



Friends of Kingsland Bay, Inc.

RECEIVED

JUL 25 2016

TOWN OF FERRISBURGH

TO: Edward N. Krapels, Manager, Vermont Greenline Devco, llc

CC: Other Interested Parties (See Attachment A)

RE: "Vermont Green Line Project"

DATE: July 20, 2016

Many organizations with a strong interest in Lake Champlain and the surrounding land did not receive a copy of the 45-day pre-filing notice which you distributed on June 3, 2016. Easily identifiable interest stakeholders that have not received a copy of your 45-day notice have also not been approached by your organization. This letter is being copied to both organizations that did, and others that did not, receive your 45-day notice.

After reviewing your pre-filing notice, and related documents, regarding the "Vermont Green Line" (VGL) project we currently have two major concerns regarding your project.

1. The selection of **Kingsland Bay** as the proposed location where the VGL will come ashore has not been carefully investigated or the impacts clearly explained
 - a. VGL's alternative analysis included with the 45-day notice does not disclose better alternatives
 - b. the impact to Kingsland Bay has not been accurately portrayed to the Vermont governmental entities and other organizations that have been asked to support the VGL
2. Detailed public disclosure and discussion of **earth currents** has not occurred during any public meetings nor are earth currents mentioned in the 45-day notice
 - a. Numerous technical documents and presentations clearly indicate that earth currents, analogous to "Stray Voltage," are likely to occur during operation of a HVDC transmission cable.

The remainder of this letter provides supporting information regarding these two concerns.

Kingsland Bay

Kingsland Bay is an incredibly beautiful bay with an abundance of wildlife and also one of Lake Champlain's best sheltered anchorages. These two facts make Kingsland Bay one of Lake



Friends of Kingsland Bay, Inc.

Champlain's most important recreational, cultural, historical and ecological resources. On a beautiful summer weekend, especially near Independence Day, it is not uncommon for the bay to have approximately one hundred boats anchored in it and for hundreds of other people to enjoy fishing, swimming, picnicking and paddling along the shore of the bay.

Once a submarine cable is installed, federal laws and regulations make vessel owners and others financially responsible for any damage to that cable and loss of revenue caused by anchoring or fishing. The North American Submarine Cable Association has recently lobbied for anchorage exclusion zones above cables. Therefore, we are concerned about any submarine cable that may interfere with the pre-established usage of Kingsland Bay as an anchorage. Based on this concern, we have reviewed currently available documents about the VGL and about submarine cables in general. That review has resulted in the discovery of discrepancies and omissions in VGL documents, along with related information that has created additional concerns.

Kingsland Bay offers a safe, extremely well protected anchorage in severe weather and is considered by many vessel owners to be equivalent to "hurricane anchorage" when severe storms centers pass to the south or west of Lake Champlain. Past storms for which Kingsland Bay has, or may have, served as a safe anchorage include, but are not limited to, The New England Hurricane of 1938; Fran in 1996; Dennis in 1999; and Frances in 2004. There are numerous other significant weather events for which Kingsland Bay offers the best shelter. Vessels, in or near Kingsland Bay, laying to anchor during a storm can have their anchor systems penetrate deep into the clay bottom which may be very soft.

VGL's permit application submitted to the New York Department of Public Service on May 3, 2016 omits many details. However, despite pre-dating VGL's 45-day notice in Vermont, that New York filing still contains much more information than is included in the 45-day notice distributed in Vermont. There are discrepancies between VGL's current filings in New York and explanations provided to the Town of Ferrisburgh which have a direct impact on Kingsland Bay.

The Town of Ferrisburgh has recently released a memo regarding Kingsland Bay that includes the statement,

"The VGL Project representatives ... (ha)ve told us that the cables will enter the boring beginning about 1,500 to 2,000 ft north of the southeast shore of the east cove ..."



Friends of Kingsland Bay, Inc.

However, VGL filings in New York state suggest that the above statement is misleading. The New York filings include a discussion of Horizontal Directional Drilling (HDD) capabilities and diagrams of HDD equipment pads. VGL's filings in New York include the following information, "A temporary Gravity Cell will be installed approximately 1,500 feet away from the New York shoreline of Lake Champlain. ... the location of the Gravity Cell was developed based on a number of factors including the need for water depths greater than 10 feet and the physical limit of how far the HVDC Underwater Cables can be pulled through an HDD conduit."

Further review/comparison of VGL's New York filings and 45-day pre-filing documents distributed in Vermont lead to the conclusion that the stated 2,000 ft potential distance mentioned to the Town of Ferrisburgh is not possible. If the same "physical limits" apply in Vermont, a gravity cell and boring entrance point could be no further than 1,850 feet from the discussed shoreline.

