

GENERAL NOTES

- CIRCUIT AND JUNCTION BOX LOCATIONS MAY BE FIELD ADJUSTED AS REQUIRED TO STAY WITHIN THE LIMITS OF CONSTRUCTION, WITHIN RIGHT-OF-WAY, OUT OF DITCH LINES, AWAY FROM FENCE POSTS, GUARDRAILS AND CABLE GUIDERAILS, AND TO CLEAR OBSTRUCTIONS. ADJUSTMENTS RESULTING IN AN OVERALL INCREASE OF 3% OR MORE TO ANY CIRCUIT LENGTH REQUIRES APPROVAL FROM THE ENGINEER.
- LOCATE ALL JUNCTION BOXES OUTSIDE CLEAR ZONE AND IN AN AREA UNLIKELY TO BE USED BY TRAFFIC.
- ALL IN GROUND JUNCTION BOXES DEPTHS SHALL BE 18" UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL RECORD THE GPS COORDINATES OF EACH JUNCTION BOX WITHIN 3' ACCURACY, 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. COORDINATES ARE NOT REQUIRED FOR FORMED OPENINGS.
- JUNCTION BOXES SHOWN NEAR LIGHT STANDARDS (LSJB & HMJB) ARE SHOWN FOR CLARITY. THESE JUNCTION BOXES ARE TO BE USED AS A TEE POINT FOR CIRCUITRY TO THE STANDARD, AND SHALL BE INSTALLED FOR BEST ALIGNMENT OF CIRCUITRY WHILE MAINTAINING THE OFFSETS SHOWN IN TABLE "C". SEE STANDARD DRAWING 1401.01 FOR INSTALLATION DETAILS.
- INSTALL ALL BORE PITS OUTSIDE THE CLEAR ZONE, AS DEFINED BY THE 2011 AASHTO ROADSIDE DESIGN GUIDE OR AS DIRECTED BY THE ENGINEER.
- 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.
- POLE NUMBERING CONVENTION: CONTROL SYSTEM-POLE #-CKT # (A-3-2).
- SERVICE POLE SHALL NOT BE INSTALLED PRIOR TO COORDINATION WITH THE LOCAL UTILITY. PROVIDE PROOF OF COORDINATION AND PROOF OF NEED TO THE ENGINEER AFTER CONSULTING WITH THE LOCAL UTILITY. THE SERVICE POLE MAY BE DELETED FROM THE CONTRACT IF NOT REQUIRED. REFER TO ARTICLE 1407-3 OF THE 2024 NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
- WHERE A CURRENT TRANSFORMER (CT) CABINET IS REQUIRED, THE CT CABINET AND ASSOCIATED HARDWARE ARE INCIDENTAL TO THE PAY ITEM FOR THE LIGHTING CONTROL PANEL.
- WHEN FIELD ADJUSTMENT TO CONTROL PANEL LOCATION IS REQUIRED, THE CONTRACTOR SHALL LOCATE THE PROPOSED CONTROL SYSTEM IN AN AREA ACCESSIBLE FOR MAINTENANCE VEHICLES AND OUTSIDE OF CLEAR ZONE AS DEFINED BY THE 2011 AASHTO ROADSIDE DESIGN GUIDE.

NOTES

- 1

AT THESE LOCATIONS, PROVIDE A COMMON GROUND PER NEC REQUIREMENTS FOR ALL ELECTRICAL CIRCUITS WITHIN THE RACEWAY. RACEWAY SHALL BE INSTALLED WITHIN A PROTECTIVE SLEEVE UNDER THE ROADWAY. SEE TABLE "B" FOR ESTIMATED LENGTHS.
- 2

REMOVE AND RECYCLE ALL EXISTING UNDERGROUND CONDUCTOR IN CONDUIT. REMOVE AND DISPOSE OF ALL EXISTING LIGHTING JUNCTION BOXES. ABANDON ALL UNDERGROUND CONDUIT IN PLACE. THIS WORK IS INCIDENTAL TO THE CONTRACT.

