

TIP: SS-4913CX

CONTRACT: 11896965

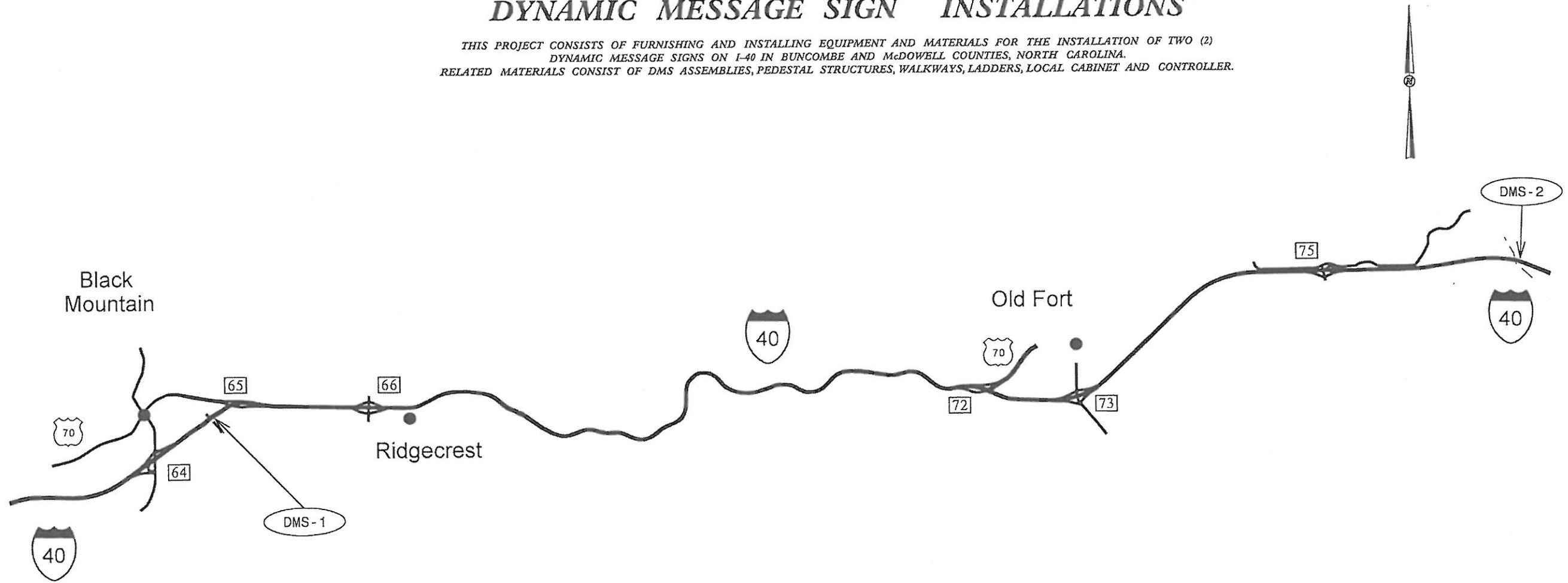
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.
N.C.	SS-4913CX	ITS-1
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
48293.1.1	HSIP-0040(080)	PE
48293.3.1	NA	CONST

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE & McDOWELL COUNTIES



**PLANS FOR PROPOSED
DYNAMIC MESSAGE SIGN INSTALLATIONS**

THIS PROJECT CONSISTS OF FURNISHING AND INSTALLING EQUIPMENT AND MATERIALS FOR THE INSTALLATION OF TWO (2) DYNAMIC MESSAGE SIGNS ON I-40 IN BUNCOMBE AND McDOWELL COUNTIES, NORTH CAROLINA. RELATED MATERIALS CONSIST OF DMS ASSEMBLIES, PEDESTAL STRUCTURES, WALKWAYS, LADDERS, LOCAL CABINET AND CONTROLLER.



