

time when the government must assume such huge liabilities as the result of these roads paralleling and duplicating one another in other parts of Canada.

"It seems entirely unlikely that the Hydro-radials will build at this time when, if conscription goes into force, it would be impossible to obtain a sufficient supply of labor, and certainly inadvisable to withdraw this labor from other and indispensable work when the cost of everything going into the construction of a road is double that of normal times; when in view of the fact that existing roads are short of hundreds of locomotives and thousands of cars, and every locomotive and car works are busy on war orders for the Allies, it would be practically impossible to get rolling stock; when hundreds of miles of rails only laid a few years ago are being torn up and sent to France; when the money markets of England, France, United States, Belgium, Germany, and every other lending country are pre-empted by their own governments for war purposes; when it would be impossible to economically raise the money for its construction; or at a time when the cost of construction would forever double its fixed charges over and above those it would have if built in normal times.

"The first of the works outlined in this report to be carried out should undoubtedly be the construction of the Stoney Creek yard and the improvement of the Burlington Beach line.

"This is of such national importance that it may well be looked on as a war measure, and should be done at once. It would go far towards relieving the congestion of traffic from the Niagara frontier, and facilitate the supplying of coal, steel, etc., to munition factories.

"When the new roads are prepared to come in, Hamilton should insist that they follow the route outlined, and should vigorously press for the carrying out of various other works outlined."

SCREENING ROAD GRAVEL.

In order to give the best service under heavy travel, gravel must often be screened and sometimes is crushed before screening. Where the bank gravel does not contain pebbles too large to go into the road but has too much sand, as is often the case, road builders in Michigan have developed a method of screening out the fine material which deserves to be widely known.

At the gravel pit are kept a number of screens. Each is about 6 feet long and a little over 3 feet wide; the wire screen has three or four meshes to the inch and is held in a rectangular wooden frame. When a wagon reaches the pit the long side of a screen is fixed to one side of the body by means of hooks and supports holding it in an inclined position, with its bottom on the side board and the top about 3 feet higher and projecting over the ground. The gravel is shovelled from the pit and thrown across the wagon against this screen. The fine stuff passes through the meshes and falls to the ground and the part suitable for road building slides down the screen into the wagon.

According to the state highway commissioner, F. F. Rogers, it costs only a little over 20 cents per cubic yard to deliver screened gravel from the pit into the wagons, ready to be hauled to the roads, whereas it costs twice as much to screen it on a mason's screen and then shovel it into the wagons. As a method of obtaining screened gravel at a low cost from banks where large pebbles need not be taken out, it seems to have decided merit.—American Highway Association.

MONTREAL AQUEDUCT CONTROVERSY.

As reported in last week's issue of *The Canadian Engineer*, the ratepaying engineers of Montreal submitted a memorandum to the city, criticizing the report of Consulting Engineers Vautelet, McRae and St. Laurent. At the end of the memorandum are summarized the questions submitted verbally to the consulting engineers at a board of control meeting, and the engineers' replies. Following are some of the most interesting questions and answers as reported in the ratepaying engineers' booklet of comments:—

Does the first paragraph of "Recommendations" (page 41 of Report) signify that Project No. II is the one which the Board of Engineers formally recommended as a justifiable and true economic solution of the Aqueduct proposition as it exists to-day? Ans.—No.

Is it not a fact that the board recommend that no work be done in the tail race, that the plans for the hydro-electric power house should not be started, and that no work should be done in the head race rock section and easterly earth section, until a final decision has been reached and the source of power determined? Ans.—Yes.

If a final decision has yet to be reached as to choice of a project, is it not a fact that none of the five projects considered by the experts has been recommended by them in their report? Ans.—Yes, because it is impossible to recommend on account of contractor having to be dealt with.

If the Project No. I. or II. is definitely recommended to us, why then does the Board of Engineers in contradiction to this, recommend that tenders be called for the purchase of power, and intimate in Article 3 of Recommendations that the source of power is yet to be determined? Ans.—The Board of Engineers cannot recommend any of the projects because they have no figures to go on from contractors. Wrote to power companies according to instructions from Mr. Villeneuve. When we have figures from power companies and contractors will then be able to form an opinion.

In Article 3 of Recommendations which of the five projects is referred to in speaking of changes and additions to the present contract (Cook Construction Co.) for which the experts recommend us to ask tenders from the contractor? What are the changes and additions referred to? Ans.—Paving of head race—extra six inches of concrete, and enlargement of tail race.

Is the board prepared to say definitely that all work necessary to complete the various projects can be done for the estimates given? Ans.—No, it cannot be done for the estimates given inasmuch as the prices have changed and are subject to change from day to day.

Should not the cost of the lengthening of the guard pier be added to the capital cost of projects No. I., II. and III., and omitted from projects IV. and V.? Ans.—No. No guard pier required. Later on when the scheme has been put into operation, the engineer of the city will be in a position to judge if it is advantageous for the city to extend the guard pier.

Why did the Board omit the cost of their bridges from the capital cost? Ans.—Because it has nothing to do with the canal itself. Cheap bridges could be built as formerly.

Is it not strictly obligatory, and an elementary rule in financial and industrial projects for the construction of public works to charge to the capital cost the amount of interest on the sums expended on the works during the execution or installation of same? Ans.—The report speaks for itself. We have added net charges.