

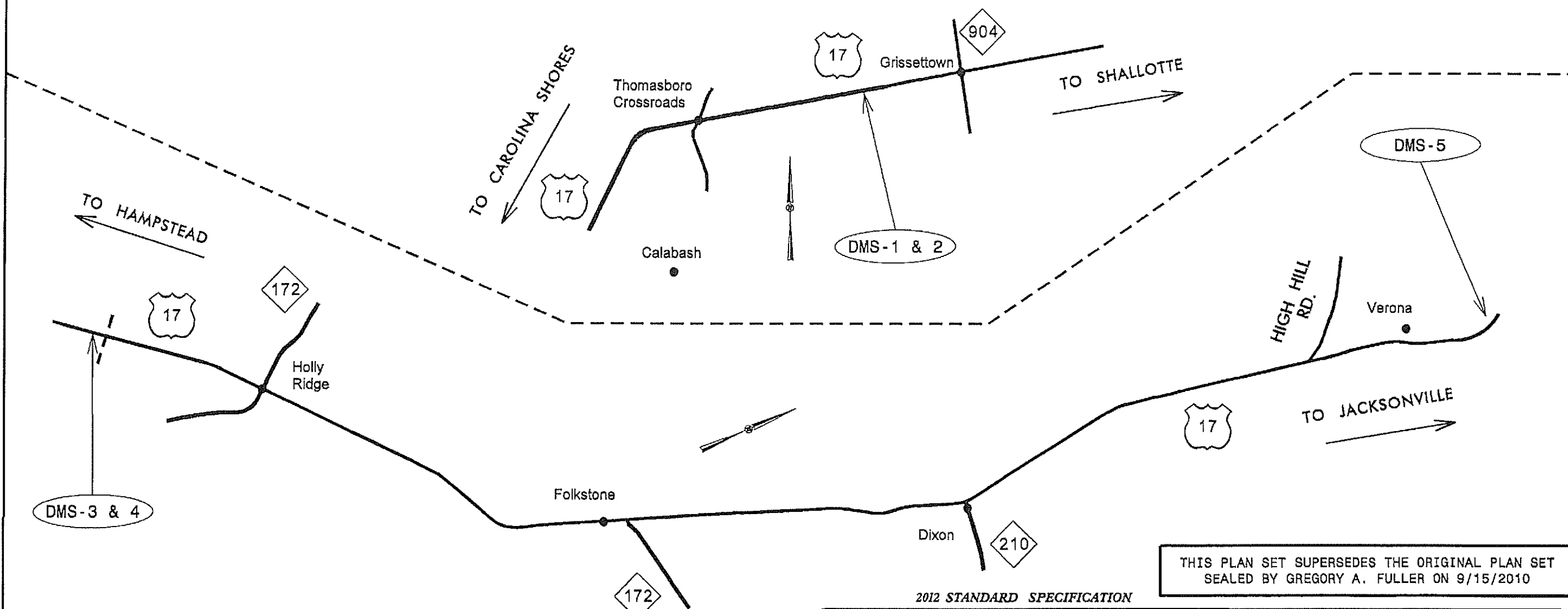
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ONSLOW, PENDER, AND BRUNSWICK COUNTIES

**PLANS FOR PROPOSED
DYNAMIC MESSAGE SIGN INSTALLATION**

THIS PROJECT CONSISTS OF FURNISHING AND INSTALLING EQUIPMENT AND MATERIALS FOR THE INSTALLATION OF FIVE (5) DYNAMIC MESSAGE SIGNS IN ONSLOW, PENDER, AND BRUNSWICK COUNTIES, NORTH CAROLINA. RELATED MATERIALS CONSIST OF DMS ASSEMBLIES, PEDESTAL STRUCTURES, WALKWAYS, LADDERS, LOCAL CABINETS AND CONTROLLERS, AND ELECTRICAL SERVICE EQUIPMENT.

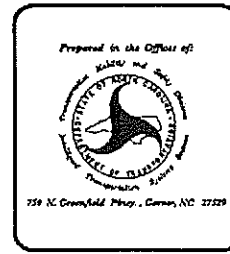
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.
N.C.		ITS-1
STATE FILING NO.	F.A. FILING NO.	DESCRIPTION



THIS PLAN SET SUPERSEDES THE ORIGINAL PLAN SET SEALED BY GREGORY A. FULLER ON 9/15/2010

2012 STANDARD SPECIFICATION

NCDOT CONTACT:
TRANSPORTATION MOBILITY AND SAFETY
G.A. FULLER, P.E.
STATE ITS & SIGNALS ENGINEER



ENGLISH
ALL DIMENSIONS IN THESE PLANS ARE IN FEET UNLESS OTHERWISE NOTED

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
GREGORY A. FULLER
023919
5-31-13

INDEX OF SHEETS


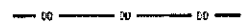
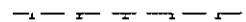
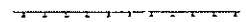




- SHEET 1.....TITLE SHEET
- SHEET 2.....INDEX OF SHEETS, ROADWAY STANDARD DRAWINGS, AND LEGEND
- SHEET 3-8.....PLAN SHEETS
- SHEET 9-10.....TYPICAL DETAILS

ROADWAY STANDARD DRAWINGS



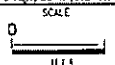
THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS". ROADWAY DESIGN UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1700.01	ELECTRICAL SERVICE OPTIONS
1700.02	ELECTRICAL SERVICE GROUNDING
1715.01	UNDERGROUND CONDUIT

LEGEND

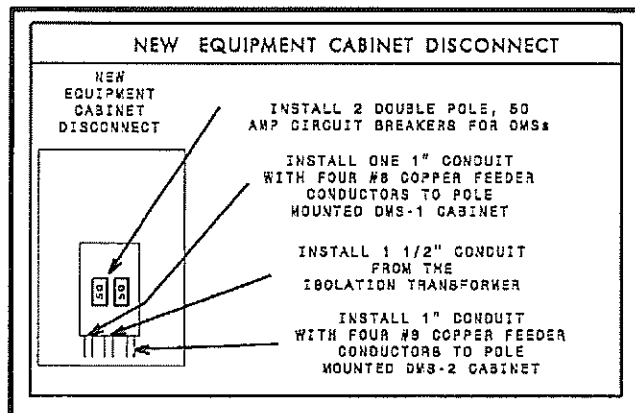
-  NEW CONDUIT
-  NEW DIRECTIONAL DRILL
-  EXISTING GUARDRAIL
-  NEW GUARDRAIL
-  NEW ELECTRICAL SERVICE
-  NEW WOOD POLE
-  NEW SINGLE DMS PEDESTAL STRUCTURE
-  NEW BACK-TO-BACK DMS PEDESTAL STRUCTURE

THIS PLAN SET SUPERSEDES THE ORIGINAL PLAN SET SEALED BY GREGORY A. FULLER ON 9/15/2010

 <small>Prepared in the Office of: North Carolina Department of Transportation 750 N. Salisbury Blvd., Cary, NC 27513</small>	DMS INSTALLATIONS INDEX OF SHEETS, ROADWAY STANDARD DRAWINGS, AND LEGEND		 <small>SEAL GREGORY A. FULLER ENGINEER 023919 NORTH CAROLINA</small>
	<small>PLAN DATE:</small> MAY 2013 <small>PREPARED BY:</small> G.A. GREEN	<small>REVIEWED BY:</small> T.O. PARKER <small>REVIEWED BY:</small>	
<small>SCALE</small>  0 N/A	<small>REVISIONS</small>		<small>DATE</small> 5-31-13

