

Ontario
Department of Transportation and Communications
MINISTRY OF TRANSPORTATION

30 Mh-2

MEMORANDUM

TO: Mr. C. Moase,
Manager,
Special Services Section,
Admin. Bldg.

FROM: Foundation Section,
Room 107, Lab. Bldg.

ATTENTION:

DATE: June 24, 1971

OUR FILE NO.

IN REPLY TO

JUN 28 1971

SUBJECT:

30 Mh-2
GEOSIS No.

FOUNDATION INVESTIGATION REPORT
For
The Proposed Mimico Patrol Yard
District No. 6 (Toronto)
W.O. 71-11055 -- W.P. (Nil)

Attached, we are forwarding to you our detailed foundation investigation report on the subsoil conditions existing at the above structure site.

We believe that the factual data and recommendations contained therein, will prove adequate for your design requirements. Should additional information be required, please feel free to contact our Office.

ACS/KdeP
Attach.

A. G. Starnes
A. G. Starnes
PRINCIPAL FOUNDATION ENGINEER

cc: Mr. C. S. Moase (4)
Mr. D. W. Perron
Mr. G. E. Hunter (2)
Mr. H. Greenland
Mr. T. J. Kovich
Mr. B. J. Giroux
Giffels Associates Ltd.
Foundations Files ✓
Gen. Files

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FOUNDATION INVESTIGATION REPORT
For
The Proposed Mimico Patrol Yard
District No. 6 (Toronto)
W.O. 71-11055 -- W.P. (N11)

1. GENERAL:

The Foundation Section was requested by the Special Services Section, to carry out a field investigation at the site of the proposed Mimico Patrol Yard on Kipling Avenue, Etobicoke. The request was dated June 3, 1971.

Accordingly, some five borings and six dynamic cone penetration tests were implemented at the proposed garage and office building, as shown on the accompanying Drawing No. 71-11055A.

Soil stratigraphy in the borings was found to be fairly uniform, consisting of a 5 - 6 ft. thick fill of clayey silt with some sand and gravel, beneath which traces of the original topsoil were found. The consistency of the fill layer varies widely, indicated by the penetration 'N' values, which range from 5 blows per ft. to 40 blows per ft. Under the 1 - 2 ft. layer of organic topsoil, a clayey silt to silty clay with sand and gravel (glacial till) layer was encountered, extending to the end of the boreholes, some 17 - 22 ft. below ground level. This material has hard consistency, penetration 'N' values below el. 328 ft. being over 100 blows per ft. This glacial till deposit is considered to be a competent load-bearing stratum.

Groundwater in the boreholes was observed to be below el. 331 ft. No dewatering problems are foreseen for the excavations below the water level, due to the cohesive nature of the deposit.

2. RECOMMENDATIONS:

2.1) Garage:

The proposed garage may be designed with spread footings, the base of which should be placed at or below el. 330.0 ft. This elevation is assumed to be under the original topsoil, so that footings will lie in the glacial tills. 3 TSF safe pressures may be applied on such footings.

Alternatively, the garage building may be supported on short caissons, to be sunk to el. 327.0 ft. At this elevation the safe loads at the base of the caissons may be increased to 5 TSF.

2.2) Office Building:

The most economical design for the office building appears to be the one utilizing raft or mat foundations. The base of the raft footing may be poured at el. 334.0 ft. with design loads of 1 TSF.

The excavation bottom should be carefully examined, prior to pouring the concrete, and if any unacceptable or soft soils are observed, these have to be replaced by well compacted non-cohesive materials.

For the calculations of earth pressures on the walls, a coefficient of lateral earth pressure $K_a = 0.33$ may be used.

3. MISCELLANEOUS:

The field work for this project was carried out on June 14 - 15, 1971. Equipment used was owned and operated by Canadian Longyear Ltd., under the supervision of Mr. A. K. Barsvary, Project Foundation Engineer, who also prepared the report.

The report was reviewed by Mr. K. G. Selby, Supervising Foundation Engineer.

