

**NOTICE**

Thank you for your inquiry regarding the City of Portage project listed below:

2015 Traffic Signal Mast Arms

If your firm plans to bid on this project, please send an e-mail response to [purchasing@portagemi.gov](mailto:purchasing@portagemi.gov) with the following information:

Firm Name: \_\_\_\_\_  
Project Name: \_\_\_\_\_  
Firm's Contact Person: \_\_\_\_\_  
Telephone Number: \_\_\_\_\_  
Fax Number: \_\_\_\_\_  
E-Mail Address: \_\_\_\_\_  
Postal Address: \_\_\_\_\_

The City of Portage Purchasing Department will use this information to communicate with you in the event an addendum or change to this project is issued. If you do not send this information to the City of Portage, you will not receive any follow-up notification of any changes to the project.



Date of Issue: February 10, 2015

### NOTICE TO BIDDERS

The City of Portage will open sealed bids on Thursday, February 26, 2015 at 3:00 p.m. prevailing local time in City Hall Conference Room #1 at 7900 South Westnedge Avenue for:

Traffic Signal Mast Arms

You are invited to submit a bid for this project. Sealed bids may be mailed or delivered to the CITY OF PORTAGE, PURCHASING DEPARTMENT, 7900 South Westnedge Avenue, Portage, MI 49002. Envelopes should be plainly marked:

SEALED BID: Traffic Signal Mast Arms

FOR OPENING: February 26, 2015

General specifications, description and conditions upon which the bid proposal is to be based are available at the City of Portage website [www.portagemi.gov](http://www.portagemi.gov). Bid packages will also be mailed upon request.

The City reserves the right to reject any or all bids, to waive any irregularities, and further reserves the right to accept any bid or parts of bids which it deems to best serve the interest of the City.

If you have any questions regarding purchasing procedures, please contact Purchasing Manager Judy Johnson at (269) 329-4534. If you have any questions regarding the specifications, please contact Chris Barnes, Director of Transportation & Utilities at (269) 324-9256.

# 1. INSTRUCTIONS TO BIDDERS

## 1.1. Examination of Bid Documents

Before submitting a proposal, bidders shall carefully examine the specifications and shall fully inform themselves as to all existing conditions and limitations and shall indicate in the proposal the sum to cover the cost of all items included on the bid form.

## 1.2. Withdrawal of Bids

Any bidder may withdraw his proposal, either personally or by facsimile or written request, at any time prior to the scheduled closing time for receipt of proposals.

Each proposal shall be considered binding and in effect for a period of ninety (90) days after the date of opening set forth in the advertisement.

## 1.3. Bid Opening

Bids will be opened and publicly read aloud at the time and place set forth in the Notice to Bidders.

## 1.4. Bid Form

1.4.1. Each bid shall be made on the form provided and, except for bids submitted via facsimile equipment, shall be submitted in a sealed envelope bearing the title of work and the name of the bidder, and shall be signed by an individual authorized to execute the proposal on behalf of the bidder.

1.4.2. Delivery of Proposals: Proposals shall be delivered by the time and to the place stipulated in the advertisement. It is the sole responsibility of the bidder to see that his bid is received in the proper time. Any bid received after the bid opening date and time shall be returned to the bidder unopened.

## 1.5. Bids Submitted via Facsimile Equipment

1.5.1. Transmittal page must be plainly marked and faxed to (269) 329-4535

“Sealed Bid \_\_\_\_\_ for opening \_\_\_\_\_”  
Bid Name Date

1.5.2. When bids are submitted via facsimile equipment, both the original document and the facsimile printout are counterpart originals.

1.5.3. Whenever a proposal guaranty/bond is required, bids submitted via facsimile equipment can comply with this provision by submitting a facsimile copy of the bond document. When a cashier's check is elected to meet the proposal guaranty/bond requirement, the cashier's check must be physically in the possession of the City by the date and time outlined on the Notice to Bidders, or such bid may be considered non-responsive.

1.5.4. In electing to use the facsimile option, the bidder assumes full responsibility for any and all errors, omissions, or mistakes that result in a bid not being submitted **in a timely manner, whether or not the mistake was the fault of the bidder.**

1.6. Basis of Award

Award will be made to a responsive and responsible bidder whose lowest Grand Total bid is determined by the City to be in the best interest of the City. No contract is created until it is executed by all parties

2. **TERMS AND CONDITIONS**

2.1. City Contract Administrator

The Director of Transportation & Utilities shall be the City Contract Administrator. The City Contract Administrator will approve payments, oversee schedules, and generally be responsible for overseeing the execution of the contract.

2.2. Laws and Municipal Ordinances

The Contractor shall be fully informed of all laws and municipal ordinances and regulations in any manner affecting those engaged or employed in the work, or the equipment and materials used in the work, and all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. The Contractor shall at all items observe and comply with all such existing laws, codes, ordinances, regulations, orders and decrees. In particular, all work shall be in compliance with the Laws of the State of Michigan, City Ordinances, as well as all other bodies having jurisdictional authority.

2.3. Contractor's Insurance

Proof of Insurance Coverage: The successful bidder will also be required to furnish to the City of Portage, at the time that the contracts are returned by the Contractor for execution, a Certificate of Insurance as well as any required endorsements. In lieu of required endorsements a copy of the policy sections where coverage is provided for additional insured and cancellation notice would be acceptable. Copies or certified copies of all policies mentioned below shall be furnished, if so requested.

If any of the coverages listed below expire during the term of this contract, the Contractor shall deliver renewal certificates and endorsements to the City of Portage at least ten (10) days prior to the expiration date.

All insurers shall be either licensed or authorized to do business in the State of Michigan.

- A. Workers compensation insurance, including employer's liability, under the Workers Compensation Statutes of the State of Michigan.

- B. Comprehensive General Liability Policy of at least \$1,000,000/occurrence for personal injury and property damage.
- C. Comprehensive Automobile Liability Policy of at least \$1,000,000 for bodily injury and property damage on any automobile

Additional Insured: These coverages shall protect the contractor, its employees, agents, representatives and subcontractors against the claims arising out of the work performed. The contractor's insurance policy shall be primary for the additional insured, and not excess over any policy held by the additional insured. The certificate of insurance must contain the following statement:

THE CITY OF PORTAGE, ALL ELECTED AND APPOINTED OFFICIALS, ALL EMPLOYEES AND VOLUNTEERS, ALL BOARDS, COMMISSION, AND/OR AUTHORITIES AND BOARD MEMBERS, INCLUDING EMPLOYEES AND VOLUNTEERS THEREOF (except for Workers Compensation).

Cancellation Notice All policies, as described above, shall include an endorsement stating it is understood and agreed that thirty (30) days Advanced Written Notice of Cancellation, Non-Renewal, Reduction, and/or Material Change of the policy, and Ten (10) days written notice for non-payment of premium, shall be sent to the City of Portage Purchasing Manager, 7900 S. Westnedge Avenue, Portage, MI 49002.

- 2.3.1. Subcontractor Insurance: It shall be the contractor's responsibility to provide similar insurance for each subcontractor, or to provide evidence that each subcontractor carries his own insurance in like amounts, prior to the time such subcontractor proceeds to perform under the contract.
- 2.3.2. Subcontractor Insurance: It shall be the contractor's responsibility to provide similar insurance for each subcontractor, or to provide evidence that each subcontractor carries his own insurance in like amounts, prior to the time such subcontractor proceeds to perform under the contract. Prior to commencement of the Work, the Contractor shall purchase and maintain during the entire term of the project such insurance as will protect the Contractor, the City, and the Engineer(s) from claims arising out of the Work described in this contract and performed by the Contractor, Subcontractor(s), or Sub-subcontractor(s).

#### 2.4. Non-Discrimination

The Contractor agrees to comply with the Federal Civil Rights Act of 1964 as amended; the Federal Civil Rights Act of 1991 as amended; the Americans With Disabilities Act of 1990 as amended; the Elliott-Larsen Civil Rights Act, Article 2, Act no. 453, Public Act of 1976 as amended; the Michigan Handicapper's Civil Rights Act, Article 2, Act. No. 220; Public Act of 1976, as amended and all other applicable Federal, State and Local laws and regulations. Specifically, contractors

and subcontractors are required not to discriminate against any employee or applicant for employment with respect to such person's hire, tenure, terms, conditions, or privileges of employment, or any matter directly or indirectly related to employment because of such person's height, weight, race, color, religion, national origin, ancestry, age, marital status, sex or disability, as defined by law. Breach of this covenant may be regarded as a material breach of the contract.

The City of Portage in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 USC 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Federally-assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of gender, disability, race, color or national origin in consideration for an award.

## 2.5. Indemnification

To the fullest extent permitted by Laws and Regulations, the Contractor, at its sole cost and expense, shall indemnify and hold harmless the City and its officers, directors, employees, agents and consultants (hereinafter referred to as "Indemnified Parties") from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or resulting from the performance of the Work or from the failure to comply with any covenant or term of the contract, provided that any such claim, cost, loss or damage: (i) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself), including the loss of use resulting therefrom or (ii) is caused in whole or in part by any act or omission of the Contractor, its agents, officers, contractors, subcontractors, employees, invitees, suppliers or any other person or entity, directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable. Provided, however, that the Contractor shall not be required to indemnify the Indemnified Party for injury, death, loss or damage caused by the sole negligence of the Indemnified Party. If such injury or damage is caused in whole or in part by the acts or omissions of the Indemnified Parties, then the indemnification obligation shall be reduced in proportion to the Indemnified Party's percentage of responsibility for such injury or damage.

In any and all claims against the City or any consultants, agents, officers, directors or employees of the City by any employee (or the survivor or personal representative of such employee) of the Contractor, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation above shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the

Contractor or any such Subcontractor, Supplier or other person or organization under workers' compensation Acts, disability benefit Acts or other employee benefit Acts.

