Bank Stabilization, Flood Reduction and Water Quality Improvement Design Build Project

IAFSM 2017

Presenters: Ajay Jain, Logan Gilbertsen & Kevin Gray

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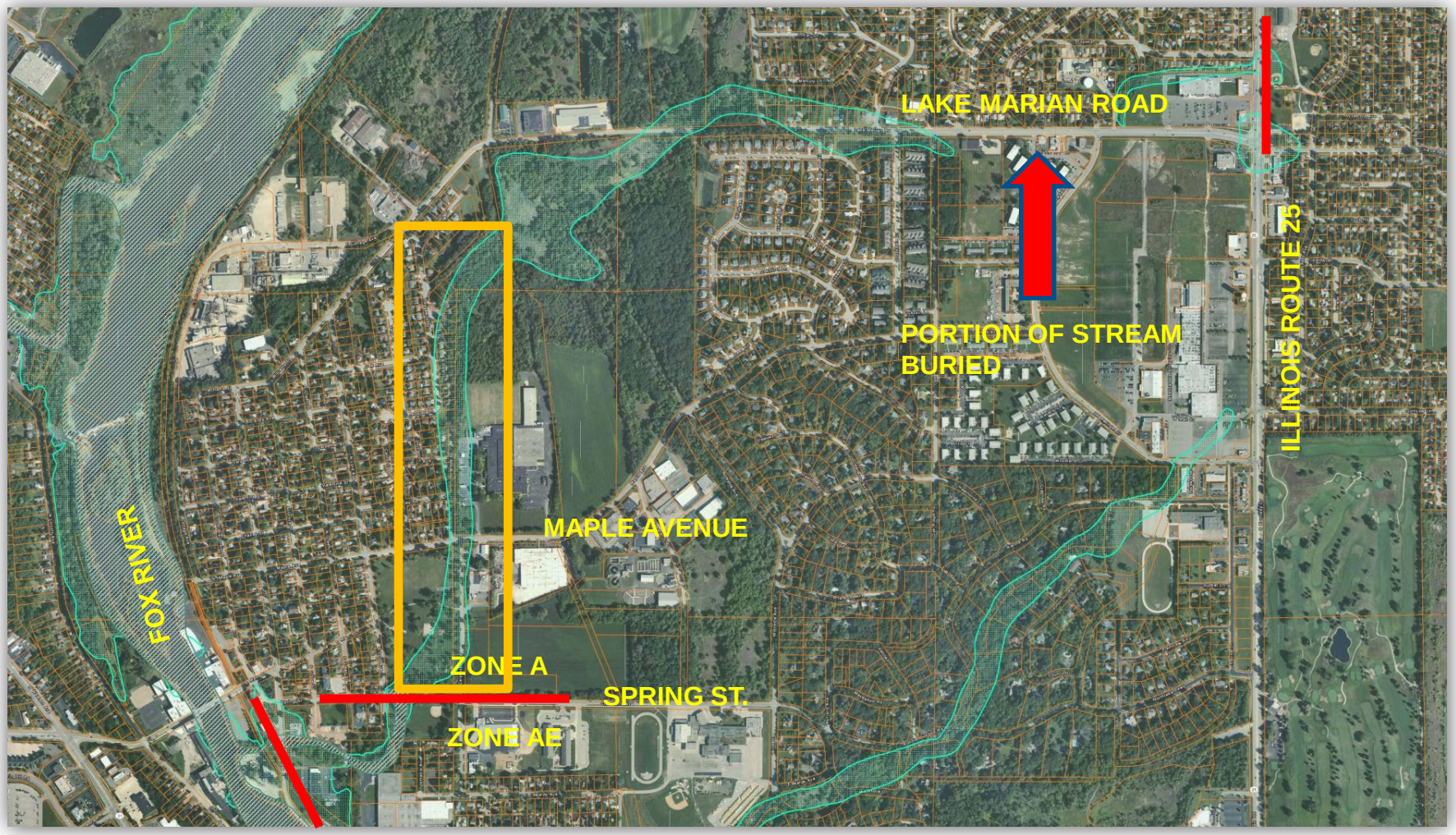
PROJECT LOCATION / CURRENT REGULATORY MAP



