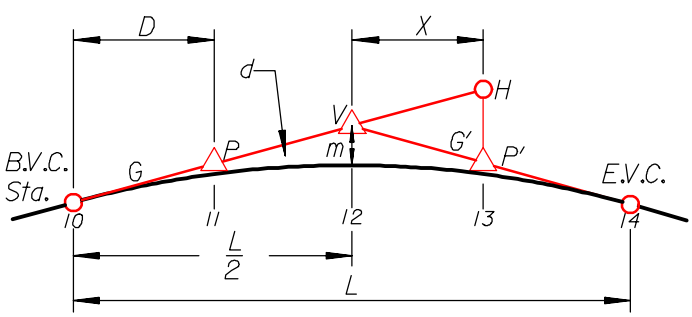

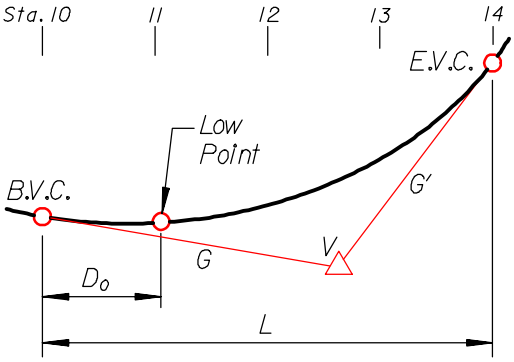

FOR ANY SYMMETRIC PARABOLIC CURVE

$$m = (G' - G)L$$

$$m = \frac{1}{2}\left(\frac{EL.\ B.V.C. + EL.\ E.V.C. - EL.\ V}{2}\right)$$

$$d = m\left(\frac{D}{L/2}\right)^2 = \frac{4m}{L^2}D^2$$

$$d = \frac{D^2(G' - G)}{L200} = \frac{-D^2}{K200}$$

$$X = \frac{100(H-P')}{(G' - G)}$$

$$S = G - D\left(\frac{G - G'}{L}\right) = \frac{G - D}{K}$$

$$D^0 = \frac{LG}{G - G'}$$

$$A = G - G'$$

$$K = \frac{L}{A} = \frac{L}{G - G'}$$

WHERE:

BVC = Begin Vertical Curve
EVC = End Vertical Curve
L = Length of curve - measured horizontally - meters G and G' = Grade rates - percent
m = Middle ordinate - meters
d = Correction from grade line to curve -meters
D = Distance from B.V.C.or E.V.C.to any point on curve - meters
S = Slope of the tangent to the curve at any point - meters
X = Distance from P' to V - meters
H = Elevation of grade G projected to station of P'
P and P' = Elevation on respective grades
D_o = Distance to low or high point from extremity of curve - meters
K = Distance in meters required to achieve a 1% change in grade

NOTES:

A rising grade carries a plus sign, while a falling grade carries a minus sign when progressing in the direction of the stationing. When progressing in the opposite direction, G becomes a minus grade and G' a plus grade.

Figure 200.06
Symmetric Parabolic Vertical Curves