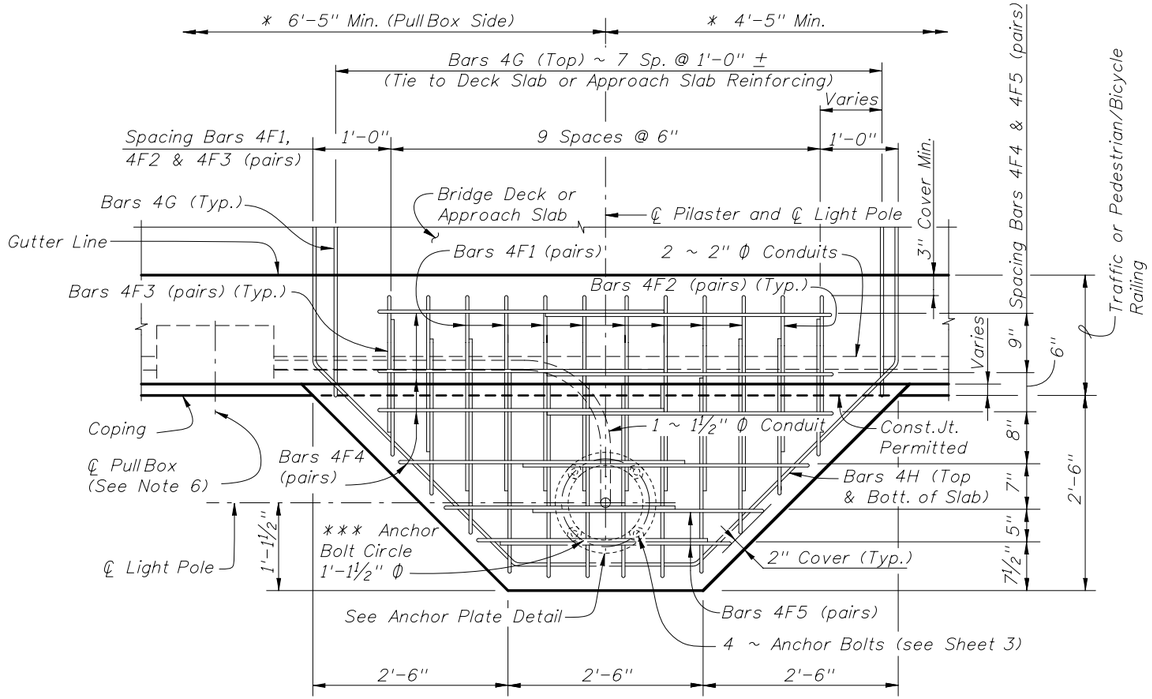
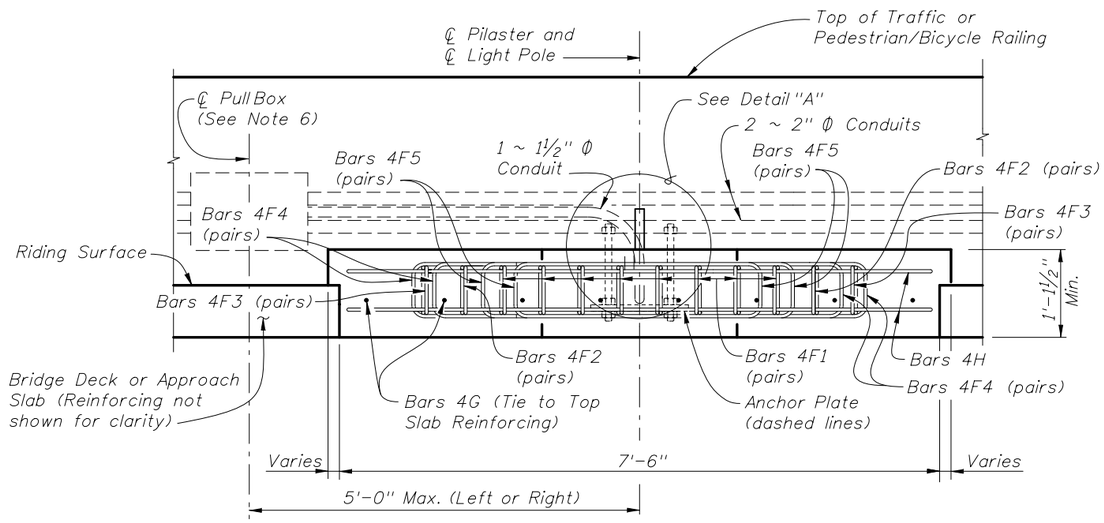
