

207.08 Standard Street Lights

This Section shall amend the existing City of Casper Standard Specifications for Public Works Construction and Infrastructure Improvements, January, 2006 (City Specs) to supplement and clarify requirements and details regarding Standard Street Lights. This Section, Section 207.08, shall be added to Division 200, Section 207 Traffic Systems, of the City Specs. City Specs can be referenced at:

http://www.casperwy.gov/government/departments/public_services/engineering_division/

or at the Public Works Department, 200 N. David, Casper, Wyoming.

A. Standard Details.

The following Standard Details are attached hereto and included in Section 207.08:

- 207.08/1 General Electric Notes
- 207.08/2 Grounding Electrode Diagram, Typical All Services/Trench Detail
- 207.08/3 Fixture Wiring Diagram/Service Diagram
- 207.08/4 Concrete Pole Base Detail/Roadway Luminaire Pole Detail - Typical
- 207.08/5 Box Detail/Cover Detail
- 207.08/6 Electrical Abbreviations/Electrical Symbols

GENERAL ELECTRICAL NOTES:

A. ALL NEW LIGHT FIXTURES SHALL BE PROVIDED WITH AN IN-GROUND PULL BOX UNLESS OTHERWISE INDICATED. PULL BOX SHALL BE LOCATED FLUSH IN CONCRETE. DO NOT INSTALL IN PAVERS UNLESS OTHERWISE INDICATED. COORDINATE EXACT LOCATIONS WITH GENERAL CONTRACTOR. PROVIDE ADDITIONAL PULL BOXES AS REQUIRED TO ACCOMMODATE CONDUIT ROUTING. ALL SPLICES IN PULL BOXES AND POLES SHALL BE MADE WITH WATERTIGHT SPLICE KITS.

B. EXISTING ELECTRICAL LINES, GAS LINES, IRRIGATION LINES AND OTHER UTILITIES MAY EXIST AT A DEPTH THAT CONFLICTS WITH NEW ELECTRICAL LINES. THE ELECTRICAL CONTRACTOR SHALL OBTAIN LOCATIONS OF ALL UTILITIES (SEE SECTION 101) AND EXERCISE CARE IN TRENCHING (SEE SECTION 205). ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. DEPTH OF BURIED ELECTRICAL CONDUIT INSTALLED MAY BE ADJUSTED DOWN AS REQUIRED IN ORDER TO AVOID EXISTING BURIED UTILITY LINES. ALL CONDUIT SHALL BE INSTALLED WITHIN RIGHT-OF-WAYS OR EASEMENTS.

C. ALL NEW STREET LIGHTING SHALL BE PROVIDED WITH NEW 100A COMMERCIAL METER PEDESTAL (EUSERC 308) PER ROCKY MOUNTAIN POWER (RMP) REQUIREMENTS. PEDESTALS SHALL INCLUDE APPROVED METER SOCKET, ONE (1) 100A/2P MAIN CIRCUIT BREAKER, TWO (2) 20A/2P BRANCH CIRCUIT BREAKERS, TWO (2) 20A/1P BRANCH CIRCUIT BREAKERS, ELECTRONIC TIMECLOCK WITH HOA SWITCH, AND INTERNAL DUPLEX GFCI RECEPTACLE. ELECTRONIC TIMECLOCK SHALL BE TORK DZS100BP OR APPROVED-EQUAL WITH ASTRONOMIC FEATURE, MEMORY MODULE AND SUPERCAPACITOR MEMORY. PEDESTAL SHALL BE GALVANIZED AND PAINTED DARK GREEN UNLESS OTHERWISE INDICATED. COORDINATE EXACT PLACEMENT OF PEDESTAL WITH RMP, ENGINEER, CITY OF CASPER, AND GENERAL CONTRACTOR. PROVIDE LAMINATED 8-1/2" X 11" MAP OF POLES SERVED BY ALL NEW PEDESTALS ON INSIDE OF ENCLOSURE DOOR. SEE SERVICE DIAGRAM.

D. INSTALLATION OF ALL NEW SERVICES SHALL BE COORDINATED BY GENERAL CONTRACTOR WITH RMP.

E. ALL DRAWINGS OF THIS SECTION ARE GENERAL IN NATURE, NOT SPECIFIC TO ANY ONE PROJECT, AND MUST BE REVIEWED AND APPROVED BY A REGISTERED PROFESSIONAL ELECTRICAL ENGINEER.

