

Harlem Heights / Fairwold Acres Area  
Drainage Study  
Community Meeting #1  
September 17, 2015

# THE NEIGHBORHOOD OF Harlem Introductions



## City of Columbia

- Dana Higgins, PE, City Engineer
- Mike Jaspers, PG, Stormwater Manager
- Councilman Sam Davis, Columbia City Council
- Senator John L. Scott, Jr., District 19



## Woolpert, Inc.

- Trevor Gauron, PE, Project Manager
- Hal Clarkson, PE, CFM, Project Director



## Chao and Associates



## P.J. Noble and Associates, Inc.

- Pat Noble, President and CEO
- Gwendolyn Singletary

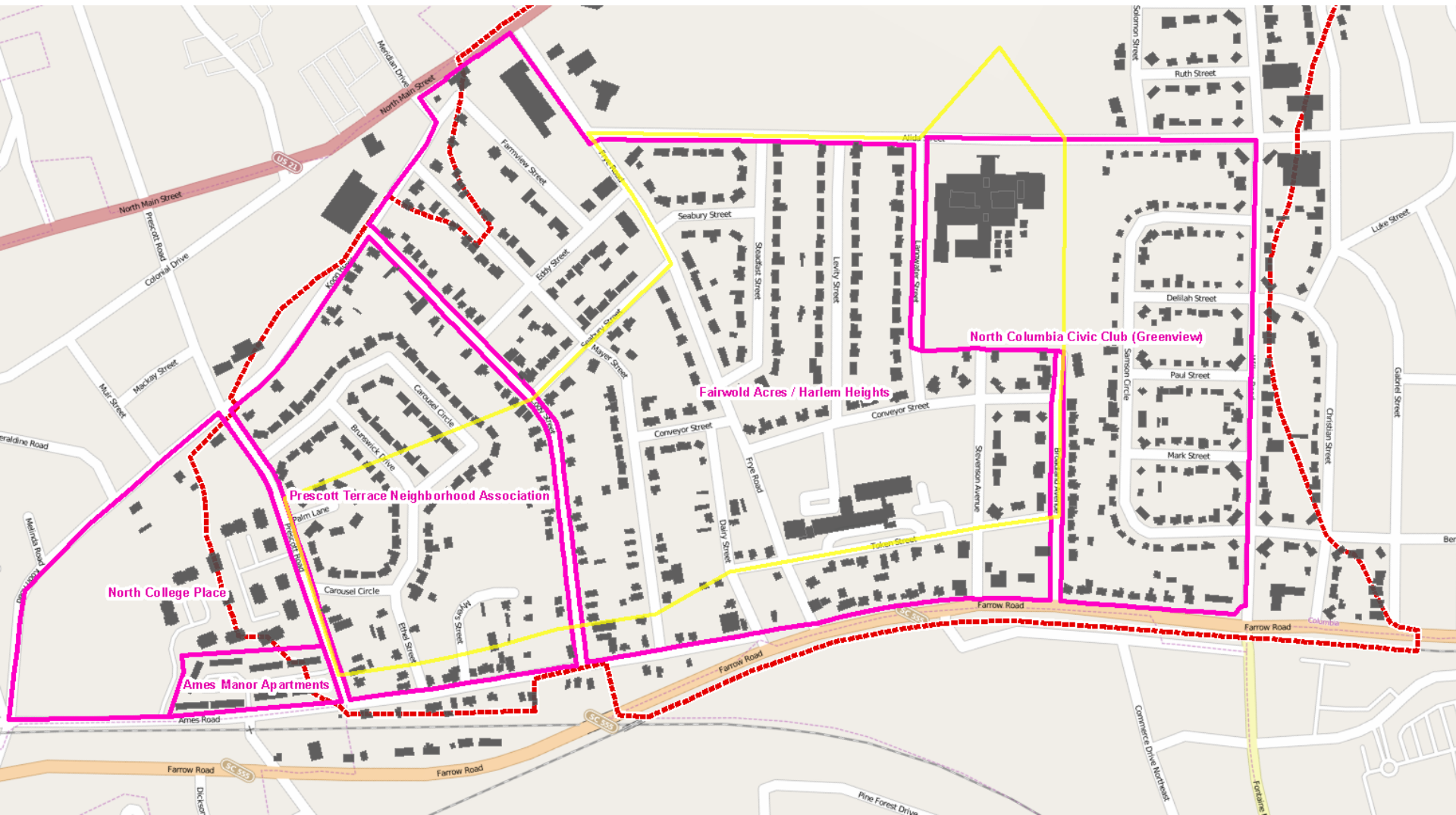


## 4D Engineering



## Schnabel Engineering

# Your Neighborhood



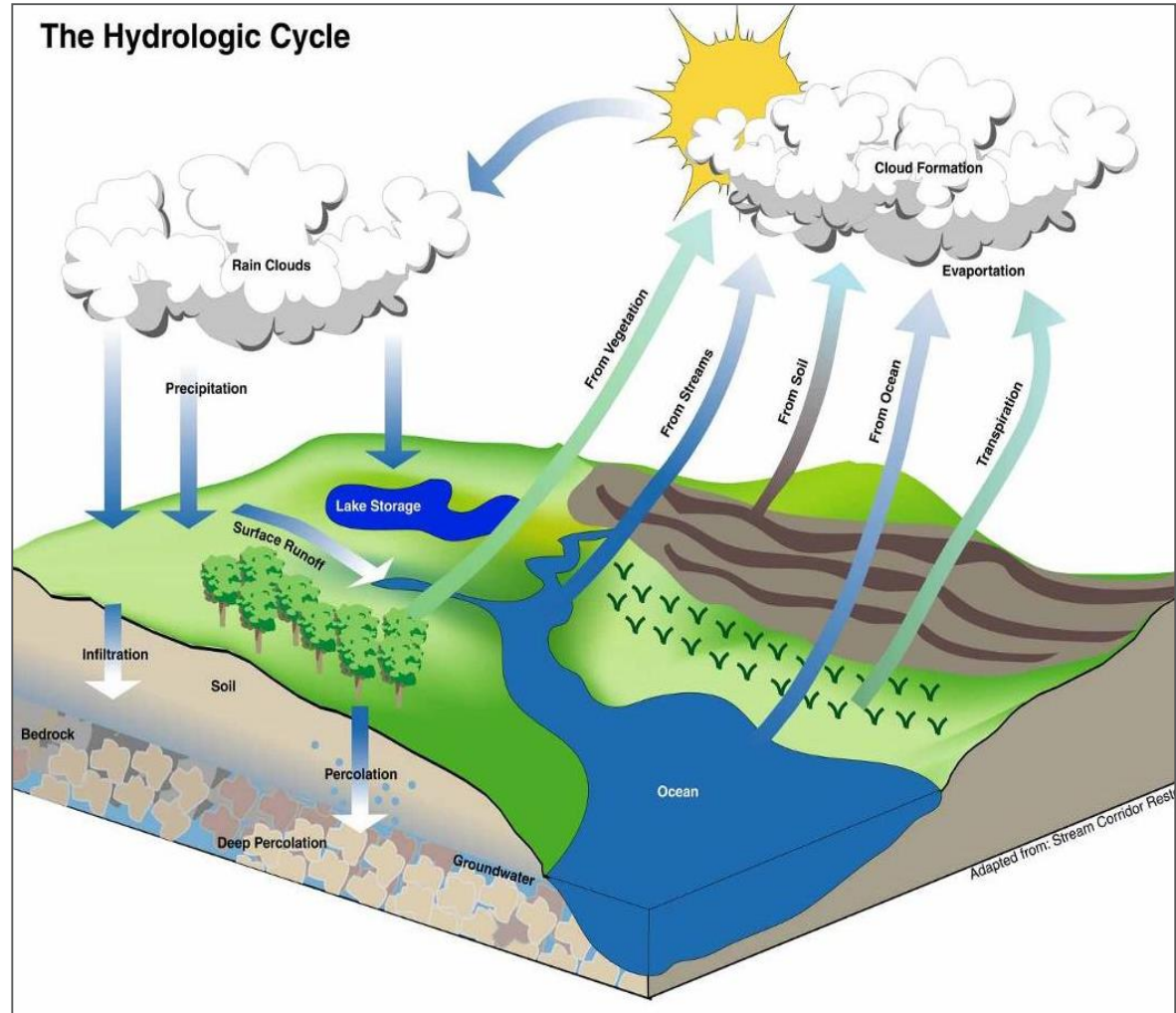