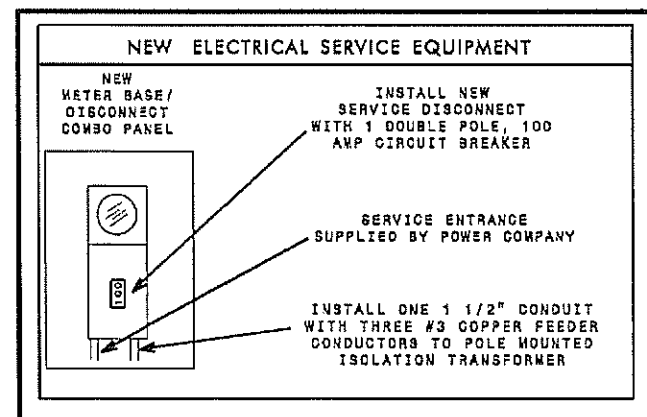
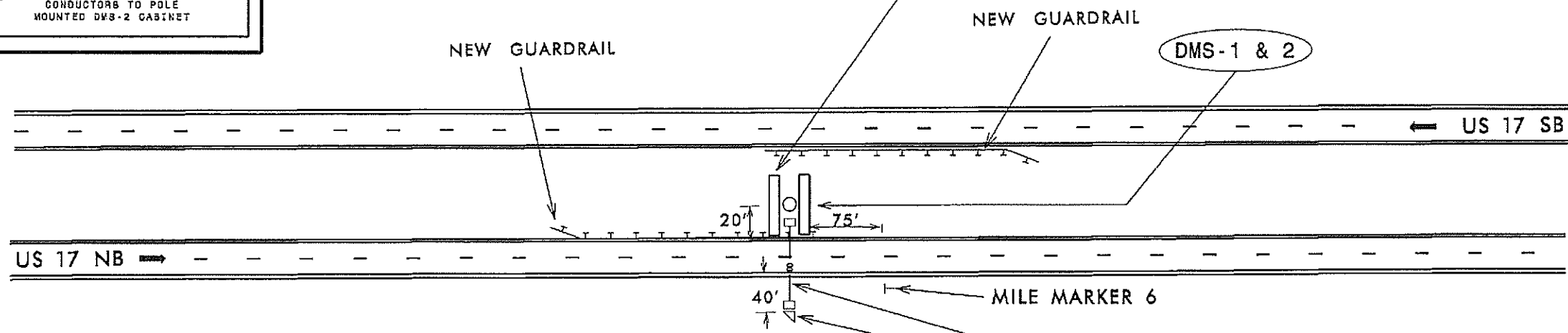
DMS-1 & 2 GPS COORDINATES

33° 56.628 N
78° 31.205 W



INSTALL THE FOLLOWING

QUANTITY	DESCRIPTION
2	DMS
1	STRUCTURE
1	FOUNDATION
1	LADDER
1	25KVA SINGLE PHASE TRANSFORMER
1	EQUIPMENT CABINET DISCONNECT ON DMS STRUCTURE
10'	4-WIRE COPPER FEEDER CONDUCTORS
3	5/8" x 10' COPPER CLAD GROUNDING ELECTRODE
30'	#4 AWG SOLID BARE COPPER GROUNDING CONDUCTOR



INSTALL THE FOLLOWING

QUANTITY	DESCRIPTION
1	METER BASE/DISCONNECT COMBINATION PANEL
1	6" X 6" WOOD PEDESTAL
100'	DIRECTIONAL DRILL (2)(1 1/2")
2	STANDARD SIZE JUNCTION BOX
110'	3-WIRE COPPER FEEDER CONDUCTORS
3	5/8" x 10' COPPER CLAD GROUNDING ELECTRODE
30'	#4 AWG SOLID BARE COPPER GROUNDING CONDUCTOR

THIS PLAN SET SUPERSEDES THE ORIGINAL PLAN SET SEALED BY GREGORY A. FULLER ON 9/15/2010

NOTES

- CONTACT JOHN JOHNSON (BRUNSWICK ELECTRIC) AT 910-604-3418 TO OBTAIN POWER TO ELECTRICAL SERVICE.
- INSTALL NEW DMSs (2), WALKWAY, AND LADDER ON NEW BACK-TO-BACK DMS STRUCTURE.
- INSTALL NEW DMS POLE MOUNTED CABINETS (2) ON NEW DMS STRUCTURE.
- COMMUNICATIONS EQUIPMENT WILL BE INSTALLED BY OTHERS.
- INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET ITS-9 AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.

Prepared in the Office of:

DMS INSTALLATION

DIVISION 03 BRUNSWICK CO. NEAR GALABASH

PLAN DATE: MAY 2013 REVIEWED BY: T.G. PARKER

PREPARED BY: G.A. GREEN REVIEWED BY:

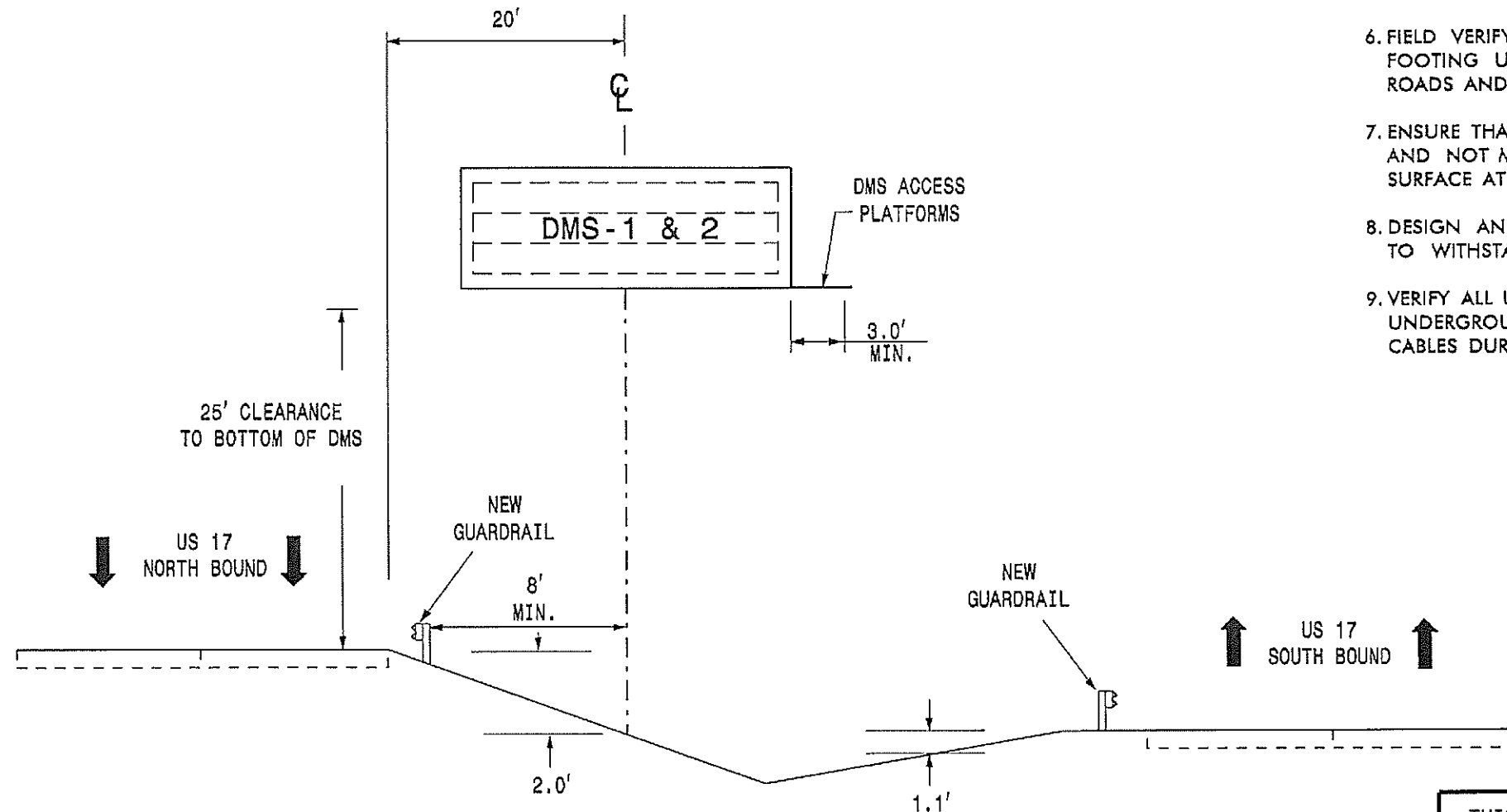
SCALE: N/A

REVISIONS: _____

INIT. DATE

5/31/13

ESTIMATED DIMENSION : 27' X 10' FOR EACH DMS
MAXIMUM DEADLOAD OF 5200 LBS FOR EACH DMS



NOTES

1. PROVIDE A FIXED LADDER LEADING TO THE ACCESS PLATFORMS FOR BOTH DMSs AS INDICATED IN THE PROJECT SPECIAL PROVISIONS.
2. DESIGN THE STRUCTURE TO ACCOMMODATE THE INSTALLATION OF TWO (2) DMSs. EACH DMS HAS ESTIMATED DIMENSIONS OF 27' X 10' WITH A DEAD LOAD OF 5200 LBS.
3. 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.
4. INSTALL A CONCRETE LANDING PAD MEASURING A MINIMUM 4 INCHES DEEP, 24 INCHES WIDE, AND 36 INCHES LONG DIRECTLY BENEATH THE LADDER.
5. USE ACTUAL DIMENSIONS AND WEIGHT OF THE DMS TO COMPLETE THE DESIGN OF THE DMS STRUCTURE.
6. FIELD VERIFY ALL FOOTING ELEVATIONS AND GROUND SLOPES AT THE FOOTING USING THE LATEST NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
7. 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.
8. DESIGN AND CONSTRUCT THE PEDESTAL STRUCTURE AND DMS ENCLOSURE TO WITHSTAND WIND VELOCITIES OF 130 MPH.
9. VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.

THIS PLAN SET SUPERSEDES THE ORIGINAL PLAN SET SEALED BY GREGORY A. FULLER ON 9/15/2010

	DMS INSTALLATION		
	DIVISION 03 BRUNSWICK CO. NEAR CALABASH PLAN DATE: MAY 2013 REVIEWED BY: T.G. PARKER PREPARED BY: G.A. GREEN REVIEWED BY:	SCALE: N/A REVISIONS:	

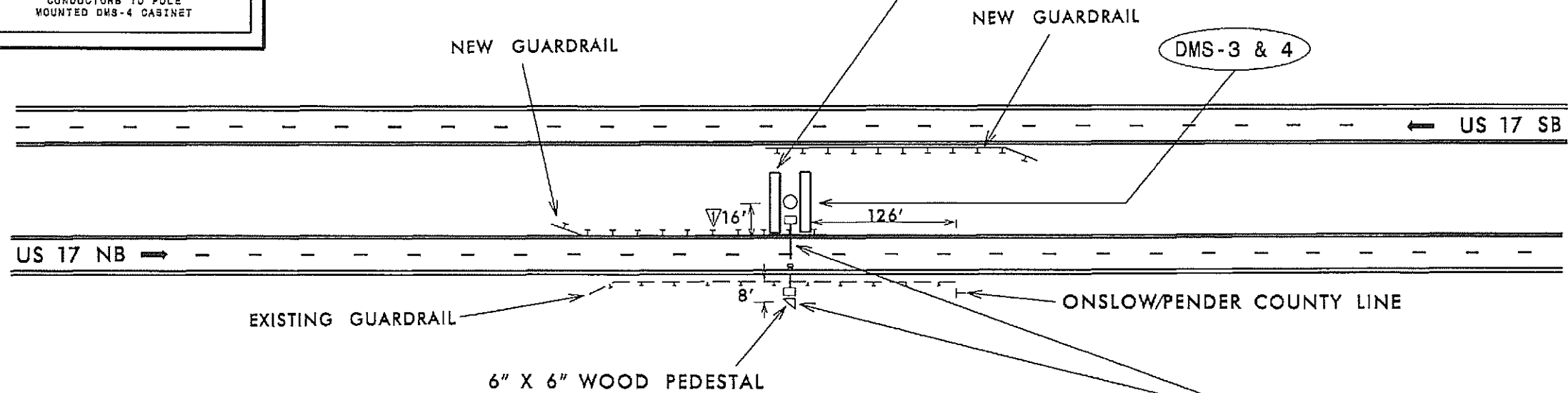
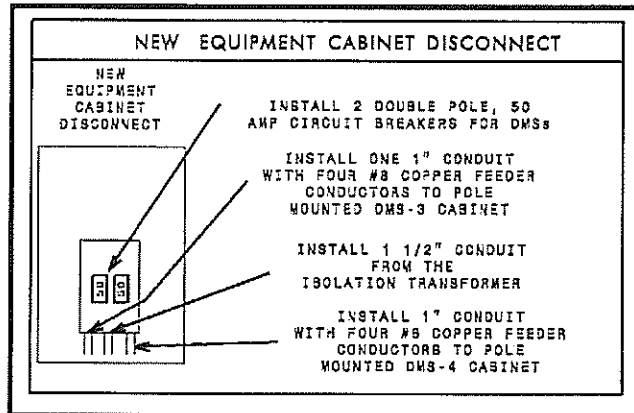
Prepared in the Office of
 178 N. Greenfield Blvd., Durham, NC 27718

