

Volume II

BOREHOLE LOGS FOR THE BEAUFORT SEA

Gulf Canada Resources Inc. and
Indian and Northern Affairs Canada

0306-34413

May, 1988

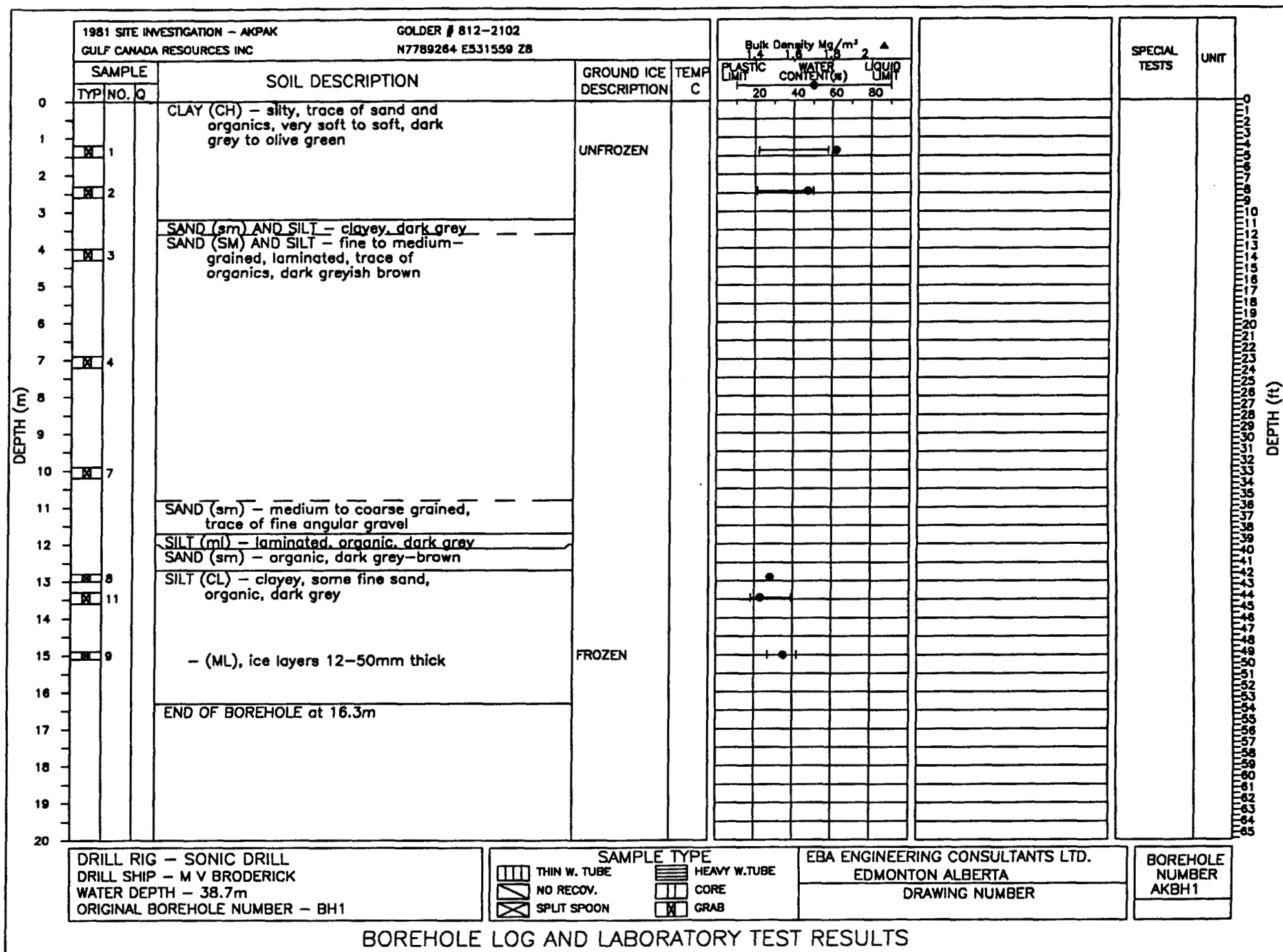


GULF CANADA RESOURCES LTD.

<u>APPENDIX</u>	<u>YEAR OF STUDY</u>	<u>CONSULTANT</u>	<u>CONSULTANT'S JOB NO.</u>
A	1981	Golder	812-2102
B	1982	EBA	101-3641 101-3657 101-3662 101-3663 101-3685
		Hardy	CG14038
C	1983	EBA	101-3862 101-3865 101-3866
D	1984	EBA	101-4098 101-4101 101-4118 101-4132 101-4141
E	1985	EBA	101-4416 101-4417 101-4422 101-4423
F	1987	AOE	

INDIAN AND NORTHERN AFFAIRS CANADA

G	1984	EBA	101-4133 101-4159
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1981 SITE INVESTIGATION - AKPAK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7789256 E531670 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.8 2.2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO. Q										20
		SILT (ml) - clayey, trace of sand, very soft, dark grey	UNFROZEN	-1.2							0
											2
		SAND (SM) AND SILT - fine to medium-grained, compact to very dense, some laminae of silty clay, brown to grey brown		-0.9							3
											4
											5
											6
											7
											8
											9
											10
											11
											12
		SAND (SP) - trace silt, fine to medium-grained, dense to very dense, brown, occasional organic and silt/clay layers									13
											14
											15
											16
											17
											18
											19
											20

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 38.0m
 ORIGINAL BOREHOLE NUMBER - BH2

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AKBH2
 PAGE 1 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - AKPAK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7789256 E531670 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2.0				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
		SAND (SP) - (cont'd)										66
	14		UNFROZEN									67
												68
												69
												70
												71
												72
												73
												74
												75
												76
												77
	16											78
												79
												80
	17		FROZEN									81
		SAND (SP) - fine to medium grained, brown, ice bonded										82
												83
												84
												85
												86
												87
												88
												89
												90
												91
												92
												93
												94
												95
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	22											101
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	23											109
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												129
												130
												131

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 38.0m
 ORIGINAL BOREHOLE NUMBER - BH2

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AKBH2
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - AKPAK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7789256 E531670 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO.	Q										
			SAND (SP) - (cont'd)									132
												133
												134
												135
												136
												137
												138
												139
												140
												141
			SILT (ML) - clayey, occasional sand layers hard, dark grey, ice bonded, no visible ice									142
												143
												144
												145
												146
												147
												148
												149
												150
												151
												152
												153
												154
			END OF BOREHOLE AT 46.9m	Nbs FROZEN								155
												156
												157
												158
												159
												160
												161
												162
												163
												164
												165
												166
												167
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												191
												192
												193
												194
												195
												196

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 38.0m
 ORIGINAL BOREHOLE NUMBER - BH2

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE
 NUMBER
 AKBH2
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDR # 812-2102 N7780799 E566495 Z8				Bulk Density Mg/m³ ▲ 1.4 1.6 1.8 2 PLASTIC LIMIT 20 40 60 80 WATER CONTENT (%) 20 40 60 80 LIQUID LIMIT 20 40 60 80				SPECIAL TESTS		UNIT	
SAMPLE		SOIL DESCRIPTION		GROUND ICE DESCRIPTION		TEMP C									
TYP	NO. Q														
DEPTH (m) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	1	SILT (CL) - clayey, firm to stiff, dark grey/green, trace of medium and fine sand		UNFROZEN											
	3	SAND (SP) - dense, dark grey-brown, medium to fine, trace of silt and coarse sand - silty layers about 5mm thick at 3.0 - 3.3m													
	4	- trace of fine gravel at 8.4 - 8.9m													
	5														
	6														
	7														
	8														
	9														
	10														
	11														
	12														
	13														
	14	9													
	15	11													
	16	13													
	17														
	18														
	19														
	20														

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 27.7m
 ORIGINAL BOREHOLE NUMBER - BH1

SAMPLE TYPE	
THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBBH1
 PAGE 1 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7780799 E568495 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2					SPECIAL TESTS	UNIT	
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC WATER LIQUID LIMIT CONTENT(%) LIMIT								
TYP	NO. Q				20	40	60	80					
20		SAND (SP) - (cont'd)											88
21													89
22	X 15												90
23													91
24													92
25													93
26	X 17												94
27													95
28													96
29	X 19												97
30													98
31													99
32	X 21												100
33													101
34													102
35	X 22												103
36													104
37													105
38	X 23												106
39													107
40	X 24												108
													109
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												130	
												131	

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 27.7m
 ORIGINAL BOREHOLE NUMBER - BH1

SAMPLE TYPE

☐ THIN W. TUBE

☐ NO RECOV.

☐ SPLIT SPOON

☐ HEAVY W. TUBE

☐ CORE

☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBBH1
 PAGE 2 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7780799 E566485 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
40	24											32
41												33
42												34
43	25	SILT (CL) - some clay, black organic layers, thinly bedded with frequent silt partings, stiff to very stiff, dark grey										35
44												36
45												37
46	26	- (ML), ice crystals below 46.2m END OF BOREHOLE at 46.5m	FROZEN	-2.2								38
47												39
48												40
49												41
50												42
51												43
52												44
53												45
54												46
55												47
56												48
57												49
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												96

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 27.7m
 ORIGINAL BOREHOLE NUMBER - BH1

SAMPLE TYPE

THIN W. TUBE

NO RECOV.

SPLIT SPOON

HEAVY W. TUBE

CORE

GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBBH1
 PAGE 3 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

GOLDER # 812-2102
N7780908 E566505 Z8

DEPTH (m)

DEPTH (ft)

SAMPLE TYPE			
	THIN W. TUBE		HEAVY W. TUBE
	NO RECOV.		CORE
	SPLIT SPOON		GRAB

BOREHOLE
NUMBER
KBBH2

PAGE 1 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7780908 E568505 Z8		Bulk Density Mg/m³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
20	X 12	SAND (SP) - (cont'd)		-1.7								66
21	X 13			1.1								67
22												68
23	X 14			-1.1								69
24												70
25	X 15			-1.7								71
26	X 16			-1.7								72
27												73
28	X 17			-1.7								74
29	X 18			-1.1								75
30												76
31	X 19			-2.2								77
32												78
33	X 20			-2.2								79
34												80
35												81
36	X 21											82
37												83
38												84
39	X 22											85
40												86
												87
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DRILL RIG -- SIMCO 5000
 DRILL SHIP -- M V BRODERICK
 WATER DEPTH -- 26.5m
 ORIGINAL BOREHOLE NUMBER -- BH2

SAMPLE TYPE

THIN W. TUBE
 NO RECOV.
 SPLIT SPOON

HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBBH2
 PAGE 2 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7780908 E566503 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2.0			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
TYP	NO.	Q									
40			SAND (SP) - (cont'd)		0.0						32
41	X	23									33
42	X	24									34
43			SILT (CL) - some clay, stiff, grey								35
44		26	- visible fine ice crystals	FROZEN	-1.7						36
45			END OF BOREHOLE at 44.8m								37
46											38
47											39
48											40
49											41
50											42
51											43
52											44
53											45
54											46
55											47
56											48
57											49
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											96

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 26.5m
 ORIGINAL BOREHOLE NUMBER - BH2

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBBH2
 PAGE 3 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7780798 E566596 Z8		Bulk Density Mg/m ³ ▲			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	WATER CONTENT (%)						
TYP	NO. Q				PLASTIC LIMIT	LIQUID LIMIT	WATER CONTENT (%)				
0											0
1	1A	SAND (SM) AND SILT - very loose to compact grey, with trace of clay	UNFROZEN	-0.8							1
2											2
3											3
4	3	SAND (SP) - dense, greyish brown, medium to fine grained, with trace of silt in upper 3m (SM), some layering evident		1.6							4
5	4			-0.4							5
6											6
7	5			0.5							7
8	6			0.6							8
9											9
10											10
11											11
12	7										12
13											13
14											14
15	8			0.8							15
16											16
17											17
18	9			0.3							18
19											19
20											20

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 27.3m
 ORIGINAL BOREHOLE NUMBER - BH3

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBBH3
 PAGE 1 OF 5

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7780798 E566596 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2.0			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
TYP	NO.	Q									
			SAND (SP) - (cont'd)								66
											67
											68
											69
											70
											71
											72
											73
											74
											75
											76
											77
											78
											79
			- 25mm seam of silt with organic inclusions		1.1		40				80
											81
											82
											83
											84
											85
											86
											87
											88
											89
					0.6						90
											91
											92
											93
											94
											95
											96
											97
											98
					1.0		40				99
											100
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											103
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					1.6						109
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					0.2		40				120
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											129
					0.5						130
											131

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 27.3m
 ORIGINAL BOREHOLE NUMBER - BH3

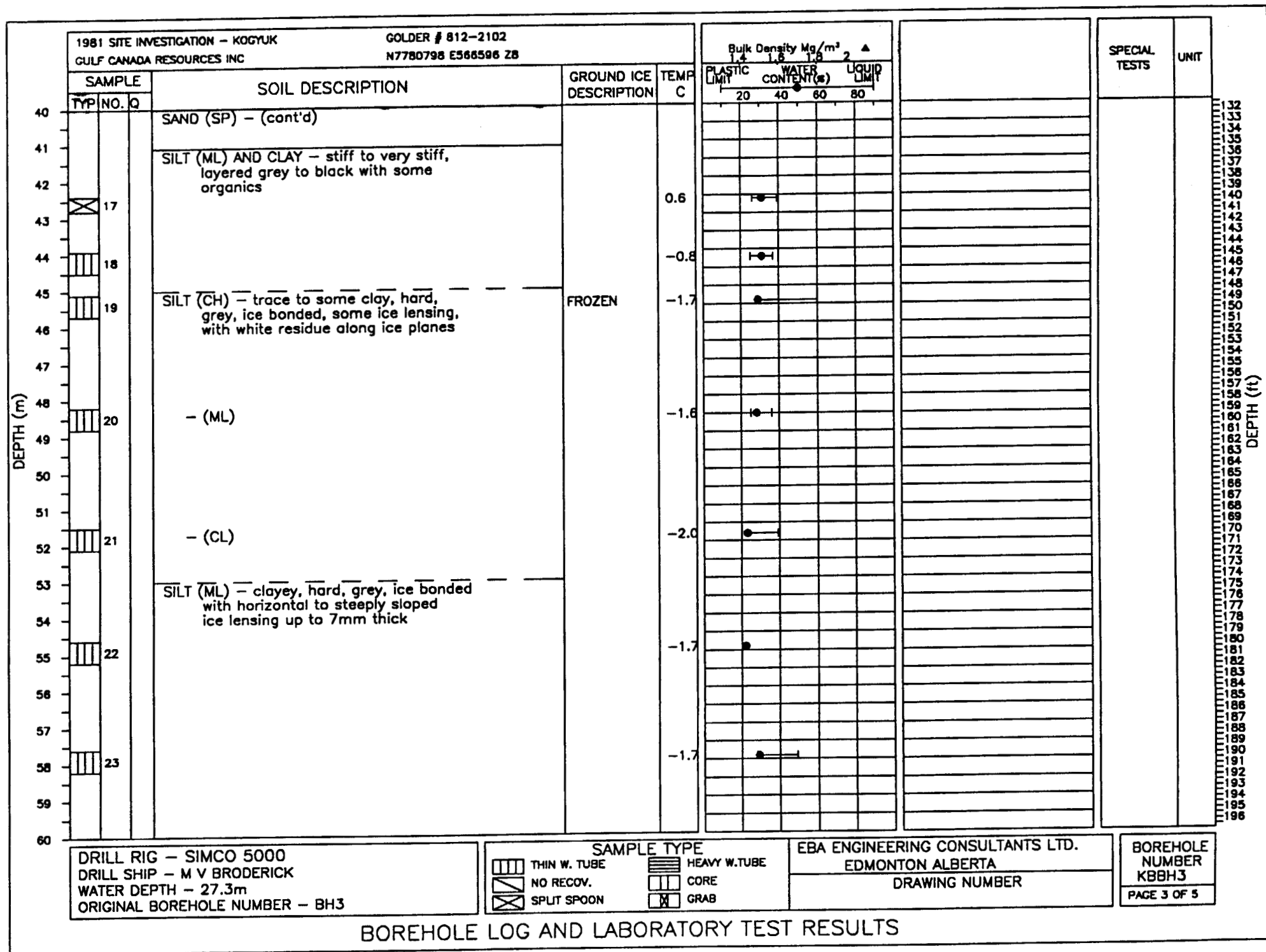
SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBBH3
 PAGE 2 OF 5

BOREHOLE LOG AND LABORATORY TEST RESULTS



DEPTH (m)

DEPTH (ft)

BOREHOLE
NUMBER
KBBH3

PAGE 4 OF 5

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7780798 E566596 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO.	Q										
			SAND (sm) - (cont'd)									283
												284
												285
												286
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												328
80												
81												
82												
83												
84	29		END OF BOREHOLE at 83.7m	FROZEN	-1.1							
85												
86												
87												
88												
89												
90												
91												
92												
93												
94												
95												
96												
97												
98												
99												
100												

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 27.3m
 ORIGINAL BOREHOLE NUMBER - BH3

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBBH3
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK
GULF CANADA RESOURCES INC

GOLDER # 812-2102
N7780630 E566497 Z8

DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT			WATER CONTENT (%)	LIQUID LIMIT	TESTS	UNIT	DEPTH (ft)	
	TYP	NO. Q				20	40	60						80
0			CLAYEY SILT (ml) TO SILTY CLAY (cl) - very soft	UNFROZEN	0.6								0	
1			SAND (sm) - silty, compact, grey, fine to medium											1
2			SAND (SP-SM) - trace of silt, compact to dense, brown, medium to fine grained											2
3	X	2												3
4														4
5	X	3												5
6														6
7	X	4	SAND (SP-SM) - trace of silt, fine grained, occasional thin layers of grey silty sand											7
8	X	5	- (SP)											8
9														9
10	X	6					0.6							10
11	X	7	SAND (SP) - trace silt, medium to fine grained, compact to dense, brown											11
12	X	8												12
13														13
14	X	9												14
15														15
16														16
17	X	11				0.0							17	
18													18	
19	X	12				0.6							19	
20													20	

DRILL RIG - SIMCO 5000
DRILL SHIP - M V BRODERICK
WATER DEPTH - 27.7m
ORIGINAL BOREHOLE NUMBER - BH4

SAMPLE TYPE
☐ THIN W. TUBE
☐ NO RECOV.
☒ SPLIT SPOON
☐ HEAVY W. TUBE
☐ CORE
☒ GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
KBBH4
PAGE 1 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7780630 E566497 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
20	X 13	SAND (SP) - (cont'd)		0.6								66
21												67
22	X 14			0.6								68
23	X 15			0.0								69
24												70
25	X 16			1.1								71
26	X 17			1.1								72
27												73
28	X 18			0.0								74
29	X 19			0.6								75
30												76
31	X 20			1.1								77
32												78
33												79
34	X 21			1.1								80
35												81
36												82
37	X 22											83
38												84
39												85
40												86

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 27.7m
 ORIGINAL BOREHOLE NUMBER - BH4

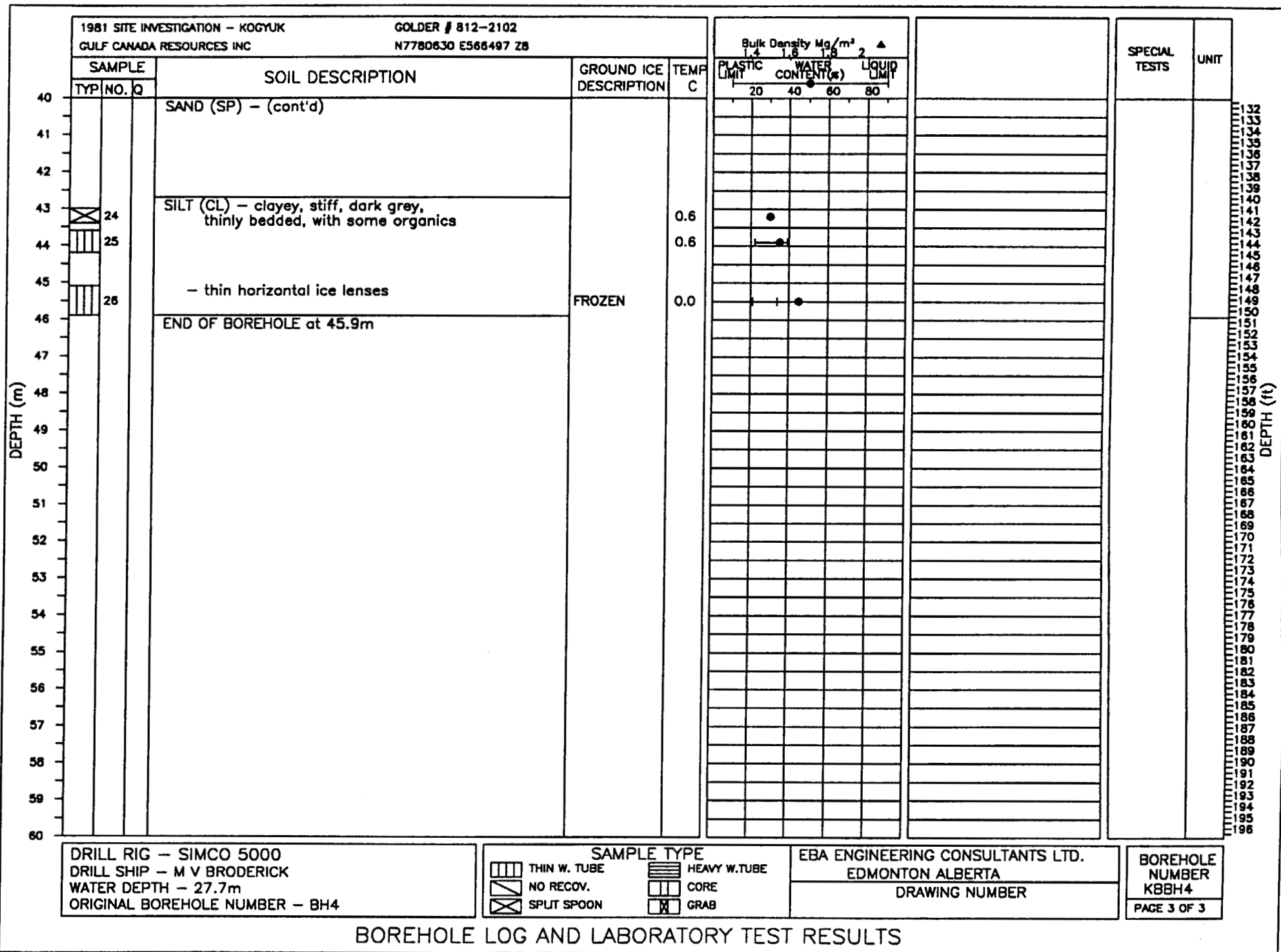
SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBBH4
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BOREHOLE LOG AND LABORATORY TEST RESULTS



1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7780799 E566358 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
		SILT (ml) - clayey, soft, grey										0
	1	SAND (SM) - silty, fine to medium grained, very dense, grey	UNFROZEN									1
	2	SAND (SP) - medium to fine grained, compact to very dense, brown, occasional shell fragments										2
												3
	3											4
				1.1								5
	4											6
				1.1								7
	5											8
				1.1								9
	6											10
												11
	7											12
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	8											14
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												62
												63
												64
												65

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 27.1m
 ORIGINAL BOREHOLE NUMBER - BH5

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA

DRAWING NUMBER

BOREHOLE NUMBER
 KBBH5

PAGE 1 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7780799 E566358 ZB		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)	
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO.	Q											
			SAND (SP) - (cont'd)									66	
													67
													68
													69
													70
													71
													72
													73
													74
													75
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												131	

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 27.1m
 ORIGINAL BOREHOLE NUMBER - BH5

SAMPLE TYPE

THIN W. TUBE

NO RECOV.

SPLIT SPOON

HEAVY W. TUBE

CORE

GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBBH5
 PAGE 2 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7780799 E566358 ZB		Bulk Density Mg/m^3 ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
TYP	NO.	Q									
			SAND (SP) - (cont'd)								132
											133
											134
			SAND (SP) - uniform, fine grained, dense to very dense, dark grey								135
											136
											137
											138
											139
											140
											141
											142
											143
											144
											145
											146
											147
											148
											149
											150
			SILT (CL) - very stiff, light and dark grey, mottled	UNFROZEN	0.6						151
			END OF BOREHOLE at 46.2m								152
											153
											154
											155
											156
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											196

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 27.1m
 ORIGINAL BOREHOLE NUMBER - BH5

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBBH5
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7779272 E565215 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
	TYP	NO. Q									
0			CLAY (CL) - stiff, dark olive grey mottled with black	UNFROZEN							0
1		3	CLAY (cl) - silty, some fine sand, dark olive to black								1
2		4	CLAY (cl) - silty, fine and medium sand, highly disturbed, soft, very dark grey								2
3		5	SAND (SM) - medium to fine, loose								3
4		6	SILT (ml) - sandy, black, liquefied								4
5			SAND (SP-SM) - trace of silt, medium grained, dense, light brown								5
6											6
7											7
8											8
9		10	CLAY (cl) - some sand, very stiff, black		UNFROZEN						
10		11	SAND (SP-SM) - trace of silt, medium grained, mostly disturbed, light brown								10
11			END OF BOREHOLE at 10.0m								11
12											12
13											13
14											14
15											15
16											16
17											17
18											18
19										19	
20										20	

DRILL RIG - SONIC DRILL
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 30.0m
 ORIGINAL BOREHOLE NUMBER - VC01

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBVC01

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7780882 E566159 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO.	Q										
0			CLAY (cl) - silty, organic, dark olive grey	UNFROZEN								0
1	2		SAND (SP) - trace of silt, medium to coarse, dark greyish brown									1
2	3											2
3	4											3
4	5A		SAND (SM) - some silt, fine to medium, dark greyish brown	UNFROZEN								4
5	5B		SAND (SP-SM) - trace of silt, medium, dark greyish brown to olive brown									5
6	6		SAND (SP) - trace of silt, coarse to medium, dark greyish brown									6
7	7		SAND (SM) - clayey, silty, fine to medium, graded									7
8	8		END OF BOREHOLE at 6.8m									8
9	9											9
10												10
11												11
12												12
13												13
14												14
15												15
16												16
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58												58
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60												60
61												61
62												62
63												63
64												64
65												65

DRILL RIG - SONIC DRILL
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 28.0m
 ORIGINAL BOREHOLE NUMBER - VC02

SAMPLE TYPE

THIN W. TUBE

NO RECOV.

SPLIT SPOON

HEAVY W. TUBE

CORE

GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KBVC02

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KOGYUK
GULF CANADA RESOURCES INC

GOLDER # 812-2102
N7778323 E587010 Z8

DEPTH (m)	SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT				SPECIAL TESTS	UNIT	
	TYP	NO.	Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
0		1		SAND (sc) - clayey, dark olive grey	UNFROZEN							0	
1		2		SAND (SM) - some silt and clay, very dense medium grained, dark to very dark grey									1
2		3		SAND (SP-SM) - medium, very dense									2
3		4		SAND (SP-SM) - medium, layers of organic silt									3
4		5		SAND (SP-SM) - medium, olive grey to black									4
5		6		SAND (SP) - medium, clean, olive grey									5
6		7		SAND (SP) - medium, dark olive grey									6
7		8		SAND (SP) - trace of silt, medium, dark greyish brown									7
8		9											8
9		10		SAND (SP-SM) - silty, fine to medium, dense, very dark greyish brown									9
10		11		SAND (SM) - trace to some silt, medium to fine, dense, very dark greyish brown	UNFROZEN							10	
11		12											11
12		13											12
13		14											13
14		15											14
15		16		SAND (SP) - medium, dense									15
16		17		SAND (SM) - silty, fine to medium									16
17		18											17
18		19											18
19		20		END OF BOREHOLE at 17.3m									19
20												20	

DRILL RIG - SONIC DRILL
DRILL SHIP - M V BRODERICK
WATER DEPTH - 24.0m
ORIGINAL BOREHOLE NUMBER - VC03

SAMPLE TYPE
☐ THIN W. TUBE
☐ NO RECOV.
☐ SPLIT SPOON
☐ HEAVY W. TUBE
☐ CORE
☒ GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
KBVC03

BOREHOLE LOG AND LABORATORY TEST RESULTS

GOLDER # 812-2102
N7766548 E439691 ZB

DEPTH (m)

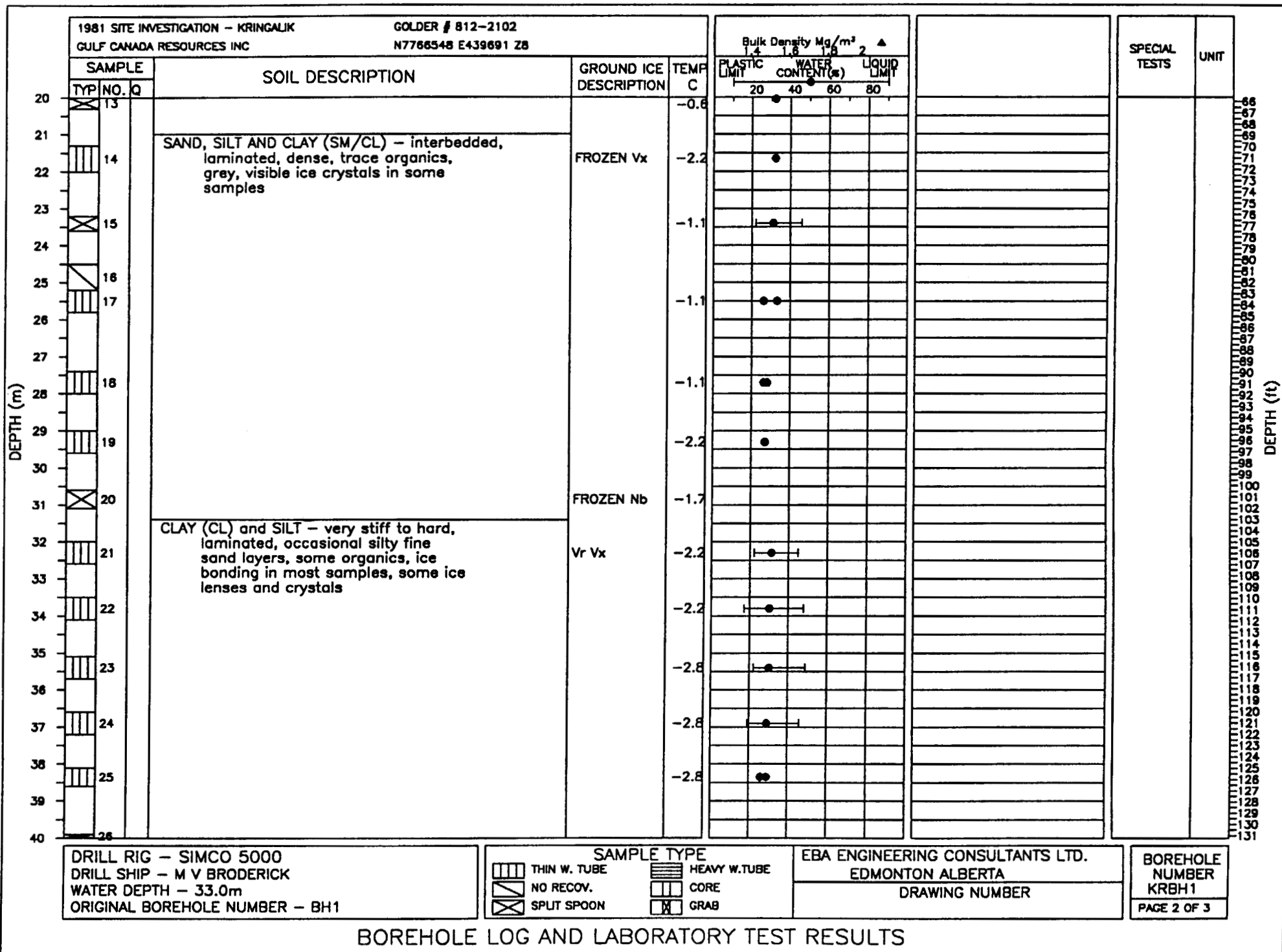
DEPTH (ft)

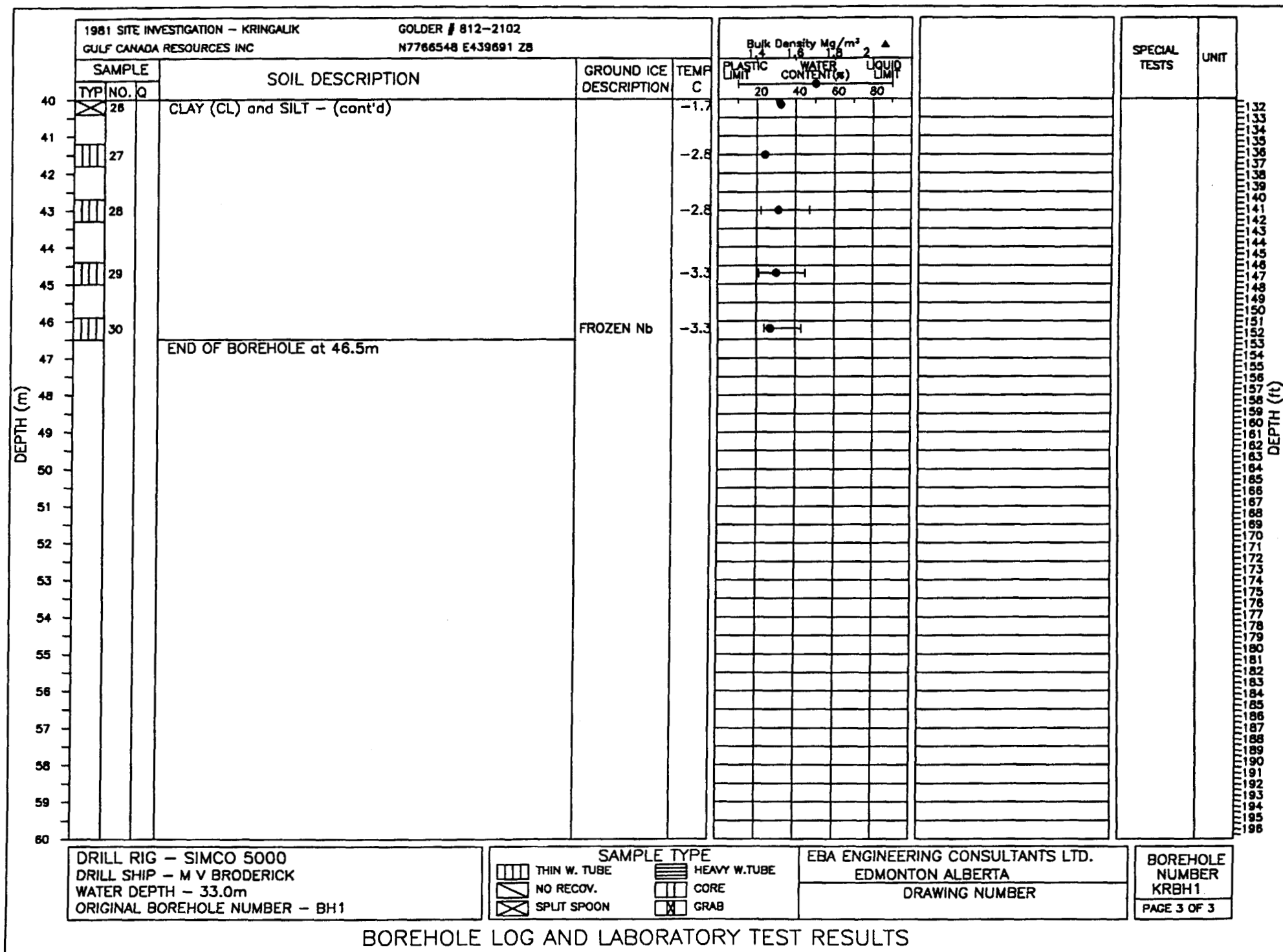
EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE
NUMBER
KRBH1

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BOREHOLE LOG AND LABORATORY TEST RESULTS





1981 SITE INVESTIGATION - KRINGALIK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7766934 E440079 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)	
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO.	Q										
0			CLAY (ch) - silty, very soft, greenish grey, occasional sub-angular stones	UNFROZEN							0	
1												1
2	M		CLAY (CH) - silty, soft, greenish grey, occasional stones									2
3				UNFROZEN								3
4	M		CLAY (CH) - silty, laminated, firm, greenish grey and dark grey									4
5												5
6	M		CLAY (CH) - silty, laminated, stiff to very stiff, greenish grey and dark grey	UNFROZEN								6
7												7
8			END OF BOREHOLE at 7.3m									8
9											9	
10											10	
11											11	
12											12	
13											13	
14											14	
15											15	
16											16	
17											17	
18											18	
19											19	
20											20	

DRILL RIG - SONIC DRILL
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 33.2m
 ORIGINAL BOREHOLE NUMBER - VC14

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KRVC14

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KRINGALIK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7766866 E442624 ZB		Bulk Density Mg/m ³ ▲ 1.4 1.8 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
TYP	NO.	Q									
			CLAY (ch) - silty, greenish grey, occasional pebbles, very soft								0
											1
	M	1	CLAY (CH) - silty, soft, greenish grey, occasional pebbles	UNFROZEN							2
											3
	M	2	CLAY (CH) - silty, firm, mottled greenish grey and dark grey, occasional pebbles								4
											5
			CLAY (ch) - silty, stiff, mottled greenish grey and dark grey								6
	M	3	CLAY (CH) - silty, very stiff, mottled greenish grey and dark grey								7
											8
											9
	M	4									10
											11
											12
											13
	M	5	SAND (SP-SM) - trace of gravel, compact, medium to fine-grained, some coarse sand, grey								14
											15
			SAND (SM) and SILT - fine-grained sand, soft to firm, greenish grey								16
	M	6									17
											18
											19
	M	7									20

DRILL RIG - SONIC DRILL
DRILL SHIP - M V BRODERICK
WATER DEPTH - 34.4m
ORIGINAL BOREHOLE NUMBER - VC15

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
KRVC15
PAGE 1 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - KRINGALIK GULF CANADA RESOURCES INC				GOLDER # 812-2102 N7766866 E442624 ZB		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
20												66
21												67
22	X 8	END OF BOREHOLE at 21.9m	UNFROZEN									68
23												69
24												70
25												71
26												72
27												73
28												74
29												75
30												76
31												77
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												131

DRILL RIG - SONIC DRILL
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 34.4m
 ORIGINAL BOREHOLE NUMBER - VC15

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KRVC15
 PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

GOLDER # 812-2102
N7754952 E436726 Z8

DEPTH (m)

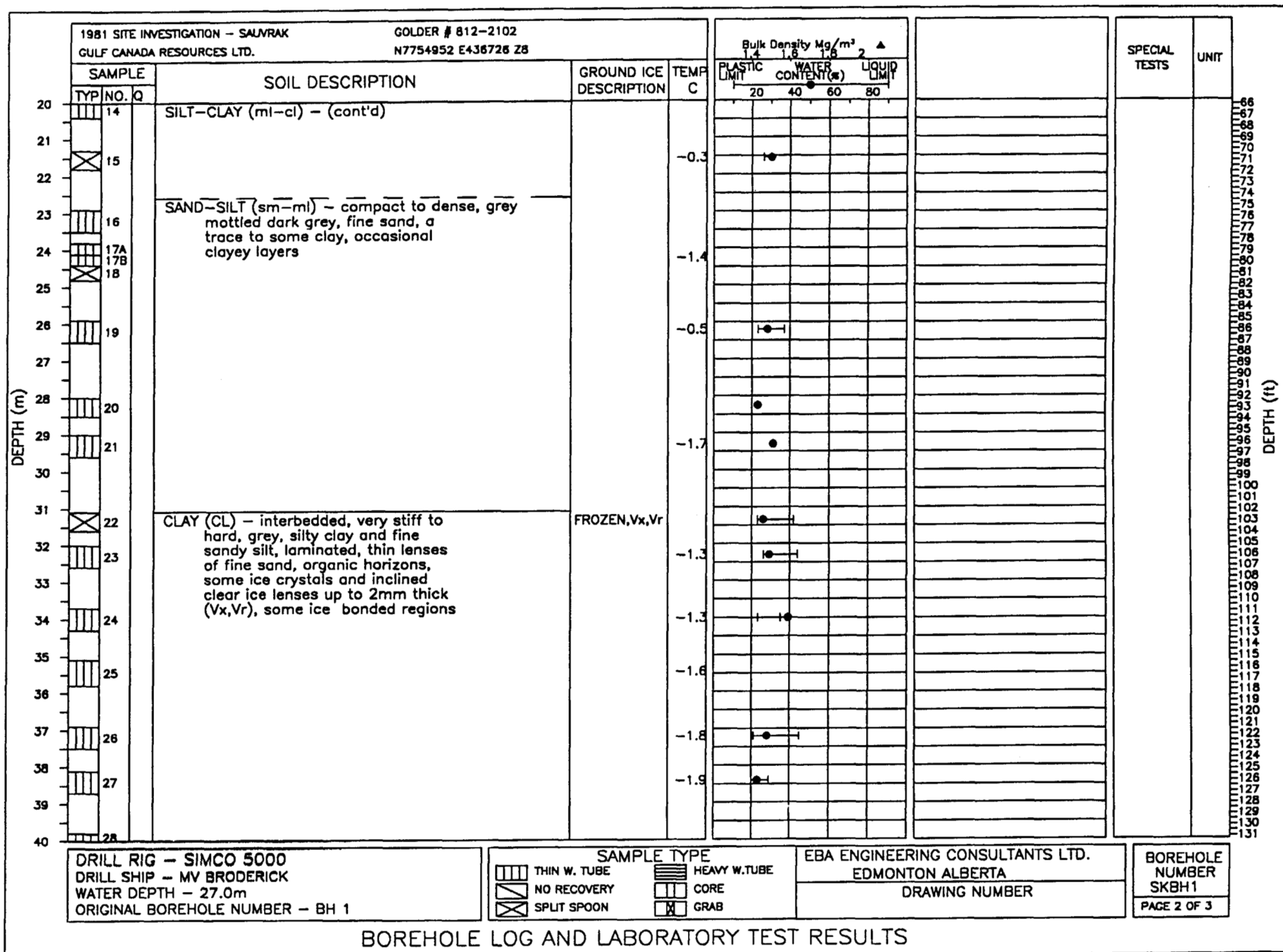
DEPTH (ft)

SAMPLE TYPE			
	THIN W. TUBE		HEAVY W. TUBE
	NO RECOVERY		CORE
	SPLIT SPOON		GRAB

BOREHOLE
NUMBER
SKBH1

PAGE 1 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS



1981 SITE INVESTIGATION - SALVRK
GULFF CANADA RESOURCES LTD.

GOLDER # 812-2102
N7754952 E436726 Z8

DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT			TESTS	UNIT	DEPTH (ft)	
	TYP	NO. Q				20	40	60				80
40		28	CLAY (CL) - (cont'd)		-1.8						132	
41												133
42		29					-1.7					135
43		30					-2.0					137
44												138
45		31			-1.9					139		
46		32		FROZEN							140	
47			END OF BOREHOLE at 46.5m								141	
48											142	
49											143	
50											144	
51											145	
52											146	
53											147	
54											148	
55											149	
56											150	
57											151	
58											152	
59											153	
60											154	
											155	
											156	
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											194	
											195	
											196	

DRILL RIG - SIMCO 5000
DRILL SHIP - MV BRODERICK
WATER DEPTH - 27.0m
ORIGINAL BOREHOLE NUMBER - BH 1

SAMPLE TYPE
☐ THIN W. TUBE
☐ NO RECOVERY
☐ SPLIT SPOON
☐ HEAVY W. TUBE
☐ CORE
☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
SKBH1
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - SAUVRAK GULF CANADA RESOURCES LTD.				GOLDER # 812-2102 N7754922 E438660 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
	TYP	NO. Q									
0			CLAY (cl) - soft, greenish grey, silty, some shell fragments								0
1											1
2			CLAY (MH) - firm, greenish grey, silty, some dark grey laminations, some shell fragments	UNFROZEN							2
3											3
4			CLAY (MH) - silty, stiff, greenish grey, laminated silt, some dark grey laminations, occasional shell fragments								4
5											5
6			- core lost at 2nd run 6.10 to 9.75m								6
7											7
8											8
9											9
10			CLAY (CL) - stiff, greenish grey, laminated, silty, some thin silty layers, occasional fine sand pockets, thin sand layers, occasional shell fragments								10
11											11
12											12
13											13
14											14
15											15
16											16
17				UNFROZEN							17
18			- core lost at 1st run 17.4 tp 18.9m								18
19			END OF BOREHOLE at 18.9m								19
20											20

DRILL RIG - SONIC
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 28.0m
 ORIGINAL BOREHOLE NUMBER - VC 16

SAMPLE TYPE

☐ THIN W. TUBE	☐ HEAVY W. TUBE
☐ NO RECOVERY	☐ CORE
☐ SPLIT SPOON	☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 SKVC16

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - SALVRK GULF CANADA RESOURCES LTD.				GOLDER # 812-2102 N7755886 E438631 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
0		CLAY (mh) - soft, greenish grey, silty, occasional small shell fragments	UNFROZEN								0	
1											1	
2											2	
3		CLAY (MH) - firm, greenish grey, silty, occasional shell fragments, some dark grey laminations									3	
4											4	
5											5	
6											6	
7		CLAY (MH) - stiff, greenish grey and dark grey laminated, silty, occasional shell fragments									7	
8											8	
9											9	
10											10	
11											11	
12		CLAY (CL) - stiff to very stiff, greenish grey, laminated, silty, some small fine sand pockets, occasional shell fragments									12	
13											13	
14											14	
15		SILT (ml) - sandy, compact, grey, fine sand, some clay and organic									15	
16											16	
17		CLAY (CL) - very stiff, greenish grey, laminations of silty clay and silty sand									17	
18											18	
19											19	
20										20		

DRILL RIG - SONIC DRILL SHIP - MV BRODERICK WATER DEPTH - 27.4m ORIGINAL BOREHOLE NUMBER - VC 18	SAMPLE TYPE THIN W. TUBE NO RECOV. SPLIT SPOON HEAVY W. TUBE CORE GRAB	EBA ENGINEERING CONSULTANTS LTD. EDMONTON ALBERTA DRAWING NUMBER	BOREHOLE NUMBER SKVC18 PAGE 1 OF 2
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - SALVRK GULF CANADA RESOURCES LTD.				GOLDER # 812-2102 N7755886 E438631 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2.0				SPECIAL TESTS	UNIT	
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO.	Q										
20			CLAY (CL) - very stiff, greenish grey, laminated, silty, with some laminations of silty sand, occasional sand pockets									66
21												67
22												68
23												69
24												70
25			CLAY (CL) - very stiff to hard, greenish grey, laminated, silty, some laminations of silty sand and silt									71
26												72
27												73
28												74
29												75
30												76
31												77
32												78
33												79
34												80
35			END OF BOREHOLE at 28.5m									81
36												82
37												83
38												84
39												85
40												86
												87
												88
												89
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												128
												129
												130
												131
												132
												133
												134
												135
												136
												137
												138
												139
												140

DRILL RIG - SONIC
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 27.4m
 ORIGINAL BOREHOLE NUMBER - VC 18

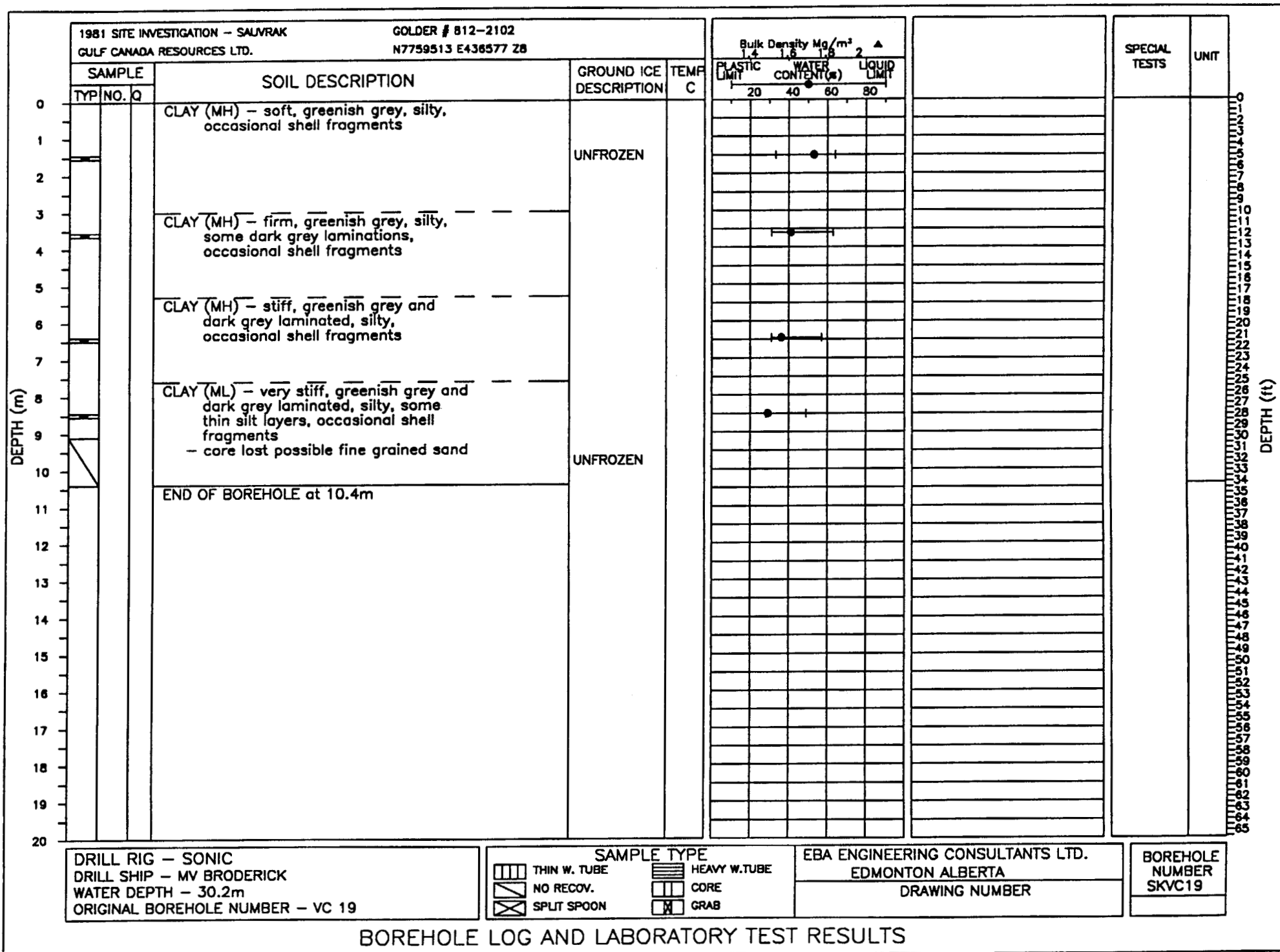
SAMPLE TYPE

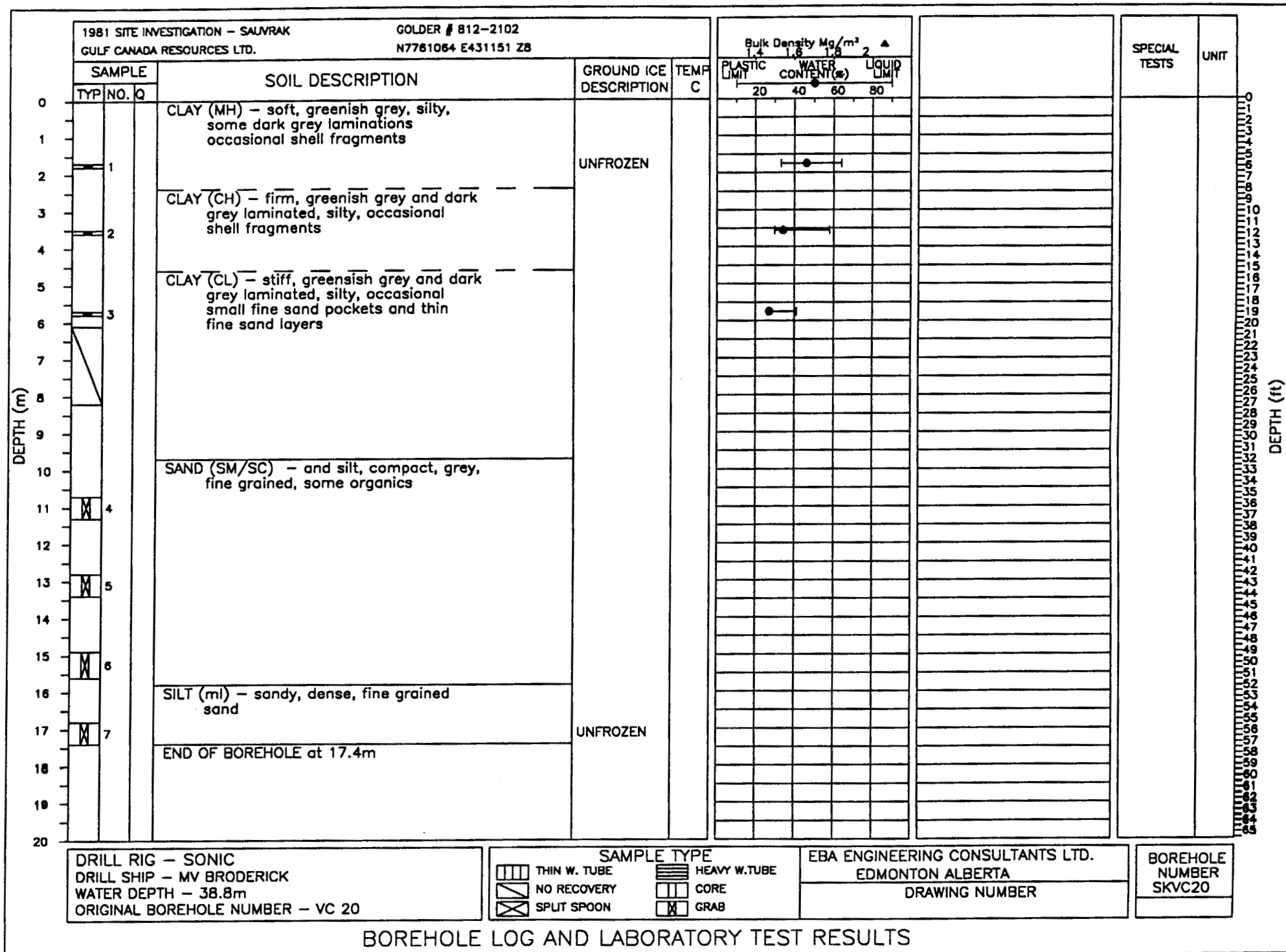
THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 SKVC18
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BOREHOLE LOG AND LABORATORY TEST RESULTS





1981 SITE INVESTIGATION - WEST AMAULIGAK
GULF CANADA RESOURCES INC.

GOLDER # 812-2102
N7774853 E539267 Z8

DEPTH (m)	SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT			WATER CONTENT (%)			LIQUID LIMIT			TESTS	UNIT	DEPTH (ft)
	TYP	NO.	Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT						
0				CLAY (CH) - silty, soft, becoming firm to stiff, dark grey, trace of organics high plastic	UNFROZEN												0	
1		1															1	
2		2															2	
3																	3	
4		3															4	
5		4		- (CL), becoming low plastic													5	
6																	6	
7				SAND (SM) - fine grained, compact to dense, dark grey, trace of silt, some organic layers													7	
8		6															8	
9				SAND (SP-SM) - fine-grained, dense to very dense, brown, uniform, trace of medium sand and silt in various layers													9	
10																	10	
11		8															11	
12																	12	
13																	13	
14		10		- (SM), some silt													14	
15																	15	
16				SAND (SP) - medium grained with some fine sand, dense, grey/brown, clean, traces of darker particles in layers													16	
17		12															17	
18																	18	
19																	19	
20		14															20	

DRILL RIG - SIMCO 5000
DRILL SHIP - M V BRODERICK
WATER DEPTH - 29.6m
ORIGINAL BOREHOLE NUMBER - BH1

SAMPLE TYPE
 THIN W. TUBE
 NO RECOV.
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
AWBH1
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - WEST AMAULIGAK GULF CANADA RESOURCES INC.				GOLDER # 812-2102 N7774853 E539267 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)		
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT							
TYP	NO. Q													
20	X 14	SAND (SP) - (cont'd)										66		
21														67
22														68
23	X 16													69
24														70
25														71
26	X 18													72
27														73
28														74
29														75
30		- occasional fine gravel pieces at 25.9-26.4m										76		
31	X 21													77
32														78
33														79
34	X 23													80
35														81
36														82
37														83
38	X 26													84
39														85
40	X 27	- occasional thin layers (50mm typi- cally) of grey silt at 32.5-33.8m										86		
														87
														88
														89
														90
														91
														92
														93
														94
														95
		SAND (SM) - silty, very dense, grey, medium to fine grained										96		
														97
														98
														99
														100
														101
														102
														103
														104
														105
												106		
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												129		
												130		
												131		

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 29.6m
 ORIGINAL BOREHOLE NUMBER - BH1

SAMPLE TYPE

THIN W. TUBE

NO RECOV.

SPLIT SPOON

HEAVY W. TUBE

CORE

GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AWBH1
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - WEST AMAULIGAK

GOLDER # 812-2102

GULF CANADA RESOURCES INC.

N7774853 E539267 Z8

DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲			SPECIAL TESTS	UNIT	DEPTH (ft)
	TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
40		27	SAND (SM) - (cont'd)								132
41			SILT (CL) - some clay, stiff to very stiff								133
42		28	dark grey, thinly layered		0.0						134
43		29			-1.1						135
44		30			-1.7						136
45		32		UNFROZEN							137
46			END OF BOREHOLE at 45.7m								138
47											139
48											140
49											141
50											142
51											143
52											144
53											145
54											146
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											193
											194
											195
											196

DRILL RIG - SIMCO 5000

DRILL SHIP - M V BRODERICK

WATER DEPTH - 29.6m

ORIGINAL BOREHOLE NUMBER - BH1

THIN W. TUBE

NO RECOV.

SPLIT SPOON

HEAVY W. TUBE

CORE

GRAB

EBA ENGINEERING CONSULTANTS LTD.

EDMONTON ALBERTA

DRAWING NUMBER

BOREHOLE NUMBER AWBH1

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BOREHOLE LOG AND LABORATORY TEST RESULTS

GOLDER # 812-2102
N7774851 E539024 Z8

DEPTH (m)

DEPTH (ft)

BOREHOLE
NUMBER
AWBH2

PAGE 1 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - WEST AMAULIGAK

GULF CANADA RESOURCES INC.

GOLDER # 812-2102

N7774851 E539024 Z8

DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲				SPECIAL TESTS	UNIT	DEPTH (ft)
	TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)		LIQUID LIMIT			
							20	40				
20	X	16	SAND (SP) - (cont'd)		0.6							66
21						0.0						67
22	X	17				0.0						68
23	X	18				0.0						69
24						0.0						70
25	X	19				0.0						71
26	X	20				0.0						72
27						0.0						73
28	X	21				0.0						74
29	X	22				0.0						75
30						0.0						76
31	X	23				0.0						77
32						0.0						78
33						0.0						79
34	X	24				0.0						80
35						0.0						81
36						0.0						82
37	X	25				0.0						83
38						0.0						84
39						0.0						85
40						0.0						86
						0.0						87
						0.0						88
						0.0						89
						0.0						90
					0.0						91	
					0.0						92	
					0.0						93	
					0.0						94	
					0.0						95	
					0.0						96	
					0.0						97	
					0.0						98	
					0.0						99	
					0.0						100	
					0.0						101	
					0.0						102	
					0.0						103	
					0.0						104	
					0.0						105	
					0.0						106	
					0.0						107	
					0.0						108	
					0.0						109	
					0.0						110	
					0.0						111	
					0.0						112	
					0.0						113	
					0.0						114	
					0.0						115	
					0.0						116	
					0.0						117	
					0.0						118	
					0.0						119	
					0.0						120	
					0.0						121	
					0.0						122	
					0.0						123	
					0.0						124	
					0.0						125	
					0.0						126	
					0.0						127	
					0.0						128	
					0.0						129	
					0.0						130	
					0.0						131	

DRILL RIG - SIMCO 5000

DRILL SHIP - MV BRODERICK

WATER DEPTH - 29.4m

ORIGINAL BOREHOLE NUMBER - BH2

THIN W. TUBE

NO RECOV.

SPLIT SPOON

HEAVY W. TUBE

CORE

GRAB

EBA ENGINEERING CONSULTANTS LTD.

EDMONTON ALBERTA

DRAWING NUMBER

BOREHOLE NUMBER AWBH2

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BOREHOLE LOG AND LABORATORY TEST RESULTS

- gravel, 0.12m thick at 29.3m

 SAND (sp) - fine to medium-grained, dense, grey
 SILT (CL) - clayey, stiff to very stiff, grey

1981 SITE INVESTIGATION - WEST AMAULIGAK GULF CANADA RESOURCES INC.				GOLDER # 812-2102 N7774851 E539024 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT						
TYP	NO.	Q				20	40	60	80			
40	26		SILT (CL) - (cont'd)		0.0							32
41												33
42	27				-0.6							34
43	28				-0.6							35
44												36
45	29			UNFROZEN	-1.1							37
46			END OF BOREHOLE AT 45.3m									38
47												39
48												40
49												41
50												42
51												43
52												44
53												45
54												46
55												47
56												48
57												49
58												50
59												51
60												52
												53
												54
												55
												56
												57
												58
												59
												60

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 29.4m
 ORIGINAL BOREHOLE NUMBER - BH2

SAMPLE TYPE
 THIN W. TUBE HEAVY W. TUBE
 NO RECOV. CORE
 SPLIT SPOON GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AWBH2
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - WEST AMAULIGAK GULF CANADA RESOURCES INC.				GOLDER # 812-2102 N7755041 E539269 Z8		Bulk Density Mg/m^3 ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)	
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT							
TYP	NO.	Q				20	40	60					80
0			SILT (CH) - clayey, soft to firm, grey	UNFROZEN								0	
1													1
2	1												2
3													3
4	2												4
5			SAND (SM) - compact, grey-brown, fine, with grey silt interlayers										5
6	4												6
7													7
8	5		SAND (SM) - very dense, grey, fine										8
9	6		SAND (SP-SM) - dense to very dense, brown, fine										9
10													10
11	7		- (SP), trace silt										11
12													12
13	8		SAND (SM) - grey, silty, fine, with brown fine sand interlayers									13	
14	9		SAND (SP) - compact to very dense, brown, uniform, medium and fine, trace of silt									14	
15												15	
16	10											16	
17	11											17	
18												18	
19	12											19	
20	13											20	

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 29.6m
 ORIGINAL BOREHOLE NUMBER - BH3

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AWBH3
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - WEST AMAULIGAK GULF CANADA RESOURCES INC.				GOLDER # 812-2102 N7755041 E539269 Z8		Bulk Density Mg/m ³ ▲			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO. Q										
20	X 13	SAND (SP) - (cont'd)		-0.6							66
21											67
22	X 14			1.1							68
23	X 15										69
24	X 16				0.6						70
25	X 17										71
26	X 18				0.6						72
27											73
28	X 19				1.1						74
29											75
30	X 20				0.6						76
31											77
32											78
33	X 21				0.6						79
34											80
35											81
36											82
37	X 22										83
38											84
39			SAND (sm) - silty, very dense, grey-brown, fine to medium		0.6						
40	X 23										86
											87
											88

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 29.6m
 ORIGINAL BOREHOLE NUMBER - BH3

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AWBH3
 PAGE 2 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - WEST AMAULIGAK
GULF CANADA RESOURCES INC.

GOLDER # 812-2102
N7755041 E539269 Z8

SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m³ ▲ 1.4 1.6 1.8 2.0	PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT	SPECIAL TESTS	UNIT	DEPTH (ft)
TYP	NO. Q								
	23	SAND (sm) - (cont'd)							32
		SILT (CL) - very stiff, grey, clayey							33
									34
	24			-1.1					35
									36
	26			-0.6					37
									38
	27								39
	28			-0.6					40
									41
									42
	29		UNFROZEN	-0.6					43
		END OF BOREHOLE AT 46.5m							44
									45
									46
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									49
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									53
									54
									55
									56
									57
									58
									59
									60

THIN W. TUBE
NO RECOV.
SPLIT SPOON

HEAVY W. TUBE
CORE
GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
AWBH3
PAGE 3 OF 3

DRILL RIG - SIMCO 5000
DRILL SHIP - MV BRODERICK
WATER DEPTH - 29.6m
ORIGINAL BOREHOLE NUMBER - BH3

BOREHOLE LOG AND LABORATORY TEST RESULTS

GOLDER # 812-2102
N7774850 E539402 Z8

DEPTH (m)

DEPTH (ft)

BOREHOLE
NUMBER
AWBH4

PAGE 1 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - WEST AMAULIGAK GULF CANADA RESOURCES INC.				GOLDER # 812-2102 N7774850 E539402 ZB		Bulk Density Mg/m^3 ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO. Q										
20		SAND (SP) - (cont'd)									66
21	11										67
22											68
23											69
24	12										70
25											71
26											72
27	13										73
28											74
29											75
30											76
31	14	- layered, occasional silty clay lenses 6mm thick, trace of organics at 30.5 - 31.0m									77
32											78
33	15										79
34											80
35											81
36	16	SAND (SP) - grey, fine to medium, some layering, occasional grey silty clay lenses									82
37											83
38	17	SILT (CL) - stiff, dark grey, clayey, interbedded with thin layers of sandy silt up to 50mm, trace of organics		-0.6							84
39											85
40	18			0.6							86
											87
											88
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											129
											130
											131

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 30.2m
 ORIGINAL BOREHOLE NUMBER - BH4

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AWBH4
 PAGE 2 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - WEST AMAULIGAK GULF CANADA RESOURCES INC.				GOLDER # 812-2102 N7774850 E539402 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO. Q										
	18	SILT (CL) - (cont'd)		-0.6							132
	19		UNFROZEN	-0.6							133
		END OF BOREHOLE AT 42.0m									134
											135
											136
											137
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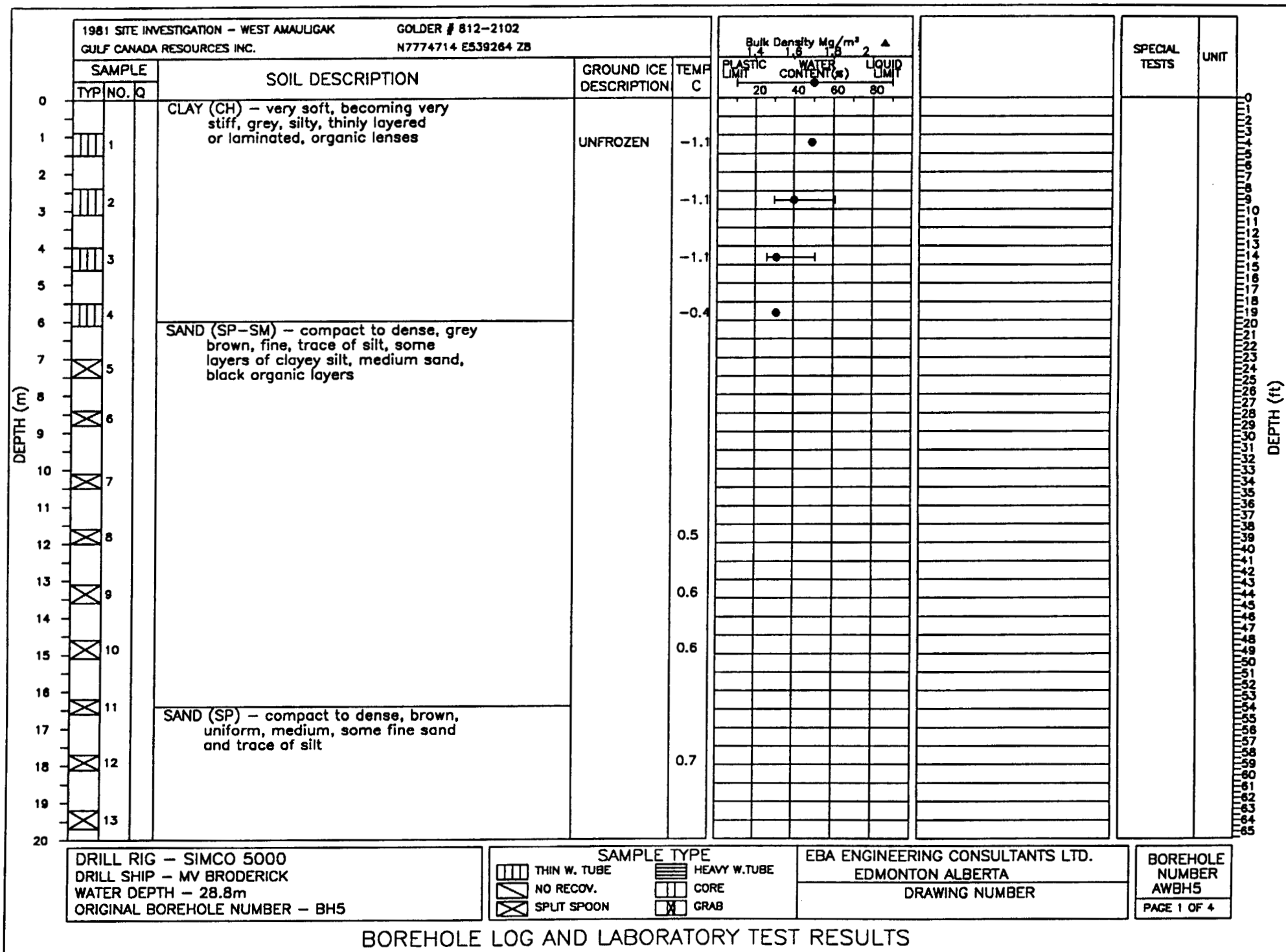
DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 30.2m
 ORIGINAL BOREHOLE NUMBER - BH4

SAMPLE TYPE	
THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AWBH4
 PAGE 3 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS



1981 SITE INVESTIGATION - WEST AMAULIGAK GULF CANADA RESOURCES INC.				GOLDER # 812-2102 N7774714 E539264 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	WATER CONTENT (%)						
TYP	NO. Q				PLASTIC LIMIT	LIQUID LIMIT	20	40	60		
		SAND (SP) - (cont'd)									
20											66
21											67
22	X	15		UNFROZEN	0.7						68
23											69
24	X	16			0.6						70
25											71
26	X	17									72
27											73
28											74
29	X	19									75
30											76
31											77
32											78
33	X	21									79
34											80
35											81
36	X	22			0.5						82
37											83
38			SAND (SP) - very dense, grey, fine to medium, trace of silt								84
39	X	23									85
40											86
											87
											88
											89
											90
											91
											92
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											131

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 28.8m
 ORIGINAL BOREHOLE NUMBER - BH5

SAMPLE TYPE
 [] THIN W. TUBE [] HEAVY W. TUBE
 [] NO RECOV. [] CORE
 [X] SPLIT SPOON [X] GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AWBH5
 PAGE 2 OF 4

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - WEST AMAULIGAK
GULF CANADA RESOURCES INC.

GOLDER # 812-2102
N7774714 E539264 Z8

SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲ PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT			SPECIAL TESTS	UNIT	DEPTH (m)
TYP	NO. Q				20	40	60			
		SILT (ML) - firm to stiff, grey, clayey, clay layers up to 75mm, occasional thin lenses of sand and thin organic seams	UNFROZEN	-0.5						132
										133
										134
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										194
										195
										196

DRILL RIG - SIMCO 5000
DRILL SHIP - MV BRODERICK
WATER DEPTH - 28.8m
ORIGINAL BOREHOLE NUMBER - BH5

SAMPLE TYPE
 THIN W. TUBE
 NO RECOV.
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
AWBH5
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION - WEST AMAULIGAK GULF CANADA RESOURCES INC.				GOLDER # 812-2102 N7774714 E539264 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
TYP	NO. Q									
60		SILT (ML) - (cont'd)								197
61										198
62	32			-1.7						199
63										200
64										201
65										202
66										203
67	33	SAND (sm/sc) - very dense, brown, fine to medium								204
68										205
69										206
70										207
71	34									208
72										209
73										210
74										211
75										212
76	35	END OF BOREHOLE AT 75.7m	FROZEN							213
77										214
78										215
79										216
80										217
										218
										219
										220
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										262

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 28.8m
 ORIGINAL BOREHOLE NUMBER - BH5

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AWH5
 PAGE 4 OF 4

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION WEST TINGMARK GULF CANADA RESOURCES INC.				GOLDER # 812-2102 N7793043 E558066 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC WATER LIQUID LIMIT CONTENT (%) LIMIT							
TYP	NO. Q				20	40	60	80				
		SILT (ml) - clayey, soft, grey										0
	1	SAND (SP) - fine to medium-grained, compact, grey	UNFROZEN	0.0								1
	2	SAND (SP) - fine to medium-grained, trace of coarse sand and silt, dense to very dense, occasionally compact, brown		0.6								2
	3											3
	4			0.6								4
	5											5
	6	- minor grey fine sand, silt to silty sand layers 5.5 - 10.0m		0.6								6
	7			0.6								7
	8											8
	9			0.6								9
	10											10
	11			0.6								11
	12			0.6								12
	13			0.6								13
	14											14
	15			0.6								15
	16											16
	17			0.6								17
	18											18
	19			0.6								19
	20											20

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 39.5m
 ORIGINAL BOREHOLE NUMBER - BH1

SAMPLE TYPE
 THIN W. TUBE HEAVY W. TUBE
 NO RECOV. CORE
 SPLIT SPOON GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 WTBH1
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION WEST TINGMIARK
GULF CANADA RESOURCES INC.

GOLDER # 812-2102
N7793043 E558066 Z8

DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲				SPECIAL TESTS	UNIT	DEPTH (ft)
	TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
20			SAND (SP) - (cont'd)									66
21	X	14			0.6							67
22	X	15			0.0							68
23	X	16			0.6							69
24	X	17			0.6							70
25	X	18			0.6							71
26	X	19			0.6							72
27	X	20	- extremely hard, possibly ice bonded layer 27.4 - 28.2m		0.6							73
28	X	21	SAND (SP) - medium and fine grained, dense		1.1							74
29												75
30	X	22			0.6							76
31	X	23			0.0							77
32	X	24			0.0							78
33												79
34												80
35												81
36	X	25	SAND (sp) - trace of silt, fine to medium grained, trace of coarse, dense, grey		0.6							82
37			SILT (ML) - clayey, thinly bedded layers, trace gravel, very stiff, dark grey, occasional ice lenses									83
38				FROZEN, Vr	-1.7							84
39					-1.7							85
40												86

DRILL RIG - SIMCO 5000
DRILL SHIP - MV BRODERICK
WATER DEPTH - 39.5m
ORIGINAL BOREHOLE NUMBER - BH1

SAMPLE TYPE
 THIN W. TUBE
 NO RECOV.
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
WTBH1
PAGE 2 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION WEST TINGMIARK
GULF CANADA RESOURCES INC.

GOLDER # 812-2102
N7793043 E558066 ZB

DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲			SPECIAL TESTS	UNIT	DEPTH (ft)		
	TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
40			SILT (ML) - (cont'd)								132		
41		27											133
42		28											134
43													135
44		29									136		
45		30									137		
46				FROZEN, Vr	-3.9						138		
47			END OF BOREHOLE AT 46.2m									139	
48											140		
49											141		
50											142		
51											143		
52											144		
53											145		
54											146		
55											147		
56											148		
57											149		
58											150		
59											151		
60											152		

DRILL RIG - SIMCO 5000
DRILL SHIP - MV BRODERICK
WATER DEPTH - 39.5m
ORIGINAL BOREHOLE NUMBER - BH1

THIN W. TUBE
NO RECOV.
SPLIT SPOON

HEAVY W. TUBE
CORE
GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
WTBH1
PAGE 3 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION WEST TINGMARK GULF CANADA RESOURCES INC.				GOLDER # 812-2102 N7790927 E568489 ZB		Bulk Density Mg/m ³ ▲ 1.4 1.8 2.2				SPECIAL TESTS	UNIT	DEPTH (ft)	
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC WATER LIQUID LIMIT CONTENT (%) LIMIT								
TYPE	NO. Q				20	40	60	80					
DEPTH (m) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	1	SAND (SM) - grey, medium to fine-grained, some silt and clay, some coarse sand SAND (SP) - brownish grey, medium to fine grained, some silt										0	
												1	
												2	
												3	
	2												4
	3												5
	4												6
	5												7
	6												8
	7												9
	8												10
	9												11
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												55	

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 29.6m
 ORIGINAL BOREHOLE NUMBER - VC24

SAMPLE TYPE	
☐ THIN W. TUBE	☐ HEAVY W. TUBE
☐ NO RECOV.	☐ CORE
☐ SPLIT SPOON	☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 WTV24

BOREHOLE LOG AND LABORATORY TEST RESULTS

1981 SITE INVESTIGATION WEST TINGMARK GULF CANADA RESOURCES INC.				GOLDER # 812-2102 N7794509 E561094 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (m)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
0		CLAY (cl) - very soft, grey, silty, some sandy organics										0
1	1	SAND (SP-SM) - brown to greyish brown, medium to fine-grained, some silt										1
2												2
3	2											3
4												4
5	3											5
6												6
7	4											7
8		SAND (sm/sc) - greyish brown, silty, some clay										8
9	5	SAND (SP) - brown to greenish brown, medium to fine-grained, some silt										9
10		- core lost 9.7 to 10.4m										10
11		END OF BOREHOLE AT 10.4m										11
12												12
13												13
14												14
15												15
16												16
17												17
18												18
19												19
20												20

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 36.9m
 ORIGINAL BOREHOLE NUMBER - VC25

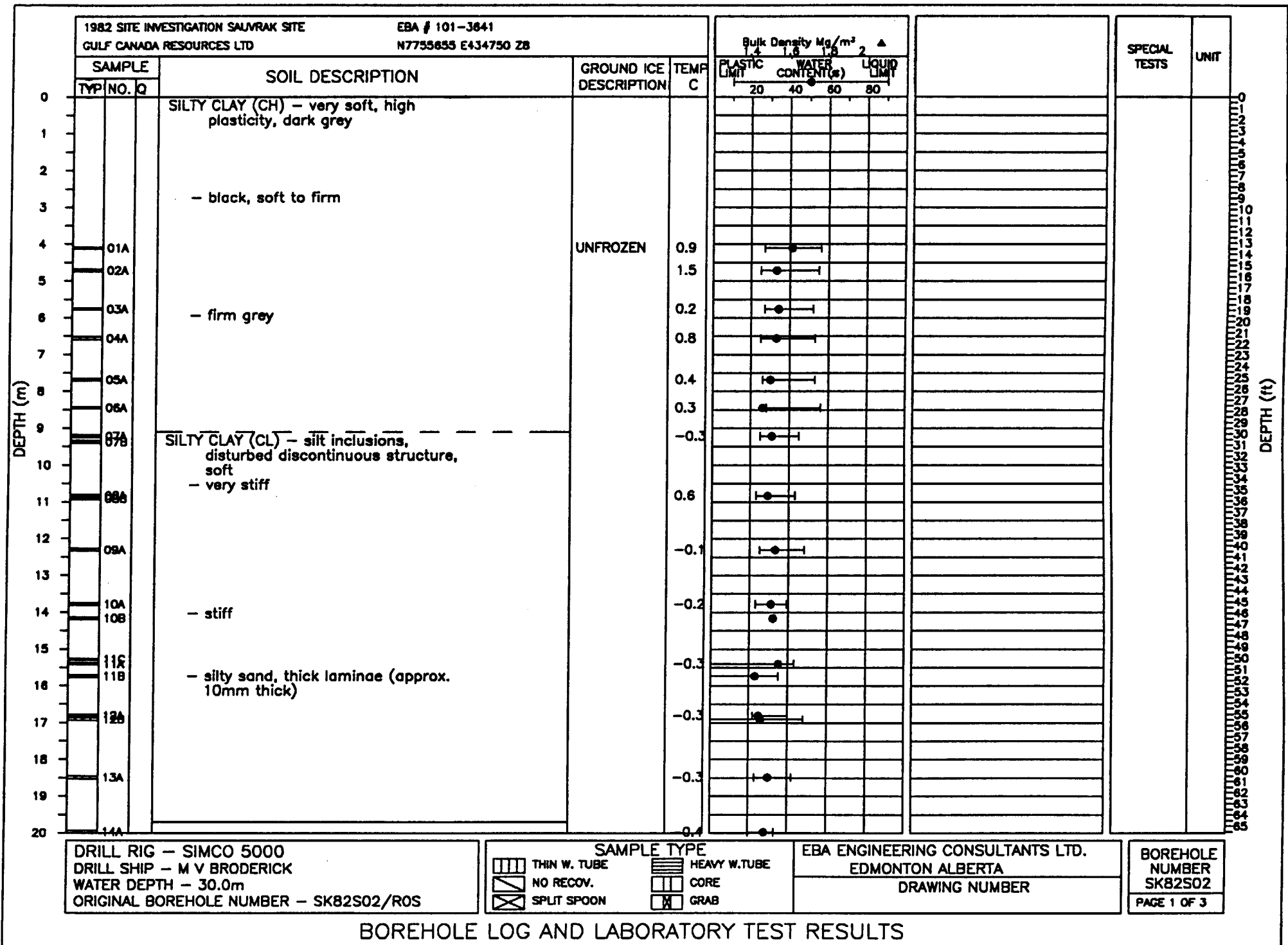
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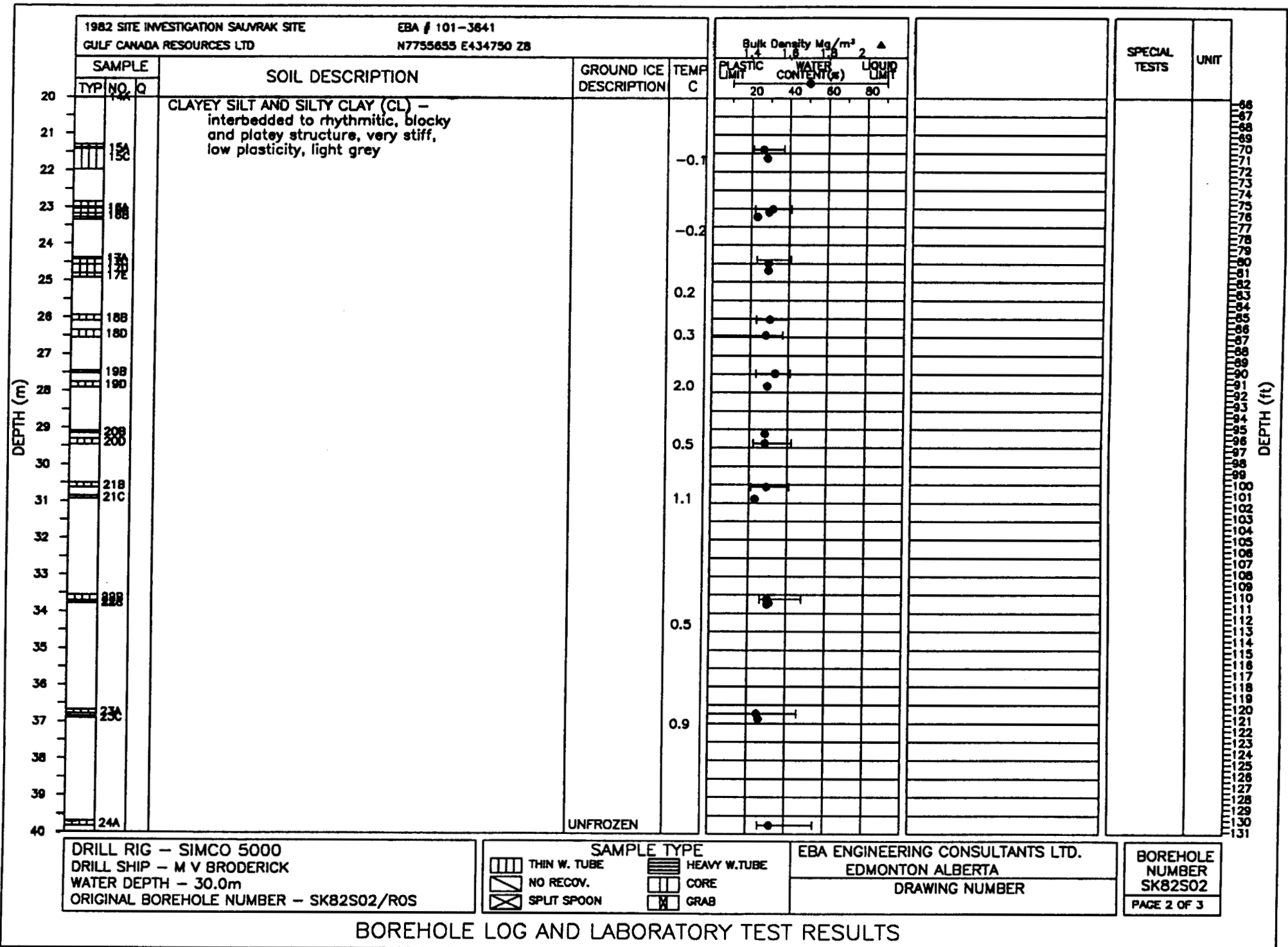
☐ THIN W. TUBE	☐ HEAVY W. TUBE
☐ NO RECOV.	☐ CORE
☐ SPLIT SPOON	☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 WVC25

BOREHOLE LOG AND LABORATORY TEST RESULTS





1982 SITE INVESTIGATION SALVRK SITE GULF CANADA RESOURCES LTD				EBA / 101-3841 N7755655 E434750 ZB		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
TYP	NO.	Q									
			END OF BOREHOLE at 40.1m								
40											132
41											133
42											134
43											135
44											136
45											137
46											138
47											139
48											140
49											141
50											142
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DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 30.0m
 ORIGINAL BOREHOLE NUMBER - SK82S02/ROS

SAMPLE TYPE

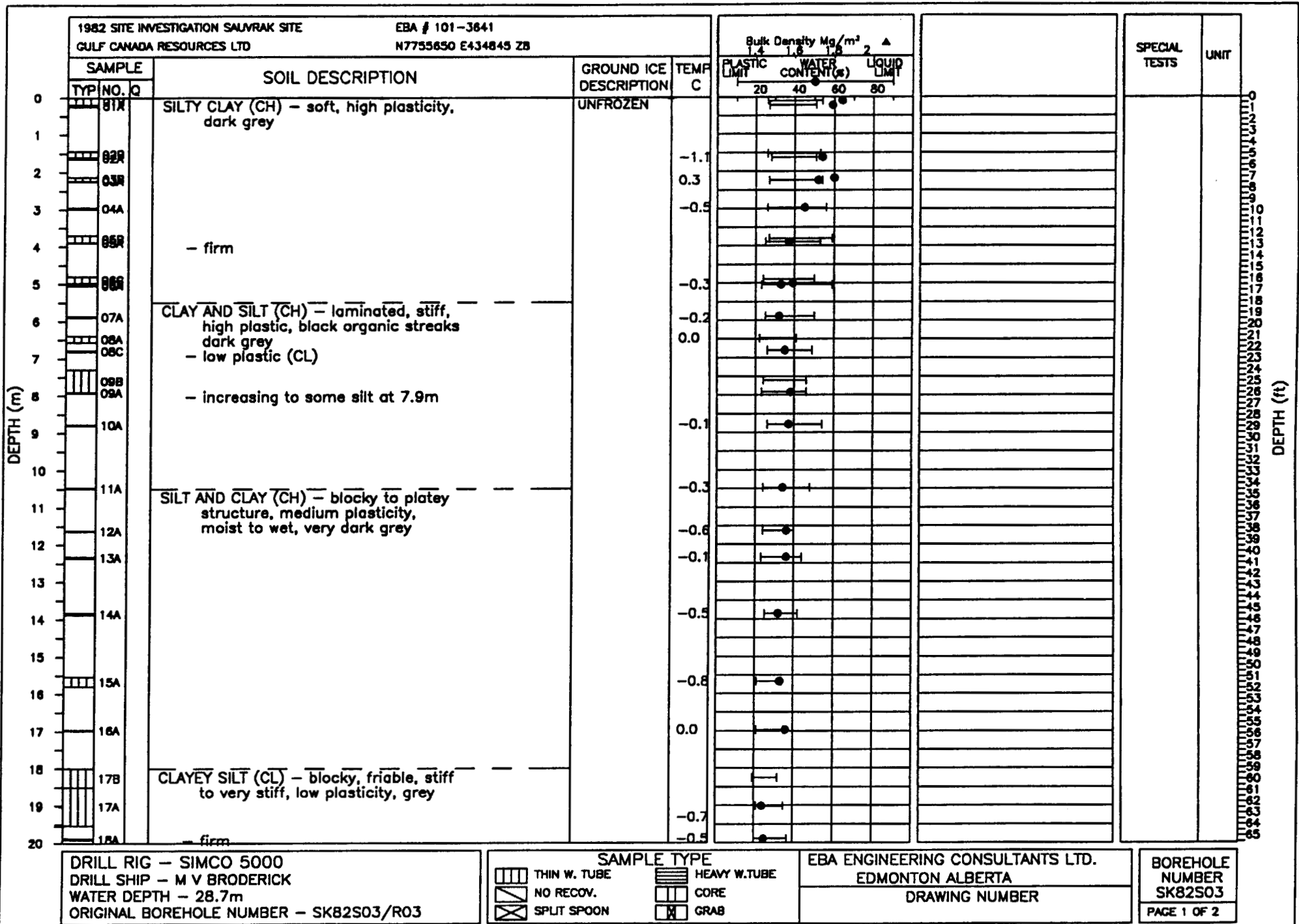
☐ THIN W. TUBE
☐ NO RECOV.
☐ SPLIT SPOON

☐ HEAVY W. TUBE
☐ CORE
☒ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 SK82S02
 PAGE 3 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS



BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION SAUVRAK SITE GULF CANADA RESOURCES LTD				EBA # 101-3641 N7755650 E434845 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT						
TYP	NO.	Q				20	40	60	80			
			CLAYEY SILT (CL) - (cont'd)									66
	19R											67
												68
												69
												70
												71
												72
												73
												74
												75
	20R		END OF BOREHOLE at 23.2m	UNFROZEN								76
												77
												78
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												129
												130
												131

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 28.7m
 ORIGINAL BOREHOLE NUMBER - SK82S03/R03

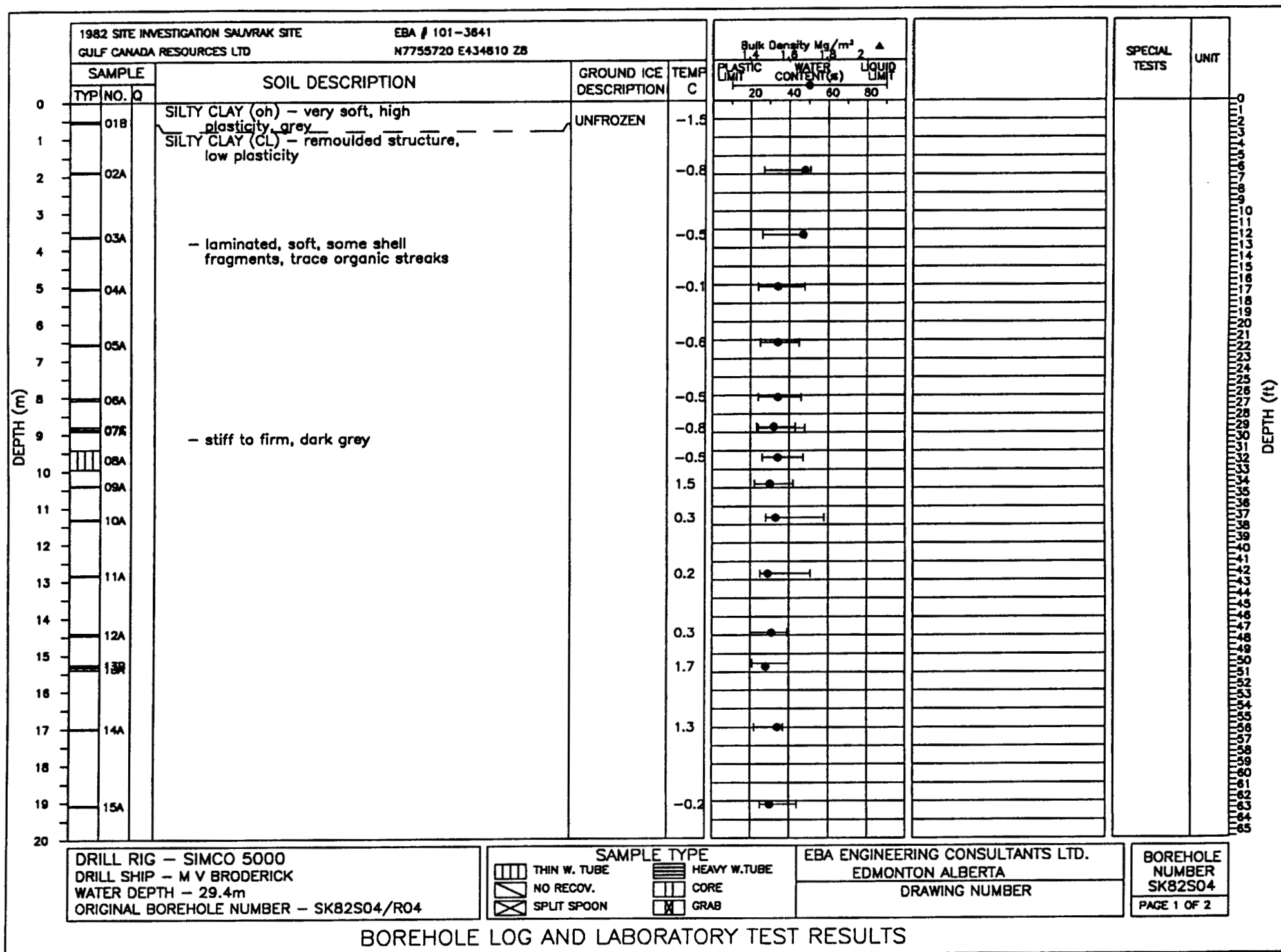
SAMPLE TYPE

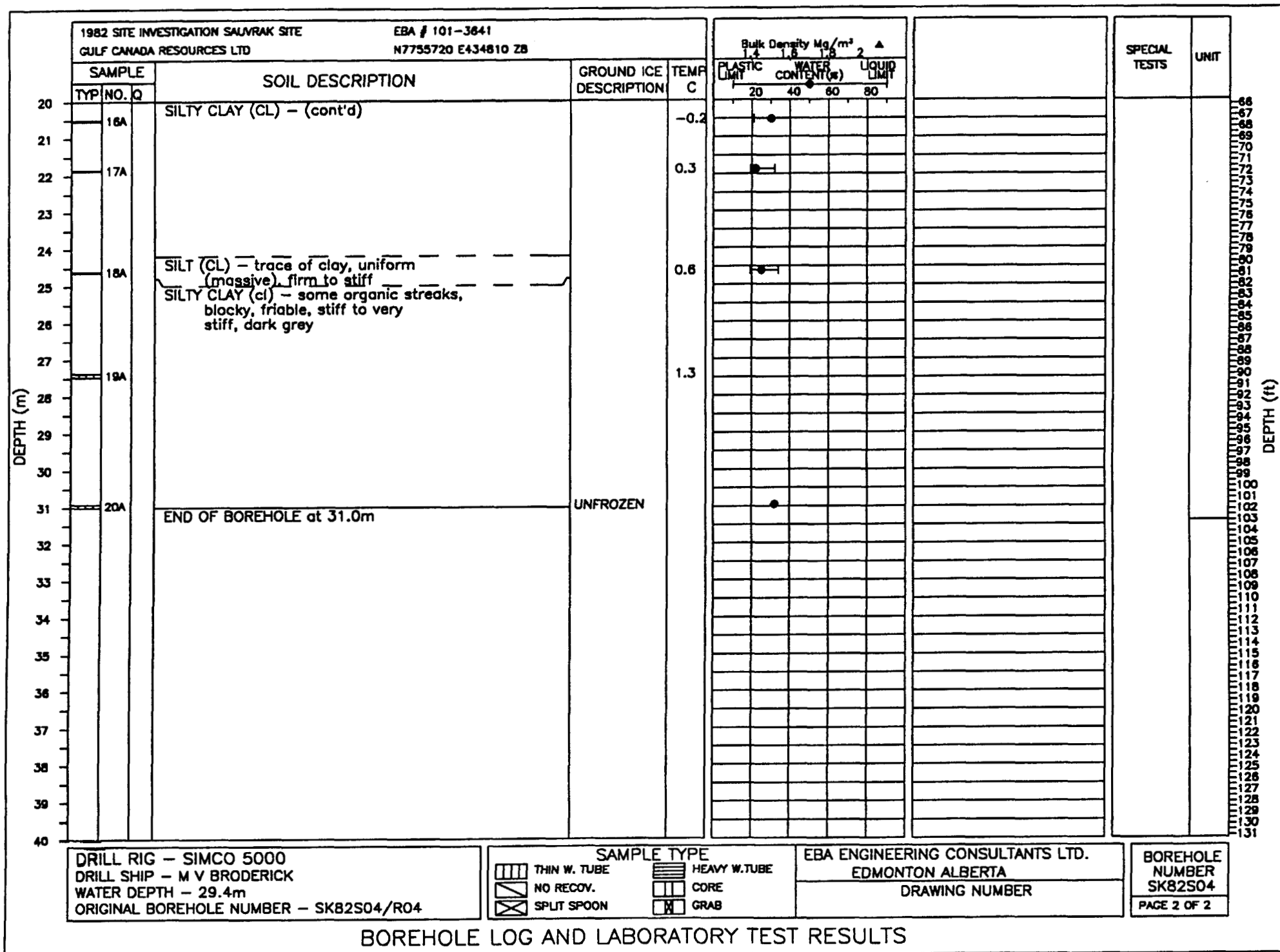
THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 SK82S03
 PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS





DRILL RIG - SIMCO 5000
DRILL SHIP - M V BRODERICK
WATER DEPTH - 29.6m
ORIGINAL BOREHOLE NUMBER - SK82S10/R10

SAMPLE TYPE			
	THIN W. TUBE		HEAVY W. TUBE
	NO RECOV.		CORE
	SPLIT SPOON		GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE
NUMBER
SK82S10

PAGE 1 OF 2

1982 SITE INVESTIGATION SAUVRAK SITE GULF CANADA RESOURCES LTD				EBA # 101-3841 N7756180 E434775 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)	
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO.	Q											
20			NOTE: Samples taken in borehole SK82S10 adjacent to SK82R10. Data from both boreholes combined on this log.									66	
21													67
22													68
23													69
24													70
25													71
26													72
27													73
28													74
29													75
30												76	
31												77	
32												78	
33												79	
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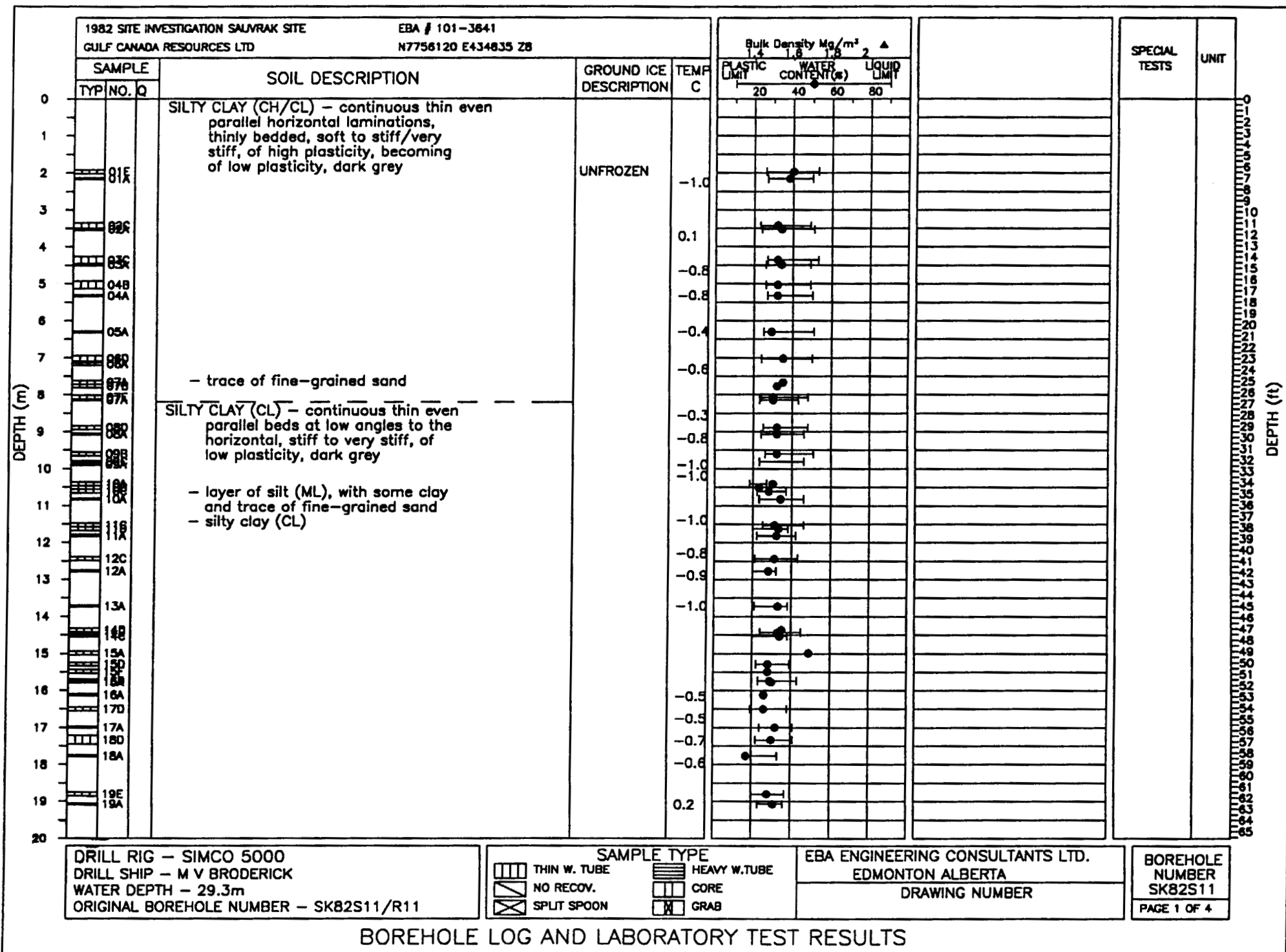
DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 29.6m
 ORIGINAL BOREHOLE NUMBER - SK82S10/R10

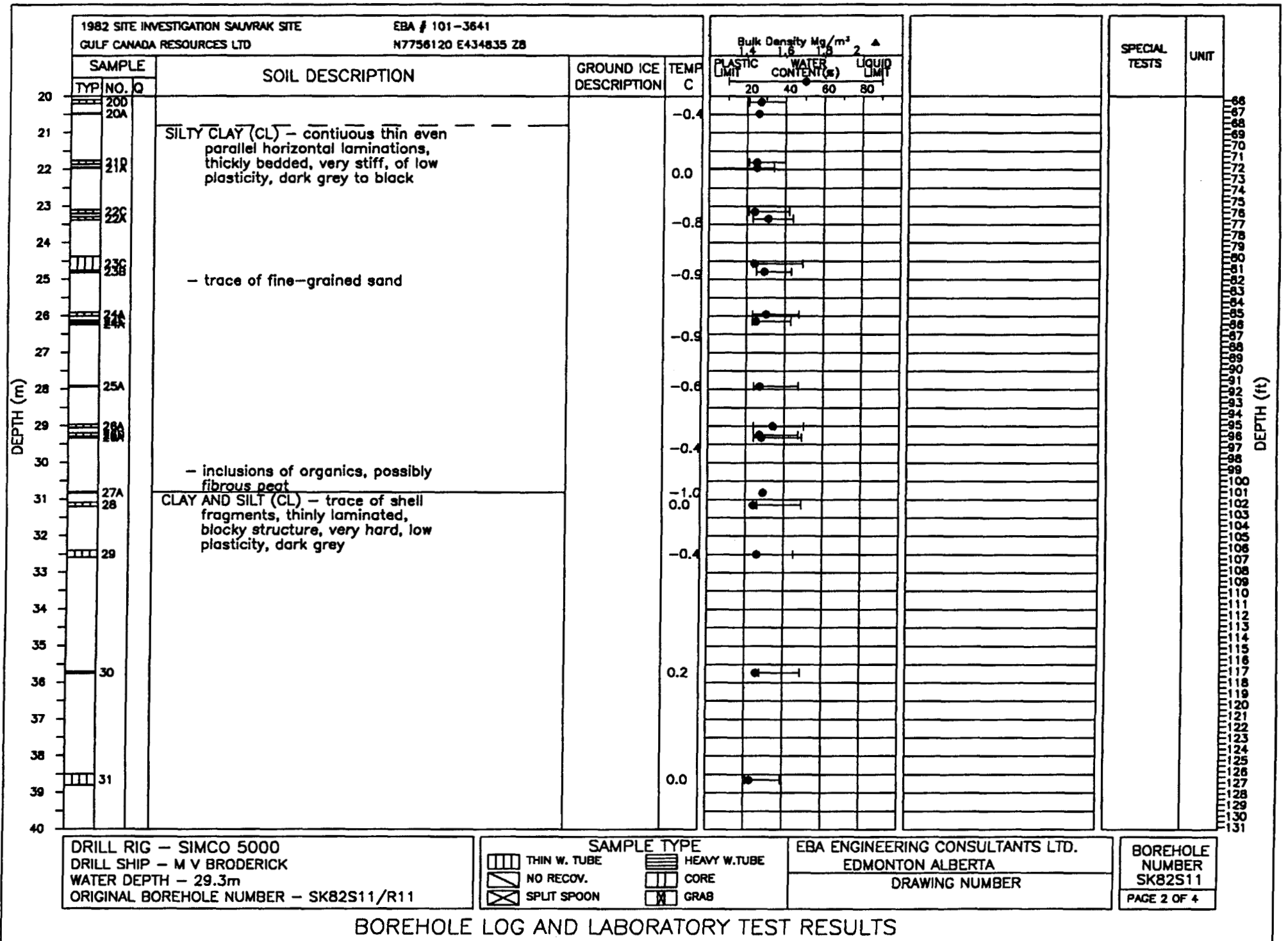
☐ THIN W. TUBE	☐ HEAVY W. TUBE
☐ NO RECOV.	☐ CORE
☐ SPLIT SPOON	☐ GRAB

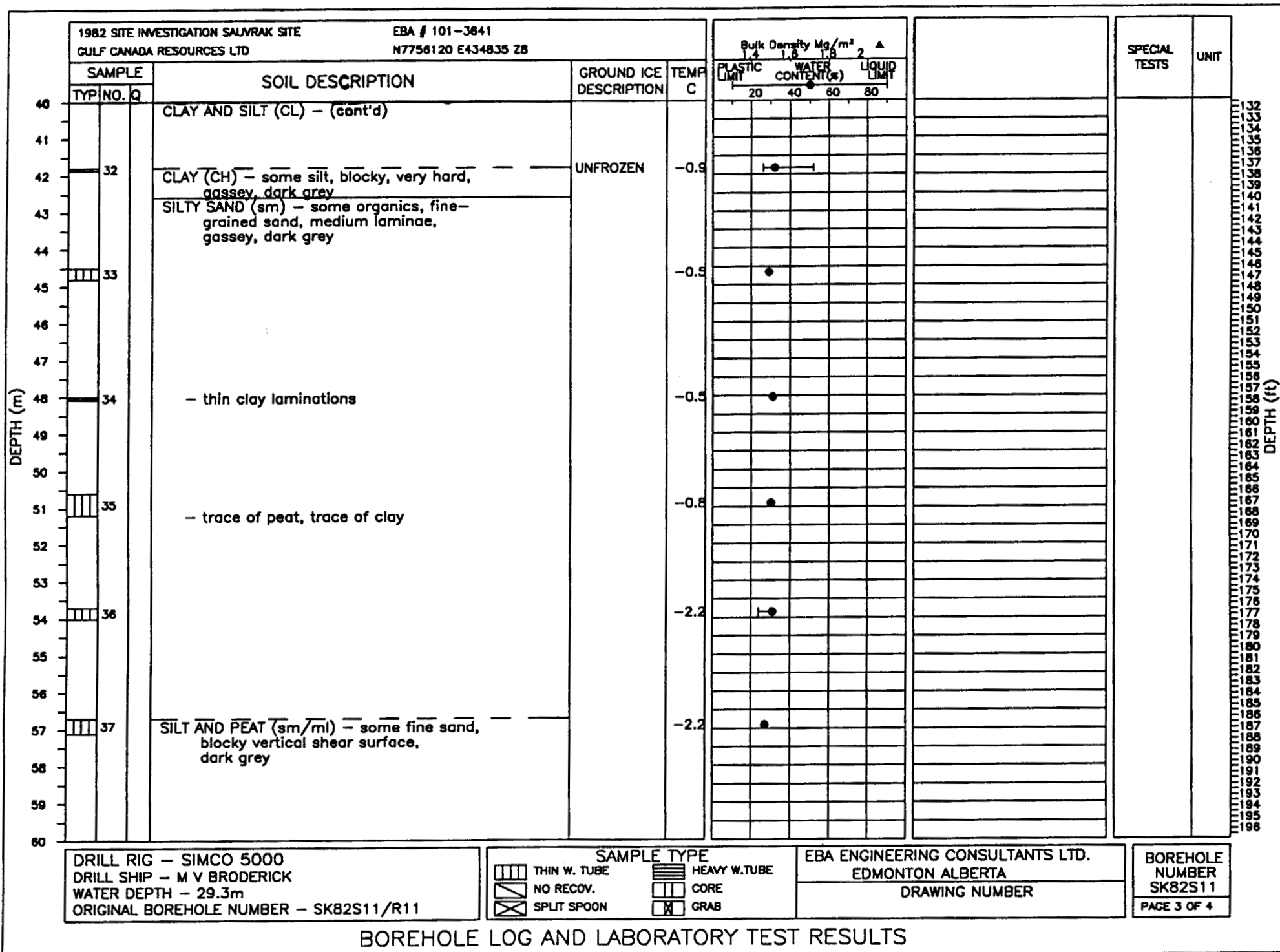
EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 SK82S10
 PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS







1982 SITE INVESTIGATION SALVRK SITE GULF CANADA RESOURCES LTD				EBA # 101-3841 N7756120 E434835 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO.	Q										
60	38		SILT AND PEAT (sm/ml) - (cont'd) END OF BOREHOLE at 60.4m	UNFROZEN	-2.2							197
61												198
62												199
63												200
64												201
65												202
66												203
67												204
68												205
69												206
70												207
71												208
72												209
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												262

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 29.3m
 ORIGINAL BOREHOLE NUMBER - SK82S11/R11

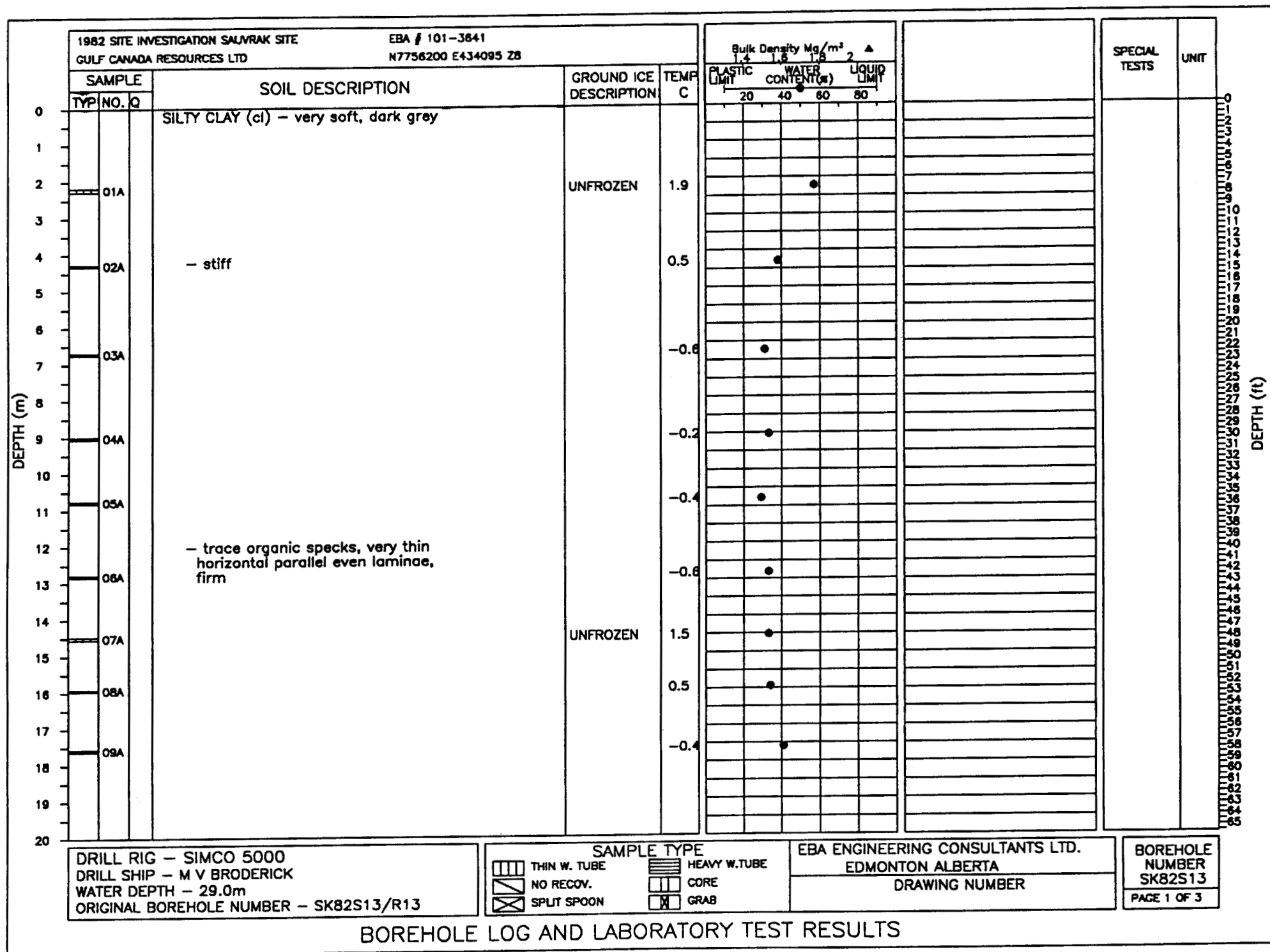
SAMPLE TYPE

☐ THIN W. TUBE	☐ HEAVY W. TUBE
☐ NO RECOV.	☐ CORE
☐ SPLIT SPOON	☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 SK82S11
 PAGE 4 OF 4

BOREHOLE LOG AND LABORATORY TEST RESULTS



1982 SITE INVESTIGATION SAUVRAK SITE GULF CANADA RESOURCES LTD				EBA # 101-3641 N7756200 E434095 Z8		Bulk Density Mg/m^3 ▲ 1.4 1.6 1.8 2.0				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO.	Q										
20	10A		SILTY CLAY (cl) - (cont'd)									66
21												67
22	11A				3.5							68
23	12A		SILT (ml) - some sand, some clay, dark grey		3.4							69
24	12A		SILTY CLAY (cl) - dark grey, firm									70
25	13A				2.3							71
26												72
27												73
28	14A				1.8							74
29												75
30												76
31	15A				1.4							77
32												78
33												79
34	16A		- stiff		0.5							80
35												81
36												82
37	17A		- fissured, firm		2.0							83
38												84
39												85
40												86

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 29.0m
 ORIGINAL BOREHOLE NUMBER - SK82S13/R13

SAMPLE TYPE

☐ THIN W. TUBE	☐ HEAVY W. TUBE
☐ NO RECOV.	☐ CORE
☐ SPLIT SPOON	☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 SK82S13
 PAGE 2 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION SALVRK SITE GULF CANADA RESOURCES LTD				EBA # 101-3841 N7756200 E434095 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO. Q										
40	18A	SILTY CLAY (cl) - (cont'd)	UNFROZEN	0.8	●	●					132
41		END OF BOREHOLE at 40.3m									133
42											134
43											135
44											136
45											137
46											138
47											139
48											140
49											141
50											142
51											143
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DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 29.0m
 ORIGINAL BOREHOLE NUMBER - SK82S13/R13

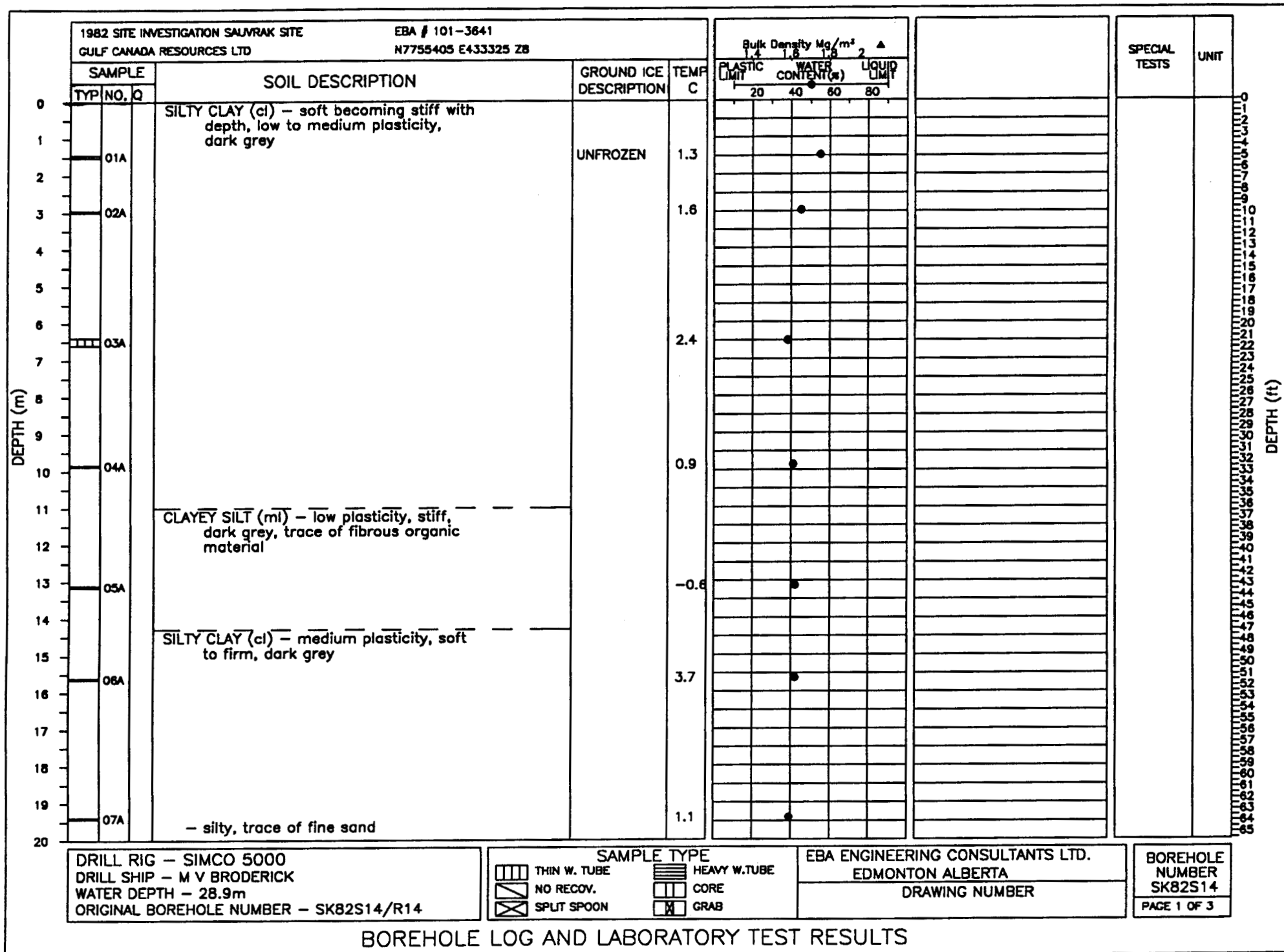
SAMPLE TYPE

☐ THIN W. TUBE	☐ HEAVY W. TUBE
☐ NO RECOV.	☐ CORE
☐ SPLIT SPOON	☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 SK82S13
 PAGE 3 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS



1982 SITE INVESTIGATION SALVRK SITE GULF CANADA RESOURCES LTD				EBA / 101-3641 N7755405 E433325 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
TYP	NO.	Q									
20			SILTY CLAY (cl) - (cont'd)								66
21											67
22	08A		SILT (ml) - some very fine-grained sand, slightly cohesive, dark grey		0.7						68
23											69
24											70
25	09A		- trace of clay, slightly cohesive		-0.9						71
26											72
27											73
28	10A				2.5						74
29											75
30			SILTY CLAY (cl) - trace of fine sand, stiff, dark grey								76
31											77
32	11A				0.7						78
33											79
34											80
35	12A		- silty, low plasticity, hard		1.2						81
36											82
37											83
38	13A		- firm		0.1						84
39											85
40											86

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 28.9m
 ORIGINAL BOREHOLE NUMBER - SK82S14/R14

SAMPLE TYPE

☐ THIN W. TUBE	☐ HEAVY W. TUBE
☐ NO RECOV.	☐ CORE
☐ SPLIT SPOON	☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 SK82S14
 PAGE 2 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION SAUVRAK SITE GULF CANADA RESOURCES LTD				EBA / 101-3841 N7755405 E433325 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.8 2.2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO.	Q										
40			SILTY CLAY (cl) - (cont'd)									132
41	14A											
42												134
43												135
44	15A											136
45												137
46												138
47												139
48												140
49												141
50												142
51												143
52												144
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DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 28.9m
 ORIGINAL BOREHOLE NUMBER - SK82S14/R14

SAMPLE TYPE

☐ THIN W. TUBE	☐ HEAVY W. TUBE
☐ NO RECOV.	☐ CORE
☐ SPLIT SPOON	☐ GRAB

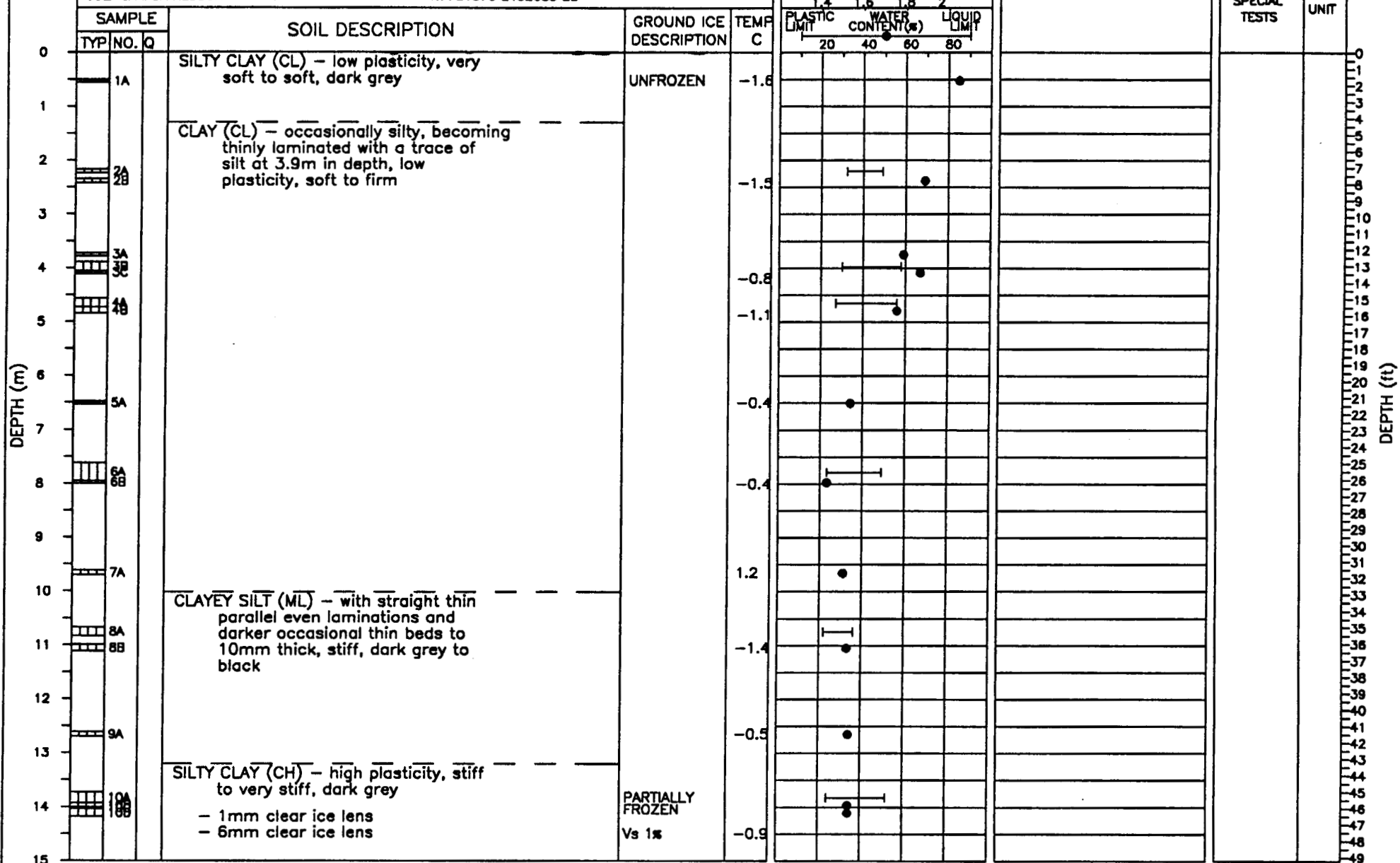
EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 SK82S14
 PAGE 3 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION - KUGDJUK
GULF CANADA RESOURCES INC.

EBA # 101-3657
N7781070 E452635 ZB



DRILL RIG - SIMCO 5000
DRILL SHIP - MV BRODERICK
WATER DEPTH - 43.6m

SAMPLE TYPE
 THIN W. TUBE
 NO RECOVERY
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
KB82502
PAGE 1 OF 4

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION - KUGDIJUK
GULF CANADA RESOURCES INC.

EBA # 101-3657
N7781070 E452635 Z8

DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲				SPECIAL TESTS	UNIT	DEPTH (ft)
	TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
15		11A	CLAY (CH) - (cont'd)	ICE & 40m								50
16			SILT AND CLAY (CL) - with thin parallel even discontinuous laminations and									51
17		12A	less distinct thin beds, very stiff	FROZEN								52
18		12B	even discontinuous laminations and	Nf to Nbn	0.4							53
19			less distinct thin beds, very stiff									54
20		13A	dark grey, low plasticity									55
21		13B	- clear ice lens at 20.0m	Nbn								56
22												57
23		14A	SILTY CLAY (CL) - with thin parallel even discontinuous laminations of black material, firm to stiff, dark grey to black, low plasticity	Vr 5% becoming Nbn								58
24		14B										59
25												60
26		15A	- (CH) stiff, dark grey to black high plasticity, 2mm clear ice lens at 26.4m		-0.1							61
27		15B										62
28												63
29		16A		Vr trace	-0.7							64
30												65
												66
												67
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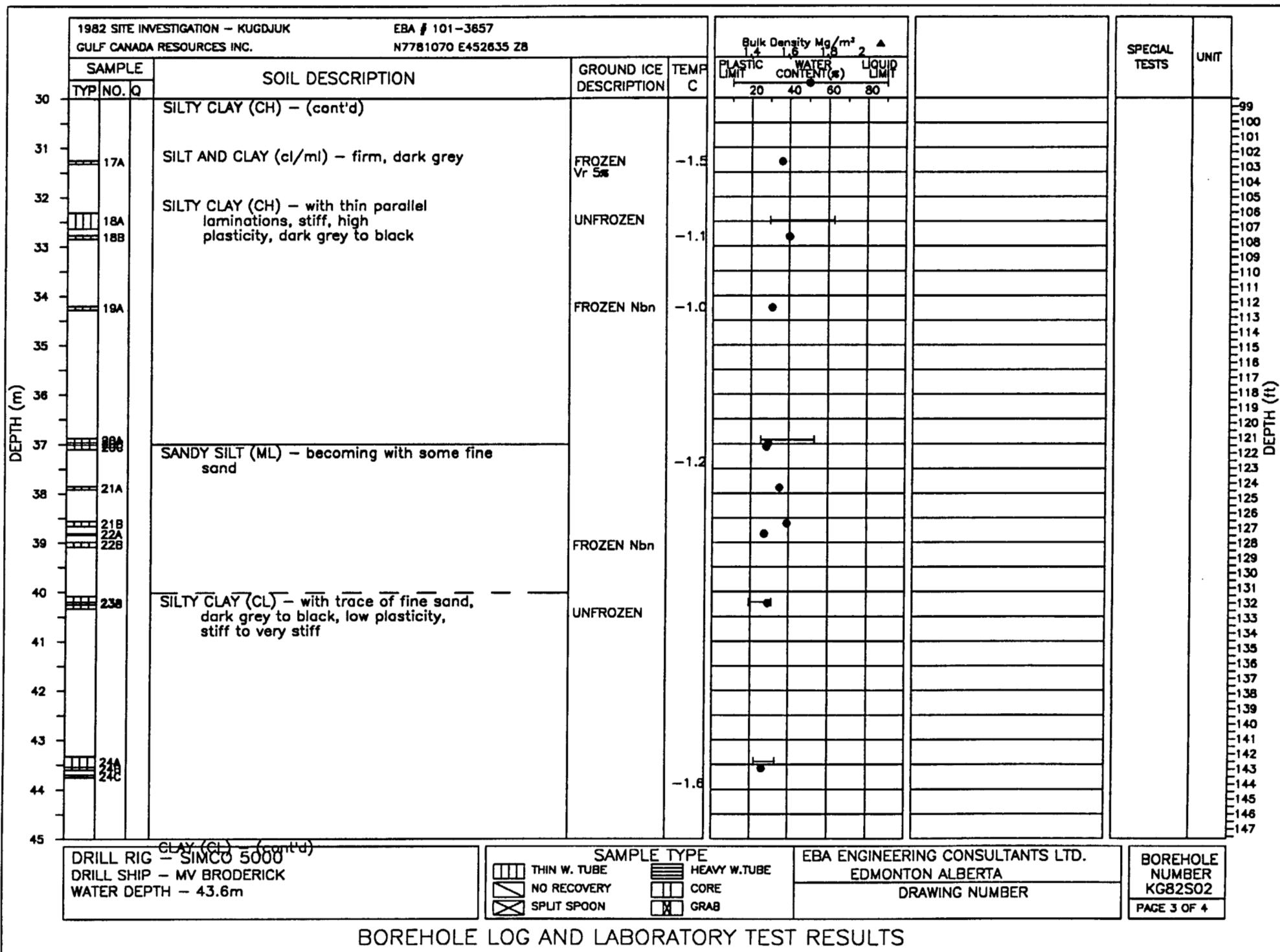
DRILL RIG - SIMCO 5000
DRILL SHIP - MV BRODERICK
WATER DEPTH - 43.6m

SAMPLE TYPE
 THIN W. TUBE
 NO RECOVERY
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
KG82S02
PAGE 2 OF 4

BOREHOLE LOG AND LABORATORY TEST RESULTS



1982 SITE INVESTIGATION - KUGDJUK GULF CANADA RESOURCES INC.				EBA # 101-3657 N7781070 E452635 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	WATER CONTENT (%)							
TYP	NO. Q				PLASTIC LIMIT	LIQUID LIMIT	WATER CONTENT (%)					
45		CLAY (CL) - (cont'd)										148
46	25B	Interbedded:- CLAYEY SILT (ml) - with weak horizontal black banding		-2.0								149
47												150
48												151
49												152
50	26A 26B 26C			-1.9								153
51												154
52												155
53	27A	END OF BOREHOLE at 52.8m	UNFROZEN									156
54												157
55												158
56												159
57												160
58												161
59												162
60												163
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												196

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 43.6m

SAMPLE TYPE	
THIN W. TUBE	HEAVY W. TUBE
NO RECOVERY	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KG82S02
 PAGE 4 OF 4

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION -HERSCHEL BORROW				EBA # 101-3662											
GULF CANADA RESOURCES INC.				N7714750 E588720 Z7											
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲						SPECIAL TESTS	UNIT		
TYP	NO.	Q				PLASTIC LIMIT	WATER CONTENT(%)	LIQUID LIMIT							
0	1A		CLAY (cl) - silty, massive traces of dark organic banding, mottled light and dark grey	UNFROZEN											
	1C		SAND (SM) - some silt and clay, fine grained, uniform, dark to med. grey												
			END OF BOREHOLE at 0.4m												
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 16.2m

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 HB82S01

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION -HERSCHEL BORROW					EBA / 101-3682							
GULF CANADA RESOURCES INC.					N7729350 E562160 Z7							
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲				SPECIAL TESTS	UNIT	DEPTH (ft)
TYP	NO.	Q				PLASTIC LIMIT	WATER CONTENT(%)	LIQUID LIMIT	20			
			GRAVEL (gp) - pieces to 2 cm size, dense, much sand content lost in the process of taking and recovering a sample	UNFROZEN								0
												1
												2
												3
												4
												5
												6
												7
												8
												9
												10
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												14
												15
												16
												17
												18
												19
												20
												21
			END OF BOREHOLE at 6.7m									22
												23
												24
												25
												26
												27
												28
												29
												30
												31
												32

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 16.5m

SAMPLE TYPE

☐ THIN W. TUBE

☐ NO RECOV.

☐ SPLIT SPOON

☐ HEAVY W.TUBE

☐ CORE

☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 HB82S02

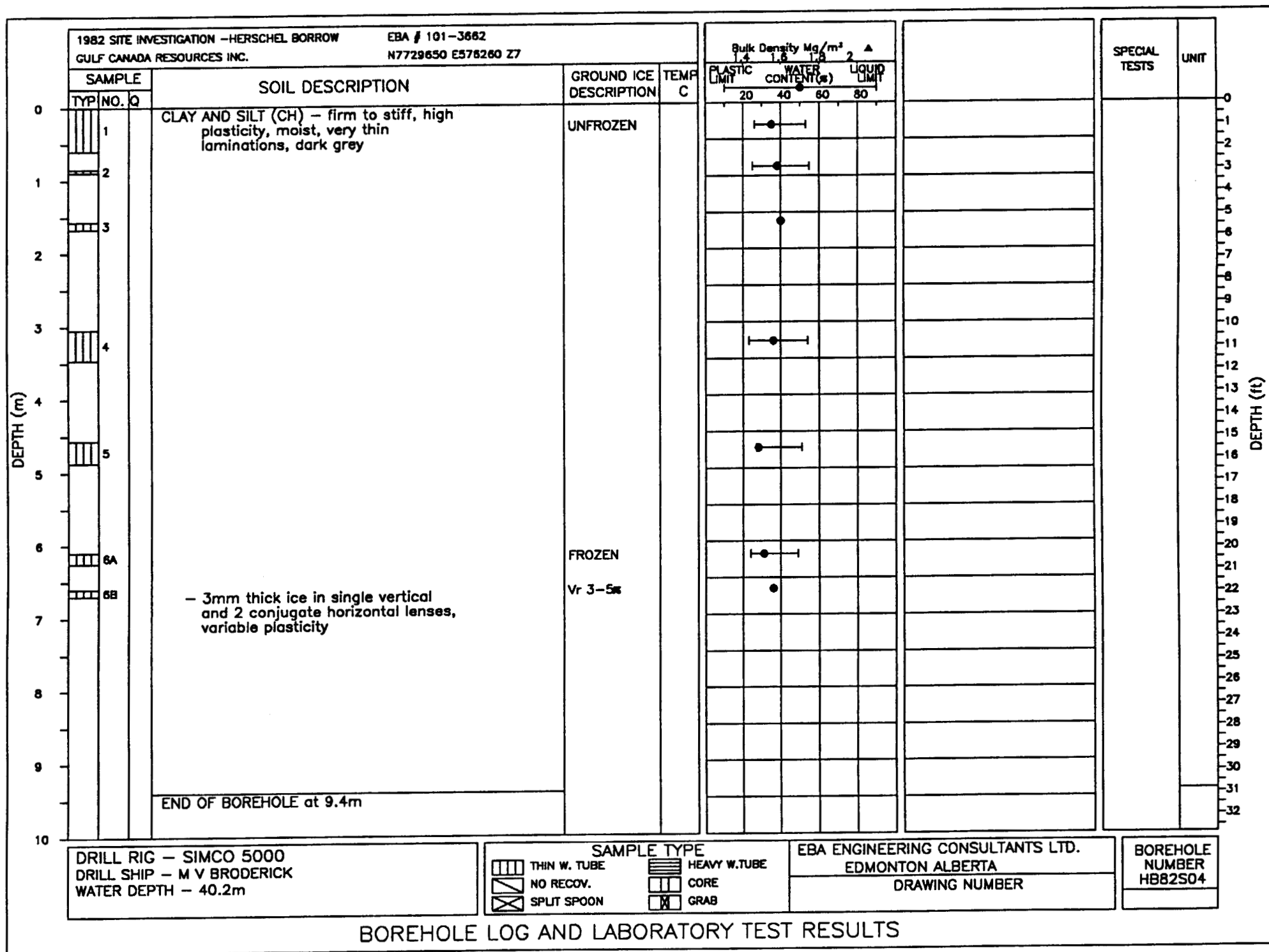
BOREHOLE LOG AND LABORATORY TEST RESULTS

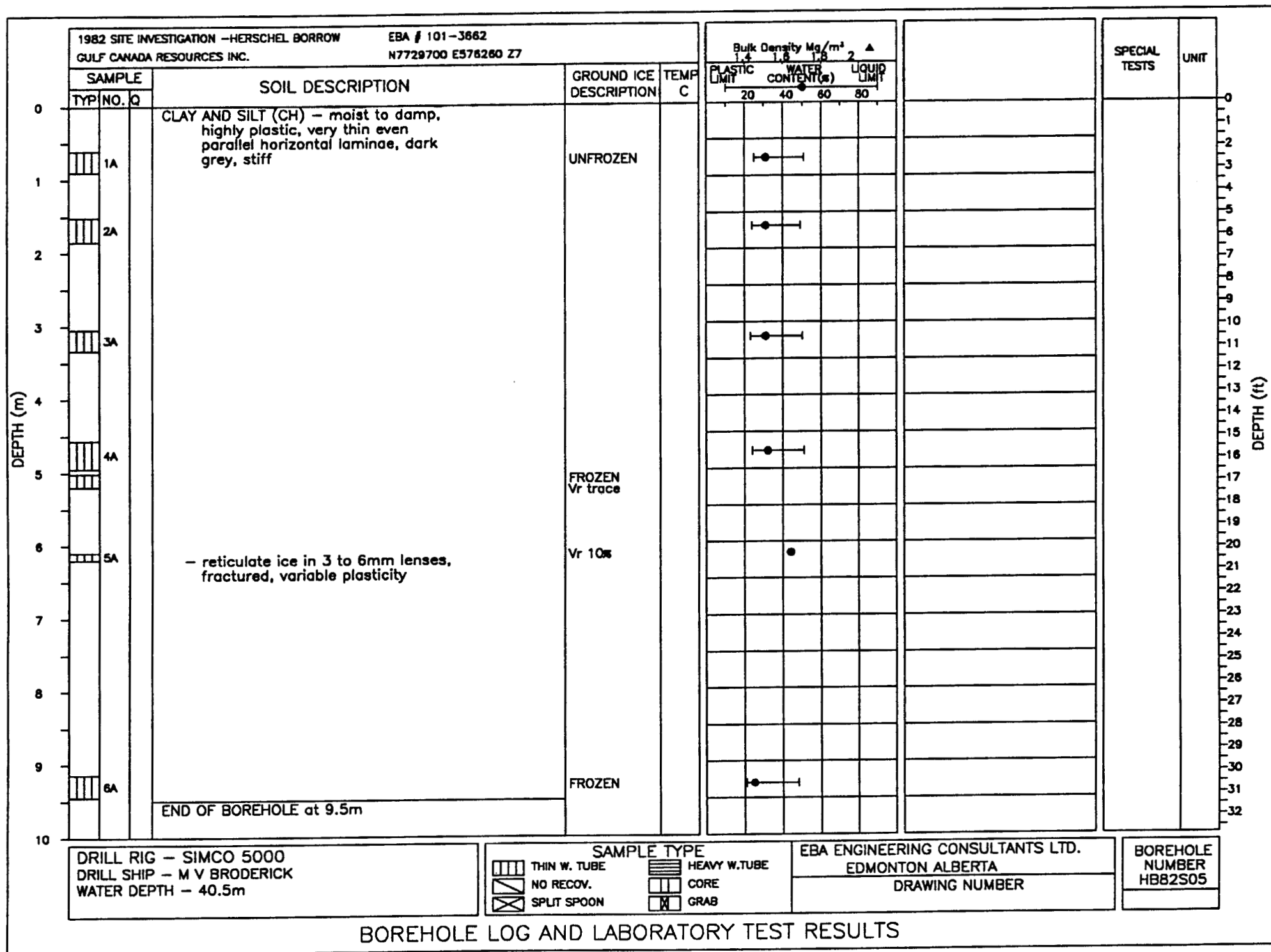
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N7729460 E568135 Z7

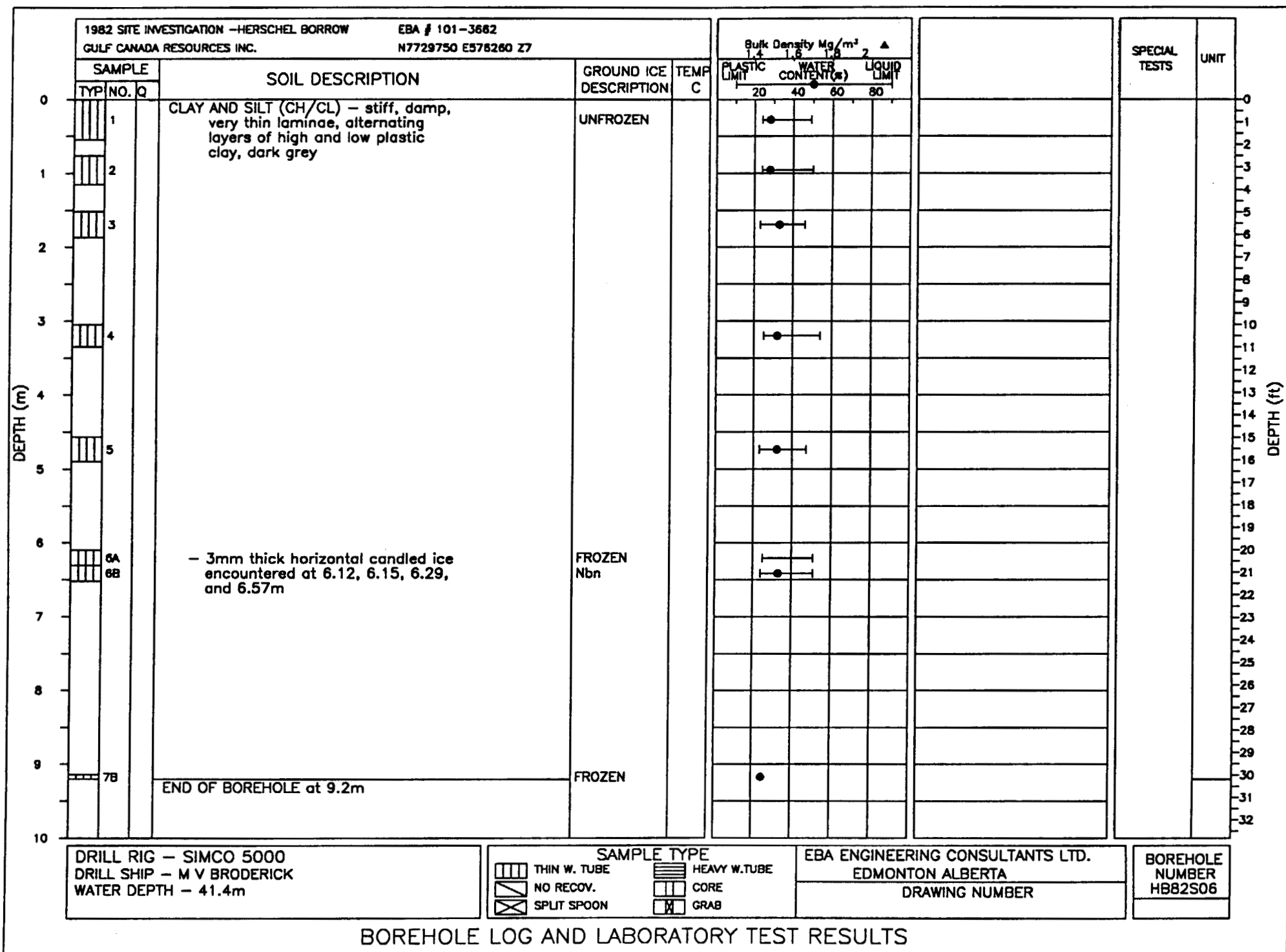
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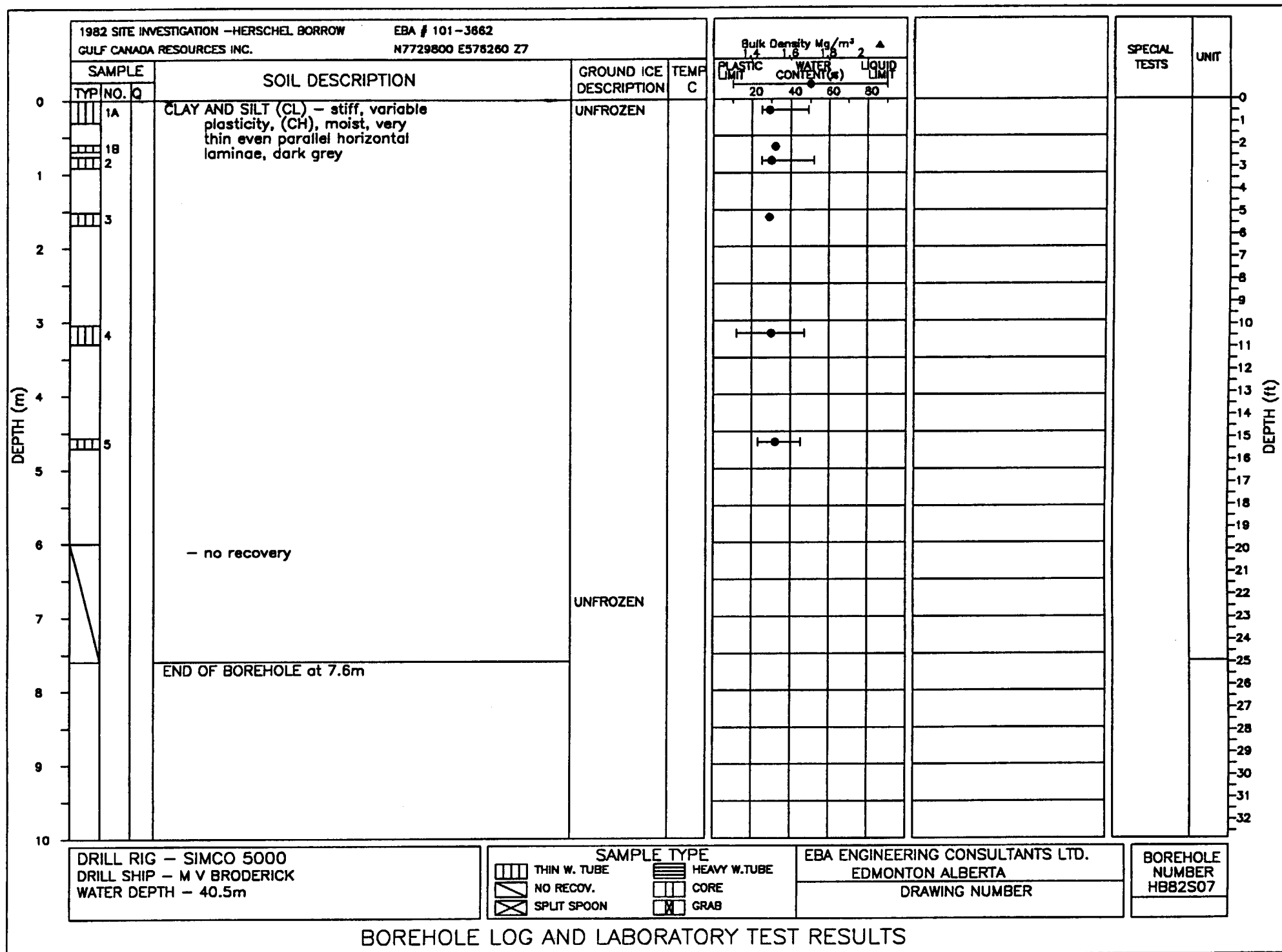
BOREHOLE
NUMBER
HB82S03

BOREHOLE LOG AND LABORATORY TEST RESULTS









EBA / 101-3682
N7717920 E585250 Z7

DEPTH (m)

BOREHOLE
NUMBER
HB82S08

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION -HERSCHEL BORROW
GULF CANADA RESOURCES INC.

EBA # 101-3662
N7714770 E588533 Z7

SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲				SPECIAL TESTS	UNIT	DEPTH (ft)
TYP	NO.	Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
	1A		SANDY CLAYEY SILT (CL) - some fine sand, firm, moist, low plasticity, structureless, homogenous, medium grey, very stiff after 0.44m, laminated	UNFROZEN								0
	1B											1
												2
	2											3
												4
												5
												6
												7
												8
												9
	3A		SILT AND CLAY (CL) - very stiff, damp, low plasticity, dark grey									10
	3B											11
												12
												13
												14
												15
	4											16
												17
												18
												19
	5A											20
	5B											21
												22
												23
												24
												25
												26
	6											27
												28
												29
												30
												31
												32
	7											

DRILL RIG - SIMCO 5000
DRILL SHIP - M V BRODERICK
WATER DEPTH - 16.0m

SAMPLE TYPE
 THIN W. TUBE
 NO RECOV.
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER HB82S09
PAGE 1 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION -HERSCHEL BORROW EBA / 101-3882 GULF CANADA RESOURCES INC. N7714770 E588533 Z7					Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2.0					SPECIAL TESTS	UNIT		
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT 20 40 60 80							
TYP	NO.	Q											
10			CLAY (CL) - (cont'd)								33		
11	8		- becoming (CH) - occasional 3mm horizontal weak ice lens	FROZEN Vr & Vs 2%		40	50				34		
12	9		- no visible ice END OF BOREHOLE at 12.3m	FROZEN		40	50				35		
13											36		
14											37		
15											38		
16											39		
17											40		
18											41		
19											42		
20											43		
											44		
											45		
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											60		
											61		
											62		
											63		
											64		
											65		

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 16.0m

SAMPLE TYPE	
THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 HB82509
 PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION -HERSCHEL BORROW				EBA # 101-3662						
GULF CANADA RESOURCES INC.				N7714690 E588475 Z7						
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2	PLASTIC LIMIT 20 40 60 80	WATER CONTENT(%) 20 40 60 80	LIQUID LIMIT	SPECIAL TESTS	UNIT
DEPTH (m)	TYP NO. Q									
0	1A	SILT AND CLAY (CL) - trace of fine sand, soft, low plasticity, moist, homogeneous, structureless, medium grey, clay stiff after 0.49m, sand layer from 0.59 to 0.72m	UNFROZEN							
	1C									
1	2A									
2										
	3A									
3										
	4A									
4										
	5A									
5										
	6A	- 50mm silt lens, moist, nonplastic, dark olive grey								
6										
	7A	- very stiff, damp, high plasticity, (CH)								
7										
8										
9										
10										

DRILL RIG - SIMCO 5000
DRILL SHIP - M V BRODERICK
WATER DEPTH - 16.0m

SAMPLE TYPE			
THIN W. TUBE	HEAVY W. TUBE		
NO RECOV.	CORE		
SPLIT SPOON	GRAB		

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
HB82S10
PAGE 1 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION -HERSCHEL BORROW				EBA # 101-3682															
GULF CANADA RESOURCES INC.				N7714690 E588475 Z7															
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲						SPECIAL TESTS	UNIT	DEPTH (ft)					
TYP	NO.	Q				PLASTIC LIMIT	WATER CONTENT(%)	LIQUID LIMIT											
			CLAY (CH) - (cont'd)												33				
	8		- 3mm horizontal ice lens	FROZEN Vs trace											34				
															35				
															36				
															37				
															38				
															39				
	9														40				
															41				
															42				
															43				
															44				
	10		- 20mm ice crystal	Vx trace											45				
															46				
															47				
															48				
															49				
	11			FROZEN Vs trace											50				
			END OF BOREHOLE at 15.5m												51				
															52				
															53				
															54				
															55				
															56				
															57				
															58				
															59				
															60				
															61				
															62				
															63				
															64				
															65				

DRILL RIG - SIMCO 5000
DRILL SHIP - M V BRODERICK
WATER DEPTH - 16.0m

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
HB82S10
PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION -HERSCHEL BORROW				EBA # 101-3882																	
GULF CANADA RESOURCES INC.				N7710050 E594510 Z7																	
SAMPLE		SOIL DESCRIPTION		GROUND ICE		TEMP		Bulk Density Mg/m ³ ▲													
TYP	NO. Q			DESCRIPTION		C		PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT											
		GRAVEL (gp)		UNFROZEN																	
		SILT AND CLAY (CL) - with trace of fine-grained gravel, amorphous, hard, dark grey to black, gravel is distributed randomly throughout the sample, low plasticity																			
	1																				
	2																				
	3																				
		- parallel thin even laminations		UNFROZEN																	
	4																				
	5																				
		- trace of sand and cobble																			
		END OF BOREHOLE at 9.1m																			

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 21.7m

SAMPLE TYPE

THIN W. TUBE

NO RECOV.

SPLIT SPOON

HEAVY W. TUBE

CORE

GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 HBB2S11

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION -HERSCHEL BORROW				EBA # 101-3662											
GULF CANADA RESOURCES INC.				N7703960 E596240 Z7											
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲					SPECIAL TESTS	UNIT	DEPTH (ft)		
TYP	NO.	Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT							
			GRAVEL (GW-GP) - fine to medium-grained with some sand and trace of silt, particles to 20mm diameter, assumed dense, dark grey	UNFROZEN									0		
													1		
													2		
													3		
													4		
													5		
													6		
													7		
			SILT AND CLAY (CL) - with trace of fine-grained gravel, trace of sand, black to dark grey, low plasticity										8		
													9		
				UNFROZEN									10		
			END OF BOREHOLE at 3.3m										11		
													12		
													13		
													14		
													15		
													16		
													17		
													18		
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													30		
													31		
													32		

DRILL RIG - SIMCO 5000
 DRILL SHIP - M V BRODERICK
 WATER DEPTH - 9.5m

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 HB82S12

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION - TARSUUT F-35 GULF CANADA RESOURCES INC.				EBA # 101-3663 N7756030 E446440 Z8		Bulk Density Mg/m³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
15		CLAYEY SILT (ML) - (cont'd)									50	
16		SILT (ML) - some clay to clayey, firm to stiff, dark grey ice lenses vertically and horizontally in the sample to 3.4mm thickness, trace of organic black material									51	
17	9A										52	
18											53	
19											54	
20		SILT (ML) - (CONT'D)									55	
21	10A		FROZEN, Vx								56	
22											57	
23											58	
24	11A	- trace to some sand	Vx, Vx-Nbe Nbe								59	
25												60
26												61
27	12A											62
28											63	
29											64	
30											65	
											66	
											67	
											68	
											69	
											70	
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											97	
											98	

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 24.4m
 ORIGINAL BOREHOLE NUMBER - TW 82 S01

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 TW82S01
 PAGE 2 OF 4

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION - TARSUUT F-35 GULF CANADA RESOURCES INC.				EBA # 101-3883 N7756030 E448440 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT						
TYP	NO.	Q				20	40	60	80			
	13A		SILT (CL) - (cont'd)									99
30												100
31												101
32												102
33												103
34												104
35												105
36												106
37												107
38												108
39												109
40												110
41												111
42												112
43												113
44												114
45												115
	14A		- sandy, trace of clay, dense, low plasticity, dark olive grey	Vx-Nf								116
												117
												118
												119
												120
												121
												122
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												145
												146
												147

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 24.4m
 ORIGINAL BOREHOLE NUMBER - TW 82 S01

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA

DRAWING NUMBER

BOREHOLE NUMBER
 TW82S01

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BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION - TARSUUT F-35 GULF CANADA RESOURCES INC.				EBA # 101-3663 N7756030 E446440 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO.	Q										
45												148
46	18A		END OF BOREHOLE at 45.9m	FROZEN								149
47												150
48												151
49												152
50												153
51												154
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53												156
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												195
												196

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 24.4m
 ORIGINAL BOREHOLE NUMBER - TW 82 S01

SAMPLE TYPE

☐ THIN W. TUBE	☐ HEAVY W. TUBE
☐ NO RECOV.	☐ CORE
☐ SPLIT SPOON	☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 TW82S01
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION - EAST AMAULIGAK
GULF CANADA RESOURCES INC.

EBA # 101-3685
N7772730 E549085 Z8

SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲				SPECIAL TESTS	UNIT	DEPTH (ft)
TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
					20	40	60	80			0
	1A	SILTY CLAY (CH) - trace of silt, very soft becoming soft, high plasticity dark grey	UNFROZEN			45					1
	1B										2
											3
											4
											5
											6
											7
	2A					55					8
											9
											10
											11
											12
											13
											14
	P3B					45					15
	3A					50					16
	4B					55					17
	4A					50					18
											19
											20
											21
											22
	5A					50					23
											24
											25
											26
											27
	P6B					45					28
	6A					50					29
											30
	7B					55					31
	7A					50					32

DRILL RIG - SIMCO 5000
DRILL SHIP - MV BRODERICK
WATER DEPTH - 33.5m
ORIGINAL BOREHOLE NUMBER - EA 82 S01

SAMPLE TYPE
 THIN W. TUBE
 NO RECOV.
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
EA82S01
PAGE 1 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

1982 SITE INVESTIGATION - EAST AMAULIGAK GULF CANADA RESOURCES INC.				EBA # 101-3685 N7772730 E549085 Z8		Bulk Density Mg/m^3 ▲ 1.4 1.8 1.9 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
10	8A	SILTY CLAY (CH) - (cont'd)										33
												34
												35
												36
11	9A	SAND (sc) - fine-grained, clayey, with trace of silt, dense dark grey becoming: at 11.1m	UNFROZEN									37
		SAND (sm) - fine-grained, silty, dark olive grey										38
12		END OF BOREHOLE at 11.1m										39
												40
												41
												42
13												43
												44
												45
14												46
												47
												48
												49
15												50
												51
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16												53
												54
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17												56
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18												59
												60
												61
19												62
												63
												64
20												65

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 33.5m
 ORIGINAL BOREHOLE NUMBER - EA 82 S01

SAMPLE TYPE

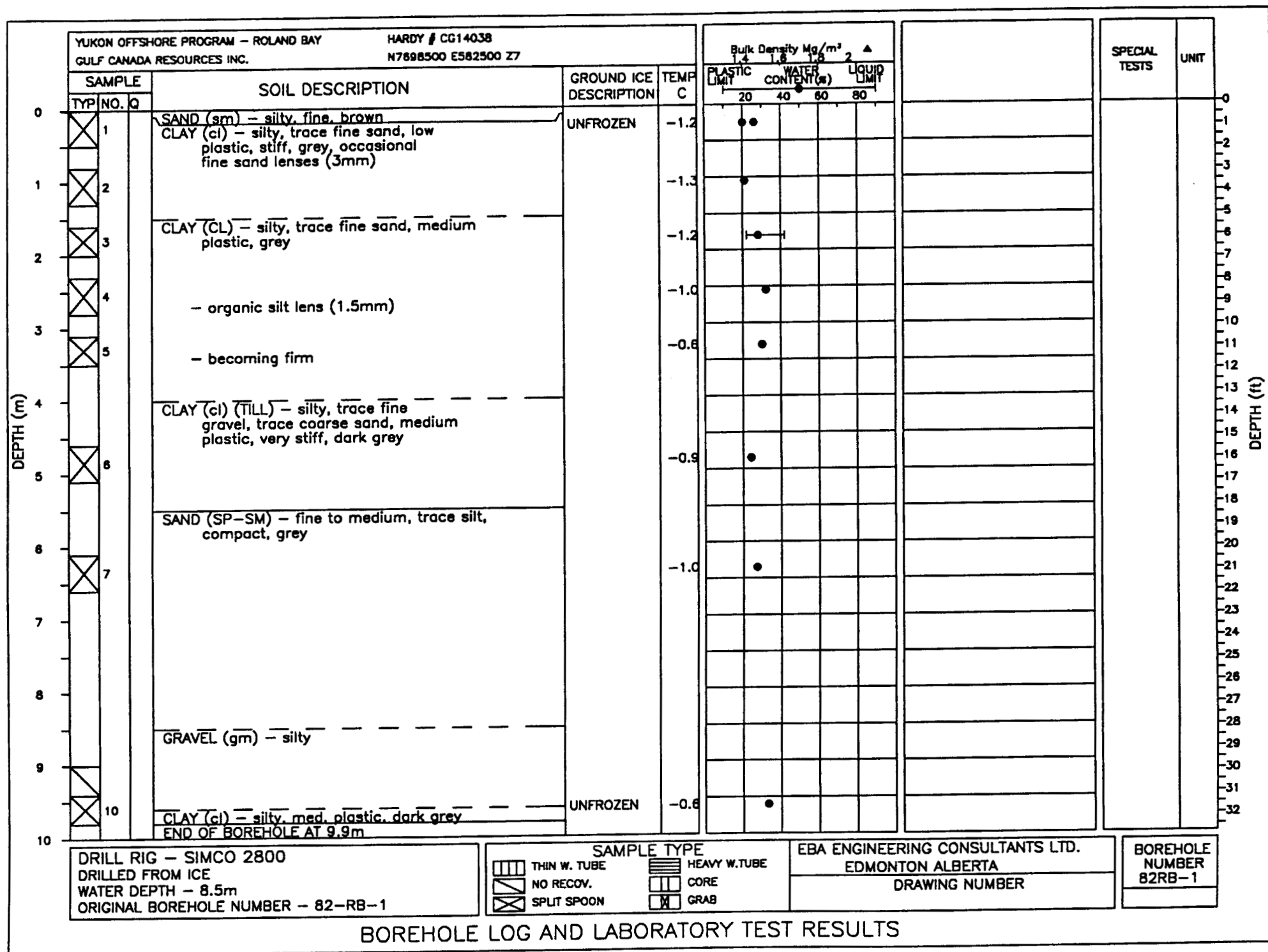
THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

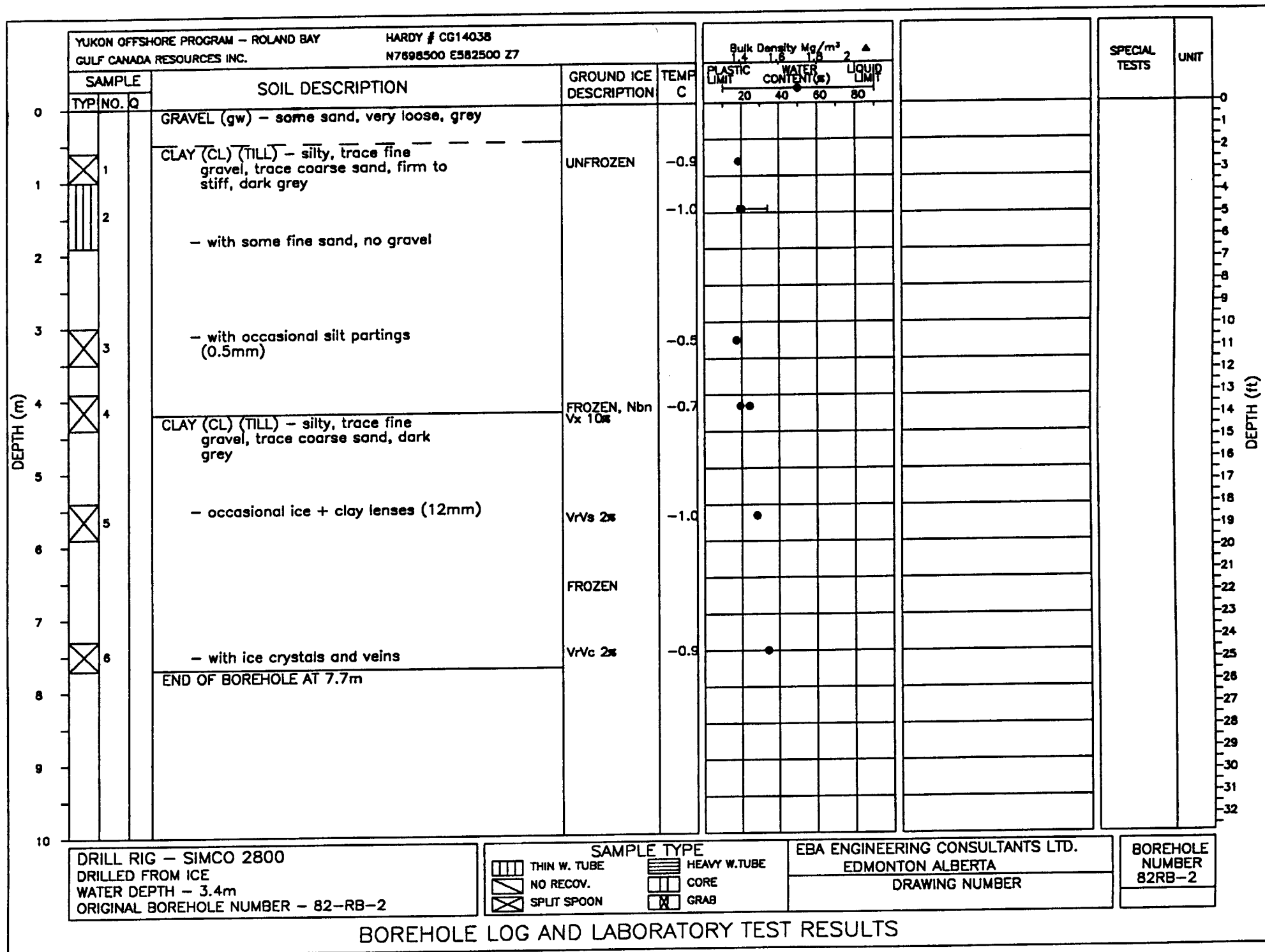
EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

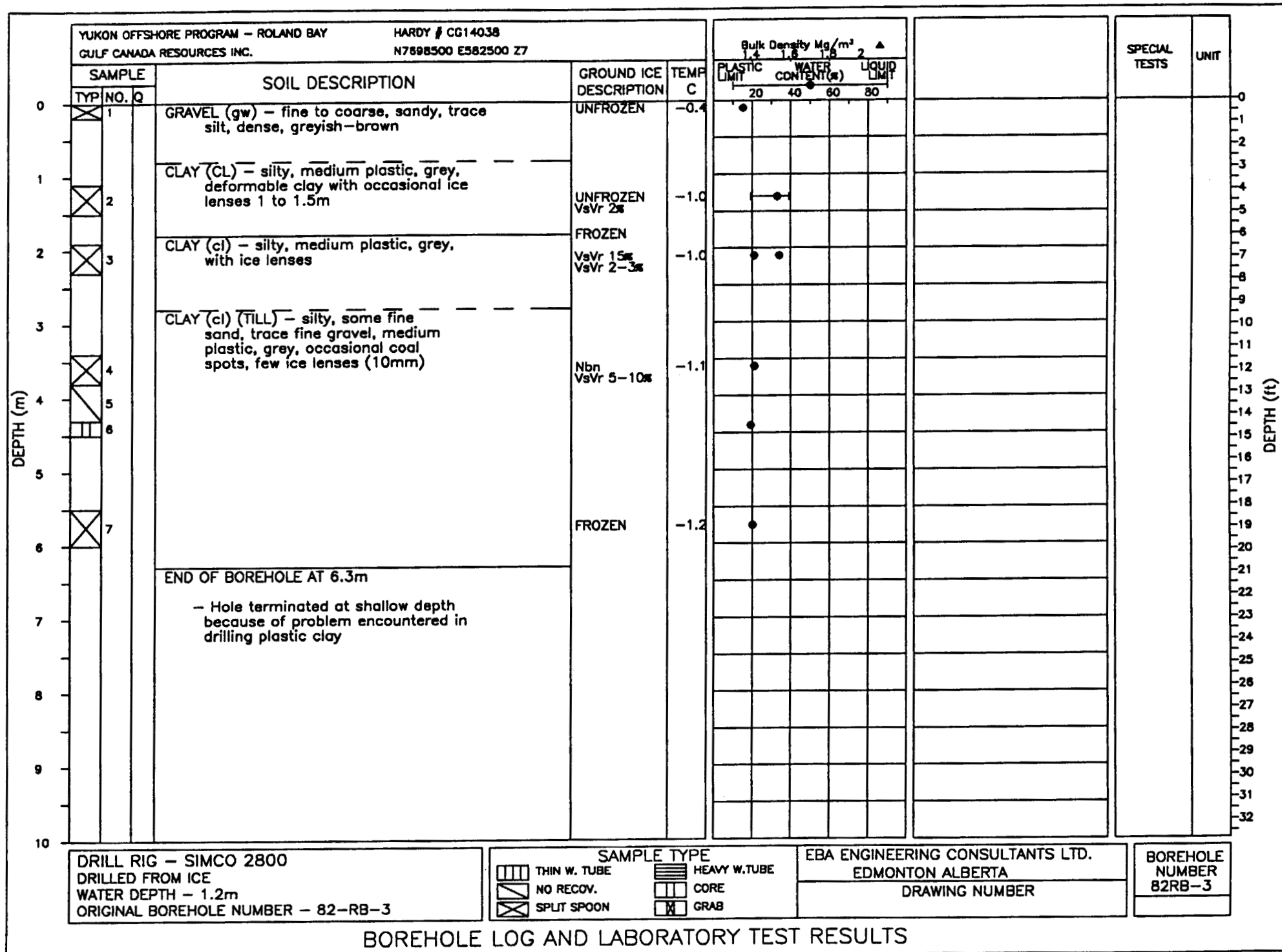
BOREHOLE NUMBER
 EA82S01
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BOREHOLE LOG AND LABORATORY TEST RESULTS

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YUKON OFFSHORE PROGRAM - ROLAND BAY		HARDY # CG14038		Bulk Density Mg/m ³ ▲		SPECIAL TESTS	UNIT
GULF CANADA RESOURCES INC.		N7698500 E582500 Z7		PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT 20 40 60 80			
SAMPLE	SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C				
0	1 SAND (SP-SM) and GRAVEL - trace silt, fine to coarse sand, fine gravel, compact, brownish-grey	UNFROZEN	-1.9				0
1	2 SAND (sp) - fine, trace silt, trace fine gravel, very loose, brownish-grey - silt lens (50mm)						1
2	3 PEAT and ORGANIC SILT (pt/ol) - odorous, black, some decayed leaves		-0.2	•	•		2
3	4 SAND (SP-SM) - fine, some silt, trace fine gravel, brownish-grey						3
4	5 SAND (sm) - fine, some silt and organic silt, peaty		-0.6	•			4
5	6 CLAY (cl) (TILL) - trace fine gravel, trace coarse sand, medium plastic, very stiff, dark grey		-0.7	•	•		5
6	7 CLAY (CH) - high plastic, very stiff, dark grey, structureless						6
7	8 CLAY (cl) - silty, trace fine sand, medium plastic, very stiff, dark grey		-0.3	•			7
8	9 CLAY (ch) - high plastic, very stiff, dark grey, slight laminations with occasional silt partings (0.5mm)	UNFROZEN	0.6	•	—		8
9	END OF BOREHOLE AT 9.6m		-0.5	•	•		9
10			-0.3	•			10

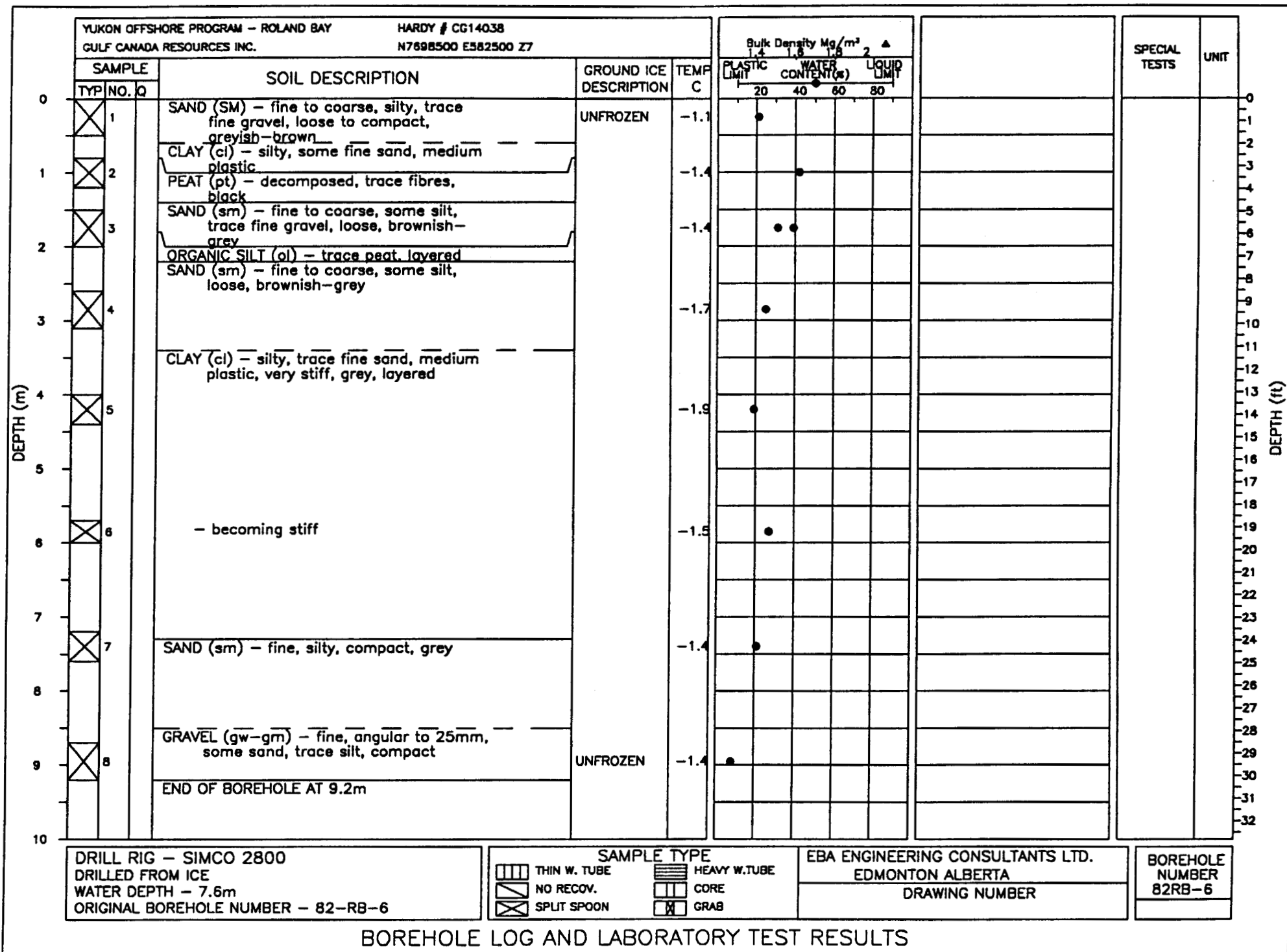
DRILL RIG - SIMCO 2800
 DRILLED FROM ICE
 WATER DEPTH - 4.3m
 ORIGINAL BOREHOLE NUMBER - 82-RB-5

SAMPLE TYPE
 THIN W. TUBE HEAVY W. TUBE
 NO RECOV. CORE
 SPLIT SPOON GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 82RB-5

BOREHOLE LOG AND LABORATORY TEST RESULTS



HARDY # CG14038
N7698500 E582500 Z7

SOIL DESCRIPTION

GROUND ICE	TEMP
DESCRIPTION	C

Bulk Density Mg/m³ ▲

PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT

20 40 60 80

SPECIAL TESTS	UNIT
------------------	------

DEPTH (m)

DEPTH (ft)

DRILL RIG - SIMCO 2800
DRILLED FROM ICE
WATER DEPTH - 3.2m
ORIGINAL BOREHOLE NUMBER - 82-RB-7

SAMPLE TYPE			
	THIN W. TUBE		HEAVY W. TUBE
	NO RECOV.		CORE
	SPLIT SPOON		GRAB

EBA ENGINEERING CONSULTANTS LTD. EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE
NUMBER
82RB-7

BOREHOLE LOG AND LABORATORY TEST RESULTS

YUKON OFFSHORE PROGRAM - ROLAND BAY GULF CANADA RESOURCES INC.				HARDY / CG14038 N7698500 E582500 Z7		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2.0 PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT 20 40 60 80				SPECIAL TESTS	UNIT
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C							
TYP	NO. Q										
0	X 1	SAND (sp) - fine to medium, trace silt CLAY (cl/ch) (TILL) - silty, trace fine gravel, trace coarse sand, medium to high plastic, dark grey - becoming stiff with depth		UNFROZEN							
1											
2		CLAY (cl/ch) (TILL) - silty, trace fine gravel, trace coarse sand, medium to high plastic, dark grey, few ice lenses and veins (3mm)		FROZEN VrVs 5-10%	-1.7						
3	X 2 X 3										
4		END OF BOREHOLE AT 3.3m - Hole terminated at shallow depth due to problem encountered in drilling plastic clay		FROZEN VrVs 5%	-1.6						
5											
6											
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BOREHOLE LOG AND LABORATORY TEST RESULTS

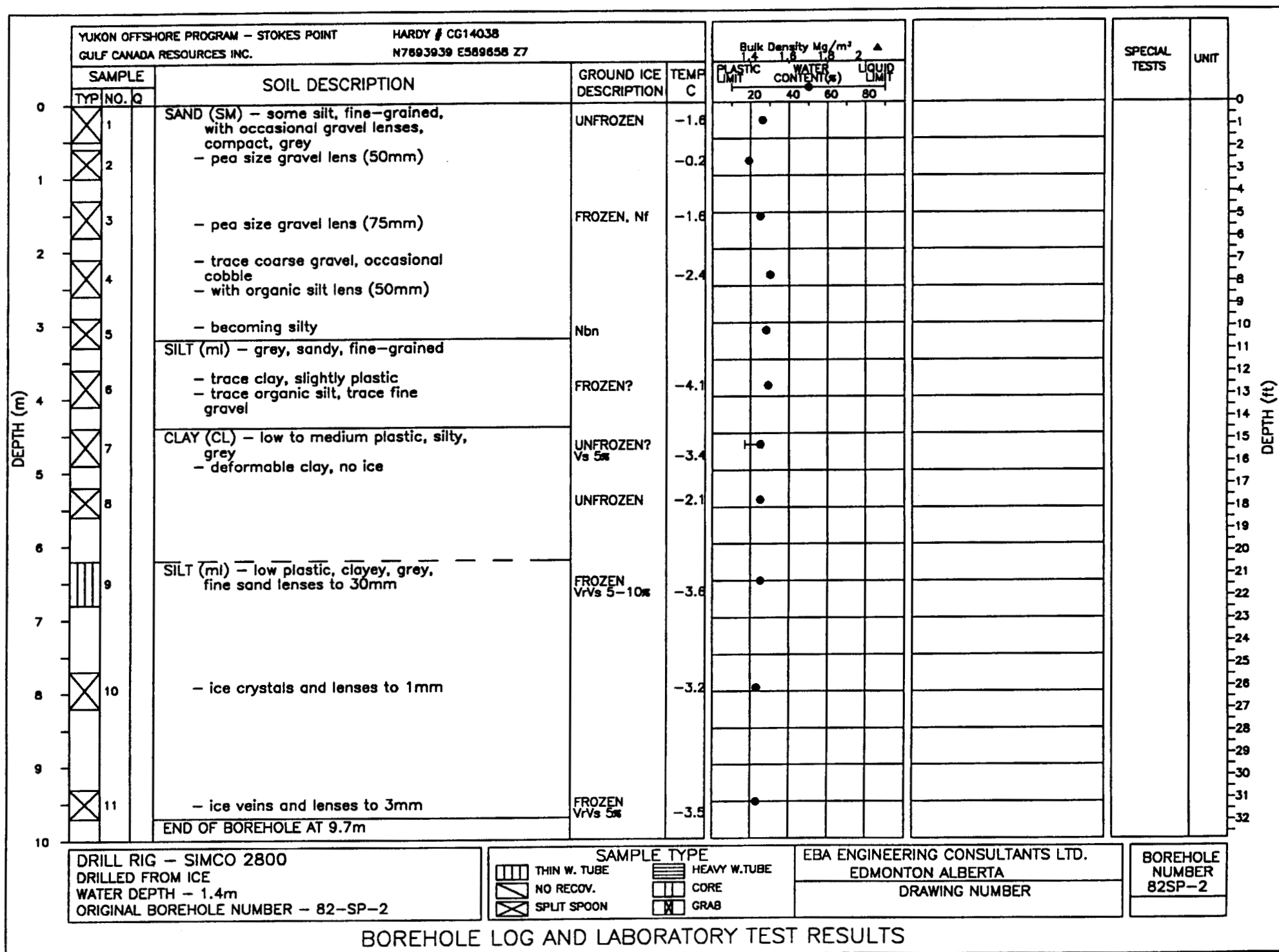
DRILL RIG - SIMCO 2800
 DRILLED FROM ICE
 WATER DEPTH - 1.4m
 ORIGINAL BOREHOLE NUMBER - 82-RB-8

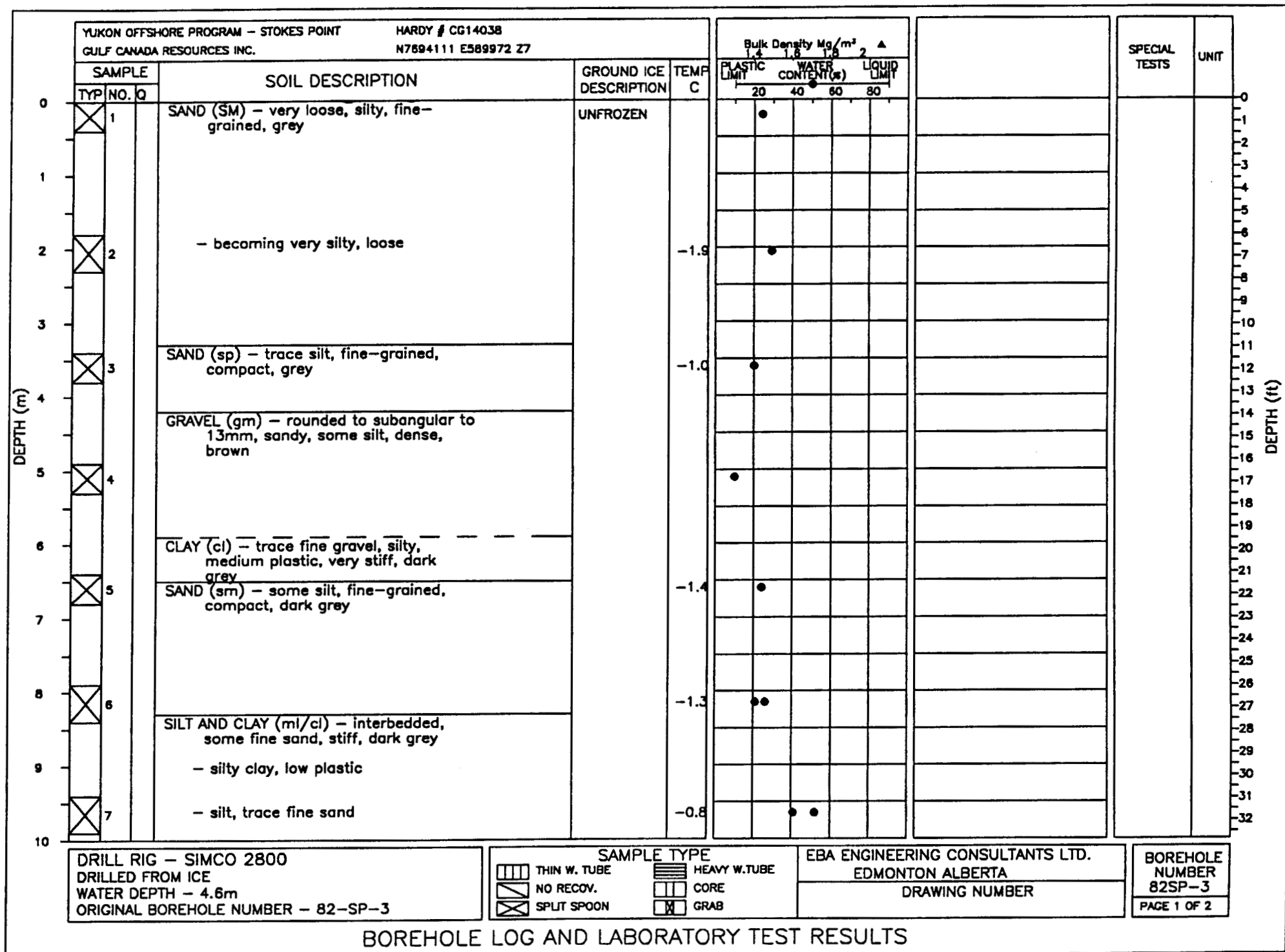
SAMPLE TYPE	
THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 82RB-8

YUKON OFFSHORE PROGRAM - STOKES POINT GULF CANADA RESOURCES INC.				HARDY # CG14038 N7693633 E569096 Z7																
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m³ ▲ 1.4 1.6 1.8 2						SPECIAL TESTS	UNIT								
TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT													
0		ORGANIC SILT (ol)	UNFROZEN	1.7								0								
1		SAND (SM) and SILT - trace organics, loose, wet, fine-grained, black												1						
2															2					
3																3				
4		- with silt layers															4			
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YUKON OFFSHORE PROGRAM - STOKES POINT GULF CANADA RESOURCES INC.				HARDY # CG14038 N7894111 E589972 Z7		Bulk Density Mg/m ³ ▲				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT						
TYP	NO.	Q				20	40	60	80			
			SILT AND CLAY (ml/cl) - (cont'd)									33
			- silty clay									34
												35
			- clayey silt									36
												37
												38
			- silty clay, trace fine sand, low plastic, stiff, dark grey									39
			- silt and organic silt lens (100mm), laminated, dark grey and black									40
												41
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			SAND (sm) - saturated, silty, fine grained, grey									50
			- clayey sand lens (50mm)	UNFROZEN								51
			END OF BOREHOLE AT 16.0m									52
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DRILL RIG - SIMCO 2800 DRILLED FROM ICE WATER DEPTH - 4.6m ORIGINAL BOREHOLE NUMBER - 82-SP-3		SAMPLE TYPE ☐ THIN W. TUBE ☐ HEAVY W. TUBE ☐ NO RECOV. ☐ CORE ☒ SPLIT SPOON ☒ GRAB		EBA ENGINEERING CONSULTANTS LTD. EDMONTON ALBERTA DRAWING NUMBER		BOREHOLE NUMBER 82SP-3 PAGE 2 OF 2
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BOREHOLE LOG AND LABORATORY TEST RESULTS

YUKON OFFSHORE PROGRAM - STOKES POINT GULF CANADA RESOURCES INC.				HARDY # CG14038 N7694230 E590191 Z7		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
	TYP	NO. Q										
0	X	1	SAND (SM) - some silt, fine-grained, very loose, grey	UNFROZEN								0
1												1
2	X	2	SAND (sm) - silty, fine-grained, trace fine gravel, compact, grey - trace organics		-1.0							2
3	X	3			-2.0							3
4	X	4										4
5	X	5	- fine to medium-grained		0.7							5
6	X	6	- fine-grained		-0.6							6
7												7
8	X	7	- silty clay lens (75mm), medium plastic - sandy gravel layer (100mm), loose		-1.3							8
9				UNFROZEN								9
10		8	END OF BOREHOLE AT 9.6m									10

DRILL RIG - SIMCO 2800
 DRILLED FROM ICE
 WATER DEPTH - 4.9m
 ORIGINAL BOREHOLE NUMBER - 82-SP-4

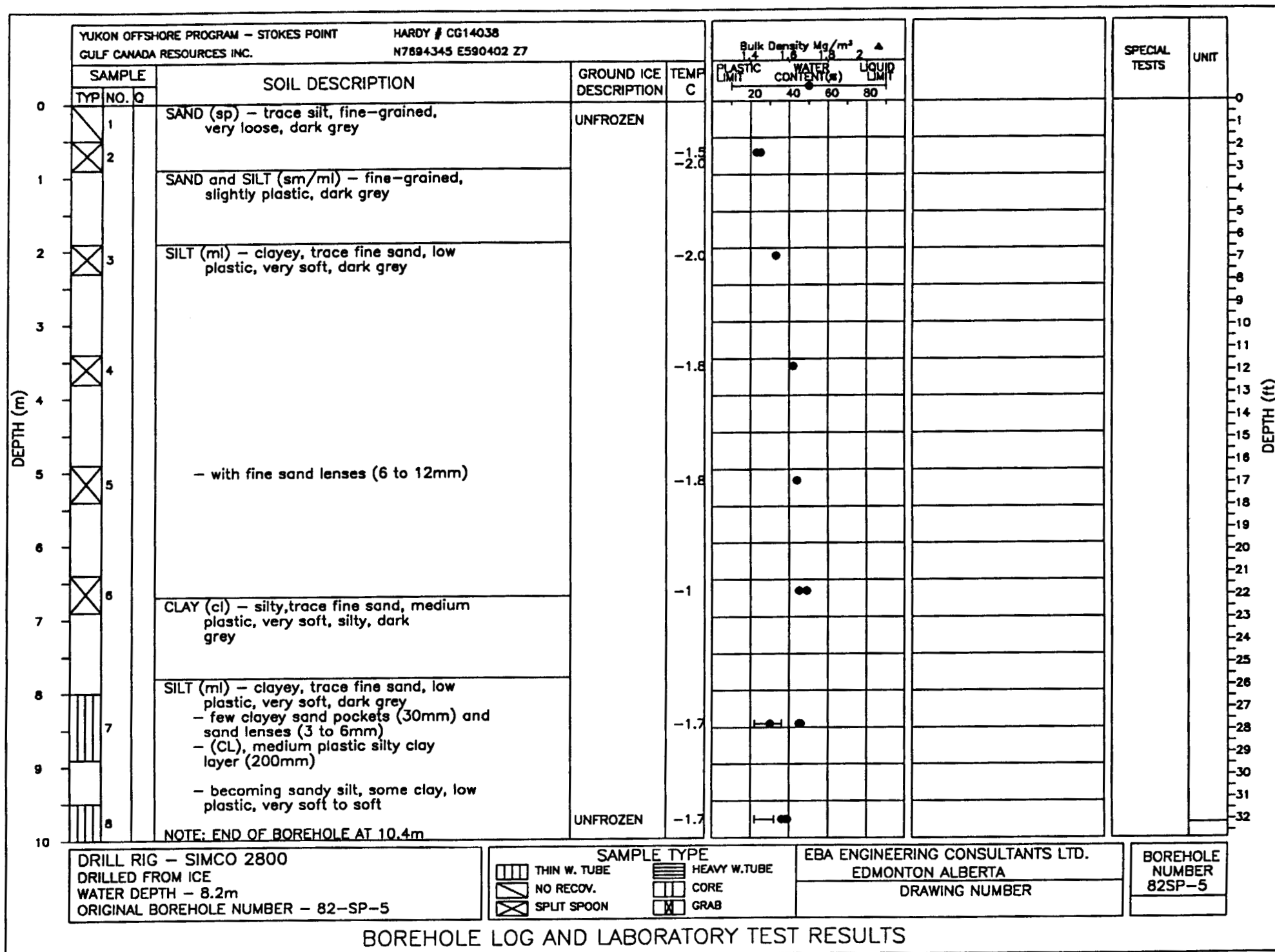
SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 82SP-4

BOREHOLE LOG AND LABORATORY TEST RESULTS



HARDY # CG14038
N7694345 E590402 Z7

DEPTH (m)

DEPTH (ft)

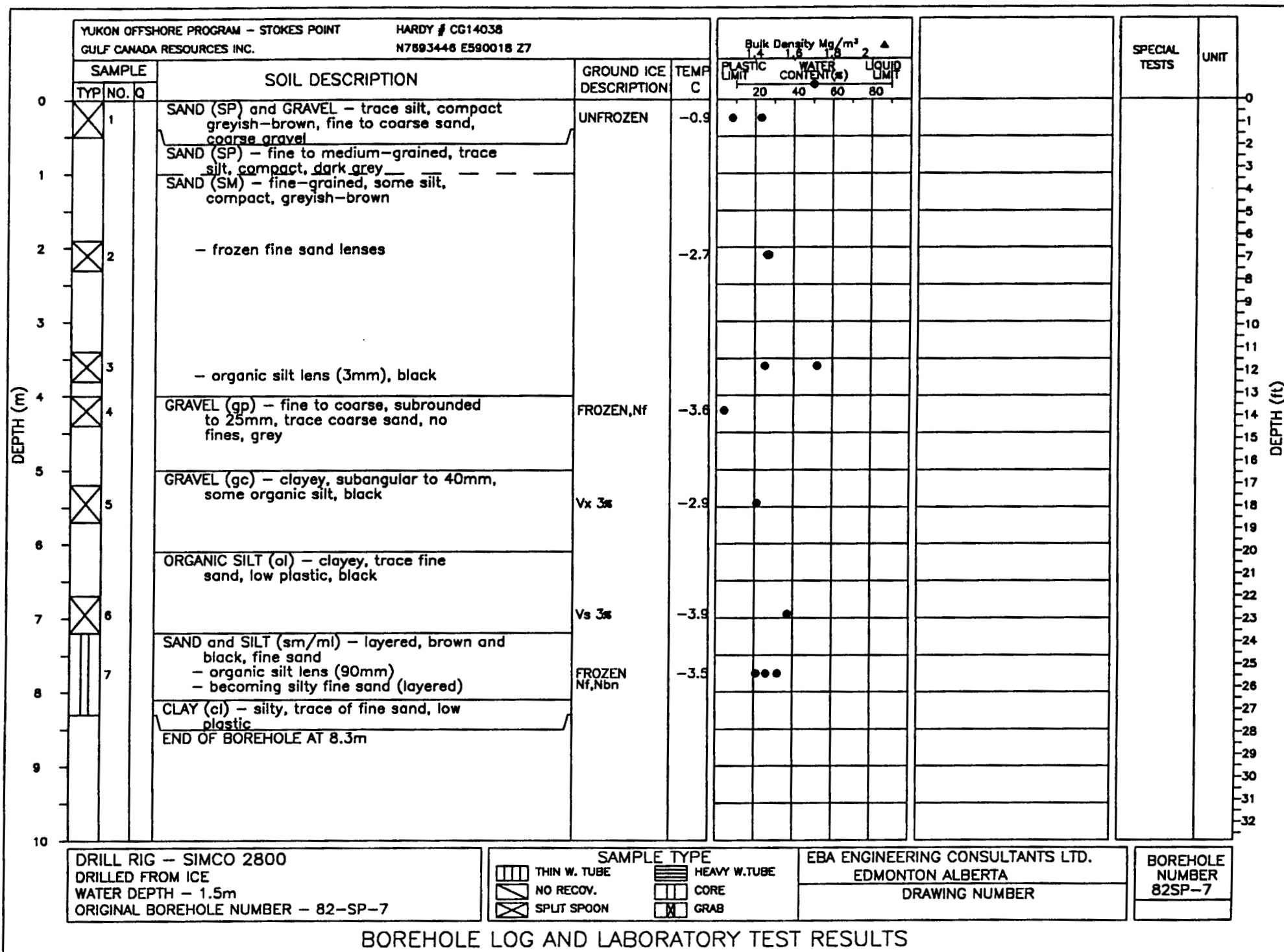
DRILL RIG - SIMCO 2800
DRILLED FROM ICE
WATER DEPTH - 10.7m
ORIGINAL BOREHOLE NUMBER - 82-SP-6

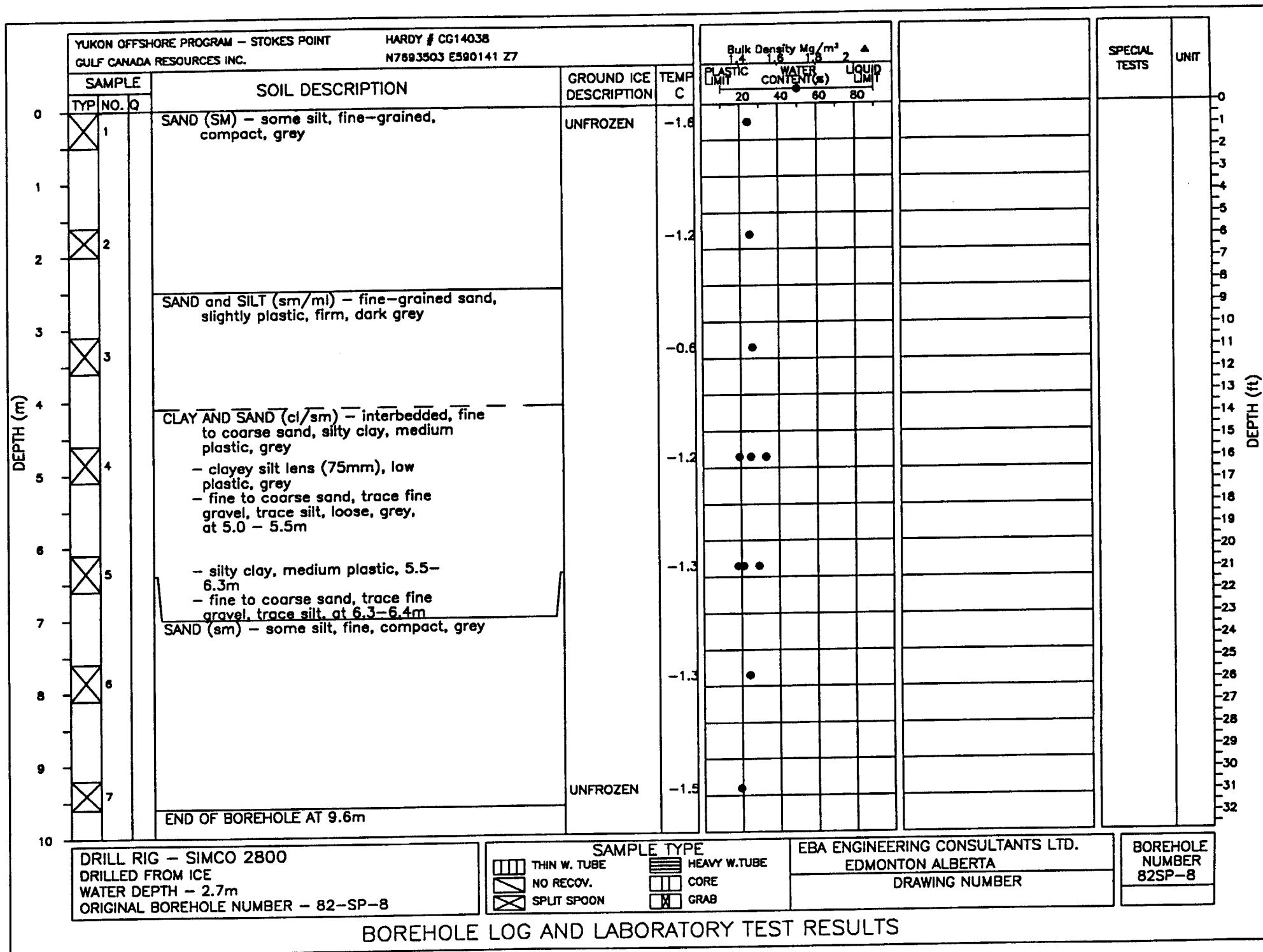
SAMPLE TYPE	
	THIN W. TUBE
	NO RECOV.
	SPLIT SPOON
	HEAVY W. TUBE
	CORE
	GRAB

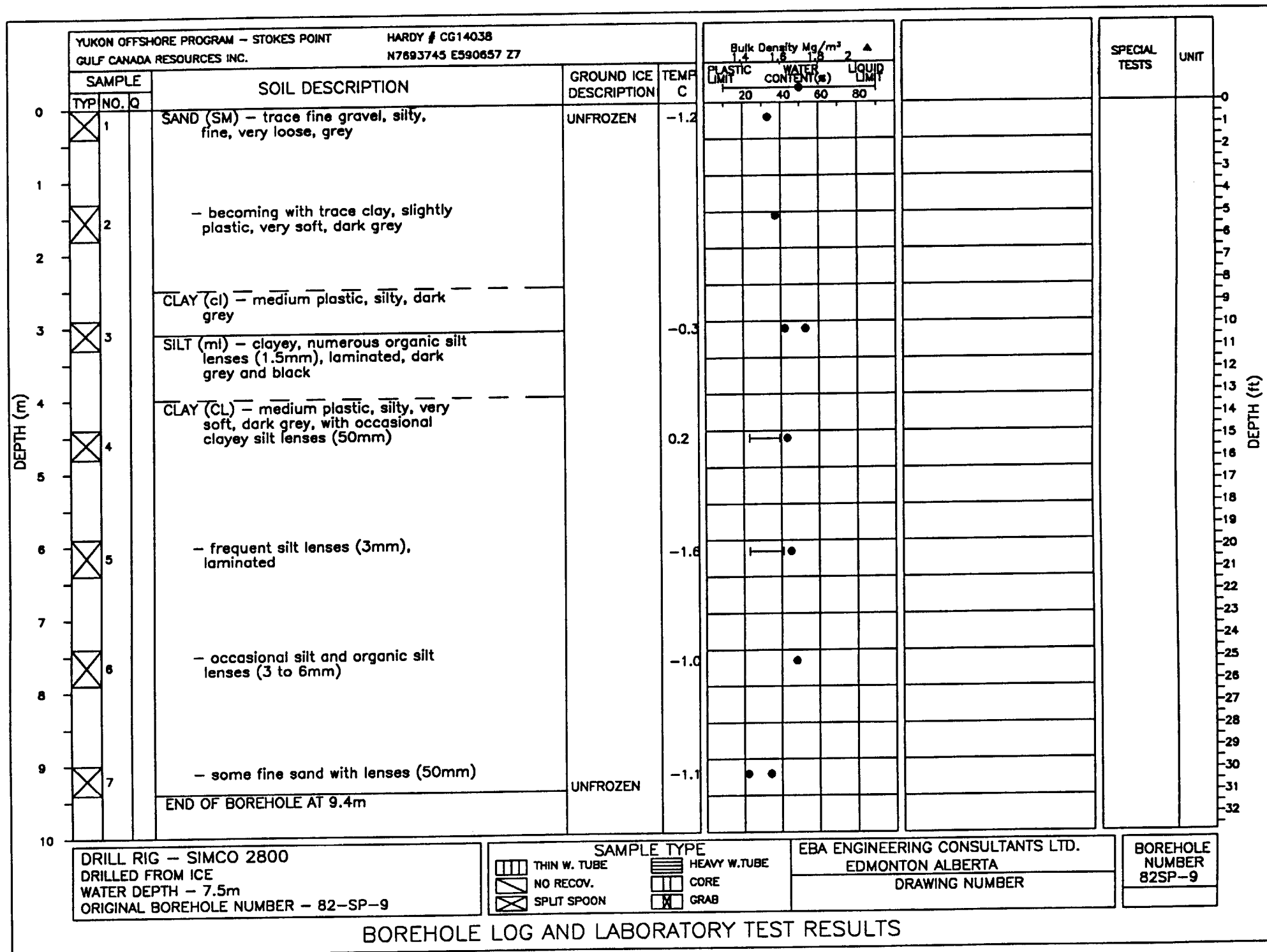
EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

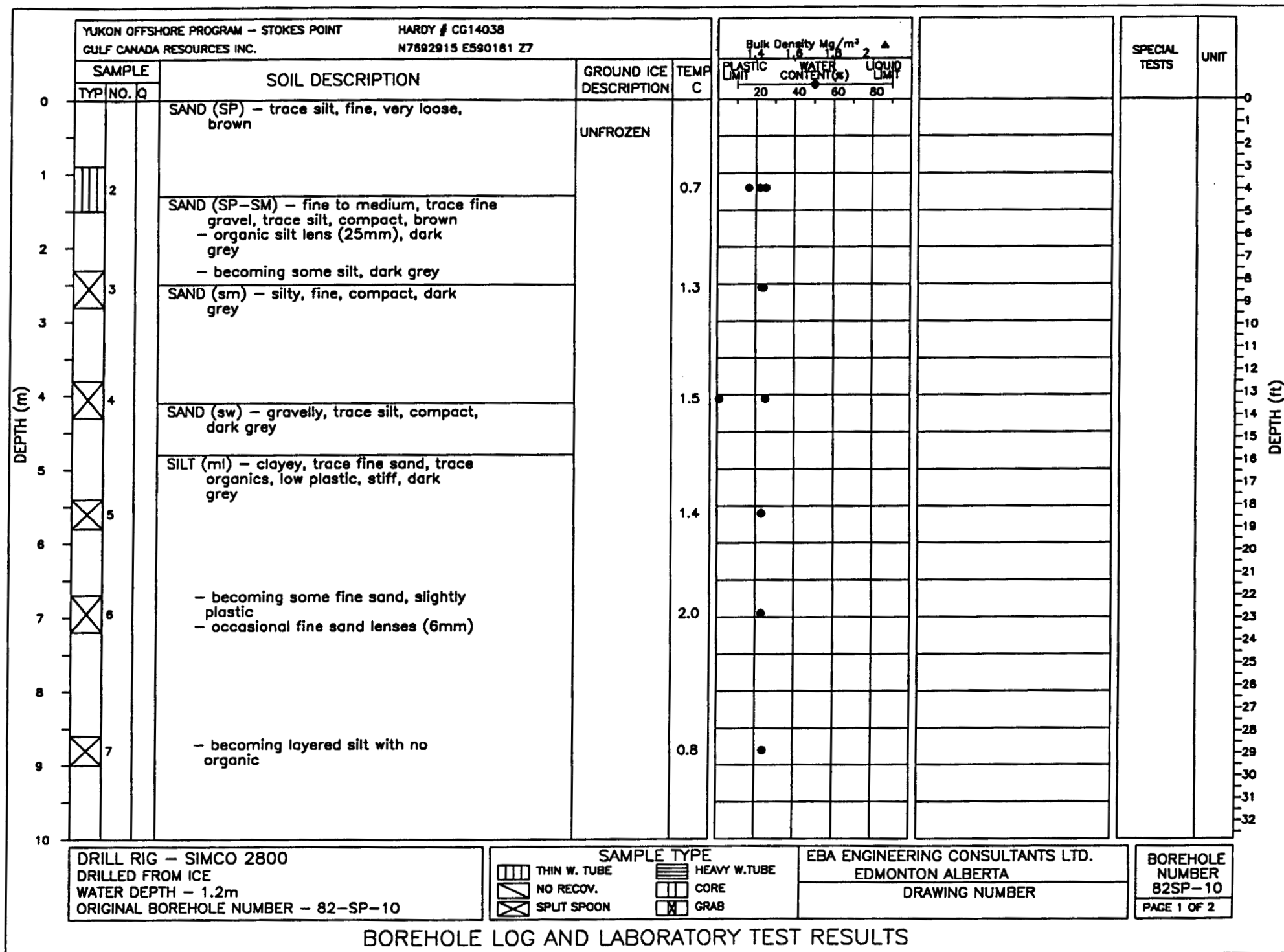
BOREHOLE
NUMBER
82SP-6

BOREHOLE LOG AND LABORATORY TEST RESULTS









YUKON OFFSHORE PROGRAM - STOKES POINT GULF CANADA RESOURCES INC.				HARDY # CG14038 N7892915 E590181 Z7		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
10	8	SILT (ml) - (cont'd)		0.8								33
11												34
												35
												36
												37
12	9	- becoming with trace of fine sand		0.0								38
												39
												40
												41
13	10	CLAY (cl) - silty, trace fine sand, medium plastic, stiff to very stiff, grey		0.2								42
												43
												44
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14												46
												47
												48
15	11		UNFROZEN	0.0								49
		END OF BOREHOLE AT 15.4m										50
												51
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												59
												60
												61
												62
												63
												64
20												65

DRILL RIG - SIMCO 2800
 DRILLED FROM ICE
 WATER DEPTH - 1.2m
 ORIGINAL BOREHOLE NUMBER - 82-SP-10

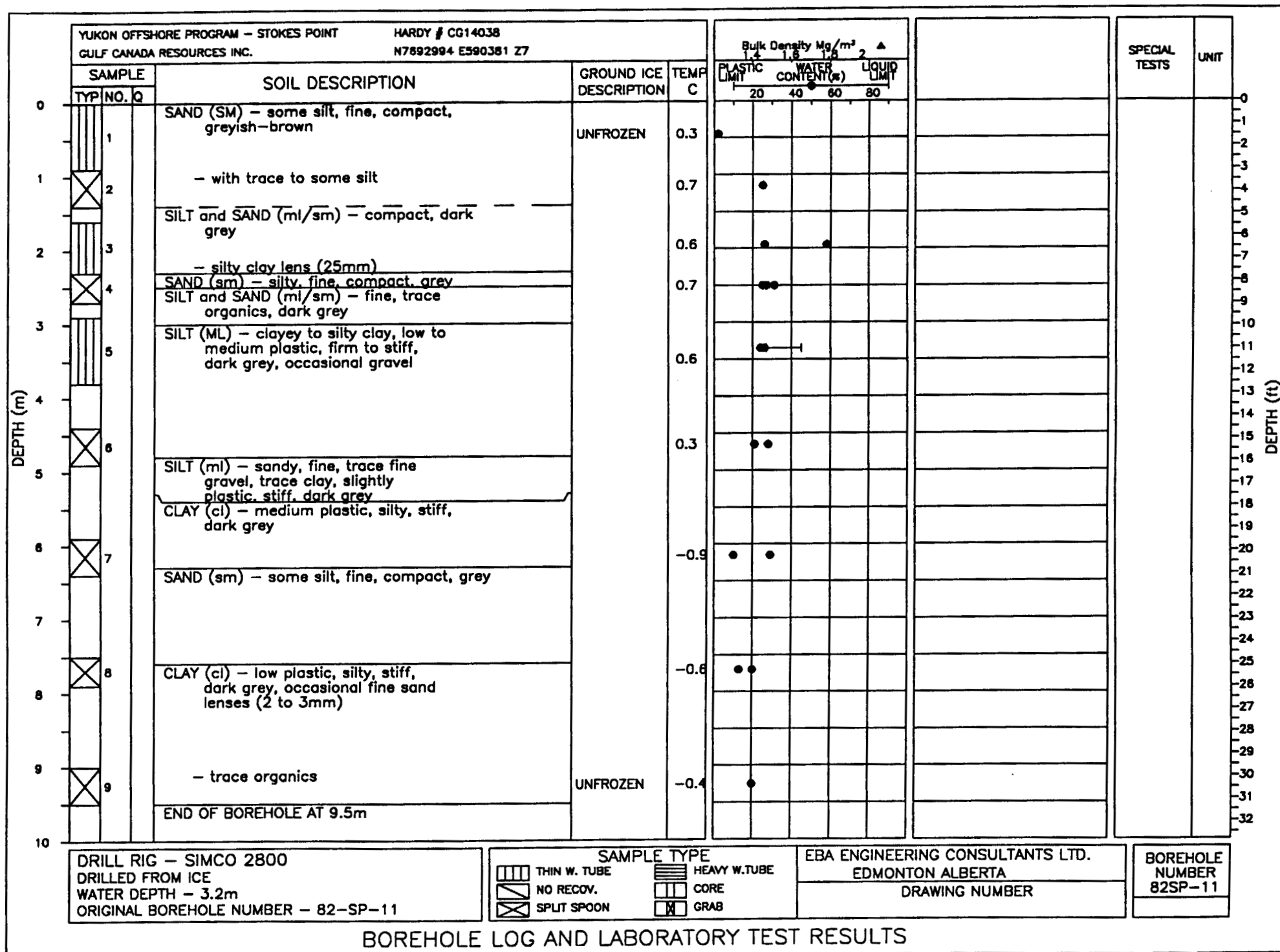
SAMPLE TYPE

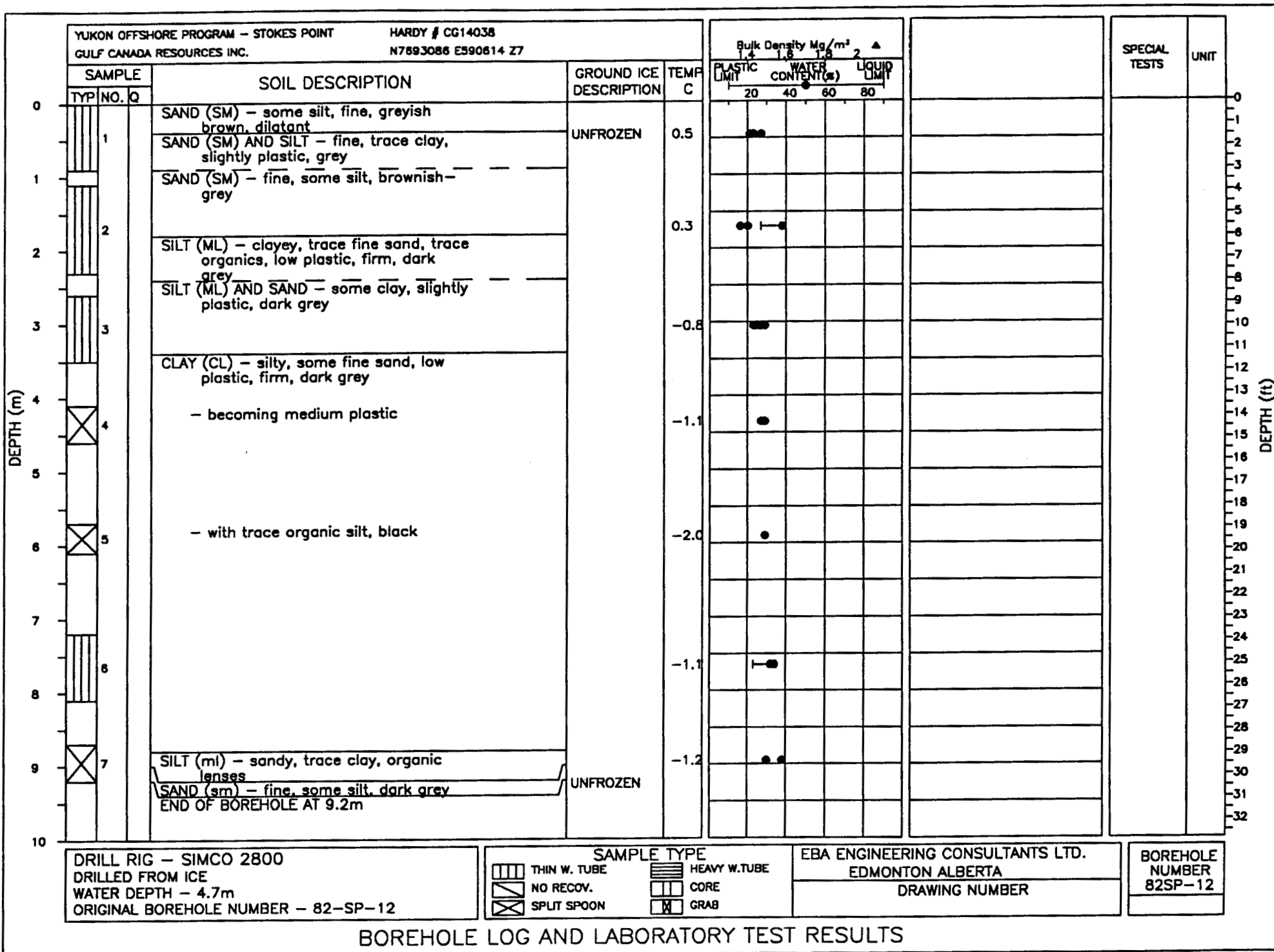
THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

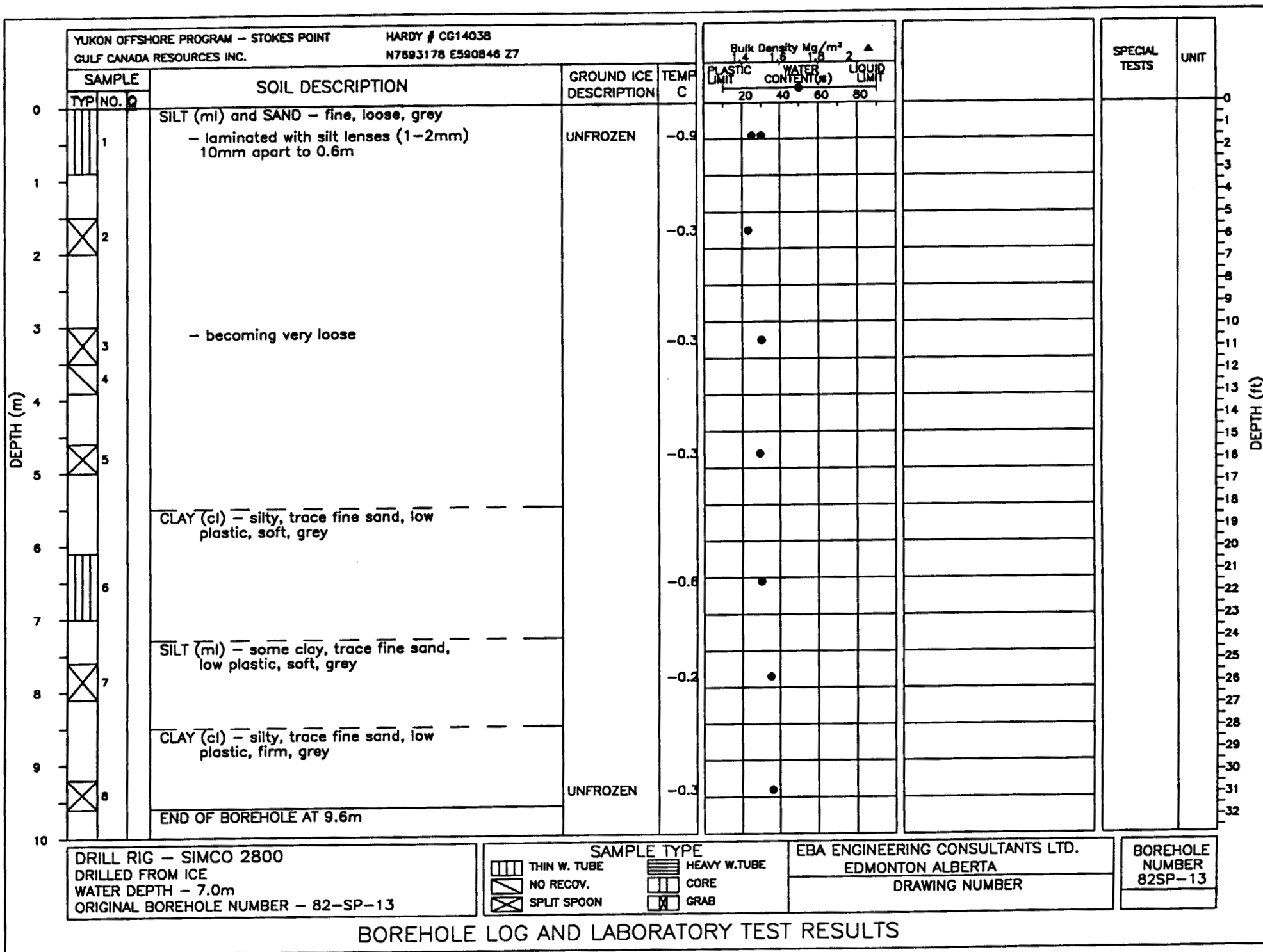
EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

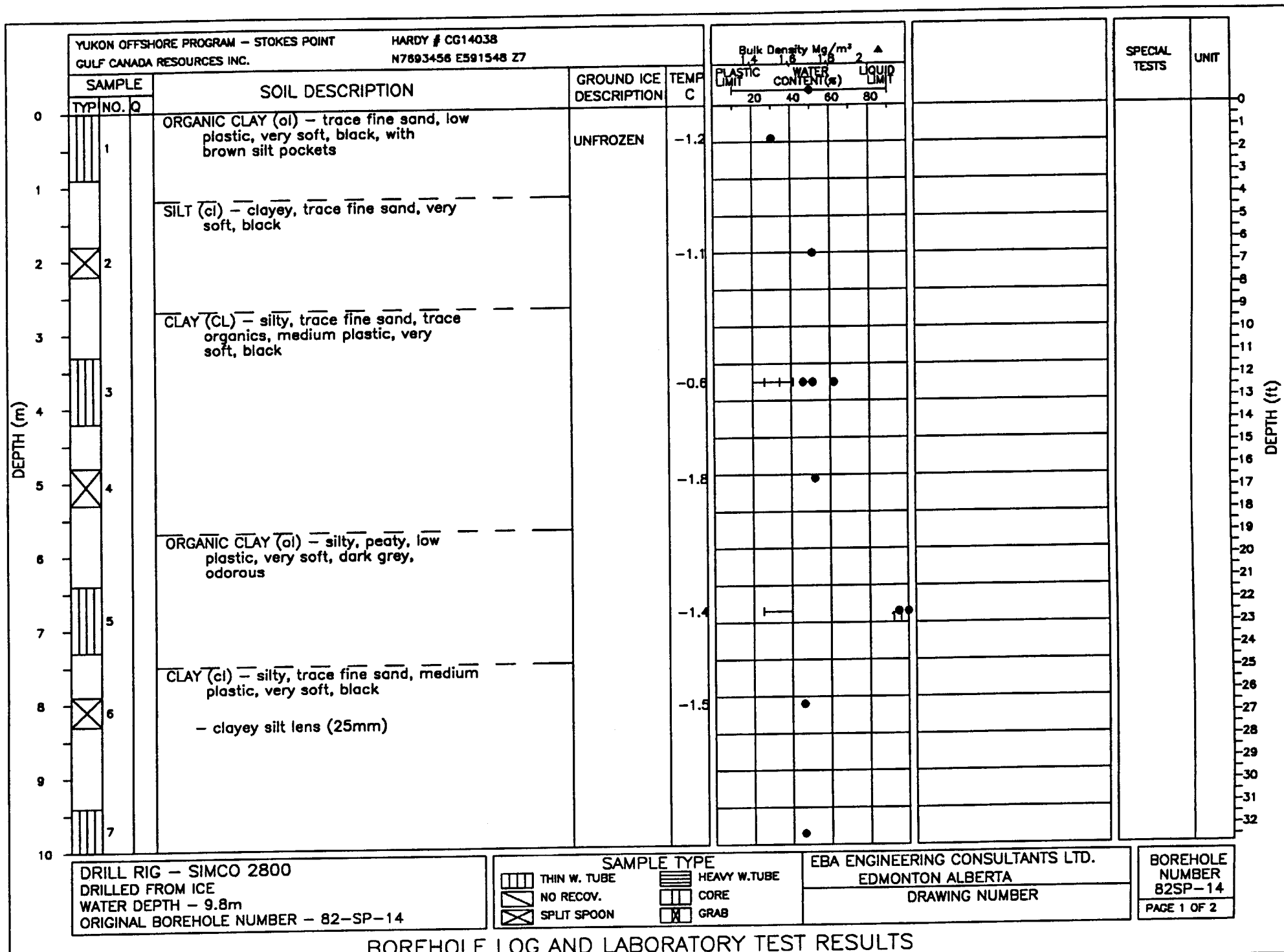
BOREHOLE NUMBER
 82SP-10
 PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS









YUKON OFFSHORE PROGRAM - STOKES POINT GULF CANADA RESOURCES INC.				HARDY # CG14038 N7693456 E591548 Z7		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT						
TYP	NO.	Q				20	40	60	80			
10	7		CLAY (cl) - (cont'd)	UNFROZEN	-1.3							33
11	8		END OF BOREHOLE AT 11.1m									35
												36
												37
												38
												39
												40
												41
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												62
												63
												64
												65

DRILL RIG - SIMCO 2800
 DRILLED FROM ICE
 WATER DEPTH - 9.8m
 ORIGINAL BOREHOLE NUMBER - 82-SP-14

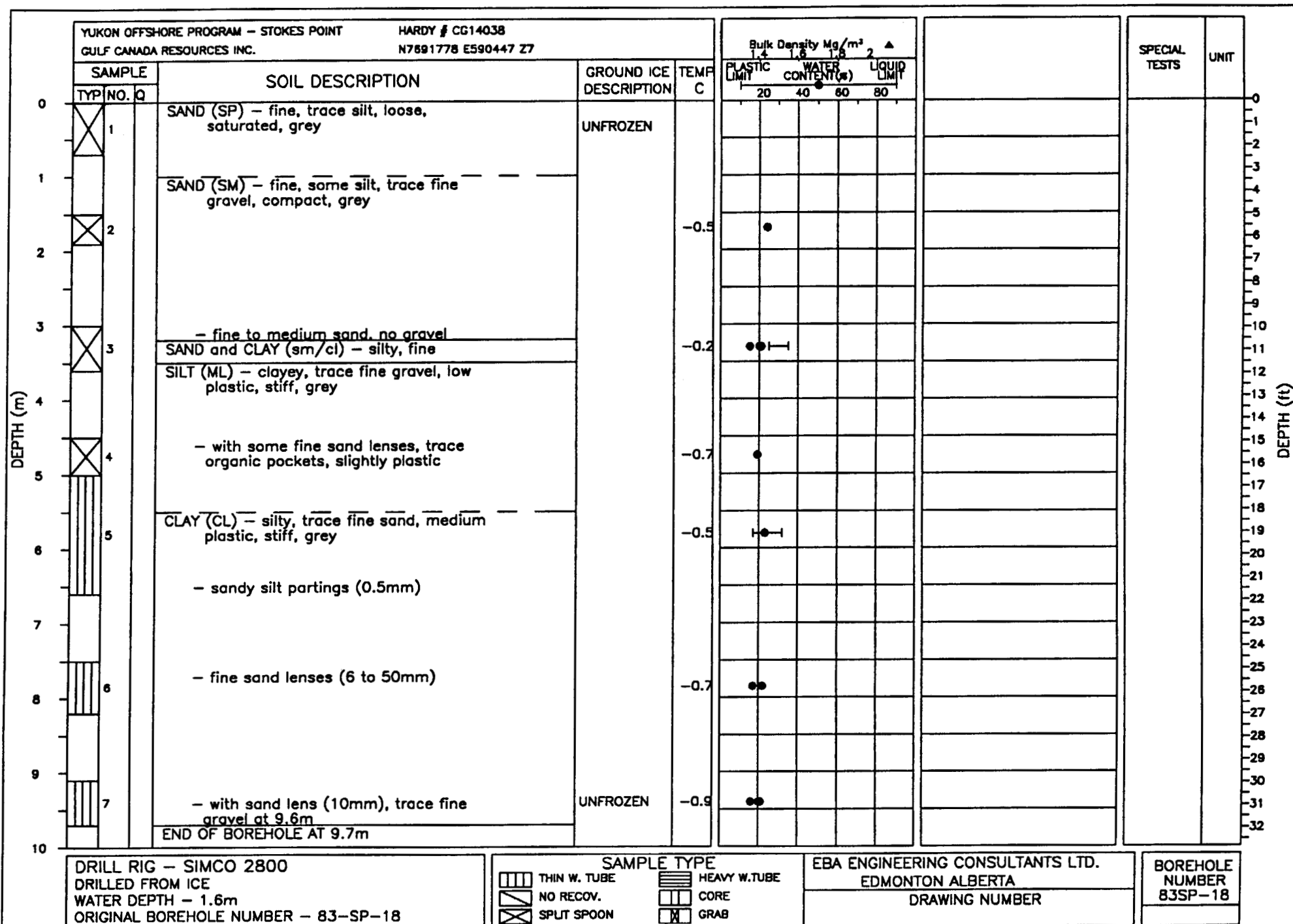
SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 82SP-14
 PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS



BOREHOLE LOG AND LABORATORY TEST RESULTS

YUKON OFFSHORE PROGRAM - STOKES POINT
GULF CANADA RESOURCES INC.

HARDY # CG14038
N7691762 E591097 Z7

DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲			SPECIAL TESTS	UNIT	DEPTH (ft)
	TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
0	X	1	SAND (sc) - clayey, low plastic, saturated, grey	UNFROZEN							0
1											1
2											2
3											3
4											4
5											5
6											6
7	X	5	- with trace of organics								7
8											8
9	X	6	CLAY (cl) - silty, trace fine sand, medium plastic, firm, grey, structureless		-0.9						9
10											10
11											11
12											12
13											13
14											14
15											15
16											16
17											17
18											18
19											19
20											20
21											21
22											22
23											23
24											24
25											25
26											26
27											27
28											28
29											29
30											30
31											31
32											32

NOTE: END OF BOREHOLE AT 10.2m

UNFROZEN

-1.1

DRILL RIG - SIMCO 2800
DRILLED FROM ICE
WATER DEPTH - 4.3m
ORIGINAL BOREHOLE NUMBER - 83-SP-19

SAMPLE TYPE
 THIN W. TUBE
 NO RECOV.
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
83SP-19

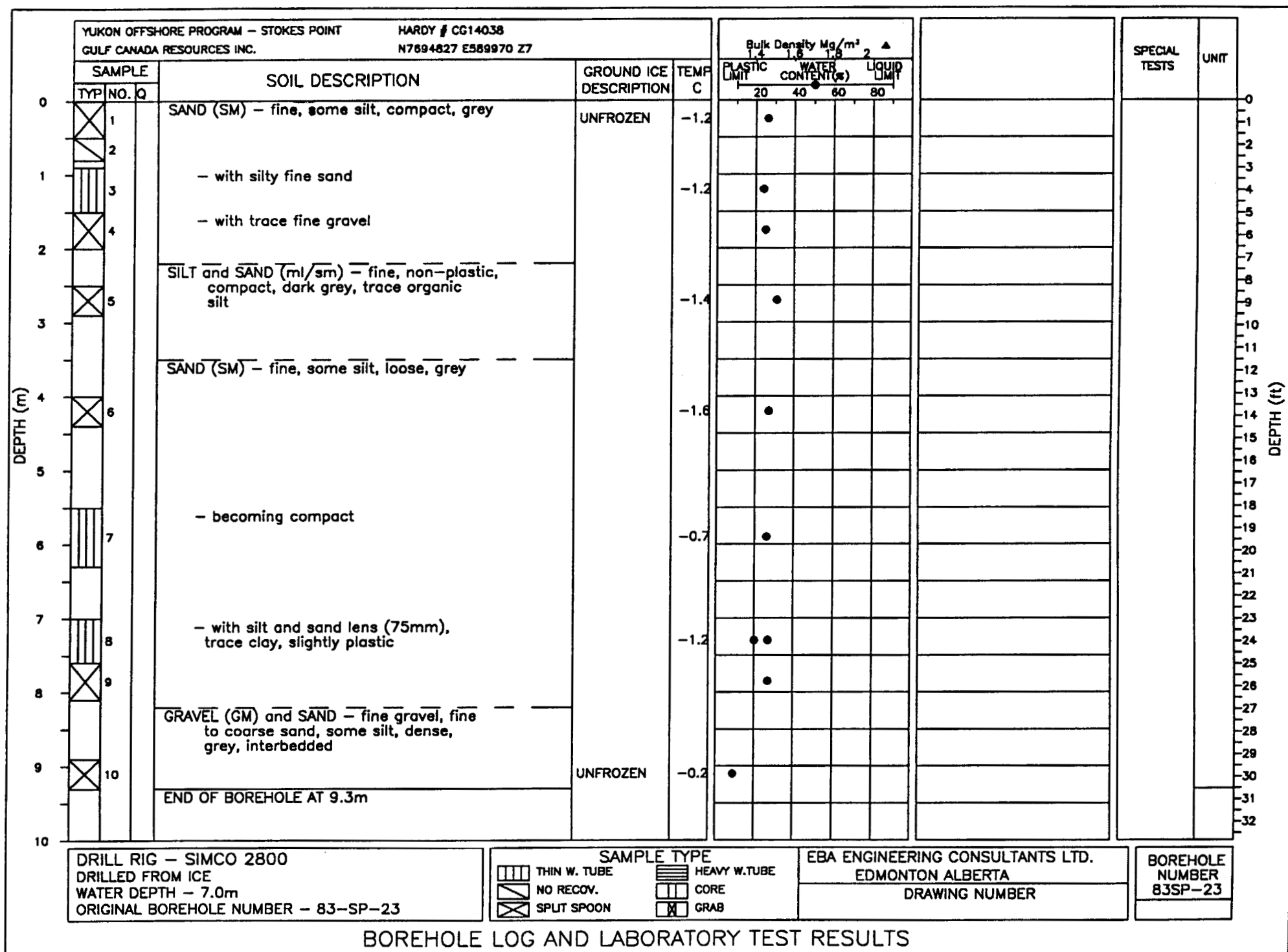
BOREHOLE LOG AND LABORATORY TEST RESULTS

HARDY # CG14038
N7694098 E386852 Z7

DEPTH (ft)

BOREHOLE
NUMBER
83SP-20

BOREHOLE LOG AND LABORATORY TEST RESULTS



YUKON OFFSHORE PROGRAM - STOKES POINT
GULF CANADA RESOURCES INC.

HARDY # CG14038
N7694396 E588265 Z7

DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲				SPECIAL TESTS	UNIT
	TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
0		1	CLAY (cl) - silty, trace fine sand, medium plastic, very soft, saturated, black, few organic silt lenses (1 to 2mm)	UNFROZEN							0
1		2									1
											2
											3
											4
2		3	ORGANIC SILT (CL) - clayey, trace fine sand, low plastic, soft to very soft, black		-0.6						5
											6
											7
											8
3			CLAY (cl) - sandy, trace organic silt, low plastic, grey								9
											10
		4	SAND (SM) - fine, some silt, trace sea shells		-0.9						11
											12
4			CLAY (CL) - silty, trace fine sand, medium plastic, firm to stiff, grey, structureless								13
											14
											15
5		5			-0.6						16
											17
											18
6											19
		6	- becoming medium plastic clay, stiff to very stiff		-1.3						20
											21
7											22
											23
											24
8		7			-0.6						25
											26
											27
											28
9											29
											30
		8	- with trace organic silt	UNFROZEN	-0.6						31
											32
10			END OF BOREHOLE AT 9.7m								

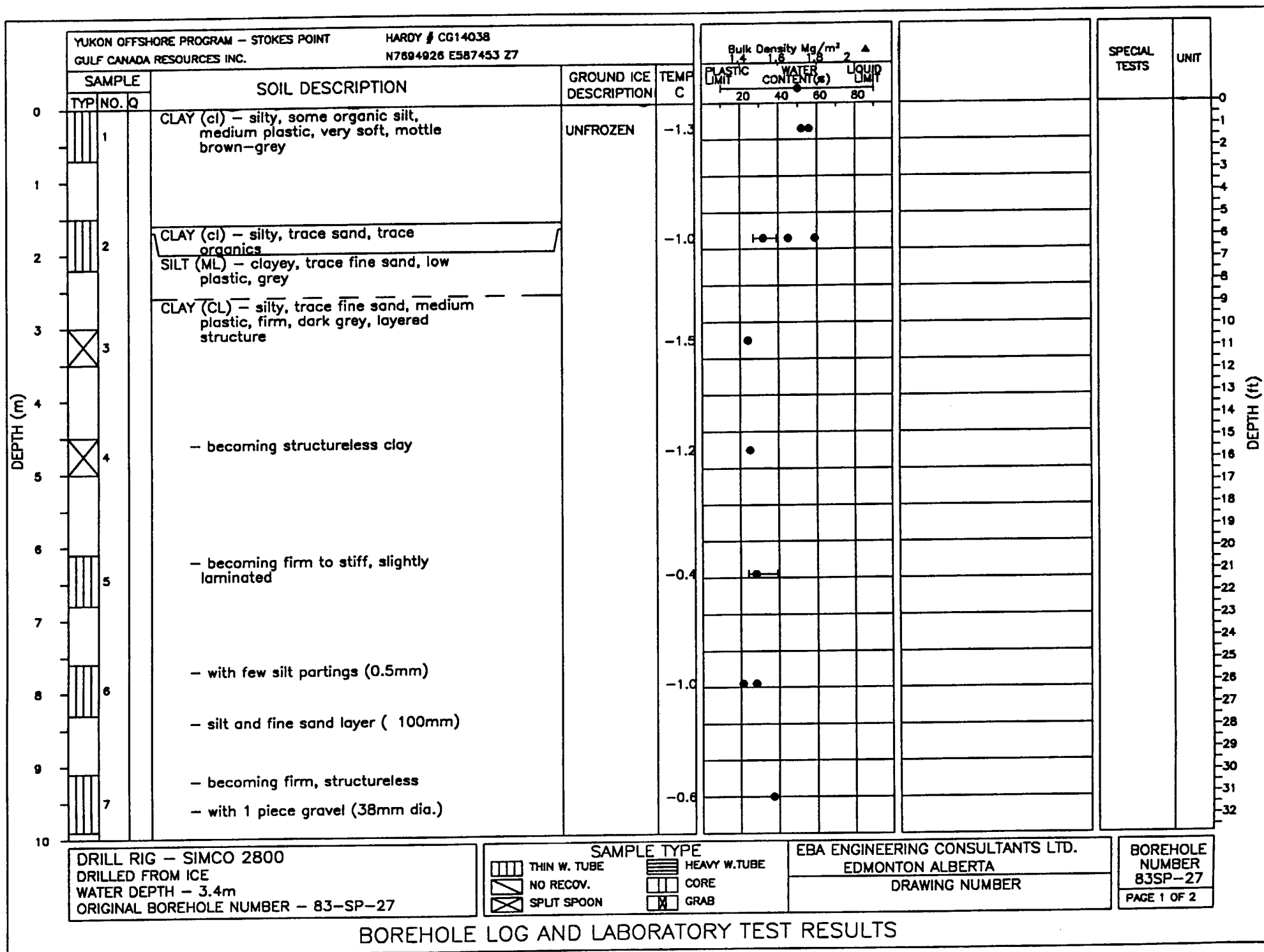
DRILL RIG - SIMCO 2800
DRILLED FROM ICE
WATER DEPTH - 3.3m
ORIGINAL BOREHOLE NUMBER - 83-SP-24

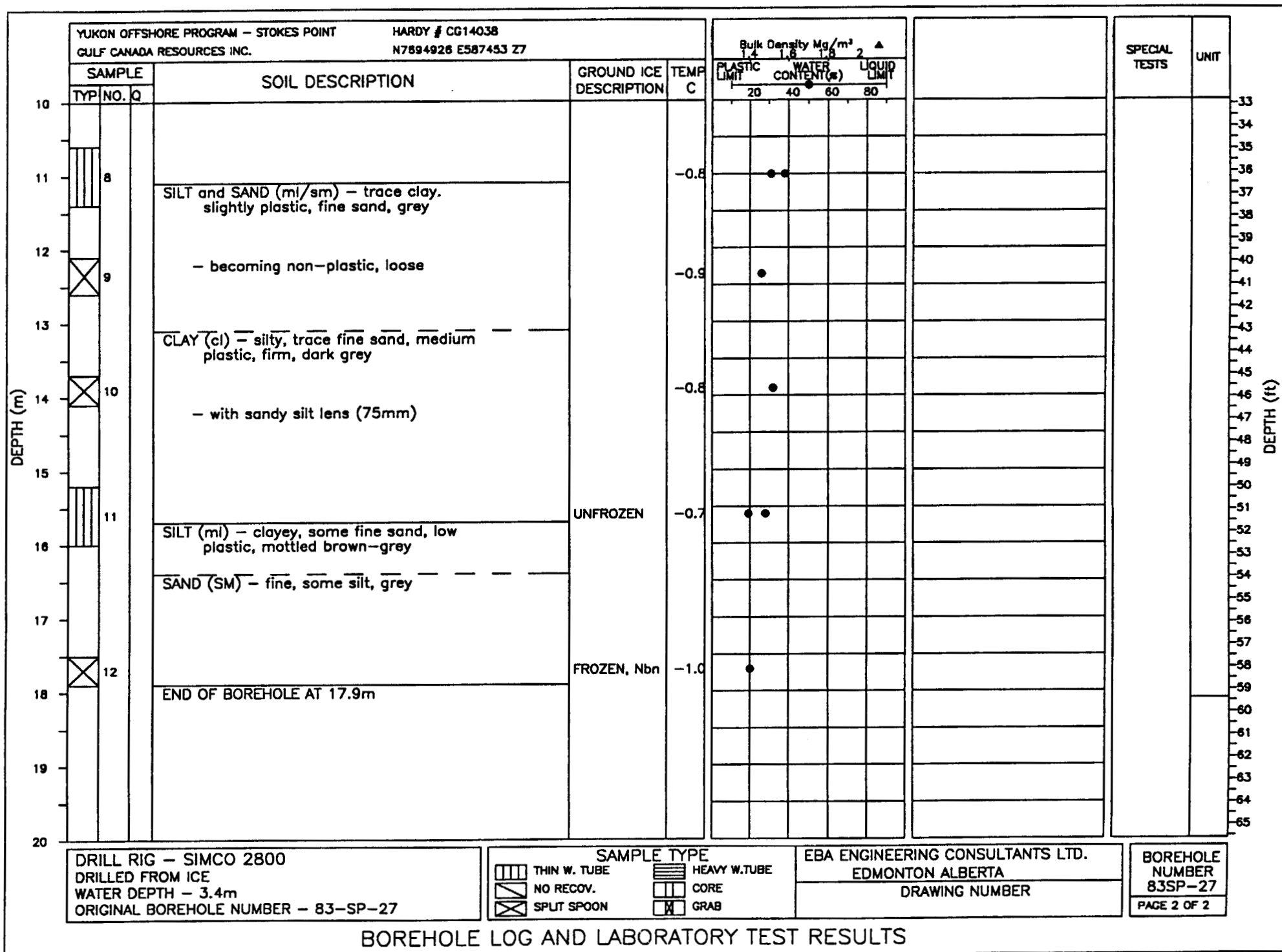
SAMPLE TYPE
 THIN W. TUBE
 NO RECOV.
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

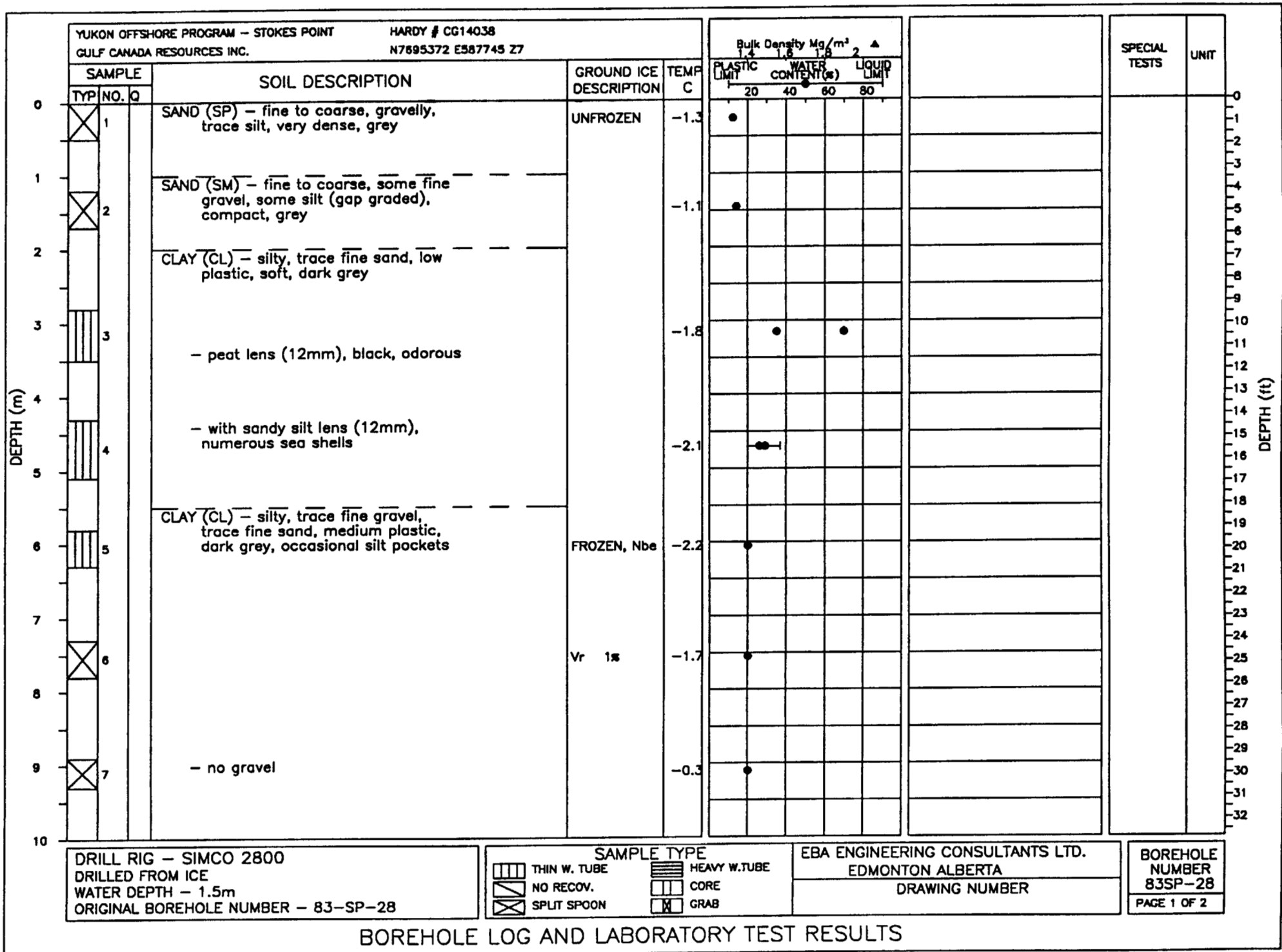
EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
83SP-24

BOREHOLE LOG AND LABORATORY TEST RESULTS







YUKON OFFSHORE PROGRAM - STOKES POINT GULF CANADA RESOURCES INC.				HARDY # CG14038 N7895372 E587745 Z7		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2.0				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
10	8	CLAY (CL) - (cont'd) - trace gravel to 12mm	Nbn, VcVs 1%	-1.5								33
11												34
12	9		Vs 2%	-2.1								35
13												36
14	10	SAND (SM) and SILT - fine sand, trace clay, grey	Nf	-1.0								37
15												38
16	11	SILT (ml) - some fine sand, trace clay, slightly plastic, grey	Nbn	-2.0								39
17												40
18	12	CLAY (cl) - silty, trace fine sand, trace fine gravel, medium plastic, dark grey	FROZEN, Nbn	-0.6								41
19		END OF BOREHOLE AT 16.8m										42
20												43
												44
												45
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												50
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												65

DRILL RIG - SIMCO 2800
 DRILLED FROM ICE
 WATER DEPTH - 1.5m
 ORIGINAL BOREHOLE NUMBER - 83-SP-28

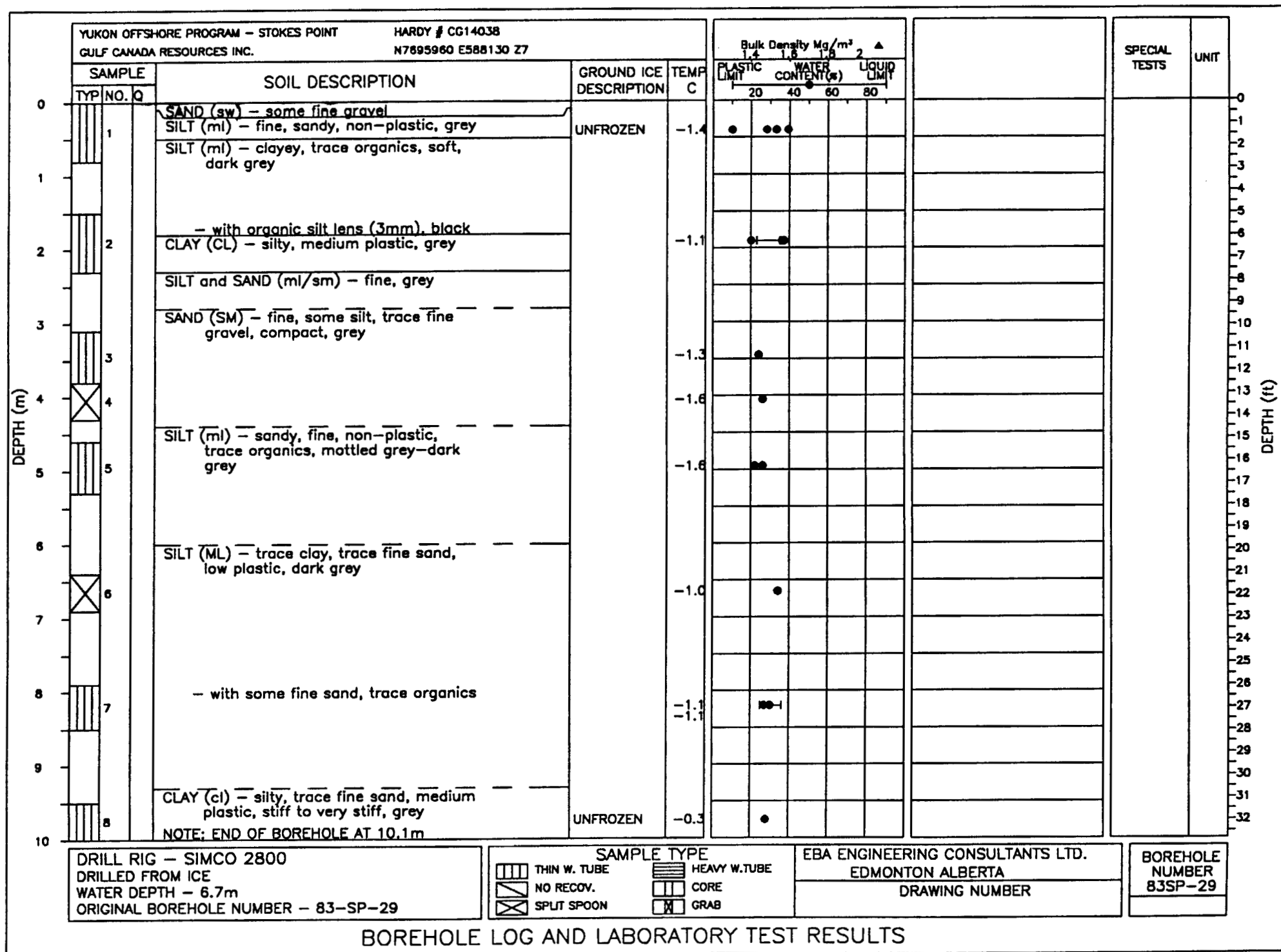
SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 83SP-28
 PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS



YUKON OFFSHORE PROGRAM - STOKES POINT GULF CANADA RESOURCES INC.				HARDY # CG14038 N7696508 E587293 Z7		Bulk Density Mg/m³ ▲ 1.4 1.6 1.8 2						SPECIAL TESTS		UNIT	
SAMPLE		SOIL DESCRIPTION			GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT								
TYP NO. Q							20 40 60 80								
0		SILT (ml) - clayey													
1															
2		SILT or FINE SAND (ml/sm) -----													
3		CLAY or SILT (cl/ml) -----													
4		SOIL PROFILE FROM 0.0 TO 6.5m INFERRED FROM CPT TEST													
5															
6		SILT (ml) - clayey, trace fine sand, low plastic, dark grey, laminated with black organic silt lens (0.5mm)			UNFROZEN		● 1								
7		SAND (SM) - fine, some silt, trace fine gravel, trace clay, dense, grey				-1.5	●								
8															
9		- trace organic silt pockets, mottled grey-black			UNFROZEN	-2.1	●								
10		END OF BOREHOLE AT 8.9m													
11															
12															
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YUKON OFFSHORE PROGRAM - STOKES POINT GULF CANADA RESOURCES INC.				HARDY # CG14038 N7893475 E590080 Z7		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2					SPECIAL TESTS	UNIT
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT(w) LIQUID LIMIT							
TYP	NO. Q				20	40	60	80				
DEPTH (m) 0 1 2 3 4 5 6 7 8 9 10	1	SAND (SP-SM) - fine to medium, trace silt, trace fine gravel, compact, brownish-grey - sand layer (150mm), some fine gravel	UNFROZEN	-0.5	•	•						DEPTH (ft) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
	2	SAND (sm) - fine to medium, some silt, trace fine gravel, compact, grey	UNFROZEN	-0.6	•	•						
	3	SAND and GRAVEL (SM/GM) - silty, loose, grey	UNFROZEN	1.3	•							
	4	SAND (SM) - fine to medium, silty, some fine gravel, compact, grey	UNFROZEN	1.3	•							
	5		UNFROZEN	1.3	•							

DRILL RIG - SIMCO 2800
 DRILLED FROM ICE
 WATER DEPTH - 1.7m
 ORIGINAL BOREHOLE NUMBER - 83-SP-33

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 83SP-33
 PAGE 1 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

YUKON OFFSHORE PROGRAM - STOKES POINT GULF CANADA RESOURCES INC.				HARDY # CG14038 N7693475 E590080 Z7		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2.0 PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT 20 40 60 80				SPECIAL TESTS	UNIT	DEPTH (m)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C							
TYP	NO.	Q										
			SAND (SM) - (cont'd)									33
			CLAY (CL) - silty, trace fine sand, medium plastic, layered, grey									34
												35
												36
												37
				POSSIBLY FROZEN	-1.6							38
												39
												40
												41
												42
				POSSIBLY FROZEN	-1.6							43
			END OF BOREHOLE AT 13.1m									44
												45
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												48
												49
												50
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												65

DRILL RIG - SIMCO 2800
 DRILLED FROM ICE
 WATER DEPTH - 1.7m
 ORIGINAL BOREHOLE NUMBER - 83-SP-33

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

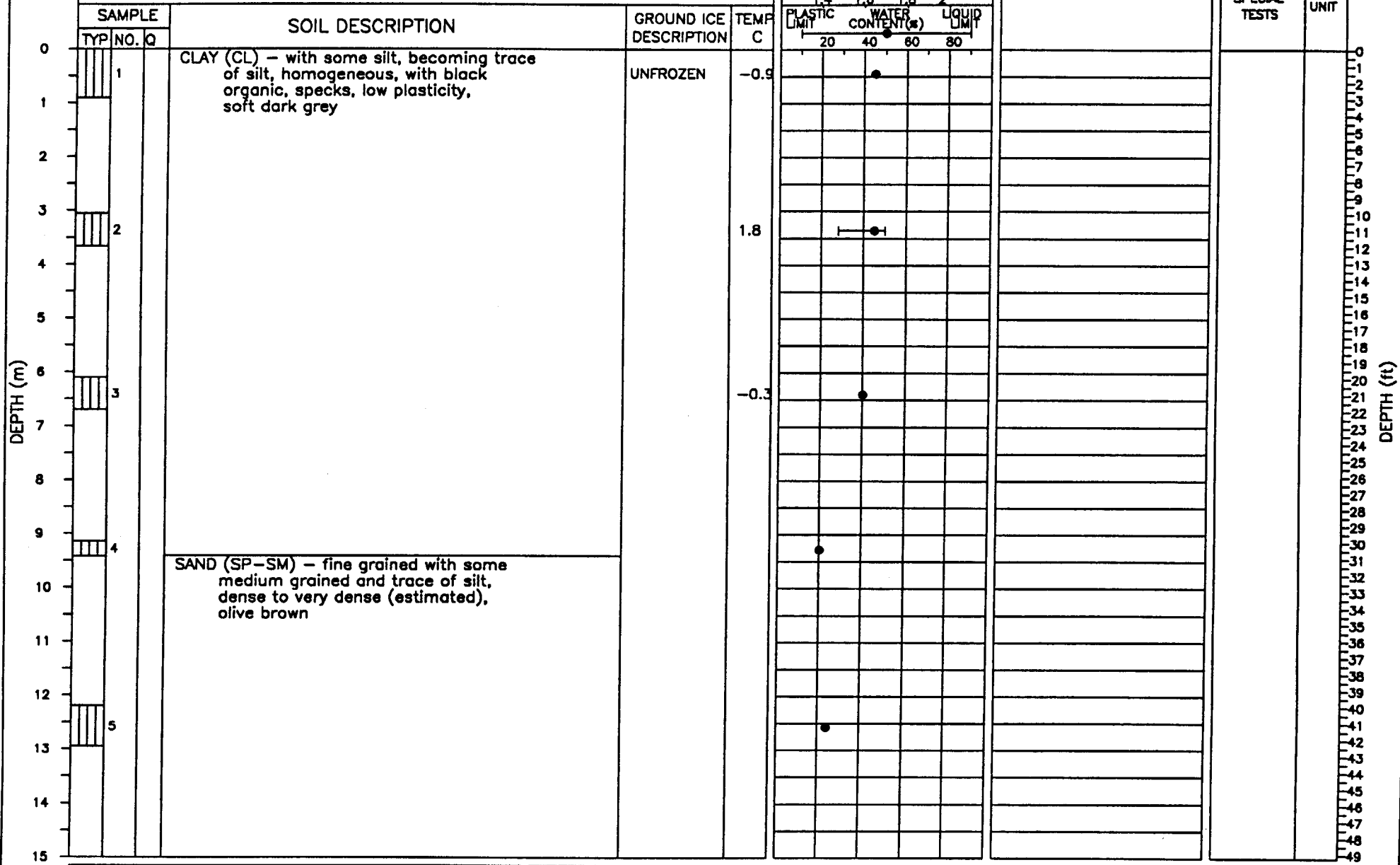
EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 83SP-33
 PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

1983 SITE INVESTIGATION - EAST AMAULIGAK
GULF CANADA RESOURCES LTD.

EBA # 101-3862
N7772730 E548975 Z8



DRILL RIG - SIMCO 5000
DRILL SHIP - MV BRODERICK
WATER DEPTH - 36.6m
ORIGINAL BOREHOLE NUMBER - EA 83 S01

SAMPLE TYPE
 THIN W. TUBE
 NO RECOVERY
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
EA83S01
PAGE 1 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

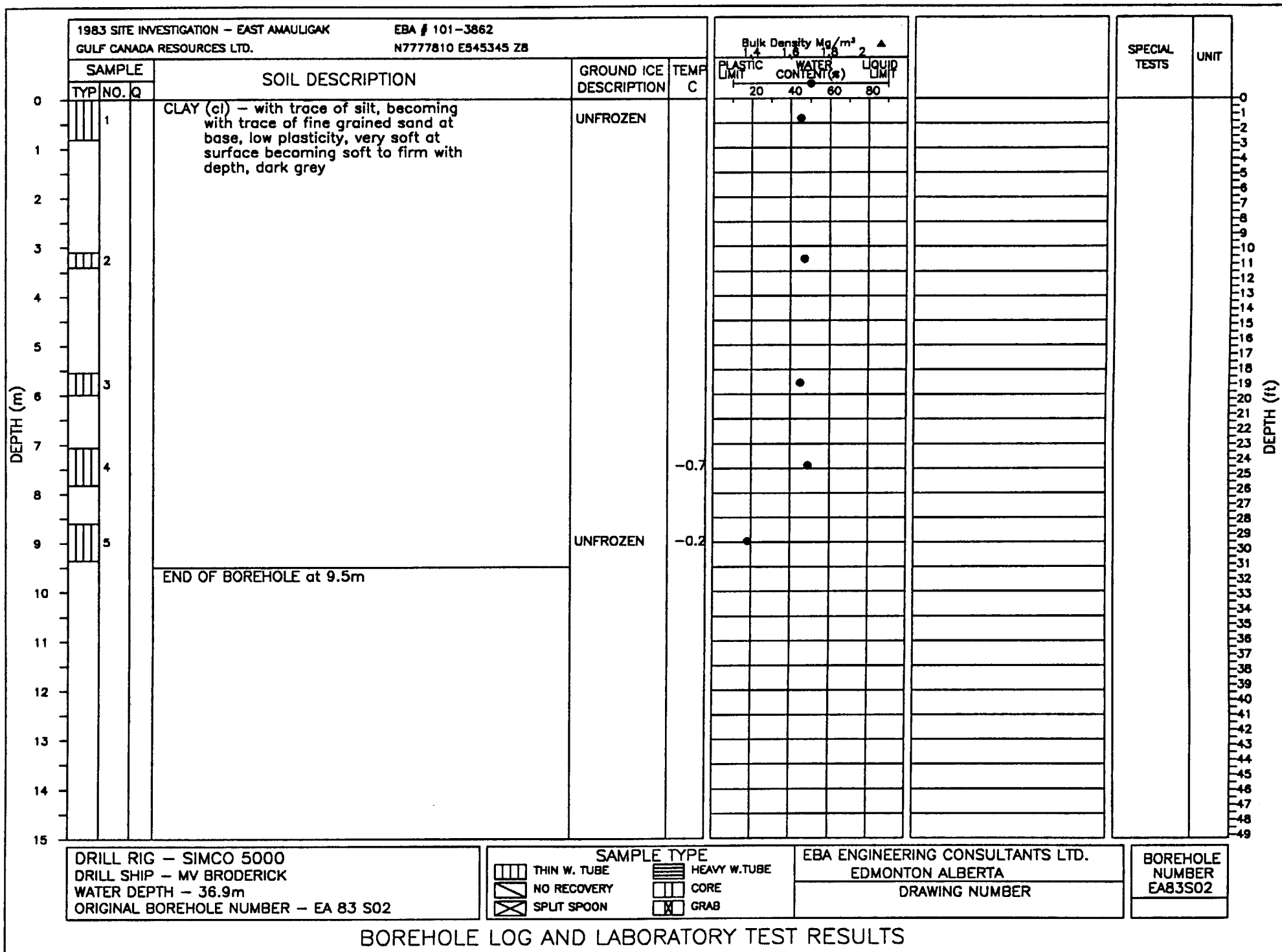
DEPTH (m)

DEPTH (ft)

BOREHOLE
NUMBER
EA83S01

PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS



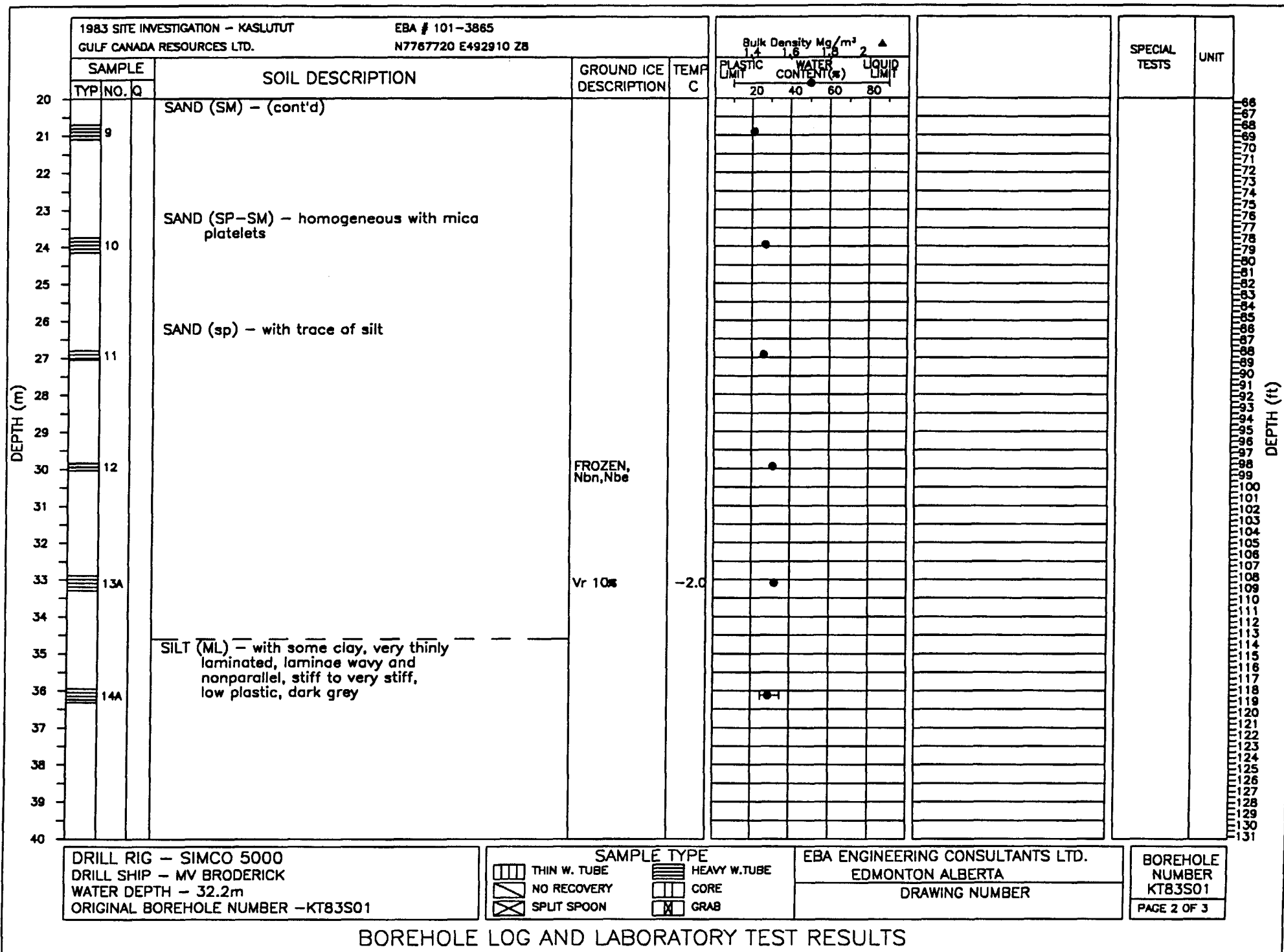
1983 SITE INVESTIGATION - KASLUTUT GULF CANADA RESOURCES LTD.				EBA # 101-3865 N7767720 E492910 Z8														
DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="3" style="text-align: center;">Bulk Density Mg/m³ ▲</th> </tr> <tr> <th style="text-align: center;">PLASTIC LIMIT</th> <th style="text-align: center;">WATER CONTENT (%)</th> <th style="text-align: center;">LIQUID LIMIT</th> </tr> <tr> <td style="text-align: center;">20</td> <td style="text-align: center;">40</td> <td style="text-align: center;">60</td> </tr> </table>	Bulk Density Mg/m ³ ▲			PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT	20	40	60	SPECIAL TESTS	UNIT	DEPTH (ft)
	Bulk Density Mg/m ³ ▲																	
PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT																
20	40	60																
TYP	NO. Q																	
0	18		CLAY (CH) - trace silt and trace shell fragments at surface, organics disseminated throughout unit, homogeneous, very soft, becoming soft to firm with depth, of high plastic, plasticity decreasing with depth, dark grey	UNFROZEN						0								
1											1							
2											2							
3	2A	2B									3							
4											4							
5											5							
6											6							
7											7							
8											8							
9											9							
10	4A	4B	SAND (SP) - fine grained with a trace of fine grained gravel to 20mm, trace of silt, medium dense (estimated), dark olive grey							10								
11		5B								11								
12										12								
13										13								
14										14								
15										15								
16										16								
17										17								
18										18								
19										19								
20			SILT (ml) - fine grained, sandy, to with some fine grained sand, and trace of clay, homogeneous, nonplastic, firm dark olive SAND (SM) - with some silt, fine grained, homogeneous, dense (estimated) dark olive							20								
										21								
										22								
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DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 32.2m
 ORIGINAL BOREHOLE NUMBER -KT83S01

SAMPLE TYPE	
THIN W. TUBE NO RECOVERY SPLIT SPOON	HEAVY W.TUBE CORE GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KT83S01
 PAGE 1 OF 3



1983 SITE INVESTIGATION - KASLUTUT

GULF CANADA RESOURCES LTD.

EBA # 101-3865

N7767720 E492910 Z8

DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲			SPECIAL TESTS	UNIT	DEPTH (ft)
	TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
40		15	SILT (ML) - (cont'd)		1.6						132
41											133
42		16		Nbn - Vx	-1.1						134
43											135
44											136
45		17		Nbn	-2.3						137
46											138
47											139
48											140
49		18A		FROZEN, Nbn	-2.3						141
50			END OF BOREHOLE at 49.7m								142
51											143
52											144
53											145
54											146
55											147
56											148
57											149
58											150
59											151
60											152
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											193
											194
											195
											196

DRILL RIG - SIMCO 5000

DRILL SHIP - MV BRODERICK

WATER DEPTH - 32.2m

ORIGINAL BOREHOLE NUMBER -KT83S01

THIN W. TUBE

NO RECOVERY

SPLIT SPOON

HEAVY W. TUBE

CORE

GRAB

EBA ENGINEERING CONSULTANTS LTD.

EDMONTON ALBERTA

DRAWING NUMBER

BOREHOLE NUMBER

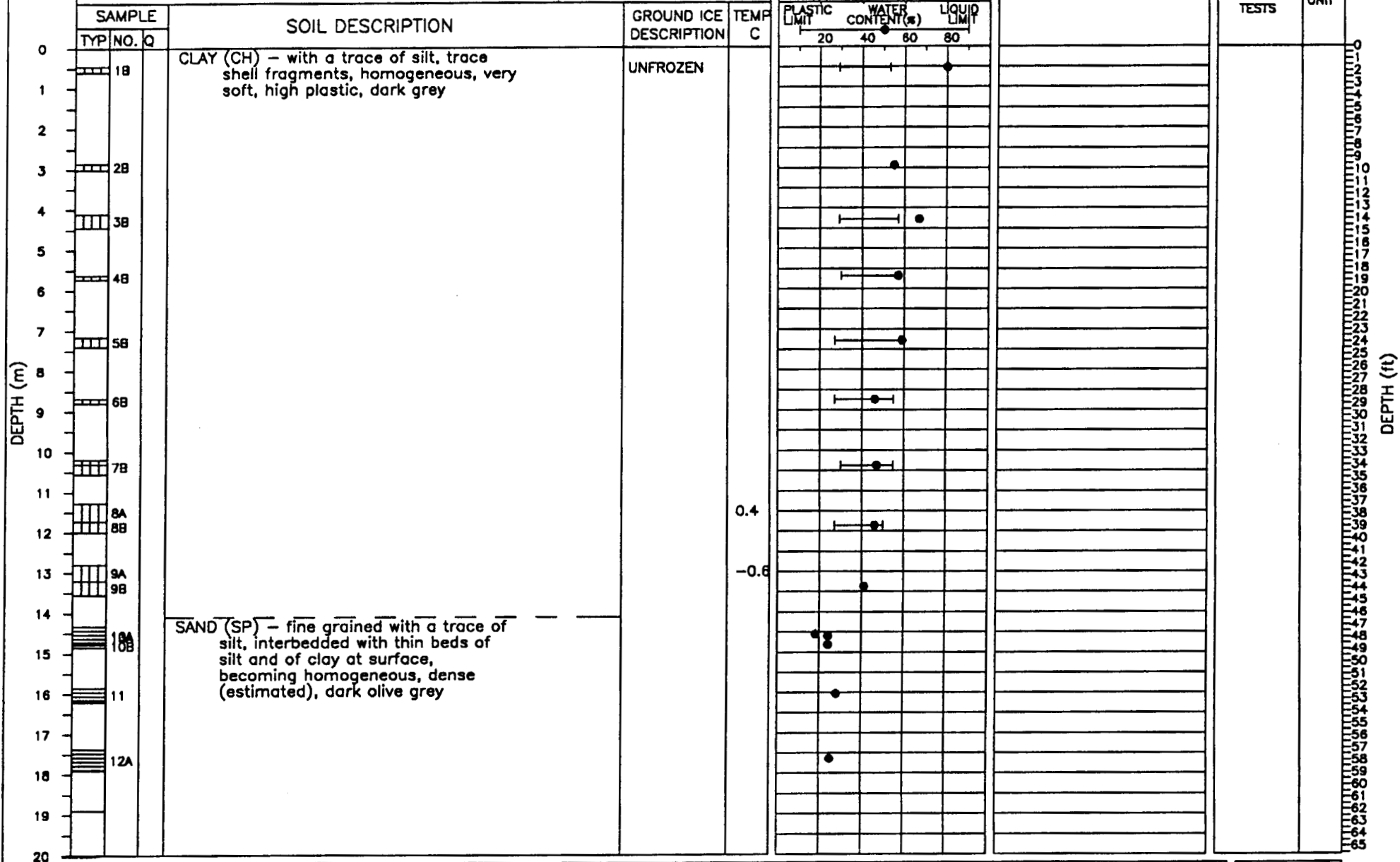
KT83S01

PAGE 3 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1983 SITE INVESTIGATION - KASLUTUT
GULF CANADA RESOURCES LTD.

EBA # 101-3865
N7767460 E489560 Z8



DRILL RIG - SIMCO 5000
DRILL SHIP - MV BRODERICK
WATER DEPTH - 35.2m
ORIGINAL BOREHOLE NUMBER -KT83S02

SAMPLE TYPE
 THIN W. TUBE
 NO RECOVERY
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
KT83S02
PAGE 1 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

1983 SITE INVESTIGATION - KASLUTUT GULF CANADA RESOURCES LTD.				EBA # 101-3865 N7767460 E489560 Z8		Bulk Density Mg/m^3 ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO. Q										20
20		SAND (SP) - (cont'd)									66
21											67
22	14A										68
23											69
24											70
25	15B	- with some silt (SM)									71
26		SILT-CLAY (CL) - trace fine grained sand, clay content increasing with depth, very thinly laminated, very stiff, low plastic dark grey									72
27											73
28											74
29	16										75
30											76
31	17A										77
32	17B		UNFROZEN								78
33		END OF BOREHOLE at 32.1m									79
34											80
35											81
36											82
37											83
38											84
39											85
40											86
											87
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											129
											130
											131

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 35.2m
 ORIGINAL BOREHOLE NUMBER -KT83S02

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOVERY	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 KT83S02
 PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

1983 SITE INVESTIGATION - AKPAK
GULF CANADA RESOURCES LTD.

EBA # 101-3866
N7785950 E529265 Z8

SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m³ ▲ PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT	SPECIAL TESTS	UNIT
TYP	NO. Q						
0	1	CLAY (CH) - trace to some silt, trace fine sand, high plastic, very soft dark olive grey, becoming soft, sand pockets, curved, nonparallel laminations SAND (SP) - interbedded with clay, some shell fragments - becoming clean, fine grained, compact to dense, uniform	UNFRFOZEN		20 40 60 80		
1	2A						
2	2B						
3	3						
4	4	- medium to fine grained					
5							
6							
7							
8							
9							
10							
11							
12							
13							
14	6	- trace silt					
15							
16							
17	7						
18							
19							
20	8	- trace gravel, subangular, polished, maximum size = 10mm					

DRILL RIG - SIMCO 5000
 DRILL SHIP - MV BRODERICK
 WATER DEPTH - 36.5m

THIN W. TUBE
 NO RECOVERY
 SPLIT SPOON

SAMPLE TYPE
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AK83S01
 PAGE 1 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

DRILL RIG - SIMCO 5000
DRILL SHIP - MV BRODERICK
WATER DEPTH - 36.5m

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE
NUMBER
AK83S01

PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

1983 SITE INVESTIGATION - AKPAK

GULF CANADA RESOURCES LTD.

EBA # 101-3866

N7790825 E529050 Z8

SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m³ ▲ PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT	SPECIAL TESTS	UNIT	DEPTH (ft)
TYP	NO. Q							
0	1	CLAY (CH) - trace of silt and fine grained sand, high plastic, very soft, dark grey brown	UNFROZEN	-1.1				0
1	2A 2B	SAND (SP) - fine grained with a trace of silt, medium dense becoming dense (estimated), grains subangular to subrounded, dark olive grey						1
2								2
3	3							3
4	4	- trace of fine grained gravel to 10mm						4
5	5							5
6								6
7	6							7
8								8
9								9
10	7							10
11								11
12								12
13	8							13
14								14
15								15
16								16
17	9	- trace organics						17
18								18
19								19
20	10							20

DRILL RIG - SIMCO 5000

DRILL SHIP - MV BRODERICK

WATER DEPTH - 39.0m

SAMPLE TYPE

THIN W. TUBE

NO RECOVERY

SPLIT SPOON

HEAVY W. TUBE

CORE

GRAB

EBA ENGINEERING CONSULTANTS LTD.

EDMONTON ALBERTA

DRAWING NUMBER

BOREHOLE NUMBER AK83S02

PAGE 1 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1983 SITE INVESTIGATION - AKPAK GULF CANADA RESOURCES LTD.				EBA # 101-3866 N7790825 E529050 Z8		Bulk Density Mg/m^3 ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
TYP	NO.	Q									
			SAND (SP) - (cont'd)								66
											67
											68
											69
											70
											71
											72
											73
											74
											75
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											131

DRILL RIG - SIMCO 5000
DRILL SHIP - MV BRODERICK
WATER DEPTH - 39.0m

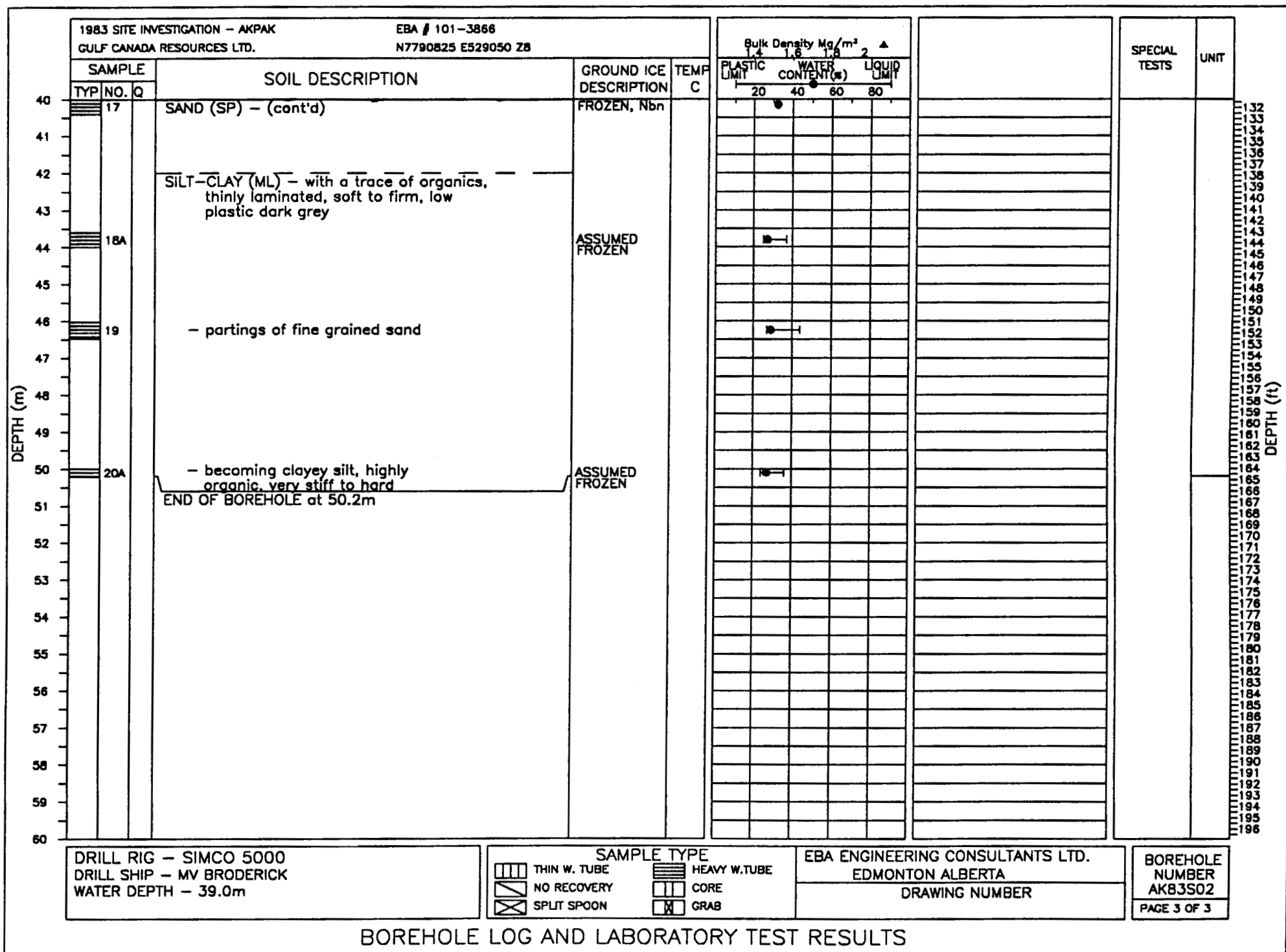
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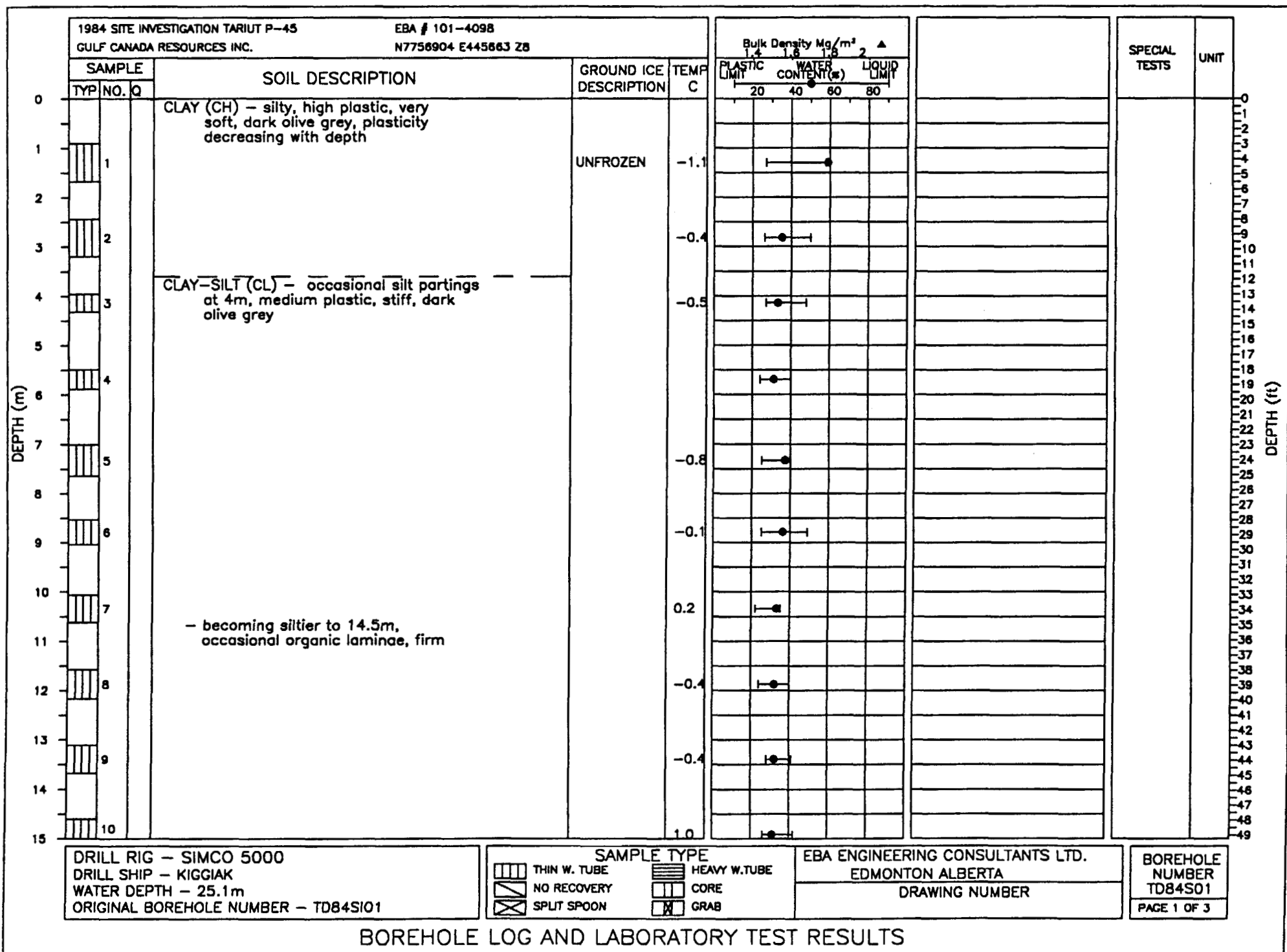
THIN W. TUBE	HEAVY W. TUBE
NO RECOVERY	CORE
SPLIT SPOON	GRAB

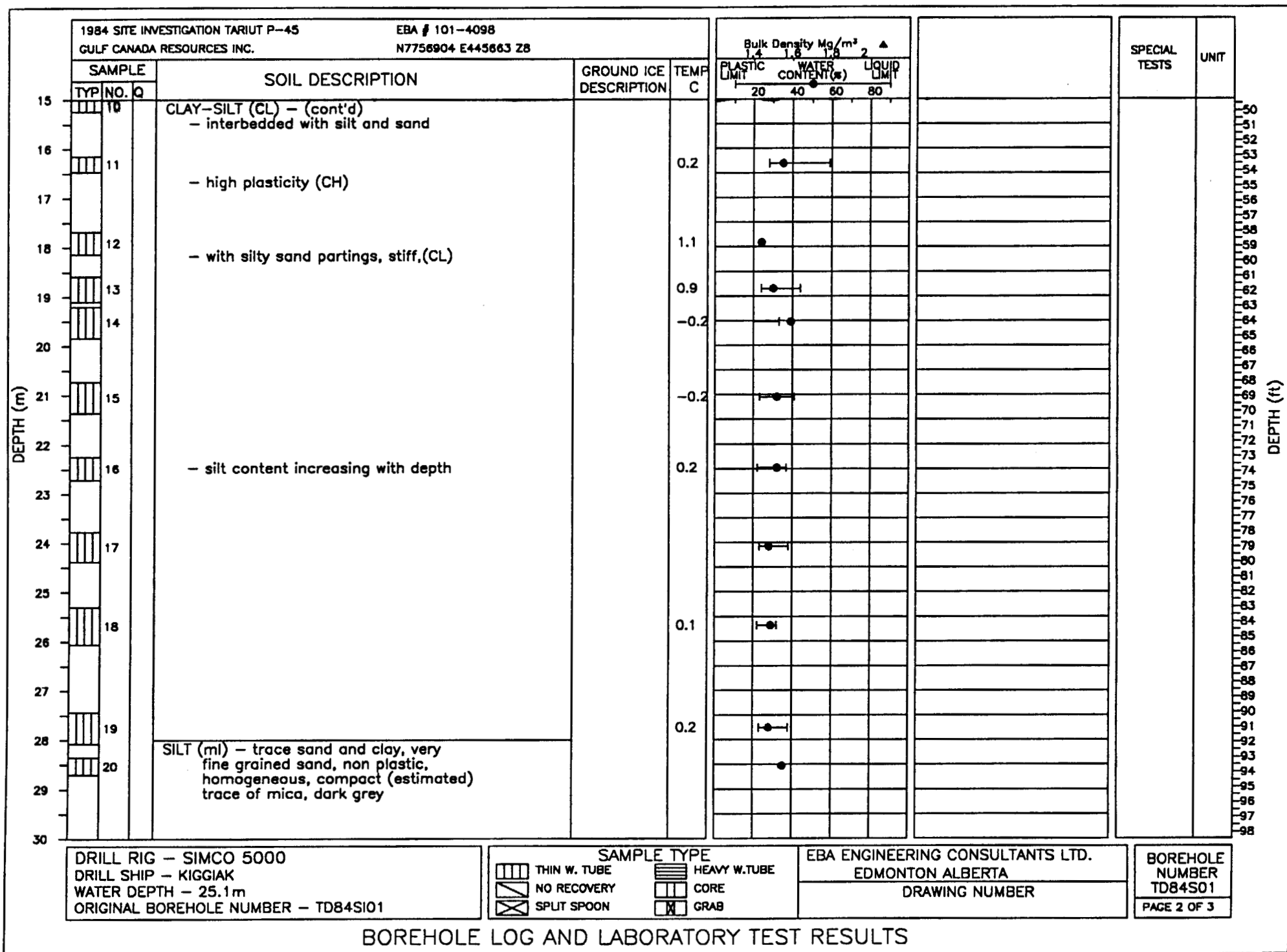
EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
AK83S02
PAGE 2 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS







1984 SITE INVESTIGATION TARIUT P-45 GULF CANADA RESOURCES INC.				EBA # 101-4098 N7756904 E445663 Z8						SPECIAL TESTS	UNIT		
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m^3 ▲ 1.4 1.6 1.8 2.0							
TYP	NO.	Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
30	21		SILT (ml) - (cont'd)		-0.3								99
31	22				-0.7								
32													101
33													102
34	23				-1.2								103
35	24		- some sand		-1.4								104
36	25				-1.5								105
37													106
38													107
39			- clayey, trace sand, trace of organics										108
40	26				-1.4								109
41													110
42													111
43													112
44	27			UNFROZEN	-0.8								113
45			END OF BOREHOLE at 44.3m										114
													115
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													122
													123
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													147

DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 25.1m
 ORIGINAL BOREHOLE NUMBER - TD84SI01

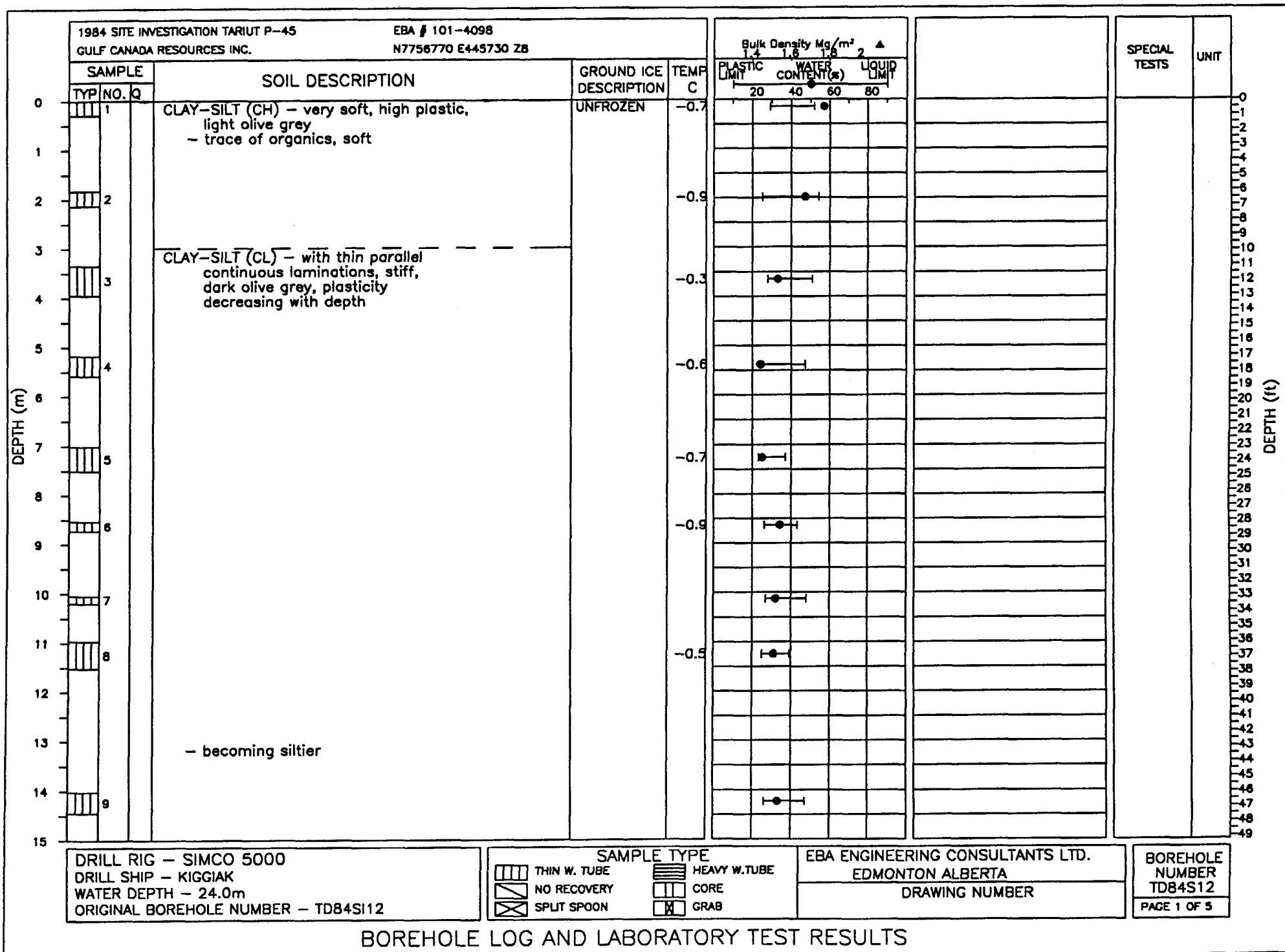
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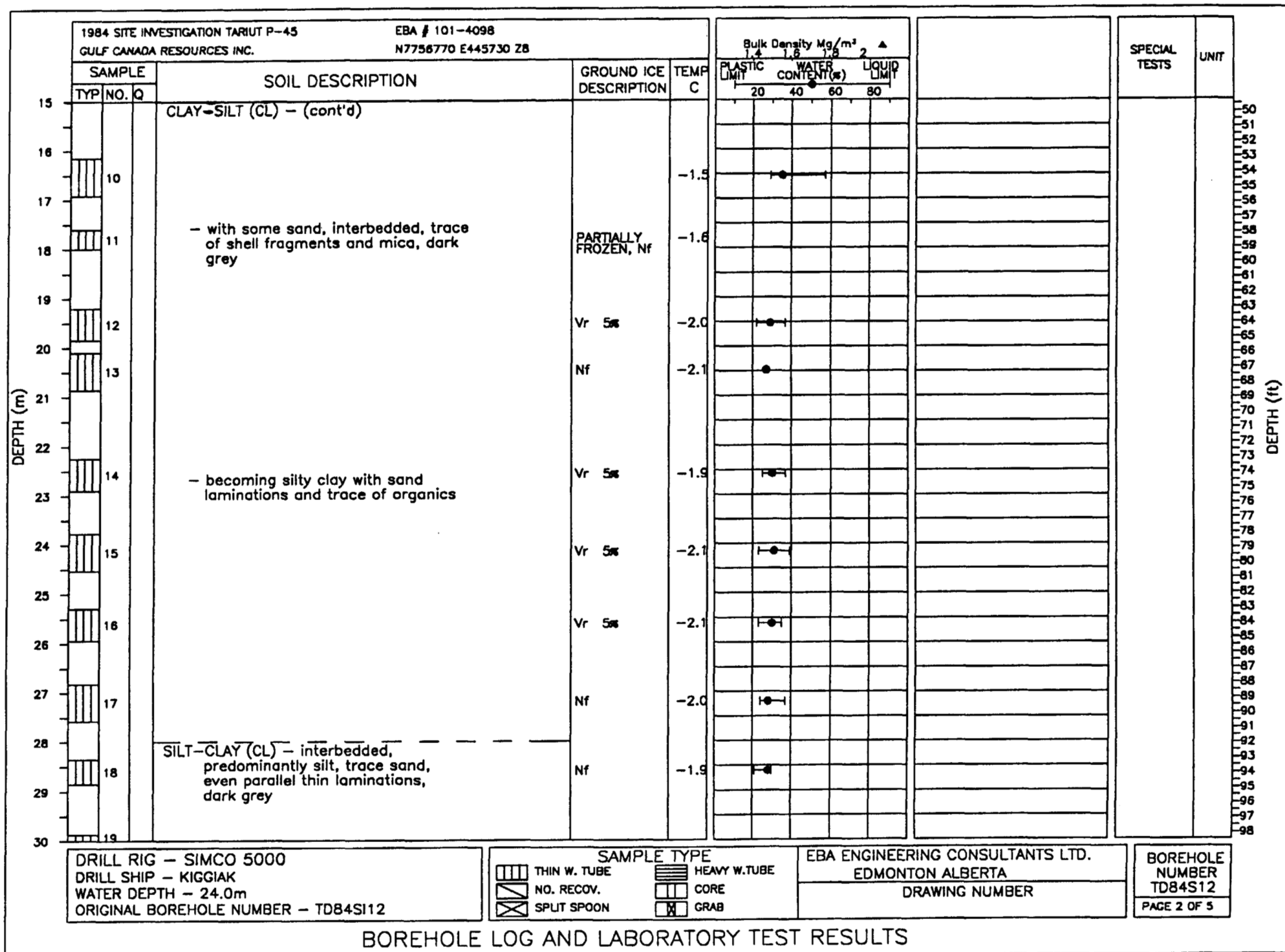
THIN W. TUBE	HEAVY W. TUBE
NO RECOVERY	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE
 NUMBER
 TD84S01
 PAGE 3 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS





1984 SITE INVESTIGATION TARIUT P-45 GULF CANADA RESOURCES INC.				EBA # 101-4098 N7756770 E445730 Z8						SPECIAL TESTS	UNIT					
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲ PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT										
TYP	NO.	Q							20	40	60	80				
30	19		SILT-CLAY (CL) - (cont'd)	Nf	-2.2							99				
31															100	
32															101	
33	20							-2.1							102	
34																103
35																104
36	21															105
37																106
38															107	
39	22A 22B							-1.9							108	
40																109
41																110
42	23B 23A															111
43																112
44								-2.3							113	
45													114			
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												147				

DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 24.0m
 ORIGINAL BOREHOLE NUMBER - TD84S112

THIN W. TUBE	HEAVY W. TUBE
NO. RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 TD84S12
 PAGE 3 OF 5

BOREHOLE LOG AND LABORATORY TEST RESULTS

1984 SITE INVESTIGATION TARIUT P-45 GULF CANADA RESOURCES INC.				EBA # 101-4098 N7756770 E445730 Z8									
SAMPLE			SOIL DESCRIPTION		GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2 PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT 20 40 60 80				SPECIAL TESTS		UNIT
TYP NO. Q													
45	24		SILT-CLAY (CL) - (cont'd)			-2.0							148
46													149
47													150
48													151
49													152
50													153
51													154
52													155
53													156
54													157
55	25		CLAY-SILT (CL) - platy, low to medium plasticity, stiff, dry, dark olive grey		Nf	-2.5							158
56													159
57													160
58													161
59													162
60													163
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													196
DRILL RIG - SIMCO 5000 DRILL SHIP - KIGGIAK WATER DEPTH - 24.0m ORIGINAL BOREHOLE NUMBER - TD84SI12				SAMPLE TYPE THIN W. TUBE NO. RECOV. SPLIT SPOON HEAVY W. TUBE CORE GRAB				EBA ENGINEERING CONSULTANTS LTD. EDMONTON ALBERTA DRAWING NUMBER				BOREHOLE NUMBER TD84S12 PAGE 4 OF 5	
BOREHOLE LOG AND LABORATORY TEST RESULTS													

1984 SITE INVESTIGATION TARIUT P-45 GULF CANADA RESOURCES INC.				EBA # 101-4098 N7756770 E445730 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	WATER CONTENT (%)						
TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
III	29	CLAY-SILT (CL) - (cont'd)	PARTIALLY FROZEN	-1.7							197
		END OF BOREHOLE at 60.6m									198
											199
											200
											201
											202
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DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 24.0m
 ORIGINAL BOREHOLE NUMBER - TD84SI12

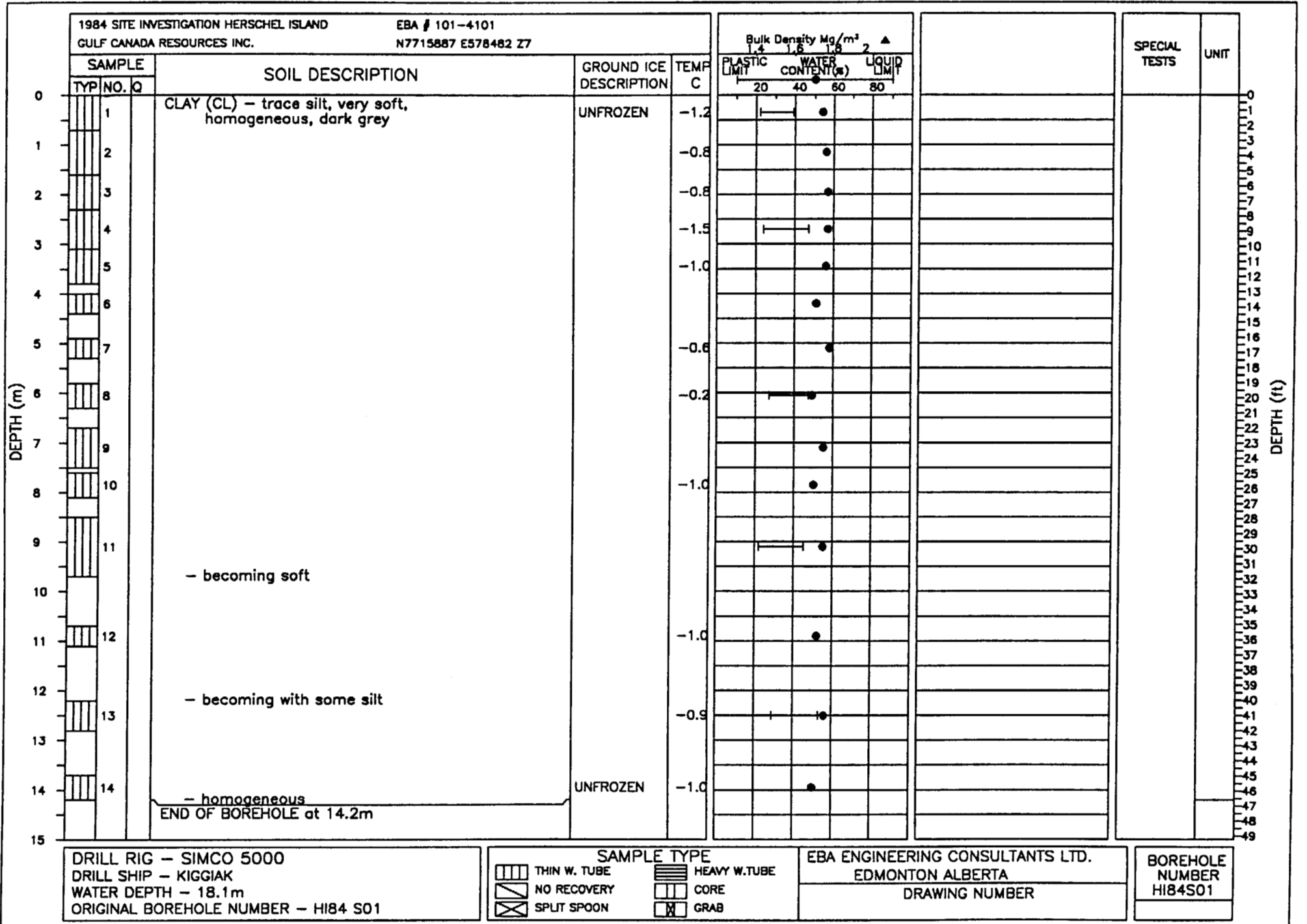
SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO. RECOV.	CORE
SPLIT SPOON	GRAB

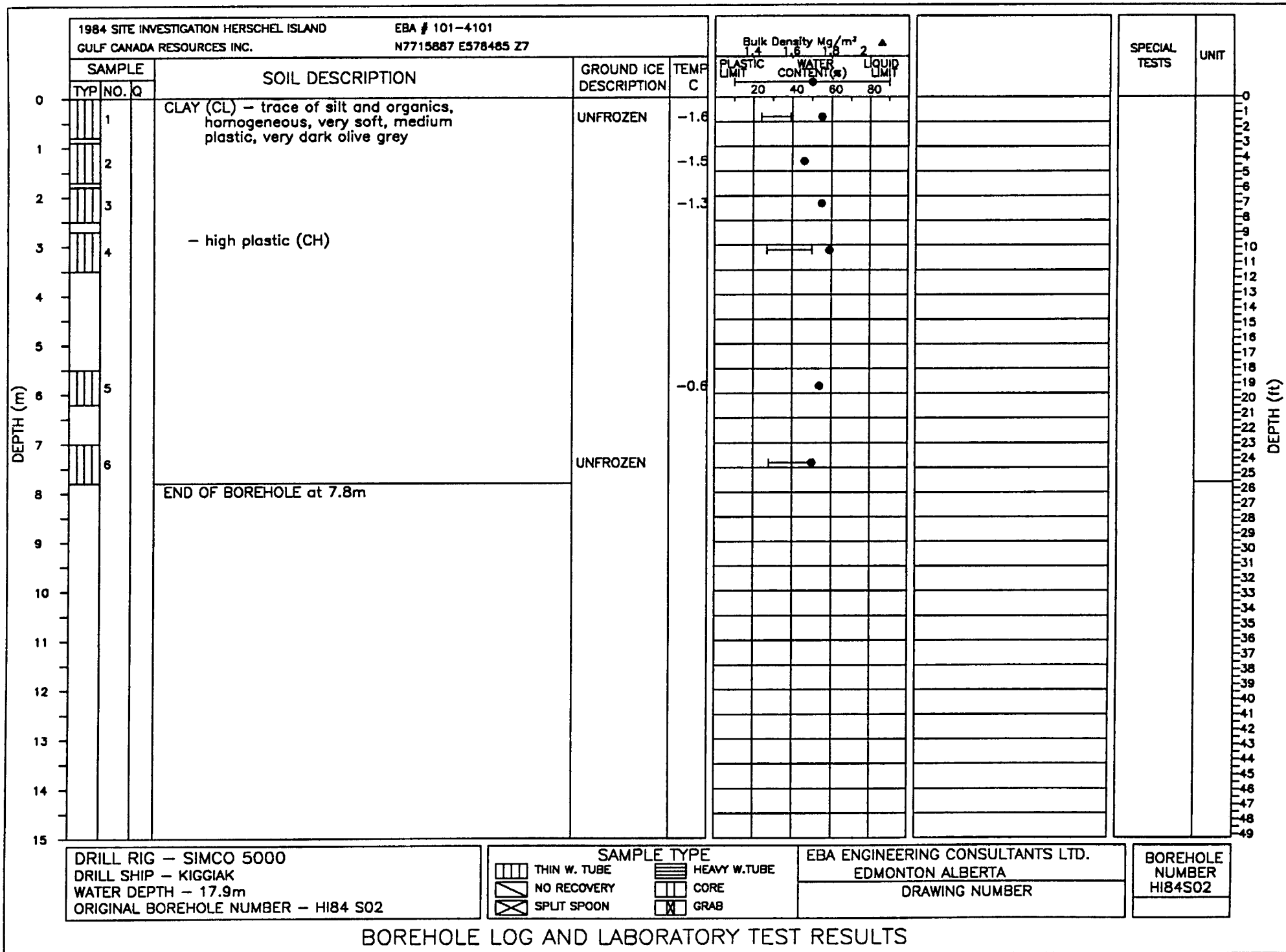
EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

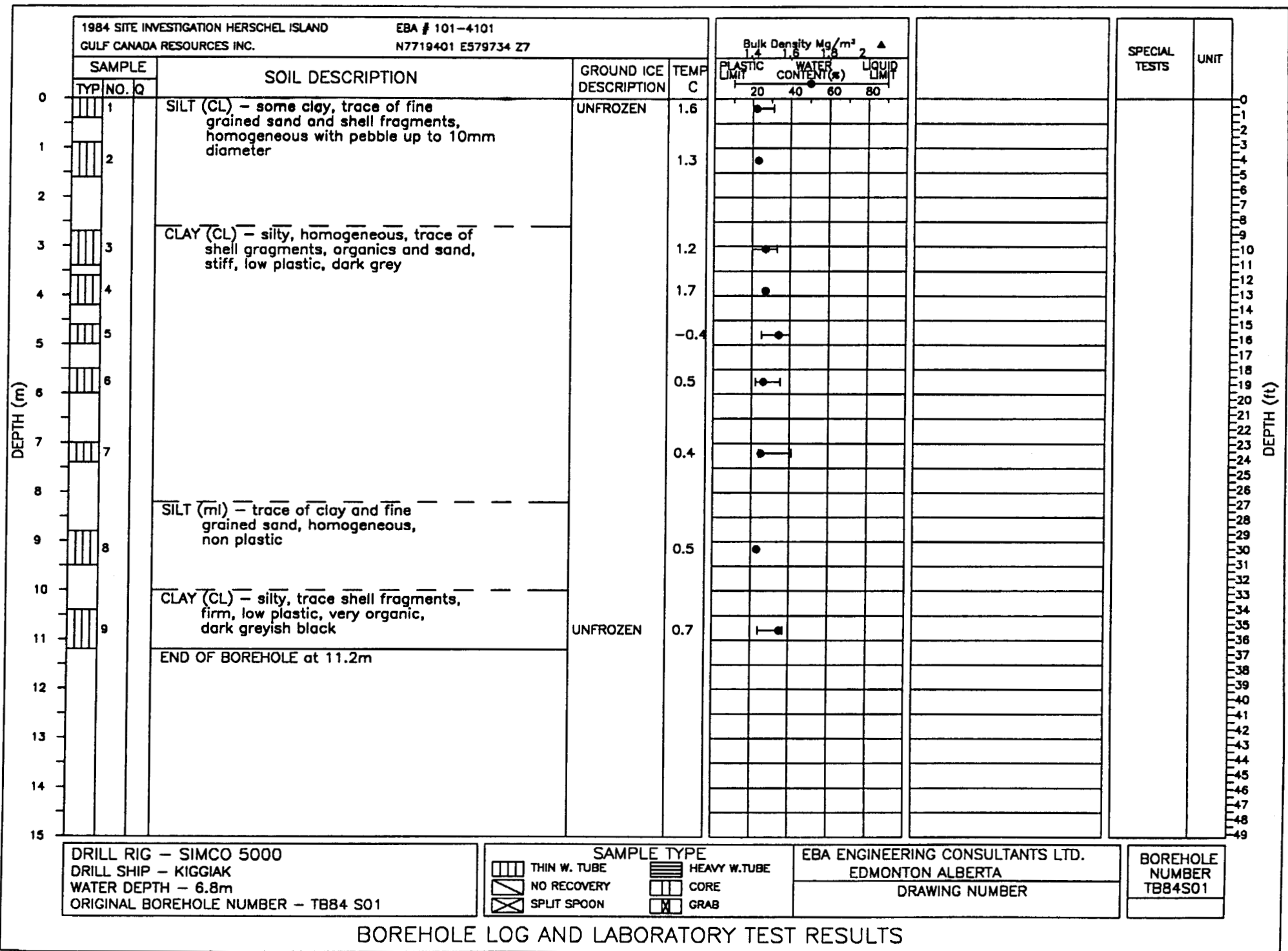
BOREHOLE NUMBER
 TD84SI12
 PAGE 5 OF 5

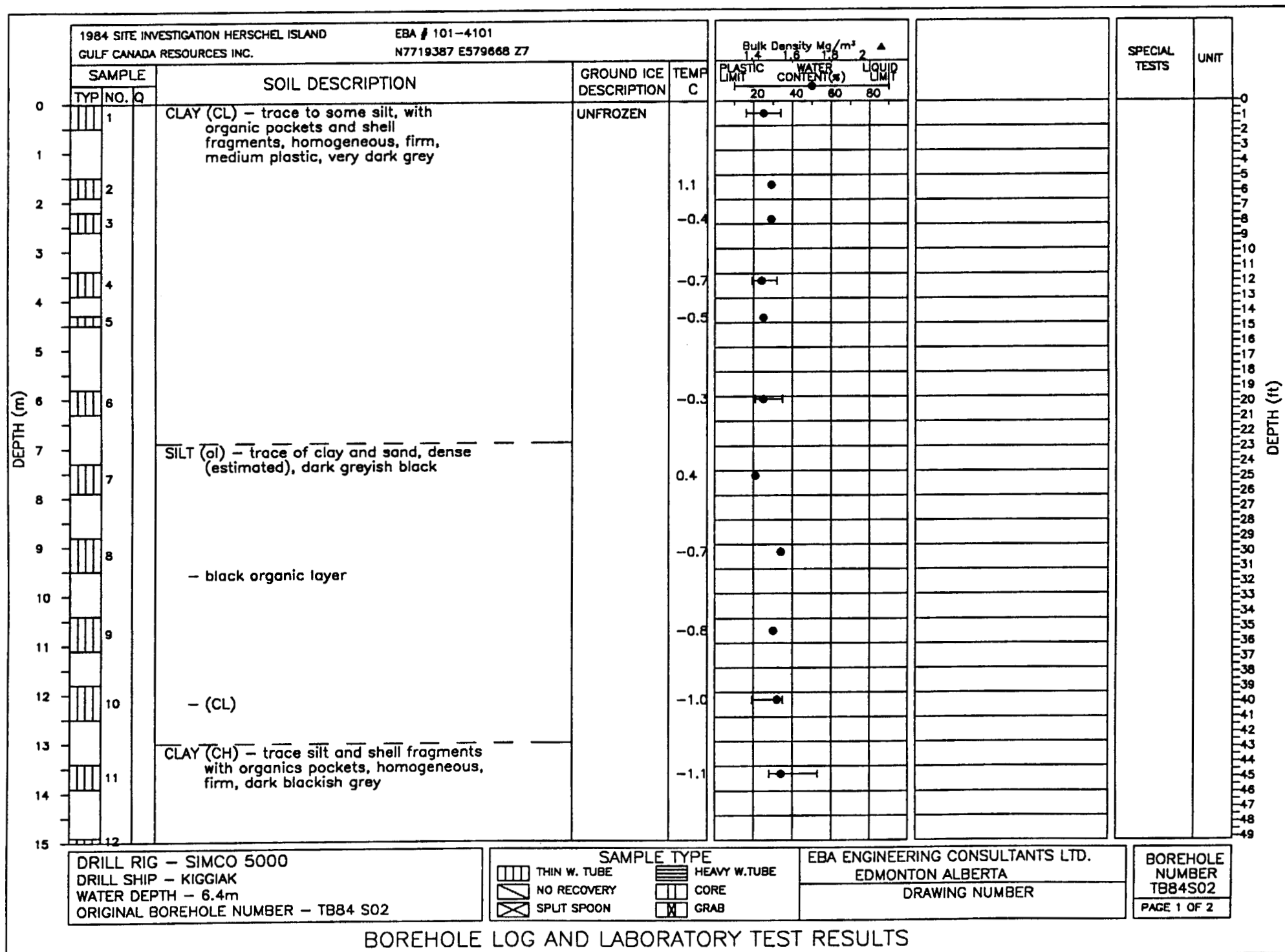
BOREHOLE LOG AND LABORATORY TEST RESULTS

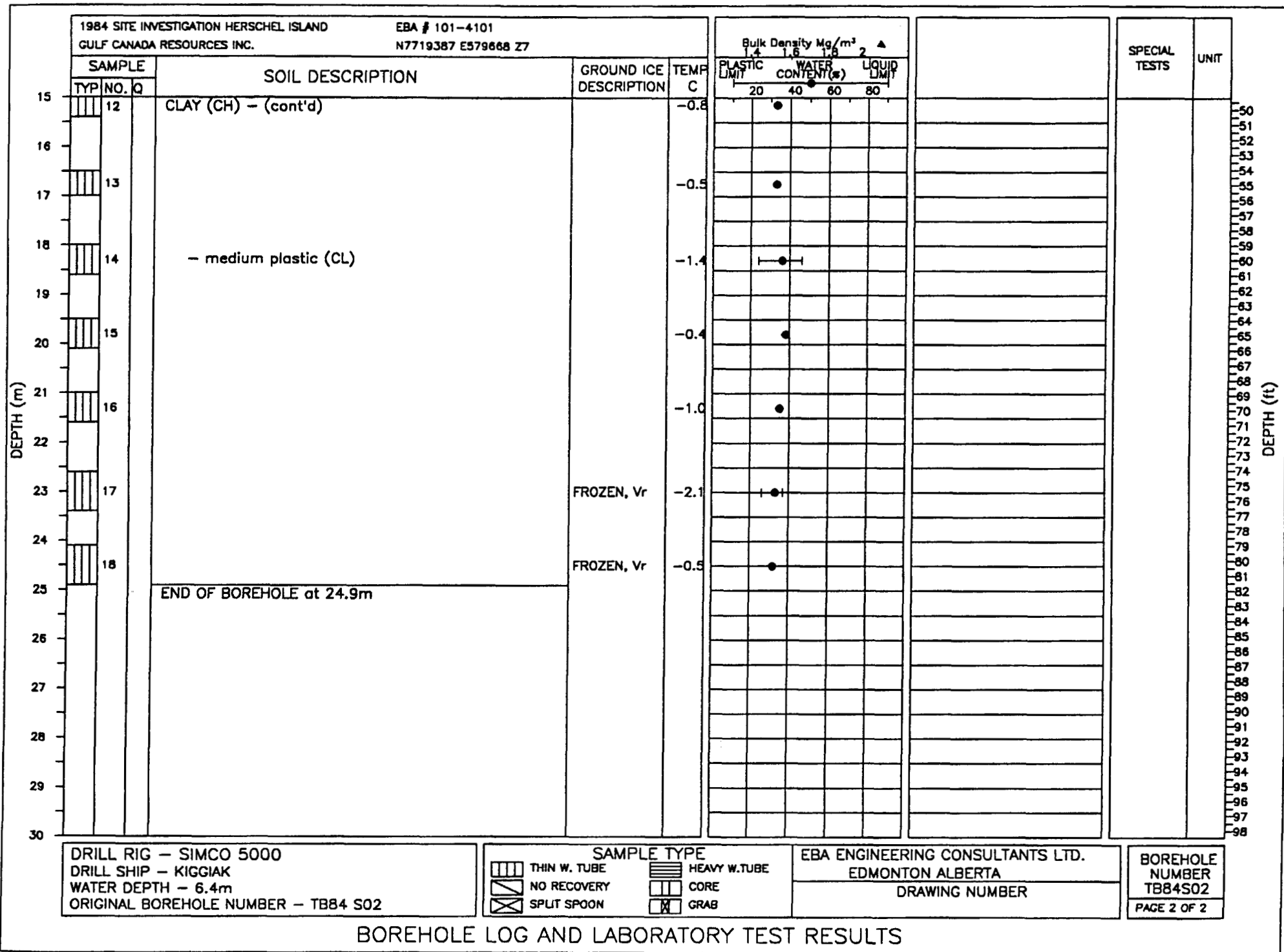


BOREHOLE LOG AND LABORATORY TEST RESULTS



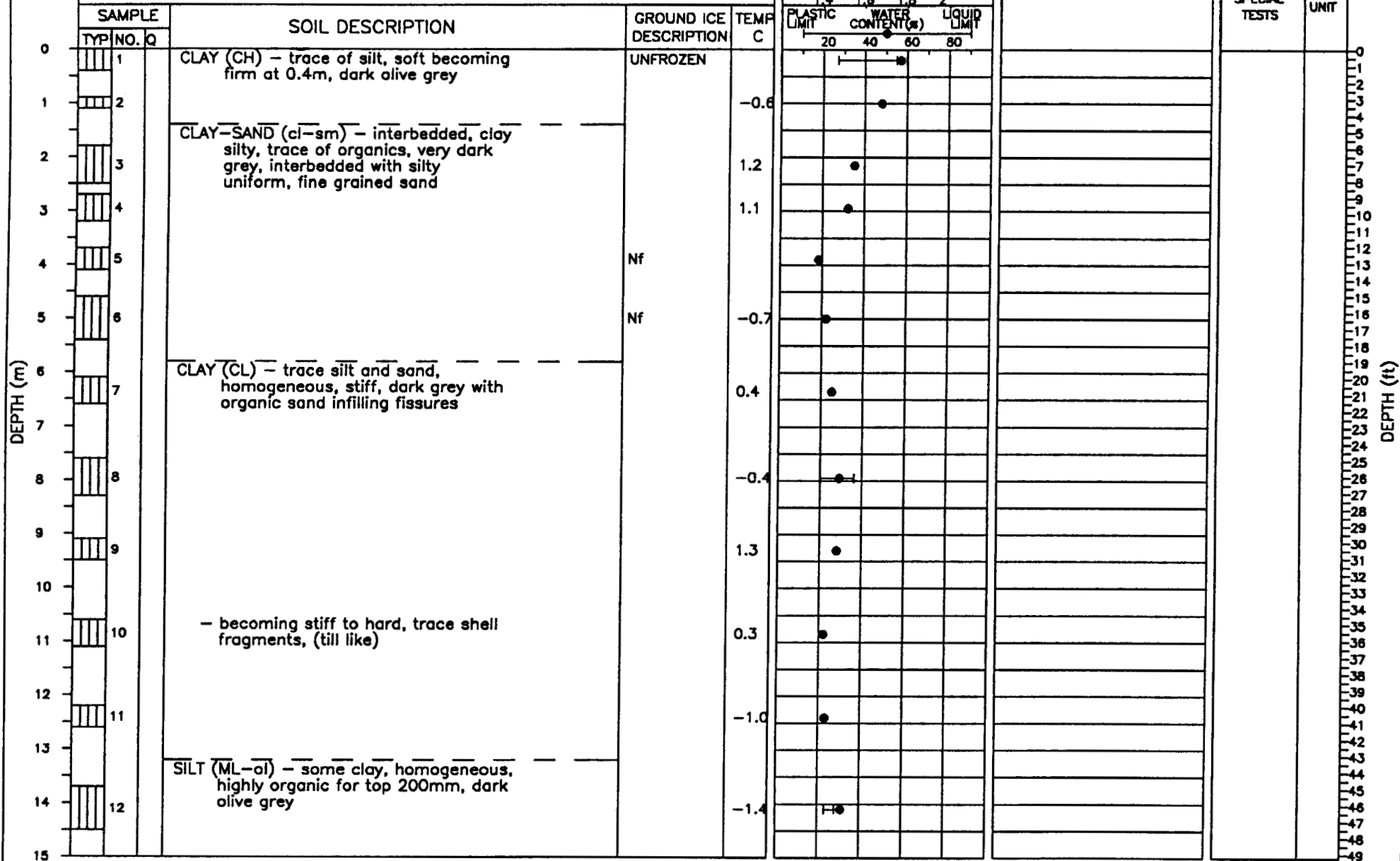






1984 SITE INVESTIGATION HERSCHEL ISLAND
GULF CANADA RESOURCES INC.

EBA # 101-4101
N7718902 E579805 Z7



DRILL RIG - SIMCO 5000
DRILL SHIP - KIGGIK
WATER DEPTH - 9.4m
ORIGINAL BOREHOLE NUMBER - TB84-S03

SAMPLE TYPE
 THIN W. TUBE
 NO RECOVERY
 SPLIT SPOON
 PISTON
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
TB84S03
PAGE 1 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

1984 SITE INVESTIGATION HERSCHEL ISLAND GULF CANADA RESOURCES INC.				EBA # 101-4101 N7718902 E579805 Z7		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2.0				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
		SILT (ML) - (cont'd)										50
												51
												52
												53
		CLAY (CL) - some silt, trace fine grained sand, organics and shell fragments, stiff very dark grey										54
	14			-0.6								55
												56
												57
												58
	15			-1.3								59
												60
												61
												62
												63
	16		UNFROZEN	-1.0								64
												65
		END OF BOREHOLE at 20.5m										66
												67
												68
												69
												70
												71
												72
												73
												74
												75
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												98

DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 9.4m
 ORIGINAL BOREHOLE NUMBER - TB84-S03

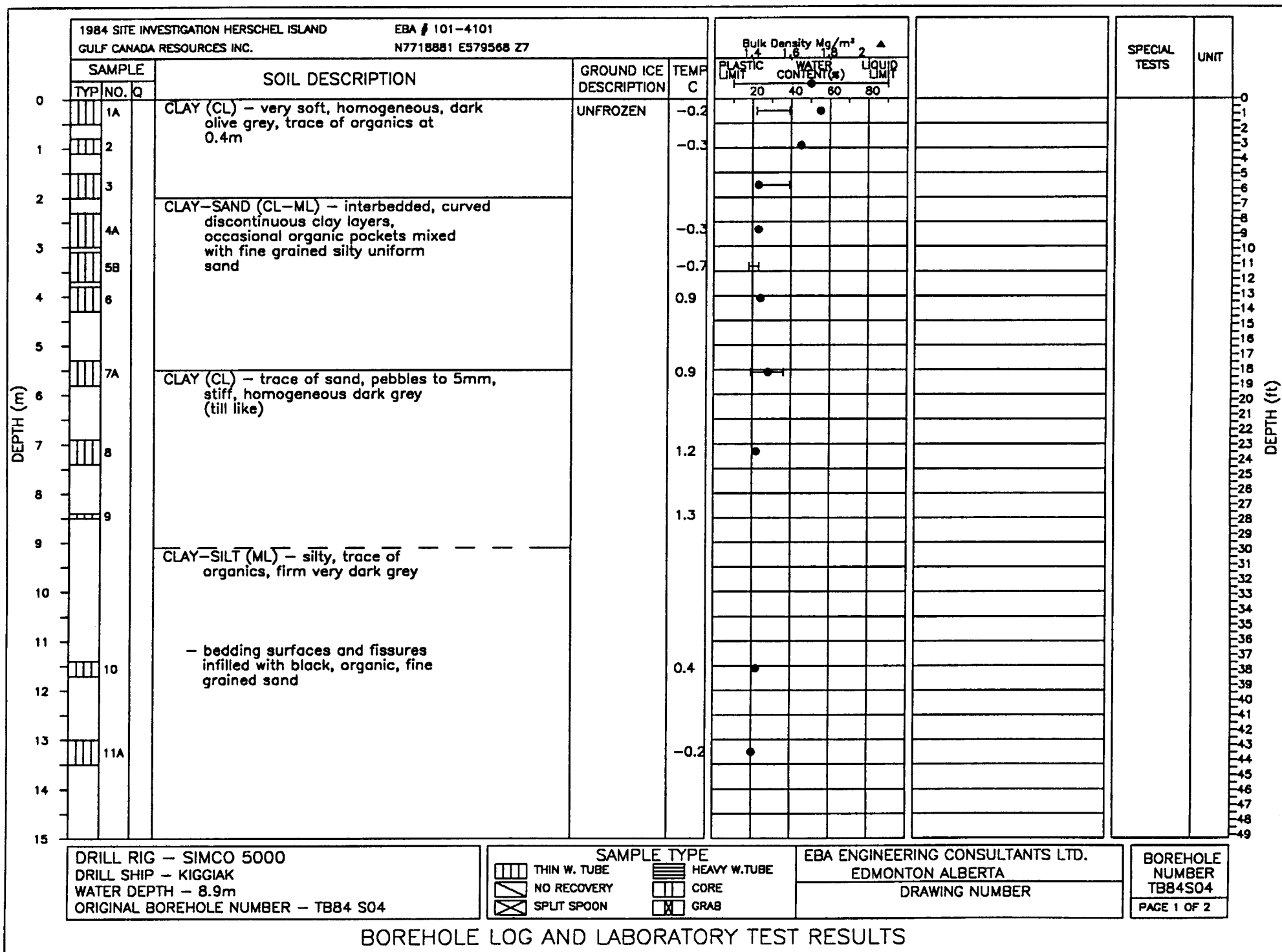
SAMPLE TYPE

THIN W. TUBE	PISTON
NO RECOVERY	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 TB84S03
 PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS



1984 SITE INVESTIGATION HERSCHEL ISLAND GULF CANADA RESOURCES INC.				EBA # 101-4101 N7718881 E579568 Z7		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)		
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	WATER CONTENT (%)									
TYP	NO. Q				PLASTIC LIMIT	LIQUID LIMIT	WATER CONTENT (%)							
15		CLAY (CL) - trace of silt, sand and organics, occasional shell fragments, firm to stiff, homogeneous, very dark grey										50		
16														51
17	12													52
18														53
19	13													54
20														55
21	14													56
22														57
23														58
24														59
25														60
26														61
27														62
28														63
29		END OF BOREHOLE at 20.6m	UNFROZEN	0.2								64		
30												65		
												66		
												67		
												68		
												69		
												70		
												71		
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												96		
												97		
												98		

DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 8.9m
 ORIGINAL BOREHOLE NUMBER - TB84 S04

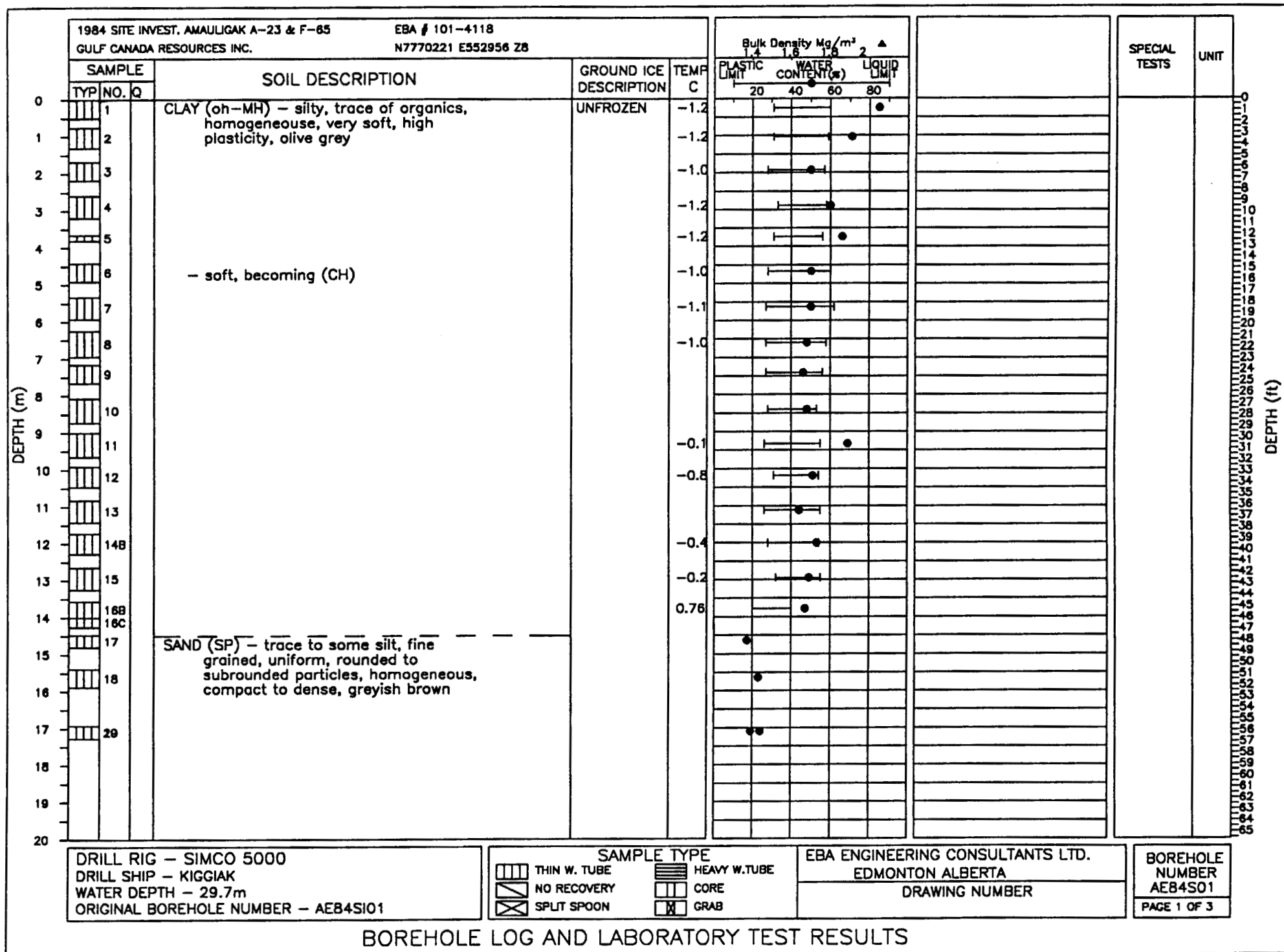
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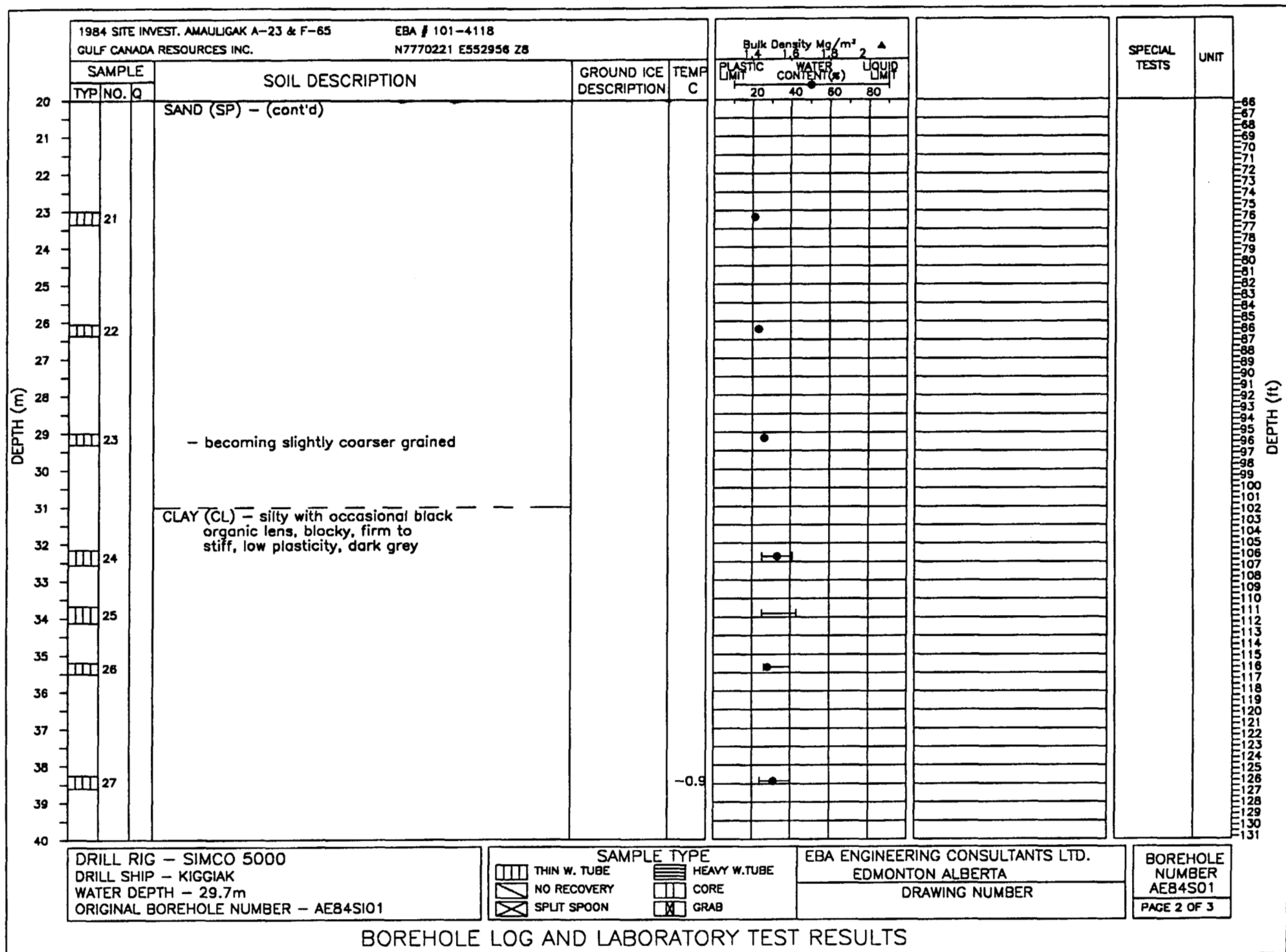
THIN W. TUBE	HEAVY W. TUBE
NO RECOVERY	CORE
SPLIT SPOON	GRAB

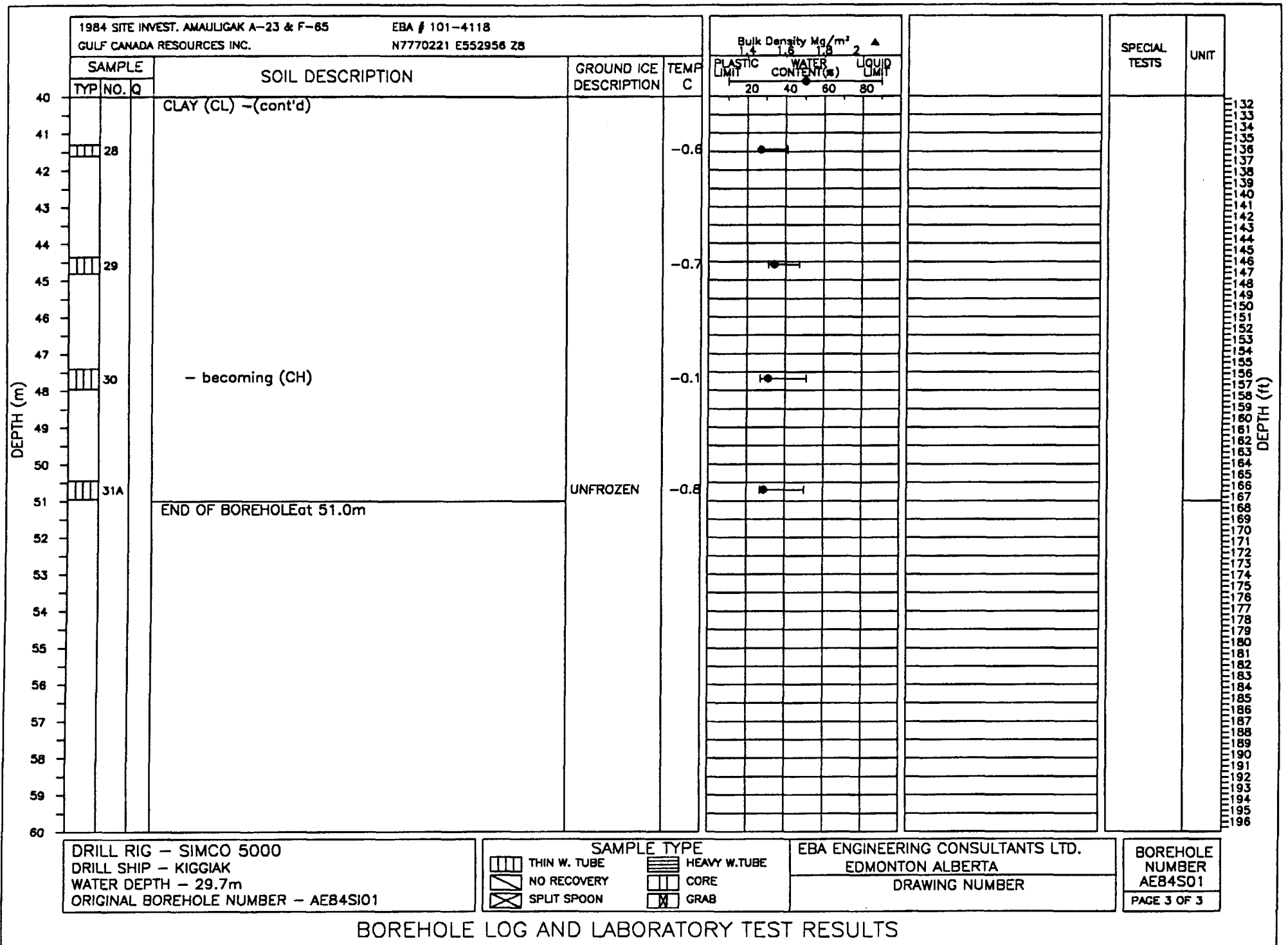
EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

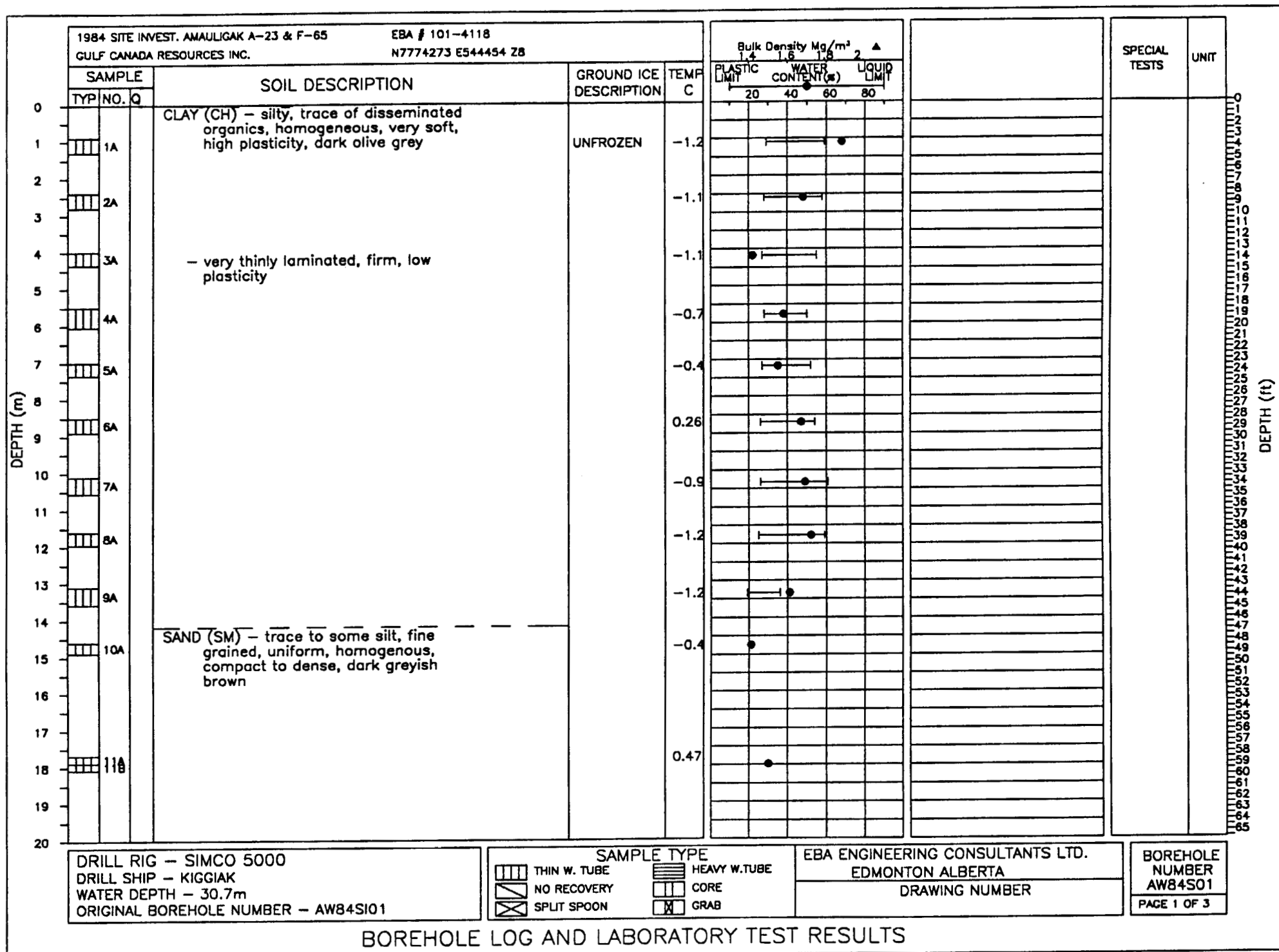
BOREHOLE NUMBER
 TB84S04
 PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS









1984 SITE INVEST. AMAULIGAK A-23 & F-85 GULF CANADA RESOURCES INC.				EBA # 101-4118 N7774273 E544454 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2.0			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
TYP	NO.	Q									
20			SAND (SM) - (cont'd)								66
21	12A		SAND (SP) - trace of silt with one pebble 15mm diameter, fine grained, uniform, homogeneous, compact to dense (estimated), olive grey								67
22											68
23											69
24	13A		- trace of organics		1.23						70
25											71
26											72
27	14A										73
28											74
29											75
30	15A										76
31											77
32											78
33	16A		- becoming silty (SM)								79
34											80
35	17A										81
36	18A										82
37											83
38											84
39	19A		- becoming (SP)								85
40											86

DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 30.7m
 ORIGINAL BOREHOLE NUMBER - AW84SI01

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOVERY	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AW84SI01
 PAGE 2 OF 3

BOREHOLE LOG AND LABORATORY TEST RESULTS

1984 SITE INVEST. AMAULIGAK A-23 & F-65 GULF CANADA RESOURCES INC.				EBA # 101-4118 N7774273 E544454 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2.0 PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT 20 40 60 80				SPECIAL TESTS		UNIT		DEPTH (m)		
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C											
TYP	NO.	Q														
			SAND (SP) - (cont'd)													132
																133
																134
																135
																136
																137
																138
	20A		- trace of silt, fine grained but slightly coarser, uniform, homogeneous, dark brown													139
																140
																141
																142
																143
																144
																145
																146
																147
	21A		- trace of fine grained gravel													148
																149
																150
																151
																152
																153
																154
																155
																156
	22A															157
																158
			END OF BOREHOLE AT 48.5m	UNFROZEN												159
																160
																161
																162
																163
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																165
																166
																167
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																192
																193
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																195
																196

DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 30.7m
 ORIGINAL BOREHOLE NUMBER - AW84SI01

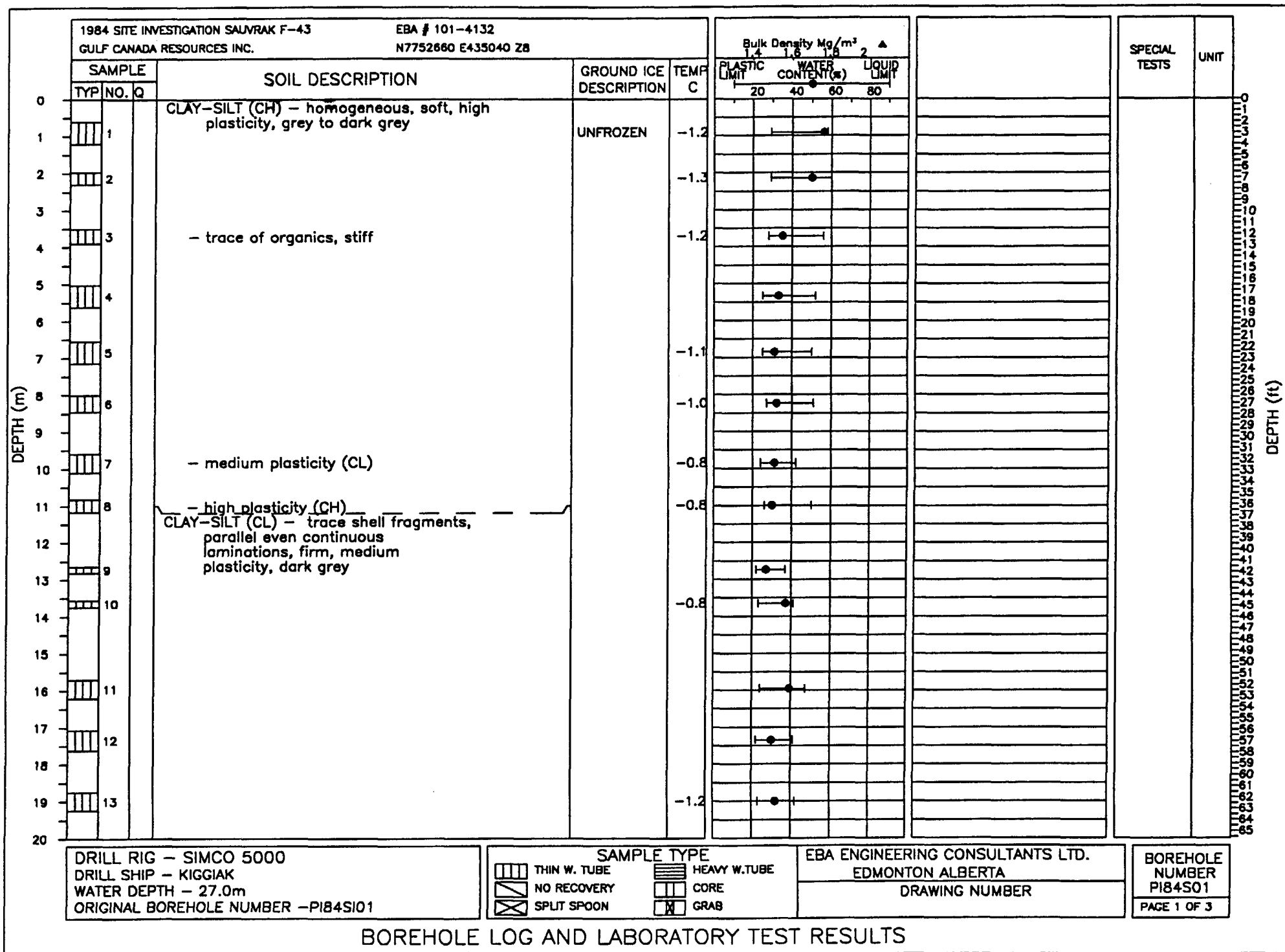
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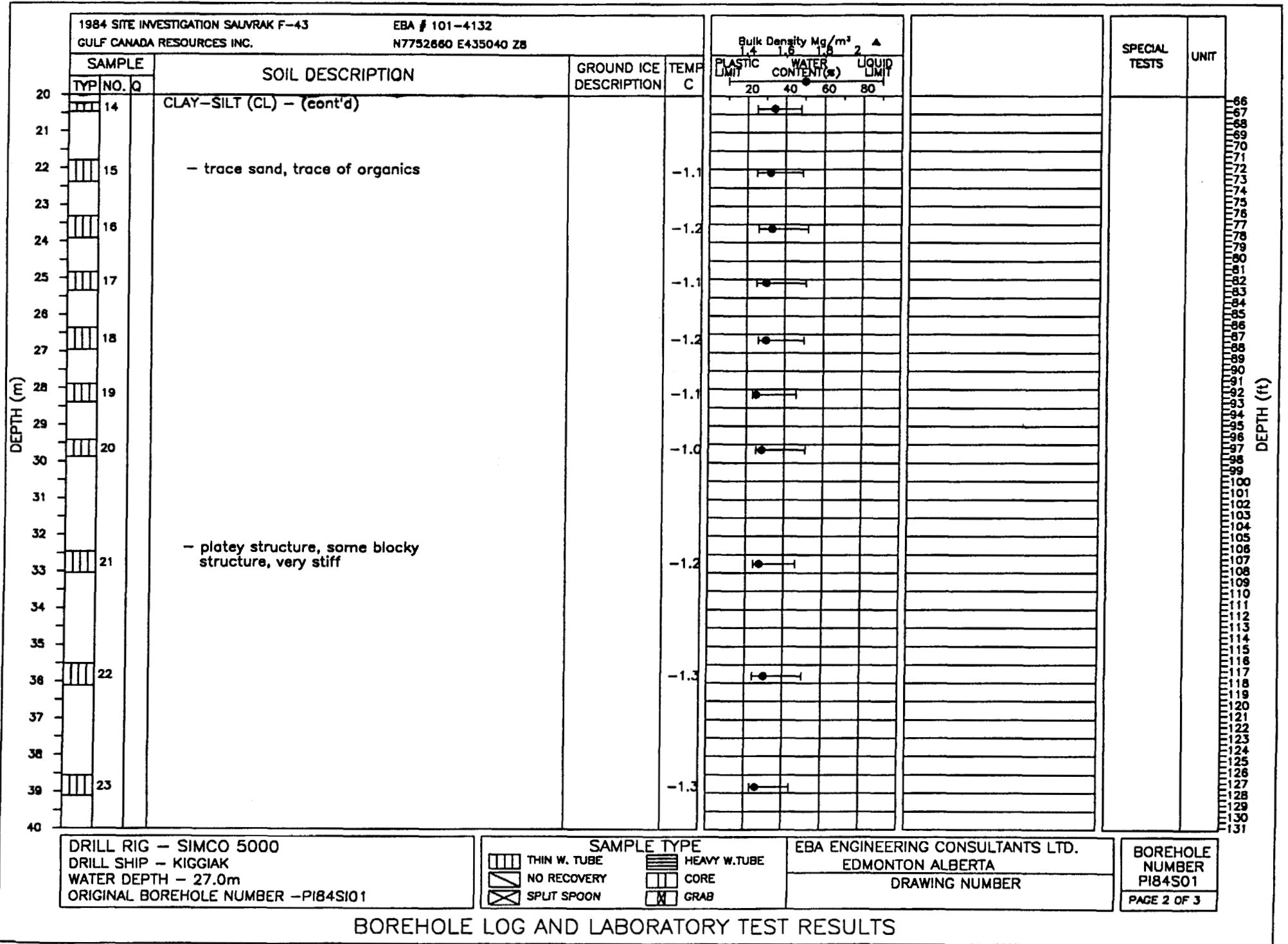
THIN W. TUBE	HEAVY W. TUBE
NO RECOVERY	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AW84S01
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BOREHOLE LOG AND LABORATORY TEST RESULTS





1984 SITE INVESTIGATION SAUVRAK F-43 GULF CANADA RESOURCES INC.				EBA # 101-4132 N7752660 E435040 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO. Q										
		CLAY-SILT (CL) - (cont'd)									32
		- stiff									33
											34
											35
											36
											37
											38
											39
											40
	24			-1.2							41
											42
											43
											44
											45
											46
											47
											48
											49
	25		UNFROZEN	-1.3							50
		END OF BOREHOLE at 49.82m									51
											52
											53
											54
											55
											56
											57
											58
											59
											60

DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 27.0m
 ORIGINAL BOREHOLE NUMBER - PI84SI01

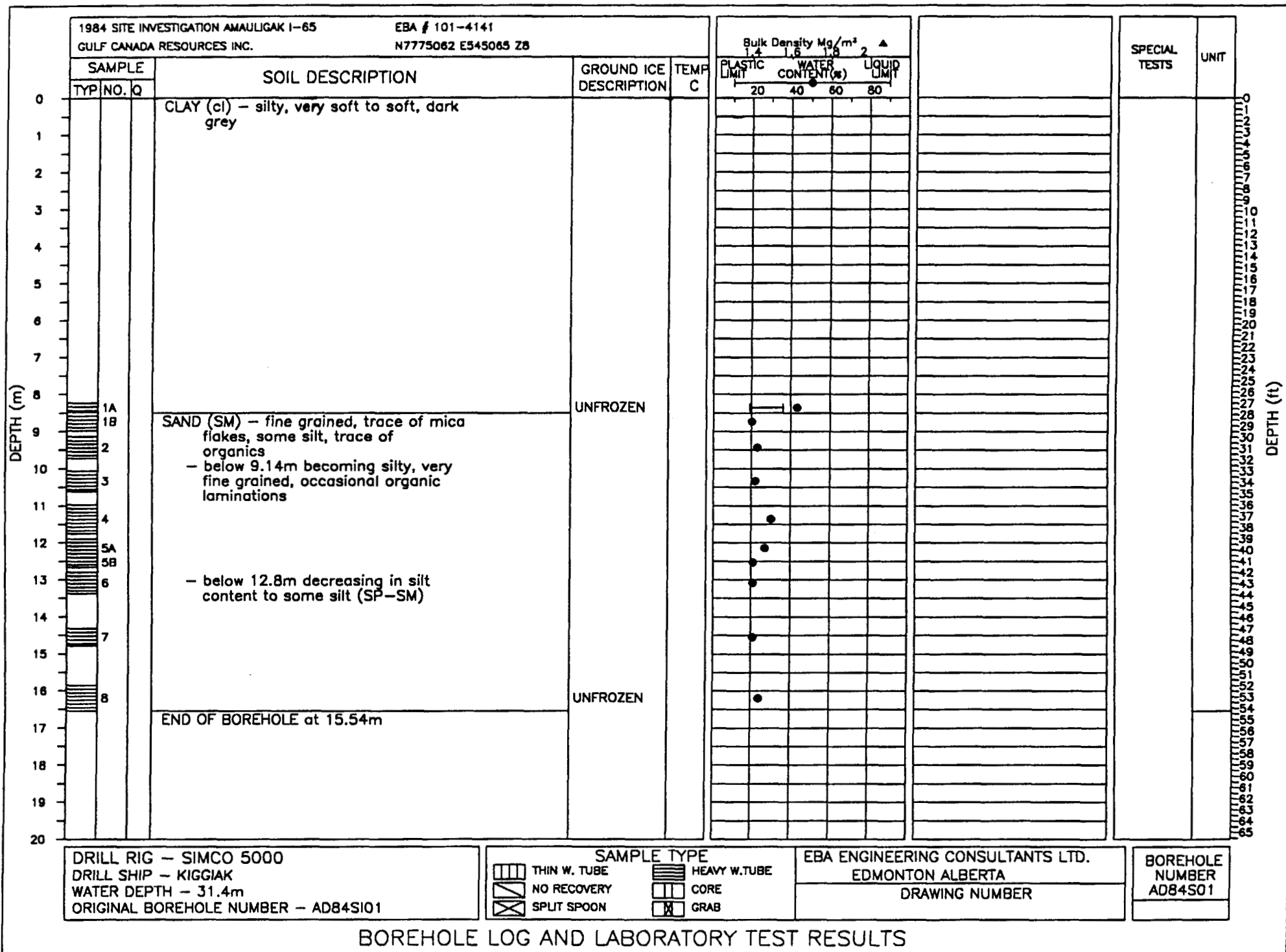
SAMPLE TYPE

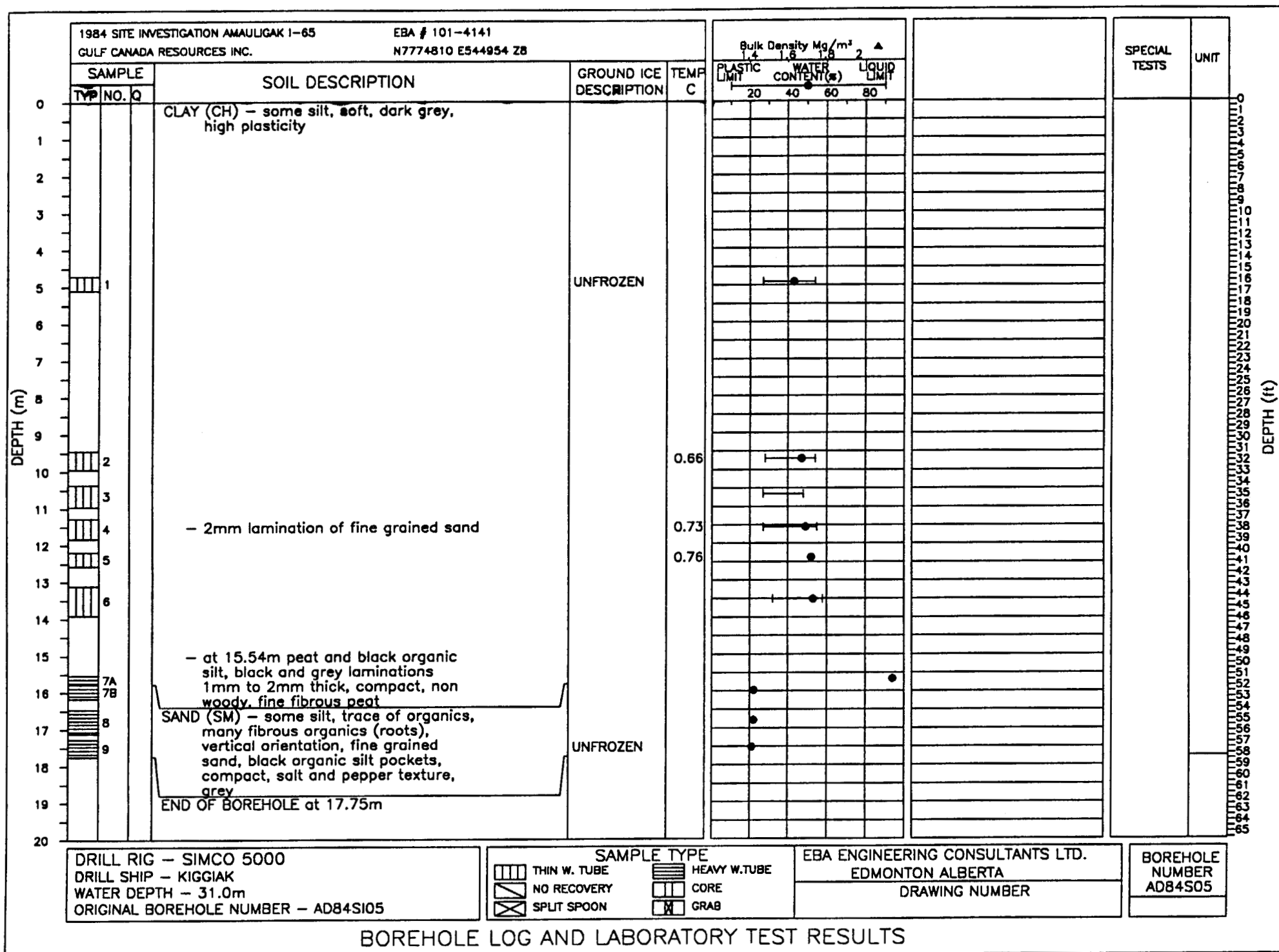
THIN W. TUBE	HEAVY W. TUBE
NO RECOVERY	CORE
SPLIT SPOON	GRAB

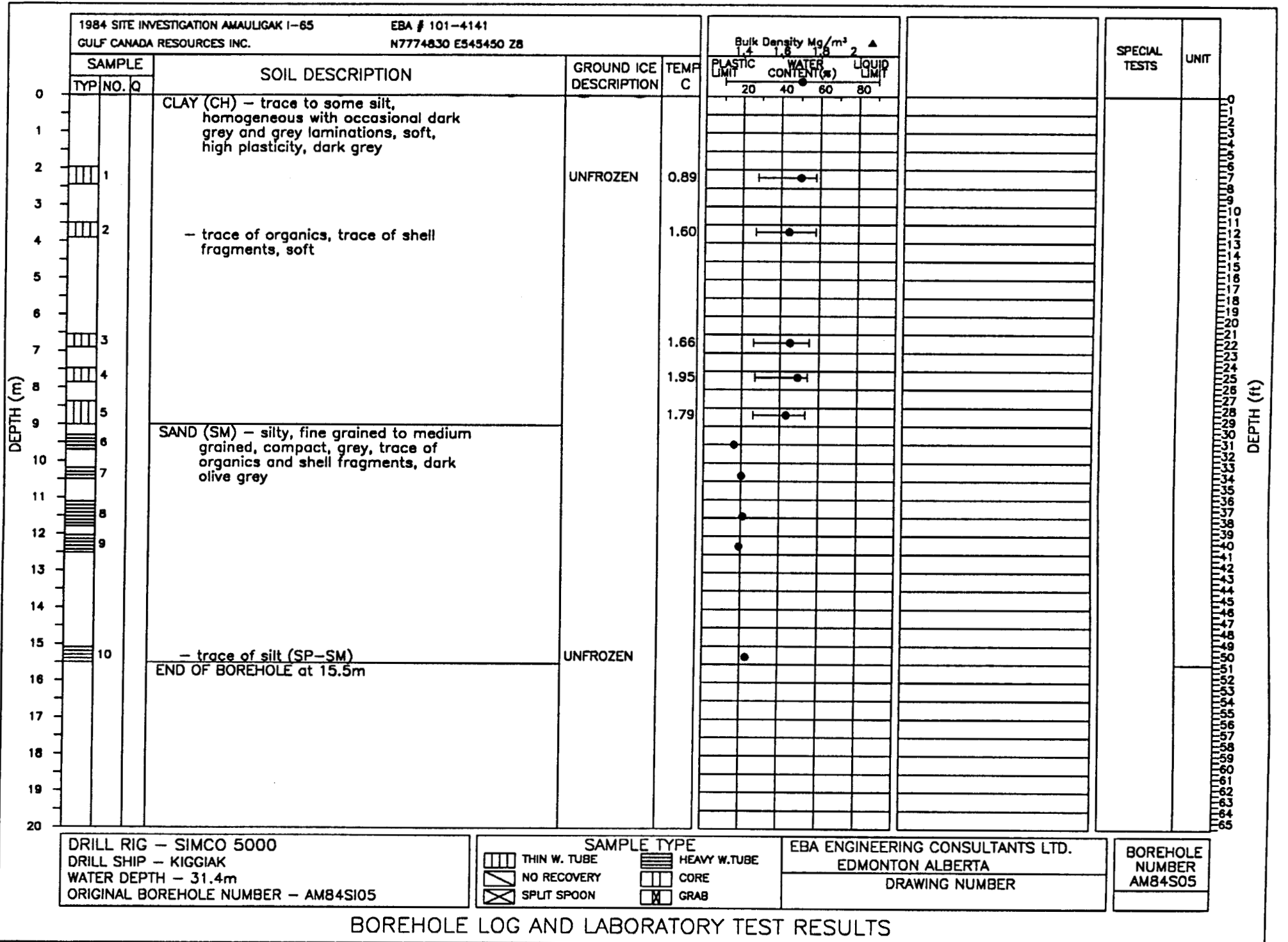
EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 PI84S01
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BOREHOLE LOG AND LABORATORY TEST RESULTS







1985 SITE INVESTIGATION - AMAULIGAK F-24 GULF CANADA RESOURCES				EBA # 101-4416 N7772394 E552152 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)	
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT								
TYP	NO. Q							20	40	60	80		
50		NOTE: Sampling did not begin until 53.0m below seabed. CPT tests were performed from seabed to 52.0m below seabed.										185	
51												186	
52												187	
53												188	
54												189	
55	1A	CLAY (cl) - and silt, trace of fine-grained sand, thinly laminated, black organic streaks, low to medium plasticity, stiff (est.) dark grey	UNFROZEN	2.3								190	
56													191
57	2												192
58													193
59													194
60	3A	SILT (ML) - trace of clay, trace of fine-grained sand, trace of organics, medium plasticity, thinly laminated	FROZEN									195	
												196	
			Nbn	-1.1									

DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 32.6m
 ORIGINAL BOREHOLE NUMBER - AF85S05

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AF85S05
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1985 SITE INVESTIGATION - AMAULIGAK F-24 GULF CANADA RESOURCES				EBA # 101-4416 N7772394 E552152 ZB		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	WATER CONTENT (%)							
TYP	NO. Q				PLASTIC LIMIT	20	40	60	LIQUID LIMIT			
60												197
61												198
62	4		Nbn, with occasional ice lens	-1.6								199
63												200
64												201
65		SAND (SP) - fine-grained, trace of silt, dark brown										202
66	5											203
67												204
68	6B		Nbe	-1.4								205
69		END OF BOREHOLE at 68.6m										206
70												207
												208
												209
												210
												211
												212
												213
												214
												215
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												228
												229

DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 32.6m
 ORIGINAL BOREHOLE NUMBER - AF85S05

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AF85S05
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1985 SITE INVESTIGATION - AMAULIGAK F-24
GULF CANADA RESOURCES

EBA # 101-4418
N7772337 E552081 Z8

DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m^3 ▲			SPECIAL TESTS	UNIT	DEPTH (ft)
	TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
30			NOTE: Purpose of borehole is to confirm penetration of the lower clay layer before deploying the latch-in pressuremeter								99
31											100
32											101
33											102
34											103
35											104
36											105
37											106
38											107
39											108
40											109
38			SAND (SM) - silty, fine-grained, uniform, compact to dense, (estimated), dark grey	UNFROZEN	0.0						110
40			CLAY (cl) - silty, medium plasticity, very stiff, dark grey	UNFROZEN	-0.2						111
42			END OF BOREHOLE at 41.6m								112
43											113
44											114
45											115
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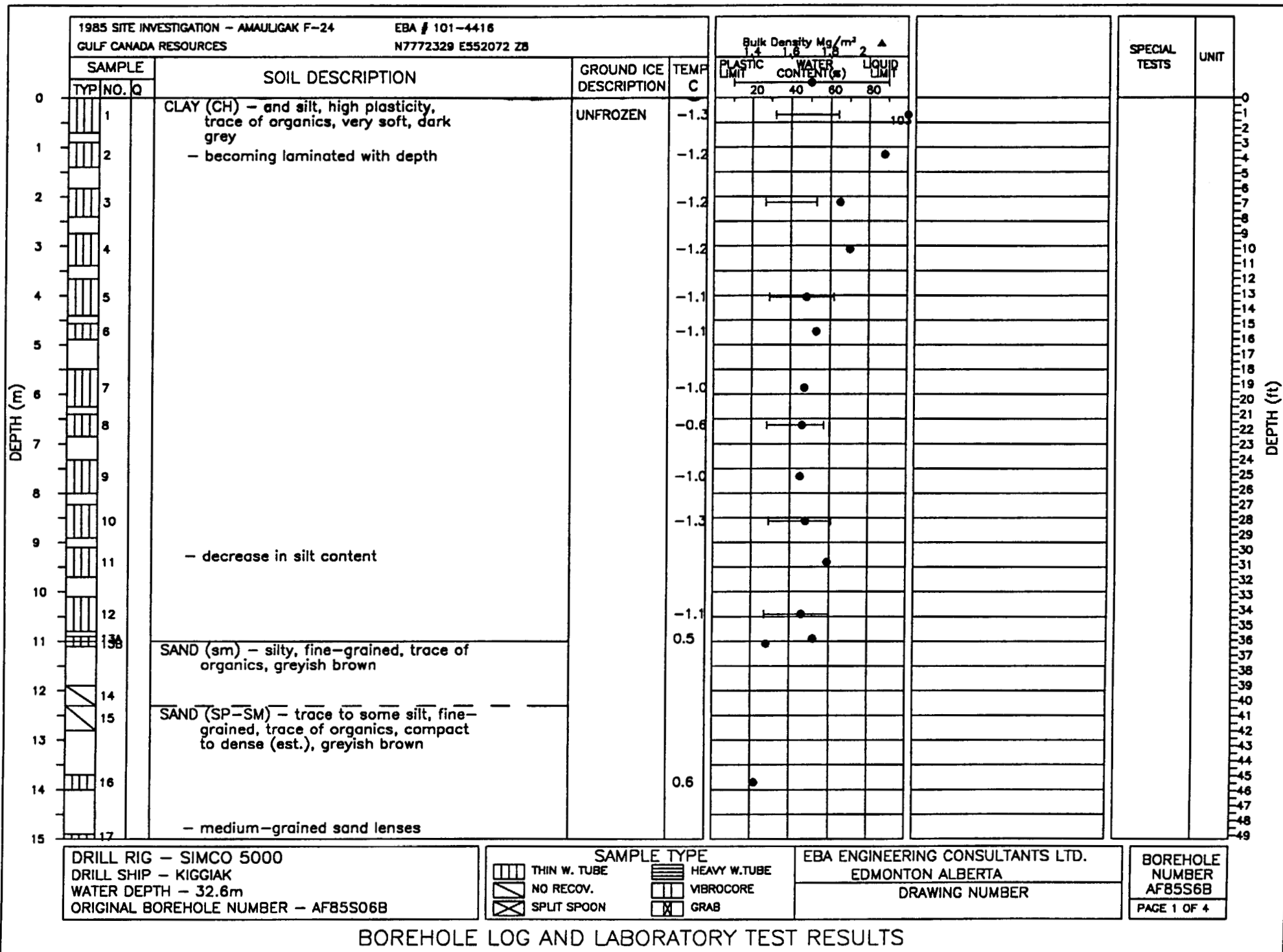
DRILL RIG - SIMCO 5000
DRILL SHIP - KIGGIAK
WATER DEPTH - 31.5m
ORIGINAL BOREHOLE NUMBER - AF85S06

SAMPLE TYPE
☐ THIN W. TUBE
☐ NO RECOV.
☐ SPLIT SPOON
☐ HEAVY W. TUBE
☐ VIBROCORE
☒ GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
AF85S06
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BOREHOLE LOG AND LABORATORY TEST RESULTS



1985 SITE INVESTIGATION - AMAULIGAK F-24 GULF CANADA RESOURCES				EBA # 101-4416 N7772329 E552072 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	WATER CONTENT (%)						
TYP	NO. Q							PLASTIC LIMIT	LIQUID LIMIT		
15	17	SAND (SP-SM) - (cont'd)		0.4							50
16											51
17											52
18	18	- increase in silt content	UNFROZEN	0.8							53
19	19A 19B	- decrease in silt content		0.5							54
20											55
21	20	- higher silt content, (SM)		1.7							56
22	21										57
23											58
24	22	- trace of silt, (SP)		3.0							59
25											60
26	23										61
27	24	- gravelly, 40mm max. diameter									62
28											63
29	25										64
30	26										65
											66
											67
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DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 32.6m
 ORIGINAL BOREHOLE NUMBER - AF85S06B

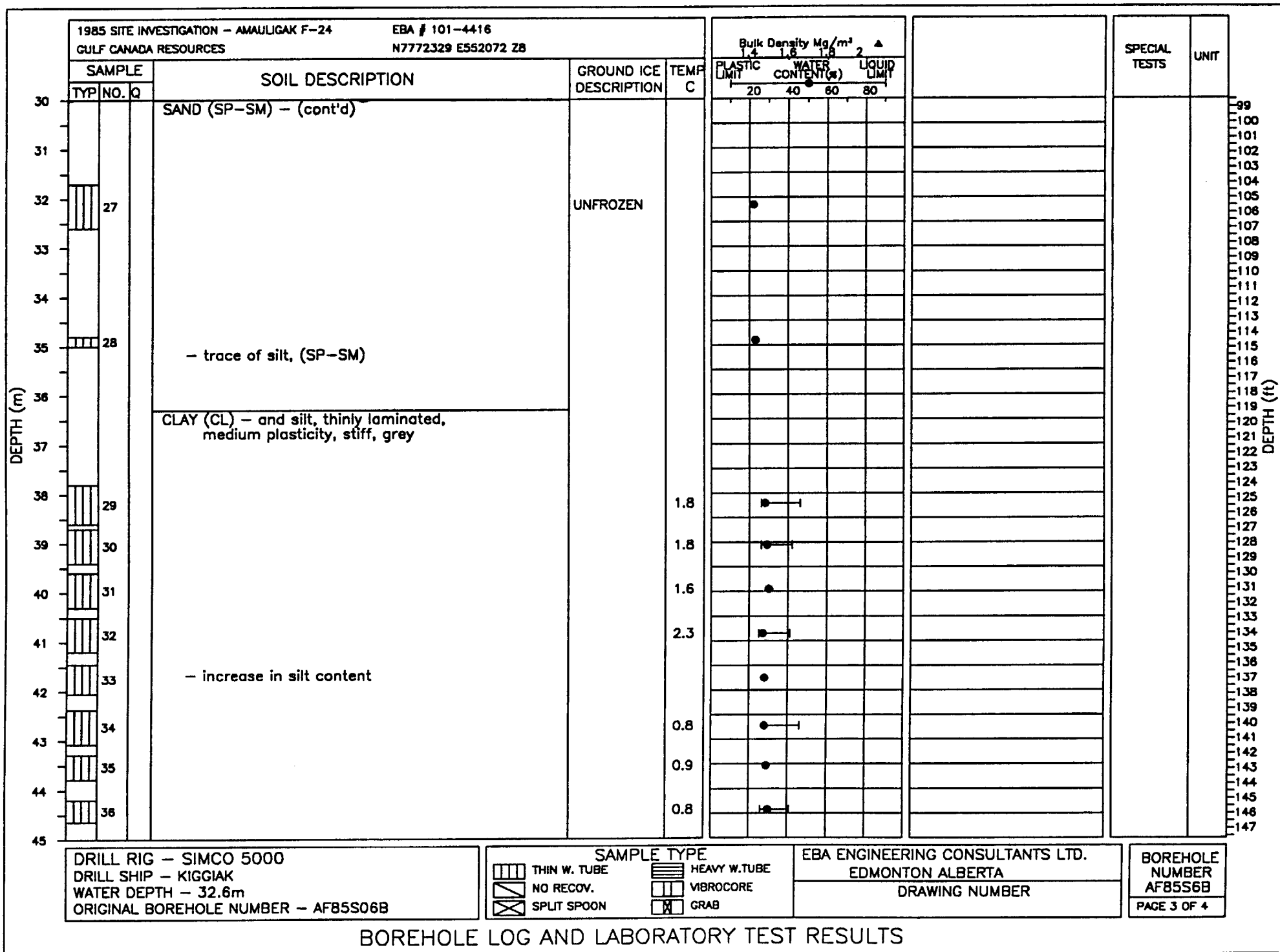
SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	VIBROCURE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AF85S6B
 PAGE 2 OF 4

BOREHOLE LOG AND LABORATORY TEST RESULTS

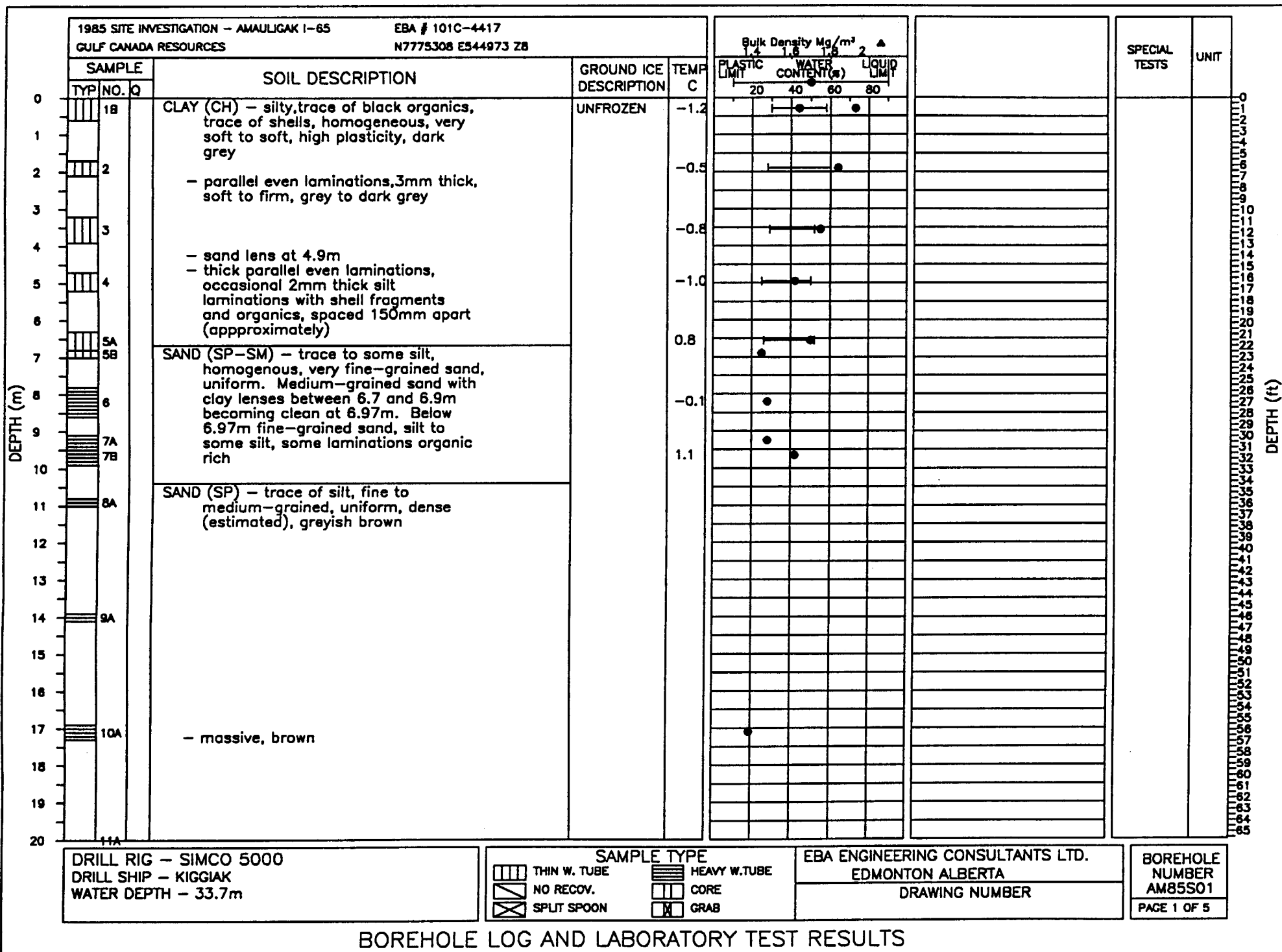


DEPTH (ft)

BOREHOLE
NUMBER
AF85S6B

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BOREHOLE LOG AND LABORATORY TEST RESULTS



1985 SITE INVESTIGATION - AMAULIGAK I-65
GULF CANADA RESOURCES

EBA # 101C-4417
N7775308 E544973 Z8

DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲				SPECIAL TESTS	UNIT	DEPTH (ft)
	TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
20		11A	SAND (SP) - fine-grained, trace of silt, uniform, grey brown (cont'd)									66
21												67
22												68
23												69
24												70
25												71
26												72
27												73
28												74
29												75
30												76
31												77
32												78
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34												80
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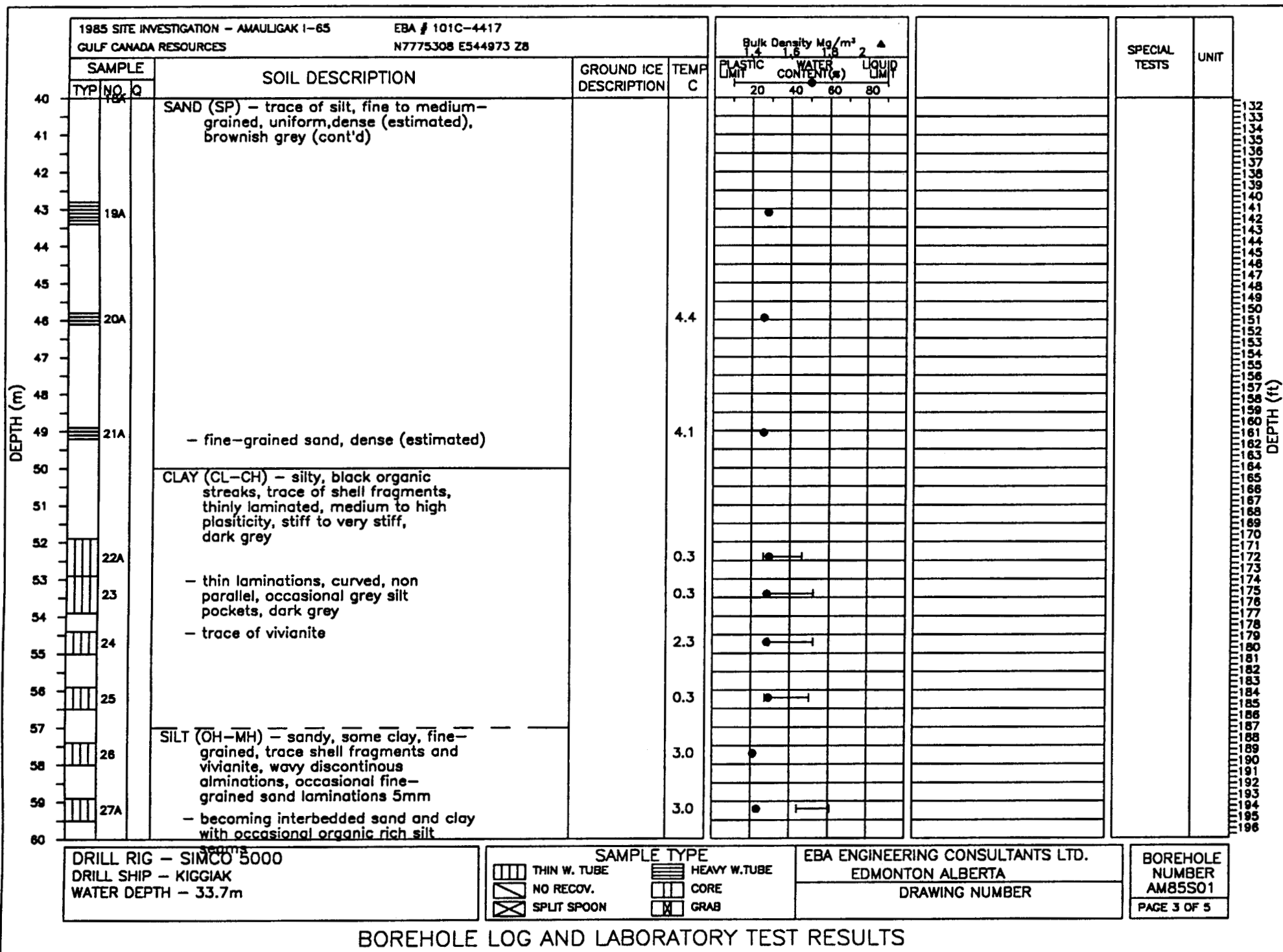
DRILL RIG - SIMCO 5000
DRILL SHIP - KIGGIAK
WATER DEPTH - 33.7m

SAMPLE TYPE
 THIN W. TUBE
 NO RECOV.
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
AM85S01
PAGE 2 OF 5

BOREHOLE LOG AND LABORATORY TEST RESULTS



1985 SITE INVESTIGATION - AMAULIGAK I-65
GULF CANADA RESOURCES

EBA # 101C-4417
N7775308 E544973 Z8

DEPTH (m)	SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲			SPECIAL TESTS	UNIT	DEPTH (ft)
	TYP	NO.	Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
60				seams								197
61		28A		CLAY (CL-CH) - silty 2mm thick sand seams, black organic rich streaks, mica flakes, non parallel, curved thin laminations, medium to high plasticity, very stiff, dark grey		-0.2						198
62		29A		SAND (SM) - some silt, fine-grained, homog homogeneous dense (estimated), dark grey	FROZEN, Nbn	-1.6						199
63				- trace of silt, uniform, fine-grained								200
64												201
65		30A			Nbn							202
66												203
67												204
68		31A										205
69												206
70												207
71		32A		- brownish grey	Nbn	-1.4						208
72												209
73												210
74		33A			Nbn							211
75												212
76												213
77		34		- trace fibrous organics, dark	Nbn	-1.4						214
78				END OF BOREHOLE at 80.3m								215
79												216
80												217
												218
												219
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												261
												262

DRILL RIG - SIMCO 5000
DRILL SHIP - KIGGIK
WATER DEPTH - 33.7m

SAMPLE TYPE
 THIN W. TUBE
 NO RECOV.
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
AM85S01

PAGE 4 OF 5

BOREHOLE LOG AND LABORATORY TEST RESULTS

1985 SITE INVESTIGATION - AMAULIGAK I-65 GULF CANADA RESOURCES				EBA # 101C-4417 N7775308 E544873 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT		
TYP	NO.	Q								
80	35A			UNFROZEN						
81										
82										
83										
84										
85										
86										
87										
88										
89										
90										
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										

DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 33.7m

SAMPLE TYPE

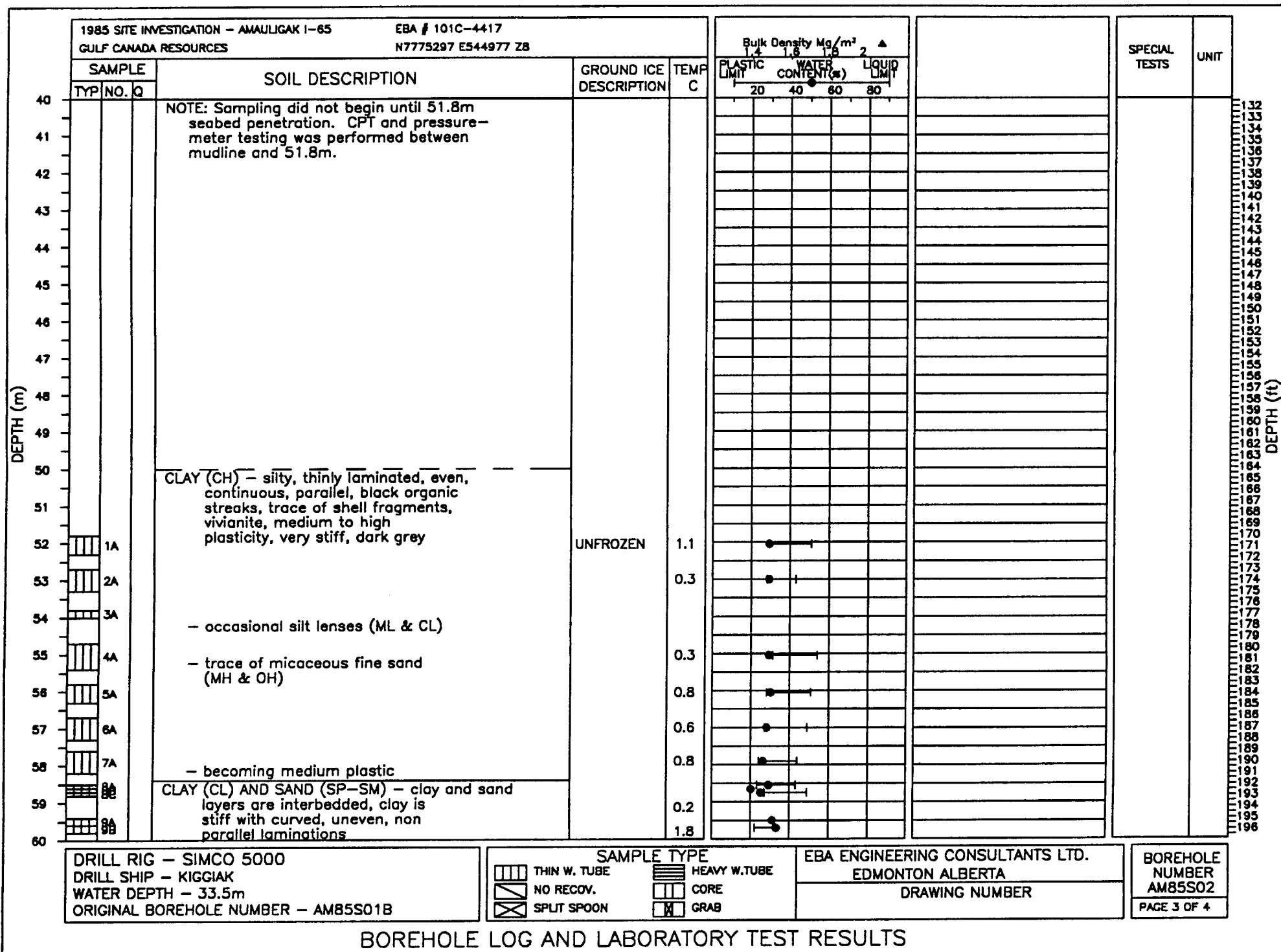
☐ THIN W. TUBE
☐ NO RECOV.
☒ SPLIT SPOON

☐ HEAVY W. TUBE
☐ CORE
☒ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 AM85S01
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BOREHOLE LOG AND LABORATORY TEST RESULTS



1985 SITE INVESTIGATION - AMAULIGAK I-65 GULF CANADA RESOURCES				EBA # 101C-4417 N7775297 E544977 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO. Q										
60											197
61	10A	CLAY (CL) AND SAND (SP-SM) - (cont'd) with occasional sand partings and pockets, low to medium plasticity, sand is fine-grained, homogeneous, beds approximately 100mm thick, brownish grey	UNFROZEN	-0.2							198
62		END OF BOREHOLE at 61.0m									199
63											200
64											201
65											202
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DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 33.5m
 ORIGINAL BOREHOLE NUMBER - AM85S01B

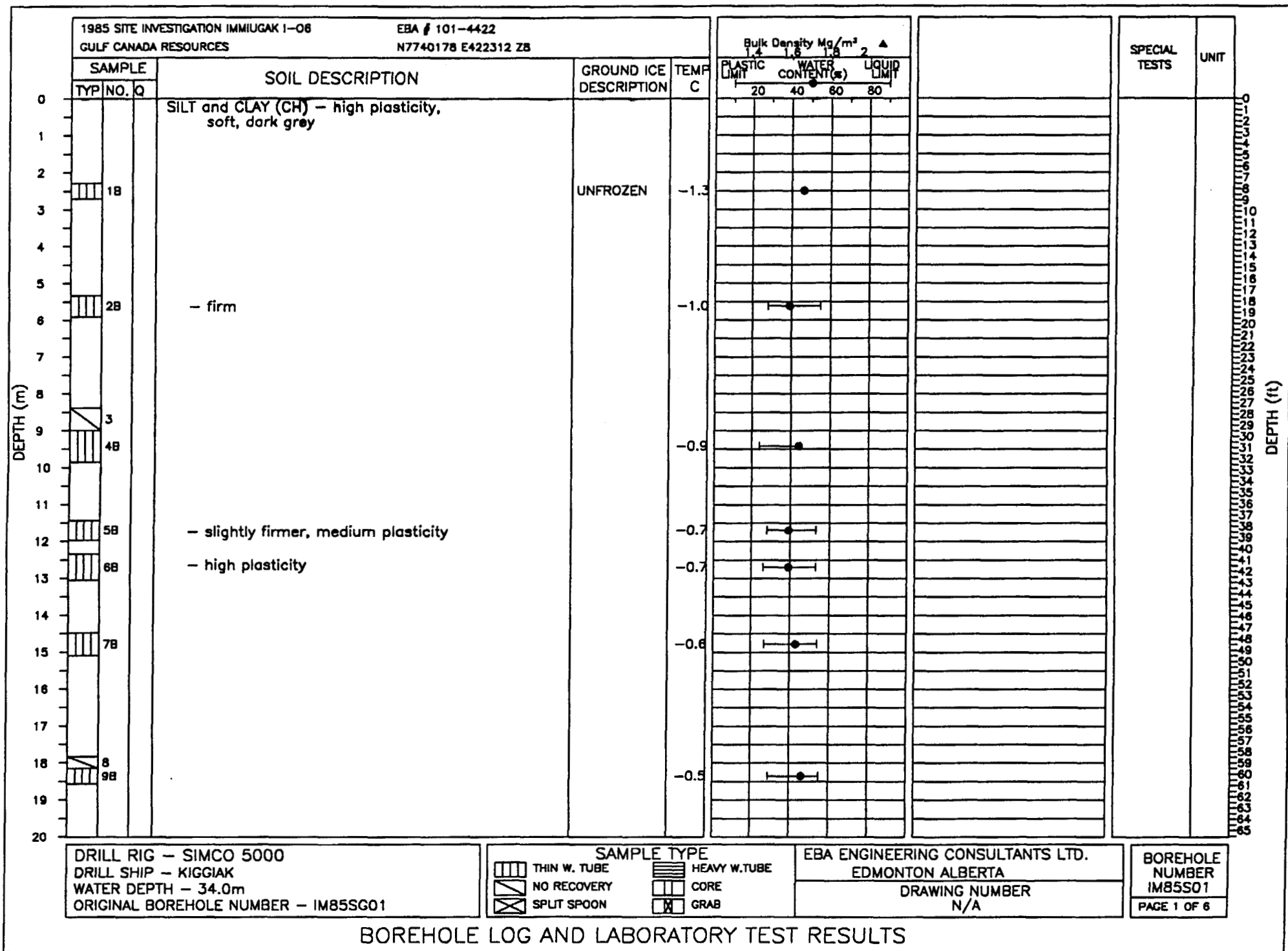
SAMPLE TYPE

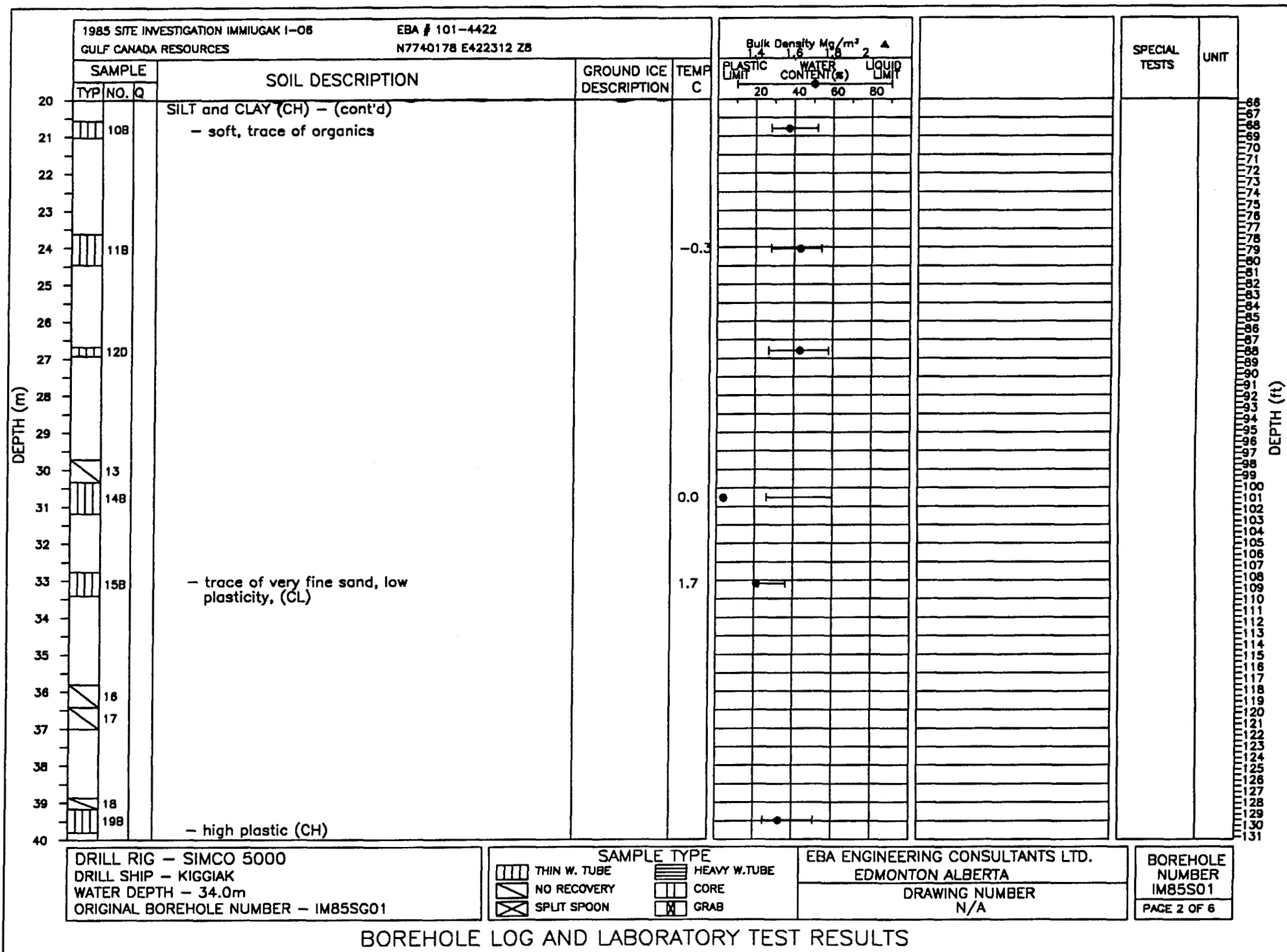
☐ THIN W. TUBE	☐ HEAVY W. TUBE
☐ NO RECOV.	☐ CORE
☐ SPLIT SPOON	☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

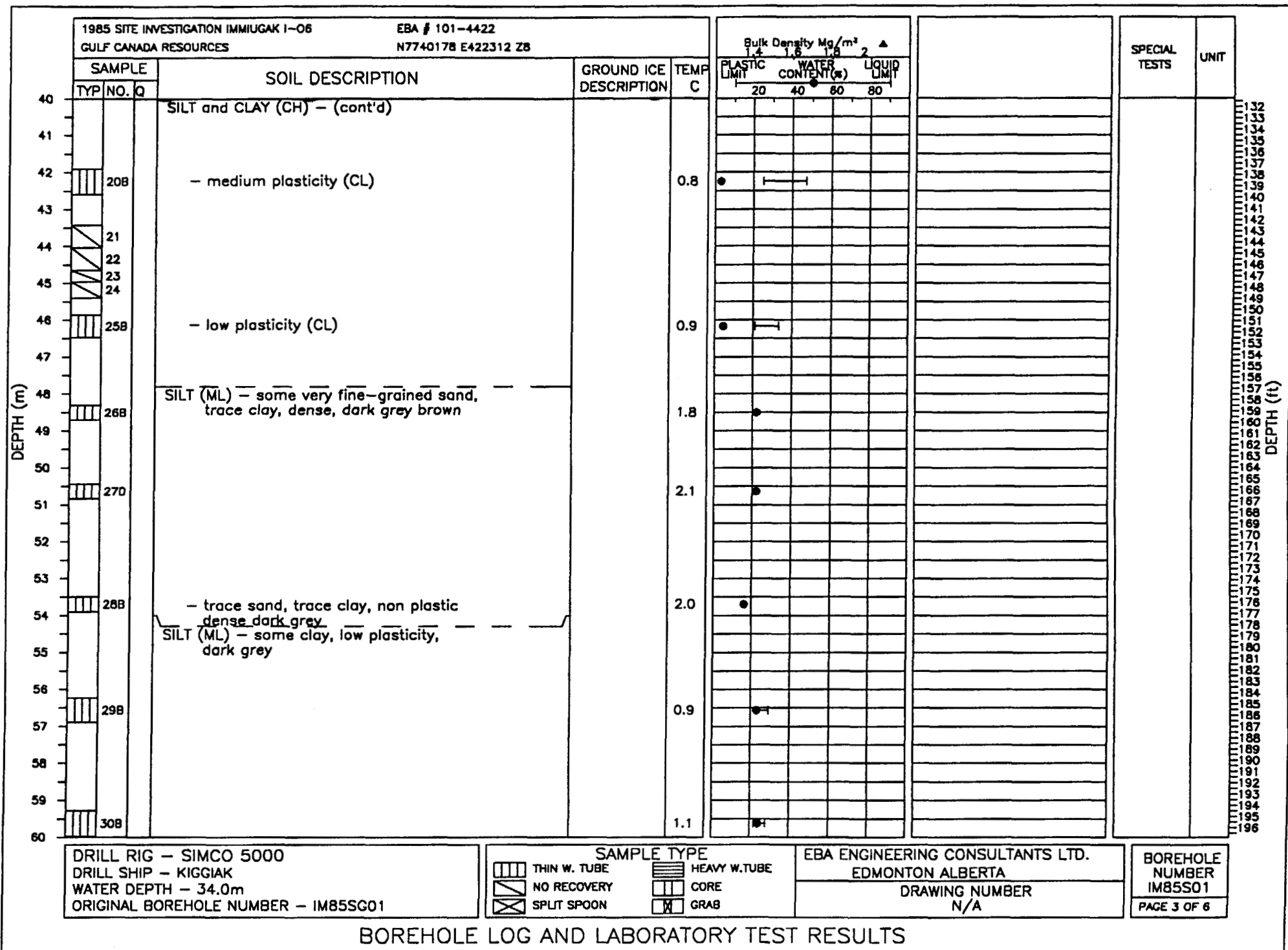
BOREHOLE NUMBER
 AM85S02
 PAGE 4 OF 4

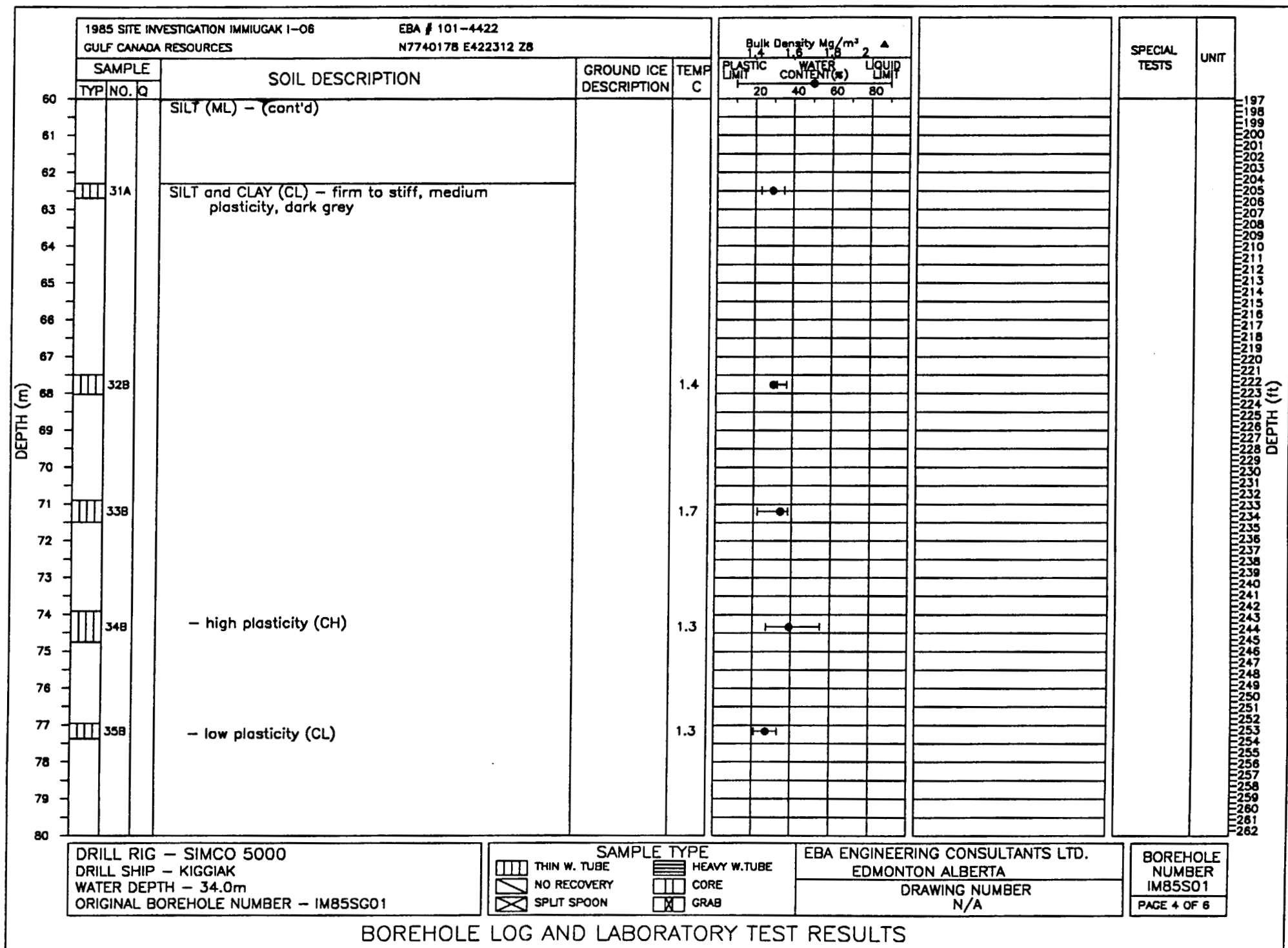
BOREHOLE LOG AND LABORATORY TEST RESULTS

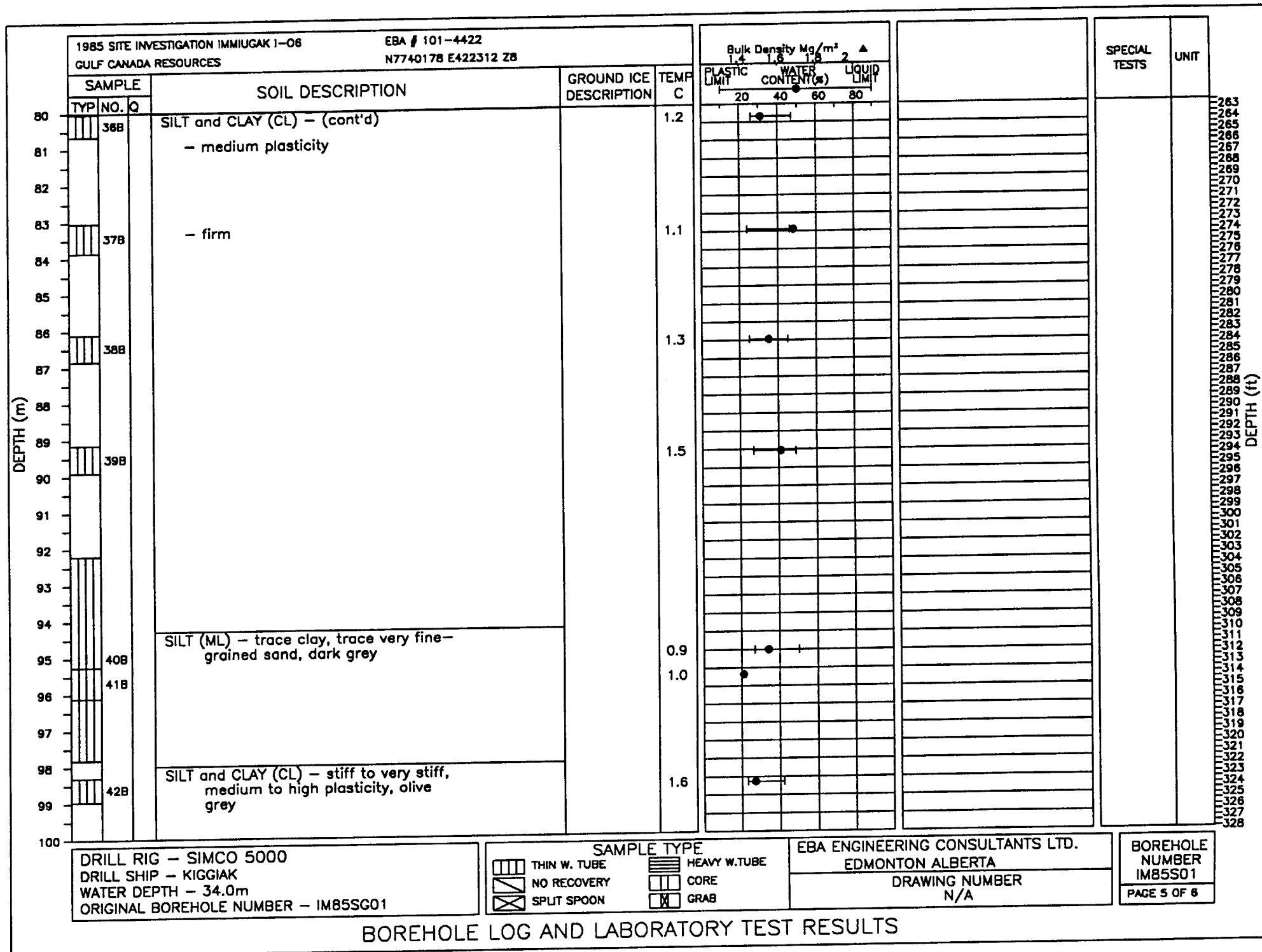




BOREHOLE LOG AND LABORATORY TEST RESULTS







1985 SITE INVESTIGATION IMMIUGAK I-08 GULF CANADA RESOURCES				EBA # 101-4422 N7740178 E422312 Z8		Bulk Density Mg/m^3 ▲ 1.4 1.6 1.8 2.0			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
TYP	NO.	Q									
			SILT and CLAY (CL) - (cont'd)								329
											330
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DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 34.0m
 ORIGINAL BOREHOLE NUMBER - IM85SG01

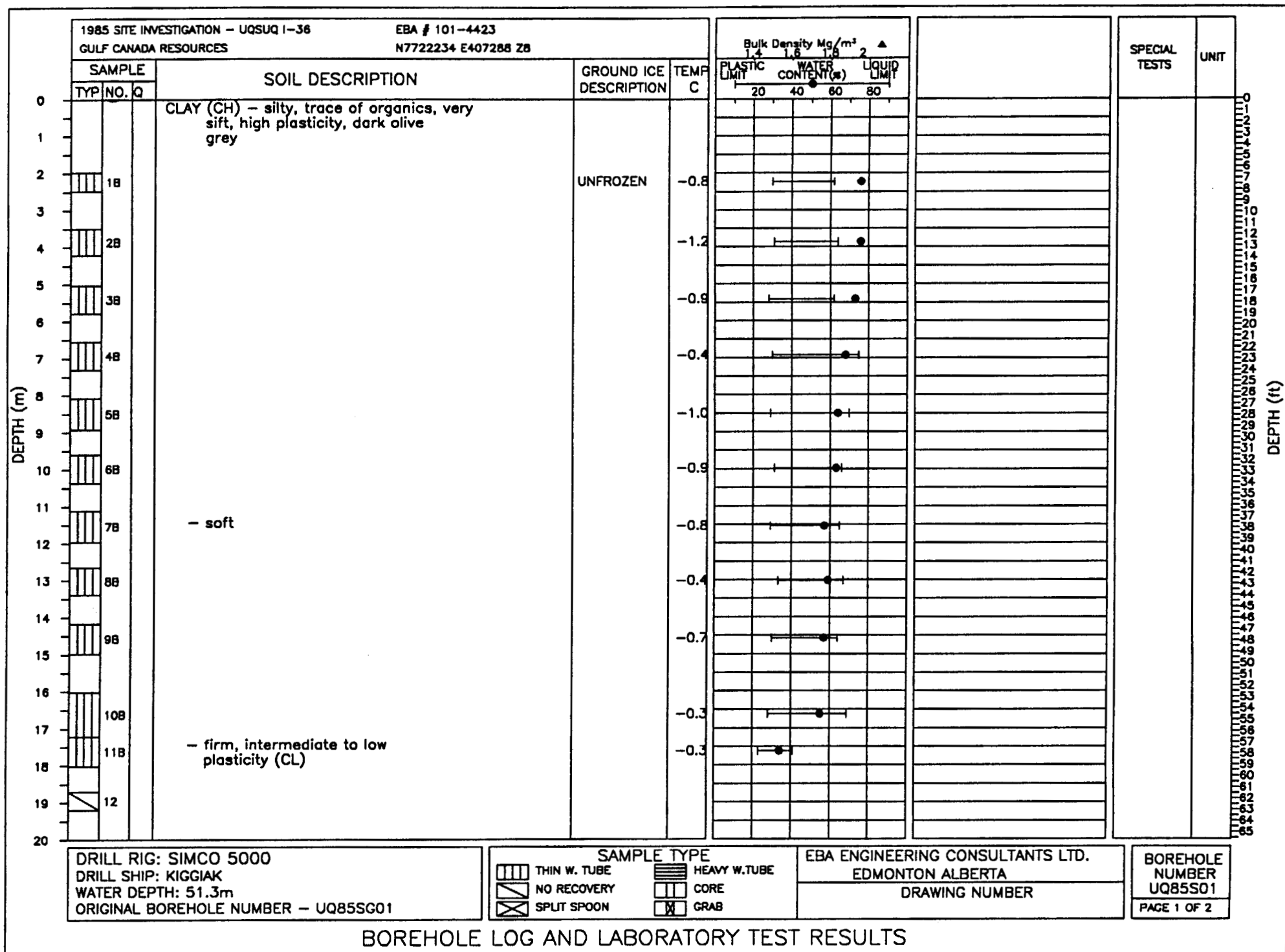
SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOVERY	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER
 N/A

BOREHOLE NUMBER
 IM85S01
 PAGE 6 OF 6

BOREHOLE LOG AND LABORATORY TEST RESULTS



1985 SITE INVESTIGATION - UQSUG 1-38
GULF CANADA RESOURCES

EBA # 101-4423
N7722234 E407288 Z8

SAMPLE

TYP NO. Q

SOIL DESCRIPTION

GROUND ICE DESCRIPTION

TEMP C

DEPTH (m)

20	13B	CLAY (CL) - (cont'd)		-0.4
21				
22				
23				
24	14B	SILT (ml) - trace clay, trace sand, - dark grey		0.2
25				
26				
27				
28	15B			0.2
29				
30				
31				
32	16B	- dense (estimated)	UNFROZEN	0.2
33				
34				
35				
36	END OF BOREHOLE AT 26.8m			
37				
38				
39				
40				

DEPTH (ft)

66
67
68
69
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DRILL RIG: SIMCO 5000
DRILL SHIP: KIGGIAK
WATER DEPTH: 51.3m
ORIGINAL BOREHOLE NUMBER - UQ85SG01

SAMPLE TYPE

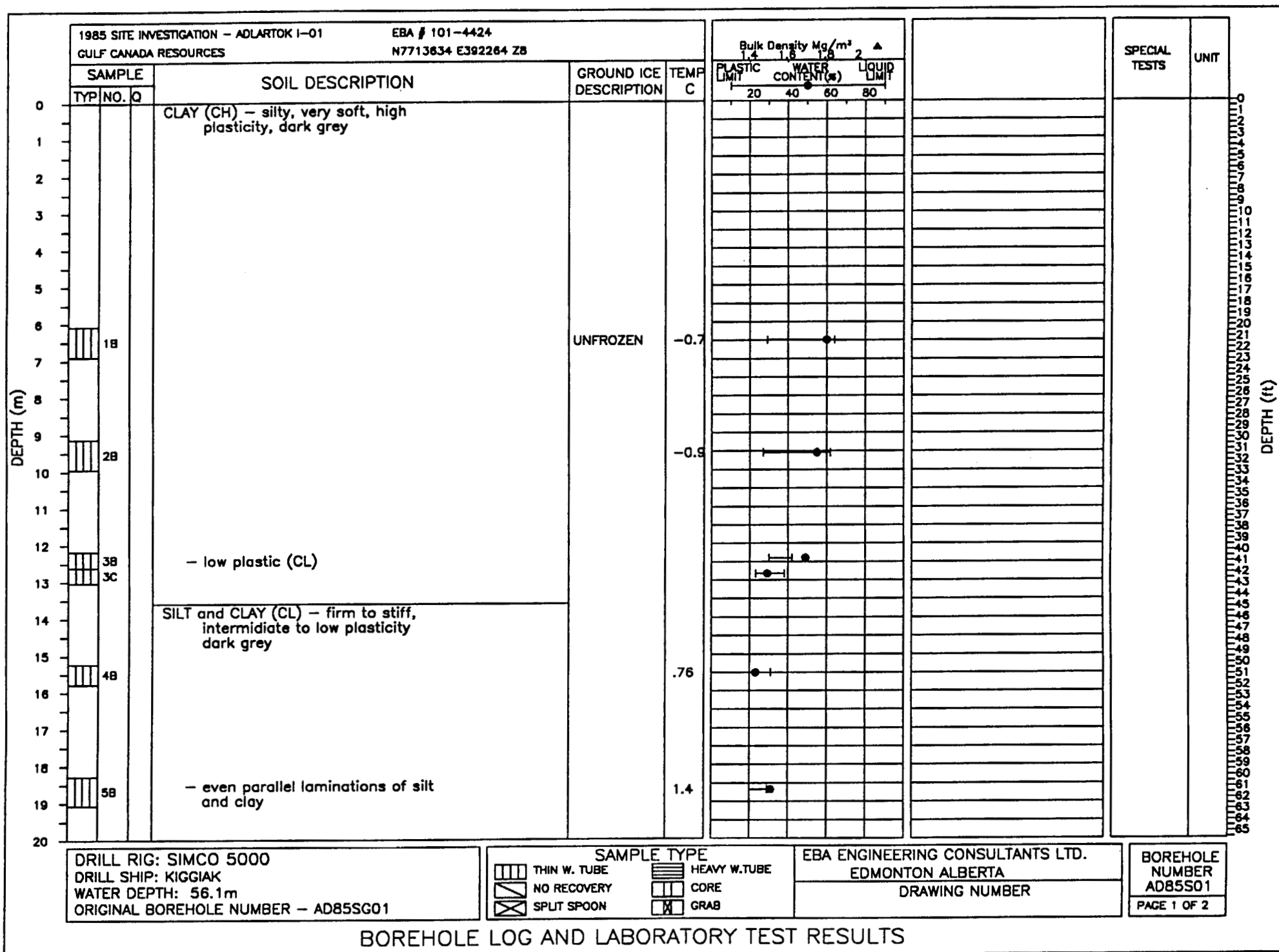
THIN W. TUBE
 NO RECOVERY
 SPLIT SPOON

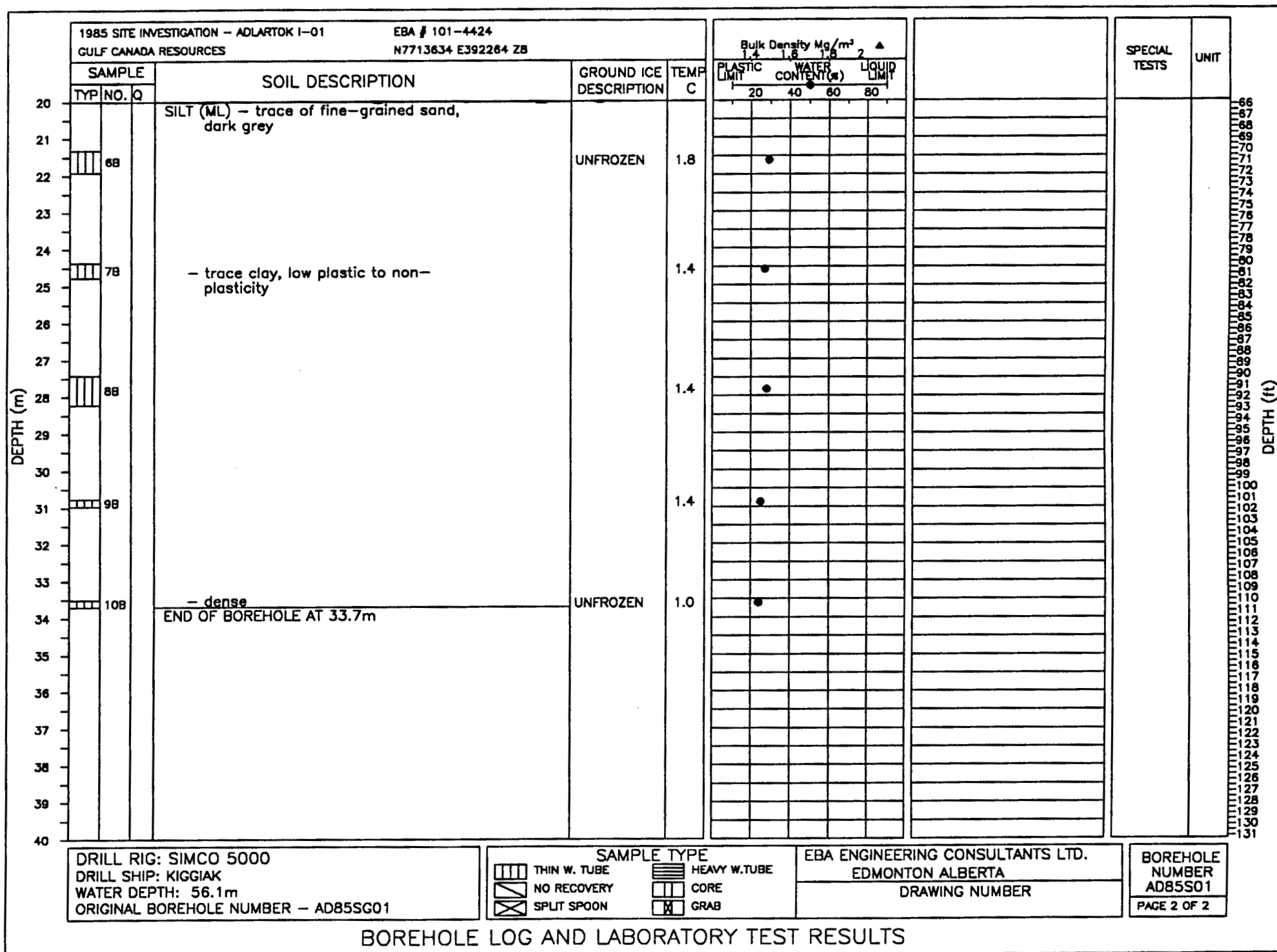
HEAVY W. TUBE
 CORE
 GRAB

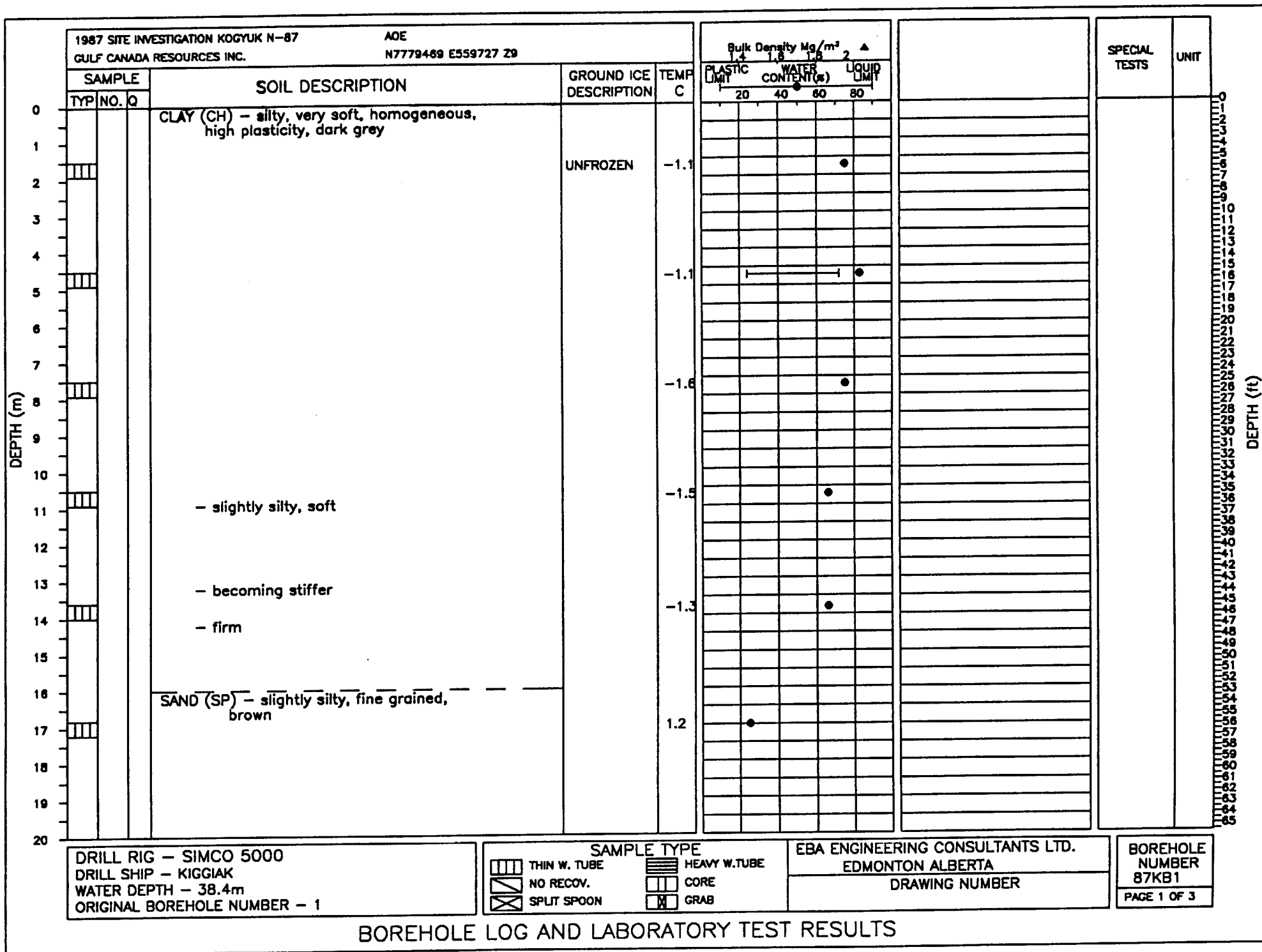
EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
UQ85S01
PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS







1987 SITE INVESTIGATION KOGYUK N-87 GULF CANADA RESOURCES INC.				AOE N7779469 E559727 Z9		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT							
TYP	NO.				20	40	60	80				
		SAND (SP) - (cont'd)										66
												67
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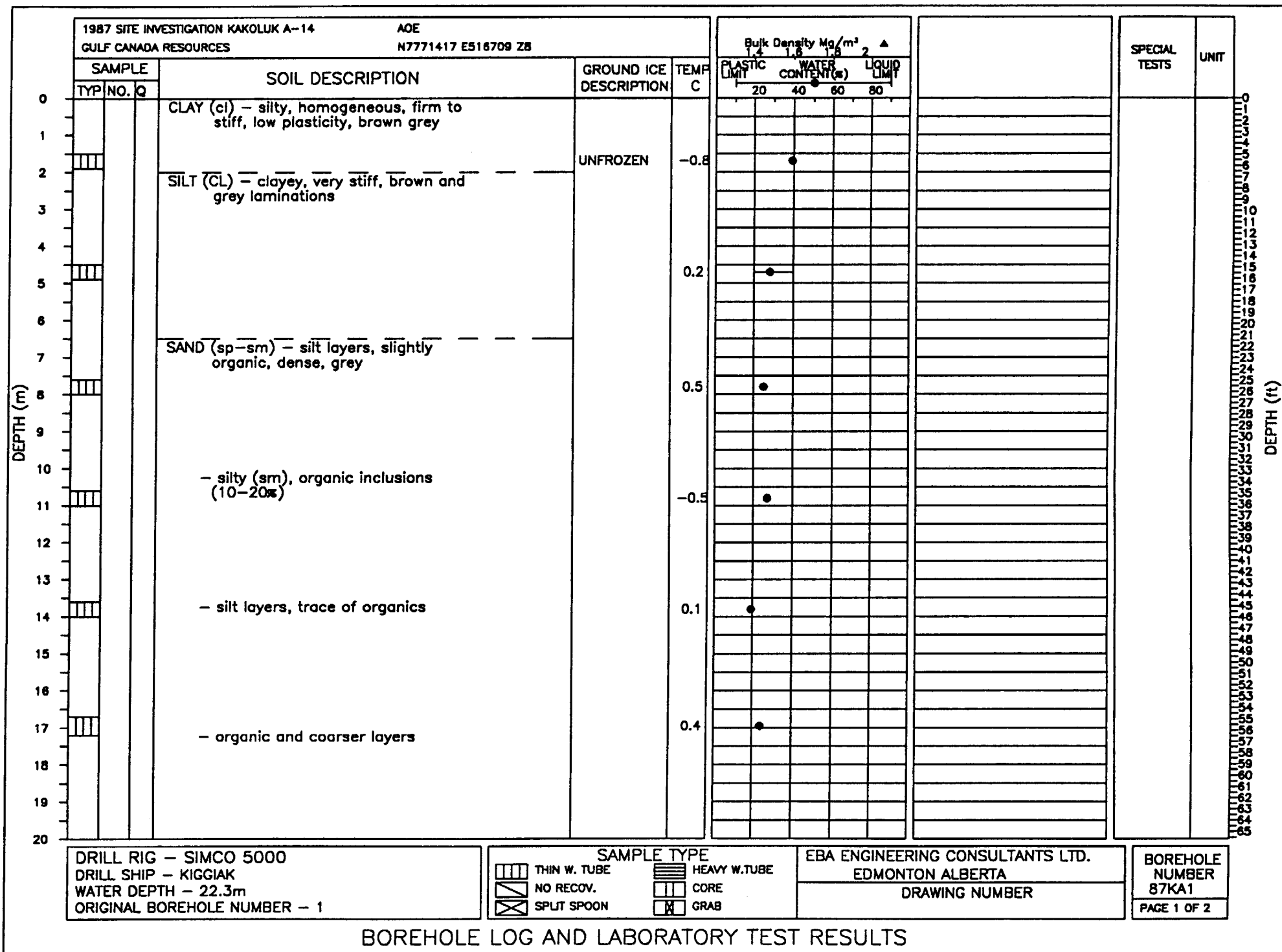
DRILL RIG - SIMCO 5000 DRILL SHIP - KIGGIAK WATER DEPTH - 38.4m ORIGINAL BOREHOLE NUMBER - 1	SAMPLE TYPE THIN W. TUBE NO RECOV. SPLIT SPOON HEAVY W. TUBE CORE GRAB	EBA ENGINEERING CONSULTANTS LTD. EDMONTON ALBERTA DRAWING NUMBER	BOREHOLE NUMBER 87KB1 PAGE 2 OF 3
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BOREHOLE LOG AND LABORATORY TEST RESULTS

1987 SITE INVESTIGATION KOGYUK N-87 GULF CANADA RESOURCES INC.				AOE N7779489 E559727 Z9		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
TYP	NO.	Q										
40			SILT (ml) - (cont'd)									132
41												133
42												134
43												135
44												136
45												137
46												138
47												139
48												140
49												141
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DRILL RIG - SIMCO 5000 DRILL SHIP - KIGGIAK WATER DEPTH - 38.4m ORIGINAL BOREHOLE NUMBER - 1	SAMPLE TYPE THIN W. TUBE NO RECOV. SPLIT SPOON HEAVY W. TUBE CORE GRAB	EBA ENGINEERING CONSULTANTS LTD. EDMONTON ALBERTA DRAWING NUMBER	BOREHOLE NUMBER 87KB1 PAGE 3 OF 3
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BOREHOLE LOG AND LABORATORY TEST RESULTS



1987 SITE INVESTIGATION KAKOLUK A-14 GULF CANADA RESOURCES				AOE N7771417 E516709 ZB		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT			
TYP	NO.	Q									
20			SAND (SP-SM) - (cont'd)	UNFROZEN	2.2						66
21											67
22											68
23			SAND (SP) - fine grained, clean, sorted, brown	FROZEN Nbn, Vr							69
24											70
25											71
26				Nbn							72
27											73
28											74
29			END OF BOREHOLE AT 29.2m	FROZEN Nbn							75
30											76
31											77
32											78
33											79
34											80
35											81
36											82
37											83
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DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 22.3m
 ORIGINAL BOREHOLE NUMBER - 1

SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 87KA1
 PAGE 2 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS

1987 SITE INVESTIGATION AMAULIGAK 0-07 GULF CANADA RESOURCES				AOE N7779340 E558316 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT		
TYP	NO.	Q								
0			CLAY (ch) - very soft, slightly silty, high plasticity, homogeneous, dark grey							
1										
2										
3										
4				UNFROZEN	-1.2					
5										
6										
7										
8										
9			- soft		0.6					
10										
11										
12			SAND (SP) - trace of silt, fine grained, compact to dense, brown							
13										
14					1.9					
15										
16										
17					2.5					
18										
19										
20					1.2					

DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 37.3m
 ORIGINAL BOREHOLE NUMBER - 1

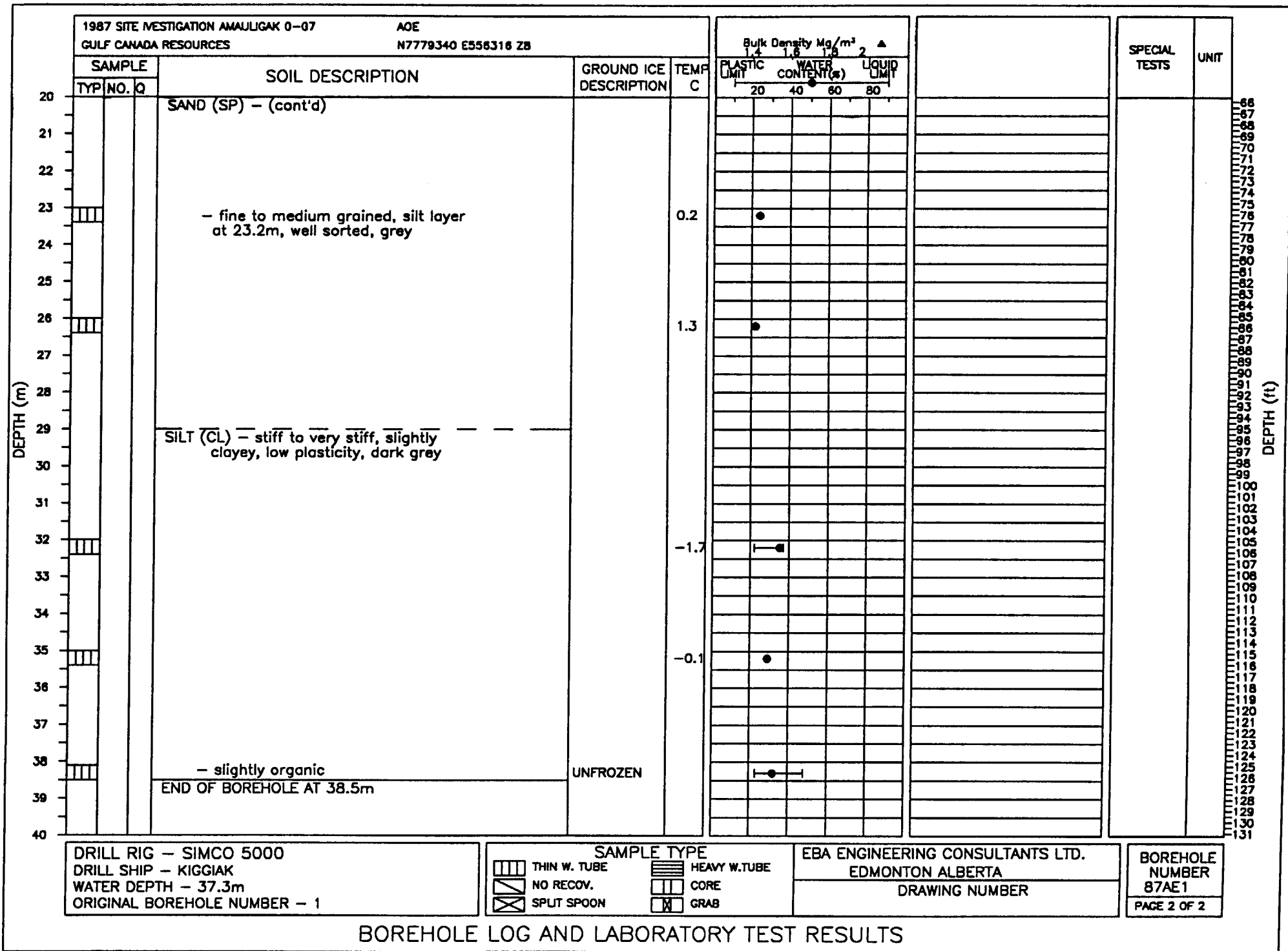
SAMPLE TYPE

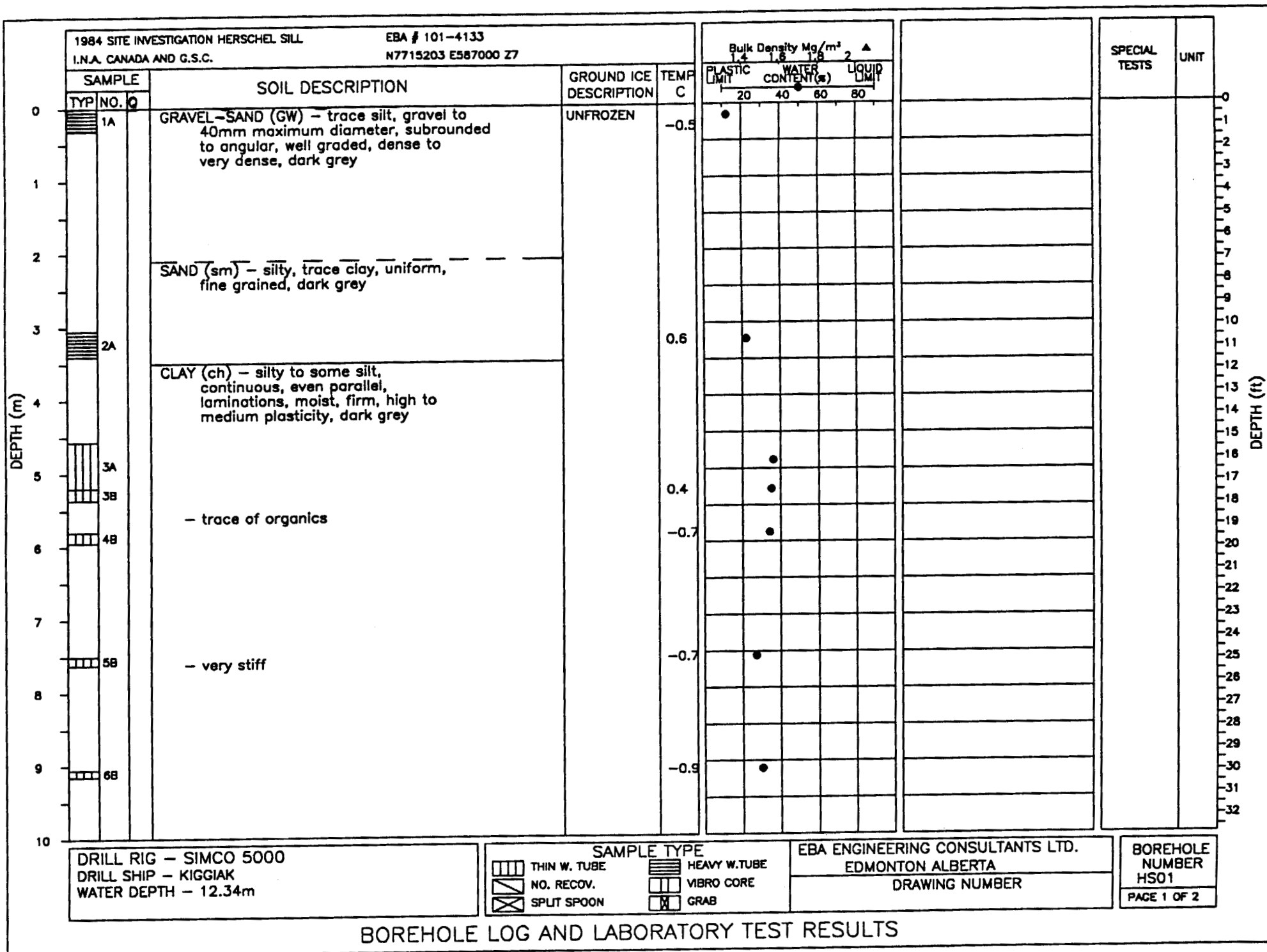
THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 87AE1
 PAGE 1 OF 2

BOREHOLE LOG AND LABORATORY TEST RESULTS





1984 SITE INVESTIGATION HERSCHEL SILL
I.N.A. CANADA AND G.S.C.

EBA # 101-4133
N7715203 E587000 Z7

SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m ³ ▲			SPECIAL TESTS	UNIT	DEPTH (ft)		
TYP	NO.	Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
	7A		CLAY (ch) - (cont'd)	UNFROZEN	-0.5						33		
													34
													35
													36
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											63		
											64		
											65		
END OF BOREHOLE at 19.68m				UNFROZEN	-0.2								

DRILL RIG - SIMCO 5000
DRILL SHIP - KIGGIK
WATER DEPTH - 12.34m

THIN W. TUBE

NO. RECOV.

SPLIT SPOON

HEAVY W. TUBE

VIBRO CORE

GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA

DRAWING NUMBER

BOREHOLE NUMBER
HS01

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BOREHOLE LOG AND LABORATORY TEST RESULTS

1984 SITE INVESTIGATION HERSCHEL SILL I.N.A. CANADA AND G.S.C.			EBA # 101-4133 N7715255 E587095 Z7		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	
SAMPLE			SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT WATER CONTENT(%) LIQUID LIMIT					
DEPTH (m)	TYP	NO. Q							20	40	60
0		1A	GRAVEL-SAND (GP) - trace silt, subrounded, mainly coarse gravel to 50mm max. diameter, poorly graded, dark to olive grey	UNFROZEN							0
1		2A	SAND (SM) - trace silt, uniform, fine to medium grained - becoming gravelly below 1.57m								1
2		3A	CLAY (cl) - silty, interbedded, trace fine sand in silt beds, very thinly laminated, firm, medium plasticity, mottled olive grey and dark grey								2
3											3
4		4A									4
4.5		4B									4.5
5		5A									5
5.5											5.5
5.73			END OF BOREHOLE at 5.73m	UNFROZEN	-0.7						5.73
6											6
7											7
8											8
9											9
10											10

DRILL RIG - SIMCO 5000
DRILL SHIP - KIGGIAK
WATER DEPTH - 12.5m

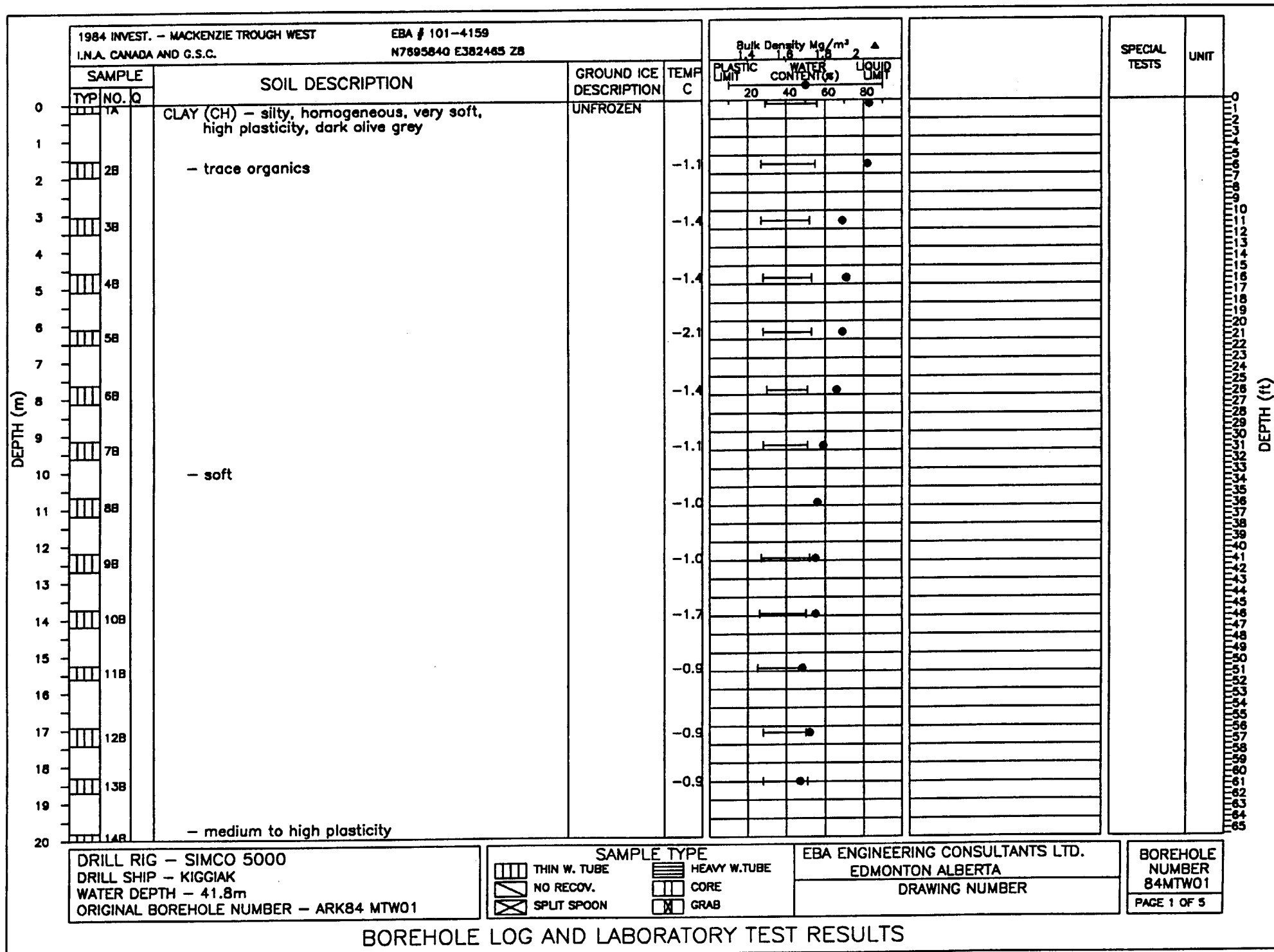
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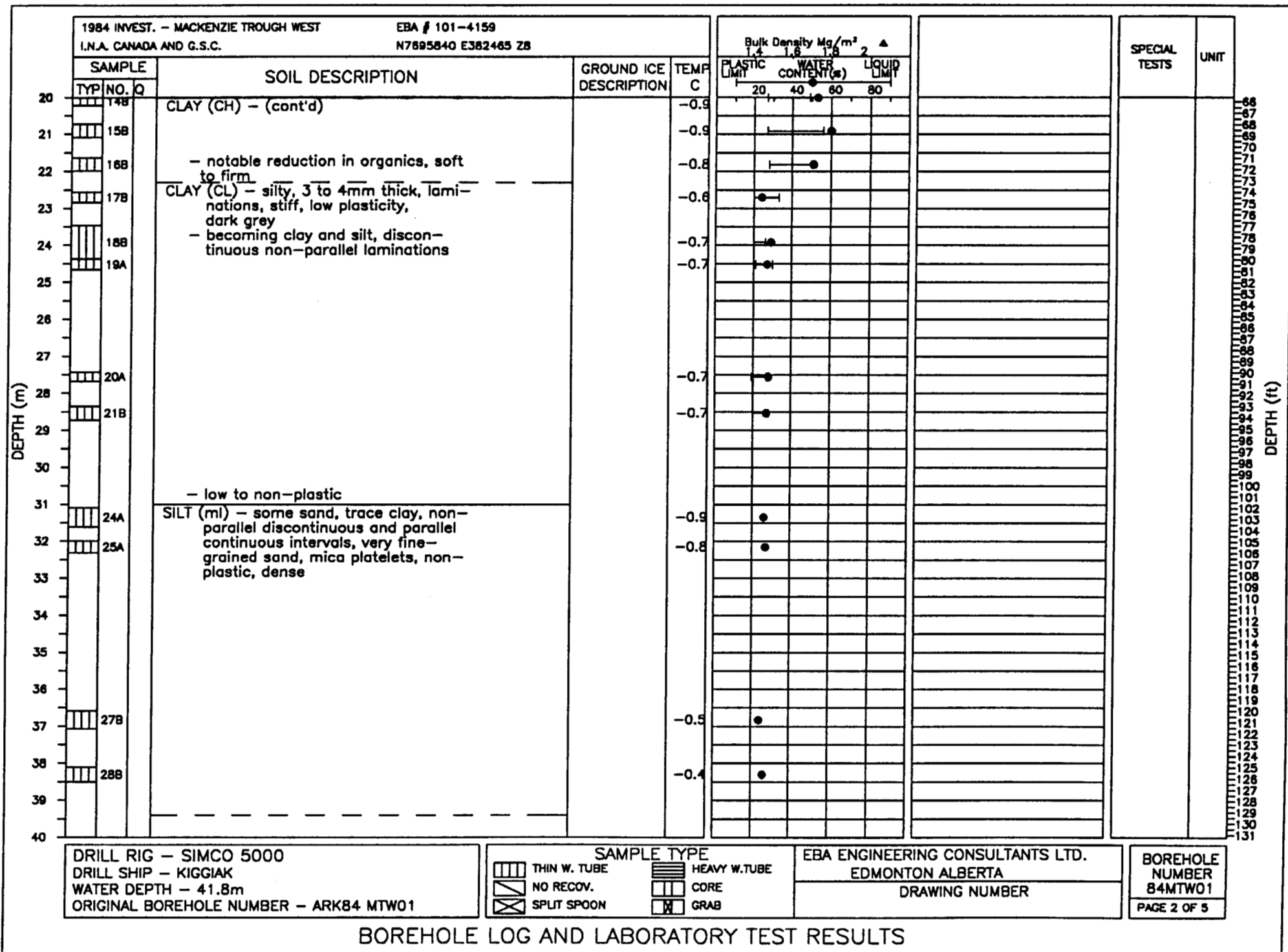
THIN W. TUBE	HEAVY W. TUBE
NO. RECOV.	VIBRO CORE
SPLIT SPOON	GRAB

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA
DRAWING NUMBER

BOREHOLE NUMBER
HS02

BOREHOLE LOG AND LABORATORY TEST RESULTS





1984 INVEST. - MACKENZIE TROUGH WEST
I.N.A. CANADA AND G.S.C.

EBA # 101-4159
N7695840 E382465 Z8

SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	Bulk Density Mg/m³ ▲			SPECIAL TESTS	UNIT
TYP	NO. Q				PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT		
40	29B	SAND (sm) - silty, very fine-grained, mica platelets, non-parallel laminations very dense, dark grey		-0.1					
41									
42									
43	30A	SILT (ml) - some very fine-grained sand, trace fibrous organics mica platelets, dense, non-plastic, dark black							
44									
45									
46	31B	- homogeneous		-0.4					
47									
48									
49	32B	- sandy, becoming less dense		-0.3					
50									
51									
52	33A	SAND (sm) - silty, very fine-grained, homogeneous, wet, highly dilatent							
53									
54									
55	34A	- becoming interbedded sand and silt							
56									
57									
58	35A	INTERBEDDED CLAY (cl) AND SILT(ml) - very thin laminations							
59									
60									
	36A	SILT (ml) - some clay, mica platelets							

DEPTH (m)

DEPTH (ft)

DRILL RIG - SIMCO 5000
DRILL SHIP - KIGGIAK
WATER DEPTH - 41.8m
ORIGINAL BOREHOLE NUMBER - ARK84 MTW01

SAMPLE TYPE

THIN W. TUBE

NO RECOV.

SPLIT SPOON

HEAVY W.TUBE

CORE

GRAB

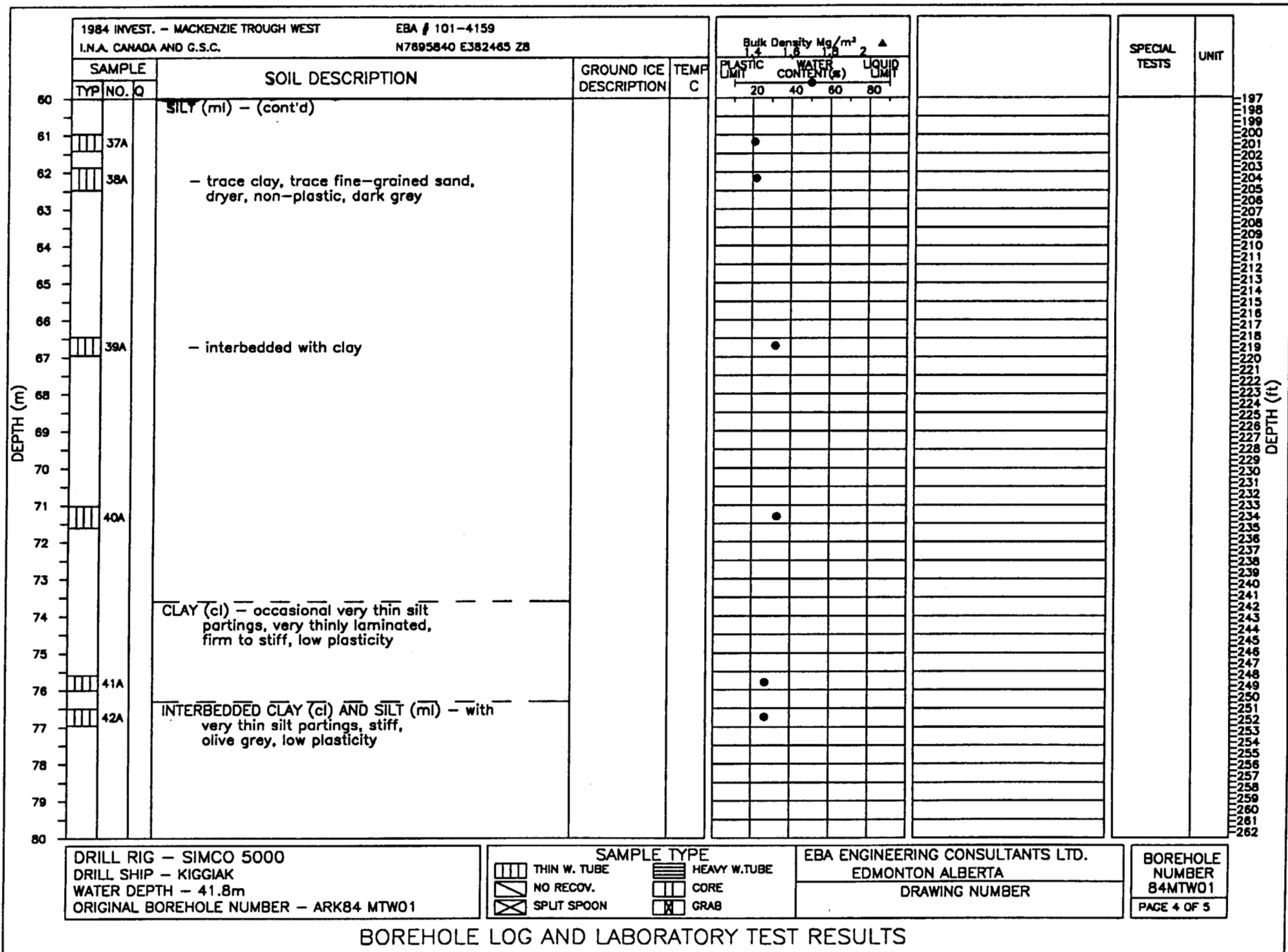
EBA ENGINEERING CONSULTANTS LTD.
EDMONTON ALBERTA

DRAWING NUMBER

BOREHOLE NUMBER
84MTW01

PAGE 3 OF 5

BOREHOLE LOG AND LABORATORY TEST RESULTS



1984 INVEST. - MACKENZIE TROUGH WEST I.N.A. CANADA AND G.S.C.				EBA # 101-4159 N7695840 E382465 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2				SPECIAL TESTS	UNIT	DEPTH (ft)
SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT					
TYP	NO. Q											
		INTERBEDDED CLAY AND SILT - (cont'd)	UNFROZEN									283
	43A	END OF BOREHOLE at 81.5m										285
												286
												287
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DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 41.8m
 ORIGINAL BOREHOLE NUMBER - ARK84 MTW01

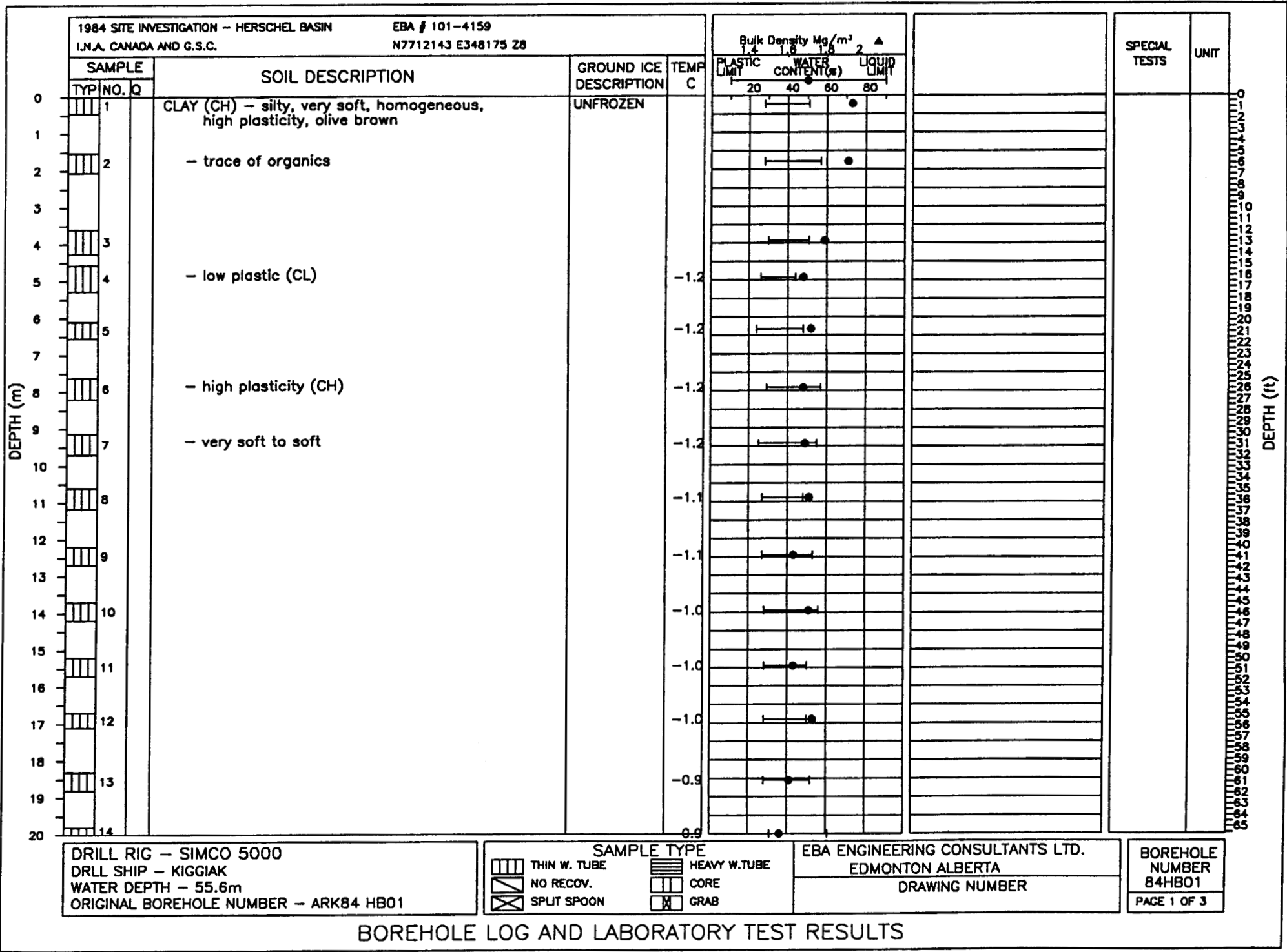
SAMPLE TYPE

THIN W. TUBE	HEAVY W. TUBE
NO RECOV.	CORE
SPLIT SPOON	GRAB

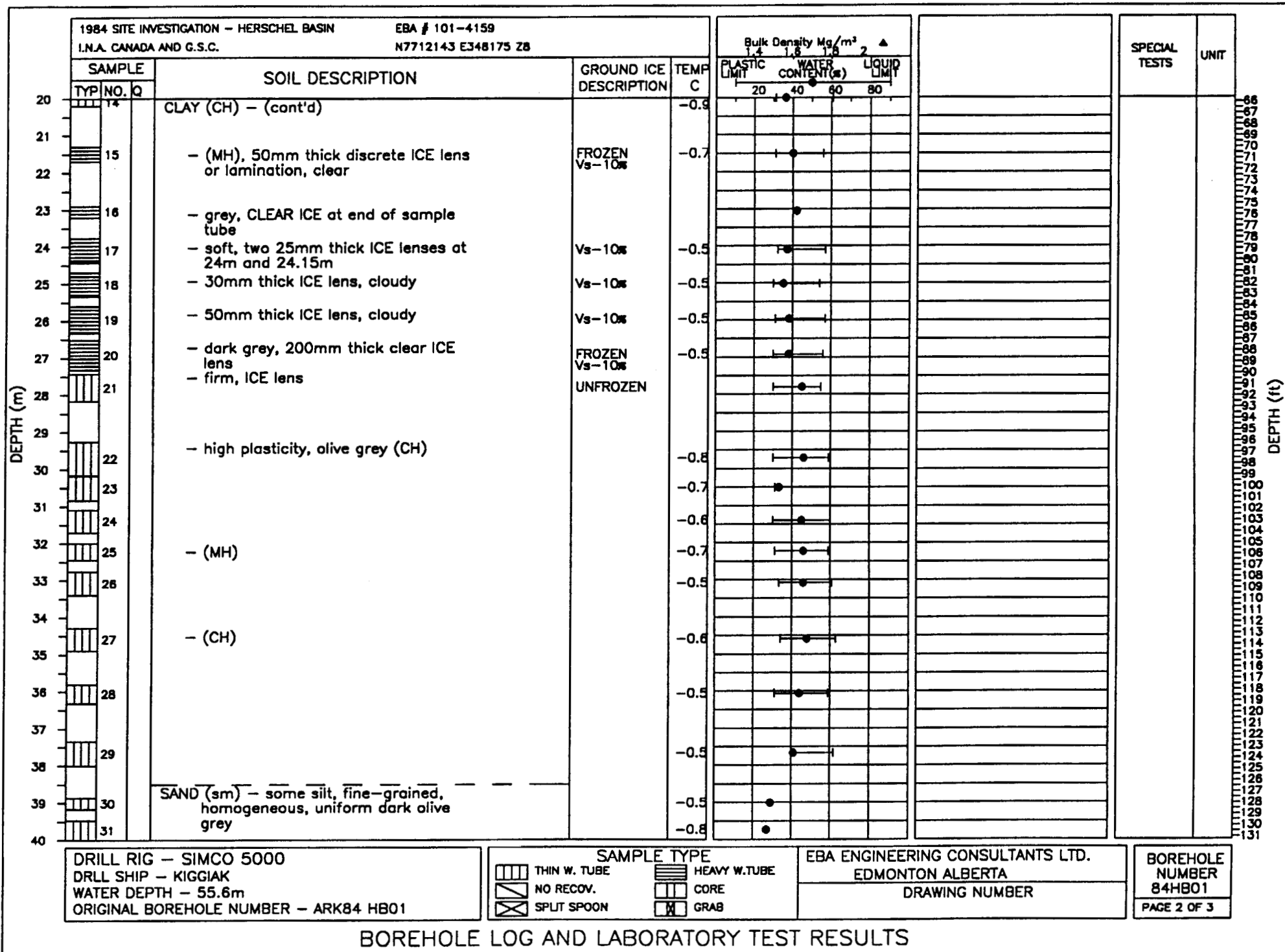
EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 84MTW01
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BOREHOLE LOG AND LABORATORY TEST RESULTS



BOREHOLE LOG AND LABORATORY TEST RESULTS



1984 SITE INVESTIGATION - HERSCHEL BASIN I.N.A. CANADA AND G.S.C.				EBA # 101-4159 N7712143 E348175 Z8		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			PLASTIC LIMIT WATER CONTENT (%) LIQUID LIMIT			SPECIAL TESTS		UNIT	
SAMPLE		SOIL DESCRIPTION		GROUND ICE DESCRIPTION		TEMP C									
DEPTH (m)	TYP	NO. Q													
40		31	SAND (sm) - (cont'd)												
41		32	CLAY (CL) - silty, trace to some fine-grained sand												
42			SAND (sm) - very fine-grained, silty, uniform, continuous												
43		33													
44															
45		34													
46															
47			CLAY TILL (CL) - clay and silt, trace gravel to 20mm diameter dry to moist, stiff, low plasticity, dark grey												
48		35													
49															
50															
51		36	- very stiff												
52															
53															
54		37	- becoming SILT (ML) - gravel pocket 15mm maximum, extremely hard, trace extremely hard, trace wood fragments very dry												
55															
56		38	SAND AND GRAVEL (sm) - medium-grained sand, gravel to maximum aggregate size of 35mm, silty, grey												
57															
58			END OF BOREHOLE at 57.9m												
59															
60															

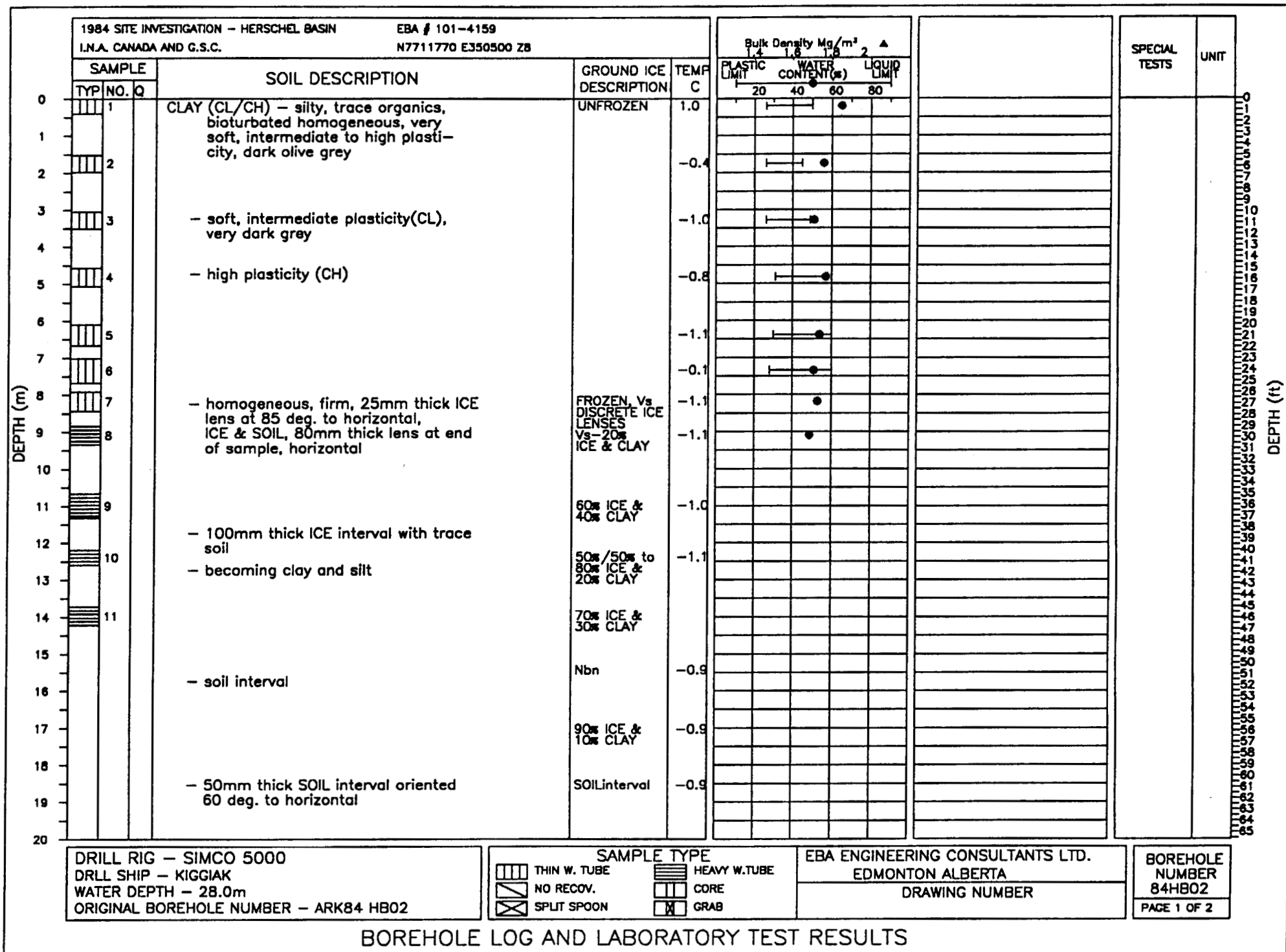
DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIK
 WATER DEPTH - 55.6m
 ORIGINAL BOREHOLE NUMBER - ARK84 HB01

SAMPLE TYPE
 THIN W. TUBE
 NO RECOV.
 SPLIT SPOON
 HEAVY W. TUBE
 CORE
 GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
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BOREHOLE NUMBER
 84HB01
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BOREHOLE LOG AND LABORATORY TEST RESULTS



1984 SITE INVESTIGATION - HERSCHEL BASIN I.N.A. CANADA AND G.S.C.					EBA # 101-4159 N7711770 E350500 ZB		Bulk Density Mg/m ³ ▲ 1.4 1.6 1.8 2			SPECIAL TESTS	UNIT	DEPTH (ft)
DEPTH (m)	SAMPLE		SOIL DESCRIPTION	GROUND ICE DESCRIPTION	TEMP C	PLASTIC LIMIT	WATER CONTENT (%)	LIQUID LIMIT				
	TYP	NO. Q										
20			CLAY (CH) - (cont'd)	FROZEN	-0.7							66
21			END OF BOREHOLE at 20.2m									67
22												68
23												69
24												70
25												71
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DRILL RIG - SIMCO 5000
 DRILL SHIP - KIGGIAK
 WATER DEPTH - 28.0m
 ORIGINAL BOREHOLE NUMBER - ARK84 HB02

SAMPLE TYPE

☐ THIN W. TUBE
☐ NO RECOV.
☐ SPLIT SPOON

☐ HEAVY W. TUBE
☐ CORE
☐ GRAB

EBA ENGINEERING CONSULTANTS LTD.
 EDMONTON ALBERTA
 DRAWING NUMBER

BOREHOLE NUMBER
 84HB02
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BOREHOLE LOG AND LABORATORY TEST RESULTS