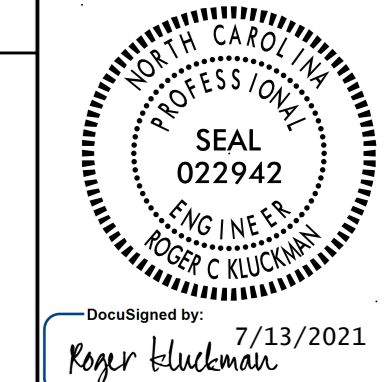


PLANS AND DETAILS FOR PROPOSED LIGHTING /ELECTRICAL CONSTRUCTION

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NOTES

- 1 AT THESE LOCATIONS, PROVIDE ELECTRICAL DUCT IN ACCORDANCE WITH NEC REQUIREMENTS FOR AN APPROVED RACEWAY FOR ELECTRICAL CIRCUITS. SEE TABLE "C"
- 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 ALL JUNCTION BOXES SHALL BE 18" HIGH, UNLESS OTHERWISE NOTED.
- 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 POLE NUMBERING CONVENTION: CONTROL SYSTEM-POLE #-CKT # (A-3-2).
- 9 JUNCTION BOXES SHOWN NEAR LIGHT STANDARDS (LSJB & HMJB) ARE SHOWN FOR CLARITY. THESE JUNCTION BOXES ARE TO BE USED AS A TEE POINT FOR CIRCUITRY TO THE STANDARD, AND SHALL BE INSTALLED FOR BEST ALIGNMENT OF CIRCUITRY WHILE MAINTAINING THE OFFSETS SHOWN IN TABLE "C". SEE STANDARD DRAWINGS 1401.01 AND 1406.01 FOR INSTALLATION DETAILS.
- 10 THE SYMBOLOGY ON THE PLANS SHOW THESE COMPONENTS OUTSIDE OF THE RIGHT-OF-WAY. THE CONTRACTOR SHALL INSTALL ALL LIGHTING EQUIPMENT USING THE OFFSETS SHOWN AND INSIDE THE RIGHT-OF-WAY.
- 11 REFER TO TABLE D ON PLAN SHEET E1A FOR LIGHT STANDARD STATION NUMBERS.
- 12 INSTALL SINGLE ARM LIGHT STANDARD 5 FEET BEHIND NOISE WALL.

SCOPE OF WORK

PLACE ROADWAY LIGHTING SYSTEM INTO SERVICE BY PROVIDING AND INSTALLING LIGHT STANDARDS WITH LIGHT EMITTING DIODE LUMINAIRES, UNDERGROUND CIRCUITRY, CONTROL SYSTEM AND JUNCTION BOXES.

DESIGN CRITERIA

- 0.8 AVERAGE FOOTCANDLE ON TRAVEL LANES
- 4:1 AVERAGE TO MINIMUM UNIFORMITY RATIO ON TRAVEL LANES
- 2018 AASHTO ROADWAY LIGHTING DESIGN GUIDE
- 2013 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 6TH EDITION AND LATEST INTERIM SPECIFICATIONS VALID AT THE TIME OF LETTING (HANDHOLE SHAFT DIAMETER REQUIREMENT AND HANDHOLE PLACEMENT REQUIREMENT WAIVED)
- 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
1408.01	LIGHT CONTROL SYSTEM
1409.01	ELECTRICAL DUCT
1410.01	FEEDER CIRCUITS
1411.01	ELECTRICAL JUNCTION BOXES

