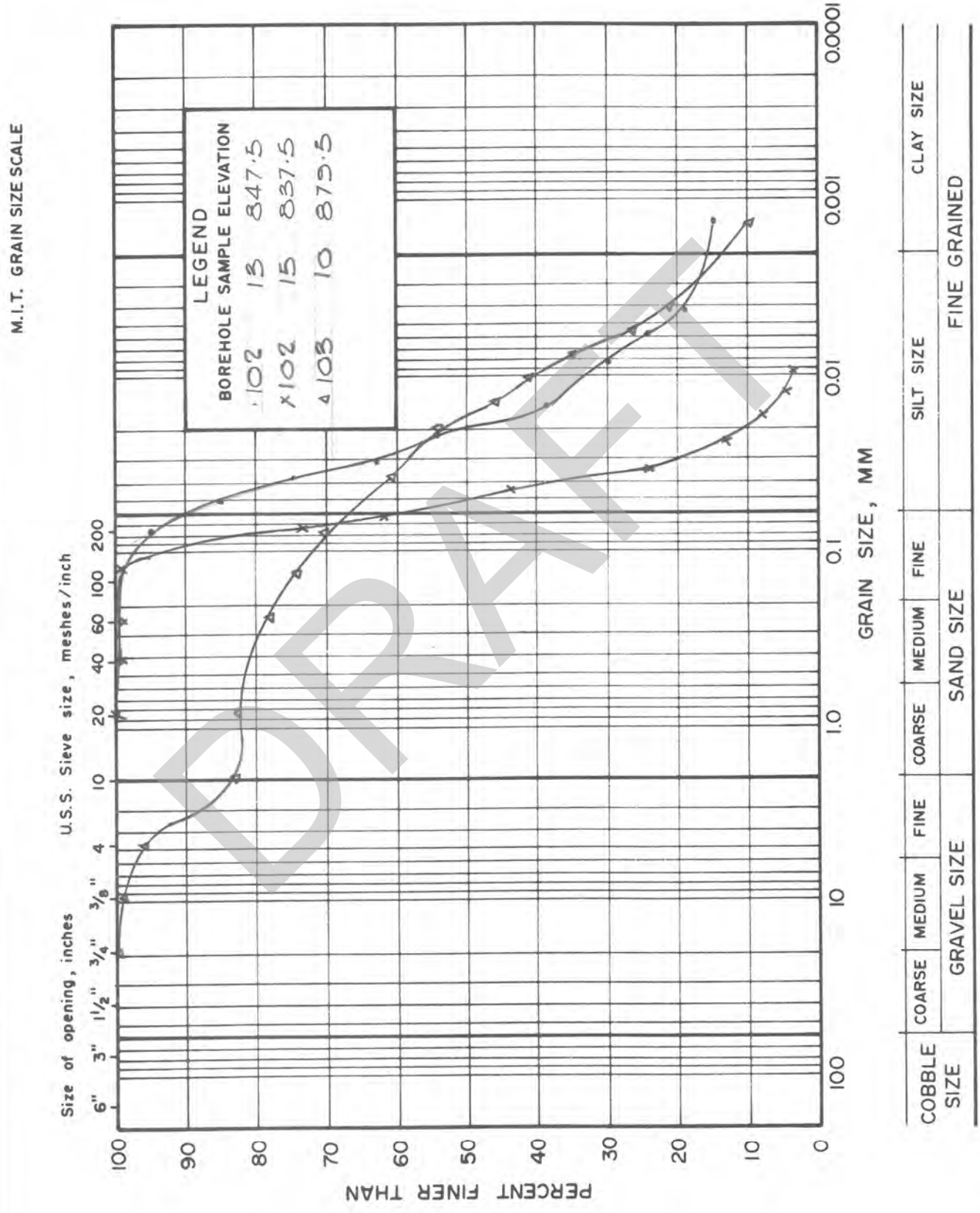
PROJECT No. 72483-1

GRAIN SIZE DISTRIBUTION
SANDY SILT

FIGURE 4

(Golder Report No. 72483-1)



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Form G.A.-D.-7

Form G.A - D - 1

Project No 72483-2

RECORD OF BOREHOLE 201

LOCATION See Figure 1 BORING DATE MAY 31 & JUNE 1/73. DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LB., DROP 30 IN. PENETRATION TEST HAMMER WEIGHT 140 LB., DROP 30 IN.

BORING METHOD: POWER AUGER 4.5" DIAMETER (UNCASED)

ELEV'N / DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS/FT.	ELEVATION SCALE
890.6	GROUND LEVEL					895
0.0	BLACK CLAYEY					
889.1	SILT TOPSOIL					890
1.5						
			1	2" DO.	51	885
	VERY STIFF TO HARD BROWN DESICATED SILTY CLAY TRACE SAND OCCASIONAL GRAVEL (TILL)		2	"	44	880
			3	"	29	875
872.6						
18.0			4	"	20	870
	VERY STIFF GREY SILTY CLAY TRACE SAND OCCASIONAL GRAVEL (TILL)		5	"	28	865
859.2			6	"	26	860
31.4						
	VERY DENSE SILTY FINE TO MEDIUM SAND		7	"	81	855
			8	"	62	850
846.1						
44.5	VERY STIFF GREY					
844.6	SILTY CLAY		9	"	46	845
46.0						
	LOOSE TO VERY DENSE SILTY FINE TO MEDIUM SAND		10	"	7 60	840
			11	"	7	835
829.6						
61.0			12	"	18	830
	VERY STIFF GREY SILTY CLAY TRACE SAND (TILL)		13	"	18	825
822.6						
68.0	HARD GREY SILTY CLAY TRACE SAND (TILL)		14	"	76	820
819.1						
71.5	END OF HOLE					815

DYNAMIC PENETRATION RESISTANCE, BLOWS/FT. 20 40 60 80

SHEAR STRENGTH Cu., LB./SQ.FT. NAT. V. - + REM.V. - ● C. - ● U. - O

COEFFICIENT OF PERMEABILITY, K., CM./SEC. 1x10 1x10 1x10 1x10

WATER CONTENT, PERCENT Wp W WL 10 20 30 40

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION

GROUND SURFACE

PLASTIC TUBING

CLAY BACKFILL

MH

CEMENT SEAL

MH

SAND & GRAVEL

MH

CAVED MATERIAL

MH

STANDPIPE

WATER LEVEL IN STANDPIPE AT ELEV. 847.1 JULIE 6, 1973

(Golder Report No. 72483-2)

"Note: is in Imperial Units"

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ε = Percent axial strain at failure

VERTICAL SCALE 1 IN. TO 5 FT.

