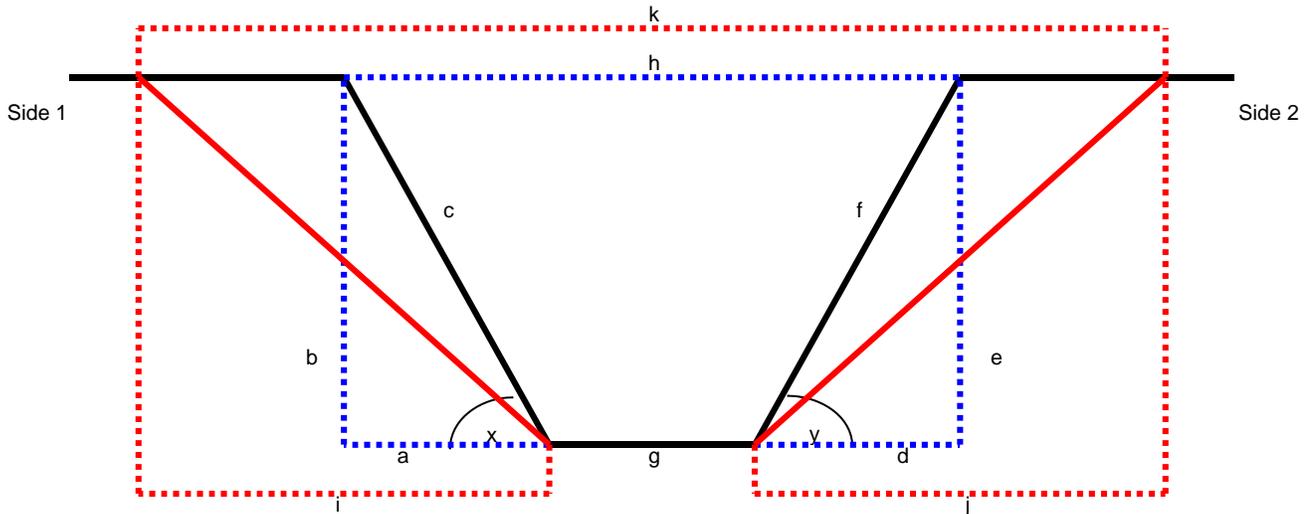


Trench Calculation Tool Formula Sheet



Key	
a & d Horizontal distance of excavation face	h Top width
b & e Depth	i Side 1 required horizontal
c & f Length of excavation faces at angles x & y	j Side 2 required horizontal
x & y Angle of excavation faces	k Required Top Width
g Bottom width	

Trigonometry
Sin = Opposite/Hypotenuse
Cos = Adjacent / Hypotenuse
Tan = Opposite / Adjacent

Formulas
Sin x = b/c
Sin y = e/f
Cos x = a/c
Cos y = d/f

Calculations (It is assumed that you have measured c, x, f, y and h)

Depth of Side 1
b = Depth of side 1
Sin x = b/c
b = (Sin x)(c)

Depth of Side 2
e = Depth of side 2
Sin y = e/f
e = (Sin y)(f)

Horizontal of Side 1
a = Side 1 Horizontal
Cos x = a/c
a = (Cos x)(c)

Horizontal of Side 2
d = Side 2 Horizontal
Cos y = e/f
d = (Cos y)(f)

Bottom Width
Bottom Width = g
g = h - a - d

Required Horizontals
Type A Soil: 1/2 (For excavations that are open for 24 hours or less and are 12 feet or less in depth)
Type A Soil: 3/4
Type B Soil: 1
Type C Soil: 1 1/2

Required Horizontal of Side 1
i = Required Horizontal of Side 1
i = (b)(Required Horizontal)

Required Horizontal of Side 2
j = Required Horizontal of Side 2
j = (e)(Required Horizontal)

Amount Out Of Compliance
Side 1 = i - a
Side 2 = j - d

Required Top Width
k = g + i + j

Amount out of Compliance
Amount out of Compliance = k - h