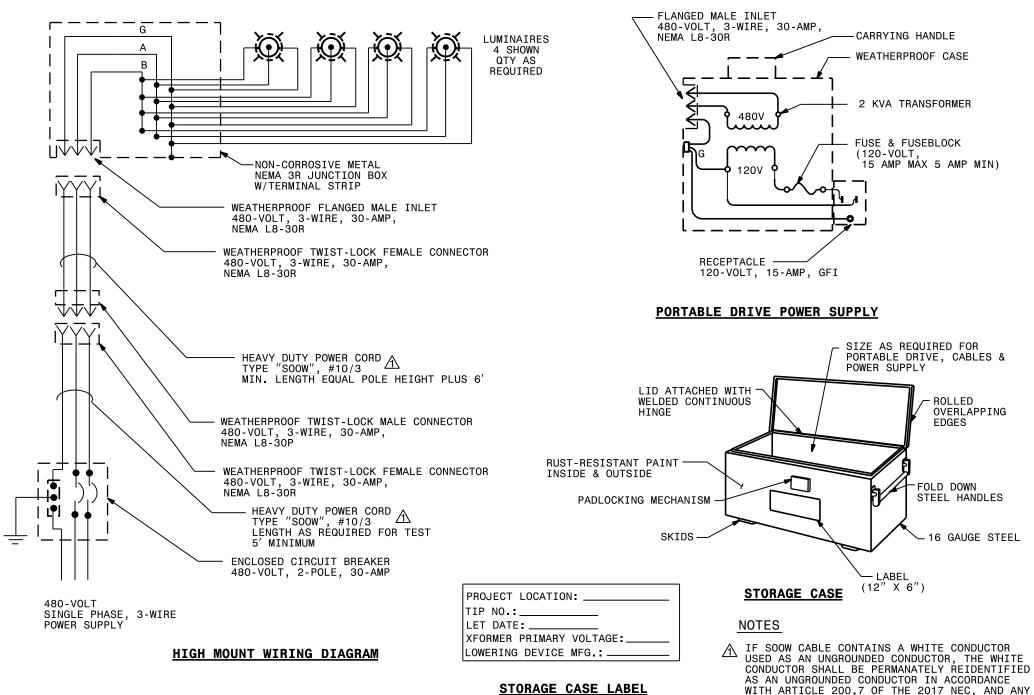


ROADWAY HIGH

SHEET 2 OF 2

1401.01

SUBSEQUENT UPDATES.



NCRETE CY	
4.6	
5.3	
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7 7 7	NORTH CAR	DEPT. OF TRANS	DIVISION OF

STANDARD DRAWING FOR ROADWAY HIGH

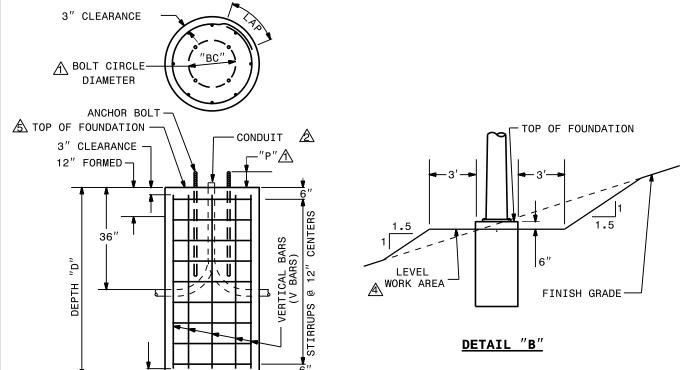
ш

GUARDRAIL

WHERE GUARDRAIL IS REQUIRED TO BE INSTALLED AS PART OF LIGHTING WORK, SET GUARDRAIL NO MORE THAN 8' FROM CENTER OF HIGH MAST FOUNDATION.

TABLE OF FOUNDATION DIMENSIONS AND QUANTITIES 🔬																			
HEIGHT					WIND VELOCITY MPH														
OF HIGH	DIAMETER	ST	IRRUPS		90 110					130									
MOUNT "C"	"C"			DEPTH "D"	٧	BARS	REINF.* STEEL	CONCRETE	DEPTH "D"	٧	BARS	REINF.* STEEL	CONCRETE	DEPTH "D"	٧	BARS	REINF.* STEEL	CONCRETE	
				FI	SIZE	LAP-FT	FT	QTY	SIZE	LBS	CY	FT	QTY	SIZE	LBS	CY	FT	QTY	SIZE
60	3.5	#3	1.0	11	8	#8	280	3.9	12	8	#8	306	4.3	13	8	#8	331	4.6	
80	3.5	#3	1.0	12	8	#8	306	4.3	13	8	#8	331	4.6	15	8	#8	382	5.3	
100	4.0	#3	1.0	13	8	#9	413	6.1	15	8	#9	477	7.0	16	8	#9	509	7.4	
120	4.5	#3	1.0	15	8	#10	557	8.2	16	8	#10	636	9.4	18	8	#10	716	10.6	

<sup>\*</sup> INCLUDES STIRRUPS AND VERTICAL BARS (V BARS)



DIAMETER "C"

DETAIL "A"

CLEARANCE -

# **NOTES**

#### **ANCHOR BOLTS**

CONFORM NUMBER, SIZE, AND LENGTH OF ANCHOR BOLTS, BOLT CIRCLE DIAMETER "BC", AND ANCHOR BOLT PROJECTION "P" TO APPROVED HIGH MOUNT STANDARD DRAWINGS.

# CONDUITS

MATCH ORIENTATION, QUANTITY, TYPE, AND SIZE OF CONDUITS TO THE LAYOUT SHEETS. STUB AND CAP ONE SPARE CONDUIT AT EACH FOUNDATION. PROJECT CONDUIT A MAXIMUM OF 2" ABOVE TOP OF FOUNDATION. PLACE CONDUIT 30" BENEATH FINISH GRADE. INCLUDE 34" CONDUIT FOR GROUNDING ELECTRODE CONDUCTOR TO GROUND ROD IN HIGH MAST JUNCTION BOX.

