⑧ Oversized Drilled Shafts may be used to accommodate existing equipment.

FOUNDATION DESIGN TABLE

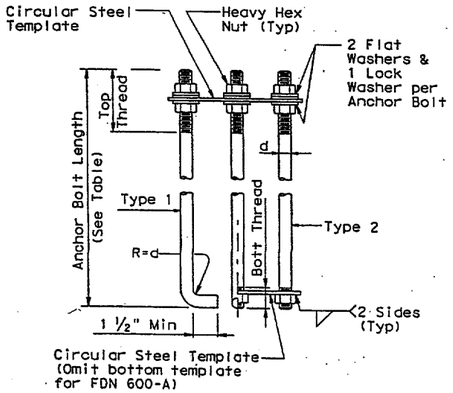
FDN TYPE	⑧ DRILLED SHAFT DIA	REINFORCING STEEL		DRILL SHAFT LENGTH-m ④, ⑤, ⑥			ANCHOR BOLT DESIGN ①				FOUNDATION DESIGN LOAD ②		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TX CONE PENETROMETER N blows/300 mm 10	15	40	ANCHOR BOLT DIA	Fy (MPa)	BOLT CIR DIA	ANCHOR TYPE	MOMENT kN-m	SHEAR kN	
600-A	600	4- #5	#2 at 300	1.7	1.6	1.4	¾"	250	324	1	14	4	Pedestal pole, pedestal mounted controller.
750-A	750	8- #9	#3 at 150	3.4	3.1	2.4	1 ½"	380	432	2	118	13	Mast arm assembly. (see Selection Table)
900-A	900	10- #9	#3 at 150	4.0	3.7	2.9	1 ¾"	380	483	2	178	22	Mast arm assembly. (see Selection Table) 9150 mm strain pole with or w/out luminaire.
900-B	900	12- #9	#3 at 150	4.6	4.1	3.2	2"	380	533	2	258	31	Mast arm assembly. (see Selection Table) Strain pole taller than 9150 mm & strain pole with mast arm
1050-A	1050	14- #9	#3 at 150	5.3	4.8	3.6	2 ¼"	380	584	2	367	40	Mast arm assembly. (see Selection Table)

FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (mm)

		FDN 750-A	FDN 900-A	FDN 900-B	FDN 1050-A
130 km/h DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	9,750 ⚠1	14,600		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	7,300 X 7,300			
		8,500 X 8,500			
		9,800 X 8,500	9,800 X 9,800		
			11,000 X 11,000		
			12,200 X 11,000		
			13,400 X 8,500	13,400 X 11,000	
160 km/h DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	⚠1	11,000	13,400	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		7,300 X 7,300		
			8,500 X 8,500		
			9,800 X 7,300	9,800 X 9,800	
				11,000 X 11,000	
				12,200 x 7,300	12,200 X 11,000
					13,400 x 11,000

EXAMPLE:
For 130 km/h design wind speed, foundation 750-A can support up to a 9750 mm arm with another arm up to 8530 mm.

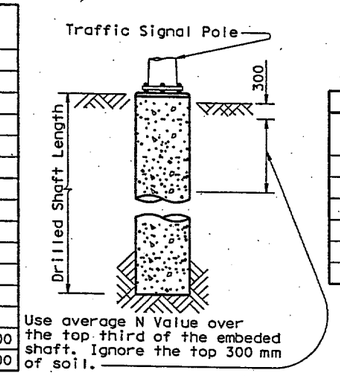
For 160 km/h design wind speed, foundation 900-A can support a single 10,970 mm mast arm.



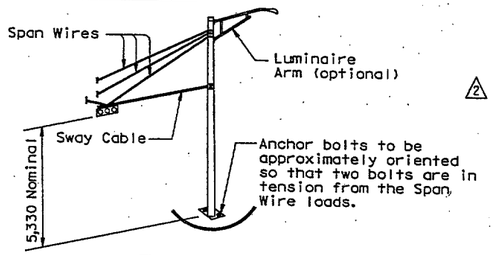
HOOKED ANCHOR (TYPE 1) NUT ANCHOR (TYPE 2)

ANCHOR BOLT ASSEMBLY

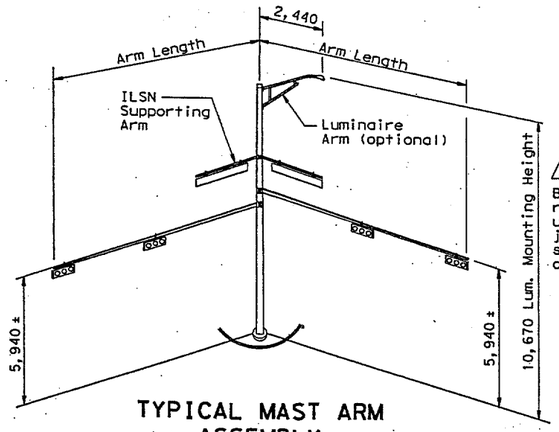
INSTALLATION PROCEDURE:
Threads of anchor bolts shall be coated with pipe joint compound prior to installation of upper nuts when erecting pole. After pole is plumbed and in permanent alignment, the exposed threads of painted bolts shall be cleaned and an additional coating of zinc-rich paint applied to seal the bolt thread-nut joint.



