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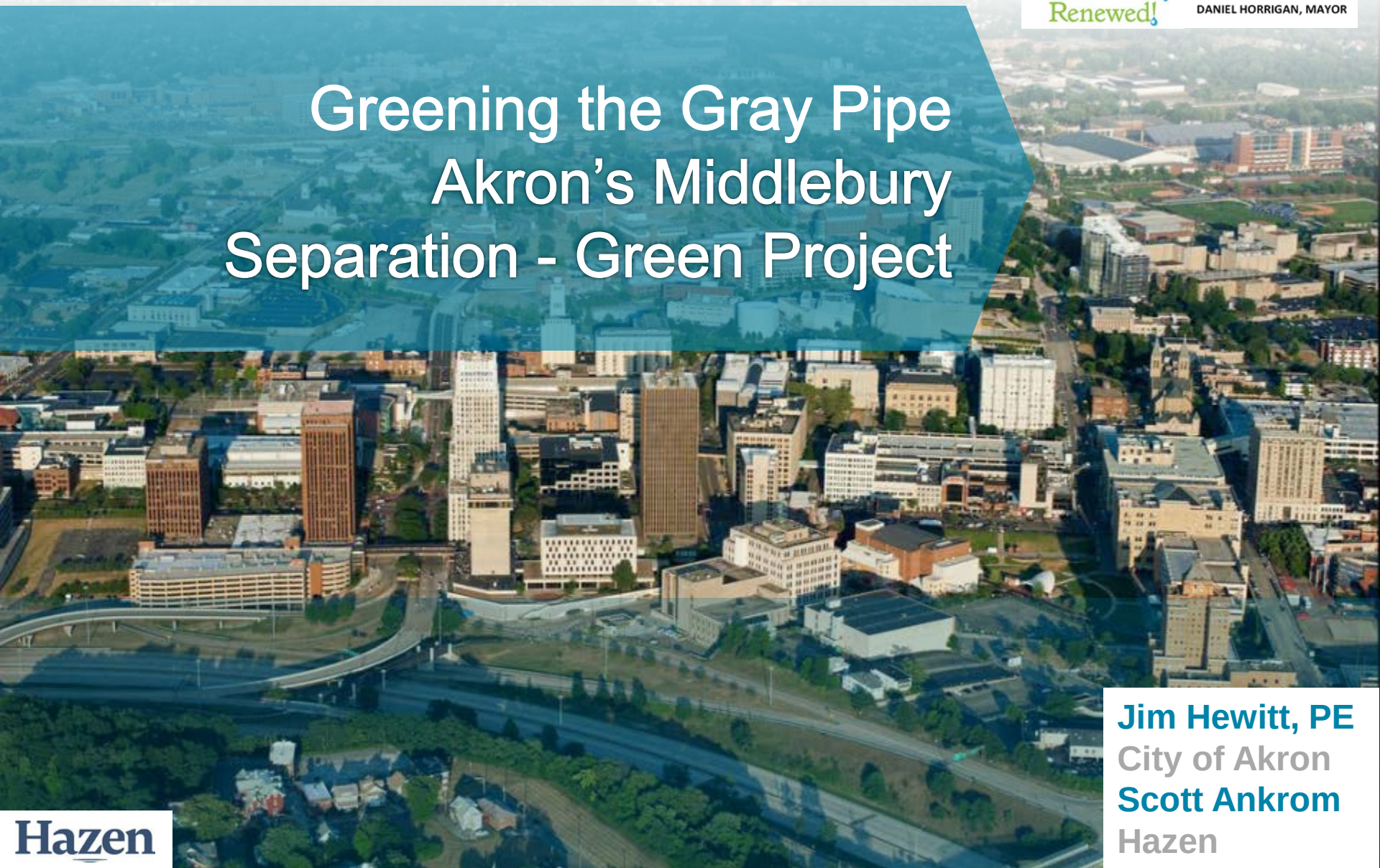
ALL-AMERICA CITY 1981 1995 2008 AKRON

DANIEL HORRIGAN, MAYOR

Greening the Gray Pipe
Akron's Middlebury Separation - Green Project



Jim Hewitt, PE
City of Akron
Scott Ankrom
Hazen

Hazen

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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

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Agenda

- Project Overview
- Challenges
- Schedule
- Project Tasks and Details
- Dye Testing
- Construction Challenges
- Cured in Place Pipe Lining (CIPPL)
- Constructed Storm Water Wetland (CSWW)
- Questions

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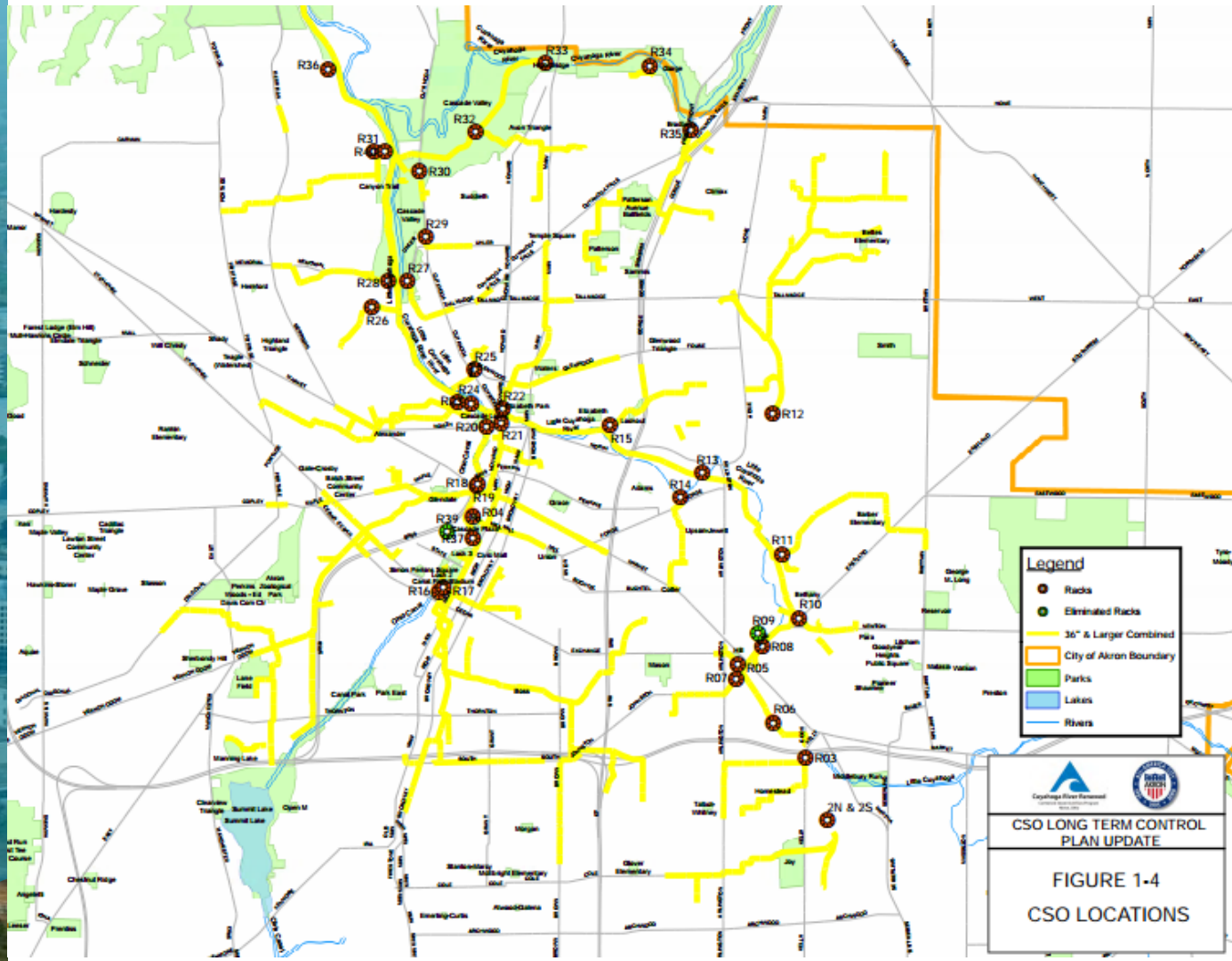
Akron's CSO Long Term Control Plan