Insurance coverage required by the contractor constitutes the minimum requirements and those requirements shall in no way lessen or limit the liability of the contractor under the terms of the contract. The contractor shall procure and maintain at contractor's own cost and expense any additional claims or amounts of insurance that, in the judgment of the City, may be necessary for contractor's proper protection in the prosecution of the work.

2.6. Jurisdiction Authority

This contract shall be governed by and construed according to the laws of the State of Michigan and the successful Contractor consents to the jurisdiction and venue of the courts in Kalamazoo County, Michigan and of the United States District Court for the State of Michigan.

2.7. Severability

The successful Contractor will agree that the Contract is the completed and exclusive statement of the Contract between the parties. A judicial or administrative declaration on the invalidity of any one or more of the provisions of the Contract shall not invalidate the remaining provisions of this agreement.

2.8. Compensation to be Paid to the Contractor

Payment will be made upon satisfactory completion of the work, net 30 days.

**3. SPECIFICATIONS**

3.1. Description

This work shall consist of furnishing traffic signal poles (Type II and Type III) and mast arms and incidental materials in accordance with these provisions and in reasonably close conformance with the lines, grades, and locations shown on the plans or as directed. The Contractor shall furnish all traffic signal pole and mast arm equipment and the related items necessary to satisfactorily complete the work indicated on the Plans and/or the Specifications.

3.2. Tests, Inspection And Sampling

3.2.1. Each steel pole is to be tested as necessary and inspected for conformance with these specifications before shipment.

3.2.2. Failure of any part of the pole assembly to meet the requirements of these specifications shall be cause for rejection. The City shall have the right to cull out and reject steel poles and/or parts for non-conformance with the

specification. The bidder shall replace any rejects at his own expense, including all handling and transportation charges.

3.3. Submittals

Each bidder shall submit with his bid one (1) copy of a detailed drawing and material list of the steel pole assemblies he will supply. Failure to submit the required information with the bid will result in the bid being evaluated on the basis of catalog information on file.

3.4. Warranty

The material shall be free from defects and workmanship under ordinary, normal and proper use and service, for a period of one (1) year after shipment from the factory.

3.5. Delivery

All materials shall be delivered to the City of Portage, 7719 South Westnedge Avenue, Portage, Michigan 49002 or as directed by its representative. The successful bidder shall be responsible for off-loading the equipment and stockpiling the equipment in an orderly fashion in a location determined by the City. The cost of transporting and off-loading the equipment shall be considered incidental to the cost of the mast arms and standards and included in the Grand Total.

3.6. Measurement and Payment

The work for furnishing traffic signal mast arms and pole support systems as described herein shall be measured and paid for at the contract lump sum price for following items.

<b>Mast Arm No.</b>	<b>Mast Arm Length (feet)</b>	<b>Pole Height</b>	<b>Mast Arm Category</b>	<b>Location</b>
1	50'	22'	II	S. Westnedge Ave./W. Milham Ave. NE Corner
2	60'	22'	II	S. Westnedge Ave./W. Milham Ave. SE Corner
3	60'	22'	II	S. Westnedge Ave./W. Milham Ave. NW Corner
4	60'	22'	II	S. Westnedge Ave./W. Milham Ave. SW Corner
5	40'	30'	III	Lovers Lane/Romence Road, SW Corner
6	35'	21'	III	S. Westnedge Ave./W. Centre Ave., SW Corner

**3.7. Special Provisions and Details are attached.**

**CITY OF PORTAGE  
 BID PROPOSAL**

I, the undersigned, propose to furnish and deliver to 7719 South Westnedge Avenue, Portage, Michigan at the bid price shown, four mast arms as per specifications supplied by the City of Portage.

ALL EXCEPTIONS TAKEN TO SPECIFICATIONS SUPPLIED BY THE CITY OF PORTAGE ARE ATTACHED ON SEPARATE PLAIN BOND PAPER OR NOTED IN RED ON THE SPECIFICATIONS.

<b>Mast Arm No.</b>	<b>Mast Arm Length (feet)</b>	<b>Pole Height</b>	<b>Mast Arm Category</b>	<b>Bid</b>
1	50 feet	22'	II	\$ _____
2	60 feet	22'	II	\$ _____
3	60 feet	22'	II	\$ _____
4	60 feet	22'	II	\$ _____
5	40 feet	30'	III	\$ _____
6	35 feet	21'	III	\$ _____
Grand Total				\$ _____

I further propose to deliver the above-described equipment FOB City of Portage in first class operating condition in accordance with all specifications contained herein subject to purchaser's inspection and approval not later than August 1, 2015.

TERMS: \_\_\_\_\_  
 (Minimum of 30 days, please  
 identify any discounts given)

FIRM NAME: \_\_\_\_\_

BY: \_\_\_\_\_  
 Signature

DATE: \_\_\_\_\_

BY: \_\_\_\_\_  
 Name and Title (print or type)

ADDRESS: \_\_\_\_\_  
 Street City State Zip Code

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

CITY OF PORTAGE  
SPECIAL PROVISION  
FOR  
**POWDER COATED TRAFFIC SIGNAL MAST ARM POLE AND MAST ARM**

ABONMARCHE:TRD

1 of 4

2/6/2015

**a. Description.** Furnish traffic signal mast arm poles, mast arms, and anchor bolts in accordance with MDOT specifications, details SIG-282-A, SIG-283-A, and SIG-284-A, and as specified herein. This special provision is for an anchor base type steel mast arm pole, including mast arms, and other associated hardware.

**b. Material.** Provide material in accordance with sections 707, 906, and subsection 105.10 of the MDOT Standard Specification for Construction and the requirements of this special provision.

Use ASTM A 595, Grade A, or ASTM A 572, Grade 50 steel, meeting a yield point of 55 ksi for the pole tube and arm tube. Use ASTM A 36 steel for base plates.

Hot-dip galvanize all steel after fabrication in accordance with ASTM A 123.

Provide high strength bolts, nuts and washers in accordance with Section 105.10, 906.07, 908.14A and 908.14B of the MDOT Standard Specifications for Construction.

**S. Westnedge Avenue/Milham Avenue**

LOCATION	CATEGORY	MAST ARM POLE	MAST ARM
Northeast Corner (MA-1)	II	22'	50'
Southeast Corner (MA-2)	II	22"	60'
Southwest Corner (MA-3)	II	22'	60'
Northwest Corner (MA-4)	II	22'	60'

**Lovers Lane/Romence Road Pkwy**

LOCATION	CATEGORY	MAST ARM POLE	MAST ARM
Southwest Corner (MA-5)	III	30'	40'

**S. Westnedge Avenue/W. Centre Avenue**

LOCATION	CATEGORY	MAST ARM POLE	MAST ARM
Southwest Corner (MA-6)	III	21'	35'

**c. Fabrication.** Fabricate and weld according to section 707, the Special Provision for Structural Steel and Aluminum Construction and AWS D1.1:2008

1. The pole tube and arm tube may have a uniform taper.

2. The pole tube and arm tube cannot have more than one longitudinal weld. Roll or grind flush the longitudinal weld. Transverse welds in the pole and arm are prohibited. Provide a pole tube that is one continuous length.
3. Attach the arm tube to a connection plate by a full penetration weld. Bolt the arm tube to the pole tube as shown on the plans. Control distortion of flange plates for flatness to assure full contact between mating surfaces in an unbolted, relaxed condition.
4. Use 10 percent magnetic particle testing for all longitudinal seam welds in accordance with ASTM E 709. Use 100 percent magnetic particle testing for all other welds.
5. Weld the longitudinal seam at arm lap joint using a full penetration butt weld, a minimum of 36 inches long. When erected and in final position, the lap of the arm tubes cannot extend beyond the butt weld.
6. Ultrasonically test full penetration butt welds of longitudinal seam welds in accordance with subsection 918.10 of the MDOT Standard Specifications for Construction. Except that for material thickness equal to or greater than 5/16 inch, the accept/reject criteria will be according to AWS Section 6.13 and Table 6.3.
7. Evenly space the pole base plate holes so the pole may be bolted to a concrete foundation as shown on the plans. Finish the lower surface of the base plate flat and at 90 degrees to the pole axis. Provide a clear opening of at least 6 1/2 inch diameter to allow entrance of cables from conduit into the foundation as shown on the plans.
8. Provide a handhole opening and cover. Weld a reinforcing frame to the pole for the handhole opening. Placing the handhole must not reduce the strength of the pole. Securely fasten the handhole cover using stainless steel hex head cap screws or by an approved locking device.
9. Provide a suitable pole top with means for securing it to the top of the pole.
10. Provide a hook or other suitable device for the support of cable on the inside of the pole near the top.
11. Weld a standard 1/2 inch nut to the inside of the pole so that it is readily accessible from the handhole, for grounding purposes.
12. Fabricate the arm to pole upright connection to compensate for mast arm deflection.
13. Show this detail on shop drawings for approval by the Engineer.

