

Consulting Engineers

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TELEPHONE 463-4408

June 6, 1977

Mr. Durward C. Brewer
Superintendent
Dept. of Water & Sanitation
Westmere Water District Office
State Farm Road
Guilderland, New York 12084

Re: McKownville Water District
Water Treatment Facilities

Dear Mr. Brewer:

Pursuant to your request, we have prepared the following estimates relating to the renovation and recommissioning of the McKownville Water Filtration Plant as a source of supply for the McKownville Water District. It must be noted that these estimates are "ball-park" estimates based upon a preliminary examination of the facilities in question and data that was readily available from our files.

The water consumption data for 1976 indicates an average use for McKownville of 238,400 gallons per day. No peak data is available due to the nature of the metering facility. This firm's estimate of the safe yield of the McKownville water supply source was last determined in June 1963. At that time a safe yield was calculated to be 250,000 gallons per day. However, this is based upon a combined yield of both upper and lower reservoirs. In 1976 the upper McKownville reservoir dam failed, thus reducing the available storage capacity from 10,000,000 gallons to less than 3,000,000 gallons. This capacity was further reduced due to siltation of the lower reservoir due in part to the dam failure. It is our preliminary opinion that insufficient supply exists from the McKownville reservoir to serve the present needs of the McKownville Water District.

Aside from this factor, the raw water quality from the McKownville source has a long history of being highly variable in nature with respect to turbidity and algae growths. Raw water turbidities range from 8 to 100 JTUs with high (40-60) color and high (150 +) algae counts. In addition, a significant amount of iron (2.2 ppm) exists in the raw water. These factors serve to increase the difficulty of producing a consistent high quality potable water. Past operational experience at the McKownville

Water Filtration Plant indicates extreme difficulty in meeting the existing state standard of 5 JTU turbidity during periods of severe runoff due to rain. After June 24, 1977 a more stringent requirement of 1 JTU maximum turbidity will be mandated as part of the U.S. Safe Drinking Water Act enacted by Congress.

Further upstream development such as the proposed Crossgate Development will significantly alter the drainage patterns and surface water quality, reducing further the consistency and quality of the McKownville water supply source. As an example, the existing watershed area of the McKownville reservoir is only 650 acres and development of any size could affect a large portion of this watershed.

The question of cost of rehabilitation of the existing McKownville Water Filtration Plant must be considered assuming a minimum 30-year life cycle and the ability of a reconditioned and rehabilitated plant to meet the Safe Drinking Water Act regulations which go into effect June 24, 1977. To this end, we have determined that rehabilitation would require at least the following items:

1. Installation of a new flash mixer.
2. Rehabilitation of the existing settling basin.
3. Installation of new modular mix media filtration systems capable of providing the required degree of effluent quality.
4. New interconnecting piping.
5. Rebuilding one (1) hi-lift pump, installing a second.
6. New automated electronic controls.
7. Reservoir dredging and spillway repair.
8. Installation of a wastewater connection to the sewerage system.
9. Installation of new chlorine feeding apparatus.
10. Installation of chemical storage and feeding equipment including caustic soda, potassium permanganate, poly-electrolyte, and carbon slurry chemicals.
11. Installation of an approved water filtration plant laboratory.
12. General building rehabilitation including painting, insulation, electrical service, etc.

Mr. Durward C. Brewer
6/6/77

-3-

We have estimated a contract cost for this work of \$230,000.

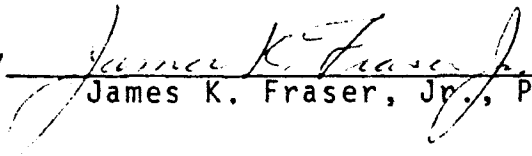
Acting upon your request, we have determined the estimated cost for a detailed engineering preliminary design study for the aforementioned McKownville Water Filtration Plant rehabilitation might be approximately \$9,000 depending upon the scope required by the New York State Department of Health and New York State Department of Environmental Conservation.

We trust that the foregoing is sufficient for your immediate needs. Should you wish further information or discussion of the proposed preliminary design study, please let us know.

Very truly yours,

J. KENNETH FRASER & ASSOCIATES, P.C.

By


James K. Fraser, Jr., P.E.

JKF, Jr./kp