

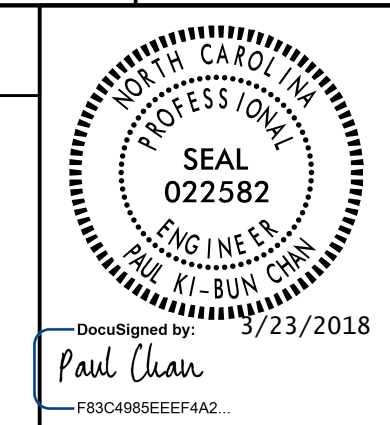
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PLANS AND DETAILS FOR PROPOSED LIGHTING /ELECTRICAL CONSTRUCTION

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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 REMOVE ALL THE OUTGOING FEEDER CIRCUIT WIRES FROM THE BREAKERS TO THE PROPOSED JUNCTION BOX (CSAJB) AND INSTALL THREE NEW 6 AWG WIRES, LEAVING ONE BREAKER SPARE.
- 5 ALL JUNCTION BOXES SHALL BE 18" HIGH.
- 6 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.
- 7 INSTALL OR EXTEND GUARDRAIL ON BOTH SIDES OF GRASSY MEDIAN TO PROTECT TA1 TO TA3 AND TA4 TO TA6.
- 8 LOCATE TA1 TO TA6 AT A MINIMUM OF 5.5' BEHIND THE GUARDRAIL AND 4' FROM THE MEDIAN DITCH LINE.

SCOPE OF WORK

REMOVE ALL EXISTING LIGHT STANDARDS, RELOCATE TWO HIGH MAST STANDARDS, ABANDON ALL EXISTING UNDERGROUND CIRCUITRY AND JUNCTION BOXES. PLACE REDESIGNED ROADWAY LIGHTING SYSTEM INTO SERVICE BY PROVIDING AND INSTALLING LIGHT STANDARDS WITH LIGHT EMITTING DIODE LUMINAIRES, UNDERGROUND CIRCUITRY AND JUNCTION BOXES, USING EXISTING CONTROL SYSTEM.

DESIGN CRITERIA

- 0.8 AVERAGE FOOTCANDLE ON TRAVEL LANES
- 4:1 AVERAGE TO MINIMUM UNIFORMITY RATIO ON TRAVEL LANES
- 0.3:1 MAXIMUM VEILING LUMINANCE RATIO
- 2005 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
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 (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 1A.
- 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 1A.
- EXISTING 100' HIGH MAST STANDARD TO BE RELOCATED W/ HM FOUNDATION & HM LED LUMINAIRES. INSTALL A JUNCTION BOX (HMxxJB) WITHIN 10'. SEE TABLE C, SHEET 1A.
- PROPOSED LIGHT STANDARD TYPE MTLT 45' WITH 15' TWIN ARM. INCLUDES STANDARD FOUNDATION TYPE R1 OR R2, JUNCTION BOX (LSxxJB) & 285W MAX LED ROADWAY LUMINAIRE. IES DISTRIBUTION: TYPE II OR III AS REQUIRED. MAXIMUM BUG RATING 3-0-3. SEE TABLE C, SHEET E1A.
- EXISTING CONTROL SYSTEM WITH EXISTING BREAKERS. CUT THE EXISTING CONDUIT WITHIN 10' OF THE FOUNDATION AND INSTALL A JUNCTION BOX (CSxxJB).
- PROPOSED ELECTRICAL JUNCTION BOX SEE DETAILS & TABLE C, SHEET 1A.
- REFERENCE TO CORRESPONDING NOTE AS NUMBERED.
- 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
- 2", 3" OR 4" ELEC. DUCT JA & BD
- EXISTING SINGLE ARM POLE. TO BE REMOVED
- EXISTING JUNCTION BOXES. TO BE ABANDONED
- EXISTING UNDER GROUND CIRCUIT. TO BE ABANDONED

PLAN SYMBOL	DESCRIPTION	CONTRACT ITEM	
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