Use average N Value over the top third of the embeded shaft. Ignore the top 300 mm of soil.



TYPICAL STRAIN POLE ASSEMBLY



TYPICAL MAST ARM ASSEMBLY

NOTES:

① Anchor bolt design develops the foundation capacity given under Foundation Design Loads.

② Foundation Design Loads are the allowable moments and shears at the base of the structure.

③ Foundations may be listed seperately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

④ Field Penetrometer readings at a depth of approximately 900 to 1500 mm may be used to adjust shaft lengths.

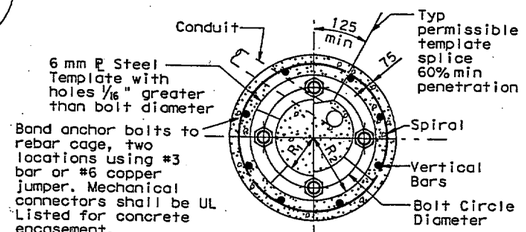
⑤ If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

⑥ Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest 0.1 m for entry into Summary Table.

ANCHOR BOLT & TEMPLATE SIZES

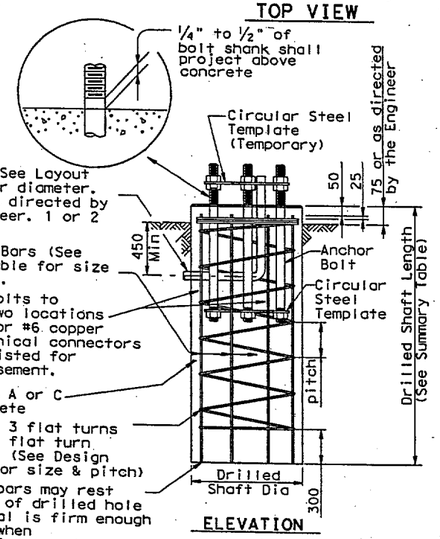
BOLT DIA	⑦ BOLT LENGTH	TOP THREAD	BOTT THREAD	BOLT CIRCLE	Rz	Ri
¾"	1'-6"	3"	—	324	181	143
1 ½"	3'-4"	6"	2"	432	254	178
1 ¾"	3'-10"	7"	2 ¼"	483	286	197
2"	4'-3"	8"	2 ½"	533	318	216
2 ¼"	4'-9"	9"	3"	584	349	235

⑦ Min dimensions given, longer bolts are acceptable.



R_1 may equal R_2 if plate is welded of 3 or more segments.

TOP VIEW



ELEVATION

FOUNDATION DETAILS

FOUNDATION SUMMARY TABLE ③

LOCATION IDENTIFICATION	AVG. N BLOW (per 300 mm)	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH (m) ⑥ 600-A	750-A	900-A	900-B	1050-A
MIDWAY AT MCEWEN T-4	10	900A	1			5.2		
MIDWAY AT SPRING VALLEY T-2,-4,-6,-7,-9	10	600A	5	8.5				
MIDWAY AT LINDBERGH T-1	10	900A	1			4.0		
T-4	10	900A	1			4.0		
MIDWAY AT KELLER SPRINGS T-4	10	900A	1			4.0		
MIDWAY AT SOJOURN T-1	10	900A	1			4.0		
T-3	10	900A	1			4.0		
TOTAL DRILLED SHAFT LENGTHS				8.5		25.2		

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Spec. for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

Reinforcing steel shall conform to Item 440.

Concrete shall be Class A or C.

Threads for anchor bolts and nuts shall be rolled or cut threads of unified national coarse thread series except for A193M B7 bolts which shall have 8 pitch thread series. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

Anchor bolts that are 1" in diameter or less shall conform to ASTM A36M. Anchor bolts larger than 1" in diameter shall conform to A36M Mod380 in accordance with the Item, "Anchor Bolts" or ASTM A193M B7 or A687. Galvanize or coat with zinc-rich paint a minimum of the upper 14 inches of all anchor bolts unless otherwise noted. Exposed nuts shall be galvanized or coated with zinc-rich paint. Washers shall be galvanized. Templates and embeded nuts need not be galvanized.

Note: "All dimensions are in millimeters (mm) except as noted"

11/99 Revision

⚠1 Changed to Facilitate new terminal strip enclosure

⚠2 Changed from ground rod to UFER ground

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-99(M)

© TxDOT August 1995	DN- MS	CK- JSY	DW- MAO/MMF	CK- JSY/TEB
REVISIONS 5-96 11-99	STATE DISTRICT: DAL	FEDERAL REGION: 6	FEDERAL AID PROJECT: CM 97(87)	SHEET: 153
	COUNTY: DALLAS	CONTROL: 0918	SECTION: 45	JOB: 344

ACC: d48hplq:/usr/d482517
LEVELS PLOTTED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
LV=1,2 for English 1,3 for Metric