

is obtained by the use of $\frac{3}{4}$ -inch square bars placed at eighteen inches centre, intrados only, for a third of the distance from each end, the remaining third having $\frac{3}{4}$ -inch bars top and bottom at six-inch centres.

Stirrups are used at twelve-inch centres, throughout the whole length of longitudinal reinforcement.

The two 51-inch mains are carried directly by transverse spandrel walls placed at 10-ft. centres, and the 20-ft. roadway slab is also carried by means of a central beam and short column to the transverse spandrel wall. All loads on the arch ring are, therefore, clearly concentrated by these walls, which enables a much more accurate solution to be made of the line of pressure, eccentric distances, and bending moments in the arch ring.

Three conditions of loading were investigated: the dead load, live load covering half span, and full live load.

Loads assumed for the design were dead load of arch ring, superstructure, and two 51-inch pipes full of water. Live load was assumed at 150 lbs. per square foot of road surface.

Expansion joints are provided for at the junction of longitudinal spandrel walls with piers and abutments.

A cableway system is being made for placing concrete and other materials in all parts of the bridge, one tower being placed on Lemieux Island, another on the mainland, a distance of some seven hundred feet. This system is found to operate very satisfactorily. Concrete is being laid this fall up to springing lines of piers and abutments only.

The contract for the bridge was awarded to Thos. McLaughlin, of Ottawa, the tender price being \$54,000. The structure was designed by Mr. J. B. McRae, consulting engineer, Ottawa, working in co-operation with Robert Henham, bridge engineer of the city engineer's department, Ottawa.

COAST TO COAST

Windsor, Ont.—A by-law will be submitted in January as the result of a movement to expropriate the local gas plant.

Huntsville, Ont.—A new commission will be established early in January to have charge of the electric light and water departments and to be known as the Public Utilities Commission.

Toronto, Ont.—York Township will apply to the Ontario Legislature at its next session for permission to supply water throughout the township. It is proposed to secure the water supply from the city, if possible.

Montreal, Que.—Col. A. E. Labelle, of the Harbor Commission, speaking at a meeting last week, urged the speedy construction of the Georgian Bay ship canal and a considerable increase of the Canadian tonnage on the Great Lakes.

Vancouver, B.C.—The Clark Drive sewer outfall, which extends for over 1,550 ft. under Burrard Inlet, is now complete, and was officially inspected last week by Mr. A. D. Creer, chief engineer of the Greater Vancouver and Districts Sewerage Commission.

Montreal, Que.—The new pavement on Notre Dame Street was officially inaugurated last week, the ceremony being conducted in the presence of official representatives of the province and city. A snow storm, however, neces-

sitated considerable sweeping for the final inspection of the work.

Hamilton, Ont.—The Harbor Commissioners have completed the reclamation work at the foot of Wellington Street, which places at the disposal of the city over 15 acres for factory sites. The erection of a dock and the laying of a spur line from the Grand Trunk Railway are a part of the scheme of development.

Vancouver, B.C.—The zinc industry in British Columbia will receive a big impetus in the establishment at the Trail smelter of a large plant for treating zinc ore, to be operated by the Canadian Consolidated Mining and Smelting Co. The plant is expected to be completed by January 1. It will cost in the neighborhood of \$1,000,000.

Winnipeg, Man.—Work on the law courts building is to be continued, an agreement having been arranged between the government and the contractors. Hon. T. H. Johnson, Minister of Public Works, has appointed a superintendent of construction, and the work is scheduled to proceed without further delay. It is expected that the building will be completed in March, 1916.

Vancouver, B.C.—According to Mr. T. H. White, chief engineer for the Canadian Northern Pacific Railway, good progress has been made in the improvements at False Creek. Over 35,000 cu. yds. of shale and heavy clay have been removed along the line of the sea wall, and some 1,800,000 cu. yds. of earth, together with 7,500 cu. yds. of rock, has been deposited in the bed of False Creek. Work is proceeding on the construction of the company's wharf.

Cobalt, Ont.—The Tough-Oakes mine at Kirkland Lake has to date this year produced over \$400,000 in bullion. Development underground has been remarkably successful during the past month, the ore being found on both vein systems being very spectacular. There is now a full head of water on Long Lake, near Charlton, and there is little probability that there will be any shortage before spring. For more than a month now electric power has been running both mill and mine and the development of the property has been resumed at full blast.

Niagara, Falls, Ont.—A conference was held last week by the city authorities and the engineers of the Hydro-Electric Power Commission relative to the exchanging of water rights in the city for electrical power and the providing of a deep waterway at Chippewa. The Commission has two plans for the supply of water for the proposed development which the Provincial Government will be asked to ratify at its next session. One is for the supply of water through a canal from Slater's dock across to Chippewa Creek, and the other calls for the widening of Hog Island Cut.

Toronto, Ont.—Two hundred and fifty miles of good roads, at a cost of approximately \$800,000, have been provided throughout the older sections of Ontario during the year just ended, according to statistics furnished by the Good Roads Commission. This work is not the construction of new roads, but the improvement of those already existing. The cost is divided between the province and the municipalities, the former paying one-third. Colonization roads this year have cost some \$220,000, so that altogether over a million dollars this year has been put into providing and improving the means of travel in rural districts in Ontario.

Hamilton, Ont.—Representatives of municipalities interested in the proposed hydro radials from St. Catharines to Guelph and Hamilton to Lake Erie, met in Hamilton last week to discuss plans. A common entrance in the