

PLANS AND DETAILS FOR PROPOSED LIGHTING /ELECTRICAL CONSTRUCTION

NOTES

- 1 AT THESE LOCATIONS, PROVIDE ELECTRICAL DUCT IN ACCORDANCE WITH NEC EQUIRMENTS 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 TYPE PC18 JUNCTION BOXES ARE 18" L X 12" W X 18" H.
- 7 TYPE PC30 JUNCTION BOXES ARE 30" L X 17" W X 18" H.
- 8 TYPE PC36 JUNCTION BOXES ARE 36" L X 24" W X 18" H.
- 9 CLEAR AND GRUB A 30' RADIUS AROUND PROPOSED HIGH MAST FOUNDATION.
- 10 SEE STRUCTURE PLANS FOR ELECTRICAL CONDUIT SYSTEMS (ECS-1 & ECS-2) AT ROWENA AVENUE.

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
1401.01	HIGH MOUNT STANDARD
1402.01	HIGH MOUNT FOUNDATION
1403.01	HIGH MOUNT 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
1412.01	UNDERPASS LIGHTING

ALL WORK SHALL BE IN CONFORMANCE WITH DIVISION 14 OF THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, DATED JANUARY 2012.

SCOPE OF WORK

PLACE ROADWAY LIGHTING SYSTEM INTO SERVICE BY PROVIDING AND INSTALLING 80', 100' & 120' HIGH MOUNT STANDARDS WITH LIGHT EMITTING DIODE (LED) LUMINAIRES, UNDERGROUND CIRCUITRY, CONTROL SYSTEM AND JUNCTION BOXES. ALSO PROVIDE AND INSTALL LED UNDERPASS LIGHTING AT HOLLOWAY STREET AND ELECTRICAL CONDUIT SYSTEMS AT ROWENA AVENUE AND ANGIER AVENUE OVERPASSES.

LEGEND

- PROPOSED 80' HIGH MAST STANDARD W/ HM FOUNDATION & (6) HM LUMINAIRES LED, 450W MAX., MEDIUM, CUTOFF, TYPE V
- PROPOSED 100' HIGH MAST STANDARD W/ HM FOUNDATION & (8) HM LUMINAIRES LED, 560W MAX, MEDIUM, CUTOFF, TYPE V
- PROPOSED 120' HIGH MAST STANDARD W/ HM FOUNDATION & (8) HM LUMINAIRES LED, 560W MAX, MEDIUM, CUTOFF, TYPE V
- PROPOSED CONTROL SYSTEM WITH PC36 JUNCTION BOX. BREAKER SIZE SHOWN IN LOAD SCHEDULE, SHEETS E3, E4 & E5
- PROPOSED ELECTRICAL JUNCTION BOX SEE DETAILS & TABLE B, THIS SHEET
- REFERENCE TO CORRESPONDING NOTE AS NUMBERED
- PROPOSED UNDERPASS LUMINAIRE, TYPE WM, LED, 80W MAX, 4,400 LUMEN MIN.
- PROPOSED UNDERPASS BREAKER PANEL
- PROPOSED FEEDER CIRCUIT CONTROL SYSTEM(A), CIRCUIT(1) PLAN SYMBOL (6) SEE TABLE A, THIS SHEET
- PROPOSED SERVICE POLE AND LATERAL 30' CLASS 4 3#1/0 USE CONDUCTORS 2" CONDUIT
- PROPOSED ELECTRICAL DUCT SIZE 2", 3" OR 4" TYPE (JA) OR (BD) LOCATION: SEE TABLE C, THIS SHEET

DESIGN CRITERIA

- 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
- 2014 NATIONAL ELECTRICAL CODE
- 2011 AASHTO ROADSIDE DESIGN GUIDE

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 #10G	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

LOCATION	RACEWAY	SHEET	TYPE					
			JACKED (JA) FEET			BURIED (BD) FEET		
			SIZE 3"	SIZE 4"	SIZE 6"	SIZE 2"	SIZE 3"	SIZE 4"
STA. -Y1-30+86	CSA - JB1	E2		115		210		
STA. -Y1-34+59		E2	130					
STA. -L-45+95	JB7 - JB10	E2		285		320		
STA. -Y7RPC-30+87		E3					30	
STA. -Y7RPC-36+48	CSB - JB6	E3				75		25
STA. -Y7-23+08		E3					65	
STA. -L-83+16	JB11 - JB12	E3				225		190
STA. -Y7-18+49	JB13 - JB14	E3				100		55
STA. -Y7LPA-13+59		E3					35	
STA. -DFEB-37+67	CSC - JB1	E4			60		100	
STA. -DFWB-52+84	JB7 - JB8	E4		45		85		
STA. -LDFEB-152+68		E4					55	
TOTALS			130	445	60	1015	285	270

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
		HM	HIGH MAST

CONTROL SYSTEM "A"				
NUMBER	LOCATION	TYPE		SHEET
JB1	STA. -Y1- 30+77, 84' LT	PC18		E2
JB2	STA. -RAMPC- 22+85, 37 RT	PC18		E2
JB3	STA. -RAMPC- 20+00, 46' RT	PC18		E2
JB4	STA. -RAMPC- 17+45, 37' RT	PC18		E2
JB5	STA. -Y1- 31+72, 55' LT	PC18		E2
JB6	STA. -Y1- 32+23, 54' RT	PC18		E2
JB7	STA. -RAMPD- 26+12, 50' LT		PC30	E2
JB8	STA. -Y7RPC- 0+38, 36' RT	PC18		E2
JB9	STA. -Y7RPC- 2+68, 45' RT	PC18		E2
JB10	STA. -RAMPA- 26+53, 38' RT	PC18		E2
JB11	STA. -Y1- 34+28, 91' LT	PC18		E2
JB12	STA. -RAMPB- 22+83, 39' LT	PC18		E2
JB13	STA. -RAMPB- 20+79, 38' LT			

