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MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR
TRAFFIC SIGNAL MAST ARM POLE AND
MAST ARM DETAILS - CATEGORY II

SIG-031-B

Sheet 1 of 6
### MAST ARM DIMENSIONS

<table>
<thead>
<tr>
<th>MAST ARM LENGTH</th>
<th>*MAST ARM DIMENSIONS</th>
<th>MFG</th>
<th>DESIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>20'-0&quot;</td>
<td>0.2500&quot;-8.50&quot; x 5.70&quot; x 20'-0&quot;</td>
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<tr>
<td>25'-0&quot;</td>
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<td>0.1793&quot;- ** x 7.50&quot; x **</td>
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<td>45'-0&quot;</td>
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<td>50'-0&quot;</td>
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<td>0.1793&quot;- ** x 5.36&quot; x **</td>
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**NOTES:**

1. THE DESIGN OF THIS STRUCTURE IS BASED ON THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS FOR 90 MPH WIND LOAD AND CATEGORY 11 WITH GALLOPING, NATURAL WIND GUSTS, AND TRUCK INDUCED FATIGUE LOADS.

2. WELD THE LONGITUDINAL ARM SEAM ON THE INBOARD AND OUTBOARD SECTIONS OF THE TELESCOPIC FIELD SPLICE WITH A COMPLETE JOINT PENETRATION (CJP). WELD A MINIMUM OF 36 INCHES LONG. IN ADDITION, LONGITUDINAL SEAM WELDS MUST BE CJP FOR A MINIMUM OF 6 INCHES FROM TUBE TO PLATE CJP WELDS.

3. SEAM WELDS MUST BE 90° ± FROM HAND HOLE AT BASE.

4. LUMINAIRE ARM IS 11 GAUGE ROUND STEEL WITH 0.140 INCH PER FOOT TAPER.

5. BACKING BAR FOR PIPE TO BASE PLATE (P) AND MAST ARM TO MAST ARM PLATE MUST BE MINIMUM 5/16 INCH X 2 INCH PLATE.

6. 1/2 INCH DIAMETER (4) ROUND STOCK C-HOOK ATTACHED TO ALL POLE SIZES. 3/4 INCH SCHEDULE (SCH.) 40 PIPE ATTACHED TO ALL POLE SIZES AND INBOARD AND OUTBOARD ARM.

7. S.S. DENOTES STAINLESS STEEL. GA. DENOTES GAUGE. O.D. DENOTES OUTSIDE DIAMETER. I.D. DENOTES INSIDE DIAMETER. H.S. DENOTES HIGH STRENGTH.

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**Diameters Given are O.D.**

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**BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN**

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**PLAN DATE**

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**Plan Date**

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DETAIL A

DETAIL B

INBOARD/OUTBOARD ARM LIFTING DEVICE

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**Design with 29'-0" Pole Only**

**ID Tags**

**Pole & Base Hand Hole**

1. **Anchor Bolt** (Typ)
2. **Locators**
   - 3/8" (Typ)
   - 3/16" (Typ)
3. **Screw & S.S. Chain**
   - 1/4"-20 S.S. Mach.
   - Screw & S.S. Chain

**Mast Arm Clamp Washer Placement**

**Flange**

1. ** LOCK WASHER (Typ)**
2. **FLAT WASHER (Typ)**
3. **NUT (Typ)**

**Grounding Provision**

- 5/8" S.S. Hex Bolt to Mount Mechanical Lug to Accommodate Min. 1 #4 Wire.

**1/4" X 1" S.S. Back Up Bar to Secure Hand Hole Cover (Horizontal Orientation)**

1. **Screw & S.S. Chain**
2. **1/2" Drilled & Tapped Hole with 1/2" Stainless Steel Bolt with Maximum Projection of 1/4".

**6" X 10" Bar Bottom Hand Hole**

1. **3/16**
2. **3/8**
3. **3/8" (Max)**
4. **0.478**
5. **0.358**
6. **0.313**

**ORIENTATION OF HAND HOLE**

- **60°** (Typ)
- **Anchor Bolt (Typ)**
- **Hand Hole: Pole & Base ID Tags**
- ** ullamco laborum dolor cupidatat nostrud officia laboris**

**4" X 6½" Bar Top Hand Hole**

1. **3/8**
2. **3/16**
3. **3/8" (Max)**
4. **0.478**
5. **0.358**
6. **0.313**

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**Michigan Department of Transportation**

**FHWA Approval Date**

**SIG-031-B**

**Plan Date**

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**SECTION D-D**

(PLAN ROTATED 90 DEGREES)

* SEAL JOINT WITH CAULK AFTER GALVANIZING

### DETAIL D

- **BACKING BAR**
- **BASE ID TAG**

### POLE AND MAST ARM CAP DETAIL

- **3/4" SQUARE STOCK**
- **3/4" SQUARE STOCK**
- **3/16" H.S. BOLT**
- **3/4" STEEL CAP**
- **3/16" H.S. BOLT**
- **3/4" SQUARE STOCK**

### SECTION E-E

- **3/16" SCH. 40 PIPE**
- **9/16" HOLE FOR**
- **3/4" SQUARE STOCK**
- **3/16" HOLE**
- **3/4" SQUARE STOCK**
- **3/16" HOLE**

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**BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN**

**PLAN DATE**

**FHWA APPROVAL DATE**

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