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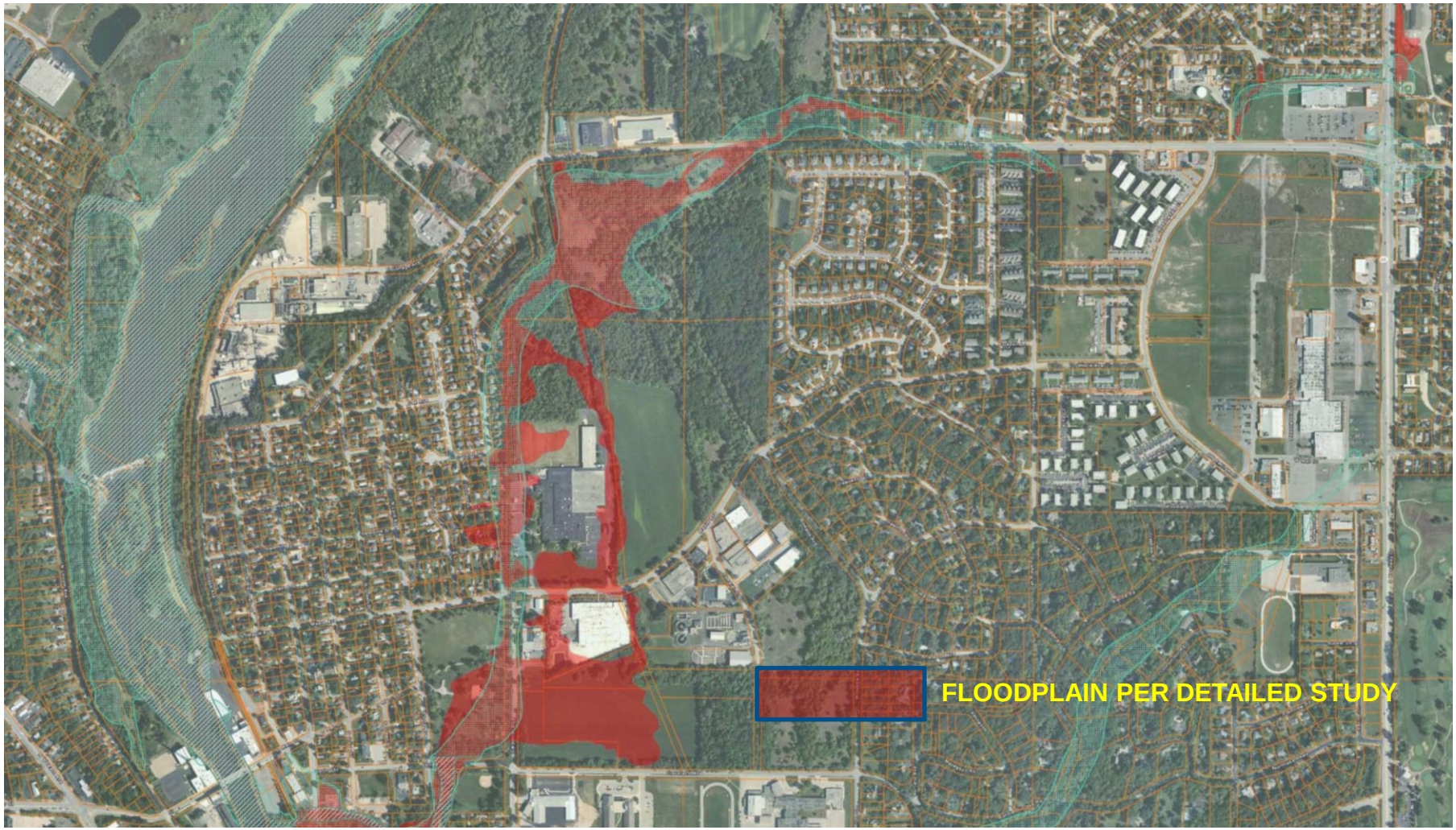
FLOODPLAIN LIMITS PER DETAILED STUDY



EXISTING CHANNEL CONDITIONS

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SUMMARY OF FINDINGS / FUNDING OPPORTUNITIES

PRELIMINARY SOLUTIONS IDENTIFIED

- Upsize Culverts
- Increase channel capacity/stabilize banks
- Achieved the desired objective of FLOOD REDUCTION.
- **$Approx. $2.8M IN TOTAL COSTS, FUNDING WAS AN ISSUE!**

