

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. LOCATE ALL JUNCTION BOXES OUTSIDE CLEAR ZONE AND IN AN AREA UNLIKELY TO BE USED BY TRAFFIC.
3. 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.
4. TYPE PC18 JUNCTION BOXES ARE 18" L X 12" W X 18" H.
5. REFER TO PLAN SHEET E3 FOR CONTROL SYSTEM SCHEMATIC IN LIEU OF THE JANUARY 2012 STANDARD DRAWING SECTION 1408.01.
6. PROVIDE APPROXIMATELY 600' OF GUARDRAIL TO CONNECT THE TWO EXISTING GUARDRAILS TOGETHER.
7. LOCATE CONTROL SYSTEM "A" APPROXIMATELY 50' FROM OVERHEAD POWER LINES AND ON EMBANKMENT.
8. CIRCUIT A1 IS UNSWITCHED 120V SERVICE. CIRCUIT A2 AND CIRCUIT A3 ARE PHOTOCONTROL 240V SERVICE.
9. REFER TO SHEET E4 FOR GUARDRAIL DETAILS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF EXISTING GUADRAIL.
11. TWO FLASHING BEACON LIGHTS SHALL BE PROVIDED BY THE CONTRACTOR FOR THE TRUCK OVERTURN WARNING SIGN. THE BEACON LIGHTS ARE INCIDENTAL TO THE SIGNING WORK.

SCOPE OF WORK

PLACE ROADWAY LIGHTING SYSTEM INTO SERVICE BY PROVIDING AND INSTALLING 35' HIGH MOUNT SINGLE ARM STANDARDS WITH 215W MAX. LED LUMINAIRES, UNDERGROUND CIRCUITRY, GUARDRAIL, CONTROL SYSTEM AND JUNCTION BOXES. PROVIDE UNSWITCHED CIRCUIT RUN FOR TRUCK WARNING SIGN FLASHING BEACON LIGHTS.

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
- 2011 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
1404.01	LIGHT STANDARDS
1405.01	STANDARD FOUNDATION
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
862.02	GUARDRAIL INSTALLATION

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

LEGEND

- PROPOSED LIGHT STANDARD TYPE MTLs 35' WITH 15' SINGLE ARM. INCLUDES STANDARD FOUNDATION TYPE R1 OR R2 & 215W LED LUMINAIRE. IES DISTRIBUTION: MEDIUM, CUTOFF, TYPE III
- PROPOSED CONTROL SYSTEM WITH PC36 JUNCTION BOX. BREAKER SIZE SHOWN IN LOAD SCHEDULE, SHEET E2
- 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
- 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
- FLASHING BEACON SIGN LIGHTS.

