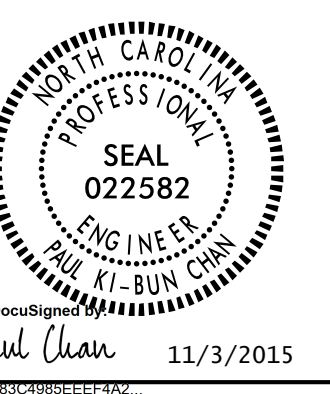


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PLANS AND DETAILS FOR PROPOSED LIGHTING /ELECTRICAL CONSTRUCTION



NOTES

1. INSTALL ALL BORE PITS OUTSIDE THE CLEAR ZONE, AS DEFINED BY THE 2011 AASHTO ROADSIDE DESIGN GUIDE OR AS DIRECTED BY THE ENGINEER.
2. LOCATE ALL JUNCTION BOXES OUTSIDE CLEAR ZONE AND IN AN AREA UNLIKELY TO BE USED BY TRAFFIC.
3. 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.
4. TYPE PC18 JUNCTION BOXES ARE 18" L X 12" W X 18" H. UNLESS OTHERWISE NOTED ON THE PLANS, ALL JUNCTION BOXES ARE TO BE TYPE PC18
5. RELOCATE EXISTING HIGH MAST HM1 AS SHOWN. ABANDON OR REMOVE POLE FOUNDATION. REMOVE AND DISPOSE OF EXISTING JUNCTION BOX JB4. INSTALL NEW JUNCTION BOX JB11 WITHIN 10' OF FOUNDATION OF RELOCATED HM1 AND INTERCEPT EXISTING CIRCUITRY. INSTALL NEW CONDUCTOR FROM JB11 TO RELOCATED HM1.
6. ORIGINAL LIGHTING PLANS GENERATED FROM TIP PROJECT I-3605.
7. ENSURE THAT LED LUMINAIRES WILL BE ABLE TO BE PROPERLY MOUNTED ON THE EXISTING 24" TENON ARMS ON THE HIGH MAST CARRIER RING. PROVIDE LONGER TENON ARMS IF REQUIRED.

SCOPE OF WORK

RENOVATE EXISTING ROADWAY LIGHTING SYSTEM BY REPLACING ALL HIGH PRESSURE SODIUM (HPS) HIGH MAST LUMINAIRES WITH LIGHT EMITTING DIODE LUMINAIRES (LED) HIGH MAST LUMINAIRES. ALSO RELOCATE HIGH MAST POLE, REMOVE FEEDER CIRCUIT CONDUCTORS IN CONFLICT WITH CONSTRUCTION AND INSTALL NEW JUNCTION BOX.

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
- 2014 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 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD NO.	TITLE
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 2012.

LEGEND

- EXISTING 120' HIGH MAST STANDARD. RELOCATE AS SHOWN. ABANDON OR REMOVE RELOCATED POLE FOUNDATION. REMOVE LUMINAIRES ON ALL POLES AND REPLACE WITH 550W MAXIMUM, 53,000 MINIMUM DELIVERED LUMENS, TYPE V LED LUMINAIRES. MAXIMUM BUG RATING 5-0-5.
- EXISTING CONTROL SYSTEM. NO CHANGE REQUIRED.
- EXISTING ELECTRICAL JUNCTION BOX. NO CHANGE REQUIRED UNLESS OTHERWISE NOTED ON THE PLANS.
- PROPOSED ELECTRICAL JUNCTION BOX SEE DETAILS & TABLE B, THIS SHEET
- REFERENCE TO CORRESPONDING NOTE AS NUMBERED
- PROPOSED FEEDER CIRCUIT CONTROL SYSTEM(A), CIRCUIT(1) PLAN SYMBOL (6) SEE TABLE A, THIS SHEET
- EXISTING FEEDER CIRCUIT CONTROL SYSTEM(A), CIRCUIT(1)
- PROPOSED ELECTRICAL DUCT SIZE 2", 3" OR 4" TYPE (JA) OR (BD)
- EXISTING ELECTRICAL DUCT SIZE 2", 3" OR 4"