CREATIVE FUNDING OPPORTUNITIES

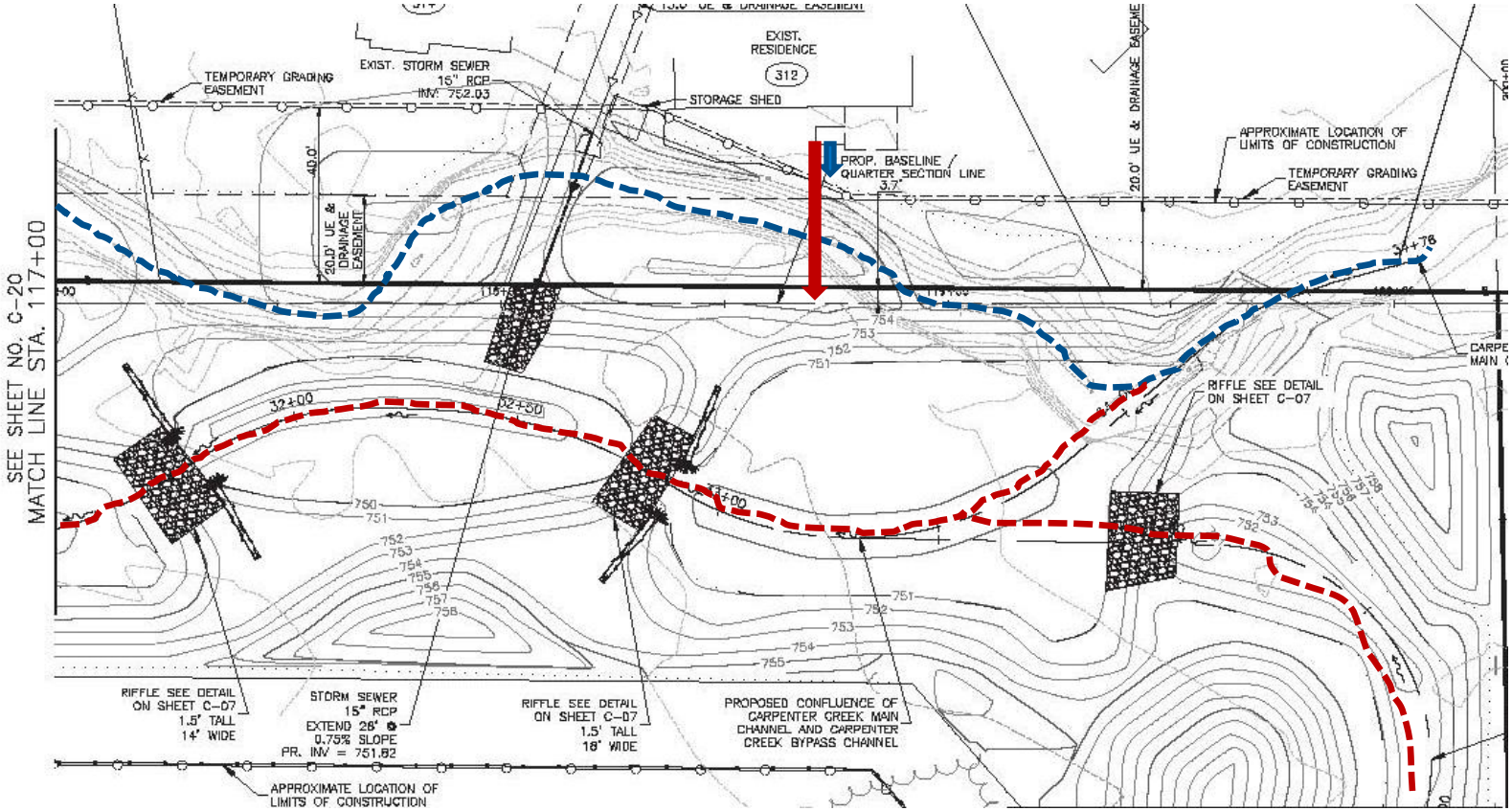
- Maple Avenue culvert replacement included with funded road project **($0.6M)**
- Existing TIF District expanded to include 2 other culvert rep. **($1.1M±)**
- Jelkes Creek Fox River Watershed Plan Approved by IEPA
- Portions of stream identified as critical areas for water quality
- Revised design to meet funding requirements/proposed as DESIGN-BUILD
- Applied for and secured Section 319 funding **($1.14M with 60/40 split)**
- Developer fee in lieu contributions **($380,000±)** used for 40% local match
- Trucking and some other work items completed by Village for in-kind match
- Village worked with private landowners to donate land, etc.

