

APPLICATION BY THE ST. LAWRENCE SEAWAY AUTHORITY TO THE
INTERNATIONAL JOINT COMMISSION TO EFFECT PARTIAL CLOSURE
OF A SECTION OF THE ST. LAWRENCE RIVER BETWEEN TOUSSAINT
ISLAND AND PRESQU'ILE NEAR IROQUOIS, ONTARIO.

The St. Lawrence Seaway Authority, a proprietary crown corporation established by the St. Lawrence Seaway Authority Act, R.S.C., 1970, c. S-1, and listed in Schedule "D" of the Financial Administration Act R.S.C. 1970, c.F-10, makes application herewith to effect partial closure of that section of the St. Lawrence River, designated as the "Canadian Channel" and situated entirely on the Canadian side of the international boundary between Toussaint Island and Presqu'ile immediately above Iroquois Lock near Iroquois, Ontario, as shown on the accompanying charts and maps.

The request to effect partial closure of the Canadian Channel at this location has resulted from an increasing number of accidents to downbound vessels entering Iroquois Lock during the last five years. Vessels involved in these accidents are affected by the cross currents from the Canadian Channel located between Toussaint Island and Presqu'ile. The currents from this arm of the river cross the navigation channel at an angle of up to 40° with a speed of approximately 2.5 feet per second. These strong cross currents at the westerly end of the approach wall make it necessary for a ship to approach the wall at an angle of 60° or more. Consequently when the ships enter the still water area, the rudder applied by the master to overcome the currents takes effect and the shipmaster is sometimes unable to make the necessary corrective manoeuvres quickly enough to avoid striking the approach wall heavily.

During hydraulic studies conducted by Ontario Hydro in 1961, the model cross section of the American channel averaged 92,000 sq. ft. and the Canadian channel 10,500 sq.ft. Recent soundings by the St. Lawrence Seaway Authority (July 1975), indicated the average cross section of the American channel to be 93,250 sq. ft. and the Canadian channel 6,600 sq. ft. As part of the 1961 Ontario Hydro study, model tests were performed with the Canadian channel closed to 25, 50 and 100 percent of its width. When the Canadian channel was closed to 50 percent of its width during the model studies, i.e., the total cross section of the channel was reduced to 5,250 sq.ft., there was no measurable change in water levels. With the Canadian channel closed to leave an opening of 100 feet as proposed in this application there should be no measurable effect on the level of the water above Toussaint Island.

According to the present configuration of the channels on each side of Toussaint Island, partial closure of the Canadian channel will not increase velocities in the remaining cross section of the river by more than 5%.

The Working Committee of the St. Lawrence River Board considered the effect of the proposed dyke construction on ice forming capability of the river in this area as a result of an application made to the International Joint Commission by the St. Lawrence Seaway Authority dated April 10, 1975. The Board were of the opinion that the proposed dyke should not affect ice forming capability in this section of the river, however, it would be necessary to evaluate conditions during the ice forming period to establish definitely the effect of the dyke.

No difficulties with land acquisition are foreseen. Ontario Hydro owns Presqu'ile and the dyke will not reach Toussaint Island. The Authority is presently obtaining a legal survey of the water lots required to construct the dyke and will obtain formal approval of the Ontario Ministry of Natural Resources for construction of the dyke thereon, and from Ontario Hydro for use of the dyke material from Presqu'ile.

There are no known recreational interests in the vicinity of the proposed works which would be affected.

The Canadian channel is not used by commercial navigation and the opening between the end of the dyke and Toussaint Island will be sufficient to accommodate pleasure craft.

The nature of the proposed work to close partially the Canadian channel consists of placement of earth fill to form a dyke having approximate dimensions as shown in the accompanying chart. The fill material will consist of a very dense glacial till composed of boulders, gravel, sand, silt and clay which was excavated from the present river bed in 1958 and placed in the Presqu'ile Island area. It is proposed to place the material from the Presqu'ile side of the channel proceeding toward Toussaint Island. The side slopes of the fill will be protected with rock, and should washing action of the fill be noted during construction, the protective rock blanket will be placed as filling operations proceed.

