

Groton Water Commission  
Regular Meeting  
Of the  
Board of Water Commissioners  
Tuesday, July 28th, 2020  
Virtual Meeting using Zoom

**Minutes**

Present are Chairman Jack McCaffrey, Vice Chairman Greg Fishbone, Member James Gmeiner, Superintendent Thomas Orcutt, Business Manager Lauren Crory, Office Assistant Ann Livezey and Michael Ohl of CEI.

Mr. McCaffrey called the meeting to order at 7:31pm.

Manganese – Schedule, Piloting, Concept Plan, Finances, Consent Order

*Attachment: Manganese Decision Matrix*

Mr McCaffrey began the meeting by saying the Board would need to make an important decision tonight regarding the plan for manganese treatment. Mr. Orcutt said Mr. Ohl submitted the pilot testing results to MA DEP. They responded with concerns about a backwash deficiency if the Baddacook option is chosen Mr. Ohl is working on the final stages of the conceptual plan and will be submitting it to MA DEP within a few weeks. Mr. Orcutt recommended we send a one-page statement to MA DEP regarding our decision.

Mr. McCaffrey said that MA DEP wants to approve the pilot testing and concept plan by December 31<sup>st</sup>, 2020. He would like us to start putting the upcoming milestones on our meeting agendas.

Mrs. Crory ran scenarios with manganese fee reductions and eventual eliminations for each scenario. Mr. McCaffrey noted that the fee could be less, slightly earlier, with the Whitney Pond option. However, Mr. Fishbone added that Baddacook has lower O&M costs. Mr. Fishbone ran his own scenarios keeping everything apples to apples, and he found that the Baddacook option would require the fee for a few more years.

Mr. Ohl said the additional O&M cost for Whitney is estimated at about \$50,000 per year, mostly based on the assumption that the facilities will be separate and there will be less multi-tasking happening. Mr. Orcutt noted that when the operators are doing backwashes, they are dedicated to that and would not be multitasking regardless. Mr. Fishbone said that an additional operator may have less value with the Whitney option because they would be spending more time there. Mr. Fishbone is concerned about the additional O&M costs resulting in rate increases. Mr. Gmeiner noted that the Baddacook option is still about \$1.2 million more and we may have more projects that come up down the line. Mr. Fishbone said the difference is about \$900,000 not \$1.2 million. The Board discussed more pro and cons of each location and decided it really could be argued in either direction. Mr. Orcutt doesn't want to put too much weight on a new operator/ O&M costs because at some point MA DEP is going to require this regardless. Mr. Fishbone agrees but still gives it weight based on a third operator spending more time at one facility.

In terms of future expansion, Mr. Ohl said that the Whitney option would have adequate space and would be fairly easy to handle a new well down the road. Expansion could be possible at Baddacook, but would need to build now to prepare, which would be additional costs right now. Mr. Fishbone questioned this because the existing Baddacook facility is prepared to take on Shattuck, but Mr. Ohl said yes but it is dedicated to Shattuck,

if we wanted to lose that option, we could use it now but it is technically reserved already. Down the road would need to spend more money to get Shattuck back on.

Mr. McCaffrey asked if both sites can handle the proposed backwash handling systems and Mr. Ohl said yes. Mr. Orcutt asked if MA DEP would see our current Baddacook backwash system as satisfactory if we did not choose that option to treat manganese and Mr. Ohl said no, they have discomfort with it regardless and want to see zero staining or settling in the lagoons.

After months of analyzing both options, Mr. McCaffrey asked all participants to speak on their preferred option, Whitney or Baddacook. Mr. Ohl feels that overall, Whitney seems to be a better fit. He found himself forcing Baddacook to work. Mrs. Crory feels that Whitney is the best option based on a lower cost and simpler debt schedule to work with. Mr. Orcutt prefers the Whitney option as cost is big factor and he would like to be able to lower the current fee when possible. He also said the operators are in favor of Whitney as it would be simpler for them. Things may get complicated at Baddacook down the road if we start treating PFAS or get Shattuck online. Mr. Gmeiner likes Whitney in the sense of costing less but still is questioning the estimated extra O&M cost amount. He also thinks the Baddacook location sounds a bit tight already. Mr. Fishbone spent a lot of time looking at the costs and expenses and could not get Baddacook to look more favorable overall. Mr. McCaffrey originally thought Baddacook would be the best option, but now thinks both options are fairly equal, but Whitney will be more flexible.

Mr. McCaffrey made a motion to agree to move forward with the manganese treatment at Whitney Well, Mr. Fishbone seconded, and the motion carried unanimously.

In terms of backwashes, Mr. Orcutt said that he is waiting for Tom Weaver's proposal but he doesn't think it will be affordable. He said that Mr. Ohl's plan will be fine in the concept plan. Mr. Ohl explained the current plan which will involve a 2<sup>nd</sup> lagoon and will be easier to maintain since there is a buried tank right now. Mr. McCaffrey said it is essentially the same process but will be designed better. He asked if we need to decide next meeting and Mr. Ohl said it really should be a separate issue outside of the concept order requirements. The concept plan will include a backwash plan for the new plant though. Mr. McCaffrey asked how much it will cost to improve the Baddacook backwash system and Mr. Ohl estimated about \$350,000.

Mr. Orcutt will send a letter to the Town Manager and Select Board informing them of the Board's decision.

#### Superintendent's Report: Well Cleaning, Water Levels and Pumping, Staffing

Mr. Orcutt said the water levels are unchanged and pumping levels are fairly consistent. The summer conservation program is still in place. We are pumping about 8-12 hours per day.

#### Manganese Open Forum

Mr. Orcutt and Mr. Fishbone discussed having our own open forum with our own moderator. They will accept input from Mr. Petropoulos. It could be on the Groton Channel and may be in September.

#### Other Business: Bills, Minutes, etc

Mr. McCaffrey asked if we should update the website with our decision and Mr. Orcutt said yes along with the matrix

Mr. McCaffrey approved the minutes of July 14<sup>th</sup>, 2020 as written, Mr. Fishbone seconded, and the motion carried unanimously.

Mr. McCaffrey made a motion to adjourn at 9:08 pm, Mr. Gmeiner seconded, and the motion carried unanimously.

Respectfully Submitted,

Lauren Crory

**Decision Matrix of Top Two Potential Treatment Options (Final)**

**Option 3B: Construct New Treatment Facility at Whitney Pond Wells  
Option 3C: Expand Badcock WTP and Construct Water Main Improvements**

Factor	Weight	Rationale	Relative Scoring (1 = Poor/NA, 2 = Fair, 3 = Good)	
			Option 3B	Option 3C
<b>Capital Costs<sup>1,2</sup> (High Priority)</b>				
Estimated Debt Service on Construction Cost	15%	Option 3B: Estimated Capital Cost: \$6.6M; Estimated Total Financing over 20 years: \$9M / Average Annual Debt Payment of \$429K Option 3C: Estimated Capital Cost: \$7.3M (Water Main: \$2.4M, Treatment: \$4.9M); Estimated Total Financing over 30 years: \$10.4M / Average Annual Debt Payments for 20 years: \$435K remaining 10 yrs: \$93K.	3	2
Estimated Cumulative Gain/Shortfall over Time	10%	Option 3B: Expected cumulative gain/shortfall relative to FY2020 debt load and \$20/yr capital charge: by 2032 = -\$264K; by 2043 = \$1.1M Option 3C: Expected cumulative gain/shortfall relative to FY2020 debt load and \$20/yr capital charge: by 2032 = \$604K; by 2043 = \$836K; by 2052: \$4.9M	3	2
<b>Resilience (High Priority)</b>				
Treatment Redundancy	15%	Option 3B: Two independent facilities provides redundancy in the event of a prolonged outage or other issue. Option 3C: All Wt treatment would be at Badcock facility; in an emergency, water could be routed from one facility to the other (and vice versa).	3	2
Filtration Operational Buffer	10%	Option 3B: Vertical vessels provide operational buffer. Less susceptible to losing media. Can backwash more aggressively. Option 3C: NA - No operational buffer anticipated from horizontal vessels.	3	1
<b>Operations and Maintenance (Moderate Priority)</b>				
Annual O&M Cost Increase (2022) <sup>3</sup>	10%	Option 3B: Estimated increase of \$150,000/yr associated with new operator, electricity, and misc costs to operate new facility. Option 3C: Estimated increase of \$100,000/yr associated with new operator, electricity, and misc costs to operate expanded facility.	2	3
Increase in Required Labor / Logistics	10%	Option 3B: New operator and may require additional 8-16 hrs of labor/week for logistics and coordination for O&M of two WTPs. Option 3C: New operator required.	2	3
<b>Ease of Future Expansion &amp; Misc. Factors (Lower Priority)</b>				
Future Supply Expansion (Whitney Well #3) <sup>4,5,6</sup>	5%	Option 3B: Vertical vessels are sized to handle normal 5 gpm/sf loading rate and up to 7 gpm/sf temp backwash loading rate with one filter offline. Proposed building includes capacity for future filter should future demands increase more than anticipated. Option 3C: Horizontal vessels are sized to handle normal 5 gpm/sf loading rate and up to 7 gpm/sf temp backwash loading rate with one cell offline.	3	2
Future Treatment Implementation	5%	Option 3B: Adequate space for future PFAS or other treatment. Option 3C: Adequate space for future PFAS or other treatment. If PFAS shows up at both sources, treatment would only be required at Badcock.	2	3
Distribution System Hydraulic Improvements	5%	Option 3B: 8-in water main will be upgraded to 12-in along Lowell Road between Alerts Trail and Herlock Park Drive. Option 3C: NA - no anticipated hydraulic improvements will be made.	1	3
Distribution System Performance During Backwash <sup>7,8</sup>	5%	Option 3B: Potential low pressure areas are slightly more pronounced. Likely because Whitney is pulling water for a longer distance along Lowell Road. Option 3C: Potential low pressure areas are slightly less pronounced.	1	2
Accelerated Temporary Treatment	5%	Option 3B: NA - Construction completion anticipated December 2024. Option 3C: Potential temporary treatment of all water demand for 9 months of the year by 2022 compared to 6 months currently (pending DEP approval)	1	3
Construction Disruptions Off-Site <sup>9</sup>	5%	Option 3B: NA - No anticipated disruptions. Option 3C: Water main installation will cause disruptions along Lowell Road. Estimated duration of 3-4 months.	3	1
<b>Sum of Weights:</b>	<b>100%</b>		<b>Relative Score (Out of 3):</b>	<b>2.5</b>
				<b>2.2</b>

Notes:

- Cost estimates are for planning purposes only (i.e., order-of-magnitude) and have been adjusted for potential inflation from 2019 to 2022 assuming 3% annual inflation.
- Financing cost estimates obtained from GMD via email on June 25, 2020. Assume equal payment scenario for comparison of each option. Assume water main pipes in ground by 2021. FY2020 baseline debt load is 400.4K estimated \$20 capital charge income is 140K/yr.
- See supplemental Tables for increases to current O&M costs.
- Assume that potential Whitney Well #3 will have capacity of approx. 200 gpm. Order of magnitude cost estimates is <\$1M for development of new Whitney Well #3 from Manganese Mitigation Alternatives Analysis Report (CEI, August 2019).
- Whitney Well #1, #2, and potential #3 design flow of 950 gpm. Option 3B proposed filters are two (2) horizontal filters with 4 dia. and 15' length split into two cells. Option 3C proposed filters are three (3) 10' dia. vertical filters.
- Per July 2020 Blue Lead Pilot Report (Table 3.07), pilot filters for Whitney Wells #1 and #2 were effective at loading rates of 5 gpm/sf to 7 gpm/sf (18" media depth). Estimated run time to 10 psi filter differential pressure ranged from 185 to 331 hours.
- GWDS existing WaterCAD model was used to simulate potential capacity limitations from typical backwashing operations based on analysis of pressure contours.
- Backwash (demand) of 975 gpm and 1,300 gpm was applied at new Whitney Facility (3B) and Badcock Expansion, respectively. Analysis assumes that backwash will not be performed simultaneously (e.g., Whitney vs. Badcock. Filters will be backwashed at separate times).
- Construction duration for approx. 10,000 linear feet of water main estimated based on installation of 1000 to 200 linear feet per day.