October 17, 2014

Mr. James McKay, Assistant Director
Department of Public Works
Town Hall
900 Main Street
Millis, Massachusetts 02054

Re: Farm Street Standpipe
Rehabilitation Budgetary Estimate Review

Dear Mr. McKay,
As per your request, we have peer reviewed the budget estimate for rehabilitation of the Farm Street tank. The following documents were submitted to AP Associates for this purpose:

1. Budget Estimate Letter prepared by Woodard & Curran (W&C), dated September 18, 2014;
2. Sanitary Inspection Report by Utility Services Co. Inc. (USCI), dated June 27, 2012; and
3. Inspection Report by USCI, dated June 9, 2011.

W&C had suggested a budgetary estimate of $960,000 from which $710,000 is for rehabilitation of the tank ($310,000 for interior and $400,000 for exterior surfaces). However, the letter did not include any references to the basis for these construction cost estimates. AP Associates utilizes the cost estimates from most recent inspection reports to determine the total budget estimate for the purpose of funding. We then reviewed the inspection reports made available to us and have the following comments:

- The Sanitary Inspection Report dated June 27, 2012 is a limited scope survey for identifying any sanitary issues and for compliance with the MassDEP requirements. This report excludes detailed evaluations of the tank surfaces or any cost estimates for rehabilitations.
- The Inspection Report dated June 9, 2011 is a detailed report that includes evaluation of the entire tank. However, the report found no need for immediate major rehabilitations. For that reason, there was no cost estimate for interior and exterior rehabilitations in the report. It recommended that the tank be inspected again in 2015.

Since there are no construction cost estimates in the 2011 Inspection Report, it may be safe to assume that the estimate prepared by W&C is a ballpark figure based on projects of similar size and nature. Therefore, we will not be able to provide any specific comments about the accuracy of their estimates. However, we are of the opinion that tank rehabilitations are unlike any other projects. The most accurate cost estimates are derived from detailed inspections and cost estimates by tank experts like USCI. We normally review their inspection reports and construction cost estimates and apply the engineering fees and contingencies to determine a total budgetary estimate for the projects. AP Associates has completed a number of these projects over the last 10 years, including the Walnut Street tank here in Millis. We have the following recommendations for your consideration that may help as you plan to rehabilitate the Farm Street tank:

1. Continue with your plan for a detailed inspection of the entire tank. We strongly believe that wet inspections like underwater cameras (ROV) or divers are no substitute for dry inspections. Draining the tank provides a more close-up look of the surfaces and thus a more accurate cost estimate for rehabilitation. It also provides an excellent opportunity to clean any settlements on the tank floor that promote bacteria problem.

2. Consider complete abrasive blasting of the exterior surfaces. According to the 2011 Inspection Report, the exterior surfaces of the Farm Street tank contain lead and require special considerations during the removal and disposal process. This means that strict containment and emission requirements have to be met. These requirements have been getting increasingly stringent over the years. We understand that unlike the Highland Street tank, the Farm Street tank was only spot repaired and spot coated the last time it was rehabilitated. The rehabilitation costs for the Farm Street tank would have been significantly less if the tank exterior was abrasive blasted the last time it was rehabilitated.

3. Explore installing a mixing system in the tank, especially, if Millis has experienced water quality issues including positive coliform bacteria in that general area. A mixing system increases the rehabilitation cost but helps with reducing any water quality issues associated with temperature stratifications and long detention times in the tank. A variety of mixing systems are offered to match the specific needs and budgets. In case you decide to add a mixing system, please note that W&C's budgetary estimate did not itemize the cost for a mixer. Depending upon the type of mixing system, it may cost about $40,000 to $60,000.

4. As a point of reference only, we are providing you with the actual cost breakdown for one of the tank projects we completed in 2009. The Mount Hollis tank in Holliston had similar scope of work, containment and repairs as noted in the 2011 Inspection Report for the Farm Street tank. The scope of work also included a passive (pipes and series of check valves) mixing system. The actual cost breakdown adjusted to 2014 prices are as follow:

Interior, exterior and all the repairs	$750,000
Engineering (Design, bidding and construction)	$ 67,000
TOTAL (Excluding Mixer)	$817,000
Mixing System (Passive - Tideflex)	$ 60,000
TOTAL (with Mixing System)	$877,000

   It is important to note that the Mount Hollis tank is a 2.0 MG welded steel reservoir but the Farm Street tank is a 1.0 MG riveted steel standpipe. The Farm Street tank is taller and riveted which is more labor intensive than shorter and welded tanks like Mount Hollis. However, the Farm Street tank has half of the capacity and surface area as the Mount Hollis tank.

   Please note that we are providing you with this breakdown solely as one example that reflects magnitude of bid prices for tank rehabilitations. We ask that you only rely on the specific recommendations and construction cost estimates from an actual and most recent inspection report as the basis for determining the budgetary estimate. We also recommend that you apply a 20% contingency for the Town Meeting funding purposes.

We hope that the information provided is helpful. Please let me know if you have any questions or if you would like to discuss this further.

Very truly yours,
AP ASSOCIATES, INC.

Ali M. Parand, P.E.
Project Manager