# **DIMENSIONS & QUANTITIES**

DIMENSIONS AND QUANTITIES OF CONCRETE AND REINFORCING STEEL ARE GIVEN FOR THE PURPOSE OF OBTAINING BID PRICES ONLY. SEE PROJECT SPECIAL PROVISIONS FOR OTHER STRUCTURAL REQUIREMENTS.

### **WORK AREA**

PROVIDE A LEVEL WORK AREA AROUND EACH FOUNDATION. CUT/FILL SLOPES MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

#### **ELEVATION**

SET TOP OF FOUNDATION AT 6" ABOVE LEVEL WORK AREA. SEE DETAIL "B".

SHEET 1 OF 1 1402.01

LED LUMEN PACKAGES A								
# OF LUMINAIRES	MAXIMUM LUMINAIRE WATTAGE	MINIMUM LUMINAIRE MAINTAINED LUMENS	MINIMUM PERCENT OF INITIAL OUTPUT (70K HOURS & 25° C)	COLOR TEMP.				
4	320	4	87%	3,500K ±500K				
8	320	4	87%	3,500K ±500K				
6	550	4	87%	3,500K ±500K				

87%

3,500K ±500K

4

550

MOUNTING

HEIGHT

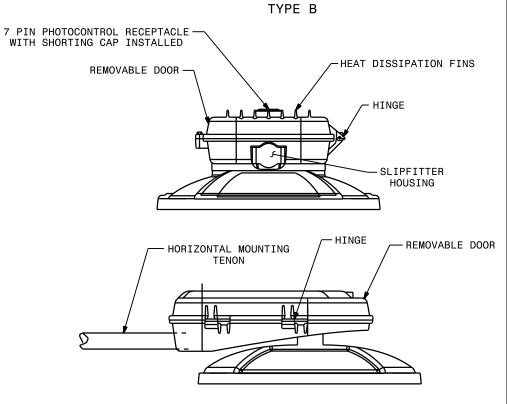
60'

80'

100'

120'

8



NOTES

SEE PLANS FOR IES DISTRIBUTION

CONTRACTOR SHALL ENSURE AND PROVIDE EVIDENCE THAT REQUIRED NUMBER SELECTED LUMINAIRES CAN BE MOUNTED ON SELECTED LOWERING DEVICE.

OTHER LUMINAIRE TYPES MEETING THE SPECIFICATIONS FOUND IN THE PROJECT SPECIAL PROVISIONS ARE ALSO ACCEPTABLE.

SEE PROJECT SPECIAL PROVISIONS FOR MINIMUM MAINTAINED DELIVERED LUMEN VALUES.

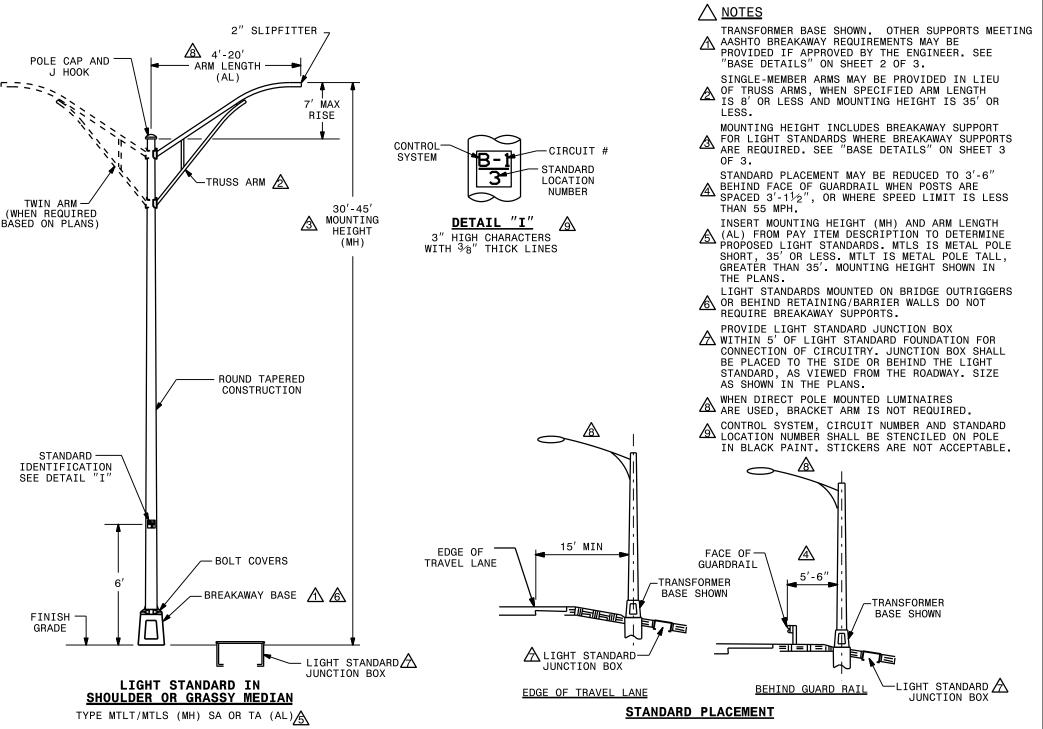
LUMINAIRES DRAWING FOR LED ENGLISH STANDARD MOUNT HIGH

AROLINA ANSPORTATION F HIGHWAYS H, N.C.

DIVISION OF RALEIGH,

DEP.

