

MEMORANDUM

CC: GEN. FILES

23-67-181
W.P. 430-64

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

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

Attention: Mr. S. McCombie

DATE: January 30, 1967

OUR FILE REF.

IN REPLY TO:

FEB - 6 1967

SUBJECT:

FOUNDATION INVESTIGATION REPORT
For

The Proposed Crossing of Moodie Drive
(Line 'A') and Ottawa Queensway
Extension (Line 'D')
District #9 (Ottawa)
W.J. 66-F-108 (R) -- W.P. 430-64

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

We believe the factual data and recommendations contained therein, will prove adequate for your design requirements. Should additional information be required, please do not hesitate to contact our Office.

AGS/MdeF
Attach.

cc: Messrs. B. R. Davis (2)
H. A. Tregaskes
D. W. Farren
S. J. Markiewicz
C. R. Robertson
G. Scott
J. E. Gruspier
B. A. Singh

Foundations Files
Gen. Files ✓

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

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FOUNDATION INVESTIGATION REPORT
For
The Proposed Crossing of Moodie Drive
(Line 'A') and Ottawa Queensway
Extension (Line 'D')
District #9 (Ottawa)
W.J. 66-F-108 (R) -- W.P. 430-64

1. INTRODUCTION:

A request, dated November 18, 1966, to conduct a foundation investigation at the proposed crossing of Moodie Drive and the Ottawa Queensway Extension, was received from the Bridge Planning Section (Mr. G. Scott - Kingston).

It is proposed to extend the Ottawa Queensway to the west and, at the crossing of Moodie Drive, to construct a 5-span underpass structure.

Subsequently, a foundation investigation was conducted at the proposed site to determine the subsoil conditions. Field and laboratory test results, together with discussion and recommendations for the structure foundations and embankment design, are reported herein.

2. TOPOGRAPHY AND GEOLOGY:

The site is located approximately 2 miles west of the junction of Highways 7 & 15 and the Ottawa Queensway, and is situated in Lot 10, Concession II, Ottawa Front, in the Township of Nepean, County of Carleton.

The surrounding area is generally under cultivation and is relatively flat. Physiographically, the site lies in the area known as the Lowlands of the St. Lawrence and, more particularly, as the Ottawa Valley Clay Plain.

2. TOPOGRAPHY AND GEOLOGY: (cont'd.) ...

The deposits in the area are predominantly of glacial origin, probably laid down during and immediately following the Wisconsin glaciation, at which time the area was depressed from the effect of the glaciation. Salty or brackish waters, known as the Champlain Sea, inundated the area and then gradually receded as the land rebounded to its present level. These deposits are underlain by bedrock, chiefly of Paleozoic age.

3. FIELD AND LABORATORY WORK:

Using conventional diamond drilling equipment adapted for soil sampling purposes, 4 sampled boreholes and 6 dynamic cone penetration tests were carried out at the site. A driving energy of 350 ft.-lbs. per blow was used for the dynamic cone penetration tests.

In cohesive materials, 2-inch I.D. Shelby tube samples were obtained by manually pushing the tubes into the soil, if possible. Otherwise, samples of cohesive and non-cohesive materials were obtained using a 2-inch O.D. split-spoon sampler driven according to the specifications of the Standard Penetration Test. In-situ shear strength was established, where possible, with a field vane test.

AXT-size rock core samples were obtained from the boreholes to prove bedrock.

Samples were visually examined and identified in the field and subsequently in the laboratory. Laboratory tests were conducted on selected representative samples to determine, where applicable, Atterberg limits, bulk density, grain-size distribution, natural moisture content, and shear strength. The shear strength was determined by means of laboratory vane, quick triaxial and unconfined compression tests.

cont'd. /3 ...

3. FIELD AND LABORATORY WORK: (cont'd.) ...

Results of the laboratory and field tests, together with the location and elevations of the boreholes, are presented in the appendix of this report.

4. SUBSOIL CONDITIONS:

4.1) General:

The subsoil at the site consists generally of a deposit of 22 to 31 feet of clayey silt to clay with numerous silt and sand seams underlain by a stratum of silt, sand and gravel, and then sandstone bedrock.

The stratigraphical profile shown on Drawing 66-F-108A is estimated from the field data, as shown in detail on the borehole log sheets in the appendix of this report. The various soil deposits are described below.

4.2) Clayey Silt to Clay:

This material was encountered in all boreholes immediately beneath the topsoil and extended to a depth of about 22 to 31 feet. Numerous sandy silt seams occurred irregularly throughout the deposit. The upper seven feet of the deposit is of a very stiff consistency with a shear strength of about 2,500 to 2,000 p.s.f. Below this depth the shear strength varies from about 2,000 to 1,000 p.s.f. to indicate a stiff consistency.

Liquid limits varied considerably throughout the deposit between a minimum of 19% and a maximum of 63%, but were, in general, about 30 to 40%. Plastic limits ranged from 15 to 38%, and moisture contents from 20 to 57%.

In general, the silt and sand seams graded as sandy silt, although some seams of silt and sand occurred. A typical gradation would be: sand 19%, silt 66%, and clay 15%.

cont'd. /4 ...

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

4.3) Silt, Sand and Gravel:

This stratum was encountered in all boreholes and varied in thickness from 5 to 12 feet. The deposit generally decreased in thickness to the south and varied from a dense to very dense relative density in the north, to a very loose relative density in the southern part of the site. 'N' values ranged from 2 to much in excess of 100 blows per foot.

4.4) Bedrock:

Bedrock was proven in the four boreholes by drilling AXT-size cores. Sound rock was encountered between elevation 187.5 to 191.3 (i.e., at a depth of about 32 to 38 feet.)

The formation encountered was sandstone which is believed to be the Potsdam Sandstone (also known as the Nepean Sandstone) of early Paleozoic age.

4.5) Water Table:

The water table was observed in two of the boreholes and appeared to be at elevation 222.6 to 223.3 during the period of the investigation.

5. DISCUSSION AND RECOMMENDATIONS:

It is proposed to construct a 5-span underpass structure some 91 feet wide and 270 feet long. Subsoil consists of clayey silt to clay with a very stiff to stiff consistency to a depth of 22 to 31 feet.

This subsoil is not suitable for the use of conventional spread-footing type foundations; therefore, a pile-type of foundation is recommended for the piers and abutments. Steel H-piles are recommended to be driven to sound bedrock at a depth of 32 to 38 feet. Allowable loads will depend upon the pile section chosen - (e.g., 12 BP 74 steel H-piles may be designed for 90 tons per pile.)

cont'd. /5 ...

