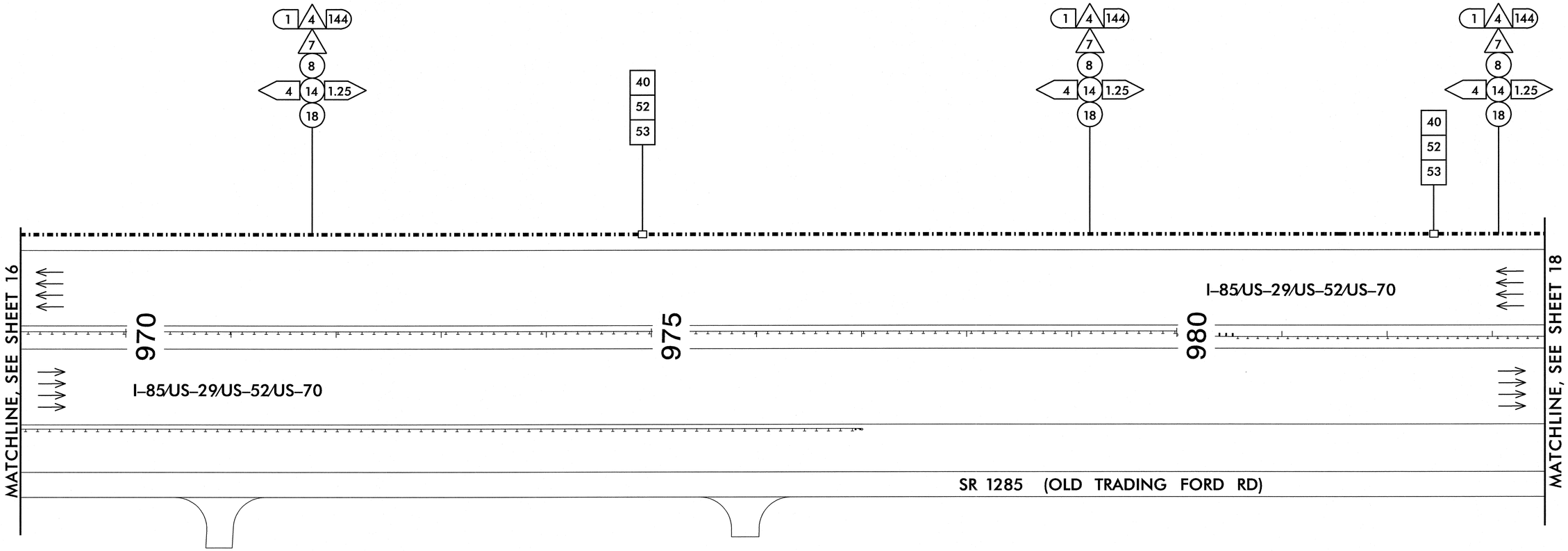
PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	17



NOTE:
MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY

PLANS PREPARED IN THE OFFICE OF:

Kimley-Horn and Associates, Inc.
NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

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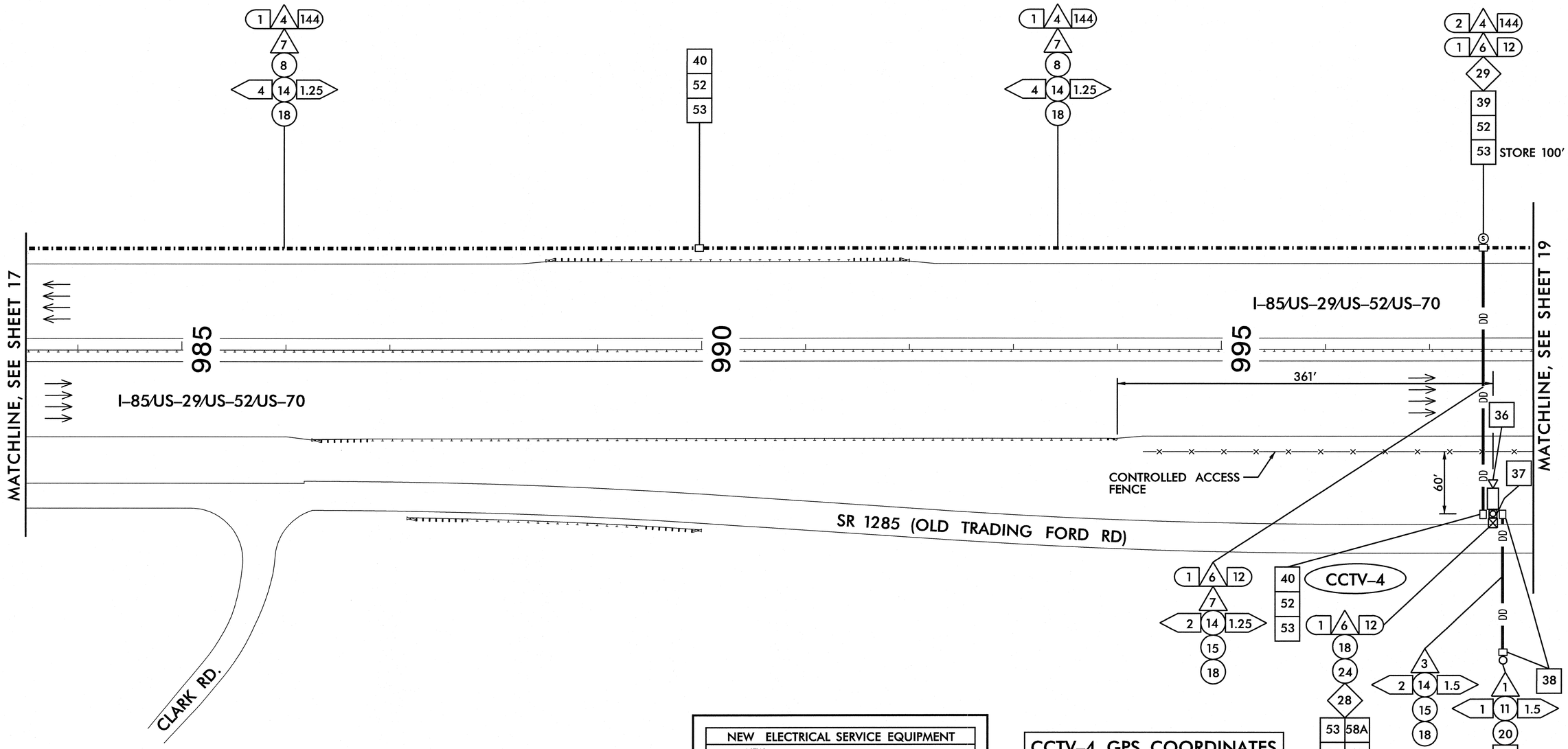
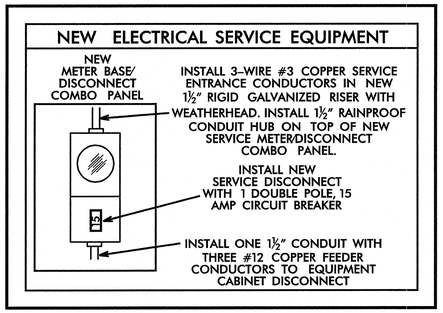
PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	18



NEW ELECTRICAL SERVICE EQUIPMENT



CCTV-4 GPS COORDINATES
35.741530, -80.361532

NOTES:
1. MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
2. CONTACT THE ENGINEER TO VERIFY DEVICE LOCATION PRIOR TO CONSTRUCTION.
3. MOUNT CCTV CAMERA 45' ABOVE GRADE.
4. INSTALL NEW FIELD EQUIPMENT CABINET ON NEW CCTV POLE.
5. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET 2B AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.
6. CONTACT RANDY DAUGHTRY FROM DUKE ENERGY AT (704) 638-4037 TO OBTAIN POWER FOR ELECTRICAL SERVICE.

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Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE: AUGUST 2013	REVIEWED BY:
PREPARED BY: J. CROSS	REVIEWED BY: K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH
SIGNATURE 3/29/13 DATE
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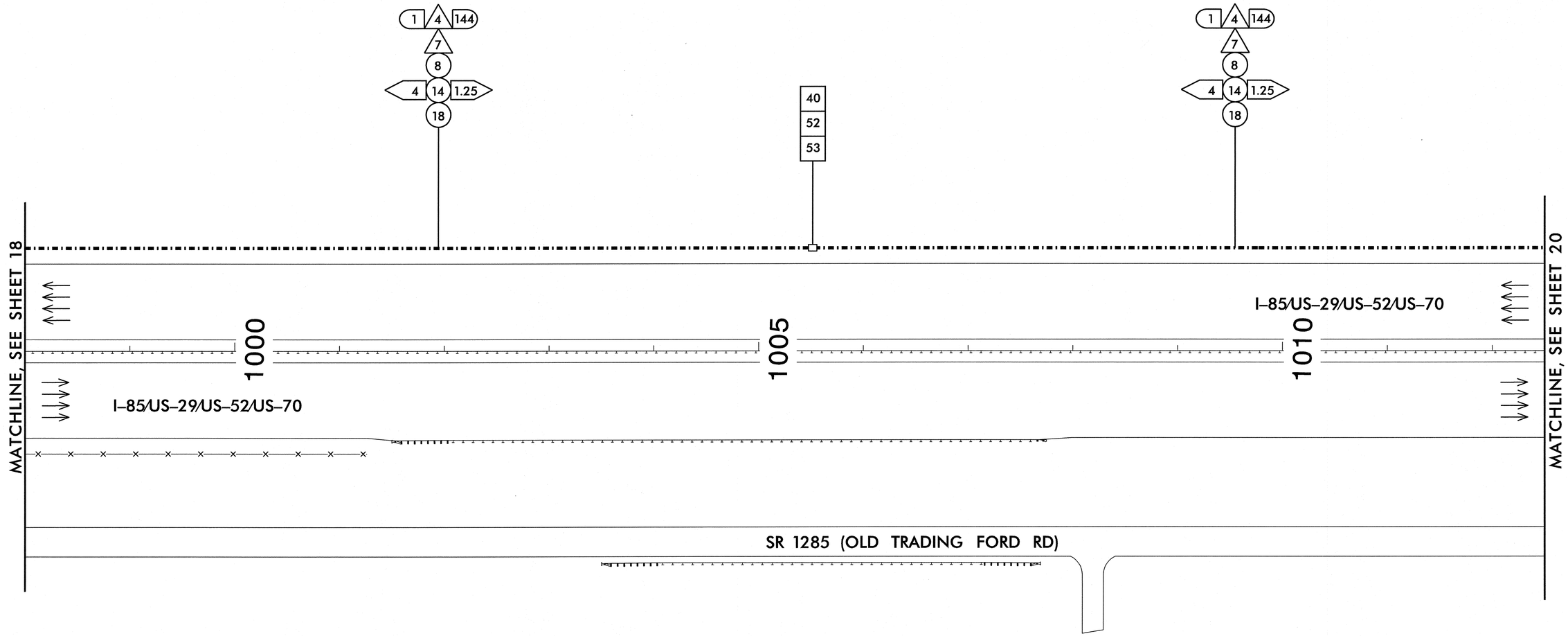
PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	19



