



Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building
P.O. Box 8554
Harrisburg, PA 17105-8554
July 20, 2009

Bureau of Waterways Engineering

717-772-5957

Louis F. Smith, Jr., Manager
East Goshen Township
1580 Paoli Pike
West Chester, PA 19380

RECEIVED
BY: _____

JUL 22 2009

RE: Alternatives Review
Hershey Mill Dam
East Goshen Township, Chester County
DEP File No. D15-125

Dear Mr. Smith:

We have received and reviewed the information you submitted to our office on June 25, 2009, concerning the needed rehabilitation of the Hershey Mill Dam. Our review of this information has resulted in the following comments:

1. The alternative developed by Edward B. Walsh & Associates, Inc. includes lowering the crest (normal pool) of the existing spillway 1.25 feet to El. 446.75, constructing two 45-foot wide emergency spillways at El. 448.0, and raising the top of the dam to El. 451.0. Conceptually these proposed changes would have sufficient capacity to pass the 100-year design storm with about 0.5 feet of freeboard.
2. While the capacity of the proposed spillways is sufficient, the proposed spillway lining protection, Turf Reinforcement Matting (TRM), is not acceptable for use. These emergency spillways will be activated for frequent storm events, as the 2-year, 24-hour storm would cause a flow depth of about 0.5 feet, plus they are to be located through the earthfill portion of the dam, which is highly erodible. For spillways located through the dam or on earthfill, the Department requires the lining to be of reinforced concrete. This is common dam design practice by other state dam safety programs and federal agencies.
3. In addition to reviewing the documents developed by Edward B. Walsh & Associates, Inc., we reviewed the conceptual plans developed by Yerkes Associates, Inc., which were included on the compact disc. Yerkes's Option 1 approach seems to be the best option for rehabilitating this dam with the following suggested revisions:

- a. If the normal pool is lowered to El. 446.75 and the top of dam is raised to El. 451.0, as proposed by Walsh, then a 90-foot wide emergency spillway at El. 448.0, similar to Yerkes's Option 1, will be acceptable.
- b. We recommend that the emergency spillway be one complete structure and placed adjacent to the existing primary spillway.
- c. The apron area of Yerkes's Option 1 will need to be modified to prevent any undercutting of the spillway toe. This would best be done by extending the heel of the retaining wall so that the discharge flow over the crest of the weir would splash onto reinforced concrete.

Also, on July 9, 2009, representatives of the Division conducted a thorough visual inspection of the dam, Inspection Notice enclosed. This inspection resulted in significant concerns beyond that of the inadequate spillway. Below is a brief summary of our findings:

1. The dam was overgrown with thick vegetation, which made a thorough visual inspection difficult in some areas; however, it was obvious that the crest and slopes of the dam are uneven, overly steep in certain areas, and there appeared to be evidence that the dam has been overtopped by water in the past.
2. Several large trees are growing on the downstream face of the dam, which are compromising its integrity. It was noticed that the roots from some of these trees pass through the dam and directly to the lake level. These trees and their root systems will need to be removed as part of the rehabilitation of this dam.
3. Along the left toe of the embankment an in-ground swimming pool was constructed at some point in the past. The swimming pool itself is not a concern, but in order to create a patio area around the pool it appears that a portion of the downstream face was removed and a small stone wall constructed. This has resulted in the downstream slope of the dam through this portion being steepened beyond acceptable levels.
4. In order to conduct the work needed at this dam, it appears that adjacent properties will need to be affected. This will require that at least temporary easements be obtained. Also, should increasing the dam height be pursued as part of rehabilitating the structure, flowage easements will be required for all properties located around the lake that could be inundated to the top of dam elevation.

Given the extent of work that will be required to properly repair this dam, it is our belief that the most cost effective solution for the situation would be for the Township to consider utilizing the potential federal stimulus funding for breaching of the dam. We understand that this may not be the best received solution from the property owners surrounding the dam or the citizens of the Township; however, it will remove the significant liability and responsibilities that come with ownership of a dam. The Township could then consider constructing a smaller, reduced Hazard Potential dam, or restore the impoundment area of the dam to create an environmental education area as part of the park.

Louis F. Smith, Jr., Manager
East Goshen Township

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July 20, 2009

As you know, it is the Township decision to either pursue keeping and rehabilitating this dam or breaching it. In either case, our office will continue to work with the Township toward a resolution, while ensuring the safe operation and maintenance of the dam.

Should you have any questions concerning our comments, please contact me at the above number.

Sincerely,

A handwritten signature in blue ink, appearing to read "Richard A. Reisinger".

Richard A. Reisinger, P.E.
Chief
Delaware Watershed Section
Division of Dam Safety

Enclosure: July 9, 2009, Dam Safety Inspection Notice

cc: Rep. Barbara McIlvaine Smith
Edward B. Walsh & Associates, Inc.
Yerkes Associates, Inc.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATERWAYS ENGINEERING
DIVISION OF DAM SAFETY

DEP Data Records	Inspection Record # 181 2295
Complaint Record #	Enforcement Record #

DAM SAFETY INSPECTION NOTICE

DEP Office: <i>Dam Safety Central Office</i>	Phone: <i>717 7878568</i>	Dam Permit or ID. #: <i>D15-125</i>
Address: <i>P.O. Box 8554 Harrisburg, PA 17105</i>		Dam or Project Name: <i>Hershey Mill Dam</i>
Owner or Permittee: <i>East Goschen Township</i>		County: <i>Chester</i>
Complete Mailing Address: <i>C/o Louis F. Smith, Jr. 1580 Paoli Pike West Chester, PA 19380</i>		Municipality: <i>East Goschen Twp</i>
		Take GPS readings at the center of the crest of the dam.
		Latitude: <i>40 ° 00 ' 47 " N</i>
		Longitude: <i>75 ° 33 ' 26 " W</i>

- Type of Inspection:**
- | | | |
|---|--|--|
| <input type="checkbox"/> ADMIN - Administrative / File Review | <input type="checkbox"/> CONST - Construction Progress | <input checked="" type="checkbox"/> FUI - Follow-up Inspection |
| <input type="checkbox"/> CEI - Compliance Evaluation | <input type="checkbox"/> DAM12 - Category 1 or 2 dam | <input type="checkbox"/> INCDT - Incident response |
| <input type="checkbox"/> COMPL - Complaint Inspection | <input type="checkbox"/> DAM3 - Category 3 dam | <input type="checkbox"/> OTHER _____ |

Fold Line

Fold Line

Location / Appurtenance	Condition			Comment / Explain Concern	Violation? Check if yes	Cite 25 Pa. Code
	Insp.	OK	Concern			
Crest	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Uneven, narrow, thick vegetation / roots uneven thick vegetation large trees, thick vegetation, evidence of overtopping.</i>	<input type="checkbox"/>	
Upstream Face	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Downstream Face	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Outlet Structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Outlet Conduit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Primary Spillway	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Emergency Spillway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Spillway Channels	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Downstream Toe Area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Encroachments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Site Restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
E & S Plan on Site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
E & S Controls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Inspection	<input type="checkbox"/> DVN (De Minimus Violation)	<input type="checkbox"/> NOVIO (No significant violations noted)	<input type="checkbox"/> OUTST (Outstanding violations, notice req'd)	<input type="checkbox"/> RECUR (Recurring violations)	<input checked="" type="checkbox"/> REPAR (Repairs or upgrade required)	
Results Code:	<input type="checkbox"/> VIOIC (Viols noted and immediately corrected)	<input type="checkbox"/> VIOLS (Violation(s) noted)	<input type="checkbox"/> VOV (New and outstanding violations Noted)	<input type="checkbox"/> VRV (New and recurring violations noted)		

Violations Noted? Yes No Field Notice of Violation? Yes No Compliance Order? Yes No

Remarks: This report is a summary of the undersigned DEP representative's visual inspection only on this date, not an in-depth investigation of the dam's present condition or compliance history. The inspector's full report is available by contacting the DEP office noted above.

*This dam is in overall poor condition. Large trees have roots that pass through embankment to pool level. In area of inground swimming, embankment appears to have been modified & slope was over-steepened.
Dam requires a complete rehabilitation*

DEP Inspector was accompanied by	DEP Rep: <i>Richard Reisinger</i>	Date: <i>7/9/09</i>
<input type="checkbox"/> Owner	(signature)	
<input type="checkbox"/> Engineer for Owner or Permittee	(print name) <i>Richard Reisinger</i>	Time: <i>12:00</i>
<input type="checkbox"/> Permittee	Phone: <i>717 772 5957</i>	
<input checked="" type="checkbox"/> Other: <i>Curtis Brown Ron Measner</i>		

- White - Owner, Permittee, or Representative Yellow - Division of Dam Safety, Central Office Pink - DEP Regional File
SKR