Mr. A. Foye, Bridge Engineer.

August 3rd 1938

Re: Foundation Investigation

Highways Laboratory, Toronto.

St. Andrews St. & Hwy. 401 Cornwall.

Please find herewith two copies of the report on the investigation of the above site.

The subsoil consists of a sandy till material with varying degrees of stoniness and is suitable for spread footings despite a high water table.

F.C. Brownridge,
Materials and Research Engineer.

Per:

M.M.D.

(M.M. Davis)

MMD:fh

Attch: (2).

c.c. to -

Mr. A. Foye,
Mr. J. Walter,
Design Engineer,

Mr. J.B. Wilkes,
Div. Engr., Ottawa.

Mr. G. Fraser.

A. Thirley - S.C.R. - 3rd

65 F-13

Preliminary Bridge Site Investigation

Highway 401 St. Andrews Road - Cornwall.

Station 389+00 Line 'C' Profile 401-J-27

Location 2½ miles north Hwy.2 at Cornwall.

Introduction

Preliminary holes were drilled through the known till in this area to ascertain an accurate profile of the upper soil layers.

Soil Profile

Approximately 18" of topsoil and 'B' horizon brown sandy loam overlies a brown sandy loam till which is both moist and very stoney.

The above is underlain by a blue gray very fine sandy loam till which is also wet and stoney.

In one bore hole a saturated layer of brown sand and silt was observed at 6'0" below original ground level.

Four holes showed water entering at various depth but in apparently large quantities at 14'0".

Remarks

The water condition at this site may be a result of a natural east - west ground water drainage from the height of land on the east to the South Raisin river on the west. There is little doubt that the till to a depth of 15'0" would carry spread footing adequately, but as this is a overpass on 401 the size of the embankment - namely some 120' in width - requires subsoil investigation to a greater depth than is possible with the ordinary auger equipment. Also the properties of the lower soil stratas may be adversely affected by the water condition found by this preliminary investigation.

Recommendation

Normal core drill exploration to be carried out.

A. Thurley.

10/5/55.

cc: Mr. G. Farantatos.

Hole #1 1' E. Front Face Northwest Corner.

0-12" Black sandy loam topsoil
12"-20" Dark brown sandy loam - "B"
20"-44" Brown very fine sandy loam - Loam till (Very stony) Moist

Hole #2

0-12" Black sandy loam topsoil
12"-20" Dark brown sandy loam "B"
20"-4' Brown very fine sandy loam - Loam till (Very stony) Moist N.F.P.

Hole #3 1' S. & 401- Front Face West Side

0-14" Black sandy loam topsoil
14"-24" Dark brown sandy loam "B"
24"-7' Brown very fine sandy loam - Loam till (Very Stony) Moist N.F.P.

Hole #4 8' S. & 401 - Front Face West Side.

0-12" Black sandy loam topsoil
12"-17" Dark brown sandy loam "B"
17"-9½' Brown very fine sandy loam - Loam till, Moist (Very stony) H.M. 7'-8' 55-Z-101
9½'-15' Blue grey very fine sandy loam - Loam till (Very stony-) H.M. 10'-11' 55-Z-102
Water Enter 14' Moist) M. 12'-13' 55-Z-103

Hole #5 1' W. Front Face Southwest Corner.

0-11" Black sandy loam topsoil
11"-21" Dark brown sandy loam - "B"
21"-6' Brown very fine sandy loam - Loam till (Very Stony) Moist. N.F.P.

Hole #6 9' S. 1' W. Front Face Southwest Corner.

0-12" Black sandy loam topsoil
12"-22" Dark Brown sandy loam "B"
22"-6' Brown very fine sandy loam - Loam till (Very Stony) Moist. N.F.P.

Hole #7 5' S. 1' W. Front Face Southwest Corner.

0-10" Black sandy loam topsoil
10"-22" Dark brown sandy loam - "B"
22"-6' Brown very fine sandy loam - Loam till (Very Stony) Moist. N.F.P.

Hole #8 1' W. 6' N. Front Face Southwest Corner

0-10" Black sandy loam topsoil
10"-18" Dark brown sandy loam - "B"
18"-10' Brown very fine sandy loam - Loam till (Very stony) Moist - Wet
10'-11' Blue grey very fine sandy loam - Loam till (Very Stony) Wet.
11'-12½' Brown very fine sandy loam - Very fine sandy & silty (Sat.) (Stony) Water enter 11'
12½'-15' Blue grey very fine sandy loam - Loam till (Stony) Wet.

Hole #9 1' W. Front Face Southeast Corner.

0-7" Black sandy loam topsoil
7"-14" Dark brown sandy loam "B"
14"-6' Brown very fine sandy loam - Loam till (Stony) Moist - Wet)
6'-15' Brown very fine sandy loam - Very fine sand & silty (Wet-Sat) Water enter 14' H.M. 10'-11' 55-Z-104

Hole #10 1' S. & 401 Front Face East Side.

0-4" Black sandy loam topsoil
4"-13" Dark brown sandy loam "B"
13"-9' Brown very fine sandy loam - Loam till (Very stony) Moist
9'-10½' Blue grey very fine sandy loam - Loam till (Stony) Moist - Wet
10½'-12' Brown very fine sandy loam - Loam till (Very stony) Moist - Wet. N.F.P.

Hole #11 1' W. Front Face Northeast Corner

0-5" Black sandy loam topsoil
5"-14" Dark brown sandy loam "B"
14"-4' Brown very fine sandy loam - Loam till (Very stony) Moist. N.F.P.

Hole #12 6' N. 4' W. Front Face Northeast Corner.

0-12" Black sandy loam topsoil
12"-23" Dark brown sandy loam "B"
23"-8' Brown very fine sandy loam - Loam till (Very stony) Moist - Wet
8'-15' Blue grey very fine sandy loam - Loam till (Very stony) Wet.

Hole #13 1' E. 5' N. Front Face Northwest Corner.

0-12" Black sandy loam topsoil
12"-23" Dark brown sandy loam "B"
23"-7½' Brown very fine sandy loam - Loam till (Very stoney) Moist. N.F.P.

