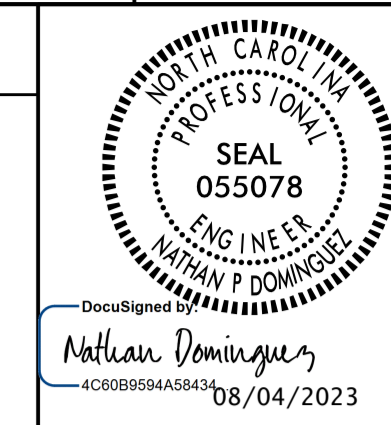


PLANS AND DETAILS FOR PROPOSED LIGHTING /ELECTRICAL CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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 ALL IN GROUND JUNCTION BOXES SHALL BE 18" HIGH AND ALL BARRIER RAIL AND SIDEWALK JUNCTION BOXES SHALL BE 6" HIGH, UNLESS OTHERWISE NOTED.
- 7 CONTRACTOR SHALL RECORD THE GPS COORDINATES OF EACH JUNCTION BOX WITHIN 3' ACCURACY, 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 SERVICE POLE SHALL NOT BE INSTALLED PRIOR TO COORDINATION WITH THE LOCAL UTILITY. PROVIDE PROOF OF COORDINATION AND PROOF OF NEED TO THE ENGINEER AFTER CONSULTING WITH THE LOCAL UTILITY. THE SERVICE POLE MAY BE DELETED FROM THE CONTRACT IF NOT REQUIRED. REFER TO ARTICLE 1407-3 OF THE 2018 NCDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.
- 11 WHERE A CURRENT TRANSFORMER (CT) CABINET IS REQUIRED, THE CT CABINET AND ASSOCIATED HARDWARE IS INCIDENTAL TO THE PAY ITEM FOR THE LIGHTING CONTROL PANEL.
- 12 CLEAR AND GRUB AN AREA 25' IN RADIUS FROM THE CENTER OF HIGH MAST FOUNDATION.

SCOPE OF WORK

PLACE ROADWAY LIGHTING SYSTEM INTO SERVICE BY PROVIDING AND INSTALLING 120' HIGH MASTS, 100' HIGH MASTS, 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 ROADSIDE 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 110 MPH
- DESIGN HIGH MOUNT STANDARD FOUNDATION FOR BASIC WIND SPEED OF 130 MPH. ANY CONTRACTOR-DESIGNED SITE SPECIFIC FOUNDATION DESIGN SHALL BE DESIGNED FOR THE SAME WIND SPEED
- 2020 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
1402.01	HIGH MOUNT FOUNDATION
1403.01	HIGH MOUNT LED LUMINAIRES
1404.01	LIGHT STANDARDS
1405.01	STANDARD FOUNDATION
1406.01	LIGHT STANDARD LUMINAIRES
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 120' HIGH MAST STANDARD W/ HM FOUNDATION, JUNCTION BOX & 8 HM LED LUMINAIRES. 560W MAX, 54,000 MIN. MAINTAINED DELIVERED LUMENS, TYPE V. MAXIMUM BUG RATING 5-0-5.
- 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 CONTROL SYSTEM WITH JUNCTION BOX. SEE PLANS FOR BREAKER SIZES.
- 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.

PLAN SYMBOL	DESCRIPTION	CONTRACT ITEM
8	2 #8 Ø 1 #10G 1.5" P	2 - 8 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*8	2 #8 Ø 1 #10G	2 - 8 W/G FEEDER CIRCUIT
6	2 #6 Ø 1 #8G 1.5" P	2 - 6 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*6	2 #6 Ø 1 #8G	2 - 6 W/G FEEDER CIRCUIT
4	2 #4 Ø 1 #6G 1.5" P	2 - 4 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*4	2 #4 Ø 1 #6G	2 - 4 W/G FEEDER CIRCUIT
2	2 #2 Ø 1 #4G 1.5" P	2 - 2 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*2	2 #2 Ø 1 #4G	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
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

COMPUTED BY: SAM DATE: 06/14/23
CHECKED BY: RGH DATE: 06/14/23


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TABLE "C"
JUNCTION BOX SUMMARY