NOTE:
MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY

PLANS PREPARED IN THE OFFICE OF:

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P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

CADD Filename:

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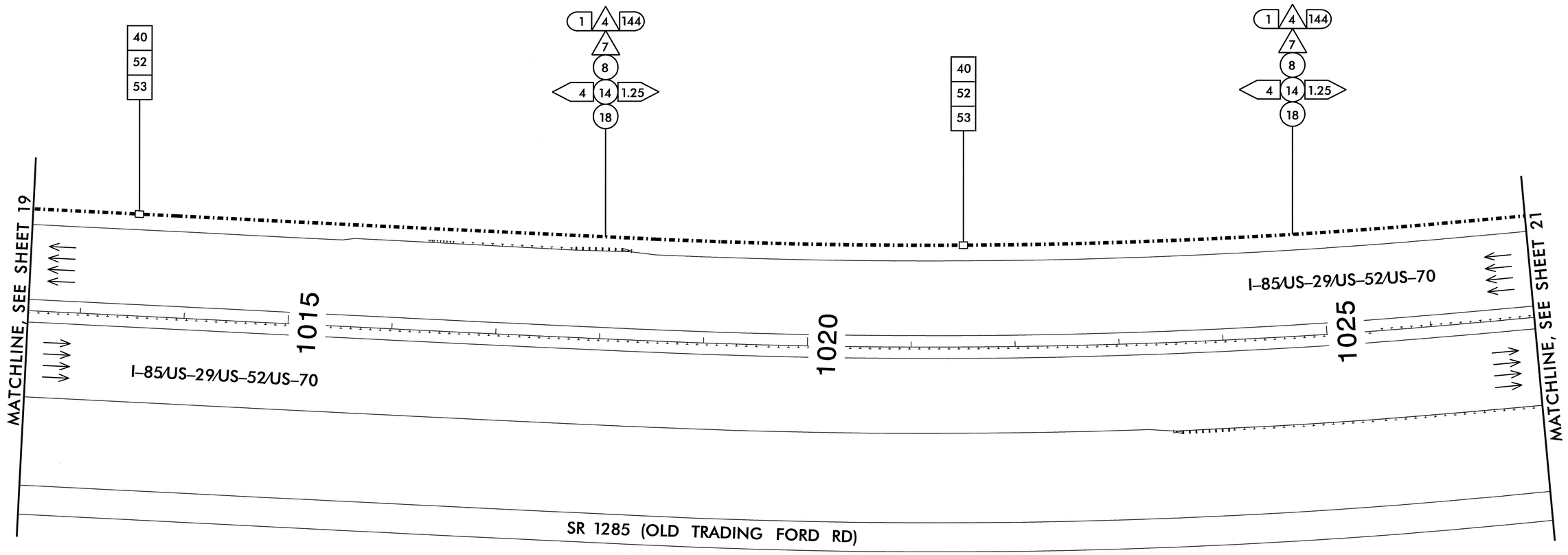
PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	20



NOTE:
MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY

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PLANS PREPARED IN THE OFFICE OF:

Kimley-Horn and Associates, Inc.
NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

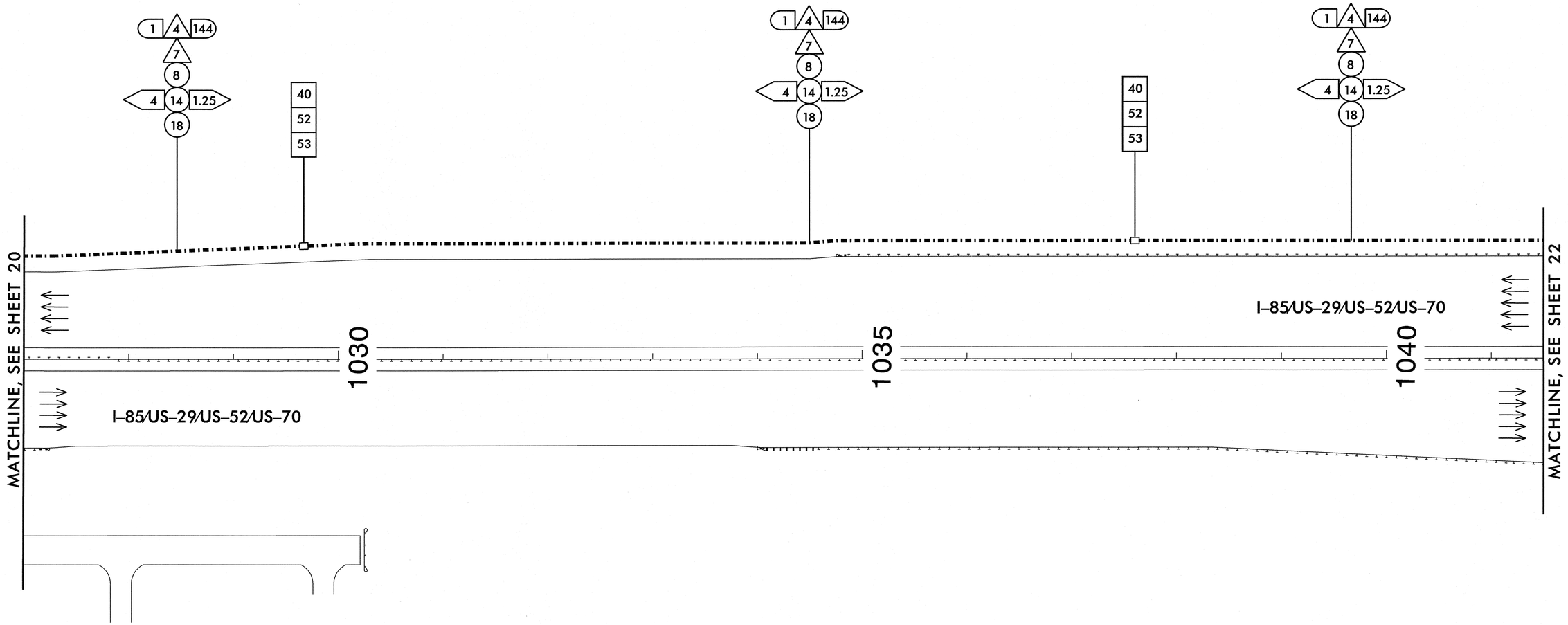
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

CADD Filename:

PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	21



NOTE:
MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY

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PLANS PREPARED IN THE OFFICE OF:

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NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

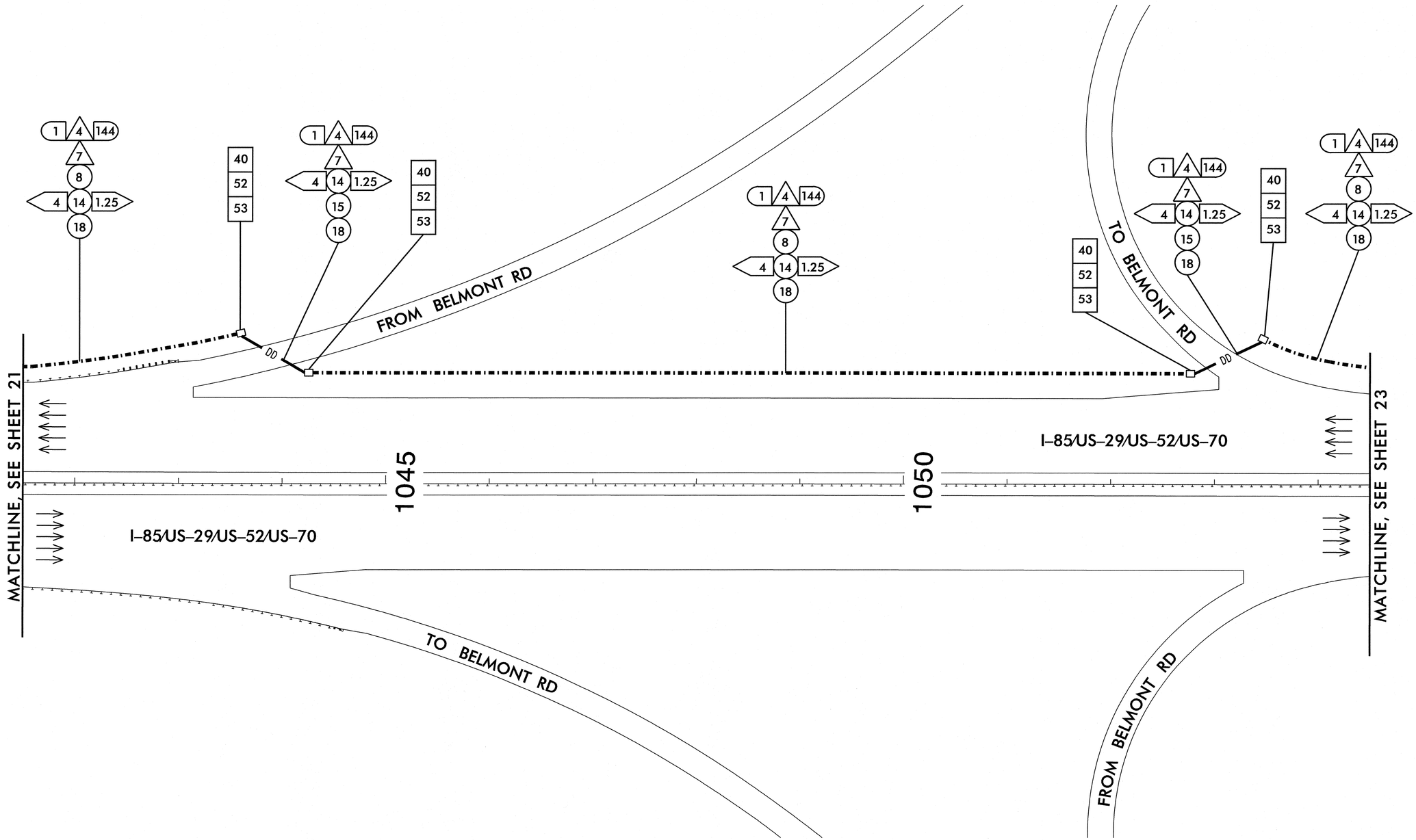
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

