

OS-299 (7-08)



# TRANSMITTAL LETTER

**PUBLICATION:**

Publication 72M  
June 2010 Edition  
Change No. 1

**DATE:**

June 10, 2013

**SUBJECT:**

**Standards for Roadway Construction, RC 1M-100M  
June 2010 Edition  
Change No. 1**

**INFORMATION AND SPECIAL INSTRUCTIONS:**

Incorporate the attached revisions into the June 2010 Edition of Publication 72M (Standards for Roadway Construction).

The updated Standard Drawings should be adopted as soon as possible on all new and existing designs without affecting any letting schedules and in conjunction with the current Publication 408 Specifications and Bridge Standards. PS&E submissions to Central Office after September 30, 2013 should use these new standards.

The major revisions for each affected Standard Drawing are presented below. Since minor changes are not indicated, it is strongly advised that all recipients thoroughly examine the changes and revisions that have been incorporated.

STANDARD	SHEET	DESCRIPTION OF CHANGES
RC-28M	Sheet 1	Removed metric dimensions.  In Overlay Transition with Paving Notch on Concrete and Bituminous Pavements detail, added vertical dimension to indicate milling of bituminous or concrete pavement surface, variable depth and that the variable depth milling is incidental to the paving item.
RC-67M	General	Removed metric dimensions.  Updated Notes (numbers with circles around them). See specific Sheets below for additional information.  Changed "LANDING" to "TURNING SPACE".  Added "SEE SHEET 8 FOR DETAILS" in multiple locations where pedestrian pushbuttons are applicable.
RC-67M	Sheet 1	Modified title from "TYPE 1 TYPICAL SECTIONS" to "TYPE 1 CURB RAMPS AND TYPICAL SECTIONS".  Modified Note 18 under Notes 1 and 2.  For Type 1 Curb Ramp detail, added "SEE NOTE 29 (TYP)" with callout of side flares.  For Type 1, Section A-A detail:

\*Removed premolded expansion joint filler between ramp length and landing.

\*Added "(SEE NOTE 22)" after "SURFACE OF CURB RAMP FLUSH WITH ROADWAY SURFACE".

Revised Note 1 to include reference for Section 695.

Revised Note 5 to indicate "SIDE FLARES" instead of "FLARED SIDE RAMPS".

Added second sentence in Note 12 to see Sheet 9 for installations along curved surfaces.

Revised Note 14 to say "PEDESTRIAN ACCESS ROUTE" instead of "PEDESTRIAN ACCESSIBLE ROUTE".

Revised Note 17, first sentence to indicate an algebraic difference of 13.33% rather than 11.00%.

Added fourth sentence in Note 22 to describe work at the joint between depressed curb and roadways.

Modified Note 23 as follows:

\*Revised second sentence to read "AT 3:1 OR FLATTER" rather than "AT 3:1 MAXIMUM".

\*Revised third sentence to indicate "PEDESTRIAN PATH" instead of "PEDESTRIAN ACCESS ROUTE".

Added Notes 27, 28, and 29.

RC-67M Sheet 2

Modified title from "TYPE 1 CURB RAMPS" to "TYPE 1 AND TYPE 1A CURB RAMPS".

For Type 1A Curb Ramp detail:

\*Replaced "8.33% MAX. SLOPE" for ramp slope with Note 4.

\*Relocated vertical pavement marking for crosswalk to appear on the left of "GRADE BREAK".

Added Note 4.

Modified Note 18.

RC-67M Sheet 3

Modified title from "TYPE 2 AND TYPE 3 CURB RAMPS" to "TYPE 1A and TYPE 2 CURB RAMPS".

Deleted Type 3 Curb Ramp detail.

Added new Type 1A Curb Ramp detail with Assistant District Executive approval required if turning space is not entirely on sidewalk.

For Type 2 Curb Ramp Section B-B detail, changed "SLOPED RAMP" to "SLOPED RAMP/CURB CHEEK WALL".

Deleted Note 1.

RC-67M	Sheet 4	<p>Added Note 3.</p> <p>Modified Notes 4 and 18.</p> <p>Added "AND TYPICAL ELEVATIONS" after "TYPE 4 CURB RAMPS" in title.</p> <p>For Type 4 Curb Ramp (Parallel) and Alternate Type 4A Curb Ramp (Parallel) details:</p> <ul style="list-style-type: none"> <li>*Replaced "8.33% MAX SLOPE" with Note 4.</li> <li>*Relocated pedestrian pushbutton farther away from ramp slope.</li> </ul> <p>For Alternate Type 4A Curb Ramp details:</p> <ul style="list-style-type: none"> <li>*Replaced "ROUNDED CONCRETE SURFACE" with "CONCRETE ROLLED FLARE".</li> <li>*Modified on the outside of one side of ramp to indicate "ALTERNATE GRADED FLARE, 3:1 OR FLATTER, SEE NOTE 23 ON SHEET 1".</li> </ul> <p>For Type 4/4A Curb Ramps with Shared Turning Space detail, replaced Note 4 with "8.33% MAX SLOPE".</p> <p>For Typical Elevations for Depressed Curbs details:</p> <ul style="list-style-type: none"> <li>*Changed "TYPE 4 CURBED FLARE TRANSITION" to "TYPE 4 CURB CHEEK WALL FLARES".</li> <li>*Changed "TYPE 4A NON-TRAVERSABLE ROLLED FLARE TRANSITION" to "TYPE 4A NON-TRAVERSABLE ROLLED FLARES".</li> <li>*Changed "COMBINATION TRANSITION" to "COMBINATION FLARES".</li> <li>*Added "(SEE NOTE 22, SHEET 1)" after "CURB FLUSH WITH ROAD SURFACE".</li> </ul>
RC-67M	Sheet 5	<p>Modified Notes 4 and 18.</p> <p>Removed "AND TYPICAL ELEVATIONS" from title.</p> <p>For Type 6 Curb Ramp Combination details, relocated the pedestrian pushbuttons to a location in the non-walk surface that is outside of the sidewalk width and curb.</p> <p>For Type 6 Curb Ramps with Shared Turning Space detail, moved pedestrian pushbuttons farther away from ramp slopes.</p>
RC-67M	Sheet 6	<p>Modified Notes 4 and 18.</p> <p>For Blended Transition detail:</p> <ul style="list-style-type: none"> <li>*Moved crosswalk pavement marking from within the detectable warning surface to the outside of the detectable warning surface.</li> <li>*Changed "PLAIN CEMENT CONCRETE" to "PLAIN CEMENT CONCRETE CURB".</li> </ul>

For Type A Typical Median or Island Access Opening with Curb Sides detail and Type B Typical Median or Island Access Opening with Flared Sides detail:

\*Deleted "FOR ALTERATIONS MAX EXTENT FEASIBLE 4'-0" MIN".

\*Added "/MOUNTABLE CURB (WHERE APPROPRIATE)" with "PLAIN CEMENT CONCRETE CURB" and "PLAIN CEMENT CONCRETE DEPRESSED CURB".

\*Revised dimension line for variable width of the median area to exclude the curb.

Modified Notes 12 and 18.

RC-67M

Sheet 7

For Median or Island Curb Ramps detail and Alternate Small Island with Cut Through detail:

\*Added references to mountable curbs and concrete rolled flares.

\*Added width dimensions of 24" TYP, 12" MIN for concrete rolled flares.

For Alternate Small Island with Cut Through detail, added Note 12 after "DETECTABLE WARNING SURFACE (TYP)".

For Type 1 Single Curb Ramp detail, relocated Note 22 to indicate width from inside pedestrian crosswalk line to edge of travel lane.

For Typical Detectable Warning Surface at Railroad Crossing detail:

\*Revised graphic to indicate distance of 6'-0" MIN to 15'-0" MAX from the center of the closest rail to the nearest edge of the detectable warning surface.

\*Added "OPTIONAL: 2" MAX CONCRETE BORDER AROUND DWS TO PROVIDE PROPER INSTALLATION".

For Detail A detail:

\*Modified detectable warning surface to appear as a completely rectangular shape.

\*Relocated Note 22 to indicate width from inside pedestrian crosswalk line to edge of travel lane.

Added Note 12.

Modified Notes 18 and 22.

RC-67M

Sheet 8

Revised title from "PUSHBUTTONS / TRIANGULAR LANDING" to "PUSHBUTTONS, TRIANGULAR LEVEL AREA, CHANGE OF GRADE AND CROSS SLOPE TRANSITIONS".

Deleted Pedestrian Pushbutton Detail detail.

Deleted Pedestrian Push Button Dual Sign Mounting Detail Plan View detail.

Added Ramp Cross Slope Transition to Match Roadway Profile Slope detail.

For Recommended Pushbutton Locations details:

\*Moved pedestrian pushbuttons off the sidewalk and onto the non-walk surface.

\*Adjusted the dimension 10'-0" MAX to be measured from the front face of curb to the pedestrian pushbutton located in the non-walk surface.

For Change of Grade Limitations detail:

\*Revised algebraic difference between roadway slope and curb ramp slope from 11.00% to 13.33% (2 locations).

\*Revised value that transition strip slope is not to exceed from 2.00% to 5.00%.

\*Deleted "8.33% MAX" before "RAMP SLOPE" to the left of the 24" minimum transition strip.

\*Deleted "5.00% MAX" after "ROADWAY SLOPE" to the right of the 24" minimum transition strip.

For Triangular Level Area for Directional Ramps on Curb Returns detail, added Note 26 with pedestrian pushbutton.

Deleted Note 27.

RC-67M

Sheet 9

For Detectable Warning Surface (DWS) on Curved Surfaces detail:

\*In top graphic (diagonal ramp), deleted Note 24.

\*Added bottom graphic with rectangular tile positioned on a skew relative to the 8.33% maximum slope.

\*In four lowest graphics, revised wording beside reference to Note 24 to indicate "GRADE BREAK TO BACK OF CURB", with one distance "LESS THAN 5'-0" " and three distances "GREATER THAN 5'-0" ".

\*In three lowest graphics, indicated whether detectable warning surface is a "SPECIAL ORDER RADIAL TILE" or a "RECTANGULAR TILE CUT TO FIT".

For Detectable Warning Surface (DWS) on Type 1 Curb Ramp detail and Detectable Warning Surface (DWS) on Type 2 Curb Ramp detail, in lower right corner:

\*Deleted reference to Note 24.

\*Deleted 8" maximum dimension from one corner of DWS to face of curb.

For Detectable Warning Surface Embedding Detail detail:

\*After "DETECTABLE WARNING SURFACE THICKNESS", added two sentences to embed wet set DWS tile only and to indicate surface applied DWS is not permitted.

		<p>*Added note to indicate optional construction of a 2" maximum concrete border around DWS for providing proper installation and to see pedestrian pushbutton access areas detail on Sheet 14 for plan view details.</p> <p>Modified Note 24 to indicate 5'-0" instead of 60".</p>
RC-67M	Sheet 10	<p>For Transition to Existing Sidewalk Detail detail, added "MINIMUM" after "TAPER SIDEWALK AT A 2:1 RATE".</p> <p>For Detectable Warning Surface (DWS) Installation Detail detail:</p> <p>*Deleted the water vane (WV) within the proposed area for the sawcut.</p> <p>*Deleted the text "RELOCATE UTILITIES WHERE DWS WILL BE PLACED".</p> <p>Modified Notes 16 and 18.</p>
RC-67M	Sheet 11	<p>For Existing Curb Ramp Section (Vertical Drop at Road Surface) detail:</p> <p>*Deleted bituminous wedge at tie-in with roadway surface.</p> <p>*Modified Recommended Correction Note.</p> <p>*Added "ALTERNATE CORRECTION" above Note to grind curb.</p>
RC-67M	Sheet 12	<p>For Type 2, Type 2A, and Type 3 Driveway Apron details, changed "PEDESTRIAN PATH" to "PEDESTRIAN ACCESS ROUTE".</p> <p>Modified Note 4.</p>
RC-67M	Sheet 13	<p>Inserted sheet with new details of Driveway Aprons for Multiple Driveways (Type 5 and Type 5A).</p>
RC-67M	Sheet 14	<p>Added "AND AT PEDESTRIAN PUSHBUTTONS" in the title.</p> <p>In Section C-C detail, added text below dimension for "4'-0" MIN PAVED SHOULDER".</p> <p>Changed title of detail from "DWS PLACEMENT ON PAVED SHOULDERS WITH BARRIERS (SHARED USE SHOULDERS)" to "DWS PLACEMENT ON PAVED SHOULDERS DESIGNED AS A PEDESTRIAN ACCESS ROUTE (PAR)". Central Office ADA Coordinator approval is required.</p> <p>Added details for Pedestrian Pushbutton Access Areas and Pedestrian Pushbutton Behind Guide Rail.</p> <p>Added two photos with examples of DWS placement at pedestrian pushbuttons.</p> <p>Added Notes 19 and 28.</p>

Any comments or questions regarding the above revisions should be directed to the Highway Design and Technology Section, Highway Delivery Division, Bureau of Project Delivery.

**CANCEL AND DESTROY THE FOLLOWING:**

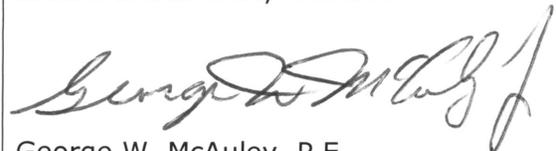
RC-28M      June 1, 2010  
RC-67M      June 1, 2010

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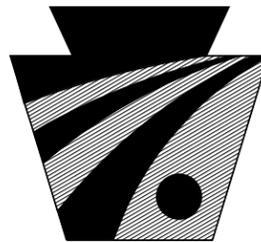
**APPROVED FOR ISSUANCE BY:**

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Acting Director, Bureau of Project Delivery,  
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# COMMONWEALTH OF PENNSYLVANIA



pennsylvania

DEPARTMENT OF TRANSPORTATION

DEPARTMENT OF TRANSPORTATION  
BUREAU OF PROJECT DELIVERY

STANDARDS FOR ROADWAY CONSTRUCTION  
SERIES RC-1M TO 100M

JUNE 2010 EDITION

PDT Pub #72M

# INDEX OF STANDARDS FOR ROADWAY CONSTRUCTION

<u>STANDARD DRAWING NUMBER</u>	<u>DRAWING DATE</u>	<u>DESCRIPTION</u>
<b><u>EARTHWORK</u></b>		
RC-10M _____	JUN. 1, 2010	CLASSIFICATION OF EARTHWORK
RC-11M __ (2 Sheets) _____	JUN. 1, 2010	CLASSIFICATION OF EARTHWORK FOR STRUCTURES
RC-12M __ (2 Sheets) _____	JUN. 1, 2010	BACKFILL AT STRUCTURES
RC-13M _____	JUN. 1, 2010	PAY LIMIT OF SUBBASE
<b><u>PAVEMENTS</u></b>		
RC-20M __ (7 Sheets) _____	JUN. 1, 2010	CONCRETE PAVEMENT JOINTS
RC-21M _____	JUN. 1, 2010	REINFORCED CONCRETE PAVEMENT
RC-22M __ (7 Sheets) _____	JUN. 1, 2010	RUMBLE STRIPS
RC-23M __ (3 Sheets) _____	JUN. 1, 2010	BRIDGE APPROACH SLABS
RC-24M __ (3 Sheets) _____	JUN. 1, 2010	PAVEMENT RELIEF JOINT
RC-25M __ (4 Sheets) _____	JUN. 1, 2010	SHOULDERS
RC-26M __ (9 Sheets) _____	JUN. 1, 2010	CONCRETE PAVEMENT REHABILITATION
RC-27M __ (2 Sheets) _____	JUN. 1, 2010	PLAIN CONCRETE PAVEMENT
* RC-28M _____	JUN. 10, 2013	OVERLAY TRANSITIONS AND PAVING NOTCHES
RC-29M __ (3 Sheets) _____	JUN. 1, 2010	BRIDGE ANTI-ICING SYSTEM APPROACH INSTALLATION
<b><u>DRAINAGE</u></b>		
RC-30M __ (5 Sheets) _____	JUN. 1, 2010	SUBSURFACE DRAINS
RC-31M __ (2 Sheets) _____	JUN. 1, 2010	ENDWALLS
RC-32M _____	JUN. 1, 2010	SLOPE PIPE FITTINGS, PIPE CONNECTORS AND CONCRETE COLLAR FOR PIPE EXTENSION
RC-33M __ (2 Sheets) _____	JUN. 1, 2010	END SECTIONS FOR PIPE CULVERTS
RC-35M _____	JUN. 1, 2010	DRAINAGE DIKE
RC-36M _____	JUN. 1, 2010	SPRING BOXES
RC-39M __ (6 Sheets) _____	JUN. 1, 2010	STANDARD MANHOLES
RC-40M _____	JUN. 1, 2010	SLOPE PROTECTION
RC-43M __ (5 Sheets) _____	JUN. 1, 2010	GABIONS
RC-45M __ (20 Sheets) _____	JUN. 1, 2010	INLET TOPS, GRATES AND FRAME
RC-46M __ (45 Sheets) _____	JUN. 1, 2010	INLET BOXES
<b><u>GUIDE RAIL AND MEDIAN BARRIER</u></b>		
RC-50M __ (16 Sheets) _____	JUN. 1, 2010	GUIDE RAIL TRANSITION AT END OF STRUCTURE
RC-52M __ (8 Sheets) _____	JUN. 1, 2010	TYPE 2 STRONG POST GUIDE RAIL
RC-53M __ (2 Sheets) _____	JUN. 1, 2010	TYPE 2 WEAK POST GUIDE RAIL
RC-54M __ (7 Sheets) _____	JUN. 1, 2010	BARRIER PLACEMENT AT OBSTRUCTIONS
RC-57M __ (6 Sheets) _____	JUN. 1, 2010	CONCRETE MEDIAN BARRIER
RC-58M __ (4 Sheets) _____	JUN. 1, 2010	SINGLE FACE CONCRETE BARRIER
RC-59M __ (4 Sheets) _____	JUN. 1, 2010	CONCRETE GLARE SCREEN

<u>STANDARD DRAWING NUMBER</u>	<u>DRAWING DATE</u>	<u>DESCRIPTION</u>
<b><u>FENCES AND CURBS</u></b>		
RC-60M __ (3 Sheets) _____	JUN. 1, 2010	RIGHT-OF-WAY FENCE
RC-61M _____	JUN. 1, 2010	RIGHT-OF-WAY GATES AND REMOVABLE FENCE SECTIONS
RC-63M __ (2 Sheets) _____	JUN. 1, 2010	PERMANENT BARRICADES
RC-64M _____	JUN. 1, 2010	CURBS AND GUTTERS
RC-65M _____	JUN. 1, 2010	CONCRETE MOUNTABLE CURBS
* RC-67M __ (14 Sheets) _____	JUN. 10, 2013	CURB RAMPS AND SIDEWALKS

## EROSION AND SEDIMENTATION CONTROL

RC-70M __ (3 Sheets) _____	JUN. 1, 2010	PERIMETER CONTROL DEVICES
RC-71M __ (4 Sheets) _____	JUN. 1, 2010	SEDIMENT BASIN AND SEDIMENT TRAP
RC-72M __ (7 Sheets) _____	JUN. 1, 2010	INLET AND OUTLET PROTECTION
RC-73M __ (4 Sheets) _____	JUN. 1, 2010	CHANNEL AND SLOPE PROTECTION
RC-74M _____	JUN. 1, 2010	TEMPORARY DIVERSIONS
RC-75M _____	JUN. 1, 2010	DEWATERING DEVICES
RC-76M _____	JUN. 1, 2010	STRAW BALE BARRIER
RC-77M _____	JUN. 1, 2010	ROCK CONSTRUCTION ENTRANCE
RC-78M __ (4 Sheets) _____	JUN. 1, 2010	SLOPE PROTECTION GEOCELL CELL AND GEOCELL SECTION DETAILS

## HIGHWAY LIGHTING

RC-80M __ (2 Sheets) _____	JUN. 1, 2010	HIGHWAY LIGHTING-FOUNDATIONS
RC-81M _____	JUN. 1, 2010	HIGHWAY LIGHTING-JUNCTION BOXES-LIGHT DUTY
RC-82M __ (2 Sheets) _____	JUN. 1, 2010	HIGHWAY LIGHTING-JUNCTION BOXES-HEAVY DUTY
RC-83M __ (2 Sheets) _____	JUN. 1, 2010	HIGHWAY LIGHTING-LIGHTING POLE DETAILS
RC-84M __ (2 Sheets) _____	JUN. 1, 2010	HIGHWAY LIGHTING-LIGHTING AND ELECTRICAL DETAILS

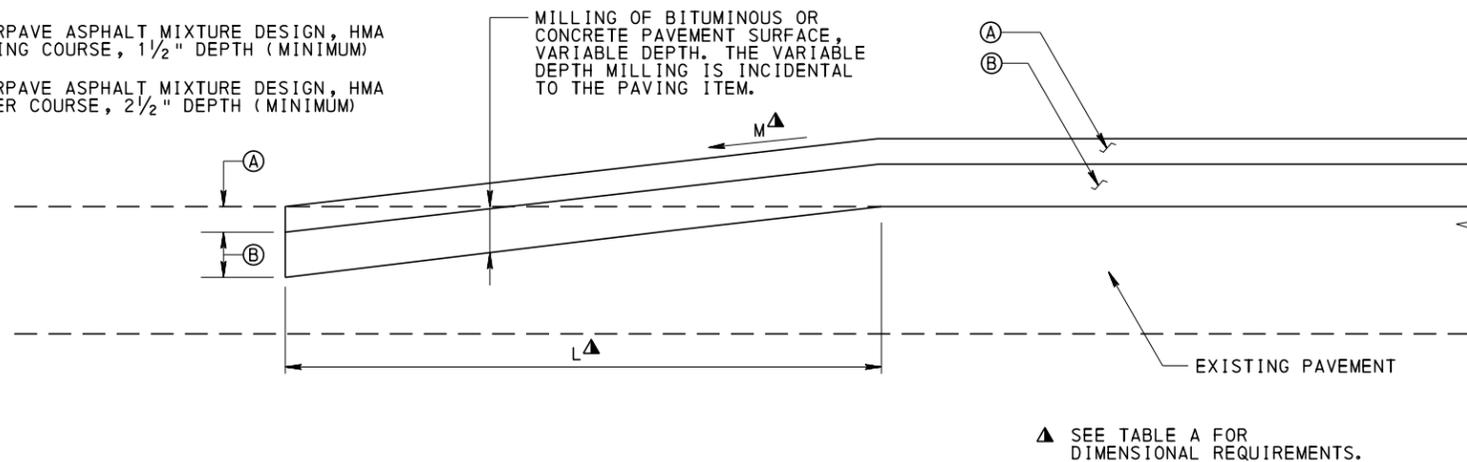
## ROADSIDE DEVELOPMENT AND PLANTING

RC-91M __ (2 Sheets) _____	JUN. 1, 2010	BRACING AND PLANTING DETAILS
RC-92M _____	JUN. 1, 2010	REMOVAL LIMITS OF TREE TRIMMING

JUNE, 2010 EDITION

\* SEE CHANGE #1 FOR JUNE 10, 2013 STANDARD REVISIONS

- Ⓐ SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, 1 1/2" DEPTH (MINIMUM)
- Ⓑ SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BINDER COURSE, 2 1/2" DEPTH (MINIMUM)



**TABLE A**

FUNCTIONAL CLASSIFICATION	SLOPE M (MAXIMUM)	PAVING NOTCH L (MINIMUM)
INTERSTATE AND OTHER LIMITED ACCESS FREEWAYS	0.17% (1" IN 50')	50'
ARTERIALS > 45 mph SEE NOTE 2.	0.28% (1" IN 30')	30'
ARTERIALS ≤ 45 mph SEE NOTE 2	0.33% (1" IN 25')	25'
COLLECTORS AND LOCAL ROADS	0.33% (1" IN 25')	25'
CROSS STREETS SEE NOTE 1	8.33% (1" IN 12")	1'
DRIVEWAYS	8.33% (1" IN 12")	NO NOTCH

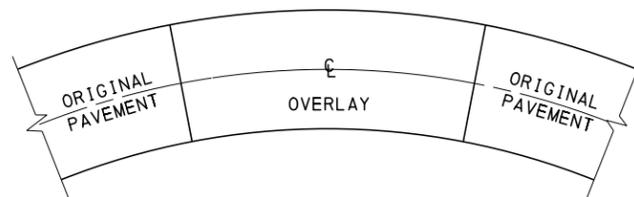
**TABLE B**

NOMINAL MAXIMUM AGGREGATE SIZE	
MIX	SIZE
SP9.5 (ID-2W, ID-2W H.D.)	3/8"
SP12.5	1/2"
SP19 (ID-3B, ID-2B, ID-2B H.D.)	3/4"

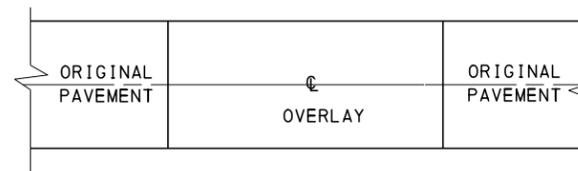
**NOTES**

1. USE HIGHER APPROPRIATE CRITERIA IF A CROSS STREET HAS A FUNCTIONAL CLASSIFICATION OF COLLECTORS AND LOCAL ROADS OR HIGHER.
2. USE 85TH PERCENTILE SPEED, IF AVAILABLE. OTHERWISE, USE THE POSTED SPEED.
3. PLACE EDGE FLUSH WITH EXISTING PAVEMENT AND SEAL AS SPECIFIED IN PUBLICATION 408, SECTION 409.3(k)3.
4. CONSTRUCT FLEXIBLE BASE REPLACEMENT IN ACCORDANCE WITH THE REQUIREMENTS OF PUBLICATION 408, SECTION 316.
5. PREPARE EXPOSED VERTICAL AND HORIZONTAL SURFACES AS PER PUBLICATION 408, SECTION 409.3(k).
6. FOR NON-OVERLAY APPLICATIONS, THE TOP 1 1/2" OF BASE REPLACEMENT WILL BE SUPERPAVE WEARING COURSE.
7. FOR RESTORATION OF RIGID PAVEMENT, REFER TO PUBLICATION 408, SECTION 516 AND RC-26M.
8. FOR SUPERPAVE BASE REPLACEMENT, SAW CUTTING, EXCAVATION, HAULING AND DISPOSAL, BITUMINOUS TACK COAT, BITUMINOUS MATERIAL, AND SEALING OF THE JOINTS ARE CONSIDERED AS INCIDENTAL.

