Report on

GEOTECHNICAL INVESTIGATIONS
MACKENZIE HIGHWAY
MILE 544 to MILE 635

Prepared for

DEPARTMENT OF PUBLIC WORKS OF CANADA

Volume 3

NORTHERN ENVIRONMENTAL
REFERENCE COLLECTION
PROTECTION BRANCH

April 20, 1973

R.M.HARDY & ASSOCIATES LTD.
CONSULTING ENGINEERING & TESTING

D001632

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This report is in seven volumes. A Table of Contents is at the front of each volume.

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7	Test Hole Logs Test Holes 851 through 1103

APPENDIX D

Explanation Sheets

EXPLANATION OF TERMS AND SYMBOLS USED ON TEST HOLE LOG SHEETS

Depth

This column refers to the depth below the ground surface in feet.

Sample Number

Tube and core samples were numbered consecutively from the surface. Grab samples were not numbered.

Sample Type

This column indicates the depth interval and condition of each sample attempted. Undisturbed samples in this program were obtained with Shelby tubes of 18 inches length and 3 inches diameter, manufactured from 11 gauge steel, or by core drilling. Cores were of 2.85 inch diameter and up to 36 inches long.

Disturbed samples were obtained from the returned cuttings.

T indicates tube sample

C indicates core sample

indicates large grab sample

Note: Grab samples taken for water content and visual examination are not indicated in this column.

Percent Recovery

This column shows the length of sample recovered as a percentage of the length attempted. 100% recovery is not indicated and may be assumed where no value is shown.

Penetration Resistance

No standard penetration tests were performed during this program.

Soil Symbol

The soil symbols used are explained in full on page 5 of this appendix.

Soil Description

Soils of different engineering classification are grouped generically for ease of reference. The system used is the Modified Unified Classification System for Soils.

Frozen Ground

The depth intervals over which frozen and unfrozen ground were encountered are indicated by F and UF respectively. No attempt was made to differentiate between seasonal frost and permafrost.

Ice Description

The ice content of permafrost soils-has been classified according to the National Research Council System for describing permafrost. A brief review of the NRC System is contained on page 9 of this appendix. Where no entry is made, the type was not recorded in the field.

The amount of ice contained in a soil sample was estimated in the field laboratory by inspection. The value arrived at by the laboratory technician has been left unchanged.

Water Content

The natural water content of the soil at the time of drilling is plotted against depth on the chart at the right hand side of the log. The water content, which is indicated by a circle, is expressed as a percentage of the dry weight of the soil. It will be observed that water contents in excess of 100% are indicated in the column at the right of the chart by figures.

Volume of Ice

The total volume of ice in undisturbed samples is indicated on the same chart as water contents. The value is indicated by a triangle. This volume is the total volume of ice in an undisturbed sample and includes intersticial ice, as well as excess ice, and is expressed as a percentage of the total volume of the sample.

Grain Size Analysis

The proportions of clay, silt, sand and gravel in a sample are summarized. Grain size curves for each sample so analyzed are on separate sheets.

Wet Density

The wet in situ density of undisturbed samples is the total weight of the sample in pounds (including ice and water) divided by the volume of the sample in cubic feet.

Dry Density

The dry in situ density of undisturbed samples is the weight of dry soil divided by the volume of the sample in cubic feet.

Atterberg Limits

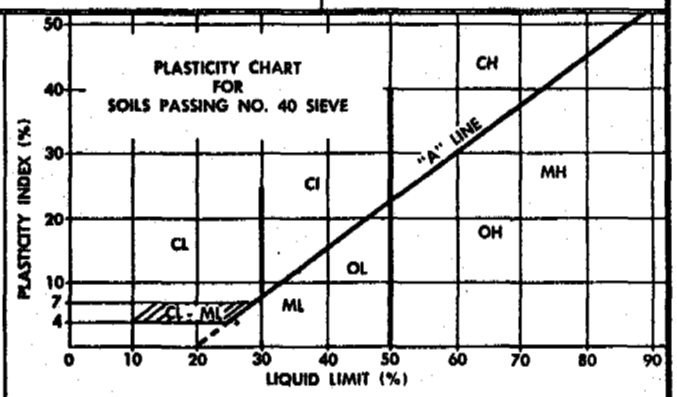
The plastic and liquid limits are shown on the water content chart by a horizontal bar. The Atterberg system is discussed in the following section.

NOTES ON ATTERBERG LIMITS

Soils which possess a significant fraction of clay can exist in liquid, plastic or solid states according to the water content. Where the water content is very high, so that the soil is in the form of a slurry, the soil behaves as a liquid. If the water content is reduced, for example through evaporation, the clay will enter into a plastic state. If the water content is reduced yet further, the clay will become a solid. The transition from one state to another occurs gradually over a range of water content. Atterberg, a Swedish agronomist, developed a method for delineating the boundaries between the three states. If his method is used, the water content which marks the dividing line between the plastic and liquid state is known as the Liquid Limit. These water contents are all expressed as percentages of the dry weight of soil. The range of water content between the plastic

MODIFIED UNIFIED CLASSIFICATION SYSTEM FOR SOILS

MAJOR DIVISION			GROUP SYMBOL	GRAPH SYMBOL	COLOR CODE	TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA	
COARSE-GRAINED SOILS (MORE THAN HALF BY WEIGHT LARGER THAN 200 SIEVE)	GRAVELS MORE THAN HALF COARSE GRAINS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)	GW		RED	WELL GRADED GRAVELS, LITTLE OR NO FINES	$C_U = \frac{D_{60}}{D_{10}} > 6$ $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1$ to 3	
			GP		RED	POORLY GRADED GRAVELS, AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS	
		DIRTY GRAVELS (WITH SOME FINES)	GM		YELLOW	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	CONTENT OF FINES EXCEEDS 12%	ATTERBERG LIMITS BELOW "A" LINE P.I. LESS THAN 4
			GC		YELLOW	CLAYEY GRAVELS, GRAVEL-SAND-(SILT) CLAY MIXTURES		ATTERBERG LIMITS ABOVE "A" LINE P.I. MORE THAN 7
	SANDS MORE THAN HALF FINE GRAINS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)	SW		RED	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	$C_U = \frac{D_{60}}{D_{10}} > 4$ $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1$ to 3	
			SP		RED	POORLY GRADED SANDS, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS	
		DIRTY SANDS (WITH SOME FINES)	SM		YELLOW	SILTY SANDS, SAND-SILT MIXTURES	CONTENT OF FINES EXCEEDS 12%	ATTERBERG LIMITS BELOW "A" LINE P.I. LESS THAN 4
			SC		YELLOW	CLAYEY SANDS, SAND-(SILT) CLAY MIXTURES		ATTERBERG LIMITS ABOVE "A" LINE P.I. MORE THAN 7
FINE-GRAINED SOILS (MORE THAN HALF BY WEIGHT PASSES 200 SIEVE)	SILTS BELOW "A" LINE NEGLIGIBLE ORGANIC CONTENT	$W_L < 50\%$	ML		GREEN	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY SANDS OF SLIGHT PLASTICITY	CLASSIFICATION IS BASED UPON PLASTICITY CHART (see below)	
		$W_L > 50\%$	MH		BLUE	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS		
	CLAYS ABOVE "A" LINE ON PLASTICITY CHART NEGLIGIBLE ORGANIC CONTENT	$W_L < 30\%$	CL		GREEN	INORGANIC CLAYS OF LOW PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAYS, LEAN CLAYS		
		$30\% < W_L < 50\%$	CI		GREEN-BLUE	INORGANIC CLAYS OF MEDIUM PLASTICITY, SILTY CLAYS		
		$W_L > 50\%$	CH		BLUE	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS		
	ORGANIC SILTS & CLAYS BELOW "A" LINE ON CHART	$W_L < 50\%$	OL		GREEN	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	WHENEVER THE NATURE OF THE FINE CONTENT HAS NOT BEEN DETERMINED, IT IS DESIGNATED BY THE LETTER "F", E.G. SF IS A MIXTURE OF SAND WITH SILT OR CLAY	
		$W_L > 50\%$	OH		BLUE	ORGANIC CLAYS OF HIGH PLASTICITY		
HIGHLY ORGANIC SOILS			Pt		ORANGE	PEAT AND OTHER HIGHLY ORGANIC SOILS	STRONG COLOR OR ODOR, AND OFTEN FIBROUS TEXTURE	



1. ALL SIEVE SIZES MENTIONED ON THIS CHART ARE U.S. STANDARD, A.S.T.M. E.11.
2. BOUNDARY CLASSIFICATIONS POSSESSING CHARACTERISTICS OF TWO GROUPS ARE GIVEN COMBINED GROUP SYMBOLS, E.G. GW-GC IS A WELL GRADED GRAVEL SAND MIXTURE WITH CLAY BINDER BETWEEN 5% AND 12%.

and liquid limit is known as the plastic range and the numerical difference between the liquid and plastic limits is called the Plasticity Index.

It will be appreciated that where the natural water content is in excess of the liquid limit, the soil mass will be most unstable and will readily flow into excavations or trenches. Such considerations will not apply where the soil mass is kept frozen. However, in cases where the frozen soil is allowed to thaw, the relationship between the natural water content and liquid limit becomes critical.

On page 5 there is a chart showing the relationship between the Plasticity Index, the Liquid Limit and the group symbols of the Unified Classification System. The Atterberg Limit system is extremely useful for identifying and classifying soils.

NOTES ON THE RADFORTH SYSTEM FOR CLASSIFYING PEAT

The Radforth classification system for describing muskeg (organic terrain) is a method for classifying the three elements of vegetation, topography and organic surface cover using letter and figure symbols. Height and type of vegetation is described by using capital letters (A through I). Topography is described by using lower case letters (a through p) Organic cover type if described by using figures (1 through 16).

Table I outlines these figure symbols and the peat structure and type represented by them. A complete description of the Radforth system is contained in "Guide to a Field Description of Muskeg" published by National Research Council, Ottawa, from which has been copied Table I.

TABLE I

SUBSURFACE CONSTITUTION

Predominant Characteristic	Category	Name
	1.	Amorphous-granular peat
	2.	Non-woody, fine-fibrous peat
	3.	Amorphous-granular peat containing woody fine fibres
	4.	Amorphous-granular peat containing woody fine fibres
	5.	Peat, predominantly amorphous-granular, containing non-woody fine fibres, held in a woody, fine fibrous framework.
	6.	Peat, predominantly amorphous-granular containing woody fine fibres, held in a woody, coarse-fibrous framework.
	7.	Alternate layering of non-woody, fine fibrous peat and amorphous-granular peat containing non-woody fine fibres.
	8.	Non-woody, fine-fibrous peat containing a mound of coarse fibres.
	9.	Wood, fine fibrous peat held in a woody, coarse-fibrous framework.
	10.	Woody particles held in a non-woody, fine-fibrous peat.
	11.	Woody and non-woody particles held in fine-fibrous peat.
	12.	Woody, coarse-fibrous peat.
	13.	Coarse fibres criss-crossing fine-fibrous peat.
	14.	Non-woody and woody fine-fibrous peat held in a coarse-fibrous framework.
	15.	Woody mesh of fibres and particles enclosing amorphous-granular peat containing fine fibres.
	16.	Woody, coarse-fibrous peat containing scattered woody chunks.

NOTES ON THE NATIONAL RESEARCH COUNCIL SYSTEM FOR DESCRIBING PERMAFROST

Ground ice occurs in three conditions. Non-visible, visible (but less than one inch in thickness) and clear ice. Non-visible ice is designated N with an added suffix of one or two lower case letters. Visible ice is designated V with an added suffix of one lower case letter. Clear ice is designated ICE with notes on ice type.

TABLE IV

Symbol	Description
Nf	Non-visible ice, frozen soil in friable condition.
Nbn	Non-visible ice, frozen soil well bonded, no excess ice.
Nbe	Non-visible ice, frozen soil well bonded, excess ice revealed on melting sample.
Vx	Visible ice crystals.
Vc	Ice coatings on soil particles.
Vr	Ice formations irregularly orientated.
Vs	Stratified ice lenses.
ICE	Clear ice over one inch in thickness.
ICE + soil	Ice over one inch thick with soil inclusions.

A complete description of this system is contained in "Guide to a Field Description of Permafrost" published by National Research Council, Ottawa.

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DRILL HOLE REPORT

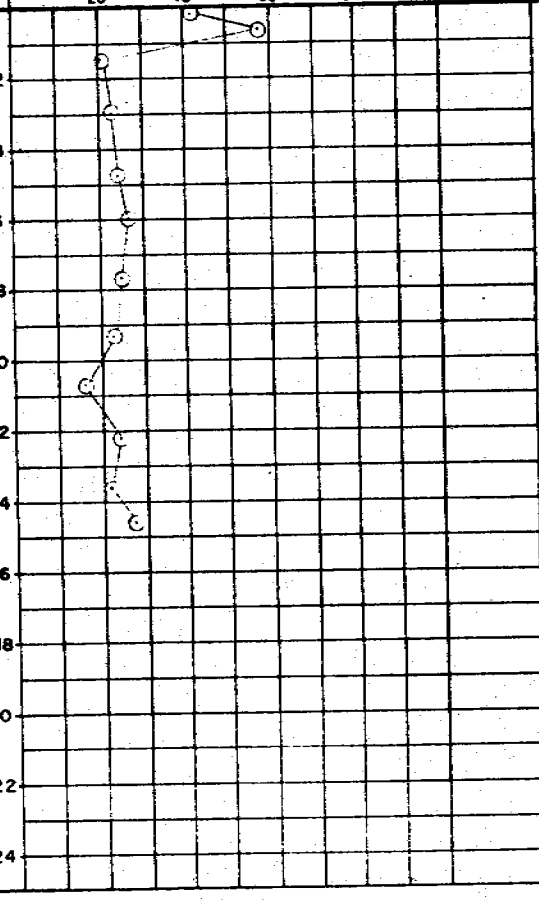
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: MH	FIELD ENG: HB	DATE DRILLED: 2/12/72	AIRPHOTO NO: A22934-159	CHAINAGE: -3+42	OFFSET:
CKD:	TECH: T.C	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
582	C	1*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				PT	PEAT: M1 — 6"	F	
	2				SM	SAND: SILT:	U	
2	3					FINE SAND LOW PLASTIC GREY BROWN	F	Nbe
4	4							
	5					5½'		
6	6					TRACE OF CLAY		
8	7							
	8							NbN
10	9							
12	10							Nbe
	11					14		
14	12				CI	CLAY: SANDY, SILTY, MED PLASTIC, COAL SPECS — 15		NbN
16						END OF HOLE		
18								
20								
22								
24								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

SPRUCE, OCCASIONAL BIRCH & TAMARACK
1 = 4" ϕ, 25' HIGH
3'-4' ON CENTRES

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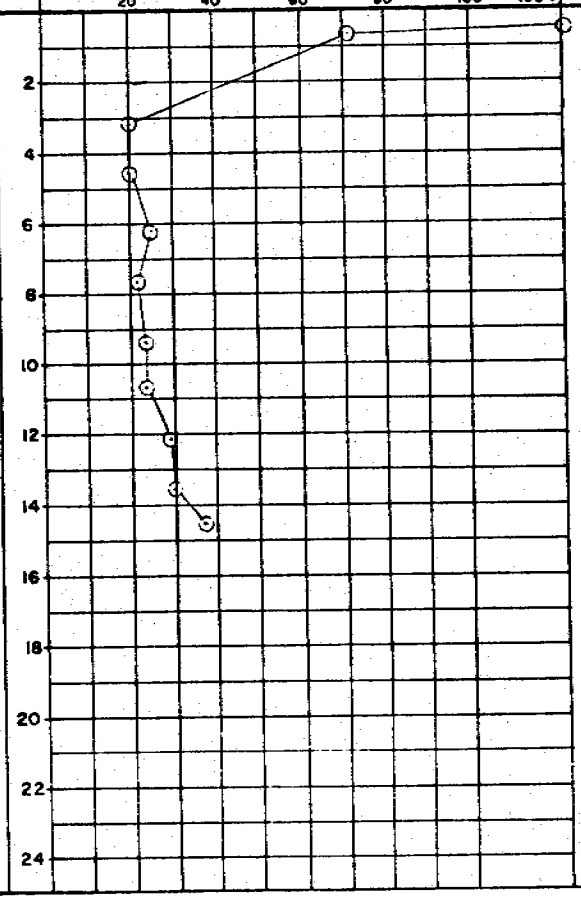
DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: MH	FIELD ENG: H.B.	DATE DRILLED: 3/12/72	AIRPHOTO NO: A22934-159	CHAINAGE: 5+00	OFFSET:	TEST HOLE
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: Good	VEGETATION: SEE REMARKS	ELEV:	MILE: 581 · B,C,S: C · NUMBER: 2*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				PT	PEAT: CAT #3 — 1	F	
2	2				SM	SAND: SILT:	UF	
	3					FINE SAND LOW - NON PLASTIC GREY-BROWN FINE HORIZONTAL STRATIFICATIONS	F	Nbe
4	4							Nbn
6	5							Nbe
8	6							
	7							
10	8							
12	9							
	10					13 — less SAND TRACE OF CLAY MED.- LOW PLASTIC		
14	11					15 — END OF HOLE		
16								
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

SPRUCE, ODD BIRCH & TAMARACK, 4" & 25' HIGH, 2' ON CENTRE

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DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N. | FIELD ENG: H.B. | DATE DRILLED: 3/12/70 | AIRPHOTO NO: A22734-159 | CHAINAGE: 1440 | OFFSET: | ELEV:

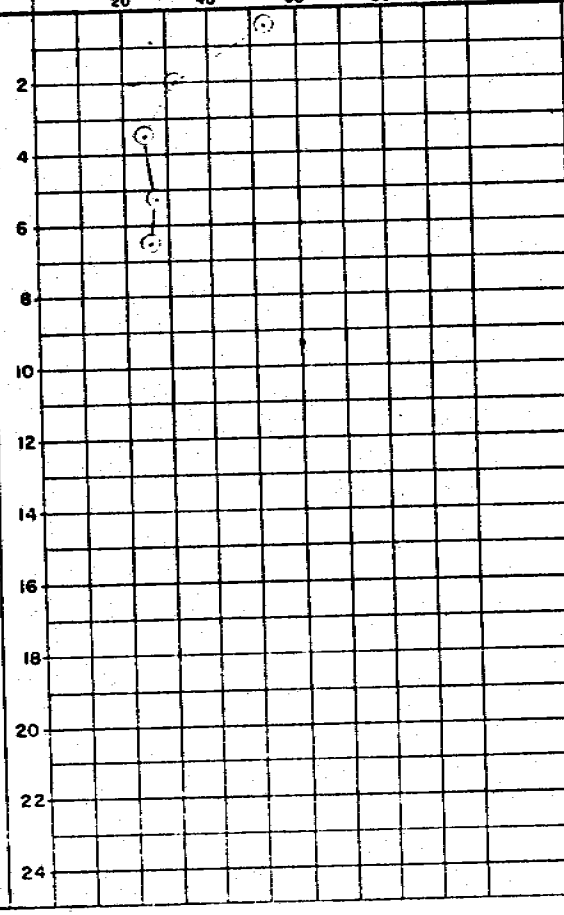
CKD: [illegible] | TECH: T.C. | RIG: FAILING 1000 | SURFACE DRAINAGE: Good | VEGETATION: SPT [illegible]

TEST HOLE		
MILE	B,C,S	NUMBER
581	C	3*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
	1				SM	SAND: SILT: fine sand low plastic brown	F	Nbe						
2	2													
								Nbn						
4	3													
								Vx <1%						
6	4					6		Nbn						
	5					clayey medium plastic 7 END of HOLE								
8														
10														
12														
14														
16														
18														
20														
22														
24														

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT
20 40 60 80 100 100+



REMARKS

SPRUCE 2"-4" ϕ
OCCASIONAL BIRCH & TRAMARACK
25' HIGH

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DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

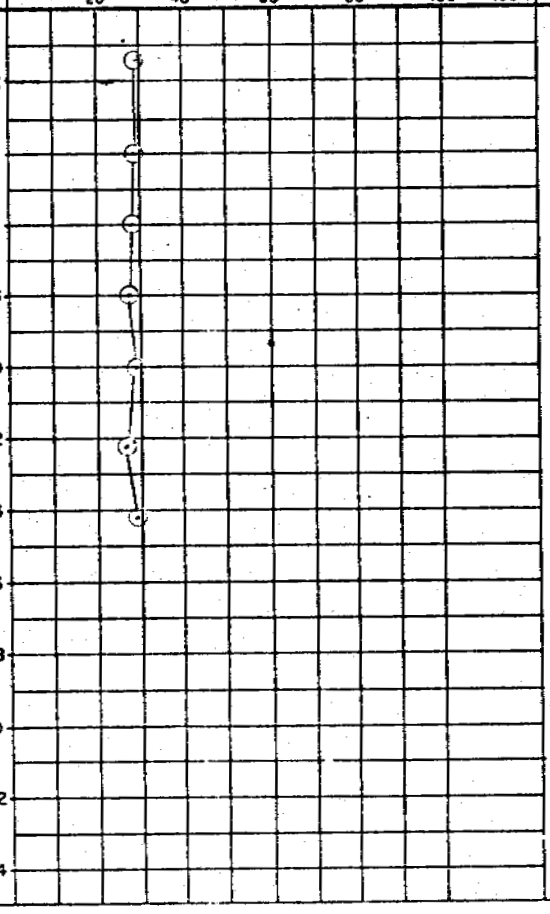
DWN: G.N	FIELD ENG: H.B.	DATE DRILLED: 3/12/72	AIRPHOTO NO: [illegible]	CHAINAGE: 14+43	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: Good	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
581	C	3A*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				SM	SAND: SILT: fine grained low plastic brown	F	Nbe
2								
								Nbn
4	2							
						5		Vx 1%
6	3					clayey medium plastic		
8	4					8		Nbn
						low plastic less clay		
10	5					10		
						less silt non plastic		
12	6							
14	7							
						15		
16								
18								
20								
22								
24								

O = WATER CONTENT (% OF DRY WEIGHT)
Δ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

SPRUCE 4" φ 30' HIGH
ODD TAMARACK

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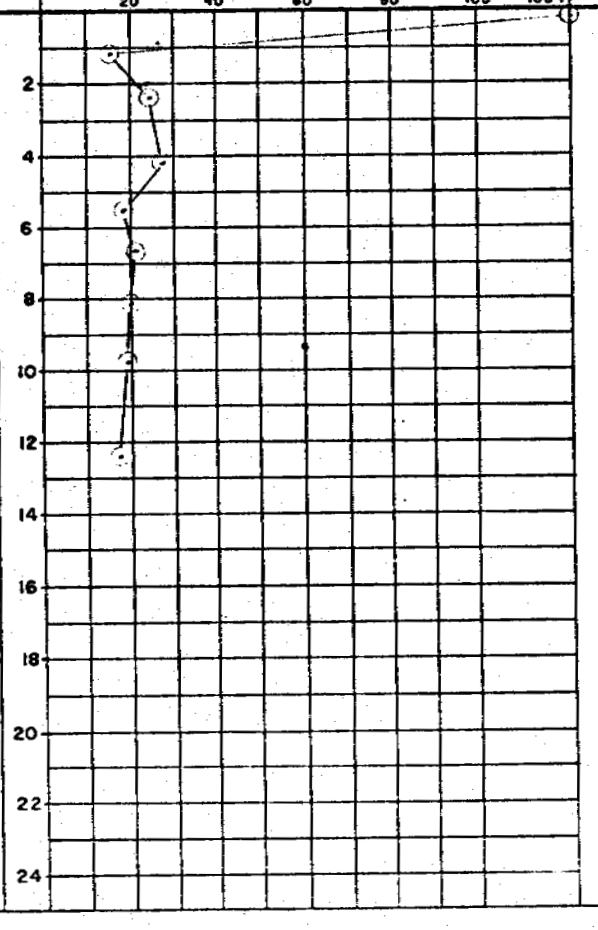
DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E. B.	FIELD ENG: H. B.	DATE DRILLED: 3/12/72	AIRPHOTO NO: A22734-159	CHAINAGE: 18+00	OFFSET:
CKD:	TECH: J. H.	RIG: FAILING 1000	SURFACE DRAINAGE: GOOD	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
581	C	4A*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				Pt	PEAT: CAT. 3 — 1/2	F	Vx 1%
	2				SM	SILT SAND: LOW TO NON PLASTIC, FINE GRAIN, BROWN		
2	3							
4	4							None
6	5							
	6							
8	7							
10	8							
12	9							
14								
						END OF HOLE — 15		
16								
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

SPRUCE, ORIGINAL BIRCH & TAMARACK 2"-4" ϕ 25' HIGH

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DRILL HOLE REPORT

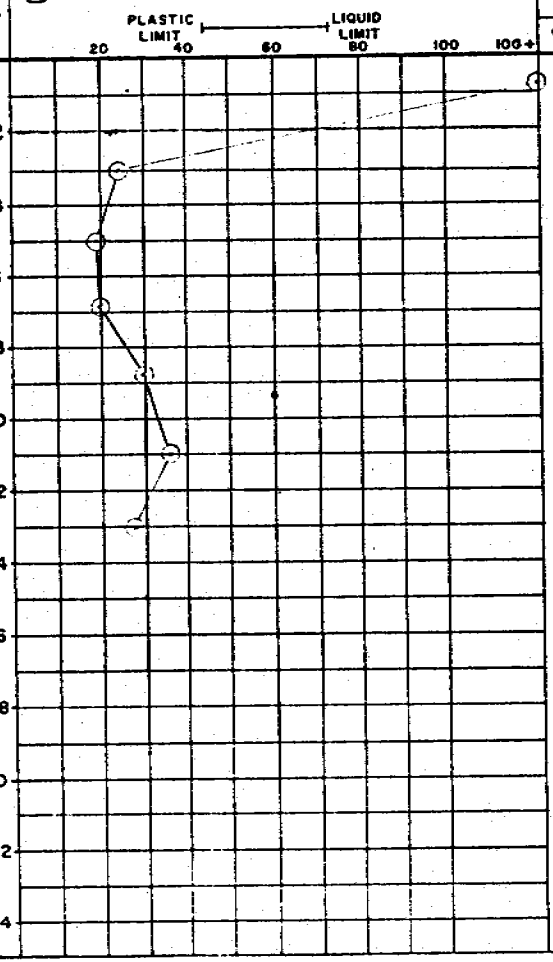
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 3/12/72	AIRPHOTO NO: A22734-59	CHAINAGE: 30+26	OFFSET:
CK: [illegible]	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: Good	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
531	C	5 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
	1				Pt.	PEAT: cat. # 3	F	Vx							
						1½									
2	2				ML	SILT: SANDY-FINE TRACE OF CLAY LOW PLASTIC BROWN		115n							
4						4									
6	3				SM	SAND: FINE TO MED GRAIN NON PLASTIC SOME COAL BROWN									
	4					7½									
8	5				CI	CLAY: SILTY RED PLASTIC SOME PEBBLES SEEN									
10						10									
	6					NO PEBBLES									
12	7				CI										
14	8														
16						16									
						END OF HOLE									
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS

REMARKS

SERIES 4" [illegible]
OCCASIONAL [illegible]
[illegible]

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DRILL HOLE REPORT

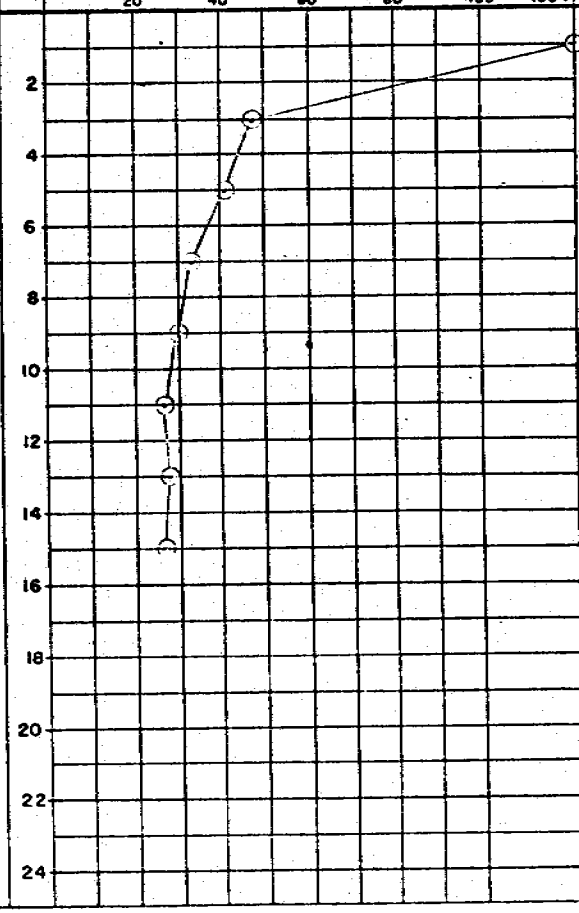
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B. | FIELD ENG: H.B. | DATE DRILLED: 3/12/70 | AIRPHOTO NO: A22934-59 | CHAINAGE: 42+95 | OFFSET:

CKD: [illegible] | TECH: J.H. | RIG: FAILING 1000 | SURFACE DRAINAGE: FAIR | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
581	C	7 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				Pt.	PEAT: CAT. # 16	F	
2						2		
	2				SM	SAND: SILTY NON PLASTIC		Nbe
4								Nbn
	3							
6						6		
	4				CH	CLAY: SILTY HIGH PLASTIC GREY		Nbe
8								Nbn
	5							
10								
	6							
12								
	7							
14								
	8							
16						16		
						END OF HOLE		
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

TRUCE 4" Φ 25' HIGH, OLD BIRCH

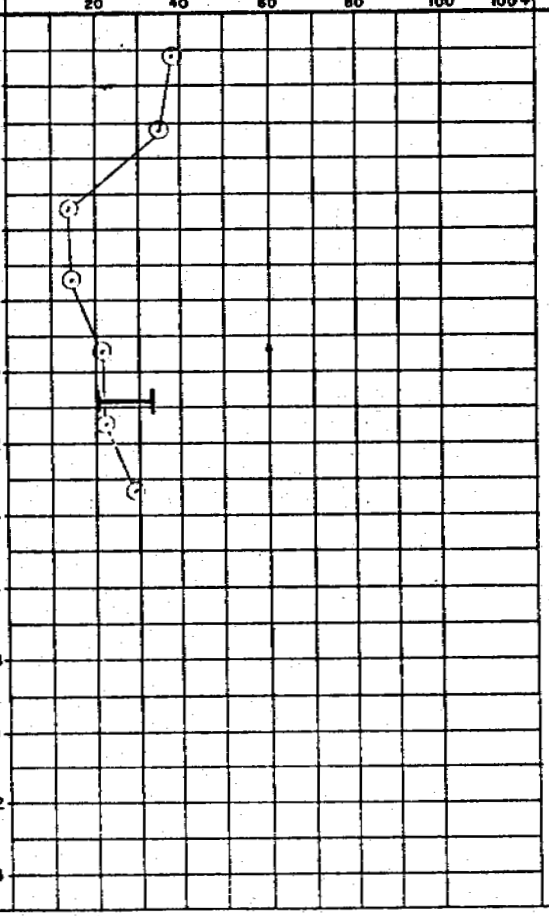
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: 51+96	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
581	C	9 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: CAT. # 7 — 1/2	F	
2	1				CL	CLAY: SILTY, SOME SAND, MED PLASTIC, BROWN — 2 1/2		Nbz
4	2				ML	SILT: CLAYEY, SOME SAND, LOW PLASTIC, BROWN — 4 1/2		Nbn
6	3				SM	SAND: SOME SILT, SOME CLAY, NON PLASTIC, BROWN, COARSE		
8	4							
10	5							
12	6							
14	7				CH	CLAY: SILTY, SOME SAND, MED TO HIGH PLASTIC, BROWN — 14 1/2		
						END OF HOLE		



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

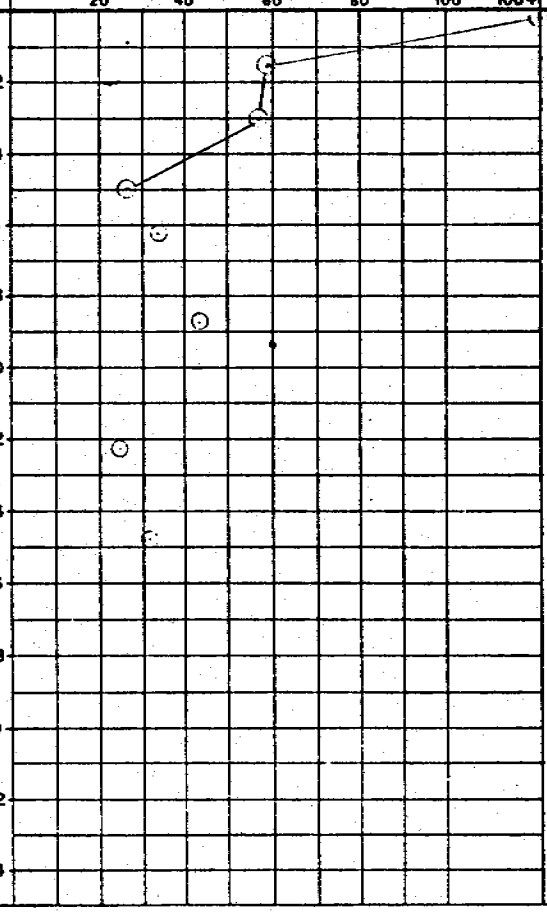
REMARKS: SPRUCE 2"-4" ϕ 25' HIGH, OCCASIONAL BIRCH & TAMARACK

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: A22934-160	CHAINAGE: 53+80	OFFSET:
CKD: [illegible]	TECH: T.C	RIG: [illegible]	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
550	C	9*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				Pt	PEAT: category #10 — 1	F	Vx 10%							SPRUCE, OCCASIONAL BIRCH & TAMARACK 2"-4" ϕ 25' HIGH
2	2				SM	SAND: SILT: medium-fine grained organic low plastic odd stone up to 1/4" ϕ — 4		Non							
4	3							Vx 1%							
	4				CL	CLAY: silty, sandy odd stone									
6		C	86.1												
8															
10		C	94.4												
12															
14		C	93.1												
						END of HOLE — 15									
16															
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

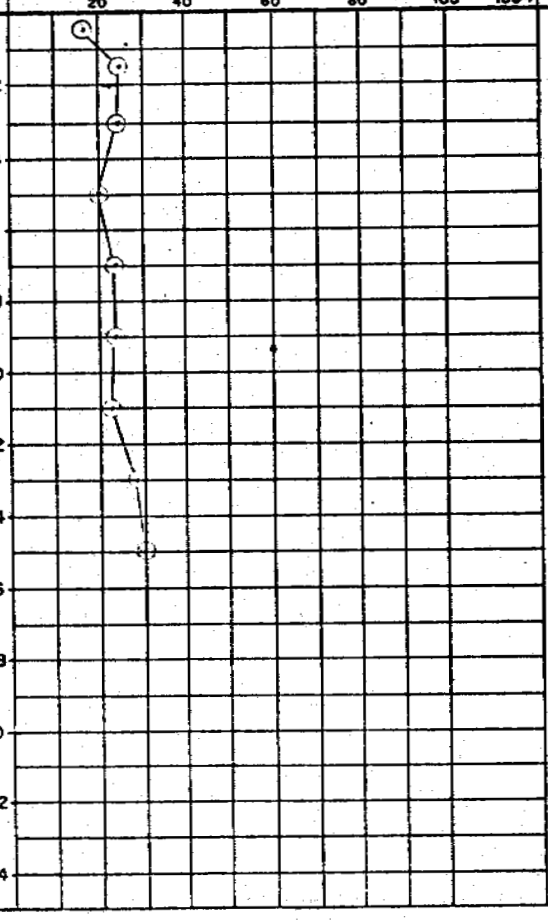
DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 4/12/72	AIRPHOTO NO: A22934-160	CHAINAGE: 25+90	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
581	C	10*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				ML	SILT: SANDY SOMEWHAT PLASTIC BROWN — 1	F	
2	2					SAND: SILTY FINE GRAIN LOW PLASTIC BROWN		Vx 1%
	3				SM			
4						MED. GRAIN — 4		Nbn
6	4							
8	5							
10	6							
12	7							
	8					13		
14						CLAY: SILTY SOME SAND MED TO HIGH PLASTIC BROWN		
	9				CI CH			
16						16 — END OF HOLE		
18								
20								
22								
24								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)

REMARKS: SPRUCE 4" ϕ 25' HIGH, OCCASIONAL BIRCH

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

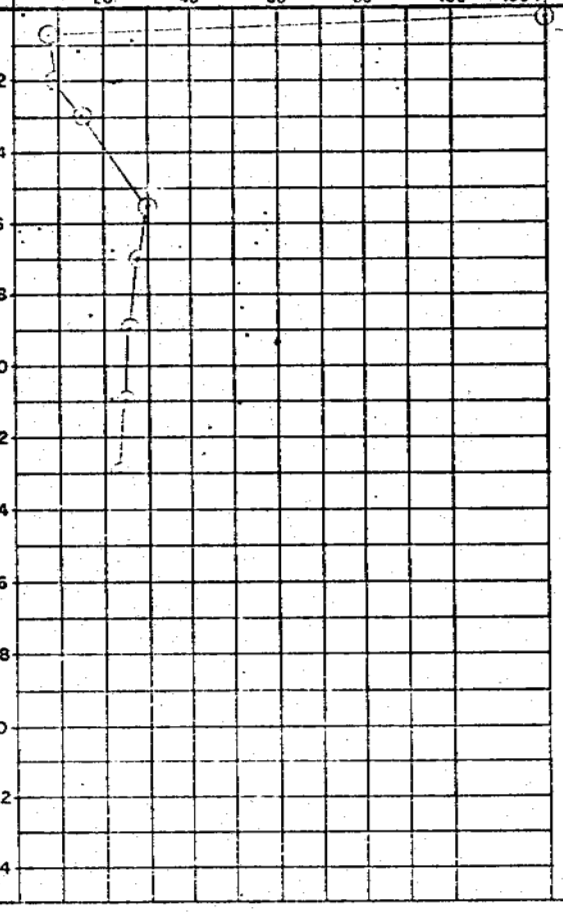
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.S.	DATE DRILLED:	AIRPHOTO NO:	CHAINAGE:	OFFSET:
CKD:	TECH:	RIG:	SURFACE DRAINAGE:	VEGETATION:	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
1180	C	11*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				PT	PEAT: Col. [illegible] — ½	F	4+							TABLE - 25' HIGH 4"ϕ, OCCASIONAL THIN CRACK
	2				GW	SAND: well graded, non plastic, brown, few stones.			—	3	84	13			
2	3														
4	4														
6	5				CI	CLAY: silty, sandy, some stones, medium plastic, brown — 5½		Vx 1%							
8	6														
10	7					less sand with depth, higher plastic — 10									
12	8														
14	9					END of HOLE — 14									
16															
18															
20															
22															
24															



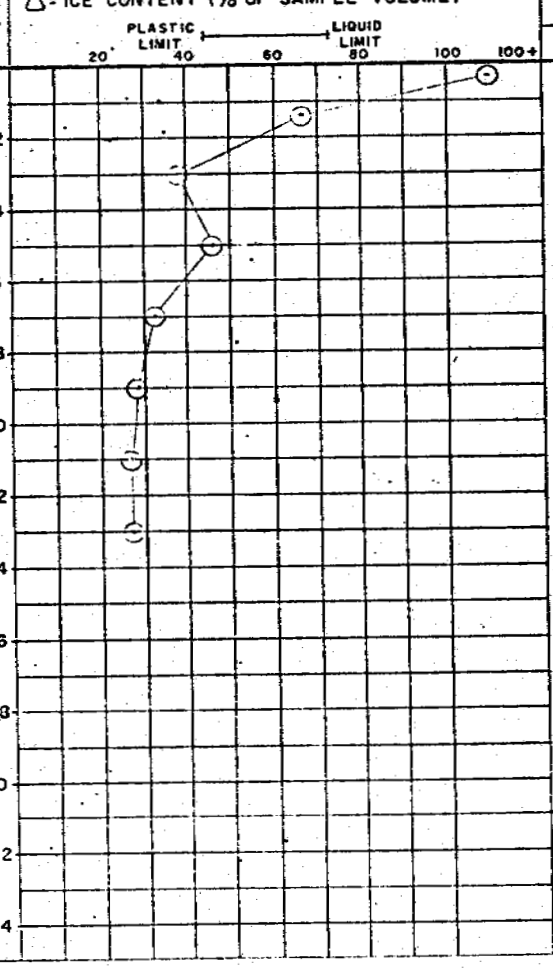
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: [illegible]	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: [illegible]	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
583	C	12*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				PT	PEAT: [illegible] category #3		Vx 10%							[illegible]
2	2						2								
	3				OH	CLAY: silty, sandy, organic high plastic brown		Vx 1%							
4	4														
6	5				CH	no organics less [illegible]	6								
8	6														
10	7														
12	8														
14							14								
16															
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



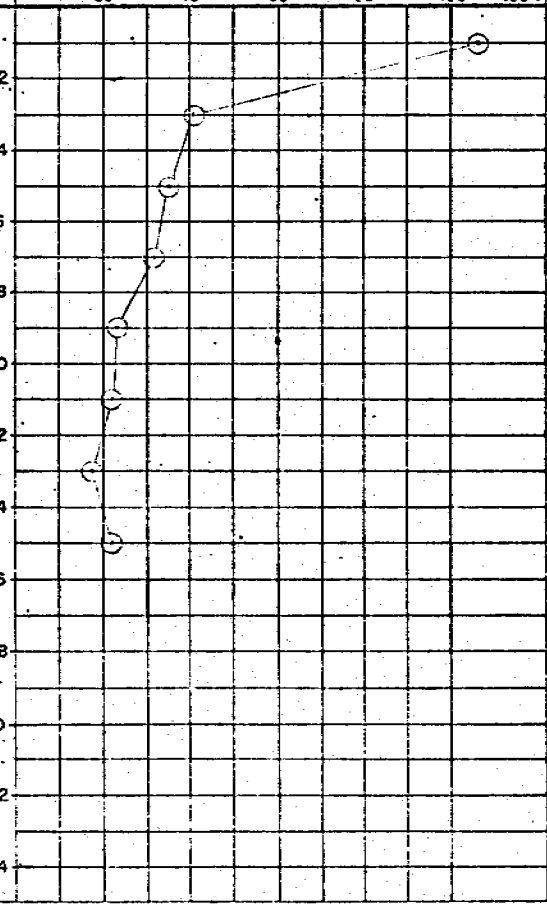
REMARKS: [illegible] BRCH'S [illegible] INCREASE - 2"-7" ϕ 25' HIGH

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.R.	FIELD ENG: [illegible]	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: [illegible]	OFFSET:
CKD: [illegible]	TECH: [illegible]	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
530	C	13*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				Pt	PEAT: [illegible] 4 — 2.3	F	Vx 1%							SPRUCE - OCCASIONAL BIRCH & TAMMARACK 2"-4" ϕ 25' HIGH
2	2					SAND [illegible] — 2									
4	3				CH	CLAY: [illegible] — 4									
6	4					NO SAMPLE									
8	5														
10	6							Vx							
12	7							Vx 1%							
14	8														
16						END OF HOLE — 16									
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N. | FIELD ENG: H.B. | DATE DRILLED: [illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: 67+75 | OFFSET:

CKD: [illegible] | TECH: J.H. | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
530	C	14*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					H	PEAT: .8	F								Second growth of spruce, aspen & birch 10'
2						CLAY: silty, fine sandy medium plastic brown									
4		C											116.6	91.0	
6					CI										
8		C													
10	5														
12	4														
14						14½							122.4	91.9	
						End of Hole									
16															
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT

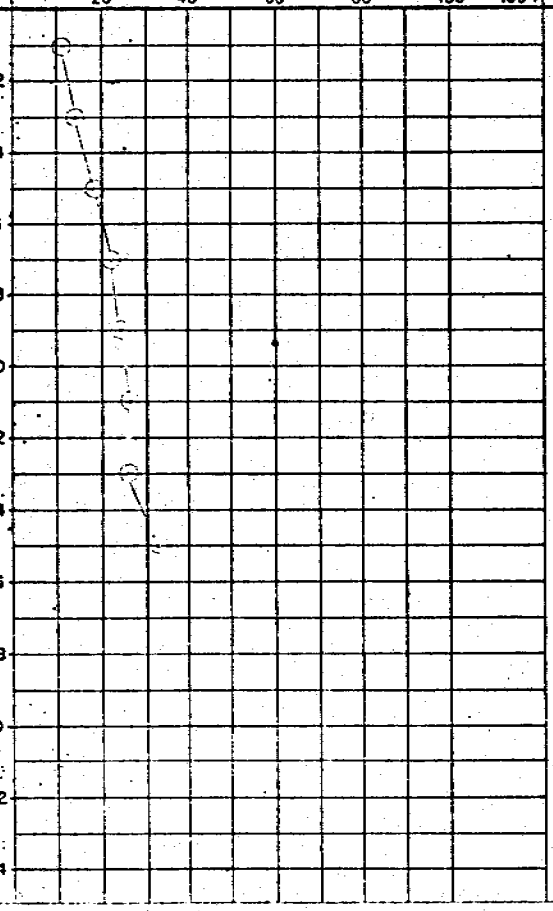
20 40 60 80 100 100+

R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.R.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: 71+76	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
580	C	15 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
						PEAT: [illegible]								
	1				SM	SAND: [illegible] 2	F	[illegible]						
2	2					3		Nbn						
4	3													
6	4													
8						CLAY: [illegible] 8								
10	5				CH									
12	6													
14	7													
16	8					End of Hole 16								
18														
20														
22														
24														



REMARKS

Second growth Spruce, Alder & Birch 10'

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: [illegible] | FIELD ENG: [illegible] | DATE DRILLED: [illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: [illegible] | OFFSET:

CKD: [illegible] | TECH: [illegible] | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
580	C	15A*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
						PEAT:										[illegible] Birch 10'
	1				CM	SANDY SILT: very fine sand, [illegible] brown										
2	2								2							
						medium [illegible]										
4	3							NEF	4							
	4															
6	5								6							
	6															
8									8							
	7				CH	CLAY: [illegible], little sand high plastic		Vx 1%								
10	8								10							
	9															
12	10								12							
						END OF HOLE										
14									14							
16									16							
18									18							
20									20							
22									22							
24									24							

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT

20 40 60 80 100 100+

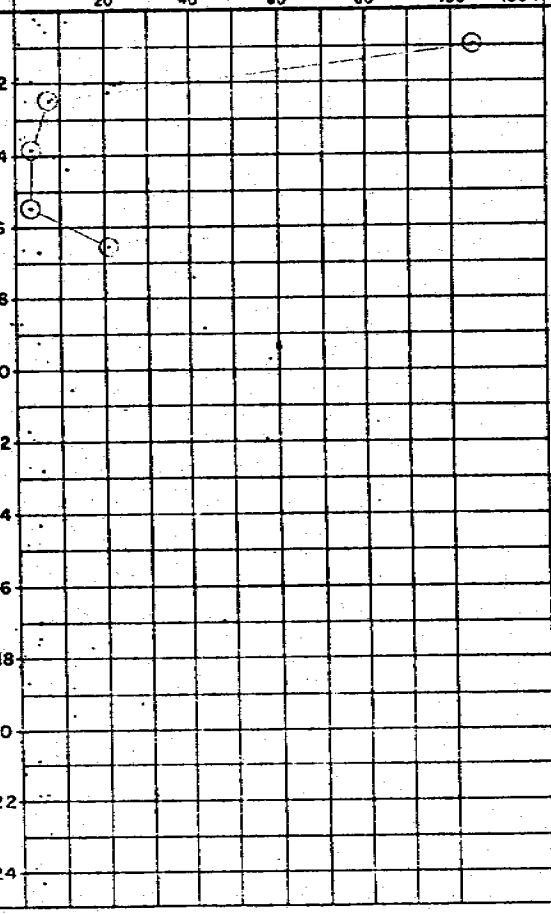
R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B. | FIELD ENG: H.F. | DATE DRILLED: [illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: [illegible] | OFFSET:

CKD: [illegible] | TECH: J.H. | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
580	C	16 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
1	1				SM	SAND [illegible]	F	NP							Second growth [illegible] Birch 10'
2	2							NP							
3	3					3 [illegible]		NP							
4	4							Non							
5	5					7	UF								
						End [illegible]									



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DRILL HOLE REPORT

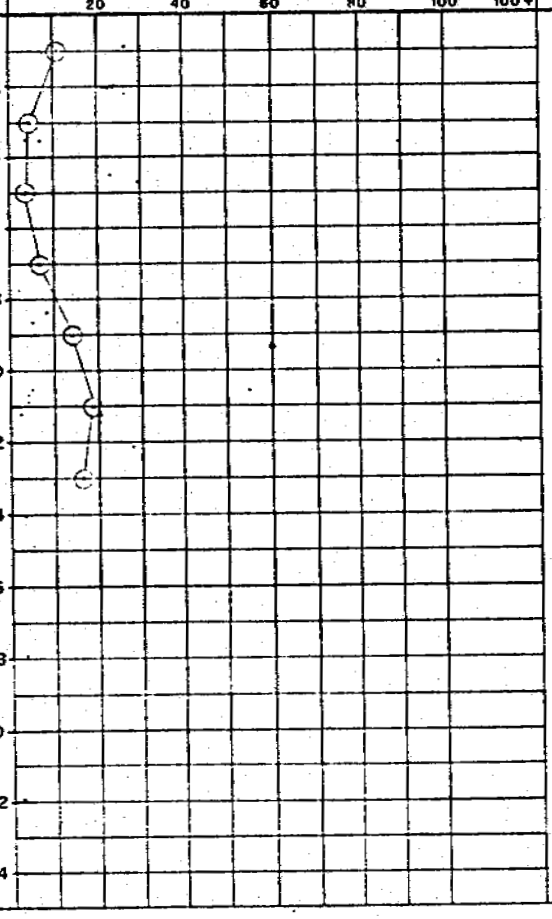
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.S.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: [illegible]	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
530	C	16A*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0–2	1				SM	SAND: [illegible]	[illegible]	Nbn							Second growth Spruce, Alder, Birch 10' high
2–4	2					[illegible] 2		Nf							
4–6	3					[illegible] 4									
6–8	4														
8–10	5														
10–12	6					[illegible] 10									
12–14	7					[illegible] 12		Nbn							
14–16	8														
16						End of Hole 15									
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

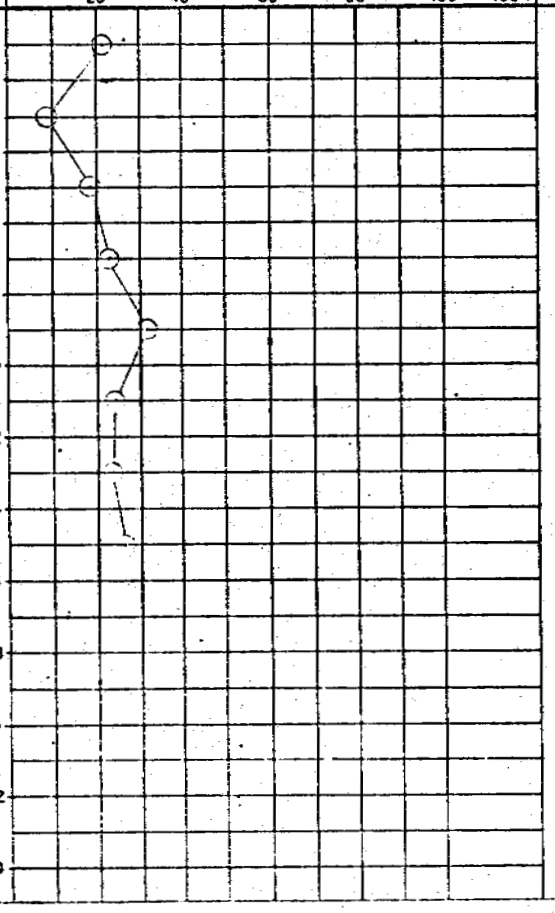


R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 4/2/[illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: 9,+36	OFFSET:	TEST HOLE
CKD: [illegible]	TECH: J.H	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:	MILE: [illegible] B,C,S: C NUMBER: 17

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0–2	1				M	SAND: fine silty non plastic brown	F	Non							Second growth Spruce, Alder, Birch 10' high.
2–4	2														
4–6	3														
6–8	4														
8–10	5					very silty 8		Vx 1%							
10–12	6				SP	clean coal specs. 10		Non							
12–14	7														
14–16	8														
16						END of HOLE 16									
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

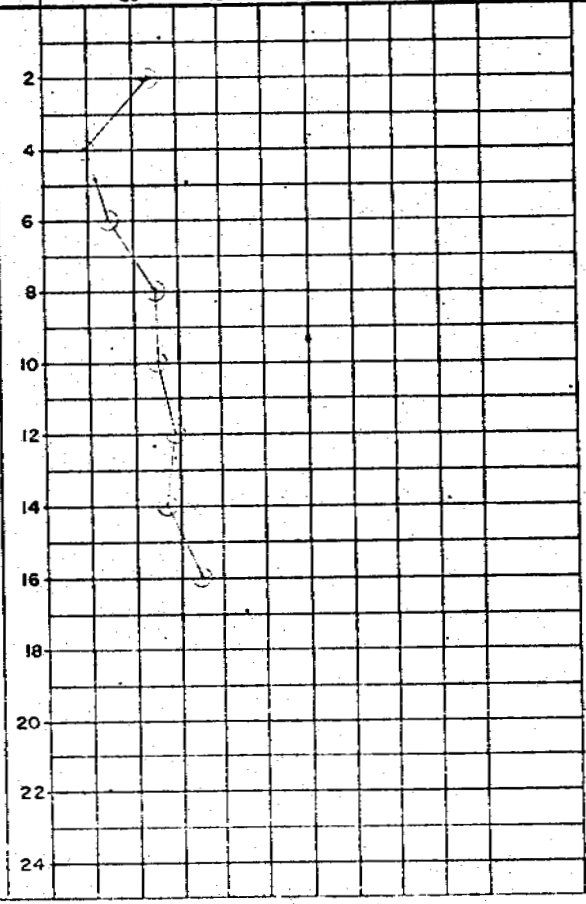
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 1/12/72	AIRPHOTO NO:	CHAINAGE:	OFFSET:
CKD:	TECH: J.H.	RIG:	SURFACE DRAINAGE:	VEGETATION:	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
580	C	18

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
2	1				SM	SAND: SILT: fine sand low plastic	F	Nil							Second growth Spruce under brush 10' high.
4	2														
6	3					coal specs non plastic 4									
8	4														
10	5														
12	6														
14	7					low plastic 14									
16	8					16									
18															
20															
22															
24															



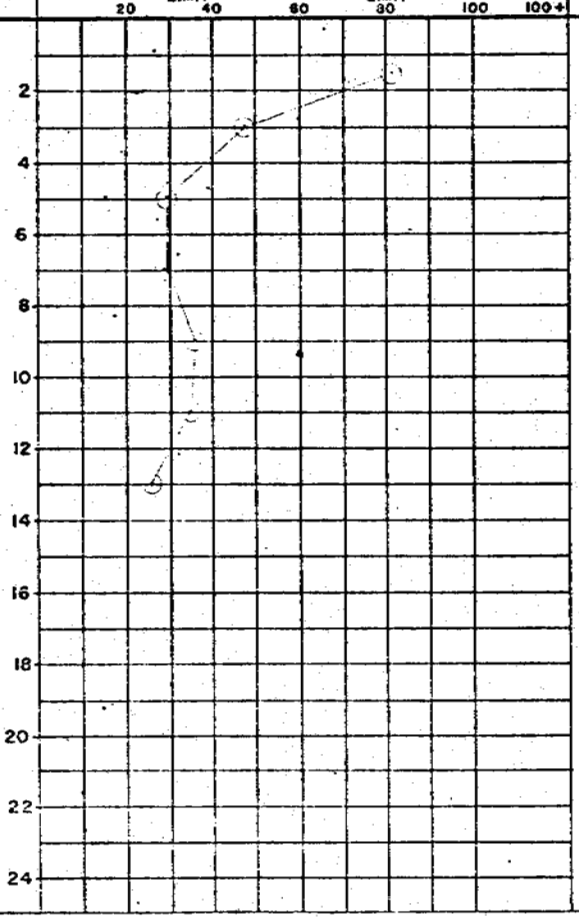
R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.A. | FIELD ENG: [illegible] | DATE DRILLED: [illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: [illegible] | OFFSET:

CKD: [illegible] | TECH: J.H. | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
[illegible]	C	19 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				Pt	PEAT: CAT. #5	F	Nbn							
2	2				SM	SAND SILT: [illegible] 1½									
4	3					[illegible] 3									
6	4														
8	5					8									
10	6				CH	CLAY: [illegible] GREY									
12	7				SP	SAND: [illegible] 11									
						END OF HOLE 13									
14															
16															
18															
20															
22															
24															



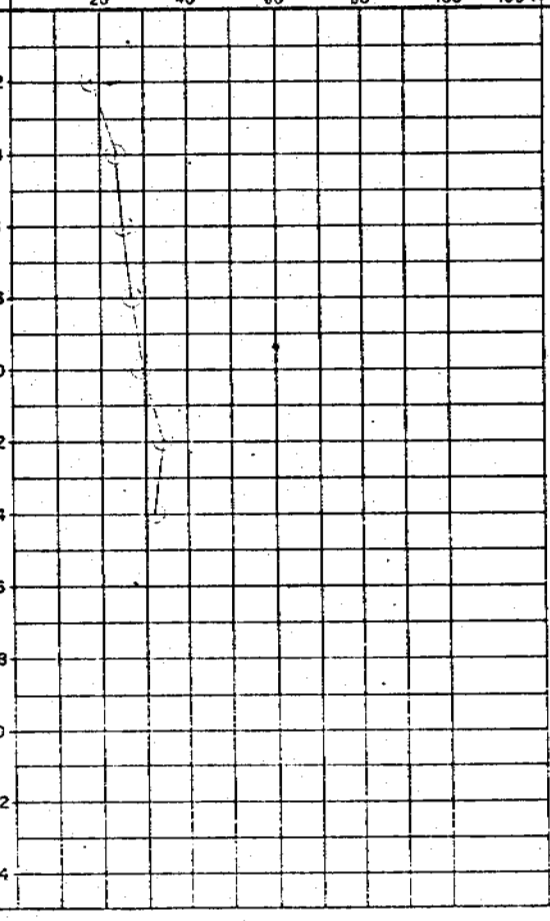
R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: [illegible] FIELD ENG: [illegible] DATE DRILLED: [illegible] AIRPHOTO NO: [illegible] CHAINAGE: [illegible] OFFSET:

CKD: [illegible] TECH: [illegible] RIG: [illegible] SURFACE DRAINAGE: [illegible] VEGETATION: [illegible] ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
580	C	30

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				SP	SAND: [illegible]	F	None
2						trace of clay, brown — 2		
4	2				SM	silty — 4		
6	3							
8	4							
10	5							
12	6							None
14	7							
16	8					END OF HOLE — 16		
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
CLAY %	SILT %	SAND %	GRAVEL %			

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

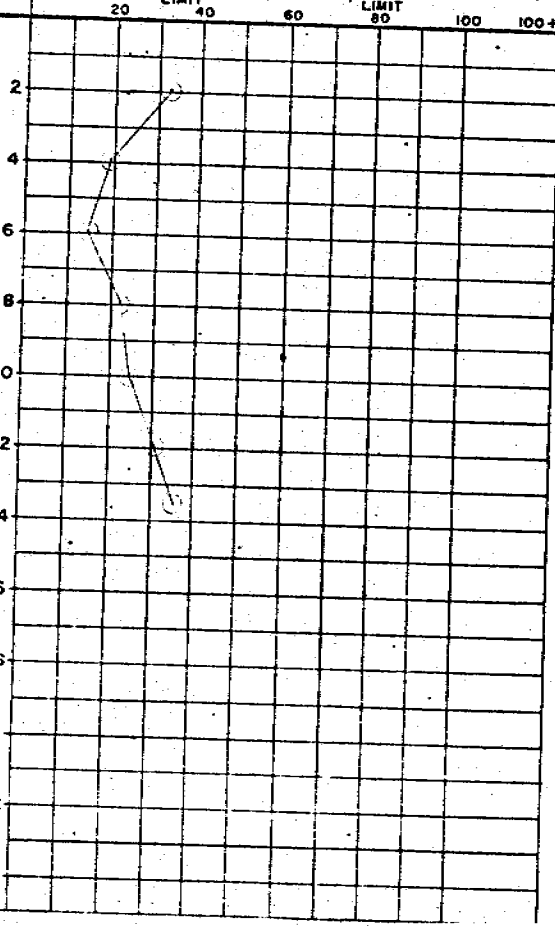
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: S.N. | FIELD ENG: H.B. | DATE DRILLED: [illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: [illegible]
CKD: [illegible] | TECH: J.H. | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | OFFSET: | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
279	C	21*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
2	1				SM	SAND: SILT: [illegible]		Rare							
4	2					[illegible] 2 or more low-non plastic brown									
6	3														
8	4														
10	5							1x 1%							
12	6					coal specs 10		Rare							
14	7					END of HOLE 13½									
16															
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: GM | FIELD ENG: H.D. | DATE DRILLED: [illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: 114[illegible] | OFFSET: [illegible]

CKD: [illegible] | TECH: [illegible] | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	C	22*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
2	1				SM	SAND: silty, some fine gravel, grey-brown			2							
4	2					4 Fine silt			4							
6	3					6 Silt / sand			6							
8	4								8							
10	5							15%	10							
12	6								12							
14	7								14							
16	8					16 Fine [illegible]			16							
18									18							
20									20							
22									22							
24									24							

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⟷ LIQUID LIMIT

20 40 60 80 100 100+

R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

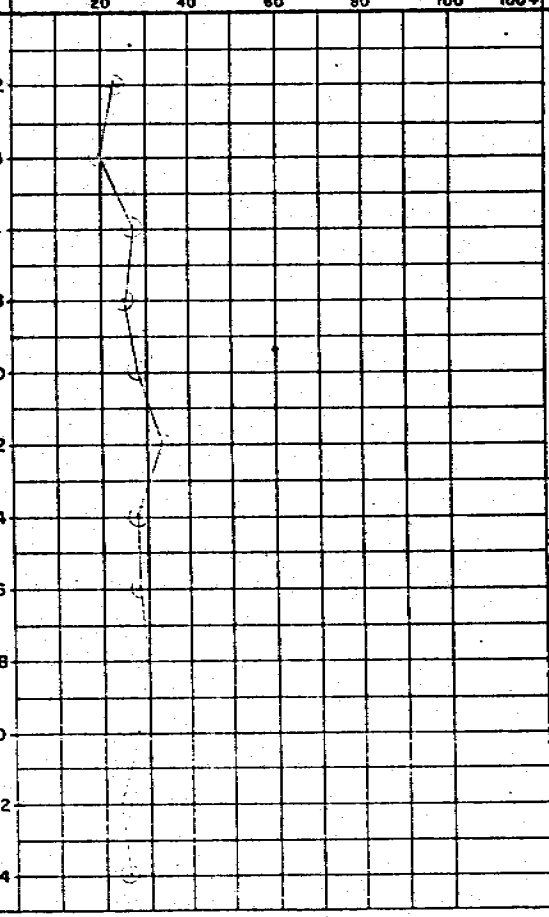
DWN: [illegible] | FIELD ENG: H.B. | DATE DRILLED: [illegible] | AIRPHOTO NO: | CHAINAGE: [illegible] | OFFSET: [illegible]

CKD: [illegible] | TECH: T.C. | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	C	23+

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				SM	SAND: medium grained slightly silty, [illegible] brown coal specs.	F	[illegible]								
2								Vx 1%	2							
	2															
4								Nbo	4							
	3															
6						trace of clay fines		Nbo	6							
	4															
8						low plastic		Vx 2%	8							
	5															
10						less silty less clay not plastic		Nbo	10							
	6															
12								Nbo	12							
	7															
14									14							
	8															
16									16							
	9															
18									18							
	10															
20								[illegible]	20							
	11															
22									22							
	12															
24						END OF HOLE 24			24							

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

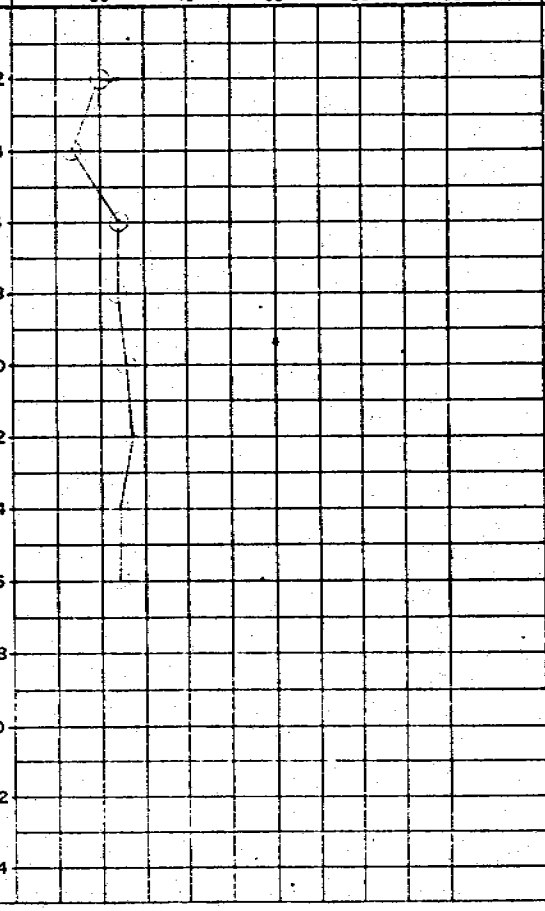


R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.P.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO:	CHAINAGE: 133-00	OFFSET:
CKD:	TECH: T.C.	RIG: TRAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	C	24 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
0	1				SM	SILT SAND: [illegible]	F	Nin
2	2							
4	3							
6	4					LOW PLASTIC — 6		
8	5					CLAY — 8		
10	6				CL	CLAY: [illegible] — 9		
12	7					[illegible] — 12		
14	8				SM	SAND SILT: [illegible] — 14		Ice
16						END OF HOLE — 16		
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

Birch 6" ϕ 30' high 10' apart
Few Spruce 10" ϕ 40' high.

