02/03/98

PROJECT REFERENCE NO.	SHEET NO.
U-3324	E1

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-BUN CHIN
5-17-12

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 2002 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 2002 AASHTO ROADSIDE DESIGN GUIDE.
5. TYPE PC18 JUNCTION BOXES ARE 18" L X 12" W X 18" H.
6. TYPE PC30 JUNCTION BOXES ARE 30" L X 17" W X 18" H.
7. TYPE PC36 JUNCTION BOXES ARE 36" L X 24" W X 18" H.
8. THE MINIMUM POLE SETBACK REQUIREMENT FOR SINGLE ARM LIGHT STANDARDS IS 15'. IN THE SITUATION WHERE THE POLE SETBACK IS NOT ATTAINABLE, THE POLE SETBACK CAN BE REDUCED TO 10'.
9. LOCATE TWIN ARM STANDARD A MINIMUM OF 4' FROM THE BOTTOM OF DITCHLINE.

SCOPE OF WORK

PLACE ROADWAY LIGHTING SYSTEM INTO SERVICE BY PROVIDING AND INSTALLING SINGLE ARM LIGHT STANDARDS, TWIN ARM LIGHT STANDARDS, 80' HIGH MOUNT STANDARDS AND 100' HIGH MOUNT STANDARDS WITH HIGH PRESSURE SODIUM LUMINAIRES, UNDERGROUND CIRCUITRY, CONTROL SYSTEM AND JUNCTION BOXES.

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

2008 NATIONAL ELECTRICAL CODE

2002 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
1401.01	HIGH MOUNT STANDARD
1402.01	HIGH MOUNT FOUNDATION
1403.01	HIGH MOUNT 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 2012.

LEGEND

- 100' — PROPOSED 100' HIGH MAST STANDARD W/ HM FOUNDATION & (6) HM LUMINAIRES 750W HPS, MEDIUM, CUTOFF, TYPE V
- 80' — PROPOSED 80' HIGH MAST STANDARD W/ HM FOUNDATION & (8) HM LUMINAIRES 400W HPS, MEDIUM, CUTOFF, TYPE V
- PROPOSED CONTROL SYSTEM WITH PC36 JUNCTION BOX. BREAKER SIZE SHOWN IN LOAD SCHEDULE, SHEET Ex
- JB1 — PROPOSED ELECTRICAL JUNCTION BOX SEE DETAILS & TABLE B, THIS SHEET
- 1 — REFERENCE TO CORRESPONDING NOTE AS NUMBERED
- A1, 6 — PROPOSED FEEDER CIRCUIT CONTROL SYSTEM(A), CIRCUIT(1) PLAN SYMBOL (6) SEE TABLE A, THIS SHEET
- 3#1/0 USE 2" — PROPOSED SERVICE POLE AND LATERAL 30' CLASS 4 3#1/0 USE CONDUCTORS 2" CONDUIT
- 2", 3" OR 4" ELEC. DUCT JA & BD — PROPOSED ELECTRICAL DUCT SIZE 2", 3" OR 4" TYPE (JA) OR (BD) LOCATION: SEE TABLE C, THIS SHEET
- PROPOSED LIGHT STANDARD TYPE MTLT 45' WITH 15' SINGLE ARM. INCLUDES STANARD FOUNDATION TYPE R1 OR R2 & 250W HPS FLAT GLASS ROADWAY LUMINAIRE. IES DISTRIBUTION: MEDIUM, CUTOFF, TYPE III
- PROPOSED LIGHT STANDARD TYPE MTLT 45' WITH 15' TWIN ARMS. INCLUDES STANARD FOUNDATION TYPE R1 WITH 250W HPS FLAT GLASS ROADWAY LUMINAIRE. IES DISTRIBUTION: MEDIUM, CUTOFF, TYPE III

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	2 - 8 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*8	2 #8 Ø 1 #10G	2 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR	2 - 8 W/G FEEDER CIRCUIT
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
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	2 - 4 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*4	2 #4 Ø 1 #6G	2 AWG SIZE 4 CONDUCTOR (BK & RD) 1 AWG SIZE 6 GROUNDING CONDUCTOR	2 - 4 W/G FEEDER CIRCUIT
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 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*2	2 #2 Ø 1 #4G	2 AWG SIZE 2 CONDUCTOR (BK & RD) 1 AWG SIZE 4 GROUNDING CONDUCTOR	2 - 2 W/G FEEDER CIRCUIT

