

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

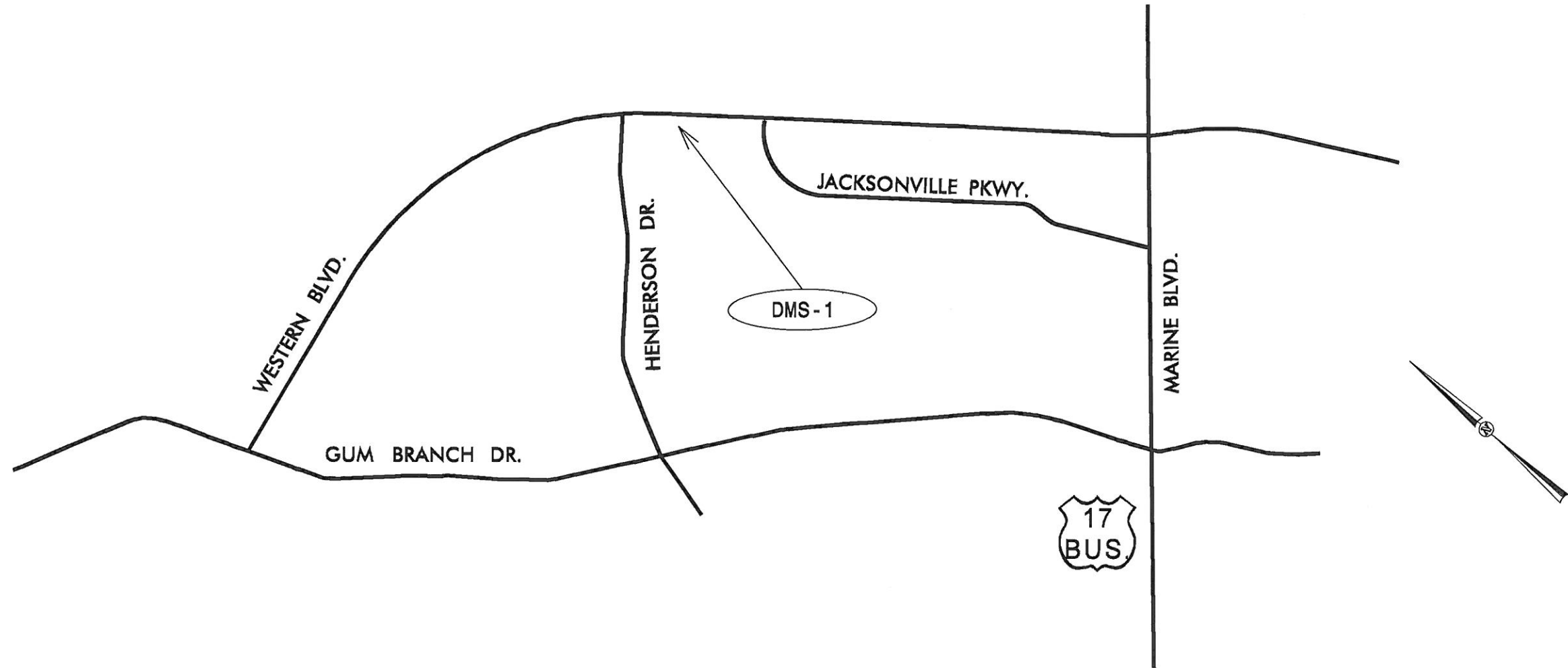
ONSLOW COUNTY

PLANS FOR PROPOSED
DYNAMIC MESSAGE SIGN INSTALLATION

THIS PROJECT CONSISTS OF FURNISHING AND INSTALLING EQUIPMENT AND MATERIALS FOR THE INSTALLATION OF ONE (1) DEPARTMENT FURNISHED DYNAMIC MESSAGE SIGN AND STRUCTURE IN ONSLOW COUNTY, NORTH CAROLINA. RELATED MATERIALS CONSIST OF FIBER OPTIC CABLE, AND CONDUIT.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.
N.C.	44484	ITS-1
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

WBS: 44484



2012 STANDARD SPECIFICATIONS

NGDOT CONTACT:
TRANSPORTATION MOBILITY AND SAFETY

G.A. FULLER, P.E.
STATE ITS & SIGNALS ENGINEER



ENGLISH

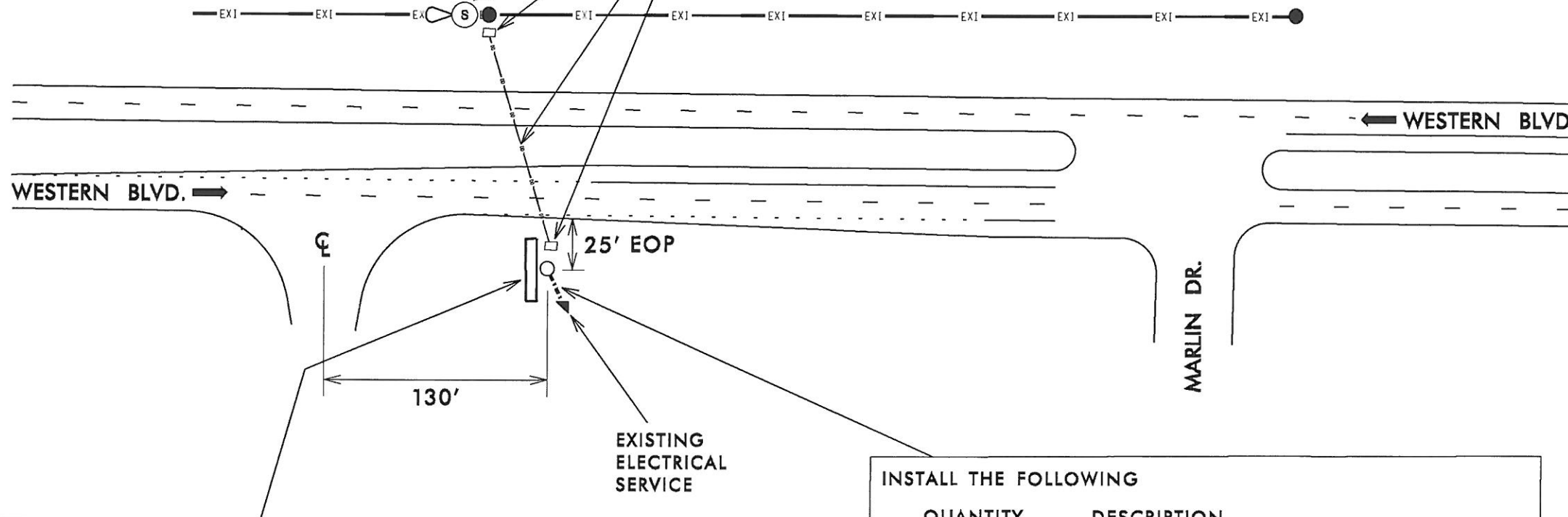
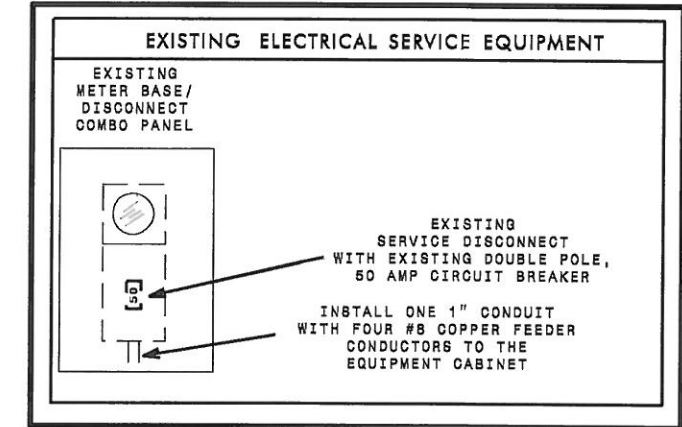
ALL DIMENSIONS IN THESE
PLANS ARE IN FEET
UNLESS OTHERWISE NOTED

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
023919
ENGINEER
GREGORY A. FULLER
Gregory A. Fuller 8/10/13
DATE

DMS-1 GPS COORDINATES

34° 47.678 N
77° 24.572 W

INSTALL THE FOLLOWING	
QUANTITY	DESCRIPTION
180'	DIRECTIONAL DRILL (2)(2")
180'	TRACER WIRE
2	OVERSIZED JUNCTION BOX
2	DELINEATOR MARKER
1	AERIAL SPLICE ENCLOSURE
1	2" RISER WITH HEAT SHRINK TUBING
370'	6-FIBER DROP CABLE



