**PLAN VIEW**

- **Bars 4F1 (pairs)**
- **Bars 4F2 (pairs)\(^1\)**
- **Bars 4F3 (pairs)**
- **Bars 4F4 (pairs)**
- **Bars 4F5 (pairs)**
- **Bars 4G (pairs)**
- **Bars 4H**
- **Anchor Plate**
- **Construction Joint**
- **Coping**
- **Gutter Line**
- **Light Pole**
- **Pedestal**
- **Riding Surface**
- **Traffic Railing**

**ELEVATION VIEW**

- **Bars 4F1 (pairs)**
- **Bars 4F2 (pairs)**
- **Bars 4F3 (pairs)**
- **Bars 4F4 (pairs)**
- **Bars 4F5 (pairs)**
- **Bars 4G (pairs)**
- **Bars 4H**
- **Anchor Bolt Circle**
- **Concrete Pedestal Surface, Sloped Longitudinally with Profile Grade and Transversely with Cross Slope.**

**TYPICAL SECTION AT LIGHT POLE PEDESTAL FOR APPROACH SLAB OR BRIDGE DECK THICKNESS LESS THAN 1'-5\(\frac{1}{2}\)" AT COPING**

- **1 - 1\(\frac{1}{2}\)" Ø Conduit**
- **2 - 2" Ø Conduits**
- **Bars 4F1 (pairs)**
- **Bars 4F2 (pairs)**
- **Bars 4F3 (pairs)**
- **Bars 4F4 (pairs)**
- **Bars 4F5 (pairs)**
- **Bars 4G (pairs)**
- **Bars 4H**
- **Anchor Bolt Circle**
- **Construction Joint**

**TYPICAL SECTION AT LIGHT POLE PEDESTAL FOR APPROACH SLAB OR BRIDGE DECK THICKNESS LESS THAN 1'-1\(\frac{1}{2}\)" AT COPING**

- **1 - 1\(\frac{1}{2}\)" Ø Conduit**
- **2 - 2" Ø Conduits**
- **Bars 4F1 (pairs)**
- **Bars 4F2 (pairs)**
- **Bars 4F3 (pairs)**
- **Bars 4F4 (pairs)**
- **Bars 4F5 (pairs)**
- **Bars 4G (pairs)**
- **Bars 4H**
- **Anchor Bolt Circle**
- **Construction Joint**

**NOTE:** Anchor Bolt, Nuts, Washers and Anchor Plate are dashed for clarity.
TYPICAL SECTION AT LIGHT POLE PEDESTAL FOR FLAT SLAB OR BRIDGE DECK THICKNESS AT COPING 1'-5" OR GREATER

PLAN VIEW

ELEVATION VIEW

LIGHT POLE PEDESTAL FOR APPROACH SLAB OR BRIDGE DECK THICKNESS AT COPING 1'-5" OR GREATER

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

INDEX NO. 07/01/13 2 3 21200

DESIGN STANDARDS 2016

LAST REVIEW 07/01/13

DESCRIPTION:
**CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS**

**REINFORCING STEEL NOTES:**

a. When Pedestal is attached to Pedestrian/Bicycle Railing - Index No. 820 or an 8' wide concrete curb and the Bridge Deck or Approach Slab thickness is less than 1'-11/2", 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 Pedestal is attached to Pedestrian/Bicycle Railing - Index No. 820 or an 8' wide concrete curb, and the Bridge Deck or Approach Slab thickness is less than 1'-11/2".

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

d. Bars 4J1 and 4J2 are not required when Pedestal thickness is less than 1'-11/2". Field trim height of bars to maintain cover when Pedestal 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.

**LIGHT POLE PEDESTAL NOTES**

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

2. Light Pole Pedestal 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),
   - Index No. 5210 - Traffic Railing /Noise Wall (Bridge).

3. Unless otherwise noted, Traffic Railing (32" F Shape) is shown in all Views and Sections. The Pedestal details for other Traffic Railings shall be included in the Bid Price for the Traffic Railing or Pedestrian/Bicycle Railing the Pedestal is attached to.

4. **ANCHOR BOLT DESIGN:**
   - Anchor Bolt design is based on the standard Roadway Aluminum Light Pole configurations shown on Index 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 1/8" Ø (Load Case 2).
   - Anchor Bolts: ASTM A563 Grade A, Heavy-Hex.
   - Nuts: ASTM A563 Grade A, Heavy-Hex.
   - Anchor Plate: ASTM A709 (Grade 36) or ASTM A36.

5. Anchor Bolts must be installed plumb.

6. For Conduit, Embedded Junction Boxes (EJB), 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 Pedestals, EJB, 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 Pedestal is attached to.

**BILL OF REINFORCING STEEL**

<table>
<thead>
<tr>
<th>INDEX NO.</th>
<th>SHEET NO.</th>
<th>LIGHT POLE PEDESTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>21200</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>WIND SPEED (MPH)</th>
<th>ARM LENGTH (Ft.)</th>
<th>BRIDGE DECK HEIGHT (Ft.)</th>
<th>DESIGN MOUNTING HEIGHT (Ft. / Ft. MLW)</th>
<th>ANCHOR BOLT (LB)</th>
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</thead>
<tbody>
<tr>
<td>110</td>
<td>15</td>
<td>75</td>
<td>75 / 75</td>
<td>159 (182)</td>
</tr>
<tr>
<td>130</td>
<td>16</td>
<td>75</td>
<td>75 / 75</td>
<td>159 (182)</td>
</tr>
<tr>
<td>130</td>
<td>17</td>
<td>75</td>
<td>75 / 75</td>
<td>159 (182)</td>
</tr>
<tr>
<td>150</td>
<td>18</td>
<td>75</td>
<td>50 / 50</td>
<td>159 (182)</td>
</tr>
<tr>
<td>180</td>
<td>19</td>
<td>75</td>
<td>**</td>
<td>159 (182)</td>
</tr>
</tbody>
</table>

**ESTIMATED LIGHT POLE PEDESTAL QUANTITIES PER LIGHT POLE PEDESTAL**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
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</thead>
<tbody>
<tr>
<td>Concrete Pedestal Thickness</td>
<td>CF/In.</td>
<td>0.040</td>
</tr>
<tr>
<td>Reinforcing Steel</td>
<td>LB</td>
<td>195 (182)</td>
</tr>
</tbody>
</table>

*(The Reinforcing Steel quantity shown in parenthesis is for a Pedestal attached to Pedestrian/Bicycle Railing - Index No. 820 with Bridge Deck or Approach Slab thinner than 1'-11/2". Add 59 lbs. For Bars 4J1 & 4J2 when Pedestal Thickness is greater than 1'-5'/*
CONDUIT GENERAL NOTES:

1. Furnish and install approved Conduits and Fittings in accordance with the Specifications, this Standard, and the National Electric Code (NEC) and as directed by the Engineer.

2. Furnish Schedule 80 PVC Conduits in accordance with Specification Section 630. Connect Conduit and Fittings using solvent cement in accordance with the manufacturer’s recommendations.

3. Furnish and install Embedded Junction Boxes (EJB) sized in accordance with NEC requirements and the maximum size limits shown. Install EJB adjacent to the Begin and End of Bridges, Begin and End of Retaining Walls, and at other required locations. Omit EJB at Begin or End of Retaining Walls adjacent to Bridges unless a precast Traffic Railing with junction slab is used. Position EJB as shown.

4. Furnish and install Expansion Fittings at locations shown in the Plans. Certify that Expansion Fittings used at a given location are rated to accommodate the anticipated movement at that location: along Bridge decks – see Structures Plans, Expansion Joint Data Table; along Retaining Walls and other unspecified locations – 2'-6" minimum.

5. Furnish and install Expansion/Deflection Fittings at locations shown in the Plans. Certify that Expansion/Deflection Fittings used at a given location are rated to accommodate a minimum rotation of 30 degrees and the anticipated movement at that location: along Bridge decks – see Structures Plans, Expansion Joint Data Table; along Retaining Walls and other unspecified locations – 0.7" minimum.

6. For all Conduit designated for future use, install in accordance with Specification Section 630, either: #12 AWG Pull Wire or Polypropylene cord between every EJB and install #12 AWG Pull Wire from the first and last EJB in Traffic Railing or Parapet to in-ground Junction Box or capped end of Conduit.

7. For all Conduit designated for future use, stub out and cap the Conduit; drive a steel pipe at the End of the Conduit as shown on Sheet 2 unless the plans require an in-ground Junction Box. Show location of stub out with Steel Pipe or in-ground Junction Box on As-Built plans.

8. Shift vertical Railing reinforcement symmetrically to provide 2" clearance to EJB. Space shifted vertical reinforcement at minimum 3" centers. Cut horizontal Railing reinforcement to provide 2" clearance to EJB and provide supplemental reinforcement as shown. To facilitate placement of Conduit, Expansion Fittings, and Expansion/Deflection Fittings, shift reinforcing a maximum of 3"; do not cut railing reinforcing. Do not bundle Conduits, or Conduit and horizontal reinforcement.

9. Unless otherwise shown in the plans, include the cost of furnishing and installing Conduit, Pull Cords and Wires, EJB, Expansion and Expansion/Deflection Fittings and all associated hardware required to complete the installation in the cost of the Traffic Railing or Pedestrian Railing (Parapet) that the Conduit is installed in.

GENERAL

10/01/14 21210

CONDUIT DETAILS

INDEX NO. 21210

SHEET NO. 1 of 4
**DESCRIPTION:**

- **EJB "B" DETAIL**
  - **32" F-Shape Traffic Railing shown, other Traffic Railings and Pedestrian/Bicycle Railings similar.**
  - **EJB "A" shown, EJB "B" similar. See EJB "B" Detail.**

**SECTION THRU TRAFFIC RAILING AT EJB**

*32" F SHAPE SHOWN, 42" F SHAPE SIMILAR*

**SECTION THRU PEDESTRIAN / BICYCLE RAILING AT EJB**

*42" VERTICAL SHAPE SHOWN, 32" VERTICAL SHAPE SIMILAR*

**PARTIAL PLAN VIEW ALONG APPROACH SLAB WITHOUT CONTINUING TRAFFIC RAILING**

*Steel Pipe, (See Sheet 1 Note 7)*

**SECTION THRU PEDESTRIAN / BICYCLE RAILING AT EJB**

*32" F SHAPE SHOWN, 42" F SHAPE SIMILAR*

**PARTIAL ELEVATION VIEW ALONG BRIDGE**

Bridge and Approach Slab Edge Railing

**CONDUIT DETAILS**

- **EJB "A" Shown**
- **EJB "B" Similar**
- **Opening on non-traffic face.**
- **Provide 2 supplemental #5 Bars each 10'-0" long centered about EJB.**
- **Provide 3 supplemental #5 Bars each 10'-0" long centered about EJB.**

**Note:**

- See Detail "A" or "B" as required by Structures Plans.
- **EJB "A" Shown, EJB "B" Similar Opening on non-traffic face.**
- **Bridge Deck or Approach Slab.**
- **Top of Coping.**
**REVISION NO.**

**INDEX NO.**

**DESCRIPTION:**

**CONDUIT DETAILS**

**LOCATION:**

**PARTIAL ELEVATION VIEW OF MEDIAN TRAFFIC RAILING ALONG BRIDGE**

- **Median Traffic Railing (See Notes 4 & 5)**
  - **SEC 11-200**
  - **Conduit Details**
    - **EJB "B" (Single Conduit) (1'-6" Max. x 8" Max. x 8" Max.) (Typ.)**
    - **2" Ø PVC Conduits**

**PARTIAL PLAN VIEW OF MEDIAN TRAFFIC RAILING ALONG BRIDGE**

- **Top of Bridge Deck**
- **300'-0" (Max.)**

**PARTIAL PLAN VIEW OF MEDIAN TRAFFIC RAILING ALONG APPROACH SLAB**

- **Top of Bridge Deck**
- **300'-0" (Max.)**

**PARTIAL ELEVATION VIEW OF MEDIAN TRAFFIC RAILING ALONG APPROACH SLAB**

- **Top of Bridge Deck**
- **300'-0" (Max.)**

**NOTES:**

1. Work this sheet with Index No. 421.
2. Adjust horizontal and vertical alignments of conduit as necessary to align with EJB.
3. Use only Galvanized Steel EJB "B" when installed in traffic face of railing. EJB Cover must be a minimum of 1/8" thick galvanized steel.
4. Position EJB such that, with cover plate secured and in place, plate is flush with the railing face. Flush is +1/32" to -1/32" measured with a horizontal straightedge.
5. Chamfer recess at EJB 1/8" all around, with cover removed.

**Detailed Drawings:**

- **SECTION A-A Median Traffic Railing (See Notes 4 & 5)**
- **CHAMFER DETAIL (See Note 5)**

**Bridge and Approach Slab Median Traffic Railing**
**REVISION NO.**

**INDEX NO.**

**DESCRIPTION:**

**CONDUIT DETAILS**

---

**PARTIAL PLAN VIEW ALONG APPROACH SLAB WITH CONTINUING TRAFFIC RAILING**

**PARTIAL PLAN VIEW ALONG RETAINING WALL**

**PARTIAL ELEVATION VIEW ALONG APPROACH SLAB WITH CONTINUING TRAFFIC RAILING**

(Retaining Wall Mounted Traffic Railing shown, Roadway Concrete Barrier similar)

**PARTIAL ELEVATION VIEW ALONG RETAINING WALL**

---

* 32" F Shape Traffic Railing shown, other Traffic Railings and Pedestrian / Bicycle Railing similar. (See Sheet 2)

** EJB "A"** shown EJB "B" similar. See EJB "B" Detail on Sheet 2.
**NAVIGATION LIGHT SYSTEM SCHEMATIC**

**FOR SINGLE BRIDGE WITH FENDERS**

**NAVIGATION LIGHT SYSTEM SCHEMATIC**

**FOR DUAL BRIDGES WITH FENDERS**

**NAVIGATION LIGHT SYSTEM SCHEMATIC**

**FOR SINGLE BRIDGE WITHOUT FENDERS**

**NAVIGATION LIGHT SYSTEM SCHEMATIC**

**FOR DUAL BRIDGES WITHOUT FENDERS**

---

**NAVIGATION LIGHT NOTES:**

1. Provide Navigation Light System in compliance with Specifications Section 510.

**NOTE:**

Size conduit and conductors per NEC requirements. Do not use conduit smaller than \( \frac{\Omega}{4} \).

**TYPICAL ELECTRICAL SCHEMATIC DIAGRAM**

**LEGEND**

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>LC</td>
<td>Lighting Contactor</td>
</tr>
<tr>
<td>PC</td>
<td>Photoset Control</td>
</tr>
<tr>
<td>Xmer</td>
<td>Transformer (If Required)</td>
</tr>
<tr>
<td>RFL</td>
<td>Red Pier/Fender Light (180° visibility)</td>
</tr>
<tr>
<td>RCL</td>
<td>Red Channel Margin Light (180° visibility)</td>
</tr>
<tr>
<td>GCL</td>
<td>Green Center Channel Light (360° visibility)</td>
</tr>
<tr>
<td>CGL</td>
<td>Clearance Gauge Light</td>
</tr>
<tr>
<td>CM</td>
<td>Channel Margin or Pier inner surface whichever defines Channel Edge.</td>
</tr>
</tbody>
</table>

---

**NAVIGATION LIGHT SYSTEM DETAILS (FIXED BRIDGES)**

<table>
<thead>
<tr>
<th>POWER CONDUCTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISTANCE (Feet)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>0 - 75</td>
</tr>
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<td>75 - 500</td>
</tr>
<tr>
<td>500 - 1000</td>
</tr>
<tr>
<td>1000 - 2000</td>
</tr>
<tr>
<td>2000 - 5000</td>
</tr>
<tr>
<td>5000 - 10000</td>
</tr>
<tr>
<td>Over 10000</td>
</tr>
</tbody>
</table>
GCL OR RCL MOUNTING DETAILS (SCHEMATIC)

VIEW A-A

(Traffic Railing - 32" F Shape shown, other railings similar)

* Supplied by Light Fixture Manufacturer

ELEVATION VIEW

(Traffic Railing (32" F Shape) shown, other railings similar)

SECION B-B

TYPICAL POSITION OF RCL OR GCL RELATIVE TO SUPERSTRUCTURES

CROSS REFERENCES:
1. For Navigation Light System notes and legend, see Sheet 1.
2. See Utility Conduit Detail sheets for Embedded Junction Box (EJB) dimensions & locations.

INSTALL LIGHT FIXTURE SO AS TO ENSURE VISIBILITY FROM AN APPROACHING VESSEL.
BOX GIRDER MAINTENANCE LIGHTING NOTES:

1. Submit shop drawings to the Engineer detailing the layout of the maintenance lighting system for the entire structure.
   a. Conduct layout and installation details through diaphragms, around post-tensioning (PT) ducts, lateral bracing and cross frames as necessary.
   b. Conduit access through box girder end diaphragms with minimum 1" clearance in all directions.
   c. Conduit expansion fitting details.
   d. Fastener details for the interior electrical system.
   e. Single line diagram showing mini power centers, switches, contactors, timers, etc.
   f. Mini power center details including circuit breaker details.
   g. Mini power center mounting details if required.
   h. Feeder schedule.

2. Ensure installation meets all requirements of the latest edition of the National Electrical Code (NEC) and local ordinances.
   Install grounding in accordance with NEC Article 250. Maintain separation between 480V and 120V Conductors / Conduits throughout.

3. Furnish all labor, equipment, materials, and incidentals required for a complete and functional installation.

4. Use only new, unused and Underwriters Laboratories (UL) listed equipment and materials for outdoor use.

5. Furnish and install polyvinyl chloride (PVC) conduit in conformance with UL Section 651, NEC Section 347 and NEMA TC-2, UV-resistant and schedule 80. Bend conduits as necessary to connect to loads.

6. Provide PVC sleeve 2" larger in diameter than conduit to accommodate construction tolerance.

7. Install a UL labeled expansion fitting for specified PVC conduit at all structure expansion joints. Provide certification that the expansion fitting meets the following minimum requirements: Compatibility with the connected conduits, waterproof, UV protected and allows longitudinal movement equal to that of the Expansion Joint.

8. Use only Alloy 316 stainless steel supporting hardware. Provide minimum ƈ" Ø fasteners. For concrete or SIP form mounting, provide anchor bolts (expansion, drop-in or adhesive) suitable for dynamic loading (due to vibration caused by traffic). Install fasteners to avoid conflicts with reinforcing steel and PT ducts. For structural steel mounting, do not attach fasteners to main members, i.e. webs and flanges.

9. Furnish power distribution at 480V AC, 1 phase, with step down transformers at regular intervals. Furnish 7.5 KVA mini power center with eight 20A breakers as the step down transformer, feeding a maximum of 20 lamps and 20 receptacles. Each mini power center will provide power to no more than 1000' of bridge, preferably 500' on each side of the mini power center, 480V top feed, 120V bottom feed to maintain separation.

10. Furnish and install lighting contactors to switch the 480V AC feeding the mini power centers.

11. Furnish and install copper conductors, Type XHHW. Do not use any conductor larger than #4 AWG.

12. Provide enough slack in all interior cable terminations to allow for minor shifting of the structure.

13. Furnish and install National Electric Manufacturers Association (NEMA) Type 4X (non-metallic) surface mounted boxes sized in conformance with the NEC.

14. Furnish and install 120V duplex receptacles (GF1, NEMA Type 5-20R), in non-metallic outlet boxes at 50' maximum on centers. Provide each receptacle with a gasketed weather-protective outdoor plate. Maximum wire size to connect to receptacles is #12 AWG.

15. Furnish and install surface mounted, fully enclosed, incandescent light fixtures with gasketed clear globes and wire guards at 50' maximum on centers. Provide 100 watt, 130 volt, vibration resistant and brass base incandescent lamps.

16. Provide six hour reset timers for each circuit to turn off the lighting system automatically.

CROSS REFERENCES:
1. For Maintenance Light Details, see Sheet 2.
2. For actual bridge section, see Structures Plans.
**ACCESS HATCH ASSEMBLY**

**Hinge Note:**
Orient the access hatch so that the hinges are located down-grade.

**Section Thru Access Opening**

**Plan View of Access Hatch Assembly**

**Notes:**
1. All structural steel material in access hatch assemblies shall conform to ASTM A709 Grade 36.
2. 1 1/2" Ø pipe grab rail shall be in accordance with ASTM A53 Grade B for standard weight pipe (Schedule 40).
3. 1 1/2" Ø hatch handle bar, hatch pin and 1" Ø ladder brace shall be in accordance with ASTM A36.
4. All bolts shall conform to ASTM A370 or A449. All nuts shall conform to ASTM A563 and all washers shall conform to ASTM F-436.
5. All exposed edges of plates and openings shall be ground smooth.
6. Place ladder brace near the end bents exclusively and only when the height is reasonable for access by a ladder.
7. See framing plan sheets for locations of access hatch openings.
8. Coat structural steel in accordance with specification Section 560.
9. Include the cost of the access hatch assembly and incidental items in the cost of the steel box grinders. No separate payment will be made for coating structural steel.
1. Orient the Access Hatch in upright position (shown dotted).

