

Wastewater Treatment Plant (WWTP) Modernization

Downtown Business District Sewer Feasibility Analysis

- ✓ **Current Status / Milestone Accomplishments**
- ✓ **Plan to Engage with Local Businesses about Possible Sewer Connection**
- ✓ **DEP WWTP Permitting with/without downtown sewer**

**Holliston, MA Board of Selectmen
Progress Report
March 13, 2023**

Environmental Engineers/ Consultants

LOMBARDO ASSOCIATES, INC.

188 Church Street

Newton, Massachusetts 02458

Status / Milestone Accomplishments

1. Hydrogeologic Disposal Capacity at Woodland Street Site
 - Slug tests completed in December
 - DEP permit process to be initiated with BoS authorization
 - DEP accepted capacity to be determined – expected by May / June

2. Sewer Feasibility Analysis
 - Sewer Feasibility Report with budgets - Nov. 7, 2022
 - Capital cost budget ~\$7 million (2022 \$) for 106 connections

3. WWTP Modernization
 - Immediate Improvements - \$450,000 authorized
 - Work is underway, expected completion August

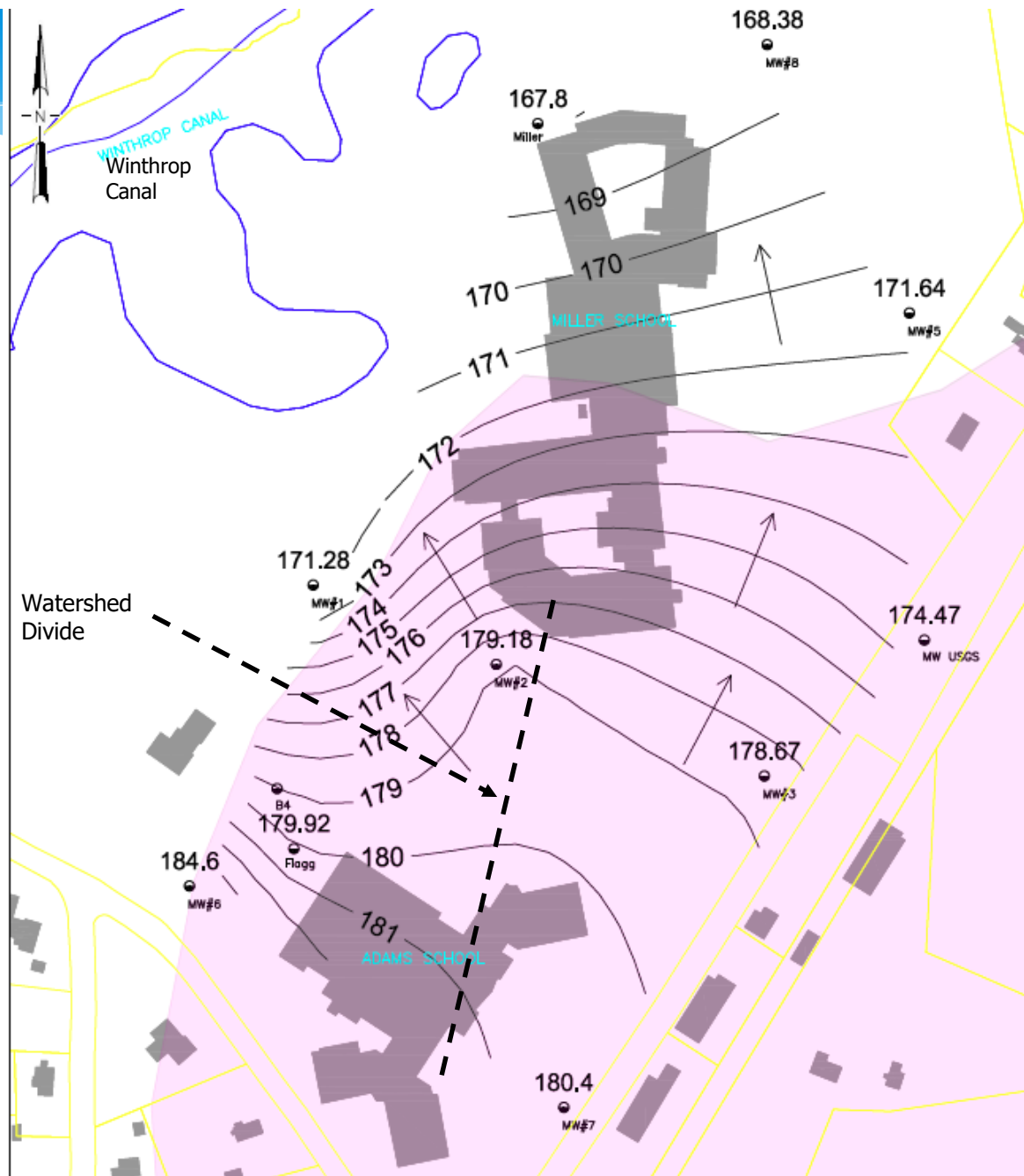
Hydrogeologic Disposal Capacity at Woodland Street School

