VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
BUSINESS & OPERATIONAL SUPPORT SERVICES

APPLICATION FOR INDIVIDUAL SECTION
401 WATER QUALITY CERTIFICATION

Vermont Water Pollution Control Permit Regulation 10 VSA. 1258(6) Section 13.11 (b)

For DEC Staff Use Only

Date of Receipt: _____ Certification number: _____

A. Pre-application Meeting: Have you had your meeting yet? The Department of Environmental Conservation strongly encourages applicants to schedule and attend a pre-application meeting with affected programs prior to submitting an application.

Yes, the meeting was held on 9/6/2019 with DEC staff Jeff Crocker

If you need to schedule a meeting, please call or email Laura Woods at 802-490-6100 Laura.Woods@vermont.gov.

B. Applicant Contact Information

1. Name: Jeremy Whalen		
2. Mailing Address: VFWD-Roxbury Fish Culture Station, 3696 Roxbury Rd		
3. Town: Roxbury	**4. State:** VT	**5. Zip:** 05669
6. Phone: 802-485-7568	**7. Email:** jeremy.whalen@vermont.gov	

C. Representative: Consultant, engineer, or other representative that is responsible for filling out this application, if other than the applicant.

1. Name: Pete McHugh		
2. Mailing Address: VFWD, 1 National Life Drive, Davis 2		
3. Town: Montpelier	**4. State:** VT	**5. Zip:** 05620
6. Phone: 802-622-4305	**7. Email:** peter.mchugh@vermont.gov	

D. Landowner: If the applicant is not the landowner, please provide a list of all landowners owning property that is part of the project site

1. Name: Commissioner Louis Porter		
2. Mailing Address: VFWD, 1 National Life Drive, Davis 2		
3. Town: Montpelier	**4. State:** VT	**5. Zip:** 05620
6. Phone: 802-828-1454	**7. Email:** louis.porter@vermont.gov	

E. 1. Resource Proposed for Alteration:

☐ Wetlands ☑ Stream / Rivers ☐ Lake / Pond / Reservoir

Name of Resource(s) (Please use consistent ID#s throughout the application for identification of unnamed resources.

Flint Brook

_____

_____

E. 2. Type(s) of Proposed Alteration(s):

☐ Stream / River Crossing
☑ Intake / Outfall Structure
☐ Wetland Fill / Excavation
☐ Launch Ramp
☐ Impoundment
☐ Other:_____
☐ Utility Line or Linear Transportation Project
☐ Stream or Wetland Restoration
☐ Dredging
☐ Bank Stabilization

F. Project Details

1. Project/Site Name: Roxbury Fish Culture Station Intake

2. Address:	Please follow this link to the ANR Atlas Map	
3. Town/County: Roxbury/Washington	**4. Longitude:** -72.747839	**5. Latitude:** 44.068177

6. Compass Directions & Road(s): Compass direction of the project in relation to the road(s) or nearest intersection. Name the road(s) that the project is located on

On Flint Brook across the road from 128 Oxbow Rd, Roxbury, VT

7.Geographic Features: Identify any distinguishing geographic features near project location site

The project is located on Flint Brook near the end of a narrow gorge descending from the mountains, ~0.25 miles upstream from its confluence with the Third Branch of the White River.

8.Project Description Summary: Give a short narrative summary describing what the project is

This project involves intake improvements on the dam structure located on Flint brook. The intake provides water to the Roxbury Fish Culture Station for fish rearing.

9. Project Description Details: Give a detailed narrative description of the project, including phasing and a list of specific project components

The project involves adding a hydra screen box to the face of the intake. This box is a metal box with a 500 micron screen at a 45 degree angle that allows water through but screens out larger solids. The project also involves decommissioning the historic intake and notching the top of the dam to direct flow to the box (mounted on the down stream side of the channel). There will also be two wing walls or curbing added to direct flow over the box to maintain a head pressure for proper operation. This head pressure reduces air lock in the box. The materials added as fill onto the existing dam include concrete (wing walls/curbing) and the metal hydra box with associated piping; and sand bags as temporary fill to divert water during construction. This project is 100% complete.

10. Project Purpose:

The VFWD has been developing and implementing 'disease spread prevention systems' to minimize the inadvertent spread of fish diseases from fishery management activities, including the rearing and stocking of cultured fish. Surface water supplies should be treated in order to remove pathogens that can infect cultured fish that are used for brood stock and stocking public waters throughout Vermont. Adding a 500 micron reduces the potential for wild fish to enter the facility through the intake, which staff note has historically occurred (e.g., sculpin and other species in the upper ponds) and presents a disease risk to fish reared in the facility for eventual transport to other watersheds.

