

**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

PLANS AND DETAILS FOR PROPOSED LIGHTING /ELECTRICAL CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DocuSigned by: Paul Chan 11/30/2017

NOTES

- 1 AT THESE LOCATIONS, PROVIDE ELECTRICAL DUCT IN ACCORDANCE WITH NEC REQUIREMENTS FOR AN APPROVED RACEWAY FOR ELECTRICAL CIRCUITS. SEE TABLE "B".
- 2 INSTALL ALL BORE PITS OUTSIDE THE CLEAR ZONE, AS DEFINED BY THE 2011 AASHTO ROADSIDE DESIGN GUIDE OR AS DIRECTED BY THE ENGINEER.
- 3 LOCATE ALL JUNCTION BOXES OUTSIDE CLEAR ZONE AND IN AN AREA UNLIKELY TO BE USED BY TRAFFIC.
- 4 LOCATE PROPOSED CONTROL SYSTEM IN AN AREA ACCESSIBLE FOR MAINTENANCE VEHICLES AND OUTSIDE OF CLEAR ZONE AS DEFINED BY THE 2011 AASHTO ROADSIDE DESIGN GUIDE.
- 5 INSTALL RIGID GALVANIZED CONDUIT (RGC) ABOVE GROUND, AND POLYVINYL CHLORIDE (PVC) SCHEDULE 40 CONDUIT UNDERGROUND, EXCEPT AS MODIFIED ON THESE PLANSHEETS OR IN APPLICABLE SECTIONS OF THE ROADWAY STANDARD DRAWINGS FOR THIS PROJECT.
- 6 INSTALL A GROUND ROD FOR UNDERPASS LIGHTING DISCONNECT IN THIS JUNCTION BOX.
- 7 CONTRACTOR SHALL RECORD THE GPS COORDINATES OF EACH JUNCTION BOX IN THE JUNCTION BOX SUMMARY, TABLE C. PROVIDE A COPY OF THE JUNCTION BOX SUMMARY WITH THESE COORDINATES TO THE LIGHTING ENGINEER DURING PROJECT INSPECTION.
- 8 JUNCTION BOXES ASSOCIATED WITH LIGHT STANDARDS AND CONTROL SYSTEMS ARE NOT LABELED. THE LABEL OF THESE JUNCTION BOXES IS DEFINED AS HMXXJB, SAXXJB, CSXJB, WHERE "XX" STANDS FOR THE LIGHT STANDARD NUMBER AND "X" STANDS FOR THE CONTROL SYSTEM DESIGNATOR.
- 9 ALL JUNCTION BOXES SHALL BE 18" HIGH UNLESS OTHERWISE NOTED.
- 10 EXTEND EXISTING DOUBLE GUARDRAIL TO PROVIDE PROTECTION FOR HIGH MAST POLES HME5 AND HME6 INSTALLED IN THE MEDIAN.

SCOPE OF WORK

PLACE ROADWAY LIGHTING SYSTEMS INTO SERVICE BY PROVIDING AND INSTALLING HIGH MOUNT STANDARDS, SINGLE ARM LIGHT STANDARDS AND UNDERPASS LIGHTS WITH LIGHT EMITTING DIODE LUMINAIRES, UNDERGROUND CIRCUITRY, CONTROL SYSTEMS AND JUNCTION BOXES.

DESIGN CRITERIA

- 0.8 AVERAGE FOOTCANDLE ON TRAVEL LANES
- 4:1 AVERAGE TO MINIMUM UNIFORMITY RATIO ON TRAVEL LANES
- 2005 AASHTO ROADWAY LIGHTING DESIGN GUIDE
- 2009 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION AND LATEST INTERIM SPECIFICATIONS VALID AT THE TIME OF LETTING
- FATIGUE CATEGORY II SHALL BE USED IN DESIGN
- DESIGN HIGH MOUNT SUPPORT FOR BASIC WIND SPEED OF 90 MPH
- DESIGN HIGH MOUNT STANDARD FOUNDATION FOR BASIC WIND SPEED OF 110 MPH. ANY CONTRACTOR-DESIGNED SITE SPECIFIC FOUNDATION DESIGN SHALL BE DESIGNED FOR THE SAME WIND SPEED
- 2017 NATIONAL ELECTRICAL CODE
- 2011 AASHTO ROADSIDE DESIGN GUIDE

ROADWAY STANDARDS

THE FOLLOWING ROADWAY ENGLISH STANDARDS AS APPEAR IN "NCDOT 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
1401.01	HIGH MOUNT STANDARD
1404.01	LIGHT STANDARDS
1405.01	STANDARD FOUNDATION
1407.01	ELECTRIC SERVICE POLE AND LATERAL LIGHT CONTROL SYSTEM (USE ATTACHED DETAIL SHEETS E8 AND E9 IN LIEU OF STANDARD DRAWING 1408.01, SHEETS 1 & 2, RESPECTIVELY)
1409.01	ELECTRICAL DUCT
1410.01	FEEDER CIRCUITS
1411.01	ELECTRICAL JUNCTION BOXES
1412.01	UNDERPASS LIGHTING (USE ATTACHED DETAIL SHEET E7 IN LIEU OF STANDARD DRAWING 1401.01, SHEET 2)

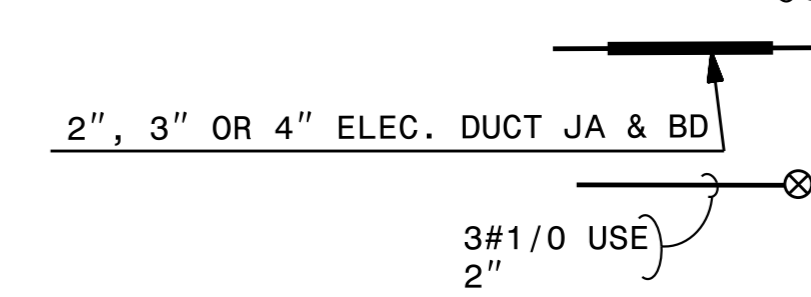
ALL WORK SHALL BE IN CONFORMANCE WITH DIVISION 14 OF THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, DATED JANUARY 2018, AND THE PROJECT SPECIAL PROVISIONS.

LEGEND

- PROPOSED 120' HIGH MAST STANDARD W/ HM FOUNDATION, JUNCTION BOX (HMXXJB) & (8) HM LED LUMINAIRES. 560W MAX, 54,000 MIN. MAINTAINED DELIVERED LUMENS, TYPE V. MAXIMUM BUG RATING 5-0-5. SEE TABLE C, SHEET E1A
- PROPOSED 100' HIGH MAST STANDARD W/ HM FOUNDATION, JUNCTION BOX (HMXXJB) & (6) HM LED LUMINAIRES. 560W MAX, 54,000 MIN. MAINTAINED DELIVERED LUMENS, TYPE V. MAXIMUM BUG RATING 5-0-5. SEE TABLE C, SHEET E1A
- PROPOSED 80' HIGH MAST STANDARD W/ HM FOUNDATION, JUNCTION BOX (HMXXJB) & (8) HM LED LUMINAIRES. 335W MAX, 27,000 MIN. MAINTAINED DELIVERED LUMENS, TYPE V. MAXIMUM BUG RATING 5-0-5. SEE TABLE C, SHEET E1A
- PROPOSED 60' HIGH MAST STANDARD W/ HM FOUNDATION, JUNCTION BOX (HMXXJB) & (4) HM LED LUMINAIRES. 335W MAX, 27,000 MIN. MAINTAINED DELIVERED LUMENS, TYPE V. MAXIMUM BUG RATING 5-0-5. SEE TABLE C, SHEET E1A
- PROPOSED LIGHT STANDARD TYPE MTLT 45' WITH 15' SINGLE ARM. INCLUDES STANDARD FOUNDATION TYPE R1 OR R2, JUNCTION BOX (SAXXJB) & 285W MAX LED ROADWAY LUMINAIRE. IES DISTRIBUTION: TYPE II OR III AS REQUIRED. MAXIMUM BUG RATING 3-0-3. SEE TABLE C, SHEET E1A
- PROPOSED UNDERPASS LUMINAIRE, TYPE PM, 62W LED, 4,000 MIN. MAINTAINED DELIVERED LUMENS, LOW BAY WITH SAFETY CHAIN
- PROPOSED FEEDER CIRCUIT CONTROL SYSTEM(A), CIRCUIT(1) PLAN SYMBOL (6) SEE TABLE A, THIS SHEET
- PROPOSED ELECTRICAL DUCT SIZE 2", 3" OR 4" TYPE (JA) OR (BD) LOCATION: SEE TABLE B, THIS SHEET
- PROPOSED SERVICE POLE AND LATERAL 30' CLASS 4 3#1/0 USE CONDUCTORS 2" CONDUIT
- PROPOSED CONTROL SYSTEM WITH JUNCTION BOX (CSXXJB). BREAKER SIZE SHOWN IN LOAD SCHEDULES. SEE SHEETS E2-E5.
- PROPOSED ELECTRICAL JUNCTION BOX SEE DETAILS & TABLE C, SHEET E1A
- REFERENCE TO CORRESPONDING NOTE AS NUMBERED

LOCATION	RACEWAY	SHEET	TYPE						
			JACKED (JA) FEET			BURIED (BD) FEET			
			SIZE 2"	SIZE 3"	SIZE 4"	SIZE 2"	SIZE 3"	SIZE 4"	
-Y13RPD- STA. 15+65	CSAJB - JBA1	E2			55		110		
-Y13- STA. 56+56	JBA2 - JBA3	E2			185		230		
-LACFLY- STA. 43+75	JBA5 - HMA2JB	E2			55		140		
-Y13LPD- STA. 21+24		E2		35					
-LACFLY- STA. 20+26	CSBJB - JBB1	E2					120	60	
-LACFLY- STA. 26+54	HMB2JB - JBB3	E2					100	60	
-Y13- STA. 44+34		E2		200					
-Y4RPA- STA. 25+70	CSCJB - HMC1JB	E3			90		210		
-Y4LPA- STA. 15+66		E3						40	
-L- STA. 402+76	HMC2JB - JBC4	E3			190		280		
-Y4- STA. 31+10	JBC5 - HMC5JB	E3			95		180		
-Y4LPC- STA. 12+43	JBC7 - JBC8	E3			40		80		
-Y6LPC- STA. 26+96	CSDJB - JBD1	E4				105		205	
-Y6- STA. 29+18	JBD1 - HMD4JB	E4			120		230		
-L- STA. 477+59	HMD5JB - JBD8	E4			160		210		
-Y6LPA- STA. 13+14		E4						35	
-Y6LPC- STA. 14+97		E4						35	
-L- STA. 467+77		E4						180	
-Y8- STA. 21+61	CSEJB - JBE4	E5			125		190		
-RPCY8- STA. 11+00	JBE1 - HME3JB	E5				85	150		
-LREV- STA. 487+41		E5		55					
-RPDY8- STA. 12+65	JBE5 - HME4JB	E5			40		85		
JB6 TO JB7		E5	240						
-RPAY8- STA. 13+24		E5		165					
-SPAY8- STA. 4+22		E5		45					
-Y8- STA. 15+34		E5		45					
-LREV- STA. 500+60		E5		220					
TOTALS			240	765	1,240	105	2,315	495	120