# Study Purpose

- Harlem Heights experiences localized flooding following certain rain events
- City of Columbia wants to help alleviate problems to the extent practicable
- Reduce flooding depth and frequency
- Maintain access to community



# Terminology

- Watershed
- Hydrology
- Hydraulics
- Design storm
- XP-SWWM
- Level of Service
- Mitigation
- High Water Mark

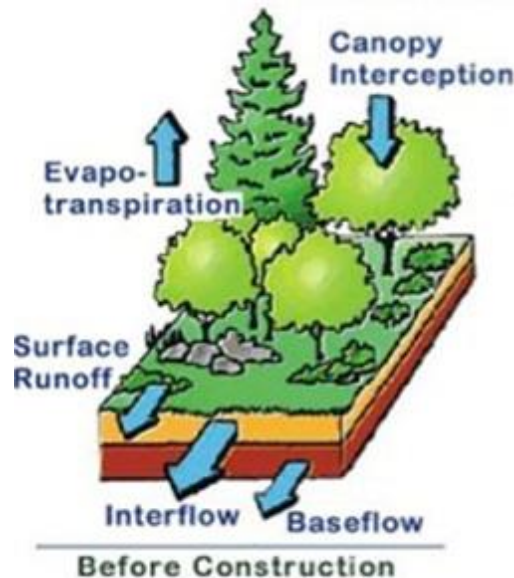


# Data Gathering

## Hydrologic Considerations









- How much rain falls from the sky?
- How much rain water soaks into the ground?
- How much rain water flows over land?
- How fast does the localized flooding recede?

