



Chandler • Arizona
Where Values Make The Difference

MEMORANDUM

Case # 16-05

DATE: September 7, 2016

TO: MAG Specifications and Details Committee Members

FROM: Warren White, City of Chandler Representative

SUBJECT: Proposed New Dual Curb Ramp Details and Revisions to Section 340

Purpose: Incorporate new standard details for dual curb ramps (radial and directional) meeting latest ADA requirements and revisions to Section 340 for maximum grade allowances and measurement. The intention is for construction details to have the “build to” slopes/grades that will allow for tolerance while the specification provides the maximum limits for acceptance.

Revisions:

- Revised 20’ radius details (236-3 and 237-3) allowing only 4” curb height thus keeping ramps within the PC/PT meeting Section 340 expansion joint requirements and much smaller footprint. Clarified 5’ curb height transition from either 7” or 6” curb height to 4” when needed.
- Minor revisions to notes 3 and 5 on all details and removed note 5 on 20’ radius details that allowed distance between ramps to be adjusted.
- Revised all directional ramp details (237) changing gutter elevations legend item to either flow line or finished grade design elevation see plans.
- Section 340.3.9 Tolerances – revised to keep the ½” concrete elevation allowance in 3rd paragraph.
- Section 340.5 Measurement – see red revisions under 340.5.3 Curb Ramp Installations. Mainly a clarification of the term “Ramp curb” located behind the walkway to be included as part of the ramp unit.

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340.3.9 Tolerances: The face, top, back, and flow line of the curb and gutter shall not deviate in excess of 1/4-inch over 10 feet, as tested with a 10-foot straightedge or curve template, longitudinally along the surface.

The surface of concrete sidewalk or curb ramp shall not deviate in excess of 1/8-inch over 5 feet as tested with a 5-foot straightedge except for the 1/4-inch recess of the preformed material in expansion joints.

All finished concrete elevations shall not deviate from the elevations shown on the plans, or indicated by typical sections or standard details referenced within the construction documents, by more than 1/2 inch.

When required by the Engineer, gutters shall be water tested. The Contractor shall establish flow in the length of gutter to be tested by supplying and distributing water from a hydrant, tank truck or other source. After the supply of water is shut off and water has stopped flowing, the gutter shall be inspected for evidence of ponding ~~or improper shape~~. The work shall be deemed deficient if water is found ponded in the gutter to a depth greater than 1/2 inch or ponding extends onto the adjacent asphalt pavement.

Areas between elevations shown on the plans shall be straight graded or smoothly transitioned through a vertical curve in a manner approved by the Engineer or as otherwise indicated on the construction documents.

Slopes of pedestrian facilities shall not exceed the maximum grades indicated in ADA guidelines: sidewalk cross slope of 2%, ramp slope of 8.33%, ramp and landing cross slope of 2% and flared side (wing) slope of 10%.

Section 340 Concrete Curb, Gutter, Sidewalk, Curb Ramps, Driveway and Alley Entrance

340.5 MEASUREMENT:

340.5.1 Concrete Curbs and Gutters: ~~of~~ The various types of curb and gutter shown on the plans and in the proposal will be measured along gutter flow line through inlets, catch basins, driveways, curb ramps, etc., by the lineal foot to the nearest foot for each type, complete in place. Measurement for curb terminations and transitions shall be included with the linear measurement of the various types of curb or curb and gutter as shown on the plans and in the proposal.

Curb and gutter type shall be based on the configuration of the final exposed surfaces. The increased curb and gutter depth required at valley gutter aprons or driveways shall not be measured as a separate pay item; any additional Contractor cost shall be included in the unit cost associated with the valley gutter, driveway or other associated item.

340.5.2 Concrete Flat Work: Sidewalks, driveways, alley intersections, valley gutters and aprons will be measured to the nearest square foot complete in place.

