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East Branch Shipbuilder's Creek Remediation Engineering Alternatives Analysis

PREPARED BY: BARTON & LOGUIDICE

July 3, 2024

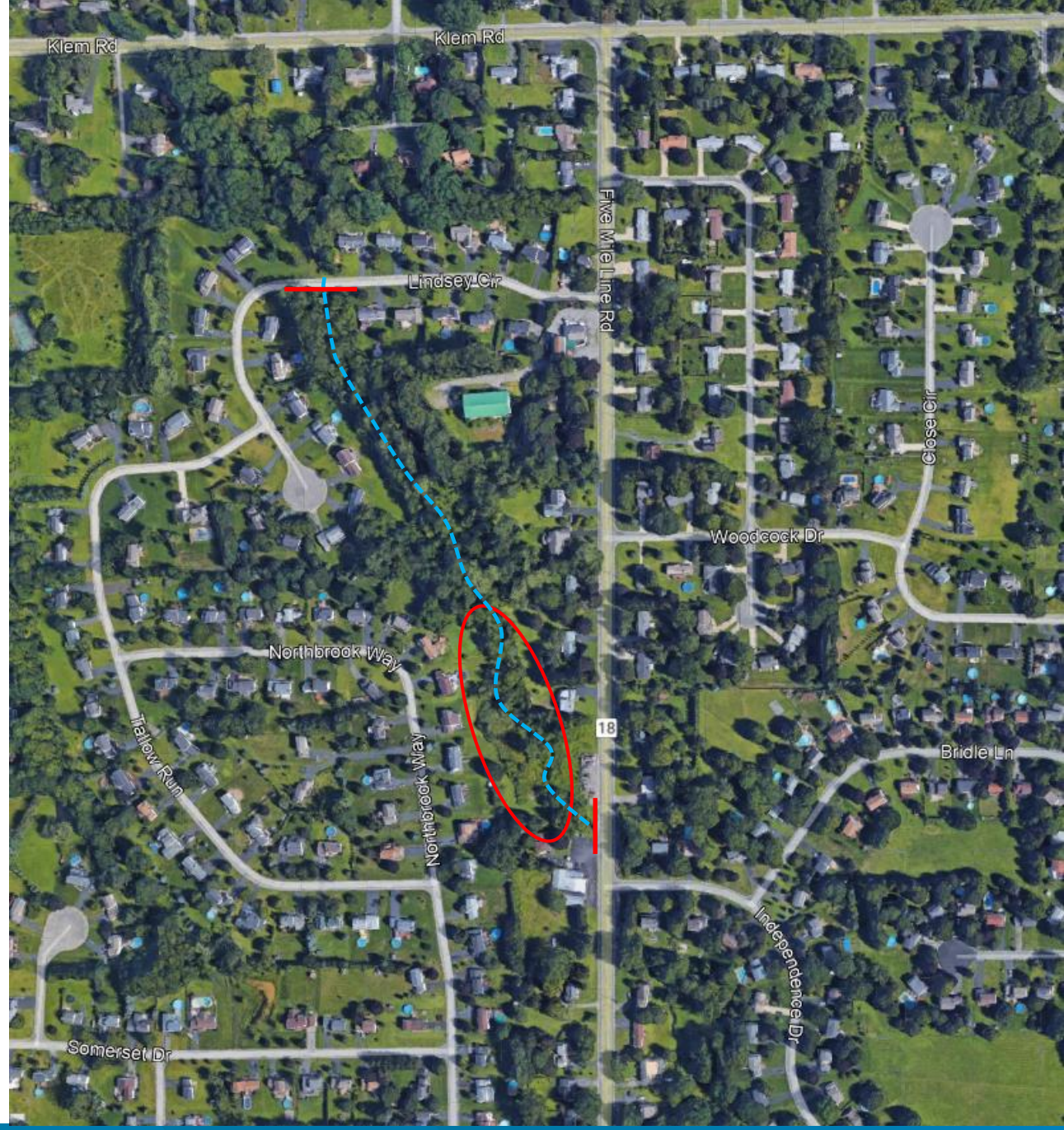
Barton & Loguidice

Agenda

I. Shipbuilder's Creek and Infrastructure Condition

II. Alternatives Analysis
   I. In-Place Sewer Rehab with Localized Stream Restoration
   II. In-Place Sewer Rehab with Comprehensive Stream Restoration
   III. 15" Sewer Realignment with Localized Stream Restoration
   IV. 8" Sewer Relocation with Localized Streambank Stabilization

