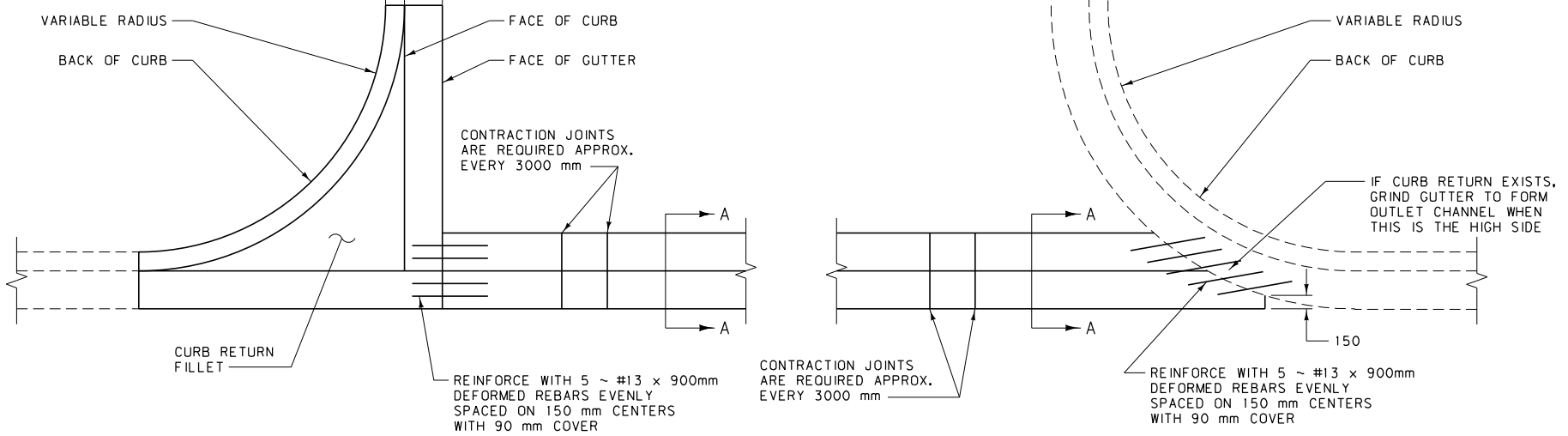


CURB RETURN FILLET REQUIRED FOR NEW CURB & GUTTER INSTALLATIONS (TYPICAL)

CURB TO CURB WIDTH VARIES

EXISTING CURB & GUTTER INSTALLATION WITHOUT CURB RETURN FILLET



CURB RETURN FILLET

CONTRACTION JOINTS ARE REQUIRED APPROX. EVERY 3000 mm

REINFORCE WITH 5 ~ #13 x 900mm DEFORMED REBARS EVENLY SPACED ON 150 mm CENTERS WITH 90 mm COVER

CONTRACTION JOINTS ARE REQUIRED APPROX. EVERY 3000 mm

REINFORCE WITH 5 ~ #13 x 900mm DEFORMED REBARS EVENLY SPACED ON 150 mm CENTERS WITH 90 mm COVER

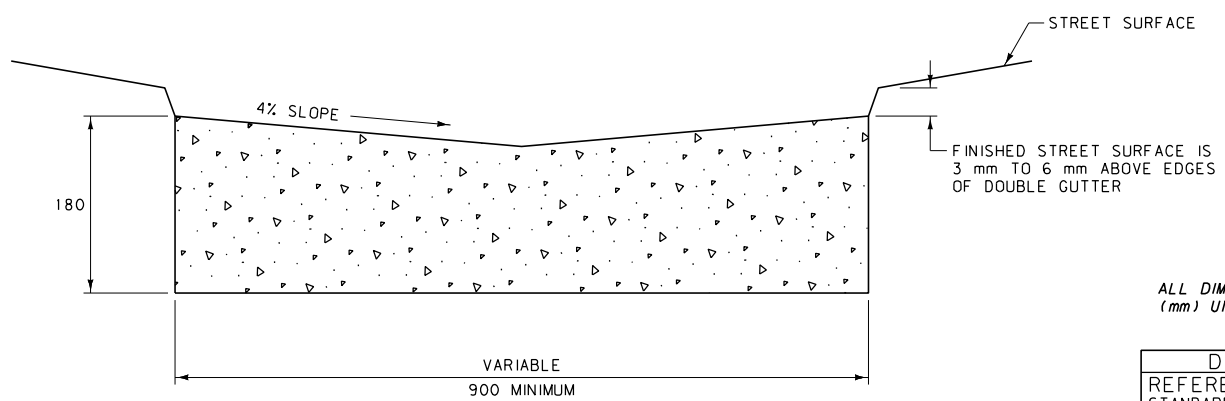
PLAN

NOTES:

INDIVIDUAL LOCATIONS MAY REQUIRE MORE DETAILS FOR ELEVATIONS AND DIMENSIONS.