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

NUMBER	LOCATION	TYPE	SHEET
JB1	EXISTING	PC18	E2
JB2	EXISTING	PC18	E2
JB3	EXISTING	PC18	E2
JB4	EXISTING - TO BE REMOVED	PC18	E2
JB5	EXISTING	PC18	E2
JB6	EXISTING	PC18	E2
JB7	EXISTING	PC18	E2
JB8	EXISTING	PC18	E2
JB9	EXISTING	PC18	E2
JB10	EXISTING	PC18	E2
JB11	-LRPA- STA. 15+10 38' LT	PC18	E2
TOTALS		1	

ABBREVIATIONS

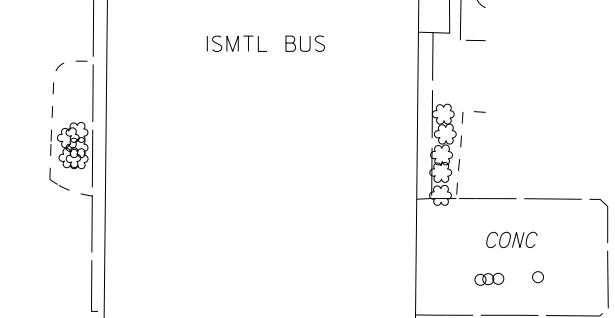
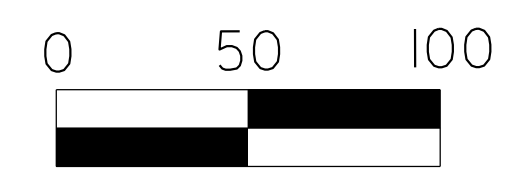
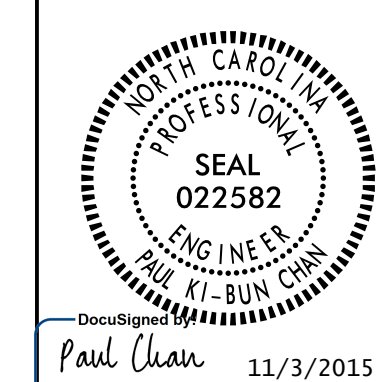
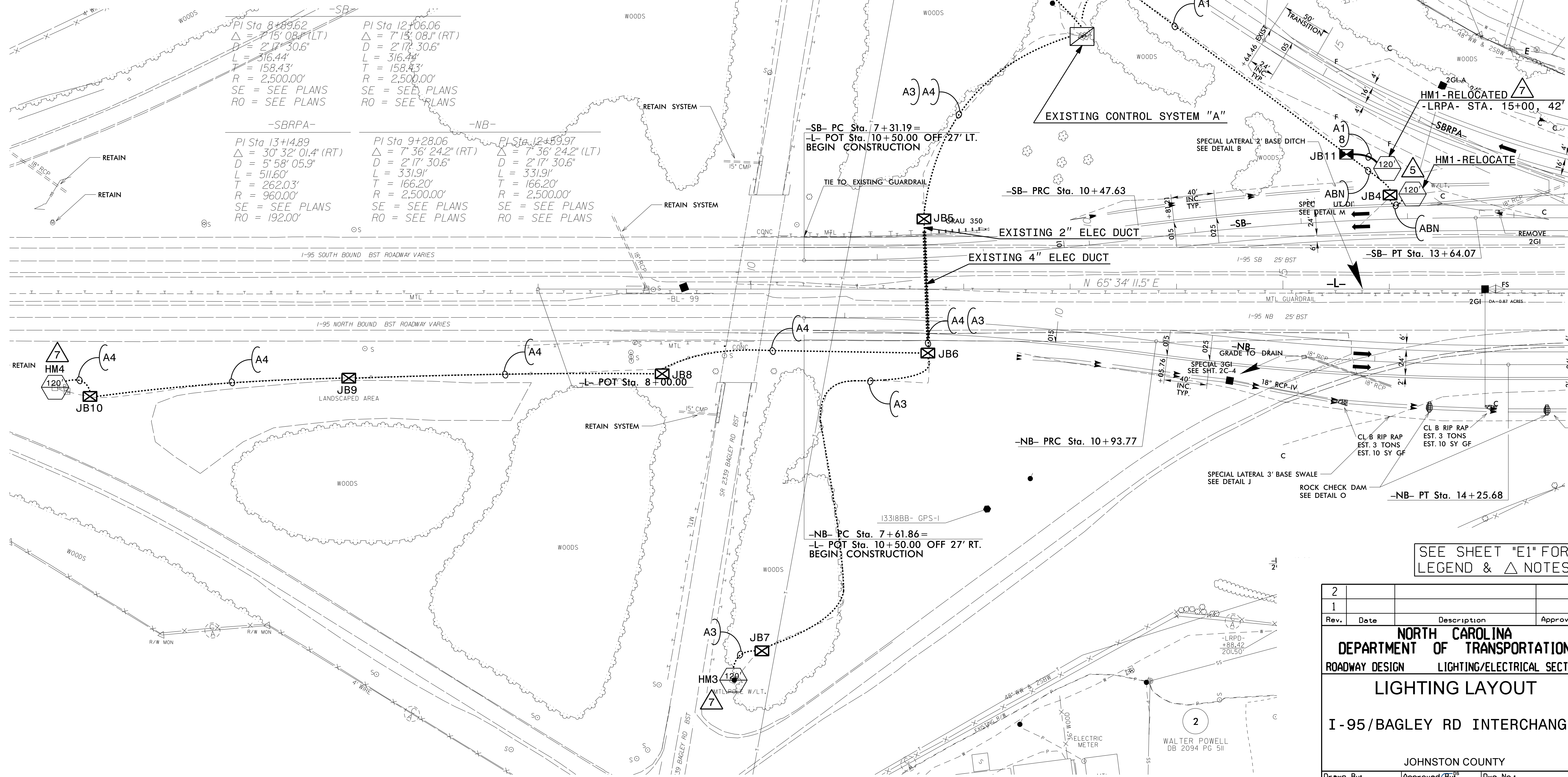
BD	BURIED	PVC	PVC SCHEDULE 40 CONDUIT
LT	LIGHT	RGC	RIGID GALVANIZED STEEL CONDUIT
JA	JACKED	C	CONDUIT
MH	MOUNTING HEIGHT	CKT	CIRCUIT
Ø	PHASE	N	NEUTRAL
SER LAT	SERVICE LATERAL	G	GROUND
ABN	ABANDON OR REMOVE	HM	HIGH MAST

