A Drill to Reliability and Growth

January 2022

Kevin Garvey, PE, Wright-Pierce

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Presentation Overview

Project Location
Program Goals
Existing Siphon Alignment
Program Goals - UPDATED
Alternatives Analysis
Permitting Challenges
Funding

Project Location

Population

- Town-wide: ~14,300
- Sewer service population: ~10,000

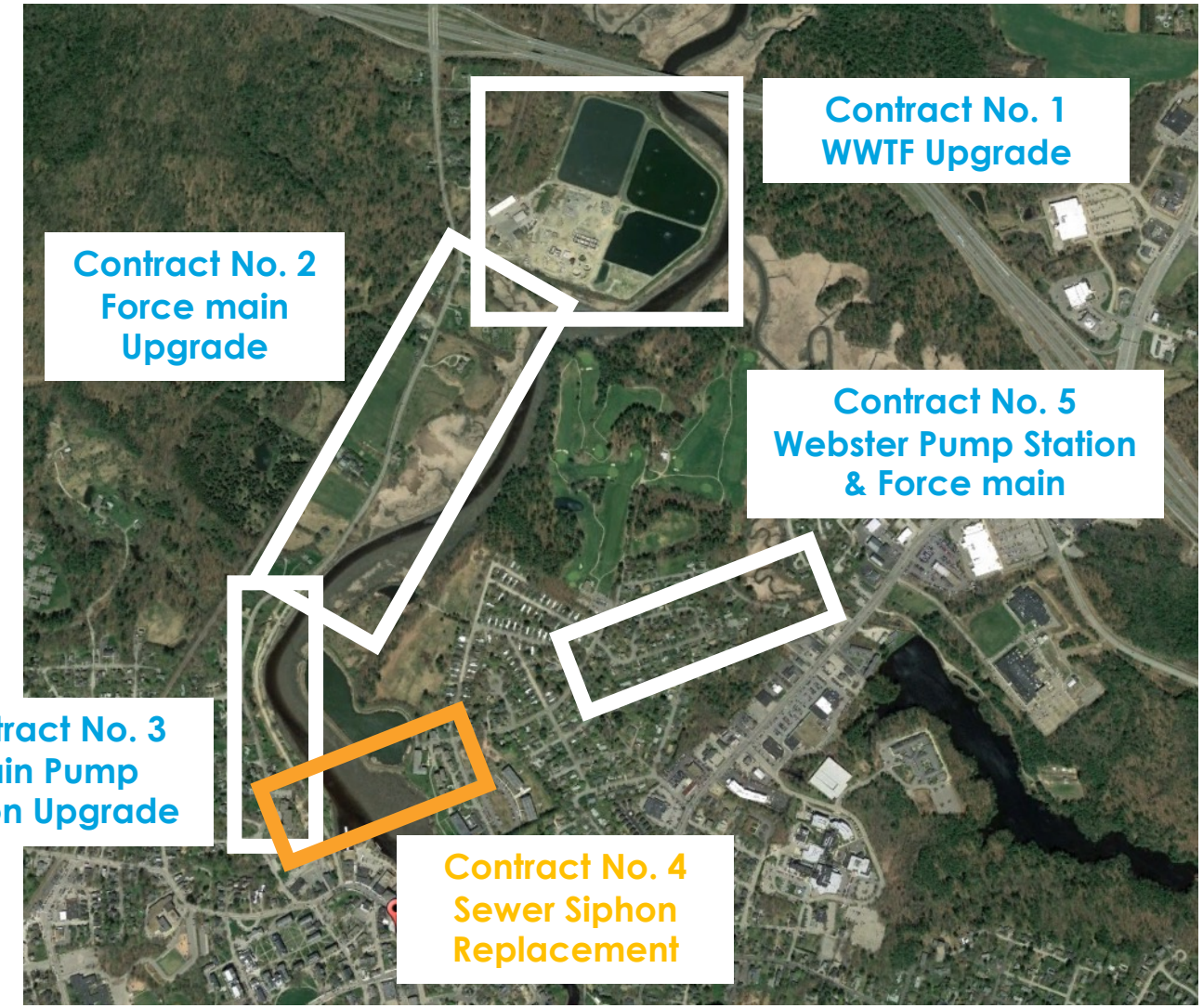
Wastewater Department

- 51 miles of sewers
- 9 pump stations
- 2 CSO locations
- 1 WWTF
- 3.0-mgd effluent to Squamscott River

