

THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY


May 31, 2016

CONSTRUCTION BULLETIN No. 16-01

SUBJECT: Median Mounted Light Pole Foundations & Light Pole Mounting

- Illinois Tollway Standard Drawing H1-05 (LIGHT STANDARD FOUNDATION) has been revised as follows:
 - Increase of anchor bolt projection from the top surface of median barrier light standard foundation from 3.5-inches to 6-inches.
 - Increase to threaded portion of anchor bolts from 6-inches to 12-inches.
- Illinois Tollway Standard Drawing H2-04 (LIGHT STANDARD DETAILS) has been revised as follows:
 - Removal of 45'-0" light pole shaft dimension.
 - Removal of mast arm dimensions for twin mast arm light standards and added guidance regarding the usage of truss type mast arms.
- The attached errata revise Illinois Tollway Supplemental Specifications Section 830 (LIGHT POLES). Major highlight revisions include:
 - Revised to allow the use of u-shaped shims for ground mounted light poles only and to clarify no more than 1/8" total shimming may be applied at an individual anchor bolt.
 - Revised to include double-nut construction with vibration isolation hardware to ALL structural parapet wall mounted light poles.
- The attached errata revise Illinois Tollway Supplemental Specifications Section 1069 (POLE AND TOWER). Major highlight revisions include:
 - Revised specification of mast arms to include attachment hardware materials and details for raceway openings.
 - Revised mast arm specifications clarifying the use of truss-type versus single member type mast arms.

Construction Engineers (CMs) are hereby directed to immediately utilize these revised standard drawings and errata for all contracts that include light pole installations.


Paul D. Kovacs, P.E.
Chief Engineer

06/01/16
Date

S.P. 113 ERRATA FOR THE TOLLWAY SUPPLEMENTAL SPECIFICATIONS

Page 184 Article 830.03 Delete the second paragraph.

Page 184 Article 830.03(d) Replace with the following:

(d) **Ground Mounted Light Poles.** All ground mounted light poles shall be provided with an approved FHWA breakaway device as specified in Tollway Supplemental Specification Sections 838 and 1070. Breakaway devices shall not be measured for payment but shall be included in the cost of the Light Pole.

The use of galvanized steel U-shaped shims under the pole base will be permitted for plumbing ground mounted light poles only. Shims shall be provided in increments of nominal thickness not exceeding 1/8 inch. No more than 1/8 inch of shimming is permitted at any individual anchor bolt for any purpose. When more than 1/8 inch of shimming is required, the necessary corrections shall be made to the foundation surface. Bending of anchor bolts will not be permitted.

Page 184 Article 830.03(e) Replace with the following:

(e) **Structural Parapet Wall Mounted Light Poles.** Structural parapet wall mounted light poles shall have standard pole bases. Breakaway poles or devices shall not be used on any structural parapet wall mounted light poles. Installation shall include a vibration isolation pad, vibration isolation washers and leveling plate as shown on the Plans and as follows:

(1) Vibration isolation pads and washers, including all incidental hardware, shall be as manufactured by Fabreeka or Voss Engineering Co.

- a. The vibration isolation pad shall be pre-formed with matching outline dimensions to conform with the light pole base plate.
- b. The vibration isolation pad shall be made with new unvulcanized rubber and unused fabric fibers in proper proportion to maintain strength and stability.
- c. The vibration isolation pad surface hardness shall be 80±, as measured on a Shore A Durometer.
- d. The ultimate breakdown of the vibration isolation pad under compressive loading shall be no less than 10,000 lbs/square inch for the specified thickness without extrusion or detrimental reduction in thickness.
- e. A set of 4 vibration isolation washers shall be provided, 1/2 inch thick and constructed of the same material as provided for the vibration pads.

(2) A set of 4 leveling nuts shall be provided for each pole.

(3) A 3/4" steel leveling plate ASTM A-36 (AASHTO M183) shall be furnished to rest atop the leveling nuts. The leveling plate shall have matching outline dimensions to conform with the light pole base plate.

Page 185 Article 830.03(f) Replace with the following:

(f) Barrier Wall Mounted Light Poles. Barrier wall mounted poles shall have standard pole bases. Breakaway poles or devices shall not be used on barrier walls or retaining walls. Installation shall include a leveling plate as shown on the Plans and as follows:

(1) A set of 4 leveling nuts shall be provided for each pole.

(2) A 3/4" steel leveling plate ASTM A-36 (AASHTO M183) shall be furnished to rest atop the leveling nuts. The leveling plate shall have matching outline dimensions to conform with the light pole base plate."

Page 227 Article 1069.02(a)(1) Replace with the following:

"Mast Arm. Luminaire mast arms shall be of a single member or truss type. Mast arms of 10 foot, 12 foot and 15 foot lengths shall be of the truss type and shall have a rise of 66 inches. Mast arms of 6 foot and 8 foot lengths shall have a rise of 34 inches and shall be single member arms when ground or barrier wall mounted and truss type when bridge parapet wall mounted.

The top chord of the mast arms shall have raceway openings extended through the bracket. Raceway openings shall be free of burrs and rough edges that may be injurious to the wires routed within.

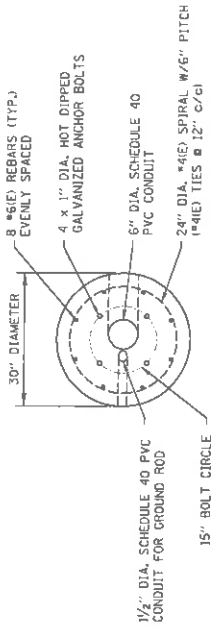
Mast arms members shall be made of seamless extruded aluminum alloy tubing of tapered, elliptical construction according to ASTM B 221, 6063 T6 with the major axis horizontal and shall be designed to AASHTO wind shape factors and welding specifications.

Mast arms shall be provided with a 2 piece, 4 bolt extruded clevis clamp of wrought aluminum alloy welded to each longitudinal member for pole attachment at the pole end and a slip fitter of the specified outer diameter at the opposite end for luminaire mounting.

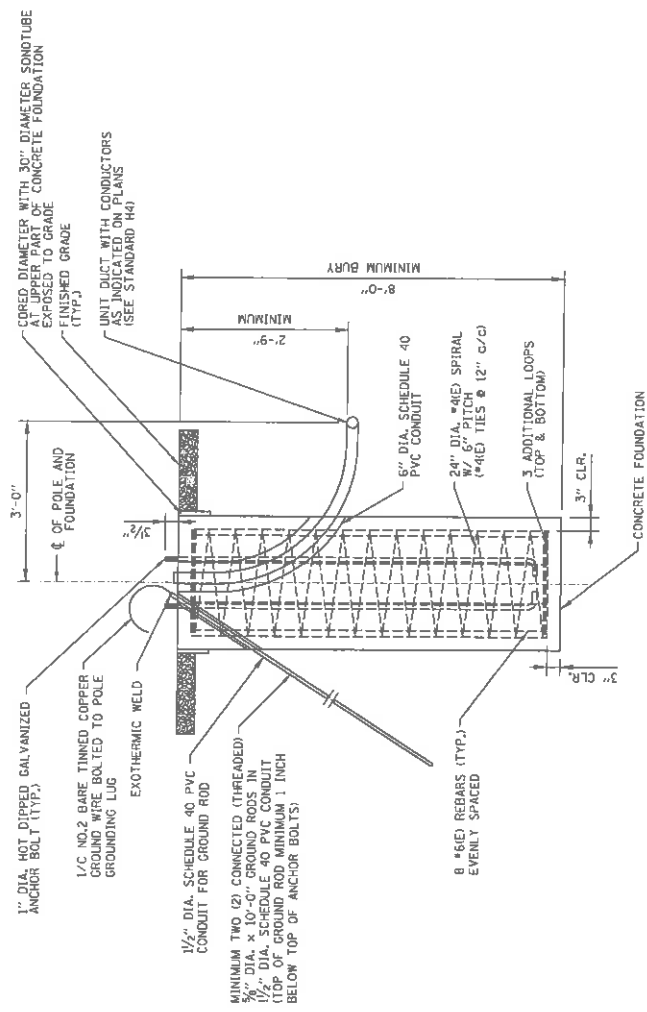
All hardware shall be 300-Series stainless steel."

