

57-F-9

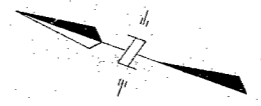
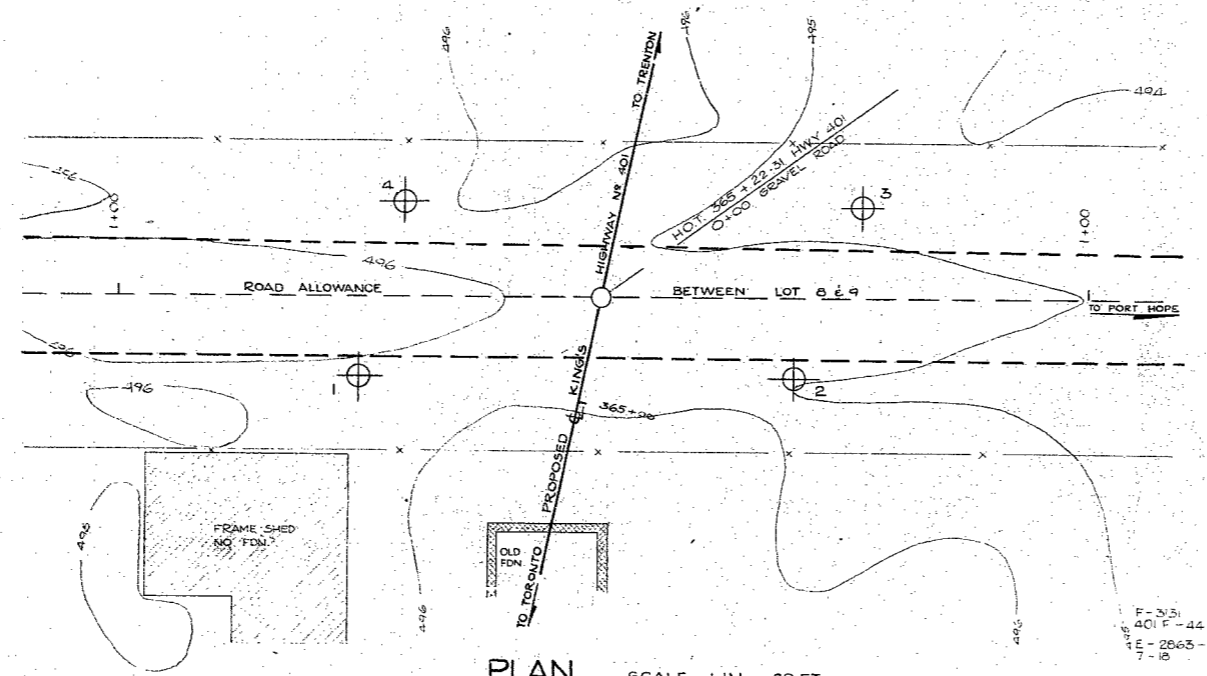
W.P.# 82-57

Hwy.# 401

CONCESSION 2

PORT HOPE TWP.

