

CONT. 71-204

D.T.C. WEIGH

SCALE ON HWY. 401

W. OF HWY. 12

30M15-3

~~XXXXXXXXXXXXXXXXXXXX~~

MEMORANDUM

30M15-3

TO: Mr. T. J. Kovich, ✓
Regional Materials Engineer,
Central Region,
3501 Dufferin St.,
Downsview, Ont.

FROM: Foundations Office,
Design Services Branch,
Central Bldg., Downsview.

ATTENTION:

DATE: January 26, 1972.

OUR FILE REF.

IN REPLY TO

SUBJECT: D.T.C. Weigh Scale on Hwy. 401
1.4 Miles^w of Hwy. 12, District 6 (Toronto)
W.P. 102-70-01 -- W.O. 72-11014

Cont 71-204

As requested by you on January 17, 1972, we have carried out a review of subsoil conditions at the site of the east portion of the parking area and east access ramp to Hwy. #401 for the above-mentioned project. Borings in the field were supervised by your staff and all soil samples and field borelog sheets were handed to us on January 24, 1972 by Mr. H. Stamkaitis of your Section. On January 19 whilst field work was under way the writer visited the site.

At this location Hwy. 401 is approximately parallel to the C.N.R. track and distant from it about 80 - 90 ft. toe of embankment to toe of embankment at elevation 250+. Between the two embankments there exists a shallow pond containing organic soil deposits extending from Sta. 45+75 to Sta. 48+00 (Hwy. 401 chainage). The east portion of the proposed parking area and the east access ramp to Hwy. #401 will be constructed over this pond and will require about 18 - 20 ft. of fill material above the existing ground level in the pond which is at approximate average elevation 248. The profile grade of Hwy. #401 is elevation 267.0, the top of the railway embankment is also at elevation 267.0 and the embankment slopes are 2:1 and 1½:1 respectively.

Borings carried out in the pond area indicate about 3 - 4 ft. of very soft peat followed by 5 - 6 ft. of soft to firm organic clay silt followed by hard glacial till. Borings carried out through the toe of the C.N.R. embankment indicate that during construction of the latter the upper 3 - 4 ft. of peat has been displaced and the bottom of the fill rests on the soft to firm organic clay silt deposit. The same situation probably prevails under the Hwy. 401 embankment also.

January 26, 1972.

To ensure satisfactory performance of the proposed parking area and access ramp it is recommended that the very soft peat deposit be excavated and replaced with suitable granular fill. The base of this excavation should be as shown on Sheet 9 of the Contract Drawings and ranges from elevation 247 at Sta. 45+50 to elevation 244 at Sta. 48+00 approximately. Because of the proximity of the C.N.R. and Hwy. #401 embankments to the aforementioned excavation and the consequent danger of a failure of these embankments it is recommended that the excavation be carried out in lengths not exceeding 10 ft., each length being immediately back-filled to an elevation 3 ft. above water level prior to excavating the next length. This work should commence at the west end and proceed systematically to the east end. A special provision should be included in the contract to this effect.

If the above-mentioned recommendations are followed it is believed that this portion of the contract can be completed without major problems. If we can be of any further assistance in this matter please contact this Office.

K. G. Selby

KGS/ao

K. G. Selby,
SUPERVISING FOUNDATION ENGINEER.

cc: D. W. Farren
A. Rutka
R. Franks
E. Fletcher
G. A. Wrong
B. J. Giroux
Foundations Files
Documents