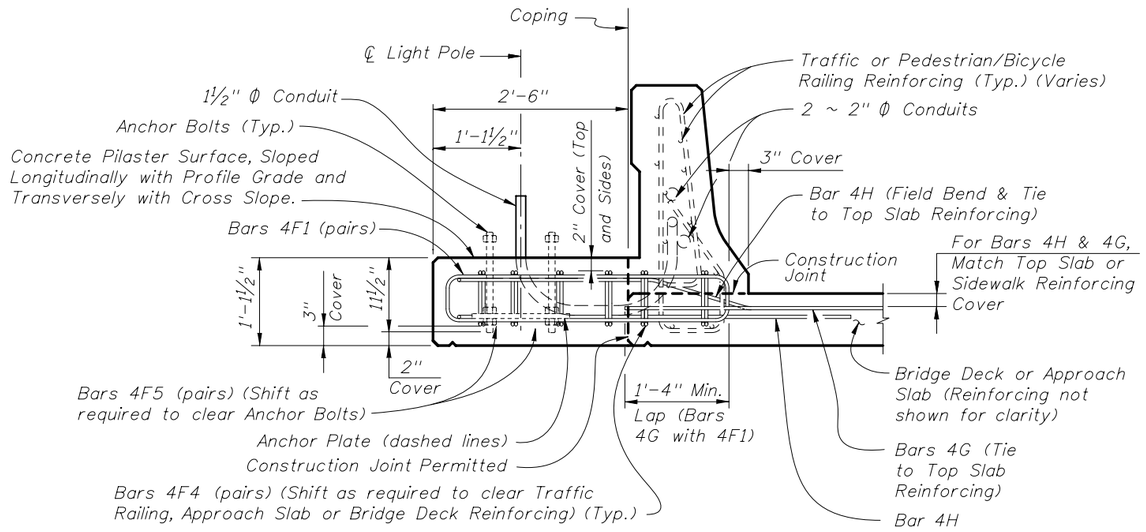