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"
-YRPA- 28+25	CSAJB-JB2	E2					165			
-YRPA- 28+25		E2				155				
-Y- 30+43		E2		151						
DELETED										
-LNB- 20+33		E2		94						
DELETED		E2								
-LNB- 25+62	JB11- JB12	E2					99			
-LNB- 25+62		E2			89					
-LSB- 25+45	JB12- JB13	E2					90			
-LSB- 25+45		E2			80					
-Y- 26+73		E2		134						
TOTAL				379	324		354			

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: SKS DATE: _____
 CHECKED BY: _____ DATE: _____

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02/03/18

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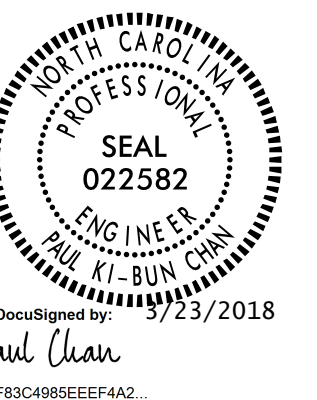
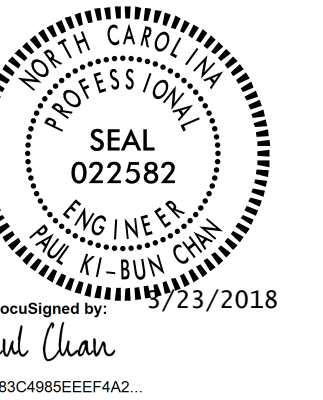
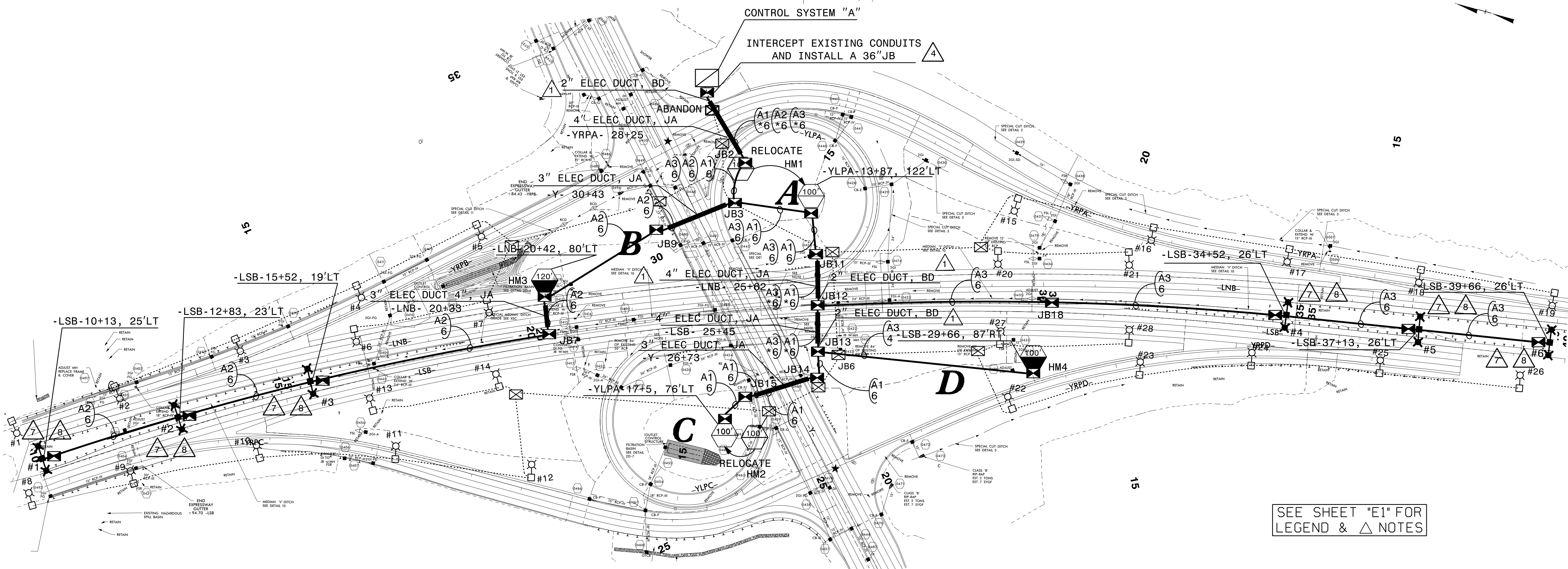