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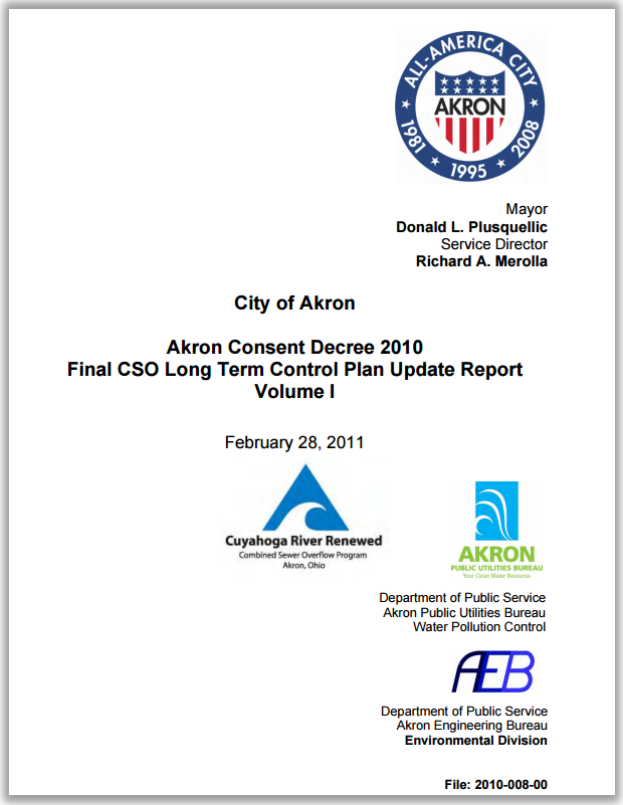
Project Overview
Middlebury Separation – Green Project

- LTCP modified and negotiated to Integrated Plan approach
- Separate combined sewers tributary to CSO Racks 5 and 7
- Treat portion of storm water runoff prior to discharge into the Little Cuyahoga River



ALL-AMERICA CITY AKRON 1981 1995 2008

Mayor
Donald L. Plusquellic
Service Director
Richard A. Merolla

City of Akron

Akron Consent Decree 2010
Final CSO Long Term Control Plan Update Report
Volume I

February 28, 2011

Cuyahoga River Renewed
Combined Sewer Overflow Program
Akron, Ohio

AKRON
PUBLIC UTILITIES BUREAU

Department of Public Service
Akron Public Utilities Bureau
Water Pollution Control

AEB

Department of Public Service
Akron Engineering Bureau
Environmental Division

File: 2010-008-00

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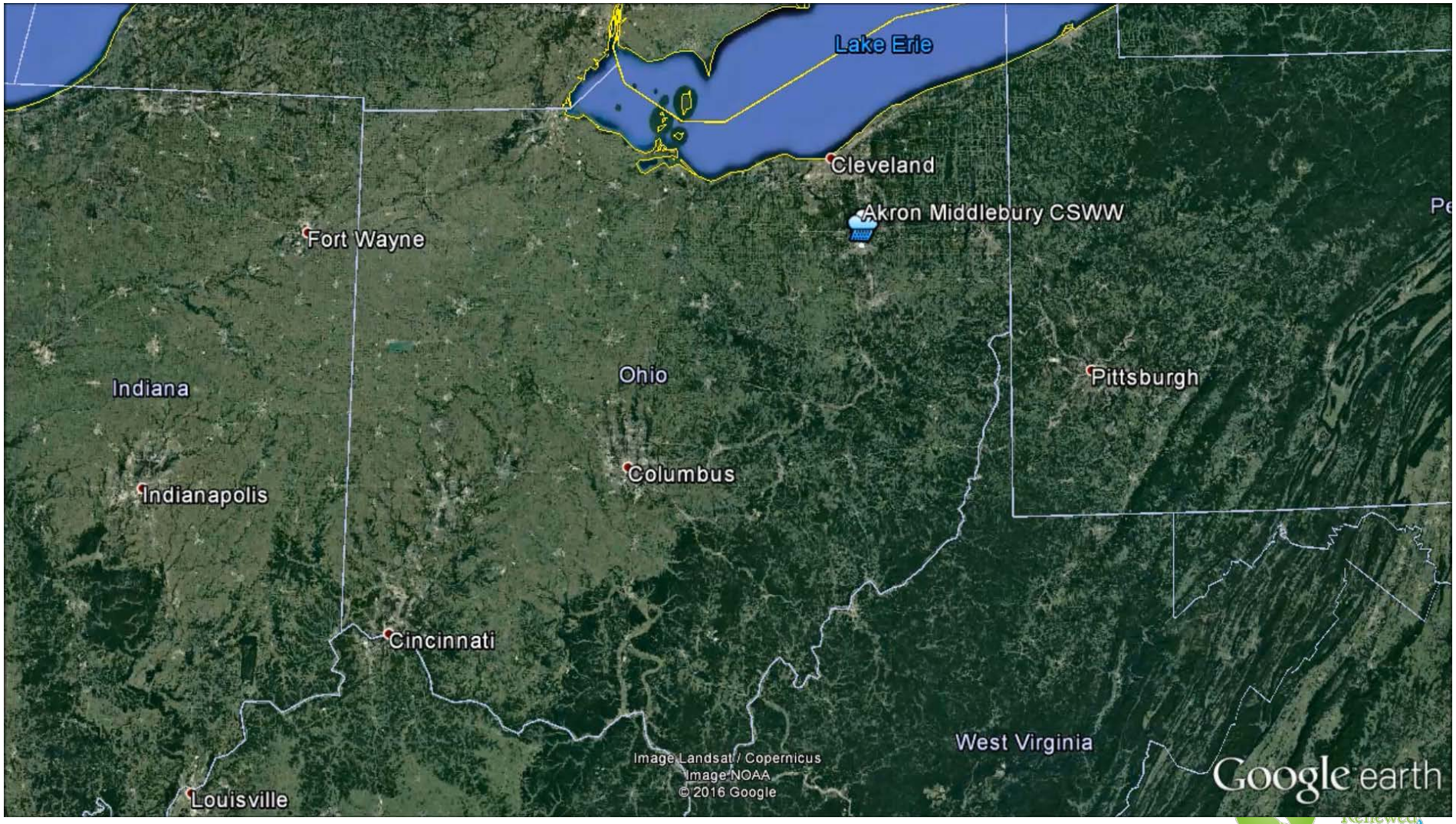
Project Location
Middlebury Separation – Green Project



Middlebury Sewer Separation – Rack 5 and Rack 7

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Initial Challenges Prior to Design

- Schedule: CMAR project delivery
- Determination of how to repurpose the existing CSO pipe: Sanitary vs. Strom
- How to address Clean Water connections
- Use of Green Infrastructure
- Land acquisition

Schedule
Middlebury Separation – Green Project

- Notice to Proceed – July 24, 2015
- Fieldwork and Design
  - 30% Submittal – September 28, 2015
  - 60% Submittal – January 6, 2016
  - 90% Submittal – April 13, 2016
  - 100% Submittal – June 13, 2016
- Construction
  - Notice to Proceed – June 21, 2016
  - Substantial Completion – August 1, 2017
  - Achievement of Full Operation (AFO) – October 31, 2017

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Project Tasks
Middlebury Separation – Green Project

- Design of selected sewer alternative
  - Re-purpose combined sewer to storm sewer and construct new sanitary sewers; or
  - Re-purpose combined sewer to sanitary sewer and construct new storm sewers
- Fieldwork to support design
- CCTV review of existing sewer along with pipe condition assessment