PLAN SYMBOL	DESCRIPTION	CONTRACT ITEM	
8	2 #8 Ø 1 #10G 1.5" P	2 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR 1.5" PVC CONDUIT	2 - 8 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*8	2 #8 Ø 1 #10G	2 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR	2 - 8 W/G FEEDER CIRCUIT
6	2 #6 Ø 1 #8G 1.5" P	2 AWG SIZE 6 CONDUCTOR (BK & RD) 1 AWG SIZE 8 GROUNDING CONDUCTOR 1.5" PVC CONDUIT	2 - 6 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*6	2 #6 Ø 1 #10G	2 AWG SIZE 6 CONDUCTOR (BK & RD) 1 AWG SIZE 8 GROUNDING CONDUCTOR	2 - 6 W/G FEEDER CIRCUIT
4	2 #4 Ø 1 #6G 1.5" P	2 AWG SIZE 4 CONDUCTOR (BK & RD) 1 AWG SIZE 6 GROUNDING CONDUCTOR 1.5" PVC CONDUIT	2 - 4 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*4	2 #4 Ø 1 #6G	2 AWG SIZE 4 CONDUCTOR (BK & RD) 1 AWG SIZE 6 GROUNDING CONDUCTOR	2 - 4 W/G FEEDER CIRCUIT
2	2 #2 Ø 1 #4G 1.5" P	2 AWG SIZE 2 CONDUCTOR (BK & RD) 1 AWG SIZE 4 GROUNDING CONDUCTOR 1.5" PVC CONDUIT	2 - 2 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*2	2 #2 Ø 1 #4G	2 AWG SIZE 2 CONDUCTOR (BK & RD) 1 AWG SIZE 4 GROUNDING CONDUCTOR	2 - 2 W/G FEEDER CIRCUIT



BD	BURIED	PVC	PVC SCHEDULE 40 CONDUIT
LT	LIGHT	RGC	RIGID GALVANIZED STEEL CONDUIT
JA	JACKED	C	CONDUIT
MH	MOUNTING HEIGHT	CKT	CIRCUIT
Ø	PHASE	N	NEUTRAL
SER LAT	SERVICE LATERAL	G	GROUND
IG	IN GROUND	HM	HIGH MAST
LED	LIGHT EMITTING DIODE	LSJB	LIGHT STANDARD JUNCTION BOX
HMJB	HIGH MAST JUNCTION BOX	CSJB	CONTROL SYSTEM JUNCTION BOX

COMPUTED BY: RGH DATE: 11/30/17
 CHECKED BY: PL DATE: 11/30/2017

02/03/98
 30-NOV-2017 11:17
 R:\Lighting\Electrical\LightingPlans\U2525C\LE_PSHLE1.dgn
 rghal AT RD278044

02/03/98

30-NOV-2017 11:18
R:\Lighting\Electrical\gtDesign\PlanShts\U2525C-LE-PSHLE1.dgn
rghali AT RD278044

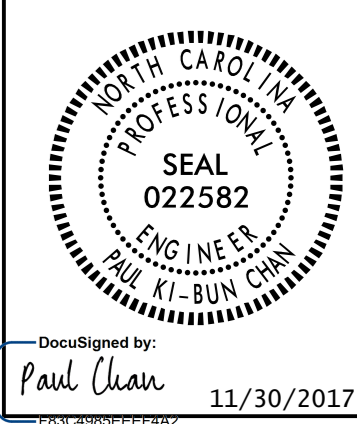


TABLE "C" JUNCTION BOX SUMMARY								
CONTROL SYSTEM "A"								
LABEL	TYPE	SIZE			LOCATION	SHEET	GPS LOCATION	
		18"X12"	30"X17"	36"X24"			LATITUDE	LONGITUDE
CSAJB	CSJB			X	2' FROM CONTROL SYSTEM "A"	E2		
JBA1	IGJB			X	-Y13RPD- STA. 15+68, 40' LT	E2		
JBA2	IGJB			X	-Y13CD- STA. 48+20, 47' LT	E2		
JBA3	IGJB			X	-Y13- STA. 59+55, 88 RT	E2		
JBA4	IGJB	X			-Y13- STA. 62+34, 87' RT	E2		
HMA1JB	HMJB	X			10' FROM HIGH MAST HMA1	E2		
JBA5	IGJB		X		-LACFLY- STA. 43+76, 48' LT	E2		
HMA2JB	HMJB		X		10' FROM HIGH MAST HMA2	E2		
JBA6	IGJB	X			-Y13RPC- STA. 22+34, 30' LT	E2		
JBA7	IGJB	X			-Y13RPC- STA. 19+63, 35' LT	E2		
HMA4JB	HMJB	X			10' FROM HIGH MAST HMA4	E2		
JBA8	IGJB	X			-Y13LPD- STA. 21+24, 32' LT	E2		
JBA9	IGJB	X			-Y13LPD- STA. 21+24, 36' RT	E2		
HMA3JB	HMJB	X			10' FROM HIGH MAST HMA3	E2		
CONTROL SYSTEM "B"								
CSBJB	CSJB			X	2' FROM CONTROL SYSTEM "B"	E2		
JBB1	IGJB			X	-LACFLY- STA. 20+27, 40' LT	E2		
HMB1JB	HMJB	X			10' FROM HIGH MAST HMB1	E2		
JBB2	IGJB		X		-LACFLY- STA. 23+44, 43' LT	E2		
HMB2JB	HMJB		X		10' FROM HIGH MAST HMB2	E2		
JBB3	IGJB		X		-LACFLY- STA. 26+56, 47' RT	E2		
JBB4	IGJB	X			-Y13RPA- STA. 17+31, 39' LT	E2		
JBB5	IGJB	X			-Y13RPA- STA. 19+95, 26' LT	E2		
HMB4JB	HMJB	X			10' FROM HIGH MAST HMB4	E2		
JBB6	IGJB	X			-Y13CD- STA. 32+83, 50' LT	E2		
JBB7	IGJB	X			-Y13- STA. 44+41, 90' RT	E2		
HMB3JB	HMJB	X			10' FROM HIGH MAST HMB3	E2		
CONTROL SYSTEM "C"								
CSCJB	CSJB			X	2' FROM CONTROL SYSTEM "C"	E3		
HMC1JB	HMJB			X	10' FROM HIGH MAST HMC1	E3		
JBC1	IGJB	X			-Y4LPA- STA. 15+66, 37' LT	E3		
JBC2	IGJB	X			-Y4LPA- STA. 15+66, 37' RT	E3		
JBC3	IGJB	X			-Y4RPA- STA. 20+33, 25' LT	E3		
HMC3JB	HMJB	X			10' FROM HIGH MAST HMC3	E3		
HMC4JB	HMJB	X			10' FROM HIGH MAST HMC4	E3		
HMC2JB	HMJB			X	10' FROM HIGH MAST HMC2	E3		
JBC4	IGJB			X	-L- STA. 402+41, 107' RT	E3		
JBC5	IGJB			X	-Y4- STA. 31+09, 62' LT	E3		
HMC5JB	HMJB			X	10' FROM HIGH MAST HMC5	E3		
JBC6	IGJB	X			-Y4- STA. 33+26, 62' RT	E3		
HMC6JB	HMBJ	X			10' FROM HIGH MAST HMC6	E3		
JBC7	IGJB	X			-Y4LPC- STA. 12+32, 45' LT	E3		
JBC8	IGJB	X			-Y4LPC- STA. 12+50, 29' RT	E3		
HMC7JB	HMJB	X			10' FROM HIGH MAST HMC7	E3		
JBC9	IGJB	X			-L- STA. 392+07, 92' RT	E3		
HMC8JB	HMJB	X			10' FROM HIGH MAST HMC8	E3		

CONTINUED

CONTROL SYSTEM "D"								
LABEL	TYPE	SIZE			LOCATION	SHEET	GPS LOCATION	
		18"X12"	30"X17"	36"X24"			LATITUDE	LONGITUDE
CSDJB	CSJB			X	2' FROM CONTROL SYSTEM "D"	E4		
JBD1	IGJB			X	-Y6- STA. 29+07, 105' RT	E4		
HMD4JB	HMJB			X	10' FROM HIGH MAST HMD4	E4		
JBD7	IGJB			X	-Y6RPD- STA. 23+35, 35' RT	E4		
HMD5JB	HMJB	X			10' FROM HIGH MAST HMD5	E4		
JBD8	IGJB	X			-L- STA. 477+60, 89' LT	E4		
HMD7JB	HMJB		X		10' FROM HIGH MAST HMD7	E4		
HMD6JB	HMJB		X		10' FROM HIGH MAST HMD6	E4		
JBD9	IGJB	X			-Y6LPA- STA. 13+15, 31' RT	E4		
JBD10	IGJB	X			-Y6LPA- STA. 13+12, 35' LT	E4		
HMD8JB	HMJB	X			10' FROM HIGH MAST HMD8	E4		
JBD2	IGJB	X			-Y6LPC- STA. 14+94, 35' LT	E4		
HMD1JB	HMBJ	X			10' FROM HIGH MAST HMD1	E4		
JBD3	IGJB	X			-L- STA. 467+75, 108' RT	E4		
JBD4	IGJB	X			-L- STA. 467=75, 104' LT	E4		
HMD2JB	HMJB	X			10' FROM HIGH MAST HMD2	E4		
JBD5	IGJB	X			-L- STA. 465+11, 101' LT	E4		
JBD6	IGJB	X			-L- STA. 461+78, 96' LT	E4		
HMD3JB	HMJB	X			10' FROM HIGH MAST HMD3	E4		
CONTROL SYSTEM "E"								
CSEJB	CSJB			X	2' FROM CONTROL SYSTEM "D"	E5		
JBE1	IGJB	X			-SPCY8- STA. 1+73, 35' RT	E5		
HME3JB	HMJB	X			10' FROM HIGH MAST HME3	E5		
JBE2	IGJB	X			-LREV- STA. 490+07, 95' RT	E5		
JBE3	IGJB	X			-RPCY8- STA. 5+88, 25' LT	E5		
HME2JB	HMJB	X			10' FROM HIGH MAST HME2	E5		
JBE13	IGJB	X			-LREV- STA. 484+54, 3' RT	E5		
HME1JB	HMJB	X			10' FROM HIGH MAST HME1	E5		
JBE4	IGJB		X		-Y8- STA. 21+54, 65' LT	E5		
JBE5	IGJB		X		-RPDY8- STA. 12+65, 35' LT	E5		
HME4JB	HMJB		X		10' FROM HIGH MAST HME4	E5		
JBE6	IGJB	X			-RPDY8- STA. 13+48, 28' RT	E5		
JBE7	IGJB	X			-RPAY8- STA. 13+24, 35' LT	E5		
JBE8	IGJB	X			-RPAY8- STA. 13+24, 35' RT	E5		
JBE9	IGJB	X			-SPAY8- STA. 4+22, 30' LT	E5		
SA2JB	LSJB	X			5' FROM SINGLE ARM SA#2	E5		
SA1JB	LSJB	X			5' FROM SINGLE ARM SA#1	E5		
JBE10	IGJB	X			-LREV- STA. 500+60, 90' RT	E5		
JBE11	IGJB	X			-LREV- STA. 500+60, 3' RT	E5		
HME5JB	HMJB	X			10' FROM HIGH MAST HME5	E5		
JBE12	IGJB	X			-LREV- STA. 505+00, 3' RT	E5		
HME6JB	HMJB	X			10' FROM HIGH MAST HME6	E5		
TOTALS		58	10	17				

