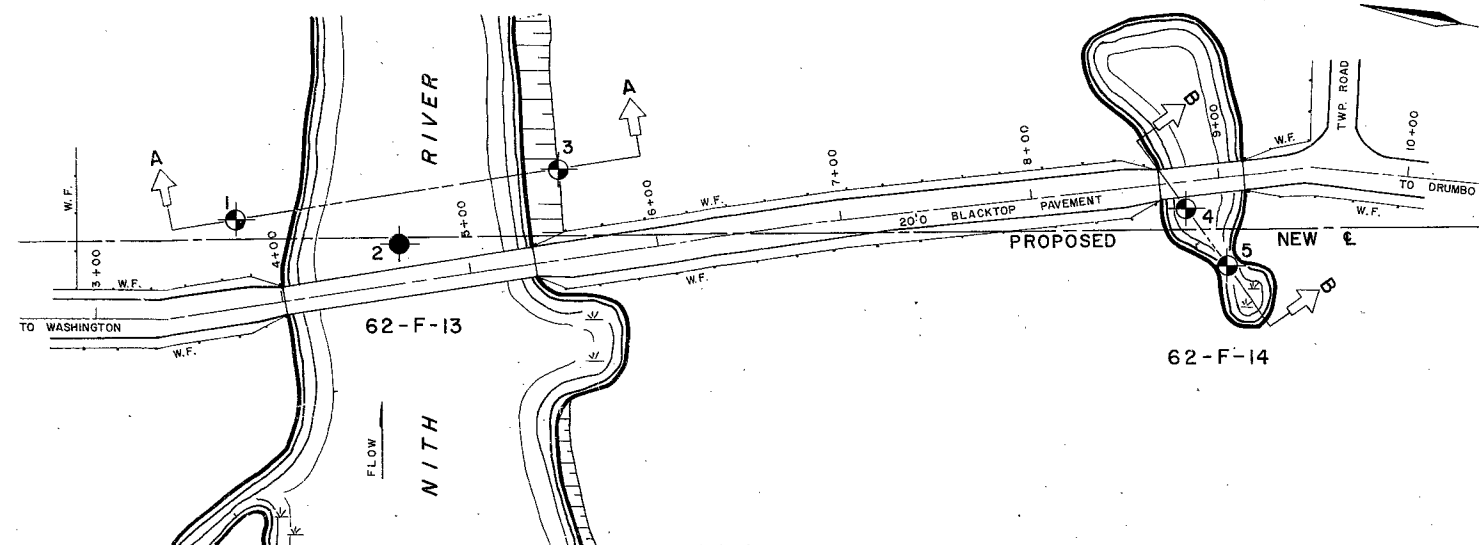


#62-F-13 & 14

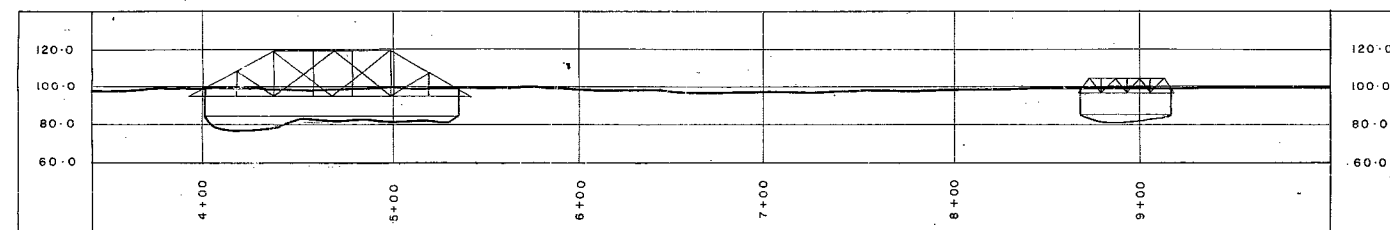
OXFORD CTY. RD.

& NITH R.



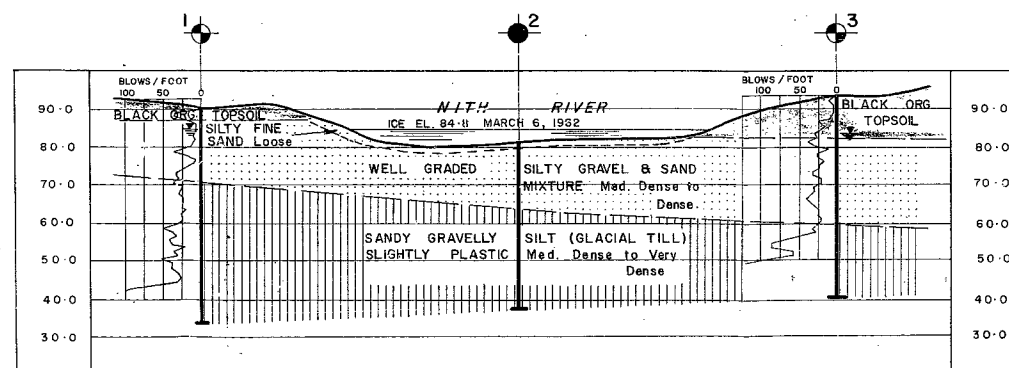
PLAN

SCALE IN FEET
40 20 0 40 80 120



PROFILE

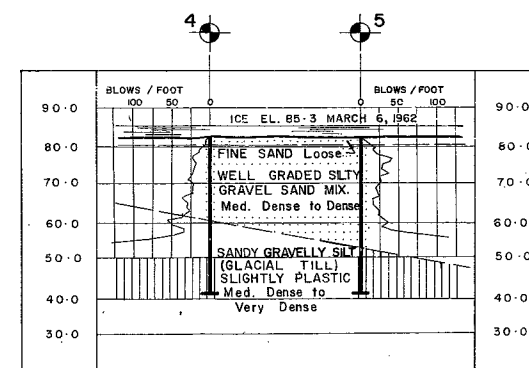
SCALE IN FEET
40 20 0 40 80 120



A - A

SCALE IN FEET
20 10 0 20 40 60

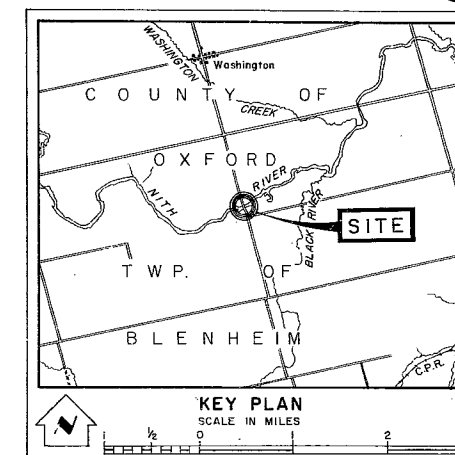
62-F-13



B - B

SCALE IN FEET
20 10 0 20 40 60

62-F-14



LEGEND

- Bore Hole
- Cone Penetration Hole
- Bore & Cone Penetration Hole
- Water Levels established at time of field investigation

NO.	ELEVATION	STATION	OFFSET
1	90.1	3+83	46' LT.
2	81.8	4+67	20' LT.
3	86.9	5+54	48' LT.
4	82.3	8+82	14' RT.
5	82.3	9+01	46' RT.

