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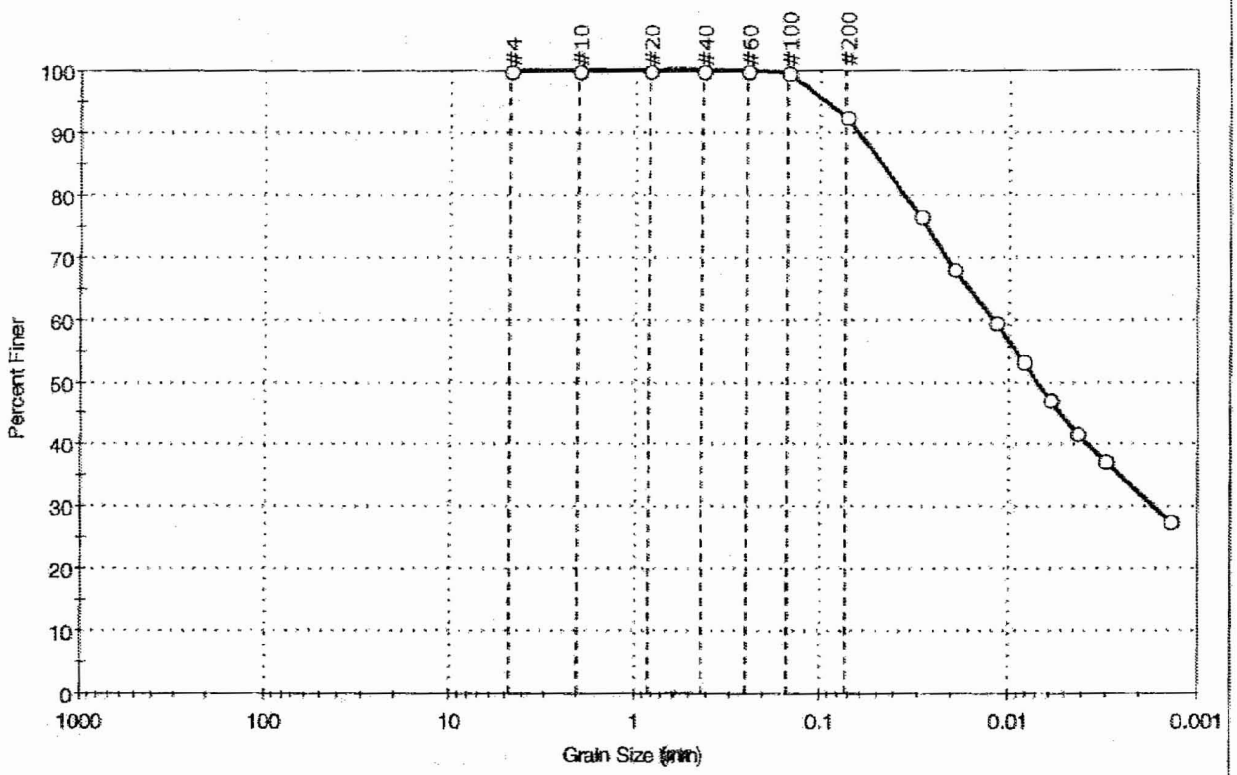
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-729	Sample Type: tube	Tested By:	md
Sample ID: UD-1	Test Date: 10/31/06	Checked By:	mcm
Depth : 68.5-70.0 ft	Test Id: 97948		
Test Comment: ---			
Sample Description: Moist, dark greenish gray organic clay with sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	7.3	92.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.84	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	100		
#200	0.074	93		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0299	77		
---	0.0195	68		
---	0.0116	60		
---	0.0084	53		
---	0.0061	47		
---	0.0043	42		
---	0.0031	38		
---	0.0014	28		

Coefficients

D_{85}=0.0479 mm	D_{30}=0.0017 mm
D_{60}=0.0118 mm	D_{15}=N/A
D_{50}=0.0070 mm	D_{10}=N/A
C_u =N/A	C_c =N/A

Classification

ASTM organic clay (OH)

AASHTO Clayey Soils (A-7-6 (42))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : HARD

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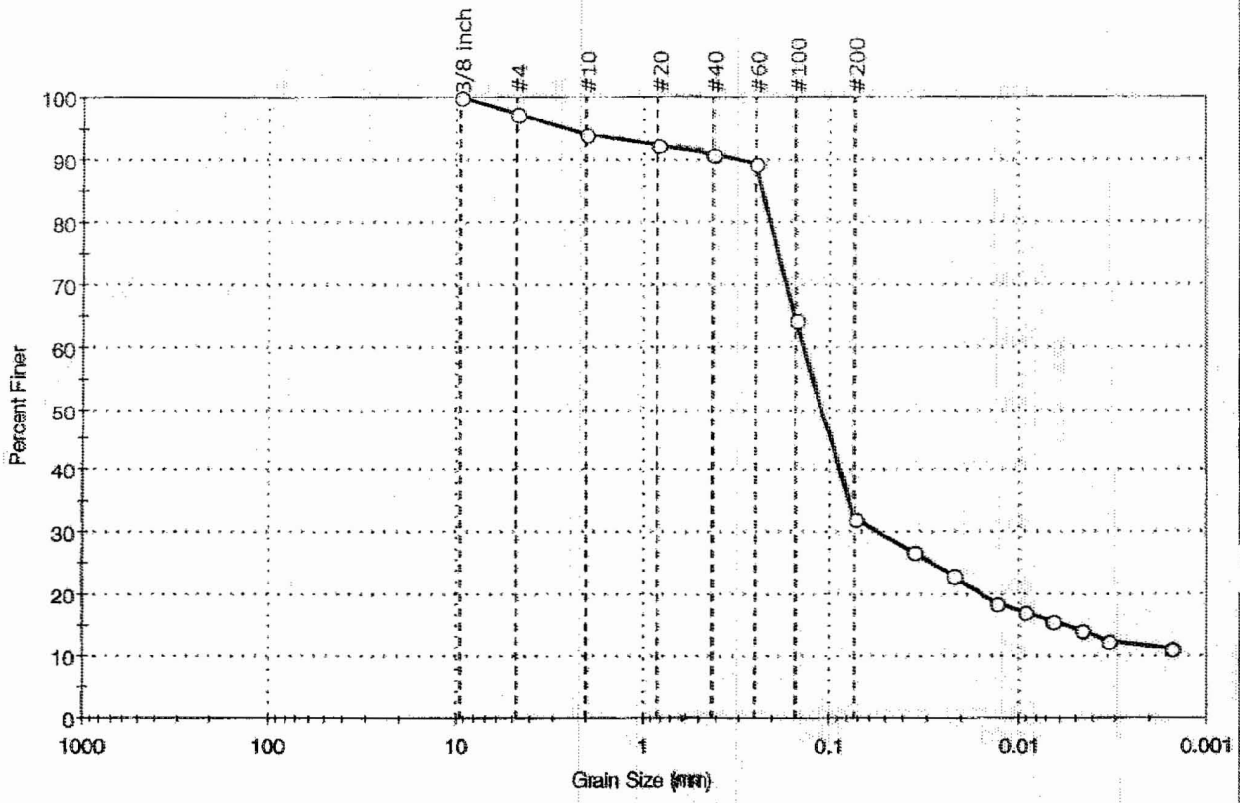
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-732	Sample Type: tube	Tested By:	sam
Sample ID: UD-1	Test Date: 09/28/06	Checked By:	mcm
Depth : 15-17 ft	Test Id: 98021		
Test Comment:	---		
Sample Description:	Moist, mottled pale yellow and brownish yellow clayey sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	2.7	65.3	32.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3/8 inch	9.51	100		
#4	4.75	97		
#10	2.00	94		
#20	0.84	92		
#40	0.42	91		
#60	0.25	90		
#100	0.15	64		
#200	0.074	32		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0360	27		
---	0.0225	23		
---	0.0130	19		
---	0.0092	17		
---	0.0065	16		
---	0.0046	14		
---	0.0033	12		
---	0.0015	11		