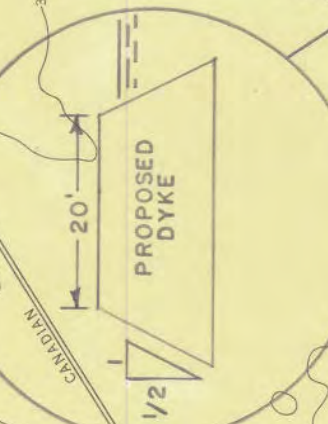
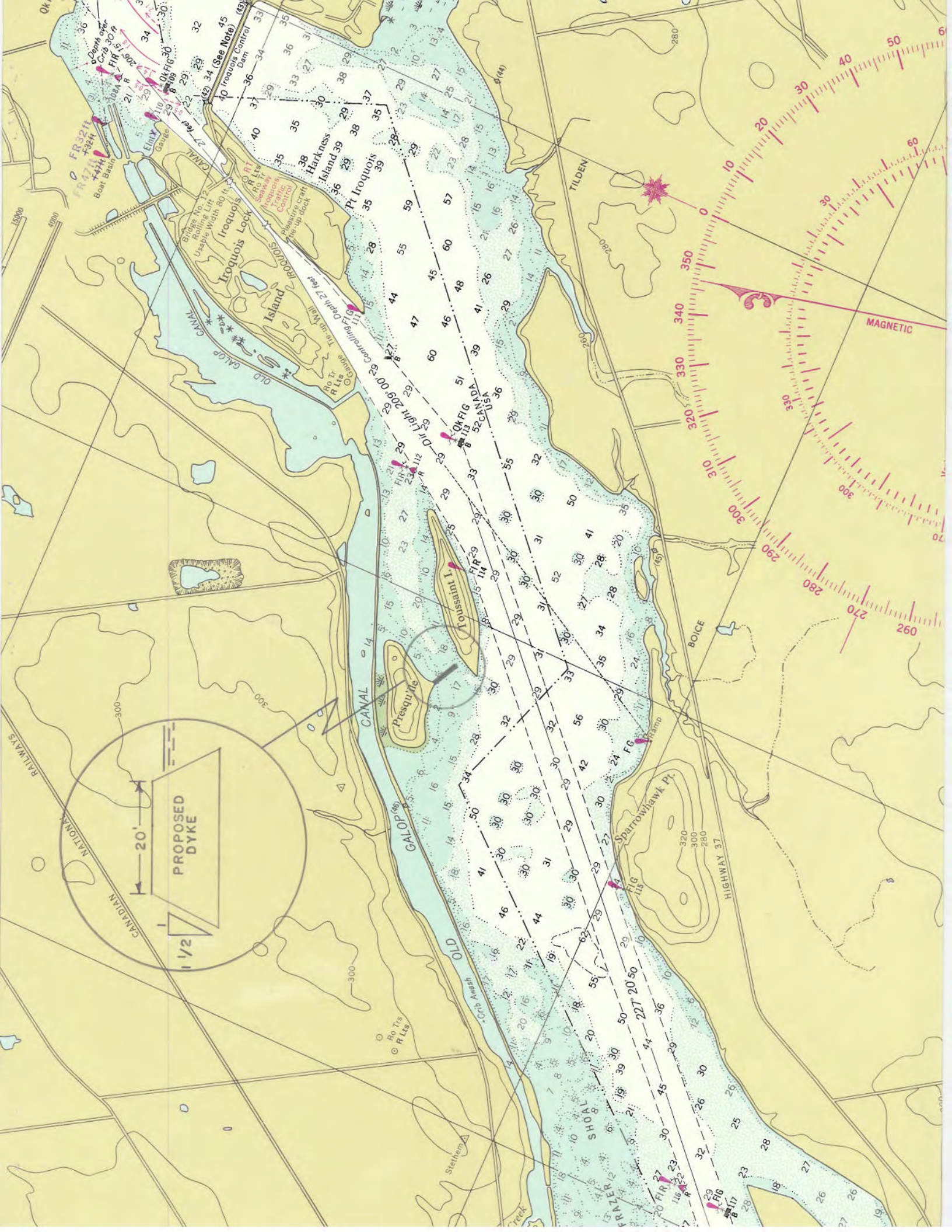
It is planned to obtain measurements of cross current velocities above Iroquois Lock as filling operations progress. When the measured velocities approach 0.5 feet per second filling operations will be terminated. It is proposed to construct the dyke from Presqu'ile to within not less than