~~Detectable warnings shall not be measured for payment. Detectable warnings are considered integral to the walking surface that they form a part of and the cost is included in the related pay item.~~

340.5.3 Curb Ramp Installations: Curb ramp installations shall be measured as complete installed units. Curbing (single curb or curb and gutter) located at the edge of roadway shall be measured and paid for separately. The surface area of curb ramps shall not be included in the measured quantity for sidewalk. Detectable warnings are an integral part of curb ramp installations and shall not be measured for payment. Detectable warnings are considered integral. Ramp curbs located behind the walkway are an integral part of parallel curb ramp and combination curb ramp installations and shall not be measured. to the walking surface that they form a part of and the cost is included in the related pay item.

~~and shall include the ramp curb and the walking surfaces between the ramp curb and back of curb and gutter or single curb. Single curb or curb and gutter located at the edge of roadway shall be measured and paid for separately. The surface area of curb ramps shall not be included in the measured quantity for sidewalk. Curb ramps located within a curb return shall include the entire curb return area excluding the edge of roadway curbing. Curb ramp installations shall be categorized and measured by curb return radius, the number (one or two) of curb ramps (one or two) contained within the return, and the type of curb ramps (perpendicular, parallel, or combination).~~

Each curb ramp not located within a curb return shall be categorized by type and measured as a complete unit. Perpendicular curb ramps shall include the area from the back of curb between the outer edges of the ramp wings to the top of the curb ramp, ending prior to and excluding the top landing. The landing area at the top of the perpendicular curb ramp is to be included in the measured sidewalk area. Parallel and combination curb ramps shall include the ramp curb and all surfaces between the ramp curb and the back edge of the roadway curbing.

340.6 PAYMENT:

Payment will be made in accordance with the unit prices or lump sums as set forth in the proposal. Such payment shall include full compensation for furnishing all labor, material, tools and equipment and accomplishing all work in conformance with the contract documents.

Over-excavation of soft, expansive or unsuitable materials and installation of granular materials will be paid separately and as a separate pay item, not included within the above measured pay items.

Section 340 Concrete Curb, Gutter, Sidewalk, Curb Ramps, Driveway and Alley Entrance

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340.5.1 Concrete Curbs and Gutters: The various types of curb and gutter shown on the plans and in the proposal will be measured along gutter flow line through inlets, catch basins, driveways, curb ramps, etc., by the lineal foot to the nearest foot for each type, complete in place. Measurement for curb terminations and transitions shall be included with the linear measurement of the various types of curb or curb and gutter as shown on the plans and in the proposal.

