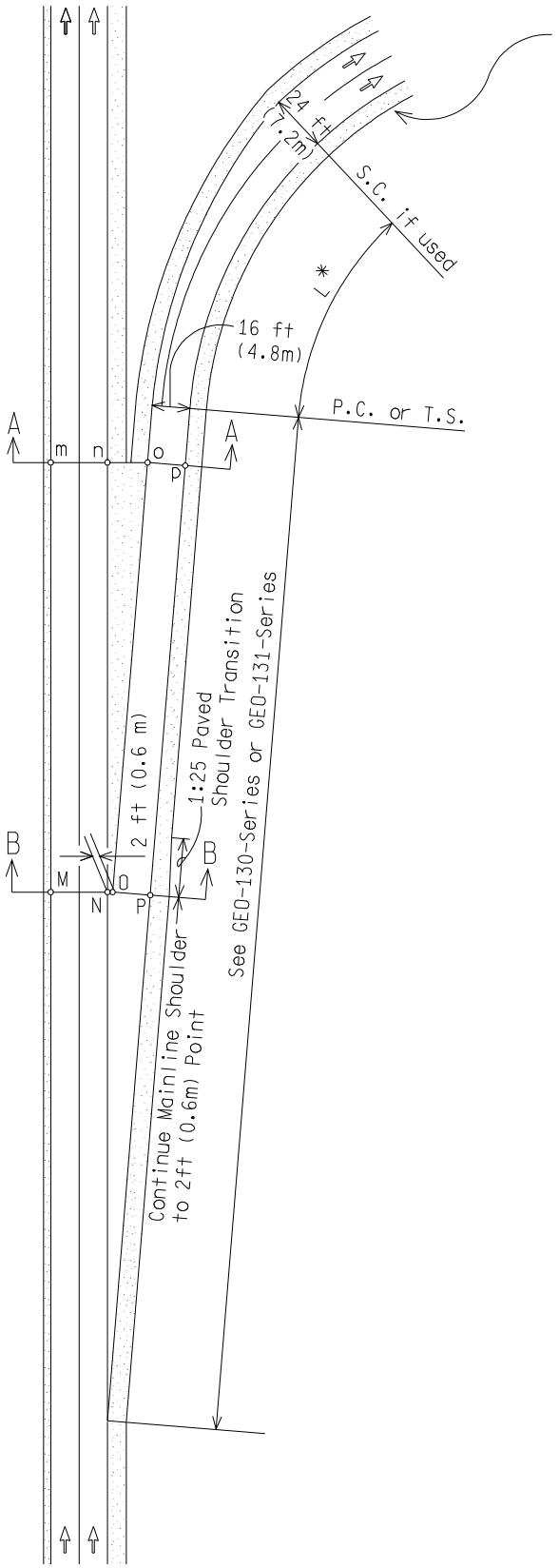
CASE I



CASE I:
Consider use on ramps longer than 3000 ft (914m) and when the desired level of diverge can be achieved with a one lane off ramp.

Calculation for Transition Length "L" (V = Design Speed)
L(ft)= 6 x Ramp Design Speed (mph) L(m) = 1.11 x Ramp Design speed (km/hr)
* Note: Transition from two lanes to one lane should be consistently on the left or the right within the interchange, if feasible.

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MDOT Michigan Department of Transportation
TRAFFIC AND SAFETY

DRAWN BY: ECH
CHECKED BY: JAT
FILE: PW RD-TS-T-Geometrics/GEO140B DEVJAT.dgn REV. 12/09/2008 jt