COMPUTED BY: RGH DATE: 11/3/15
 CHECKED BY: PC DATE: 11/3/2015

USE FOR LIGHTING CONSTRUCTION ONLY

LOAD SCHEDULE INSIDE QUADRANT A					CONTROL SYSTEM "A"		
BEFORE PROPOSED WORK					AFTER PROPOSED WORK		
CIRCUIT ID	120' HIGH MAST W/ 8 750W HPS LUMINAIRES	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)	120' HIGH MAST W/ 8 550W MAX. LED LUMINAIRES	AMPS @ 480V	KW LOAD
A1	HM1	14.2	6.8	20	HM1	9.2	4.4
A2	HM2	14.2	6.8	20	HM2	9.2	4.4
A3	HM3	14.2	6.8	20	HM3	9.2	4.4
A4	HM4	14.2	6.8	20	HM4	9.2	4.4
TOTAL		56.8	27.2			36.8	17.6

*NO CHANGES REQUIRED TO EXISTING BREAKER SIZES.



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 I-95/BAGLEY RD INTERCHANGE JOHNSTON COUNTY			
Drawn By:	RGH	Approved By:	[Signature]
Dwg No.:			

03-NOV-2015 14:17
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 rgh1 AT RD 78044

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

1-12

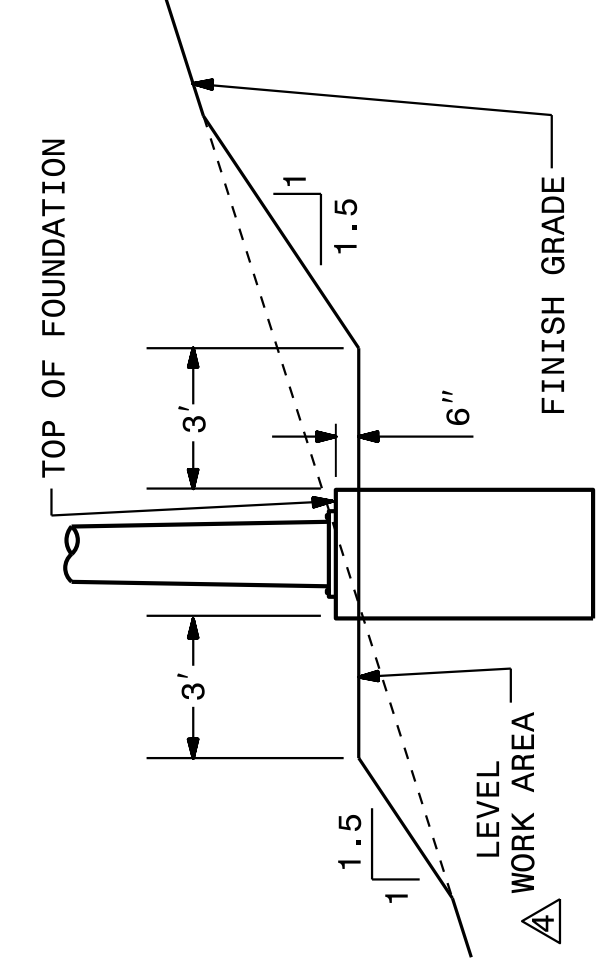
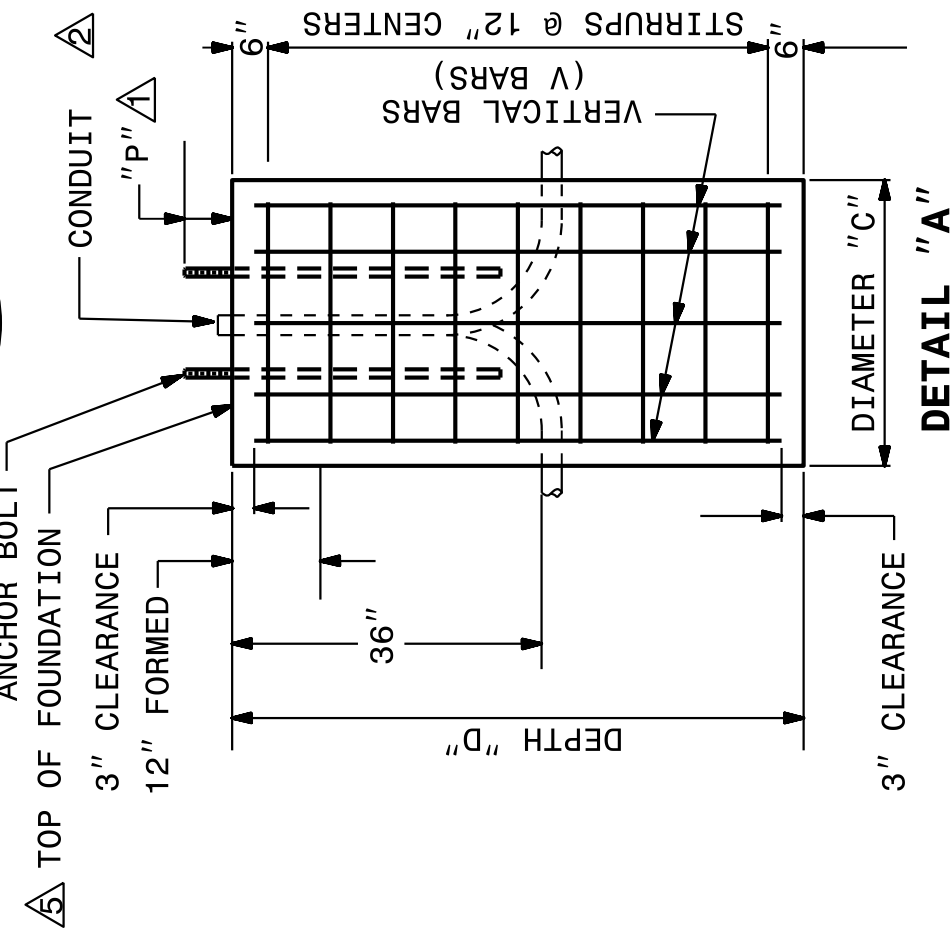
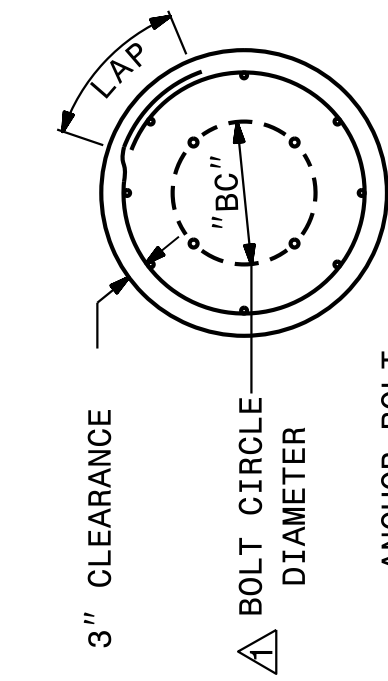
ENGLISH STANDARD DRAWING FOR
HIGH MOUNT FOUNDATION

