TO: All Users of Construction Standards

FROM: Terry H. Otterness, Design Program Manager, Roadway Engineering Group

RE: Revisions to Construction Standards - English Version

Several changes are being made to Construction Standard Drawings and the Construction Standards Index.

These revisions result from a Value Engineering Study on catch basins and affect Standards C-15.10 through C-15.81; Std. C-15.60 is deleted and Std. C-15.75 remains unchanged.

The Catch Basin Standards reflect significant changes including using only one type (EF) and size of grate and frame, placing the grate against the pavement edge to increase the amount of grate opening without encroaching into the pavement, changing the nose angle to a bent plate for curb opening catch basins to decrease and simplify forming, changing the access cover to the round cover used by the City of Phoenix, clarifying the use of catch basins with wide gutters, clarifying notes, and changing depth of wing walls to simplify forming. Revisions are indicated on each specific drawing.

Std. C-10.67 is a new standard for Concrete Median Barrier, Tall Type ‘F’, Cast in Place.
May, 1997

TO: ALL USERS OF THE CONSTRUCTION STANDARD DRAWINGS

FROM: THOMAS H. SCHECK, STANDARDS ENGINEER

RE: ERRATA SHEET - ENGLISH

ERRATA

The following revisions should be made to the Construction Standards dated July, 1994 (English). These revisions will remain in effect until new Standard Sheets are revised and distributed.

<table>
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<th>REVISION</th>
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<tr>
<td>ONLY ONE EXPANSION JOINT IS REQUIRED ON EACH SIDE OF THE DRIVEWAY AS SHOWN ON “DRIVEWAY WITH SIDEWALK ADJACENT TO CURB” THESE ARE THE EXTERIOR JOINTS, ONLY. WHEN THE DRIVEWAY IS CONCRETE, ANOTHER EXPANSION JOINT IS NEEDED ALONG THE BACKSIDE OF THE SIDEWALK BETWEEN THE SIDEWALK AND THE DRIVEWAY IN ALL CASES WHERE THE SIDEWALK CROSS THE DRIVEWAY.</td>
<td>C-05.20 Sheet 1</td>
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<td>ALL REFERENCES TO “CLASS 2 AB” SHOULD BE CHANGED TO READ “CEMENT-TREATED SLURRY” ON “SECTION B-B”.</td>
<td>C-05.50</td>
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<tr>
<td>DELETE DRAWING “TRANSVERSE CONSTRUCTION JOINT, TC JOINT NON-SKEWED JOINT”. THE DRAWING “TRANSVERSE CONSTRUCTION JOINT, TC SKEWED JOINT” SHALL APPLY TO BOTH SKEWED AND NON-SKEWED JOINTS.</td>
<td>C-07.01 Sheet 1</td>
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<tr>
<td>UNDER “GENERAL NOTES” CHANGE THE “MINIMUM” TO “MAXIMUM” AT “VARIRES - 18’ MINIMUM”.</td>
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<tr>
<td>UNDER “GENERAL NOTES” CHANGE THE “MINIMUM” TO “MAXIMUM” AT “VARIRES - 18’ MINIMUM”.</td>
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<td>AS SHOWN ON “CROSSROAD AT RAMP TERMINAL” DELETE THE NOTE “EXPANSION JOINT SPACING (60’ MAX) (TYPICAL)”.</td>
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</table>
C-10.22  Sheet 1  As shown on “SECTION” change the note on structural shape block to read “M14x17.2x14”, M14x18x14” or W14x22x14” Structural Shape Block”.

C-10.31  Sheet 2 and 3  As shown on “Guard Rail Transition (Timber Post)/(Steel Post) under “ELEVATION” delete the notes about “Rectangular Plate Washers”. This type washer should not be used on these two large posts.

C-10.44  Sheet 1  Under “SOIL PLATE DETAIL” the reference to “3/4” Hole” change it to read “13/16” Hole”.

C-10.45  Under “GENERAL NOTES” add this note as 5. - Bearing plate shall conform to ARTBA Standard F-41-79 except that the dimension from the bottom of the plate to the center of the hole shall be 2 1/4”.

C-10.66  Under “GENERAL NOTES” in note 1. change “Half” to “Median”.

