



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Robert R. Scott, Commissioner

December 13, 2021

Mr. Neal Cass, Town Administrator
Town of Hopkinton
330 Main Street
Hopkinton, NH 03229

RE: Unregistered Dams at Hopkinton/Webster Transfer Station

Dear Mr. Cass:

The New Hampshire Department of Environmental Services (NHDES), Dam Bureau is responsible for ensuring the safety of dams in New Hampshire through its dam safety program. In response to discussions with staff from NHDES's Waste Management Bureau suggesting that one or more of the lagoons may have perimeter berms that qualify as jurisdictional dams in accordance with RSA 482:2, an inspection of the subject site was conducted on October 6, 2021.

RSA 482:2II. (a) "Dam" means any artificial barrier, including appurtenant works, which impounds or diverts water and which has a height of 6 feet or more, or is located at the outlet of a great pond. A roadway culvert shall not be considered a dam if its invert is at the natural bed of the water course, it has adequate discharge capacity, and it does not impound water under normal circumstances. Artificial barriers which create surface impoundments for liquid industrial or liquid commercial wastes, septage, or sewage, regardless of height or storage capacity, shall be considered dams. (b) An artificial barrier at a storm water detention basin, which impounds 0.5 acre-foot or less of water during normal conditions, shall not be considered a dam unless its height is 10 feet or greater or its maximum storage is 6 acre-feet or greater.

Based upon the results of the October 6, 2021 inspection, NHDES has determined that in its present configuration, the Hopkinton/Webster Transfer Station facility includes three separate and distinct jurisdictional dams as identified on the attached aerial image of the property. Therefore, you are required to submit an Application to Register an Existing Dam for each dam in accordance with the requirements of RSA 482:5. Other applicable statutes and rules have been reproduced below, as well as NHDES Dam Bureau's findings relative to present hazard classification and a preliminary condition assessment of each.

RSA 482:5 Non-permitted Existing Dams. – Upon written notice from the department, the owner of a non-permitted existing dam shall submit an application for a permit for said dam to the department along with a fee based on the classification of the dam under RSA 482:9. The application shall provide such information as the department may require to determine whether or not the dam is a menace to the public safety. Following a review of the permit application, the department may issue a permit to the owner with necessary conditions for the repair or reconstruction of the dam which the department deems necessary for the public safety. Such repair work shall be undertaken within a time period fixed by the department.

As indicated in RSA 482:5, any permits issued may include requirements for repair and/or reconstruction. It should be noted that each of the three structures identified has significant deficiencies and do not meet current dam safety standards. Some of the more significant issues include;

- Embankment slopes steeper than 2.5H:1V were observed that show signs of instability, including the interior embankments of cell #2 (Photo 27), downstream eastern embankment of cell#2 (Photo 33), and interior embankment of cell#4 (Photo 39). Per Env-Wr 403.02(a) embankment slopes shall be no steeper than 2.5H:1V unless a specific design and/or analysis indicates that steeper slopes are stable and are capable of being safely maintained;
- Inconsistent embankment crest elevations and widths. Per Env-Wr 403.03(b) the embankment top crest width shall be greater than 6'. During the 2021 inspection NHDES noted that the embankments have rounded tops and do not have consistent (at least 6' wide) crest widths (Photo 4); and
- NHDES encourages dam owners to cut all trees, brush and weedy growth from the footprint of the dam and 15' 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. During the 2021 inspection, NHDES observed the embankments to be surfaced with a well-established but poorly maintained grass cover, as well as some established trees adjacent to the downstream toes of the embankments.

It will be necessary to address these items, as well as others, as part of the permitting process. Further, some tasks may require the assistance and expertise of an engineering consultant qualified in dams and related work.