INSTALL REINFORCEMENT AT ALL CONSTRUCTION JOINTS.

CONTRACTION JOINTS ARE 3 mm MIN. AND 10 mm MAX. IN WIDTH. FORM JOINTS BY SAWING OR SCORING TO A MINIMUM DEPTH OF 25 mm. FORM SCORED JOINTS BY A TOOL WHICH WILL LEAVE ROUNDED CORNERS AND DESTROY AGGREGATE INTERLOCK TO A MINIMUM DEPTH OF 25 mm.



SECTION A-A

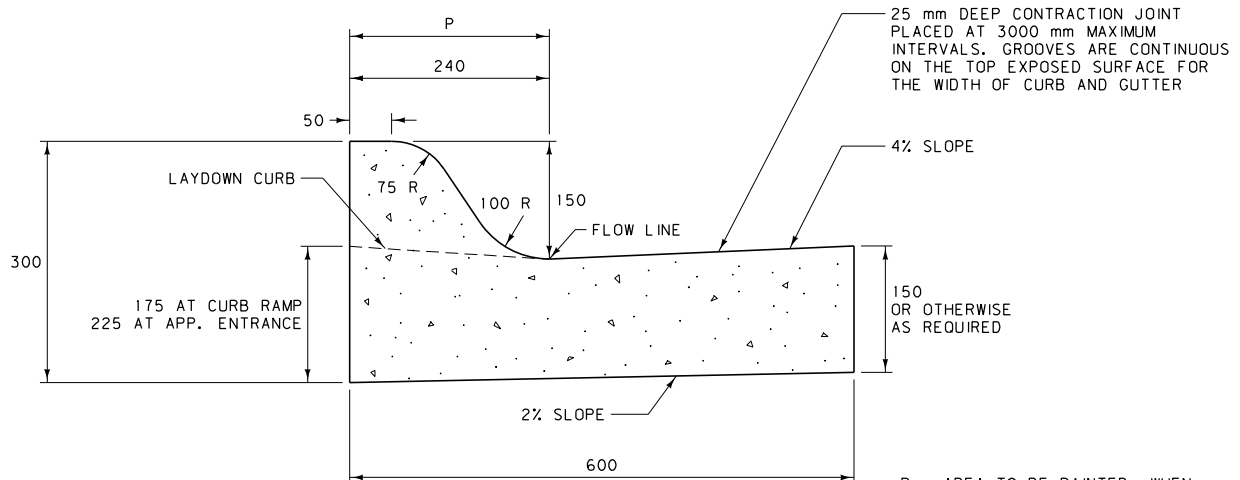
ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 609	DWG. NO. 609-00

CONCRETE VALLEY GUTTER

EFFECTIVE: FEBRUARY 2005

CONCRETE CURBS



CURB & GUTTER SECTION
 0.110 m³ CONC. PER METER OF CURB FOR 150 mm GUTTER. *

P = AREA TO BE PAINTED, WHEN PAINTED CURB IS REQUIRED (30.7 m² PER 100 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 13 mm 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 3000 mm INTERVALS OR LESS EXCEPT AS SPECIFIED IN (A) ABOVE. EXTEND 13 mm MIN. WIDTH EXPANSION JOINTS COMPLETELY THROUGH CURB AND GUTTER EVERY 30 m (± 10 METERS), AT INTERVALS EQUAL TO THE NEAREST MULTIPLE OF THE CONTRACTION JOINT INTERVAL, AND FILL WITH EXPANSION JOINT FILLER.

(C) CONTRACTION JOINTS:
 CONTRACTION JOINTS ARE 3 mm MIN. AND 10 mm MAX. IN WIDTH. FORM JOINTS BY SAWING OR SCORING TO A MINIMUM DEPTH OF 25 mm. FORM SCORED JOINTS BY A TOOL WHICH WILL LEAVE ROUNDED CORNERS AND DESTROY AGGREGATE INTERLOCK TO A MINIMUM DEPTH OF 25 mm.