Coefficients

D_{85} = 0.2279 mm	D_{30} = 0.0555 mm
D_{60} = 0.1359 mm	D_{15} = 0.0058 mm
D_{50} = 0.1094 mm	D_{10} = 0.0006 mm
C_u = N/A	C_c = N/A

Classification

ASTM Clayey sand (SC)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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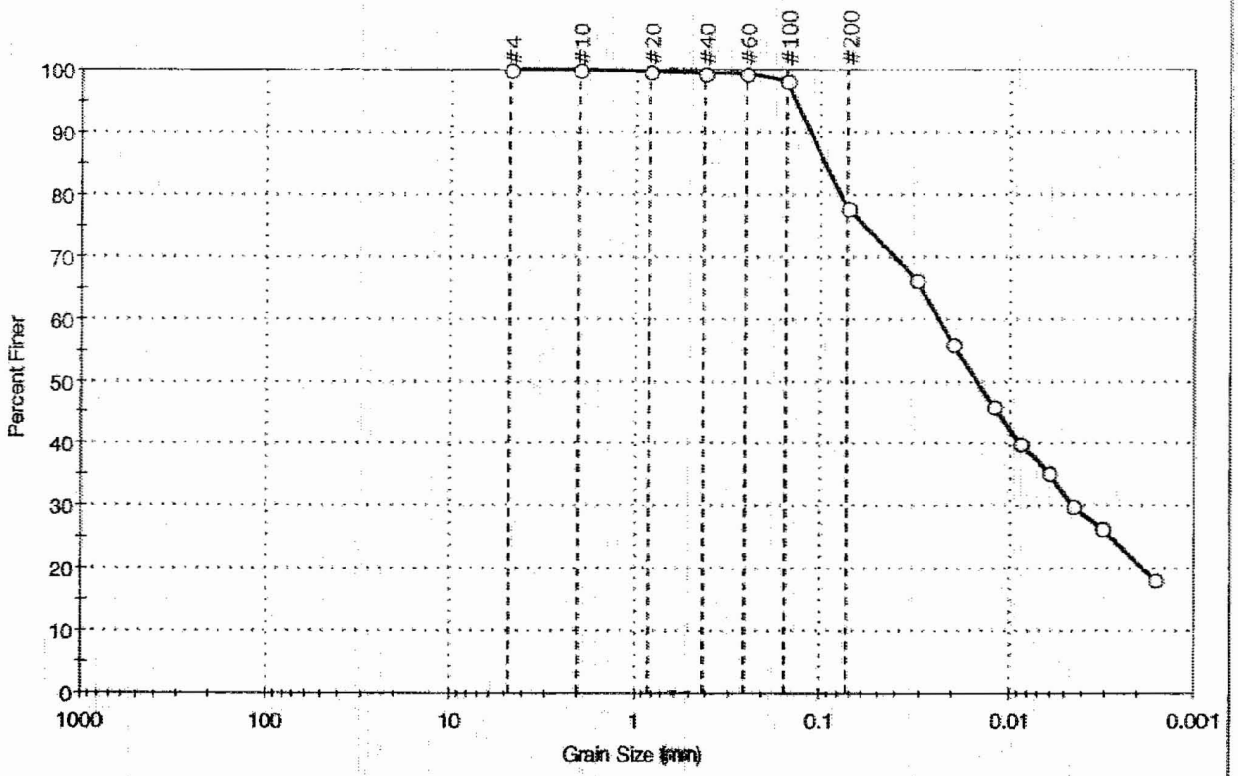
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-733	Sample Type: tube	Tested By:	sam
Sample ID: UD-1	Test Date: 09/22/06	Checked By:	mcm
Depth : 23.5-25.5	Test Id: 98022		
Test Comment:	---		
Sample Description:	Moist, dark olive gray clay with sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	22.0	78.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.84	100		
#40	0.42	99		
#60	0.25	99		
#100	0.15	98		
#200	0.074	78		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0321	66		
---	0.0200	56		
---	0.0122	46		
---	0.0087	40		
---	0.0062	35		
---	0.0045	30		
---	0.0032	27		
---	0.0016	18		