- December Slug Tests suggest capacity ~ 50,000 gpd
 - Existing conditions
 - School ~15,000 gpd
 - Existing downtown ~30,000 gpd
- Water reuse for toilet flushing at schools will generate additional capacity. Technique has been used in MA (Gillette Stadium) for 20+ years and is encouraged by DEP.
- Proposed Drainfield Loading Test to determine if Site has greater capacity than per slug tests. With BoS authorization to be performed in April, along with other activities for DEP to renew permit and specify maximum discharge
- 8 wells installed and being monitored for depth to groundwater and existing permit required water quality

Watershed
Divide



Monitoring Well Data revealed watershed divide in middle of Adams Field



MADEP Permit Flow Expansion BRP WR 83 Hydrogeologic Evaluation Report

- Preliminary Analysis, Borings/Wells & Base Data completed
- Proposed Effluent Reuse by Drip Irrigation
- Hydrogeologic Evaluation Report Next Step
 - 1 Scope of Work for Hydrogeological Evaluation
 - 2 Conduct Field Work: Well Installation, Slug Testing and Sampling
 - 3 Loading Test
 - 4 Mounding Analysis
 - 5 Prepare and Submit BRP WP 83 Application
- ✓ Decision on disposal capacity

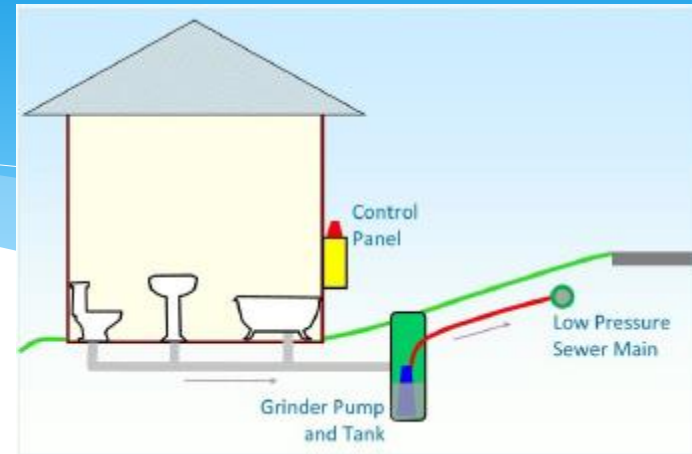
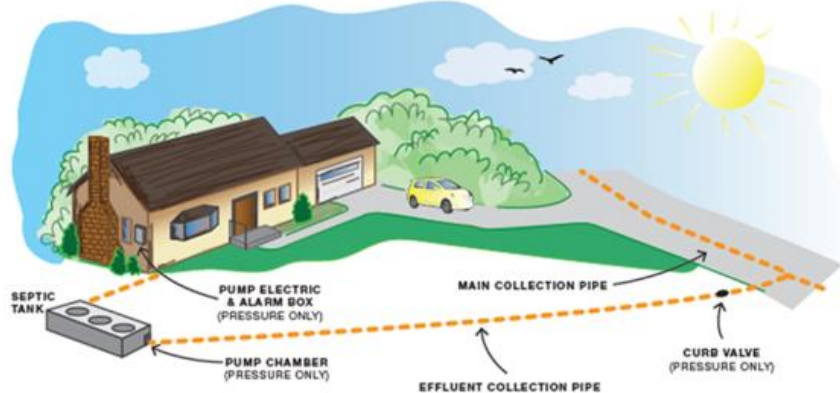
MADEP Permit Renewal