INSTALL THE FOLLOWING	
QUANTITY	DESCRIPTION
1	DEPARTMENT FURNISHED DMS
1	DEPARTMENT FURNISHED STRUCTURE
1	DEPARTMENT FURNISHED EQUIPMENT CABINET
1	FOUNDATION
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")
30'	4-WIRE COPPER FEEDER CONDUCTORS

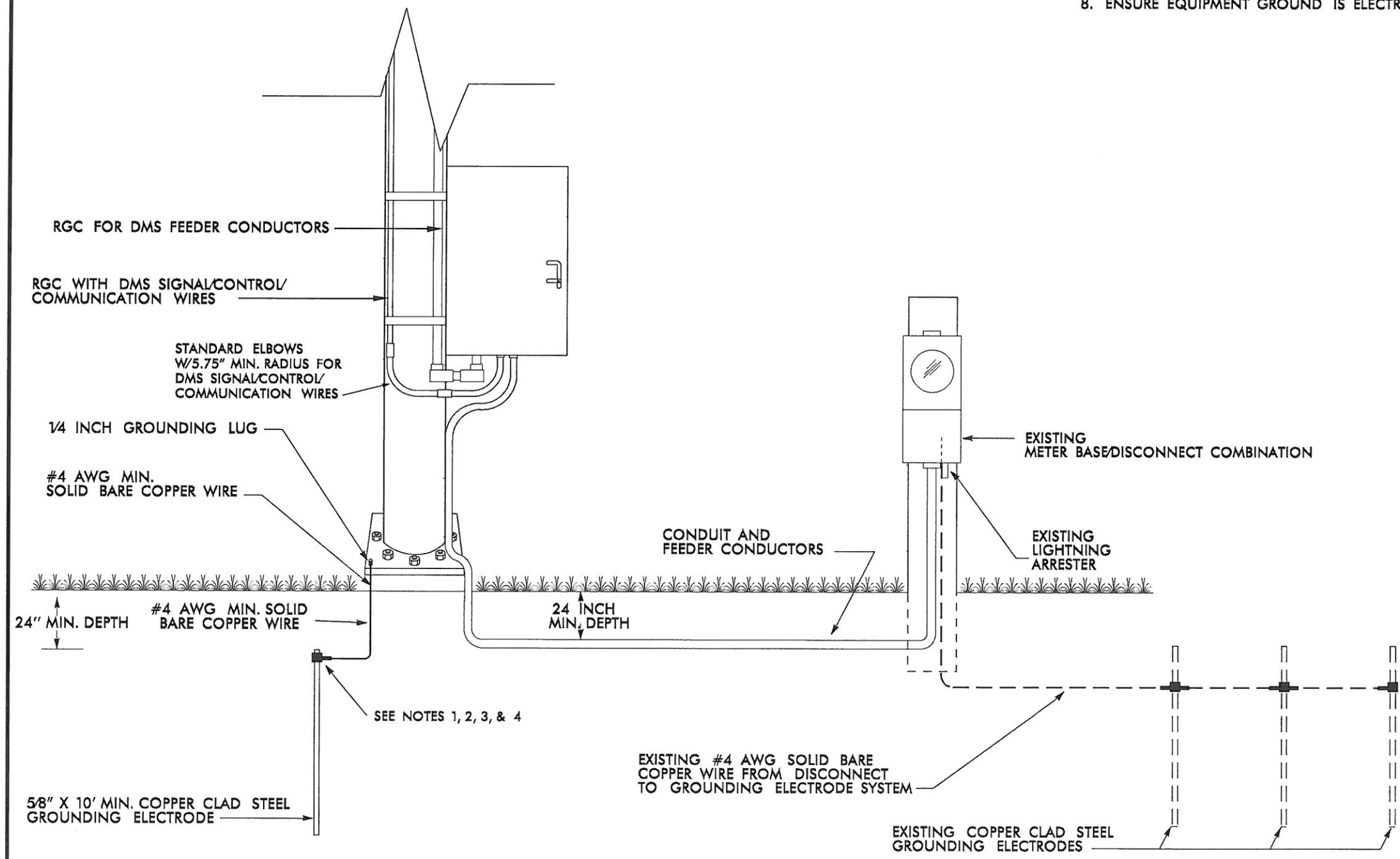
NOTES

1. INSTALL DEPARTMENT FURNISHED FIELD EQUIPMENT CABINET ON DEPARTMENT FURNISHED STRUCTURE.
2. STORE 100' OF THE NEW 6-FIBER DROP CABLE ON SNOW SHOE RACKS, STORE 30' IN EACH OVERSIZED JUNCTION BOX AND IN THE EQUIPMENT CABINET.
3. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON SHEET ITS-3 AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.

	DMS INSTALLATION	
	DIVISION 03 ONSLOW CO. JACKSONVILLE PLAN DATE: AUGUST 2015 REVIEWED BY: S.C. YOW PREPARED BY: G.A. GREEN REVIEWED BY: T.G. PARKER	REVISIONS: _____ INIT. DATE _____ _____ _____
SCALE: D N/A 	SIGNATURE: <i>Gregory L. Fuller</i> 8/10/15 DATE: 8/10/15	

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. 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.



**DYNAMIC MESSAGE SIGN
EXISTING ELECTRICAL SERVICE
AND GROUNDING DETAIL**

PLAN DATE:	AUGUST 2015	REVIEWED BY:	YOW
PREPARED BY:	GREEN	REVIEWED BY:	PARKER
REVISIONS		INIT.	DATE

Prepared in the Office of:

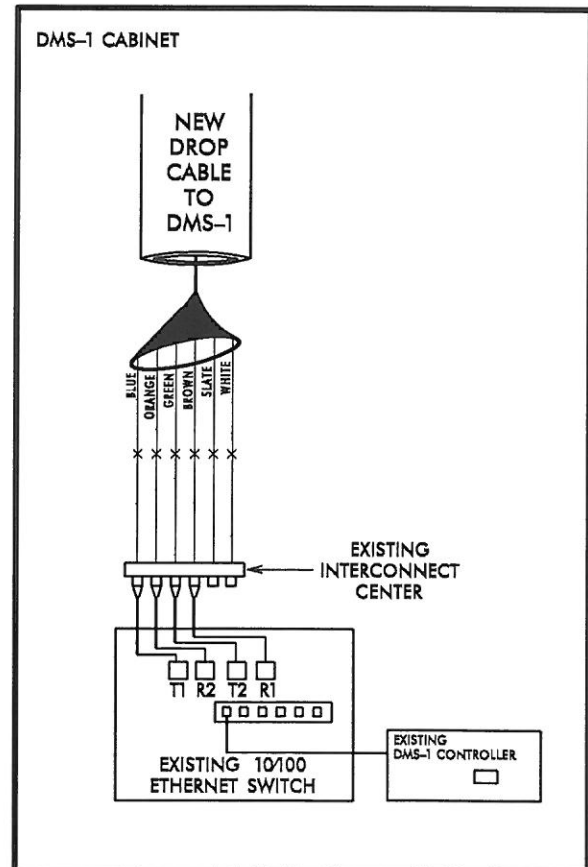
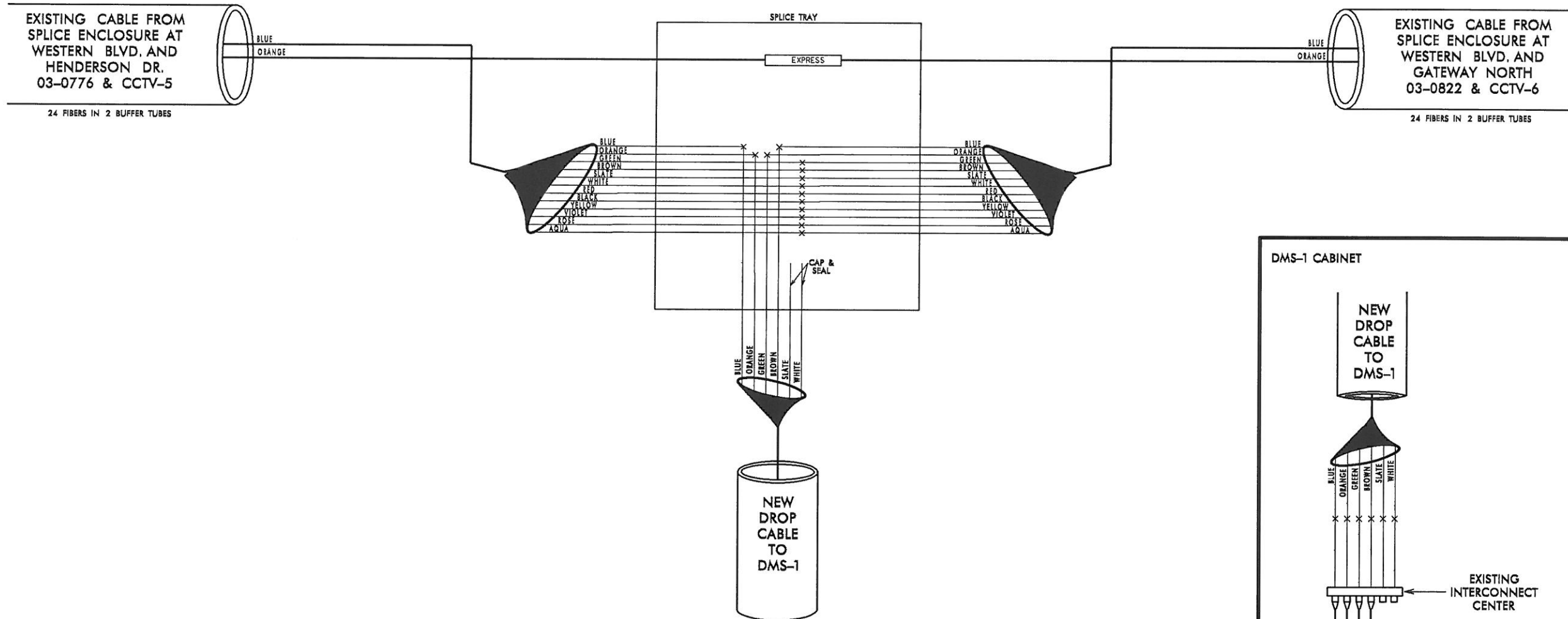
SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
023919
GREGORY A. TULVER