**OVERLAY TRANSITION WITH PAVING NOTCH ON CONCRETE AND BITUMINOUS PAVEMENTS**

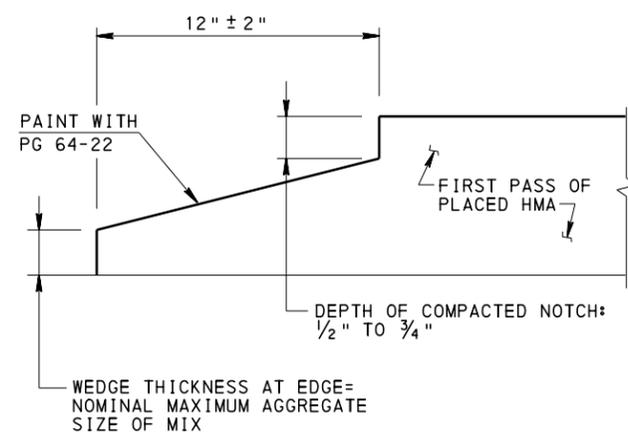


**PLAN VIEW  
SUPERELEVATION SECTION**

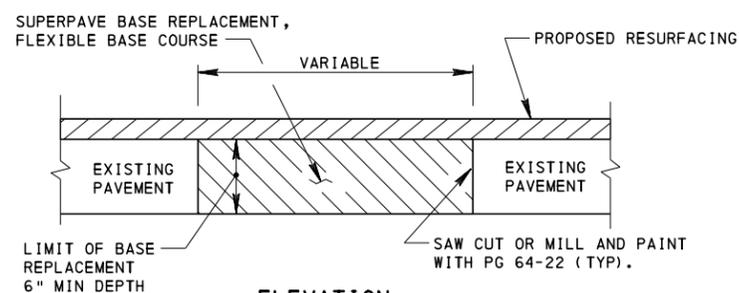


**PLAN VIEW  
TANGENT SECTION  
TWO-LANE, TWO-WAY TRAFFIC AND  
TWO-LANE DIRECTIONAL**

**OVERLAY TRANSITIONS**



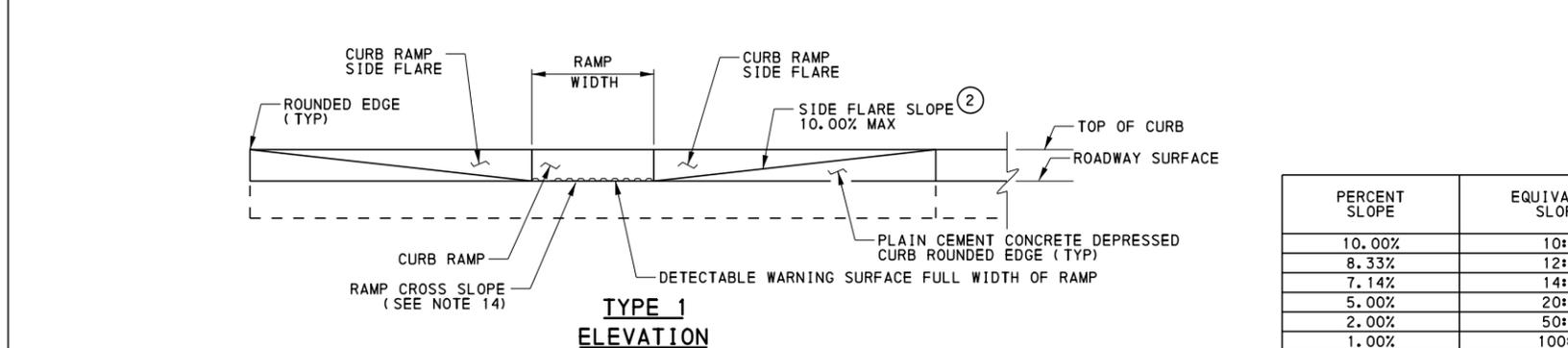
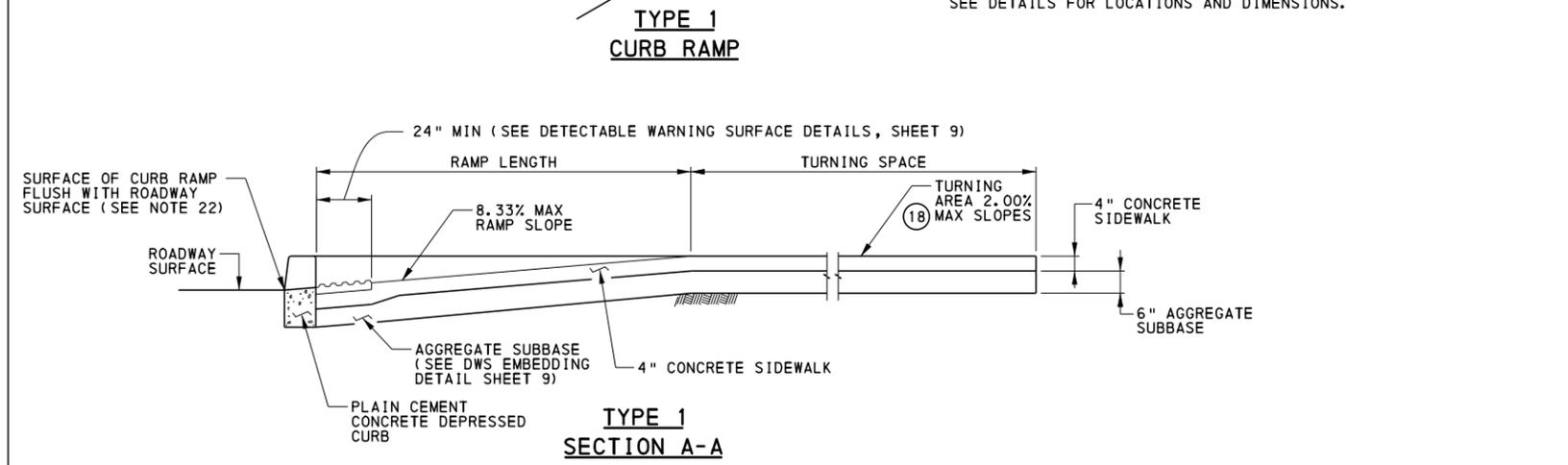
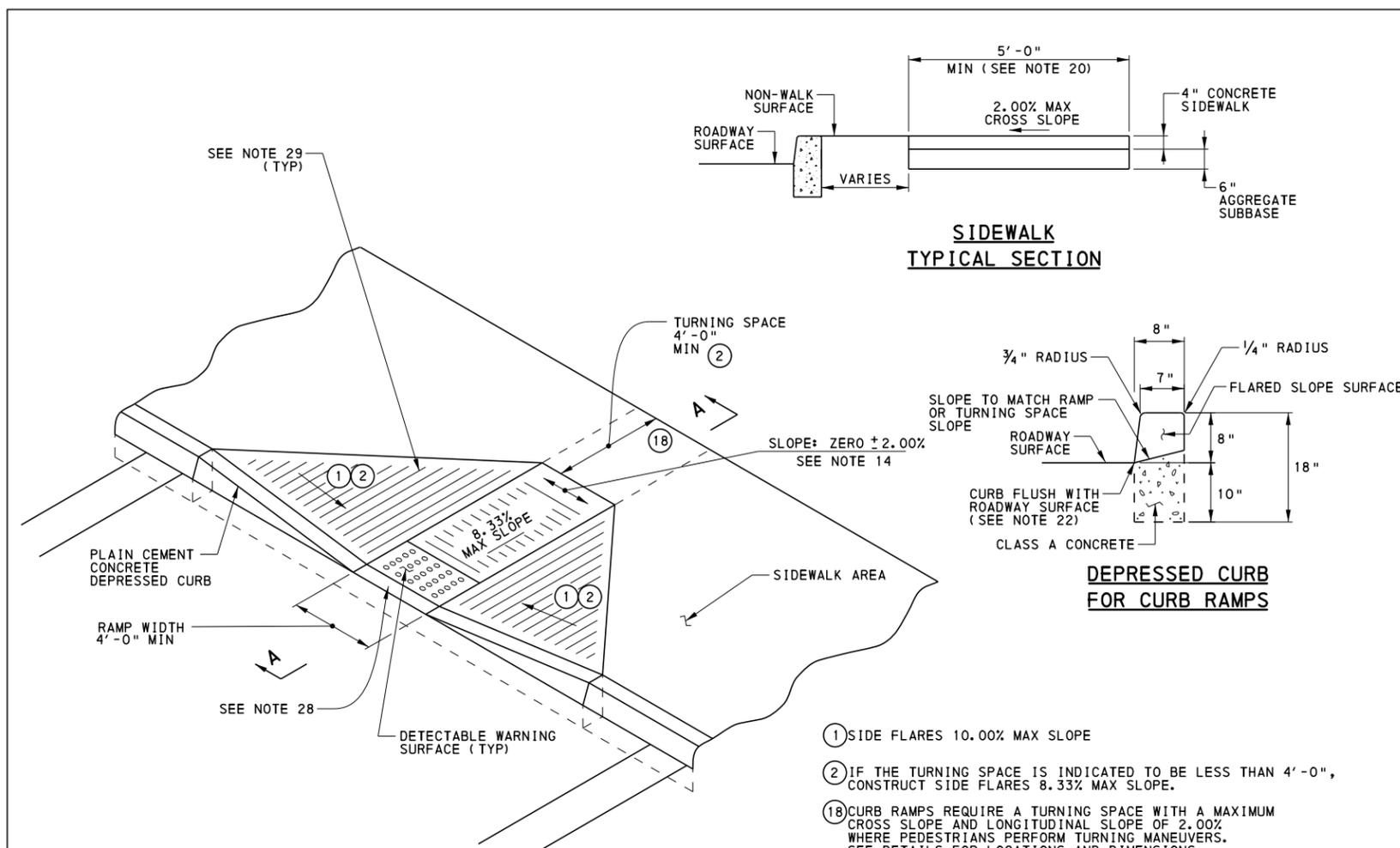
**LONGITUDINAL NOTCHED WEDGE JOINT**



**ELEVATION  
SUPERPAVE BASE REPLACEMENT  
SEE NOTES 5, 6, 7 AND 8 THIS SHEET.**

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF PROJECT DELIVERY

**OVERLAY TRANSITIONS  
AND  
PAVING NOTCHES**



**SIDEWALK  
TYPICAL SECTION**

**DEPRESSED CURB  
FOR CURB RAMPS**

- ① SIDE FLARES 10.00% MAX SLOPE
- ② IF THE TURNING SPACE IS INDICATED TO BE LESS THAN 4'-0", CONSTRUCT SIDE FLARES 8.33% MAX SLOPE.
- ⑱ CURB RAMPS REQUIRE A TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SEE DETAILS FOR LOCATIONS AND DIMENSIONS.

PERCENT SLOPE	EQUIVALENT SLOPE
10.00%	10:1
8.33%	12:1
7.14%	14:1
5.00%	20:1
2.00%	50:1
1.00%	100:1

**EQUIVALENT SLOPES**

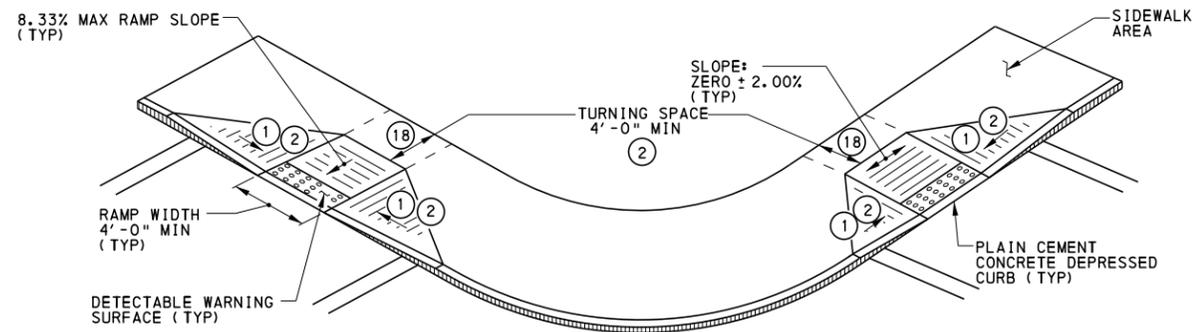
**NOTES**

1. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTIONS 350, 409, 630, 676, 694, AND 695.
2. PROVIDE EXPANSION JOINT MATERIAL 1/8" THICK WHERE CURB RAMP ADJOINS ANY RIGID PAVEMENT, SIDEWALK OR STRUCTURE WITH THE TOP OF JOINT FILLER FLUSH WITH ADJACENT CONCRETE SURFACE.
3. CONSTRUCT CURB RAMPS WITH A MINIMUM 4'-0" X 4'-0" CLEAR SPACE BEYOND THE CURB FACE, WITHIN THE WIDTH OF THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE. SEE SHEET 7 FOR CROSSWALK DETAILS.
4. SEAL JOINTS WITH AN APPROVED SEALING MATERIAL.
5. PROVIDE SLIP RESISTANT TEXTURE ON CURB RAMP BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP. EXTEND TEXTURE THE FULL WIDTH AND LENGTH OF THE CURB RAMP INCLUDING SIDE FLARES.
6. MODIFY CONSTRUCTION DETAILS TO ADAPT DIMENSIONS TO EXISTING CURB HEIGHTS WHERE THE CURB IS LESS THAN THE STANDARD 8" HEIGHT.
7. CURB RAMP AND SIDE FLARE LENGTHS ARE VARIABLE AND BASED ON CURB HEIGHT AND THE SIDEWALK SLOPE.
8. TO AVOID CHASING GRADE INDEFINITELY WHEN TRAVERSING THE HEIGHT OF CURB, RAMP LENGTH NOT TO EXCEED 15'-0". ADJUST RAMP SLOPE AS NEEDED TO PROVIDE ACCESS TO THE MAXIMUM EXTENT FEASIBLE.
9. NON-WALK AREA IS AN OBSTRUCTED OR GRASS/NON-PAVED AREA ADJACENT TO THE PEDESTRIAN ACCESS ROUTE THAT IS NOT USED BY THE PEDESTRIAN FOR ACCESS.
10. THE DETAILS DEPICT PEDESTRIAN PUSHBUTTON POLES TO ILLUSTRATE THE RECOMMENDED PLACEMENT OF PEDESTRIAN PUSHBUTTONS. FOR ALTERATION PROJECTS, PROVIDE ACCESS TO EXISTING PEDESTRIAN PUSHBUTTONS TO THE MAXIMUM EXTENT FEASIBLE. INSTALL PEDESTRIAN PUSHBUTTON STUB POLES, WHERE APPLICABLE, SO AS NOT TO CREATE PEDESTRIAN OBSTRUCTIONS.
11. SEE TC-8803 FOR ADDITIONAL PEDESTRIAN PUSHBUTTON DETAILS NOT SHOWN.
12. ALIGN DETECTABLE WARNING SURFACE TRUNCATED DOMES ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF THE RAMP AND PERPENDICULAR TO CURB. SEE SHEET 9 FOR INSTALLATIONS ALONG CURVED SURFACES.
13. PROVIDE DETECTABLE WARNING SURFACES (DWS) 24" MINIMUM (IN THE DIRECTION OF PEDESTRIAN TRAVEL) ACROSS FULL WIDTH OF RAMP AT THE GRADE BREAK NEAR STREET EDGE. PROVIDE DWS THAT CONTRAST VISUALLY WITH ADJACENT WALKWAY SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT FOR THE FULL WIDTH OF RAMP.
14. FOR NEW CONSTRUCTION, DO NOT EXCEED 2.00% CROSS SLOPE ON THE CURB RAMP OR PEDESTRIAN ACCESS ROUTE.
15. FOR NEW CONSTRUCTION AND ALTERATIONS, CONSTRUCT CURB RAMP AND FLARE SLOPES WITH THE FLATTEST SLOPE POSSIBLE. THE SLOPES INDICATED IN THE DETAILS SHOW THE MAX SLOPE ALLOWABLE. SLOPES THAT EXCEED THOSE INDICATED IN THE DETAILS, OR CONTRACT DOCUMENTS AS APPLICABLE, WILL NOT BE ACCEPTED AND WILL BE RECONSTRUCTED.
16. CONSTRUCT SIDEWALKS AT A LONGITUDINAL SLOPE NOT TO EXCEED 5.00%. FOR ROADWAY PROFILE SLOPES THAT EXCEED 5.00%, CONSTRUCT PARALLEL SIDEWALKS ADJACENT TO ROADWAY AT A LONGITUDINAL SLOPE NOT TO EXCEED ROADWAY PROFILE SLOPE.
17. THE CHANGE IN GRADE AT THE BOTTOM OF THE CURB RAMP AND ADJOINING ROAD SURFACE IS NOT TO EXCEED AN ALGEBRAIC DIFFERENCE OF 13.33%. THE COUNTER SLOPE OF THE GUTTER OR ROAD AT THE FOOT OF A CURB RAMP, TURNING SPACE OR BLENDED TRANSITION IS NOT TO EXCEED 5.00%. SEE SHEET 8 FOR DETAILS.
18. THE CONSTRUCTION STANDARDS DEPICTED ARE MOST APPROPRIATE FOR NEW CONSTRUCTION. ALL CONSTRUCTION MUST MEET THE STANDARDS CONTAINED HEREIN UNLESS OTHERWISE NOTED OR DIRECTED.
19. ALL SLOPES ARE MEASURED WITH RESPECT TO A LEVEL PLANE. THEREFORE, THE LENGTH OF RAMP IS NOT SOLELY DEPENDANT ON THE HEIGHT OF CURB. (FOR EXAMPLE, A 6" CURB DOES NOT NECESSARILY MEAN A RAMP LENGTH OF 6'-0" FOR A 12:1 SLOPE.)
20. SIDEWALK WIDTH MAY BE REDUCED TO 4'-0", WHEN PASSING AREAS 5'-0" X 5'-0" ARE PROVIDED EVERY 200'.
21. THE TRAVEL LANE IS DEFINED BY THE OUTSIDE EDGE OF THE WHITE PAVEMENT MARKING LINE. IF A WHITE PAVEMENT MARKING LINE DOES NOT EXIST, THE TRAVEL LANE IS DEFINED BY THE CONTRACT DOCUMENTS.
22. CONSTRUCT DEPRESSED CURB FOR CURB RAMPS FLUSH TO ADJACENT ROADWAY. GRADE EDGE OF ROAD ELEVATIONS AT THE FLOW LINE TO ENSURE POSITIVE DRAINAGE AND PREVENT PONDING. FOR LEVEL TURNING SPACES BEHIND DEPRESSED CURB, ADJUST SLOPES TO PROVIDE POSITIVE DRAINAGE. AT THE JOINT BETWEEN DEPRESSED CURB AND ROADWAYS, REMOVE EXCESS JOINT SEALER AND COVER THE SEALED AREA WITH A LIGHT APPLICATION OF DRY SAND.
23. CHEEK WALLS ARE PERMITTED WHEN ADJACENT TO NON-WALK AREAS OR ELEVATION DIFFERENCES CANNOT BE ACCOMMODATED BY FLARES OR GRADING. GRADE GRASS AREAS OR OTHER NON-WALK AREAS AT 3:1 OR FLATTER. DO NOT INSTALL CHEEK WALLS THAT INTERSECT THE PEDESTRIAN PATH.
24. CONSTRUCT TOP OF PLAIN CEMENT CONCRETE DEPRESSED CURB TO BE FLUSH WITH ADJACENT SURFACES (RAMPS, SIDEWALKS, FLARES).
25. FOR CURB RAMPS THAT LEAD TO A SINGLE CROSSWALK, THE RAMP (EXCLUDING FLARES) TO BE FULLY INSIDE OF MARKED CROSSWALK LINES. SEE SHEET 7 FOR DETAILS.
26. A 4'-0" MAXIMUM DIGITAL DISPLAY LEVEL WILL BE USED TO VERIFY THE SLOPES OF CURB RAMPS AND SIDEWALKS.
27. INSTALL DUMMY JOINTS WHERE RAMPS, TURNING SPACES, FLARES, AND SIDEWALKS ABUT.
28. CONSTRUCT DEPRESSED CURB SLOPE TO MATCH ROADWAY PROFILE AND HAVE A FLUSH CONNECTION. TRANSITION CURB RAMP CROSS SLOPE TO MATCH ROADWAY PROFILE AS GRADUALLY AS POSSIBLE. DO NOT EXCEED 3.00% PER 1'-0" CROSS SLOPE RATE OF CHANGE WHEN TRANSITIONING TO ROADWAY PROFILE.
29. DO NOT SCORE OR MAKE GROOVES ON SLOPED SURFACES. LINES SHOWN ON DETAILS ARE FOR ILLUSTRATION ONLY. SEE NOTE 5.