F. ALL POLES SHALL HAVE VIBRATION DAMPENERS.

G. HOUSE SHIELDS SHALL BE PROVIDED AND INSTALLED FOR ALL STREET LIGHTS INSTALLED IN RESIDENTIAL SUBDIVISIONS.

H. ALL WIRE TO BE UF.

I. ALL NEW AND MODIFIED LIGHTING SHALL COMPLY WITH IES (ILLUMINATION ENGINEERING SOCIETY) RECOMMENDATIONS.

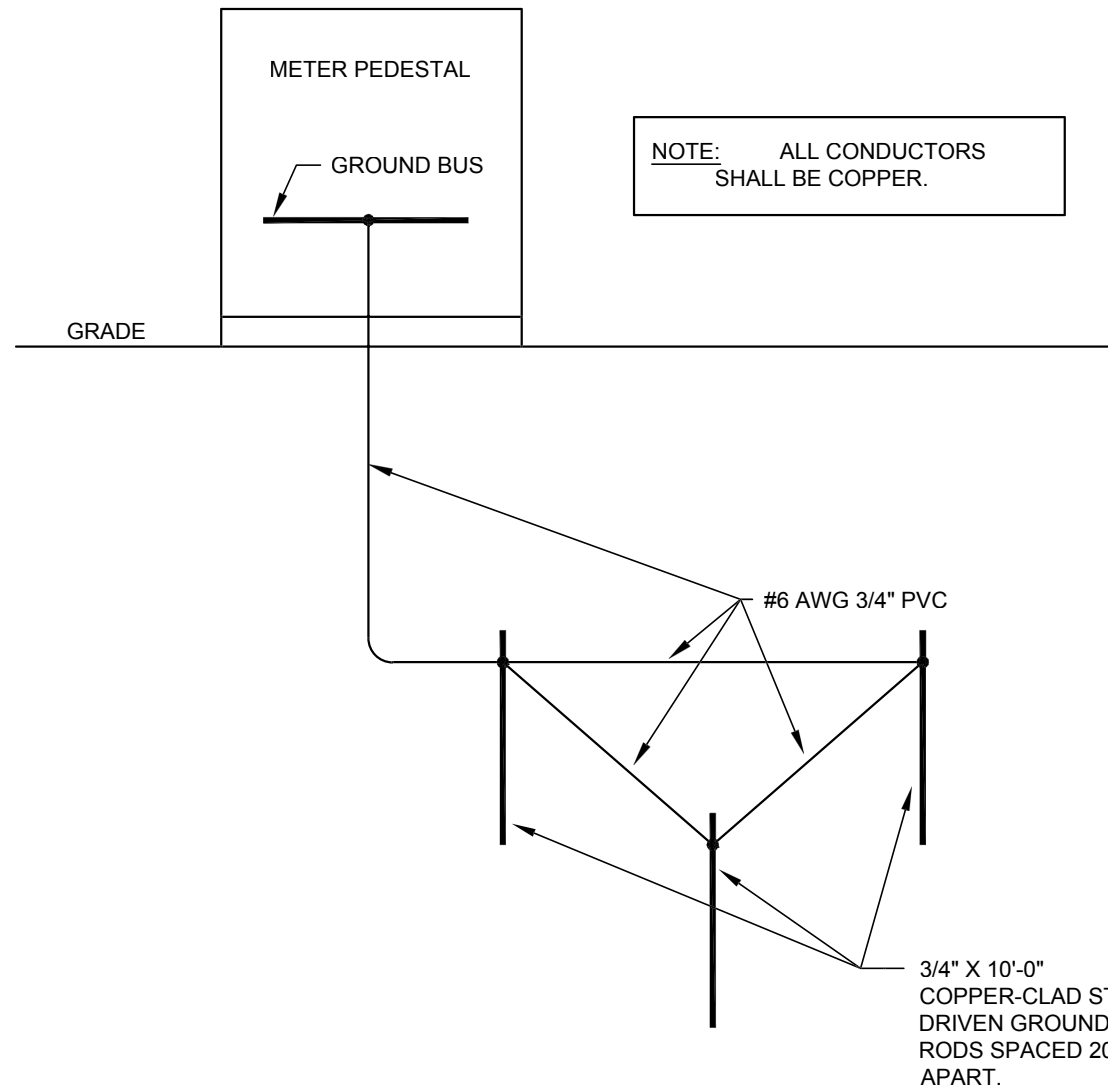
J. OPTICS REQUIREMENTS: FULL MANUFACTURER'S OPTICS RANGE SHALL BE PROVIDED. CITY OF CASPER SHALL APPROVE OPTICS TYPE.