Hazard Classification: One Significant Hazard Structure and Two Low Hazard Structures based on present configuration:

Based on approximate field measurement and use of the NH Granit 2015 Connecticut River Watershed LiDAR, it is estimated that a single jurisdictional dam encompassing the perimeter of cells #1 and #2 has a maximum (combined) storage volume of greater than 2 acre-feet, and therefore shall be classified as a Significant Hazard Potential Dam in accordance with Env-Wr 101.39, and the jurisdictional dams that encompass cell #4 and cell #5, respectively, have a maximum storage volume of less than 2 acre-feet and shall be considered Low Hazard Potential Dams in accordance with Env-Wr 101.25. Neither cells #4 or #5 have a surface water body/course within 250 feet, so this does not impact the hazard classifications. In its current configuration, cell #3 does not meet the definition of a dam, but and plan to modify cell #3 (if applicable) should be reviewed by the Dam Bureau.

Env-Wr 101.25 “Low hazard structure” means a dam that has a low hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in any of the following:
(d) The release of liquid industrial, agricultural, or commercial wastes, septage, or contaminated sediment if the storage capacity is less than 2 acre-feet and is located more than 250 feet from a water body or water course.

Env-Wr 101.39 “Significant hazard structure” means a dam that has a significant hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in any of the following:

- (d) Major environmental or public health losses, including:
- (2) The release of liquid industrial, agricultural, or commercial wastes, septage, or contaminated sediment if the storage capacity is 2 acre-feet or more.

Condition Assessment Rating (all three structures): Poor

During the 2021 inspection NHDES Dam Bureau observed significant deficiencies of a structural, and maintenance nature that could impact the safe operation of the dams. This includes the following:

- The embankments of the lagoons were observed to be steeper than 2.5H:1V, of inconsistent crest width and elevation, and showed some signs of surface sloughing/instability; and
- Vegetative growth on and adjacent to the lagoons has been poorly maintained.

Please submit the applications referenced above by February 1, 2022. The Application to Register an Existing Dam form may be found on the Dam Bureau's web site (<https://www.des.nh.gov/water/dam-maintenance-and-management>) under the Dam Permitting and Forms tab located approximately half way down the page. If you have any questions or comments, please contact Jonny Findon-Henry at (603) 271-7507 or me at (603) 271-3406. You may also contact us via email at jonathan.d.findon-henry@des.nh.gov or steve.n.doyon@des.nh.gov. Regular mail may be sent to the Water Division at the address listed on the bottom of the cover page.

Sincerely,



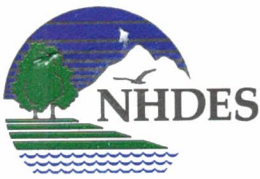
Steve N. Doyon, P.E.
Chief Dam Safety Engineer
Dam Safety & Inspection Section

Certified Mail 7017 3040 0000 7493 4445

enclosures: 2021 Inspection Photos, Field Sketch, Blank OMR form

cc: Judith Sears Houston, WWEB – Residuals Management Section

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The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Robert R. Scott, Commissioner

December 13, 2021

Mr. Neal Cass, Town Administrator
Town of Hopkinton
330 Main Street
Hopkinton, NH 03229

RE: **Request for Action:** Transfer Station Lagoons Dam, D121038, Hopkinton

Dear Mr. Cass:

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 dams was conducted on October 6, 2021. Three independent jurisdictional dams, including one significant hazard dam and two low hazard dams, exist on the property. Based upon the results of the inspections, NHDES is issuing this Request for Action to advise you of the observations and related recommendations made by our dam safety engineer.

You should implement the following recommendations, as they are aimed at improving the condition and longevity of the dam and ensuring that it meets New Hampshire's current dam safety standards. We've suggested dates by which the items could be completed; however, these are provided as a guide and you should schedule activities as your resources allow. If the condition of the dam has changed since the inspection, or if you have any other questions related to the dam, please contact the dam safety engineer named at the close of this letter.