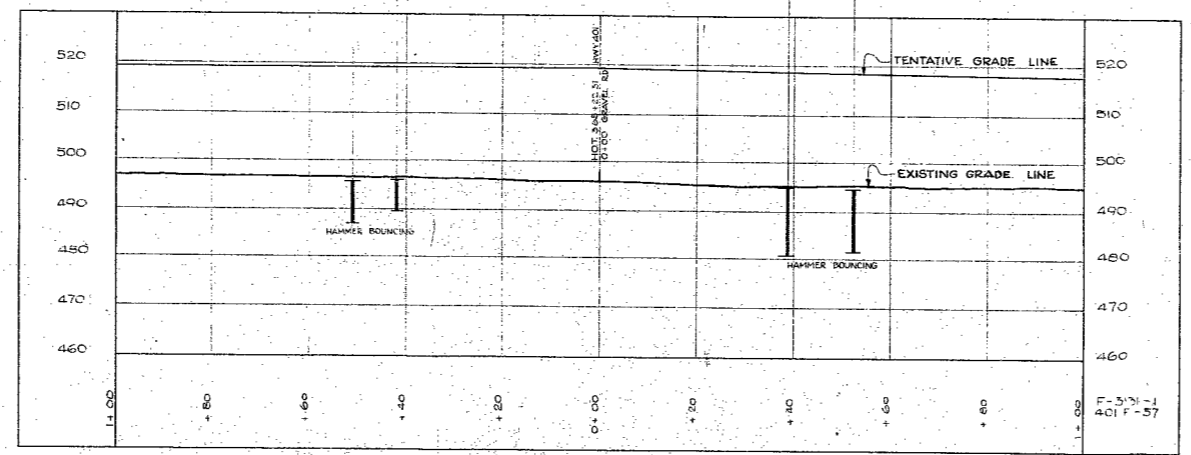




LEGEND			
BORE HOLE			
PENETRATION HOLE			
BORE & PENETRATION HOLE			
HOLE NO.	ELEVATION	STATION	DISTANCE FROM C.
1	496.0'	364+96'	45' LT.
2	495.2'	365+14'	43' RT.
3	494.6'	365+52'	49' RT.
4	496.0'	365+33'	44' LT.

— NOTE —
THE BOUNDARIES BETWEEN SOIL STRATA HAVE BEEN ESTABLISHED ONLY AT BORE HOLE LOCATIONS. BETWEEN BORE HOLES THE BOUNDARIES ARE ASSUMED FROM GEOLOGICAL EVIDENCE AND MAY BE SUBJECT TO CONSIDERABLE ERROR.

PRINT RECORD		
NO.	FOR	DATE



PROFILE SCALE HOR. 1 IN = 20 FT
VER. 1 IN = 20 FT

REVISIONS	DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS - ONTARIO -
MATERIALS & RESEARCH - SECTION - DOWNSVIEW

**PROPOSED CROSSING
OF ROAD BETWEEN LOTS 8 & 9
NORTH OF PORT HOPE**

THE KING'S HIGHWAY No. 401 DIV. No. 7
CO. DURHAM
TWP. HOPE LOT 8 & 9 CON. II

POSITIONS & ELEVATIONS OF HOLES

APPROVED

DESIGN	CHECK	CONTRACT	NO.
DRAWING	D.F.	NUMBERS	82-57
TRACING	CHECK	LOADING	
DATE	MAY 17, 1957	DRAWING	NUMBER F-57-9A

Mr. A. M. Tove.

July 26th, 1957.

Bridge Engineer.

Re: Foundation Report.

Mr. F.C. Brownridge.

Hwy. 401 between Lots 8-9.

Twp. of Port Hope W.P. 62.57.

W.J. F 57-9

Attached herewith are two copies of the above mentioned Foundation Report, which are self explanatory.

F. C. Brownridge.
Materials & Research Engineer.

per:



A. RUTKA.
Principal Soils Engineer.

c.c. Mr. A. Tove.
Mr. H. Tronaskes.
Mr. J. S. Ramsay.
Mr. H.D. Duff.
Foundation Section.
File.

FOUNDATION REPORT

on

Underpass Bridge at Highway 401
and Road Allowance between Lots
8 & 9 Crossing (Concession II,
Township of Port Hope)

Site Plan: E-2863-1

Station: 365/22.31

Distribution:

Mr. A. Toye
Bridge Engineer (2)

Mr. H. Tregaskes
Construction Engineer (1)

Mr. D. G. Ramsay
Design Engineer (1)

Mr. H. D. Duff
District Engineer, Fort Hope (1)

Foundation Section (1)

File (1)

W.J. F-57-9

W.P. 82-57

I. Introduction

A subsoil investigation was carried out to determine the bearing values of the layers to support the foundations of the proposed underpass bridge.

The site is some 3 miles Northwest of Port Hope, where the new highway 401 crosses Concession Line II between Lots 8 and 9 (Profile F-3131-1, Station 0+00).

II. Procedure

The subsoil investigation was carried out by means of a skid mounted core drill. The location is right on a moraine hill spotted with gravel pits nearby. So, for the sake of confirmation, four dynamic cone penetrations were performed, down to refusal.

The location of the penetration holes are shown on site plan F-57-9A and their elevations on log sheets under Appendix I.