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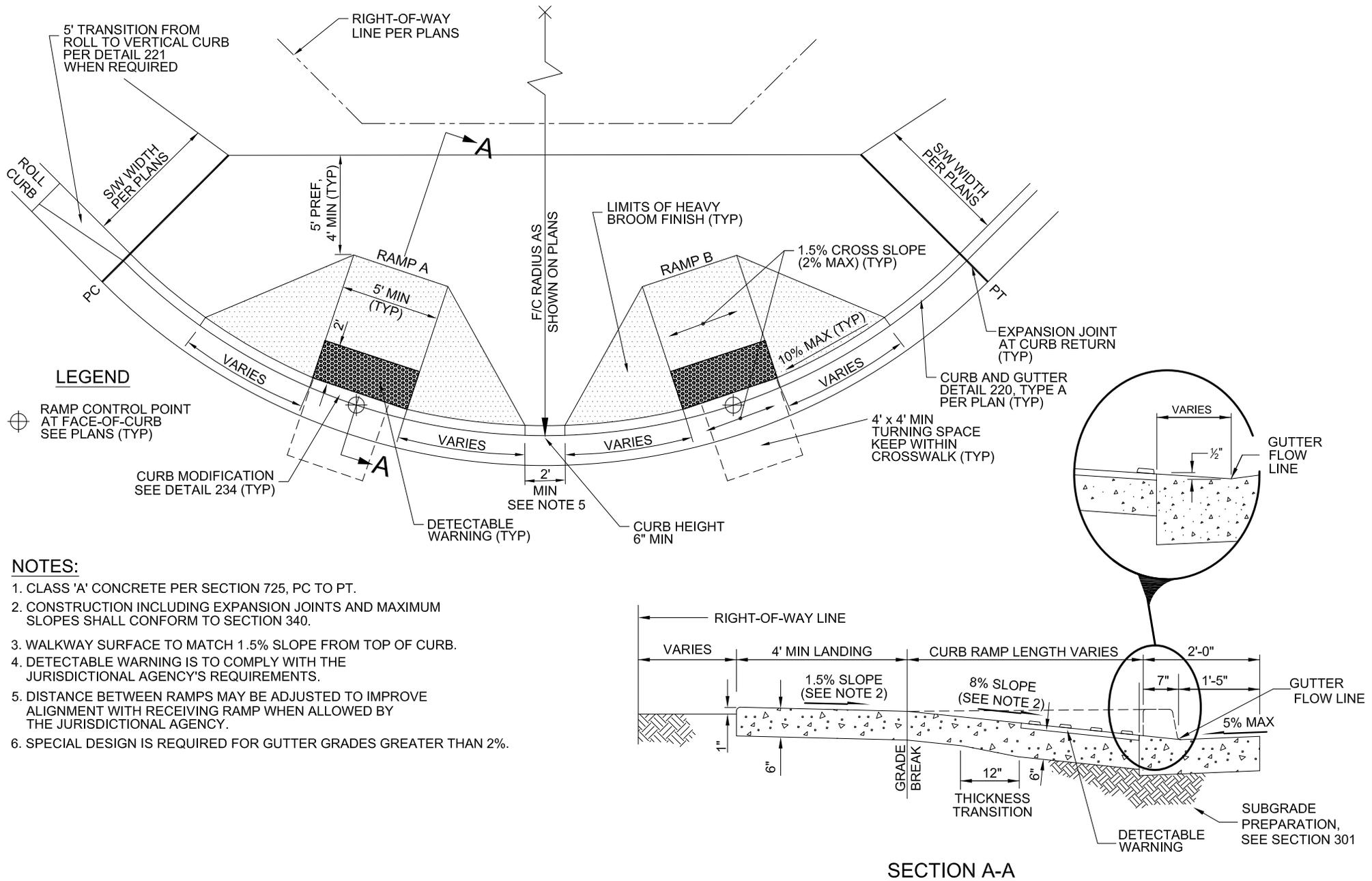
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LEGEND

⊕ RAMP CONTROL POINT AT FACE-OF-CURB SEE PLANS (TYP)

CURB MODIFICATION SEE DETAIL 234 (TYP)

DETECTABLE WARNING (TYP)

CURB HEIGHT 6" MIN

NOTES:

1. CLASS 'A' CONCRETE PER SECTION 725, PC TO PT.
2. CONSTRUCTION INCLUDING EXPANSION JOINTS AND MAXIMUM SLOPES SHALL CONFORM TO SECTION 340.
3. WALKWAY SURFACE TO MATCH 1.5% SLOPE FROM TOP OF CURB.
4. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY'S REQUIREMENTS.
5. DISTANCE BETWEEN RAMPS MAY BE ADJUSTED TO IMPROVE ALIGNMENT WITH RECEIVING RAMP WHEN ALLOWED BY THE JURISDICTIONAL AGENCY.
6. SPECIAL DESIGN IS REQUIRED FOR GUTTER GRADES GREATER THAN 2%.

