

Hwy 403 A-10

Mr. A. M. Toye,
Bridge Engineer.
Materials & Research Section.

July 28, 1960.

D.H.O. FOUNDATION REPORT --
W.J. 60-F-49 -- W.P. 202-58.

Attention: Mr. S. McCombie.

Re: Fiddlers Green Road and Highway No. 403,
(Approx. 3 Miles North of Ancaster)
Twp. of Ancaster, County of Wentworth,
District no. 4.

This memo accompanies our detailed report on
the subsoil conditions existing at the above site.

The conclusions and recommendations to be
followed in your future design work, are summarized in
the report, and are self-explanatory.

Should any questions arise in connection with
this project that you would like to discuss, please
contact our Office.

L. G. Soderman,
PRINCIPAL FOUNDATIONS ENGR.
Per:

A. Stermac

(A. Stermac,
FOUNDATIONS OFFICE ENGR.)

AS/MdeF

Attach.

cc: Messrs. A. M. Toye (2)
H. A. Tregaskes
D. G. Ramsay
I. Campbell
R. E. Richardson
T. J. Kovich
A. Watt

Foundations Office
Gen. Files.

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FOUNDATION INVESTIGATION

At

Fiddlers Green Road and Highway No. 403,
(Approx. 3 Miles North of Ancaster)
Twp. of Ancaster, County of Wentworth,
W.J. 60-F-49 - W.P. 202-38 - Dist. No. 4.

1. INTRODUCTION:

It is intended to construct an underpass which would take the Fiddlers Green Road over Highway No. 403. The site of the proposed underpass is located approximately 3 Miles North of the Town of Ancaster, County of Wentworth. At this location, the chainage of Highway No. 403 is 70+54.

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 AND GEOLOGY:

The area East and West of Fiddlers Green Road is fairly flat and covered with grass. Maple trees, approximately 2½ ft. - 3 ft. in diameter, grow along the road.

Physiographically, the site is part of the Halton till which is overlain by sands and gravels.

3. FIELD AND LABORATORY WORK:

In order to obtain sufficient information on the types and properties of the subsoil, six sampled boreholes supplemented by the same number of dynamic cone penetration holes, were carried out at this particular site. The density of the cohesionless materials was determined with the Standard Penetration Test. Samples recovered in the split spoon were used for classification purposes.

cont'd. /2 ...

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

Boreholes No. 2 & 4 were terminated in the underlying hard, sandy silt stratum at a depth of about 46 ft. below ground level. Borehole No. 1 was carried down to a depth of 120 ft. below ground level and terminated in the stratum of very dense silt. The purpose of this borehole was to determine, if possible, the depth to bedrock. Other boreholes were terminated at about 46 feet below ground level in the very dense silt layer.

The elevations as well as the locations (chainages) of the boreholes, are given on Drawing No. 60-F-49A, attached to this report (Appendix I.)

Under Appendix I, borehole logs with penetration results, are also given.

Laboratory testing was confined to the determination of grain size distribution curves. All the curves are given under Appendix I.

4. SUBSOIL CONDITIONS:

4.1 General:

The stratigraphy of the soil at the site was found to be quite uniform. Three main types of soil were encountered and they are:-

4.2 Sand with some Silt and Gravel:

This material forms the top layer on the site and extends to about 12 feet below ground level. In boreholes No. 5 and 6, this layer was found to extend to slightly below 16 feet. Here the sand is rather uniform with between 10 and 15% of silt and no gravel. In other boreholes, the silt percentage varies between 10 and 20%. In places, up to 15% of fine gravel is also found. The layer is in a very loose to loose state of packing, with an average 'N' value of about 7. The density of the layer increases with depth.

4. SUBSOIL CONDITIONS:

4.3 Silt:

Underlying the sand layer is a layer of grey silt. In places, this silt has up to 20% of fine sand particles and practically no clay content.

This layer was found in all the boreholes. It is not easy to determine the exact depth to which this material extends because the material which replaces it is quite similar. It seems as if this material extends to about 60 feet in B.H. 1, to about 40 ft. in B.H.'s 2, 3, 5 and 6, and to about 35 feet in B.H. 4. The same material is again found at greater depth in B.H. 1 - i.e., from 70 to 120 feet below ground level.

According to the Standard Penetration Test results, the density of this material varies from medium to very dense, being predominantly medium to dense. Discarding some very high values, an increase in density with depth is clearly distinguishable.

4.4 Silty Sand and Sandy Silt:

These materials are encountered below the silt, or as layers within the silt stratum. The percentage of sand in the silty material is about 30 p.c., while the silt content of the sandy material varies between 20 and 40 p.c. In B.H.'s 2, 3 and 4, these materials were found at approximate depths of 40 to 45 feet below ground level. A further extension was not established because these boreholes were terminated at about 46 feet below ground level. In B.H. 1, a sandy silt interlayer was found between approximate depths of 60 to 70 feet.

The density of these materials is very high. In all the boreholes, more than 100 blows of the Standard Penetration Test were counted. This very high density was the main reason for stopping the boreholes at about 46 ft. below ground level.

Two soil profiles, one along the East, and one along the West side of Green Road, have been prepared and are shown on Drawing No. 60-F-49A.

cont'd. /4 ...

5. GROUND WATER CONDITIONS:

The ground water table at the site of the proposed underpass is approximately 4 to 5 feet below the existing ground surface. No artesian water condition has been encountered during the investigation.

6. DISCUSSION AND RECOMMENDATIONS:

The upper 10 - 15 feet of the subsoil are in a rather loose state of packing. This fact rules out the possibility of an economical design of spread shallow footings.

All the penetration results are presented on Drawing - No. 60-F-49 B (Appendix I). An increase in density with depth is clearly noticeable. A very marked increase in the compactness - i.e., density of the subsoil is occurring at about elevation 870.0'. Below this elevation, the number of blows of the Standard Penetration Test is in excess of 100. Any kind of piles used would most probably meet refusal at a few feet below the above mentioned elevation. Piles driven to approximately elevation 865.0', could be loaded with a safe load of 40 Tons per Pile. During the pile-driving operation, this value should be checked by the Engineering News Formula.

If displacement-type piles are used, it is possible that they would meet refusal at higher elevations. This would be due to the non-uniformity - i.e., to the various densities of the subsoil at different elevations. Steel 'H' piles should not be stopped before elevation 865'.

According to the available information, (Proposed D.H.C. Road Design), the elevation of Highway No. 403 at Chainage 70+54 - (Intersection with Fiddlers Green Road), is approximately 812.0'. To provide for frost protection, the bottom of the foundation should be at least 5 ft. below ground level which, in this case, would be at elevation 807.0'. This is below the established ground water table and since the soil here is relatively pervious, some difficulties in connection with the dewatering of the excavation should be anticipated. If wooden or steel sheet piling is used

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

and driven to a few feet below Elev. 807.0', the excavation could most probably be kept dry by simple pumping of water from the excavation.

The footings for the falsework for the construction, can be placed on the top sandy layer approx. 1 ft. below ground level. Precaution should be taken that the ground on which these temporary footings will be placed is not softened by running or standing water and that it is sound, and that it does not contain decayed organic matter. The safe load that can be attributed to these footings should not exceed 1.0 T/sq.ft.

Because of the granular, noncohesive character of the subsoil, no stability problems for the approach embankment fill are anticipated, provided the surface vegetation layer is removed prior to fill placement.

7. SUMMARY:

1. The stratification of the soil is regular. The upper layer (some 12 feet) is loose sand below which there is a very thick layer (approx. 30 ft.), of medium to dense silt. Sandy silts and silty sands underlie the silt layer, or are found as interlayers. These materials are very dense ($N > 100$).
2. Because of the loose character of the upper layers, piles are proposed for the footings of the structure. Piles should be driven to approximately elevation ⁷865' and could be loaded with a safe load of 40 T/pile. If displacement piles are used, they could meet refusal already at higher elevations due to the non-uniform density of the subsoil.
3. In order to provide for frost protection, the footings will have to be completed below the established ground water level. It is believed that if timber or steel sheet piling, driven to a few feet below the bottom of the excavation, is used the excavation can be kept dry by simple pumping of water from the excavation.

7. SUMMARY: (cont'd.) ...

4. Footings for the falsework can be placed on the surface layer, provided it is not softened and it is sound material (no organic matter). The safe load should not be in excess of 1 T/sq.ft.
5. No stability problems of the approach embankment fills are anticipated. The top organic layer should be removed prior to the placing of the embankments.

8. MISCELLANEOUS:

The field investigation was carried out from May 27 to June 6, 1960, under the supervision of Mr. W. Kulmatickas, Project Engineer, Foundation Section. All the laboratory tests were done in the Materials and Research laboratories.

July 1960.


REPORT PREPARED BY: W. Kulmatickas,
Project Foundations Engr.


REPORT APPROVED BY: A. Sternac,
Foundations Office Engr.

APPENDIX I.

SUMMARY OF FIELD & LABORATORY TESTS

JOB 60-F-49

W.P. 202-38

HOLE NO.	SAMP NO.	SAMPLE DEPTH (FEET)	MATERIAL DESCRIPTION	PENET'N RESIST. BLOWS FT	MOIST. CONT. %	PLASTIC LIMIT %	LIQUID LIMIT %	SHEAR STRENGTH D.S.I.	UNIT WEIGHT D.C.F.	REMARKS
1A B	CONE		Sand well graded with little silt and gravel.							
	S1	3'-4.5'	Very loose to loose.	8	-	-	-	-	-	
	S2	6'-7.5'	Sand well graded with little silt and gravel, very loose to loose.	11	-	-	-	-	-	
	S3	10'-11.5'	Sand well graded with little silt and gravel, very loose to loose.	18	-	-	-	-	-	
	S4	15'-16.5'	Silt medium to very dense.	8	-	-	-	-	-	
	S5	18'-19.5'	Silt medium to very dense.	10	-	-	-	-	-	
	S6	25'-26.5'	Silt medium to very dense.	78	-	-	-	-	-	
	S7	35'-36.5'	Silt medium to very dense.	31	-	-	-	-	-	
	S8	45'-46.5'	Silt medium to very dense.	95-9"	-	-	-	-	-	
	S9	55'-56.5'	Silt medium to very dense.	59	-	-	-	-	-	
	S10	65'-66.5'	Silty sand very dense.	120	-	-	-	-	-	
	S11	71.3-71.8'	Silt, very dense.	90-6"	-	-	-	-	-	
	S12	85'-86.5'	Silt, very dense.	129	-	-	-	-	-	
	S13	95'-96.5'	Silt, very dense.	79-3"	-	-	-	-	-	
	S14	110'-111.5'	Silt, very dense.	113	-	-	-	-	-	
2	S1	3'-4.5'	Sand well graded with little silt and gravel, very loose to loose.	2	-	-	-	-	-	

