

# 63-F-140

W.P. MUNICIPAL

Hwy # 50

PROP. CULVERT EX.

CALEDON E.

DEPARTMENT OF HIGHWAYS ONTARIO

28-6

## MEMORANDUM

To: Mr. T. J. Kovach,  
Bridge Engineer,  
Bridge Division.

FROM: Mr. A. C. Sternac,  
Principal Foundation Engr.,  
Foundation Section,  
Materials & Research Division.

cc: Mr. H. L. Kleinstelber,  
Dist. Bridge Liaison Engr.

DATE: January 2, 1964

OUR FILE REF.

IN REPLY TO

## SUBJECT:

## FOUNDATION INVESTIGATION REPORT

For

Proposed Culvert Extension at  
Sta. 182+15, 20th Side Rd., Hwy. #50  
to Caledon East - Dev. Rd. P.E. #744,  
Township of Elgin - District No. 6.  
U.C. #3-F-140 - (Municipal Job)

It is proposed to realign the existing Side Road #10 at the above-mentioned location. The future widening of the roadway requires some 15 ft. of extension to the right of the existing 2.5' x 16.0' concrete rigid frame culvert at Sta. 182+15. A request for a foundation investigation was received from Mr. T. J. Kovach, Regional Materials Engineer, dated November 25, 1963.

In order to determine the properties of the soil and decide on the type of foundations, an investigation was carried out by this Section. The field investigation was confined to two sampled boreholes supplemented by two dynamic cone penetration tests. The elevations as well as the locations of the boreholes, are shown on Dwg. #63-F-140-1, attached to this report.

Subsoil at the site generally consists of 7 to 9 ft. of soft organic material (muck) followed by 11 to 13 ft. of loose silt with organics. These deposits are underlain by an extensive deposit

cont'd. /2 ...

of loose to dense sandy silt to silty fine sand to at least 55.0' which was the maximum depth sampled. The upper portion of the sandy silt to silty fine sand deposit was found to consist of variable amounts of organic matter.

The presence of the organic material (muck) followed by loose organic silt raises the problems of low bearing capacity and large settlements. For these reasons, it is suggested that whatever type of culvert is adopted, a granular pad some 4 ft. thick, be placed below the base of the structure.

If an extension to the existing culvert is required, it should be in the form of a concrete box built as an independent unit separated from the existing one by a vertical expansion joint. For design purposes, a safe bearing load of 750 p.s.f. may be used.

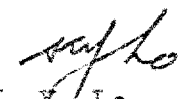
As an alternative, the existing culvert can be removed and replaced with a new culvert resting entirely on the above-mentioned 4-ft. granular pad. This new culvert should be preferably one or more flexible pipes or pipe arches.

The field work, performed during December 1963, together with the preparation of this report, was undertaken by Mr. V. Korlu, Project Foundation Engr. The investigation was carried out under the general supervision of Mr. M. Devata, Sr. Foundation Engr., who also reviewed this report.

Equipment used was owned and operated by Johnston Drilling Co. Ltd.

VK/MdeP  
Attach.

cc: Messrs. A. M. Toye (3)  
J. P. Howard  
J. G. Tillcock  
T. J. Kovich

  
K. Y. Lo,  
SUPERVISING FOUNDATION ENGR.  
For:  
A. G. Stermac,  
PRINCIPAL FOUNDATION ENGR.

Foundations Office  
Gen. Files

APPENDIX I.



NORTH

EXISTING CULVERT

CREEK

EXISTING ROAD

PROPOSED ROAD

ALLOWANCE 66' 0"

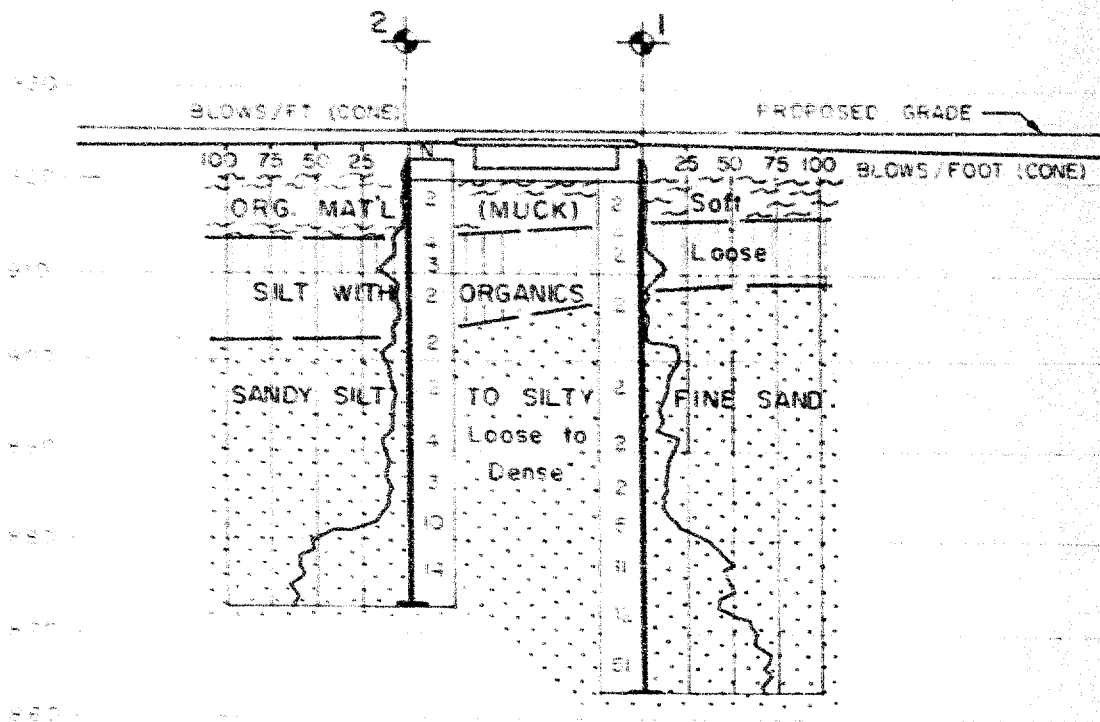
ROAD

EXISTING

2

PROPOSED FOOTINGS

PLAN



PROFILE - PROPOSED ROAD

ORIGINATED M. DEVATA

DRAWN

CHECKED

APPROVED

DATE JAN 7, 1964

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & RESEARCH SECTION

20TH SIDE ROAD  
TOWNSHIP OF ALBION

JOB NO. 6359

SCALE 1 IN = 20 FT.

W. P. NO.

JOB NO. 63-F-140

DWG. NO. 63-F-140A