11. Project acres:	**12. Site slope percent:** (Please provide the maximum slope percent. For linear projects, please provide the minimum and maximum slope percentage across the project)	**13. Total disturbed area associated with the project:**
N/A (<<1)	N/A (project is at dam with 0 slope) %	57.8 cubic feet

14. Physical description of project area:

The Flint Brook diversion site is in Roxbury, approximately 1000 ft above sea level, one quarter mile upstream from the brook's confluence with the Third Branch of the White River. The 4.4 mi^2 watershed upstream of the diversion dam is mountainous, reaching nearly 3100 ft in elevation, and largely undeveloped (96% forest). The diversion structure sits at a significant geomorphic transition, where the brook exits a deeply incised, bedrock-controlled gorge and flows onto a fan-like feature into a larger alluvial valley. The ~0.25 mi of stream between the diversion dam and the Third Branch of the White River is dominated by coarse bed material (boulder, cobble, and large gravel) with some berming.

15. Soil K-Factor(s):	**16. Hydrologic Soil Group(s)**
N/A (in-channel project)	N/A (in-channel project)

17. Receiving Waters: Identify all surface waters within the major basins (including streams/rivers, wetlands, and lakes) that drain from the project, beginning with waters within the proposed project area and progressing downstream. If the waterbody does not have a formal name, a descriptive name should be provided (e.g. unnamed tributary of the Mad River). (There are 17 major watershed basins defined by VTDEC in: http://www.vtwaterquality.org/mapp/htm/mp_assessment.htm)

Flint Brook, tributary to Third Branch of the White River

18. Watershed Area Summary from Project Area to Receiving Waters

Watershed(s)	Watershed Area (acres)	Disturbed Area (acres)	% Area Disturbed
Flint Brook	2841 acres (4.44 sq mi)	<0.01 acres (72 sf)	<0.001%

G. Cumulative Impacts: For help identifying environmental features regarding your property use the VTANR Natural Resources Atlas: http://dec.vermont.gov/maps

1. Impervious surface: N/A _____ **surface % of property** N/A _____**sq. ft**

2. Land Use: Describe current and prior uses of the project property, including activities such as logging and agriculture or other uses that may have impacted water quality.

The project occurs at a site that has been used to divert water for hatchery use for more than a century (1894). The watershed upstream of the diversion dam is largely forested, with some roads serving limited residential and silvicultural uses. The short stretch of stream between the dam and the brook's confluence with the Third Branch of the White is more modified, having been redirected up-valley to accommodate historic railway development, and today it is also bermed in some areas. It does, however, retain some riparian cover over the majority of the 0.25 mile distance.

3.Land Cover: Percent and type of change in land cover associated with the project relative to natural cover

The project will not have any effect on current or historic land cover.

If the Agency finds that additional information on the current condition of the receiving water(s) beyond what is available is needed to adequately assess potential impacts from the proposed activity, the applicant will be required to supply that information.

H. Resource Descriptions:

1. Wetland Resources

a. **Type of wetland(s):** Describe the wetland(s) in the project area including the total number of wetlands in the area, the square footage of each wetland, the number of Class II and III wetlands (according to the Vermont Wetland Rules). If more than two wetlands will be affected by the project, fill out Wetland Resource Table 2, Appendix II

N/A -- the project does not affect wetlands

b. **Wetland Pre-Project Cumulative Impacts:** Describe any known pre-project cumulative impacts to wetlands from land use, agriculture, forestry, development, etc.

N/A -- the project does not affect wetlands

c. **Wetlands Impacted:** Describe the proposed impacts to the wetlands and buffer area (include impacts from fill, clearing, temporary trenching, etc.)

N/A -- the project does not affect wetlands

d. **Wetland Impact Table:** Fill out the Wetland Impact Table, Appendix III

e. **Converted Wetlands:** List the square footage of wetlands converted from one type of wetland to another. Example would be conversion of forested wetland to shrub wetland for power line right of way clearing. Submit table if needed as an appendix.

N/A -- the project does not affect wetlands

2. Stream/River Resources:

a. **Streams/Rivers Impacted:** Describe the perennial streams impacted by the project.