Program Goals

- Improve Water Quality to the Squamscott River & Great Bay
- Renew Critical Infrastructure
- Improve Sewer Capacity to Portsmouth Avenue
- Alleviate Hydraulic Restriction at Siphon Crossing

Progress to Date



1. WWTF Upgrade
2. Force Main Upgrade
3. Main Pump Station Upgrade
4. Sewer Siphon Replacement
5. Webster Pump Station & Force Main

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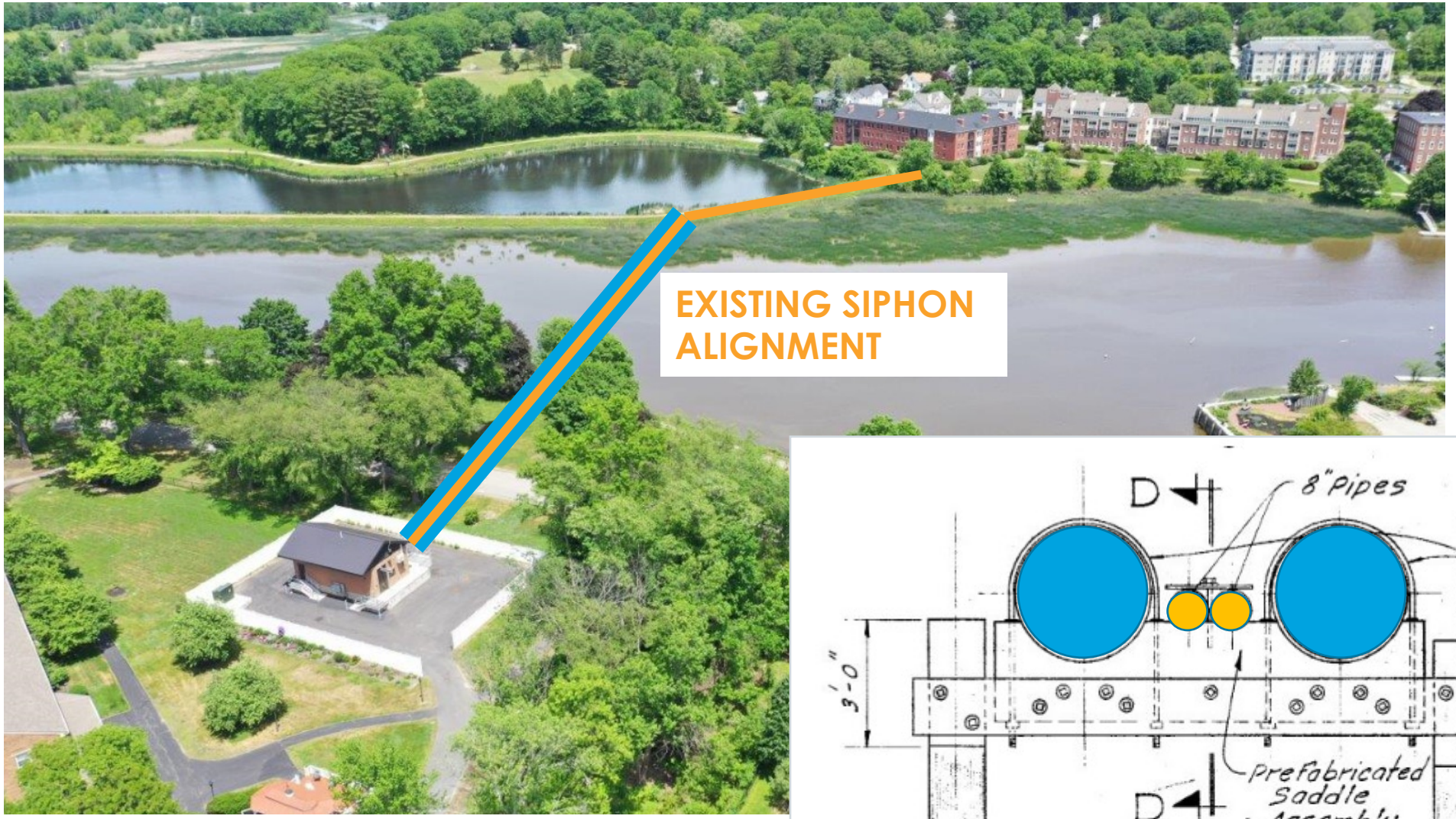
Existing Sewer Siphon Alignment