SECTION 319 GRANT REPORTING REQUIREMENTS

- Preliminary/Final Design Forms/Plans need to be submitted to IEPA
- Prepare and submit BMP forms consistent with the grant application
- Need to submit copies of permits and landowner agreements
- Need a minimum of 10-year Operation and Maintenance Plan
- Need to provide interpretive signage/educational signs
- Prepare and submit a draft and final project evaluation report
- Prepare and submit for reimbursements as costs are incurred and consistent with the Project Costs Summary Form

PROPOSED CONDITIONS DESIGN / CONSTRUCTION

EXISTING CHANNEL
PROPOSED CHANNEL



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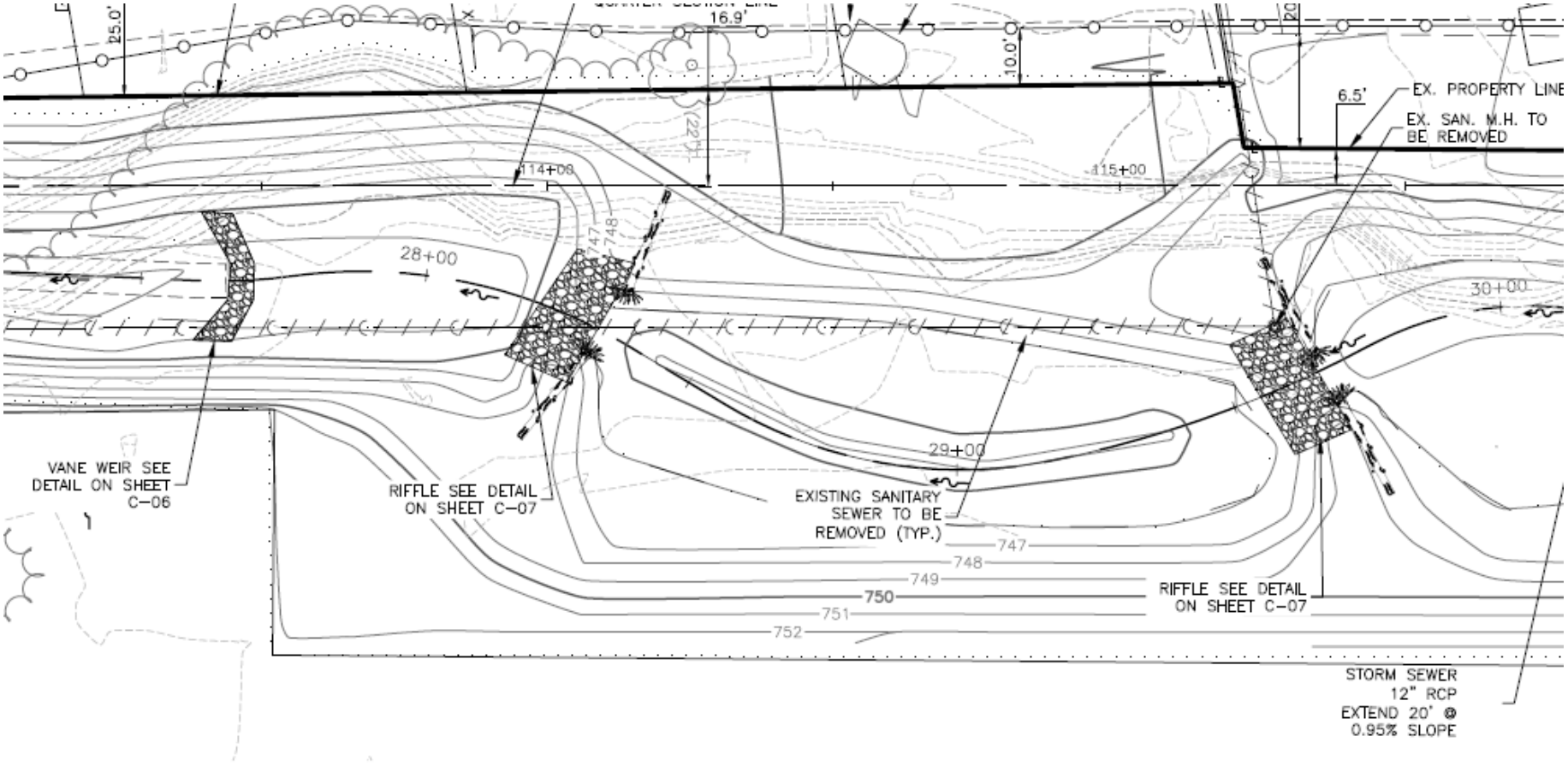
PROPOSED CONDITIONS DESIGN / CONSTRUCTION



