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HIGHWAY BRIDGES IN ONTARIO

REVIEW OF DESIGN AND METHODS OF CONSTRUCTION OF STRUCTURES ADAPTED TO THE REQUIREMENTS OF MODERN TRAFFIC CONDITIONS

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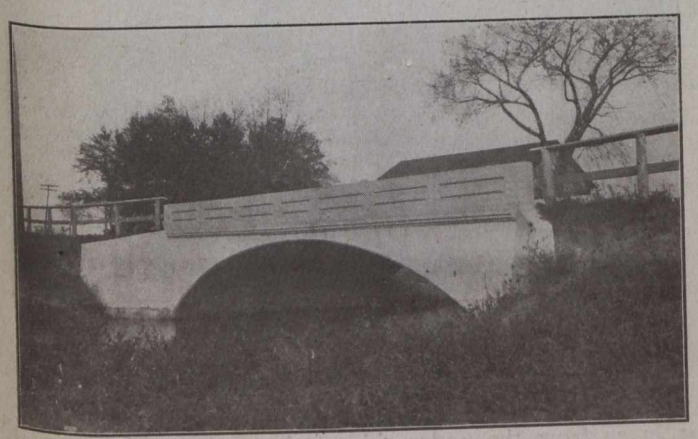
THE improvement of roads throughout the province has attracted a wide public interest for some years, and the superior type of road now built has led to a demand for better types of culverts and bridges with wide roadways, and an appearance in keeping with the improved surroundings. Among county officials there has been an increased interest in the types of construction selected. There still remains, however, a lack of uniformity in general construction, and an absence of proper appreciation of the many types of culverts which are suitable for the smaller waterways. It is, therefore, sought to present to those in charge of the highways a review of design and methods of construction



A Substantial and Attractive Concrete Arch.

which will result in securing sound and enduring structures properly adapted to the requirements of traffic in designing culverts and bridges to be built on the highways of the Province of Ontario.

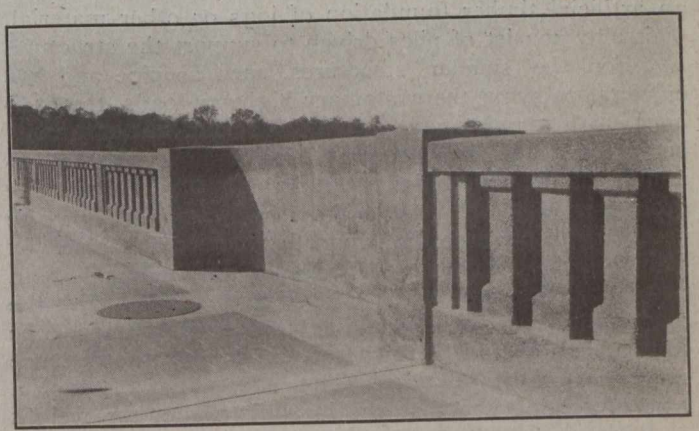
Periodical Examination.—It is advisable that the county or township road superintendent should periodically, at least twice a year, examine all parts of each steel bridge under his care.

Location.—When a permanent structure is to be erected the site should be carefully selected so that there will be the least possible exposure to the forces tending to cause destruction of the bridge. The site should also be chosen so that the cost of construction will be as low as consistent with good service to the public.

The safety of the public demands that a bridge be located so that it is parallel with the centre of the road. To place it otherwise, at an angle with the road, will give a turn at each end which is dangerous and should be avoided.

Size of Waterways.—In selecting the size of a waterway careful consideration should be given local conditions, including flood height and flow, size and behaviour of other openings in the vicinity carrying the same stream characteristics of the channel and of the watershed, climatic conditions, extent and character of the traffic on the highway and other circumstances affecting the safety, economical construction or maintenance of the culvert or opening.

The use of a formula to assist in determining the proper size of waterway can only be warranted when the values of the terms in the formula are known to suit local conditions. Such formulas are useful as a guide in fixing and verifying bridge or culvert sizes where only general information regarding the watershed is available. A formula should not be used where it is possible for the engineer to visit the site and by careful examination of the locality arrive at a satisfactory result.



An Artistic Handrail.

It is advisable to place the face of the footings of abutments at least as wide apart as the banks of the river, and still further apart if other circumstances warrant. Never place the abutments of a bridge in the water. Keep the abutments on the shore with their front at the water's edge.

Bridges.—Many timber bridges still exist in the older parts of Ontario, and these structures are a heavy burden to the municipality in which they are situated. They require constant attention and frequent repairs to keep them in a safe condition for public travel.

In addition to the expense for maintaining such bridges they are a source of anxiety to municipal officials, as such structures frequently collapse, as the accom-

*Abstracted from pamphlet concerning the construction of highway bridges recently sent out simultaneously with and supplementary to "General Plans for Highway Bridges."