CITY OF CASPER
STANDARD SPECIFICATIONS FOR PUBLIC WORKS
AND INFRASTRUCTURE IMPROVEMENTS

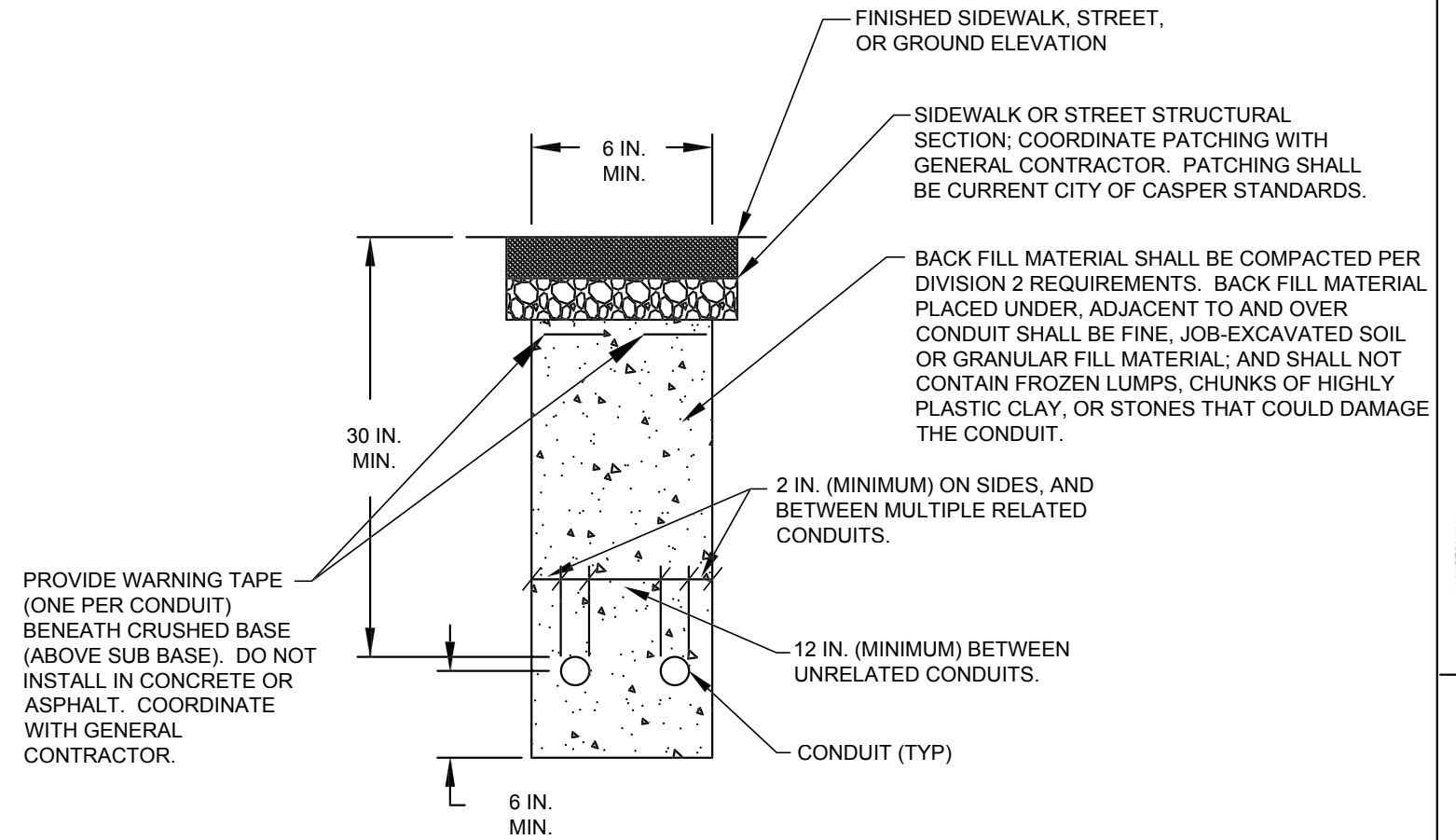
STANDARD STREET LIGHTS

207.08



GROUNDING ELECTRODE DIAGRAM, TYPICAL ALL SERVICES

NO SCALE