**d. Finish.**

- A. This specification sets forth the minimum acceptable standards for powder coat finishing in the colors of Federal Yellow, Gloss Black, Flat Black, and Green. These specifications shall be met as closely as possible when other colors are used. Suppliers of powder shall be required to state in writing that their powders are in compliance with this specification. **Color for this project shall be Gloss Black.**
- B. A major advantage of powder over liquid painting is the reduction in air pollution that results from elimination of volatile organic compounds associated with most liquid paints. Powder provides fewer finish quality variations, optimum coating thickness, an excellent balance of mechanical properties such as impact resistance, hardness and abrasion resistance, better edge covering protection, outstanding corrosion resistance and excellent resistance to weather and UV degradation.
- C. Exterior grade Polyester TGIC resin type designed to meet the most stringent exterior performance standards for the Architectural Industry, including the AAMA 605.2 performance requirements. Minimum cure cycle to be 400°F Peak Metal Temperature for 10 minutes.
- D. Relative (60 degrees) Gloss should be available at up to at least 90 points. Relative (60 degrees) Gloss reduction over a 60-month exposure period at Florida 45 degrees south shall not be greater than 50% as demonstrated by test data. Film should be 1.5 to 3.5 mils depending on color.
- E. The polymer technology used to produce the polyester resin must have proven 5-year Florida Weathering Data. Tests of individual formulations may use accelerated procedures including QUVB313, QUV340 and EMMAQUA.
- F. The Polyester TGIC resin will "pass" both 3000 hour salt spray tests delineated in ASTM #B1117 and AAMA 605.2 7.8.2. The resin shall also "pass" the humidity tests delineated in ASTM #D2247 and AAMA 605.2 7.8.1. Results for testing in accordance with the specifications noted below shall be as follows:

**Table 1 – Testing Requirements for Polyester TGIC Resin Finishes**

Condition	Pass With	AAMA 605.2#	ASTM#
Abrasion resistance	Coefficient 28	7/6/1	D968
Dry Adhesion	100% '5b'	7.4.1.1	D3359
Wet Adhesion	100% '5b'	7.4.1.2	-
Hardness	2H	7.3.1	D3363
Impact Direct	Up to 160#	7.5.1	D2794-67
Impact Reverse	Up to 160#	7.5.1	D2795-67

G. A 15 minute exposure to Muriatic acid per AAMA 605.2# 7.7.1 shall show no effect. A 24 hour exposure to mortar per AAMA 605.2# 7.7.2 shall show no effect. A color change less than DE2 will result from a 30 minute exposure to Nitric acid per AAMA 605.2# 7.7.3.

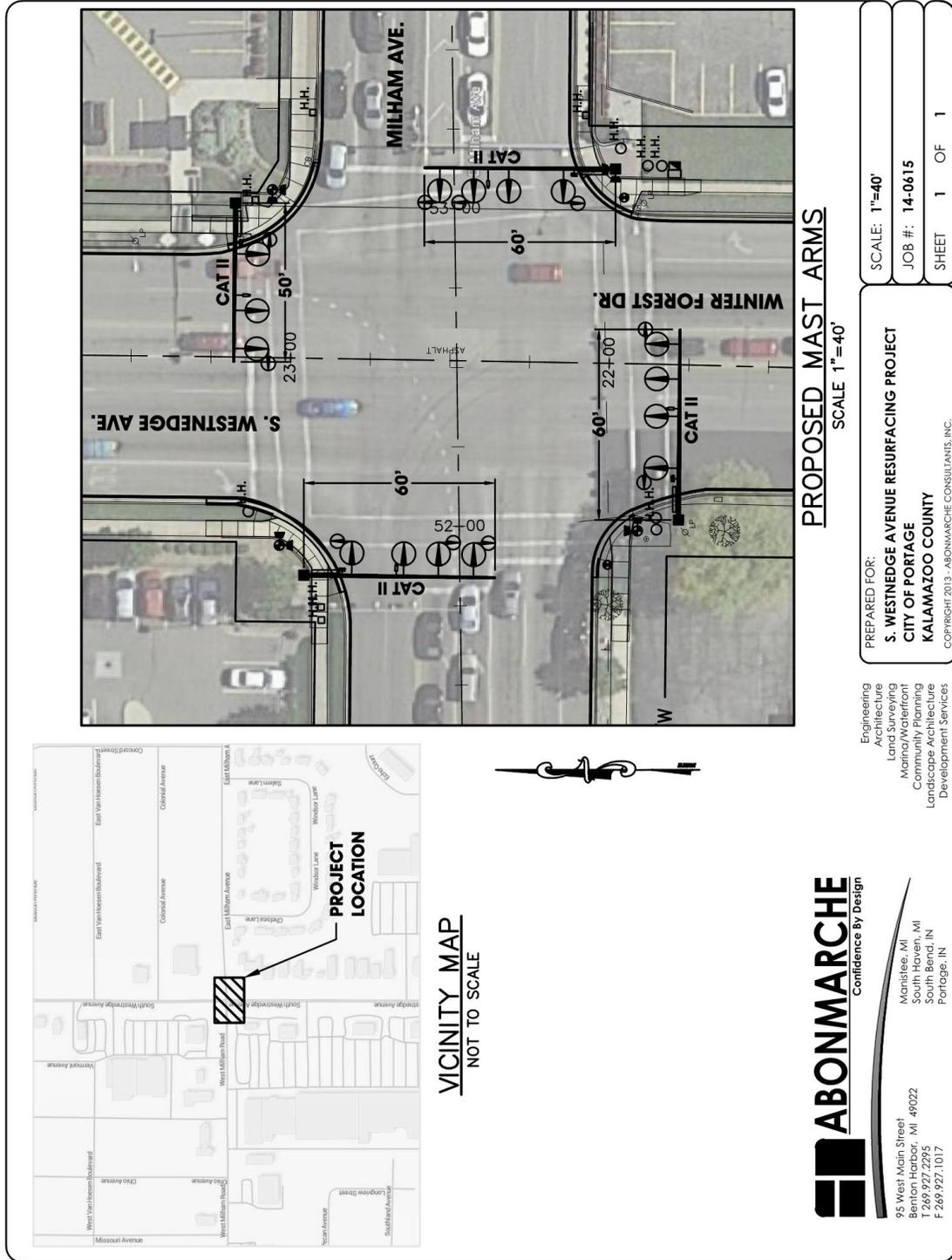
H. A five-stage (minimum for aluminum) cleaning, phosphatizing/etching and sealing process shall be required to ensure superior substrate pretreatment for optimum powder coating quality and performance. Non-Chrome conversion coating may be used.

**e. Delivery.** Deliver mast arm poles, mast arms, anchor bolts and hardware to the City of Portage Transportation and Utilities Department, 7719 South Westnedge Avenue, Portage, MI 49002, (269) 329-4422.

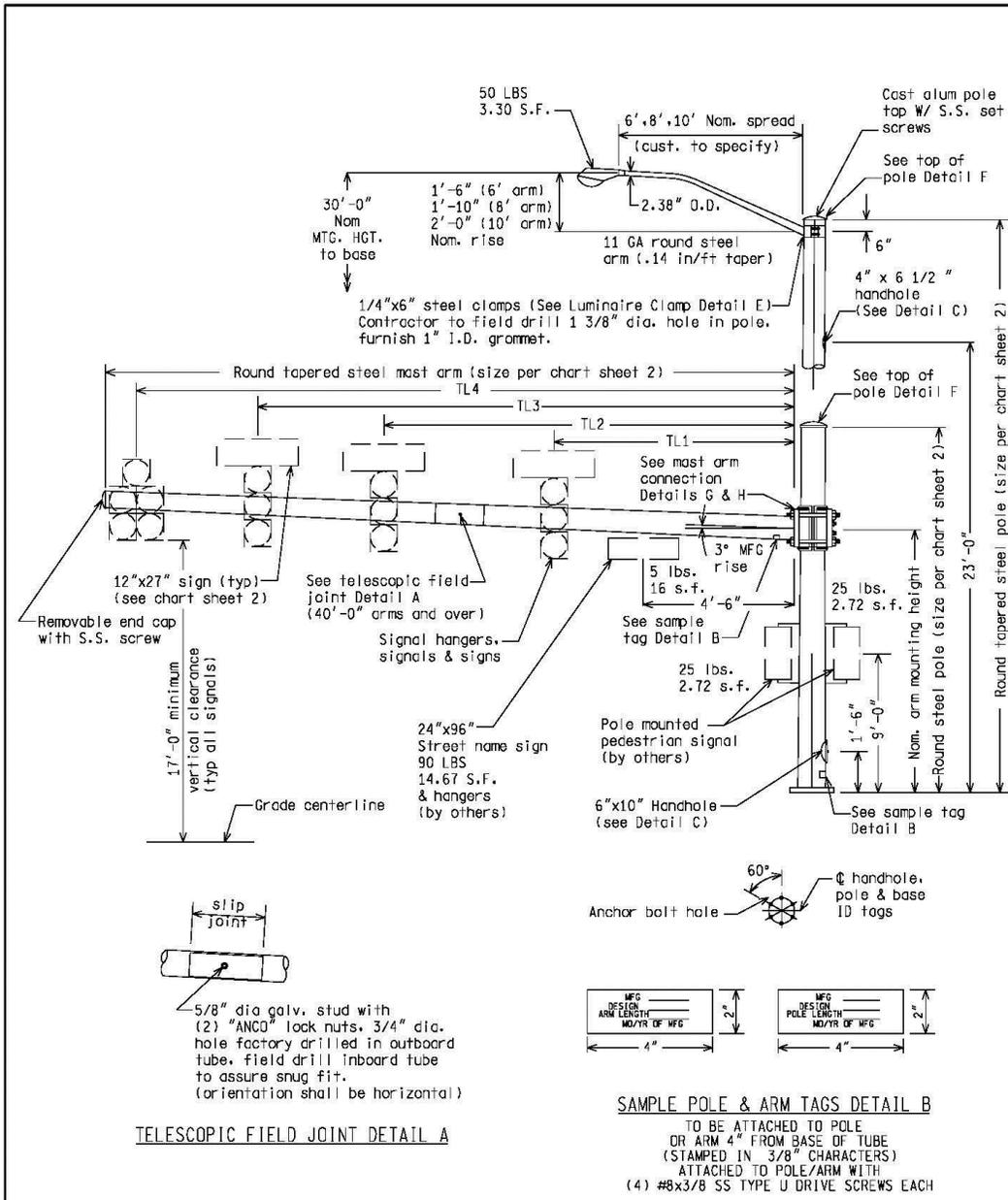
**f. Measurement and Payment.** The completed products, as described, will be paid for at the contract unit price using the following contract items (pay items):