Even if the 2,000 ft distance could be reached, it does not position the boring end point outside of the most frequently used anchorage areas in Kingsland Bay. During busy weekends boats frequently anchor as far out as 2,200 feet from "the southeast shore of the east cove." In addition, the potential for future exclusion zones above submarine cables would stop the use of Kingsland Bay as a recreational or emergency anchorage.

Documentation of VGL's proposed cable discuss a targeted burial depth of only four (4) feet below the existing lake bottom in water depths of 150 feet or less, regardless of bottom type or anchoring frequency in a given area. That simplistic proposal has been submitted without any discussion of submarine cable industry standards. The concept of a "Burial Protection Index" (BPI) has been developed for the submarine cable industry because submarine cables are frequently damaged by anchors and fishing nets. Based on the BPI concept, VGL's proposed cable should be buried deeper than four feet in soft clay and other bottoms. Consideration should be given to storm anchorages or an emergency ferry anchoring in soft clay bottoms.

The Alternative Analysis for the VGL does not mention either Hawkins Bay or Porter Bay as potential locations where the cable could come ashore in Vermont. Hawkins Bay is located immediately north of Kingsland Bay on the other side of MacDonough Point. The northern shore of Kingsland Bay state park borders on Hawkins Bay. Porter Bay is located slightly more than a mile south of Kingsland Bay. Both of these alternative locations meet the criteria stated



Friends of Kingsland Bay, Inc.

in VGL's permit filings submitted to the New York Department of Public Service and access the same road network as Kingsland Bay.

Kingsland Bay is home to Hawley's Ferry House, an 18th century stone inn that is listed in the National Register of Historic Places. Kingsland Bay history as a port for early Lake Champlain Ferries; as a military garrison during the War of 1812 ahead of the decisive Battle of Plattsburgh and as a documented stopping point for historical figures including Benjamin Franklin and Thomas MacDonough, along with its popularity for swimming and other recreational activities should also not be overlooked during the evaluation of VGL's proposed route.

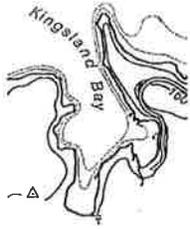
There is no engineering, construction or technical reason that the proposed VGL cable needs to be routed through Kingsland Bay. Although Kingsland Bay may appear to be a strategic route as it avoids private lands, it is a very poor choice. There are better route options that are nearby, one of which can still stay within state lands.

Although, as the developers of the VGL, you may not agree that a HVDC transmission cable will impact the users of Kingsland Bay, existing laws and regulations; the future possibility of statutory exclusion zones around submarine cables and the documented fact that more than 14% of "cable faults" are caused by anchoring clearly suggest the pre-established use of Kingsland Bay as a recreational or emergency anchorage is mutually exclusive with VGL's proposed cable route.

Earth Currents

Numerous technical presentations and documents describe HVDC cable operating modes in which significant "earth return" or "earth fault" currents can enter the ground. Vermont has previously had significant problems with stray current (often called "stray voltage") in dairy farms due to electrical systems that are orders of magnitude smaller than VGL's proposed 400MW HVDC transmission line.

Earth currents of excessive amperage or excessive duration should not be allowed to occur. "Excessive" is a relative term and may be defined differently by the operator of a commercial power cable; a dairy farmer; a boat owner; a swimmer or a marine ecologist. As the developer, you should have initiated discussion, with all interested stakeholders, of all the operating conditions that will result in earth currents and provide full details about earth currents during



Friends of Kingsland Bay, Inc.

each of those conditions. Similarly, your 45-day notice should have included much greater details about the operation of the proposed HVDC transmission line. The various government entities; the general public; and other interested stakeholders cannot make informed decisions unless they are provided the details with which to do so.

VGL's filing to the New York Department of Public Service provides the following description of the proposed cable

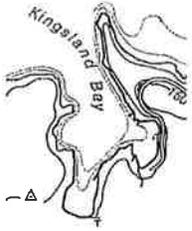
"The project's HVDC ... cable system would consist of two individual cables ... (and) ... would be designed for and initially operated at a voltage of +/-150 KV DC."

Based on this brief description, we understand VGL's proposed cable to be a bipolar HVDC transmission system. We have obtained numerous technical documents that describe the operation of bipolar HVDC transmission systems in much more detail.

All of these documents, including one from the Institute of Electrical and Electronics Engineers (IEEE) discuss various modes and conditions in which a bipolar HVDC transmission system can operate. Multiple documents describe how the system can continue to operate during maintenance and during the failure of one cable or a section of a converter station by intentionally injecting return current into the ground. These documents also discuss other conditions and faults that will inject electrical current into the ground through the use of "earth switches." The amount of current injected into the ground and the duration of time an earth current is allowed to last depend on the size of a HVDC cable system and the parameters under which it is allowed to operate. The return path that current takes depends on a complex set of soil, water and other geologic parameters that can allow any earth currents to stray in many directions. There should have been extensive public disclosure of earth currents, their amplitudes, their durations and their potential paths. Going forward, any earth currents should be fully disclosed, legally restricted and tightly managed.