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Project Details
Middlebury Separation – Green Project

- 4,100 LF of new sanitary sewer: 8-in to 12-in diameter
- 15,670 LF of new storm sewer: 12-in to 48-in diameter
- 9,570 LF of CIPPL: 8-inch to 54-inch diameter
  - 2,550 LF 36-in to 54-in combined sewer converted to sanitary sewer (segmental block)

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Project Tasks
Middlebury Separation – Green Project

- Collection System Modeling
- Dye testing – (586 home and businesses)
  - Identification of clean water connections
  - Recommended disconnection methods
- CCTV inspections and lateral launches

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Project Details
Middlebury Separation – Green Project

- Constructed Storm Water Wetland (CSWW) design
- Full corridor and CSWW site survey
- 41 soil borings, rock cores were necessary
- Construction of 1.5 acre CSWW

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Project Details
Middlebury Separation – Green Project

- Land Acquisition for parcels to build CSWW
- Building Demolition
- Phase 1 and 2 Environmental Site Assessments of two City owned properties
- Asbestos abatement and demolition of two City owned buildings

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Project Details
Middlebury Separation – Green Project

- Limited gas relocation
- Abandon Existing Racks 5 and 7
- 3,600 LF of 6-inch water main relocation
  - Identification of non-copper water services

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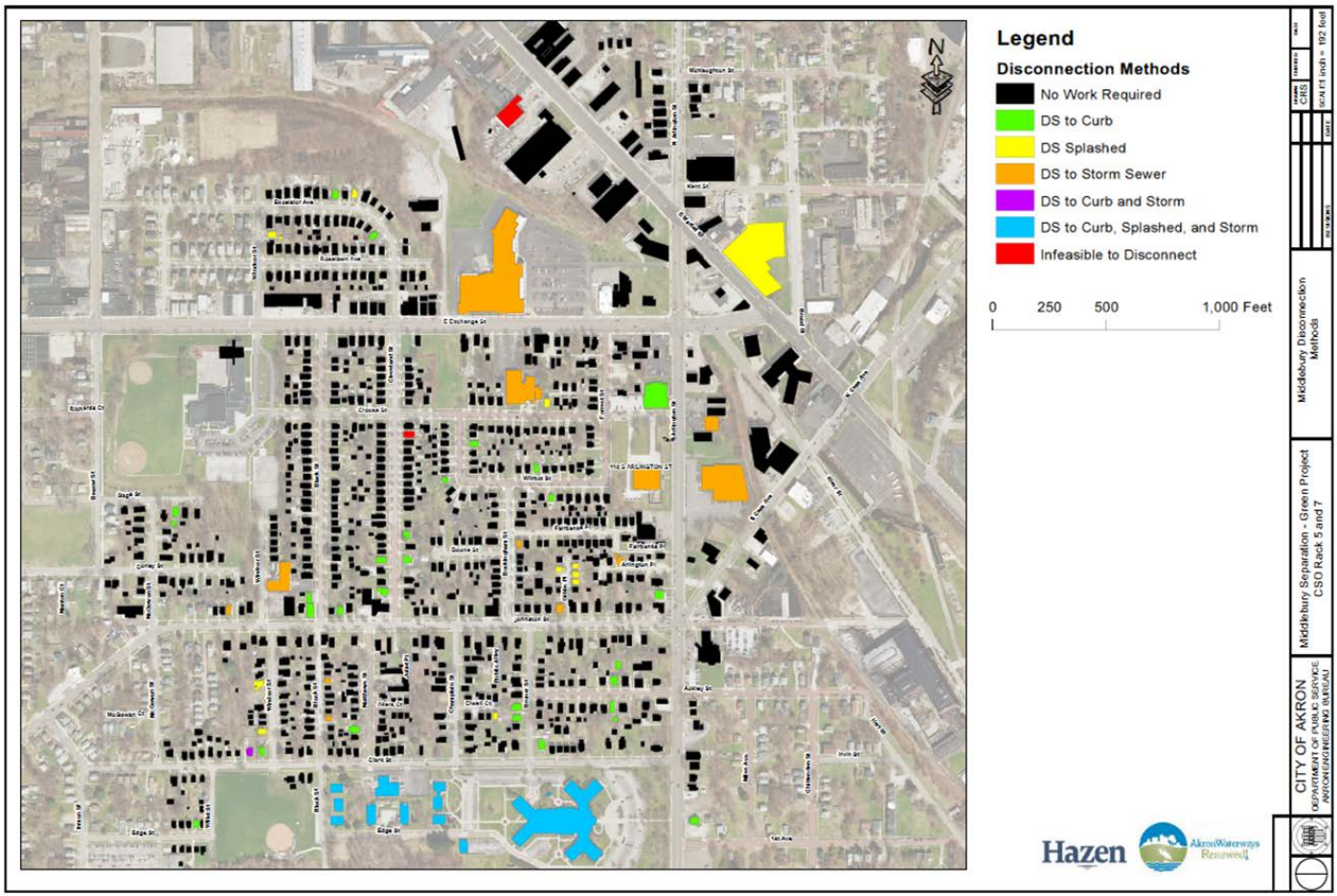
Dye Testing - Results

- 586 properties tested
- 56 properties improperly connected
- 2 properties technically or economically infeasible to disconnect



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Dye Testing – Field Forms

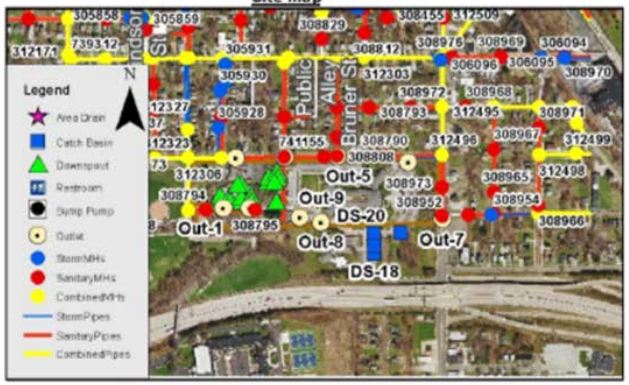
Address: 264 S ARLINGTON ST

Inspection Date: 6/9/2016

Comments:

CCTVID:

Site Map



Property Picture

Parcel ID-Test ID	Structure Type	Tested	% Roof Drained	Results	Disconnection Method	Comments
6762904-DS-1	Downspout	Yes	25	Discharges to sanitary sewer	4	6762904-Out-1
6762904-DS-2	Downspout	Yes	25	Discharges to sanitary sewer	4	6762904-Out-1
6762904-DS-3	Downspout	Yes	25	Discharges to sanitary sewer	1	6762904-Out-1
6762904-DS-4	Downspout	Yes	25	Discharges to sanitary sewer	1	6762904-Out-1
6762904-DS-5	Downspout	Yes	0	Discharges to sanitary sewer	1	6762904-Out-2
6762904-DS-6	Downspout	Yes	0	Discharges to sanitary sewer	1	6762904-Out-2
6762904-DS-7	Downspout	Yes	0	Discharges to sanitary sewer	4	6762904-Out-2
6762904-DS-8	Downspout	Yes	0	Discharges to sanitary sewer	4	6762904-Out-2
6762904-DS-9	Downspout	Yes	0	Discharges to sanitary sewer	1	6762904-Out-3
6762904-DS-10	Downspout	Yes	0	Discharges to sanitary sewer	1	6762904-Out-3
6762904-DS-11	Downspout	Yes	0	Surface Discharge	No Work Required	
6762904-DS-13	Downspout	Yes	0	Surface Discharge	No Work Required	
6762904-DS-14	Downspout	Yes	0	Surface Discharge	No Work Required	
6762904-DS-15	Downspout	Yes	0	Surface Discharge	No Work Required	
6762904-DS-16	Downspout	Yes	0	Surface Discharge	No Work Required	
6762904-DS-17	Downspout	Yes	0	Surface Discharge	No Work Required	
6762904-DS-18	Catch Basin	Yes	0	Discharges to storm sewer	No Work Required	6762904-Out-7
6762904-DS-19	Catch Basin	Yes	0	Discharges to storm sewer	No Work Required	6762904-Out-7
6762904-DS-20	Catch Basin	Yes	0	Discharges to storm sewer	No Work Required	6762904-Out-7
6762904-DS-21	Catch Basin	Yes	0	Discharges to storm sewer	No Work Required	6762904-Out-7