<b>Contract Item (Pay Item)</b>	<b>Pay Unit</b>
Mast Arm Pole, Cat II, 22', Modified .....	Each
Mast Arm Pole, Cat III, 21', Modified .....	Each
Mast Arm Pole, Cat III, 30', Modified .....	Each
Mast Arm, 50 foot, Cat II, Modified .....	Each
Mast Arm, 60 foot, Cat II, Modified .....	Each
Mast Arm, 35 foot, Cat III, Modified .....	Each
Mast Arm, 40 foot, Cat III, Modified .....	Each

Note: Payment for anchor bolts and hardware shall be included in the unit price for **Mast Arm Pole, Cat \_\_, \_\_, Modified.**



E:\CIVIL\_3D\ENGR\_2014\14-0615 SOUTH WESTNEDGE.DWG (14-0615 R1.dwg, LOC MAP & SX11, 2/5/2015 5:27:20 PM, ddombos, 1:1)



TELESCOPIC FIELD JOINT DETAIL A

SAMPLE POLE & ARM TAGS DETAIL B  
 TO BE ATTACHED TO POLE  
 OR ARM 4" FROM BASE OF TUBE  
 (STAMPED IN 3/8" CHARACTERS)  
 ATTACHED TO POLE/ARM WITH  
 (4) #8x3/8 SS TYPE U DRIVE SCREWS EACH

NOT TO SCALE

File: PW:Doc/Ref Doc/T R/Signals/Web/Sp Det/Final Rev. 11/19/2013

	ENGINEER OF DELIVERY <hr/>	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR <b>TRAFFIC SIGNAL MAST ARM POLE          AND MAST ARM DETAILS - CATEGORY II</b>	
	PREPARED BY TRAFFIC AND SAFETY <hr/>	ENGINEER OF DEVELOPMENT (SPECIAL DETAIL) FHWA APPROVAL DATE	PLAN DATE
DRAWN BY: <hr/>			SHEET 1 of 4
CHECKED BY: <hr/>			

MAST ARM DATA		SIGNS AND SIGNALS						
SPAN	ARM SIZE	SLIP JOINT	MTC HT SINGLE	MTC HT TWIN	TL1	TL2	TL3	TL4
					DISTANCE / lbs/s.f.	DISTANCE / lbs/s.f.	DISTANCE / lbs/s.f.	DISTANCE / lbs/s.f.
					12"x27" SIGN	12"x27" SIGN	12"x27" SIGN	12"x27" SIGN
20'-0"	0.2500-8.50x5.70x22'-0"				---	17'-0"/40/8.67	20'-0"/40/8.67	---
25'-0"	0.2500-9.5x6.00x25'-0"				---	17'-0"/40/8.67	25'-0"/40/8.67	---
30'-0"	0.2500-10.5x6.50x30'-0"				---	22'-0"/40/8.67	30'-0"/40/8.67	---
35'-0"	0.4290-12.0x10.60x10'-0"	2'-0"	19'-0"	18'-6"	---	19'-0"/68/10.92	27'-0"/68/10.92	35'-0"/71/13.72
40'-0"	0.5000-12.0x10.60x10'-0"	2'-0"		21'-0"	---	24'-0"/68/10.92	32'-0"/68/10.92	40'-0"/71/13.72
45'-0"	0.5000-12.0x9.80x15'-0"	2'-0"			---	29'-0"/68/10.92	37'-0"/68/10.92	45'-0"/71/13.72
50'-0"	0.7500-12.0x9.20x20'-0"	2'-0"	19'-0"		---	34'-0"/68/10.92	42'-0"/68/10.92	50'-0"/71/13.72
					26'-0"/68/10.92			

TUBE TAPER = 0.1400 1in/ft

POLE SIZE	LUMINAIRE ARM	ARM SPAN
0E-14.00x10.92x22'-0"	NO	20', 25', 30'
0E-14.00x9.84x25'-0"	YES	35'
747E-14.00x10.92x22'-0"	NO	
747E-14.00x9.84x25'-0"	YES	40', 45'
343E-14.00x10.92x22'-0"	NO	
343E-14.00x9.84x25'-0"	YES	50'

NOTE: ONLY USE THE MAST ARM SPANS WITH POLE SIZES AS INDICATED IN CHART.

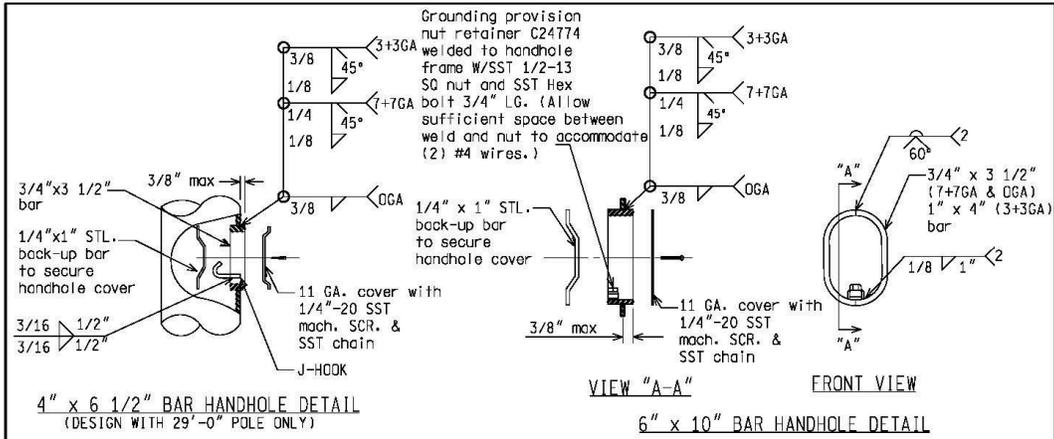
MATERIAL SPECIFICATION
TUBES
ASTM-A336 GR. A
ASTM-A336 MIN. YIELD 45 KSI
LUMINAIRE ARM TUBE
ASTM-A336
LUMINAIRE ARM CLAMP
ASTM-A336
MAST ARM CLAMP
ASTM-A336
PLATE
ASTM-A336
ANCHOR BOLTS, NUTS AND WASHERS
SEE STANDARD SPEC 908.14.A & B
HAND-TOE FRAME
ASTM-A336 GR. 50
OR ASTM-A572 GR. 50
OR ASTM-A108 GR. 50
LIFTING PIPE
ASTM-A53 GR. B OR A501
HAND-TOE COVER
C1010 STEEL
POLE TOP
ASTM-B26 (356F OR 43)
ST. STEEL HARDWARE
AISI-300 SERIES (1.8-8)
LUM. ARM F.L.G. BOLTS
ASTM-A325
MAST ARM STUDS
ASTM-A449
"PANKO" LOCK NUTS OR EQUIVALENT
ASTM-A663 GR. DH
STRUCTURE FINISH
H.D. GALV. ASTM-123
HARDWARE FINISH
H.D. GALV. ASTM-A153
LOCK WASHERS
ASTM-F436
BOLT & NUT OVER 1/2" DIA. GALV.
ASTM-A153
BOLT & NUT UNDER 1/2" ST. STEEL
AISI-300 SERIES

DESIGN CRITERIA  
 DESIGNED ACCORDING TO THE 2001 ASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS FOR 90 M.P.H. WIND LOAD AND CATEGORY II WITH GALLOPING, NATURAL WIND GUSTS, AND TRUCK INDUCED FATIGUE LOADS.

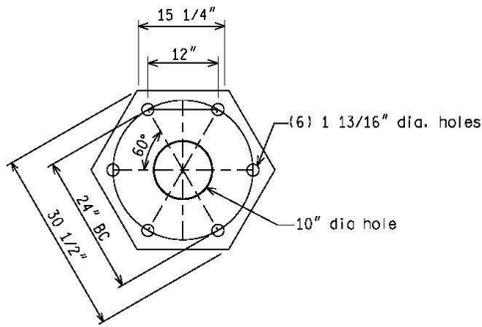
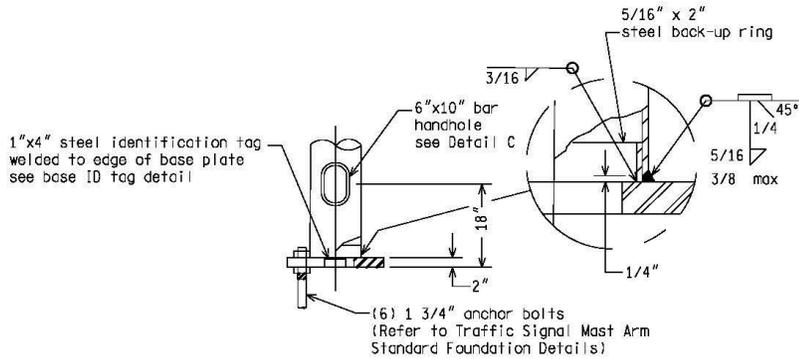
CATEGORY II

NOT TO SCALE

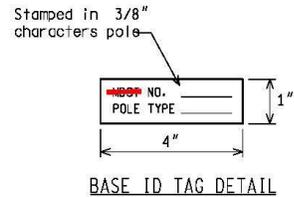
MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN	(SPECIAL DETAIL) FHWA APPROVAL DATE	SIG-282-A	SHEET 2 of 4
File: PW:Doc/Ref Doc/T R/Signals/Web/Sp Def/F Incl	Rev: 11/19/2013	PLAN DATE	