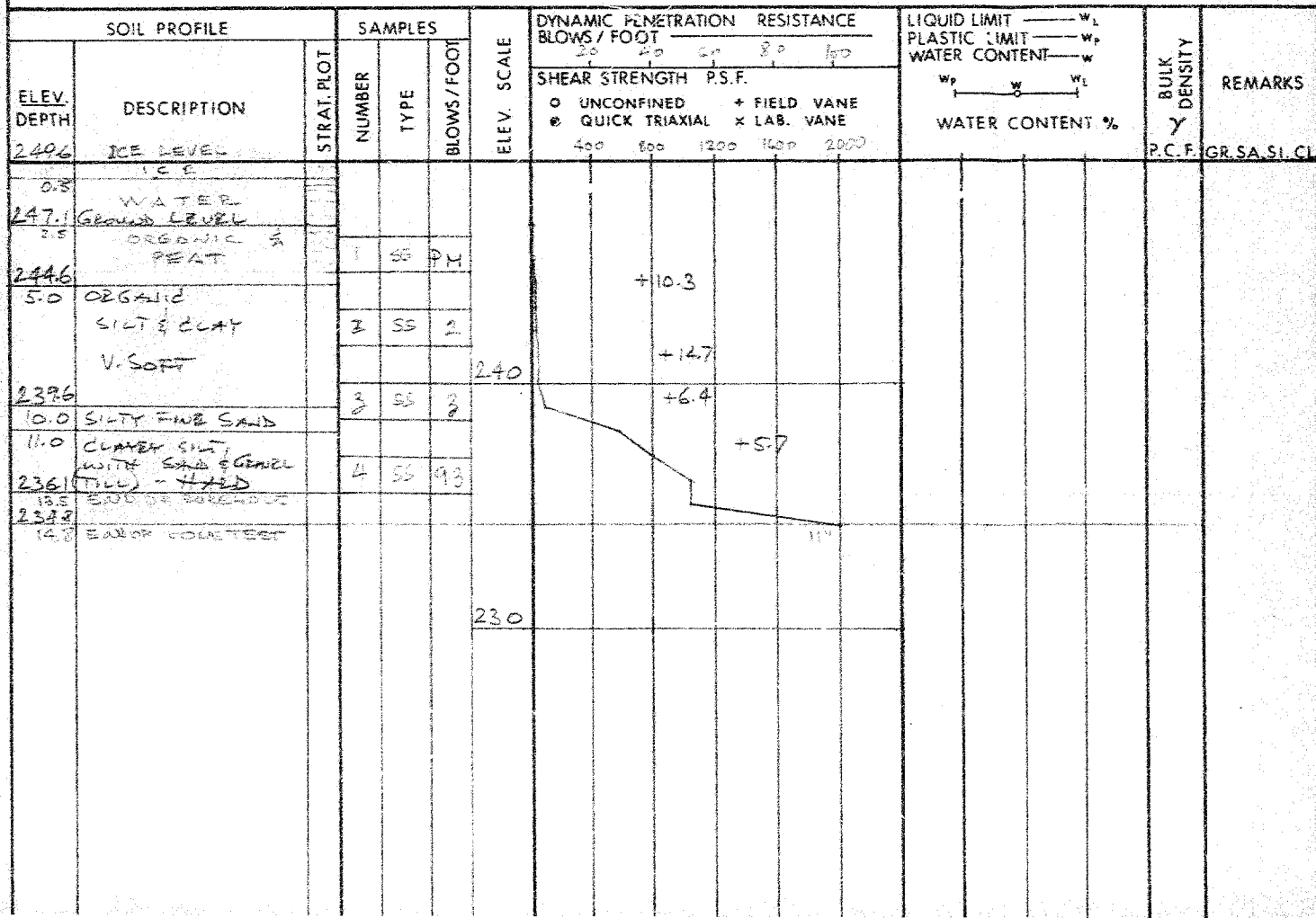
FOUNDATION SECTION

CHECKED BY

[illegible]

FOUNDATION SECTION

CHECKED BY



DEPARTMENT OF HIGHWAYS- ONTARIO
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 2A

FOUNDATION SECTION

JOB 72-E-012 LOCATION STA - 146+00 5'S 170' RT. & ORIGINATED BY H.S.
 W.P. _____ BORING DATE JAN. 18/72 COMPILED BY E.D.
 DATUM GEOBATIC BOREHOLE TYPE _____ CHECKED BY _____

