



September 11, 2014

EGOS 0611

Rick Smith
Township Manager
East Goshen Township
1580 Paoli Pike
West Chester, PA 19380

**RE: Milltown Reservoir Dam
Incremental Analysis & Construction Cost Estimates/Alternatives Analysis**

Dear Rick:

Per correspondence from the DEP dated June 17, 2014 and a follow up memorandum from Ronald Mease, PE of the DEP dated July 18, 2014, the spillway for the referenced dam is significantly undersized. A brief review of Mr. Mease's summary, including a telephone conversation with Mr. Mease, does not indicate anything irregular. However, Mr. Mease recommends the Township complete its own incremental analysis. Therefore, we have split this project into two (2) phases:

Phase 1 – Incremental Analysis

This analysis would include the following:

1. Data collection/research
2. Limited topographic survey
3. Hydrology (drainage area)
4. HEC-1/RAS model
5. Spillway design flood (SDF)/spillway capacity calculations
6. Summarize the above in a written report and review with Township staff and DEP.

Our estimated fees to complete the above scope of services (Items 1 to 6) are approximately **\$7,000 to \$9,000** per our 2014 fee schedule.

Phase 2 – Construction Cost Estimates/Alternatives Analysis

Subsequently, and assuming similar results as Mr. Mease's analysis, we would proceed with a detailed analysis of possible options to address this deficiency. Initially, the Township is considering two possible remedies 1) breaching the dam; and 2) reinforcing the dam with articulated concrete block (or similar), wherein the existing dam would act as the spillway.

In order to determine which alternative is preferred, we recommend the following scope of services for each option:

1. Prepare probable construction costs
2. Prepare estimated design fees

3. Identify permitting requirements
4. Identify grant opportunities (for breaching only)
5. Summarize the above in a written report and review with Township staff

Our estimated fees to complete the above scope of services (Items 1 to 5) are approximately **\$7,000 to \$9,000** per our 2014 fee schedule.

As discussed, we can complete Phase 2 without Phase 1, assuming the DEP's calculations are reasonably accurate.

We can begin work upon notification to proceed and anticipate approximately forty-five (45) days to complete the scope of work for each phase above.

Should you have any further questions, please contact me.

Sincerely,

PENNONI ASSOCIATES INC.



Nathan M. Cline, PE
Township Engineer

NMC/rr

cc: Mark Miller, Director of Public Works (via e-mail)