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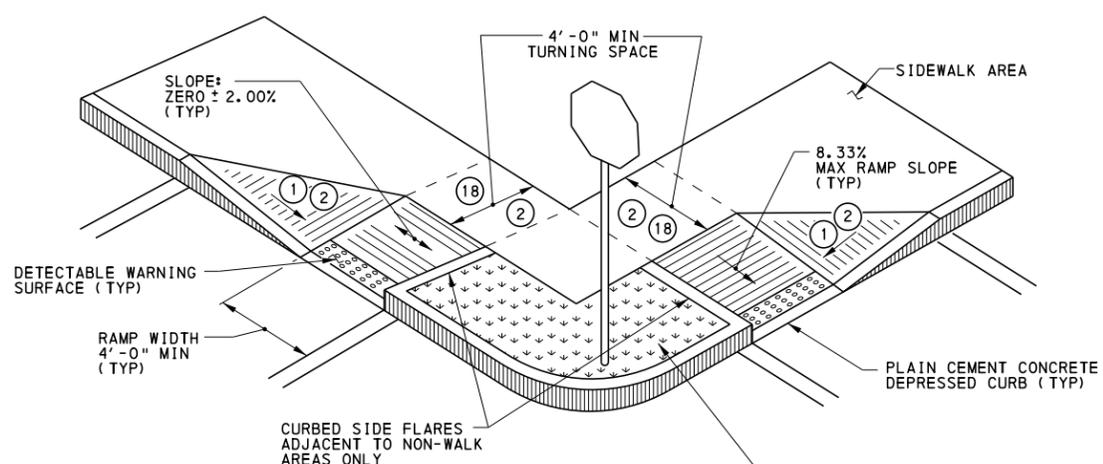
**CURB RAMPS AND SIDEWALKS  
NEW CONSTRUCTION OR  
ALTERATION DETAILS  
TYPE 1 CURB RAMPS AND  
TYPICAL SECTIONS**

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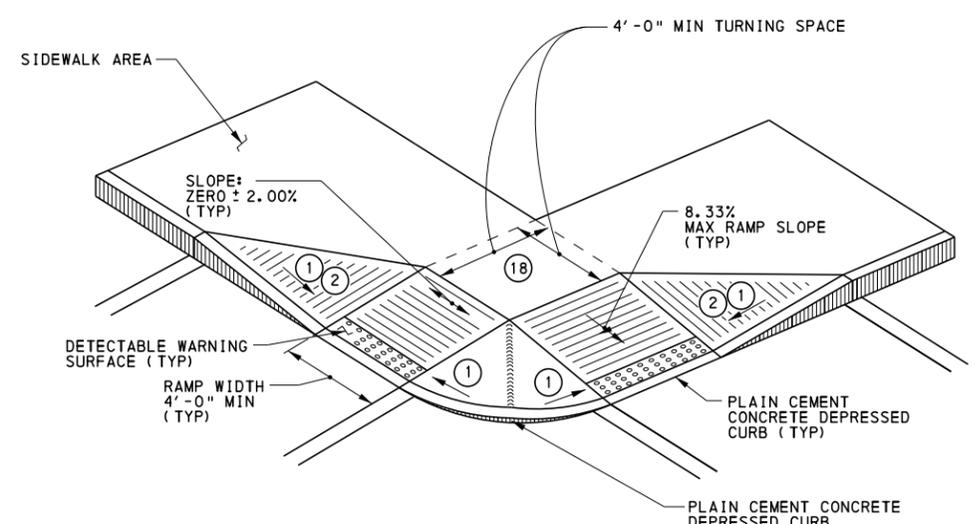


NOTE: IF SPACE IS LIMITED, IT MAY BE NECESSARY TO CURB THE SIDE FLARES OF THE TYPE 1 CURB RAMPS (SEE ALTERNATE INSTALLATION DETAIL BELOW). PEDESTRIAN TRAFFIC SHOULD NOT BE DIRECTED TO CROSS THE VERTICAL DROP.

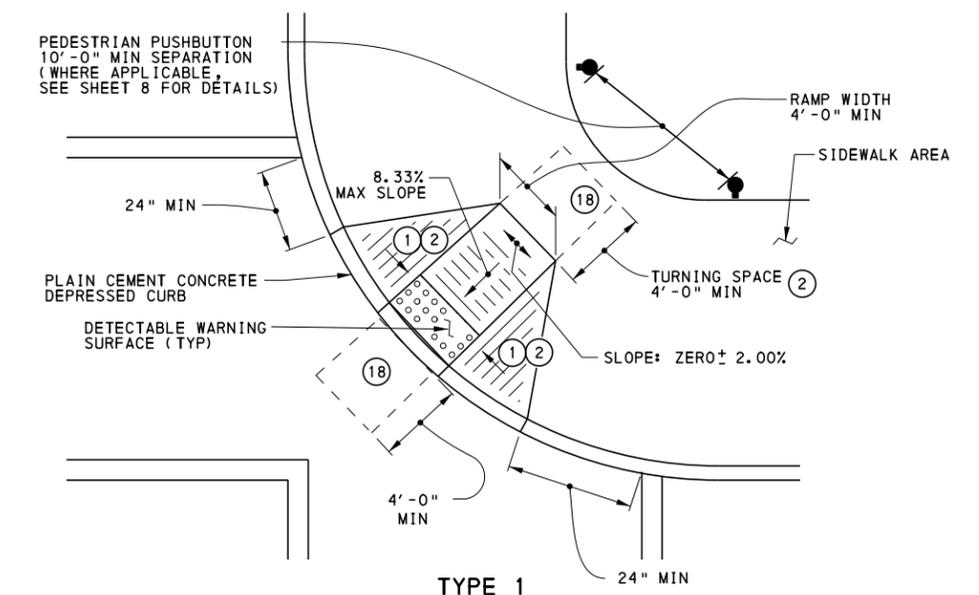
**TYPE 1  
DOUBLE CURB RAMPS  
(PREFERRED INSTALLATION)**



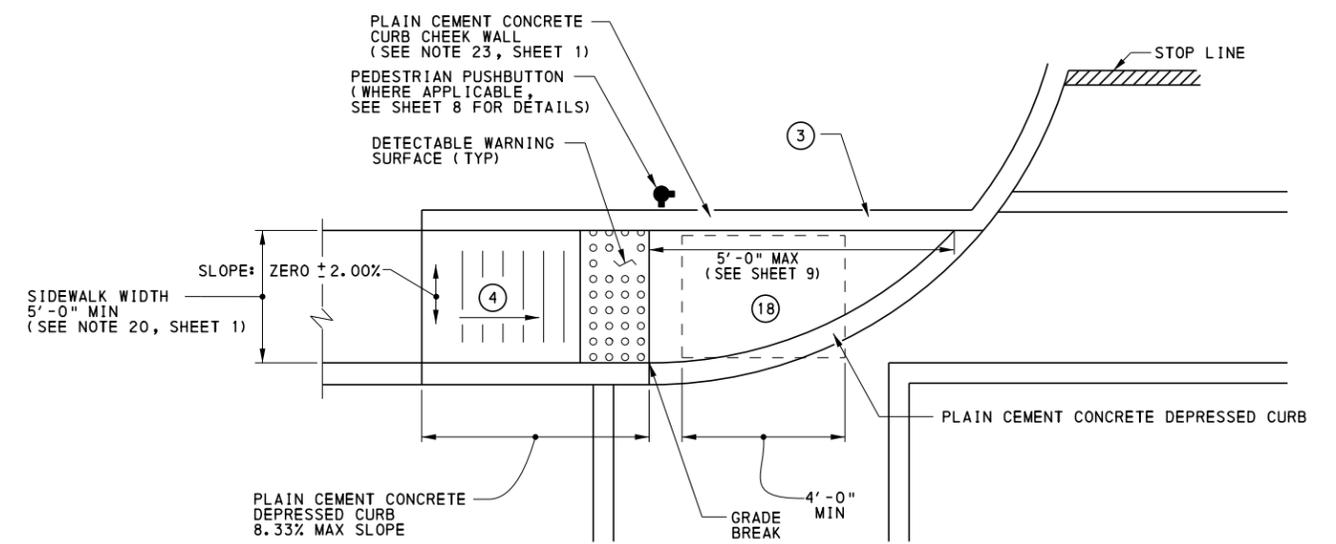
**TYPE 1  
DOUBLE CURB RAMPS  
(ALTERNATE INSTALLATION)**



**TYPE 1 CURB RAMPS  
WITH SHARED TURNING SPACE**



**TYPE 1  
CURB RAMP  
(DIAGONAL - REQUIRES ASSISTANT  
DISTRICT EXECUTIVE APPROVAL)**



**TYPE 1A  
CURB RAMP  
ASSISTANT DISTRICT EXECUTIVE APPROVAL  
REQUIRED IF TURNING SPACE  
IS NOT ENTIRELY ON SIDEWALK**

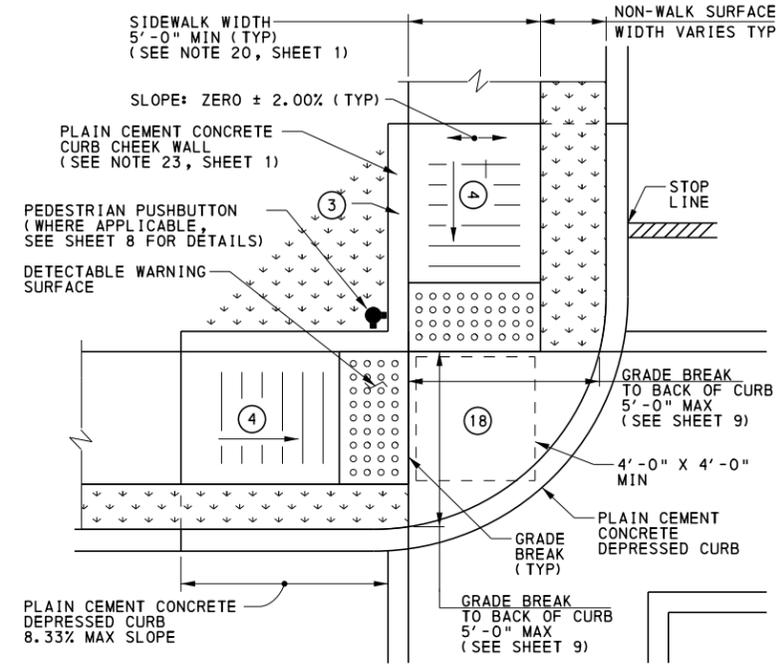
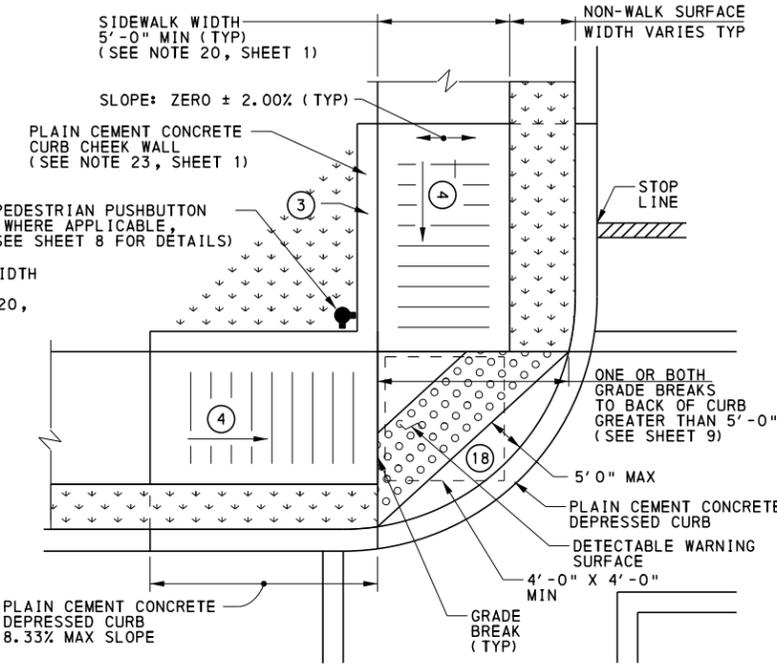
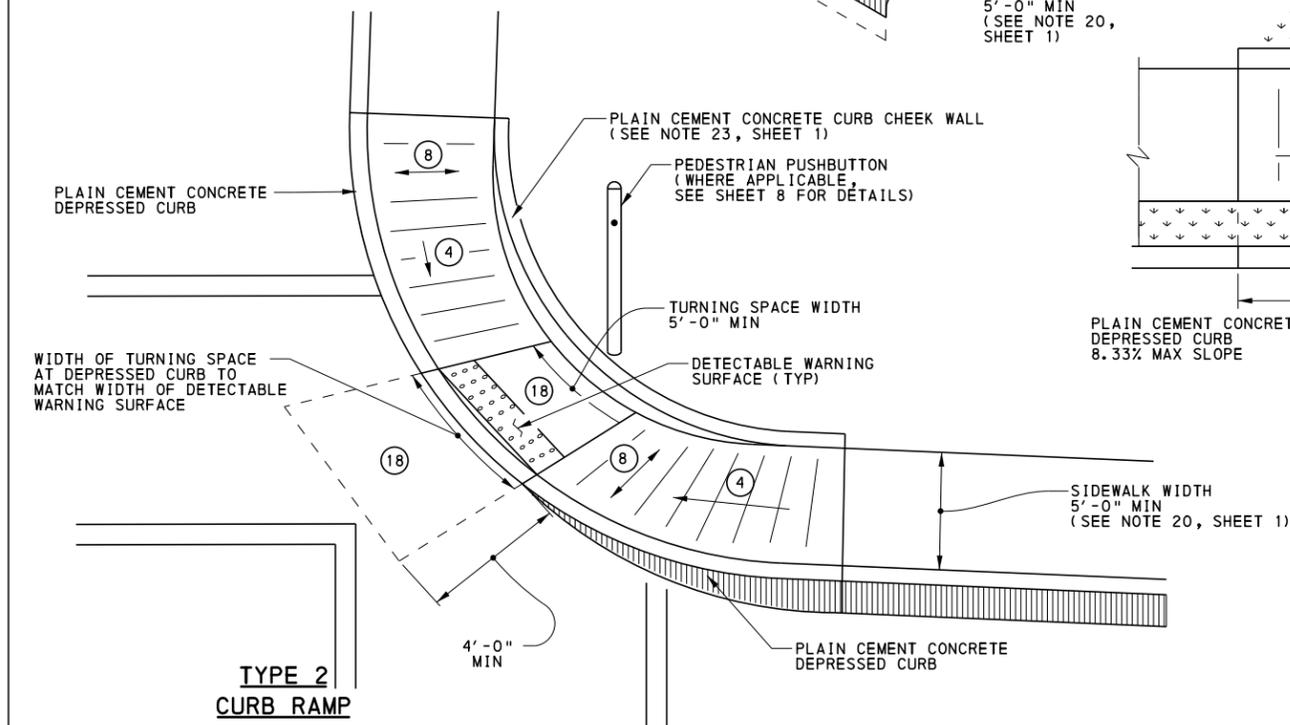
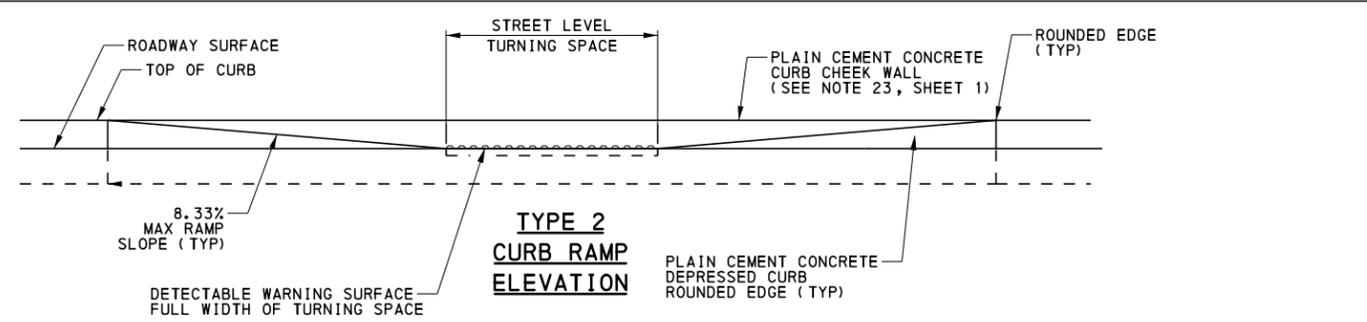
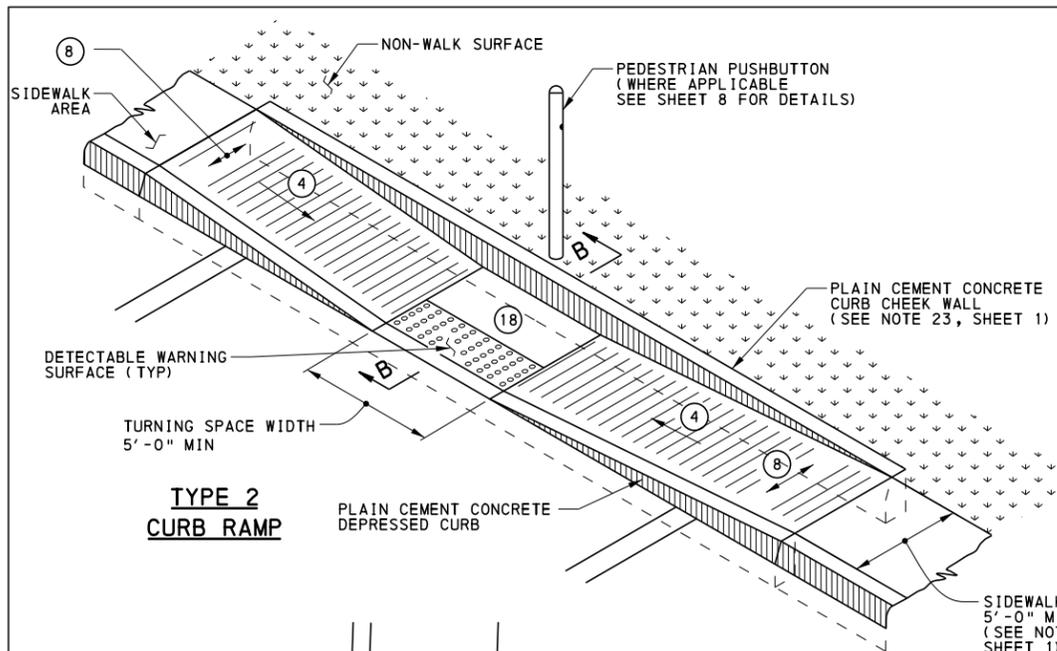
- ① SIDE FLARES 10.00% MAX SLOPE.
- ② IF THE TURNING SPACE IS INDICATED TO BE LESS THAN 4'-0", CONSTRUCT SIDE FLARES 8.33% MAX SLOPE.
- ③ OPTIONAL ROLLED CONCRETE SURFACE OR REGRADE SLOPE CAN BE USED TO MEET THE ADJACENT SURFACES IN LIEU OF A RETURN CURB CHEEK WALL.
- ④ 8.33% MAX RAMP SLOPE, SEE NOTE 8 SHEET 1.
- ⑧ CURB RAMPS REQUIRE A TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SEE DETAILS FOR LOCATIONS AND DIMENSIONS.

