

as to leave the flanks dry.

(d) The necessary change in the Chippawa-Grass Island Pool level to increase the flow over the Falls from 50,000 to 100,000 cubic feet per second and vice versa, would require so much time that only a small part of the extra diversion authorized at night during the tourist season could be used. Moreover, the lowering of the pool would slightly reduce the output of existing power plants.

Objectives

In conducting the studies for this report it was considered imperative that the remedial works be designed to improve the distribution of flow along the crest of the Horseshoe Falls, maintain the present satisfactory conditions at the American Falls, and control the levels of the Chippawa-Grass Island Pool. The maintenance of the present relationship between river flow and pool level is considered essential. Such regulation would preserve the existing conditions and appearance of the Niagara River upstream from the Pool and would insure that Lake Erie levels and corresponding outflows would remain unaffected, thus protecting interests upstream which otherwise might be affected adversely by a general lowering or rapid variation in the pool level. In addition, adequate flow down the American Rapids and over the Falls would be assured. Full advantage could be taken of the additional water available for power diversions in the night hours of the tourist season as well as at all other times. Therefore, it is considered that the remedial works should insure:

(a) A dependable flow of water over the American Falls and in the vicinity of Three Sisters Islands, approximating the satisfactory flow under existing conditions;

(b) A dependable adequate flow over both flanks of the Horseshoe Falls sufficient to provide an unbroken crestline;

(c) Maintenance of the present relationship between the total river flow and the level of the Chippawa-Grass Island Pool; and,

(d) Ability to meet promptly the changes in permissible power diversions while assuring flows of either 50,000 or 100,000 cubic feet per second over the Falls.

Investigation and Study Procedure

As contemplated in the Reference the detailed surveys and studies necessary for the design of remedial works to meet the objectives outlined above were accomplished by calling on the appropriate agencies in both countries. The International Niagara Falls Engineering Board appointed a working committee consisting of representatives of the agencies having regularly assigned responsibilities for the types of work involved. The regular field organizations of the appropriate agencies were asked to perform the various types of surveys and studies needed, thus insuring that the services of specialists available in both countries were utilized on various aspects of the problem as required.

The unusual river conditions at and in the vicinity of Niagara Falls, including high velocities of flow, great turbulence, and the risk that workmen might be swept downstream and over the Falls, made determination of water-surface