NOTES:

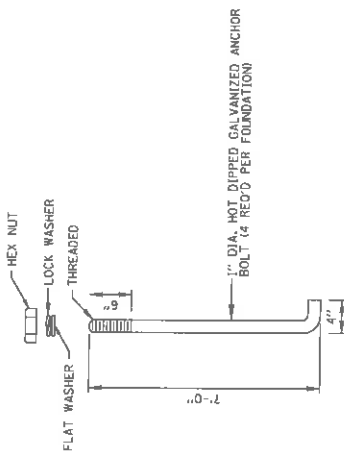
1. AT LOCATIONS NOT SHIELDED BY GUARDRAIL, THE LIGHT POLE FOUNDATION SHALL BE FENCED WITH A 4' HIGH FENCED AREA. ALL SIDES, THE SURROUNDING AREA SHALL BE LEVEL GRADED AND AN AREA CONSTRUCTED OF AGGREGATE SHOULDERS WITH FILTER FABRIC, TYPE B, 4".
2. PROVIDE SEEDING, POTASSIUM FERTILIZER NUTRIENT, AND EROSION CONTROL BLANKET AS REQUIRED.
3. THE TOP OF FOUNDATION SHALL BE AT THE SAME ELEVATION AS THE ADJACENT TOP OF CUTTER OR WHEN ADJACENT TO AGGREGATE SHOULDER, AT THE SAME ELEVATION AS THE OUTSIDE EDGE OF THE AGGREGATE SHOULDER SLOPED A MAXIMUM 5% AWAY FROM THE PAVED SHOULDER.
4. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
5. ALL GROUND MOUNTED LIGHT POLES SHALL BE PROVIDED WITH AN ACCEPTED FMEA BREAKAWAY BASE OR DEVICE PER THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS SECTION 107D.
6. FOR DETAILS OF FUSE HOLDER, POLE BASE WIRING AND CONDUCTOR SPLICE SEE STANDARD H2.
7. ALL REINFORCEMENT BARS SHALL BE EPOXY COATED.
8. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.