Gregory A. Fuller 5-31-13

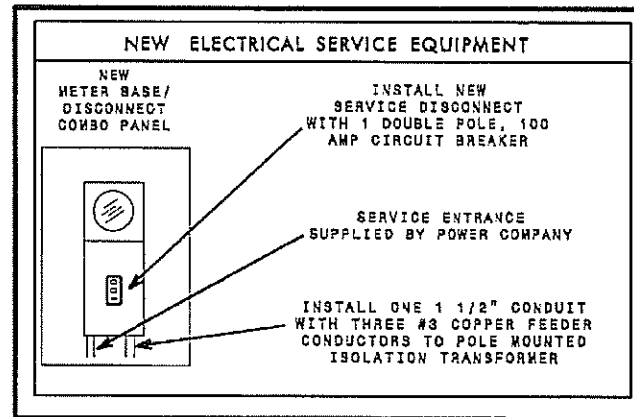
DMS-3 & 4 GPS COORDINATES

34° 28.573 N
77° 34.568 W

INSTALL THE FOLLOWING	
QUANTITY	DESCRIPTION
2	DMS
1	STRUCTURE
1	FOUNDATION
1	LADDER
1	25KVA SINGLE PHASE TRANSFORMER
1	EQUIPMENT CABINET DISCONNECT ON DMS STRUCTURE
10'	4-WIRE COPPER FEEDER CONDUCTORS
3	5/8" x 10' COPPER CLAD GROUNDING ELECTRODE
30'	#4 AWG SOLID BARE COPPER GROUNDING CONDUCTOR



INSTALL THE FOLLOWING	
QUANTITY	DESCRIPTION
1	METER BASE/DISCONNECT COMBINATION PANEL
1	6" X 6" WOOD PEDESTAL
70'	DIRECTIONAL DRILL (2)(1 1/2")
2	STANDARD SIZE JUNCTION BOX
80'	3-WIRE COPPER FEEDER CONDUCTORS
3	5/8" x 10' COPPER CLAD GROUNDING ELECTRODE
30'	#4 AWG SOLID BARE COPPER GROUNDING CONDUCTOR



THIS PLAN SET SUPERSEDES THE ORIGINAL PLAN SET
SEALED BY GREGORY A. FULLER ON 9/15/2010

NOTES

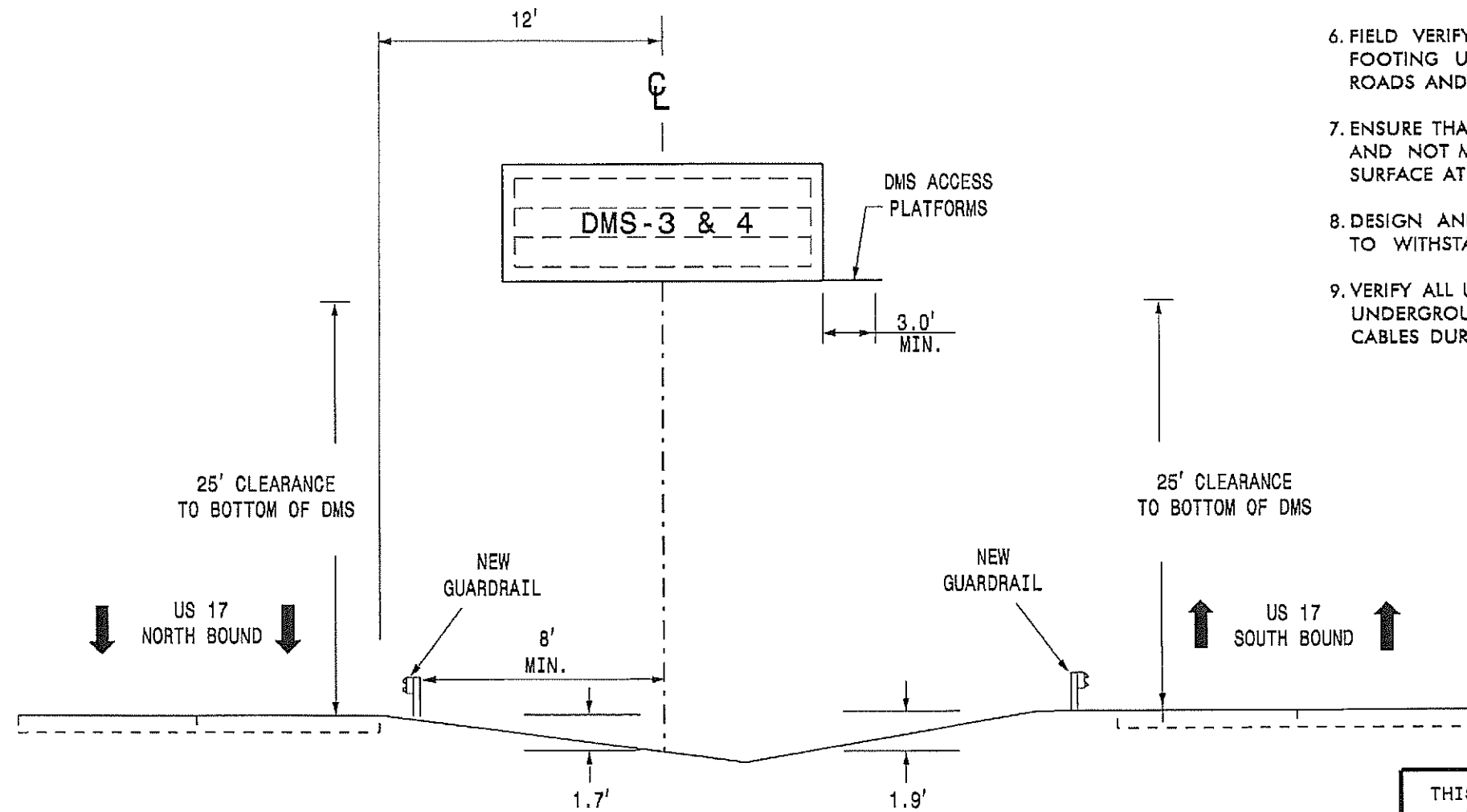
1. CONTACT ROBERT WALKER (PROGRESS ENERGY) AT 910-602-4326 TO OBTAIN POWER TO ELECTRICAL SERVICE.
2. INSTALL NEW DMSs (2), WALKWAY, AND LADDER ON NEW BACK-TO-BACK DMS STRUCTURE.
3. INSTALL NEW DMS POLE MOUNTED CABINETS (2) ON NEW DMS STRUCTURE.
4. COMMUNICATIONS EQUIPMENT WILL BE INSTALLED BY OTHERS.
5. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET ITS-9 AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.

	DMS INSTALLATION		<p>THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY GREGORY A. FULLER 023919 ON 5-31-13</p>
	DIVISION 03 PENDER CO. HOLLY RIDGE PLAN DATE: MAY 2013 REVIEWED BY: T.G. PARKER PREPARED BY: G.A. GREEN REVIEWED BY:	REVISORS REVISIONS REVISIONS REVISIONS	
259 N. Grandfield Place, Greensboro, NC 27120 SCALE: 0 1/4" = 1'-0" V/A	REVISIONS REVISIONS REVISIONS REVISIONS		SIGNATURE DATE

ESTIMATED DIMENSION : 27' X 10' FOR EACH DMS
 MAXIMUM DEADLOAD OF 5200 LBS FOR EACH DMS

NOTES

1. PROVIDE A FIXED LADDER LEADING TO THE ACCESS PLATFORMS FOR BOTH DMSs AS INDICATED IN THE PROJECT SPECIAL PROVISIONS.
2. DESIGN THE STRUCTURE TO ACCOMMODATE THE INSTALLATION OF TWO (2) DMSs. EACH DMS HAS ESTIMATED DIMENSIONS OF 27' X 10' WITH A DEAD LOAD OF 5200 LBS.
3. 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.
4. INSTALL A CONCRETE LANDING PAD MEASURING A MINIMUM 4 INCHES DEEP, 24 INCHES WIDE, AND 36 INCHES LONG DIRECTLY BENEATH THE LADDER.
5. USE ACTUAL DIMENSIONS AND WEIGHT OF THE DMS TO COMPLETE THE DESIGN OF THE DMS STRUCTURE.
6. FIELD VERIFY ALL FOOTING ELEVATIONS AND GROUND SLOPES AT THE FOOTING USING THE LATEST NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
7. 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.
8. DESIGN AND CONSTRUCT THE PEDESTAL STRUCTURE AND DMS ENCLOSURE TO WITHSTAND WIND VELOCITIES OF 130 MPH.
9. VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.