SECTION A-A

DETAIL NO.
236-1

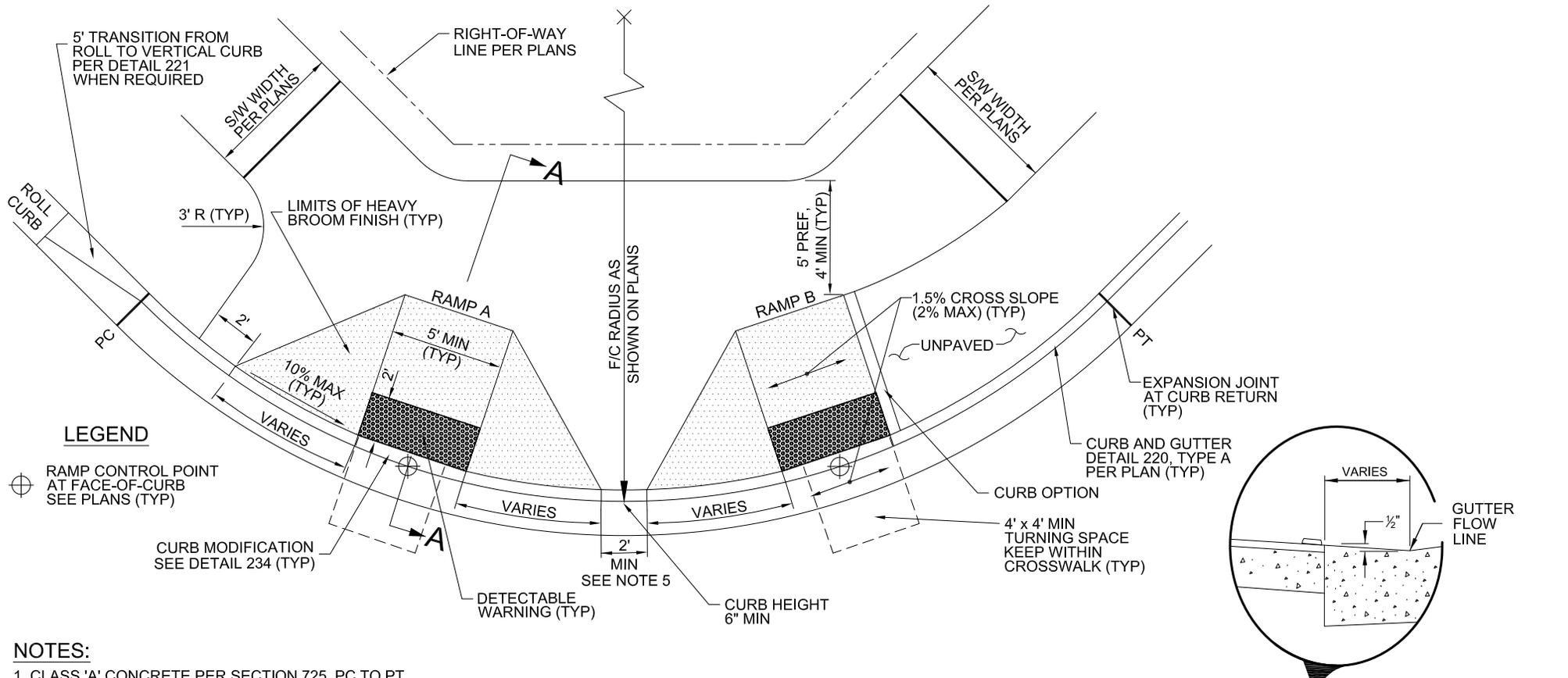


STANDARD DETAIL
ENGLISH

**DUAL CURB RAMP (RADIAL, 25' - 35' R)
ATTACHED SIDEWALK**

PROPOSED
01-01-2017

DETAIL NO.
236-1



LEGEND

⊕ RAMP CONTROL POINT AT FACE-OF-CURB SEE PLANS (TYP)

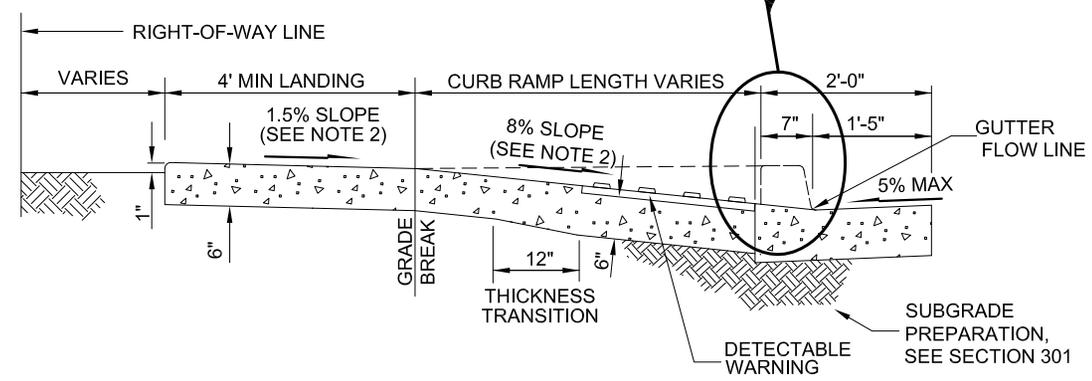
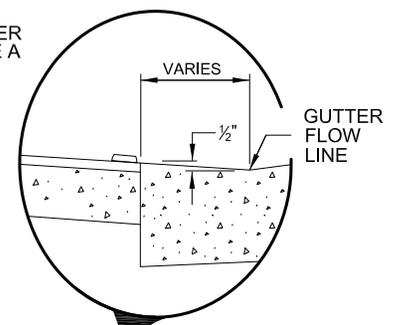
CURB MODIFICATION SEE DETAIL 234 (TYP)