Suggested completion March 1, 2022:

1. Provide NHDES with an Operation, Maintenance and Response (OMR) form for each dam. The form should include all pertinent dam and contact information, as well as describe the type and frequency of the maintenance and monitoring items that routinely occur at the dam. A blank form may be found at: <https://www.des.nh.gov/water/dam-maintenance-and-management>. Scroll down and select the Dam Permitting and Forms tab and then the Find Permit Applications box.
2. Engage the services of an engineering consultant qualified in accordance with Env-Wr 403.03 to complete a detailed inspection of the dams and develop design solutions to make the dams compliant with current NHDES Dam Bureau Administrative rules. A summary report should be provided to NHDES. NHDES anticipates that, at a minimum, the following items will be included in the scope; though others may be required based on the findings of this detailed inspection:
 - a. The in-situ geotechnical composition of the earthen embankment is unknown and, as such, it is unclear whether or not the material is suitable for use within the lagoon embankments. It is recommended that you commission a geotechnical subsurface exploration program and laboratory program to evaluate the in-situ shear strength parameters associated with the existing embankments;
 - b. Per Env-Wr 403.02(a) embankment slopes shall be no steeper than 2.5H:1V unless a specific design and/or analysis indicates that steeper slopes are stable and are capable of being safely maintained. Furthermore, some areas of instability were observed during the

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(603) 271-3503 • Fax: (603) 271-6120 • TDD Access: Relay NH 1-800-735-2964

- October 6, 2021 inspection, including on the downstream eastern embankment of cell#2 (Photo 33), and interior embankment of cell#4 (Photo 39). Please submit design options intended to achieve compliance relative to Env-Wr 403.02(a); and
- c. Per Env-Wr 403.03(b) the embankment top crest width shall be greater than 6'. During the 2021 inspection NHDES noted that the embankments have rounded tops and do not have consistent (at least 6' wide) crest widths (Photo 4). Please submit design options intended to achieve compliance relative to Env-Wr 403.02(b).
3. NHDES encourages dam owners to cut all trees, brush and weedy growth from the footprint of the dam and 15' 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. During the 2021 inspection, NHDES observed the embankments to be surfaced with a well-established but poorly maintained grass cover. The embankments were generally free from trees; however, some trees were observed adjacent to cells #4 and 5, and one is located adjacent to the common embankment between cells #1 and 2.

On a continual basis:

4. Continue to monitor and evaluate the condition of each dam and complete maintenance as required.
5. Seepage through the dams was not observed during the 2021 inspection. It is recommended that you make regular seepage inspections along the downstream slopes and toes of each dam. In the event that seepage or leakage is observed, please contact NHDES Dam Bureau to discuss.

Hazard Classification: One Significant Hazard Structure and Two Low Hazard Structures based on present configuration:

Based on approximate field measurement and use of the NH Granit 2015 Connecticut River Watershed LiDAR, it is estimated that a single jurisdictional dam encompassing the perimeter of cells #1 and #2 has a maximum (combined) storage volume of greater than 2 acre-feet, and therefore shall be classified as a Significant Hazard Potential Dam in accordance with Env-Wr 101.39, and the jurisdictional dams that encompass cell #4 and cell #5, respectively, have a maximum storage volume of less than 2 acre-feet and shall be considered Low Hazard Potential Dams in accordance with Env-Wr 101.25. Neither cells #4 or #5 have a surface water body/course within 250 feet, so this does not impact the hazard classifications. In its current configuration, cell #3 does not meet the definition of a dam, but and plan to modify cell #3 (if applicable) should be reviewed by the Dam Bureau.

Condition Assessment Rating: Poor

During the 2021 inspection NHDES Dam Bureau observed significant deficiencies of a structural, and maintenance nature that could impact the safe operation of the dams. This includes the following:

- The embankments of the lagoons were observed to be steeper than 2.5H:1V, of inconsistent crest width and elevation, and showed some signs of surface sloughing/instability; and
- Vegetative growth on and adjacent to the lagoons has been poorly maintained.

Under the criteria NHDES uses to rate the condition of a dam, a dam with a Poor condition assessment rating is one with types and/or quantities of deficiencies that are considered significant and/or that affect the safe operation of the dam. These may include, but may not be limited to, such things as insufficient discharge capacity (w/o manual operations) to pass the assigned design storm event without overtopping, new or developing structural deficiencies that are deemed to require timely evaluation by a

qualified engineering consultant, significant seepage/leakage issues that are both as yet uninvestigated and/or other indications that suggest a direct detrimental relationship to some structural component of the dam or overall dam stability.