THIS PLAN SET SUPERSEDES THE PLAN SET ORIGINALLY SEALED BY PAUL P. MARAK ON 7/3/18

2018 STANDARD SPECIFICATION

<p>NGDOT CONTACT: TRANSPORTATION MOBILITY AND SAFETY</p> <p>MEREDITH McDIARMID, P.E. STATE ITS & SIGNALS ENGINEER</p>	<p>Prepared in the Office of:</p>  <p>750 N. Greenfield Place, Garner, NC 27529</p>	<p>ENGLISH</p> <p>ALL DIMENSIONS IN THESE PLANS ARE IN FEET UNLESS OTHERWISE NOTED</p>	<p>SEAL</p>  <p>DocuSign</p> <p>Meredith McDiarmid / 6/2019</p> <p>5D988540DB0495...</p>
---	--	--	---

INDEX OF SHEETS

- SHEET 1.....TITLE SHEET
- SHEET 2.....INDEX OF SHEETS, ROADWAY STANDARD DRAWINGS, AND LEGEND
- SHEET 3-6.....PLAN SHEETS
- SHEET 7.....TYPICAL DETAILS

ROADWAY STANDARD DRAWINGS

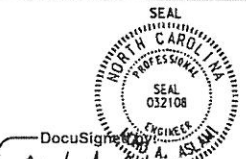

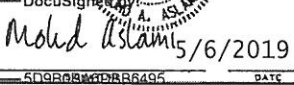
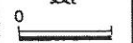
THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS". ROADWAY DESIGN UNIT – N.C. DEPARTMENT OF TRANSPORTATION – RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

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

LEGEND

- - - - -	NEW CONDUIT
— — — — —	NEW GUARDRAIL
- - - - -	EXISTING GUARDRAIL
▲	EXISTING ELECTRICAL SERVICE
○	NEW DMS PEDESTAL STRUCTURE

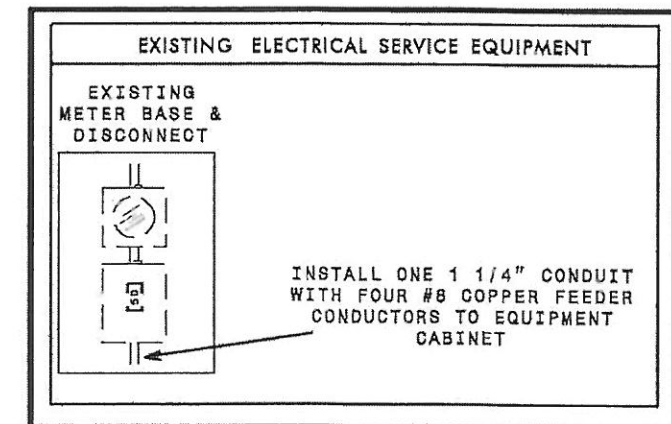
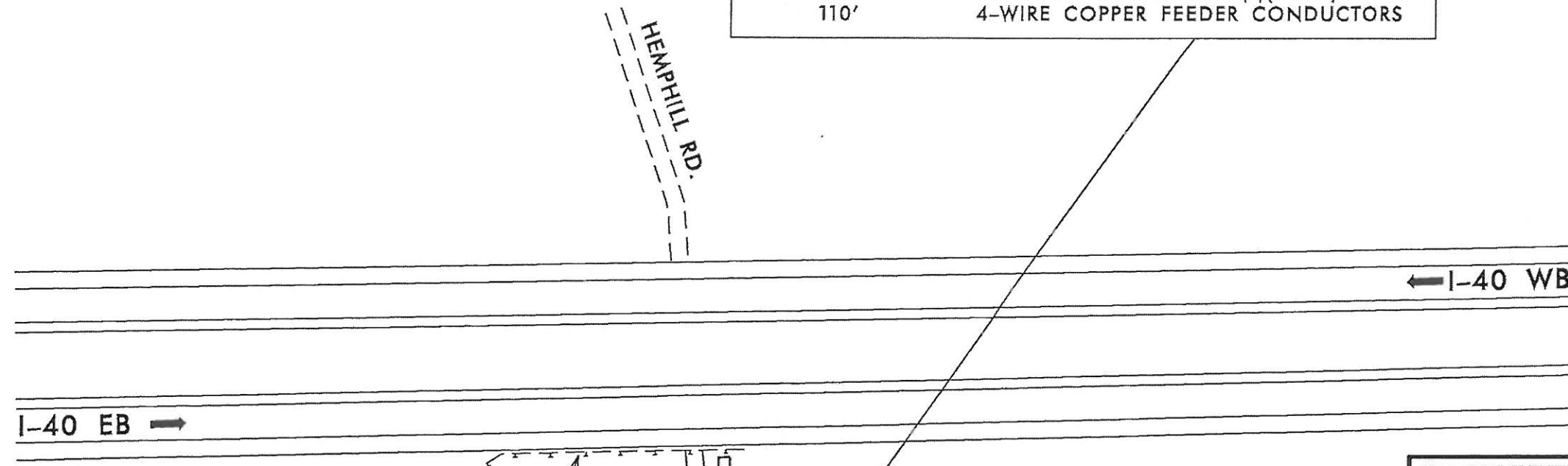
THIS PLAN SET SUPERSEDES THE PLAN SET ORIGINALLY SEALED BY PAUL P. MARAK ON 7/3/18