Middlebury Separation - Green Project (CSO Rack 5 & 7)
Clean Water Connection Investigation Results

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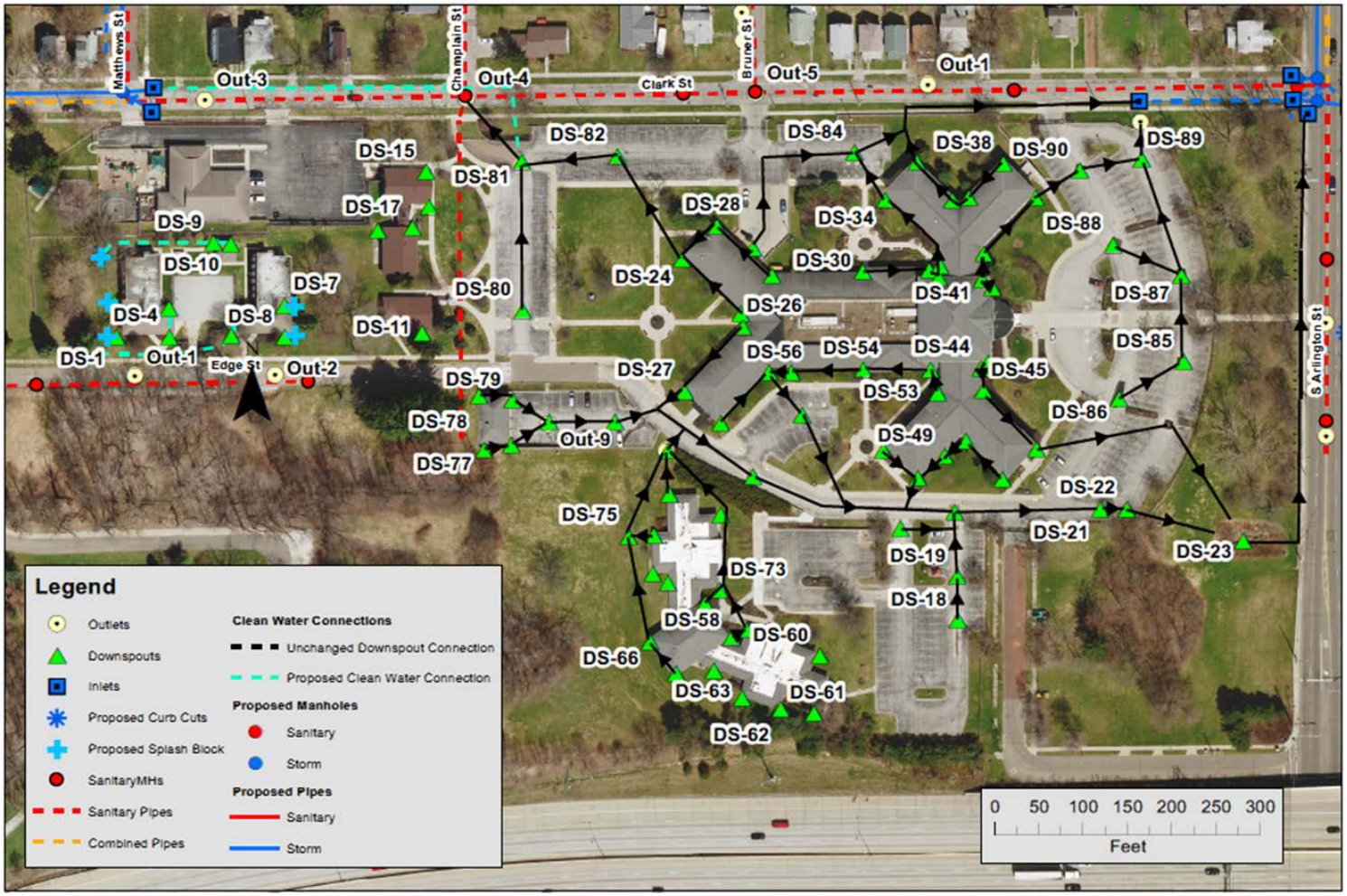
Dye Testing – Proposed Removal Plans



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Challenging Construction Areas

Fairbanks Place

- 20 ft and 27 ft right-of-way
- 12 ft and 18 ft wide concrete street
- House and retaining walls encroaching right-of-way
- Relocation of water main
- New storm & sanitary sewers in “common trench”
- Relocation of natural gas line

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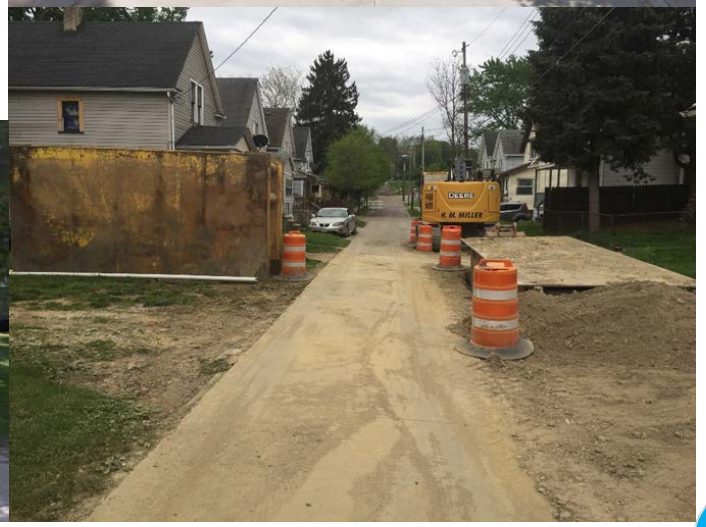
Challenging Construction Areas

Black Street

- R-o-W varies: 20 ft & 40 ft
- Existing 36-in & 42-in combined sewer
- New 36-in storm sewer
- Relocate water main
- Brick street restoration



