



Tighe & Bond

Route 302 Water Main Extension
Project

Preliminary Engineering Report

Prepared For:

**Lower Bartlett Water Precinct
Bartlett, New Hampshire**

October 2017

Executive Summary

Purpose

The purpose of this Preliminary Engineering Report is to outline the need for the Lower Bartlett Water Precinct to extend water service west on Route 302 to the Bartlett Village Water Precinct and to develop an engineer's opinion of probable costs for the water main extension.

Lower Bartlett Water Precinct Surplus Supply Capacity

The LBWP has a present supply surplus from their two (2) gravel packed wells located on the east side of the Saco River below the confluence of the East Branch. The safe yield of the supply is 1.08MGD with the largest pumping unit out of service. The surplus supply is presently approximately 660,000 gpd.

Rolling Ridge Public Water System

The Rolling Ridge development is located on Route 302 west of the Lower Bartlett Water Precinct franchise area and east of the Bartlett Village Water Precinct area. The Rolling Ridge Development has a total of 32 service connections and is comprised of one 305-foot deep bedrock well, approximately 3,500 LF of 1-1/4" to 2" PVC and HDPE piping, and a 5,000 gallon atmospheric storage tank constructed in 2003. The water system facilities are reportedly experiencing leaks and the water quality is often in violation of the USEPA Safe Drinking Water Act. Since 2010, the Rolling Ridge development water system has experienced numerous water quality violations. A summary of the violations is presented below.

Table ES-1

Water System Violations at the Rolling Ridge Water System 2010 - 2017

Water System Name	No. of Violations	Violation Types
Rolling Ridge	16	<ul style="list-style-type: none">• MCL/Sample average (x8, Beryllium)• MCL/Sample average (x5, Fluoride)• Public notice violation for npdwr violations (x2)• Sanitary survey significant deficiencies

These violations have gone without any enforcement action because the New Hampshire Department of Environmental Services, Water Supply Division has classified the Rolling Ridge water system as a Transient Non-Community Water System and therefore is unregulated.

A public water system provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year. EPA has defined three types of public water systems:

- **Community Water System (CWS):** A public water system that supplies water to the same population year-round.
- **Non-Transient Non-Community Water System (NTNCWS):** A public water system that regularly supplies water to at least 25 of the same people at least six months per year. Some examples

are schools, factories, office buildings, and hospitals which have their own water systems.

- **Transient Non-Community Water System (TNCWS):** A public water system that provides water in a place such as a gas station or campground where people do not remain for long periods of time.

Other Public Water Systems Located Between the LBWP and the BVWP.

Table ES-2
Public Water Systems Located Between the LBWP and the BVWP

Name of Water System	Estimated Population	Number of Service Connections
A Fresh Start*	50	1
Attitash Marketplace*	25	1
Bear Peak at Attitash	800	2
Bear Village South	30	12
Bearfoot Creek	28	11
Beas Café North*	100	1
Blueberry Village Condos	40	16
Crawford Hills	118	47
Crawford Pond	58	23
Mountain Home Cabins	25	10
Mountainside on Attitash	167	61
Mt Attitash Ski Area/Fields*	1000	3
Mt Attitash Ski Area/Lodge	1000	1
North Colony Motel	43	17
River Run Condos	750	360
Rolling Ridge	63	32
Sky Valley Motel/Chalet	80	20
Villager Motel	200	38

*System is currently inactive

Between 2010 and 2017, there have been 73 water quality violations between the 15 active community water systems located on Route 302 between the LBWP and the BVWP. Specifically, the Rolling Ridge water system water supply has had a total of 16 water quality violations, including eight Maximum Contaminant Level (MCL)/Sample Average exceedances for beryllium, five MCL/Sample Average exceedances for fluoride, two Public Notice Violation for National Primary Drinking Water Regulations Violations and one Sanitary Survey Significant Deficiency.

The Bartlett Village Water Precinct

The BVWP has a slow sand filtration water treatment plant located below an impoundment on Albany Brook. The Bartlett Village Water Precinct serves approximately 235 service connections in their Precinct area. Currently, the BVWP provides fire volume and storage with a single 285,000 gallon storage tank located at the WTP. The tank has an approximate overflow elevation of 900-feet USGS.

In 2009, Horizons Engineering performed a Preliminary Engineering Report for the Bartlett Village Water Precinct titled Water System Preliminary Engineering Report – Rolling Ridge Water Main Extension. The report suggests that the BVWP did not have excess safe yield in Albany Brook to supply the Rolling Ridge public water system.

Recommended Project

Provide an interconnection between the LBWP and the BVWP by extending the LBWP service west on Route 302 to the BVWP service area. The interconnection will provide the BVWP with a redundant source of high-quality water to supplement their existing water supply. The additional supply will allow residential and commercial growth in the Bartlett Village Water Precinct area. The Route 302 water main extension will provide reliable drinking water service and fire protection for the public water systems on Route 302 which choose to connect.

The scope of the recommended project includes the following components:

- A Pump Station with three (3) 500 gpm pumps on variable frequency drives at the intersection of Woodland Pines Road and Route 16 just south of the East Branch of the Saco River.
- 18,600-feet of 12-inch diameter ductile iron water main.
- A 500,000 gallon Water Storage facility on Cow Hill Road.
- 3,300-feet of 8-inch diameter ductile iron water main in the Rolling Ridge Development along Rolling Ridge Road and Crawford Hill Road. This water main includes approximately 100-feet of pipe jacking below the Conway Scenic Railroad tracks.
- 41 fire hydrants at 500 foot intervals on Route 302.
- 4 sampling vaults.
- 25 residential service connections and 9 commercial service connections.
- A metering station located in a vault between the LBWP Franchise Area and the BVWP service area.

The Opinion of Probable Project Cost is \$5,600,000.

The LBWP in 2017 passed a warrant article for the Rte. 302 project and has bond authority to move forward with the project per the schedule in the PER.

The present additional debt the LBWP can take on under NH DRA rule is \$2,868,000. For the LBWP to take on this project, the LBWP will require a minimum of 50% of the project to be funded by grant.