Coefficients

D_{85}=0.0944 mm	D_{30}=0.0044 mm
D_{60}=0.0239 mm	D_{15}=N/A
D_{50}=0.0148 mm	D_{10}=N/A
C_u =N/A	C_c =N/A

Classification

ASTM fat clay with sand (CH)

AASHTO Clayey Soils (A-7-6 (31))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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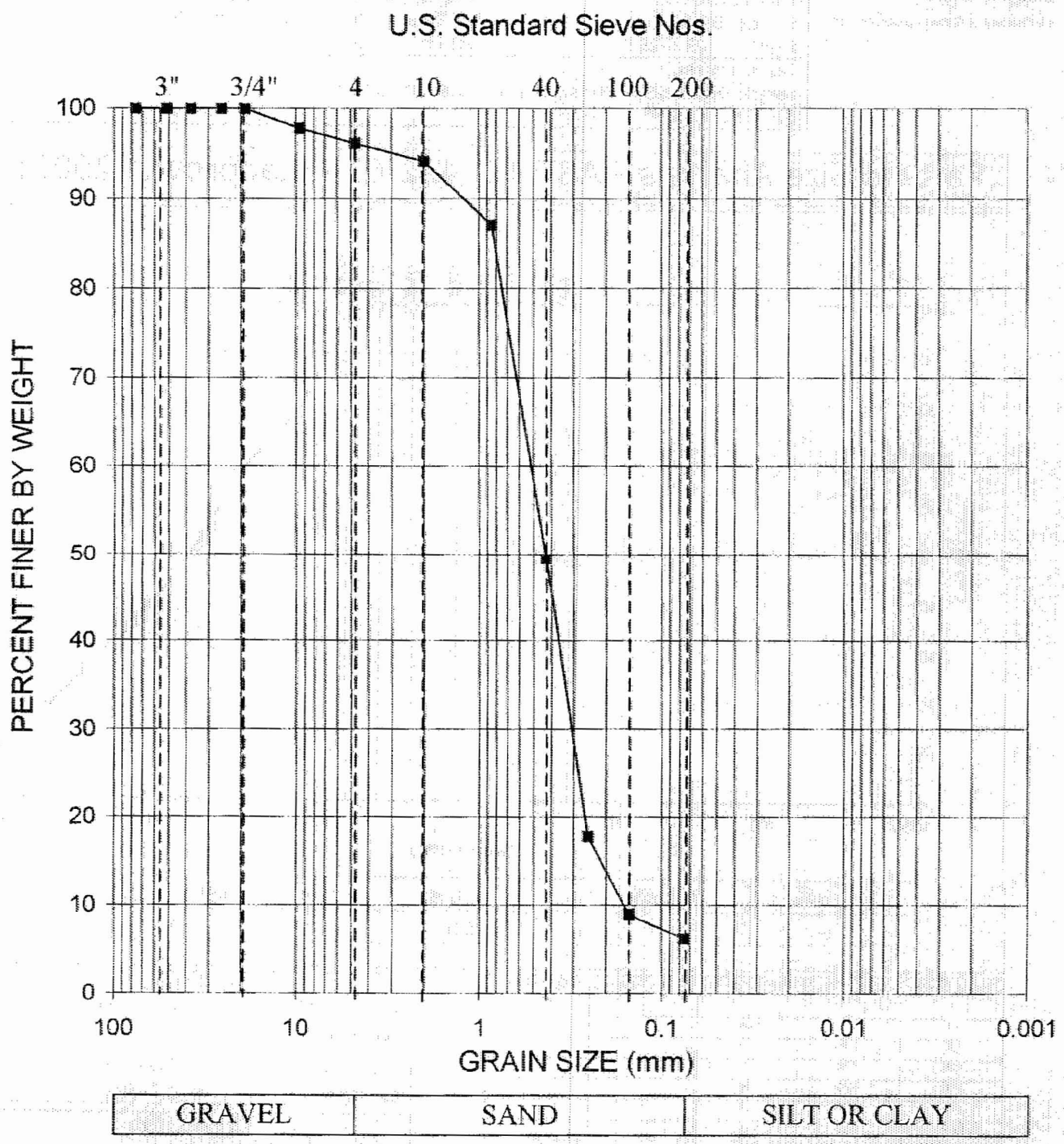
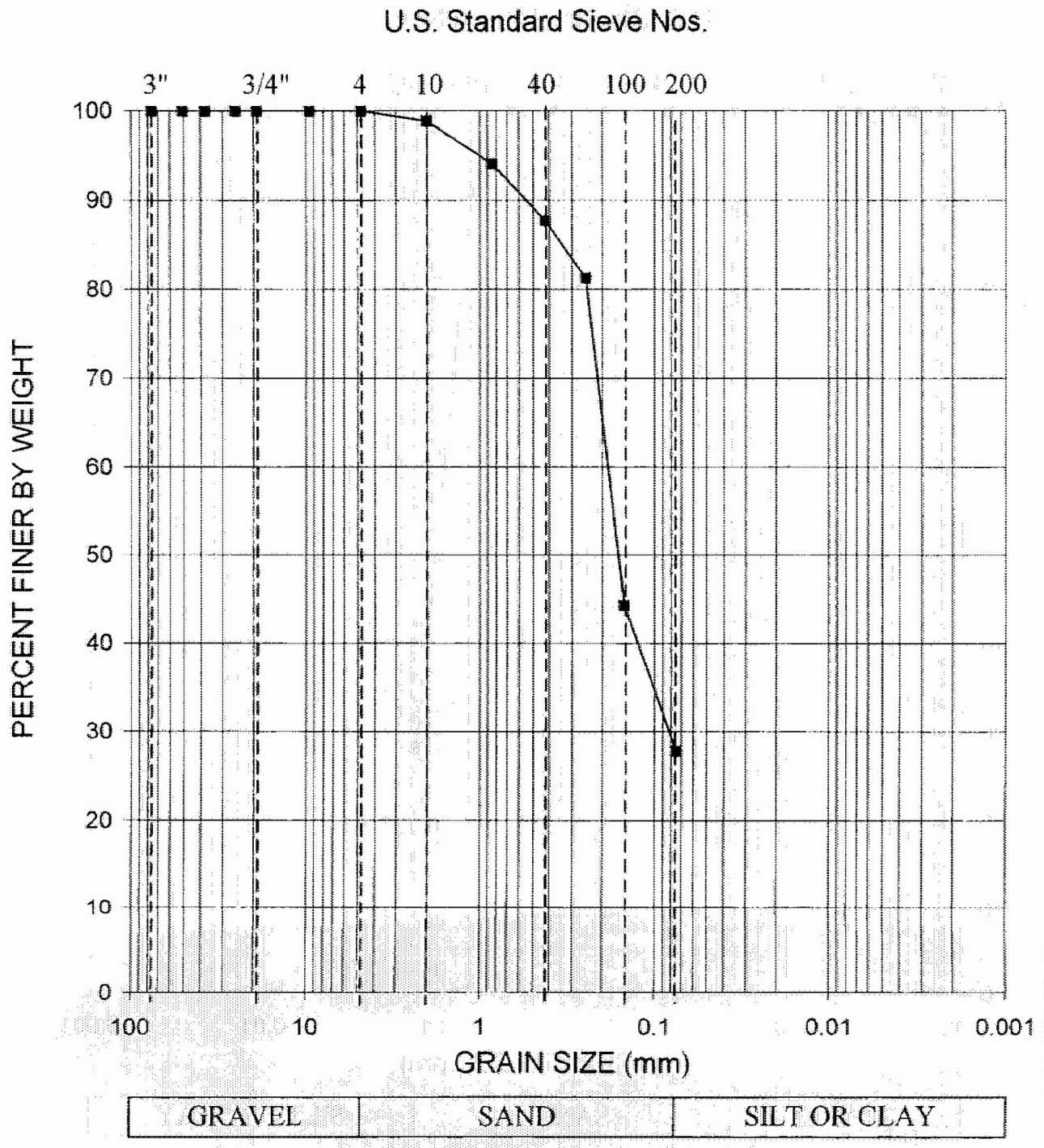