SHEET 1 OF 1
1402D01

TABLE OF FOUNDATION DIMENSIONS AND QUANTITIES

HEIGHT OF HIGH MOUNT FT	STIRRUPS		WIND VELOCITY MPH													
	DIAMETER "C" FT	SIZE	90		110		130		130		130		130			
			DEPTH "D" FT	REINF. STEEL LBS	CONCRETE CY	DEPTH "D" FT	REINF. STEEL LBS	CONCRETE CY	DEPTH "D" FT	REINF. STEEL LBS	CONCRETE CY	DEPTH "D" FT	REINF. STEEL LBS	CONCRETE CY		
60	3.5	#3	11	280	3.9	12	306	4.3	8	#8	8	#8	8	#8	331	4.6
80	3.5	#3	12	306	4.3	13	331	4.6	8	#8	8	#8	8	#8	382	5.3
100	4.0	#3	13	413	6.1	15	477	7.0	8	#9	8	#9	8	#9	509	7.4
120	4.5	#3	15	557	8.2	16	636	9.4	8	#10	8	#10	8	#10	716	10.6

* INCLUDES STIRRUPS AND VERTICAL BARS (V BARS)



DETAIL "A"

DETAIL "B"

NOTES

- ANCHOR BOLTS
 CONFORM NUMBER, SIZE, AND LENGTH OF ANCHOR BOLTS, BOLT CIRCLE DIAMETER "BC", AND ANCHOR BOLT PROJECTION "P" TO APPROVED HIGH MOUNT STANDARD DRAWINGS.
- CONDUITS
 MATCH ORIENTATION, QUANTITY, TYPE, AND SIZE OF CONDUITS TO THE LAYOUT SHEETS. STUB AND CAP ONE SPARE CONDUIT AT EACH FOUNDATION. PROJECT FOUNDATION A MAXIMUM OF 2" ABOVE TOP OF FOUNDATION. PLACE CONDUIT 30" BENEATH FINISH GRADE. INCLUDE CONDUIT FOR GROUNDING ELECTRODE CONDUCTOR TO GROUND ROD AT HIGH MAST FOUNDATION.
- DIMENSIONS & QUANTITIES
 DIMENSIONS AND QUANTITIES OF CONCRETE AND REINFORCING STEEL ARE GIVEN FOR THE PURPOSE OF OBTAINING BID PRICES ONLY. SEE PROJECT SPECIAL PROVISIONS FOR OTHER STRUCTURAL REQUIREMENTS.
- WORK AREA
 PROVIDE A LEVEL WORK AREA AROUND EACH FOUNDATION. CUT/FILL SLOPES MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
- ELEVATION
 SET TOP OF FOUNDATION AT .6" ABOVE LEVEL WORK AREA. SEE DETAIL "B".
- GUARDRAIL
 WHERE GUARDRAIL IS REQUIRED TO BE INSTALLED AS PART OF LIGHTING WORK, SET GUARDRAIL NO MORE THAN 8' FROM CENTER OF HIGH MAST FOUNDATION.

