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# Steele Creek Restoration and Flood Mitigation Project

Village of Ilion

Herkimer County, New York

Matt Trueheart, MS

Miguel Castellanos, EIT

August 2023

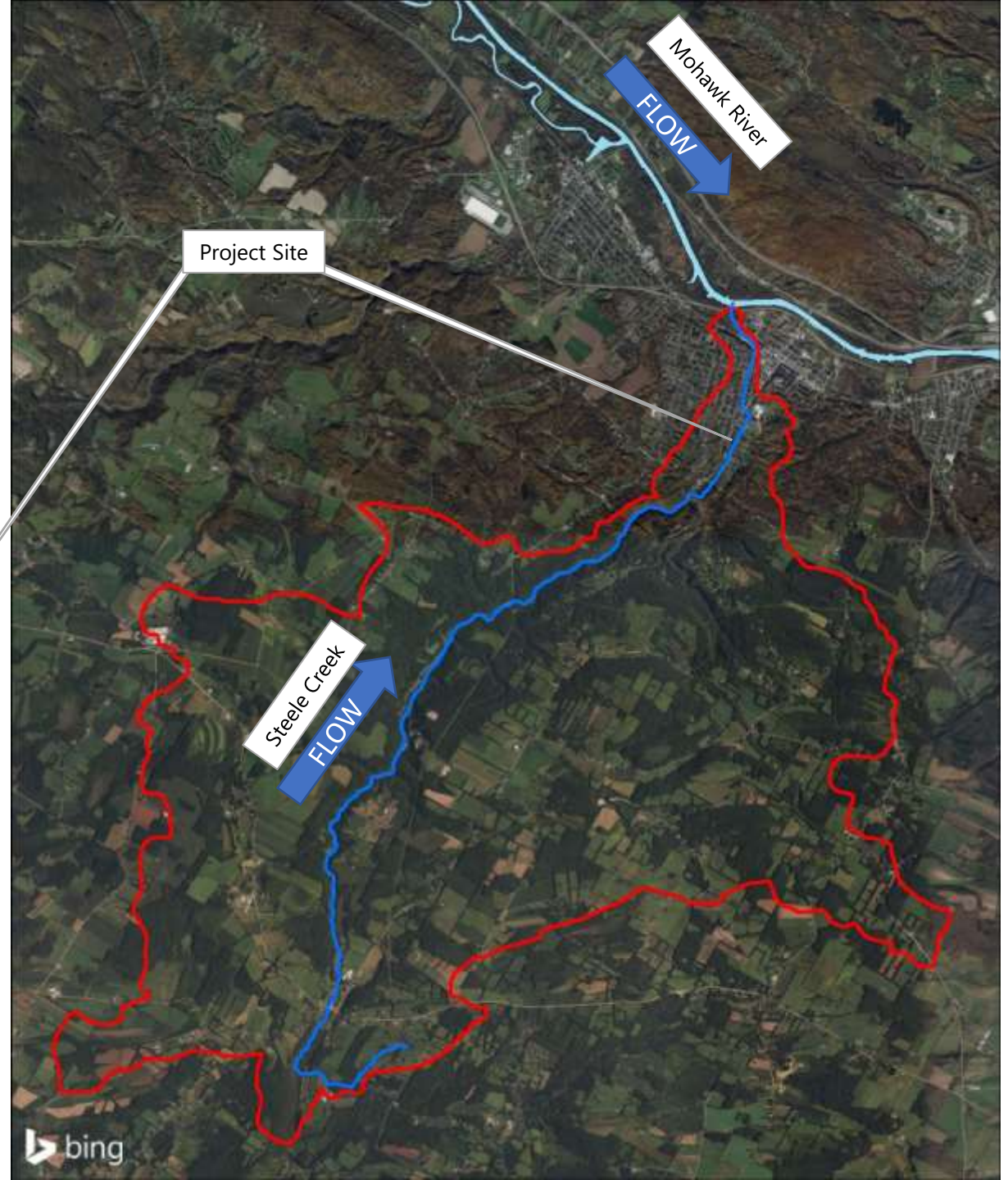
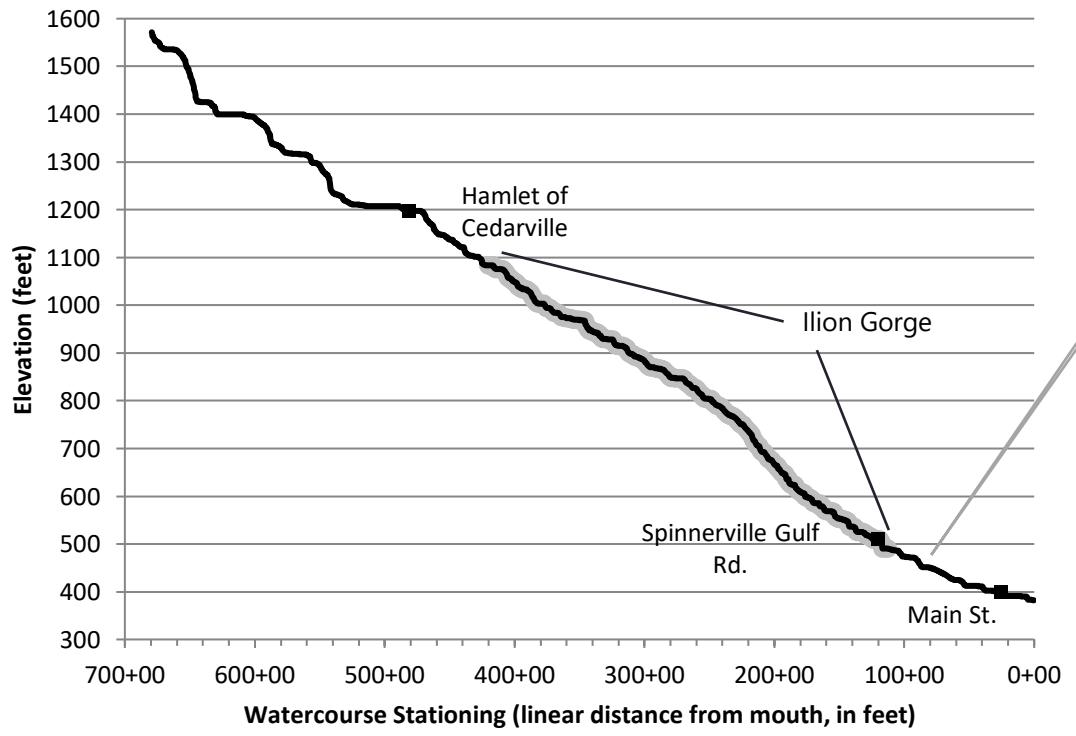