Cont. P. 2

SUMMARY OF FIELD & LABORATORY TESTS

JOB 60-F-49

W.P. 202-38

HOLE NO.	SAMP NO.	SAMPLE DEPTH (FEET)	MATERIAL DESCRIPTION	PENET'N RESIST. BLOWS FT	MOIST. CONT. %	PLASTIC LIMIT %	LIQUID LIMIT %	SHEAR STRENGTH p.s.f.	UNIT WEIGHT p.c.f.	REMARKS
2	S2	6'-7.5'	Sand well graded with little silt and gravel, very loose to loose.	5	-	-	-	-	-	
	S3	10'-11.5'	Sand well graded with little silt and gravel, very loose to loose.	6	-	-	-	-	-	
	S4	15'-16.5'	Silt, medium to very dense.	54	-	-	-	-	-	
	S5	19'-20.3'	Silt, medium to very dense.	53	-	-	-	-	-	
	S6	30'-31.5'	Silt, medium to very dense.	32	-	-	-	-	-	
	S7	40'-41.5'	Silt, medium to very dense.	11	-	-	-	-	-	
3	S1	3'-4.5'	Sand well graded with little silt and gravel, very loose to loose.	2	-	-	-	-	-	
	S2	6'-7.5'	Sand well graded with little silt and gravel, very loose to loose.	3	-	-	-	-	-	
	S3	10'-11.5'	Sand well graded with little silt and gravel,, very loose to loose.	41	-	-	-	-	-	
	S4	15'-16.5'	Silt, medium to very dense.	69	-	-	-	-	-	
	S5	20'-21.5'	Silt, medium to very dense.	57	-	-	-	-	-	
	S6	30'-31.5'	Silt, medium to very dense.	48	-	-	-	-	-	
	S7	40'-42'	Silty sand, very dense.	24	-	-	-	-	-	
	S8	45'-46.5'	Silty sand, very dense.	142	-	-	-	-	-	
4	S1	3'-4.5'	Sand well graded with little silt and gravel, very loose to loose.	3	-	-	-	-	-	Cont. P. 3

SUMMARY OF FIELD & LABORATORY TESTS

JOB 60-F-49

W.P. 202-38

HOLE NO.	SAMP NO.	SAMPLE DEPTH (FEET)	MATERIAL DESCRIPTION	PENETN RESIST. BLOWS FT	MOIST. CONT. %	PLASTIC LIMIT %	LIQUID LIMIT %	SHEAR STRENGTH p.s.f.	UNIT WEIGHT p.c.f.	REMARKS
4	S2	6'-7.5'	Sand well graded with little silt and gravel, very loose to loose.	7	-	-	-	-	-	
	S3	10'-11.5'	Sand well graded with little silt and gravel, very loose to loose.	11	-	-	-	-	-	
	S4	15'-16.5'	Silt, medium to very dense.	13	-	-	-	-	-	
	S5	20'-21.5'	Silt, medium to very dense.	19	-	-	-	-	-	
	S6	25'-26.5'	Silt, medium to very dense.	79	-	-	-	-	-	
	S7	30'-31.5'	Silt, medium to very dense.	15	-	-	-	-	-	
	S8	35'-36.5'	Silt, medium to very dense.	54	-	-	-	-	-	
	S9	40'-41.5'	Silty sand, very dense.	58	-	-	-	-	-	
	S10	45'-46.5'	Silty sand, very dense.	138	-	-	-	-	-	
5	S1	3'-4.5'	Sand well graded with little silt and gravel, very loose to loose.	3	-	-	-	-	-	
	S2	5'-6.5'	Sand well graded with little silt and gravel, very loose to loose.	8	-	-	-	-	-	
	S3	10'-11.5'	Sand well graded with little silt and gravel, very loose to loose.	8	-	-	-	-	-	
	S4	15'-16.5'	Sand well graded with little silt and gravel, very loose to loose.	14	-	-	-	-	-	
	S5	20'-21.5'	Silt, medium to very dense.	16	-	-	-	-	-	
	S6	30'-31.5'	Silt, medium to very dense.	50	-	-	-	-	-	

Cont. P. 4

SUMMARY OF FIELD & LABORATORY TESTS

JOB 60-F-49

W.P. 202-38

HOLE NO.	SAMP NO.	SAMPLE DEPTH (FEET)	MATERIAL DESCRIPTION	PENET'N RESIST. BLOWS FT	MOIST. CONT. %	PLASTIC LIMIT %	LIQUID LIMIT %	SHEAR STRENGTH PSI	UNIT WEIGHT PCF	REMARKS
5	37	40'-41.5'	Silt, very dense.	10	-	-	-	-	-	
	38	45'-46.5'	Silt, very dense.	106	-	-	-	-	-	
6	S1	3'-4.5'	Sand well graded with little silt and gravel, very loose to loose.	2	-	-	-	-	-	
	S2	6'-7.5'	Sand well graded with little silt and gravel, very loose to loose.	2	-	-	-	-	-	
	S3	7.5'-9'	Sand well graded with little silt and gravel, very loose to loose.	12	-	-	-	-	-	
	S4	15'-16.5'	Sand well graded with little silt and gravel, very loose to loose.	8	-	-	-	-	-	
	S5	20'-21.5'	Silt, medium to very dense.	19	-	-	-	-	-	
	S6	30'-31.5'	Silt, medium to very dense.	20	-	-	-	-	-	
	S7	32'-33.5'	Silt, medium to very dense.	10	-	-	-	-	-	
	S8	40'-41.5'	Silt, very dense.	35	-	-	-	-	-	
	S9	45'-46.5'	Silt, very dense.	114	-	-	-	-	-	
			T denotes shelly tube sample. S denotes split spoon sample.							

DEPARTMENT OF HIGHWAYS - ONTARIO

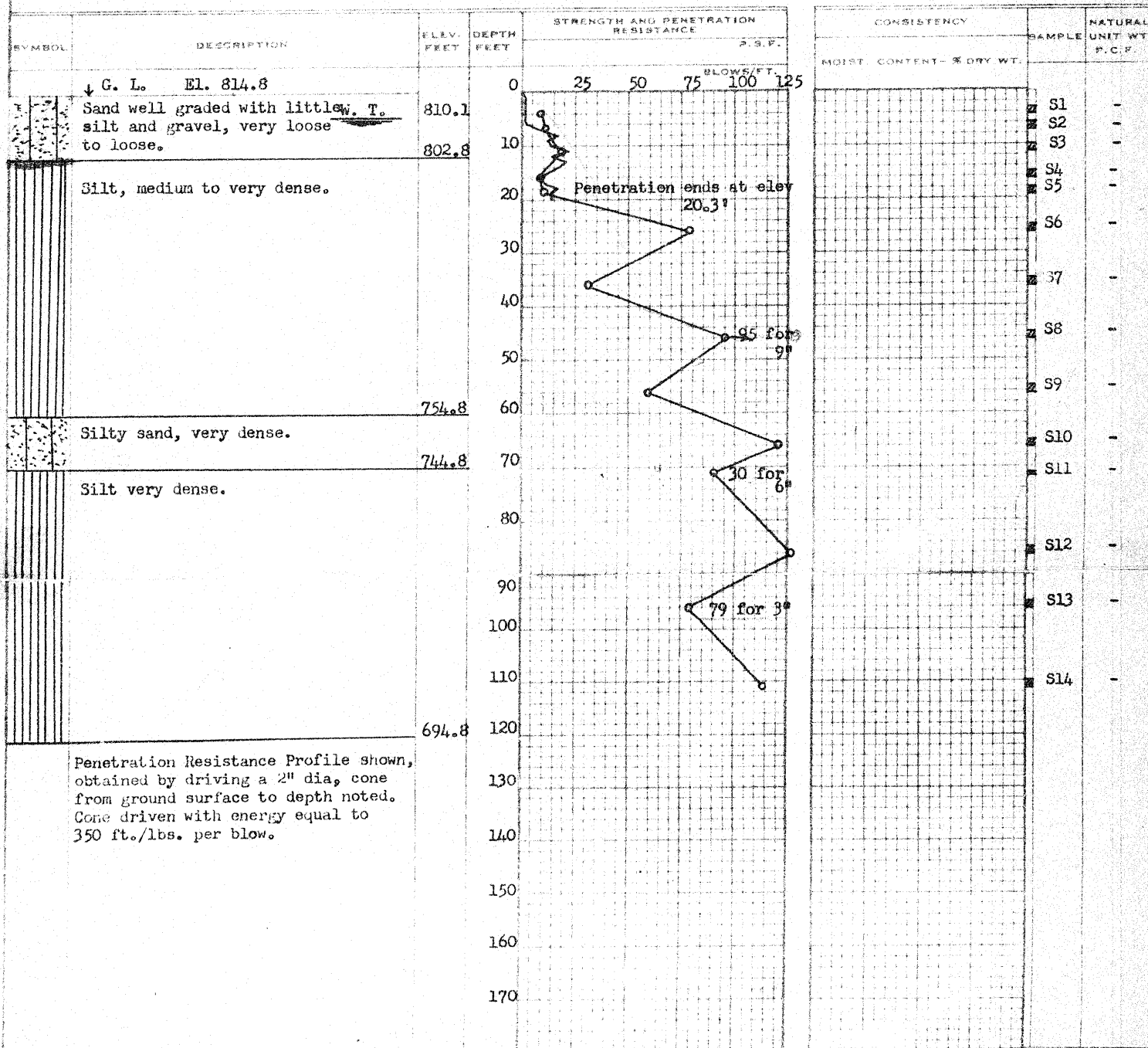
MATERIALS AND RESEARCH SECTION

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 JOB 60-F-49 STATION
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 BORING DATE May 27/60. CHECKED BY W. W. K.

