	<u>DEFLEC</u> DEFLEC	<u>TION:</u> TIONS ARE BASED	O ON A 3-SECOND G	UST WIN	ID SF	PEED OF 40 MPH. THIS APPRO	XIMATES A 30 MPH WIND) WITH
						THE INFORMATION INCLUDING ECTIMATED	DESIGNER/DRAFTER:	
						QUANTITIES OF WORK, SHOWN ON THESE	CHECKED BY:	
						INVESTIGATIONS BY THE STATE AND IS	-	TRANSTU
						THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		DE
							SCALE AS NOTED	
REV.	DATE	REVISION	DESCRIPTION	SHEE	ΓNΟ.	Plotted Date: 3/16/2010	1	Filename

DESIGN METHOD: ALLOWABLE STRESS DESIGN

LOADING: NATURAL WIND GUSTS (VORTEX SHEDDING NOT CONSIDERED FOR POLE WITH TAPER RATE EXCEEDING 0.14" / FT) FATIGUE THRESHOLD: DETAIL CATEGORY E' (2.6 KSI) (BASED ON ASSUMBED FILLET WELDED SOCKET CONNECTION OF POLE TO BASE PLATE

CATEGORY 1, IMPORTANCE FACTOR = 1.0

WIND DIRECTION: PERPENDICULAR TO THE LOWERING DEVICE ASSEMBLY ARM

ALL POLES WERE DESIGNED FOR WIND PRESSURE ASSUMING THE POLE TOP WAS 100'ABOVE THE GROUND TO ACCOUNT FOR POLES PLACED ON ELEVATED LOCATIONS.

GOVERNING GROUP LOAD COMBINATION: DL + WIND

DESIGN WIND SPEED = 120 MPH (3-SECOND GUST WIND SPEED)

LOADS: DESIGN WIND PRESSURE:

FATIGUE:

MINIMUM DESIGN LIFE = 50 YEARS

			POLE HEIGHT								
	VAR.	DIMENSION	45' I	POLE	70' F	POLE	85' F	POLE	100'	POLE	
ш	А	DIAMETER	-		1'-6 ¹ /2"		1'-6 ¹ / ₂ "		1'-6 ¹ /2"		
LAT	В	THICKNESS	-		3/8"		3/8"		3/8"		
۵ ۲	С	BOLT CIRCLE	-		1'-1 ¹ /2"		1'-1 ¹ /2"		1'-1 ¹ /2"		
NO	D	BOLT HOLE DIA.	-		7⁄8"		7⁄8"		⁷ ⁄8"		
μ	E	BOLT GROUP SEPARATION ANGLE	-		56.25°		56.25°		56.25°		
щ	F	DIAMETER		-	1'-5	1/2"	1'-5 ¹ / ₂ "		1'-5 ¹ ⁄2"		
	G	THICKNESS		-	1	1"		1"		1"	
Ц Ц	н	BOLT CIRCLE	-		1'-1	1'-1 ¹ /2"		1'-1 ¹ / ₂ "		1'-1 ¹ / ₂ "	
0 L	I	SLOT WIDTH	-		13	¹³ ⁄16 "		¹³ ⁄ ₁₆ "		¹³ ⁄ ₁₆ "	
OLE	J	SLOT LENGTH	LENGTH		17⁄8"		17⁄8"		17⁄8"		
Δ.	к	NUMBER OF SLOTS		-		16		16		16	
	L	SECTION	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	
	м	TOP DIAMETER	-	-	10"	-	10"	_	10"	-	
ш	N	BASE DIAMETER	-	-	-	2'-0"	-	2'-8"	-	2'-8"	
FUB	0	LENGTH	-	-	42'-0"	-	47'-0"	_	52'-6"	-	
ſ	Р	HEIGHT TO BOTTOM OF SPLICE	-	-	-	28'-0"	-	38'-0"	-	47'-6"	
	Q	THICKNESS	-	_	3/16 "	1⁄4 "	³ ⁄16 "	1⁄4 "	³ ⁄16 "	1⁄4"	
	R	SPLICE LENGTH	SEE SPECIAL PROVISION "CAMERA LOWERING DEVICE ASSEMBLY-TYPE B"								
ш	S	FLAT-TO-FLAT WIDTH		-	3'-0"		3'-8"		3'-8"		
LAT	т	THICKNESS	-		1 ¹ / ₂ "		11/2"		1 ¹ / ₂ "		
Б	U	ANCHOR ROD CIRCLE	-		2'-6"		3'-2"		3'-2"		
3AS	V	ANCHOR ROD HOLE	_		1 ¹³ ⁄ ₁₆ "		1 ¹³ ⁄ ₁₆ "		1 ¹³ ⁄ ₁₆ "		
	W	ANCHOR ROD DIAMETER	-		1 ¹ / ₂ "		11/2"		1 ¹ / ₂ "		
FOUN	TRAFF.	IC CONTROL ON - SPAN POLE		-	TYP	EC	TYP	E D	ТҮР	E D	
		ST	EEL P	OLE	DESIG	IN CE	RITER	ΙΑ			