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**CURB RAMPS AND SIDEWALKS**

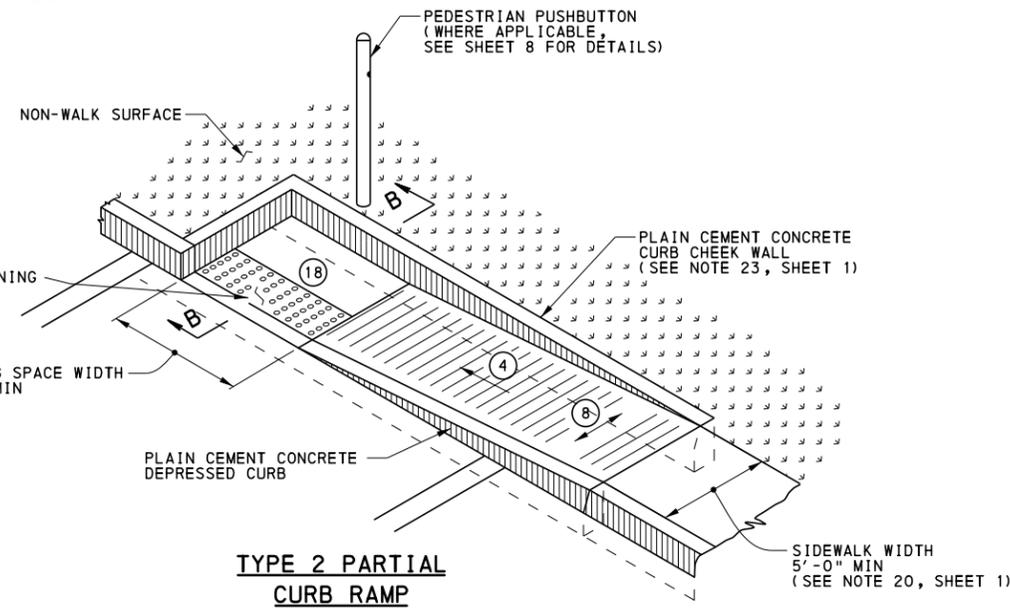
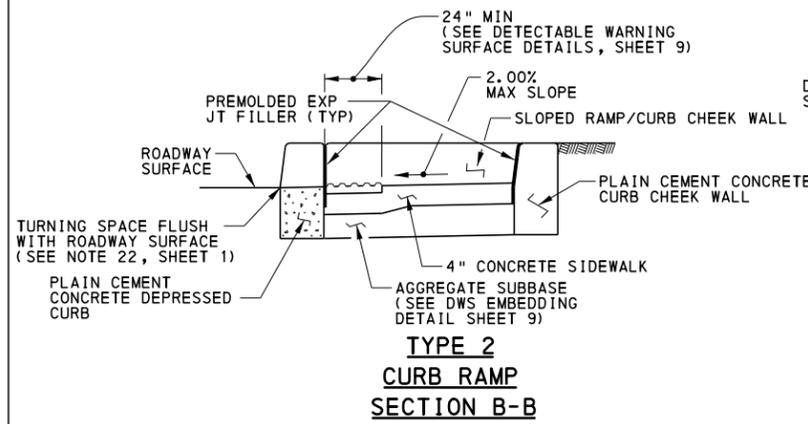
NEW CONSTRUCTION OR  
ALTERATION DETAILS  
TYPE 1 AND TYPE 1A CURB RAMPS

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**TYPE 1A CURB RAMPS**  
**ASSISTANT DISTRICT EXECUTIVE APPROVAL REQUIRED IF TURNING SPACE IS NOT ENTIRELY ON SIDEWALK**

**TYPE 2 CURB RAMP**  
**ASSISTANT DISTRICT EXECUTIVE APPROVAL REQUIRED IF TURNING SPACE IS NOT ENTIRELY ON SIDEWALK**



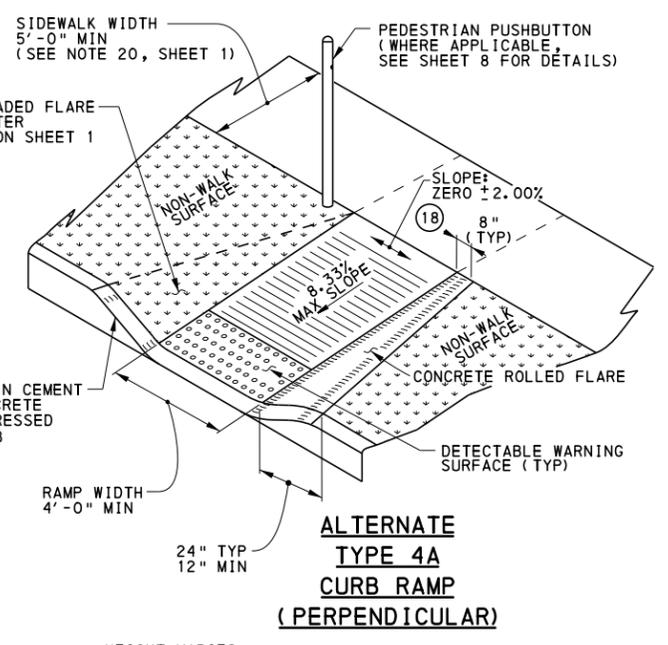
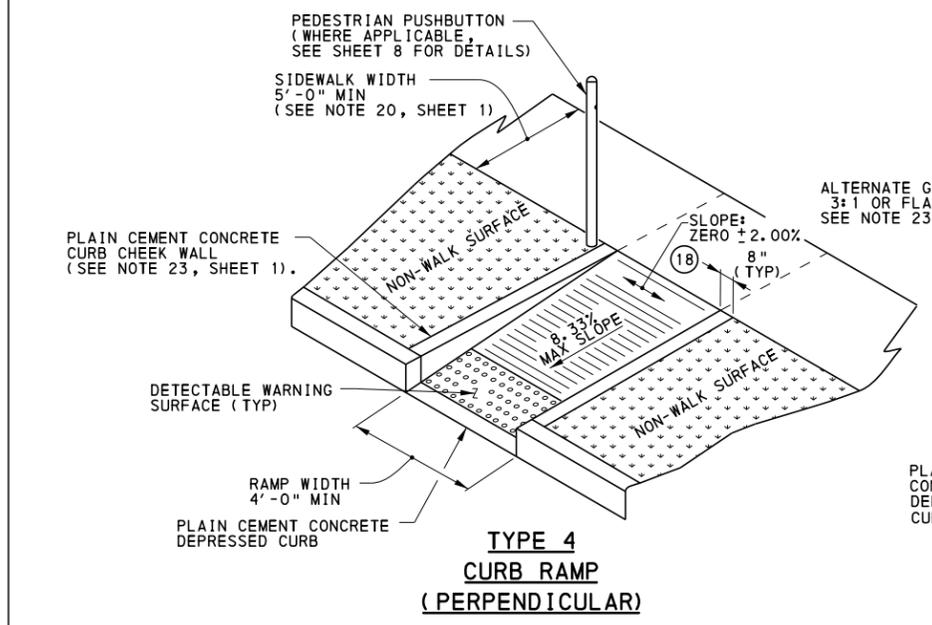
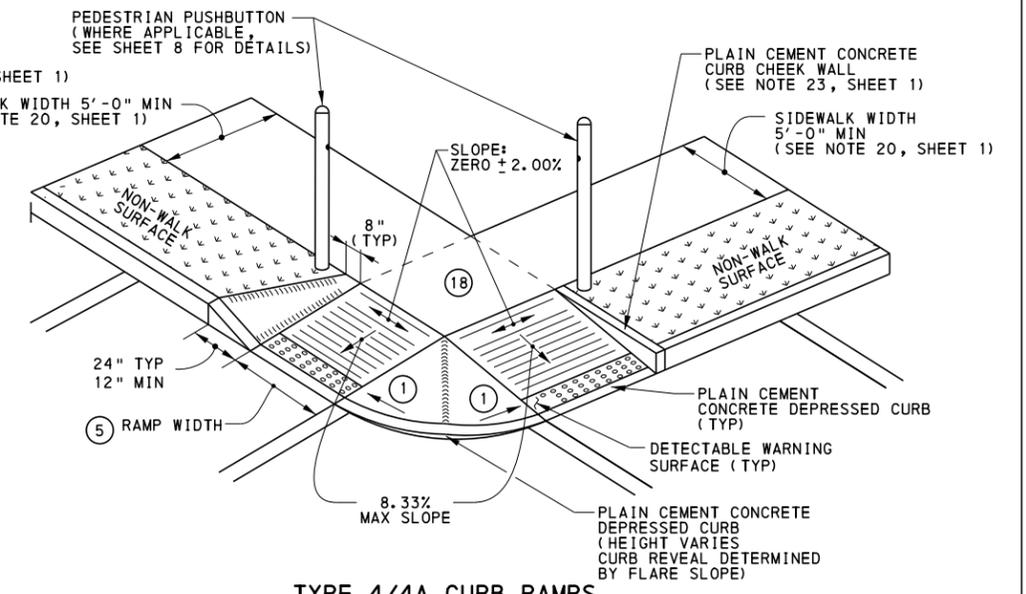
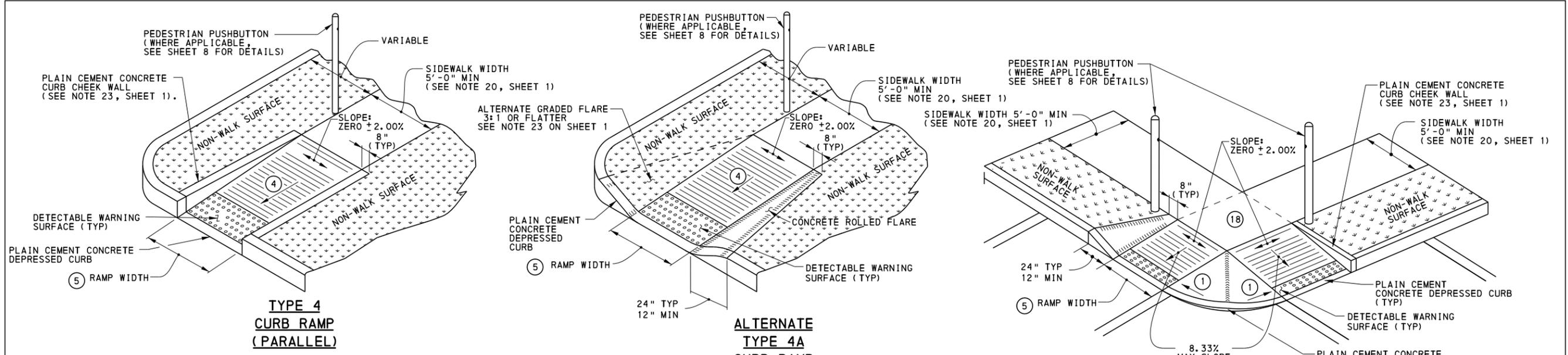
- ③ OPTIONAL CONCRETE ROLLED FLARE OR REGRADE SLOPE CAN BE USED TO MEET THE ADJACENT SURFACES IN LIEU OF PLAIN CEMENT CONCRETE CURB CHEEK WALL. SEE SHEET 4.
- ④ 8.33% MAX RAMP SLOPE, SEE NOTE 8 SHEET 1
- ⑧ SLOPE: ZERO ± 2.00%
- ⑱ CURB RAMPS REQUIRE A TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SEE DETAILS FOR LOCATIONS AND DIMENSIONS.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
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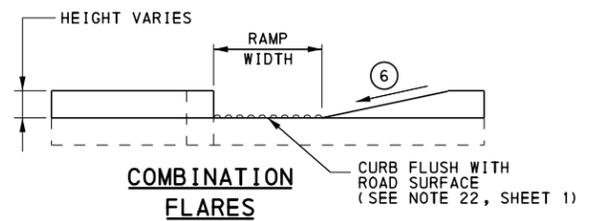
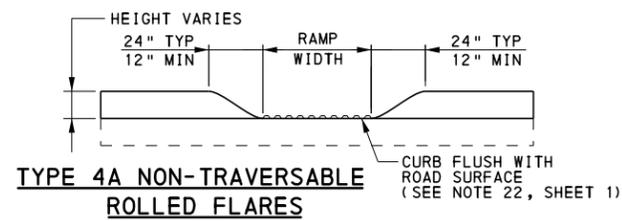
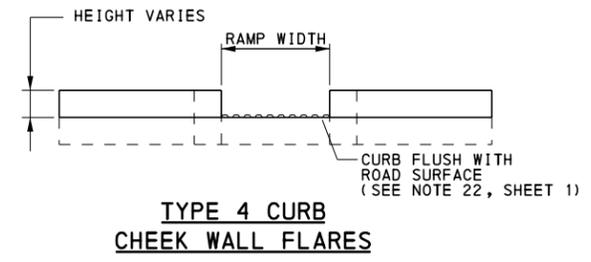
**CURB RAMPS AND SIDEWALKS**

NEW CONSTRUCTION OR ALTERATION DETAILS  
**TYPE 1A AND TYPE 2 CURB RAMPS**

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- ① SIDE FLARES 10.00% MAX SLOPE.
- ④ 8.33% MAX RAMP SLOPE, SEE NOTE 8 SHEET 1.
- ⑤ CURB RAMP WIDTH IS EQUAL TO SIDEWALK WIDTH WHEN THE SIDEWALK WIDTH IS GREATER THAN OR EQUAL TO THE MINIMUM 4'-0".
- ⑥ SLOPE VARIES SEE RAMP DETAILS.
- ⑧ CURB RAMPS REQUIRE A TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SEE DETAILS FOR LOCATIONS AND DIMENSIONS.

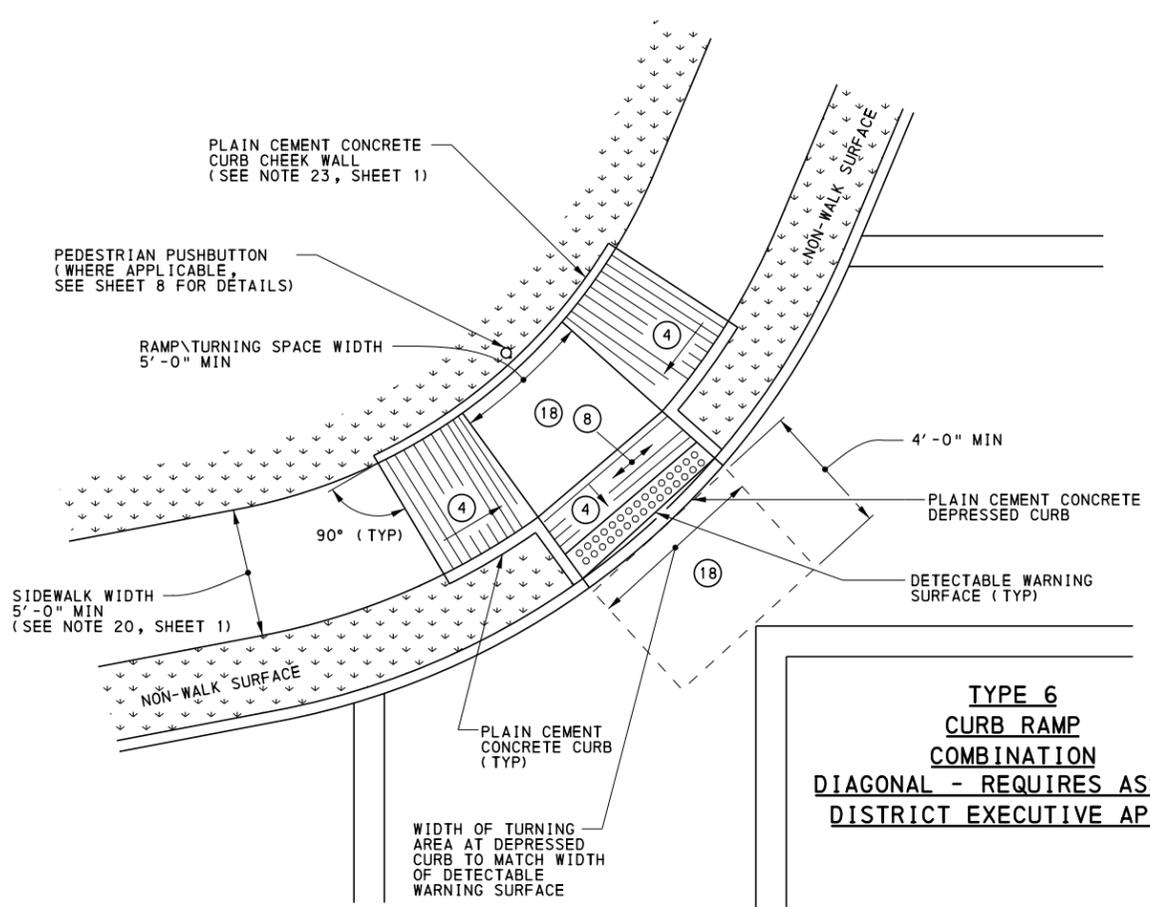


**TYPICAL ELEVATIONS FOR DEPRESSED CURBS**

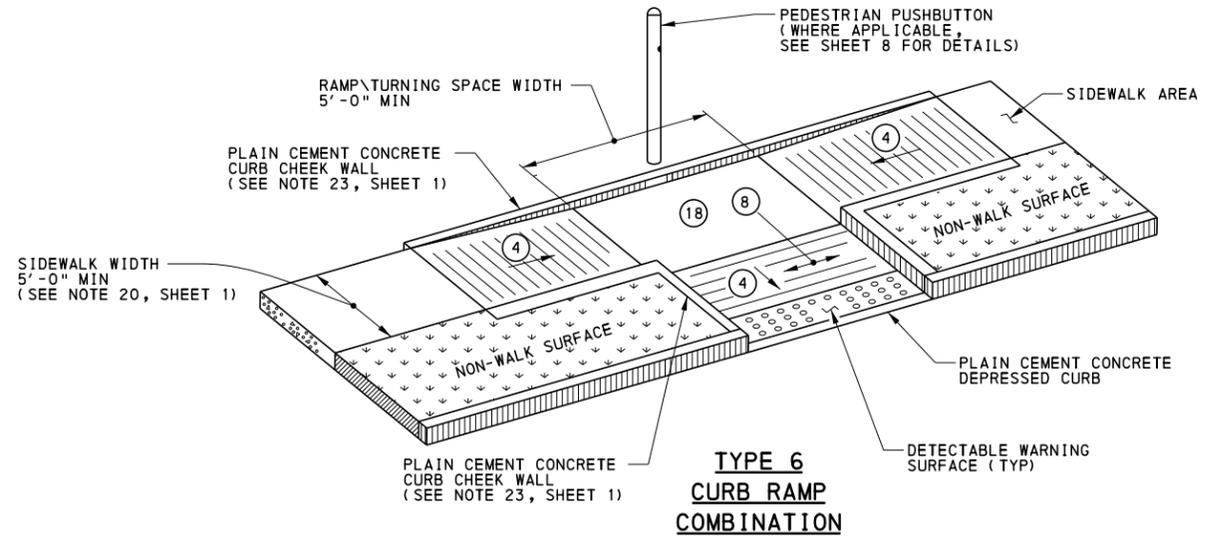
**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
 BUREAU OF PROJECT DELIVERY

**CURB RAMPS AND SIDEWALKS**  
 NEW CONSTRUCTION OR  
 ALTERATION DETAILS  
 TYPE 4 CURB RAMPS AND  
 TYPICAL ELEVATIONS

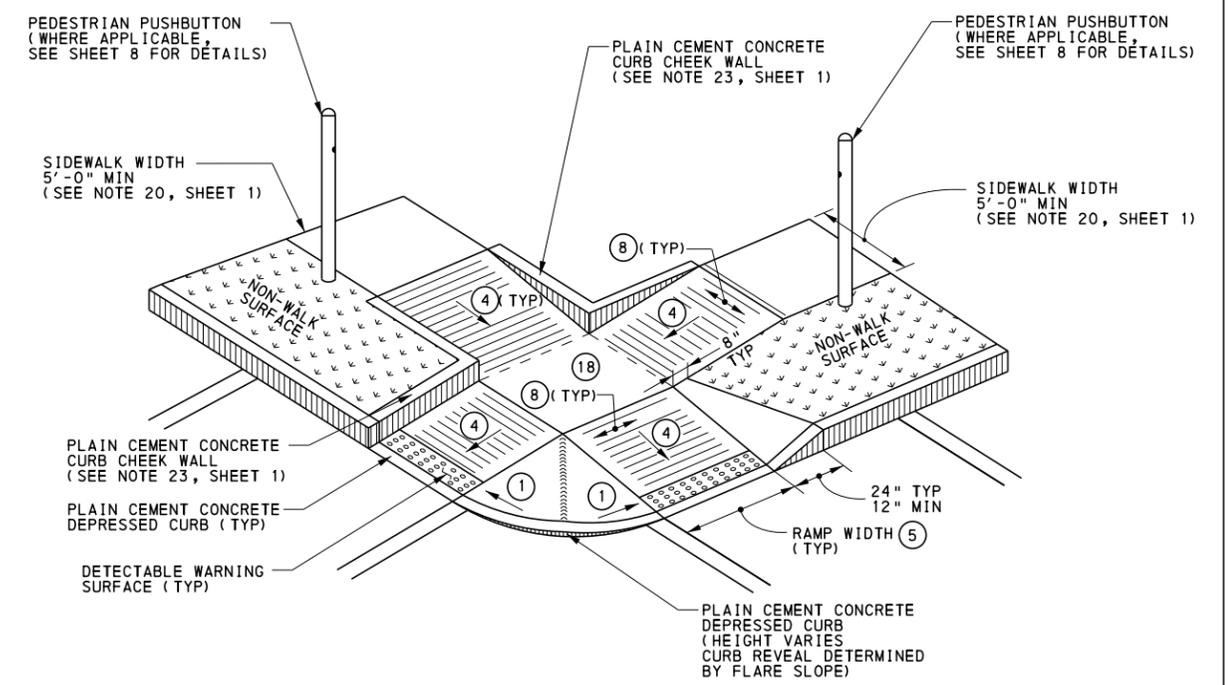
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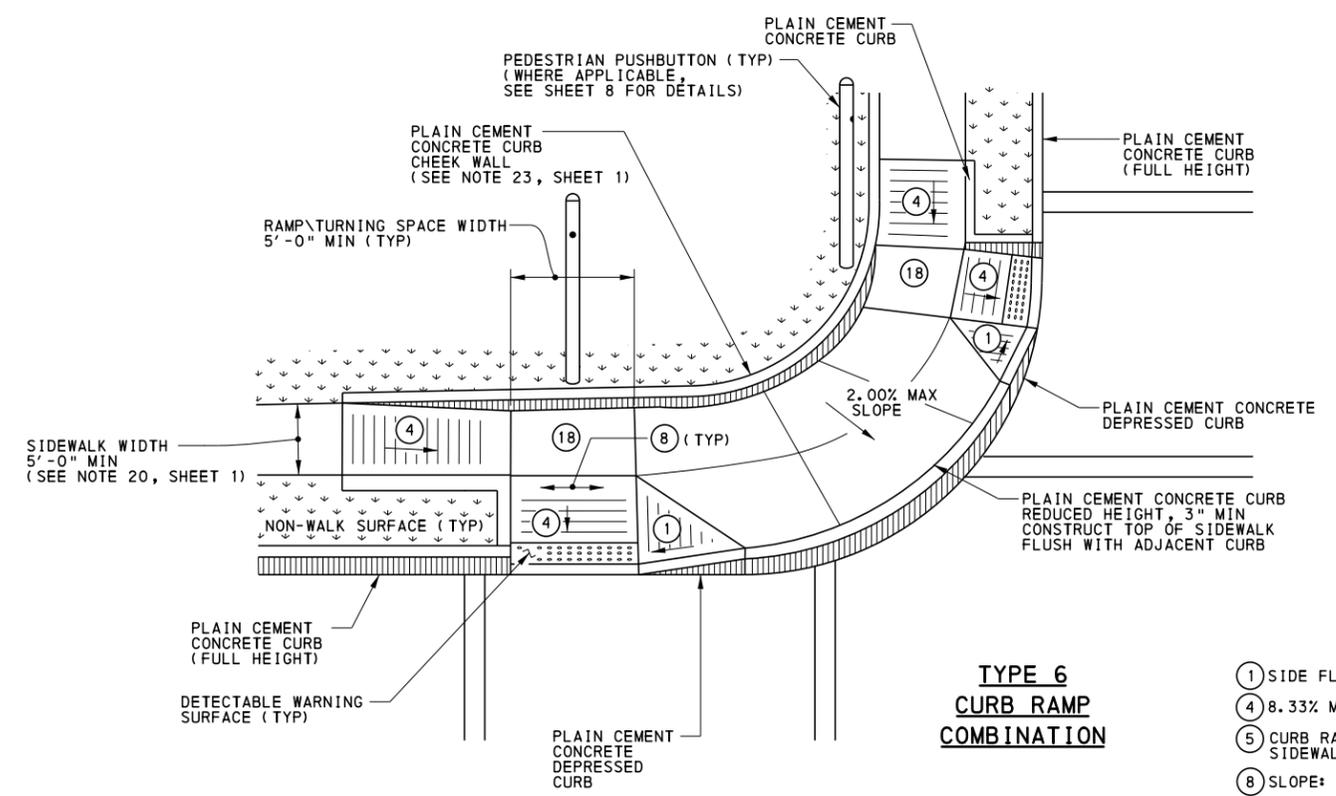
**TYPE 6  
CURB RAMP  
COMBINATION  
DIAGONAL - REQUIRES ASSISTANT  
DISTRICT EXECUTIVE APPROVAL**



**TYPE 6  
CURB RAMP  
COMBINATION**



**TYPE 6 CURB RAMPS  
WITH SHARED TURNING SPACE**



**TYPE 6  
CURB RAMP  
COMBINATION**

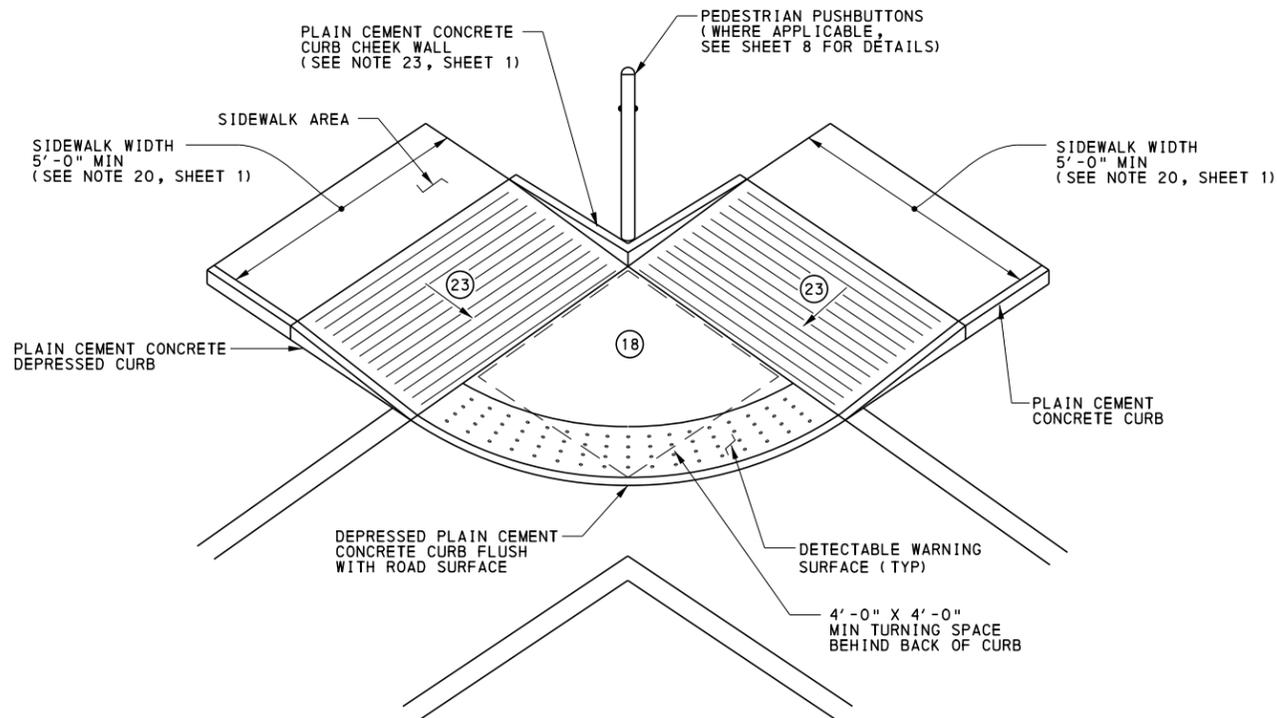
- ① SIDE FLARES 10.00% MAX SLOPE.
- ④ 8.33% MAX RAMP SLOPE, SEE NOTE 8 SHEET 1.
- ⑤ CURB RAMP WIDTH IS EQUAL TO SIDEWALK WIDTH WHEN THE SIDEWALK WIDTH IS GREATER THAN OR EQUAL TO 4'-0".
- ⑧ SLOPE: ZERO ± 2.00%.
- ⑱ CURB RAMPS REQUIRE A TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SEE DETAILS FOR LOCATIONS AND DIMENSIONS.