TABLE "B"
JUNCTION BOX SUMMARY

NUMBER	LOCATION	TYPE			SHEET
JB1	20+70 -Y6RMPA- 40' LT			PC36	E3
JB2	18+84 -Y6- 58' LT			PC36	E3
JB3	46+68 -L- 64' LT			PC36	E3
JB4	46+68 -L- 5' RT			PC36	E3
JB5	49+68 -L- 5' RT	PC18			E3
JB6	49+68 -L- 56' RT	PC18			E3
JB7	52+68 -L- 5' RT	PC18			E3
JB8	45+90 -L- 5' RT		PC30		E3
JB9	44+54 -L- 5' RT		PC30		E3
JB10	44+54 -L- 64' RT	PC18			E3
JB11	23+45 -Y6- 94' RT	PC18			E3
JB12	42+16 -L- 5' LT	PC18			E3
JB13	39+92 -L- 5' LT	PC18			E3
JB14	37+42 -L- 5' LT	PC18			E2
JB15	35+10 -L- 5' LT	PC18			E2
JB16	32+68 -L- 5' LT	PC18			E2
JB17	30+34 -L- 5' LT	PC18			E2
JB18	28+00 -L- 5' LT	PC18			E2
JB19	24+96 -L- 10' RT	PC18			E2
JB20	24+76 -L- 36' RT	PC18			E2
JB21	23+45 -L- 38' RT*	PC18			E2
TOTALS		15	2	4	

TABLE "C"
ELECTRICAL DUCT SUMMARY
(ESTIMATED LENGTH IN FEET)

			TYPE					
			JACKED (JA) FEET			BURIED (BD) FEET		
LOCATION	RACEWAY 1	SHEET	SIZE 3"	SIZE 4"	SIZE 6"	SIZE 2"	SIZE 3"	SIZE 4"
20+74 -Y6RMPA-		E3			100			
20+74 -Y6RMPA-	CS"A" - JB1	E3					120	
46+68 -L-		E3			70			
46+68 -L-	JB3 - JB4	E3					90	
49+68 -L-		E3	70					
45+00 -L-		E3		100				
45+00 -L-	JB8 - JB9	E3				120		
44+54 -L-		E3	70					
24+86 -L- 24' RT		E2	50					
TOTALS			190	100	170	120	210	

EQUIVALENTS

TRADE SIZE	METRIC	ENGLISH
½	16mm	½"
¾	21mm	¾"
1	27mm	1"
1.5	41mm	1½"
2	53mm	2"
3	78mm	3"

