



Document Title:  
**Arm for Lighting Fixture Poles (Galvanized Steel Single)**

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**Management Approval (If apply)**

<b>Approver</b> Name Position	Signature and Date N/A
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**Related/Referenced Documents**

N/A

**Document History**

Version	Date	Revision Comments
1	November 16, 2022	Initial Release.
2	December 27, 2022	Add Change 9.1(a), special conditions, and welding
3	January 4, 2023	Document Number Modification, Change 9.2(e), and drawing
4	March 10, 2023	Modify document title and title Appendix 3
5	June 13, 2023	Modify document sections 5 and 9.2
6	September 15, 2023	Modify document all sections and drawing
7	October 10, 2023	General format and sections changes.
8	February 16, 2024	Modify document section 9.2
9	July 12, 2024	Modify document section 9.2 a, b, c, and drawing
10	December 11, 2024	Modify varies Section and drawing



## Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
028-00068	57617	10	12/11/2024
028-00076	56148	14	12/11/2024
028-00316	56150	12	12/11/2024



## 1. Introduction

This is a general specification that arm for lighting fixture poles (galvanized steel single) used on the distribution system in Puerto Rico. Further information will be provided by LUMA Energy at the time of order placement and will provide information on site specific conditions, quantity, and other requirements. This document includes the general electrical and mechanical characteristics of the equipment/material.

## 2. Special Requirements

Samples shall be furnished as requested by LUMA Energy. Vendors that have supplied this equipment/material to LUMA on previous orders, will not have to furnish samples at bid opening. The equipment/material will be received at LUMA's general warehouse (011) at Palo Seco, Puerto Rico. Shipping will include transportation and unloading at the indicated warehouse.

## 3. Literature

Descriptive and technical literature must be supplied by the vendor at time of bidding. This literature must include, but is not limited to details of material, drawings, documented testing, and instructions for use and installation. **The literature must be an official document from and certified by the manufacturer.** Failure to submit documents on time and duly certified by the manufacturer will cause bidder disqualification.

## 4. Markings

- 4.1. Containers shall be marked outside with LUMA Energy purchase order and item number.
- 4.2. Package(s) to be delivered to the warehouse shall be clearly marked with manufacturer and item information (part number, serial number, quantity, etc.).
- 4.3. Packaging labels and tags shall be waterproof.

## 5. Packaging

All equipment/material shall be packaged and marked in such a way as to facilitate handling and protection from damage and that the receiving warehouse can readily identify it and send it, in one complete unit, to a field location without opening crates or boxes to sort items and/or parts.

## 6. Number per package (Logistics)

One (1) unit per package or as requested by LUMA.

## 7. Acceptance criteria

- 7.1. Test required: certified by external qualified laboratories.
- 7.2. Product shall be manufactured in accordance with the latest issue below (section 7.3). When conflicts occur between purchaser's specifications and the latest issue below, the purchaser's specification shall prevail.
- 7.3. Latest applicable codes, standards, and other regulations: AASHTO, AISI, AA, and ASTM.  
AISI type 304: All stainless-steel hardware as per.

## 8. Description

This specification is for the purpose of the arm for lighting fixture poles to support the electrical distribution system. The specifications are divided into two parts in the Technical Characteristics and the Special Conditions. The Technical Characteristics will include the design, material, drawings, final approval before manufacture, and failure to meet guarantees. The Special Conditions will include the special arm requirements for the following three (3) arms: arms bracket 4 ft. and 8 ft. long galvanized steel single for wood, concrete, and steel pole and arm bracket 4 ft. long galvanized steel single type for octagonal concrete pole.

### 8.1. Technical Characteristics

#### a. Design

The supplier is responsible for the design. The bidder will have to deliver the final computations and all design parameters considered. **If the design was performed by a computer program, the supplier shall submit the runs generated by the program. The supplier who does not provide the analysis will be automatically disqualified.**

#### b. Material

1. All arms, base shall be hot dip galvanized as per ANSI/ASTM A153.
2. Pipe shall be in accordance with ASTM 513 or A-53 Grade B.
3. Bracket tubing shall be in accordance with minimum A36.
4. All welding shall be done prior to galvanizing.

