From these seven Locks, to the point of joining the Welland Canal, there are four Locks necessary, (see Section) but as some arrangement must be entered into with the Welland Canal Company before these are placed, it is useless to discuss their proper point of location at present. I shall therefore state what appears to me to be the best arrangement for the eight Locks which raise your proposed Canal, and the Welland Canal, from the elevation of the crest of the hill, to the elevation of the long level southward of Thorold, I would propose to place the Locks Nos. 35 & 34 together as far south as the nature of the ground will admit of. Lock No. 33 I would place as near to these as a surface of water can be obtained bearing the same proportion to the size of the Lock as we have calculated, the area of the Reservoirs from, on the short levels to the north of the hill. Lock No. 32 I would place as near to No. 33 as a similar surface of water could be obtained. Lock No. 31 I would place as far southward as possible, for reasons already given. Our Locks Nos. 30, 29, & 28, could, when these arrangements are made, and the distance which they and their levels are to occupy, is known, be placed in the most favorable position which circumstances would admit of. But in every case, I would hold it as a principle, not to be departed from, that a surface of water, equal in area to that above mentioned, shall intervene between every two separate Locks—and if the level itself does not afford the necessary extent of surface, that it shall be increased by shallow connecting Reservoirs.

At all the Locks waste-water weirs and races to be constructed.

The number of Bridges required over the Canal cannot now be exactly determined. By the notes of the Survey it appears that the line crosses 18 Roads—perhaps arrangements may be entered into which will render it unecessary to place a Bridge at every one of these—but it is probable that in the wooded parts of the country there are public Roads not yet cut out, where Bridges will be required. Under this uncertainty I have framed estimates for 18 Bridges.

I hesitate what description of Bridges to recommend, Cast Iron Swivel Bridges are undoubtedly the best, but the first cost is too great taking into account the number required on this work, and I have misgivings concerning the tenacity of the metal during the severe frosts of this climate. The Swing Bridges in common use here are clumsy and not easily managed, I have furnished a Drawing of a Timber Bridge on different principles, the cost of which is placed in the Estimates.

The estimates next require attention—their gross amount (including