Flint Brook

b. **Stream/River Impact table:** Fill out the following table with perennial streams impacted by the project, Appendix IV

c. **Summary of Physical Impacts to Streams/Rivers**

Proposed Stream Area Impacts

Project Component	Permanent (s.f.)	Permanent (acres)	Temporary (s.f.)	Temporary (acres)	Total (s.f.)	Total (acres)
Diversion box project	42 sf	0.00096	30 sf	0.00069	72 sf	0.00165

d. **Stream/Rivers Pre-project Cumulative Impacts:** Describe any known pre-project cumulative impacts to streams and rivers from land use and development, etc.

N/A -- the upstream watershed is largely undeveloped. Although unquantified, there is some potential for erosion and/or hydrologic change (i.e., relative to historic, natural conditions) due to residential and silvicultural development, however it is likely very localized in scale/extent.

e. **Impacts to the Geomorphic Condition and Geomorphic Sensitivity of the Stream:** Describe using phase I & phase II stream geomorphic stream assessment protocols. Geomorphic condition means the degree of departure, if any, from the dimensions, pattern, and profile associated with the naturally stable channel that results from the unique set of natural stream processes or dynamic equilibrium conditions of a stream or river segment. Geomorphic sensitivity means the potential of a river, given its inherent characteristics and present geomorphic conditions, to be subject to a high rate of fluvial erosion and other river channel adjustments, including erosion, deposit of sediment, and flooding.

Because the project involves installing a self-cleaning intake box at an existing dam, it is not expected to impact sediment transport over and above current conditions. Additionally, while the project allows water to be diverted from the brook, the maximum amount (capacity 650 gpm/1.44 cfs) is well below the kind of flow level that recurs annually and does the majority of geomorphic work in a brook of Flint's size.

3. Physical, Chemical, & Biological Conditions.

a. **Physical Water Conditions:** Summarize the physical conditions of the waters the project impacts or discharges into, including, temperature regime, conductivity, pH, turbidity, suspended sediment, and substrate type. Document source of data, geo-referenced to sampling location. If data are from the Bio-monitoring Sites Layer or the DEC Watershed Data Portal on the VTANR Atlas http://dec.vermont.gov/maps, please reference specific station identification numbers. Data are also available at http://dec.vermont.gov/watershed/business-support/water-quality-certification-section-401

N/A -- beyond the hydrology study conducted in support of this application, no water quantity or quality data have been collected in Flint Brook to the best of our knowledge;

b. **Chemical Water Conditions**: Summarize the chemical conditions of the waters the project impacts or discharges into, including, as available, total phosphorus and nitrogen, biochemical & chemical oxygen demand, hardness, metals, *E. coli*, and other data relevant to evaluation of the chemical condition of waters. If data are from the Bio-monitoring Sites Layer or the DEC Watershed Data Portal on the VTANR Atlas http://dec.vermont.gov/maps please reference specific station identification numbers. Data are also available at http://dec.vermont.gov/watershed/business-support/water-quality-certification-section-401

N/A -- beyond the hydrology study conducted in support of this application, no water quantity or quality data have been collected in Flint Brook to the best of our knowledge;

c. **Biological Water Conditions:** Summarize the biological water conditions of the waters the project impacts or discharges into. If data are available, summarize biological condition in relation to DEC biological assessment endpoints as described by http://www.vtwaterquality.org/bass/htm/bs_biomon.htm. Document the occurrence or absence of aquatic rare, threatened, or endangered plant or animal species. If data are from the DEC Watershed Data Portal on the VTANR Atlas http://dec.vermont.gov/maps, please reference specific station identification numbers. Follow-up with the Fish & Wildlife Department's Natural Heritage Inventory (802-371-7333) if any such species are present.

To our knowledge, DEC has not previously collected bioassessment data in Flint Brook. The Vermont Fish and Wildlife Department has electrofished Flint Brook both upstream and downstream of the project site on multiple occasions. It contains a healthy population of brook trout (more below) and no known RT&E species and is thus assumed to have a high level of water quality.

4. Fish & Wildlife Resources

a. **Fisheries Resource(s):** Provide a description of the existing fish resources within the waters that the project impacts or discharges into.

Flint Brook supports a healthy population of brook trout, characterized by notable densities (>1500 fish/mi) and the presence of multiple age classes (young-of-year, age-1, age-2+). Although a creel study hasn't been conducted, it is known to experience light fishing pressure.

