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NCDOT METAL POLE STANDARDS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
DN12132102	Sig.SP 2

STANDARD NOTES FOR METAL STRAIN POLES

SOIL TESTING AND STANDARD POLE FOUNDATIONS

1. THE FOUNDATION SIZE FOR POLES IN THESE METAL POLE STANDARDS IS DETERMINED BY CONDUCTING A SUBSURFACE SOIL INVESTIGATION. FOR DETAILS OF THE SUBSURFACE INVESTIGATION, AND PROPER SELECTION/DETERMINATION OF THE METAL POLE FOUNDATIONS, REFER TO AND COMPLY WITH THE "METAL POLE STANDARD FOUNDATIONS" SPECIAL PROVISION WHICH IS TO BE CONSIDERED AN INTEGRAL PART OF THESE METAL POLE STANDARDS.
2. TO DETERMINE THE CORRECT STANDARD STRAIN POLE FOUNDATION DEPTH, PLEASE ADHERE TO THE FOLLOWING REQUIREMENTS IN CONJUNCTION WITH THE STANDARD M8 DRAWING.
   - a.- USING THE STATEWIDE COUNTY WIND ZONE CHART DERIVE LOAD CASE AND DESIGN DETAILS, MAKE SURE YOU HAVE THE APPROPRIATE WIND ZONE SELECTED.
   - b.- SELECT THE SOIL TYPE THAT BEST DESCRIBES THE SOIL CHARACTERISTICS (EITHER CLAY OR SAND)
   - c.- PERFORM A STANDARD PENETRATION TEST AT EACH PROPOSED FOUNDATION SITE TO DETERMINE "N" VALUE. (NUMBER OF BLOWS PER FOOT FROM STANDARD PENETRATION TEST).
   - d.- GET THE APPROPRIATE POLE CASE LOAD NUMBER FROM THE PLANS OR FROM THE DIVISION TRAFFIC ENGINEER.
   - e.- USING THE PREVIOUSLY DETERMINED SOIL TYPE AND "N" VALUE, SELECT THE APPROPRIATE COLUMN IN THE CHART. SELECT THE APPROPRIATE LINE THAT THE POLE LOAD CASE IS SHOWN ON IN THE CHART. THE CORRECT DEPTH OF THE FOUNDATION IS THE VALUE THAT IS SHOWN WHERE THE COLUMN AND THE LINE INTERSECT.
   - f.- FILL OUT AND SUBMIT FOR APPROVAL TO THE DIVISION THE "STANDARD FOUNDATION SELECTION FORM" FOR EACH PROPOSED FOUNDATION LOCATION.
3. THE "STANDARD FOUNDATION SELECTION FORM" FOR EACH PROPOSED FOUNDATION IS REQUIRED TO BE SUBMITTED AND APPROVED PRIOR TO ANY DRILLING IN THE FIELD. THIS FORM AS WELL AS THE STANDARD FOUNDATION SPECIAL PROVISIONS CAN BE OBTAINED AT THE FOLLOWING WEBSITE:

   https://connect.ncdot.gov/resources/Geological/Geotech%20Forms/2012_METAL%20POLES%20-%20Standard%20Foundation%20Selection.pdf
4. COMPLY WITH THE PROVISIONS OF SECTION 1742 OF THE STANDARD SPECIFICATIONS FOR INSTALLATION.
5. REFER TO STANDARD DRAWING 1742.01 FOR FOUNDATION INSTALLATION DETAILS.
6. REINFORCING STEEL SHALL BE DEFORMED AND CONFORM TO ASTM A615 GRADE 60. TIES MAY BE DEFORMED OR PLAIN.
7. CIRCULAR TIE REINFORCING RINGS MAY BE VERTICALLY ADJUSTED BY +/- 3" AT A DEPTH BETWEEN 2'-0" AND 3'-0" TO FACILLITATE THE INSTALLATION OF ELECTRICAL CONDUIT ENTERING IN THE CAGE.
8. THE CONCRETE SHALL BE AIR-ENTRAINED DRILL PIER CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS IN ACCORDANCE WITH SECTION 1000 OF THE NORTH CAROLINA STANDARD SPECIFICATIONS. FOR DETAILS, SEE SPECIAL PROVISIONS.
9. THE TRAFFIC SIGNAL SUPPORT STRUCTURE SHALL NOT BE ERECTED BEFORE THE CONCRETE IN THE FOUNDATION HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
10. EACH FOUNDATION REQUIRES A FOUNDATION IDENTIFICATION TAG. FOR DETAILS SEE THE STANDARD M7 DRAWINGS.
11. FOR OTHER DETAILS REGARDING CONSTRUCTION OF CONCRETE FOUNDATION, SEE PROJECT SPECIAL PROVISIONS AND M7 DRAWINGS.
12. COMPLY WITH THE PROVISIONS OF SECTION 1072 OF THE STANDARD SPECIFICATIONS FOR INSTALLATION.
13. REFER TO STANDARD DRAWING 1742.01 FOR POLE AND HARDWARE INSTALLATION DETAILS.
14. WHEN ATTACHING POLE TO FOUNDATION, THE DISTANCE BETWEEN THE BOTTOM OF THE LEVELING NUT TO THE TOP OF THE CONCRETE FOUNDATION SHOULD NOT BE GREATER THEN ONE ANCHOR NUT HEIGHT. THE TOP OF EACH ANCHOR BOLT SHOULD NOT EXTEND MORE THAN ONE ANCHOR NUT HEIGHT ABOVE TOP NUT TO FACILITATE THE INSTALLATION OF A THREADED NUT COVER.
15. STRAP ALL SIGNAL CABLES TO THE SIDE OF THE POLE WHEN THE DISTANCE BETWEEN THE SPANWIRE ATTACHMENT CLAMP ON THE POLE AND THE WEATHERHEADS EXCEEDS 36". USE ¾" STAINLESS STEEL STRAPS TO LASH WIRE TO THE POLE. SEE DRAWING Sig.M6 (POLE FABRICATION DETAILS) OF THESE STANDARDS FOR DETAILS.
16. FOR OTHER DETAILS REGARDING METAL POLE INSTALLATION, SEE LATEST PROJECT SPECIAL PROVISIONS.