GRADATION CURVE

ASTM D422

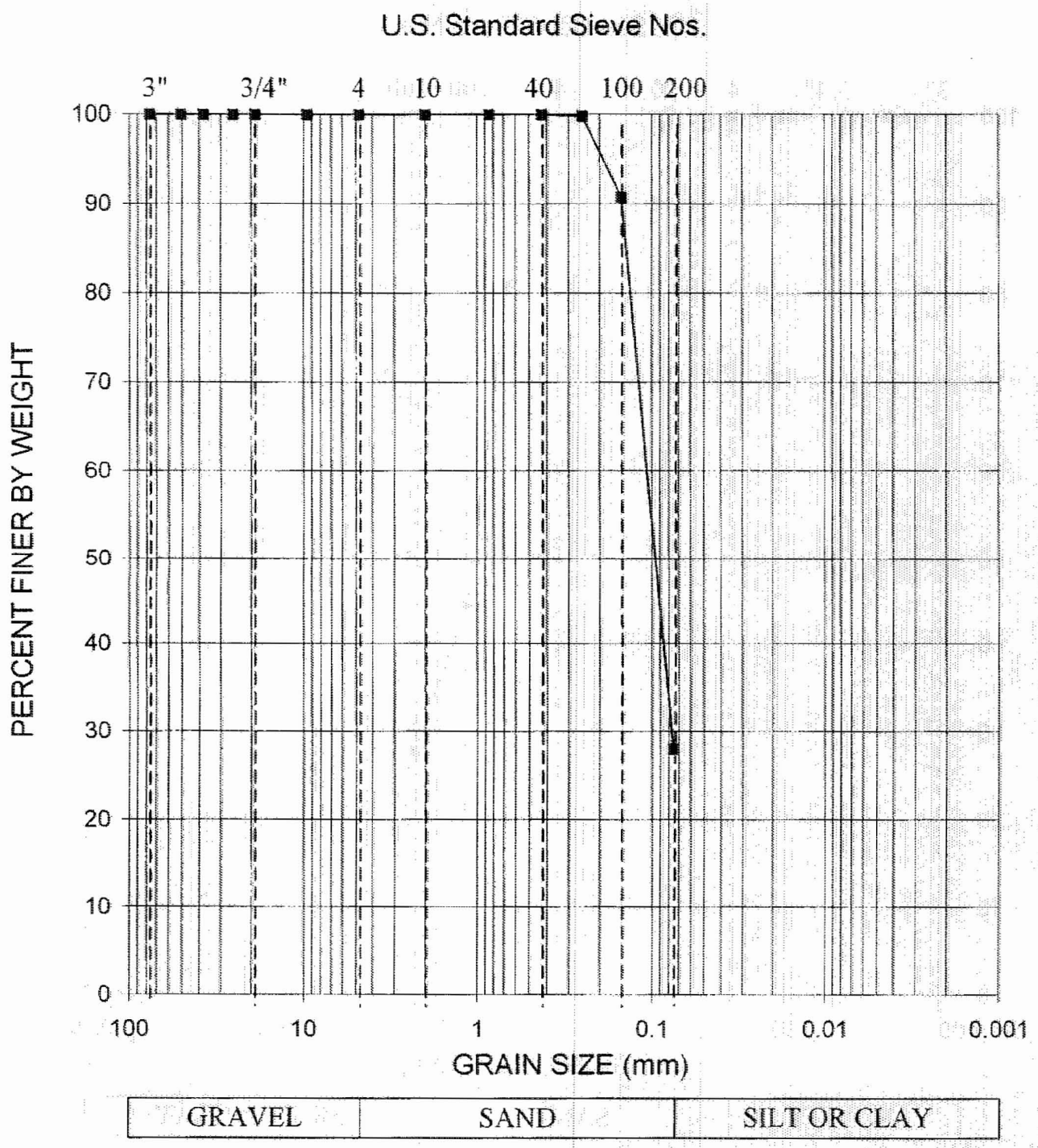
Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	9/22/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-735	2.5	Poorly Graded SAND, with silt, trace gravel, brown	SP-SM			Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	9/22/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-735	10.5	Silty SAND, light brown	SM			Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	9/28/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-735	18.5	Silty SAND, yellow-gray	SM	NP	NP	

