Section No. 7—Two-course Concrete

Location—Station 83+00 to 89+00.
Length—600 feet.
Width—Average 20.9 feet.
Type—Two-course; first course, 4 ins. in depth; proportions, 1 cement, 2 screened sand, 5 screened gravel. Stone—2-in. screened gravel; second course, 2 ins. in depth; proportions, 1 cement, 1 screened gravel, 3 stone.
Stone—⅜-in. trap.
Expansion joints—Intervals every 25 feet; width, ½ in.; depth, throughout pavement; direction, across pavement at right angles to sides; material, ½-in. Genasco strips.

The accompanying cross-sections, together with the above details, show clearly the various types of work constructed.

The work was commenced on May 29th, 1914, and completed September 17th, 1914, being finally opened for traffic shortly afterwards. A good deal of difficulty was experienced owing to the narrowness of the road in keeping ways open for traffic during the progress of the work, and for this reason the length of time occupied in actual construction was greater than it would otherwise have been.

Traffic Census

A traffic census was taken at various points upon the road from September 5th to September 11th (inclusive) 1915, and it was found that for 12 hours each day, from 7 a.m. to 7 p.m., an average of 1,809 vehicles passed a given point. This count included all classes of vehicles and during certain hours of the day the traffic was, of course, heavier than at others. The evening traffic, of which there is a considerable volume during the summer months, was not taken. The traffic for the last year or two has increased very materially, and the result has been to bring out certain sections in strong relief as compared to others.

The mixture which seems to have given the most satisfactory results consists of 1 part cement, 1½ of sand and 3 of 1-in. trap rock. Certain sections, also, which were reinforced have shown up to great advantage compared to those which contained no reinforcing material; the latter, in some cases being badly cracked, owing to the unstable base and aggravated surface water conditions.

Wise Use of Reinforcing

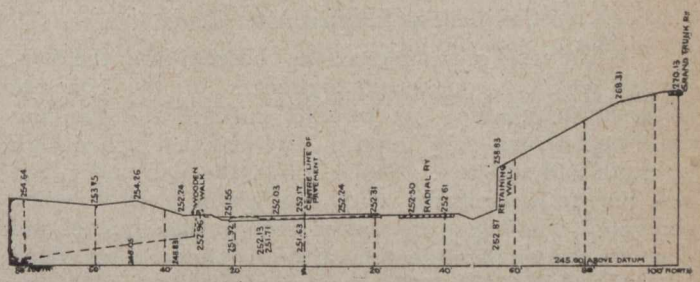
In 1912 the town of North Toronto was annexed to the city, and as very few pavements existed there at that time, the necessity for the construction of many works of this character was strongly urged. The sewerage system in the annexed district being inadequate for future needs, it was felt by the administration that it would be inadvisable to lay permanent pavements until a new system had been installed. The demand, however, for pavement accommodation was insistent, and in June, 1914, a number of concrete pavements were recommended as a temporary measure. Five of these pavements were laid in 1915 at such a grade that they could be used as part of the foundation for a future pavement of a better type.

While the information which we hoped to obtain from the construction of the pavement on the Lake Shore Road was not in any way complete, it was apparent that probably the most satisfactory mixture was 1 part of cement, 1½ of sand and 3 of stone (1-in. trap), and the work was carried out to these specifications, no reinforcing being used. All of these pavements showed longitudinal cracking the following spring, and as the reinforced portions of the Lake Shore Road showed at that time to advantage over the others, the further work done in 1916 consisted of concrete of the same mixture with the introduction of reinforcing.

These pavements have not come through the winters of 1916-17 and 1917-18 without developing any cracks. While it is not argued that reinforcing will entirely eliminate cracking, the results clearly indicate the wisdom of placing it in these later pavements. It might be added that the surface of all of these pavements up to the present time shows no sign of wear.

It is perhaps worthy of mention that several types of joints, other than the patented metal type alluded to in the Lake Shore, were tried in these pavements, and from observation of them it is evident that the most satisfactory form consists of the introduction of the ½-in. strip of manufactured filler, so placed as to permit of a small projection above the surface to allow for protection of the edges.

The information, therefore, which it was desired to gain in laying the experimental road on the Lake Shore



Typical Cross-Section, Lake Shore Road
Full lines show elevations of surface March 23rd, 1918. Broken lines, April 15th, 1914

Road, has established two very definite points in connection with the laying of concrete pavements in a climate such as that of Toronto, where the temperature has a range of 130°.

They are mainly the character of mixture, and the necessity for the use of reinforcements, and in future in any case where concrete pavements are to be laid, they will follow the specifications adopted for the last-mentioned work in the northern part of the city, and will provide in addition to the necessary drainage facilities, etc., for a 1:1½:3 mixture of 1-in. trap rock and some form of reinforcement.

UNION OF CANADIAN MUNICIPALITIES

DELEGATES from all parts of Canada attended the eighteenth annual convention of the Union of Canadian Municipalities, held July 9th to 11th in Victoria, B.C. The general principles actuating the Union are summed up as follows:—

(1) The Canadian people shall not be ruled by any irresponsible monopoly.
(2) They shall not submit to methods of fraud or corruption.
(3) There must be no perpetual franchises.
(4) Our heritage of natural resources affecting municipalities must not be sold, but leased, if not publicly operated.
(5) One generation cannot legislate away the rights of another.
(6) Municipalities must control their streets.
(7) Each Canadian shall have a fair deal from all who are granted corporated or other public privileges.
(8) Some court or council must always exist, free and equipped to enforce the fair deal.
(9) The life of the poorest citizen must be made worth living through his share of the best civic conditions and services.