Hole #14 3' N. 1' W. Front Face Northwest Corner.

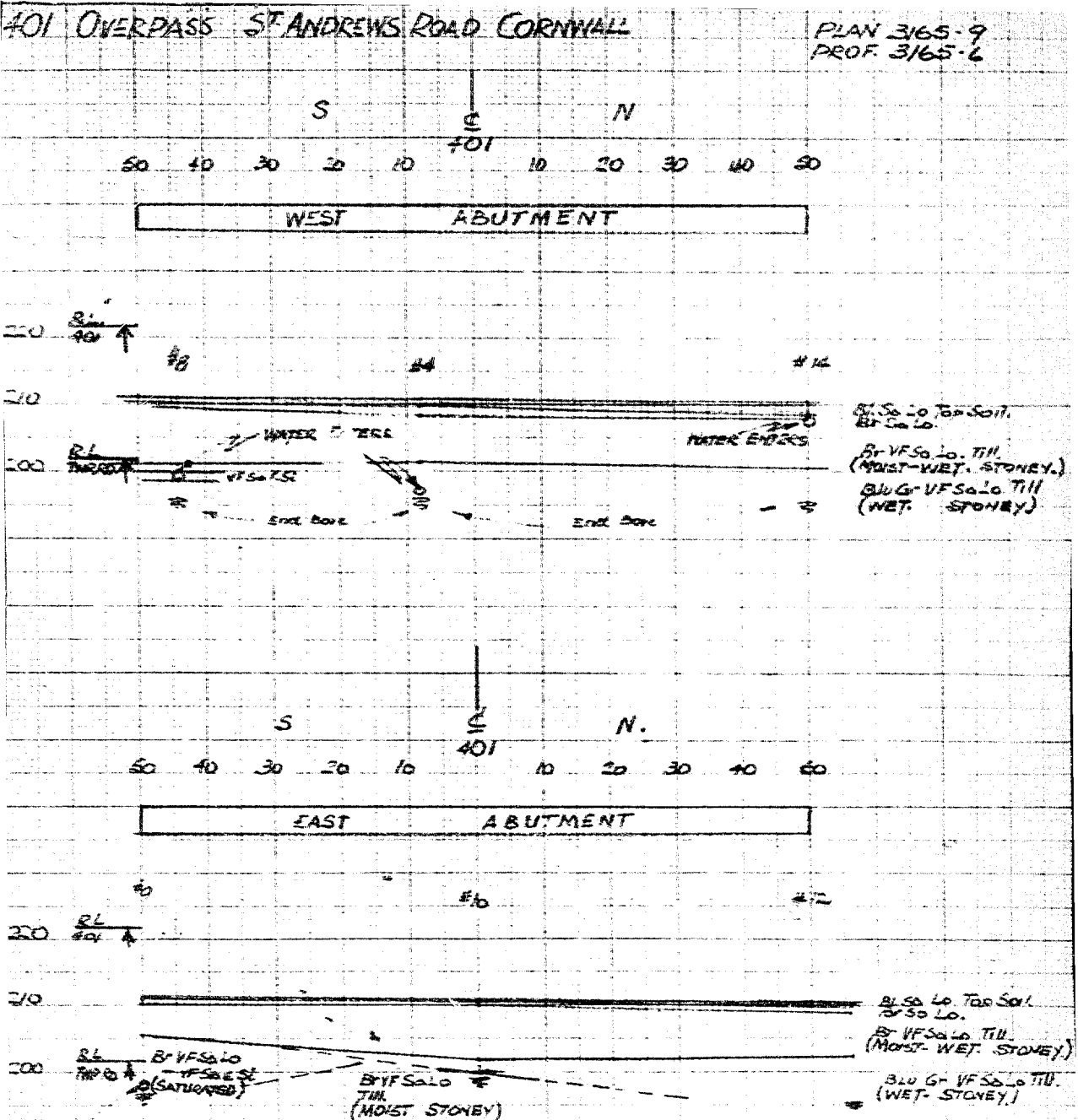
0-14" Black sandy loam topsoil
14"-25" Dark brown sandy loam "B" Horizon.
25"-5' Brown very fine sandy loam - Loam till (Very stony - Moist) N.F.P.

Hole #15 6' W. Front Face Northwest Corner.

0-25" Black sandy loam topsoil
25"-28" Dark brown sandy loam "B" Some water enter 28"
28"-10' Brown very fine sandy loam - Loam till (Very stony - Moist)
10'-15' Blue grey very fine sandy loam - Loam till (Very stony - Moist - Wet).

401 OVERPASS ST ANDREWS ROAD CORNWALL

PLAN 3165-9
PROF. 3165-6



A THORLEY 10/5/55

Report on
Foundation Investigation
of St. Andrews Road
and Highway 401
at Cornwall

Copies to: Mr. A. Toye
Bridge Engineer (2)

Mr. J. Walter
Design Engineer (1)

Mr. J. B. Wilkes
Div. Eng., Ottawa (1)

Mr. G. Parantatos (1)

File (1)

Project F-55-13

INDEX

Introduction

The following report is concerned with the foundations for the proposed Highway #401 overpass at St. Andrews Road, Cornwall. The subsurface conditions have been explored in order to decide upon the type of foundation, bearing pressure and formation level.

Procedure

Three borings were put down at the positions shown on the attached plan 55-F-13A commencing May 7 and finishing June 9. The stony nature of the strata prevented a preliminary dynamic cone test, and in one case recourse was made to diamond drilling to begin the hole.

Soil Conditions

Sandy till was found for the entire depth of each borehole. In holes 1 and 2 this material was very stony in the upper and lower layers, with a less stony stratum sandwiched between.

In borehole 5 very stony sandy till was encountered throughout the entire depth of 33.0 feet.

Water Conditions

Ground water was encountered in boreholes 1 and 5 showing the water table to be between $4\frac{1}{2}$ and $7\frac{1}{2}$ feet below ground level.

Analysis of Results and Recommendations

The standard penetration tests showed that the penetration resistance of the softest strata was fifty blows per foot, and greater.

The stony layer, where the penetration test was impractical, must have a higher internal friction than the layers of fine sand underlying, so that fifty blows per foot is a reliable minimum penetration resistance.