# Physiographic Provinces of New York State

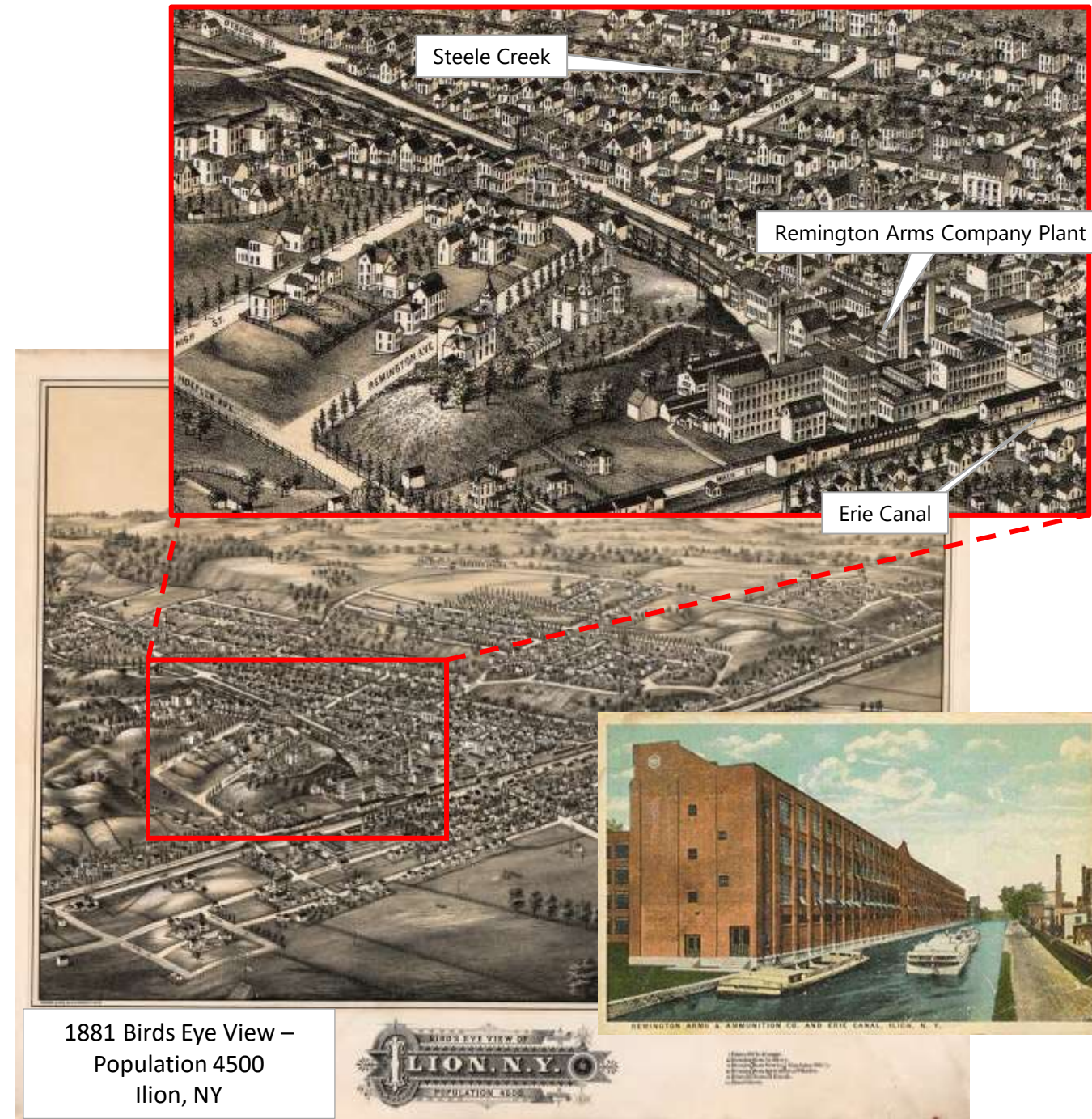


# Steele Creek, Ilion, NY Project Area



# History

- 1825: Mohawk/Erie Canal completed; development flourished.
- 1828: Small rifle factory is established, Remington Arms Co.
- 1856 – 1874: Remington manufactures farming tools and other household items.
- Many of these factories over the years harnessed the water of Steele Creek to provide power for their machinery.
- Long history of flooding in Ilion, known to be exacerbated by dams on Steele Creek since at least 1894
  - Some dams breached/removed previously
  - Remington dam had generated elevation necessary for a headrace to supply water to Remington Factory in Ilion but had been abandoned. The dam continued to contribute to flooding and ice jamming in Ilion



1881 Birds Eye View –  
Population 4500  
Ilion, NY



## From NYS Board of Health, August 1894:

The result of the examination made shows that at periods of high water in the creek a considerable portion of the village is flooded, the streets torn up and otherwise injured, the cellars in that part of the town filled with water, resulting in great damage to property and considerable sickness among the inhabitants, and, besides, it is beyond dispute that when these overflows occur, accompanied by heavy ice, they are positively dangerous to limb or life.

“There is considerable valuable property lying to the west of this stream and tail race, and many houses are built in the vicinity and in the spring of the year, especially, although it is liable to happen at any time when there is a sudden freshet, the water comes down Steele’s creek with such a volume that it is not carried off by the regular channels and flows over the banks at any point between point “A” around by way of points “D” and “B,” thus flooding upper Otsego street, Frederick street and English street, and all the property in that neighborhood. The cellars are more or less full of water for a quarter of a mile down towards the center of the village. Two years ago the stream broke away between points “A” and “C,” took the road as a bed, went down what I have marked as John street and the whole upper part of the town was under water.



The conditions in the locality named are bad and have been for many years, and now that the village is growing rapidly in that locality the people feel that something ought to be done

Steele Creek, Ilion, NY  
Project Area





**Steele Creek, Ilion, NY**  
**Looking Upstream, 2019**

- Remington Arms Dam (aggraded sediments)
- Undersized and straightened channel
- Developed floodplain
- Frederick Street (w/ undersized bridge)



**Steele Creek, Iliion, NY**  
**Looking Downstream, 2019**

- Developed floodplain
- Undersized and straightened channel
- East River Drive
- West River Drive





