

**HYDRAULIC AND ENERGY GRADE LINE CALCULATION WORKSHEET**

Land user \_\_\_\_\_ Field Office \_\_\_\_\_  
 Job description \_\_\_\_\_  
 Location \_\_\_\_\_  
 Planner \_\_\_\_\_ Date \_\_\_\_\_ Checked by \_\_\_\_\_ Date \_\_\_\_\_

Friction loss calculation method:

Hazen Williams (C) \_\_\_\_\_ Mannings (n) \_\_\_\_\_  
 Darcy-Weisbach \_\_\_\_\_ Blasius/Darcy-Weisbach \_\_\_\_\_

**ENERGY GRADE AT BEGINNING OF LINE**

If there is pressure at inlet:

Pressure at beginning of pipeline \_\_\_\_\_ psi  
 Pressure head:  $hp = \text{psi} \times 0.433 = \text{ft}$   
 Elevation at pipe entrance \_\_\_\_\_ ft  
 Energy grade line elevation at entrance =  $hp + \text{Elevation} = \text{ft}$

Gravity system:

Water surface elevation = energy grade line elevation at entrance \_\_\_\_\_ ft

**PIPE FRICTION LOSS**

Pipe segment identification				
Type/class of pipe				
Nominal pipe diameter in.				
Pipe inside diameter in.				
Number of discharge segments (N)				
Segment length (L) ft.				
Design flow rate (Q) gpm				
Friction coefficient (C or n)				
Flow Area (A) sq. ft.				
Velocity in pipe (V) = $Q/448.8A$ ft/sec.				
Velocity head (hv) = $V^2/2g$ ft.				
Friction loss (J) ft/100ft.				
Reduction coefficient to compensate for N discharges				
Head loss due to pipe friction (hf)ft.				