

REPORT  
ON THE  
FOUNDATION INVESTIGATION  
FOR THE PROPOSED STRUCTURE ~~PA#5~~  
ON THE HIGH SPEED INTERCHANGE  
AT BRAN STREET NEAR BURLINGTON  
STATION 80/15 ON THE HAMILTON  
TO TORONTO LEC.

PROJECT P-55-45.

Copies to:

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Plan DM4405  
Scheme 3

#### INTRODUCTION:

A recent investigation was completed to ascertain the soil profile beneath the footings of the proposed structure at the intersection of the Toronto-Hamilton leg, and the Niagra Fall-Hamilton leg at Station 80+15.

This structure is listed on the 1956 list as SP-45A-56.

#### PROCEDURE:

Power auger borings were undertaken at the four corners of the proposed abutments to investigate the soil profile beneath the footings. These holes were followed subsequently by core drilling in an attempt to ascertain the strength properties of the foundation layer.

Difficulty was experienced in sampling as refusal after short penetration of the sampler was frequent except in the upper 4'0" of the soil mass. Consequently the core barrel was used to sample the major soil layer.

#### SOIL TESTING:

The nature of the major soil type in this locality is such that it proves almost impossible to deliver to the laboratory samples in a suitable condition for testing. As a result there are no reliable unconfined strength results available.

#### SOIL CONDITIONS:

The major soil type found beneath the proposed foundation, below the elevation of 329.0, is the laminated clay shale. This is overlain by some 4'0" - 6'0" of red brown stoney clay.

The core recovery below 329.0 was extremely badly shattered and difficult to access. However, observations when drilling indicate that the individual layer thickness of shale or clay is very small in the clay-shale formation.

WATER CONDITIONS:

There was no evidence of a static water table though small insignificant seepage takes place in the clay shale formations.

RECOMMENDATIONS:

The laminated soil strata is suitable for rigid framed structure foundation provided a bearing pressure of 5,000 lb./sq. ft. is not exceeded.

The allowable pressure can be increased if a simply supported design is used.

In any case the footing should be founded below frost penetration and upon sound material.

It would appear that normal fill construction can be undertaken upon this material without any apparent danger of failure.

C. K. Farantatos,  
Foundation Engineer.



MATERIALS LABORATORY-DEPARTMENT OF HIGHWAYS - OIT 210  
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG #4 JOB F 33-48 BORING NO. 3  
CASING BY (STANDARD SAMPLERS TO FIT UNLESS NOTED) DATUM 051 DATE REPORT  
SAMPLER HAMMER WT. \* DIAPHR. INCHES COMPILED BY AT CHECKED BY BORING DATE 16 NOV 54

SAMPLE CONDITION



DISTURBED  
GOOD  
LOST

### SAMPLE TYPES

SAMPLE TYPES

C.B - CHUNK	WS - WASHED SAMPLE
D.O - DRIVE OPEN	RC - ROCK CORE
D.F - DRIVE FOOT VALVE	
TO - THIN WALLED OPEN	

## ABBREVIATIONS

Abbreviations

V-INSITU VANE SHEAR TEST	γ-UNIT WEIGHT
M-MECHANICAL ANALYSIS	K-PERMEABILITY
U-UNCONFINED COMPRESSION	C-CONSOLIDATION
Q <sub>2</sub> -TRIAXIAL CONSOLIDATED QUICK C.A. CASING	
Q-TRIAXIAL QUICK	WL-WATER LEVEL IN CASING
S-TRIAXIAL SLOW	WT-WATER TABLE IN SOIL

### SOIL PROFILE

STATION	ELEV. (FPM)	WATER CONDITIONS	DESCRIPTION	STRAT. FACT	ELEVATION
355-83			PERMANENT STRATIGRAPHY		

SHEAR STRENGTH  
TONS/SQ. FT. OR Q./sq.

PENETRATION TEST  
RESISTANCE BLOWS PER FOOT

### WATER CONTENT

## SAMPLES

OTHER TESTS	CONDITION	TYPE	Na	PENETRATION RESISTANCE	BL. EV. RECON.
	<del>X</del>	TO 2	1	HYD	3/4

MATERIALS LABORATORY-DEPARTMENT OF HIGHWAYS - OHT 110  
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG 4 JOB F 88-15 BORING NO. 4  
CASING 3X (STANDARD SAMPLERS TO FIT UNLESS NOTED) DATUM CGM DATE REPORT \_\_\_\_\_  
SAMPLER HAMMER WT. 0 Dia. \_\_\_\_\_ INCHES COMPILED BY AT CHECKED BY \_\_\_\_\_  
DATE 22 MONTH Nov YEAR 95

### SAMPLE CONDITION

DISTURBED  
GOOD  
LOST

## SAMPLE TYPES

CS - CHUCK  
DO - DRIVE OPEN  
DF - DRIVE FOOT VALVE  
TO - THIN WALLED OPEN  
WS - WASHED SAMPLE  
RC - ROCK CORE

## ABBREVIATIONS

**ABBREVIATIONS**

V-INSITU VANE SHEAR TEST	γ - UNIT WEIGHT
M-MECHANICAL ANALYSIS	K - PERMEABILITY
U-UNCONFINED COMPRESSION	C - CONSOLIDATION
Q <sub>c</sub> - TRIAXIAL CONSOLIDATED QUICK	CA - CASING
Q - TRIAXIAL QUICK	WL - WATER LEVEL IN CASING
S - TRIAXIAL SLOW	WT - WATER TABLE DEPTH

## SOIL PROFILE

ELEVATION DEPTH	WATER CONDITIONS	DESCRIPTION	STRAIT PLAT ELEVATION SCALE
55.23			
2			
4		OLD BEDDING CLAY LAYERS ALTERNATING WITH SAND SHALE	
6			
8			
10			
12			
14		MAINLY BEET CLAY & SAND SHALE WITH TRACERIAL LAYERS OF OLD BEDDING CLAY.	
16			
18			
20			
22			

## SHEAR STRENGTH

TONS/SQ.FT. OR CUBIC  
PENETRATION TEST  
RESISTANCE BLOWS PER FOOT

## WATER CONTENT

WZ

Q PW:      Δ LW

## SALES

SAMPLES				
OTHER TESTS	CONDITION	TYPE	№	PENETRATION RESISTANCE
				ELEV. RECOV. %
		PG 2"	1	HYD 100%
		PG 2"	2	HYD 100%
		PG 2"	3	HYD 100%
		PG 2"	4	HYD 100%
		PG 2"	5	HYD 100%
		PG 2"	6	HYD 100%
		PG 2"	7	HYD 100%
		PG 2"	8	HYD 100%
		PG 2"	9	HYD 100%
		PG 2"	10	HYD 100%
		PG 2"	11	HYD 100%
		PG 2"	12	HYD 100%
		PG 2"	13	HYD 100%
		PG 2"	14	HYD 100%
		PG 2"	15	HYD 100%
		PG 2"	16	HYD 100%
		PG 2"	17	HYD 100%
		PG 2"	18	HYD 100%
		PG 2"	19	HYD 100%
		PG 2"	20	HYD 100%
		PG 2"	21	HYD 100%
		PG 2"	22	HYD 100%
		PG 2"	23	HYD 100%
		PG 2"	24	HYD 100%
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		PG 2"	27	HYD 100%
		PG 2"	28	HYD 100%
		PG 2"	29	HYD 100%
		PG 2"	30	HYD 100%
		PG 2"	31	HYD 100%
		PG 2"	32	HYD 100%
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		PG 2"	100	HYD 100%