BY: John C. Friend
ENGINEER OF DELIVERY

BY:
ENGINEER OF DEVELOPMENT

GEOMETRIC DESIGN GUIDE FOR
TWO-LANE
EXIT RAMP

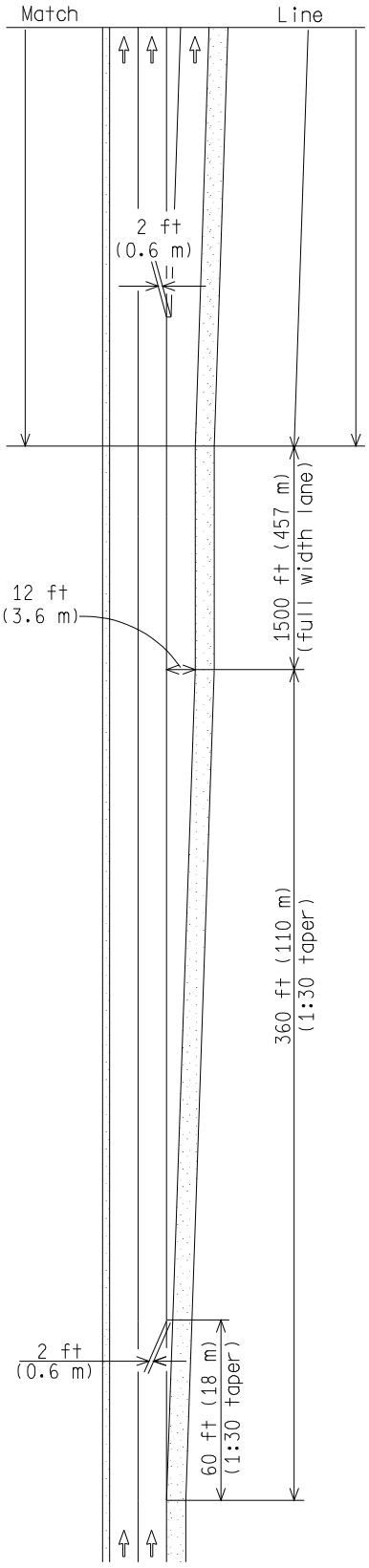
08/07/2008
PLAN DATE:

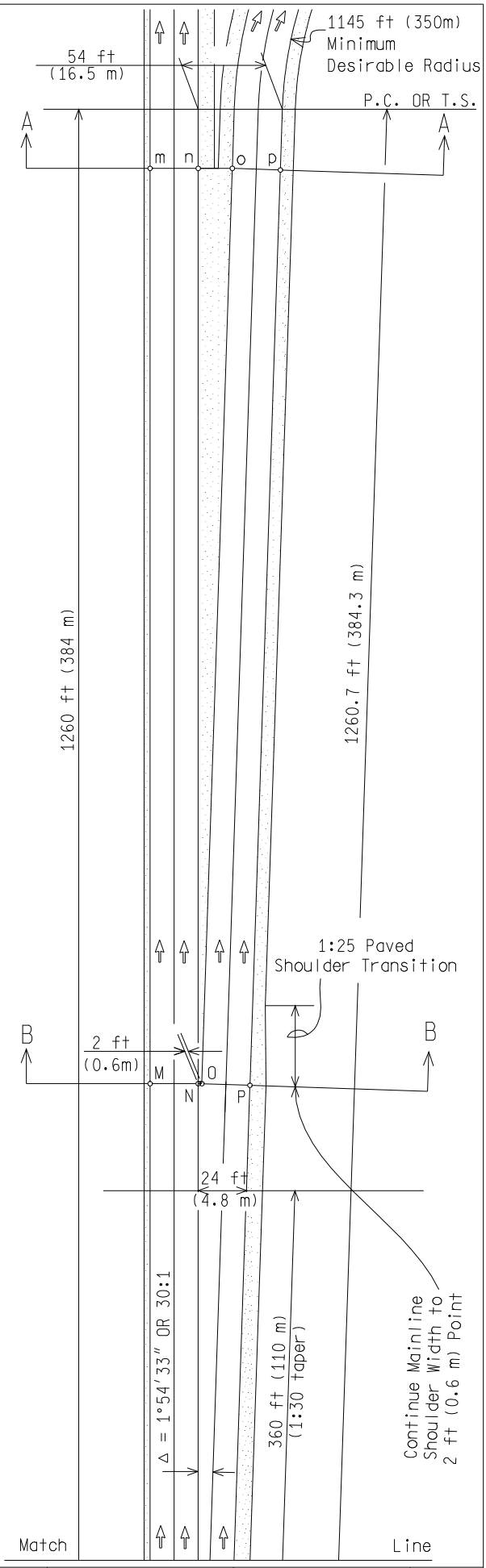
GEO-140-B

SHEET 1 OF 5

CASE II

CASE II:
Consider use on ramps where the desired level of service of the diverge requires a 2 lane off ramp.





