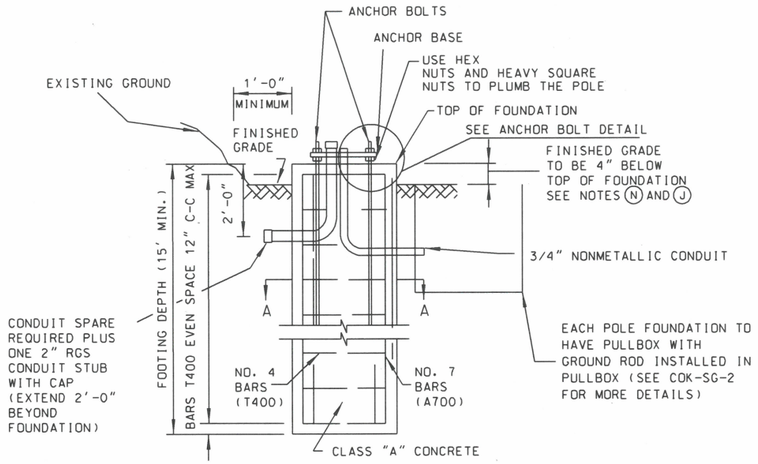
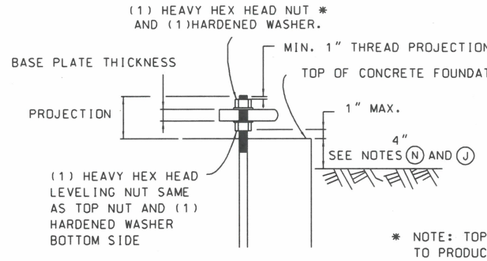
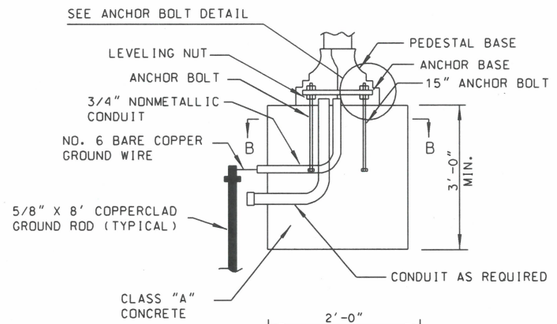


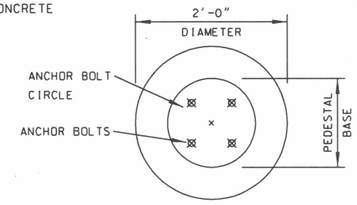


ANCHOR BOLT DETAIL

UNDER NO CONDITIONS WILL DRILLED AND GROUTED ANCHOR BOLTS BE ALLOWED (CANTILEVER AND BUTTERFLY SIGN BASES SHALL REQUIRE A MINIMUM OF 8 ANCHOR BOLTS 1¼" IN DIAMETER)

* NOTE: TOP NUT TO BE TORQUED TO PRODUCE 60% YIELD STRESS OF ANCHOR BOLT.
NOTE: DO NOT GROUT BETWEEN BOTTOM OF BASE PLATE AND TOP OF CONCRETE FOUNDATION.

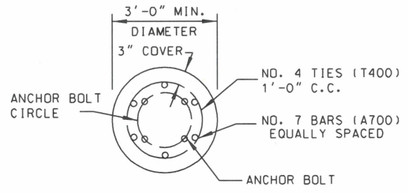




SECTION B-B

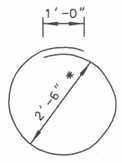
FOOTING DETAIL FOR STEEL PEDESTAL POLE

REQUIRED BEARING AREA FOR ANCHOR BOLT	
ANCHOR BOLT DIA(IN)	HEAD OR NUT AREA (SQ IN)
1"	1.800
1¼"	2.812
1½"	4.050
1¾"	5.512
2"	7.199
2¼"	9.122
2½"	11.249



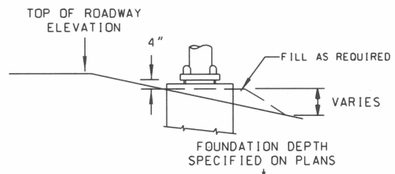
SECTION A-A

FOUNDATION DETAIL FOR STRAIN OR MAST ARM POLE



T400 BARS SHALL LAP 1'-0"

* FOR 3'-0" DIAMETER FOOTING. USE 3'-6" FOR 4'-0" DIAMETER FOOTING.