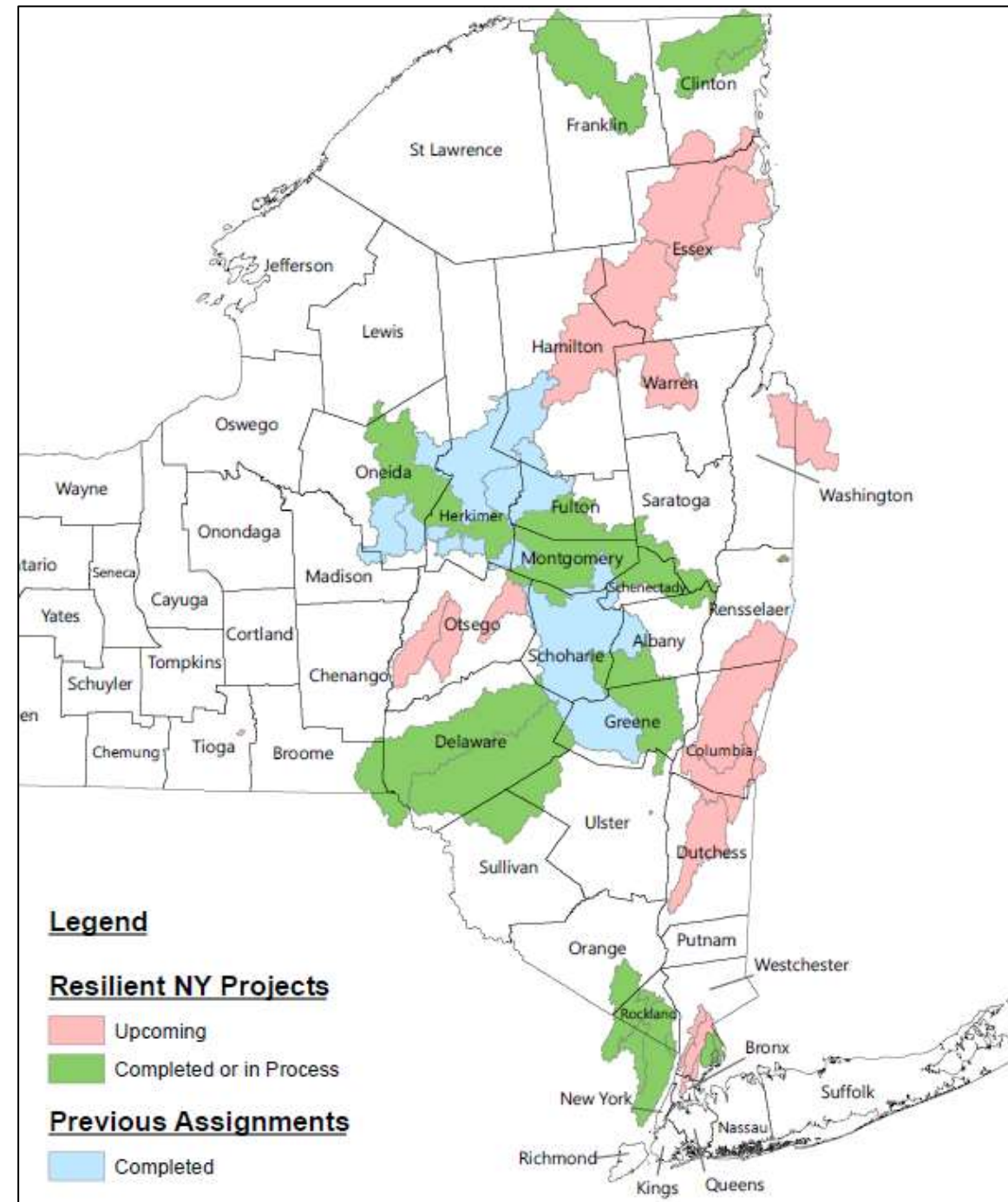
**Steele Creek, Ilion, NY**  
**Looking Upstream, 2019**  
• Richfield Street (w/undersized bridge)