Schnabel Engineering

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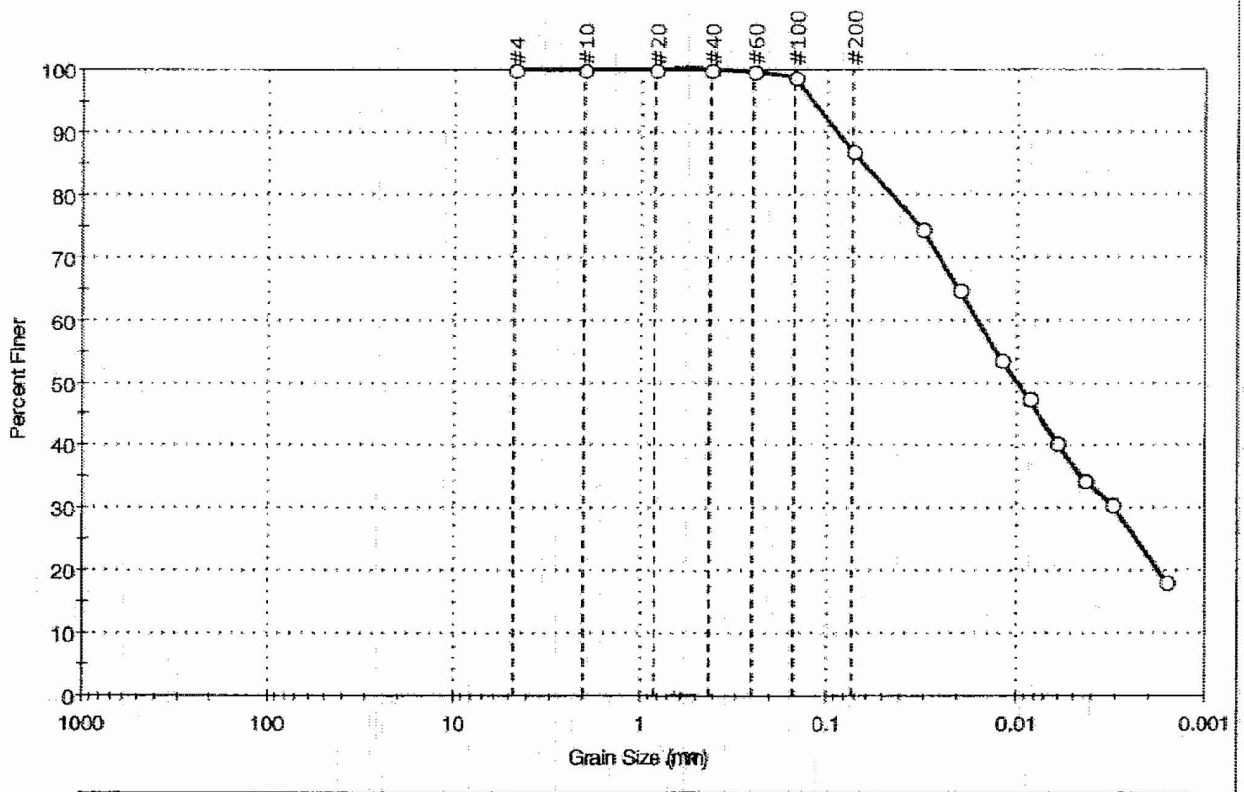
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-735	Sample Type: tube	Tested By:	sam
Sample ID: S-9	Test Date: 09/22/06	Checked By:	mcm
Depth : 28-30 ft	Test Id: 97987		
Test Comment: ---			
Sample Description:	Moist, dark gray clay		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	12.9	87.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.84	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	99		
#200	0.074	87		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0310	75		
---	0.0198	65		
---	0.0118	54		
---	0.0085	47		
---	0.0061	41		
---	0.0044	34		
---	0.0031	31		
---	0.0016	18		

Coefficients

D_{85} = 0.0639 mm	D_{30} = 0.0030 mm
D_{60} = 0.0159 mm	D_{15} = N/A
D_{50} = 0.0098 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM fat clay (CH)