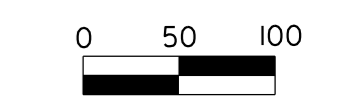
SEE SHEET "E1" FOR
LEGEND & △ NOTES

USE FOR LIGHTING CONSTRUCTION ONLY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DocuSigned by: Paul Chan 11/30/2017

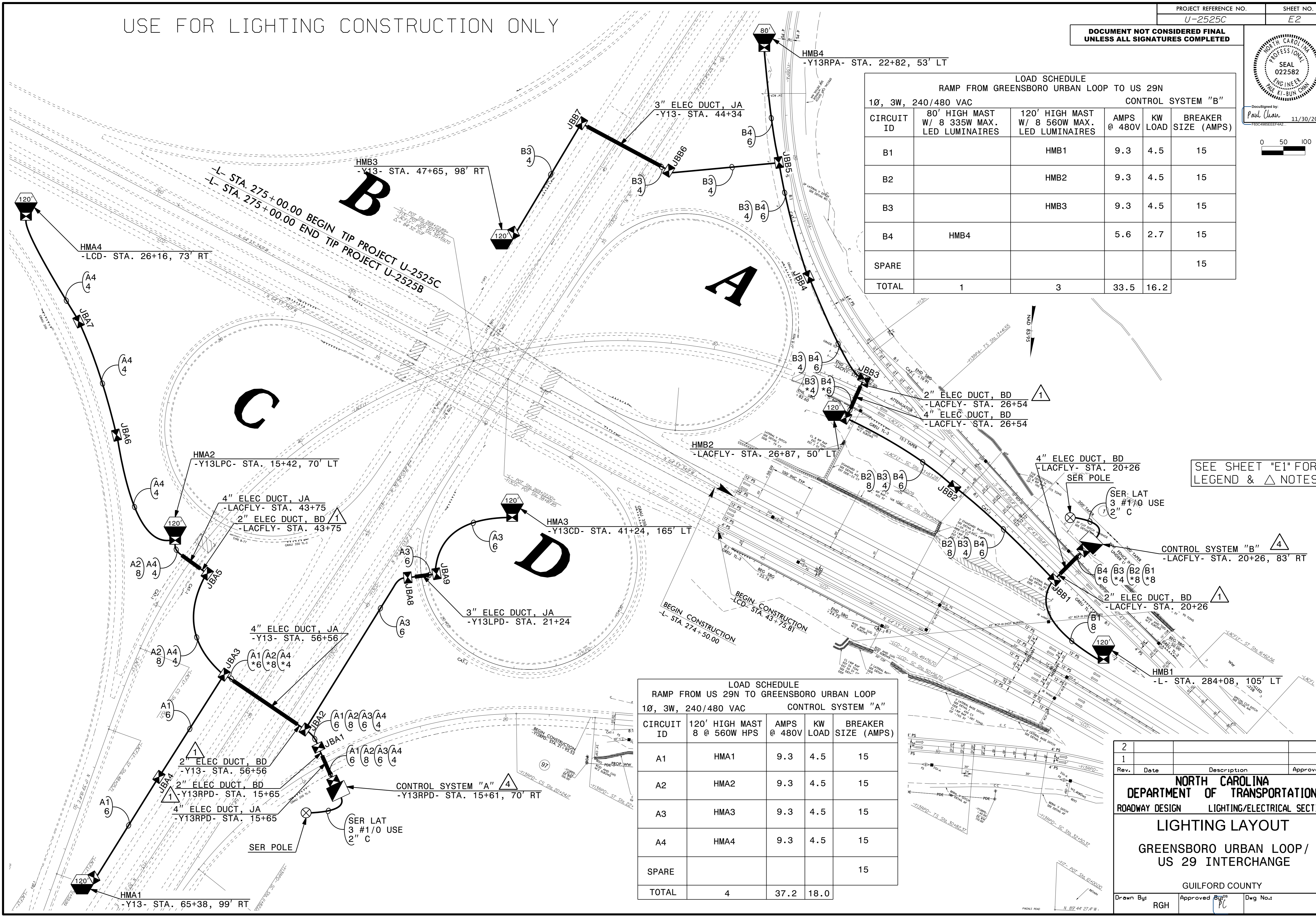


LOAD SCHEDULE
RAMP FROM GREENSBORO URBAN LOOP TO US 29N
CONTROL SYSTEM "B"

CIRCUIT ID	80' HIGH MAST W/ 8 335W MAX. LED LUMINAIRES	120' HIGH MAST W/ 8 560W MAX. LED LUMINAIRES	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
B1		HMB1	9.3	4.5	15
B2		HMB2	9.3	4.5	15
B3		HMB3	9.3	4.5	15
B4	HMB4		5.6	2.7	15
SPARE					15
TOTAL	1	3	33.5	16.2	

LOAD SCHEDULE
RAMP FROM US 29N TO GREENSBORO URBAN LOOP
CONTROL SYSTEM "A"

CIRCUIT ID	120' HIGH MAST 8 @ 560W HPS	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
A1	HMA1	9.3	4.5	15
A2	HMA2	9.3	4.5	15
A3	HMA3	9.3	4.5	15
A4	HMA4	9.3	4.5	15
SPARE				15
TOTAL	4	37.2	18.0	

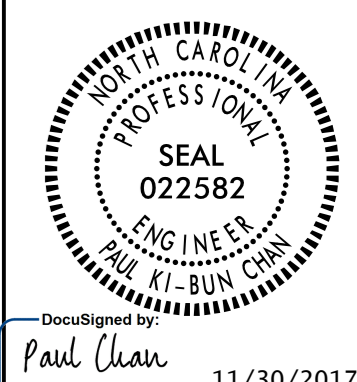


SEE SHEET "E1" FOR LEGEND & Δ NOTES

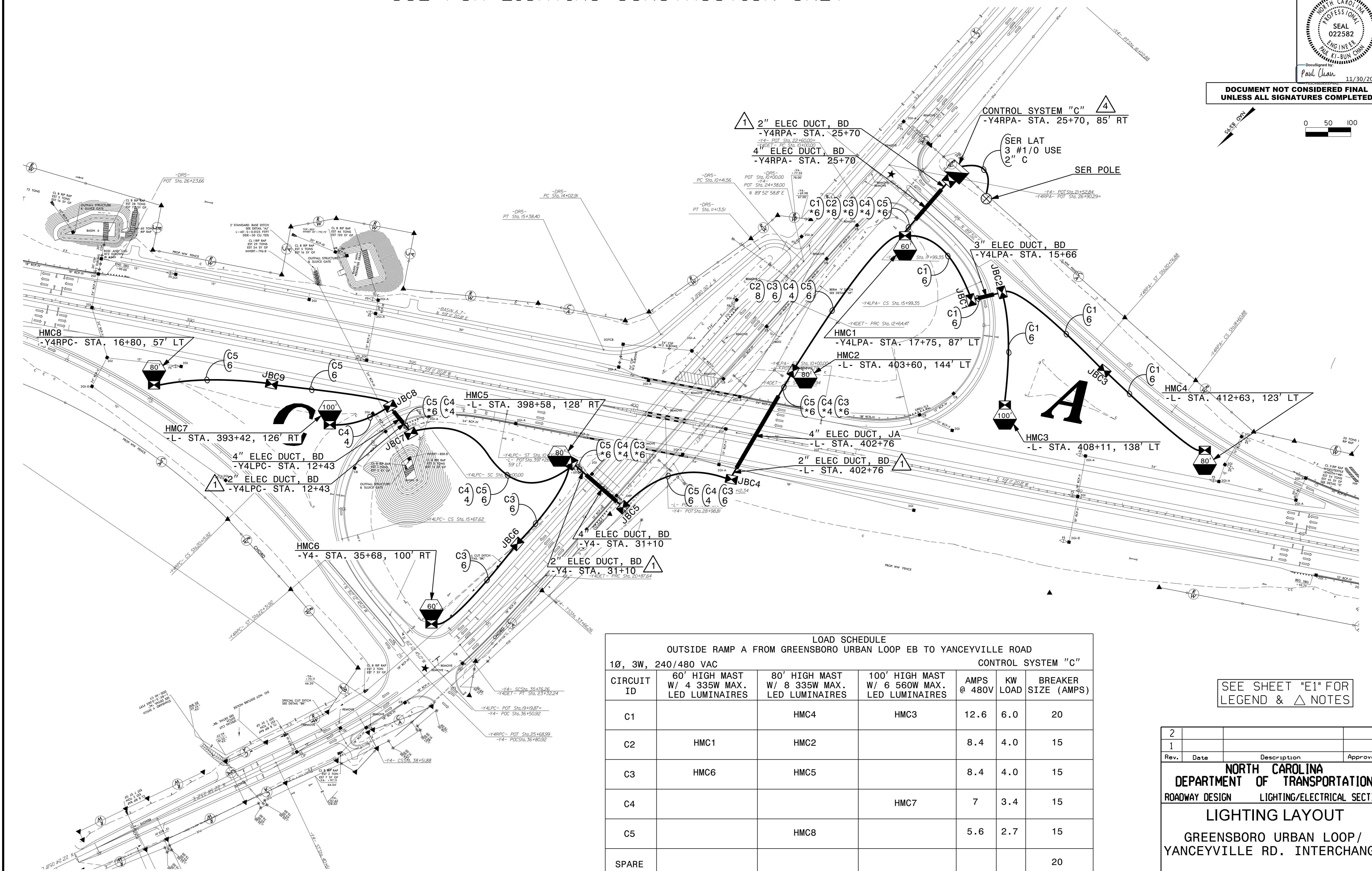
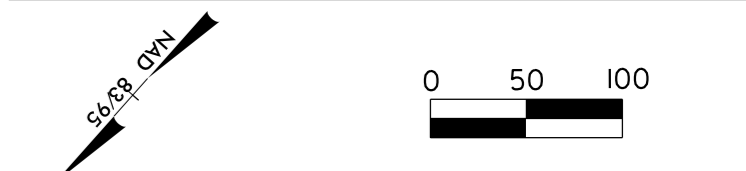
2			
1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION LIGHTING LAYOUT GREENSBORO URBAN LOOP / US 29 INTERCHANGE GUILFORD COUNTY			
Drawn By:	RGH	Approved By:	[Signature]
Dwg No.:			

30-NOV-2017 14:18
 R:\Lighting\U2525C\PlanShets\U2525C_LE_PSH_E2.dgn
 rgh1 A1 RD 78044

USE FOR LIGHTING CONSTRUCTION ONLY



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



LOAD SCHEDULE
 OUTSIDE RAMP A FROM GREENSBORO URBAN LOOP EB TO YANCEYVILLE ROAD
 CONTROL SYSTEM "C"

CIRCUIT ID	60' HIGH MAST W/ 4 335W MAX. LED LUMINAIRES	80' HIGH MAST W/ 8 335W MAX. LED LUMINAIRES	100' HIGH MAST W/ 6 560W MAX. LED LUMINAIRES	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
C1		HMC4	HMC3	12.6	6.0	20
C2	HMC1	HMC2		8.4	4.0	15
C3	HMC6	HMC5		8.4	4.0	15
C4			HMC7	7	3.4	15
C5		HMC8		5.6	2.7	15
SPARE						20
TOTAL	2	4	2	42.0	20.1	

