

FOUNDATION INVESTIGATION REPORT  
For  
The Proposed Dundas St. and Hwy. #27  
Interchange and Bloor St. Underpass,  
Hwy. #27 -- District #6 (Toronto)  
W.J. 66-F-103 -- W.P. 275-64-2

1. INTRODUCTION:

A memo by the Regional Bridge Location Engineer, Mr. W. S. Melinyshyn, dated December 8, 1966, was received by this Section, requesting a foundation investigation at the site of the proposed Hwy. #27 and Dundas Street interchange and Bloor Street underpass.

The request calls for investigations at the site of seven structures, all of which are delineated in Contract #5, which in turn, is part of the several contracts covering the proposed improvement of Hwy. #27.

A limited scale field investigation, containing some 7 boreholes, was already carried out at the site by the Foundation Section in 1965, and some of these boreholes are also incorporated in this report. The recent field work as well as the laboratory testing and the compilation of the geotechnical data sheets, were performed by Dominion Soil Investigation Ltd.

Presented in this report are the results of this investigation, together with recommendations pertaining to the foundations of the structures.

In the first part of the report, a general description of the site and subsoil conditions are given; the second part deals with each individual structure separately, presenting a short description of the soils and detailed recommendations for the footings.

cont'd. /2 ...

PART ONE

2. DESCRIPTION OF THE SITE:

Contract #5 covers the section of Hwy. #27 from north of the C.P.R. overhead to north of Bloor Street. The vicinity of the existing highway is generally flat, urban development with residential and light industrial buildings.

The area belongs to the "Iroquois Plain" physiographic region, formed by undulating till plains above the lowland, bordering Lake Ontario. This low-lying terrain was inundated by a body of water known as Lake Iroquois in late Pleistocene times. At this portion of the region, some alluvial terrace lands may be found behind huge baymouth bars.

3. FIELD AND LABORATORY INVESTIGATION PROCEDURE:

Thirty-seven boreholes, and adjacent to the holes, 37 cone penetration tests were carried out at the site of the seven proposed structures, during the recent field investigation.

The general layout of the site, showing the proposed structures, may be seen on attached Drawing #66-F-103A.

The borings were carried out by means of two conventional diamond core rigs adapted for soil sampling purposes, and two continuous flight augers. 2-in. O.D. split-spoon samplers were used to recover soil samples. The number of hammer blows necessary to advance the sampler one foot under an impact of 350 ft.-lbs. was recorded as the standard penetration 'N' value.

cont'd. /3 ...

3. FIELD AND LABORATORY INVESTIGATION PROCEDURE: (cont'd.) ...

Soil samples were visually examined and identified upon recovery and again in the laboratory. Laboratory tests of natural moisture content, Atterberg limits and grain-size distribution, were performed on representative soil specimens. The results of the laboratory and field tests are compiled on the geotechnical data sheets accompanying this report, together with the grain-size distribution curves.

4. GENERAL SOIL CONDITIONS:

The overburden within the entire area investigated was found to be a heterogeneous mixture of glacial till. Due to the nature of such glacial drifts, the classification of the various strata based on the individual samples, could sometimes be misleading. From the practical point of view, two main bodies of the glacial overburden may be differentiated. The coarse-grained portion was variously identified as silty sand to sandy silt, fine sand, silt, gravelly sand, etc. The fine-grained or cohesive portion is a clayey silt with some gravel and sand. At a few locations the uppermost ten-ft. zone exhibited firm to stiff consistency or loose to compact relative density. Otherwise, the deposit was found to be very dense or hard, corresponding to Standard Penetration 'N' values of much in excess of 100 blows/ft.

In order to ascertain the depth of the overburden, several boreholes were advanced into the bedrock. The bedrock was identified to be shale with intermittent limestone, the upper, approx. 8 - 10 ft. thickness of which was usually badly weathered. The surface of the weathered bedrock lies around el. 367 - 370 ft. The sound rock commences at el. 357 - 356 ft. Some 5 - 7 ft. depth of the sound rock was proved in a few locations by diamond drilling. The bedrock at the proposed crossing at Etobicoke Creek was observed to be somewhat lower.

cont'd. /4 ...

PART TWO

5. GENERAL REMARKS ABOUT FOUNDATIONS:

5.1) Subsoil within the entire site investigated appears to exhibit sufficient strength for spread type foundations at relatively shallow depths. A four-ft. cover should be maintained above the base of the footings for frost protection.

5.2) Where perched abutments are supported on steel tube piles, it should be specified that no bouldery fill be placed at the locations of the footings. The working load on the piles must be checked during pile driving by means of the Hiley formula - (D.H.C. Standards DD 1218 and 1219).

5.3) Due to the high groundwater levels and the presence of the sandy silt to silty sand stratum, dewatering schemes for the footing excavations within this granular layer are likely to be necessary. Interlocking sheet piles, caissons, or well-point dewatering system, may be used. Sheet-piles or caissons should be lowered to a depth below the base of the excavation equal to the height of water above it, to prevent quick conditions of the soil.

5.4) No stability problems are foreseen for the approach fills and cuts with 2 horizontal to 1 vertical slopes.

6. HWY. #27 OVERPASS AT DUNDAS STREET:

(W.P. 279-64-1)

6.1) Soil Conditions:

Some 8 boreholes were drilled at the site of the proposed structure during the recent field investigation, and they were numbered from 25 to 32, inclusive. Two borings numbered 1 and 2, drilled in October 1965, are also incorporated in the stratigraphy. Predominantly silty sand to sandy silt with some gravel and clay material was recovered by the samples. The granular type glacial deposit exhibited very dense relative density in almost every

cont'd. /5 ...

6. HWY. #27 OVERPASS AT DUNDAS STREET: (cont'd.) ...  
(W.P. 279-64-1)

6.1) Soil Conditions: (cont'd.) ...

location and depth. In boreholes #25 and 32, however, very stiff and compact silts and sands were found within the upper 10 ft. Clayey silt with traces of gravel and, in some locations, sand layers intercept the main granular deposit. The consistency of this cohesive till is hard. Weathered shale bedrock was revealed in boreholes #1 and 25 underlying the glacial till at el. 367 - 370 ft. The rest of the boreholes were terminated within the overburden around el. 363 - 375 ft.

Groundwater was established in each borehole at a depth of 0 - 6 ft. below ground level, corresponding to el. 400 - 411 ft.

The locations and elevations of the boreholes as well as the soil profiles, are shown on Drawing #66-F-103B.

6.2) Recommendations:

The proposal calls for a four-span overhead structure above Dundas St. According to the information available to us, the design grade of Dundas St. will be around el. 400 - 402.5 ft. The grade of Hwy. #27 is assumed to be between el. 422 - 423 ft. The subsoil revealed by the boreholes, appears to have sufficient strength to support the structure on spread footings. Footings should be placed 4 ft. below finished grade for frost protection. At this elevation, a safe load of up to 4 t.s.f. may be utilized on the base of the footings. It appears that the bottom of the footing excavations will be in the sandy silt stratum; therefore, a dewatering scheme might be necessary in order to prevent the excavation bottom from boiling.

In the case of designing perched abutments, they may be founded within the embankments and supported on piles. It is assumed that 12-3/4" x 1/4" steel tube piles will penetrate some 10 - 15 ft. below existing ground level (el. 390 - 395 ft.). Deviations from the estimated depths, however, may occur due to the irregular nature of the subsoils. At above depths, the piles should support a safe load of 20 T/pile.

cont'd. /6 ...

15. NORTHBOUND COLLECTOR RD. OVER DUNDAS STREET:

Bridge #2 (W.P. 279-64-4)

15.1) Soil Conditions:

No additional boreholes were necessary for this structure, since the original investigation has covered the site of the proposed Bridge #2.

Three boreholes, numbered 2, 28 and 29, were used for the evaluation of the soil stratigraphy. The predominant material within the upper 10 - 15 ft. was found to be silty sand to sandy silt with some gravel and traces of clay. The granular type glacial till stratum exhibits very dense relative density, corresponding to penetration 'N' values between 50 and 100 blows per ft. Underlying the granular deposit in boreholes #28 and #29, a cohesive variety of the till was observed and identified to be clayey silt with sand and traces of gravel and shale fragments. In borehole #2 at the north side of the proposed crossing, this layer was not clearly recognizable. The consistency of the clayey silt is hard, indicated by penetration 'N' values of much in excess of 100 blows per ft.

The groundwater level was found to lie quite high, at around el. 401 - 405 ft., some 0.3 - 6 ft. below the existing ground level.

The locations and elevations of the boreholes, together with the stratigraphical cross section, are shown on Drawing #66-P-103J.