* Slip Forming Method of Construction requires the Engineer's approval within the limits shown.
** For Index No. 820 – Pedestrian/Bicycle Railing, this dimension is 3½". For all other Railings, this dimension is 1'-0" Max.
*** Anchor Bolt pattern orientation shall be as shown.

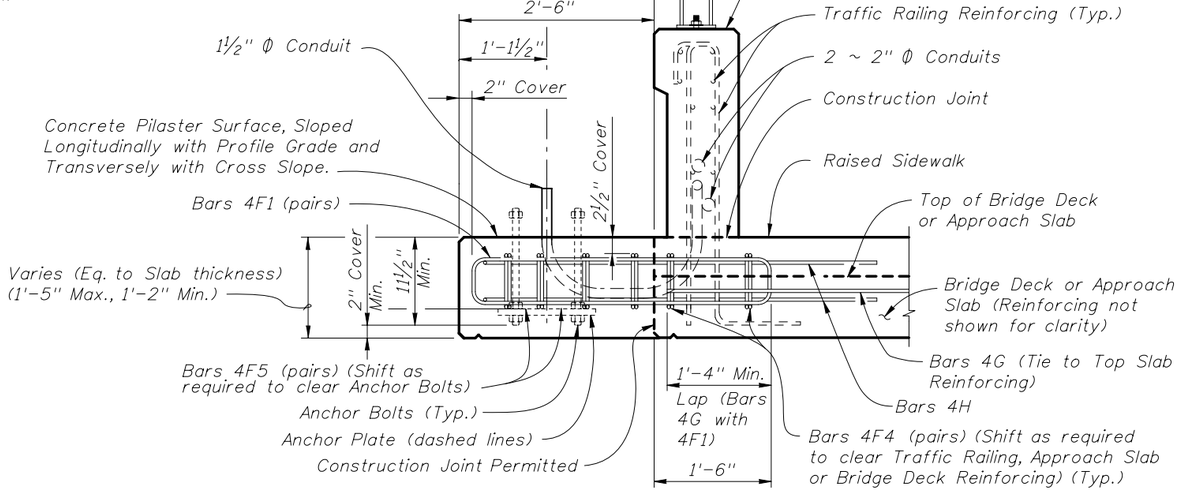
PLAN VIEW



ELEVATION VIEW



TYPICAL SECTION AT LIGHT POLE PILASTER FOR APPROACH SLAB OR BRIDGE DECK THICKNESS LESS THAN 1'-1½" AT COPING



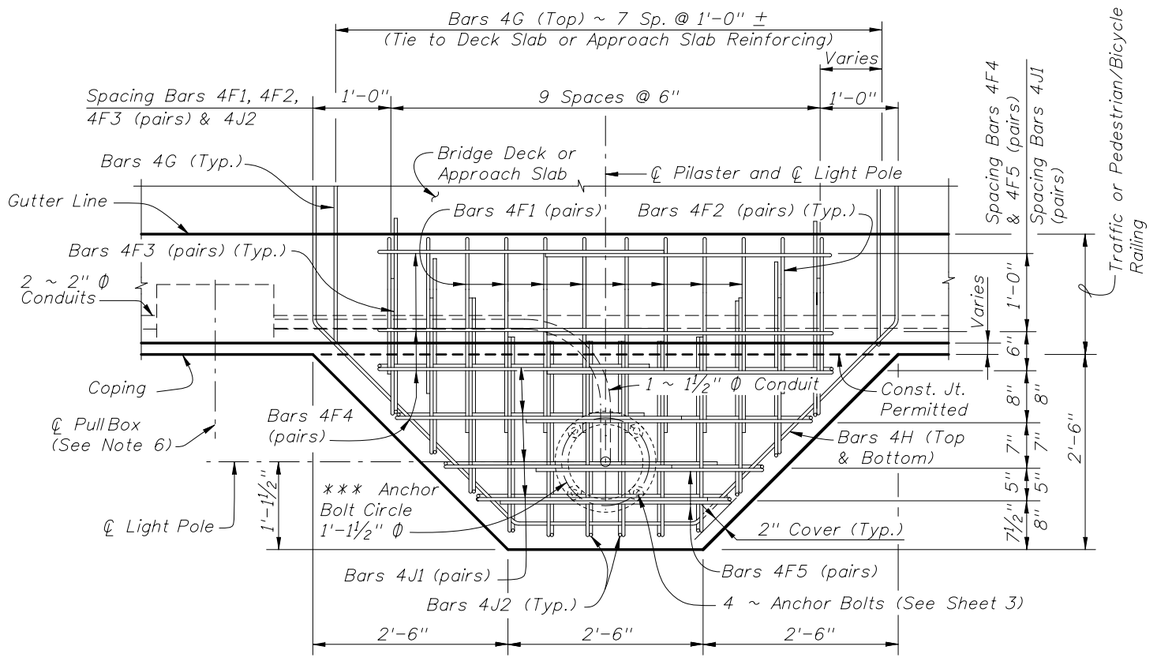
TYPICAL SECTION AT LIGHT POLE PILASTER FOR APPROACH SLAB OR BRIDGE THICKNESS LESS THAN 1'-5½" AT COPING

CROSS REFERENCE:
For Detail "A", Anchor Plate Detail and Light Pole Pilaster Notes, see Sheet 3.

NOTE: Anchor Bolt, Nuts, Washers and Anchor Plate are dashed for clarity.