PLAN

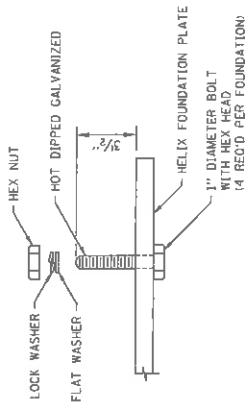


ELEVATION

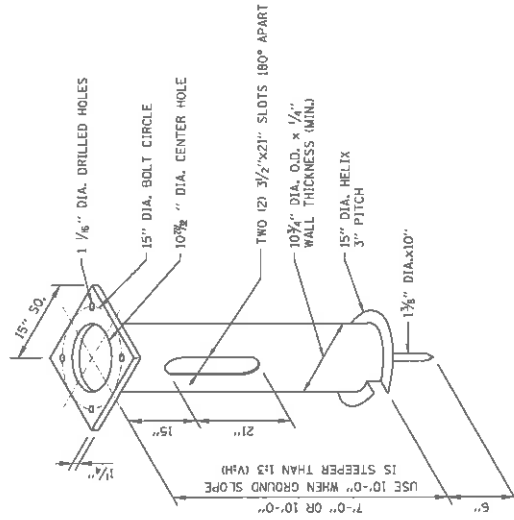


ANCHOR BOLT DETAIL

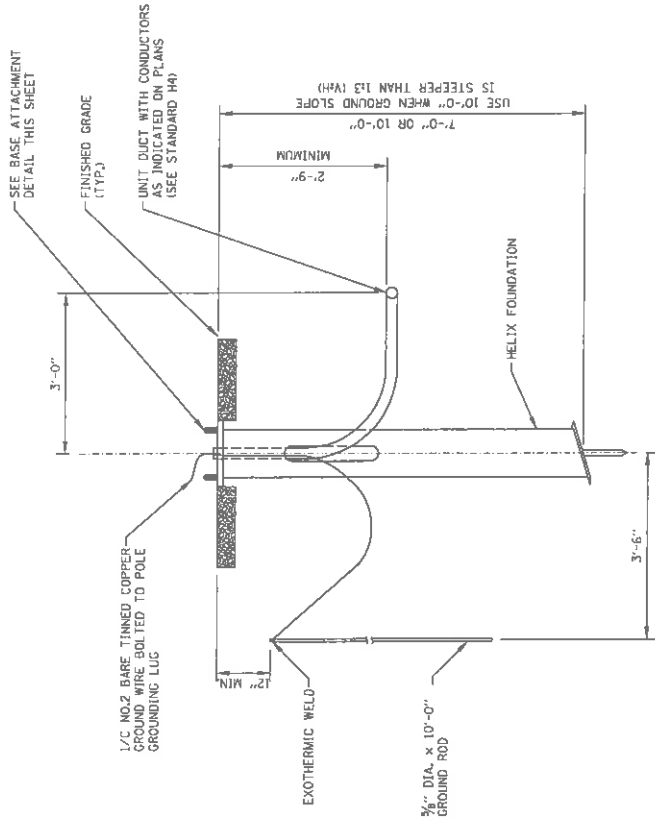
**LIGHT STANDARD FOUNDATION DETAILS - CONCRETE
(GROUND MOUNTED UNITS)**



BASE ATTACHMENT DETAIL



ISOMETRIC

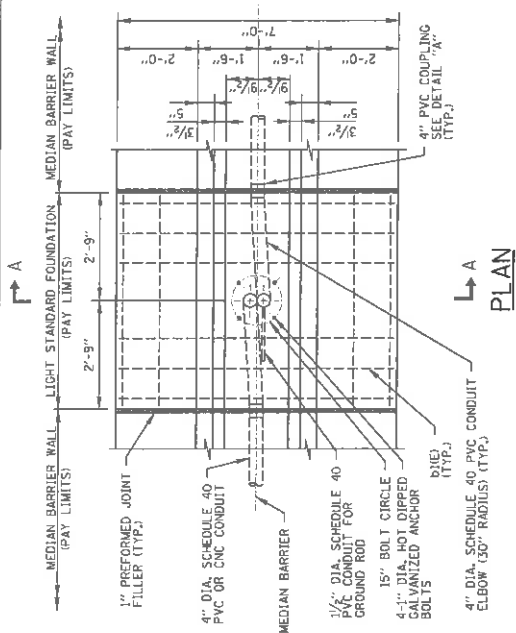


ELEVATION

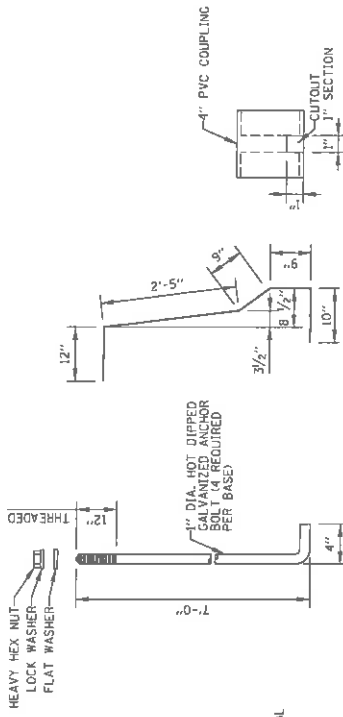
**LIGHT STANDARD FOUNDATION DETAILS - HELIX
(GROUND MOUNTED UNITS)**

NOTES:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

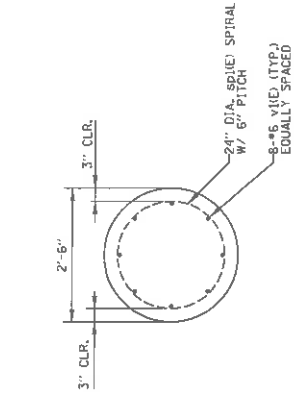
LIGHT STANDARD
FOUNDATION



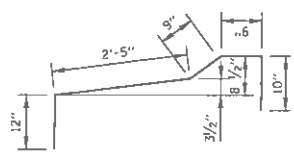
PLAN



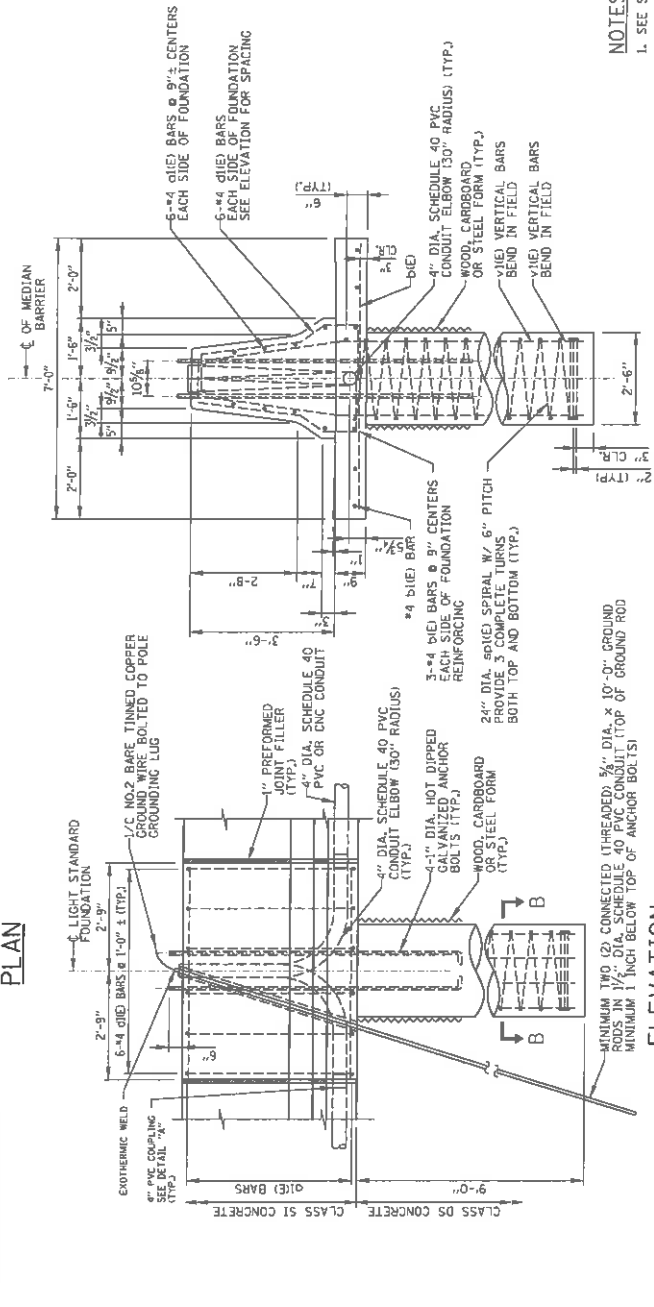
ANCHOR BOLT DETAIL



SECTION B-B



d11E BAR DETAIL A



ELEVATION

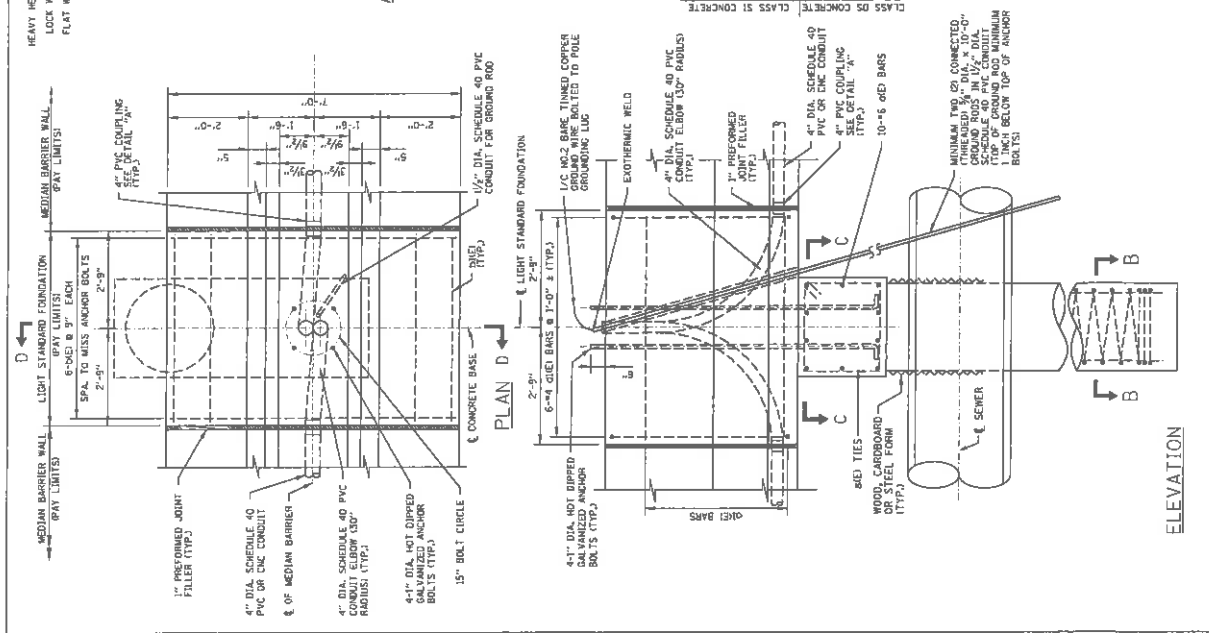
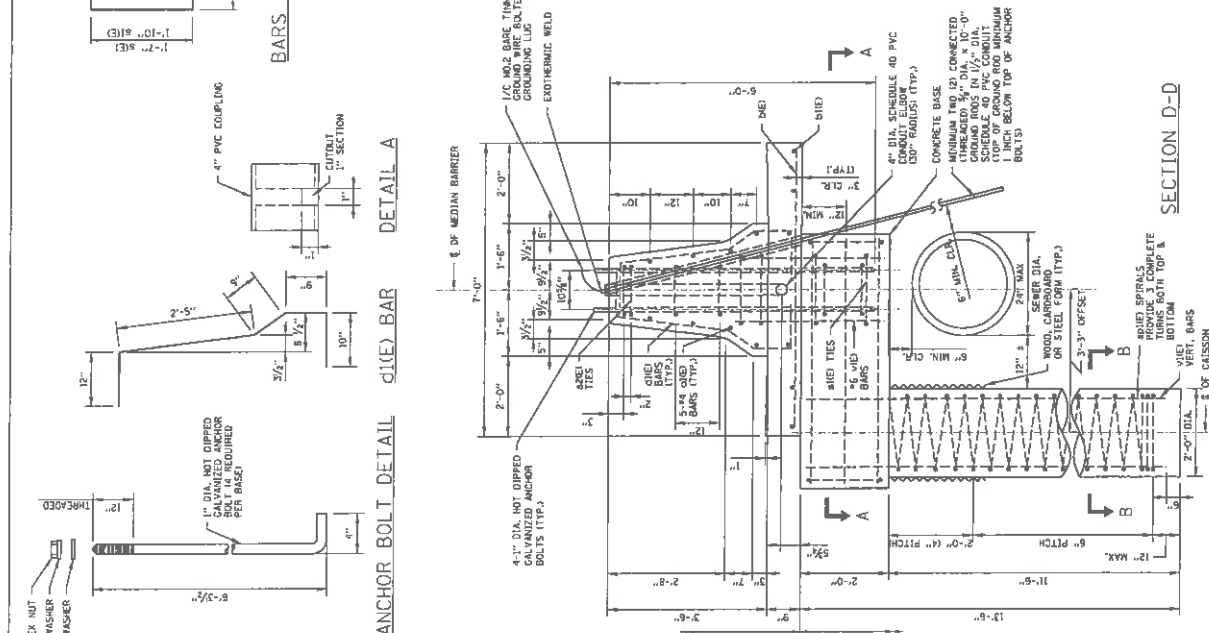
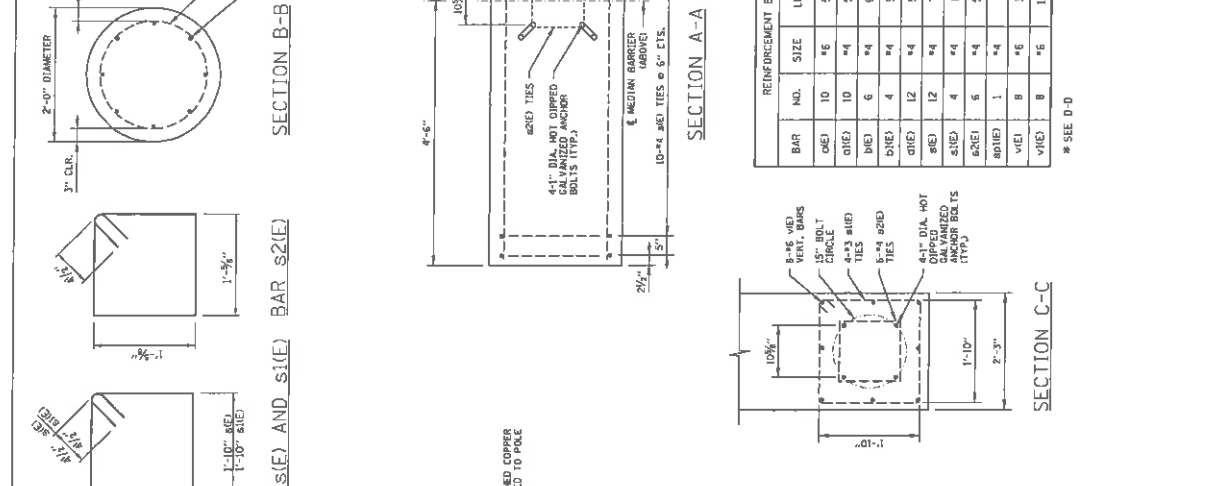
SECTION A-A

REINFORCEMENT BARS SCHEDULE			
BAR NO.	SIZE	LENGTH	WT. SHAPE
d11E	#4	5'-0"	40
b1E	#4	6'-6"	26
b1E	#4	5'-2"	14
d11E	#4	5'-9"	46
s11E	#4	6'	W
v11E	#6	11'-9"	142

