

PRIVATE STORM WATER SEWER  
EXTENSION TO SERVE  
GOEBEL 4th ADDITION



DRAINAGE AREA MAP

1" = 300'



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Circular Channel Analysis & Design  
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: star

Comment: Existing 42" RCP

Solve For Full Flow Capacity

Given Input Data:

Diameter.....	3.50 ft
Slope.....	0.0010 ft/ft
Manning's n.....	0.015
Discharge.....	27.57 cfs

Computed Results:

Full Flow Capacity.....	27.57 cfs
Full Flow Depth.....	3.50 ft
Velocity.....	2.87 fps
Flow Area.....	9.62 sf
Critical Depth....	1.62 ft
Critical Slope....	0.0052 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	27.57 cfs
QMAX @.94D.....	29.66 cfs
Froude Number.....	FULL

Circular Channel Analysis & Design  
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: star

Comment: Pipe 1-5 to 1-4

Solve For Actual Slope

Given Input Data:

Diameter.....	4.00 ft
Manning's n.....	0.015
Discharge.....	51.00 cfs
Depth.....	4.00 ft

Computed Results:

Channel Slope.....	0.0017 ft/ft
Velocity.....	4.06 fps
Flow Area.....	12.57 sf
Critical Depth....	2.14 ft
Critical Slope....	0.0053 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	51.00 cfs
QMAX @.94D.....	54.86 cfs
Froude Number.....	FULL

Circular Channel Analysis & Design  
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: star

Comment: Pipe 1-4 to 1-3

Solve For Actual Slope

Given Input Data:

Diameter.....	4.50 ft
Manning's n.....	0.015
Discharge.....	66.90 cfs
Depth.....	4.00 ft

Computed Results:

Channel Slope.....	0.0014 ft/ft
Velocity.....	4.48 fps
Flow Area.....	14.94 sf
Critical Depth....	2.38 ft
Critical Slope....	0.0051 ft/ft
Percent Full.....	88.89 %
Full Capacity.....	63.12 cfs
QMAX @.94D.....	67.90 cfs
Froude Number.....	0.34 (flow is Subcritical)

Circular Channel Analysis & Design  
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: star

Comment: Pipe 1-4 to 1-3

Solve For Actual Slope

Given Input Data:

Diameter.....	4.50 ft
Manning's n.....	0.015
Discharge.....	89.30 cfs
Depth.....	4.00 ft

Computed Results:

Channel Slope.....	0.0024 ft/ft
Velocity.....	5.98 fps
Flow Area.....	14.94 sf
Critical Depth....	2.77 ft
Critical Slope....	0.0056 ft/ft
Percent Full.....	88.89 %
Full Capacity.....	84.26 cfs
QMAX @.94D.....	90.64 cfs
Froude Number.....	0.46 (flow is Subcritical)