ST. CLAIR AVENUE BRIDGE, TORONTO.

By E. M. Proctor, B.A.Sc.,

Structural Designer, Bridge Department, City of Toronto.

RIOR to 1909 there existed on St. Clair Ave., between Bathurst Street and Spadina Road, a small wooden bridge which spanned Black Creek. In 1909 a reinforced concrete culvert (6 ft. x 6 ft.)

was built at this location, and an earth embankment 20 ft. in height was constructed across the ravine. In 1911 it was decided to re-grade and widen St. Clair Ave. and to build the now existing St. Clair Ave. civic car line. The width of the street was fixed at 100 ft. and at Black Creek the height of the embankment was raised from 20 to 50 ft., which necessitated the extension of the culvert way in the ravine. Several conditions favored this proposition. Sir Henry M. Pellatt had donated a 100-ft. strip of land in the ravine for this purpose and there was no means of continuing this proposed driveway to the north without constructing a bridge in the embankment at St. Clair Ave. The owners of the flats to the north were claiming heavy land damages on account of the embankment cutting off their ingress and egress. The construction of a bridge and the building of a road in the ravine would combat these damage claims to a great extent.

In the summer of 1912 the city council decided to construct a bridge with an opening of 100 ft. The Railway and Bridge Department prepared plans for a deck plate girder bridge with a concrete span of 100 ft. and



Fig. 1.—View of Completed Structure; Closer View of Pier, East Abutment; Pile Driver at Work on East Abutment; Gauntlet Track Under Construction on Temporary Trestle.

to a total length of 272 ft. This extension was made from the same design as was used for the portion then existing.

In January, 1912, a temporary trestle was built upon the old embankment and a burrow pit opened up, just west of the ravine. Two steam shovels and a work train were used. This filling, being nearly all done during cold weather, was in a more or less frozen condition. On June 26th, 1912, it was discovered that portions' of the culvert had failed, the roof having fallen in. The collapsed portions were in the newly constructed culvert, the older part remaining intact.

The failure of the culvert and its necessary repair reopened the question of providing an opening for a drivetwo approach spans of 40 ft., with a total deck width of 90 ft. (handrail to handrail) and a clear distance between curbs of 69 ft., the substructure to be composed of concrete piers and abutments bearing on pile foundations. The bridge is skewed at an angle of 23° to the centre line of St. Clair Ave. and is on a .67 per cent. grade.

The plans were approved and contracts let in the early summer of 1913 to the McGregor & McIntyre Co. for the structural steel work, and to Scott & Law for the piling and concrete work.

The first work to be done was to repair the culvert and excavate a site in the embankment for the bridge.