AASHTO Clayey Soils (A-7-6 (35))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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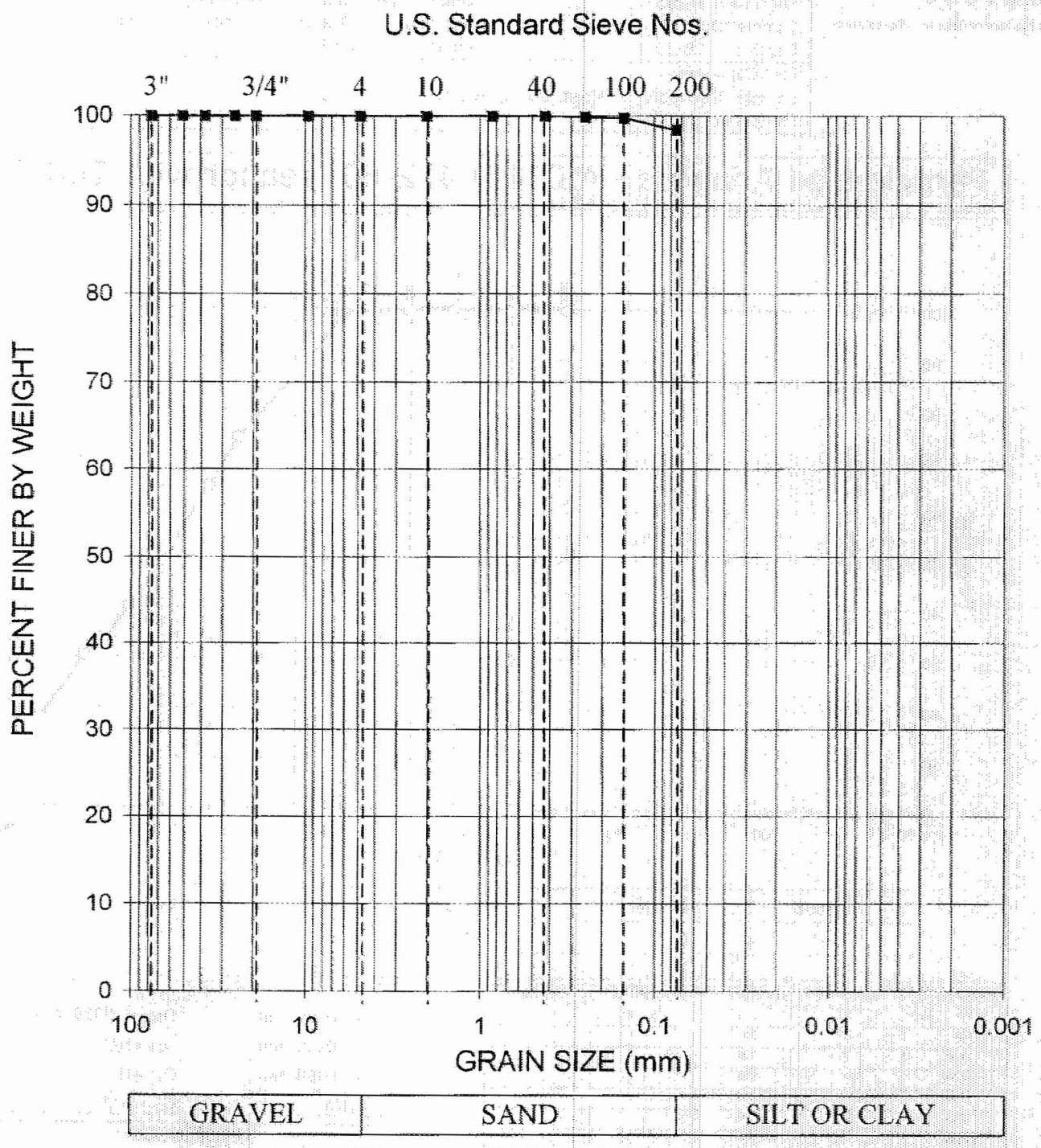


GRADATION CURVE

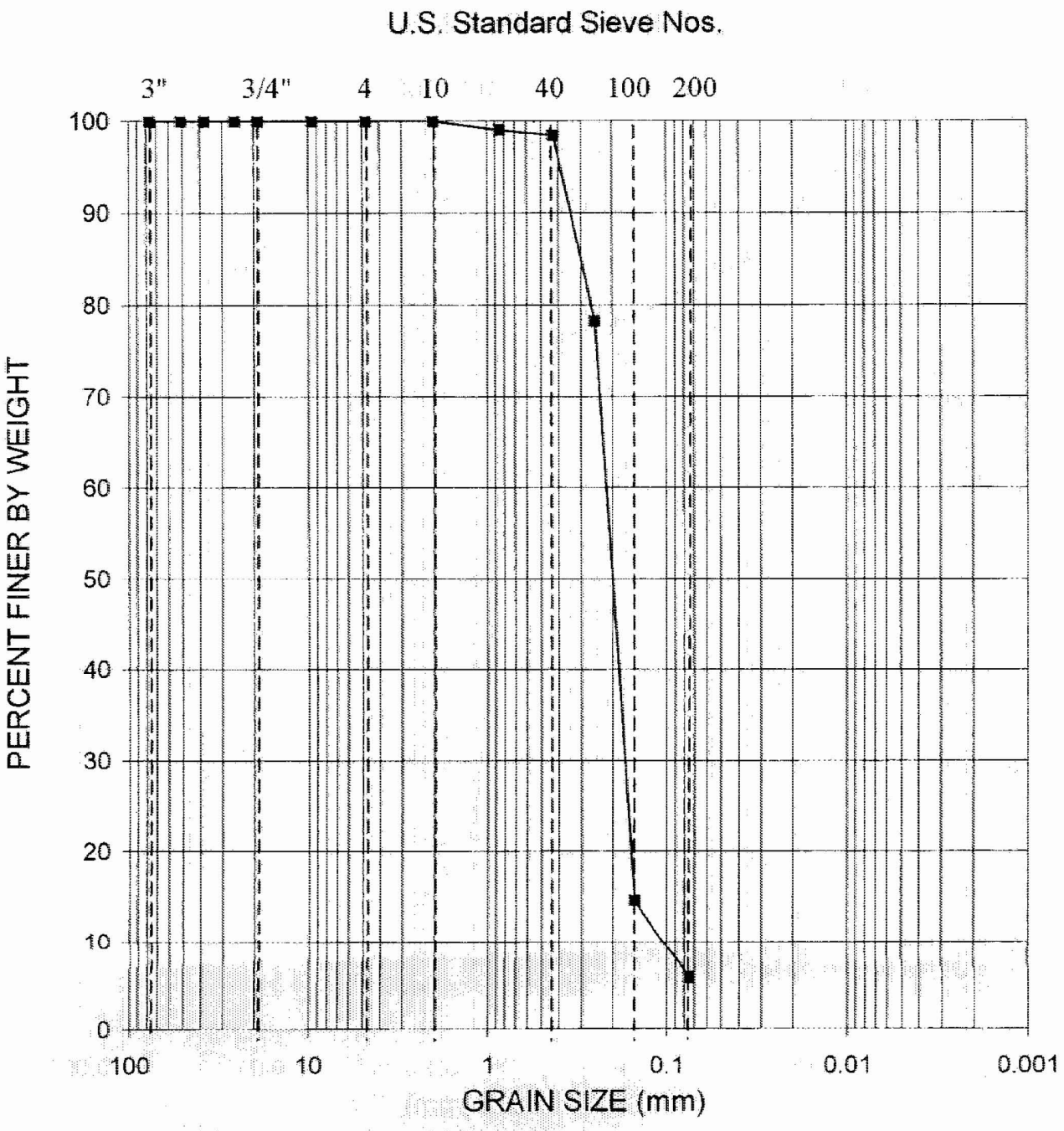
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048 00	Date: 9/28/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-735	43.5	FAT CLAY, trace sand, gray	CH	85	55