STATE OF NORTH CAROLINA
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ENGLISH STANDARD DRAWING FOR
HIGH MOUNT FOUNDATION

SHEET 1 OF 1
1402D01

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 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

1-12

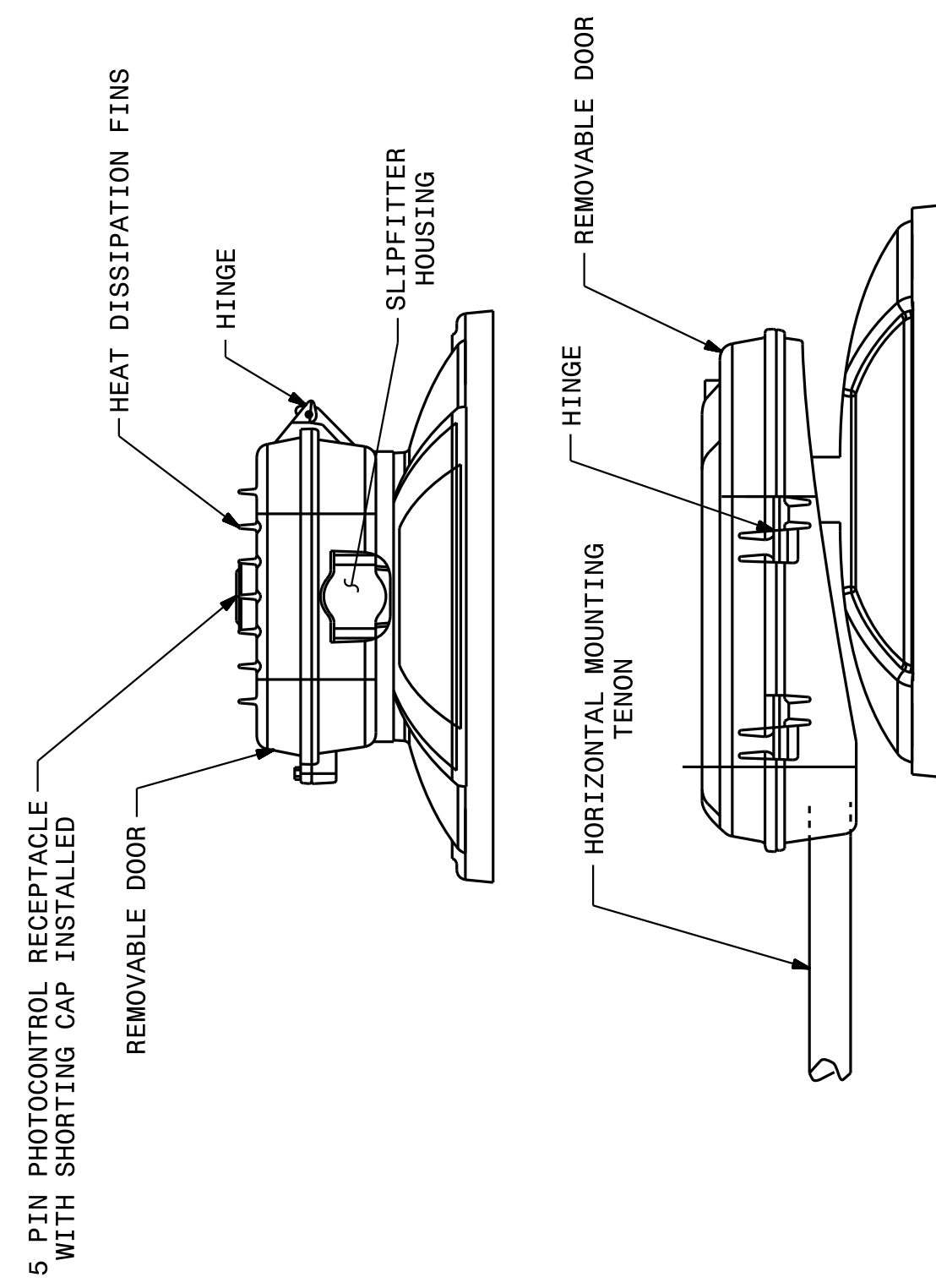
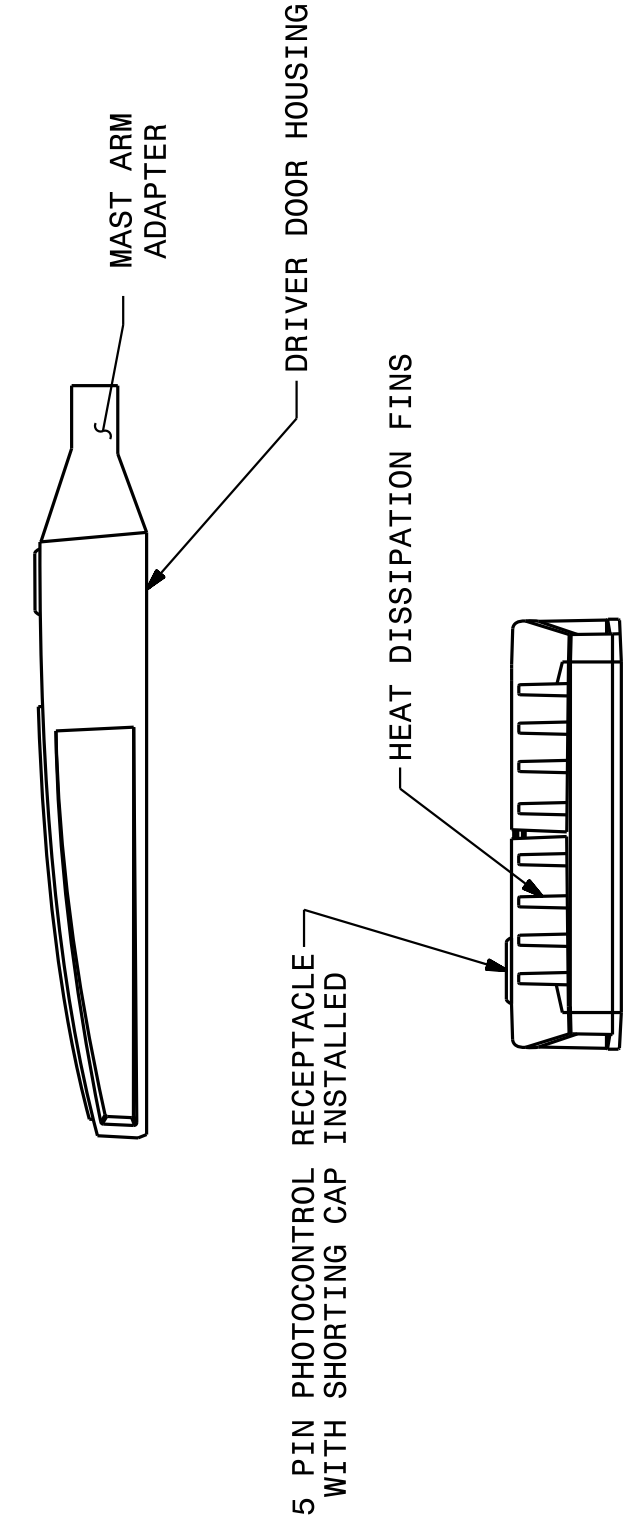
ENGLISH STANDARD DRAWING FOR
HIGH MOUNT LED LUMINAIRES