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

LEGEND

- PROPOSED 100' HIGH MAST STANDARD W/ HM FOUNDATION, JUNCTION BOX & 6 HM LED LUMINAIRES. 560W MAX, 54,000 MIN. MAINTAINED DELIVERED LUMENS, TYPE V. MAXIMUM BUG RATING 5-0-5.
- PROPOSED LIGHT STANDARD TYPE MTLT 45' WITH 15' SINGLE ARM. INCLUDES STANDARD FOUNDATION TYPE R1 OR R2, JUNCTION BOX & 285W MAX LED ROADWAY LUMINAIRE. IES DISTRIBUTION: TYPE II OR III AS REQUIRED. MAXIMUM BUG RATING 3-0-3.
- PROPOSED LIGHT STANDARD TYPE MTLT 45' WITH 15' TWIN ARMS. INCLUDES STANDARD FOUNDATION TYPE R1 OR R2, JUNCTION BOX & 285W MAX LED ROADWAY LUMINAIRE. IES DISTRIBUTION: TYPE II OR III AS REQUIRED. MAXIMUM BUG RATING 3-0-3.
- PROPOSED CONTROL SYSTEM WITH JUNCTION BOX. SIZE BREAKERS AS SHOWN IN LOAD SCHEDULE.
- PROPOSED ELECTRICAL JUNCTION BOX. SEE TABLE C, SHEET E1A, FOR DETAILS AND TYPE.
- REFERENCE TO CORRESPONDING NOTE AS NUMBERED.
- PROPOSED FEEDER CIRCUIT. CONTROL SYSTEM (A), CIRCUIT NUMBER (1) PLAN SYMBOL (6). SEE TABLE A, THIS SHEET.
- PROPOSED 30' CLASS 4 SERVICE POLE AND LATERAL 3 #1/0 USE CONDUCTORS 2" CONDUIT
- PROPOSED ELECTRICAL DUCT SIZE 2", 3" OR 4" TYPE (JA) OR (BD) LOCATION: SEE TABLE B, SHEET E1A.
2", 3" OR 4" ELEC. DUCT JA & BD

TABLE "A"
CIRCUITRY CONDUCTOR CONDUIT TYPE & SIZE

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
*8	2 #8 Ø 1 #10G	2 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR
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
*6	2 #6 Ø 1 #10G	2 AWG SIZE 6 CONDUCTOR (BK & RD) 1 AWG SIZE 8 GROUNDING CONDUCTOR
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
*4	2 #4 Ø 1 #6G	2 AWG SIZE 4 CONDUCTOR (BK & RD) 1 AWG SIZE 6 GROUNDING CONDUCTOR
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 #2 Ø 1 #4G	2 AWG SIZE 2 CONDUCTOR (BK & RD) 1 AWG SIZE 4 GROUNDING CONDUCTOR

ABBREVIATIONS

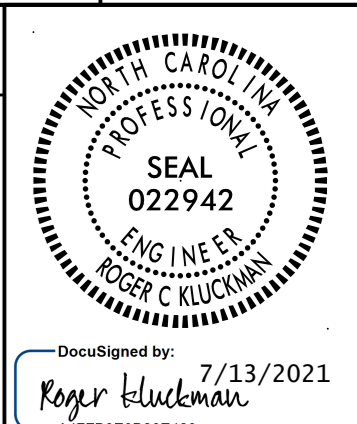
BD	BURIED	PVC	PVC SCHEDULE 40 CONDUIT
LT	LIGHT	RGC	RIGID GALVANIZED STEEL CONDUIT
JA	JACKED	C	CONDUIT
MH	MOUNTING HEIGHT	CKT	CIRCUIT
Ø	PHASE	N	NEUTRAL
SER LAT	SERVICE LATERAL	G	GROUND
IGJB	IN GROUND JUNCTION BOX	HM	HIGH MAST
LED	LIGHT EMITTING DIODE	LSJB	LIGHT STANDARD JUNCTION BOX
HMJB	HIGH MAST JUNCTION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

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**TABLE "C"
JUNCTION BOX SUMMARY**