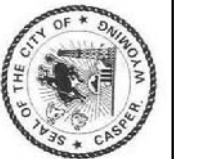


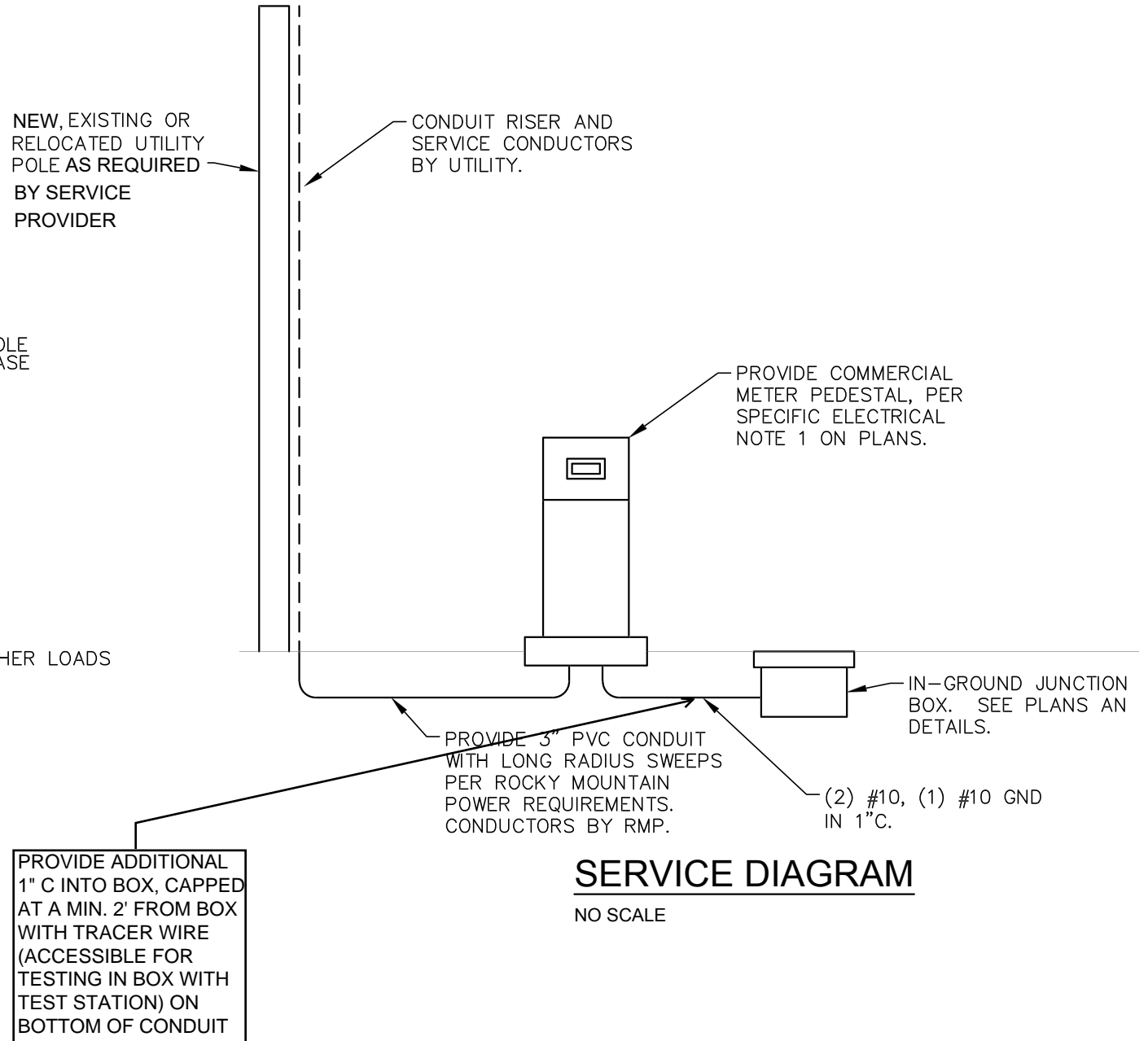
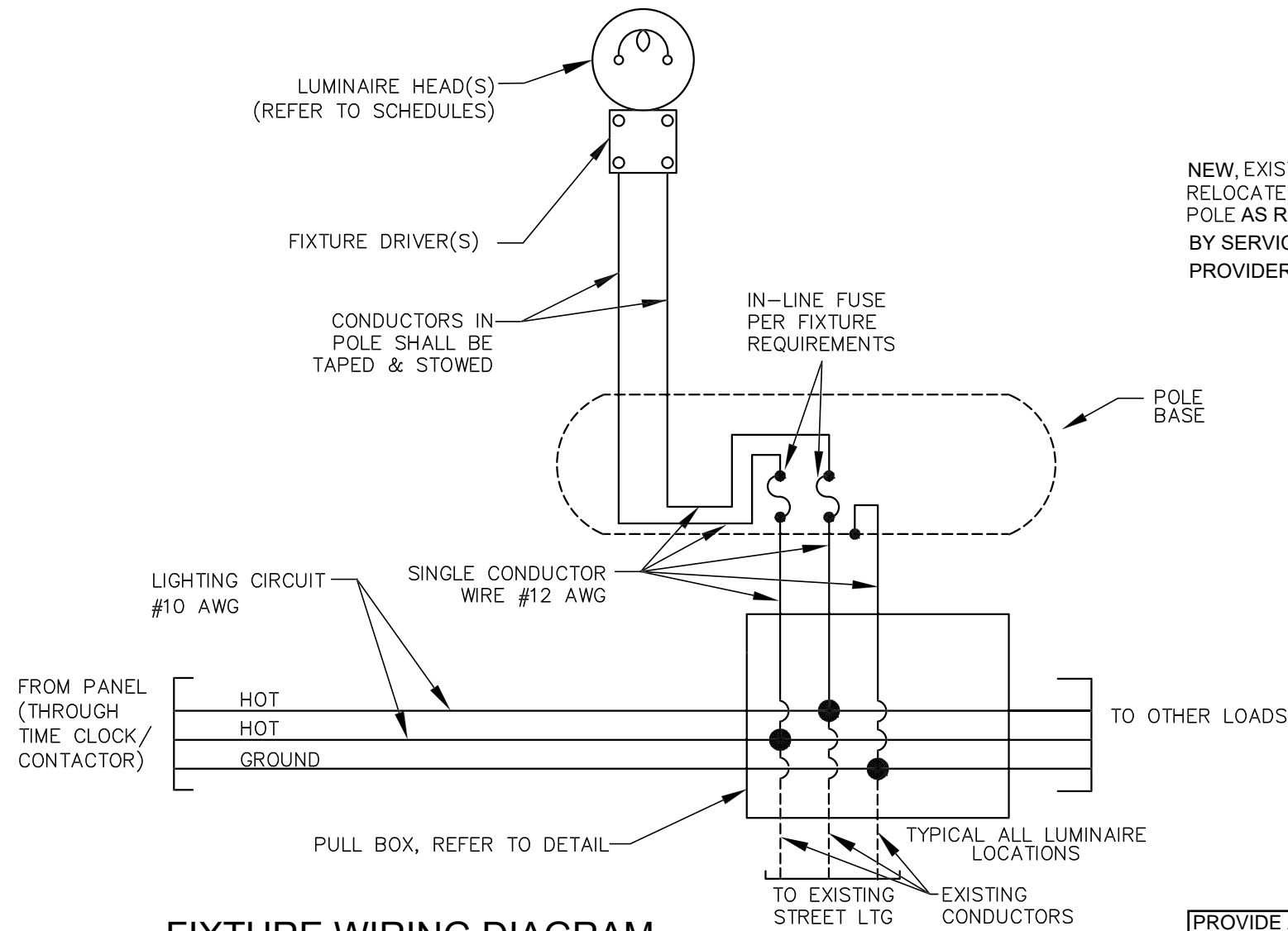
TRENCH DETAIL NOTES:

- A. INSTALL GRAVEL PATCH AS TEMPORARY SURFACING IN ALL TRENCH LOCATIONS.