For the condition that the settlement should not be greater than one inch, recourse has been made to Terzaghi's studies graph. This shows that for a saturated condition, a bearing value of 2½ tons per square foot is permissible. However, using Meyerhoff's proposed equations, the safe bearing capacity, independent of settlement considerations, was found to be 15 tons per square foot. The maximum permissible value, according to the National Building Code of Canada, is 5 tons per square foot.

Recommendations

It is therefore recommended that for a rigid frame type of structure, a spread footing is satisfactory, using a bearing value of 2½ tons per square foot. This bearing value can be increased to 5 tons per square foot for a simply supported structure.

Conclusion

The subsoil is suitable for a spread footing.

For a rigid frame structure, a bearing value of 2½ tons may be used; for a simply supported structure, a bearing value of 5 tons per square foot is permissible.

F. C. Brownridge
Materials and Research Engineer

Per:

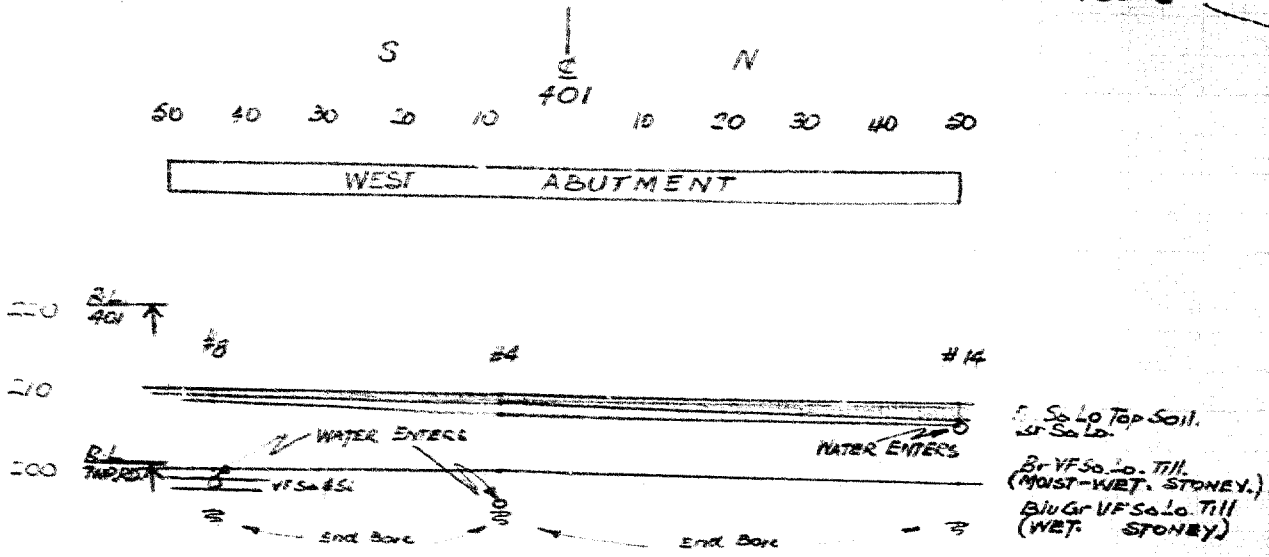
(G. Fatantatos)

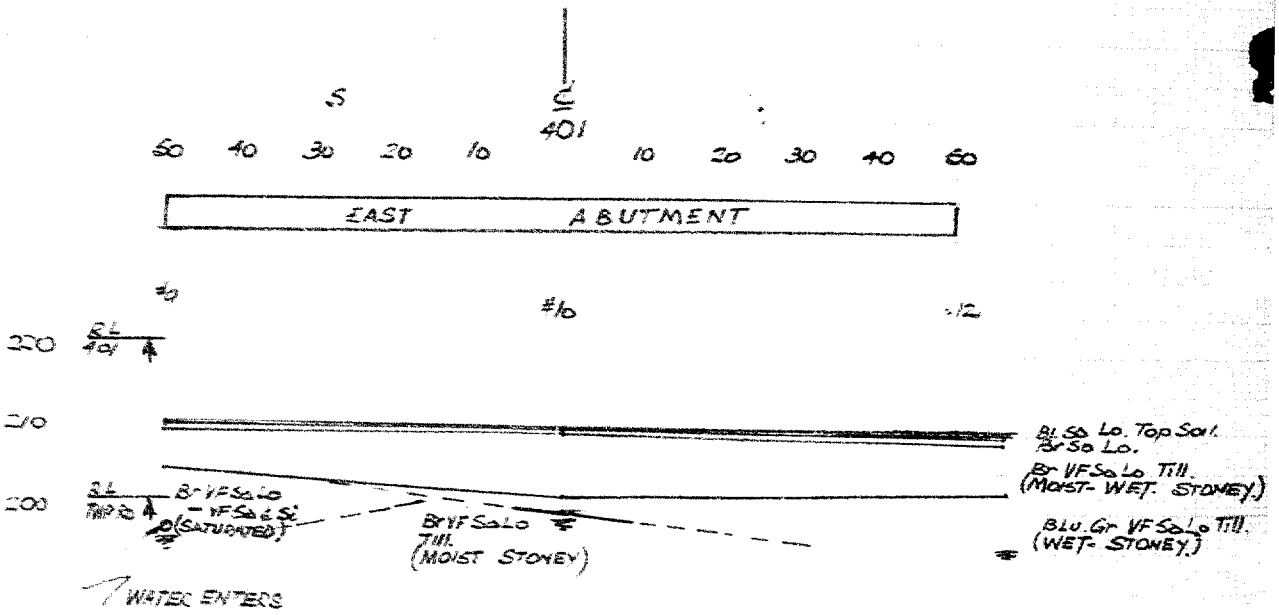
GF:GGP

APPENDIX I

401 OVERPASS ST ANDREWS ROAD CORNWALL

PLAN 3165-9
PROF 3165-6





A THORLEY 10/6/55

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PAGE NO 1 OF 3
TWP. CORNWALL

DATE APRIL 25/73

HOLE #1 1'E FRONT FACE N.W. CORNER

0-12" BR SA LO TPSL
12"-20" DK BR SA LO "B"
20"-44' BR VF SA LO - LO TILL (VERY STONY) MOIST
N.F.P.