*Local Hydrologic Cycle*



# Design Storm...

For a 6-hour storm event:

			
			
Thunderstorm	10-year	50-year	100-year
100% Yearly Probability	10% Yearly Probability	2% Yearly Probability	1% Yearly Probability

# Data Gathering

- Review available data from City
  - Complaint records
  - Past events
  - Recent maintenance / construction activities



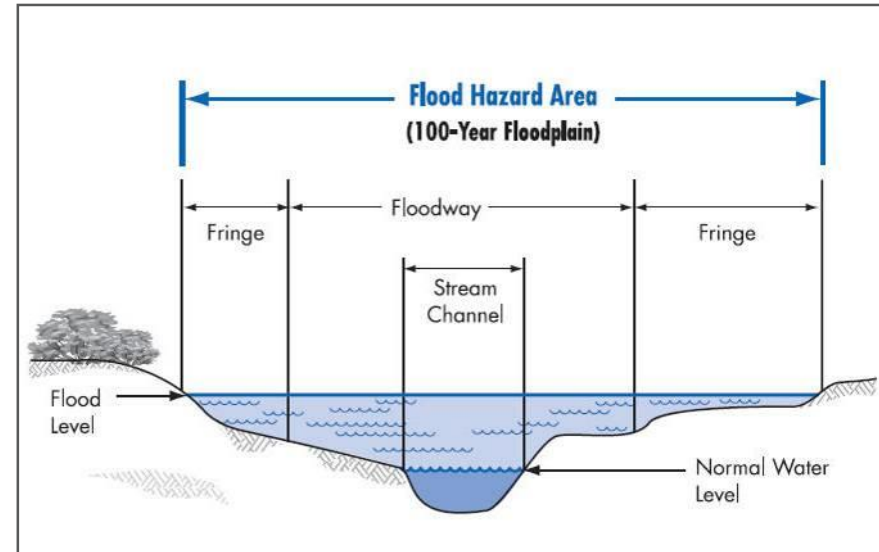


# Watershed Area

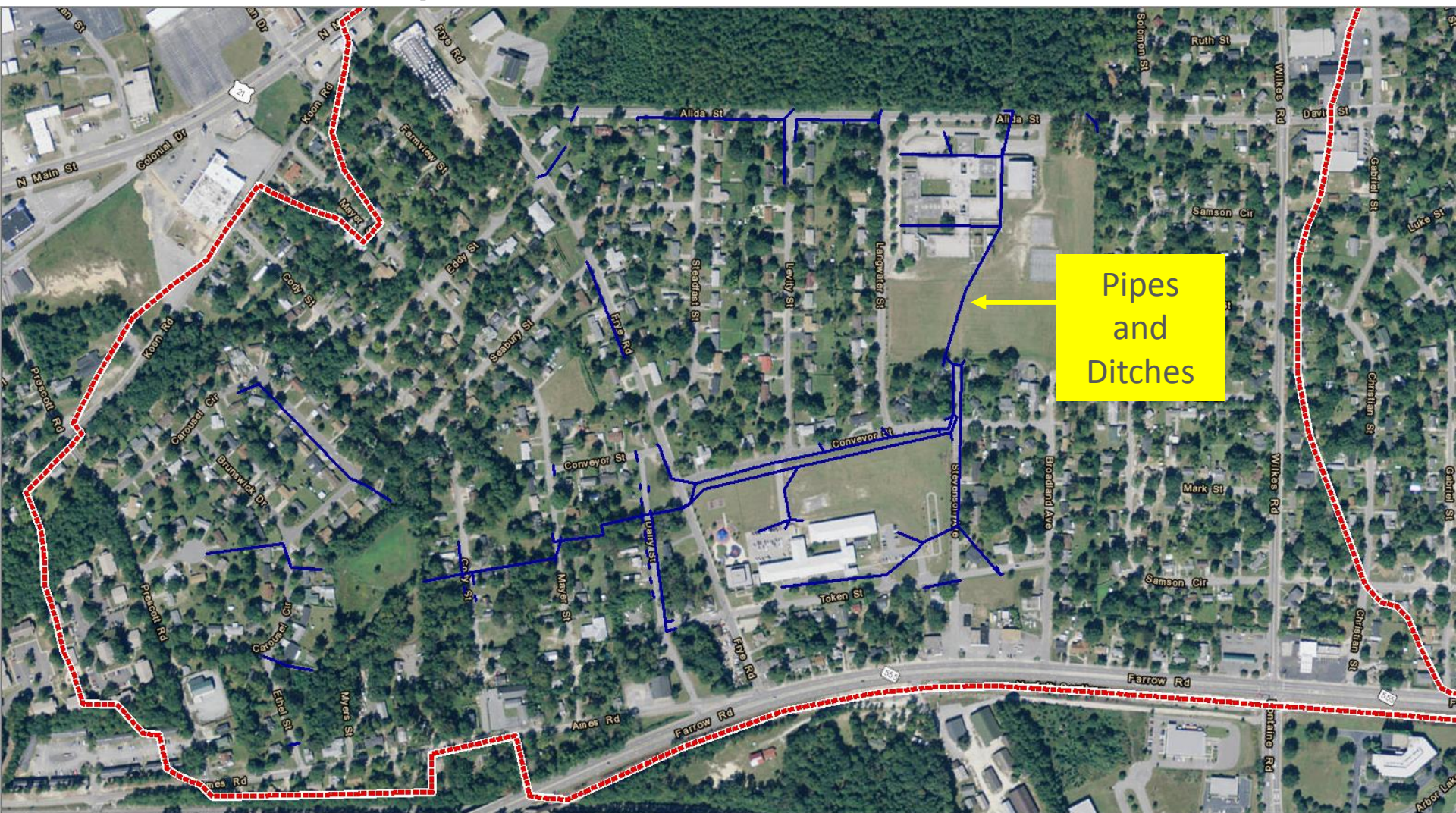


# Data Gathering

- Field survey
  - Pipe and inlet data
  - High water marks
  - Ditch cross sections
  - Home and road elevations

