Minutes
BARNET DAM COMMITTEE
December 14, 2025

The Barnet Dam Committee met virtually on November 25, 2025. The one item on the agenda was to listen to a status report from Nicole Buck, PE and Seb Strong from McFarland-Johnson. Attending the virtual meeting was George Coppenrath, Richard Downer and Red Dufresne. Meeting notes from Nicole Buck, PE, and the Slides used at the meeting (attached) are a vital part of these minutes. The following items were discussed:

1. Nicole related that she questioned the model results from the October 16, 2025 meeting so she located the old gauging station data from the facility located near the current Chote Farm. This station was only in use between 1939-1945 but captured a couple of 2-yr events based on other longer term gage analyses. The data from the former gauging station substantiated the estimated flow data used by Interfluve which confirmed the use of the interfluve estimated storm flows.
2. Red questioned why the flow hydrology was checked as the scope called for using the Interfluve data directly. Nicole indicated that it made sense to check input data to ensure the results were accurate especially after the results were disappointing after our October 16, 2025, meeting. At any rate the check indicated that the Interfluve storm flow data was accurate and is being used in the analysis.
3. Nicole showed an aerial map with the survey data showing the dam location and the dam committee members questioned the eastern portion of the dam extending under the current machine shop. This issue was not resolved, and the issue does not affect the hydrology results.
4. Nicole reported that the July 10/11, 2024 flood was reported by USGS to be somewhere between a 200 year and a 500-year event and rainfall amounts were reported to be 5” in 9 hours.
5. Richard mentioned how disappointed he was when the Harvey Mountain Road was repaved and was not first regraded to ensure water was directed toward the dam and away from the beach as he had advocated.
6. We discussed remote sensing locations and the Dam Committee and Nicole felt that effective control could be achieved by one location at the Harvey Mountain Bridge but members felt that water level monitoring at Harvey Mountain Bridge at South Peacham Brook, Lake level at our near the outlet stream on the north shore, and at the upstream side of the dam should be included.
7. Nicole presented the results in graphical form showing model runs for the 25-year storm event. These runs all included removal of the silt in the area upstream of the dam for about 200 feet to lower the bed elevation to slightly less than the dam cut elevation. In addition, regrading of the eastern area downstream of the dam was simulated in the model for these alternatives. The runs are briefly described as follows:
    a. The existing dam condition
    b. The existing dam with a 10-foot deep 5 feet wide sluice gate open.
    c. The existing dam with a 10-foot deep 5 feet wide sluice gate open and 70 feet of crest lowered by 3 feet using a fully deflated bladder

8. Surprisingly, there was not much difference in lake level rise due to backflow between runs b and c indicating the sluice gate is much more efficient in passing high flow than the 70-foot bladder up to the 25 year storm event. Red asked if we should model two sluice gates. There was discussion on whether the State would approve bottom-up sluice gates and step one would be to formally ask the state if this alternative was approvable. Dam committee members felt strongly that there must be some accommodation to solve this issue as it is the only dam with such a situation in Vermont and every year that goes by doing nothing further degrades lake water quality. There was even discussion about returning to the alternative of breaching the dam and building a new dam at the edge of the lake at the start of the outlet stream.
9. Nicole pointed out that since this is a low hazard dam, the criteria for dam safety require the dam to safely pass a 100-year flood. She also noted that any improvements to be undertaken at the dam would include any necessary measures to comply with all state regulations. Nicole presented the results of hydrology showing the ability of the existing and modified dam to pass a 100-year flood event. There are two criteria that must be met for a dam to be considered adequate under the regulations. These criteria include:
    a. A Must maintain at least 1.5 feet of freeboard between the upstream surface at the dam and the non-overflow portions of the dam
    b. B Must maintain at least 3 feet of freeboard from the water surface elevation to the lowest non-overflow part of the dam at normal lake level.

    The results show that the existing dam does not meet either criterion. In addition, alternative “b” or “c” singularly does not meet these conditions. If the dam was modified to meet these conditions all the items in alternative c would be required plus we would have to increase the height of the non-overflow walls by about 1 foot. The model also showed that the downstream effects for the three simulations were negligible (+- 3”).
10. The run “c” described above still showed backflow into Lake Harvey and a lake rise of 0.7 feet which seemed acceptable give past storm events. But the backflow issue was of concern. This was most discouraging to the group and there was much discussion on options. The dam committee members felt that if we could not prevent backflow during a 25-year storm, alternative c would not be a success.
11. There was much discussion of the alluvial fan that had been created over the past 50 years since the dam was constructed which as resulted in extensive deposition of silt in the area upstream of the dam. This area includes the land east of the Harvey Mountain Road Bridge (HMR bridge) and west to the outlet channel from the lake and north to the beach. This deposition has resulted in the south Peacham brook outlet channel being so shallow, even minor storm events overtop the stream banks. In addition, with a restricted channel from the HMR bridge, the flow short circuits to the southern end of the outlet channel (northeastern shore of the lake) and enters directly into the lake. There was discussion on the alternative of dredging and straightening the channel was discussed and would require approval from Vermont DEC. Nicole has provided the contact information for the River Management Engineer in her meeting notes.

12. Nicole asked what normal lake level was and indicated she was using 892.43 feet (NAVD83). Red had been monitoring lake level and rainfall between July 23 and October 11, 2025, but due to the drought, the results show an average lake level lower than normal. For reference, the dam crest ranges from 892.03 (west) to 892.71 (east). Based on the dam crest elevation, the average lake level of 892.4 seems representative. Perhaps longer-term data will show a normal level between 892.2 and 892.4 feet. The HLA is hoping to purchase automatic data recording system for lake level monitoring and rainfall amounts for installation in the Spring of 2026.
13. We discussed historical events and Richard indicated that during the July 2024 flood, the water was above his dock which is usually 3-feet above the normal water level. Red indicated he had marked the high water at his camp and then had Philo Marcott obtain the actual elevation using a GPS survey grade unit. The high-water mark for the lake during the July 2024 flood was at elevation 895.05 feet. Philo Marcott also obtained the high-water mark at the dam on the brass plaque and found it to be at elevation 897.8 feet or a lake level rise of 2.75 feet. For reference, the lake level on the date of the elevation check (October 1, 2024) was 892.2 feet and may have been higher on July 11, 2024 at the start of the flood.
14. Based on the results of the hydrology, it became clear that we needed to obtain input from the state on the use of bottom-up sluice gates prior to proceeding. Red offered to draft an email to send to the Dam Committee for editing and then to Nicole for final editing for Nicole to send to Ben Green, PE at the Dam Safety Program to get the States disposition on approval of a sluice gate to pass high flow events. There was general agreement that if the state did not allow sluice gates to be used, this alternative of dam modification was not suitable.
15. There was general discussion with dam committee members after Nicole and Seb left, that if the sluice gate concept was not approvable, there is little chance this project would succeed. The concept of a dam at the southern start of the outlet channel was not approved, and if we can better reduce backflow with this alternative, there seems little hope for a feasible solution.