HOLE #2 1'E S'S FRONT FACE N.W. CORNER

0-12" BR SA LO TPSL
12"-20" DK BR SA LO "B"
20"-4' BR VF SA LO - LO TILL (VERY STONY) MOIST
N.F.P.

HOLE #3 1'S & 40L - FRONT FACE WEST SIDE

0-14" BR SA LO TPSL
14"-24" DK BR SA LO "B"
24"-7' BR VF SA LO - LO TILL (VERY STONY) MOIST
N.F.P.

HOLE #4 1'S & 40L - FRONT FACE WEST SIDE

0-12" DK SA LO TPSL
12"-17" DK BR SA LO "B"
17"-9½' BR VF SA LO - LO TILL MOIST (VERY STONY) H.H 7'-8' 55 z 101
9½-15' BLU GR VF SA LO - LO TILL (V. STONY HARD) B.H 10'-11' 55 z 102
WATER ENTER 14' H 12'-13' 55 z 103

HOLE #5 1'W FRONT FACE S.W. CORNER

0-11" BR SA LO TPSL
11"-21" DK BR SA LO "B"
21"-6' BR VF SA LO - LO TILL (V. STONY) MOIST
N.F.P.

HOLE #6 0'S 1'W FRONT FACE S.W. CORNER.

0-12 BR SA LO TPSL
12"-22" DK BR SA LO "B"
22"-6' BR VF SA LO - LO TILL (V. STONY) MOIST
N.F.P.

HOLE #7 0'S 0'W FRONT FACE S.W. CORNER.

0-10 BR SA LO TPSL
10"-22 DK BR SA LO "B"
22"-6' BR VF SA LO - LO TILL (V. STONY) MOIST
N.F.P.

HWY. NO. 401 LOCATION 401 & ST. ANDREWS RD (CORNWALL) ENGINEER J. BRODIE

TL-90
PAGE NO. 2 OF 3
TWP. CORNWALL

DATE APRIL 25/55

HOLE #8 1'W/6 N FRONT FACE S W CORNER

0-10" BL SA LO TPSL
10"-18" DK BR SA LO B
18"-10' BR VF SA LO - LO TILL (V STONY) MOIST-WET
10' - 11' BL GR VF SA LO - LO TILL (V STONY) WET
11' - 12½ BR VF SA LO - VF SA & SI (SAT) (STONY) WATER ENTER 11'
12½ - 15' BL GR VF SA LO - LO TILL (STONY) WET

HOLE #9 1'W FRONT FACE - S.E. CORNER

0-7 BL SA LO TPSL
7-14 DK BR SA LO B
14"-6' BR VF SA LO - LO TILL (STONY) MOIST-WET
6'-15' BR VF SA LO - VF SA & SI (WET-SAT) WATER ENTER 14' [illegible]

HOLE #10 1'S & 4'E FRONT FACE EAST SIDE

0-4" BL SA LO TPSL
4"-13" DK BR SA LO B
13"-9' BR VF SA LO - LO TILL (V STONY) MOIST
9'-10½ BL GR VF SA LO - LO TILL (STONY) MOIST-WET
10½-12 BR VF SA LO - LO TILL (V STONY) MOIST-WET
N F P

HOLE #11 1'W FRONT FACE N E CORNER

0-5" BL SA LO TPSL
5"-14" DK BR SA LO B
14"-4 BR VF SA LO - LO TILL (V STONY) MOIST
N F P

HOLE #12 6'N & 4'W FRONT FACE N E CORNER

0-12" BL SA LO TPSL
12"-23" DK BR SA LO B
23"-9' BR VF SA LO - LO TILL (V STONY) MOIST-WET
9'-15' BL GR VF SA LO - LO TILL (V STONY) WET

HOLE #13 1'E & 5'N FRONT FACE NW CORNER

0-12" BL SA LO TPSL
12"-23" DK BR SA LO B
23"-7½' BR VF SA LO - LO TILL (V STONY) MOIST
N F P

HWY. NO. 401 LOCATION 401 & [illegible] (CORNWALL) ENGINEER J. BRODIE

TL-90
PAGE NO. 3 OF 3
TWP. CORNWALL

DATE APRIL 25/55

HOLE #14 3 N [illegible] W FRONT FACE N.W. CORNER

0 - 14" [illegible] TOPSOIL
14" - 25" [illegible]
25" - 5' BR. V.F. SAND [illegible] TILL (V. STONY - MOIST)

N.F.P.

HOLE #[illegible] 6 W FRONT FACE N.W. CORNER

0 - 25" BL. SAND TOPSOIL
25" - 28" [illegible] SOME WATER ENTER 28"
28" - 10' BR. V.F. SAND - LOAM TILL (V. STONY - MOIST)
10' - 15' BR. GRAVEL SAND - LOAM TILL (V. STONY - MOIST - WET)

HWY. NO. 401 LOCATION 401 & ST. ANDREWS RD. (CORNWALL) ENGINEER J. BRODIE

#55-F-13
Hwy. #401 &
St. Andrews Rd.
Cornwall

TL 139
54-90

MATERIALS LABORATORY - DEPARTMENT OF HIGHWAYS - ONTARIO

OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG Core Drill #1 — JOB 55-F-9 Cornwall — BORING No 1
CASING BX (STANDARD SAMPLERS TO FIT UNLESS NOTED) — DATUM Sta. 339+14 Rt 50 at 116°75' — DATE REPORT
SAMPLER HAMMER WT 250 # — DROP — INCHES — COMPILED BY B.H. — CHECKED BY — BORING DATE May 27th to 28th 1955

SAMPLE CONDITION
DISTURBED
GOOD
LOST

SAMPLE TYPES
C.S - CHUNK
D.O - DRIVE OPEN
D.F - DRIVE FOOT VALVE
T.O - THIN WALLED OPEN
W.S - WASHED SAMPLE
R.C - ROCK CORE