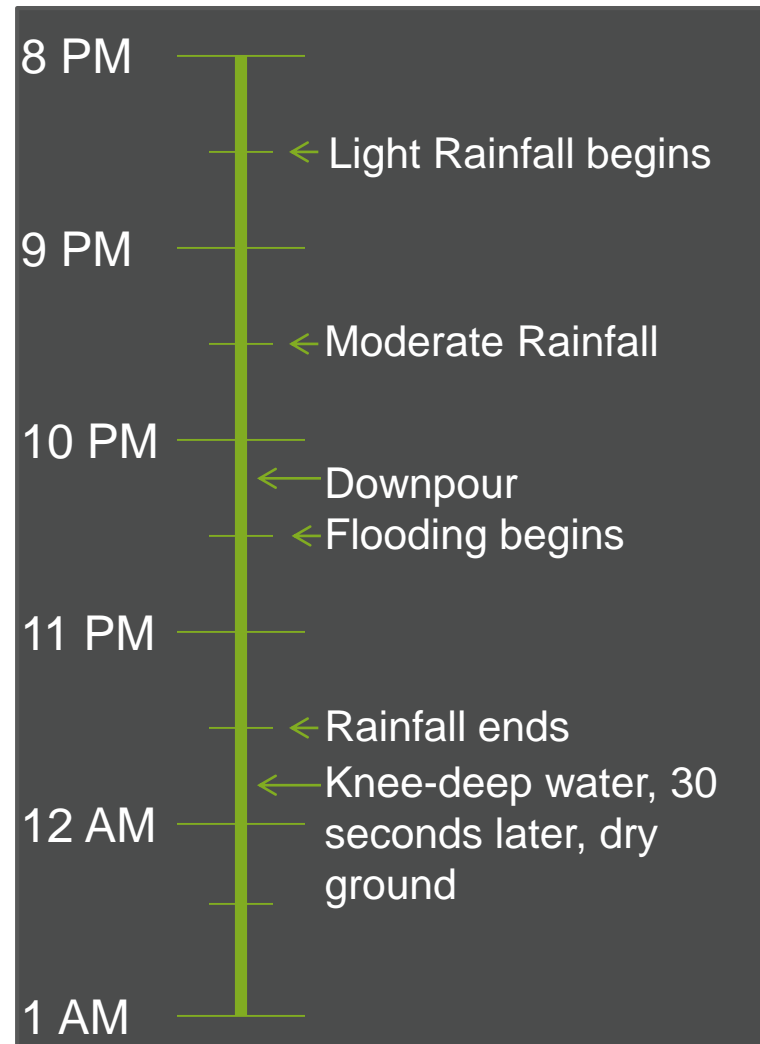


# Field Survey



# Data Gathering

- Eyewitness accounts
  - Flood limits and high water marks
  - Flood rise and fall times
  - Debris accumulations