III. Subsoil Findings and Analysis

The terrain is moraine hill, spotted with loose gravel and boulder stones on the surface. Some 150 yards to the North, an extensive gravel pit is being operated. An attempt to sink BX casing for a borehole was unsuccessful. Instead, four dynamic cone penetrations were driven at points assumed to be the end corners of the piers. The penetrations were carried down to refusal. During the penetration it was observed that this glacial moraine showed great variation in density and composition. However, after assuring that the subsoil is moraine sand and gravel, its dependability as good supporting material leaves no doubt.

Conclusions and Recommendations

The terrain is typical moraine; as such, good supporting material for spread footing foundations.

From dynamic cone penetration results, the layer would provide 2 T.S.F. bearing value at about elevation 490 ft. If higher bearing values were required, the footing would be placed at lower elevation.

V. Korlu
Foundation Engineer

VK:GCP

APPENDIX I

DEPARTMENT OF HIGHWAYS - ONTARIO
 MATERIALS & RESEARCH BRANCH - FOUNDATIONS SECTION - DOWNSVIEW
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG 54-1 OPERATION PENETRATION JOB F-57-9 WP 82-57 BORING 1 STA. 364+96 (45' LT.)
 CASING Bx (standard samplers to fit unless noted) DATUM GEODETIC DATE REPORT MAY 1957
 SAMPLER HAMMER WT. 250 LBS. DROP 19 INCHES COMPILED BY H.S. CHECKED BY DATE BORING 8 MAY 1957

ABBREVIATIONS

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

SAMPLE TYPES

C.S. - CHUNK S.S. - SLEEVE SAMPLE
 D.O. - DRIVE OPEN P.S. - PISTON SAMPLE
 D.F. - DRIVE FOOT VALVE W.S. - WASHED SAMPLE
 T.O. - THIN WALLED OPEN R.C. - ROCK CORE