#### c. Drawings

The supplier shall submit any applicable drawing for the bid proposal at PDF format and it shall include the following information:

1. General dimensions of all the structural components.
2. Weight for each arm.

3. A bill of material. (if applicable)
4. Details of all accessories (if applicable)

**d. Final Approval before Manufacture**

1. Before the fabrication of the material shall be submitted the shop drawing with all requested in section 8.1 c according to this technical specification for LUMA's approval.
2. After approval, we will send the design and shop drawing drawings in pdf format plus a digital copy of the drawings in AutoCAD 3D (.DWG) for our files.
3. All drawings will include our order number, Warehouse Number, RFQ, or any identifying description.

**e. Failure to Meet Guarantees**

1. Should any piece of equipment fail to meet the guarantees and the requirements of these specifications within the time covered by the guarantee, it shall be optional to the Engineer to accept the material or reject it and direct the manufacturer to at once proceed to make alterations or furnish such new parts as may be necessary to make it meet the guarantees and requirements.
2. All expenses of furnishing and installing new parts by failure of the material to meet the guarantees and other requirements of the specifications will be manufacturer's responsibility.

**8.2. Special Conditions**

**1. Special Arm Requirements**

- a. The bracket tubing shall be welded to the arm plate and shall withstand a vertical load of 100 lbs. and a horizontal load of 50 lbs. applied within 3 in. of the terminal end with a deflection of not more than 5 percent of the length of the bracket without causing fracture or permanent deformation.
- b. The complete lighting standard unit shall withstand winds of 160 miles per hour according to Luma Distribution System Design Manual.
- c. The above requirements shall be considered in your design analysis.

**2. Dimensions**

- a. **4 ft. long galvanized steel single arm bracket for composite, concrete, and steel poles (Appendix 2):**
  1. The arm bracket shall be used on poles with 10 to 18 in. circumference at the point installation.

- a. Arm member:
  1. Shall be made from minimum 1-5/8 to 2 in. outside diameter hot dip galvanized high strength steel tubing or pipe, with a minimum of 0.108 in. wall thickness, welded at the pole arm.
  2. Plate shall rise in an upsweep fashion, with a plain unthreaded end for 1-1/4 to 2 in. diameter slip fitter luminaire side mounting.
  3. The rise of this single member shall be 36 in. vertically measured from are plate top mounting hole to the center of the slip fitter luminaire mount, and 4 ft. long horizontally measured from the pole arm plate face to the luminaire mount end.
- b. Arm plate:
  1. Shall be manufactured of galvanized steel of ¼ x 4 x 18 in.
  2. Shall be clamp shaped into a 1 x 2 x 1 in. ratio to provide ½ in. deep c curvature.
  3. Plate shall be furnished with two (2) 9/16 in. holes for ½ in. diameter lag screws at the bottom of the plate, centered at 1 ½ from the bottom end.
  4. One (1) keyhole mounting slot for a 5/8 in. diameter bolt, centered and at 1 ½ in. from the top with 1 ½ in. diameter big hole, and 1 ¼ in. slot for 5/8 in. diameter bolt, centered at 1 ½ in. from the bottom shall be provided.
  5. Shall have one (1) grounding hot dip galvanized steel bolt 3/8 in. diameter x 1 in. long with corresponding nut and lock washer.
- c. The base for the arm to be used on concrete and metal poles shall comply with the following:
  1. Shall be C - Type with a thickness of ¼ in. as minimum.
  2. Distance from keyhole to the first slot (center to center) shall be 12 in. and from keyhole to the bottom slot (center to center) shall be 16 in. both slots shall be 1-13/16 in. long. The diameter for each slot shall be 13/16 in.
  3. The specified diameter of the holes and slots shall be measured at the end of the protection process (final product).

**b. 4 ft. long galvanized steel single arm bracket for octagonal concrete poles (Appendix-3):**

1. The arm bracket shall be used on poles with the top dimension shall be no less than 6 11/16 in., and the bottom dimension shall be no more than 13 in.

a. Arm member:

1. Shall be made from minimum 1-5/8 to 2 in. outside diameter hot-dip galvanized high-strength steel tubing or pipe, with a minimum of 0.108 in. wall thickness, welded at the pole arm clamp.
2. Plate shall rise in an upsweep fashion with a plain unthreaded end for 1 – 1/4 to 2 in. diameter slip fitter luminaire side mounting.
3. The rise of this single member shall be 36 in. vertically measured from the arm clamp center to the center of the slip fitter luminaire mount, and 4 ft. long horizontally measured, from the pole arm clamp face to the luminaire mount end.

b. Arm plate:

1. The arm plate and back plate shall be manufactured from ¼ in. thick hot dip galvanized steel.
2. Machine pressed to fit the octagonal shape concrete pole.
3. Clamps shall properly fit the octagonal pole at 6 ¼ in. face-to-face separation.
4. Plates shall be furnished with four (4) 3/8 x 7 in. minimum length galvanized or stainless-steel bolts with corresponding hex nuts and washers.
5. The pole plate shall be provided with one (1) grounding hot-dip galvanized steel bolt 3/8 in. diameter x 1-1/4 in. long with a corresponding nut and lock washer.
6. The arm plate shall have a 1 in. diameter hole in the center. A removable plug must be installed covering the hole.

