

#55-F-26
Hwy. #35
LAKE OF BAYS
AT DORSET

EDITED
FOR MICROFILMING
BY *K.T.* DATE *3/10*

[illegible][illegible]

MATERIALS LABORATORY-DEPARTMENT OF HIGHWAYS - ONTARIO
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG CORE DRILL 52-1
CASING 3x (STANDARD SAMPLERS TO FIT UNLESS NOTED)
SAMPLER HAMMER WT 250 # DROP 24 INCHES

JOB F-55-26
 DATUM STN 70+72 45'-0" LT
 COMPILED BY JR CHECKED BY

BORING N° 3
DATE REPORT 16 SEPT. 55
BORING DATE 31 AUG. 55

SAMPLE CONDITION



DISTURBED



SAMPLE TYPES

C.S - CHUNK
DQ - DRIVE OPEN
DF - DRIVE FOOT VALVE
TO - THIN WALLED OPEN

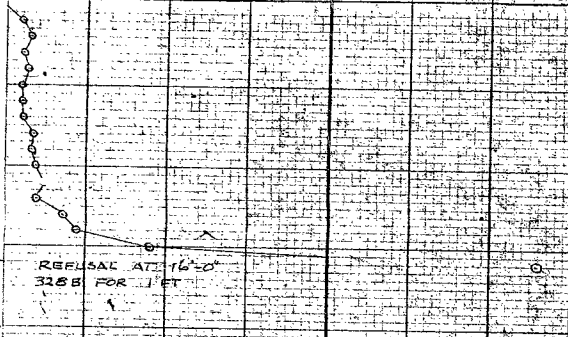
WS - WASHED SAMPLE
RC - ROCK CORE

ABBREVIATIONS

Abbreviations

| | |
|---|--------------------------|
| V-INSITU VANE SHEAR TEST | Y-UNIT WEIGHT |
| M-MECHANICAL ANALYSIS | K-PERMEABILITY |
| U-UNCONFINED COMPRESSION | C-CONSOLIDATION |
| Q _c -TRIAXIAL CONSOLIDATED QUICK | CA-CASING |
| Q _u -TRIAXIAL QUICK | WL-WATER LEVEL IN CASING |
| S-TRIAXIAL SLOW | WT-WATER TABLE IN SOIL |

SOIL PROFILE

| | | | | | SAMPLES | | | | | | | | | | | | | | | | |
|--------------------|---------------------|-------------|------------|--------------------|--|-----|----------------|---------------|------|----|---------------------------|----------------|----|--|--|--|--|--|--|--|--|
| ELEVATION DEPTH | WATER CONDITIONS | DESCRIPTION | STRAT PLOT | ELEVATION SCALE | PENETRATION TEST | | OTHER TESTS | CONDITION | TYPE | NR | PENETRATION RESISTANCE | ELEV. RECOV | | | | | | | | | |
| | | | | | TONS/SQ FT. OR $Q_{N/2}$ | W % | | | | | | | | | | | | | | | |
| | | | | | RESISTANCE BLOWS PER FOOT STANDARD ENERGY 4200 IN LB | | $Q - P.W.$ | $\Delta L.W.$ | | | | | | | | | | | | | |
| | | | | | 50 | 100 | 150 | 200 | | | | | | | | | | | | | |
| 1042.61 | | | | 0 |  | | | | | | | | | | | | | | | | |
| 1026.6 1640 | | BEDROCK | | 15 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | 20 | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |

MATERIALS LABORATORY-DEPARTMENT OF HIGHWAYS - ONTARIO
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG CORE DRILL 54-1
CASING 2X (STANDARD SAMPLERS TO FIT UNLESS
SAMPLER HAMMER WT. 140 * DROP 3

JOB F-55-26 8-5 RT BORING NO. 4
 DATUM STN 73+96 DATE REPORT 16 SEP 55
 COMPILED BY AB CHECKED BY AB BORING DATE 1 SEP 55