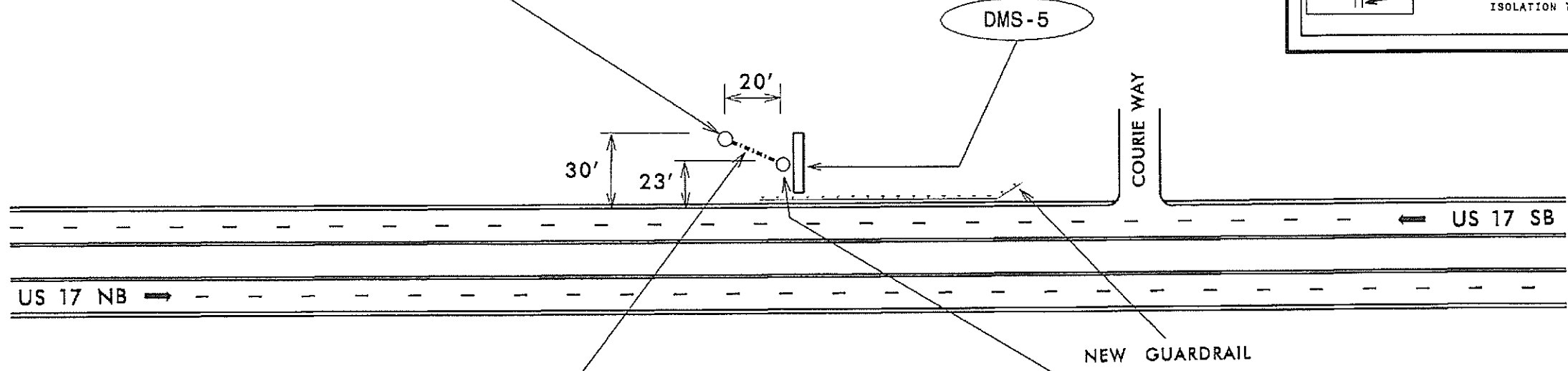
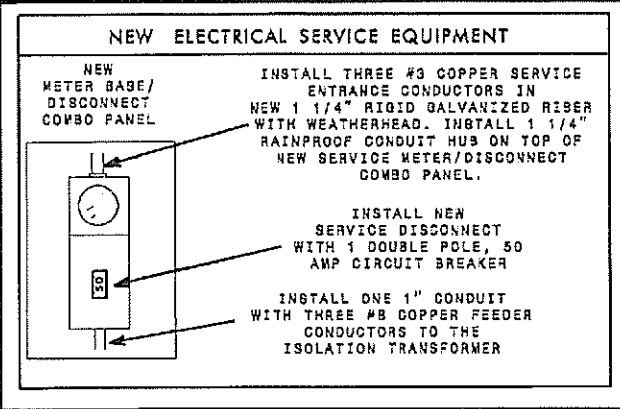
THIS PLAN SET SUPERSEDES THE ORIGINAL PLAN SET SEALED BY GREGORY A. FULLER ON 9/15/2010

	DMS INSTALLATION		
	DIVISION 03 PENDER CO. HOLLY RIDGE PLAN DATE: MAY 2013 REVIEWED BY: T.G. PARKER PREPARED BY: G.A. GREEN REVIEWED BY:	SCALE: _____ REVISIONS: _____ DATE: _____	
Prepared in the Office of 128 N. Greenfield Street, Durham, NC 27704			SEAL PROFESSIONAL ENGINEER GREGORY A. FULLER 5-31-13

DMS-5 GPS COORDINATES

34° 40.643 N
 77° 28.206 W

INSTALL THE FOLLOWING	
QUANTITY	DESCRIPTION
1	30' WOOD POLE
1	METER BASE/DISCONNECT COMBINATION PANEL
15'	1 1/4" RISER WITH WEATHERHEAD (POWER SERVICE)
20'	3-WIRE COPPER SERVICE ENTRANCE CONDUCTORS
3	5/8" x 10' COPPER CLAD GROUNDING ELECTRODE
30'	#4 AWG SOLID BARE COPPER GROUNDING CONDUCTOR



INSTALL THE FOLLOWING	
QUANTITY	DESCRIPTION
20'	UNPAVED TRENCHING (1)(1")
30'	3-WIRE COPPER FEEDER CONDUCTORS

INSTALL THE FOLLOWING	
QUANTITY	DESCRIPTION
1	DMS
1	STRUCTURE
1	FOUNDATION
1	LADDER
1	10KVA SINGLE PHASE TRANSFORMER
5'	4-WIRE COPPER FEEDER CONDUCTORS

THIS PLAN SET SUPERSEDES THE ORIGINAL PLAN SET SEALED BY GREGORY A. FULLER ON 9/15/2010

NOTES

- CONTACT KEN JONES (JONES-ONSLOW ELECTRIC) AT 910-389-6306 TO OBTAIN POWER TO ELECTRICAL SERVICE.
- INSTALL NEW DMS ON NEW DMS STRUCTURE.
- INSTALL NEW DMS POLE MOUNTED CABINET ON NEW DMS STRUCTURE.
- COMMUNICATIONS EQUIPMENT WILL BE INSTALLED BY OTHERS.
- INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET ITS-10 AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.