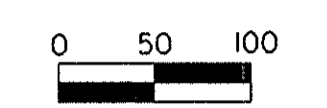
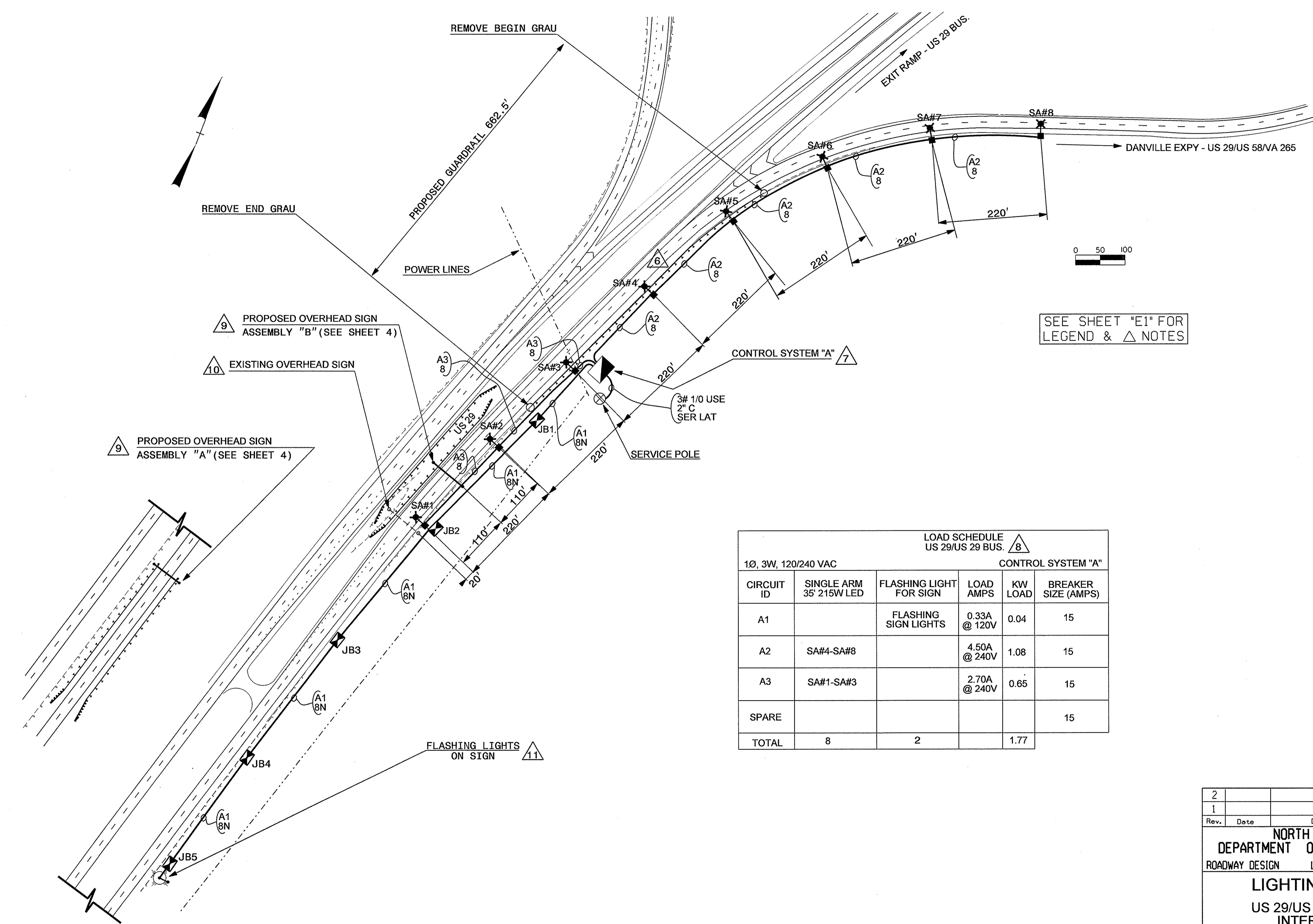
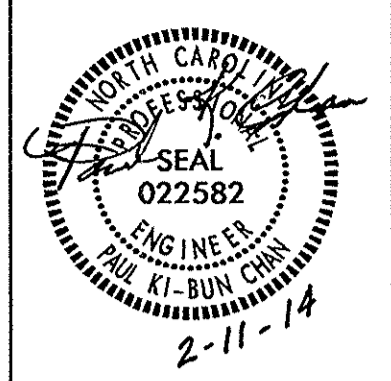
PLAN SYMBOL	DESCRIPTION	CONTRACT ITEM
8	2 #8 Ø 1 #10G 1.5" P	2 - 8 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
8N	1 #8 Ø 1 #8N 1 #10G 1.5 P	2 - 8 W/G FEEDER CIRCUIT IN 1.5" CONDUIT

NUMBER	LOCATION	TYPE	SHEET
JB1	15' FROM EOT MIN., 300' FROM JB2	PC18	E2
JB2	15' FROM EOT MIN., 300' FROM JB3	PC18	E2
JB3	15' FROM EOT MIN., 300' FROM JB4	PC18	E2
JB4	15' FROM EOT MIN., 300' FROM JB5	PC18	E2
JB5	AT FLASHING BEACON SIGN LIGHTS	PC18	E2
TOTALS		5	

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

COMPUTED BY: AB DATE: 2-11-14
 CHECKED BY: PKC DATE: 2-11-14

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SEE SHEET "E1" FOR
LEGEND & △ NOTES

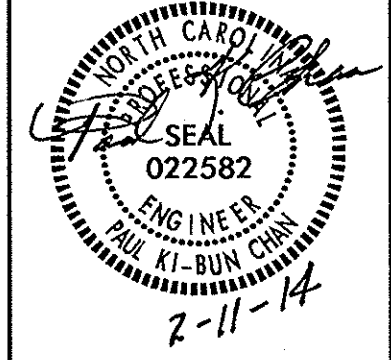
LOAD SCHEDULE △ 8					
1Ø, 3W, 120/240 VAC					
CONTROL SYSTEM "A"					
CIRCUIT ID	SINGLE ARM	FLASHING LIGHT FOR SIGN	LOAD AMPS	KW LOAD	BREAKER SIZE (AMPS)
A1	35' 215W LED	FLASHING SIGN LIGHTS	0.33A @ 120V	0.04	15
A2	SA#4-SA#8		4.50A @ 240V	1.08	15
A3	SA#1-SA#3		2.70A @ 240V	0.65	15
SPARE					15
TOTAL	8	2		1.77	