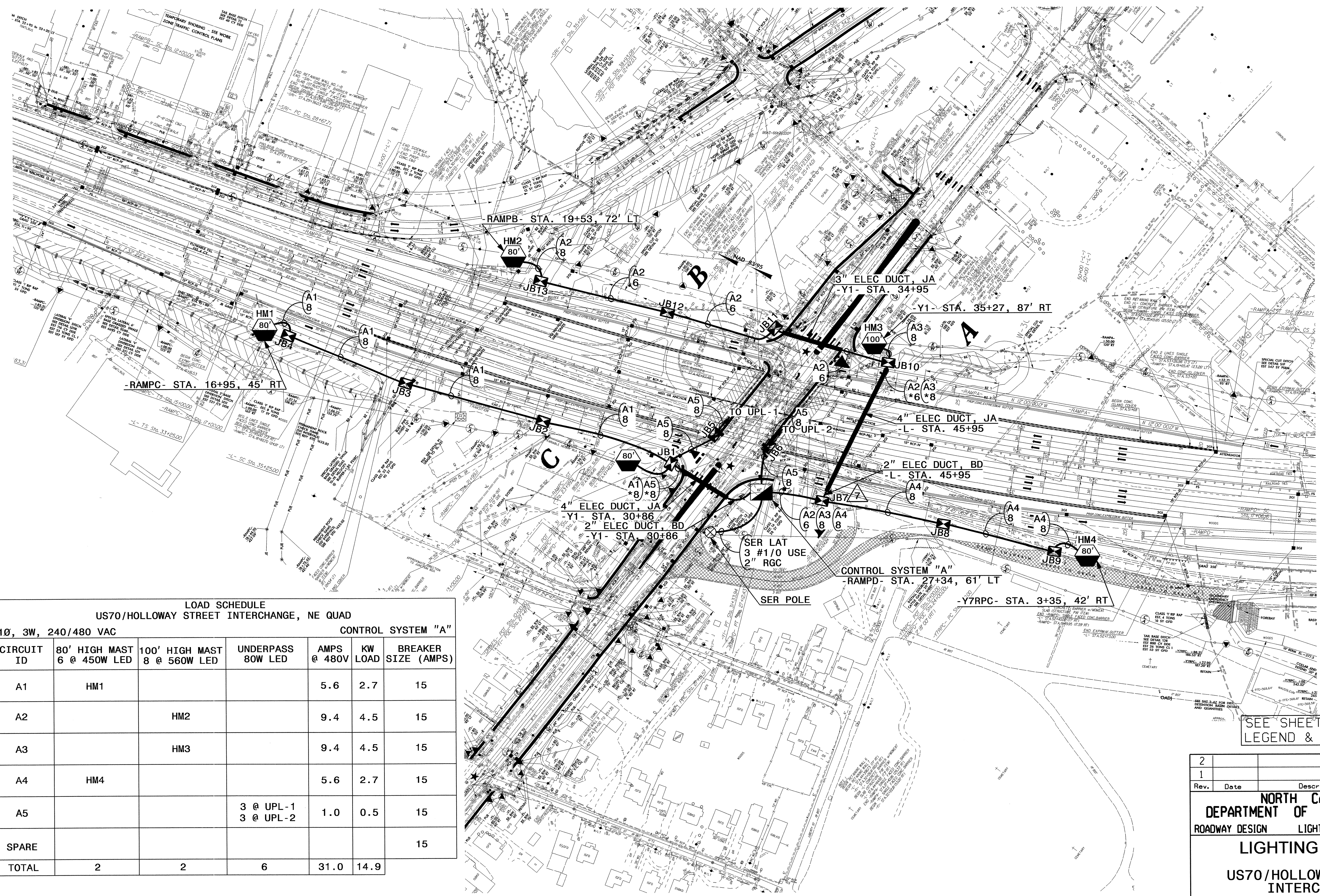
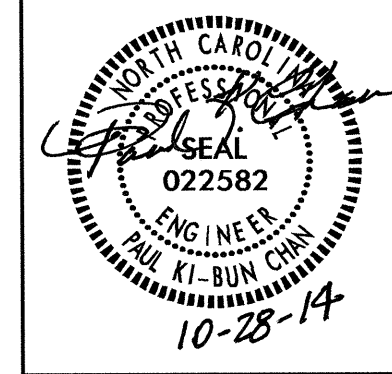
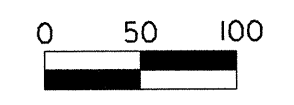
NUMBER	LOCATION	TYPE		SHEET
JB1	STA. -Y7RPC- 33+77, 41' RT	PC18		E3
JB2	STA. -Y7RPC- 30+86, 38' RT	PC18		E3
JB3	STA. -Y7RPC- 30+86, 30' LT	PC18		E3
JB4	STA. -Y7RPC- 27+90, 38' RT	PC18		E3
JB5	STA. -Y7RPC- 25+67, 76' RT	PC18		E3
JB6	STA. -Y7RPC- 36+47, 28' LT		PC36	E3
JB7	STA. -Y7- 23+09, 59' RT		PC36	E3
JB8	STA. -Y7- 23+09, 59' LT	PC18		E3
JB9	STA. -Y7RPD- 3+03, 35' LT	PC18		E3
JB10	STA. -Y7RPD- 5+18, 35' LT			E3
JB11	STA. -L- 83+11, 105' RT		PC30	E3
JB12	STA. -L- 83+20, 116' RT		PC30	E3
JB13	STA. -Y7- 18+51, 52' RT	PC18		E3
JB14	STA. -Y7- STA. 18+51 52' LT	PC18		E3
JB15	STA. -Y7LPA- 14+87, 99' LT	PC18		E3
JB16	STA. -Y7LPA- 13+56, 36' LT	PC18		E3
JB17	STA. -Y7LPA- 13+56, 36' RT	PC18		E3
JB18	STA. -L- 92+12, 126' LT	PC18		E3
JB19	STA. -L- 94+14, 141' LT	PC18		E3