	INDEX OF SHEETS, ROADWAY STANDARD DRAWINGS, AND LEGEND													
Prepared in the Office of:  250 N. Greenfield Place, Raleigh, NC 27619	PLAN DATE: MAY 2019 REVIEWED BY: A. J. SKUCE PREPARED BY: GREEN REVIEWED BY: I. H. AVERY	DocuSign  5/6/2019 CAD File: ncr												
SCALE  N/A	REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">NO.</th> <th style="width: 75%;">DESCRIPTION</th> <th style="width: 20%;">DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DESCRIPTION	DATE										DATE
NO.	DESCRIPTION	DATE												

DMS-1 GPS COORDINATES

35° 37.036 N
82° 18.629 W

INSTALL THE FOLLOWING	
QUANTITY	DESCRIPTION
100'	UNPAVED TRENCHING (1)(1 1/4")
110'	4-WIRE COPPER FEEDER CONDUCTORS



INSTALL THE FOLLOWING	
QUANTITY	DESCRIPTION
1	DMS STRUCTURE
1	FOUNDATION
1	LADDER
1	5/8" x 10' COPPER CLAD GROUNDING ELECTRODE
10'	#4 AWG SOLID BARE COPPER GROUNDING CONDUCTOR

THIS PLAN SET SUPERSEDES THE PLAN SET ORIGINALLY SEALED BY PAUL P. MARAK ON 7/3/18