CADD Filename:

PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	22



NOTE:
MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY

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(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

CADD Filename:

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PROJECT REFERENCE NO.	SHEET NO.
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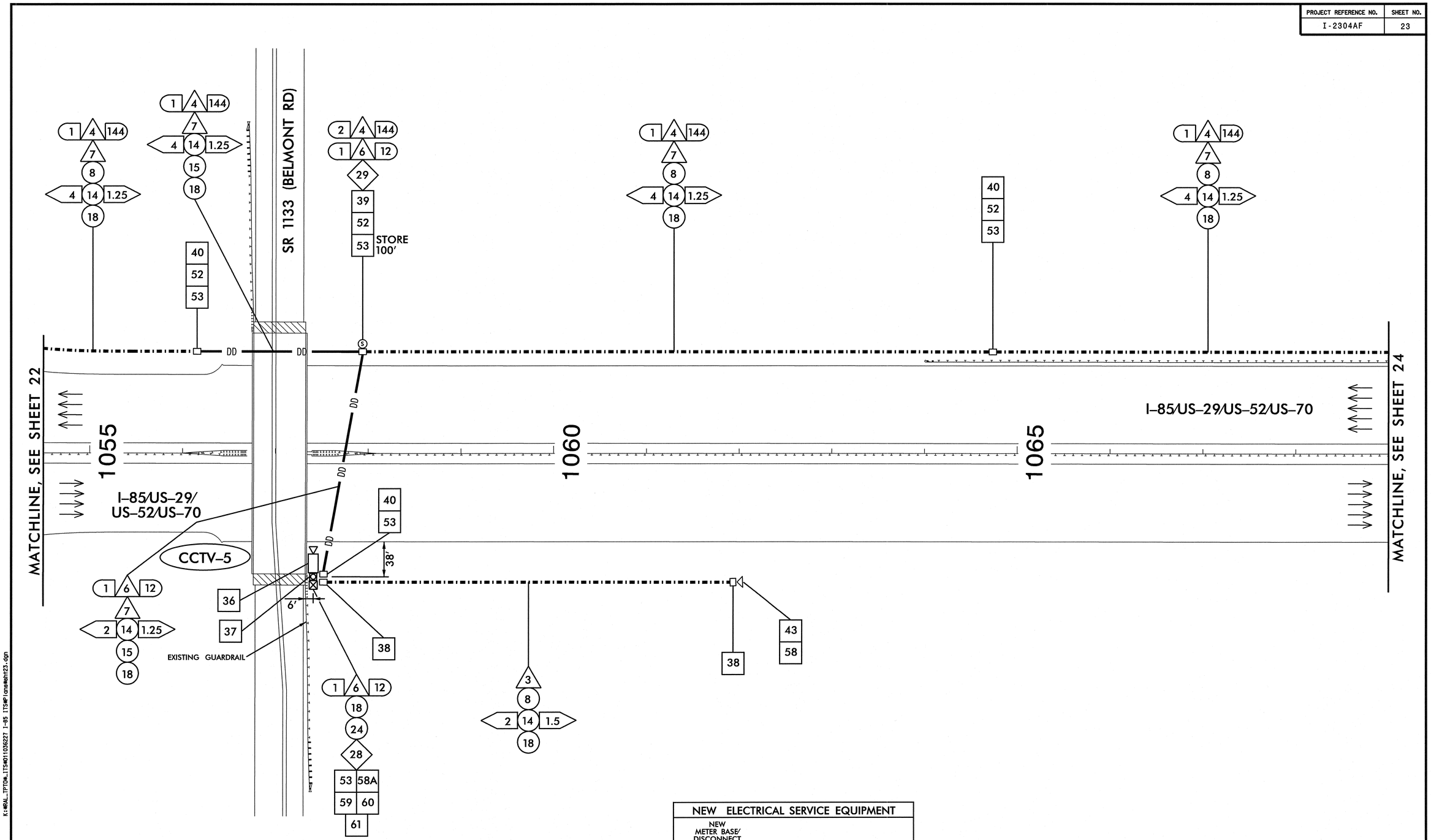
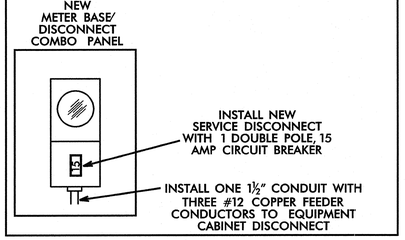


NOTES:
1. MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
2. CONTACT THE ENGINEER TO VERIFY DEVICE LOCATION PRIOR TO CONSTRUCTION.
3. MOUNT CCTV CAMERA 45' ABOVE GRADE.
4. INSTALL NEW FIELD EQUIPMENT CABINET ON NEW CCTV POLE.
5. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET 2A AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.
6. CONTACT MARC FRYE FROM ENERGY UNITED AT (704) 638-4037 TO OBTAIN POWER FOR ELECTRICAL SERVICE.

CCTV-5 GPS COORDINATES
35.753452, -80.347626

NEW ELECTRICAL SERVICE EQUIPMENT



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NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE: AUGUST 2013	REVIEWED BY:
PREPARED BY: J. CROSS	REVIEWED BY: K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

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PROJECT REFERENCE NO.	SHEET NO.
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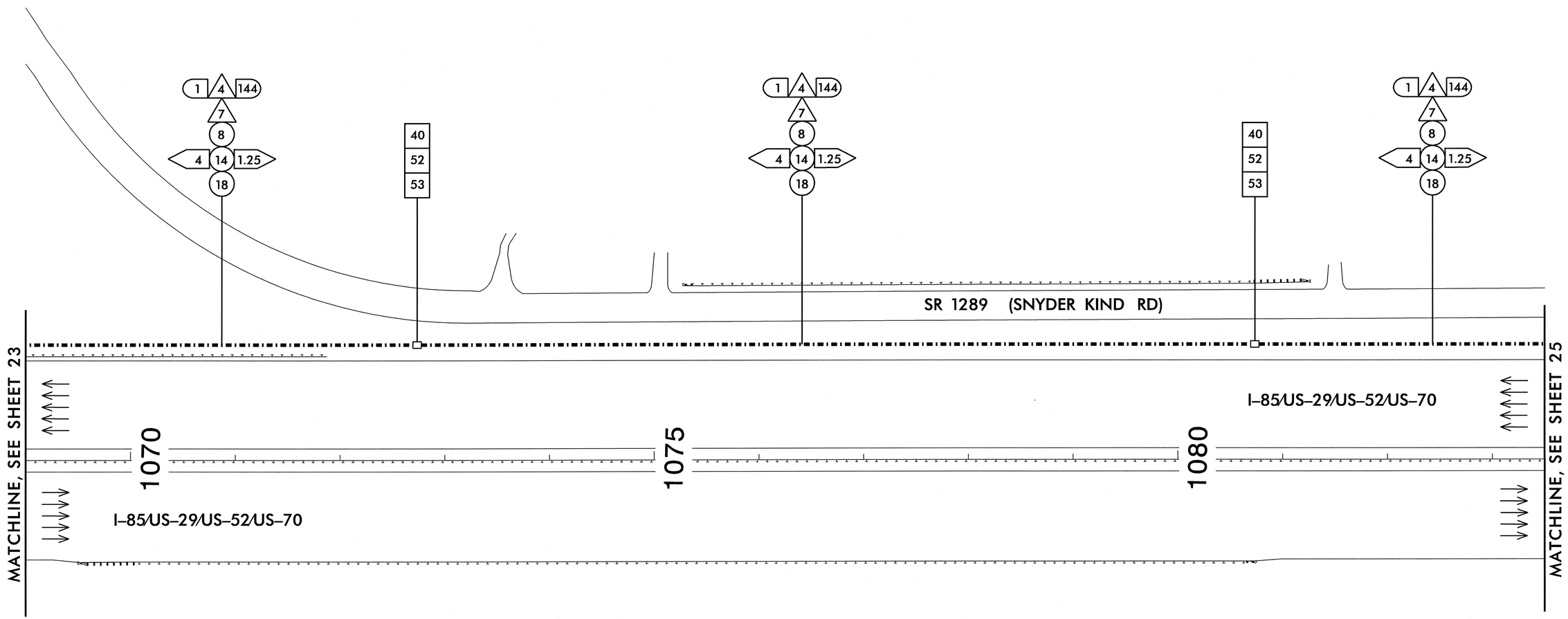

NOTE:
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PLANS PREPARED IN THE OFFICE OF:

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NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Mobility and Safety Division
Intelligent Transportation Systems
Transportation Management Unit
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE
0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