(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 AT APPROACH LAYDOWN CURB LOCATIONS, WHICH REQUIRE SEPARATION USING 13 mm MIN. WIDTH PREFORMED EXPANSION JOINT MATERIAL. PLACE 13 mm MIN. WIDTH PREFORMED EXPANSION JOINT MATERIAL AT ALL CURB RETURNS, BRIDGES, DROP INLETS, AND WHERE MEETING CURB AND GUTTER IN PLACE.

EXPANSION JOINT FILLER MATERIAL:

USE PREFORMED EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STD. SPEC. 707.

BOND BREAKER MATERIAL:

USE A 6.8 OR 13.6 KILOGRAM ROOFING FELT MATERIAL, OR OTHER PRODUCT AS APPROVED BY THE ENGINEER DO NOT USE EXPANSION JOINT MATERIAL.

RADII:

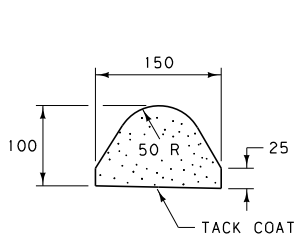
MINIMUM CURB RETURN RADII = 3050 mm. 4575 mm RADII ARE DESIRABLE FOR STREETS.

CONCRETE:

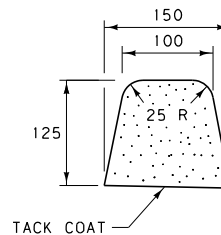
UNLESS OTHERWISE SPECIFIED, CONSTRUCT CONCRETE CURBS AND CONCRETE INTEGRAL CURB AND GUTTER WITH CLASS "D" CONCRETE OR APPROVED EQUAL.

* QUANTITIES FOR ESTIMATING PURPOSES ONLY.

BITUMINOUS CURBS



CURB SECTION
 1 m³ OF MATERIAL WILL MAKE ABOUT 89 METERS OF CURB. *



CURB SECTION
 1 m³ OF MATERIAL WILL MAKE ABOUT 64 METERS OF CURB. *


NOTES:

WHEN CURB IS USED IN CONJUNCTION WITH GUARDRAIL, USE THE 100 mm TYPE. OTHERWISE, THE CONTRACTOR MAY USE EITHER SECTION.

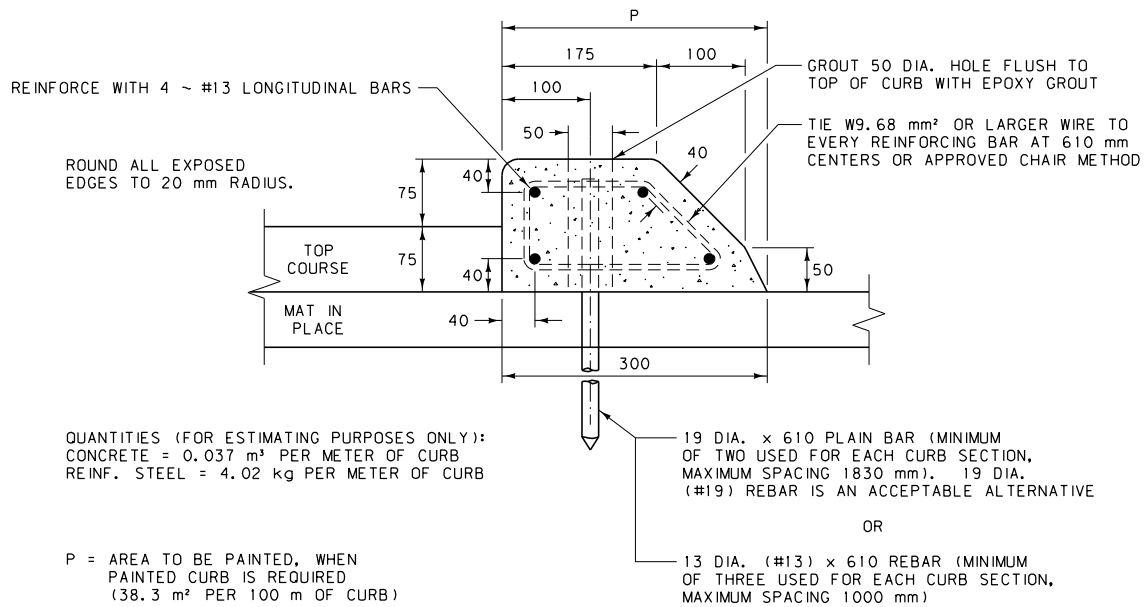
CONFORM ALL MATERIALS AND CONSTRUCTION TO THE STANDARD SPECIFICATIONS FOR BITUMINOUS CURB.