SCALE
0
N/A

SIGNATURE: *Gregory A. Tulver* DATE: 8/10/15

150 N. Greenfield Place, Garner, NC 27529

**NEW SPLICE ENCLOSURE AT DMS-1
WESTERN BLVD. WEST OF MARLIN DR.**



COLOR CODE TIA/EIA 598-B		LEGEND	
(1) BLUE	(7) RED	ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.	X - FUSION SPLICE INDIVIDUAL FIBER
(2) ORANGE	(8) BLACK		
(3) GREEN	(9) YELLOW		
(4) BROWN	(10) VIOLET		
(5) SLATE	(11) ROSE		
(6) WHITE	(12) AQUA		
		EXPRESS	EXPRESS ENTIRE BUFFER TUBE
		SPLICE	SPLICE ENTIRE BUFFER TUBE

NOTES:
 1. FIBER INTERCONNECT CENTER RACKS ARE SCHEMATIC ONLY - ACTUAL EQUIPMENT FORM MAY VARY.
 2. NOTIFY THE ENGINEER A MINIMUM OF 7 DAYS PRIOR TO SPLICING INTO THE EXISTING FIBER OPTIC COMMUNICATIONS CABLE.

Prepared in the Office of:

 250 N. Greenfield Place, Durham, NC 27629

SPLICE DETAILS

DIVISION 03 ONSLOW CO. JACKSONVILLE

PLAN DATE: AUGUST 2015 REVIEWED BY: YOW

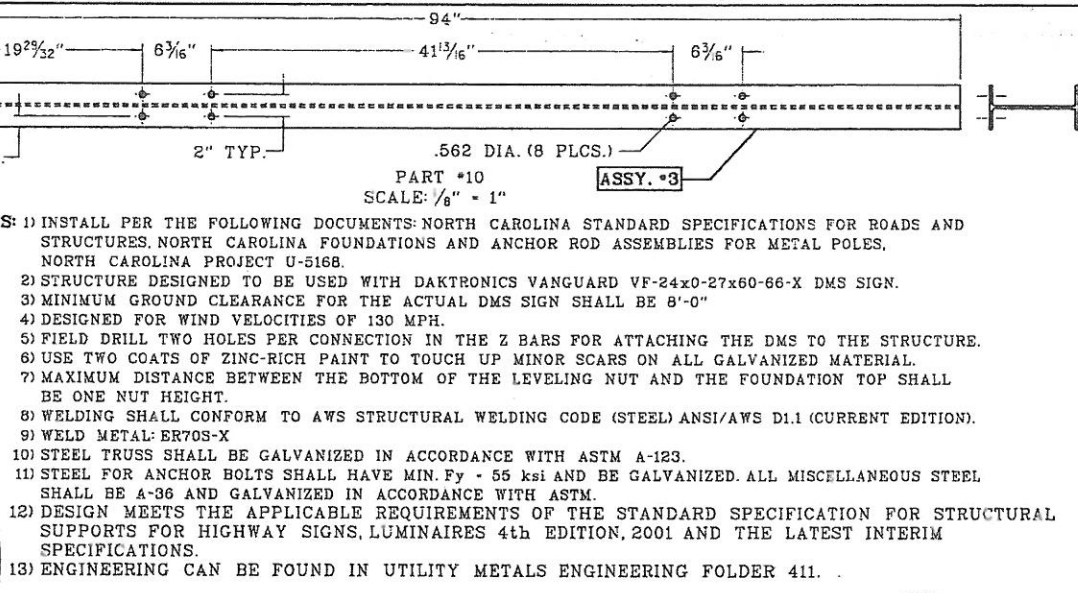
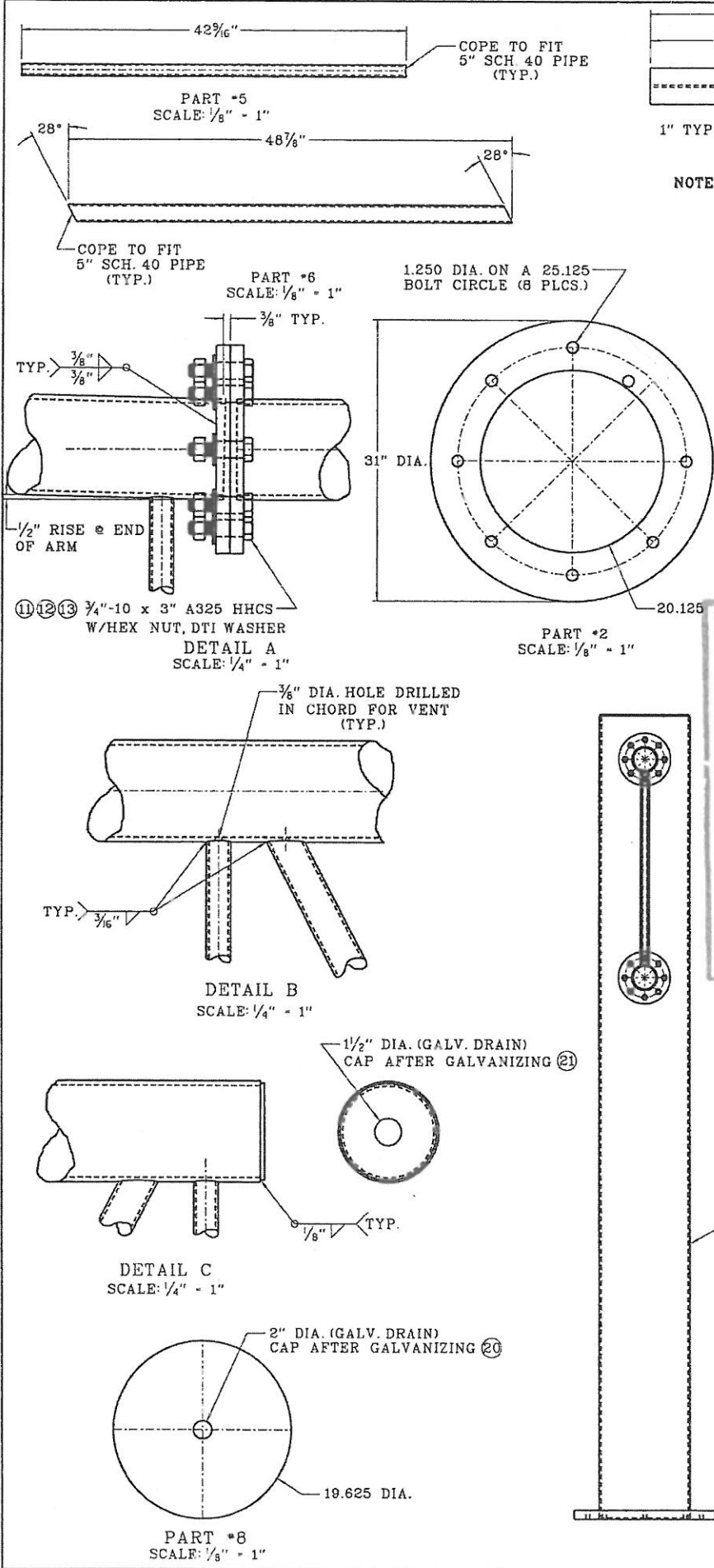
PREPARED BY: GREEN REVIEWED BY: PARKER