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.

DEPARTMENT OF HIGHWAYS - ONTARIO MATERIALS & RESEARCH DIVISION - FOUNDATION SECTION			
NITH RIVER AND OXFORD COUNTY ROAD BETWEEN LOTS 12 & 13 - CON. 2			
ORIGINATED W. KULMATICAS	DISTRICT NO. 2	DATE: APRIL 12, 1962	
DRAWN F. CLARK	W.P. NO. MUNICIPAL	JOB NO. 62-F-13 & 14	
CHECKED <i>W. J. McLeod</i>	CONTRACT NO.	DRAWING NO.	
APPROVED <i>R. L. S. S.</i>		62-F-13 & 14A	

List # 2

Mr. A. M. Toye,
Bridge Engineer.

Materials & Research Division,
(Foundation Section)

Attention: Mr. K. L. Kleinsteinber,
Municipal Bridge Liaison Engr.

April 18, 1962.

D.H.O. FOUNDATION INVESTIGATION
REPORT.

W.J. 62-F-13 and W.J. 62-F-14

W.P. (N11) - Municipal Jobs -
W.O. 62-30151

Re: Proposed New Bridge - Oxford County Road and Nith River,
Proposed New Culvert- Oxford County Road and Nith River,
Relief Channel,
4 Miles North of Drumbo, Twp. of Blenheim, Co. of Oxford,
District No. 2.

Attached, we are forwarding to you, our detailed foundation report dealing with existing subsoil conditions at the above structure locations.

We believe you will find the factual data and recommendations self-explanatory and adequate for your future design work. However, if clarification, or additional information is required, please do not hesitate to contact our Office.

AGS/MdeF
Attach.

A. G. Stermac
A. G. Stermac,
PRINCIPAL FOUNDATION ENGINEER

cc: Messrs. A. M. Toye (3)
J. P. Howard
T. S. Caldwell
J. Roy
A. Watt

Foundations Office ✓
Gen. Files.

TABLE OF CONTENTS

1. INTRODUCTION.
 2. DESCRIPTION OF SITE.
 3. FIELD AND LABORATORY WORK.
 4. SUBSOIL CONDITIONS:-
 - 4.1) General.
 - 4.2) Well Graded, Silty Gravel-Sand Mixture,
Med. Dense to Dense.
 - 4.3) Sandy Gravelly Silt, Slightly Plastic
(Glacial Till) Med. Dense to Very Dense.
 5. GROUND WATER CONDITIONS.
 6. EXISTING STRUCTURES.
 7. DISCUSSION AND RECOMMENDATIONS.
 8. SUMMARY.
 9. MISCELLANEOUS.
-

FOUNDATION INVESTIGATION

For

Proposed New Bridge - Oxford County Road and Nith River,
Proposed New Culvert- Oxford County Road and Nith River,
Relief Channel,
District No. 2.

W.J. 62-F-13

And

W.J. 62-F-14

1. INTRODUCTION:

A request for a foundation investigation at the site of the existing twin bridges at Oxford County Road and the Nith River, was received from the Municipal Bridge Liaison Engineer, Mr. K. L. Kleinsteinber, dated February 26, 1962.

It is proposed to erect a new bridge and culvert to carry Oxford County Road over the Nith River and its relief channel. The site of the proposed bridge and culvert is located in the Twp. of Blenheim. At this location, the chainage of the County Road is from 3+83 to 9+55.

In order to determine the soil properties and decide on the type of foundation, an investigation was carried out by this Section. Results and the discussion of the field and laboratory investigations, as well as conclusions and recommendations for the future design work, are contained in the following paragraphs of this report.

2. DESCRIPTION OF SITE:

The area in which the structure sites are located, is generally flat terrain.

Physiographically, the site is located in the so-called Norfolk Sand Plains.

cont'd. /2 ...

3. FIELD AND LABORATORY WORK:

In order to obtain sufficient information on the type and properties of the subsoil, five sampled boreholes, and four dynamic cone penetration tests, were carried out at this site. Split-spoon samples were taken at various depth intervals. Because of the dense nature of the soil, it was not possible to obtain undisturbed samples. Samples recovered in the split-spoon sampler were used to determine the following physical properties:-

1. Natural Moisture Content.
2. Grain Size Distribution.
3. Liquid Limits.
4. Plastic Limits.

4. SUBSOIL CONDITIONS:

4.1) General:

The stratigraphy of the soil at the site was found to be generally uniform. A detailed description of various soil types encountered during the investigation, is shown in Appendix I of this report, and is also given in subsequent paragraphs. The estimated stratigraphical profile, shown on Dwg. No. 62-F-13 - 62-F-14A is based upon this information.

4.2) Well Graded, Silty Gravel-Sand Mixture, Med. Dense to Dense:

This stratum, which extends to approx. Elev. 61.0 for a depth of about 24'-0" - 27'-0", was found below the topsoil. It may be classified as Med. Dense to Dense with an average 'N' value of 26 blows/foot.

The percentage of gravel in this layer is 57%; sand forms 36%, and the rest of 7%, is silt and clay.

cont'd. /3 ...

4. SUBSOIL CONDITIONS: (cont'd.) ...

4.3) Sandy, Gravelly Silt, Slightly Plastic -
(Glacial Till) Med. Dense to Very Dense:

Following the stratum of med. dense to dense, well graded silty gravel-sand mixture, is a containing layer of med. dense to very dense, slightly plastic, sandy gravelly silt (Glacial Till). The overall stratum is in a very dense state with an average 'N' value in excess of 50 blows/foot.

The percentage of silt in this layer is 70%, sand 21%, gravel 6%, and the rest of 3%, is clay.

5. GROUND WATER CONDITIONS:

The ground water level, at the time of the investigation, was found to be 5'-1" in B.H. #1 and 3'-1" in B.H. #3 below ground elevation. B.H.'s #2, 4 and 5 were drilled in the river bed and were covered with approx. 3'-0" of water.

No artesian water conditions were encountered.

6. EXISTING STRUCTURES:

The existing twin bridges, over the Nith River and its relief channel, were erected on spread footings. The abutments of both bridges are cracked (due to settlements) and badly damaged by scour.

