

CEEn-2018CPST-007

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Woodland Hills Snow Run-off Drainage Analysis

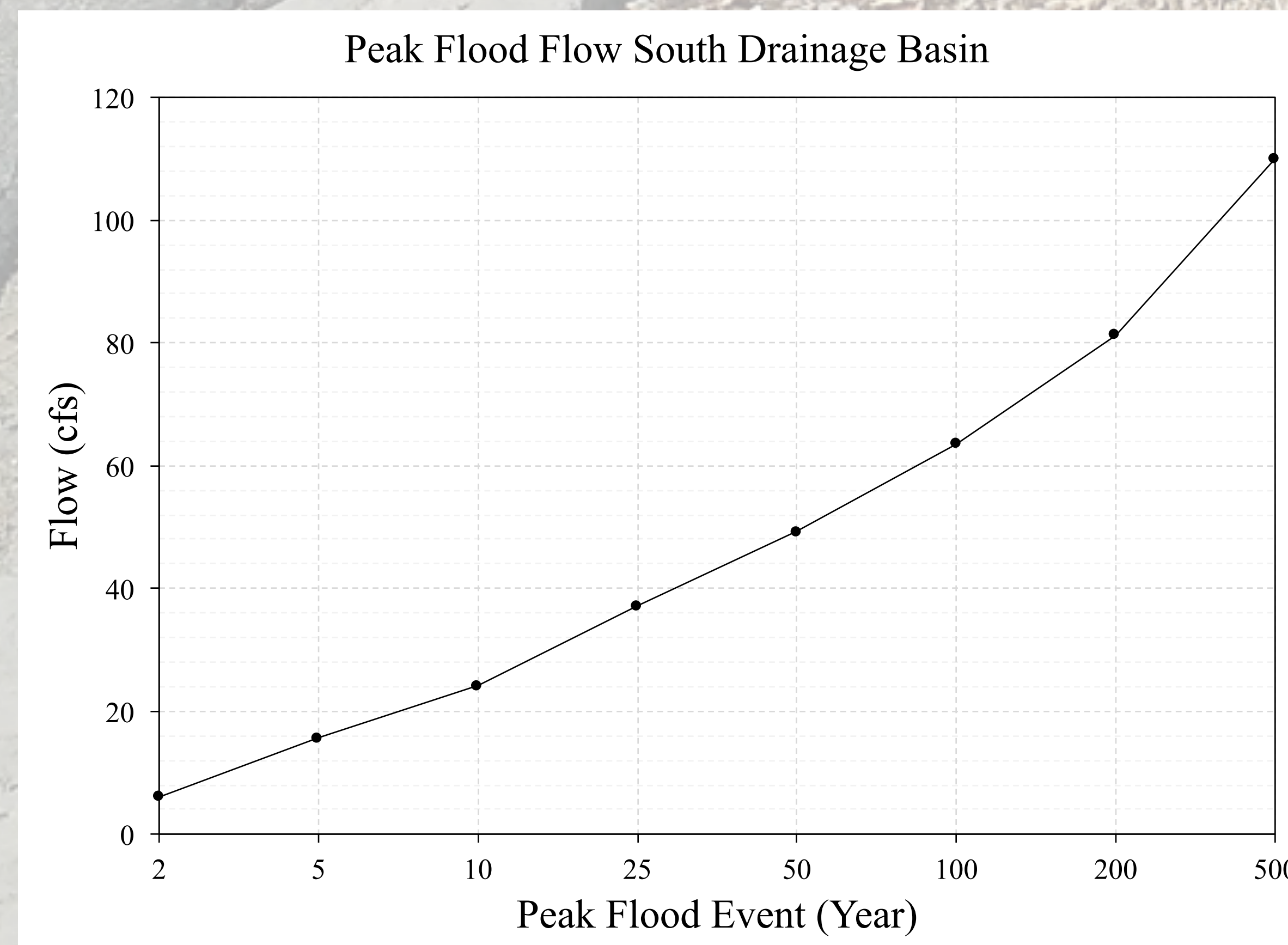
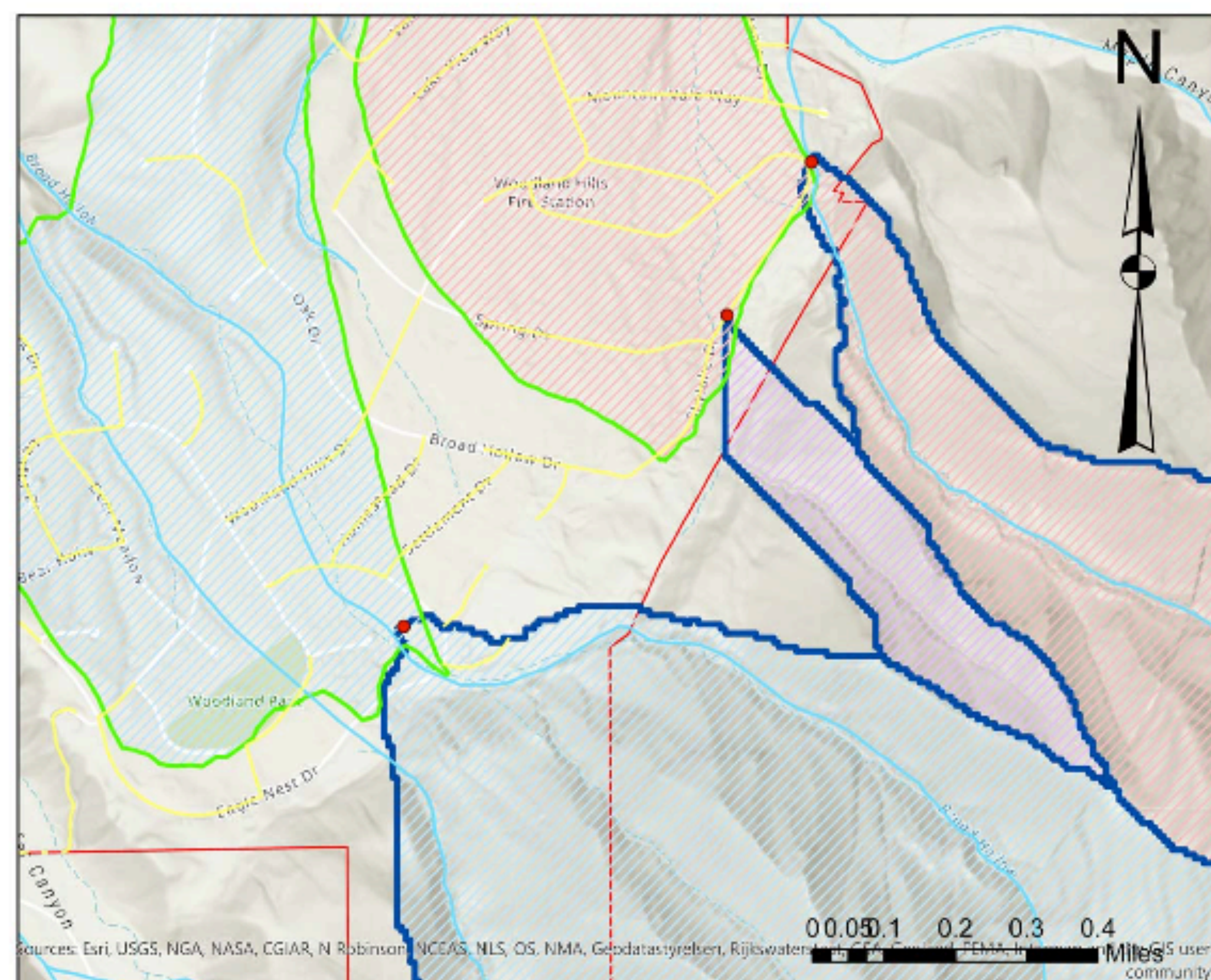
April 3, 2019

### Project Overview

The City of Woodland Hills, UT is a mountainous community in Utah County with minimal storm drain infrastructure. As water and runoff debris move through the water basins, it enters the city, overtopping roads. The City collaborated with Jones and DeMille Engineering and the BYU Civil Engineering Capstone program to delineate water basins, quantify storm flow, design low impact development channels and culverts, and provide probable costs for alternative assessment.

Basin	10-year Peak Flow (cfs)	Tailwater Channel Slope	Culvert Type	Culvert Size (in)	Overtop Flow (cfs)
North	17.7	0.0890 (max 0.110)	Corr. PE	24	22.38
			Corr. AI	24	22.38
			Concrete Pipe	24	22.20
Central	4.82	0.0705	Corr. PE	18	8.34
			Corr. AI	18	8.33
South	29.7	0.0262	Corr. PE	30	31.6
			Corr. AI	30	30.92
			Concrete Pipe	30	31.40

Three main drainage basins impact Woodland Hills; they were identified as North, Central, and South. They are outlined in blue in the figure below.



StreamStats.com was used to obtain the peak water flows for each basin, as shown in the chart.



Three material types were presented for road-crossing culverts. Corrugated polyethylene pipe is the most economical material. An example drawing is shown below.