DETECTABLE WARNING (TYP)

CURB HEIGHT 6" MIN

NOTES:

1. CLASS 'A' CONCRETE PER SECTION 725, PC TO PT.
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3. WALKWAY SURFACE TO MATCH 1.5% SLOPE FROM TOP OF CURB.
4. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY'S REQUIREMENTS.
5. DISTANCE BETWEEN RAMPS MAY BE ADJUSTED TO IMPROVE ALIGNMENT WITH RECEIVING RAMP WHEN ALLOWED BY THE JURISDICTIONAL AGENCY.
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SECTION A-A

DETAIL NO.

236-2



STANDARD DETAIL
ENGLISH

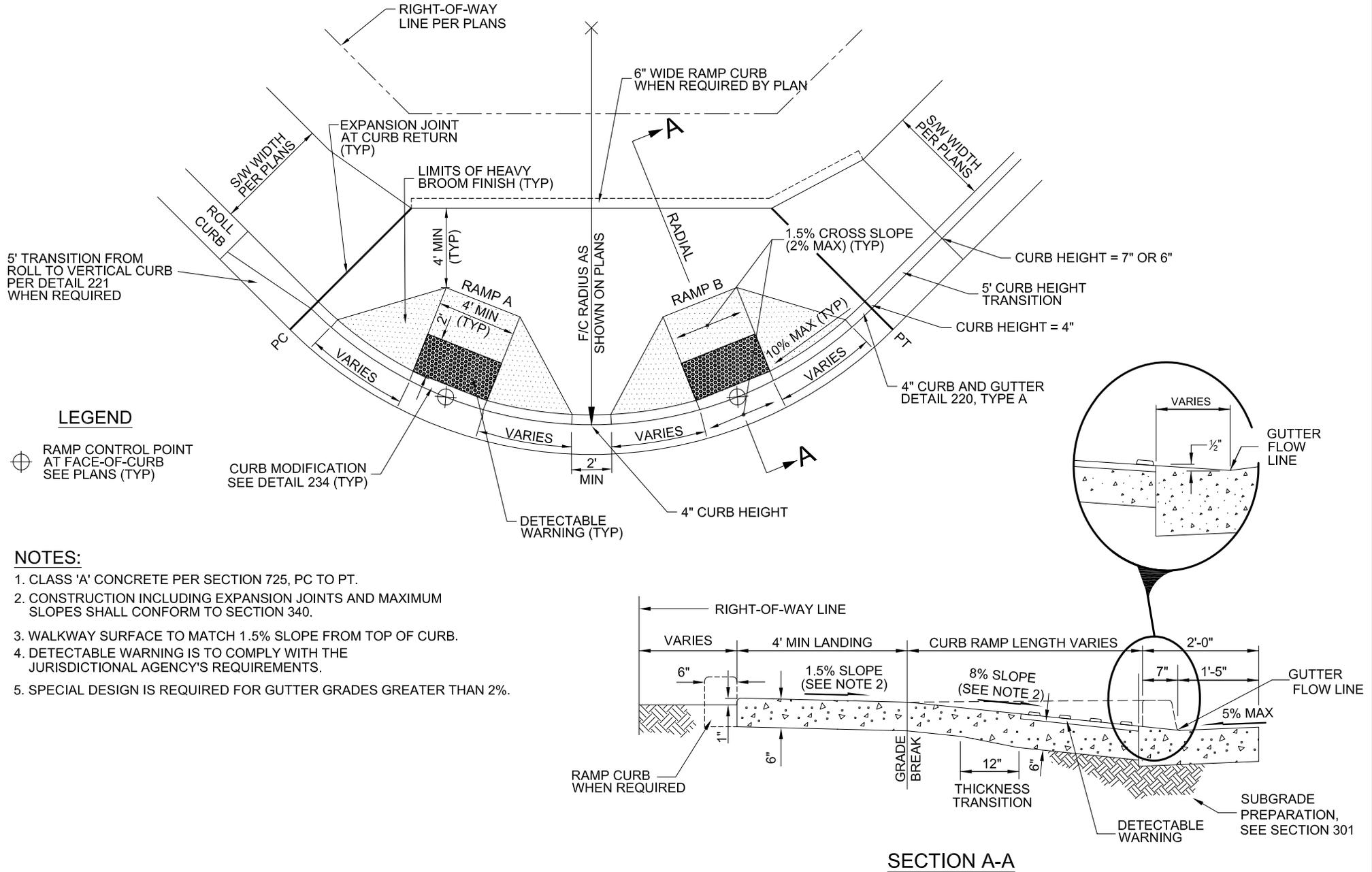
**DUAL CURB RAMP (RADIAL, 25' - 35' R)
DETACHED SIDEWALK**