BORING NO. ... 4 ...
DATE REPORT 16 SEP 55
BORING DATE 1 SEP 55

SAMPLE CONDITION



1. DISTURBANCE



SAMPLE PES

C.S. - CHUNK
D.O. - DRIVE OPEN
D.F. - DRIVE FOOT VALVE
T.O. - THIN WALLED OPEN

W.S. - WASHED SAMPLE
R.C. - ROCK CORE

ABBREVIATIONS

ABBREVIATIONS

| | | |
|--------------------------------|--------------------------|-------------|
| V-INSITU VANE | SHEAR TEST | UNIT WEIGHT |
| M-MECHANICAL ANALYSIS | K-PERMEABILITY | |
| U-UNCONFINED COMPRESSION | CA-CONSOLIDATION | |
| QC-TRIAXIAL CONSOLIDATED QUICK | CC-CASING | |
| Q-TRIAXIAL QUICK | WL-WATER LEVEL IN CASING | |
| S-TRIAXIAL SLOW | WT-WATER TABLE IN SOIL | |

SOIL PROFILE

[illegible]

54-90

MATERIALS LABORATORY-DEPARTMENT OF HIGHWAYS - ONTARIO

OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG 504 204 54-1 JOB F-55-26 BORING NO. 5
CASING 3.1 (STANDARD SAMPLERS TO FIT UNLESS NOTED) DATUM STN 73+80 DATE REPORT 16 SEPT 55
SAMPLER HAMMER WT 250 * DROP 24 INCHES COMPILED BY J.B. CHECKED BY J.B. BORING DATE 7 SEPT 55

SAMPLE CONDITION

☒ DISTURBED
☐ GOOD
☐ LOST

SAMPLE TYPES

C.S. - CHUNK
D.O. - DRIVE OPEN
D.F. - DRIVE FOOT VALVE
T.O. - THIN WALLED OPEN

VS - WASHED SAMPLE
R.C. - ROCK CORE

ABBREVIATIONS

V - INSITU VANE SHEAR TEST
M - MECHANICAL ANALYSIS
U - UNCONFINED COMPRESSION
Qc - TRIAXIAL CONSOLIDATED QUICK
S - TRIAXIAL SLOW
γ - UNIT WEIGHT
K - PERMEABILITY
C - CONSOLIDATION
CA - CASING
WL - WATER LEVEL IN CASING
WT - WATER TABLE IN SOIL

SOIL PROFILE

ELEV. DEPTH
1035.52

WATER CONDITIONS

DESCRIPTION

STRAT. PLOT

ELEVATION SCALE

SHEAR STRENGTH
TONS/SQ. FT. OR Q_u/2

PENETRATION TEST
RESISTANCE BLOWS PER FOOT
STANDARD ENERGY 4200 IN. LB.

WATER CONTENT
W %

Δ PW Δ LV

SAMPLES

OTHER TESTS

CONDITION

TYPE

NO.

PENETRATION RESISTANCE

ELEV. RECOV.

REFUSAL AT 33' 2" 82.1 BLS 2 IN.

BEDROCK (GRANITE)

54-90

MATERIALS LABORATORY-DEPARTMENT OF HIGHWAYS - ONTARIO

OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG CORE DRILL 54-1 JOB F-55-26 BORING NO. 6
CASING BX (STANDARD SAMPLERS TO FIT UNLESS NOTED) DATUM STN 74+00 DATE REPORT 16 SEPT 55
SAMPLER HAMMER WT 250 * DROP 24 INCHES COMPILED BY J.B. CHECKED BY J.B. BORING DATE 7 SEPT 55

SAMPLE CONDITION

☒ DISTURBED
☐ GOOD
☐ LOST

SAMPLE TYPES

C.S. - CHUNK
D.O. - DRIVE OPEN
D.F. - DRIVE FOOT VALVE
T.O. - THIN WALLED OPEN

VS - WASHED SAMPLE
R.C. - ROCK CORE

ABBREVIATIONS

V - INSITU VANE SHEAR TEST
M - MECHANICAL ANALYSIS
U - UNCONFINED COMPRESSION
Qc - TRIAXIAL CONSOLIDATED QUICK
S - TRIAXIAL SLOW
γ - UNIT WEIGHT
K - PERMEABILITY
C - CONSOLIDATION
CA - CASING
WL - WATER LEVEL IN CASING
WT - WATER TABLE IN SOIL