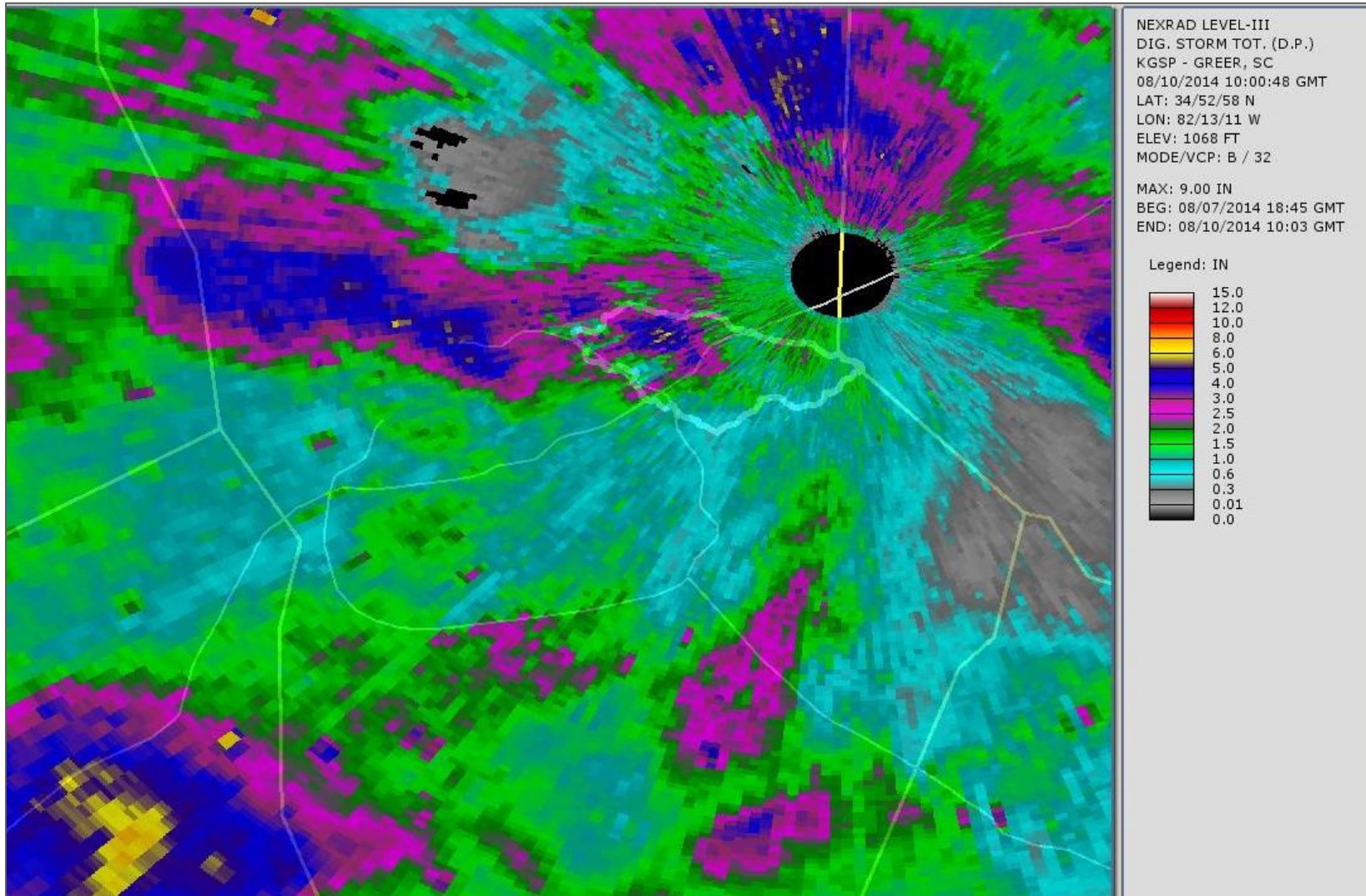
# Data Gathering



High Water Marks



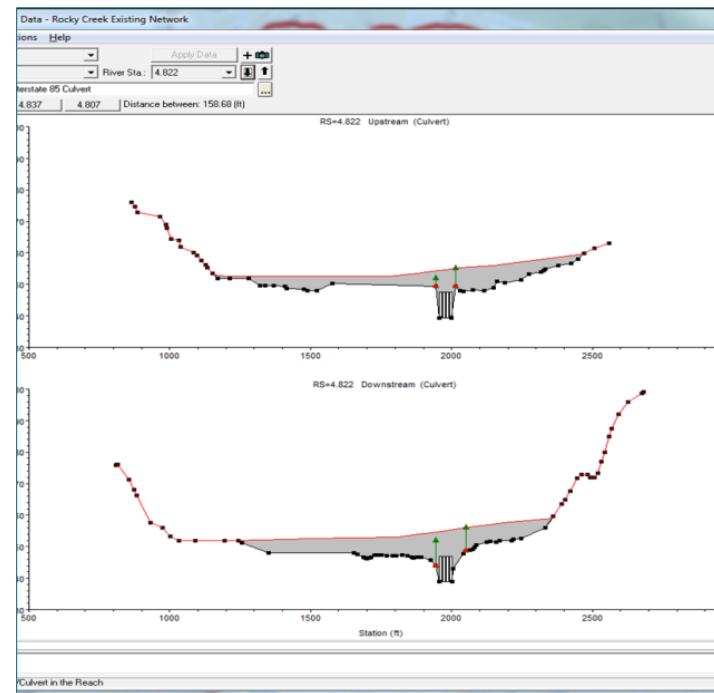
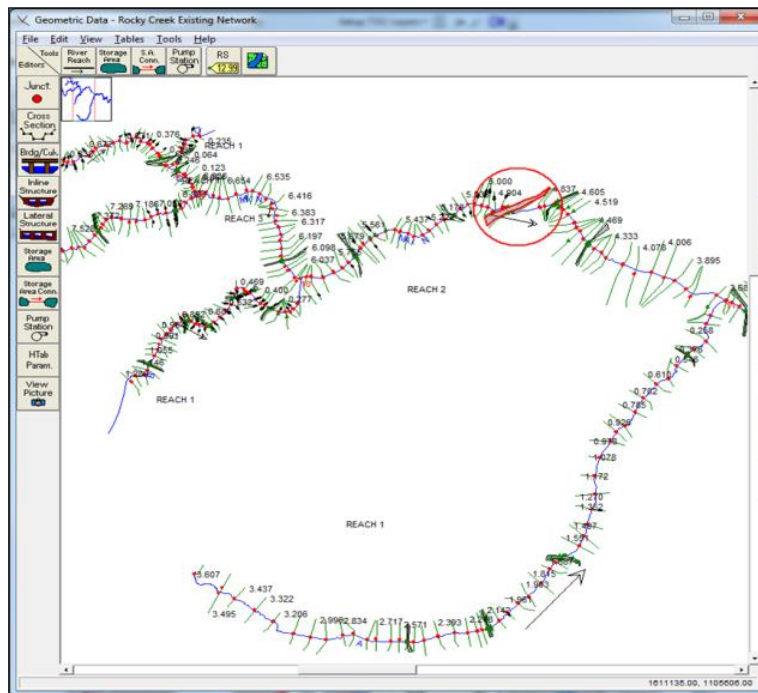
# Data Gathering – Rainfall Data