SEE SECTION A-A

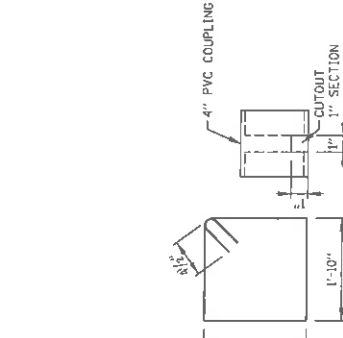
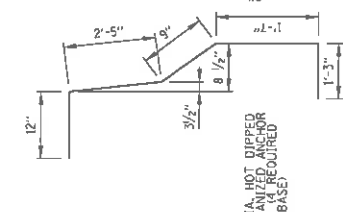
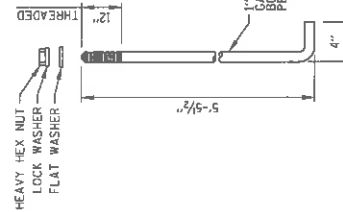
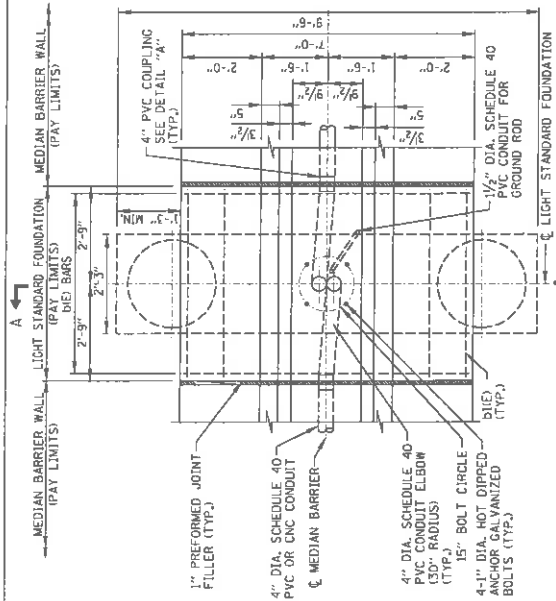
- NOTES:
- SEE SHEET 1 OF THIS SERIES FOR NOTES.
 - FOR SLIP FORM, SEE SHEET 2 OF THIS SERIES.

LIGHT STANDARD FOUNDATION DETAILS - MEDIAN BARRIER
(TYPE 1 CENTERED CAISSON, 42" BARRIER)



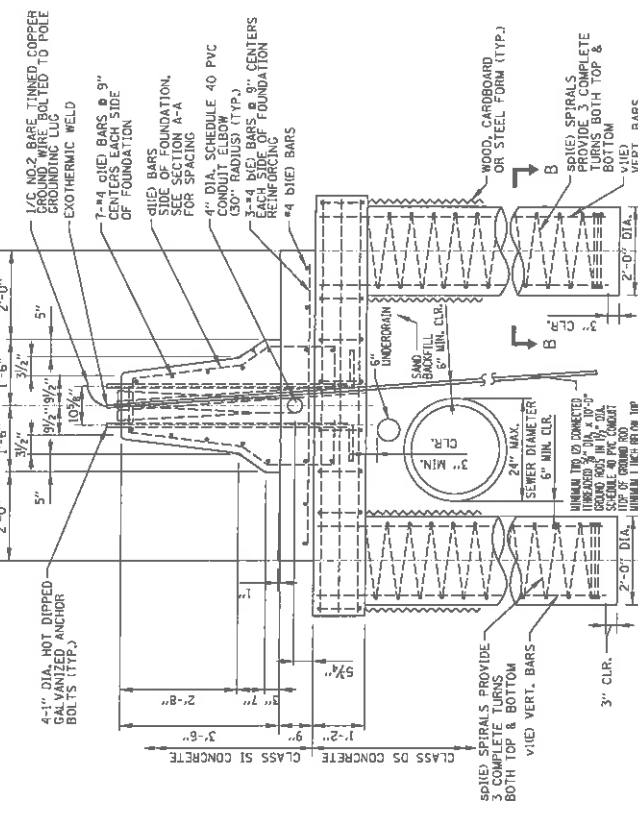
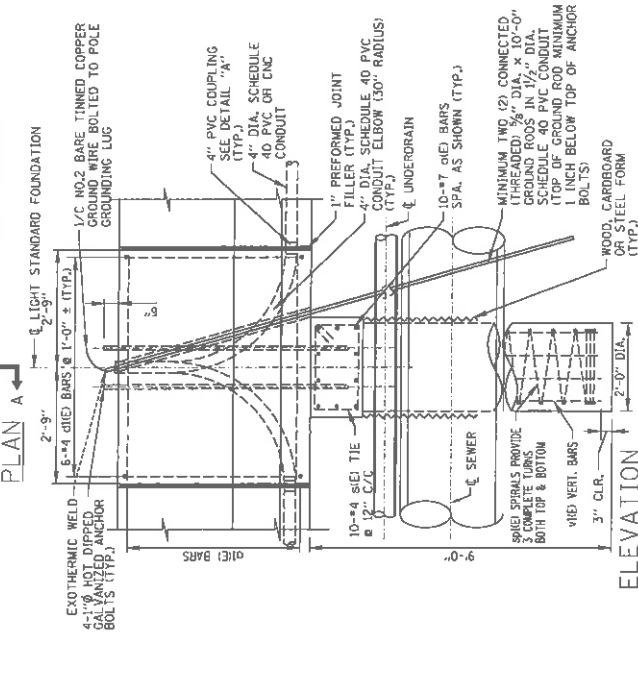
- NOTES:
- SEE SHEET 1 OF THIS SERIES FOR NOTES.
 - FOR SLIP FORM, SEE SHEET 6 OF THIS SERIES

LIGHT STANDARD FOUNDATION DETAILS - MEDIAN BARRIER
(TYPE 2 OFFSET CAISSON, 42" BARRIER)



ANCHOR BOLT DETAIL (1) (E) BAR (S) (E) BAR DETAIL A

SECTION B-B



PLAN A

ELEVATION

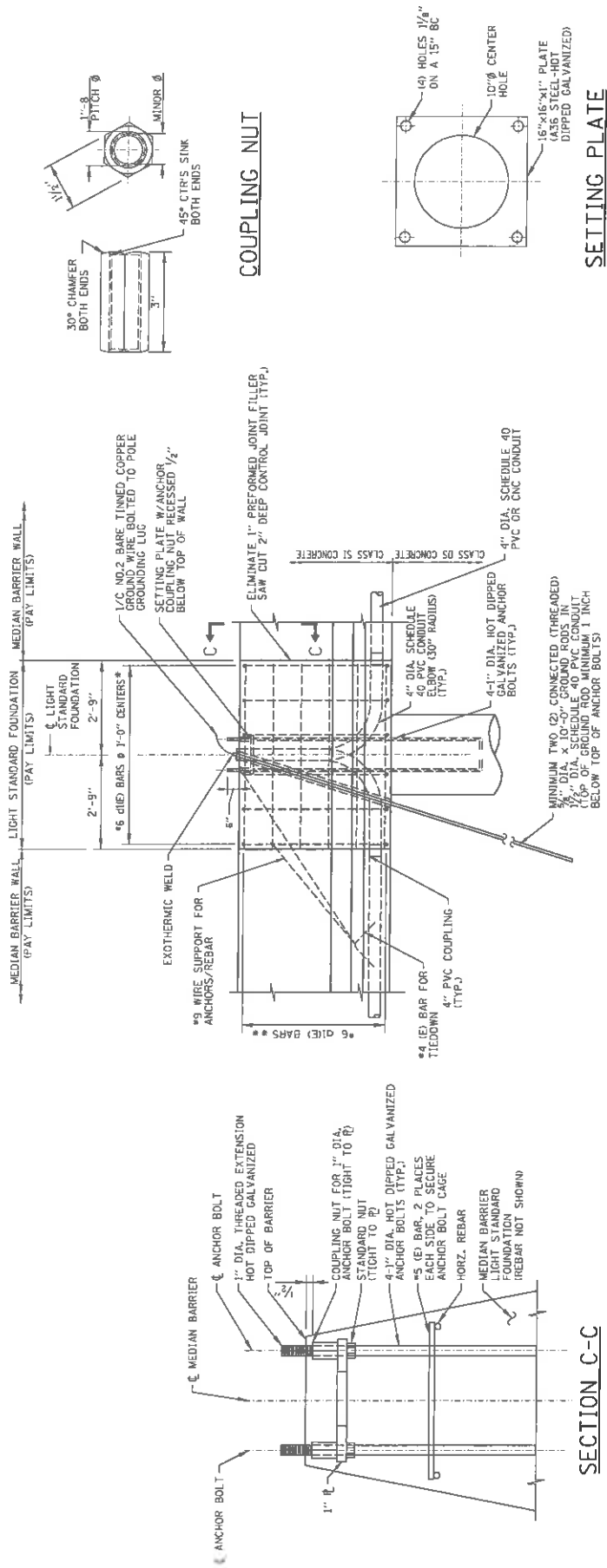
SECTION A-A

BAR	NO.	SIZE	LENGTH	WT. LB.	SHAPE
(1) (E)	10	#7	9'-0"	184	—
(1) (E)	14	#4	5'-0"	47	—
(1) (E)	6	#4	6'-6"	26	—
(1) (E)	4	#4	5'-2"	14	—
(1) (E)	12	#4	6'-7"	53	—
(1) (E)	10	#4	5'-11"	40	—
(1) (E)	2	#4	*	*	—
(1) (E)	16	#6	9'-9"	235	—

* SEE ELEVATION

NOTES:

- SEE SHEET 1 OF THIS SERIES FOR NOTES.
- FOR SLIP FORM, SEE SHEET 6 OF THIS SERIES.



