



Replaced by new edition June 30, 1989

TRANSITIONAL
LETTER

Publication 148

DATE
July 15, 1983

SUBJECT: Traffic Standards - Signals; TC-7800 Series

INFORMATION AND SPECIAL INSTRUCTIONS:

The attached edition of Publication 148, entitled Traffic Standards - Signals; TC-7800 Series, covers the construction of traffic signals, including controller assemblies, traffic signal supports, electrical distribution, signal heads, and detectors.

This edition shall be referenced on all projects to be constructed in accordance with the 1983 edition of Pub. 408.

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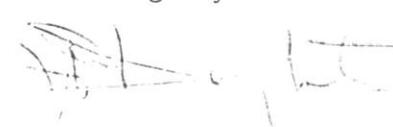
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APPROVED FOR ISSUANCE BY:

J. R. Doughty, P.E.
Chief, Traffic Engineering
and Operations Division
Bureau of Highway Services



Replaced by new edition June 30, 1989

SPECIAL NOTICE

TO

PURCHASERS OF PUB 148

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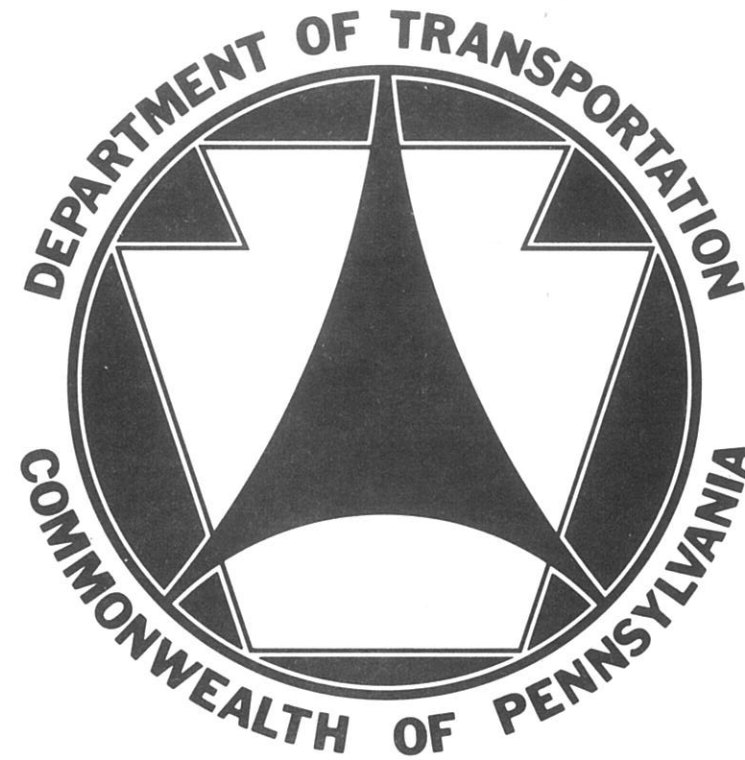
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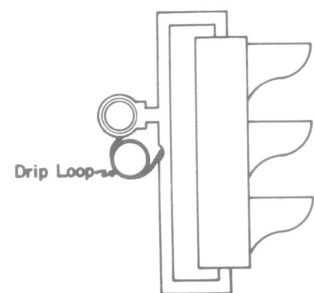


TRAFFIC STANDARDS - SIGNALS

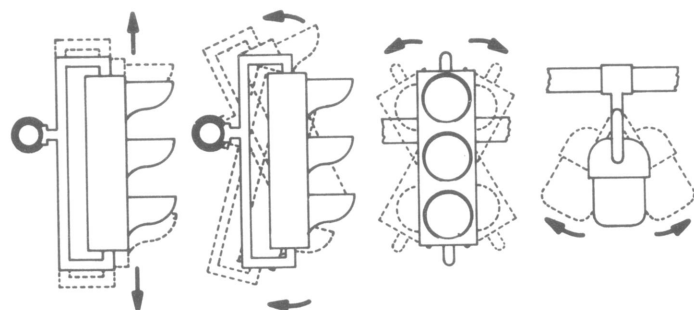
BUREAU OF HIGHWAY SERVICES

TC-7800 SERIES

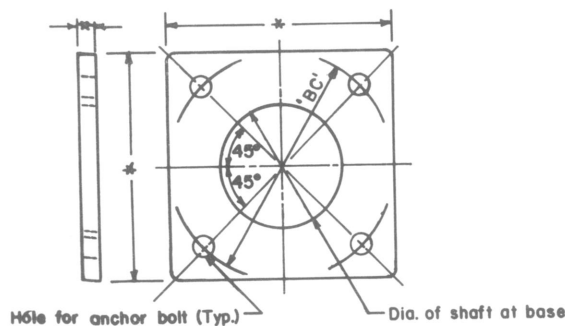
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SECTION D-D



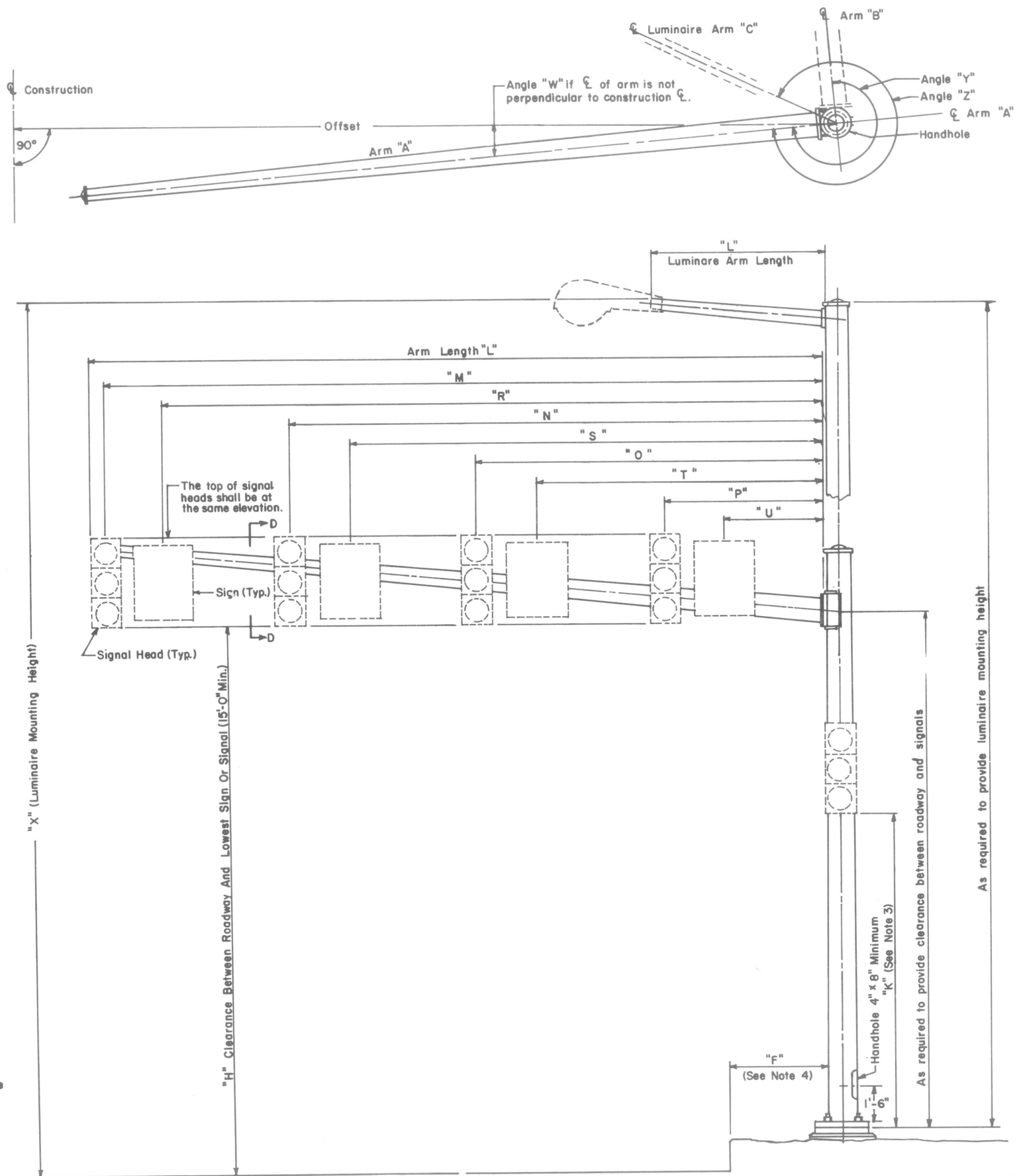
DETAIL A



Mast Arm Length	'BC' Bolt Circle	Dia. of Anchor Bolt
0'-15'	14"	3/4"
16'-20'	15"	1"
21'-25'	16"	1"
26'-30'	17"	1"
31'-35'	18"	1 1/4"
36'-40'	19"	1 1/4"
41'-45'	20"	1 1/4"
46'-50'	21"	1 1/4"

ANCHOR BASE

* As required to meet the department's "Criteria for the Design and Construction of Traffic-Related Structures."



NOTES

1. For foundation detail see sheet 3 of 4.
2. Handhole shall be placed 90° or 180° from the centerline of Arm "A".
3. Dimension "K" shall be from the sidewalk, if a sidewalk is present. If no sidewalk, dimension "K" shall be from the roadway.
4. Dimension "F" shall be 2'-0" minimum if there is a curb. If no curb, "F" shall be from edge of shoulder.
5. A "round tapered" support is used for illustration purposes. The type of support may be any of those indicated in Pub. 408.
6. A minimum of one ground rod shall be installed in each foundation. See TC-7804.
7. Arms greater than 30' may be two sections.
8. All signal heads and signs on the mast arm shall be rigidly mounted unless otherwise indicated. Mounting brackets shall:
 - a. Attach to the top and bottom of the signal head.
 - b. Permit adjustments shown in Detail A.
 - c. Have grommeted wire entrance.
 - d. Not entrap water inside the bracket.

Commonwealth of Pennsylvania
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY SERVICES