SOIL PROFILE

ELEV. DEPTH
1038.11

WATER CONDITIONS

DESCRIPTION

STRAT. PLOT

ELEVATION SCALE

SHEAR STRENGTH
TONS/SQ. FT. OR Q_u/2

PENETRATION TEST
RESISTANCE BLOWS PER FOOT
STANDARD ENERGY 4200 IN. LB.

WATER CONTENT
W %

Δ PW Δ LV

SAMPLES

OTHER TESTS

CONDITION

TYPE

NO.

PENETRATION RESISTANCE

ELEV. RECOV.

REFUSAL AT 28' 3" 100.3 BLS 3"

SAMPLE CONDITION

SAMPLE TYPES

ABBREVIATIONS



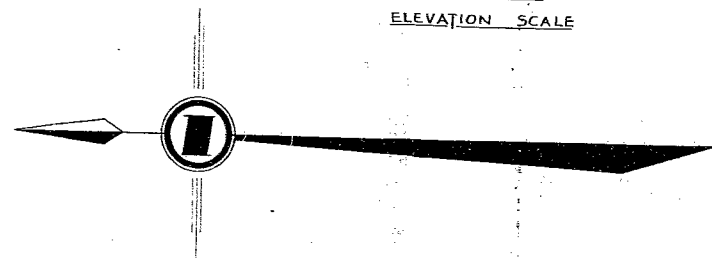
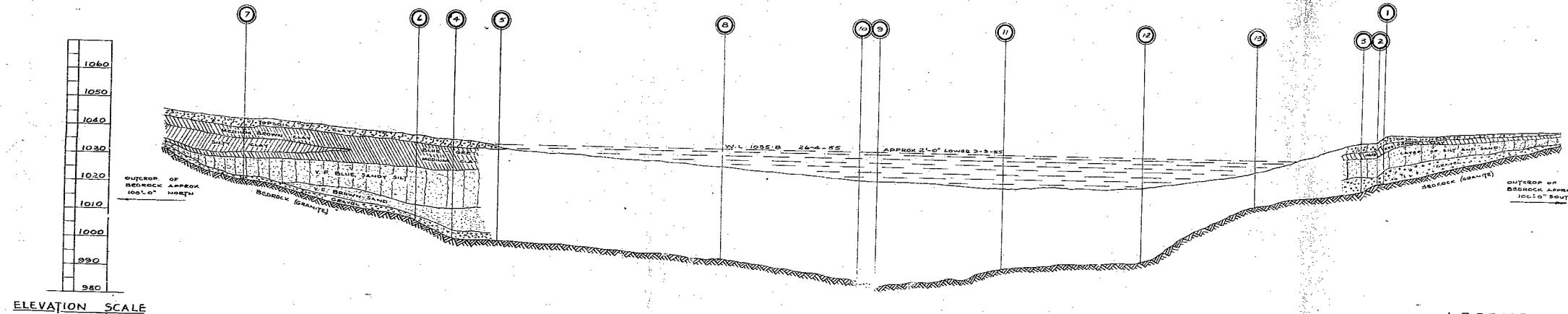
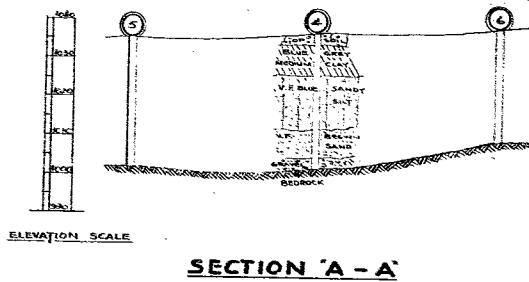
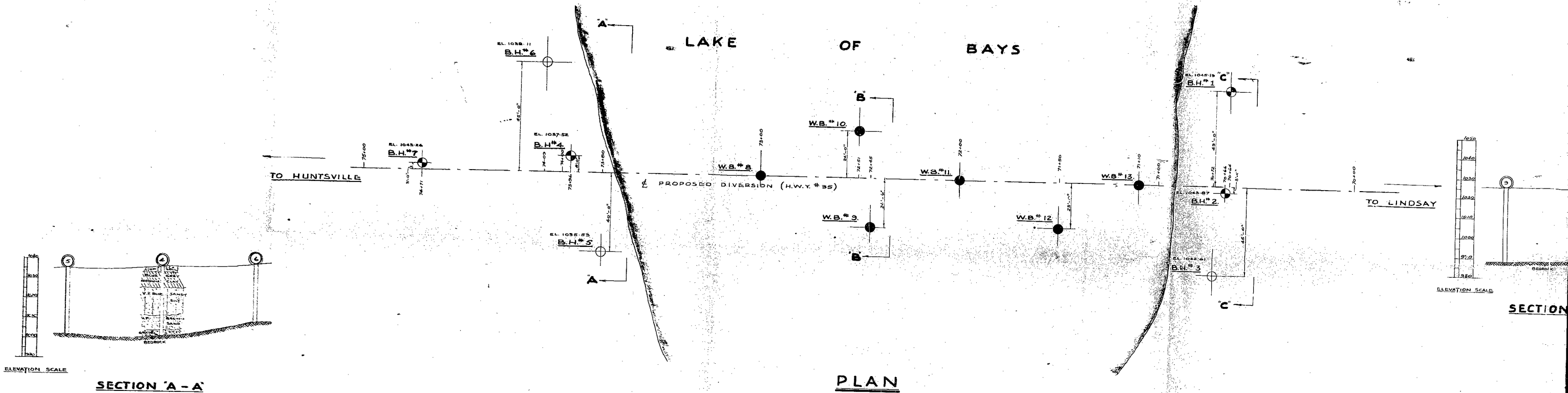
DISTURBED
GOOD
LOST