NUMBER	LOCATION	TYPE		SHEET
JB1	STA. -DFEB- 37+70, 33' LT		PC36	E4
JB2	STA. -DFEB- 40+75, 29 LT		PC36	E4
JB3	STA. -DFEB- 43+80, 32' LT		PC36	E4
JB4	STA. -DFEB- 46+97, 42' LT		PC30	E4
JB5	STA. -DFEB- 50+00, 38' LT	PC18		E4
JB6	STA. -DFEB- 53+39, 56' LT	PC18		E4
JB7	STA. -DFWB- 52+84, 38' RT		PC30	E4
JB8	STA. -DFWB- 52+84, 41' LT		PC30	E4
JB9	STA. -LDFEB- 152+73, 59' RT	PC18		E4
JB10	STA. -LDFEB- 152+67, 27' LT	PC18		E4
JB11	STA. -LDFEB- 150+12, 59' RT	PC18		E4
JB12	STA. -LDFEB- 147+63, 59' RT	PC18		E4
TOTALS		32	6	5

COMPUTED BY: G. HALL DATE: 10/27/14
 CHECKED BY: P. CHAN DATE: 10-28-14

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USE FOR LIGHTING CONSTRUCTION ONLY



LOAD SCHEDULE
US70/HOLLOWAY STREET INTERCHANGE, NE QUAD
CONTROL SYSTEM "A"

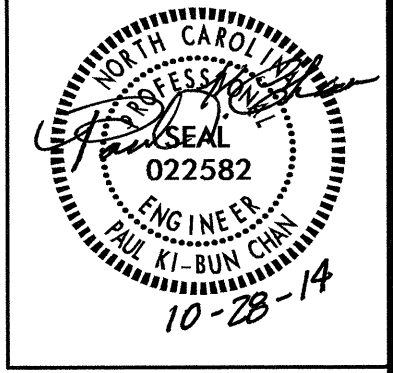
CIRCUIT ID	1Ø, 3W, 240/480 VAC		UNDERPASS 80W LED	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
	80' HIGH MAST 6 @ 450W LED	100' HIGH MAST 8 @ 560W LED				
A1	HM1			5.6	2.7	15
A2		HM2		9.4	4.5	15
A3		HM3		9.4	4.5	15
A4	HM4			5.6	2.7	15
A5			3 @ UPL-1 3 @ UPL-2	1.0	0.5	15
SPARE						15
TOTAL	2	2	6	31.0	14.9	

SEE SHEET "E1" FOR LEGEND & △ NOTES

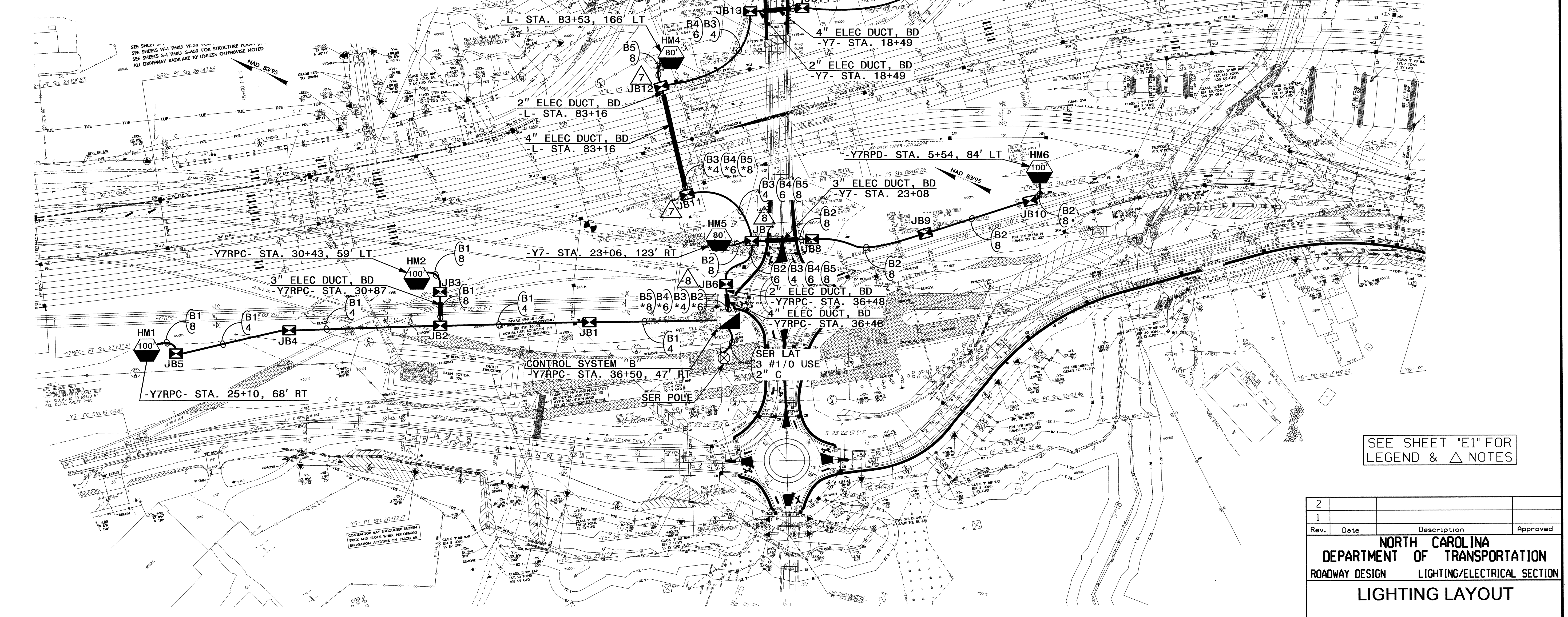
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Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION LIGHTING LAYOUT US70/HOLLOWAY STREET INTERCHANGE DURHAM COUNTY			
Drawn By:	RGH	Approved By:	PKC
Dwg No.:			