PLANS AND DETAILS FOR PROPOSED LIGHTING / ELECTRICAL CONSTRUCTION

SCOPE OF WORK

RENOVATE EXISTING LIGHTING SYSTEM BY REMOVING ALL EXISTING LIGHTING EQUIPMENT AND REPLACING WITH NEW. PROVIDE AND INSTALL NEW LIGHT STANDARDS WITH LIGHT EMITTING DIODE LUMINAIRES, UNDERGROUND CIRCUITRY, CONTROL SYSTEMS AND JUNCTION BOXES. DELIVER REMOVED EQUIPMENT TO DIVISION OFFICE AS NOTED IN THE PLANS.

DESIGN CRITERIA

0.8 AVERAGE FOOTCANDLE ON TRAVEL LANES
4:1 AVERAGE TO MINIMUM UNIFORMITY RATIO ON TRAVEL LANES
2018 AASHTO ROADWAY LIGHTING DESIGN GUIDE
2023 NATIONAL ELECTRICAL CODE
2011 AASHTO ROADSIDE 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

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 2024 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 LED 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 2024.

LEGEND

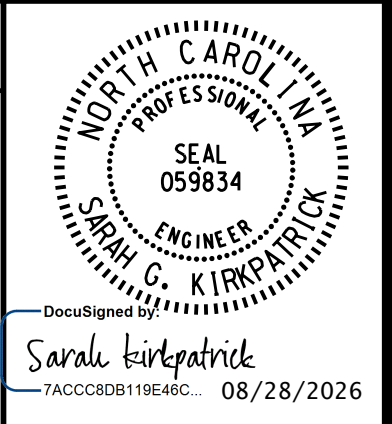
- PROPOSED 120' HIGH MAST STANDARD W/ HM FOUNDATION, JUNCTION BOX & 8 HM LED LUMINAIRES. 560W MAX, 54,000 MIN. MAINTAINED DELIVERED LUMENS, TYPE V. MAXIMUM BUG RATING 5-0-5.
- PROPOSED 100' HIGH MAST STANDARD W/ HM FOUNDATION, JUNCTION BOX & 6 HM LED LUMINAIRES. 560W MAX, 54,000 MIN. MAINTAINED DELIVERED LUMENS, TYPE V. MAXIMUM BUG RATING 5-0-5.
- PROPOSED CONTROL SYSTEM WITH JUNCTION BOX. SEE PLANS FOR BREAKER SIZES.
- PROPOSED ELECTRICAL JUNCTION BOX. SEE TABLE C FOR DETAILS AND TYPE.
- REFERENCE TO CORRESPONDING DELTA NOTE AS NUMBERED.
- PROPOSED FEEDER CIRCUIT. CONTROL SYSTEM (A), CIRCUIT NUMBER (1) PLAN SYMBOL (8). SEE TABLE A, THIS SHEET.
- PROPOSED 30' CLASS 4 SERVICE POLE AND LATERAL 3 #1/0 USE CONDUCTORS 2" CONDUIT
- PROPOSED ELECTRICAL DUCT SIZE 2", 3" OR 4" TYPE (TL) OR (BD) LOCATION: SEE TABLE B.
- EXISTING 100' HIGH MAST STANDARD TO BE REMOVED. REMOVE OR ABANDON FOUNDATION.
- EXISTING SINGLE ARM LIGHT STANDARD TO BE REMOVED. ABANDON OR REMOVE FOUNDATION. RETURN LUMINAIRE AND BREAKAWAY BASE TO DIVISION.
- EXISTING CONTROL SYSTEM TO BE REMOVED. DELIVER REMOVED CONTROL SYSTEM TO DIVISION. REMOVE OR ABANDON CONDUITS AND FOUNDATION.
- EXISTING ELECTRICAL JUNCTION BOX TO BE REMOVED.
- EXISTING FEEDER CIRCUIT. REMOVE CONDUCTOR FROM CONDUIT AND ABANDON CONDUIT.

