

APPENDIX "Z-3"The Disintegration of Concrete in Alkali
Soils of Western Canada

A few years ago the destructive effect on concrete of the alkaline waters found in the soil of certain parts of Western Canada was brought forcibly to the attention of engineers and builders when structures of great importance and magnitude, situated in the Prairie Provinces, were found to be slowly but surely disintegrating under this destructive agency. A brief survey showed that structures involving millions of dollars were endangered, and the problem was so serious that engineers of standing decided that until more was known concerning the action of these waters concrete could not be safely used under conditions where alkali ground water would be encountered.

The National Research Council is co-operating with the Engineering Institute of Canada, the Provinces of Saskatchewan and Alberta, the Canada Cement Company, the Canadian Pacific Railway, and the City of Winnipeg, in an investigation the object of which is to determine the exact cause of this disintegration and if possible to find a remedy, although from the first the committee in charge of the investigation have emphasized the fact that the finding of a remedy is uncertain and may be impossible.

This investigation, which has been in progress for the past four years, has been carried out along two lines -

- (a) physical field tests and
- (b) chemical research.