SHEET 1 OF 1 1403.01



SHEET 1 OF 3 1404.01

NORTH CAROLINA EPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

DEPT

INSTALLATION

MEDIAN

GRASS **IGHT** 

OR

SHOULDER

FOR

DRAWING

STANDARD

ROADWAY

STANDARDS

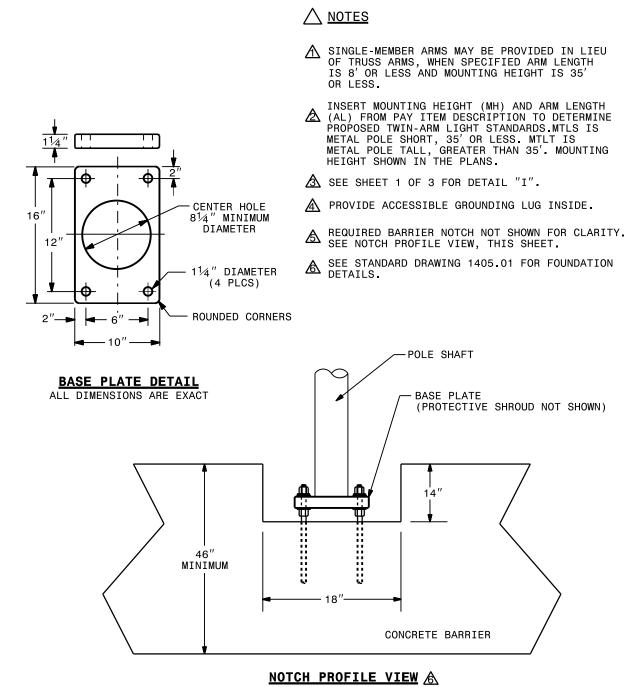
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STATE

# DRAWING STANDARD CONCRETE ROADWAY

SHEET 2 OF 3

1404.01



# **LIGHT STANDARD ON BARRIER**

2" SLIPFITTER

MAX RISE

30'-45'

MOUNTING HEIGHT

(MH)

4'-20' ARM LENGTH

(AL)

TRUSS ARM 1

**ROUND TAPERED** 

CONSTRUCTION

HANDHOLE 4

51/2" X 79/16" MIN

CONCRETE &

**BASE** PLATE

POLE CAP AND J HOOK

STANDARD

**IDENTIFICATION** 

SEE DETAIL "I"

 $\triangle$ 

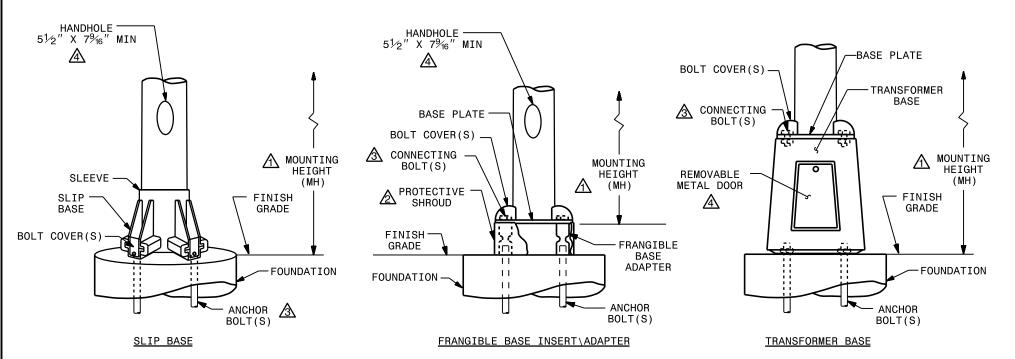
**FINISH GRADE** 

TYPE MTLT/MTLS (MH) SA OR TA (AL)

ALL DIMENSIONS ARE EXACT DRAWING NOT TO SCALE

# NOTES

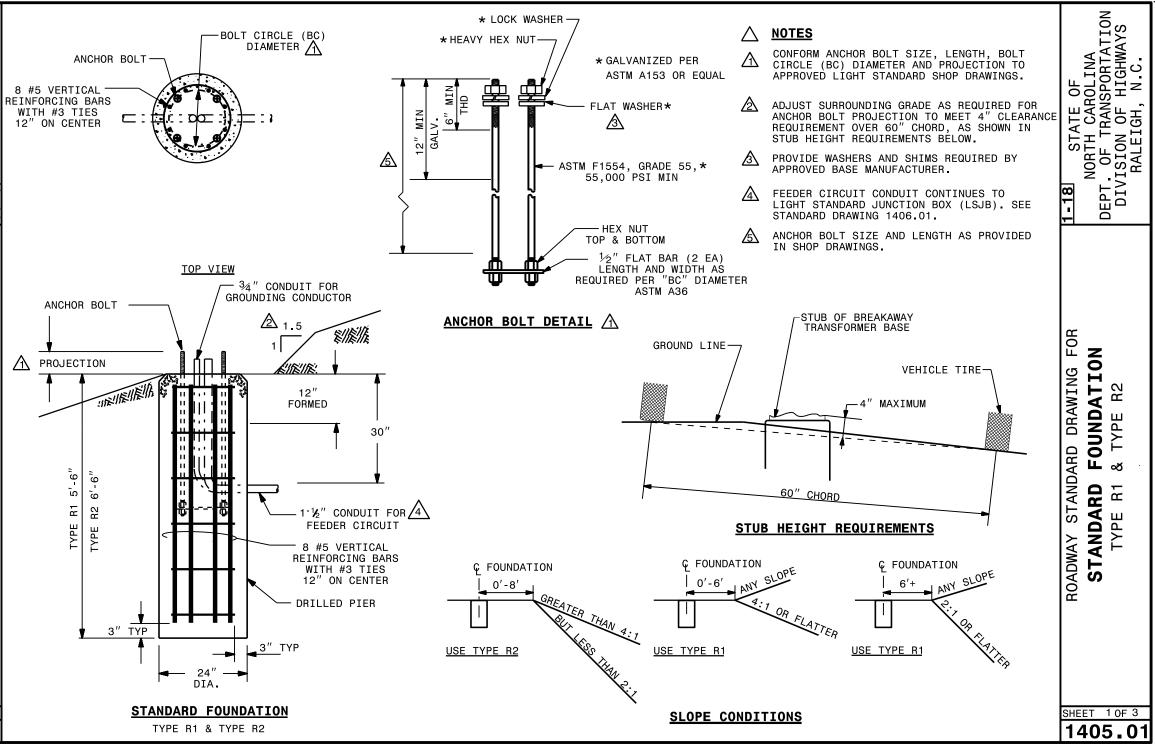
- MOUNTING HEIGHT INCLUDES BREAKAWAY BASE FOR LIGHT STANDARDS WITH TRANSFORMER BASES.
- FIT PROTECTIVE SHROUD SNUGLY AROUND BASE PLATE TO PROTECT CONDUIT AND WIRING AT BASE OF STANDARD.
- PROVIDE WASHERS AND SHIMS REQUIRED BY BASE MANUFACTURER.
- PROVIDE ACCESSIBLE GROUNDING LUG INSIDE.
- LABEL ALL BASES TO SHOW COMPLIANCE WITH AASHTO BREAKAWAY REQUIREMENTS.