ABBREVIATIONS
V - INSITU VANE SHEAR TEST
M - MECHANICAL ANALYSIS
U - UNCONFINED COMPRESSION
Qc - TRIAXIAL CONSOLIDATED QUICK
Q - TRIAXIAL QUICK
S - TRIAXIAL SLOW
γ - UNIT WEIGHT
K - PERMEABILITY
C - CONSOLIDATION
CA. - CASING
W.L - WATER LEVEL IN CASING
W.T - WATER TABLE IN SOIL

SOIL PROFILE: ELEV. DEPTH	WATER CONDITIONS	DESCRIPTION	STRAT PLOT	ELEVATION SCALE	SHEAR STRENGTH TONS/SQ.FT. or $Q_u/2$ — PENETRATION TEST RESISTANCE BLOWS PER FOOT (50 / 100 / 150 / 200)	WATER CONTENT W% — □ P.W. △ L.W.	SAMPLES: OTHER TESTS	CONDITION	TYPE	No	PENETRATION RESISTANCE	ELEV. RECOV.
211.0				0	STD ENERGY = 4200 lb in							% = 211.0
208.0 / 3.0		SANDY TOPSOIL			Q STD PENETRATION TEST. Note: LARGE STONES PREVENTED THE TAKING OF A CONE PENETRATION TEST.						No OF BLOWS AT STD ENERGY = 4200 lb/in	
206.5 / 4.5	V	MAY 30TH		4					R.C (BX)	1		
		SANDY TILL (VERY STONY)		8								Broken BX Rock Core from Boulders in this section was recovered when the casing was pulled back & the contents dumped. 201.0
198.0 / 13.0				12								197.0
		SANDY TILL (SLIGHTLY STONY)		16				W.S	2			196.0
							γ=145 #/ft³	D.O.	3	6d		55
				20				W.S	4			192.5
				24				W.S	4			191.0 / 33
								D.O.	5	113		186.0 / 72
181.0 / 30.0				28			γ=136 #/ft³	D.O.	6	60		
		SANDY TILL (VERY STONY)		32				D.O.	7	50-½"		181.0 / 0
				36								
				40				D.O.	8	151		172.0 / 16
				44								
				48	LIMIT OF BX CASING AT 48.0							163.0
									RC 9			Broken AX Rock Core from Boulders in this Section
157.0 / 54.0				52	LIMIT OF AX CORE BARREL AT 54.0							157.0
				56								
				60								

TL 139
54-90

MATERIALS LABORATORY - DEPARTMENT OF HIGHWAYS - ONTARIO

OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG Core Drill #1 — JOB 55-F-13 Cornwall — BORING No 2
CASING BX (STANDARD SAMPLERS TO FIT UNLESS NOTED) — DATUM Sta. 339+14 Rt 50 at 63°25' — DATE REPORT
SAMPLER HAMMER WT 250 # — DROP — INCHES — COMPILED BY B.H. — CHECKED BY — BORING DATE May 31st, June 1st 1955

SAMPLE CONDITION
DISTURBED
GOOD
LOST

SAMPLE TYPES
C.S - CHUNK
D.O - DRIVE OPEN
D.F - DRIVE FOOT VALVE
T.O - THIN WALLED OPEN
W.S - WASHED SAMPLE
R.C - ROCK CORE

ABBREVIATIONS
V - INSITU VANE SHEAR TEST
M - MECHANICAL ANALYSIS
U - UNCONFINED COMPRESSION
Qc - TRIAXIAL CONSOLIDATED QUICK
Q - TRIAXIAL QUICK
S - TRIAXIAL SLOW
γ - UNIT WEIGHT
K - PERMEABILITY
C - CONSOLIDATION
CA. - CASING
W.L - WATER LEVEL IN CASING
W.T - WATER TABLE IN SOIL

SOIL PROFILE: ELEV. DEPTH	WATER CONDITIONS	DESCRIPTION	STRAT PLOT	ELEVATION SCALE	SHEAR STRENGTH TONS/SQ.FT. or $Q_u/2$ — PENETRATION TEST RESISTANCE BLOWS PER FOOT (50 / 100 / 150 / 200)	WATER CONTENT W% — □ P.W. △ L.W.	SAMPLES: OTHER TESTS	CONDITION	TYPE	No	PENETRATION RESISTANCE	ELEV. RECOV.
210.3				0	STD ENERGY = 4200 lb/in							% = 210.3
					Q STANDARD PENETRATION TEST.							Std En 4200 lb in
				3			Note THE ABUNDANCE OF STONES IN THIS SECTION PREVENTED THE TAKING OF STANDARD PENETRATION TESTS & SAMPLES.					
		SANDY TILL (VERY STONY)		6								
				9								
				12								
192.3 / 18.0				15								
				18								
		FINE TO VERY FINE SANDY TILL		21								
				24								
				27								
179.3 / 31.0				30								
				33								
		SANDY TILL (VERY STONY)		36								
171.8 / 38.5				39	END OF BOREHOLE AT 38.5 FT. EL. 171.8							
				42								
				45								

SAMPLES						
OTHER TESTS	CONDITION	TYPE	No	PENETRATION RESISTANCE	ELEV. RECOV.
γ=144 lb/ft		D.O.	1	54	190.3 / 44
γ=142		D.O.	2	55	185.3 / 67
γ=150 lb/ft		D.O.	3	75 / 104 FOR LAST 3"	180.3 / 93
		D.O.	4	191	175.3 LOST
		D.O.	5	164	172.3 LOST

TL 129
54-90

MATERIALS LABORATORY - DEPARTMENT OF HIGHWAYS - ONTARIO

OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG. CORE DRILL #4
CASING. BX (STANDARD SAMPLERS TO FIT UNLESS NOTED)
SAMPLER HAMMER WT. 250 # DROP - INCHES

JOB 55-F-13 CORNWALL
DATUM STA 389+67 ℄
COMPILED BY B.A. CHECKED BY

BORING No 5
DATE REPORT
BORING DATE JUNE 8TH & 9TH 1955

SAMPLE CONDITION
- DISTURBED
- GOOD
- LOST

SAMPLE TYPES
- C.S. - CHUNK
- D.O. - DRIVE OPEN
- D.F. - DRIVE FOOT VALVE
- T.O. - THIN WALLED OPEN
- W.S. - WASHED SAMPLE
- R.C. - ROCK CORE