SHEET	LABEL	LOCATION AND OFFSET	CONTROL SYSTEM "A"													GPS LOCATION LAT/LONG
			TYPE, PAY ITEM & SIZE													
			IN GROUND			LIGHT STANDARD			HIGH MAST			CONTROL SYSTEM	BARRIER RAIL	SIDE WALK		
IG18 18"X12"	IG30 30"X17"	IG36 36"X24"	LS18 18"X12"	LS30 30"X17"	LS36 36"X24"	HM18 18"X12"	HM30 30"X17"	HM36 36"X24"	CS36 36"X24"	BR18 18"X12"	SW18 18"X12"					
E2	CSAJB	2' FROM CS"A"							X							
E2	HMA1JB	10' FROM A-1-1						X								
E2	HMA2JB	10' FROM A-2-2						X								
E2	HMA3JB	10' FROM A-3-3						X								
E2	LSA4JB	5' FROM A-4-1				X										
E2	LSA5JB	5' FROM A-5-1				X										
E2	LSA6JB	5' FROM A-6-1				X										
E2	LSA7JB	5' FROM A-7-4				X										
E3	LSA8JB	5' FROM A-8-4				X										
E3	LSA9JB	5' FROM A-9-4				X										
E3	LSA10JB	5' FROM A-10-4				X										
E3	LSA11JB	5' FROM A-11-4				X										
E2	LSA112JB	5' FROM A-12-2				X										
E2	LSA13JB	5' FROM A-13-5				X										
E2	LSA14JB	5' FROM A-14-5				X										
E2	LSA15JB	5' FROM A-15-5					X									
E2	LSA16JB	5' FROM A-16-5					X									
E2	LSA17JB	5' FROM A-17-5				X										
E2	LSA18JB	5' FROM A-18-5				X										
E2	LSA19JB	5' FROM A-19-5				X										
E2	LSA20JB	5' FROM A-20-5				X										
E2	LSA21JB	5' FROM A-21-5				X										
E2	LSA22JB	5' FROM A-22-5				X										
E2	LSA23JB	5' FROM A-23-5				X										
E2	LSA24JB	5' FROM A-24-5				X										
E2	JB1	-Y4SB1- STA. 24+73, 70' RT	X													
E2	JB2	-Y4RPB- STA. 22+60, 73' RT	X													
E2	JB3	-Y4RPB- STA. 20+00, 73' RT	X													
E2	JB4	-Y4RPB- STA. 17+46, 38' RT	X													
E2	JB5	-L- STA.715+34, 90' RT	X													
E2	JB6	-L- STA.715+34, 90' LT	X													
E2	JB7	-Y4RPB- STA. 14+42, 43' LT	X													
E2	JB8	-Y4SPC- STA. 23+38, 20' LT		X												
E2	JB9	-Y4RPC- STA. 21+70, 20' RT		X												
E2	JB10	-L- STA. 726+80, 95' RT		X												
E2	JB11	-L- STA. 726+80 IN MEDIAN		X												
E2	JB12	-L- STA. 726+80, 90' LT	X													
E2	JB13	-Y4RPD- STA. 21+84, 45' LT	X													
E2	JB14	-Y4RPD- STA. 21+84, 57' RT	X													
E2	JB15	-Y4SPD1- STA. 25+07 33' RT	X													
E2	JB16	-Y4SPA- STA. 24+95 40' LT	X													
E2	JB17	-Y4RPB- STA. 22+60, 35' LT	X													
E2	JB18	-Y4RPC- STA. 21+70, 30' LT		X												
CSA TOTALS			13	5		19	2		3			1				

**TABLE "B"
ELECTRICAL DUCT SUMMARY
(ESTIMATED LENGTH IN FEET)**

LOCATION	RACEWAY	SHEET	TYPE							
			JACKED (JA) FEET				BURIED (BD) FEET			
			SIZE 2"	SIZE 3"	SIZE 4"	SIZE 6"	SIZE 2"	SIZE 3"	SIZE 4"	SIZE 6"
-Y4- STA. 24+27						120				
-Y4- STA. 24+27	CSAJB - SAJB12						190			
-L- STA. 726+80					150					
-L- STA. 726+80	JB10 -JB12						200			
-Y4RPC- STA. 20+60					45					
-Y4RPC- STA. 20+60	SAJB16 - JB9						80			
-Y4RPD- STA. 21+84				75						
-Y4- STA. 34+88				180						
-Y4RPB- STA. 17+46				50						
-Y4RPB- STA. 22+60				90						
-L- STA. 715+34				150						
-Y4RPB- STA. 14+40				110						
CSA TOTALS				655	315		470			