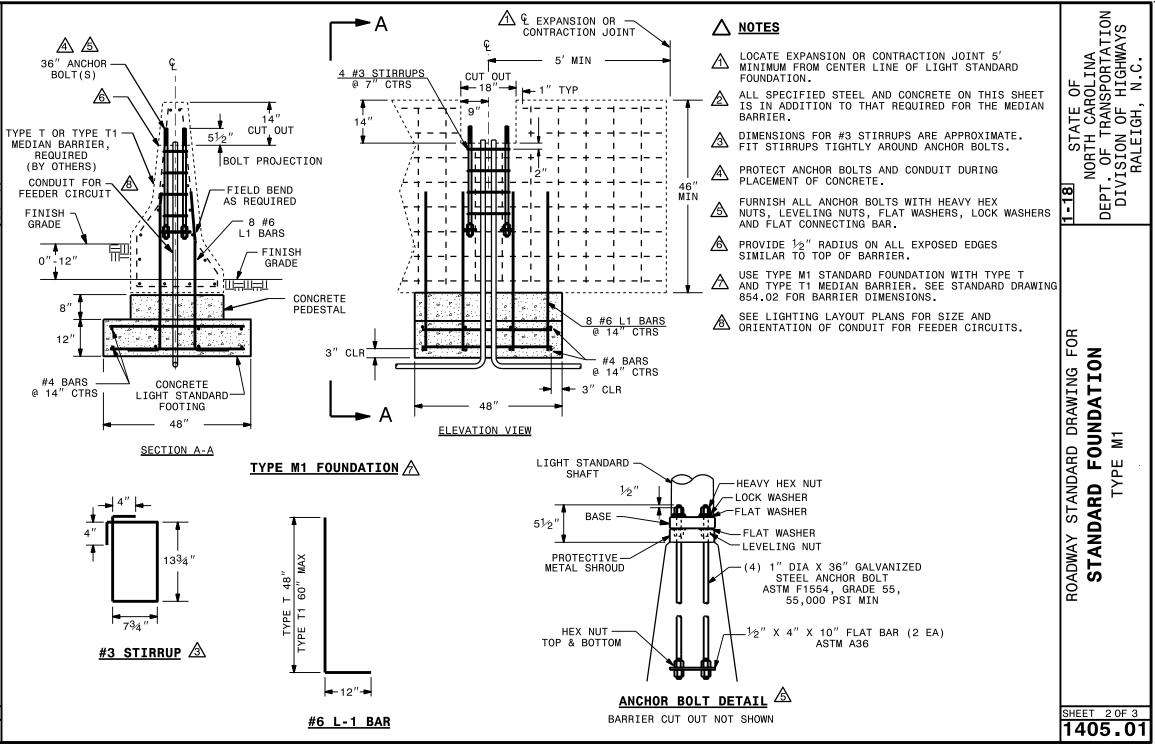


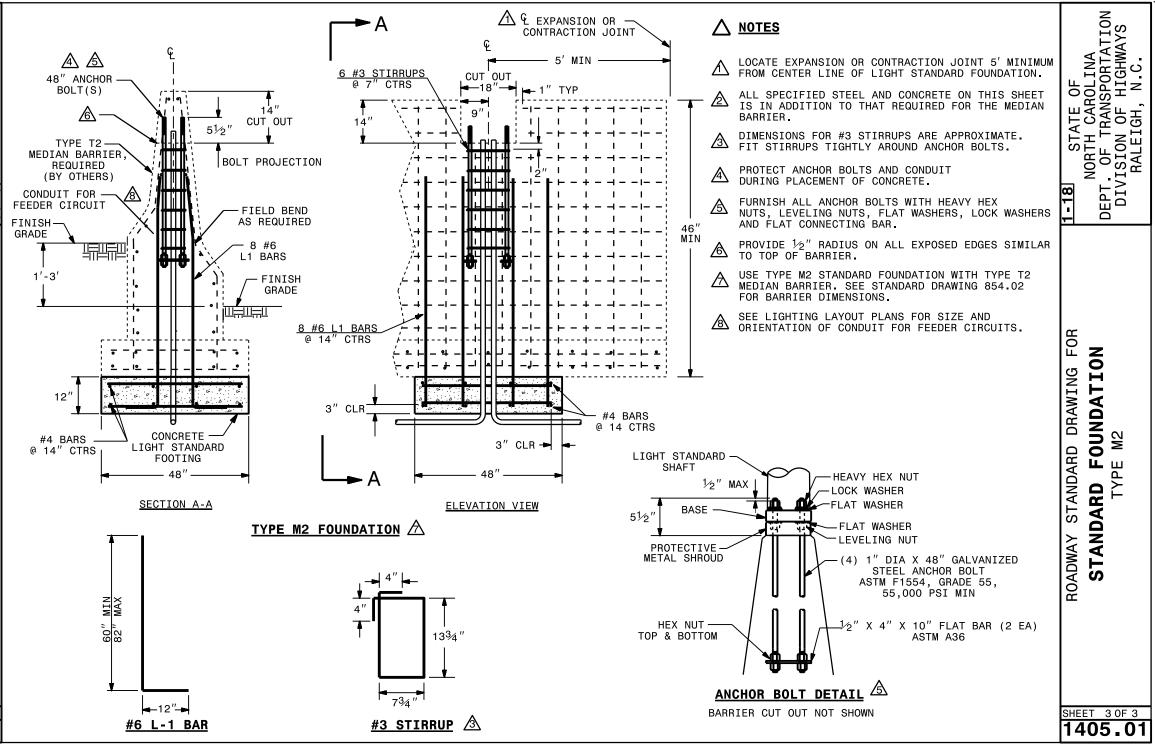
**BASE DETAILS** 



SHEET 3 OF 3

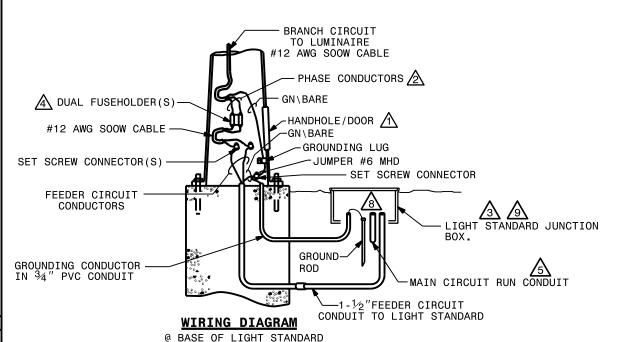






# <u>FUSEHOLDER</u>

7 PIN PHOTOCELL COOLING FINS CAST ALUMINUM HOUSING SHORTING CAP  2" SLIPFITTER SWING DOWN SERVICE DOOR
DOOR LATCH LIGHT STANDARD LUMINAIRE (TYPICAL) MECHANISM TYPE (STYLE) (SIZE)



#### LUMINAIRE CHARACTERISTICS

SPEC TYPE	HPS REPLACEMENT EQUIVALENT	COLOR TEMP	MINIMUM PERCENT OF INITIAL OUTPUT (70K HOURS & 25°C)	MINIMUM MAINTAINED LUMENS
185W (MAX) LED FIXTURE	250W	3,500K ±500K	83%	<u> </u>
285W (MAX) LED FIXTURE	400W	3,500K ±500K	83%	A

# ∧ NOTES

PROVIDE ACCESS TO FUSEHOLDERS FROM HANDHOLE OR TRANSFORMER BASE.

SEE STANDARD SPECIFICATIONS SECTION 1400-4(F) FOR WIRING METHODS. USE TAPE OR HEAT SHRINK TO COLOR CONDUCTORS TO MATCH PHASE COLOR (RED/BLACK/BLUE).

MAKE SPLICES IN ACCORDANCE WITH SECTION 1400-4(F) OF THE STANDARD SPECIFICATIONS.

BREAKAWAY FUSEHOLDERS REQUIRED AT ALL BREAKAWAY LIGHT STANDARDS.

SEE STANDARD SPECIFICATIONS SECTION 1400-2(E) FOR FUSEHOLDERS.

A INSERT STYLE AND SIZE FROM PAY ITEM DESCRIPTION TO DETERMINE PROPOSED LUMINAIRES.

PERMANENTLY ATTACH GROUNDING CONDUCTOR TO GROUND ROD VIA IRREVERSIBLE CLAMP.

SEE STANDARD DRAWING 1411.01 FOR LIGHT STANDARD JUNCTION BOX REQUIREMENTS.

SEE PROJECT SPECIAL PROVISIONS FOR MINIMUM MAINTAINED DELIVERED LUMEN VALUES.