Wildlife: For help identifying wildlife habitat, natural communities, and rare, threatened, or endangered species use the VTANR Natural Resources Atlas: http://dec.vermont.gov/maps

b. **Habitat:** Provide an assessment of wildlife habitat within the project area. This must include a description of the methods employed to identify, map, and assess the habitats. Include a map that depicts all the wildlife habitat resources of the area (e.g., deer wintering habitat, riparian habitat, floodplain forest natural communities, wetland types).

N/A -- due to the nature of the project (i.e., installation of a diversion box), no impacts to terrestrial wildlife habitats or natural communities are anticipated;

c. **Natural Communities:** Provide an assessment of significant natural communities within the project area. This must include a description of the methods employed to identify, map and assess the communities. Include a map that depicts the natural communities.

N/A -- due to the nature of the project (i.e., installation of a diversion box), no impacts to terrestrial wildlife habitats or natural communities are anticipated;

d. **Rare, Threatened, and Endangered Species:** Provide a description of the anticipated and other possible impacts of the proposed project on the foregoing wildlife resources and how those will be avoided or minimized.

N/A -- no known or mapped instances of rare, threatened, or endangered species occur at or downstream of the project site; brook trout, a Species of Greatest Conservation Need, occurs in Flint Brook and is a primary driver of flow recommendations for the project.

e. **Wildlife Affects & Minimization:** Provide a description of the anticipated and other possible impacts of the proposed project on the foregoing wildlife resources and how those will be avoided or minimized.

Once complete, the project's use of stream flow to support hatchery operations will reduce the availability of natural flows to Flint Brook. To minimize impact of this water use, conservation flows will be continuously passed below the intake (or inflows, if less): (a) Jun-Sept. -- 1.3 cfs (0.3 cfs / sq mi; Stream Hydrologic Analysis, see the attached flow study report for details) and (b) Oct.-May -- 4.4 cfs (1.0 cfs / sq mi; New England ABF 'default').

I. Additional Permits and Supporting Documents:

Supporting Documents (Appendix I). Please list any additional Supporting Documents and attach to application labeled Appendix I. This should include, but not be limited to Memorandum of Understanding (MOU)'s with the Vermont Agency of Natural Resources (if applicable), applicable state and federal permits and permit applications, federal 404 permit application including alternatives analysis and mitigation package, site maps and plans, vegetation management plans, easement information, etc. Complete on an attached sheet if more room is needed. In the brief description column include page numbers for each appendix for quick reference. **Note, this section needs to be updated as supporting documents are updated.

Appendix	Document Title	Preparing Agent	Date of Last Revision	Brief Description
Appendix IA				
Appendix IB				
Appendix IC				
Appendix ID				
Appendix IE				
Appendix IF				
Appendix IG				
Appendix IH				

J. Fee:

Pursuant to 3 V.S.A. § 2822(j)(30), use the following formula to calculate the certification fee: 1% of project cost with a minimum of $200.00 and a maximum of $20,000.00.

Project Cost: $ 50,000 **Total Enclosed: $** 500 ☐ **Exempt**

K. Refund Policy

- If an application is modified, withdrawn or denied after technical review has commenced, all fees are retained.
- If an application is withdrawn prior to administrative review, all fees will be refunded.
- If an application is withdrawn after administrative review but prior to commencement of technical review, deemed administratively incomplete and returned to the applicant, or determined that a permit is not required; administrative fees are retained, and permit application review fees will be refunded.

☐ **By checking this box, the applicant certifies that they have read and understands the refund policy**

L. Signature (Original Signature Required):

I certify under penalty of law that this document and all attachments were prepared at my request or under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person who manages the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I recognize that by signing this application, I am giving consent for the Commissioner of the Department, or a duly authorized representative, at reasonable times and upon presentation of credentials, to enter upon and inspect the subject property to verify information in and process the Section 401 application.

Signature: Louis Porter Digitally signed by Louis Porter Date: 2019.10.29 09:49:00 -04'00' Date: 10/29/2019

Print Name: Commissioner Louis Porter

Signor Contact Phone: 802-828-1454 Signor Contact email: Louis.Porter@vermont.gov

Follow the Transfer of State Funds instructions memo to submit the application fee, or Submit this form and application fee to:

State of Vermont - Vermont Department of Environmental Conservation Watershed Management Division
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Direct all correspondence or questions to 401 Certification at: Laura.Woods@vermont.gov.

For additional information visit: http://dec.vermont.gov/watershed