15.2) Recommendations:

According to the information received from the Bridge Location Section, Bridge #2 is proposed to be a 2-span structure with a centre pier and closed abutments. The design grade of Dundas St. is assumed to be around el. 401 - 402 ft. Soil conditions appear to be favourable for spread type footings. It is recommended to place the footings at four ft. below finished grade for frost

cont'd. /16 ...

15. NORTHBOUND COLLECTOR RD. OVER DUNDAS STREET: (cont'd.) ...

Bridge #2 (W.P. 279-64-4)

15.2) Recommendations: (cont'd.) ...

protection; in which case the base of the footings will be around el. 397.5 ft. A safe design load of 4 t.s.f. may be used at the bottom of the footings. Some dewatering problems might be encountered in the excavations, due to the granular nature of the subsoil.

16. TEMPORARY GRADE SEPARATION:

Bridge #9 (W.P. 279-64-6)

16.1) Soil Conditions:

Boreholes #76, 77 and 78 were placed at the approximate location of the proposed temporary structure. Rather uniform soil conditions were found in the boreholes. The top 11 - 12 ft. deep layer of clayey silt contains some 25 - 27% sand and 3 - 5% of gravel. Nevertheless, the layer displays some cohesion, the plasticity index ranging from 8 to 13. Standard penetration tests indicated hard consistency with 34 to above 100 blows per ft.

Underlying the clayey silt, a deposit of sandy silt to silty sand was identified in the borings, extending to the end of the exploration - i.e., el. 381-384 ft. The glacial origin of the stratum is confirmed by the heterogeneous nature and the very dense relative density.

The groundwater level was found to lie between the existing ground level and a depth of 6 ft. (el. 412.9 - 407.8 ft.). The locations and elevations of the boreholes, together with the soil profile, are appended as Drawing #66-F-103K.

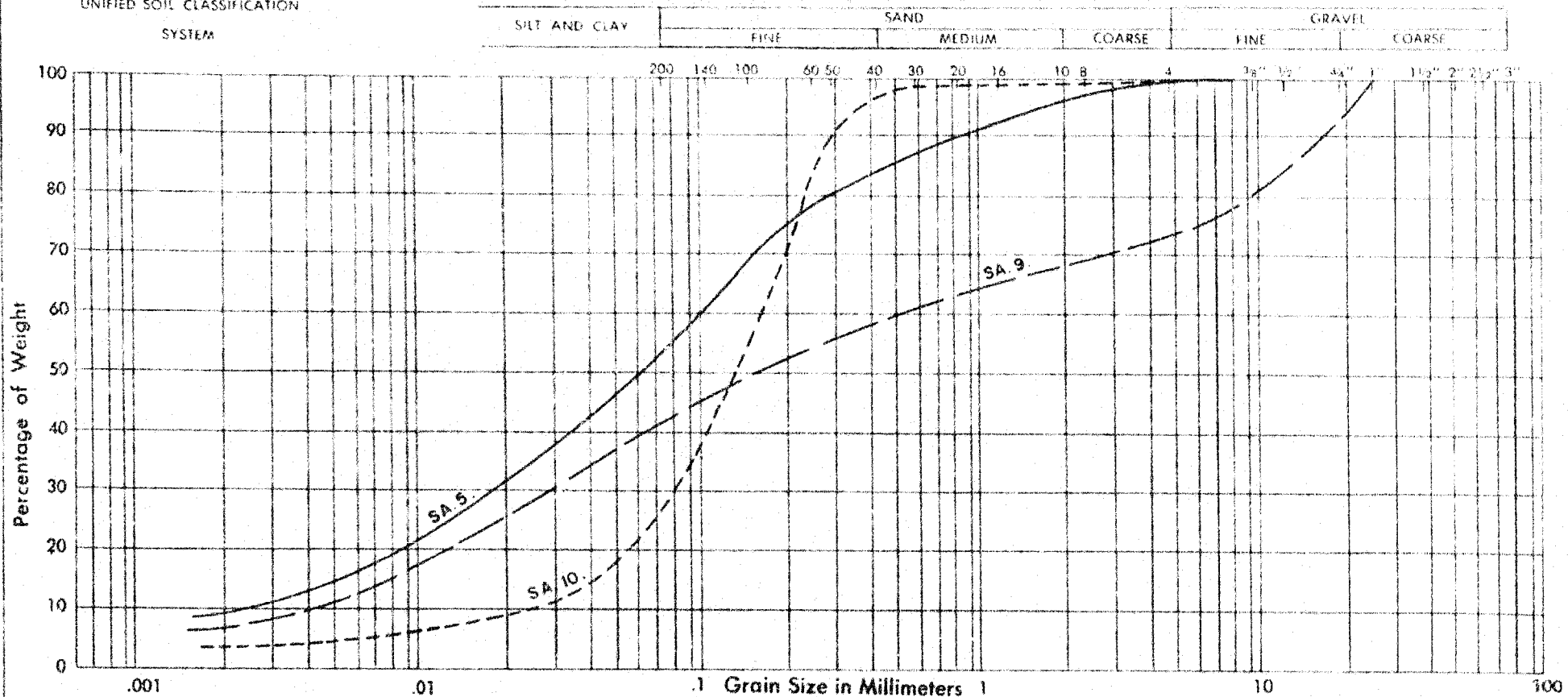
cont'd. /17 ...

# DOMINION SOIL INVESTIGATION LIMITED

## GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO 6-12-13

UNIFIED SOIL CLASSIFICATION  
SYSTEM



PROJECT: W. J. 66 - F - 103  
LOCATION: ETOBICOKE, ONT.

BOREHOLE NO.: 25  
SAMPLE NO.: 5 9 10  
DEPTH OF SAMPLE: 20' 35' 40'  
ELEVATION OF SAMPLE: 392.9 377.9 372.9

COEFFICIENT OF UNIFORMITY NOT APPLICABLE  
COEFFICIENT OF CURVATURE

PLASTIC PROPERTIES: **SM - ML**

LIQUID LIMIT % = 12.8  
PLASTIC LIMIT % = 11.7  
PLASTICITY INDEX % = 1.1  
MOISTURE CONTENT % =  
ACTIVITY =

Classification of Sample and Group Symbol:		
SAND and SILT with some Clay <b>SM-ML</b>	Gravelly SAND and SILT with trace of Clay <b>GM</b>	SAND with some Silt and trace of Clay <b>SP-SM</b>

SA. 5.

SA. 9.

SA. 10.

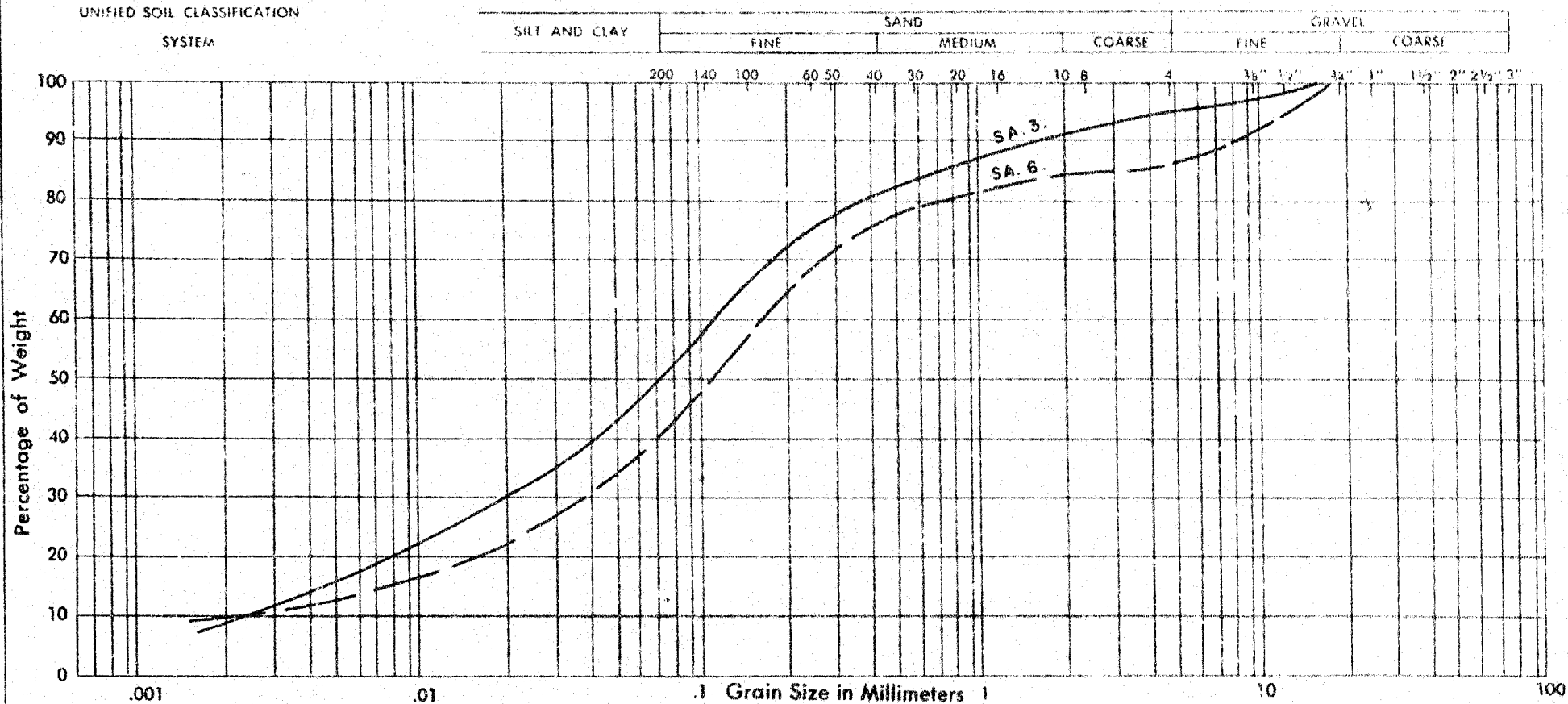
Enclosure No.