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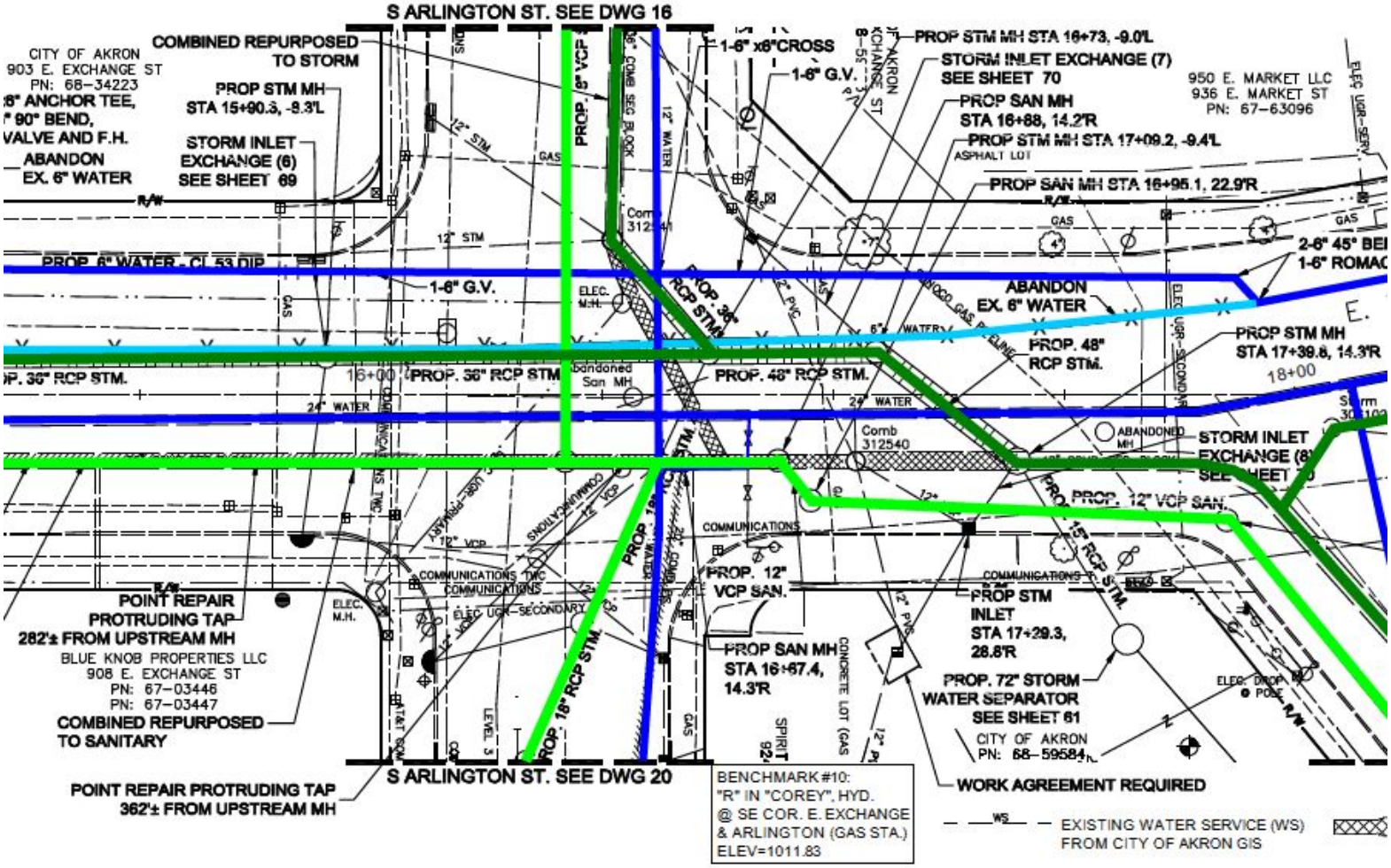
Challenging Construction Areas
Exchange & Arlington (water and sewers)



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Challenging Construction Areas
Exchange & Arlington (sewers only)

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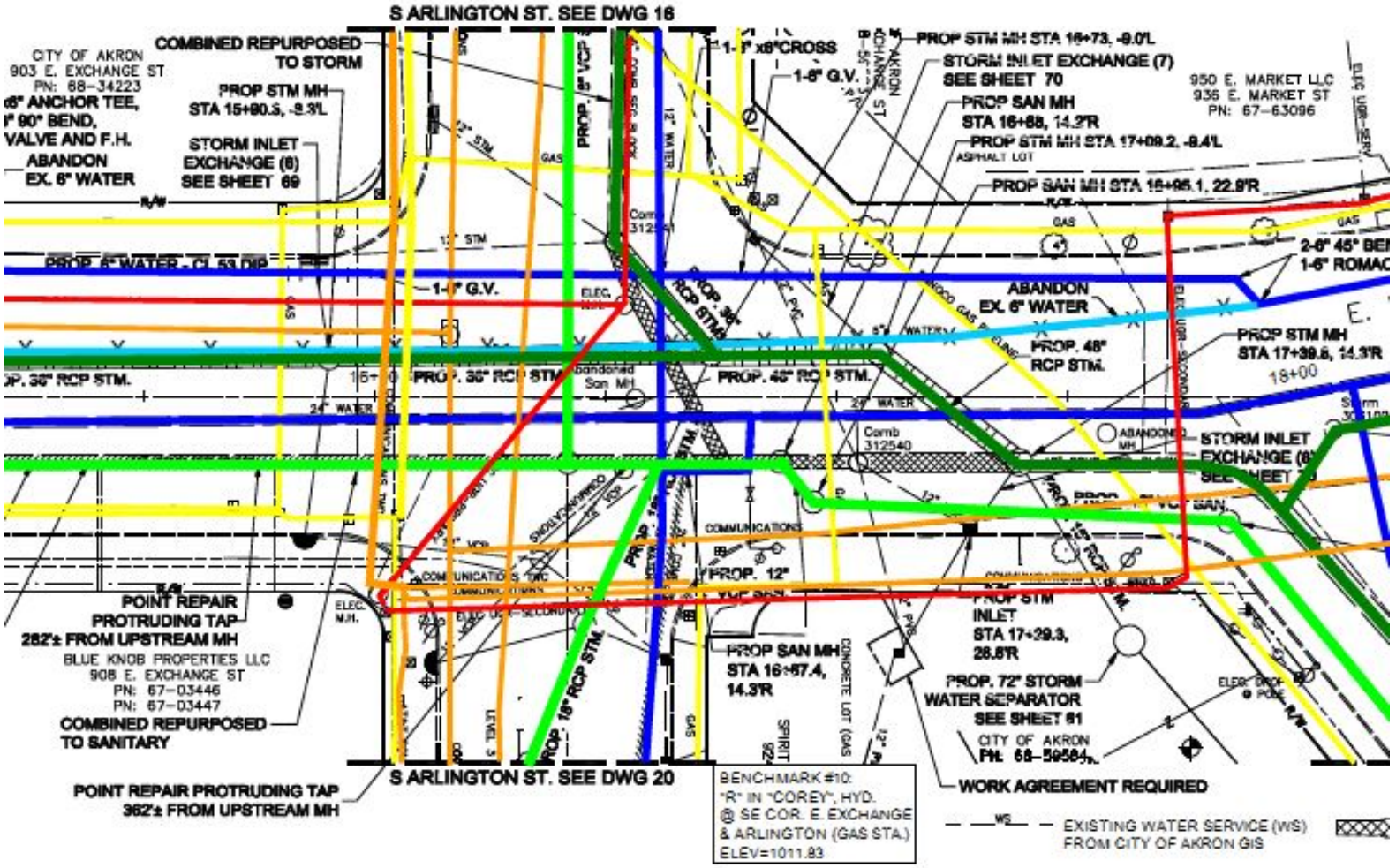
Challenging Construction Areas
Exchange & Arlington (all underground utilities)