**c. 8 ft. long galvanized steel single arm bracket for composite, concrete, and steel poles (Appendix-4):**

1. The arm bracket shall be used on poles with 20 to 40 in. circumference at the point installation.

a. Arm member:

1. Shall be made from minimum 1 - 5/8 in. diameter hot - dip galvanized high strength steel tubing or pipe, with a minimum of 0.108 in. wall thickness, welded at the pole arm.

2. Plate shall rise in an upsweep fashion with a plain unthreaded end for 1-1/4 to 2 in. diameter slip fitter luminaire side mounting.
  3. The rise of this single member shall be 36 in. vertically measured from the plate top mounting hole to the center of the slip fitter luminaire mount, and 8 ft. long horizontally measured from the pole arm plate face to the luminaire mount end.
- b. Arm plate:
1. Shall be manufactured of galvanized steel of ¼ x 4 x 18 in.
  2. Shall be clamp - shaped into a 1 x 2 x 1 in. ratio to provide ½ in. deep curvature.
  3. Plate shall be furnished with two (2) 9/16 in. holes for ½ in. diameter lag screws at the bottom of the plate, centered at 1 ½ in. from the bottom end.
  4. One (1) keyhole mounting slot for a 5/8 in. diameter bolt, centered and at 1 ½ in. from the top with 1 ½ in. diameter big hole, and 1 ¼ in. slot for 5/8 in. diameter bolt, centered at 1 ½ in. from the bottom shall be provided.
  5. Shall have one (1) grounding hot - dip galvanized steel bolt 3/8 in. diameter x 1 in. long with corresponding nut and lock washer.
- c. The base for the arm to be used on concrete and metal poles shall comply with the following:
1. Shall be C - Type with a thickness of ¼ in. as minimum.
  2. Distance from keyhole to the first slot (center to center) shall be 12 in and from keyhole to the bottom slot (center to center) shall be 16 in. both slots shall be 1-13/16 in. long. The diameter for each slot shall be 13/16 in.
  3. The specified diameter of the holes and slots shall be measured at the end of the protection process (final product).

## 9. Inspection

The acceptance of any equipment/material shall in no way relieve the vendor from his responsibility to meet all the requirements of this specification, and it would not prevent subsequent rejection if such equipment/materials were found later to be defective.



## 10. Proposal Information

10.1. Submitted proposals must include:

- a. Technical information, tests, and drawings.
- b. Table of Compliance completed by the bidder with reference. (See Appendix 1)

## 11. Table 1: Warehouse and Asset Suite Identification Number

Warehouse Number	Asset Suite	Arm length (ft.)	Used on	Approx. Weight (lb.)	Compatible Manufacturer
028-00068	57617	4	Composite, concrete, and steel pole	16	PowerLine Hardware
028-00076	56148	4	octagonal concrete pole	16	PowerLine Hardware
028-00316	56150	8	Composite, concrete, and steel pole	25	PowerLine Hardware