...\Desktop\CAMERA POLE.dan

GENERAL NOTES

SPECIFICATIONS: CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 816, (2004), SUPPLEMENTAL SPECIFICATIONS DATED JULY, 2007 AND SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS: STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (AASHTO - 2001) WITH INTERIM SPECIFICATIONS UP TO AND INCLUDING 2006, AND STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION, AASHTO -2002, AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATIONS BRIDGE DESIGN MANUAL (2003).

FIELD CONDITIONS: IF ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS AND/OR CONDITIONS SPECIFIED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.

TRAFFIC: ALL WORK SHALL BE PREFORMED ACCORDING TO THE SPECIAL PROVISIONS "MAINTENANCE AND PROTECTION OF TRAFFIC" AND "PROSECUTION AND PROGRESS."

FOUNDATION DETAILS: FOR FOUNDATIONS DETAILS, INCLUDING ANCHOR RODS, ANCHOR PLATE, REINFORCING AND ELECTRICAL CONDUIT AND GROUNDING DETAILS, SEE TRAFFIC CONTROL FOUNDATION SHEET AND SPECIAL PROVISION, "TRAFFIC CONTROL FOUNDATION - SPAN POLE-

STEEL POLE AND BASE PLATE: SEE SPECIAL PROVISION, "CAMERA LOWERING DEVICE ASSEMBLY

CLOSED CELL ELASTOMER SEAL: A SEALING RING SHALL BE FURNISHED AND INSTALLED BETWEEN THE FOUNDATION AND THE BASE PLATE. THE COST WILL BE INCLUDED IN THE PRICE UNDER THE ITEM, "CAMERA LOWERING DEVICE ASSEMBLY - TYPE B."

STRUCTURAL STEEL NOTES

1. ALL STRUCTURAL STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 36 KSI. CHARPY V-NOTCH TOUGHNESS SAMPLING IS REQUIRED FOR THE POLE AND BASE PLATE; SEE THE SPECIAL PROVISION, "CAMERA LOWERING DEVICE ASSEMBLY - TYPE B."

2. ALL STEEL COMPONENTS OF THE CAMERA SUPPORT SHALL BE HOT-DIP GALVANIZED AFTER FABRICATIONS AND SHALL MEET THE REQUIREMENTS OF ASTM A123, OR A153, CLASS C, WHICHEVER SHALL APPLY, EXCEPT ASTM A325 TYPE-1 BOLTS MAY BE MECHANICALLY GALVANIZED AND SHALL MEET THE REQUIREMENTS OF ASTM B695 CLASS 50. STAINLESS STEEL BOLTS SHALL NOT BE GALVANIZED. ZINC-RICH FIELD PRIMER FOR TOUCH UP SHALL CONFORM TO THE REQUIREMENTS OF FEDERAL SPECIFICATION TT-P-641 TYPE 1 AND ASTM A780. THE USE OF AEROSOL SPRAY CANS SHALL NOT BE PREMITTED.

3. ALL HOLES FOR BOLTED CONNECTIONS SHALL BE STANDARD HOLES EXCEPT AS NOTED.

4. HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325 TYPE 1.

5. STAINLESS STEEL BOLTS SHALL CONFORM TO ASTM A193, SERIES 300.

6. BOLTED FIELD SPLICES WILL NOT BE ALLOWED.

7. WELDING DETAILS, PROCEDURES AND TESTING METHODS SHALL CONFORM TO AWS D1.1 "STRUCTURAL WELDING CODE-STEEL." POLE AND BASE PLATE COMPONENTS ARE CONSIDERED FRACTURE CRITICAL AND SHALL BE FABRICATED IN ACCORDANCE WITH CHAPTER 12 (FRACTURE CONTROL PLAN) OF ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE, MEMBERS SHALL BE DESIGNATED FRACTURE CRITICAL ON THE FABRICATION

8. UNLESS NOTED OTHERWISE, ALL GROOVE WELDS SHALL BE COMPLETE JOINT PENETRATION AND SHALL BE COMPLETELY INSPECTED BY ULTRASONIC TESTING.