C-13.10  Sheet 2of 2  Change note 1. to read “Minimum cover over pipe culverts shall be 12”, measured from the top of pipe”

C-13.25  Do not use “TYPE 1, RIVITED OR BOLTED CONNECTIONS” or “TYPE 5, SLIP SEAM CONNECTIONS”. This standard applies to both round or arch pipes, however only the round are shown. This drawing is still applicable for “L” on end sections.


C-13.60  All references to “AB Class 2” should be changed to read “Cement-Treated Slurry” on “TYPE D & G CURB AND GUTTER WITH SLOTTED DRAIN” and “TYPE B OR C CURB AND GUTTER WITH SLOTTED DRAIN”.

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**GENERAL NOTES**

1. Median Barrier shall be constructed by the slip form or by the formed cast-in-place method.
2. When obstacles are encountered which prevent the use of slip form equipment, the closure shall be accomplished by the use of stationary forms.
3. Concrete shall be Class S, design strength f' = 3000 PSI.
4. If the footing and barrier are cast monolithically, No. 6 S shaped rebars will not be required.
5. In no case shall the width of barrier exceed the width of the footing or overhang the adjacent pavement.
6. No. 4 Rebar shall extend 12" past the construction joint at the completion of the day’s pour.

△ Depth to match adjacent PCCP thickness (6" min).

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WITH PCC PAVEMENT

SECTION A-A

WITH AC PAVEMENT

SECTION A-A
GENERAL NOTES

1. Catch basin can be used on grade or at roadway slop.

2. Catch basin has three configurations:
   - Sump only: Sump portion of catch basin (See Detail No. 4);
   - Single wing: Illustrated: Sump with wing basin upstream;
   - Double wing: Sump with symmetrical wing basins each side.

3. Pipes can be placed in any wall except wall adjacent to wing basin.

4. Floor shall have a wood trowel finish. Slope of the sump portion of the catch basin along the axis of the pipe shall be 1:4.

5. Any specified heat depression shall be warped to opening according to Standard C-1570.

6. All structural steel shall be ASTM A36.

7. Nozzle plate, access frame and cover shall be given a shop coat of No. 1 paint.

8. All concrete shall be Class B.

9. All reinforcing bars shall be #4, 1-6" C to C both ways and 1/2" clear of inside of walls and outside of wing basin floor except as shown.

10. Curb opening area (sq ft) per inch of curb rise:
   - Gutter depression: curb open: 4" width @ 0.00003.

11. Welding shall be in accordance with Standard Welding Specifications.

12. Construction joints and drains shall be placed to meet field conditions. See Standard C-1570.

13. Gutter: 6" when H is 8" or less, 8" when H is greater than 8.

SECTION A-A
USE THIS SECTION WHEN H=5' OR LESS

SECTION B-B
GENERAL NOTES
1. See sheet 1 of 2 for other dimensions, notes and reinforcing steel.
2. C = 6" when H is 8' or less.
   8" when H is greater than 8'.

DETAIL NO. 1
- Nose Plate
- 6" x 5/8" Seat Plate
- Length: 2'-11½" + 6' + 6'

DETAIL NO. 2
- Curb Support Anchor
- Anchor: No. 4 Bar
- Anchor: No. 3 Bar (Typ)
- 5 Bar: 6" C to C
- See Detail No. 3

DETAIL NO. 3
- 3'-2½"
- 5 Bar, No. 3 Bar

DETAIL NO. 4
- 2" R
- 6" Gutter Scope
- No. 4 Bar
- 1/8" Drain 1/8"
- Hex Head Bolt
- With 3" of Thread

SECTION A-A
USE THIS SECTION WHEN H IS GREATER THAN 5'

Notes:
- Reinforcing bars shown are for floor of wing and wall only.
- See sections on sheet 1 for other reinforcing.