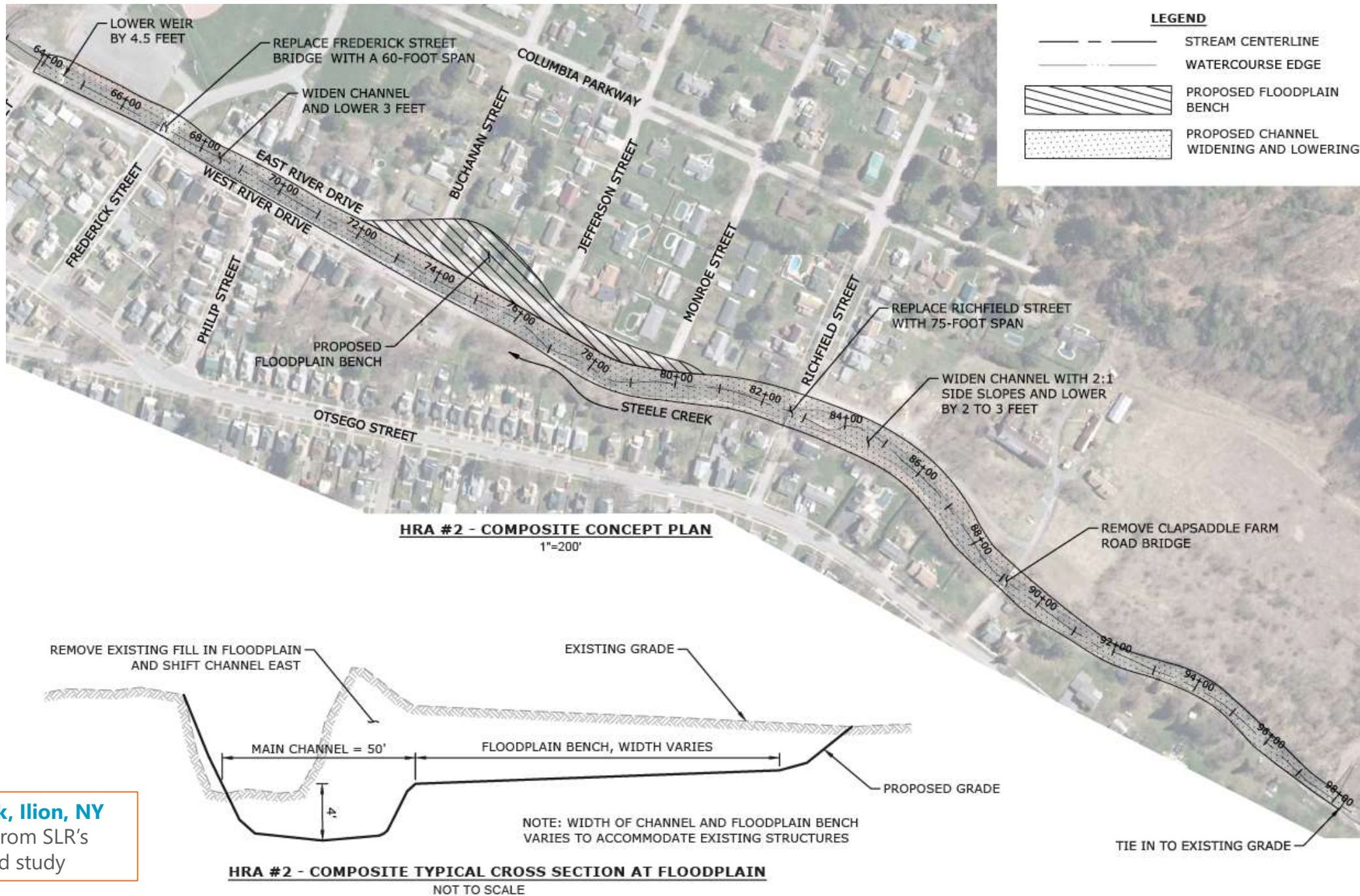


**Mohawk Valley Flooding**  
June 2013

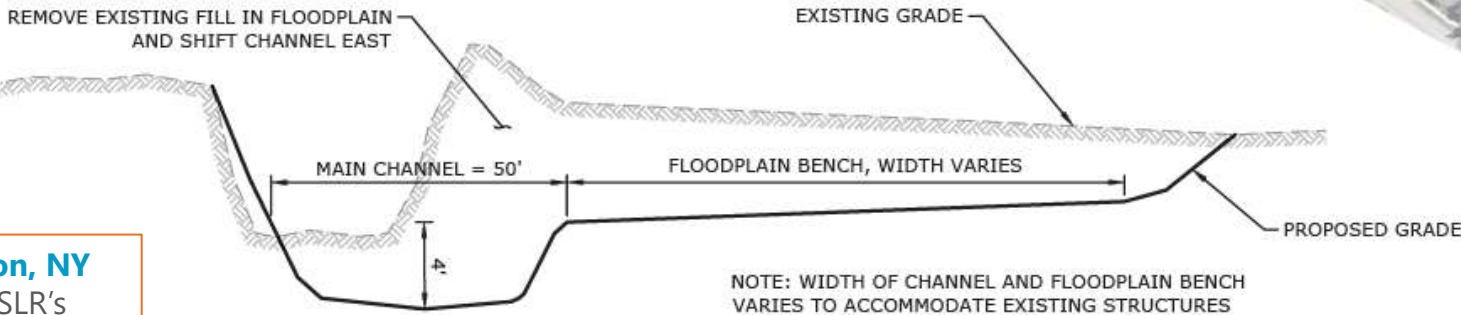
# Flood Mitigation Study

- Mohawk Valley studies conducted following 2013 floods, including Steele Creek
- Flood studies and **develop flood and ice-jam hazard mitigation alternatives** that help guide **implementation of mitigation projects**
- **Precursor to Resilient NY Program**
  - Program of NYSDEC, funded through NYSOGS
  - Make New York State more **resilient to future flooding and climate change**