PROPOSED

01-01-2017

DETAIL NO.

236-2



DETAIL NO.
236-3

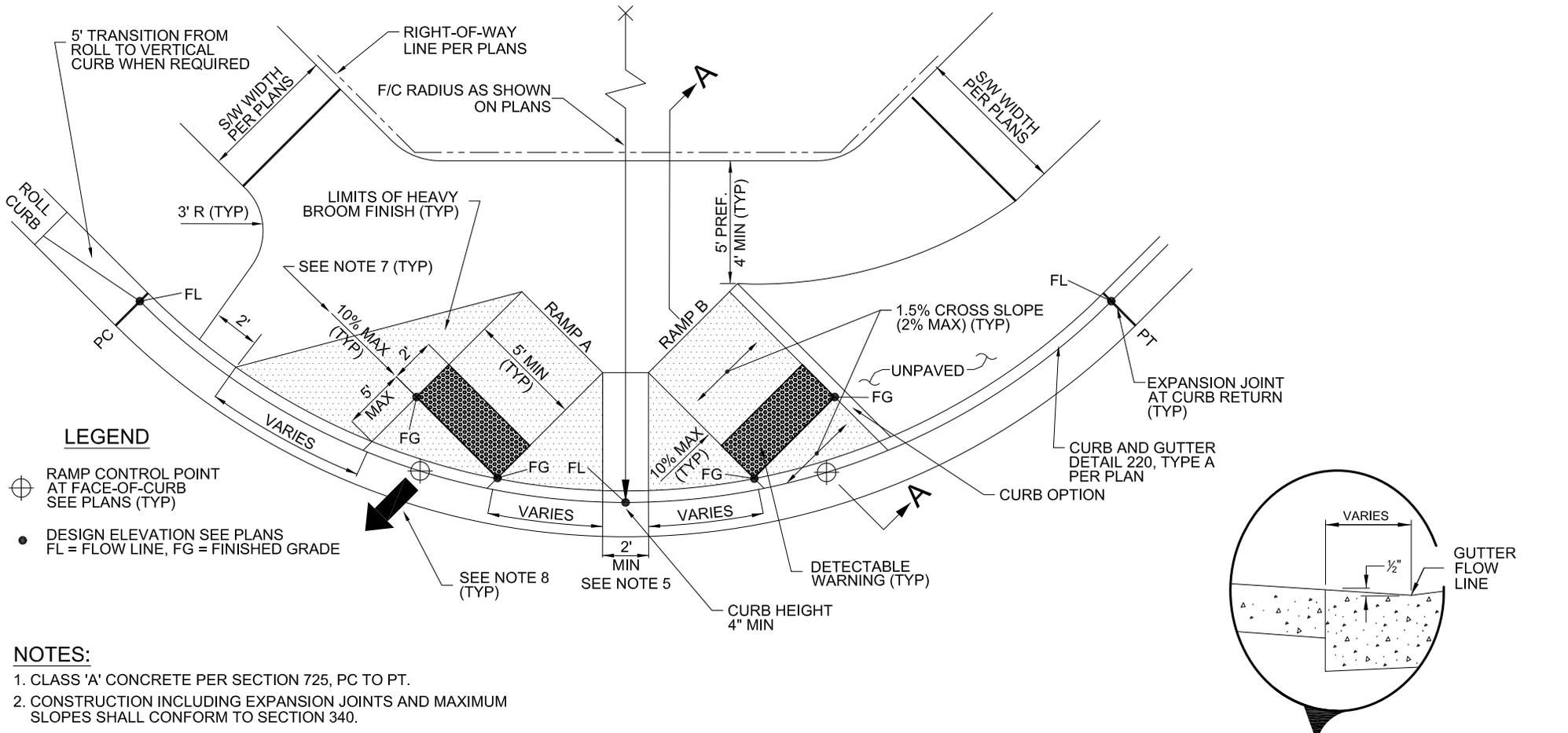


STANDARD DETAIL
ENGLISH

**DUAL CURB RAMP (RADIAL, 20' R)
ATTACHED SIDEWALK**

PROPOSED
01-01-2017

DETAIL NO.
236-3

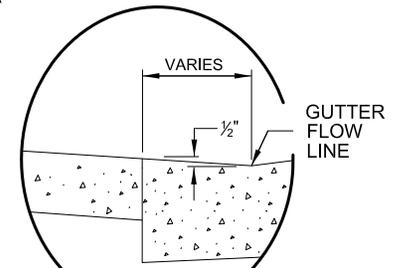
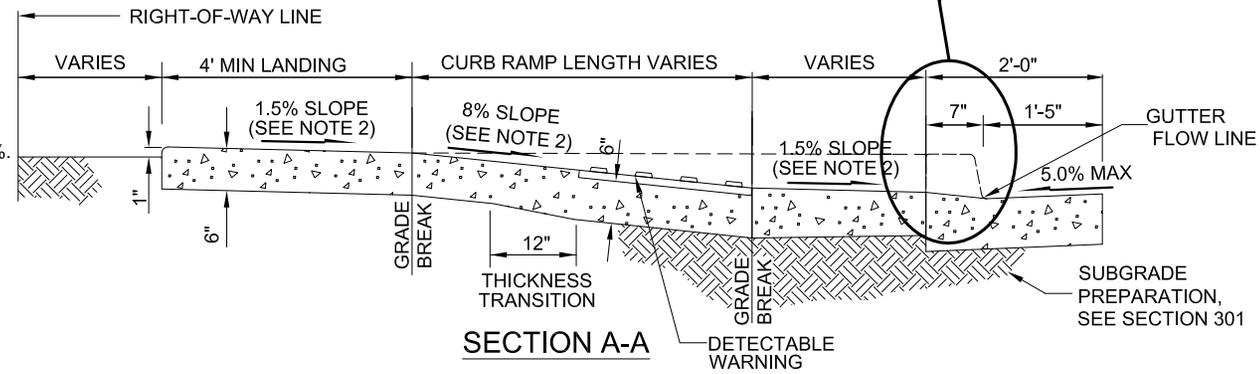


LEGEND

- ⊕ RAMP CONTROL POINT AT FACE-OF-CURB SEE PLANS (TYP)
- DESIGN ELEVATION SEE PLANS
FL = FLOW LINE, FG = FINISHED GRADE

NOTES:

1. CLASS 'A' CONCRETE PER SECTION 725, PC TO PT.
2. CONSTRUCTION INCLUDING EXPANSION JOINTS AND MAXIMUM SLOPES SHALL CONFORM TO SECTION 340.
3. WALKWAY SURFACE TO MATCH 1.5% SLOPE FROM TOP OF CURB.
4. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY'S REQUIREMENTS.
5. DISTANCE BETWEEN RAMPS MAY BE ADJUSTED TO IMPROVE ALIGNMENT WITH RECEIVING RAMP WHEN ALLOWED BY THE JURISDICTIONAL AGENCY.
6. SPECIAL DESIGN IS REQUIRED FOR GUTTER GRADES GREATER THAN 2%.
7. WING SLOPE SHALL NOT EXCEED 10% MEASURED PERPENDICULAR TO RAMP.
8. RAMP ALIGNMENT SHOULD CONNECT CONTROL POINT TO CONTROL POINT OF RECEIVING RAMP WITHIN 5 FEET.