REVISIONS	INIT.	DATE

SEAL

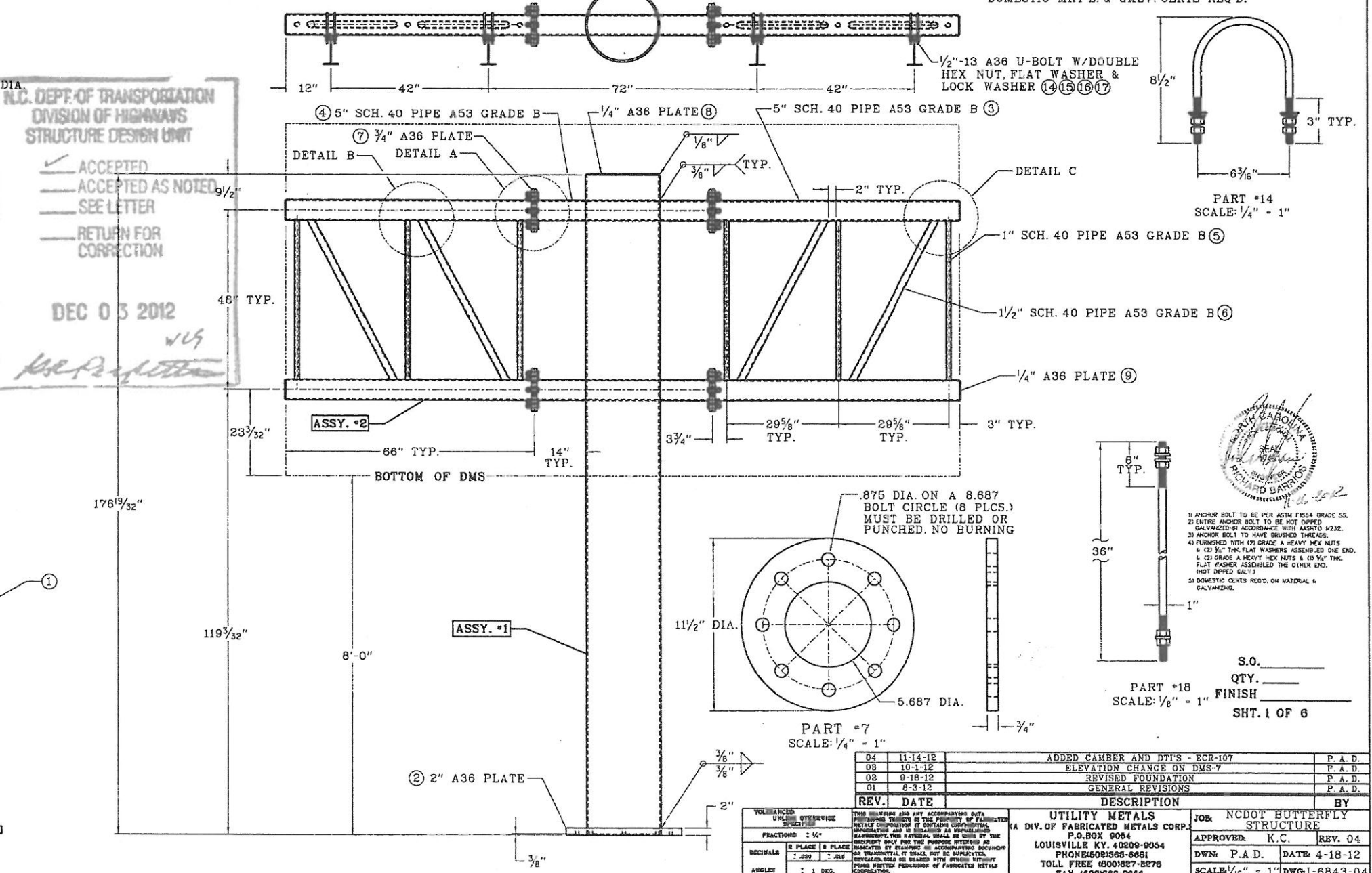
SEAL 023919
 ENGINEER
 GREGORY A. FULLER

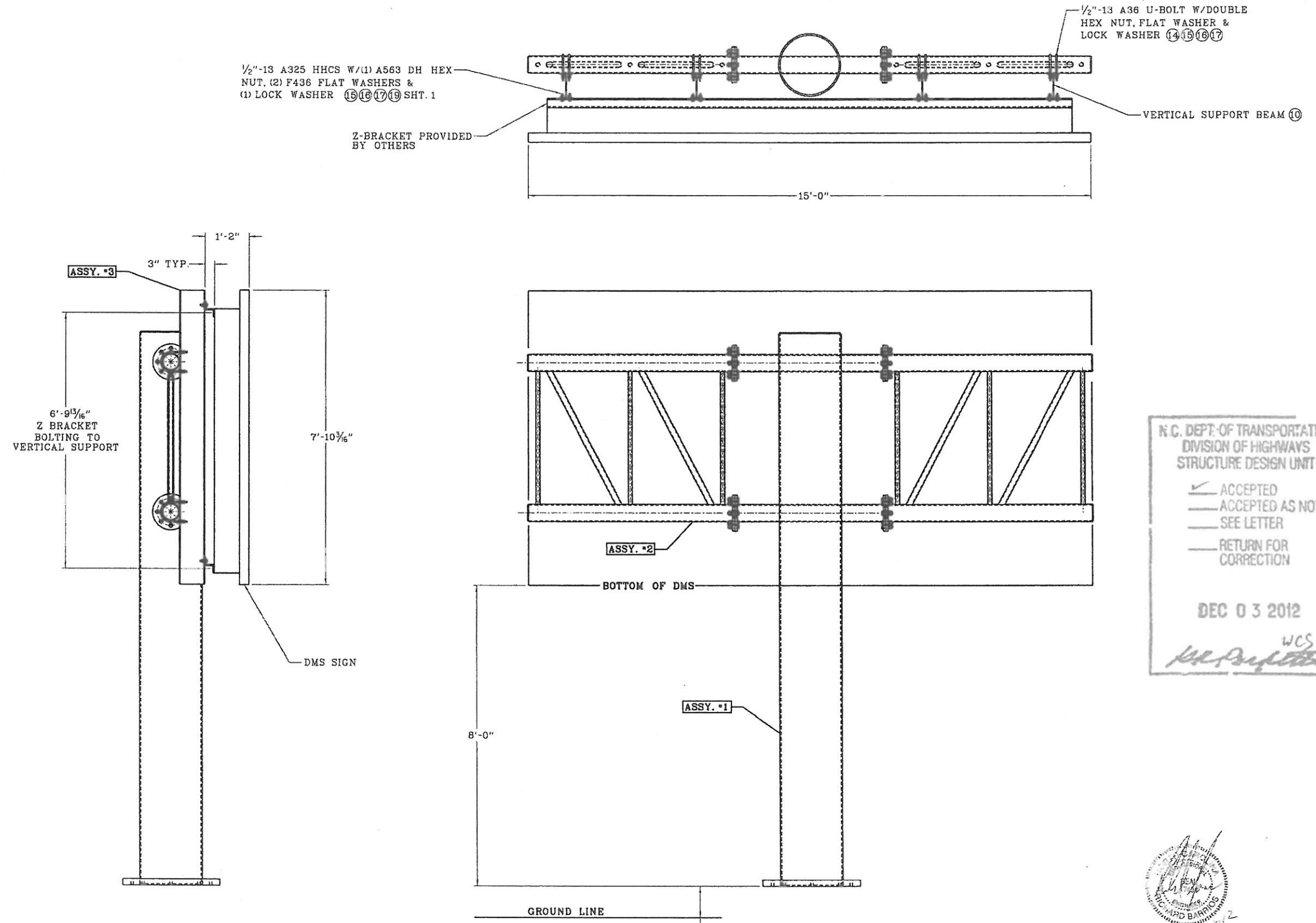
Gregory A. Fuller 8/10/15
 SIGNATURE DATE



