

#

57-F-218C

W.P. [#] 714-56

Q.E.W.

SHOOKS HILL

5 YONGE STREET SOUTH

Avenue 5-3313

~~RESERVED PHONE DIAL \$10~~
~~NOTE FOR CREDIT \$1000~~
NO LONG DISTANCE CHARGE

BA 631

BOX 747 RICHMOND HILL

SOIL INVESTIGATIONS & TESTING LTD.

RICHMOND HILL, ONTARIO

E. H. WILSON
MANAGING DIRECTOR

August 9th 1957

Department of Highways,
280 Davenport Road,
Toronto, Ontario.

57F218^c

Attention: Mr. J. C. McAllister

Re: Soil Sampling and Diamond Drilling at Shook's
Hill, Bridge #2, Queen Elizabeth Way, W.P. 714-56

Dear Sir:

In accordance with your instructions we have completed the diamond drilling and soil sampling at the above noted site and the following data was obtained:

Holes #1, 3 and 4 were advanced to refusal of the split tube sampler at depths of 7'-3", 7'-6" and 8'-1".

The soils would be classed as silty sand and silty clay with little or no bearing value to an approximate depth of 7'.

Hole #2 was advanced to refusal of the chopping bit at 10' and then diamond drilled to a depth of 20'. Approximately 10' of overburden was encountered, followed by limestone and shale with clay.

Strength tests taken in this general area would indicate the limestone at 7000 to 8000 lbs. per square inch and the grey shale at 3000 to 3500 lbs. per square inch.

Attention is drawn to the clay seams which were encountered at Hole #2 and the large amount of water which was lost (5000 gals. in three quarters of an hour and 30,000 gals. in all) which constitutes a danger signal.

If any foundation of importance is contemplated we would recommend that the foundations be taken to parent rock and we also recommend that the geology of the area be reviewed.

All soil samples and diamond drilled cores will be stored for a period of six months.

Yours very truly,



E. H. Wilson

EHW/IW

SOIL INVESTIGATIONS AND TESTING LTD.

TEST BORINGS DATA SHEET

FILE NO.:

ORDER NO.: SI-57/26

CLIENT: DEPARTMENT OF HIGHWAYS

HOLE NO.: 1

NAME OF JOB: W.P. 714-56, SHOOK'S HILL, BRIDGE #2,

HOLE LOCATION: Refer to plot plan QUEEN ELIZABETH WAY

ELEVATION OF SURFACE: Refer to plot plan

FEET USED OF CASING.

FEET USED OF DRIVE PIPE.

DATE STARTED: July 30th 1957

DATE COMPLETED: July 30th 1957

DEPTH		CLASSIFICATION OF SOILS	No. of Blows Per Ft.	Sample Numbers Taken	REMARKS
From	To				
0'-0"	0'-6"	Sandy loam & gravel (Dry)			
0'-6"	1'	Fine grey sand & fine gravel (Dry)			
1'	2'	Drove 2" Split-tube sampler Medium fine grey sand & fine gravel (Dry)	17		
2'	3'	Drove 2" Split-tube sampler Loose fine to medium brown sand & fine gravel (Dry)	6		
3'	4'	Drove 2" Split-tube sampler	7		

HAMMERS:—(A) For Casing 350 lbs. with 24 inches—drop.....

(B) Sampling 140 lbs. with 30 inches—drop.....

WATER

LEVELS:—Depth of Hole.....Time.....Depth to Water.....

Depth of Hole.....Time.....Depth to Water.....

BORING STOPPED BY

DRILLER FOREMAN

J. McDonald

SOIL INVESTIGATIONS AND TESTING LTD.

FILE NO.

TEST BORINGS DATA SHEET

CONTINUATION

PAGE: 2

ORDER NO.: SI-57/26

HOLE NO.: 1 - W.P. 714-5
Bridge #2

DEPTH		CLASSIFICATION OF SOILS	No. of Blows Per Ft.	Sample Numbers Taken	REMARKS
From	To				
3'	4'	Loose fine to medium brown silty sand & fine to medium gravel (Moist)		1	
4'	5'	Drove 2" Split-tube sampler As sample #1	8		
5'	6'	Drove 2" Split-tube sampler Medium dense fine to coarse greyish brown silty sand & fine to coarse gravel (Moist)	28	2	
6'	7'	Drove 2" Split-tube sampler TOP 8": Very dense fine to coarse grey silty sand & fine gravel (Moist) BOTTOM 4": Hard greyish brown silty clay & small stones (Dry)	66	3	
7'	7'-3"	Drove 2" Split-tube sampler Lost sample	100 for 3"		REFUSAL OF SPLIT TUBE SAMPLER AT 7'-3" HOLE COMPLETED

HAMMERS:—(A) For Casing 350 lbs. with 24 inches—drop.....

(B) Sampling 140 lbs. with 30 inches—drop.....

WATER

LEVELS:—Depth of Hole.....Time.....Depth to Water.....

Depth of Hole.....Time.....Depth to Water.....

BORING STOPPED BY

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SOIL INVESTIGATIONS AND TESTING LTD.

TEST BORINGS DATA SHEET

FILE NO.:

ORDER NO.: S1-57/26

CLIENT: DEPARTMENT OF HIGHWAYS

HOLE NO.: 2

NAME OF JOB: W.P. 714-56, SHOOK'S HILL, BRIDGE #2, QUEEN ELIZABETH WAY

HOLE LOCATION: Refer to plot plan

ELEVATION OF SURFACE: Refer to plot plan

FEET USED.....OF.....CASING.

FEET USED.....OF.....DRIVE PIPE.

DATE STARTED: July 31st 1957

DATE COMPLETED: August 5th 1957

DEPTH		CLASSIFICATION OF SOILS	No. of Blows Per Ft.	Sample Numbers Taken	REMARKS
From	To				
0'-0"	0'-6"	Loose fine grey sand (Dry)			
0'-6"	1'	Grey silty clay (Dry)			
1'	2'	Drove 2" Split-tube sampler Stiff grey silty clay (Dry)	17		
2'	3'	Drove 2" Split-tube sampler Medium stiff grey silty clay & small stones (Dry)	10		
3'	4'	Drove 2" Split-tube sampler Medium stiff greyish brown silty clay & small stones (Dry)	10		

HAMMERS:—(A) For Casing 350 lbs. with 24 inches—drop.....

(B) Sampling 140 lbs. with 30 inches—drop.....

WATER

LEVELS:—Depth of Hole.....Time.....Depth to Water.....

Depth of Hole.....Time.....Depth to Water.....

BORING STOPPED BY

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TEST BORINGS DATA SHEET

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PAGE: 2

ORDER NO.: SI-57/26
HOLE NO.: 2 - W.P. 714-56
Bridge #2

DEPTH		CLASSIFICATION OF SOILS	No. of Blows Per Ft.	Sample Numbers Taken	REMARKS
From	To				
4'	5'	Drove 2" Split-tube sampler	83		
		Hard greyish brown silty clay			
		& small stones (Moist)			
5'	6'	Drove 2" Split-tube sampler	30		
		Dense fine to medium brown		1	
		silty sand (Very Moist)			
6'	7'	Drove 2" Split-tube sampler	34		
		Hard greyish brown silty clay.		2	
		a few small stones (Moist)			
7'	7'-6"	Drove 2" Split-tube sampler	20 for 6"		- SMALL STONES PUSHING TUBE ON ANGLE. PULLED SPLIT TUBE & DROVE CHOPPING BIT
7'-6"	8'-6"	Drove Cross chopping bit	40		
8'-6"	9'-6"	" " " "	48		
9'-6"	10'	" " " "	90 for 6"		REFUSAL OF CHOPPING BIT AT 10'
0'-0"	10'	Diamond drilled BX casing			

HAMMERS:—(A) For Casing 350 lbs. with 24 inches—drop

(B) Sampling 140 lbs. with 30 inches—drop

WATER

LEVELS:—Depth of Hole Time Depth to Water

Depth of Hole Time Depth to Water

BORING STOPPED BY

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FILE NO.

TEST BORINGS DATA SHEET

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ORDER NO.: 91-57/26

HOLE NO.: 2 - W.P. 714-56
Bridge #2

DEPTH		CLASSIFICATION OF SOILS	No. of Blows Per Ft.	Sample Numbers Taken	REMARKS
From	To				
10'	10'-4"	Diamond drilled AX core barrel. Brown silty clay			STARTED DIAMOND DRILLING AX CORE BARREL AT 10'-4". LOST WATER AT 10'-6". DIAMOND DRILLED BX CASING (DRY) TO 12'
10'-4"	13'	Grey silty clay with seams of shale			
13'	16'	Diamond drilled AX core barrel. (1'-3" recovery) TOP 5": Limestone BOTTOM 10": Shale & clay			LOST WATER AT 16'. DIAMOND DRILLED BX CASING (DRY) FROM 12' TO 15'
16'	18'	Diamond drilled AX core barrel (15" recovery)			
16'	17'	Limestone			
17'	18'	Shale & clay			LOST WATER AT 10' LEVEL
18'	20'	Diamond drilled AX core barrel (1'-4" recovery) Limestone with clay seams			
					HOLE COMPLETED

HAMMERS:—(A) For Casing 350 lbs. with 24 inches—drop.....

(B) Sampling 140 lbs. with 30 inches—drop.....

WATER LEVELS:—Depth of Hole.....Time.....Depth to Water.....

Depth of Hole.....Time.....Depth to Water.....

BORING STOPPED BY

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SOIL INVESTIGATIONS AND TESTING LTD.

TEST BORINGS DATA SHEET

FILE NO.:

ORDER NO.: S1-57/2

CLIENT: DEPARTMENT OF HIGHWAYS

HOLE NO.: 3

NAME OF JOB: W.P. 714-56, SHOOK'S HILL, BRIDGE #2, QUEEN ELIZABETH WAY

HOLE LOCATION: Refer to plot plan

ELEVATION OF SURFACE: Refer to plot plan

FEET USED.....OF.....CASING.

FEET USED.....OF.....DRIVE PIPE.

DATE STARTED: July 31st 1957

DATE COMPLETED: July 31st 1957

DEPTH		CLASSIFICATION OF SOILS	No. of Blows Per Ft.	Sample Numbers Taken	REMARKS
From	To				
0'-0"	1'	Black sandy loam (Moist)			
1'	2'	Drove 2" Split-tube sampler	7		
		Loose fine brown silty sand		1	
		(Moist)			
2'	3'	Drove 2" Split-tube sampler	6		
3'	4'	" " " " "	7		
2'	4'	As sample #1			
4'	5'	Drove 2" Split-tube sampler	7		
		Loose fine to coarse brown			
		silty sand (Moist)			

HAMMERS:—(A) For Casing350.....lbs. with.....24.....inches—drop.....

(B) Sampling.....140.....lbs. with.....30.....inches—drop.....

WATER

LEVELS:—Depth of Hole.....Time.....Depth to Water.....

Depth of Hole.....Time.....Depth to Water.....

BORING STOPPED BY

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HOLE NO.: 3 - W.P. 714-56
Bridge #2

J. McDonald

SOIL INVESTIGATIONS AND TESTING LTD.

TEST BORINGS DATA SHEET

FILE NO.:

ORDER NO. SI-57/4

CLIENT: DEPARTMENT OF HIGHWAYS

HOLE NO.: 4

NAME OF JOB: W.P. 714-56, SHOOK'S HILL, BRIDGE #2, QUEEN ELIZABETH WAY

HOLE LOCATION: Refer to plot plan

ELEVATION OF SURFACE: Refer to plot plan

FEET USED.....OF.....CASING.

FEET USED.....OF.....DRIVE PIPE

DATE STARTED: July 31st 1957

DATE COMPLETED: July 31st 1957

DEPTH		CLASSIFICATION OF SOILS	No. of Blows Per Ft.	Sample Numbers Taken	REMARKS
From	To				
0'-0"	1'	Loose fine grey sand & small stones (Dry)			
1'	2'	Drove 2" Split-tube sampler Stiff brown silty clay (Moist)	15		
2'	3'	Drove 2" Split-tube sampler Medium stiff greyish brown silty clay, a few small stones (Moist)	10	1	

HAMMERS:—(A) For Casing 350 lbs. with 24 inches—drop.....

(B) Sampling 140 lbs. with 30 inches—drop.....

WATER

LEVELS:—Depth of Hole.....Time.....Depth to Water.....

Depth of Hole.....Time.....Depth to Water.....

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FILE NO.

TEST BORINGS DATA SHEET

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PAGE: 2

ORDER NO.: SI-57/26

HOLE NO.: 4 - W.P. 714-5
Bridge #2

DEPTH		CLASSIFICATION OF SOILS	No. of Blows Per Ft.	Sample Numbers Taken	REMARKS
From	To				
3'	4'	Drove 2" Split-tube sampler	8		
		Loose fine to coarse brown silty sand (Moist)			
4'	5'	Drove 2" Split-tube sampler	6		
		Loose black sandy loam (Moist)		2	
5'	6'	Drove 2" Split-tube sampler	5		
		Loose fine brown silty sand (Moist)			
6'	7'	Drove 2" Split-tube sampler	6		
		Loose fine brown silty sand (Moist)		3	
7'	7'-6"	Drove 2" Split-tube sampler	100 for 6"		REFUSAL OF SPLIT TUBE SAMPLER AT 7'-6"
		Grey shale		4	

HOLE COMPLETED

HAMMERS:—(A) For Casing 350 lbs. with 24 inches—drop.....

(B) Sampling 140 lbs. with 30 inches—drop.....

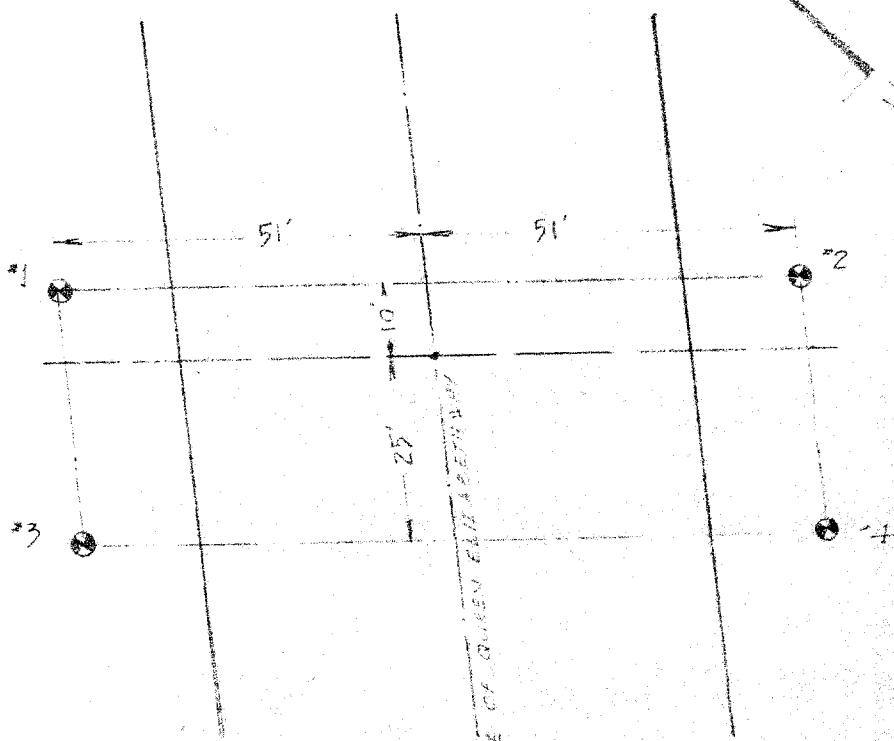
WATER LEVELS:—Depth of Hole.....Time.....Depth to Water.....

Depth of Hole.....Time.....Depth to Water.....

BORING STOPPED BY

DRILLER FOREMAN

J. McDonald



⊗ BOREHOLE LOCATION

BRIDGE NO. 2 AT
SHOOKS HILL
W.R. 714-56

PLAN E-3246-1

SOIL INVESTIGATIONS & TESTING LTD.
RICHMONDHILL, ONT.

SOIL INVESTIGATIONS & TESTING LTD.

E. H. WILSON
GENERAL MANAGER

Job Name W.P. 714-56, SHOOK'S HILL, BRIDGE #2, QUEEN ELIZABETH WAY

Order No. S1-57/26

Client DEPARTMENT OF HIGHWAYS

Borehole No. 1 Diameter 2½"

Date July 30th 1957

Borehole Location Refer to plot plan

Elevation Refer to plot plan

Description	Legend	SAMPLE	Depth	Thickness	Split Tube Blows	Depth To Water Below Ground Level
Sandy loam & gravel (Dry)			0'-0"	0'-6"		140 lb. Hammer 30" Drop
Fine grey sand & fine gravel (Dry)			0'-6"	0'-6"		
Medium fine grey sand & fine gravel (Dry)			1'-0"	0'-6"		
			2'-0"	1'-0"	17	
Loose fine to medium brown sand & fine gravel (Dry)			3'-0"	1'-0"	6	
Loose fine to medium brown silty sand & fine to medium gravel (Moist)		1	4'-0"	1'-0"	7	
As sample #1			5'-0"	1'-0"	8	
Medium dense fine to coarse greyish brown silty sand & fine to coarse gravel (Moist)		2	6'-0"	1'-0"	28	
TOP 8": Very dense fine to coarse grey silty sand & fine gravel (Moist)		3	7'-0"	1'-0"	66	
BOTTOM 4": Hard greyish brown silty clay & small stones (Dry)			7'-3"	0'-3"	100	LOST SAMPLE FROM 7' to 7'-3"

REFUSAL OF SPLIT TUBE SAMPLER AT 7'-3"

HOLE COMPLETED

SOIL INVESTIGATIONS & TESTING LTD.

E. H. WILSON
GENERAL MANAGER

Job Name W.P. 714-56, SHOOK'S HILL, BRIDGE #2, QUEEN ELIZABETH WAY

Order No. SI-57/26

Client DEPARTMENT OF HIGHWAYS

Borehole No. 2 Diameter 2½"

Date July 31st - August 5th 1957

Borehole Location Refer to plot plan

Elevation Refer to plot plan

Description	Legend	SAMPLE	Depth	Thickness	Split Tube Blows	Depth To Water Below Ground Level
Loose fine grey sand (Dry)			0'-0"	0'-6"		140 lb. Hammer 30" Drop
Grey silty clay (Dry)			0'-6"	0'-6"		
Stiff grey silty clay (Dry)			1'-0"	1'-0"	17	
Medium stiff grey silty clay & small stones (Dry)			2'-0"	1'-0"	10	
Medium stiff greyish brown silty clay & small stones (Dry)			3'-0"	1'-0"	10	
Hard greyish brown silty clay & small stones (Moist)			4'-0"	1'-0"	83	
Dense fine to medium brown silty sand (Very Moist)		1	5'-0"	1'-0"	30	
Hard greyish brown silty clay, a few small stones (Moist)		2	6'-0"	1'-0"	34	
Small stones pushing tube on angle. Pulled split tube & drove chopping bit			7'-0"	0'-6"	20	
			7'-6"	1'-0"	40	
" " " "			8'-6"	1'-0"	48	
" " " "			9'-6"	0'-6"	90	REFUSAL OF CROSS CHOPPING BIT AT 10'
Diamond drilled AX core barrel. Brown silty clay			10'-0"	0'-4"		DIAMOND DRILLED BX CASING FROM SURFACE TO 10'
Diamond drilled - Grey silty clay with seams of shale			10'-4"	2'-8"		STARTED DIAMOND DRILLING AX CORE BARREL AT 10'-4". LOST WATER @ 10'-6"
Diamond drilled AX core barrel. (1'-3" recovery) TOP 5": Limestone BOTTOM 10": Shale & clay			13'-0"	3'-0"		DIAMOND DRILLED BX CASING (DRY) TO 12' LOST WATER AT 16'
			16'-0"			DIAMOND DRILLED BX CASING (DRY) FROM 12' TO 15'

CONTINUED

Scale 1" = 2'-0"

● Disturbed Sample ■ Undisturbed Sample

⊥ Water Sample

LONG DISTANCE CHARGES ACCEPTED

SOIL INVESTIGATIONS & TESTING LTD.

E. H. WILSON
GENERAL MANAGER

Job Name W.P. 714-56, BRIDGE #2

Order No.

Client

CONTINUED

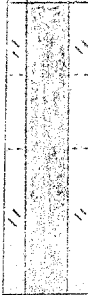

Borehole No. 2

Diameter

Date

Borehole Location

Elevation

Description	Legend	SAMPLE	Depth	Thickness	Split Tube Blows	Depth To Water Below Ground Level
" PAGE 2 "			16'-0"			140 lb. Hammer 30" Drop
Diamond drilled AX core barrel. (15" recovery) Limestone from 16' to 17'. Shale & clay from 17' to 18'.				2'-0"		
			18'-0"			
Diamond drilled AX core barrel. (1'-4" recovery) Limestone with clay seams				2'-0"		
			20'-0"			LOST WATER AT 10' LEVEL
HOLE COMPLETED						

Scale 1" = 2'-0"

● Disturbed Sample ■ Undisturbed Sample

┘ Water Sample

SOIL INVESTIGATIONS & TESTING LTD.

E. H. WILSON
GENERAL MANAGER

Job Name W.P. 714-56, SHOOK'S HILL, BRIDGE #2, QUEEN ELIZABETH WAY

Order No. SI-57/26

Client DEPARTMENT OF HIGHWAYS

Borehole No. 3 Diameter 2½"

Date July 31st 1957

Borehole Location Refer to plot plan

Elevation Refer to plot plan

Description	Legend	SAMPLE	Depth	Thickness	Split Tube Blows	Depth To Water Below Ground Level
Black sandy loam (Moist)			0'-0"	1'-0"		140 lb. Hammer 30" Drop
Loose fine brown silty sand (Moist)		1	1'-0"	1'-0"	7	
As sample #1			2'-0"	1'-0"	6	
" " "			3'-0"	1'-0"	7	
			4'-0"	1'-0"	7	
Loose fine to coarse brown silty sand (Moist)			5'-0"	1'-0"	7	
Dense fine to coarse brown silty sand (Moist)			6'-0"	1'-0"	30	
Stiff brown silty clay (Moist)		2	7'-0"	1'-0"	18	
Hard brown silty clay & pieces of shale (Dry)		3	8'-0"	1'-0"	101	
REFUSAL OF SPLIT TUBE SAMPLER AT 8'-1"			8'-1"	0'-1"	100	
HOLE COMPLETED						

Scale 1" = 2'-0"

● Disturbed Sample ■ Undisturbed Sample

┘ Water Sample

SOIL INVESTIGATIONS & TESTING LTD.

E. H. WILSON
GENERAL MANAGER

Job Name W.P. 714-56, SHOOK'S HILL, BRIDGE #2, QUEEN ELIZABETH WAY

Order No. SI-57/26

Client DEPARTMENT OF HIGHWAYS

Borehole No. 4

Diameter 2½"

Date July 31st 1957

Borehole Location Refer to plot plan

Elevation Refer to plot plan

Description	Legend	SAMPLE	Depth	Thickness	Split Tube Blows	Depth To Water Below Ground Level
Loose fine grey sand & small stones (Dry)			0'-0"	1'-0"		140 lb. Hammer 30" Drop
Stiff brown silty clay (Moist)			1'-0"	1'-0"	15	
Medium stiff greyish brown silty clay, a few small stones (Moist)		1	2'-0"	1'-0"	10	
Loose fine to coarse brown silty sand (Moist)			3'-0"	1'-0"	8	
Loose black sandy loam (Moist)		2	4'-0"	1'-0"	6	
Loose fine brown silty sand (Moist)			5'-0"	1'-0"	5	
As above		3	6'-0"	1'-0"	6	
Grey shale		4	7'-0"	0'-6"	100	
REFUSAL OF SPLIT TUBE SAMPLER AT 7'-6"			7'-6"			
HOLE COMPLETED						

Scale 1" = 2'-0"

● Disturbed Sample ■ Undisturbed Sample

┘ Water Sample