

October 9, 2020

Mrs. Cathy Monteith Busick
Past-President
Appalachian Women's Museum
Dillsboro, North Carolina 28719

Via email

Re: **Preliminary Engineer's Estimate for
Appalachian Women's Museum
Sewer Service Connection to TWSA**
Dillsboro, North Carolina

Dear Mrs. Busick:

As discussed, attached is a preliminary engineer's project estimate for connecting the Appalachian Women's Museum in Dillsboro to TWSA sewer. The existing TWSA sewer main in the immediate vicinity of the Museum is a force main, which will require the Museum to make a pumped, pressurized sewer service connection.

It is my understanding the proposed sewer service connection will serve a single employee bathroom within the Appalachian Women's Museum with no plans to make future connections to any other buildings, which will allow this sewer connection to remain defined as a building sewer service.

As a part of the engineering design, the TWSA force main will need to be hydraulically modeled under various range of operating parameters to size the sewer service pump for the Museum. The connection to TWSA could be made with either a grinder pumping system or a S.T.E.P. (Septic Tank Effluent Pump) pumping system. This determination will be made in the final design analysis, although my preliminary evaluation leads me to believe the S.T.E.P. system would be the preferred alternative. It is recommended the pump station be a simplex (single) pump system with a spare pump purchased and stored on site as a part of the initial installation contract.

The construction costs presented in the attached preliminary project estimate represents an engineer's opinion of a reasonable, average construction cost given current market trends. Please note that the attached preliminary cost estimate does not include any improvements to the Museum bathroom nor any improvements to building interior plumbing.

I hope this information is helpful to the Museum in planning a path forward. If I can be of further assistance at this stage, feel free to contact me at your convenience.

Sincerely,
Lofquist & Associates, Inc.



Victor Lofquist, P.E.

- attachment

Preliminary Engineer's Estimate
for
Appalachian Women's Museum
Pumped Sewer Service Connection to TWSA

<u>Estimated Material & Construction Costs</u>					
<u>Item #</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Estimated Unit Cost</u>	<u>Estimated Total Cost</u>
1	Pumping System Equipment Only (Packaged Grinder or S.T.E.P. pumping system with basin or tank - simplex type with spare pump)	LS	n/a	n/a	\$14,800
2	Pumping System Excavation, Foundation/Anti-floatation, Electrical Connection, and Equipment Installation	LS	n/a	n/a	\$7,100
3	Materials for pvc force main (2" or less) from pumping station to existing TWSA force main and 4" building sewer from building drain to pumping station (pipe, bends, fittings, valves, boxes, tap, etc.)	LS	n/a	n/a	\$1,550
4	Trenching, piping installation, backfill, property restoration	LS	n/a	n/a	\$3,100
5	Force main installation under DOT temporary road by mole	LF	30	\$32.00	\$960
6	Wet tap connection to TWSA existing force main	LS	n/a	n/a	\$750
7	Erosion Control & Seeding Allowance	LS	n/a	n/a	\$500
Estimated Construction Cost Subtotal:					\$28,760
<u>Other Estimated Project Costs</u>					
<u>Item #</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Estimated Unit Cost</u>	<u>Estimated Total Cost</u>
8	TWSA System Development Fee and Permit Fee - Allowance	LS	n/a	n/a	\$1,200
9	Engineering - Design	LS	n/a	n/a	\$3,000
10	Engineering - Assist owner in soliciting 2 or 3 informal bids	LS	n/a	n/a	\$1,100
11	Engineering - approximately 3 or 4 periodic site visits during construction including final	LS	n/a	n/a	\$700
Other Project Costs Subtotal:					\$6,000
Total Estimated Project Cost:					\$34,760
<u>Notes:</u>					
1) This estimate represents the engineer's opinion of an average cost of work given current market conditions and does not include allowances for future inflation or fluctuations.					
2) This estimate is intended for the sewer service components outside of the building and does not include interior plumbing.					
3) This estimate assumes that the sewer is a service and only is to serve a single employee bathroom in one building only.					
4) This estimate does not include allowances for rock excavation. A geotechnical evaluation could be performed to evaluate the presence of bedrock.					
5) This estimate does not any contingency allowance. The owner may wish to add contingency for unknowns.					