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

The proposed approach embankments will be in the order of 22 feet above the finished grade of the Queensway or about 24 feet above the existing ground surface. For embankments constructed with standard 2 to 1 side slopes, no stability problems are anticipated.

Suitable fill material containing no boulders, must be used for the embankment below the abutment elevation where piles are to be driven.

Although the subsoil consists of compressible cohesive materials, laboratory test results indicate that this material has been previously preconsolidated to such a degree that the proposed embankment loads should not cause a settlement of more than six inches.

No significant silt or sand seams were encountered in the upper portion of the subsoil; hence, dewatering of pile cap excavations should present no special problems.

6. SUMMARY:

The results of a foundation investigation for the proposed crossing of Moodie Drive and the Ottawa Queensway are presented.

The subsoil at the site consists, in general, of a deposit of clayey silt to clay some 22 to 31 feet thick with numerous silt and sand seams, underlain by 5 to 12 feet of silt, sand and gravel and then sound bedrock at a depth of 32 to 38 feet.

The abutment and piers of the proposed structure should be supported on end-bearing piles driven to bedrock, and H-piles are recommended in this case.

No stability problems are anticipated for the proposed embankments of about 24 feet in height and standard 2:1 side slopes.

cont'd. /6 ...

6. SUMMARY:

No dewatering problems are anticipated for the excavations for the pile caps.

7. MISCELLANEOUS:

The field investigation was carried out in the period December 5 to December 13, 1966, using equipment owned and operated by F. E. Johnston Drilling Co. Ltd., under the supervision of Mr. L. Palmer, Project Foundation Engineer, who subsequently prepared this report.

The entire project was under the general supervision of Mr. M. Devata, Supervising Foundation Engineer, who also reviewed this report.

January 1967

APPENDIX I.

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 3

FOUNDATION SECTION

JOB 66-F-108

LOCATION Queensway & Moodie Dr., Ottawa, 96/33 o/s 100' Rt. Line 'D'

W.P. 430-64

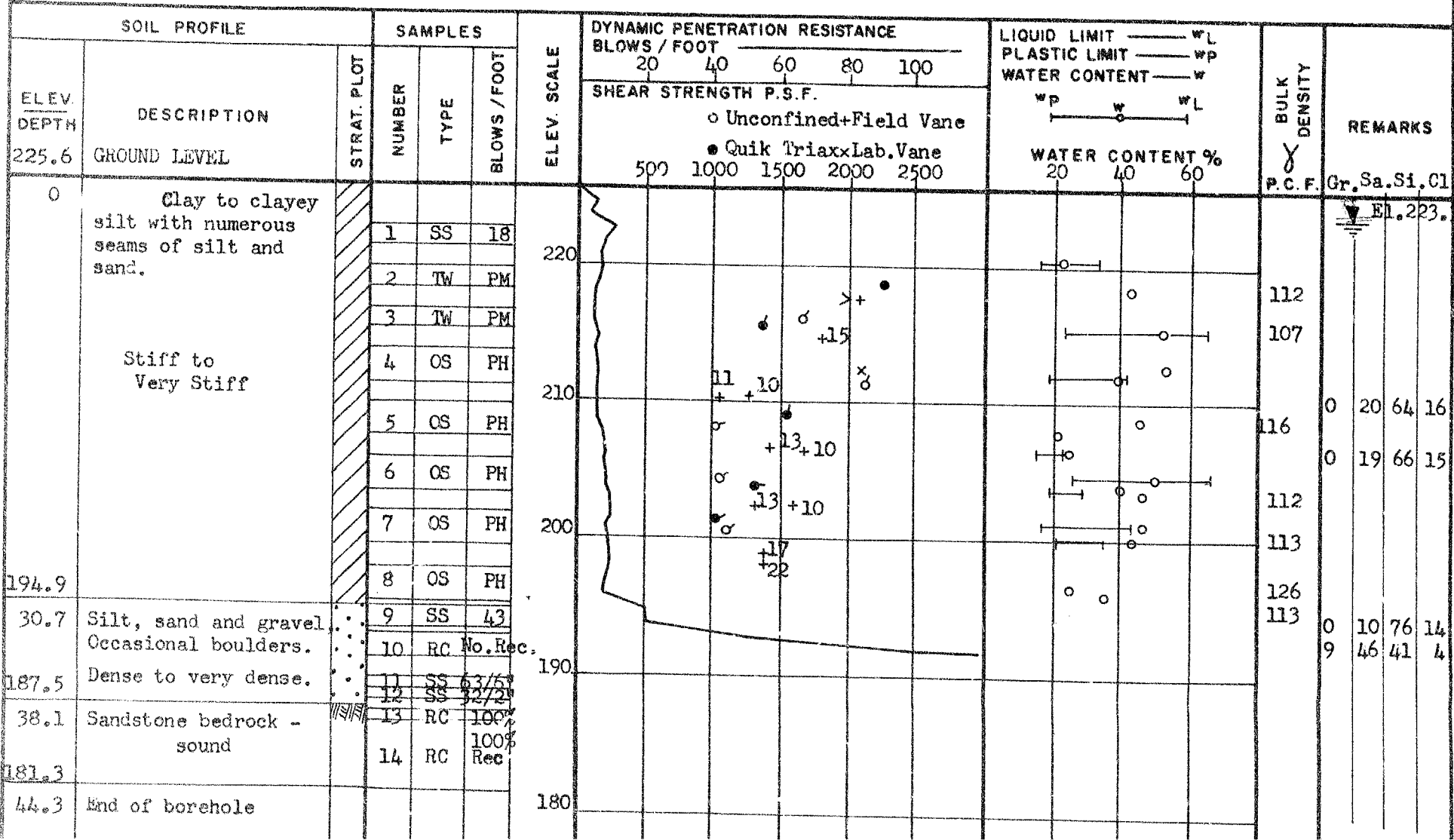
BORING DATE December 5, 1966

ORIGINATED BY L.P.

DATUM Geodetic

BOREHOLE TYPE Diamond Drill, NX-BX

COMPILED BY L.P.