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BUREAU OF PROJECT DELIVERY

**CURB RAMPS AND SIDEWALKS**

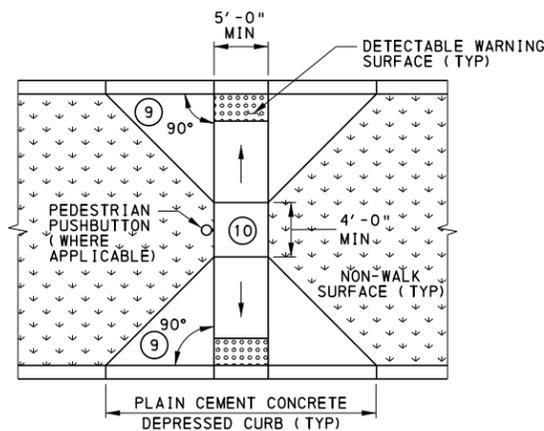
NEW CONSTRUCTION OR  
ALTERATION DETAILS  
TYPE 6 CURB RAMPS

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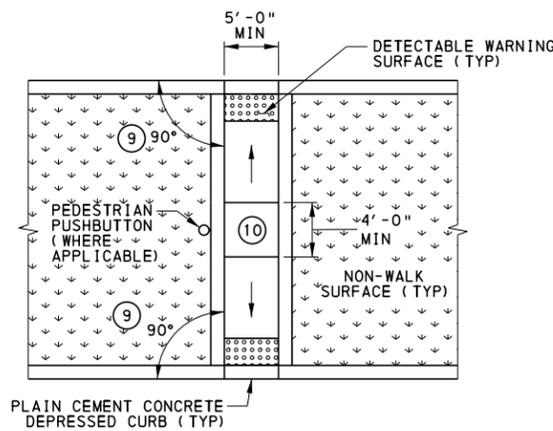


NOTE: DO NOT INSTALL GRATINGS, ACCESS COVERS AND OTHER APPURTENANCES ON THE BLENDED TRANSITION SURFACE WITHIN THE PEDESTRIAN ACCESS ROUTE. EXISTING UTILITY COVERS IN THE PATH OF TRAVEL ARE ACCEPTABLE IF THE TOP SURFACE IS FLUSH (LESS THAN 1/4" IN ELEVATION DIFFERENCE), FIRM, STABLE AND SLIP RESISTANT. INLET GRATES MUST HAVE OPENINGS NO GREATER THAN 1/2" IN DIRECTION OF TRAVEL.

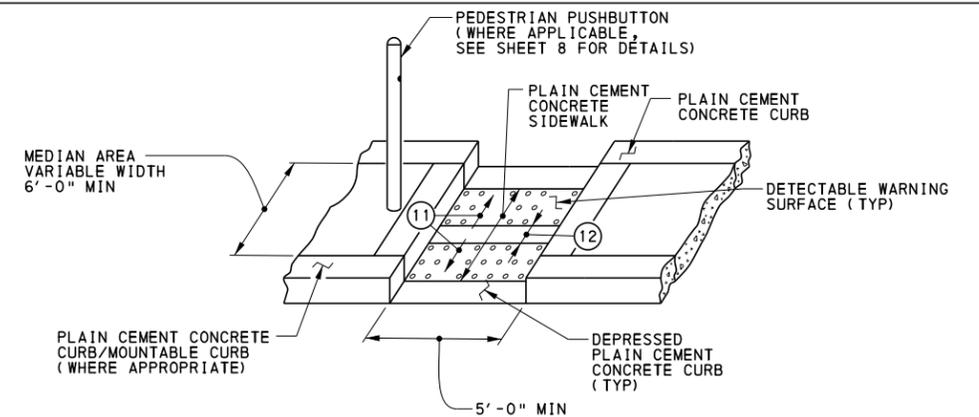
**BLENDING TRANSITION**



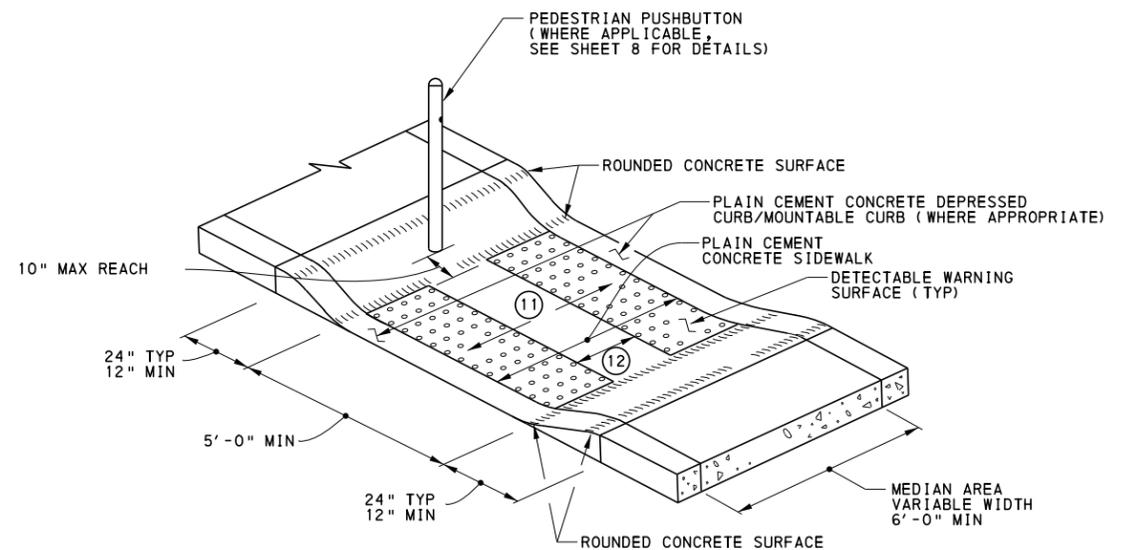
**RAMPED MEDIAN OR ISLAND ACCESS OPENING (TYPE 1 DOUBLE CURB RAMPS)**



**RAMPED MEDIAN OR ISLAND ACCESS OPENING (TYPE A DOUBLE CURB RAMPS)**



**TYPE A TYPICAL MEDIAN OR ISLAND ACCESS OPENING WITH CURB SIDES (NARROW MEDIANS)**



**TYPE B TYPICAL MEDIAN OR ISLAND ACCESS OPENING WITH FLARED SIDES (NARROW MEDIANS)**

- ⑨ 90° DESIRABLE.
- ⑩ TURNING SPACES ARE NOT REQUIRED FOR LONGITUDINAL SLOPES 5.00% OR LESS.
- ⑪ PROVIDE ADEQUATE SLOPE FOR DRAINAGE (5.00% MAX).
- ⑫ 2'-0" MIN SEPARATION. DO NOT INSTALL DETECTABLE WARNING SURFACES IF SEPARATION IS LESS THAN 2'-0". REFER TO DM-2 CHAPTER 6 FOR ADDITIONAL DETAILS.
- ⑬ CURB RAMPS REQUIRE A TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SEE DETAILS FOR LOCATIONS AND DIMENSIONS.
- ⑭ 5.00% MAX RUNNING SLOPE FOR BLENDED TRANSITION. FOR SLOPES GREATER THAN 5.00% SEE TYPE 2 CURB RAMPS ON SHEET 3 FOR ADDITIONAL DETAILS.

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DEPARTMENT OF TRANSPORTATION  
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**CURB RAMPS AND SIDEWALKS**

NEW CONSTRUCTION OR  
ALTERATION DETAILS  
BLENDING TRANSITION / MEDIANS

RECOMMENDED JUN. 10, 2013

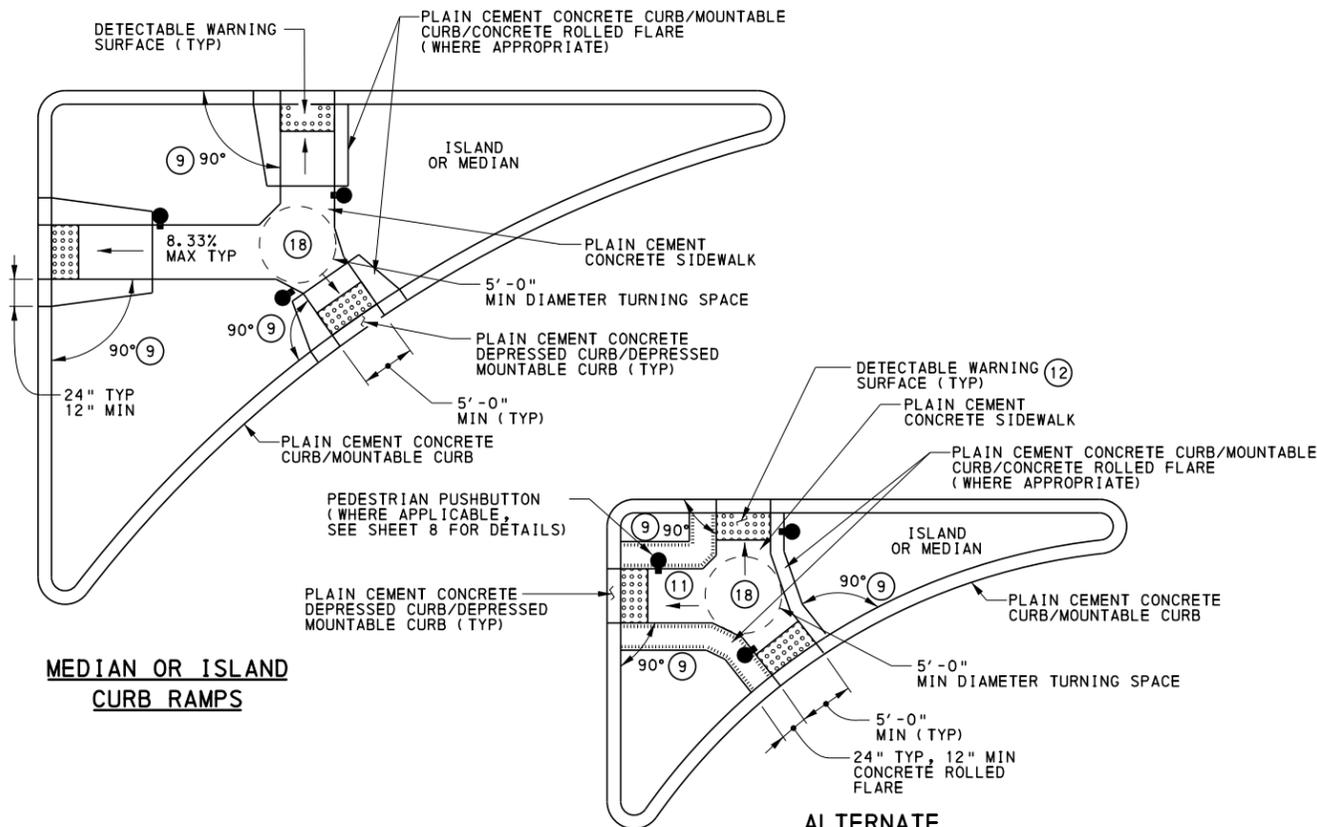
*R. W. [Signature]*  
CHIEF, HWY. DELIVERY DIVISION

RECOMMENDED JUN. 10, 2013

*[Signature]*  
ACTING DIR. BUREAU OF PROJECT DELIVERY

SHT 6 OF 14

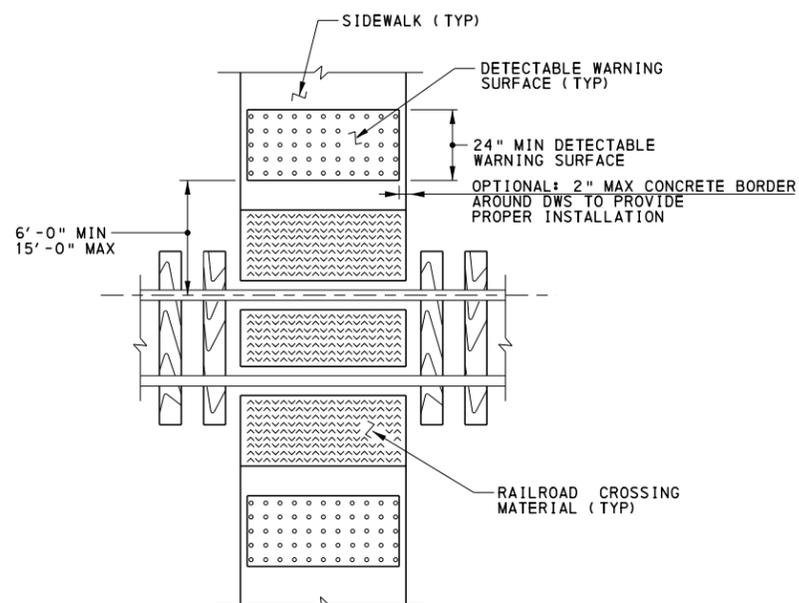
RC-67M



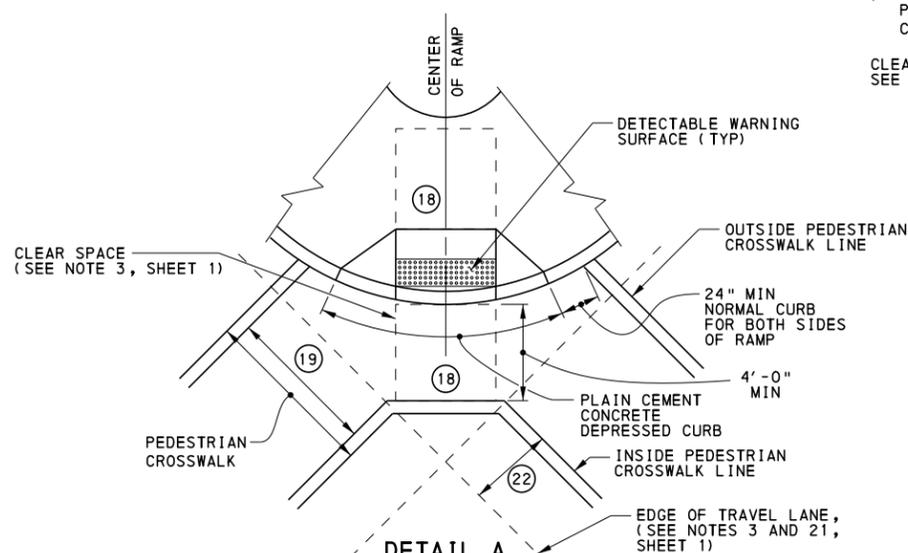
**MEDIAN OR ISLAND CURB RAMPS**

**ALTERNATE SMALL ISLAND WITH CUT THROUGH**

- 9 90° DESIRABLE.
- 11 PROVIDE ADEQUATE SLOPE FOR DRAINAGE (5.00% MAX).
- 12 2'-0" MIN SEPARATION. DO NOT INSTALL DETECTABLE WARNING SURFACES IF SEPARATION IS LESS THAN 2'-0".
- 18 CURB RAMPS REQUIRE A TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SEE DETAILS FOR LOCATIONS AND DIMENSIONS.
- 19 6'-0" MIN MEASURED FROM INSIDE OF PAINTED EDGE TO INSIDE OF PAINTED EDGE.
- 22 THE INSIDE PEDESTRIAN CROSSWALK LINES MUST BE OUTSIDE OF THE PARALLEL VEHICLE TRAVEL LANE.

