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PRESCOTT, 26th Dec. 1876.

JOHN PAGE, Esq.,

Chief Engineer, Dept. Public Works,

Ottawa :

SIR,—In obedience to your instructions of the 22nd inst. I have the honor to report progress during the past season in the surveys and examinations of the Galops Rapids, made for the purpose of procuring accurate data, to enable you to decide upon the nature and extent of improvements necessary to render the passage through these rapids available for the contemplated enlarged scale of navigation.

With reference to the Chain Vessel stationed at the Galops, during the three months ending November 22nd. Inasmuch as our experimental operations are fully described in my report of December 9th ; I need only refer generally to her in connection with the proposed improvements.

The accompanying chart of the Galops, dated December 16th, will serve to explain the position of existing channels and shoals, the proposed new channel, (tinted red) and also the line of chain traversed by the chain vessel. The soundings are expressed in feet and inches, and are reduced to the zero point of the water gauge, established at the Galops in 1872, which point is the level of 9 feet above the upper mitre sill of Lock 27.

The outlines of shoals represent a depth of fourteen feet at low water, *i. e.*, the relative level of five feet below the sill of Lock 27.

I will now submit, briefly, the result of my examinations, together with an estimate of the quantities of material to be removed in order to obtain the channel projected upon the chart.

These quantities are for widths of 200 feet, and 300 feet, and for depths at low water of 14 feet and 16 feet respectively.

The Galops Rapids commence at the traverse under "Flat Rock shoal," about 7 miles below Prescott, and extend $1\frac{1}{2}$ miles down stream or to foot of Galops island.

They are caused by an extensive ledge of very hard limestone rock, which forming the bed of the channels, underlies all the islands and extends across the whole river [here 7,800 feet in width measuring on line of Lower Bar, and the south-west point of Galops island.] Of this distance, the island which divides the river into two channels, occupies the central space of 5,000 feet.

The north or main channel [boundary line] 1,100 feet, and the south or American 1,700 feet.

The latter is blocked by numerous shoals below the Rapids, and is not a navigable channel for vessels.

The north is the main navigable channel, but it also is barred in the rapid by the ledge of rock above mentioned, and further obstructed below the traverse by Adam's island, which divides it into two channels the "North" and the "Gut."

The latter although deep, is too narrow and the bends too sharp for large vessels and is considered altogether unfit for the navigation contemplated.

The boundary line between Canada and the United States, runs through the "Gut" to the main channel, therefore the proposed improvements will lie partly in American waters.

The Lower Bar in from 6' to 12' water, is the most formidable obstruction in the rapids, it extends across the main channel, from the canal bank at McLaughlin's Point to Capstan Point on Galops island. Its surface forming the bed of the river is solid rock