SEE SHEET "E1" FOR LEGEND & Δ NOTES

2			
1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION LIGHTING LAYOUT GREENSBORO URBAN LOOP/ YANCEYVILLE RD. INTERCHANGE GUILFORD COUNTY			
Drawn By:	RGH	Approved By:	PL
Dwg No.:			

30-NOV-2017 11:19
 R:\Lighting\Projects\2525c\PlanShets\2525c_LE_PSH_E3.dgn
 rgha1 AT RDS 78044

USE FOR LIGHTING CONSTRUCTION ONLY

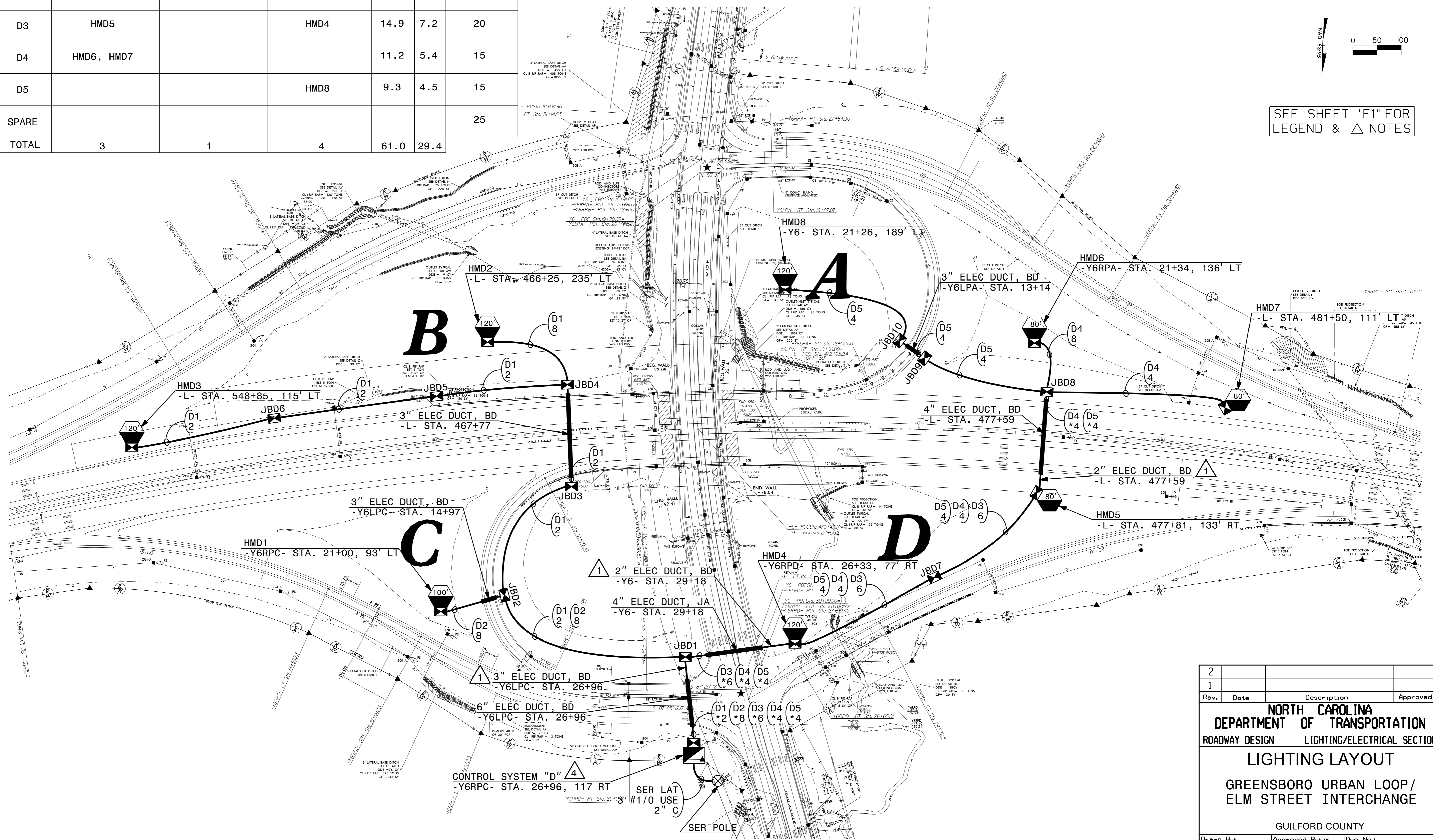


**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



**SEE SHEET "E1" FOR
LEGEND & Δ NOTES**

LOAD SCHEDULE						
OUTSIDE RAMP C FROM WB GREENSBORO URBAN LOOP TO ELM STREET						
10', 3W, 240/480 VAC			CONTROL SYSTEM "D"			
CIRCUIT ID	80' HIGH MAST W/ 8 335W MAX. LED LUMINAIRES	100' HIGH MAST W/ 6 560W MAX. LED LUMINAIRES	120' HIGH MAST W/ 8 560W MAX. LED LUMINAIRES	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
D1			HMD2, HMD3	18.6	8.9	25
D2		HMD1		7.0	3.4	15
D3	HMD5		HMD4	14.9	7.2	20
D4	HMD6, HMD7			11.2	5.4	15
D5			HMD8	9.3	4.5	15
SPARE						25
TOTAL	3	1	4	61.0	29.4	



Rev.	Date	Description	Approved
2			
1			

**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

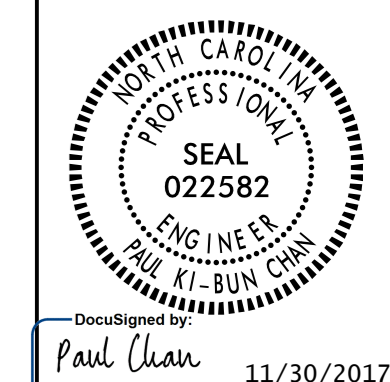
LIGHTING LAYOUT

**GREENSBORO URBAN LOOP/
ELM STREET INTERCHANGE**

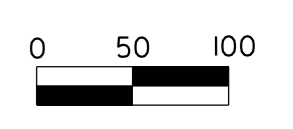
GUILFORD COUNTY

Drawn By: RGH	Approved By: PC	Dwg No.:
------------------	--------------------	----------

20-NOV-2017 11:20
 R:\Lighting\2017\Urbans\Lighting\Lighting\PlanShts\2525c_LE_PSH_E4.dgn
 RGH
 6578044
 AT RD 578044

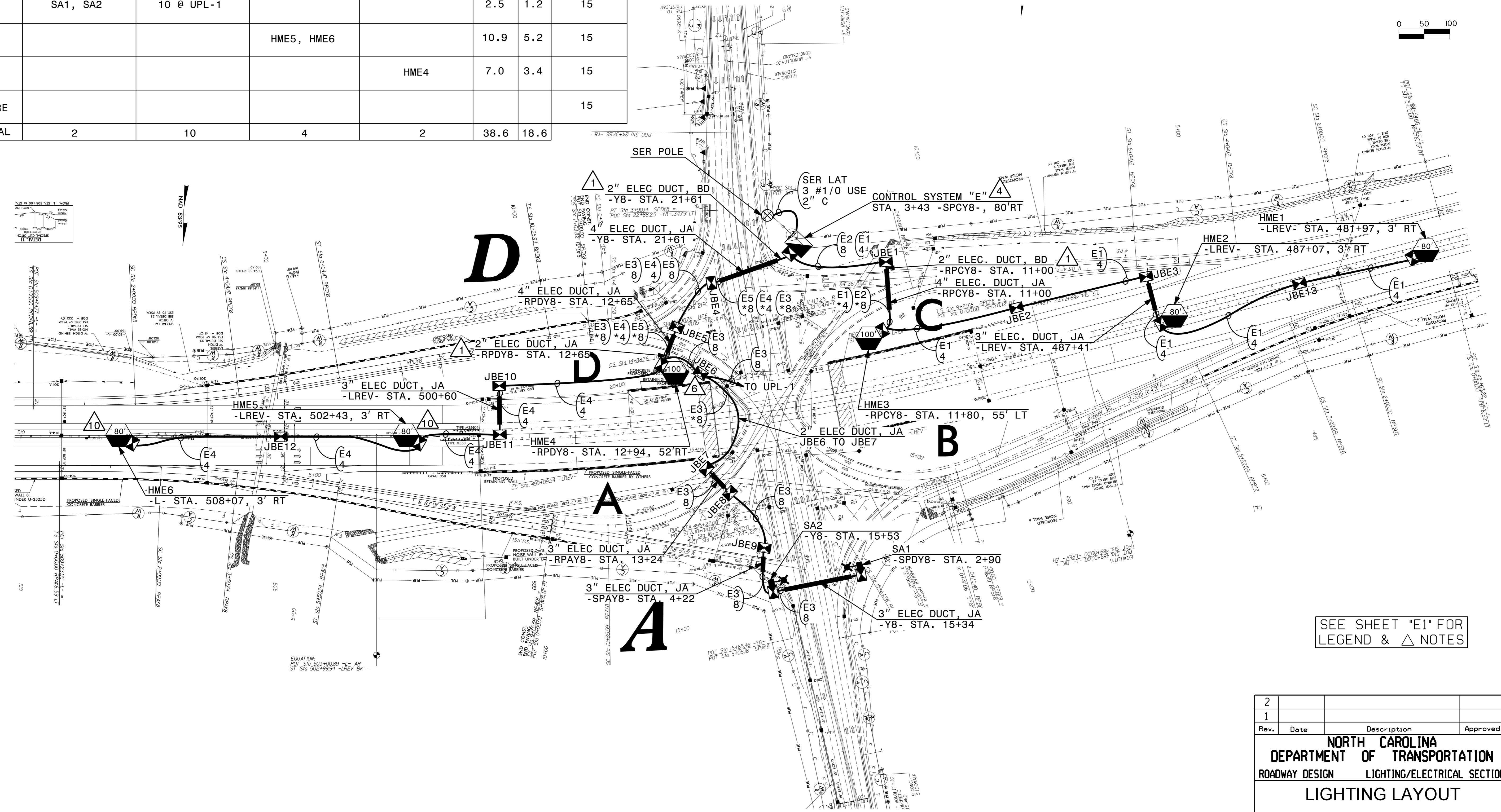


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



USE FOR LIGHTING CONSTRUCTION ONLY

LOAD SCHEDULE							
OUTSIDE RAMP B FROM GREENSBORO URBAN LOOP EB TO LAWDALE DRIVE							
1Ø, 3W, 240/480 VAC			CONTROL SYSTEM "E"				
CIRCUIT ID	SINGLE ARM 1 @ 285W MAX. LED	UNDERPASS TYPE PM 1 @ 62W LED	80' HIGH MAST W/ 8 335W MAX. LED LUMINAIRES	100' HIGH MAST W/ 6 560W MAX. LED LUMINAIRES	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
E1			HME1, HME2		11.2	5.4	15
E2				HME3	7.0	3.4	15
E3	SA1, SA2	10 @ UPL-1			2.5	1.2	15
E4			HME5, HME6		10.9	5.2	15
E5				HME4	7.0	3.4	15
SPARE							15
TOTAL	2	10	4	2	38.6	18.6	



SEE SHEET "E1" FOR LEGEND & △ NOTES

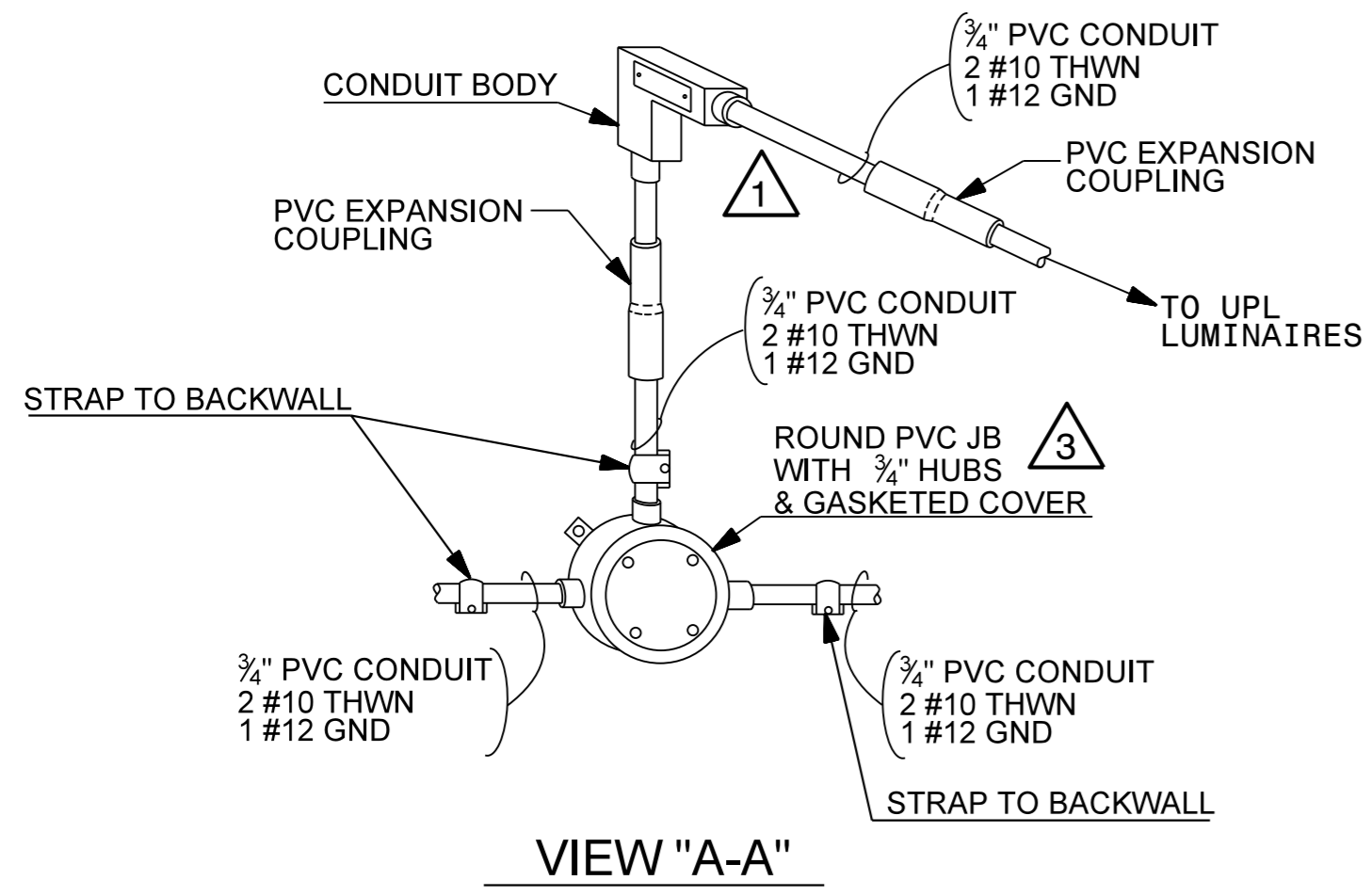
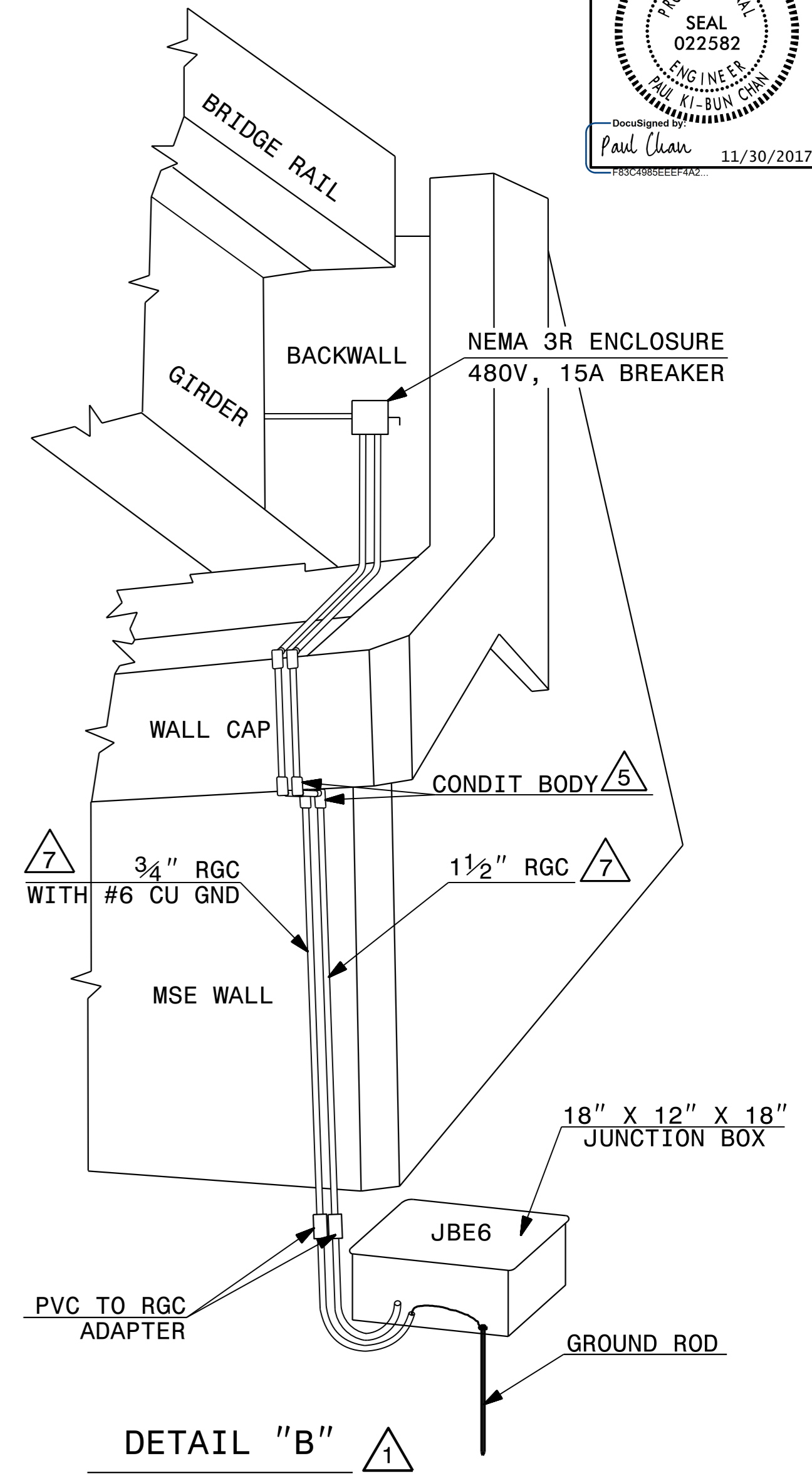
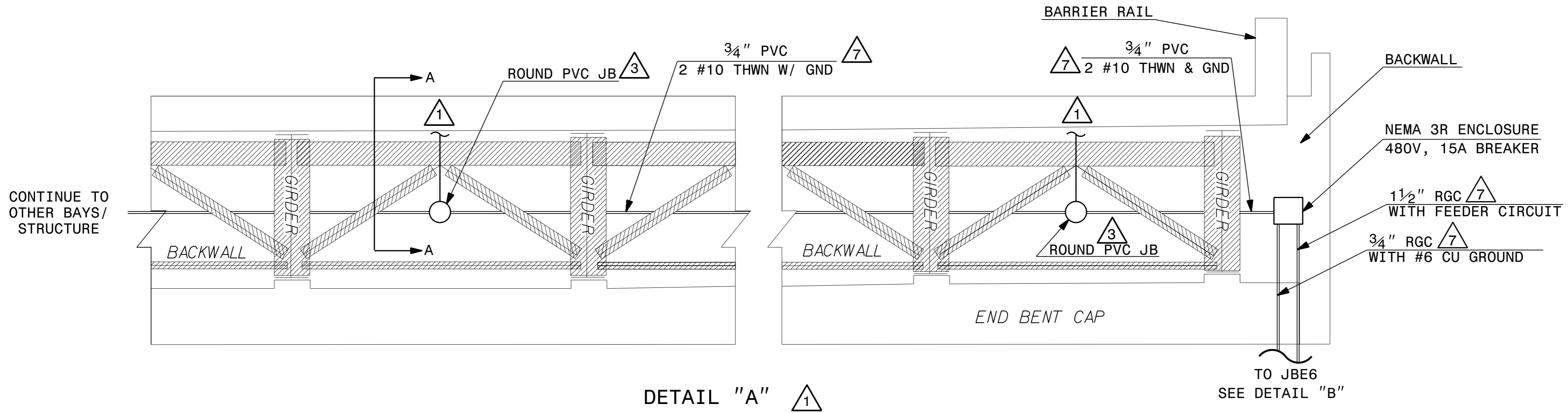
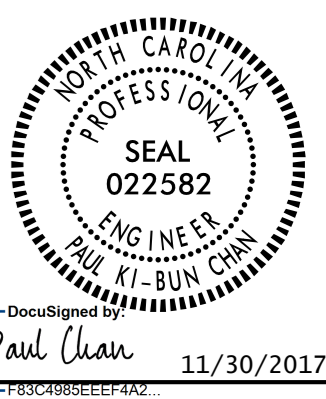
2			
1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION LIGHTING LAYOUT GREENSBORO URBAN LOOP/ LAWDALE DRIVE INTERCHANGE GUILFORD COUNTY			
Drawn By:	RGH	Approved By:	PL
Dwg No.:			