DETAIL NO.
237-2

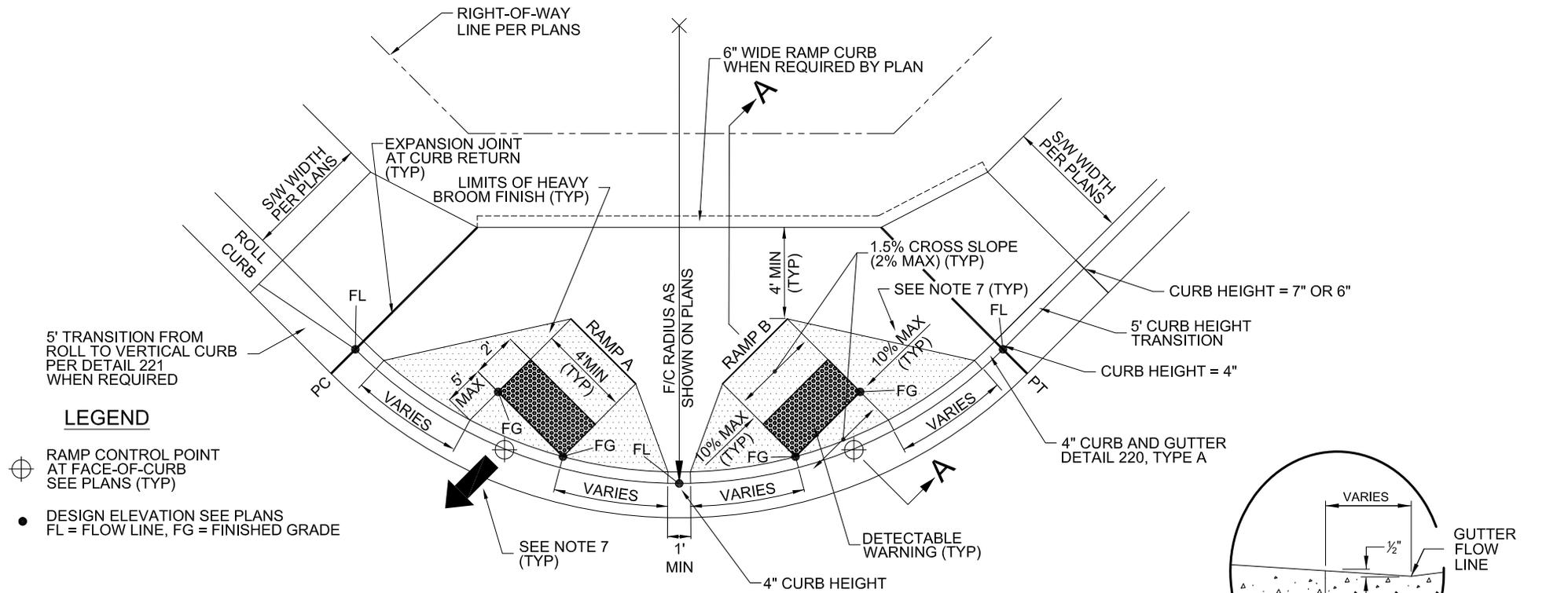


STANDARD DETAIL
ENGLISH

**DUAL CURB RAMP (DIRECTIONAL, 25' - 35'R)
DETACHED SIDEWALK**

PROPOSED
01-01-2017

DETAIL NO.
237-2



LEGEND

- ⊕ RAMP CONTROL POINT AT FACE-OF-CURB SEE PLANS (TYP)
- DESIGN ELEVATION SEE PLANS
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NOTES:

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