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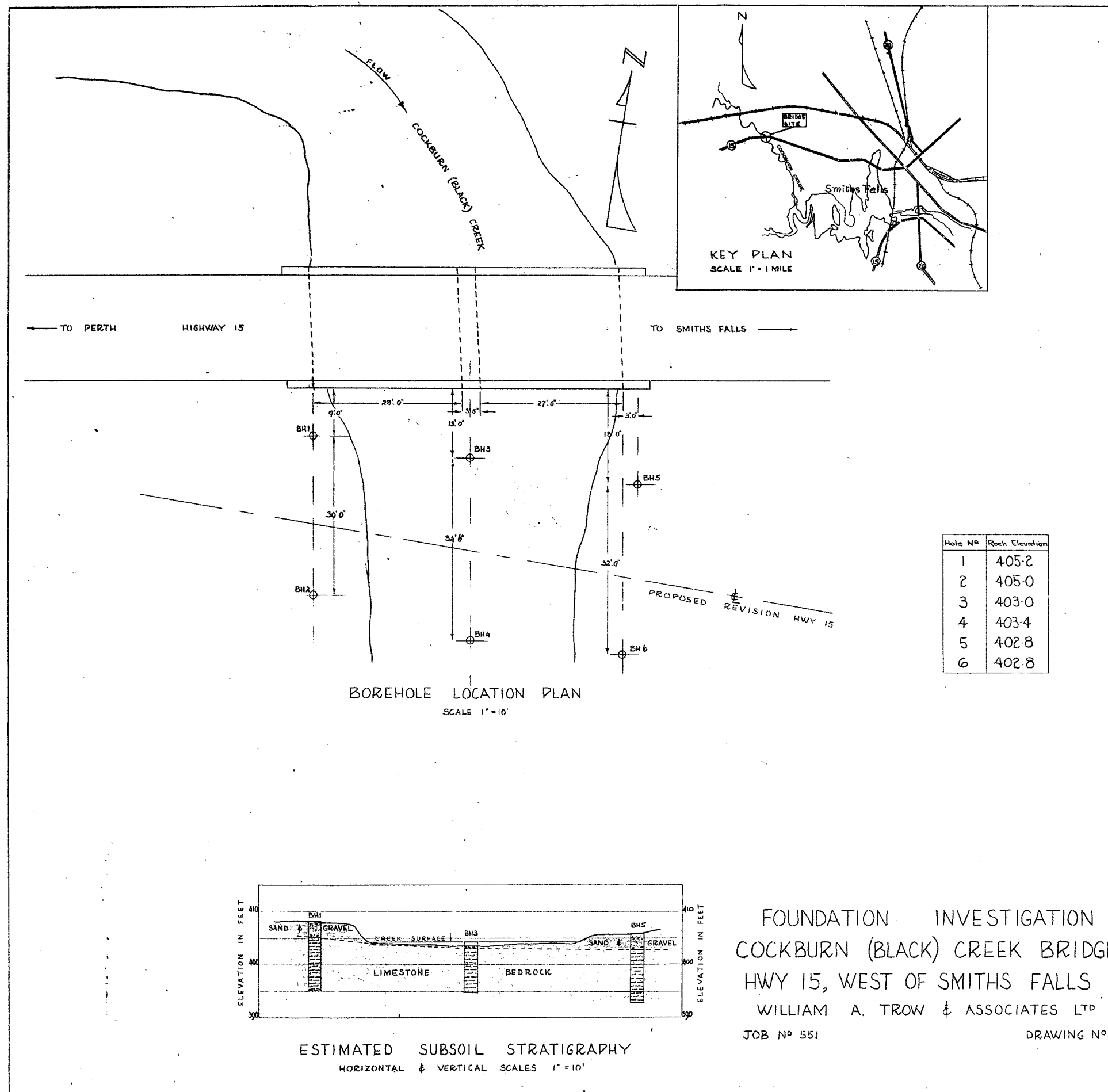
W.P. # 47-60

Hwy. # 15

COCKBURN CR.

2.3 MILES W. OF

SMITH FALLS



Mr. A. M. Toye,

August 2, 1960.

Bridge Engineer.

FOUNDATION INVESTIGATION REPORT

Materials & Research Section.

by: William A. Trow & Associates, Ltd.

Attention: Mr. S. McCombie.

Re: Cockburn Creek Crossing, 2.3 Miles West
of Smiths Falls, Dist. 8, Hwy. No. 15,
W.P. 47-60.

Please find enclosed, the Foundation Report for the
above site prepared by W. A. Trow & Associates, Ltd.

As indicated in the report, no problems exist since
spread footings will be founded directly on sound rock.

L. G. Soderman,
PRINCIPAL FOUNDATIONS ENGR.

Per: 

(K. Peaker,
FOUNDATION FIELD SUPERVISING ENGR.)

KP/MdeF
Attach.

cc: Messrs. A. M. Toye (2) ✓
H. A. Tregaskes
D. G. Ramsay
J. Ford
T. A. Sharpe
J. E. Gruspier
A. Watt

Foundations Office
Gen. Files.

WILLIAM A. TROW AND ASSOCIATES LTD.

SITE INVESTIGATIONS
LABORATORY TESTING
SOIL MECHANICS CONSULTATION

BA1098

W. A. TROW, M.A.S.C., M.E.I.C., P.ENG.

1850 JANE ST.,
WESTON, ONT.
CH. 1-4644

Project: J 551

July 27, 1960

Mr. A. Rutka,
Materials & Research Engineer,
Department of Highways of Ontario,
Parliament Buildings,
Toronto, Ontario

Attention: Mr. L.G. Soderman
Principal Soils & Foundations Engineer

Re: Foundation Investigation
Cookburn Creek Crossing, W.P. 47-60
2.3 Miles East of Smiths Falls

Dear Sirs:

We enclose a plan of the above site showing the locations of test borings put down to determine the subsoil conditions. The logs of the individual boreholes are presented as drawings 2 to 7.

Bedrock exists at or within a few feet of the ground surface at this site. The elevation of bedrock at each boring location is summarized in a table on drawing 1. Sand and gravel form a thin veneer over the rock.

Bedrock consists of limestone and dolomite. The rock is in a sound condition at the proposed abutment locations on the banks of the existing creek. In the creek, however, the top two or three feet of rock has been shattered by blasting carried out to deepen the stream channel.

The safe capacity of the sound rock is in excess of 25 tons per square foot. It is recommended that the abutment footings be keyed

-2-

into the rock at least 2 feet; deeper if further work in the creek channel is contemplated.

We trust that this brief letter provides the information you require for this project.

Yours very truly,

D.H. Shields

D.H. Shields, P.Eng.



DHS/ge
Encls.

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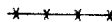

SITE INVESTIGATIONS · SOIL MECHANICS CONSULTATION

LEGEND




DRAWING No. 2
PROJECT No. J551

BOREHOLE NO. 1
PROJECT Black Creek Bridge
LOCATION Sta. 15 ft Smith Falls
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 408.2
DATUM N. & L. in root of 2 ft. dia. elm 33 ft. left of
Sta. 434+94 = Elev. 415.91

PENETRATION RESISTANCE


2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
2" DIA. CONE 

SHEAR STRENGTH




UNDRAINED TRIAXIAL
AT OVERBURDEN PRESSURE 
UNCONFINED COMPRESSION 
VANE TEST AND SENSITIVITY (S) 





NATURAL MOISTURE CONTENT AND LIQUIDITY INDEX

ATTERBERG LIMITS

LIQUID LIMIT 
PLASTIC LIMIT 

SAMPLE TYPE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
3" O.D. SHELBY TUBE 

SYMBOL	SOIL DESCRIPTION	ELEV. FEET	DEPTH FEET	PENETRATION RESISTANCE				NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40	60	350 FT. LB. BLOWS/FT. 80			
	Ground Surface	408.2	0	SHEAR STRENGTH				PSF		
	Coarse brown sand and gravel	405.2								
	Limestone bedrock. 100% core recovery									
			10							
	End of Hole	395.2								
	Notes: 1) BX casing drilled to 3 ft.		20							
			30							
			40							

SITE INVESTIGATIONS · SOIL MECHANICS CONSULTATION

PROJECT NO. J551

3" O.D. SHELBY TUBE

 x^L

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BOREHOLE NO. 2
PROJECT Black Creek Bridge
LOCATION Rty. 15 at Smiths Falls
HOLE LOCATION See Inv. 1
HOLE ELEVATION 407.0
DATE N. & W. in root of 2 ft
33 ft. left of Sta. 434

SYMBOL	SOIL DESCRIPTION	ELEV. FEET	DEPTH FEET	PENETRATION RESISTANCE		350 FT. LB. BLOWS/FT 80	NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40				
	Ground Surface	407.0	0						
	Fine to coarse sand	405.0							
	Limestone bedrock								
	99% core recovery								
			10						
	End of Hole	393.8							
			20						
			30						
			40						

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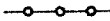
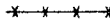
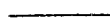
SITE INVESTIGATIONS - SOIL MECHANICS CONSULTATION

DRAWING No 4




PROJECT No. 1551

LEGEND

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE 
 2" I.D. SHELBY TUBE 
 2" DIA. CONE 

SHEAR STRENGTH




UNDRAINED TRIAXIAL
 AT OVERBURDEN PRESSURE 
 UNCONFINED COMPRESSION 
 VANE TEST AND SENSITIVITY (S) 

NATURAL MOISTURE CONTENT
 AND LIQUIDITY INDEX 



ATTERBERG LIMITS

LIQUID LIMIT 
 PLASTIC LIMIT 

SAMPLE TYPE

2" O.D. SPLIT TUBE 
 2" I.D. SHELBY TUBE 
 3" O.D. SHELBY TUBE 

BOREHOLE NO. 3
 PROJECT Black Creek Bridge
 LOCATION Hwy. 15 at Mills Falls
 HOLE LOCATION See Dwg. 1
 HOLE ELEVATION 404.3
 DATUM (See hole 1)

SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE				350 FT. LB BLOWS/FT.	NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40	60	80				
	Creek Surface	404.3	0	SHEAR STRENGTH				P S F			
	Sand and Gravel	403.5									
	Limestone bedrock	403.0									
	Core recovery 77%										
	End of Hole	394.8	10								
			20								
			30								
			40								

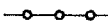


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SITE INVESTIGATIONS · SOIL MECHANICS CONSULTATION




DRAWING No 5
PROJECT No J551

LEGEND

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
2" DIA. CONE 

SHEAR STRENGTH

UNDRAINED TRIAXIAL
AT OVERBURDEN PRESSURE 
UNCONFINED COMPRESSION 
VAN. TEST AND SENSITIVITY (S) 

NATURAL MOISTURE CONTENT
AND LIQUIDITY INDEX

LI
X

ATTERBERG LIMITS




LIQUID LIMIT

—○—

PLASTIC LIMIT

—|—

SAMPLE TYPE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
3" O.D. SHELBY TUBE 

BOREHOLE No. 4
PROJECT Black Creek Bridge
LOCATION Hwy. 15 at Smiths Falls
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 404.3
DATUM (See hole 1)

SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE		350 FT. LB BLOWS/FT. 80	NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40	60			
	Creek Surface	404.3	0						
	Water	403.4							
	Limestone bedrock 67% core								
	recovery								
	End of Hole	399.2							
	Notes: 1) No casing required								
	2) Blasting of creek channel								
	had shattered rock which								
	accounts for low recovery								
			10						
			20						
			30						
			40						

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SITE INVESTIGATIONS · SOIL MECHANICS CONSULTATION

DRAWING NO. 6
PROJECT NO. J551

LEGEND

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE —○—○—○—
2" I.D. SHELBY TUBE —x—x—x—x—
2" DIA. CONE —————

SHEAR STRENGTH

UNDRAINED TRIAXIAL AT OVERBURDEN PRESSURE ⊕
UNCONFINED COMPRESSION ⊗
VANE TEST AND SENSITIVITY (S) †

NATURAL MOISTURE CONTENT AND LIQUIDITY INDEX

X^{LI}

ATTERBERG LIMITS

LIQUID LIMIT —○—
PLASTIC LIMIT —|—

SAMPLE TYPE

2" O.D. SPLIT TUBE —■—
2" I.D. SHELBY TUBE —■—
3" O.D. SHELBY TUBE —■—

BOREHOLE NO. 5
PROJECT Black Creek Bridge
LOCATION Hwy. 15 at Smiths Falls
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 405.8
DATUM (See hole 1)

SYMBOL	SOIL DESCRIPTION	ELEV. FEET	DEPTH FEET	PENETRATION RESISTANCE 350 FT. LB BLOWS/FT.				NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40	60	80			
	Ground Surface	405.8	0	SHEAR STRENGTH						
—○—	Sand and medium to coarse gravel	402.8								
—x—	Limestone bedrock - 99% core recovery									
—			10							
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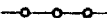
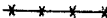

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SITE INVESTIGATIONS · SOIL MECHANICS CONSULTATION




DRAWING No. 7
PROJECT No. J551

LEGEND

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
2" DIA. CONE 

SHEAR STRENGTH




UNDRAINED TRIAXIAL
AT OVERBURDEN PRESSURE 
UNCONFINED COMPRESSION 
VANE TEST AND SENSITIVITY (S)  +

NATURAL MOISTURE CONTENT
AND LIQUIDITY INDEX 

ATTERBERG LIMITS

LIQUID LIMIT 
PLASTIC LIMIT 

SAMPLE TYPE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
3" O.D. SHELBY TUBE 

BOREHOLE No. 6
PROJECT Black Creek Bridge
LOCATION Hwy. 15 at Smiths Falls
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 406.8
DATUM (See hole 1)

SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE				NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40	60	350 FT. LB. BLOWS/FT. 80			
	Ground Surface	406.8	0	SHEAR STRENGTH						
	Sand and medium to coarse gravel	402.8								
	Limestone bedrock - 100% core recovery		10							
	End of Hole	392.5								
			20							
			30							
			40							