- Existing permit expires Oct. 10, 2024 – Covid extension
- Renewal Application (BRP WP 12) due April 10, 2024
 - Engineering report certifying WWTP treatment system can comply with permit discharge requirements
 - DEP may make permit treatment requirements more stringent
- Hydrogeological report, including monitoring wells upgradient, in drainfield and downgradient – being performed for Expansion Evaluation

Sewer Feasibility Analysis

Septic Tank Effluent Sewer System

Each property will include an on-site septic tank for solids removal. Effluent flows by gravity or is pumped to a collection system and conveyed to the treatment plant.



- Low pressure system proposed - avoids deep sewers in groundwater
- Gravity not practical
- Cross – country vs street sewer options significantly affect cost – decide during design with property owner input
- Technology options - Septic tank effluent vs grinder pump
- Capital cost budget ~\$8 million (2024 \$) for 106 connections

Sewer Feasibility Analysis

- Costs include on-property work - ~ 44% of construction costs

Holliston Collection System Quantities and Preliminary Cost Estimate							
On-Prop. Work	Pressure House Sys., Existing Tank			0	EA	\$7,500	\$0
	Pressure House Sys., New Tank			106	EA	\$10,000	\$1,060,000
	Property Connections to Sewer			106	EA	\$3,500	\$371,000
	Abandon Existing Septic Systems			106	EA	\$1,500	\$159,000
Collection System	Town Road Crossing - Low Press. Sewer	SDR 35	3" pressure	150	LF	\$150.00	\$22,500
	State Road Crossing - Low Press. Sewer	SDR 35	3" pressure	810	LF	\$300.00	\$243,000
	Stream Crossing - Low Press. Sewer	SDR 35	3" pressure	80	LF	\$350.00	\$28,000
	Force Main - Cross Country	SDR 26	3" pressure	2,330	LF	\$80.00	\$186,400
	Force Main - Road Shoulder	SDR 26	3" pressure	7,780	LF	\$120.00	\$933,600
	Small Pump Station			0	EA	\$90,000	\$0
	Large Pump Station			0	EA	\$150,000	\$0
	Asphalt cut, remove and replace	8	ft wide	9,911	SY	\$65.00	\$644,000
	Subtotal - Collection System Construction Costs						\$3,647,500
	Miscellaneous			10%			\$364,800
	Contingency			35%			\$1,276,600
	Engineering & Admin			30%			\$1,586,700
	Total Collection System Capital Costs						\$6,875,600

Sewer Feasibility Analysis

- Sewer cost apportionment options. Combinations of:
 - Grants
 - Connect fee
 - Amortized via bond over 20/30 years as part of user fee
- WWTP costs need to be added
 - Expansion costs TBD
 - Apportionment – flow (i.e., water use) /strength based vs. same for all
- Details expected to be developed summer 2023

