Pipe Sizing Calculations
100-Year Frequency

61 Waverly Street
The Residences at Ashland

Manning's Equation
$S \times 2/3 \times R \times A \times n \times 1.49$
$R = A/P$

Rational Method Equation
$Q = c \times I \times A$

Manning's Notes		
n	0.013	RCP
n	0.011	HDPE smooth & CIP
c	0.9	Impervious
c	0.35	Open Space

Calculation Notes
Yellow Boxes represent input data
IDF Curve based off of the 100yr storm
Length of pipe was round to the nearest whole number
Assumptions: 0.5% slope

By: KIC
Checked By: WWP
Date: 01/23/2026

*Cornell: 24 hours 100-year storm

Line From	Line To	Length (ft)	Imperv. Area (acres)	Perv. Area (acres)	c*A (acres)	SUM (c*A) (acres)	Time of Conc. (BASIN) (min.)	Rainfall* I (in./hr.)	Req. Cap. Qd (cfs)	Pipe (in)	Slope (ft/ft)	Flow Full Qf (cfs)	Flow Full Vf (fps)	Design Vel. Vd (fps)	Qd/Qf	Time in Pipe (min)
CB_2578	BOX CULVERT	169	0.03	0.03	0.04	0.04	6.00	8.22	0.32	12	0.005	2.52	1.98	1.14	0.13	2.47