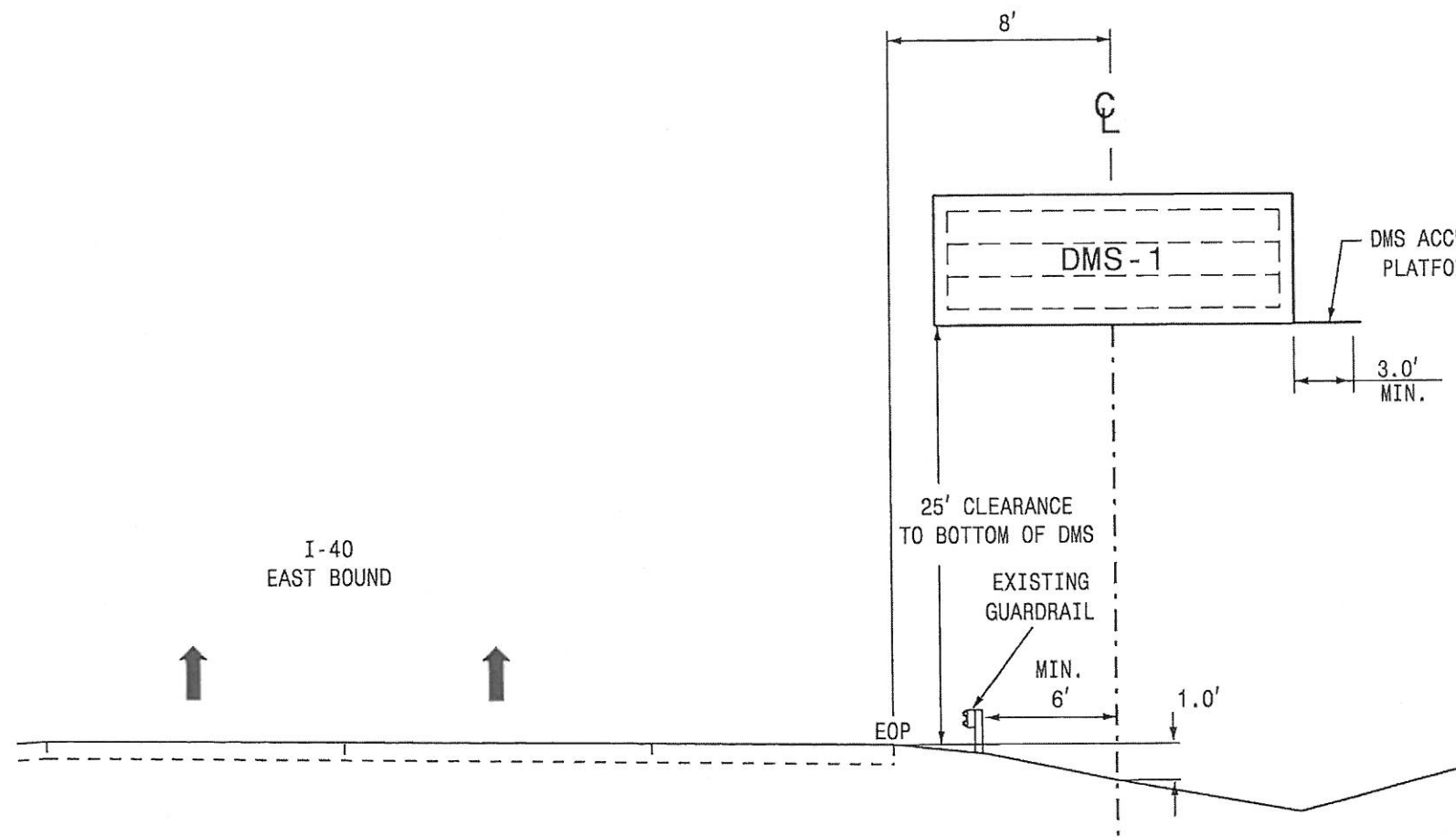
NEAR MM 65

NOTES

1. DMS LOCATION TO BE STAKED AND APPROVED BY THE DIVISION TRAFFIC ENGINEER BEFORE FOUNDATION IS INSTALLED.
2. INSTALL NEW DMS, WALKWAY, AND LADDER ON NEW DMS STRUCTURE.
3. INSTALL NEW DMS POLE MOUNTED CABINET ON NEW DMS STRUCTURE.
4. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET ITS-7 AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.

	DMS INSTALLATION		
	DIVISION 19 BUNCOMBE CO. NEAR BLACK MOUNTAIN PLAK DATE: MAY 2019 PREPARED BY: GREEN REVISIONS:	REVIEWED BY: A. J. SKUCE REVIEWED BY: I. N. AVERY INIT. DATE:	
SCALE: 0 N/A 	5000066006495...		DATE:



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 90 MPH.
8. VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.

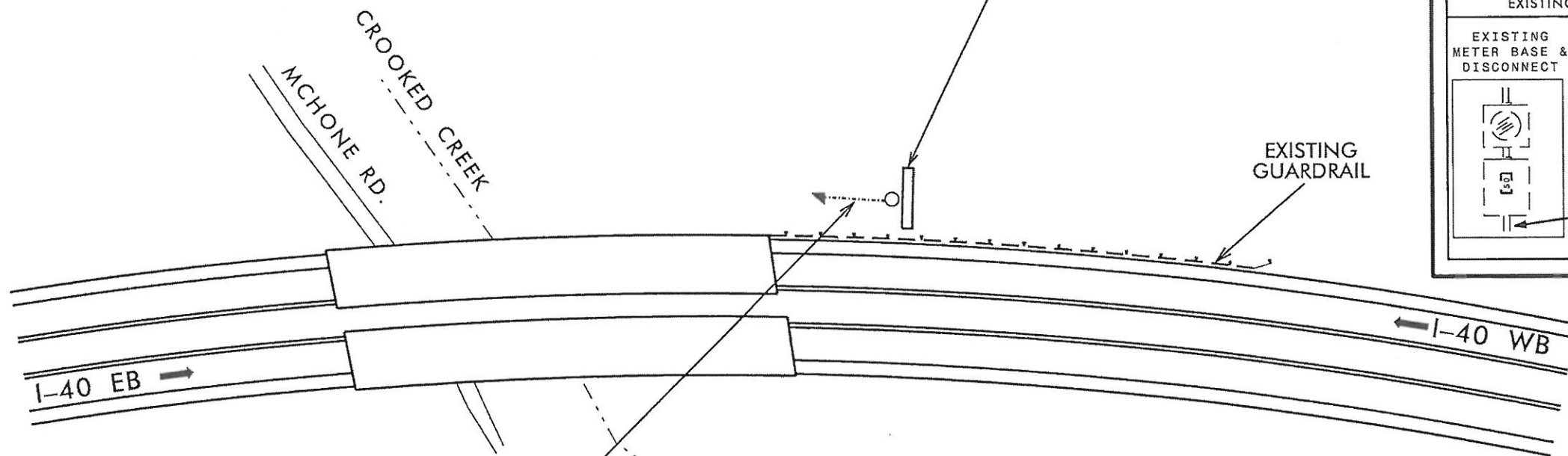
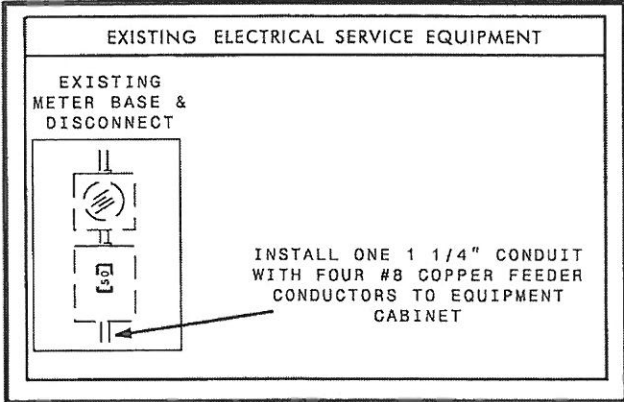
THIS PLAN SET SUPERSEDES THE PLAN SET ORIGINALLY SEALED BY PAUL P. MARAK ON 7/3/18