ALL FILLET WELDS SHALL BE INSPECTED IN THEIR ENTIRETY BY MAGNETIC PARTICLE METHODS. WHERE MULTIPLE PASS WELDS ARE MADE, EACH PASS SHALL BE INSPECTED AND ACCEPTED BEFORE PROCEEDING TO THE NEXT PASS OR LAYER, AS DETERMINED BY THE ENGINEER.

10. THE STEEL POLE SHALL BE INSTALLED PLUMB. THE PERMISSIBLE VARIATIONS FOR LENGTH, DIAMETER, WALL THICKNESS AND STRAIGHTNESS OF THE TAPERED TUBE SHALL BE AS SPECIFIED IN ASTM A595.

11. THE STRUCTURAL STEEL FABRICATOR SHALL BE CERTIFIED UNDER AISC QUALITY CONTROL PROGRAM SBrF - SIMPLE STEEL BRIDGES - FRACTURE CRITICAL ENDORSEMENT.

	LIST OF DRAWINGS
DWG. NO.	DRAWING TITLE
CP-1	CAMERA POLE GENERAL PLAN
CP-2	CAMERA POLE FOUNDATION - TYPE C
CP-3	CAMERA POLE FOUNDATION - TYPE D
CP-4	CAMERA POLE DETAILS
CP-5	6" X 2'-3" HANDHOLE
CP-6	6" X 9" HANDHOLE
CP-7	SUGGESTED POLE INSTALLATION SEQUENCE

THE CAMERA POLE AND FOUNDATION ARE DETAILED IN U.S. CUSTOMARY UNITS. NO METRIC CONVERSION IS REQUIRED FOR METRIC PROJECTS FOR THE ITEMS, "CAMERA LOWERING DEVICE ASSEMBLY - TYPE B" AND "TRAFFIC CONTROL FOUNDATION - SPAN POLE TYPE (C OF D)", WHICH ARE PAID FOR AS EACH.

TOWN:	PROJECT NO.
DRAWING TITLE:	DRAWING NO.
CAMERA POLE GENERAL PLAN	SHEET NO.



FOUNDATION NOTES

FOUNDATIONS SHALL BE PAID FOR AS "TRAFFIC CONTROL FOUNDATION - SPAN POLE -TYPE C" OR "TRAFFIC CONTROL FOUNDATION - SPAN POLE - TYPE D."

FOUNDATION TYPE SHALL BE DETERMINED BY THE CAMERA POLE HEIGHT AS NOTED IN THE TABLE ON DRAWING NO. CP-1.

CLASS "F" CONCRETE SHALL BE USED FOR THE FORMED PORTION OF THE FOUNDATION AND SHALL ACHIEVE A 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.

CLASS "F" CONCRETE SHALL BE MODIFIED FOR THE DRILLED SHAFT PORTION IN ACCORDANCE WITH THE SPECIAL PROVISION, "TRAFFIC CONTROL FOUNDATION - SPAN POLE (TYPE)." CONCRETE SHALL ACHIEVE A 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.

REINFORCEMENT: ALL REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60.

LONGITUDINAL BARS SHALL BE CONTINUOUS FOR THE FULL HEIGHT OF THE DRILLED SHAFT. THE BARS SHALL NOT BE SPLICED.

WELDING OF REINFORCMENT IS NOT PREMITTED.

SPIRAL REINFORCEMENT SHALL BE SPLICED WITH A 2'LAP LENGTH BETWEEN INDIVIDUAL

SPIRAL REINFORCMENT IS PREFFERED, BUT CIRCULAR TIES MAY BE SUBSTITUTED, IF EACH TIE HAS A 2'LAP LENGTH. LAP LOCATIONS SHALL BE ALTERNATED IN 90° INCREMENTS BETWEEN ADJACENT TIES SO LAPS ARE NOT MADE AT A SINGLE LOCATION AROUND THE PERIMETER OF THE DRILLED SHAFT.