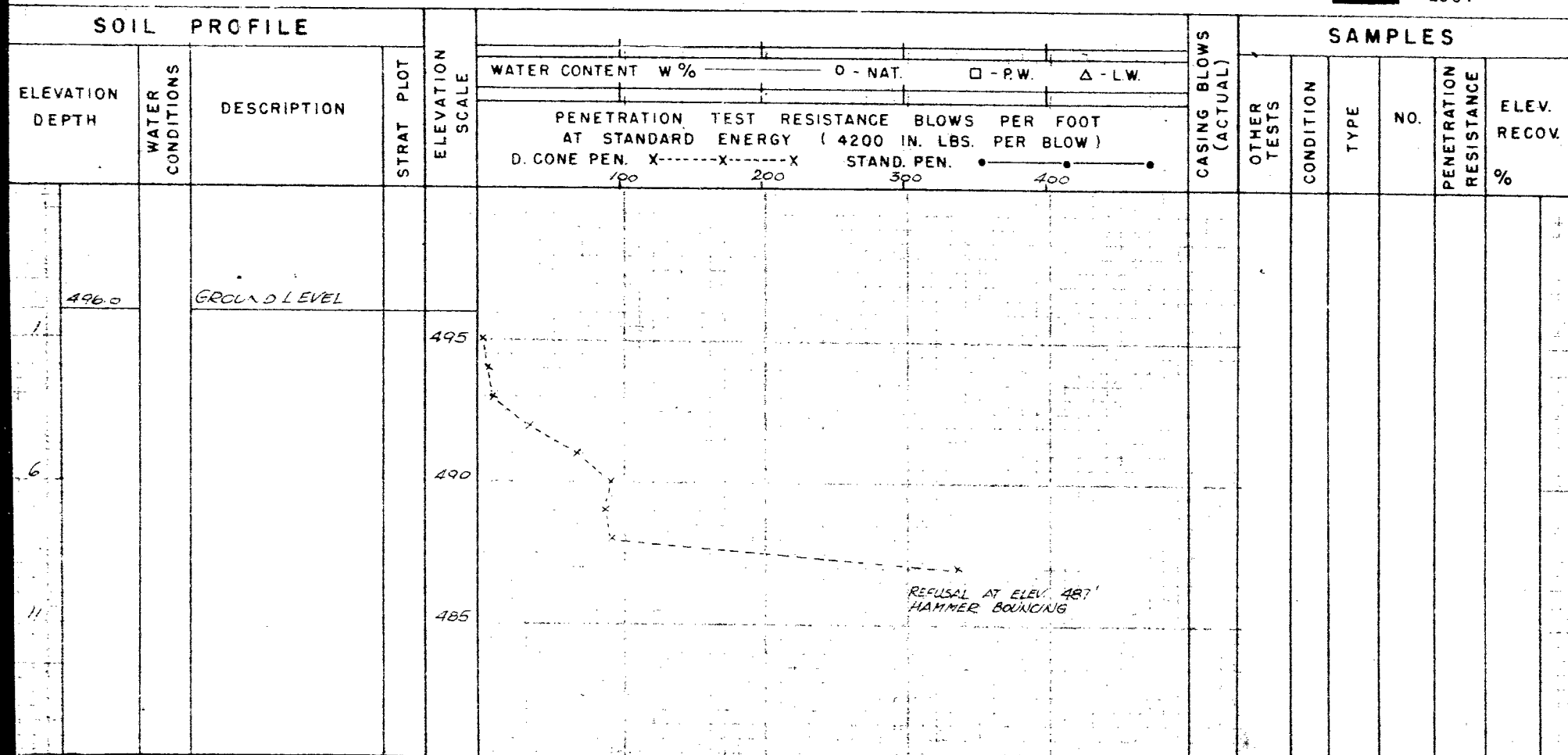
SAMPLE CONDITION



- DISTURBED
 - FAIR
 - GOOD
 - LOST

SOIL PROFILE

SAMPLES



DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH BRANCH - FOUNDATIONS SECTION - DOWNSVIEW
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG 54-1 OPERATION PENETRATION JOB F-57-9 W.P. 82-57 BORING 2 STA. 365+14 (43 RT)