 Prepared in the Office of: Mobility and Safety NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 750 N. Greenfield Pkwy., Greensboro, NC 27409	DMS INSTALLATION		 DocuSign M. A. ISMAIL 5/6/2019
	DIVISION 13 BUNCOMBE CO. NEAR BLACK MOUNTAIN PLAN DATE: MAY 2019 REVIEWED BY: A. J. SKUCE PREPARED BY: GREEN REVIEWED BY: I. N. AVERY		
SCALE 0 N/A	REVISIONS _____ _____ _____	INIT. DATE _____ _____ _____	DATE _____ _____ _____

DMS-2 GPS COORDINATES

35° 38.428 N
82° 06.794 W

INSTALL THE FOLLOWING	
QUANTITY	DESCRIPTION
1	DMS
1	STRUCTURE
1	FOUNDATION
1	LADDER
1	5/8" x 10' COPPER CLAD GROUNDING ELECTRODE
10'	#4 AWG SOLID BARE COPPER GROUNDING CONDUCTOR



INSTALL THE FOLLOWING	
QUANTITY	DESCRIPTION
20'	UNPAVED TRENCHING (1)(1 1/4")
30'	4-WIRE COPPER FEEDER CONDUCTORS

THIS PLAN SET SUPERSEDES THE PLAN SET ORIGINALLY SEALED BY PAUL P. MARAK ON 7/3/18

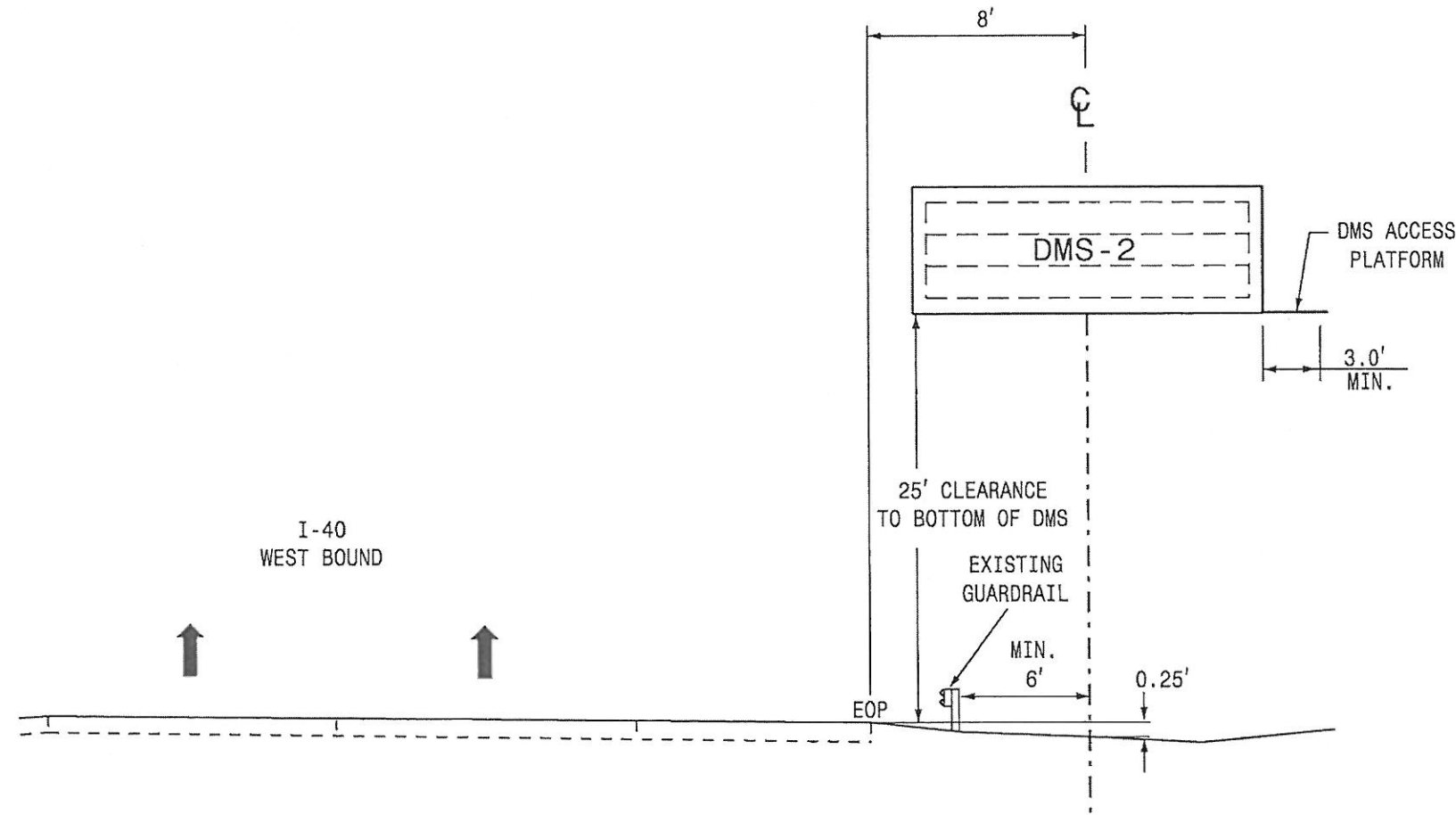
NEAR MM 77

NOTES

1. DMS LOCATION TO BE STAKED AND APPROVED BY THE DIVISION TRAFFIC ENGINEER BEFORE FOUNDATION IS INSTALLED.
2. INSTALL NEW DMS, WALKWAY, AND LADDER ON NEW DMS STRUCTURE.
3. INSTALL NEW DMS POLE MOUNTED CABINET ON NEW DMS STRUCTURE.
4. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET ITS-7 AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.

	DMS INSTALLATION		
	DIVISION 13 VCDOWELL CO. NEAR OLD FORT PLAN DATE: MAY 2019 REVIEWED BY: A. J. SKUCE PREPARED BY: GREEN REVIEWED BY: I. N. AVERY	REVISIONS INIT. DATE	
Prepared in the Office of: 	SCALE 0' = 1" / 1/4"		DocuSigned by: Mohamed Alslami 5/6/2019