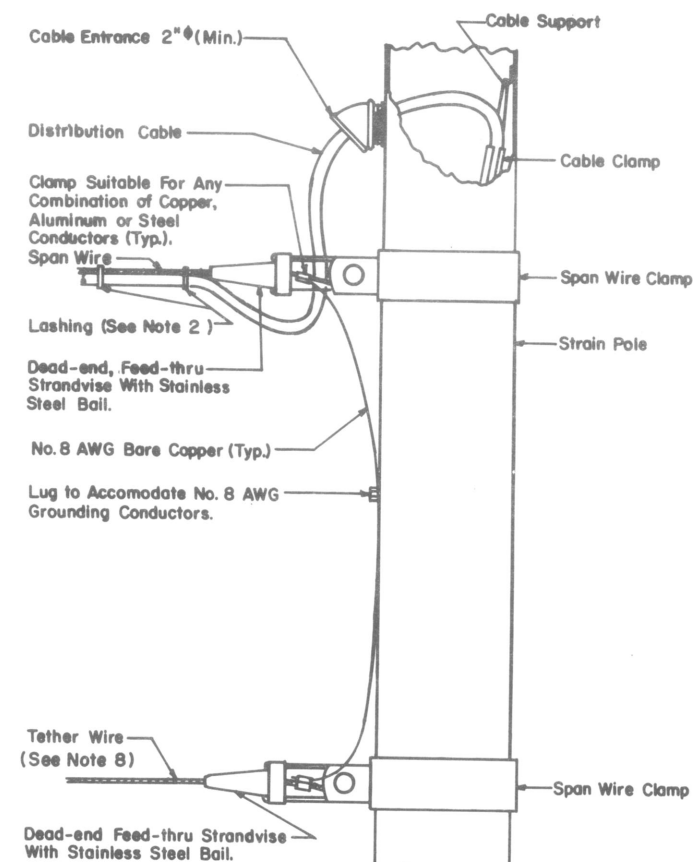
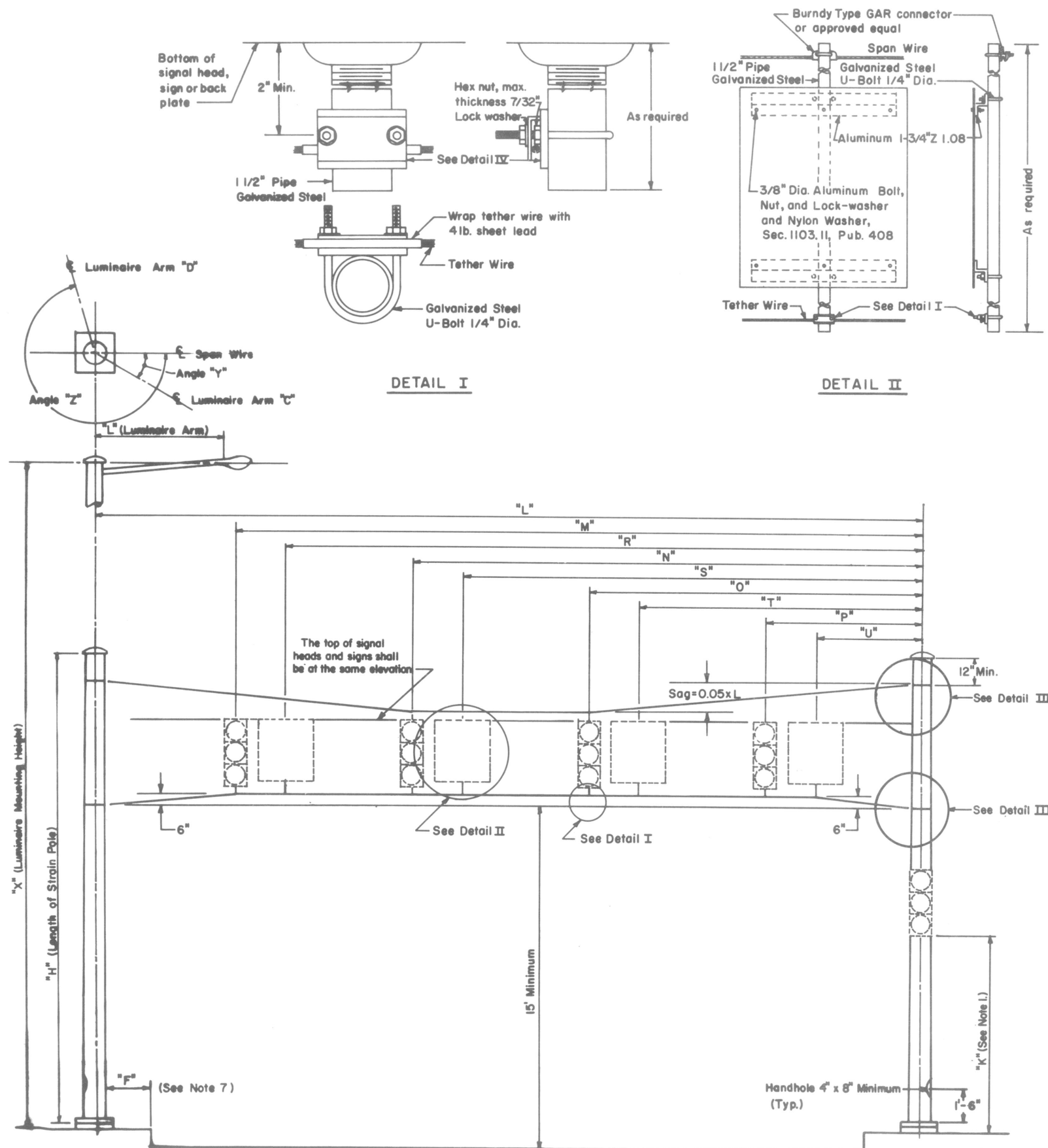
TRAFFIC SIGNAL SUPPORT
MAST ARM

Recommended 4/22/83
J.R. Doughty
Chief, Traffic Engineering and
Operations Division

Recommended 4/22/83
[Signature]
Chief Highway Engineer

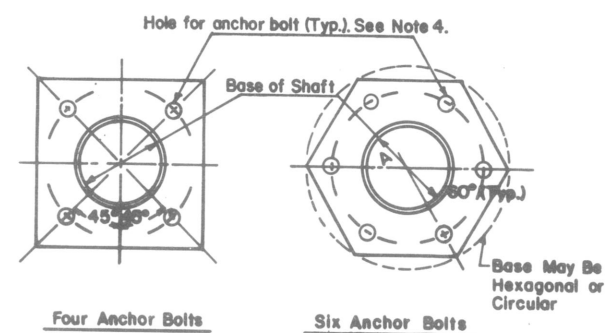
Sh. 1 of 4
TC-7801

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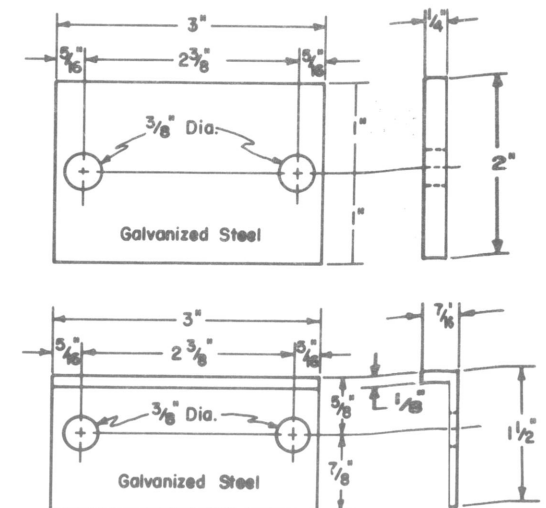
DETAIL III

Nom. Dia. of Span Wire	ASTM A-475 Siemens-Martin Grade	ASTM B-416
1/4"	3150	6301
5/16"	5350	10020
3/8"	6950	15930
7/16"	9350	19060
1/2"	12100	23000



ANCHOR BASE

- NOTES**
1. Dimension "K" shall be from the sidewalk if a sidewalk is present. If no sidewalk, dimension "K" shall be from the roadway.
 2. The distribution cable shall be lashed to the span wire by preformed galvanized steel rods, self-locking cable ties of the outdoor type, solid copper wire, galvanized steel wire or stainless steel wire. Wire used as a lashing shall make one complete wrap at intervals not exceeding six inches. Ends of wire lashing shall be secured to the span wire with an all purpose split bolt connector. Cable ties shall be placed at intervals not exceeding 12 inches.
 3. Dead-ends shall develop the strength of the span wire.
 4. Quantity and size of holes for anchor bolts shall conform to requirements on sheet 3 of 4.
 5. For foundation detail see sheet 3 of 4.
 6. A minimum of one ground rod shall be installed in each foundation. See TC-7804.
 7. Dimension "F" shall be 2'-0" minimum in curbed areas. If no curb "F" shall be from edge of shoulder.
 8. Tether wire shall have 1/4" diameter (nominal) with breaking strength of 1900 pounds meeting ASTM A-475, common grade, or ASTM B-416.



DETAIL IV

Commonwealth of Pennsylvania
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY SERVICES

TRAFFIC SIGNAL SUPPORT
STRAIN POLE

Recommended <u>4/22/83</u> <u>GRD</u> Chief, Traffic Engineering and Operations Division	Recommended <u>4/22/83</u> <u>W.H. B.</u> Chief Highway Engineer	St. <u>2</u> of <u>4</u> TC - 7801
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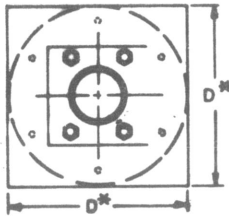
FOUNDATION FOR TRAFFIC SIGNAL SUPPORT, MAST ARM

Mast Arm Length	D	Anchor Bolts						Type A Foundation	
		Qty.	One Arm		Two Arms*		H	Qty.	Size
			Dia.	Lgth.	Dia.	Lgth.			
0'-5'	2'-6"	4	3/4"	3'-0"	1"	4'-0"	5'-0"	4	#8
6'-10'	2'-6"	4	3/4"	3'-0"	1"	4'-0"	5'-6"	4	#8
11'-15'	2'-6"	4	3/4"	3'-0"	1"	4'-0"	6'-0"	4	#8
16'-20'	2'-6"	4	1"	4'-0"	1 1/4"	5'-0"	6'-6"	4	#8
21'-25'	2'-6"	4	1"	4'-0"	1 1/4"	5'-0"	7'-0"	6	#8
26'-30'	3'-0"	4	1"	4'-0"	1 1/2"	5'-6"	7'-6"	6	#8
31'-35'	3'-0"	4	1 1/4"	5'-0"	1 1/2"	5'-6"	8'-6"	8	#8
36'-40'	3'-0"	4	1 1/4"	5'-0"	2"	6'-6"	9'-0"	8	#8
41'-45'	3'-0"	4	1 1/4"	5'-0"	2"	6'-6"	10'-0"	8	#8
46'-50'	3'-0"	4	1 1/4"	5'-0"	2"	6'-6"	10'-6"	8	#8

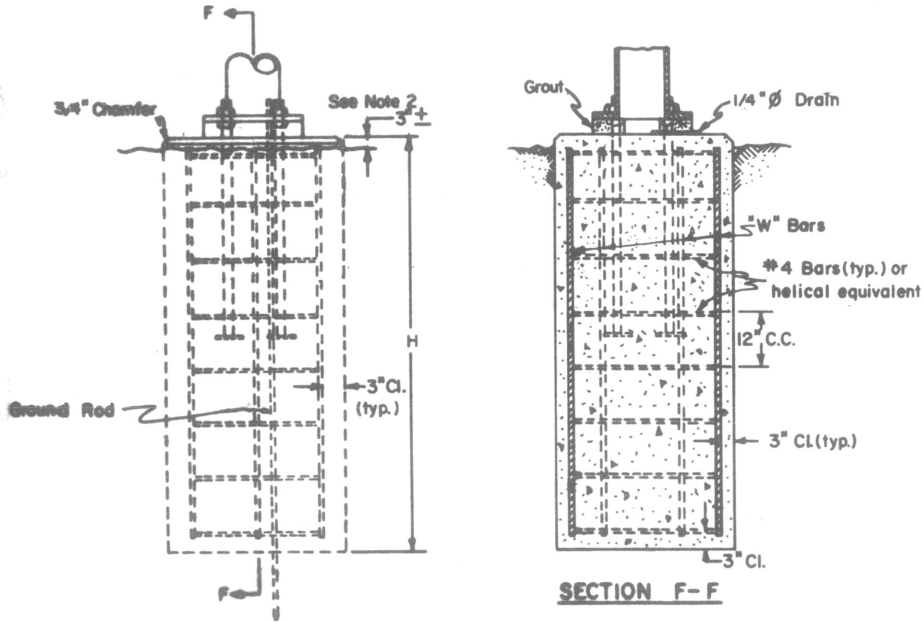
* Two arms perpendicular to each other.

When the shaft of the support is extended in length and provided with a luminaire arm the depth "H", required by the design table for the Type A foundation, shall be increased by 0'-6".

When a mast arm support has two arms which are perpendicular to each other, the foundation shall be as given in the design table for a single arm using the length of the longer arm.



* Diameter if circular or side if square. Circular foundations shall be square from the top to a point six inches below the ground line.