Should you consider performing modifications to your structures, regardless if such recommendations are included above, then a more in-depth analysis should be completed to ensure that any modifications proposed meet the design requirements consistent with current dam safety regulations. In addition, should you consider performing work that otherwise meets the definition of "reconstruction" (see below), please contact the Dam Bureau for guidance.

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

You are urged to implement the recommendations listed above by the dates suggested or another schedule that aligns with your resources, and to commit to regular maintenance and monitoring of your dams. Additional information specific to dams and dam-related topics may be viewed at the NHDES website (des.nh.gov) by selecting the Water then Dams links.

If you have any questions or comments, please contact Jonny Findon-Henry at (603) 271-7507 or me at (603) 271-3406. You may also contact us via email at jonathan.d.findon-henry@des.nh.gov or steve.n.doyon@des.nh.gov. Regular mail may be sent to the Water Division at the address listed on the bottom of the cover page.

Sincerely,



Steve N. Doyon, PE
Chief Dam Safety Engineer
Dam Safety & Inspection Section



Operation, Maintenance and Response Form (OMR)

Water Division, Dam Bureau



RSA/Rule: Env-Wr 303.05

For information or questions, please contact the dam owner using the information below or the New Hampshire Department of Environmental Services, Dam Bureau at (603) 271-3406.

Dam Name and Location

Completed on:

Dam Name:	Dam# and Hazard Classification:
City/Town:	Downstream watercourse:

Dam Owner

Emergency Contact (Dam incidents or flooding)

Name:	Name:
Address:	Address:
Telephone #: Cell #:	Telephone #: Cell #:
Email:	Email:

Alternate Emergency Contact

Name:	Telephone #:
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Dam Information

Height (ft):	Length (ft):	Pond size (ac):	Drainage Area (sq mi):
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Outlet Works – Include specific information on each (sizes, dimensions, inverts, etc.)

Spillway (s):	Other:
Gate (s):	Other:
Stoplog Bay (s):	Other:

Downstream reach – Describe downstream roadways, dams, bridges or properties that may be in danger of flooding due to dam failure or dam operations. Include the flow rates at which these are impacted as well as minimum flow requirements.

Operations and Maintenance Information - Normal Reservoir Management Procedures

Describe specific operations made and reference dam features or elevations

Summer:		
Fall:		
Winter:		
Spring:		
Fall drawdown: Y or N	When does it begin:	Depth below normal level:

Normal Inspection, Maintenance and Monitoring Procedures - Types of maintenance and frequency

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Incident Management and Response Information - Flood or Dam Incident Response Procedure

Describe monitoring frequencies, operational protocols and notification of local emergency response officials and affected downstream parties.

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List the names and information of officials and downstream parties who may be impacted by failure or releases from the dam.