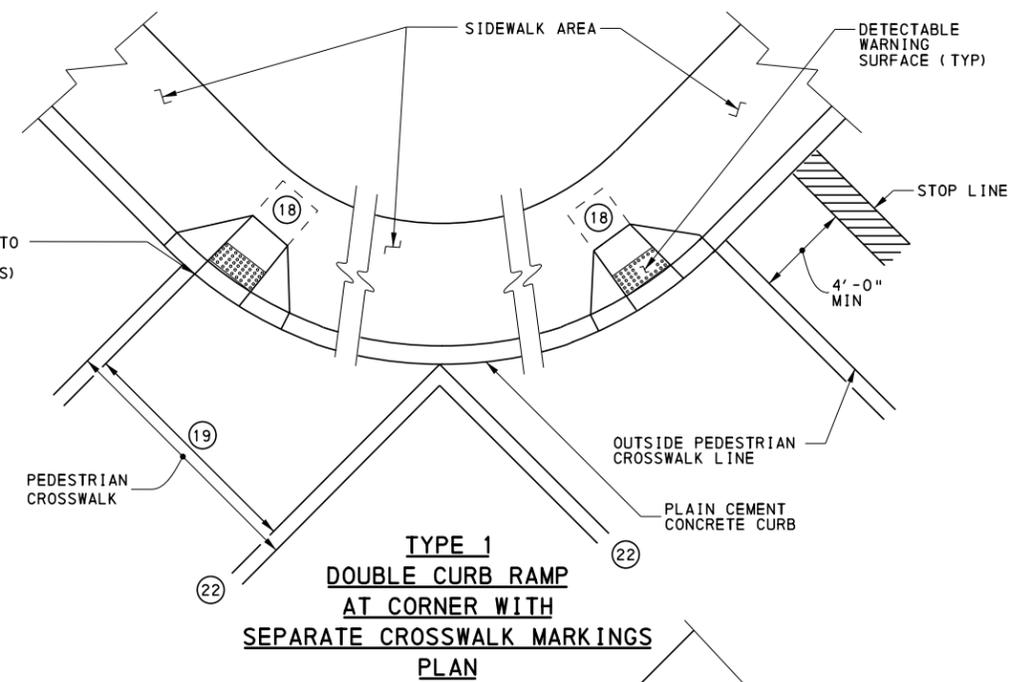


**TYPICAL DETECTABLE WARNING SURFACE AT RAILROAD CROSSING**

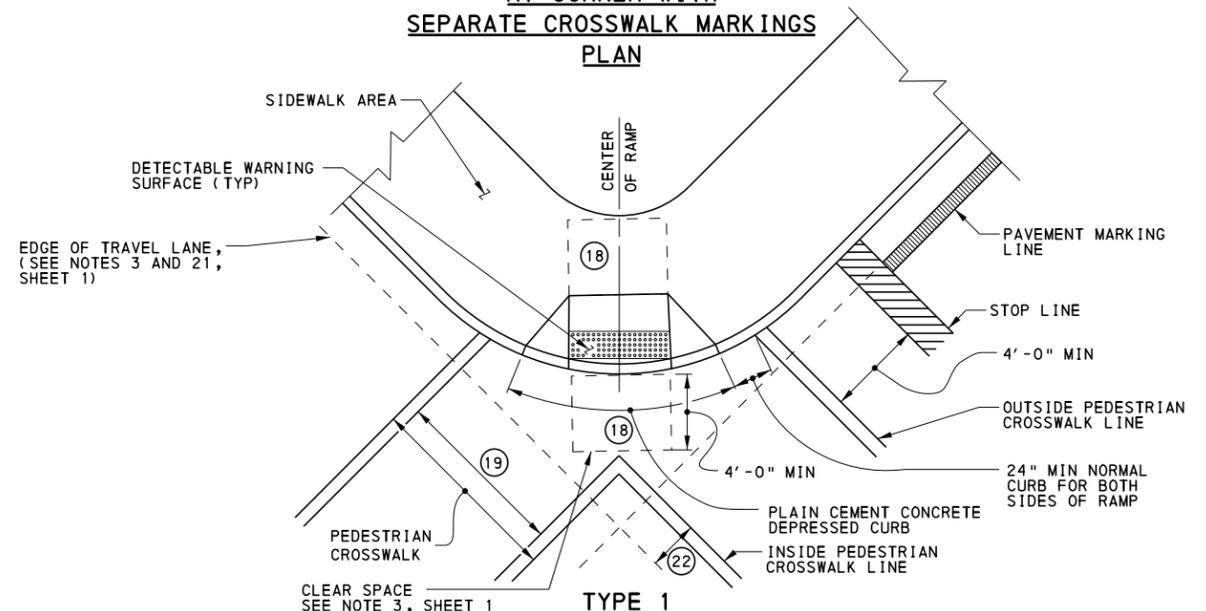


**DETAIL A CLEAR SPACE AT CROSSWALK MARKINGS PLAN (DIAGONAL - REQUIRES ASSISTANT DISTRICT EXECUTIVE APPROVAL)**

FOR CURB RAMPS THAT LEAD TO A SINGLE CROSSWALK, THE RAMP (EXCLUDING FLARES) TO BE FULLY INSIDE OF MARKED CROSSWALK LINES

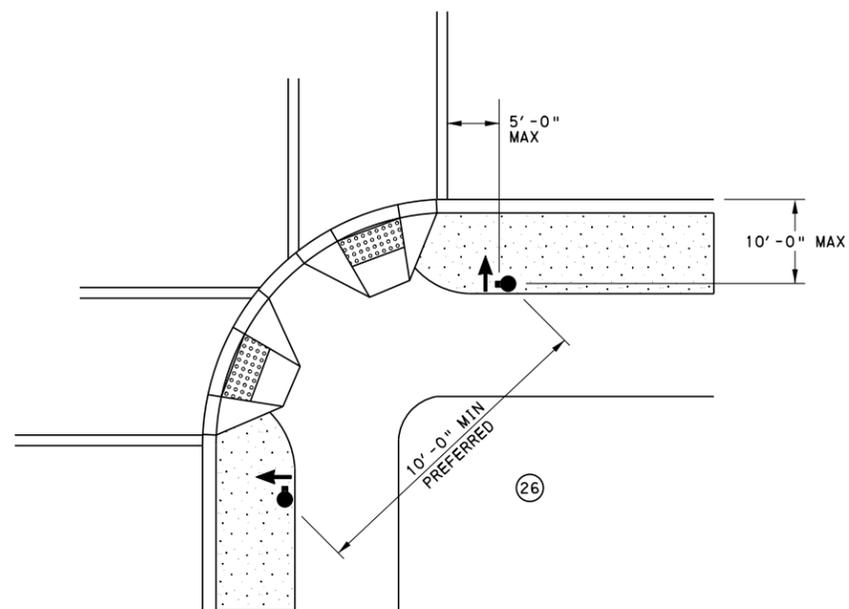


**TYPE 1 DOUBLE CURB RAMP AT CORNER WITH SEPARATE CROSSWALK MARKINGS PLAN**

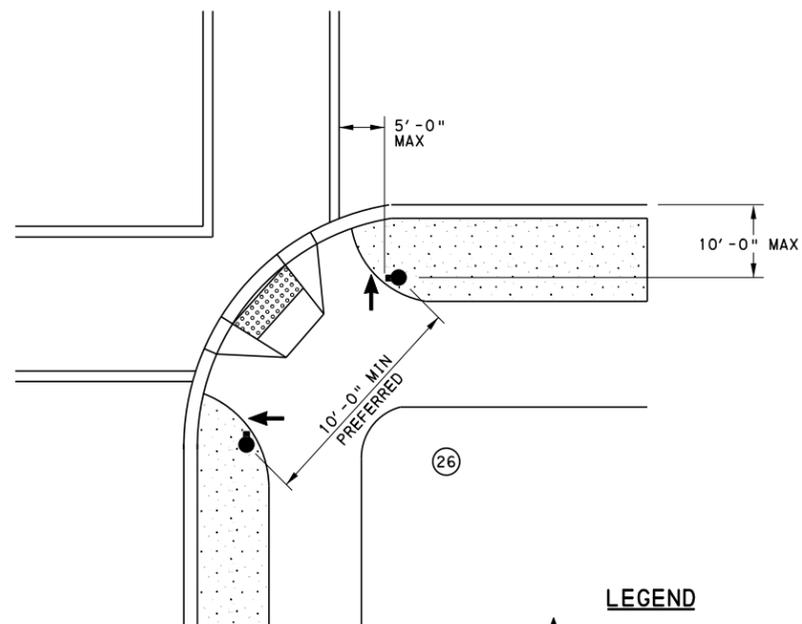


**TYPE 1 SINGLE CURB RAMP AT CORNER WITH CROSSWALK MARKINGS PLAN (DIAGONAL - REQUIRES ASSISTANT DISTRICT EXECUTIVE APPROVAL)**

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION BUREAU OF PROJECT DELIVERY		
CURB RAMPS AND SIDEWALKS NEW CONSTRUCTION OR ALTERATION DETAILS CROSSWALKS, MEDIANS, RAILROAD CROSSING DETECTABLE WARNING SURFACE		
RECOMMENDED JUN. 10, 2013 <i>R. W. [Signature]</i> CHIEF, HWY. DELIVERY DIVISION	RECOMMENDED JUN. 10, 2013 <i>[Signature]</i> ACTING DIR. BUREAU OF PROJECT DELIVERY	SHT 7 OF 14 RC-67M



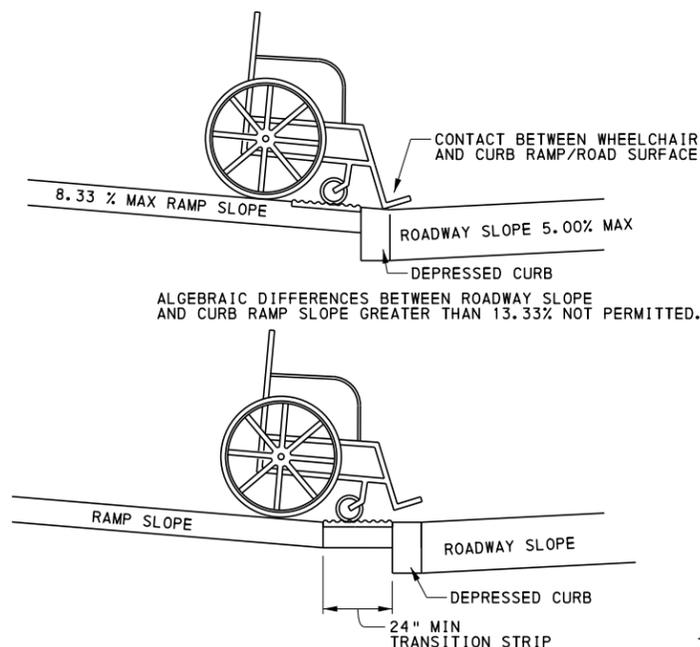
**RECOMMENDED PUSHBUTTON LOCATIONS**



**RECOMMENDED PUSHBUTTON LOCATIONS**

**LEGEND**

↑ ● PEDESTRIAN PUSHBUTTON

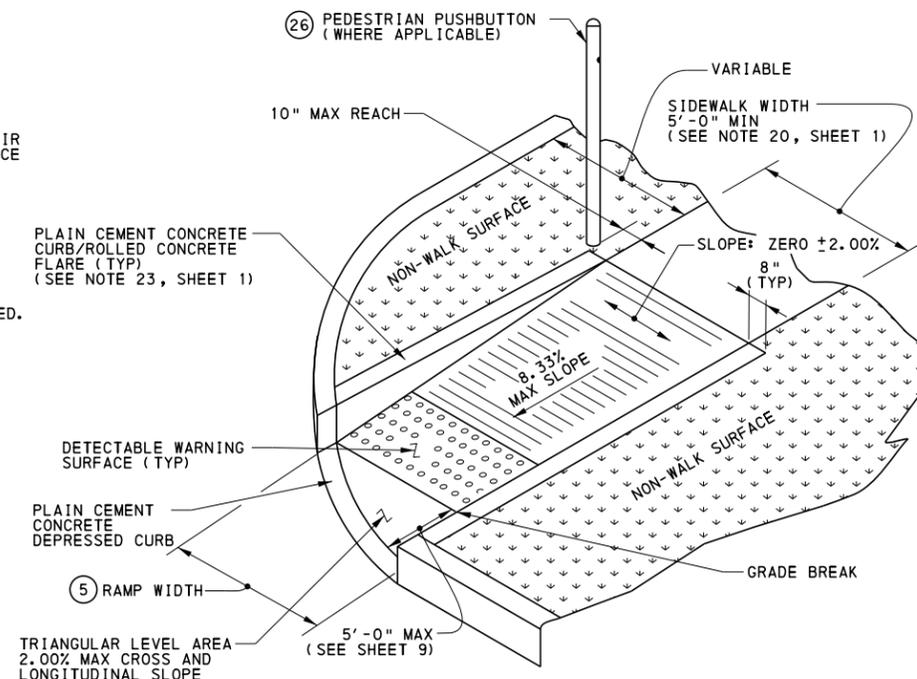


ALGEBRAIC DIFFERENCES BETWEEN ROADWAY SLOPE AND CURB RAMP SLOPE GREATER THAN 13.33% NOT PERMITTED.

PROVIDE A 24" MIN TRANSITION STRIP IF ALGEBRAIC DIFFERENCES BETWEEN ROADWAY SLOPE AND CURB RAMP SLOPE ARE GREATER THAN 13.33%.

TRANSITION STRIP SLOPE NOT TO EXCEED 5.00%

**CHANGE OF GRADE LIMITATIONS**



**TRIANGULAR LEVEL AREA FOR DIRECTIONAL RAMPS ON CURB RETURNS**

PROVIDE A LEVEL TRIANGULAR AREA WHEN DIRECTIONAL RAMPS ARE INSTALLED ON A CURB RETURN TO TRANSITION THE GRADE BREAK.



**RAMP CROSS SLOPE TRANSITION TO MATCH ROADWAY PROFILE SLOPE**

\* SLOPES SHOWN ARE FOR ILLUSTRATION ONLY.

TRANSITION CURB RAMP CROSS SLOPE TO MATCH ROADWAY PROFILE AS GRADUALLY AS POSSIBLE. DO NOT EXCEED 3.00% PER 1'-0" CROSS SLOPE RATE OF CHANGE WHEN TRANSITIONING TO ROADWAY PROFILE.

COMPLETE TRANSITION TO ROADWAY PROFILE BEHIND DETECTABLE WARNING SURFACE OR USE 1'-0" DETECTABLE WARNING SURFACE TILES.

CONSTRUCT DEPRESSED CURB SLOPE TO MATCH ROADWAY PROFILE.

- ⑤ CURB RAMP WIDTH IS EQUAL TO SIDEWALK WIDTH WHEN THE SIDEWALK WIDTH IS GREATER THAN OR EQUAL TO 4'-0".
- ②⑥ NEW CONSTRUCTION MUST COMPLY WITH RECOMMENDED LOCATIONS. FOR ALTERATION PROJECTS LOCATE PEDESTRIAN PUSHBUTTONS, TO THE MAXIMUM EXTENT FEASIBLE, AS FOLLOWS:
  - ADJACENT TO A LEVEL NON-SLIP SURFACE TO PROVIDE ACCESS FROM A WHEELCHAIR, AND WHERE THERE IS A NON-SLIP WHEELCHAIR ACCESSIBLE ROUTE TO THE RAMP.
  - WITHIN 5'-0" OF THE CROSSWALK EXTENDED.
  - BETWEEN 1'-6" AND 10'-0" OF THE EDGE OF CURB, SHOULDER OR PAVEMENT.
  - PARALLEL TO THE CROSSWALK TO BE USED.

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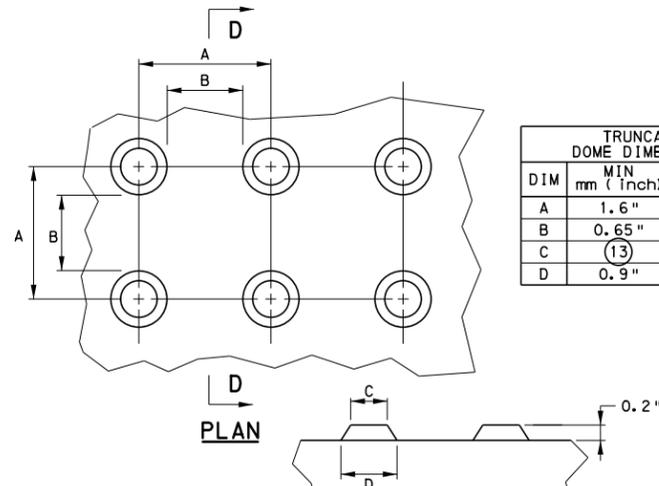
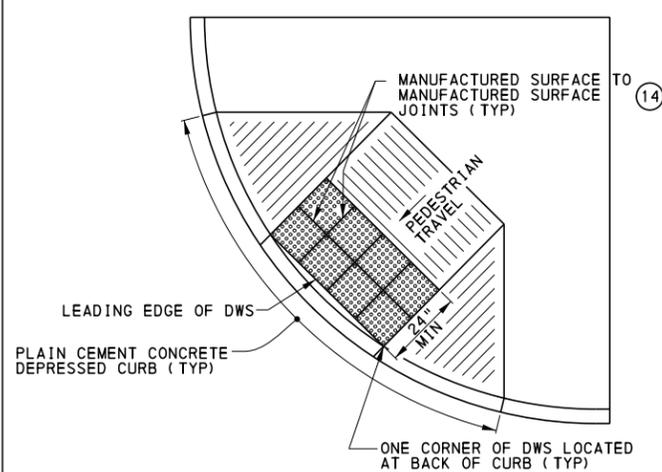
**CURB RAMPS AND SIDEWALKS  
NEW CONSTRUCTION OR  
ALTERATION DETAILS  
PUSHBUTTONS, TRIANGULAR LEVEL  
AREA, CHANGE OF GRADE AND CROSS  
SLOPE TRANSITIONS**

RECOMMENDED JUN. 10, 2013  
R. W. [Signature]  
CHIEF, HWY. DELIVERY DIVISION

RECOMMENDED JUN. 10, 2013  
[Signature]  
ACTING DIR. BUREAU OF PROJECT DELIVERY

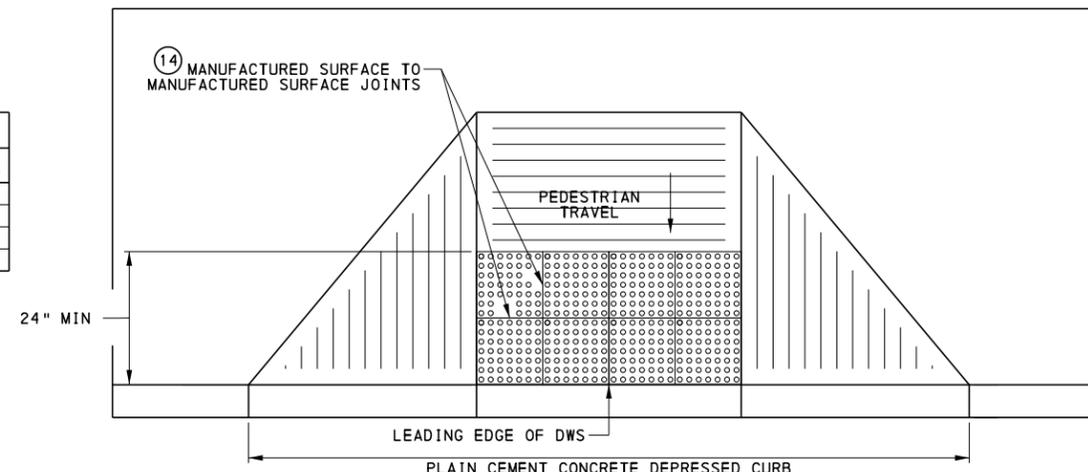
SHT 8 OF 14  
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SEE NOTE 3 ON SHEET 1 CONCERNING DIAGONAL RAMPS

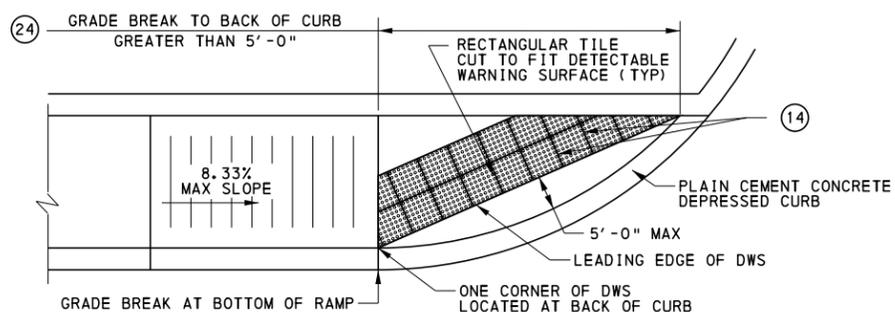
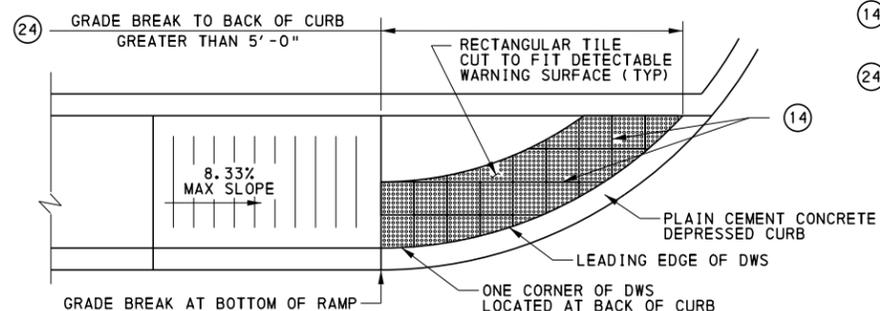
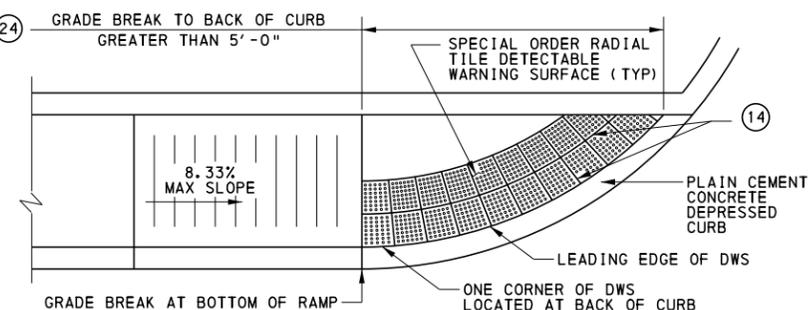
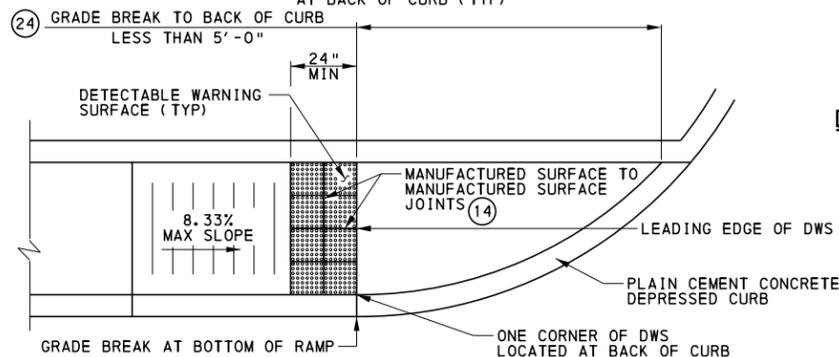


SECTION D-D

DETECTABLE WARNING SURFACE (DWS) TRUNCATED DOME DETAILS

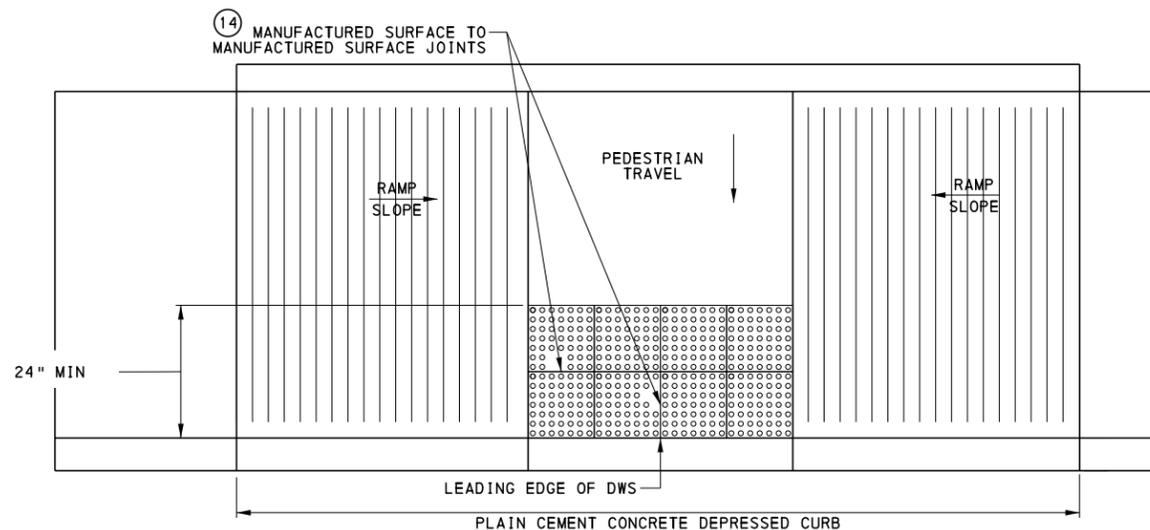


DETECTABLE WARNING SURFACE (DWS) ON TYPE 1 CURB RAMP

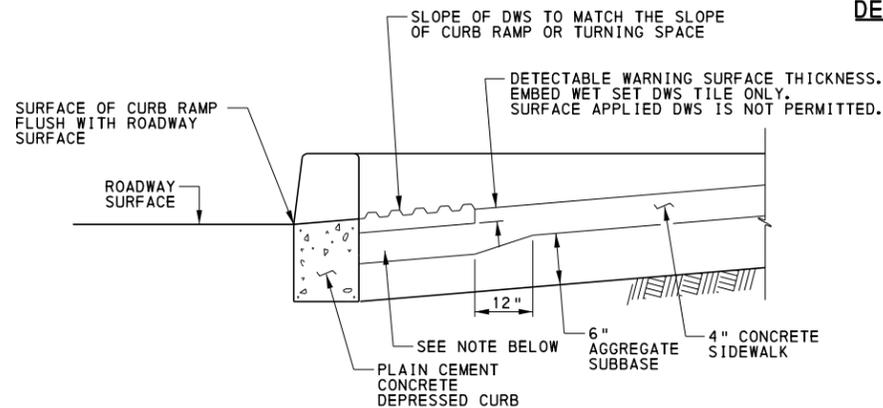


DETECTABLE WARNING SURFACE (DWS) ON CURVED SURFACES

- (13) THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.
- (14) PLACE ADJACENT DWS TILES WITH MANUFACTURED SURFACE TO MANUFACTURED SURFACE. CUT TILES ALONG THE PERIMETER ONLY.
- (24) LOCATE ONE CORNER OF THE DWS AT THE BACK OF CURB. NO OTHER POINT ON THE LEADING EDGE OF THE DWS MAY BE MORE THAN 5'-0" AWAY FROM THE BACK OF CURB.