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

IGHT STANDARD LUMINAIRES

DRAWING

STANDARD

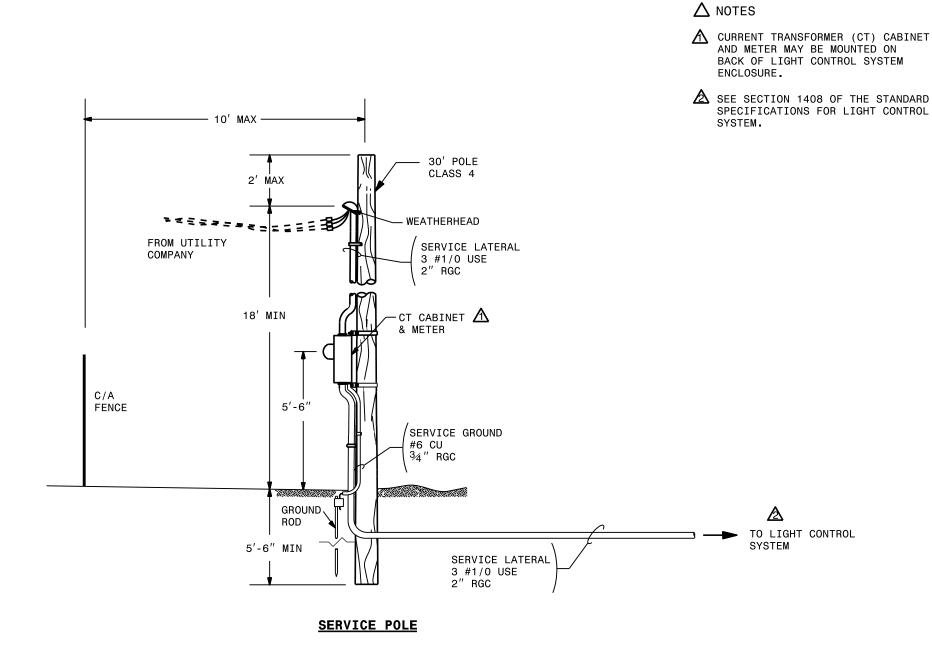
**ENGLISH** 

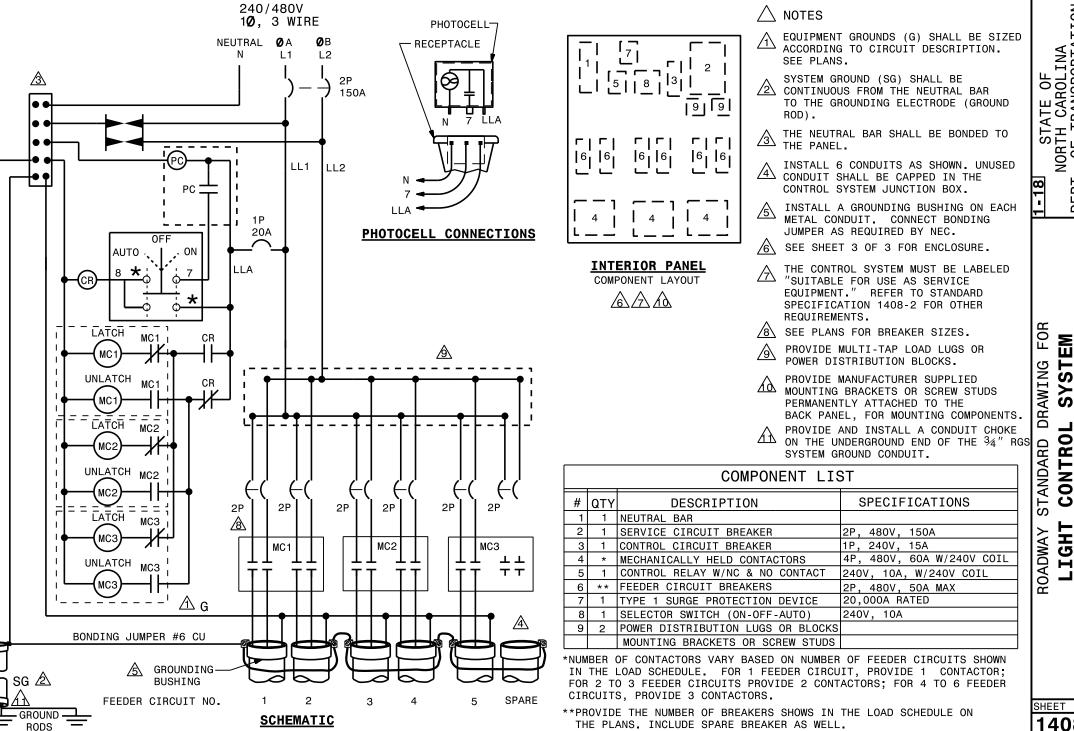
SHEET 1 OF 1

1406.01

FOR STANDARD DRAWING ROADWAY ELECTRIC

SHEET 1 OF 1 1407.01





SHEET 1 OF 3 1408.01

TRANSPORTATION N OF HIGHWAYS IGH, N.C.

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SCHEMATI

INSTALLATION.

STUB FEEDER CIRCUIT CONDUITS INTO JUNCTION BOX. CAP UNUSED CONDUITS.

FEEDER CIRCUITS MUST BE MINIMUM 30" **BELOW GRADE** SEE SECTION 1411 OF THE STANDARD

SPECIFICATIONS FOR JUNCTION BOX

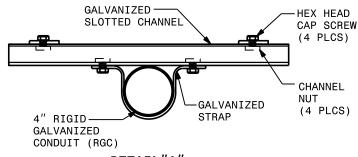
ALL ABOVE GROUND CIRCUITRY TO BE INSTALLED IN RIGID GALVANIZED CONDUIT. UNDERGROUND FEEDER CIRCUITS TO BE INSTALLED IN SCH 40 PVC CONDUIT.

TOP OF GROUND ROD(S) SHALL BE NO MORE THAN FOUR INCHES BELOW GRADE TO ALLOW FOR EASE OF INSPECTION BY DEPARTMENT OF INSURANCE, OFFICE OF STATE FIRE MARSHAL PERSONNEL.

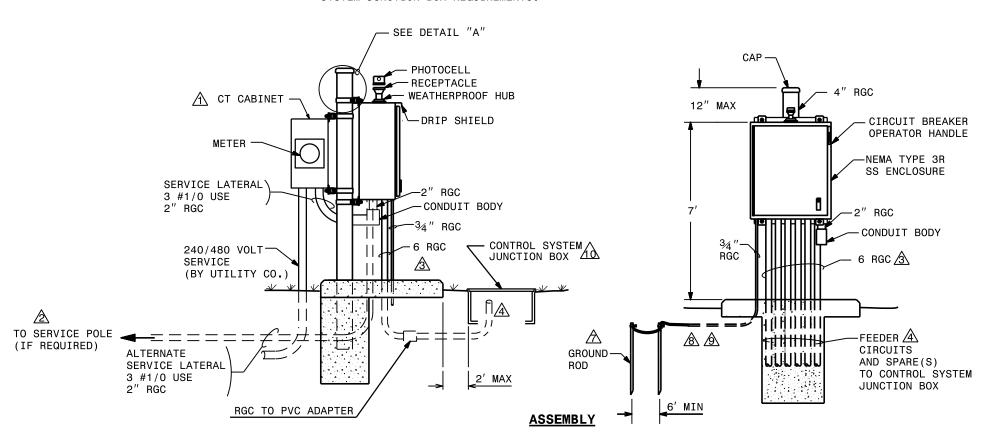
INSTALL A CONDUIT GROUND CHOKE AND BOND THE EQUIPMENT GROUNDING CONDUCTOR TO THE END OF THE 34" CONDUIT UNDERGROUND PER NEC ARTICLE 250.64E.

GROUNDING ELECTRODE CONDUCTOR 34" CONDUIT SHALL NOT TERMINATE BELOW THE CONCRETE FOUNDATION PAD.

SEE STANDARD DRAWING 1411.01 FOR CONTROL 10 SYSTEM JUNCTION BOX REQUIREMENTS.



**DETAIL**"A" MOUNTING HARDWARE



SHEET 2 OF 3

**IGHT** 

ROADWAY

1408.01

FOR SYSTEM STANDARD DRAWING CONTROL ASSEMBLY

H CAROLINA TRANSPORTATION N OF HIGHWAYS EIGH, N.C.