— End of Specification —



## Appendix

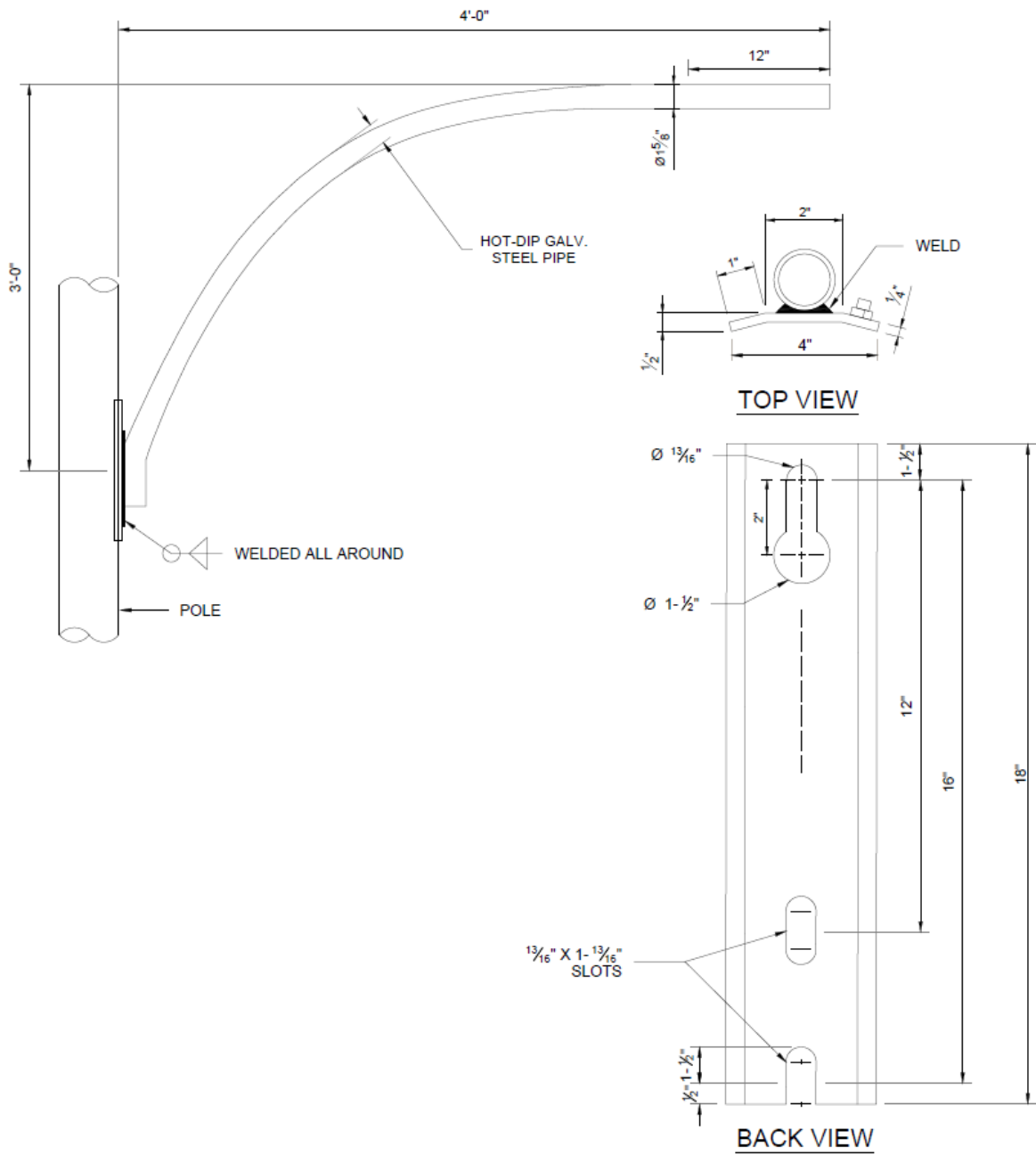


## Appendix 1: Table of Compliance

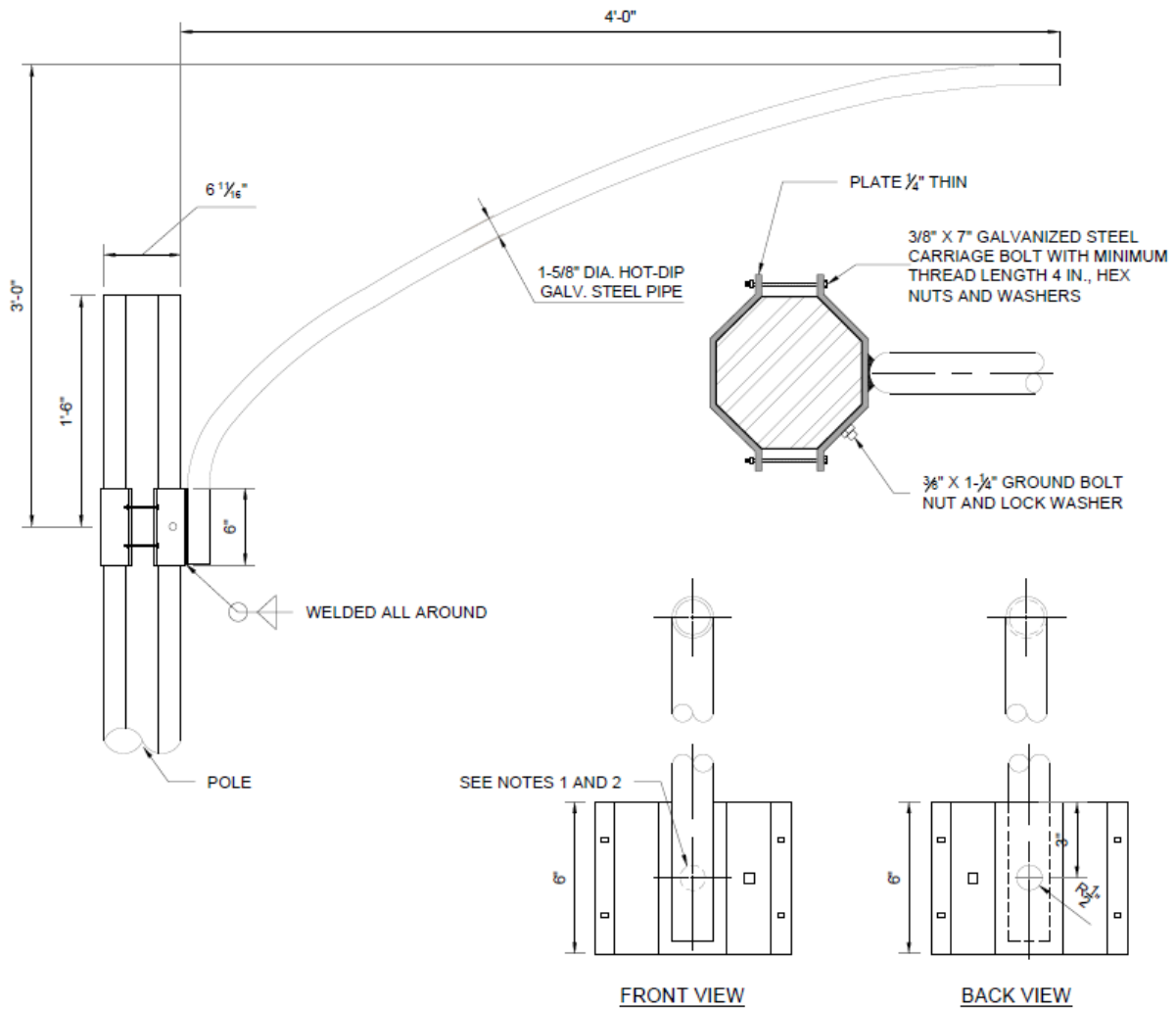
Line	Criteria	Description	Pass/Fail (P/F)	Comments
1	Specification	The Proponent complies with the corresponding specification document. (4402.034)		
2	Industry Standards	The Proponent complies with the industry standards established in the specification document. All hot-dip galvanizing shall be as per AASHTO, ANSI/ASTM A153, ASTM 513, A53 Grade B, A36.		
3	Certification	Certified Galvanized coating test.		
		Certified vertical and horizontal load resistance tests.		
4	Dimensions	028-00068: meets dimensions as per Section 8.2 a.		
		028-00076: meets dimensions as per Section 8.2 b.		
		028-00316: meets dimensions as per Section 8.2 c.		
5	Material	All arms, base shall be hot dip galvanized as per ANSI/ASTM A153.		
		Pipe shall be in accordance with ASTM 513 or A-53 Grade B.		
		Bracket tubing shall be in accordance with minimum A36. All welding shall be done prior to galvanizing		
6	Approx. Weight	028-00068: 16 lb.		
		028-00076: 16 lb.		
		028-00316: 25 lb.		
7	Design	<b>If the design was performed by a computer program, the supplier shall submit the runs generated by the program. The supplier who does not provide the analysis will be automatically disqualified.</b>		

**NOTE: This table is only a checklist for reference. The compliance shall be with the complete document. Marking a PASS in the table won't be accepted as a compliance without the technical information required to certify it.**