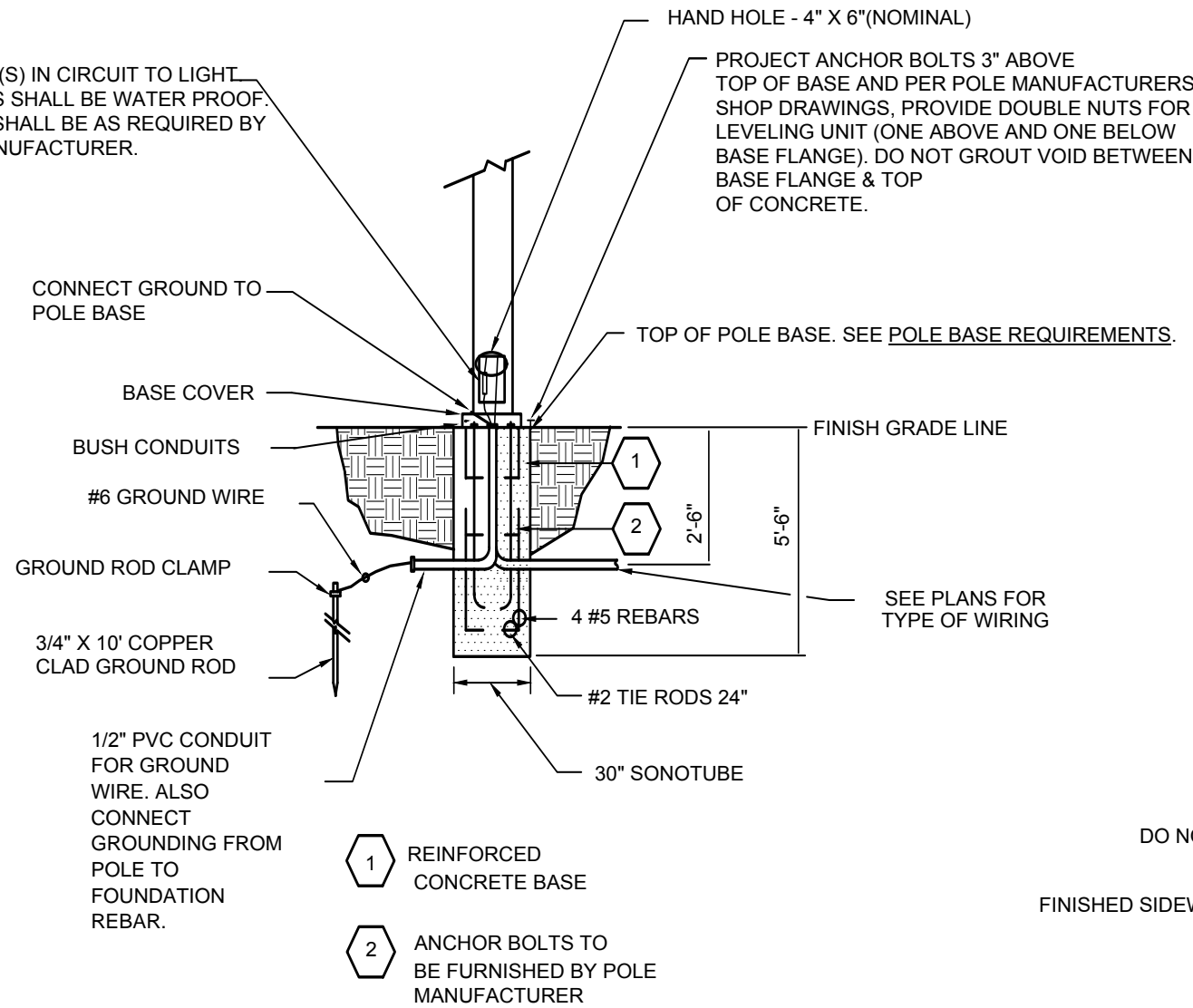
TRENCH DETAIL

NO SCALE





PROVIDE FUSE(S) IN CIRCUIT TO LIGHT. FUSE HOLDERS SHALL BE WATER PROOF. SIZE OF FUSE SHALL BE AS REQUIRED BY LUMINAIRE MANUFACTURER.