DETECTABLE WARNING SURFACE (DWS) ON TYPE 2 CURB RAMP



NOTES:  
 CONSTRUCT NOTCH AS SHOWN TO PROVIDE FULL THICKNESS SIDEWALK UNDER DETECTABLE WARNING SURFACE.  
 OPTIONAL: CONSTRUCT 2" MAX CONCRETE BORDER AROUND DWS TO PROVIDE PROPER INSTALLATION. SEE PEDESTRIAN PUSHBUTTON ACCESS AREAS DETAIL ON SHEET 14, FOR PLAN VIEW DETAILS.

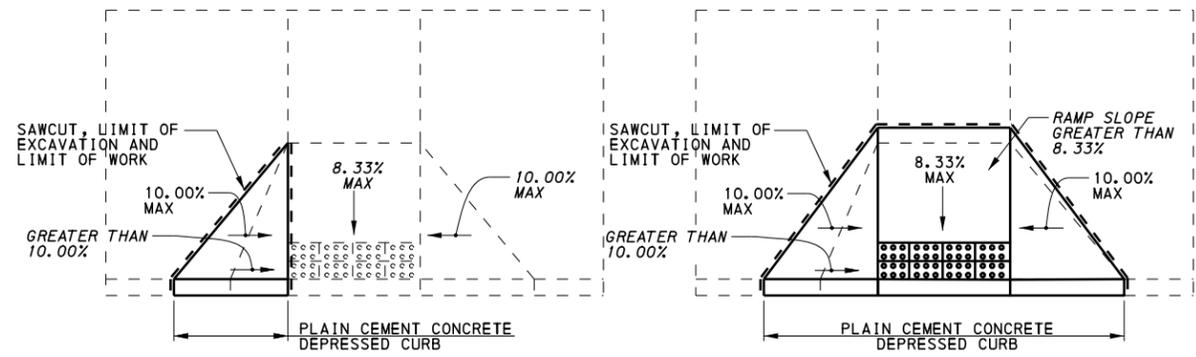
DETECTABLE WARNING SURFACE EMBEDDING DETAIL

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 DEPARTMENT OF TRANSPORTATION  
 BUREAU OF PROJECT DELIVERY

CURB RAMPS AND SIDEWALKS

NEW CONSTRUCTION OR ALTERATION DETAILS  
 DETECTABLE WARNING SURFACE

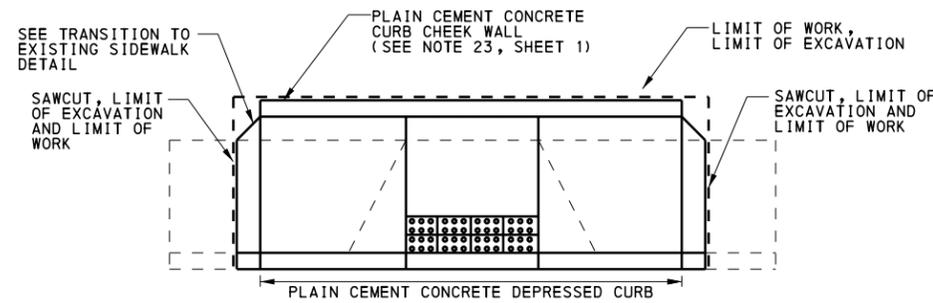
RECOMMENDED JUN. 10, 2013	RECOMMENDED JUN. 10, 2013	SHT 9 OF 14
<i>R. W. Kelly</i> CHIEF, HWY. DELIVERY DIVISION	<i>David Kelly</i> ACTING DIR. BUREAU OF PROJECT DELIVERY	RC-67M



DETAIL ILLUSTRATES FLARE REMOVAL AND REPLACEMENT.      DETAIL ILLUSTRATES CURB RAMP (INCLUDING FLARES) REPLACEMENT.

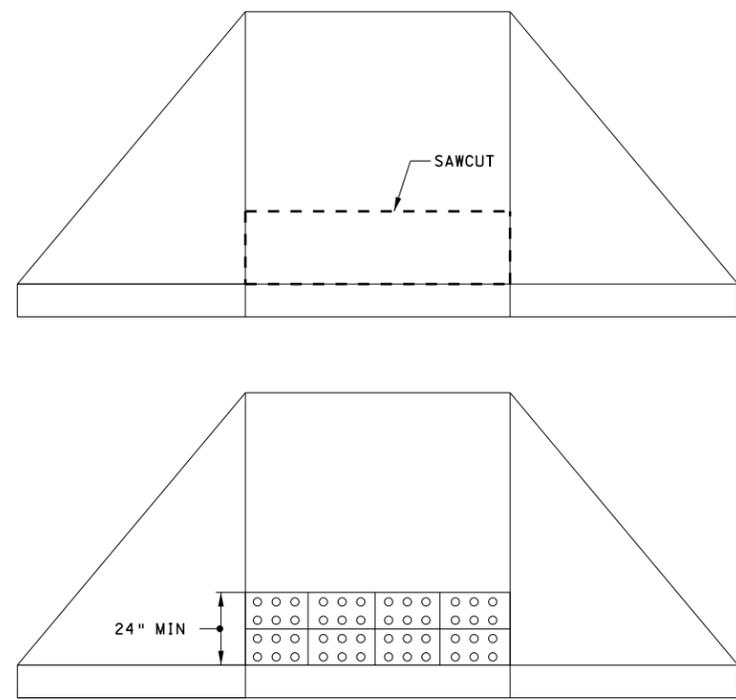
**SIDE FLARE RECONSTRUCTION**

**TOTAL RAMP RECONSTRUCTION**

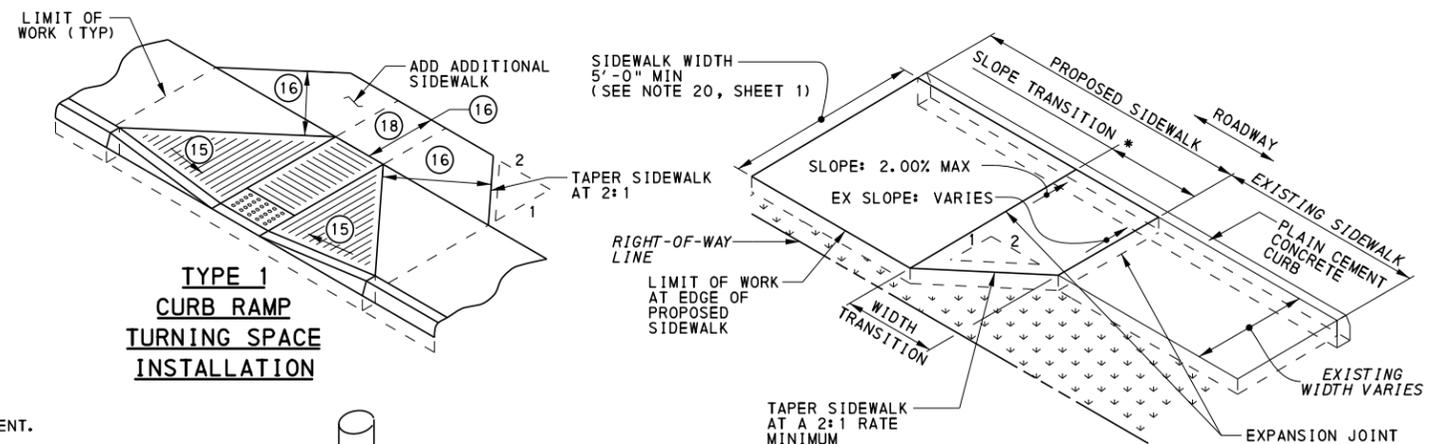


DETAIL ILLUSTRATES A TYPE 1 EXISTING RAMP REPLACED WITH A TYPE 2 RAMP. USE THIS DETAIL AS AN EXAMPLE TO REPLACE ANY RAMP WITH A DIFFERENT CURB RAMP TYPE.

**TOTAL RAMP RECONSTRUCTION (RAMP TYPE CHANGE)**



**DETECTABLE WARNING SURFACE (DWS) INSTALLATION DETAIL**



**TYPE 1 CURB RAMP TURNING SPACE INSTALLATION**

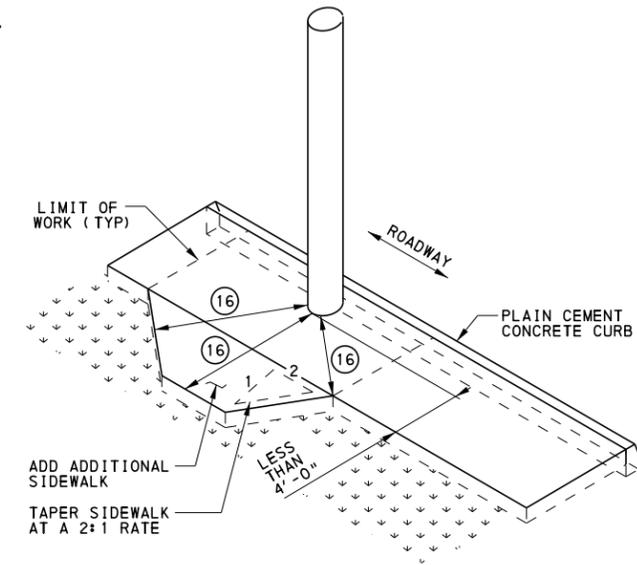
**TRANSITION TO EXISTING SIDEWALK DETAIL**

\* MINIMUM SLOPE TRANSITION LENGTH BASED ON THE DIFFERENCE OF PROPOSED SIDEWALK CROSS SLOPE AND EXISTING SIDEWALK CROSS SLOPE AT THE LOCATION OF TIE IN. THIS MINIMUM LENGTH TO BE DETERMINED BY THE FOLLOWING FORMULA:  $\Delta \% \text{ SLOPE} \times 0.5'$ .

THE MINIMUM WIDTH TRANSITION SHALL BE CALCULATED USING THE FOLLOWING FORMULA:  $\text{CHANGE IN WIDTH} \times 2$ .

DEPENDING ON WHICH IS LONGEST, EITHER THE SLOPE TRANSITION OR WIDTH TRANSITION WILL CONTROL THE LENGTH OF SIDEWALK TRANSITION.

TRANSITION AREAS SERVE AS TEMPORARY CONNECTIONS OF THE PEDESTRIAN ACCESS ROUTE. FUTURE IMPROVEMENTS TO THE REMAINING PORTION OF EXISTING SIDEWALK SHALL INCLUDE REMOVING THE TRANSITION AREA AND CONSTRUCTING A FULLY COMPLIANT SIDEWALK.



**SIDEWALK ADDITION DUE TO OBSTRUCTIONS**

**DETECTABLE WARNING SURFACE (DWS) INSTALLATION INSTRUCTIONS**

1. SAW CUT EXISTING CURB RAMP SURFACE WHERE THE DWS WILL BE PLACED.
2. REMOVE EXISTING CONCRETE FROM THIS AREA.
3. REPLACE AND COMPACT ANY DISTURBED AGGREGATE SUBBASE.
4. PLACE NEW CEMENT CONCRETE AND LEVEL TO A 4 INCH DEPTH SO THAT THE TOP OF THE CONCRETE IS LOWER THAN THE ADJOINING SIDEWALK, EQUIVALENT TO THE EMBEDDING DEPTH OF THE DWS MATERIAL.
5. LAY OUT AND PROPERLY FIT EACH UNIT PRIOR TO SETTING IN WET CONCRETE.
6. CUT UNITS AS NECESSARY ALONG PERIMETER OF DETECTABLE WARNING SURFACE.
7. PLACE UNITS ACROSS THE ENTIRE WIDTH OF THE CURB RAMP SURFACE AND/OR WHERE THE CURB IS FLUSH.
8. PRESS UNITS INTO FULL CONTACT WITH THE FRESH CONCRETE.
9. ADJUST HEIGHT OF EACH UNIT EDGE TO BE LEVEL WITH ADJACENT RAMP SURFACES.
10. ONLY TRUNCATED DOMES SHOULD BE ABOVE THE ADJACENT FINISHED CONCRETE.
11. FILL ANY SAW CUT GAPS WITH APPROVED JOINT SEALANT MATERIAL.

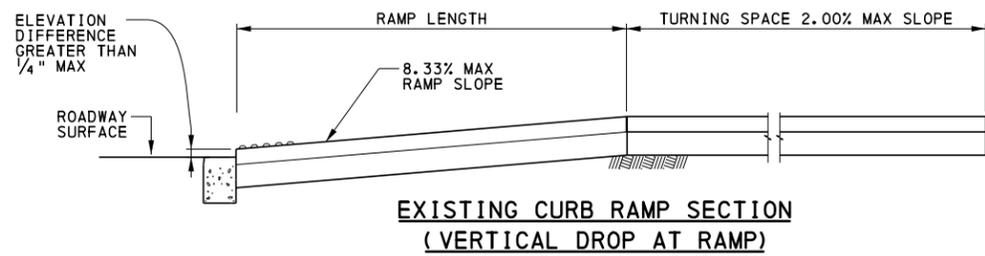
- 15 SIDE FLARES 10.00% MAX FOR RAMPS WITH TURNING SPACES 4'-0" OR GREATER. SIDE FLARES 8.33% MAX FOR RAMPS WITH TURNING SPACES LESS THAN 4'-0".
- 16 4'-0" MIN PEDESTRIAN ACCESS ROUTE.
- 18 CURB RAMPS REQUIRE A TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SEE DETAILS FOR LOCATIONS AND DIMENSIONS.

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
 BUREAU OF PROJECT DELIVERY

**CURB RAMPS AND SIDEWALKS**

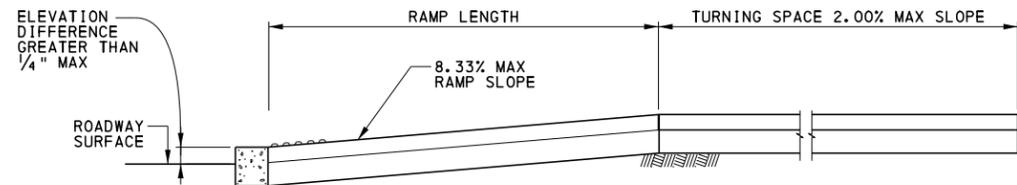
**ALTERATION DETAILS**

RECOMMENDED JUN. 10, 2013 <i>R. W. Kelly</i> CHIEF, HWY. DELIVERY DIVISION	RECOMMENDED JUN. 10, 2013 <i>[Signature]</i> ACTING DIR. BUREAU OF PROJECT DELIVERY	SHT 10 OF 14 <b>RC-67M</b>
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**EXISTING CURB RAMP SECTION  
(VERTICAL DROP AT RAMP)**

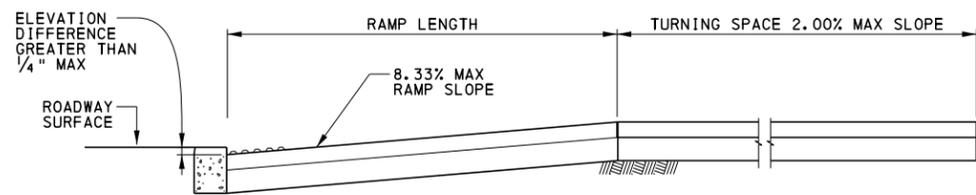
RECOMMENDED CORRECTION:  
RECONSTRUCT THE ENTIRE (OR PORTIONS OF) RAMP, TURNING SPACES AND FLARES WHERE APPLICABLE  
(SEE RAMP RECONSTRUCTION DETAIL ON SHEET 10).



**EXISTING CURB RAMP SECTION  
(VERTICAL DROP AT ROAD SURFACE)**

RECOMMENDED CORRECTION:  
RECONSTRUCT THE ENTIRE (OR PORTIONS OF) RAMP, TURNING SPACES AND FLARES WHERE APPLICABLE  
(SEE RAMP RECONSTRUCTION DETAIL ON SHEET 10).

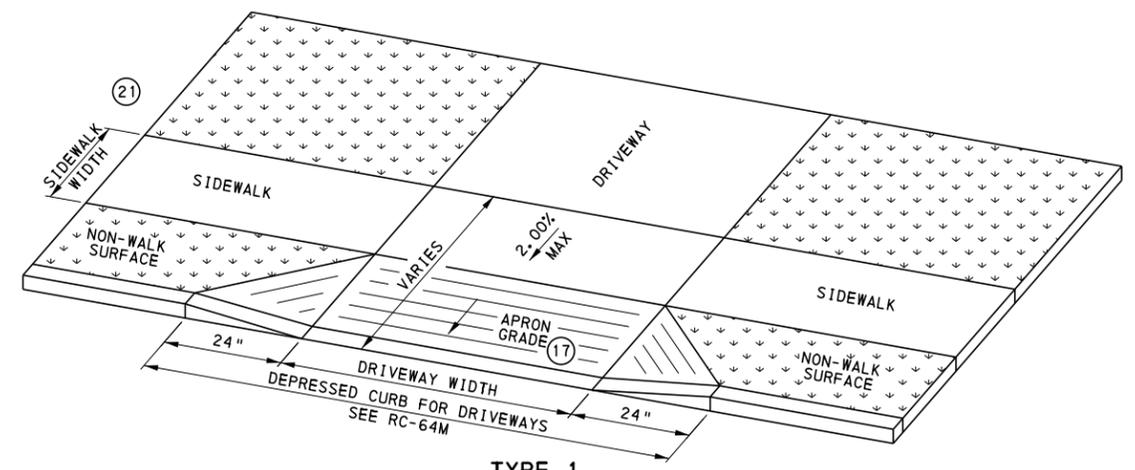
ALTERNATE CORRECTION:  
GRIND CURB TO PROVIDE A MAX SLOPE OF 8.33%, FINISHED SURFACE MUST NOT HAVE ELEVATION DIFFERENCES GREATER THAN 1/4\".



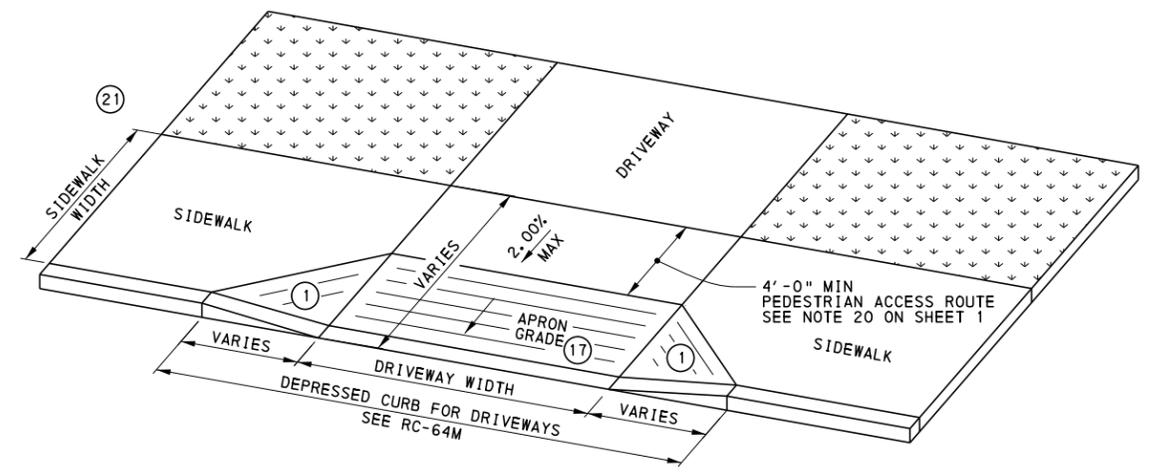
**EXISTING CURB RAMP SECTION  
(RAMP SETTLEMENT)**

RECOMMENDED CORRECTION:  
RECONSTRUCT THE ENTIRE (OR PORTIONS OF) RAMP, TURNING SPACES AND FLARES WHERE APPLICABLE  
(SEE RAMP RECONSTRUCTION DETAIL ON SHEET 10).

**ALTERATION DETAILS**



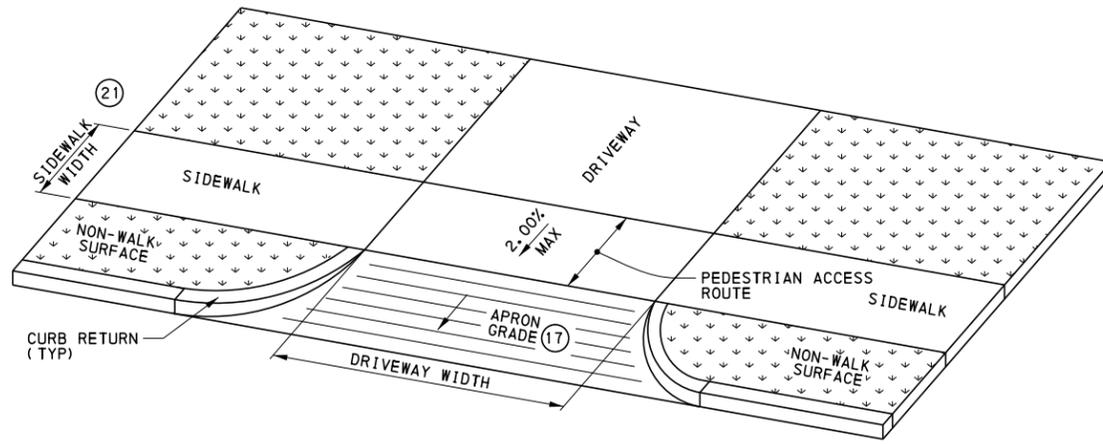
**TYPE 1  
DRIVEWAY APRON**



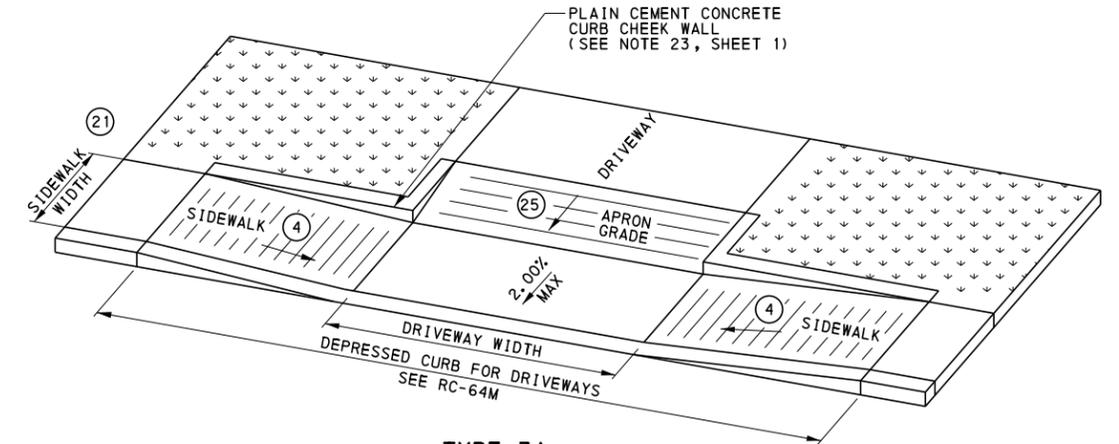
**TYPE 1A  
DRIVEWAY APRON**

- ① SIDE FLARES 10.00% MAX SLOPE.
- ⑱ 8.00% MAX CHANGE IN GRADE BETWEEN ROAD SURFACE AND DRIVEWAY.
- ⑳ MINIMUM SIDEWALK WIDTH 5'-0" (SEE NOTE 20, SHEET 1).