HANDHOLE DETAIL C



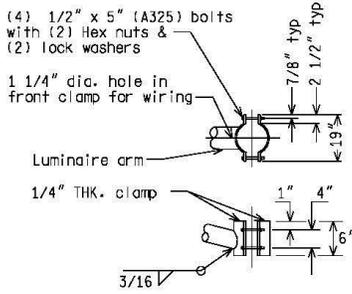
BASE DETAIL D



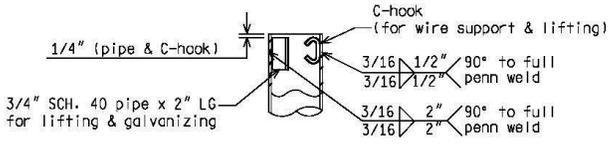
CATEGORY II

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN	(SPECIAL DETAIL) FHWA APPROVAL DATE	PLAN DATE	SIG-282-A	SHEET 3 of 4
File: PW:Doc/Ref Doc/T R/Signals/Web/Sp Det/Final	Rev. 11/19/2013			

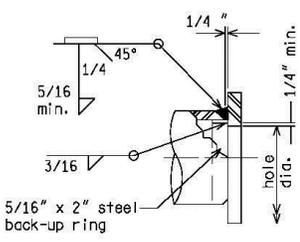
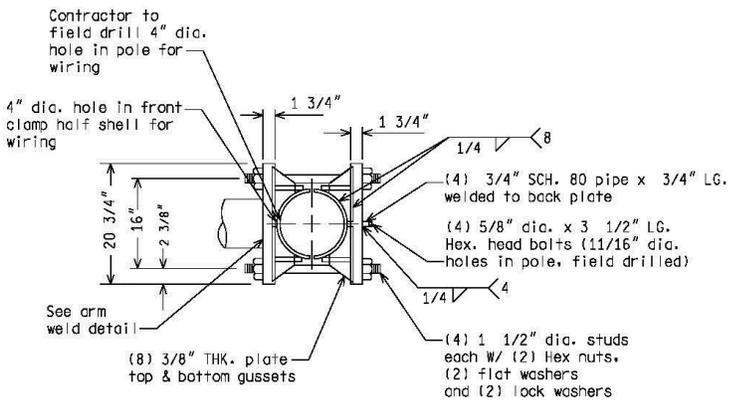


LUMINAIRE CLAMP DETAIL E

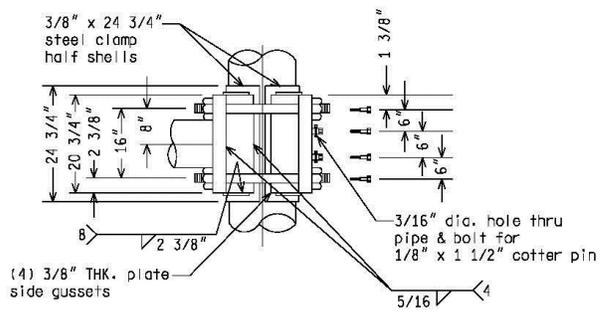


Orientation of pipe 180° from H.hole at base & C-hook opposite pipe  
 Note seam welds should be 90° ± from handhole at base

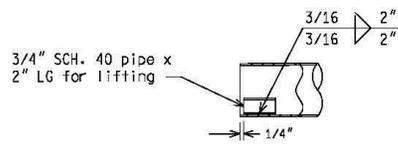
TOP OF POLE DETAIL F



ARM WELD DETAIL G

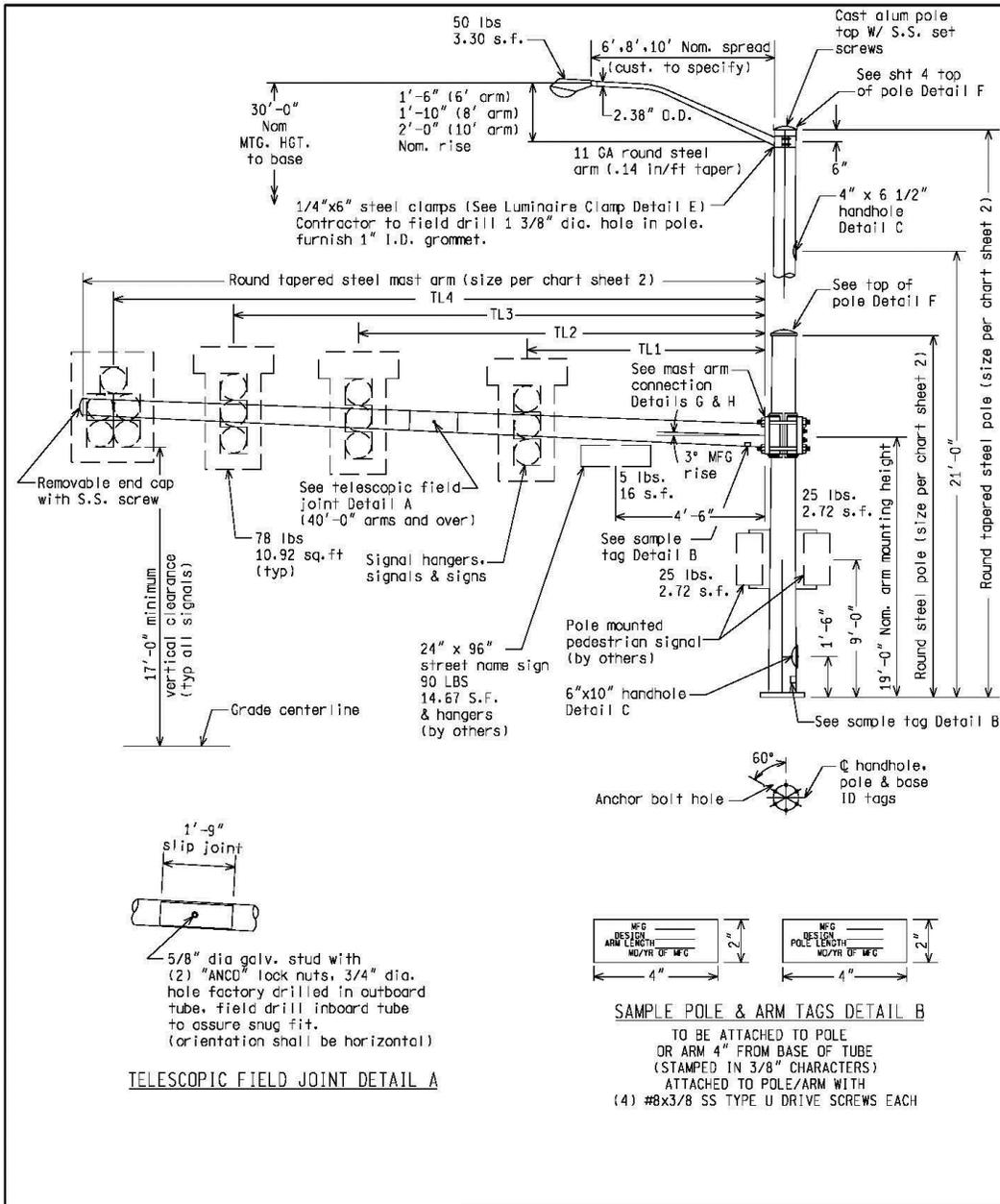


MAST ARM CLAMP DETAIL H



INBOARD ARM END SECTION DETAIL I

NOT TO SCALE		CATEGORY II	
MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN	(SPECIAL DETAIL) FHWA APPROVAL DATE	PLAN DATE	SHEET 4 of 4
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NOT TO SCALE

File: PW:Doc/R Doc/Traf Ref/Signals/Web/Sp Det/Final Rev. 11/19/2013

<p>PREPARED BY TRAFFIC AND SAFETY</p>	ENGINEER OF DELIVERY	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR <b>TRAFFIC SIGNAL MAST ARM POLE          AND MAST ARM DETAILS - CATEGORY III</b>	
	ENGINEER OF DEVELOPMENT (SPECIAL DETAIL) FHWA APPROVAL DATE	PLAN DATE	SIG-283-A
DRAWN BY:			SHEET 1 of 4
CHECKED BY:			

MAST ARM DATA		SIGNS & SIGNALS				
SPAN	ARM DIMENSIONS	TL1	TL2	TL3	TL4	SL
20'-0"	0.2500-8.00x5.20x20'-0"	8'-0"	20'-0"	----	----	4'-6"
25'-0"	0.2500-8.00x4.50x25'-0"	13'-0"	25'-0"	----	----	4'-6"
30'-0"	0.2500-8.00x3.80x30'-0"	18'-0"	30'-0"	----	----	4'-6"
35'-0"	0.2500-9.00x4.10x35'-0"	23'-0"	35'-0"	----	----	4'-6"
40'-0"	0.2500-11.00x5.40x40'-0"	16'-0"	28'-0"	40'-0"	----	4'-6"
45'-0"	0.3125-11.00x8.66x16'-9"	21'-0"	35'-0"	45'-0"	----	4'-6"
50'-0"	0.3125-11.00x8.66x16'-9"	14'-0"	26'-0"	38'-0"	50'-0"	4'-6"

TUBE TAPER = 0.1400 In/ft

DESIGN CRITERIA  
 DESIGNED ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL  
 STEEL FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS FOR 50 MPH WIND  
 LOADS CATEGORY III WITH GALLUPLING, NATURAL WIND GUSTS, AND TRUCK INDUCED  
 FATIGUE LOADS.

