

Mast Arm Foundation Chart ^A							
Mast Arm Type	Soil Type	Soil Condition		Diameter (in)	Foundation Length (ft) *		Casing Depth
		S _u *	N ₆₀ *		Arm Length 20 to 50 Feet	Arm Length > 50 to 60 feet	
Single Arm	Low Sand	-	5 ≤ N ₆₀ < 10	42	15.0	16.5	As Shown on Plans
	Med Sand	-	10 ≤ N ₆₀ < 20	42	13.0	14.0	
	High Sand	-	N ₆₀ ≥ 20	42	12.5	12.5	
	Low Clay	500 ≤ S _u < 1000	-	42	16.5	19.5	
	Med Clay	1000 ≤ S _u < 2000	-	42	14.0	15.5	
	High Clay	S _u ≥ 2000	-	42	11.5	12.5	
Double Arm	Low Sand	-	5 ≤ N ₆₀ < 10	42	18.0	22.5	
	Med Sand	-	10 ≤ N ₆₀ < 20	42	14.5	18.5	
	High Sand	-	N ₆₀ ≥ 20	42	14.0	15.0	
	Low Clay	500 ≤ S _u < 1000	-	42	19.5	29.5	
	Med Clay	1000 ≤ S _u < 2000	-	42	15.5	18.5	
	High Clay	S _u ≥ 2000	-	42	12.5	15.0	

*S_u = Undrained Shear Strength in Cohesive Soil (psf)

*N₆₀ = Standard Penetration Resistance (Blows/Foot according to ASTM D-1586)
corrected to 60% Hammer Efficiency utilizing the Hammer's Calibrated Energy

*Foundation length measured from the top of the shaft, and assumes maximum 0.25 feet (3 inches)
of stickup

Note: A Detailed Site Specific Design is Required for any of the Following Conditions


- 1) If N₆₀ < 5 bfp or S_u < 500 psf
- 2) If mast arm lengths are greater than 60 feet
- 3) If groundwater is less than 3 feet below the finished ground surface
- 4) If a rock socket is required for the drilled shaft, if N₆₀ values greater than 50 blows per foot dominate the lower half of the drilled shaft length, or if drilling refusal or split-spoon refusal is encountered above design bottom of foundation elevation.


OTHER NOTES:

A. This chart is for use with Mast Arms. See SIG-030, SIG-031, SIG-032, and SIG-033 for details.

The upper 3.5 feet of soil modeled as low strength granular soil assuming ground is disturbed to locate utilities.

Drilled shaft head lateral deflection less than or equal to 1 inch.

APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES		STANDARD PLAN FOR TRAFFIC SIGNAL MAST ARM POLE FOUNDATION DESIGN TABLE			
APPROVED BY: _____ DIRECTOR, BUREAU OF DEVELOPMENT		DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	05/17/24 PLAN DATE	SIG-DESIGN-284-B

	STANDARD PLAN FOR			
	DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	00/00/00 PLAN DATE	