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Site Clearing

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Earthwork and Construction

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Earthwork and Construction

Earthwork and Construction

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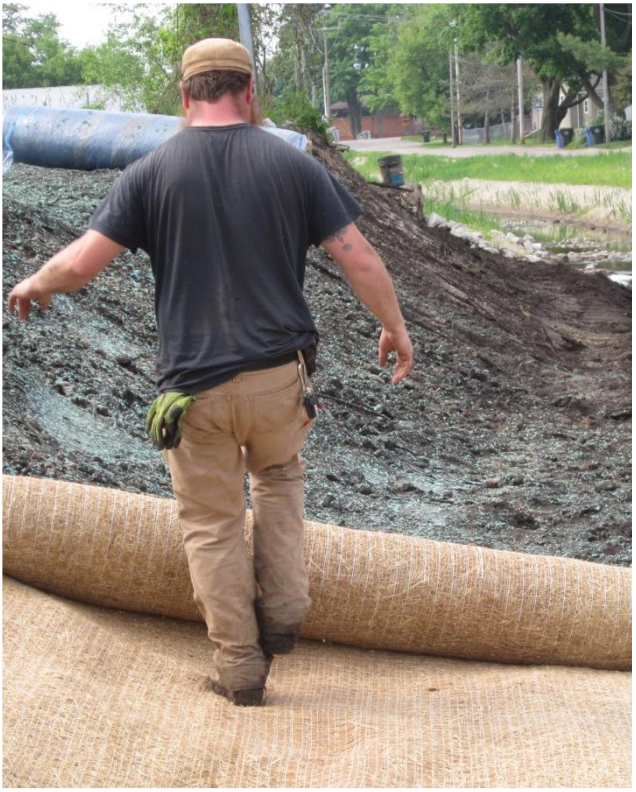
Earthwork and Construction

Erosion Control



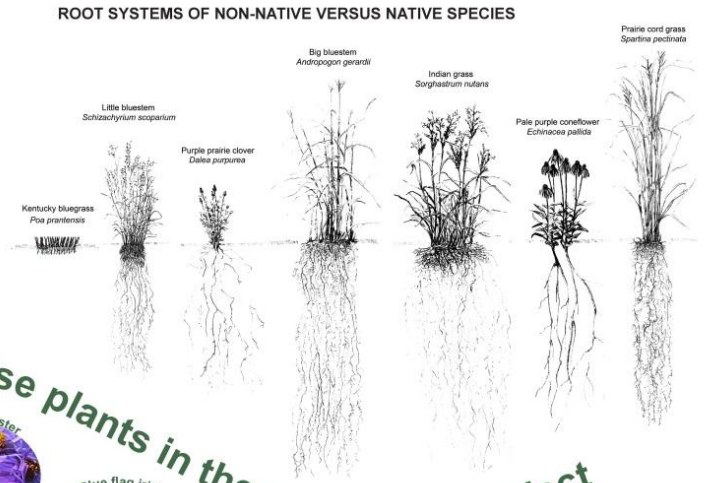
PROJECT SIGNAGE / EDUCATION

CARPENTER CREEK STREAM RESTORATION PROJECT - FOX RIVER WATERSHED

Restoration with Native Plant Species

Native plants provide a variety of ecological functions for stream improvement, not the least of which is improved water quality. Deep rooted native plants reduce erosion from streambanks and the deep roots help absorb stormwater runoff and pollution from directly entering the stream. Native plants also provide excellent wildlife habitat. They require minimal maintenance and do not require fertilizer which is important because fertilizer runoff is a major reason for poor water quality in the stream.

In contrast, shallow-rooted lawn grass (such as Kentucky bluegrass, far left) offers very little erosion control, water infiltration, sediment removal or wildlife habitat. Plus, much of the fertilizer applied to lawn grass runs off into the stream.



Funded, in part, under Section 319 of the Federal Clean Water Act.
Grant No.: C995200014