SHEET 1 OF 1
1403D01

TYPICAL CONFIGURATION TYPES

TYPE A

TYPE B



LED LUMEN PACKAGES

MOUNTING HEIGHT	# OF LUMINAIRES	MAXIMUM LUMINAIRE WATTAGE	MINIMUM LUMINAIRE DELIVERED LUMENS	MAXIMUM LAMP LUMEN MAINTENANCE FACTOR (100K HOURS @ 25° C)	COLOR TEMP.
60'	4	320	30,000	0.83	4,000K
80'	8	320	30,000	0.83	4,000K
100'	6	550	53,000	0.83	4,000K
120'	8	550	53,000	0.83	4,000K

NOTES

- SEE PLANS FOR IES DISTRIBUTION
- ENSURE THAT LED LUMINAIRES WILL BE ABLE TO BE PROPERLY MOUNTED ON THE EXISTING 24" TENON ARMS ON THE HIGH MAST CARRIER RING. PROVIDE LONGER TENON ARMS IF REQUIRED.

STATE OF NORTH CAROLINA
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ENGLISH STANDARD DRAWING FOR
HIGH MOUNT LED LUMINAIRES

SHEET 1 OF 1
1403D01

2			
1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION HIGH MOUNT FOUNDATION AND HIGH MOUNT LED LUMINAIRE DETAILS I-95/SR2339 INTERCHANGE JOHNSTON COUNTY			
Drawn By:	RGH	Approved By:	Paul Chan
Dwg No.:			

PROJECT REFERENCE NO. 1-3318BB SHEET NO. E3

STATE OF NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-BUN CHAN DocuSign Paul Chan 11/3/2015