C.S. - CHUCK
D.O. - DRIVE OPEN
D.F. - DRIVE FOOT VALVE
T.O. - THIN WALLED OPEN

WS - WASHED SAMPLE
RC - ROCK CORE

| | |
|--|---------------------------|
| V-INSITU VANE SHEAR TEST | γ- UNIT WEIGHT |
| M-MECHANICAL ANALYSIS | K- PERMEABILITY |
| U- UNCONFINED COMPRESSION | C- CONSOLIDATION |
| Q _c - TRIAXIAL CONSOLIDATED QUICK | CA- CASING |
| Q- TRIAXIAL QUICK | WL- WATER LEVEL IN CASING |
| S- TRIAXIAL SLOW | WT- WATER TABLE IN SOIL |

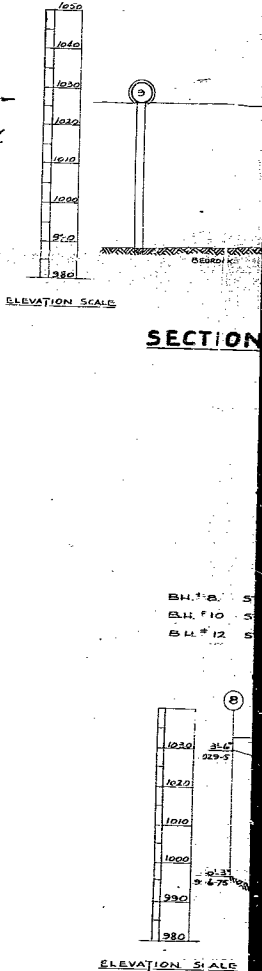
| SOIL PROFILE | | | | SHEAR STRENGTH TONS/SQ.FT. OR $Q_{u/2}$ | | WATER CONTENT V. % | | SAMPLES | | | | | | | | |
|-------------------|---------------------|----------------------|-------------|--|--|-----------------------|-----|---------|-------|-------------|----------------|-----------|--------|----|---------------------------|------------------|
| ELEV# DEPTH | WATER CONDITIONS | DESCRIPTION | STRAT. PLCT | ELEVATION SCALE | PENETRATION TEST RESISTANCE BLOWS PER FOOT STANDARD ENERGY 4200 IN. LB | | | | D. PV | Δ LV | OTHER TESTS | CONDITION | TYPE | N# | PENETRATION RESISTANCE | ELEV. RECOVER |
| | | | | | 50 | 100 | 150 | 200 | | | | | | | | % |
| 1043.26 | | TOPSOIL | | | | | | | | | | | | | | |
| 1040.26 3'-0" | | CLAY | | | | | | | | | | | CA | | 53 | |
| | | | | | | | | | | | | | CA | | 16B | |
| 1036.76 6'-6" | | MEDIUM BROWN CLAY | | 5 | | | | | | | | | CA | | 19B | |
| | | | | | | | | | | | | | CA | | 26B | |
| | | | | | | | | | | | | | CA | | 25B | |
| 1031.26 12'-0" | | SILTY CLAY | | 10 | | | | | | | | | CA-11B | TO | 1 | 100% |
| | | | | | | | | | | | | | CA | | 15B | |
| | | | | | | | | | | | | | CA | | 16B | |
| 1029.26 14'-0" | | MEDIUM CLAY | | 15 | | | | | | | | | CA-12B | TO | 2 | 100% |
| | | | | | | | | | | | | | CA-10B | | 9B | |
| | | | | | | | | | | | | | CA | | 9B | |
| | | | | | | | | | | | | | CA | | 10B | |
| 1028.26 21'-0" | | VF. SANDY SILT | | 20 | | | | | | | | | | TO | 3 | 25% |
| 1021.51 21'-9" | | GRAVEL | | 25 | | | | | | | | | | | | |
| | | BEDROCK (GRANITE) | | 30 | | | | | | | | | | DO | 4 | 0% |
| | | | | | REFUSAL @ 21'-9" | | | | | | | | | | | |
| | | | | | 43 B.F. @ 21'-9" | | | | | | | | | | | |