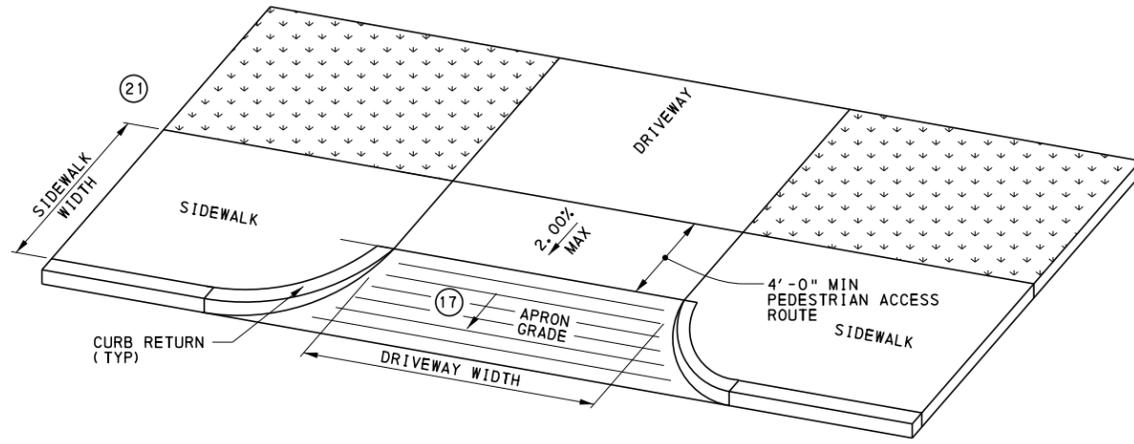
<b>COMMONWEALTH OF PENNSYLVANIA</b> <b>DEPARTMENT OF TRANSPORTATION</b> BUREAU OF PROJECT DELIVERY		
<b>CURB RAMPS AND SIDEWALKS</b>		
<b>ALTERATION DETAILS AND DRIVEWAY APRONS</b>		
RECOMMENDED JUN. 10, 2013  CHIEF, HWY. DELIVERY DIVISION	RECOMMENDED JUN. 10, 2013  ACTING DIR. BUREAU OF PROJECT DELIVERY	SHT 11 OF 14 <b>RC-67M</b>



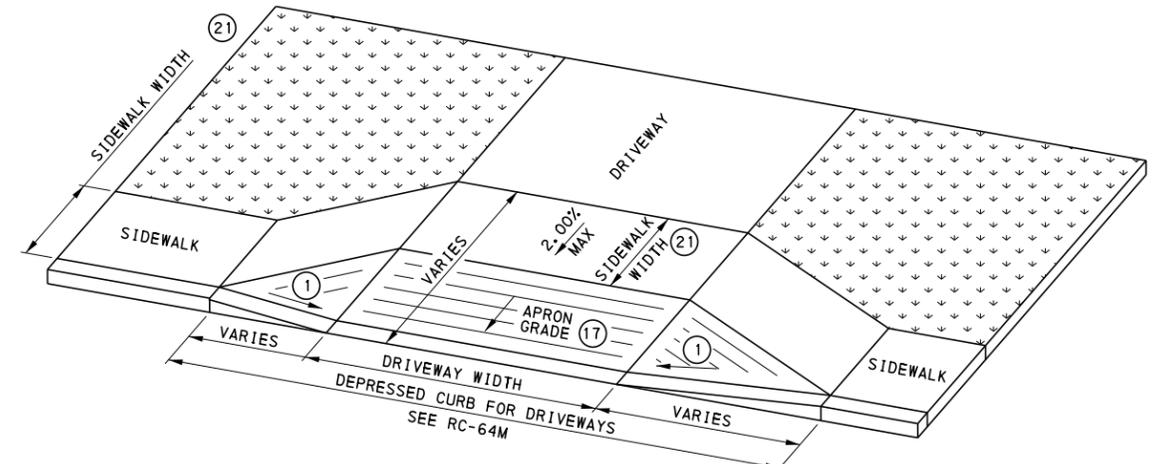
**TYPE 2  
DRIVEWAY APRON**



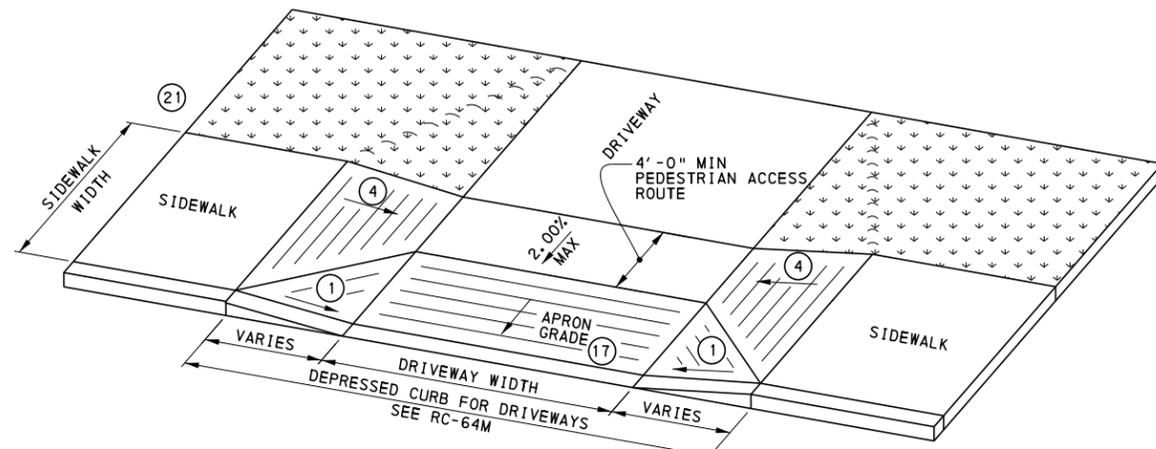
**TYPE 3A  
DRIVEWAY APRON**



**TYPE 2A  
DRIVEWAY APRON**



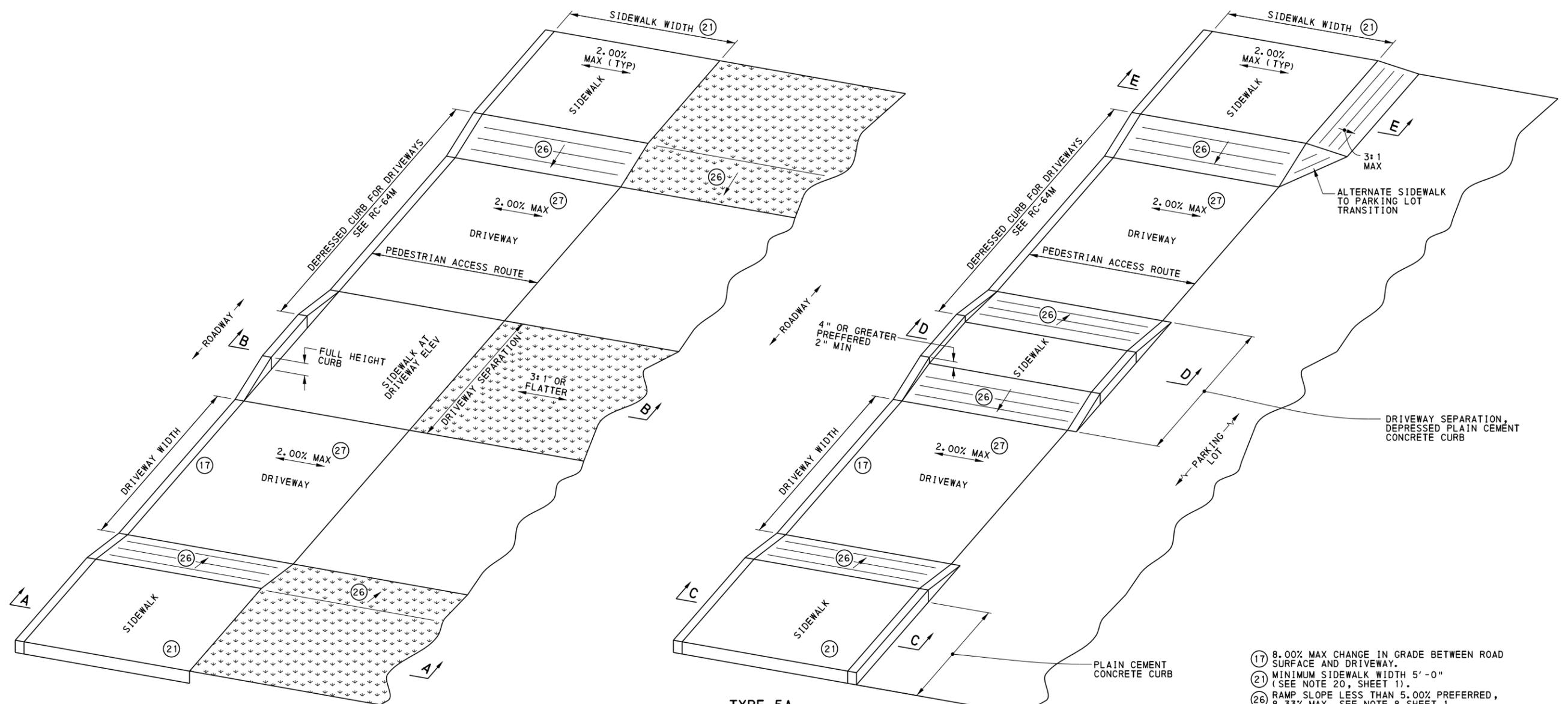
**TYPE 4  
DRIVEWAY APRON**



**TYPE 3  
DRIVEWAY APRON**

- ① SIDE FLARES 10.00% MAX SLOPE.
- ④ 8.33% MAX RAMP SLOPE, SEE NOTE 8 SHEET 1.
- ⑱ 8.00% MAX CHANGE IN GRADE BETWEEN ROAD SURFACE AND DRIVEWAY.
- ⑳ MINIMUM SIDEWALK WIDTH 5'-0" (SEE NOTE 20, SHEET 1)
- ㉕ 8.00% MAX CHANGE IN GRADE BETWEEN DRIVEWAY SURFACE AND SIDEWALK.

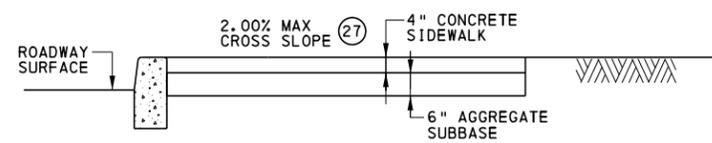
<b>COMMONWEALTH OF PENNSYLVANIA</b> <b>DEPARTMENT OF TRANSPORTATION</b> BUREAU OF PROJECT DELIVERY		
<b>CURB RAMPS AND SIDEWALKS</b>  <b>DRIVEWAY APRONS</b>		
RECOMMENDED JUN. 10, 2013  CHIEF, HWY. DELIVERY DIVISION	RECOMMENDED JUN. 10, 2013  ACTING DIR. BUREAU OF PROJECT DELIVERY	SHT 12 OF 14  <b>RC-67M</b>



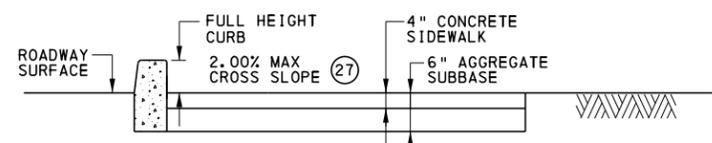
**TYPE 5  
MULTIPLE DRIVEWAYS**

**TYPE 5A  
MULTIPLE DRIVEWAYS**

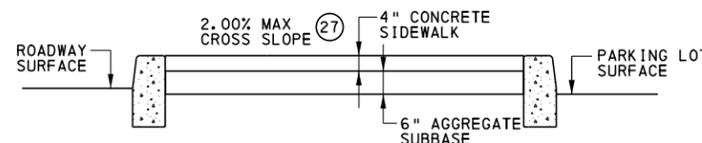
- ①7 8.00% MAX CHANGE IN GRADE BETWEEN ROAD SURFACE AND DRIVEWAY.
- ②1 MINIMUM SIDEWALK WIDTH 5'-0" (SEE NOTE 20, SHEET 1).
- ②6 RAMP SLOPE LESS THAN 5.00% PREFERRED, 8.33% MAX, SEE NOTE 8 SHEET 1.
- ②7 ENSURE POSITIVE DRAINAGE.



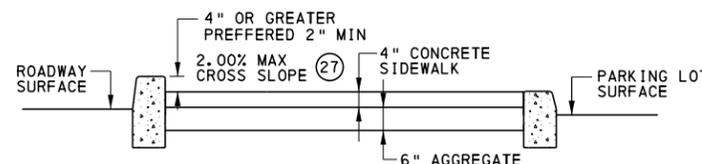
**SECTION A-A**



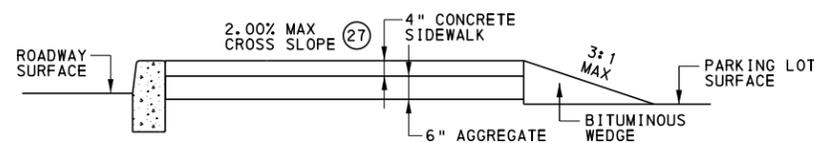
**SECTION B-B**



**SECTION C-C**



**SECTION D-D**



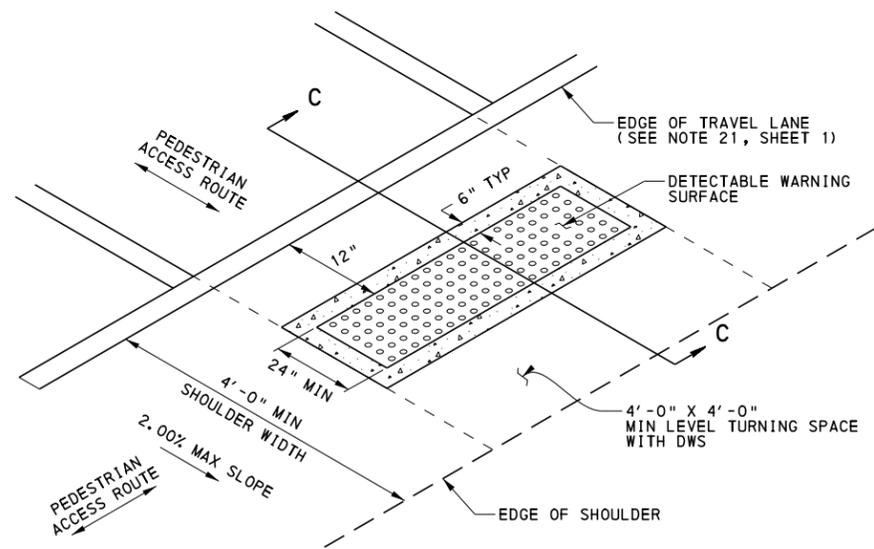
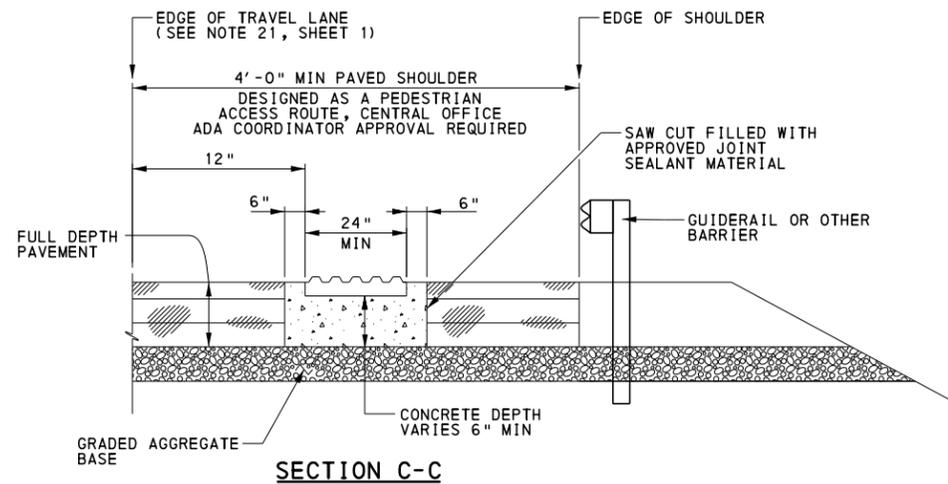
**SECTION E-E**

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
 BUREAU OF PROJECT DELIVERY

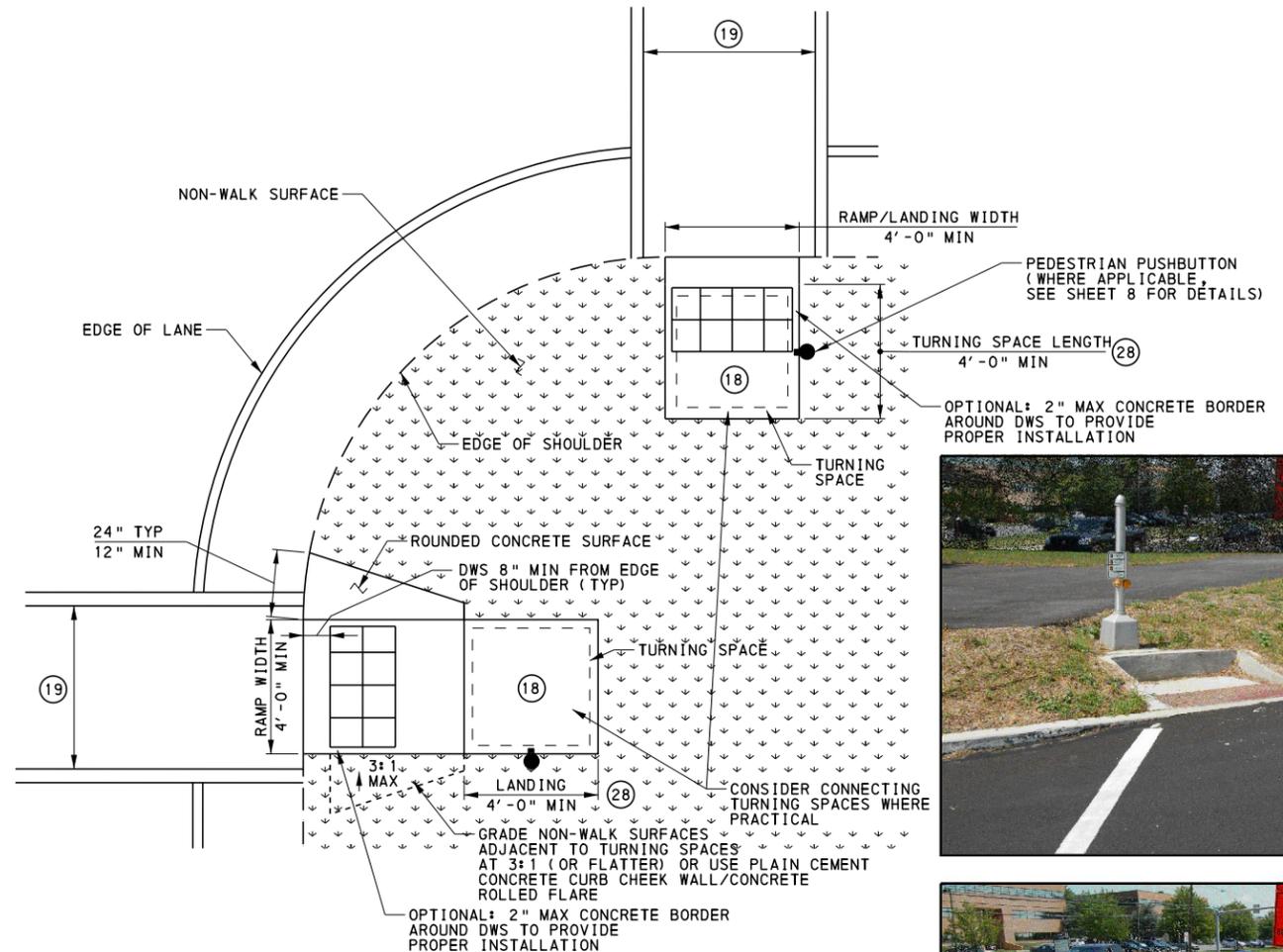
**CURB RAMPS AND SIDEWALKS**

**DRIVEWAY APRONS**

RECOMMENDED JUN. 10, 2013 <i>R. W. [Signature]</i> CHIEF, HWY. DELIVERY DIVISION	RECOMMENDED JUN. 10, 2013 <i>[Signature]</i> ACTING DIR. BUREAU OF PROJECT DELIVERY	SHT 13 OF 14 <b>RC-67M</b>
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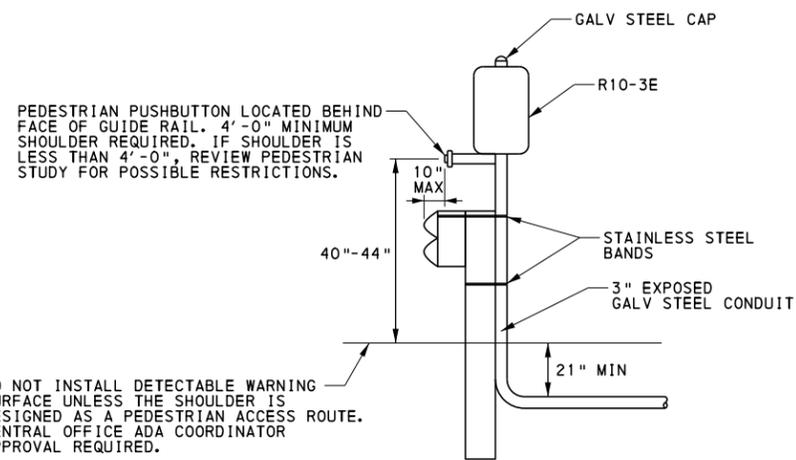


**DWS PLACEMENT ON PAVED SHOULDERS DESIGNED AS A PEDESTRIAN ACCESS ROUTE (PAR)**  
CENTRAL OFFICE ADA COORDINATOR APPROVAL REQUIRED



**PEDESTRIAN PUSHBUTTON ACCESS AREAS**

- 18 CURB RAMPS REQUIRE A TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SEE DETAILS FOR LOCATIONS AND DIMENSIONS.
- 19 6'-0" MIN MEASURED FROM INSIDE OF PAINTED EDGE TO INSIDE OF PAINTED EDGE.
- 28 TURNING SPACES SHOWN ARE TO PROVIDE ACCESS TO PEDESTRIAN PUSHBUTTON. TURNING SPACE MUST BE 5'-0" X 5'-0" WHEN CONFINED ON TWO OR MORE SIDES.



**PEDESTRIAN PUSHBUTTON BEHIND GUIDE RAIL**

DO NOT INSTALL DETECTABLE WARNING SURFACE UNLESS THE SHOULDER IS DESIGNED AS A PEDESTRIAN ACCESS ROUTE. CENTRAL OFFICE ADA COORDINATOR APPROVAL REQUIRED.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
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**CURB RAMPS AND SIDEWALKS**  
**DWS PLACEMENT ON PAVED SHOULDERS AND AT PEDESTRIAN PUSHBUTTONS**