SOIL PROFILE		STRAT. PLOT	SAMPLES		ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT		LIQUID LIMIT — w_L PLASTIC LIMIT — w_p WATER CONTENT — w		BULK DENSITY γ	REMARKS
ELEV. DEPTH	DESCRIPTION		NUMBER	TYPE		BLOWS / FOOT	SHEAR STRENGTH P.S.F. ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB. VANE	w_p — w — w_L	WATER CONTENT %		
257.0	GROUND LEVEL										
245.0	FILL MATERIAL CLAYEY SILT				250						
245.0 6.0	PEAT ORGANIC SILT AND CLAY		5	SS	—						
240.5 239.5	SILTY SAND		6	SS	—						
239.5 11.5	END OF BOREHOLE				240						
					230						

FOUNDATION SECTION

JOB _____ LOCATION STA. 46+08 o/s 86' RT R ORIGINATED BY _____
W.P. _____ BORING DATE JANUARY 24, 1971 COMPILED BY _____
DATUM GEODETTIC BOREHOLE TYPE _____ CHECKED BY _____

SOIL PROFILE		SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION BLOWS / FOOT	RESISTANCE	LIQUID LIMIT — w_L PLASTIC LIMIT — w_p WATER CONTENT — w w_p — w — w_L WATER CONTENT %	BULK DENSITY γ P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLT	NUMBER	TYPE						
253.9	GROUND LEVEL									
0.0										
			1	SS	1	250				
			2	SS	5					
			3	SS	3	245				
			4	SS	17	240				
238.0			6	SS	100	7"				
15.9	END OF BOREHOLE									
232.3										
21.6	END OF CONCRETE									
						230				

FOUNDATION SECTION

ORIGINATED BY *L.S.*

COMPILED BY E. D.

CHECKED BY

SOIL PROFILE		SAMPLES			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	ELEV. SCALE	SHEAR STRENGTH P.S.F.	WATER CONTENT %		
250.0	WATER						○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB. VANE 400 800 1200 1600 2000	w_p — w — w_L WATER CONTENT %		
248.0			1	SS	5		+16.0			
			2	SS	2		+4.0			
			3	SS	1 1/2	240	+4.0			
			4	SS	15			+2.9		
			5	SS	4			+4.2		
			6	SS	8					
229.3	END OF BOREHOLE		7	SS	1 1/2	230				
227							END OF CONC TEST 102/8'			
						220				

SHEET 9

U.S. 35+00

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 4

FOUNDATION SECTION

JOB 72-E-014 LOCATION STA. 148+00 3/4 159 RT 1/2 ORIGINATED BY H.S.
 W.P. BORING DATE JAN. 20 / 72 COMPILED BY R.D.
 DATUM GEODETIC BOREHOLE TYPE CHECKED BY

SOIL PROFILE			SAMPLES			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	ELEV. SCALE	SHEAR STRENGTH P.S.F.					WATER CONTENT %			
2.0	1.2 E														
1.5	WATER														
2.44			1	SS	3										
			2	SS	3										
			3	SS	8										
			4	SS	50										
			5	SS	75										
1.0	END OF BOREHOLE														

END OF CORRECT B

DEPARTMENT OF HIGHWAYS — ONTARIO
MATERIALS AND TESTING OFFICE
VISUAL CLASSIFICATION SHEET

PROJECT 72-11014 SITE _____ BOREHOLE No. 1 GROUND ELEVATION _____

SAMPLE NO.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1												BZ			CL. SI. TRACE OF SA	CL
2												"			CL. CL. WITH SAND & TRACE OF GRAVEL	CL
3												"			CL SI. TO SILT WITH SAND & TRACE OF GRAVEL	CL-ML
4												GRAY			SA. SI. TO SI. SA, TRACE OF FINE GRAVEL	
5												"			CLAYEY SILT TO SILT WITH SAND (TILL)	
6												DARK GRAY			SANDY SILT WITH SOME GRAVEL AND TRACE OF CLAY	

NOTES:- VISUAL CLASSIFICATION MUST BE CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:-

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS AND TESTING OFFICE
VISUAL CLASSIFICATION SHEET

PROJECT 72-11014 SITE _____ BOREHOLE No. 2 GROUND ELEVATION _____

SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1										BLACK	ORG			ORGANIC MUD. (DECAYED) PEAT		
2										GREY	"			SILTY CLAY WITH ORGANICS (DECAYED & UN-DECAYED)		
3A										"	"			ORGANIC SILT & CLAY		
3B										"	—			SILTY FINE SAND - TRACE OF GRAVEL		
4										DARK GREY	—			SILTY SAND WITH GRAVEL & CLAY		