TABLE "C" JUNCTION BOX SUMMARY								
SHEET	LABEL	LOCATION AND OFFSET	IGJB SIZE		LSJB SIZE	HMJB SIZE	CSJB SIZE	GPS LOCATION LAT / LONG
			18"X12"	30"X17"	18"X12"	18"X12"	36"X24"	
E2	CSAJB	CONTROL SYSTEM					X	
E2	JB2	-YLPA- 17+23, LT		X				
E2	JB3	-Y- 30+43, RT		X				
E2	LS1JB	-LSB-10+13, 25'LT			X			
E2	LS2JB	-LSB-12+83, 23'LT			X			
E2	LS3JB	-LSB-15+52, 19'LT			X			
E2	JB7	-LSB- 20+28, LT	X					
E2	HM3JB	-LNB-20+42, 80'LT				X		
E2	JB9	-Y- 30+43, LT	X					
E2	HM1JB	-YLPA-13+87, 122'LT				X		
E2	JB11	-YLPA-11+59, LT	X					
E2	JB12	-LSB- 25+57, LT	X					
E2	JB13	-LSB- 25+45, RT	X					
E2	JB14	-Y- 26+73, RT	X					
E2	JB15	-Y- 26+73, LT	X					
E2	HM2JB	-YLPA-17+5, 76'LT				X		
E2	HM4JB	-LSB-29+66, 87'RT				X		
E2	JB18	-LSB-30+00, 26'LT	X					
E2	LS4JB	-LSB-34+52, 26'LT			X			
E2	LS5JB	-LSB-37+13, 26'LT			X			
E2	LS6JB	-LSB-39+66, 26'LT			X			
	TOTAL		8	2	6	4	1	

SEE SHEET "E1" FOR
 LEGEND & △ NOTES



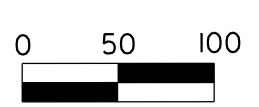
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SEE SHEET "E1" FOR
LEGEND & △ NOTES

**LOAD SCHEDULE
EASTCHESTER DRIVE, SE
CONTROL SYSTEM "A"

CKT	EXISTING		PROPOSED				AMPS @ 480V	KW LOAD	*BREAKER SIZE
	HIGH MAST 4 @ 475W LED	SINGLE ARM 1 @ 196W LED	100' HIGH MAST 4 @ 475W LED	100' HIGH MAST 6 @ 560W LED	120' HIGH MAST 8 @ 560W LED	TWIN ARM 2 @ 196W LED			
A1	HM1	1, 2, 3, 4, 5, 6, 7	HM1, HM2				8.0	3.8	50A
A2		15, 16, 17, 18, 19, 20, 21			HM3	1, 2, 3	11.8	5.7	50A
A3	HM2	8, 9, 10, 11, 12, 13, 14		HM4		4, 5, 6	9.5	4.5	50A
A4		22, 23, 24, 25, 26, 27, 28							SPARE 50A
TOTAL	2	28	2	1	1	6	29.3	14	4



* REUSE EXISTING BREAKERS.
** HPS LIGHTING ORIGINALLY INSTALLED UNDER TIP R-609H,
LET ON 11/20/2001, AND UPGRADED TO LED IN 2018 BY
BRADY/TRANE SERVICES UNDER STATEWIDE LED UPGRADE
PERFORMANCE CONTRACT.

2			
1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION LIGHTING LAYOUT LIGHTING RELOCATION AT I-74/US 311 AND NC 68 (EASTCHESTER DRIVE) INTERCHANGE GUILFORD COUNTY			
Drawn By:	SKS	Approved By:	Dwg No.:

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