



**Our Mission lies in building infrastructure that will protect public health and maintain water of the highest quality in the most cost-effective manner while providing local jobs.**

# Welcome

*Special thanks to all of our hard working teaming partners and dedicated leaders at the City of Akron, including:*

DAN HARRIGAN, MAYOR

JOHN O. MOORE, SERVICE DIRECTOR


CHRIS D. LUDLE, DEPUTY SERVICE DIRECTOR

JAMES A HEWITT, PE, CITY ENGINEER

PATRICK D. GSELLMAN, PE WW3, PROGRAM MANAGER

BRIAN M. GRESSER, PE, WRS MANAGER

ROBERT SOLOMON, PE, PROJECT MANAGER



CSO TRILOGY – GRAY TO GREEN TO GRAY  
HOWARD STORAGE BASIN  
AKRON WATERWAYS RENEWED

Presented by: Robert Solomon, PE & David Frank, PE



# Agenda

- › BACKGROUND
- › COMPLIANCE – CSO TRILOGY - GRAY TO GREEN TO GRAY
- › INTEGRATED PLANNING SEPARATION & GI CHALLENGES
- › STORAGE BASIN
- › CREATIVE FINANCING
- › CONSTRUCTION AFO

# 411 on the 330

## Census:

- Population ~200,000
- Service Area Population 350,000

## Great Lakes & Ohio River Basins:

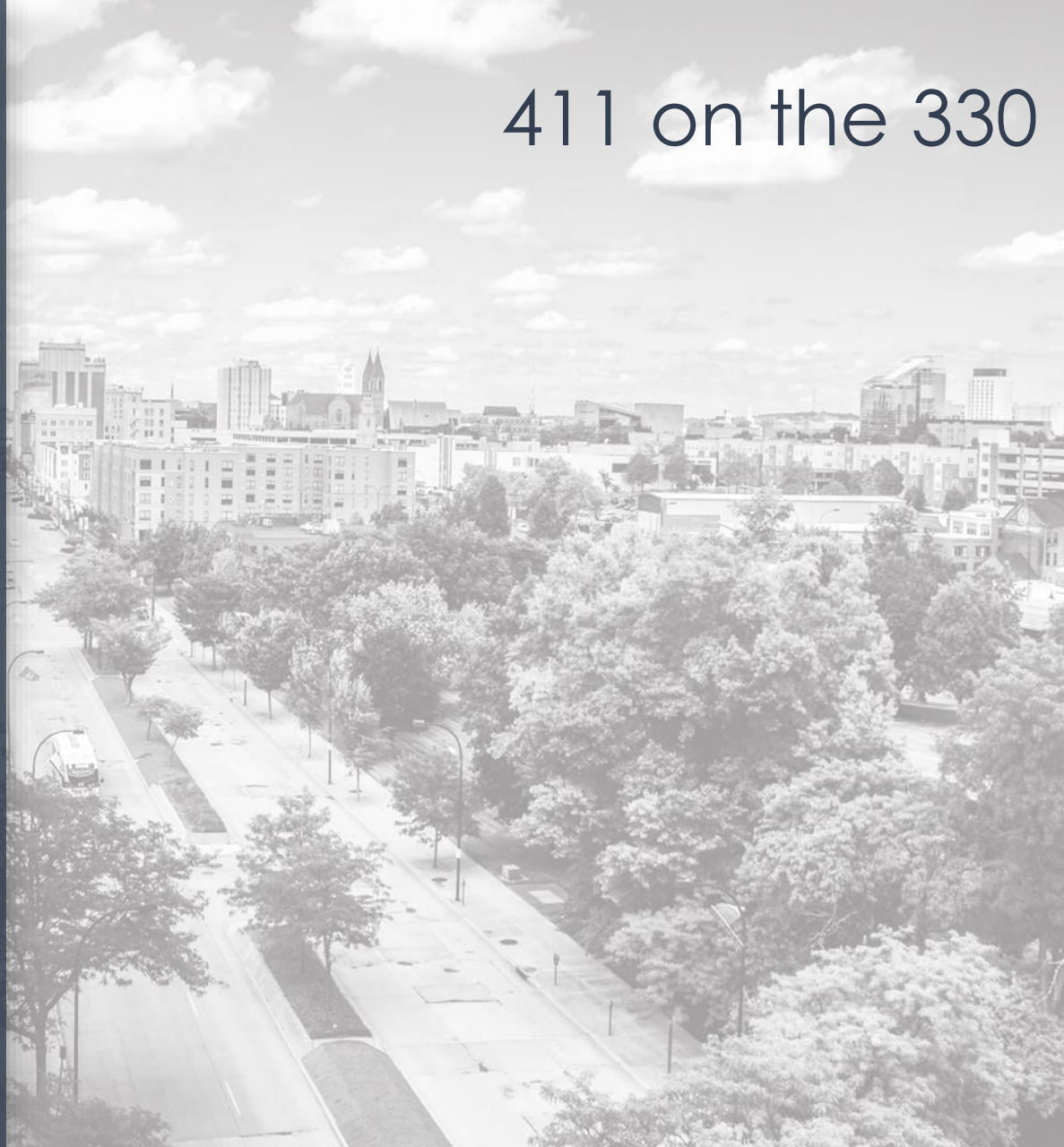
- Receiving Waterways:
  - Cuyahoga River
  - Tuscarawas River