2" DIA SPLIT TUBE
 2" SHELBY TUBE
 2" SPLIT TUBE
 2" DIA CONE
 2" SHELBY
 CASING

LEGEND

1/2 UNCONFINED COMPRESSION (Q_u) \bigcirc
 VANE TEST (C) AND SENSITIVITY (S) $+$
 NATURAL MOISTURE AND LIQUIDITY INDEX \times
 LIQUID LIMIT \rightarrow
 PLASTIC LIMIT \leftarrow



DEPARTMENT OF HIGHWAYS - ONTARIO MATERIALS AND RESEARCH SECTION

W.P. 202-38

BORE HOLE NO. 2

JOB 60-F-49

STATION

DATUM

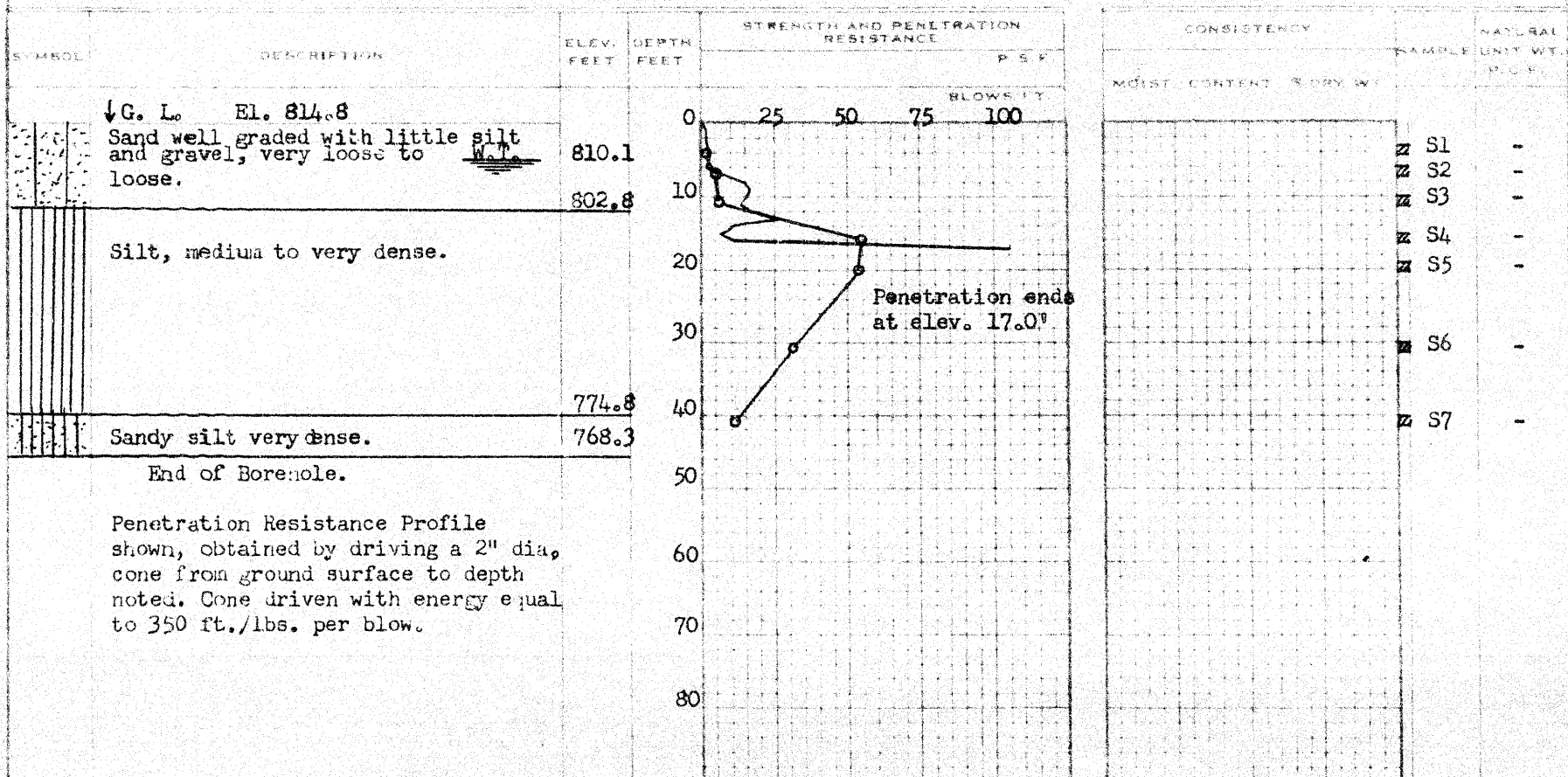
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BORING DATE May 30/60

CHECKED BY W. W. K.

LEGEND

1/2 UNCONFINED COMPRESSION (Q_u) ○
 VANE TEST C AND SENSITIVITY (S) +
 NATURAL MOISTURE AND LIQUIDITY INDEX □
 LIQUID LIMIT ○
 PLASTIC LIMIT —



DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS AND RESEARCH SECTION

W.P. 202-38

BORE HOLE NO. 3

JOB 60-F-49

STATION

DATUM

COMPILED BY B. K.

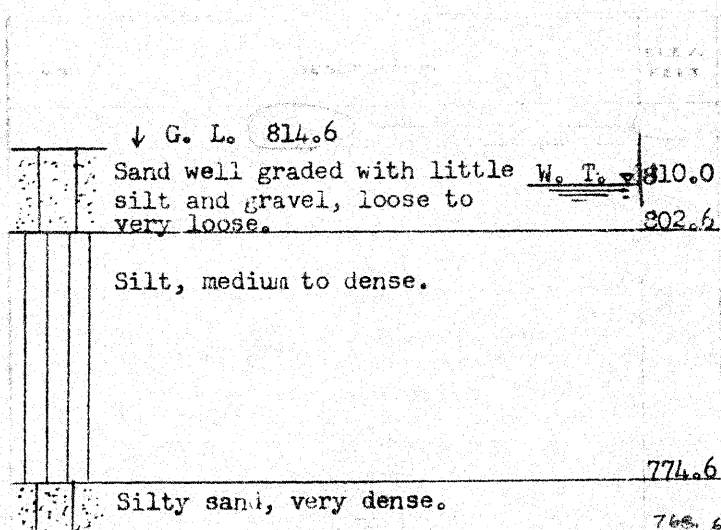
BORING DATE May 31/60.

CHECKED BY W. W. K.

2" DIA. SPLIT TUBE
 3" SHELBY TUBE
 2" SPLIT TUBE
 2" DIA. CONE
 2" SHELBY
 CASING

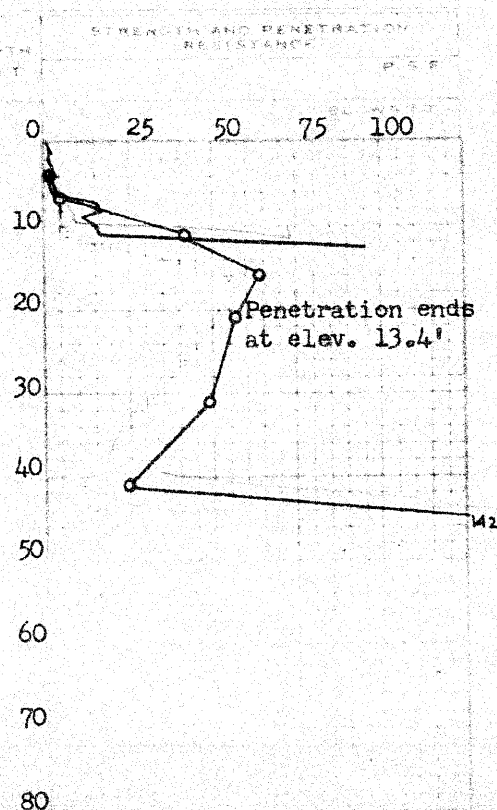
LEGEND

UNCONFINED COMPRESSION (Q_u)
 VANE TEST (AND SENSITIVITY S_v)
 NATURAL MOISTURE AND
 LIQUIDITY INDEX
 PLASTIC LIMIT



End of Borehole.

Penetration Resistance Profile shown, obtained by driving a 2" dia. cone from ground surface to depth noted. Cone driven with energy equal to 350 ft./lbs. per blow.



z S1 -
 z S2 -
 z S3 -
 z S4 -
 z S5 -
 z S6 -
 z S7 -
 z S8 -

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS AND RESEARCH SECTION

W. P. 202-38

BORE HOLE NO. 4

JOB 60-F-49

STATION

DATUM

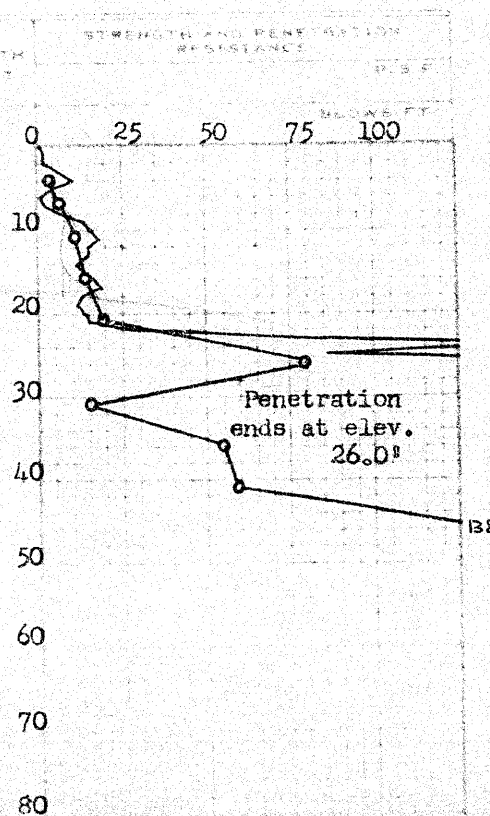
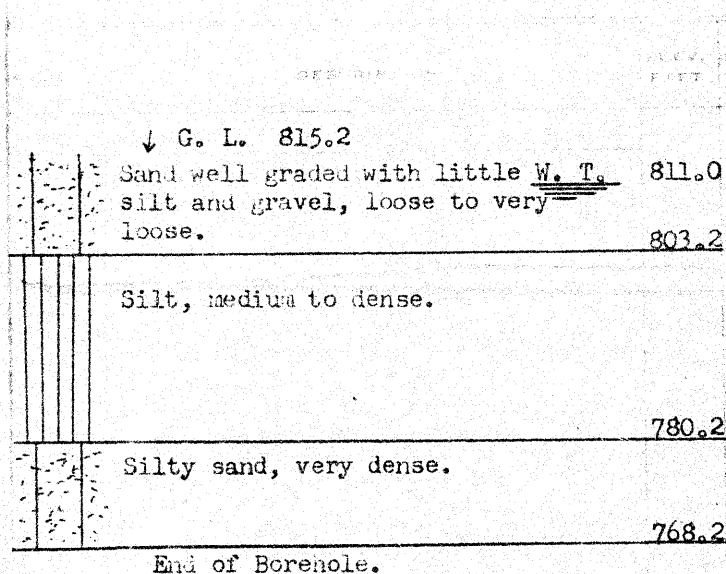
COMPILED BY B. K.

BORE DATE June 1/60. CHECKED BY W. W. K.

2" DIA. SPLIT TUBE
 2" SHELBY TUBE
 2" SPLIT TUBE
 2" DIA. CONE
 2" SHELBY
 CASING

LEGEND

UNCONFINED COMPRESSION (QU)
 VANE TEST (C) AND SENSITIVITY (S)
 NATURAL MOISTURE AND
 LIQUID LIMIT
 PLASTIC LIMIT



S1 -
 S2 -
 S3 -
 S4 -
 S5 -
 S6 -
 S7 -
 S8 -
 S9 -
 S10 -

Penetration Resistance Profile shown, obtained by driving a 2" dia. cone from ground surface to depth noted. Cone driven with energy equal to 350 ft./lbs. per blow.

DEPARTMENT OF HIGHWAYS - ONTARIO MATERIALS AND RESEARCH SECTION

W.P. 202-38

BORE HOLE NO. 5

JOB 60-F-49

STATION

DATE

SAMPLED BY B. K.