CONCRETE POLE BASE DETAIL

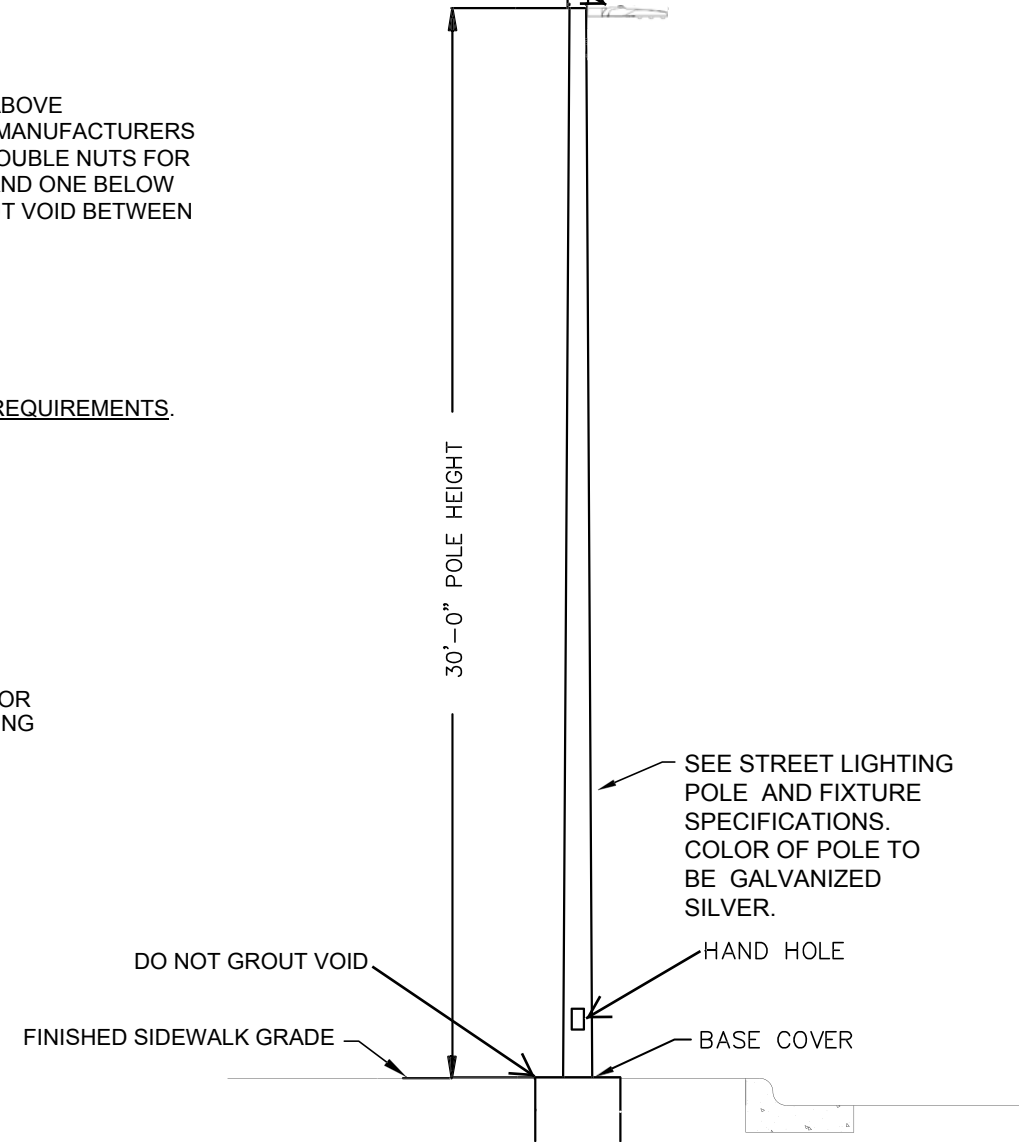
NO SCALE

NOTE: CONCRETE POLE BASE DETAIL ONLY FOR STANDARD LIGHTING AS SHOWN. ADDITIONS OR CHANGES TO LIGHTING/POLES/LUMINAIRES SUCH AS MAST ARMS, TRAFFIC SIGNALS, ETC. MAY REQUIRE DIFFERENT DETAILS AS REQUIRED BY ENGINEER.

POLE BASE REQUIREMENTS

1. TOP OF POLE BASE SHALL BE FLUSH WITH ADJACENT FINISHED GRADES AND SLOPED TO DRAIN WHEN SURROUNDED BY SIDEWALK.
2. TOP OF POLE BASE SHALL BE 4-INCHES ABOVE ADJACENT FINISHED GRADES, SLOPED TO DRAIN WITH EDGES CHAMFERED AROUND CIRCUMFERENCE WHEN SURROUNDED BY LANDSCAPING AND 4 INCHES SHALL BE ADDED TO CONCRETE POLE BASE SHAFT LENGTH AND TO LENGTH OF CONDUIT, ANCHOR BOLTS, REBAR, WIRING, ETC.
3. TOP OF POLE BASE SHALL BE 2 FEET ABOVE ADJACENT FINISHED GRADES, SLOPED TO DRAIN WITH EDGES CHAMFERED AROUND CIRCUMFERENCE WHEN SURROUNDED BY PARKING LOT OR AREA WITH VEHICLE TRAFFIC AND 2 FEET SHALL BE ADDED TO CONCRETE POLE BASE SHAFT LENGTH AND TO LENGTH OF CONDUIT, ANCHOR BOLTS, REBAR, WIRING, ETC.

