PROJECT REFERENCE NO.	SHEET NO.
R-4047	E1

PLANS AND DETAILS FOR PROPOSED LIGHTING /ELECTRICAL CONSTRUCTION

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PUK KI-BUN CHIN
12-20-13

△ 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. AVOID CONFLICT WITH EXISTING MEDIAN STORM DRAIN PIPES WHEN INSTALLING TA LIGHT POLE FOUNDATIONS, JUNCTION BOX AND FEEDER CIRCUITS.

SCOPE OF WORK

PLACE ROADWAY LIGHTING SYSTEM INTO SERVICE BY PROVIDING AND INSTALLING 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 120 MPH

DESIGN HIGH MOUNT STANDARD FOUNDATION FOR BASIC WIND SPEED OF 90 MPH. ANY CONTRACTOR-DESIGNED SITE SPECIFIC FOUNDATION DESIGN SHALL BE DESIGNED FOR THE SAME WIND SPEED

2011 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
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
- PROPOSED LIGHT STANDARD TYPE MTLT 45' WITH 15' TWIN ARMS. INCLUDES STANDARD FOUNDATION IN MEDIAN BARRIER WITH 400W HPS FLAT GLASS ROADWAY LUMINAIRE. IES DISTRIBUTION: MEDIUM, CUTOFF, TYPE III
- 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

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

TABLE "B"
JUNCTION BOX SUMMARY

NUMBER	LOCATION	TYPE		SHEET
JB1	-L- STA.22+93, 53' RT		PC30	E2
JB2	-L- STA.22+93, 41' LT		PC30	E2
JB3	-RPD- STA.14+00, 27' LT		PC30	E2
JB4	15' FROM HM1	PC18		E2
JB5	-RPD- STA.14+00, 18' RT	PC18		E2
JB6	15' FROM HM3	PC18		E2
JB7	-Y2L2- STA.16+74, 3' RT			
JB8	-Y2L2- STA.14+00, 3' RT	PC18		E2
JB9	-Y2L2- STA.19+92, 76' RT	PC18		E2
JB10	-Y2L2- STA.19+92, 95' LT	PC18		E2
JB11	15' FROM HM2	PC18		E2
TOTALS		8	3	E2

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

LOCATION	RACEWAY 1	SHEET	TYPE: JACKED (JA) FEET SIZE 2"	JACKED (JA) FEET SIZE 3"	JACKED (JA) FEET SIZE 4"	BURIED (BD) FEET SIZE 2"	BURIED (BD) FEET SIZE 3"	BURIED (BD) FEET SIZE 4"
-L- STA. 22+93		E2			100			
-L- STA. 22+93	JB1 - JB2	E2				124'		
-Y2L2- STA.16+74, 32' RT		E2		46'				
-Y2L2- STA.19+91		E2		126'				
-RPD- STA.14+00		E2			22'			
-RPD- STA.14+00	JB3 - JB5	E2				30'		
TOTALS		E2		172'	122'	154'		

