

# UNDERSTANDING THE VOLUME REDUCTION PHILOSOPHY

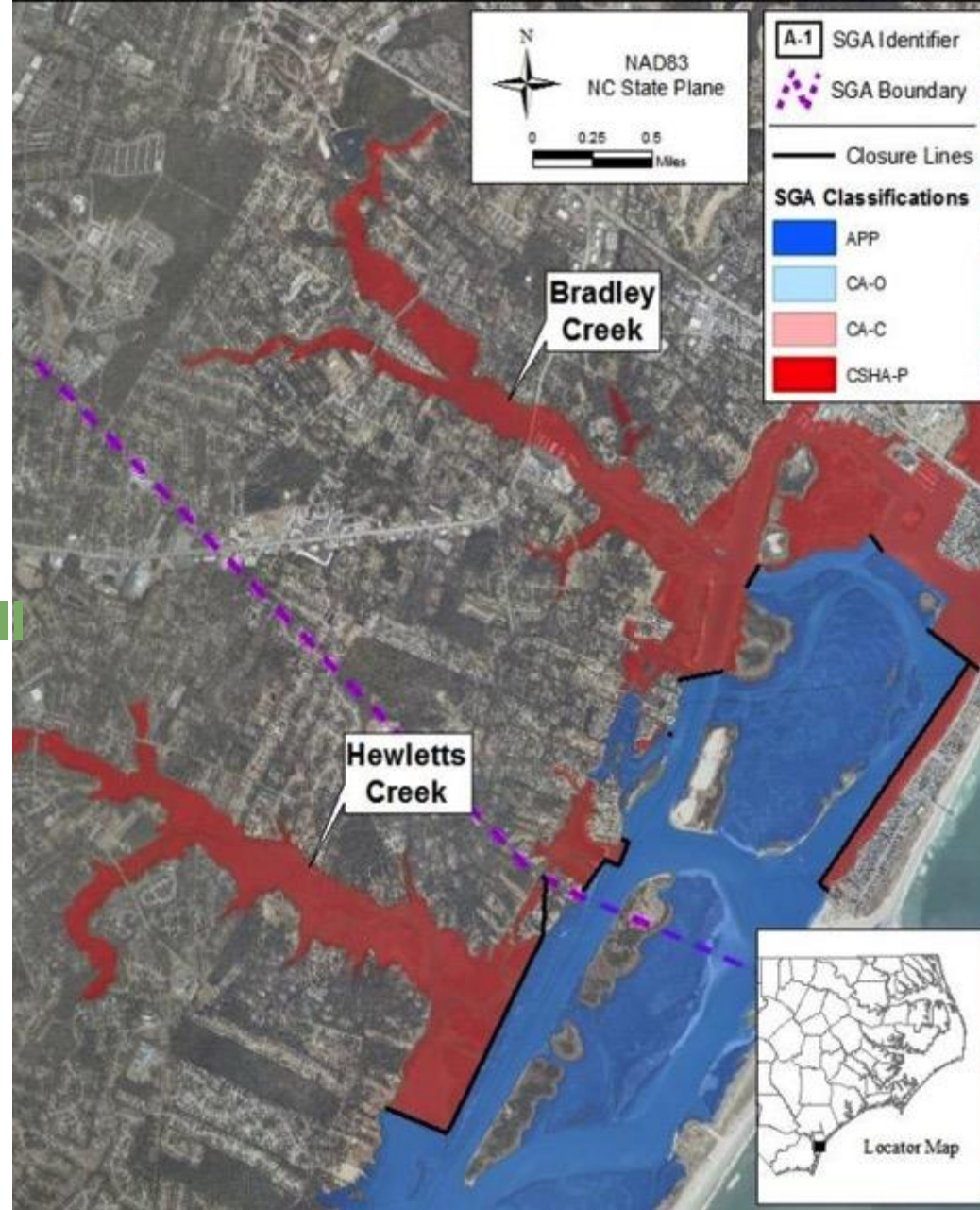
**Hunter Freeman, PE**



# Targeting Bacteria

## Shellfishing and Recreational Closures

- Permanent closures