June, 1971

APPENDIX I

DEPARTMENT OF HIGHWAYS- ONTARIO
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 1

FOUNDATION SECTION

JOB 71-11055

LOCATION East Wall of Office Building

ORIGINATED BY KW

W.P.

BORING DATE June 15, 1971

COMPILED BY .KW

DATUM Geodetic

BOREHOLE TYPE Dynamic Cone Test

CHECKED BY

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION		RESISTANCE		LIQUID LIMIT ——— w_L		BULK DENSITY	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		BLOWS / FOOT				PLASTIC LIMIT ——— w_p			
							20	40	60	80	100	WATER CONTENT ——— w		
							SHEAR STRENGTH P.S.F.				WATER CONTENT %			
							○ UNCONFINED + FIELD VANE						Y	P.C.F. GR. SA. SI. CL.
							● QUICK TRIAXIAL x LAB. VANE							
338.4	Ground Level													
0.0														
326.5														
11.9	End of Cone Test									100/10"				

FOUNDATION SECTION

CHECKED BY *[Signature]*

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION	RESISTANCE	LIQUID LIMIT	PLASTIC LIMIT	WATER CONTENT	BULK DENSITY	REMARKS		
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		20	40	60	80	100			W _p	W _L
							SHEAR STRENGTH P.S.F.							WATER CONTENT %	
338.7	Ground Level														
0.0	Clayey silt, traces of sand and gravel		1	SS	10										
			2	SS	40										
332.7	Fill		3	SS	7										
6.0	Original Topsoil		4	SS	11										
7.0	Clayey silt with sand and gravel		5	SS	8										
	(Glacial Till)		6	SS	49										
			7	SS	100/5"										
			8	SS	100/3"										
321.7	Hard														
17.0	End of Borehole					320									

FOUNDATION SECTION

CHECKED BY

SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION BLOWS / FOOT	RESISTANCE	LIQUID LIMIT ——— W _L	PLASTIC LIMIT ——— W _P	WATER CONTENT —— W	BULK DENSITY	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	SHEAR STRENGTH P.S.F.		W _p	W	W _i		
						○ UNCONFINED + FIELD VANE						
						● QUICK TRIAXIAL x LAB. VANE						
						1000 2000						
								WATER CONTENT %				
								10	20	30		
338.1	Ground Level	X										
0.0	Clayey silt with sand and gravel. Fill	X	1	SS	8							
		X	2	SS	5							
333.1		X	3	SS	6							
5.0	Original Topsoil	X	4	SS	80/7"							
7.0	Clayey silt to silty clay with sand and gravel. (Glacial Till)	Hatched	5	SS	NA							
		Hatched	6	SS	33							
		Hatched	7	SS	104/10"							
		Hatched	8	SS	100/6"							
		Hatched										
318.5	Hard	Hatched										
19.6	End of Borehole		9	SS	100/2"							

FOUNDATION SECTION

CHECKED BY

[illegible]

DEPARTMENT OF HIGHWAYS- ONTARIO
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 5

FOUNDATION SECTION

JOB 71-11055 LOCATION N.W. Corner of Garage Bldg. ORIGINATED BY KW
 W.P. BORING DATE June 15, 1971 COMPILED BY KW
 DATUM Geodetic BOREHOLE TYPE Auger Pendrill CHECKED BY KW

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT					LIQUID LIMIT ——— w_L PLASTIC LIMIT ——— w_p WATER CONTENT ——— w			BULK DENSITY γ P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		20	40	60	80	100	w_p	w	w_L		
338.7	Ground Level															
0.0	Fill		1	SS	6											
333.2	Original Topsoil		2	SS	21											
5.5	Clayey silt with sand & gravel. (Glacial Till)		3	SS	7											
326.2	Hard		4	SS	86	330										
12.5	End of Borehole		5	SS	103.9"											
			6	SS	100.73"	320										

Dry Hole

W.O. 71 F-55

MIMICO

PATROL YARD

30M11-2