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PROJECT REFERENCE NO.	SHEET NO.
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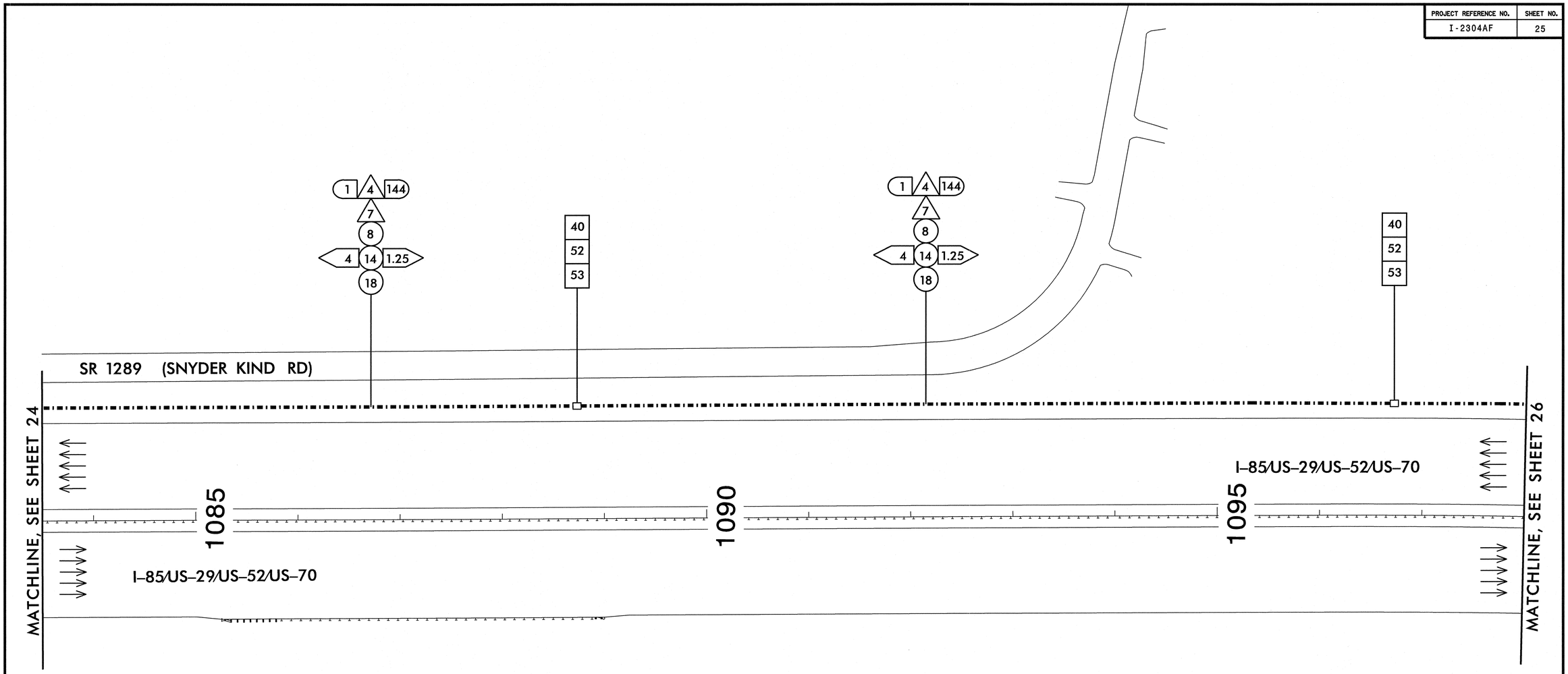

NOTE:
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Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

CADD Filename:

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PROJECT REFERENCE NO.	SHEET NO.
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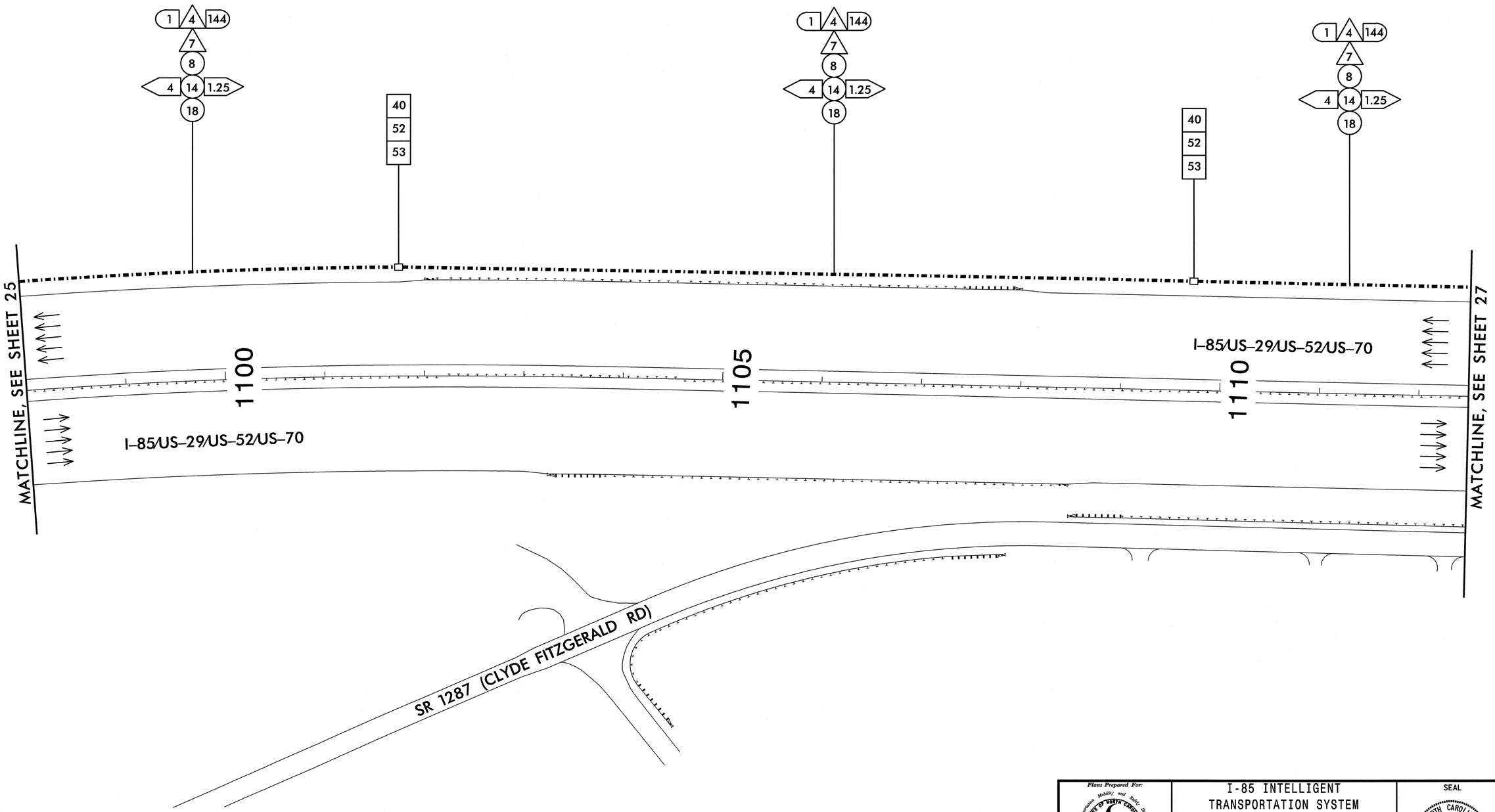

NOTE:
MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY

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Plans Prepared For:
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM

CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

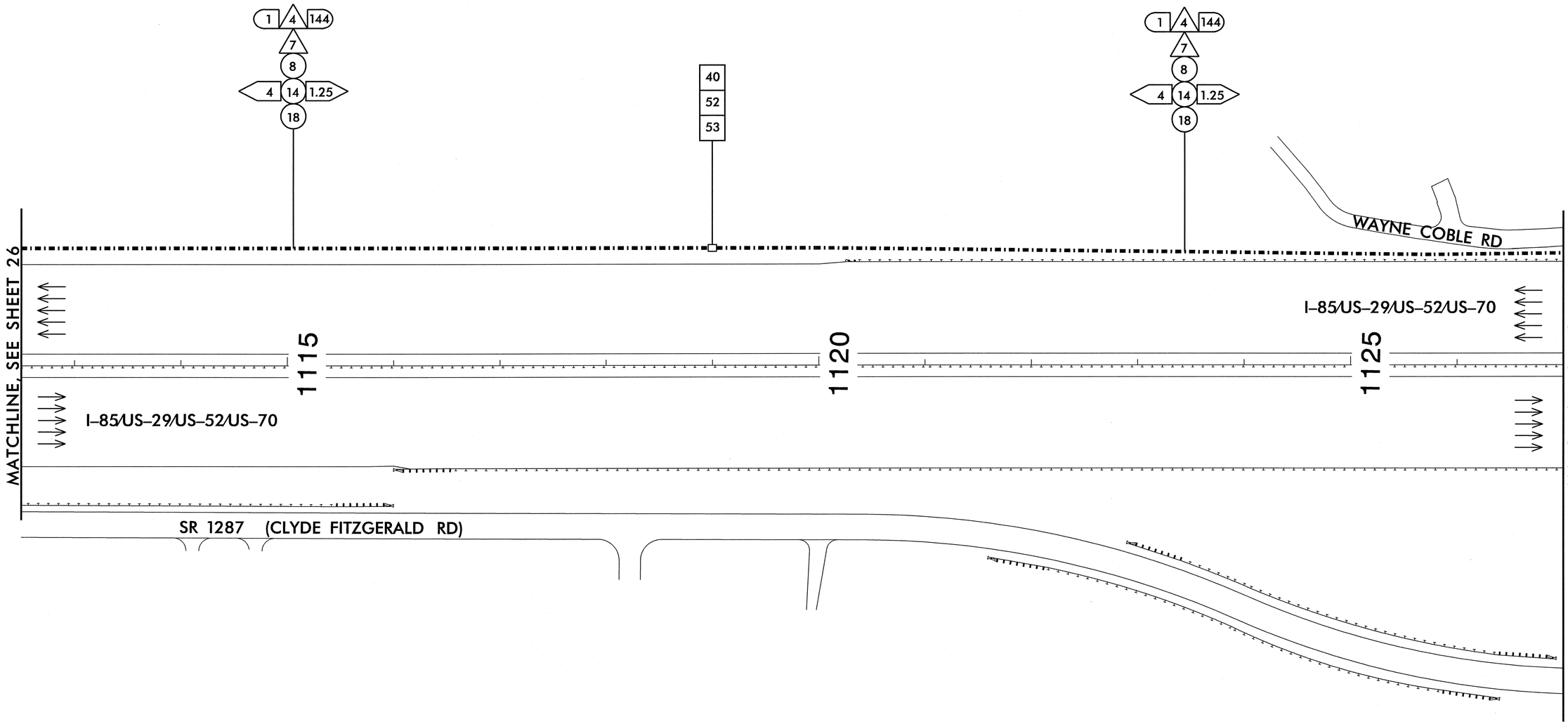
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

CADD Filename:

8/29/2013 8:32:58 AM jerry.cross K:\RAL_TPTD_ITS\011036227 I-85 ITS\Plans\sh\r26.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	27



NOTE:
MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY

PLANS PREPARED IN THE OFFICE OF:

Kimley-Horn and Associates, Inc.
NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE
0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