LUM. SPAN	POLE SIZE
6'-0"	0.3125-14.00x11.06x21'-0"
8'-0"	0.3125-14.00x9.80x30'-0"
10'-0"	0.3125-14.00x8.96x36'-0"
24'-0"	0.3125-14.00x8.40x40'-0"

LUM. SPAN	POLE SIZE
6'-0"	0.3125-14.00x11.06x21'-0"
8'-0"	0.3125-14.00x9.80x30'-0"
10'-0"	0.3125-14.00x8.96x36'-0"
24'-0"	0.3125-14.00x8.40x40'-0"

	MATERIAL SPECIFICATION
TUBES 24' LUM ARM	ASTM-A595 GR. A
LUMINAIRE ARM TUBE	ASTM-A36 MIN. YIELD 45 KSI
LUMINAIRE ARM CLAMP	ASTM-A36
MAST ARM CLAMP	ASTM-A36
PLATE	ASTM-A36
ANCHOR BOLTS, NUTS AND WASHERS	SEE STANDARD SPEC 908.14.A & B
HANDHOLE FRAME	ASTM-A36 (356F OR 43) OR ASTM-A572 GR. 50 OR ASTM-A709 GR. 50
LIFTING PIPE	ASTM-A53 GR. B OR A501
HANDHOLE COVER	C1010 STEEL
POLE TOP	ASTM-A36 (356F OR 43)
ST. STEEL HARDWARE	AISI-300 SERIES (18-8)
LUM. ARM FLG. BOLTS & NUTS	ASTM-A325
MAST ARM CONN. STUDS	ASTM-A449
ANCO LOCK NUTS	ASTM-A563 GR. DH
STRUCTURE FINISH	H.D. GALV. ASTM-123
HARDWARE FINISH	H.D. GALV. ASTM-A153
FLAT WASHERS	ASTM-F436
LOCK WASHERS	ANSI B18-21.1
BOLT & NUT OVER 1/2" DIA. GALV.	ASTM-A153
BOLT & NUT UNDER 1/2" ST. STEEL	AISI-300 SERIES

CATEGORY III

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
 BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

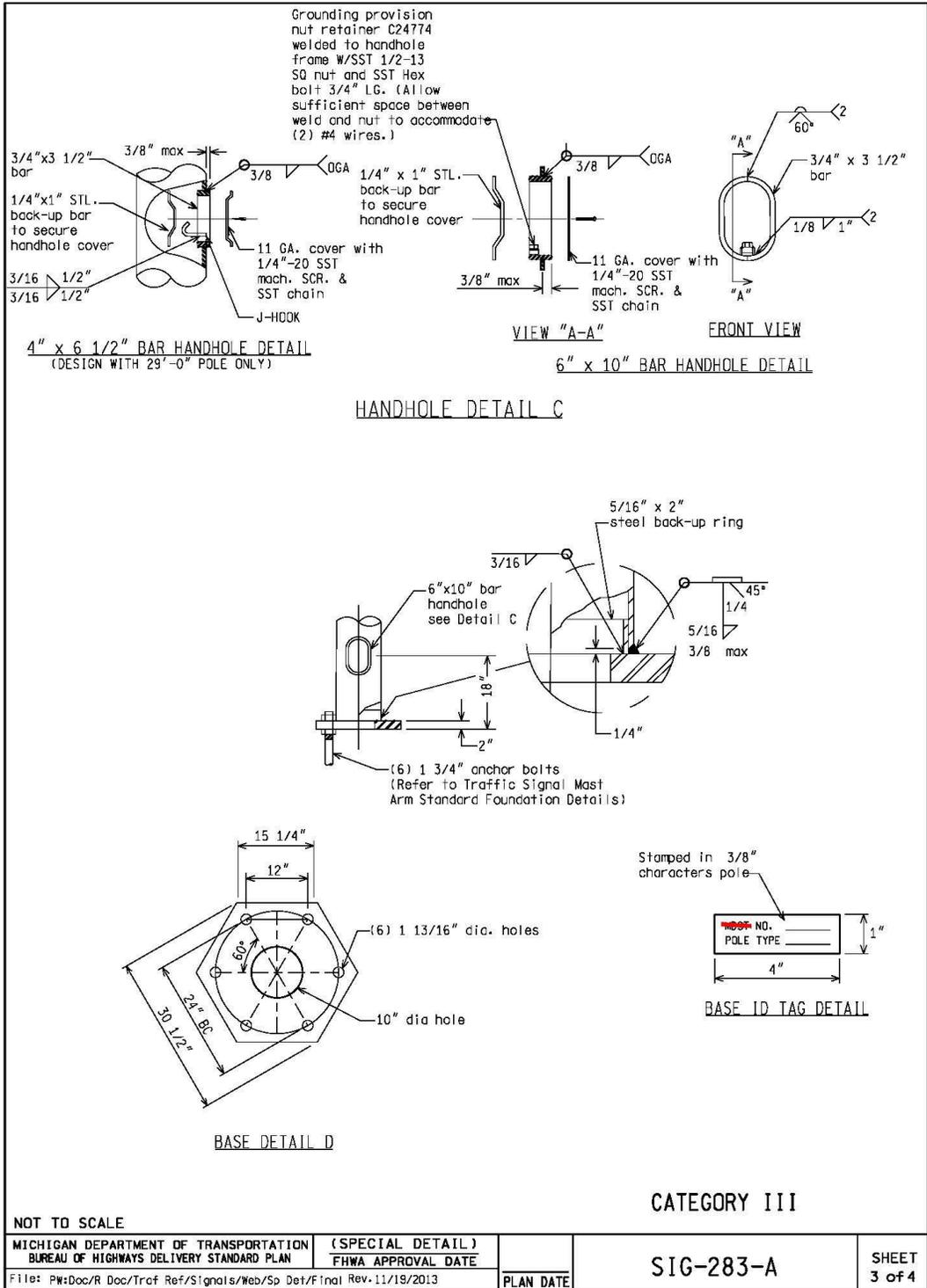
(SPECIAL DETAIL)  
 FHWA APPROVAL DATE

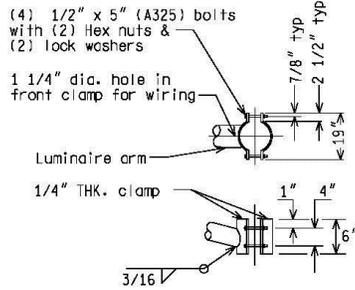
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PLAN DATE

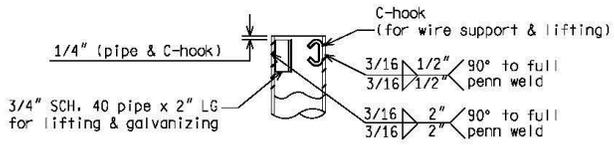
SIG-283-A

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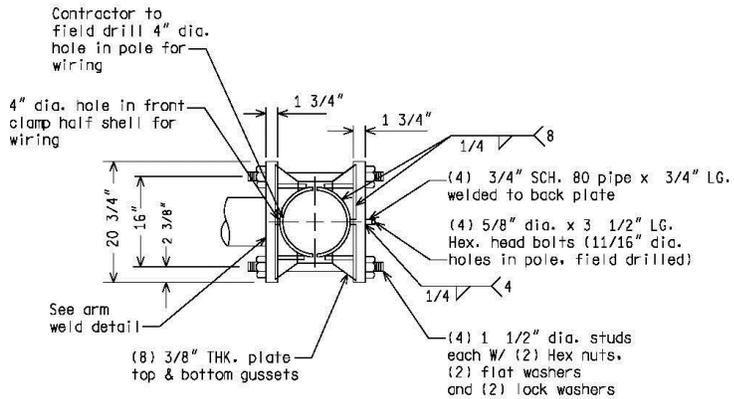


LUMINAIRE CLAMP DETAIL E

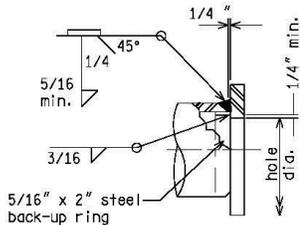


ORIENTATION OF PIPE 180° FROM H. HOLE AT BASE  
& C-HOOK OPPOSITE PIPE  
NOTE SEAM WELDS SHOULD BE 90° ± FROM HANDHOLE AT BASE

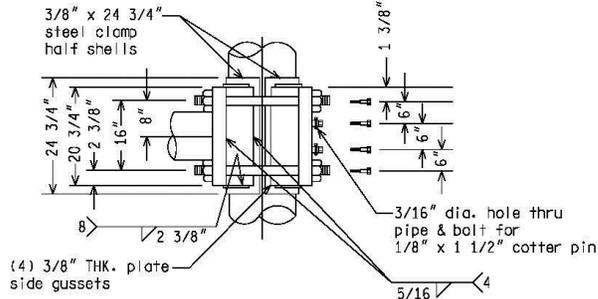
TOP OF POLE DETAIL F



MAST ARM CLAMP DETAIL H



ARM WELD DETAIL G



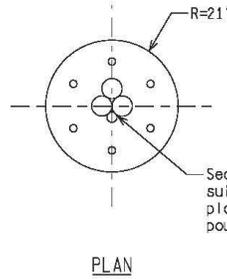
INBOARD ARM END SECTION DETAIL I

CATEGORY III

NOT TO SCALE					
MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN		(SPECIAL DETAIL) FHWA APPROVAL DATE		PLAN DATE	
File: PW:Doc/R Doc/Traf Ref/Signals/Web/Sp Det/Final Rev. 11/19/2013				SIG-283-A	
				SHEET 4 of 4	