BILL OF MATERIAL										
EXT. COST	UNIT COST	VENDOR	P.O.#	ITEM	WGT.	DESCRIPTION	QTY.	PER ASSEMBLY	CUTTING	
				ASSY. #1 - POLE						
				1	1,157	20" SCH. 20 PIPE x 176 1/32"	A53 GRADE B	1		
				2	251	2" A36 PLATE x 31" DIA.		1		
				4	116	5" SCH. 40 PIPE x 47 1/4"	A53 GRADE B	2		
				7	178	3/4" A36 PLATE x 11 1/2" DIA.		4		
				8	21	1/4" A36 PLATE x 19 3/8" DIA.		1		
				20	----	2" PLASTIC CAP PLUG		1		
				ASSY. #2 - ARM						
				3	320	5" SCH. 40 PIPE x 65 3/8"	A53 GRADE B	4		
				5	36	1" SCH. 40 PIPE x 42 3/16"	A53 GRADE B	6		
				6	45	1 1/2" SCH. 40 PIPE x 48 3/8"	A53 GRADE B	4		
				7	178	3/4" A36 PLATE x 11 1/2" DIA.		4		
				9	6	1/4" A36 PLATE x 5 3/8" DIA.		4		
				11	13	3/4" -10 x 3" A325 HHCS.	(HDG)	32		
				12	8	3/4" -10 HEX NUT A563 DH	(HDG)	32		
				13	9	3/4" DTI WASHER F959 McMASTER-CARR P/N 91358A015		32		
				21	----	1 1/2" PLASTIC CAP PLUG		4		
				ASSY. #3 - SIGN BEAM						
				10	408	W8 x 13* A36 WIDE FLANGE BEAM x 94"		4		
				14	20	1/2" -13 x 6 7/16" A36 U-BOLT	(HDG)	16		
				15	4	1/2" -13 HEX NUT A563 DH	(HDG)	80		
				16	8	1/2" FLAT WASHER	(HDG)	64		
				17	5	1/2" LOCK WASHER		48		
				19	2	1/2" -13 x 2" A325 HHCS	(HDG)	16		
				ANCHOR BOLTS						
				18	70	1" -8 x 36" ANCHOR BOLT F-1554 GRADE 55 (HDG)		8		

DOMESTIC MAT'L. & GALV. CERTS REQ'D.





1/2"-13 A325 HHCS W/(1) A563 DH HEX NUT, (2) F436 FLAT WASHERS & (1) LOCK WASHER (15)(16)(17)(19) SHT. 1

1/2"-13 A36 U-BOLT W/DOUBLE HEX NUT, FLAT WASHER & LOCK WASHER (14)(15)(16)(17)

Z-BRACKET PROVIDED BY OTHERS

VERTICAL SUPPORT BEAM (10)

6'-9 1/16" Z BRACKET BOLTING TO VERTICAL SUPPORT

7'-10 3/16"

DMS SIGN

BOTTOM OF DMS

GROUND LINE

ASSY. #1

ASSY. #2

ASSY. #3

DMS-1 - 10 1/8"
DMS-5 - 6 1/16"
DMS-7 - 27 3/8"
DMS-9 - 10 3/16"

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE DESIGN UNIT

ACCEPTED
 ACCEPTED AS NOTED
 SEE LETTER
 RETURN FOR CORRECTION

DEC 03 2012

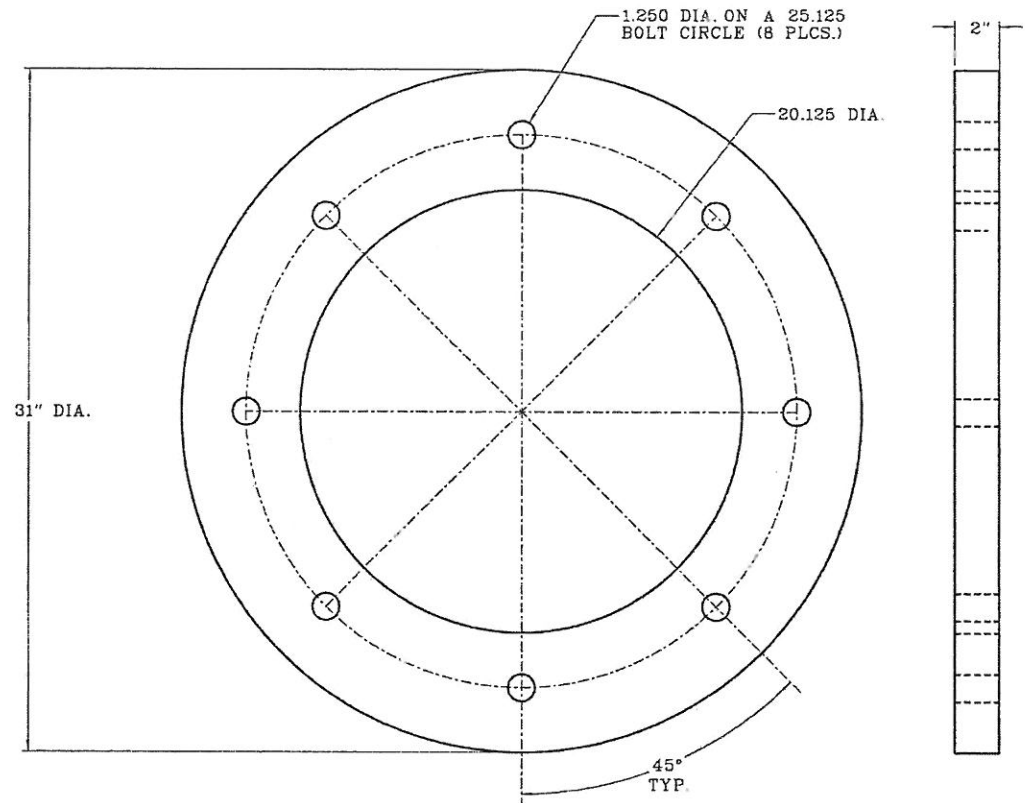
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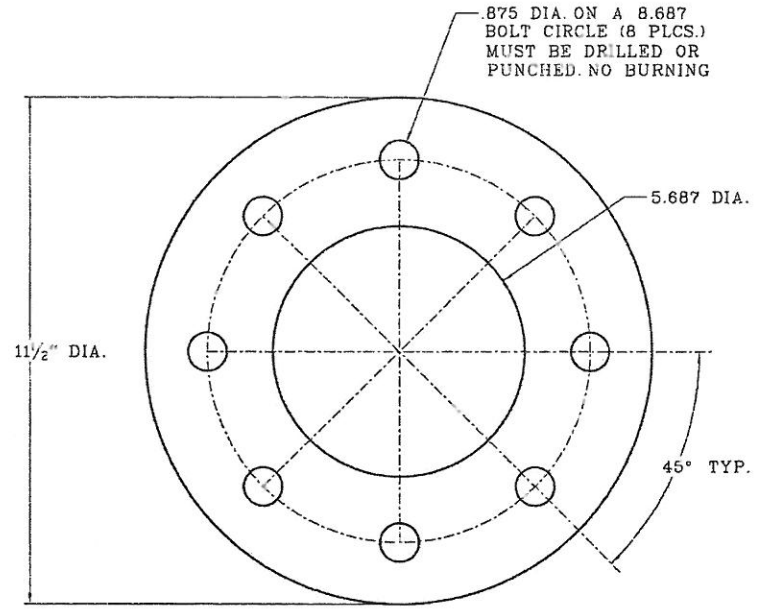
SHT. 2 OF 6

REV.	DATE	DESCRIPTION	BY
04	11-14-12	ADDED CAMBER AND ADDED DTI'S - ECR-107	P. A. D.
03	10-1-12	ELEVATION CHANGE ON DMS-7	P. A. D.
02	9-18-12	REVISED FOUNDATION	P. A. D.
01	6-3-12	GENERAL REVISIONS	P. A. D.