- Closure in response to rainfall





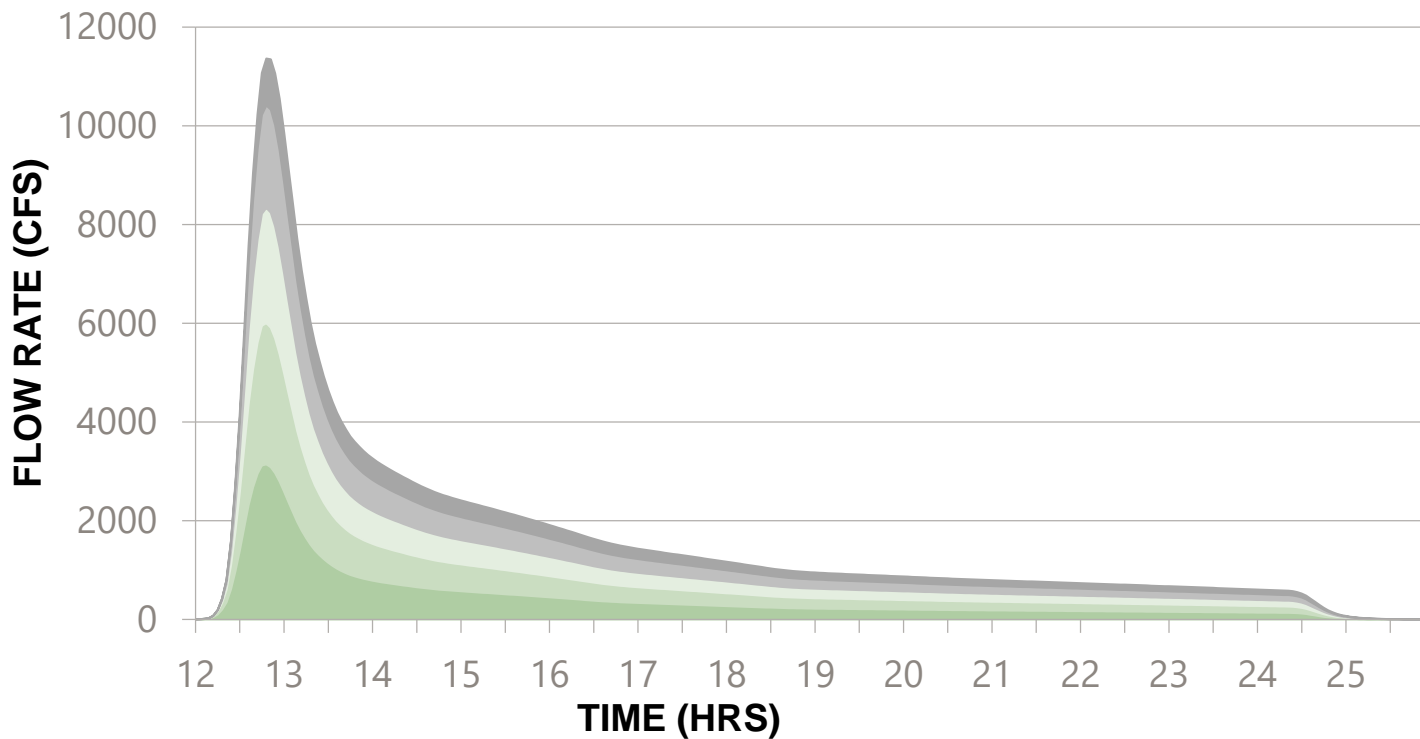


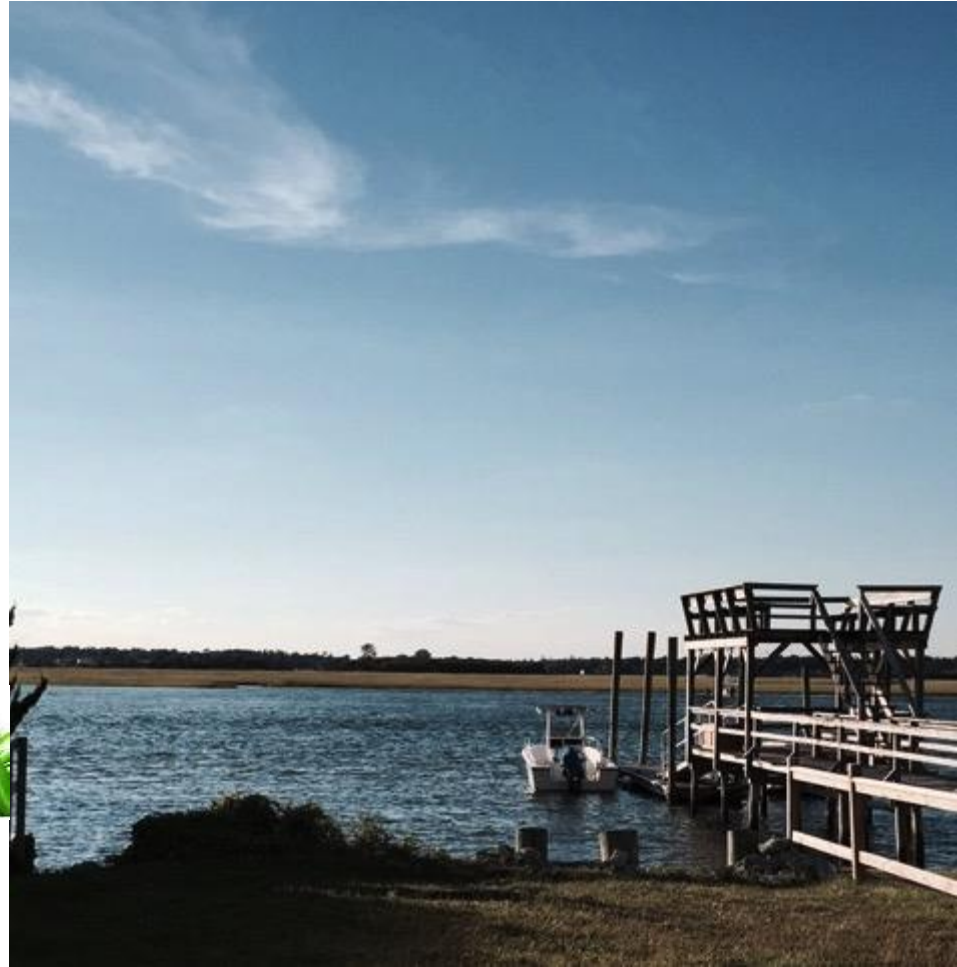
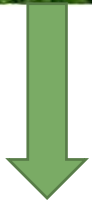