ABBREVIATIONS

BD	BURIED	PVC	PVC SCHEDULE 40 CONDUIT
LT	LIGHT	RGC	RIGID GALVANIZED STEEL CONDUIT
TL	TRENCHLESS	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: _____ DATE: _____
CHECKED BY: _____ DATE: _____

\$\$\$\$\$SYTIME\$\$\$\$\$DGN\$\$\$\$\$USERNAME\$\$\$\$\$

TABLE C CONTINUED ON NEXT PAGETABLE B CONTINUED ON NEXT PAGE

SEE SHEET "E-1" FOR
LEGEND & Δ NOTES

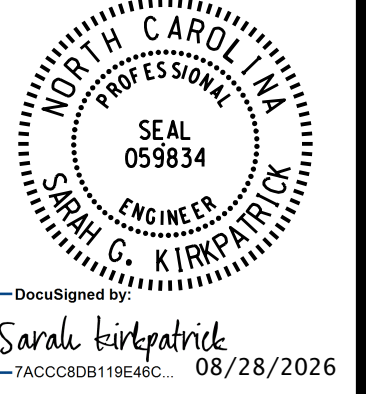
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USE FOR LIGHTING CONSTRUCTION ONLY

PROJECT REFERENCE NO.	SHEET NO.
I-5715	E-3



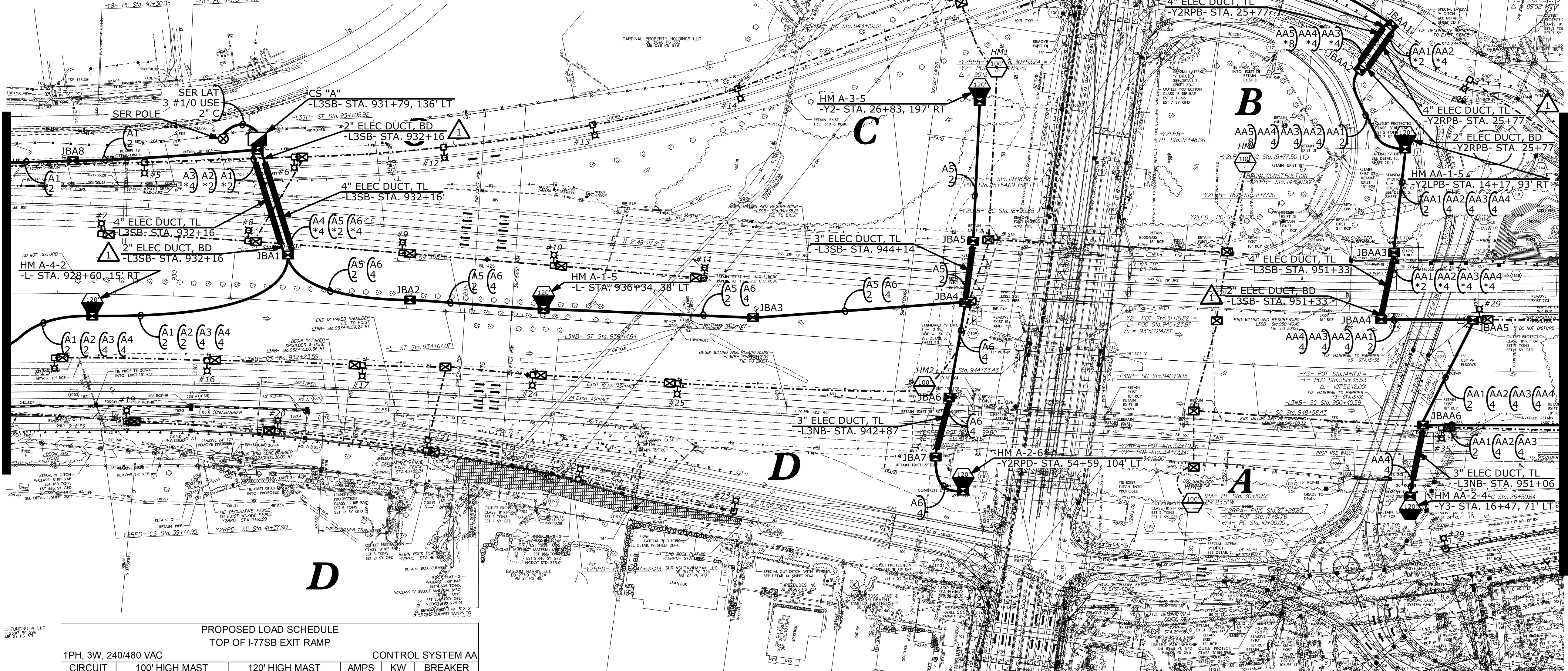
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SEE SHEET "E-1" FOR
LEGEND & Δ NOTES