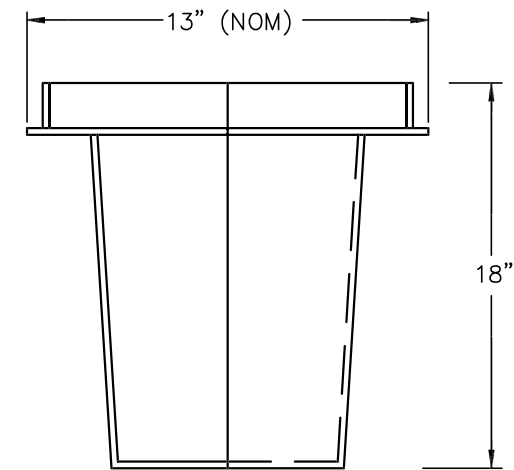
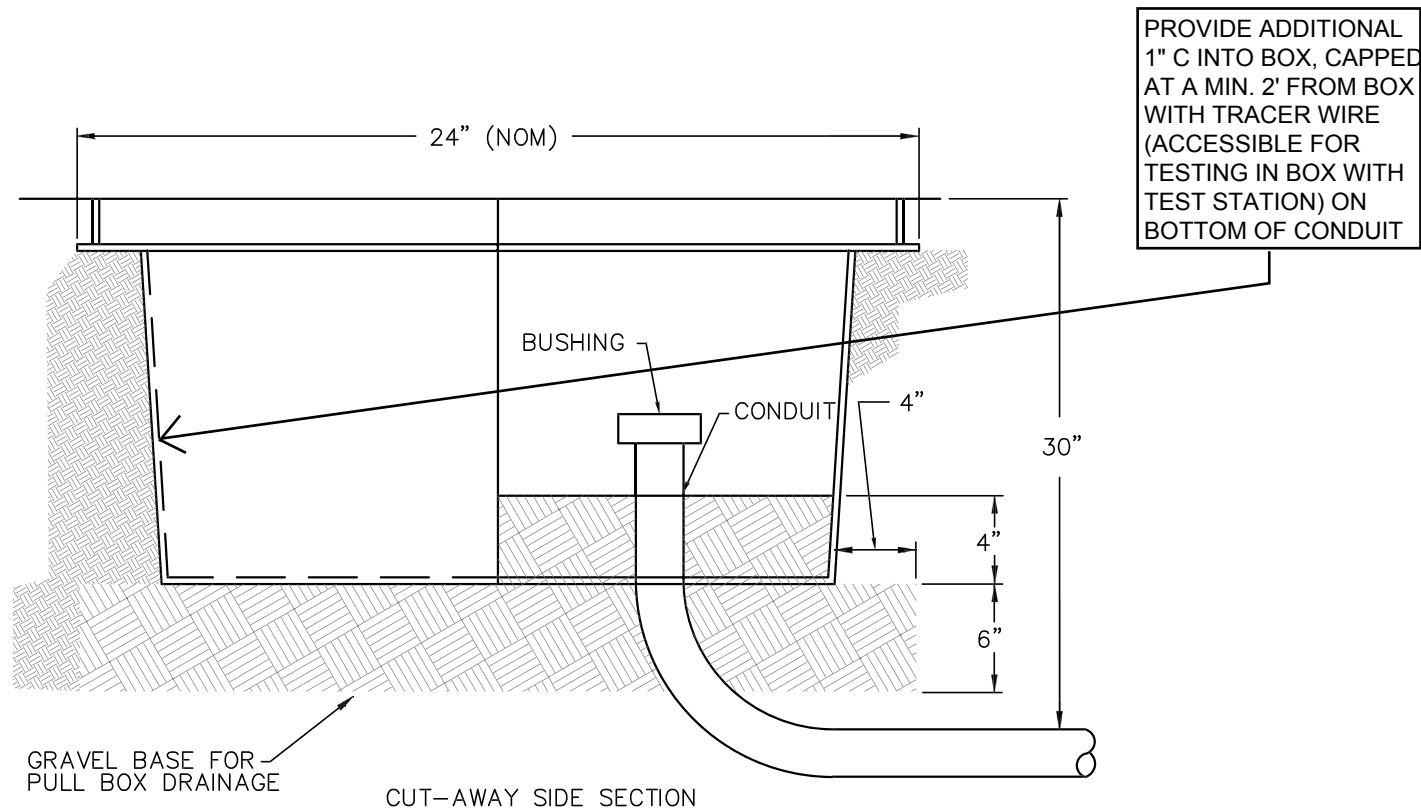
SEE STREET LIGHTING POLE AND LED FIXTURE SPECIFICATIONS



ROADWAY LUMINAIRE POLE DETAIL - TYPICAL

NO SCALE





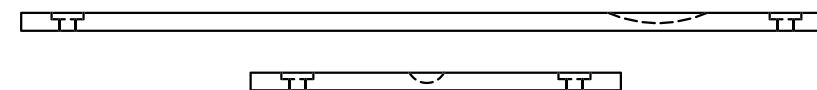
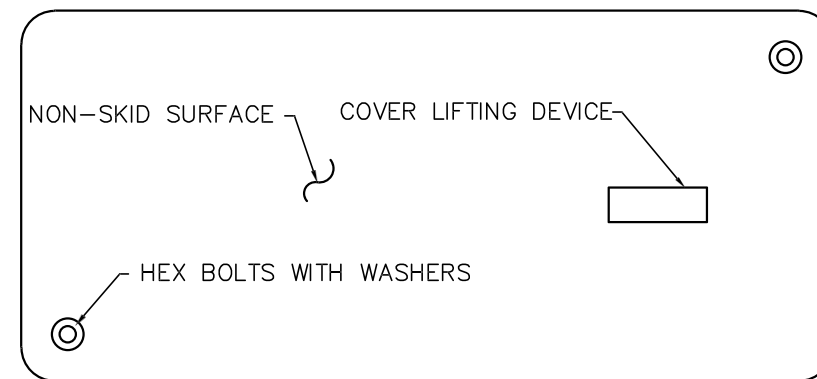
CUT-AWAY END SECTION

GENERAL BOX DETAIL NOTES:

1. COORDINATE THE NUMBER AND SIZE OF CONDUITS ENTERING OR LEAVING EACH PULL BOX IN THE FIELD AND WITH OTHER DRAWINGS. BENDING RADII OF CONDUITS SHALL CONFORM TO NEC REQUIREMENTS.
2. THE EXACT LOCATION AND ELEVATION OF EACH NEW PULL BOX SHALL BE DETERMINED ON THE JOB SITE WITH THE APPROVAL OF THE OWNER AND WITH THE FOLLOWING ASPECTS TO BE TAKEN INTO CONSIDERATION:
 - A. SHALL BE WITHIN RIGHT-OF-WAY AREA.
 - B. SHALL BE EASILY AND SAFELY ACCESSIBLE.
 - C. SHALL CONSTITUTE NO HAZARD OR OBSTACLE TO PEDESTRIANS. INSTALL FLUSH WITH WALK AREA OR INSTALL COMPLETELY OUTSIDE OF WALK AREA. KEEP OUT OF WHEEL CHAIR RAMPS AND AREAS WITH PAVERS.
 - D. SHALL BE INSTALLED OUTSIDE OF ROADWAY OR TRAVELED WAY.
 - E. SHALL BE LOCATED OUTSIDE OF DRAINAGE OR WATER COLLECTION AREAS.
3. ALLOW A MINIMUM OF 36" (914mm) LEAD-IN CONDUCTORS. ALL SPLICES TO BE MADE WITH WATERTIGHT SPLICING KITS AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
4. ALL PULL BOXES AND COVERS SHALL HAVE A MINIMUM ANSI TIER 15 LOADING. BOXES SHALL BE HEAVY DUTY, OPEN BOTTOM, QUAZITE #PG1324BA18 OR EQUAL BY AMORCAST OR ASSOCIATED. COVERS SHALL BE HEAVY DUTY WITH TWO BOLTS, QUAZITE #PG1324HA29 OR EQUAL BY AMORCAST OR ASSOCIATED. PULL BOX COVERS SHALL BEAR THE WORDING "LIGHTING".