TYPE A FOUNDATION

FOUNDATION FOR TRAFFIC SIGNAL SUPPORT, STRAIN POLE

Design Tension Pounds	Shaft Length 20'-24'									Shaft Length 26'-32'												
	D	Anchor Bolts			Reinf. "W" Bar		20' Shaft	22' Shaft	24' Shaft	D	Anchor Bolts			Reinf. "W" Bar		26' Shaft	28' Shaft	30' Shaft	32' Shaft			
							Found. Depth H	Found. Depth H	Found. Depth H							Found. Depth H	Found. Depth H	Found. Depth H	Found. Depth H	Found. Depth H		
		Qty.	Dia.	Lgth.	Qty.	Size	Qty.	Dia.	Lgth.		Qty.	Size	Qty.	Dia.	Lgth.	Qty.	Size	Qty.	Dia.	Lgth.	Qty.	Size
1000	3'-0"	4	1"	3'-6"	4	#6	4'-0"	4'-0"	4'-0"	3'-0"	4	1"	4'-0"	4	#6	4'-0"	4'-6"	4'-6"	4'-6"	4'-6"		
1250	3'-0"	4	1"	4'-0"	4	#6	4'-0"	4'-6"	4'-6"	3'-0"	4	1"	4'-0"	4	#6	4'-6"	5'-0"	5'-0"	5'-0"	5'-0"		
1500	3'-0"	4	1"	4'-0"	4	#6	4'-6"	5'-0"	5'-0"	3'-0"	4	1 1/4"	5'-0"	4	#6	5'-0"	5'-6"	5'-6"	5'-6"	5'-6"		
1750	3'-0"	4	1"	4'-0"	4	#6	5'-0"	5'-0"	5'-6"	3'-0"	4	1 1/4"	5'-0"	4	#6	5'-6"	6'-0"	6'-0"	6'-0"	6'-0"		
2000	3'-0"	4	1 1/4"	5'-0"	4	#6	5'-6"	5'-6"	6'-0"	3'-0"	4	1 1/2"	5'-6"	4	#6	6'-0"	6'-0"	6'-6"	6'-6"			
2250	3'-0"	4	1 1/4"	5'-0"	4	#6	5'-6"	6'-0"	6'-0"	3'-0"	4	1 1/2"	5'-6"	4	#7	6'-6"	6'-6"	7'-0"	7'-0"			
2500	3'-0"	4	1 1/4"	5'-0"	4	#6	6'-0"	6'-6"	6'-6"	3'-0"	4	1 1/2"	5'-6"	4	#7	7'-0"	7'-0"	7'-0"	7'-6"			
2750	3'-0"	4	1 1/2"	5'-6"	4	#6	6'-6"	6'-6"	7'-0"	3'-0"	4	1 1/2"	5'-6"	4	#7	7'-0"	7'-6"	7'-6"	8'-0"			
3000	3'-0"	4	1 1/2"	5'-6"	4	#7	6'-6"	7'-0"	7'-0"	3'-0"	4	1 1/2"	5'-6"	6	#7	7'-6"	7'-6"	8'-0"	8'-0"			
3250	3'-0"	4	1 1/2"	5'-6"	4	#7	7'-0"	7'-0"	7'-6"	3'-0"	4	1 1/2"	5'-6"	6	#7	8'-0"	8'-0"	8'-6"	8'-6"			
3500	3'-0"	4	1 1/2"	5'-6"	4	#7	7'-0"	7'-6"	8'-0"	3'-0"	4	2"	6'-6"	6	#7	8'-0"	8'-6"	8'-6"	9'-0"			
3750	3'-0"	4	1 1/2"	5'-6"	6	#7	7'-6"	8'-0"	8'-0"	3'-0"	4	2"	6'-6"	6	#7	8'-6"	9'-0"	9'-0"	9'-6"			
4000	3'-0"	4	1 1/2"	5'-6"	6	#7	8'-0"	8'-0"	8'-6"	3'-0"	4	2"	6'-6"	6	#7	9'-0"	9'-0"	9'-6"	9'-6"			
4250	3'-0"	4	1 1/2"	5'-6"	6	#7	8'-0"	8'-6"	9'-0"	3'-0"	4	2"	6'-6"	6	#7	9'-0"	9'-6"	10'-0"	10'-0"			
4500	3'-0"	4	1 1/2"	5'-6"	6	#7	8'-6"	8'-6"	9'-0"	3'-0"	4	2"	6'-6"	8	#7	9'-6"	9'-6"	10'-0"	10'-6"			
4750	3'-0"	4	1 1/2"	5'-6"	6	#7	8'-6"	9'-0"	9'-6"	3'-0"	4	2"	6'-6"	8	#7	9'-6"	10'-0"	10'-6"	10'-6"			
5000	3'-0"	4	2"	6'-6"	6	#7	9'-0"	9'-6"	9'-6"	3'-0"	4	2"	6'-6"	8	#7	10'-0"	10'-6"	10'-6"	11'-0"			
5500	3'-0"	4	2"	6'-6"	8	#7	9'-6"	10'-0"	10'-0"	3'-0"	4	2"	6'-6"	8	#8	10'-6"	11'-0"	11'-0"	11'-6"			
6000	3'-0"	4	2"	6'-6"	8	#7	10'-0"	10'-0"	10'-6"	3'-0"	6	1 1/2"	5'-6"	8	#8	11'-0"	11'-6"	12'-0"	12'-0"			
6500	3'-0"	4	2"	6'-6"	8	#7	10'-6"	11'-0"	11'-0"	3'-0"	6	2"	6'-6"	8	#8	11'-6"	12'-0"	12'-6"	13'-0"			
7000	3'-0"	4	2"	6'-6"	8	#8	11'-0"	11'-6"	12'-0"	3'-0"	6	2"	6'-6"	8	#8	12'-0"	12'-6"	13'-0"	13'-6"			
8000	3'-0"	6	1 1/2"	5'-6"	8	#8	12'-0"	12'-6"	12'-6"	3'-0"	6	2"	6'-6"	10	#8	13'-0"	13'-6"	14'-0"	14'-6"			
9000	3'-0"	6	1 1/2"	5'-6"	8	#8	12'-6"	13'-0"	13'-6"	3'-0"	6	2"	6'-6"	10	#8	14'-0"	14'-6"	15'-0"	15'-6"			
10000	3'-0"	6	2"	6'-6"	10	#8	13'-6"	14'-0"	14'-6"	3'-0"	6	2"	6'-6"	10	#8	15'-0"	15'-6"	16'-0"	16'-6"			

FOUNDATION FOR TRAFFIC SIGNAL SUPPORT, PEDESTAL

Type A Foundation						
Shaft Length	D	Anchor Bolts			Depth H	Reinforcement "W" Bars
		Qty.	Dia.	Lgth.		
0'-10'	2'-6"	4	3/4"	3'-0"	4'-0"	#8
11'-14'	2'-6"	4	3/4"	3'-0"	5'-0"	#8

GENERAL NOTES:

Mast Arm and Strain Pole Foundations:

- The Type A foundation shall be required at all locations, except the Type B foundation (sheet 4) may be used when physical conditions prevent placing the Type A foundation to its required depth.
- When foundations are placed in a paved sidewalk, the top of foundation shall be flush with the surface of the adjacent pavement.
- Anchor bolts shall be provided with threads which extend a minimum of three inches below the top of the foundation. A 4"x4"x1/4" minimum steel plate shall be welded to bottom of each anchor bolt.

Commonwealth of Pennsylvania
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY SERVICES

TRAFFIC SIGNAL SUPPORT
FOUNDATIONS
TYPE A

Recommended 4/22/83
JRD
Chief, Traffic Engineering and Operations Division

Recommended 4/22/83
Chief Highway Engineer

Sheet 3 of 4
TC-7801

FOUNDATION FOR TRAFFIC SIGNAL SUPPORT, MAST ARM

Mast Arm Length	D	Anchor Bolts				Reinforcement		Type B Foundation					
		Qty.	One Arm		Two Arms ✕		Qty.	Size	Y	S	Z	S	
			Dia.	Lgth.	Dia.	Lgth.							
0'-5'	2'-6"	4	3/4"	3'-0"	1"	4'-0"	4	✕ 8	✕ 4	3'-0"	7'-0"	4'-6"	5'-6"
6'-10'	2'-6"	4	3/4"	3'-0"	1"	4'-0"	4	✕ 8	✕ 4	3'-6"	7'-0"	5'-0"	6'-0"
11'-15'	2'-6"	4	3/4"	3'-0"	1"	4'-0"	4	✕ 8	✕ 4	3'-6"	7'-6"	5'-0"	6'-6"
16'-20'	2'-6"	4	1"	4'-0"	1 1/4"	5'-0"	4	✕ 8	✕ 4	4'-0"	8'-0"	5'-6"	7'-0"
21'-25'	2'-6"	4	1"	4'-0"	1 1/4"	5'-0"	6	✕ 8	✕ 4	4'-0"	8'-6"	6'-0"	7'-6"
26'-30'	3'-0"	4	1"	4'-0"	1 1/2"	5'-6"	6	✕ 8	✕ 4	4'-6"	9'-0"	6'-6"	8'-0"
31'-35'	3'-0"	4	1 1/4"	5'-0"	1 1/2"	5'-6"	8	✕ 8	✕ 4	4'-6"	9'-6"	7'-0"	8'-6"
36'-40'	3'-0"	4	1 1/4"	5'-0"	2"	6'-6"	8	✕ 8	✕ 5	5'-0"	10'-0"	7'-0"	9'-0"
41'-45'	3'-0"	4	1 1/4"	5'-0"	2"	6'-6"	8	✕ 8	✕ 5	5'-0"	10'-6"	7'-6"	9'-6"
46'-50'	3'-0"	4	1 1/4"	5'-0"	2"	6'-6"	8	✕ 8	✕ 5	5'-6"	11'-0"	8'-0"	10'-0"

* Two arms perpendicular to each other.

No deviation in the foundation will be required when the shaft of the support is extended in length to support a luminaire arm.

When a mast arm support has two arms which are perpendicular to each other the foundation shall be as given in the design table for a single arm using the length of the longer arm, except the "S" dimension which shall be increased as follows:

0'-35' arm length, increase "S" by 1'-0"

36'-40' arm length, increase "S" by 1'-6"

41'-45' arm length, increase "S" by 2'-0"

46'-50' arm length, increase "S" by 2'-6"

GENERAL NOTES:

Mast Arm and Strain Pole Foundations:

1. The Type B foundation with a "Y" or "Z" dimension less than four feet should be constructed only under unavoidable circumstances with approval of the Engineer.

2. When foundations are placed in a paved sidewalk, the top of the foundation shall be flush with the surface of the adjacent pavement.

3. Anchor bolts shall be provided with standard 90° hooks when length of bolt exceeds depth of foundation.

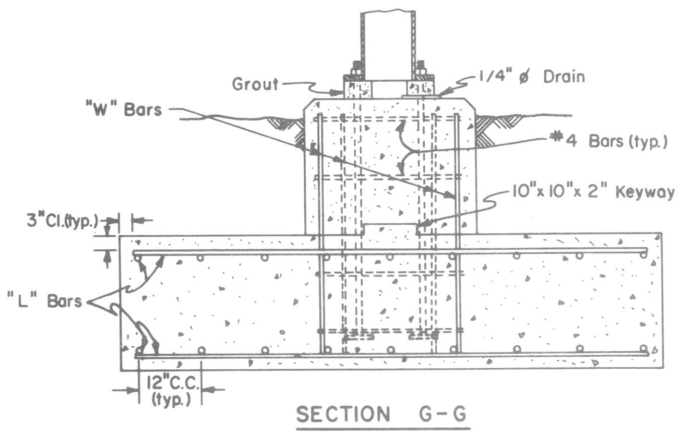
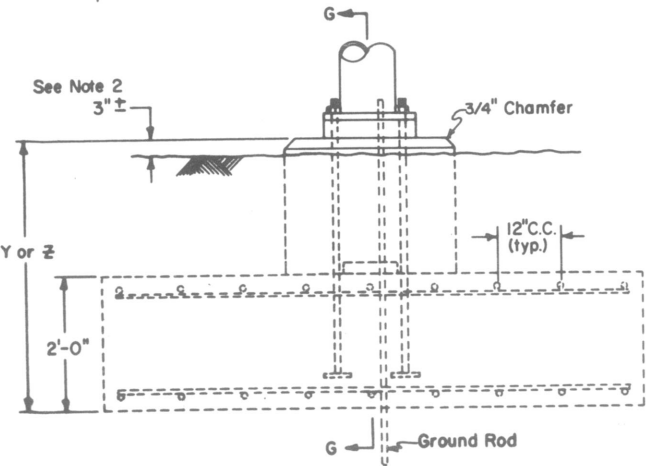
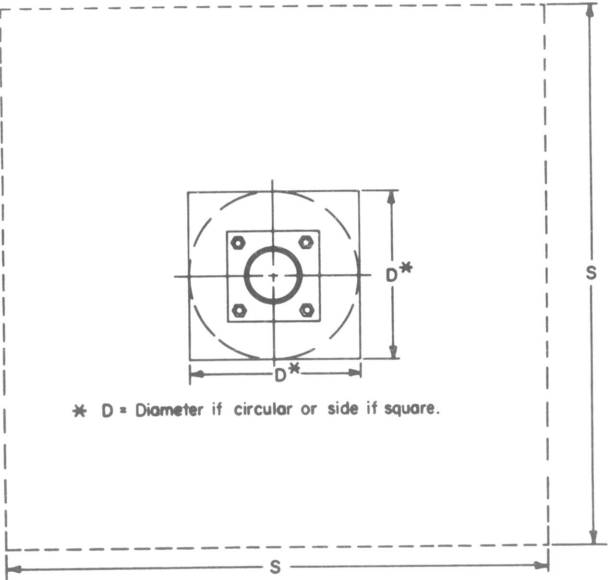
4. Anchor bolts shall be provided with threads which extend a minimum of three inches below the top of the foundation.