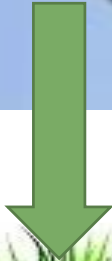
# Land Use Impacts

## Changing Hydrology

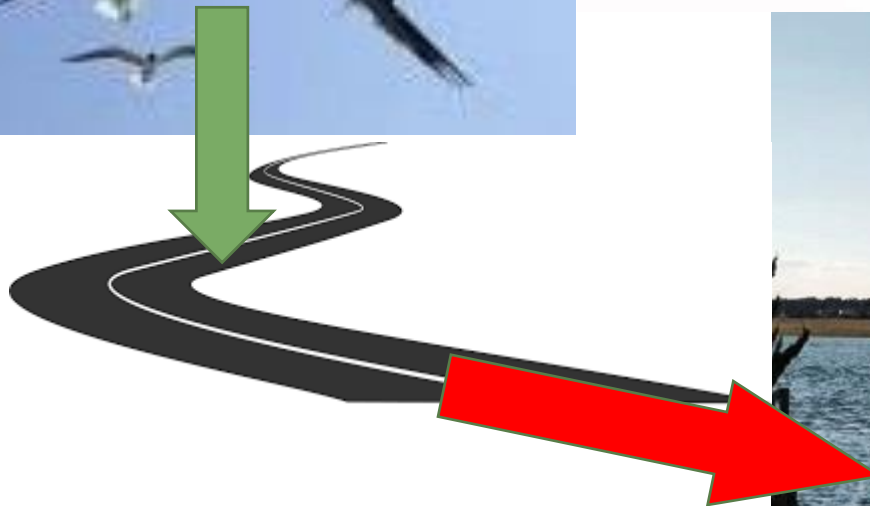
- Increase in volume
- Increase in transport