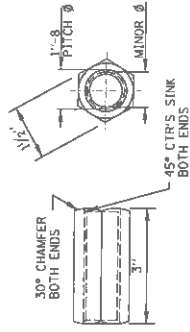
ELEVATION

** #6 (DIE) BAR REPLACES #4 (DIE) BAR
 *** #6 (DIE) BAR REPLACES #4 (DIE) BAR

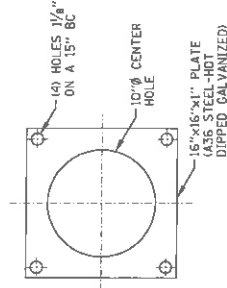
NOTES:

1. SEE SHEET 1 OF THIS SERIES FOR NOTES.
2. PLUG TOP OF COUPLER WITH PLASTIC PLUG OR COVER WHILE PLACING CONCRETE.

LIGHT STANDARD FOUNDATION DETAILS - MEDIAN BARRIER
 (MODIFICATIONS FOR SLIPFORM POUR, 42" BARRIER)

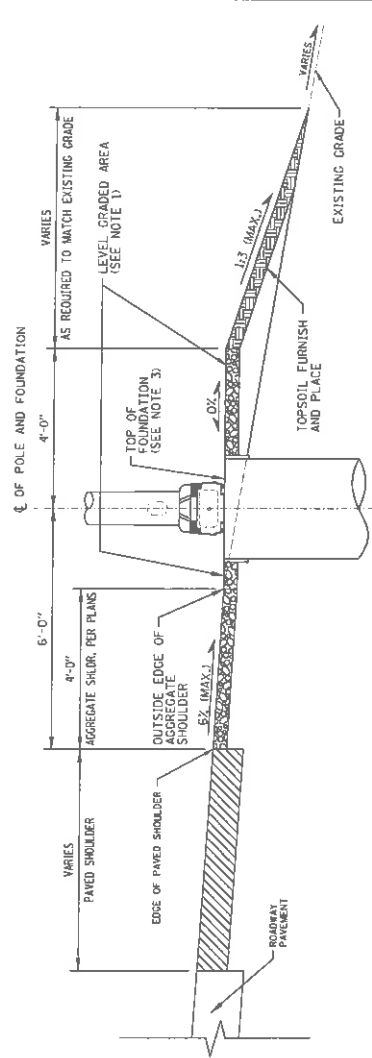


COUPLING NUT

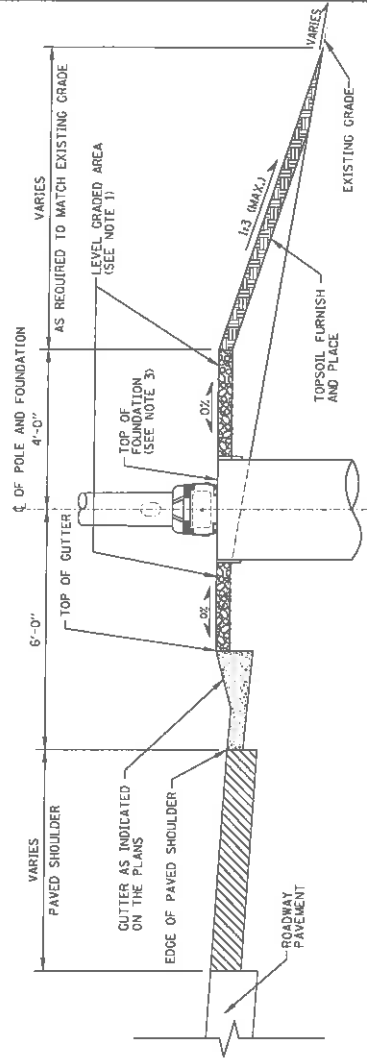


SETTING PLATE

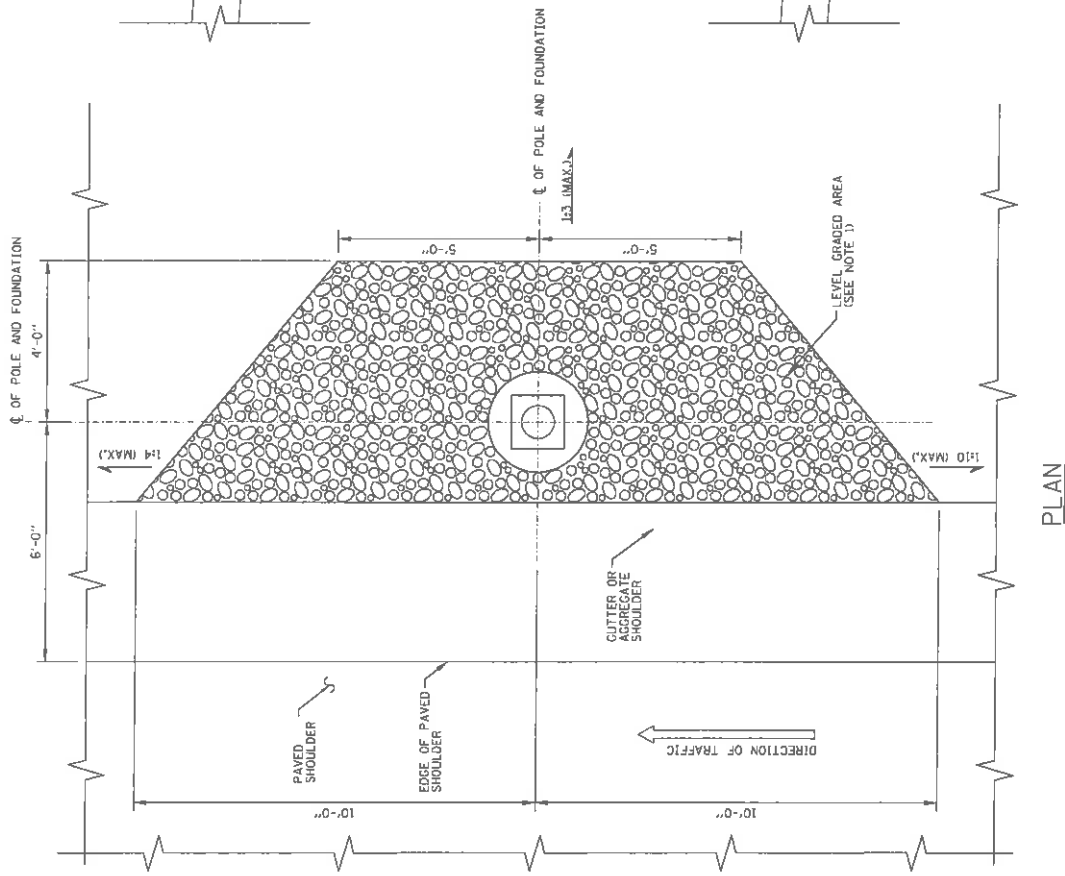
SECTION C-C



**LIGHT STANDARD FOUNDATION
ADJACENT TO AGGREGATE SHOULDER**



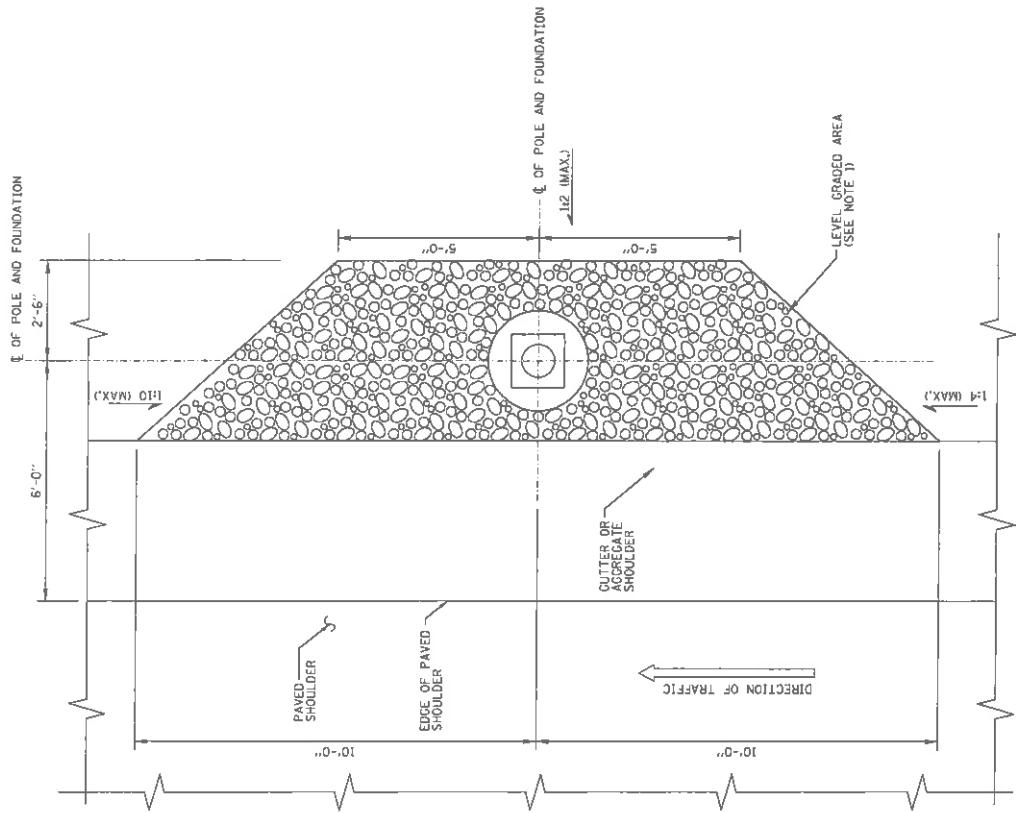
**LIGHT STANDARD FOUNDATION
ADJACENT TO GUTTER**