Schnabel

Schnabel Engineering



GRADATION CURVE

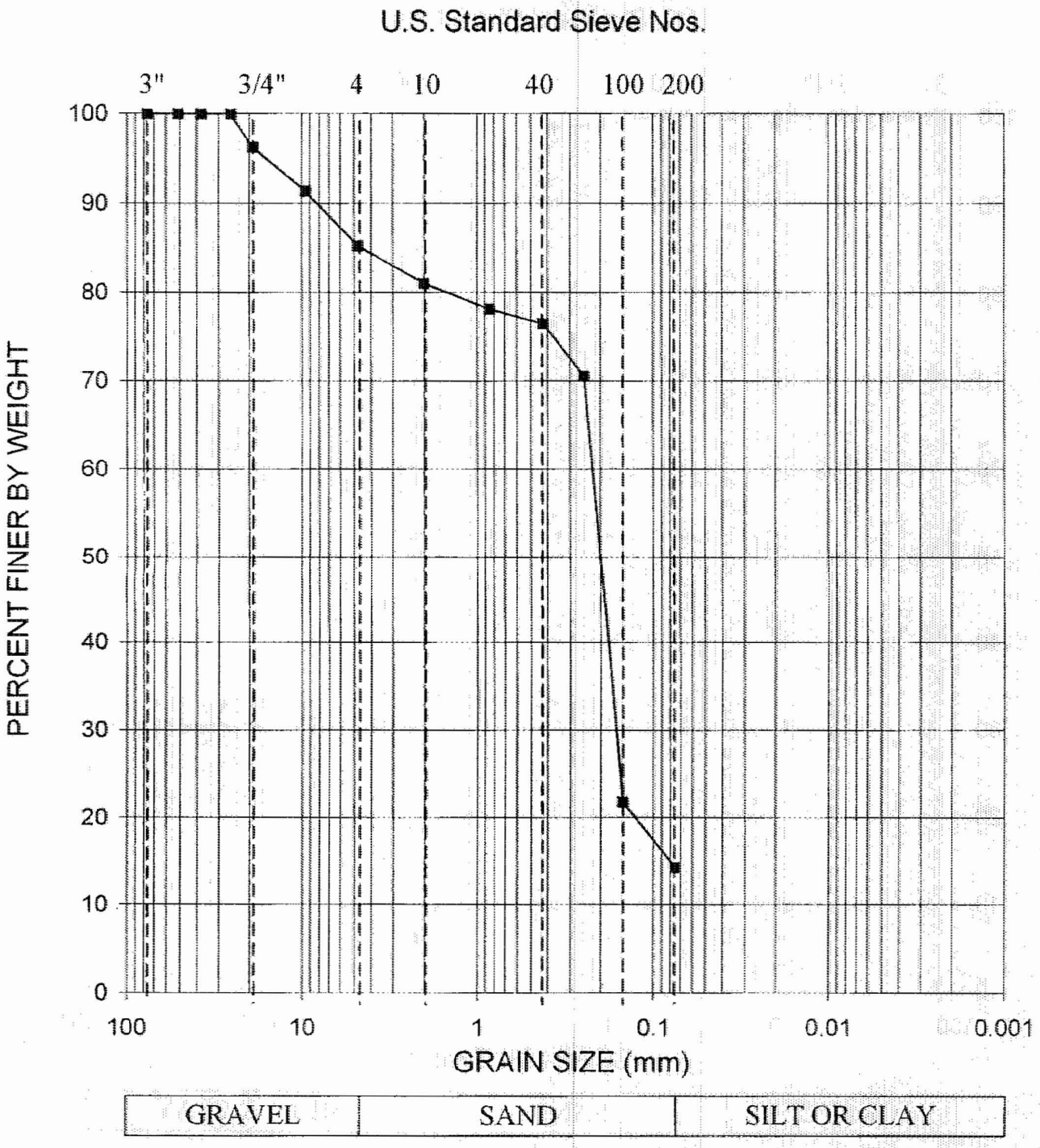
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/22/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-735	58.5	Poorly Graded SAND, with silt, gray	SP-SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 9/22/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-735	73.5	Silty SAND, with shells, dark green	SM		

Schnabel

Schnabel Engineering

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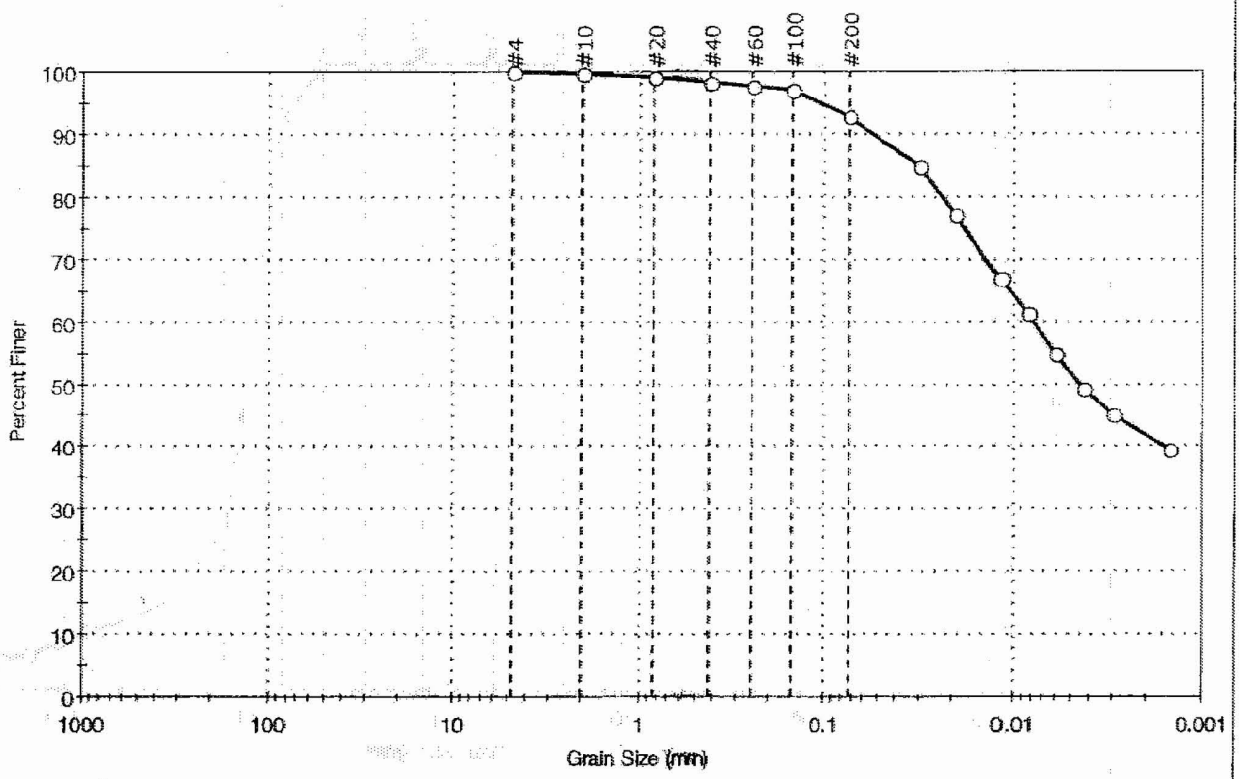
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-737	Sample Type: tube	Tested By:	sam
Sample ID: UD-1	Test Date: 09/22/06	Checked By:	mcm
Depth : 10.5-12.5 ft	Test ID: 97988		
Test Comment: ---			
Sample Description:	Moist, very pale brown clay		
Sample Comment: ---			

