GENERAL NOTES:
5. PROVIDE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH PUBLICATION 408 AND APPLICABLE SPECIAL PROVISIONS.
6. MATERIAL STRENGTH: REINFORCEMENT STEEL f_y = 40 KSI
   CONCRETE FOR BARRIERS f_c = 3,000 PSI
   CONCRETE FOR MEDIAN BARRIERS f_c = 3,500 PSI
7. PROVIDE STRUCTURAL STEEL CONFORMING TO ASTM A 709 GRADE 50.
   CONCRETE FOR BARRIERS f_c = 3.5 KSI
8. PROVIDE BOLT SPACING (IN INCHES):
   TYPE A INSTALLATION: SPACING = 4'-0"
   TYPE B INSTALLATION: SPACING = 4'-0"
   TYPE C INSTALLATION: SPACING = 2'-0"
9. PROVIDE 3" DIAMETER x 1/8" THICK PLATE WASHER WITH 1-1/4" DIAMETER HOLE IN THE MIDDLE. ALL OTHER WASHERS ARE IN ACCORDANCE WITH ASTM A 153 TYPE 1. WASHERS NEED TO BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF CLASS C OF ASTM A 153.
10. PROVIDE 2'-0" Anchor Bolt, Hot-Dipped Galvanized in Accordance With The Requirements of Class C of ASTM A 153 For All Bolt Through Anchors. Additional Requirements for ASTM F 1554 and ASTM A 194 Grade 7, Supplement 3 at -20°F. BOLT THROUGH ANCHORS MUST BE USED IF SPECIFICALLY INDICATED ON CONTRACT DRAWINGS.
11. PROVIDE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH PUBLICATION 408 AND APPLICABLE SPECIAL PROVISIONS.
12. PROVIDE STRUCTURAL STEEL CONFORMING TO AASHTO M270 GRADE 50, (CLASS AA CONCRETE)

TABLE 1:

<table>
<thead>
<tr>
<th>BOLT SPACING</th>
<th>1'-0&quot;</th>
<th>2'-0&quot;</th>
<th>3'-0&quot;</th>
<th>4'-0&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE A INSTALLATION</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>TYPE B INSTALLATION</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>TYPE C INSTALLATION</td>
<td>9</td>
<td>28</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

TABLE 1 NOTES:
* FOR CONDITIONS FOR TYPE A, B AND C INSTALLATION, SEE GENERAL NOTE 8.

SHEAR AND TENSION VALUES ARE MINIMUM CAPACITY REQUIRED FOR AN INSTALLATION/SHEARING SPACING. IF BOTH VALUES ARE NOT MET OR EXCEEDED BY THE ANCHOR PROVIDED, A CLOSER SPACING MUST BE SELECTED.

GENERAL NOTES:
20. PROVIDE 1" DIA. ASTM F 1554 GRADE 105 OR ASTM A 193 GRADE B7 (105 KSI YIELD), CHARPY IMPACT REQUIREMENTS AT -20°F. BOLT THROUGH ANCHORS ARE NOT PERMITTED IN RECENTLY POURED DECK.
21. TRAFFIC TRANSITIONS AND LANE MERGING MUST BE OFF THE END OF THE STRUCTURE, EXPANSION DAMS AND OTHER OBSTACLES.
22. IDENTIFY THE PLAN LOCATION OF THE BARRIER ON THE BRIDGE CONSTRUCTION PROJECTS THAT EXTEND CONTINUOUSLY FOR A MAXIMUM OF THREE YEARS.
24. PROVIDE HEAVY HEX NUTS IN ACCORDANCE WITH PUBLICATION 408 SECTION 1104.02 (c)3.a OR ASTM A 194 GRADE 7, SUPPLEMENT 3 AT -20°F, BOLT THROUGH ANCHORS ARE NOT PERMITTED IN RECENTLY POURED DECK.
25. TRAFFIC TRANSITIONS AND LANE MERGING MUST BE OFF THE END OF THE STRUCTURE, EXPANSION DAMS AND OTHER OBSTACLES.
26. INDICATE INSTALLATION TYPE ON THE CONTRACT DRAWINGS.
27. ANCHORS MUST BE INSTALLED IN THE END HOLES OF EACH BARRIER OR MEDIAN BARRIER SEGMENT. KEEP ANCHOR SPACINGS UNIFORM ALONG THE FULL LENGTH OF THE BRIDGE TO THE EXTENT POSSIBLE.
28. WHEN USING ADHESIVE ANCHORS FOR THE FACE(S) OF MEDIAN BARRIERS ADJACENT TO TRAFFIC: TYPE A INSTALLATION; SPACING = 4'-0"
   TYPE B INSTALLATION; SPACING = 2'-0"
   TYPE C INSTALLATION; SPACING = 1'-0"
29. PROVIDE 1" DIA. ASTM F 1554 GRADE 105 OR ASTM A 193 GRADE B7 (105 KSI YIELD), CHARPY IMPACT REQUIREMENTS AT -20°F. BOLT THROUGH ANCHORS ARE NOT PERMITTED IN RECENTLY POURED DECK.
30. TRAFFIC TRANSITIONS AND LANE MERGING MUST BE OFF THE END OF THE STRUCTURE, EXPANSION DAMS AND OTHER OBSTACLES.
32. PROVIDE HEAVY HEX NUTS IN ACCORDANCE WITH PUBLICATION 408 SECTION 1104.02 (c)3.a OR ASTM A 194 GRADE 7, SUPPLEMENT 3 AT -20°F, BOLT THROUGH ANCHORS ARE NOT PERMITTED IN RECENTLY POURED DECK.
33. TRAFFIC TRANSITIONS AND LANE MERGING MUST BE OFF THE END OF THE STRUCTURE, EXPANSION DAMS AND OTHER OBSTACLES.
**CONSTRUCTION NOTES:**

1. **Drill** by means which will not damage the adjacent concrete. Support beneath the deck as necessary to avoid spalling of concrete for bolt through and adhesive anchors only.