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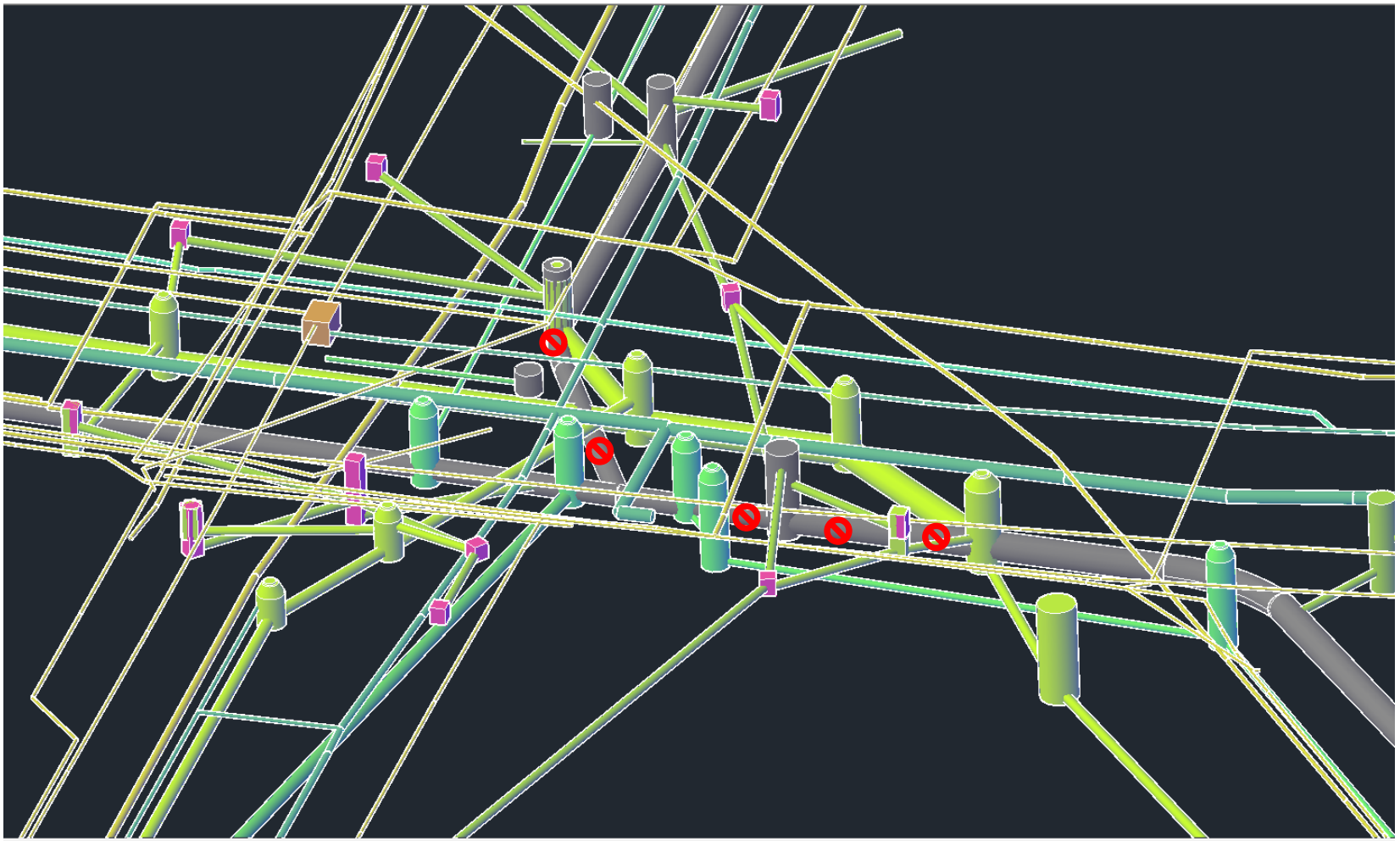
Challenging Construction Areas
Exchange & Arlington (all underground utilities)



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Challenging Construction Areas

Exchange & Arlington

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Cured In Place Pipe Lining (CIPPL)

- 9,570 LF of CIPPL
- All segmental block sewers converted to sanitary sewer
- Existing sewers with critical defect scores of 4 or 5

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Constructed Storm Water Wetland (CSWW) Design Criteria

- Capture first ¾-in of rainfall
- “Treat” water quality volume (WQv) – 183,000 ft^3
- Bypass flow in excess of the water quality flow
- Empty less than 50% of WQv after 8 hours
- Minimize areas of standing water after 24 hours
- Provide pretreatment for gross solids and TSS removal
- Prioritize use of native vegetation

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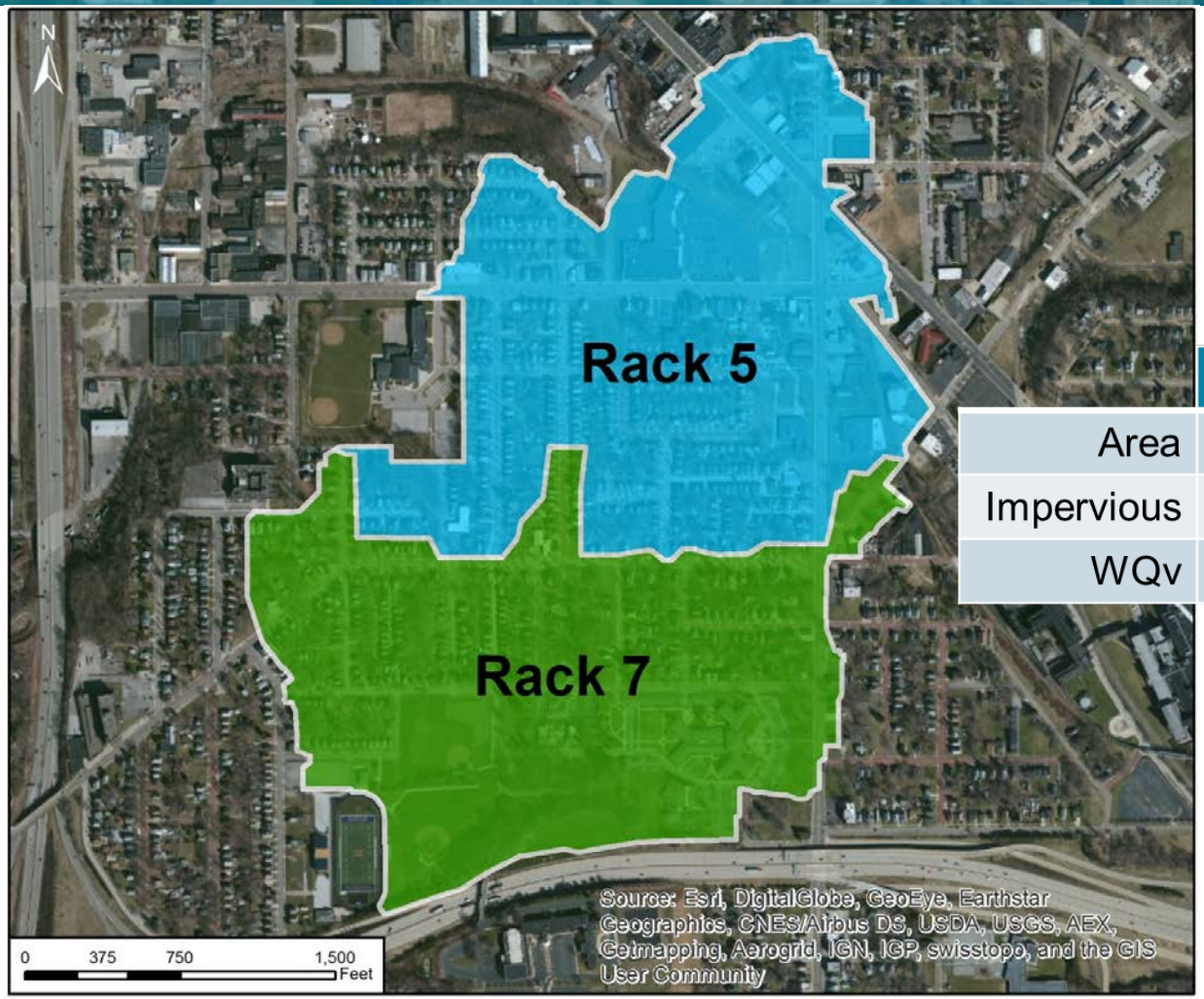
CSWW – Contributing Drainage Area