## WRF (WWTP) Capacity:

- Activated Sludge Process - 175mgd avg./130mgd max.
- Secondary Treatment – 280mgd hydraulic peak

## Consent Decree:

- Entered in January 2014 (Started 1991)
- ZERO overflows during the TY storm.





# 411 on the 330



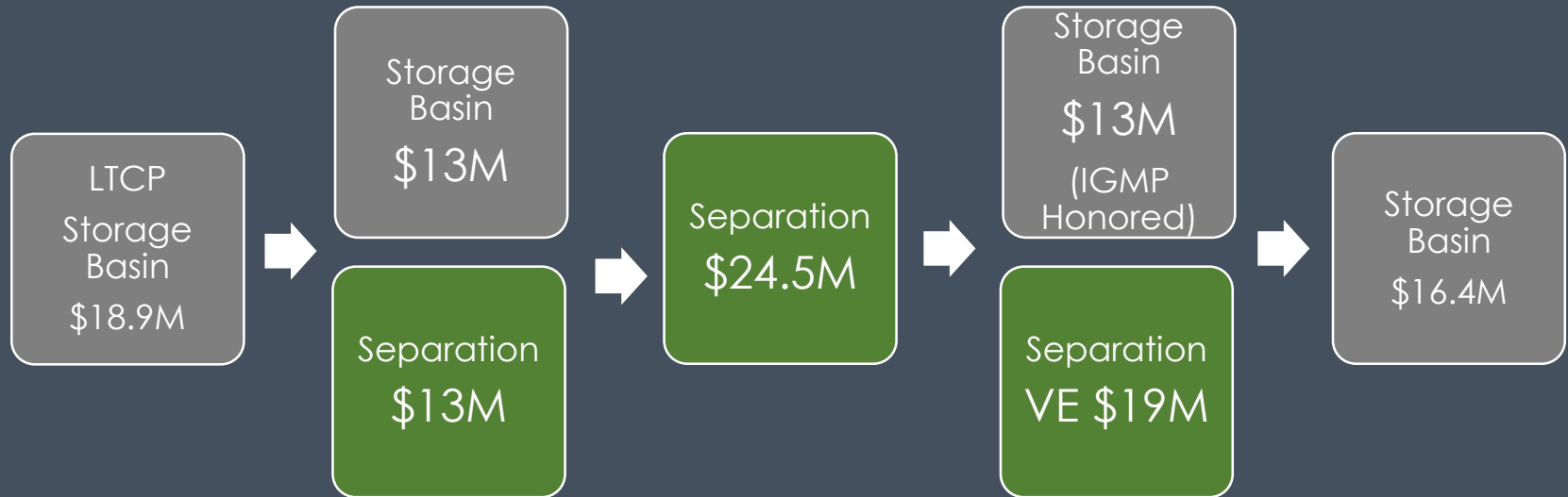
## Long Term Control Plan:

- WRF WWTP Increased Capacity
- 10 CSO Storage Basins
- 27' Dia. Ohio Canal Interceptor Tunnel
- Northside Interceptor Tunnel
- 5 Sewer Separation Projects
- CMOM Program, 5yr Reoccurring
- 4 Additional CD/SSO Projects

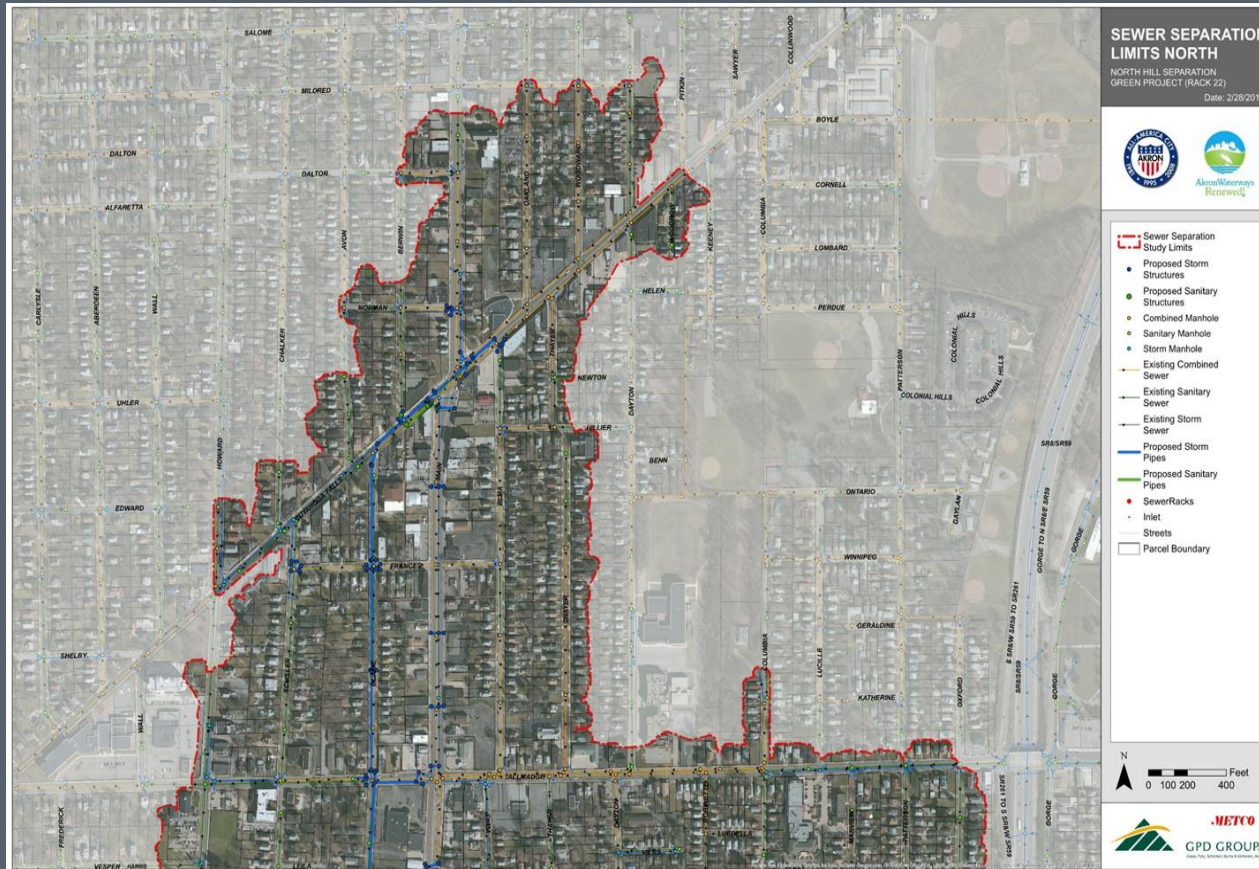
## Integrated Planning:

- Increase environmental benefits
- Reduce long term maintenance
- Swop CSO Storage Basin project with Separation & Green Infrastructure
- Make cost less unaffordable
- Commitment to maintain schedule

# CSO Trilogy – Gray – Green - Gray



# North Hill Separation – Green Project (CSO Rack 22)



- 425 Acre Residential/Commercial Sewershed
- Work to be performed on City owned land, within Ex. R/W and on private property, if warranted.
- **Clean water connections and testing**
- Partial Separation to achieve compliance of ZERO overflows during TY
- Topographic relief
- Timing constraints – AFO December 31, 2017



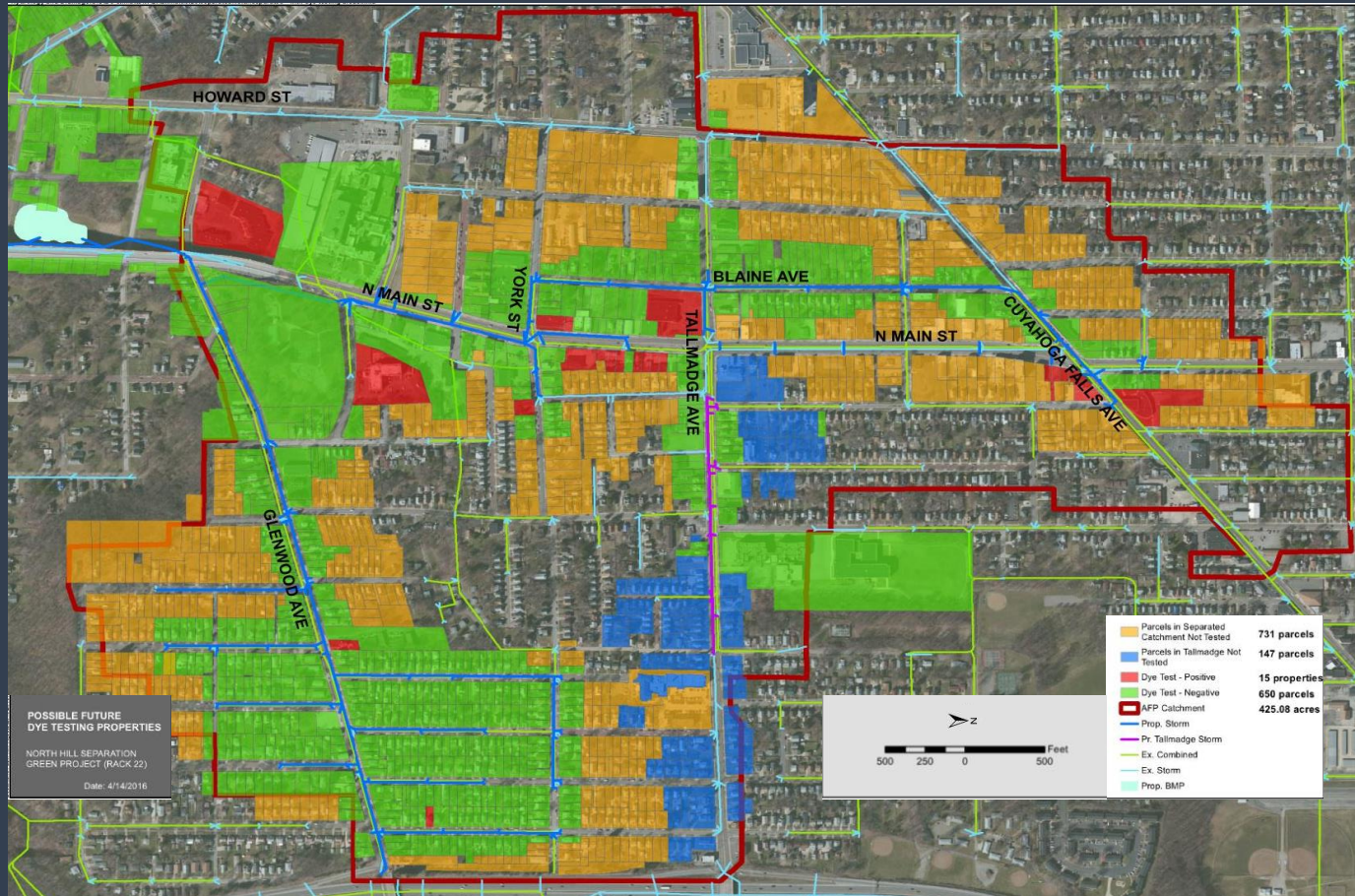
# North Hill Separation – Green Project (CSO Rack 22)