A 4"x4"x1/4" minimum steel plate shall be welded to the bottom of each anchor bolt.

5. The Type B foundation may be authorized for use where conditions prevent placing the Type A foundation (sheet 3) to its required depth.

FOUNDATION FOR TRAFFIC SIGNAL SUPPORT, STRAIN POLE

Design Tension Pounds	D	Shaft Length 20'- 24'								Shaft Length 26'- 32'											
		Anchor Bolts			Reinforcement			Type B Foundation		Anchor Bolts			Reinforcement			Type B Foundation					
		Qty.	Dia.	Lgth.	"W" Qty.	Bar Size	"L" Bar Size	Y	S	Z	S	Qty	Dia.	Lgth.	"W" Qty.	Bar Size	"L" Bar Size	Y	S	Z	S
1250	3'-0"	—	—	—	—	—	—	—	—	—	4	1"	4'-0"	4	#6	#4	—	—	3'-0"	8'-6"	
1500	3'-0"	4	1"	4'-0"	4	#6	#4	—	—	3'-0"	8'-6"	4	1 1/4"	5'-0"	4	#6	#4	—	—	3'-0"	9'-0"
1750	3'-0"	4	1"	4'-0"	4	#6	#4	—	—	3'-0"	8'-6"	4	1 1/4"	5'-0"	4	#6	#4	—	—	3'-6"	9'-0"
2000	3'-0"	4	1 1/4"	5'-0"	4	#6	#4	—	—	3'-0"	9'-0"	4	1 1/2"	5'-6"	4	#6	#4	3'-0"	10'-0"	4'-0"	9'-6"
2250	3'-0"	4	1 1/4"	5'-0"	4	#6	#4	—	—	3'-6"	9'-0"	4	1 1/2"	5'-6"	4	#7	#4	3'-0"	10'-6"	4'-6"	9'-6"
2500	3'-0"	4	1 1/4"	5'-0"	4	#6	#4	3'-0"	10'-0"	4'-0"	9'-0"	4	1 1/2"	5'-6"	4	#7	#4	3'-6"	10'-6"	4'-6"	9'-6"
2750	3'-0"	4	1 1/2"	5'-6"	4	#6	#4	3'-0"	10'-0"	4'-0"	9'-6"	4	1 1/2"	5'-6"	4	#7	#4	3'-6"	10'-6"	4'-6"	10'-0"
3000	3'-0"	4	1 1/2"	5'-6"	4	#7	#4	3'-0"	10'-6"	4'-0"	10'-0"	4	1 1/2"	5'-6"	6	#7	#4	3'-6"	11'-0"	5'-0"	10'-0"
3250	3'-0"	4	1 1/2"	5'-6"	4	#7	#4	3'-6"	10'-6"	4'-6"	10'-0"	4	1 1/2"	5'-6"	6	#7	#4	4'-0"	11'-0"	5'-0"	10'-6"
3500	3'-0"	4	1 1/2"	5'-6"	4	#7	#4	3'-6"	10'-6"	4'-6"	10'-0"	4	2"	6'-6"	6	#7	#4	4'-0"	11'-0"	5'-0"	10'-6"
3750	3'-0"	4	1 1/2"	5'-6"	6	#7	#4	3'-6"	11'-0"	5'-0"	10'-0"	4	2"	6'-6"	6	#7	#4	4'-0"	11'-6"	5'-6"	10'-6"
4000	3'-0"	4	1 1/2"	5'-6"	6	#7	#4	4'-0"	11'-0"	5'-0"	10'-0"	4	2"	6'-6"	6	#7	#4	4'-6"	11'-6"	6'-0"	10'-6"
4250	3'-0"	4	1 1/2"	5'-6"	6	#7	#4	4'-0"	11'-0"	5'-0"	10'-6"	4	2"	6'-6"	6	#7	#4	4'-6"	11'-6"	6'-0"	11'-0"
4500	3'-0"	4	1 1/2"	5'-6"	6	#7	#4	4'-0"	11'-0"	5'-6"	10'-6"	4	2"	6'-6"	8	#7	#4	4'-6"	12'-0"	6'-0"	11'-0"
4750	3'-0"	4	1 1/2"	5'-6"	6	#7	#4	4'-0"	11'-6"	5'-6"	10'-6"	4	2"	6'-6"	8	#7	#4	4'-6"	12'-0"	6'-0"	11'-0"
5000	3'-0"	4	2"	6'-6"	6	#7	#4	4'-6"	11'-0"	6'-0"	10'-6"	4	2"	6'-6"	8	#7	#5	5'-0"	12'-0"	6'-6"	11'-0"
5500	3'-0"	4	2"	6'-6"	8	#7	#4	4'-6"	11'-6"	6'-0"	10'-6"	4	2"	6'-6"	8	#8	#5	5'-0"	12'-6"	7'-0"	11'-6"
6000	3'-0"	4	2"	6'-6"	8	#7	#5	5'-0"	11'-6"	6'-6"	11'-0"	6	1 1/2"	5'-6"	8	#8	#5	5'-6"	12'-6"	7'-0"	11'-6"
6500	3'-0"	4	2"	6'-6"	8	#7	#5	5'-0"	12'-0"	6'-6"	11'-0"	6	2"	6'-6"	8	#8	#5	5'-6"	12'-6"	7'-6"	11'-6"
7000	3'-0"	4	2"	6'-6"	8	#8	#5	5'-0"	12'-0"	7'-0"	11'-6"	6	2"	6'-6"	8	#8	#5	6'-0"	12'-6"	8'-0"	12'-0"
8000	3'-0"	6	1 1/2"	5'-6"	8	#8	#5	5'-6"	12'-6"	7'-6"	11'-6"	6	2"	6'-6"	10	#8	#6	6'-6"	13'-0"	8'-6"	12'-0"
9000	3'-0"	6	1 1/2"	5'-6"	8	#8	#5	6'-0"	12'-6"	8'-0"	12'-0"	6	2"	6'-6"	10	#8	#6	7'-0"	13'-6"	9'-0"	12'-6"
10000	3'-0"	6	2"	6'-6"	10	#8	#5	6'-6"	13'-0"	8'-6"	12'-0"	6	2"	6'-6"	10	#8	#6	7'-6"	13'-6"	10'-0"	12'-6"



TYPE B FOUNDATION

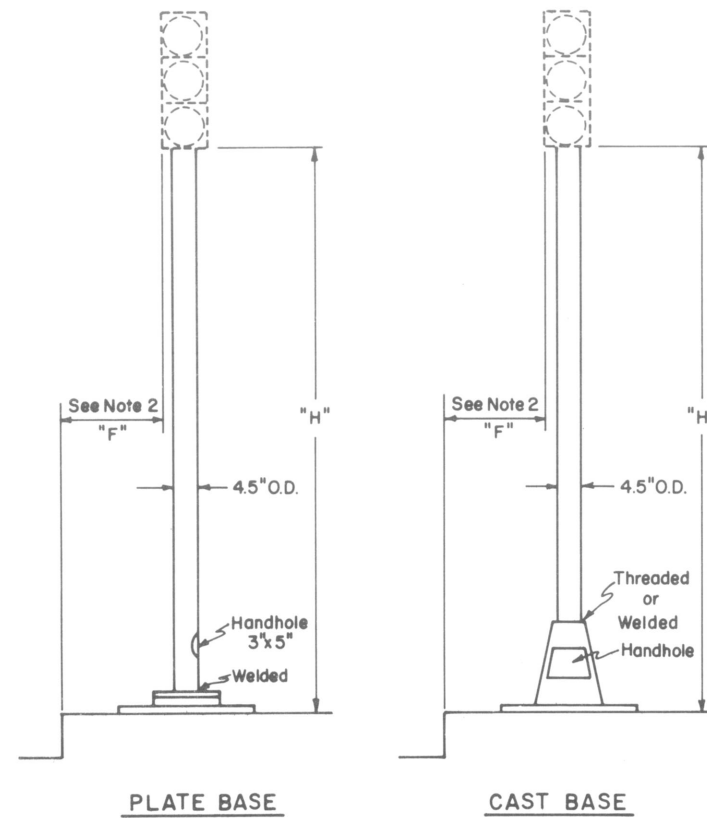
SECTION G-G

Commonwealth of Pennsylvania
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY SERVICES

TRAFFIC SIGNAL SUPPORT
FOUNDATIONS
TYPE B

Recommended *Hicks* Recommended *Hicks* Sh. 4 of 4
Chief, Traffic Engineering and Chief Highway Engineer
Operations Division TC-7801

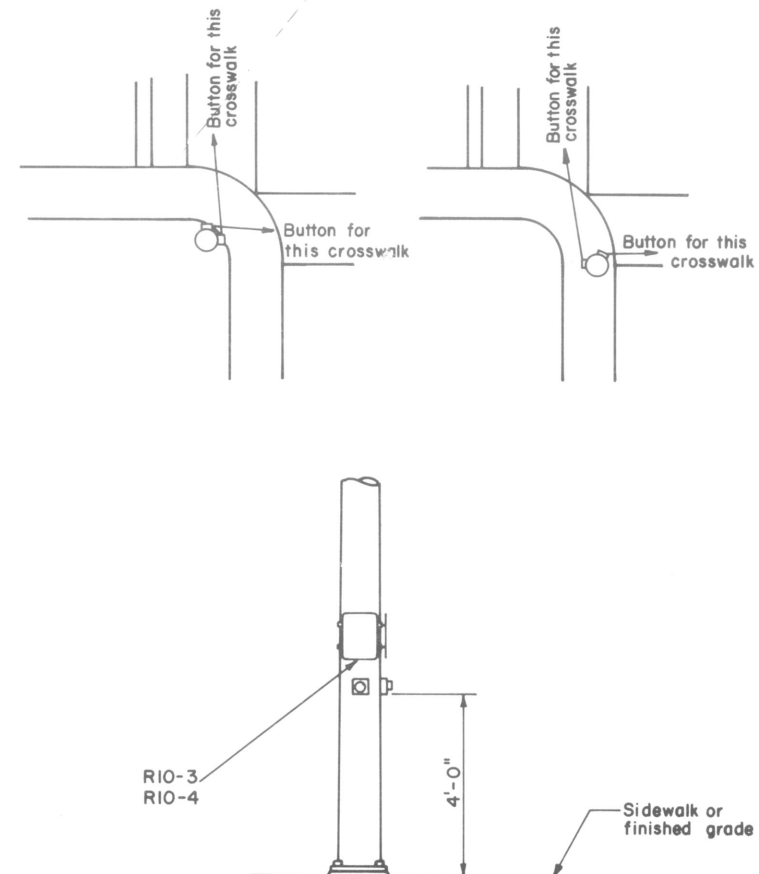
Signal head may be vehicular or pedestrian or combinations of each.



NOTES

1. Dimension "H" shall be from sidewalk if a sidewalk is present. If no sidewalk dimension "H" shall be from the roadway.
2. Clearance shall be 2'-0" minimum. If there is no curb, clearance shall be from edge of shoulder.
3. For detail of foundation see TC-7801.