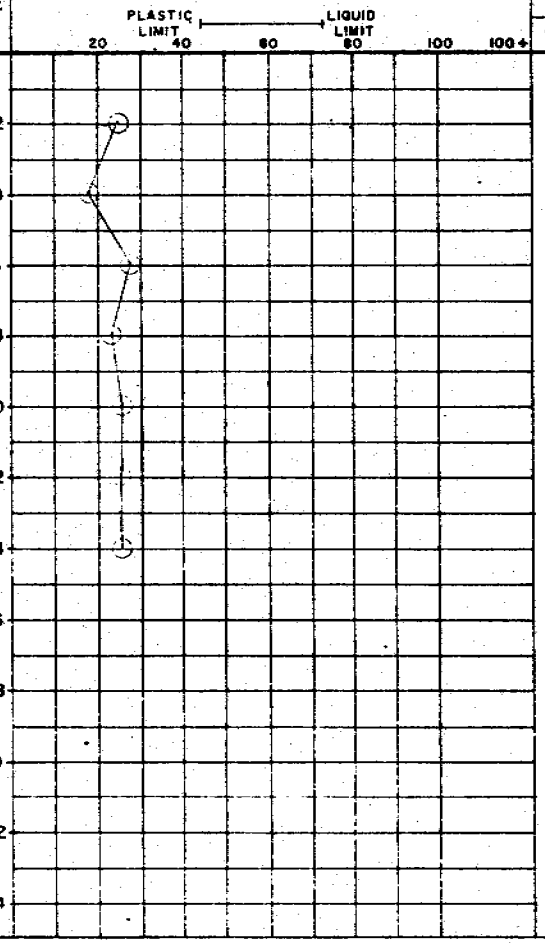
R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 4/12/72	AIRPHOTO NO: A22134-141	CHAINAGE: 134+90	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION:	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	C	25*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				PT	PEAT: category #1 — ½		½							Dense spruce 2" ϕ 15' high. odd birch 3" ϕ 15' high.
2	2				ML	SILT: very fine sand slightly clayey low plastic brown		NLn							
4	3				CI	CLAY: silty, fine sand medium plastic — 4									
6	4														
8	5							Vs 1%							
10	6							Vx 1%							
12	7				CH	high plastic — 12		Nbn							
14						14									
16															
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

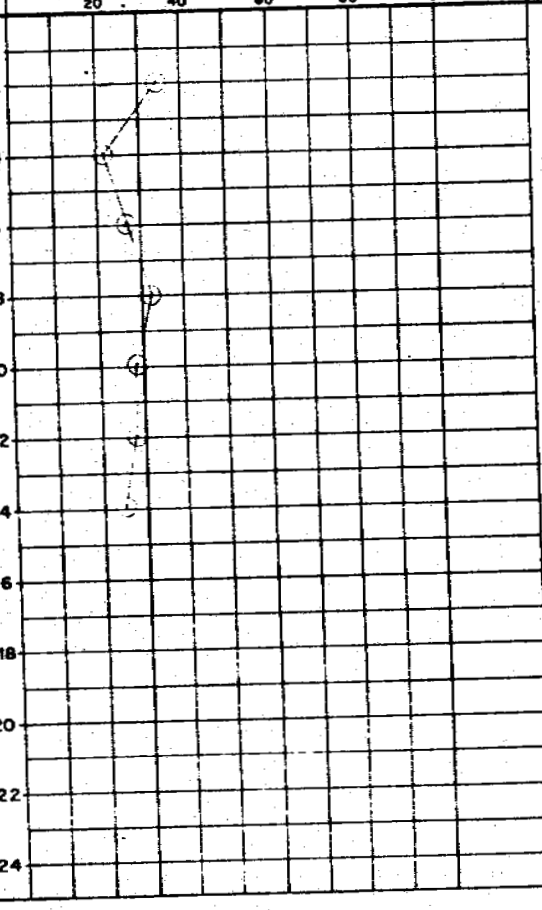
DWN: G.N. | FIELD ENG: H.B. | DATE DRILLED: 5/12/72 | AIRPHOTO NO: A22734-131 | CHAINAGE: 175+40 | OFFSET:
CKD: | TECH: T.C. | RIG: Failing 1000 | SURFACE DRAINAGE: [illegible] | VEGETATION: Sm [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
578	C	26

REMARKS: Spruce - 4 ; 20'4.4 all birch

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
	1				[illegible]	CLAY: category #1 — ½	F	Vx 10%						
					OL	SILT: fine sandy organic — 2		Vx 30%						
2	2				CH	CLAY: silty high plastic brown		Nim						
4	3													
6	4													
8	5				CI	silter — 8								
10	6													
12	7				CH	— 12								
14						END of HOLE — 14								
16														
18														
20														
22														
24														

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

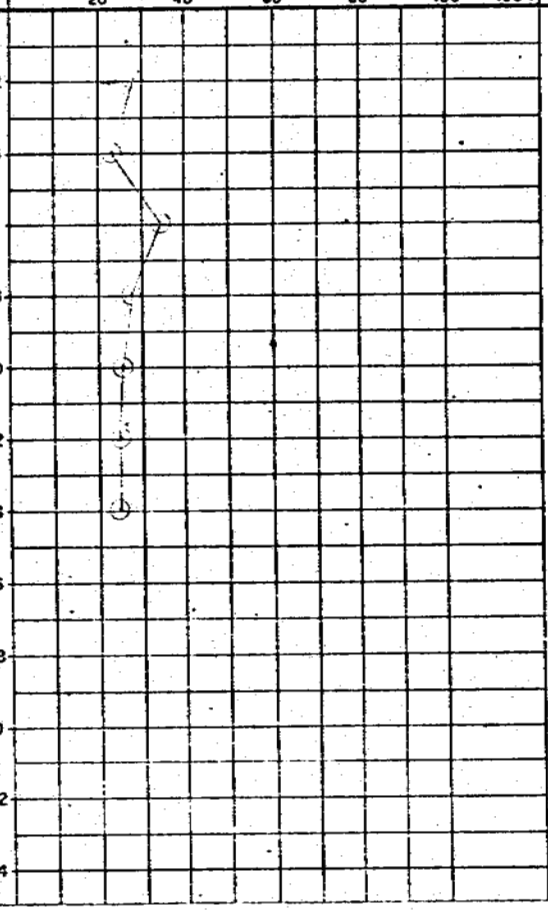
DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: [illegible]	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
578	C	27 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				PT	PEAT: cat. #1	F	Vx
2	2				CL	CLAY: [illegible] BROWN		
4	3							
6	4					NO BRAKING — 6		
8	5							
10	6							
12	7					HIGH PLASTIC — 12		
14	8					END OF HOLE — 14		
16								
18								
20								
22								
24								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⟷ LIQUID LIMIT



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS: Spruce 6" ϕ 30' high [illegible] Birch

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B. | FIELD ENG: H.B. | DATE DRILLED: 5/12/72 | AIRPHOTO NO: [illegible] | CHAINAGE: [illegible] | OFFSET:

CKD: [illegible] | TECH: T.C. | RIG: FAILING 1000 | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
578	C	23 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					PT	PEAT: [illegible] — 1/2	F	Vx 1%
	1				ML	SILT: [illegible] — 2		
2						CLAYEY		
	2					CLAY: [illegible] — 5		
4						[illegible]		
	3				CH			5%
6						MED TO HIGH PLASTIC — 6		
	4							
8					CI			
	5							
10					CH			
	6							
12								
	7							2%
14						END OF HOLE — 14		
16								
18								
20								
22								
24								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⟷ LIQUID LIMIT

20 40 60 80 100 100+

DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							

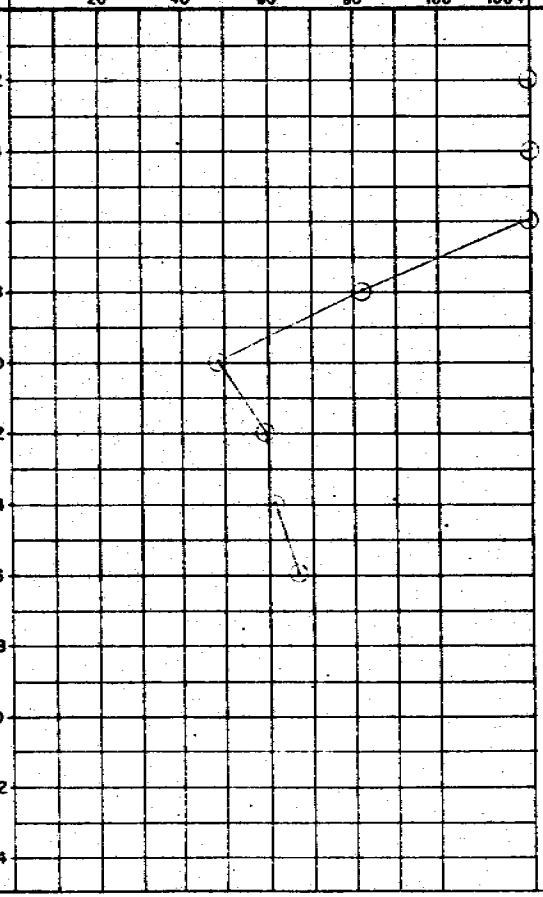
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

OWN: C.N.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: 221+45	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: [illegible] 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: Dwarf Spruce 4" ø 7-10'	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
577	C	29*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0–7½	1, 2, 3				Pt	PEAT: category #4; category #3	F	V 10%							
7½–16	4, 5, 6, 7, 8				CH	CLAY: silty, little fine sand, high plastic, [illegible]		Vx 1%							
16						END of HOLE									

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



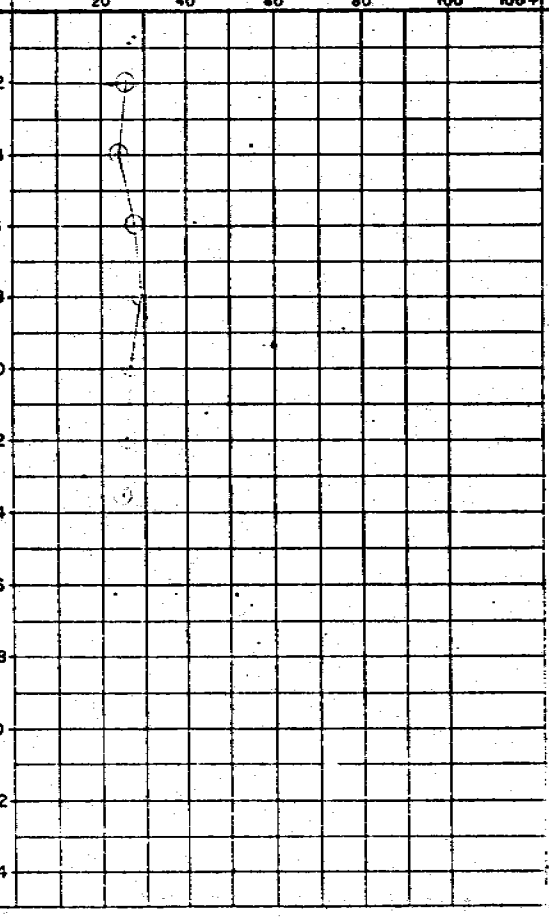
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E. B.	FIELD ENG: H. B.	DATE DRILLED: 5/12/72	AIRPHOTO NO: A22734-161	CHAINAGE: 2+70	OFFSET:
CKD:	TECH: J. H.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION:	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
577	C	50

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0–4	1, 2, 3				MH	SILT: [illegible]	F	Nbn							
4–12	4, 5, 6				CI	CLAY: SILTY SOME FINE SAND MED. PLASTIC [illegible]									
12–13½	7					No SAND GREY									
13½						END OF HOLE									

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



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DRILL HOLE REPORT

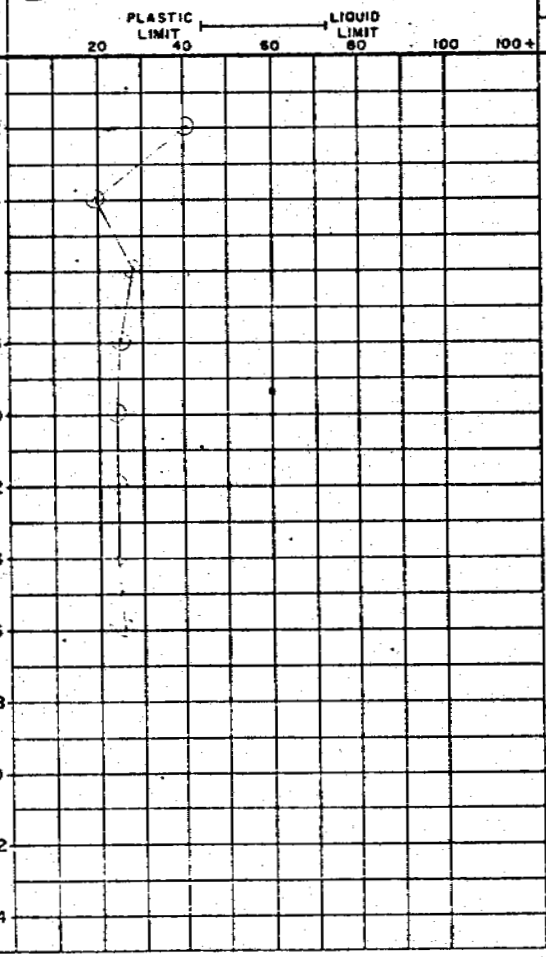
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 5/10/72	AIRPHOTO NO: [illegible] 161	CHAINAGE: 256+50	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: Scrub Spruce [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
[illegible]	C	31 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				CI	CLAY: [illegible]	F	Non								
2						2			2							
	2				ML	SILT: [illegible] FINE SAND [illegible] BROWN										
4						4			4							
	3				CI	CLAY: SILTY FINE SAND [illegible] BROWN										
6	4								6							
8						8			8							
	5					NO SAND										
10									10							
	6															
12									12							
	7															
14									14							
	8															
16						16			16							
						END OF HOLE										
18									18							
20									20							
22									22							
24									24							

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.

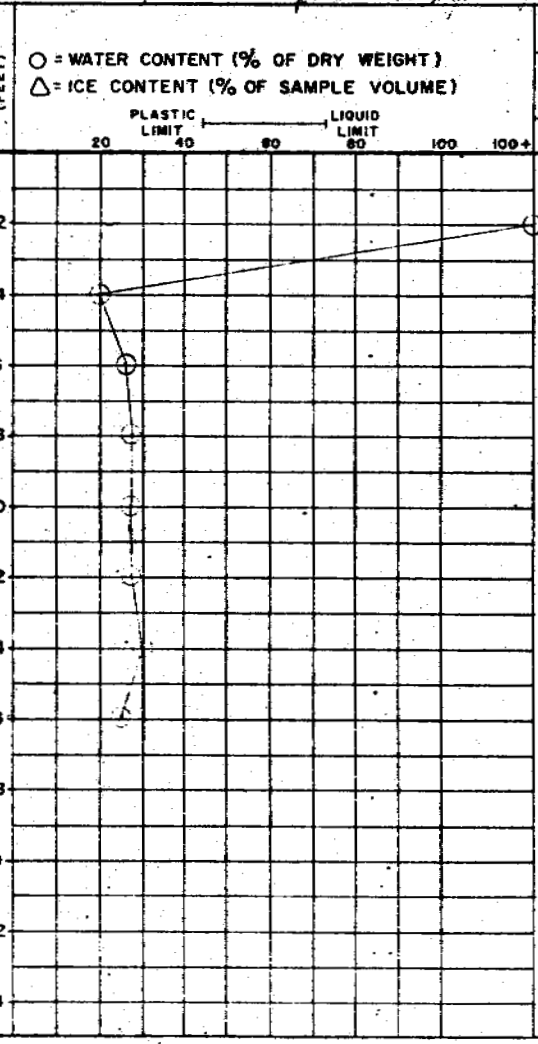
DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED:	AIRPHOTO NO: [illegible]	CHAINAGE: 269+40	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: Spruce - 30' [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
576	C	32*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				Pt	PEAT: [illegible] 3 [illegible]	T	[illegible]							
2	2				SM	SAND: SILT. fine sand very silty low plastic brown									
4	3					clayey									
6	4				CI	CLAY: brown-grey medium plastic									
8	5				CH	grey high plastic [illegible]									
10	6														
12	7														
14	8														
16						END OF HOLE									
18															
20															
22															
24															



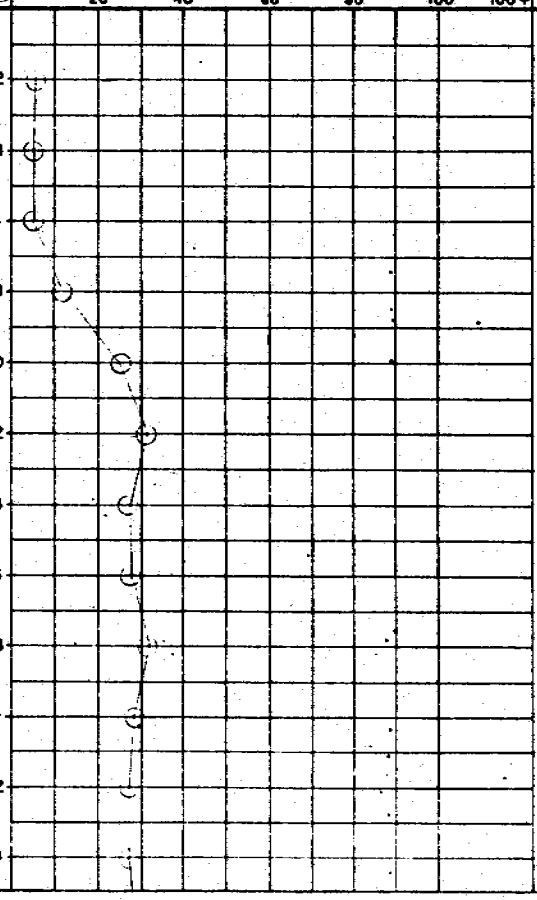
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN:	FIELD ENG: H.E.	DATE DRILLED: 4/12/72	AIRPHOTO NO: A 22934-161	CHAINAGE: 121+00	OFFSET:
CKD:	TECH: T.C.	RIG: Failing 1600	SURFACE DRAINAGE: Poor	VEGETATION: See Remarks	ELEV:

TEST HOLE SHEET 1 OF 2

MILE	B,C,S	NUMBER
579	S	33*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
0	(1)				SP	SAND; Medium-Fine Grained Silty, Non-Plastic Brown	F	Nf
2	(2)							
4	(3)							
6	(4)							
8	(5)							
10	(6)				SM	Siltier — 11'		Nbn
12	(7)							
14	(8)							
16	(9)							
18	(10)							
20	(11)							
22	(12)							
24	(13)							



GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)

REMARKS

Spruce 6" ϕ Max
Occasional Birch & Poplar 4' apart 5" ϕ Max

R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

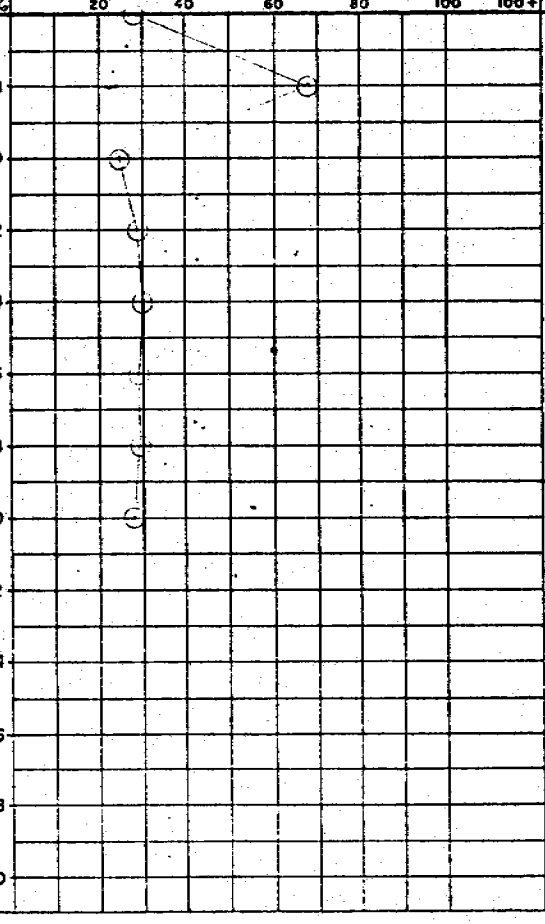
DWN: [illegible] FIELD ENG: H.B. DATE DRILLED: 4/12/78 AIRPHOTO NO: A 22934-161 CHAINAGE: 121+00 OFFSET:

CKD: [illegible] TECH: T.C. RIG: [illegible] SURFACE DRAINAGE: VEGETATION: See Remarks ELEV:

TEST HOLE SHEET 2 of 2

MILE	B,C,S	NUMBER
579	S	33*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
26								
	(14)				SM	SAND Medium Fine Grained Silt Non Plastic Brown	F	ix 10%
28						28'		
	(15)				ML	SILT; Sandy Low Plastic Brown		
30								Non
	(16)							
32								
	(17)							
34								
	(18)							
36								
	(19)							
38								
	(20)							
40						40		
						End of Hole		
42								
44								
46								
48								
50								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

- REMARKS

Spruce 6" ϕ Max 4' Apart

Occasional Birch & Poplar 5" ϕ Max

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

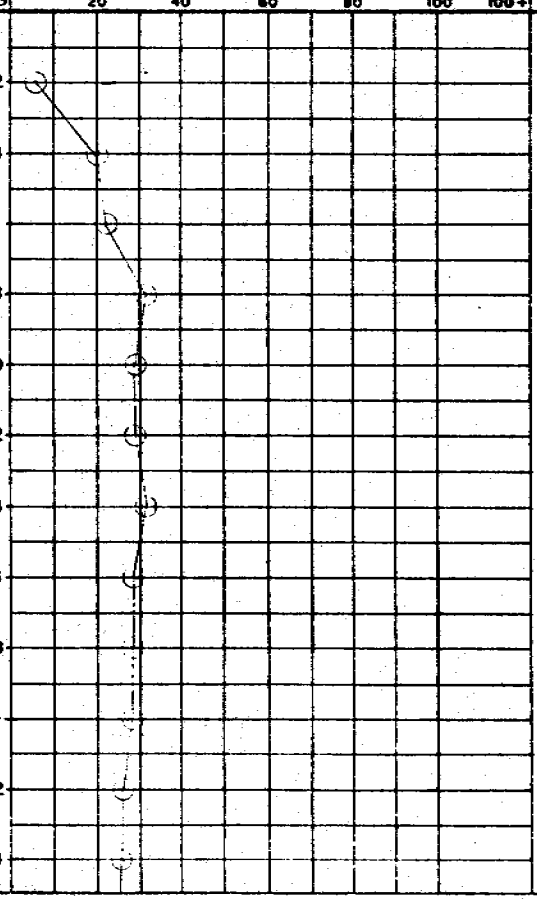
DWN: CCM/FJ	FIELD ENG: H.B	DATE DRILLED: 7/12/72	AIRPHOTO NO: A22934-161	CHAINAGE: 112 + 50	OFFSET:
CKD:	TECH: TC	RIG: THILLIG 1000	SURFACE DRAINAGE: Poor	VEGETATION: Sat Remarks	ELEV:

TEST HOLE SHEET 1 OF 2

MILE	B,C,S	NUMBER
579	S	34*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
0	(1)				SM	SAND; Medium - Fine Grained, Silty, Non Plastic, Brown, Coal Specks	F	Nf
2	(2)							
4	(3)							Hbn
6	(4)				ML	SILT; Sandy, Low Plastic — 6'		
8	(5)							
10	(6)							
12	(7)							
14	(8)				ML	SILT : SAND Mixture — 14'		
16	(9)							
18	(10)							
20	(11)							
22	(12)				CL	CLAY; [illegible] — 22'		
24	(13)							Vx 15 %

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

Spruce
6" ϕ Max
30' High
10' Apart

Birch
5" ϕ Max
30' High
3' Apart

R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

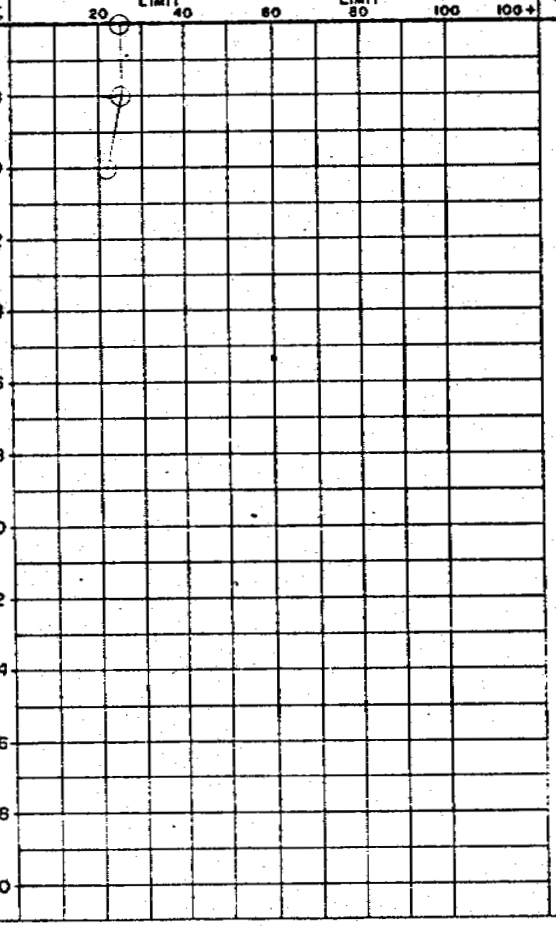
DWN	FIELD ENG:	DATE DRILLED:	AIRPHOTO NO: A 22934-161	CHAINAGE: 112+50	OFFSET:	TEST HOLE SHEET 2 OF 2
CKD	TECH:	RIG:	SURFACE DRAINAGE:	VEGETATION: See Remarks	ELEV:	

MILE	B,C,S	NUMBER
579	S	34*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
26								
	(14)				CI	CLAY, Silty Sandy Med. Plastic	F	Vx 15%
28								
	(15)							
30						30' End of Hole		
32								
34								
36								
38								
40								
42								
44								
46								
48								
50								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

- REMARKS

Spruce
6" ϕ Max
30' High
10' Apart

Birch
5" ϕ Max
30' High
3' Apart

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

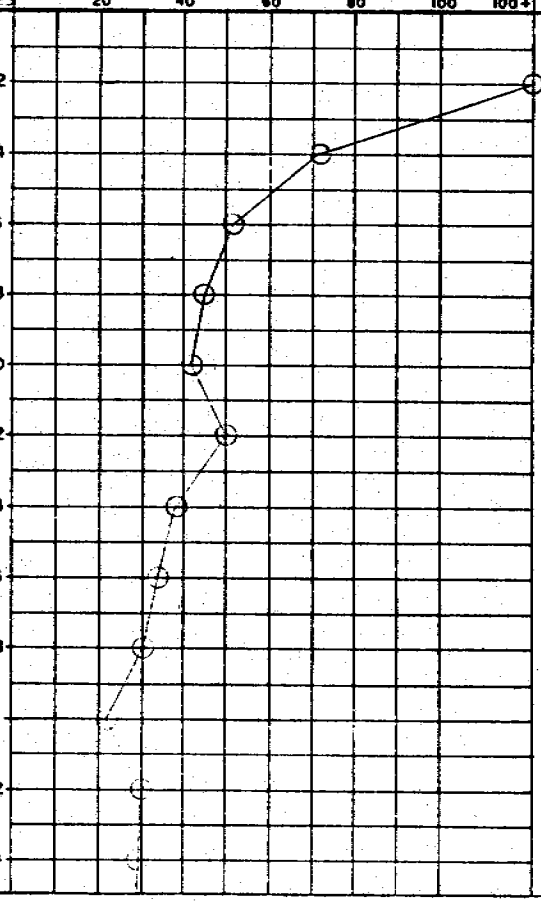
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: CH	FIELD ENG: H.B.	DATE DRILLED: 9/12/72	AIRPHOTO NO: F 22934-161	CHAINAGE: 116+10	OFFSET:
CKD:	TECH: T.C	RIG: FAILING 1000	SURFACE DRAINAGE: POOR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE
SHEET 1 OF 2

MILE	B,C,S	NUMBER
579	S	35*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0–2	(1)				Pt	PEAT; CATEGORY #1	F								SPRUCE 12" ϕ MAX
2–4	(2)				SM	SAND; FINE GRAINED SILTY, ORGANIC, LOW PLASTIC — 2½		Vx 40%							OCCASIONAL POPLAR
4–6	(3)														
6–8	(4)				ML	SILT; SANDY, CLAYEY LOW PLASTIC — 6'									
8–10	(5)				CI	CLAY; MEDIUM PLASTIC GREY — 8'									
10–12	(6)				CH	SILTY, LESS SANDY HIGH PLASTIC — 10'		Vx 20%							
12–14	(7)														
14–16	(8)														
16–18	(9)														
18–20	(10)				CI	SILTIER TRACE OF SAND MEDIUM PLASTIC BROWN — 18'		Hdn							
20–22	(11)														
22–24	(12)				SM	SAND; FINE GRAINED SILTY, TRACE OF CLAY LOW PLASTIC. — 22									
	(13)														

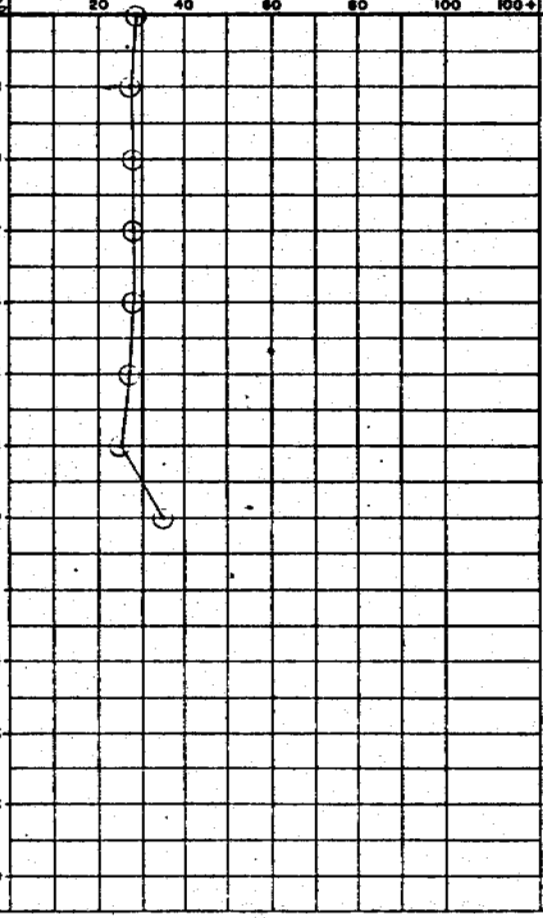


R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: CGJ	FIELD ENG: H.B.	DATE DRILLED: 4/12/72	AIRPHOTO NO: A 22934-161	CHAINAGE: 116+10	OFFSET:	TEST HOLE Sheet 2 of 2
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: See Remarks	ELEV:	

MILE	B,C,S	NUMBER
579	S	35*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
26															
	(14)				SM	SAND; Fine Grained Silty, Trace of Clay Low Plastic.	F	Nbn							Spruce 12" ϕ
28															
	(15)														Occasional Poplar
30															
	(16)														
32															
	(17)														
34															
	(18)														
36															
	(19)														
38															
	(20)														
40						40' End of Hole									
42															
44															
46															
48															
50															



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

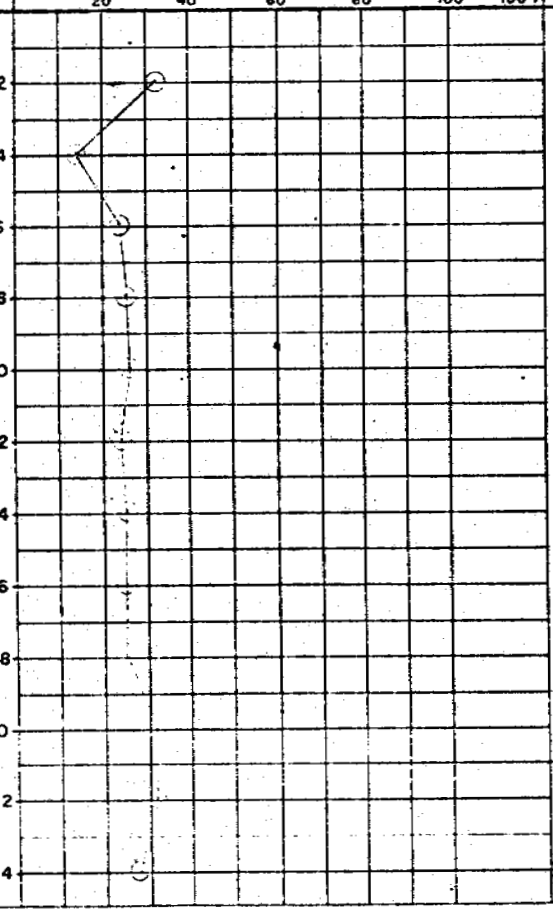
DWN: E.R. | FIELD ENG: H.B. | DATE DRILLED: 5/12/72 | AIRPHOTO NO: [illegible] | CHAINAGE: [illegible] | OFFSET:

CKD: [illegible] | TECH: J.H. | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
576	C	36 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
2	1				SM	SILT: [illegible]	F	None						
4	2													
6	3					5½								
8	4				CI	CLAY: SILTY [illegible]								
10	5													
12	6					11½								
14	7					[illegible] NO SAND GRAY								
16	8													
18	9					15								
20	10				SM	SILT SAND: [illegible] GRAY								
22	11					19								
24	12				CI	CLAY: [illegible]								
	13					[illegible]								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



REMARKS

Spruce 8"-12" ϕ 40' high
Birch 6"-8" ϕ

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

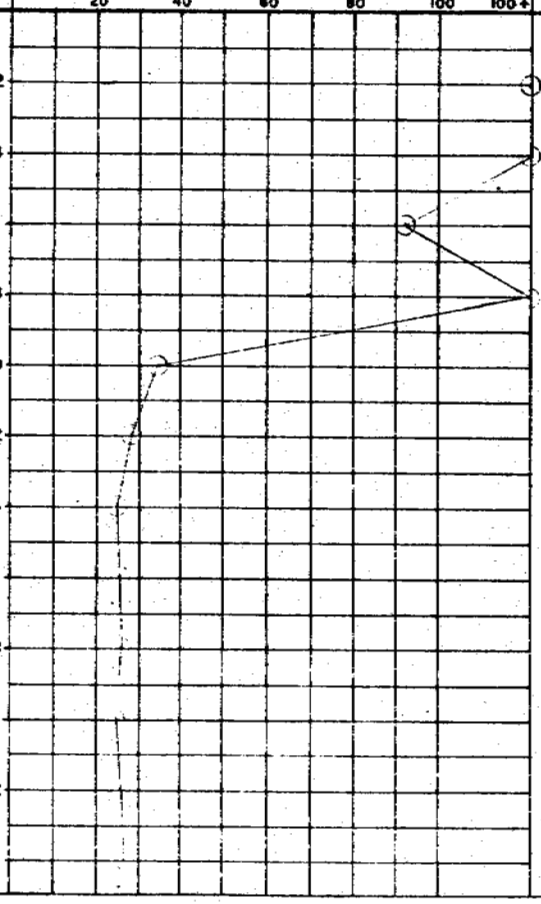
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 5/12/72	AIRPHOTO NO: [illegible]	CHAINAGE: [illegible]	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: FALLING [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
576	C	37*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				Pt	PEAT: category #5		15%							Dwarf Spruce 2'-3' ø 15' high few Tamarack
2	2					category #3									
4	3					category #1									
6	4				ML	SILT: fine sand low plastic brown — 6		Vx 1%							
8	5							Non							
10	6				CL	CLAY: silty, fine sandy, medium plastic, grey green — 10									
12	7				CH	high plastic grey — 13		Vx 1%							
14	8														
16	9														
18	10														
20	11														
22	12														
24						END OF HOLE — 24									

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

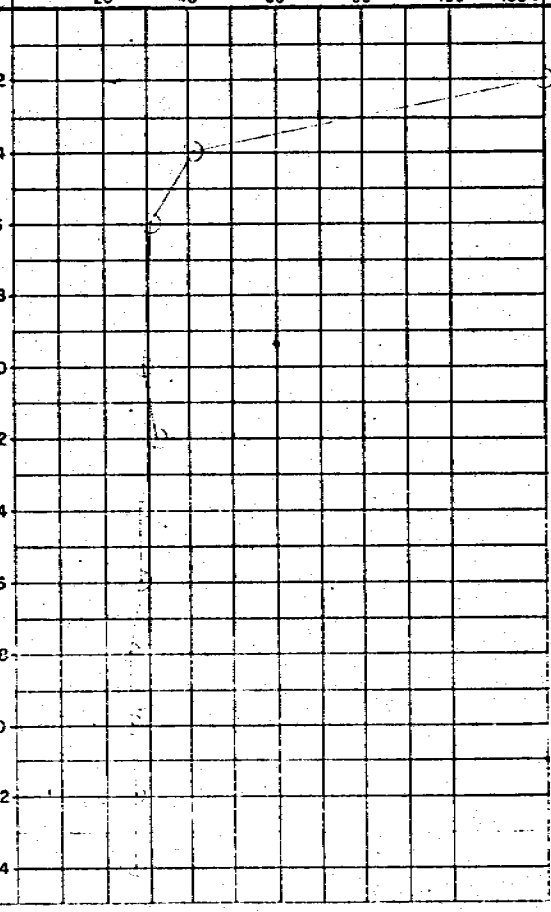
DWN: E.A. | FIELD ENG: [illegible] | DATE DRILLED: [illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: [illegible] | OFFSET:

CKD: [illegible] | TECH: J.H. | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: SEE AIRMASKS | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
576	C	38*

REMARKS: Dead Spruce 2'-3' [illegible] / Forwarded

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				Pt	PEAT: [illegible]	F	Nbn
2						2		
	2				SM	SILT: [illegible]		
4								
	3							
6								
8	4							
10						10		
	5				CI	CLAY: [illegible]		
12								
	6							
14						14		
	7							
16						16		
	8				MH	SILT: [illegible]		
18								
	9							
20								
	10							
22								
	11							
24						24		
						End of Hole		



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

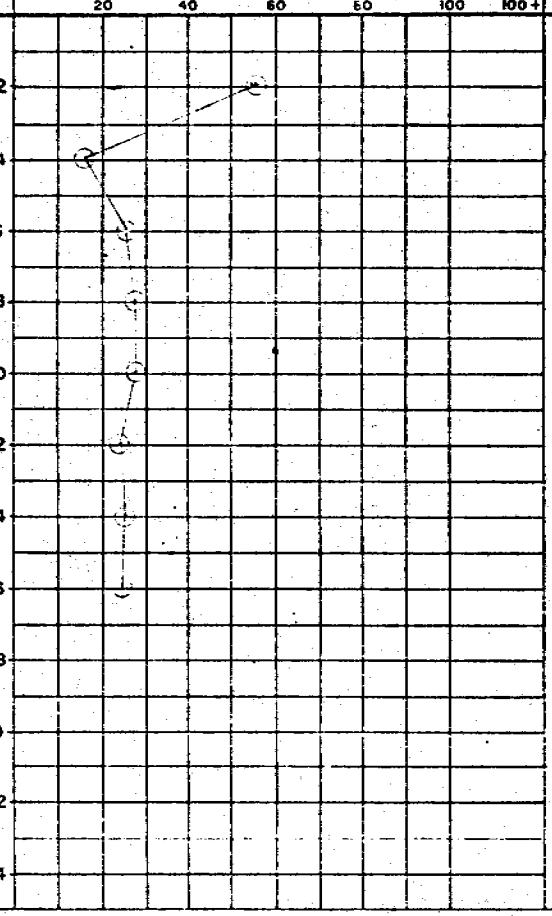
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 5/12/72	AIRPHOTO NO: [illegible]	CHAINAGE: 305+10	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: Black Spruce 3'-5', 30% cover	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
576	C	39 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
						PEAT: [illegible] 2		
	1				MH	SILT: [illegible]	F	Nbc
2						3		
4	2							
6	3					6		
8	4				CI	CLAY: [illegible]		
10	5					[illegible]		Vx 1%
12	6				CH			
14	7							
16	8					16		
18						END OF HOLE		
20								
22								
24								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS: SPRUCE [illegible]

R.M. HARDY AND ASSOCIATES LTD.

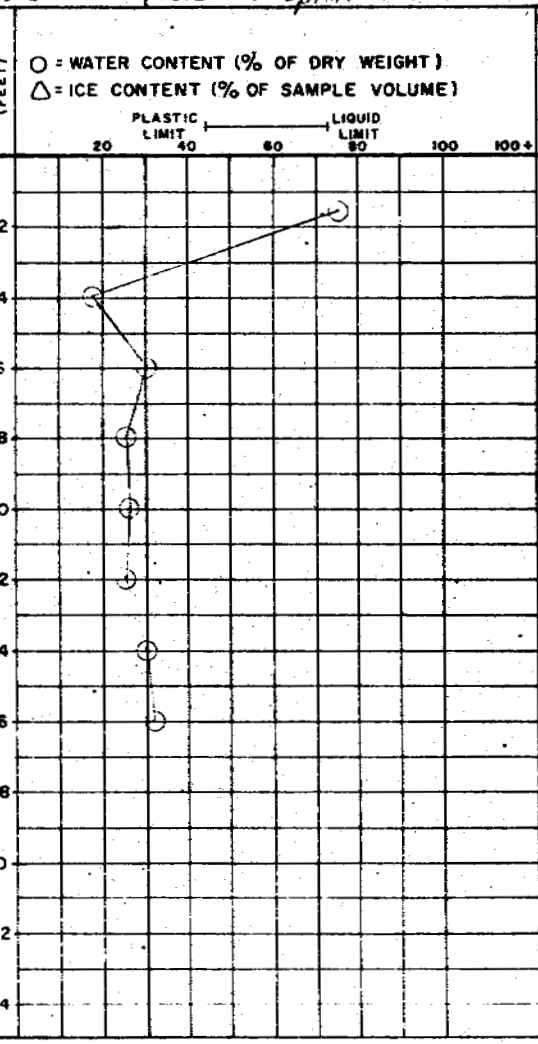
DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 5/12/72	AIRPHOTO NO: [illegible]	CHAINAGE: 319+15	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: Spruce [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	C	40*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				Pt	PEAT: Category #1	F								
2	2				ML	SILT: [illegible] non plastic	1½	[illegible]							
4						less sand low plastic brown	3								
6	3				CI	CLAY: [illegible] little sand medium plastic brown	5	[illegible]							
8	4							Vs 15%							
10	5				CH	[illegible] plastic grey	9	[illegible]							
12	6														
14	7														
16	8							Vs 15%							
						END OF HOLE	16								
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B. | FIELD ENG: H.B. | DATE DRILLED: 5/12/72 | AIRPHOTO NO: [illegible] | CHAINAGE: 327+00 | OFFSET:

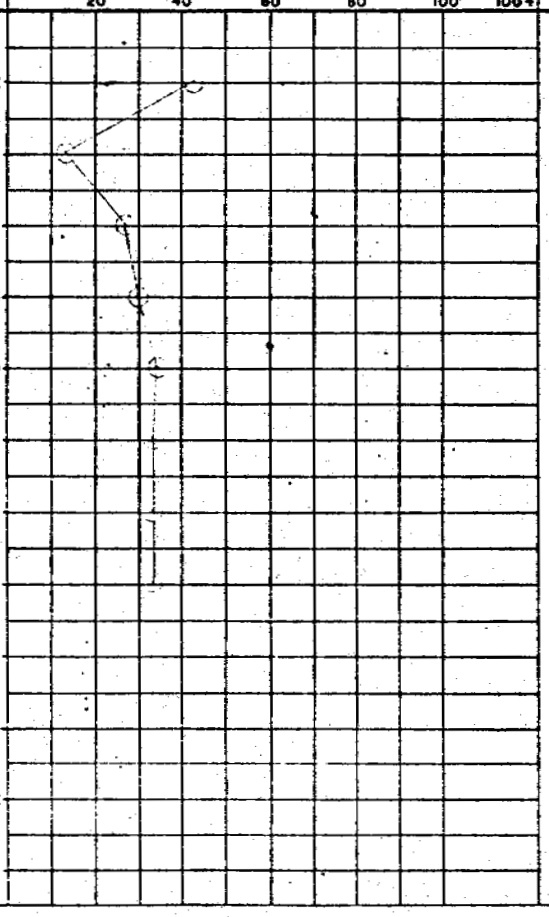
CKD: [illegible] | TECH: [illegible] H. | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: Spruce, [illegible] | ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
575	C	41 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
						PEAT: CAT. #4									
	1				MH	SILT: VERY PLASTIC, LOW TO MED PLASTIC BROWN — 2	F	Nbn							4" to 6" GRASS
2	2				SM	SAND: FINE GRAIN, SILT, LOW PLASTIC, BROWN — 2½		NF							
4	3														
6	4				MH	SILT: SOME FINE SAND — 6									
					CI	CLAY: SILTY, MED TO HIGH PLASTIC, BROWN — 7		Vx 10%							
8	5														
10	6				CH	SOME SILT, HIGH PLASTIC, BROWN — 10									
12	7														
14	8														
16						END OF HOLE — 16									
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

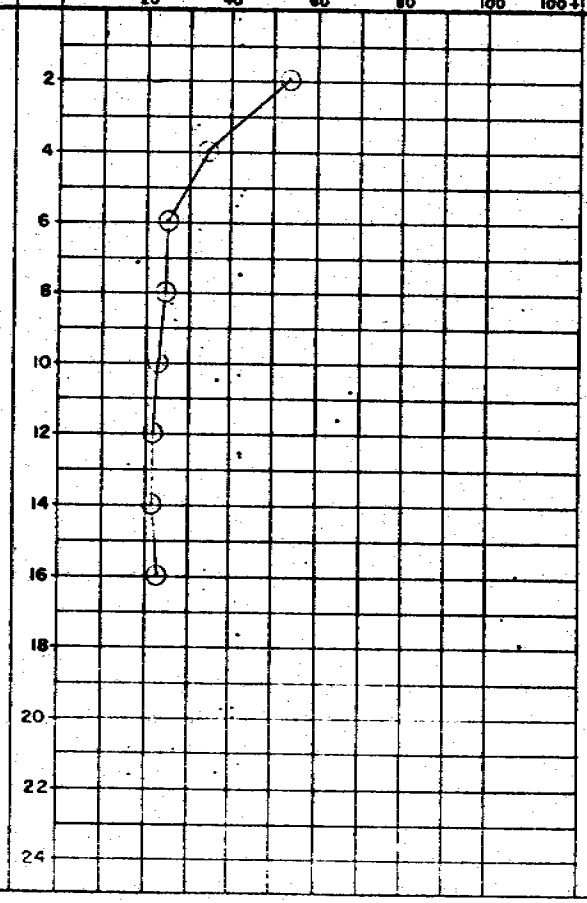
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 5/12/72	AIRPHOTO NO: A22974-163	CHAINAGE: 337+20
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: Fair	VEGETATION: Black Spruce, 3"-5" Ø, 30'-40'	ELEV:

OFFSET:

TEST HOLE		
MILE	B,C,S	NUMBER
275	C	42*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					PT	PEAT: Sat. #1 — ½	F	Non							SPRUCE 30' to 40' 4"-6" Ø, odd BIRCH
2	1				OH	SILT: fine sandy organic med. plastic brown									
4	2				ML	— 3 — no organics low plastic									
6	3				CL	CLAY: silty, fine sand medium low plastic — 4½									
8	4														
10	5				CI	— 9 — grey brown medium plastic									
12	6				CI	— 12 — grey less sand									
14	7				CH	— 14 — high plastic less silt									
16	8					END of HOLE — 16									
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

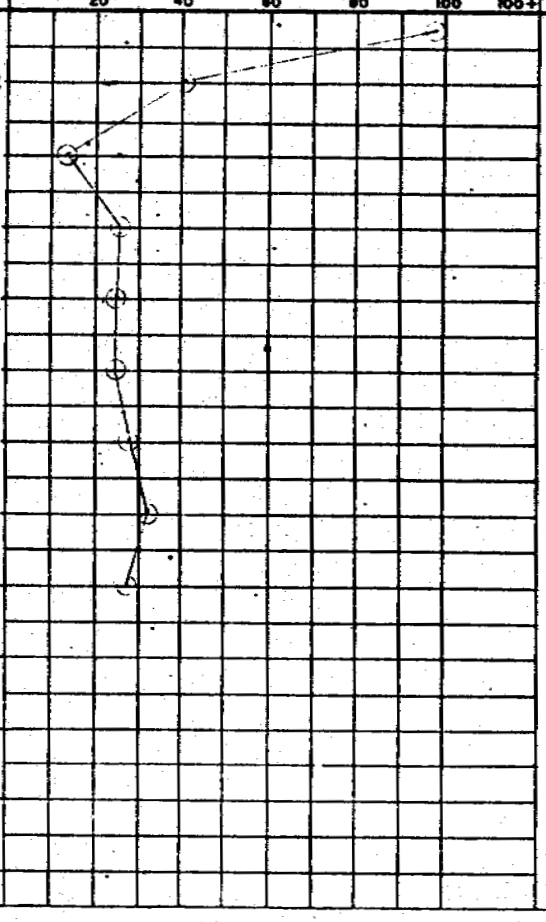
DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 5/12/72	AIRPHOTO NO: A22934-163	CHAINAGE: 355+10
CKD:	TECH: J. H.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION:

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	C	43 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				Pt	PEAT: CAT. #3 — 1	F	Vx 1%
2	2				MH	SILT: SOME FINE SAND LOW PLASTIC BROWN		
	3				SM	SAND: VERY FINE SILTY NON PLASTIC BROWN — 3		
4	4				CI	CLAY: SILTY MED PLASTIC BROWN — 5		
6	5				ML	SILT: SOME SAND LOW TO MED PLASTIC GREY BROWN — 7		
8	6							
10	7							
12	8							
14	9				CI	CLAY: SILTY MED TO HIGH PLASTIC GREY BROWN — 13		
16						END OF HOLE — 16		
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
CLAY %	SILT %	SAND %	GRAVEL %			
						SPRUCE 25-35'

R.M. HARDY AND ASSOCIATES LTD.

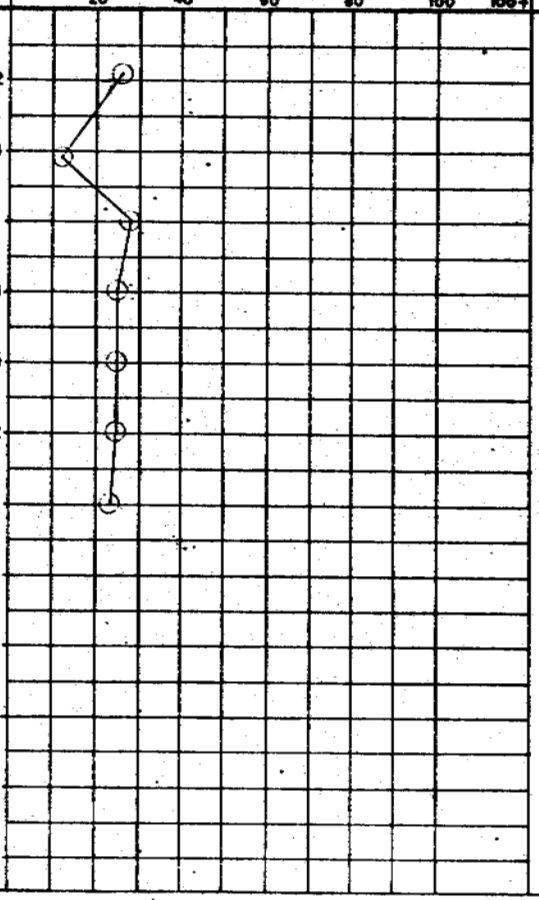
DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 5/12/72	AIRPHOTO NO: A22934-163	CHAINAGE: 364+00	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	C	44*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					PT	PEAT: Cat. #3 — 1½	F								Spruce 4" ϕ 30' high
2	1				SM	SAND: SILT: fine sand & silt low plastic brown		Vx 20%							Odd Birch 4" ϕ 30' high
4	2														
6	3				CL	CLAY: very silty medium plastic — 4½		Vx 15%							
8	4				CH	high plastic less silt grey — 6									
10	5							Vx 10%							
12	6														
14	7					END of HOLE — 14		Vx 5%							
16															
18															
20															
22															
24															



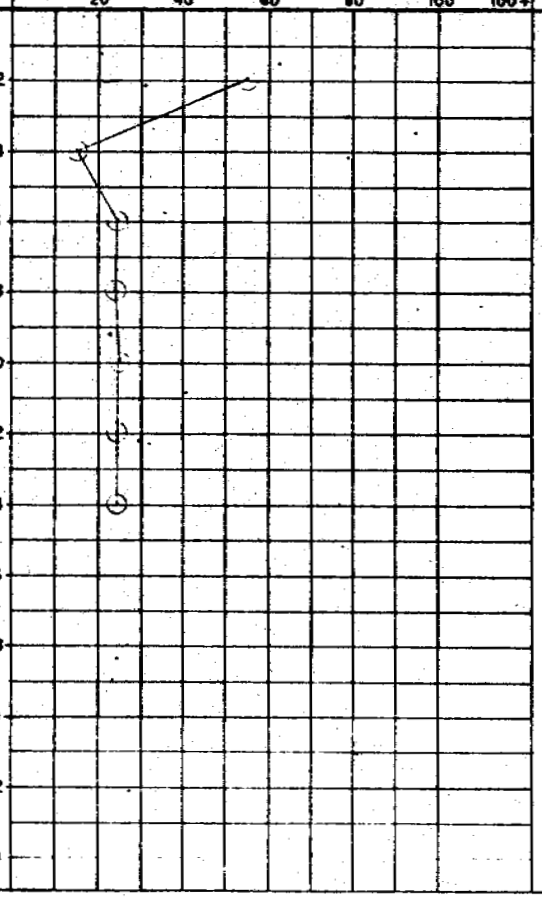
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 5/12/72	AIRPHOTO NO: A22934-143	CHAINAGE: 370+20	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION:	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
574	C	45 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: Cat. #1									
	1				MH	SILT: LOW TO MED PLASTIC BROWN — 1/4	F	Vx 30%							Spruce up to 5" ϕ 40' high
2	2				SM	SILT SAND: FINE GRAIN LOW PLASTIC BROWN — 2		20%							Few Birch 5" ϕ, 30' high.
4								10%							
6	3				CI	CLAY: SILTY MED TO HIGH PLASTIC BROWN — 5		20%							
8	4					GREY — 8		10%							
10	5							5%							
12	6														
14	7					END OF HOLE — 14									
16															
18															
20															
22															
24															

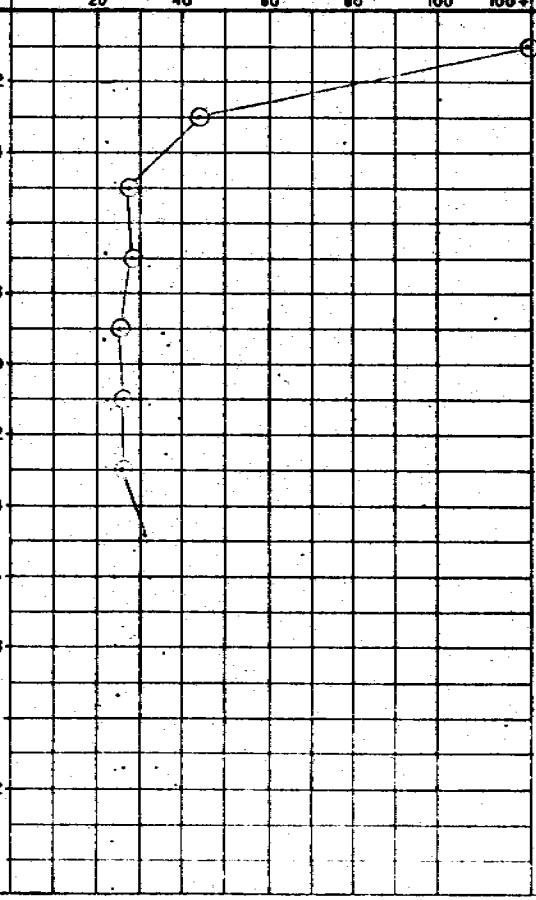


R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.S.	DATE DRILLED: 5/2/72	AIRPHOTO NO: A22934-163	CHAINAGE: 389+55	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION:	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	C	46 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				Pt	PEAT: SAT. #4 CAT. #1 — 1½	F	Vx 20%							Spruce, dense, stunted 4" Φ; odd Birch
2						SILT: SANDY, LOW PLASTIC, BROWN — 2		40%							
	2				SM			20%							
4								10%							
	3														
6															
	4														
8															
	5							10%							
10															
	6					CLAY: SILTY, SOME SAND, MEDIUM PLASTIC, BROWN — 11									
12					CI										
	7							5%							
14															
	8				CH	NO SAND, HIGH PLASTIC, GREY — 15		15%							
16						END OF HOLE — 16									
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

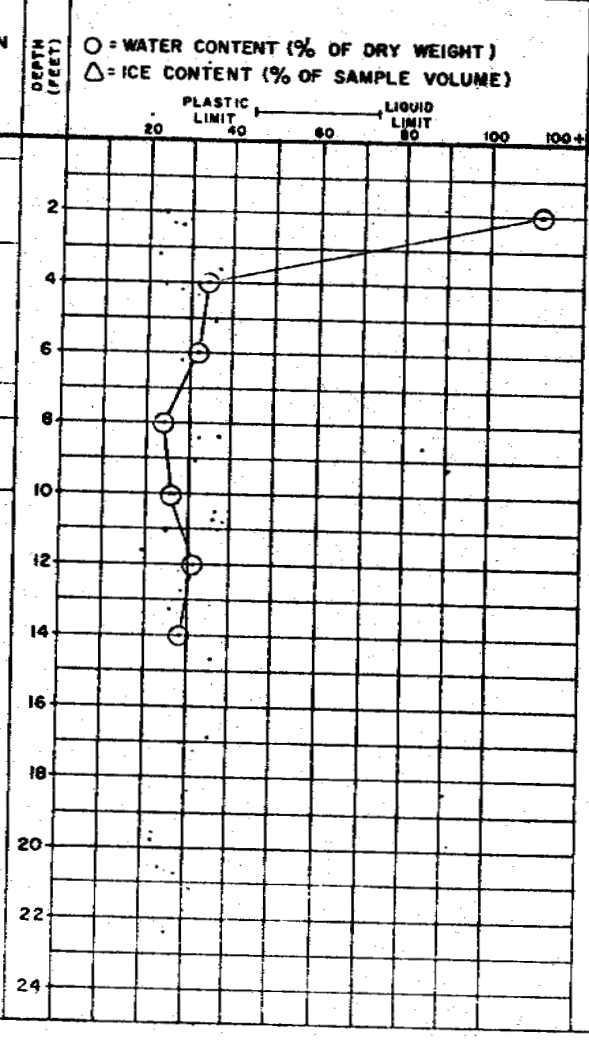
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N. | FIELD ENG: H.B. | DATE DRILLED: 5/12/7[illegible] | AIRPHOTO NO: A25 [illegible] | CHAINAGE: 403+40 | OFFSET:

CKD: [illegible] | TECH: T.C. | RIG: FAILING 1000 | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	C	47*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: Cat. #6 — ½	F	Vx 40%
2	1					SILT: fine sandy organic medium plastic		Vx 30%
4	2				CI	CLAY: silty plastic brown — 3		Vx 20%
6	3							
8	4				ML	SILT: clayey slightly plastic — 7		Vx 5%
					CI	CLAY: silty medium plastic brown — 8		Vx 5%
10	5							
12	6							Vx 20%
14	7				CH	high plastic — 12		Vx 5%
						END OF HOLE — 14		
16								
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

Birch 6"ϕ, 30' high
Spruce 4"ϕ, 25' high

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

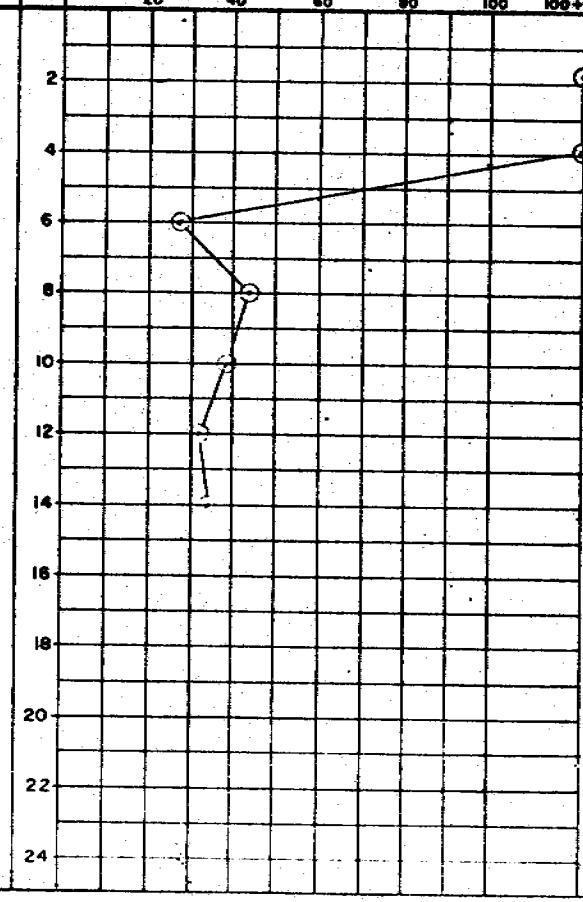
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.G.	FIELD ENG: H.B.	DATE DRILLED: 5/12/72	AIRPHOTO NO: A22934-163	CHAINAGE: 412+45	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: Short Grass 3" to 15"	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	C	48 *

REMARKS

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				Pt	PEAT: CAT. #6 — 1	F	Vx 20%
2						CAT. #4 — 2		50%
	2				SM	SILT: ORGANIC DARK BROWN — 4		
4	3					VERY FINE SAND TRACE OF CLAY LOW TO MED PLASTIC GREY — 6		40%
6	4				CH	CLAY: SILTY HIGH PLASTIC GREY BROWN		
8	5							60%
10								
12	6							30%
	7							
14						END OF HOLE — 14		
16								
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: CEK | FIELD ENG: H.D. | DATE DRILLED: 6/13/72 | AIRPHOTO NO: H22934-163 | CHAINAGE: 417+00 | OFFSET:

CKD: | TECH: T.C | RIG: FAILING 1000 | SURFACE DRAINAGE: | VEGETATION: | ELEV:

TEST HOLE SHEET 1 OF 2

MILE	B,C,S	NUMBER
574	C	49*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0					Pt	PEAT; CAT. #1		Vx 20%							
2	(1)				CH	CLAY; Silty, Fine Sandy, High Plastic, Brown.		Vx 50%							Spruce + Birch 4"ϕ Max 30' High
4	(2)														
6	(3)														
8	(4)							Vx 40%							
10	(5)														
12	(6)					12' Less Fine Sand Grey		Vx 30%							
14	(7)														
16	(8)														
18	(9)														
20	(10)														
22	(11)														
24	(12)														
	(13)														

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT

20 40 60 80 100 100+

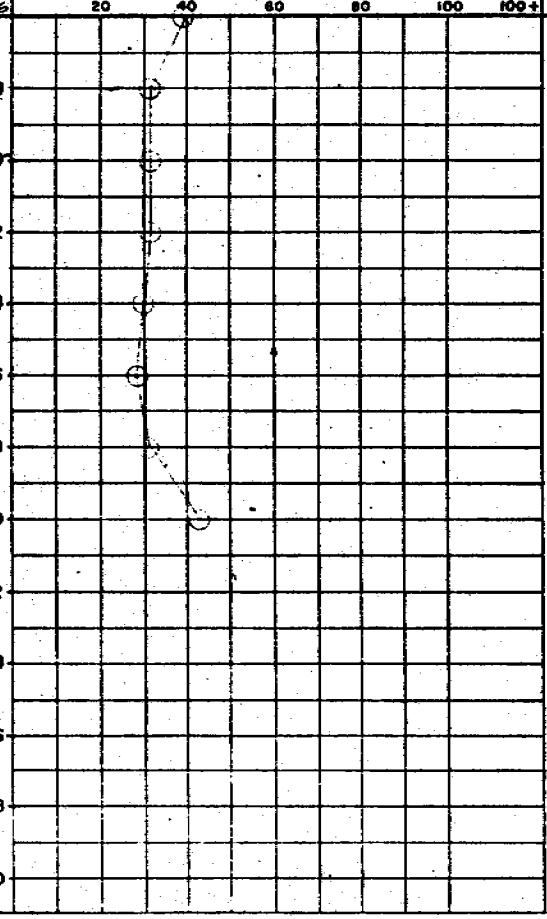
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: CA	FIELD ENG: H3	DATE DRILLED: 6/12/72	AIRPHOTO NO: A22957-163	CHAINAGE: 417+00	OFFSET:
CKD: H	TECH: T.C.	RIG: Failing 1000	SURFACE DRAINAGE:	VEGETATION: Sel Ken Fees	ELEV:

TEST HOLE Sheet 2 of 2

MILE	B,C,S	NUMBER
574	C	49*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
26					CH	CLAY; LESS FINE SAND HIGH PLASTIC GREY	F	Vx 30%							SPRUCE & BIRCH 4"ϕ MAX 30' HIGH
28	(14)							Vx 20%							
30	(15)														
32	(16)														
34	(17)							Vx 30%							
36	(18)														
38	(19)														
40	(20)					40' END OF HOLE									
42															
44															
46															
48															
50															



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

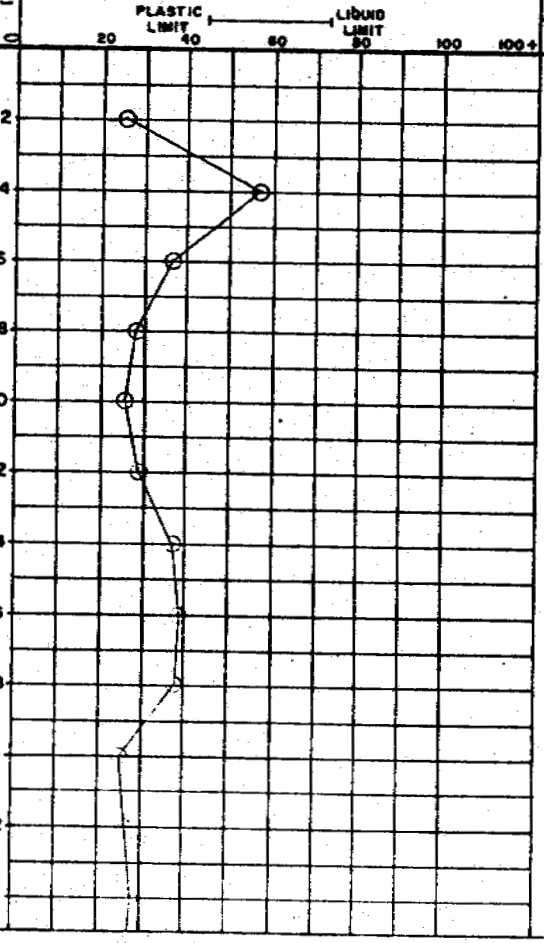
DWN: PK/GJ	FIELD ENG: HB.	DATE DRILLED: 6/12/72	AIRPHOTO NO: A22934-163	CHAINAGE: 423 + 35	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: Poor	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE (SHEET 1 of 2)

MILE	B,C,S	NUMBER
573	C	50*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
0					Pt	PEAT, CATEGORY #1		
	(1)				CI	CLAY; SILTY, MEDIUM PLASTIC, BROWN COLOR.	F	Vx 30%
2	(2)							
4								
6	(3)							20%
	(4)							
8								
10	(5)				CL	VERY SILTY, GREY. 10'		
	(6)							30%
12	(7)							
14	(8)				CH	LESS SILTY, HIGH PLASTIC. 14'		20%
16	(9)							
18	(10)							
20	(11)							
22	(12)							
24	(13)							

O = WATER CONTENT (% OF DRY WEIGHT)
Δ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)

REMARKS

SPRUCE 5"ϕ, 30' HIGH
BIRCH 6"ϕ, 30' HIGH.