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CHECKED MJ

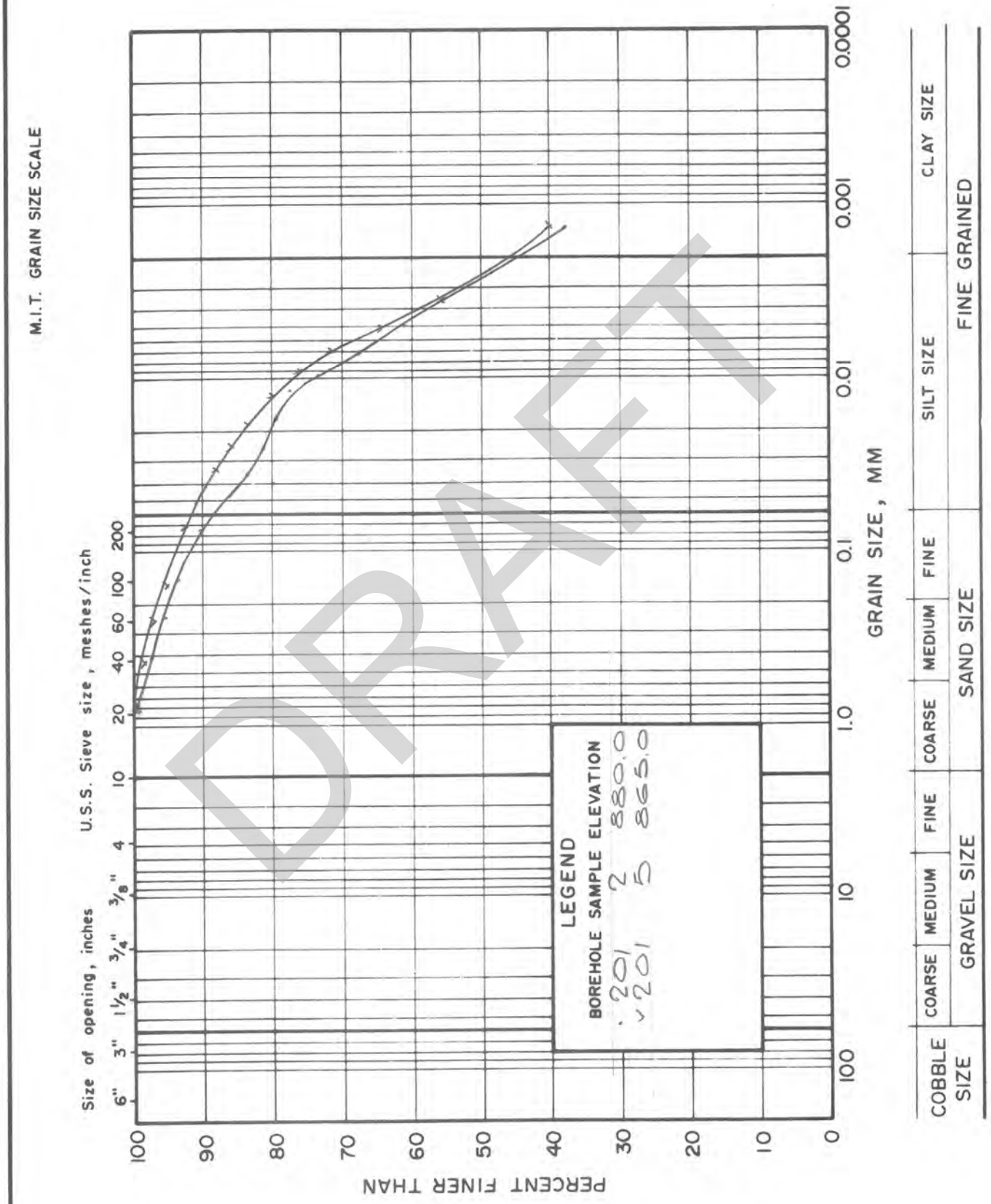
PROJECT No. 72483-2

GRAIN SIZE DISTRIBUTION

SILTY CLAY TILL

FIGURE 2

(Golder Report No. 72483-2)



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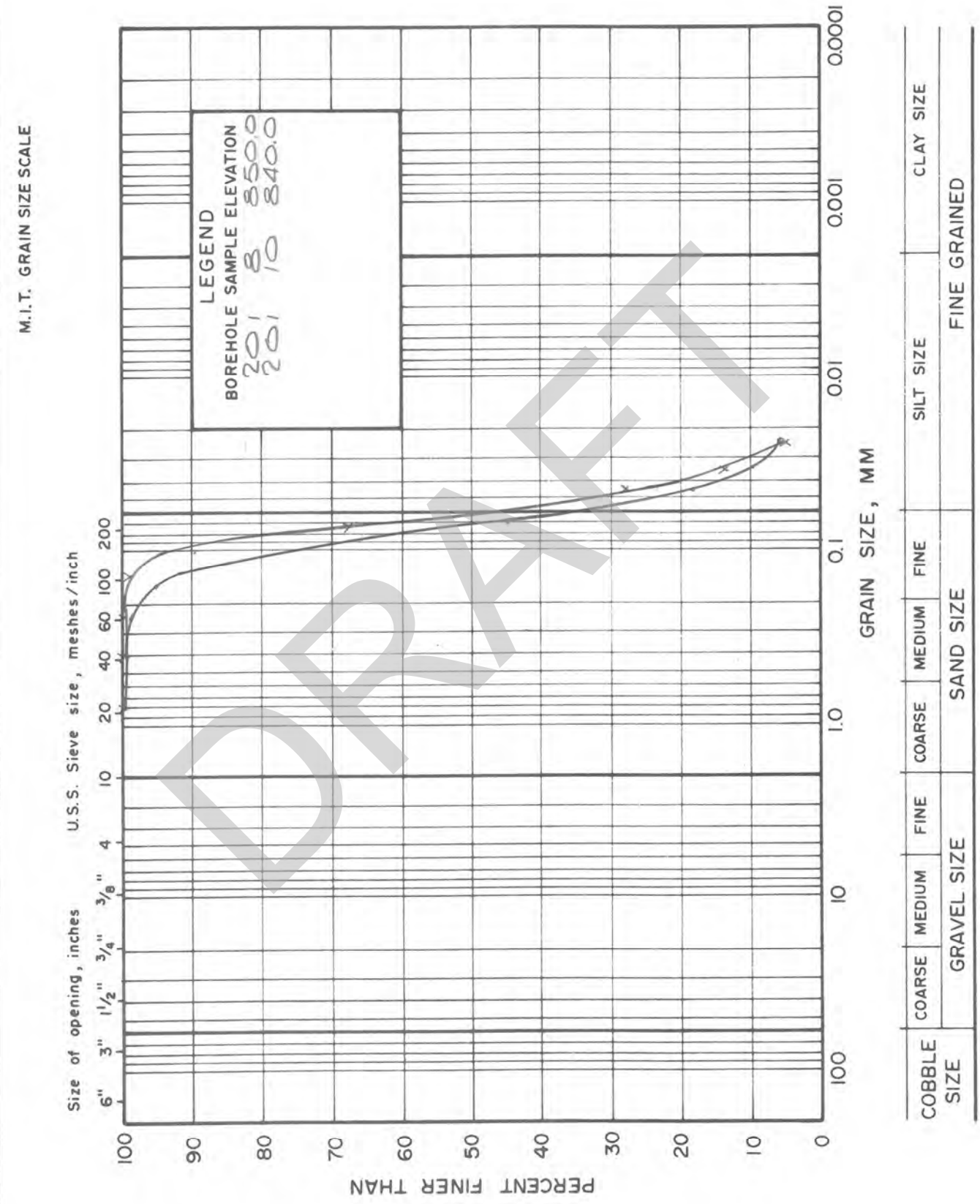
Form G.A.-D.-6

PROJECT No. 72483-2

GRAIN SIZE DISTRIBUTION
SILTY SAND

FIGURE 3

(Golder Report No. 72483-2)



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Form G.A.-D.-7

Form G A - D-1.

Project No. 753227

RECORD OF BOREHOLE 1

LOCATION See Figure 1 BORING DATE APRIL 15-19, 1976 DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LB., DROP 30 IN. PENETRATION TEST HAMMER WEIGHT 140 LB., DROP 30 IN.

(Golder Report No. 753227)

"Note: is in Imperial Units"

BORING METHOD	SOIL PROFILE: ELEV'N / DEPTH	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRAT. PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/FT.	ELEVATION SCALE	DYNAMIC PENETRATION RESISTANCE, BLOWS/FT. (20 40 60 80) / SHEAR STRENGTH Cu., LB./SQ.FT. NAT. V - + Q - ⊗ REM.V - ⊕ U - O	COEFFICIENT OF PERMEABILITY, k, CM./SEC. (1x10 1x10 1x10 1x10) / WATER CONTENT, PERCENT Wp W WL (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
POWER AUGER 7.5" DIA. HOLLOW STEM	897.1 GROUND SURFACE	BLACK SILTY TOPSOIL					900				GROUND SURFACE
	0.0										
	1.0	HARD TO VERY STIFF BROWN SILTY CLAY SOME SAND OCCASIONAL GRAVEL (TILL)		1	2" O.D.	28					CONCRETE MONUMENT AND LOCKING DEVISE
				2	"	46	890				
				3	"	34					PEA GRAVEL
				4	"	17	880				
	875.1			5	"	18					
	22.0	HARD GREY SILTY CLAY SOME SAND OCCASIONAL GRAVEL (TILL)		6	"	33	870				
				7	"	48					BENTONITE SEAL
				8	"	32	860				
	854.1			9	"	36					
	43.0	DENSE GREY FINE TO MEDIUM SAND		10	"	>100	850				
	848.6										
	48.5	LOOSE TO DENSE GREY SILT AND SAND WITH FINE TO MEDIUM SAND PARTINGS		11	"	19					SLOTTED TUBE WITH 300N TERRAFIX SURROUND
				12	"	WH	840			MH	
				13	"	76					
				14	"	>100					
	829.9						830				
	67.2	DENSE GREY									

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Form G.A.-D-1

Project No. 753227

RECORD OF BOREHOLE 2

LOCATION See Figure 1 BORING DATE APRIL 5-7, 1976 DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LB, DROP 30 IN PENETRATION TEST HAMMER WEIGHT 140 LB., DROP 30 IN

BORING METHOD: POWER AUGER 4.5" DIA. (UNCASED)

ELEV'N / DEPTH	DESCRIPTION	STRAT. PLOT	SAMPLES: NUMBER	TYPE	BLOWS/FT.
882.5 / 0.0	GROUND SURFACE				
0.0 / 1.3	BLACK SILTY TOPSOIL				
	HARD BROWN SILTY CLAY SOME SAND OCCASIONAL GRAVEL (TILL)		1	2" O.D.	27
			2	"	47
			3	•	54
869.5 / 13.0	HARD GREY CLAYEY SILT SOME SAND OCCASIONAL GRAVEL (TILL)		4	"	30
			5	"	27
856.5 / 26.0	VERY DENSE GREY FINE TO MEDIUM SAND		6	"	53
			7	"	86
848.5 / 34.0	COMPACT TO DENSE GREY SILTY FINE SAND WITH LAYERS OF SANDY SILT		8	"	23
840.5 / 42.0	COMPACT TO DENSE INTERLAYERED SAND, SILTY SAND, AND SANDY SILT (LAYERS VARY FROM 2" TO 4' IN THICKNESS AND APART)		9	"	71
			10	•	46
			11	"	23
			12	"	97

ELEVATION SCALE: 890, 880, 870, 860, 850, 840, 830

DYNAMIC PENETRATION RESISTANCE, BLOWS/FT: 20 40 60 80

SHEAR STRENGTH Cu, LB/SQ FT NAT V-+ Q-● REM V-● U-○

COEFFICIENT OF PERMEABILITY, k, CM./SEC: 1x10 1x10 1x10 1x10

WATER CONTENT, PERCENT: Wp W Wl 10 20 30 40

ADDITIONAL LAB. TESTING

GROUNDWATER MONITORING INSTALLATION

CONCRETE MONUMENT AND LOCKING DEVISE

GROUND SURFACE

BENTONITE SEAL

2" DIA. SCHEDULE 40 P.V.C PIPE

SLOTTED TUBE

WITH 300M TERRAFIX SURROUND

PEA GRAVEL

(Golder Report No. 753227)

"Note: is in Imperial Units"

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Form G A -D-1.

Project No. 753227

RECORD OF BOREHOLE 3

LOCATION See Figure 1 BORING DATE APRIL 7-9, 1976 DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LB., DROP 30 IN. PENETRATION TEST HAMMER WEIGHT 140 LB., DROP 30 IN.

BORING METHOD: POWER AUGER 7.5" DIA. HOLLOW STEM

ELEV'N / DEPTH	DESCRIPTION	STRAT. PLOT	SAMPLES: NUMBER	TYPE	BLOWS/FT.
900.1 / 0.0	BLACK SILTY TOPSOIL — GROUND SURFACE				
1.0	STIFF TO HARD BROWN SILTY CLAY TRACE SAND OCC. GRAVEL (TILL)		1	2" O.D.	12
			2	"	40
892.1 / 8.0	FIRM TO STIFF GREY SILTY CLAY, SOME SAND OCCASIONAL GRAVEL (TILL)		3	"	12
			4	"	16
878.1 / 22.0	HARD GREY CLAYEY SILT SOME SAND OCCASIONAL GRAVEL (TILL)		5	"	19
			6	"	27
			7	"	26
			8	"	31
858.8 / 41.3	VERY DENSE GREY FINE TO MEDIUM SAND		9	"	41
			10	"	>100
			11	"	>100
846.1 / 54.0	DENSE TO VERY DENSE INTERLAYERED FINE TO MEDIUM SAND, SILTY SAND, AND SANDY SILT OCCASSIONAL PARTINGS OF CLAYEY SILT		12	"	41
			13	"	>100
			14	"	82
			15	"	25

ELEVATION SCALE: 900, 890, 880, 870, 860, 850, 840, 830

DYNAMIC PENETRATION RESISTANCE, BLOWS/FT. (20, 40, 60, 80)

SHEAR STRENGTH Cu, LB./SQ.FT. NAT V. - + Q - ● REM.V. - ⊕ U - O

COEFFICIENT OF PERMEABILITY, k_v, CM./SEC (1x10, 1x10, 1x10, 1x10)

WATER CONTENT, PERCENT (w_P, w, w_L) (10, 20, 30, 40)

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION

MH

(Golder Report No. 753227)

"Note: is in Imperial Units"

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Form G.A.-D-1

Project No. 753227

RECORD OF BOREHOLE 4

LOCATION See Figure 1 BORING DATE APRIL 9-13, 1976 DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LB., DROP 30 IN PENETRATION TEST HAMMER WEIGHT 140 LB., DROP 30 IN.

BORING METHOD: POWER AUGER 7.5" DIA. HOLLOW STEM

ELEV'N. / DEPTH	DESCRIPTION	STRAT. PLOT	SAMPLES: NUMBER	TYPE	BLOWS/FT.
901.9 / 0.0	GROUND SURFACE				
	BLACK SILTY TOPSOIL				
1.5	HARD BROWN SILTY CLAY TRACE SAND OCCASIONAL GRAVEL (TILL)		1	2" D.O.	39
			2	"	48
			3	"	37
888.9 / 13.0			4	"	25
	VERY STIFF TO HARD GREY SILTY CLAY TRACE TO SOME FINE TO MEDIUM SAND OCC. GRAVEL (TILL)		5	"	28
			6	"	37
			7	"	31
			8	"	37
			9	"	26
854.4 / 46.5			10	"	59
	COMPACT TO DENSE GREY SILTY FINE TO MEDIUM SAND		11	"	>100
			12	"	20
843.9 / 58.0	VERY STIFF GREY CLAYEY SILT		13	"	24
840.9 / 61.0					
	DENSE TO VERY DENSE GREY INTERLAYERED SAND, SILTY		14	"	32

ELEVATION SCALE: 900, 890, 880, 870, 860, 850, 840

DYNAMIC PENETRATION RESISTANCE, BLOWS/FT. (20 40 60 80)

SHEAR STRENGTH Cu, LB./SQ.FT. NAT. V. + Q. ● REM. V. ⊕ U. ○

COEFFICIENT OF PERMEABILITY, k, CM/SEC. (1x10 1x10 1x10 1x10)

WATER CONTENT, PERCENT (Wp W WL) 10 20 30 40

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION

GROUND SURFACE

CONCRETE MONUMENT AND LOCKING DEVISE

2" DIA. SCHEDULE 40 P.V.C. PIPE

PEA GRAVEL

BENTONITE SEAL

SLOTTED TUBE

WITH 300N TERRAFIX FILTER SURROUND

(Golder Report No. 753227)

"Note: is in Imperial Units"

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Form G A - D - 1

Project No. 753227

RECORD OF BOREHOLE 5

LOCATION See Figure 1 BORING DATE APRIL 13-15, 1976 DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LB, DROP 30 IN PENETRATION TEST HAMMER WEIGHT 140 LB, DROP 30 IN

BORING METHOD: POWER AUGER 7.5" DIA. HOLLOW STEM

ELEV'N / DEPTH	DESCRIPTION	STRAT PLOT	SAMPLES: NUMBER	TYPE	BLOWS/FT.	ELEVATION SCALE
906.6 / 0.0	BLACK SILTY TOPSOIL — GROUND SURFACE					910
1.0	STIFF TO HARD BROWN SILTY CLAY, TRACE SAND OCCASIONAL GRAVEL (TILL)		1	2" D.O.	19	
			2	"	35	900
			3	"	32	
892.6 / 14.0			4	"	25	890
			5	"	28	
	VERY STIFF TO HARD GREY SILTY CLAY, TRACE TO SOME SAND OCCASIONAL GRAVEL (TILL)		6	"	56	880
			7	"	52	
			8	"	35	870
			9	"	28	
860.1 / 46.5			10	"	33	860
	COMPACT TO VERY DENSE GREY FINE TO MEDIUM SAND		11	"	30	
			12	"	>100	850
843.6 / 63.0			13	"	16	
	VERY STIFF GREY CLAYEY SILT		14	"	26	840
839.6 / 67.0						
	COMPACT TO					

WATER CONTENT, PERCENT (10 20 30 40)	ADDITIONAL LAB TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0		GROUND SURFACE
0		CONCRETE MONUMENT AND LOCKING DEVISE
0		
0		
0		2" DIA. SCHEDULE 40 P.V.C. PIPE
0		
0		PEA GRAVEL
0		
0		BENTONITE SEAL
0		
0		
0	MH	SLOTTED TUBE
0		

(Golder Report No. 753227)

"Note: is in Imperial Units"

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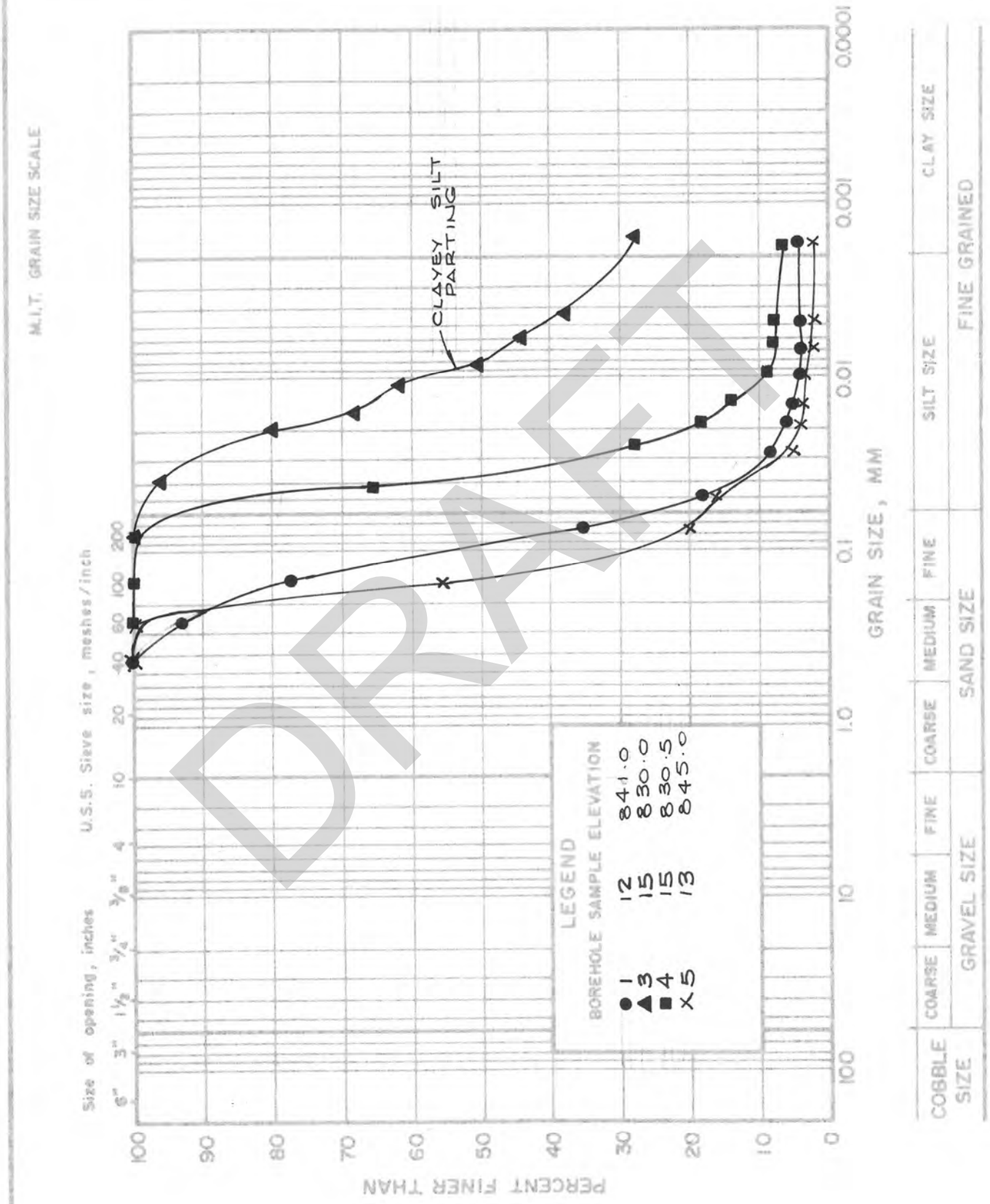
PROJECT No. 753227

GRAIN SIZE DISTRIBUTION

AQUIFER ZONE

FIGURE 3

(Golder Report No. 753227)



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Form G.A.-D.-6

Form G.A.-D-1.

Project No. 811-3089

RECORD OF BOREHOLE 1.

LOCATION See Figure 3. BORING DATE JUNE 5, 8, 1981 DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LBS DROP 30 IN. PENETRATION TEST HAMMER WEIGHT — DROP —

(Golder Report No. 811-3089)

"Note: is in Imperial Units"

BORING METHOD	ELEV'N. / DEPTH	DESCRIPTION	STRAT. PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/FT.	ELEVATION SCALE
POWER AUGER 4.5" DIA. (UNCASED)	900.6 / 0.0	GROUND SURFACE					910
		VERY STIFF TO HARD BROWN BECOMING GREY ABOUT ELEV.894 **SILTY CLAY** TRACE TO SOME SAND OCC. GRAVEL **(TILL)**		1	2" D.O.	50	900
				2	"	39	
				3	"	24	
				4	"	21	890
				5	"	21	
				6	"	27	
				7	"	16	
				8	"	16	880
				9	"	18	
				10	"	27	
				11	"	25	870
				12	"	23	
	856.6			13	"	39	860
	44.0 / 851.6	VERY STIFF GREY **SILTY CLAY** OCC. GRAVEL		14	"	29	
	49.0 / 847.6	VERY DENSE GREY **SILTY FINE SAND**		15	"	100/1"	850
	53.0	DENSE TO VERY DENSE GREY FINE TO MEDIUM		16	"	100/11"	

DYNAMIC PENETRATION RESISTANCE, BLOWS/

SHEAR STRENGTH Cu. NAT. V. - + Q. - ● REM.V. - ● U. - ○

COEFFICIENT OF PERMEABILITY, k_{cm} CM./SEC. 1x10 1x10 1x10 1x10

WATER CONTENT, PERCENT W_p W W_L 10 20 30 40

MH

MH

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION

GROUND SURFACE

SURFACE SEAL

AUGERED BACKFILL

PLASTIC TUBING

BENTONITE SEAL

PIEZOMETER enc.

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Form G.A.-D-1

Project No. 811-3089

RECORD OF BOREHOLE 2

LOCATION See Figure 3 BORING DATE JUNE 10, 1981 DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LBS DROP 30 IN. PENETRATION TEST HAMMER WEIGHT - DROP -

BORING METHOD	ELEV'N / DEPTH	DESCRIPTION	STRAT. PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/FT.	ELEVATION SCALE	DYNAMIC PENETRATION RESISTANCE, BLOWS/ / SHEAR STRENGTH Cu. NAT. V. - + Q. - ● REM. V. - ● U. - O	COEFFICIENT OF PERMEABILITY, k, CM./SEC. 1x10 1x10 1x10 1x10 / WATER CONTENT, PERCENT Wp W WL 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
							920				
	910.2	BROWN CLAYEY **TOPSOIL** / GROUND SURFACE									GROUND SURFACE
POWER AUGER 4.5" DIA. (UNCASED)	0.0 / 0.8			1	2" D.O.	35	910				CLAY SURFACE SEAL
				2	"	42					
				3	"	45					
				4	"	32	900				
				5	"	26					
				6	"	25					
				7	"	19					PLASTIC TUBING
		VERY STIFF TO HARD BROWN BECOMING GREY ABOUT ELEV. 896 **SILTY CLAY** TRACE TO SOME SAND OCC. GRAVEL **(TILL)**		8	"	17	890				
				9	"	33					
				10	"	26					
				11	"	27	880				AUGERED BACKFILL
				12	"	31					
				13	"	33	870				
	866.2										
	44.0	HARD GREY **SILTY CLAY TILL** WITH		14	"	52					
	862.2	FINE SAND PARTINGS									
	48.0	HARD GREY **SILTY CLAY TILL**		15	"	39	860				BENTONITE SEAL
	856.7										
	53.5	VERY STIFF GREY **SILTY CLAY**		16	"	28					PIEZOMETER

(Golder Report No. 811-3089)

"Note: is in Imperial Units"

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Form G.A.-D-1.

Project No. 811-3089

RECORD OF BOREHOLE 3

LOCATION See Figure 3 BORING DATE JUNE 10, 11, 1981 DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LBS DROP 30 IN. PENETRATION TEST HAMMER WEIGHT — DROP —

(Golder Report No. 811-3089)

"Note: is in Imperial Units"

BORING METHOD	ELEV'N / DEPTH	DESCRIPTION	STRAT. PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/FT.	ELEVATION SCALE
POWER AUGER 4.5" DIA. (UNCASED)	914.2 / 0.0	BROWN CLAYEY **TOPSOIL** / GROUND SURFACE					920
	1.0 / 907.2	STIFF TO VERY STIFF BROWN TO GREY MOTTLED **SILTY CLAY** TRACE SAND OCC. GRAVEL		1	2" D.O.	10	910
	7.0			2	"	21	
				3	"	41	
				4	"	46	
				5	"	34	900
				6	"	39	
				7	"	24	
				8	"	25	
				9	"	26	890
				10	"	18	
		STIFF TO HARD BROWN BECOMING GREY ABOUT ELEV. 902 **SILTY CLAY** TRACE TO SOME SAND OCC. GRAVEL **(TILL)**		11	"	14	
				12	"	20	880
				13	"	23	
				14	"	19	870
				15	"	24	
				16	"	30	860
	855.7						

DYNAMIC PENETRATION RESISTANCE, BLOWS/

SHEAR STRENGTH Cu. NAT. V. - + Q. - ● REM. V. - ⊕ U. - ○

COEFFICIENT OF PERMEABILITY, k_H, CM./SEC. 1x10 1x10 1x10 1x10

WATER CONTENT, PERCENT W_P W W_L 10 20 30 40

MH

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION

GROUND SURFACE

CLAY SURFACE SEAL

PLASTIC TUBING

AUGERED BACKFILL

BENTONITE

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Form G.A.-D-1

Project No. 811-3089

RECORD OF BOREHOLE 4

LOCATION See Figure 3 BORING DATE JUNE 11, 1981 DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LBS DROP 30 IN. PENETRATION TEST HAMMER WEIGHT – DROP –

(Golder Report No. 811-3089)

"Note: is in Imperial Units"

BORING METHOD	ELEV'N. / DEPTH	DESCRIPTION	STRAT. PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/FT.	ELEVATION SCALE	DYNAMIC PENETRATION RESISTANCE, BLOWS/ / SHEAR STRENGTH Cu. NAT. V. - + Q. - ● REM. V. - ● U. - O	COEFFICIENT OF PERMEABILITY, k_h, CM./SEC. 1x10 1x10 1x10 1x10 / WATER CONTENT, PERCENT W_P W W_L 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
POWER AUGER 4.5" DIA. (UNCASED)	920.7 0.0	GROUND SURFACE					930				GROUND SURFACE
	918.7 2.0	BLACK CLAYEY **TOPSOIL**		1	2" D.O.	19	920				GLAY SURFACE SEAL
				2	"	44					
				3	"	38					
				4	"	31	910				PLASTIC TUBING
				5	"	14					
		STIFF TO HARD BROWN BECOMING GREY ABOUT ELEV. 907 **SILTY CLAY** TRACE TO SOME SAND OCC. GRAVEL (TILL		6	"	19					
				7	"	22					
				8	"	25	900				AUGERED BACKFILL
				9	"	24					
				10	"	31					
				11	"	26	890				
	882.7			12	"	33					
	38.0										
				13	"	27	880				
		VERY STIFF TO HARD GREY. **SILTY CLAY** OCC. GRAVEL									
				14	"	34	870				

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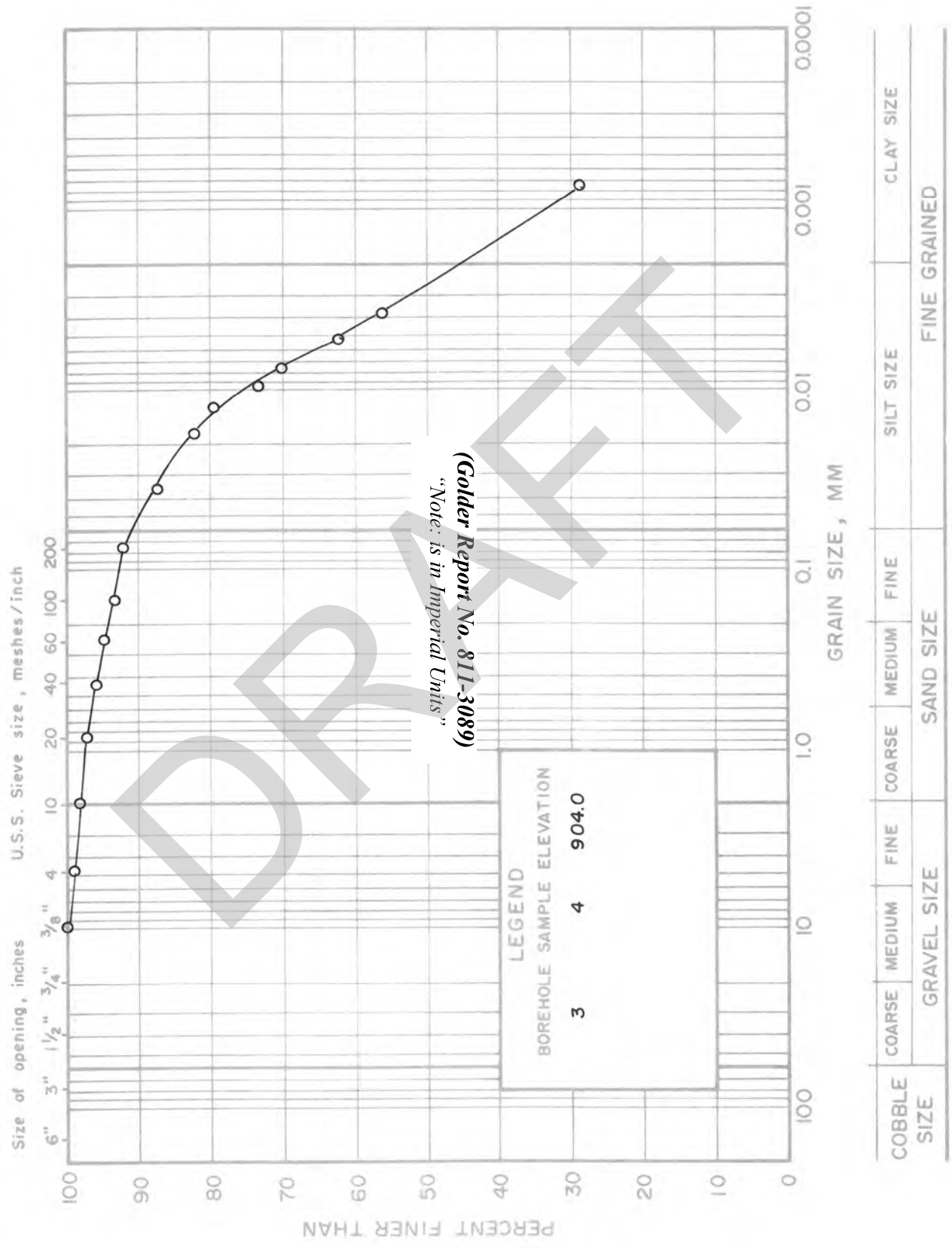
PROJECT No. 811-3089

GRAIN SIZE DISTRIBUTION

SILTY CLAY TILL

FIGURE 4.

(Golder Report No. 811-3089)



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(Golder Report No. 811-3089)

"Note: is in Imperial Units"

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Form G.A.-D.-6

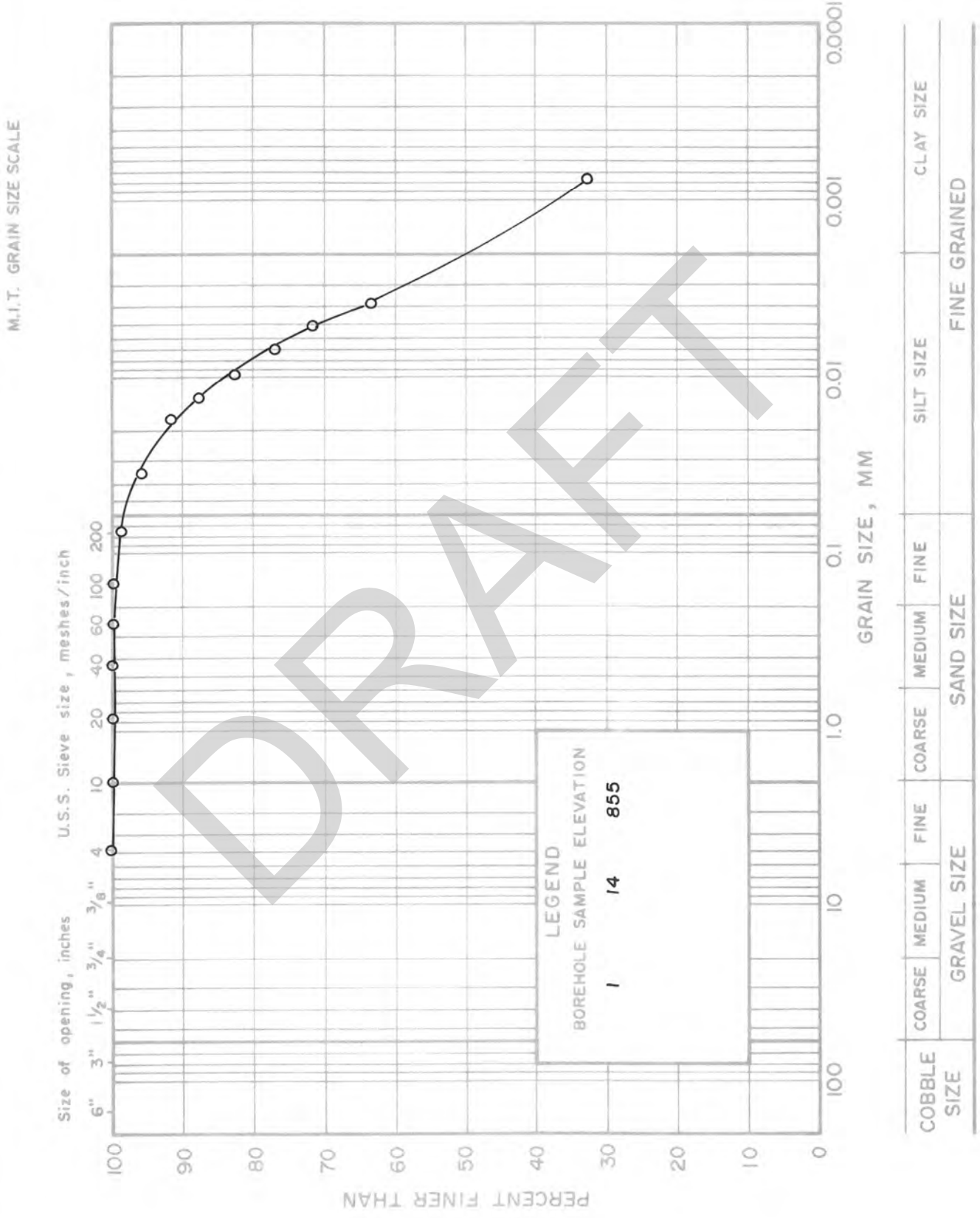
PROJECT No. 811-3089

GRAIN SIZE DISTRIBUTION

SILTY CLAY

FIGURE **5.**

(Golder Report No. 811-3089)



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Form G.A.-D.-6

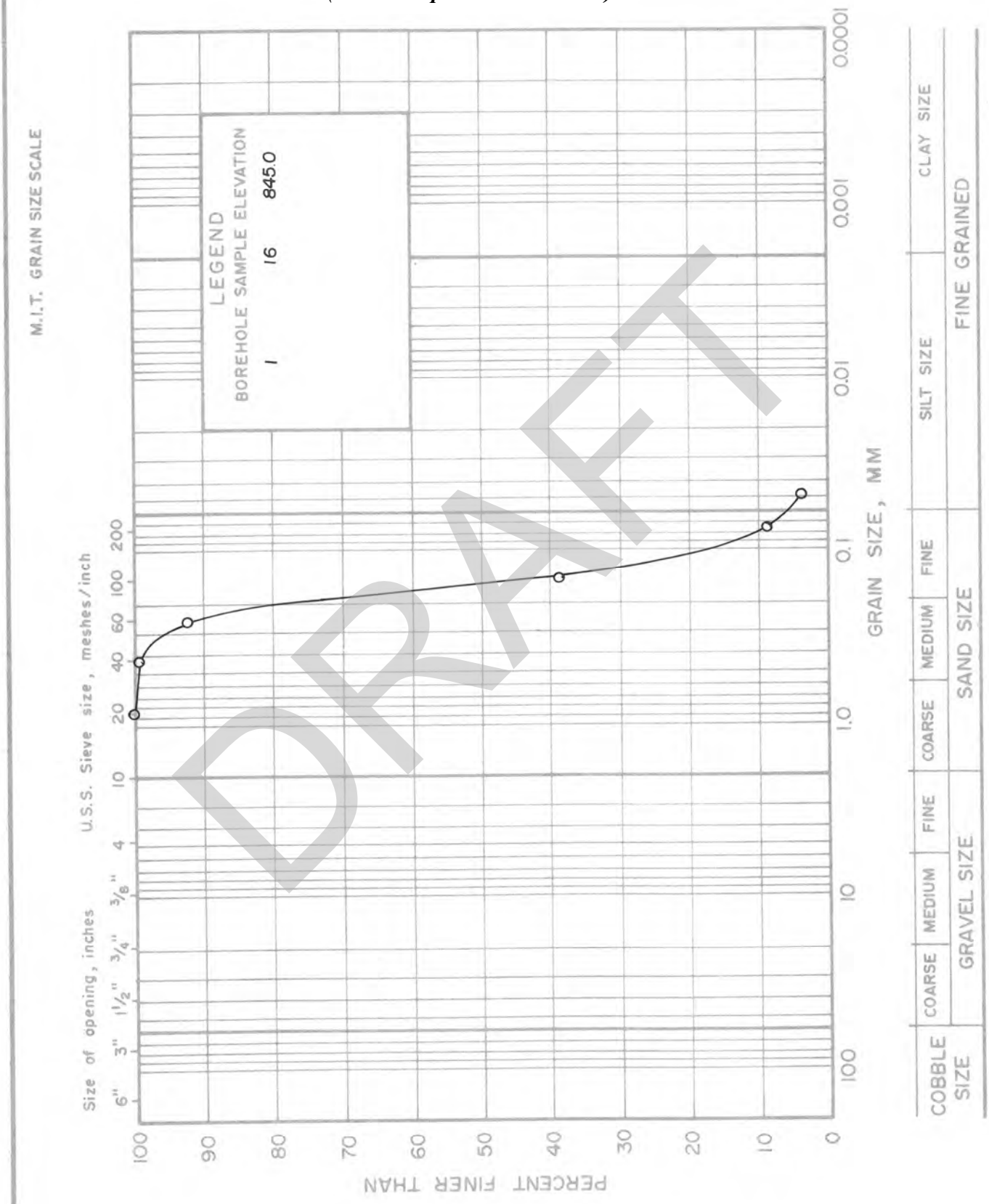
PROJECT No. 811-3089

GRAIN SIZE DISTRIBUTION

FIGURE **6.**

FINE TO MEDIUM **SAND**

(Golder Report No. 811-3089)



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