III. Recommendations



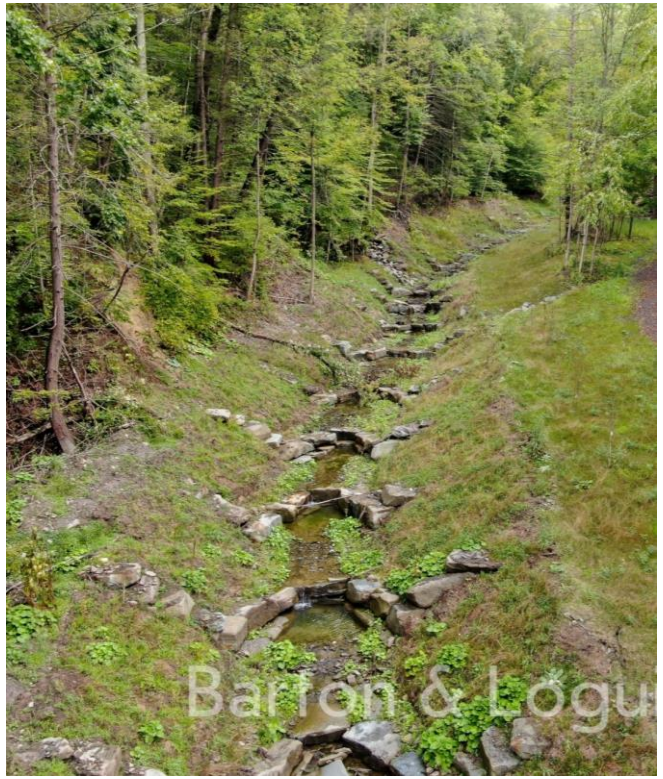
Alternative 1: In-Place Sewer Rehab with Localized Stream Restoration

Summary:

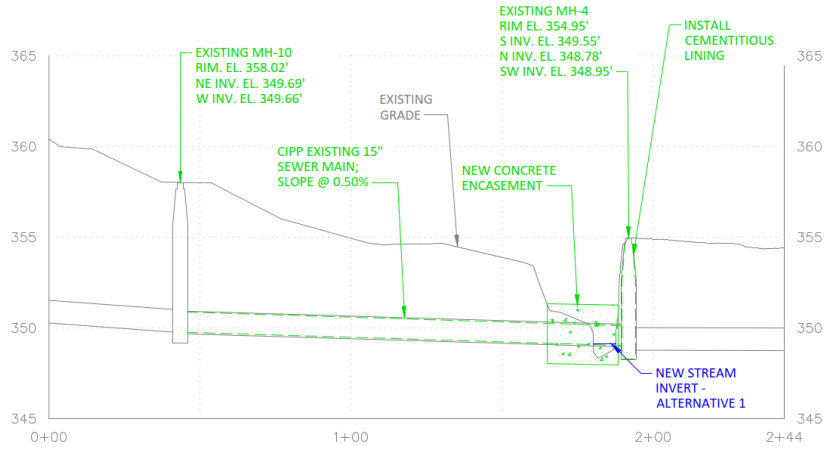
- CIPP lining of 150 LF of 15" and 385 LF 8" pipe with concrete encasement of pipe within stream extents
- 650 linear feet of stream channel restoration and bank stabilization with minor alignment changes; use combination of 'soft' and 'hard' restoration techniques to protect infrastructure

Draft Costs:

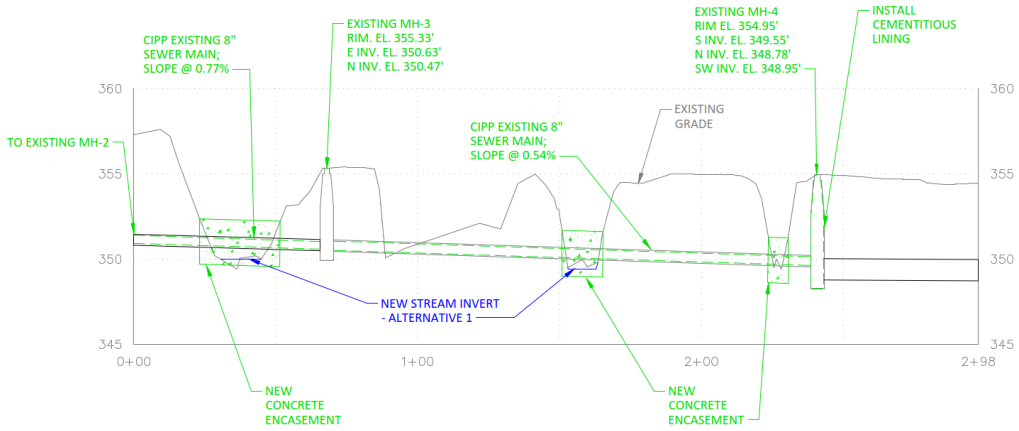
- Sewer: $150,000
- Stream: $530,000
- Total: $670,000



