CURB RETURN FILLET REQUIRED FOR NEW CURB & GUTTER INSTALLATIONS (TYPICAL)

NOTE: INCLUDE COST OF CONCRETE FILLET IN VALLEY GUTTER.

VARIABLE RADIUS
BACK OF CURB

CONCRETE CURB RETURN FILLET
REINFORCE WITH 5 - #4 x 36" (#13 x 900) EPOXY COATED DEFORMED REBARS EVENLY SPACED ON 6" (150) CENTERS WITH 3 1/2" (90) COVER

FRONT OF GUTTER

CONTRACTION JOINTS ARE REQUIRED APPROX. EVERY 10 FEET (3000)

EXISTING CURB & GUTTER INSTALLATION WITHOUT CURB RETURN FILLET

VARIABLE RADIUS
BACK OF CURB

IF CURB RETURN EXISTS, GRIND GUTTER TO FORM OUTLET GUTTER CHANNEL WHEN THIS IS THE HIGH SIDE

REINFORCE WITH 5 - #4 x 36" (#13 x 900) EPOXY COATED DEFORMED REBARS EVENLY SPACED ON 6" (150) CENTERS WITH 3 1/2" (90) COVER

PLAN

CURB TO CURB WIDTH VARIES

NOTES:
1. INDIVIDUAL LOCATIONS MAY REQUIRE MORE DETAILS FOR ELEVATIONS AND DIMENSIONS.
2. INSTALL REINFORCEMENT AT ALL CONSTRUCTION JOINTS.
3. CONTRACTION JOINTS ARE 1/8" (3 mm) MIN. AND 3/8" (10 mm) MAX. IN WIDTH. FORM JOINTS BY SAWING OR SCORING TO A MINIMUM DEPTH OF 1" (25 mm). FORM SCORED JOINTS BY A TOOL WHICH WILL LEAVE ROUNDED CORNERS AND DESTROY AGGREGATE INTERLOCK TO A MINIMUM DEPTH OF 1" (25 mm).
4. TO BE USED ON PLANT MIX SURFACING PROJECTS ONLY. PROVIDE PROJECT SPECIFIC DETAILS FOR PCCP PROJECTS.

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4. TO BE USED ON PLANT MIX SURFACING PROJECTS ONLY. PROVIDE PROJECT SPECIFIC DETAILS FOR PCCP PROJECTS.
CONCRETE CURBS

P = AREA TO BE PAINTED, WHEN PAINTED CURB IS REQUIRED
(102 SQ. FT. [9.48 SQ. METERS] PER 100 FT. [30.48 M] OF CURB)

CONCRETE ADA LAYDOWN CURBS

P = AREA TO BE PAINTED, WHEN PAINTED CURB IS REQUIRED
(102 SQ. FT. [9.48 SQ. METERS] PER 100 FT. [30.48 M] OF CURB)

Joints:

(A) WHEN INTEGRAL WITH, TIED TO, OR PLACED AGAINST PORTLAND CEMENT CONCRETE PAVEMENT (P.C.C.P.): MATCH TRANSVERSE CONTRACTION AND/OR EXPANSION JOINTS IN THE ADJACENT P.C.C.P. SLAB. IF REQUIRED, EXTEND 1/2" [13] MIN. WIDTH PREFORMED EXPANSION JOINTS COMPLETELY THROUGH CURB AND GUTTER THE SAME WIDTH AS THE P.C.C.P. SLAB JOINT. FILL CURB AND GUTTER EXPANSION JOINTS WITH PREFORMED EXPANSION JOINT FILLER.

(B) ALL OTHER CASES:
SPACE CONTRACTION JOINTS IN CURB AND GUTTER AT 10 FOOT [3.05 m] INTERVALS OR LESS EXCEPT AS SPECIFIED IN (A) ABOVE. EXTEND 1/2" [13] MIN. WIDTH EXPANSION JOINTS COMPLETELY THROUGH CURB AND GUTTER EVERY 100 FEET [30.48 m] (1/300 FEET [9.14 m] ) AT INTERVALS EQUAL TO THE NEAREST MULTIPLE OF THE CONTRACTION JOINT INTERVAL, AND FILL WITH EXPANSION JOINT FILLER.