DMS INSTALLATION

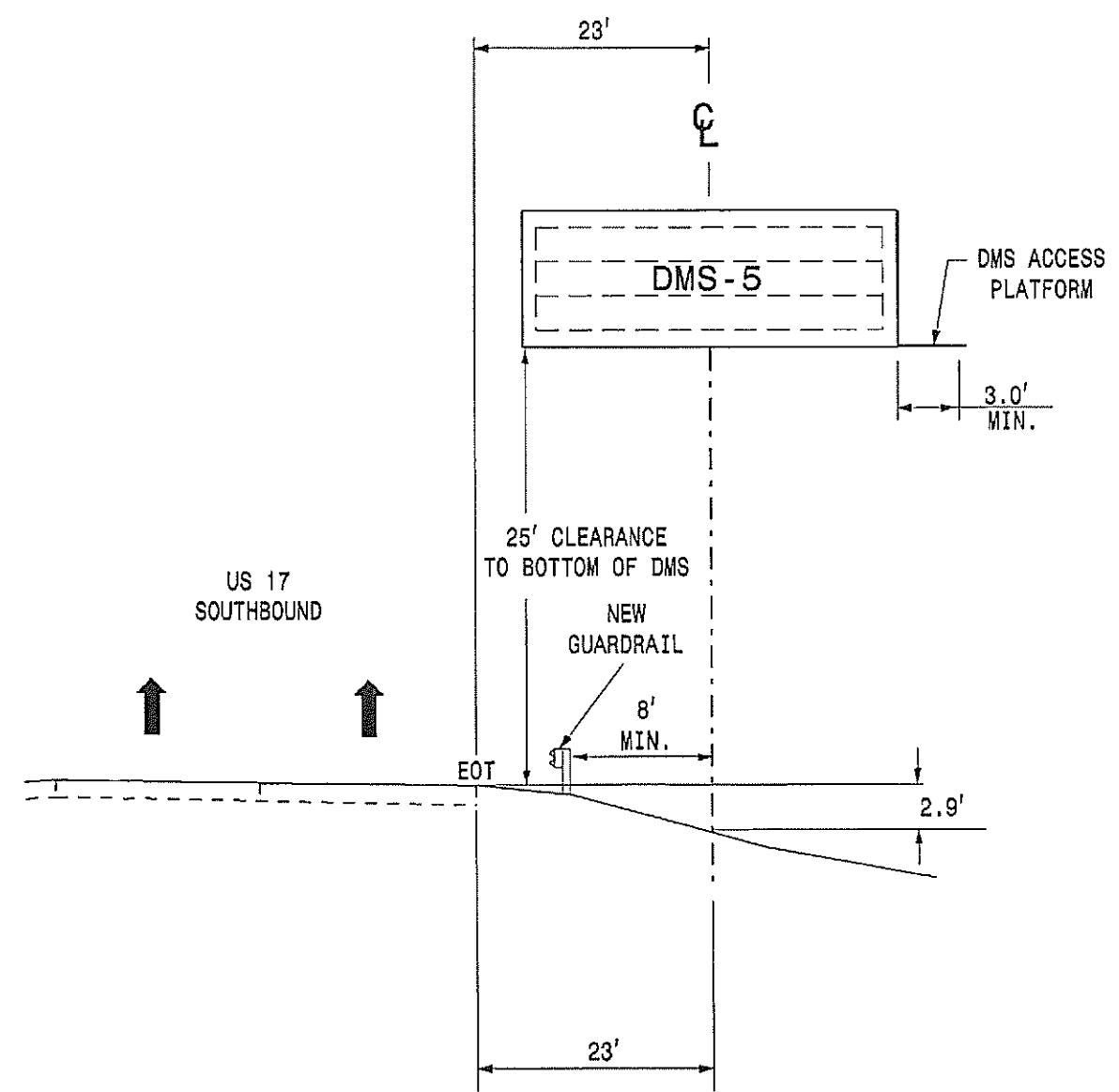
DIVISION 03 ONSLOW CO. S. OF JACKSONVILLE

PLAN DATE: MAY 2013 REVIEWED BY: T.G. PARKER

PREPARED BY: G.A. GREEN REVIEWED BY:

5-31-13

ESTIMATED DIMENSION : 27' X 10'
 MAXIMUM DEADLOAD OF 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 130 MPH.
8. VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.

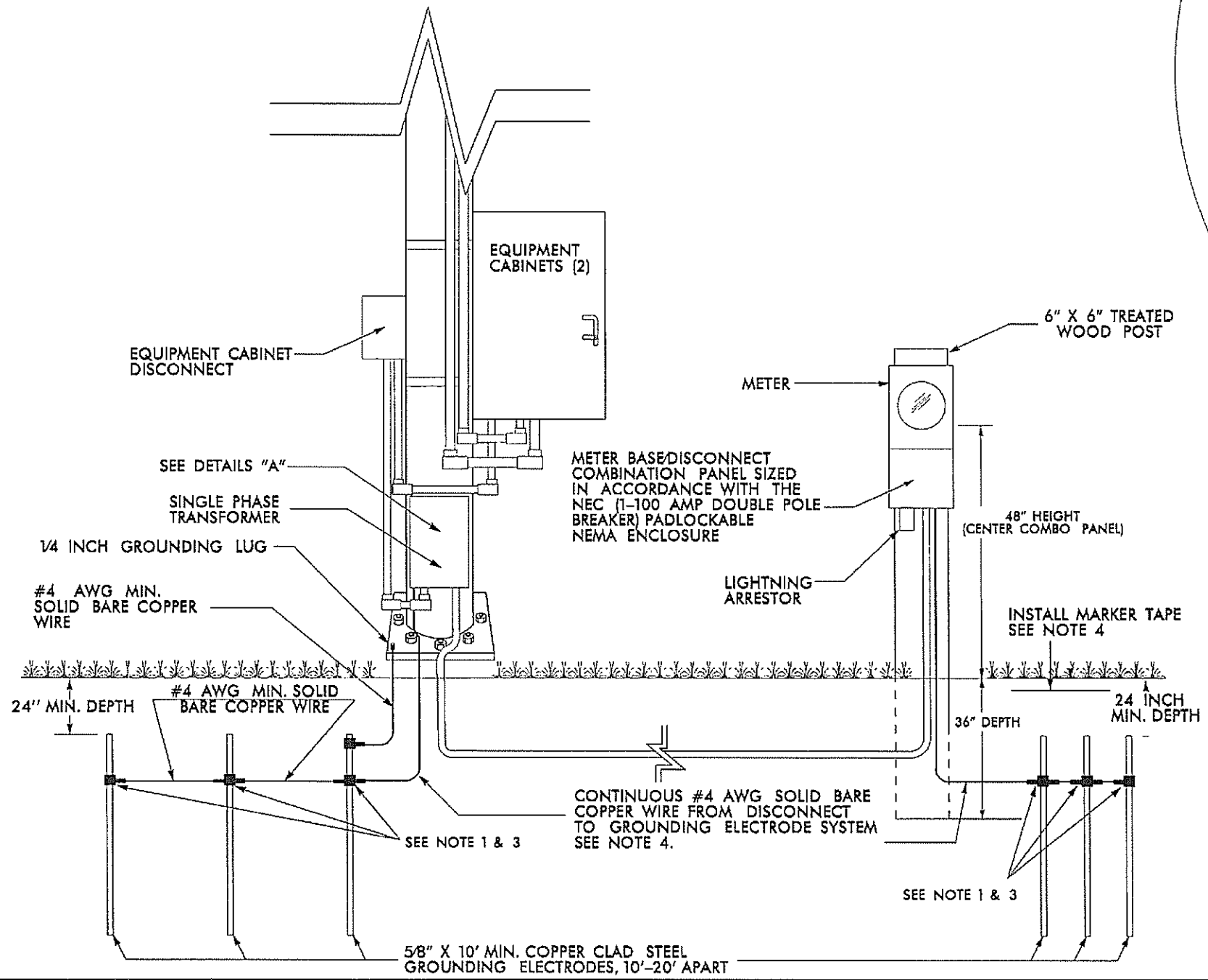
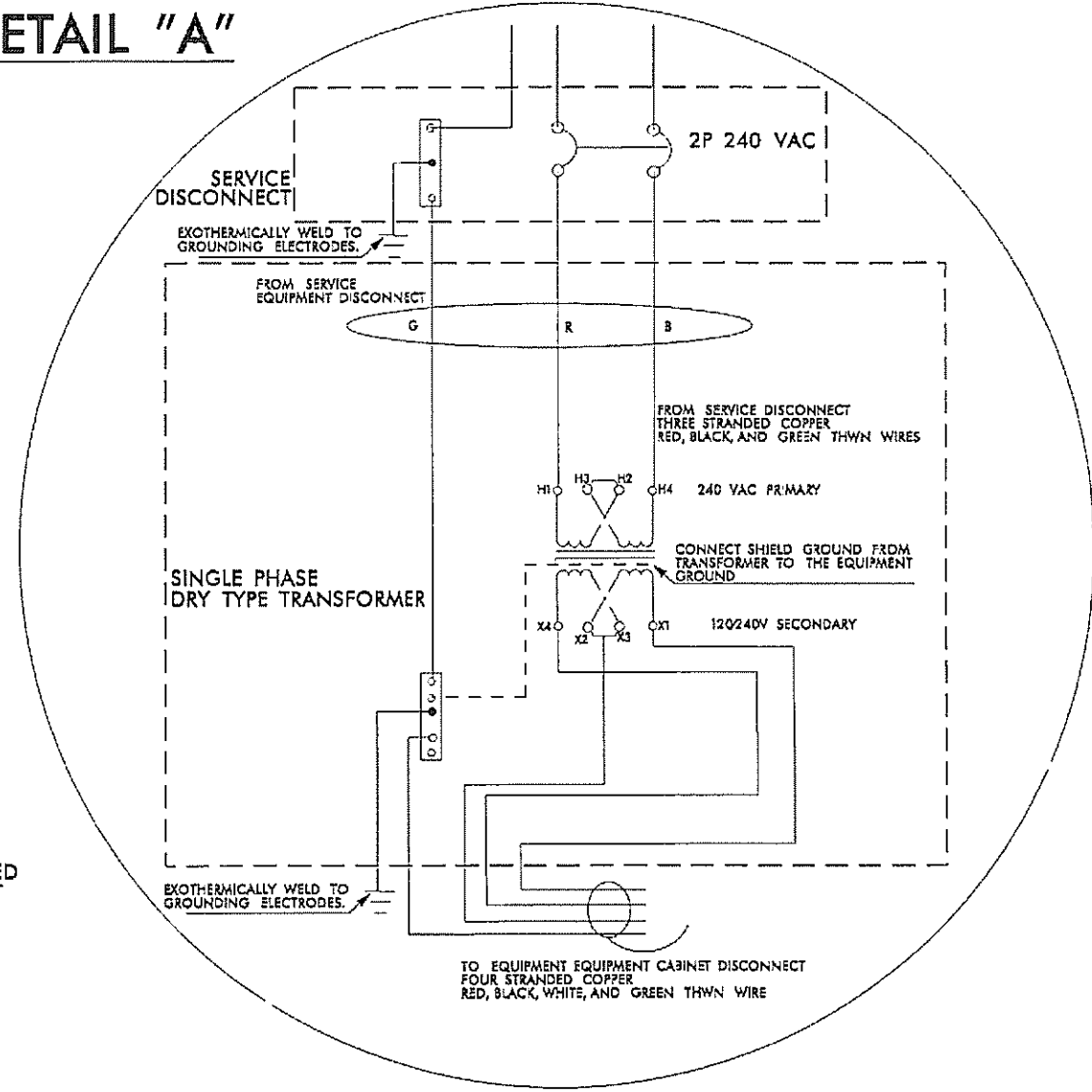
THIS PLAN SET SUPERSEDES THE ORIGINAL PLAN SET SEALED BY GREGORY A. FULLER ON 9/15/2010

