

## FOREST LAKE DAM SPILLWAY EVENT SUMMARY

SEPTEMBER 12, 2020

- The following is a summary of the dam spillway events which have occurred so far.
- The lake level rose to approximately 3.5 ft. above the normal level as a result of the major storm which occurred on May 16th and 17th. One (1) seven ft. wide by two ft. high stop log section was removed several days prior to the storm and a second stop log was removed early in the event as an attempt to minimize lake level rise. When a stop log is removed it is virtually impossible to remove the next lower section since the lifting hooks are two feet below the fast moving water. The spillway tailwater flume was severely damaged when the lake level started rising and the outlet flow from the dam eventually exceeded the hydraulic capacity of the flume. Sections of the flume were undermined and collapsed. The culvert pipe on the north side that extended into the flume redirected flow to the south and increased the undermining action.
- Late on May 18th the two stop log sections were reinstalled in order to reduce the outlet flow rate. Two (2) additional two ft. high stop log sections were installed on May 19th to further reduce the flow.
- The Board of Directors contacted Swanson's Excavating and Green Contracting to request emergency services to stabilize the remaining flume section. Swanson's Excavating indicated that the work was beyond their capabilities but Green Contracting visited the site and contacted a consulting engineering firm, Lapham Associates, to formulate an emergency repair plan.
- The State of Michigan EGLE Dam Safety Unit issued an emergency construction permit for the proposed temporary repairs and Green Contracting started work on May 22nd. The repairs consisted of placing large rock fill on both sides of the tailwater flume and at the waterfall area to minimize further undermining action. A major crack in the concrete slab was also repaired on June 6th. The cost of the emergency repairs includes a \$700 permit fee, \$75,000 for material and labor, \$2,800 for a stockpile of heavy rip rap in case of an emergency and \$2,892 for engineering fees. (Total = \$81,392). This amount was paid from the dam maintenance fund.
- The State EGLE Dam Safety Unit and the US Army Corp. of Engineers inspected the site on May 28th and we were directed to drawdown the lake.
- On June 4th FLPOA was directed by Lapham Associates to close the road to all traffic until further notice. Initially the barricades were ignored, and signs were stolen by some individuals, but eventually we were able to close the road.
- On June 6th the Board of Directors accepted a proposal from Lapham Associates to provide engineering services for preparation of a preliminary design report. Soils investigation and topographical survey work were also included. Cost: \$35,000. This

cost will be reduced since 15 soil borings were quoted but only 10 were completed. (FLPOA has paid \$30,250 of the \$35,00 fee)

- On June 15th the Board of Directors sent a letter to the Arenac County Board of Commissioners requesting sponsorship for the USDA Natural Resources Conservation Services Emergency Watershed Protection Program. After meeting with some FLPOA Board members and USDA on June 23rd the Board of Commissioners agreed to sponsor FLPOA on June 24th. Originally the USDA had 60 days to determine if we would be awarded a grant. However, due to excessive USDA work load the deadline has been extended to October 22nd.
- Soils investigation work started on June 24th and the report was issued on July 13th.
- We received approval from Lapham Associates to re-open the dam road on July 22nd as a result of favorable results of the soils investigation.
- Preliminary design concepts and a cost estimate were submitted by Lapham Associates to the Board of Directors, USDA and the EGLE Dam Safety Unit on July 27th. The preliminary cost estimate, including engineering and emergency repairs, was \$1.3 M. The EGLE Dam Safety Units expressed some concerns regarding the proposed waterfall arrangement included in the design concept.
- The Board of Directors submitted a FEMA grant application on August 5th. The application has been approved and we were contacted on August 28th and submitted additional information per FEMA request. A grant from FEMA may be applicable to lake soil erosion damage and possibly damage to FLPOA docks. FEMA funds may be applicable to the spillway replacement if we are not awarded a grant from USDA. Both the USDA and FEMA grants cover 75% of grant eligible costs. A case manager has not been assigned by FEMA as of this date. If we are awarded a USDA grant FEMA funds can not be used to cover the FLPOA 25% share of the cost.
- Revised preliminary design concepts and a cost estimate were submitted by Lapham Associates to the Board of Directors, USDA and the EGLE dam Safety Unit on August 14th. The revised total project cost, including engineering and emergency repairs, is estimated to be in the range of \$1.4 M to \$1.6 M depending on the final scope of work. The revised design concept includes a concrete chute with a steep slope to replace the proposed waterfall in the original design concept. New slide gates for improved level and flow control will also be considered to replace the existing 7'-0" wide stop logs
- In mid August we submitted a Request for Proposal to Lapham Associates for professional engineering services associated with the spillway repair project. Services will include design of the project, preparation of contract documents, permit applications, administration of the bid process, administration of the construction contract, testing services and preparation of an Operation and Maintenance Manual for

the dam. Hydraulic modeling of the proposed spillway system will also be considered. We received a quote of \$55,000 for engineering services on September 9th.

- FLPOA solicited bids from two contractors for repair of the association rental docks that were damaged during the flood. The low bid of \$115,300 was from Hammer Tyme Construction of Bay City. The bid was accepted in late August with the stipulation that work would not start until a notice to proceed is issued by the Board. Our insurance will provide coverage for the dock repairs in the amount of \$48,625. Dock repairs are not grant eligible under the USDA grant program. However, a FEMA grant for dock repairs may be a possibility.
- The best case scenario for funding the project would be for FLPOA to be awarded a Federal grant to cover 75% of eligible costs and also receive State funding to cover some or all of the remaining 25%. However, as of this date it appears that State funding may not be provided. USDA grants do not cover any items which are deemed to be an upgrade of the original facilities. For example, the USDA has indicated that repaving of the road over the dam, or installation of new slide gates, will not be eligible. The worst case would obviously be for FLPOA to cover the entire cost. In any case, the current plan is that the FLPOA cost for the project would be covered by a low interest loan. The loan cost would be divided equally among all property owners and collected by special assessment per the By-Laws, Article VI, Section 14.
- At the present time we do not have a schedule for grant offers, completion of the design phase or start of construction. If we start the design phase, or construction, before acceptance of a USDA grant the costs incurred prior to grant acceptance will not be eligible. Currently the total project cost is estimated to be approximately \$1.77 M including emergency repairs, engineering and construction for the spillway, repair of FLPOA docks, permit fees and loan interest. At the present time lake soil erosion repair costs are not included in the estimate. Based on an estimated USDA grant amount of approximately \$926,000 and an insurance payment of approximately \$49,000 for the docks we would be responsible for approximately \$792,000. The special assessment for \$792,000 is currently estimated to be approximately \$730 per property owner. (\$146 per year over 5 years) If we do not receive a grant the assessment would be approximately \$1,584 per owner (\$317 per year over 5 years). These amounts are based on preliminary estimates and therefore are subject to change. Details of the special assessment have not been determined by the Board or reviewed by our attorney. Funding arrangements have not been finalized.
- After we have a decision from USDA, and or FEMA, the next steps will be for the Board to review and accept the proposal for engineering services, finalize the required loan amount, apply for the loan, execute a legal agreement with Arenac County for USDA

grant program sponsorship, and provide payment to Arenac County for the sponsors 25% share of the project cost.

- Final construction documents, signed and sealed by Lapham Associates, will be required for submittal to the State EGLE Dam Safety Unit in order to obtain a construction permit. Bids will be solicited from qualified contractors after the permit is issued.
- The construction contract will include requirements for the contractor to make temporary provisions to pump or redirect normal outlet flow from the dam in order to protect the new work. During a major rain event we will most likely close the dam and store water in the lake. At certain times the lake may need to be drained below winter level to provide additional storage volume and there is the possibility that the lake level could rise above the normal summer level.
- It is very likely that the lake will not be available for normal usage next summer.