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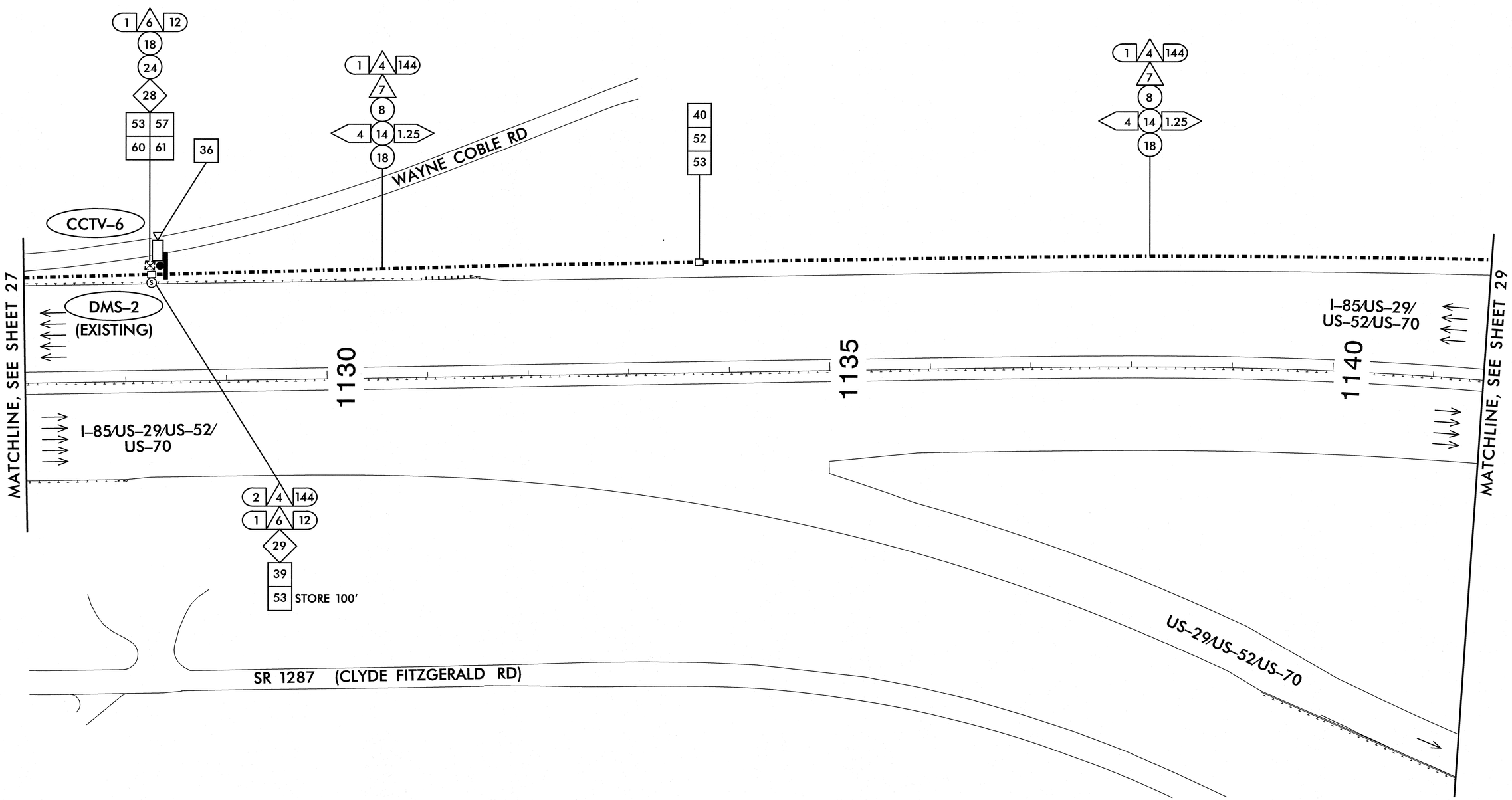
PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	28

CCTV-3 AND CCTV-6
GPS COORDINATES
35.767968, -80.331880



NOTES:
1. MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
2. MOUNT CCTV CAMERA 5' FROM TOP OF EXTENSION ARM ON EXISTING DMS STRUCTURE.
3. INSTALL NEW CCTV EQUIPMENT IN EXISTING DMS CABINET.
4. INTEGRATE EXISTING DMS CONTROLLER WITH NEW FIELD ETHERNET SWITCH.

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(919) 677-2000

Plans Prepared For:
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH
SIGNATURE 8/29/13 DATE
CADD Filename:

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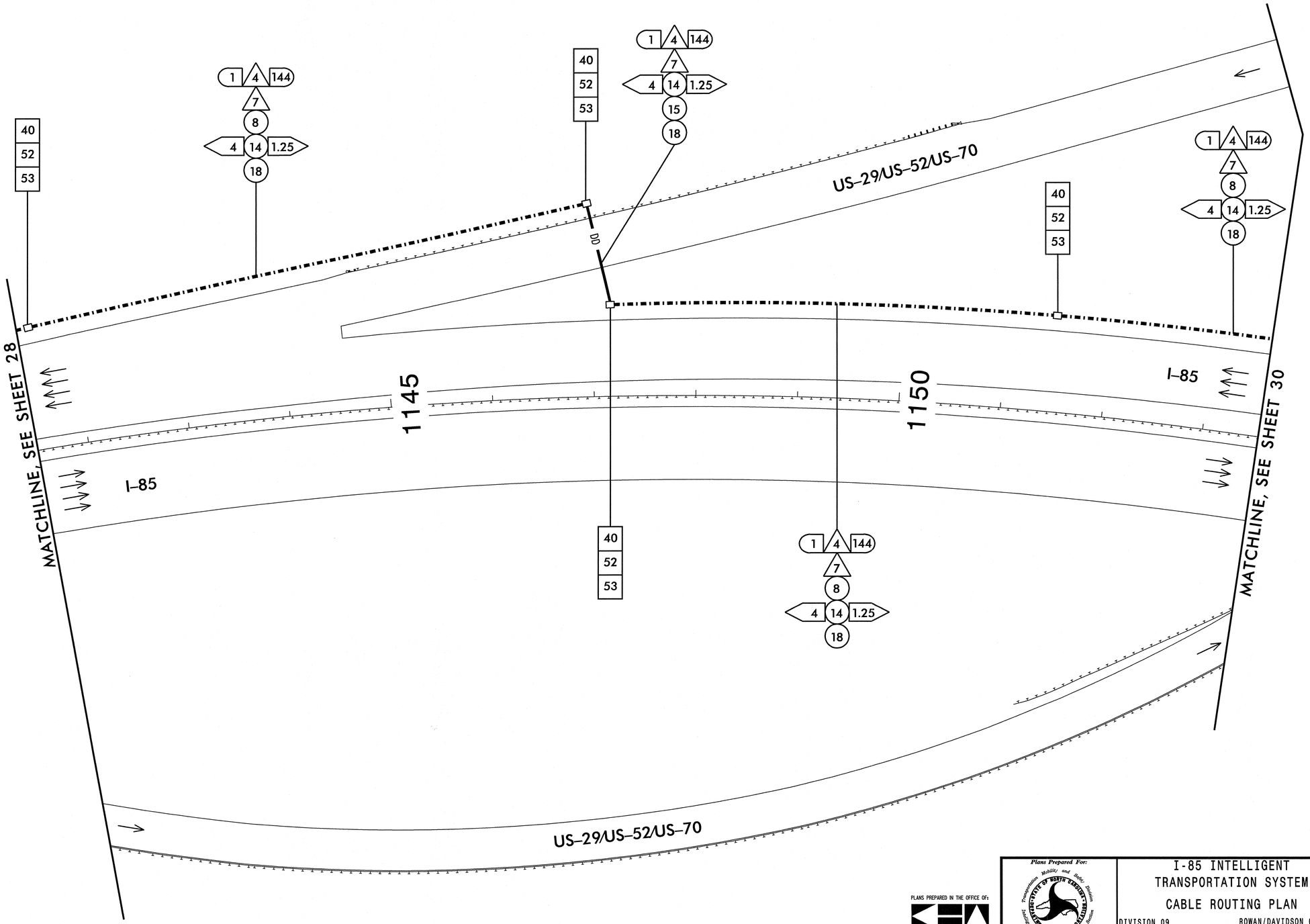
PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	29



NOTE:
MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY

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SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

CADD Filename:

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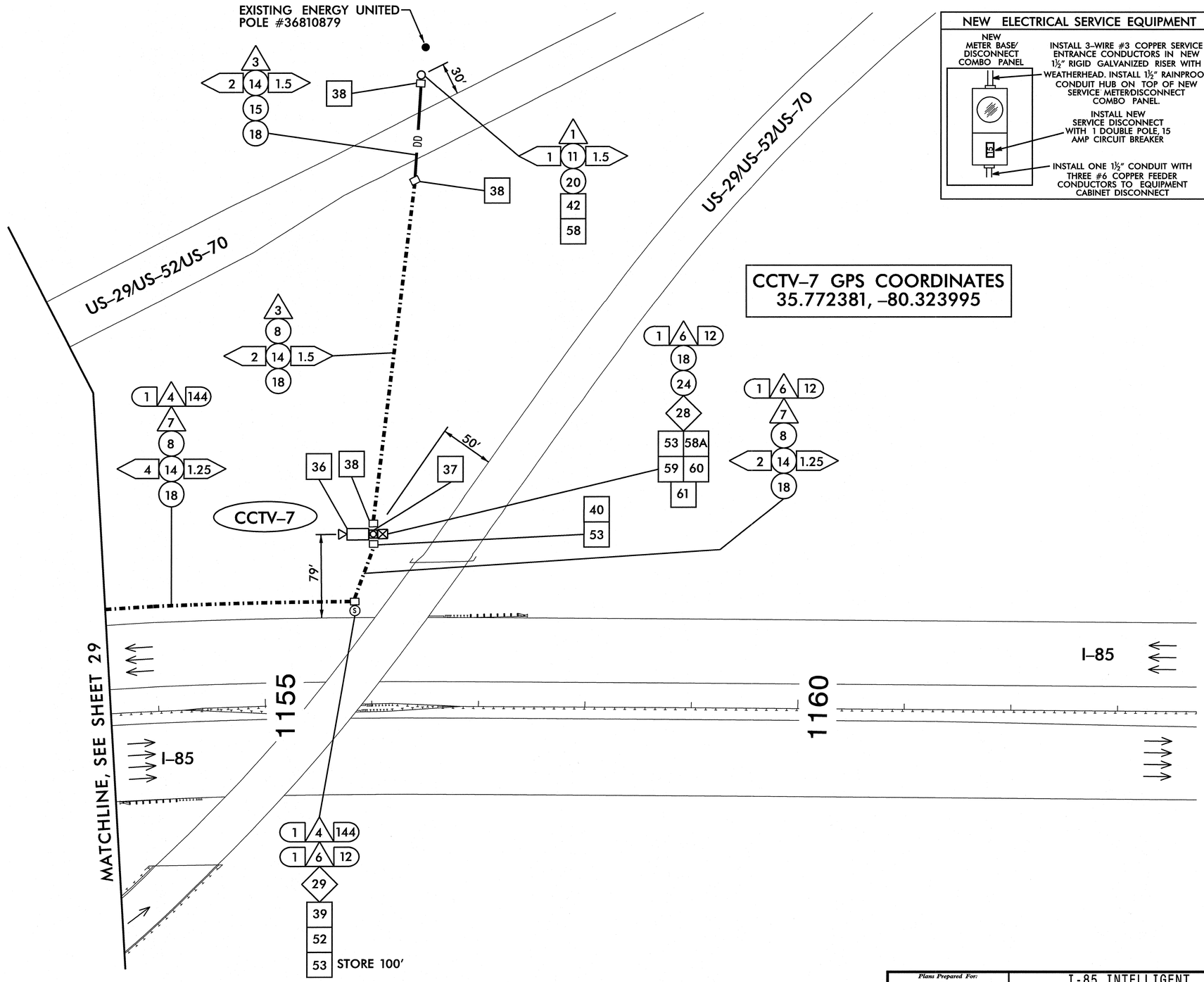
PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	30