- Distributive GI negotiated to treat 100% of the WQv within the separation limits
- Impact to mature neighbor hoods
- Impact to public and private utilities
- Regional end-of-pipe GI BMP alternative
- Restoration & Maintenance



# Separation at the Source



- Dye tested every property within the separation limits.
- Only 15 of the 650 homes tested had positive connections.
- Glowing positive for separation

# A Look at Regional GI Opportunity



- Constructed Stormwater Wetland
- Volume control of 1.32 MG
- Access & Use
  - Playground
  - Community Garden
- Child Safety
- Maintenance
- Introduction of point discharge

End-of-pipe BMP



# Howard Storage Basin

## 3 Key Design Considerations:

### 1. Location

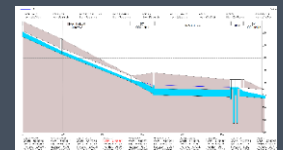
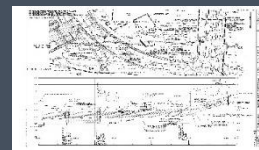
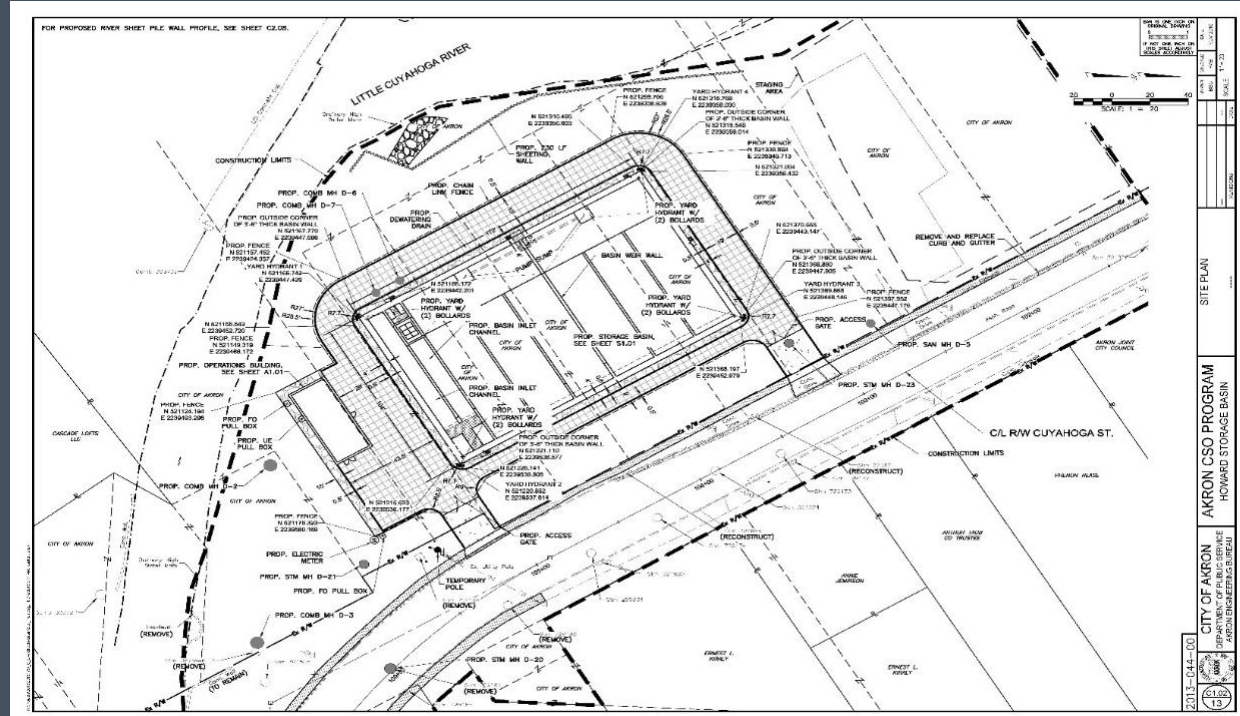
- Access, Geology, Surface and Groundwater
- Maintenance