	Rack 5	Rack 7
Area	83 ac	108 ac
Impervious	61%	44%
WQv	94,000 ft³	89,000 ft³

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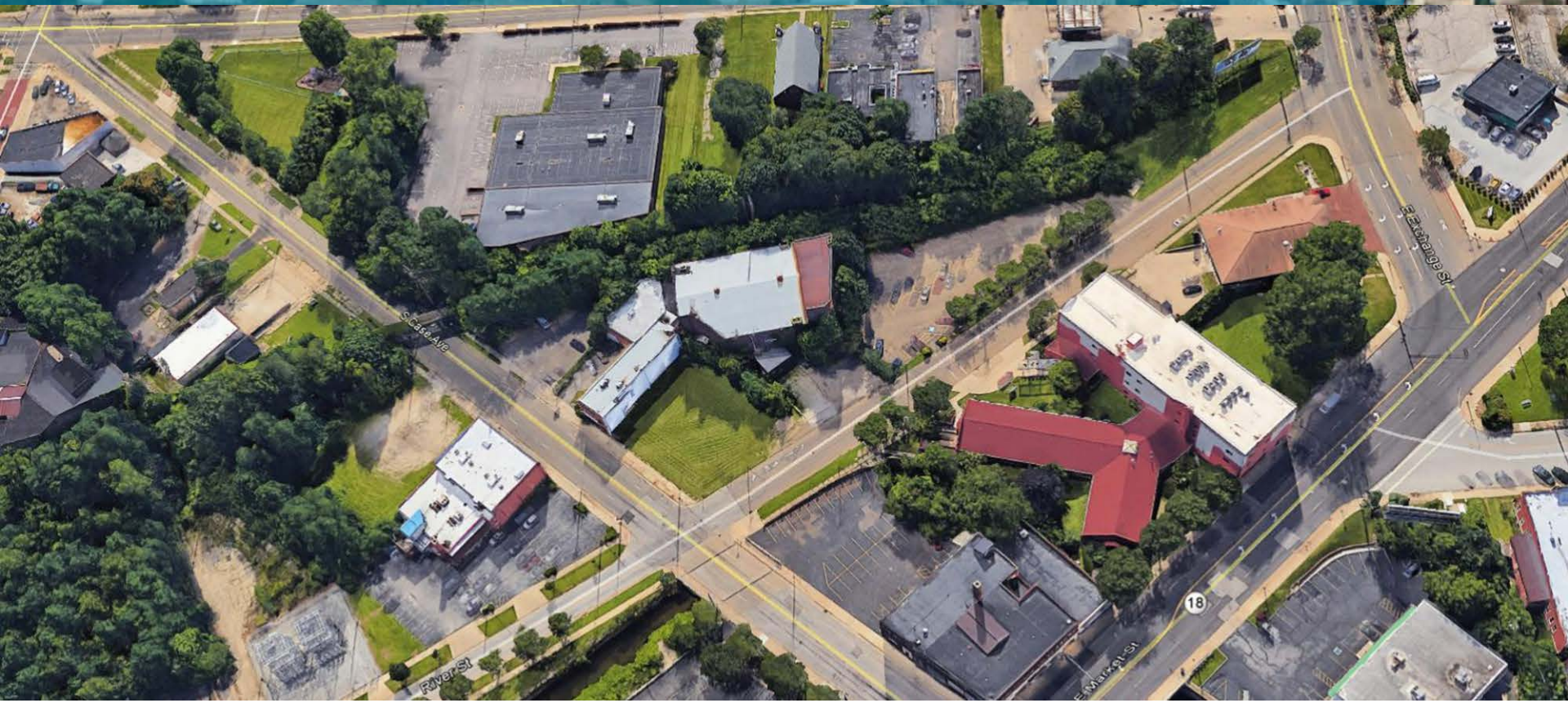
CSWW – Existing Site Configuration



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CSWW – Proposed Site Layout

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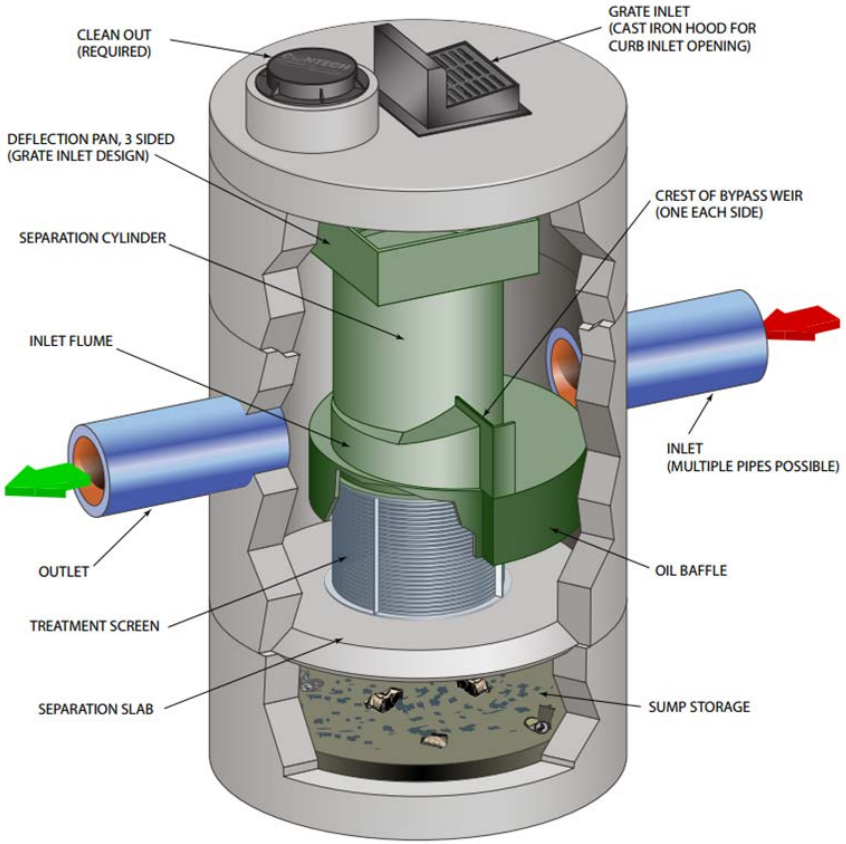
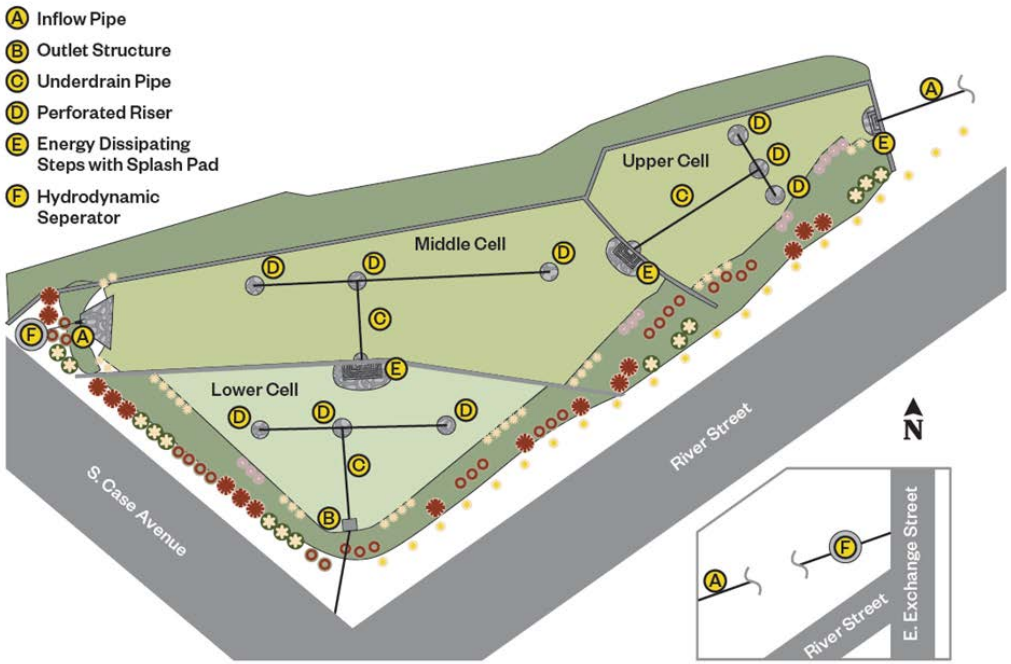
Pretreatment Hydrodynamic Separators