NEW ELECTRICAL SERVICE EQUIPMENT

INSTALL 3-WIRE #3 COPPER SERVICE ENTRANCE CONDUCTORS IN NEW 1½" RIGID GALVANIZED RISER WITH WEATHERHEAD. INSTALL 1½" RAINPROOF CONDUIT HUB ON TOP OF NEW SERVICE METER/DISCONNECT COMBO PANEL.

INSTALL NEW SERVICE DISCONNECT WITH 1 DOUBLE POLE, 15 AMP CIRCUIT BREAKER

INSTALL ONE 1½" CONDUIT WITH THREE #6 COPPER FEEDER CONDUCTORS TO EQUIPMENT CABINET DISCONNECT

NOTES:
1. MAINTAIN A MINIMUM OF SIX (6) FEEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
2. CONTACT THE ENGINEER TO VERIFY DEVICE LOCATION PRIOR TO CONSTRUCTION.
3. MOUNT CCTV CAMERA 45' ABOVE GRADE.
4. INSTALL NEW FIELD EQUIPMENT CABINET ON NEW CCTV POLE.
5. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET 2B AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.
6. CONTACT MARC FRYE FROM ENERGY UNITED AT (704) 638-4037 TO OBTAIN POWER FOR ELECTRICAL SERVICE.

PLANS PREPARED IN THE OFFICE OF:
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(919) 677-2000

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750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0 50

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE ROUTING PLAN

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH
SIGNATURE 8/29/13 DATE
CADD Filename:

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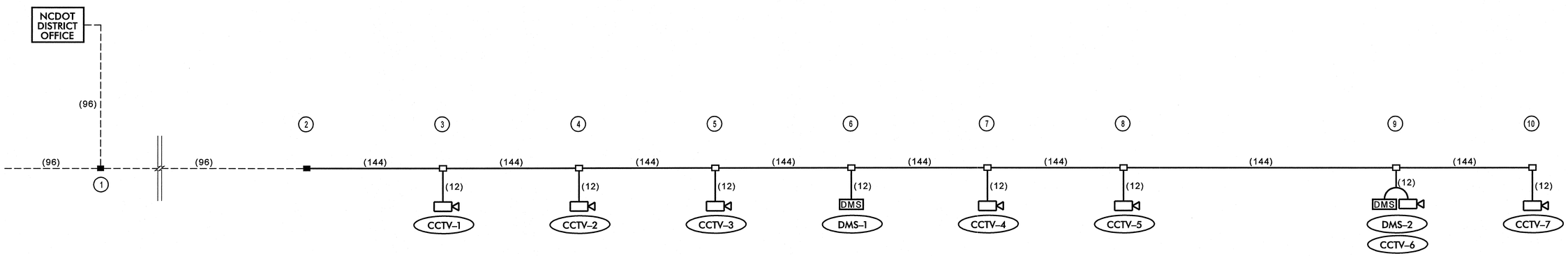
PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	31

LEGEND

XXXX	DEVICE ID NUMBER
X	SPLICE NUMBER
(XX)	XX-FIBER SMFO CABLE
	EXISTING FIBER OPTIC CABLE
	PROPOSED FIBER OPTIC CABLE
	EXISTING SPLICE ENCLOSURE
	PROPOSED SPLICE ENCLOSURE
	PROPOSED CCTV
DMS	PROPOSED DMS



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P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Plans Prepared For:
Transportation Mobility and Safety Division
Intelligent Transportation Systems
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE
0

I-85 INTELLIGENT TRANSPORTATION SYSTEM
CABLE SCHEMATIC

DIVISION 09 — ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE — DATE: 8/29/13

CADD Filename:

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MODIFY EXISTING SPLICE ENCLOSURE 1
AT I-85 AND JAKE ALEXANDER BLVD.

PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	32

COLOR CODE
TIA/EIA 598-C

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

LEGEND

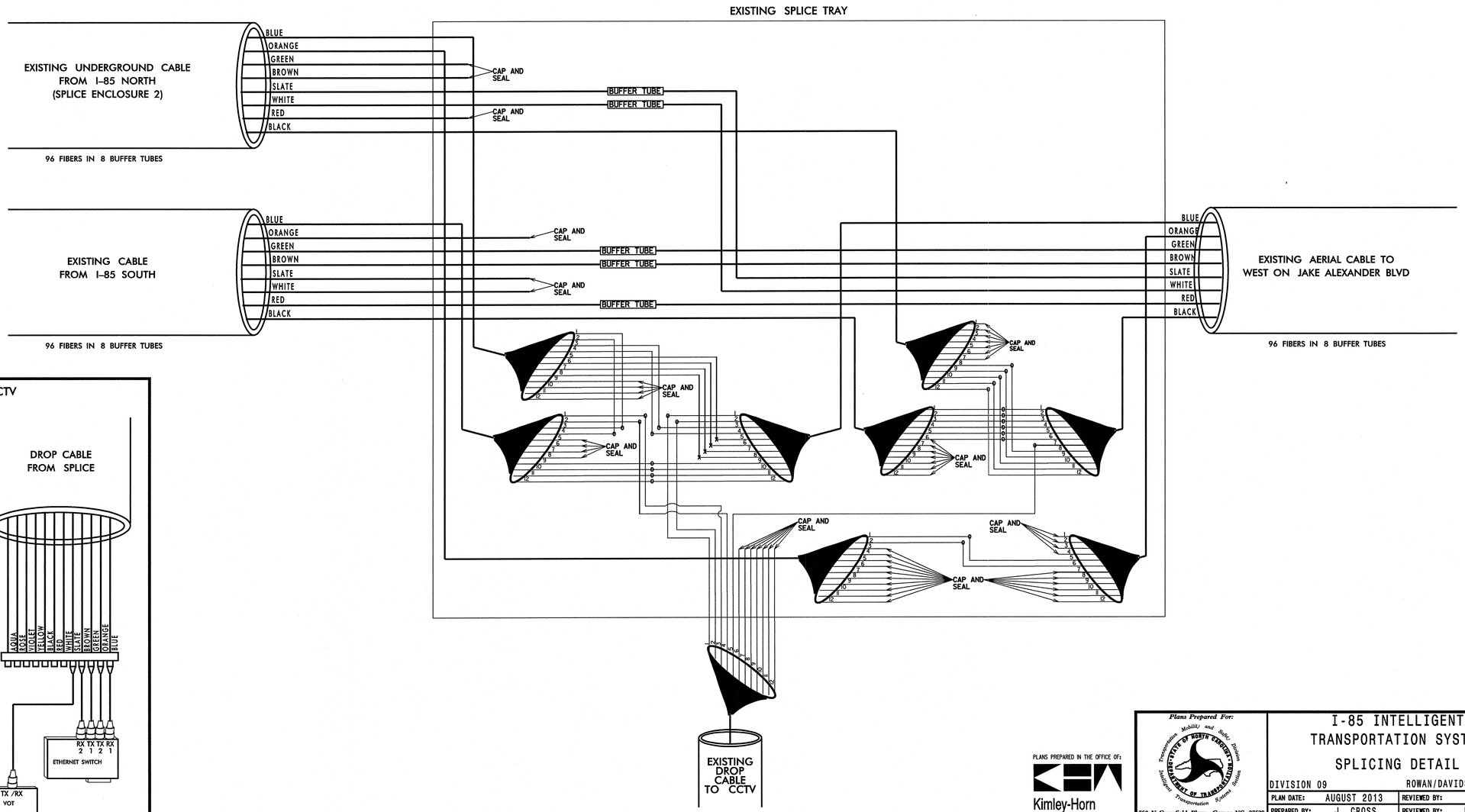
ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

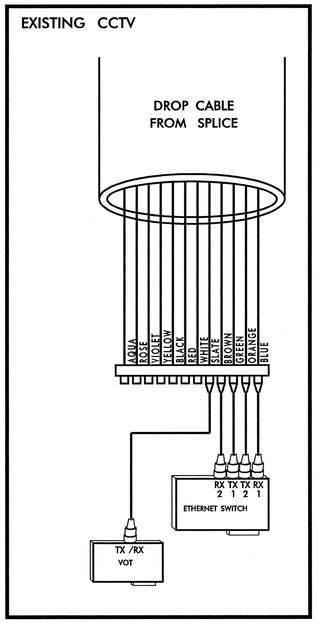
X - NEW FUSION SPLICE INDIVIDUAL FIBER

O - EXISTING FUSION SPLICE INDIVIDUAL FIBER

BUFFER TUBE SPLICE OR EXPRESS ENTIRE BUFFER TUBE

SPLICE ONLY THOSE FIBERS IN THE BLUE BUFFER TUBE WHICH ARE DENOTED WITH AN "X" FOR NEW FUSION SPLICE. DO NOT MODIFY FIBERS DENOTED WITH AN "O" FOR EXISTING FUSION SPLICE. DO NOT MODIFY EXISTING SPLICED OR EXPRESSED BUFFER TUBES.