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USE FOR LIGHTING CONSTRUCTION ONLY



LOAD SCHEDULE US70/CARR ROAD INTERCHANGE, SE QUAD						
1Ø, 3W, 240/480 VAC			CONTROL SYSTEM "B"			
CIRCUIT ID	80' HIGH MAST 6 @ 450W LED	100' HIGH MAST 8 @ 560W LED	120' HIGH MAST 8 @ 560W LED	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
B1		HM1, HM2		18.8	9.0	25
B2	HM5	HM6		15.0	7.2	20
B3		HM7		9.4	4.5	15
B4			HM3	9.4	4.5	15
B5	HM4			5.6	2.7	15
SPARE						25
TOTAL	2	4	1	58.2	27.9	

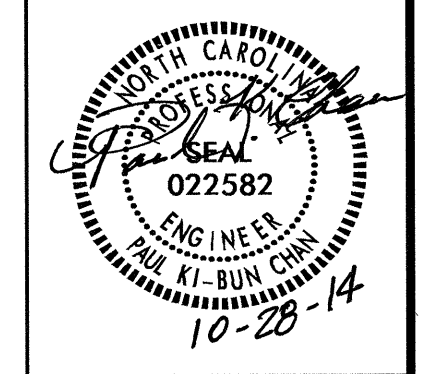
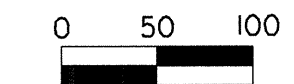