- △ 9 PROPOSED OVERHEAD SIGN ASSEMBLY "B" (SEE SHEET 4)
- △ 10 EXISTING OVERHEAD SIGN
- △ 9 PROPOSED OVERHEAD SIGN ASSEMBLY "A" (SEE SHEET 4)

FLASHING LIGHTS ON SIGN △ 11

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Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION			
LIGHTING LAYOUT US 29/US 29 BUSINESS INTERCHANGE AT VIRGINIA STATE LINE CASWELL COUNTY			
Drawn By:	AB	Approved By:	PKC
Dwg No.:			



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

1-12

ENGLISH STANDARD DRAWING FOR
LIGHT CONTROL SYSTEM
 SCHEMATIC

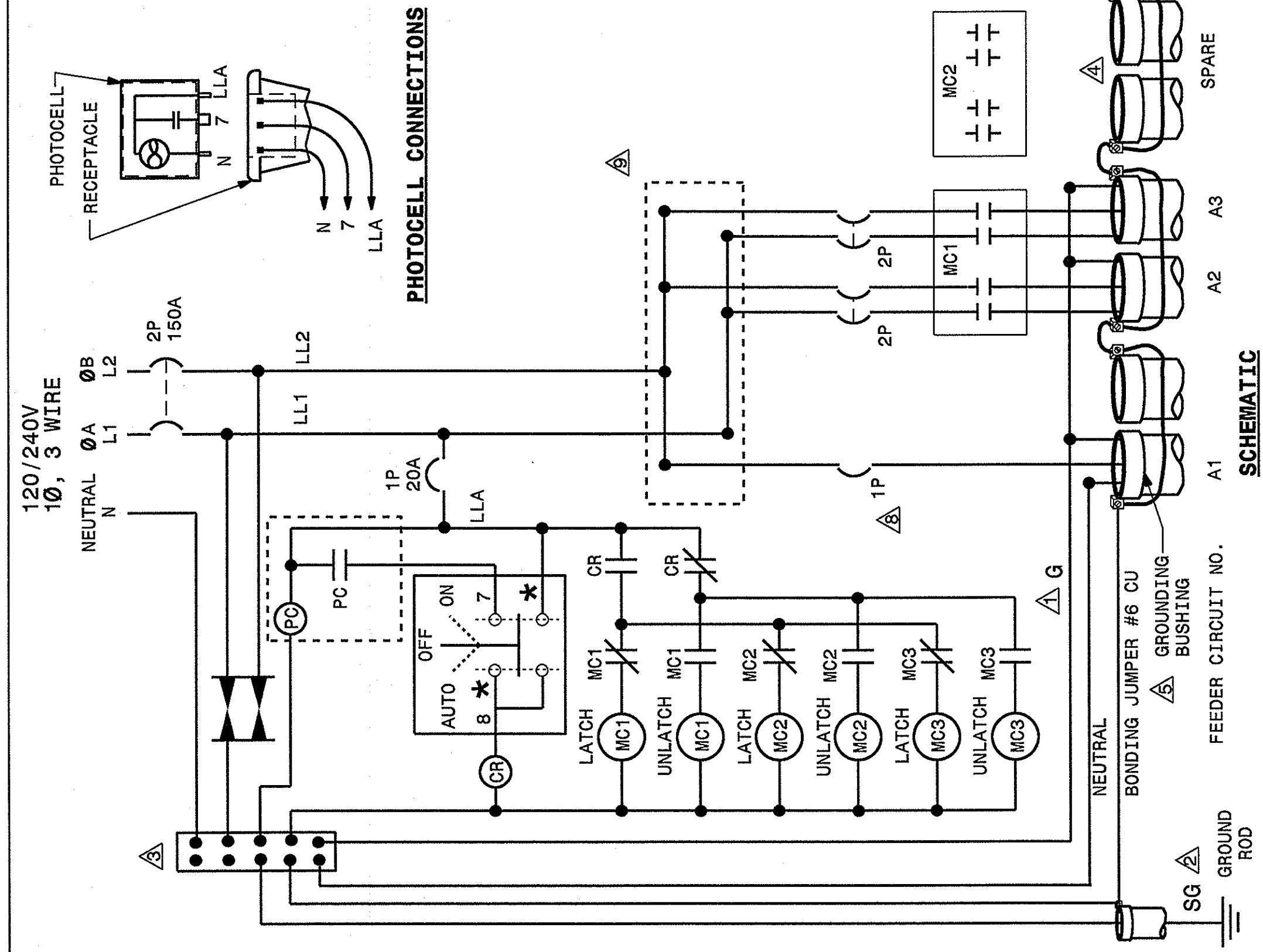
SHEET 1 OF 3
1408D01

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

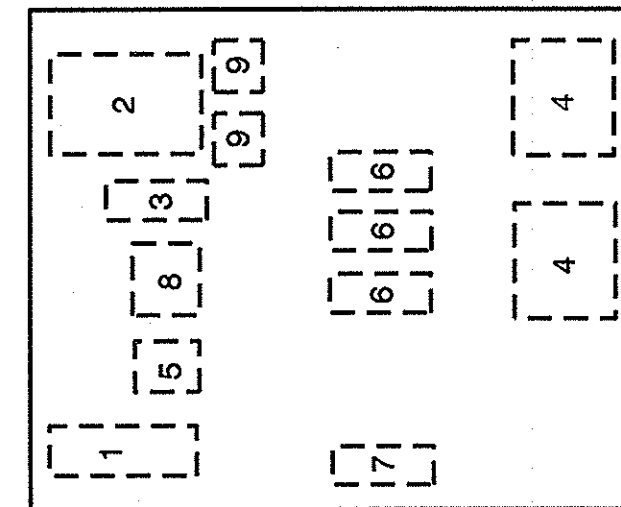
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ENGLISH STANDARD DRAWING FOR
LIGHT CONTROL SYSTEM
 SCHEMATIC

SHEET 1 OF 3
1408D01



- NOTES**
- △ EQUIPMENT GROUNDS (G) SHALL BE SIZED ACCORDING TO CIRCUIT DESCRIPTION. SEE PLANS.