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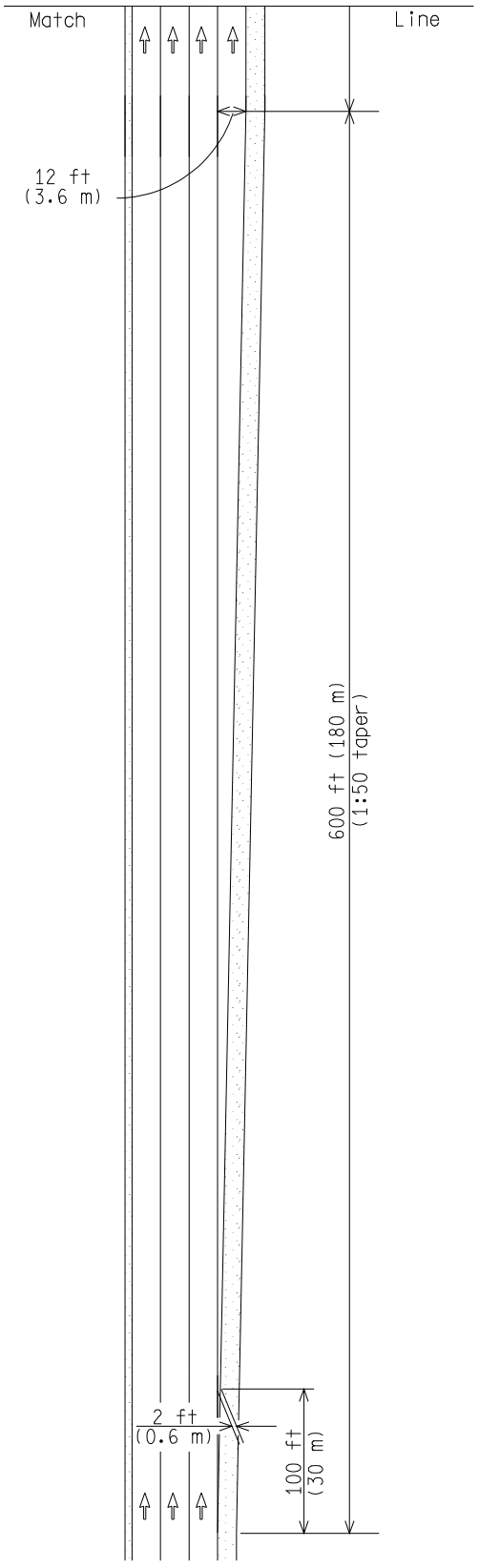
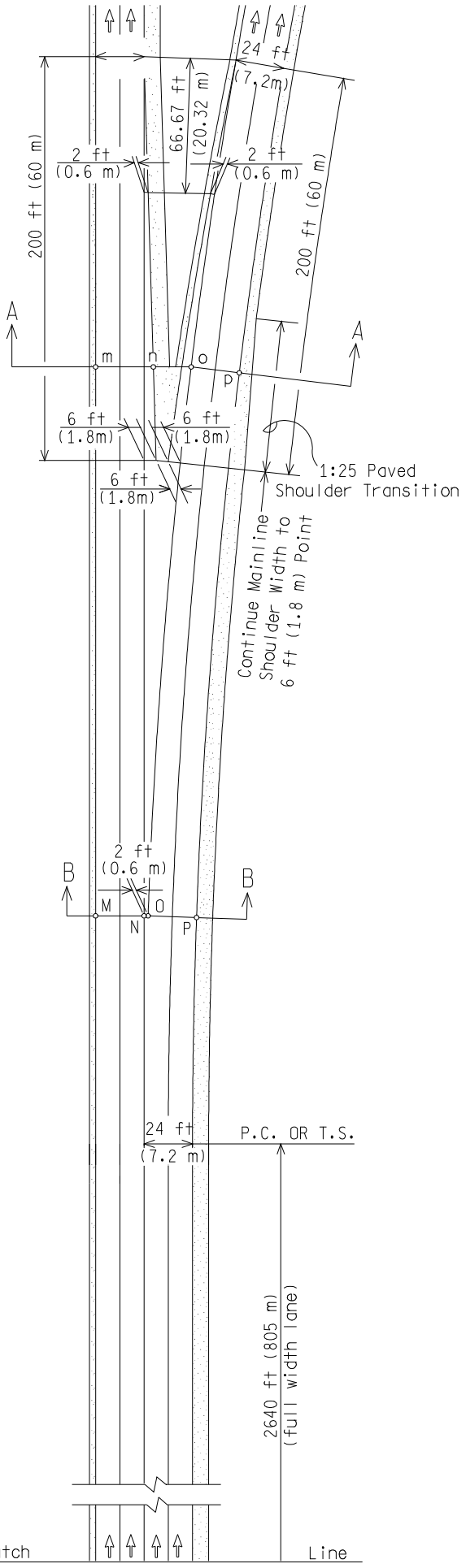
CASE III

CASE III: Consider use on ramps where a desired level of service cannot be maintained by CASE II. Also consider when the freeway lanes are reduced by one lane after the two-lane exit ramp.