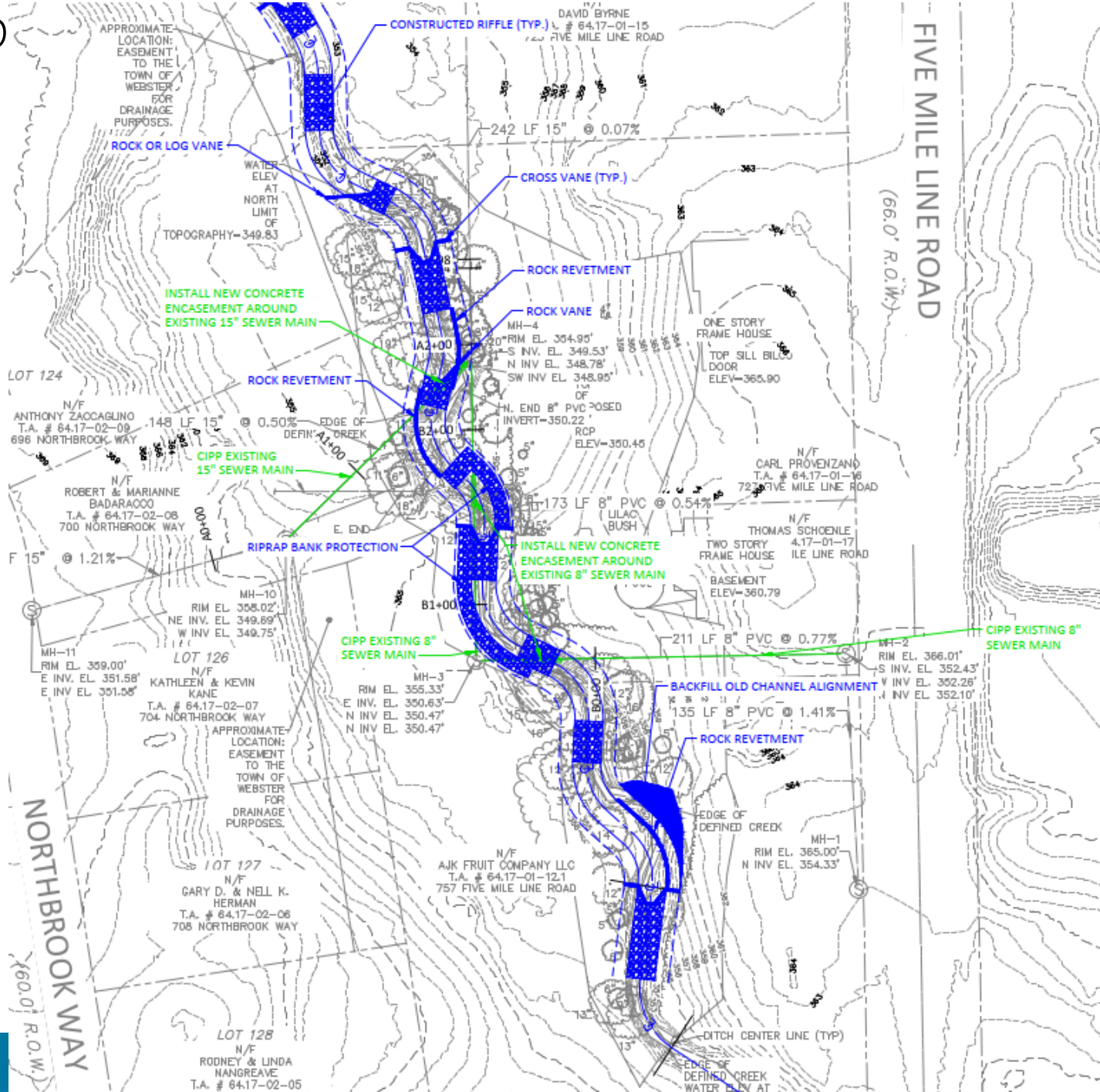
Alternative 1: In-Place Sewer Rehab with Localized Stream Restoration



15" IN-PLACE SEWER REHABILITATION PROFILE



8" IN-PLACE SEWER REHABILITATION PROFILE



Alternative 1: In-Place Sewer Rehab with Localized Stream Restoration

Permitting:

- Joint Application for Section 404 and Article 15 Protection of Water Permits (USACE and DEC)

Funding:

- (WQIP) Non-Agricultural Nonpoint Source Abatement and Control
  - Maximum Award of $1,000,000 requiring 25% local match

Other Implications:

- Requires access to manholes for lining (least intrusive alternative)
- Repairing existing infrastructure – most likely easiest permitting alternative
- Hydraulic analysis of floodplain to confirm ‘no rise’ in Base Flood Elevations