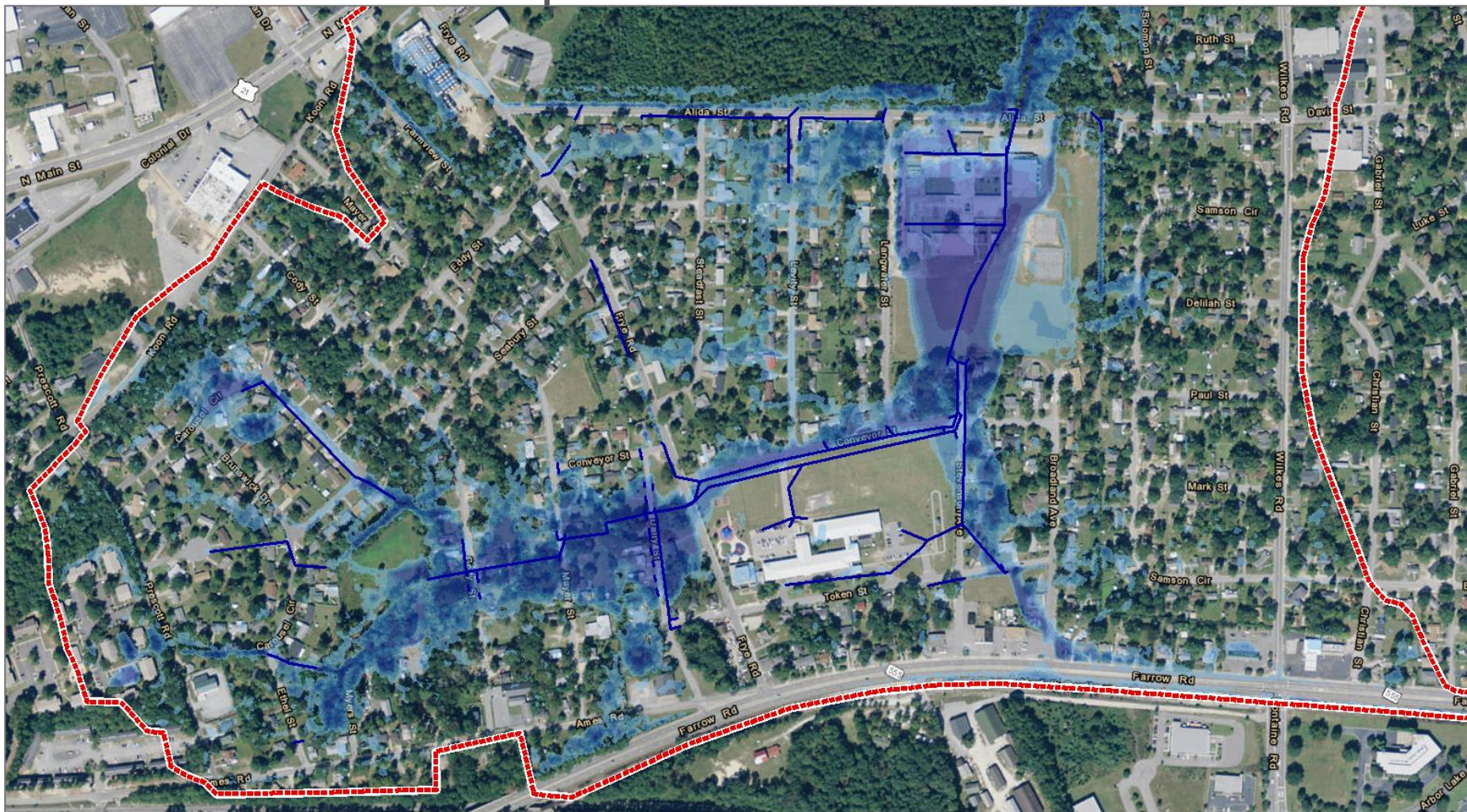
# Model Development

Used to verify:

- areas of flooding
- other areas of potential flooding
- determine level of service of existing drainage system