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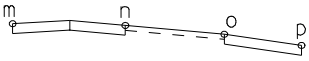
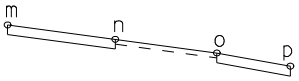
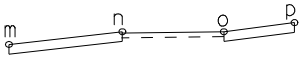
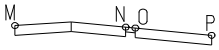
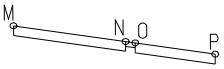
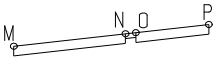
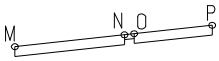
EDGE OF PAVEMENT ELEVATION RELATIONSHIPS

WHEN THE THRU LANES ARE NOT SUPERELEVATED	WHEN THE THRU LANES ARE SUPERELEVATED AND N IS LOWER THAN M	WHEN THE THRU LANES ARE SUPERELEVATED AND N IS HIGHER THAN M	
		RAMP AND THRU LANE SUPERELEVATED IN SAME DIRECTION	RAMP AND THRU LANE SUPERELEVATED IN OPPOSITE DIRECTION
SECTION A-A			
 POINTS n, o & p SHOULD BE PROGRESSIVELY LOWER.	 POINTS m, n, o & p SHOULD BE PROGRESSIVELY LOWER.	 POINT o SHOULD BE HIGHER THAN POINT n.	 POINT o SHOULD BE EQUAL TO OR LOWER THAN POINT n.
SECTION B-B			
 POINTS N, O & P SHOULD BE IN THE SAME PLANE.	 POINTS M, N, O & P SHOULD BE IN THE SAME PLANE.	 POINTS M, N, O & P SHOULD BE IN THE SAME PLANE.	 POINTS M, N, O & P SHOULD BE IN THE SAME PLANE.

NOTE: Maximum algebraic difference in pavement cross slope between mainline and ramp auxilary lane should not exceed 5%.

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NOTES:

1. Select design speed based on a combination of the superelevation rate and the radius of the curve. See also chapter 3 of the MDOT Road Design Manual.

2. If an additional through lane is provided or the entrance ramp joins the mainline on the high side (outside) of the curve, use GEO-101-Series.

3. If the through pavement is curved, plot offsets for taper and connect with appropriate curve.

4. Prepare detail grades and profiles from Section A-A to Section B-B.

5. Spiral transitions should be used on new ramp alignments based on the design speed of the curve and the radius as shown in the table of the Road Standard Plan R-107-Series. The table gives the maximum radius in which a spiral should be used.

6. The maximum algebraic difference in pavement cross slope between the mainline and the ramp auxiliary lane should not exceed 5%.

7. The cross slope in the gore area between the 2 ft (0.6m) point and the 22 ft (6.6 m) point should not exceed 8%, with a 6% maximum algebraic difference in cross slope between the gore and the adjacent paved lane. This algebraic difference also applies within crowned gores.

8. The design speed of the ramp vertical alignment should meet or exceed the design speed of the ramp horizontal alignment.

9. The mainline shoulder width should extend along the ramp to where the gore is 2 ft (0.6 m) wide. Use a 1:25 taper transition where it joins the ramp shoulder paving.

10. Each ramp should be carefully studied to provide maximum vision at its merge points. See Geometric Design Guide GEO-300-Series.

11. Two lane ramps should be 24 ft (7.2m) minimum edge to edge. Radii less than 500ft may require widening, consult the Geometric Design Unit of Lansing Traffic and Safety.

12. The longitudinal joint on a 24 ft (7.2m) ramp pavement shall be located 12 ft (3.6m) from the right edge of the pavement and ended where the ramp width becomes 16 ft (4.8m).

13. The sight distance in advance of the exit ramp gore should be at least 25% longer than the minimum stopping sight distance for the design speed of the mainline.

14. These design concepts are for new construction. Where modification may be needed for retrofitting to existing road features, consult the Geometric Design Unit of Lansing Traffic and Safety.

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