(C) CONTRACTION JOINTS:

(D) OTHER JOINTS:
SEPARATE THE CURB AND GUTTER FROM ADJACENT SIDEWALK AT POINTS SHOWN ON DTL. DWG. NO. 608-05 WITH A BOND BREAKER MATERIAL, EXCEPT WHERE METING CURB AND GUTTER IN PLACE. USE A 15 OR 30 POUND [6.8 OR 13.6 KILOGRAM] ROOFING FELT BOND BREAKER MATERIAL:

EXPANSION JOINT FILLER MATERIAL:
USE PREFORMED EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF SECTION 707.

BOND BREAKER MATERIAL:
USE A 15 OR 30 POUND [6.8 OR 13.6 KILOGRAM] ROOFING FELT MATERIAL, OR OTHER PRODUCT AS APPROVED BY THE PROJECT MANAGER. DO NOT USE EXPANSION JOINT MATERIAL.

RADIUS:
MINIMUM CURB RETURN RADIUS = 10' [3.05 m]. 15' [4.57 m] RADIUS ARE DESIRABLE FOR STREETS

CONCRETE:
UNLESS OTHERWISE SPECIFIED, CONSTRUCT CONCRETE CURBS AND CONCRETE INTEGRAL CURB AND GUTTER WITH CLASS GENERAL CONCRETE OR APPROVED EQUAL.

* QUANTITIES FOR ESTIMATING PURPOSES ONLY.


CONCRETE CURBS

CURB SECTION

1 CUBIC FOOT (0.305 cu m) OF CONCRETE WILL MAKE ABOUT 8 LINEAR FEET (2.44 in m) OF CURB.

NOTES:
1. WHEN CURB IS USED IN CONJUNCTION WITH GUARDRAIL, USE THE 4" [102] HIGH TYPE. OTHERWISE, THE CONTRACTOR MAY USE EITHER SECTION.
2. CONFORM ALL MATERIALS AND CONSTRUCTION PER SECTION 609.
3. PROVIDE CONTRACTION JOINTS IN CONCRETE CURBS AS DESCRIBED IN NOTE (B) ABOVE.

CONCRETE ADA LAYDOWN CURBS

CURB SECTION

1 CUBIC FOOT (0.305 cu m) OF CONCRETE WILL MAKE ABOUT 5 LINEAR FEET (1.52 in m) OF CURB.

UNITS SHOWN IN BRACKETS [ ] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.
DROP INLET.
INCLUDED IN THE UNIT PRICE BID FOR THE COST OF THE DROP INLET APRON IS ELEVATION.
IS 1" LOWER THAN THE CURB FLOWLINE WITH CLASS GENERAL CONCRETE.
BETWEEN GRATE AND ADJUSTING RING SHOWN IN THE TABLES. FILL SPACE TBC PROFILE AND GRATE APRON SLOPE SHIM DROP INLET FRAME TO MATCH OR APPROVED EQUAL.
ALL CONCRETE IS CLASS GENERAL

NOTES:
UNLESS OTHER UNITS ARE SHOWN.
METRIC AND ARE IN MILLIMETERS (mm)
UNITS SHOWN IN BRACKETS [] ARE

REFERENCE
SECTION
STANDARD SPEC.
609-07

DWG. NO.
DETAILED DRAWING
APRONS
SEPTEMBER 2014
EFFECTIVE:
OF TRANSPORTATION
MONTANA DEPARTMENT
--REVISED--
JULY 2016

INLET TYPE
HEADWAY %
ROADWAY
TOP BACK OF CURB
APRON ELEVATION
TOP BACK OF CURB
APRONS
SLOPE %
6
0.45
0.340
925
4'-6 7/8"
TYPE IV

INLET TYPE II, III, V, VI
ARDAY %
ROADWAY
TOP BACK OF CURB
APRON ELEVATION
TOP BACK OF CURB
APRONS
SLOPE %
6
0.45
0.340
925
4'-6 7/8"
TYPE IV

NOTES:
ALL CONCRETE IS CLASS GENERAL OR APPROVED EQUAL.
SHOW DROP INLET FRAME TO MATCH THE FRANCE AND LAVER APRON SLOPE
SHOW ADJUSTING RING BETWEEN GRATE AND ADJUSTING RING WITH CLASS GENERAL CONCRETE.
The referenced grate elevation is 1" lower than the curb elevation.
The cost of the drop inlet apron is included in the unit price bid for the drop inlet.

