

**WILLISTON-ESSEX STPG SGNL (46)
MAP-1 Foundation Design (Connor Way & VT Rte. 2A)**

Design Requirements:

- VTrans MREI 10-01 Dated March 2010
- Loads provided by Hodge Structural Engineers
- Requirements per VTrans Plans Dated 03/21/2017 Titled Williston-Essex STPG SGNL (46)

References:

- NAVFAC DM7.02, Revalidated 1 September 1986
- Standard Specifications for Highway Bridges, 17 Edition, AASHTO, 2002
- Geotechnical Engineering Circular No. 6 – Shallow Foundations, FHWA, 2002
- VTrans Office Memo, Williston-Essex STPG SGNL(46) Geotechnical Data Report, dated 06/22/2016

Loads:	Mast Arm Pole 1:
Axial Down, P	6,280 lb
Horizontal Shear, V	4,149 lb
Overturning Moment, M	141,156 lb-ft
Torsional Moment, T	84,421 lb-ft

Soil Properties (from B-108):	Layer A:	Layer B:	Layer C:	Layer D:
Unit Weight, γ	125 pcf	115 pcf	115 pcf	135 pcf
Friction Angle, ϕ	36°	32°	29°	38°
Passive Earth Pressure Coeff, K_p	3.85	3.26	2.88	4.20

Results:	Mast Arm Pole 1 Foundation:
Longitudinal Bar Size	#8
Number of Longitudinal Bar	18
Tie Bar Size	#4
Tie Bar Spacing	12 in
Reinforcing Steel	ASTM A615 Grade 60
Concrete Diameter	3.5 ft
Foundation Depth	16 ft
Min Concrete Compressive Strength	4000 psi