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DIVISION OF RALEIGH,

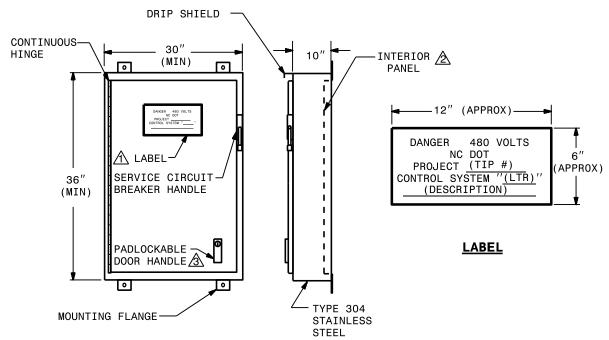
∧ NOTES

PERMANENTLY ATTACH A LABEL TO THE ENCLOSURE DOOR SHOWING THE WORK ORDER NUMBER, CONTROL SYSTEM LETTER DESIGNATION AND LOCATION DESCRIPTION SHOWN IN THE LOAD SCHEDULE AT EACH CONTROL SYSTEM IN THE PLANS.

SEE SHEET 1 OF 3 FOR INTERIOR PANEL AND COMPONENT LAYOUT.

PROVIDE DOOR CLOSING MECHANISM INTERLOCKED WITH SERVICE CIRCUIT BREAKER HANDLE. SEE STANDARD SPECIFICATIONS FOR DETAILS.

A PHOTOCELL NOT SHOWN.



NEMA TYPE 3R STAINLESS STEEL ENCLOSURE A

CLR ⊢1" CLR 30" 12" **--** 20″--

**FOUNDATION** 

5 #4 REBAR

10½" O.C.

4 #4 REBAR

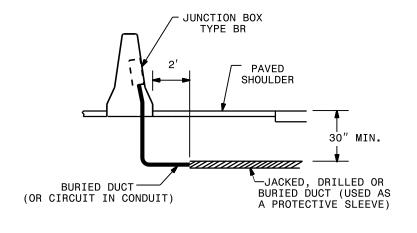
10" O.C.

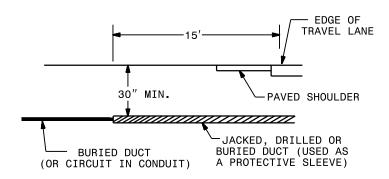
3" CLR\_

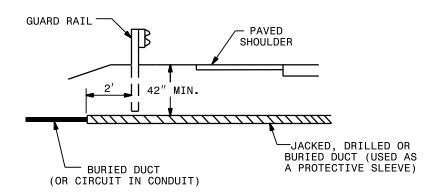
SHEET 3 OF 3

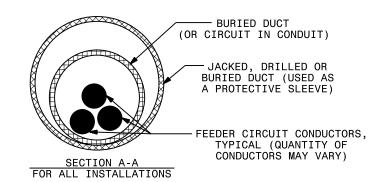
1408.01

JUNCTION BOX TYPE IG 24" MIN JACKED, DRILLED OR -BURIED DUCT (USED AS A PROTECTIVE SLEEVE) BURIED DUCT (OR CIRCUIT IN CONDUIT)





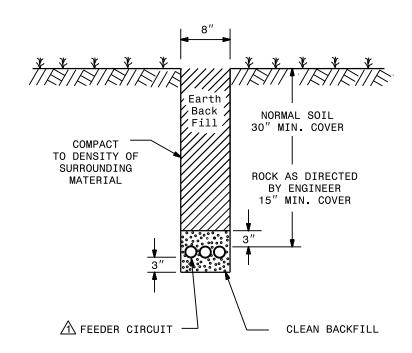




1410.01

△ NOTES

SEE PLANS FOR APPROPRIATE NUMBER OF CIRCUITS.



FEEDER CIRCUIT INSTALLATION

REFEINFORCING

CHECKERED COVER

REMOVABLE FLANGE

RIB

GASKET

DETAIL "B"

10F 1

- 01



SEE STANDARD SPECIFICATIONS SECTION 1400-2(G) FOR SEALER AND MASTIC.

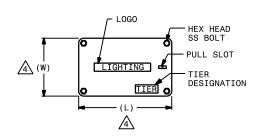
INSERT PAY ITEM DESCRIPTION FOR (SIZE) TO DETERMINE PROPOSED JUNCTION BOX. HIGH MAST JUCTION BOXES, LIGHT STANDARD JUCTION BOXES AND CONTROL SYSTEM JUNCTION BOXES WILL BE PAID FOR AS RESPECTIVE JUNCTION BOX LINE ITEMS AND NOT AS PART OF HIGH MAST FOUNDATION, LIGHT STANDARD FOUNDATION OR CONTROL SYSTEM LINE ITEMS.

SET TOP OF BOX FLUSH WITH CONCRETE IF REQUIRED TO BE PLACED IN SIDEWALKS OR OTHER CONCRETE STRUCTURES.

SIZE IS SPECIFIED AS NOMINAL INSIDE DIMENSIONS FOR WIDTH (W), LENGTH (L) AND DEPTH (D). SEE PLANS FOR PROPOSED DIMENSIONS.

SEE LAYOUT SHEETS FOR NUMBER AND SIZE OF FEEDER CIRCUITS AND ELECTRICAL DUCT.

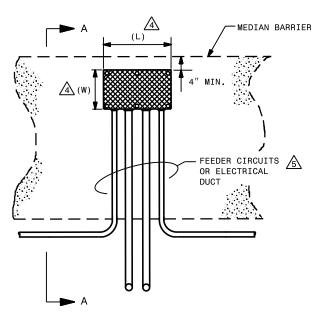
APPROPRIATELY IDENTIFY EACH CIRCUIT CONDUCTOR USING A NYLON CABLE TIE WITH LABEL.