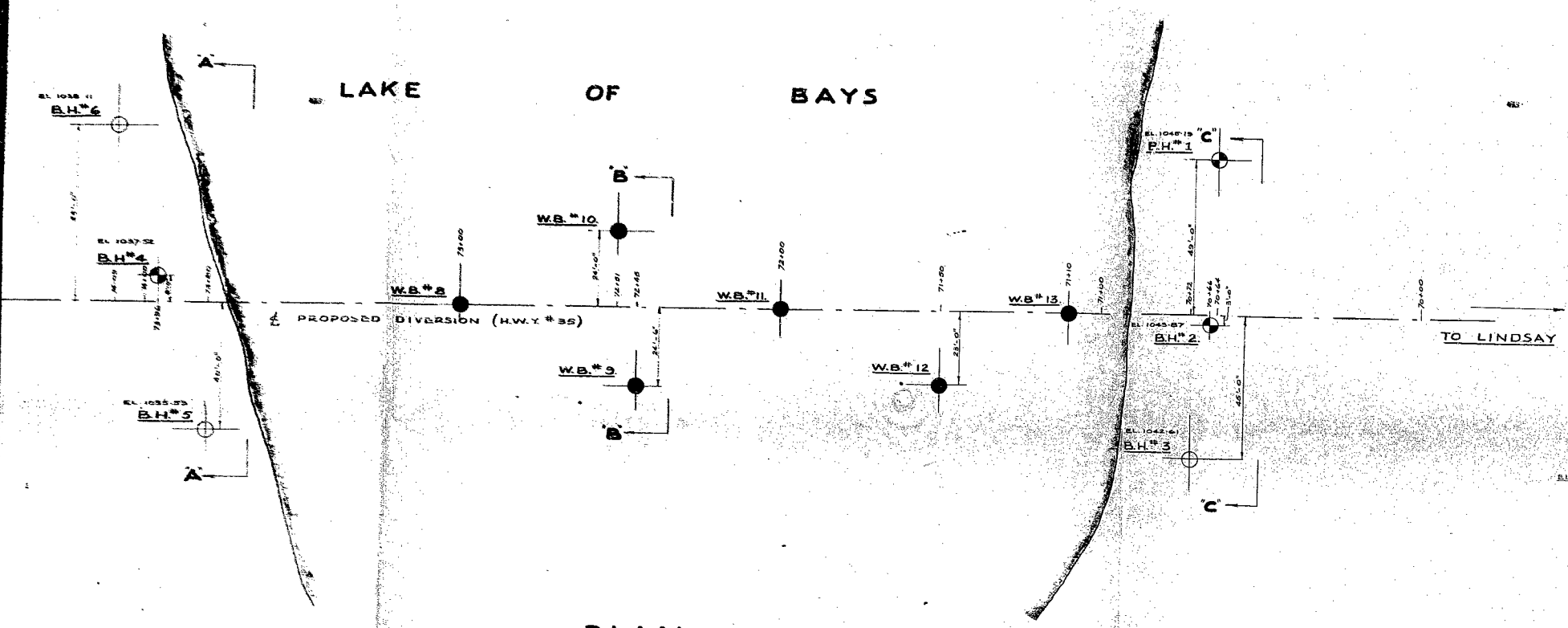
SECTIONAL ELEVATION

SCALE 1IN = 20 FT

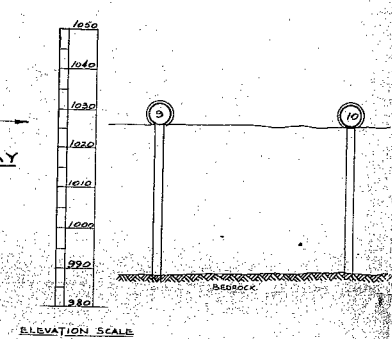
- LEGEND**
- BORE & PENETRATION HOLES
 - PENETRATION HOLES ONLY
 - WASH BORINGS ONLY



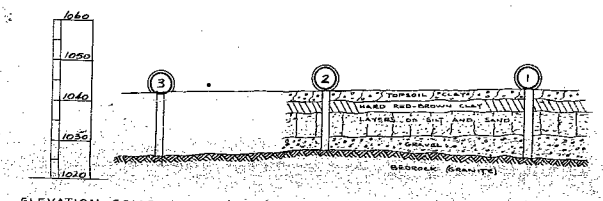
LAKE OF BAYS



PLAN



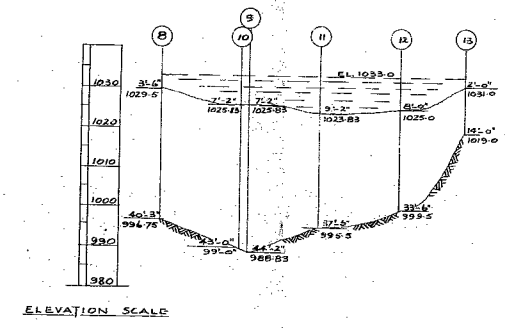
SECTION B-B



SECTION C-C

WASH BORINGS

B.H.#8 STN. 73+00
 B.H.#10 STN. 72+51 24'-0" RIGHT
 B.H.#12 STN. 71+50 23'-0" LEFT
 B.H.#9 STN. 72+45 24'-6" LEFT
 B.H.#11 STN. 72+00
 B.H.#13 STN. 71+10
 DEPTHS ON SECTION BELOW ARE TO LAKE BOTTOM & BEDROCK.