### 2. Conveyance

- Flow to Basin
- Flow from Basin

### 3. Model Response

- Meet regulatory requirements
- Define real time controls and response
- Dewatering



## Basin Design Keys

# Howard Storage Basin

## 3 Key Design Considerations:

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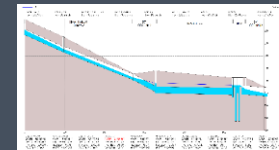
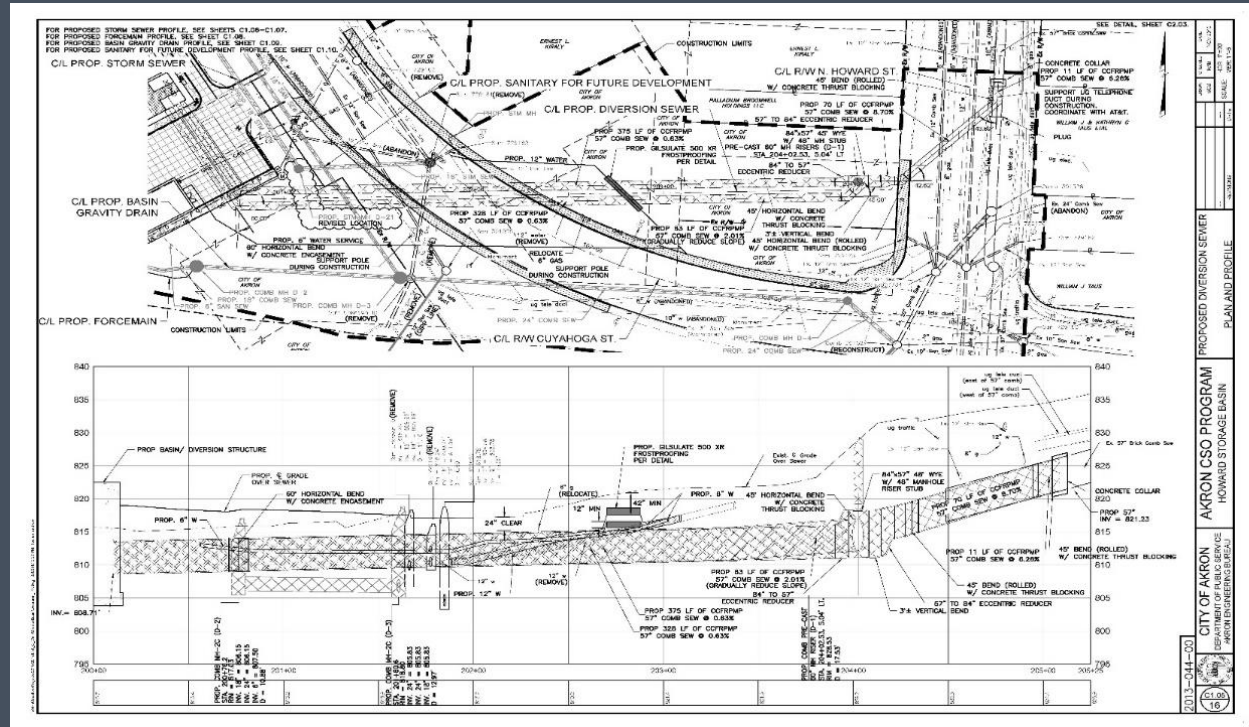
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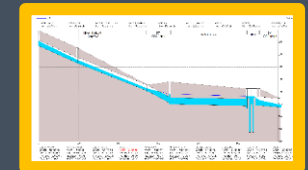
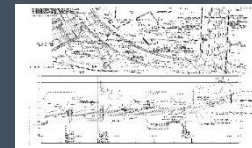
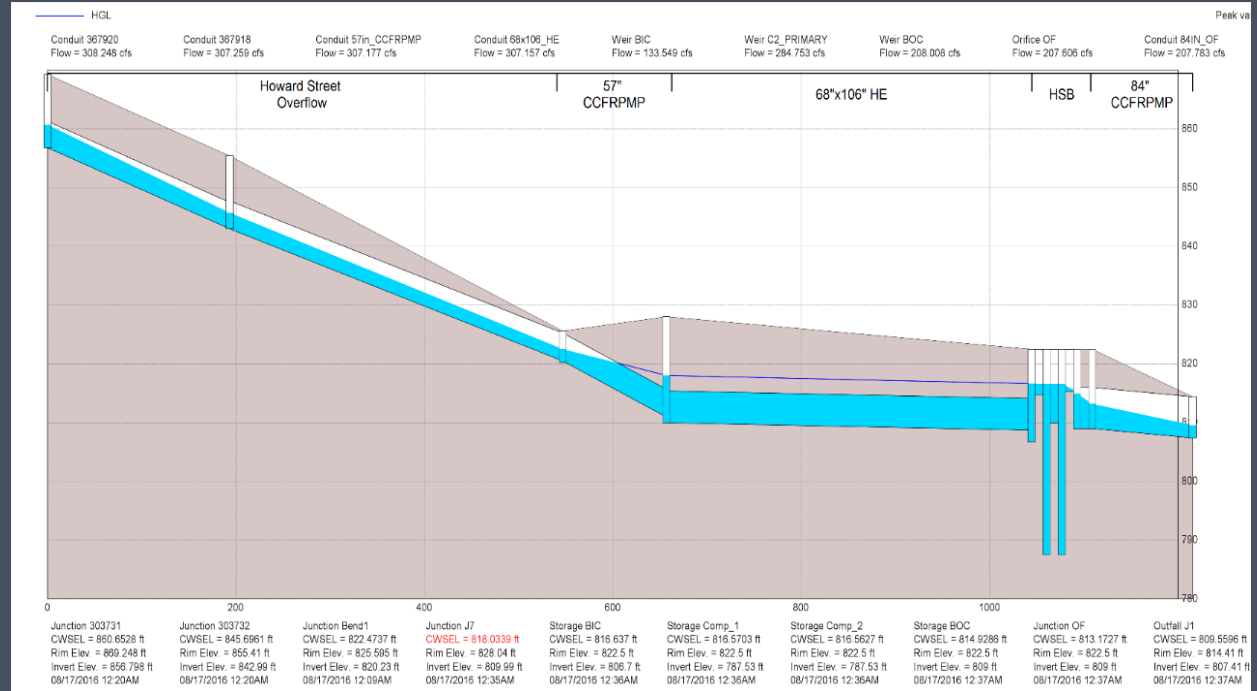
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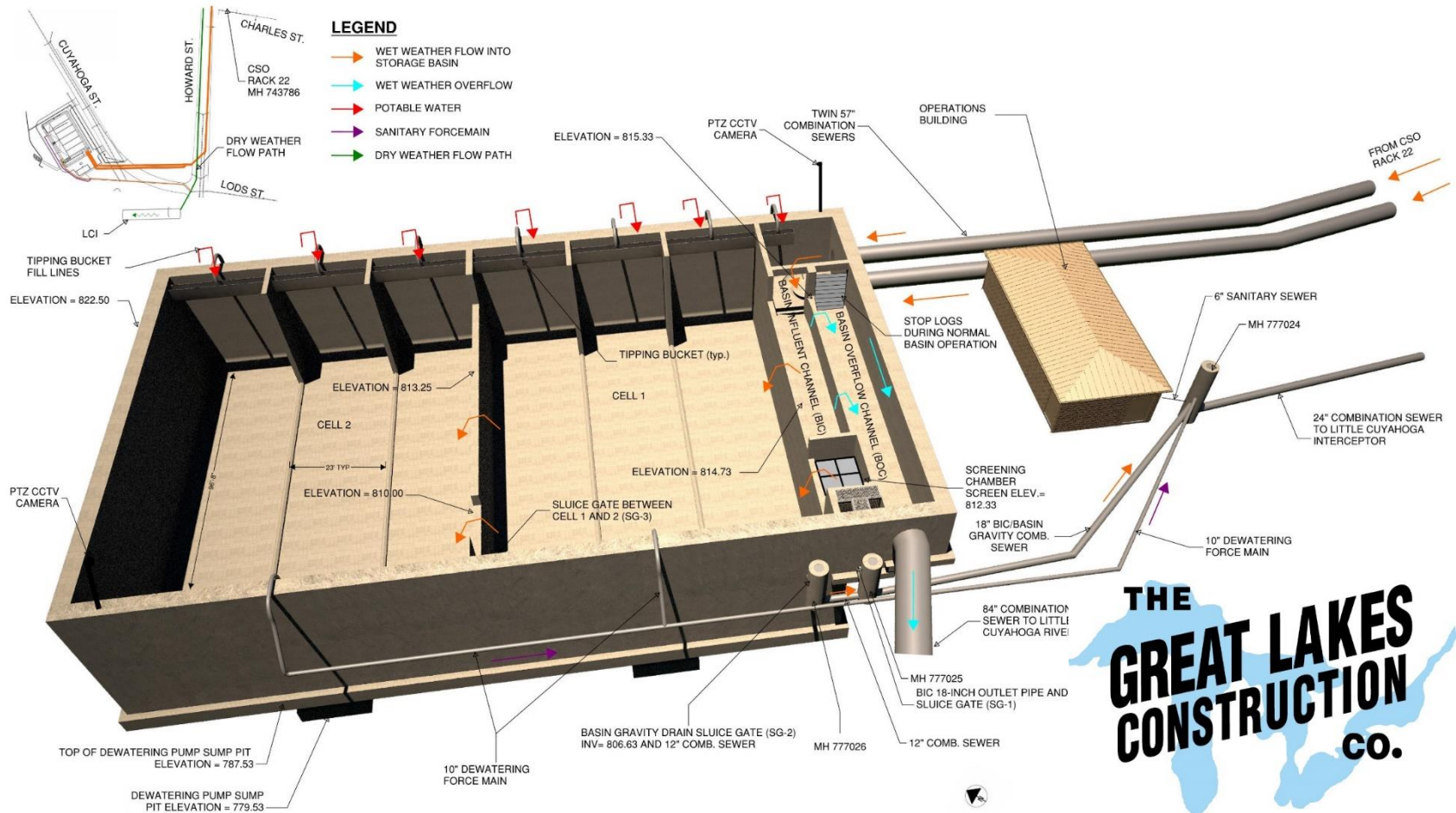
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# Basin Overview





# Creative Financing

- Ohio Water Development Authority loans commonly used by Akron to help with unaffordability.
- Total Loan Amount: \$21.9M
  - Construction: \$16.5
  - Planning & Design: \$2.7M
  - CM: \$1.7M
  - Admin./Contingency: \$0.95M
- \$13M using 0% rate, 30yr Water Pollution Control Loan Fund (WPCLF) CSO Reduction Discount Program
- Combined with Water Resource Restoration Sponsorship Program (WRRSP), 45yr, 0.93% rate. Sponsoring three Ohio projects:
  - Williamsburg Low-Head Dam Removal (\$674,911)
  - Scioto River Preserve Phase 2 (\$775,000)
  - Cackley Swamp Kiser Property Acquisition and Restoration (\$565,000)
- **Saved \$17M!**



Williamsburg Low-Head Dam Removal



Cackley Swamp Kiser Restoration



**Howard Storage Basin project recognized as one of only 28 projects in the county and rated exceptional by the U.S. EPA for excellence and innovation!**

Show me the money!



## Construction Progress & AFO





## Construction Progress & AFO





## Construction Progress & AFO





# Construction Progress & AFO



# Construction Progress & AFO