SHEET	LABEL	LOCATION AND OFFSET	CONTROL SYSTEM "A"													GPS LOCATION 
			TYPE, PAY ITEM & SIZE													
			IN GROUND			LIGHT STANDARD			HIGH MAST			CONTROL SYSTEM	BARRIER RAIL	SIDE WALK	LAT/LONG	
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 CONTROL SYSTEM "A"												X		
E2	JBA1	-RPB- STA. 23+39, 38' LT			X											
E2	A-1-1JB	10' FROM HIGH MAST A-1								X						
E2	JBA2	-Y1- STA. 34+54, 63' LT			X											
E2	JBA3	-Y1- STA. 34+54, 63' RT			X											
E2	A-2-1JB	10' FROM HIGH MAST A-2						X								
E2	JBA4	-L- STA. 52+82, 69' LT			X											
E2	JBA5	-L- STA. 49+35, 70' LT	X													
E2	A-3-2JB	10' FROM HIGH MAST A-3						X								
E2	JBA6	-RPC- STA. 16+03, 25' RT	X													
E2	JBA7	-RPC- STA. 16+03, 36' LT	X													
E2	A-4-2JB	5' FROM LIGHT STANDARD A-4				X										
E2	A-5-2JB	5' FROM LIGHT STANDARD A-5				X										
E2	A-6-2JB	5' FROM LIGHT STANDARD A-6				X										
E2	JBA8	-L- STA. 52+82, 74' RT	X													
E2	A-7-3JB	10' FROM HIGH MAST A-7						X								
E2	JBA9	-RPD- STA. 19+35, 27' LT	X													
E2	JBA10	-RPD- STA. 19+35, 38' RT	X													
E2	JBA11	-RPD- STA. 16+04, 39' RT	X													
E2	JBA12	-RPD- STA. 13+87, 56' RT	X													
E2	A-8-3JB	5' FROM LIGHT STANDARD A-8				X										
E2	A-9-3JB	5' FROM LIGHT STANDARD A-9				X										
E2	A-10-3JB	5' FROM LIGHT STANDARD A-10				X										
E2	JBA13	-L- STA. 55+59, 94' RT	X													
E2	A-11-4JB	10' FROM HIGH MAST A-11						X								
E2	JBA14	-L- STA. 59+78, 71' LT	X													
E2	JBA15	-L- STA. 59+78, 78' RT	X													
E2	JBA16	-L- STA. 62+67, 74' RT	X													
E2	A-12-5JB	10' FROM HIGH MAST A-12						X								
E2	JBA17	-L- STA. 67+18, 66' RT	X													
E2	JBA18	-RPA- STA. 14+60, 44' LT	X													
E2	JBA19	-RPB- STA. 12+67, 39' RT	X													
E2	A-13-5JB	5' FROM LIGHT STANDARD A-13				X										
E2	A-14-5JB	5' FROM LIGHT STANDARD A-14				X										
E2	A-15-5JB	5' FROM LIGHT STANDARD A-15				X										
E2	A-16-5JB	5' FROM LIGHT STANDARD A-16				X										
E2	A-17-5JB	5' FROM LIGHT STANDARD A-17				X										
E2	A-18-5JB	5' FROM LIGHT STANDARD A-18				X										
CS-A TOTALS			15	4	12			5		1	1					

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UNLESS ALL SIGNATURES COMPLETED

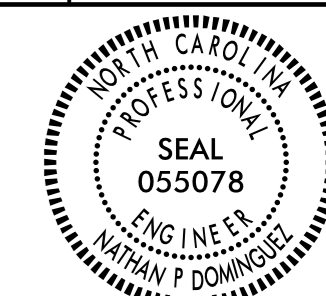


TABLE "B" ELECTRICAL DUCT SUMMARY (ESTIMATED LENGTH IN FEET)										
LOCATION	RACEWAY 	SHEET	TYPE							
			JACKED (JA) FEET				BURIED (BD) FEET			
			SIZE 2"	SIZE 3"	SIZE 4"	SIZE 6"	SIZE 2"	SIZE 3"	SIZE 4"	SIZE 6"
-RPB- STA. 23+44	CSAJB - JBA1	E2			140		240			
-Y1- STA. 34+54	JBA2 - JBA3	E2			100		130			
-L- STA. 52+82	JBA4 - JBA8	E2			110		150			
-RPC- STA. 16+03		E2		70						
-RPD- STA. 19+35		E2		70						
-L- STA. 59+78		E2		155						
-RPA- STA. 14+47		E2		70						
-L- STA. 67+18		E2		165						
CS-A TOTALS				530	350		520			