BOX DETAIL

NO SCALE



COVER DETAIL

NO SCALE



STREET LIGHTING POLE AND LED FIXTURE SPECIFICATIONS

1. COORDINATE EXACT LOCATION OF POLE AND PULL BOX WITH CIVIL ENGINEER. PULL BOX SHALL BE INSTALLED FLUSH IN SIDEWALK. ALL LIGHT POLES, NEW AND EXISTING, SHALL BE PROVIDED WITH A PULL BOX.
2. INSTALL POLE SO HAND HOLE IS ORIENTED PARALLEL WITH SIDEWALK.
3. PROVIDE 30' (OR 40' IF FOR LARGE MAJOR ARTERIAL STREET TYPE) TALL ROUND TAPERED STEEL POLE (MINIMUM 90 MPH WIND LOAD) WITH MONGOOSE **LED HEADS** AND FIXTURES (HALOPHANE OR APPROVED EQUAL) MEETING THE REQUIREMENTS OF TABLE A. PROVIDE CONCRETE POLE BASE AS DETAILED.
4. COORDINATE EXACT LOCATION OF POLE AND PULL BOX WITH ENGINEER. PULL BOX SHALL BE INSTALLED FLUSH IN SIDEWALK. ALL LIGHT POLES, NEW AND EXISTING, SHALL BE PROVIDED WITH A PULL BOX.

ELECTRICAL ABBREVIATIONS

A STANDARD LIST. NOT ALL WORDS APPEAR IN THESE DRAWINGS.

SEE SPECIFICATION SECTION "EQUIPMENT WIRING" FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

A or AMP	AMPERE	MCB	MAIN CIRCUIT BREAKER
A/E or AE	ARCHITECT & ENGINEER	MCM	THOUSAND CIRCULAR MILS
AC	ALTERNATING CURRENT	MDP	MAIN DISTRIBUTION PANEL
ADA	AMERICANS WITH DISABILITIES ACT	MH	METAL HALIDE
AFG	ABOVE FINISH GRADE	MLO	MAIN LUG ONLY
AFI or AFCI	ARC FAULT CIRCUIT INTERRUPTER	NA or N/A	NOT APPLICABLE
AHJ	AUTHORITY HAVING JURISDICTION	NC	NORMALLY CLOSED
AIC	AMPERES INTERRUPTING CURRENT	NEC	NATIONAL ELECTRICAL CODE
AL	ALUMINUM	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
AWG	AMERICAN WIRE GAUGE		
BRD or BD	BOARD	NEU, NEUT or N	NEUTRAL
C or COND	CONDUIT	NF	NON-FUSED
C/B or CB	CIRCUIT BREAKER	NO	NORMALLY OPEN
CCT or CKT	CIRCUIT	OHP	OVERHEAD POWER
Cu or CU	COPPER	P	POLE
DISC	DISCONNECT	PH	PHASE
DN or DWN	DOWN	PNL	PANEL
DWG	DRAWING	PVC	POLYVINYL CHLORIDE
EC	ELECTRICAL CONTRACTOR	PWR	POWER
EC	ELECTRICAL CABINET	REC or RECEPT	RECEPTACLE
ELEC	ELECTRIC OR ELECTRICAL	RMP	ROCKY MOUNTAIN POWER
EMT	ELECTRICAL METALLIC TUBING	SCC	SHORT CIRCUIT CURRENT
F or FUS	FUSE OR FUSIBLE	SN	SOLID NEUTRAL
FLA	FULL LOAD AMPERES	SPECS	SPECIFICATIONS
GC	GENERAL CONTRACTOR	TR, TRANS or TRFMR	TRANSFORMER
GFI or GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TYP	TYPICAL
GRC	GALVANIZED RIGID CONDUIT	UG	UNDERGROUND
GND or GRND	GROUND	V	VOLT
HID	HIGH INTENSITY DISCHARGE	W	WATT OR WIRE
HPS	HIGH PRESSURE SODIUM	W/	WITH
HZ	HERTZ (CYCLES/SEC)	W/O	WITHOUT
IC	INTERRUPTING CURRENT	WP	WEATHERPROOF
IMC	INTERMEDIATE METAL CONDUIT	XFMR	TRANSFORMER
J, JB or J-BOX	JUNCTION BOX	Y	WYE CONNECTION
KW	KILOWATT	φ	PHASE
LT	LIGHT	Δ	DELTA
LTG	LIGHTING		
LTS	LIGHTS		

TABLE A

<u>STREET TYPE</u>	<u>STREET WIDTH (FT.)</u>	<u>DESIGN TRAFFIC VOLUME (ADT)</u>	<u>LUMINAIRE SIZE (LUMENS)</u>	<u>SPACING (FT.)</u>
LOCAL	30-40	NA	9,500	250-300
COLLECTOR	30-50	2,000-5,000	9,500	200-250
MAJOR COLLECTOR	40-60	5,000-10,000	22,000	200-250
ARTERIAL	50-70	10,000-15,000	22,000	100-130
MAJOR ARTERIAL	60-80	15,000+	22,000	90-100
LARGE MAJOR ARTERIAL	60-80	15,000+	50,000	110-130