HEWLETTS CREEK WATERSHED  
1-YR STORM HYDROGRAPHS





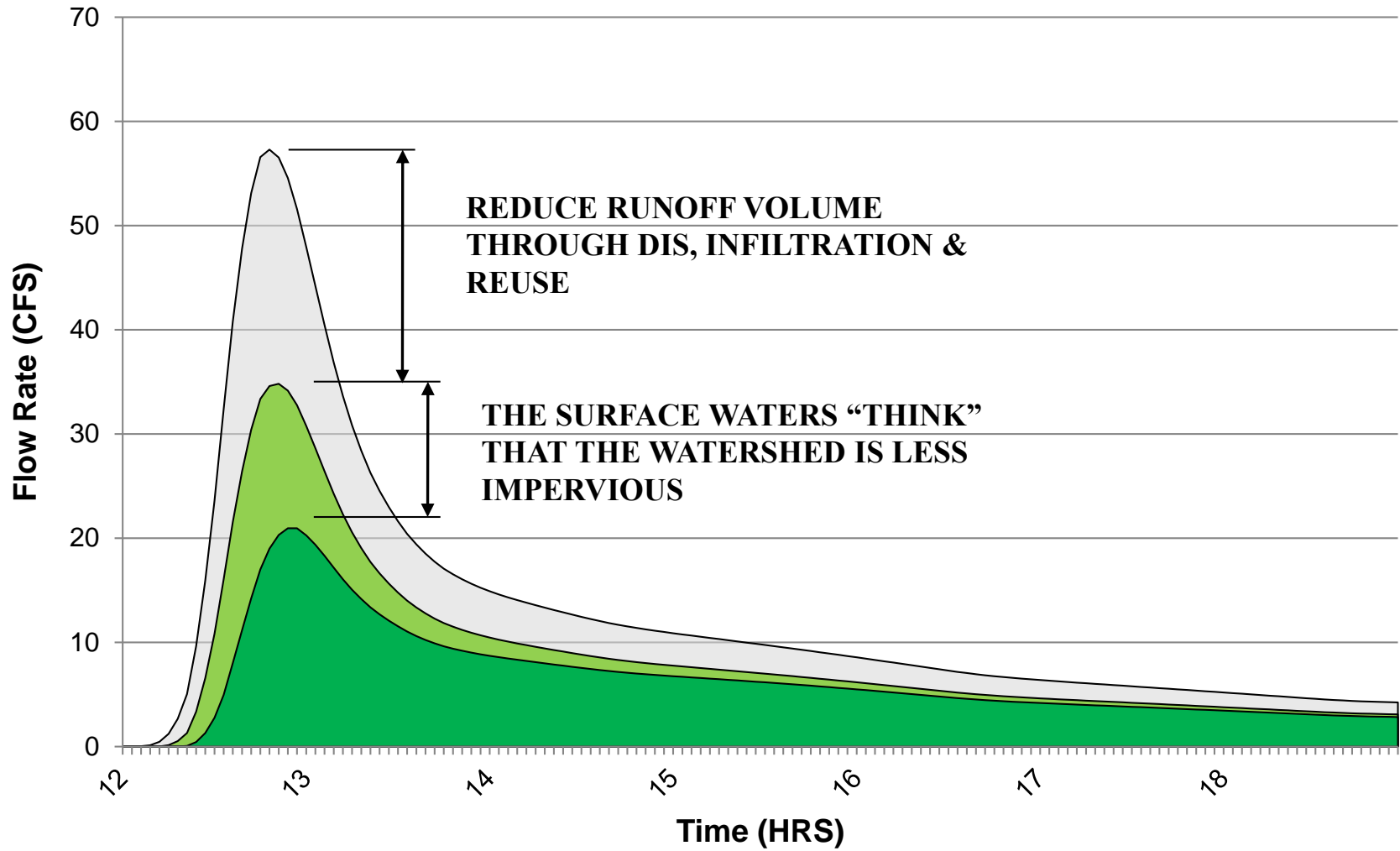
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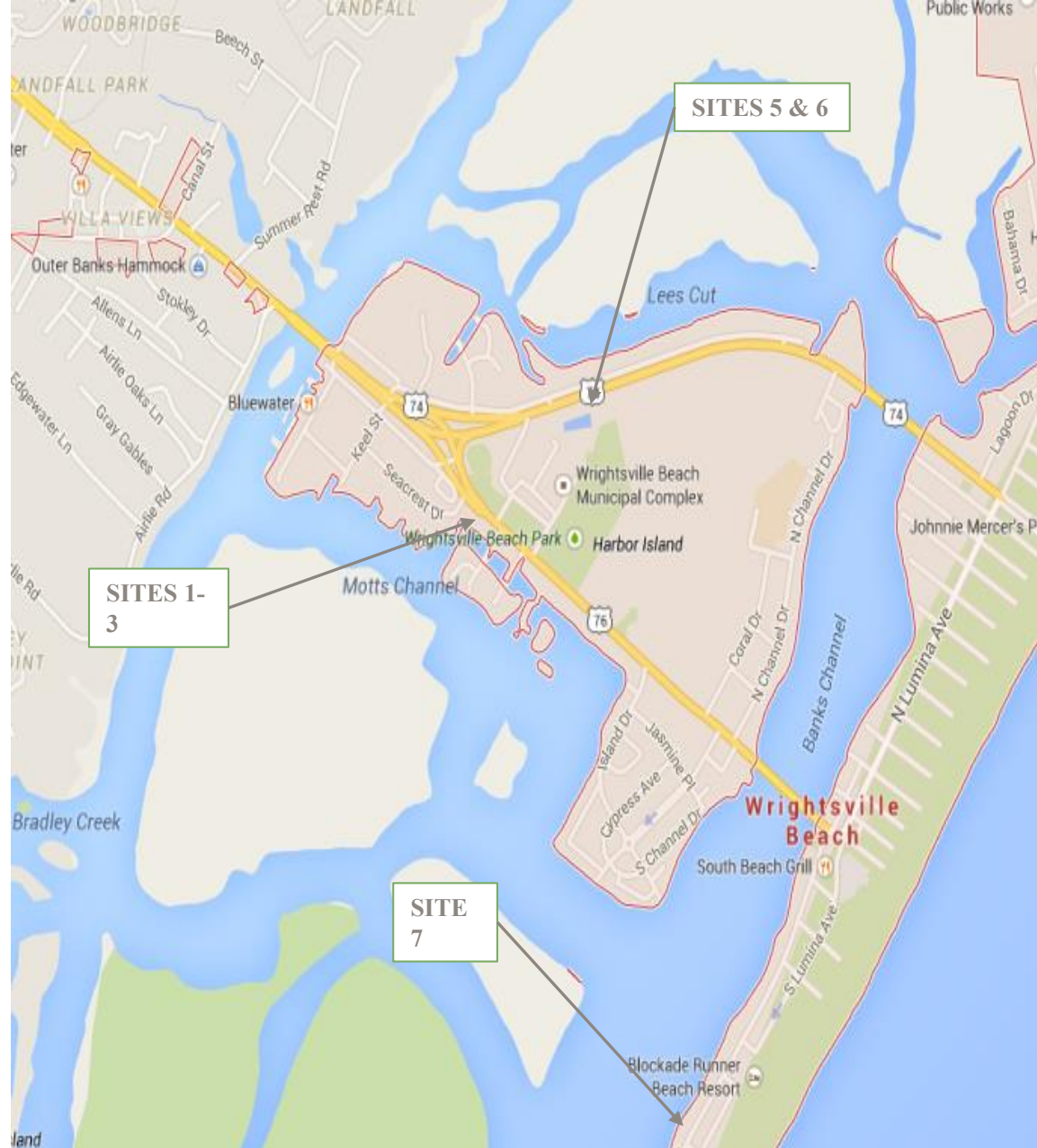
# Wrightsville Beach Retrofit Sites