7. DISCUSSION AND RECOMMENDATIONS:

General:

As can be seen from the previously described soil stratigraphy, the soil consists of a med. dense, well graded, silty gravel-sand mixture, followed by very dense, slightly plastic,

cont'd. /4 ...

7. DISCUSSION AND RECOMMENDATIONS: (cont'd.) ...

General: (cont'd.) ...

sandy gravelly silt (Glacial Till). The upper layers could provide adequate support for spread footings, but the Hydrological Section of the D.H.O. indicated that a 16'-0" deep scour may be expected, in the Nith River's main channel.

Main Channel Structure:

Three types of foundation are recommended for this structure, for consideration. The most economical solution should be adopted:-

(1) Spread footings founded at el. 61.0, can support a safe load of 2.5 t.s.f. This will be sufficient depth for scour protection, but the scheme will involve very deep excavations (about 20' below water level), and a consequent difficult dewatering scheme utilizing well points or steel cofferdams.

(2) Spread footings founded at el. 70.0, completely encased in permanent steel sheet cofferdams driven to el. 57.0, can support a safe load of 2.5 t.s.f. This solution will provide scour protection and will also simplify dewatering operations.

(3) The entire structure can be supported on piles. If timber piles are used, a safe load of 20 tons per pile should be achieved at about el. 42.0. These should be treated if not completely below the lowest water table. If 12-3/4" steel tube piles are used, a design load of 50 tons per pile should be achieved at or about el. 42.0. In both cases, pile driving should

cont'd. /5 ...

7. DISCUSSION AND RECOMMENDATIONS: (cont'd.) ...

Main Channel Structure: (cont'd.) ...

(3) (cont'd.) ...

be controlled by means of the Hiley Formula to obtain the necessary design loads. The underside of the pile caps should be formed at a sufficient depth below the finished ground level to provide for frost protection.

Footings for falsework may be placed on the ground surface. A safe load of 0.5 t.s.f. may be used.

Relief Channel Structure:

At this location, a 20' box culvert is recommended. The bottom of the culvert should be placed at el. 79.0. A safe bearing pressure of 2 t.s.f. may be used. A dewatering scheme will be necessary and should be carried out so as to prevent 'boiling' of the excavations. If steel sheeting is used for this, it should be driven to a depth below the footing base equal to the height of the prevailing water level above it.

Falsework footings may be placed on the ground surface. A safe load of 0.5 t.s.f. may be used.

Approaches:

No stability problems are anticipated with regard to the proposed approach embankments, either during or after construction, provided that standard 2:1 slopes are used.

cont'd. /6 ...

8. SUMMARY:

(1) General:

The stratification of the soil is quite uniform. The relative density of the materials encountered varies from very loose to very dense.

(2) Main Channel Structure:

Because of the scour danger, three different types of footings are suggested. These are described in the previous paragraph. The most economical solution should be adopted.

(3) Relief Channel:

A 20'-0" span box culvert is suggested for the relief channel. The bottom of the culvert should be at el. 79.0. A safe bearing pressure of 2 tons per sq. ft. may be employed.

(4) Dewatering:

Dewatering may present a problem, and suggestions and recommendations contained in the body of the report should be followed.

(5) Falsework:

Footings for falsework may be placed on the surface. A safe load of 0.5 tons per sq. ft. may be employed.

cont'd. /7 ...

9. MISCELLANEOUS:

The field work was carried out during the period February 19, 1962 - March 2, 1962. Field equipment used was owned and operated by Canadian Longyear, Ltd., under the supervision of Mr. W. W. Kulmatickas of the D.H.O.

April 1962.

REPORT PREPARED BY:

..... *B. W. Kulmatickas*
for W. W. Kulmatickas,
PROJECT FOUNDATION ENGINEER.

REPORT PREPARED BY:

..... *K. G. Selby*
K. G. Selby,
SR. PROJECT FOUNDATION ENGINEER.

APPENDIX I.

ABBREVIATIONS USED IN THIS REPORT

PENETRATION RESISTANCE

STANDARD PENETRATION RESISTANCE 'N' - THE NUMBER OF BLOWS REQUIRED TO ADVANCE A STANDARD SPLIT SPOON SAMPLER 12 INCHES INTO THE SUBSOIL, DRIVEN BY MEANS OF A 140 POUND HAMMER FALLING FREELY A DISTANCE OF 30 INCHES.

DYNAMIC PENETRATION RESISTANCE - THE NUMBER OF BLOWS REQUIRED TO ADVANCE A 2 INCH, 60 DEGREE CONE, FITTED TO THE END OF DRILL RODS, 12 INCHES INTO THE SUBSOIL, THE DRIVING ENERGY BEING 350 FOOT POUNDS PER BLOW.

DESCRIPTION OF SOIL

THE CONSISTENCY OF COHESIVE SOILS AND THE RELATIVE DENSITY OR DENSENESS OF COHESIONLESS SOILS ARE DESCRIBED IN THE FOLLOWING TERMS:-

<u>CONSISTENCY</u>	<u>'N' BLOWS / FT.</u>	<u>c LB. / SQ. FT.</u>	<u>DENSENESS</u>	<u>'N' BLOWS / FT.</u>
VERY SOFT	0 - 2	0 - 250	VERY LOOSE	0 - 4
SOFT	2 - 4	250 - 500	LOOSE	4 - 10
FIRM	4 - 8	500 - 1000	COMPACT	10 - 30
STIFF	8 - 15	1000 - 2000	DENSE	30 - 50
VERY STIFF	15 - 30	2000 - 4000	VERY DENSE	> 50
HARD	> 30	> 4000		

TYPE OF SAMPLE

S.S.	SPLIT SPOON	T.W.	THINWALL OPEN
W.S.	WASHED SAMPLE	T.P.	THINWALL PISTON
S.B.	SCRAPER BUCKET SAMPLE	O.S.	OESTERBERG SAMPLE
A.S.	AUGER SAMPLE	F.S.	FOIL SAMPLE
C.S.	CHUNK SAMPLE	R.C.	ROCK CORE
S.T.	SLOTTED TUBE SAMPLE		
	P.H. SAMPLE ADVANCED HYDRAULICALLY		
	P.M. SAMPLE ADVANCED MANUALLY		

SOIL TESTS

Qu	UNCONFINED COMPRESSION	L V	LABORATORY VANE
Q	UNDRAINED TRIAXIAL	F.V.	FIELD VANE
Qcu	CONSOLIDATED UNDRAINED TRIAXIAL	C	CONSOLIDATION
Qd	DRAINED TRIAXIAL	S	SENSITIVITY