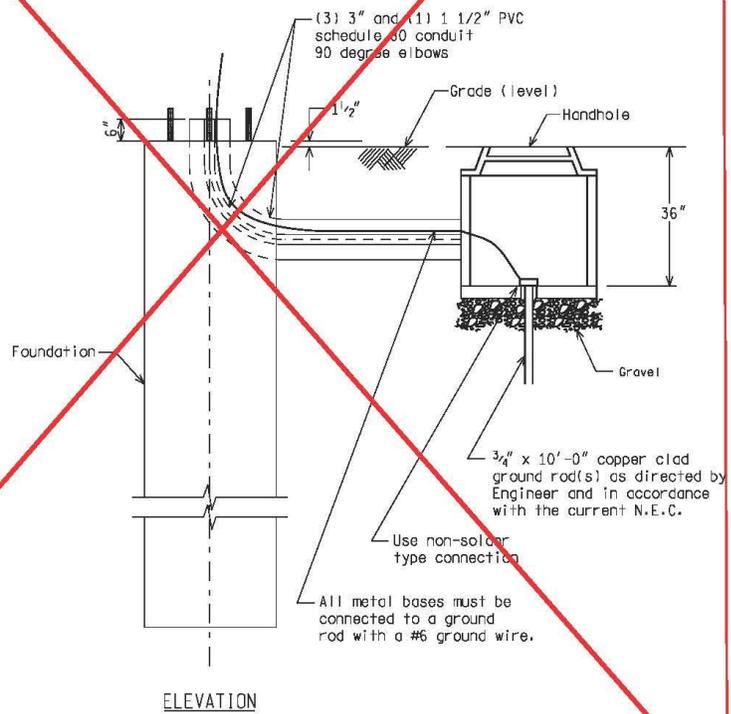
**NOTES:**

- 1) All ground rods shall be 3/4"x10' copper clad rod a minimum of 2 ground rods shall be used (one for the service disconnect and one for the messenger cable & pole).
- 2) Ground rod placement shall not be less than 12" from the foundation with a minimum of 6' between ground rods. Placement shall be as directed by the Engineer and in compliance with N.E.C.
- 3) Ground wire connection to grounding rod(s) shall utilize a non-solder type connection.
- 4) Indicate the direction of conduits in foundation top with an arrow.
- 5) Install pole that the foundation & anchor bolts are plumb.
- 6) All grounds shall provide less than 10 ohm resistance to ground.



Secure conduits together with suitable banding to insure placement prior to concrete pour.

PLAN



ELEVATION

**MAST ARM FOUNDATION CONDUIT AND GROUNDING**

**PROVISION OF ANCHOR BOLTS ONLY**

NOT TO SCALE

File:PW:RD/TR/Signals/Web/Statewide SD/Final Rev. 11/19/13



PREPARED BY  
TRAFFIC AND SAFETY

DRAWN BY:  
CHECKED BY:

ENGINEER OF DELIVERY

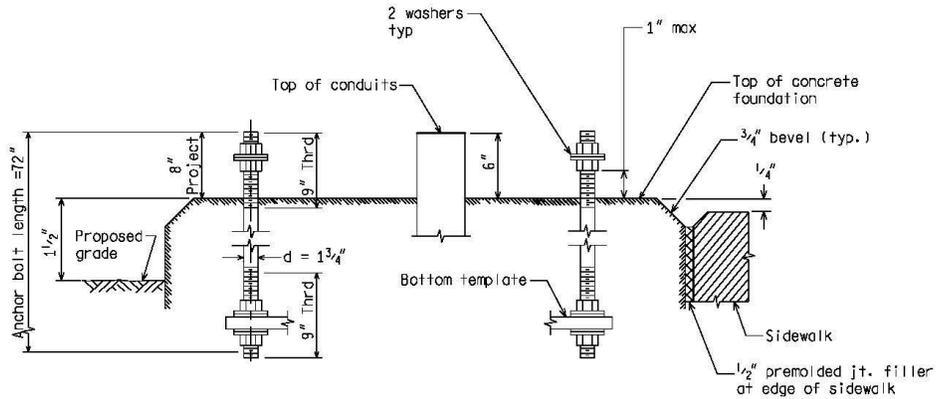
ENGINEER OF DEVELOPMENT  
(SPECIAL DETAIL)  
FHWA APPROVAL DATE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR  
**TRAFFIC SIGNAL MAST  
ARM STANDARD FOUNDATIONS**

PLAN DATE

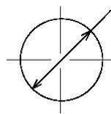
SIG-284-A

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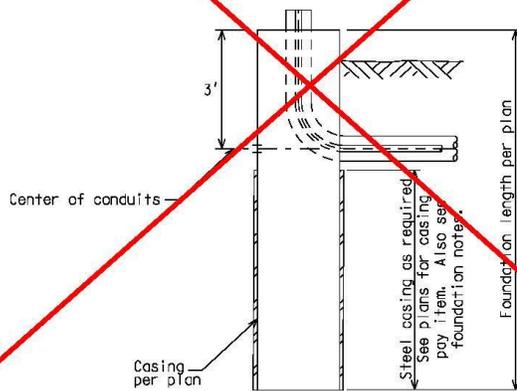
ANCHOR BOLTS

NOTE:  
Trench for placement of conduits after casing is in place and before dewatering.



If required, smooth walled steel casing outside diameter to meet or exceed 42" foundation diameter. Casing thickness to be determined by contractor.

PLAN



ELEVATION

DRILLED FOUNDATION SHAFT (SHOWN WITH CASING PAY ITEM)

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

(SPECIAL DETAIL)  
FHWA APPROVAL DATE

Rev. 11/19/13

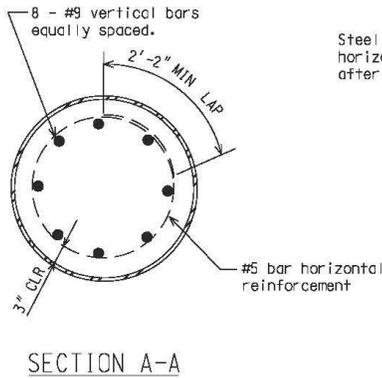
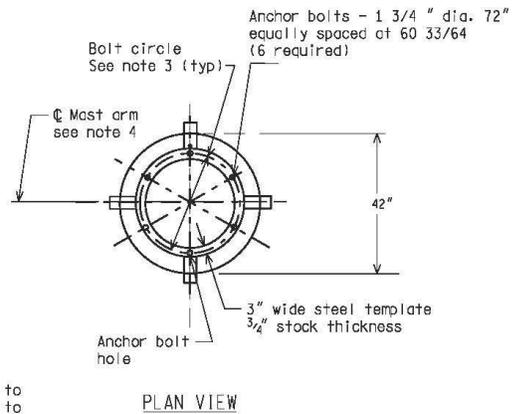
PLAN DATE

SIG-284-A

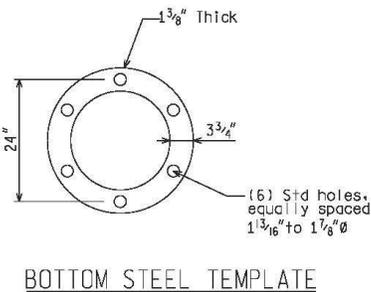
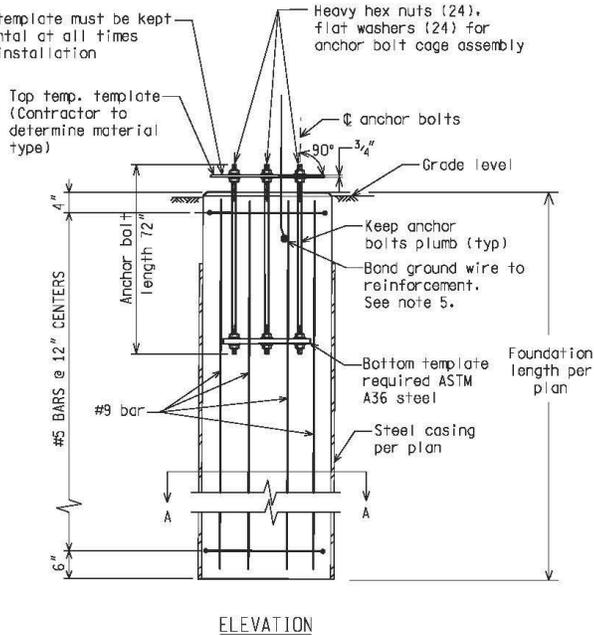
SHEET  
2 of 4

NOTES:

- Anchor bolts shall be set and held vertical at the correct location and at the proper elevation with a 3/4" steel (or approved equal) template a minimum of 24 hours after the concrete placement has been completed.
- (6) 1 3/4" - 72" Anchor bolts with (4) Hex nuts and (4) washers per bolt.
- 24" dia bolt circle for Category I, Category II, and Category III Mast Arms.
- Mast arm orientation is not dependent on anchor bolt position.
- Use #4 AWG or larger standard bare ground wire bonded by mechanical connection to foundation reinforcing steel and having 24" of slack above the top of foundation.
- Galvanize all exposed nuts, bolts, and washers according to ASTM F2329. Galvanize all other steel items according to ASTM A123. Embedded nuts, bolts, washers, and steel ring need not be galvanized.



Steel template must be kept horizontal at all times after installation



MAST ARM FOUNDATION  
(SHOWN WITH CASING PAY ITEM)

PROVISION OF ANCHOR BOLTS ONLY

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN	(SPECIAL DETAIL) FHWA APPROVAL DATE	PLAN DATE	SIG-284-A	SHEET 3 of 4
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Foundation Notes:

1. Refer to the following special provisions related to 6 anchor bolt mast arm poles:  
 Traffic Signal Mast Arm Pole and Mast Arm  
 Mast Arm Pole Foundation and Anchor Bolts  
~~Casing Used With Casing Poles and Mast Arm Poles~~
  - X Templates shall be shop fabricated and assembled prior to being approved by MDOT for shipping.
  - X Diameter of bolt holes in template shall be 1/16 " larger than anchor bolt diameter.
  - X Conduits and anchor bolts shall be rigidly installed before concrete is placed. The center of the template shall coincide with the center of the foundation. The template and handles shall be well supported, horizontally level and firmly anchored in place a minimum of 24 hours after the concrete placement is completed.
  - X Due care shall be taken during the concrete placement to avoid displacing the anchor bolts.
  - X No hammering on the anchor bolts or template will be allowed.
  - X After template is removed, thread nuts on to the bolt flush with the bolt end to protect threads until signal support is erected.
  