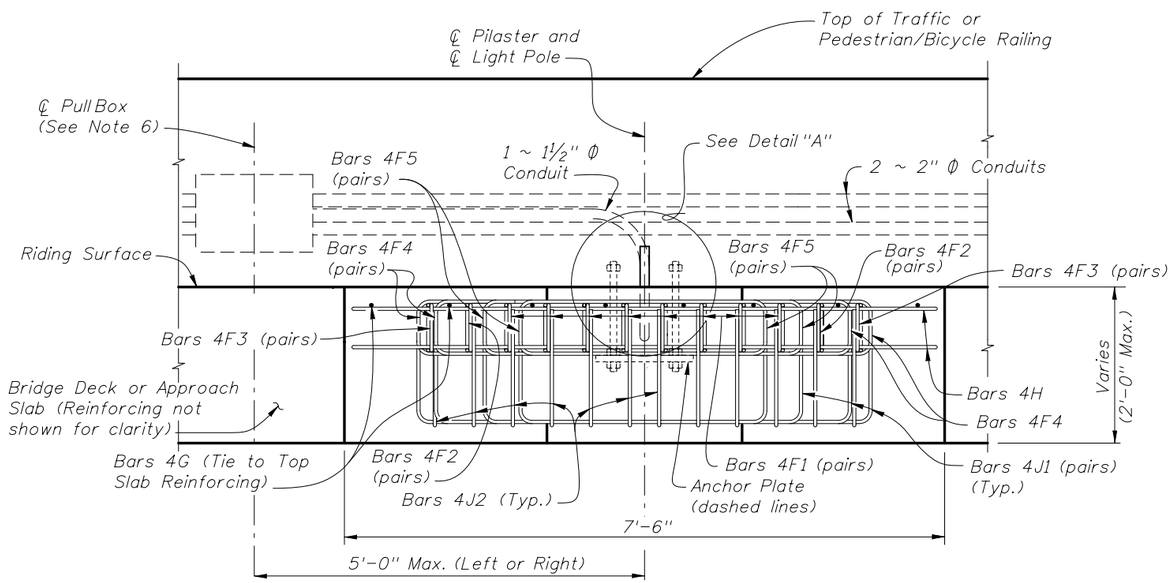
LIGHT POLE PILASTER FOR APPROACH SLAB OR BRIDGE DECK THICKNESS LESS THAN 1'-5½" AT COPING

REVISIONS						2010 Interim Design Standard	Interim Date	Sheet No.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		01/01/10	1 of 3
01/01/10	SJN	Revised Typical Sections and "*" Slip Form Note. Deleted 1" Ø Weep Hole (PVC Conduit), Anchor Bolt size, 2 ~ Bars 4F4, and Bars 4G in bottom of deck slab. Changed spacing of Bars 4F. Added Lap Length for Bars 4G with 4F1.				LIGHT POLE PILASTER	Index No.	21200

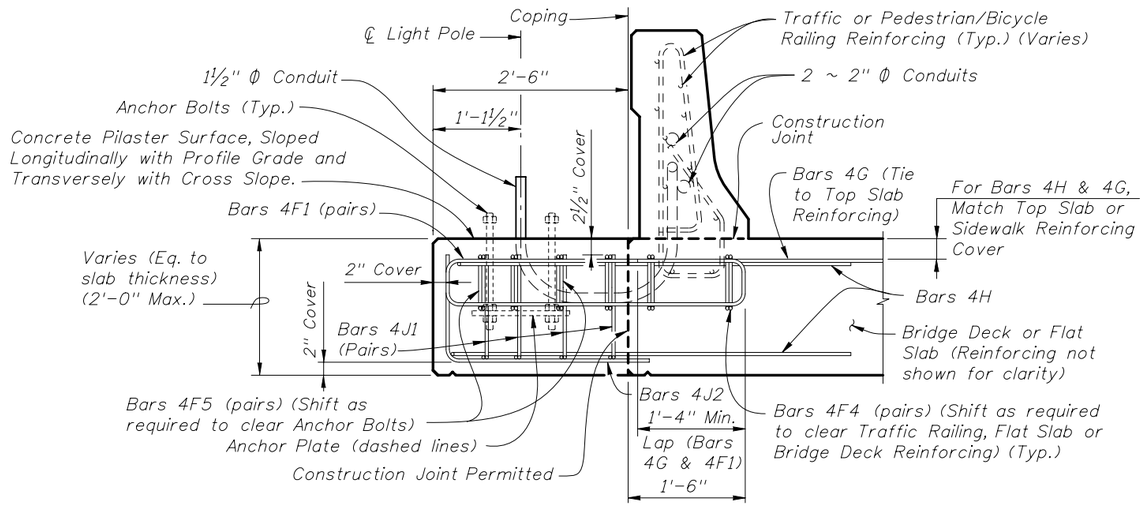


*** Anchor Bolt pattern orientation shall be as shown.

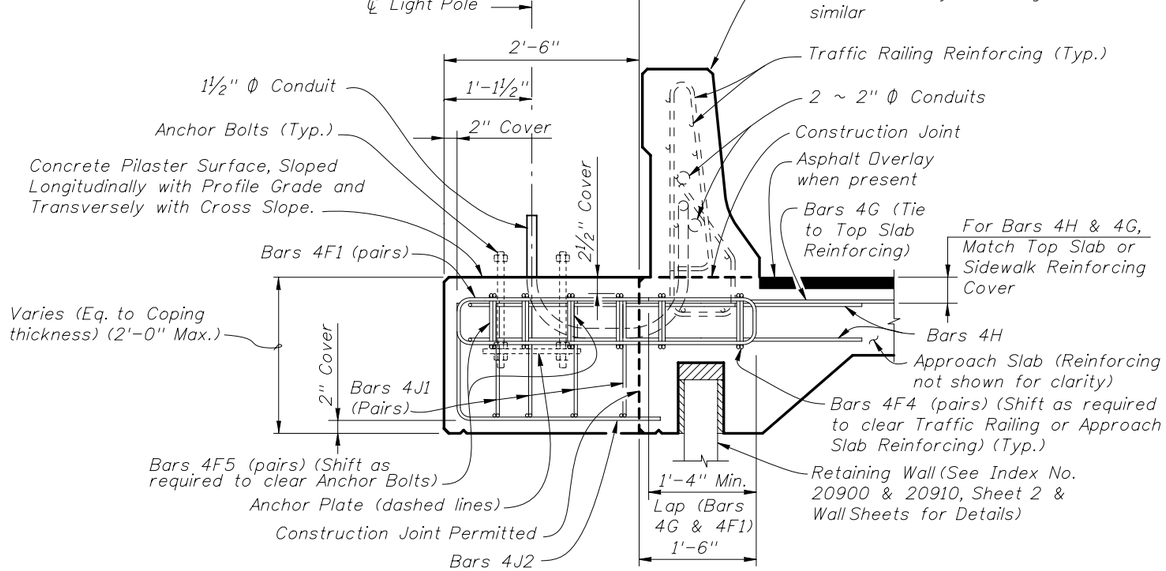
PLAN VIEW



ELEVATION VIEW



TYPICAL SECTION AT LIGHT POLE PILASTER FOR FLAT SLAB OR BRIDGE DECK THICKNESS AT COPING 1'-5½" OR GREATER



TYPICAL SECTION AT LIGHT POLE PILASTER FOR APPROACH SLAB ON RETAINING WALL

CROSS REFERENCE:
For Detail "A", Anchor Plate Detail and Light Pole Pilaster Notes, see Sheet 3.

NOTE: Anchor Bolt, Nuts, Washers and Anchor Plate are dashed for clarity.

LIGHT POLE PILASTER FOR APPROACH SLAB OR BRIDGE DECK THICKNESS AT COPING 1'-5½" OR GREATER

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
01/01/10	SJN	New Sheet Added			

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LIGHT POLE PILASTER

Interim Date 01/01/10

Sheet No. 2 of 3

Index No. 21200

CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS

REINFORCING STEEL NOTES:

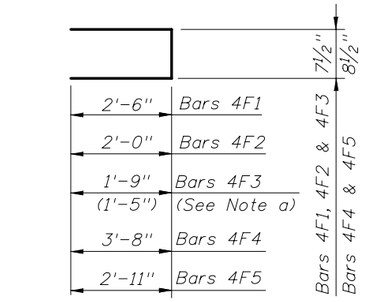
a. When Pilaster is attached to Pedestrian/Bicycle Railing - Index No. 820 and the Bridge Deck or Approach Slab thickness is less than 1'-1½", Bars 4F3 shall have leg length and bar length shown in parentheses.

b. The number of bars shown in parentheses is for Bars 4F4 when Pilaster is attached to Pedestrian/Bicycle Railing - Index No. 820, and the Bridge Deck or Approach Slab thickness is less than 1'-1½".

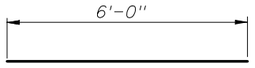
c. Lap Splices for Bars 4F1, 4F2 & 4F3 shall be a minimum of 1'-4". Lap Splices for Bars 4F4 & 4F5 shall be minimum of 1'-8".

d. Bars 4J1 and 4J2 are not required when Pilaster thickness is less than 1'-5½". Field trim height of bars to maintain cover when Pilaster thickness is less than 2'-0". Field trim length of Bars 4J2 on Retaining Wall Coping to maintain cover.

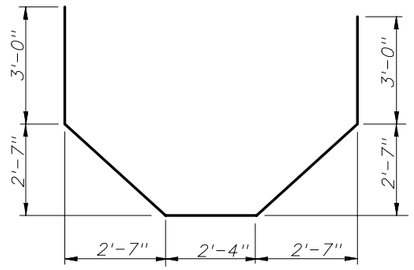
e. All bar dimensions in the bending diagrams are out to out.



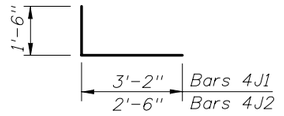
BARS 4F1, 4F2, 4F3, 4F4 & 4F5



BAR 4G



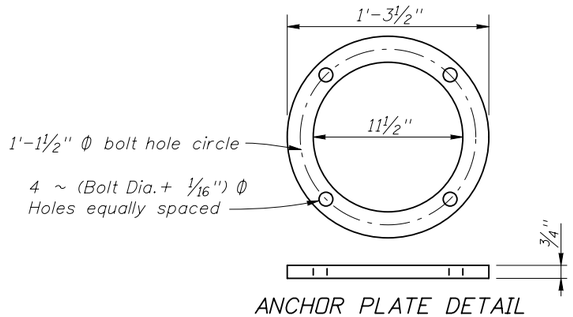
BAR 4H



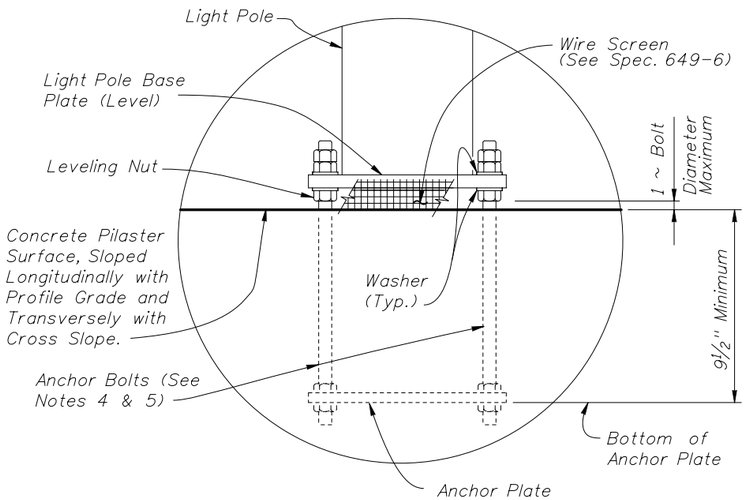
BARS 4J1 & 4J2

BILL OF REINFORCING STEEL

MARK	SIZE	NO. REQD.	LENGTH	NOTES
F1	4	16	5'-8"	c
F2	4	4	4'-8"	c
F3	4	4	4'-2" (3'-6")	a, c
F4	4	8 (6)	8'-3"	b, c
F5	4	4	6'-7"	c
G	4	8	6'-0"	-
H	4	2	15'-8"	-
J1	4	8	4'-8"	d
J2	4	12	4'-0"	d



ANCHOR PLATE DETAIL



DETAIL "A"

CROSS REFERENCE:
For location of Detail "A" see Sheets 1 and 2.

LIGHT POLE PILASTER NOTES

1. Concrete and Reinforcing Steel required for the construction of the Pilaster shall meet the same requirements as the Traffic Railing or Pedestrian/Bicycle Railing the Pilaster is attached to.

2. Light Pole Pilaster may be used with the following:
   Index No. 420 - Traffic Railing (32" F Shape),
   Index No. 422 - Traffic Railing (42" Vertical Shape),
   Index No. 423 - Traffic Railing (32" Vertical Shape),
   Index No. 424 - Traffic Railing (Corral Shape),
   Index No. 425 - Traffic Railing (42" F Shape),
   Index No. 820 - Pedestrian/Bicycle Railing,
   Index No. 821 - Aluminum Pedestrian/Bicycle Bullet Railing for Traffic Railing (32" F Shape), or
   Index No. 5210 - Traffic Railing /Sound Barrier (Bridge).
   Unless otherwise noted, Traffic Railing (32" F Shape) is shown in all Views and Sections. The Pilaster details for other Traffic Railings or Pedestrian/Bicycle Railing are similar.

3. The Pilaster and Deck are designed to resist the following Working Loads from the Light Pole applied at the top of the Pilaster:

Axial Dead Load	=	1.56 Kip
Wind Load Moment about Transverse Axis	=	40.60 Kip-Ft.
Wind Load Moment about Longitudinal Axis	=	28.30 Kip-Ft.
Deadload Moment about Longitudinal Axis	=	1.69 Kip-Ft.
Maximum Shear	=	1.38 Kip
Torsion about Pole Axis	=	3.56 Kip-Ft.

TABLE 1 - DESIGN LIMITATIONS FOR 1" Ø ANCHOR BOLTS (LOAD CASE 1)

WIND SPEED (MPH)	ARM LENGTH (Ft.)	BRIDGE DECK HEIGHT (Ft.)* DESIGN MOUNTING HEIGHT 40 Ft.	45 Ft.	50 Ft.
110	≤ 15	75	75	75
130	8 & 10	75	75	75
130	12	75	75	70
130	15	75	75	40
150	8	75	75	10
150	10	75	50	n/a
150	12	75	45	n/a
150	15	75	30	n/a

* Above natural ground or MLW.

4. ANCHOR BOLT DESIGN:
   Anchor Bolt design is based on the standard Roadway Aluminum Light Pole configurations shown on Index No. 17515 and the following design limitations:
   Load Case 1: See Table 1
   Load Case 2: 150 mph Design Wind Speed, 15' arm length, 50' Design Mounting Height with a 75' bridge deck height above natural ground, or MLW.

   Anchor Bolt Diameter: 1" Ø (Load Case 1), 1 ¼" Ø (Load Case 2).
   Anchor Bolts: ASTM F1554 Grade 55.
   Nuts: ASTM A563 Grade A, Heavy-Hex.
   Washers: ASTM F436 Type 1.
   Anchor Plate: ASTM A709 (Grade 36) or ASTM A36.
   All Nuts, Bolts and Washes shall be galvanized by ASTM F2329.

   The Contractor is responsible for ensuring the anchor bolt configuation is compatible with the light pole base plate. Submit modifications of the anchor bolt design to the Engineer for approval.

5. Anchor Bolts must be installed plumb.

6. For Conduit, Pull Box, Expansion/Deflection Fitting and adjacent Reinforcing Steel Details, see Utility Conduit Detail Sheets.

7. PAYMENT: The cost of Wire Screen, Anchor Bolts, Nuts, Washers and Anchor Plates shall be included in the Bid Price for Light Poles. The cost of all Labor, Concrete and Reinforcing Steel required for the Construction of the Pilasters, Pull Boxes, and Miscellaneous Hardware required for the completion of the Electrical System, shall be included in the Bid Price for the Traffic Railing or Pedestrian/Bicycle Railing the Pilaster is attached to.

ESTIMATED LIGHT POLE PILASTER QUANTITIES PER LIGHT POLE PILASTER

ITEM	UNIT	QUANTITY
Concrete Per Pilaster Thickness	CY/In.	0.040
Reinforcing Steel	Lb.	195 (182)

(The Reinforcing Steel quantity shown in parenthesis is for a Pilaster attached to Pedestrian/Bicycle Railing - Index No. 820 with Bridge Deck or Approach Slab thinner than 1'-1½". Add 59 Lbs. for Bars 4J1 & 4J2 when Pilaster Thickness is greater than 1'-5")

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
01/01/10	SJN	Deleted Grout Pad and 1" Ø Weep Hole in Detail "A". Changed No. of Bars 4H & 4F4, length of Bars 4F4 & 4F5, and Light Pole Pilaster Notes. Added Bars 4J1 & 4J2, Reinforcing Steel Note d, Wire Screen and Table 1.			

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