INLET TYPE
LENGTH

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DROP INLET APRONS

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EX. CROSS SECTIONS FOR CROSS SLOPES ON STREET.

SECTION A-A

SECTION B-B

REF. DESIGN:
MDTX DEPARTMENT OF TRANSPORTATION
CONSTRUCTION:

1. CURBS MAY BE CONSTRUCTED USING ANY OF THE FOLLOWING THREE METHODS:
   (1) PRECAST
   (2) CAST IN PLACE
   (3) CONSTRUCTED BY THE USE OF AN APPROVED CURB FORMING OR SLIP FORM MACHINE.

2. WHEN USING EITHER METHOD (2) OR (3), REINFORCING STEEL IS NOT REQUIRED, WITH THE EXCEPTION OF THE PINS. SCORE OR SAW CUT CURBS TO A DEPTH OF 1" [25] TO FORM CONTRACTION JOINTS AT INTERVALS OF 10 FT. [3000] OR LESS. EXTEND 1/2" [13] MIN. WIDTH EXPANSION JOINTS COMPLETELY THROUGH CURB EVERY 100 FT. (± 30 FT.) [30 m (± 10 m)], AT INTERVALS EQUAL TO THE NEAREST MULTIPLE OF THE CONTRACTION JOINT INTERVAL AND FILL WITH PREFORMED EXPANSION JOINT FILLER MEETING SECTION 707.

3. FORM PRECAST CURBS IN THEIR INVERTED POSITION, IN LENGTHS NOT LESS THAN 4 FT. [1200], OR MORE THAN 10 FT. [3050]

MATERIAL:

1. CONSTRUCT CURBS WITH CLASS GENERAL CONCRETE OR AN APPROVED EQUIVALENT MIX.

2. EPOXY BINDER FOR GROUTING MUST MEET THE REQUIREMENTS OF (AASHTO M 235 [235 M]) (ASTM C 881 [881 M]).

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

TYPE "A" - MAT IN PLACE
NOTES:
1/2" [13] expansion joints are shown as dark solid lines for visual purposes.
Bond breaker is shown as dark dashed line for visual purposes.

1. Install preformed expansion joint filler, per Section 707, at all expansion joints, for the full thickness of the concrete median cap.
2. Install a bond breaker for the full thickness of the concrete median cap between the cap and the curb. Use a 15 or 30 pound [6.8 or 13.6 kg] roofing felt material, or other product as approved by the project manager. Do not use expansion joint material as a bond breaker.
3. All joints must be straight and perpendicular to the centerline and the surface of the median cap. Where practical, align all joints with like joints in adjoining work. Use joints to outline all panels in the median cap. Use square panels when practical. On narrow median caps, rectangular shaped panels are acceptable.
5. Locate expansion joints at all joints between the median cap and structures in place and every 100 ft. (±30 m) at intervals equal to the nearest multiple of the contraction joint interval. Use a longitudinal expansion joint in the centerline of all median caps wider than 12 ft. (3660).
6. Use longitudinal contraction joints in median caps wider than 6 ft. (1830), with spacing not to exceed 6 ft. (1830). Space transverse contraction joints equal to the longitudinal spacing on median caps wider than 6 ft. (1830). For medium caps narrower than 6 ft. (1830), space transverse contraction joints 10 ft. (3000) or less.
7. Construct concrete median curb and cap with Class General Concrete or approved equal.

Units shown in brackets [ ] are metric and are in millimeters (mm) unless other units are shown.

Detailed Drawing
Reference: Dwg. No.
Standard Spec.
Section 609.707
Concrete Median Caps
Effective: September 2014