SCALE - HOR. 1IN = 50 FT
 VERT. 1IN = 20 FT

NOTE: B.H.#8 TO B.H.#13 INCLUSIVE ARE MEASURED FROM W.L. I.E. EL. 1033.0

SECTIONAL ELEVATION

SCALE 1IN = 20 FT

LEGEND

- BORE & PENETRATION HOLES
- PENETRATION HOLES ONLY
- WASH BORINGS ONLY

| | | | |
|---|---------|----------------|--|
| DEPARTMENT OF HIGHWAYS: ONTARIO- | | | |
| MATERIALS LABORATORY TORONTO | | | |
| DORSET | | | |
| SKETCH SHOWING RELATIVE POSITIONS OF BORE HOLES & PENETRATION HOLES AT DORSET | | | |
| THE KING'S HIGHWAY NO. | | DIV. No. | |
| CO. DIST. OF HALIBURTON | | | |
| TWP. SHERBOURNE | LOT | CON. | |
| APPROVED | | | |
| CHIEF BRIDGE ENGINEER | | CHIEF ENGINEER | |
| DESIGNED | CHECKED | CONTRACT | |
| D.J.D. | CHECK | REVIEWED | |
| PREPARED | CHECKED | LOADING | |
| DATE | | TESTING | |
| | | SURVEY | |
| F-55-26A | | | |

File

55F-26

Mr. A. Topp

Oct. 13th, 1958

Bridge Eng., Dept. of Wrs.
Highways Lab., 1200 Sheppard Ave.

Re: Foundation Report
Prop. structure at Dorset,
new location, site plan E-11 on
Project E-55-26

Attached herewith is the report of the foundation investigation for the above structure which is self-explanatory.

This proposed structure is located approximately 500' to the east of the existing structure and when completed along with the approaches will by-pass Dorset. It is not shown on any preparation list for construction.

F.J. Brownridge
Materials & Research Engineer

For:

A. Ruth

(A. Ruth)

copies to: A. Topp
J. Chittor
E. Gervier
A. Trepanier
G. Parantatos

no problem with approach fills. Q.R.

File 55B1

Report of Foundation Investigation
for Proposed Bridge over Lake of Bays
on the Proposed Diversion
of Highway No. 35 at Dorset

Copies to:

Mr. A. Tove, Bridge Engineer (2)
Mr. H. Tregaskes, Construction Engineer (1)
Mr. J. Walter, Design Engineer (1)
Mr. H. C. Dernier, District Engineer, Huntsville (1)
Mr. G. Farantatos (1)
File (1)

Project F-55-26

Introduction

A bridge is to be built over an inlet of the Lake of Bays near the Village of Dorset.

This report is written with regard to the subsurface soil investigations of the proposed site for the bridge.

Procedure

Altogether four boreholes and seven penetration holes were made on the site. The boreholes were preceded by penetration tests. In the water wash borings were carried down to bedrock.

The wash borings were done by jetting A-rods down through the river bed until rock was struck. This method was thought to be the most economical, since the bedrock was found to be near the surface.

The locations and elevations of the boreholes and penetration holes are shown in Drawing F-55-26A. The logs of the boreholes can be found in Appendix I.

Soil Stratigraphy

Bedrock was found to exist from 17 ft. to 25 ft. below ground. The 15 ft. to 25 ft. of overburden is topsoil, silty clay and loose sand. The bearing properties of the soil as indicated by the results of the boring tests are very low.

Recommendations

Spread footing foundations could not be used. The bearing capacity of the soil as checked with the standard penetration tests is very low. The scour effect is also a reason for rejecting the use of spread footing foundation.

Pile foundation should be used. H-piles carried down to bedrock will support a 45-ton load.

It is advised to weld reinforcing plates at the point of the pile as recommended by the Bethlehem people.

Conclusion

H-piles driven into the bedrock should be used for the foundation of the proposed bridge. Such piles should be capable of providing a load of 45 tons per pile.

The points of the piles should be reinforced by welding. *plates*

(G. N. Farantatos)
Foundation Engineer

GNF:GCP

APPENDIX I