PEDESTAL SUPPORT - ALUMINUM OR STEEL



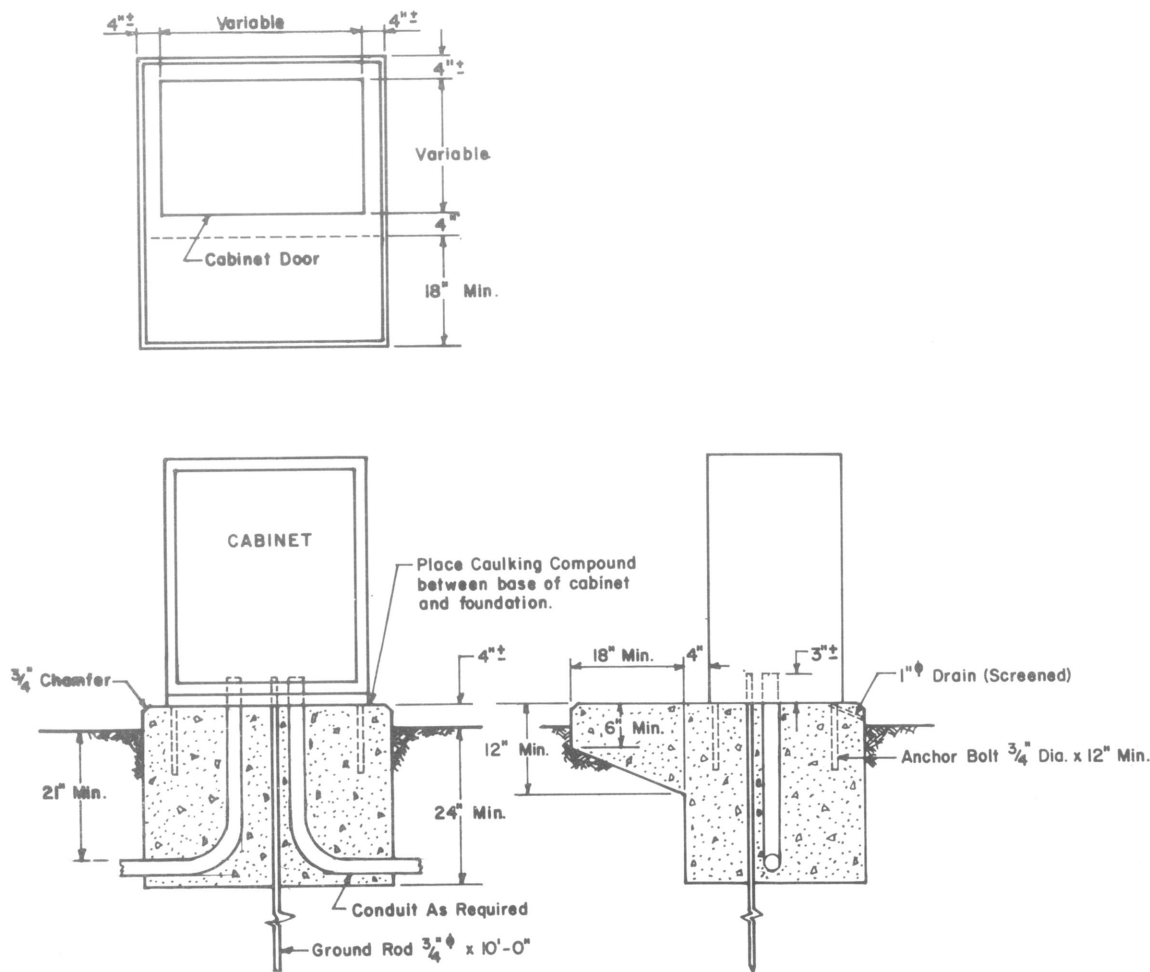
PEDESTRIAN PUSH BUTTON PLACEMENT

Commonwealth of Pennsylvania
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY SERVICES

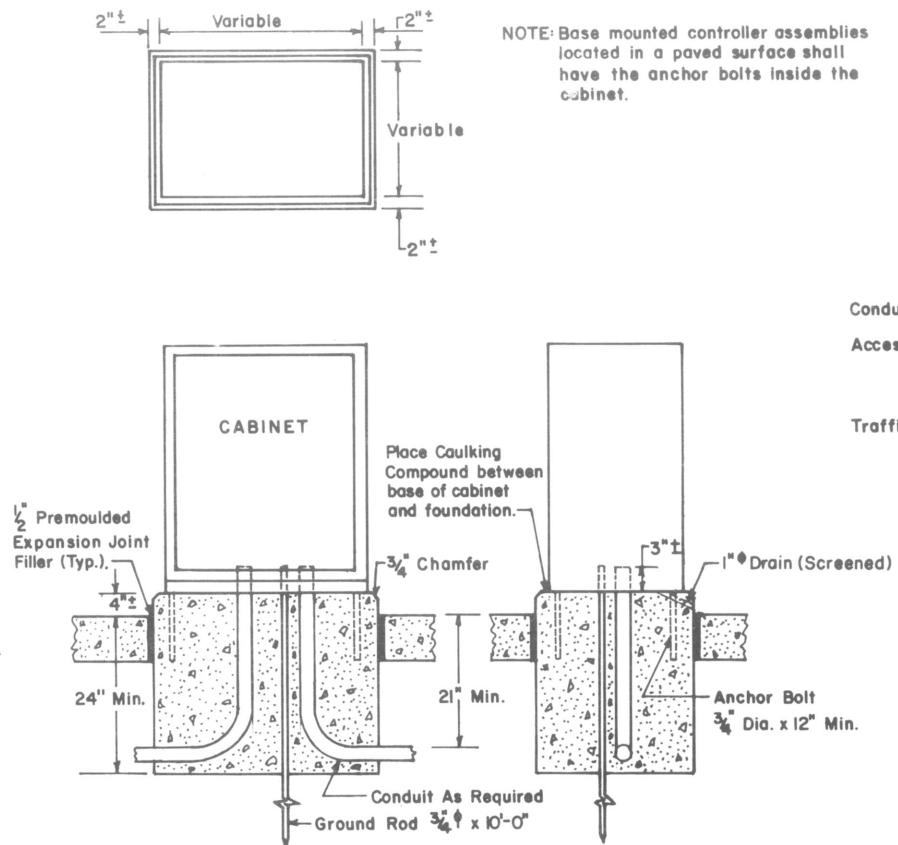
MISCELLANEOUS DETAILS

Recommended <u>4/22/83</u> Chief, Traffic Engineering and Operations Division	Recommended <u>4/22/83</u> Chief Highway Engineer	Page <u>1</u> of <u>1</u>
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TC-7808



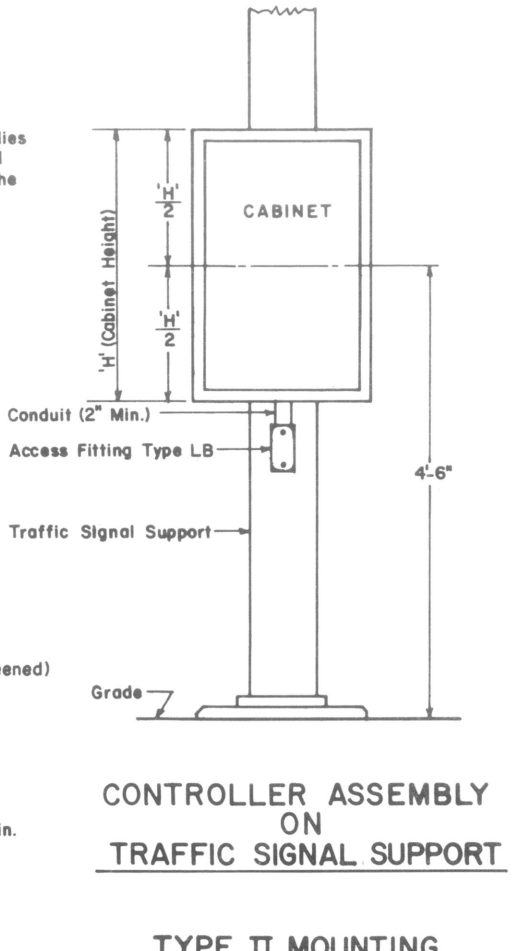
IN EARTH



IN PAVED SURFACE

CONTROLLER ASSEMBLY ON CEMENT CONCRETE FOUNDATION

TYPE I MOUNTING

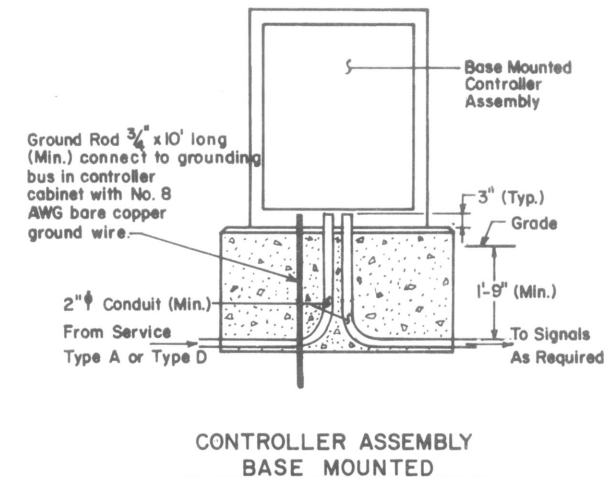
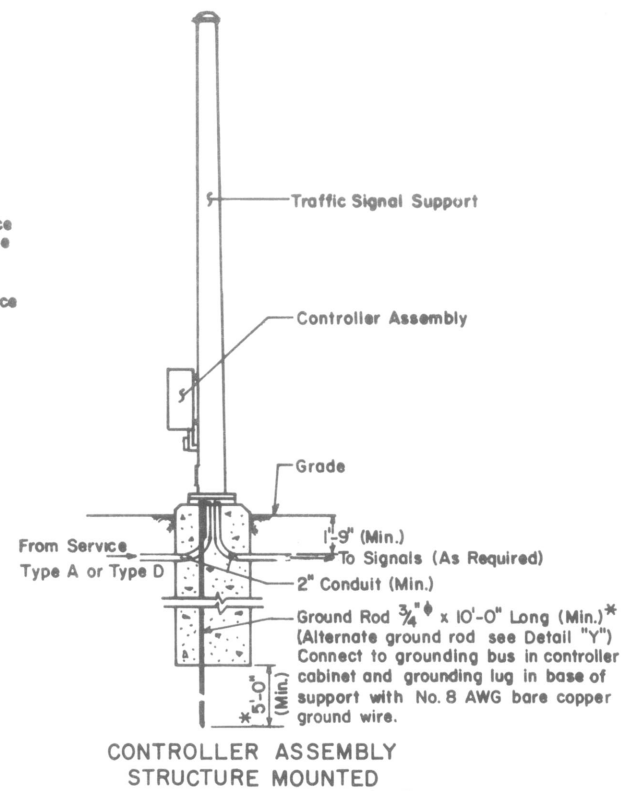
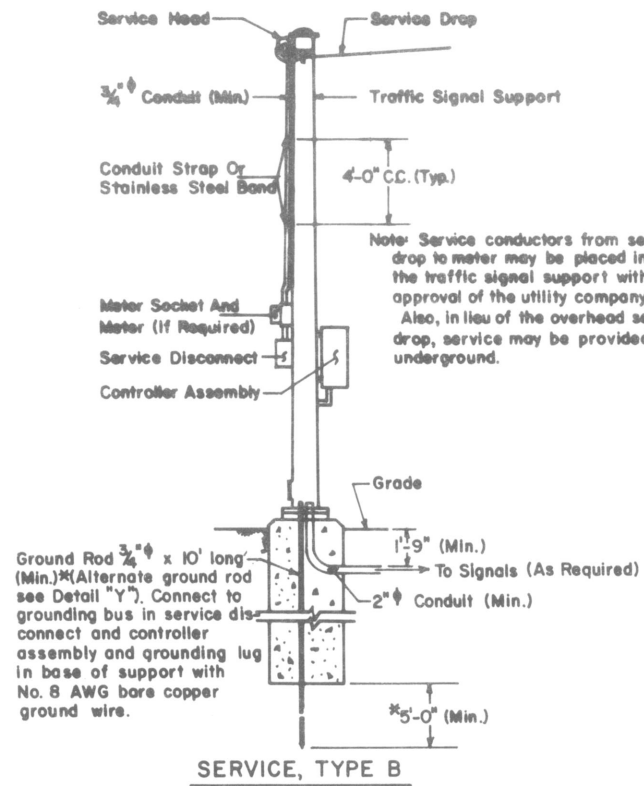
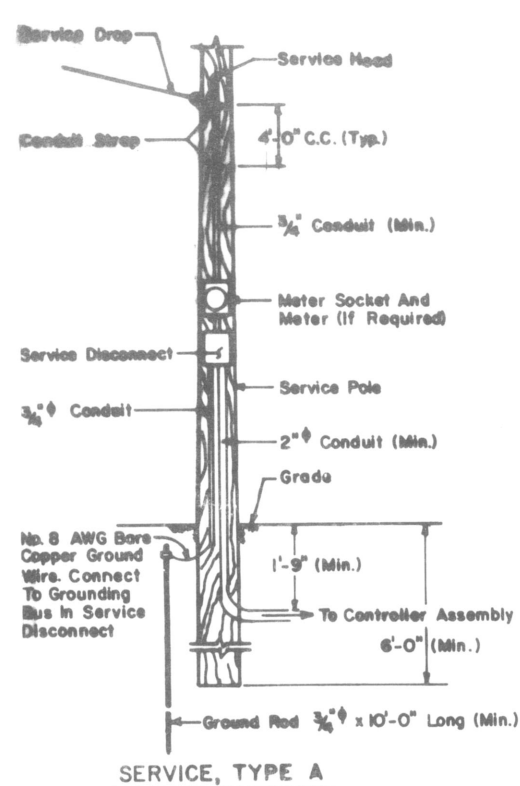