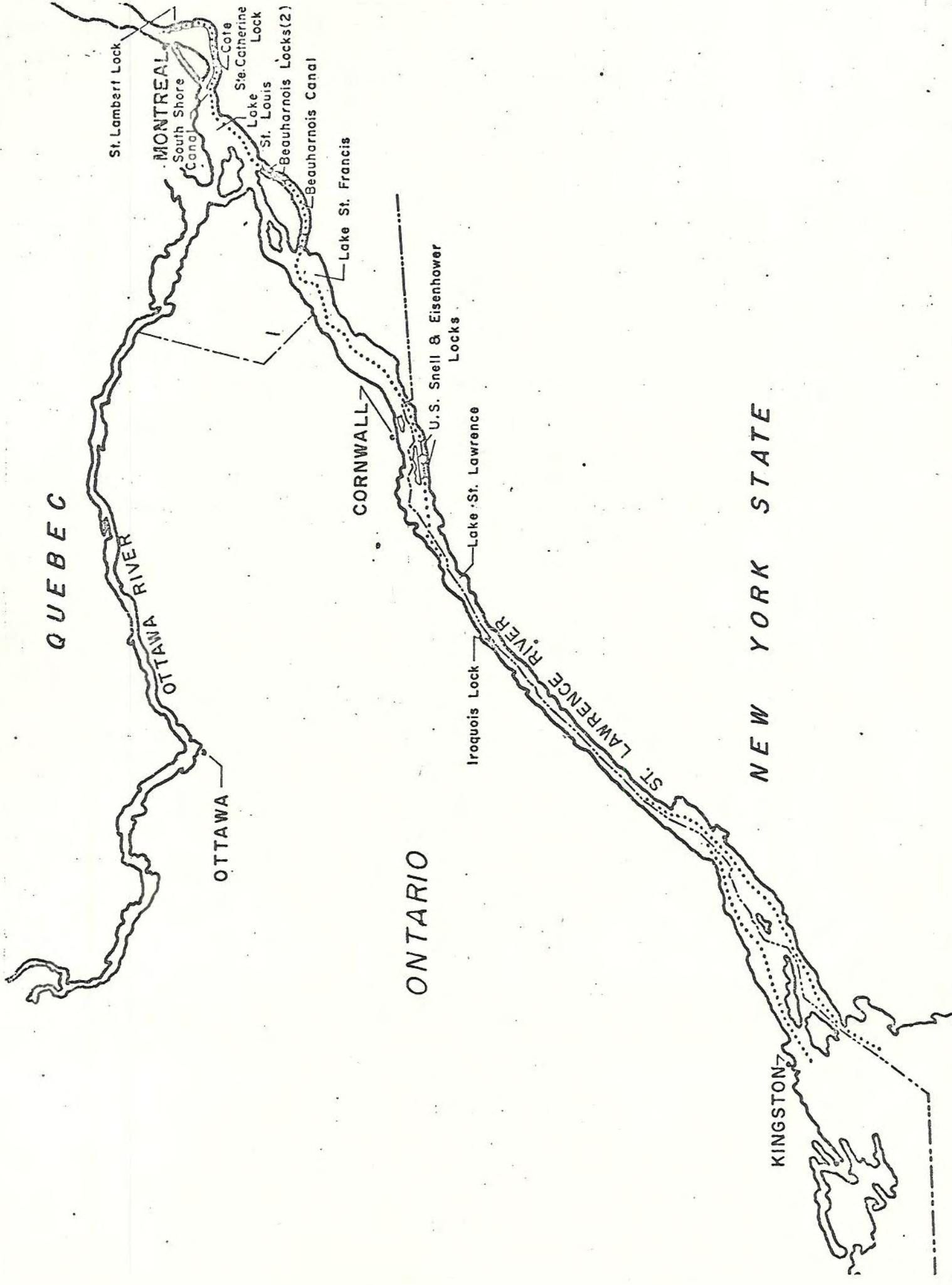
100 feet of Toussaint Island. However, there is a possibility that the opening will be 200 feet or more. The river flow in the narrowed channel will be sufficient to prevent stagnation of that section of the river located below the dyke. The water depth in the proposed fill area averages approximately 8 feet. The partial closure of the Canadian channel above Iroquois Lock, as requested in this application, will reduce the adverse cross currents to less than 0.5 feet per second and the angle of the cross currents will be greatly improved. This will eliminate many of the navigational difficulties experienced in this area during the past five years.

Dated this 7th day of October, 1975.

A handwritten signature in blue ink, reading "G.D. Beland". The signature is written in a cursive style with a large, stylized initial "G".

Secretary





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