# DOMINION SOIL INVESTIGATION LIMITED

## GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO. 6-12-15



PROJECT: W. J. 66 - F - 103

LOCATION: ETOBICOKE, ONT.

BOREHOLE NO.: 26

SAMPLE NO.: 3 6

DEPTH OF SAMPLE: 10' 22.5

ELEVATION OF SAMPLE: 396.6 384.1

COEFFICIENT OF UNIFORMITY

NOT APPLICABLE

COEFFICIENT OF CURVATURE

PLASTIC PROPERTIES:

LIQUID LIMIT	%	---	NON PLASTIC
PLASTIC LIMIT	%	---	
PLASTICITY INDEX	%	---	
MOISTURE CONTENT	%	---	
ACTIVITY		---	

**Classification of Sample and Group Symbol:**

SAND and SILT with  
some Gravel and Clay

SA. 3. & 6. SM

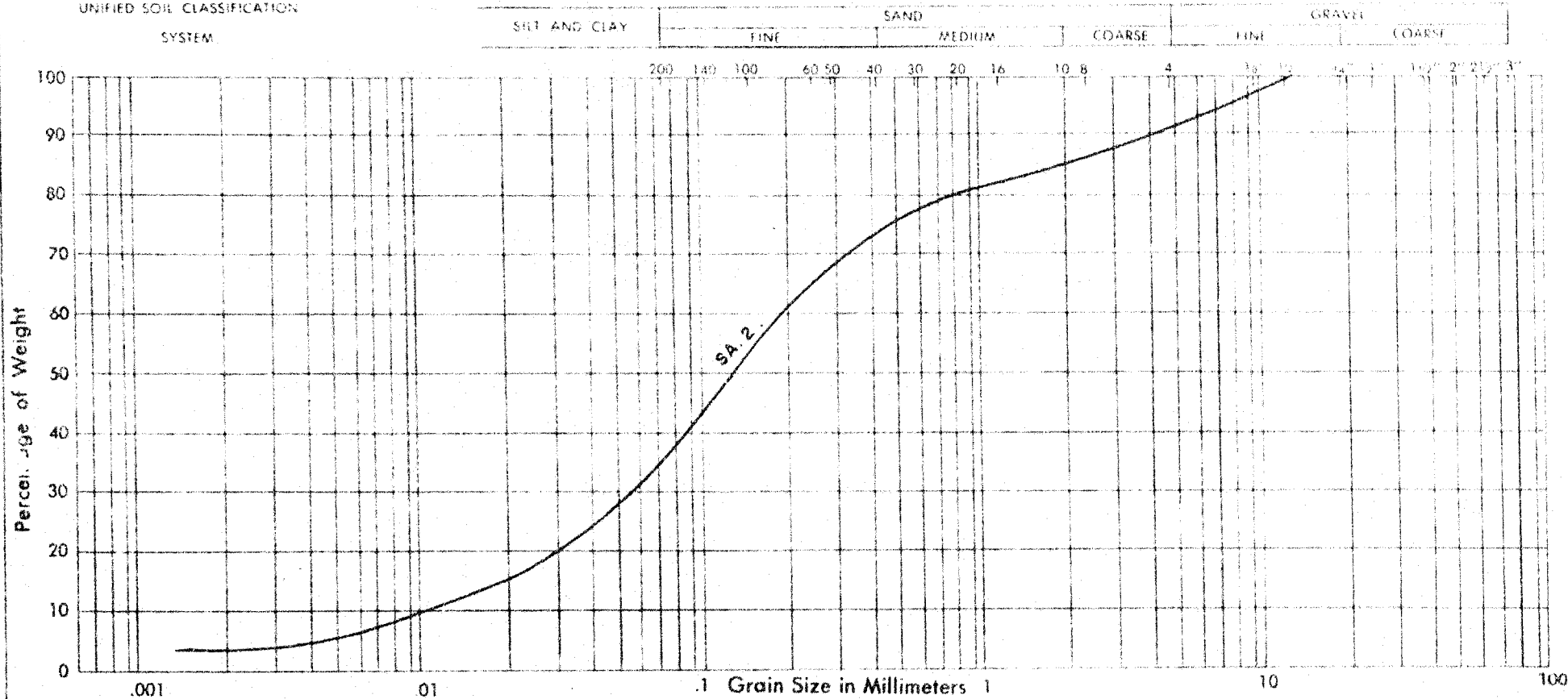
Enclosure No.

# DOMINION SOIL INVESTIGATION LIMITED

## GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO. 6-12-13

UNIFIED SOIL CLASSIFICATION  
SYSTEM



PROJECT: W. J. 66 - F - 103  
 LOCATION: ETOBICOKE, ONT.  
 BOREHOLE NO.: 27  
 SAMPLE NO.: 2  
 DEPTH OF SAMPLE: 5'  
 ELEVATION OF SAMPLE: 400.8

COEFFICIENT OF UNIFORMITY ~ 18  
 COEFFICIENT OF CURVATURE 3.2

**Classification of Sample and Group Symbol:**  
 SILTY SAND with some GRAVEL and  
 traces of CLAY

**SP - SM**

PLASTIC PROPERTIES.

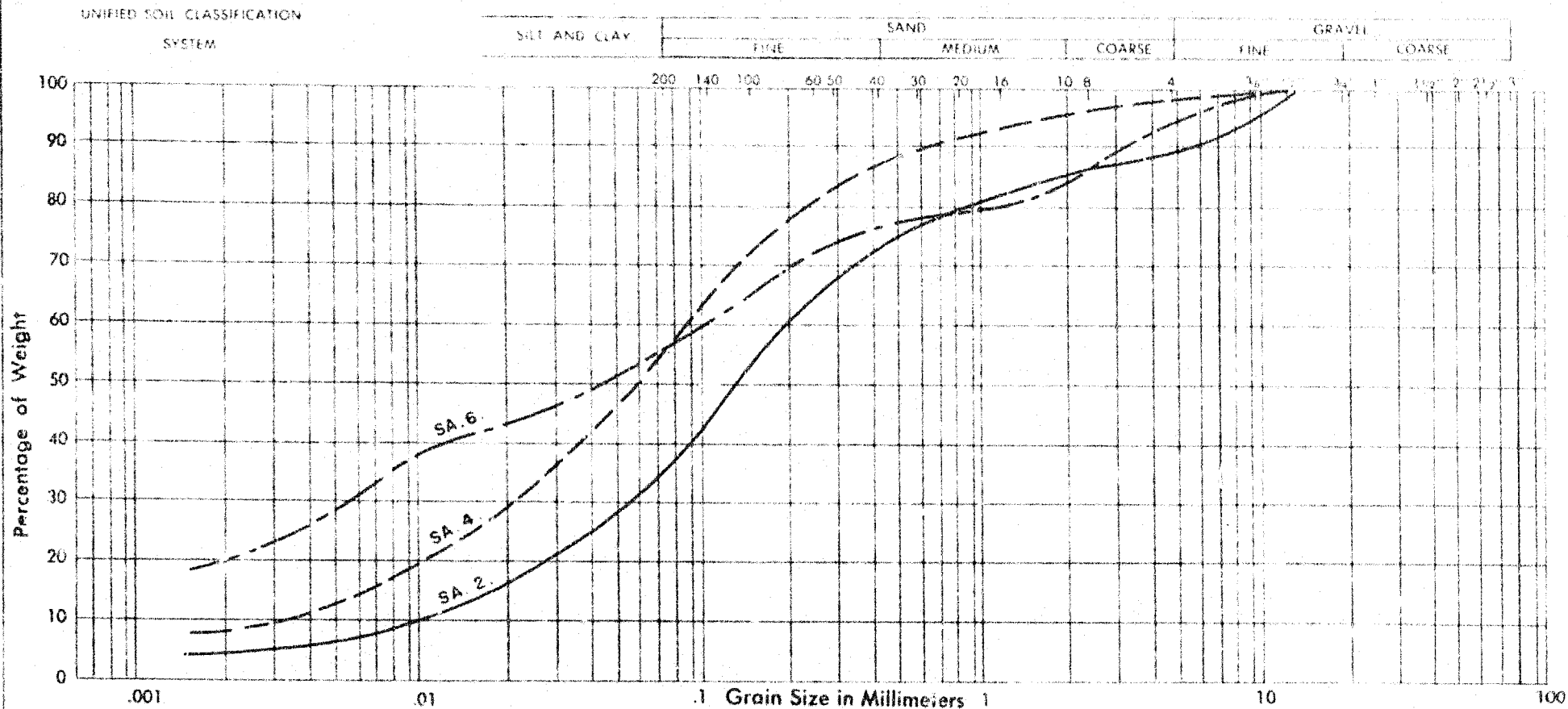
LIQUID LIMIT % ☐  
 PLASTIC LIMIT % ☐ NON  
 PLASTICITY INDEX % ☐ PLASTIC  
 MOISTURE CONTENT % ☐  
 ACTIVITY ☐