ABBREVIATIONS
- V - INSITU VANE SHEAR TEST
- M - MECHANICAL ANALYSIS
- U - UNCONFINED COMPRESSION
- Qc - TRIAXIAL CONSOLIDATED QUICK
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- S - TRIAXIAL SLOW
- γ - UNIT WEIGHT
- K - PERMEABILITY
- C - CONSOLIDATION
- CA - CASING
- W.L. - WATER LEVEL IN CASING
- W.T. - WATER TABLE IN SOIL

SOIL PROFILE

ELEVN DEPTH	WATER CONDITIONS	DESCRIPTION	STRAT PLOT
210.7			
209.2 / 1.5		SANDY TOPSOIL	
203.2 / 7.5	▽	FINE SANDY TILL (VERY STONY)	
177.5 / 33.2			

SHEAR STRENGTH TONS/SQ.FT OR Qu/2

PENETRATION TEST RESISTANCE BLOWS PER FOOT (50, 100, 150, 200)

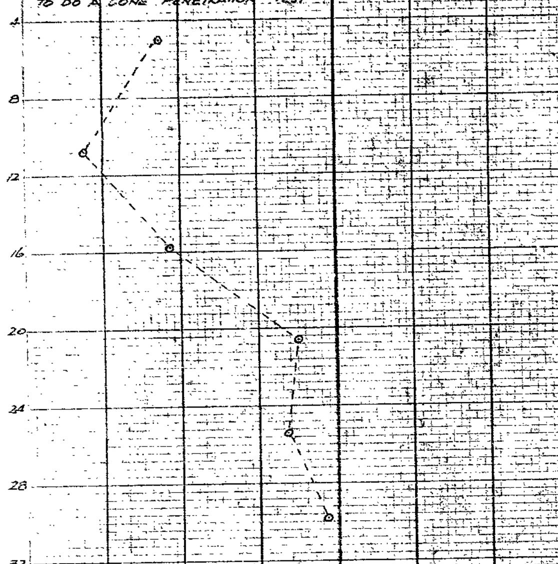
WATER CONTENT W% (□ PW, △ LW)

ELEVATION SCALE: 0, 4, 8, 12, 16, 20, 24, 28, 32, 36

STD. ENERGY = 4200 lb in / BLOW.