SEE SHEET "E1" FOR
LEGEND & △ NOTES

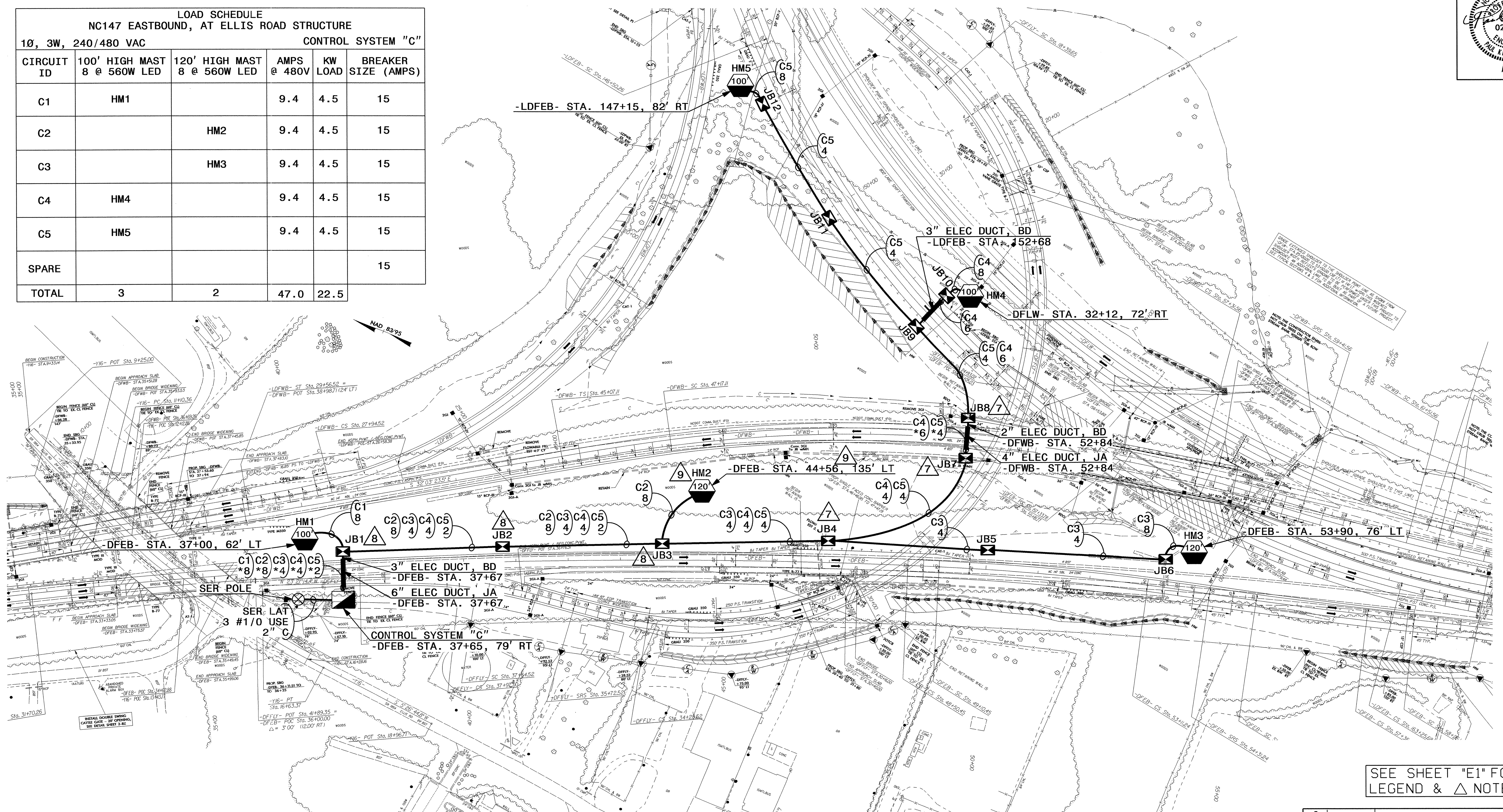
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Rev.	Date	Description	Approved
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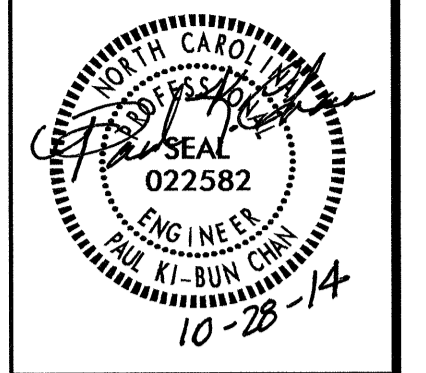
LOAD SCHEDULE NC147 EASTBOUND, AT ELLIS ROAD STRUCTURE 1Ø, 3W, 240/480 VAC CONTROL SYSTEM "C"					
CIRCUIT ID	100' HIGH MAST 8 @ 560W LED	120' HIGH MAST 8 @ 560W LED	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
C1	HM1		9.4	4.5	15
C2		HM2	9.4	4.5	15
C3		HM3	9.4	4.5	15
C4	HM4		9.4	4.5	15
C5	HM5		9.4	4.5	15
SPARE					15
TOTAL	3	2	47.0	22.5	