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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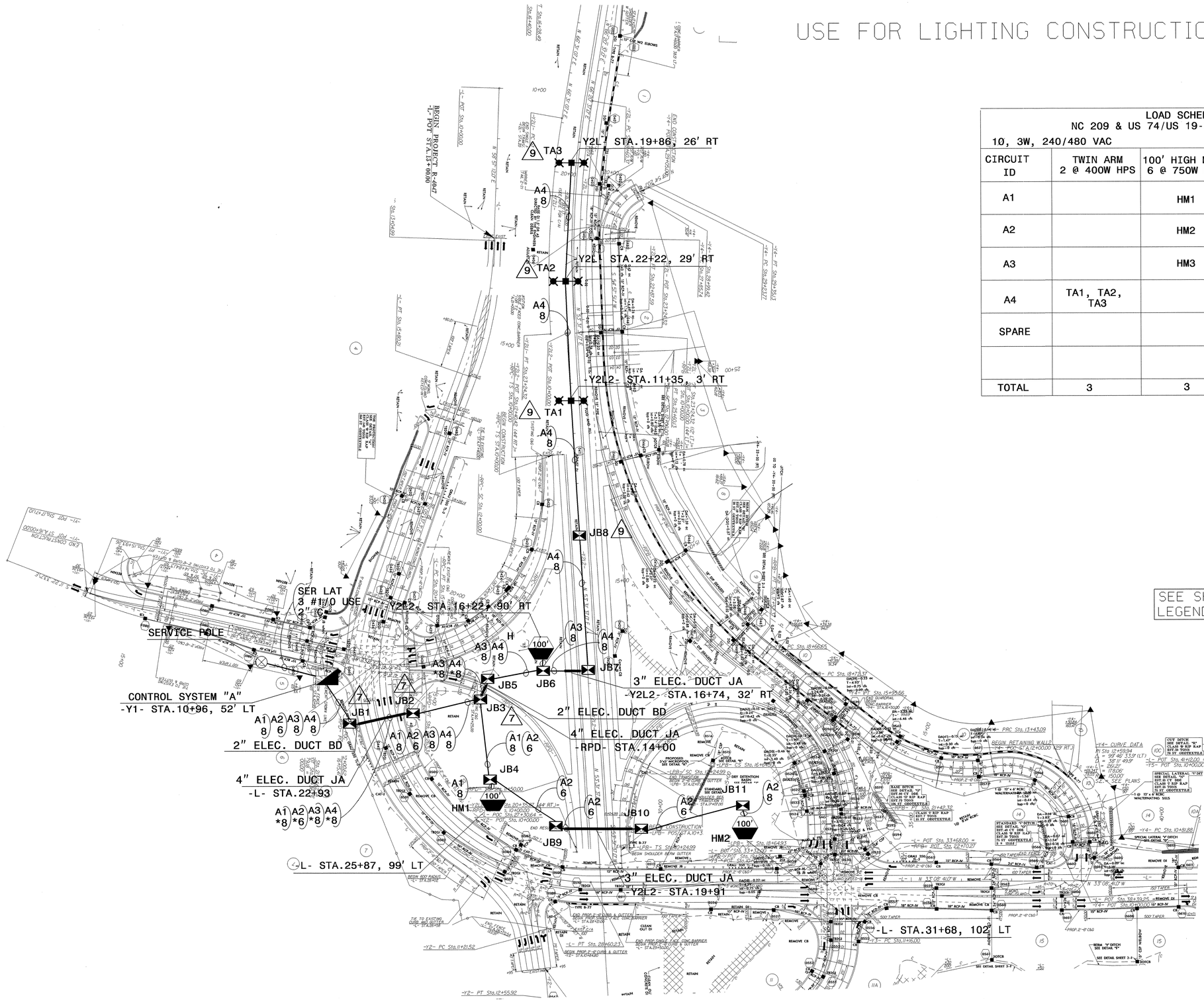
PROJECT REFERENCE NO.	SHEET NO.
R-4047	E2

USE FOR LIGHTING CONSTRUCTION ONLY



LOAD SCHEDULE NC 209 & US 74/US 19-23 INTERCHANGE 10, 3W, 240/480 VAC			CONTROL SYSTEM "A"		
CIRCUIT ID	TWIN ARM 2 @ 400W HPS	100' HIGH MAST 6 @ 750W HPS	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
A1		HM1	10.8	5.2	15
A2		HM2	10.8	5.2	15
A3		HM3	10.8	5.2	15
A4	TA1, TA2, TA3		6.0	2.9	15
SPARE					15
TOTAL	3	3	38.4	18.5	

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-BUN CHAN 12-20-13

Rev.	Date	Description	Approved
2			
1			

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

LIGHTING LAYOUT
NC 209 FROM US 23 BUS. TO NORTH OF SR 1523 (OLD CLYDE RD.)
HAYWOOD cOUNTY

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

02-03-98

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SKSANS Mif Model