8. For anchor bolt material refer to section 908.14 A and B of the Michigan Standard Specifications for Construction. For anchor bolt installation and tightening refer to section 810.03 N.
  - X Dewatering of wet shafts is not allowed. A wet shaft is defined as having more than 3 inches of standing water or as having water infiltrating at a rate equal to or exceeding 12 inches per hour. For wet shafts, concrete is to be placed in accordance with section 718.03, (wet construction method) with a tremie tube or concrete pump beginning at the shaft bottom. Grade T concrete must be used for underwater placement. Grade S2 may be used in dry excavations only. See MDOT standard specifications Tables 701-1A and 701-1B (Concrete Structure Mixtures).
  - X Per MDOT standard specifications 718.02, the Grade S2 acceptable slump range is 6-8 inches. The Grade T acceptable slump range is 7-9 inches.
  - X If soil conditions indicate there is no need for a casing pay item as shown on the plans, the contractor should request permission of the engineer to install the foundation without casing.
  - X When the casing pay item is included on the plans for a foundation (due to granular soils or a wet hole), steel casing (smooth walled) is to be installed to enable the foundation to be poured. The thickness of the steel is to be determined by the contractor. The steel casing shall be left in place. A suitable method of compaction must be employed to ensure the soil immediately outside the casing is compacted properly.
  - X When the casing pay item is called for on the plans, the steel casing may stop at the conduit entrance to foundation. Top of foundation must then be formed separately. The casing pay item quantity will be paid for based on actual linear feet installed.
  - X Construct mast arm foundations, according to subsections 718.03 of the Standard Specifications for Construction. All work and materials shall be in accordance with the MDOT Standard Specifications.
  - X Steel reinforcement shall be ASTM A615 grade 60 without epoxy coating.
  - X Exposed concrete surfaces shall be cast in forms. Exposed concrete edges shall be beveled 3/4".
  - X Steel reinforcement shall have a clear cover of 3 inches unless noted otherwise. Steel Reinforcement may be adjusted to ensure proper clear cover.
  - X Grounding of pole includes adding #4 bare copper ground wire bonded by mechanical connection to foundation reinforcing steel and having 24" of slack above the top of foundation.

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN	(SPECIAL DETAIL) FHWA APPROVAL DATE	Rev. 11/19/13	PLAN DATE	SIG-284-A	SHEET 4 of 4
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## *DRAFT CONTRACT AGREEMENT*

Following is a “*draft copy*” of the contract that will be executed by the City and the Firm for the completion of this project.

**CITY OF PORTAGE**  
**CONTRACT**

THIS CONTRACT made the \_\_\_\_ day of \_\_\_\_\_, 2015, by and between \_\_\_\_\_ hereinafter called the "Contractor," and the City of Portage, 7900 South Westnedge Avenue, Portage, Michigan 49002, hereinafter called the "City."

WITNESSETH, THAT the Contractor and the City for the consideration stated herein agree as follows:

**ARTICLE I - SCOPE OF WORK**

The Contractor shall perform everything to be performed and shall provide and furnish all of the labor, materials, necessary tools, expendable equipment, and all utility and transportation services required to perform and complete in a workmanlike manner all the work required for traffic signal mast arms all in strict accordance with the Plans and Specifications, including any and all addenda, which plans and specifications are made a part of this contract, and in strict compliance with the Contractor's proposal and other contract documents herein mentioned which are a part of this contract; and the Contractor shall do everything required by this contract and the other documents constituting a part hereof.

**ARTICLE II - COMPENSATION TO BE PAID TO THE CONTRACTOR**

In consideration of the completion of the work described herein and in fulfillment of all stipulations of this contract to the satisfaction and acceptance of the City, the City shall pay and the said Contractor further agrees to receive and accept payment based on the prices for material and labor as set forth in the conformed copy of the Contractor's proposal as filed with the City on the \_\_\_\_\_ day of \_\_\_\_\_ the sum of which shall not exceed:

\_\_\_\_\_ \$ \_\_\_\_\_  
(amount in words) (in figures)

as full compensation for furnishing all the equipment and materials, and for the costs of all premiums on insurance and bonds and for doing all the work contemplated and specified in this contract; also for all loss or damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same; and for all risks of every description connected with the work; and for well and faithfully completing the work and the whole thereof, in full compliance with the Plans and Specifications and the requirements under them. Payments are to be made to the Contractor in accordance with and subject to the provisions embodied in the contract documents hereto attached

**ARTICLE III - ASSIGNMENT AND SUBCONTRACTORS**

The Contractor agrees to perform the work included in Article I using his employees. No work required under this contract shall be subcontracted or otherwise assigned to another party without the expressed written consent of the City.

ARTICLE IV - COMPONENT PARTS OF THIS CONTRACT

This contract consists of the following component parts, all of which are as fully a part of this contract as if herein set out verbatim, or, if not attached, as if hereto attached.

1. Contract (this document)
2. Contractor's Proposal (or bid)
3. Supplementary Conditions
4. Notice to Bidders
5. Specifications
6. Special Provisions
7. Details

In the event that any provision in any of the above component parts of this contract conflicts with any provision in any other of the component parts, the provision in the component part first enumerated above shall govern over any other component part which follows it numerically, except as may be otherwise specifically stated.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed in four original counterparts the day and year first above written.

(SEAL)

CONTRACTOR

Attest:

\_\_\_\_\_

By: \_\_\_\_\_  
Signature

\_\_\_\_\_   
Print name and Title

\_\_\_\_\_   
Print Name and Title

(SEAL)

CITY OF PORTAGE

Attest:

\_\_\_\_\_

By: \_\_\_\_\_  
Laurence Shaffer, City Manager

Approved as to Form:

\_\_\_\_\_   
Randall L. Brown, Portage City Attorney

INSTRUCTIONS FOR EXECUTING CONTRACT WITH CITY OF PORTAGE

A. **If the contractor is a corporation, the following certificate must be executed:**

I, \_\_\_\_\_, certify that I am the Secretary of  
print or type name  
the corporate entity named as Contractor in the contract and that such corporate entity is a corporation  
in good standing in the State of \_\_\_\_\_ and has authority  
print or type name of state  
to transact business in the State of Michigan. I certify that the contract between the City of Portage  
and \_\_\_\_\_, Inc. was validly executed on behalf of the  
print or type name of corporation  
corporation by \_\_\_\_\_ who was then the \_\_\_\_\_  
print or type name print or type name of title  
of said corporation and has the authority to bind the corporation to the contractual agreements pursuant  
to the authority of its governing body and by-laws and is within the scope of its corporate powers.

\_\_\_\_\_  
Print or type name of corporation

Dated: \_\_\_\_\_, 20\_\_\_\_ By: \_\_\_\_\_  
Its: \_\_\_\_\_

B. **If contractor is an LLC, the following certificate must be executed:**

I, \_\_\_\_\_, certify that I am a member of the  
print or type name  
Limited liability company named as Contractor in the contract and that such LLC is in good standing  
in the State of \_\_\_\_\_ and that the LLC has the  
print or type name of state  
authority to transact business in the State of Michigan. I certify that the contract between the City of  
Portage and \_\_\_\_\_ LLC was validly executed on behalf  
print or type name of LLC  
of the LLC by \_\_\_\_\_ who was then a member of said  
print or type name  
LLC and has the authority to bind the LLC to contractual agreements and that such contract is within  
the scope of its powers.

\_\_\_\_\_  
Print or type name of LLC

Dated: \_\_\_\_\_, 20\_\_\_\_ By: \_\_\_\_\_  
Its: \_\_\_\_\_

**C. If the contractor is a sole proprietorship/partnership, the following certificate must be executed:**

I, \_\_\_\_\_, certify that I am the  
owner/partner of the company named as Contractor in the contract and that I have the authority to bind  
\_\_\_\_\_ , to contractual  
agreements.

\_\_\_\_\_  
Print or type name of company/DBA

Dated: \_\_\_\_\_, 20\_\_\_\_ By: \_\_\_\_\_  
Its: \_\_\_\_\_

Notes to Certificate:

1. The full name and business address of the Contractor must be inserted in the contract and the contract must be signed with his/her official signature. The name of the signing party or parties are to be typewritten or printed under all signatures of the contract.
2. If the contract is signed by the secretary of the corporation, the above certificate must be executed by some other officer of the corporation, under the corporate seal. In lieu of the foregoing certificate, there may be attached to the contract copies of so much of the records of the corporation and will show the official character and authority of the officers signing, duly certified by the secretary or assistant secretary under the corporate seal to be true copies.
3. If the Contractor is operating as a partnership, each partner must sign the contract, or if not signed by each partner, there must be attached to the contract a duly authenticated power of attorney evidencing the signer's (signers') authority to sign such contract and on behalf of the partnership.
4. If the Contractor is an individual, the trade name (if the Contractor is operating under a trade name) must be indicated in the contract and the contract must be signed by such individual. If signed by someone other than the Contractor, there must be attached to the contract a duly authenticated power of attorney evidencing the signer's authority to execute such contract for and in behalf of the Contractor.
5. If an LLC, the contract must be signed by a member of the LLC. If signed by someone other than the member, there must be attached to the contract the duly authenticated power of attorney evidencing the signer's authority to execute such contract for and on behalf of the contractor.