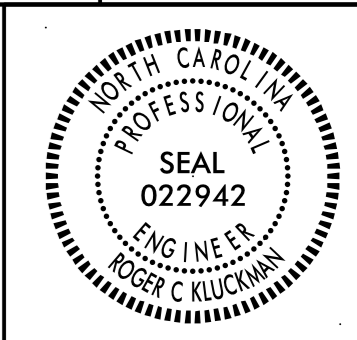
**TABLE D
SINGLE ARM & TWIN ARM LIGHT STANDARDS**

SHEET	LABEL	LOCATION AND OFFSET
E2	A-4-1	-L- STA. 706+50 (IN MEDIAN)
E2	A-5-1	-L- STA. 709+30 (IN MEDIAN)
E2	A-6-1	-L- STA. 712+10 (IN MEDIAN)
E2	A-7-4	-L- STA. 728+30 (IN MEDIAN)
E3	A-8-4	-L- STA. 731+08 (IN MEDIAN)
E3	A-9-4	-L- STA. 733+90 (IN MEDIAN)
E3	A-10-4	-L- STA, 736+65 (IN MEDIAN)
E3	A-11-4	-L- STA. 739+40 (IN MEDIAN)
E2	A-12-2	-Y4- STA. 24+13 LT
E2	A-13-5	-Y4- STA. 21+25 LT
E2	A-14-5	-Y4- STA. 21+64 RT
E2	A-15-5	-Y4- STA. 24+75 RT
E2	A-16-5	-Y4RPC- STA. 20+82 LT
E2	A-17-5	-Y4RPC- STA. 17+80 LT
E2	A-18-5	-Y4RPD- STA. 18+07 RT
E2	A-19-5	-Y4EB- STA. 21+82 RT
E2	A-20-5	-Y4WB- STA. 21+80 LT
E2	A-21-5	-Y4- STA. 38+70 RT
E2	A-22-5	-Y4- STA. 38+77 LT
E2	A-23-5	-Y4- STA. 41+17 RT
E2	A-24-5	-Y4- STA. 41+17 LT