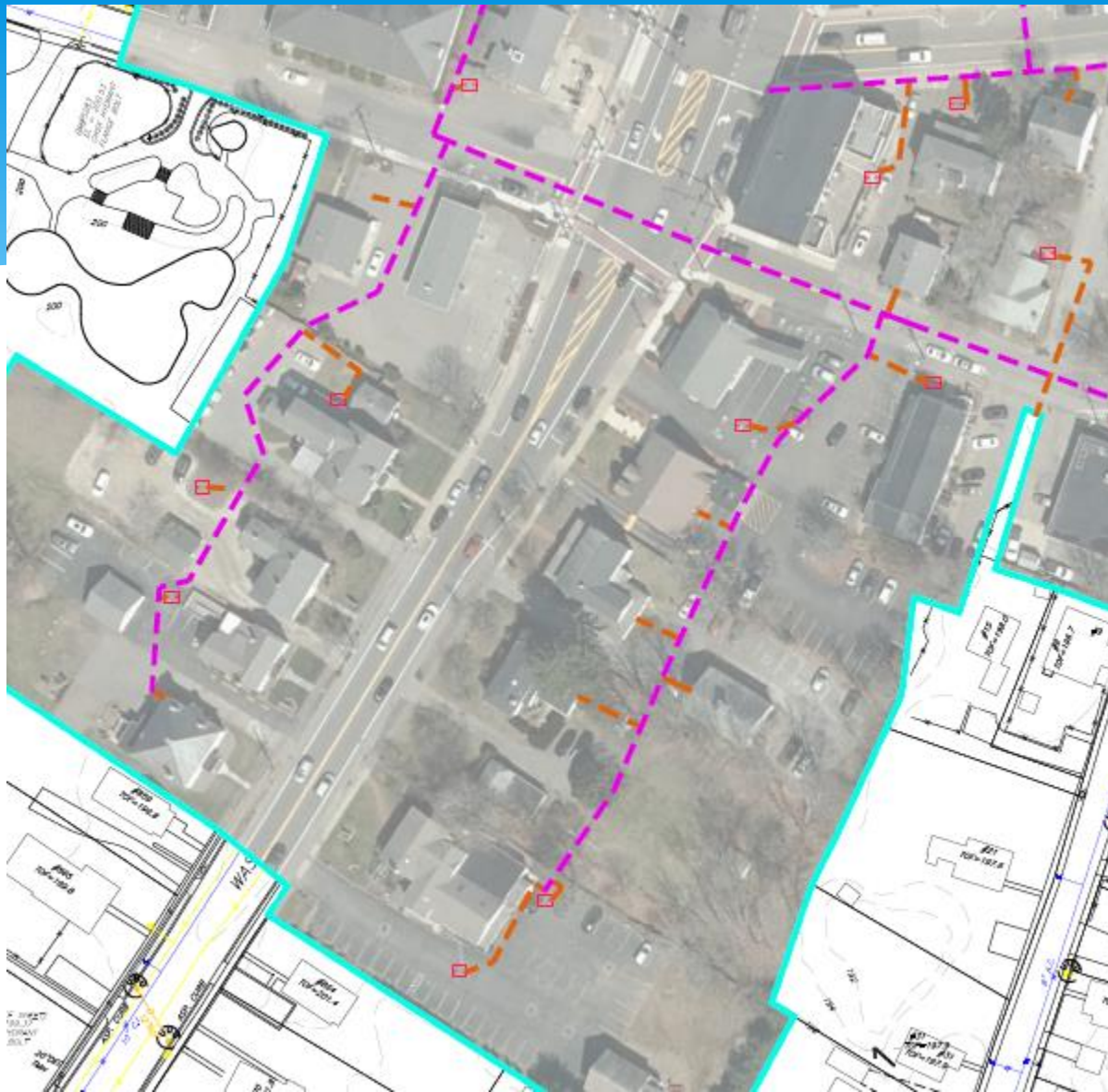
Sewer Feasibility Analysis

Next Steps

1. DEP permitted capacity – May / June
2. WWTP capacity not considered a constraint at this time

Starting in ~June

- Engage with Local Businesses about Possible Sewer Connection
 - Series of collaborative meetings/workshops to review / refine
 - a. Property future use development options
 - b. Review property by property sewer layout options
 - c. Sewer connection & treatment cost apportionment options
 - d. Develop alternative scenarios
 - e. Town, with proposed users, Select Preferred Scenario
 - f. Final Report – basis of District formation, possibly late 2023