For more information,
contact Illinois EPA at (217)782-3362
FAA Number: 3191407

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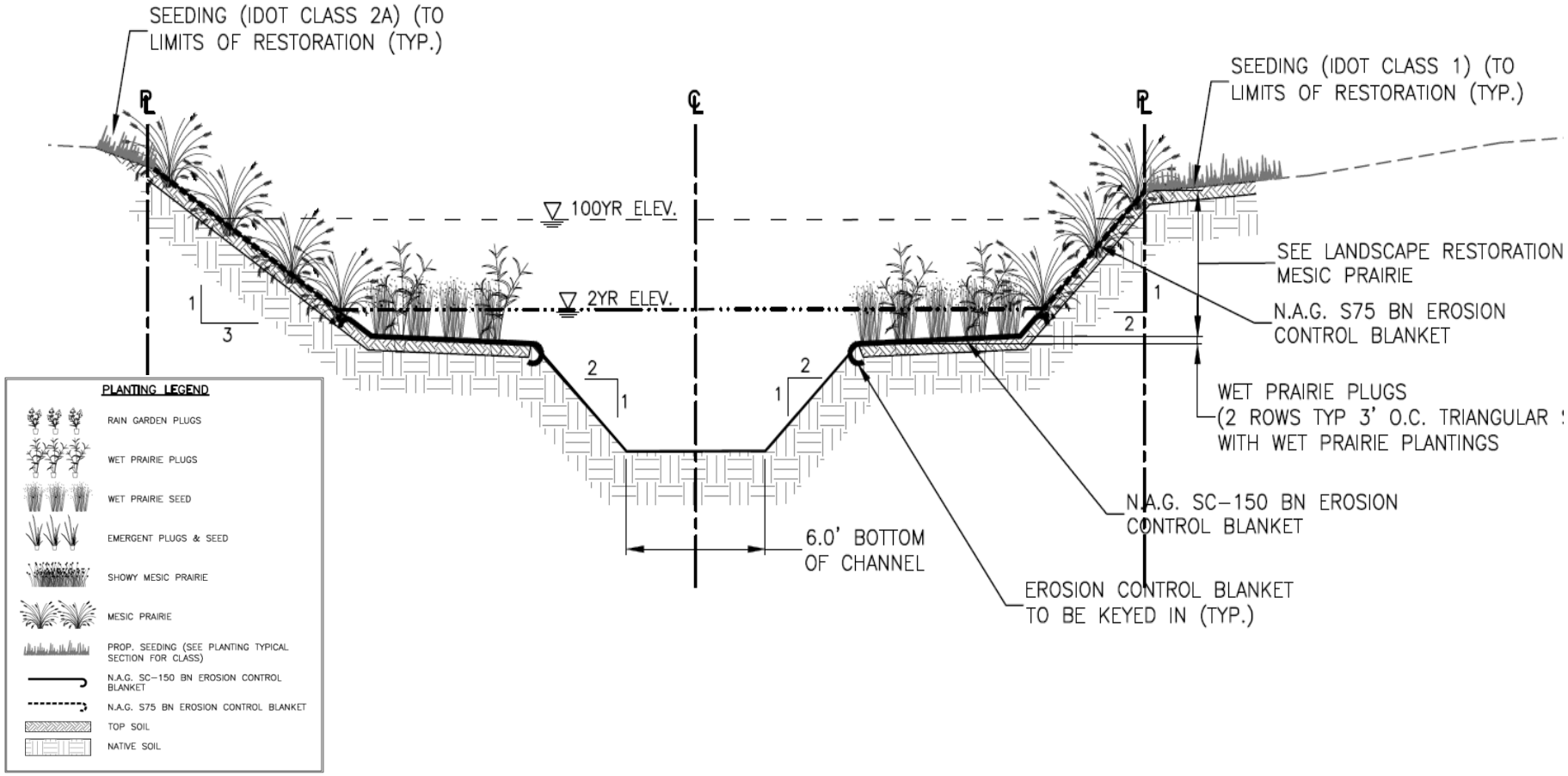
RESTORATION



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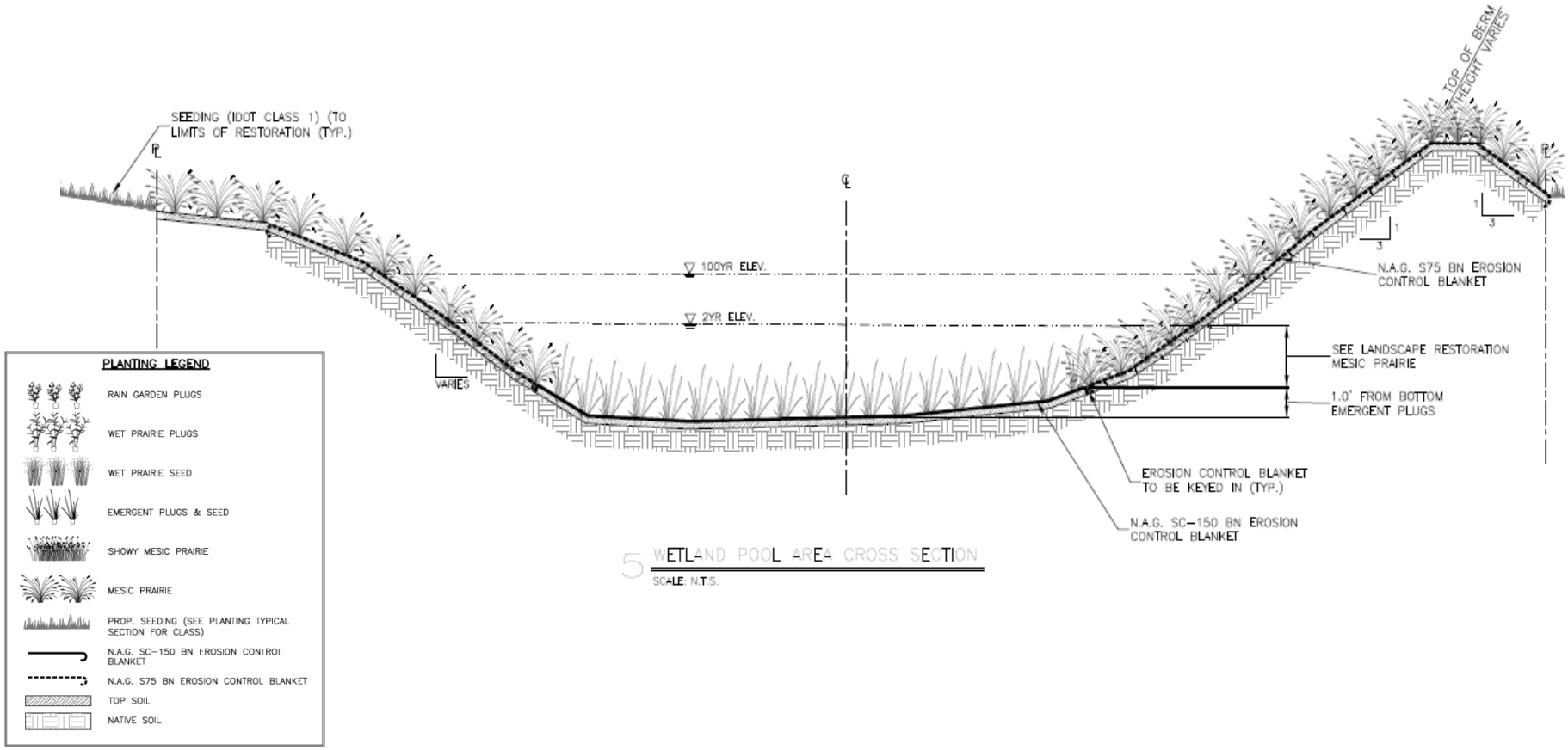
RESTORATION



5 WETLAND POOL AREA CROSS SECTION

SCALE: N.T.S.

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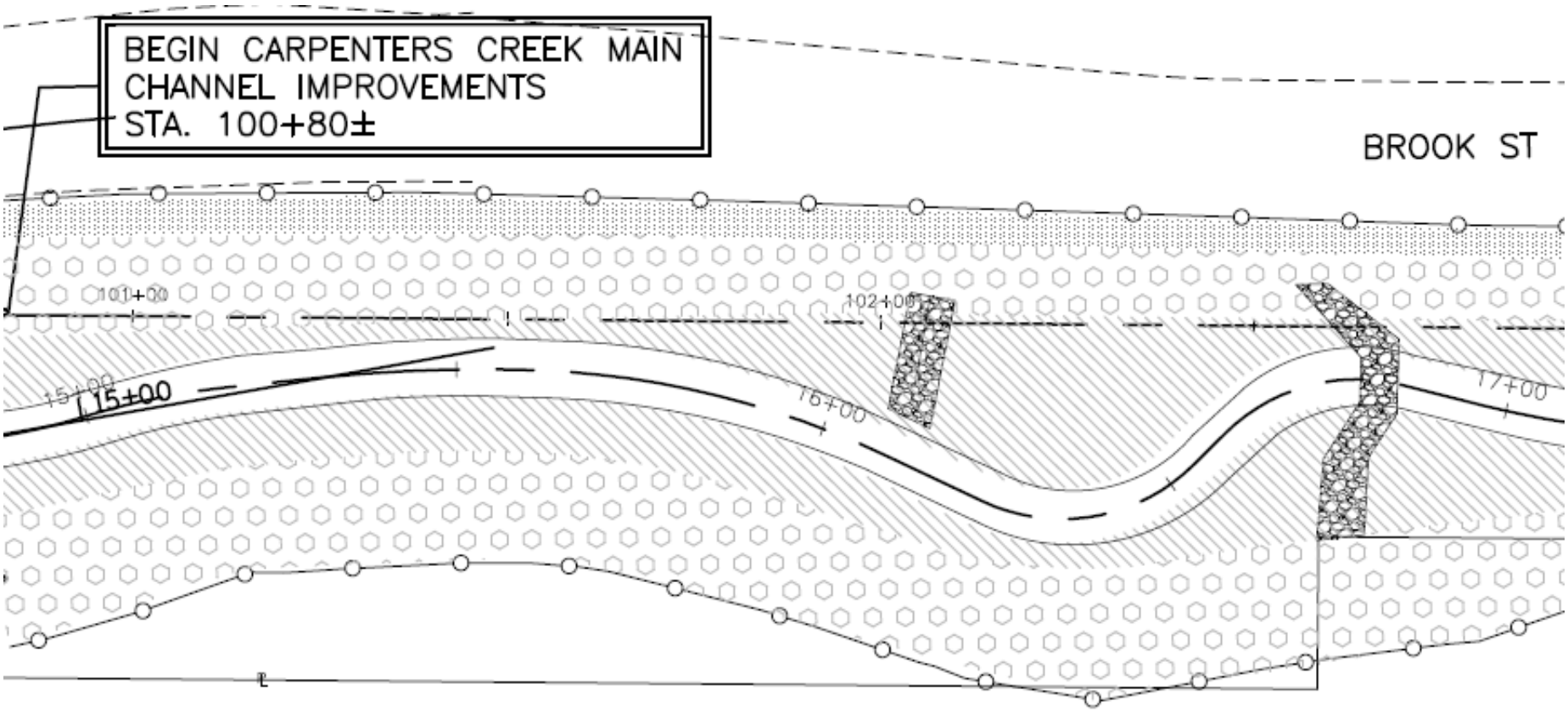
RESTORATION



