



*Environmental Law • Utility Law*

Marcia A. Brown  
*Attorney at Law*

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VIA ELECTRONIC DELIVERY

Christopher R. Tuomala, Esq.  
N.H. Public Utilities Commission  
21 South Fruit Street, Suite 10  
Concord, NH 03301

D. Maurice Kreis, Esq.  
Office of the Consumer Advocate  
21 South Fruit Street, Suite 18  
Concord, NH 03301

Thomas B. Getz, Esq.  
McLane Middleton, P.A.  
11 South Main Street, Suite 500  
Concord, NH 03301

Paul Mueller  
Bretton Woods Property Owners Association  
4 Tiffany Drive  
Randolph, MA 02368

Lawrence Devito  
Rosebrook Association  
250 South St  
Tewksbury MA 01876

Paul Luongo

Re: Docket No. DW 17-165  
Abenaki-Rosebrook Summary of Discussions with Omni and  
Abenaki Request for Concurrence on Scope of Engineering and Phase II

Dear Staff and parties:

This letter is to update Staff and the parties on Abenaki Water Company, Inc.-Rosebrook Water Company, Inc.'s ("Abenaki" or "Company") discussions with Omni Mount Washington, LLC ("Omni") and request your concurrence on moving forward so that we may report to the Commission and proceed with certain phases of Abenaki's proposal and close out this phase of the procedural schedule.

As you know, the Commission approved procedural schedule concerning Abenaki's Step II and concluded with a technical session on March 20, 2019. Since that technical session, Abenaki and Omni have met to discuss resolution of Omni's concerns with Abenaki's engineer's proposal to address the extreme, high pressure within the water system. Those discussions have not produced any changes to Abenaki's goal of reducing system pressure. The discussions have also not changed Omni's position, its objection is largely focused on the storage tank and demonstration that the recommended plan is the most cost-effective approach to the problem. Omni however, is supportive of the Company's plans to apply for grant funds.

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Given that it is May and Abenaki's costs for its engineering plans are to be submitted in September and, importantly, that Abenaki not lose this construction season, Abenaki requests, pursuant to section D, paragraph 6 of the settlement agreement, to amend the procedural schedule to allow Staff and the parties to file a recommendation concurring on the scope of its engineering plans, by May 24<sup>th</sup>.

### **History of Evaluation**

Since acquiring the Rosebrook water system in September 2016, Abenaki has reviewed the system's needs and priorities. These reviews are manifested in the January 7, 2019 compliance report filed by the Company in this docket as well as in Abenaki's responses to Staff 2-1, Tech 1-4 and Supplemental Tech 1-4. The first review (2016) was part of Abenaki's due diligence and Abenaki retained Horizons Engineering, Inc.'s ("Horizons") because of its ready historical understanding of the system. (Horizons had prepared a pressure reduction analyses in 2010 for the prior owner of the water system. See Abenaki's response to Staff 1-6.) Abenaki refined that analysis in 2017 and, most recently in 2018. See Horizons' Analysis and Recommendation Summary, dated September 5, 2018, submitted as Attachment 3 to Abenaki's January 7, 2019 compliance report.

Abenaki's assessment has not been done in isolation. Abenaki has been in regular contact with the New Hampshire Department of Environmental Services ("NHDES") over a number of years. The NHDES has made repeated requests that pressure be addressed, both before and after Abenaki acquired the system. The NHDES supports Abenaki's pressure reduction proposals, in particular, phases II, III, and IV. Abenaki and Horizons considered NHDES's comments in formulating the 2018 Analysis and Recommendation. This correspondence and support have been provided in the September 5, 2018 Horizons report and in response to Omni 2-3.

### **Plan Going Forward**

As discussed in the January compliance report, data responses, and at the March technical session, Abenaki plans to address the high pressure over the course of four phases. The phases are necessary to pace financings and avoid rate shock. Abenaki believes it has addressed the Commission's questions, which were: that Abenaki detail the solutions it considered before contracting with Horizons, the other possible options available to address the water pressure problems, provide the reasoning supporting the construction of the new water tank, and demonstrate that the phases are the best and most cost-effective solutions. Importantly, the NHDES supports Abenaki's solutions and understands that engineering designs must be developed first in order to finalize additional details of the proposal.