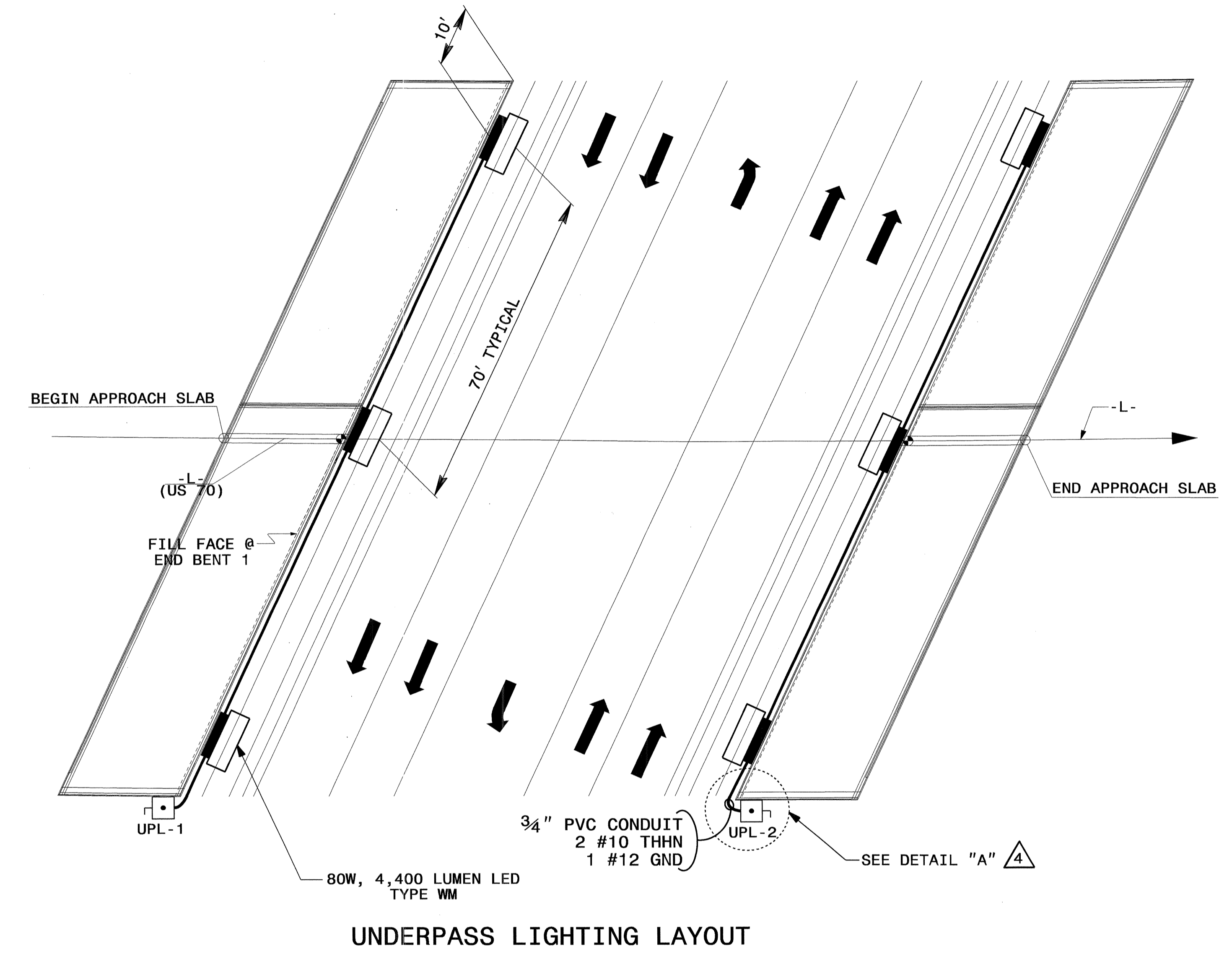
SEE SHEET "E1" FOR
LEGEND & △ NOTES

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Rev.	Date	Description	Approved
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Drawn By:	RGH	Approved By:	PKC
Dwg No.:			

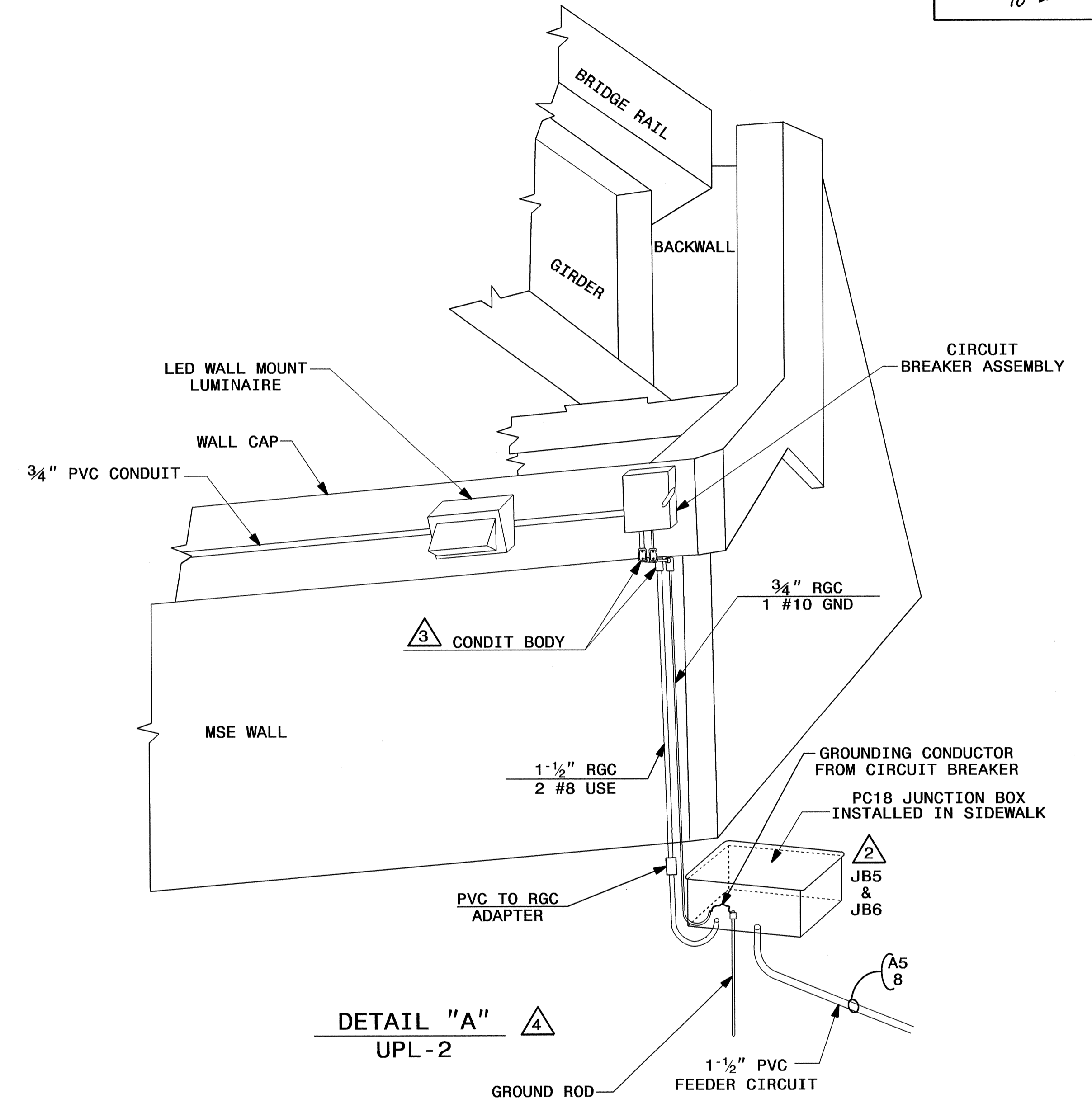
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USE FOR LIGHTING CONSTRUCTION ONLY



UNDERPASS LIGHTING LAYOUT



DETAIL "A" UPL-2

NOTES:

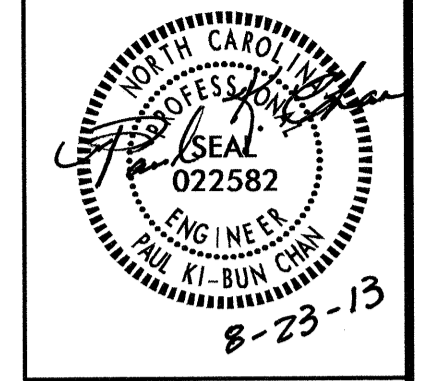
- 1 FOR MATERIAL SPECIFICATIONS AND CONTINUATION OF CIRCUITRY REFER TO ROADWAY STANDARD DRAWING 1412.01 SHEET 1 OF 2
- 2 COORDINATE WITH PRIME CONTRACTOR TO INSTALL JUNCTION BOX PRIOR TO POURING OF SIDEWALK. PROVIDE 1/4" PER FOOT FALL AWAY FROM BOX FOR WATER DRAINAGE.
- 3 FIELD BEND OR USE CONDUIT BODIES AS DIRECTED BY ENGINEER.
- 4 MIRROR DESIGN AND INSTALLATION ON NORTH SIDE MSE WALL.

2			
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Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION UNDERPASS LIGHTING DETAILS US70/HOLLOWAY STREET (UPL-1 & UPL-2) DURHAM COUNTY			
Drawn By:	RGH	Approved By:	PKC
Dwg No.:			