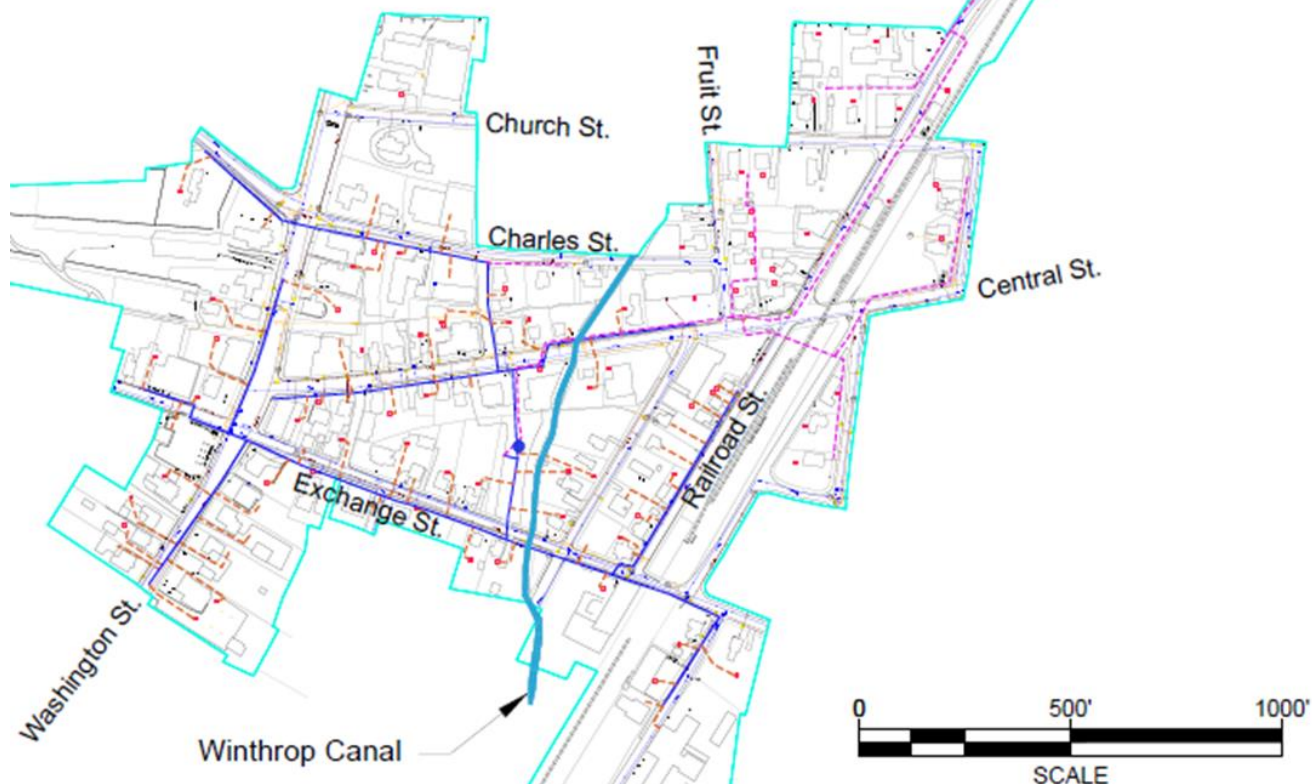
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LEGEND

To Woodland Street WWTP

STUDY AREA BOUNDARY	
PROPOSED GRAVITY SEWER	
PROPOSED PRESSURE SEWER	
SEPTIC TANK	
PUMP STATION	
HOUSE CONNECTION - GRAVITY	
HOUSE CONNECTION - PRESSURE	
EXISTING WATER LINE	
EXISTING GAS LINE	
DRAINAGE PIPING	



Questions / Discussion

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