# ELECTRICAL JUNCTION BOX TYPE IG (SIZE)

FEEDER CIRCUITS OR ELECTRICAL DUCT

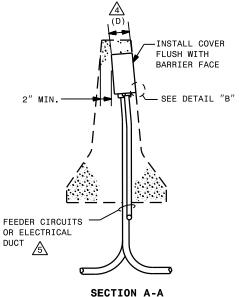
#67 WASHED STONE



ELECTRICAL JUNCTION BOX TYPE BR (SIZE)

18" (D)

12" MIN





FOR DRAWING STANDARD UNDERPASS ROADWAY

**EXPANSION ANCHOR** 3/8" SS FLAT WASHER

3/8" SS HEX NUT

34" RGS COUNDUIT

AND DROP IN OR

GALV. EYE NUT

SS THREADED ROD

CHAIN "S" LINK

SAFETY CHAIN

**SEALER** 

T0

LUMINAIRE

**NOTES** 

**(**5)

DETAIL"A"

COMPONENTS

**(**4)

BRIDGE

DECK

14" SS WEDGE ANCHOR

AND GASKETED COVER

ROUND PVC BOX W/4-3/4" HUBS

3 COND. "SOOW" CORD (12 AWG 600 VAC)

STRAP WITH BACK

34" PVC CONDUIT

CORD GRIP

HOOK, FEMALE

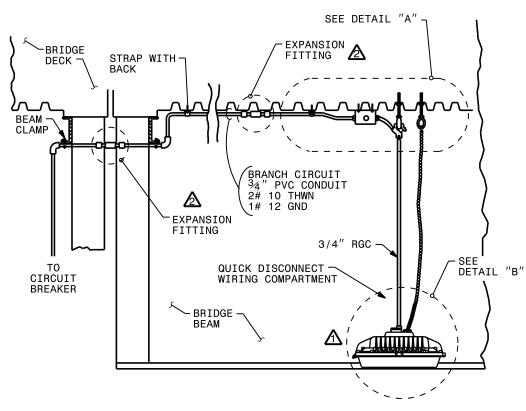
TΟ

SUPPLY

⚠ MOUNT TYPE PM LUMINAIRE FLUSH WITH BOTTOM OF BEAMS.

PROVIDE EXPANSION FITTINGS AT EACH BRIDGE EXPANSION JOINT. PROVIDE AT LEAST 1 EXPANSION JOINT IN SECTIONS OF CONDUIT GREATER THAN 20' BETWEEN JUNCTION BOXES OR LIGHT FIXTURES, AND 1 EXPANSION JOINT EVERY 80' FOR LONGER RUNS.

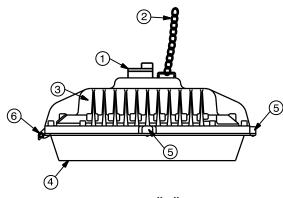
A REFER TO STANDARD SPECIFICATION 1074-2 FOR EXPANSION ANCHOR UNITS.



## TYPE PM LUMINAIRE AND CIRCUITRY

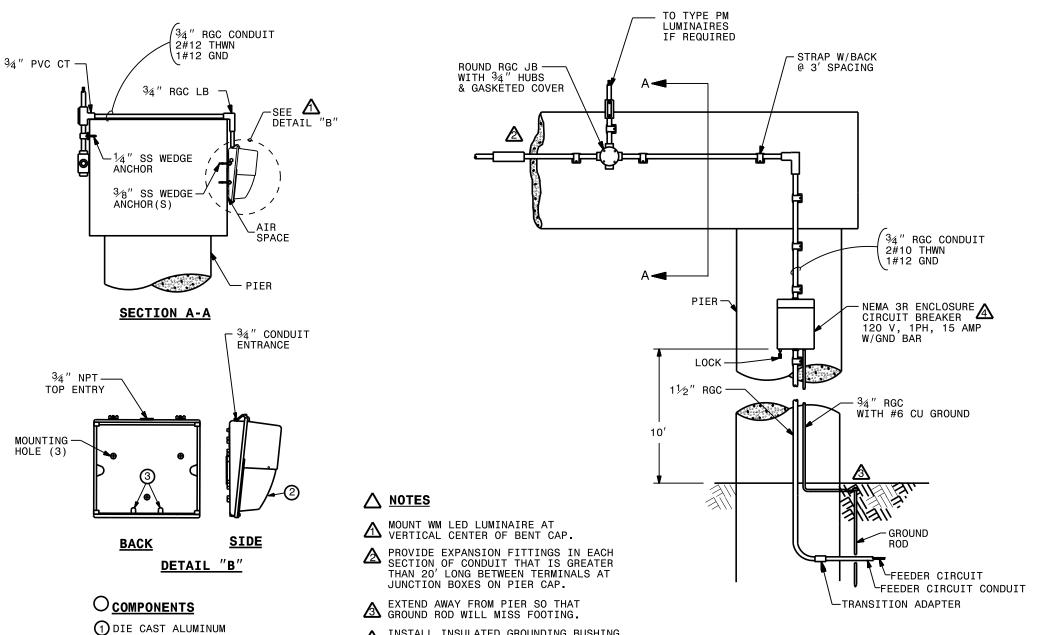
## **COMPONENTS**

- ELECTRICAL MOUNTING RECEPTACLE WITH 3/4" CONDUIT CONNECTION
- SAFETY CHAIN
- ALUMINUM DRIVER HOUSING WITH COOLING FINS
- ACRYLIC PRISMATIC REFRACTOR
- REFRACTOR ATTACHMENT SCREWS
- REFRACTOR DOOR HINGE ATTACHMENT



DETAIL "B"

SHEET 1 OF 2 1412.01



TYPE WM LED LUMINAIRE AND CIRCUITRY

- 1 DIE CAST ALUMINUM HOUSING, DOOR & HINGE
- 2 PRISMATIC REFRACTOR TWO SCREW LATCH
- - INSTALL INSULATED GROUNDING BUSHING FOR INCOMING AND DEPARTING FEEDER CIRCUIT IN RGC CONDUIT.

SHEET 2 OF 2

1412.01

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

DEPT

DRAWING FOR

STANDARD

ROADWAY

IGHTING

UNDERPASS