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Plans Prepared For:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0

I-85 INTELLIGENT TRANSPORTATION SYSTEM
SPLICING DETAIL

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

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EXISTING SPLICE ENCLOSURE 2
AT I-85 AND LONG FERRY ROAD

PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	33

COLOR CODE TIA/EIA 598-C

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

LEGEND

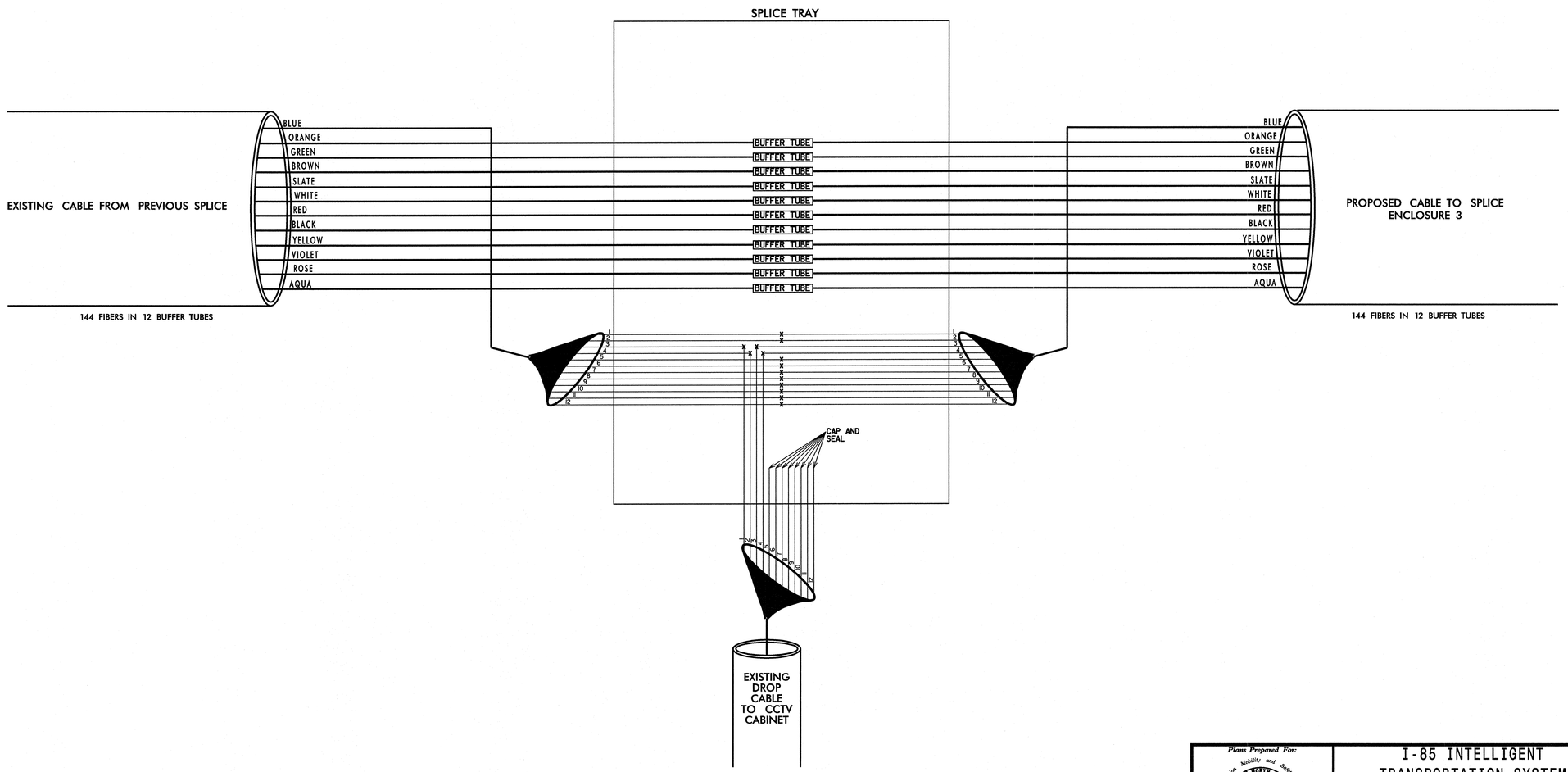
ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - NEW FUSION SPLICE INDIVIDUAL FIBER

O - EXISTING FUSION SPLICE INDIVIDUAL FIBER

BUFFER TUBE SPLICE OR EXPRESS ENTIRE BUFFER TUBE

SPLICE ALL FIBERS IN ALL BUFFER TUBES TO LIKE FIBERS IN LIKE BUFFER TUBES.



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Plans Prepared For:
Intelligent Transportation Systems Division
Transportation Mobility and Safety
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0

I-85 INTELLIGENT TRANSPORTATION SYSTEM
SPLICING DETAIL

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

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PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	34

SPLICE ENCLOSURES 3,4,5,7,8
CCTV CABINETS 1,2,3,4,5

COLOR CODE TIA/EIA 598-C	
(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

LEGEND

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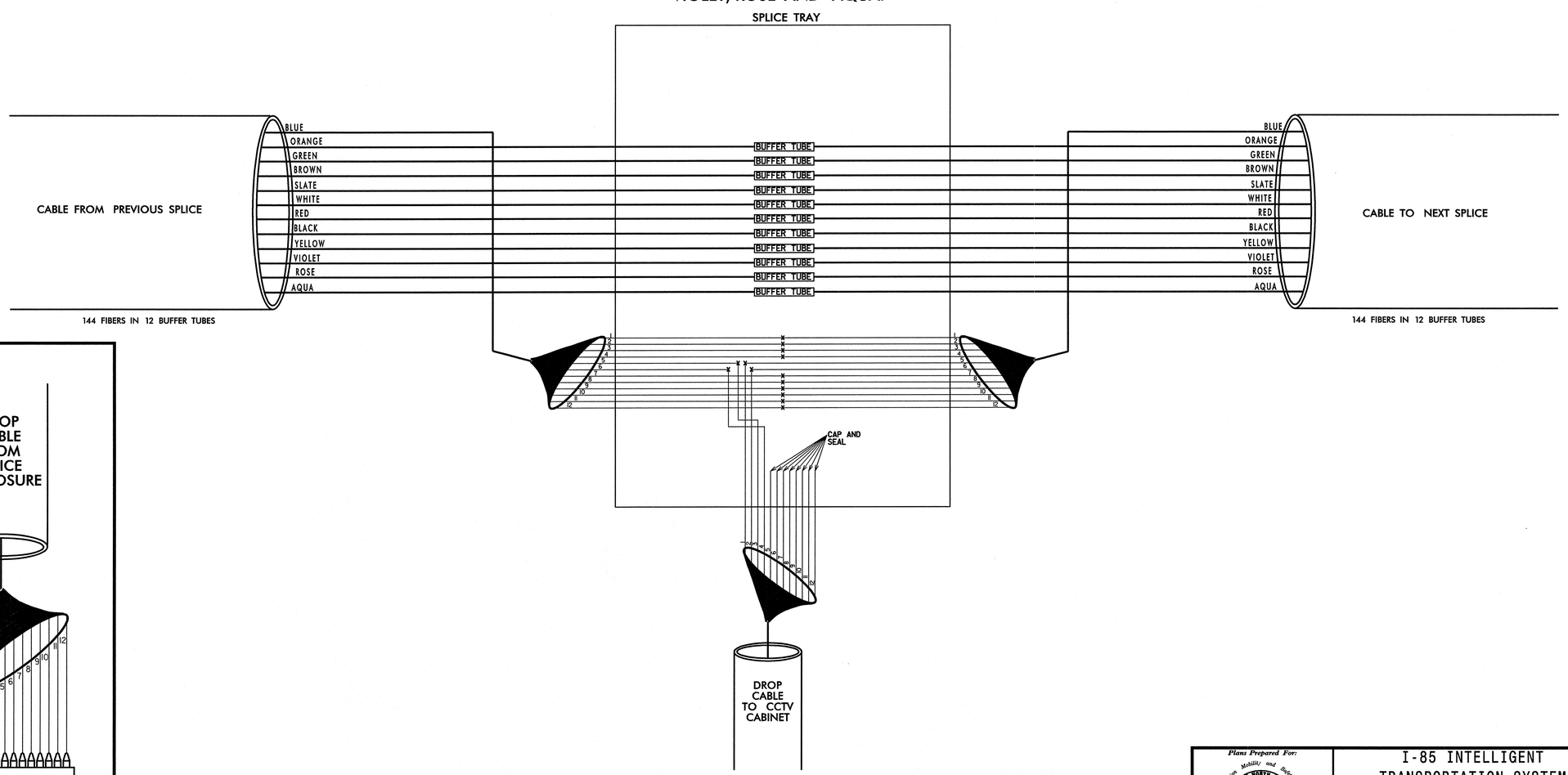
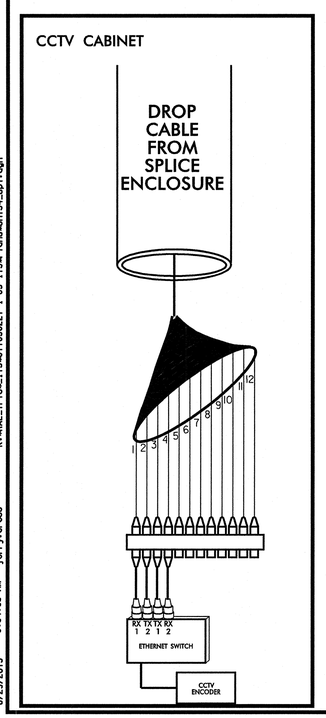
X - NEW FUSION SPLICE INDIVIDUAL FIBER

O - EXISTING FUSION SPLICE INDIVIDUAL FIBER

BUFFER TUBE SPLICE OR EXPRESS ENTIRE BUFFER TUBE

EXPRESS ALL FIBERS IN ORANGE, GREEN, BROWN, SLATE, WHITE, RED, BLACK, YELLOW, VIOLET, ROSE AND AQUA.