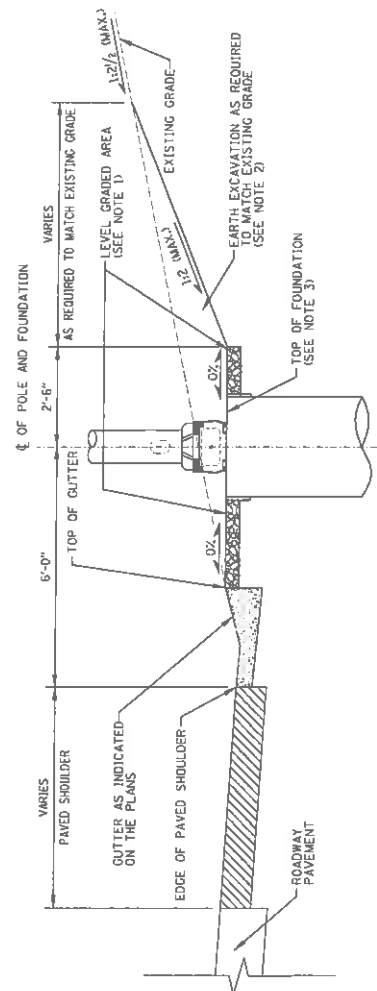
PLAN

**LIGHT STANDARD FOUNDATION DETAILS - GRADING W/ FORESLOPE
(GROUND MOUNTED UNITS)**

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.



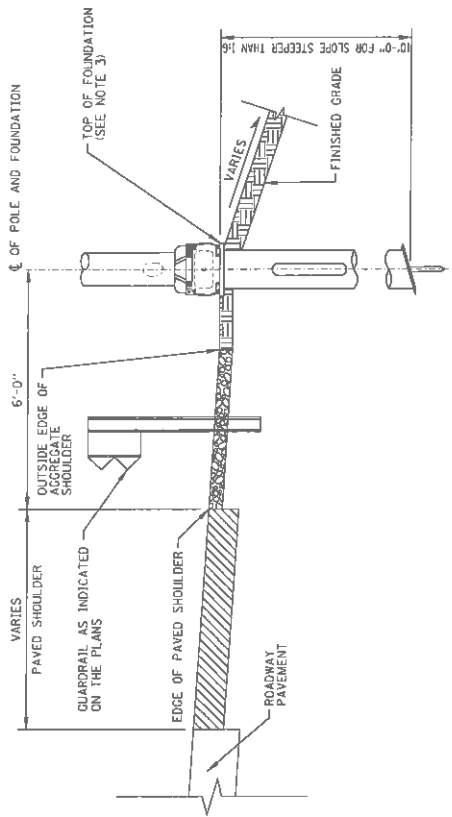
PLAN



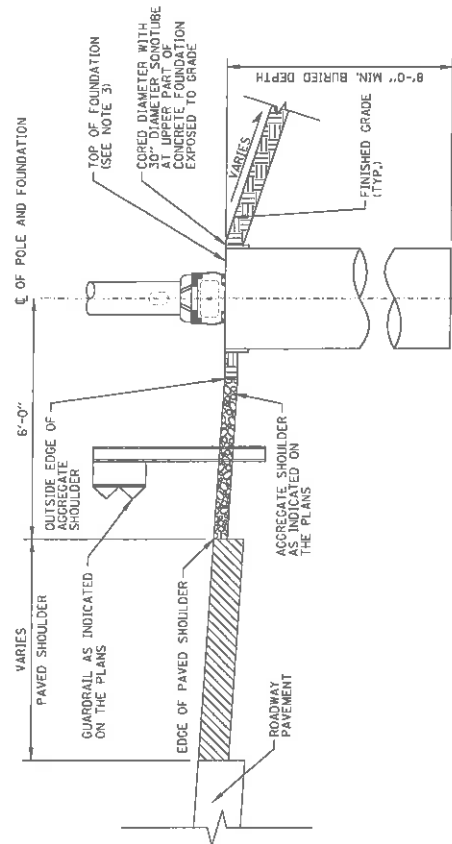
LIGHT STANDARD FOUNDATION
ADJACENT TO GUTTER

LIGHT STANDARD FOUNDATION DETAILS - GRADING W/ BACKSLOPE
(GROUND MOUNTED UNITS)

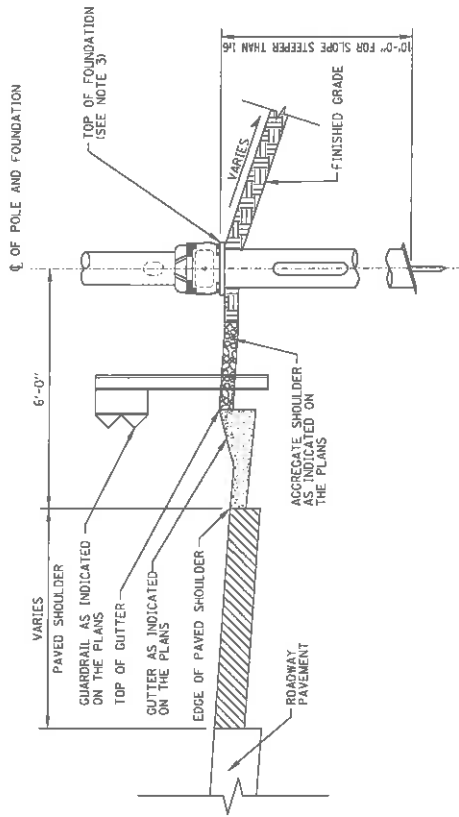
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.