⊙ STD. PENETRATION TEST

NOTE: THE TOPSOIL WAS TOO STONY TO DO A CONE PENETRATION TEST



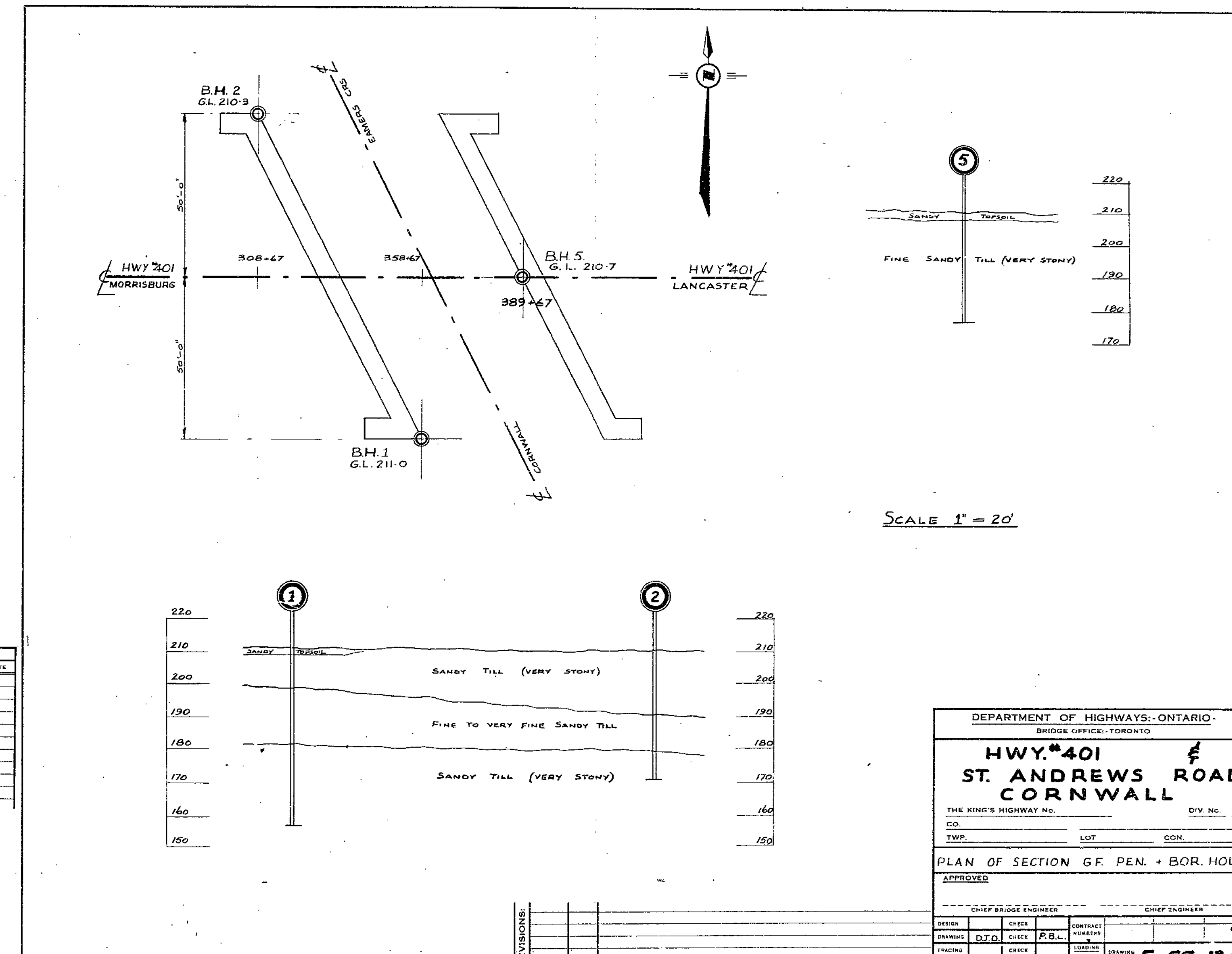
END OF BOREHOLE AT 33.2 FT. = EL. 177.5

SAMPLES

OTHER TESTS	CONDITION	TYPE	No	PENETRATION RESISTANCE (No of BLOWS/FT AT STD EN = 4200 lb in.)	ELEV. / RECOV.
					210.7
γ=144#/FT³	DISTURBED	D.O.	1	89	206.2 / 56
γ=150#/FT³	DISTURBED	D.O.	2	37	200.7 / 56
	DISTURBED	D.O.	3	94	195.7 / 17
γ=150#/FT³	DISTURBED	D.O.	4	175	190.7 / 100
	DISTURBED	D.O.	5	168	185.7 / 83
	LOST	D.O.	6	194	180.7 / LOST

PRINT RECORD

No.	FOR	DATE



DEPARTMENT OF HIGHWAYS: - ONTARIO -
BRIDGE OFFICE: - TORONTO

HWY. #401 ℄ ST. ANDREWS ROAD CORNWALL

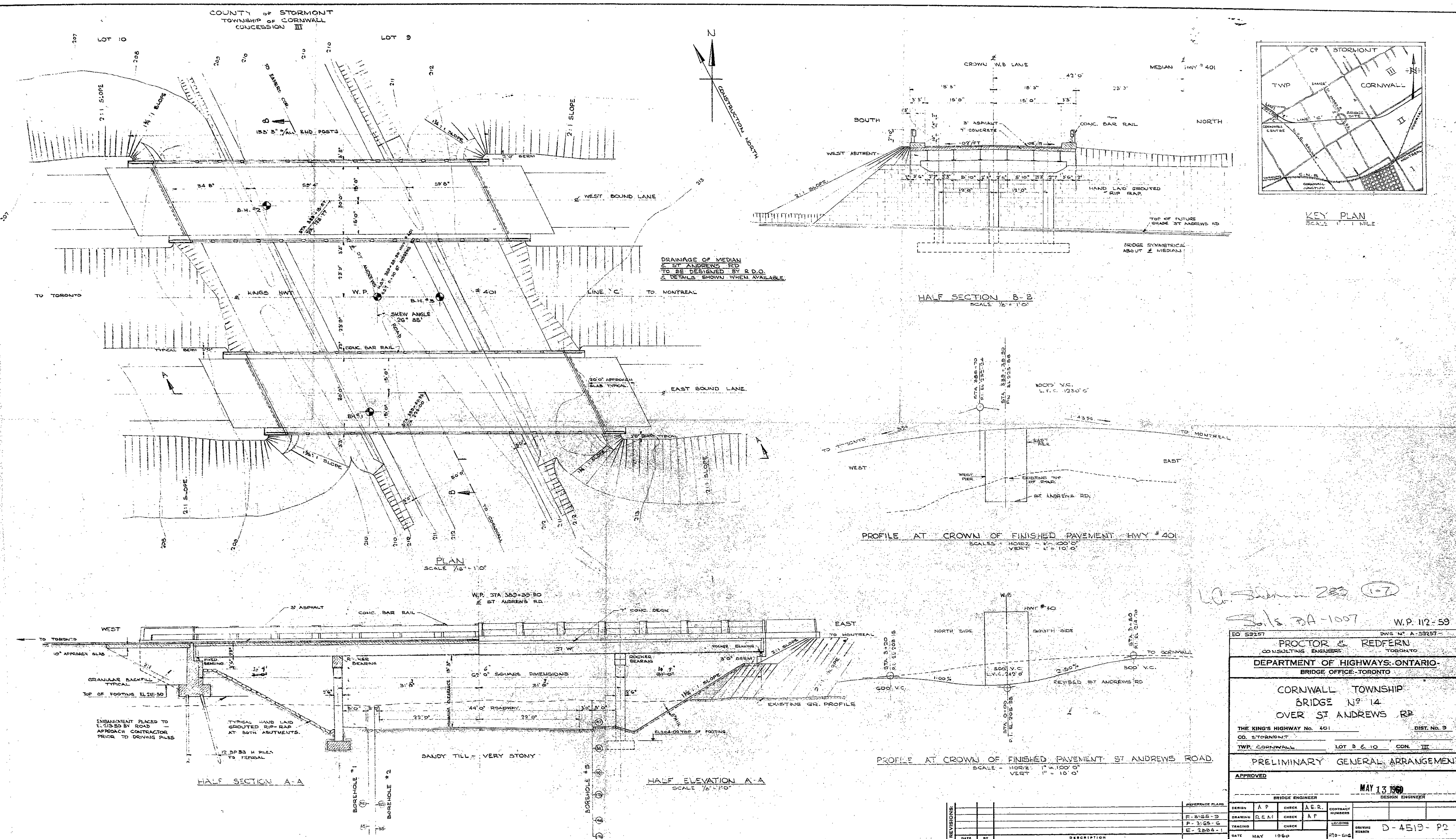
THE KING'S HIGHWAY No. DIV. No.
CO.
TWP. LOT CON.