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
		HM	HIGH MAST

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02/03/98

PROJECT REFERENCE NO.	SHEET NO.
U-3324	E2

USE FOR LIGHTING CONSTRUCTION ONLY

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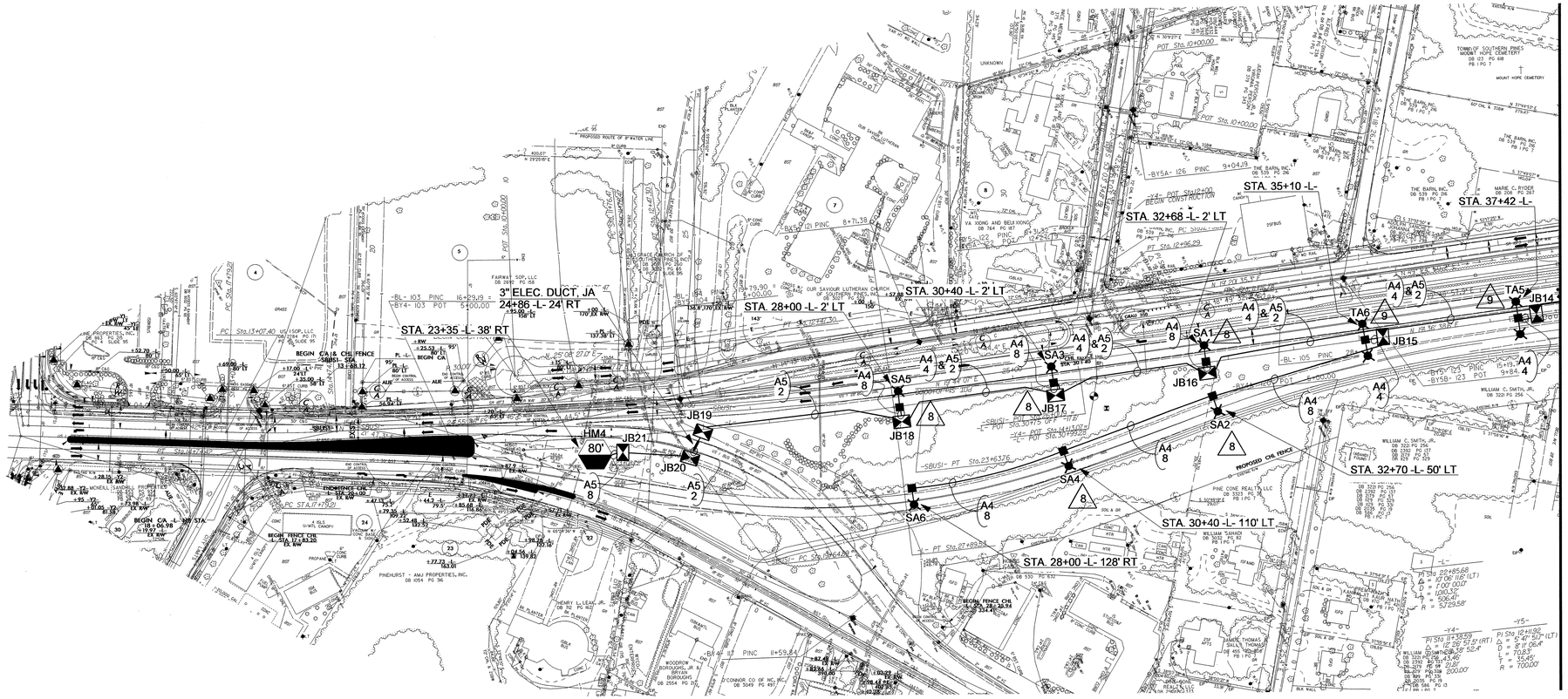