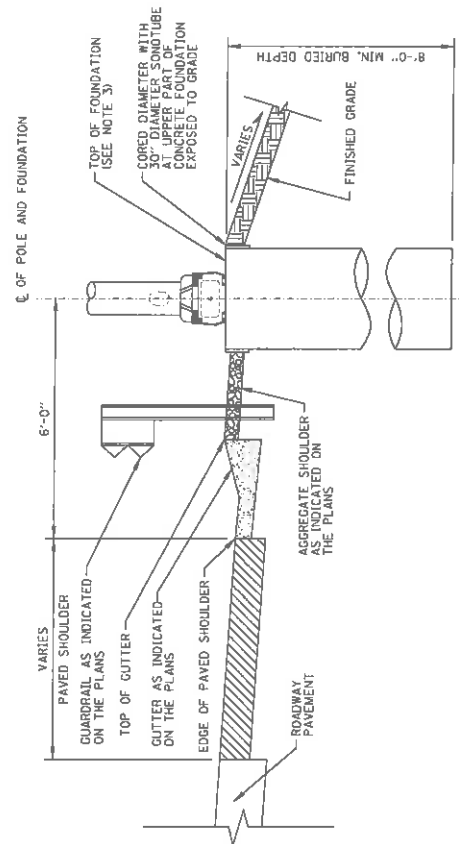
LIGHT STANDARD FOUNDATION - HELIX
ADJACENT TO AGGREGATE SHOULDER



LIGHT STANDARD FOUNDATION - CONCRETE
ADJACENT TO AGGREGATE SHOULDER



LIGHT STANDARD FOUNDATION - HELIX
ADJACENT TO GUTTER



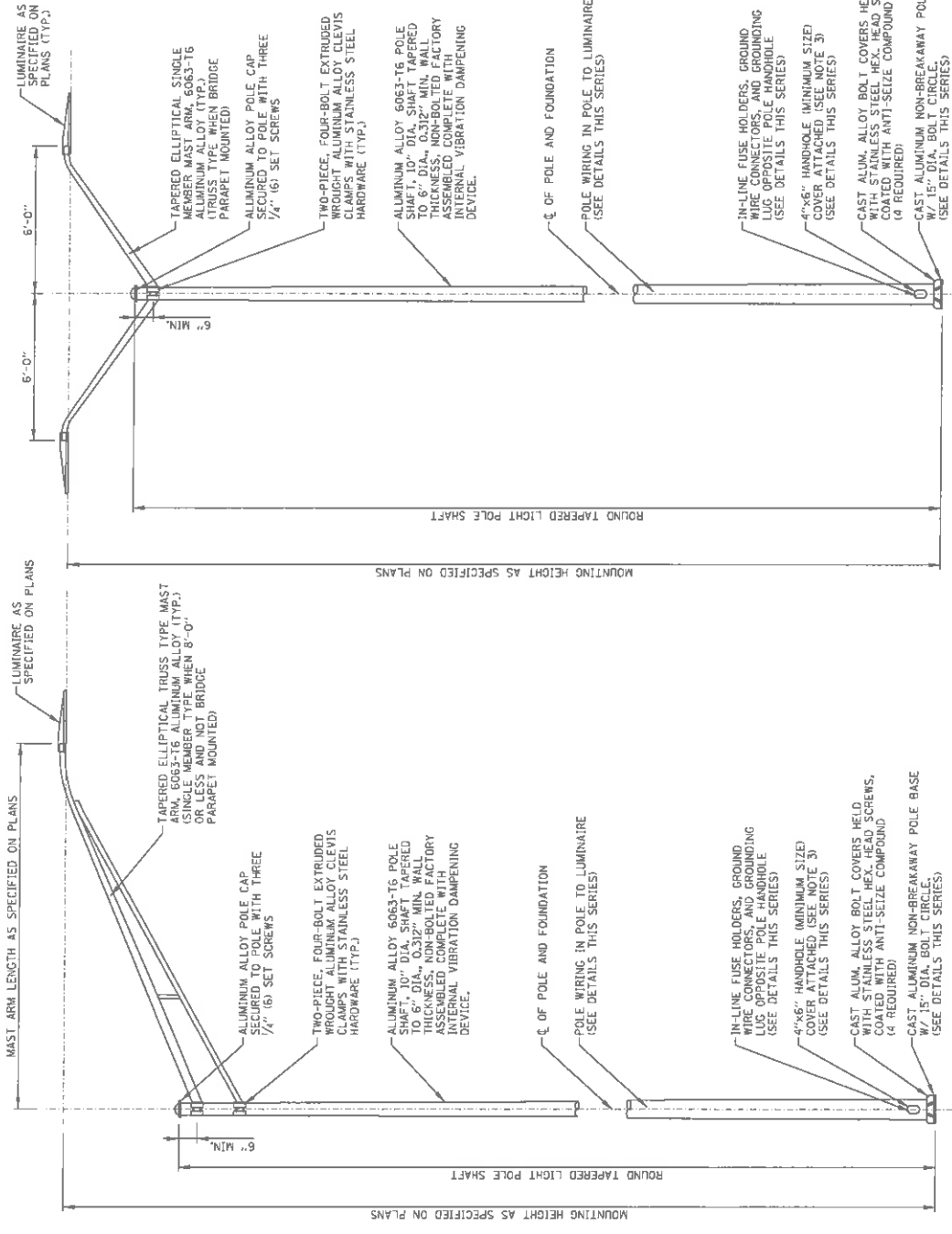
LIGHT STANDARD FOUNDATION - CONCRETE
ADJACENT TO GUTTER

LIGHT STANDARD FOUNDATION DETAILS - ADJACENT TO GUARDRAIL
(GROUND MOUNTED UNITS)

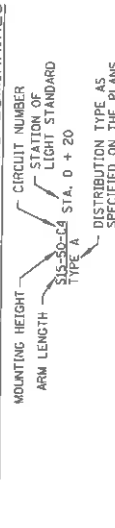
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

NOTES:

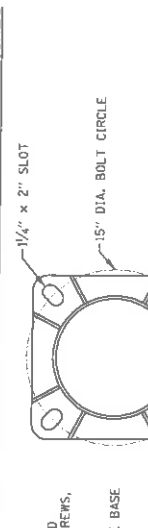
1. ALL LIGHT STANDARDS, BOTH NEW AND EXISTING, ARE SHOWN ON PLANS WITH THE SAMPLE DESCRIPTIONS SHOWN ON THIS SHEET.
2. FOR FOUNDATION DETAILS SEE STANDARD HI OR FOR STRUCTURAL PARAPET FOUNDATION DETAILS, SEE STRUCTURAL PLANS.
3. HANDHOLE COVERS SHALL BE FASTENED USING TWO STAINLESS STEEL SCREWS WITH CAPTIVE STAINLESS STEEL NUTS OR INSERTS, PER ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATION SECTION 1069.
4. PROVIDE A 24" LONG POLYETHYLENE TUBE TO PROTECT CABLES WHERE THEY PASS THROUGH THE GROMMETED OPENING AT THE POLE/MAST ARM JUNCTION.
5. ALL GROUND MOUNTED LIGHT POLES SHALL BE PROVIDED WITH AN ACCEPTED FIWA BREAKAWAY BASE OR DEVICE PER THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS SECTION 1070.
6. EACH BRIDGE MOUNTED LIGHT STANDARD SHALL BE PROVIDED WITH SHOCK ABSORBING VIBRATION PADS, NUTS, WASHERS, LEVELING PLATE AND WELD MESH FOR ITS ERECTION ON THE FOUNDATION AS SHOWN ON THE PLANS.
7. LIGHT STANDARD WIRING DETAIL FOR INSTALLATION WITH CONCRETE FOUNDATION IS SIMILAR.
8. LIGHT STANDARD WIRING DETAILS SHOWN FOR TWIN MAST ARM (2 LUMINAIRES PER POLE) AND SINGLE MAST ARM (1 LUMINAIRE PER POLE) INSTALLATIONS SHALL OMIT TWO (2) IN-LINE FUSE HOLDERS, ONE SURGE PROTECTION DEVICE AND ASSOCIATED WIRING.
9. CONDUCTORS EXTENDED INTO LIGHT POLE BASE SHALL BE OF SUFFICIENT LENGTH TO WITHDRAW SLIDES AND/OR INSULATED JOINTS A MINIMUM 18" OUT OF THE POLE HANDHOLE.
10. ALL CONDUCTORS ORIGINATING IN POLE SHALL BE A 1/2 NO. 10 AWG UNLESS OTHERWISE NOTED.
11. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.



LIGHT STANDARD DESCRIPTION - HPS LUMINAIRES



LIGHT STANDARD DESCRIPTION - LED LUMINAIRES



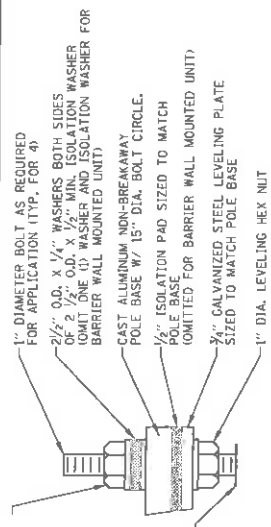
LIGHT STANDARD - SINGLE MAST ARM

LIGHT STANDARD - TWIN MAST ARM

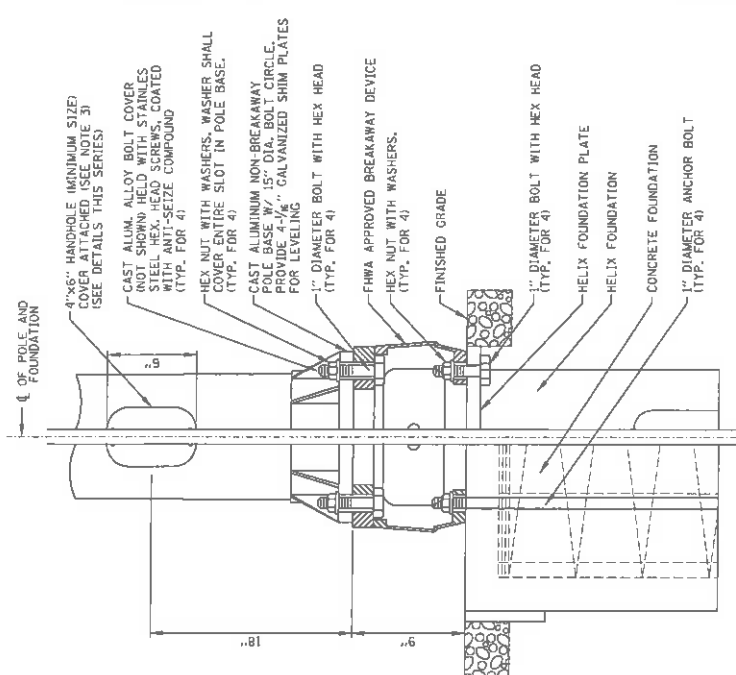
LIGHT STANDARD DETAILS

1" DIA. SELF-LOCKING HEX NUT WITH TORQUE LOCKING PAD MANUFACTURER'S RECOMMENDATIONS. (FOR BARRIER WALL APPLICATIONS, TORQUE TO POLE MANUFACTURER'S RECOMMENDATIONS)