Alternative 2: In-Place Sewer Rehab with Comprehensive Stream Restoration

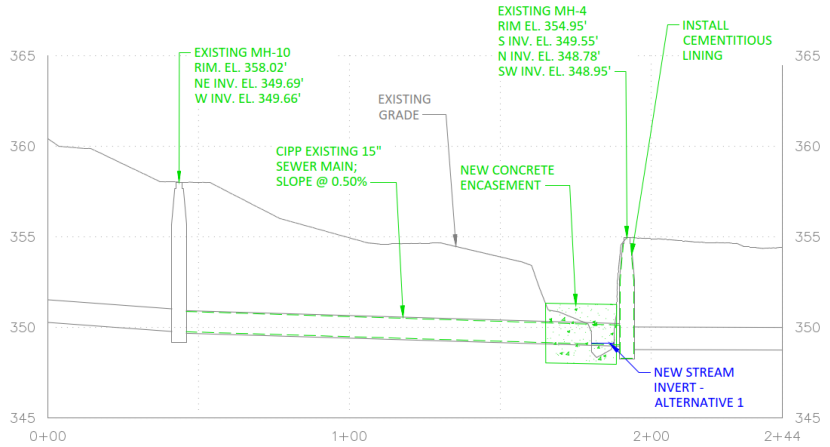
Summary:

- CIPP lining of 150 LF of 15" and 385 LF 8" pipe with concrete encasement of pipe within stream extents
- 1,800 linear feet of geomorphic stream restoration and floodplain reconnection between Five Mile Line and Lindsey Circle; uses natural restoration techniques and limits 'hard' bank protection to critical infrastructure locations

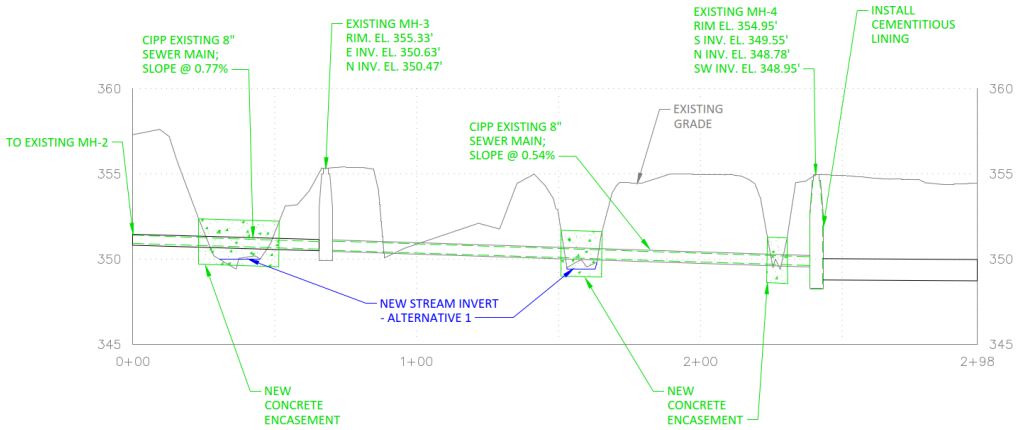
Draft Costs:

- Sewer: $150,000
- Stream: $940,000
- Total: $1,090,000

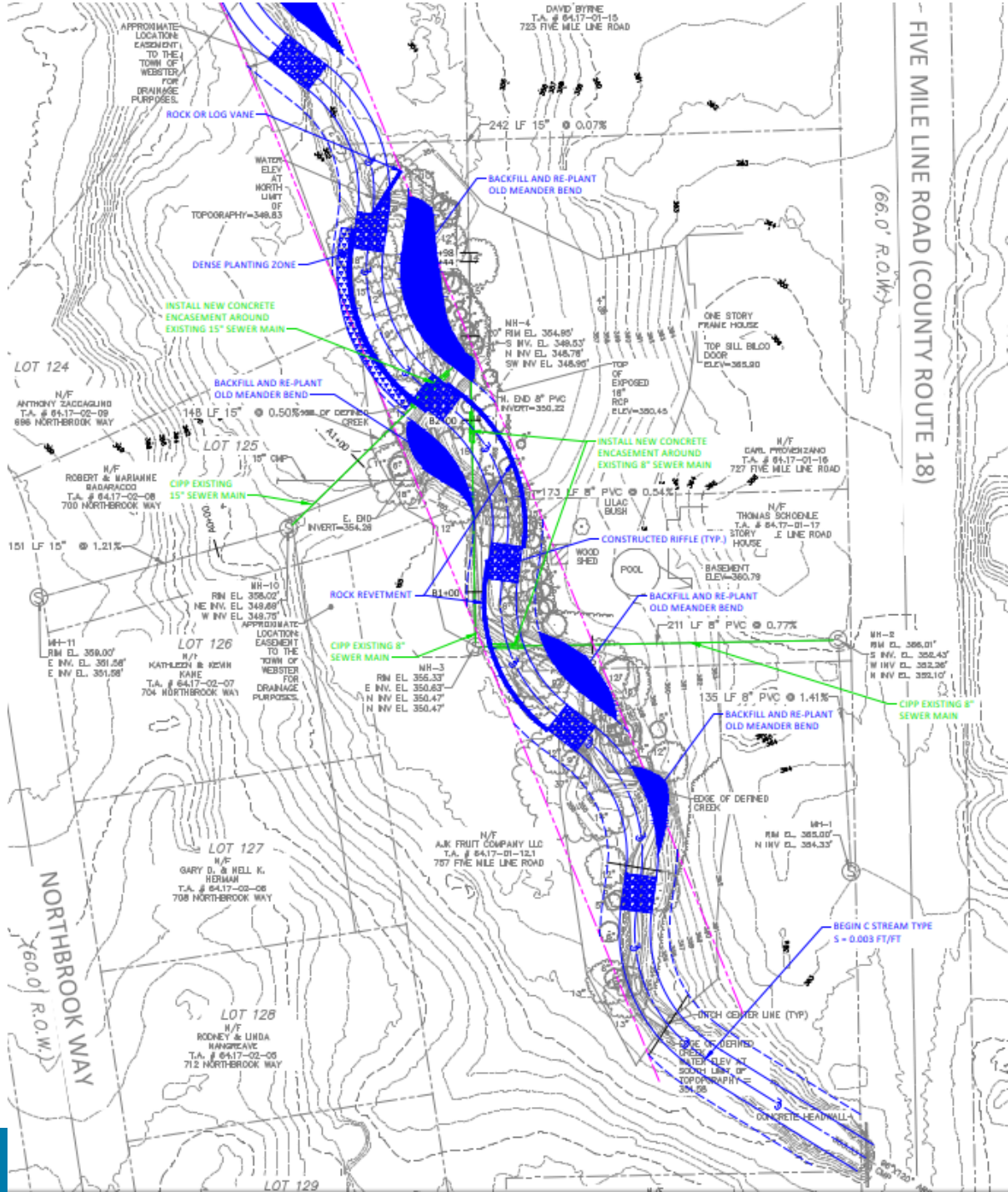
Alternative 2: In-Place Sewer Rehab with Comprehensive Stream Restoration



15" IN-PLACE SEWER REHABILITATION PROFILE



8" IN-PLACE SEWER REHABILITATION PROFILE



Alternative 2: In-Place Sewer Rehab with Comprehensive Stream Restoration

Permitting:

- Joint Application for Section 404 and Article 15 Protection of Water Permits (USACE and DEC)

Funding:

- (WQIP) Non-Agricultural Nonpoint – Multiple Project Categories
  - Maximum Award of $4,000,000 requiring 25% local match

Other Implications:

- Requires access to manholes for lining (least intrusive alternative)
- Repairing existing infrastructure – most likely easiest permitting alternative
- Hydraulic analysis of floodplain to confirm ‘no rise’ in Base Flood Elevations

Alternative 3: 15" Sewer Realignment with Localized Stream Restoration

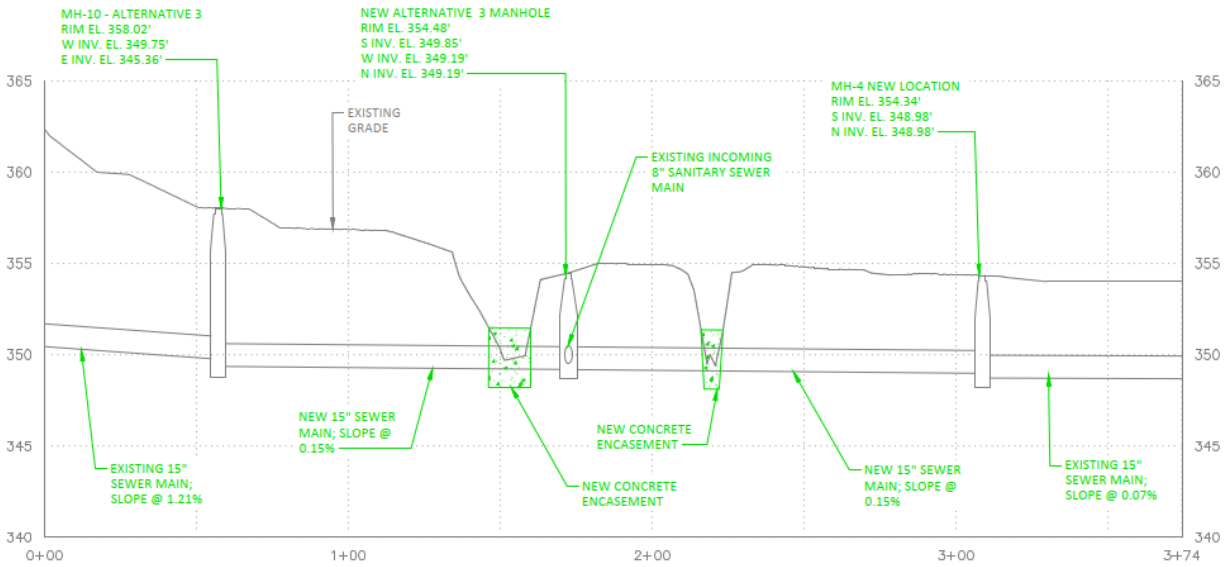
Summary:

- Install new 15" sewer across Shipbuilders Creek and two new manholes
- 650 linear feet of stream channel restoration and bank stabilization with minor alignment changes; use combination of 'soft' and 'hard' restoration techniques to protect infrastructure

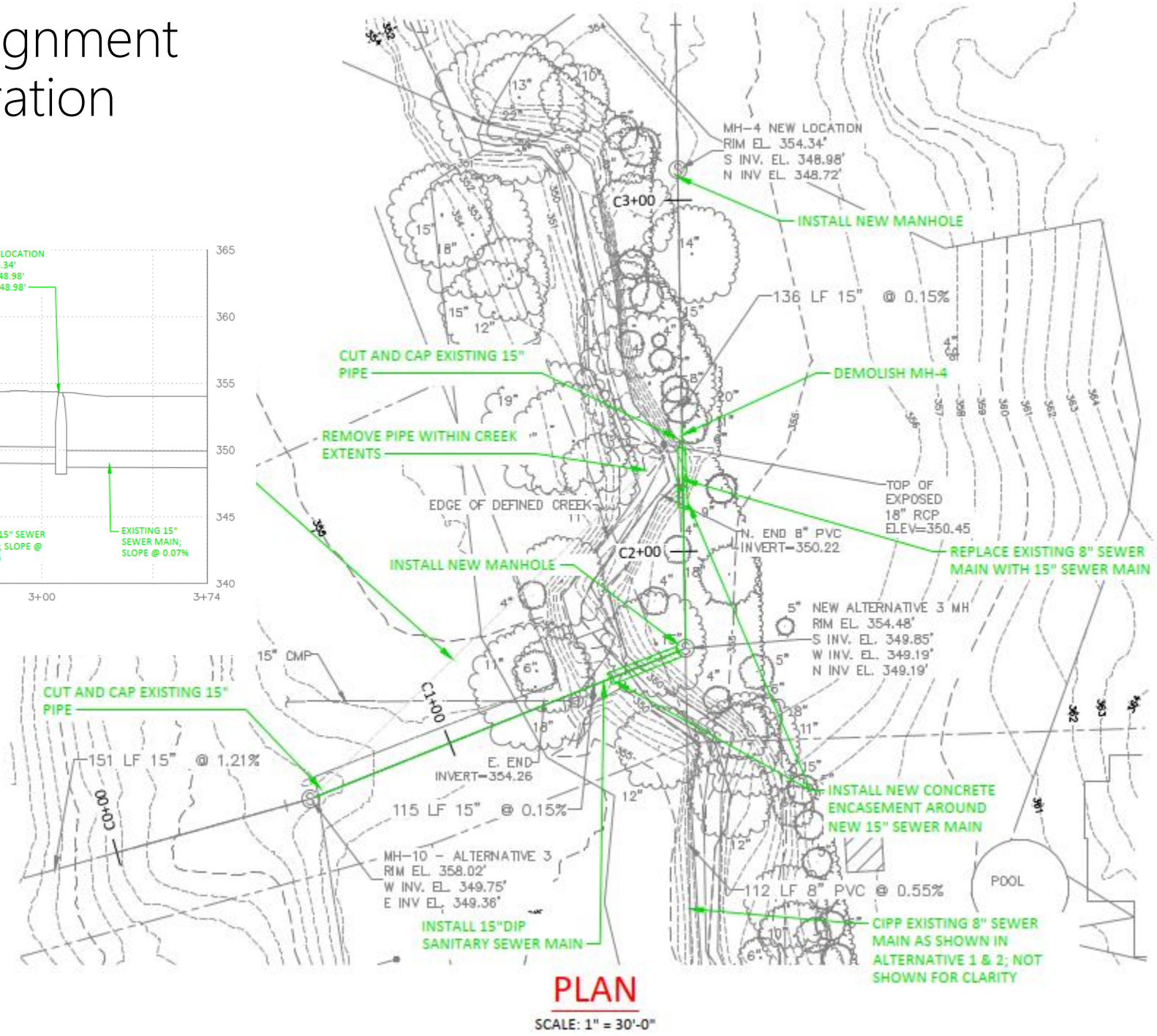
Draft Costs:

- Sewer: $390,000
- Stream: $530,000
- Total: $920,000

Alternative 3: 15” Sewer Realignment with Localized Stream Restoration



15" SEWER REALIGNMENT PROFILE



PLAN

SCALE: 1" = 30'-0"

Alternative 3: 15" Sewer Realignment with Localized Stream Restoration

Permitting:

- Joint Application for Section 404 and Article 15 Protection of Water Permits (USACE and DEC)

Funding:

- (WQIP) Non-Agricultural Nonpoint Source Abatement and Control
  - Maximum Award of $1,000,000 requiring 25% local match

Other Implications:

- Does not meet 3' cover over pipe – would require NYSDEC variance
- Confirm extents of Town's easement
- Hydraulic analysis of floodplain to confirm 'no rise' in Base Flood Elevations

Alternative 4: 8" Sewer Relocation with Localized Streambank Stabilization

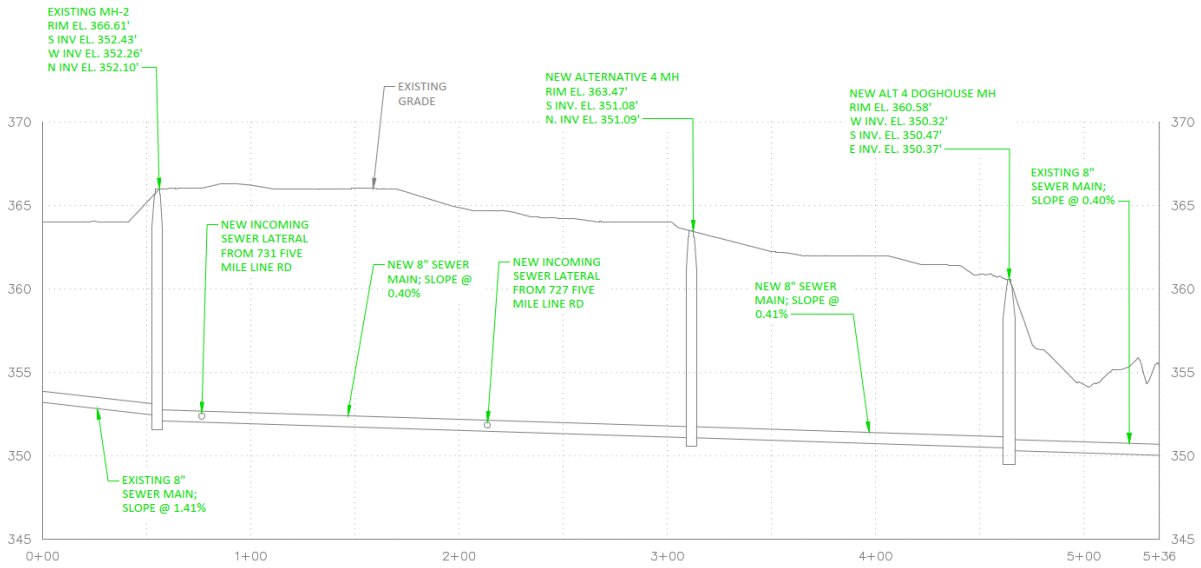
Summary:

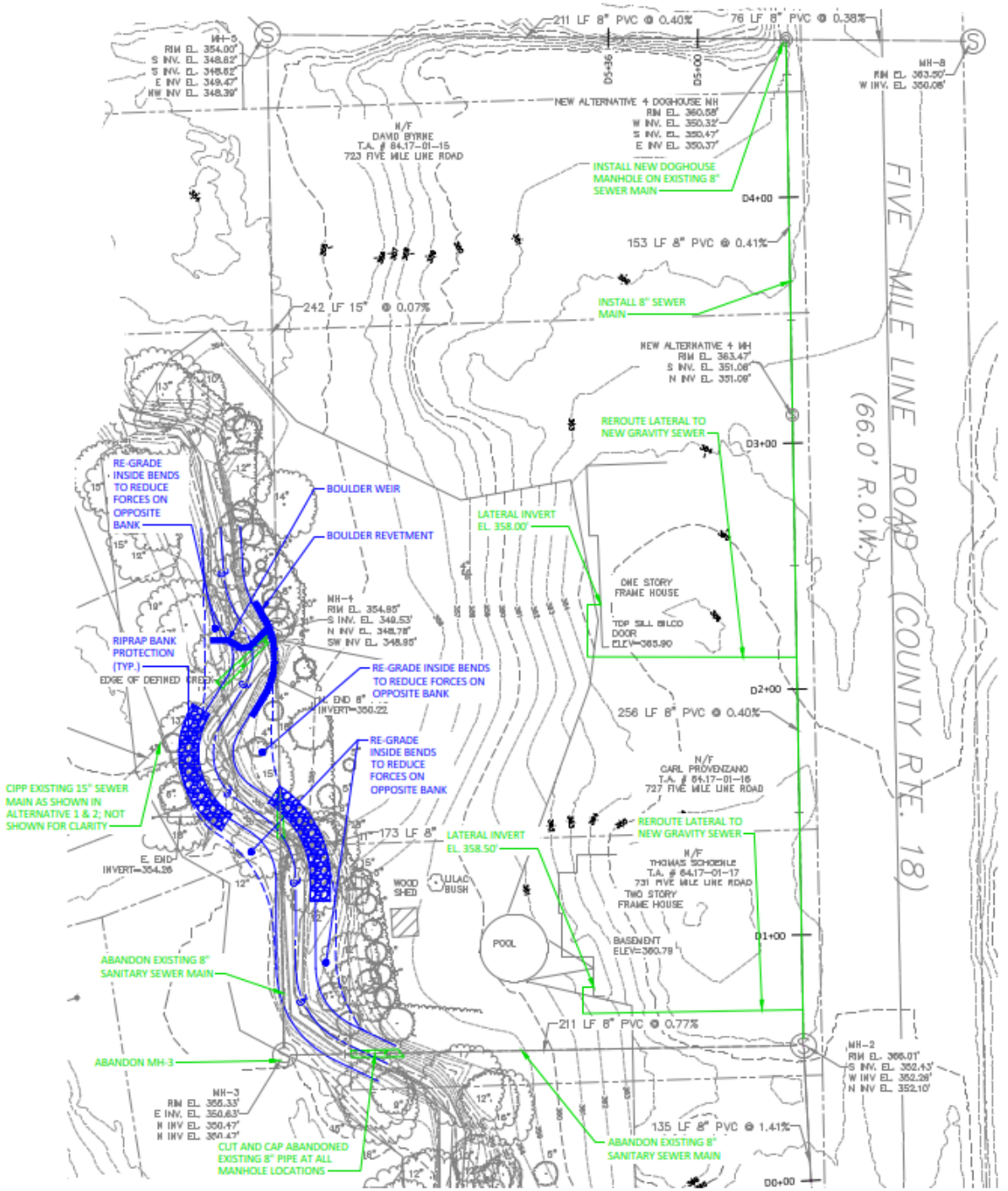
- Install new 8" sewer along Five Mile Line, two new manholes, and two re-aligned laterals
- 250 linear feet of in-place stream stabilization focused on protecting 15" sewer and manhole; includes protection of upstream streambanks to mitigate future erosion towards infrastructure

Draft Costs:

- Sewer: $780,000
- Stream: $170,000
- Total: $950,000

Alternative 4: 8" Sewer Relocation with Localized Streambank Stabilization





Alternative 4: 8" Sewer Relocation with Localized Streambank Stabilization

Permitting:

- Joint Application for Section 404 and Article 15 Protection of Water Permits (USACE and DEC)

Funding:

- (WQIP) Non-Agricultural Nonpoint Source Abatement and Control
  - Maximum Award of $1,000,000 requiring 25% local match

Other Implications:

- Storm Sewer and Water Main on W. side of Five Mile Line Rd.
- Existing sewer ~14' deep requiring deep excavation
- Hydraulic analysis of floodplain to confirm 'no rise' in Base Flood Elevations

Alternatives Summary

	Alt. 1	Alt. 2	Alt. 3	Alt. 4
	CIPP and Local Stream Rehab	CIPP and Comprehensive Stream Rehab	15" Sewer Realignment and Local Stream Rehab	8" Sewer Relocation and Streambank Stabilization
Cost	$670,000	$1,090,000	$920,000	$950,000
Fundability	Intermediate Funding Potential	Most Funding Potential	Intermediate Funding Potential	Least Funding Potential
Notes	• Least Intrusive • Highest cost per linear foot of stream length	• Least Intrusive • Lowest cost per linear foot of stream length • Reconnects floodplain at lower elevation	• Requires NYSDEC variance • Highest cost per linear foot of stream length	• Removes 8" from stream entirely • Deep sewer excavation/utility coordination • Limits streambank protection to areas immediately adjacent to infrastructure

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Questions?

WATER RESOURCES

ENVIRONMENTAL