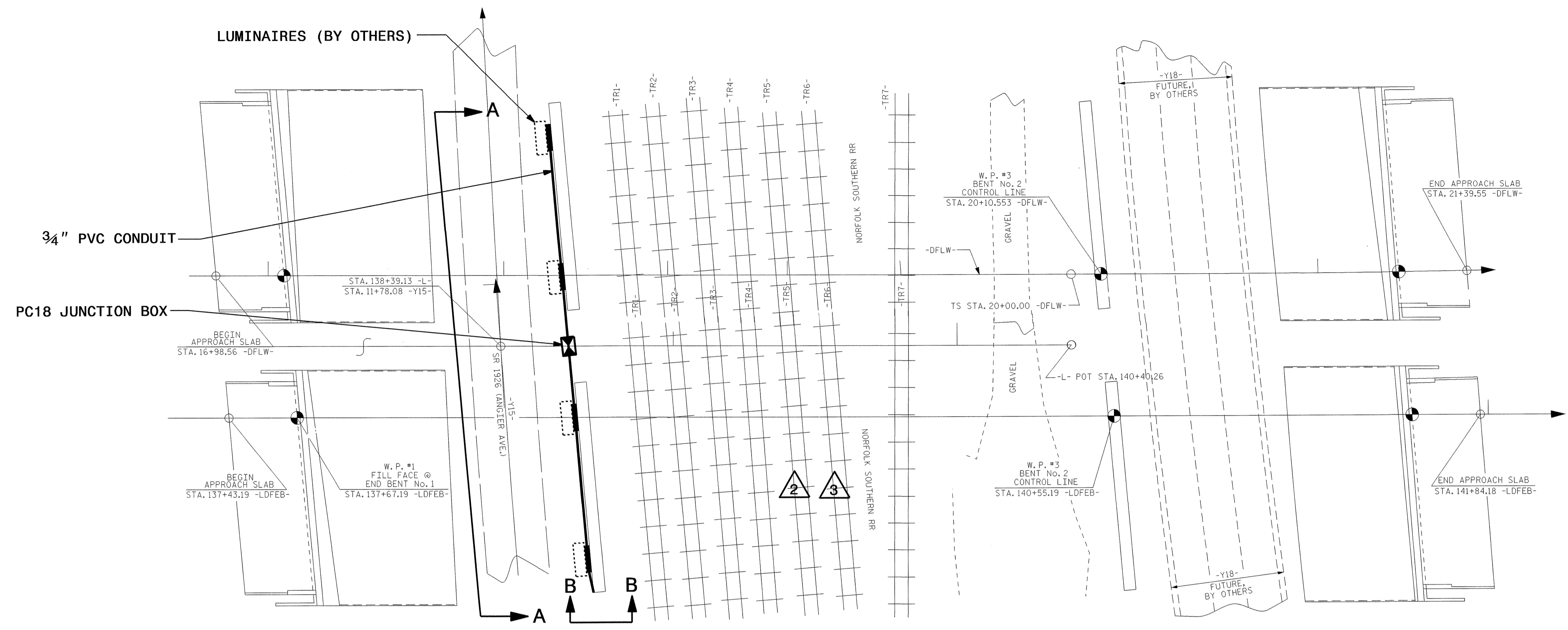
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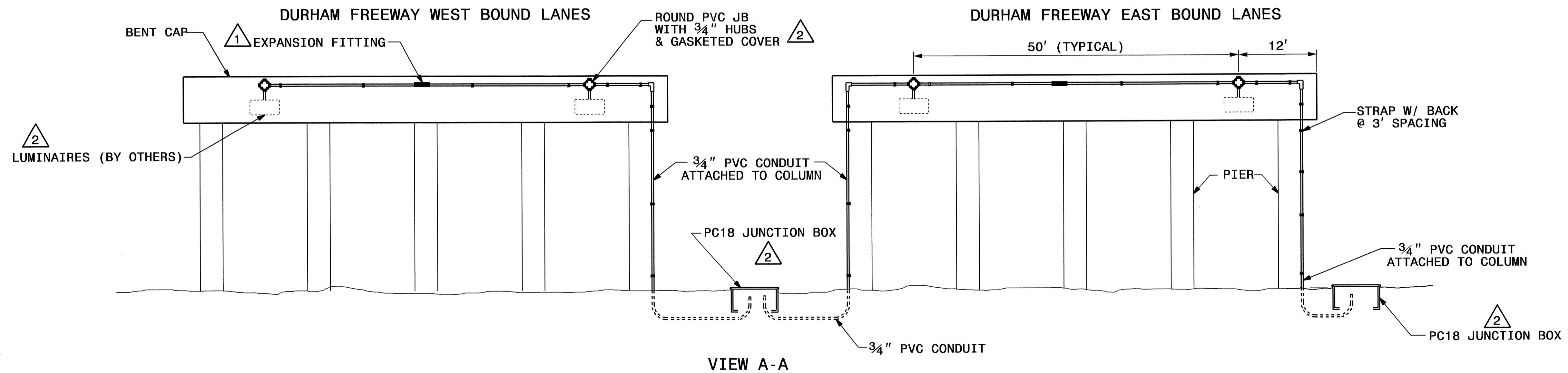
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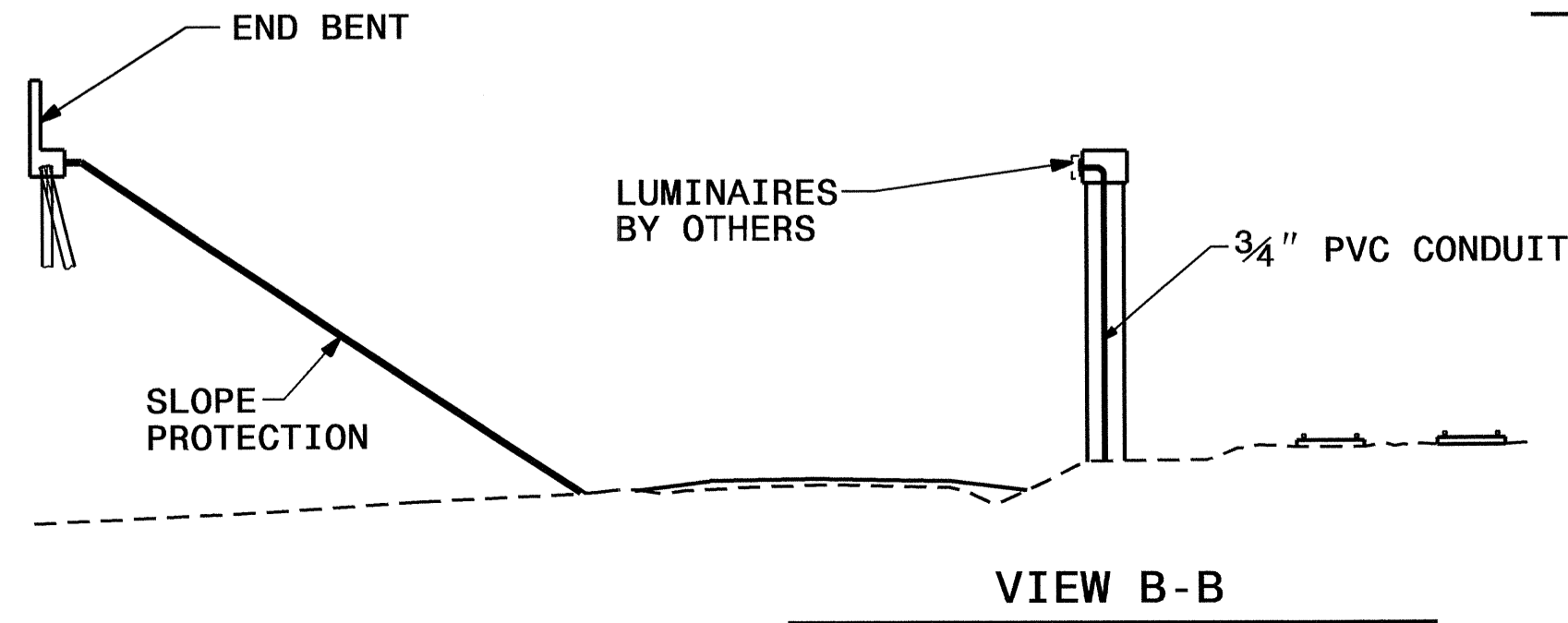
USE FOR LIGHTING CONSTRUCTION ONLY



PLAN
PILES ARE NOT SHOWN IN PLAN VIEW



VIEW A-A



VIEW B-B

- 1 PROVIDE EXPANSION FITTINGS IN EACH SECTION OF CONDUIT THAT IS GREATER THAN 20' LONG BETWEEN TERMINALS AT JUNCTION BOXES ON PIER CAP.
- 2 CAP CONDUIT IN JUNCTION BOXES AND AT ALL CONDUIT TERMINATION POINTS.
- 3 SEE STANDARD DRAWING 1412.01 FOR FURTHER INSTALLATION DETAILS.

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Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION ELECTRICAL CONDUIT SYSTEM DURHAM FREEWAY OVER ANGIER AVENUE (ECS-3) DURHAM COUNTY			
Drawn By:	RGH	Approved By:	PKC
Dwg No.:			

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