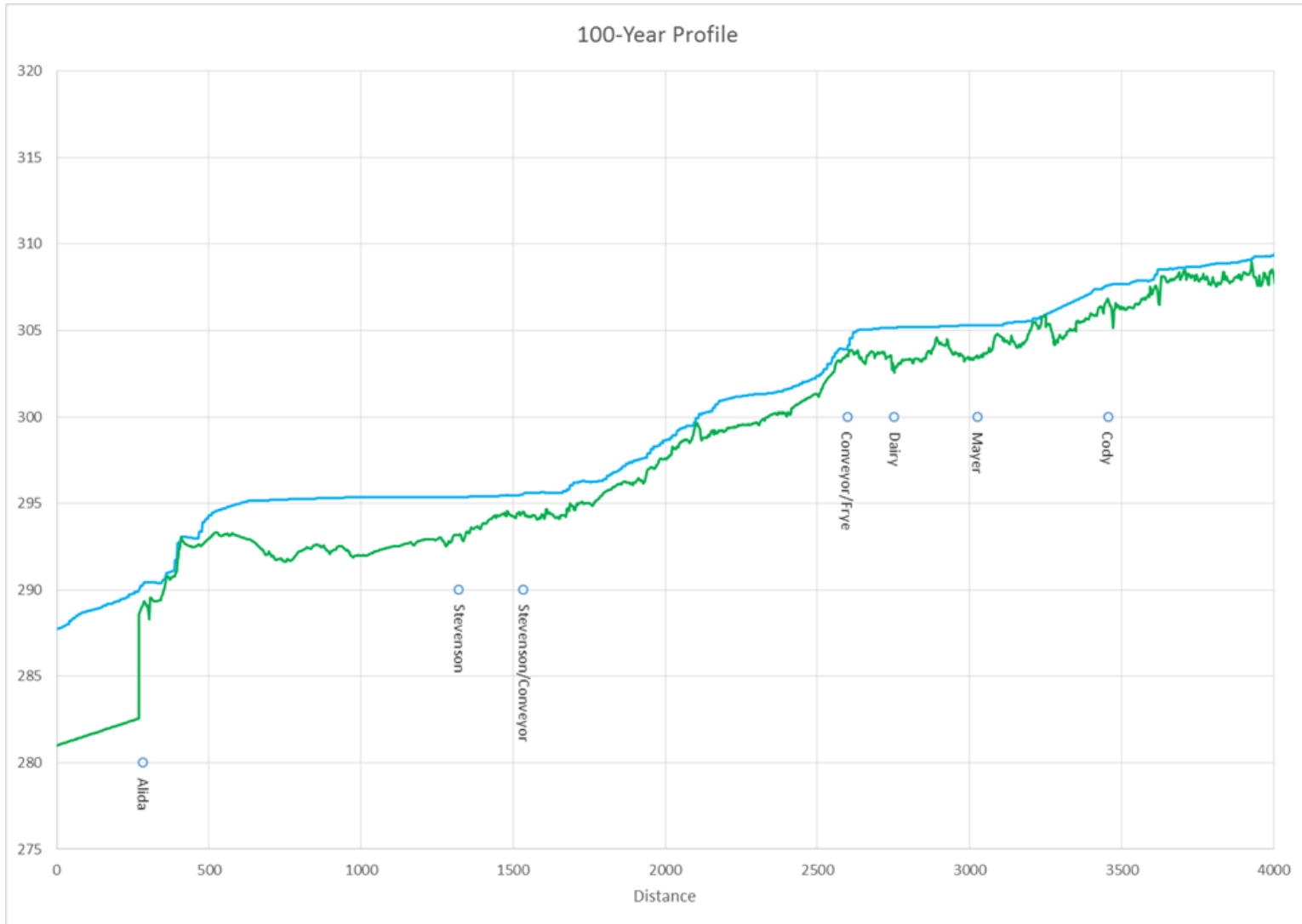


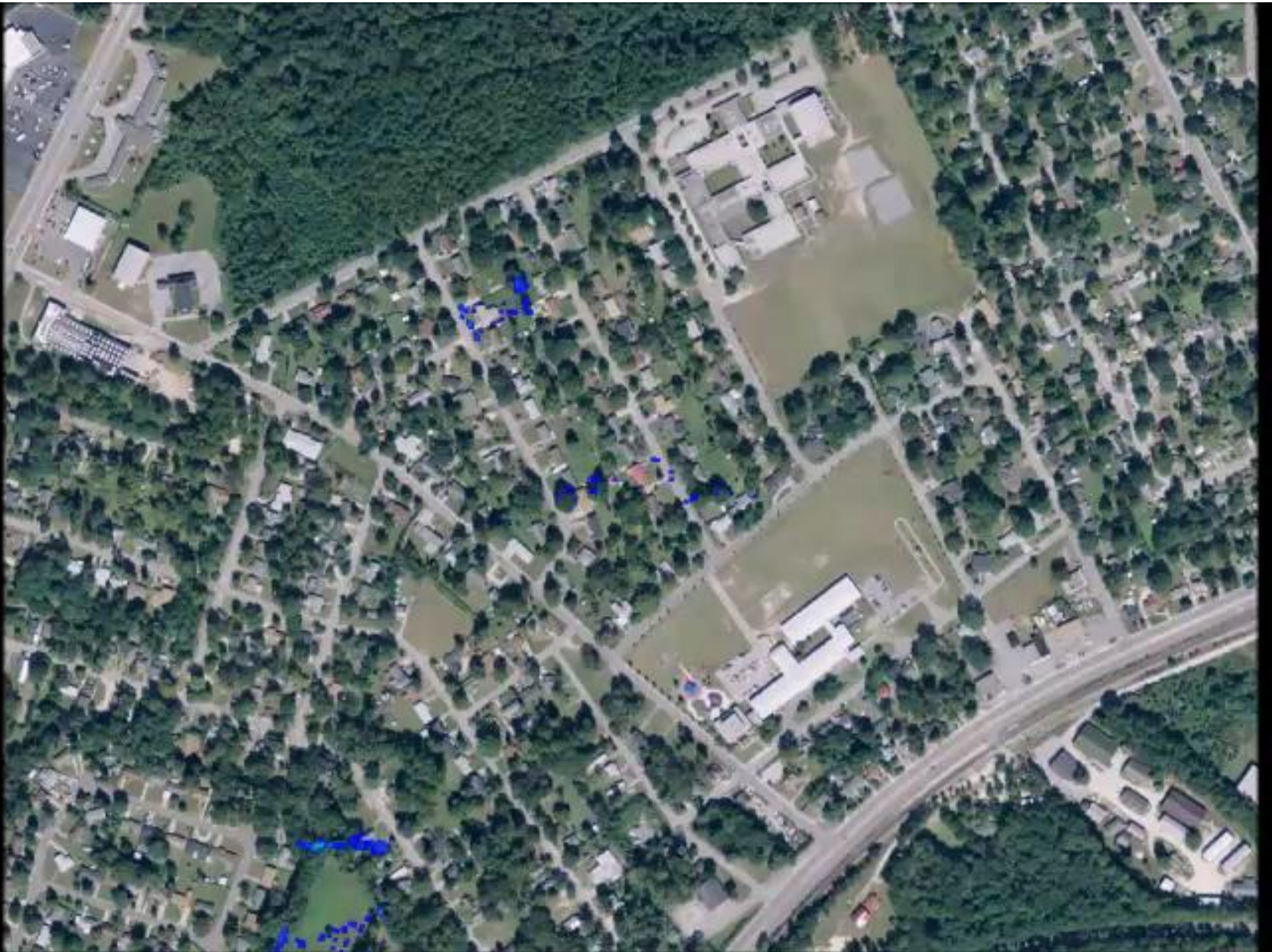
# Model Development - Results



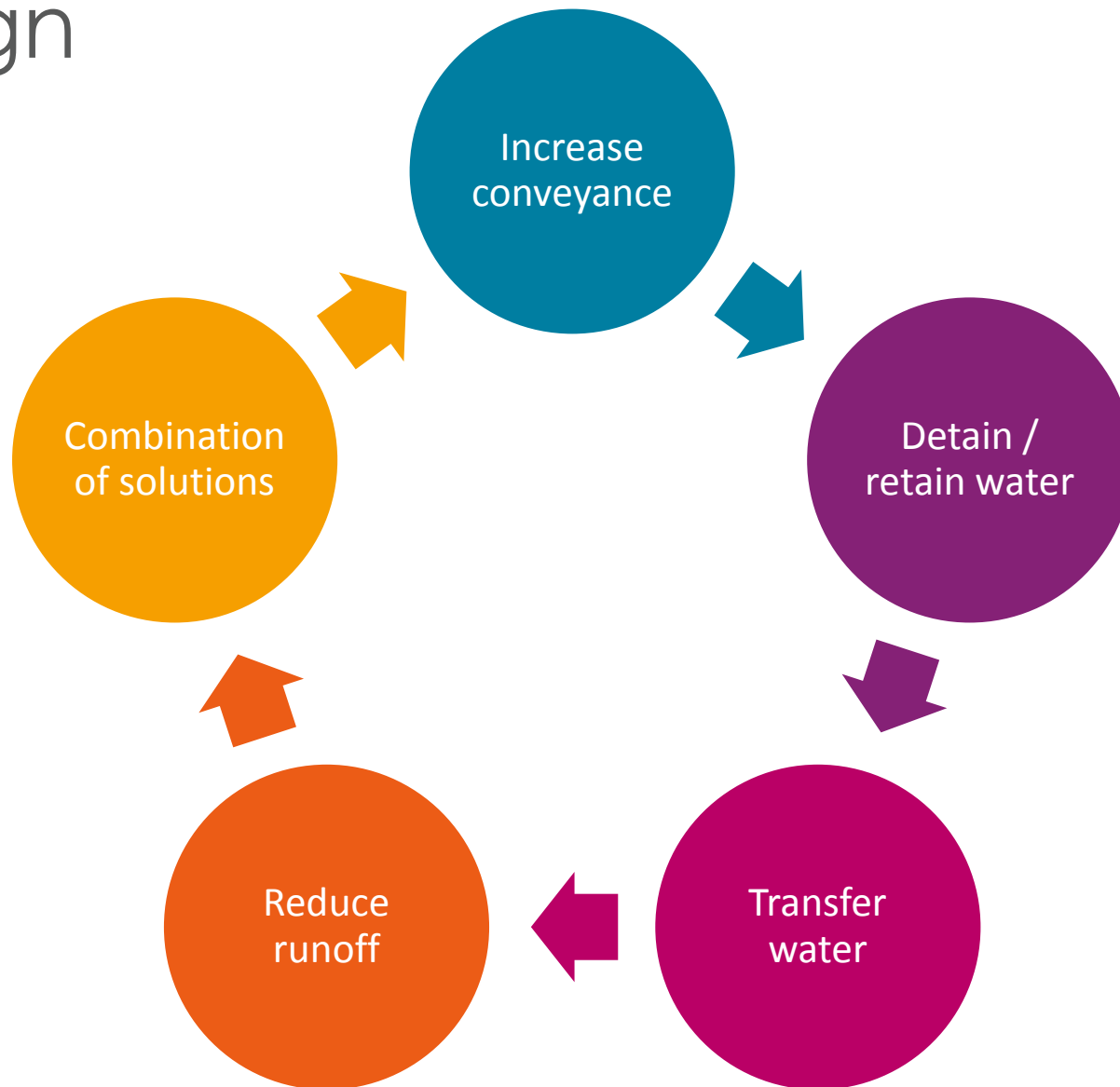


# Model Development – Flood Profile





# Design



Project Task Name	Approximate Date
Field Survey and & Data Gathering	July – August 2015
Community Meeting #1	September 17, 2015
Hydraulic Study	September – December 2015
Community Meeting #2	January 2016
Alternatives Analysis	October – January 2016
Community Meeting #3	February 2016
Design Services	Spring 2016
Construction	To Be Determined

# Questions and Answers



# Contact Information

## **Woolpert, Inc.**

2000 Center Point Drive, Suite 2200

Columbia, SC 29210

803.214.5881

**Hal Clarkson** – [Hal.Clarkson@woolpert.com](mailto:Hal.Clarkson@woolpert.com)