HINGE DETAIL:

- 3/8" Ø Hinge Bolts
- 1/2" x 3" x 3/4" x 4" Stop Angle
- 3/8" Ø Hinge Bar
- 2 - 3/8" Ø Bolt Bolts (Typ)
- 1 1/2" Ø Pipe Grab Rail
- 3/8" Ø Access Hatch
- 1 1/2" Ø Hatch Handle Bar 

STOP BAR DETAIL:

- 3/8" Ø Access Hatch 
- Hatch Handle Bar 
- Hatch Slide Bolt Plate 
- Hatch Slide Bolt Plate & Slot 
- 3/8" Ø Hatch Slide Bolt Plate 
- 3/8" Ø Hatch Pin with Chip 
- Hatch Pin Bolt 

SLIDE BOLT DETAIL:

- 3/8" Ø Bolt & Box Lock Bar 
- 3/8" Ø Hatch Pin Bolt 
- 3/8" Ø Hatch Pin Bolt & Box Lock Bar 
- Hatch Pin Bolt Plate 

SECTION THRU ACCESS OPENING:

- 2 - 1/2" Ø Stop Bars (hinge Bar) 
- 3/8" Ø x 8" Adhesive Bonded Anchors 1-3/4" 
- 1 1/2" Ø Hinge Bar 
- 1 1/2" Ø Hinge Bar Base Plate 
- 3/8" Ø Access Hatch 

INDEX:

- NO.
- SHEET
- INDEX
- NO.
- 2016
- ACCESS HATCH ASSEMBLY 
- FOR CONCRETE BOX SECTIONS 

DESIGN STANDARDS:

- 25° 6' 1" Access Hatch
- 1'-6" Access Opening
- 1'-6" Access Hatch

FOR CONCRETE BOX SECTIONS:

- 6 /30 /2015

LABORATORY REPORT: 07/01/15

NOTES:

1. All Structural Steel material in Access Hatch Assemblies shall conform to ASTM A709 Grade 36.
2. 1 1/2" Ø Pipe Grab Rail shall be in accordance with ASTM A53 Grade B for standard weight pipe (Schedule 40).
3. 3/8" Ø Hatch Handle Bar and Hatch Pin shall be in accordance with ASTM A-636.
4. All bolts shall conform to ASTM A307 or A449. All nuts shall conform to ASTM A563 and all washers shall conform to ASTM F-436.
5. All exposed edges of plates and openings shall be ground smooth.
6. See Framing Plan sheets for locations of Access Hatch Openings.
7. Coat structural steel in accordance with Specification Section 560.
8. Include the cost of the Access Hatch Assembly and incidental items in the cost of the Concrete Box Section.
**ACCESS DOOR NOTES:**

**STRUCTURAL STEEL:**
Fabricate Door Assemblies using structural steel in accordance with Specification 962, any grade. Grind all exposed edges and burrs smooth. Non-destructive testing of welds is not required. See Plans for details of Diaphragm, Stiffeners and Top and Bottom Plates.

**EXPANDED METAL MESH:**
Expanded metal mesh shall be 1/2" No. 16 expanded carbon steel metal mesh in accordance with ASTM F 330, Type I or II, Class 2, Grade A.

**BOLTS, NUTS AND STEEL WASHERS:**
Bolts shall be stainless steel hex head bolts meeting the requirements of ASTM F 593, Type 316. Nuts shall be ASTM F 594, Type 316. Steel washers shall be stainless steel compatible with the bolts and nuts.

**PTFE WASHERS:**
PTFE washers shall be 1/2" or 1" O.D. (nominal), 1/16" or 1/8" thick, sized for use with 1/2" or 5/8" diameter bolts as shown.

**COATING:**
Coat Access Door Assemblies after complete fabrication, including the expanded metal mesh, using an Interior Box Girder Coating System in accordance with Specification 973. Expanded metal mesh to the door frame after the door frame has been abrasive blast cleaned and prior to coating. Install Bolts and PTFE Washers after coating. Touch-up tack weld on Latch Bolt after welding.

**DOOR HINGE LOCATION:**
Place door hinges on the transverse downward side of the access opening.

**PADLOCKS:**
Provide a suitable keyed commercial grade, weather resistant padlock with a 2" shackle for each Access Door Assembly located at Bridge Aisles. Key all padlocks for Access Door Assemblies and Access Hatches (if present) on an individual bridge alike.

---

**SECTION A-A**

**SECTION B-B**

**SECTION C-C**

**VIEW D-D**

**VIEW E-E**

**VIEW F-F**

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* See Plans for dimensions and details.
** See Access Door Assembly for Steel Box Girders

Data Table in the Plans for Dim. H & Dim. W.**

---

**DATA TABLE IN THE PLANS FOR DIM. H & DIM. W.**

**See Access Door Assembly for Steel Box Girders**

---

**ACCESS DOOR ASSEMBLY**

FOR STEEL BOX SECTIONS

---

**INDEX NO.**

21252

**SHEET NO.**

1 of 1