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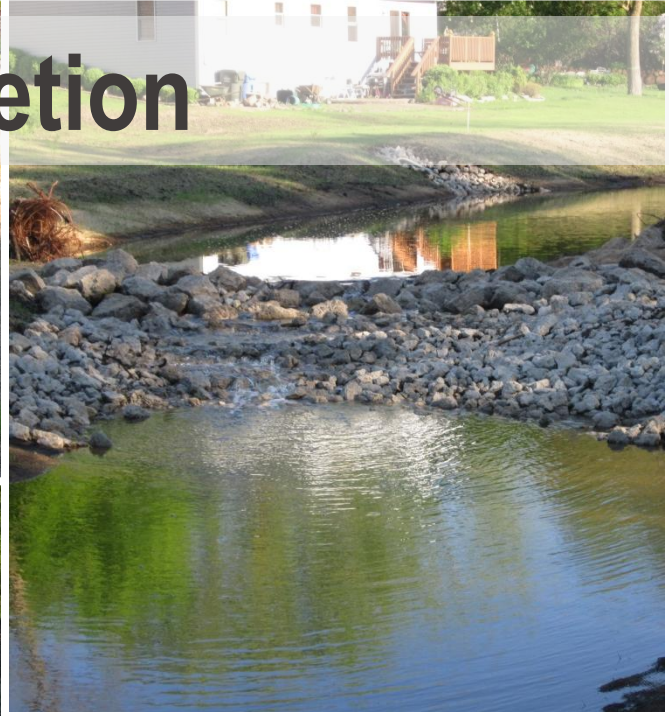
Restoration

Project Completion



Project Completion

BMP SUMMARY

- 7,973 linear feet of bank stabilization
- 8 meanders and a two-stage channel
- 5 vane weir grade control structures
- 8 pool and riffle sections
- 8 wetland basins totaling 1.4 acres of wetland
- 8 rain gardens in Carpenter Park
- 1 acre of riparian buffer strip in Carpenter Park

- Pollutant reduction:

Sediment	499 TONS/year
Total Suspended Solids (TSS)	192,383 lbs/year
Phosphorus	612 lbs/year
Nitrogen	1,607 lbs/year

PROJECT OUTCOME

- **Win-Win** (Achieved flood protection and water quality benefits)
- Approx. 40 parcels out of floodplain after project.
- Secured $1.14M in Section 319 Grant (Village share - $507,724)
- $380,000 in developer fee in lieu money to offset local match.
- Maple Avenue culvert replaced and funded through STP money.
- Other culvert improvements included as part of TIF improvement.
- Letter of Map Revision Submitted to FEMA and IDNR-OWR
- ***First design-build project for the Village.***

QUESTIONS FROM THE AUDIENCE

Ask away…

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