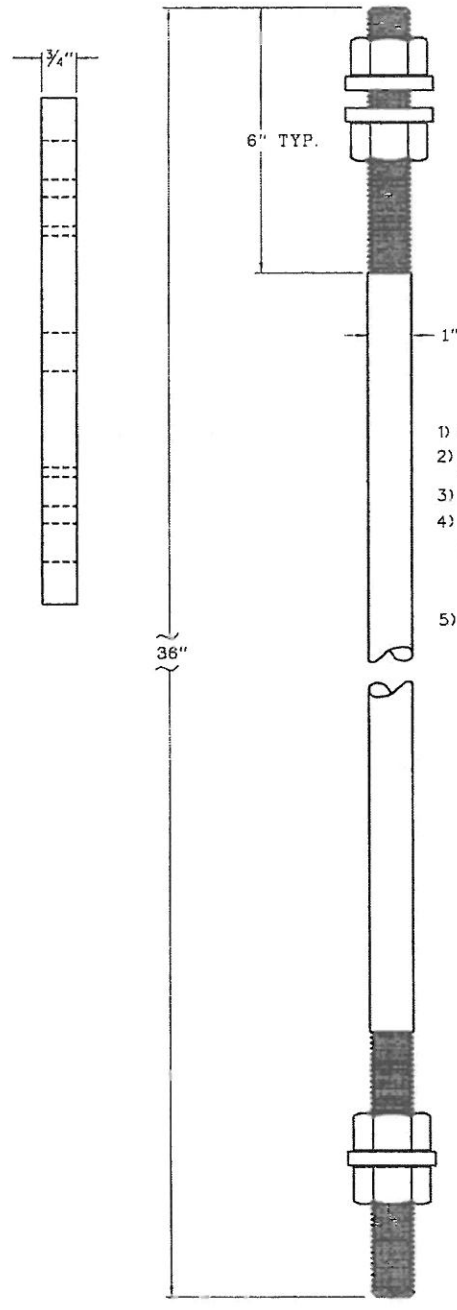
VOLTAIRES		THIS DRAWING AND ANY ACCOMPANYING DATA SHALL BE THE PROPERTY OF FABRICATED METALS CORP. IF IT CONTAINS CONFIDENTIAL INFORMATION AND IS RETURNED OR REPRODUCED WITHOUT THE WRITTEN PERMISSION OF FABRICATED METALS CORP.		UTILITY METALS A DIV. OF FABRICATED METALS CORP. P.O. BOX 9054 LOUISVILLE KY, 40209-9054 PHONE 502-265-8681 TOLL FREE 1-800-427-8276 FAX 502-265-2655		JOB: NCDOT BUTTERFLY STRUCTURE	
FRACTIONS: 1/16"		DECIMALS: 1/16" = .0625		APPROVED: K.C.		REV. 04	
ANGLES: 1 DEG.				DWN: P.A.D.		DATE: 4-18-12	
				SCALE: 1/16" = 1"		DWG: I-6843-04	



PART #2
MAT'L. - 2" THK. A36 PLATE
DOMESTIC MAT'L. CERTS REQ'D.



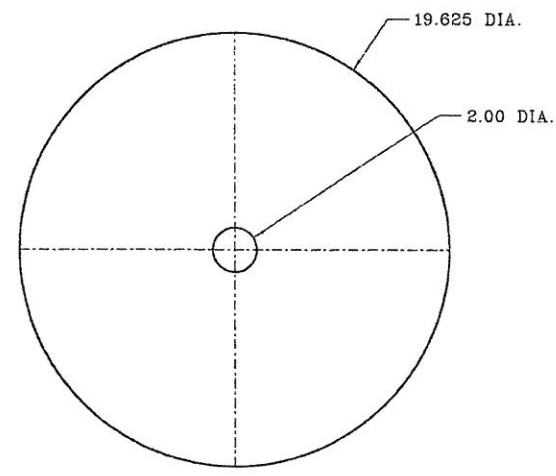
PART #7
SCALE: 1/2" = 1"
MAT'L. - 3/4" THK. A36 PLATE
DOMESTIC MAT'L. CERTS REQ'D.



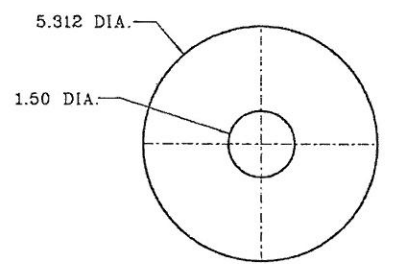
- 1) ANCHOR BOLT TO BE PER ASTM F1554 GRADE 55.
- 2) ENTIRE ANCHOR BOLT TO BE HOT DIPPED GALVANIZED-IN ACCORDANCE WITH AASHTO M232.
- 3) ANCHOR BOLT TO HAVE BRUSHED THREADS.
- 4) FURNISHED WITH (2) GRADE A HEAVY HEX NUTS & (2) 3/16" THK. FLAT WASHERS ASSEMBLED ONE END, & (2) GRADE A HEAVY HEX NUTS & (1) 3/16" THK. FLAT WASHER ASSEMBLED THE OTHER END. (HOT DIPPED GALV.)
- 5) DOMESTIC CERTS REQ'D. ON MATERIAL & GALVANIZING.

ILL. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 STRUCTURE DESIGN UNIT
 ACCEPTED
 ACCEPTED AS NOTED
 SEE LETTER
 RETURN FOR CORRECTION
 DEC 03 2012
 WCS

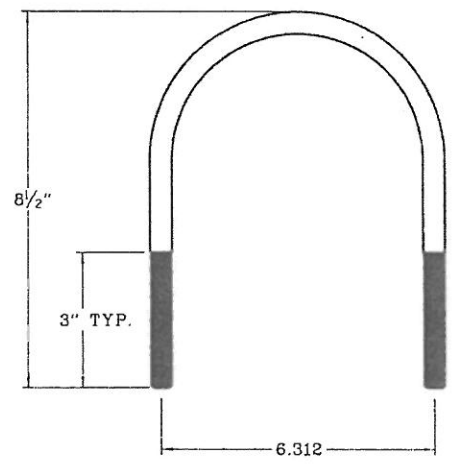
PART #18
SCALE: 1/2" = 1"
MAT'L. - 1"-8 F1554 GRADE 55
DOMESTIC MAT'L. & GALV. CERTS REQ'D.



PART #8
MAT'L. - 1/4" THK. A36 PLATE
DOMESTIC MAT'L. CERTS REQ'D.



PART #9
SCALE: 1/2" = 1"
MAT'L. - 1/4" THK. A36 PLATE
DOMESTIC MAT'L. CERTS REQ'D.



PART #14
SCALE: 1/2" = 1"
MAT'L. - 1/2"-13 A36 U-BOLT
DOMESTIC MAT'L. CERTS REQ'D.

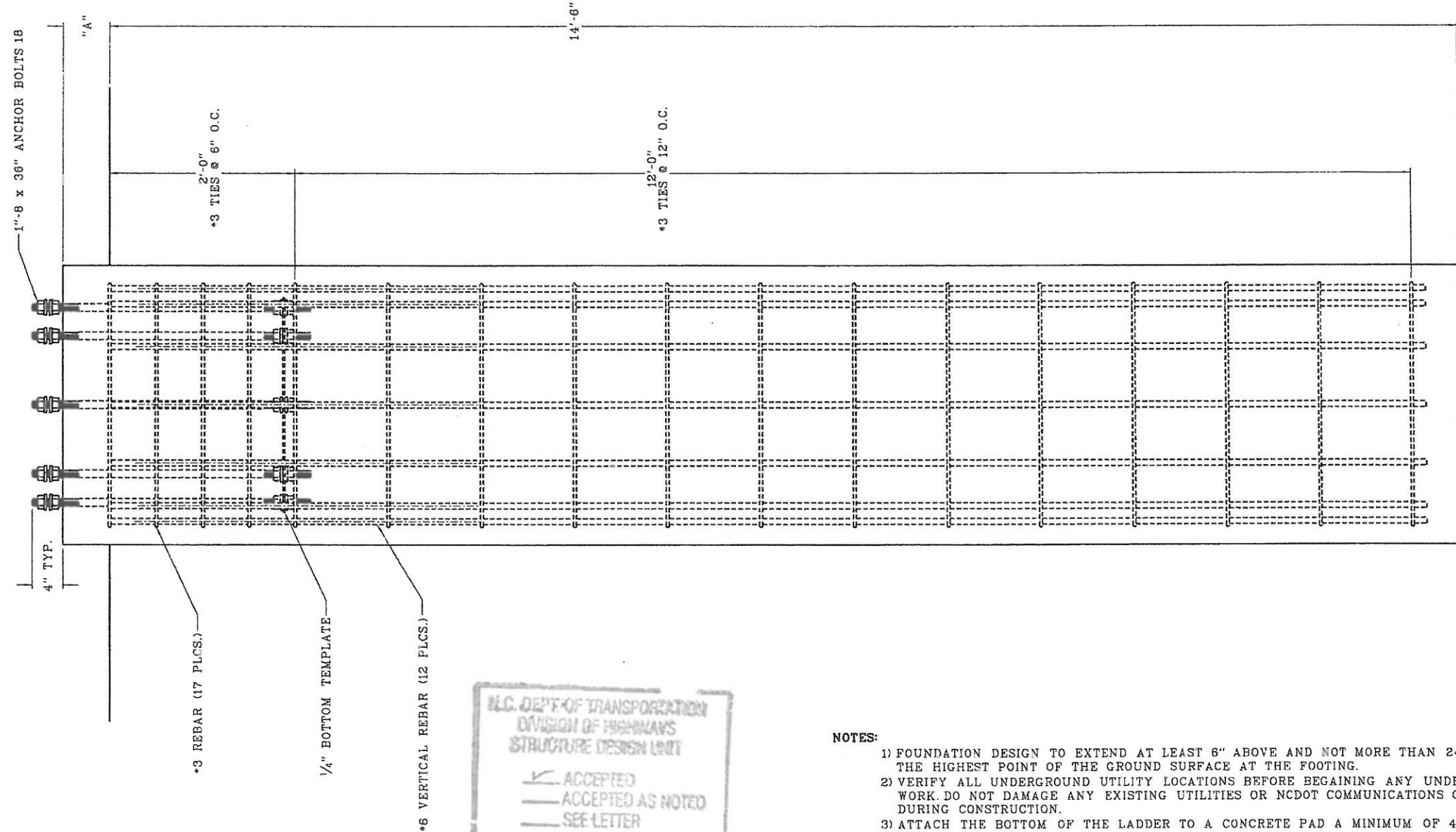
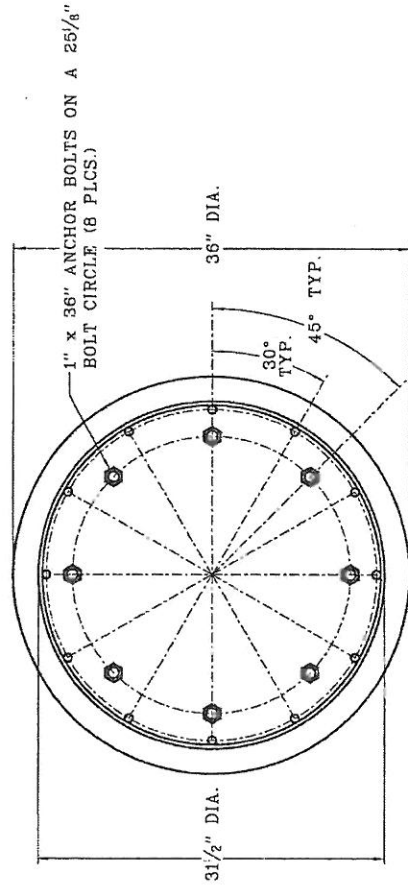
NOTE: 1) ENGINEERING CAN BE FOUND IN FOLDER 411.
2) THIS SHEET IS FOR VENDORS USE ONLY. SHT. 3 OF 6