SPIRALS SHALL NOT TERMINATE ON AN INCLINED PLANE TO THE SHAFT. THE BAR SHALL BE PERPENDICULAR TO THE DRILLED SHAFT AT THE TOP AND BOTTOM FOR A MINIMUM OF $1\frac{1}{2}$ TURNS BEFORE TERMINATING.

ANCHOR RODS SHALL CONFORM TO ASTM F1554, GRADE 105. NUTS SHALL CONFORM TO ASTM A563, HEAVY HEX, GRADE DH. WASHERS SHALL CONFORM TO F436, TYPE 1.

ANCHOR RODS SHALL BE TESTED FOR CHARPY V-NOTCH IMPACT STRENGTH IN ACCORDANCE WITH THE SPECIAL PROVISION, "TRAFFIC CONTROL FOUNDATION - SPAN POLE (TYPE)."

ANCHOR RODS, NUTS, AND WASHERS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A 153, CLASS C.

ANCHOR PLATE SHALL CONFORM TO AASHTO M270, GRADE 50.

ANCHOR PLATES SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123.

DRAWING TITLE: CAMERA POLE FOUNDATION - TYPE C	— СР-2 SHEET NO. \$\$\$
	DRAWING NO.





	BASE PLATE NOTES:	
۲ ٥º	FILLET WELDS FOR SOCKET CONNECTIONS SHALL BE UNEQUAL LEG WELDS, WITH THE LONG LEG OF THE FILLET WELD ALONG THE POLE. THE TERMINATION OF THE LONGER WELD LEG SHOULD CONTACT THE SHAFT'S SURFACE AT APPROXIMATELY A 30° ANGLE.	CUT $5\frac{1}{4}$ " X $1\frac{3}{4}$ " TENON S WALL FOR CABLE AND PUL
0	CONNECTION OF POLE TO BASE PLATE: (FILLET WELDED SOCKET CONNECTION OR FULL PENETRATION GROOVE WELD WITH A CONTINUOUSLY WELDED BACKER BAR.)	
	THE FOLLOWING CRITERIA SHALL BE ADDRESSED:	
	1. THE FABRICATOR SHALL CUT INSIDE THE SPECIFIED OPENING IN THE BASE PLATE AND GRIND TO MATCH THE OUTSIDE DIMENSION OF THE POLE.	(4) $3/$ " V $-3/$ " A22
N	2. THE SEPERATION BETWEEN THE BASE PLATE AND THE POLE WITHIN THE SOCKET SHALL NOT EXCEED $\frac{1}{16}$ " (2MM) IN ORDER TO ASSURE SUFFICIENT FILLET WELD AS SPECIFIED IN AWS D1.1, SECTION 5.22, "TOLERANCE OF JOINT DIMENSIONS."	BOLTS WITH HEAVY HEX NUTS & WASH
N	NOTES:	
	1. FULL PENETRATION GROOVE WELDS SHALL BE INSPECTED AS SPECIFIED IN ANNEX K OF AWS D1.1 - STRUCTURAL STEEL WELDING CODE - STEEL. IF A $\frac{5}{16}$ " WALL THICKNESS IS USED, THE PROVISIONS OF ANNEX K DO NOT APPLY.	
	2. MULTI-SIDED POLES MAY BE SUBSTITUTED FOR ROUND, PROVIDED THEY HAVE AT LEAST 16 SIDES.	
	3. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND DETAILING OF THE TENON AND TENON PLATE. DIMENSIONS SHOWN ARE FOR MINIMUM STRENGTH COMPARISION. COORDINATE THE TENON DESIGN WITH THE MANUFACTURER OF THE LOWERING DEVICE FOR COMPATABILITY.	
	MANUFACIURER OF THE LOWERING DEVICE FOR COMPATABILITY.	





 $8^{1/2}$ " <u>1³/4"</u> 5" (TYP) - DRILL $\frac{3}{8}$ " DIA. HOLE IN COVER TO ALIGN WITH COUPLING NUT (TYP) 11^{1/}2" 0 0 $\frac{3}{16}$ " THICK PLATE E $R = \frac{3}{4}$ " - WELD WASHER TO COVER FOR STAINLESS STEEL SASH CHAIN

 $(4)^{1/4}$ " DIA. X⁷/8" COUPLING NUT WELDED TO HANDHOLE FRAME

 $1\frac{1}{4}$ " DIA. PVC CONDUIT -FOR CAMERA CABLE

HANDHOLE COVER SCALE: 3'' = 1'

				THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: CHECKED BY:	DE
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 3/16/2010		Filenam



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