Enclosure No.

# DOMINION SOIL INVESTIGATION LIMITED

## GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO. 6-12-13



PROJECT: W. J. 66 - F - 103  
 LOCATION: ETOBICOKE, ONT.  
 BOREHOLE NO.: 28  
 SAMPLE NO.: 2 4 6  
 DEPTH OF SAMPLE: 5' 12.5' 20'  
 ELEVATION OF SAMPLE: 399.6 392.1 384.6

COEFFICIENT OF UNIFORMITY SA. 2 20  
 COEFFICIENT OF CURVATURE 1.8

Classification of Sample and Group Symbol:		
SILTY SAND with some Gravel and a trace of Clay	SANDY SILT with a trace of Clay	CLAYEY SILT with SAND and a trace of Gravel

SA. 2. SW-SM    SA. 4.    SM    SA. 6.    CL-ML

PLASTIC PROPERTIES: **CL-ML**

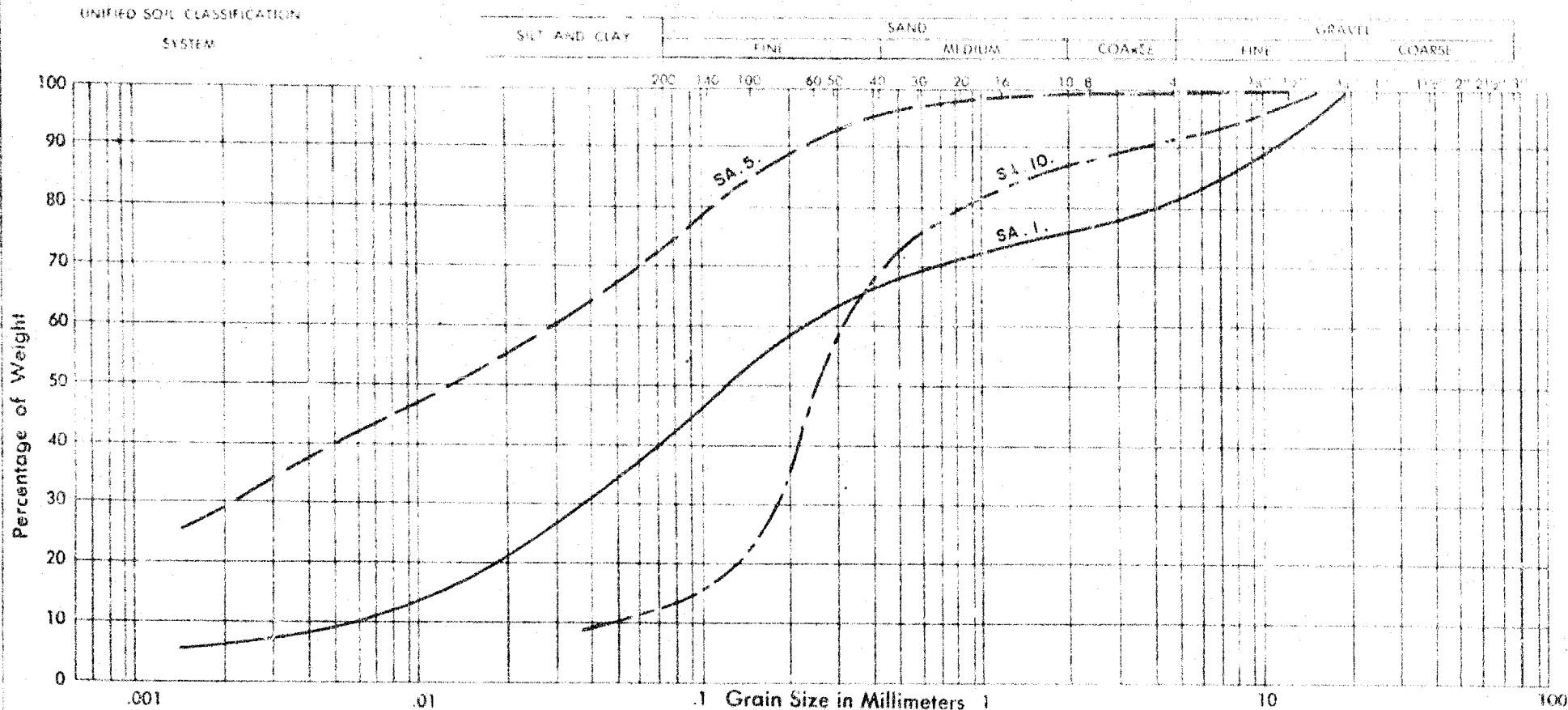
LIQUID LIMIT	%	=	18.2
PLASTIC LIMIT	%	=	11.8
PLASTICITY INDEX	%	=	6.4
MOISTURE CONTENT	%	=	8.4
ACTIVITY		=	0.3

Enclosure No.

# DOMINION SOIL INVESTIGATION LIMITED

## GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO. 6-12-13



PROJECT W. J. 66 - F - 103  
 LOCATION ETOBICOKE, ONT.  
 BOREHOLE NO. 29  
 SAMPLE NO. 1 5 10  
 DEPTH OF SAMPLE: 2.5' 15' 40'  
 ELEVATION OF SAMPLE: 400.8 388.3 363.3

COEFFICIENT OF UNIFORMITY SA.1. 38 SA.10. 7.5  
 COEFFICIENT OF CURVATURE 1.02 2.2

**Classification of Sample and Group Symbol:**  
 SILTY SAND with some Gravel and trace of Clay **SW-SM**  
 CLAYEY SILT with SAND and trace of Gravel **CL**  
 SAND with some Silt and Gravel **SW**

SA.1. SA.5. SA.10.