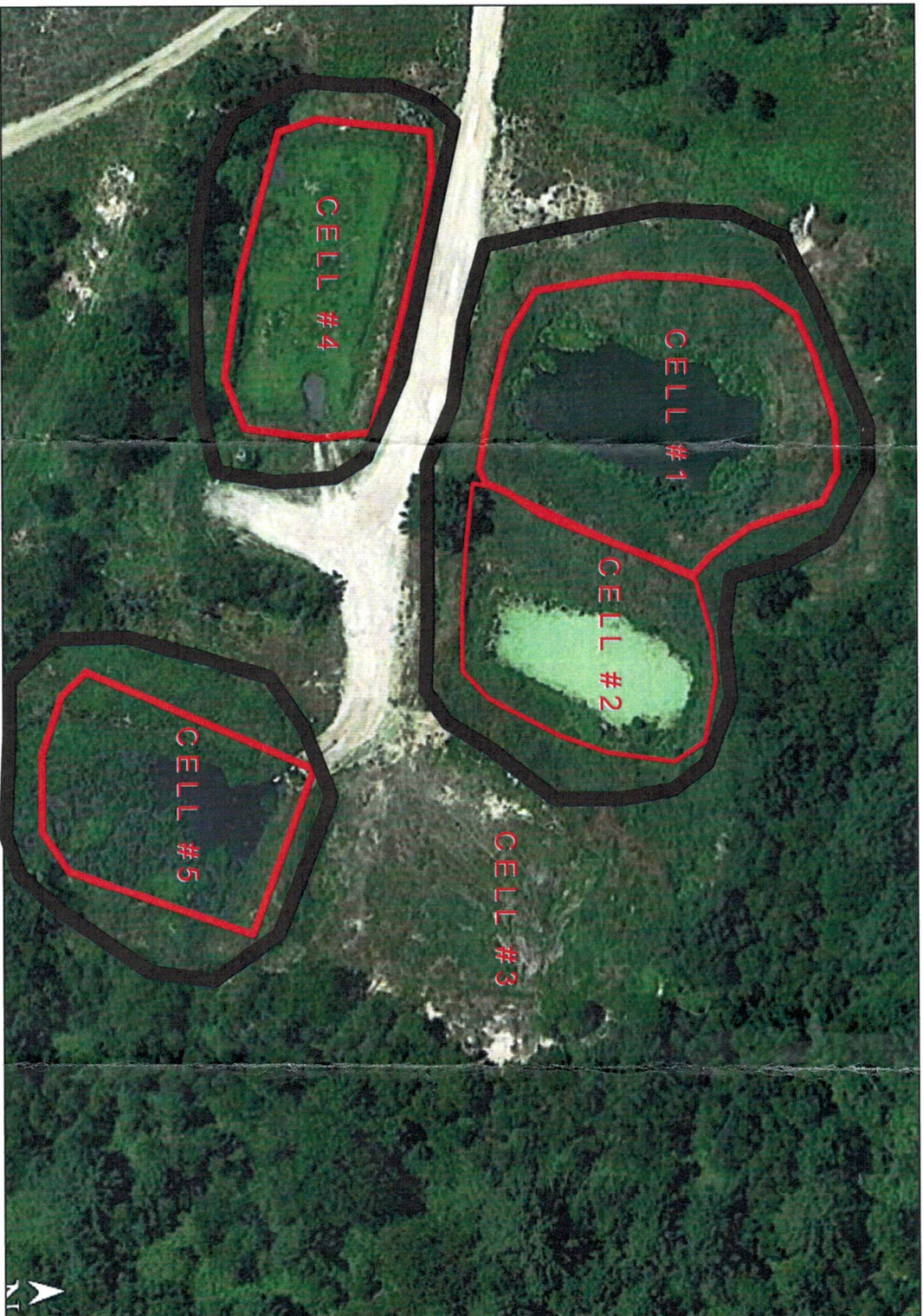
Contact	Contact
Name:	Name:
Address:	Address:
Telephone #: Cell #:	Telephone #: Cell #:
Email:	Email:

Contact	Contact
Name:	Name:
Address:	Address:
Telephone #: Cell #:	Telephone #: Cell #:
Email:	Email:

Attach extra sheets with any important supplemental information needed by the response officials or NHDES. This form is a quick reference guide and not intended to replace the Emergency Action Plan (EAP), if one exists.

Please send completed forms to:
NHDES Dams Bureau, PO BOX 95, Concord, NH 03302-0095 – or damsafety@des.nh.gov

damsafety@des.nh.gov (603) 271-3406;
PO Box 95, Concord NH 03302-0095
des.nh.gov



HOPKINTON/WEBSTER TRANSFER STATION LAGOONS
 AERIAL PHOTO DATE JULY 2019
 FIELD VISIT DATE SEPTEMBER 6, 2021
 LOCATION PLAN



NOTES:
 1. THE RED LINES INDICATE THE APPROXIMATE EMBANKMENT ALIGNMENTS OBSERVED ON SEPTEMBER 6, 2021.
 2. CELL #3 WAS NOT OBSERVED TO HAVE SURROUNDING EMBANKMENTS AT THE TIME OF INSPECTION.
 3. THE BLACK LINE DELINEATES THE APPROXIMATE JURISDICTIONAL LIMITS OF EACH DAM



750 Feet

D121038, Transfer Station Lagoons Dam, Hopkinton: Inspected October 6, 2021



(4)



(13)



(27)



(33)

D121038, Transfer Station Lagoons Dam, Hopkinton: Inspected October 6, 2021



(39)



(42)