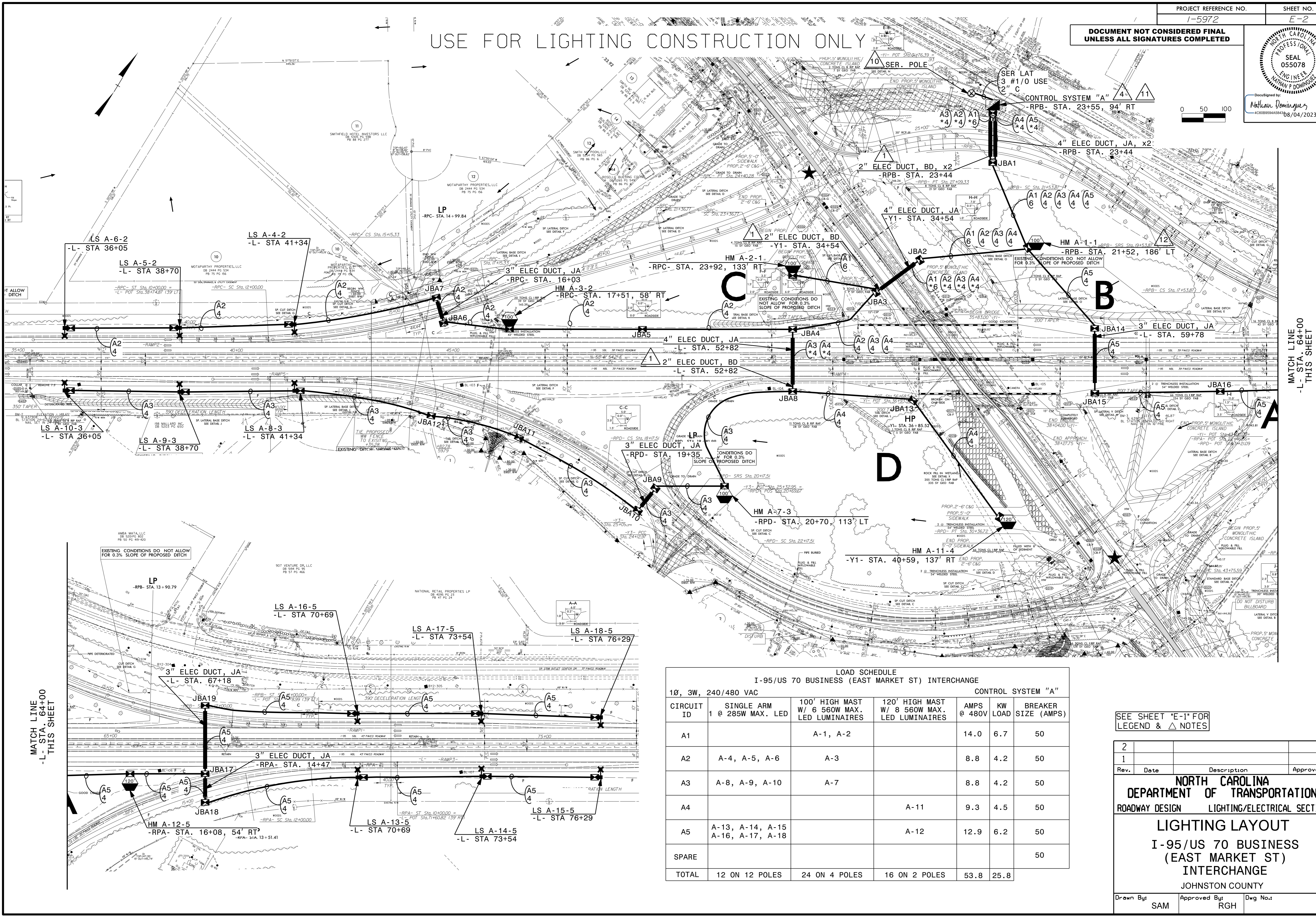
SEE SHEET "E-1" FOR
LEGEND & △ NOTES

USE FOR LIGHTING CONSTRUCTION ONLY

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UNLESS ALL SIGNATURES ARE PRESENT



Drawn By: Nathan Dominguez
Date: 08/04/2023



LOAD SCHEDULE I-95/US 70 BUSINESS (EAST MARKET ST) INTERCHANGE CONTROL SYSTEM "A"						
CIRCUIT ID	1Ø, 3W, 240/480 VAC		CONTROL SYSTEM "A"			
	SINGLE ARM 1 @ 285W MAX. LED	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)
A1		A-1, A-2		14.0	6.7	50
A2	A-4, A-5, A-6	A-3		8.8	4.2	50
A3	A-8, A-9, A-10	A-7		8.8	4.2	50
A4			A-11	9.3	4.5	50
A5	A-13, A-14, A-15 A-16, A-17, A-18		A-12	12.9	6.2	50
SPARE						50
TOTAL	12 ON 12 POLES	24 ON 4 POLES	16 ON 2 POLES	53.8	25.8	

SEE SHEET "E-1" FOR
LEGEND & Δ NOTES

2			
1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION LIGHTING LAYOUT I-95/US 70 BUSINESS (EAST MARKET ST) INTERCHANGE JOHNSTON COUNTY			
Drawn By:	SAM	Approved By:	RGH
Dwg No.:			

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MATCH LINE
-L- STA. 64+00
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