SEE SHEET "E-1" FOR
LEGEND & Δ NOTES

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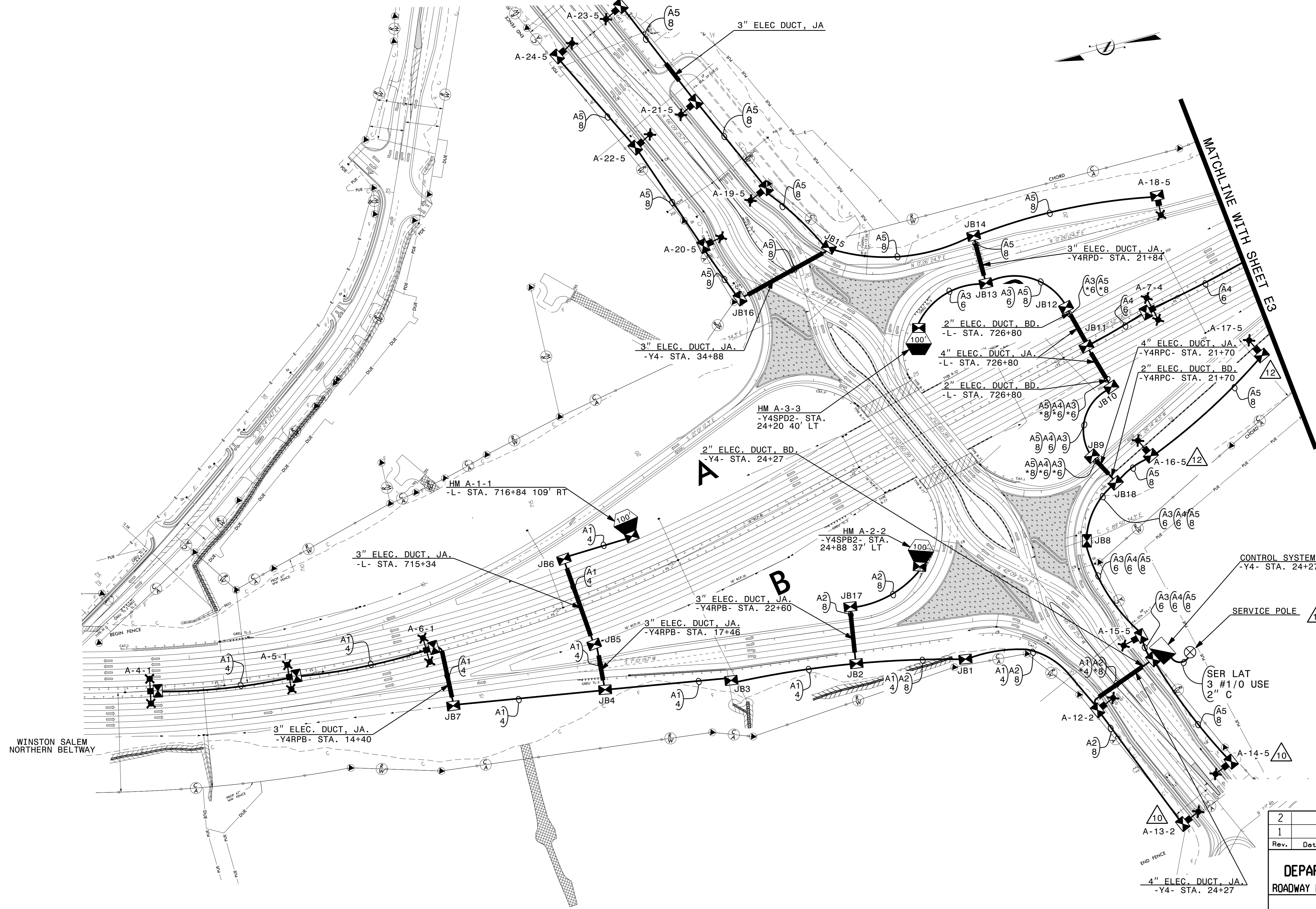
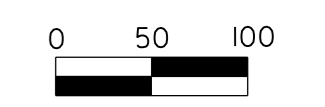
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Rev.	Date	Description	Approved
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

LIGHTING LAYOUT
WS NORTHERN BELTWAY / KERNERSVILLE RD INTERCHANGE

FORSYTH COUNTY

Drawn By: AB Approved By: Dwg No.:

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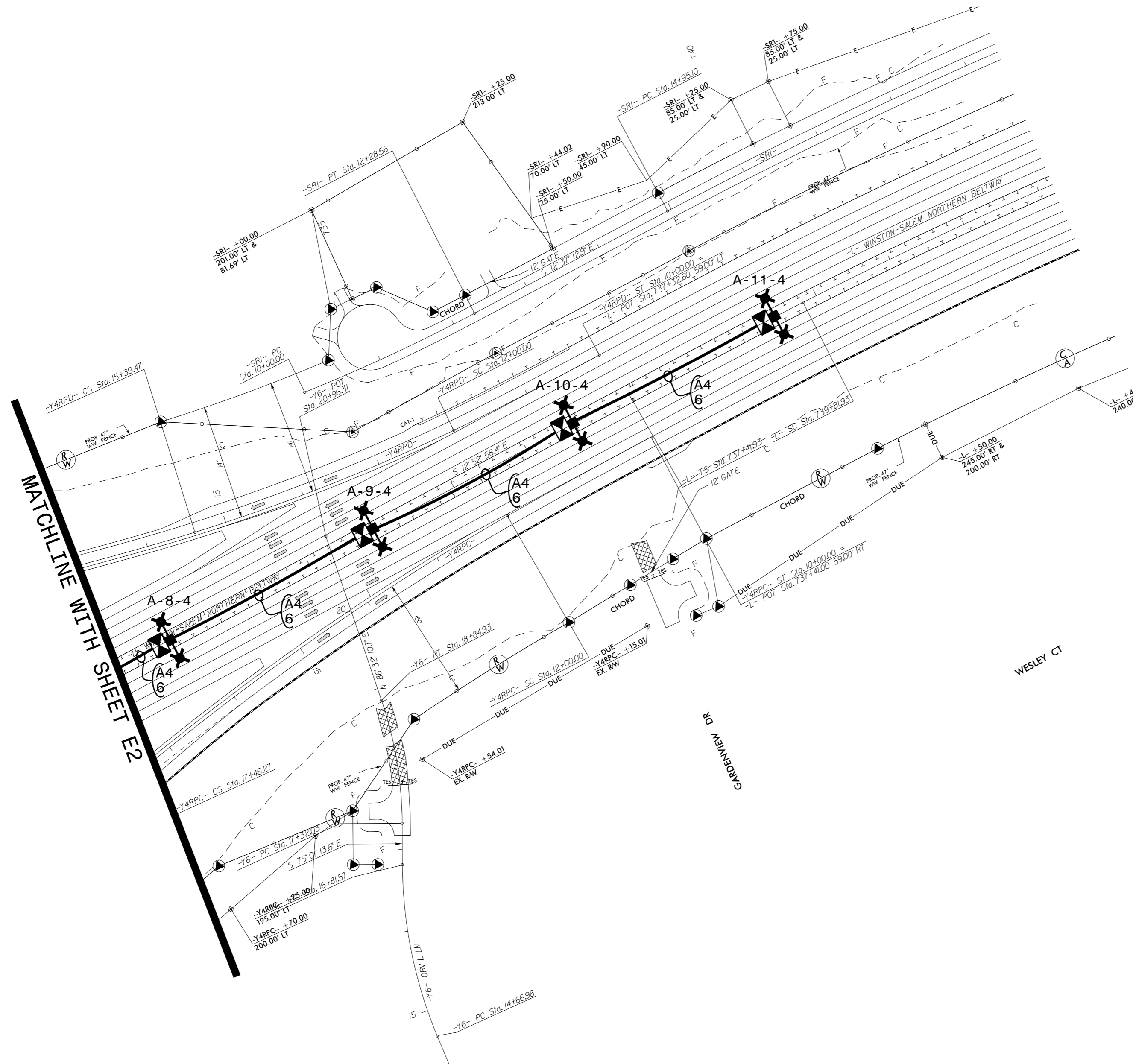
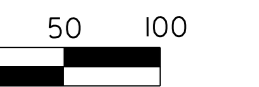
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PROJECT REFERENCE NO. U-2579AB SHEET NO. E-3



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LOAD SCHEDULE
SW QUAD NEAR MOTSINGER DR.

1Ø, 3W, 240/480 VAC CONTROL SYSTEM "A"

CIRCUIT ID	SINGLE ARM 1 @ 285W MAX. LED	TWIN ARM 2 @ 285W LED	100' HIGH MAST W/ 6 560W MAX. LED LUMINAIRES	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
A1		A-4, A-5, A-6	A-1	10.6	5.1	15
A2	A-12, A-13		A-2	8.2	3.9	15
A3			A-3	7.0	3.4	15
A4		A-7, A-8, A-9 A-10, A-11		6.0	2.9	15
A5	A-14 - A-24			6.6	3.2	15
SPARE						15
TOTAL	13	8	3	38.4	18.5	

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Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION LIGHTING LAYOUT WS NORTHERN BELTWAY /KERNERSVILLE RD INTERCHANGE FOSYTH COUNTY			
Drawn By:	AB	Approved By:	Dwg No.: