The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Robert R. Scott, Commissioner

Town of Alstead
Vilas Pool Committee
P.O. Box 60
Alstead, NH 03602-0060

September 6, 2018
Letter of Deficiency
DSP #18-039

RE: Vilas Pool Dam #D005006, Alstead

Dear Dam Owner:

The New Hampshire Department of Environmental Services, Dam Bureau (NHDES) is responsible for ensuring the safety of dams in New Hampshire through its dam safety program. In accordance with RSA 482:12 and Env-Wr 302.02, an inspection of the subject dam was conducted on July 17, 2017. Based upon the results of that inspection, NHDES is issuing this Letter of Deficiency (LOD) to advise you that it believes the following deficiencies can be remedied in accordance with the deadlines indicated:

On a continuing basis:

1. The crack running through the left abutment (located approximately 8 ft. left of the spillway). This crack was measured as having a ¾" displacement. NHDES recommends installing pins to measure any movement/displacement. Notify the Dam Safety Office if any changes occur. (See photos A, B and C).

By November 1, 2018:

2. Review the accuracy of the Operation, Maintenance and Response (OMR) form for your dam (and update it with modifications) and return it to NHDES. A blank version of the form may be found at the following link http://des.nh.gov/organization/divisions/water/dam/index.htm under the Technical Assistance heading.

By June 1, 2019:

3. **Previously extended to December 1, 2012,** cut all trees, brush and weedy growth from the footprint (concrete structure) of the dam and 15 ft. beyond the footprint of the dam to prevent damage to the dam from root penetration, blow down of the trees and to create a buffer zone to monitor the dam for seepage and other maintenance concerns. Stumps can remain if cut flush with the adjacent ground. Trees on this site founded on ledge still present a hazard to the dam if toppled during a storm event and potentially cause blockage to the dam's spillway. Areas to clear include:
    a. The pine trees directly downstream of the left concrete wall. (See photos D, E and F).

By October 1, 2019:

4. **Previously extended to September 1, 2012,** submit to the Dam Bureau Office an update to your Emergency Action Plan (EAP), the last update was completed September 21, 2004. This should include an updated Inundation Map using a recent aerial photograph with the inundation area superimposed over it. **A draft was submitted to NHDES on November 30, 2011 and NHDES provided comments on January 12, 2012.**

By January 1, 2020:

5. **Previously extended to September 1, 2012,** complete a valid phone test of your EAP notification flow chart. The last test was completed August 3, 2004.

By June 1, 2020:

6. Engage the services of a consultant qualified** in dam-related work to complete an engineering evaluation or analysis of, at a minimum, the items noted below and submit a report to NHDES. The report should include all investigation findings and include recommendations and a schedule for repair, as warranted, to make the dam compliant with the current standards for significant hazard dams.
    a. Confirm Root Engineering's 5,600 cfs flow and discharge at the dam during the 100 year rain event and then address the issue of NH Route 123A being over topped as a result of these flows. In October 2013, NHDES received a Hydrology & Hydraulic Report from Headwaters Hydrology addressing this topic. NHDES provided comments on the report that were never addressed.
    b. The inoperability of the low level gate. Provide comments on this task as it appears that this was performed a few years ago without any documentation.
    c. The structural cracking and deterioration of concrete on the entire dam structure including, but not limited to, the following areas;
        i. The ¾" wide crack running through the left concrete abutment wall. (See photos A, B and C);
        ii. Right side upstream face of the abutment and wing. (See photos G and H);
        iii. Left upstream training wall. (See photos I and J);
        iv. Right side downstream face of the abutment; and
        v. The upstream and downstream faces of the dam.
    d. Determine if the dam has the discharge capacity to safely pass the 100-year flood inflow or site specific inflow (Env-Wr 303.11 (a)(2) and conceptual alternatives for reconstruction.

** **Review NHDES Dam Safety rule Env-Wr 403.03(a)(1), pertains to qualifications engineers must meet to enable them to work on dams in NH.**

In lieu of completing item 6 above and as discussed in previous Letter of Deficiencies, removal of the dam is an alternative that may be warranted. If this is still a consideration, please contact Bill Thomas, NHDES River Restoration Coordinator at 271-8870 or email him at: william.thomas@des.nh.gov for further information on dam removal.

NHDES did not complete an assessment of either the hydrology of the contributing watershed or the hydraulic capacity of your dam as part of the most recent inspection. Further, no effort was made to review the areas downstream of the dam in order to reassess the dam's current hazard classification. These analyses are performed less frequently, but will be conducted as part of a future inspection of your dam. The findings related to these more detailed analyses could result in the need to complete additional and/or more extensive repairs than those identified above. Should you consider performing modifications to spillways or other outlet works, or work that otherwise meets the definition of "reconstruction" (see below), then a more in-depth analysis of the dam related to its watershed, structural characteristics and hazard classification must be completed to assure that modifications are made that meet the design requirements consistent with an up to date hazard assessment.

RSA 482:2X. "Reconstruction" means:
(a) A change in the height, length, or discharge capacity of the structure;
(b) Restoring a breached dam or one in ruins;
(c) Modification of flashboards which either increases their height or increases the headwater elevation at which the flashboards will fail; or
(d) A change in the structural configuration of a dam

Your dam is classified as a Significant hazard structure and is subject to the requirement of having an EAP on file with NHDES and other local and state response agencies, so please insure that it is reviewed, updated and tested in accordance with Env-Wr 507.01 and 507.02. Our records indicate that the EAP was last reviewed and updated by you on September 21, 2004 and tested on August 3, 2004. Please visit NHDES's website at the following link to access the complete set of administrative rules related to EAPs, as well as to view the current template and other EAP guidance: **http://des.nh.gov/organization/divisions/water/dam/eap/index.htm**

Please note that under New Hampshire's state statute RSA 482:89, NHDES may commence proceedings to levy fines of up to $2,000 per violation per day against a dam owner who does not respond within 45 days of receipt of a written order, directive, or any notice of needed maintenance, repair, or reconstruction issued by NHDES. To avoid proceedings under this provision, you **must respond** to this LOD. If you fail to return this form within 45 days or fail to otherwise respond in writing within 45 days indicating your intent to remedy the identified deficiencies, you will not have the benefit of the compliance deadlines indicated on the form and NHDES will commence a proceeding under RSA 482:89 to seek administrative fines for the identified deficiencies. Please note that responding as required does not preclude NHDES from pursuing other appropriate action for the identified deficiencies, in accordance with NHDES Compliance Assurance Response Policy, available on-line at http://des.nh.gov/organization/commissioner/legal/carp/index.htm.

We believe the easiest way to respond is to sign and return the attached "Intent to Complete Repairs" form, either agreeing to correct the identified deficiencies by the dates indicated OR by proposing amendments to the listed work items or dates, which you may do by writing directly on the form. NHDES will evaluate and respond to any reasonable requests for proposed amendments in a timely manner. We have enclosed a self-addressed stamped envelope for you to return this form. You may also scan and e-mail the completed form to damsafety@des.nh.gov or fax it to (603) 271-6120.

Our intent in issuing this LOD is to make you aware of items that require your attention to ensure the continued safe operation of your dam. It is our hope that, through the return of the attached form and correction of the identified deficiencies, you will develop and maintain a commitment to keeping a safe and well-maintained dam.

If you have any questions or comments regarding this LOD or would like to be present at future inspections, please contact Charlie Krautmann, PE, PG at 271-4130 or me at 271-3406 or write to the address for the Water Division listed on the bottom of the cover page.

Sincerely,

Steve N. Doyon, PE, Administrator
Dam Safety & Inspection Section

Attachments: Photos, Copy of 2011 OMR, Blank OMR form, DB8, DB13
cc: NHDES Legal Unit
Town of Alstead
Certified #7016 1970 0000 4865 8031
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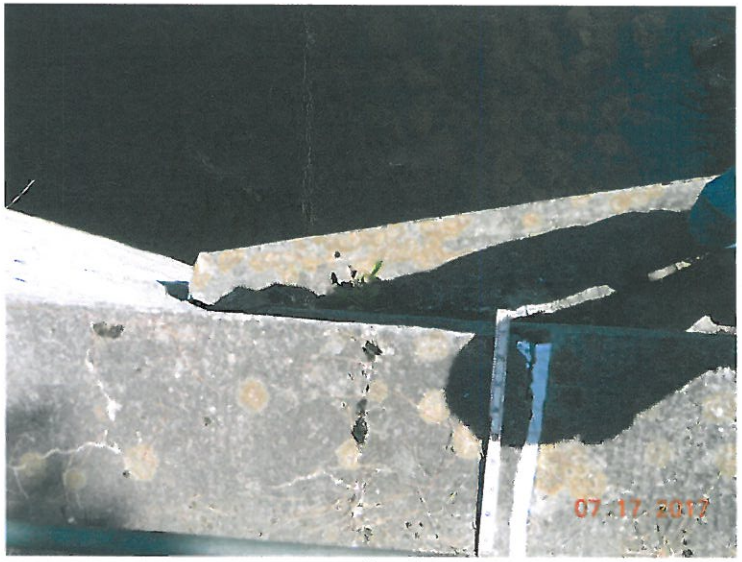
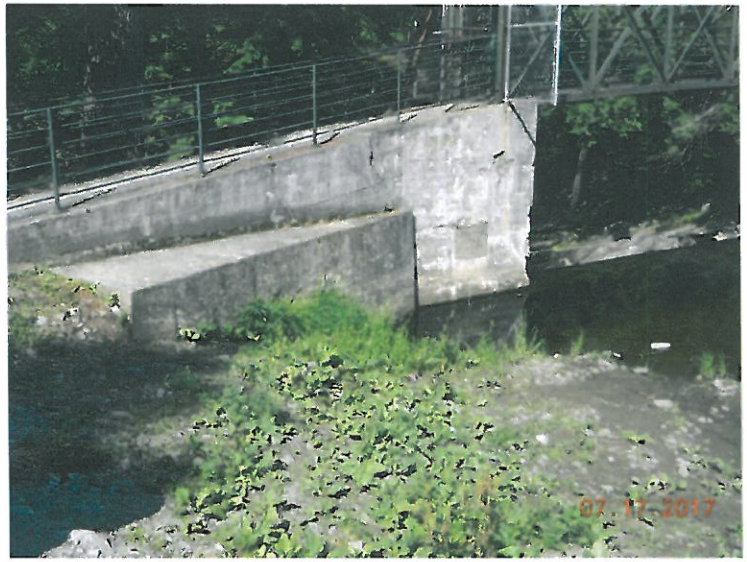
Dam #D005006, Vilas Pool Dam, Alstead, Inspected on 07/17/17

A



B



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Dam #D005006, Vilas Pool Dam, Alstead, Inspected on 07/17/17

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