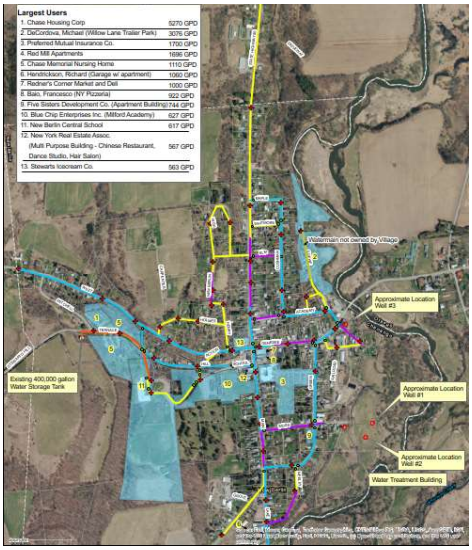
Barton & Loguidice

Village of New Berlin Water System Project

November 1, 2021

Current Water System

Barton&Loguidice



1. Water source: 2 primary wells, 1 emergency back-up well
   - Primary wells installed in 1966
   - Periodic sediment in wells
   - Hard water (manganese above secondary standards)
2. 400,000 gal steel tank
3. Distribution system
   - Original water mains date back to early 20th century
   - 1966 project replaced many mains
   - 4” main makes up 40% of system
   - As much as 75% of water services are lead goosenecks or pipes

Water System Financial Status

Barton&Loguidice

1. 2021 O&M Budget - $139,000
2. Repairs over last 5 years:
   a. 26 water main breaks @ $2,000 each
   b. Estimated $48,000 spent replacing tuberculated services
   c. Estimated $9,000 annually replacing clogged meters
3. The above adds up to $29,000 annually in repairs to a system with a total O&M budget of $139,000, or approximately 20% of the Village's water system budget.

Primary Well Building

Barton&Loguidice

Functions:

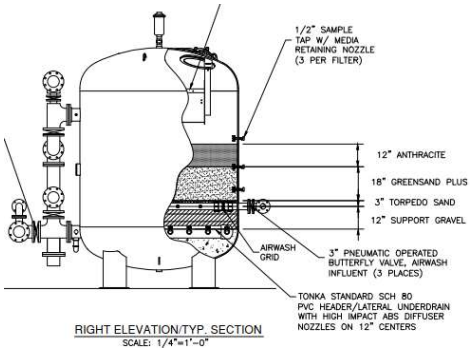
- Disinfection and corrosion control chemical feed systems
- Well pump controls
- Tank level data logging
- Back-up generator

Proposed improvements:

- Flow and chlorine residual level-based chemical pacing controls
- Ventilation upgrades for chlorine off-gas
- New well pump flow and tank level chart recorder
- Larger generator intake louver
- Security fencing

Primary Well Water Quality

Barton&Loguidice



- Periodic episodes of hard (rusty) water results in build-up in mains, services and meters
- Phosphates not able to sequester naturally-occurring iron and manganese, which oxidize and come out of solution at point of use.
- Propose filtration system in new building.
- Village should budget to redevelop wells every 10 years +/-

Emergency Back-up Well

Barton&Loguidice

- Wellhead not secured.
- Pump controls and chemical feed system in basement of abandoned building subject to flooding.
- Electrical panel corrosion.

Back-up Well Improvements

Barton&Loguidice

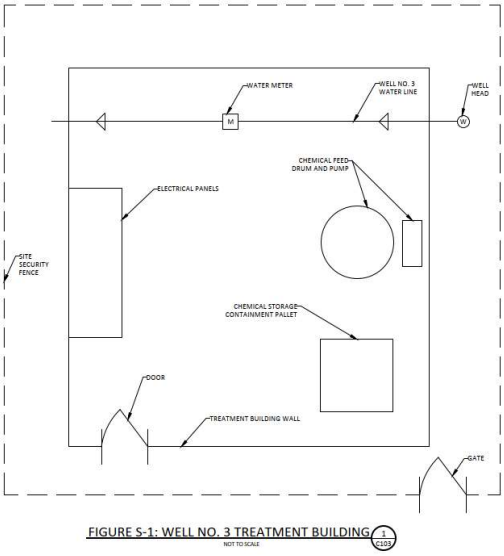


FIGURE S-1: WELL NO. 3 TREATMENT BUILDING

Water Storage Tank

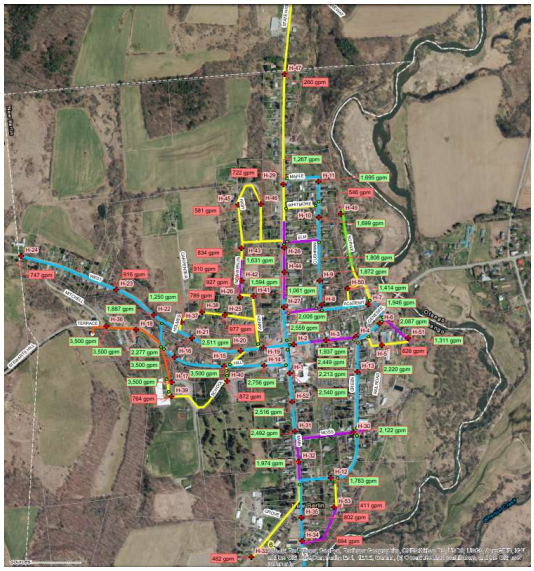
Barton&Loguidice

Tank inspection recommendations:

- Coatings in excellent condition – just power wash
- Need to pipe overflow to grade with splash pad and screen
- Ladder and roof walkway improvements
- Replace existing tank shell access and install 2nd access
- Tank site security fencing

Existing Distribution System Model

Barton&Loguidice



System hydraulic model – take hydrant flow and residual pressure readings, run simulation and change roughness coefficient "C" until model results match measurements in field

Fire Flow - 1000 gpm standard minimum

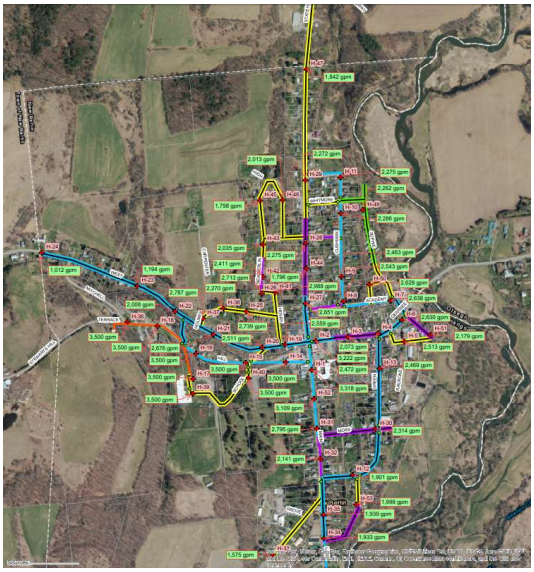
- 18 out of 51 hydrants (35%) do not meet standard minimum flow

C-values < 100 = deteriorated pipe

- 35% of mains are deteriorated

Proposed Distribution Improvements

Barton&Loguidice



1. Replace all 4" mains and mains with smoothness coefficient "C" < 100
   - 25,500 ft of 34,100 ft (75%) of mains to be replaced with 8" pipe.
2. Replace lead services
3. Replace meters with ultrasonic radio-read system
   - Flow sensing element out of flow
   - Alarms
   - Billing software integration
   - Data access and archiving

Project Capital and O&M Costs

Barton&Loguidice

Proposed Capital Project

• Primary Well Building miscellaneous repairs	$ 183,000
• New Primary Well Filtration System	$ 2,094,000
• Back-up Well Building	$ 595,000
• Miscellaneous Tank Repairs	$ 200,000
• Replace 75% of distribution mains and services	$ 7,328,000
• New water meters and radio-read system	$ 370,000
	$10,770,000

O&M Costs for new Primary Well Filtration System and Back-up Well Building = $40,000 (29% of current water budget)*

*Does not account for spending offsets on repairs to old mains, services and meters to be replaced under project

Project Funding

Barton&Loguidice

1. "Base Funding" – includes loans and potential grants:
   a. NYSEFC SRF Hardship Financing
      - Subsidized interest loan to 0% (interest free)
      - Up to $3M Hardship Grant
      - "50% Rule" – first payment is 80% of flat payment, last payment 50% more than first
   b. Rural Development Water and Environmental Programs (WEP)
      - Village qualifies for Poverty Rate Loan – 38 years @ 1.375% interest
      - Grants based on affordability criteria – evaluated on case-by-case basis
2. Supplemental Grants
   a. NYS Water Infrastructure Investment Act (WIIA) Grant – 60% Net Project Cost, capped @ $3M, can't overlap with Hardship Grant
   b. CDBG Grant – Up to $1,250,000 grant
   c. NYSEFC GIGP Grant – Radio Read Metering System qualifies ($370,000)
   d. Federal Infrastructure Bill – additional funding for lead service replacement(?)

Project Financing Comparison

Barton&Loguidice

	DWSRF Hardship Loan/Grant + CDBG Grant	RD Poverty Loan/Grant + WIIA Grant
Total Project (Capital) Cost	$ 10,770,000	$ 10,770,000
Less Grant	($ 4,250,000)	($ 4,870,000)
Total Amount to Finance	$ 6,520,000	$ 5,900,000
Loan Terms	30 yrs @ 0%	38 yrs @ 1.375%
Annual Debt Service	$217,333	$200,383
Total EDUs	636.4	636.4
Annual Debt Service/EDU	**$342***	**$315**

*50% Rule: Year 1 = $273, Year 30 = $410

Next Steps

Barton&Loguidice

- Project Authorization (Winter 2021-22):
  - SEQR
  - Bond Resolution
- Funding Applications:
  - WIIA Grant – Due November 22nd
  - Base Funding – NYSEFC Hardship and Rural Development (RD) (Spring 2022)
  - Consolidated Funding Application (CFA) (Summer 2022)
    - Community Development Block Grant (CDBG)
    - NYSEFC GIGP Grant
- Public Information Meeting to present funding update late 2022

The experience to
listen
The power to
solve℠

BartonandLoguidice.com