2. Drill into the deck using the holes in the temporary barrier as a template. The drill bit is located anywhere within the 2" slit, but must be maintained vertically ± 1/4".

3. The barriers may be prestressed to avoid damage during drilling. Move the barrier parallel to the direction of traffic up to 2" and perpendicular to traffic up to 2", provided the anchors in the barrier face must always be positioned to traffic. If barriers are moved, they must be moved in a staggered manner to alternate bolt positions in type A, B, and C installations. For existing decks, type C installations will require drilling through deck reinforcement steel. Alternatively, one bolt per barrier section may be eliminated with approval of the engineer. For new decks with type C installations, properly plan and place deck reinforcement steel to avoid damage during drilling.

4. Within the ends of the segments with the location of the expansion joint as closely as possible. Bolting of a segment on each side of the expansion joint is permitted. For other obstructions that do not involve movement, such as conduits, bolting a segment on each side of the obstacle is permitted.

5. The end segment of the temporary barrier at the end of the bridge may extend partially off the bridge. Connect the temporary barrier to the adjacent segment of the permanent barrier. Position barrier segments such that the largest possible portion of the end segment is placed on the bridge. Install anchors at the same spacing used on the bridge but not exceed 2'-0" in the segment length on the bridge.

6. Bolting of the segments is not required if the width of the gap between the temporary barrier and the adjacent deck is 2'-0" or more. The temporary barrier must extend full width where bolt through anchors or adhesive anchors are not permitted.

7. **Treatment of anchor holes after removal of barrier:**
   - For adhesive anchors mounted on new decks and existing decks that will not be overlapped in a later stage of construction, core the anchor and completely remove the anchor after the removal of the temporary barrier. Core the anchor 8" with grout in accordance with Section 1000.2(C) of PUB. 408.
   - For adhesive anchors installed using a manufacturer's releasing agent, the contractor may remove the anchor. Permissible field test loading values are listed in Table 3.
   - For adhesive anchors mounted on existing decks that will be overlapped in a later stage of construction, cut the projection of the anchor above the deck and using slip rules, flush the top surface of the deck immediately after temporary barrier removal.
   - For bolt through anchors mounted on new decks and overlapped existing decks that will be overlapped in a later stage of construction, cut the projection of the anchor above the deck and using slip rules, flush the top surface of the deck immediately after temporary barrier removal.
   - For bolt through anchors mounted on new decks or overlapped existing decks, temporarily to traffic after the barrier is removed, fill the holes with grout and place the top surface of the deck temporarily after temporary barrier removal.
   - For bolt through anchors mounted on new decks or overlapped existing decks with an overlay, temporary to traffic after the barrier is removed, fill the holes with grout and place the top surface of the deck temporarily after temporary barrier removal.

8. The maximum temperature rating of a barrier is 2'-0". Bolt through anchors mounted on new decks without overlapped decks with an overlay or bolting a segment on each side of the permanent barrier permitted.

9. Anchors are required for traffic side only.

10. Field test loading values are in Table 1.

**Table 1:**

<table>
<thead>
<tr>
<th>Bolt Spacing</th>
<th>1'-0&quot;</th>
<th>2'-0&quot;</th>
<th>3'-0&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tension (kips)</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Type A Installation</td>
<td>7</td>
<td>13</td>
<td>22</td>
</tr>
<tr>
<td>Type C Installation</td>
<td>24</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Table 2 Notes:**

- For conditions for type A, B, and C installation, see Sht. 1, General Note 9.
TRAFFIC FACE OF TYPICAL TEMPORARY CONCRETE BARRIER AND BOTH FACES OF TYPICAL TEMPORARY CONCRETE MEDIAN BARRIER

NOTE: USE BARRIER DRAINAGE OPENINGS FOR ALL TEMORY CONCRETE BARRIERS.

TEMPORARY BARRIER 42"
TYPICAL REINFORCEMENT DETAIL

SECTION A-A

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF PROJECT DELIVERY

STANDARD
TEMPORARY CONCRETE BARRIER,
STRUCTURE MOUNTED
REINFORCEMENT DETAILS

SEPT. 30, 2016
SEPT. 30, 2016
NOTES:
1. FOR GENERAL NOTES: SEE SHEET 1.
2. FOR CONSTRUCTION NOTES: SEE SHEET 2.
3. FOR LOCATION OF ANCHOR POCKET: SEE SHEETS A AND B.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF PROJECT DELIVERY

STANDARD
TEMPORARY CONCRETE BARRIER,
STRUCTURE MOUNTED
ANCHOR POCKET DETAILS

BARRIER SECTION A-A
BARRIER ELEVATION
ALTERATE ANCHOR POCKET DETAIL

BARRIER SECTION A-A
BARRIER ELEVATION
ANCHOR POCKET DETAIL