**PLASTIC PROPERTIES:**

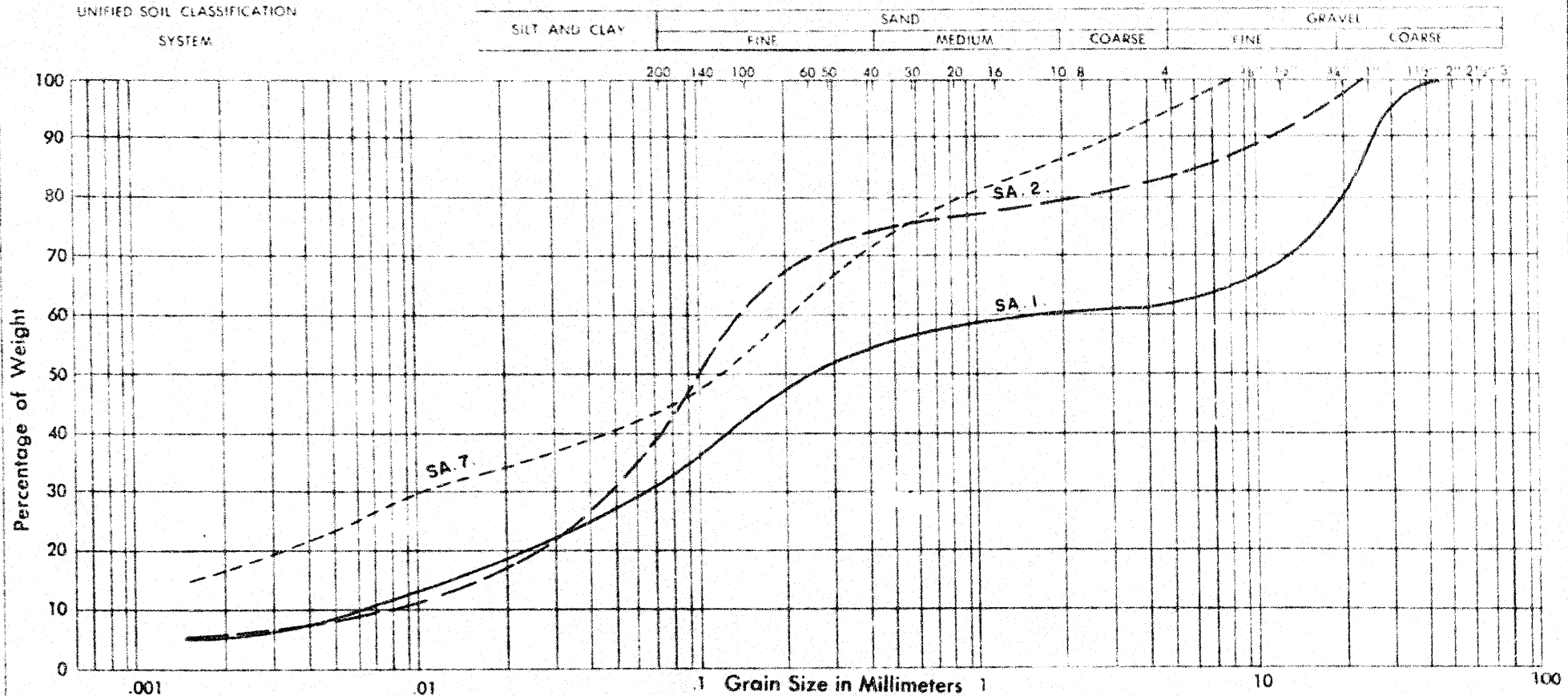
	CL (average)
LIQUID LIMIT	19.7
PLASTIC LIMIT	12.8
PLASTICITY INDEX	7.1
MOISTURE CONTENT	11.5
ACTIVITY	0.25

Enclosure No.

# DOMINION SOIL INVESTIGATION LIMITED

## GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO 6-12-13



PROJECT W. J. 66 - F - 103

LOCATION: ETOBICOKE, ONT.

BOREHOLE NO.: 30

SAMPLE NO.: 1 2 7

DEPTH OF SAMPLE: 2.5' 5' 30'

ELEVATION OF SAMPLE: 403.0 400.5 375.5

COEFFICIENT OF UNIFORMITY

NOT APPLICABLE

COEFFICIENT OF CURVATURE

PLASTIC PROPERTIES:

LIQUID LIMIT	%	=	
PLASTIC LIMIT	%	=	NOT
PLASTICITY INDEX	%	=	PLASTIC
MOISTURE CONTENT	%	=	
ACTIVITY	=		

**Classification of Sample and Group Symbol:**  
**SILTY SAND with some Gravel**  
**and trace of Clay**

SA.1 & 2. SM-GM

SA.7. SILTY SAND with some Clay

and trace of Gravel

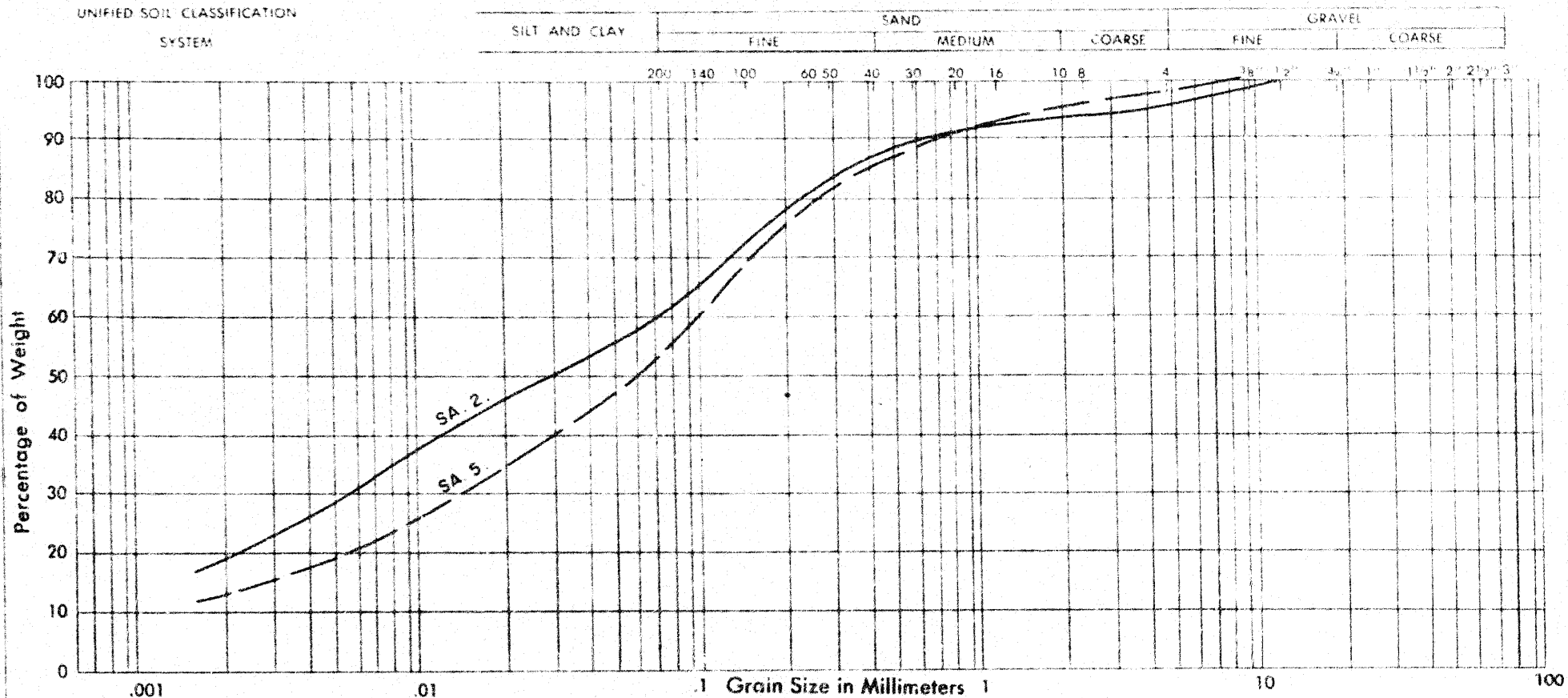
SM-SC

Enclosure No.

# DOMINION SOIL INVESTIGATION LIMITED

## GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO. 6-12-13



PROJECT: W. J. 66 - F - 103

LOCATION: ETOBICOKE, ONT.

BOREHOLE NO.: 31

SAMPLE NO.: 2 5

DEPTH OF SAMPLE: 5' 20'

ELEVATION OF SAMPLE: 398.0 383.0

COEFFICIENT OF UNIFORMITY

NON APPLICABLE

COEFFICIENT OF CURVATURE

PLASTIC PROPERTIES:

LIQUID LIMIT % =  
 PLASTIC LIMIT % = NON  
 PLASTICITY INDEX % = PLASTIC  
 MOISTURE CONTENT % =  
 ACTIVITY =

<b>Classification of Sample and Group Symbol:</b>	
<b>SANDY SILT</b> with some Clay and trace of Gravel <b>SM-ML</b>	<b>SILTY SAND</b> with some Clay and trace of Gravel <b>SP-ML</b>

SA. 2.