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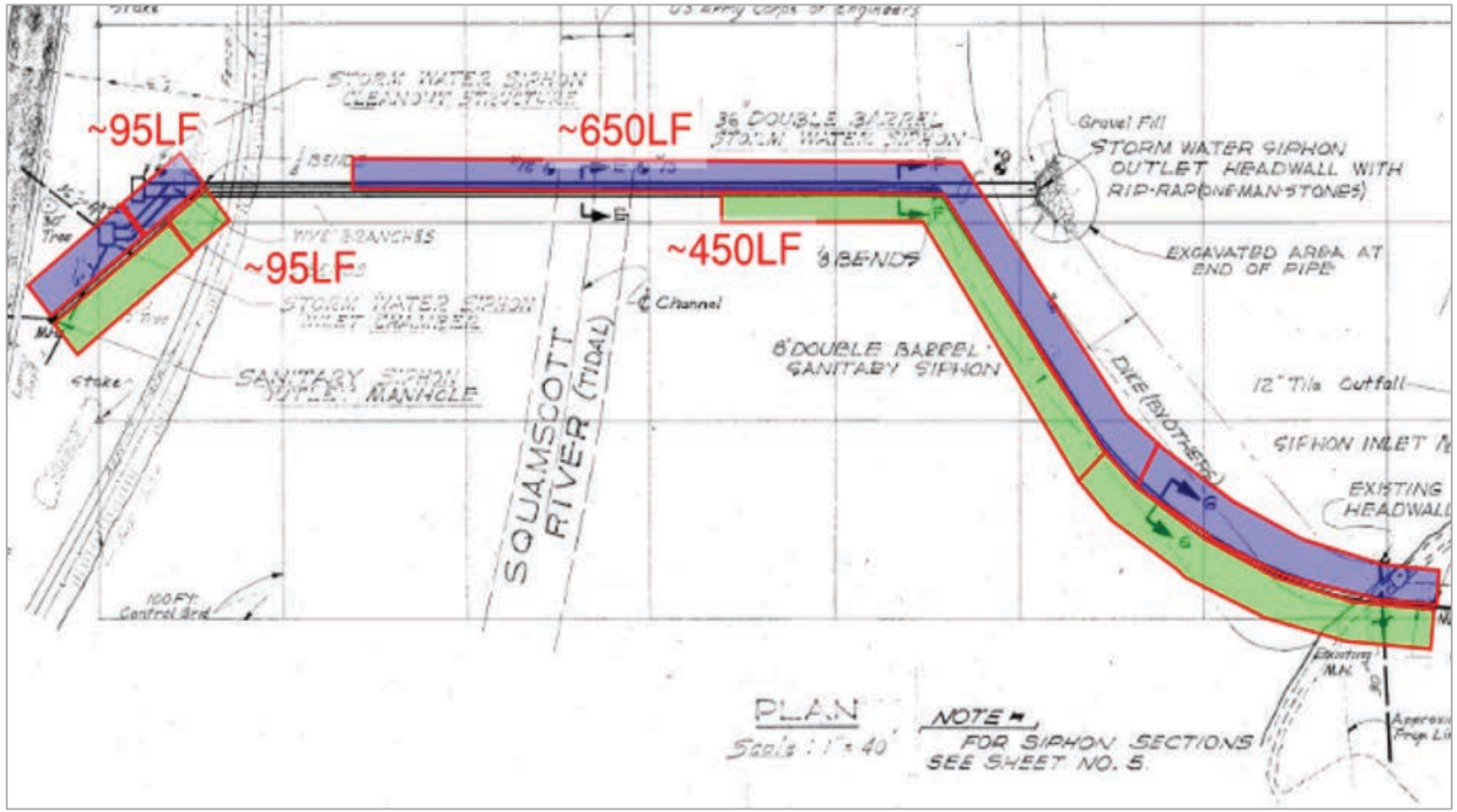
Sewer Siphon Internal Inspection Results



Barrel	Inspect Length	Siphon Length	Percent Inspected
North	745	860	87%
South	545	860	63%
Both	1,290	1,720	75%