CHECKED BY *HR*

OFFICE REPORT ON SOIL EXPLORATION

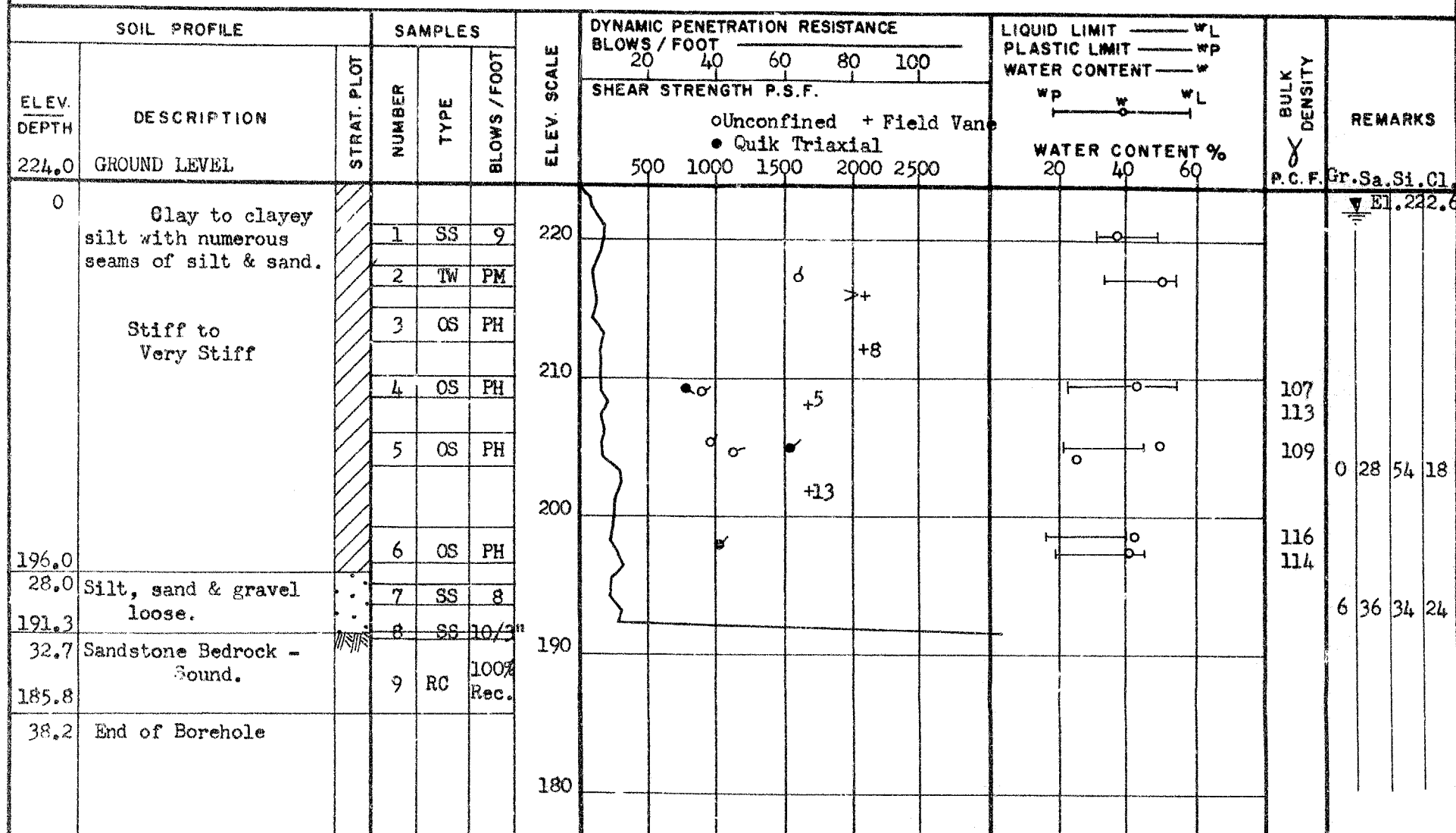
DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 4

FOUNDATION SECTION

JOB 66-F-108 LOCATION Queensway & Moodie Dr., Ottawa, 96+28 o/s 135' Lt. Line 'D' ORIGINATED BY L.P.
 W.P. 430-64 BORING DATE December 8, 1966 COMPILED BY L.P.
 DATUM Geodetic BOREHOLE TYPE Diamond Drill, NX-BX CHECKED BY HL



FOUNDATION SECTION

CHECKED BY

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT 20 40 60 80 100					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			
							○ Unconfined + Field Vane ● Quik Triaxial								
224.7															
0	Clay to clayey silt. Numerous seams of silt and sand. Stiff to very stiff.		1	SS	12	220									
			2	TW	PM										
			3	OS	PH										
			4	OS	PH	210									
			5	OS	PH										
202.7			6	SS	35	200									
22.0	Silt, sand and gravel Occasional Boulders. Dense to very dense.		7	SS	109										
			8	RC	No Rec.	190									
			9	RC	90% Rec.										
188.7															
36.0	Sandstone Bedrock - Sound														
184.1															
40.6	End of Borehole					180									

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 6

FOUNDATION SECTION

JOB 66-F-108

LOCATION Queensway & Moodie Dr., Ottawa, 96/65 o/s 34' Lt., Line 'D' ORIGINATED BY L.P.

W. P. 430-64

BORING DATE December 9, 1966

COMPILED BY L.P.

DATUM Geodetic

BOREHOLE TYPE Diamond Drill NX-BX

CHECKED BY [Signature]

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT		LIQUID LIMIT ——— w _L PLASTIC LIMIT ——— w _p 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 %						
							○ Unconfined ● Quik Triax. + Field Vane											
						500	1000	1500	2000	2500	20	40	60					
226.1	GROUND LEVEL																	
0	Clay to clayey silt.		1	SS	15	220												
	Numerous seams of silt and sand.		2	TW	PM													
			3	OS	PH													
	Stiff to very stiff		4	OS	PH													
			5	TW	PM													
			6	OS	PH													
			7	OS	PH													
194.1																		
30.0	Silt, sand & gravel		8	SS	2													
189.4	Very loose																	
34.7	Sandstone Bedrock -		9	RC	100% Rec													
184.2	Sound																	
39.9	End of borehole																	

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 7

FOUNDATION SECTION

JOB 66-F-108

LOCATION Greensway & Moodie Dr., Ottawa, 95/64, o/s 29' Rt., Line 'D' ORIGINATED BY L.P.

W. P. 430-64

BORING DATE December 12, 1966 COMPILED BY L.P.

DATUM Geodetic

BOREHOLE TYPE Dynamic Cone Penetration Test CHECKED BY HR

[illegible]

MATERIALS & TESTING DIVISION

FOUNDATION SECTION

JOB 66-108

LOCATION Queensway & Moodie Dr., Ottawa, 97/121 o/s 138' Lt. Line 'D'

ORIGINATED BY L.P.

W. P. 430-64

BORING DATE December 21, 1966

COMPILED BY L.P.

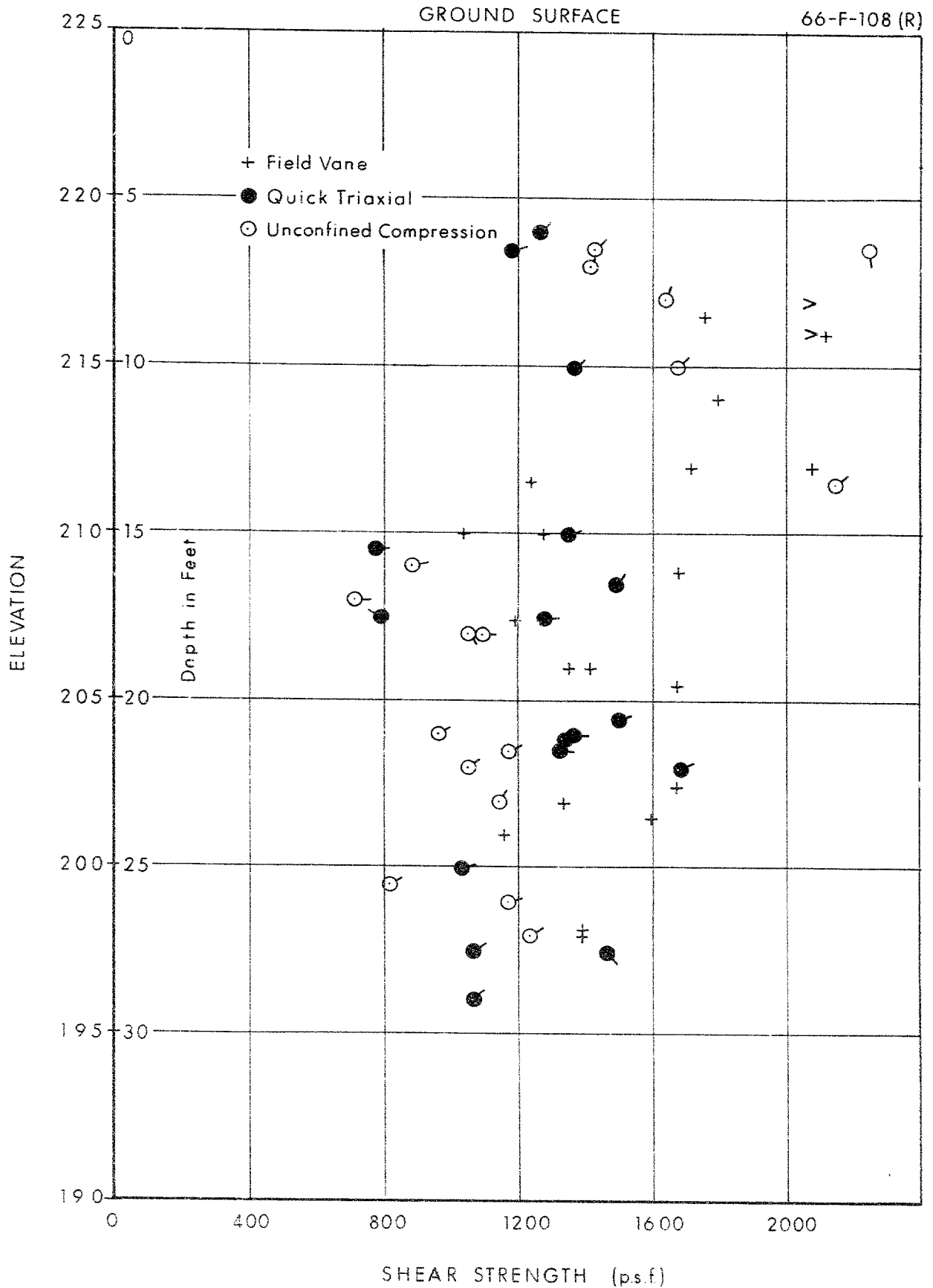
DATUM Map Contours

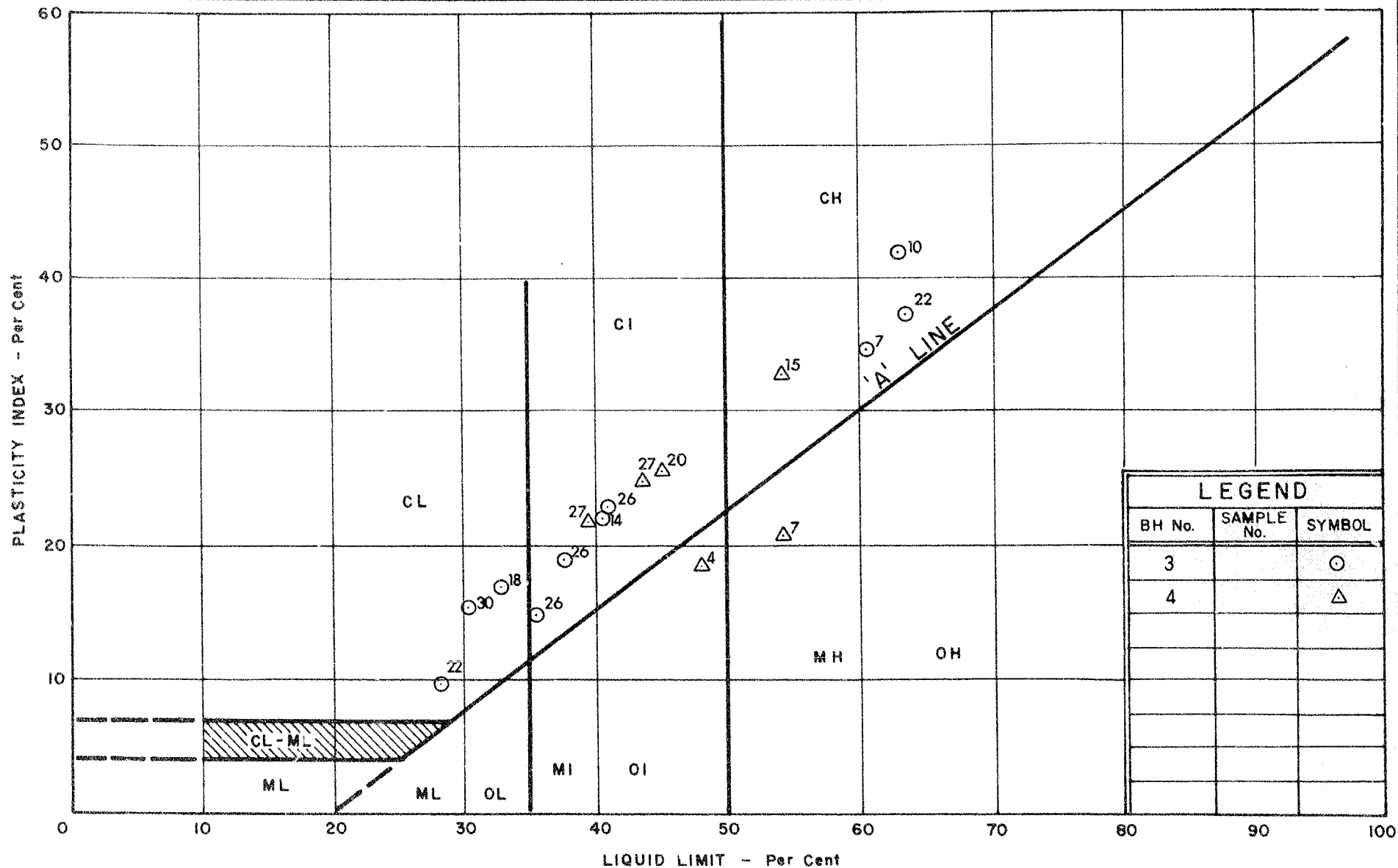
BOREHOLE TYPE Dynamic Cone Penetration Test

CHECKED BY

[illegible]

SHEAR STRENGTH PROFILE



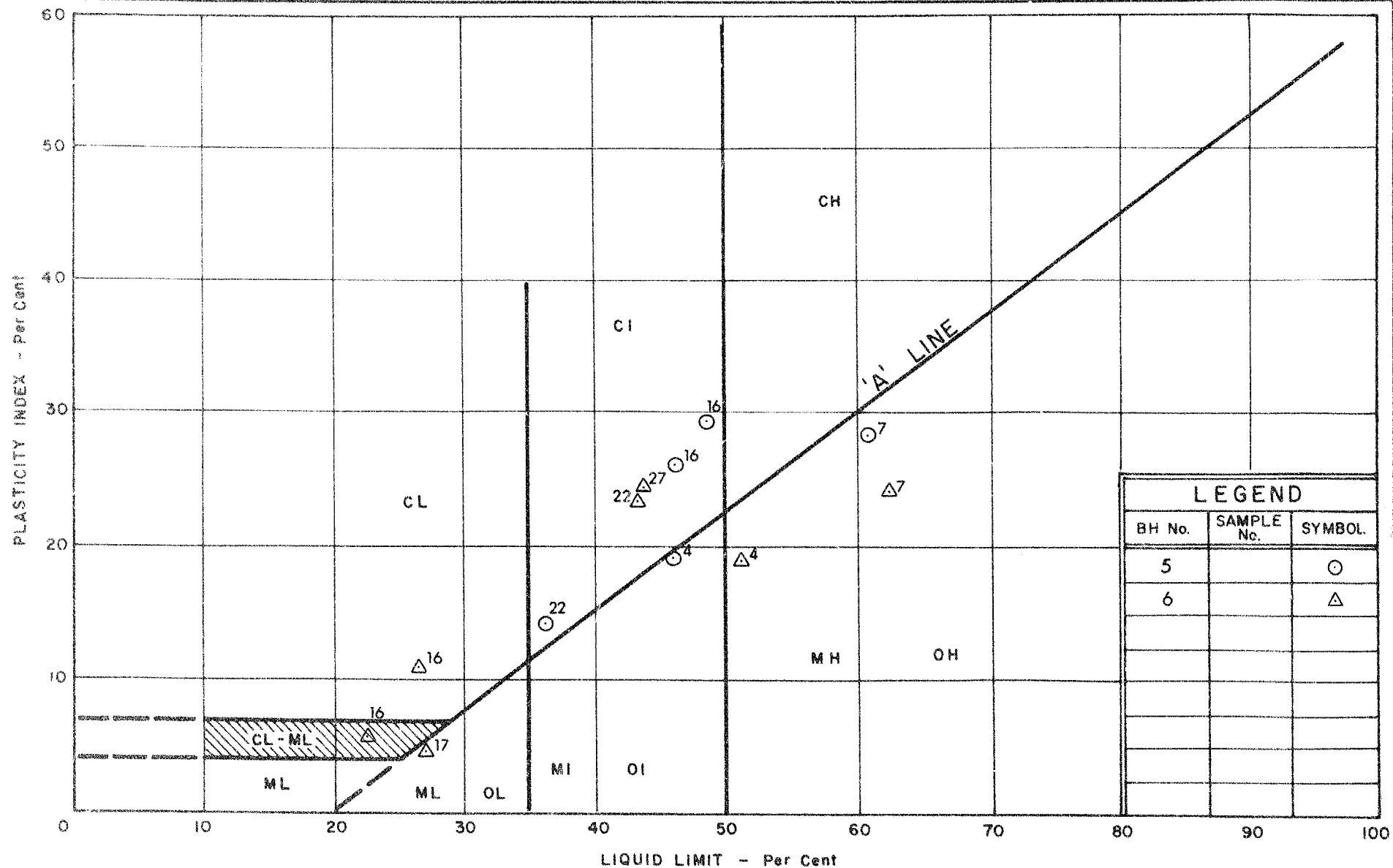


DEPARTMENT OF HIGHWAYS
MATERIALS and
TESTING
DIVISION

PLASTICITY CHART

W.P. No. 430-64

JOB No. 66-F-108



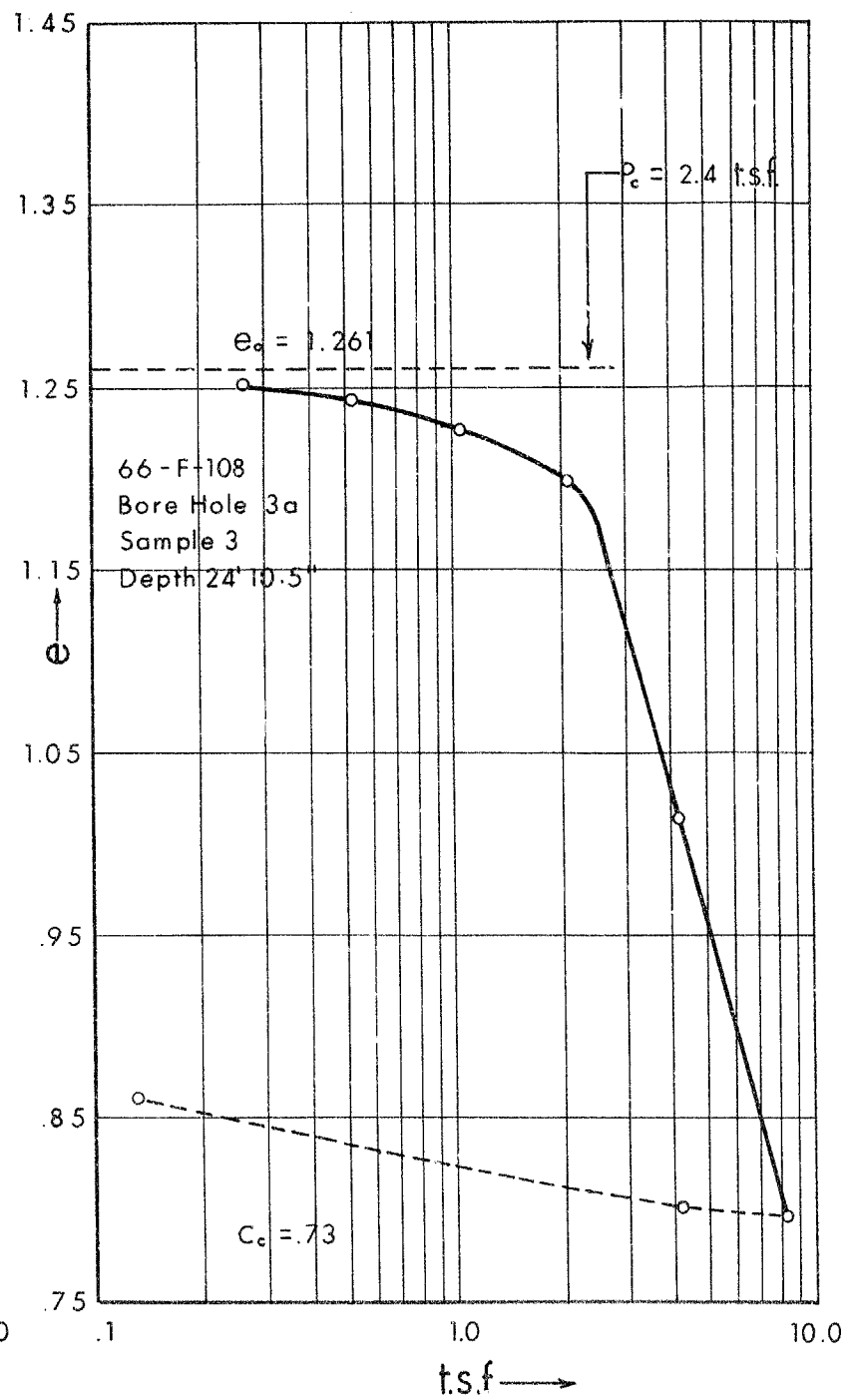
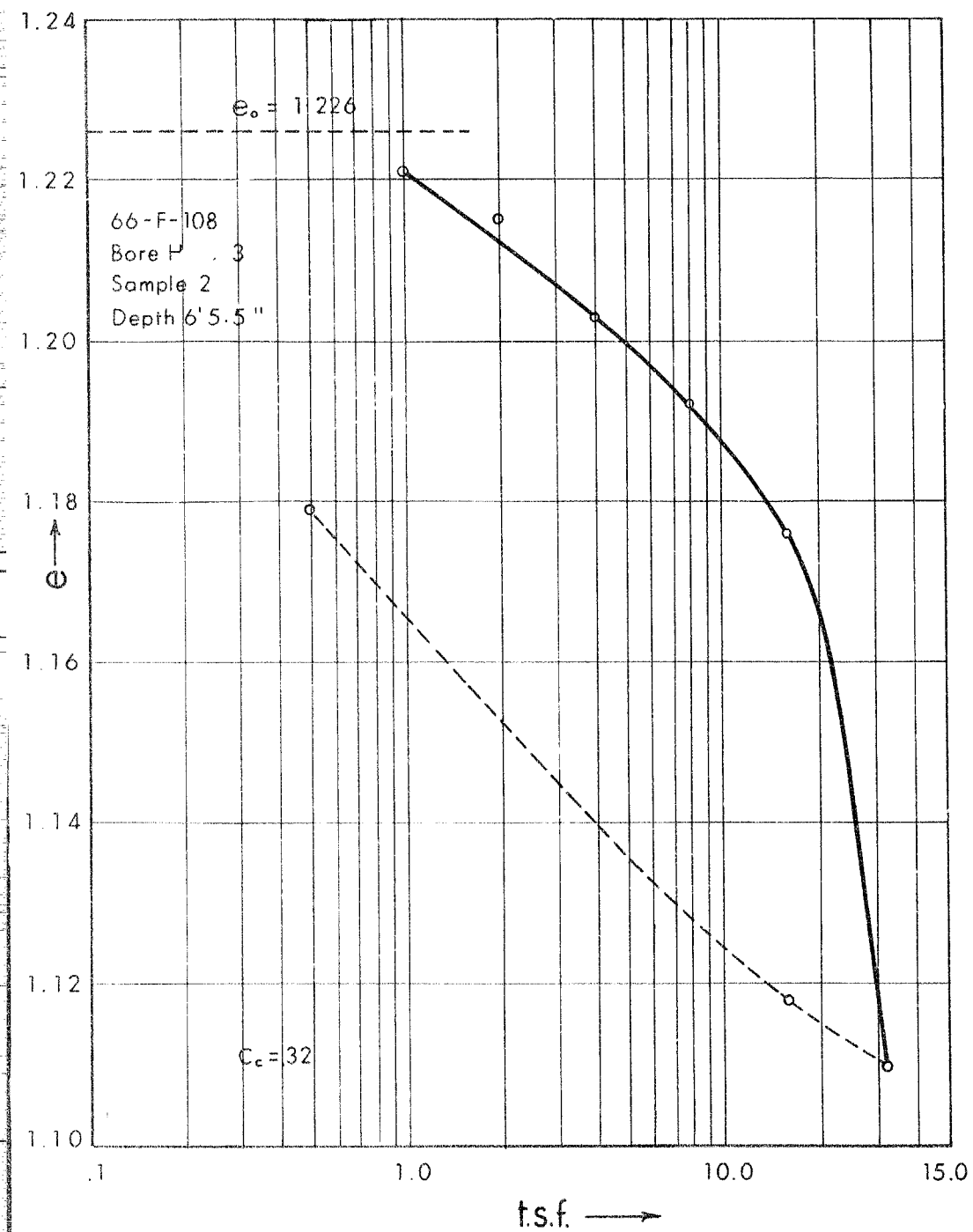
LEGEND		
BH No.	SAMPLE No.	SYMBOL.
5		○
6		△



DEPARTMENT OF HIGHWAYS
MATERIALS and
TESTING
DIVISION

PLASTICITY CHART

W.P. No. 430-64
JOB No. 66-F-108



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

Q _u	UNCONFINED COMPRESSION	L.V	LABORATORY VANE
Q	UNDRAINED TRIAXIAL	F.V	FIELD VANE
Q _{cu}	CONSOLIDATED UNDRAINED TRIAXIAL	C	CONSOLIDATION
Q _d	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 = $\frac{w_L - w_p}{I_p}$
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
$\bar{\sigma}$	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

MEMORANDUM

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

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

Attention: Mr. S. McCombie

DATE: January 16, 1967

FILE REF.

IN REPLY TO:

SUBJECT:

FOUNDATION INVESTIGATION REPORT

For

The Proposed Structure of the Crossing
of Moodie Drive (Line 'A') and
Ottawa Queensway Extension (Line 'D'),
District #9 (Ottawa)

W.J. 66-F-108 -- W.P. 430-64

1. Introduction:

A request for a foundation investigation at the above mentioned site, was contained in a memo from Mr. G. Scott, Regional Bridge Location Engineer, dated November 18, 1967. The site is located approximately two miles west of the Jct. of Hwy. 15 and the Queensway in the Town of Bell's Corners.

Due to the urgency of this project, we have been requested to submit our written recommendations as soon as the field and laboratory work have been completed. The final report will be submitted after the completion of drawings and borehole logs. A brief review of soil conditions, together with our recommendations for the structure foundations and approach fills, follows:

2. Subsoil:

Subsoil over the site area consists of 22 to 31 ft. of clayey silt to silty clay with numerous silt and sand seams. The upper 7 ft. of this deposit has a very stiff consistency with an undrained shear strength in the order of 2,500 to 2,000 p.s.f. Below this depth, the shear strength is somewhat lower with an undrained shear strength of 2,000 - 1,000 p.s.f. Immediately below the cohesive deposit (clayey silt to silty clay), a stratum of silt, sand and gravel some 5 to 12 ft. in thickness, was observed. Underlying this, sound sandstone bedrock was encountered between elev. 187.5 and elev. 191.3.

cont'd. /2 ...

3. Recommendations:

It is proposed to construct a 5-span underpass structure at this site. Subsoil conditions are not favourable for spread footing type of foundations. For these reasons, it is recommended that the proposed piers and abutments be supported on end-bearing piles driven to sandstone bedrock. Allowable loads will depend upon the pile section chosen (e.g., 12 BP 74 steel H-piles may be designed for 90 tons per pile).

The proposed approach embankments will be in the order of 22 ft. above the finished grade of the Queensway. These may be built without danger of base failure, provided standard 2:1 slopes are constructed.

Due to the fact that the subsoil consists of compressible cohesive material, settlements will occur due to the imposed loads of the embankments. This will be discussed in detail in our final foundation report.

The complete foundation report for this project will be forwarded to you as soon as possible. If you have any further queries, or if any of the foregoing requires clarification, please do not hesitate to call us.

MD/MdeF

cc: Messrs. B. R. Davis (2)
H. A. Tregaskes
D. W. Farron
S. J. Markiewicz
G. Scott
C. R. Robertson
J. E. Gruspier
B. A. Singh

M. Devata,
SUPERVISING FOUNDATION ENGR.
For:
A. G. Stermac,
PRINCIPAL FOUNDATION ENGR.

Foundations Office ✓
Gen. Files

Mr. W.R. Kinnear,
Scheduling Engineer,
Program Division.

Mr. A. Crowley,
Expediter.

December 13, 1966.

W.P. Nos. 108-65, 423-64 & 430-64, Ottawa Queensway Extension

I have been advised by Mr. Stermac, Foundations Engineer, that the date for the completion of the Foundation Reports on the above structures will be delayed by one month, to February 15th, 1967. The reasons for this delay are due to the facts: (1) A Preliminary Report on these structures was carried out earlier in 1966. Since that time the location of these structures has been changed. This requires more soundings be taken than was originally scheduled.

(2) Poor soils conditions in the area of the structures necessitates a more extensive investigation which will require more time for completion.



A. Crowley,
Expediter.

AC/gar

c.c. W.G. Wigle
A.G. Stermac ✓

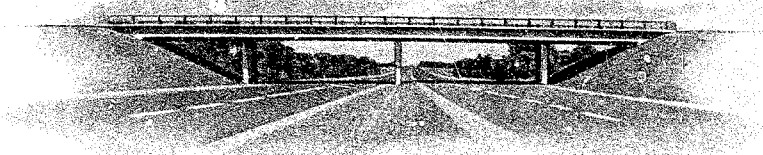


Foundation Office Copy

A. T. C. McNab
DEPUTY MINISTER

Orig. - Lat

Hwy. 401 & Keele St
Downsview, Ontario



DEPARTMENT OF HIGHWAYS
Materials and Testing Division

November 30, 1966

Johnston Drilling Co. Ltd.
378 Bering Street
Toronto, Ontario

Attention: Mr. F. Blackburn

Dear Sirs:

This is to confirm our request of November 30, 1966 for the supply of one Diamond Drill together with all necessary equipment, as specified under the terms of our Contract Agreement, at Bells Corner, Ontario on December 5, 1966 at 1 p.m.

These projects bear the following Job Number:

✓ 66-F-108 Queensway & Moody Drive
66-F-109 Queensway & C.N.R.
66-F-110 Queensway & Acres Rd.

Yours truly,

M. Devata

M. Devata
Supervising Foundation Engr.
for A. G. Stermac
Principal Foundation Engr.

MD:mt

cc: H. Konings

Foundations Office
General Files

DEPARTMENT OF HIGHWAYS ONTARIO

MEMORANDUM

TO: Mr. A. G. Stermac,
Principal Foundation Engineer,
Administration Building,
DOWNSVIEW, Ontario.

FROM: Bridge Division,
KINGSTON, Ontario.

DATE: March 15, 1967

OUR FILE REF.

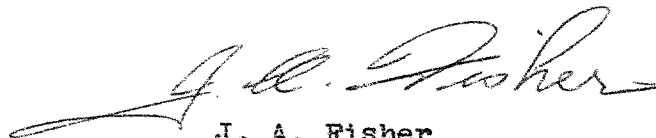
IN REPLY TO

SUBJECT:

W.P. 430-64, Site 3-256, Moodie Drive Interchange
(1.8 Mi. West of Jct. Hwy. 15), Ottawa Queensway
District 9

66F-108(R)

Herewith please find print of Preliminary Plan
D-6137-P-1. May we please have your comments.



J. A. Fisher
For: G. Scott
REGIONAL BRIDGE LOCATION ENG.

JAF/BS/h1

Enc.

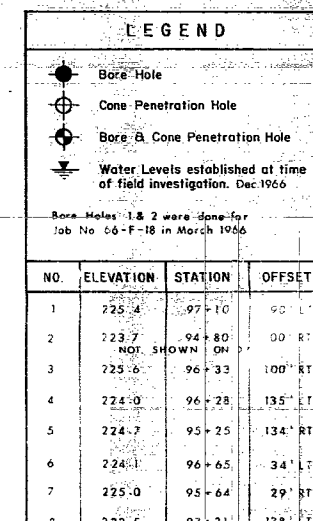
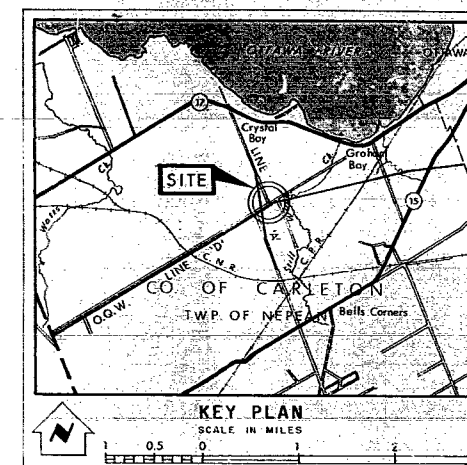
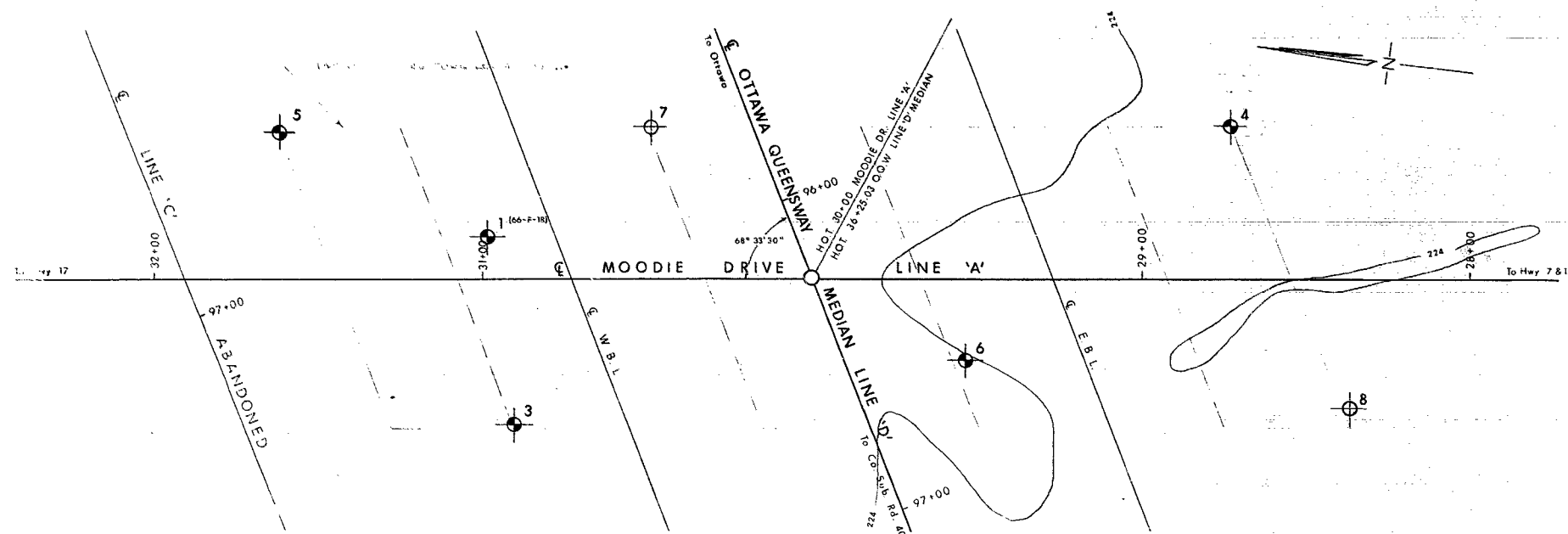
#66-F(R)-108

W.P. # 430-64

OTTAWA

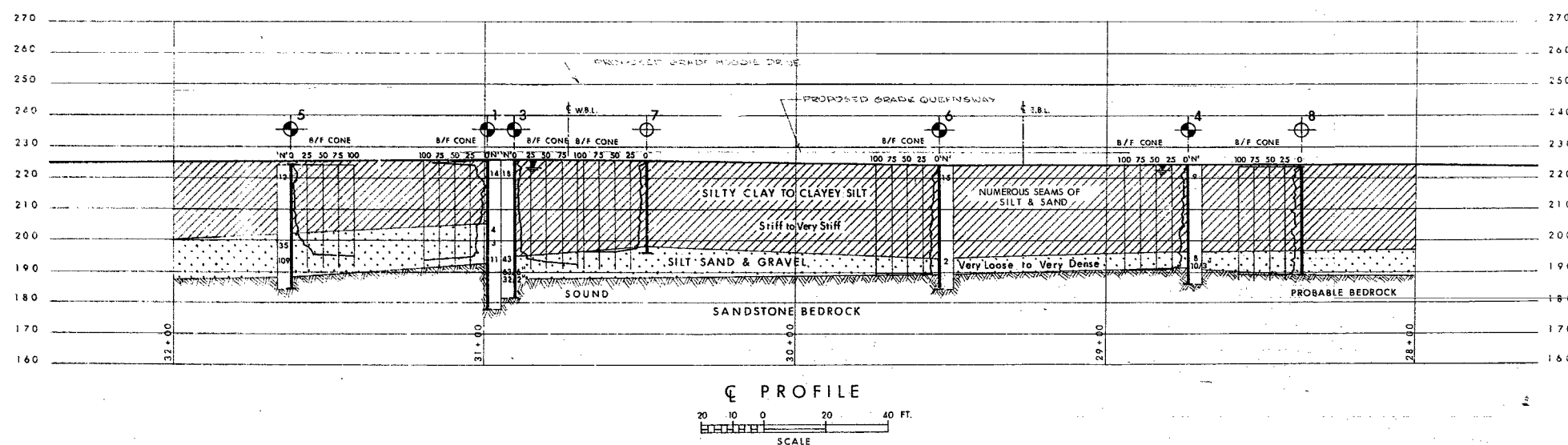
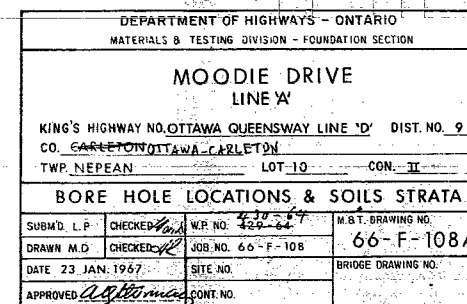
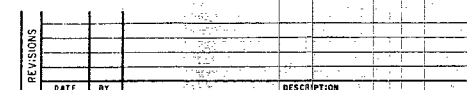
QUEENSWAY E

MOODIE DRIVE



- 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.

[illegible]