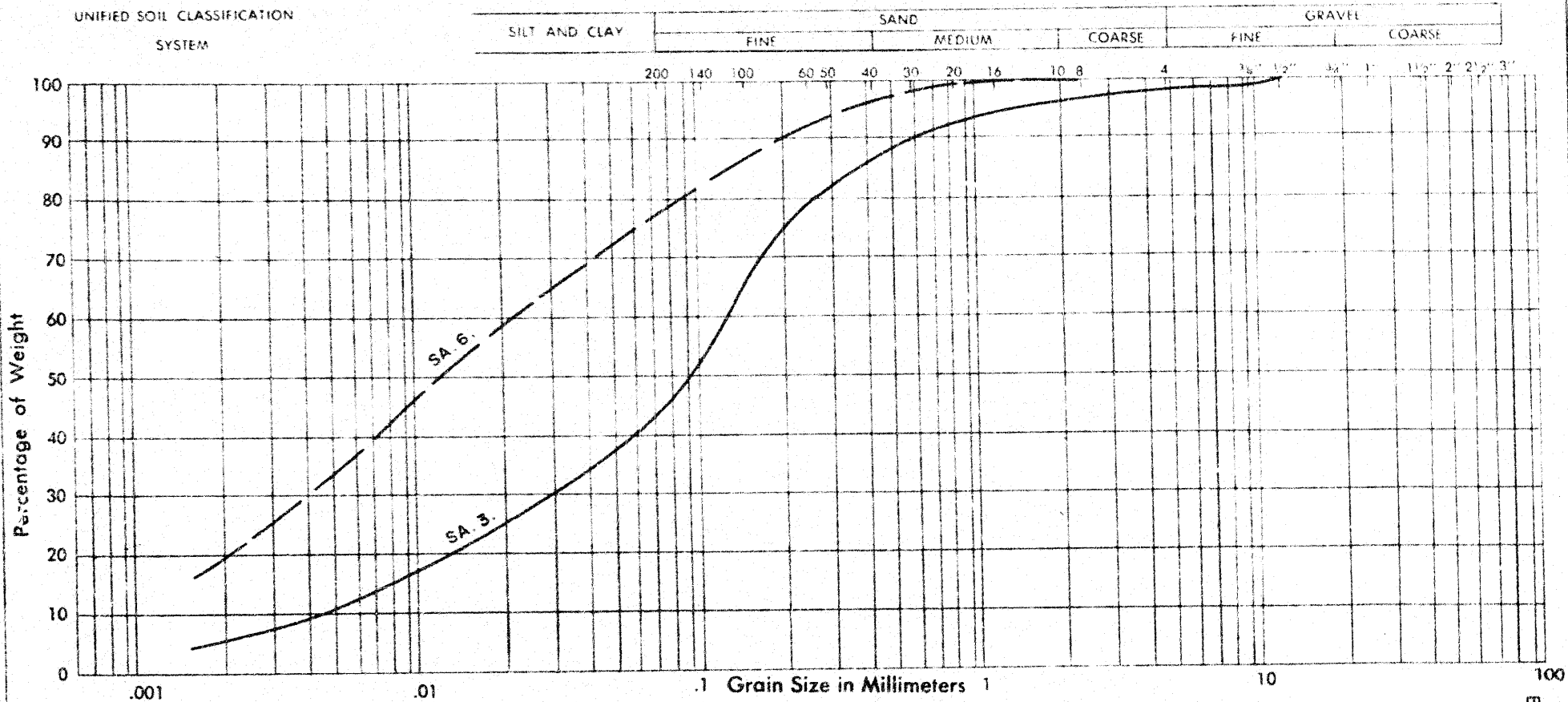
SA. 5.

Enclosure No.

# DOMINION SOIL INVESTIGATION LIMITED

## GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO. 6-12-13



PROJECT: W. J. 66 - F - 103  
 LOCATION: ETOBICOKE, ONT.  
 BOREHOLE NO.: 32  
 SAMPLE NO.: 3 6  
 DEPTH OF SAMPLE: 10' 25'  
 ELEVATION OF SAMPLE: 395.2 380.2

COEFFICIENT OF UNIFORMITY SA. 3. 29  
 COEFFICIENT OF CURVATURE 1.3

Classification of Sample and Group Symbol:	
SILTY SAND with trace of Clay and Gravel <b>SW - SM</b>	SANDY SILT with some Clay <b>SM</b>

SA. 3.

SA. 6.

### PLASTIC PROPERTIES:

LIQUID LIMIT	%	==	
PLASTIC LIMIT	%	==	NON
PLASTICITY INDEX	%	==	PLASTIC
MOISTURE CONTENT	%	==	
ACTIVITY		==	

Enclosure No.

EXTRA COPY

DEPARTMENT OF HIGHWAYS - ONTARIO

## RECORD OF BOREHOLE NO. 1

FOUNDATION SECTION

MATERIALS &amp; TESTING DIVISION

JOB 65-120 66-F-103 LOCATION Co-ords. N 183,819 E 207,244 ORIGINATED BY P Mc  
W.P. 275-64-02 BORING DATE October 25, 1965 COMPILED BY \_\_\_\_\_  
DATUM GSC BOREHOLE TYPE Washboring-Nx Casing CHECKED BY LL

SOIL PROFILE			SAMPLES			ELEV SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT					LIQUID LIMIT — WL PLASTIC LIMIT — WP WATER CONTENT — W			BULK DENSITY P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		25	50	75	100	125	wp	w	wL		
406.2	Ground Level															
0.7	Top Soil															
			1	SS	106											
			2	SS	65	400										
			3	SS	80											
			4	SS	65											
			5	SS	100											
			6	SS	75											
			7	SS	75											
			8	SS	75	380										
			9	SS	50											
			10	SS	20	370										
367.5'																
38.5	Shaley limestone and intermittent limestone		Drill	80%												
			Drill	28%												
357.3			Drill	10%	360											
48.7	Limestone		Drill	100%												
352.3			Drill	47%												
53.7	End of Borehole				350											

GWL 3.7'  
Gr. 18%  
SA 40%  
SI 39%  
CL 3%  
Gr 6%  
SA 37%  
SI 52%  
CL 5%





OUR REFERENCE NO. 6-12-13  
Your Ref. No. W. J. 66-F-103

CUENTAS D. H. O.

PROJECT. FROM N

LOCATION 193 990 N 207 110 E

LOCATION 183,990 N 207,110 E  
E. S. C.

DATUM ELEVATION: G.S.C.

## METHOD OF BORING AUGERING

DIAMETER OF BOREHOLE

DATE: JAN. 4 - 5, 1967

W. P. 275-64-2

ENCLOSURE NO.

VERTICAL SCALE. 1 IN. TO 5 FT.

MADE D. A. M. CHD

# GEOTECHNICAL DATA SHEET FOR BOREHOLE . . 26 .

OUR REFERENCE NO. 6 - 12 - 13  
Your Ref. No. W. J. 66 - F - 103  
CLIENT: D. H. O.

PROJECT: FROM N. OF C.P.R. O'HEAD TO N. OF BLOOR ST.  
LOCATION 184,035 N 207,270 E  
DATUM ELEVATION: G. S. C.

METHOD OF BORING AUGERING  
DIAMETER OF BOREHOLE 3 1/2"  
DATE JAN. 4 - 5, 1966  
W.P. 275 - 64 - 2

ENCLOSURE NO.

ELEVATION ft.	DEPTH ft.	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE blows per foot		CONSISTENCY water content %		REMARKS
				NUMBER	TYPE	N or Advance of Sample	2.0	4.0	6.0	8.0	
406.6	0	GROUND SURFACE									
		4" TOPSOIL									
405		SANDY SILT with some Clay (glacial till) Hard		1	S.S.	142					W.L. El. 403.3 ft. JAN. 13, 1967.
400.6	6			2	S.S.	166/3'					
400											
	10			3	S.S.	100/5"					W.L. El. 398.2 ft. JAN. 5, 1967.
395		SAND and SILT with some Gravel and Clay (glacial till) Very Dense Grey									5 44 42 9
	15			4	S.S.	100/5"					
390											
	20			5	S.S.	103					
385				6	S.S.	100/5"					13 45 32 10
	25			7	S.S.	100/5"					
380											
	30			8	S.S.	100/5"					
375											
	35	Weathered Shale fragments		9	S.S.	100/2"					
371.4	35.2	END OF BOREHOLE									
370											
	40										

# GEOTECHNICAL DATA SHEET FOR BOREHOLE . . 27 .

OUR REFERENCE NO. 6-12-13  
Your Ref. No. 66-F-103

CLIENT: D. H. O.

PROJECT: FROM N. OF C.P.R. O'HEAD TO N. OF BLOOR ST.

LOCATION: 184,015 N 207,355 E

DATUM ELEVATION: G.S.C.

METHOD OF BORING AUGERING

DIAMETER OF BOREHOLE 3 1/2"

DATE: DEC. 29-30, 1966

ENCLOSURE NO.

