

06-JAN-2023
TM656.dgn

GENERAL NOTES

1. Signal supports shall be designed in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals LRFD 1st edition with 2017 and 2018 interim revisions.

2. All traffic signal supports shall conform to the design criteria and details shown on these drawings except as approved by the Engineer.

3. The design basic wind speed (3 second gust) shall be 145 mph, gust factor $G = 1.14$, 50 year recurrence, Fatigue Category I, no galloping, and truck speed = 65 mph.

4. The design service basic wind speed (3 second gust) shall be 91 mph.

5. Signal poles from this standard are not allowed over highways I-5, I-84, I-205, I-405, US 26 (Sunset Hwy) between milepoints 64.3 – 73.0, I-105, and I-82.

6. Pole and arm shafts must be round. Dimensional tolerances of ASTM A595 shall apply to all tapered steel tubing members. Additionally, the diameter of round tapered steel tubing members shall not vary more than 2 percent from specified dimension. Two ply and fluted poles or arms are not permitted.

7. Pole taper shall be equal to .0117 in/in.

8. Anchor rods shall conform to ASTM Specification F1554 Gr. 55, Supplemenetary Requirement "S2" that include grade and manufacturer's identification.

9. High strength bolts shall conform to ASTM F3125 Grade A325 Type 1.

10. Nuts for high strength bolts shall be heavy hex and conform to ASTM A563 Grade DH with supplmentary requirements "S1" and "S2".

11. Hardened steel washers shall conform to ASTM F436 Type 1.

12. Direct Tension Indicators (DTI) shall be the compressible-washer type, mechanically galvanized, conforming to ASTM F959.

13. Steel sheet for poles and arm shall conform ASTM A595, Grades A or B, ASTM A572 Gr. 50, or approved equal. All other steel sheet and plate shall conform to AASHTO specification M223 (ASTM A572), or approved equal. Supplement S18 of ASTM A6 regarding maximum tensile strength shall apply.

14. All structural steel including fasteners shall be hot-dip galvanized after fabrication unless otherwise noted.

15. Galvanize-Control Silicon, typical. Silicon content of the base metal shall be in the range of 0 to 0.06 percent or 0.13 percent to 0.25 percent.

16. Footing concrete shall be according to TM628.

17. Reinforcing steel shall conform to AASHTO M31, Grade 60 (ASTM A615 or A706). A minimum lap splice length of 32 bar diameters shall be used unless shown otherwise.
18. Computed deflection of these poles at full design loading shall be limited to 5 percent of the pole length. Computed dead load deflection of the poles shall be limited to 1 percent of the pole length. Rake pole, apply mast arm and appurtenance loads, and verify final pole position is plumb.

19. Luminaire arms and pole extensions to support luminaire arms shall meet requirements of drawing TM629.

20. Hubs for cabinets and/or other appurtenances shall be welded into the pole prior to galvanizing. Poles may be tapped for up to 1" galvanized bolts after pole has been galvanized.

21. Longitudinal seam welds within 6 inches of a cirumferential weld shall be complete penetration welds. Weld inspection shall be in accordance with AWS D1.1 and the special provisions. Inspect seam welds using cyclically loaded criteria. Hubs shall be 3000# threaded forged carbon steel flat weld hubs by Anvil Products Inc., Phoenix Forging Co., Bonney Forge & Tool Works or approved equal.

22. Grounding terminal shall be 1/2" UNC x 1 1/2" Type 308, 309 or 310 threaded stainless steel weld studs.

23. Assemble support, tighten anchor bolts, tighten HS thru bolts, and tighten HS bolts in tapped holes according to 00962.46(j)(2).

24. Round and smooth all edges along electrical way.

	Reaction At Base Plate (Factored)				Reaction At Base Plate (Service)			
Signal Pole Type	Axial (lb)	Shear (lb)	Moment (ft-lb)	Torsion (ft-lb)	Axial (lb)	Shear (lb)	Moment (ft-lb)	Torsion (ft-lb)
SM6L	7,430	13,000	301,000	322,000	6,520	5,200	163,000	127,000
SM7L	8,860	13,100	349,000	385,500	8,080	5,190	212,720	153,000

Note:
The base plate reactions shown in the table are worst case Extreme I and Service I loads. Engineer of Record to specify shaft depth and confirm shaft design for local soil conditions based on a site specific geotechnical study and loads shown in table. If shaft size or reinforcement shown in the table on TM628 for the required design number are not adequate for local soil conditions, Engineer of Record must adjust the shaft design accordingly.

Accompanied by drawings TM628, TM654, TM655, TM657, TM658

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.	All materials shall be in accordance with the current Oregon Standard Specifications.			
	OREGON STANDARD DRAWINGS			
	TRAFFIC SIGNAL 60' THROUGH 75' MAST ARM SUPPORTS			
	NOTES AND REACTIONS			
	2024			
	DATE	REVISION DESCRIPTION		
	07-2020	ADDED ACCOMPANIED BY STANDARD DRAWING TM654		
07-2022		ADDED REACTIONS TO TITLE AND ADDED REACTIONS TABLE		
01 / 2023		CHANGED HIGH STRENGTH BOLT TIGHTENING TO 00962.46(j)(2)		
CALC. BOOK NO. _ _ _ 7088 _ _ _		SDR DATE_ 06-JAN-2023 _	TM656	

Effective Date: June 1, 2026 – November 30, 2026