CONCRETE MAY BE SUBSTITUTED FOR THE BITUMINOUS MATERIAL. WHEN CONCRETE IS USED, CONSTRUCT CURB IN ACCORDANCE WITH STANDARD SPECIFICATION 609.

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 609	DWG. NO. 609-05
MISCELLANEOUS CURBS	
EFFECTIVE: FEBRUARY 2005	
 MONTANA DEPARTMENT OF TRANSPORTATION serving you with pride	

-- REVISED --
 January 2008



TYPE "A" - MAT IN PLACE

CONSTRUCTION:

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.

WHEN USING EITHER METHOD (2) OR (3), REINFORCING STEEL IS NOT REQUIRED, WITH THE EXCEPTION OF THE PINS, AND THE CURBS ARE SCORED OR SAWN TO A DEPTH OF 25 mm TO FORM CONTRACTION JOINTS AT INTERVALS OF 3000 mm OR LESS. EXTEND 13 mm MIN. WIDTH EXPANSION JOINTS COMPLETELY THROUGH CURB EVERY 30 m (± 10 METERS), AT INTERVALS EQUAL TO THE NEAREST MULTIPLE OF THE CONTRACTION JOINT INTERVAL AND FILL WITH PREFORMED EXPANSION JOINT FILLER MEETING STD. SPEC. 707.


FORM PRECAST CURBS IN THEIR INVERTED POSITION, IN LENGTHS NOT LESS THAN 1220 mm, OR MORE THAN 3050 mm.

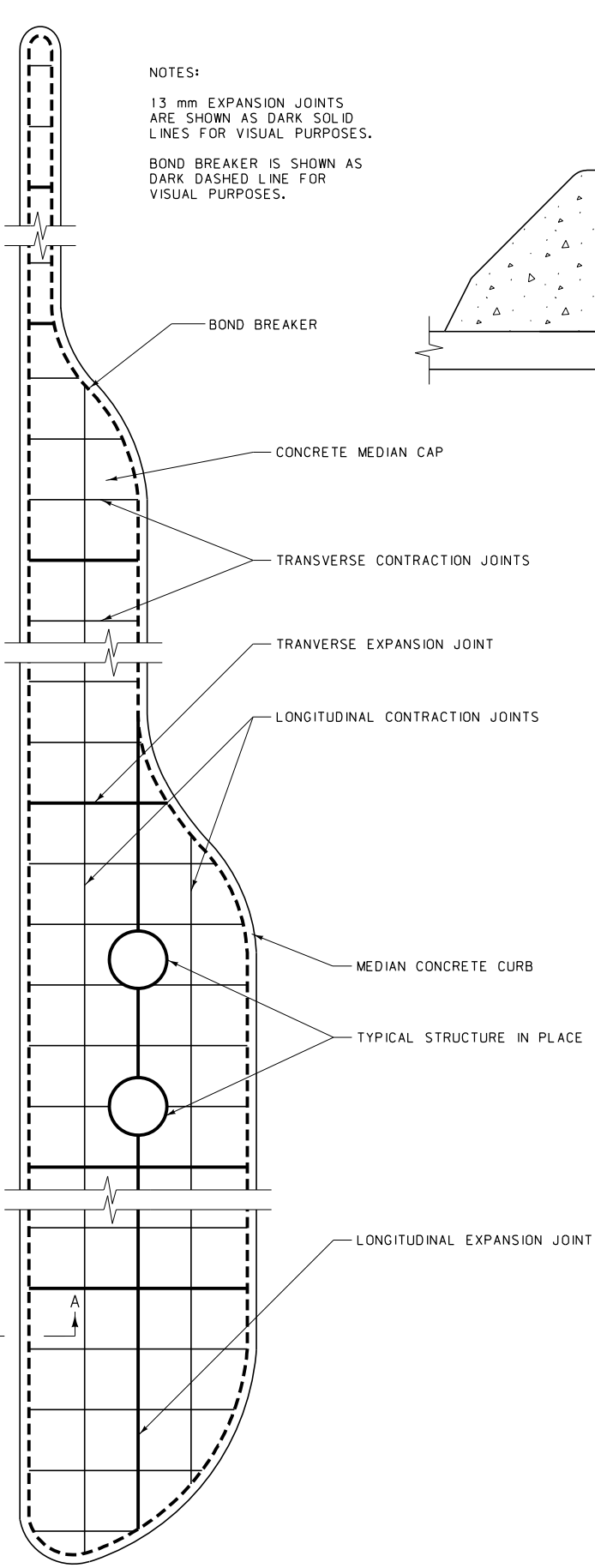
MATERIAL:

CONSTRUCT CURBS OF CLASS "D" CONCRETE, OR AN APPROVED EQUIVALENT MIX.