W P 275-64-2

ELEVATION ft.	DEPTH ft.	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE		CONSISTENCY		REMARKS
				NUMBER	TYPE	N <sub>60</sub> or Adviser of Sampler	blows per foot	SHEAR STRENGTH lbs/sq ft	water content % W <sub>p</sub> W W <sub>L</sub>		
405.8	0	GROUND SURFACE									
404.8	1	FILL									
401.3	4.5	CLAYEY SILT with SAND (glacial till) Hard - Grey		1	S.S.	54					
400				2	S.S.	50/6"					
395	10	SILTY SAND with some GRAVEL and traces of CLAY (glacial till) Very Dense		3	S.S.	40/3"					
390	15			4	S.S.	85/6"					
385	20			5	S.S.	60/6"					
380	23	CLAYEY SILT with SAND (glacial till) with fragments of SHALE Hard		6	S.S.	80/4"					
375	30			7	S.S.	100/3"					
373.2	32.6	END OF BOREHOLE		8	S.S.	200/1"					
370	35			9	S.S.	150/2"					

W. L. El.  
Jan. 5, 1967

9 54 33 4

GR SA SI CL  
— per cent —

VERTICAL SCALE: 1 IN TO 5 FT

DOMINION SOIL INVESTIGATION LIMITED

MADE: D. A. M. CHD. *Recho*

# GEOTECHNICAL DATA SHEET FOR BOREHOLE . . 28 .

OUR REFERENCE NO. 6 - 12 - 13

Your Ref. No. 66 - F - 103

CLIENT: O. H. O.

PROJECT: FROM N. OF C. P. R. O'HEAD TO N. OF BLOOR ST.

LOCATION: 183, 875 N 207, 523 E

DATUM ELEVATION: G. S. C.







METHOD OF BORING: AUGERING

DIAMETER OF BOREHOLE: 3 1/2"

DATE: DEC. 30, 1965

W.P. 275 - 64 - 2

ENCLOSURE NO.

ELEVATION ft.	DEPTH ft.	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE blows per foot				CONSISTENCY water content %			REMARKS
				NUMBER	TYPE	N- or Advancement of Sampler	20	40	60	80	100	WP	W	
							SHEAR STRENGTH      lbs. sq. ft.				20   40   60   80			
404.6	0	GROUND SURFACE												
		TOPSOIL												
		CLAYEY SILT with SAND and traces of Gravel Greyish - Hard		1	S.S.	60								W.L. El. 401.2 ft. Jan. 5, 1967
400	4.55													
		SILTY SAND with some Gravel and a trace of Clay (glacial till) Grey - Very Dense		2	S.S.	75								W.L. El. 398.6 ft. Dec. 30, 1966
395	10													11   53   31   5
		excess Silt		3	S.S.	100								
392.1	12.5													
390	14.5	SANDY SILT with a trace of Clay Very Dense		4	S.S.	50/3"								2   42   48   8
	15													
				5	S.S.	100/6"								
385	20	CLAYEY SILT with SAND and a trace of Gravel (glacial till) Hard - Grey		6	S.S.	100/6"								6   38   36   20
380	25													
				7	S.S.	100/3"								
375	30													
374.1	30.5	END OF BOREHOLE		8	S.S.	100/6"								
370	35													
														GR   SA   SI   CL — per cent —

GR SA SI CL  
— per cent —

VERTICAL SCALE: 1 IN. TO 5 FT

DOMINION SOIL INVESTIGATION LIMITED

MADE: D. A. M. CHD.

# GEOTECHNICAL DATA SHEET FOR BOREHOLE . . 2.9 .

OUR REFERENCE NO. 6-12-13  
Your Ref. No. W. J. 66-F-103

CLIENT: D. H. O.

PROJECT: FROM N. OF C.P.R. O'HEAD TO N. OF BLOOR ST.

LOCATION: 183,800 N 207,550 E

DATUM ELEVATION: G.S.C.

METHOD OF BORING: AUGERING

DIAMETER OF BOREHOLE: 3 1/2"

DATE: DEC 28-29, 1966

W.P. 275-64-2

ENCLOSURE NO.

ELEVATION ft.	DEPTH ft.	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE blows per foot					CONSISTENCY water content %			REMARKS
				NUMBER	TYPE	N <sub>60</sub> or Adjusted N <sub>60</sub>	2,0	4,0	6,0	8,0	10,0	WP	WL		
403.3	0	GROUND SURFACE													
		TOPSOIL													
400	3.3	SILTY SAND with some GRAVEL and trace of CLAY (glacial till) Very Dense		1	S.S.	53									W.L. El. 403.0 ft. Jan. 5, 1967
				2	S.S.	50/4"									19 40 35 6
395	8.3														W.L. El. 399.3 ft. Dec. 30, 1966
391.3	12			3	S.S.	52									
390	13			4	S.S.	60									
	15			5	S.S.	71									1 25 45 29
385	20	CLAYEY SILT with SAND and traces of Gravel and Shale fragments (glacial till) Hard													
380	25			6	S.S.	62									
				7	S.S.	50/6"									
375	30			8	S.S.	110/6"									
370	35			9	S.S.	100/4"									
365.8	37.5	SAND with some Silt and Gravel cobbles		10	S.S.	105/7"									9 78 43 10
365	40			11	S.S.	100/0"									
361.8	41.5	END OF BOREHOLE													GR SA SI CL — per cent —
360	45														

VERTICAL SCALE 1 IN TO 5 FT.

DOMINION SOIL INVESTIGATION LIMITED

MADE D.A.M. CHD 0660

OUR REFERENCE NO. 6-12-13  
Your Ref. No. WJ 66-F-103  
CLIENT: D. H. O.

# METHOD OF BORING AUGERING

DIAMETER OF BOREHOLE 3 1/2"

ENCLOSURE NO.

DATE: DEC. 29, 1966. - JAN. 4, 1967.

W.P. 275 - 64 - 2

VERTICAL SCALE, 1 IN. TO 5 FT.

# GEOTECHNICAL DATA SHEET FOR BOREHOLE . 31 . .

OUR REFERENCE NO. 6-12-13  
Your Ref. No. W. J. 66-F-103

CLIENT: D. H. O.

PROJECT: FROM N. OF C.P.R. O'HEAD TO N. OF BLOOR ST.

LOCATION: 183, 715 N 207, 200 E

DATUM ELEVATION: G. S. C.

METHOD OF BORING: AUGERING

DIAMETER OF BOREHOLE: 3 1/2"

DATE: JAN. 3, 1967

ENCLOSURE NO.

W. P. 275-64-2

ELEVATION ft.	DEPTH ft.	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE blows per foot					CONSISTENCY water content %				REMARKS
				NUMBER	TYPE	N <sub>60</sub> or Adjustment of Sampler	210	410	610	810	1010	W <sub>p</sub>	W	W <sub>L</sub>		
403.0	0	GROUND SURFACE														
		4" TOPSOIL														
400	5	SANDY SILT with some Clay and trace of Gravel (glacial till) Very Dense		1	S.S.	100/10'										
				2	S.S.	100/6"									4 34 43 19	
395	8	CLAYEY SILT with SAND and a trace of Gravel Hard - Grey		3	S.S.	100/4"										
390	12.5	SILT and SAND with some Clay and trace of Gravel (glacial till) Very Dense		4	S.S.	100/3"										
385	20			5	S.S.	100/6"									2 44 41 13	
380	23	CLAYEY SILT with SAND and trace of Gravel (glacial till) Hard		6	S.S.	100/7"										
375	30			7	S.S.	100/5"										
372.7	30.3	END OF BOREHOLE														
370	35															

W.L. El. 400.0 ft.  
JAN. 5, 1967

GR	SA	SI	CL
— per cent —			



OUR REFERENCE NO 6 - 12 - 13

CLIENT: D.H.O

## METHOD OF BORING AUGERING

DIAMETER OF BOREHOLE 3 1/2

ENCLOSURE NO.

DATE DEC. 28-29, 1966

DATUM ELEVATION G.S.C.

W. P. 275 - 64 - 2

VERTICAL SCALE 1 IN. TO 5' 4"

MEMORANDUM

TO: Mr. C. S. Grebski,  
Bridge Design Engineer,  
Bridge Division,  
Admin. Bldg.

FROM: Foundation Section,  
Materials & Testing Div.,  
Room 107, Lab. Bldg.

DATE: July 10, 1968

OUR FILE REF

IN REPLY TO

SUBJECT: Hwy. #27 and Dundas St. Interchange  
and C.P.R. Overhead North of Q.E.W.  
and Hwy. #27 Interchange.  
W.J. 65-P-104 and W.J. 66-P-103,  
District No. 6 (Toronto).

We have reviewed your designs for the proposed bridges of the above interchange and our comments pertaining to footings are as follows:

Bridge #1 and #2 (W.P. 279-64-1 and 279-64-4)

No comments.

Bridge #3 (W.P. 37-65)

No comments concerning spread footings beneath the piers. It is suggested, however, that - in view of recent experiences at the site of Hwy. #401 & #27 - pile lengths be provided for the abutments according to the Table below:

Location	No.	Piles Supplied	Type	Design Load
East Abutment	20	33 Ft.	12 BP @ 53	70 T/Pile
West Abutment	20	22 Ft.		