CASING 5x (standard samplers to fit unless noted) DATUM GEODETIC DATE REPORT MAY 1957
SAMPLER HAMMER WT. 250 LBS. DROP 19 INCHES COMPILED BY H.S. CHECKED BY DATE BORING 9 MAY 1957

ABBREVIATIONS

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

SAMPLE TYPES

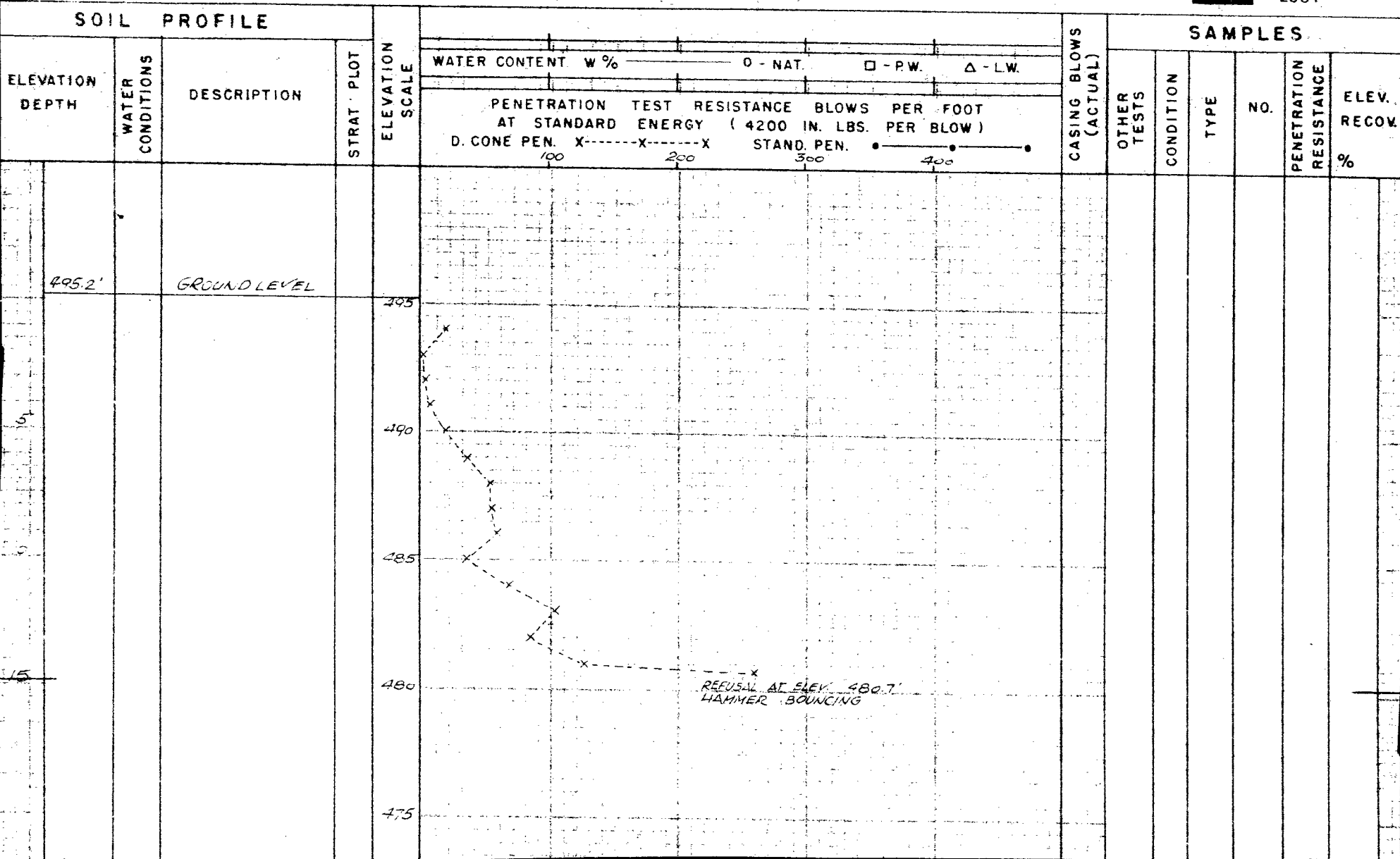
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T.O. - THIN WALLED OPEN R.C. - ROCK CORE