**HRA #2 - COMPOSITE CONCEPT PLAN**  
1"=200'

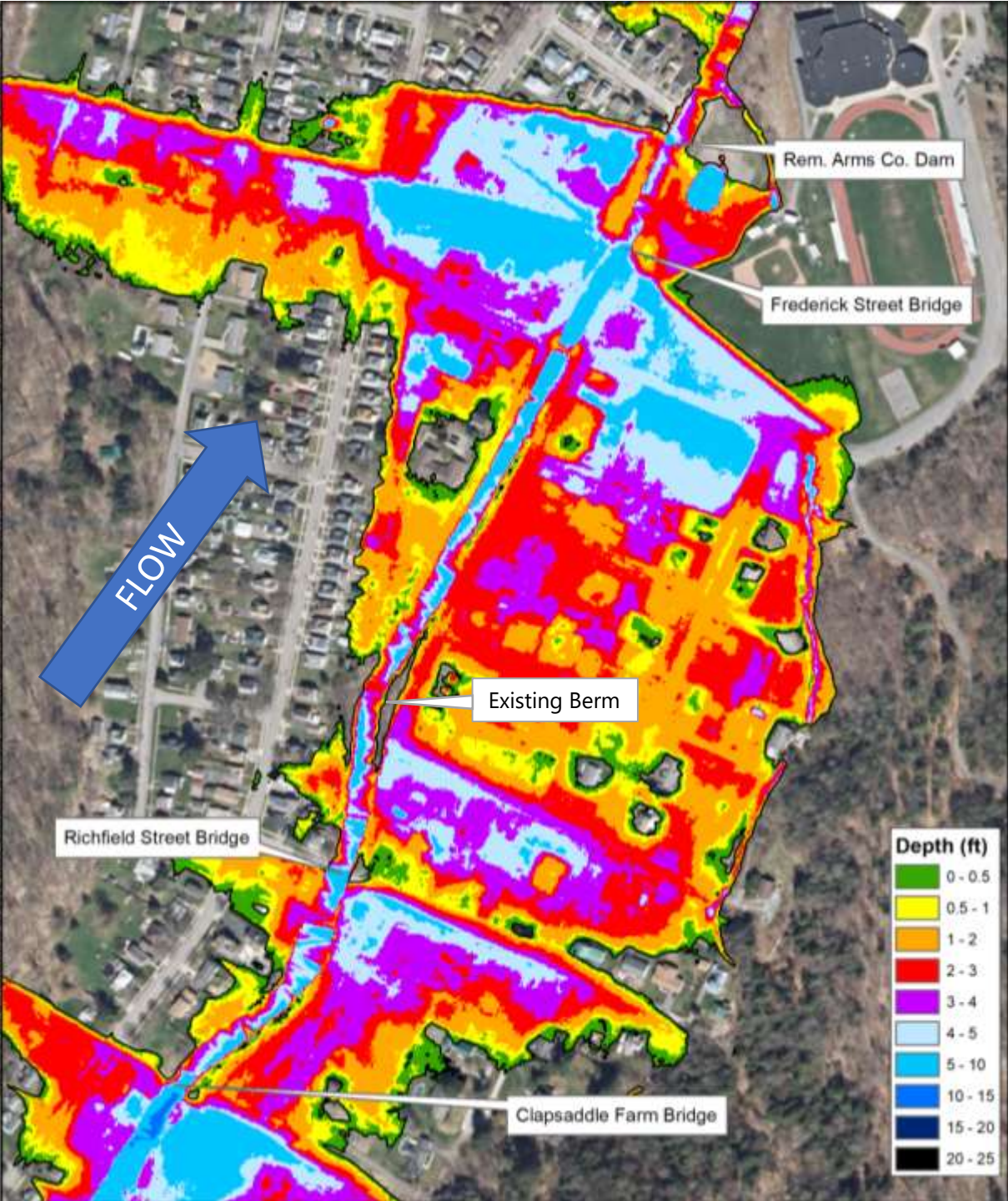


**HRA #2 - COMPOSITE TYPICAL CROSS SECTION AT FLOODPLAIN**  
NOT TO SCALE

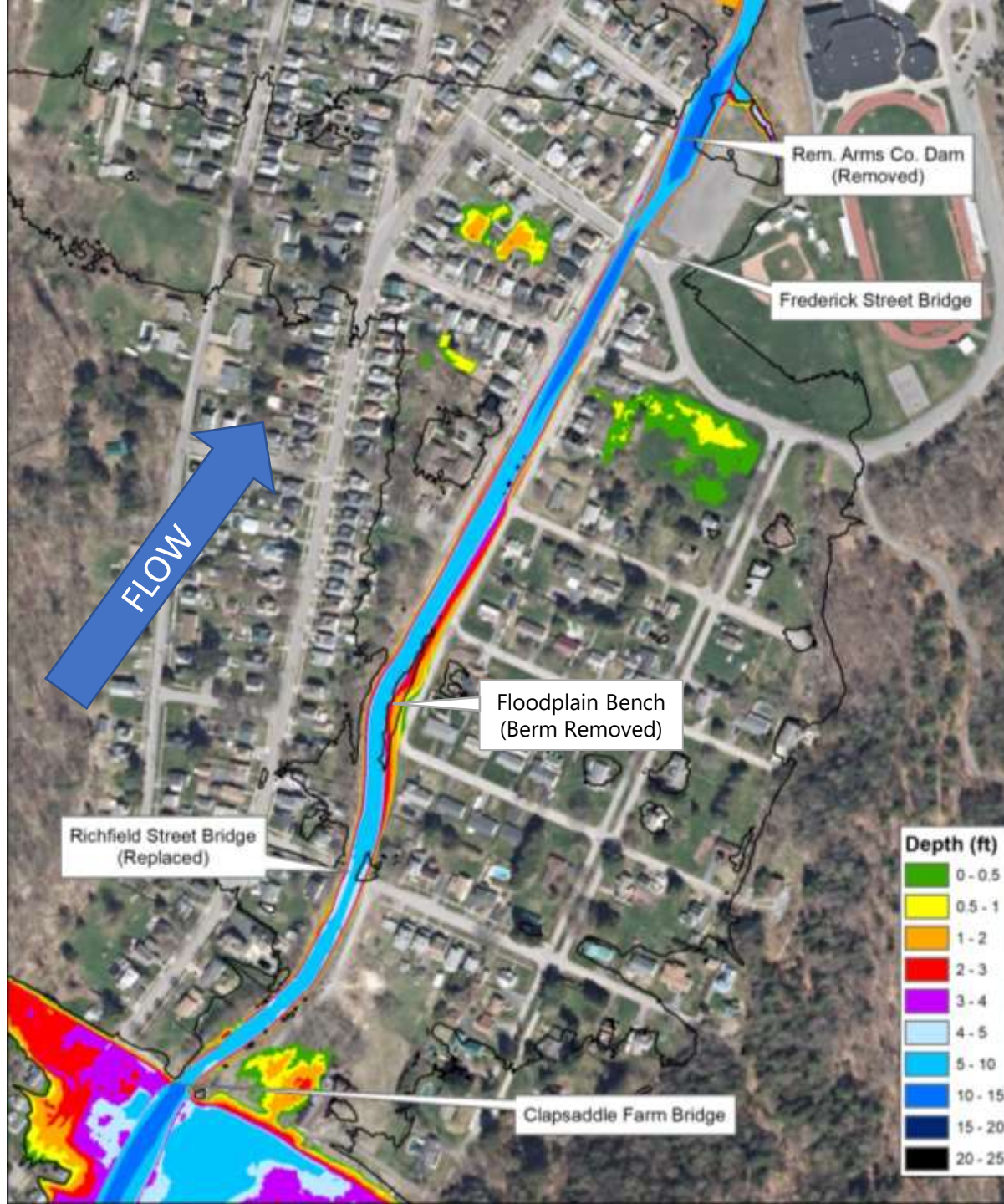
**Steele Creek, Iliion, NY**  

- Concept from SLR's 2014 flood study

Steele Creek, Ilion, NY  
Pre-project 100-year  
flood depth and extent



Steele Creek, Ilion, NY  
Final Proposed  
Conditions 100-year  
flood depth and extent



# Flood Mitigation Project Components

- Residential property buyouts ✓
- House demolition and removal ✓
- Road removals ✓
- Dam removal
- Widening and lowering of channel bed
- Floodplain creation
- Bridge replacement
- Bridge retrofit
- Utility relocations
- Installation of sanitary pump station
- Creation of instream habitat features
- Revegetation with native riparian species



**Top and bottom:** Removal of East River Drive during construction, 2020

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**Top:** Remington Arms Dam, Ilion, NY, before construction, 2019  
**Middle:** During construction, 2020  
**Bottom:** During construction, 2021



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**Top Right:** Steele Creek, Ilion, NY, during construction, 2020  
**Bottom Right:** after construction, 2022

# Steele Creek, Village of Ilion, Herkimer County, NY

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Old Richfield St Bridge:  
Flanked in 25-Year Flood



Replacement Bridge:  
3.0 feet of freeboard in Future 100-Year Flood (+ 20%)

**Top:** Old Richfield Street Bridge, 2019  
**Bottom:** New Richfield Street Bridge, 2021

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Frederick St Bridge Pre-Project:  
Overtopped in < 10-Year Flood



Dam Removed; Channel Grading; Bridge Retrofits:  
2.2 feet of freeboard in Future 100-Year Flood (+ 20%)

**Top:** Frederick Street Bridge Pre-Project, 2019  
**Bottom:** Frederick Street Bridge Post-Project, 2021

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**Top:** Utilities crossing Steele Creek, during construction, 2020

**Bottom:** Sanitary pump station after construction, 2021

# Flood Mitigation Project Components

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- Road removals ✓
- Dam removal ✓
- Widening and lowering of channel bed ✓
- Floodplain creation ✓
- Bridge replacement ✓
- Bridge retrofit ✓
- Utility relocations ✓
- Installation of sanitary pump station ✓
- Creation of instream habitat features ✓
- Revegetation with native riparian species ✓



