

Appendix C – Hydraulic Calculations

- Normal Depth Calculation – Perimeter Street

Worksheet for WA1- Full Street - 100 Yrs

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Channel Slope	0.40 %
Discharge	41.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+10.00	0.60
0+15.00	0.50
0+16.00	0.48
0+16.00	0.00
0+17.00	0.13
0+17.00	0.17
0+35.50	0.50
0+54.00	0.17
0+54.00	0.13
0+55.00	0.00
0+55.00	0.48
0+56.00	0.50
0+61.00	0.60

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+10.00, 0.60)	(0+61.00, 0.60)	0.016

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	0.68 ft
Roughness Coefficient	0.016
Elevation	0.68 ft
Elevation Range	0.00 to 0.60 ft
Flow Area	15.6 ft ²
Wetted Perimeter	52.22 ft
Hydraulic Radius	0.30 ft
Top Width	51.00 ft

Worksheet for WA1- Full Street - 100 Yrs

Results

Normal Depth	0.68 ft
Critical Depth	0.64 ft
Critical Slope	0.59 %
Velocity	2.63 ft/s
Velocity Head	0.11 ft
Specific Energy	0.79 ft
Froude Number	0.837
Flow Type	Subcritical

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.68 ft
Critical Depth	0.64 ft
Channel Slope	0.40 %
Critical Slope	0.59 %

Cross Section for WA1- Full Street - 100 Yrs

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.40 %
Normal Depth	0.68 ft
Discharge	41.00 cfs