 - △ SYSTEM GROUND (SG) SHALL BE CONTINUOUS FROM THE NEUTRAL BAR TO THE GROUNDING ELECTRODE (GROUND ROD).
 - △ THE NEUTRAL BAR SHALL BE BONDED TO THE PANEL.
 - △ FEEDER CIRCUITS NOT SHOWN ON THE PLANS SHALL NOT BE INSTALLED, BUT CONDUIT SHALL BE INSTALLED AND CAPPED.
 - △ INSTALL A GROUNDING BUSHING ON EACH METAL CONDUIT. CONNECT BONDING JUMPER AS REQUIRED BY NEC.
 - △ SEE SHEET 3 OF 3 OF STANDARD DRAWING 1408-01 FOR ENCLOSURE.
 - △ THE CONTROL SYSTEM MUST BE LABELED "SUITABLE FOR USE AS SERVICE EQUIPMENT." REFER TO STANDARD SPECIFICATION 1408-2 FOR OTHER REQUIREMENTS.
 - △ UNSWITCHED CIRCUIT TO TRUCK OVERTURN WARNING SIGN BEACONS.
 - △ PROVIDE MULTI-TAP LOAD LUGS OR POWER DISTRIBUTION BLOCKS.
 - △ PROVIDE MANUFACTURER SUPPLIED MOUNTING BRACKETS OR SCREW STUDS PERMANENTLY ATTACHED TO THE BACK PANEL, FOR MOUNTING COMPONENTS.
 - △ INSTALL LIGHTNING ARRESTOR ON OUTSIDE OF CABINET ASSEMBLY.
 - △ SECOND CONTACTOR SHOWN AS SPARE.