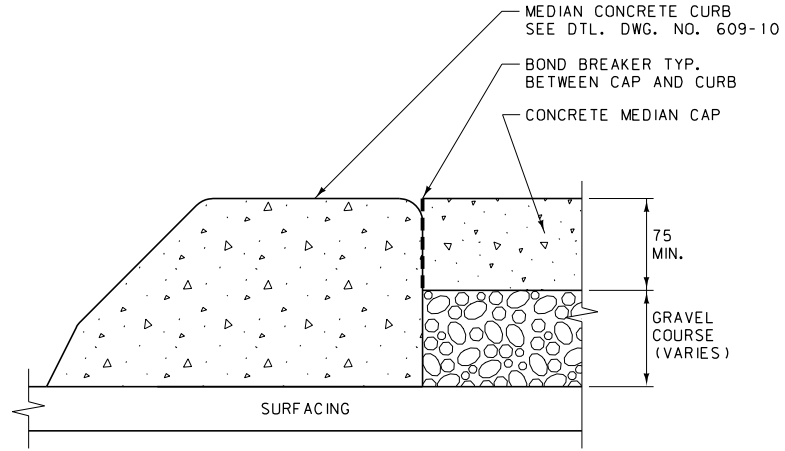
EPOXY BINDER FOR GROUTING MUST MEET THE REQUIREMENTS OF AASHTO M 235M (ASTM C 881M).

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 609	DWG. NO. 609-10
MEDIAN CONCRETE CURBS	
EFFECTIVE: FEBRUARY 2005	
<div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> <p>-- REVISED -- January 2008</p> </div> <div style="margin: 0 10px;">  </div> <div style="text-align: center;"> <p>MONTANA DEPARTMENT OF TRANSPORTATION</p> <p><i>servicing you with pride</i></p> </div> </div>	



NOTES:
 13 mm EXPANSION JOINTS ARE SHOWN AS DARK SOLID LINES FOR VISUAL PURPOSES.
 BOND BREAKER IS SHOWN AS DARK DASHED LINE FOR VISUAL PURPOSES.



SECTION A-A

NOTES:

INSTALL PREFORMED EXPANSION JOINT FILLER, STD. SPEC. 707.01.3, AT ALL EXPANSION JOINTS, FOR THE FULL THICKNESS OF THE CONCRETE MEDIAN CAP.

INSTALL A BOND BREAKER FOR THE FULL THICKNESS OF THE CONCRETE MEDIAN CAP BETWEEN THE CAP AND THE CURB. USE A 6.8 OR 13.6 KILOGRAM ROOFING FELT MATERIAL, OR OTHER PRODUCT AS APPROVED BY THE ENGINEER, FOR THE BOND BREAKER. DO NOT USE EXPANSION JOINT MATERIAL AS A BOND BREAKER.

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.

CONTRACTION JOINTS MAY NOT BE MORE THAN 3 mm WIDE AND NOT LESS THAN 25 mm IN DEPTH AND MAY BE CUT BY A GROOVE FORMING TOOL.

LOCATE EXPANSION JOINTS AT ALL JOINTS BETWEEN THE MEDIAN CAP AND STRUCTURES IN PLACE AND EVERY 30 METERS (± 10 METERS) 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 3660 mm.

USE LONGITUDINAL CONTRACTION JOINTS IN MEDIAN CAPS WIDER THAN 1830 mm, WITH SPACING NOT TO EXCEED 1830 mm. SPACE TRANSVERSE CONTRACTION JOINTS EQUAL TO THE LONGITUDINAL SPACING ON MEDIAN CAPS WIDER THAN 1830 mm. FOR MEDIAN CAPS NARROWER THAN 1830 mm, SPACE TRANSVERSE CONTRACTION JOINTS 3000 mm OR LESS.

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 609	DWG. NO. 609-12
CONCRETE MEDIAN CAPS	

-- REVISED --
 January 2008