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750 N. Greenfield Pkwy., Garner, NC 27529

SCALE 0

I-85 INTELLIGENT TRANSPORTATION SYSTEM
SPLICING DETAIL

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

CADD Filename:

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PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	35

SPLICE ENCLOSURES 6,9
DMS CABINETS 1,2

COLOR CODE
TIA/EIA 598-C

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

LEGEND

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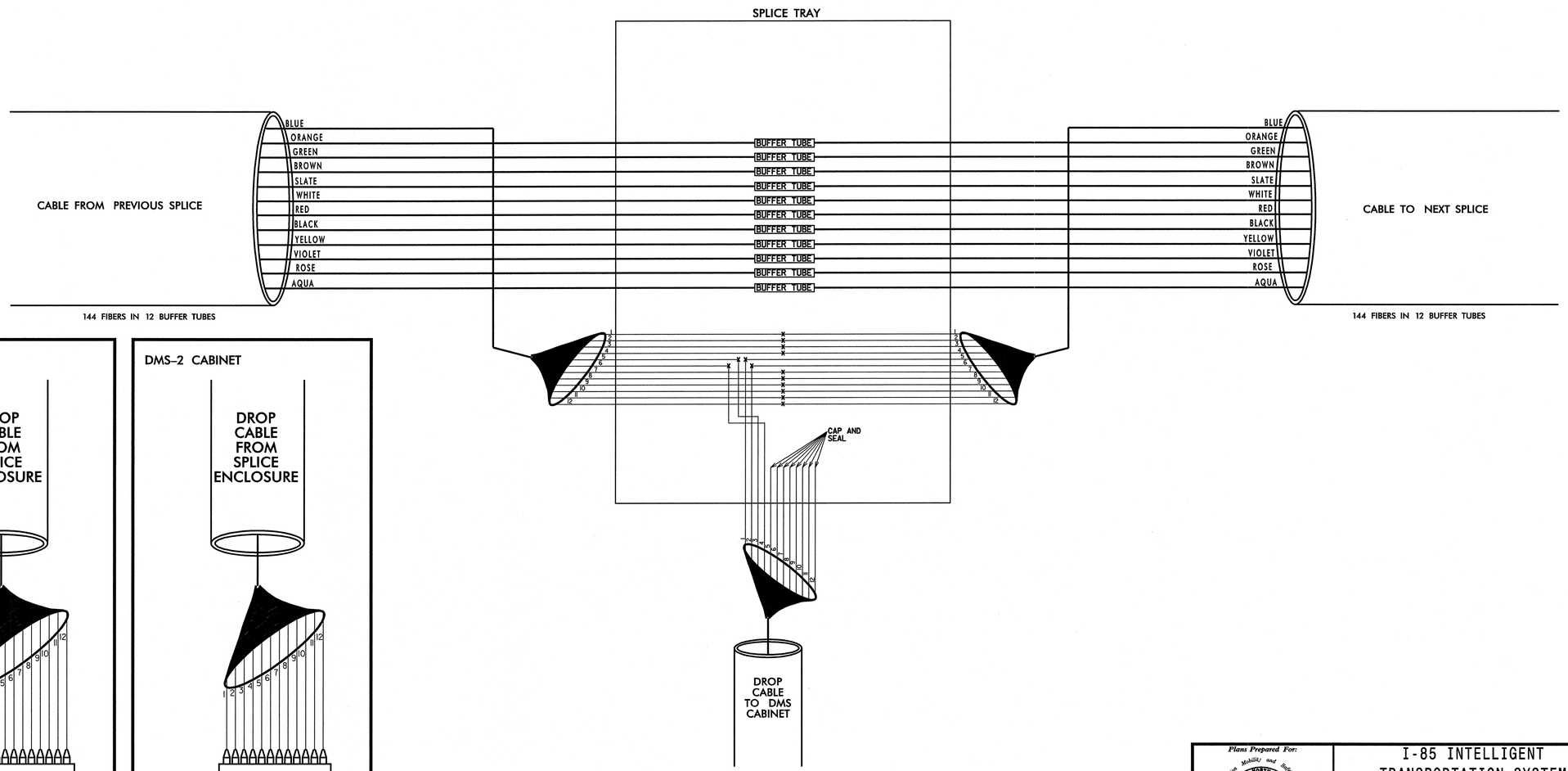
X - NEW FUSION SPLICE INDIVIDUAL FIBER

O - EXISTING FUSION SPLICE INDIVIDUAL FIBER

BUFFER TUBE SPLICE OR EXPRESS ENTIRE BUFFER TUBE

EXPRESS ALL FIBERS IN ORANGE, GREEN, BROWN, SLATE, WHITE, RED, BLACK, YELLOW, VIOLET, ROSE AND AQUA.



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SCALE 0

I-85 INTELLIGENT TRANSPORTATION SYSTEM
SPLICING DETAIL

DIVISION 09 ROWAN/DAVIDSON COUNTIES

PLAN DATE:	AUGUST 2013	REVIEWED BY:	
PREPARED BY:	J. CROSS	REVIEWED BY:	K. SMITH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030472 ENGINEER KEVIN W. SMITH

SIGNATURE 8/29/13 DATE

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PROJECT REFERENCE NO.	SHEET NO.
I-2304AF	36

SPLICE ENCLOSURE 10
CCTV CABINETS 7

COLOR CODE TIA/EIA 598-C

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

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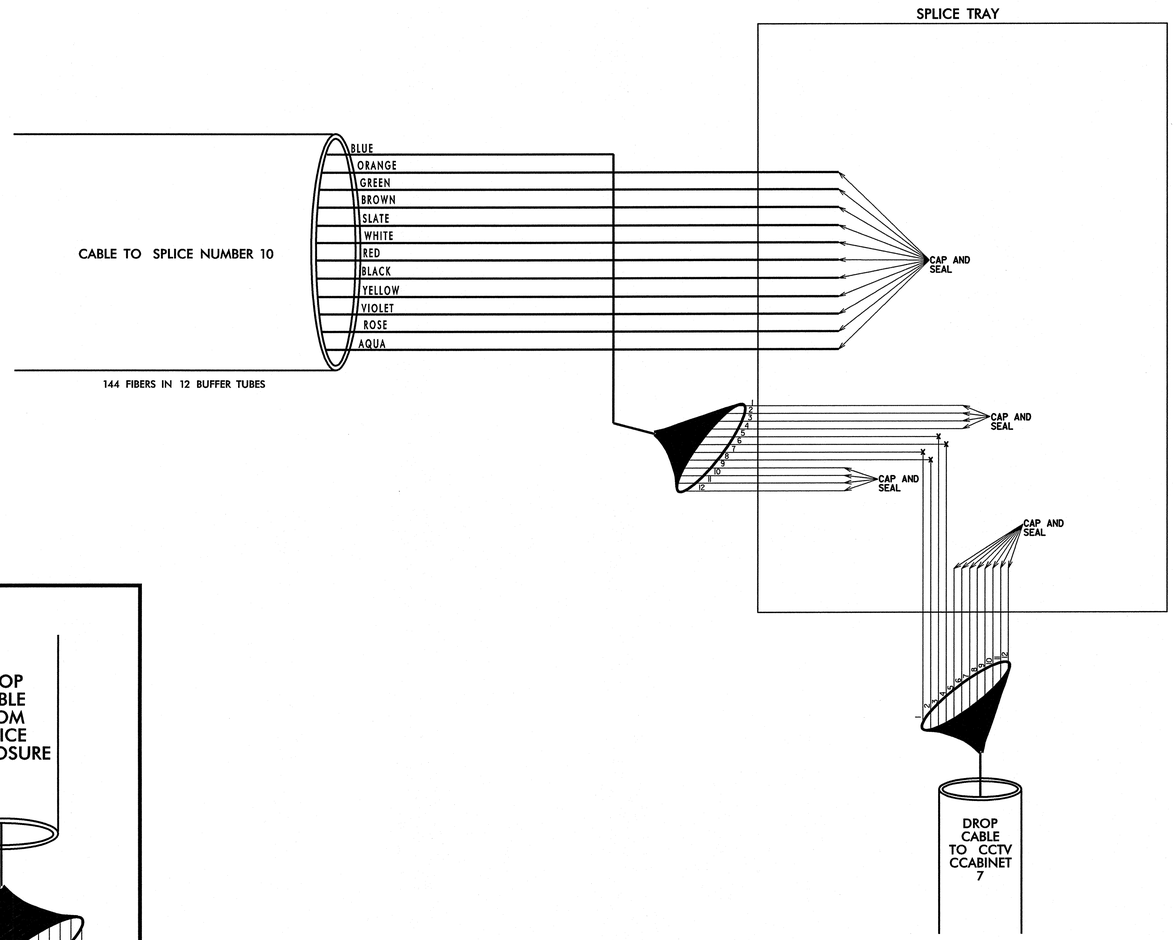
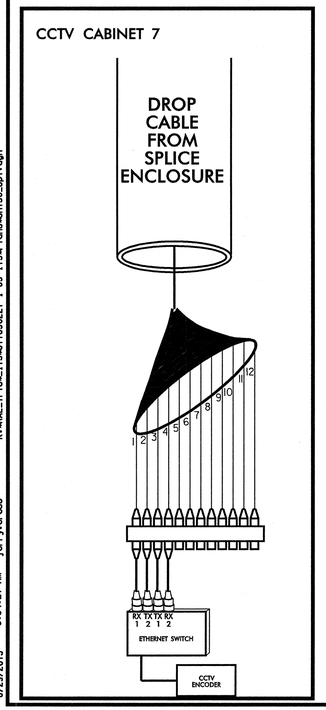
X - NEW FUSION SPLICE INDIVIDUAL FIBER

O - EXISTING FUSION SPLICE INDIVIDUAL FIBER

BUFFER TUBE SPLICE OR EXPRESS ENTIRE BUFFER TUBE

EXPRESS ALL FIBERS IN ORANGE, GREEN, BROWN, SLATE, WHITE, RED, BLACK, YELLOW, VIOLET, ROSE AND AQUA.





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I-85 INTELLIGENT TRANSPORTATION SYSTEM
SPLICING DETAIL

DIVISION 09 ROWAN/DAVIDSON COUNTIES

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