Inspection Results

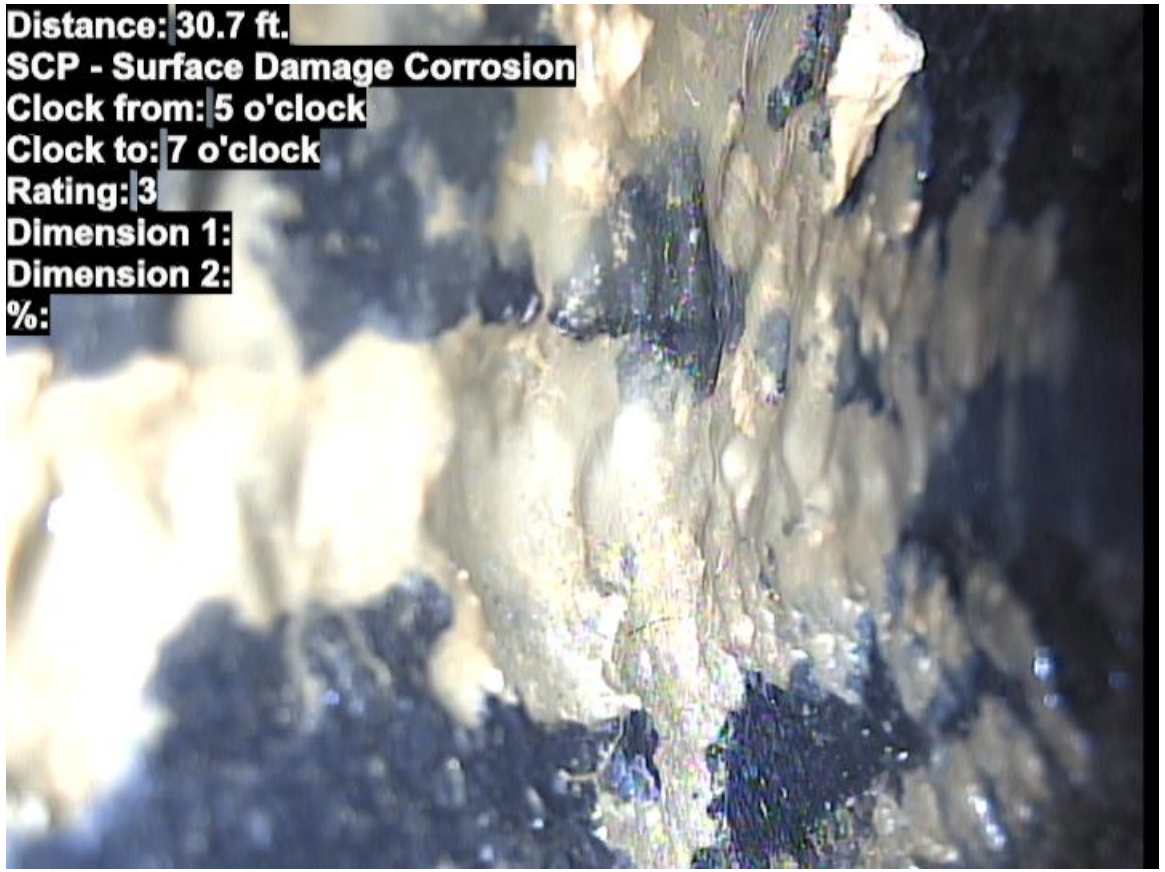
Infiltration Gusher

Infiltration Gusher

Inspection Results

Pitting from 3 → 9 O'clock

Deep Pits



Program Goals - UPDATED

- Improve Water Quality to the Squamscott River & Great Bay
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- Develop Contingency Bypass Plan
- Replace Existing Siphon

Bypass Plan

Bypass Alignment (if Needed)

- Pedestrian Ramp
- Air Release Valve
- Bypass Pump
- Existing Sewer Manhole
- Existing Sewer Main
- Existing Sewer Siphon
- Bypass Pipe Alignment (Approximate)
- 100-Year Floodplain
- Excavation Area
- 25-ft Sewer Easement

- **1,700 LF Bypass**
- **1.0 MGD ADF Bypass**
- **Two Pedestrian Crossings**
- **Two Buried Crossing**
- **One Air Release Valve**