CONTROLLER ASSEMBLY ON TRAFFIC SIGNAL SUPPORT

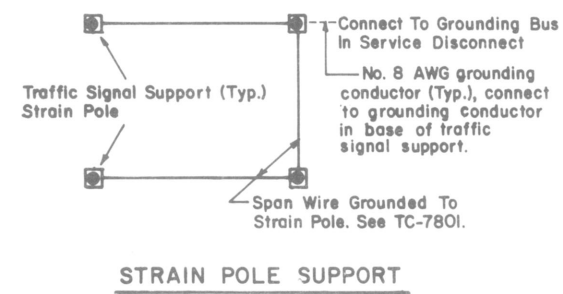
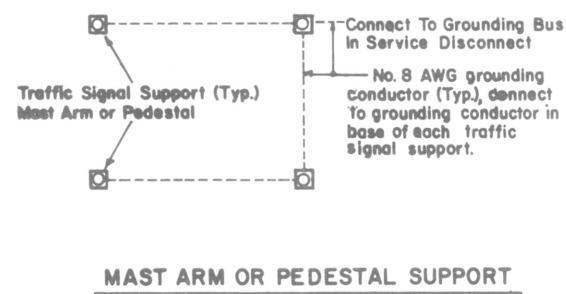
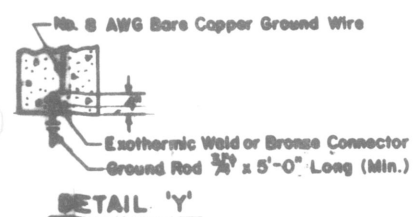
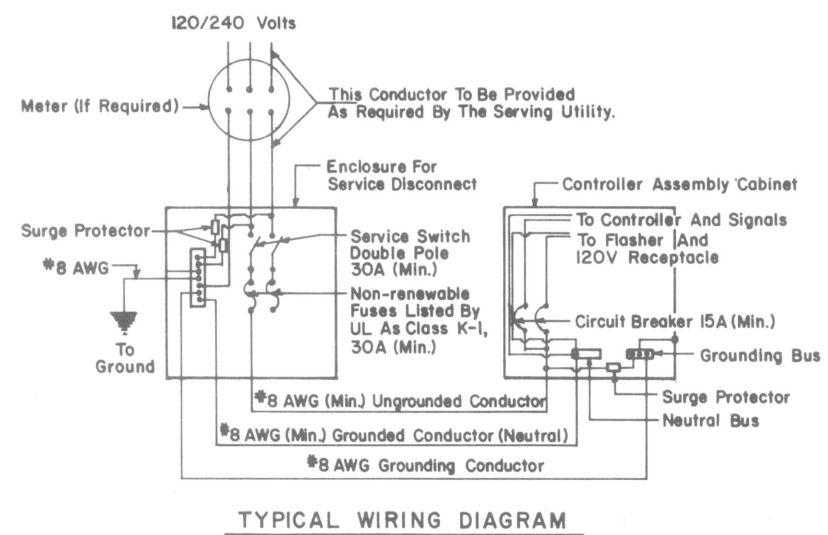
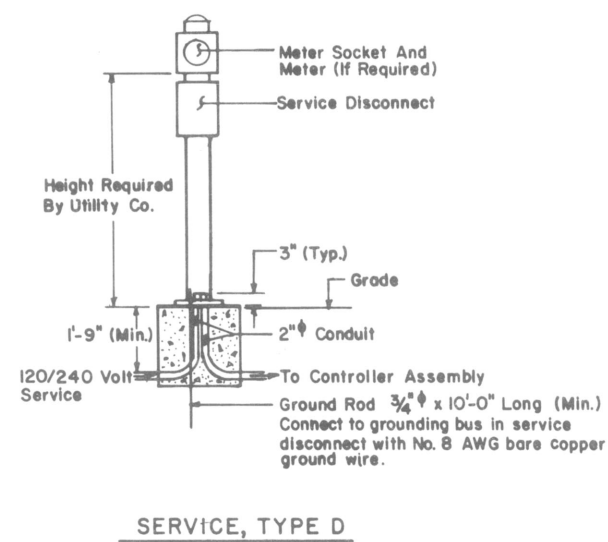
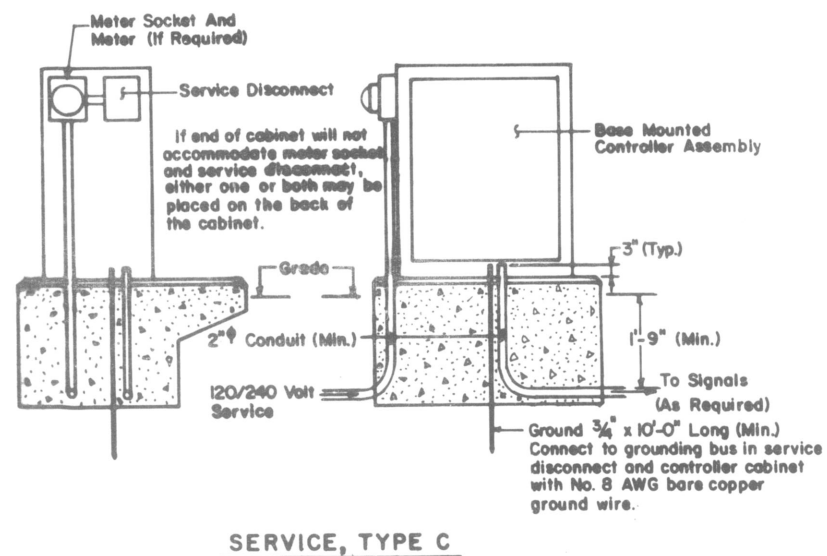
TYPE II MOUNTING

- NOTES
1. Ground Rod shall be as specified in Section 1101.11 (j), Publication 408.
 2. Anchor bolt, nut and washer shall be galvanized.
 3. Hardware for attaching cabinet to traffic signal support shall be aluminum, galvanized steel, or stainless steel.

Commonwealth of Pennsylvania DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY SERVICES		
CONTROLLER ASSEMBLY		
Recommended 4/22/83 JRD Chief, Traffic Engineering and Operations Section	Recommended 4/22/83 [Signature] Chief Highway Engineer	Sht. 1 of 1 TC-7002

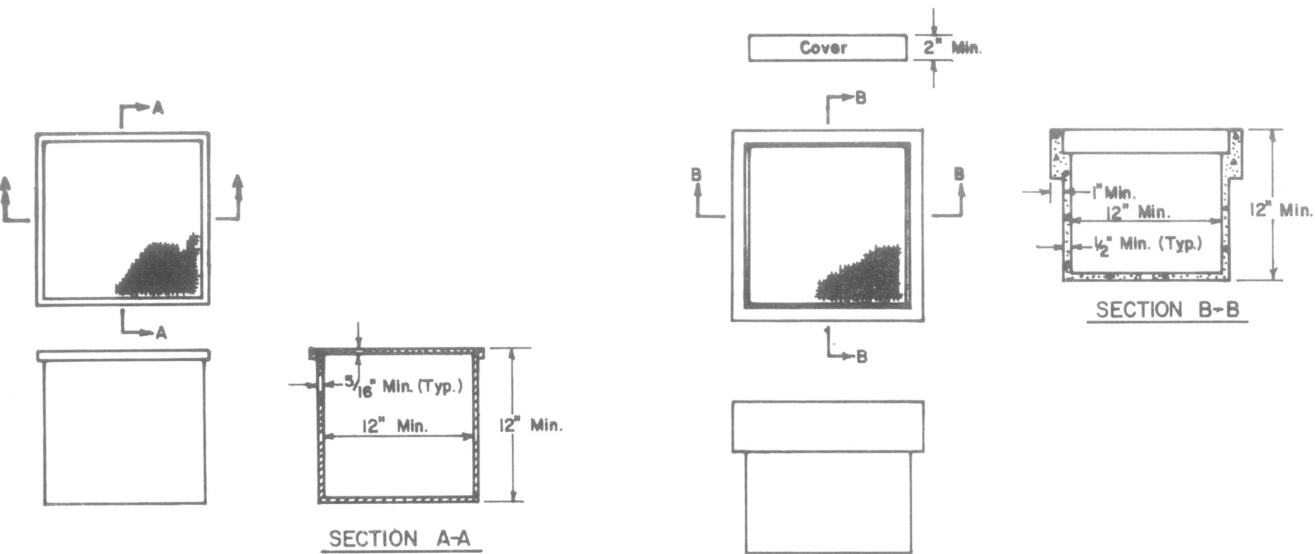


- ### NOTES
1. For detail of traffic signal support foundation see TC-7801.
 2. For detail of controller assembly foundation see TC-7802.