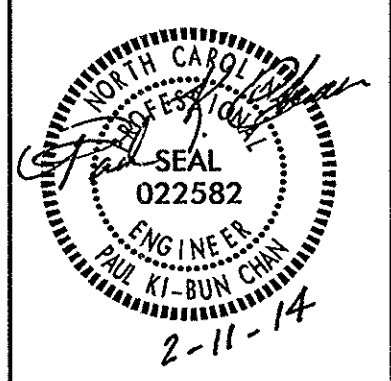


INTERIOR PANEL
 COMPONENT LAYOUT

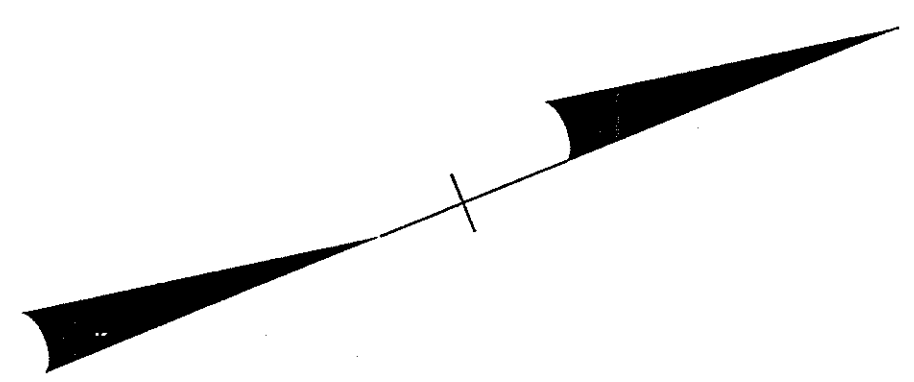
COMPONENT LIST

#	QTY	DESCRIPTION	SPECIFICATIONS
1	1	NEUTRAL BAR	
2	1	SERVICE CIRCUIT BREAKER	2P, 240V, 150A
3	1	CONTROL CIRCUIT BREAKER	1P, 120V, 15A
4	2	MECHANICALLY HELD CONTACTORS	4P, 240V, 60A W/120V COIL
5	1	CONTROL RELAY W/NC & NO CONTACT	120V, 10A, W/120V COIL
6	3	FEEDER CIRCUIT BREAKERS	2P, 240V, 15A MAX
7	1	FEEDER CIRCUIT BREAKERS	1P, 120V, 15A MAX
8	1	LIGHTNING ARRESTER	
9	1	SELECTOR SWITCH (ON-OFF-AUTO)	
10	2	POWER DISTRIBUTION LUGS OR BLOCKS	120V, 10A
		MOUNTING BRACKETS OR SCREW STUDS	

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Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION LIGHTING DETAILS LIGHT CONTROL SYSTEM SCHEMATIC			
Drawn By:	AB	Approved By:	PKC
Dwg No.:			