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



NOTES

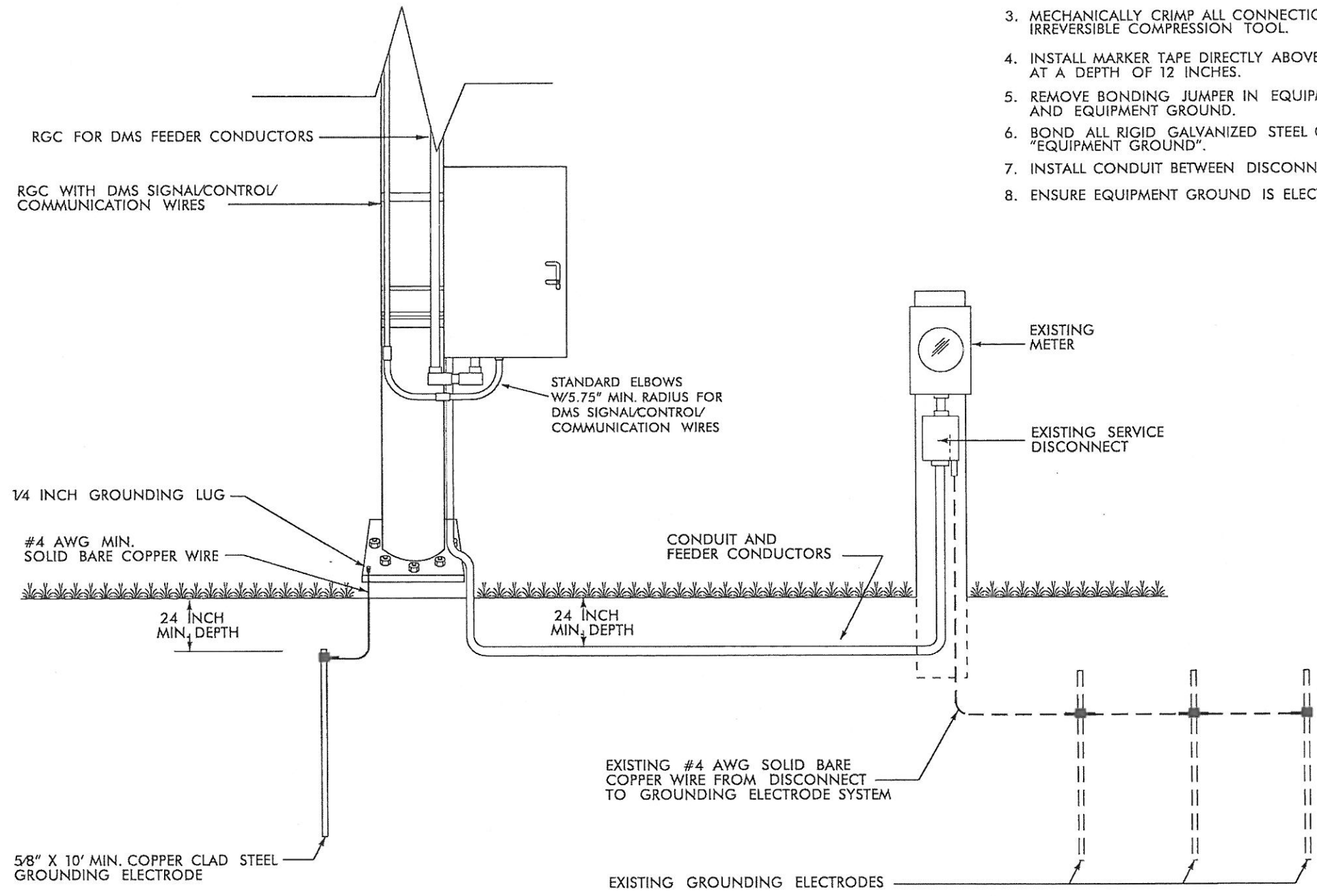
1. PROVIDE A FIXED LADDER LEADING TO THE ACCESS PLATFORM.
2. EQUIP THE LADDER WITH A SECURITY COVER (LADDER GUARD). START THE FIRST LADDER RUNG NO MORE THAN 18 INCHES ABOVE A CONCRETE LANDING PAD. DESIGN RUNGS ON 12 INCH CENTER-TO-CENTER TYPICAL SPACING.
3. INSTALL A CONCRETE LANDING PAD MEASURING A 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 90 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 PLAN SET ORIGINALLY SEALED BY PAUL P. MARAK ON 7/3/18

	DMS INSTALLATION										
	DIVISION 13 McDowell Co. HEAR OLD FORT PLAN DATE: MAY 2019 REVIEWED BY: A. J. SKUCE PREPARED BY: GREEN REVIEWED BY: I. N. AVERY	<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		REVISIONS	INIT.	DATE					
REVISIONS	INIT.	DATE									
Prepared in the Office of: 750 N. Greenfield Pkwy., Garner, NC 27524 SCALE: N/A	DATE: 5/6/2019 50988480856495										

NOTES

1. INSTALL A MINIMUM OF ONE (1) GROUNDING ELECTRODE. 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. MECHANICALLY CRIMP ALL CONNECTIONS TO GROUND RODS USING AN IRREVERSIBLE COMPRESSION TOOL.
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.



THIS PLAN SET SUPERSEDES THE PLAN SET ORIGINALLY SEALED BY PAUL P. MARAK ON 7/3/18

	<p>DMS EXISTING ELECTRICAL SERVICE AND GROUNDING DETAIL</p>		
	<p>PLAN DATE: MAY 2019 PREPARED BY: GREEN</p>	<p>REVIEWED BY: A. J. SKUCE REVIEWED BY: I. H. AVERY</p>	
<p>SCALE: N/A</p>		<p>DocuSign ID: 5098884980495...</p>	