GROUNDING SYSTEM

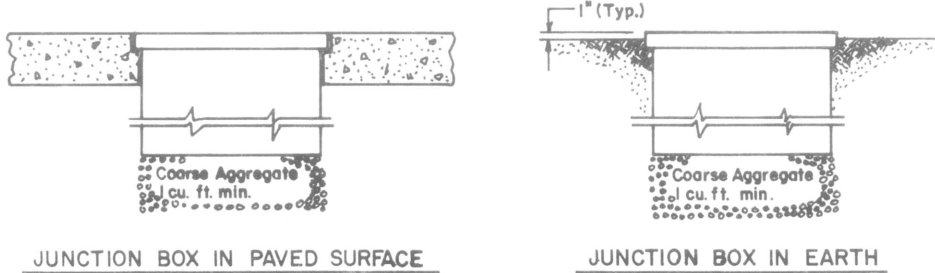
ELECTRICAL DISTRIBUTION



CAST IRON OR STEEL

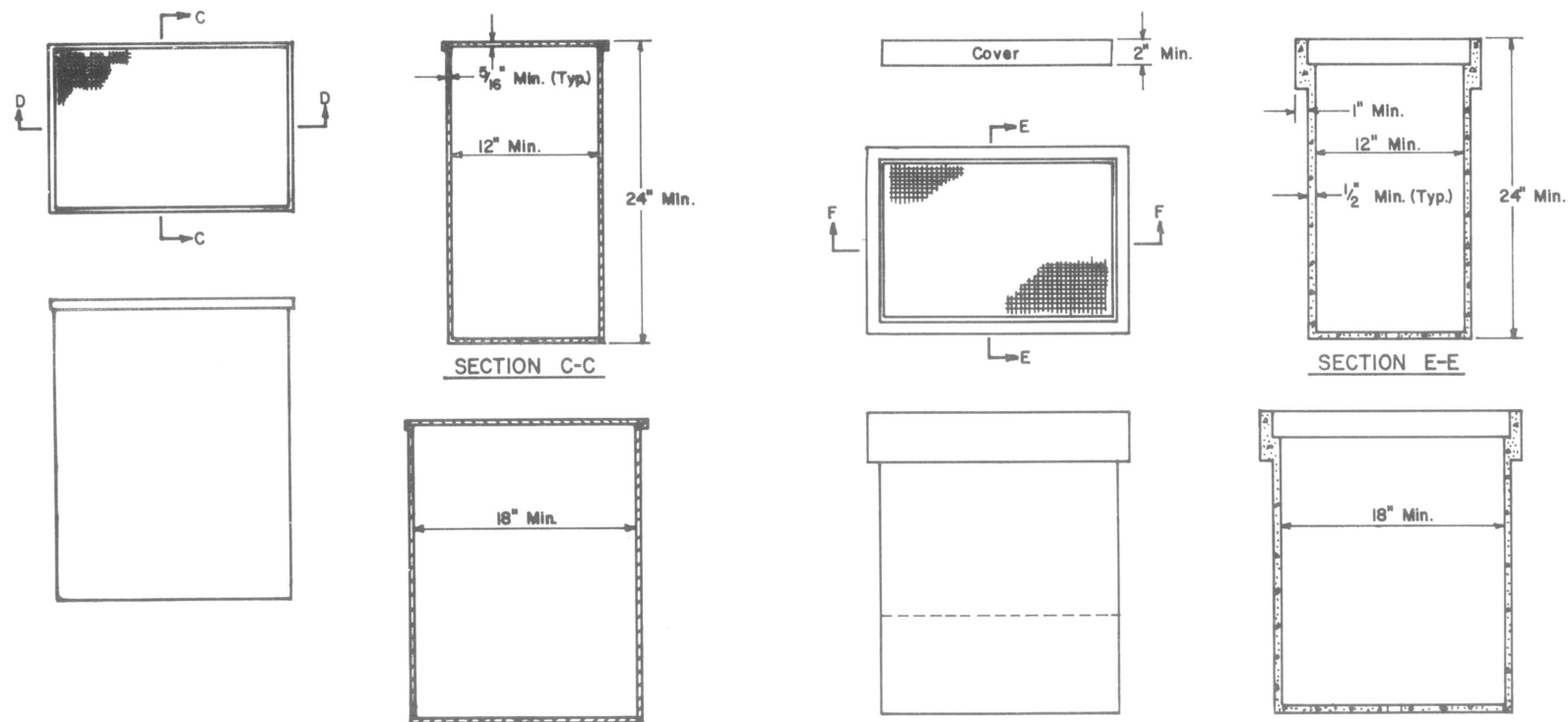
REINFORCED PLASTIC MORTAR

JUNCTION BOX TYPE JB-26



TYPICAL JUNCTION BOX INSTALLATION

- NOTES
1. Junction Boxes—Cover shall be provided with a non-slip surface and a minimum of two corrosion resistant fasteners.
 2. Junction Boxes—JB-26 and JB-27 shall only be used in areas not subject to vehicular traffic.
 3. Junction Boxes—Bottom may be open or closed, if closed provide a drain hole. (1" Diameter Minimum).

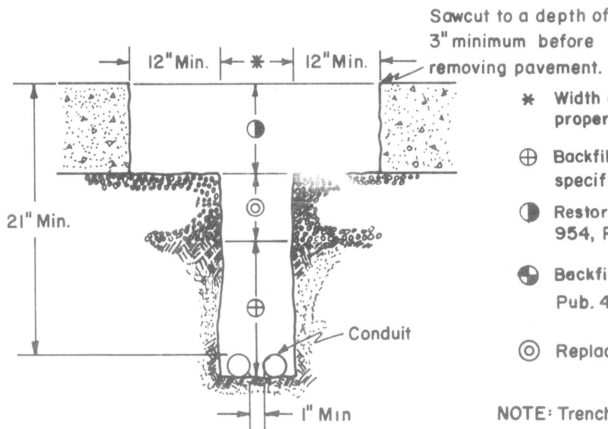


CAST IRON OR STEEL

REINFORCED PLASTIC MORTAR

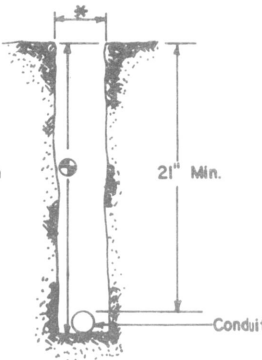
JUNCTION BOX TYPE JB-27

Box may be one or two piece, if two, the pieces shall be joined by an adhesive recommended by the manufacturer.



TRENCH AND BACKFILL TYPE I
(EXISTING ROADWAY)

- NOTE: Trench in other paved surfaces shall be backfilled with coarse aggregate and pavement replaced in kind.
- * Width of trench will be as required to properly install conduit and backfill.
 - ⊕ Backfill with suitable on-site material as specified.
 - ⊙ Restore pavement as specified in Section 954, Pub. 408.
 - ⊕ Backfill as specified in Section 954, Pub. 408.
 - ⊙ Replace subbase in kind.



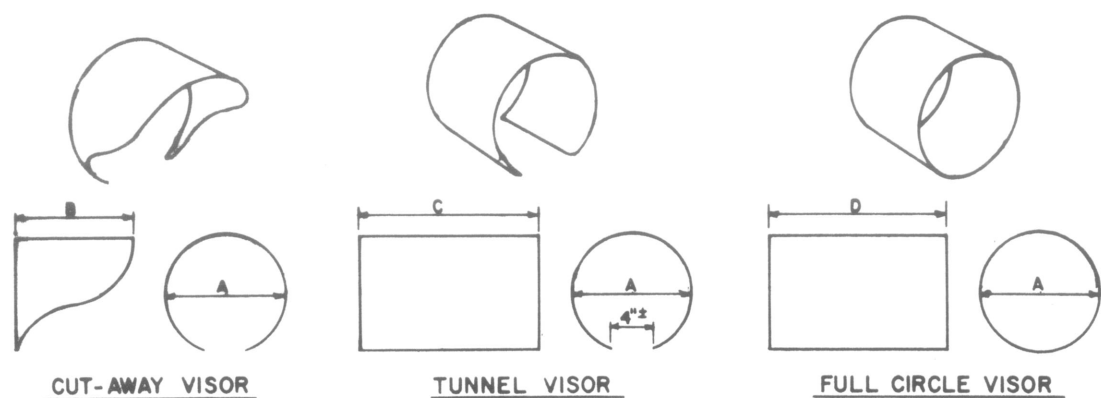
TRENCH AND BACKFILL TYPE II
(EARTH)

CONDUIT IN TRENCH

Commonwealth of Pennsylvania
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY SERVICES

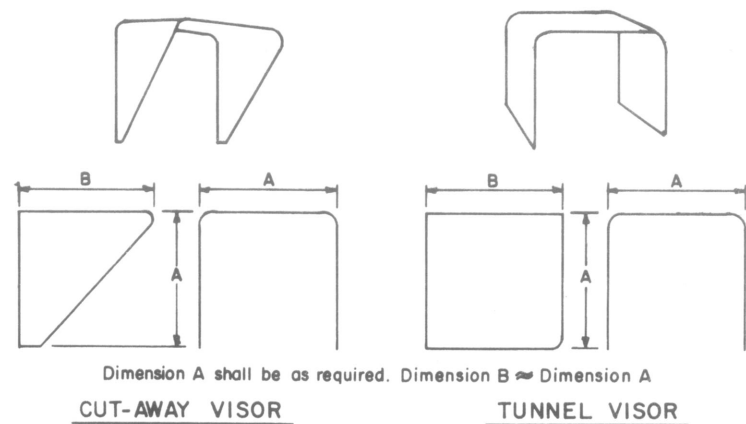
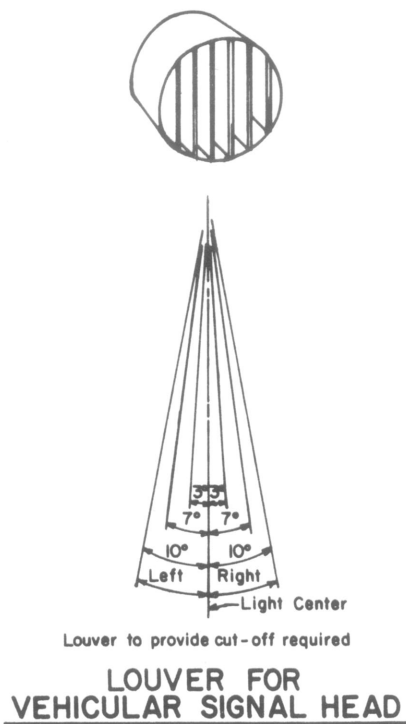
ELECTRICAL DISTRIBUTION

Recommended 4/22/83 9/25/83 Chief, Traffic Engineering and Operations Division	Recommended 4/22/83 9/25/83 Chief Highway Engineer	St. 201-2 TC-7804
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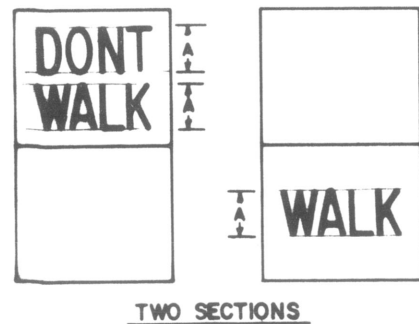
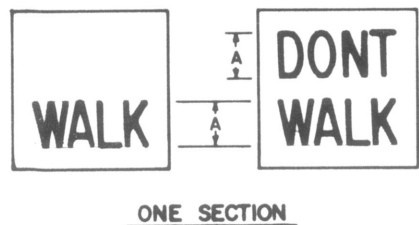
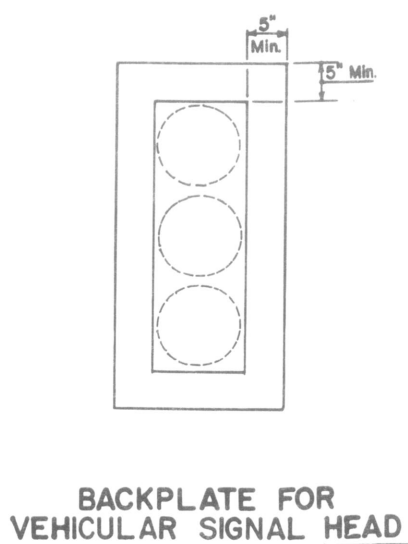


A	B	C	D
8"	8"	12"-16"	12"-16"
12"	12"	16"-18"	16"-18"

VISORS FOR VEHICULAR SIGNAL HEAD

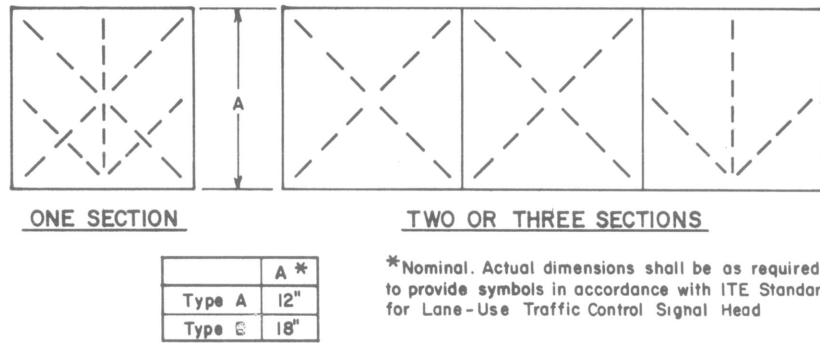


VISORS FOR PEDESTRIAN SIGNAL HEAD
AND
LANE-USE TRAFFIC CONTROL SIGNAL HEAD



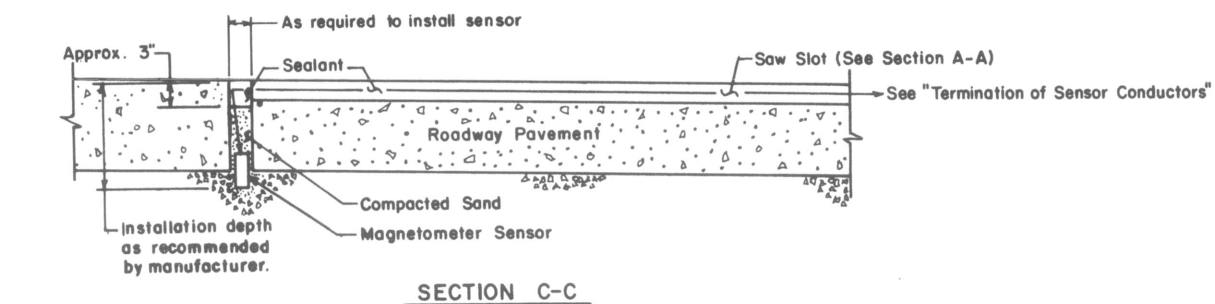
	A
Type A	3'
Type B	4½'

PEDESTRIAN SIGNAL HEAD



LANE-USE TRAFFIC CONTROL SIGNAL HEAD

Commonwealth of Pennsylvania DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY SERVICES		
SIGNAL HEADS		
Recommended <u>4/22/83</u> <i>JRD</i> Chief, Traffic Engineering and Operations Division	Recommended <u>4/22/83</u> <i>W. J. [Signature]</i> Chief Highway Engineer	Sht. <u>1</u> of <u>1</u> TC-7805