30-NOV-2017 11:21
 R:\Lighting\PlanShots\2525c_LE_PSH_E5.dgn
 rgha1 AT RD578044

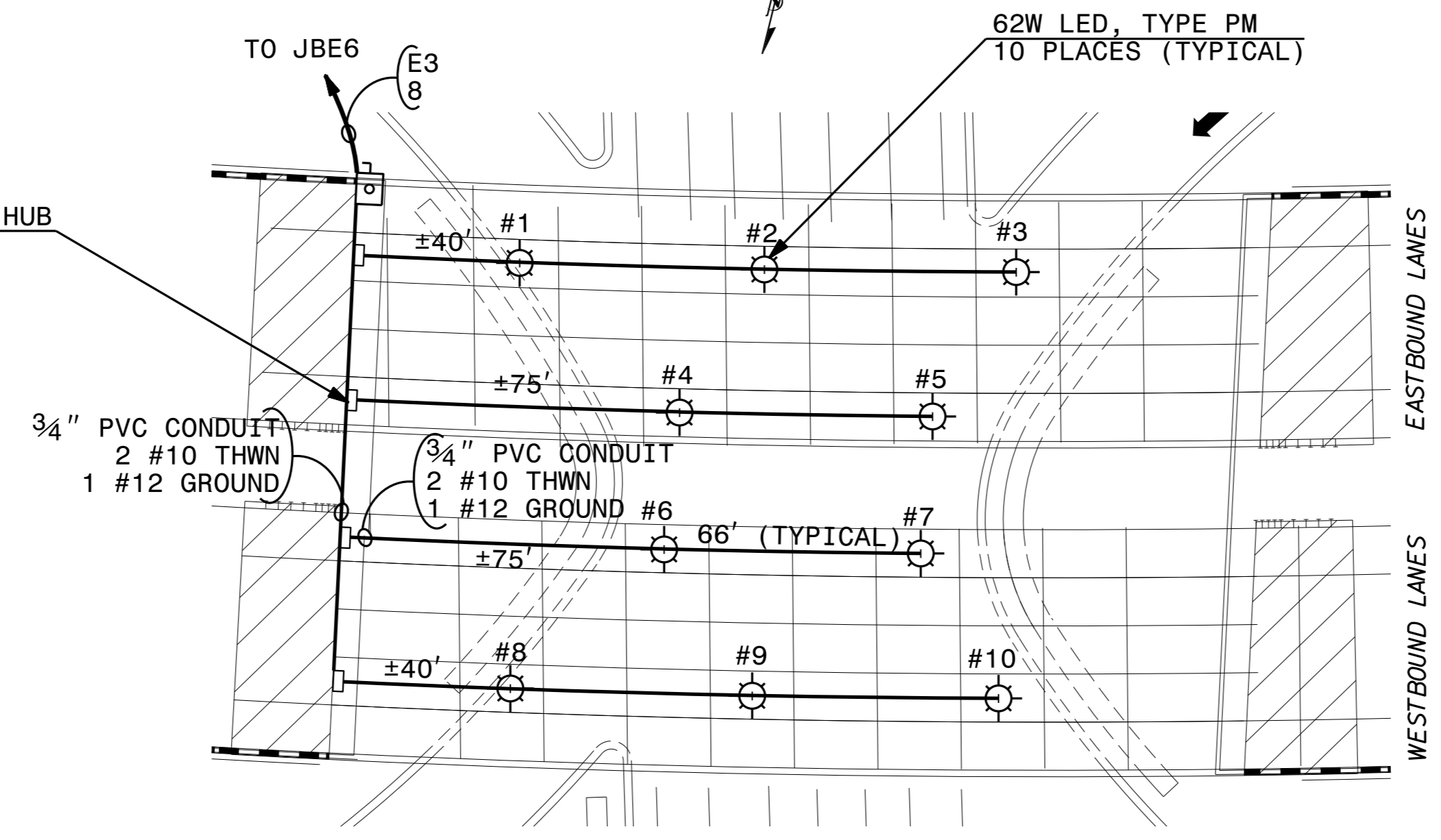
02/03/98

USE FOR LIGHTING CONSTRUCTION ONLY

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



NOT TO SCALE



UNDERPASS LIGHTING LAYOUT

GREENSBORO URBAN LOOP BRIDGES OVER LAWDALE DRIVE

- NOTES**
- 1 SEE STANDARD DRAWING SECTION 1412.01 FOR OTHER INSTALLATION DETAILS.
 - 2 PROVIDE EXPANSION FITTINGS AT BRIDGE EXPANSION JOINTS AND IN EACH SECTION OF CONDUIT THAT IS GREATER THAN 20' LONG BETWEEN TERMINALS.
 - 3 PLUG ANY UNUSED PORTS IN JUNCTION BOX.
 - 4 INSTALL INSULATED GROUNDING BUSHING FOR INCOMING FEEDER CIRCUIT IN RGC. BOND PER NEC.
 - 5 FIELD BEND OR USE CONDUIT BODIES AS REQUIRED.
 - 6 CENTER LIGHTS BETWEEN GIRDERS
 - 7 ATTACH CONDUIT TO WALL USING CONDUIT STRAPS WITH BACKS.

Rev.	Date	Description	Approved
2			
1			

**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

UNDERPASS LIGHTING DETAILS

GREENSBORO URBAN LOOP/
LAWDALE DRIVE INTERCHANGE

GUILFORD COUNTY

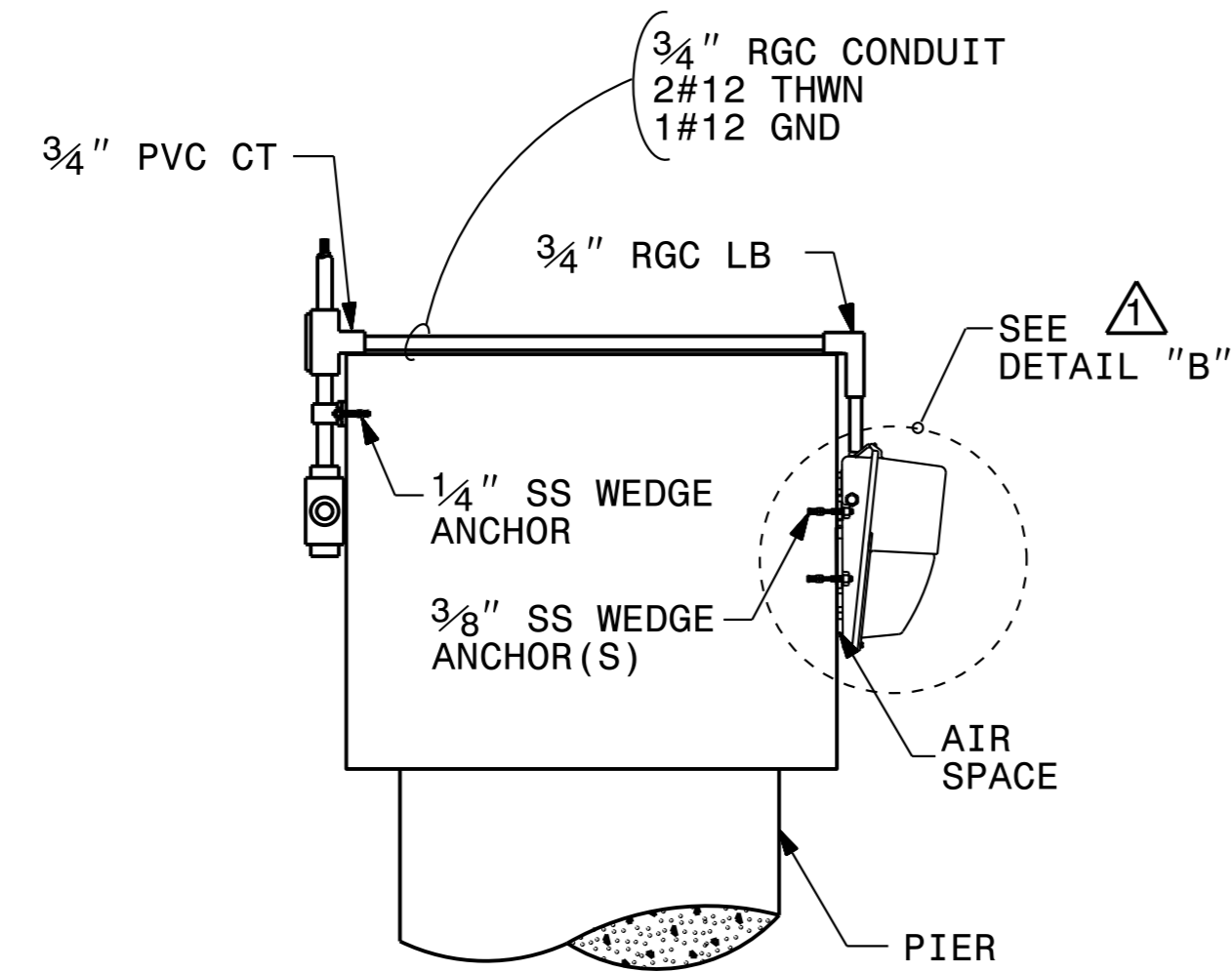
Drawn By: RGH Approved By: PC Dwg No.:

30-NOV-2017 16:08
P:\1\NorthCarolina\LocalDesign\PlanShots\2525C\LE_PSH_E6_UPL_DSN.dgn
\$\$\$\$USERNAME\$\$\$\$

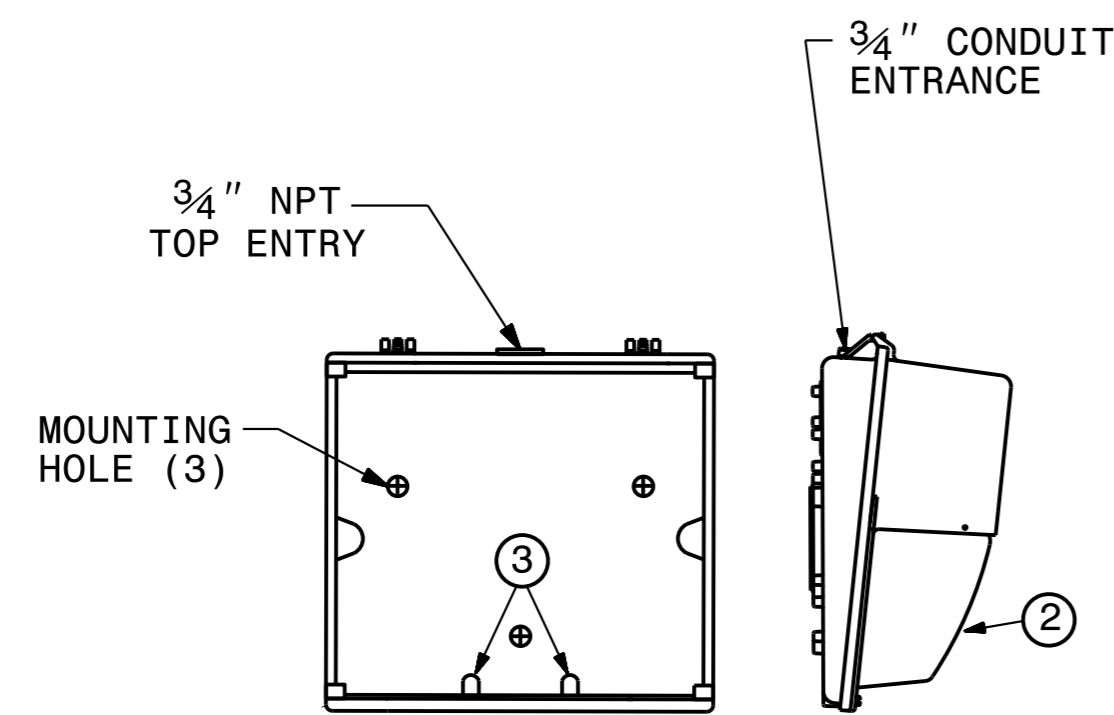
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



USE FOR LIGHTING CONSTRUCTION ONLY



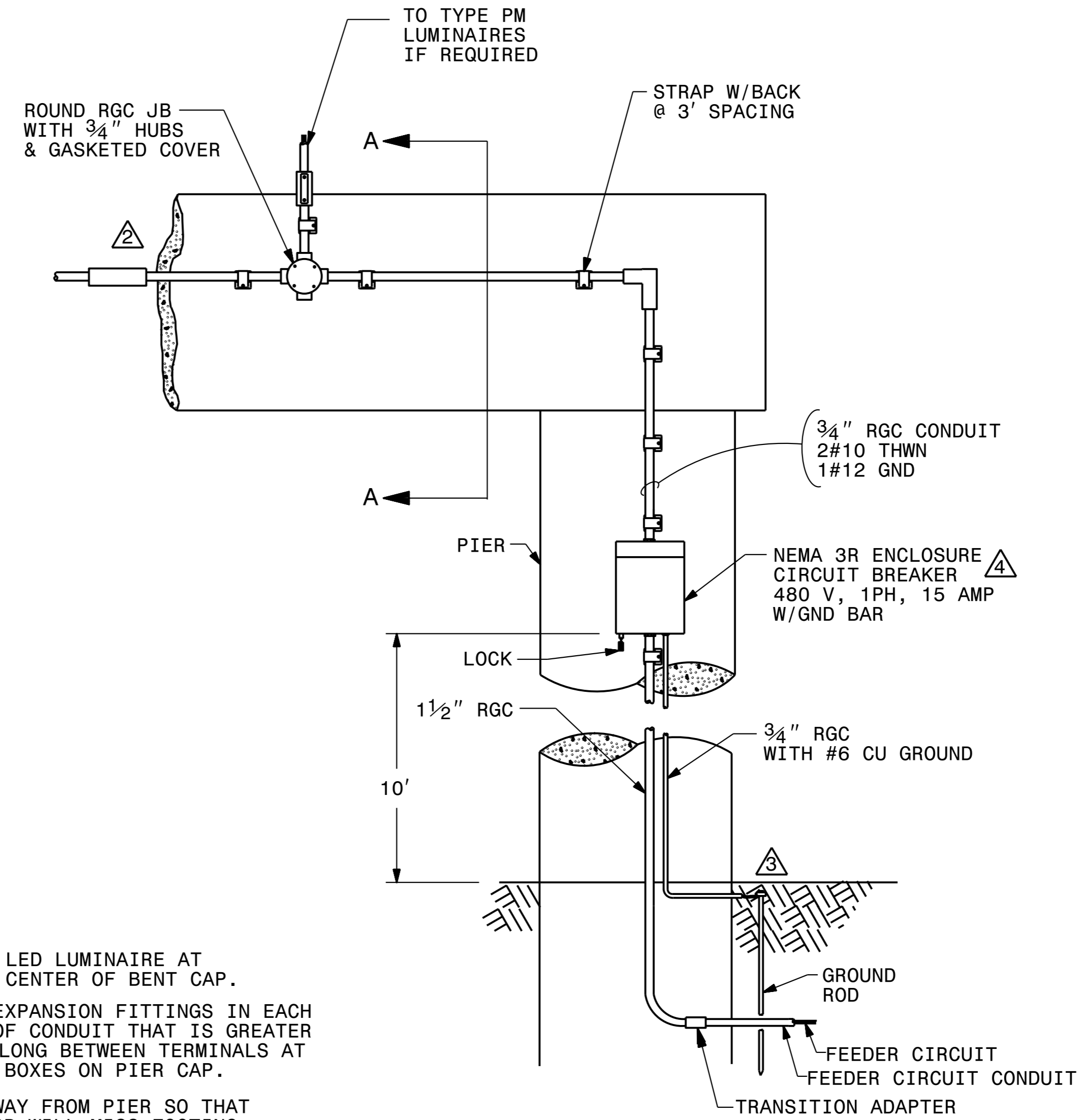
SECTION A-A



BACK SIDE
DETAIL "B"

COMPONENTS

- 1 DIE CAST ALUMINUM HOUSING, DOOR & HINGE
- 2 PRISMATIC REFRACTOR
- 3 TWO SCREW LATCH



TYPE WM LED LUMINAIRE AND CIRCUITRY

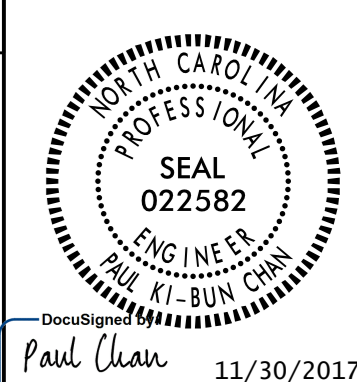
NOTES

- 1 MOUNT WM LED LUMINAIRE AT VERTICAL CENTER OF BENT CAP.
- 2 PROVIDE EXPANSION FITTINGS IN EACH SECTION OF CONDUIT THAT IS GREATER THAN 20' LONG BETWEEN TERMINALS AT JUNCTION BOXES ON PIER CAP.
- 3 EXTEND AWAY FROM PIER SO THAT GROUND ROD WILL MISS FOOTING.
- 4 INSTALL INSULATED GROUNDING BUSHING FOR INCOMING AND DEPARTING FEEDER CIRCUIT IN RGC CONDUIT.

30-NOV-2017 11:22
 R:\Lighting\1412D01\Lighting\1412D01_Lighting\1412D01_Lighting\1412D01_Lighting.dgn
 RGH

Rev.	Date	Description	Approved
2			
1			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION LIGHTING DETAILS 1412D01, SHEET 1 UNDERPASS LIGHTING GUILFORD COUNTY			
Drawn By:	RGH	Approved By:	[Signature]
Dwg No.:			