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

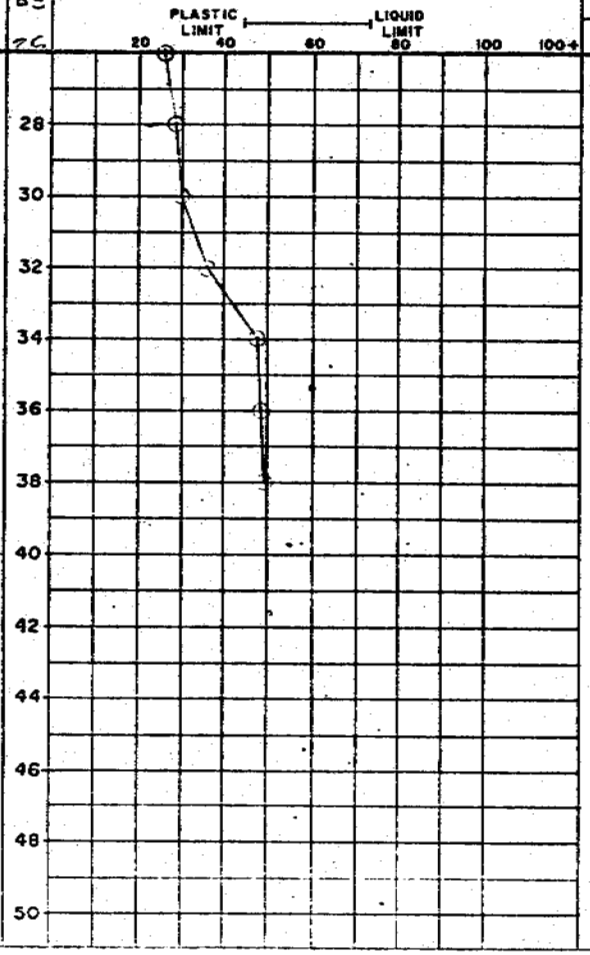
DWN: PK/GN	FIELD ENG: HB.	DATE DRILLED: 6/12/72	AIRPHOTO NO: A 22934 -163	CHAINAGE: 423 + 35	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE (SHEET 2 of 2)

MILE	B,C,S	NUMBER
573	C	50*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
26								
	(14)				CH	CLAY; SILTY, HIGH PLASTIC, GREY COLOR.	F	V/X 20%
28								
	(15)							
30								
	(16)							
32								50%
	(17)							
34								30%
	(18)							
36								
	(19)							
38								
		NR						
40						END OF HOLE 40'		
42								
44								
46								
48								
50								

O = WATER CONTENT (% OF DRY WEIGHT)
Δ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
CLAY %	SILT %	SAND %	GRAVEL %			

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

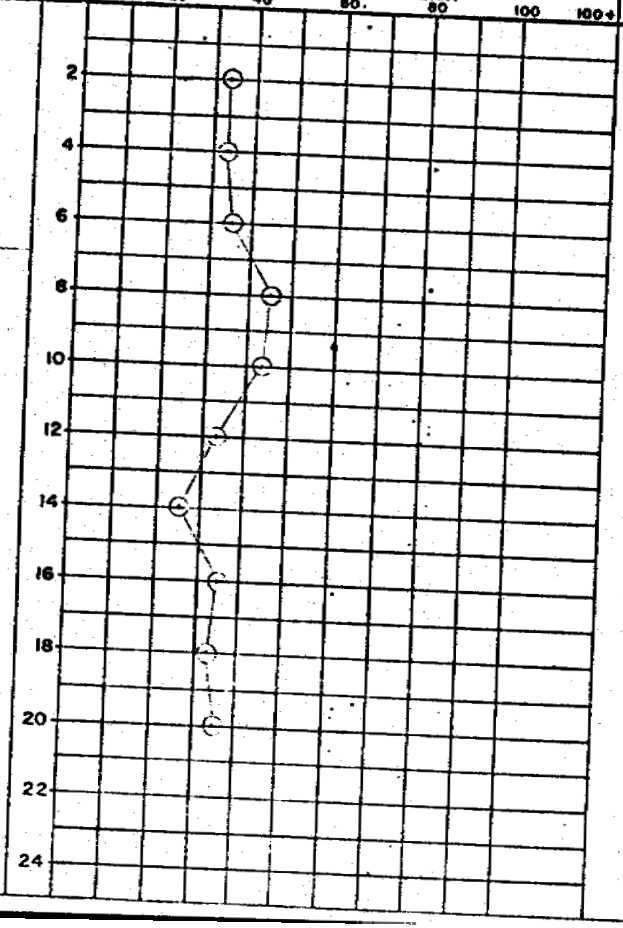
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B. | FIELD ENG: H.B. | DATE DRILLED: [illegible] | AIRPHOTO NO: A22934-163 | CHAINAGE:

CKD: | TECH: T.C | RIG: FAILING 1000 | SURFACE DRAINAGE: Fair | VEGETATION: Spruce [illegible] | OFFSET: | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	B12	51*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
0					Pt	PEAT: CAT. #4 — 3/4	F	Vx 20%
2	1					CLAY: SILTY MED TO HIGH PLASTIC BROWN		
4	2				CI			
6	3							
8	4					GREY — 8		Vx 40%
10	5							
12	6							
14	7				CI			
16	8							
18	9							
20	10					End of Hole — 20		
22								
24								



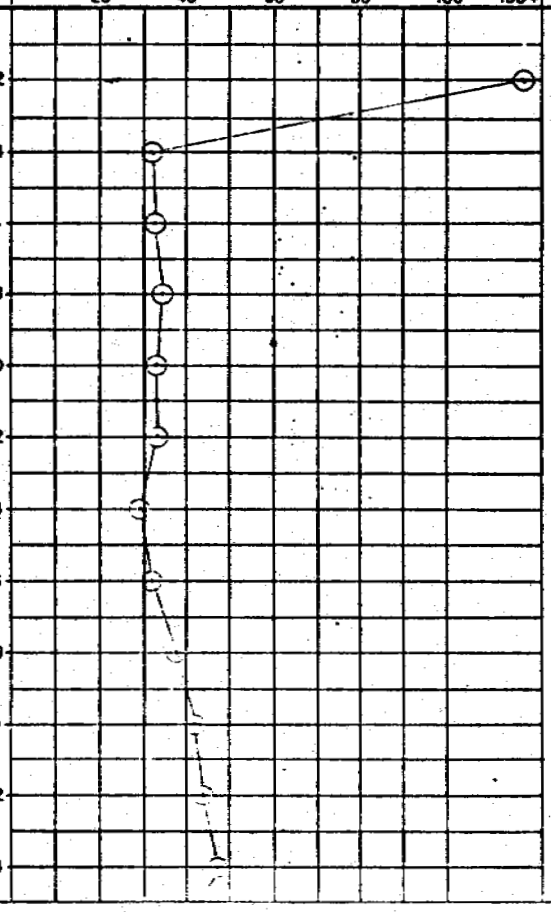
GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
CLAY %	SILT %	SAND %	GRAVEL %			

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N	FIELD ENG: H.B.	DATE DRILLED: 6/12/72	AIRPHOTO NO: A22934-163	CHAINAGE:	OFFSET:
CKD:	TECH: J.H	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: Spruce 20'-30' odd Birch	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	B12	52*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				Pt	PEAT. category # 11	F / UF	Vx 30%							
2	2				ML	SILT: clayey medium-low plastic brown — 2	F	Nbn							
4	3					less clay fine sandy low plastic — 5									
6	4				SM	very sandy (fine) non plastic — 8									
8	5														
10	6				ML	less sandy some clay low plastic — 11		Vx 1% 1/16" ϕ							
12	7														
14	8														
16	9				CI	CLAY: silty, some fine sand medium plastic grey — 16									
18	10							Vx <5%							
20	11				CH	high plastic — 21									
22	12							Vx 10%							
24	13					26		Vx 20%							



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

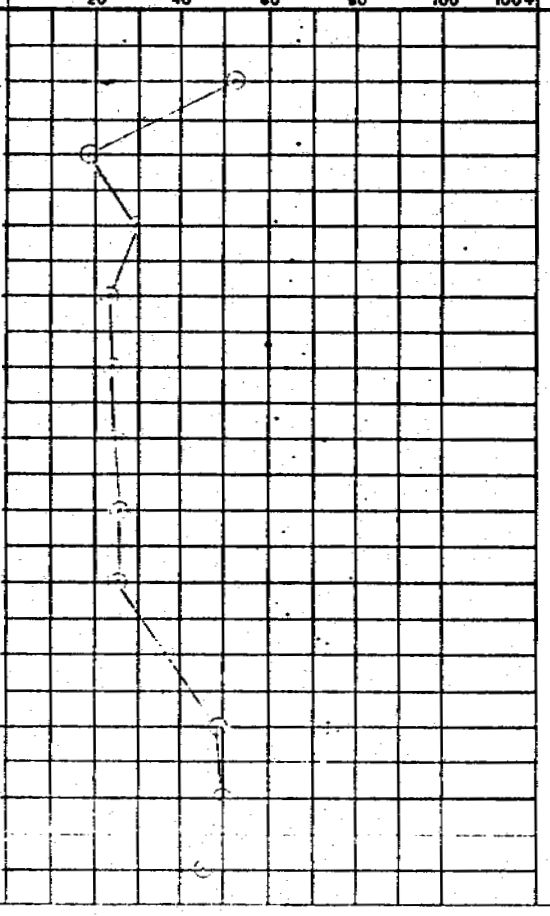
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 6/12/72	AIRPHOTO NO: [illegible]	CHAINAGE:	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	B 12	53*

REMARKS

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				Pt	PEAT: [illegible]	¼	F
2					OL	SILT: clayey, organic medium plastic brown		[illegible]
	2							
4					SM	sandy, less clay no organics low-non plastic	4	
	3							Vx 1 % 1/32" ϕ
6								
	4							
8								
	5				ML	less sand more clayey	9	
10								
	6							
12								
	7							
14								
	8							
16								
	9							
18					CI	CLAY: silty [illegible] medium plastic grey	18	Vx 15 % 1/8" ϕ
	10							
20								
	11							
22					CH	[illegible]	20	[illegible]
24						[illegible]		



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

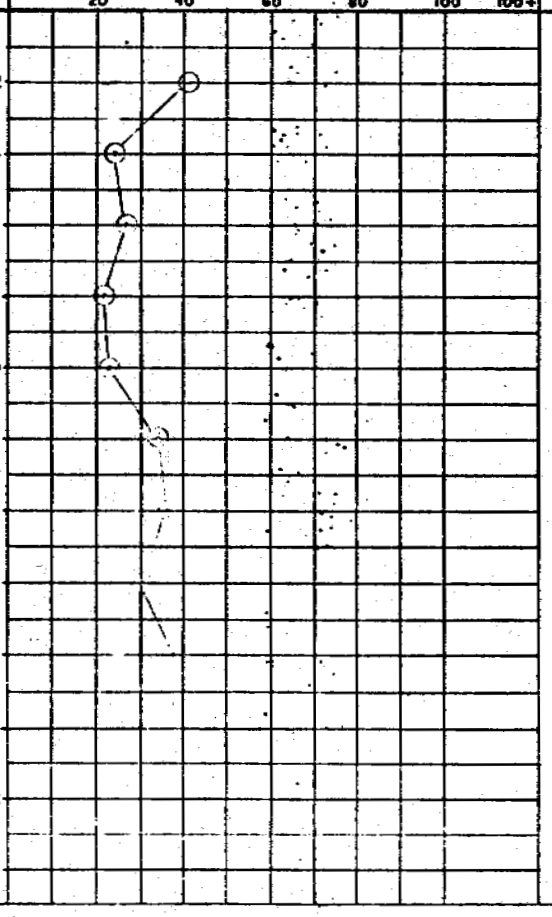
DWN: E. B. | FIELD ENG: H. B. | DATE DRILLED: 9/12/72 | AIRPHOTO NO: [illegible] | CHAINAGE: | OFFSET:

CKD: [illegible] | TECH: J. H. | RIG: FAILING 1000 | SURFACE DRAINAGE: [illegible] | VEGETATION: Spruce [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	B12	54 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
2	1				CI	CLAY: SILTY, MED. TO HIGH PLASTIC (FROZEN)	F	Vx 40%
								Vx 10%
								Vx 1%
4	2							
6	3							
8	4							
10	5							
12	6							Vx 10%
						13		
14	7				CH	SOME SILT HIGH PLASTIC		Vx 15%
16	8							
18	9							
20	10					20 END OF HOLE		
22								
24								

O = WATER CONTENT (% OF DRY WEIGHT)
Δ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

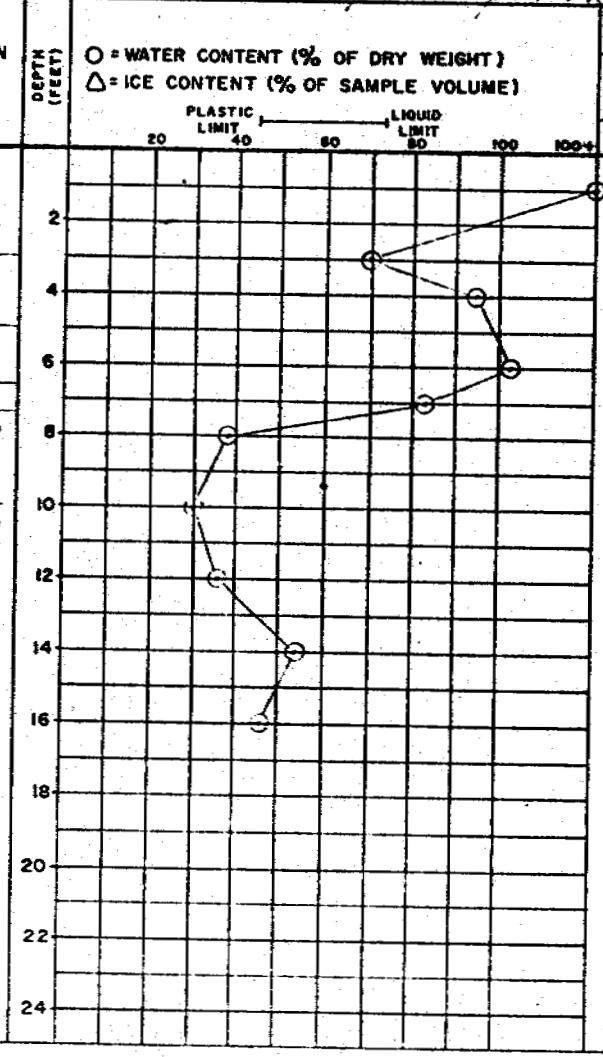
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.H. | FIELD ENG: H.B. | DATE DRILLED: 9/12/72 | AIRPHOTO NO: [illegible] | CHAINAGE: 443+25 | OFFSET:

CKD: [illegible] | TECH: [illegible] | RIG: FAILING 1000 | SURFACE DRAINAGE: [illegible] | VEGETATION: Spruce 30 ft, [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
573	C	55*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
	1				Pt	PEAT: Category #3	T	Nbn
2	2				OL	SILT: organic, sandy, med. unplastic	1	
4	3				OH	CLAY: organic, silty, medium-high plastic	3	Vx 1%
6	4				CI	no organics, medium plastic, brown	5	Vx 60%
					OH	Peaty inclusion	6½	Vx 3%
8	5				CH	no organics, silty, medium-high plastic, grey	7½	Vx 30%
10	6					higher plastic	10	Vx 60%
12	7							
14	8							
16	9							
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

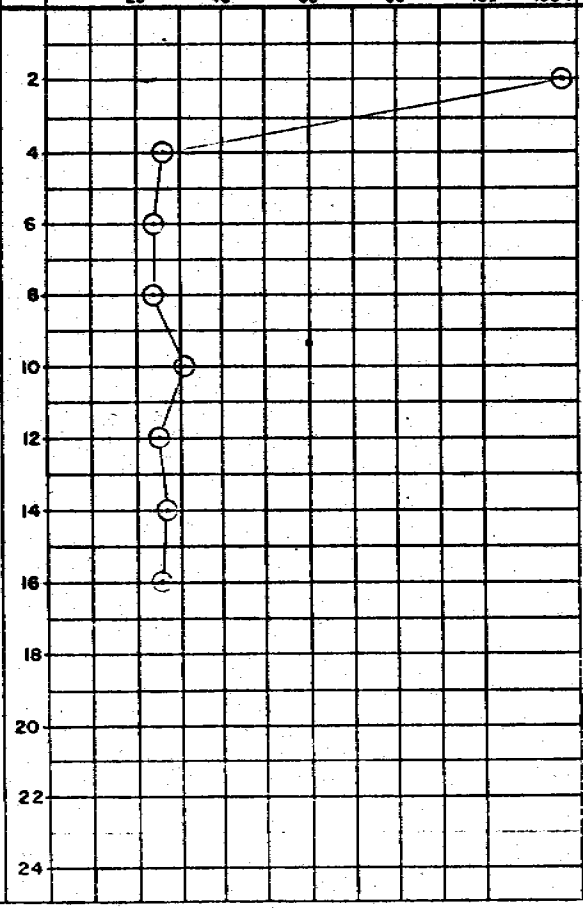
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 9/12/72	AIRPHOTO NO: A22732-1-163	CHAINAGE: 460+00	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FLAT	VEGETATION: Spruce 10'-15' High	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
273	C	56*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: category #3	F	Nbn							
2	1					2									
					SM	SILT SAND: VERY FINE SOME CLAY & LOW TO MED PLASTIC BROWN									
4	2														
6	3														
8	4														
						9									
10	5				CI	CLAY: SILT MED TO HIGH PLASTIC GREY BROWN		Vx 5%							
12	6					12									
					CH	LESS SILTY HIGH PLASTIC									
14	7														
16	8					16									
						END OF HOLE									
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

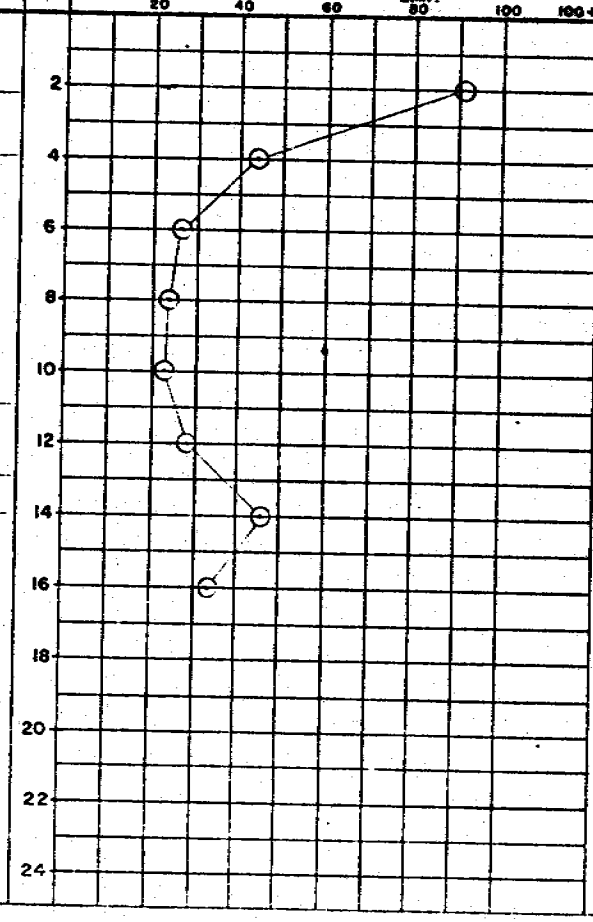
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N. | FIELD ENG: H.B. | DATE DRILLED: 9/[illegible]/[illegible] | AIRPHOTO NO: A22933-29 | CHAINAGE: 469+10 | OFFSET:

CKD: [illegible] | TECH: J.H. | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: Spruce 5'-25' high | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
573	C	57*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: [illegible] category #3	F	Bon							
2	1														
					SM	SAND: SILT: very silty fine sand low plastic brown — 2		Vx 1%							
4	2							Nbn							
6	3					less silt									
8	4														
10	5														
					CH	CLAY: silty high plastic grey — 12		Vx 5 %							
12	6														
14	7							Vx 15 %							
								Vx 50 % ½" ϕ							
16	8					— 16									
18															
20															
22															
24															



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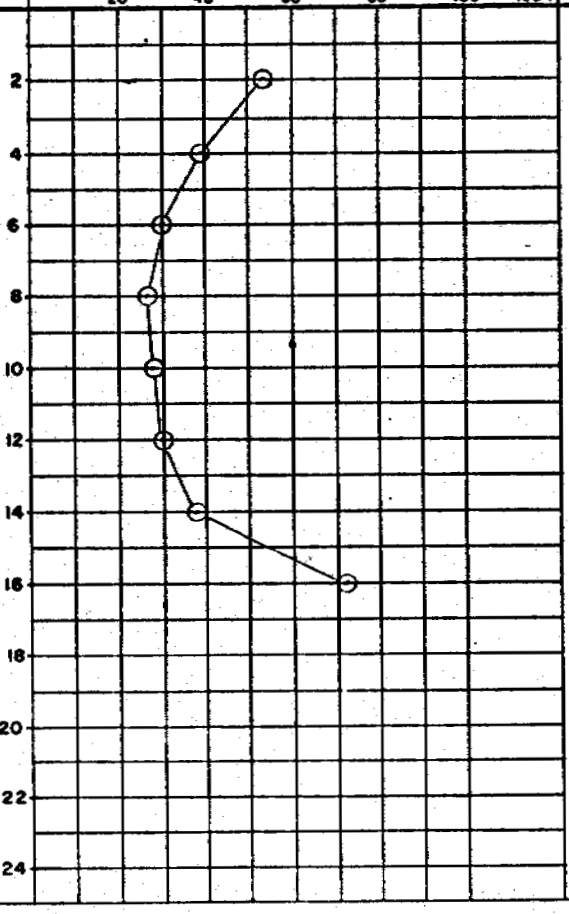
DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 9/12/72	AIRPHOTO NO: A22933-29	CHAINAGE: 480+90	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: Spruce 5-40' high	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	C	58 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
						PEAT: CATEGORY #4									
					SM	SILT: FINE SAND LOW PLASTIC BROWN — 1/4	F								
						— 1½		Vx 10%							
2	1	✓													
					CI	CLAY: SILTY MED TO HIGH PLASTIC BROWN									
4	2	✓													
6	3	✓													
						— 7									
						HIGH PLASTIC GREY/BROWN		Vx 1%							
8	4	✓			CH										
10	5	✓													
12	6	✓						Vx 10%							
14	7	✓													
								Vx 75%							
16	8	✓				— 16									
						END OF HOLE									
18															
20															
22															
24															



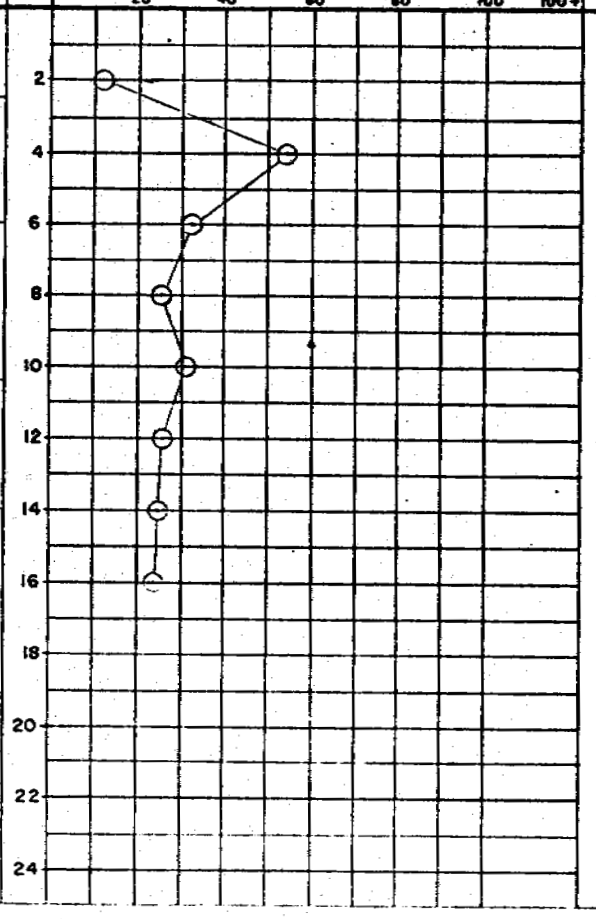
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 9/12/72	AIRPHOTO NO: [illegible]53-29	CHAINAGE: 492.[illegible]7	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: Fair	VEGETATION: Spruce 5'-20' and Birch	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	C	59 #

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
						PEAT: [illegible] — 1/2		
2	1				SM	SAND: VERY FINE SOME SILT LIMITED PLASTIC BROWN	F	Vx 50%
						— 3		
4	2				MH	SILT: CLAYEY SOME SAND MED PLASTIC GREY BROWN		Vx 2%
6	3					— 6		
8	4				CI	CLAY: SILTY MED PLASTIC BROWN		Vx 10%
10	5					— 10		
12	6				CH	HIGH PLASTIC GREY		Vx 10%
14	7							Vx < 5%
16	8					— 16		
						END OF HOLE		
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
CLAY %	SILT %	SAND %	GRAVEL %			

R.M. HARDY AND ASSOCIATES LTD.

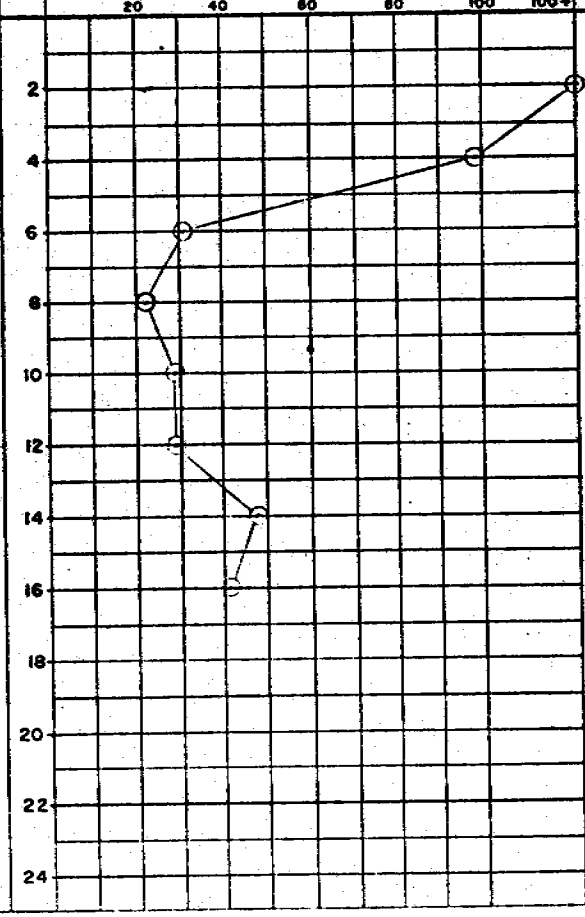
DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 9/12/72	AIRPHOTO NO: A22933-29	CHAINAGE: 502+28	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: Fair	VEGETATION: Spruce 10'-30' oddfirch	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	C	60+

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: category #4	F	Vx 75 % 1/4" ϕ							
						1 3/4									
2	1				ML	SILT: organic, slightly silty medium plastic brown		Vx 80 % 1/4" ϕ							
4	2					5									
6	3					no organics low plastic trace of clay		Vx 10 % 1/16" ϕ							
8	4					9									
10	5				CI	CLAY: silty medium plastic grey		Vx 5 % 1/16" ϕ							
12	6					11 1/2									
					CH	high plastic		Vx 20 % 1/8" ϕ							
14	7							Vx 40 % 1/4" ϕ							
16	8					16									
						END of HOLE									
18															
20															
22															
24															



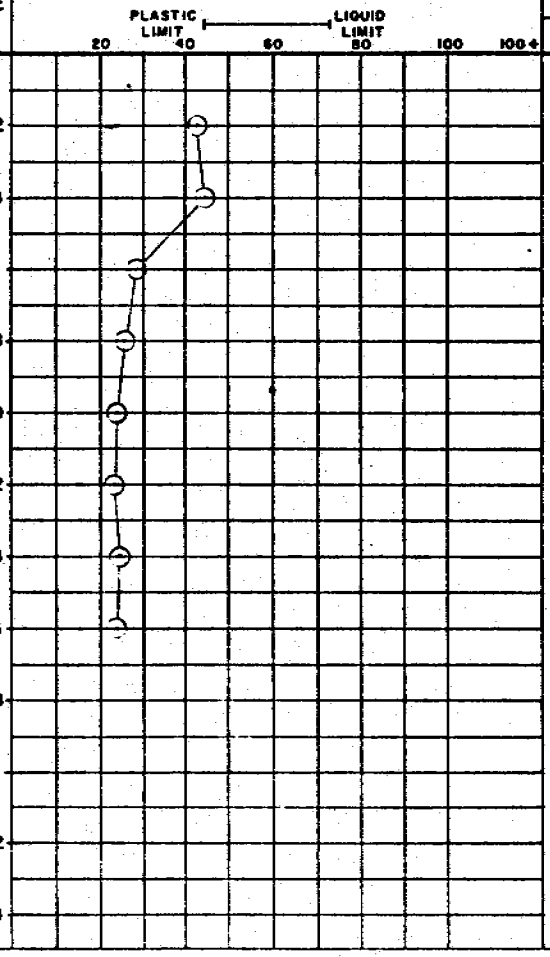
R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 9/12/72	AIRPHOTO NO: A22933-32	CHAINAGE: 513+00	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: Spruce 20'-40' odd Birch	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	C	61 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: category #4	F	Vx 20%							
2	1					2									
					SM	SILT: Some fine sand trace of clay, low plastic brown									
4	2														
6	3							Vx 5%							
						7									
						CLAY: Some silt, high plastic green brown		Vx < 1%							
8	4				Cl			Vx < 1%							
10	5														
12	6														
14	7							Vx 10%							
16	8					16									
						END OF HOLE									
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

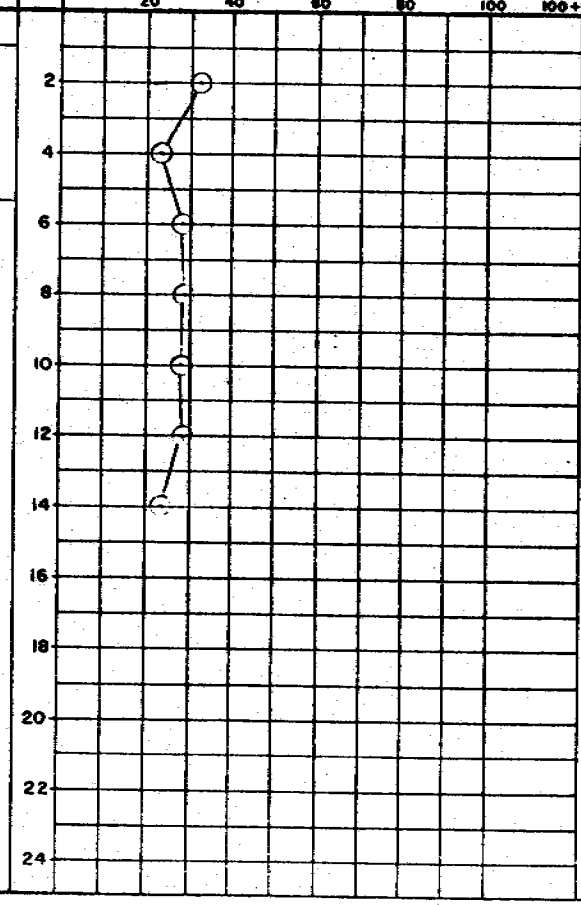
DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 9/12/72	AIRPHOTO NO: A22934-163	CHAINAGE:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: Spruce 4"ϕ, 30' high.

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	B12	62 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: CAT. #4 — 1	F	Vx 20%
2	1				MH	SILT: CLAYEY LOW PLASTIC TO PLASTIC BROWN — 2½		Vx 5%
4	2					VERY FINE SAND LOW PLASTIC BROWN		
6	3							
					CI	CLAY: SILTY MED TO HIGH PLASTIC GREY — 5½		Vx 10%
8	4							
10	5							
						HIGH PLASTIC — 11		
12	6							
14	7					END OF HOLE — 14		
16								
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
CLAY %	SILT %	SAND %	GRAVEL %			

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

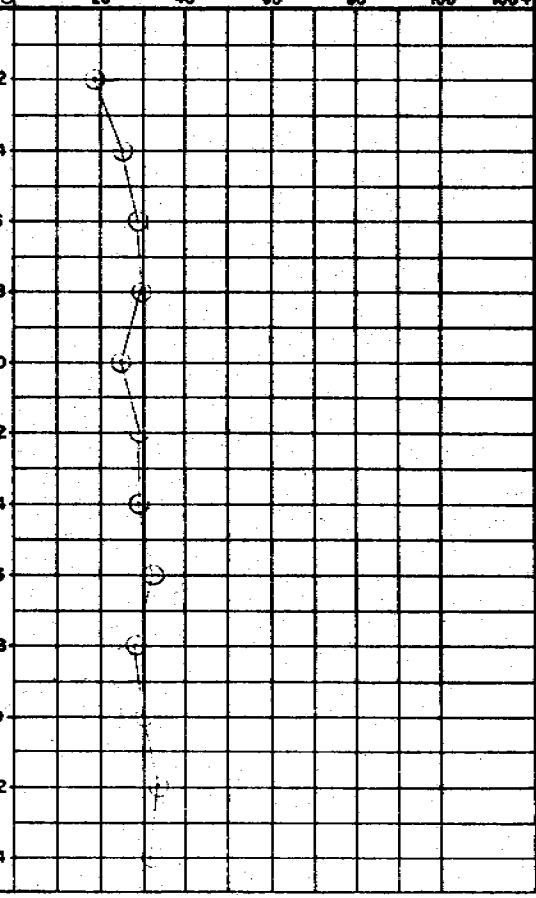
DWN: E.B./P.L.	FIELD ENG: H.B.	DATE DRILLED: 8/12/72	AIRPHOTO NO: A22934-163	CHAINAGE:	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: Poor	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE (SHEET 1 of 2)

MILE	B.C.S	NUMBER
574	B12	63*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
2	(1)				PT	PEAT; CATEGORY #1 — 3'/4	F	Vx 20%							SPRUCE 4"ϕ MAX 25' HIGH 4' APART
4	(2)				ML	SILT; FINE SANDY LOW PLASTIC. — 4'		Nbn							
6	(3)				CI	CLAY; VERY SILTY, SOME FINE SAND MEDIUM PLASTIC BROWN COLOR.		Vx 10% 1/8"ϕ							OCCASIONAL BIRCH 6"ϕ MAX 25' HIGH
8	(4)				ML	SILT; FINE SANDY LOW PLASTIC — 8'									
10	(5)														
12	(6)							Vx 20% 1/4"ϕ							
14	(7)				CI	CLAY; SILTY, MEDIUM TO HIGH PLASTIC GREY — 14'									
16	(8)							Vx 30% 1/4"ϕ							
18	(9)				CH	HIGH PLASTIC — 19'									
20	(10)														
22	(11)														
24	(12)							Vx [illegible] 1/2"ϕ							

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B./P.K.	FIELD ENG: H.B.	DATE DRILLED: 8/12/72	AIRPHOTO NO: A22934-163	CHAINAGE:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS

OFFSET:

ELEV:

TEST HOLE (SHEET 2 of 2)

MILE	B,C,S	NUMBER
574	B12	63*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
26								
	(13)				CH	CLAY; Silty High Plastic Grey	F	Vx 40% ½" ϕ
28	(14)							
30	(15)					30' End of Hole		
32								
34								
36								
38								
40								
42								
44								
46								
48								
50								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT

20 40 60 80 100 100+

GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)

REMARKS

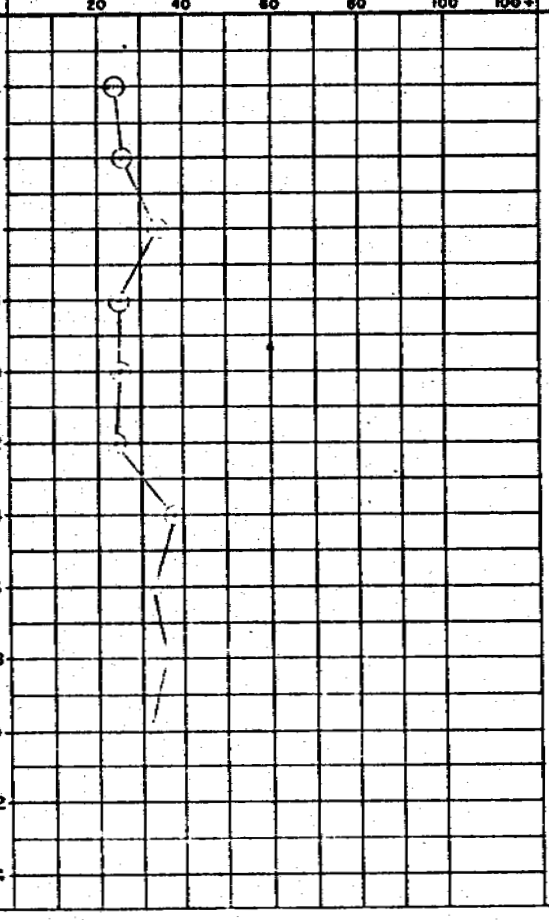
Spruce
4" ϕ Max
25' High
4' Apart
Occasional
Birch
6" ϕ Max
25' High

R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 9/12/70	AIRPHOTO NO: A22934-163	CHAINAGE: 431+50	OFFSET:
CKD: [illegible]	TECH: T.C. & J.H.	RIG: [illegible]	SURFACE DRAINAGE: Fair	VEGETATION: Spruce 10'-40' high	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
573	C	64*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
2	1				CI	CLAY: silty medium plastic brown	F	Vx 30%							
4	2														
6	3				CH	high plastic gr/ — 5									
8	4							Vx 15% 1/16" ϕ							
10	5														
12	6														
14	7							Vx 40% 1/4" ϕ							
16	8														
18	9														
20	10					END OF HOLE									
22															
24															



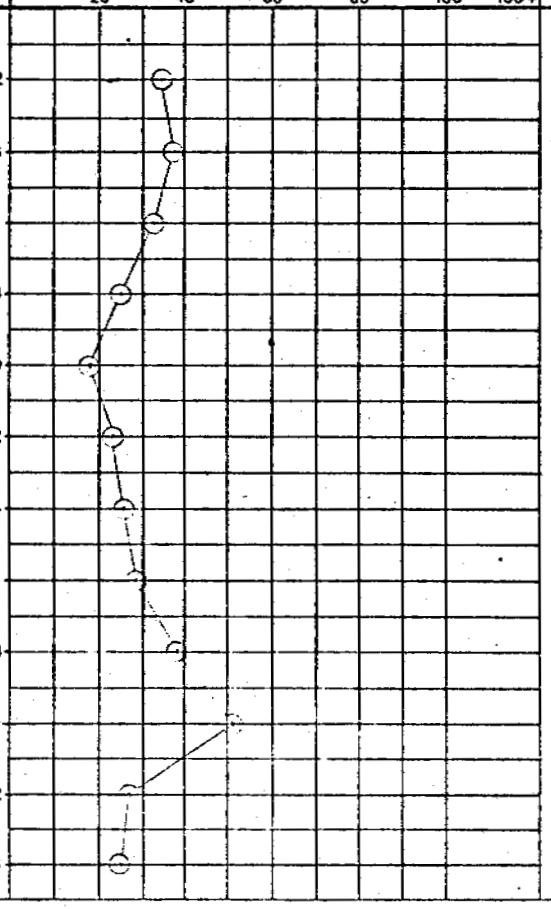
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.R.	FIELD ENG: H.R.	DATE DRILLED: 9/12/72	AIRPHOTO NO: A22734-163	CHAINAGE: 433+10	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
573	C	65 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
2	1				CI	CLAY: SILTY ORGANIC MED PLASTIC BROWN — 2	F	Nbn
						MED TO HIGH PLASTIC NO ORGANICS GREY BROWN		Vx 40%
4	2				CH			
6	3							Vx 5%
8	4					SILT: SOME FINE SAND MED TO HIGH PLASTIC BROWN GREY — 8		
10	5				SM			Nbn
12	6				CI	CLAY: SOME SILT MED TO HIGH PLASTIC BROWN GREY — 11½		
						SILTER MED PLASTIC GREY — 13		
14	7							
16	8							Vx 15%
						HIGH PLASTIC — 17		
18	9				CH			
20	10							Vx 50%
22	11							Vx [illegible]
24	12					END OF HOLE — 24		



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

Spruce 5" ϕ, 30' high
5' apart, odd
Tamarack 4" ϕ
20' high.

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

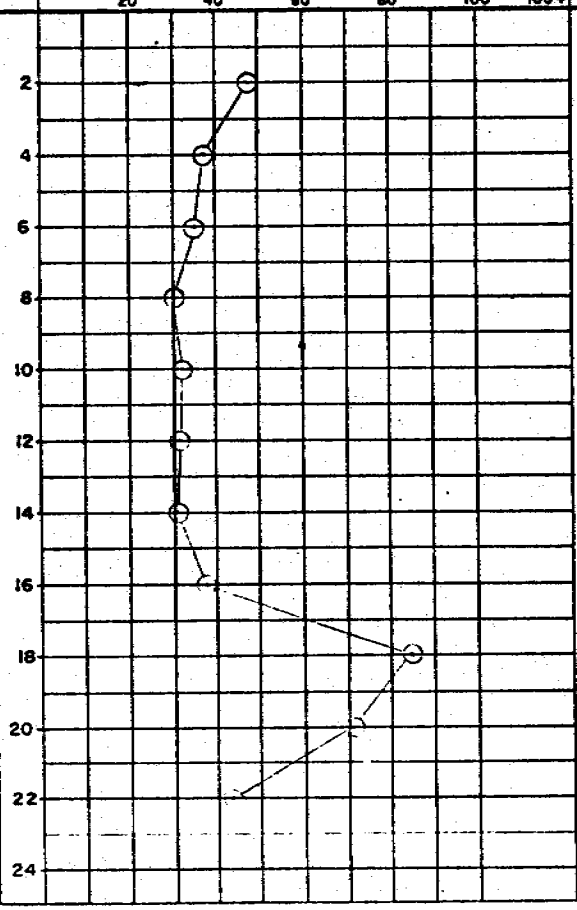
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 9/12/72	AIRPHOTO NO: A22934-163	CHAINAGE:	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B.C.S	NUMBER
573	B13	66*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: Cat. #4 — ½	F	
					CI	CLAY: silty medium plastic grey-brown		Vx 40%
2	1							
								Vx 30%
4	2							
	3							
6	4							
					CL	very silty grey — 7½		Vx 20%
8	5							Vx 10%
10	6							
	7							
12	8				CH	less silty high plastic — 12		Vx 20%
14	9							
16	10							
								Vx 50%
18	11							
20	12							
22	13							
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

Spruce up to 4" Φ 20' High
Odd Tammarack and Birch

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 9/12/72	AIRPHOTO NO: A 22934-182	CHAINAGE:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS

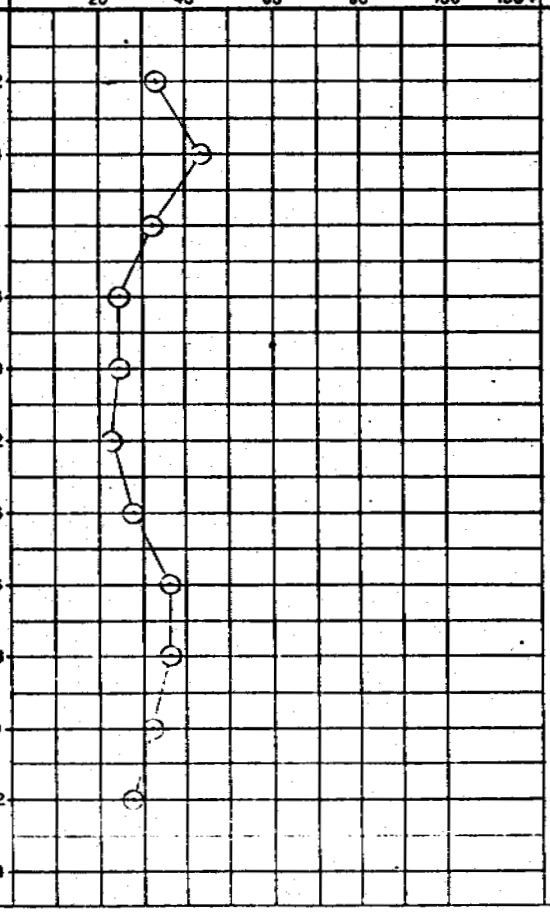
OFFSET:

ELEV:

TEST HOLE		
MILE	B.C.S	NUMBER
573	B13	67*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: CAT. #1 — ½	F	
2	1				MH	SILT: LOW TO MED PLASTIC CLAYEY GREY — 3		Vx 30%
4	2				CH	CLAY: HIGH PLASTIC GREY		Vx 20%
6	3							
8	4							
10	5							
12	6							
14	7							Vx 30%
16	8							
18	9							
20	10							
22	11							
24	12					END OF HOLE — 23½		

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

SPRUCE 5"φ 25' HIGH 3' APART
OLD BIRCH 4"φ 25' HIGH

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

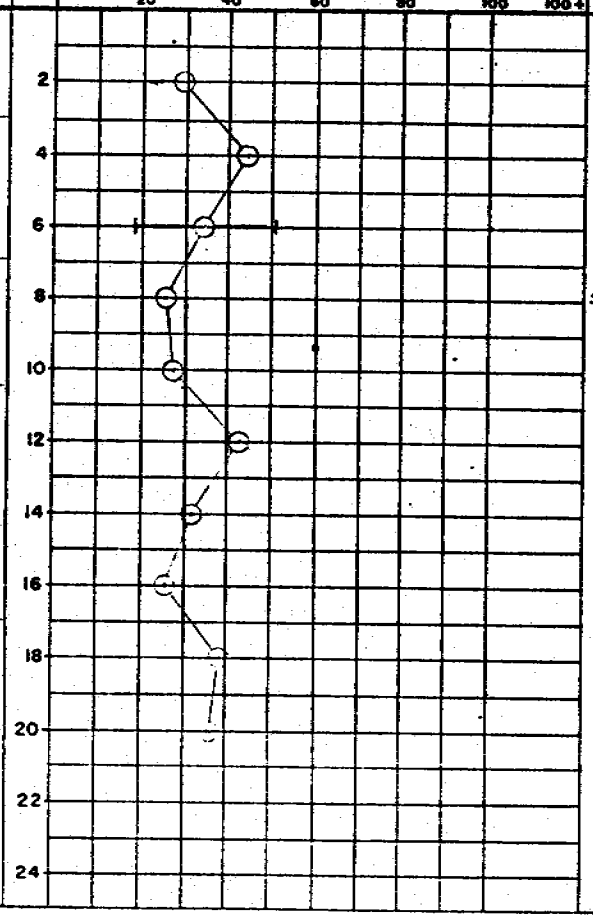
DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 9/12/72	AIRPHOTO NO: A22934-163	CHAINAGE:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: SEE REMARKS

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
573	B13	68*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
						SILT: SLIGHTLY MED PLASTIC	F	
						1		
2	1				CH	CLAY: HIGH PLASTIC BROWN		Vx 20%
4	2							Vx 30%
6	3							
8	4							Vx 10%
10	5							
12	6							Vx 40%
14	7							
						14½		
16	8				MH	SILT: CLAYEY MED PLASTIC GREY		Vx 20%
						17		
18	9				CH	CLAY: HIGH PLASTIC GREY		Vx 40%
20	10							
						20		
						END OF HOLE		
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		
50	50				

REMARKS

SPRUCE 3"ϕ 15' to 20' HIGH 4' APART

OOD BIRCH 2"ϕ 10' HIGH

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

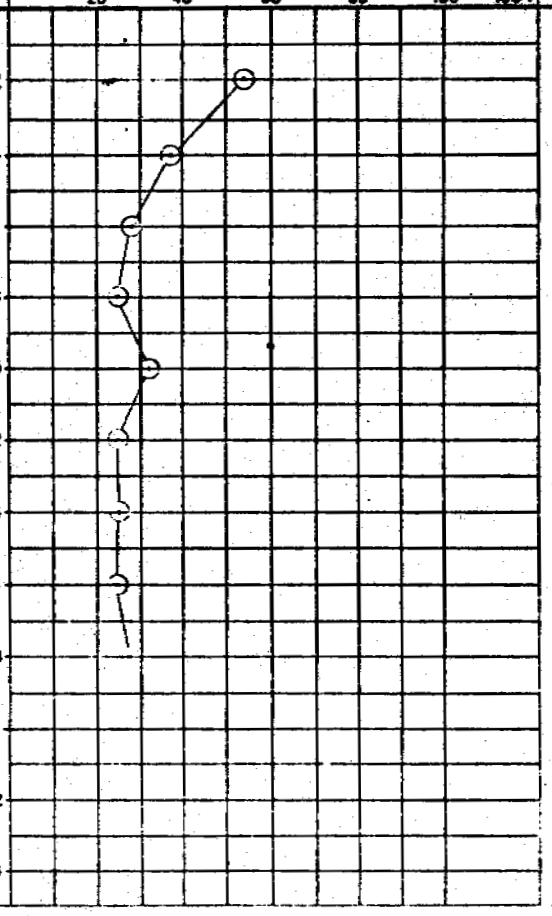
DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 9/12/72	AIRPHOTO NO: A22934-163	CHAINAGE:
CKD:	TECH: T.C.	RIG: [illegible]	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
573	B13	69+

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: cat. #4 — ½	F	Vx 30%							Spruce up to 6" ϕ 30' high, odd Birch
2	1				O.H.	SILT: organic, sandy clayey medium plastic brown — 3									
4	2				CH	CLAY: silty, high plastic grey-brown		Vx 30%							
6	3							Vx 20%							
8	4														
10	5														
12	6														
14	7														
16	8														
18	9					END — 18									
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

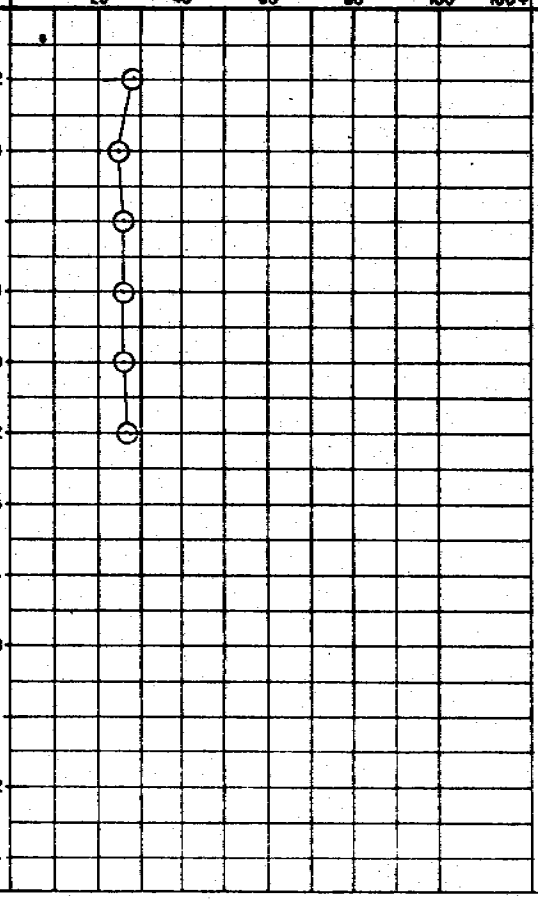
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 10/6/72	AIRPHOTO NO: A22934-163	CHAINAGE:	OFFSET:
CKD:	TECH: J.H	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
577	B10	70*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					OH	SILT: organic clayey-sandy high plastic	F	Vx 1%
2	1				CI	CLAY: silt, medium plastic — 2		Vx 5%
4	2					medium-high plastic grey brown — 4		
6	3							
8	4							
10	5							
12	6					END of HOLE — 12		
14								
16								
18								
20								
22								
24								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

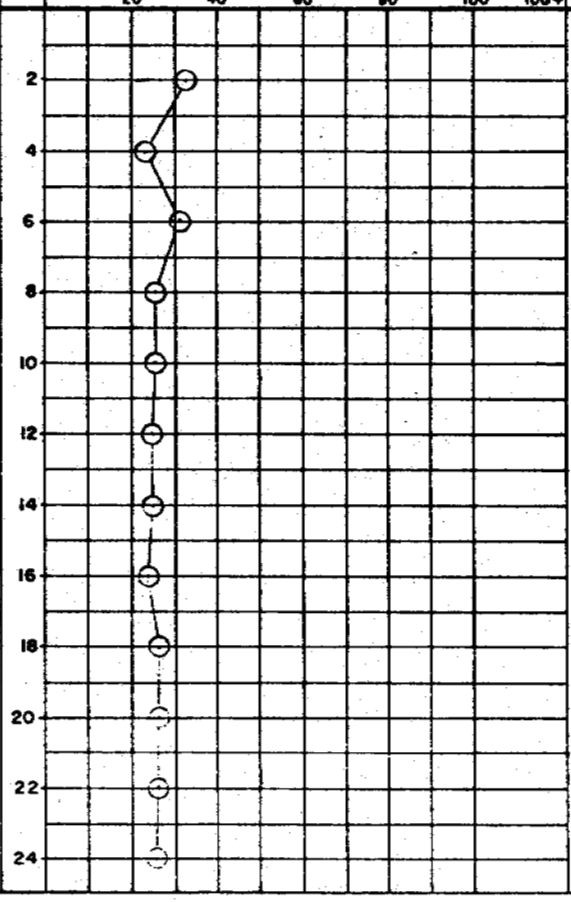
80% Birch 40' high
20% Tamarack & Spruce

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A22934-161	CHAINAGE:	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
577	B10	70A*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT. Cat. #1 — 1/4	F	
					SM	SILT: SAND: very fine sand trace of clay low plastic — 2½		Nbn
2	1				CI	CLAY: silty, trace of fine sand. medium plastic		
4	2							
6	3					less silt — 6		Vx 3%
8	4				CL	more silt — 8		
10	5							
12	6							
14	7				CH	less silt high plastic — 14		
16	8							
18	9							Vx 10 %
20	10							
22	11							
24	12					END of HOLE — 24		



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS: 80% Birch 40' high. 20% TAMMARACK & Spruce

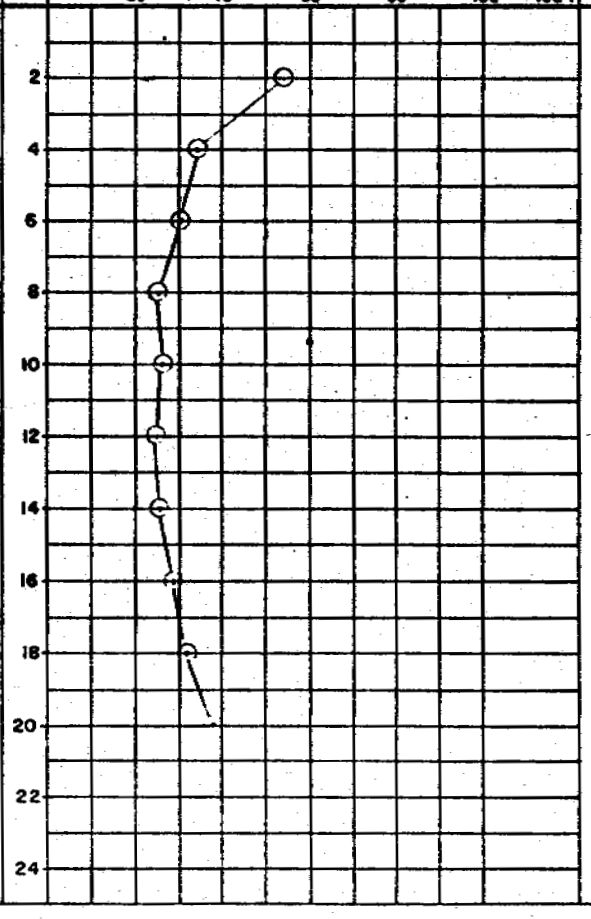
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A22934-163	CHAINAGE:	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: Fair	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B.C.S	NUMBER
575	B11	71*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: cat. #4 — ½	F	Vx 30 %
					CI	CLAY: silty medium plastic brown		Vx 10 %
2	1							
4	2							
6	3							
	4				CL	very silty fine sandy low plastic — 7		
8	5							
10	6							
12	7							Vx 20 %
14	8							
					CI	less silt medium plastic grey — 15		
16	9							
18	10				CH	high plastic — 18		Vx 40 %
20	11					END of HOLE — 20		
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

Spruce up to 6" ϕ 40' high, 5' apart
odd Birch up to 5" ϕ, 30' high

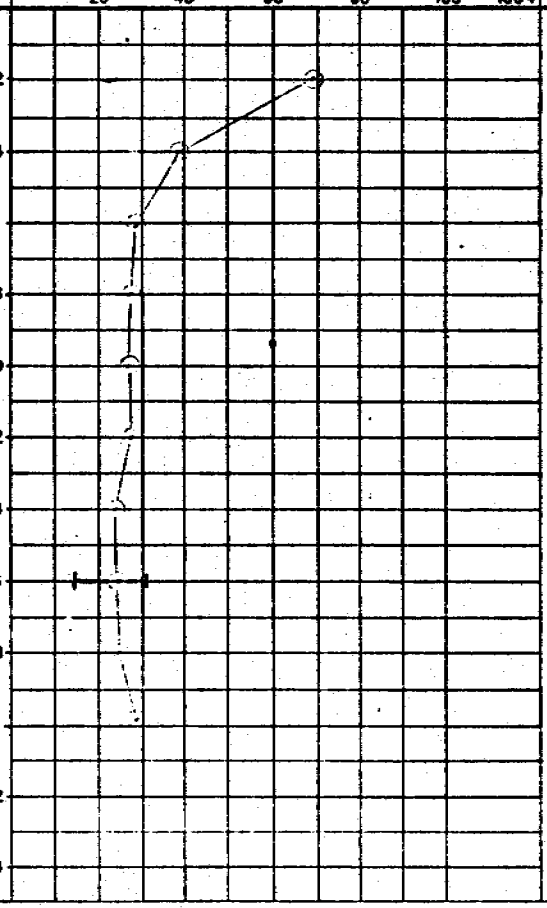
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E. B.	FIELD ENG: H. B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: 422934-163	CHAINAGE:	OFFSET:
CKD:	TECH: T. C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
575	B11	72*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: CAT. #3 — 1	F	Vx 10%
2	1				MH	SILT: CLAYEY MED PLASTIC BROWN — 3		Vx 40%
4	2					LOW TO MED PLASTIC		Nbn
6	3					SANDY — 5		
8	4							
10	5				CH	CLAY: SILTY MED TO HIGH PLASTIC BROWN — 9½		Vx 10%
12	6							
14	7							
16	8				CI			Vx 20%
18	9							
20	10					END OF HOLE — 19½		
22								
24								



DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
							BIRCH 6"φ 40' HIGH SOME SPRUCE

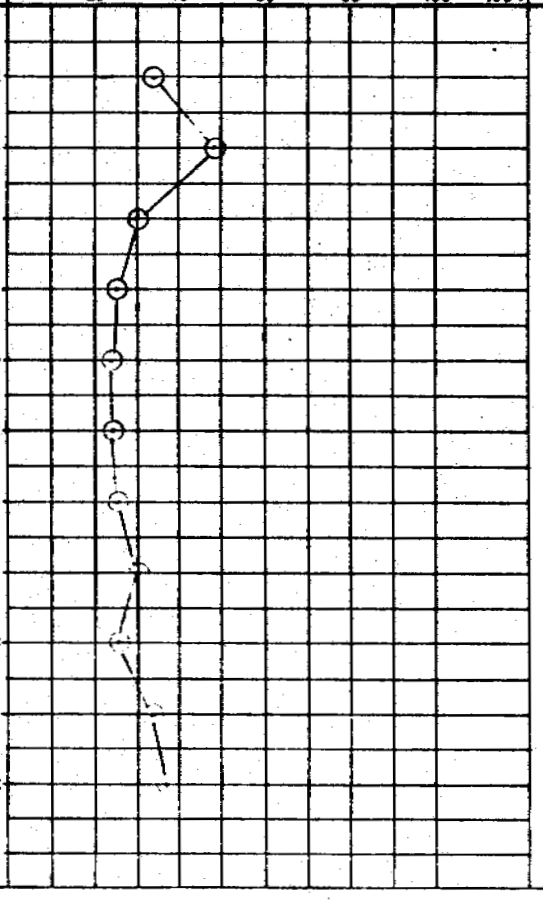
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A22934-132	CHAINAGE:	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	B11	73*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					PT	PEAT: Cat. #4 — ¾	F	Vx 20%							Spruce & Birch, up to 6" Φ, 40 high. ≈ 10' apart.
2	1				ML	SILT: clayey fine sandy low plastic brown									
4	2				CI	CLAY: silty medium plastic grey		Vx 10%							
6	3														
8	4				ML	SILT: clayey, sandy low plastic — 7½		Nbn							
10	5														
12	6				CI	CLAY: slightly silty medium plastic — 11½		Vx 15%							
14	7														
16	8														
18	9				ML	SILT: clayey low plastic — 16½		Vx 5% / Vx 20%							
20	10				CH	CLAY: high plastic — 19		Vx							
22	11					END of HOLE — 22									
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

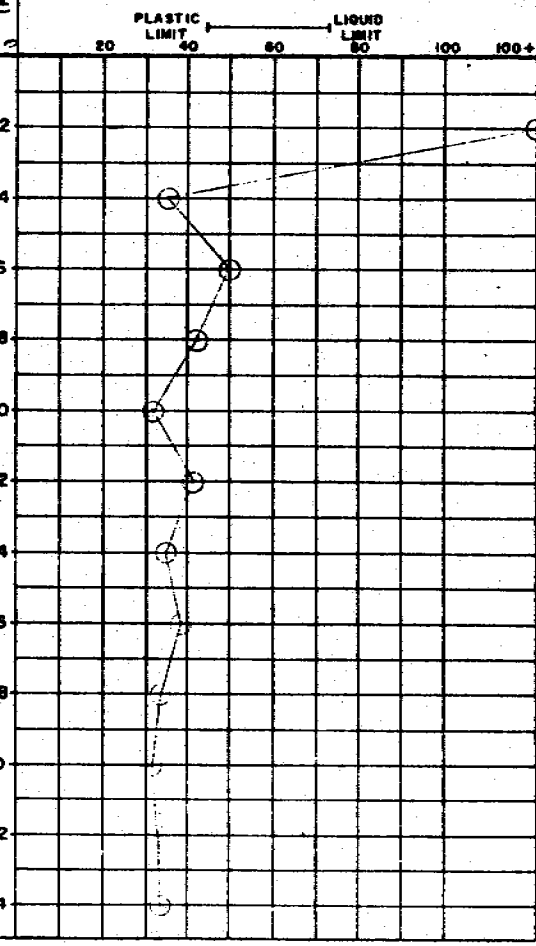
DWN: EB/CC	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A 22934-163	CHAINAGE:	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: Poor	VEGETATION: See Remarks	ELEV:

TEST HOLE Sheet 1 of 2

MILE	B,C,S	NUMBER
574	B12	74*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
0					Pt	Part Cut #1 — 1¼'	F	Vx 20%
					OL	SILT; Organic Brown		Vx 80%
2	1					2½'		
					CI	CLAY; Silty Med Plastic Brown		Vx 40%
4	2							
6	3							
8	4							Vx 30%
10	5							
12	6							
14	7							
16	8							
18	9							
20	10							Vx 20%
22	11							Non
24	12							

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)

REMARKS

Dense Spruce
4'ϕ Max
30' High

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: EB/CEH	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A22934-163	CHAINAGE:	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE SHEET 2 OF 2

MILE	B,C,S	NUMBER
574	B12	74*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
26								Nbn							Dense Spruce 4"ϕ Max 30' High
28	13				CH	CLAY; Silty High Plastic Grey — 27½'		Vx 30%							
30	14					End of Hole — 30'									
32															
34															
36															
38															
40															
42															
44															
46															
48															
50															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT
20 40 60 80 100 100+

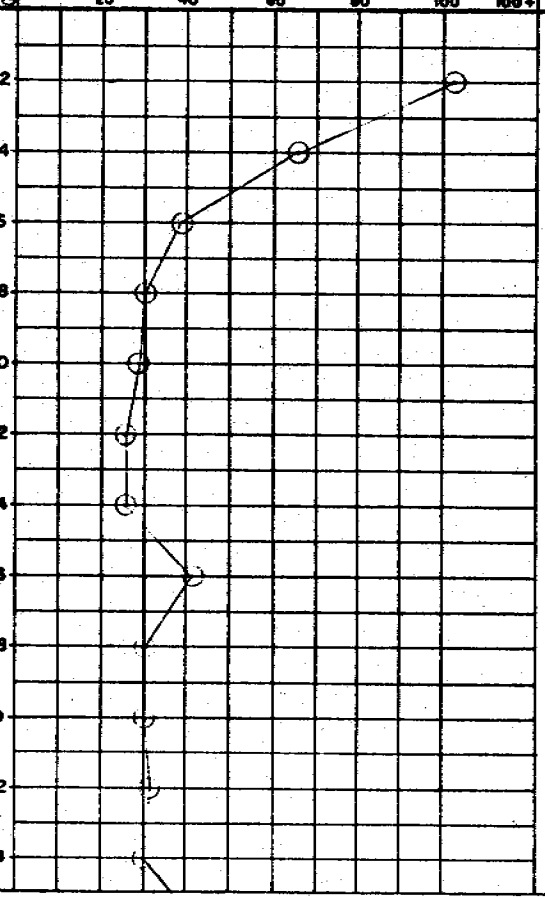
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: GA / CDL	FIELD ENG: H.B.	DATE DRILLED: 10/2/72	AIRPHOTO NO: 1 22934-163	CHAINAGE:	OFFSET:
CKD:	TECH: T.C.	RIG: Tiling 1500	SURFACE DRAINAGE: Poor	VEGETATION: See Remarks	ELEV:

TEST HOLE SHEET 1 OF 2

MILE	B,C,S	NUMBER
575	B11	75*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0					P+	PEAT CAT #1 — 1'	F	Vx 60%							Birch 6"ϕ Max 40' High
2	1				ML	SILT; Shady Organic Low Plastic									
4	2					— 5'									
6	3				CI	CLAY; Silty Medium Plastic Brown		Vx 15%							Occasional Spruce 10"ϕ Max 40-50' High
8	4														
10	5														
12	6														
14	7														
16	8							Vx 60%							
18	9				CL	— 17' Very Silty Low Plastic Grey		Vx 10%							
20	10														
22	11														
24	12														



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

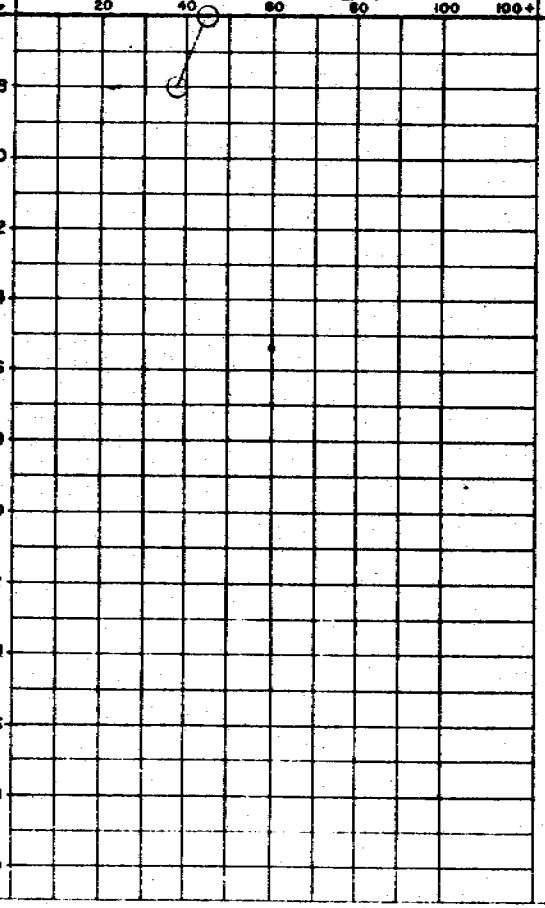
DWN: GJ/GEJ	FIELD ENG: H.B.	DATE DRILLED: 10/13/72	AIRPHOTO NO: A 22934-163	CHAINAGE:	OFFSET:
CKD:	TECH: T.C	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE SHEET 2 of 2

MILE	B,C,S	NUMBER
575	B11	75*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
26	13				CL	Less Silty High Plastic — 26'	F	Vx 20%							
28	14					End of Hole — 28'									
30															
32															
34															
36															
38															
40															
42															
44															
46															
48															
50															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

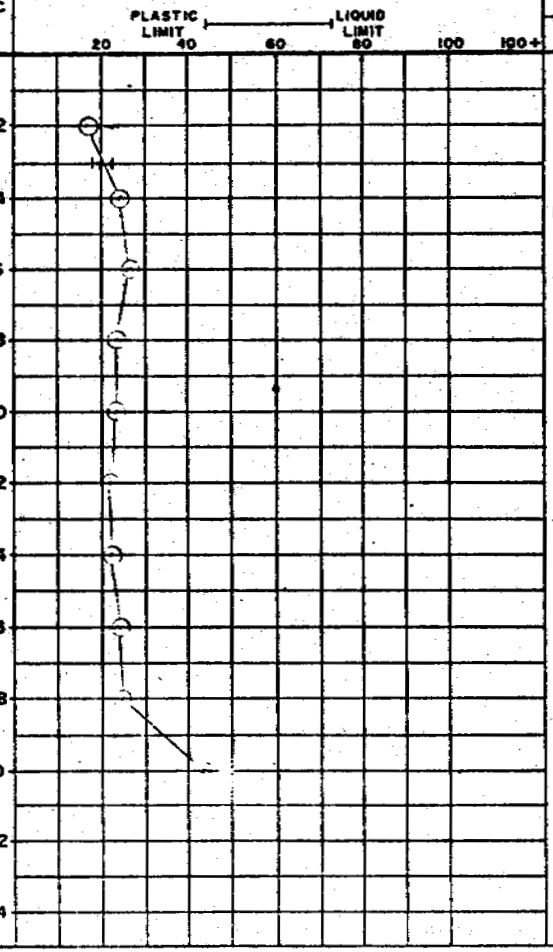
DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A22934-165	CHAINAGE:
CKD: [illegible]	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: SEE REMARKS

OFFSET:
ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	B11	76

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: CAT. #4 — ½	F	Nbn							-BIRCH 10"φ 50' TO 60' HIGH, 10' APART
2	1				MH	SILT: CLAYEY LOW TO MED PLASTIC BROWN									-ODD POPLAR
						— 3 — CLAY INCLUSIONS									
4	2								13	78	9				
6	3														
						— 7 —									
8	4				CI	CLAY: SILTY MED PLASTIC BROWN									
10	5														
12	6														
14	7														
						— 16 —									
16	8				MH	SILT: CLAYEY LOW TO MED PLASTIC GREY									
						— 18 —									
18	9				CH	CLAY: HIGH PLASTIC GREY		√x 20%							
						— 20 — END OF HOLE									
20	10														
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



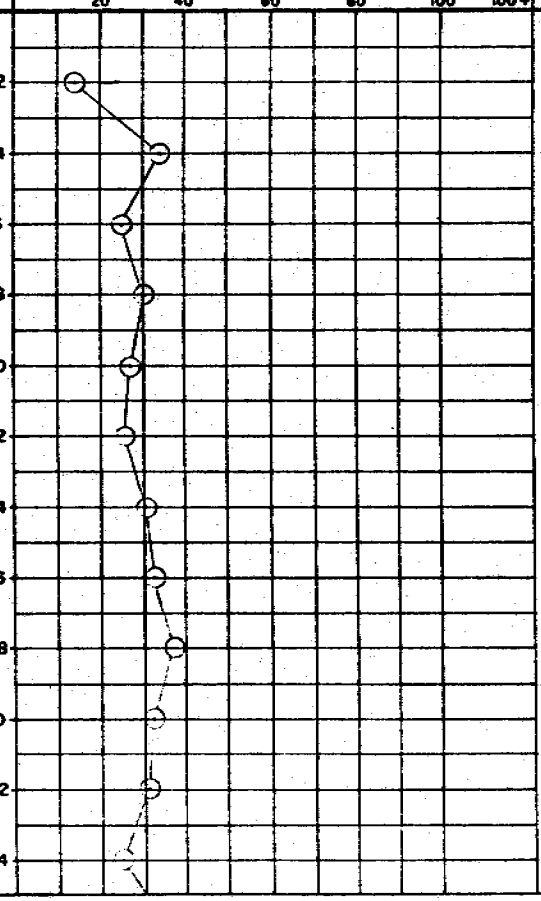
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A22934-163	CHAINAGE:	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	B11	77 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
						PEAT: CAT. #3 — 1/4		
					SM	SILT: ORGANIC TRACE OF FINE SAND LOW PLASTIC BROWN — 2	F	Nbn
2	1							
					CI	CLAY: SILTY MED PLASTIC BROWN		
4	2							
6	3							
8	4					— 8		
					CH	LESS SILT MED TO HIGH PLASTIC GREY		
10	5							
12	6					— 12 1/2		
						TRACE OF SILT GREY BROWN		Vx 15%
14	7							
16	8							Vx 30%
18	9							
20	10							Vx 10%
22	11							
24	12					— 26		
						END OF HOLE		



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

MIXED SPRUCE, TAMARACK & BIRCH
MED TO HIGH DENSE

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

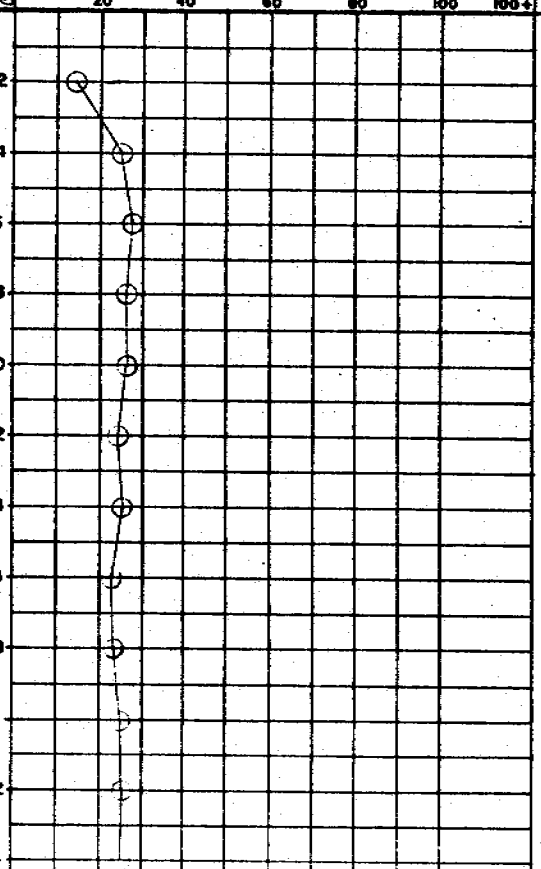
DWN: G.H./CEL	FIELD ENG: H.B	DATE DRILLED: 10/12/78	AIRPHOTO NO: A 22934-161	CHAINAGE: 298+07	OFFSET:
CKD:	TECH: J.H	RIG: TRILLAG 1000	SURFACE DRAINAGE: Poor	VEGETATION: See Remarks	ELEV:

TEST HOLE Sheet 1 of 2

MILE	B,C,S	NUMBER
577	B10	78*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
0					OH	SILT & SAND; ORGANIC	F	nbn						
2	1				SM	2' SANDIER no ORGANICS								
4	2					4½'								
6	3				CI	CLAY; SILTY MEDIUM PLASTIC BROWN		Vx 10%						
8	4					8'								
10	5				CI CH	LESS SILT MEDIUM TO HIGH PLASTIC		Vx 5%						
12	6					11' GREY-BROWN								
14	7													
16	8													
18	9													
20	10													
22	11													
24	12													

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



REMARKS

BIRCH: 30' TALL, OCCASIONAL TAMARACK & SPRUCE 25-35 FT. TALL

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

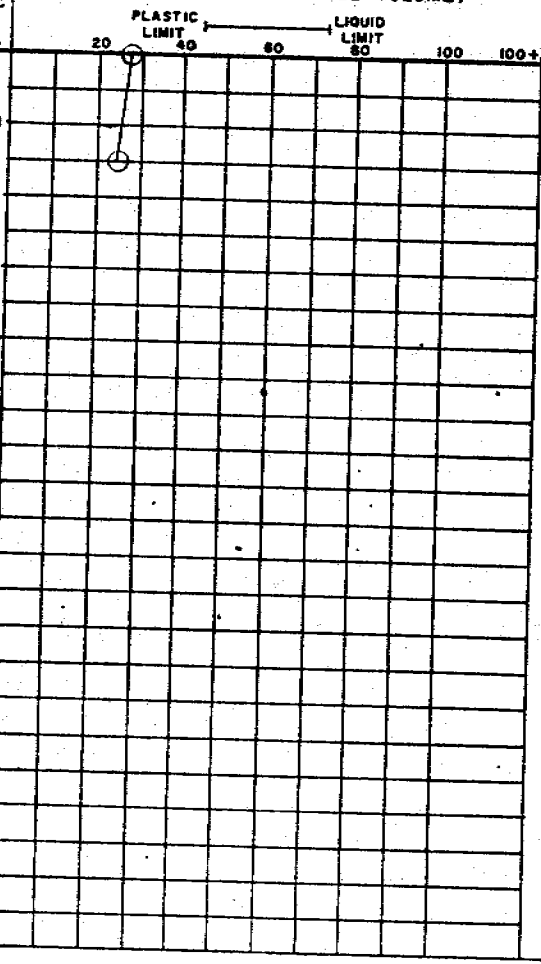
DWN: Gd/ab | FIELD ENG: H.B | DATE DRILLED: 10/12/72 | AIRPHOTO NO: A 22934-161 | CHAINAGE: 298+07 | OFFSET:

CKD: | TECH: JH | RIG: Failing 1000 | SURFACE DRAINAGE: | VEGETATION: See Remarks | ELEV:

TEST HOLE SHEET 2 OF 2

MILE	B,C,S	NUMBER
577	B10	78*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
26	13				C1	Siltier Medium Plastic — 26	F	Vx 5%							
28	14														
						29' End of Hole									
30															
32															
34															
36															
38															
40															
42															
44															
46															
48															
50															



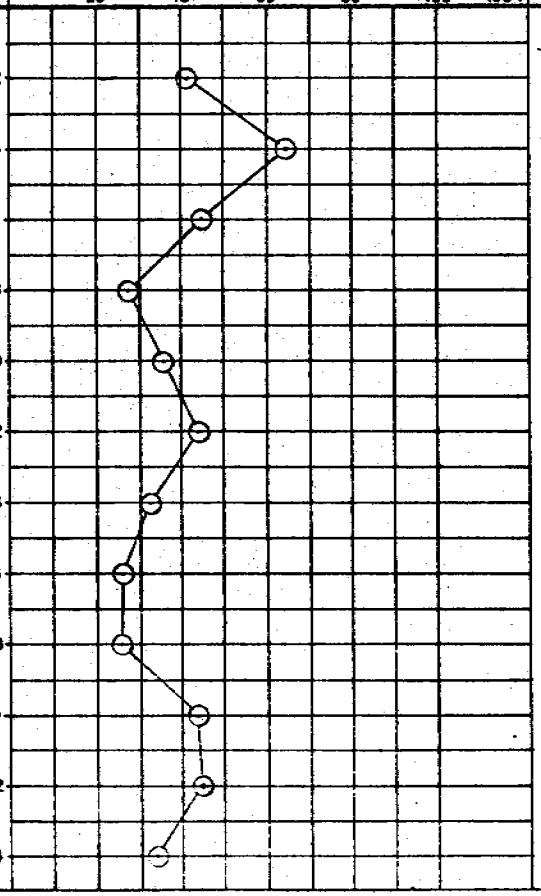
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A22934-161	CHAINAGE: 296+00	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
577	B10	79 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: CAT. # 4 — 1/2	F	Nbn
						CLAY: SILTY MED PLASTIC BROWN		Vx 30%
2	1				CI			
4	2							Vx 50%
6	3					— 6 — LESS SILTY MED TO HIGH PLASTIC GREY BROWN		Vx 10%
8	4				CI			
10	5				CH			Vx 30%
12	6							
						— 13 — TRACE OF SILT MED TO HIGH PLASTIC GREY		Vx 20%
14	7				CI			
16	8				CH			
						— 18 — NO SILT HIGH PLASTIC GREY		Vs 50%
20	10				CH			
22	11							
24	12					END OF HOLE — 24		



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

BIRCH 30'-40' HIGH
ODD TAMMARACK
SMALL SPRUCE 5' HIGH

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

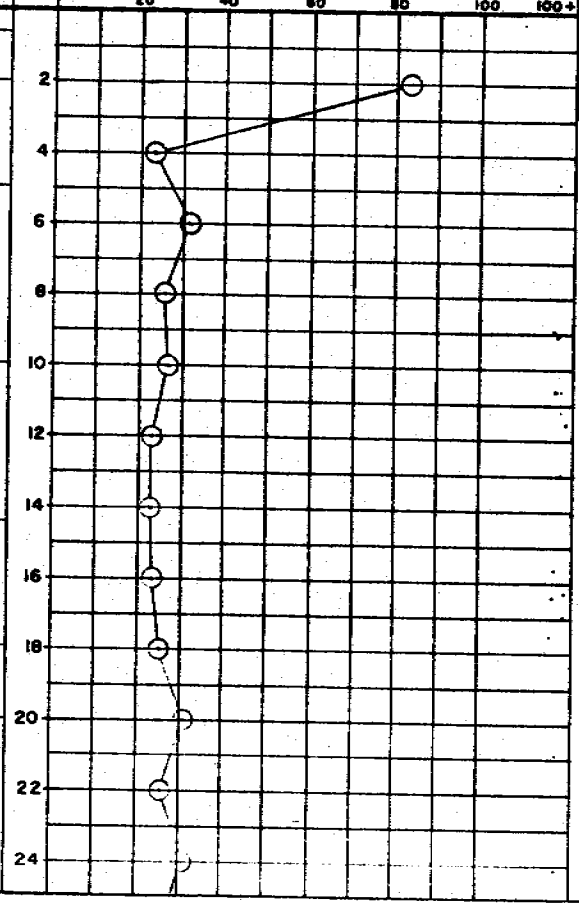
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A22934-161
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR

CHAINAGE: 296+00 | OFFSET: | VEGETATION: SEE REMARKS | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
577	B10	80 #

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt.	PEAT: CAT. #10 — 3/4	F	Nbn
2	1				OL	SILT: ORGANIC BROWN — 2		Vx 75%
4	2				MH	NON ORGANIC TRACE OF FINE SAND TRACE OF CLAY LOW PLASTIC BROWN		Vx 50%
6	3					MORE SANDY — 5		Vx < 1%
8	4				CI	CLAY: SILTY MED PLASTIC BROWN — 6 1/2		
10	5							
12	6				CH	LESS SILT MED TO HIGH PLASTIC GREY BROWN — 11		Vx 1%
14	7					TRACE OF SILT — 12 1/2		
16	8				CI	SILTY MED PLASTIC — 14 1/2		Nbn
18	9							Vx 10%
20	10				CH	LESS SILT MED TO HIGH PLASTIC — 20		Vx 20%
22	11							
24	12					END OF HOLE — 26		



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS: POPLAR, TAMARACK & SPRUCE

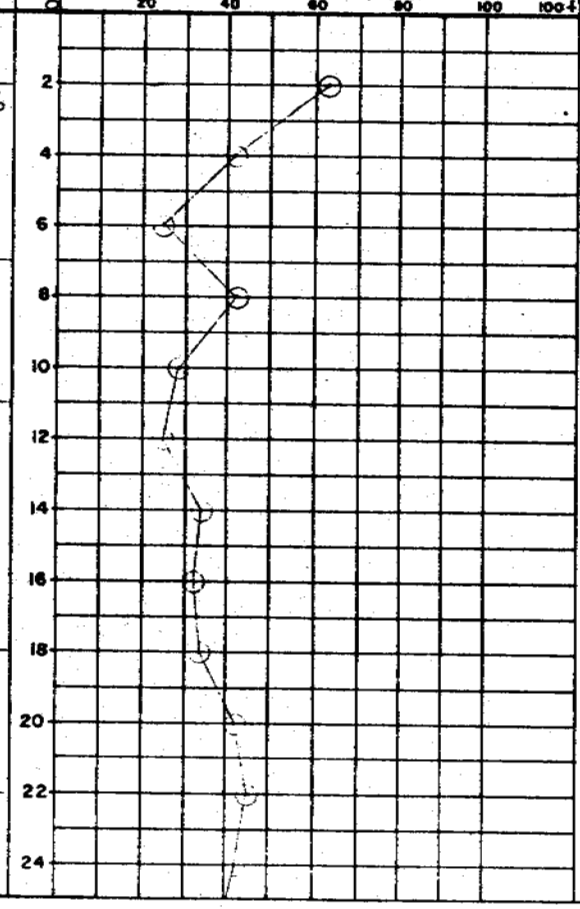
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: GH/JH	FIELD ENG: HB	DATE DRILLED: 10/12/72	AIRPHOTO NO: A 22934-161	CHAINAGE: 298+00	OFFSET:
CKD:	TECH: JH	RIG: FAILING/ICO	SURFACE DRAINAGE: POOR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE SHEET 1 OF 2

MILE	B,C,S	NUMBER
577	B10	81*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0					Pt	PEAT LAY ~4									
					OH	SILT; ORGANIC — 1/4'	F	Nbn							SPRUCE TAMARACK
2					ML	SANDY LOW PLASTIC BROWN — 2'		Vx 1%							OCCASIONAL BIRCH
4															5-15' HIGH
6															
8					CI	CLAY; SILTY MEDIUM PLASTIC — 7'		Vx 2%							
10															
12								Vx 1%							
14					CH CI	LESS SILT MEDIUM-HIGH PLASTIC, GREY-BROWN COLOR — 13'									
16															
18								Vx 10%							
20															
22								[illegible] 20%							
24															



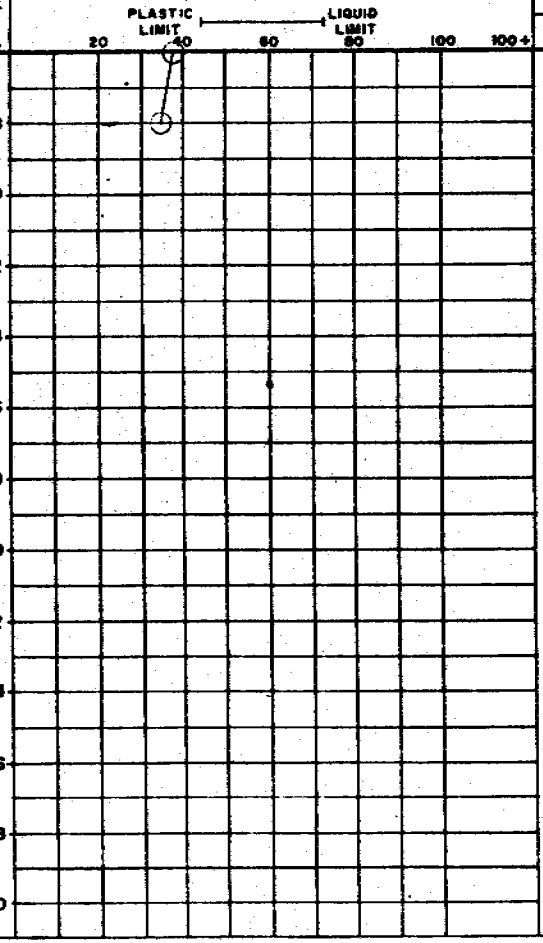
R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: GN/CM	FIELD ENG: N.B	DATE DRILLED: 10/88/12	AIRPHOTO NO: A 22934-161	CHAINAGE: 299+00	OFFSET:	TEST HOLE SHEET 2 of 2
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: See Remarks	ELEV:	

MILE	B,C,S	NUMBER
577	B10	81*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
26					CH	CLAY; Silty Medium High Plastic Grey Brown	F	Vx 20%							
28						End of Hole									
30															
32															
34															
36															
38															
40															
42															
44															
46															
48															
50															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.

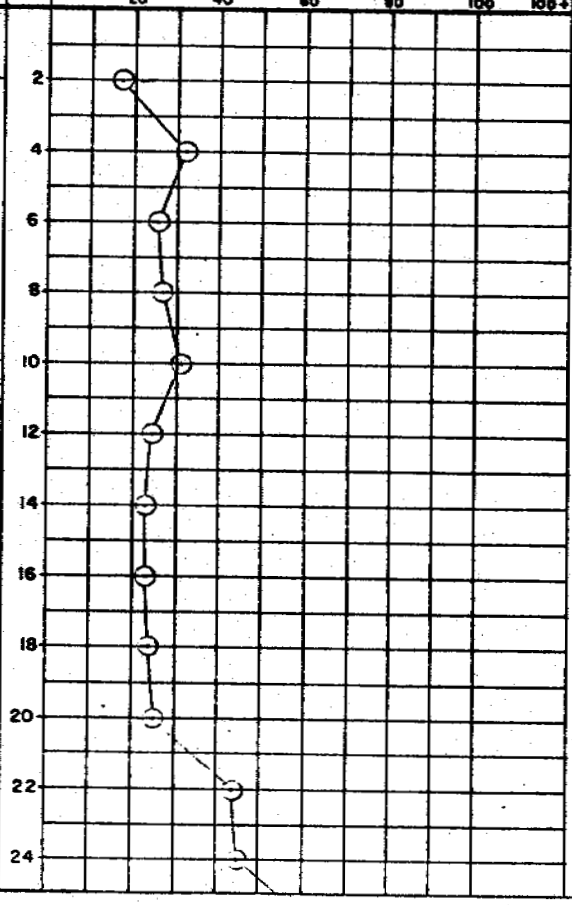
DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A22934-161	CHAINAGE: 243+00	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
577	B9	82*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
2	1				OL	SILT: SLIGHTLY ORGANIC TRACE OF FINE SAND BROWN	F	Nbn
						2 — SANDIER		Vx < 1%
4	2				MH			
6	3							
8	4					7½ — CLAY: SILTY MED PLASTIC BROWN GREY		
					CI			
10	5					10 — LESS SILTY MED TO HIGH PLASTIC		Vx 5%
12	6				CH			
14	7					14 — SILTY MED PLASTIC		Vx 1%
					CI			
16	8							
18	9							
20	10							Vx 10%
22	11							
24	12							
						26 — END OF HOLE		Vx 30%



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

BIRCH & TAMMARACK
30' TO 40' HIGH
OOD SPRUCE

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

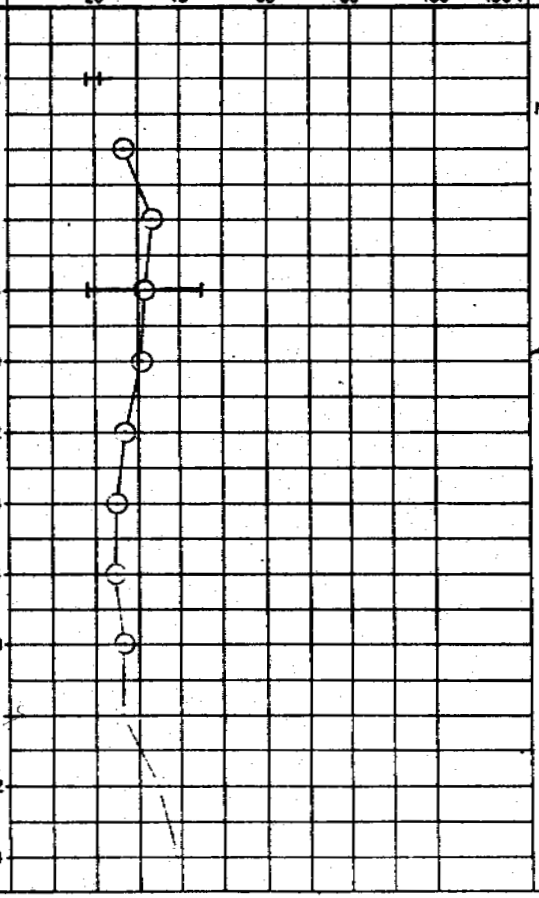
DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A22934-161	CHAINAGE: 248+00	OFFSET:
CKD:	TECH: T.C.	RIG: Failing 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
177	B9	83*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: cat #1 — ½	F	Vy 10%							Spruce - dense 4" ϕ, 30' high. odd birch
								Nbn							
2	1				SM	SILT: SAND: fine sandy very silty low plastic brown			12	43	45				
4								Vx 5%							
6					CH	CLAY: silty high plastic grey — 5½		Vx 5%							
8	2							Vx 15%							
10									42	58					
12															
14															
16															
18								Vx 30%							
20															
22															
24						26									

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



END OF HOLE

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

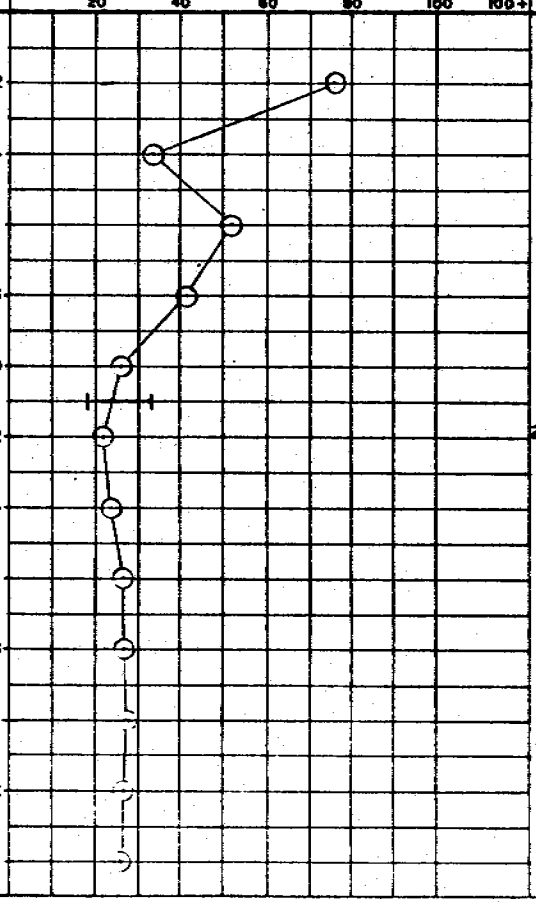
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 10/26/72	AIRPHOTO NO: A22934-161	CHAINAGE: 248+00
CKD: [illegible]	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS

OFFSET:
ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
577	B8	84*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt.	PEAT: cat. #1	F								Spruce up to 5" ϕ 50' high. Add Birch 2" ϕ 15' high.
2	1				ML	SILT: fine sand, low plastic, brown (1)		Vx 20%							
4					CI	CLAY: silty, medium plastic, brown (3½)									
6								Vx 30%							
8															
10	2				ML	SILT: clayey, low plastic, grey brown (9)		Nbn							
12									28	72					
14					CI	CLAY: silty, medium plastic, grey (13)									
16					CH	high plastic (15)		Vx 10%							
18	3														
20															
22															
24															

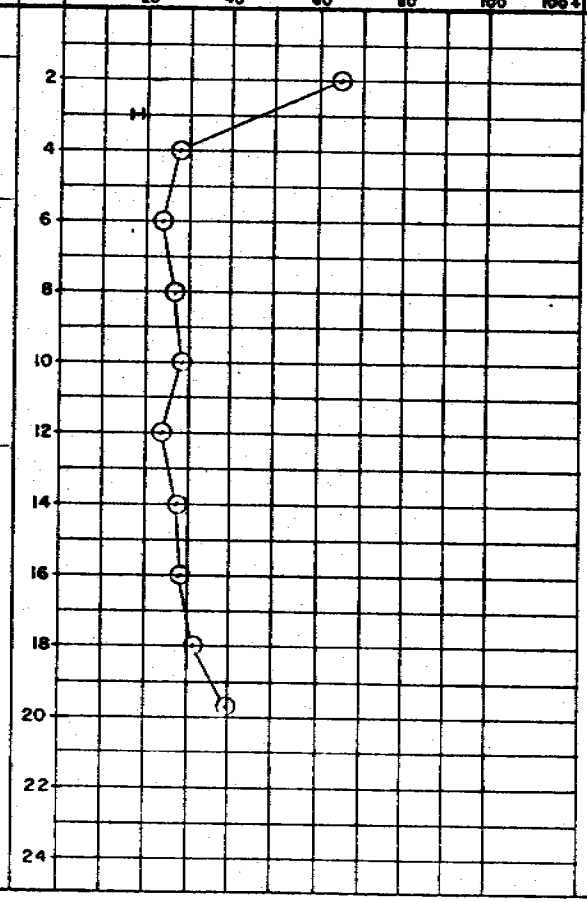


R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A22934-161	CHAINAGE: 248+00	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SPRUCE 6" ϕ 40' HIGH	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
577	B8	85

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: CAT. #4 — ½	F	Nbn
2	1				MH	SILT: SANDY, LOW PLASTIC, BROWN		Vx 15%
4	2							
6	3				CH	CLAY: SLIGHTLY SILTY, MED TO HIGH PLASTIC, GREY — 5½		Vx < 1%
8	4							
10	5							
12	6					HIGH PLASTIC — 12½		Vx 20%
14	7				CH			
16	8							
18	9							
20	10					END OF HOLE — 19½		
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
CLAY %	SILT %	SAND %	GRAVEL %			
9	31	60				

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

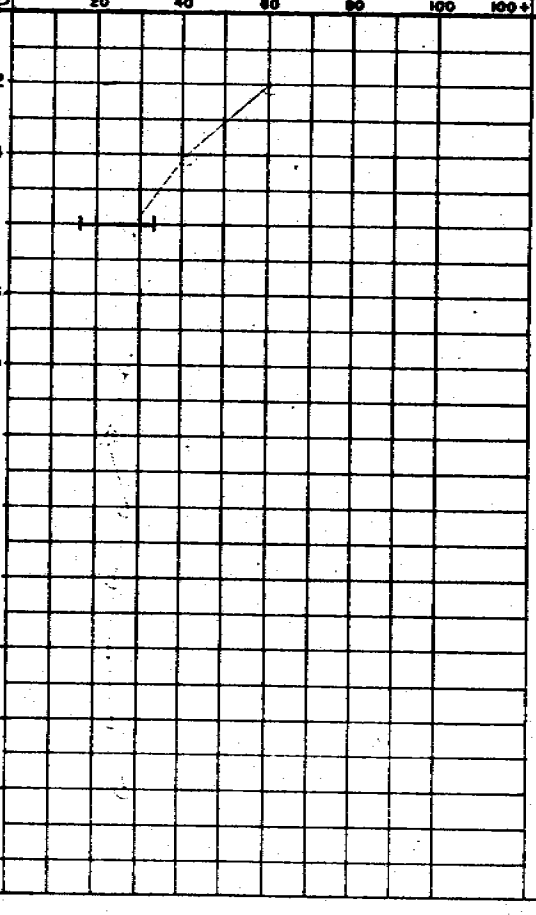
DWN: EF/CH	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A 22954-161	CHAINAGE: 248+00	OFFSET:
CKD:	TECH: T.C	RIG: FAILING 1000	SURFACE DRAINAGE: POOR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE SHEET 1 OF 2

MILE	B,C,S	NUMBER
577	B8	86*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0					Pt	PEAT CAT 44 — ½'	F	Vx 30%							SPRUCE 3"ϕ MAX 5-15' HIGH
2	1				SM	SAND; SILTY LOW TO NON PLASTIC BROWN — 3'									OCCASIONAL BIRCH 6"ϕ MAX 30' HIGH
4	2				ML	SILT; CLAYEY LOW PLASTIC BROWN — 5'									
6	3				CI	CLAY; SLIGHTLY SILTY MED PLASTIC BROWN-GREY		Vx 2%							
8	4								31	66	3				
10	5														
12	6														
14	7				CH	HIGH PLASTIC GREY — 13'		Vx 20%							
16	8							Vx 5%							
18	9														
20	10														
22	11														
24	12							Vx 20%							

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: EB/CLA	FIELD ENG: H.B.	DATE DRILLED: 10/12/72	AIRPHOTO NO: A 22934-161	CHAINAGE: 248+00	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: See Remarks	ELEV:

TEST HOLE SHEET 2 of 2

MILE	B,C,S	NUMBER
577	B8	86*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	○ = WATER CONTENT (% OF DRY WEIGHT) △ = ICE CONTENT (% OF SAMPLE VOLUME) (PLASTIC LIMIT 20–40, LIQUID LIMIT 80, 100, 100+)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
26	13					CLAY, [illegible]		20%	26								
28	14								28								
30	15								30								
32	16					32			32								
						END OF HOLE											
34									34								
36									36								
38									38								
40									40								
42									42								
44									44								
46									46								
48									48								
50									50								

R.M. HARDY AND ASSOCIATES LTD.

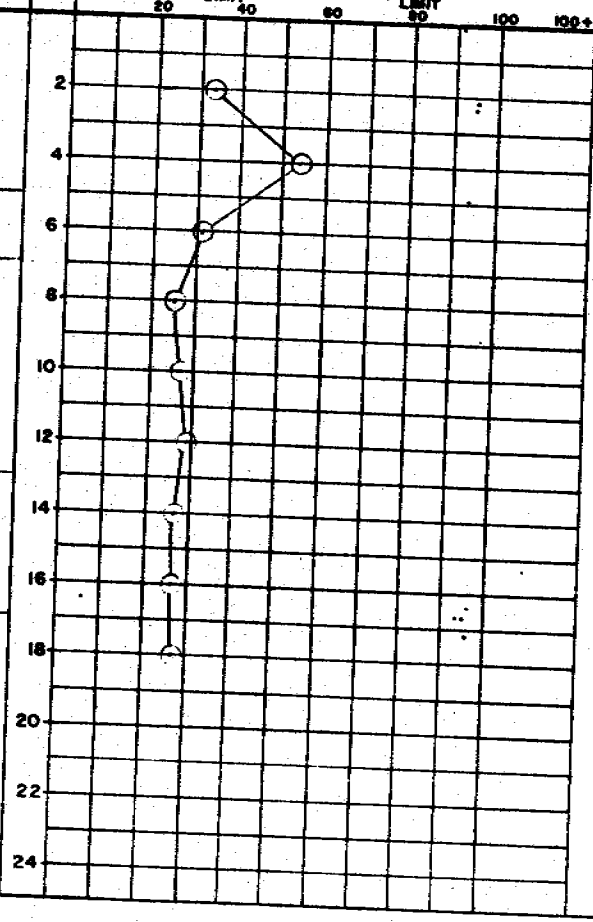
DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N. | FIELD ENG: H.B. | DATE DRILLED: 11/12/72 | AIRPHOTO NO: A22734-161 | CHAINAGE: 211+00
CKD: | TECH: T.C. | RIG: FAILING 1000 | SURFACE DRAINAGE: Flat | VEGETATION: SEE REMARKS | OFFSET: | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
578	B7	87*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
2	1				ML	SILT: low plastic brown	F	Vx 30%							Spruce 4" ϕ, 30-40' high; odd Birch; medium density
4					CH	CLAY: high plastic									
6								Vx 10%							
8								Vx 2%							
10															
12															
14						grey		Vx 10%							
16					CH										
18								Vx 30%							
20						END of HOLE									
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: [illegible]	FIELD ENG: H.B.	DATE DRILLED: 11/12/72	AIRPHOTO NO: A 22934-161	CHAINAGE: 211+00	OFFSET:
CKD: [illegible]	TECH: T.[illegible]	RIG: FAILING-1000	SURFACE DRAINAGE: Poor	VEGETATION: See Remarks	ELEV:

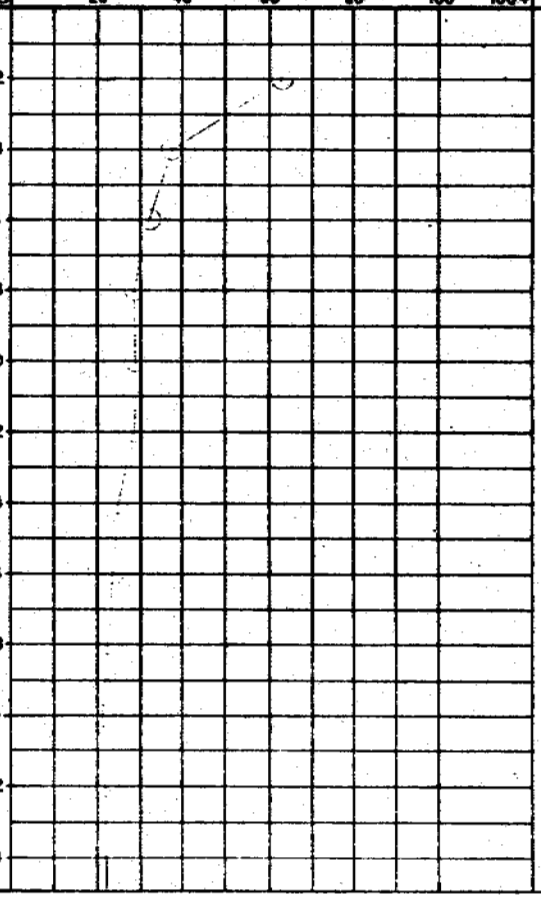
TEST HOLE SHEET 1 OF 2

MILE	B,C,S	NUMBER
570	B7	88

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
0						Peat Cover 1/4'	F	
2	1				ML	SILT; Slightly Sandy Low Plastic Brown 3'		Vx 40%
4	2				CI	CLAY; No Plastic Brown 4'		Vx [illegible]
6	3				CI	Slightly Silty		
8	4							Vx 2%
10	5							Vx 10%
12	6							
14	7							Vx 2%
16	8							
18	9							
20	10				SP	S[illegible] 21'		
22	[illegible]					[illegible]		
24	[illegible]							

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT



DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
0						
2						
4						
6						
8						
10						
12						
14						
16						
18						
20						
22						
24						

REMARKS

Birch
5" ϕ Max
30' High

Spruce
5-10' High

R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN:	FIELD ENG:	DATE DRILLED:	AIRPHOTO NO:	CHAINAGE:	OFFSET:
CKD:	TECH:	RIG:	SURFACE DRAINAGE:	VEGETATION:	ELEV:

TEST HOLE PAGE 2 OF 2

MILE	B,C,S	NUMBER
578	B7	88*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	O = WATER CONTENT (% OF DRY WEIGHT) Δ = ICE CONTENT (% OF SAMPLE VOLUME) (PLASTIC LIMIT 20, 40, 60, LIQUID LIMIT 80, 100, 100+)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
26									26								
	13																
28	14				CH				28								
30									30								
32									32								
34									34								
36									36								
38									38								
40									40								
42									42								
44									44								
46									46								
48									48								
50									50								

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

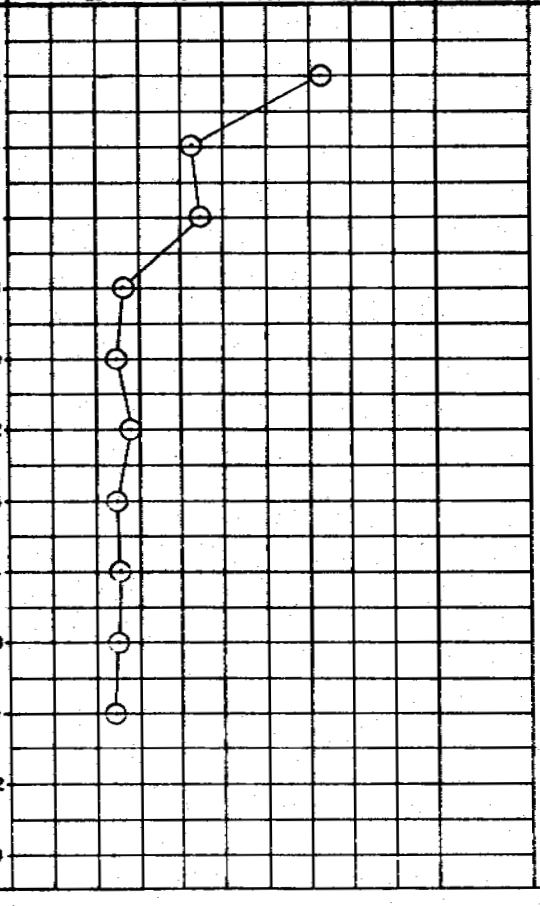
DWN: E. B.	FIELD ENG: H. B.	DATE DRILLED: 11/12/72	AIRPHOTO NO: A22934-161	CHAINAGE: 211+00
CKD:	TECH: T. C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
578	B7	89*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: CAT. #1 — 1½	F								DWARF SPRUCE 4' TO 12' HIGH
2	1					SILT: CLAYEY LOW TO MED PLASTIC BROWN — 2½		Vx 20%							ODD BIRCH
4	2					CLAY: SLIGHTLY SILTY HIGH PLASTIC BROWN		Vx 30%							
6	3				CH										
8	4							Vx 10%							
10	5														
12	6					GREY — 12		Vx 5%							
14	7														
16	8				CH										
18	9														
20	10														
22	11														
24	12					END OF HOLE — 24									



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: [illegible] | FIELD ENG: [illegible] | DATE DRILLED: [illegible]/12/72 | AIRPHOTO NO: [illegible] | CHAINAGE: [illegible] | OFFSET:

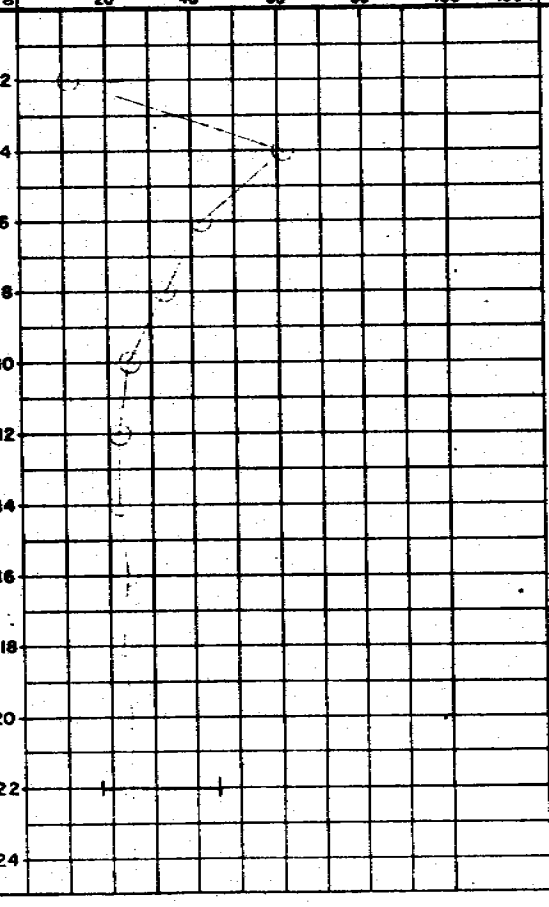
CKD: [illegible] | TECH: [illegible] | RIG: [illegible] 1000 | SURFACE DRAINAGE: Poor | VEGETATION: See [illegible] | ELEV:

TEST HOLE
SHEET 1 OF 2

MILE	S,C,S	NUMBER
578	B 7	90*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
0					CH	SANDY SILT: [illegible] Brown	F	Vx 30%
2	1				CI	CLAY: Silty Med to High Plastic Brown (2')		
4	2							
6	3							Vx 10%
8	4				CH	High Plastic (7')		Vx 2%
10	5							
12	6				ML	SILT: Slightly Clayey Med [illegible] Brown (10½')		Hbn
14	7							
16	8				CI	CLAY: Med Plastic Grey (15')		Vx 2%
18	9							
20	10							
22	11							
24	12							

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS	CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
22	40	60				

REMARKS

Birch
5" ϕ Max
30' High

Spruce
6" ϕ Max
40' High

R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: EB/[illegible]	FIELD ENG: [illegible]	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: [illegible]	OFFSET:
CKD: [illegible]	TECH: [illegible]	RIG: [illegible]	SURFACE DRAINAGE:	VEGETATION: [illegible]	ELEV:

TEST HOLE
SHEET 2 of 2

MILE	B,C,S	NUMBER
578	B7	90*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
26	(13)				CI	CLAY: Med Plastic Grey	F	Vk 2%							
28	(14)					28 End of Hole									
30															
32															
34															
36															
38															
40															
42															
44															
46															
48															
50															

O = WATER CONTENT (% OF DRY WEIGHT)
Δ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT
20 40 60 80 100 100+

R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

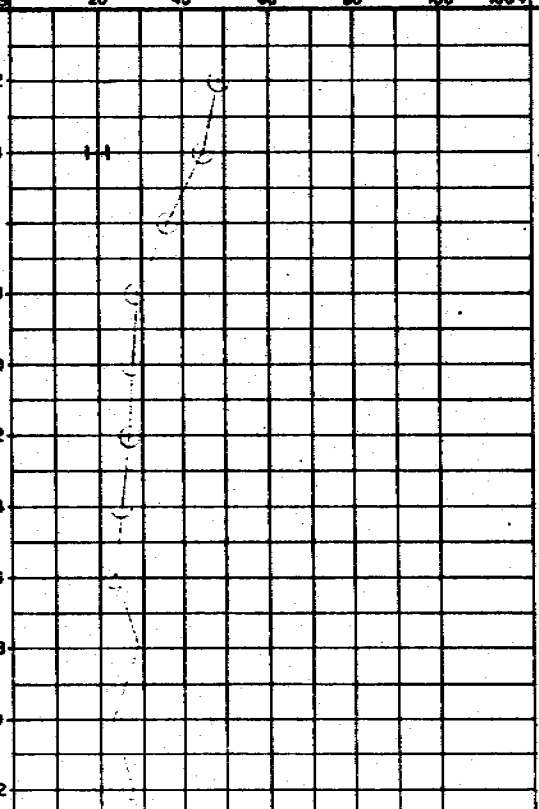
OWNER: DPW	FIELD ENG: H.B.	DATE DRILLED: 11/12/72	AIRPHOTO NO: [illegible]	CHAINAGE: 167+00	OFFSET:
CKD:	TECH: TC	RIG: FALING 1000	SURFACE DRAINAGE: Poor	VEGETATION: See Remarks	ELEV:

TEST HOLE SHEET 1 OF 2

MILE	B,C,S	NUMBER
579	B6	91*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
0					ML-CL	SILT: Clayey Low Plastic Brown	F	Vx 20%						
2	(1)													
4	(2)								19	61	20			
						5'								
6	(3)				CI	CLAY: Silty Med to High Plastic Brown		Vx 5%						
8	(4)							Vx 2%						
10	(5)													
12	(6)													
						13'								
14	(7)				CH	High Plastic		Vx 5%						
						15'								
16	(8)				CH	Grey								
18	(9)							Vx 10%						
20	(10)													
22	(11)													
24	(12)													

O = WATER CONTENT (% OF DRY WEIGHT)
Δ = ICE CONTENT (% OF SAMPLE VOLUME)



REMARKS

Spruce
5" ϕ Max
30-40' High

R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: EB/KH | FIELD ENG: H.B. | DATE DRILLED: [illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: 167+00 | OFFSET:

CKD: [illegible] | TECH: T.C. | RIG: [illegible] | SURFACE DRAINAGE: | VEGETATION: [illegible] | ELEV:

TEST HOLE Sheet 2 of 2

MILE	B,C,S	NUMBER
579	B6	91+

DEPTH (FEET) 26	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET) 26	○ = WATER CONTENT (% OF DRY WEIGHT) △ = ICE CONTENT (% OF SAMPLE VOLUME) PLASTIC LIMIT — LIQUID LIMIT (20, 40, 60, 80, 100, 100+)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	(13)				CH	CLAY: Silty High Plastic Grey	F	Vx 10%									
28	(14)								28								
30	(15)					30' END OF HOLE			30								
32									32								
34									34								
36									36								
38									38								
40									40								
42									42								
44									44								
46									46								
48									46								
50									50								

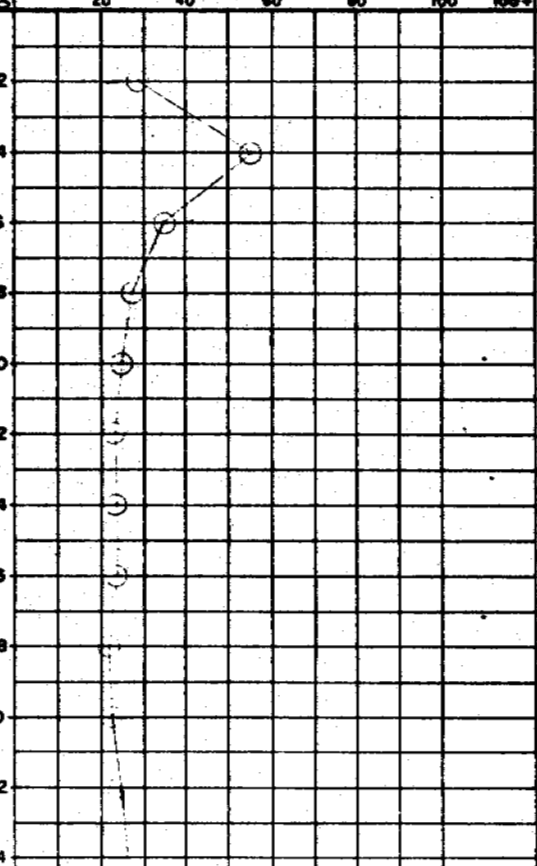
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

OWN: [illegible]	FIELD ENG: H.R	DATE DRILLED: 11/2/72	AIRPHOTO NO: A 22934-162	CHAINAGE: 177 +00	OFFSET:
CKD: [illegible]	TECH: JH	RIG: [illegible]	SURFACE DRAINAGE: Poor	VEGETATION: [illegible]	ELEV:

TEST HOLE SHEET 1 OF 2

MILE	B,C,S	NUMBER
578	B7	92

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0					CL	PEAT ROOTS CLAY: SILTY, FINE SAND MED PLASTIC 1/4		Vx 10%							BIRCH
2	1				CL	2' NO FINE SAND									OCCASIONAL SPRUCE & TAMARACK
4	2														
6	3				CH	6' LESS SILTY MED TO HIGH PLASTIC		Vx 1%							
8	4														
10	5				CL	10' SILTIER MED PLASTIC GREY-BROWN									
12	6														
14	7														
16	8														
18	9														
20	10														
22	11														
24	12														



R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: CB/CCL | FIELD ENG: [illegible] | DATE DRILLED: [illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: 171+00 | OFFSET:

CKD: [illegible] | TECH: [illegible] | RIG: [illegible] | SURFACE DRAINAGE: | VEGETATION: [illegible] | ELEV:

TEST HOLE
SHEET 2 OF 2

MILE	B,C,S	NUMBER
578	B7	92*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
26															
	13				CL	CLAY: Silty Med Plastic Green Brown		Vx 1%							
28	14							Vx 0%							
						29 End of Hole									
30															
32															
34															
36															
38															
40															
42															
44															
46															
48															
50															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT
20 40 60 80 100 100+

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

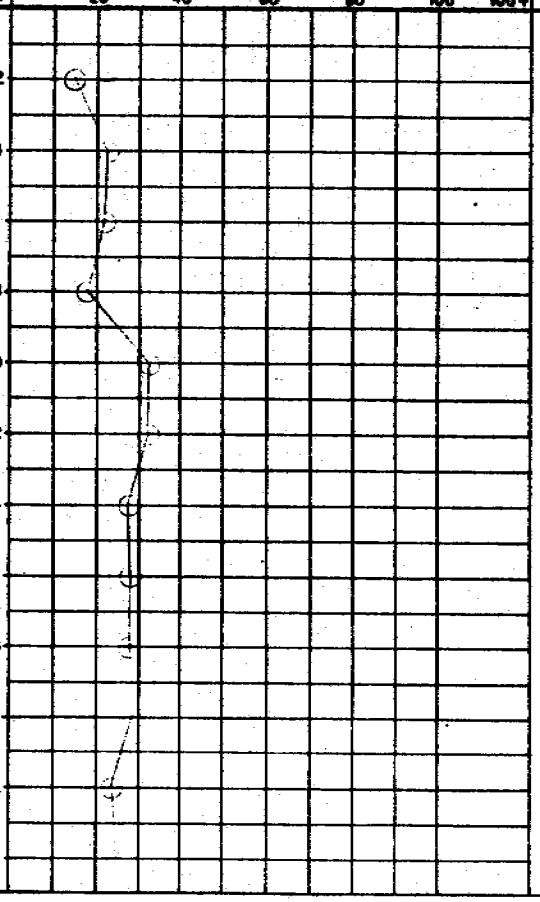
DWN: [illegible]	FIELD ENG: HB	DATE DRILLED: [illegible]/2/72	AIRPHOTO NO: [illegible] 22234-162	CHAINAGE: 167+00	OFFSET:
CKD: [illegible]	TECH: JH	RIG: Failing 1000	SURFACE DRAINAGE: Poor	VEGETATION: See Remarks	ELEV:

TEST HOLE
Sheet 1 of 2

MILE	B,C,S	NUMBER
579	B6	93*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
0					SP	SAND: Fine Grained Silty	F	Ndn
3'						Medium Fine Gr. Less Silt Non-Plastic Brown		
9'	(1)				ML	SILT: Fine Sandy Clayey Low Plastic Grey-Brown		
16½'	(2)				CI	CLAY: Silty Medium Plastic Grey		Vx 10%
22'	(3)				CH	High Plastic		Vx 5%

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)

REMARKS

50% Birch
50% Tamarack & Spruce
50' High

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: [illegible]	FIELD ENG: [illegible]	DATE DRILLED: 11/12/72	AIRPHOTO NO: [illegible]	CHAINAGE: 167+00	OFFSET:
CKD: [illegible]	TECH: [illegible]	RIG: [illegible]	SURFACE DRAINAGE:	VEGETATION: [illegible]	ELEV:

TEST HOLE Sheet 2 of 2

MILE	B,C,S	NUMBER
579	B6	93

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
26					CH	CLAY: Silty, High Plastic, Grey	F	Vx 5% / Vx 15%
						29' END OF HOLE		

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT

DEPTH (FEET)	20	40	60	80	100	100+
26						
28						
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						

GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN:	FIELD ENG:	DATE DRILLED: 11/12/72	AIRPHOTO NO: A20334-161	CHAINAGE: 152+00	OFFSET:
CKD:	TECH:	RIG: 1000	SURFACE DRAINAGE: Poor	VEGETATION: Self Remarks	ELEV:

TEST HOLE Sheet 1 of 2

MILE	B,C,S	NUMBER
578	B7	94*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0						Peat Cat #3									
					CI	CLAY; Silty, Medium Plastic, Brown — 4½'		Vx 60%							Spruce 4" ϕ Max 10-15' High
2	1														
4	2								33	57	10				Occasional Birch
					CI CH	CLAY: Silty, Med to High Plastic, Brown — 5'		Vx 30%							
6	3														
8	4							Vx 2%							
10	5														
					CH	High Plastic, Grey, Non-Silty — 11'									
12	6														
14	7														
16	8														
					CI	Silty — 17'									
18	9														
20	10														
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT

20 40 60 80 100 100+

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: [illegible]	FIELD ENG: [illegible]	DATE DRILLED: 11/12/[illegible]	AIRPHOTO NO: A 2[illegible]-151	CHAINAGE: 152+00	OFFSET:
CKD: [illegible]	TECH: [illegible]	RIG: [illegible] 1000	SURFACE DRAINAGE: Poor	VEGETATION: Self Remarks	ELEV:

TEST HOLE Sheet 1 of 2

MILE	B,C,S	NUMBER
578	B7	94*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0						Peat Bat 43 — 1½'									Spruce 4" ϕ Max 10-15' High Occasional Birch
2	1				CI	CLAY; Silty Medium Plastic Brown		Vx 60%							
4	2								33	57	10				
6	3				CI CH	CLAY: Silty Medio High Plastic Brown — 5'		Vx 30%							
8	4							Vx 2%							
10	5														
12	6				CH	High Plastic Grey Non Silty — 11'									
14	7														
16	8														
18	9				CI	Silty — 17'									
20	10														
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT

20 40 60 80 100 100+

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN:	FIELD ENG:	DATE DRILLED:	AIRPHOTO NO:	CHAINAGE:	OFFSET:
CKD:	TECH:	RIG:	SURFACE DRAINAGE:	VEGETATION:	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
578	B7	94*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	○ = WATER CONTENT (% OF DRY WEIGHT) △ = ICE CONTENT (% OF SAMPLE VOLUME) (PLASTIC LIMIT 20–40, LIQUID LIMIT 60–80, 100, 100+)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
26	13				CL	[illegible]	F	Vx 2%	26								
28	14					[illegible]			28								
30						30' End of Hole			30								
32									32								
34									34								
36									36								
38									38								
40									40								
42									42								
44									44								
46									46								
48									48								
50									50								

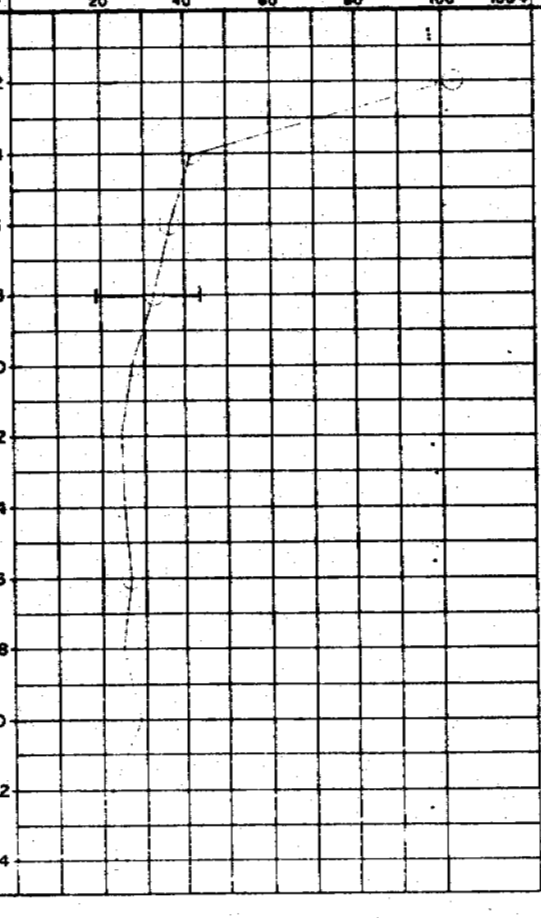
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: ER	FIELD ENG: HB	DATE DRILLED: 11/12/72	AIRPHOTO NO: [illegible]	CHAINAGE: 147+00	OFFSET:
CKD: [illegible]	TECH: JH	RIG: [illegible]	SURFACE DRAINAGE: Poor	VEGETATION: [illegible]	ELEV:

TEST HOLE Sheet 1 of 2

MILE	B,C,S	NUMBER
579	B6	95*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0																
2	(1)				MH	SILT: Very Fine Sand Light Brown		Vx 60%	2							Spruce + Tamarack 25' High
4								Vx 20%	4							
5						Trace of Clay										
6					CI	CLAY: Silty Med Plastic Brown		Vx 1%	6							
8	(2)								8							
10									10							
12									12	38	62					
13					CI	Siltier Grey			14							
16									16							
18									18							
20									20							
22									22							
24									24							



R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN:	FIELD ENG:	DATE DRILLED:	AIRPHOTO NO:	CHAINAGE:	OFFSET:
CKD:	TECH:	RIG:	SURFACE DRAINAGE:	VEGETATION:	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
[illegible]	[illegible]	75*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	○ = WATER CONTENT (% OF DRY WEIGHT) △ = ICE CONTENT (% OF SAMPLE VOLUME) PLASTIC LIMIT — LIQUID LIMIT 20 40 60 80 100 100+	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
26						[illegible]			26								
28									28								
30									30								
32									32								
34									34								
36									36								
38									38								
40									40								
42									42								
44									44								
46									46								
48									48								
50									50								

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: FIELD ENG: DATE DRILLED: AIRPHOTO NO: CHAINAGE: 147+00 OFFSET:
CKD: TECH: RIG: SURFACE DRAINAGE: VEGETATION: ELEV:

TEST HOLE: Sheet Ice 2

MILE	B,C,S	NUMBER
579	B	96*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0						Peat Sheet 4 — 1/4	F	Vx 30%							Spruce To Low Density Spruce & Tamarack 5-15' High
2	1				CL ML	CLAY: Silty & Very Fine Sandy Low Plastic Brown									
4								Vx 20%							
6					CL	CLAY: Silty Med Plastic Brown — 6		Vx 1%	17	53	30				
8	2														
10															
12					CL	Gr Peat — 12		Vx 5%							
14															
16															
18															
20															
22	3														
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT
20 40 60 80 100 100+

MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1065

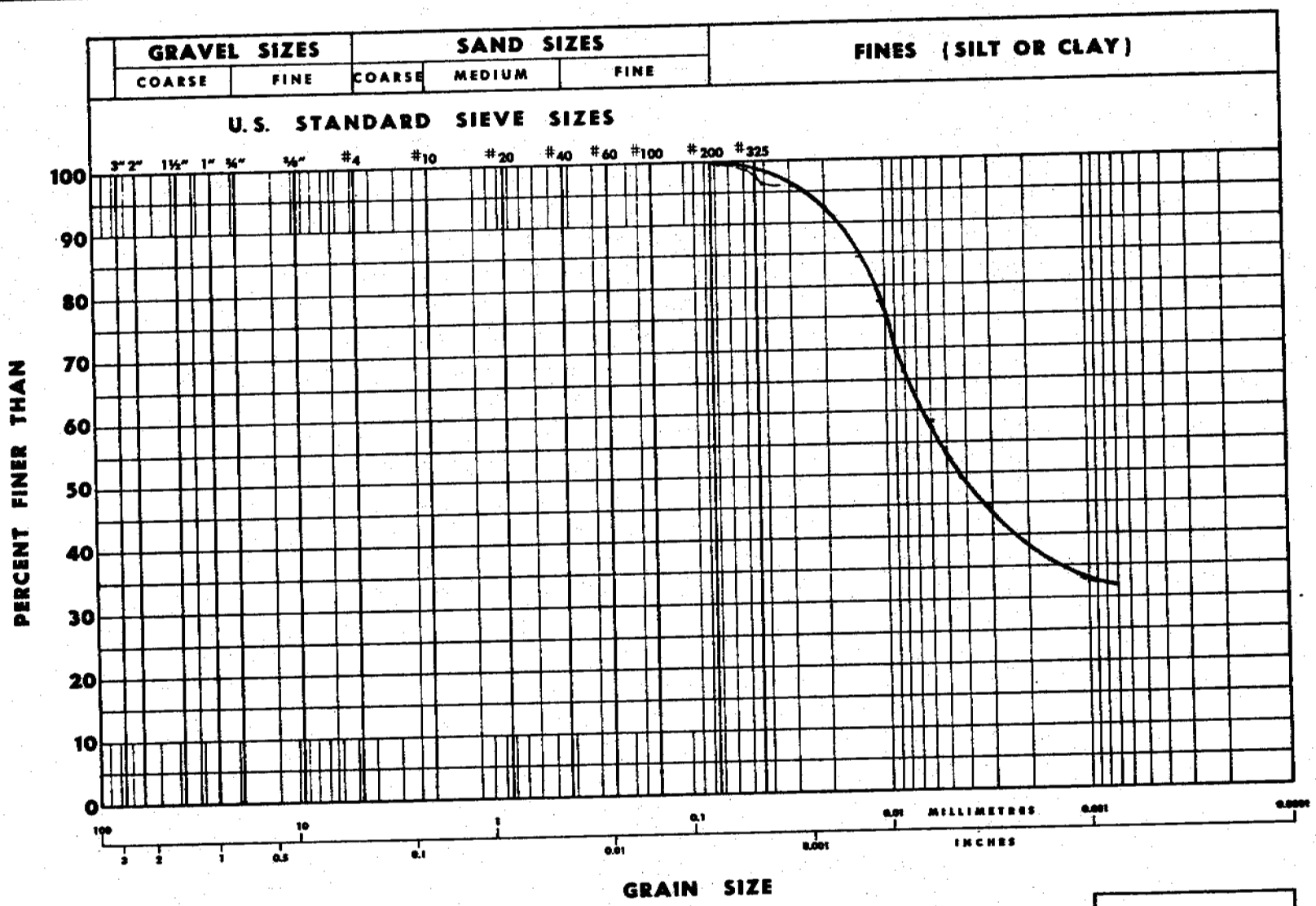
CLIENT E-2510-F

SAMPLE

SOURCE

HOLE 95-68 DEPTH 12' DATE REC'D.

TECHNICIAN DATE TESTED



D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_U _____
C_C _____

REMARKS: _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN:	FIELD ENG:	DATE DRILLED:	AIRPHOTO NO:	CHAINAGE:	OFFSET:	TEST HOLE
CKD:	TECH:	RIG:	SURFACE DRAINAGE:	VEGETATION:	ELEV:	MILE: 579 B.C. NUMBER: 96+

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	○ = WATER CONTENT (% OF DRY WEIGHT) △ = ICE CONTENT (% OF SAMPLE VOLUME) PLASTIC LIMIT — LIQUID LIMIT (20, 40, 60, 80, 100, 100+)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
22						CLAY											
28									28								
						END OF HOLE											
30									30								
32									32								
34									34								
36									36								
38									38								
40									40								
42									42								
44									44								
46									46								
48									48								
50									50								

MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1065

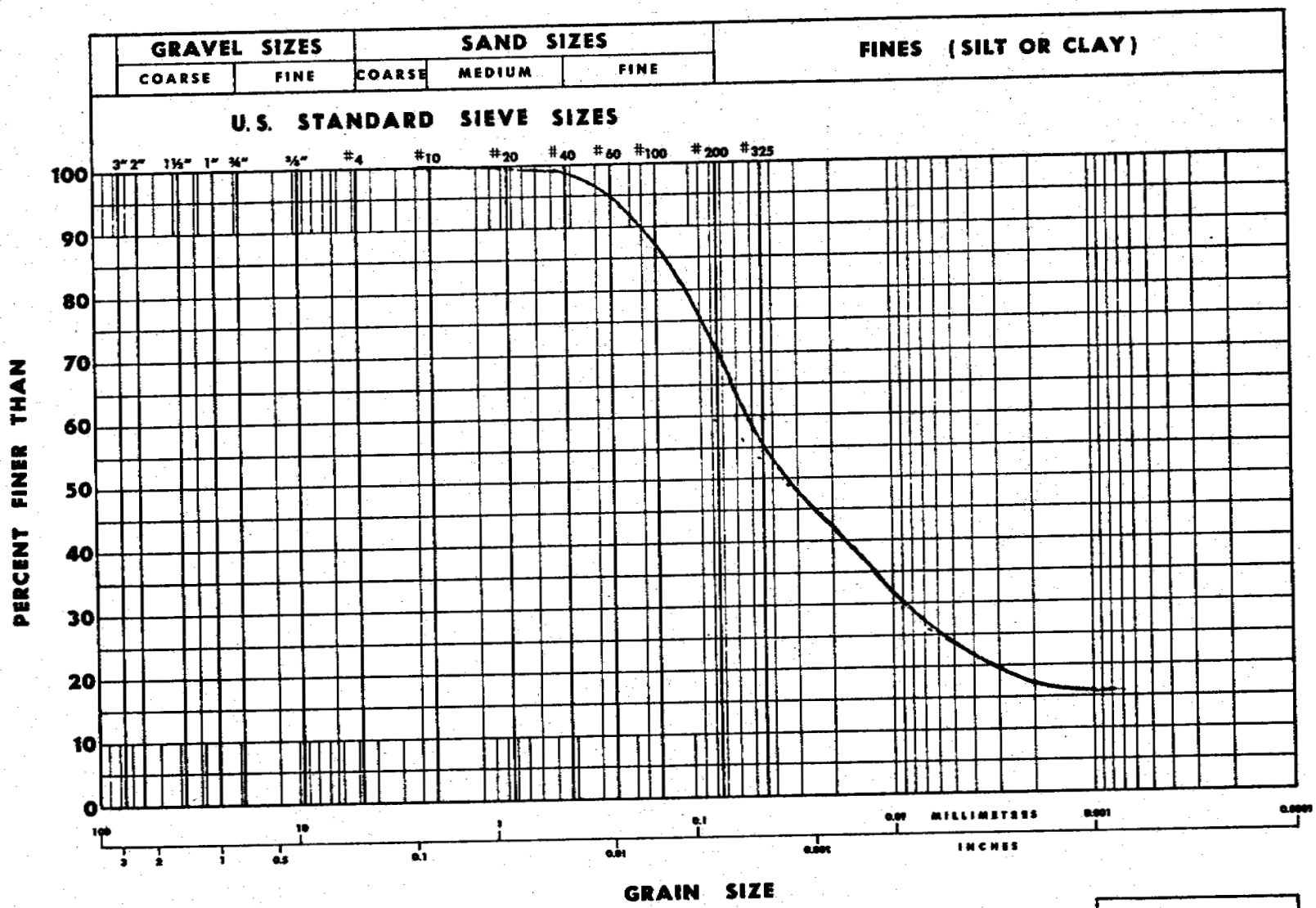
CLIENT E-2510-F

SAMPLE

SOURCE

HOLE 96-68 DEPTH 6' DATE REC'D.

TECHNICIAN G.F. J.G. DATE TESTED FEB 21



D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_U _____
C_C _____

REMARKS: _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

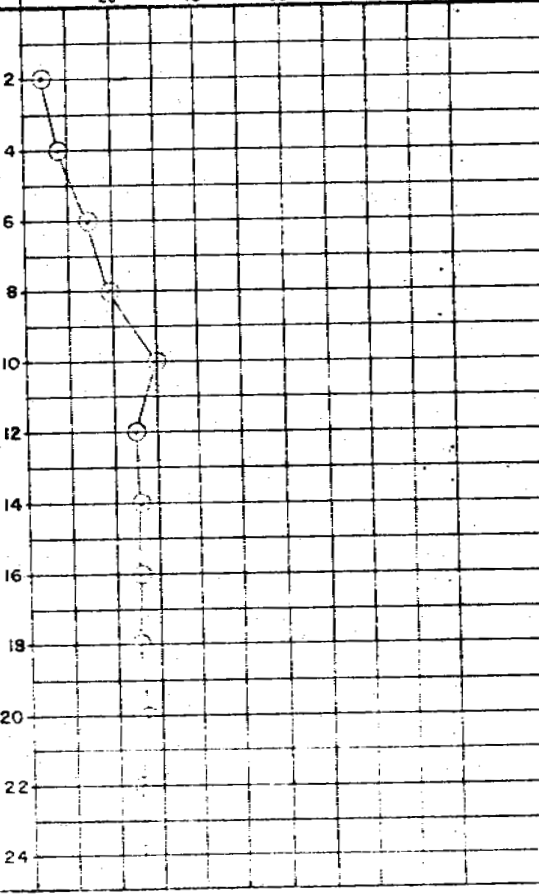
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.S.	DATE DRILLED: 11/12/72	AIRPHOTO NO: [illegible]	CHAINAGE: 131+00	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
578	B7	97*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
2	1				SM	SAND: FINE TO MED GRAIN SILTY NON PLASTIC BROWN	F	Nbn
						2 — LESS SILT		
4								
6								
						7 — SILTY TRACE OF CLAY		
8					SC	8½		
						CLAY: SILTY MED PLASTIC BROWN		
10					CI			Vx 1%
12	2					12 — LESS SILTY MED TO HIGH PLASTIC		
					CH			
14								
16								
18								Vx 3%
20								
22								
24						24 — END OF HOLE		

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

BIRCH, 2000 SQ. FT.
STRIPPABLE, 25" HIGH

MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. 9-1065

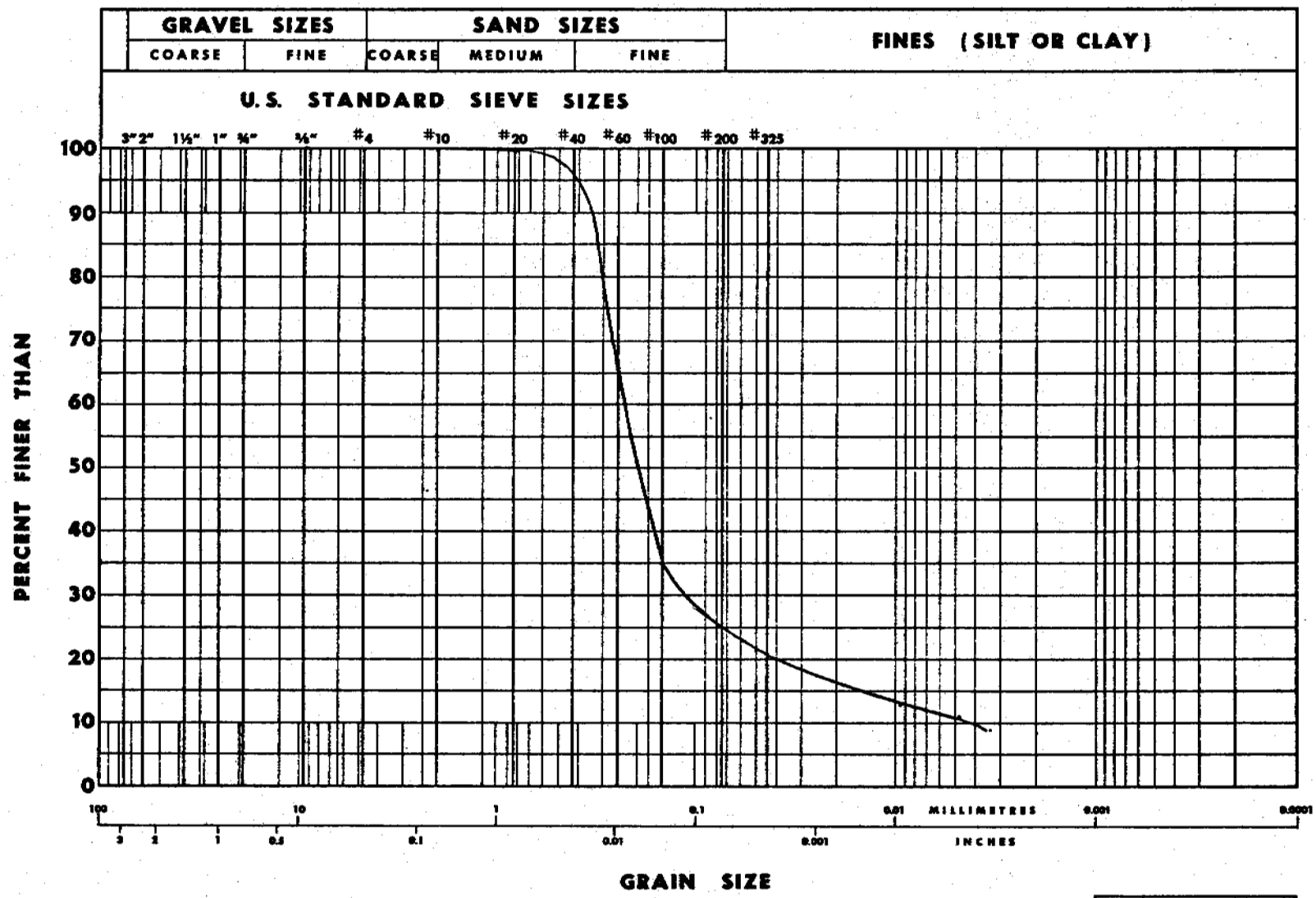
CLIENT E2510

SAMPLE B5

SOURCE

HOLE 98 DEPTH 6' DATE REC'D.

TECHNICIAN CAGE DATE TESTED Feb 7/73



REMARKS: _____

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_U _____
C_C _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1065

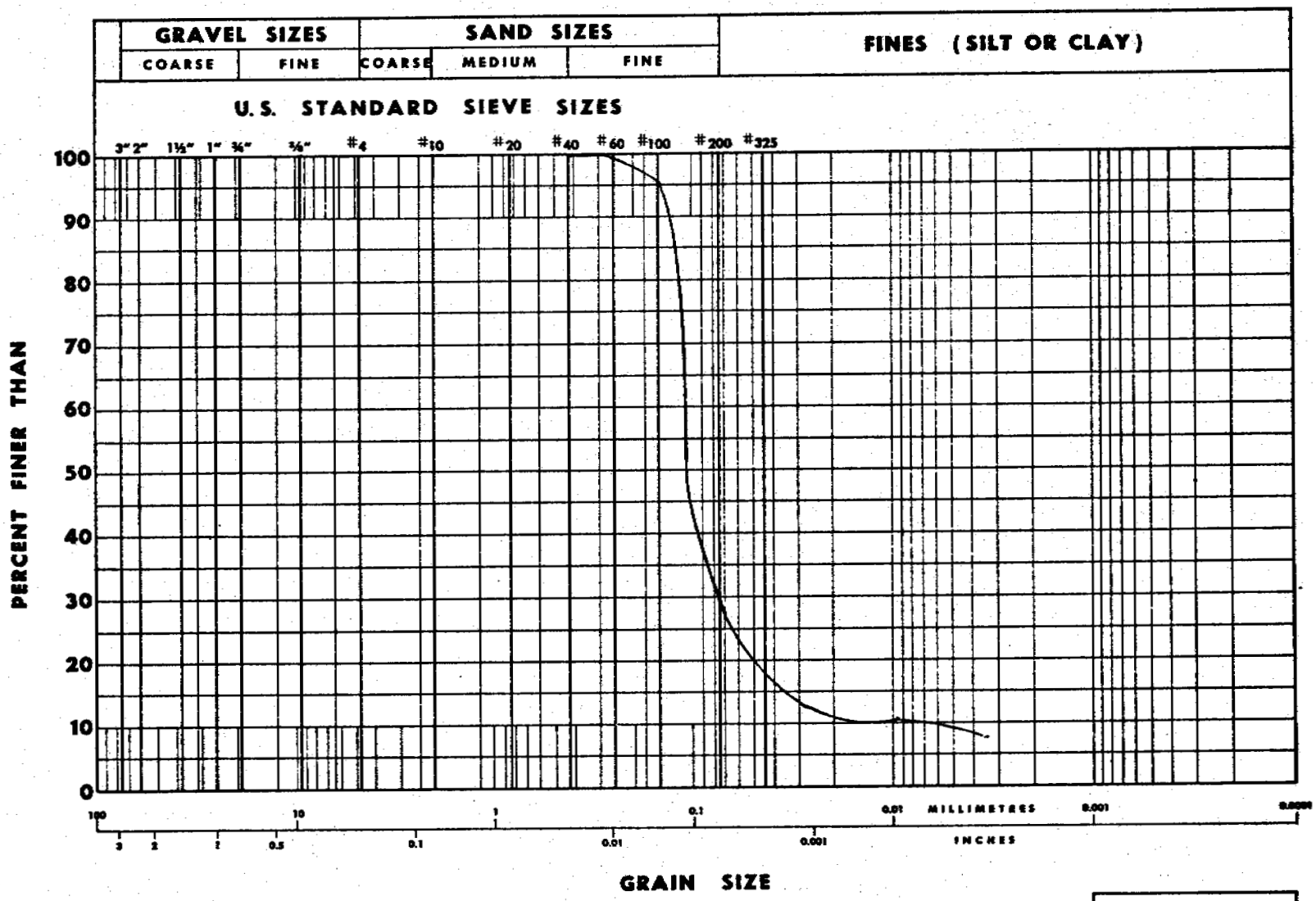
CLIENT E 2510

SAMPLE B5

SOURCE

HOLE 98 DEPTH 20' DATE REC'D.

TECHNICIAN [illegible] DATE TESTED FEB 7/73



REMARKS: _____

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_u _____
C_c _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

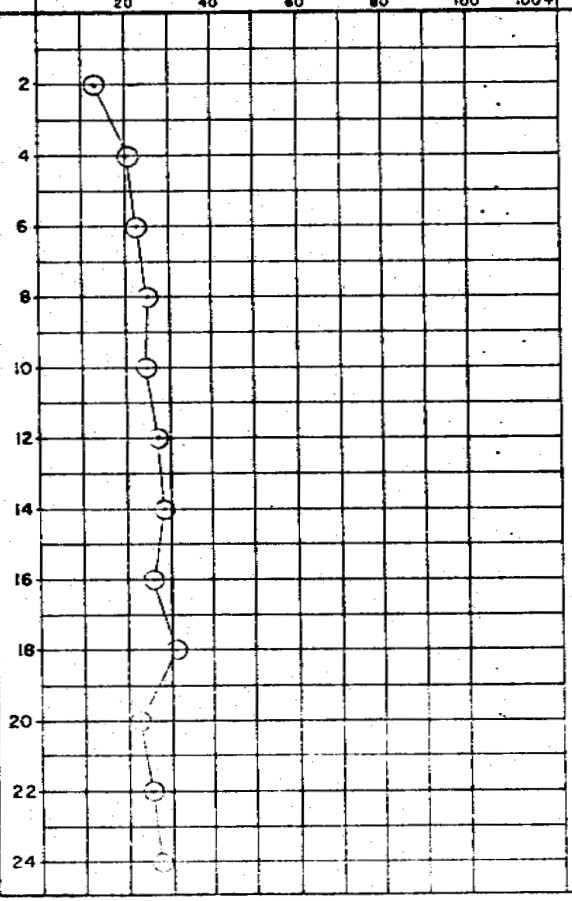
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 11/12/72	AIRPHOTO NO: A 229 24 - 162	CHAINAGE: 112+00	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	85	99 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					OL	SILT: ORGANIC RED BROWN — 1	F	Nbn
2	1				SM	SAND: FINE TO MED GRAIN SILTY BROWN		
4								
6								
8								
10	2							
12								Vx 5%
14								
16								Vx 10%
18	3							
20								
22								
24						END OF HOLE — 24		

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS: MIXTURE OF SPRUCE & TAMARACK 43' HIGH ODD BIRCH

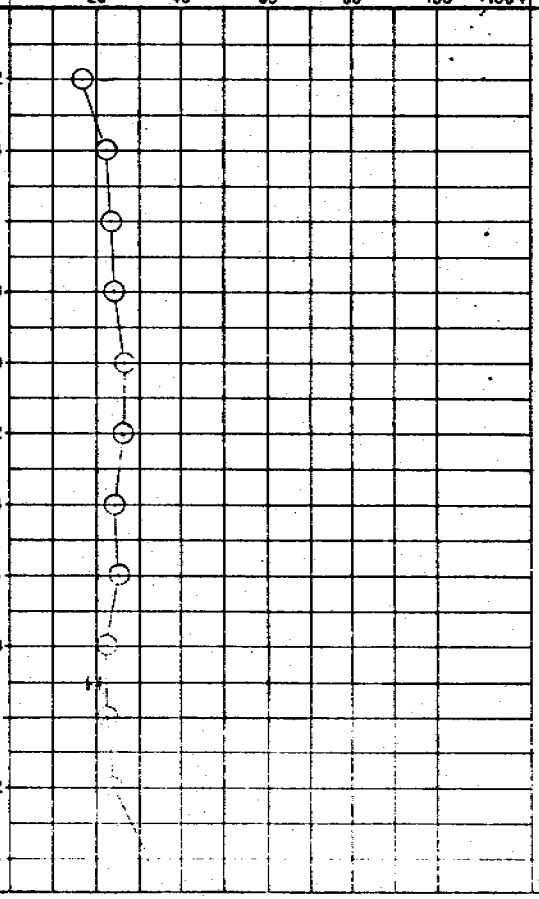
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 11/12/72	AIRPHOTO NO: A22934 - 162	CHAINAGE: 91+00	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	85	100 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					OL	SAND: ORGANIC - SILTY ---------- 1/2	F	Nbn
					SM	SILTY NON PLASTIC		
2								
4								
6	1					---------- 6		Vx 3%
						TRACE OF SILT		
8								
10								
12					SM			
14								
16								Vx 10%
18								
20								
22								
24						END OF HOLE ---------- 24		

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS: TAMARACK 30' TO 40' HIGH, ODD SPRUCE & BIRCH

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: [illegible]	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: 114+00	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: [illegible]	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	B5	101*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
					SP	DEAD [illegible] ¼ SAND: medium to coarse grained, slightly silty, [illegible] grey brown	F	Nbn						
2														
4	1													
6														
8														
10						no silt — 10		Vx 5%						
12														
14														
16	2													
18														
20														
22														
24														

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⟷ LIQUID LIMIT

20 40 60 80 100 100+

REMARKS: Tamarack 40' high add Spruce & Birch

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

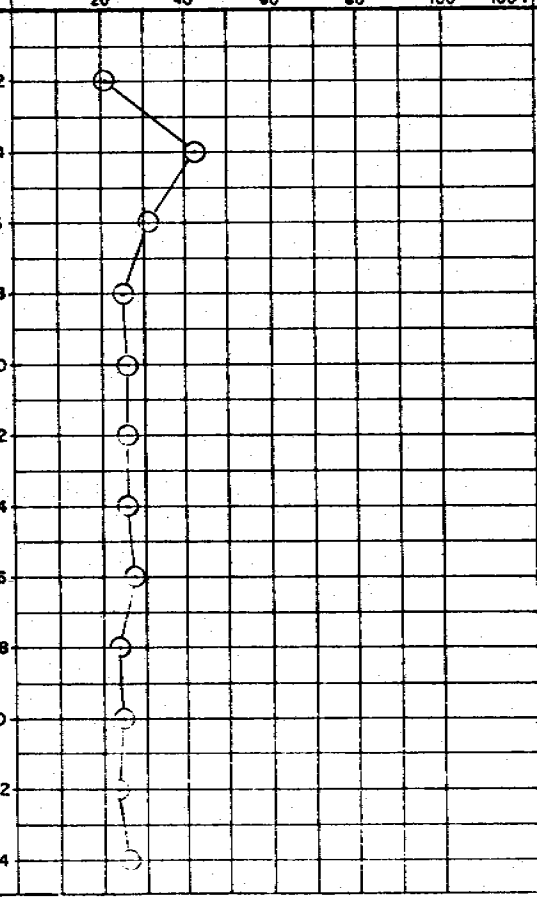
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 11/12/72	AIRPHOTO NO: A22954-162	CHAINAGE: 114+00	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION:	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	85	102 *

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
						PEAT: CAT. # 4		
					MH	SILT: SANDY CLAYEY LOW TO MED PLASTIC BROWN — 1/4	F	Nbn
2					CI	CLAY: SILTY MED PLASTIC BROWN — 2		Vx 5%
4	1				CH	LESS SILTY MED TO HIGH PLASTIC — 4		
6								
8								
10								Vx 10%
12								
14								Vx 20%
16	2							
18								
20								Vx 5%
22								
24						END OF HOLE — 24		

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

TAMARACK TOWER STRUCTURE FOUND FOR

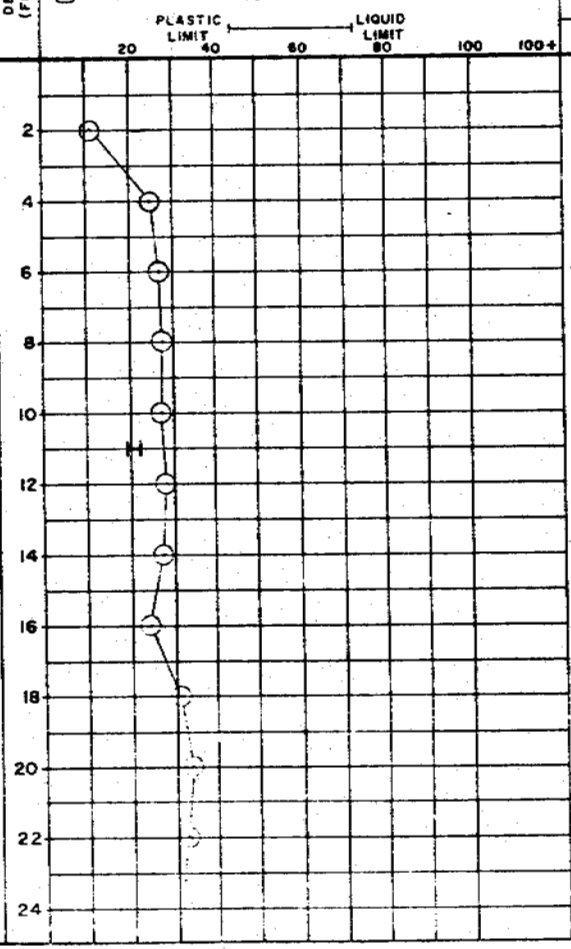
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 11/12/72	AIRPHOTO NO: A22934-161	CHAINAGE: [illegible]	OFFSET:
CKD: -	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	B4	103*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
0–5	1, 2				SP	SAND: medium-fine non plastic brown	F	Nbn
5–16½	3				SM	silty low plastic		Vx 2% / Nbn
16½–19					ML	SILT: sandy low plastic		
19–24						trace clay		
24						END OF HOLE		

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		
7	23	70			
10	30	60			
12	76	12			

REMARKS

Spruce 8" ϕ, 50' high
Birch 6" ϕ, 40' high

STANDPIPE INSERTED

MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1065

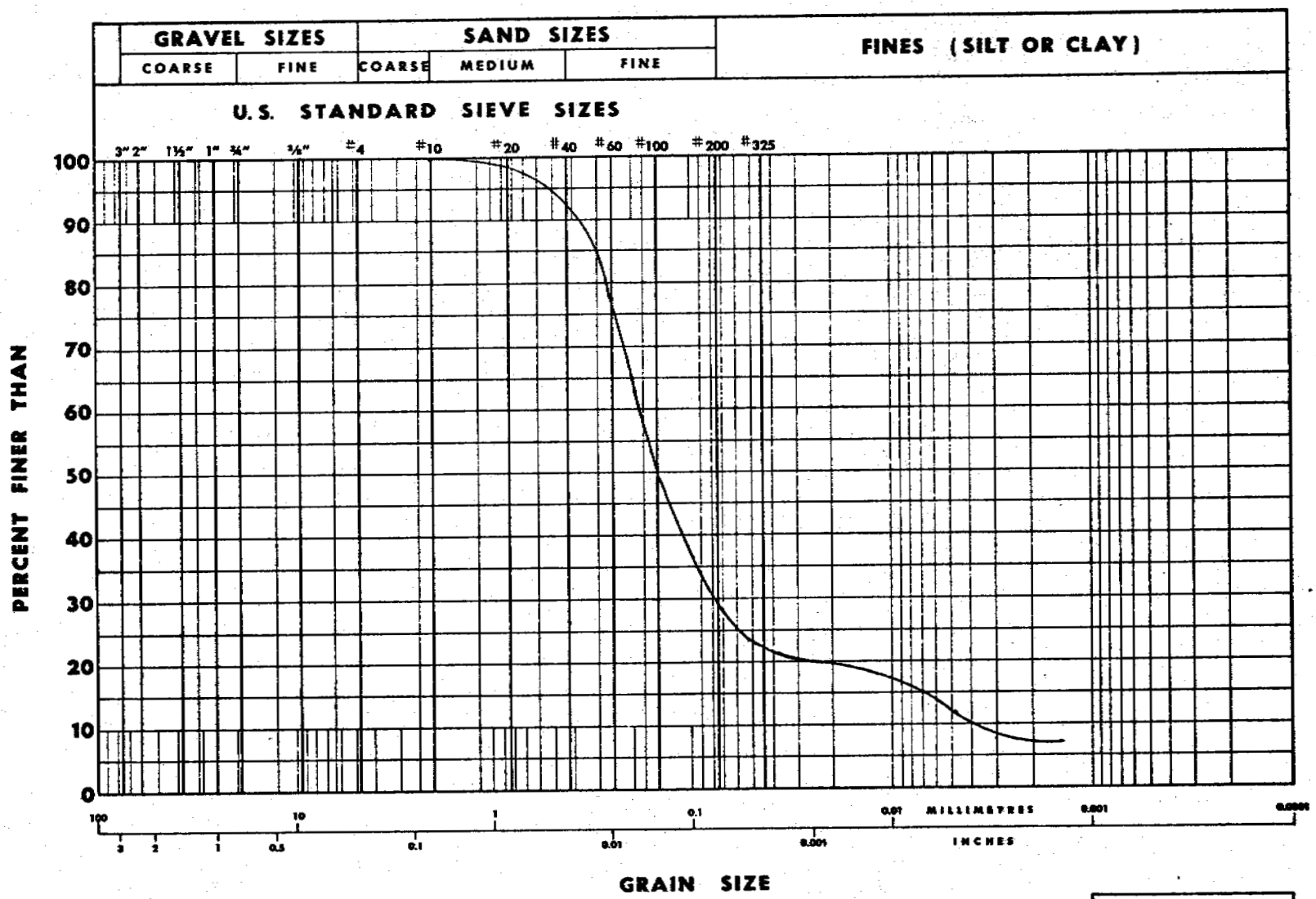
CLIENT E 2310

SAMPLE

SOURCE 7.4

HOLE/03-1 DEPTH 2' DATE REC'D.

TECHNICIAN G.F + CRH DATE TESTED Feb 6/73



REMARKS:

D_{10} = _____ MM.

D_{30} = _____ MM.

D_{60} = _____ MM.

C_u _____

C_c _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1065

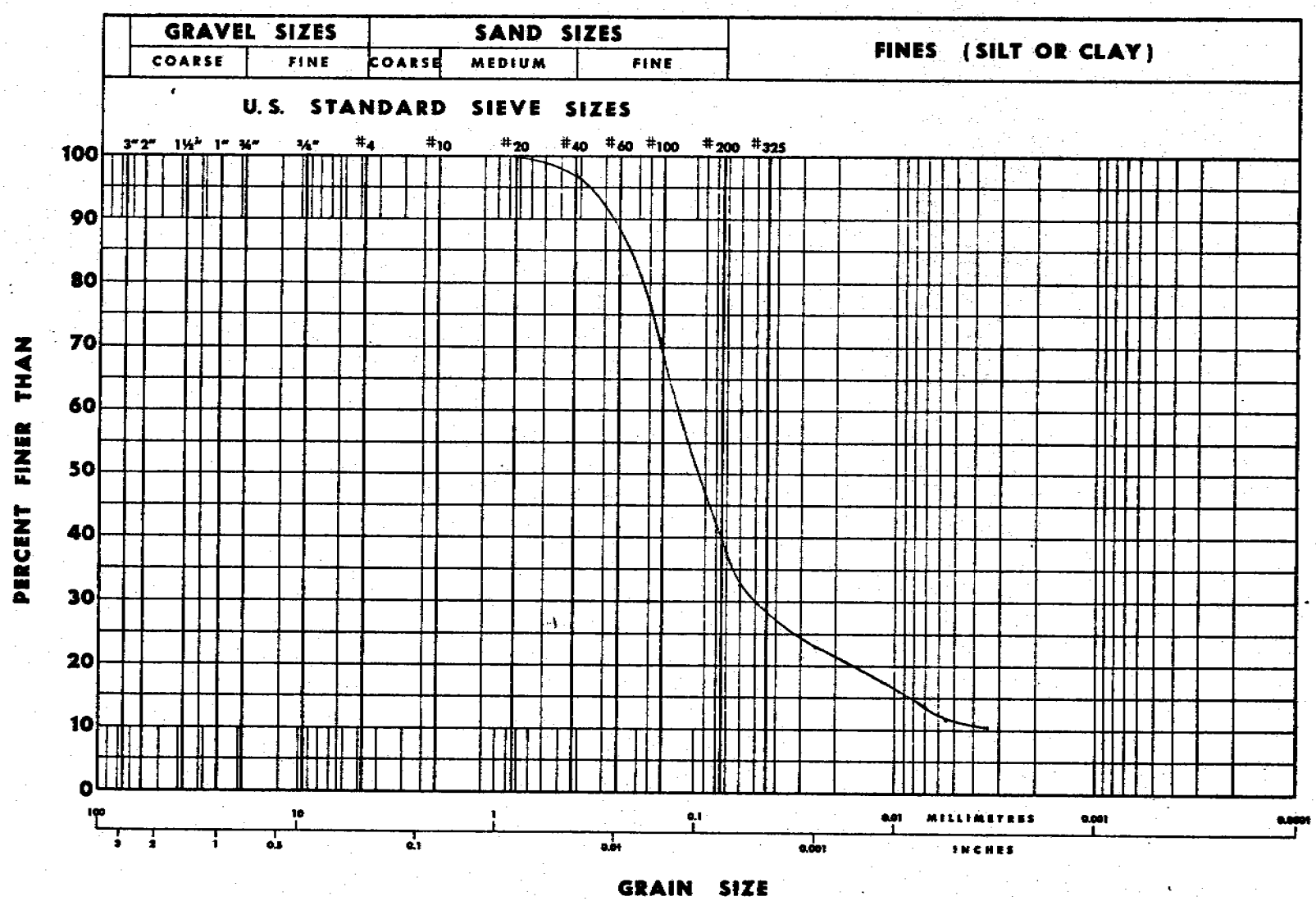
CLIENT E 2510

SAMPLE B4

SOURCE

HOLE 103-2 DEPTH 4' DATE REC'D.

TECHNICIAN [illegible] DATE TESTED [illegible]/73



REMARKS: _____

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_u _____
C_c _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1065

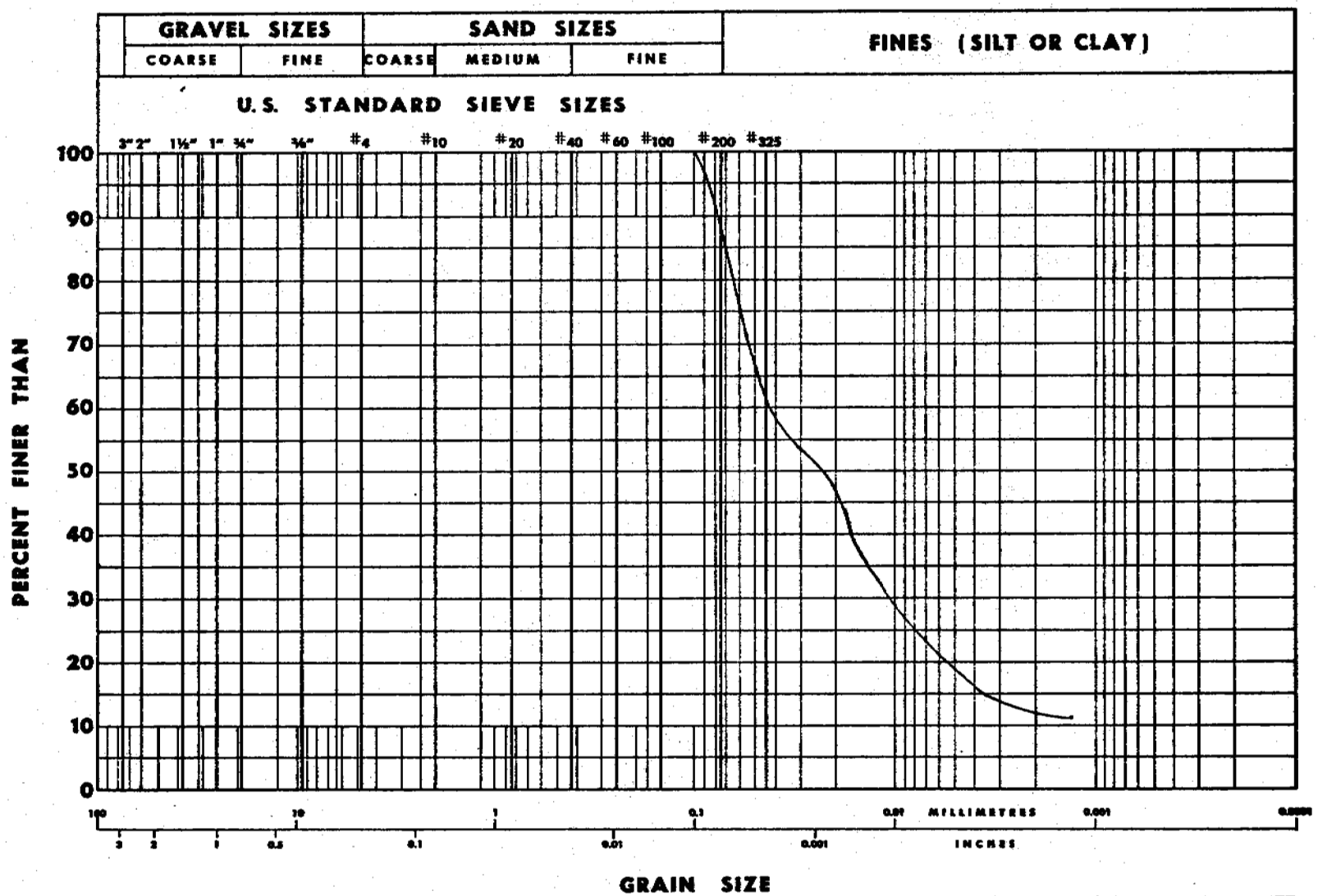
CLIENT E 2510

SAMPLE

SOURCE

HOLE# 03-3 DEPTH 12' DATE REC'D.

TECHNICIAN CBM G.F. DATE TESTED Feb 6/73



REMARKS: _____

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_U _____
C_C _____

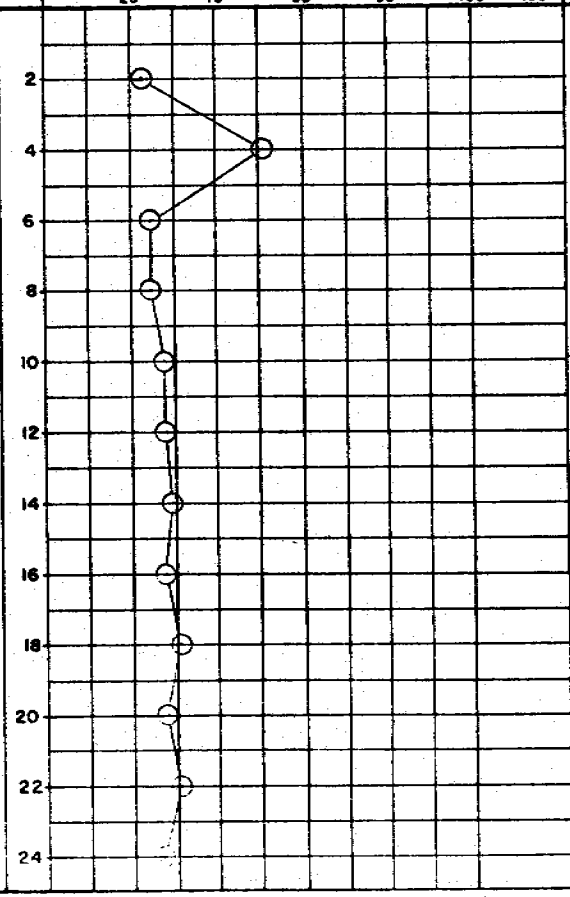
NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 11/12/72	AIRPHOTO NO: A22934-161	CHAINAGE: 100+00	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	84	104*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: CAT. #3 — 1	F	Vx 5%							SPRUCE 8"φ 45' HIGH ADD BIRCH
2, 4	1				ML	SILT: SANDY CLAYEY LOW PLASTIC BROWN — 5									
6					CI	CLAY: SILTY MED PLASTIC BROWN PEBBLES TO 1/8" φ — 7½		Vx 15%							
8, 10	2				ML	SILT: SANDY LOW PLASTIC BROWN — 11		Nbn	7	28	65				
12						TRACE OF CLAY — 14½									
14, 16						CLAYEY GREY — 17									
18, 20, 22	3					SLIGHTLY SANDY TRACE OF CLAY									
24						END OF HOLE — 24									



MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. 61065

CLIENT E2510

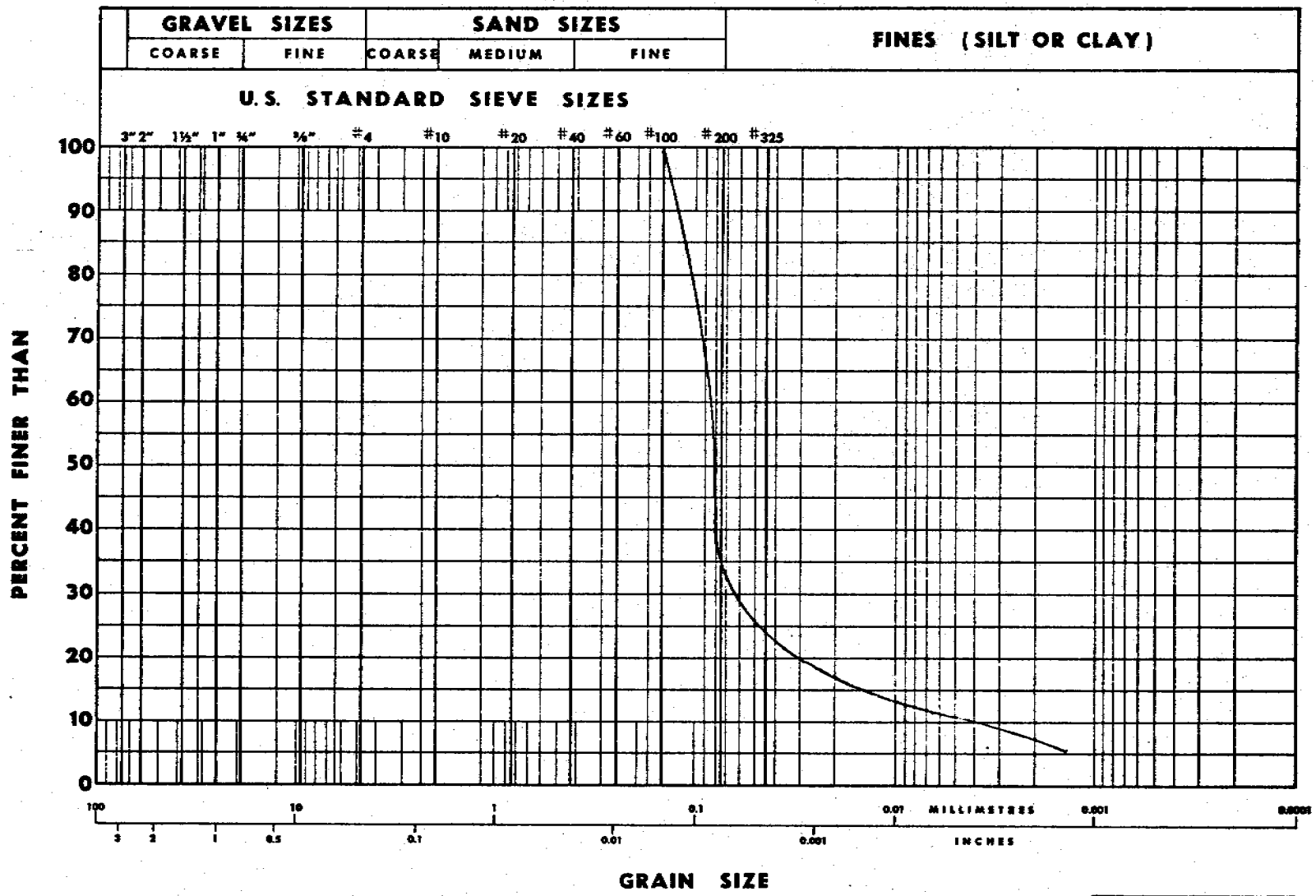
SAMPLE B4

SOURCE

HOLE 04-8 DEPTH 10'

TECHNICIAN JJ DATE REC'D.

DATE TESTED



REMARKS: _____

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_U _____
C_C _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

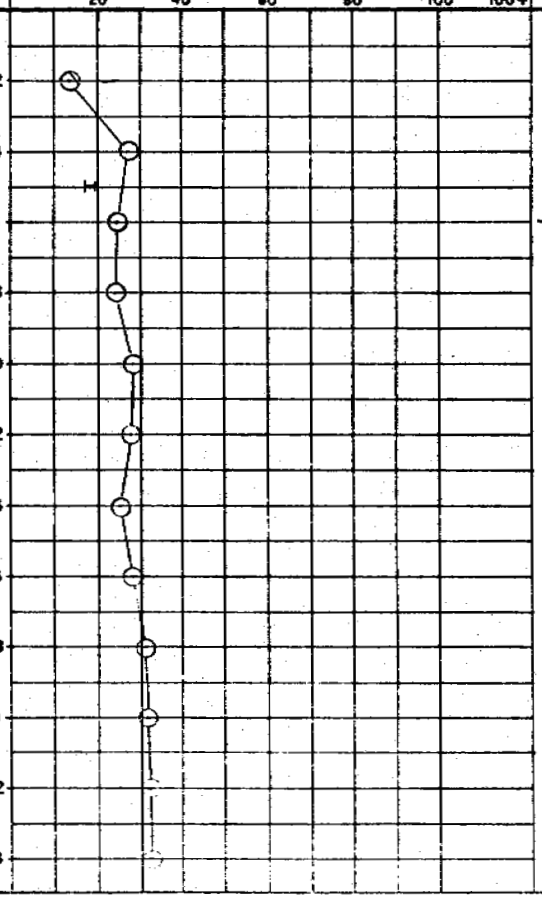
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 11/12/72	AIRPHOTO NO: A22934-162	CHAINAGE: 124+00	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: Dense Spruce 5"ø, 40'	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
579	B5	105*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				SP	SAND: medium grained brown non plastic	F	Nbn							
2					GM	silty low plastic — 2									
4	2														
6									9	30	61				
8															
10															
12															
14															
16	3														
18															
20															
22															
24															



STANDPIPE 11.[illegible]

MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. 5-1065

CLIENT E 2510

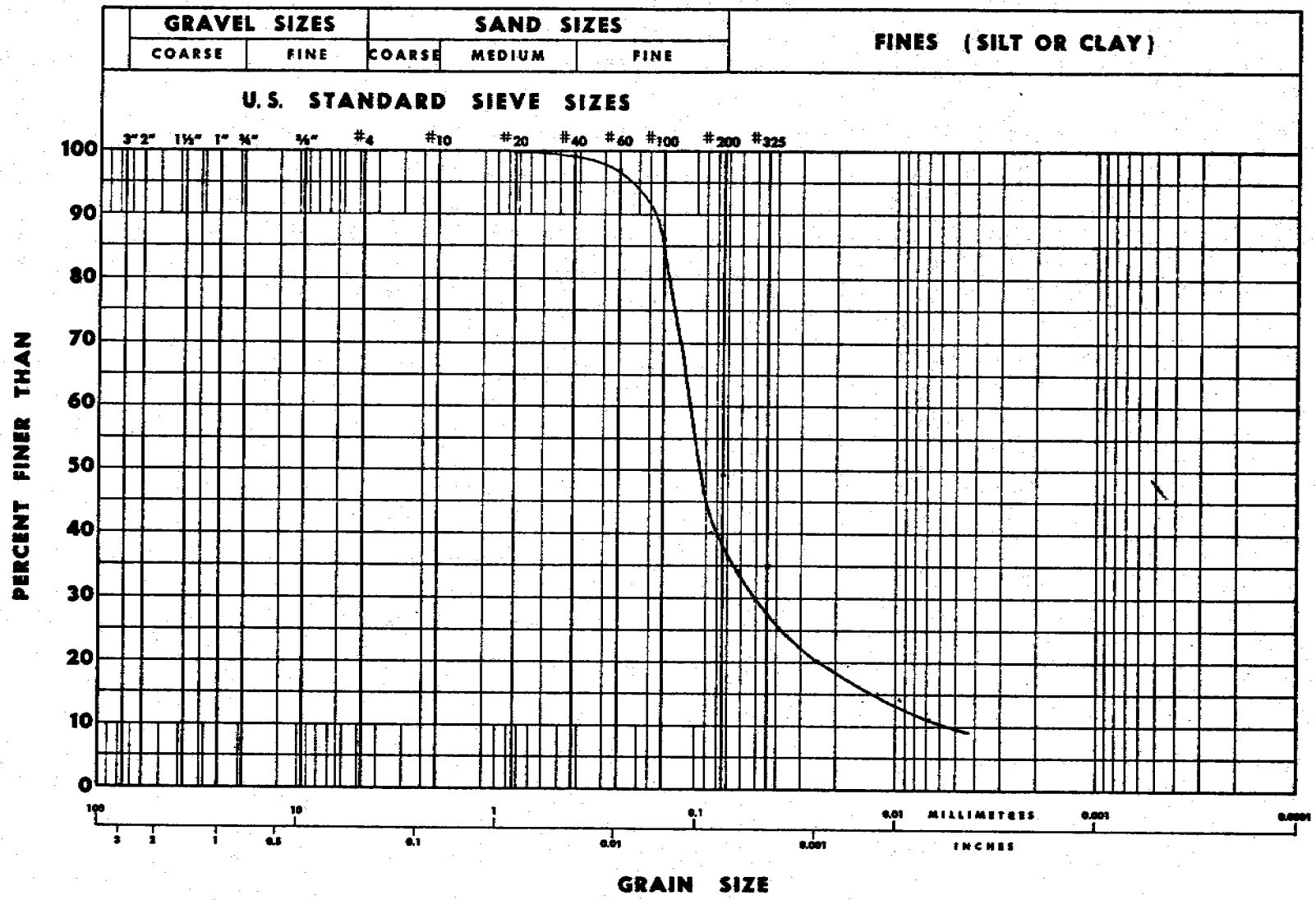
SAMPLE B5

SOURCE

HOLE 105-2 DEPTH 6'

TECHNICIAN RJ-S DATE REC'D.

DATE TESTED



REMARKS:

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_u _____
C_c _____

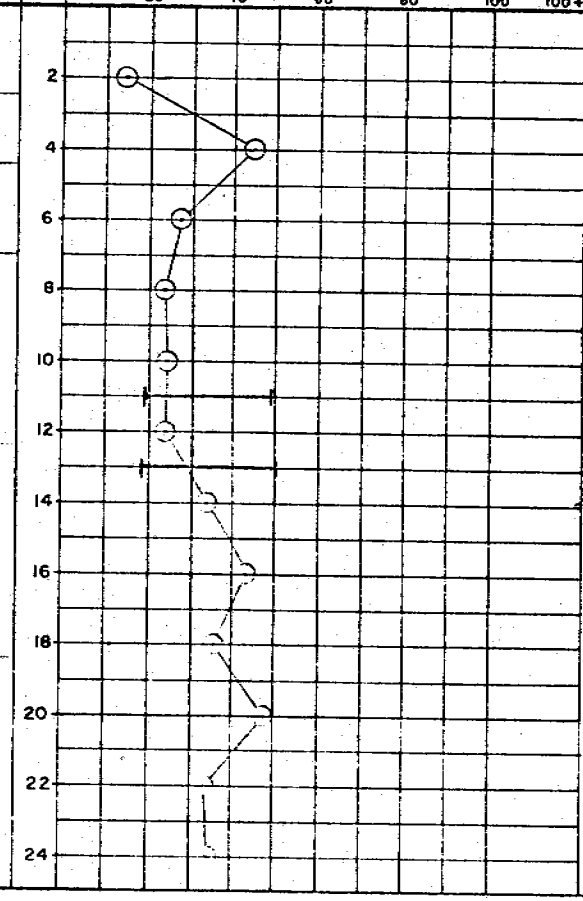
NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 11/2/72	AIRPHOTO NO: A32934-161	CHAINAGE: 11+20	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	B4	106*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					ML	SILT: LOW PLASTIC BROWN	F	Nbn
2½					CH	CLAY: SILTY HIGH PLASTIC GREY		Vx 20%
	1							Vx 2%
								Nbn
	2							Vx 20%
								Vx 40%
24						END OF HOLE		



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		
48	52				

REMARKS: SPRUCE 8" ϕ 40' HIGH
OOD BIRCH

MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1065

CLIENT E-2710F

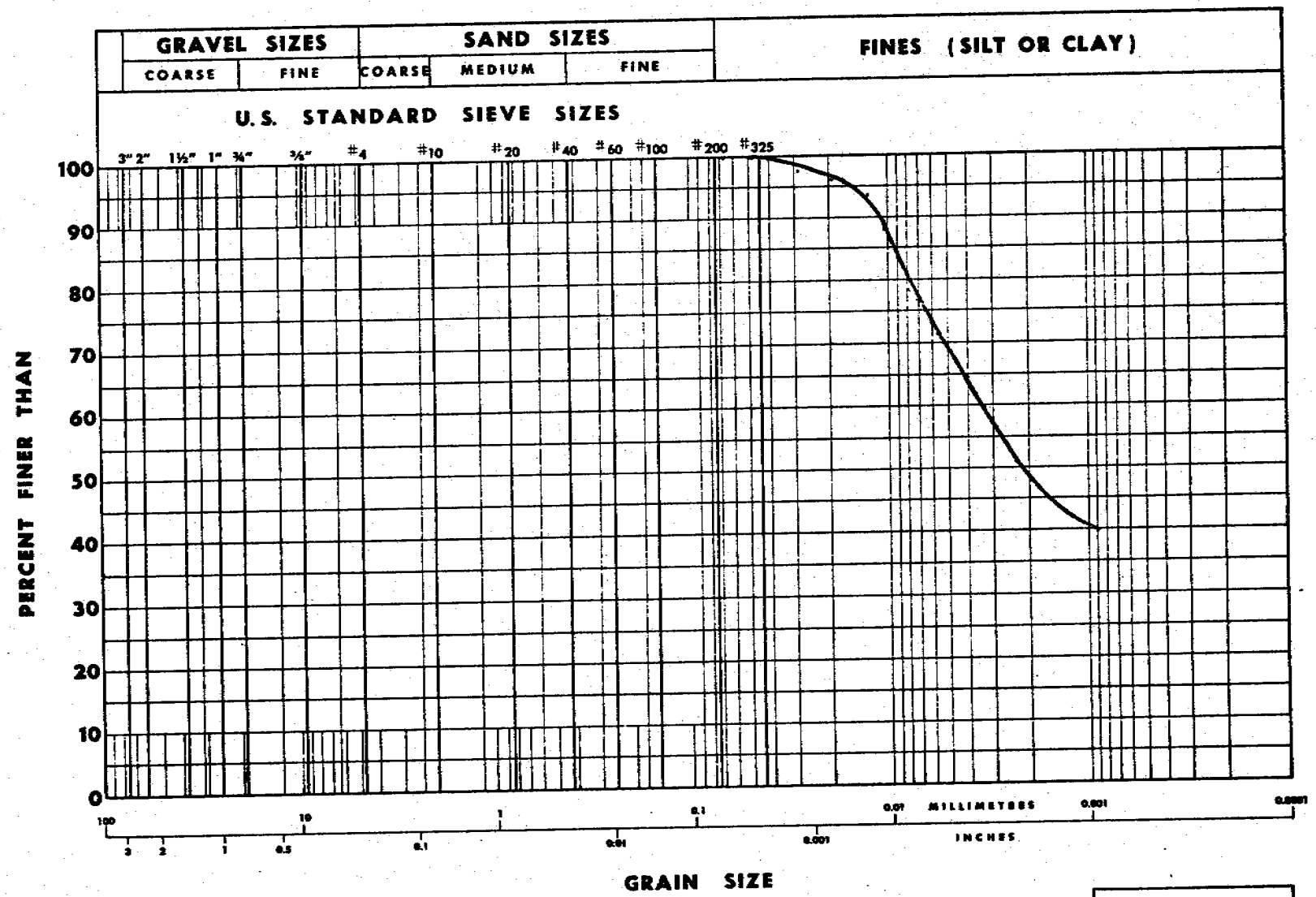
SAMPLE

SOURCE B4

HOLE 106-2 DEPTH 14'

TECHNICIAN GE DATE TESTED

DATE REC'D.



D_{10} = _____ MM.

D_{30} = _____ MM.

D_{60} = _____ MM.

C_U _____

C_C _____

REMARKS: _____

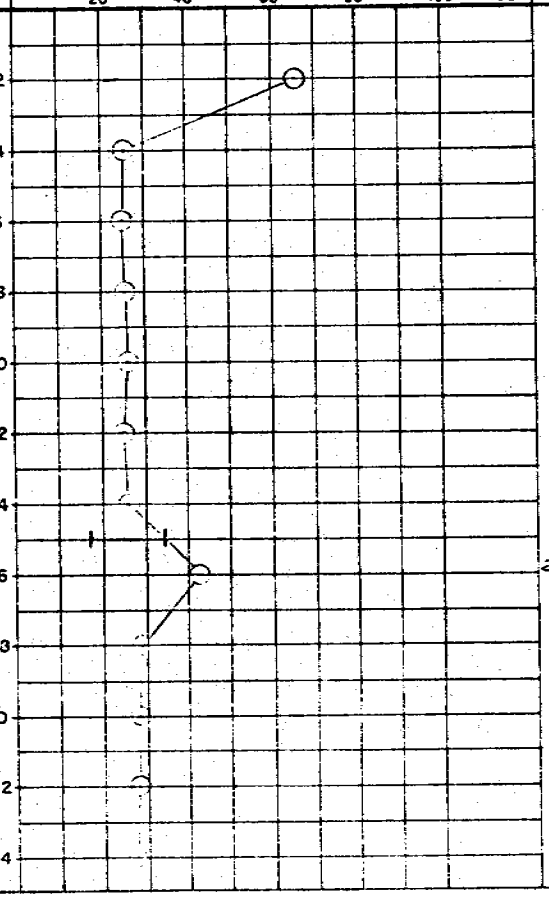
NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 12/12/72	AIRPHOTO NO: A32934-160	CHAINAGE:	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FLAT	VEGETATION: DENSE STAND 4' @ 25' HIGH	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
581	B3	107*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: CAT. #1 — 1	F	Nbr							
2					OL	SILT: ORGANIC SANDY — 2									
4	1				SM	SAND: SLIGHTLY SILTY, NON PLASTIC, FINE GRAIN, BROWN									
6															
8															
10	2					— 11									
12					MH	SILT: CLAYEY, MED PLASTIC, GREY									
14						— 14½									
16	3				CH	CLAY: HIGH PLASTIC, GREY		Vx 30% / Vx 5%	27	68	5				
18															
20															
22															
24						— 24 END OF HOLE									



MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. 5-1065

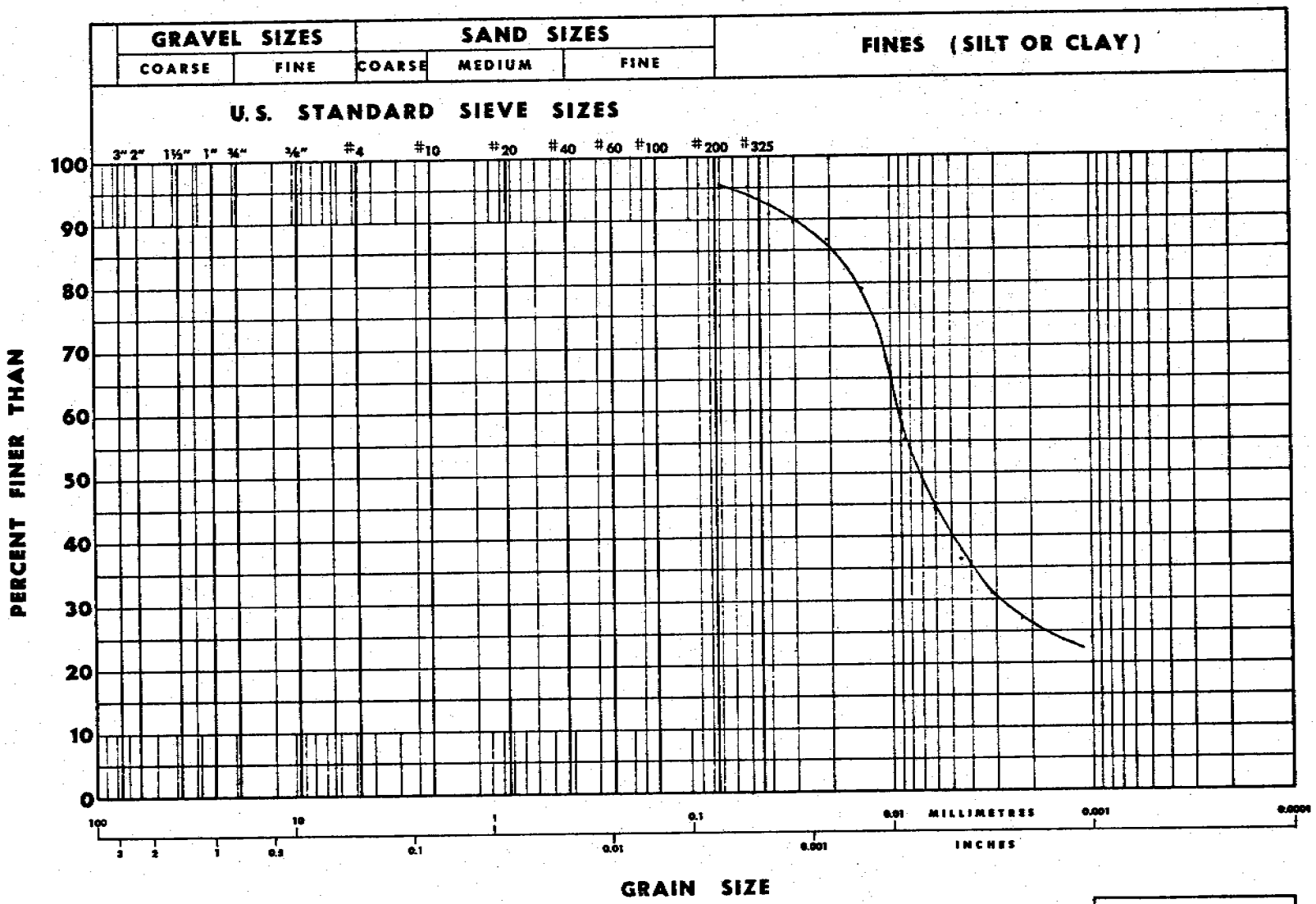
CLIENT EA510

SAMPLE B3.

SOURCE

HOLE 07-3 DEPTH 16' DATE REC'D.

TECHNICIAN DATE TESTED



REMARKS:

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_U _____
C_C _____

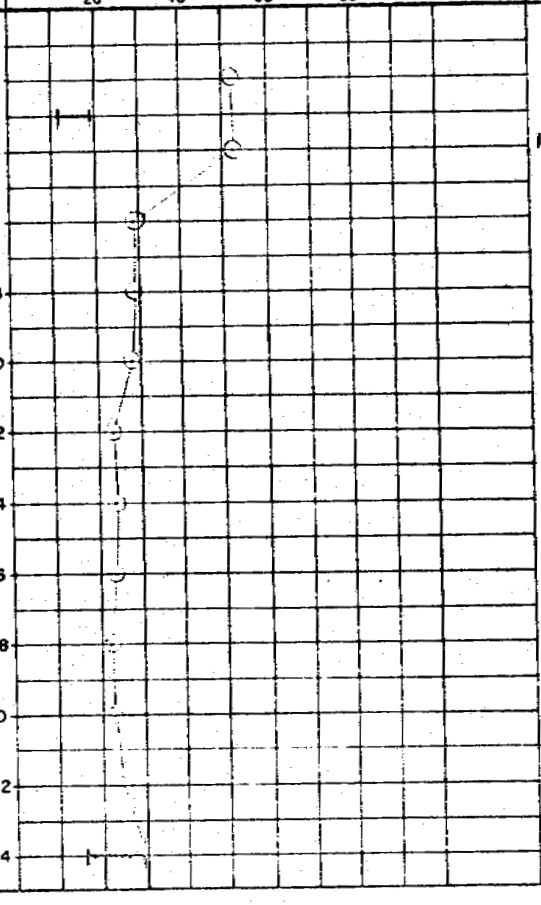
NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: 20-00	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
581	B3	108"

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
					OL	SILT organic [illegible] 1	F	[illegible]						
2					ML	[illegible] low plastic [illegible] 2½		20%						
4	1				SM	very silty non plastic		Vx 10%	18	26	56			
6					ML	5 no sand clayey low plastic								
8	2				CI	CLAY: silty medium plastic 7		5%						
10					CH	11 high plastic gray								
12														
14														
16														
18														
20														
22														
24						END OF HOLE 24								



REMARKS

Dense Spruce 5'-25' high, 3" ϕ

STANDPIPE INSTALLED

MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. 51065

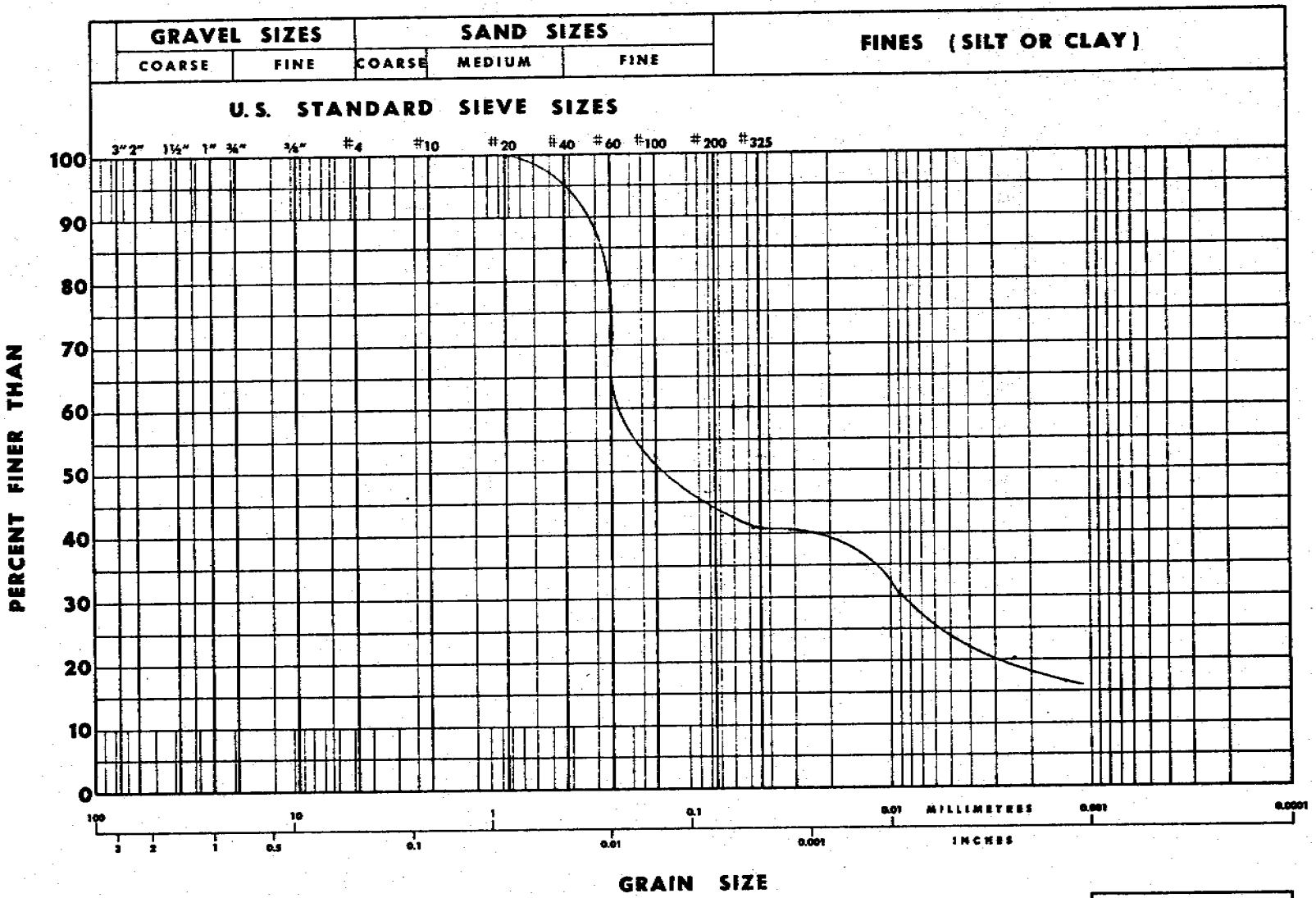
CLIENT E2510

SAMPLE B3

SOURCE

HOLE 108 DEPTH 4 DATE REC'D.

TECHNICIAN DATE TESTED



REMARKS:

D_{10} = ____ MM.
D_{30} = ____ MM.
D_{60} = ____ MM.
C_U ____
C_C ____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN:	FIELD ENG: H.B.	DATE DRILLED: 12/12/72	AIRPHOTO NO: [illegible] 159	CHAINAGE:	OFFSET:
CKD:	TECH: T. C.	RIG: FAILING 1050	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
552	B1	109[illegible]

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					PT	PEAT: cotsjan #1										Dense Spruce [illegible] 120' high odd Tommarack
2					SM	SAND: SILT: fine very silty [illegible]	1½	Vir 5%	2							
4	1								4							
6									6							
8									8							
						[illegible] 9 [illegible] plastic		Non								
10									10							
12									12							
					SP	little silt 12½										
14									14							
	2				CH	CLAY high plastic [illegible]										
16						16			16							
18									18							
20									20							
22									22							
24									24							

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT

20 40 60 80 100 100+

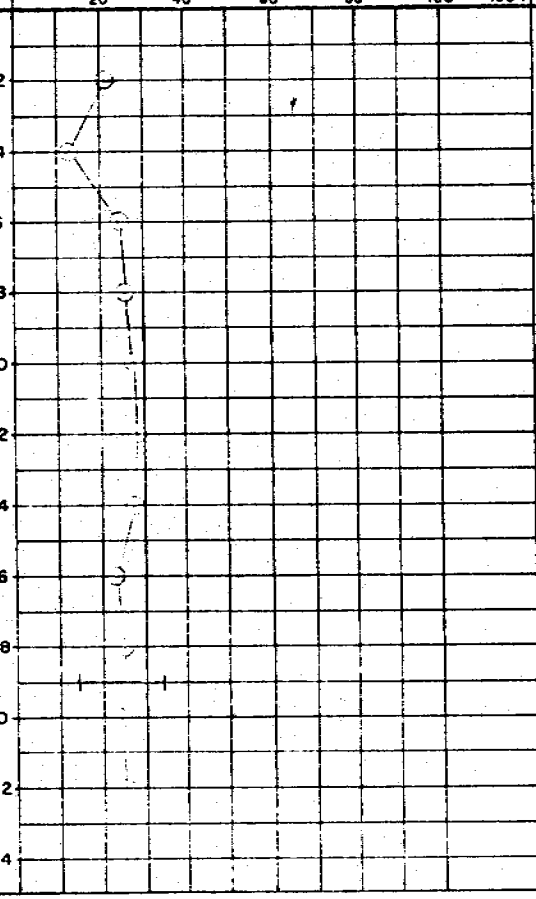
R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE:	OFFSET:
CKD: [illegible]	TECH: [illegible]	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
582	B1	110*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					PT	PEAT: [illegible] 1/2	F	Nor							
2					SM	SAND: TRACE OF SILT NON PLASTIC BROWN									
4	1					4 1/2									
6					SM	SILTY									
8						8 1/2									
10					MH	SILT: SANDY LOW PLASTIC BROWN									
12															
14					SM	13 SAND: SILTY NON PLASTIC BROWN 14 1/2									
16					ML	SILT: SANDY LOW PLASTIC BROWN									
18	2				CL	17 SILTY INCL PLASTIC 18									
20					CH	CLAY: HIGH PLASTIC SILTY			30	55	15				
22															
24						End of hole 24									

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

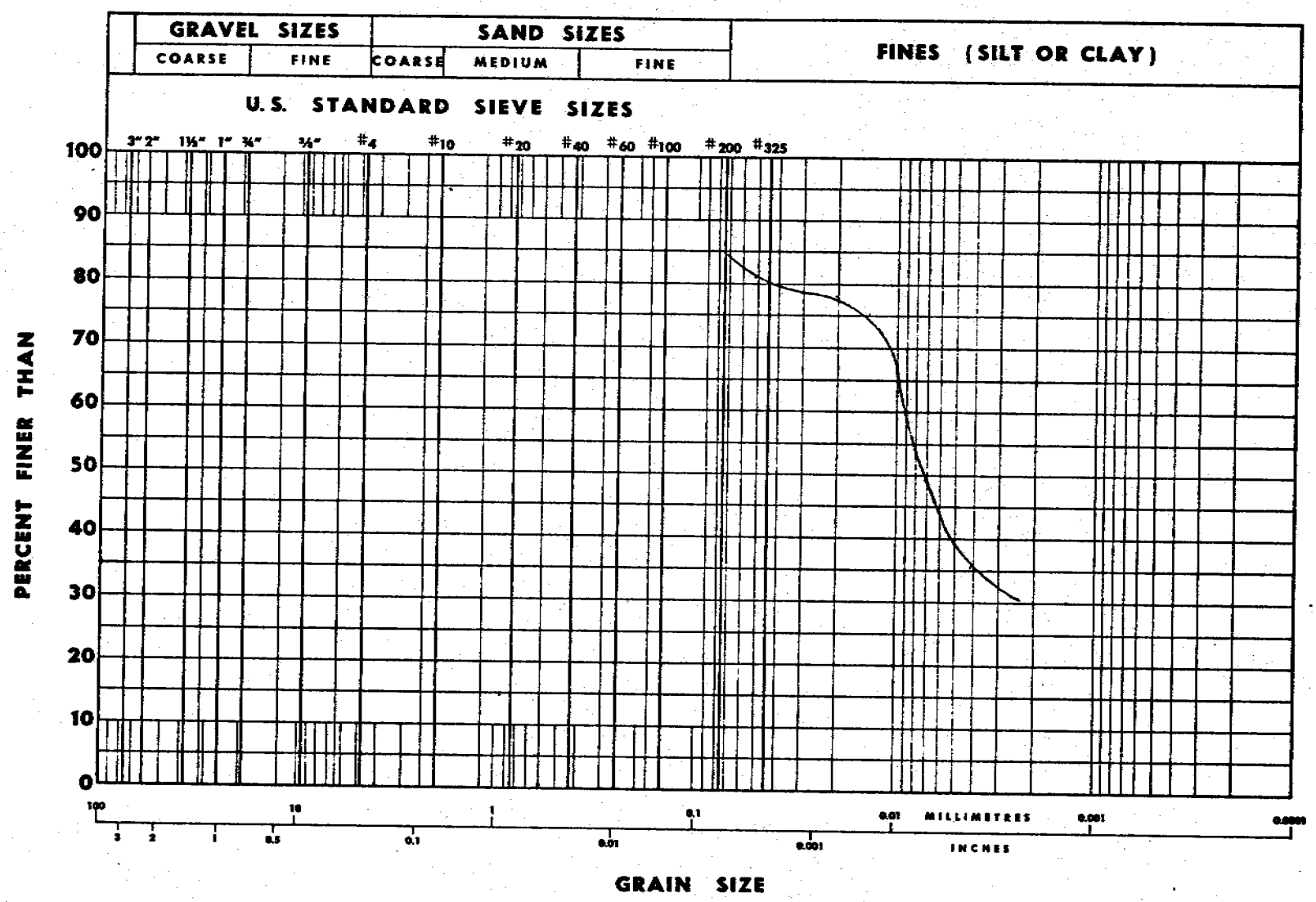


MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1065
CLIENT E2310
SAMPLE B1
SOURCE
HOLE 110-2 DEPTH 20' DATE REC'D.
TECHNICIAN DATE TESTED



REMARKS:

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_U _____
C_C _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

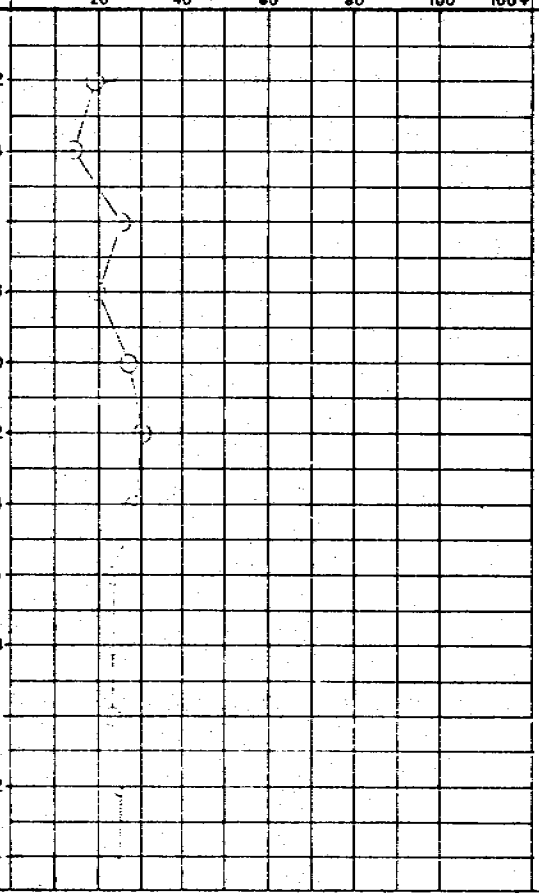
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: [illegible]	FIELD ENG: H.R.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE:	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
582	E 1	111*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0–7	1				SM	SAND SILT: fine grained non-plastic.	F	[illegible]	7	28	65				Frost Spruce 15 to 25' high Odd Birch
7–14						low plastic			11	23	66				
14–24						[illegible]									

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



MIL-2-68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1063

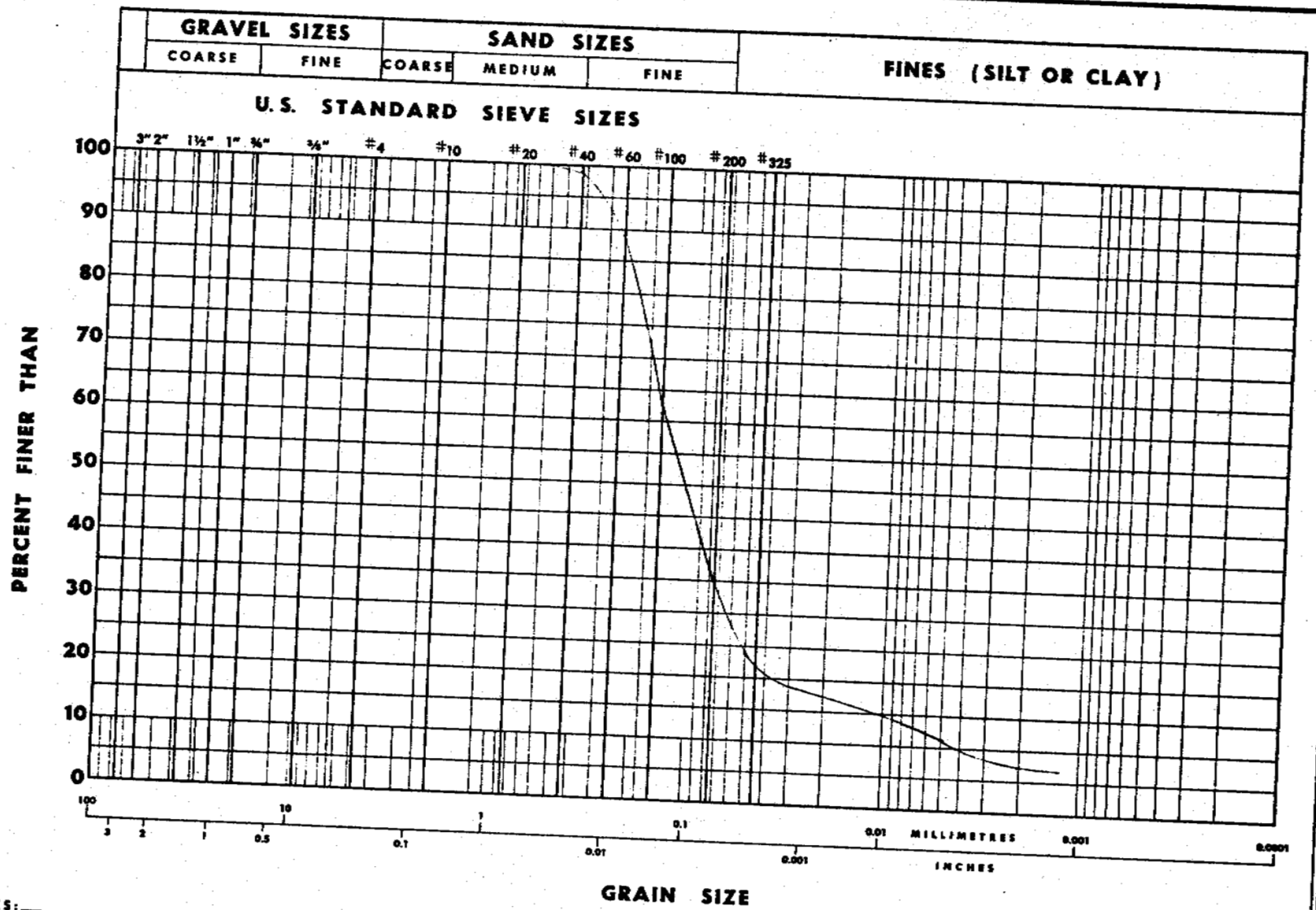
CLIENT

SAMPLE

SOURCE

HOLE 2/1/-/ DEPTH 2' DATE REC'D.

TECHNICIAN DATE TESTED



REMARKS:

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_U _____
C_C _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1065

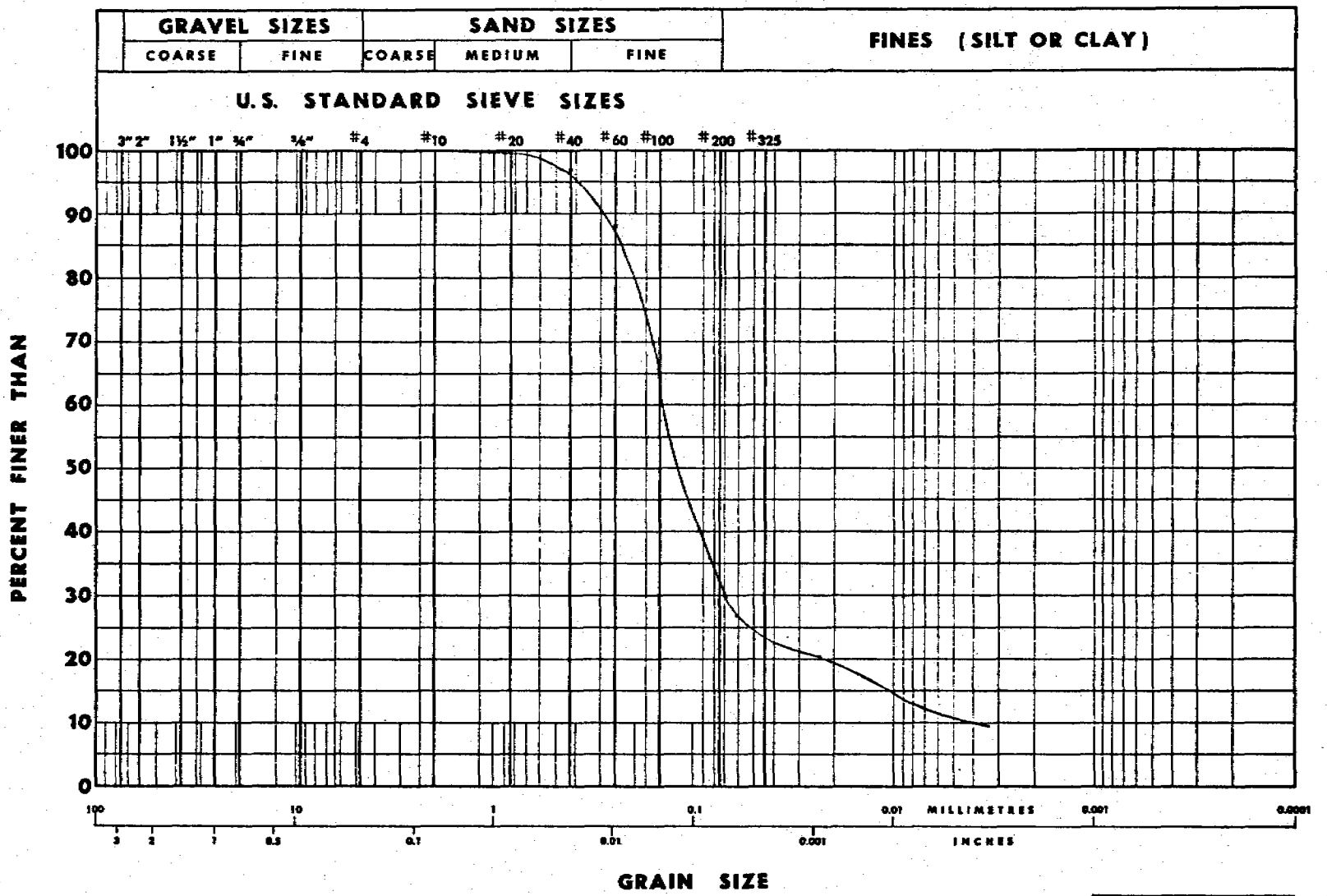
CLIENT E 2510

SAMPLE B1

SOURCE

HOLE 11-2 DEPTH 8' DATE REC'D.

TECHNICIAN [illegible] DATE TESTED [illegible]



REMARKS: _____

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_u _____
C_c _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: [illegible] | FIELD ENG: [illegible] | DATE DRILLED: [illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: | OFFSET:

CKD: [illegible] | TECH: [illegible] | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
582	B1	112*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: [illegible] #4 — 1	F	Non							
2					SM	SAND: SILTY NON PLASTIC BROWN									
4	1					SLIGHTLY CLAYEY — 4									
6	2					SILTY — 6½									
8															
10															
12															
14						SLIGHTLY SILTY — 13									
16															
18															
20															
22															
24					Pt	[illegible] — 23		Vx 45%							
						End of [illegible] — 24									

O = WATER CONTENT (% OF DRY WEIGHT)
Δ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT

20 40 60 80 100 100+

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN:	FIELD ENG:	DATE DRILLED:	AIRPHOTO NO:	CHAINAGE:
CKD:	TECH:	RIG:	SURFACE DRAINAGE:	VEGETATION:

OFFSET:
ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
552	B1	113*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					SM	SAND SILT										
2	1					fine sand silty non plastic brown			2							
4									4							
5						very silty non plastic										
6									6							
8									8							
10									10							
11						less silt non plastic										
12	2								12							
14									14							
16									16							
18									18							
20									20							
22									22							
					CH	CLAY: high plastic silty										
24						END of HOLE			24							

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT

20 40 60 80 100 100+

MTL-2-68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1065

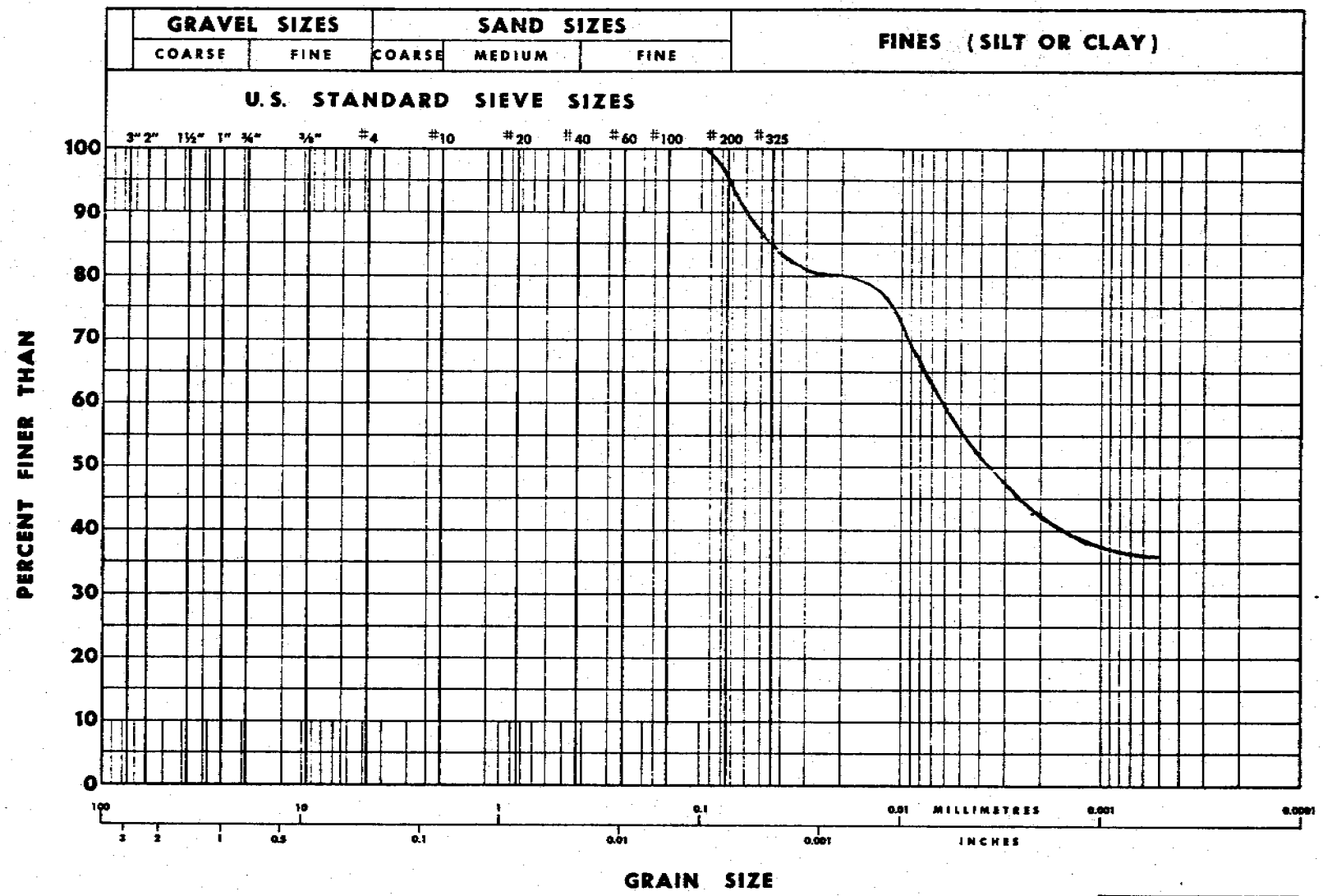
CLIENT [illegible] 2510 F

SAMPLE

SOURCE

HOLE/14-1-81 DEPTH 4' DATE REC'D.

TECHNICIAN G. [illegible] DATE TESTED [illegible]



REMARKS: _____

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_u _____
C_c _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

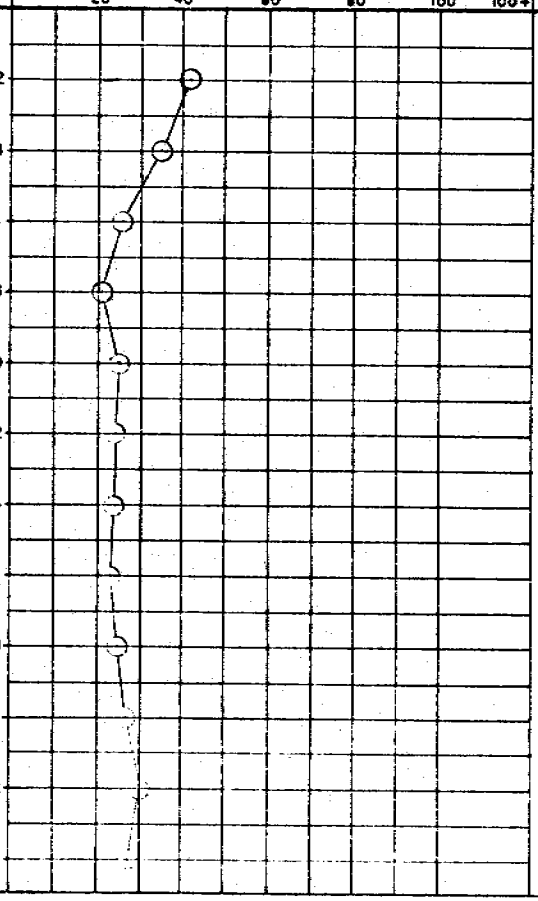
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE:	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: Dense Spruce 10'-15' high	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
[illegible]2	B1	115*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					PT	PEAT: [illegible]									
					SM	SAND, SILT: fine sand, very non plastic silt or low plastic fines		Non							
2	1							Vx 5%							
4															
6								Vx 1%							
8						[illegible] non plastic		Nbn							
10	2														
12															
14															
16															
18					CL	CLAY: [illegible] grey		Vx 5%							
20															
22					CH	[illegible]									
24						END OF HOLE									

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

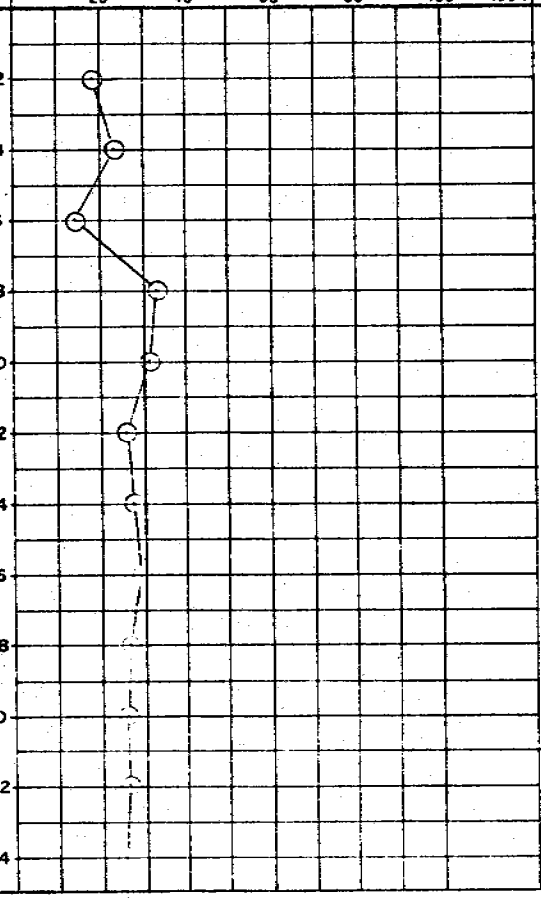
DWN: E.B. | FIELD ENG: H.B. | DATE DRILLED: 12/12/72 | AIRPHOTO NO: A22934-160 | CHAINAGE: [illegible] | OFFSET:

CKD: [illegible] | TECH: J.H. | RIG: FAILING 1000 | SURFACE DRAINAGE: [illegible] | VEGETATION: SEE REMARKS | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
581	B2	116*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: CAT. #12 — 3/4	F	Vx 80%							TAMA ARACK 30' TO 40' HIGH, ODD BIRCH & SPRUCE
2	1				MH	SILT: TRACE OF FINE SAND MED PLASTIC LIGHT BROWN — 3		Nbn							
4					SM	SAND: VERY SILTY FINE TO MED GRAIN NON PLASTIC BROWN — 7			2	18	80				
6															
8					CH	CLAY: SILTY MED TO HIGH PLASTIC GREY		Vx 5%							
10	2							Vx 1%							
12								Vx < 1%							
14															
16															
18	3														
20								Vx 3%							
22															
24						END OF HOLE — 24									

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



MTL—2—68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S 1065

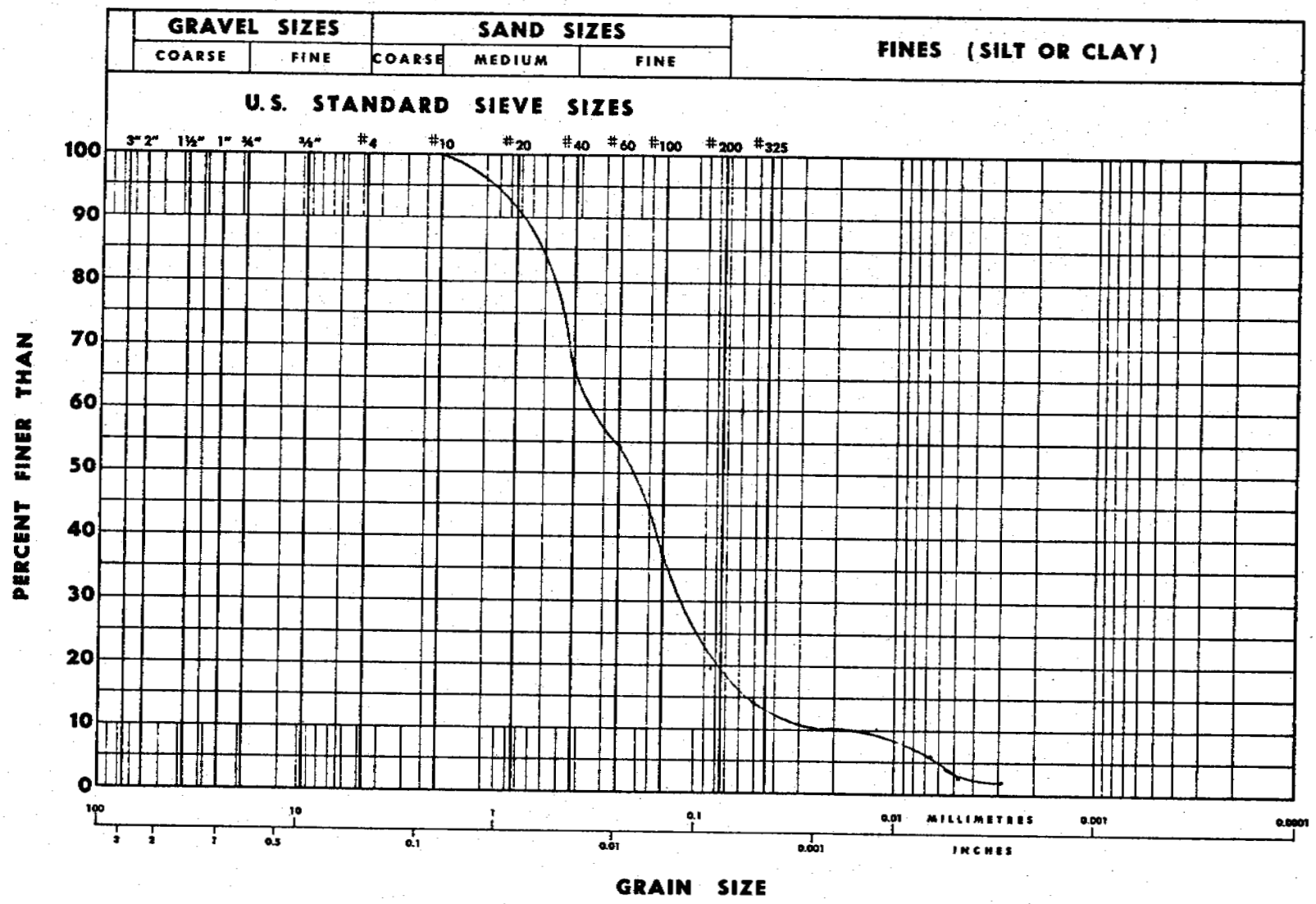
CLIENT E 2510

SAMPLE 2B

SOURCE

HOLE 116 DEPTH 6' DATE REC'D.

TECHNICIAN DATE TESTED



REMARKS:

D_{10} = _____ MM.

D_{30} = _____ MM.

D_{60} = _____ MM.

C_U _____

C_C _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

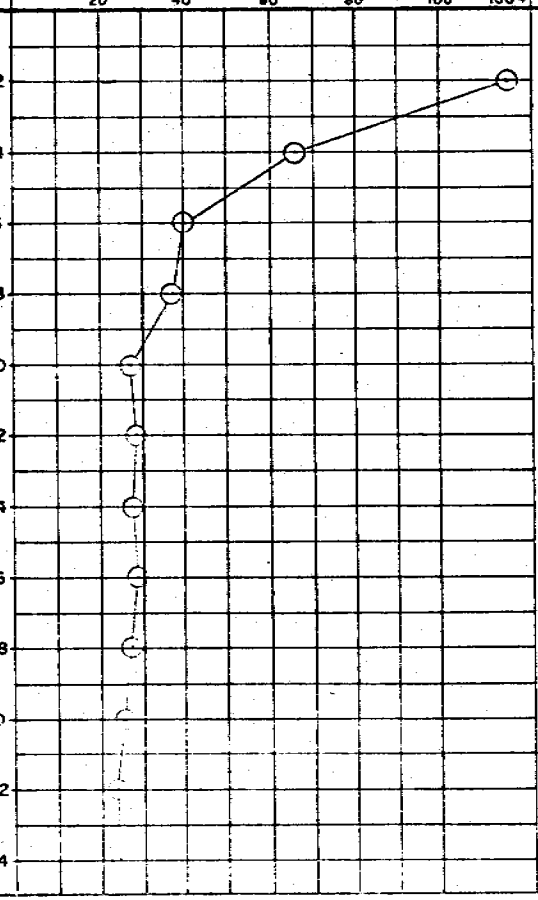
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 12/12/72	AIRPHOTO NO: A22934-160	CHAINAGE: 40+00	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
581	B2	117

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
					PT	PEAT: calgary #1		Vx 60%						
2					ML	SILT: clayey very fine sandy brown		Vx 50%						
7					CI	CLAY: silty medium plastic		Vx 5%						
12					CH	less silt high plastic grey-brown		Vx 2%						
17					CI	softer		Vx 1%						

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



REMARKS

Spruce 10'-15' high
add Willow, birch
& Tamarack

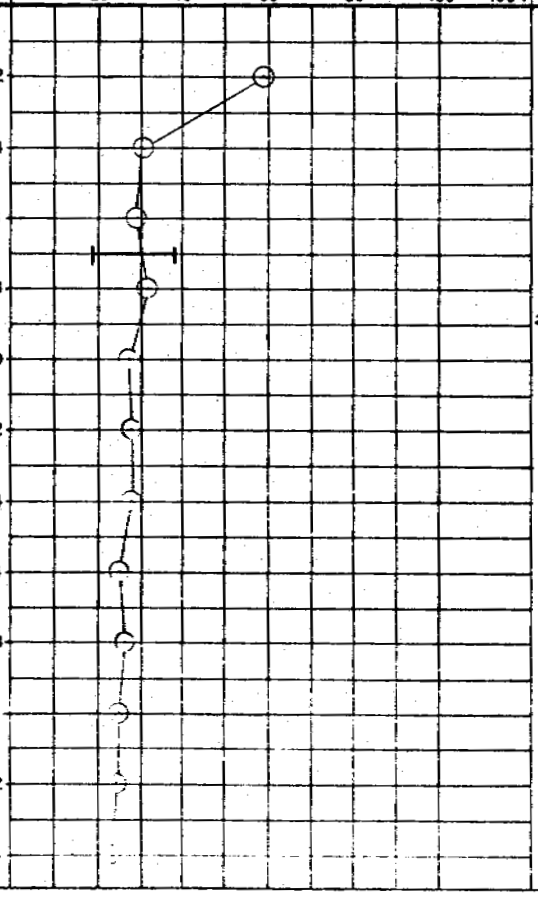
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 12/12/[illegible]	AIRPHOTO NO: A22934-160	CHAINAGE: 50+00	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: Tamarack 15'-20' [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
581	B2	118

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					PT	PEAT: Cat. #4 — 1½	F	Vx 20%							
2	1				ML	SILT: sandy, very fine clayey, low plastic brown		Vx 40%							
4					CL	CLAY silty, medium plastic — 4		Vx 5%							
6	2														
8									29	71					
10															
12					CH	high plastic grey — 11									
14															
16	3														
18															
20					CL	[illegible] — 20		Vx 1%							
22															
24						END OF HOLE									



MTL-2-68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S 1065

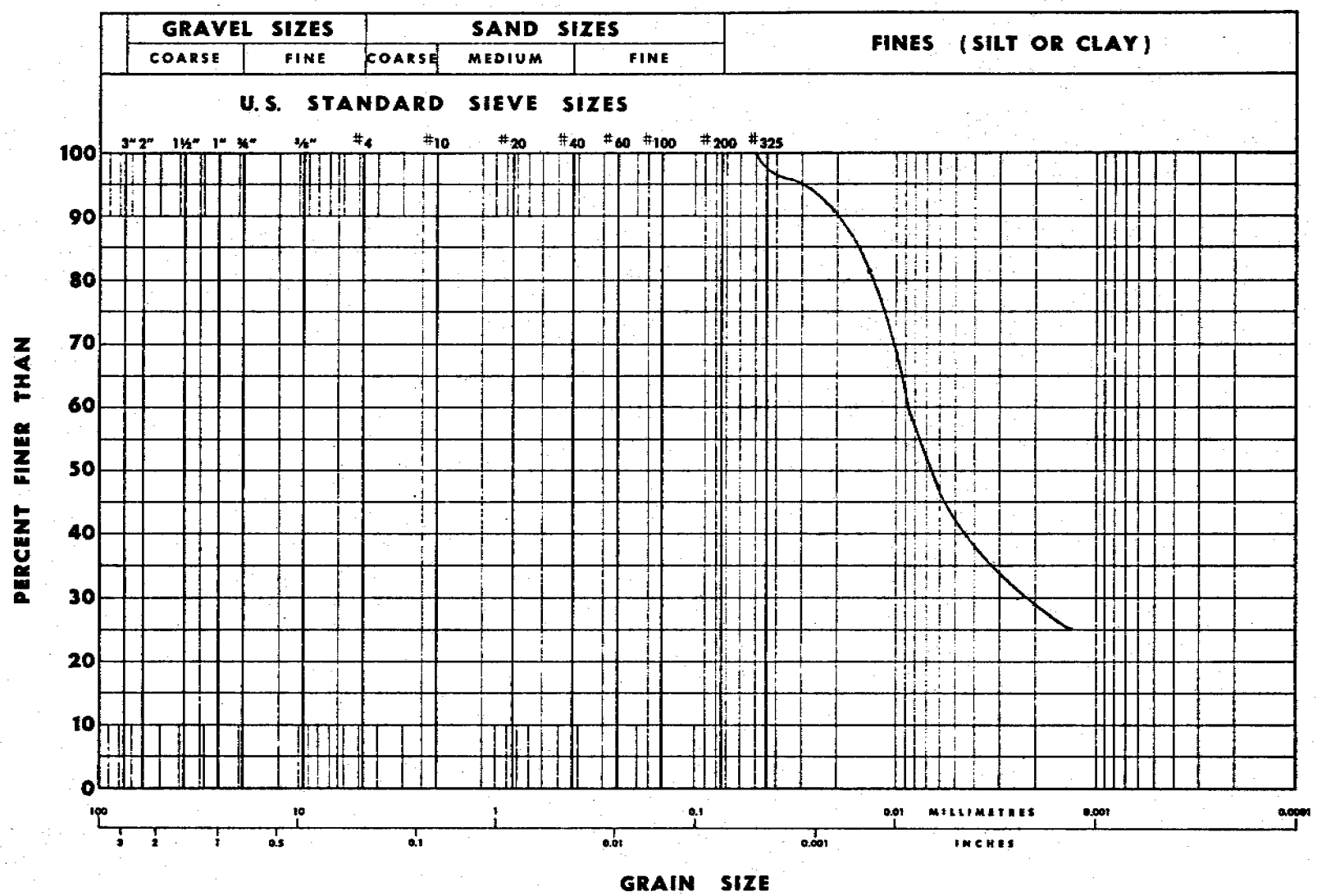
CLIENT E 2510

SAMPLE 38

SOURCE

HOLE 118 DEPTH 10' DATE REC'D.

TECHNICIAN GF DATE TESTED Jan 9



REMARKS:

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_u _____
C_c _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD.

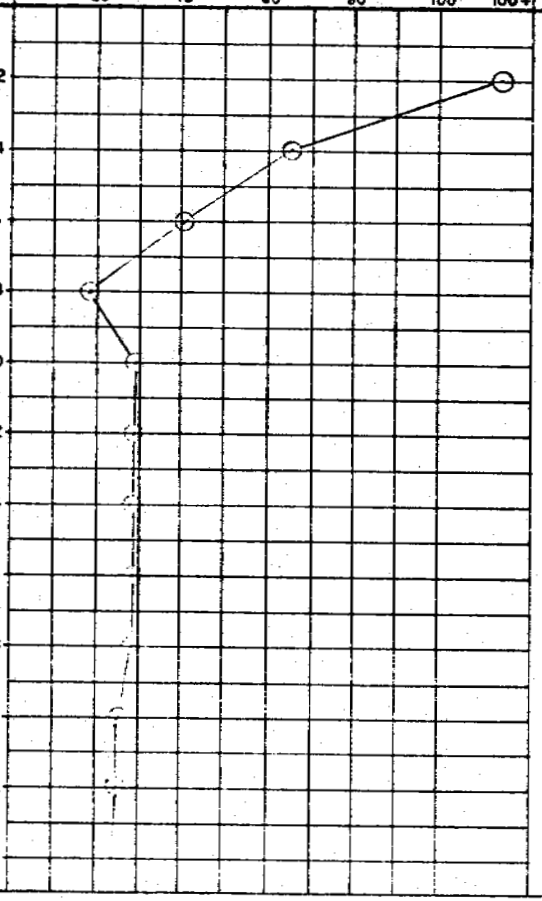
DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 12/[illegible]	AIRPHOTO NO: A22934-160	CHAINAGE: 65+00	OFFSET:
CKD:	TECH: J.H.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: Tamarack & Spruce 10'-15'	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
581	B2	119

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: Category #4	F	Vx 50%
2								
					ML	fine sandy low plastic brown (2½)		Vx 40%
4								
						less sand slightly clayey (5)		
6								
					CI	CLAY: silty medium plastic (7)		Vx 10%
8								
10								
12								
14								Vx 5%
								Vx 1%
					CH	less silt high plastic (15)		Vx 5%
16								
18								
20								Vx 1%
22								
24						END OF HOLE (22')		



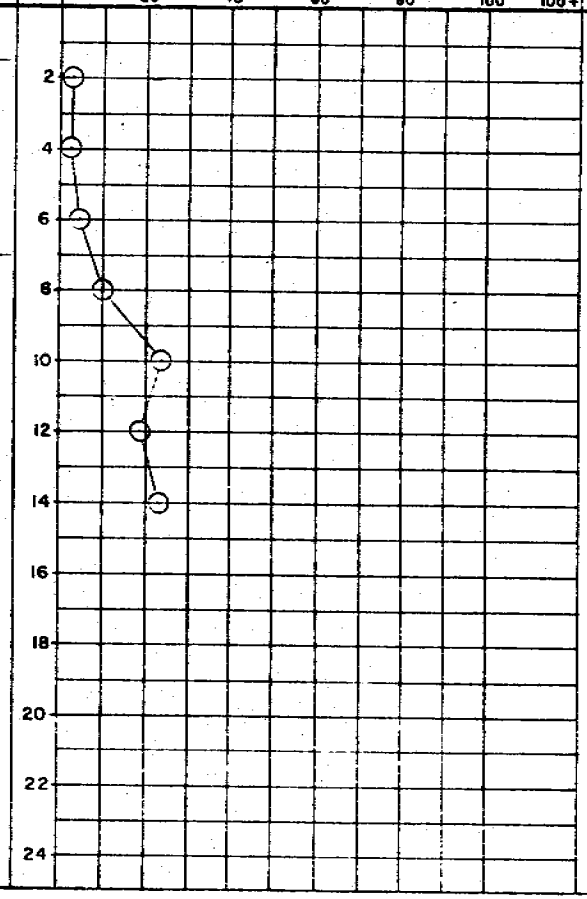
GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
CLAY %	SILT %	SAND %	GRAVEL %			

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 12/12/78	AIRPHOTO NO: A[illegible]34-[illegible]KI	CHAINAGE: 75+00	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
580	B4	120+

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					ML	SILT: sandy low-plastic brown — 1½	F	Nbn							Dense Spruce up to 14" ϕ, 50' high
2	1				SW	SAND: coarse clean		Nf							
4															
6															
8					SP	fine grained — 7		Nbn							
10															
12															
14					CH	CLAY: high plastic — 13½; END OF HOLE — 14		Vx 15%							
16															
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 12/12/7	AIRPHOTO NO: A27934 - 164	CHAINAGE: 75+00
CKD:	TECH: T.C.	RIG: FAILING 1030	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS

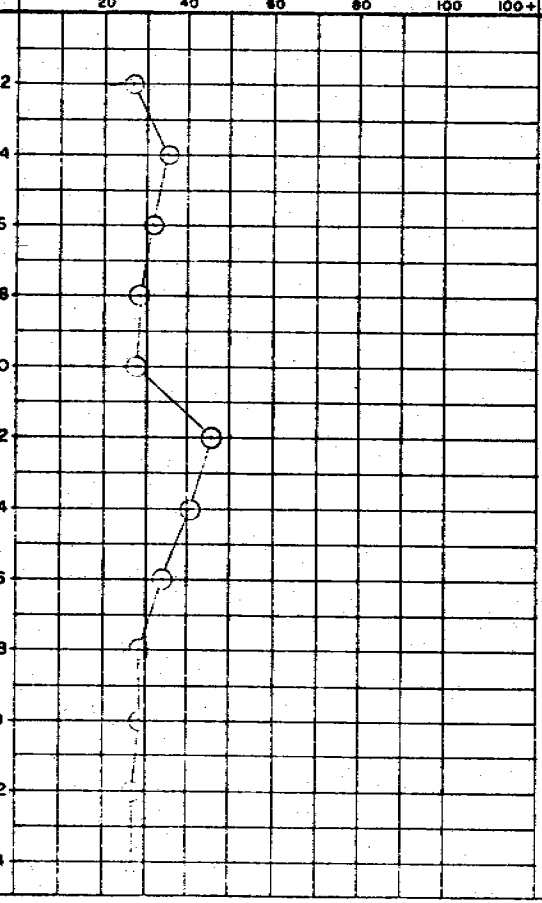
OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
580	B4	121*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					SM	SAND: very fine silty non plastic brown	F	Nil
2								
3					CI	CLAY: silty, sandy medium plastic brown		Vx 30%
4								
5						less silt no sand more plastic grey		Vx 20%
6	1							
8					CH			
								Vx 10%
10								Vx 20%
11					ML	SILT: clayey low plastic		Vx 30%
12								
12½						sandy		Vx 10%
14								
14½						SAND: fine, silty non plastic		Nil
16								
					SM			
18								
20								
22								
24						END OF HOLE		

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

Spruce 12"ϕ 50' high
odd. birch

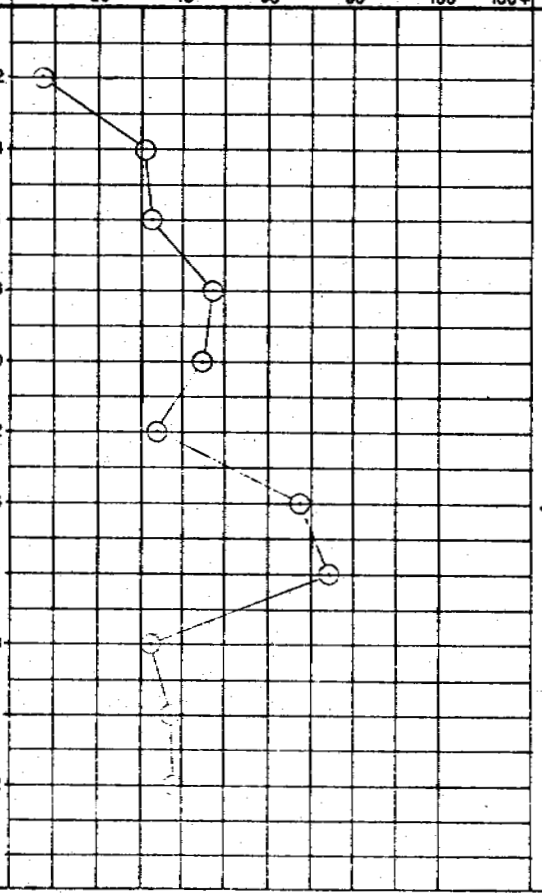
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 12/5/[illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: 79+00	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: FAILING [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	B5	122

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
2	1				SP	SAND: fine grained little silt non plastic brown	F	Nbn							Tamarack 40' high willow, birch, spruce
6								Vx 1%							
8	2							Vx 5%							
14								Vx 20%	6	30	64				
16								Vx 60%							
18					CH	CLAY: silty non plastic gray		Vx 20%							
20	3							Vx 15%							
24						END OF HOLE									



MTL-2-68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1065

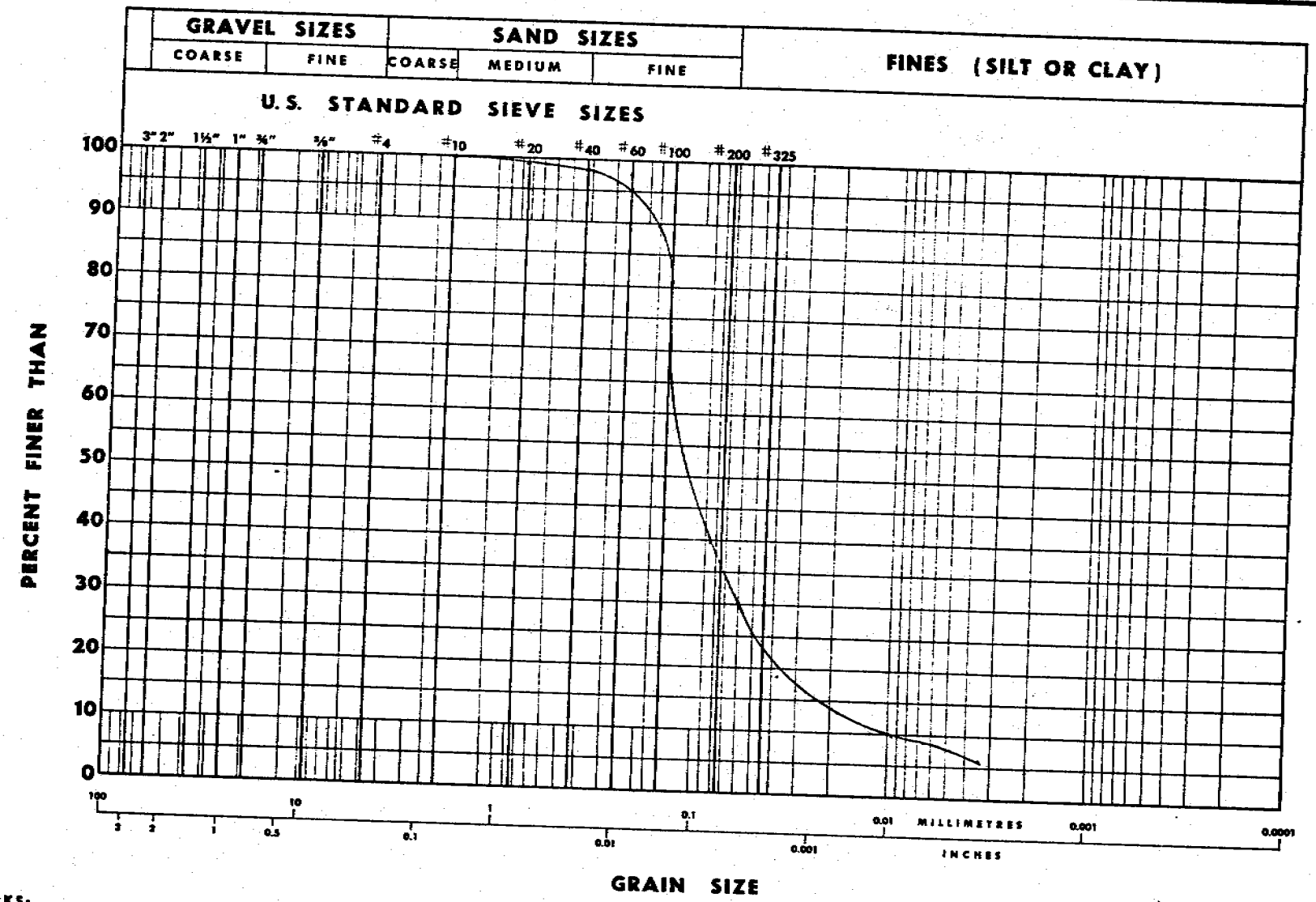
CLIENT E2510

SAMPLE B5

SOURCE

HOLE 122 DEPTH 14 DATE REC'D.

TECHNICIAN 221 DATE TESTED 7/11/2



REMARKS:

D_{10} = _____ MM.

D_{30} = _____ MM.

D_{60} = _____ MM.

C_U _____

C_C _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

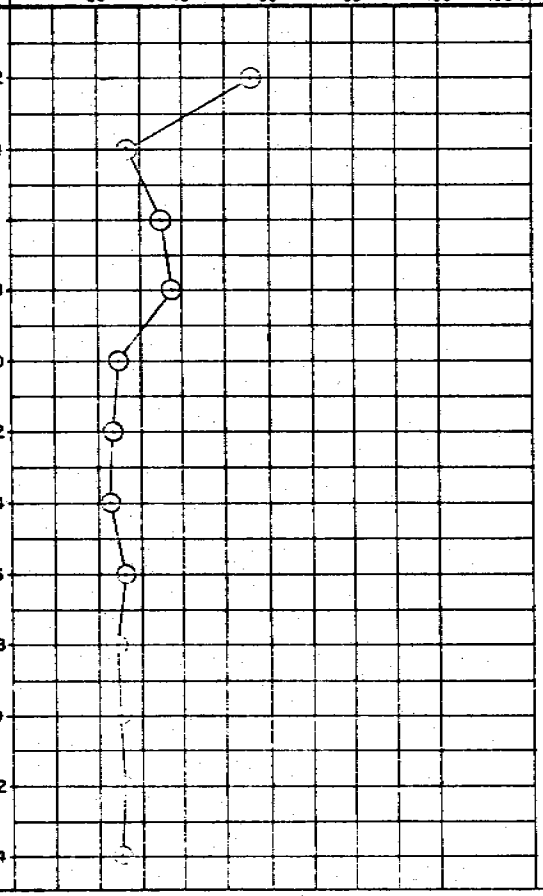
R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 12/12/72	AIRPHOTO NO: A22734-162	CHAINAGE:	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: Dense Spruce [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	B5	123

REMARKS

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: cat. #3 — 1	F	Vx 40%
2					SM	SAND: SILT: fine sand silty non plastic		Vx 5%
4								
6	1					very silty low plastic — 5		Nbn
8						less silt non plastic — 8		
10								
12					SP	very fine silt — 10		
14	2							
16								
18								
20								
22								
24						[illegible] — 24		



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

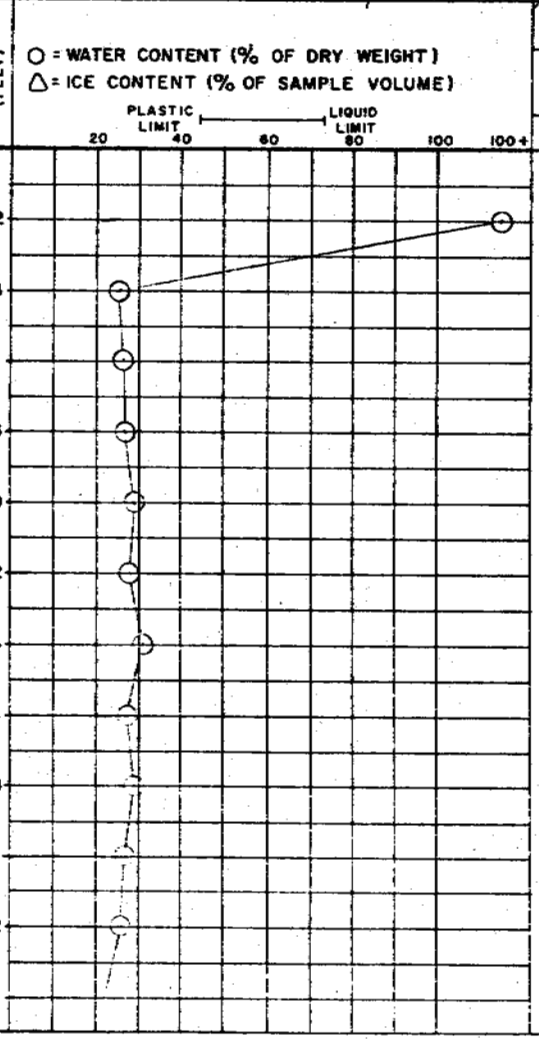
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 12/12/72	AIRPHOTO NO: [illegible]	CHAINAGE: 79+00	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: Dense Spruce 5'-20' high	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	B5	124*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt.	PEAT: Category #3	F								
2								Vx 40%							
					SP	SAND: fine grained slightly silty non plastic brown		Vx 15%							
4	1														
								Nbn							
6															
8															
10															
12															
14															
16															
18															
20															
22															
24						END OF HOLE									



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

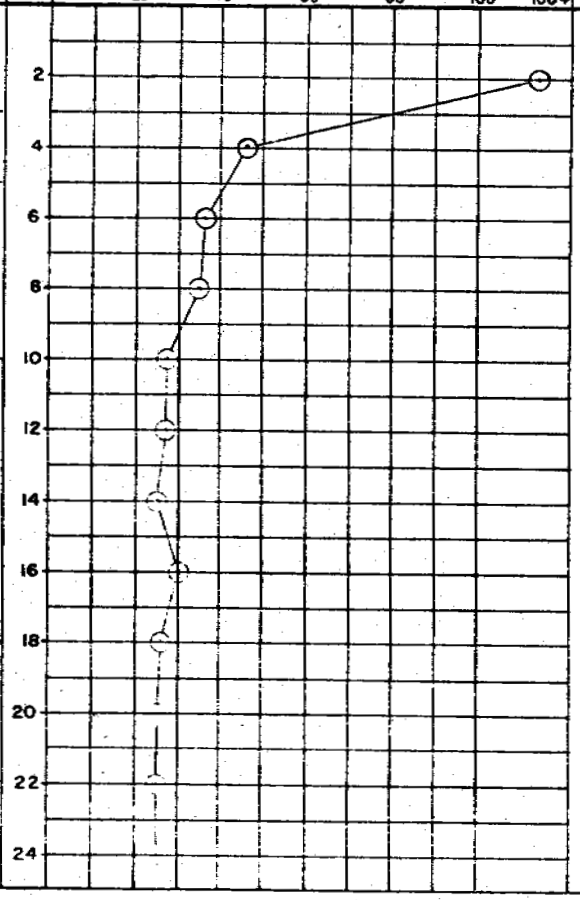
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 12/12/72	AIRPHOTO NO: [illegible]
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]

CHAINAGE: 65+00 | OFFSET: - | VEGETATION: Tamarack - 25-35 [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
581	B2	125

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt.	PEAT: category #4	F	Vx 50%							
3					ML	SILT: slightly sandy clayey low plastic brown		Vx 30%							
5	1				CI	CLAY: silty, medium plastic brown		Vx 5%							
12						grey brown		Vx 1%							
14½						grey high plastic		Vx 15%							
								Vx 5%							
								[illegible]							
24						END OF HOLE									



STANDPIPE INSTALLED

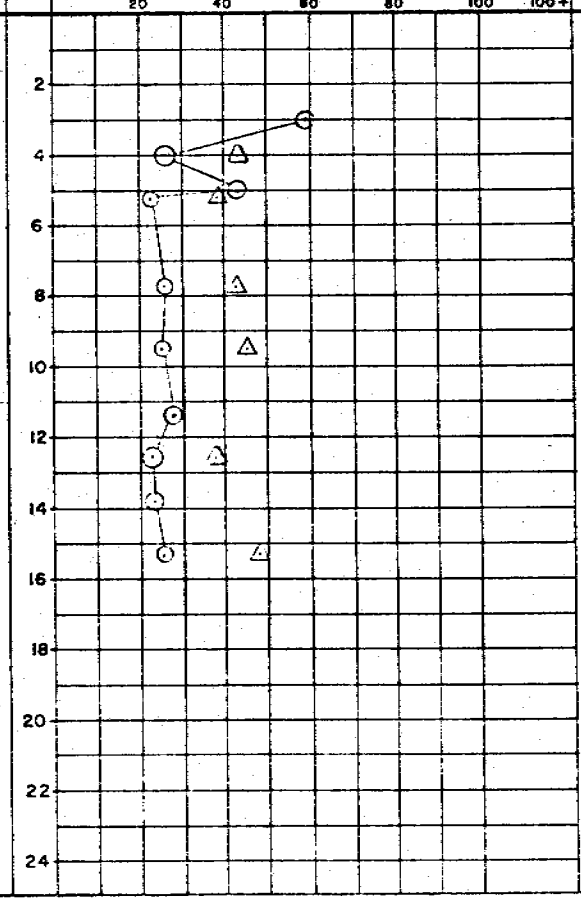
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 12/12/72	AIRPHOTO NO: [illegible]	CHAINAGE: [illegible]
CKD: [illegible]	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: Dense Spruce 2"ϕ, 5'-15'

OFFSET:
ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
581	C	126*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					OL	SILT: organic brown		Vx 40%							
					SM	SAND: SILT: fine sand silt, non-plastic brown — 1¾		Vx 40%							
2															
4		C	95.8					Nbn					117.6	93.1	
6		C	38.7										116.9	94.9	
8													115.0	99.9	
10		C	94.4										121.4	97.1	
						coarser with depth — 11		Nbn							
12		C	100.0										116.8	95.0	
14															
16		C	62.0										112.9	89.0	
						END of HOLE — 16½									
18															
20															
22															
24															



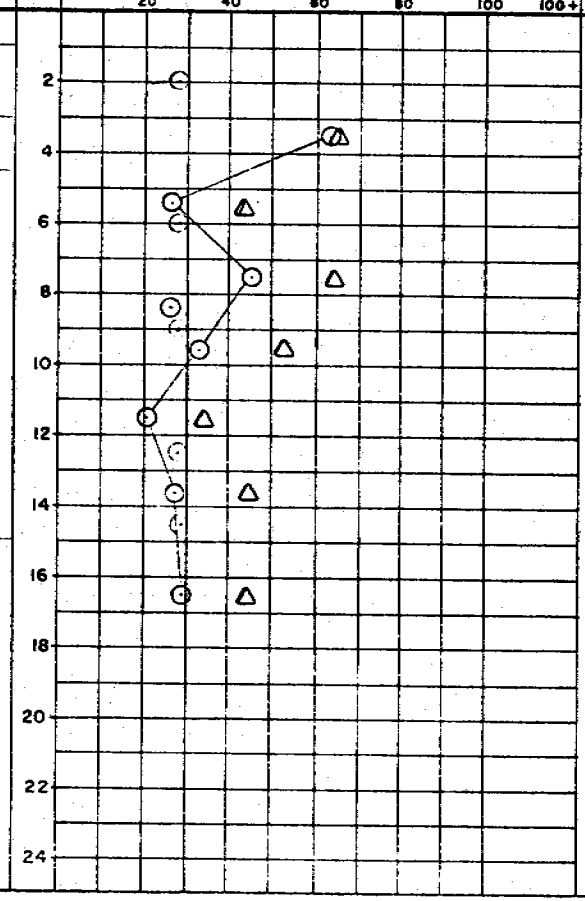
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N	FIELD ENG: H.B.	DATE DRILLED: 13/12/70	AIRPHOTO NO: [illegible]	CHAINAGE: 17+65	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: [illegible] 1000	SURFACE DRAINAGE: Fine	VEGETATION: See Remarks	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
580	C	127*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	FEAT: category #3	F								Dense Spruce 10'-30' high odd Birch & Tamarack
					SP	SAND: silty fine grained brown non plastic — 1		Nbn							
2															
4	1	C	87.5					Vs 60%					95.7	58.7	
								Nbn							
6													114.7	90.1	
8	2	C	94.4										114.7	78.3	
						less silt — 9									
10	3	C	100.0										112.9	89.1	
12													116.9	97.0	
14	4	C	100.0										117.2	91.6	
						coarser — 15		Vx 15%							
16	5	C	91.7										109.9	84.7	
18						END of HOLE — 18									
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 13/12/72	AIRPHOTO NO: A22934-162	CHAINAGE: 147+00
CKD:	TECH: T.C.	RIG: FALING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: SEE REMARKS

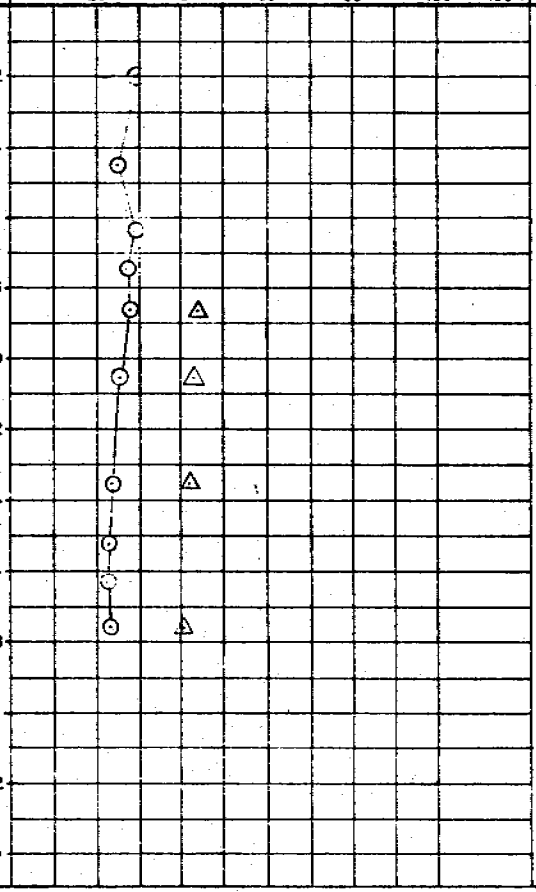
OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	C	128

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
					PL	PEAT: Category #4 — 1		Vx 20%						
2						CLAY: silty high plastic grey-brown								
4	1	C	65											
6														
8	2	C	103										112.7	97.8
10	3	C	101										107.9	95.3
12														
14	4	C	100										123.3	99.4
16	5	C	100											
18						END of HOLE — 18							117.3	94.8
20														
22														
24														

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



REMARKS

Birch 6" ϕ 30' high
10' apart
few Spruce 4" ϕ
20' high

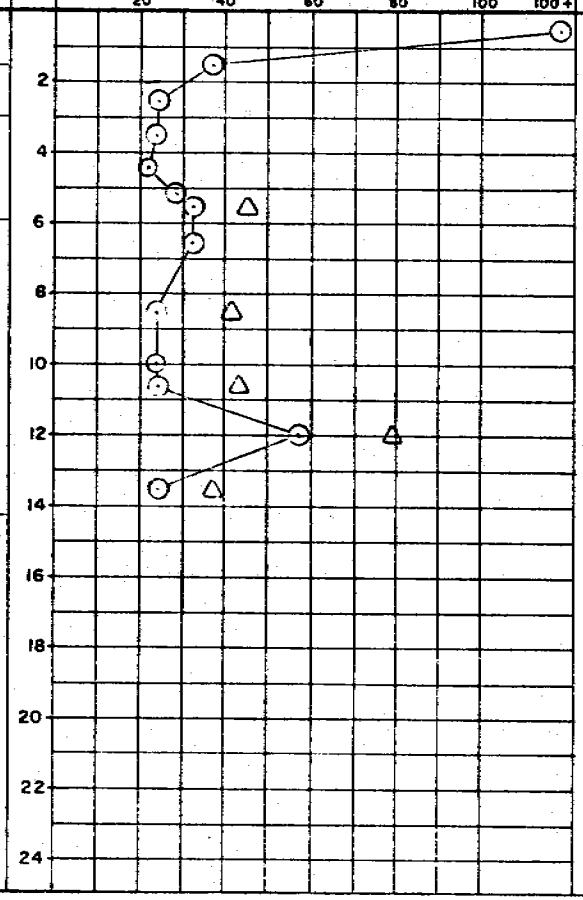
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B	DATE DRILLED: 14/12/72	AIRPHOTO NO: A22934-162	CHAINAGE: 133+75	OFFSET:
CKD:	TECH: T.C.	RIG: FOILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
578	C	129*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
	1	T	83		Pt	PEAT: CAT. # — 1	F	Vx 30%						
2	2	T	83		SM	SILT: SANDY, LOW PLASTIC, BROWN		Vx 20%						
	3	T	100			— 3								
4	4	C	92			CLAY: SILTY, MED PLASTIC, BROWN		Nbn						
6								Vx 20%					108.5	82.2
8	5	C	100											
						— 9							120.0	96.4
10	6	C	100			HIGH PLASTIC								
													123.5	99.3
12	7	C	92										121.6	72.0
14													117.1	95.7
						— 15		Vx 10%						
16						END OF HOLE								
18														
20														
22														
24														



REMARKS

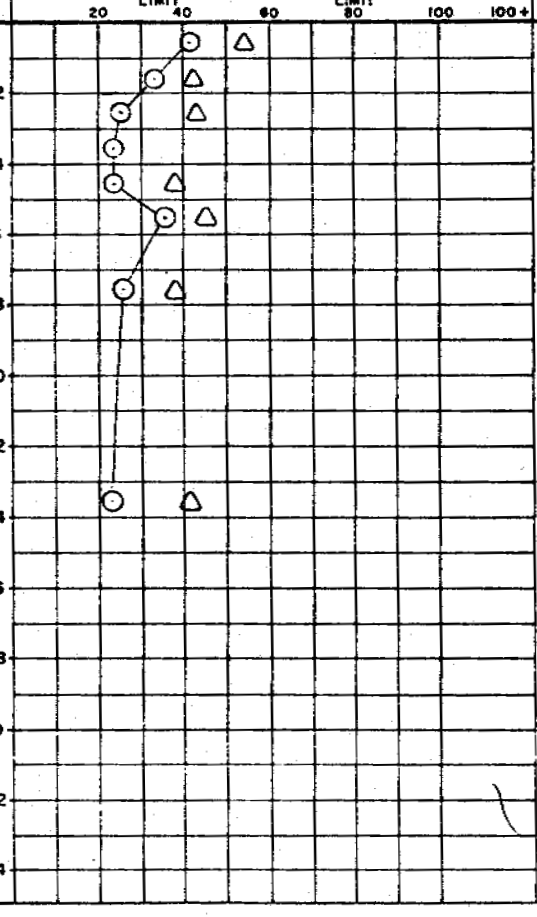
TAMARACK 40' HIGH
TALL BIRCH THROUGHOUT
ADD SPRUCE

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N	FIELD ENG: H.B.	DATE DRILLED: 13/12/72	AIRPHOTO NO: [illegible]	CHAINAGE: 171+90	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: SEE [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
578	C	130

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
		T	100		Pt	PEAT: cat. #5 — ½	F						118.2	94.2	Medium dense, [illegible] 15'-25' high, odd [illegible]
		T	100		CI	CLAY: silt medium plastic brown							97.0	73.3	
2		T	100					Vs 20%							
							UF	FREE WATER					118.0	94.0	
		T	100												
4		T	150										113.9	92.6	
		T	100				F	Vx 20%							
6								Vs - 5%					89.3	65.4	
		C	100												
8													104.4	82.4	
10															
		C	100		CH	high plastic grey — 11									
12															
		C	100					Vs 15%					126.0	103.4	
14															
16						End of Hole — 16									
18															
20															
22															
24															



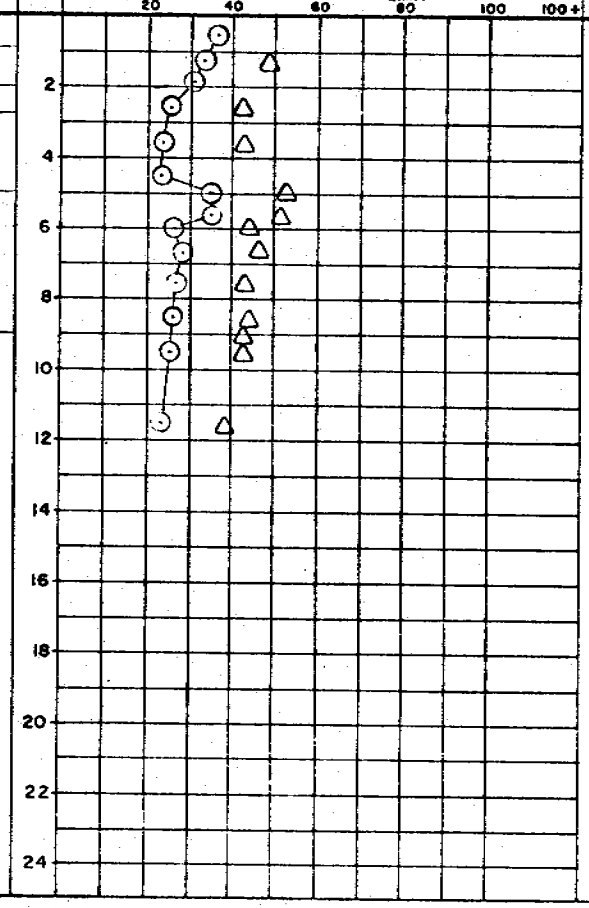
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G. | FIELD ENG: H.B. | DATE DRILLED: [illegible] | AIRPHOTO NO: A22934-162 | CHAINAGE: 183+25 | OFFSET:

CKD: [illegible] | TECH: J.H. | RIG: [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: SEE [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	C	131

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T			PT	PEAT: [illegible]	F	Vx 35%							
					CI	CLAY: silt [illegible] plastic brown									
2	2	T						Vx 20%					113.2	95.5	[illegible] 25-35 [illegible] add Spruce & Birch
	3	T	100					Vx 5%							
	4	T	100				UF	Vx 20%					115.6	91.8	
4	5	T	100										126.6	103.0	
	6	T	100				F	VR 15%					112.5	83.1	
6								Vs-VR 5%					109.7	80.9	
	7	C	100										115.4	93.7	
8													117.5	91.1	
													113.4	88.8	
													119.6	94.5	
10	8	C	100					Vx 30%					117.4	93.0	
													120.9	96.2	
12	9	C	50										117.5	95.3	
14						END of HOLE 14									
16															
18															
20															
22															
24															



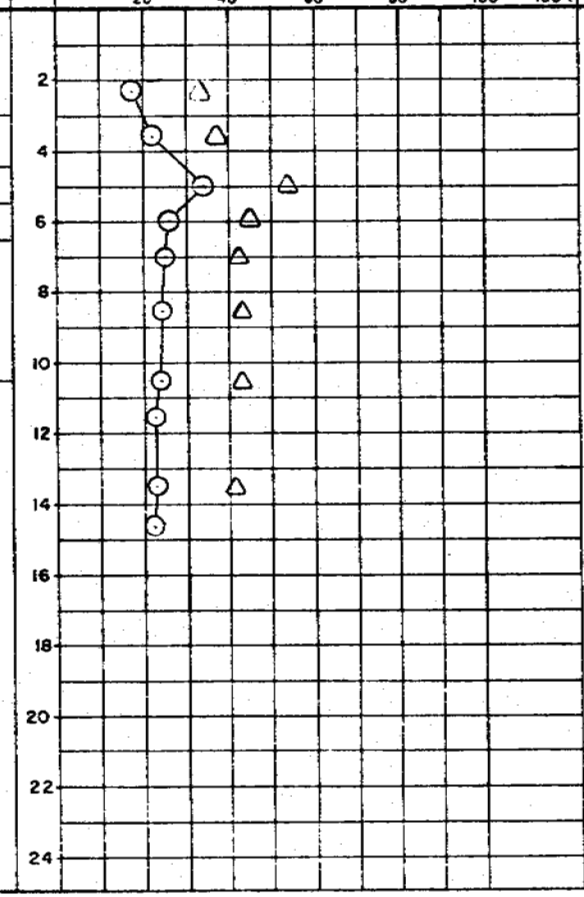
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 13/12/72	AIRPHOTO NO: 22734-162	CHAINAGE: 196+75	OFFSET:
CKD:	TECH: JH & T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: Fair	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
578	C	132x

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
					PT	PEAT: Category #3 — ½	T	Non						
2					OL	SILT: fine sandy, slightly organic, low plastic — 3½							123.2	104.6
4					CH	CLAY: silty, high plastic		Vx 1%					122.5	100.8
								Vs 50%					117.0	88.1
6								Vx 5%					122.0	96.5
								Vx 40%					116.1	92.6
8		C	100										124.4	100.1
10		C	94.4					Vx 25%					122.7	98.6
12						grey — 12½								
14		C	100										124.1	101.4
16						END of HOLE — 15½								
18														
20														
22														
24														



GRAIN-SIZE ANALYSIS

REMARKS: Dwarf Spruce 2' to 10' high; odd Birch 10' to 20' high 3"ϕ

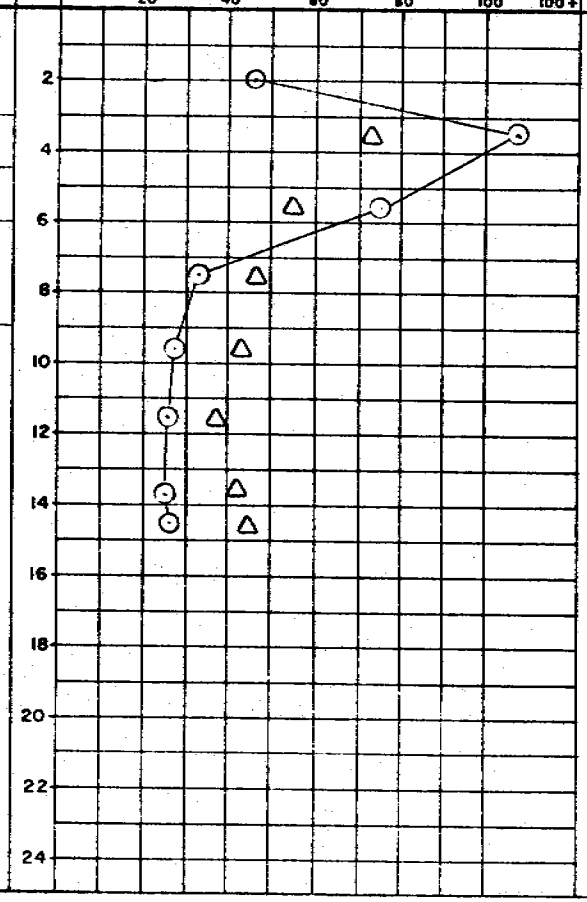
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: HB.	DATE DRILLED: 13/12/72	AIRPHOTO NO: A22 B4 : 16	CHAINAGE: 215+00	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: Fair	VEGETATION: Spruce 5'-20' high	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
577	C	133+

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT: category #1	F								
					ML	SILT: fine sandy low plastic brown (1½)									
4	1	C	81.9		CH	CLAY: silty high plastic brown (3½)		Vx 75%					72.5	38.9	
								Vs 50%							
6								Vx 20%					88.6	50.2	
8	2	C	97.2										106.8	80.2	
10	3	C	100					Vx 40%					113.7	89.1	
12													102.5	81.0	
14	4	C	100					Vx 30%					118.6	94.5	
						END of HOLE (15½)							123.3	97.8	
16															
18															
20															
22															
24															

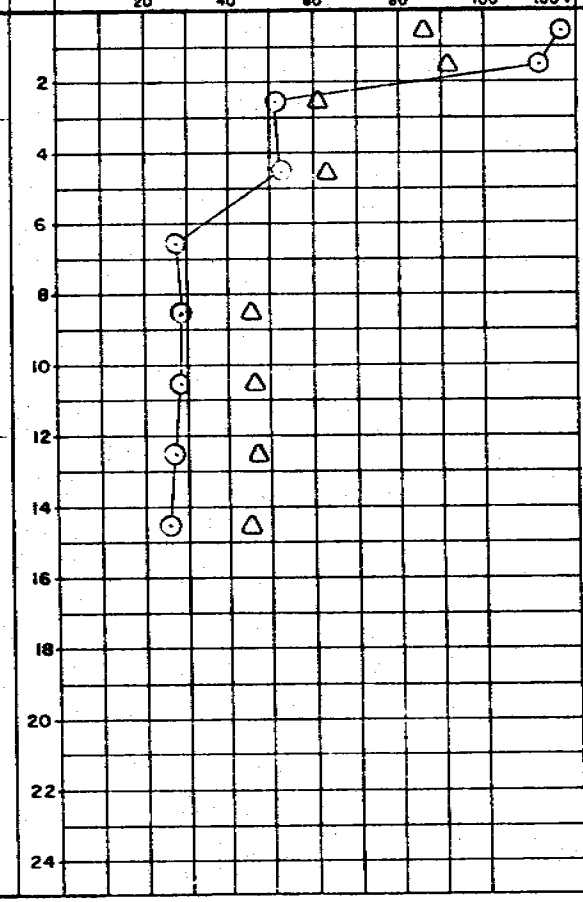


R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 12/12/72	AIRPHOTO NO: A26734	CHAINAGE: 237+00	OFFSET:
CKD:	TECH: T.C.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: Dense Spruce [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
577	C	134

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	33		Pt	PEAT: Category #1	F	// 20%					60.6	11.8	
	2	T	53			Category #3							63.8	12.9	
2	3	T	33		Cl	CLAY: silty medium plastic grey — 2							100.8	66.6	
4	4	C	96					Vs 40%					101.5	66.6	
6					CH	high plastic — 6									
8	5	C	100										115.2	89.0	
10	6	C	97										118.5	91.8	
12								x 30%					121.3	94.4	
14	7	C	94										121.8	96.4	
						END of HOLE — 15									
16															
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

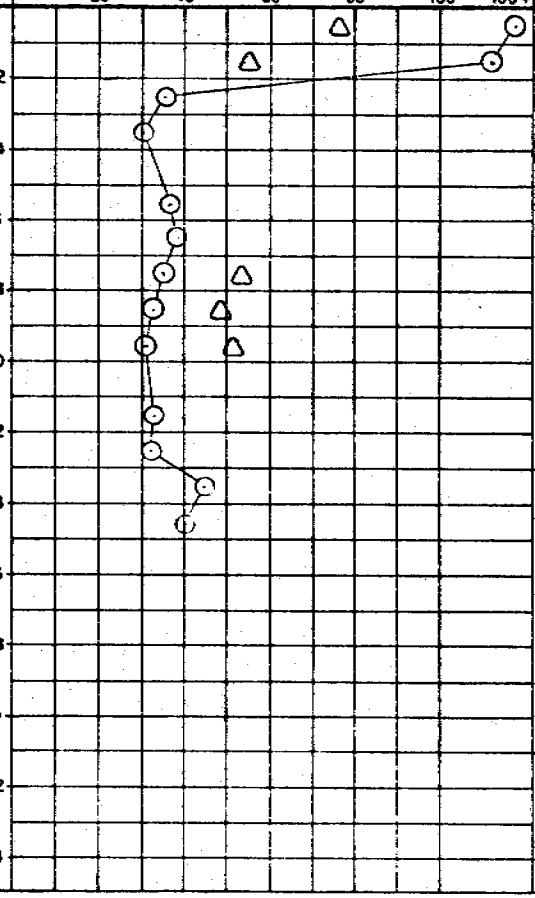
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 13/12/70	AIRPHOTO NO: [illegible]	CHAINAGE: 248+60
CKD: [illegible]	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: Dense Spruce 15'-20' [illegible]

OFFSET:
ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
577	C	135+

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	100		Pt	PEAT: category #11	F	Vx 50%					54.1	11.0	
	2	T	100			1½									
2	3	T	100		ML	SILT: fine sandy low plastic grey	UF						40.1	10.1	
							F	Vs 40%							
4	4	C	97												
6								Vs 15% ½" thick							
8	5	C	97										115.4	84.5	
													115.3	87.3	
10	6	C	100										122.8	94.2	
								Vs ¼" thick 10%							
12					CH	CLAY: silty grey 12									
14	7	C	100					Vs 30%							
						END of HOLE 15									
16															
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

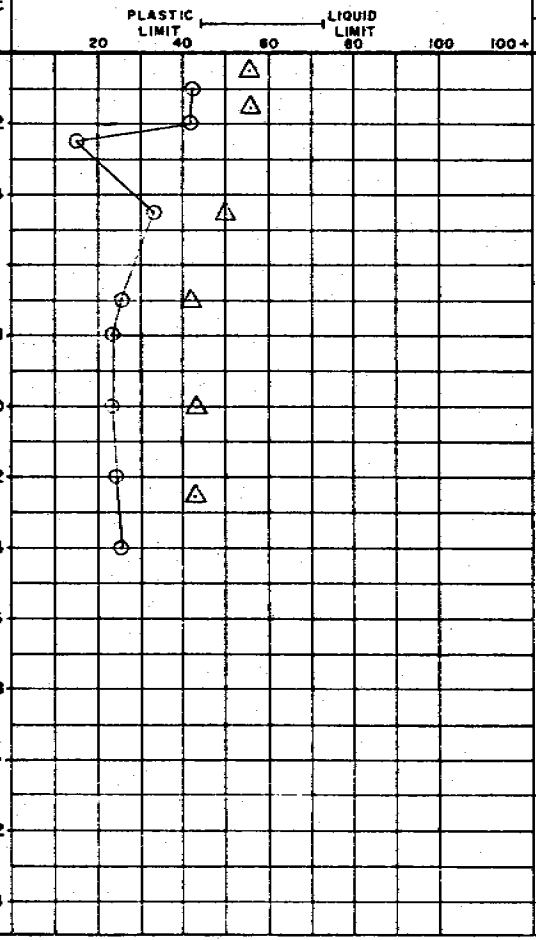
DWN: G.N. | FIELD ENG: H.P. | DATE DRILLED: 15/12 | AIRPHOTO NO: | CHAINAGE: | OFFSET:

CKD: | TECH: J.H. | RIG: | SURFACE DRAINAGE: | VEGETATION: SEE [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
776	C	1[illegible]

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	100		PT	PEAT: [illegible]							101.3	75.4	[illegible]
	2	T	75		ML	SILT: [illegible] sandy [illegible]							111.3	78.8	
2	3	T	100		SP	SAND: [illegible] fine silty [illegible] brown									
4	4	C	77					1%					110.3	92.2	
6					CI	CLAY: silty medium plastic		40%							
8	5	C	100										115.7	91.3	
10	6	C	73		CH	high plastic [illegible]		20%					124.6	99.9	
12	7	C	81					15%					117.9	92.9	
14						END of HOLE									
16															
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



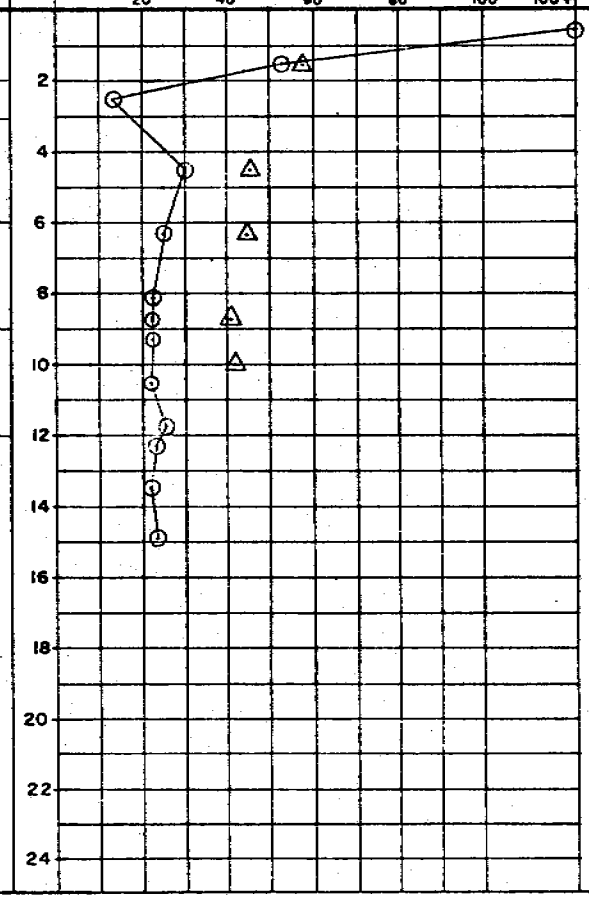
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 15/12/72	AIRPHOTO NO: A22734-162	CHAINAGE: 322E+10	OFFSET:
CKD:	TECH: J.H.	RIG: FAIRBANKS 1000	SURFACE DRAINAGE: FLAT	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	C	137*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
	1	T	85		Pt	PEAT: CAT. #1	F	Vx 60%						
	2	T	100			1½							92.9	60.3
2	3	T	100		SM	SAND: SILTY VERY FINE NON PLASTIC BROWN		Nbn						
						3½		Vx 5%						
4	4	C	100		CI	CLAY: SILTY MED PLASTIC GREY BROWN							114.0	88.0
6								Vx 15%					125.8	100.4
	5	C	100			7 HIGH PLASTIC GREY								
8					CH								124.2	101.5
10	6	C	92					Vx 5%					120.9	98.4
12								Vx 50%						
14	7	C	100											
						15 END OF HOLE								
16														
18														
20														
22														
24														



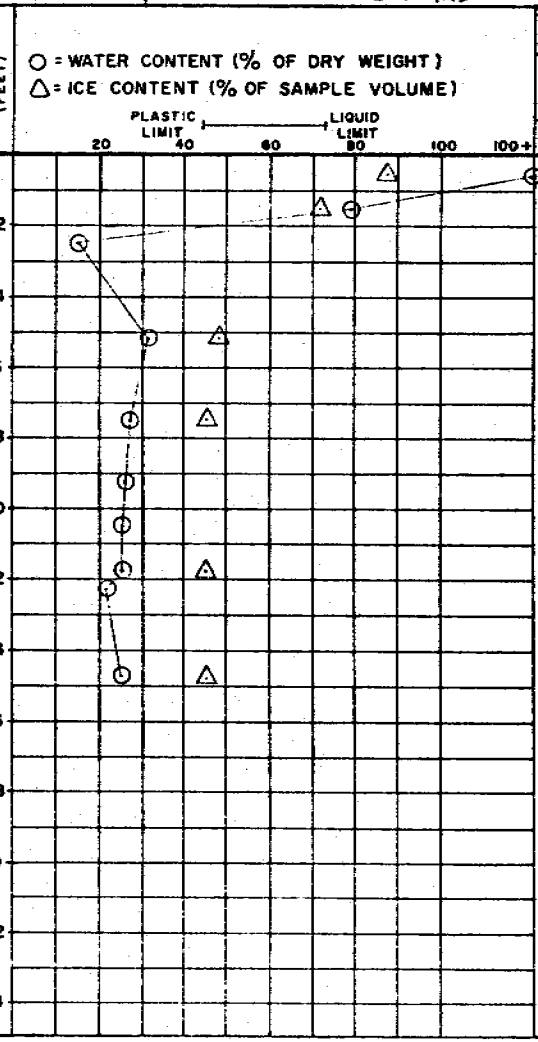
REMARKS: TRANSFER A 42" MEDIUM DENSE, 200 BIRCH & BLACK SPRUCE

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 16/12/72	AIRPHOTO NO: A22734-152	CHAINAGE: 333+00	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FLAT	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	C	138*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	75		Pt	PEAT: CAT. #1 — 3/4	F								DENSE SPRUCE 5" TO 26' HIGH - 4" MAX. ϕ, 0DD BIRCH - 30" HIGH - 6" ϕ
2	2	T	100		ML	SILT: SANDY TRACE OF CLAY LOW PLASTIC BROWN		Nbn					65.5	16.6	
	3	T	100		SM	SAND: FINE TO MED. GRAIN NON PLASTIC BROWN — 2½							30.8	50.8	
4	4	C	100		CH	CLAY: SILTY HIGH PLASTIC BROWN — 4		Vs - 20%							
6													115.8	88.5	
8	5	C	100					Nbn					120.9	95.0	
10	6	C	100		ML	SILT: CLAYEY MED PLASTIC GREY — 9		Vs 10%							
12													123.9	99.6	
14	7	C	94		CH	CLAY: SILTY HIGH PLASTIC GREY — 12							126.2	103.0	
						END OF HOLE — 15							122.2	101.4	
16															
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

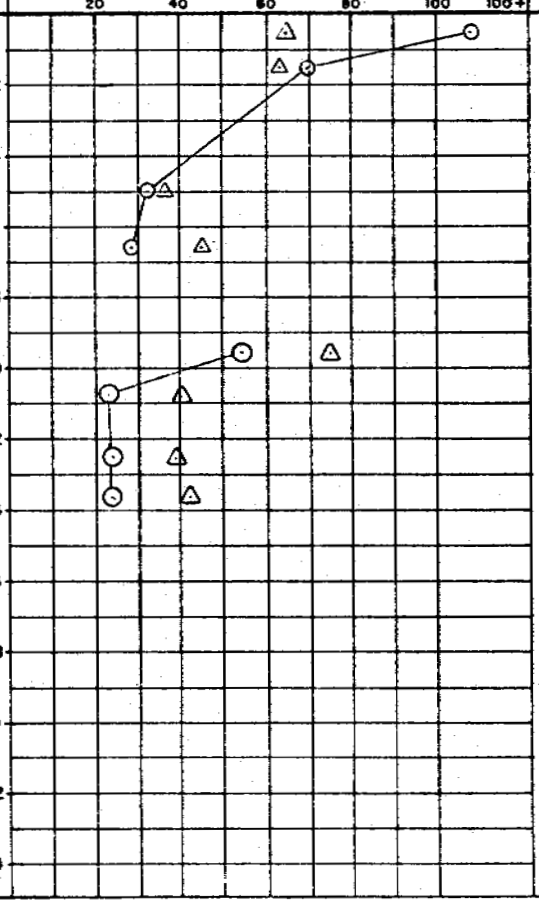
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N	FIELD ENG: H.B.	DATE DRILLED: 15/12/72	AIRPHOTO NO: [illegible]	CHAINAGE: [illegible]	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
576	C	139

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	[illegible]		Pt	PEAT:	I	Vx					69.7	33.1	Tamarack [illegible] Black Spruce sparse growth
	2	T	[illegible]										87.3	51.4	
2	3				SP	SAND: fine silty non plastic brown — 2		Nf							
	4						UF								
4	5	T	93				F	Vx 5%					93.5	62.9	
6	6	C	94		CI	CLAY: silty medium plastic — 5½							119.1	93.0	
8															
10	7	C	92					Vx 40%					126.4	77.8	
								Vx 40%					121.4	98.9	
12	8	C	100		CH	high plastic stiff — 11½		Vx 30%					119.4	97.1	
								VR-Vx 20%					126.6	102.6	
14						END OF HOLE — 14									
16															
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



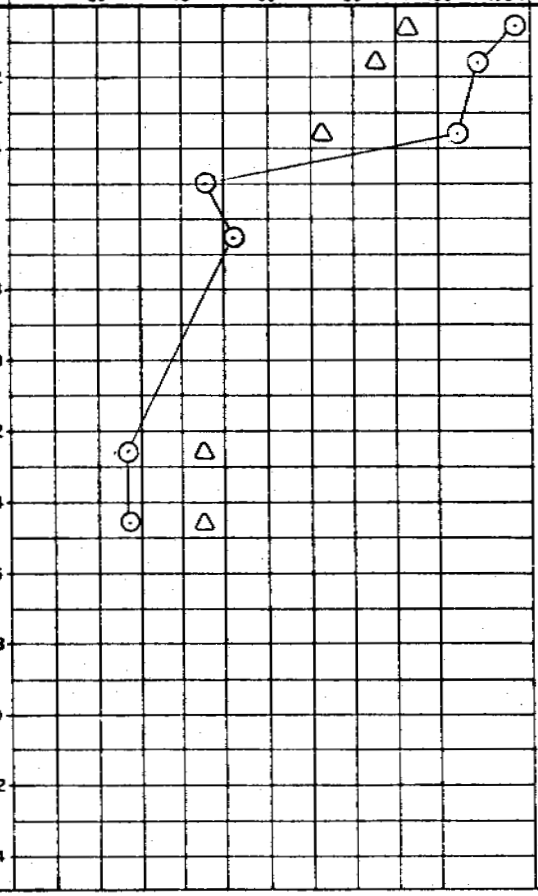
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 14/12/72	AIRPHOTO NO: A22934-162	CHAINAGE: 294+65	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
576	C	140*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	100		Pt	PEAT: CAT. #4	F	Vx 90%					56.4	4.7	SPARSE SPRUCE 5' TO 25' HIGH
2	2	C	100		OL	SILT: ORGANIC — 2							63.6	15.4	ODD TAMMARACK
4						— 4½							76.9	36.8	
6	3	C	100		MH	LOW PLASTIC BROWN		VR 2%; Vs 30%							
						— 7									
8	4	C	100		MH	SANDY - FINE		Vx 10%							
10					CL	CLAY: medium plastic — 10		Vs 20%							
	5	C	100			sand silt layer — 10½ — 11; brown		Vs <5%; VR 20%							
12						— 13							117.0	91.3	
14	6	C	92		CH	HIGH PLASTIC BROWN							117.3	91.6	
16						END OF HOLE — 16									
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

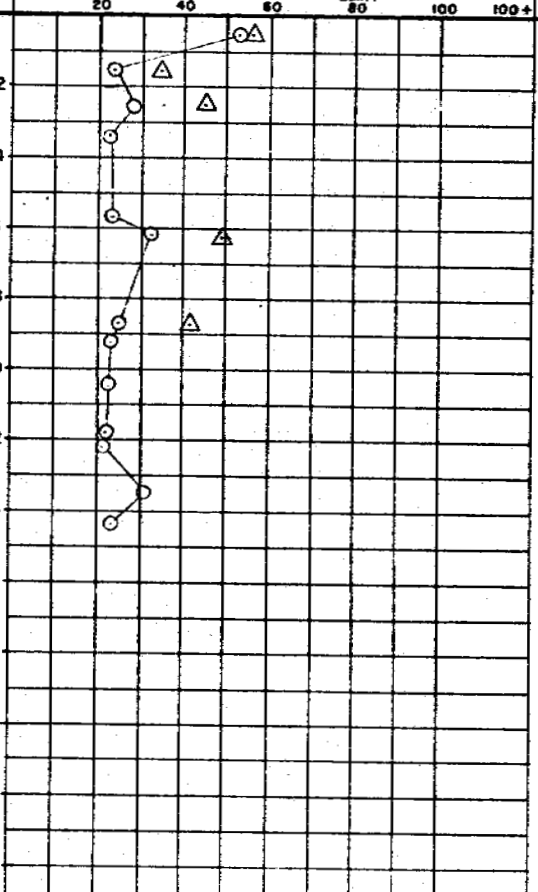
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N. | FIELD ENG: H.B. | DATE DRILLED: 15/12/7[illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: [illegible] | OFFSET:

CKD: [illegible] | TECH: T.C. | RIG: FAILING [illegible] | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
576	C	142*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	72			SILT: fine sandy trace clay low plastic brown		Non					90.3	59.0	Dense spruce 10'-25' high 4" ϕ
2	2	T	75		ML								102.0	81.9	
	3	T	116										117.6	92.0	
4	4	C	83					Vx 30%							
6					CI	CLAY: silt, medium plastic brown — 6		Vx 20%					114.3	86.3	
8	5	C	103												
10	6	C	97					Vx 30%					119.0	95.2	
12						high plastic grey — 12		Vx 20%							
14	7	C	97												
16						END of HOLE — 15									
18															
20															
22															
24															

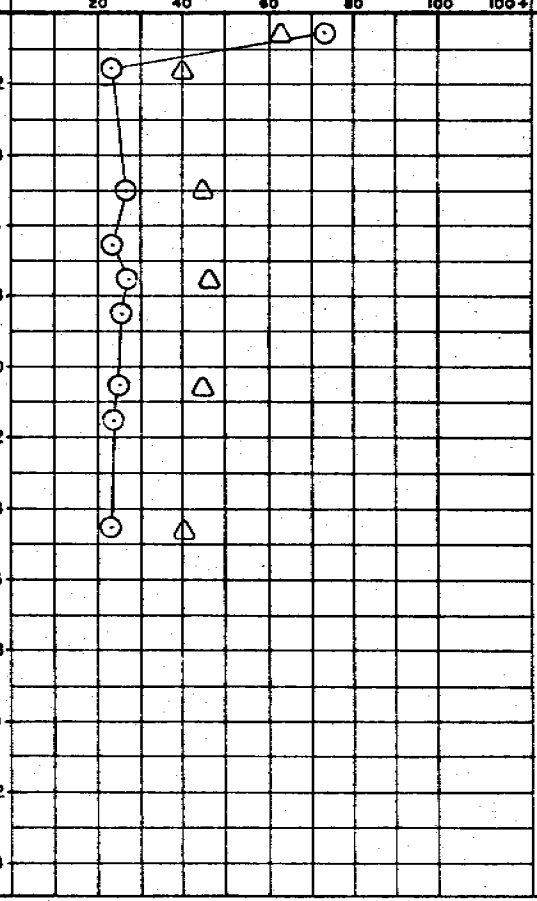


R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 14/12/7[illegible]	AIRPHOTO NO: A22934-162	CHAINAGE: 273+00	OFFSET:
CKD:	TECH: J.H.	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
576	C	143+

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
		T	[illegible]		Pt	PEAT: cat 2 — ½	F	Vx 30%					83.0	48.0	Dense Spruce 10'-25' high
2		T	0		SM	SAND: SILT: medium fine silty low/non plastic brown		Nbn					120.1	97.6	tamarack + " ↑
		T	100												
4							UF	FREE WATER							
		C	56			— 4½									
6					CL	CLAY: silty medium plastic brown	F	Vs-40% 1/16"					119.2	93.6	
								VsVr60%							
8		C	100										119.0	92.5	
10		C	100										122.6	97.8	
12								Vx 25%							
14		C	100										121.6	91.5	
						— 15									
16						END of HOLE									
18															
20															
22															
24															

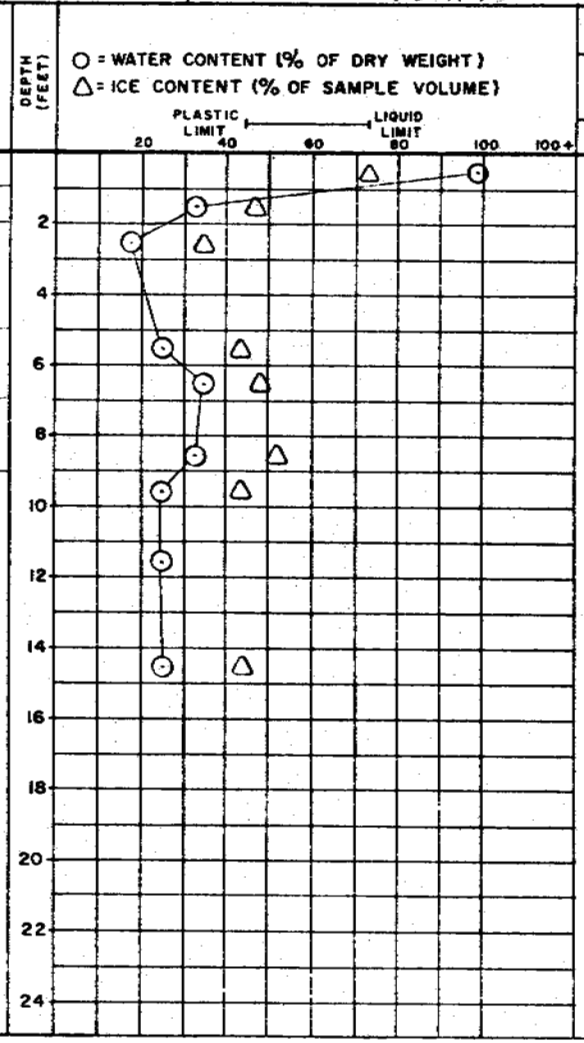


R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 13/12/72	AIRPHOTO NO: A22 134-102	CHAINAGE: 261+40	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1200	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
577	C	144*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	100		OL	SILT: organic — 1	F	Vx 20%					81.4	40.8	Spruce 15-25' high 4" ϕ, odd Birch
	2	T	100		SM	SAND: silty non plastic brown		Vx 5%					108.9	82.1	
2	3	T	100				UF	FREE WATER					125.8	104.5	
4	4	C	100		CI	CLAY: silty medium plastic brown — 4½									
6							F	Vx 15%					119.8	95.3	
8	5	C	100					Vx 25%					107.4	79.5	
					CH	high plastic — 9		Vs 30%					119.5	90.6	
10	6	C	100										123.7	98.9	
12															
14		C	92										124.5	99.5	
						END of HOLE — 15									
16															
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 14/12/72	AIRPHOTO NO:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR

CHAINAGE:
OFFSET:
VEGETATION: SPRUCE 4" ϕ 40' HIGH
ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
580	S	145*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: CAT. #3 — 1	F	Vx 40%
2						CLAY: SILTY SANDY LOW TO MED PLASTIC GREY		Nbe
4								
6						— 6		
8								
10								
12								
14								
16								
18								
20								
22								
24								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT
20 40 60 80 100 100+

DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: E.	DATE DRILLED:	AIRPHOTO NO: A22934-43	CHAINAGE:
CKD: [illegible]	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SPRUCE 30'

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
578	B-7	146

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					ML	SILT: FINE SANDY TRACE OF CLAY LOW TO NON PLASTIC BROWN	F	5%
2					SM	SAND: SILTY FINE GRAINED NON PLASTIC BROWN ODD CLAY LUMP		15%
4								
6								
8								
10						GREY		
12					ML	SILT: FINE SANDY LOW PLASTIC GREY		20%
14					SM	SAND: SILTY FINE GRAINED NON PLASTIC GREY		
16								
18								
20								
22								
24						END OF HOLE		

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⟷ LIQUID LIMIT

20 40 60 80 100 100+

DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 17/12/72	AIRPHOTO NO: A22734-133	CHAINAGE:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	B12	147*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					ML	SILT: SANDY, LOW PLASTIC, BROWN	F	None							SPRUCE - max 6" φ 40' HIGH
2															ODD BIRCH - max. 6" φ 30' HIGH
						3									
4					SM	SAND: FINE GRAIN, SLIGHTLY SILTY, NON PLASTIC									
						4½									
6	1					VERY SILTY									
8															
10															
12															
14															
16															
18															
20															
22															
24						END OF HOLE 24									

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT
20 40 60 80 100 100+

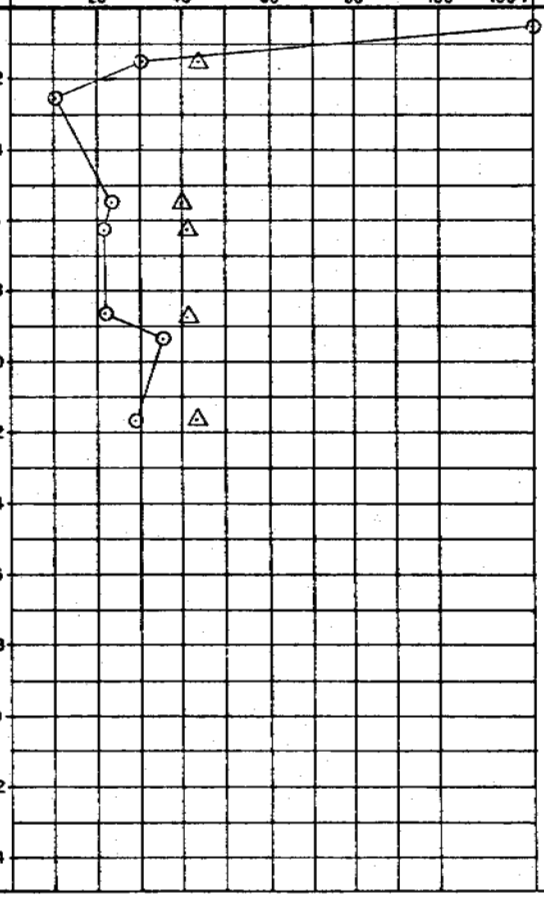
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 16/12/70	AIRPHOTO NO: A22734-152	CHAINAGE: 346+80	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: [illegible] 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	C	148*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
	1	T	100		ML	SILT: CLAYEY LOW PLASTIC BROWN — 1½	F	Nbn						
2	2	T	100										105.4	80.3
	3	T	33		SM	SAND: VERY FINE SILTY NON PLASTIC BROWN								
4	4	C	33											
					ML	SILT: SANDY TRACE OF CLAY LOW PLASTIC BROWN — 5							116.5	94.0
6								Vs 10%					127.5	104.4
	5	C	100		CH	CLAY: SLIGHTLY SILTY HIGH PLASTIC GREY — 7								
8													124.3	101.4
								Vs 20%						
10	6	C	100											
12													110.1	85.7
	7	C	100											
14														
						END OF HOLE — 15								
16														
18														
20														
22														
24														



REMARKS

[illegible] 10' to 40' [illegible] 8" [illegible] φ 2000 BIRCH 6" φ 30' HIGH

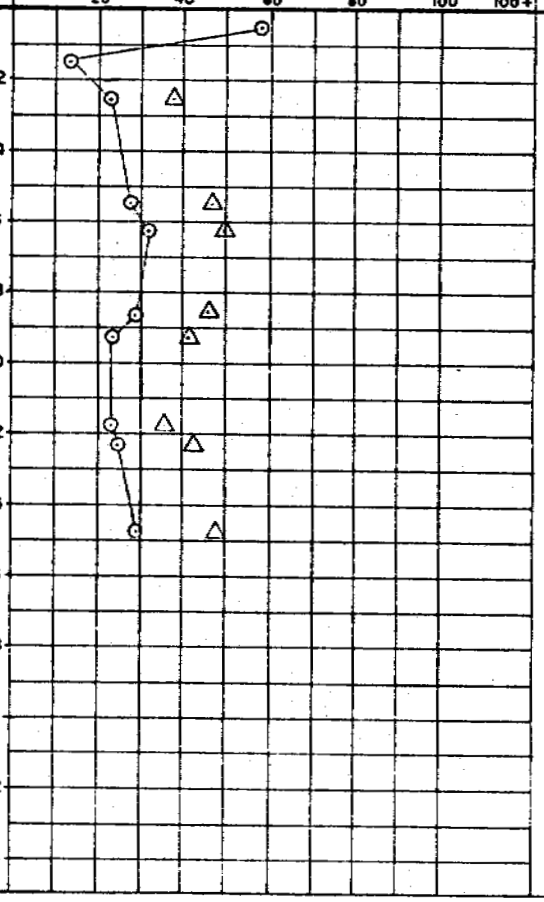
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: [illegible]	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: [illegible] 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	C	147

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	[illegible]		Pt	PEAT:		[illegible] 30%							[illegible]
					SM	SILT: SAND: very fine sand silt trace of clay low plastic brown — 1/3									
2	2	T	[illegible]												
	3	T	75					Non							
4	4	C	61		CI	CLAY: silty medium plastic — 3							115.9	92.8	
6													122.8	96.4	
	5	C	100					1/4 1%					115.2	87.3	
8													117.8	91.4	
10	6	C	[illegible]		ML	SILT: very fine sandy low plastic grey brown — 9		Nbn					122.3	99.3	
12													107.3	87.1	
	7	C	97		CH	CLAY: high plastic — 13		1/4 40%					119.2	95.1	
14						END OF HOLE — 15							118.0	91.4	
16															
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B. | FIELD ENG: G. Mc. | DATE DRILLED: 8/1/73 | AIRPHOTO NO: A22933-28 | CHAINAGE: 382+00
CKD: | TECH: D.R. | RIG: FAILING 1000 | SURFACE DRAINAGE: | VEGETATION: SEE REMARKS | OFFSET: | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	C	151

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
2					OL	SILT: CLAYEY TRACE OF SAND LOW PLASTIC BROWN	F	50%
4					CI	CLAY: SILTY MED PLASTIC LIGHT BROWN TRACE OF SAND — 3		20%
6						MED TO HIGH PLASTIC — 6		15%
8					CI CH			20%
10						GREY — 10		10%
12					ML	SILT: TRACE OF SAND LOW PLASTIC GREY BROWN — 12		75%
14						END OF HOLE — 14		
16								
18								
20								
22								
24								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT

20 40 60 80 100 100+

DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
2						
4						
6						
8						
10						
12						
14						
16						
18						
20						
22						
24						

REMARKS

SPRUCE > 40' HIGH
SOD BIRCH & WILLOW

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

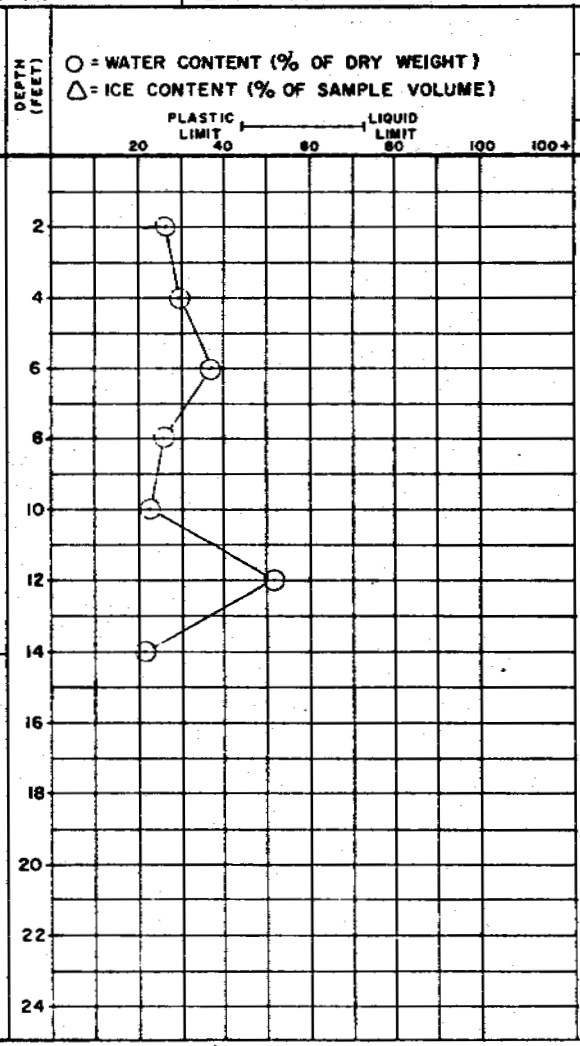
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: I. G.	FIELD ENG: G.Mc.	DATE DRILLED: 8/1/73	AIRPHOTO NO: A-22933-28	CHAINAGE:	OFFSET:
CKD:	TECH: D.R.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: see remarks	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
571	B15	152

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT — 2"	F	20%
					ML	SILT; sandy brown low plastic — 2'		
2					SM	SAND; silty, fine grained non-plastic Light brown — 4'		15%
4					CI	CLAY: silty mod. plastic Light to dark brown		20%
6								
8								
10						slightly silty mod. to high plastic		
12								
14						END of HOLE		
16								
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

Heavy timber, 80% spruce, 4" to 6" Ø 40' high, scattered birch & willow

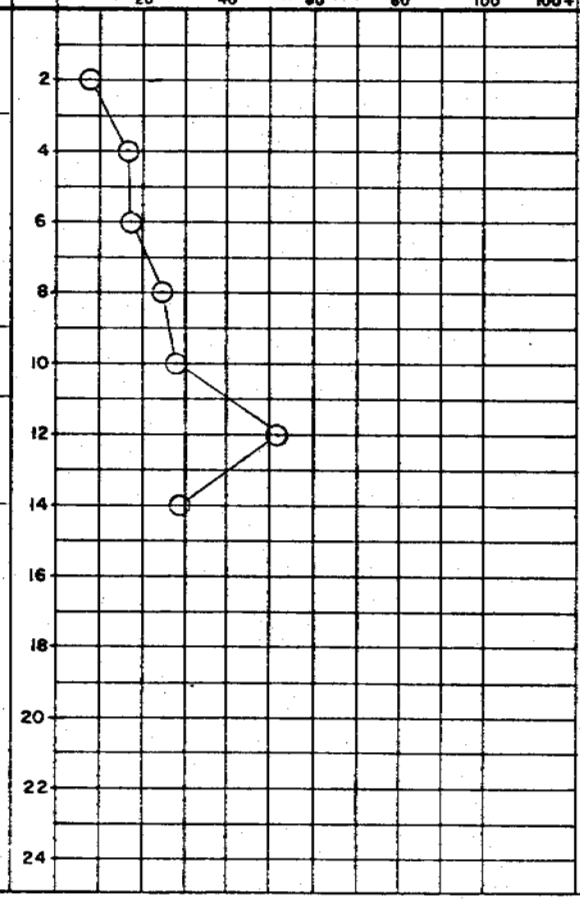
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B	FIELD ENG: G. Mc.	DATE DRILLED: 8/1/73	AIRPHOTO NO: A22933-25	CHAINAGE:	OFFSET:
CKD:	TECH: D.R	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
571	815	153

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: 1/3	F	5%
					ML	SILT: SANDY NON PLASTIC BROWN 2		
2					SM	SAND: SLIGHTLY SILTY FINE GRAINED NON PLASTIC BROWN		15%
4								
6					MH	SILT: SANDY MED PLASTIC BROWN 6		
8						CLAYEY NO SAND 8		
10								20%
						GREY 11		15%
12					CI	CLAY: SILTY MED PLASTIC GREY 12		
14						END OF HOLE 14		
16								
18								
20								
22								
24								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

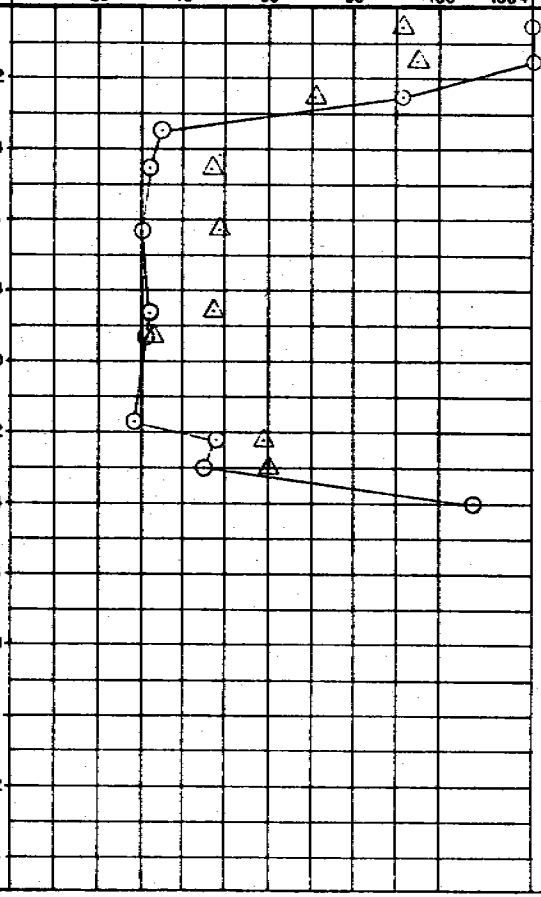
REMARKS: HEAVY TIMBER - 40% SPRUCE 4" TO 6" - 30 TO 40 FT HIGH - SCATTERED BIRCH & WILLOW

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N	FIELD ENG: H.B.	DATE DRILLED: 17/12/72	AIRPHOTO NO: A22934-163	CHAINAGE: 420+00	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	C	154

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	67		Pt	PEAT: category "4"	F						55.4	4.6	Tamarack 30' high, Birch & few Dwarf Spruce
2	2	T	117										58.1	4.6	
	3	T	125										82.9	43.3	
					OL	SILT: organic — 3									
4	4	C	93		SM	SAND: SILT: low-non plastic brown — 3½							107.9	81.6	
					CH	CLAY: high plastic brown — 5									
6								Vx 15 %							
8	5	C	97										119.1	91.6	
													112.7	85.9	
10								Vx 20 %					76.2	58.2	
	6	C	97												
12						grey — 12		Vx 70 %							
	7	C	99										102.1	68.8	
													107.8	74.1	
14						END of HOLE — 14									
16															
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

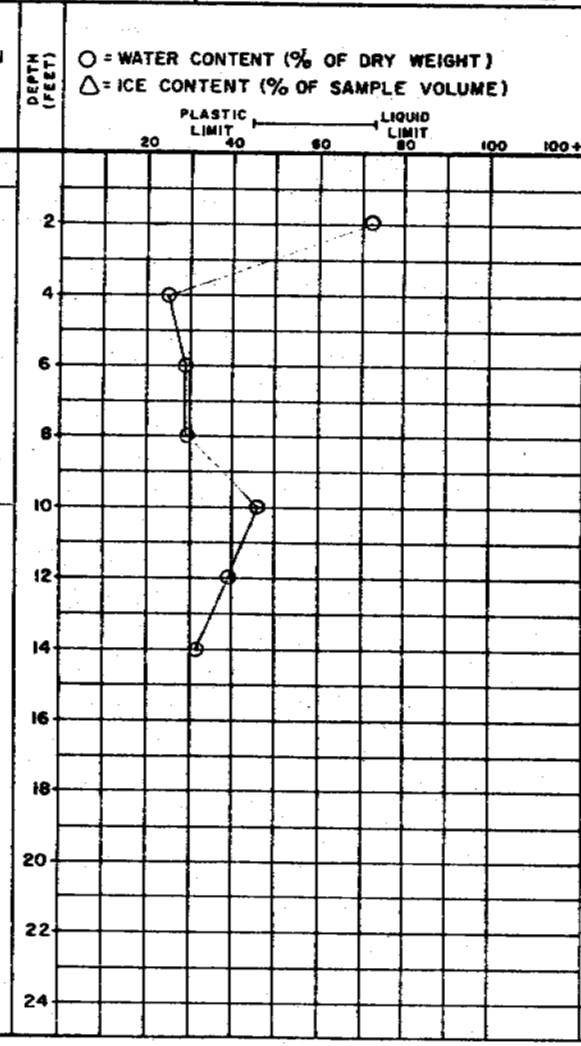
DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 17/12/72	AIRPHOTO NO: A22735-163	CHAINAGE: 426+00
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION:

OFFSET: ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
573	C	155

REMARKS

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
						DEBRIS snow, wood etc.		
2	1				C.I.	CLAY: silty sandy medium plastic roots (1)		Vx 15%
4	2					brown no roots (3)		
6	3					higher plastic (5)		
8						wood chips. (9)		
10	4					high plastic (10)		Vx 30%
12								
14						END of HOLE (14)		
16								
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

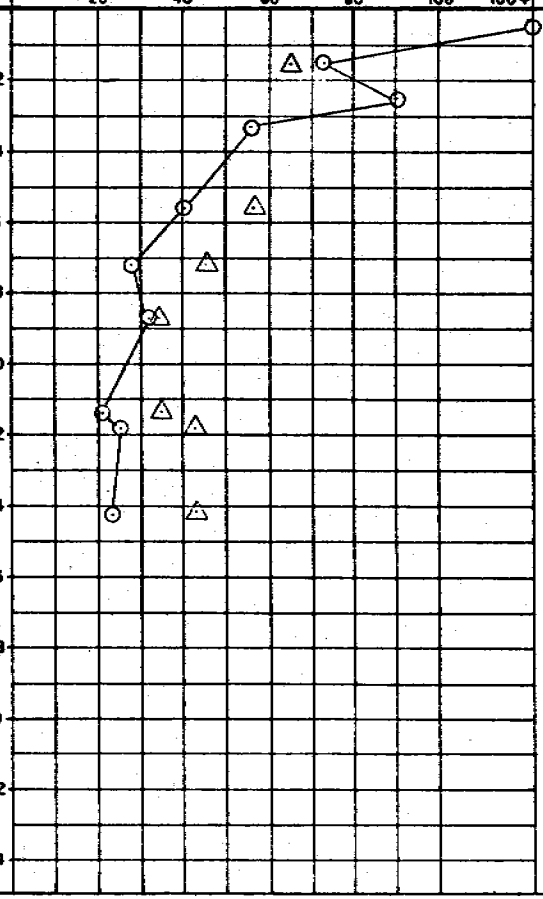
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: M.H	FIELD ENG:	DATE DRILLED: 17/12/72	AIRPHOTO NO: A22934-163	CHAINAGE: 430+65	OFFSET:
CKD:	TECH: J.H	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
573	C	156

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	100		PT.	PEAT:	F	Vs-Vx							TAMMARRCK, 40' HIGH, ODD BIRCH + WILLOW
2	2	T	125		CL	CLAY: SILTY, SANDY							86.9	50.1	
	3	T	83		ML	SILT: CLAYEY LOW PLASTIC									
4	4	C	92		CI	CLAY: SILTY MED PLASTIC GREY-BROWN		Vs-Vx					111.3	79.3	
6	5	C	78		ML	SILT: SANDY NON PLASTIC BROWN-GREY		NON					118.5	92.8	
8	6	C	97		CH	CLAY: SOME SILT HIGH PLASTIC GREY		Vx					78.9	60.0	
10													115.5	95.6	
12	7	C	100					Vx					117.6	93.5	
14						END OF HOLE @ 14½'		Ux					124.2	99.7	
16															
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 17/12/72	AIRPHOTO NO: A22934-163	CHAINAGE: 442+00	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: Fair	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
573	C	157

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	96		PT	PEAT.	F								Tamarack to 15' Dwarf Spruce, Sparse.
2	2	T	89				UF								
	3	T	100		OL	SILT: organic medium plastic brown	F	Nbn							
4															
	4	C	99												
6															
					SM	SAND silty non-plastic grey brown									
8	5	C	93												
10					CH	CLAY high plastic grey brown		Vx 10%							
	6	C	99												
12						grey		Vx 5%							
14	7	C	94												
								Vx 50%							
16						END OF HOLE @ 15½'									
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT
20 40 60 80 100 100+

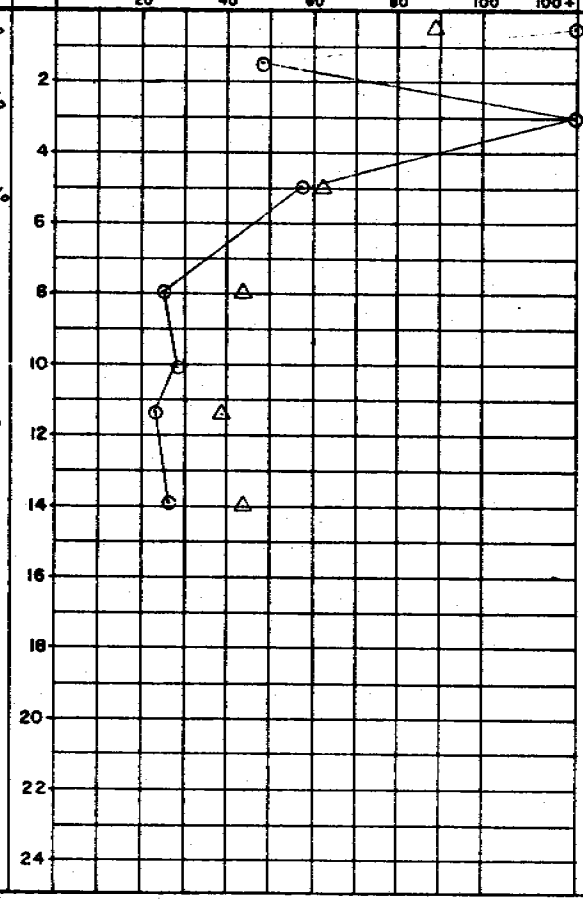
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: CH	FIELD ENG: H.B.	DATE DRILLED: 17/12/72	AIRPHOTO NO: A-22934-163	CHAINAGE: STA. 454+30	OFFSET:
CKD:	TECH: JH	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
573	C	158

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	96		PT	PEAT: #6		Vs-Vx 20%					70.0	20.2	TAMARACK TO 15', DWARF SPRUCE, SPARCE TO LOW DENSE
2	2	T	89		OL	SILT: CLAYEY ORGANIC BROWN	F								
	3	T	100		PT	PEAT: #1	UF	Vx 50%							
4					CI	CLAY: SILTY MED. PLASTIC BROWN — 3½	F								
	4	C	99		SM	SAND: SILT: FINE SAND NON PLASTIC GREY-BROWN — 5		Vx 30%					95.2	60.6	
6															
8	5	C	93		CI	CLAY: SILTY MED PLASTIC GREY-BROWN — 8							122.7	97.7	
10															
	6	C	99					Vx-VR 75%					118.3	96.3	
12															
14	7	C	94										116.2	91.3	
16						END OF HOLE — 15½									
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

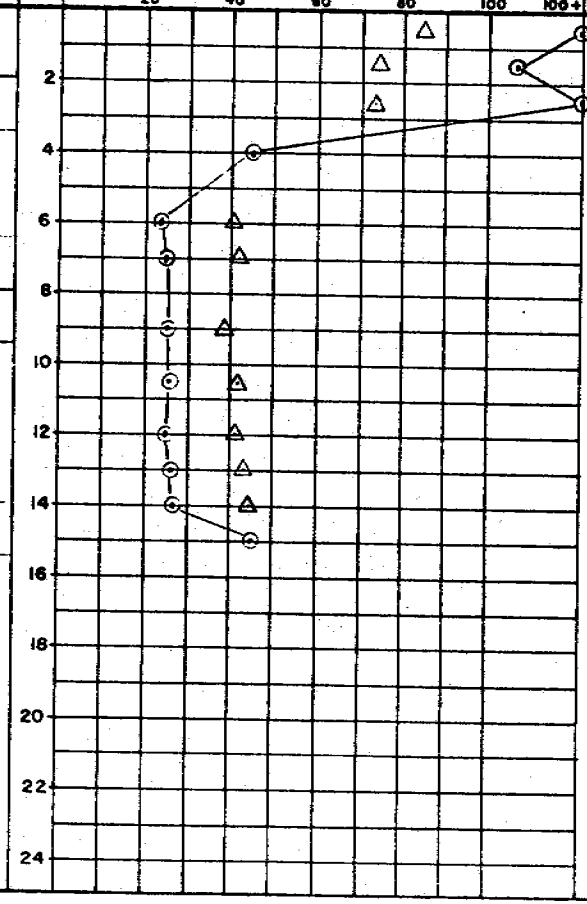
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: S.N. | FIELD ENG: H.B. | DATE DRILLED: 17/12/72 | AIRPHOTO NO: A-22933-28 | CHAINAGE: STA. 469+25 | OFFSET:

CKD: | TECH: JH + T.C | RIG: FAILING 1000 | SURFACE DRAINAGE: FAIR | VEGETATION: TAMARACK 70 40' OLD TREE BIRCH LOW DENSITY | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
573	C	157

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	88		Pt	PEAT: CATEGORY 6 S		Vx 60 %					61.8	15.1	HOLE ABOUT 15' EAST OF TREE
2	2	T	63		OL	ORGANIC SILT: LOW PLASTIC BROWN 1							79.6	37.5	
	3	T	63		Pt	PEAT: CATEGORY # 2 2		Vs 40 %					79.3	34.5	
4	4	C	103		SM	SAND: SILTY NON PLASTIC FINE BROWN TO GREY 3½		Nbn							
6													120.6	98.2	
8	5	C	99		ML	SILT: SANDY LOW PLASTIC BROWN 8	F	Vs 30 %					121.4	37.9	
								Vs 20 %							
10	6	C	100		SM	SAND: SILTY NON PLASTIC BROWN 9½		Nbn					113.6	91.3	
12													117.1	93.6	
													118.8	95.4	
14	7	C	103		CH	CLAY SILTY HIGH PLASTIC GREY 14		ICE					114.7	89.6	
						END OF HOLE 15½							119.3	94.1	
16															
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

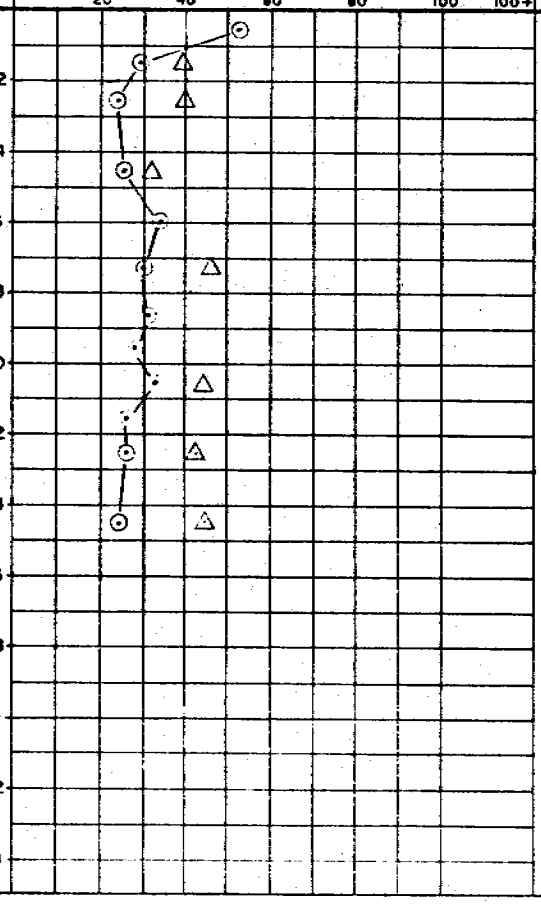
DWN: [illegible] | FIELD ENG: H.B. | DATE DRILLED: [illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: STA. [illegible] | OFFSET:

CKD: [illegible] | TECH: [illegible] | RIG: [illegible] 1000 | SURFACE DRAINAGE: [illegible] | VEGETATION: [illegible] | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	C	160*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	[illegible]		OL	ORGANIC SILT: SANDY [illegible]		Vx [illegible]							HOLE LOCATED 10' EAST OF TREE
2	2	T	100		SM	SAND: WELL PLASTIC BROWN SILTY (1)	F	Nbn					1[illegible]	7[illegible]	
	3	T	100												
4	4	C	75										1179	954	
													1218	977	
6					CH	CLAY: HIGH PLASTIC BROWN (6)		Vx [illegible]							
8	5	C	103										1148	853	
					CH	HIGH PLASTIC GREY (9)		Vx [illegible]							
10	6	C	100										1286	956	
12					CL	WELL PLASTIC [illegible] (12)		Vx [illegible]							
	7	C	103										1178	938	
14					ML	SILT [illegible] (13)		Nbn					1279	1027	
						[illegible]									
16															
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.

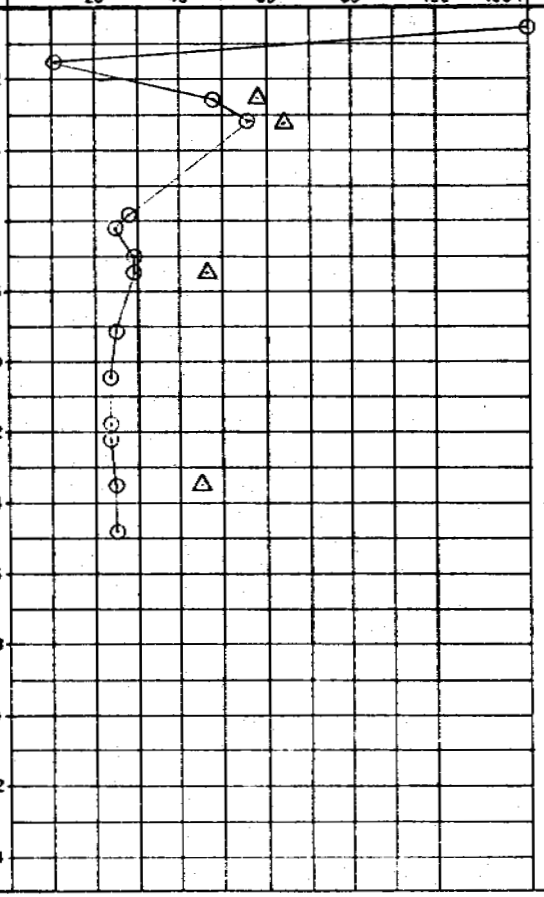
DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: MH	FIELD ENG: H.B	DATE DRILLED: 17/12/72	AIRPHOTO NO: A22933-29	CHAINAGE: 485+90	OFFSET:
CKD:	TECH: TC	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	C	161*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
	1	T	100		PT	PEAT:	F	Vx 30%						
2	2	T	83		SM	SAND: SILTY NON PLASTIC BROWN	UF	Nbn						
	3	T	108										100.1	67.7
4	4	C	103		ML	SILT: SANDY NON PLASTIC BROWN	F	Nbe					100.5	64.2
6								Vs-Vx 40%						
8	5	C	103		CI	CLAY: MED. PLASTIC GREY							117.5	91.0
10								Vs-Vr 20% 1/8" THICK						
	6	C	103		ML	SILT: SANDY LOW PLASTIC GREY		Nbn						
12					CH	CLAY: HIGH PLASTIC GREY								
14	7	C	100					Vs-Vr 40% 1/8" THICK					127.1	101.5
16						END OF HOLE @ 15'								
18														
20														
22														
24														



REMARKS

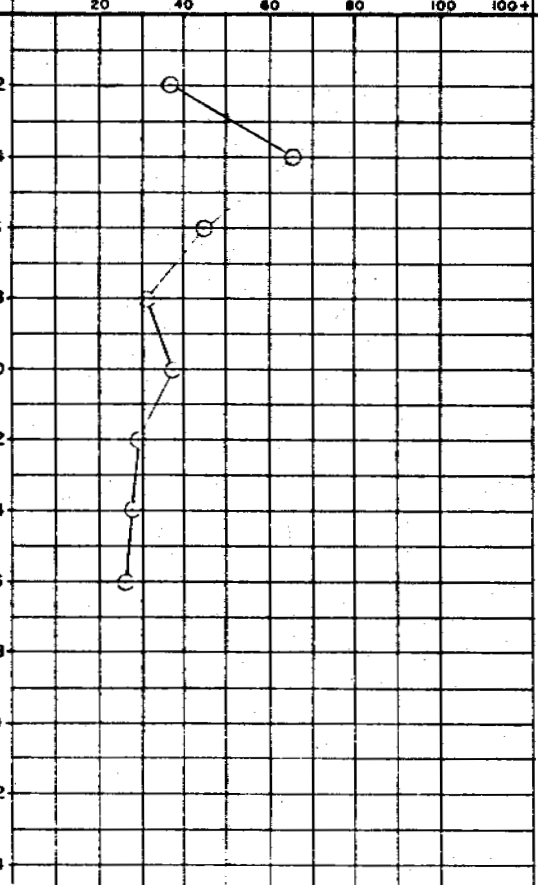
DENSE SPRUCE, 5'-20' @ 4" MAX ϕ, ODD BIRCH, 25' HIGH @ 6" ϕ

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: MH	FIELD ENG: H S	DATE DRILLED: 19/12/72	AIRPHOTO NO: A-22933-29	CHAINAGE: 517+00	OFFSET:
CKD:	TECH: T C	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
512	C	162*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					ML	SILT: VERY SANDY LOW PLASTIC BROWN	F	Vx 15%
2								
4								Vx 30%
6								
7								
8					CH	CLAY: SILTY HIGH PLASTIC GREY		Vx 5%
10								
10½								Vx 20% Nbn
12					ML	SILT: CLAYEY MED PLASTIC GREY		
14								
16						END OF HOLE		
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS: SPRUCE, MED DENSE, 5' TO 30' HIGH, 6" MAX. ϕ

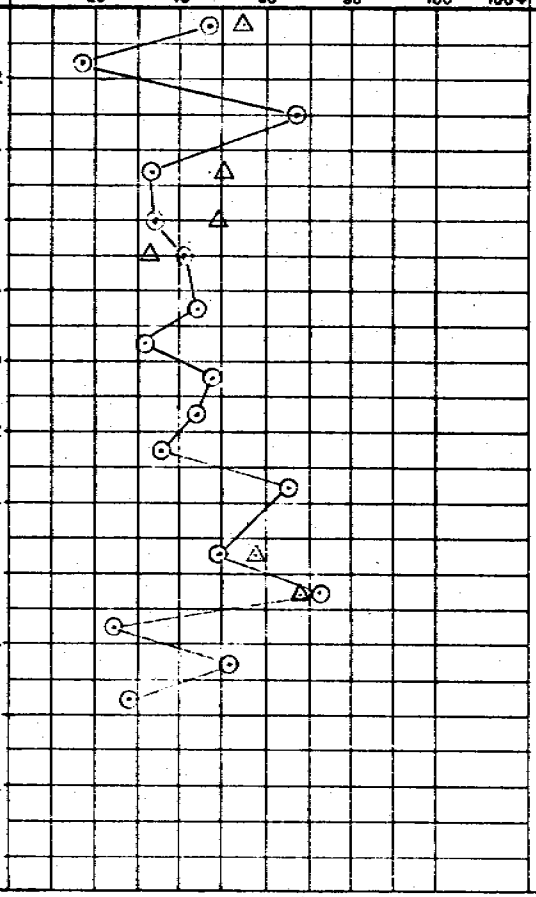
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN:	FIELD ENG:	DATE DRILLED:	AIRPHOTO NO:	CHAINAGE:	OFFSET:
CKD:	TECH: TC	RIG:	SURFACE DRAINAGE:	VEGETATION:	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	C	163*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	61		CH	SILT: ORGANIC, SANDY, HIGH PLASTIC, BROWN	F	Vx 20 %					95.1	64.7	[illegible]
2	2	T	100		ML	NON PLASTIC BROWN									
					ML	SANDY - CLAYEY LOW TO MILD PLASTIC BROWN		Vs 20 %							
4	3	C	100					Vx 10 %					114.6	86.5	
6	4	C	103		CL-CH	CLAY: SILTY MED TO HIGH PLASTIC GREY CONT DUST-SAND-STONES		Vs 20 %					108.3	80.5	
													103.8	74.0	
8					CL-CH	SILTY, SANDY MED TO HIGH PLASTIC GREY		Vs 40 %							
								ICE 80 %							
10	5	C	100				F	ICE 50 %							
								ICE 50 %							
								ICE 60 %							
					SM	SAND: SILTY NON PLASTIC		Vx 35 %							
12	6	C	100												
					CH	CLAY: HIGH PLASTIC GREY		ICE 40 %							
14								ICE: 1/4" CRYSTAL BAND							
16	7	C	100					ICE: 50 % CLEAR ICE BAND					97.4	65.2	
													110.5	52.3	
18	8	C	100					ICE							
20						END OF HOLE									
22															
24															

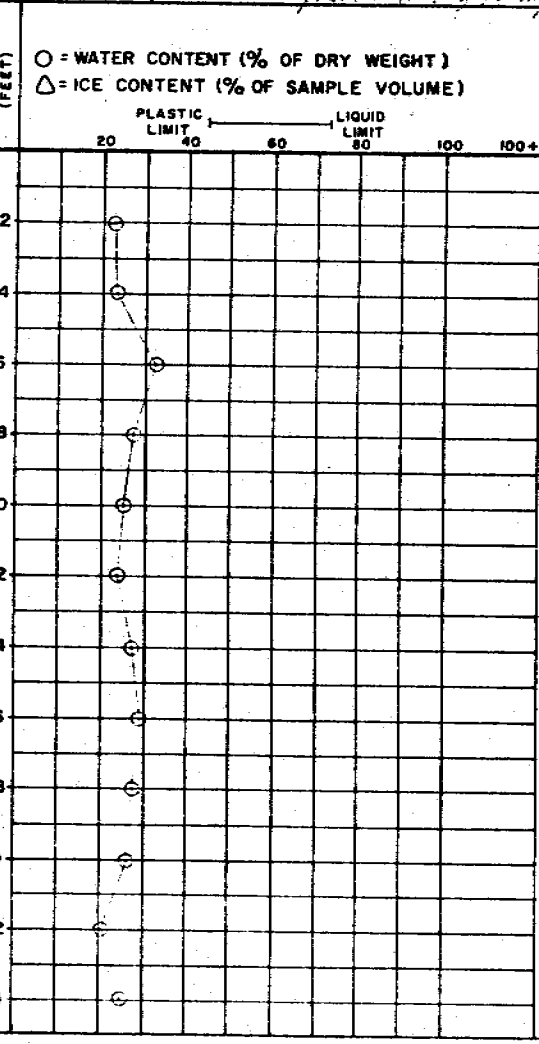


R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 17/12/72	AIRPHOTO NO: A22934 - 163	CHAINAGE:	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: TALUS 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: Spruce 2'-4", 40' [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	B12	164

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					PT	PEAT: Sod, #1 — ½		Vx 20%
2	1				ML	SILT: sandy, low plastic, organic		Nbn
4					CI	CLAY: silty, medium plastic — 3½		Vx 5%
6					ML	SILT: slightly clayey, low plastic — 5		Nbn
8	2							
10						slightly sandy — 11		
12								
14								
16								
18						clayey — 17		
20					CH	CLAY: high plastic, organic — 19		Vx 20%
22								
24						END OF HOLE — 24		



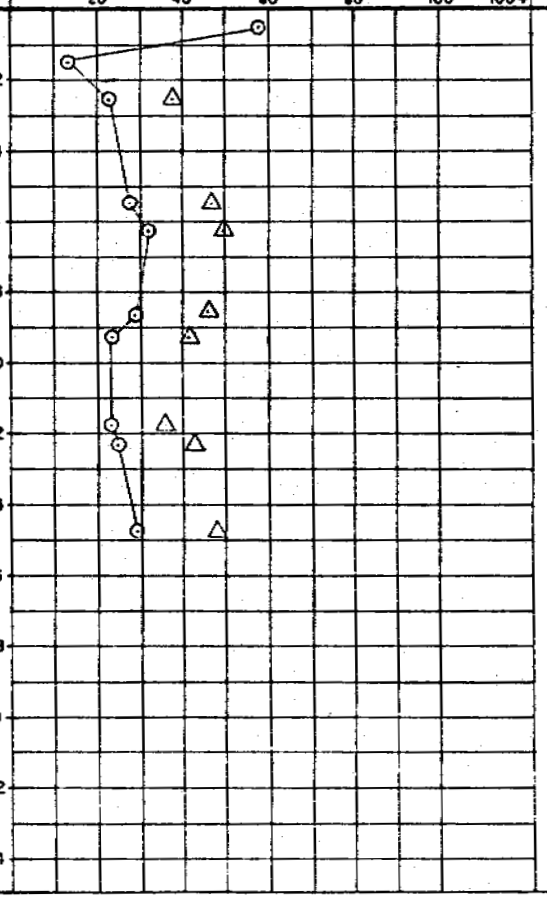
GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
CLAY %	SILT %	SAND %	GRAVEL %			

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: [illegible]	OFFSET:
CKD: [illegible]	TECH: J.H.	RIG: [illegible] 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	C	1-17

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	[illegible]		Pt	PEAT: 1/3		[illegible]							[illegible]
	2	T	[illegible]		SM	SILT: SAND: very fine sand silt trace of clay low plastic brown 3		[illegible]							
2	3	T	75										115.9	92.8	
4	4	C	61		CI	CLAY: silty medium plastic									
6								1/4 1%					122.8	96.4	
	5	C	100										115.2	97.3	
8													117.8	91.4	
10	6	C	[illegible]		ML	SILT: very fine sandy low plastic grey brown 9		Nbn					122.3	99.3	
12													107.3	97.1	
	7	C	97		CH	CLAY: high plastic 15		1/4 40%					119.2	95.1	
14													118.0	91.4	
16						END OF HOLE 15									
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD.

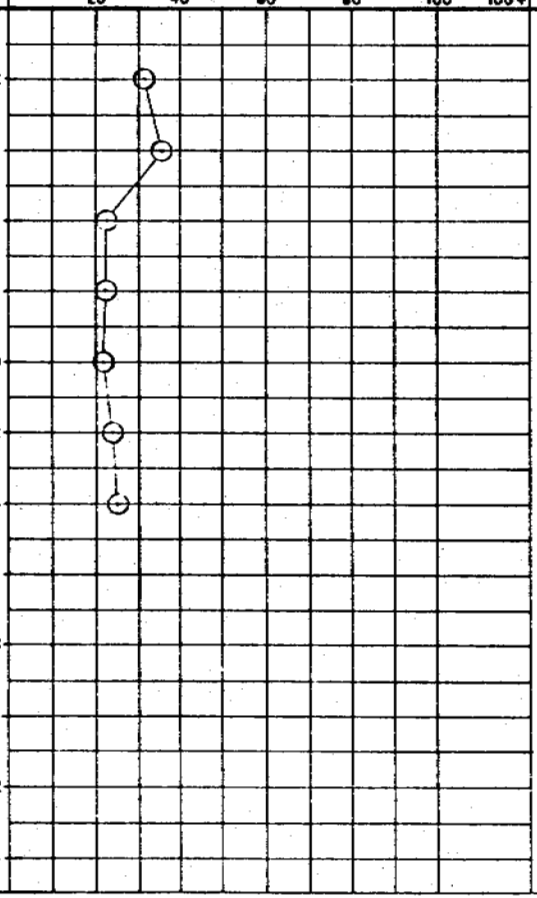
DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: IG	FIELD ENG: G. Mc	DATE DRILLED: 8/1/73	AIRPHOTO NO: A-22933-28	CHAINAGE:	OFFSET:
CKD:	TECH: D R	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
571	815	150

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION (ESTIMATED ICE CONTENT)
					PT	PEAT — 4"	F	80%
2					OL	ORGANIC SILT: very clayey, med plastic, lt. brown		75%
4					ML	SILT: sandy, non-plastic, mottled light brown-gray — 4'		5%
6					CI	CLAY: slightly silty, high plastic, mottled lt & dk. brown — 6'		10%
8					ML	SILT: sandy, clayey, low plastic, mottled brown + gray — 8'		15%
10					ML	CLAY: silty, some sand, med plastic, mottled brown-grey — 10'		20%
12								25%
14						END of HOLE — 14'		
16								
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

FAIRLY HEAVY TIMBER 80% SPRUCE 40' HIGH SCATTERED BIRCH & WILLOW BUSHES

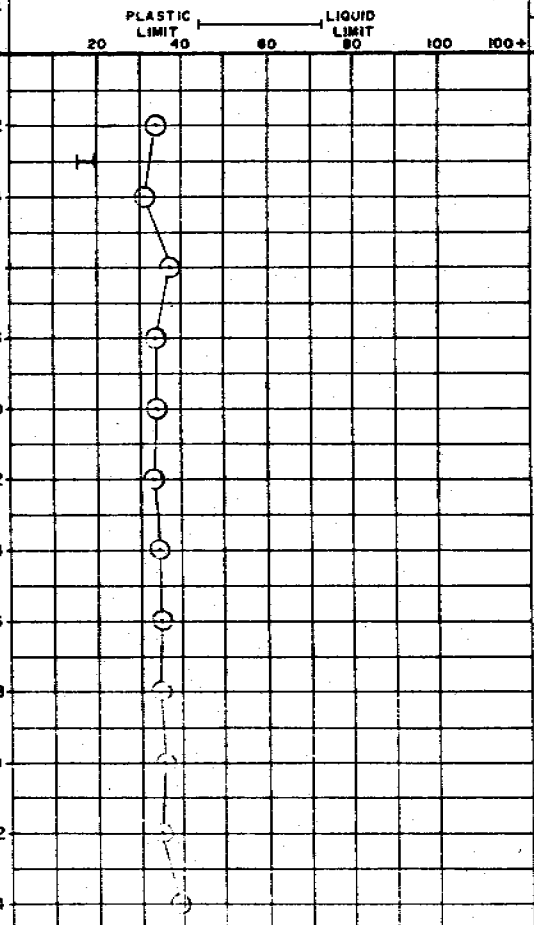
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: [illegible]	FIELD ENG: [illegible]	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]	CHAINAGE: [illegible]	OFFSET:
CKD: [illegible]	TECH: [illegible]	RIG: [illegible]	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
[illegible]5	[illegible]	165

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					[illegible]	SILT: SAND. fine sandy, trace of clay, low plastic, brown	F	Nbn							[illegible]
2	1							Nf							
4					[illegible]	CLAY: silt, medium plastic		Nbn	14	58	28				
6	2														
						sand pocket		Nf							
8						no sand, grey brown		Nbn							
10	3														
12								Vy 1%							
14					CH	high plastic, grey		Nbn							
16															
18	4							Vx 1%							
20															
22								Vy 5%							
24						[illegible]									

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



MTL-2-68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1065

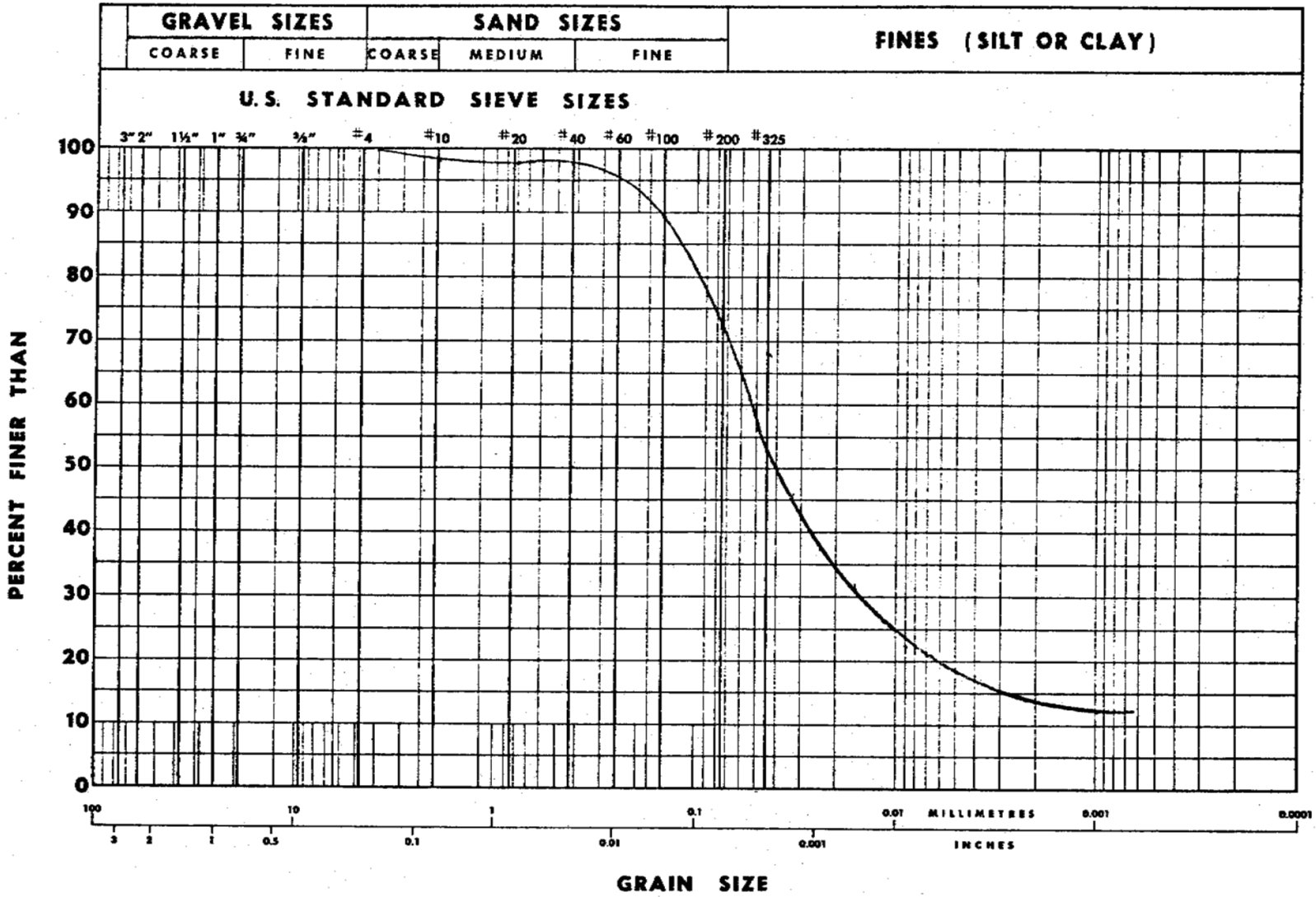
CLIENT

SAMPLE

SOURCE

HOLE 15-B1 DEPTH -/' DATE REC'D.

TECHNICIAN DATE TESTED



REMARKS:

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_u _____
C_c _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

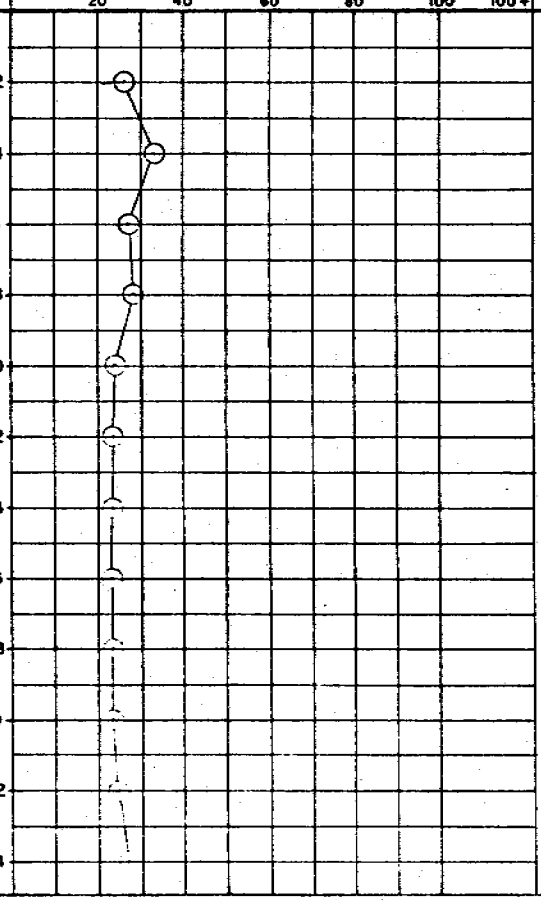
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 16/12/72	AIRPHOTO NO: A22934-163	CHAINAGE: 375+00	OFFSET:
CKD:	TECH: J.H.	RIG: FALING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
575	B11	166

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1				ML	SILT: fine sandy low plastic brown	F	Vx 5%							Trees with Tall Tamarack & Birch to 40'
								Nbn							
6					CI	CLAY: silty medium plastic brown		Vr 1%							
	2														
	3														
20					CH	high plastic grey									
								Vx 5%							
24						END of HOLE									



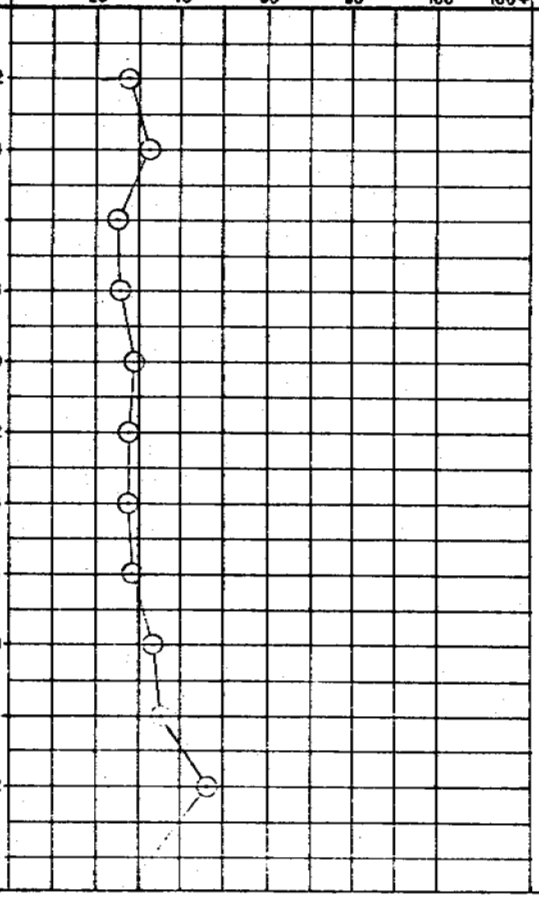
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 16/12/72	AIRPHOTO NO: A22934-163	CHAINAGE: 375+00	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	B11	167

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
2	1				ML	SILT: trace of fine sand low plastic brown	F	Lbr.							Birch & Tamarack 35'-45' high willows
4															
6															
8	2														
10															
12															
14						trace of clay 13									
16	3				CI	CLAY: silty medium plastic grey 15		Vx 5%							
18															
20					CH	high plastic 20									
22								Vx 70 %							
24								Vx							

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N. | FIELD ENG: H.B. | DATE DRILLED: [illegible] | AIRPHOTO NO: [illegible] | CHAINAGE: [illegible] | OFFSET:

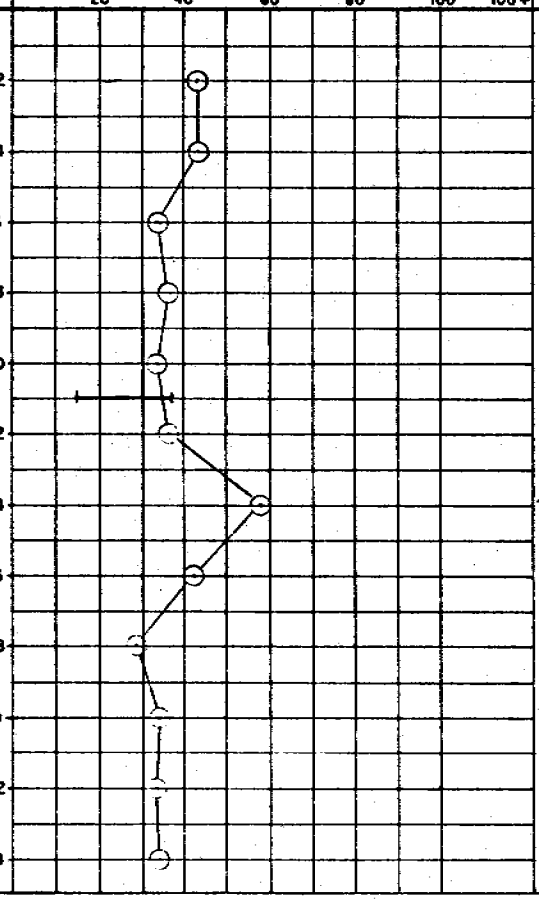
CKD: [illegible] | TECH: [illegible] | RIG: [illegible] | SURFACE DRAINAGE: FAIR | VEGETATION: [illegible] | ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
[illegible]	[illegible]	165'

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					PT	PEAT									Dwarf Spruce with Tamarack to 40' [illegible]
					CI	CLAY: silt, medium plastic, brown — 4		60 %							
2															
4	1														
6															
8															
10	2							45 %							
						9 — grey brown, higher plastic									
12								60 %							
14									43	57					
16					CH	16 — grey, high plastic		70 %							
18	3														
20								45 %							
22															
24						[illegible]									

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



MTL-2-68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. 5 1065

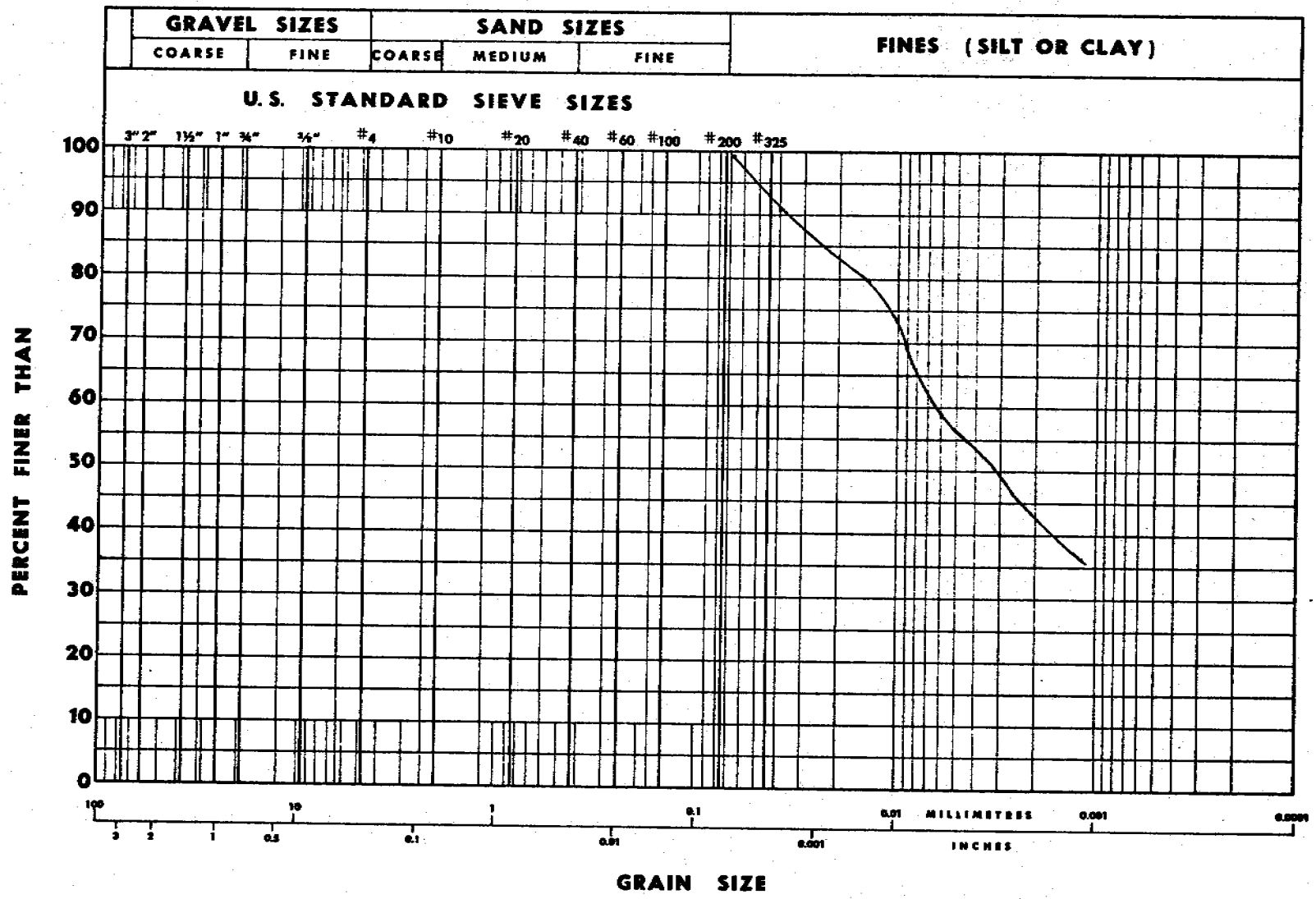
CLIENT F 2510

SAMPLE

SOURCE B11

HOLE 168 DEPTH 14 DATE REC'D.

TECHNICIAN DATE TESTED



REMARKS: _____

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_u _____
C_c _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

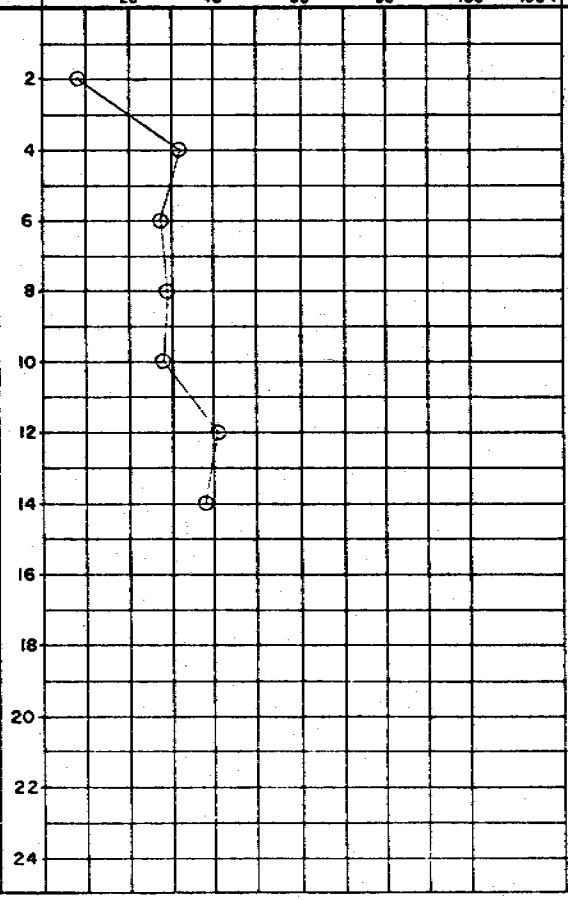
DWN: E.S.	FIELD ENG: H.B.	DATE DRILLED: 17/12/72	AIRPHOTO NO: A22934-165	CHAINAGE:	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
574	B12	169*

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					MH	SILT: SANDY - SLIGHTLY CLAYEY LOW PLASTIC - BROWN (1)	F	Nbn
					SP	SAND: FINE GRAIN NON PLASTIC BROWN (3)		
					ML	SILT: SANDY LOW PLASTIC BROWN (5)		
					CL	CLAYEY MED PLASTIC (7)		
					CI	CLAY: SILTY MED TO HIGH PLASTIC GREY (9)		Vx 5%
					ML	SILT: SLIGHTLY CLAYEY LOW PLASTIC (11)		Nbn
	1				CI	CLAY: SILTY MED PLASTIC GREY (12½)		Vx 35%
					ML	SILT: CLAYEY LOW PLASTIC GREY (14)		Nbn
						END OF HOLE		

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)

REMARKS

SPRUCE - MAX. 10" ϕ 40' TO 50' HIGH
BIRCH - MAX. 8" ϕ 40' HIGH
ODD POPLAR

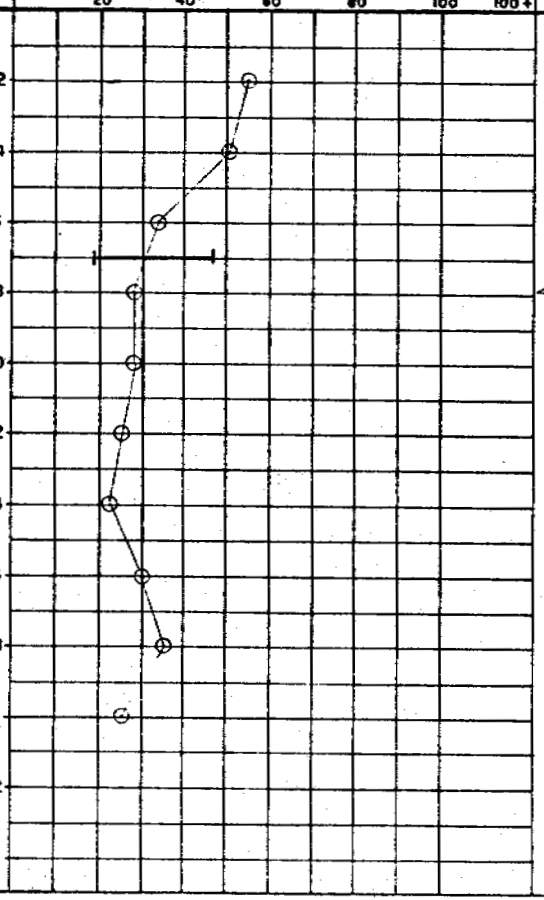
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: G.N.	FIELD ENG: H.B.	DATE DRILLED: 17/12/70	AIRPHOTO NO: [illegible]	CHAINAGE:	OFFSET:
QKD: [illegible]	TECH: T.C.	RIG: [illegible]	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	B12	170

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
					Pt	PEAT: Col. #3 — 1/4	T							
2					ML	SILT: clayey, slightly, low medium, brown — 3		Nbn						
								Vy 50%						
4					CI	CLAY: silty, medium plastic — 5								
6	1				ML	SILT: clayey, slightly sandy, low plastic — 8		Vx 20%						
8					CI	CLAY: silty, medium plastic, grey — 10		Vy 10%	47	53				
10					CH	high plastic		Vy 5%						
12														
14														
16								Vy 30%						
18								Vx 20%						
20						[illegible] — 20								
22														
24														



REMARKS

Spruce 6"ϕ, 30' high
Few Birch 4"ϕ, 20' high

MTL-2-68

MATERIALS TESTING LABORATORIES LTD.

GRAIN SIZE CURVE

LAB ORDER NO. S-1063

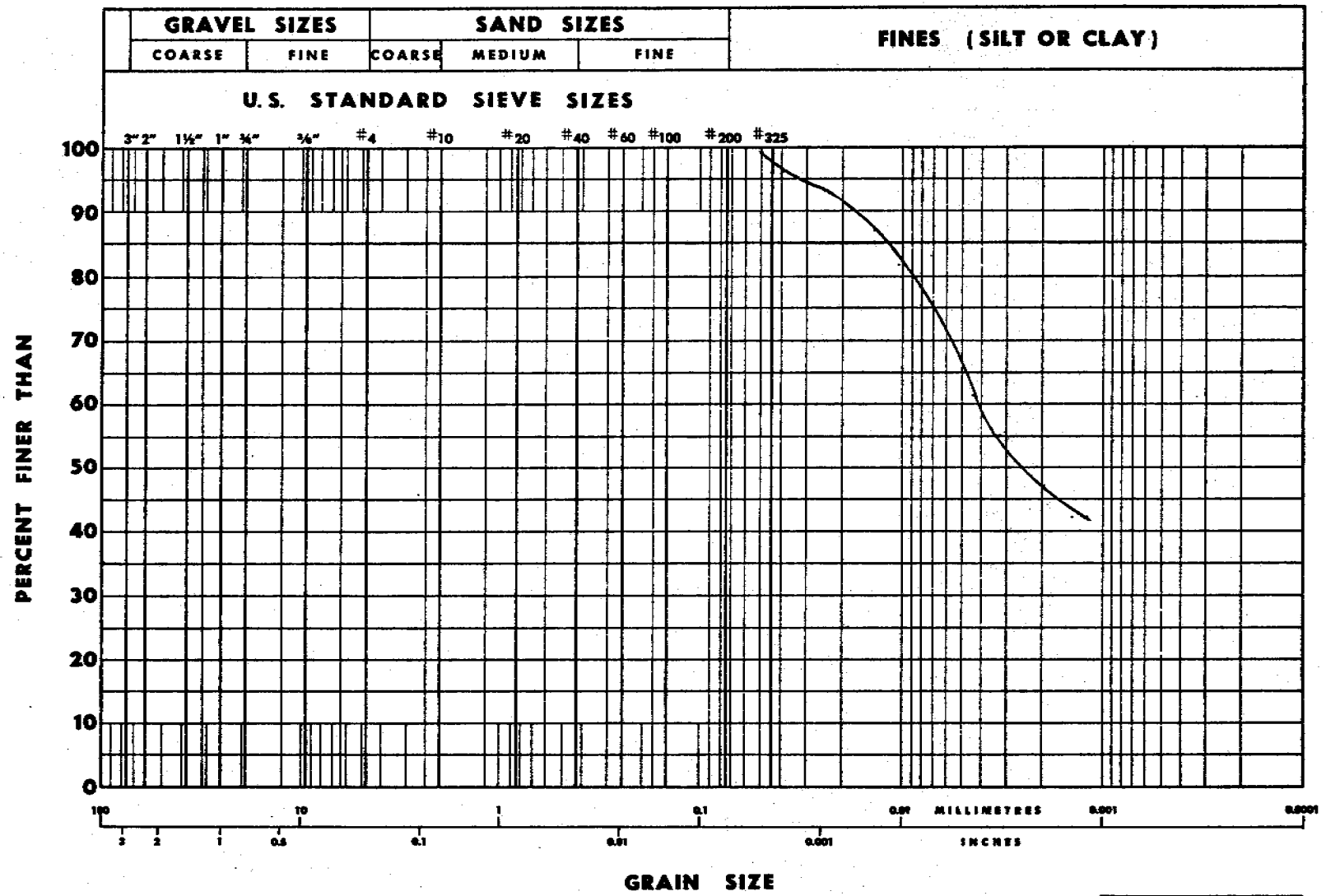
CLIENT E 2510

SAMPLE B12

SOURCE

HOLE #170 DEPTH 8' DATE REC'D.

TECHNICIAN DATE TESTED



REMARKS:

D_{10} = _____ MM.
D_{30} = _____ MM.
D_{60} = _____ MM.
C_u _____
C_c _____

NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

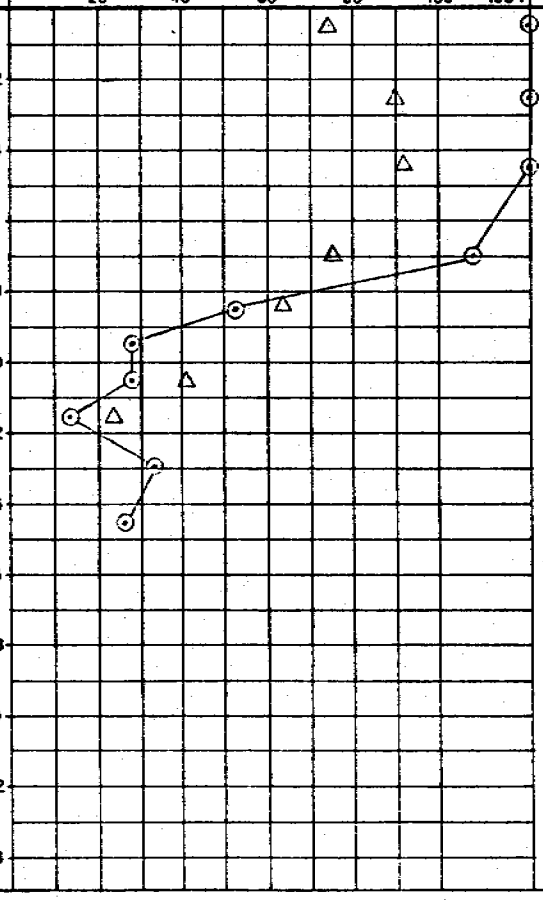
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.N.	FIELD ENG: H.G.	DATE DRILLED: 18/12/72	AIRPHOTO NO: A 20723-24	CHAINAGE: 524 + 15	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: FAILING [illegible]	SURFACE DRAINAGE: FAIR	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	C	171

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	100		PT	[illegible] CATEGORY 10		Vs 60%					47.2	8.5	HOLE [illegible] IN [illegible] OF [illegible]
	2	T	100		PT	CATEGORY 6 + 8	1 F	Vs 20%							
2	3	T	100		PT	CATEGORY 5	2 UF	FREE WATER					91.8	41.2	
					OH	SILT: SANDY CLAYEY HIGH PLASTIC SHELLS CLAY ORGANIC	3	Vs 52%							
4	4	C	94										78.4	37.5	
6								Vs 15%							
	5	C	103		CH	CLAY: HIGH PLASTIC CLAY	7½ F	Vs 50%					82.8	40.4	
8					SM	SAND: FINE NON PLASTIC GREY	9	Vs 20%					101.6	66.6	
10	6	C	103										116.6	91.1	
													113.0	100.1	
12	7	C	100					Vs 15%							
14								[illegible]							
						END OF HOLE	15								
16															
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



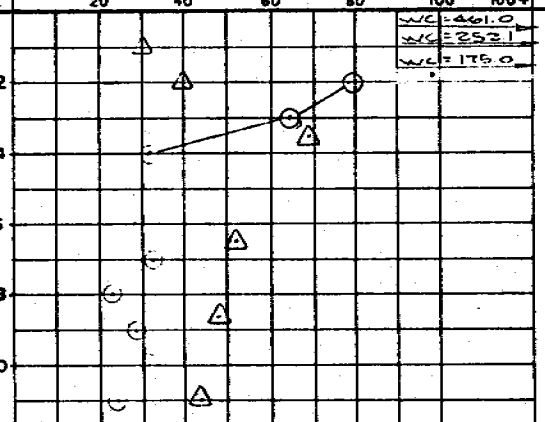
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 18/12/72	AIRPHOTO NO: A22524-75	CHAINAGE: 526+00
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible] SPRUCE

OFFSET:
ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	C	172

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	100		Pt	PEAT:	F	Vx 20%							
2	2	T	100			2									
	3	T	100		CI	CLAY: SILTY MED PLASTIC DARK BROWN		Vx 70%							
4	4	C	100		ML	4 SILT: CLAYEY SLIGHTLY SANDY LOW PLASTIC BROWN		Vx 40%					94.1	56.7	
6					CI	6 CLAY: SILTY MED PLASTIC DARK BROWN		Nbx							
8	5	C	100		SM	8 SAND: SILTY NONPLASTIC		Vx 20%					116.5	87.9	
10	6	C	100		CI CH	9 CLAY: SILTY MED TO HIGH PLASTIC DARK BROWN		Vx 25%					119.6	93.[illegible]	
12													[illegible]	100.7	
14	7	C	86			15							122.6	95.[illegible]	
16	8	C	100		MH	SILT: MED PLASTIC CLAY INCLUSIONS GREY BROWN 16½		Nbe					125.5	[illegible]	
18	9	C	100		CH	CLAY: SILTY HIGH PLASTIC DARK BROWN		Vx 40%					[illegible]	[illegible]	
20						20 END OF HOLE									
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

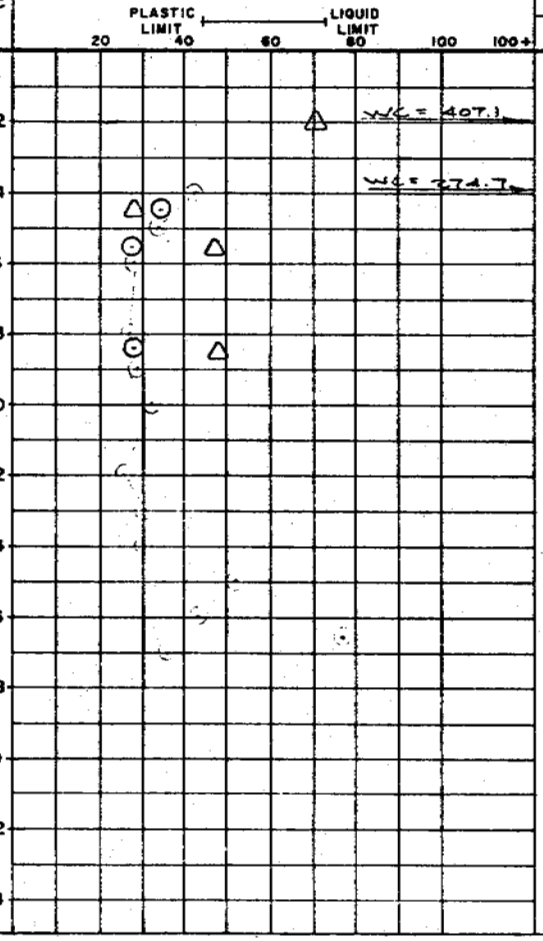
DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 18/12/74	AIRPHOTO NO: A-22024-75	CHAINAGE: 541+00	OFFSET:
CKD:	TECH: TC	RIG: FAILING 1000	SURFACE DRAINAGE: FLAT	VEGETATION: SPRUCE	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
571	C	173

REMARKS

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
1						PEAT: ORGANIC, SILTY, SOME NON WOODY ORGANIC FIBERS	F	Vx 70%						
2	1	C	93		Pt									
4						4								
						SAND: SILTY FINE GRAINED NON PLASTIC DARK BROWN		Vx 10%						
6	2	C	100		SM								61.4	45.8
8													118.6	72.9
10	3	C	100										119.4	72.8
12	4	C	89											
						13								
14						CLAY: SILT LAYERS MED TO HIGH PLASTIC DARK BROWN		Vx Vs 40% 1/4"						
16	5	C	100		CI CH									
						17								
18						END OF HOLE								
20														
22														
24														

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: [illegible]	DATE DRILLED:	AIRPHOTO NO: A-22932-75	CHAINAGE: 550+00	OFFSET:	TEST HOLE
CKD: [illegible]	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:	MILE: 571 · B,C,S: C · NUMBER: 174

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	○ = WATER CONTENT (% OF DRY WEIGHT) △ = ICE CONTENT (% OF SAMPLE VOLUME) (PLASTIC LIMIT 20–40, LIQUID LIMIT 60, 100, 100+)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT:	F	Vx Vs 60%		W.C. = 811.8							
2	1	T							2								
						3½											
4	2	C			SM	SAND: SILTY NON PLASTIC FINE TO MED GRAINED LIGHT BROWN		Vs 2%	4	△					118.5	94.8	
6									6								
8	3	C							8	△					117.7	93.1	
						9											
10	4	C				SLIGHTLY SILTY MED GRAINED BROWN		Vx 10%	10	△					118.0	91.6	
12	5	C							12	△					118.3	93.3	
14									14	△					118.1	92.4	
						15											
16						END OF HOLE			16								
18									18								
20									20								
22									22								
24									24								

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

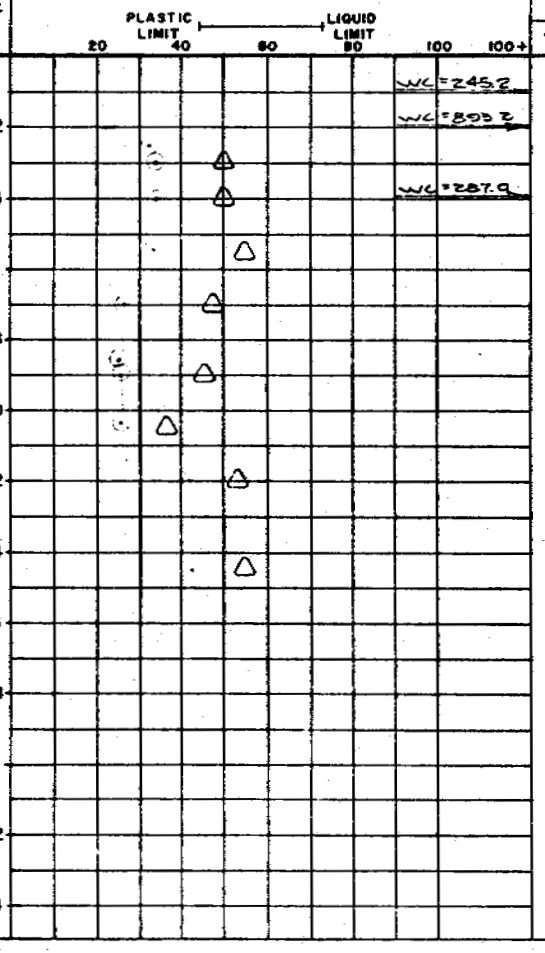
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.S.	DATE DRILLED:	AIRPHOTO NO: A-22[illegible]-1-75	CHAINAGE: 557+70	OFFSET:
CKD: [illegible]	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
571	C	175

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	92		Pt	PEAT: [illegible]	F	Vx 20%							
2	2	T	94												
4	3	C	91												
6	4	C	96		SM	SAND SILTY LOW TO NON PLASTIC MED. GRAINED DARK BROWN — 5½							123.3	93.0	
8													119.7	95.9	
10	5	C	89		SM	TRACE OF SILT NON PLASTIC WELL GRADED — 8½							122.4	97.8	
													101.4	81.0	
12	6	C	96		ML	SILT: SANDY LOW PLASTIC BROWN GREY — 11½							100.6	71.1	
14						END OF HOLE — 14½							102.6	77.8	
16															
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.S.	DATE DRILLED: 18/12/72	AIRPHOTO NO: A-22934-75	CHAINAGE: 570+00
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SUNKEN

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
571	C	176

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					CI CH	CLAY: SLIGHTLY SILTY SAND POCKETS MED TO HIGH PLASTIC GREY	F									
2									2							
						3 — HIGH PLASTIC										
4					CH				4							
						5 — MED TO HIGH PLASTIC										
6					CI CH				6							
						7 — SILTY MED PLASTIC										
8					CI				8							
						9 — SILT: CLAYEY SOME SAND LOW TO MED PLASTIC GREY										
10					ML				10							
						11 — SANDY LOW PLASTIC										
12					ML				12							
						13 — SANDY CLAYEY										
14					ML	14 — END OF HOLE			14							
16									16							
18									18							
20									20							
22									22							
24									24							

O = WATER CONTENT (% OF DRY WEIGHT)
Δ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT

20 40 60 80 100 100+

5 177

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 18/12/72	AIRPHOTO NO: A-22934-76	CHAINAGE: 578+00
CKD:	TECH: TC	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION:

OFFSET: ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
571	C	177

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					OL	SILT: ORGANIC TRACE OF SAND LOW TO NON PLASTIC GREY BROWN	F	25%							
2								20%							
						3									
4					MH	INORGANIC CLAYEY LIGHT BROWN SLIGHTLY SANDY									
						5 LIGHT GREY									
6								75%							
						7 SANDY									
8								20%							
						9									
10					SM	SAND: FINE GRAINED SILTY NON PLASTIC LIGHT GREY									
12															
						11 LOW PLASTIC GREY									
14								80%							
						15									
16					CI	CLAY: SILTY MED PLASTIC GREY									
						16 END OF HOLE									
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⟷ LIQUID LIMIT

20 40 60 80 100 100+

R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: F.B.	DATE DRILLED: 18/12/72	AIRPHOTO NO: A-22934-75	CHAINAGE: 589+15	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SPRUCE	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
570	C	178

REMARKS

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
							F								
2									2						
						SILT: ORGANIC, NON PLASTIC, BLACK, WOOD FIBERS		Vx Vs 35% 1/2"							
4		C			OL				4					111.2	83.1
6						6		Vx 30%	6						
						CLAY: MED. TO HIGH PLASTIC									
8		C							8					113.0	84.6
10		C			CI CH				10						
12									12					116.3	90.7
14		C	67						14					118.5	91.4
						15									
						END OF HOLE									
16									16						
18									18						
20									20						
22									22						
24									24						

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT
20 40 60 80 100 100+

WC = 129.7

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DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: A-22534-76	CHAINAGE: 508 + 15	OFFSET:
CKD: [illegible]	TECH: TC	RIG: [illegible]	SURFACE DRAINAGE: FAIR	VEGETATION: SPRUCE	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
570	C	179

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (PCF)	DRY DENSITY (PCF)	REMARKS
					SM	SAND: FINE SILTY NON PLASTIC LIGHT BROWN	F	1%							
3					ML	SILT: LOW PLASTIC LIGHT BROWN		10%							
5					SM	SAND: FINE GRAINED SILTY NON PLASTIC GREY		9%							
								25%							
								30%							
11					ML	SILT: SANDY LOW PLASTIC GREY		50%							
								80%							
16						END OF HOLE									

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)
PLASTIC LIMIT ⟷ LIQUID LIMIT
20 40 60 80 100 100+

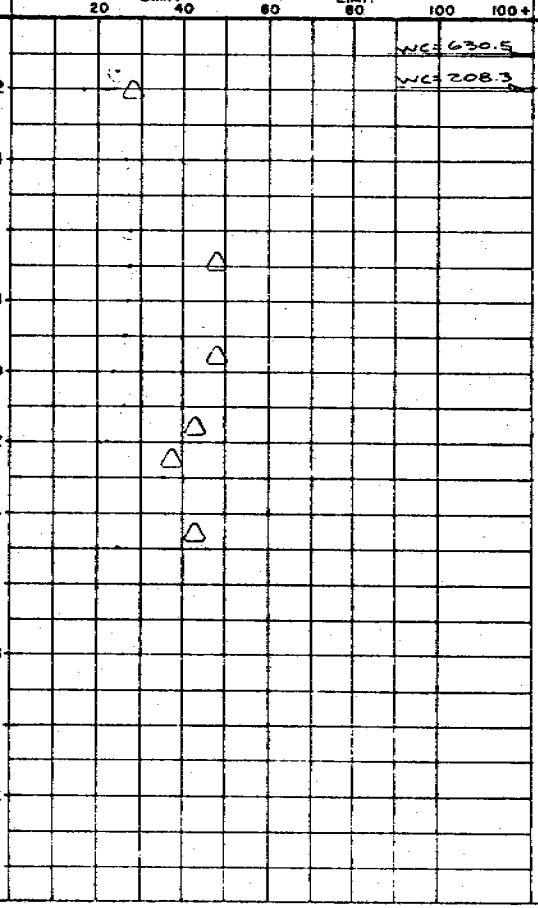
R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B	FIELD ENG: H.B.	DATE DRILLED: [illegible]	AIRPHOTO NO: [illegible]-75	CHAINAGE: 608+30	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
570	C	180

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT:	F	Vx 70%							
						1½									
2	1	T	100		CI	CLAY: SILTY SAND LENSES MED PLASTIC		VxVR 10%					105.3	89.5	
						3		Vx 60%							
4	2	C	100		SM	SAND: SILTY TRACE OF CLAY LOW TO NON PLASTIC BROWN		Vx 10%							
6						6									
8	3	C			ML	SILT: FINE SANDY TRACES OF CLAY NONE PLASTIC BROWN		Vx 20%					118.9	92.3	
						9									
10	4	C			ML	SLIGHTLY SANDY LOW PLASTIC		Nbe 15%					122.2	96.0	
						10½									
						CLAYEY DARK BROWN		Nbe 20%							
12						12		Vx 60%					122.6	98.8	
	5	C				MED PLASTIC DARK GREY		Vx 70%					114.3	93.8	
14						14		Vx 60%							
						BROWN									
						15									
16						END OF HOLE									
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

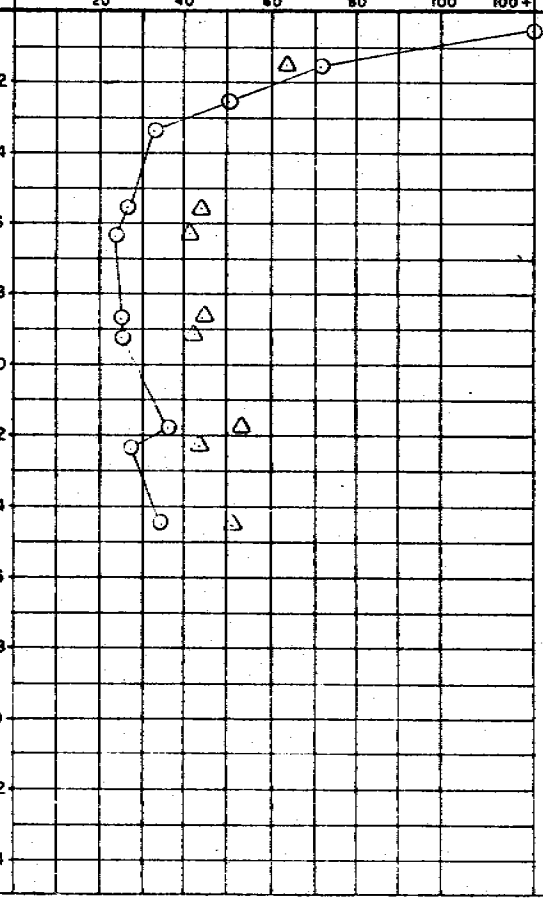


R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: C.N.	FIELD ENG: H.B.	DATE DRILLED: 17/12/74	AIRPHOTO NO: A22934-163	CHAINAGE:	OFFSET:
CKD:	TECH: J.H.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	C	181

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
	1	T	100		PT	PEAT Category #1	F	Nbn							Tamarack upto 40' high, few birch, Dwarf Spruce, & Willow.
2	2	T	108		SM	SAND: SILT organic		Nbn					84.8	49.5	
	3	T	0			no organics fine sandy silty non plastic brown									
4	4	C	85												
6								Vx = 3%					118.2 / 120.8	92.5 / 97.9	
8	5	C	94										118.2 / 124.1	94.4 / 98.9	
10								Vx = 1%							
	6	C	99												
12					CH	CLAY high plastic grey		Vx = 30%					113.6 / 113.5	83.7 / 88.9	
14	7	C	100					Vx = 40%					109.7	81.3	
16						End of HOLE @ 15'									
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

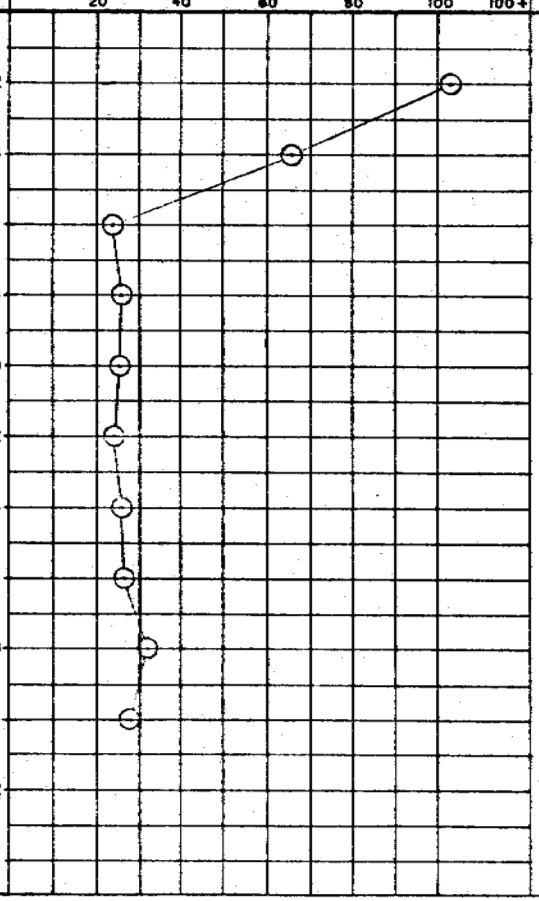
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.S.	FIELD ENG: G.M.	DATE DRILLED: 8/1/73	AIRPHOTO NO: A22933-28	CHAINAGE:	OFFSET:
CKD:	TECH: D.H.	RIG: FAILING 1000	SURFACE DRAINAGE: POOR	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	814	182

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	MOSS: 1/2	F	40%
					Pt	PEAT: 1½		
2					CI	CLAY: SILTY, MED PLASTIC, FEW ORGANICS, MOTTLED LIGHT TO DARK BROWN, CHARCOL — 3		35%
4								
						— 5		15%
6					ML	SILT: CLAYEY, FINE SANDY, LOW PLASTIC, BROWN, NO SAND, MOTTLED LIGHT DARK BROWN — 7		10%
8								
						TRACE OF FINE SAND, MOTTLED LIGHT GREY BROWN — 9		
10								
12								
						— 13		
14					CI	CLAY: SILTY, MED TO HIGH PLASTIC, DARK GREY		
16								
18								
20						— 20		
22						END OF HOLE		
24								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

TAMARACK 15 TO 20 ft HIGH - ODD BIRCH

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: G.M.	DATE DRILLED: 8/1/73	AIRPHOTO NO: A22933-29	CHAINAGE:	OFFSET:
CKD:	TECH: D.R.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS	ELEV:

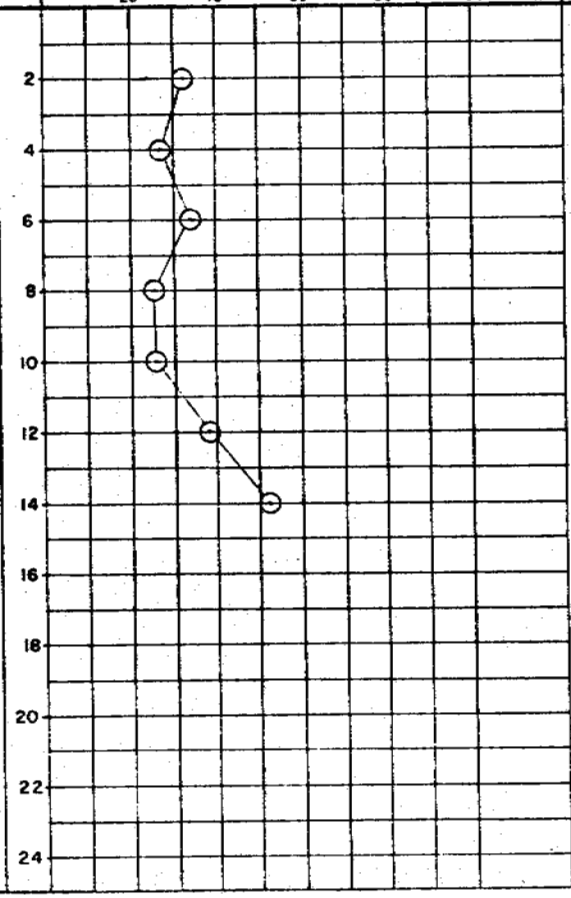
TEST HOLE		
MILE	B,C,S	NUMBER
572	814	183

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT: 1/2	F	Nbn
2					CI	CLAY: SILTY MED PLASTIC LT. BROWN		
4								Vx 25%
						LIGHT TO DARK BROWN 5		
6								Vx 10%
						7		
8					ML	SILT: SANDY TRACE OF CLAY LOW PLASTIC LIGHT BROWN 9		
10					CI	CLAY: SILTY TRACE OF FINE SAND MED PLASTIC GREY BROWN		Vx 5%
12								Vx 20%
						12		
					CH	HIGH PLASTIC GREY		Vs 40%
14						14		
						END OF HOLE		
16								
18								
20								
22								
24								

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⟷ LIQUID LIMIT

20 40 60 80 100 100+



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

SPRUCE 30 FT. HIGH SCATTERED BIRCH & WILLOW

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

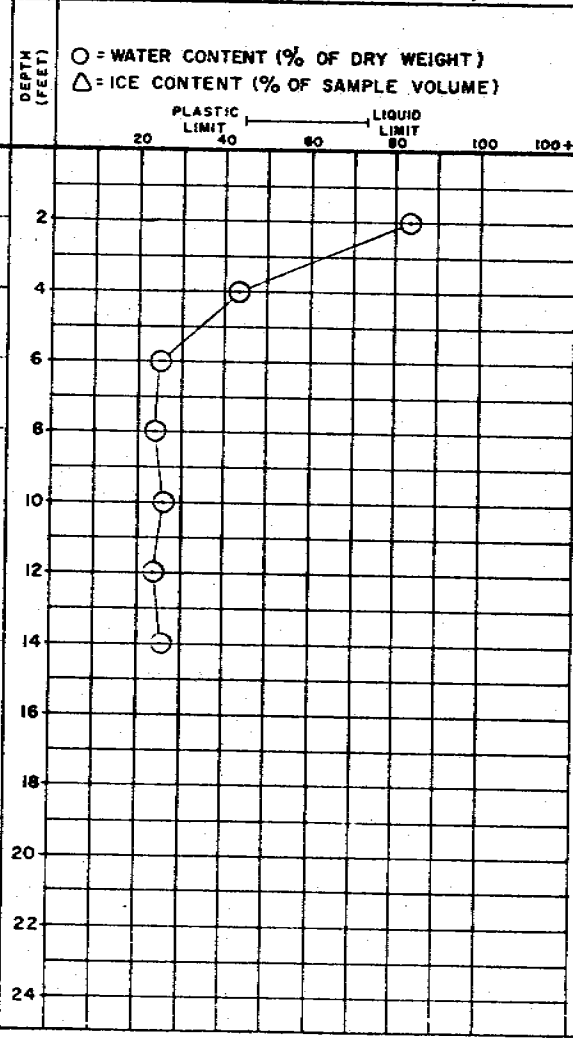
DWN: E.B.	FIELD ENG: G. M.	DATE DRILLED: 8/1/73	AIRPHOTO NO: A22933-29	CHAINAGE:
CKD:	TECH: D. R.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SPRUCE, BIRCH

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	B14	184

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0–3					MH	SILT: CLAYEY SLIGHTLY SANDY LOW TO MED PLASTIC LIGHT BROWN	F	80%							
3–6					CI	CLAY: SILTY MED TO HIGH PLASTIC LIGHT BROWN		40%							
6–8					CH	SLIGHTLY SILTY HIGH PLASTIC DARK BROWN		20%							
8–14					CI	MED PLASTIC		25%							
14						END OF HOLE		20%							
								15%							
								20%							



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

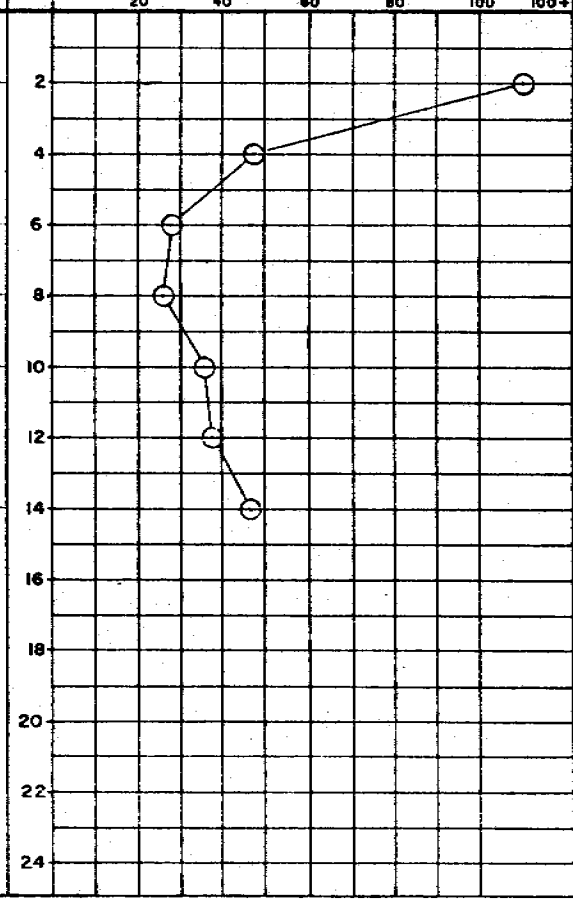
DWN: E. B.	FIELD ENG: G. M.	DATE DRILLED: 8/1/73	AIRPHOTO NO: A22953-27	CHAINAGE:
CKD:	TECH: D. R.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
571	815	185

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					Pt	PEAT:	F	40%
						1½		
2					OL	SILT: ORGANIC, FINE SAND, LOW PLASTIC, DARK BROWN		30%
4						4		
					CI	CLAY: SILTY, MED TO HIGH PLASTIC, LIGHT BROWN, TRACE OF ORGANICS		
6						6		25%
						NO ORGANICS		
8								50%
10								30%
12						12		40%
						SLIGHTLY SANDY		
14						14		
						END OF HOLE		
16								
18								
20								
22								
24								



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

HEAVY TIMBER, SPRUCE 4 TO 6 IN. Φ, OCCASIONAL WILLOW

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: RMH	FIELD ENG: H B	DATE DRILLED: 19/12/72	AIRPHOTO NO: A-22034-163	CHAINAGE:	OFFSET:
CKD:	TECH: J H	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE REMARKS	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
574	B-12	186

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					PT	PEAT: CAT. #1		
					ML	SILT: CLAYEY LOW-MED. PLASTIC BROWN	F	Vx 25%
2							UF	
4							F	Vx 3%
6								
8					CI	CLAY: SILTY MED-HIGH PLASTIC BROWN		
10						GREY		
12								Vs
14								
16						END OF HOLE		
18								
20								
22								
24								

O = WATER CONTENT (% OF DRY WEIGHT)
Δ = ICE CONTENT (% OF SAMPLE VOLUME)
PLASTIC LIMIT — LIQUID LIMIT
20 40 60 80 100 100+

DEPTH (FEET)	CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
2						
4						
6						
8						
10						
12						
14						
16						
18						
20						
22						
24						

REMARKS

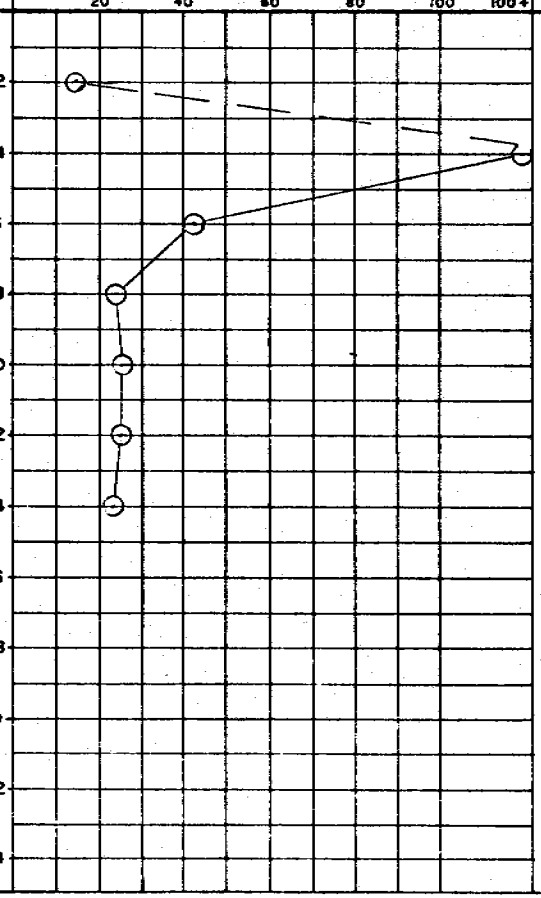
TAMARACK TO 30', BIRCH & SMALL SPRUCE, MEDIUM DENSE

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: G. M.	DATE DRILLED: 8/1/73	AIRPHOTO NO: A 22234-28	CHAINAGE:	OFFSET:
CKD:	TECH: D.H	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION:	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	B14	137

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	PEAT:	F	50%							SPRUCE 15' to 20' HIGH, SCATTERED [illegible]
2					OL	SILT: ORGANIC INCLUSIONS CLAYEY, SANDY: LOW TO NON PLASTIC, TRACE OF FINE SAND LIGHT BROWN		70%							Gs = 2.73
4															
6					ML	TRACES OF CLAY NO ORGANICS		30%							Gs = 2.76
8					CI	CLAY: SILTY MED TO HIGH PLASTIC BROWN		5%							
10															
12						SHALE INCLUSIONS									
14															
16						END OF HOLE									
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

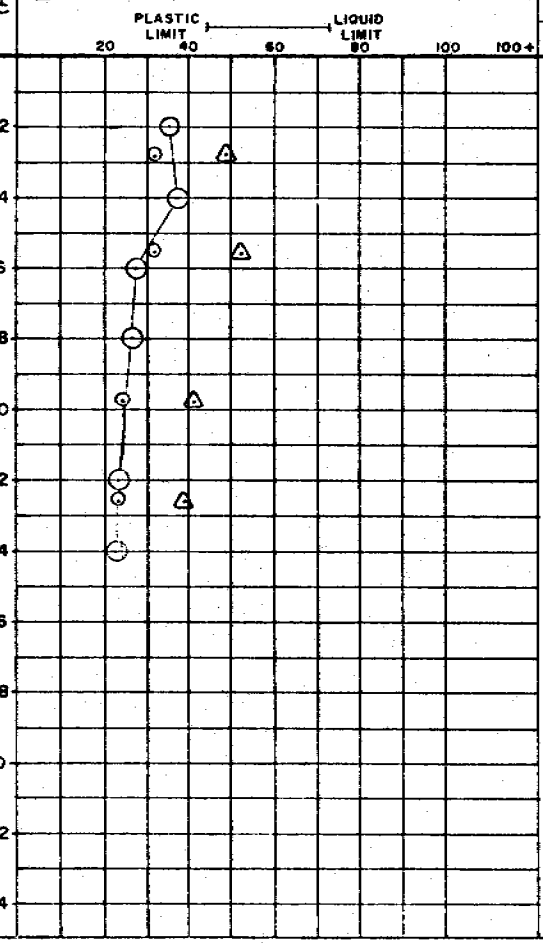
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED: 19/12/72	AIRPHOTO NO: A-27034-161	CHAINAGE:	OFFSET:
CKD:	TECH: T.C.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION: SEE SUMMARY	ELEV:

TEST HOLE

MILE	B,C,S	NUMBER
578	B7	188

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					PT	PEAT: CAT. # 3 — 1/2	F								BIRCH UP TO 12" ϕ ? 40' HIGH, SPRUCE 30 TO 40' HIGH
					SM	SAND: MED GRAINED — 1									
2					ML	SILT: FINE SANDY NON PLASTIC BROWN		Vs 20% 1/16"							
4	1	C	100			— 4							115	88	
					CI	CLAY: SILTY MED PLASTIC SILT LENSES MOTTLED LT. DK. BROWN		Vs Vx 30% 1/8"							
6	2	C	100					Vx Vc Vs 25% 1/16"					122	93	
8						— 8									
					CI	SALTS BROWN		Vx 15%							
10	3	C	100										114	92	
						— 11									
12	4	C	100		CI	DARK BROWN		Vx 20%					113	92	
14						— 14									
						END OF HOLE									
16															
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

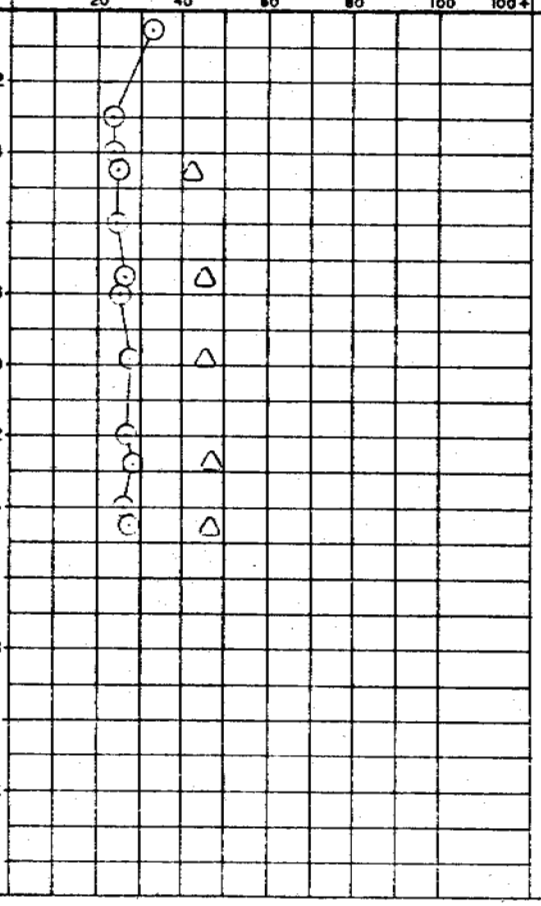
DWN: E.S.	FIELD ENG: G.M.	DATE DRILLED: 7/1/73	AIRPHOTO NO: A-22534-162	CHAINAGE:
CKD: [illegible]	TECH: I.G.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SEE REMARKS

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
579	B-5	189

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
	1	T	100			SAND: SILTY FINE GRAINED NON PLASTIC LIGHT BROWN FAIRLY UNIFORM	F	Nbn						
2	2	T	100		SM									
	3	T	100											
4	4	C	90										116.5	93.7
6														
8	5	C	100										117.6	92.6
10	6	C	90					Nbe					117.5	91.9
12														
14	7	C	98										115.8	89.6
						END OF HOLE — 15							117.1	91.3
16														
18														
20														
22														
24														



REMARKS

SPRUCE, 40' HIGH, 1' ϕ; ODD BIRCH & WILLOW MED DENSE

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

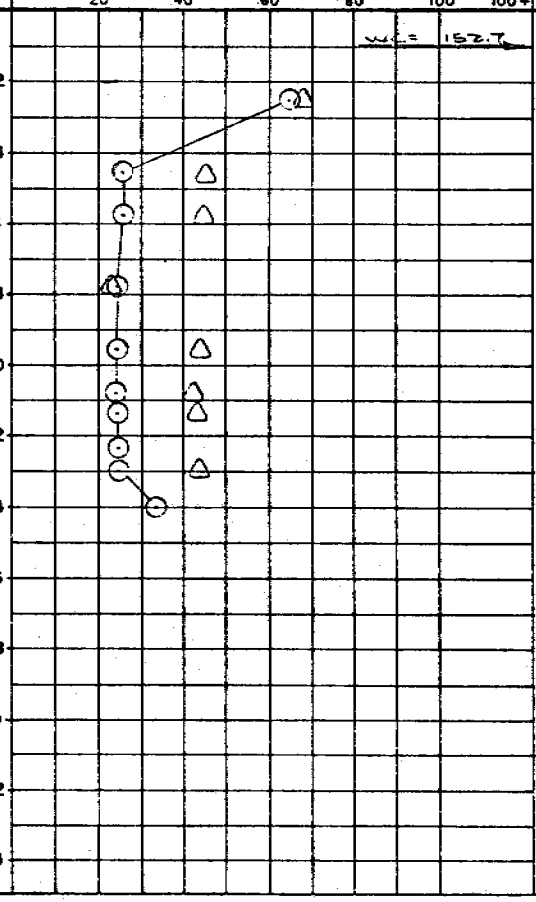
DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: G.Mc.	DATE DRILLED: 7/1/75	AIRPHOTO NO: A22233-23	CHAINAGE:
CKD:	TECH: I.G.	RIG: FAILING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: DWARF SPRUCE, 20', 4"ϕ

OFFSET:
ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
582	B1	190

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
		T			Pt	PEAT: 1	F	Vx 30%							
2		T			ML	SILT: FINE SAND LENSES, TRACE OF CLAY, LOW PLASTIC, LIGHT BROWN 3		Vs 50%							
4	1	C	100					Vs 40% 1/4"					94.2	57.2	
					SM	SAND: SILTY, FINE GRAINED, TRACE OF CLAY, LOW PLASTIC, LIGHT BROWN							119.3	94.4	
6	2	C	100					Nbn					120.0	95.7	
8						NON CLAYEY 8							118.6	95.6	
10	3	C	100										121.7	98.1	
													122.9	99.6	
12	4	C	100										120.8	97.4	
													120.5	96.6	
14						END OF HOLE 14									
16															
18															
20															
22															
24															



R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED:	AIRPHOTO NO: A 22934-163	CHAINAGE:
CKD:	TECH: TC	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION:

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
574	B12	191

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					ML	SILT: SLIGHTLY CLAYEY LOW PLASTIC DK. BROWN	F	5%							
3															
	1	T	83		CI	CLAY: VERY SILTY MED PLASTIC DARK BROWN							124.0	105.7	
4								Vx 10%							
	2	C	83		ML	SILT: SLIGHTLY SILTY LOW PLASTIC DARK BROWN									
6								Vx 45%					114.4	89.8	
					CI	CLAY: SILTY MED PLASTIC BROWN									
7½								Vx 70%							
8	3	C	94		CI	SLIGHTLY SILTY DARK BROWN							119.7	98.4	
								Vx 75%							
10								Vx 70%							
	4	C	92		CH	MED TO HIGH PLASTIC							118.4	94.2	
12															
	5	C	92		CI	SILTY MED PLASTIC							119.2	90.9	
14															
15						END OF HOLE							115.8	96.5	
16															
18															
20															
22															
24															

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: H.B.	DATE DRILLED:	AIRPHOTO NO: A 22934-163	CHAINAGE:
CKD:	TECH: TC	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION:

OFFSET:
ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
575	B11	192

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
						PEAT: 1/4									
2					ML	SILT: FINE SANDY, NON PLASTIC, TRACE OF CLAY, LT. BROWN — 2½	F	Nbn							
4	1	C	86		ML	LOW PLASTIC, DARK BROWN		Vs 5%					118.4	93.9	
6	2	C	100		CH	CLAY: SILTY, MED TO HIGH PLASTIC, DARK BROWN, SILT LENSES — 5							119.7	94.7	
8								VR Vs 50%							
10	3	C	100										121.5	96.6	
12	4	C	100					VR VR 20%					124.2	101.0	
14						END OF HOLE — 14							126.4	104.6	
16															
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⟷ LIQUID LIMIT
20 40 60 80 100 100+

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.G.	FIELD ENG: G.M.	DATE DRILLED: 21/1/73	AIRPHOTO NO: A-22773-90	CHAINAGE: [illegible]
CKD:	TECH: D.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: [illegible]

OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	S	193

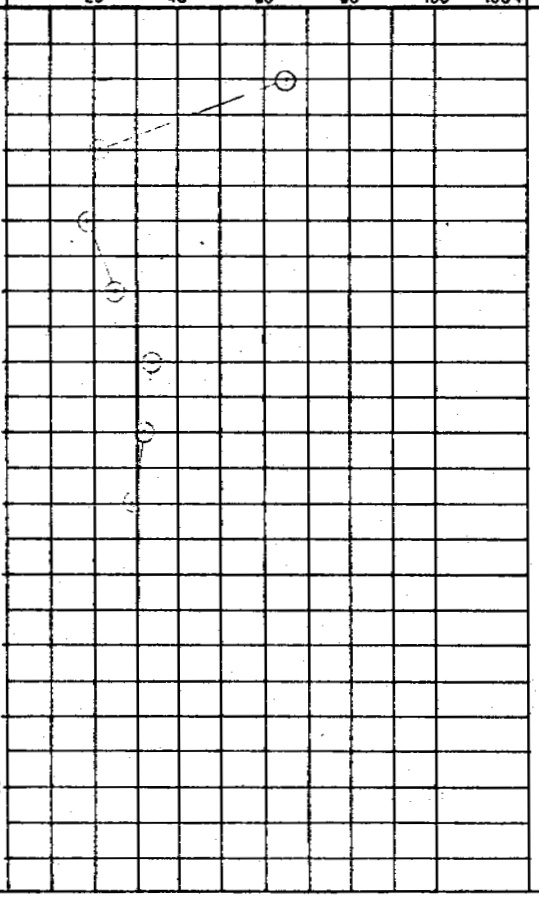
DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
					CL	SILT: ORGANIC, SANDY BLACK, MED. PLASTIC	F	Nbn							
2									2						
						3									
4						FINE SANDY NON PLASTIC			4						
					ML										
6									6						
8									8						
10						10			10						
						CLAYEY									
12									12						
14						14			14						
						END OF HOLE									
16									16						
18									18						
20									20						
22									22						
24									24						

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT

20 40 60 80 100 100+

GRAIN-SIZE ANALYSIS



REMARKS

DRILLED ON C.N.T LINE SEE MILE SHEET (MOSAIC) 38.

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: S.P.	FIELD ENG: G.M.	DATE DRILLED: 21/1/73	AIRPHOTO NO: A-22773-90	CHAINAGE: [illegible]	OFFSET:
CKD: [illegible]	TECH: D.H.	RIG: FAIRBANKS 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	S	194

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	○ = WATER CONTENT (% OF DRY WEIGHT) △ = ICE CONTENT (% OF SAMPLE VOLUME) (PLASTIC LIMIT — LIQUID LIMIT; 20, 40, 60, 80, 100, 100+)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					Pt	SILT: ORGANIC SANDY NON PLASTIC BROWN — 1	F	Nbn									DRILLED ON C.N.T. LINE SEE MILE SHEET (MOSAIC) 38.
2					ML				2								
4									4								
6						CLAYEY MED PLASTIC — 6			6								
8									8								
10					ML				10								
12									12								
14						END OF HOLE — 14			14								
16									16								
18									18								
20									20								
22									22								
24									24								

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: S.M.	DATE DRILLED: 21/1/73	AIRPHOTO NO: A 22773-89	CHAINAGE:
CKD:	TECH: D.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SPARSE

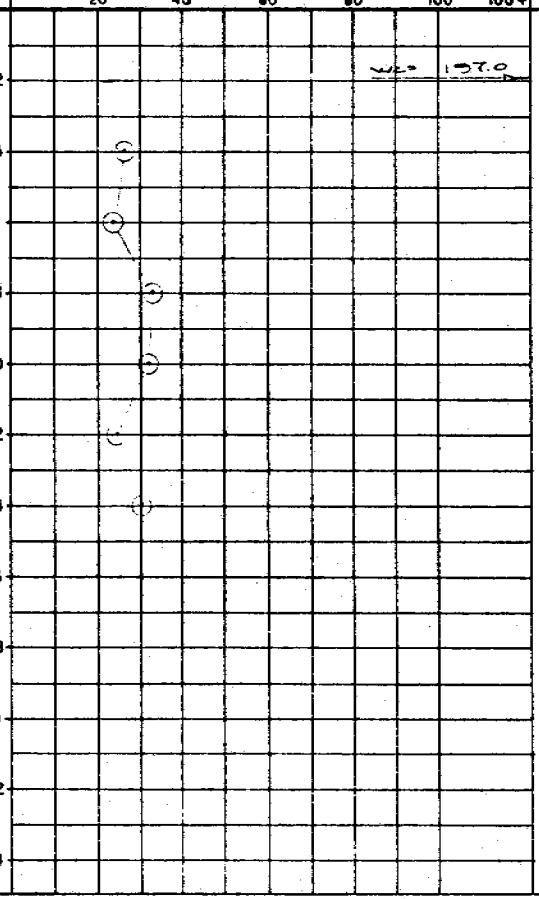
OFFSET:

ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	S	195

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
0–3					CL	SILT: ORGANIC BLACK	F	NON							DRILLED ON CNT LINE, SEE MILE SHEET (MOSAIC) 38.
3–14					ML	SANDY CLAYEY MED PLASTIC BROWN									
14						END OF HOLE									

O = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.F.	FIELD ENG: G.M.	DATE DRILLED: 21/1/73	AIRPHOTO NO: A-22773-89	CHAINAGE: [illegible]	OFFSET:
CKD: [illegible]	TECH: D.H.	RIG: FRELING 1000	SURFACE DRAINAGE: [illegible]	VEGETATION: [illegible]	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
571	S	196

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					OL	SILT: ORGANIC BLACK	F	Nbn							DRILLED ON CUT LINE SEE SHEET 38
2															
						3									
4						SAND / CLAY MED PLASTIC BROWN									
6															
					ML										
8															
10															
12															
14						14 END OF HOLE									
16															
18															
20															
22															
24															

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT

20 40 60 80 100 100+

R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

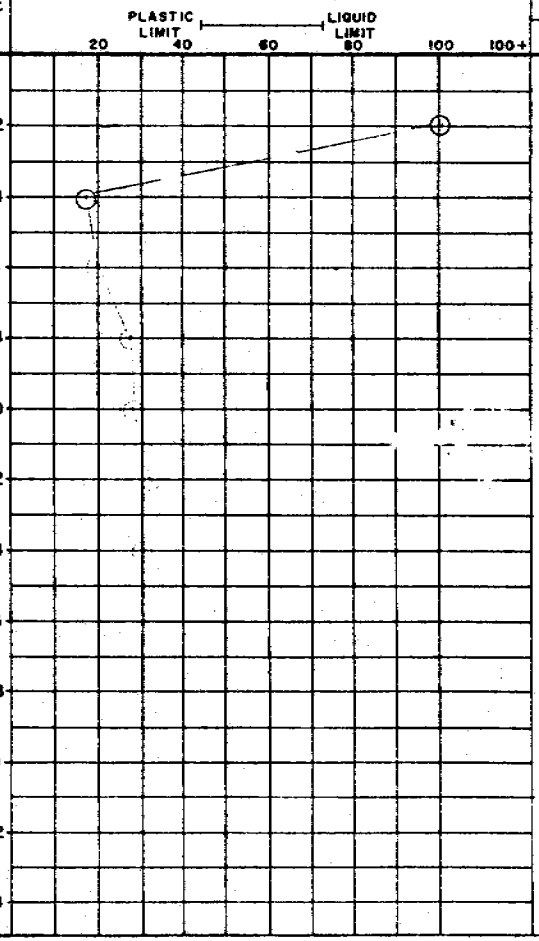
DWN: E.P.	FIELD ENG: G.M.	DATE DRILLED: 21/1/73	AIRPHOTO NO: A 22773-89	CHAINAGE:
CKD:	TECH: D.H.	RIG: FAILING 1000	SURFACE DRAINAGE:	VEGETATION:

OFFSET:
ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
571	S	197

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION
					OL	SILT ORGANIC	F	Nbn
2						2		
					SM	SAND: SILTY FINE GRAINED MED PLASTIC BROWN ODD ROOT FIBRES.		
6						6		
					ML	SILT: CLAYEY SANDY MED PLASTIC GREY BROWN		
14						14		
						END OF HOLE		

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)



GRAIN-SIZE ANALYSIS				WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
CLAY %	SILT %	SAND %	GRAVEL %		

REMARKS

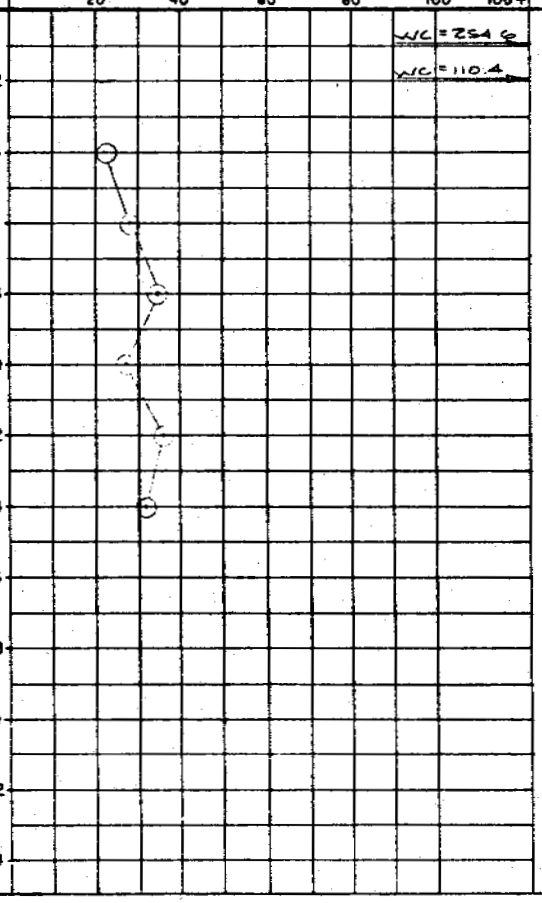
DRILLED ON ℄ N.T. LINE, SEE MILE SHEET 38.

R.M. HARDY AND ASSOCIATES LTD. — DRILL HOLE REPORT — DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.S.	FIELD ENG: G.M.	DATE DRILLED: 21/1/73	AIRPHOTO NO: A 22773-29	CHAINAGE:	OFFSET:
CKD:	TECH: F.C.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SPRUCE - 10' TO 20' - 5%	ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
571	S	198

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)	REMARKS
					OL	SILT: ORGANIC, SANDY, MED PLASTIC, BLACK,	F	Nbn							DRILLED ON C.N.T. LINE SEE MILE SHEET 38.
3					SM	SAND: VERY SILTY FINE GRAINED NON PLASTIC BROWN									
5						SILT,									
7					ML	SILT: CLAYEY SLIGHTLY SANDY LOW TO MED PLASTIC GREY BROWN									
14						END OF HOLE									



R.M. HARDY AND ASSOCIATES LTD.

DRILL HOLE REPORT

DEPARTMENT OF PUBLIC WORKS, CANADA
MACKENZIE HIGHWAY

DWN: E.B.	FIELD ENG: G. Mc.	DATE DRILLED: 21/1/73	AIRPHOTO NO: A-22773-90	CHAINAGE:
CKD:	TECH: D.H.	RIG: FAILING 1000	SURFACE DRAINAGE: FAIR	VEGETATION: SPRUCE, BOG

OFFSET:

ELEV:

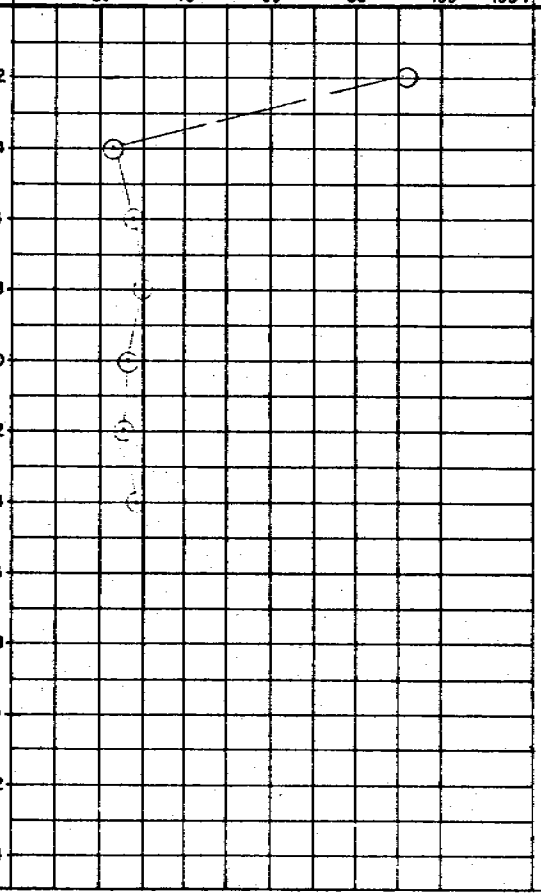
TEST HOLE		
MILE	B,C,S	NUMBER
573	S	199

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	GRAIN-SIZE ANALYSIS CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
					Pt	SILT: ORGANIC	F	Nbn							
2						FINE SANDY NON PLASTIC BROWN — 2			2						
4									4						
6					MH				6						
8									8						
10									10						
12						CLAYEY — 12			12						
14						END OF HOLE — 14			14						
16									16						
18									18						
20									20						
22									22						
24									24						

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT

20 40 60 80 100 100+



REMARKS

DRILLED ON CNT. LINE SEE MILE SHEET 38.

R.M. HARDY AND ASSOCIATES LTD.	DRILL HOLE REPORT	DEPARTMENT OF PUBLIC WORKS, CANADA MACKENZIE HIGHWAY

DWN: E.B. | FIELD ENG: G. Mc. | DATE DRILLED: 21/1/73 | AIRPHOTO NO: A 22773-90 | CHAINAGE: | OFFSET:

CKD: | TECH: D.H. | RIG: FAILING 1000 | SURFACE DRAINAGE: FLAT | VEGETATION: | ELEV:

TEST HOLE		
MILE	B,C,S	NUMBER
572	S	200

DEPTH (FEET)	SAMPLE NUMBER	SAMPLE TYPE	% RECOVERY	PENETRATION RESISTANCE	UNIFIED SOIL SYMBOL	SOIL DESCRIPTION	LIMITS OF FROZEN GROUND	ICE DESCRIPTION	DEPTH (FEET)	CLAY %	SILT %	SAND %	GRAVEL %	WET DENSITY (P.C.F.)	DRY DENSITY (P.C.F.)
					OL	SILT: ORGANIC, SANDY, MED. PLASTIC, BLACK, ROOTLETS	F	Nbn							
2									2						
						3									
4						FINE SANDY, NON PLASTIC, BROWN			4						
6					MH				6						
8						8 CLAYEY			8						
10									10						
12									12						
14						14 END OF HOLE			14						
16									16						
18									18						
20									20						
22									22						
24									24						

○ = WATER CONTENT (% OF DRY WEIGHT)
△ = ICE CONTENT (% OF SAMPLE VOLUME)

PLASTIC LIMIT — LIQUID LIMIT
20 40 60 80 100 100+

WC = 170.7

GRAIN-SIZE ANALYSIS

REMARKS: DRILLED ON C.N.T. LINE SEE MILE SHEET 38.