Phase I involves completing engineering design of the system improvements (2019). Phase II involves construction of a new transmission main and one booster pump station (2019-2020). This project will reduce the pressure at the well to 100 psi and reduce safety concerns associated with operating the wells at 200 psi.<sup>1</sup>

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<sup>1</sup> High pressure at the well pump house is of concern in light of the dangerous pipe break that occurred in 2011. See the Company's pressure reduction presentation filed with the

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Phase III involves later construction of two additional pump stations and installation of pressure reduction valves (2021-2022). The phased approach is intended to build upon each other to address the high pressure in an integrated fashion. The Company has agreed to eliminate Phase IV (storage tank) from the current engineering services contract with Horizon's. The need or desire for a new tank can be revisited at some future time. The tank is not essential for the pressure reduction project.

#### **Discussions with Omni**

Abenaki and Omni met and corresponded multiple times after March 20<sup>th</sup>. Notwithstanding those meetings and exchange of information, Omni is not prepared to support Abenaki's proposal. Omni maintains that its questions have not been resolved. Omni is supportive, however, of Abenaki's application to the Drinking Water and Groundwater Trust Fund and will assist in the application, as appropriate.

#### **Abenaki's Position**

Abenaki still believes that the phases set forth in the 2018 Horizons report are the best solution to the pressure problem. Action must be taken now. The reality of delaying addressing the high-pressure problem was made real on Easter Sunday, April 21<sup>st</sup>, when Omni suffered a break in its 8-inch service line. Due to the holiday weekend, Omni urged the Company to delay shutting off the service until Monday when it could effectuate repair of the line. The Company remained on site to monitor the leak and the impact of the leak on its water system until the repair.

This break illustrates how significantly the extreme high pressure compromises the water system and adversely affects customers. At the March technical session, Horizons and NHDES stated that service lines are prone to leaking under high pressure. The pressure within Omni's service line that Sunday was between 180 and 195 psi. This is extremely high considering Puc 604.03 requires normal operating pressures of not less than 30 psi and not more than 100 psi. (For service connections made prior to 1997, pressures are allowed to be between 20 and 125 psi.) The phases proposed by Abenaki will address the high-pressure problem and, importantly, improve safety, and operations and maintenance.<sup>2</sup>

Abenaki shares Omni's concern that the recommended plan be the most cost effective option. It is Abenaki's plan to collaborate with Omni during the design phase. The Company will pursue any and all opportunities to reduce the overall project cost. The design phase is where we will identify and adopt cost effective options.

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Commission on June 20, 2018 as well as its response to Staff 2-1.

<sup>2</sup> The high pressure makes it difficult for Abenaki to conduct regular maintenance. As mentioned at the technical session, high pressure prevents regular exercise of valves and creates water hammer when hydrants are flushed. Many pumps for chemical injections won't operate above 150 psi.

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The longer pressure reduction initiatives are delayed, the more Abenaki becomes increasingly concerned about damage liability, proper operation of the system and operator safety. Consequently, Abenaki will seek relief from liability due to high pressure in those parts of the system where pressure remains above 100 psi.

**Conclusion**

In order to maintain its construction window, Horizons needs to commence its design work now, at a minimum, on the phase II transmission main and booster pump station. Abenaki seeks Staff and the parties' concurrence on phases I and II so that we may advise the Commission and move forward. The Company appreciates Staff and the parties' attention to this very important issue and seeks your reply as soon as possible.

Very Truly Yours,



Marcia A. Brown

cc: Randal Suozzo, NHDES



April 8, 2019

**Subject: Reconciliation of Rosebrook (Abenaki Water Co.) Pressure Reduction Initiative**

Pursuant to a PUC staff directive at the March 20<sup>th</sup>, 2019 technical session, Abenaki Water Company (AWC) was instructed to meet with representatives of Omni Mount Washington Hotel to further develop the above initiative. Subsequently, AWC and representatives of Omni met at the office of McLane Middleton on March 29<sup>th</sup>, 2019, to review the “scope” and “the best and most cost effective solution”, among other subjects.

The following report categorizes the initiative into the following:

- Scope of Work
- Phase I
- Phase II
- Phase III
- Additional Discussion
- Proposed Project Schedule

We are pleased to present this report and look forward receiving your comments and questions.

Very truly yours,

Donald Vaughan  
Abenaki Water Company

## **Project Scope of Work**

In describing the nature of work and goals of the proposed project, please refer to the report "Responses Pursuant to DW 17-165, Order No. 26,205; regarding Rosebrook pressure problem" which provides ample background to this overview.

In essence, the overall aim of the project is to reduce the existing water system pressure from that approaching 200 psi to a range between approximately 35 to 100 psi. The reasons behind this are several and include the following:

- Extreme high pressure constantly causes significant stress and strain on system components, particularly pumping equipment, various types of valves, chemical injection, and difficulty in operation in what otherwise would be routine maintenance activities.
- Operator safety is at risk with inordinately high pressures as well as the potential (and realized) increased liability to a variety of real estate assets.
- System improvements are made much more expensive and complicated due to the high pressure.

The scope of the pressure reduction project as it directly addresses the above bullet points will yield some of, and potentially all of, the following benefits depending on the options selected as described in phases of implementation.

- Maximum system wide pressure reduction to about 100 psi.
- Much improved system redundancy and service reliability to the Omni Mount Washington Hotel.
- Probable maintenance cost savings regarding mechanical water systems and sprinklers at commercial buildings
- Ability to monitor aquifer levels.
- Mitigation of water hammer by pressure reduction and main looping.
- Increased flexibility of system control by replacement of inoperative valves damaged due to high pressure. Installation of strategically located air release valves at system high points to minimize this potential factor related to water hammer.
- Abandonment and relocation of the 16" mains under the ski area base lodge.
- Looping of the hotel distribution system to reinforce fire flows presently provided through a single 8" service.
- Construction of a new water storage tank on the north side of Route 302 to further enhance fire flows to the hotel and the growth area of the system in general.

To realize all of the above benefits to Omni, as well as the 400 or so residential customers, AWC recommends phasing the construction to moderate financial impact. Horizons engineering recommends the following phasing schedule to be the most practical and cost effective and to which AWC concurs.

### **Phase I**

AWC regards this segment of the construction to be essential and the cornerstone of all subsequent system wide improvements. It will immediately reduce pressure at the source of supply (pumping components) to about 100 psi, create a safer working environment, allow for the ability to improve chemical injection, and greatly decrease wear and tear, among other conditions.

This phase includes installation of approximately 2,000 feet of dedicated 16" water main, PRV's, and the Rosebrook Townhouse Booster Station to reduce pressure at the well pump station and along the dedicated water main length; modification of well pumps as needed to reduce their pressure output; well yield assessment to prevent over-pumping and air intrusion into system piping including installation of water level monitoring; replacement of key valves at system high points; and installation of approximately 40 feet of water main along the Base Road to tie the existing 12" and 8" water main (feeding the Omni Mount Washington Hotel) together.

### **Phase II**

Includes installation of two additional booster pump stations and PRV's to allow separating the hydraulic grade line of the system into two zones (or one booster pump station and a connecting water main between the Rosebrook Town Homes and Crawford Ridge as discussed later in this letter); installation of approximately 350 feet of water main ( to provide a system loop) at the end of Dartmouth Ridge Road; installation/decommissioning of water main in the Bretton Woods base area to allow for abandonment of the main beneath the base lodge; and installation of the Omni Mount Washing Hotel water main loop.

### **Phase III**

Possible funding through the DWGW Trust Fund holds promise for the construction of key enhancements to the overall project. Phase III includes installation of an approximate 1 million gallon atmospheric storage tank and connecting water main. The tank would be located in the general vicinity of the Dartmouth Ridge homes. This location is centrally located in the system and would provide better fire flow to the Omni Mount Washington Hotel and development along Base Station road and around the Hotel campus. A second tank would also provide additional system redundancy by having additional storage to the north of Route 302 should a problem ever occur with the Route 302 water main crossing.

### **Drinking Water and Ground Water Trust Fund**

Recently, discussion has taken place regarding application to the New Hampshire DWGW Trust Fund and whether it would be a potential source of funding for some of the Phase II and Phase III desired improvements. We believe that improvements that focus on providing a potential for improvement in business, including the Omni Mount Washington Hotel, Bretton Arms, and Bretton Woods Ski Area, as well as providing a foundation for future commercial growth in the valley, are good candidates. As such, we believe the Base Lodge water main work, the Omni Mount Washington Hotel water main loop, and the new tank are good projects to include in a funding application. Such an application must be submitted by June 15, 2019.



### **Additional Discussion**

The major change to our previous recommendation for system pressure reduction has come about due to the recently identified need/goal to eliminate the existing 16" water main that is located under the Bretton Woods Ski Area Base Lodge slab that was not previously considered. Abandonment of the line will require that an alternate main feed line from the existing storage tank be provided. The most practical and cost-effective way to accomplish this newer goal is described as part of the following.

In order to meet the minimum project goal of reducing the pressure at the existing pump station, and setting the system up for future Phasing, a "dedicated" water main would be installed from the well pump station site to the proposed Rosebrook Townhouses Pump Station site. This dedicated water main would include approximately 2,000 feet of new 16" water main from the pump station (under the Ammonoosuc River) to the existing 16" main above the Base Lodge (see attached Overall Plan). This new 16" piping will function as a new (alternate) feed line for the system under Phase II, so that the existing 16" water main under the Base Lodge can be abandoned. The "dedicated" main would be comprised of both this new piping and the existing water main along Remick Lane and Rose Brook Lane to the proposed Rosebrook Townhouses Pump Station. A portion of this length of "dedicated" water main would have a pressure reduction to under 100 psi. Three PRV's would be installed along the length of the "dedicated" water main. This work would be included in Phase I. System fire flows would be improved as a result of this Phase I work.

As previously noted, Phase II of the project will create two distinct pressure zones (see Conceptual System Improvements for Pressure Reduction – Attachment 1 – Overall Plan) in the system with resulting pressures under the system wide 100 psi maximum desired. The project would include two additional booster pump stations and PRV's.

Additional pump stations will not cause a significant increase in electrical pumping costs, as the same amount of water will be lifted to the same elevation as it currently exists, requiring approximately the same amount of energy to do so.

It has been suggested that the proposed Crawford Ridge Pump Station may not be needed if a new water main was installed from the Rosebrook Townhomes area cross country to the Crawford Ridge area. The water main would be approximately 2,000 feet in length, located across the Bretton Woods Ski Area Land. This alternative option to provide service to the Crawford Ridge area will be examined during the preliminary design of the project. This alternative option could be found to be favorable depending on the availability of land for the Crawford Ridge Pump Station and/or the presence of ledge and other existing utilities across the Ski Area land. A hydraulic analysis of this option will be performed during the preliminary design effort.

Other important improvements that have been identified include addressing issues at the Bretton Woods Base Lodge and Omni Mount Washington Hotel. Failure of the existing 16" water main under the Base Lodge would likely cause serious water and

possibly structural damage to the facility. The Omni Mount Washington Hotel is currently served by a single, long, dead end 8" water main. Providing a water main loop to the Hotel will reduce the potential for water hammer, improve fire flows, and provide redundancy to this very important water system user. Installation of a second water storage tank of the north side of Route 302 would also provide many benefits to the system including improved fire flow capacity system wide and redundancy to keep the system mostly operational and in service in the event of a water main failure.

A color-coded summary of the revised desired improvement is provided on the attached Conceptual System Improvements for Pressure Reduction – Attachment 1 – Overall Plan. At this time the details of the proposed options such as water main alignments, pump station locations, etc. are preliminary and subject to revision during the design process.

### **Proposed Project Schedule**

Abenaki Water Company has indicated that they are seeking to begin design of Phase I and Phase II of this project. The potential timeline of the project is as follows:

Potential Timeline	
9/15/19	Complete design and permitting of Phase I and Phase II improvements.
12/31/19	Obtain necessary easements.
4/15/20	Bid and award contract of Phase I Improvements.
4/15/21	Obtain necessary easements, bid, and award contract for Phase II improvements.
12/31/21	Complete construction of Phase II improvements, complete design and permitting and obtain necessary easements for Phase III improvements.
4/15/22	Bid and award contract of Phase III improvements.
12/31/22	Complete construction of Phase III improvements.