REV.	DATE	DESCRIPTION	BY
04	11-14-12	ADDED CAMBER AND ADDED DTI'S - ECR-107	P. A. D.
03	10-1-12	ELEVATION CHANGE ON DMS-7	P. A. D.
02	9-16-12	REVISED FOUNDATION	P. A. D.
01	8-3-12	GENERAL REVISIONS	P. A. D.

TITLE BLOCK	THIS DRAWING AND ANY ACCOMPANYING DATA PERTAINING HERETO IS THE PROPERTY OF FABRICATED METALS CORPORATION. IT IS TO BE KEPT CONFIDENTIAL AND IS TO BE RETURNED TO THE COMPANY IMMEDIATELY UPON THE REQUEST OF THE COMPANY. IT IS TO BE DESTROYED ONLY BY THE COMPANY AND NOT BY THE USER.	UTILITY METALS A DIV. OF FABRICATED METALS CORP. P.O. BOX 9064 LOUISVILLE KY. 40209-0064 PHONE: 502-253-6581 TOLL FREE: 1-800-827-8278 FAX: 502-253-6585	JOB: PLATES & U-BOLT APPROVED: K.C. DWN: P.A.D. DATE: 4-16-12 SCALE: 1/4" = 1" DWG: I-6843-04
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PART #	"A"	QTY.
DMS-1	10 ⁷ / ₈ "	1
DMS-5	6 ¹¹ / ₁₆ "	1
DMS-7	27 ³ / ₈ "	1
DMS-9	10 ³ / ₁₆ "	1

BILL OF MATERIAL						
EXT. COST	UNIT COST	VENDOR	P.O. #	ITEM	WGT.	DESCRIPTION
				1	52.6	*3 REBARR ROLLED TO 31 ¹ / ₂ " OUTSIDE DIA. GRADE 60
				2	255.1	*6 REBARR x 169 ¹ / ₁₆ " GRADE 60
				3	19	INTERNAL ANCHOR BOLT TEMPLATE SHT. 6
				4		4.1 cu. yds. CONCRETE



N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 STRUCTURE DESIGN UNIT
 ✓ ACCEPTED
 — ACCEPTED AS NOTED
 — SEE LETTER
 — RETURN FOR CORRECTION
 DEC 03 2012
 WCS

NOTES:

- FOUNDATION DESIGN TO EXTEND AT LEAST 6" ABOVE AND NOT MORE THAN 24" ABOVE THE HIGHEST POINT OF THE GROUND SURFACE AT THE FOOTING.
- VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGAINING ANY UNDERGROUND WORK DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT COMMUNICATIONS CABLE DURING CONSTRUCTION.
- ATTACH THE BOTTOM OF THE LADDER TO A CONCRETE PAD A MINIMUM OF 4" DEEP, 24" WIDE, AND 36" LONG.
- WELDING ANCHOR BOLTS TO CAGE IS UNACCEPTABLE. TEMPLATES SHALL BE USED.
- BAR CAGE TO BE ASSEMBLED USING TIE WIRES ONLY. NO WELDING.
- THE REINFORCEMENT AND ANCHOR BOLTS SHALL BE ADEQUATELY SUPPORTED IN THE PROPER POSITIONS SO NO MOVEMENT OCCURS DURING CONCRETE PLACEMENT.
 CONCRETE MASONRY-----fc- 4,500 p.s.i. AT 28 DAYS.
 HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60-----fy- 60,000 p.s.i.
 ANCHOR BOLTS-----ASTM F1554 GRADE 55
- AISC NOTE: ENGINEERING CAN BE FOUND IN UTILITY METALS ENGINEERING FOLDER 411.

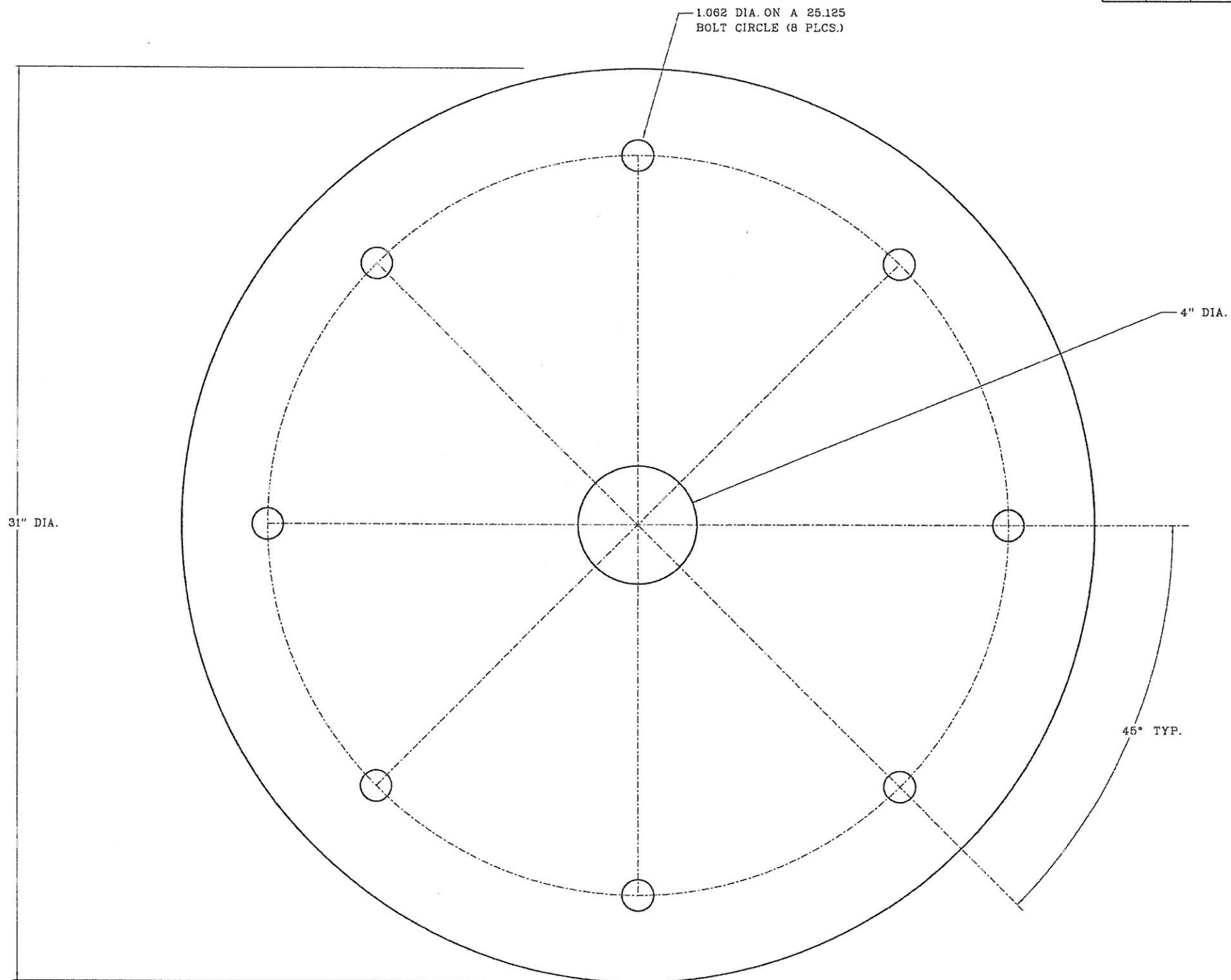
SHT. 4 OF 6

REV.	DATE	DESCRIPTION	BY
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01	8-3-12	GENERAL REVISIONS	P. A. D.