NOTES:- VISUAL CLASSIFICATION MUST BE CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:-

DEPARTMENT OF HIGHWAYS — ONTARIO
MATERIALS AND TESTING OFFICE
VISUAL CLASSIFICATION SHEET

PROJECT <u>72-11014</u>			SITE _____			BOREHOLE No. <u>2B</u>			GROUND ELEVATION _____							
SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	COLOUR ODOR	ODOR COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1											BE.	—			CL. SI. TO SI. WITH SAND & TRACES OF GRAVEL	
2											GREY BLACK	ORG.			CLAYEY SILT WITH DECEASED AND UNDECEASED ORGANIC SUBSTANCES	
3											BLACK	SAND-LIKE ORG.			PEAT	
4											"	"			ORGANIC, CL. & SI.	
5											"	ORG.			— " —	
6											GREY				SAND & GRAVEL, WITH SOME CLAY & ORGANICS	
7											"				SAND GRAVEL WITH SOME CLAYEY SILT MATRIX.	

NOTES:— VISUAL CLASSIFICATION MUST BE CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:—

VISUAL CLASSIFICATION SHEET

PROJECT 72-11014 SITE _____ BOREHOLE No. 2C GROUND ELEVATION _____

SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION			DRY STRENGTH	SHINE	DILATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE										
				GRAVEL SAND SILT & CLAY										
1	3.0 4.5								E	BROWN			SILT SAND WITH GRAVEL & TRACES OF ORGANICS	
2	6.0 7.5								O.	BLACK			ORGANIC SILT & CLAY WITH SOME SAND & GRAVEL	
3	9.0 10.5								O.	BLACK SILT & CLAY			CLAYEY SILT WITH ORGANICS TRACE OF SAND	
4	12.0 13.5								I	DARK GRAY			SAND & GRAVEL WITH SOME SILT AND SOME ORGANICS	
5	15.0 16.5								E	GRAY			SAND & GRAVEL; CLAYEY SILT MATRIX Occ. Pockets of ORGANICS	

NOTES:— VISUAL CLASSIFICATION MUST BY CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:—

VISUAL CLASSIFICATION SHEET

PROJECT 72-11014 SITE _____ BOREHOLE No. 3 GROUND ELEVATION _____

SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION			DRY STRENGTH	SHINE	DILATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE										
				GRAVEL SAND SILT & CLAY										
1									ORG	BLACK			ORGANIC SILT & CLAY	
2									"	"			MIXTURE OF PEAT & CLAY. SOME SAND	
3A									(ORG)	GREY			ORGANIC SILT	
3B										"			SANDY SILT WITH ORGANICS	
4													SILTY SAND WITH DECOMPOSED AND UNDECOMPOSED ORGANIC SUBSTANCES	
5													GRAVEL	
6										GRAY			SILTY SAND (TRACE OF CLAY)	
7										BLACK			CL. SI. WITH SAND & SOME GRAVEL (TRACE OF ORG.?)	

NOTES:— VISUAL CLASSIFICATION MUST BE CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:—

DEPARTMENT OF HIGHWAYS — ONTARIO
MATERIALS AND TESTING OFFICE
VISUAL CLASSIFICATION SHEET

PROJECT 72-11014 SITE _____ BOREHOLE No. 4 GROUND ELEVATION _____

SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE	GRAVEL	SAND	SILT & CLAY									
1											ORG.	BLACK			ORGANIC SAND & SILT (UNDETERMINED AND BECAME ORG.)	
2											ORG. (GRAVEL)	BLACK GRAY			ORG. SILT & CLAY	
3											"	"			MIXTURE OF ORGANIC SILT & SAND	
4											"	"			SANDY SILT WITH ORGANICS & TRACES OF GRAVEL	
5											GRAY	GRAY			SA. SI. TO SI. SA. WITH SOME GRAVEL.	

NOTES:- VISUAL CLASSIFICATION MUST BE CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:-