SEE SHEET "E1" FOR LEGEND & △ NOTES

Rev.	Date	Description	Approved
2			
1			

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

LIGHTING LAYOUT
US 1/MORGANTON ROAD INTERCHANGE

MOORE COUNTY

Drawn By:	Approved By:	Dwg No.:
AB	PKC	

NORTH CAROLINA
PROFESSIONAL
SEAL
022582
ENGINEER
PAUL KI-BUN CHAN
5-17-12

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02/03/98

PROJECT REFERENCE NO.	SHEET NO.
U-3324	E3

NORTH CAROLINA
SEAL
022582
ENGINEER
PAUL KI-BUM CHAN
5-17-12

USE FOR LIGHTING CONSTRUCTION ONLY

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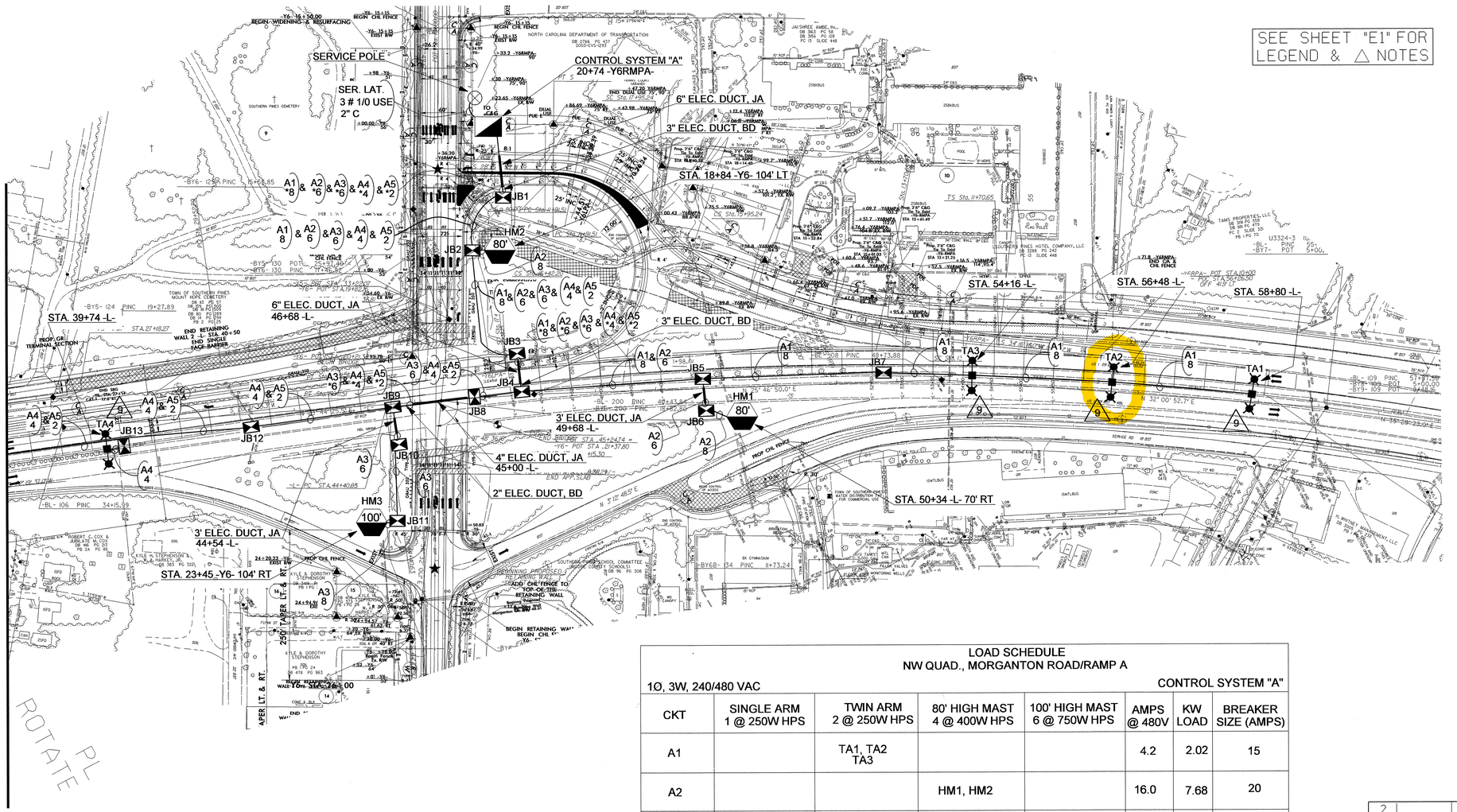
SEE SHEET "E1" FOR LEGEND & △ NOTES

MATCHLINE WITH SHEET E2



ROTATE PL

LOAD SCHEDULE
NW QUAD., MORGANTON ROAD/RAMP A

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

CKT	SINGLE ARM 1 @ 250W HPS	TWIN ARM 2 @ 250W HPS	80' HIGH MAST 4 @ 400W HPS	100' HIGH MAST 6 @ 750W HPS	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
A1		TA1, TA2 TA3			4.2	2.02	15
A2			HM1, HM2		16.0	7.68	20
A3				HM3	10.8	5.18	15
A4	SA1,SA2,SA3 SA4,SA5,SA6	TA4, TA5 TA6			8.4	4.04	15
A5			HM4		8.0	3.84	15
SPARE							20
TOTAL	6	6	3	1	47.4	22.76	

Rev.	Date	Description	Approved
2			
1			

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN — LIGHTING/ELECTRICAL SECTION

LIGHTING LAYOUT

US 1/MORGANTON ROAD INTERCHANGE

MOORE COUNTY

Drawn By:	Approved By:	Dwg No.:
AB	PKC	

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