SAMPLE CONDITION



- DISTURBED
- FAIR
- GOOD
- LOST

SOIL PROFILE



DEPARTMENT OF HIGHWAYS - ONTARIO
 MATERIALS & RESEARCH BRANCH - FOUNDATIONS SECTION - DOWNSVIEW
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG 54-1 OPERATION PENETRATION JOB F-57-9 W.P. 82-57 BORING 3 STA. 365+52.29(27)
 CASING 3x (standard samplers to fit unless noted) DATUM GEODETIC DATE REPORT MAY 1957
 SAMPLER HAMMER WT. 250 LBS. DROP 19 INCHES COMPILED BY H.S. CHECKED BY _____ DATE BORING 9 MAY 1957

ABBREVIATIONS

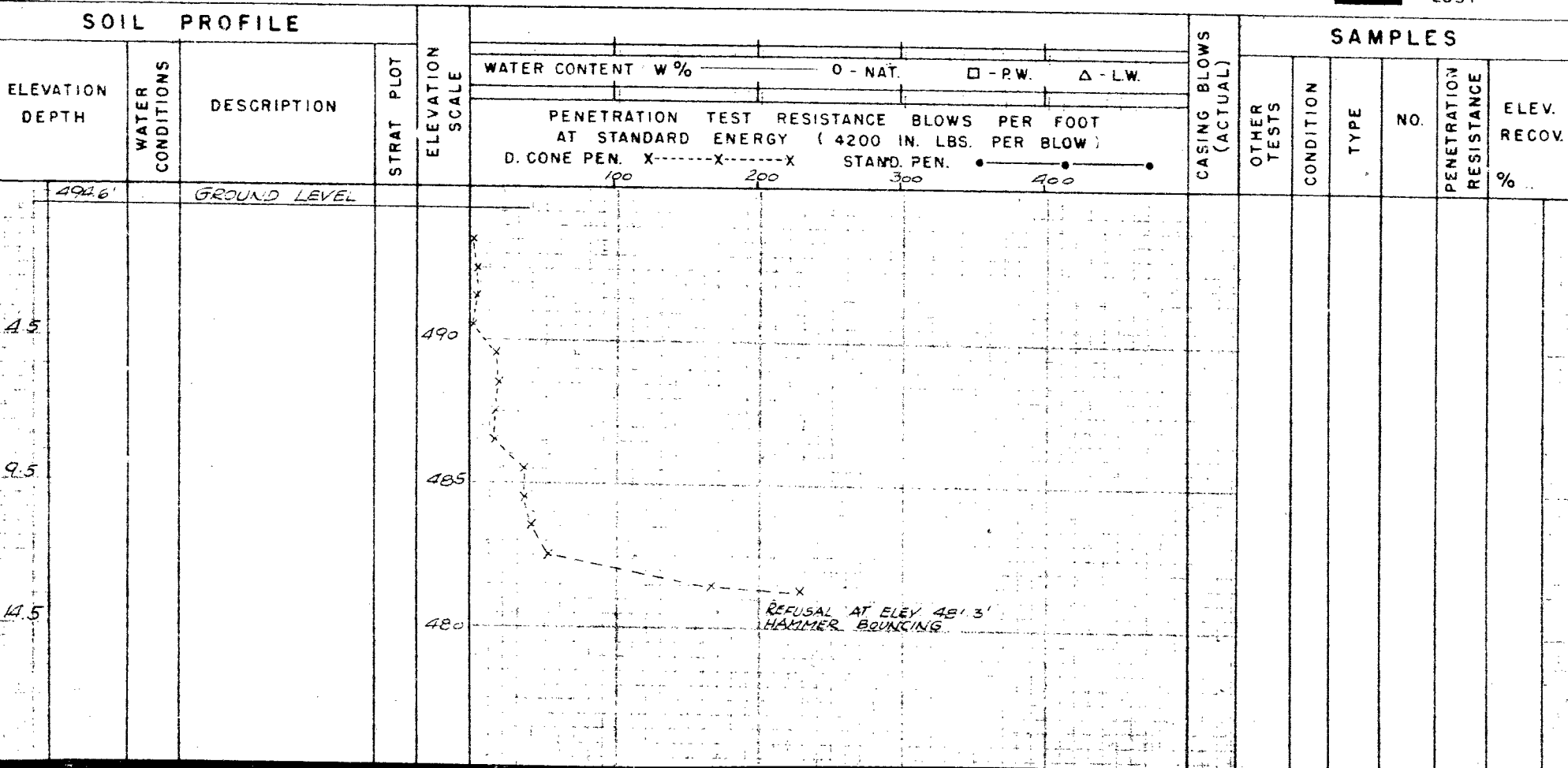
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SOIL PROFILE

DEPARTMENT OF HIGHWAYS - ONTARIO
 MATERIALS & RESEARCH BRANCH - FOUNDATIONS SECTION - DOWNSVIEW
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG 54-1 OPERATION PENETRATION JOB F-57-9 W.P. 82-57 BORING 4 STA. 365+33.41 LT
 CASING 8x (standard samplers to fit unless noted) DATUM GEODETIC DATE REPORT MAY 1957
 SAMPLER HAMMER WT. 250 LBS. DROP 19 INCHES COMPILED BY H.S. CHECKED BY DATE BORING 10 MAY 1957

ABBREVIATIONS

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

SAMPLE TYPES

CS - CHUNK S.S. - SLEEVE SAMPLE
 DO - DRIVE OPEN PS - PISTON SAMPLE
 DF - DRIVE FOOT VALVE WS - WASHED SAMPLE
 TO - THIN WALLED OPEN RC - ROCK CORE

SAMPLE CONDITION



- DISTURBED
 - FAIR
 - GOOD
 - LOST

SOIL PROFILE

SOIL PROFILE							SAMPLES							
ELEVATION DEPTH	WATER CONDITIONS	DESCRIPTION	STRAT PLOT	ELEVATION SCALE	WATER CONTENT W %		CASING BLOWS (ACTUAL)	OTHER TESTS	CONDITION	TYPE	NO.	PENETRATION RESISTANCE	ELEV. RECOV.	
					O - NAT.	Δ - LW.								
					PENETRATION TEST RESISTANCE BLOWS PER FOOT AT STANDARD ENERGY (4200 IN. LBS. PER BLOW)									
					D. CONE PEN. X-----X-----X STAND. PEN. ●-----●-----●									
					100 200 300 400									
406'		GROUND LEVEL												
495														
490														
485														
					REFUSAL AT ELEV. 489.8 HAMMER BORING									