Alternatives Analysis

Eliminated Alternatives	Challenges	Total Project Cost	Preferred Option
CIPPL Existing Barrels and HDD (1 Barrel)	• Installation of structure on Dike • Constructability • Maintain Sewer Flows	N/A	
Slipline Existing CSO Siphon & HDD	• Reduced CSO Capacity • Structural Concerns	N/A	

Potential Solutions	Challenges	Total Project Cost	Preferred Option
Three Barrel Open Cut	• Waterway Disruptions • Cost • Permitting	$3,500,000	
Three Barrel Horizonal Directional Drill (HDD)	• Geotechnical • Frac Out • Permitting	$2,900,000	★

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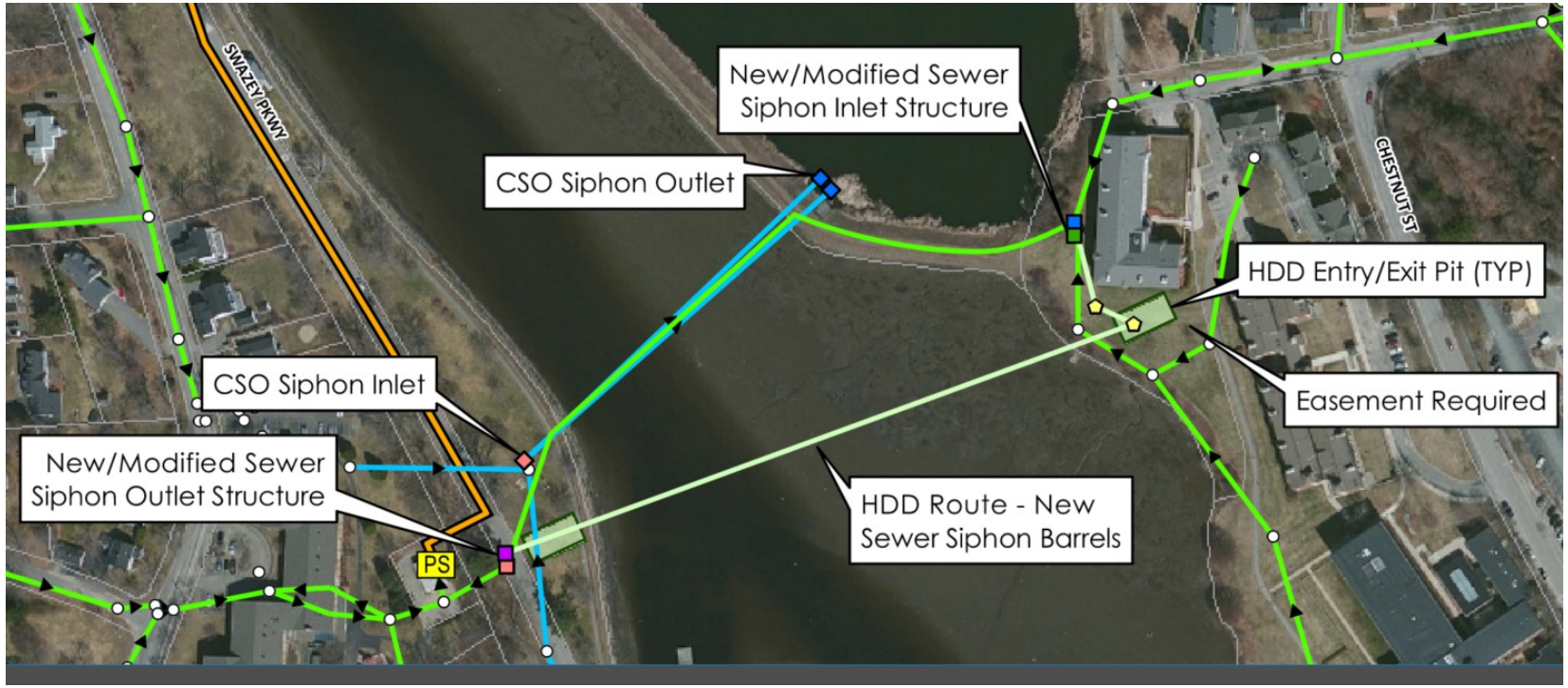
Preferred Alternative