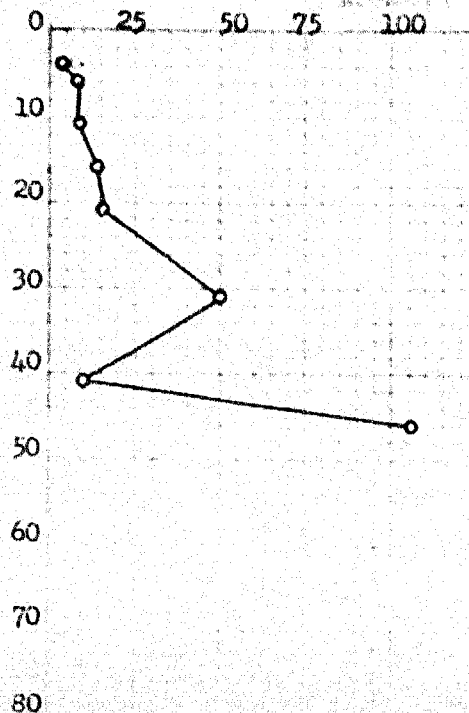
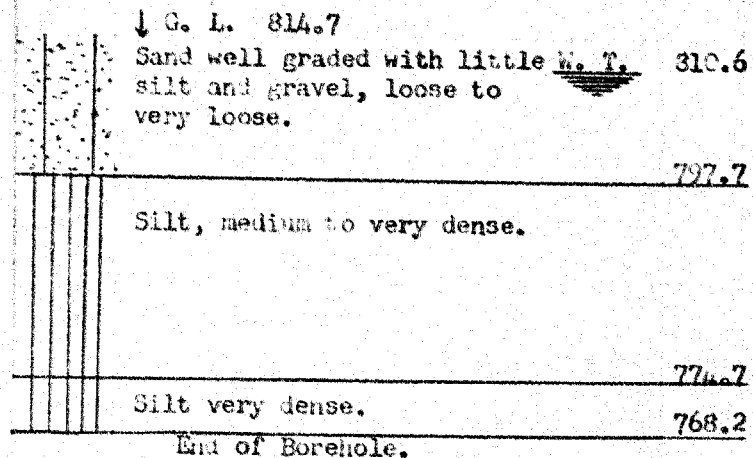
BORE HOLE DATE June 2/60.

TESTED BY W. W. K.

2" DIA. SPLIT TUBE
2" SHELBY TUBE
2" SPLIT TUBE
2" DIA. CONE
2" SHELBY
CABIN

LEGEND

2" DIA. SPLIT TUBE COMPRESSION (Q)
2" DIA. SHELBY TUBE
2" DIA. SPLIT TUBE
2" DIA. CONE
2" SHELBY
CABIN



S1 -
S2 -
S3 -
S4 -
S5 -
S6 -
S7 -
S8 -

DEPARTMENT OF HIGHWAYS - ONTARIO

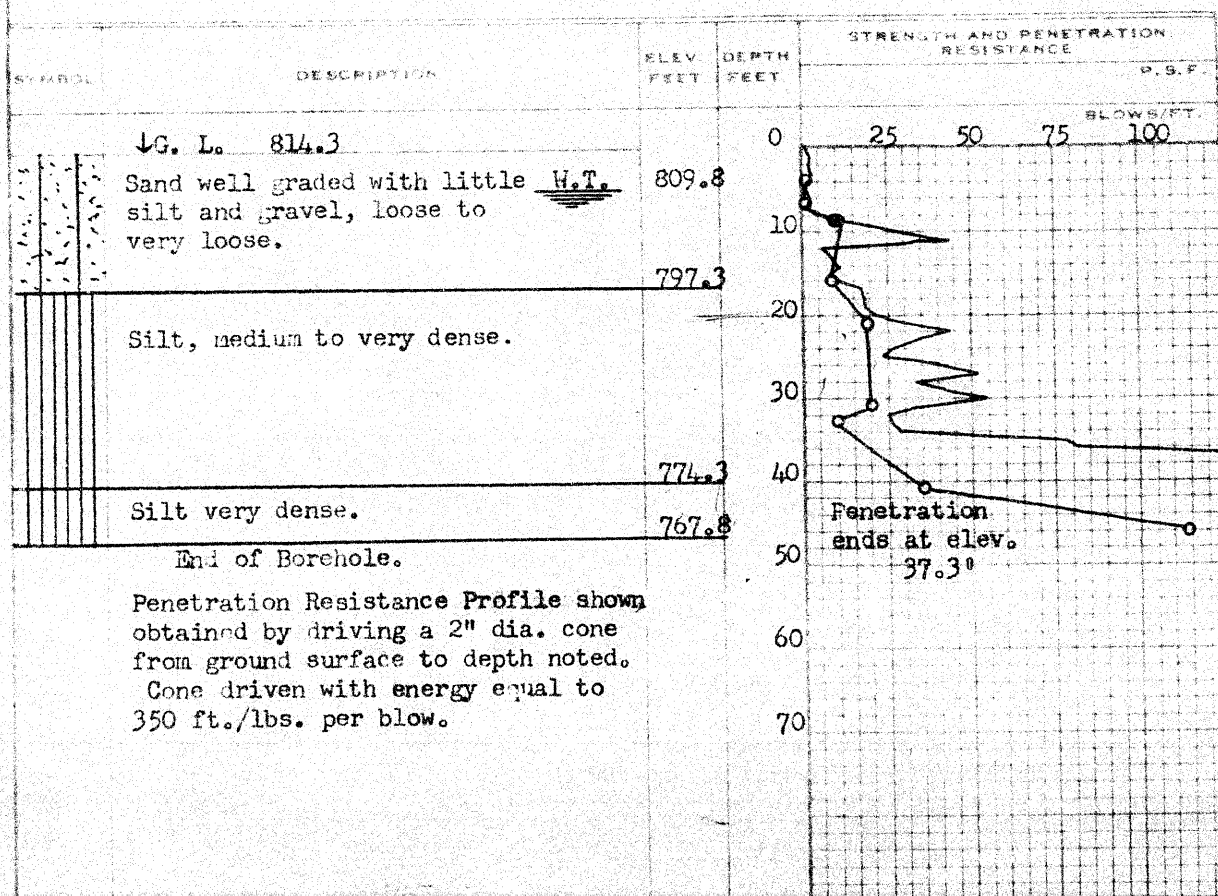
MATERIALS AND RESEARCH SECTION

W.P. 202-38 BORE HOLE NO. 6
 JOB 60-F-49 STATION _____
 DATUM _____ COMPILED BY B. K.
 BORING DATE June 3/60. CHECKED BY W. W. K.

2" DIA SPLIT TUBE _____
 2" SHELBY TUBE _____
 2" SPLIT TUBE _____
 2" DIA CONE _____
 2" SHELBY _____
 CASING _____

LEGEND

1/2 UNCONFINED COMPRESSION (Q_u) _____
 VANE TEST (G) AND SENSITIVITY (S) _____
 NATURAL MOISTURE AND LIQUIDITY INDEX _____
 LIQUID LIMIT _____
 PLASTIC LIMIT _____



CONSISTENCY	SAMPLE	NATURAL UNIT WT P.C.F.
MOIST. CONTENT - % DRY WT		
	S1	-
	S2	-
	S3	-
	S4	-
	S5	-
	S6	-
	S7	-
	S8	-
	S9	-

UNIFIED SOIL CLASSIFICATION SYSTEM

CLAY & SILT

SAND

GRAVEL

Fine

Medium

Coarse

Fine

Coarse

TYLER SIEVE NO.

270

200

150

100

60

48

35

25

20

14

9

8

4

3/4

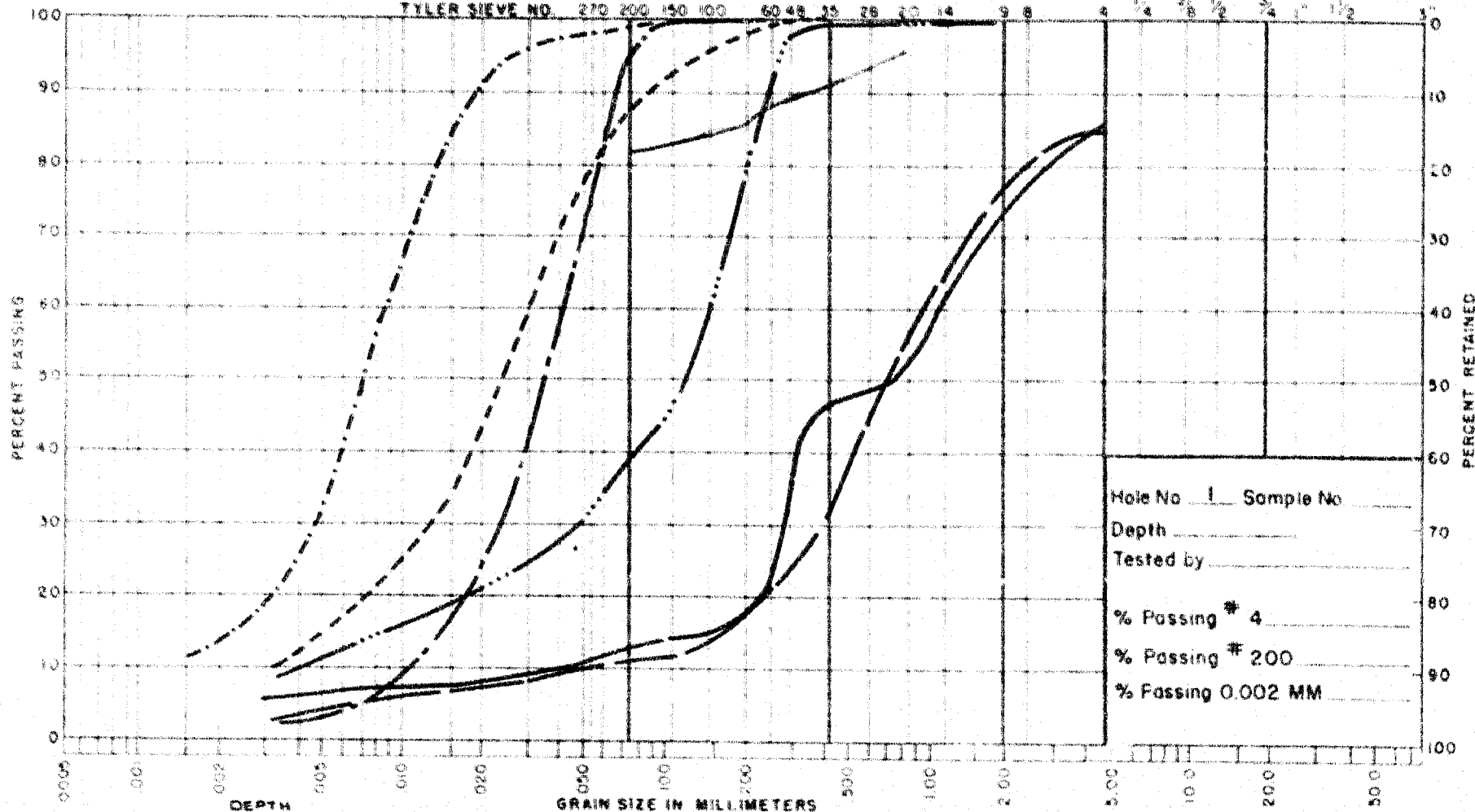
3/8

1/2

3/4

1"

1 1/2"



NOTES

4' —————

10' —————

18' —————

45' —————

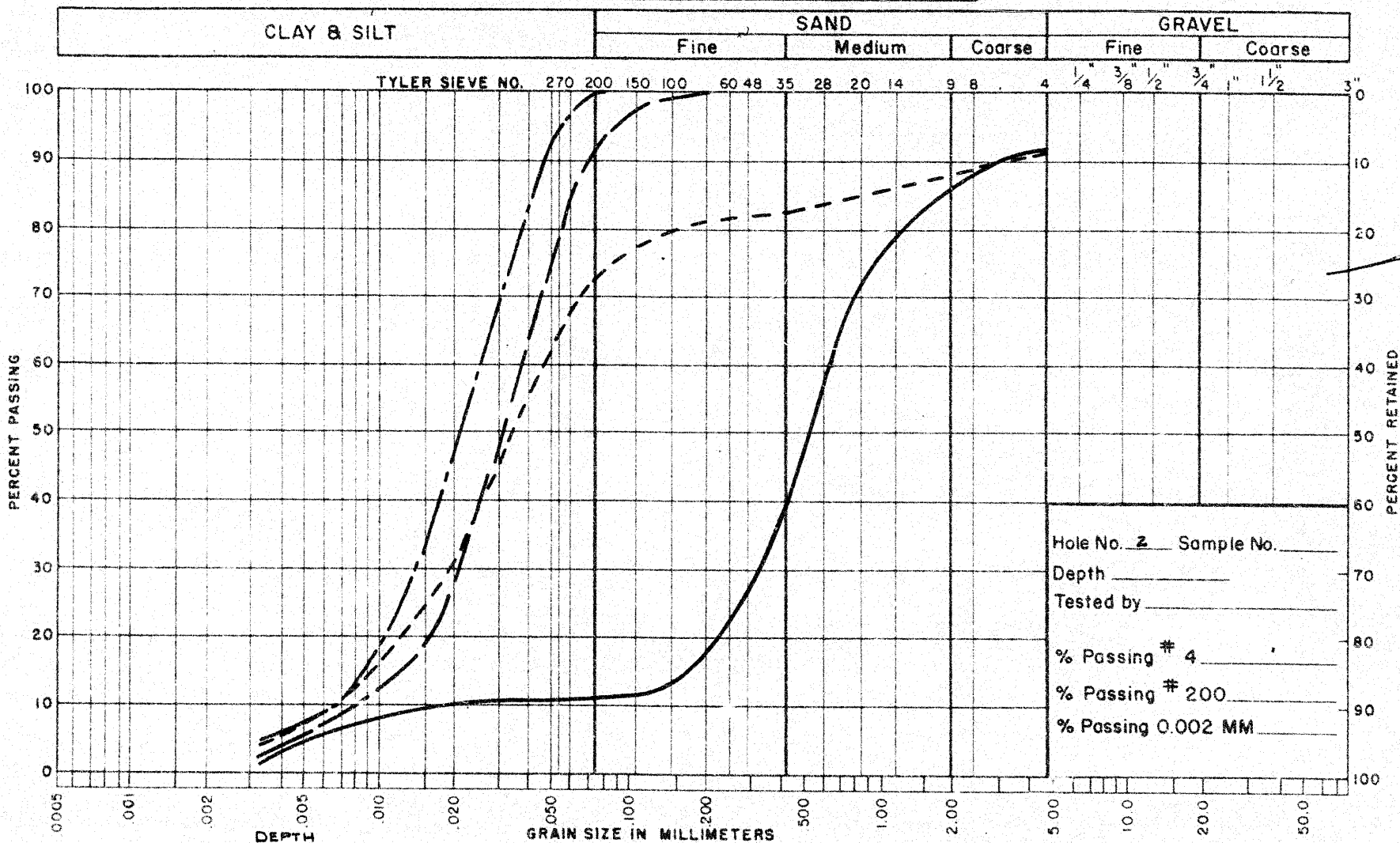
45' —————

95' —————

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

Job No. 60 - F - 49 W.P. No. _____
Location _____

UNIFIED SOIL CLASSIFICATION SYSTEM



NOTES _____ 6'

_____ 15'

_____ 40'

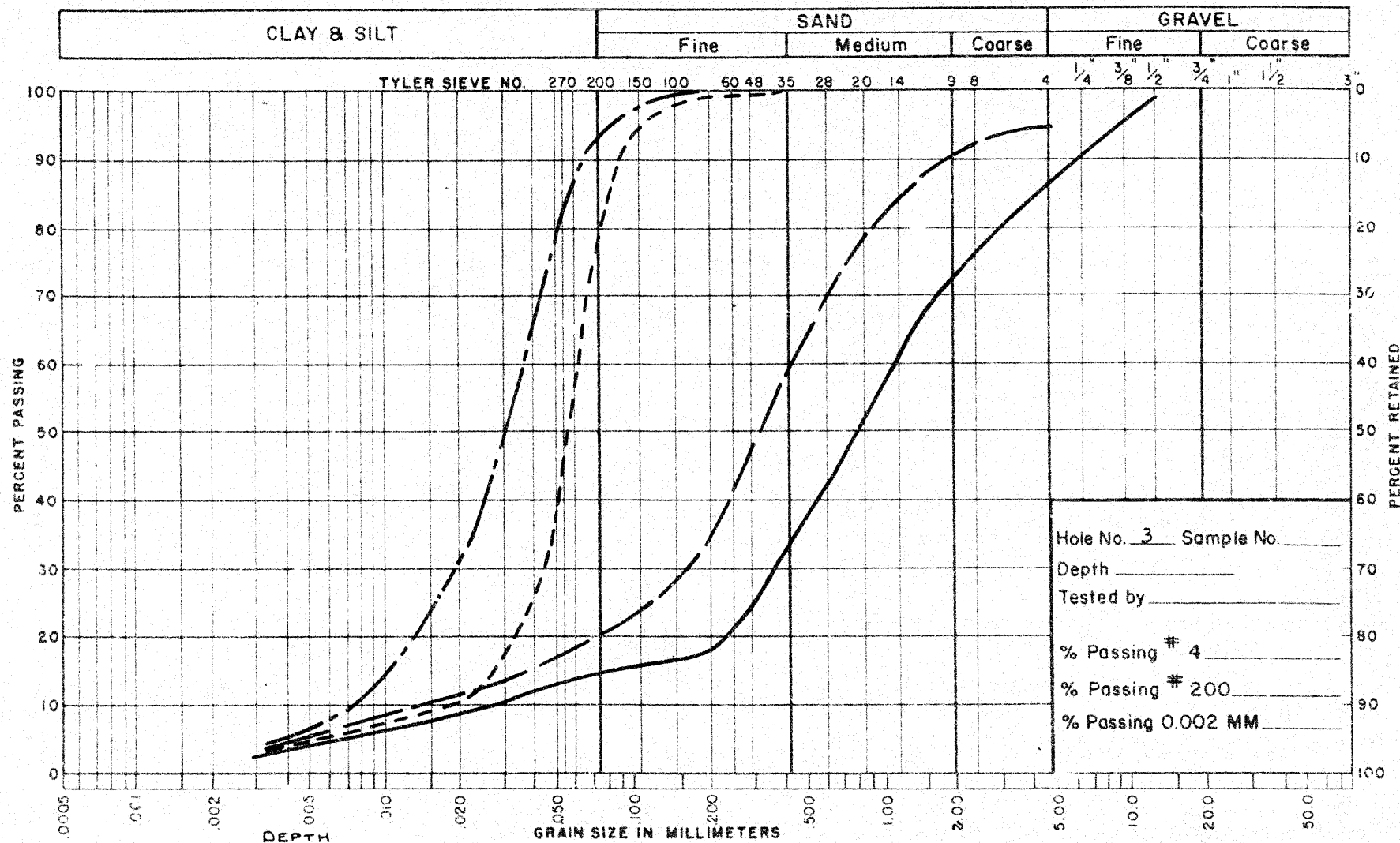
_____ 45'

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

Job No. 60-F-49 W.P. No. _____

Location _____

UNIFIED SOIL CLASSIFICATION SYSTEM

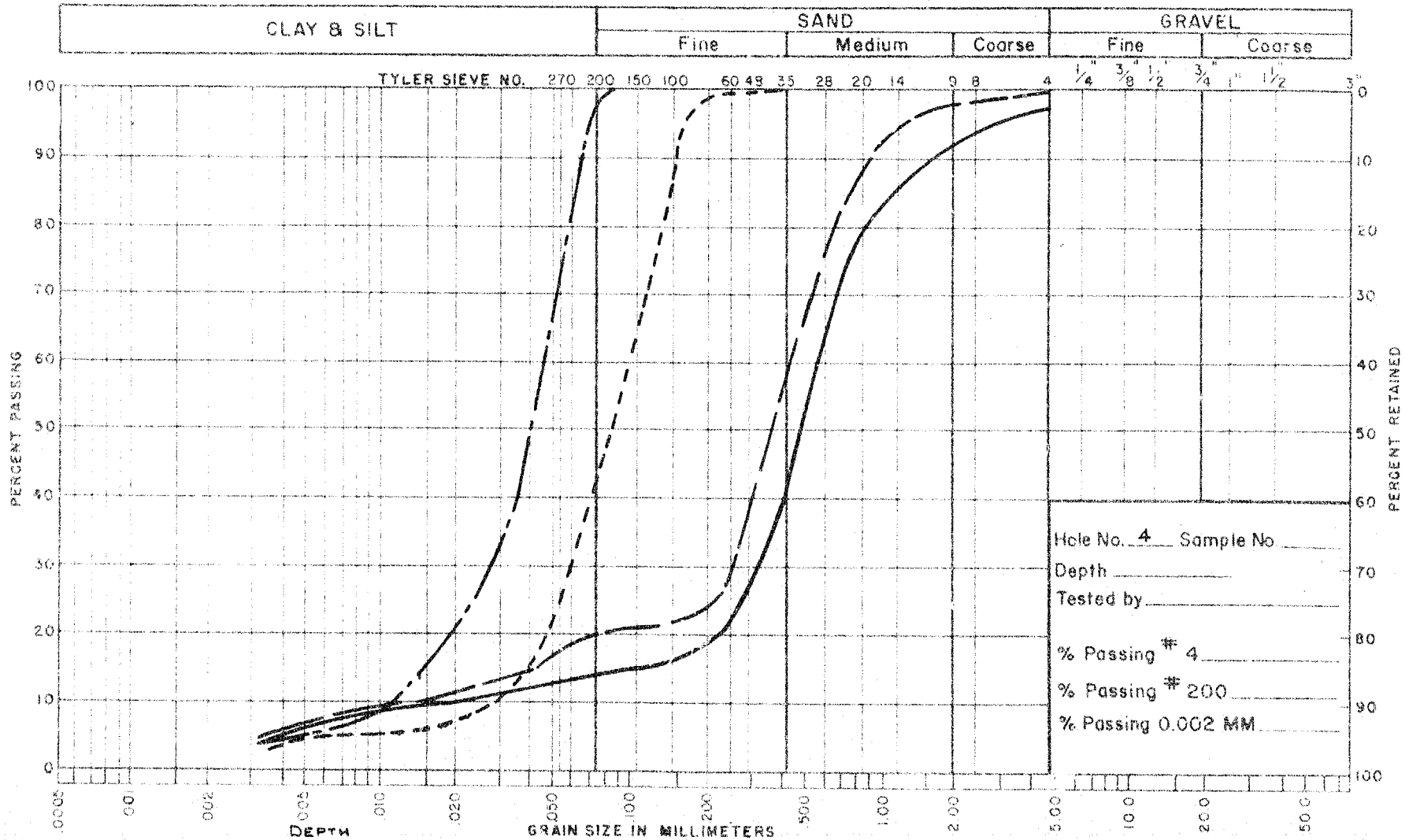


Hole No. 3 Sample No. _____
 Depth _____
 Tested by _____
 % Passing # 4 _____
 % Passing # 200 _____
 % Passing 0.002 MM _____

NOTES _____ 6'
 _____ 10'
 _____ 30'
 _____ 45'

DEPARTMENT OF HIGHWAYS - ONTARIO
 MATERIALS & RESEARCH SECTION
GRAIN SIZE DISTRIBUTION
 Job No. 60 - F - 49 W.P. No. _____
 Location _____

UNIFIED SOIL CLASSIFICATION SYSTEM



NOTES _____ 6'
_____ 10'
_____ 20'
_____ 40'

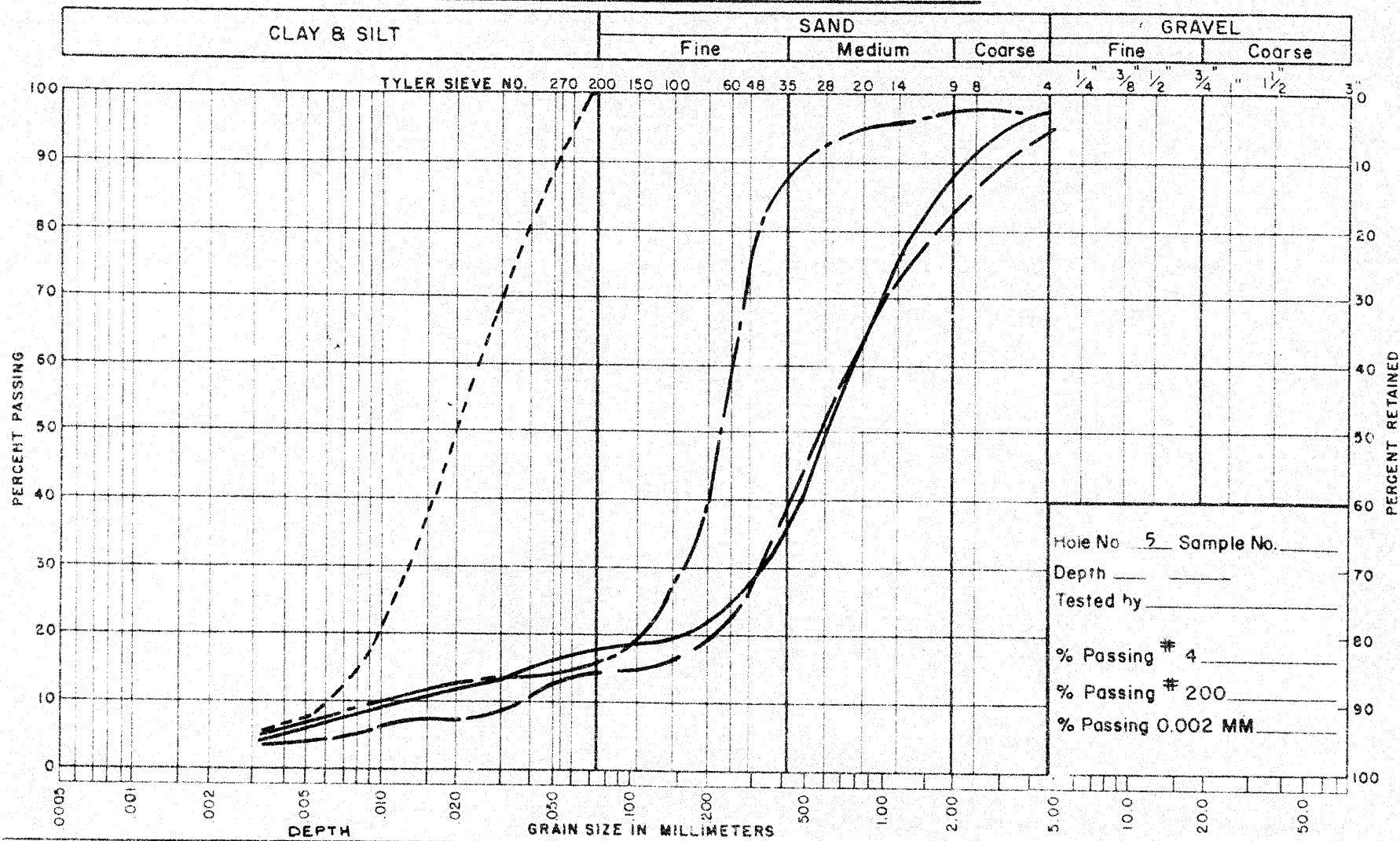
DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH SECTION
GRAIN SIZE DISTRIBUTION

Job No. 60-F-49

W.P. No. _____

Location _____

UNIFIED SOIL CLASSIFICATION SYSTEM



NOTES _____ 5'

_____ 10'

_____ 15'

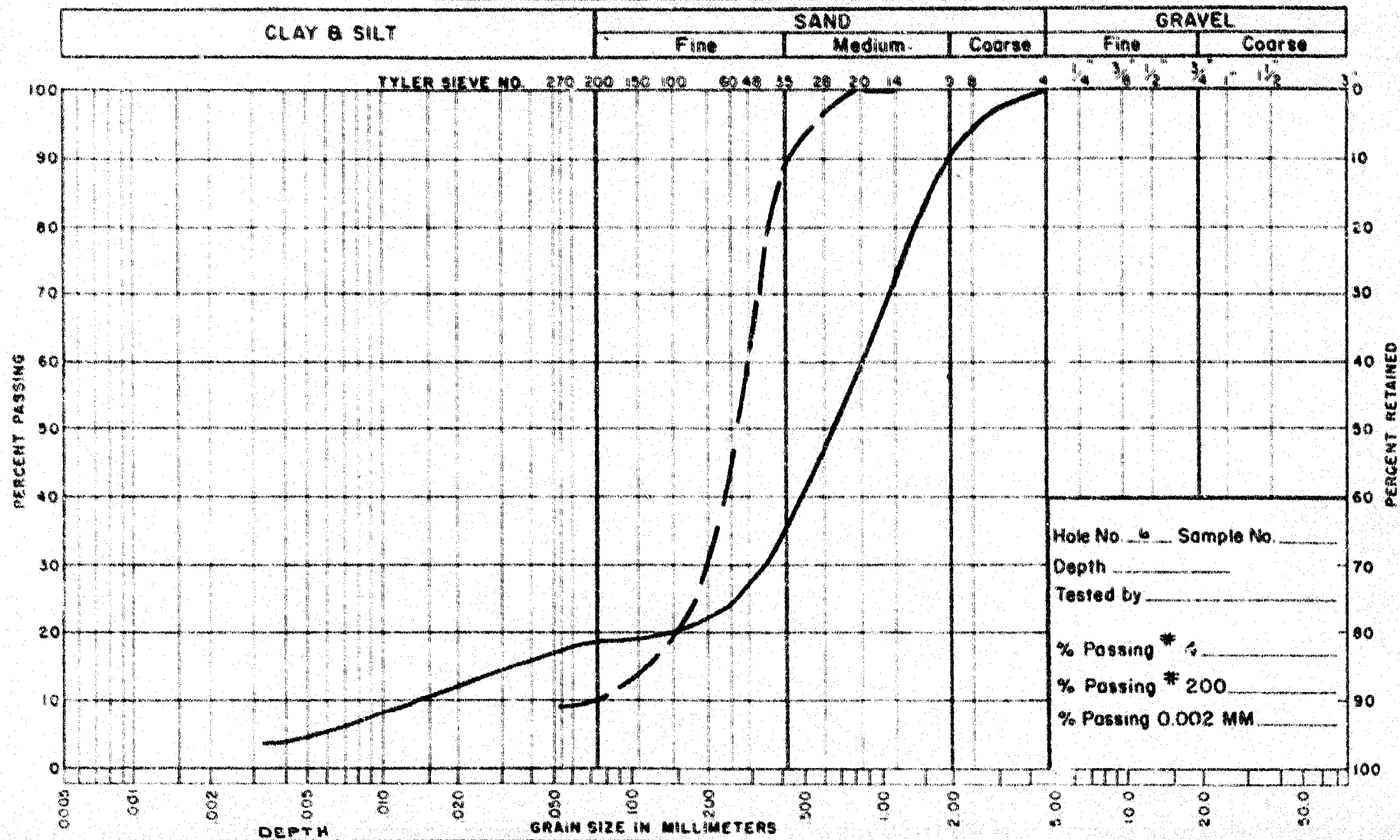
_____ 40'

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

Job No. 60 - F - 49 W.P. No. _____

Location _____

UNIFIED SOIL CLASSIFICATION SYSTEM



NOTES _____ T. C.

15'

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

Job No. 60 - F - 49

W.P. No. _____

Location _____

Mr. W. S. Melinyshyn,
Regional Bridge Location Engr.,
Bridge Division.

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

September 23, 1964

Your Memo - Sept. 21/64

Fiddlers Green Road Bridge,
W.P. 202-58 -- W.J. 60-F-49,
Hwy. #403, District #4.

We have reviewed the Preliminary Drawing No. D-5520-P1 for the above-mentioned structure, and submit our comments for your consideration:

The subsoil conditions at this site were again reviewed in the light of the proposed footing design. Due to the considerable difference in density as established with dynamic cone and Standard penetration tests between the east (B.H.'s #1, 2, & 3) and the west side (B.H.'s #4, 5, & 6), piles may reach refusal at different elevations.

The following tip elevations may be used for estimating purposes of pile lengths:

East Side: (B.H. 1, 2, & 3) -- Elev. 795 - 785

West Side: (B.H. 4, 5, & 6) -- Elev. 775 - 765

During construction, the pile driving should be controlled by the Hiley Formula as per current D.H.G. Standards DD 1217 and DD 1218.

We would suggest that the possibility of having to drive piles of different lengths should be mentioned in the contract documents.

AGB/MdeF

cc: Foundations Office ✓
Gen. Files

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

MEMORANDUM

To: Mr. A. Sternac,
Principal Foundation Engineer,
Room 107, Lab. Building.

From: Bridge Division,
Downsview, Ontario.

Date: September 21, 1964.

Our File Ref.

IN REPLY TO

SUBJECT: Fiddlers Green Road Bridge W.P. 202-58 ✓
Hostein Road Bridge W.P. 183-60
Highway #403 District #4.

Enclosed please find a print of our Preliminary Plans for each of the above structures.

As the intersecting centre-line stations are identical to the original design with only the median widths being increased, these designs are based on the original Foundation Reports W.J. 60-F-49 and W.J. 60-F-52.

Would you please inform us if you have any comments or let us have your approval if the Preliminary Plans are satisfactory.

WSM/kcd

W. S. Melnyshyn
W.S. Melnyshyn,
Regional Bridge Location Engineer.

Mr. W. S. Melinyshyn,
Regional Bridge Location Engr.,
Bridge Division.

23-46-240
cc: Gen. Files
*Re Fiddlers Green
Road Bridge*
Foundation Section,
Materials & Testing Div.,
Room 107, Lab. Bldg.

September 23, 1964

Your Memo - Sept. 21/64

Fiddlers Green Road Bridge,
W.P. 202-58 -- W.J. 60-F-49,
Hwy. #403, District #4.

We have reviewed the Preliminary Drawing No. D-5520-P1 for the above-mentioned structure, and submit our comments for your consideration:

The subsoil conditions at this site were again reviewed in the light of the proposed footing design. Due to the considerable difference in density as established with dynamic cone and Standard penetration tests between the east (B.H.'s #1, 2, & 3) and the west side (B.H.'s #4, 5, & 6), piles may reach refusal at different elevations.

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AGS/MdeF

cc: Foundations Office
Gen. Files

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

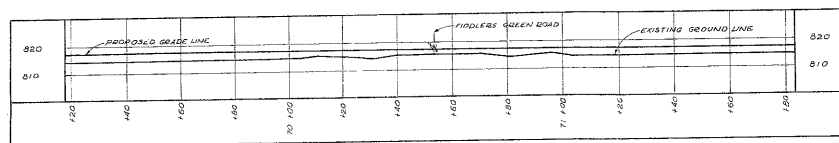
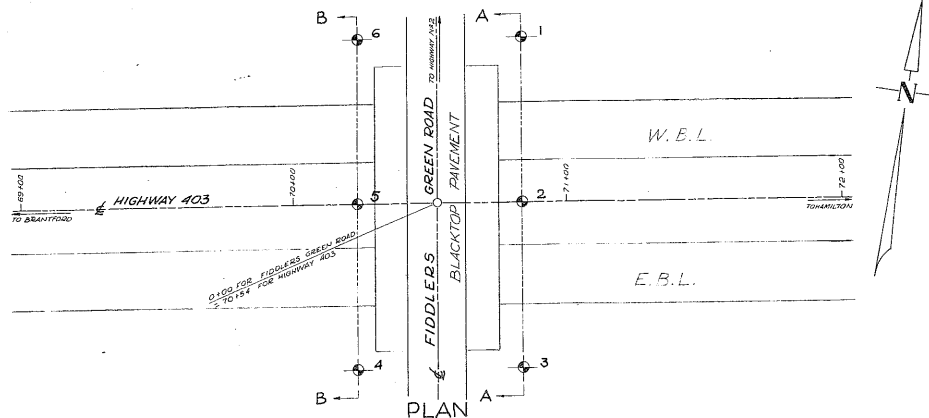
#60-F-49

W.P. # 202-58

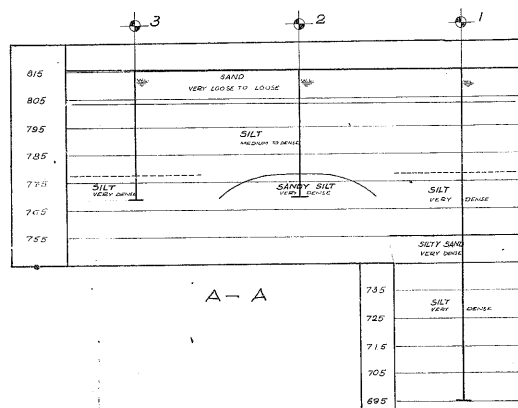
Hwy. # 403

FIDDLERS

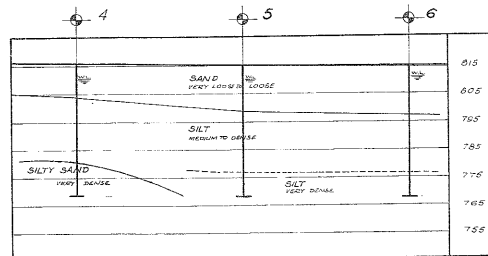
GREEN RD.



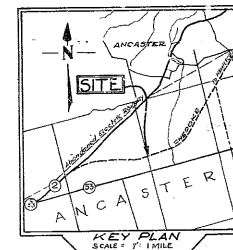
PROFILE



A - A



B - B



LEGEND

HOLE NO.	ELEVATION	STATION	DISTANCE FROM #
1	814.8	70+84	60' LT
2	814.8	70+84	E
3	814.6	70+84	60' RT
4	815.2	70+24	60' RT
5	814.7	70+24	E
6	814.3	70+24	60' LT

NOTE

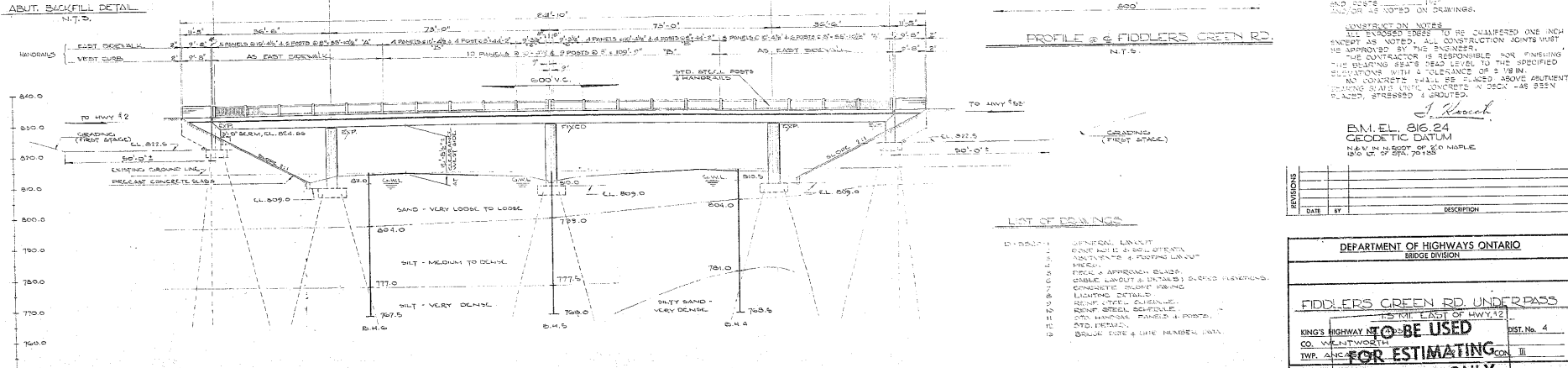
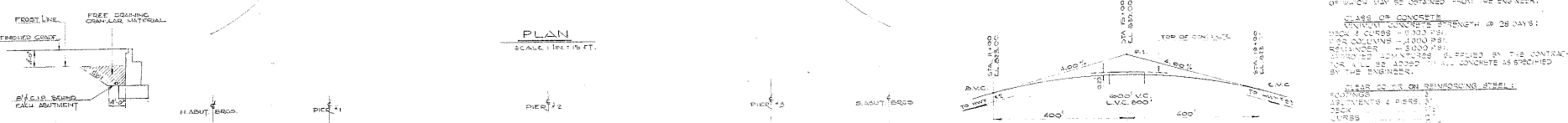
THE BOUNDARIES BETWEEN SOIL STRATA HAVE BEEN ESTABLISHED ONLY AT BORE HOLE LOCATIONS. BETWEEN BORE HOLES THE BOUNDARIES ARE ASSUMED FROM GEOLOGICAL EVIDENCE AND MAY BE SUBJECT TO CONSIDERABLE ERROR.

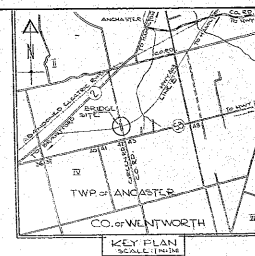
DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH SECTION

FIDDLERS GREEN ROAD

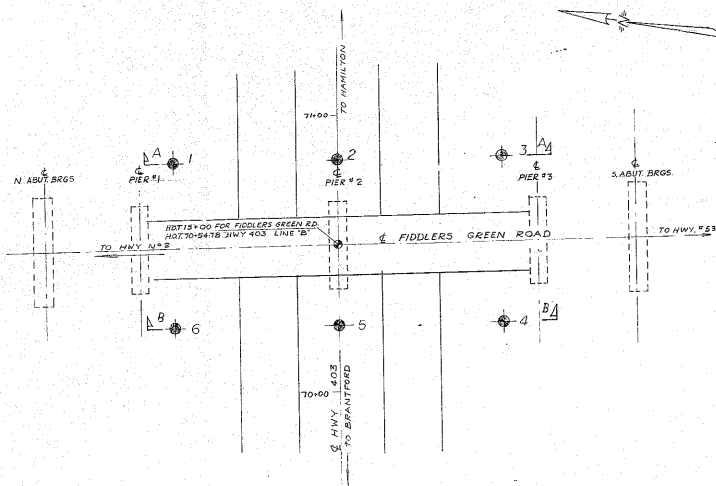
SHOWING POSITIONS & ELEVATIONS OF HOLES

HWY. 403 DISTRICT 4 COUNTY WENTWORTH
TOWNSHIP ANCASTER LOT 48 & 49 CON. III
LOCATION 3 MILES SW OF HAMILTON
DRAWN BY J. J. COOPER CHECKED BY J. J. COOPER
DATE 18 JUL 1960 APPROVED BY J. J. COOPER
SCALE 1 inch = 20 feet DRAWING NO. 60-F-49A

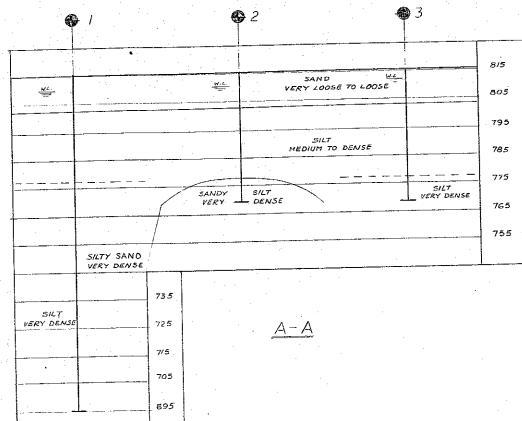
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[illegible]

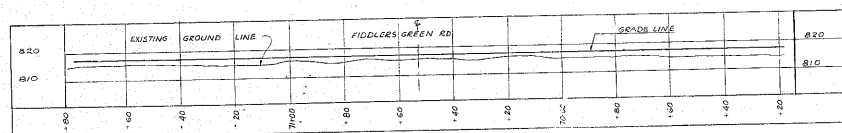
DEPARTMENT OF HIGHWAYS ONTARIO			
BRIDGE DIVISION			
FIDDLERS GREEN RD BRIDGE (ANCASTER TWP.)			
KING'S HIGHWAY No. 475		DIST. No. 4	
GO. WENTWORTH		LOT 42 645	
TWP. ANCASTER		CON. 36	
PRELIMINARY			
APPROVED		SHEET No.	
engineer indicates		W.P. No. 702-51	
DESIGN	CHECK	CONTRACT	
A. B.	CHECK		
SKETCHING	CHECK	ORDERING	
W. D.	A. B.		
DATE	1 JUL 84	ISSUED	11/10/85
		Drawn No.	D-5570-P1



PLAN

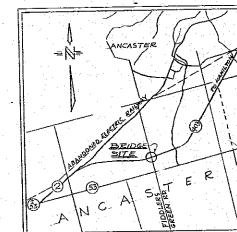


A-A



PROFILE

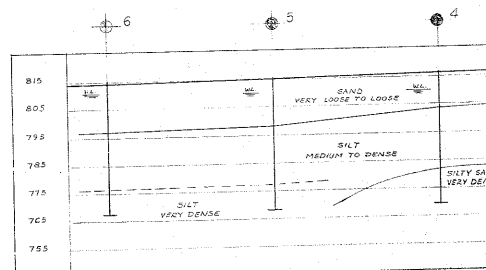
NOTE
SCALE 1"=20'-0"



KEY PLAN
SCALE 1"=1 MILE

LEGEND			
BORE & PENETRATION HOLE			
HOLE NO.	ELEVATION	STATION	DISTANCE FROM E.
1	814.80	70+84	60' LT.
2	814.80	70+84	60' LT.
3	814.60	70+84	60' LT.
4	815.20	70+24	60' RT.
5	814.70	70+24	60' RT.
6	816.30	70+24	60' LT.

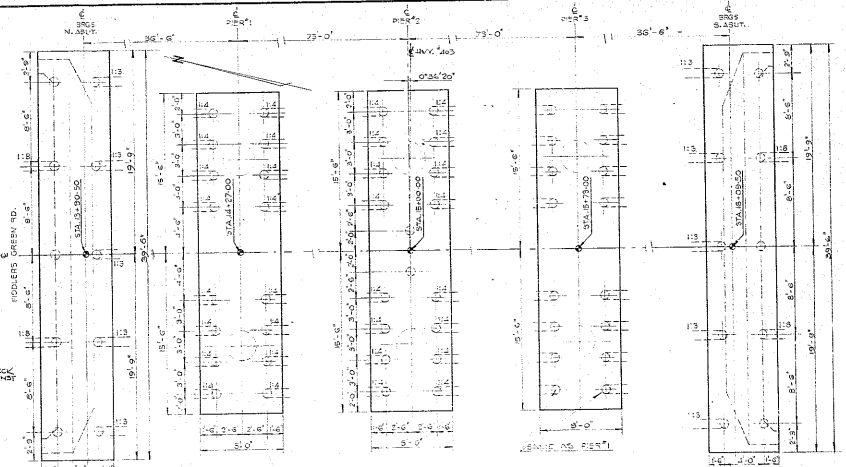
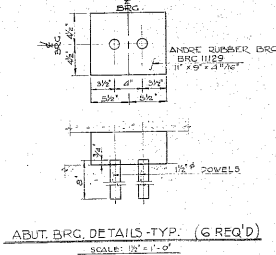
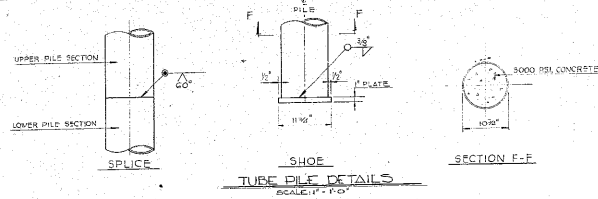
NOTE
THE BOUNDARIES BETWEEN SOIL STRATA HAVE BEEN ESTABLISHED ONLY AT BORE HOLE LOCATIONS. BETWEEN BORE HOLES THE BOUNDARIES ARE ASSUMED FROM GEOLOGICAL EVIDENCE AND MAY BE SUBJECT TO CONSIDERABLE ERROR.



B-B

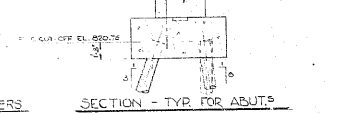
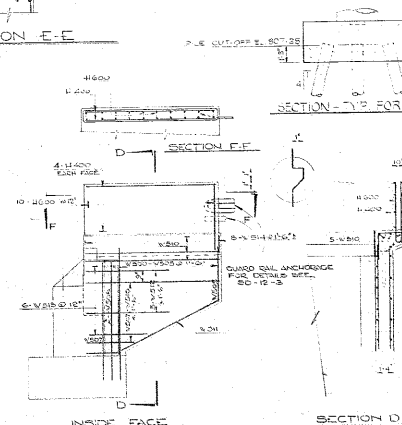
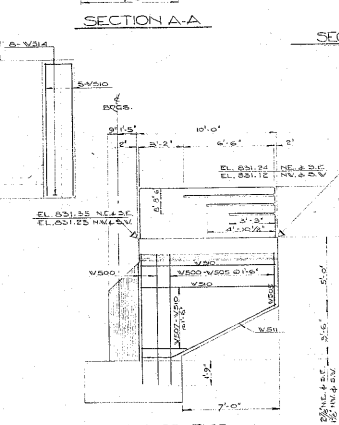
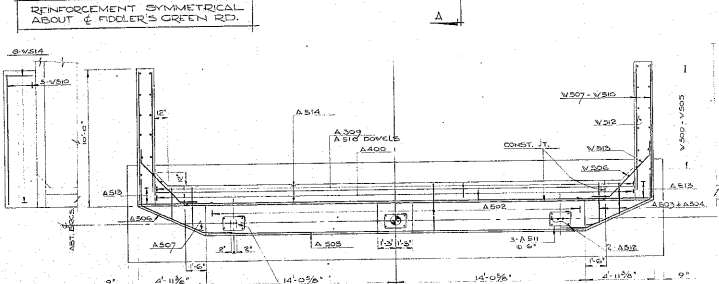
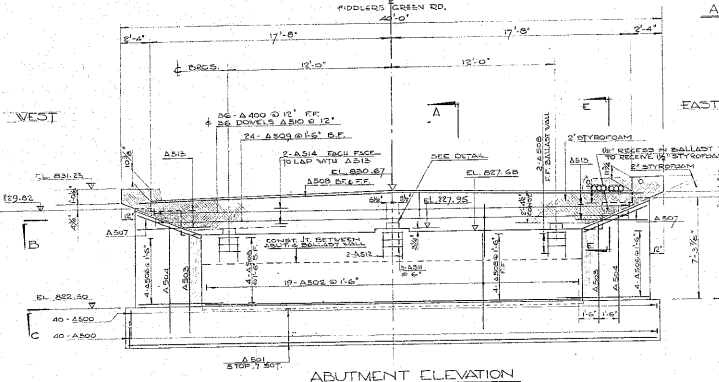
REVISIONS	DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS, ONTARIO BRIDGE DIVISION			
FIDDLERS GREEN RD. UNDERPASS 1.5 MILES EAST OF HWY. #2			
KING'S HIGHWAY No. 403	CO. WENTWORTH		DIST. No. 4
TWP. ANCASTER	LOT 48E43		CON. III
BORE HOLE & SOIL STRATA			
APPROVED	DESIGNED	CONTRACT No.	BY No. 202-58
DATE	CHECK	DATE	CHECK
JUNE 1965	LOADING	JUNE 1965	LOADING
DRAWING No. D5520-2		DRAWING No. D5520-2	



LOCATION	NO. OF PILES REQUIRED	DESIGN LOAD	EST. LENGTH	LENGTH SUPPLIED
1. ABUT. 1	10	35 T/each	50'-0"	50'-0" each
2. PIER 1	10	45 "	40'-0"	40'-0"
3. PIER 2	10	45 "	40'-0"	40'-0"
4. PIER 3	10	45 "	40'-0"	40'-0"
5. ABUT. 2	10	35 "	50'-0"	50'-0" each

ALL PILES TO BE 100% 55 STEEL TUBE PILES
0.355 WALL THICKNESS, DRIVEN WITH CURVED ENDS.



PRINT RECORD
NO. FOR DATE
1/1/81 1/1/81

REVISIONS	DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS ONTARIO
BRIDGE DIVISION

FIDDLER'S GREEN RD. UNDERPASS
1.5 MI. EAST OF HWY. NO. 2
KING'S HIGHWAY No. 405
CO. MCKENZIE
TYP. ANCHORAGE 1/2" DIA. 10' LONG
ABUTMENTS & FOOTING LAYOUT

APPROVED: [Signature]
DESIGN: A.T. CHECK: R.O.L.
DRAWING: V.V. CHECK: R.O.L.
DATE: JAN 1981

CONTRACT No. 4
CON. II
DRAWING No. D-5520-3

DEPARTMENT OF HIGHWAYS ONTARIO
BRIDGE DIVISION

FIDDER'S GREEN RD UNDERPASS

65 MI. EAST OF WYO. 2

KING'S HIGHWAY No. 40314 11550 DIST. No. 4

CO. WENTWORTH

TWP. JACANASH 43 LOT 42343 COM III

OVERSIZES ONLY

APPROVED 143969 W.P. No. 202-50

ISSUED 2-4 CHECK 100.00 CONTRACT

EXPIRING 6-30 CHECK 100.00 DRAWING No.

DATE JUNE 1965 LOADING 120-5.6

D-5520-4