## Sites 1, 2, 3, 5 & 6

- Drain to Lee's Cut
- Captures runoff from +/- 60% of BUA within the watershed

## Site 7

- Drains to Banks Channel
- Captures runoff from 100% of the BUA within the watershed



# Wrightsville Beach Sites

- **Simple Solutions**

- Excavate behind curb line
- Curb cuts, flumes
- Raised grates, check dams

- **Site 5 – Bioretention Area**

- IWS

- **NCDOT Coordination**

- **Town Coordination**





















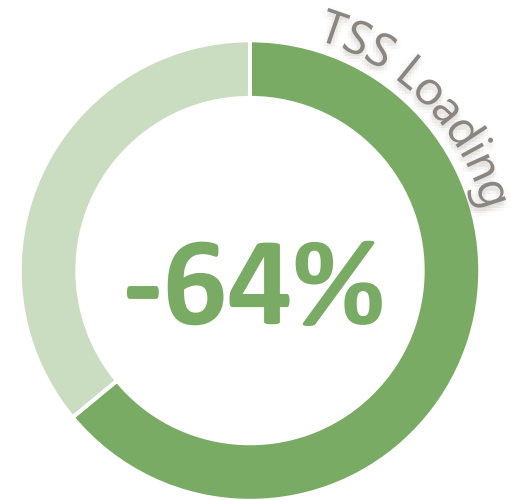
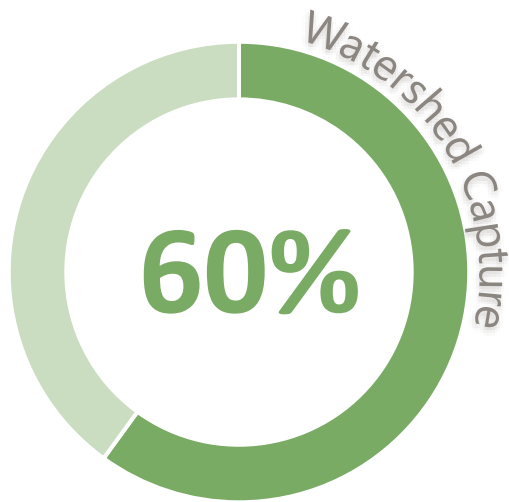