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS : 1/8" DECIMALS : .000 ANGLES : 1 DEG.	THIS DRAWING AND ANY ACCOMPANYING DATA PRESENTING HERETO IS THE PROPERTY OF FABRICATED METALS CORPORATION. IT IS TO BE USED ONLY FOR THE PURPOSES INTENDED AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF FABRICATED METALS CORPORATION.	UTILITY METALS (A DIV. OF FABRICATED METALS CORP.) P.O. BOX 6054 LOUISVILLE KY. 40209-0054 PHONE: (502) 363-6681 TOLL FREE (800) 627-6276 FAX (502) 363-2355	JOB: FOUNDATION NCDOT FOR DMS STRUCTURE APPROVED: K.C. DWN: P.A.D. DATE: 4-20-12 SCALE: 1/8" = 1" DWG: 1-6643-04
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BILL OF MATERIAL						
EXT. COST	UNIT COST	VENDOR	P.O. #	ITEM	WGT.	DESCRIPTION
				1	33.4	11 GA. SHT. 31" x 31"
						1



K.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 STRUCTURE DESIGN UNIT

ACCEPTED
 ACCEPTED AS NOTED
 SEE LETTER
 RETURN FOR CORRECTION

DEC 03 2012

WCS
[Signature]



S.O. _____
 QTY. _____
 FINISH _____
 SHT. 5 OF 6

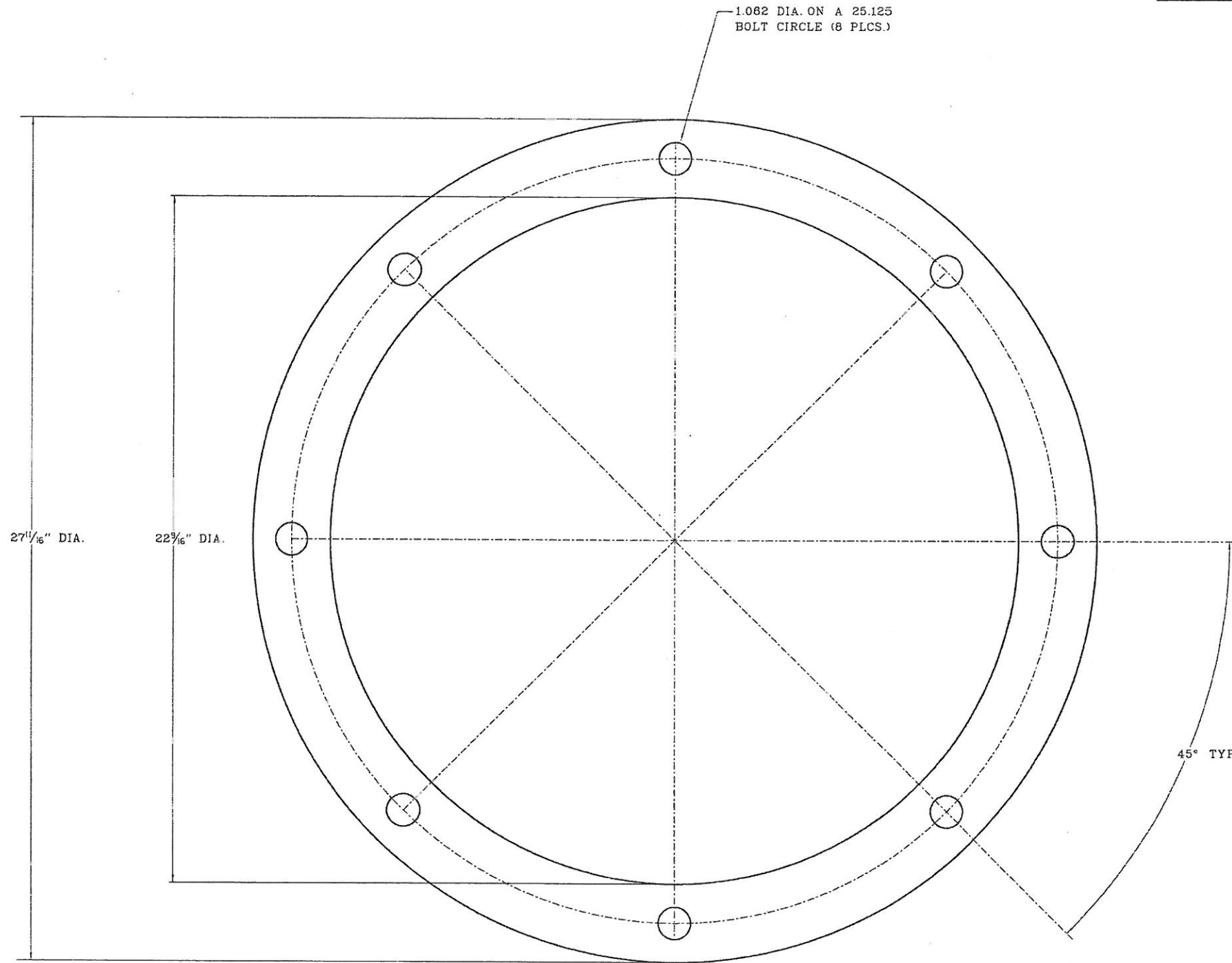
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EXTERNAL ANCHOR BOLT TEMPLATE

UTILITY METALS A DIV. OF FABRICATED METALS CORP. P.O. BOX 9064 LOUISVILLE KY. 40208-9064 PHONE: 502-265-0681 TOLL FREE (800) 627-8276 FAX (502) 265-2056	JOB: 8' TEMPLATE APPROVED: K.C. DWG: P.A.D. DATE: 5-3-12 SCALE: 1/2" = 1" DWG: I-6843-04
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BILL OF MATERIAL									
EXT. COST	UNIT COST	VENDOR	P.O. #	ITEM	WGT.	DESCRIPTION	QTY.	PER. QTY.	CUTTING QTY.
				1	19	1/4" A36 PLATE 27 1/16" x 27 1/16"	1		

DOMESTIC MAT'L. & GALV. CERTS REQ'D.



N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE DESIGN UNIT

ACCEPTED
 ACCEPTED AS NOTED
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WCS
[Signature]



S.O. _____
QTY. _____
FINISH _____
SHT. 6 OF 6

REV.	DATE	DESCRIPTION	BY
04	11-14-12	ADDED CAMBER AND ADDED DT'S - ECR-107	P. A. D.
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01	8-3-12	GENERAL REVISIONS	P. A. D.

INTERNAL ANCHOR BOLT TEMPLATE

TOLERANCES UNLESS OTHERWISE SPECIFIED: FINISHES: 1/4" DECIMALS: 2 PLACES 3 PLACES ANGLES: 1 DEG.	THE DRAWING AND ANY ACCOMPANYING DATA, SPECIFICATIONS, NOTES OR CONDITIONS OF CONTRACT SHALL BE READ AND UNDERSTOOD IN CONNECTION WITH THE DRAWING AND ANY ACCOMPANYING DATA, SPECIFICATIONS, NOTES OR CONDITIONS OF CONTRACT. NO PART OF THIS DRAWING SHALL BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF UTILITY METALS.	UTILITY METALS DIV. OF FABRICATED METALS CORP. P.O. BOX 9064 LOUISVILLE, KY. 40209-9064 PHONE (502) 585-6881 TOLL FREE (800) 687-8276 FAX (502) 588-2656	JOB: 1/4" BOTTOM TEMPLATE APPROVED: K.C. DWG: P.A.D. DATE: 5-3-12 SCALE: 1/2" = 1" DWG: 1-6843-04
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