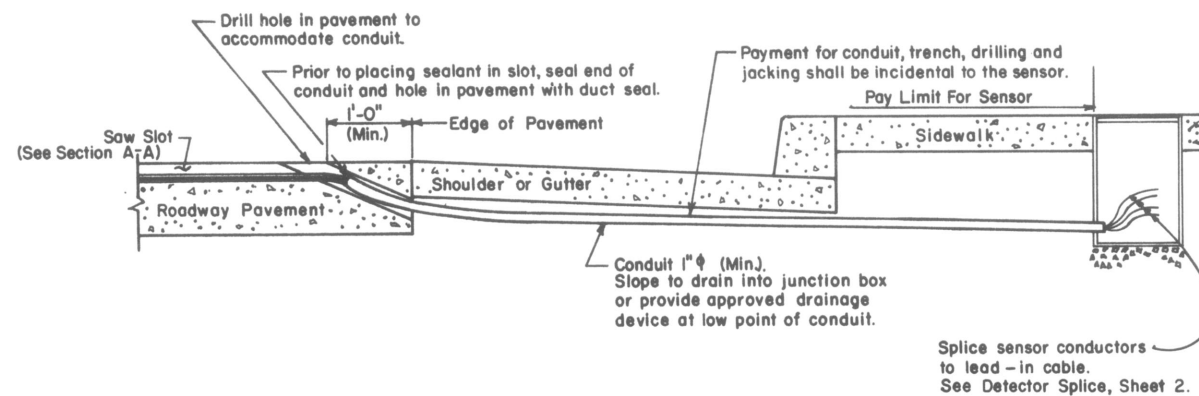


SECTION C-C

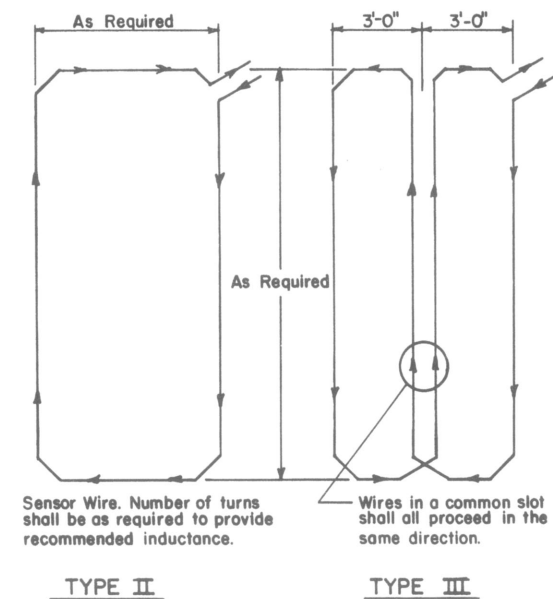
TYPICAL SENSOR INSTALLATION MAGNETOMETER DETECTOR



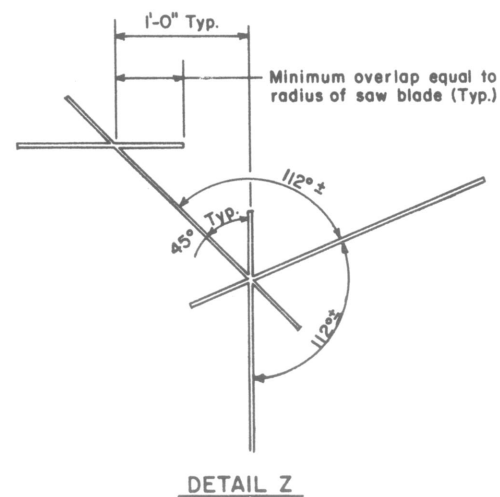
NOTE: No more than four conductors shall be placed in a slot.



TERMINATION OF SENSOR CONDUCTORS

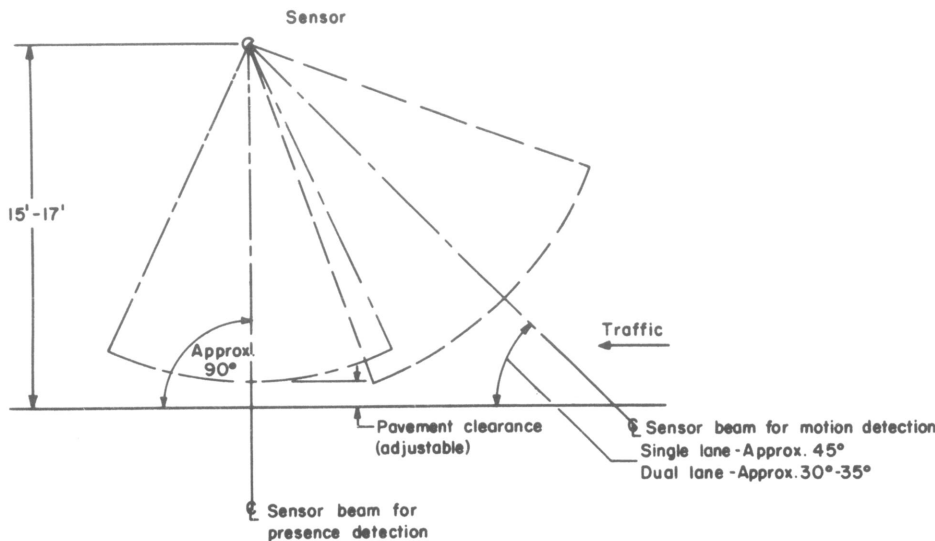
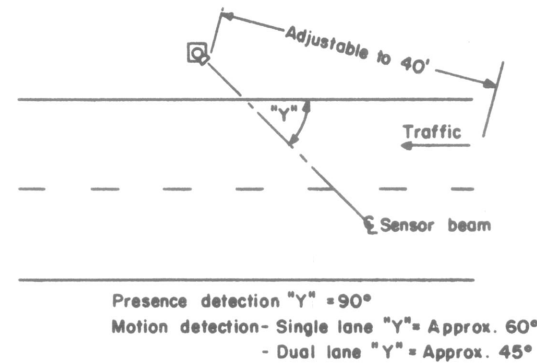
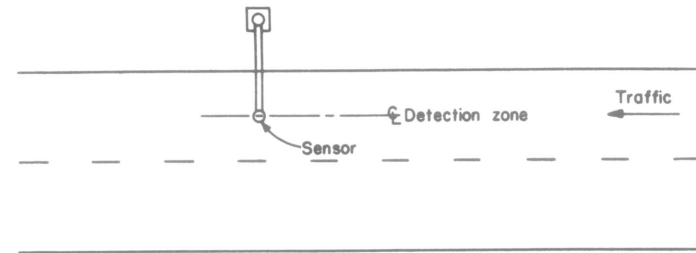


TYPICAL LAYOUT OF LOOP SENSOR

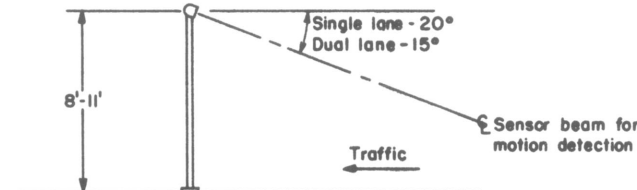


DETECTORS

TC-7806

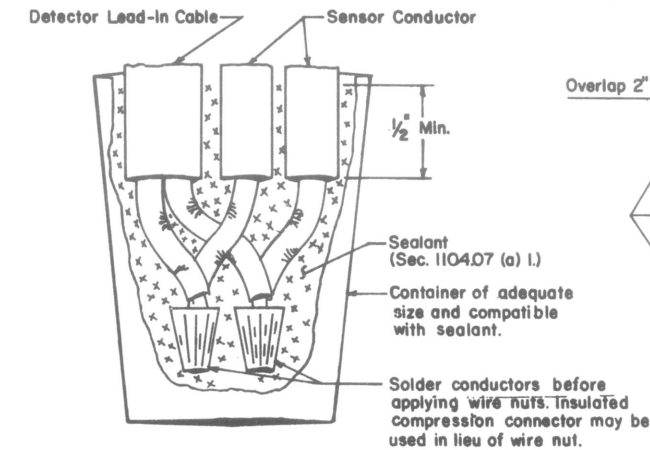


OVERHEAD



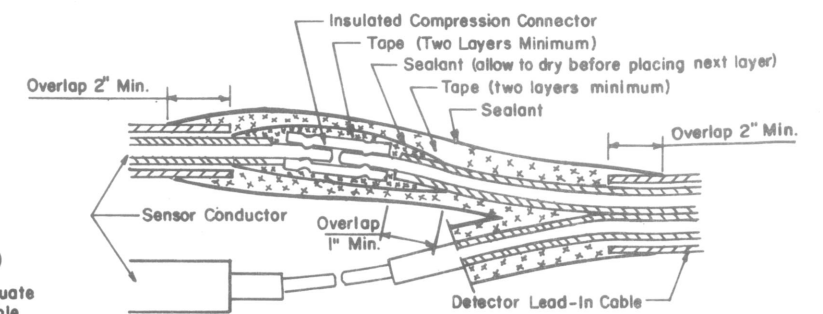
ROADSIDE

TYPICAL SENSOR INSTALLATION ULTRASONIC DETECTOR



Place sealant in container, immerse splice in sealant, support in rigid position until sealant has set.

ALTERNATE A



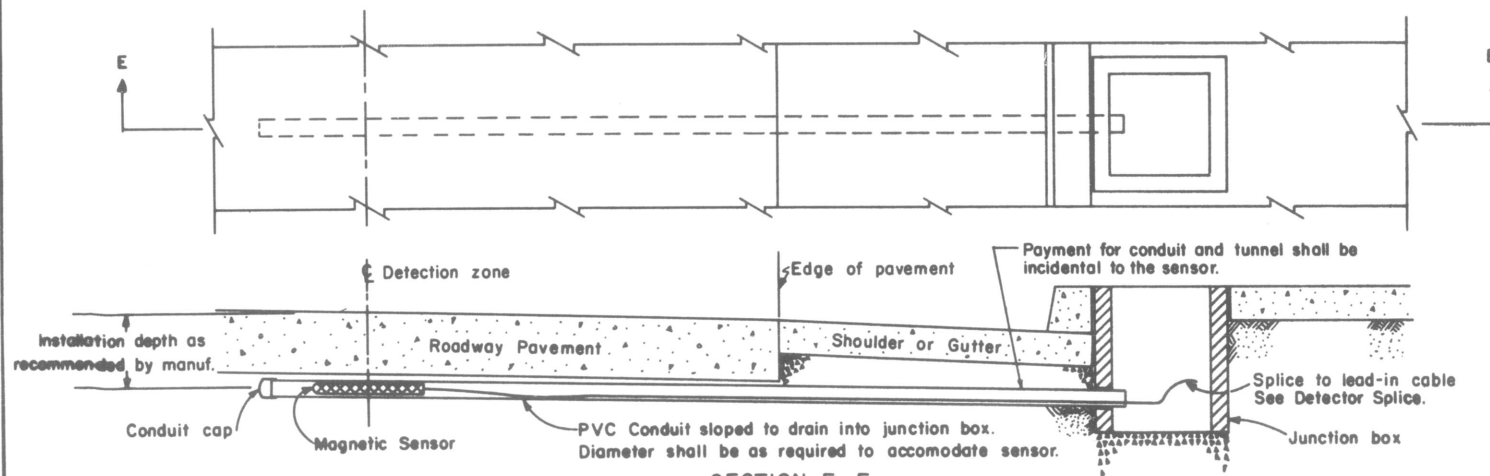
Tape - Electrical grade, plastic, self-adhesive.
Sealant - Electrical grade, fast drying, moisture resistant, compatible with plastic electrical tape.

ALTERNATE B

Alternate C splice will be made electrically secure with insulated compression connectors then covered with a splicing kit that is moisture proof, splice encapsulating (including cable jacket), and designed for insulating and splicing electric cable or a Re-enterable Splice Kit as specified in Sec. 1104.07(a)4, Pub. 408.

ALTERNATE C

DETECTOR SPLICE



SECTION E-E

TYPICAL SENSOR INSTALLATION MAGNETIC DETECTOR

Commonwealth of Pennsylvania
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY SERVICES

DETECTORS

Recommended 4/22/89 J. D. Douglas	Recommended 4/22/89 Albert E. Ryan	Shs 2 of 2
Chief, Traffic Engineering and Operations Division	Chief Highway Engineer	TC - 7806

TRACED BY
REPL. BY