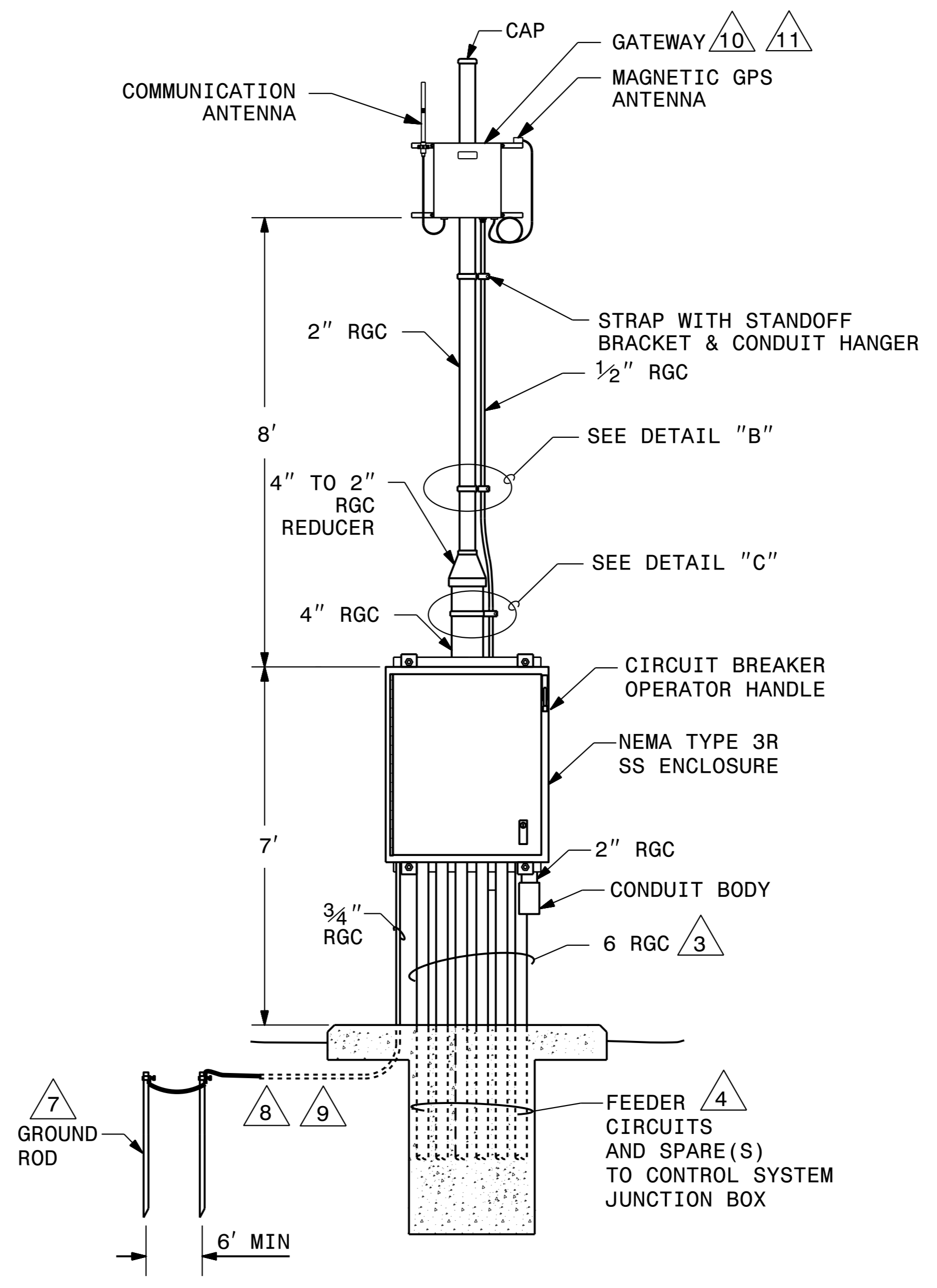
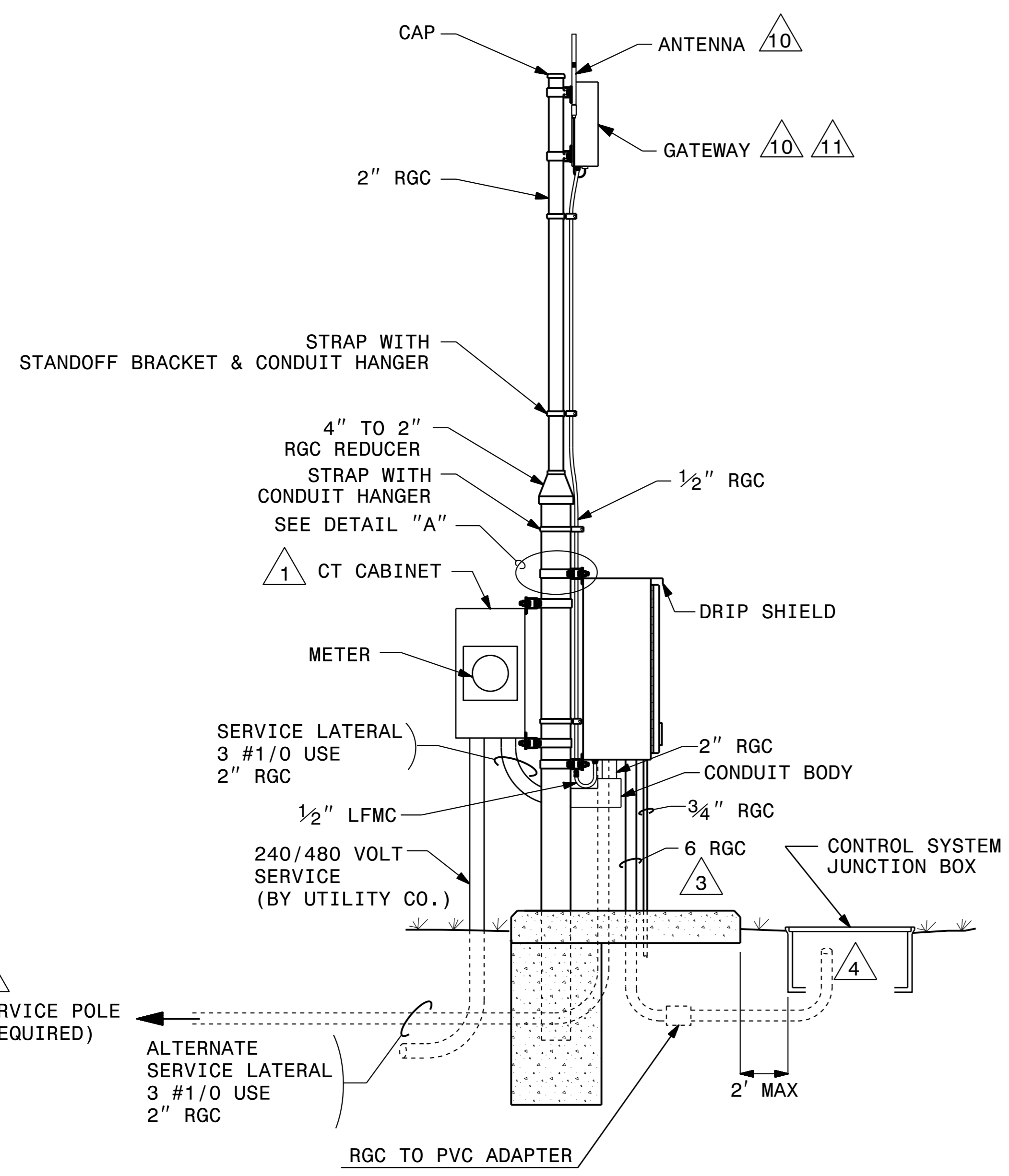
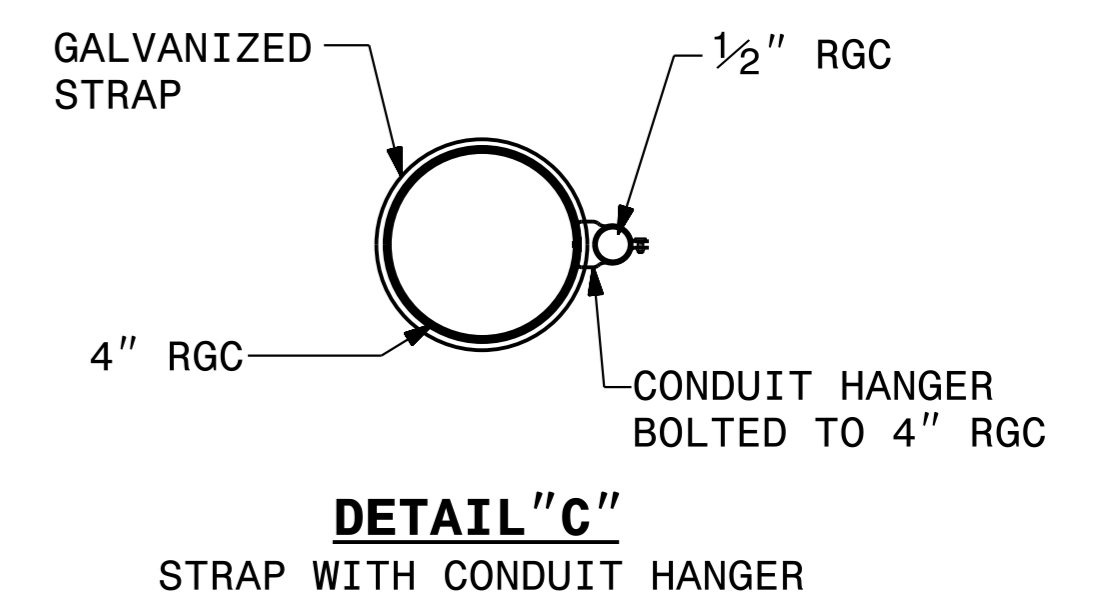
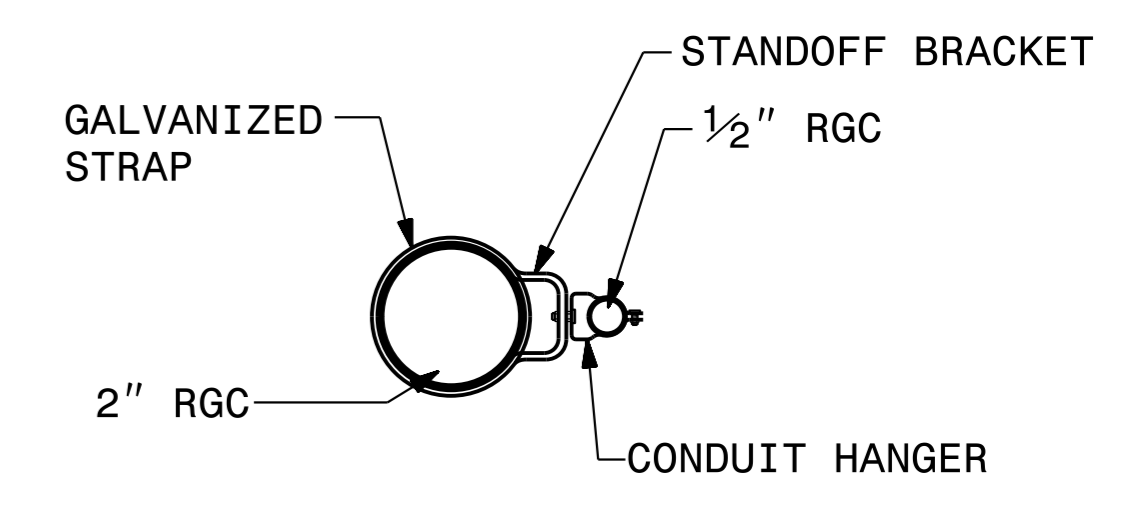
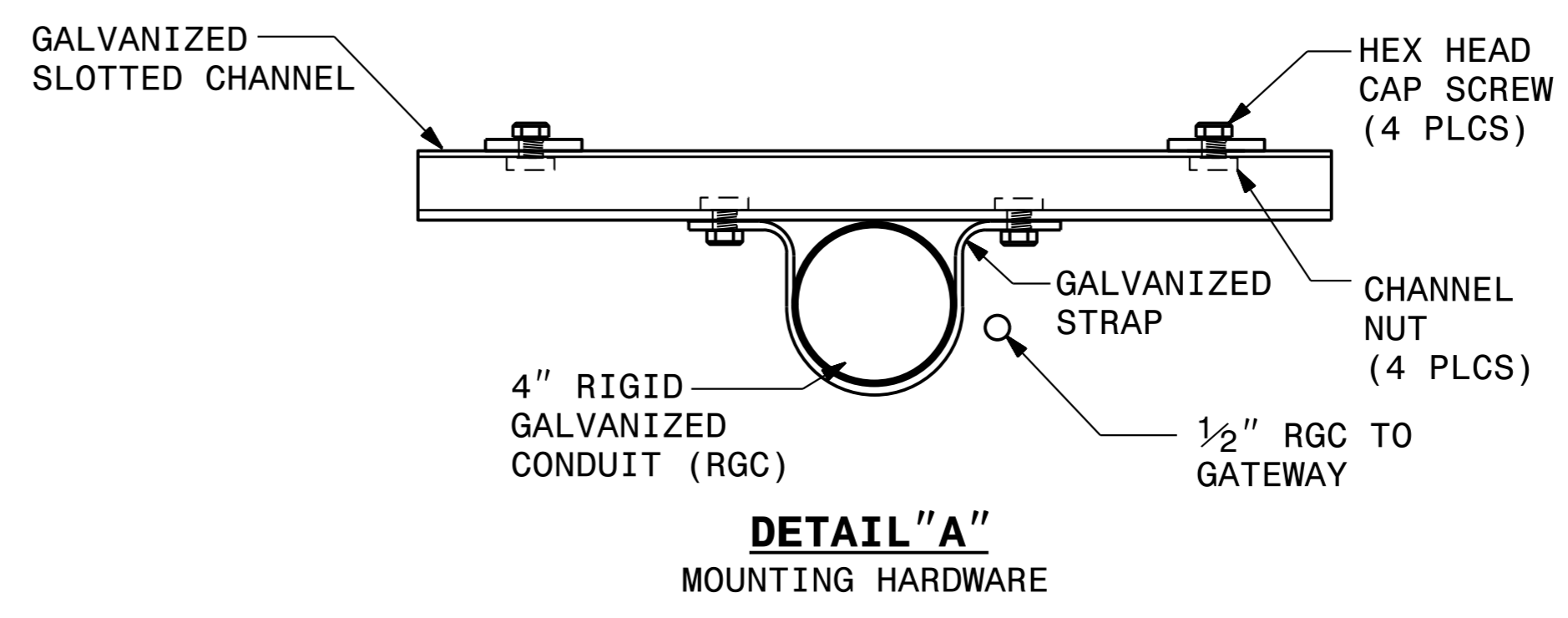
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



USE FOR LIGHTING CONSTRUCTION ONLY

NOTES

- 1 CURRENT TRANSFORMER (CT) CABINET AND METER MAY BE MOUNTED ON SERVICE POLE OR BACK OF CONTROL ENCLOSURE.
- 2 SEE SECTION 1407 OF THE STANDARD SPECIFICATIONS FOR SERVICE POLE AND SERVICE LATERAL.
- 3 SEE PLANS FOR SIZE OF CONDUITS AND/OR ELECTRICAL DUCT.
- 4 STUB FEEDER CIRCUIT CONDUITS INTO JUNCTION BOX. CAP UNUSED CONDUITS. FEEDER CIRCUITS MUST BE MINIMUM 30" BELOW GRADE
- 5 SEE SECTION 1411 OF THE STANDARD SPECIFICATIONS FOR JUNCTION BOX INSTALLATION.
- 6 ALL ABOVE GROUND CIRCUITRY TO BE INSTALLED IN RIGID GALVANIZED CONDUIT. UNDERGROUND FEEDER CIRCUITS TO BE INSTALLED IN SCH 40 PVC CONDUIT.
- 7 TOP OF GROUND ROD(S) SHALL BE NO MORE THAN FOUR INCHES BELOW GRADE TO ALLOW FOR EASE OF INSPECTION BY DEPARTMENT OF INSURANCE, OFFICE OF STATE FIRE MARSHAL PERSONNEL.
- 8 INSTALL A CONDUIT GROUND CHOKE AND BOND THE EQUIPMENT GROUNDING CONDUCTOR TO THE END OF THE 3/4" CONDUIT UNDERGROUND PER NEC ARTICLE 250.64E.
- 9 GROUNDING ELECTRODE CONDUCTOR 3/4" CONDUIT SHALL NOT TERMINATE BELOW THE CONCRETE FOUNDATION PAD.
- 10 GATEWAY AND ANTENNA TO BE PROVIDED BY NCDOT AND INSTALLED BY CONTRACTOR. CONTRACTOR TO PROVIDE AND INSTALL 1/2" RGC AND APPURTENANCES.
- 11 STRAP GATEWAY TO 2" RGC USING STEEL BANDS PREINSTALLED ON GATEWAY ENCLOSURE.



ASSEMBLY

Rev.	Date	Description	Approved
2			
1			

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION
CONTROL SYSTEM DETAILS
1408D01, SHEET 2
CONTROL SYSTEM ASSEMBLY
GUILFORD COUNTY

Drawn By: RGH Approved By: PC Dwg No.:

30-NOV-2017 11:23 R:\Lighting\1408D01\Lighting\1408D01.dgn