Proposed Alignment



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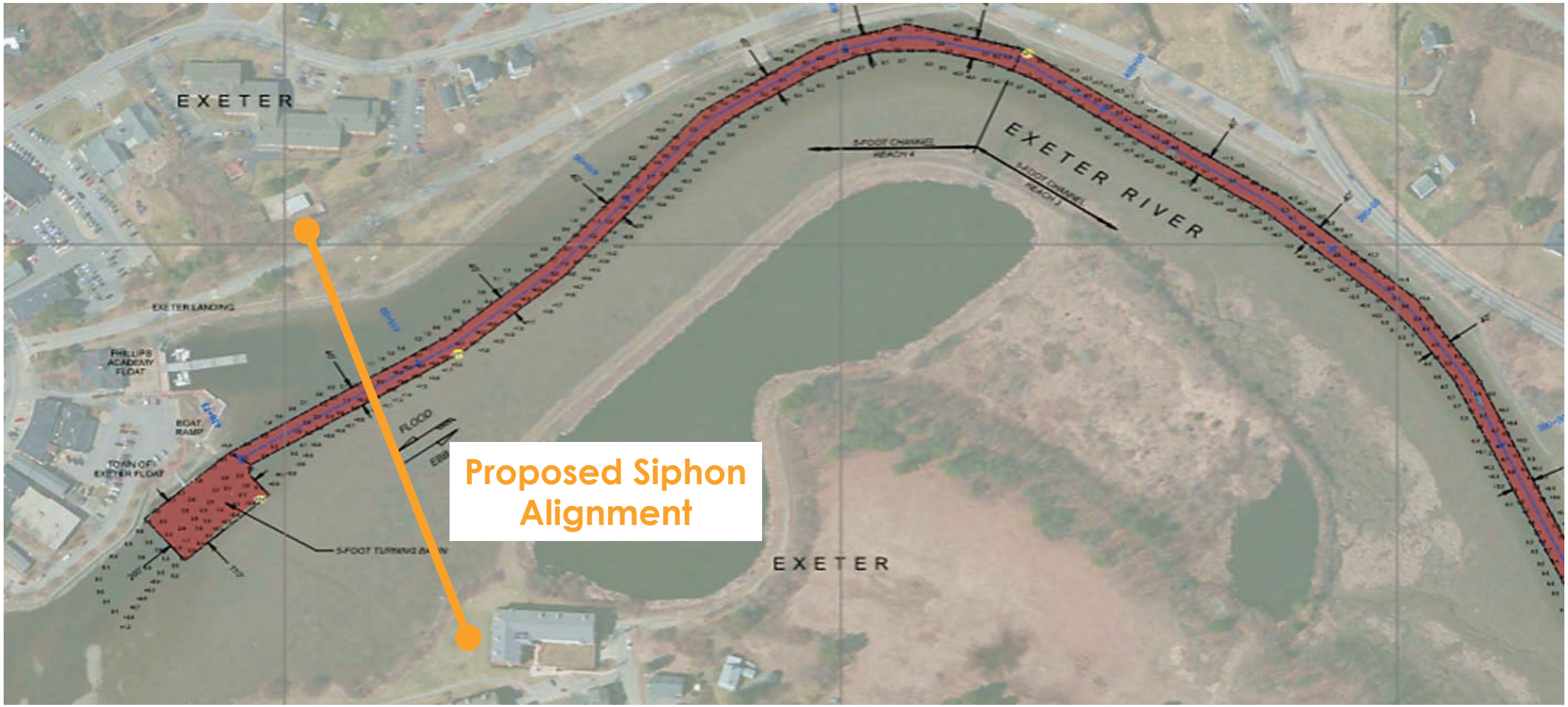
Permitting Challenges