Contech CDS

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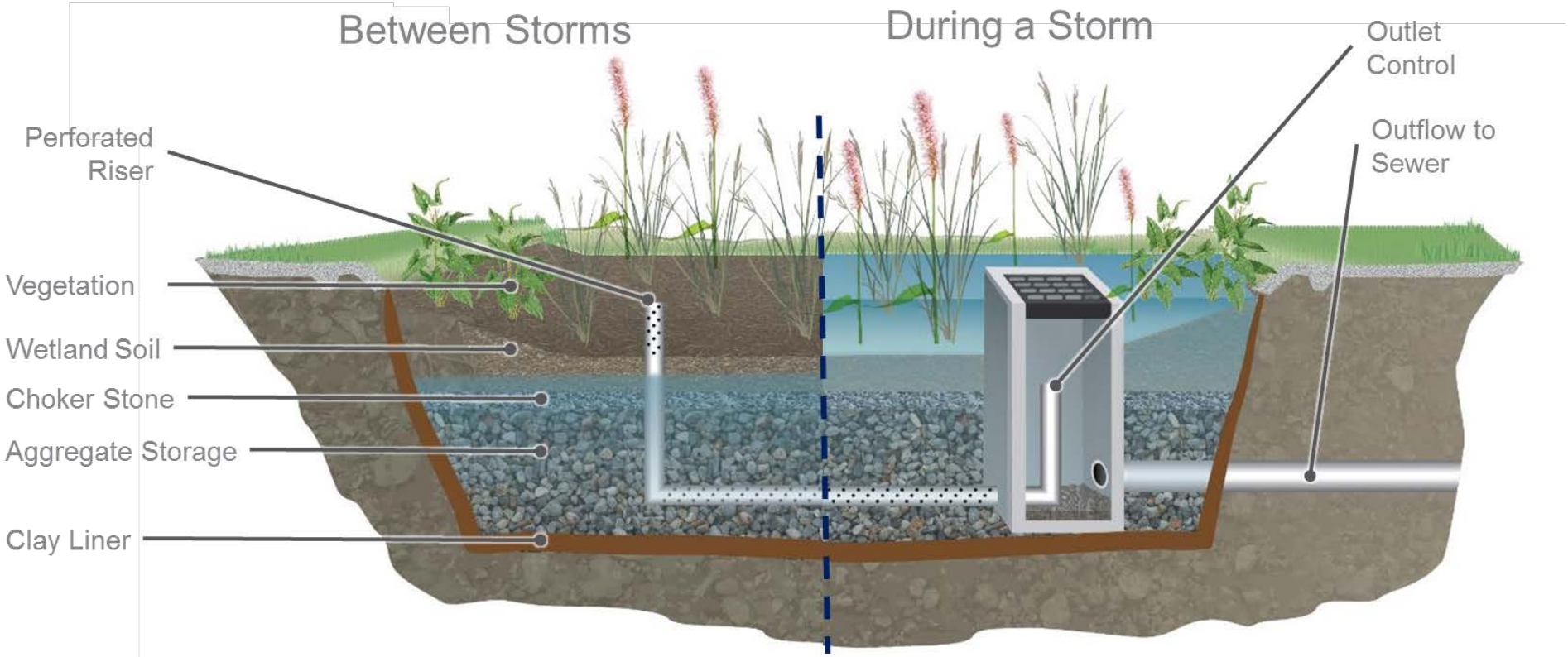
Subsurface Gravel Wetland



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CSWW – Site Construction

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CSWW – Site Construction

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CSWW – Site Construction

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CSWW – Site Construction

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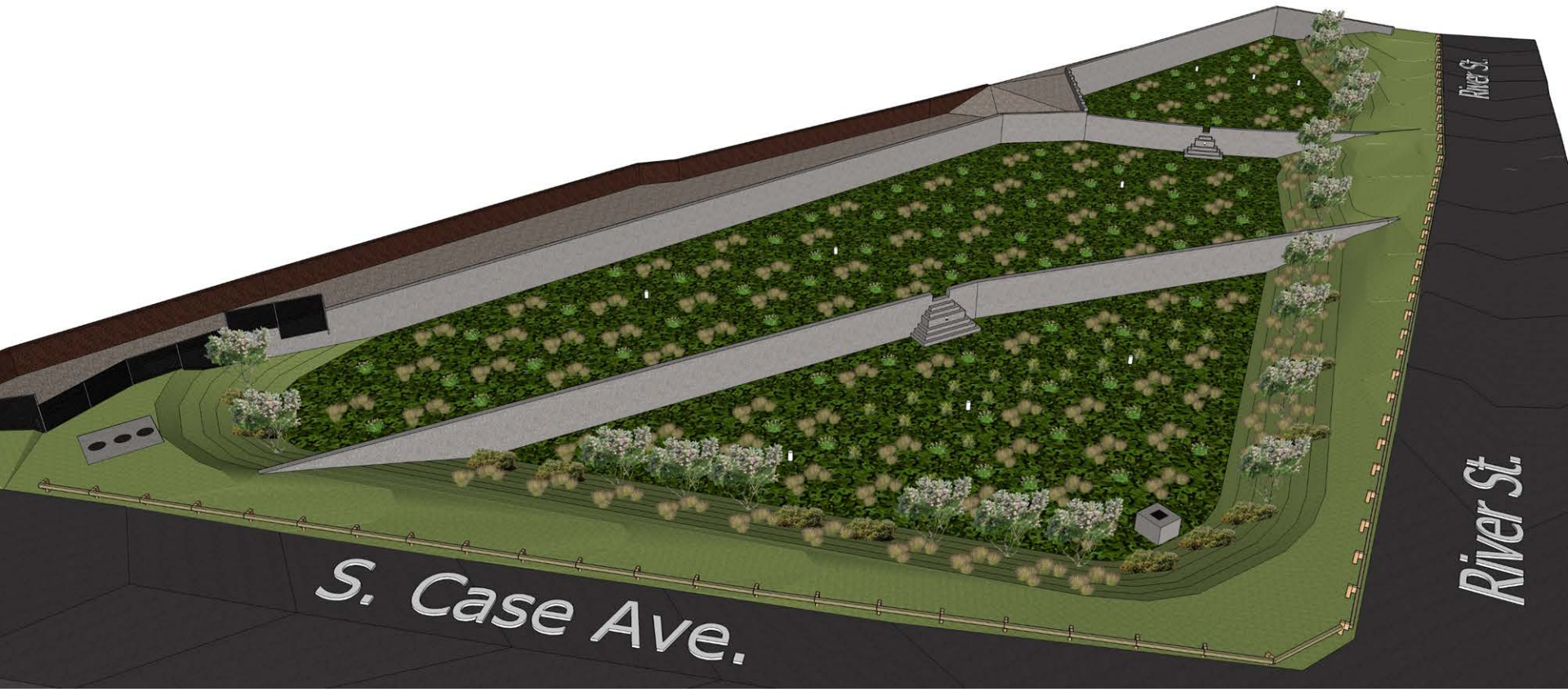
Between Storm Events



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During a Storm Event

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During a Storm Event

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Questions

Jim Hewitt, PE
330-735-2355
jhewitt@akronohio.gov
Scott Ankrom
330-835-9585
sankrom@hazenandsawyer.com

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Meet Rosie, the Tunnel Boring Machine!

Join us as final preparations are made to send her on her journey under downtown Akron!

ROSIE DIGS AKRON!

This is a **FREE** event!

- FREE Tours, Food & Commemorative Coin!
- Photo Opportunities
- Thirsty Dog Special Label Brew
- Plus, a Time Capsule Event!
- And, Learn More About the Tunnel & Akron Waterways Renewed!

DANIEL HORRIGAN, MAYOR

The Ohio Canal Interceptor Tunnel is 6,240 feet long, 27 feet in diameter, 170 feet deep and capable of storing 26 million gallons of combined sewer overflow, capturing 467 million gallons of overflow in the typical year for treatment.

Saturday Aug 19 at **11am – 2pm**

The Mustill Store
57 W. North Street, Akron

Parking locations will be clearly marked and a free shuttle service to the site will be provided.

For more info, visit **akronwaterwaysrenewed.com**

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#DigAkron

Rosie is named for Rose May Jacob, who worked as a wing riveter at Firestone Tire and Rubber Company in Akron during World War II.