**Top and Bottom:** Steele Creek after construction, 2022

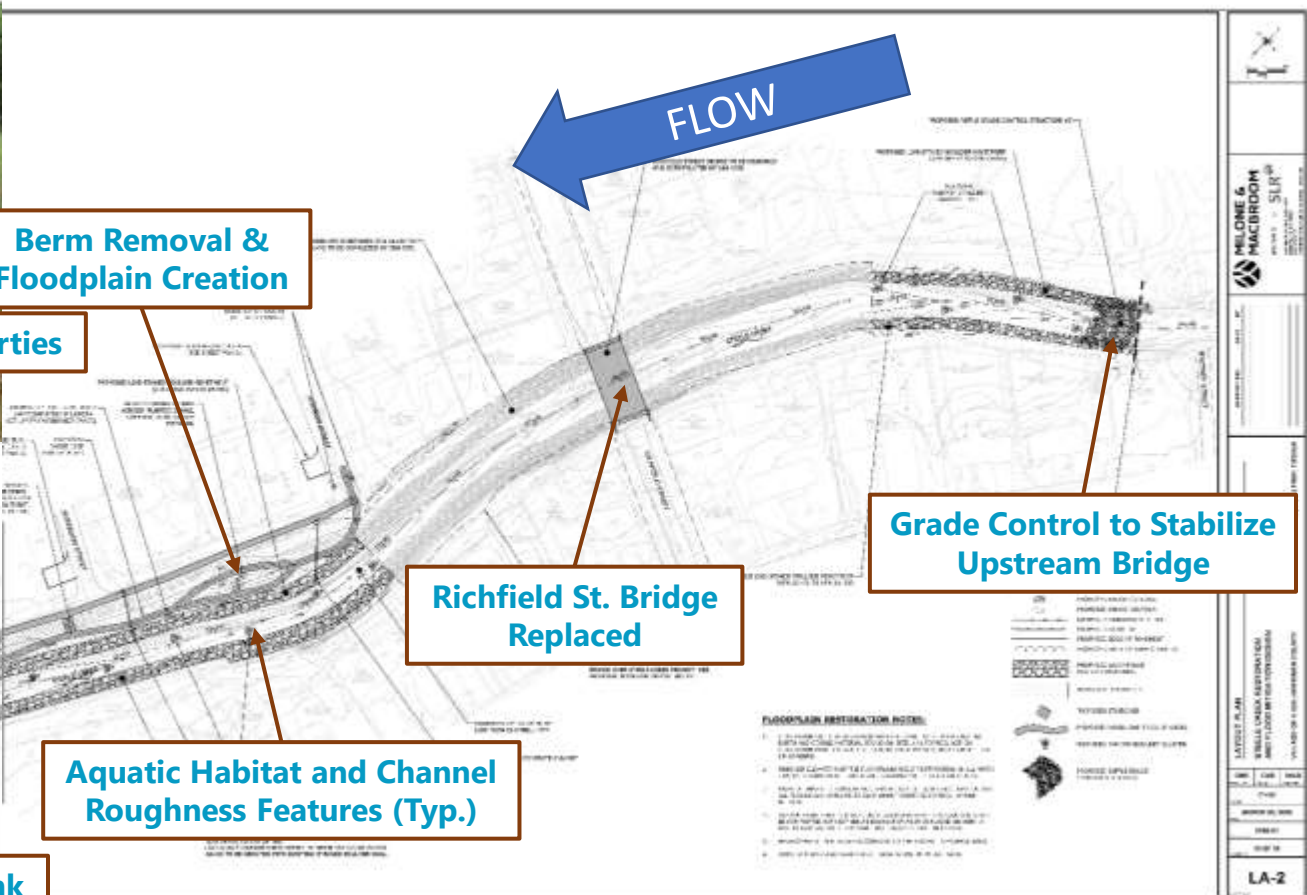


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PROJECT NO. 15-001  
 SHEET NO. LA-2  
 DATE: 08/2015

SCALE: 1" = 100'

PROJECT: FLOODPLAIN RESTORATION



LA-1

LA-2



# Implementation of a solution to long-standing flooding problems Village of Ilion, NY

Ingredients for project success:

- Willing and engaged community ✓
  - Full understanding of the problem
  - Development of viable solution
  - Community willingness to convert space ✓
  - Development of multifaceted engineering design ✓
  - Multi-agency funding for study, design, permitting, construction ✓
  - Time and patience ✓
- } Rigorous hydraulic analysis ✓

**ACEC** *New York*

2023 Engineering Excellence  
Diamond Award  
Water Resources Category



Making  
Sustainability  
Happen

SLRCONSULTING.COM

# Thank You!

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