Concluding Remarks

The errors and omissions during VGL's efforts at public outreach and the continued omissions at the start of VGL's Act 248 permitting process is concerning. In regards, to Kingsland Bay, the route has been poorly vetted and potential impacts have been significantly understated. In regards to earth currents, many details have not been properly disclosed to government officials, interested stakeholders or the general public.



Friends of Kingsland Bay, Inc.

Should VGL be granted a Vermont Certificate of Public Good; a permit from U.S. Army Corps of Engineers; or a special use permit from the Vermont Agency of Natural Resources- it is essential that those permits adequately restrict the cables route and operating conditions to protect the historical usages of Kingsland Bay and limit potential risks associated with earth currents.

Sincerely,

David Andrews
President

Nick Patch
Vice President

Roger Wallace
Secretary

Friends of Kingsland Bay, Inc.
281 Washington Street Ext
Middlebury VT 05753

Attachments:

Attachment A – List of Recipients

Attachment A – List of Recipients

Edward N. Krapels, Manager
Vermont Greenline Devclo, LLC
401 Edgewater Place, Suite 680
Wakefield, MA 01880

Judith C. Whitney, Clerk
Vermont Public Service Board
112 State Street
Montpelier, VT 05620-2701

Adam Lougee, Executive Director
Addison County Regional Planning
14 Seminary Street
Middlebury, VT 05753

Christopher Recchia, Commissioner
Vermont Department of Public Service
112 State Street, Third Floor
Montpelier, VT 05620-2601

Vermont Greenline Committee
Town of Ferrisburgh
3279 Route 7
Ferrisburgh, VT 05456

Deborah Markowitz, Secretary
Vermont Agency of Natural Resources
1 National Live Drive, Davis 2
Montpelier, VT 05620-3901

Waltham Selectboard
PO Box 175
Vergennes, VT 05491

William Coster, Director of Planning
Vermont Agency of Natural Resources
1 National Live Drive, Davis 2
Montpelier, VT 05620-3901

New Haven Selectboard
78 North Street
New Haven, VT 05472

Laura Trieschmann
State Historic Preservation Officer
Vermont Division for Historic Preservation
1 National Life Dr, Davis Bldg, 6th Floor
Montpelier, VT 05620-0501

Mel Hawley, City Manager
City of Vergennes
120 Main Street
Vergennes, VT 05491

Chuck Ross, Secretary
Vermont Agency of Agriculture
Food & Markets
116 State Street
Montpelier, Vt 05620-2901

Charlotte Selectboard
P.O. BOX 119
Charlotte, Vermont 05445

Shelburne Selectboard
P.O. Box 88
Shelburne, VT 05482

Lori Fisher, Executive Director
Lake Champlain Committee
208 Flynn Avenue, Building 3, Studio 3F
Burlington, Vermont 05401

Attachment A – List of Recipients

James Ehlers, Executive Director
Lake Champlain International
531 Main Street
Colchester, VT 05446

Michael Adams, Senior Project Manager
U.S. Army Corps of Engineers
New England District
11 Lincoln Street, Room 210
Essex Junction, Vermont 05452

Hon. Kathleen H. Burgess
Secretary to the Commission
New York State Public Service Commission
Empire State Plaza
Agency Building 3
Albany, NY 12223-1350

Sandy Levine, Senior Attorney
Conservation Law Foundation
15 East State Street, Suite 4
Montpelier, VT 05602

Vermont Environmental Law Center
Vermont Law School
PO Box 96
South Royalton, VT 05068

Royal Savage Yacht Club
PO Box 241
Charlotte, VT 05473

Lake Champlain Yacht Club
PO Box 411
Shelburne, VT 05482

Mallets Bay Yacht Club
PO Box 402
Colchester VT 05446

Mark Naud, Executive Director
Community Sailing Center
P.O. Box 64818
Burlington, Vermont 05406

Vermont Farm Bureau
117 West Main St.
Richmond, VT 05477

Rodney Mills
Agri-Mark, Inc.
869 Exchange St
Middlebury, VT 05753

Wilcon Farm
461 Town Line Road
North Ferrisburgh, VT 05473

Harvey Smith
Smith Family Farm
2516 Lime Kiln Rd
New Haven, VT 05472

James A. Dumont, Esq.
PO Box 229
Bristol, VT 05443

Lake Champlain Kayak Club
216 Woodlawn Rd
Burlington, VT 05408