	DMS INSTALLATION		
	DIVISION 03 ONSLOW CO. S. OF JACKSONVILLE PLAN DATE: MAY 2013 REVIEWED BY: T.G. PARKER PREPARED BY: G.A. GREEN REVIEWED BY:		
SCALE 0 N/A	REVISIONS _____ _____ _____	INET. DATE _____ _____ _____	DATE 5-31-13

NOTES

1. INSTALL A MINIMUM OF THREE GROUND RODS 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 SHALL MEASURE TWENTY (20) OHMS OR LESS. ADDITIONAL GROUND RODS 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, TRANSFORMER, AND CABINET.
8. ENSURE EQUIPMENT GROUND IS ELECTRICALLY BONDED TO EQUIPMENT CABINET.
9. CONNECTIONS TO ISOLATION TRANSFORMER AS SHOWN IN DETAIL "A" ARE GENERIC.

DETAIL "A"



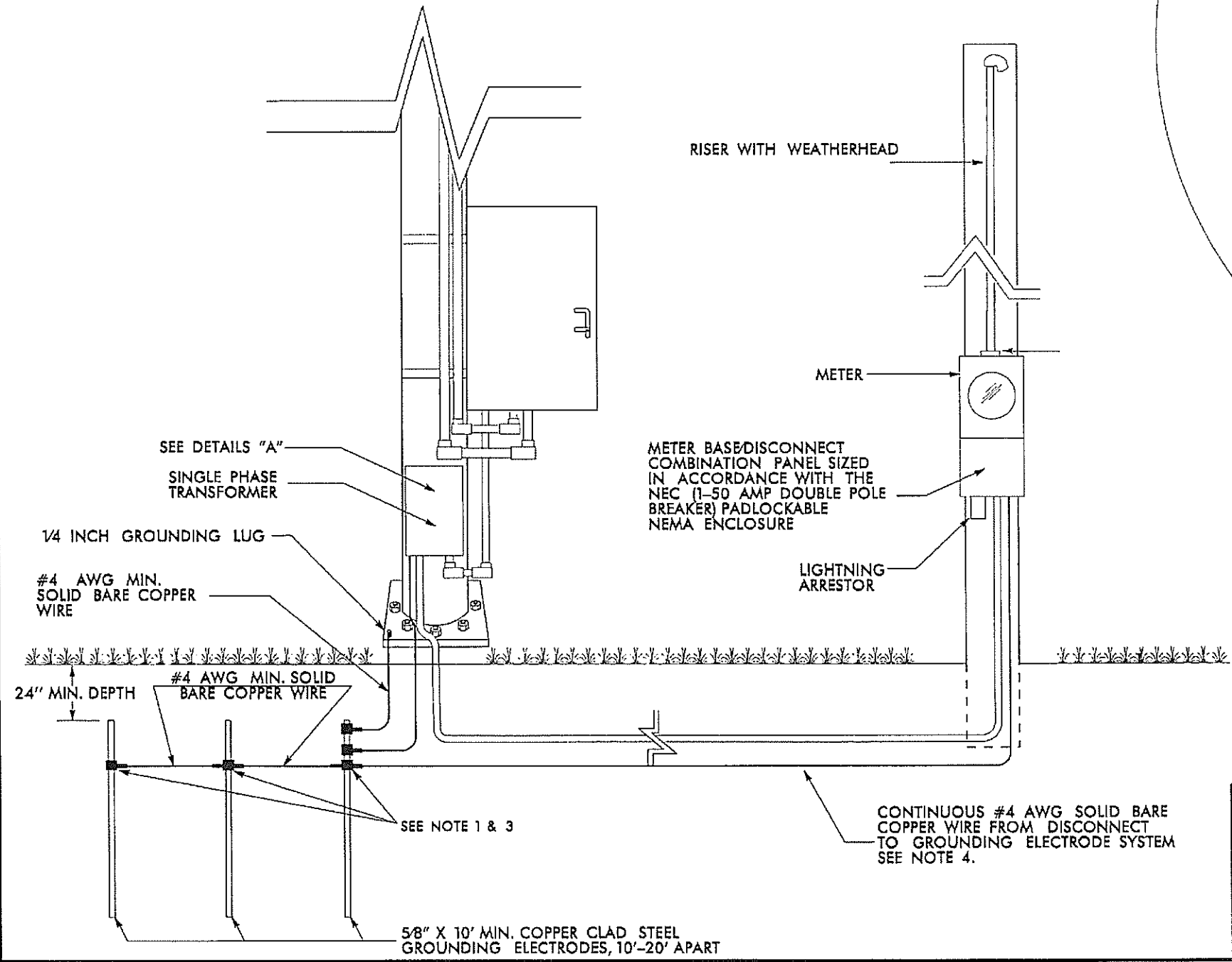
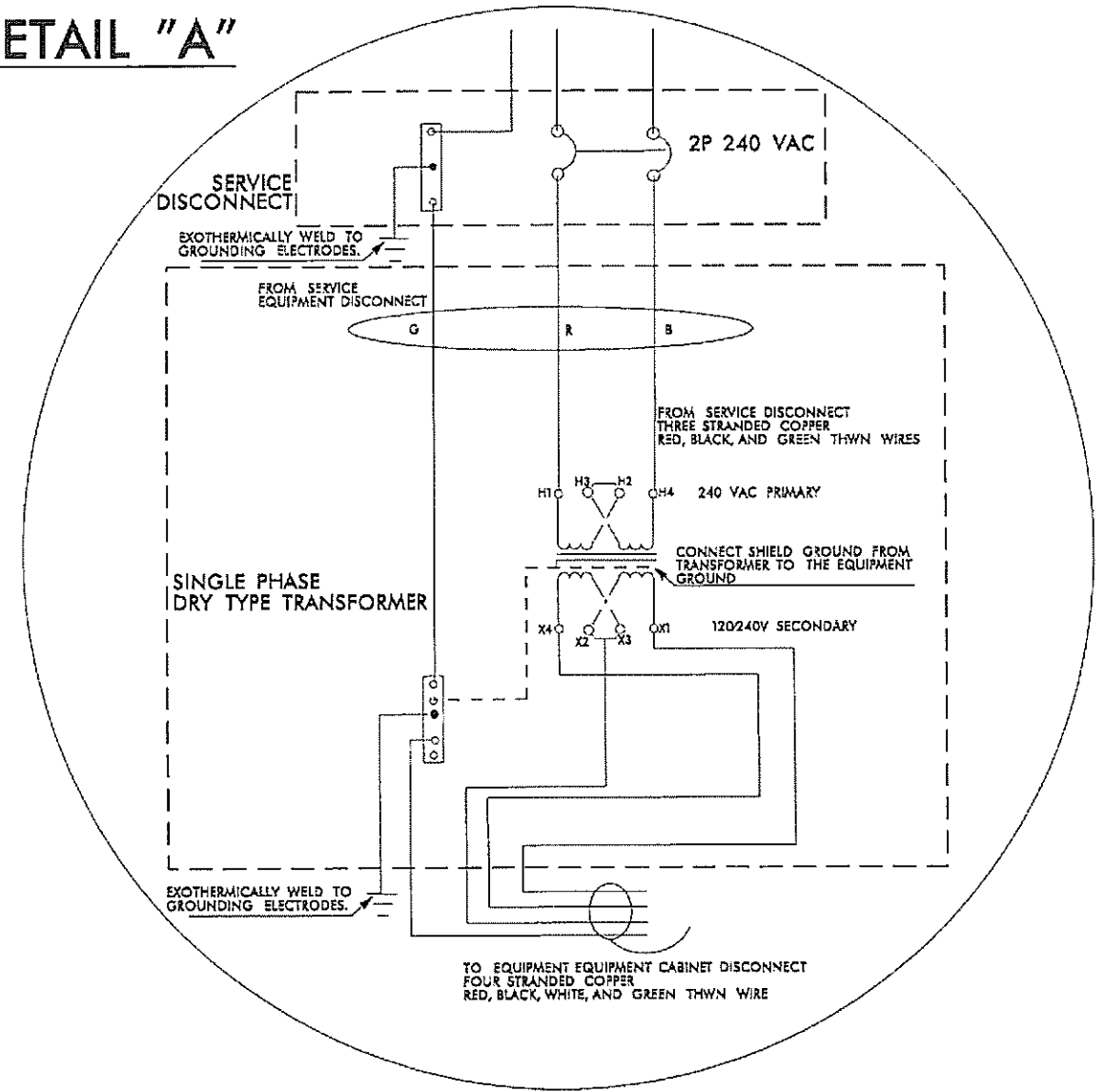
THIS PLAN SET SUPERSEDES THE ORIGINAL PLAN SET SEALED BY GREGORY A. FULLER ON 9/15/2010

	<p>DYNAMIC MESSAGE SIGNS 1 & 2 AND 3 & 4 NEW ELECTRICAL SERVICE AND GROUNDING DETAIL WITH ISOLATION TRANSFORMER</p>		<p>SEAL GREGORY A. FULLER PROFESSIONAL ENGINEER NORTH CAROLINA LICENSE NO. 023919</p>
	<p>PLAN DATE: MAY 2013 PREPARED BY: G.A. GREEN</p>	<p>REVIEWED BY: T.G. PARKER REVIEWED BY:</p>	
<p>128 N. Orangefield Street, Orange, NC 27529</p>		<p>SCALE: 0 1/4"</p>	

NOTES

1. INSTALL A MINIMUM OF THREE GROUND RODS 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 SHALL MEASURE TWENTY (20) OHMS OR LESS. ADDITIONAL GROUND RODS 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, TRANSFORMER, AND CABINET.
8. ENSURE EQUIPMENT GROUND IS ELECTRICALLY BONDED TO EQUIPMENT CABINET.
9. CONNECTIONS TO ISOLATION TRANSFORMER AS SHOWN IN DETAIL "A" ARE GENERIC.

DETAIL "A"



THIS PLAN SET SUPERSEDES THE ORIGINAL PLAN SET SEALED BY GREGORY A. FULLER ON 8/15/2010

	<p>DYNAMIC MESSAGE SIGN 5 NEW ELECTRICAL SERVICE AND GROUNDING DETAIL WITH ISOLATION TRANSFORMER</p>	
	<p>PLAN DATE: MAY 2013 PREPARED BY: G.A. GREEN</p>	<p>REVIEWED BY: T.G. PARKER REVIEWED BY:</p>
<p>SCALE: N/A</p>	<p>REVISIONS:</p>	<p>INIT. DATE</p>
<p>DATE: 5-31-13</p>		<p>DATE</p>