ABBREVIATIONS USED IN THIS REPORT

SOIL PROPERTIES

γ	UNIT WEIGHT OF SOIL (BULK DENSITY)
γ_s	UNIT WEIGHT OF SOLID PARTICLES
γ_w	UNIT WEIGHT OF WATER
γ_d	UNIT DRY WEIGHT OF SOIL (DRY DENSITY)
γ'	UNIT WEIGHT OF SUBMERGED SOIL
G	SPECIFIC GRAVITY OF SOLID PARTICLES $G = \frac{\gamma_s}{\gamma_w}$
e	VOID RATIO
n	POROSITY
w	WATER CONTENT
S_r	DEGREE OF SATURATION
w_L	LIQUID LIMIT
w_p	PLASTIC LIMIT
I_p	PLASTICITY INDEX
s	SHRINKAGE LIMIT
I_L	LIQUIDITY INDEX = $\frac{w - w_p}{I_p}$
I_C	CONSISTENCY INDEX = $\frac{w_L - w}{I_p}$
e_{max}	VOID RATIO IN LOOSEST STATE
e_{min}	VOID RATIO IN DENSEST STATE
I_D	DENSITY INDEX = $\frac{e_{max} - e}{e_{max} - e_{min}}$
	RELATIVE DENSITY D_r IS ALSO USED
h	HYDRAULIC HEAD OR POTENTIAL
q	RATE OF DISCHARGE
v	VELOCITY OF FLOW
i	HYDRAULIC GRADIENT
k	COEFFICIENT OF PERMEABILITY
j	SEEPAGE FORCE PER UNIT VOLUME
m_v	COEFFICIENT OF VOLUME CHANGE = $\frac{-\Delta e}{(1+e)\Delta\sigma}$
c_v	COEFFICIENT OF CONSOLIDATION
C_c	COMPRESSION INDEX = $\frac{\Delta e}{\Delta \log_{10} \sigma}$
T_v	TIME FACTOR = $\frac{c_v t}{d^2}$ (d, DRAINAGE PATH)
U	DEGREE OF CONSOLIDATION
τ_f	SHEAR STRENGTH
c'	EFFECTIVE COHESION INTERCEPT
ϕ'	EFFECTIVE ANGLE OF SHEARING RESISTANCE, OR FRICTION
c_u	APPARENT COHESION
ϕ_u	APPARENT ANGLE OF SHEARING RESISTANCE, OR FRICTION
μ	COEFFICIENT OF FRICTION
S_t	SENSITIVITY

GENERAL

π	= 3.1416
e	BASE OF NATURAL LOGARITHMS 2.7183
$\log_e a$ OR $\ln a$	NATURAL LOGARITHM OF a
$\log_{10} a$ OR $\log a$	LOGARITHM OF a TO BASE 10
t	TIME
g	ACCELERATION DUE TO GRAVITY
V	VOLUME
W	WEIGHT
M	MOMENT
F	FACTOR OF SAFETY

STRESS AND STRAIN

u	PORE PRESSURE
σ	NORMAL STRESS
σ'	NORMAL EFFECTIVE STRESS ($\bar{\sigma}$ IS ALSO USED)
τ	SHEAR STRESS
ϵ	LINEAR STRAIN
γ	SHEAR STRAIN
ν	POISSON'S RATIO (μ IS ALSO USED)
E	MODULUS OF LINEAR DEFORMATION (YOUNG'S MODULUS)
G	MODULUS OF SHEAR DEFORMATION
K	MODULUS OF COMPRESSIBILITY
η	COEFFICIENT OF VISCOSITY

EARTH PRESSURE

d	DISTANCE FROM TOP OF WALL TO POINT OF APPLICATION OF PRESSURE
δ	ANGLE OF WALL FRICTION
K	DIMENSIONLESS COEFFICIENT TO BE USED WITH VARIOUS SUFFIXES IN EXPRESSIONS REFERRING TO NORMAL STRESS ON WALLS
K_0	COEFFICIENT OF EARTH PRESSURE AT REST

FOUNDATIONS

B	BREADTH OF FOUNDATION
L	LENGTH OF FOUNDATION
D	DEPTH OF FOUNDATION BENEATH GROUND
N	DIMENSIONLESS COEFFICIENT USED WITH A SUFFIX APPLYING TO SPECIFIC GRAVITY, DEPTH AND COHESION ETC. IN THE FORMULA FOR BEARING CAPACITY
k_s	MODULUS OF SUBGRADE REACTION

SLOPES

H	VERTICAL HEIGHT OF SLOPE
D	DEPTH BELOW TOE OF SLOPE TO HARD STRATUM
β	ANGLE OF SLOPE TO HORIZONTAL

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH DIVISION

RECORD OF BOREHOLE NO. 1

FOUNDATION SECTION

JOB 62-F-13 LOCATION Twin Bridges - Nith River ORIGINATED BY W.W.K.
 W.P. Municipal BORING DATE Feb. 20, 1962. COMPILED BY W.W.K.
 DATUM 20.1 BOREHOLE TYPE Wash Boring - BX Casing. CHECKED BY K.S.

SOIL PROFILE			SAMPLES			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	ELEV SCALE	SHEAR STRENGTH P.S.F.					WATER CONTENT % WP — W — WL 10 20 30			
90.1	Ground Elevation					90									
87.1	Black Org. Topsoil														
83.0	Well graded, silty gravel-sand mixture		1	S.S.	16										
	Med. dense to dense		2	S.S.	29										
			3	S.S.	44										
			4	S.S.	44										
66.1			5	S.S.	20										
24.0	Sandy gravelly silt slightly plastic. (Glacial Till)		6	S.S.	28										
	Med. dense to very dense.		7	S.S.	19										
			8	S.S.	15										
			9	S.S.	26										
			10	S.S.	129										
33.6			11	S.S.	135										
56.5	End of borehole.					30									

▽ w.t.

Elev 85.0

Observed in casing.

▽ w.t.
 Elev 85.0
 Observed in casing.

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH DIVISION

RECORD OF BOREHOLE NO. 3

FOUNDATION SECTION

JOB 62-F-13 LOCATION Twin Bridges - Mith River ORIGINATED BY W.W.K.
W.P. Municipal BORING DATE February 28, 1962. COMPILED BY W.W.K.
DATUM 86.9 BOREHOLE TYPE Wash Boring - BX Casing. CHECKED BY K.S.

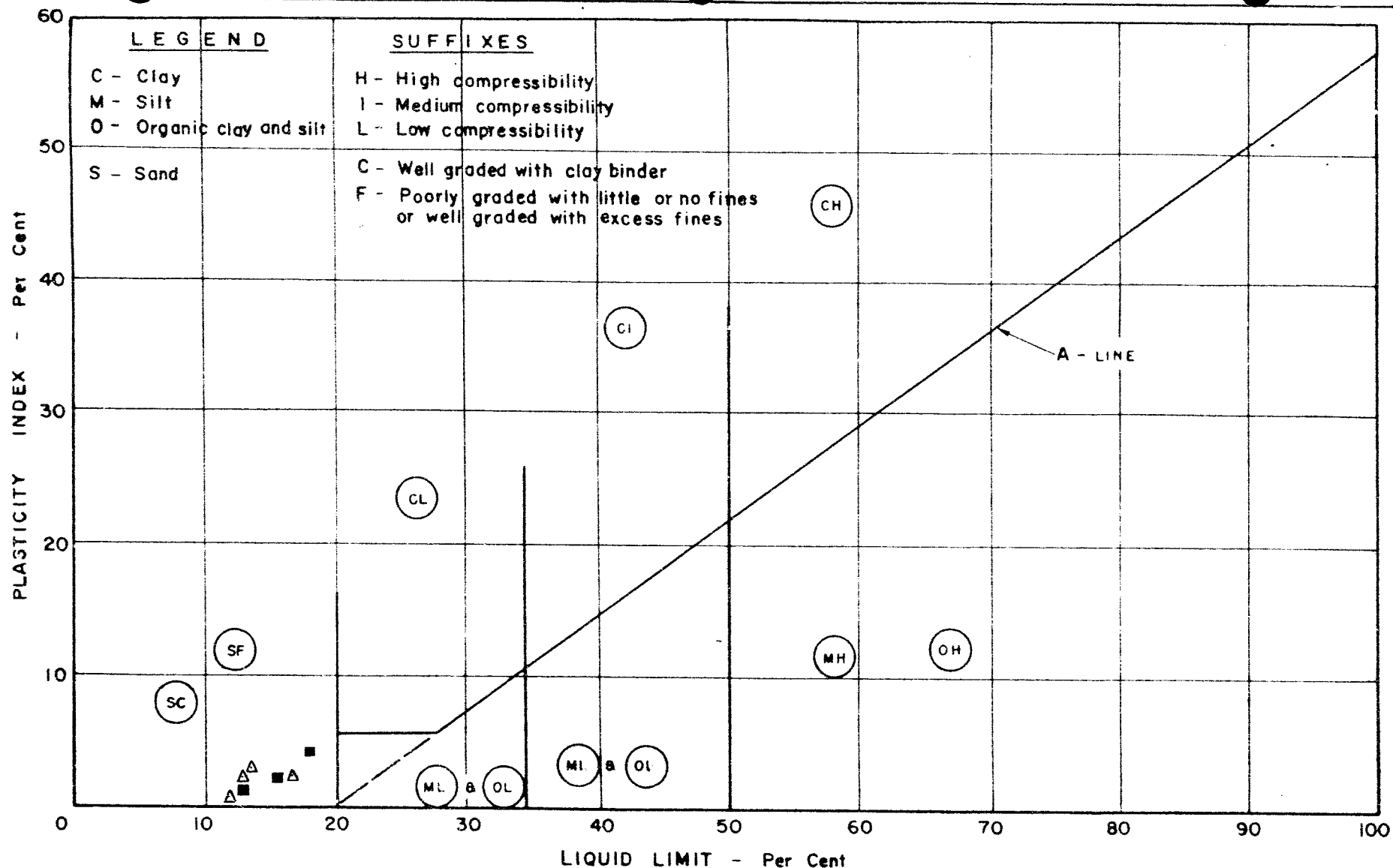
SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT		LIQUID LIMIT ——— WL PLASTIC LIMIT ——— WP WATER CONTENT ——— W		BULK DENSITY P.C.F.	REMARKS	
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F.		WATER CONTENT %				
							20	40	60	80	100		
86.9	Ground Elevation					90							
0.0	Black organic topsoil												
82.4													
4.5			1	S.S.	14	80							
	Well graded silty gravel - sand mixture.		2	S.S.	21								
			3	S.S.	34	70							
	Med. dense to dense.		4	S.S.	15								
			5	S.S.	15	60							
59.9			6	S.S.	11								
27.0			7	S.S.	14	50							
	Sandy gravelly silt slightly plastic (Glacial Till)		8	S.S.	37								
	Med. dense to very dense.		9	S.S.	200	40							
40.4													
46.5	End of borehole.												

w.t. Elev.
83.8
Observed
in Casing.

FOUNDATION SECTION

JOB <u>62-F-14</u>	LOCATION <u>Twin Bridges - Releaf Channel</u>	ORIGINATED BY <u>W.W.K.</u>
W.P. <u>Municipal</u>	BORING DATE <u>March 7, 1962.</u>	COMPILED BY <u>W.W.K.</u>
DATUM <u>Ice Elev. 85.3</u> <u>Ground Elev. 82.3</u>	BOREHOLE TYPE <u>Wash Boring - BX Casing.</u>	CHECKED BY <u>K.S.</u>

SOIL PROFILE			SAMPLES		ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT	LIQUID LIMIT ——— WL PLASTIC LIMIT ——— WP WATER CONTENT ——— W WP ——— W ——— WL WATER CONTENT %	BULK DENSITY P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE					
85.3	Ice Elevation								
82.3	Water								
80.3	Loose fine sand								
5.0	Well graded silty gravel-sand mixture.		1	S.S.	30				
			2	S.S.	25				
	Med. dense to dense.		3	S.S.	18				
			4	S.S.	41				
			5	S.S.	45				
53.3									
32.0	Sandy gravelly silt slightly plastic (Glacial Till). Very dense		6	S.S.	159				
40.8									
44.5	End of borehole.		7	S.S.	200				

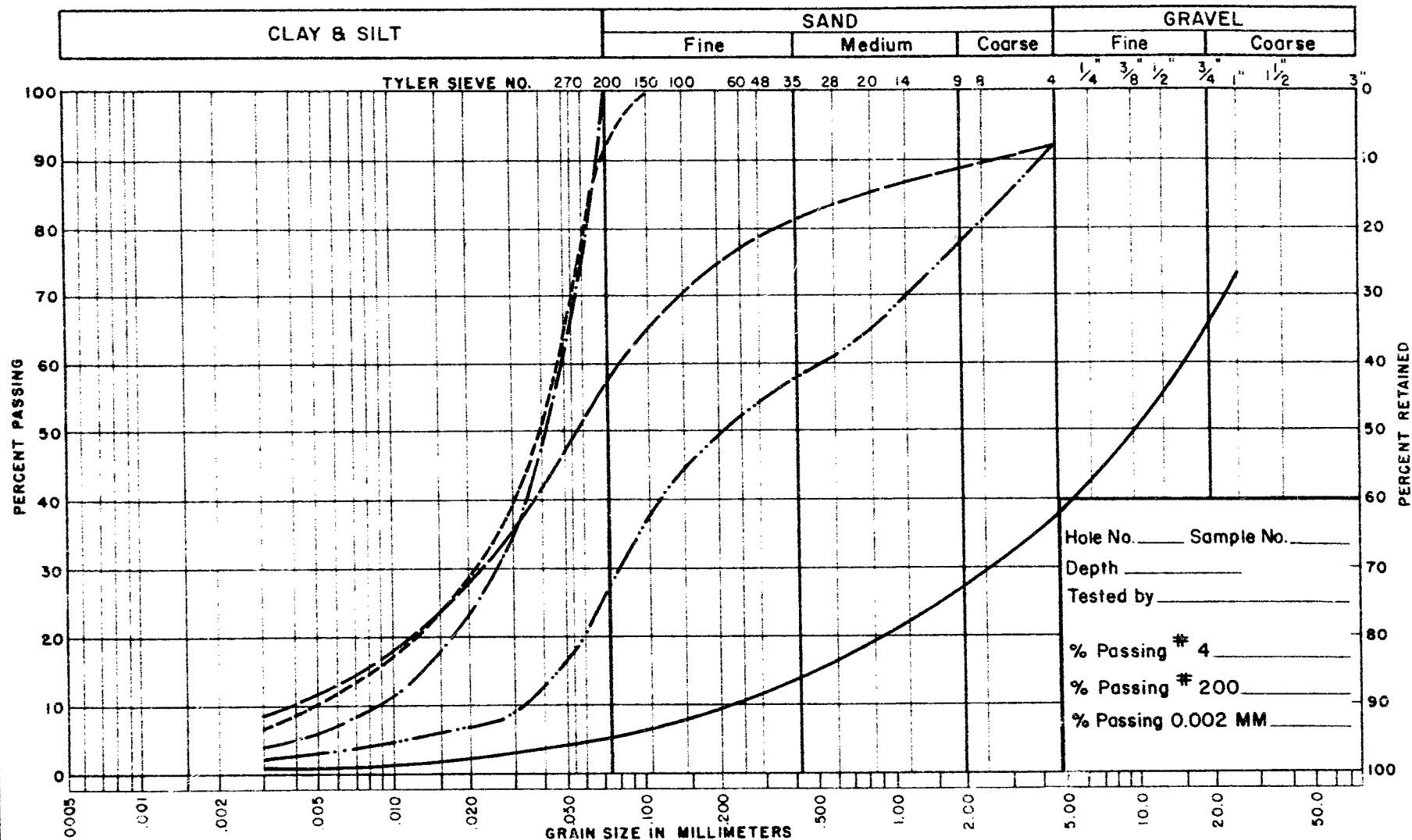


NOTES △ BOREHOLE NO. 1
 ■ BOREHOLE NO. 3

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH SECTION
PLASTICITY CHART

Job No. 62-F-13 W.P. No. _____
Location TWIN BRIDGES - NITH RIVER

UNIFIED SOIL CLASSIFICATION SYSTEM



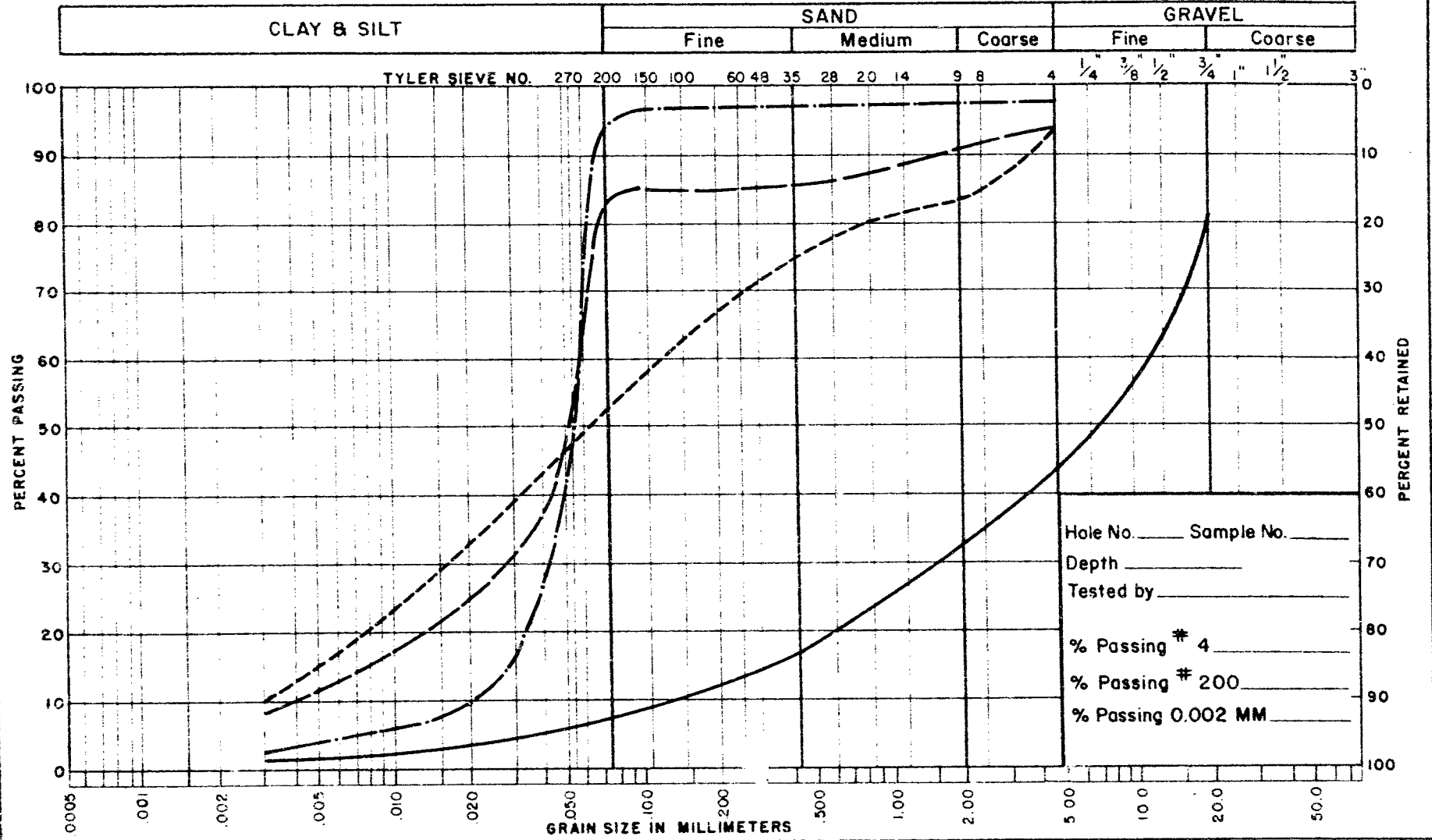
NOTES	BOREHOLE - 3, SAMPLE - 5	_____
"	- 3, " - 9	_____
"	- 3 " - 7	_____
"	- 3 " - 3	_____
"	- 3 " - 4	_____

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH SECTION
GRAIN SIZE DISTRIBUTION

Job No. **62 - F - 13** W.P. No. _____

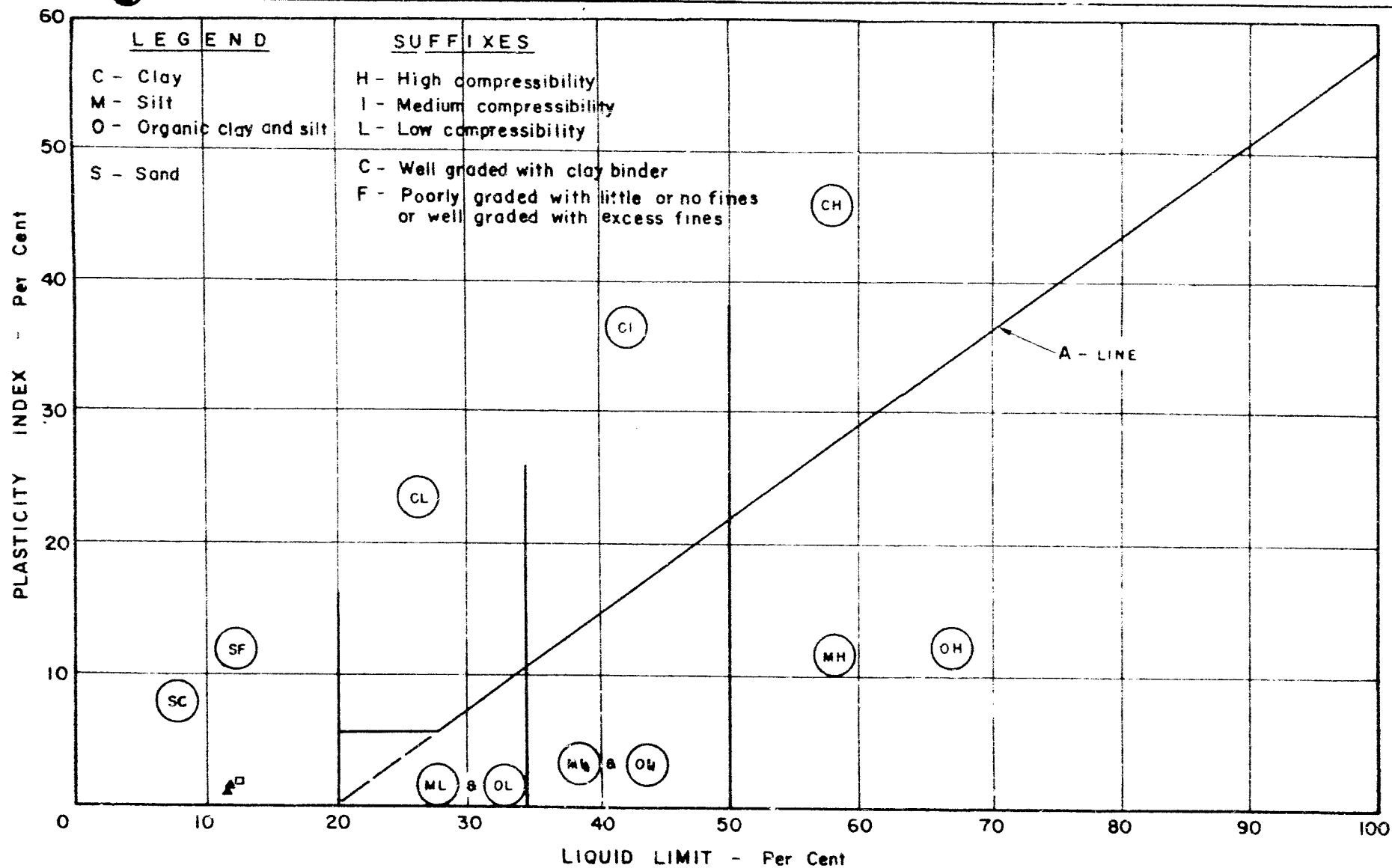
Location _____

UNIFIED SOIL CLASSIFICATION SYSTEM



NOTES	BOREHOLE - 1, SAMPLE - 2	
	" - 1, " - 11	
	" - 1, " - 9	
	" - 1, " - 6	

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH SECTION
GRAIN SIZE DISTRIBUTION
Job No. 62 - F - 13 W.P. No. _____
Location _____



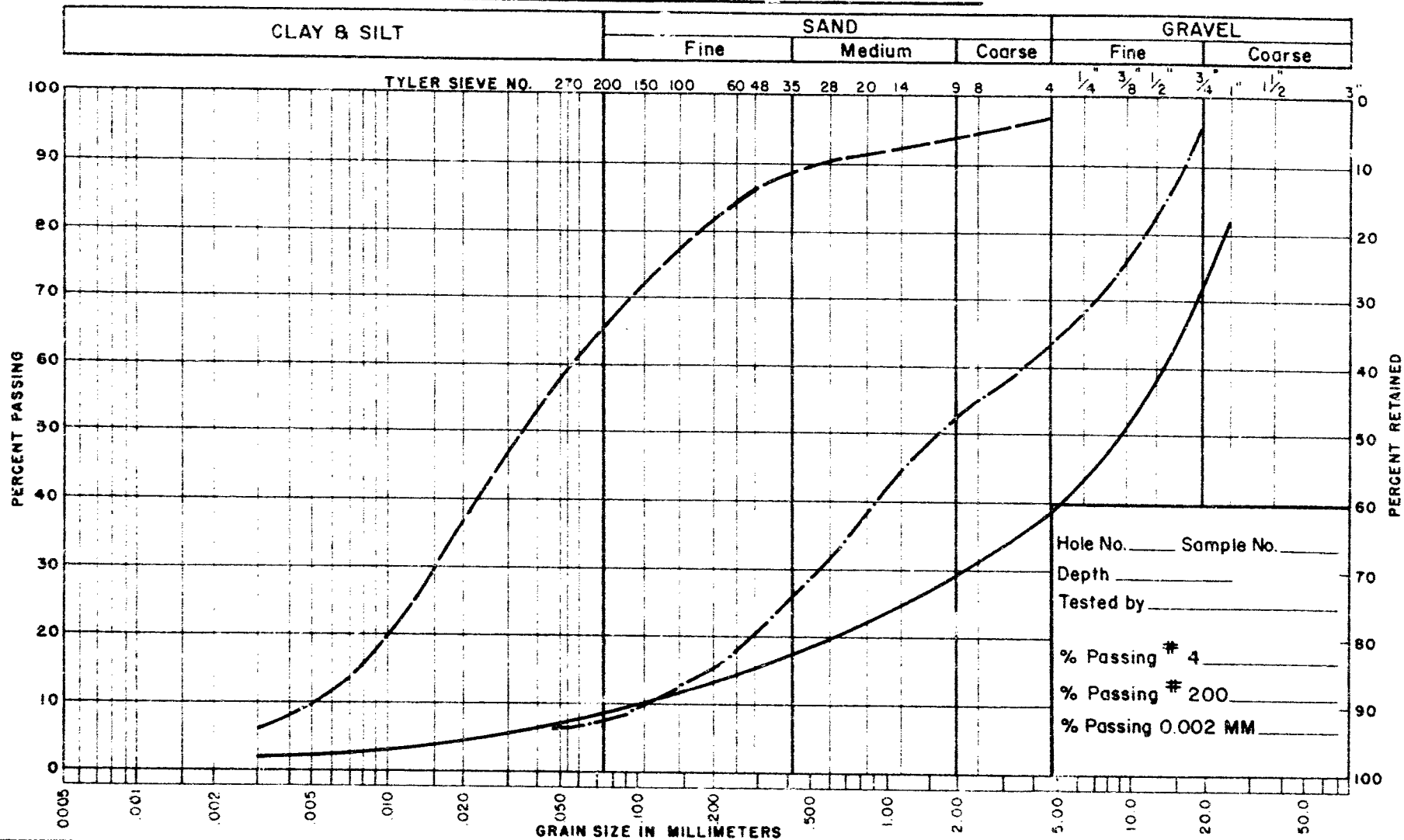
NOTES

- ▲ BOREHOLE NO. 4
□ BOREHOLE NO. 5

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH SECTION
PLASTICITY CHART

Job No. **62-F-14** W.P. No. _____
Location **TWIN BRIDGES - RE.**

UNIFIED SOIL CLASSIFICATION SYSTEM



NOTES FOREHOLE - 5, SAMPLE - 5

" - 5, " - 1

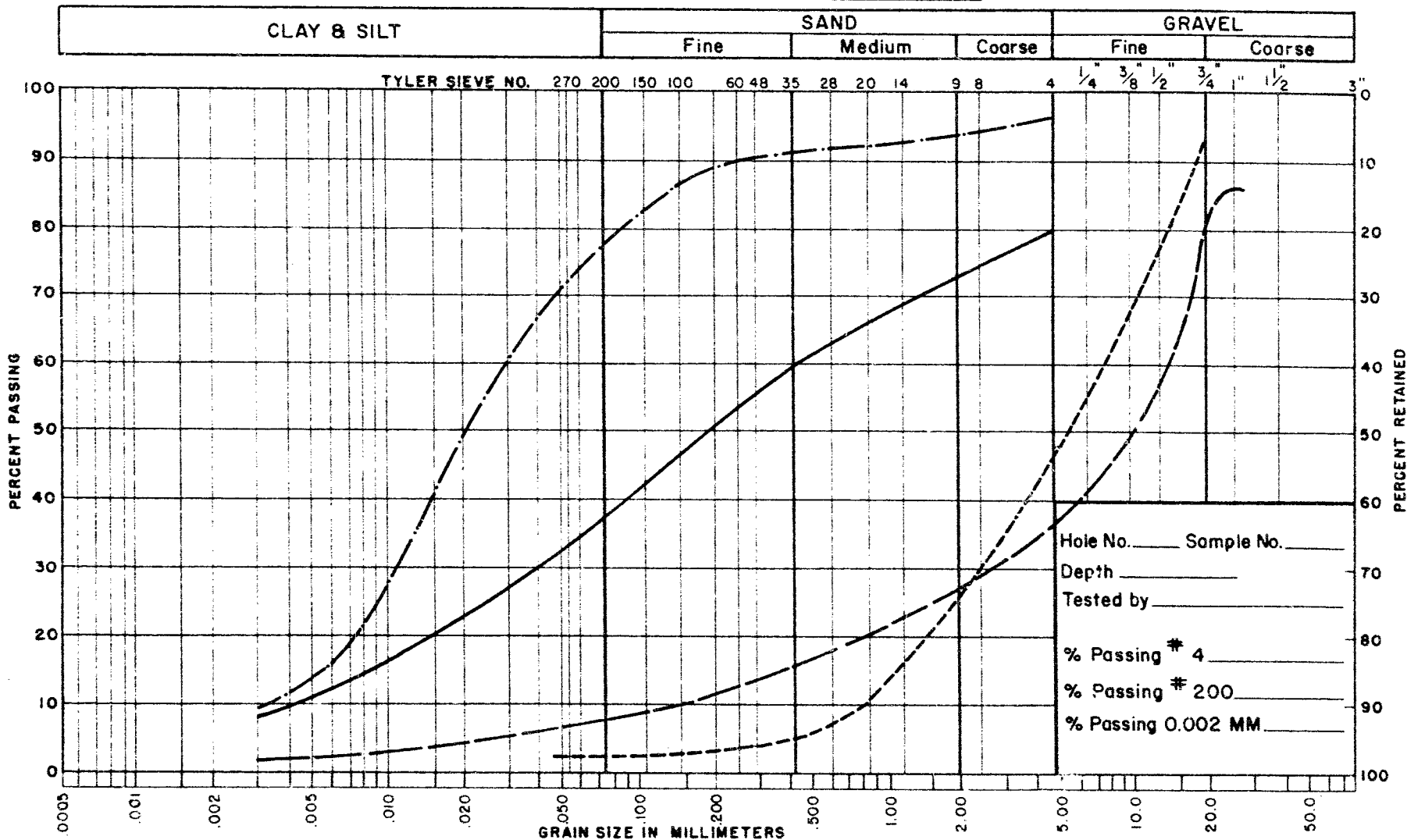
" - 5, " - 3

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH SECTION
GRAIN SIZE DISTRIBUTION

Job No. **62 - F - 14** W.P. No. _____

Location _____

UNIFIED SOIL CLASSIFICATION SYSTEM



NOTES

BOREHOLE - 4, SAMPLE - 6	
" - 4, " - 4	
" - 4, " - 2	
" - 4, " - 8	

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH SECTION
GRAIN SIZE DISTRIBUTION

Job No. **62 - F - 14** W.P. No. _____
 Location _____