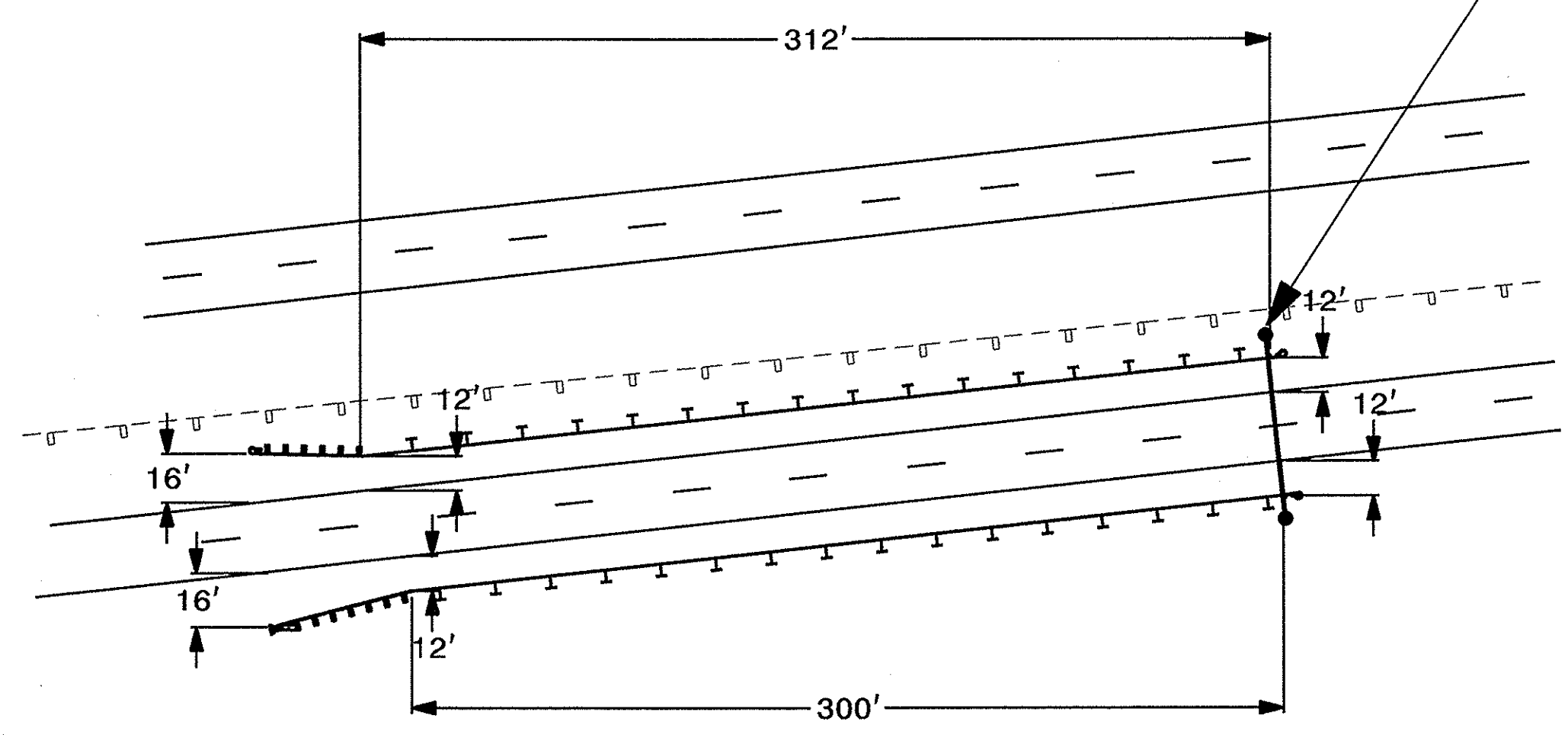


USE FOR LIGHTING CONSTRUCTION ONLY



PROPOSED OVERHEAD SIGN
LOCATION ASSEMBLY "A"

SEE SHEET "E1" FOR
LEGEND & △ NOTES

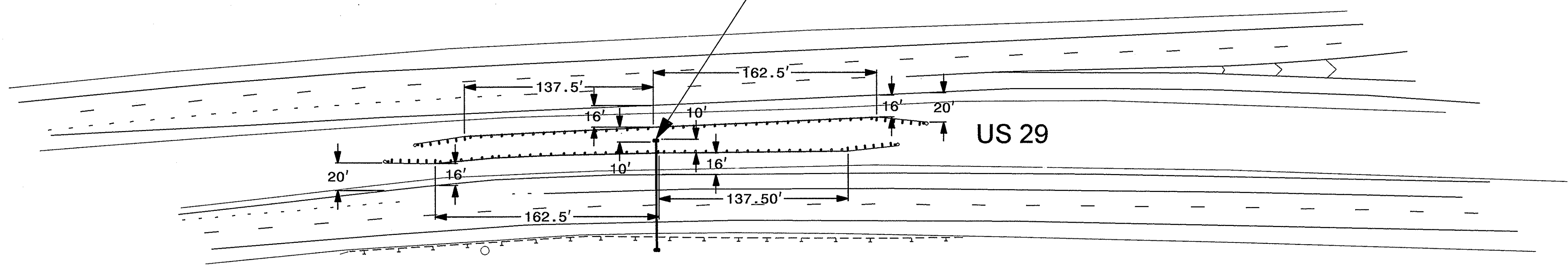


OVERHEAD SIGN ASSEMBLY "A"

RIGHT SHOULDER GR INVENTORY SUMMARY	MEDIAN GR INVENTORY SUMMARY
1 GRAU-350 ANCHOR UNIT	1 M-350 ANCHOR UNIT
24 12.5' RIGID GUARDRAIL UNITS	25 12.5' RIGID GUARDRAIL UNITS
1 AT-1	1 AT-1

GUARDRAIL INSTALLATION TYPICAL DETAILS

PROPOSED OVERHEAD SIGN
LOCATION ASSEMBLY "B"



OVERHEAD SIGN ASSEMBLY "B"

MEDIAN GR INVENTORY SUMMARY
4 M-350 ANCHOR UNIT
48 12.5' RIGID GUARDRAIL UNITS

MEDIAN GUARDRAIL INSTALLATION TYPICAL DETAILS
MEDIAN GUARDRAIL INSTALLATION TYPICAL DETAILS

2			
1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION GUARDRAIL INSTALLATION DETAILS			
CASWELL COUNTY			
Drawn By:	AB	Approved By:	PKC
		Dwg No.:	

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