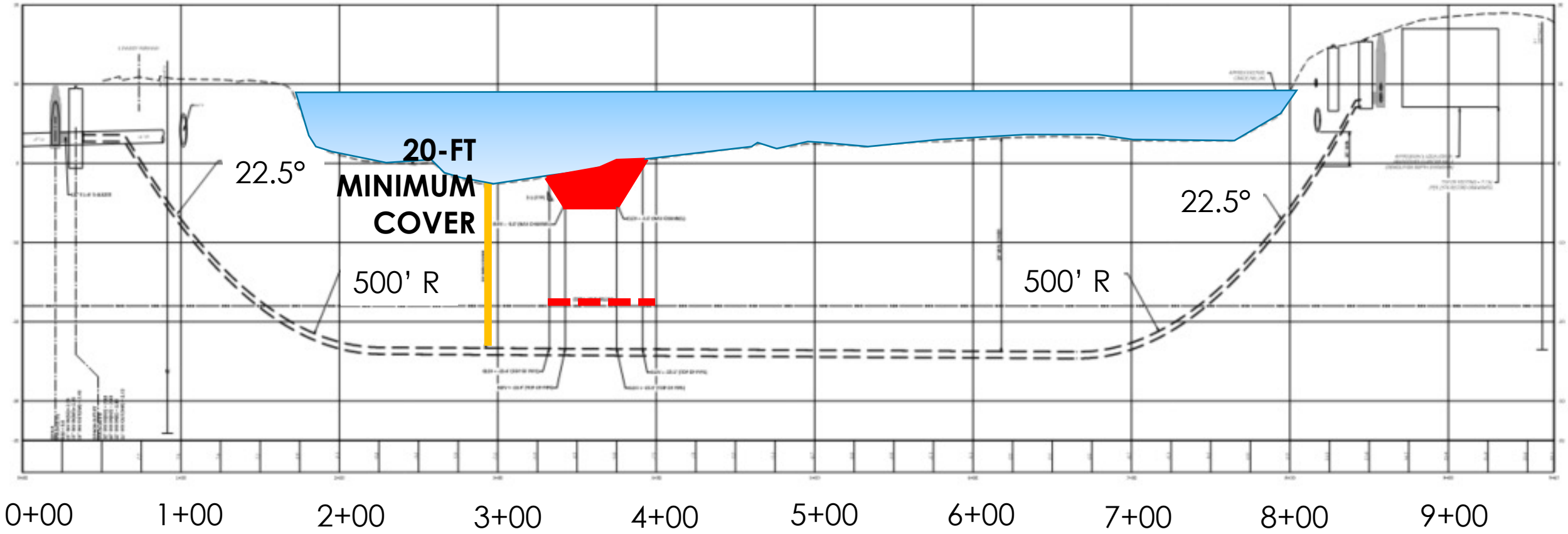
Permit	Duration (Cal Days)	Cost	Status
SRF Environmental Review	70	-	Completed
Standard Dredge and Fill	50	~ $11,000	Approved
Aquatic Resource Mitigation (ARM)	-	~ $5,400	Approved
Shoreland Permit	5	$400	Awaiting Easement
Army Corps of Engineering (ACOE) Section 10		$0	Responding to Information Request
Army Corps Section 408	120	$0	Responding to Information Request
	Total	~ $17,000	

Permitting Challenges

ACOE Waterway



ACOE Channel and Frac Out Concerns



LEDGE FOUND ~15 FEET BELOW PROPOSED ALIGNMENT

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Funding

Funding Source	Value	Type
Congressional Directed Funding	$600,000	Grant
ARPA	$660,000	Grant
State Revolving Fund (SRF)	$1,368,000	Loan
SRF Principal Forgiveness (PF)	$154,000	PF
Total Project Cost	$2,800,000	
Total Grant / PF	1,260,000	~45%

Rep. Pappas touts $600K earmarked for Exeter sewer project

Alexander LaCasse Portsmouth Herald

Published 9:12 a.m. ET Aug. 19, 2021

View Comments

Exeter Public Works Director Jennifer Perry explains the scope of the town's sewer siphons project to U.S. Rep. Chris Pappas during a visit to town Wednesday. *Alexander LaCasse*

Program Goals at Project Completion

- Improve Water Quality to the Squamscott River & Great Bay
- Renew Critical Infrastructure
- Improve Sewer Capacity to Portsmouth Avenue
- Alleviate Hydraulic Restriction at Siphon Crossing
- Develop Contingency Bypass Plan
- Replace Existing Siphon

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Thank You to the Town of Exeter

- Russell Dean, Town Manager
- Jennifer Perry, DPW Director
- Paul Vlasich, City Engineer
- Matt Berube, Water Sewer Manager
- Steve Dalton, Asst. Water Sewer Manager
- Chinburg Group (Exeter Mills)

Contact Information

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THANK YOU

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