EXISTING LOAD SCHEDULE CONTROL PANEL A AT TO OF I-77SB ENTRY RAMP						PROPOSED LOAD SCHEDULE NEAR THE BOTTOM OF I-77SB ENTRY RAMP					
1PH, 3W, 240/480 VAC			CONTROL SYSTEM A			1PH, 3W, 240/480 VAC			CONTROL SYSTEM A		
CIRCUIT	SINGLE ARM	100' HIGH MAST	AMPS	KW	BREAKER	CIRCUIT	100' HIGH MAST	120' HIGH MAST	AMPS	KW	BREAKER
ID	1 @ 196W LED	4 @ 475W LED	@ 480V	LOAD	SIZE (AMPS)	ID	6 @ 560W MAX. LED	8 @ 560W MAX. LED	@ 480V	LOAD	SIZE (AMPS)
A1	A1 - A14		5.6	2.7	50	A1		HMA-5, HMA-9	18.8	9.0	50
A2	A26 - A34		3.8	1.8	50	A2		HMA-8		7.8	50
A3	A15 - 25		4.6	2.2	50	A3		HMA-7		7.1	50
A4	A35 - A46		5.0	2.4	50	A4		HMA-6		9.4	50
A5		HM1, HM2	7.9	3.8	50	A5		HMA-1, HMA-3	18.8	9.0	50
A6		HM3, HM 4	7.9	3.8	50	A6		HMA-2	9.4	4.5	50
SPARE BREAKER					50	SPARE BREAKER					50
TOTAL	46 ON 46 POLES	16 ON 4 POLES	34.8	16.7		TOTAL	12 ON 2 POLES	56 ON 7 POLES	79.8	38.2	

MATCHLINE -L- STA.927+13
SEE SHEET E-2

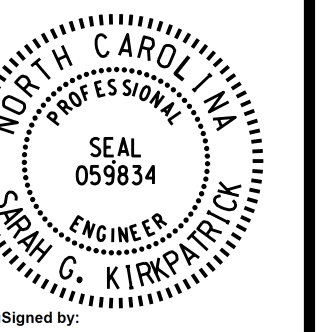
MATCHLINE -L- STA.953+91
SEE SHEET E-4



PROPOSED LOAD SCHEDULE TOP OF I-77SB EXIT RAMP					
1PH, 3W, 240/480 VAC			CONTROL SYSTEM AA		
CIRCUIT	100' HIGH MAST	120' HIGH MAST	AMPS	KW	BREAKER
ID	6 @ 560W MAX. LED	8 @ 560W MAX. LED	@ 480V	LOAD	SIZE (AMPS)
AA1	HMAA-5		7.1	3.4	50
AA2	HMAA-4		7.1	3.4	50
AA3		HMAA-3	9.4	4.5	50
AA4		HMAA-2	9.4	4.5	50
AA5		HMAA-1	9.4	4.5	50
AA6			0.0	0.0	50
SPARE BREAKER			0.0	0.0	50
TOTAL	12 ON 2 POLES	24 ON 3 POLES	42.4	20.3	

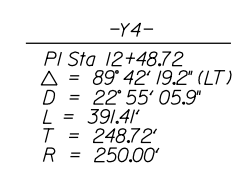
2			
1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION			
LIGHTING LAYOUT I-77/SAM FURR RD (NC 73) INTERCHANGE (SHEET 2 OF 3) MECKLENBURG COUNTY			
Drawn By:	RGH	Approved By:	Dwg No.:

PROJECT REFERENCE NO.	SHEET NO.
<u>I-5715</u>	<u>E-4</u>



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MATCHLINE -L- STA.953+91
SEE SHEET E-3



2			
1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION			
LIGHTING LAYOUT I-77/SAM FURR RD (NC 73) INTERCHANGE (SHEET 3 OF 3)			
MECKLENBURG COUNTY			
Drawn By: RGH		Approved By:	Dwg No.: