The October 2004 Roadway Construction Standard Drawings have been revised and updated, and are available for download on the Roadway Design web site at the following address:


The attached spreadsheet summarizes the changes made to the previous drawings. The changes of note are more fully described below:

- C-04.10, Sht 2 of 2: A new drawing with a double-inlet embankment spillway;
- C-04.20, Sht 2 of 2: A new drawing with a double-inlet embankment downdrain;
- C-07.06: Reissued the drawing for trench backfill requirements. This drawing was inadvertently left out of the October 2004 Edition, but is used by the district permit offices;
- C-10.00: The C-10.00 drawing now shows the C-10.30 transition at both ends of roadway barriers. There will no longer be a distinction made between "approach" or "departure" type when referencing Thrie-Beam to Concrete Half-BARRIER Transitions (C10.7x series). The C-10.30 transition will only be connected to roadway half-barrier installations. Thrie-beam guardrail transitions attaching to Bridge Group structures are details included in the bridge sheets of the project plans;
- C-10.30, Shts 1 & 2 of 2: Revised sheets showing the Thrie-Beam to Concrete Half Barrier Transition, attachment hardware, and optional Lip Curb Details;
- C-10.31 & C-10.32: These drawings have been deleted. Designers shall specify the C-10.30 transition for both the approach and departure ends of roadway half-barrier installations; and
- C-18.10: Revised General Note 8 pertaining to backfill compaction.

Design personnel should implement the updated drawings and incorporate the updates into their project plans. For projects at or near completion, where the inclusion of all new standard drawings is not practical, the 1A Sheet must accurately reflect the correct revision dates for the design. Construction personnel should review the drawing revisions for possible implementation on construction projects.

Please distribute this memorandum to all users within your Group, Section, or District, and arrange for printing of the updated Standard Drawings for those without computer access. Copies of the complete set of Roadway Construction Standard Drawings (8-1/2" x 11" or 11" x 17") may be obtained from Engineering Records located at 1655 West Jackson, Room 175, Phoenix, AZ 85007-3217 or by telephoning 602-712-8216.

The updated Construction Standards Index (1A Sheet) and Barrier Summary Sheets are also available on-line at the address shown above.
Please direct questions regarding this memorandum or the updated standards to Kenneth Cooper, Roadway Standards Engineer at 602-712-8674.

MAV/KRC/krc

c:  Roadway Engineering Group  Regional Traffic Engineers (4)
    Traffic Engineering Group  Materials Group
    Valley Project Management Group  Local Government Section
    Environmental and Enhancement Group  Engineering Consultant Section
    Districts (10)  District Permits Office (9)
    Statewide Project Management Group  Engineering Records
    FHWA  Maintenance Group
    Contracts and Specifications Section  Dan Lance
    Construction Group  Sam Maroufkhani
    Bridge Group  Doug Forstie
Summary of Revisions, July 29, 2005

- General: modified lines outside of area of interest to appear as subdued
- New Index of Sheets dated 7/29/05
- C-03.10, Sheet 4 of 5: deleted projecting pipe detail; added end section to berm detail; deleted General Notes 1 & 2
- C-04.10, Sheet 1 of 2: reissued std dwg
- C-04.10, Sheet 2 of 2: new std dwg for embankment spillway with double inlet
- C-04.20, Sheet 1 of 2: new General Note 1; graphical changes to inlet plan and section; revised General Note 9
- C-04.20, Sheet 2 of 2: new std dwg for embankment downdrain with double inlet
- C-04.30: minor revision to spillway graphics
- C-04.40: minor revision to downdrain graphics
- C-05.12, Sheet 1 of 3: added parallel type entrance and exit ramp transitions; modified Section A-A for both Concrete Barrier and Curb & Gutter applications
- C-05.12, Sheet 2 of 3: re-arranged sheet graphics; added and revised perspective views; modified proportions of pavement thicknesses in transition and gore
- C-05.12, Sheet 3 of 3: re-arranged sheet graphics; revised length designation for Type 9 Curb & Gutter Transition
- C-05.20, Sheet 1 of 2: deleted reference to "Control Point" from station location callout in both plan views
- C-05.20, Sheet 2 of 2: revised slope designation in section views and beneath general notes; minor graphical changes
- C-05.30, Sheet 1 of 6: revised dimension callout in Section A-A
- C-05.30, Sheets 1 through 6: added a general note regarding damaged truncated domes; modified control point notation to read "Location – See Plans"
- C-05.30, Sheet 7 of 7: modified dimensions from numbers to symbols
- C-07.01: revised title on section view; minor graphical changes
- C-07.02: revised title on section view; minor graphical changes
- C-07.03: removed 29" dimension in Section G4 (1W) and Section G4 (2W)
- C-07.04: removed gutter pan thickness notation from Section A-A
- C-07.07: revised bolt length callout for timber post installation
- C-07.10, Sheet 2 of 3: revised callouts on Section D-D to reference C-10.30, Sheet 2 of 2
- C-07.11, Sheet 1 of 2: revised callouts on plan and elevation to reference C-10.30
- C-07.11, Sheet 2 of 2: revised callout on Section C-C to reference C-10.30
- C-07.12, Sheets 1 of 5: revised length specified in General Note 1
- C-07.13, Sheet 1 of 2: reissued std dwg
- C-10.01: revised title on section view; minor graphical changes
- C-10.02: revised title on section view; minor graphical changes
- C-10.03: removed 29" dimension in Section G4 (1W) and Section G4 (2W)
- C-10.04: removed 29" dimension in Section G4 (1S) and Section G4 (2S)
- C-10.07, Sheet 2 of 2: revised bolt length callout for timber post installation
- C-10.30, Sheet 1 of 2: reissued std dwg; removed reference to pavement type from title
- C-10.30, Sheet 2 of 2: new std dwg showing guardrail attachment hardware formerly shown on C-10.32 and pavement options for lip curb detail
- C-10.31: deleted
- C-10.32: deleted

Attachment 1
GENERAL NOTES

1. Berm construction shown is for pipe extensions. Berm construction similar for new pipe and multiple pipe installations. See Pipe Berm Requirement Detail.

2. If Point A is within the recovery area, then a pipe berm is required and Point B is set at the edge of the recovery area.

3. See Std. Sec. C-32.15 for pipe backfill and bedding material limits:
   - Slope Pipe Installation D = Outside Diameter of Pipe
   - Multiple Pipe Installation D = Outside Edge to Outside Edge of Pipes

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SECTION A-A

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PIPE BERM REQUIREMENT DETAIL

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GENERAL NOTES

1. Location may be adjusted to accommodate guardrail post layout.
2. All concrete shall be Class B Embankment curb concrete shall be in accordance with the Std Spec.
3. Where rock is encountered the outlet may be omitted, as approved by the Engineer.
4. When outlet is used, the wire mesh shall extend through the joint into the outlet in lieu of bending into the key.
5. Spillway invert slope shall be uniformly downward from A to B. See Section B-B.
6. See Std Dwg C-0420 for spillway length.
7. See Std Dwg C-1026 for nested guardrail requirements.

72" Timber Post

Indicates Inlet

Indicates Spillway

SECTION B-B

OUTLET DETAIL

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

SPILLWAY, EMBANKMENT
SINGLE NLE1

Sheet N. 1

1/25
GENERAL NOTES

1. Location may be adjusted to accommodate guardrail post layout.

2. All concrete shall be Class B. Embankment curb concrete shall be in accordance with the Std Specs.

3. Where rock is encountered the outlet may be omitted, as approved by the Engineer.

4. When outlet is used, the wire mesh shall extend through the joint into the outlet in lieu of bending into the key.

5. Spillway invert slope shall be uniformly downward from A to B. See Section B-B.

6. See Std Dwg C-04.30 for spillway length.

7. All posts within the inlet shall have a "leaveout" measuring a minimum of 1 1/2" in front and 1/2" at each side, to the full depth of the concrete. The "leaveout" behind Posts 1 & 3 shall end at the toe of the curb. The "leaveout" behind Post 2 shall measure 8" minimum. After guardrail installation, the "leaveout" shall be filled with a one-sack grout mix or alternate material as approved by the Engineer.

   • Length may be 4'-6" or 5'-0".

   ![Diagram of guardrail post layout]

   ![Diagram of outlet detail]

   ![Diagram of post sleeve detail]

   ![Diagram of section A-A]

   ![Diagram of section B-B]

   ![Diagram of general notes]

   ![Diagram of spillway section]
GENERAL NOTES

1. Location may be adjusted to accommodate guardrail post layout.

2. All posts within the inlet shall have a "leaveout" measuring a minimum of 1/2" in front and 1/2" at each side, to the full depth of the concrete. The "leaveout" behind Post 1 & 3 shall end at the toe of the curb. The "leaveout" behind Post 2 shall measure 8" minimum. After guardrail installation, the "leaveout" shall be filled with a one-sack grout mix or alternate material as approved by the Engineer.

3. See Std Dwg C-10.06 for nested guardrail requirements.
   - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation
   - Varies with subgrade slope and pavement structural thickness
   - Varies with fill slope and pipe cover
   - 72" Timber post
   - Length may be 4'-6" or 5'-0".

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OUTLET DETAIL

INLET PLAN

POST SLEEVE DETAIL

OUTLET HEADWALL AND CONCRETE APRON

"LEAVEOUT" DETAIL
### GENERAL NOTES

1. For C-02.20 slopes with embankment height over 24', use length for 32' embankment height from table + 2'.

2. For C-02.20 slopes with embankment height over 22', use length for 32' embankment height from table + 2'.

3. For C-02.30 slopes with embankment height over 16', use length for 32' embankment height from table + 2'.

4. For spillway details, see Std Deg C-0420.

---

### LENGTH OF SPILLWAY (F1)

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<th>Embankment Height (ft)</th>
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### C-02.10 AND C-02.20 SLOPES

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### C-02.30 SLOPES

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### STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

**Spillway Length Table**

**C-0420**
### General Notes

1. For C-02.10 slopes with embankment height over 24, use length for 24 embankment height from Table 2.

2. For C-02.20 slopes with embankment height over 32, use length for 32 embankment height from Table 2.

3. For C-02.30 slopes with embankment height over 48, use length for 60 embankment height from Table 2.

4. For downdrain details, see Std. Deg C-04.20.

### Table: Downdrain Length Table C-02.10 and C-02.20

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<td>18 20 22 24 26 28 30</td>
</tr>
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</table>

### Table: Downdrain Length Table C-02.30

<table>
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</table>

C-02.10 and C-02.20 SLOPES

C-02.30 SLOPES
GENERAL NOTES

1. All gutter flow lines shall be constructed to an accurate grade.
2. See Slotted Drain Std Dwgs C-13.60 and C-15.91 for curb & gutter with slotted drain.
3. See Std Dwg C-05.10 for additional general notes and dimensions.
4. See Std Dwg C-07.04 for typical curb and gutter transition locations.
5. Dimension vary where transition occurs on curves. See Plans.

Type 1 - Gutter Transition at Roadway Edge with Angle Point is applicable with Concrete and Barrier and Curb & Gutter Applications. Curb & Gutter Alternative is shown.

- Curb & Gutter - Type B, C or C-1, Std Dwg C-05.10

SECTION
CONCRETE BARRIER APPLICATION

SECTION
CURB & GUTTER APPLICATION

EXIT

TYPE I - TAPER TYPE GUTTER TRANSITIONS AT RAMPS
PLAN VIEW

ENTRANCE

TYPE I - PARALLEL TYPE GUTTER TRANSITIONS AT RAMPS
PLAN VIEW
Curb & Gutter Transitions

Type 2 - Curb & Gutter Transition

Type 3 - Curb & Gutter Transition

Type 4 - Curb & Gutter Transition

- Curb Height Varies 0" to 7" Maximum in Depressed Curb Area Beyond the End of Barrier, See Plans for Curb Height.
- Dimensions May Vary Where Transition Occurs on Curves, See Plans.
**Type 5 - Curb & Gutter Transition**

- Curb & Gutter: Type B, C or C-1
- Gutter Width: 4'-6" (5'-0"
- Std. Dwg: C-05.10
- See Plans

**Type 7 - Curb & Gutter Transition**

- Curb & Gutter: Type B, C or C-1
- Gutter Depression: 3/8"
- Std. Dwg: C-05.10

**Type 8 - Curb & Gutter Transition**

- Curb & Gutter: Type B
- 6" Curb Height
- 2" Gutter Depression
- Std. Dwg: C-05.10

**Type 6 - Single Curb or Curb & Gutter Transition**

- Single Curb: Type A, A-1 or G
- Std. Dwg: C-05.10
- See Plans

**Type 9 - Curb & Gutter Transition**

- Sidewalk: Std. Dwg: C-05.20
- Sidewalk Ramp: Type C
- Std. Dwg: C-05.30

**Description of Revisions**

- Made by RLF
- Date: 7/05
- REVISED DIMENSION

**State of Arizona**

- Department of Transportation
- Roadway Standard Drawings
- Approved for Distribution
- Approved for Design

- Curb and Gutter Transitions

- Sheet 3 of 3
GENERAL NOTES

1. Unless otherwise specified, driveways shall be 6" thick.

2. Two-inch deep transverse contraction joints shall be placed in driveways if the driveway width is over 20'. If the driveway thickness is greater than 6", then the contraction joint depth shall be 1/3 times the thickness of the driveway. Joints shall be either formed or sawn. Formed joints shall be finished with a tool having a 1/4" radius. See Sheet 2 of 2 for the Contraction Joint Detail.

3. Expansion joints shall be located between driveways and sidewalks and at abutting structures. The 1/3 joint filler shall extend the full depth of the concrete. See Sheet 2 of 2 for the Expansion Joint Detail.

4. Concrete shall be finished by means of a float, then steel trowelled and then broomed with a fine brush in a transverse direction.

LEGEND

Minimum slope = 0.01' Per Ft
Maximum slope = 0.02' Per Ft

Straight grade with downward slope

Minimum slope = 0.02' Per Ft
Maximum slope = 0.04' Per Ft

Straight grade with downward slope

Minimum slope = 0.04' Per Ft
Maximum slope = 0.08' Per Ft

Straight grade with downward slope

Minimum slope = 0.08' Per Ft
Maximum slope = 0.16' Per Ft

Straight grade with downward slope

Minimum slope = 0.16' Per Ft
Maximum slope = 0.32' Per Ft

Straight grade with downward slope

Minimum slope = 0.32' Per Ft
Maximum slope = 0.64' Per Ft

Straight grade with downward slope

Minimum slope = 0.64' Per Ft
Maximum slope = 1.28' Per Ft

Straight grade with downward slope

Minimum slope = 1.28' Per Ft
Maximum slope = 2.56' Per Ft

Straight grade with downward slope

Minimum slope = 2.56' Per Ft
Maximum slope = 5.12' Per Ft

Straight grade with downward slope

Minimum slope = 5.12' Per Ft
Maximum slope = 10.24' Per Ft

Straight grade with downward slope
1. Unless otherwise specified, sidewalks shall be 4" thick.
2. One-inch deep transverse contraction joints shall be placed in sidewalks at intervals of approximately 15' or at a spacing that matches adjacent curb and gutter. If the sidewalk is over 7' in width, a 2" deep longitudinal contraction joint shall be placed in the center of the sidewalk. The maximum area of sidewalk without contraction joints or scoring lines shall be approximately 36 square feet. Joints shall be either formed or sawn. Formed joints shall be finished with a tool having a 1/4" radius.
3. Score marks shall be 1/2" in depth. They shall be placed at 3' spacing when the contraction joint interval is 15', and at 6' spacing when the contraction joint interval is 12'.
4. Expansion joints shall be located between sidewalks and driveways and all abutting structures. Expansion joints shall match the joints in the adjacent concrete pavement or existing concrete curb and sidewalk. Maximum length of sidewalk without an expansion joint shall be 60 transverse feet. The 1/2" joint filler shall extend the full depth of the concrete.
5. Concrete shall be finished by means of a float, then steel troweled and then broomed with a fine brush in a transverse direction.

**LEGEND**

- Minimum slope = 0.01 Per Ft
- Maximum slope = 0.02 Per Ft

**GENERAL NOTES**

- Minimum slope = 0.01 Per Ft
- Maximum slope = 0.02 Per Ft

**SIDEWALK ADJACENT TO CURB**

- Contraction Joint
- Sidewalk
- Score Mark (Typ)
- Curb & Gutter
- Construction Joint

**SIDEWALK SETBACK FROM CURB**

- Contraction Joint Detail
- Expansion Joint Detail

**CONCRETE SIDEWALK SETBACK FROM CURB**

- Width as Shown on Project Plans (5' Typ)
- Maximum 1/2"
- Varied

**CONCRETE SIDEWALK ADJACENT TO CURB**

- Width as Shown on Project Plans (5' Typ)
- Maximum 1/2"
- Varied
GENERAL NOTES

1. Ramp centerline shall be radial from the face of the curb at the Sidewalk Ramp Control Point.

2. The ramp slopes as shown are the steepest allowed, except as provided for under Note 3.

3. Ramp lengths shall not exceed 10' for any installation. Ten-foot long ramps may be steeper than the slopes shown in Note 2.

4. Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.

5. Concrete shall receive a rough broom finish as shown.

6. See Std Dwgs C-05.10 and C-05.20 for joint details.

7. When installing brick detectable warning strips, the contractor shall take measures to avoid damaging the truncated domes. Damaged domes shall be replaced by the contractor at no additional cost.

8. See Note 3

9. 10" Maximum to Face of Pedestrian Push Button


LEGEND

Minimum Slope = 100:1 (0.01 '/ft)
Maximum Slope = 50:1 (0.02 '/ft)

Paralleling Sidewalk Ramp

1. See Note 3

2. 10" Maximum to Face of Pedestrian Push Button


PARALLEL SIDEWALK RAMP
GENERAL NOTES

1. Ramp centerline shall be radial from the face of the curb at the sidewalk ramp control point.
2. The 10:1 wing and 15:1 ramp slopes are the steepest allowed, except as provided for under Note 3.
3. Ramp lengths shall not exceed 10' for any installation. Ten-foot long ramps may be steeper than the slope shown in Note 2.
4. Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren’t marked, within the area a standard marked crosswalk would encroach.
5. Concrete shall receive a rough broom finish as shown; the side slope wings do not receive a broom finish.
6. The Engineer may approve replacing the side slope wing with a curb at a location where access to the side of a ramp run is blocked by a pole, utility box, other obstruction, or by a non-accessible surface such as a dirt planter strip.
7. See Std Dwgs C-05.10 and C-05.20 for joint details.
8. When installing brick detectable warning strips, the contractor shall take measures to avoid damaging the truncated domes. Bricks with damaged domes shall be replaced by the contractor at no additional cost.

The Engineer may approve replacing the side slope wing with a curb at a location where access to the side of a ramp run is blocked by a pole, utility box, other obstruction, or by a non-accessible surface such as a dirt planter strip.

TWO CROSSING DIRECTIONS
AT CORNER

ONE CROSSING DIRECTION
AT CORNER

SECTION B-B

LEGEND

- Minimum Slope: 10° (10.00 1/ft)
- Maximum Slope: 5° (5.00 1/ft)

DETECTABLE WARNING STRIP
See Sheet 7 of 7

DEPRESSED CURB & GUTTER (Typ)
Std Dwg C-05.10

CURB & GUTTER
Std Dwg C-05.10

TOP OF SIDEWALK

48" LANDING

SIDEWALK RAMP TYPE B

DEPRESSED CURB & GUTTER
Std Dwg C-05.10

CURB & GUTTER
Std Dwg C-05.10

BOTTOM OF SIDEWALK

PERPENDICULAR CURB RAMP

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

APPROVED FOR DISTRIBUTION
APPROVED FOR DESIGN
GENERAL NOTES

1. For use where sidewalk is not continuous.
2. Ramp centerline shall be radial from the face of the curb at the Sidewalk Ramp Control Point.
3. The 15:1 ramp slope measured at the back of sidewalk is the steepest allowed, except as provided for under Note 4.
4. Ramp lengths shall not exceed 10’ for any installation. Ten-foot long ramps may be steeper than the slope shown in Note 3.
5. The top of the Ramp Curb along the back of the Sidewalk Ramp shall match the elevation of the adjacent back of sidewalk and run parallel to the Sidewalk Ramp. The Ramp Curb along the side of the Sidewalk Ramp shall match the elevation at the back of the Curb & Gutter and the back of Ramp Curb.
6. Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren’t marked, within the area a standard marked crosswalk would enclose.
7. Concrete shall receive a rough broom finish as shown.
8. See Std Dwg C-05.10 and C-05.20 for joint details.
9. When installing brick detectable warning strips, the contractor shall take measures to avoid damaging the truncated domes. Bricks with damaged domes shall be replaced by the contractor at no additional cost.

Pedestrian Push Button Pole when shown on Traffic Plans. See Traffic Signal Plans for Additional Information

LEGEND

Min. Slope = [04g (0.04 /ft)
Max. Slope = [50g (0.06 /ft)

SIDEWALK RAMP AT SIDEWALK TERMINUS

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

APPROVED FOR DISTRIBUTION
APPROVED FOR DESIGN
GENERAL NOTES

1. For use where sidewalk is not continuous.

2. Ramp centerline shall be radial from the face of the curb at the Sidewalk Ramp Control Point.

3. The top of the Ramp Curb along the back of the Sidewalk Ramp shall match the elevation of the adjacent back of sidewalk and run parallel to the Sidewalk Ramp. The Ramp Curb along the side of the Sidewalk Ramp shall match the elevation at the back of the Curb & Gutter and the back of Ramp Curb.

4. Drainage inlets should not be located within marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.

5. Concrete shall receive a rough broom finish as shown.

6. See Std Dwgs C-05.10 and C-05.20 for joint details. When installing brick detectable warning strips, the contractor shall take measures to avoid damaging the truncated domes. Bricks with damaged domes shall be replaced by the contractor at no additional cost.


8. 10° Maximum to Face of Pedestrian Push Button

LEGEND

Minimum Slope = 100:1 (0.01'/ft)
Maximum Slope = 50:1 (0.02'/ft)

SECTION A-A

SECTION B-B

SIDEWALK RAMP AT SIDEWALK TERMINUS
SIDEWALK BEHIND BARRIER

DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

PROPOSED STD DRAWING

REVISED RADIUS LOCATION

REVISED NOTE

ADDED GENERAL NOTE

REISSUED STANDARD DRAWING AS SHEET 4 OF 7

STATE OF ARIZONA

APPROVED FOR DISTRIBUTION

APPROVED FOR DESIGN

4/06

REVIEW

DATE

MADE BY

APPROVED BY

DRAWING NO.

TITLE

STATE OF ARIZONA

DEPARTMENT OF TRANSPORTATION

ROADWAY STANDARD DRAWINGS

PROPOSED STD DRAWING

REVISED RADIUS LOCATION

REVISED NOTE

ADDED GENERAL NOTE

REISSUED STANDARD DRAWING AS SHEET 4 OF 7

STATE OF ARIZONA

APPROVED FOR DISTRIBUTION

APPROVED FOR DESIGN

4/06

REVIEW

DATE

MADE BY

APPROVED BY

DRAWING NO.

TITLE
GENERAL NOTES

1. For use at mid-block locations.
2. Ramp centerline shall be perpendicular to the face of the curb at the Sidewalk Ramp Control Point.
3. The 6% ramp slope is the steepest allowed, except as provided for under Note 4.
4. Ramp lengths shall not exceed 10' for any installation. Ten-foot long ramps may be steeper than the slope shown in Note 3.
5. For sidewalk widths greater than shown on C-05.20, the overall sidewalk ramp depth shall match the sidewalk width.
6. Ramp curb height to match elevation at back of adjacent sidewalk.
7. Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.
8. Concrete shall receive a rough broom finish as shown.
9. See Std Dwgs C-05.20 and C-05.20 for joint details.
10. When installing brick detectable warning strips, the contractor shall take measures to avoid damaging the truncated domes. Bricks with damaged domes shall be replaced by the contractor at no additional cost.

LEGEND

- Minimum slope • [00°] (0.01 '/ft)
- Maximum slope • [00°] (0.02 '/ft)
1. For median widths 5'-5" and less, the Detectable Warning Strip shall be continuous from back-of-curb to back-of-curb and not extend beyond the back of curb. Modular units such as bricks or tiles shall be used to construct the Detectable Warning Strip. Partial domes at the edge of the strip shall be ground flush with the brick or tile surface.

2. Use Type A1 curb if median is to be landscaped.

3. Single curb shown; see plans for Curb & Gutter application.

4. When installing brick detectable warning strips, the contractor shall take measures to avoid damaging the truncated domes. Bricks with damaged domes shall be replaced by the contractor at no additional cost.


- 10" Maximum to Face of Pedestrian Push Button.
GENERAL NOTES

1. When load transfer dowel assemblies are required, use dimensions shown in 1-1/2" Saw and Seal. See Construction Detail Set 3000 EJC-C 0720.

2. In slip form type pavement construction, LWJ joints shall be used. In fixed form construction, either LWJ or LCJ joints may be used.

3. K Joints shall be constructed around the complete perimeter of miscellaneous structures, or as directed by the Engineer.

4. Miscellaneous structures include, but are not limited to, catch basins, sign structure foundations, piers, abutments, barrier transitions,生活 drains and other concrete facades, constructed within the right-of-way.

JOINT ABBREVIATIONS

LWP - Longitudinal Weakened Plane Joint
TWP - Transverse Weakened Plane Joint
LC - Longitudinal Construction Joint
TC - Transverse Construction Joint
E, K, R - Expansion Joints
S - AC/PCCP Edge Seal Joint
T - PCCP Thickness
PE - Polyethylene

CONSTRUCTION JOINT
Saw and Seal Detail

RECEIVED DRAWING

DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

PCP JOINTS
GENERAL NOTES

1. Bedding per Section 501 of the Standard Specifications.
2. Asphalt concrete shall be in accordance with the requirements of the Standard Specifications.
3. 12" lip is required on the sides of trenches that are not parallel to the center line of the street.
4. Type G requires 9" of AB or top of trench when there is an existing base.
5. See Std Dwg C-1305 for typical pipe installation.

LEGEND

- Compacted Backfill or Slurry Per Section 501 of the Standard Specifications
- AB or Decomposed Granite Per Section 303 or 803 of the Standard Specifications
- AB Per Sections 503 and 504 of the Standard Specifications

AC Pavement Match Existing Pavement by Type and Thickness

TYPE A

2" Minimum

TYPE B

AC Pavement Match Existing Pavement by Type and Thickness

Type C

Existing PPCP

Net Thoroughly and Paint With Grey

Surface Outside of Trench Lines Damaged Surfing Construction Shall Be Restored to Original Thickness and Condition

6" Minimum

AB or Decomposed Granite Per Section 303 or 803 of the Standard Specifications

TYPE D

12" Minimum

TYPE F

12" AB or Existing Subgrade Whichever is Greater

TYPE G

12" Trench Width

TYPE H

12" Trench Width

AC Surface Course

AC Base Course

Utility Concrete

Same Surface as Existing Pavement unless Otherwise Noted

Sawcuto Line (Typ) Bluminous Pavement

12" AB or Existing Subgrade Whichever is Greater

12" Trench Width

12" Trench Width

Varies

Maximum
GENERAL NOTES

1. Paved gore area shall be Class 5 Concrete, f'c=4000 PSI or AC as shown on plans.
2. See Std Dwg C-07.01 and C-07.04 for joint layout and details.
GENERAL NOTES

1. Lengths as shown unless otherwise indicated on project plans.

2. Post type (timber or steel) for transitions shall match post type of adjoining guardrail.

3. Shown for one-way traffic. For two-way traffic, departure requires approach and treatment when located within the clear zone of opposing traffic.

4. See Std Specs for nested guardrail pay item.

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

REVISED BARRIER TRANSITION

1. Shown for on-ramp or exit on ramps. Shown for full travel lane. See Note 3.

2. Bolted anchor for guardrail Std Dwg C-10.07 Measurement (Ea) Number Per Plans.

3. See Note 3.

4. Guardrail End Anchor Std Dwg C-10.08 (When Called for on Ramps) Measurement (Ea).

CONCRETE HALF-BARRIER TRANSITION

OFF STRUCTURE

1. See Std Spec for nested guardrail pay item.

2. Shown for one-way traffic. For two-way traffic, departure requires approach and treatment when located within the clear zone of opposing traffic.

3. Traffic

CONCRETE HALF-BARRIER TRANSITION ON STRUCTURE

Concrete Barrier Transitions

1. Constructed on Top of Wingwalls

2. See Bridge Sheets

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

REVISED BARRIER TRANSITION

1. Shown for on-ramp or exit on ramps. Shown for full travel lane. See Note 3.

2. Bolted anchor for guardrail Std Dwg C-10.07 Measurement (Ea) Number Per Plans.

3. See Note 3.

4. Guardrail End Anchor Std Dwg C-10.08 (When Called for on Ramps) Measurement (Ea).

CONCRETE HALF-BARRIER TRANSITION

OFF STRUCTURE

1. See Std Spec for nested guardrail pay item.

2. Shown for one-way traffic. For two-way traffic, departure requires approach and treatment when located within the clear zone of opposing traffic.

3. Traffic

CONCRETE HALF-BARRIER TRANSITION ON STRUCTURE

Concrete Barrier Transitions

1. Constructed on Top of Wingwalls

2. See Bridge Sheets

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

REVISED BARRIER TRANSITION

1. Shown for on-ramp or exit on ramps. Shown for full travel lane. See Note 3.

2. Bolted anchor for guardrail Std Dwg C-10.07 Measurement (Ea) Number Per Plans.

3. See Note 3.

4. Guardrail End Anchor Std Dwg C-10.08 (When Called for on Ramps) Measurement (Ea).

CONCRETE HALF-BARRIER TRANSITION

OFF STRUCTURE

1. See Std Spec for nested guardrail pay item.

2. Shown for one-way traffic. For two-way traffic, departure requires approach and treatment when located within the clear zone of opposing traffic.

3. Traffic

CONCRETE HALF-BARRIER TRANSITION ON STRUCTURE

Concrete Barrier Transitions

1. Constructed on Top of Wingwalls

2. See Bridge Sheets
GENERAL NOTES

1. All embankment curb shall be protected by guardrail.

2. Guardrail shall extend beyond the limits of embankment curb.

3. See Std Dwg C-10U02 for measurement limits.

4. See Std Spec 703, 905 and 1002-3 for reflector tab and snow marker materials, reflective sheeting, and spacing requirements.

5. Top of Rail - 28".

   See General Note 1
   Std Dwg C-10U03

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REFLECTOR TAB DETAIL

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TYPE A SECTION

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GENERAL NOTES

1. All embankment curb shall be protected by guardrail.

2. Guardrail shall extend beyond the limits of embankment curb.

3. See Std. Dwg C-10.00 for measurement limits.

4. See Std. Specs 703, 905 and 1002-3 for reflector tab and grooved metal, reflective sheeting, and spacing requirements.

▲ Top of Rail = 28° See General Note 1
Std. Dwg. C-10.03

PLAN

Use appropriate end treatment

Normal roadway shoulder

2' Widening

Traffic

Use appropriate end treatment

REVEALER TAB DETAIL

See subgrade/slope reveal treatment detail
Std. Dwg. C-04.00, C-10.02, or C-05.32

2' Widening

Normal shoulder width

Reflective sheeting

TYPE B SECTION

Hinge point

Embarkment curb

G4200 system (shown) or use other system

Normal slope

Slope as required

Embarkment slope

Subgrade

See plans

See reflector tab detail

See subgrade/slope reveal treatment detail

State of Arizona
Department of Transportation
Roadway Standard Drawings

No. 7/05

2/05

Guardrail Installation
Type B and Reflector Tab

Design No.
C-10.02
GENERAL NOTES

1. The control height for guardrail system is 28" to the top of rail from the normal finished shoulder elevation.

2. Guardrail shall be sloped in the direction of adjacent traffic.

3. - indicates ASATCO, AGC & ARTBA task force 13 report designation.

PLAN

G41(W) SYSTEM (8"x8")

SECTION G41(W)

8" Idd Galvanized Common Nail, 2 Per Block

ELEVATION

G41(W) SYSTEM (8"x8")

N-Beam, 12 Gauge

3/4" Diameter Hole

Wood Block

8u"

N-1/2 UNC x 3/4" Button Head Bolt (A) and Recess Nut (B) (Typ)

and Recess Nut (C) with Plain Round Washer (D) Under Nut (Typ)

SECTION G41(W)

PLAN

G41(Z) SYSTEM (6"x8")

SECTION G41(Z)

8" Idd Galvanized Common Nail, 2 Per Block

ELEVATION

G41(Z) SYSTEM (6"x8")

N-Beam, 12 Gauge

3/4" Diameter Hole

Wood Block

8u"

N-1/2 UNC x 3/4" Button Head Bolt (A) and Recess Nut (B) (Typ)

and Recess Nut (C) with Plain Round Washer (D) Under Nut (Typ)

8"
1. Curbing is not required when drainage flows transversely away from barrier.

2. Treatment at back of lip curb modified for constructability purposes. Front slope and height of lip curb shall not be exceeded.

3. Thrie-beam terminal connector to thrie-beam splice shall be lapped in the direction of adjacent traffic.

- Indicates AASHTO, AGC & ARTBA Task Force Report designation

GUTTER FLOW LINE

LIP CURB DETAIL

Thrie-Beam Terminal Connector

Concrete Barrier Transition

Type F to Thrie Beam

Std Dws C-10.70, C-10.71, C-10.72 & C-10.73

Thrie-beam terminal connector to thrie-beam splice shall be lapped in the direction of adjacent traffic.

State of Arizona
Department of Transportation
Roadway Standard Drawings

Approve for Distribution

Approve for Design

Description of Revisions Made by

Date

No.

C-10.30

Sheet 1 of 2

C-10.30

Sheet 1 of 2
GENERAL NOTES

1. Anchor Plate shall conform to ASTM specification A36. Bolts, washers and anchor plate shall be galvanized or, at the contractor's option, stainless steel bolts and washers may be used.

2. Two-inch deep contraction joints shall be placed in the curb and the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand-tooled or sawn.


**NEW STANDARD DRAWING**

Sheet 2 of 2

SECTION A-A

**AC OPTION**

1.5" Diameter Hole (Typ)

Gutter Width Varies 2'-6" to 4'-6" (Typ) See Plans

Optional Construction Joint

Subgrade

Pavement Width

SECTION B-B

**CONCRETE OPTION**

1.5" Diameter Hole (Typ)

Gutter Width Varies 2'-6" to 4'-6" (Typ) See Plans

**ABOUT THE GRAPHICS**

- **State of Arizona Department of Transportation**
- **Roadway Standard Drawings**
- **Approved for Design**
- **Approved for Distribution**
- **4/06**

**REFERENCE**

- **GUARDRAIL TRANSITION**
- **THREE-BEAM 30° TYPE B**
- **DRAWING NO. C-10.30**
1. Concrete shall be Class S, f'c=4000 PSI.
2. Rebar shall conform to Std Spec 1003.
3. Rebar shall have 2" minimum clear cover unless otherwise noted.
4. See drainage sheets for slotted drain and catch basin details.
5. Departure termination may be substituted for Std Dwg C-00.10 barrier transition under departure conditions.
6. See Std Dwg C-05.20 for sidewalk construction.
7. All bend dimensions for rebar are cut-to-cut of rebars.

Concrete shall be Class S, f'c=4000 PSI.
Rebar shall conform to Std Spec 1003.
Rebar shall have 2" minimum clear cover unless otherwise noted.
See drainage sheets for slotted drain and catch basin details.
Departure termination may be substituted for Std Dwg C-00.10 barrier transition under departure conditions.
See Std Dwg C-05.20 for sidewalk construction.
All bend dimensions for rebar are cut-to-cut of rebars.
GENERAL NOTES

1. Half Barrier shall be constructed by the slip or fixed form method.
2. When obstacles prevent the use of slip form equipment, stationary forms shall be used.
3. Concrete shall be Class S, f’s 4000 PSI.
4. Ø4 rebar shall extend 12” past the construction joint at the completion of the day’s pour.
5. Thickness of gutter, ‘G’ can be adjusted to match the PCCP thickness, as approved by the Engineer.
6. When the pavement section slopes away from the gutter, the slope of the gutter shall match the pavement cross slopes. Therefore, the 2” gutter depression is not applicable.
7. At bridges, the cross slope of the gutter shall transition to match the cross slope of the bridge. Length of the transition is IV.
8. Two inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP. Joints shall be hand-tooled or sawn.
9. Whenever Half Barrier is backfilled, see Std Deg C-102G for weep hole details, unless otherwise specified on the plans.

SECTION A-A

ELEVATION

DEPARTURE TERMINATION WITHOUT GUARDRAIL

BARRIER GUTTER DETAIL

ELEVATION

DEPARTURE TERMINATION WITHOUT GUARDRAIL

GUTTER WIDTH VARIES 2”-6” OR 4”-6” TYPE SEE PLANS

SEE PLANS

GUTTER DETAIL

ELEVATION

DEPARTURE TERMINATION WITHOUT GUARDRAIL

BARRIER GUTTER DETAIL

ELEVATION

DEPARTURE TERMINATION WITHOUT GUARDRAIL
GENERAL NOTES

1. Half barrier shall be constructed by the slip or fixed form method.

2. When obstacles prevent the use of slip form equipment, stationary forms shall be used.

3. Concrete shall be Class S, 1,4000 PSI.

4. #4 rebar shall extend 12" past the construction joint at the completion of the day's pour.

5. Thickness of gutter, 3" can be adjusted to match the PCP thickness, as approved by the Engineer.

6. When the pavement section slopes away from the gutter, the slope of the gutter shall match the pavement cross slope. Therefore, the 2" gutter depression is not applicable.

7. At bridges, the cross slope of the gutter shall transition to match the cross slope of the bridge. Length of the transition is 15'.

8. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCP. Joints shall be hand tooled or sawed.

9. Wherever half barrier is back-filled, see Std. Sec. C-10.39 forween hole details, unless otherwise indicated on the plans.

DEPARTURE TERMINATION WITHOUT GUARDRAIL
GENERAL NOTES

1. Concrete shall be Class S, <=4000 PSI.

2. All rebar shall have 2" minimum clear cover unless otherwise noted.

3. All bend dimensions for rebar are out-to-out of rebars.

4. 1'-0" Minimum or Match Thickness of Adjacent PCCP

Concrete shall be Class S, <=4000 PSI.
GENERAL NOTES

1. Concrete shall be Class S, f'c=4000 PSI.
2. All rebar shall have 2” minimum clear cover unless otherwise noted.
3. All bend dimensions for rebar are out-to-out of bars.
4. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15’ centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.

**Type 'F' Barrier**

**2'-8”**

**ELEVATION**

**BARRIER END DETAIL**

**Plan**

**Traffic**

**BARRIER WITH CURB AND GUTTER**

**ELEVATION**
**GENERAL NOTES**

1. Concrete shall be Class S, f_s=4000 PSL.
2. All rebar shall have 2" minimum clear cover unless otherwise noted.
3. All bend dimensions for rebar are out-to-out of rebars.
4. 1'-0" Minimum or Match Thickness of Adjacent PCCP.

**CONCRETE**

- Class S, f_s=4000 PSL.

**REBAR**

- 2" minimum clear cover unless otherwise noted.
- Out-to-out bend dimensions.

**NOTES**

- See Optional Construction Joint Detail, Sheet 3 of 3.
- See Barrier End Detail.
- Thrie-Beam Terminal Connector for Anchor Plates and Hardware.

**DETAILS**

- Type 'F' Barrier.
- 12" Transition.
- 20'-10" Transition.
GENERAL NOTES
1. See Section B-B for caisson reinforcement.
2. See Optional Construction Joint Detail Sheet 3 of 3
3. 1-3/8” Minimum or Match Thickness of Adjacent PCCP
**GENERAL NOTES**

1. Concrete shall be Class S, f'c=4000 PSI.
2. All rebar shall have 2” minimum clear cover unless otherwise noted.
3. All bend dimensions for rebar are cut-to-cut of rebars.
4. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.

**Type ‘F’ Barrier**

Concrete shall be Class S, <=4000 PSI.

**Optional Construction Joint**

See Optional Construction Joint Detail Sheet 2 of 2

**Barrier End Detail**

Thrie-Beam Terminal Connector

For Anchor Plate and Hardware

See Std Dwg C-10.20

Sheet 2 of 2

**ELEVATION**

BARRIER WITH CURB AND GUTTER

Thrie-Beam Guardrail

Transition System

See Std Dwg C-10.30

Sheet 2 of 2
GENERAL NOTES

1. Half-Barrier Transition shall be constructed by the forced cast-in-place method.

2. Concrete shall be Class S, <=4000 PSI.

3. If the footing and barrier are cast monolithically, #6 S shape rebars are not required.

4. Barrier width shall not exceed the barrier footing width nor overhang the adjacent pavement.

5. #4 rebar shall extend 2' past the construction joint of the completion of the day's pour.

6. Thickness of gutter, "D", can be adjusted to match the PCCP thickness, as approved by the Engineer.

7. Two-inch deep construction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and are at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.

Concrete Half Barrier
42" Type 'F' with Gutter
See Plan C-10.52 or
as Shown on Plans

Concrete Half Barrier
52" Type 'F' with Gutter
See Plan C-10.53 or
as Shown on Plans
GENERAL NOTES

1. Intermediate Post Assemblies shall be located as shown and at intervals not to exceed 850, or midway between guard post,

2. For game fence the bottom wire shall be barbless,

3. The stays on game fence shall have their ends turned up to prevent injuries to game.

TYPICAL BARBED WIRE FENCE INSTALLATION-TYPE 2 BW SHOWN

Type 1 Barbed Wire (BW) (4 Wire)

Barbed Wire Game Fence (GF)

Type 2 Barbed Wire (BW) (5 Wire)
GENERAL NOTES

1. See plans for any required inlet and/or outlet protection.
2. E dimension applies to both non-trench and trench conditions.
3. Minimum cover over pipe culverts shall be 1', measured from the top of pipe.
4. See Pipe Berm Requirement Detail for pipe berm requirements and Std. Dia. C-1125 for installation. If Point A is within the recovery area, then a pipe berm is required and Point B is set at the bottom of the recovery area.
5. Slope platting shall conform to Std. Spec. 501.

PIPE WITH BERM REQUIREMENT DETAIL
See General Note 4
GENERAL NOTES

1. Pipe sizes and elevations are shown on plans.
2. The manhole height, H, shall be measured from the lowest invert elevation to the top of the manhole frame.
3. Concrete for cast-in-place manholes shall be Class B.
4. All manholes deeper than 5 feet shall have steps. Manhole steps shall be constructed in accordance with AASHTO M335, where precast manholes are used, the steps shall be installed at the same time sections are cast.
5. Per OSHA requirements, special treatements to include landings are required for heights exceeding 30 ft.
6. Precast manhole sections shall be manufactured in accordance with AASHTO M335, except that the compressive strength of each section shall be determined and accepted in accordance with 3rd Spec 1006-1.
7. Manhole location and elevation shall be as shown on plans, See Sheet 1 of 3 for station location reference point.
8. Backfill material shall be compacted to at least 95 percent of the maximum density per the applicable test method of the AASHTO Materials Testing Manual.
   - 4", 6", 8", or 12" (30" Inside Diameter) Grade Rings
   - 3/8"

See Sheet 2 of 3