LOW SHOULDER FOUNDATION DETAIL

ESTIMATED FOUNDATION QUANTITIES									
FOOTING DIAMETER	FOOTING DEPTH	T400 REINFORCING BARS			A700 REINFORCING BARS			CONCRETE (CUBIC YARDS)	MAXIMUM DESIGN MOMENT (FT-KIP) SERVICE LOAD
		NUMBER OF BARS	LENGTH OF EACH BAR	TOTAL WEIGHT IN POUNDS	NUMBER OF BARS	LENGTH OF EACH BAR	TOTAL WEIGHT IN POUNDS		
3'-0"	15'-0"	15	8'-10"	89	8	14'-6"	237	3.9	134
3'-0"	16'-0"	16	8'-10"	95	8	15'-6"	253	4.2	150
3'-0"	17'-0"	17	8'-10"	101	10	16'-6"	337	4.5	167
3'-0"	18'-0"	18	8'-10"	107	10	17'-6"	358	4.7	184
3'-0"	19'-0"	19	8'-10"	113	10	18'-6"	378	5.0	202
3'-0"	20'-0"	20	8'-10"	119	12	19'-6"	478	5.2	21
3'-0"	21'-0"	21	8'-10"	125	12	20'-6"	503	5.5	240
3'-0"	22'-0"	22	8'-10"	130	12	21'-6"	527	5.8	260
3'-0"	23'-0"	23	8'-10"	136	12	22'-6"	552	6.0	280
3'-0"	24'-0"	24	8'-10"	142	14	23'-6"	672	6.3	300
2'-0"	6'-0"	7	5'-9"	27	6	5'-6"	67	0.7	(N)

GENERAL NOTES

(A) ALL STREEL STRAIN POLES SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF THE CITY OF KNOXVILLE DEPARTMENT OF ENGINEERING, SECTION 730K - TRAFFIC SIGNALS.

(B) STRAIN POLES SHALL BE DESIGNED ACCORDING TO AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (CURRENT EDITION).

(C) THE CONTRACTOR SHALL FURNISH POLES DESIGNED FOR A WIND VELOCITY ACCORDING TO THE CURRENT STANDARDS AS SPECIFIED IN ASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS".

(D) ANCHOR BOLTS SHALL BE DESIGNED BY THE POLE FABRICATOR. THEY SHALL BE CAPABLE OF RESISTING THE FULL BENDING MOMENT OF THE SHAFT AT ITS YIELD STRENGTH STRESS.

MATERIAL SEPCIFICATIONS - BOLTS:
1.) ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 55 ksi WITH THREADS CONFORMING TO THE REQUIREMENTS OF ASTM A563.
2.) NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A563.
3.) ALL HARDWARE, EXCEPT STAINLESS STEEL, SHALL BE HOT DIPPED GALVANIZED ACCORDING TO ASTM A153 OR MECHANICALLY GALVANIZED ACCORDING TO ASTM B695 OR DESIGNED BY COK.

(E) THE COST OF ALL FOOTING MATERIALS AND INSTALLATION SHALL BE INCLUDED IN THE PRICE BID FOR STEEL POLES.

(F) THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND NOTES TO THE ENGINEER OF STRUCTURES FOR APPROVAL PRIOR TO FABRICATION.

(G) THE MOMENT CAPACITY OF THE STRAIN POLES AND THE FOOTING DEPTHS FOR BOTH STRAIN POLE AND MAST ARM POLE SHALL BE AS SPECIFIED IN THE PLANS.

(H) CANTILEVER SIGNAL SUPPORTS SHALL BE DESIGNED BY THE POLE FABRICATOR.

(I) TOP OF FOOTING SHALL BE FLUSH IN SIDEWALK OR PAVED ISLANDS. TOP OF FOOTING SHALL NOT EXTEND MORE THAN 4" ABOVE THE GROUND LINE IN OTHER AREAS.

(J) IF ROCK IS ENCOUNTERED WHILE DRILLING FOR FOOTING, AND CORE AND THE DRILLING INDICATES ROCK IS SOLID, THE CONTRACTOR SHALL PROCEED BY ONE OF TWO METHODS. METHOD 1: PROVIDE A ROCK SOCKET TWO TIMES THE DIAMETER OF THE POLE FOUNDATION. METHOD 2: DRILL SIX 1¼" DIAMETER HOLES IN TO ROCK A MINIMUM DISTANCE OF THREE FEET. FILL HOLES WITH APPROVED EPOXY MIX AND ROTATE THE A700 BARS UNTIL FULLDEPTH IS ACHIEVED. THE APPROVED EPOXY SHALL BE APPROVED BY CITY OF KNOXVILLE DEPARTMENT OF ENGINEERING. GROUND ROD MAY BE PLACED HORIZONTALLY, AS DEEP AS THE ROCK ALLOWS, WITH A 3" MINIMUM SEPARATION FROM ANY CONDUIT.
THE CONTRACTOR SHALL CONTACT THE DEPARTMENT OF ENGINEERING TO DETERMINE WHICH METHOD IS APPLICABLE OR WHETHER A SPECIAL SPREAD FOOTING DESIGN MUST BE FURNISHED BY THE DEPARTMENT OF ENGINEERING.

(K) ALL STRAIN POLES AND MAST ARM POLES TO HAVE SPARE 2" RGS CONDUIT STUB EXTENDING 24" BEYOND POLE FOUNDATION INTO THE PULLBOX PROVIDED.

(L) ALL CONDUIT BENDS IN POLE FOUNDATION TO BE 6" RADIUS.

(M) BASE OF POLE SHALL REMAIN OPEN TO PERMIT DRAINAGE AND AIR CIRCULATION. FINISHED GROUND PROFILE SHOULD DRAIN WATER AWAY FROM FOUNDATION.

(N) 2' DIAMETER FOUNDATION ONLY TO BE USED WITH THE PEDESTAL POLE (SEE COK-SG-9A).

CITY OF KNOXVILLE
DEPARTMENT OF ENGINEERING

MAST ARM POLE AND STRAIN POLE FOUNDATION DETAILS

COK-SG-10