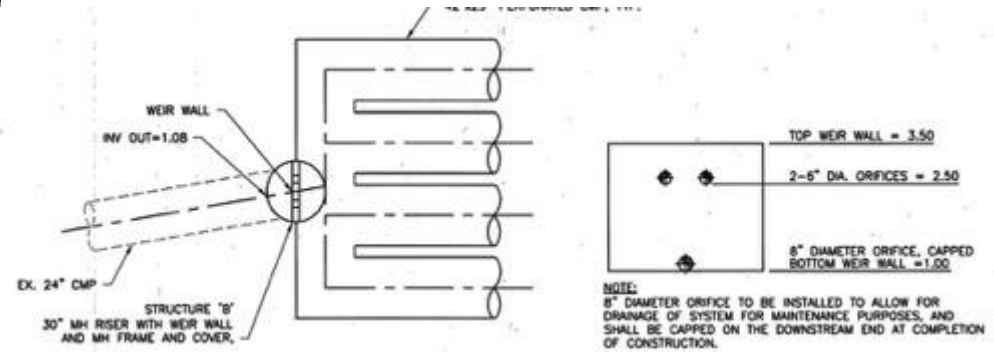
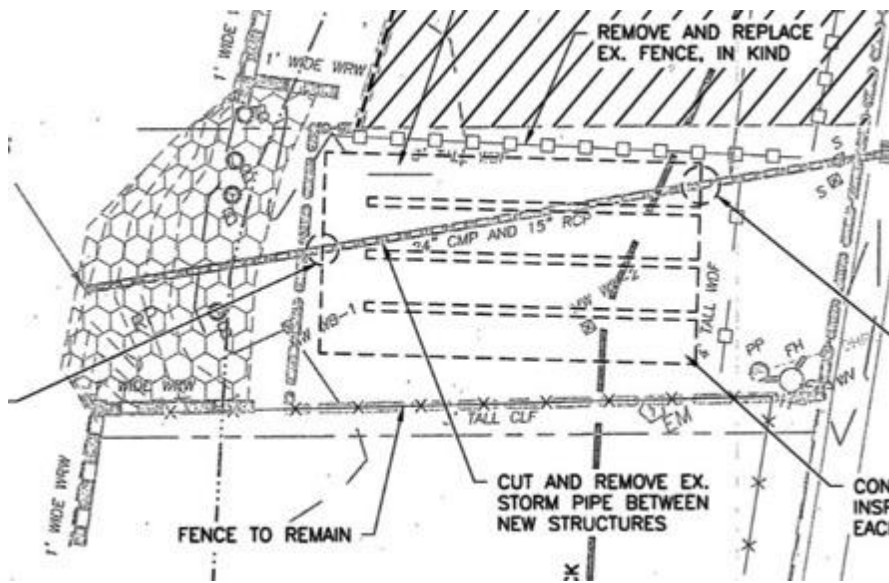




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# Lee's Cut Performance Summary







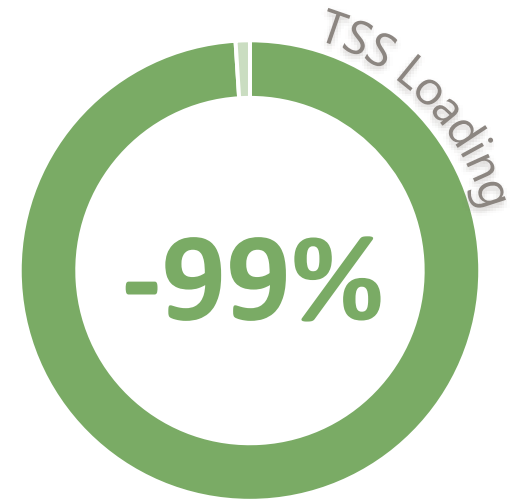








# Iula Street Performance Summary





# QUESTIONS?