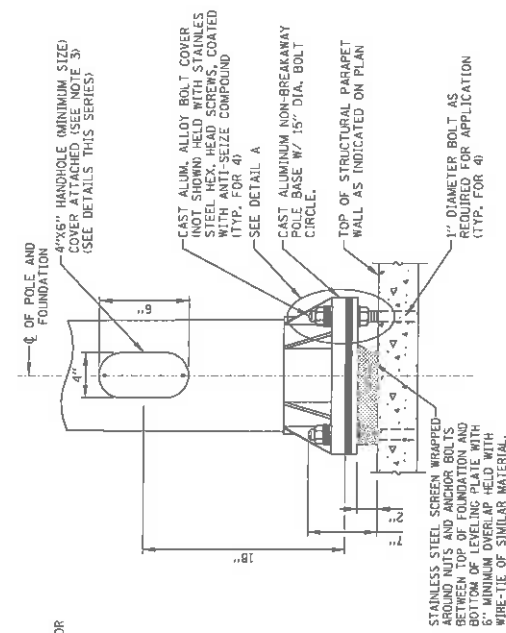
TOP OF STRUCTURAL PARAPET OR BARRIER WALL AS INDICATED ON PLAN



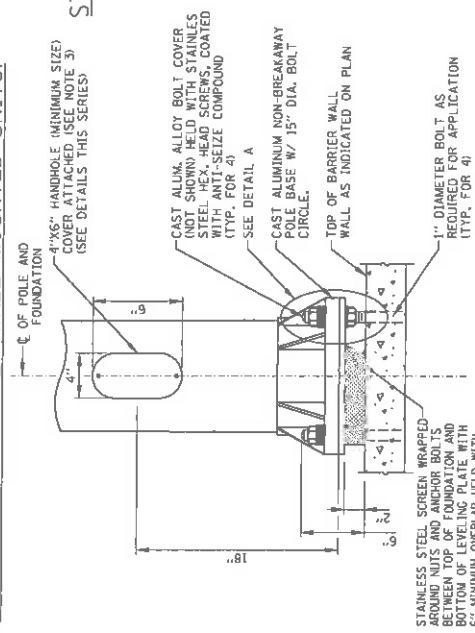
DETAIL A



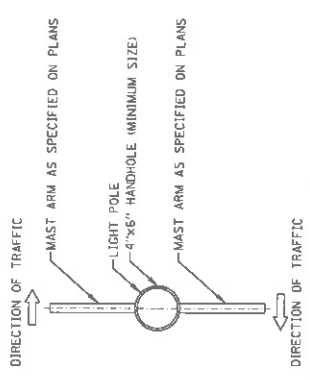
LIGHT STANDARD MOUNTING DETAIL (GROUND MOUNTED UNITS)



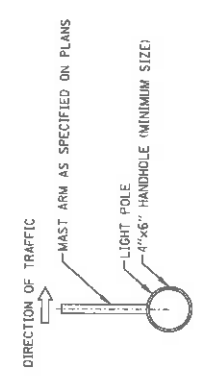
STRUCTURAL PARAPET WALL MOUNTING DETAIL (LIGHT STANDARD WALL MOUNTED UNITS)



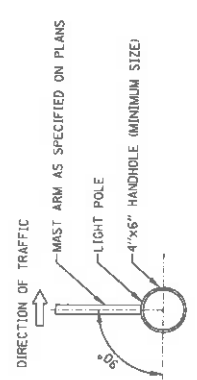
STRUCTURAL PARAPET WALL MOUNTING DETAIL (STRUCTURAL PARAPET WALL MOUNTED UNITS)



MEDIAN BARRIER WALL MOUNTED UNITS



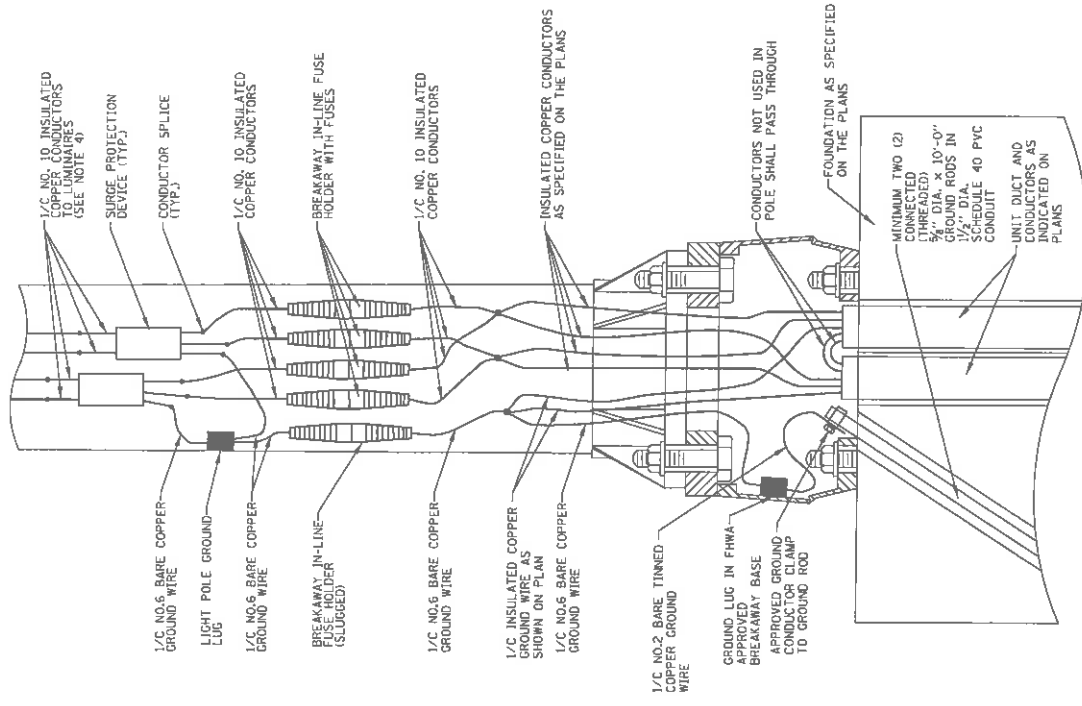
STRUCTURAL PARAPET WALL MOUNTED UNITS



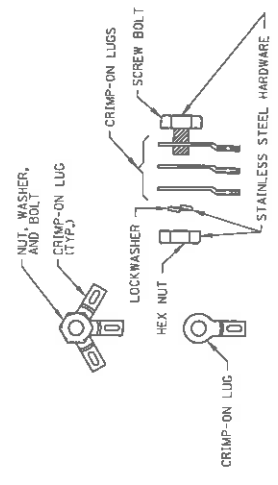
GROUND MOUNTED UNITS

LIGHT STANDARD HANDHOLE ORIENTATION DETAIL

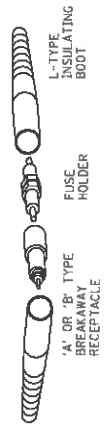
NOTE: SEE SHEET 1 OF THIS SERIES FOR NOTES.



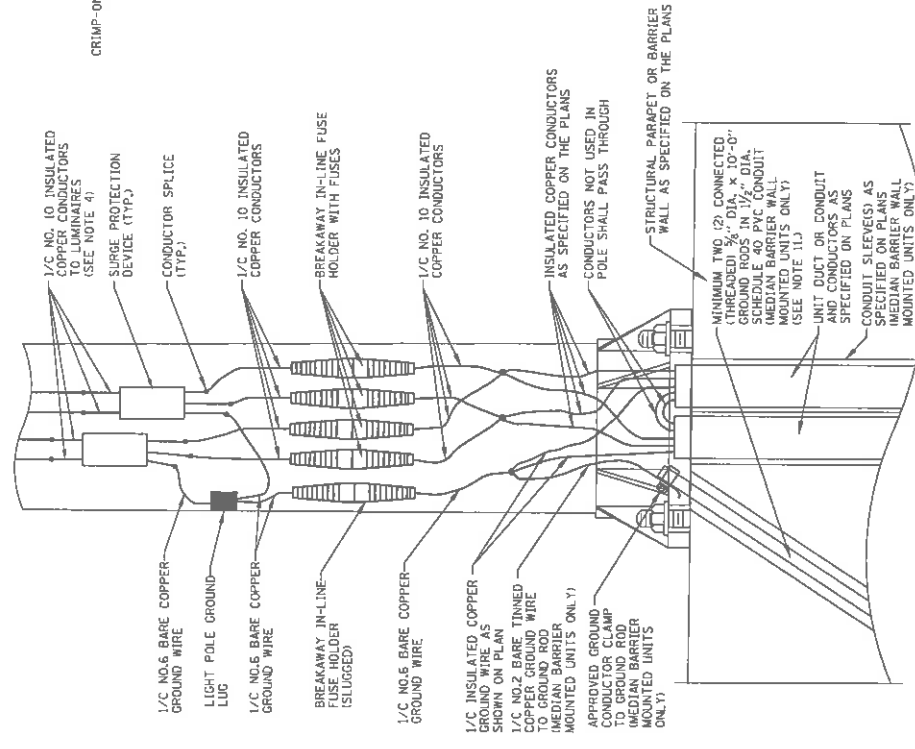
LIGHT STANDARD WIRING DETAIL
(GROUND MOUNTED UNITS)
(SEE NOTES 7 & 8)



CONDUCTOR SPLICE DETAIL



IN-LINE FUSE HOLDER WITH BREAKAWAY FEATURE DETAIL



LIGHT STANDARD WIRING DETAIL
(STRUCTURAL AND BARRIER WALL MOUNTED UNITS)

LIGHT STANDARD WIRING DETAILS

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

LIGHT STANDARD DETAILS