The above pile lengths include a one-ft. allowance for cutting off buckled ends.

Bridge #4 (W.P. 266-66)

No comments.

Bridge #5 (W.P. 267-66)

No comments.

cont'd. /2 ...

# DOMINION SOIL INVESTIGATION LIMITED

100 ROCKFORD BOULEVARD - SCARBOROUGH ONTARIO CANADA - TELEPHONE 751-6585

BRANCH  
250 QUEEN'S AVENUE  
LONDON, ONTARIO  
TELEPHONE 92 8-3001



FOUNDATION ENGINEERS

ASSOCIATED COMPANY  
SOIL TESTING AND ENGINEERING LTD.  
54 BRENTFORD ROAD,  
KINGSTON 8, ONTARIO, WEST INDIES  
TELEPHONE 86006

6th February 1967.

Department of Highways, Ontario,  
Materials and Testing Division,  
Downsview Avenue,  
Downsview, Ontario.

Attention: Mr. A. Barsvary, P.Eng.

Re: Our Ref. No: 6-12-13  
Your Ref: W.J. 66-F-103

Dear Sirs,

Enclosed please find two copies of the Geotechnical Data sheets  
and Grain Size Distribution sheets for boreholes No. 25, 30 and 37.

Yours very truly,

DOMINION SOIL INVESTIGATION LIMITED

J. Hewitt, P.Eng.

JH/me  
Enclosures.

## MEMORANDUM

Mr. B. R. Davis,  
Bridge Engineer,  
Bridge Division,  
Admin. Bldg.

FROM: Foundation Section,  
Materials & Testing Div.,  
Room 107, Lab. Bldg.

Attention: Mr. S. McCutchie

DATE: May 26, 1967

Our File No.

IN REPLY TO

MAY 31 1967

SUBJECT:

FOUNDATION INVESTIGATION REPORT  
For  
The Proposed Bridge #2, Bridge #9,  
And W.B. Basketweave,  
Hwy. #27 and Dundas St. Interchange,  
District #6 (Toronto).  
W.J. 66-F-103 -- W.P. 275-64-2

In a memo dated April 25, 1967, Mr. W. S. Melnyshyn, Regional Bridge Location Engineer, requested foundation investigations at the sites of three bridges. These structures belong to the proposed Hwy. #27 and Dundas St. interchange, but were recently changed or added; consequently, they were not included in our original Foundation Report W.J. 66-F-103.

Supplementary field and laboratory investigations were therefore undertaken by this Section to enable us to give recommendations for the requested structure foundations.

Attached, we are forwarding to you, our foundation reports for the above bridges, namely: Bridge #2 (W.P. 275-64-2), Westbound Basketweave (W.P. 266-66), and Bridge #9 (W.P. 277-64-3). Please insert these pages and drawings into your copy(s) of the original report W.J. 66-F-103.

Your attention is called to the section entitled: "General Remarks about Foundations" - Part Two (2), page four (4) of the original report. Suggestions given under this heading are valid for the foundations of the bridges sent to you hereby.

AGG/WdeF

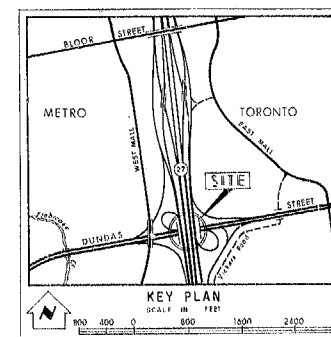
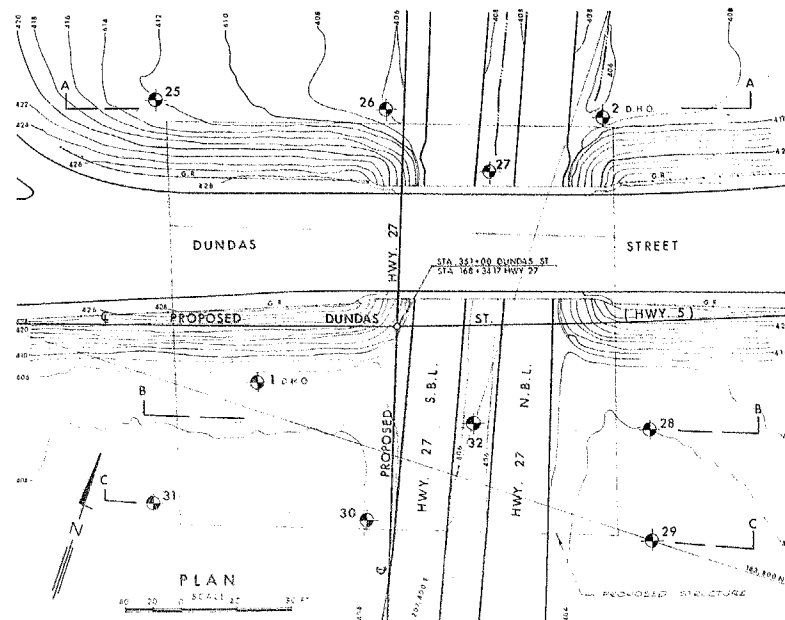
Attach.

cc: Messrs. B. R. Davis (2)  
E. A. Triggles  
D. W. Peirson  
G. K. Hunter (2)  
P. Allen  
W. S. Melnyshyn  
T. J. Kovich  
B. A. Singh


A. G. Stenning  
PRINCIPAL FOUNDATION ENGINEER


Foundations Filed  
Gen. Files ✓







**LEGEND**

 Bare Hole

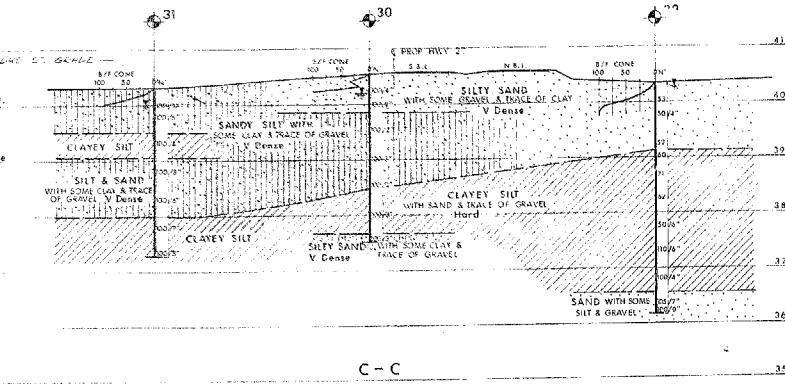
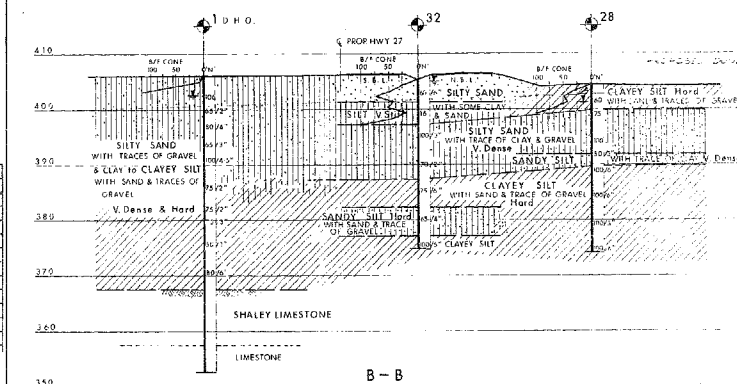
 Core Penetration Hole

 Bare & Core Penetration Hole

 Water Levels established at time of field investigation (Jan. 1964)

- NOTE -

The boundaries between soil strata have been established only at Bare Hole locations. Between Bare Holes the boundaries are assumed from geological evidence and may be subject to considerable error.

[illegible][illegible]

DEPARTMENT OF HIGHWAYS - ONTARIO  
MATERIALS & TESTING DIVISION - FOUNDATION SECTION  
HWY. 27 OVERPASS AT  
DUNDAS STREET

KING'S HIGHWAY NO. 27 (IMPROVEMENT) DIST. NO. 1  
CO. YORK METROPOLITAN TORONTO  
TWP. ETOBICOKE LOT 1 CON. 1

BORE HOLE LOCATIONS &amp; SOIL STRATA

SUBM'D A.D.	CHECKED <i>457</i>	WR. NO. 279-64-1	M.B.T. DRAWING NO. 44-E-102
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DRAWN S.O.	CHECKED <i>JA</i>	JOB NO. 66-F-103	66-F-103
DATE 12 FEB 1967		SITE NO.	BRIDGE DRAWING NO.

APPROVED *A. R. Thomas* CONT. NO.

RECEIVED FOR DEPOSIT AND RETURN