PLAN
- Curb Support Anchor
- See Detail No. 2

CATCH BASIN, TYPE 3
STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DRAWINGS
C-1520
Sheet 2 of 2
5/97
GENERAL NOTES

1. Catch basin can be used on grade or at roadway sep.
2. Pipes can be placed in any wall.
3. Floor shall have a wood travel finish and a minimum 4:1 slope along the axis of the pipe toward the pipe.
4. Curb over catch basin shall not be constructed until catch basin concrete has set for a minimum of 24 hours.
5. Catch basin can be used with curb and gutter (as shown) or without.
6. See Std. C-15.50 for grate and frame details and opening areas.
7. Any specified joint depression shall be warped to opening according to Std. C-15.70.
8. At structural steel shall be ASTM A36.
9. Grates, frames, and beam shall be given one shop coat of No. 1 paint.
10. All concrete shall be Class B.
11. Construction joints and drains shall be placed to meet field conditions. See Std. C-15.10.
12. Sidewalk, sidewalk, and drain shall be placed between the grate frame and PCP, recessed 3/8" from the pavement surface.
13. See detail No. 2 for catch basin with wide gutter.
14. Optional: 6" when H is 8' or less.
   6' when H is greater than 8'.
   See Section B-B.
   9" when pavement is AC.
   Match pavement thickness when pavement is PCP.

PLAN - CATCH BASIN TYPE 4 - SINGLE

PLAN - CATCH BASIN TYPE 4 - DOUBLE

SECTION A-A

SECTION B-B

SECTION C-C

DETAIL NO. 1

DETAIL NO. 2
GENERAL NOTES

1. Grating units and frames shall be fabricated from structural steel ASTM A36 except as noted.

2. All welding shall be in accordance with Standard Welding Specifications.

3. The completed assembly shall be given one shop coat of No. 1 paint.

4. Frames and grates shall fit to a maximum royal width of 0.050" at any point.

5. Grate opening is 3.97 Sq. Ft.

SECTION A-A

\[ \frac{1}{8} " \text{ Cross Bars May Be Melted, Resistance Welded or Electroformed to Bearing Bars.} \]

SECTION

\[ \frac{1}{4} " \text{ Bar} \]

FRAME

\[ \frac{1}{8} " \text{ Anchors, Delete on One End When Used with I-Beam Support} \]

PLAN

\[ \frac{1}{8} \times 3/4" \text{ Bar}\]

\[ \frac{1}{8} " \text{ Bar} \]

\[ \frac{1}{8} " \times 3/4" \text{ Bar}\]
GENERAL NOTES
1. Cover shall be non-locking.
2. Frame and cover shall be cast iron or structural steel.
3. Catch basin access frame and cover is for use in roadside area only.
4. Cover shall be filled with concrete and broom finished.
GENERAL NOTES

1. Construction drain may be deleted at the option of the Engineer.

LEGEND

O - Normal pavement or gutter flow line elevation.

CATCH BASIN CONSTRUCTION DRAIN

6" x 18 ga. CDP, Length as Required

Plug with Cem. Upon Pavement Completion

Slope to Drain

STATE OF ARIZONA
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STANDARD DRAWINGS

CATCH BASIN Misc. DETAILS

5/97
GENERAL NOTES

1. Apron shall be Portland cement concrete.
2. All concrete shall be Class B.
3. Grating shall be fabricated of structural steel.
4. Structural steel shall be in accordance with ASTM A36.
5. Grating assembly shall be in accordance with Standard Building Specifications.
6. Grating assembly shall be given one shop coat of No. 1 paint.
7. If indicated on plans:
   - 6" when wall height exceeds 8'

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STANDARD DRAWINGS
CATCH BASIN, MEDIAN
FLUSH

No. 15.80
GENERAL NOTES

1. Apron shall be portland cement concrete, Class B.
2. All concrete shall be Class B.
3. Grating shall be fabricated of structural steel.
4. Structural steel shall be in accordance with ASTM A36.
5. Welding shall be in accordance with Standard Welding Specifications.
6. Grating assembly shall be given one shop coat of No. 5 paint.
7. If indicated on plans.
   * 8" when Wall Height Exceeds 8"

SECTION A-A

24" Outlet Pipe

SECTION B-B

24" Outlet Pipe

SECTION C-C

Elevation Controlled by Sides of the Apron

GRADE DRAIN

Med. Bch. Grade

SECTION D-D

4-\(\frac{3}{4}\)"x4" Bolt
Anchors, Bend 45°

DETAIL NO. 1

DETAIL NO. 1

WALL HEIGHT DETAIL

DIMENSION TABLE

<table>
<thead>
<tr>
<th>Slope</th>
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<tr>
<td>2%</td>
<td>1.50</td>
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STATE OF ARIZONA
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STANDARD DRAWINGS

C-15.81

CATCH BASIN, MEDIAN
SIDE SLOPE

5/97