https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

STATEWIDE COUNTY WIND ZONES

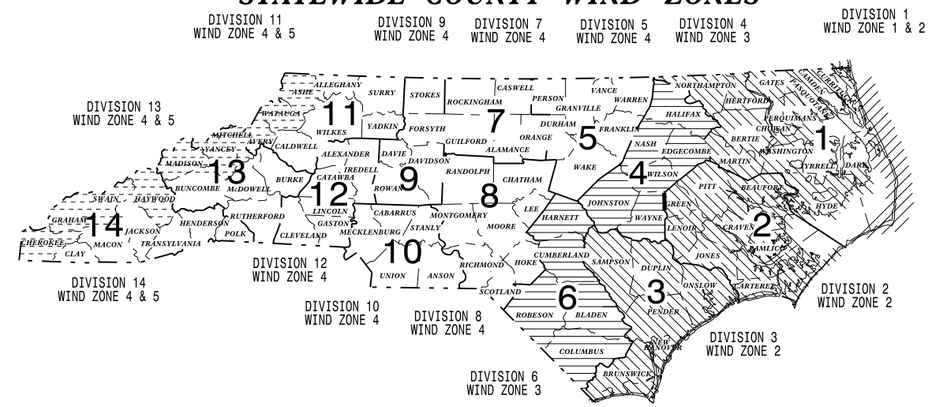

TABLE OF STATEWIDE COUNTY WIND ZONES

ZONE 1 140 mph /63 m/s	ZONE 2 130 mph /58 m/s		ZONE 3 110 mph /49 m/s	ZONE 4 90 mph /40 m/s				ZONE 5 120 mph /58 m/s
CURRITUCK (1)	BERTIE (1)	BEAUFORD (2)	EDGECOMBE (4)	DURHAM (5)	CHATHAM (8)	CABARRUS (10)	IREDELL (12)	ASHE (11)
DARE (1)	CAMDEN (1)	CARTERET (2)	HALIFAX (4)	FRANKLIN (5)	HOKE (80	MECKLENBURG (10)	LINCOLN (12)	AVERY (11)
HYDE (1)	CHOWAN (1)	CRAVEN (2)	JOHNSON (4)	GRANVILLE (5)	LEE (8)	STANLY (10)	BUNCOMBE (13)	WATAUGA (11)
	CURRITUCK (1)	GREEN (2)	WAYNE (4)	PERSON (5)	MONTGOMERY (8)	UNION (10)	BURKE (13)	MADISON (13)
	DARE (1)	JONES (2)	WILSON (4)	VANCE (5)	MOORE (8)	ALLEGHANY (11)	McDOWELL (13)	MITCHELL (13)
	GATES (1)	LENOIR (2)	BLADEN (6)	WARREN (5)	RANDOLPH (8)	CALDWELL (11)	RUTHERFORD (13)	YANCEY (13)
	HERTFORD (1)	PAMLICO (2)	COLUMBUS (6)	WAKE (5)	RICHMOND (8)	SURRY (11)	CLAY (14)	CHEROKEE (14)
	HYDE (1)	PITT (2)	CUMBERLAND (6)	ALAMANCE (7)	DAVIDSON (9)	WILKES (11)	HENDERSON (14)	GRAHAM (14)
	PASQUOTANK (1)	BRUNSWICK (3)	HARNETT (6)	CASWELL (7)	DAVIE (9)	YADKIN (11)	JACKSON (14)	HAYWOOD (14)
	NORTHAMPTON (1)	DUPLIN (3)	ROBESON (6)	GUILFORD (7)	FORSYTH (9)	ALEXANDER (12)	MACON 914)	SWAIN (14)
	MARTIN (1)	ONSLOW (3)		ORANGE (7)	ROWAN (9)	CATAWBA (12)	POLK (14)	
	PERQUIMANS (1)	NEW HANOVER (3)		ROCKINGHAM (7)	STOKES (9)	CLEVELAND (12)	TRANSYLVANIA (14)	
	TYRELL (1)	PENDER (3)		SCOTLAND (7)	ANSON (10)	GASTON (12)		
	WASHINGTON (1)	SAMPSON (3)						

Prepared In the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ITS and Signals Unit
750 N.Greenfield Pkwy,
Garner,NC 27529

Designed in conformance with the latest 2015 Interim to the 6th Edition 2013
AASHTO
Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals

INDEX OF PLANS

DRAWING No.	DESCRIPTION
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Sig.SP 9	ZONE 2 130 MPH
Sig.SP 10	ZONE 3 110 MPH
Sig.SP 11	ZONE 4 90 MPH
Sig.SP 12	ZONE 5 120 MPH

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