4 FT. LONG GALVANIZED STEEL SINGLE ARM BRACKET FOR COMPOSITE, CONCRETE, AND STEEL POLES



4 FT. LONG GALVANIZED STEEL SINGLE ARM BRACKET FOR OCTAGONAL CONCRETE POLES

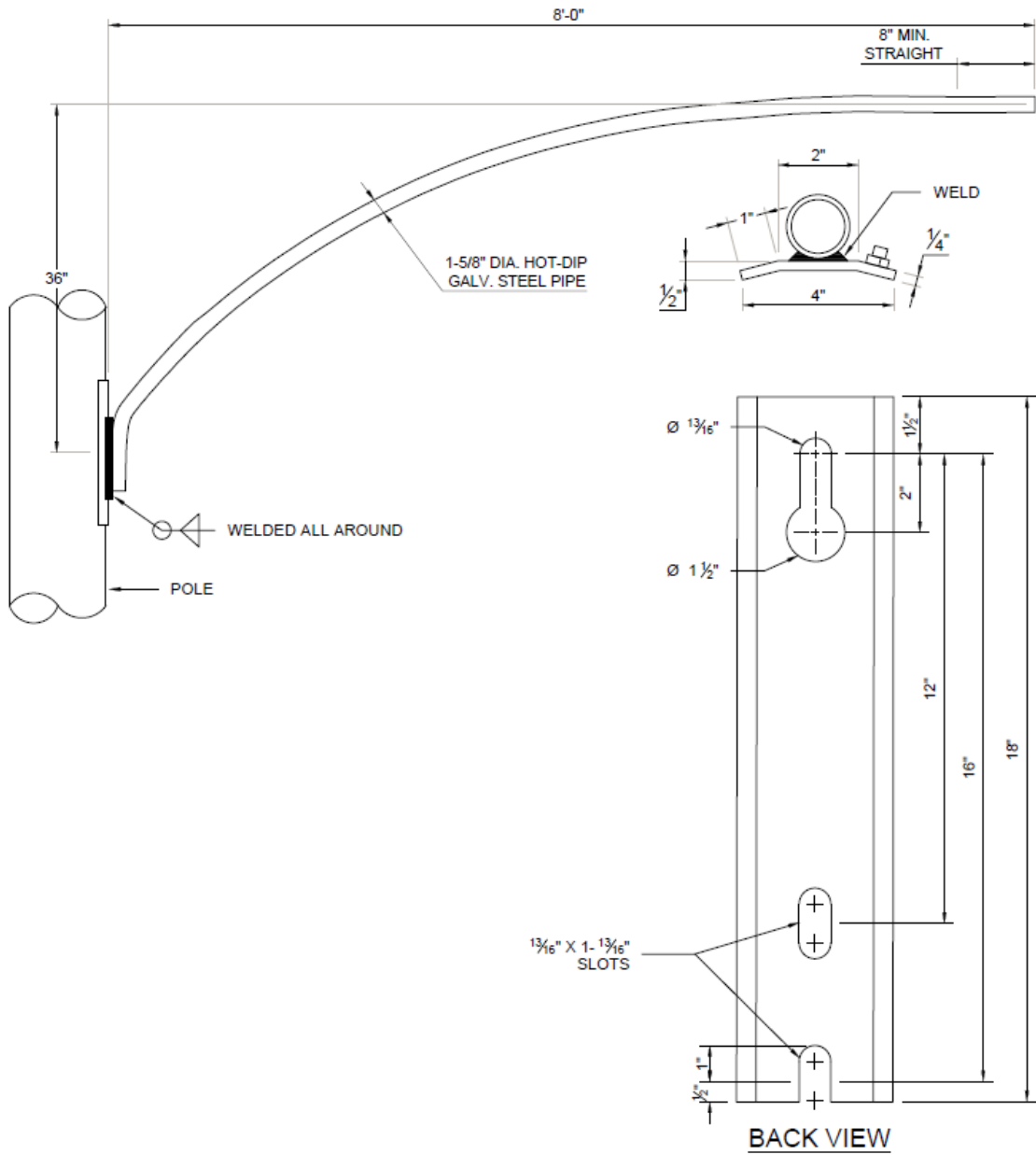


QTY.	DESCRIPTION OF MATERIAL
4	3/8" X 7" GALVANIZED STEEL CARRIAGE BOLT WITH MINIMUM THREAD LENGTH 4 IN., HEX NUTS AND WASHERS
1	3/8" X 1-1/4" GROUND BOLT NUT AND LOCK WASHER

NOTES:

- THREE #10 CABLES ARE USED WHICH PASS THROUGH THE HOLE.
- AN OPEN HOLE PLUG MUST BE INSTALLED.

8 FT. LONG GALVANIZED STEEL SINGLE ARM BRACKET FOR COMPOSITE, CONCRETE, AND STEEL POLES













# 4402.034 Arm for Lighting Fixture Poles (Galvanized Steel Single)-12-11-2024

Final Audit Report

2024-12-12

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