

to be utilized at the water wheels is intercepted by the upstream face of the intake, and much is there deflected to form a cross current which will carry away ice. This is brought about by the curtain wall construction and the placing of the structure at an obtuse angle to the natural direction of the current in the river.

The outer forebay, which contains an area of eight acres, is bounded by an artificial island and the original river bank on the one side, and by a long concrete gathering wall on the other. A supply of water is provided for the restoration of the Dufferin Island channel, which is controlled by sluices on either side of the island mentioned.

Except during extremely low stages of water in the river, the outer wall of the forebay will be constantly submerged, water spilling freely over it into the river, as over a weir, carrying floating ice and debris with it. The top of the wall is at an elevation of 553 feet above sea level. A section of this wall, 100 feet in length, adjacent to the screen house, is constructed with the top depressed below the crest of the main portion. When water at the intake is at extreme low level, there is thus an additional discharge area of approximately 300 square feet cross section over the depressed section. This spillway creates a strong surface current across the front of the screens, tending to sweep out into the river all ice that may have passed the ice curtain at the intake and escaped the general spill over the wall.

The screens are in the form of a steel grillage, set on inclined guides in concrete masonry, and are removable by means of a crane. The apparatus is covered by an artistic stone building, the roof of which forms a broad promenade, commanding an exceptionally fine view of the rapids.

The inner forebay, with an area of two acres, extends from the screen house to the gate house. The landward wall and the river wall are formed partly by the rock face after excavation had been made in the river bed, and partly of concrete. On the land side, excavated material has been dumped and graded to bring the general surface of the islands in this vicinity up to the same level as the top of the concrete wall, at elevation 560. The original Dufferin Islands have been increased in area, and several entirely new islands of considerable size have been made from the excavated rock, approximately 150,000 cubic yards, taken from the bed of the river in deepening the two forebays.