PLAN OF SECTION G.F. PEN. + BOR. HOLES

APPROVED

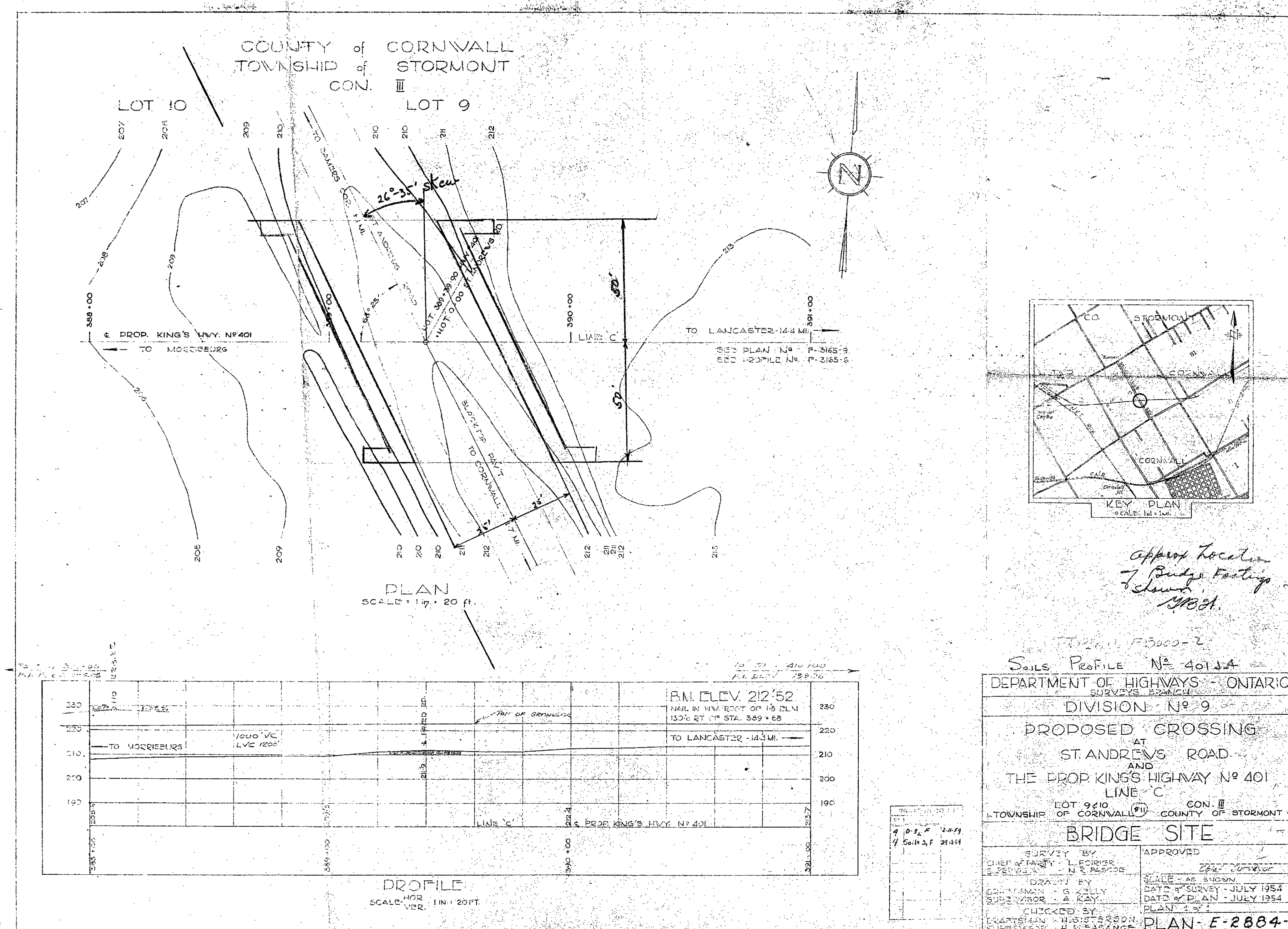
CHIEF BRIDGE ENGINEER CHIEF ENGINEER

DESIGN		CHECK		CONTRACT NUMBERS
DRAWING	D.J.D.	CHECK	P.B.L.	
TRACING		CHECK		LOADING
DATE				DRAWING NUMBER F-55-13A



EO 59257	DWG Nº A-59257
PROCTOR & REDFERN, CONSULTING ENGINEERS, TORONTO	
DEPARTMENT OF HIGHWAYS:-ONTARIO- BRIDGE OFFICE:-TORONTO	
CORNWALL TOWNSHIP BRIDGE Nº 14 OVER ST ANDREWS RD	
THE KING'S HIGHWAY No. 401	DIST. No. 9
CO. STORMONT	
TWP. CORNWALL	LOT 9 & 10 CON. III
PRELIMINARY GENERAL ARRANGEMENT	
APPROVED — BRIDGE ENGINEER	MAY 13 1960 — DESIGN ENGINEER
DESIGN A P — CHECK A.E.R.	CONTRACT NUMBERS
DRAWING R.E.M. — CHECK A P	
TRACING — CHECK	LOADING H20-S16
DATE MAY 1960	DRAWING NUMBER D-4519-P2

REVISIONS	DATE	BY	DESCRIPTION	REFERENCE PLANS
				F-8165-9
				F-3165-6
				E-2884-1



COUNTY of CORNWALL
TOWNSHIP of STORMONT
CON. III
LOT 10
LOT 9
26°-35' Skew
PROP. KING'S HWY. Nº 401
TO MORRISBURG
LINE 'C'
TO LANCASTER 14.4 MI.
BLACKTOP PAV'T.
TO CORNWALL
PLAN
SCALE 1 in. = 20 ft.
B.M. ELEV. 212.52
TO MORRISBURG
TO LANCASTER 14.4 MI.
PROP. KING'S HWY. Nº 401
PROFILE
SCALE HOR. VER. 1 IN = 20 FT.
KEY PLAN
CORNWALL
approx Location of Bridge Footings shown
Soils Profile Nº 401 J-4
DEPARTMENT OF HIGHWAYS - ONTARIO
SURVEYS BRANCH
DIVISION Nº 9
PROPOSED CROSSING
AT
ST. ANDREWS ROAD
AND
THE PROP. KING'S HIGHWAY Nº 401
LINE 'C'
LOT 9 & 10 CON. III
TOWNSHIP OF CORNWALL COUNTY OF STORMONT
BRIDGE SITE
SURVEY BY
CHIEF of PARTY - L. POIRIER
SUPERVISOR - N. R. PASCOE
DRAWN BY
DRAFTSMAN - G. KELLY
SUPERVISOR - A. KAY
CHECKED BY
SUPERVISOR - H. PLEASANCE
APPROVED
Chief Surveyor
SCALE - AS SHOWN
DATE of SURVEY - JULY 1954
DATE of PLAN - JULY 1954
PLAN 1 of 1
PLAN - E-2884-1