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	7.1	92.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.84	99		
#40	0.42	98		
#60	0.25	98		
#100	0.15	97		
#200	0.074	93		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
--	0.0304	85		
--	0.0194	77		
--	0.0115	67		
--	0.0083	61		
--	0.0059	55		
--	0.0043	49		
--	0.0030	45		
--	0.0015	39		

Coefficients

D_{85} = 0.0303 mm	D_{30} = N/A
D_{60} = 0.0077 mm	D_{15} = N/A
D_{50} = 0.0045 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM fat clay (CH)

AASHTO Clayey Soils (A-7-6 (61))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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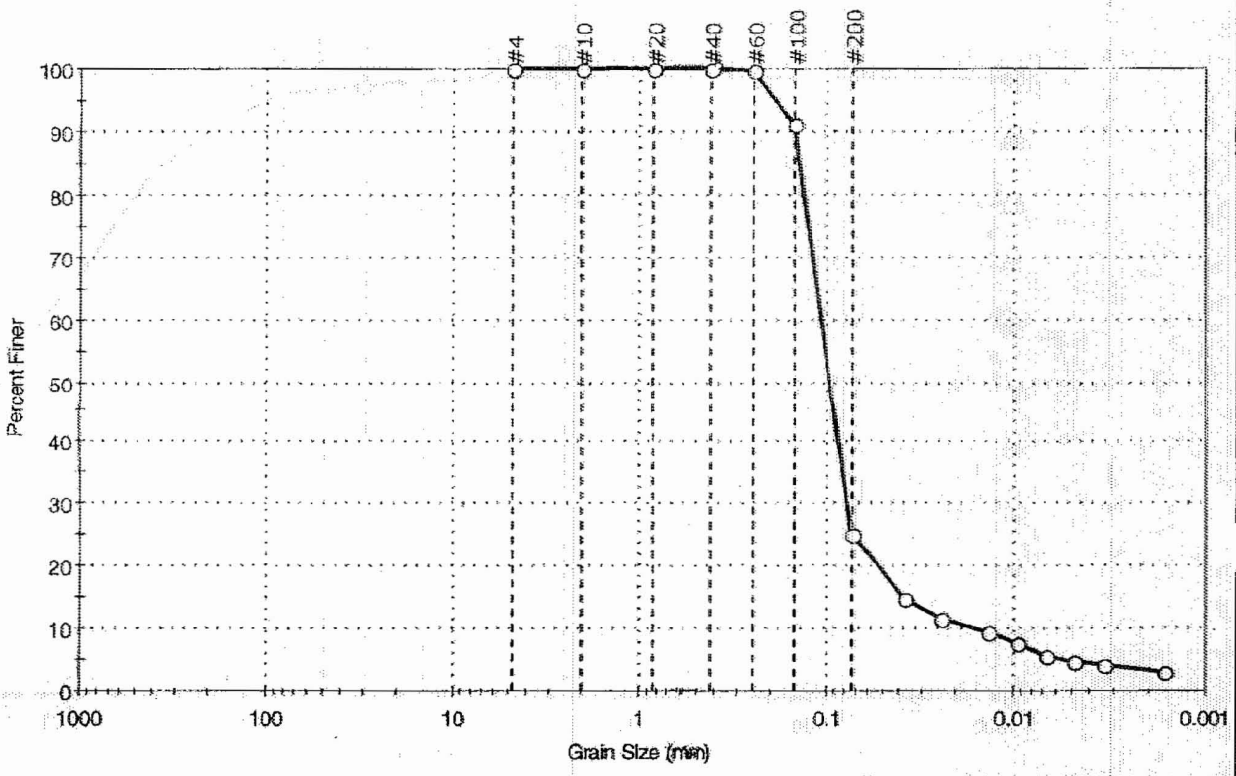
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-738	Sample Type: tube	Tested By:	sam
Sample ID: UD-1	Test Date: 09/22/06	Checked By:	mcm
Depth : 35-37 ft	Test Id: 98023		
Test Comment:	---		
Sample Description:	Moist, dark olive gray silty, clayey sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	—	74.9	25.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.84	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	91		
#200	0.074	25		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0378	15		
---	0.0237	12		
---	0.0136	10		
---	0.0094	8		
---	0.0068	6		
---	0.0048	5		
---	0.0034	4		
---	0.0017	3		

Coefficients

D_{85} = 0.1397 mm D_{30} = 0.0779 mm
D_{60} = 0.1071 mm D_{15} = 0.0387 mm
D_{50} = 0.0964 mm D_{10} = 0.0153 mm
C_u = N/A C_c = N/A

Classification

ASTM Silty, clayey sand (SC-SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---

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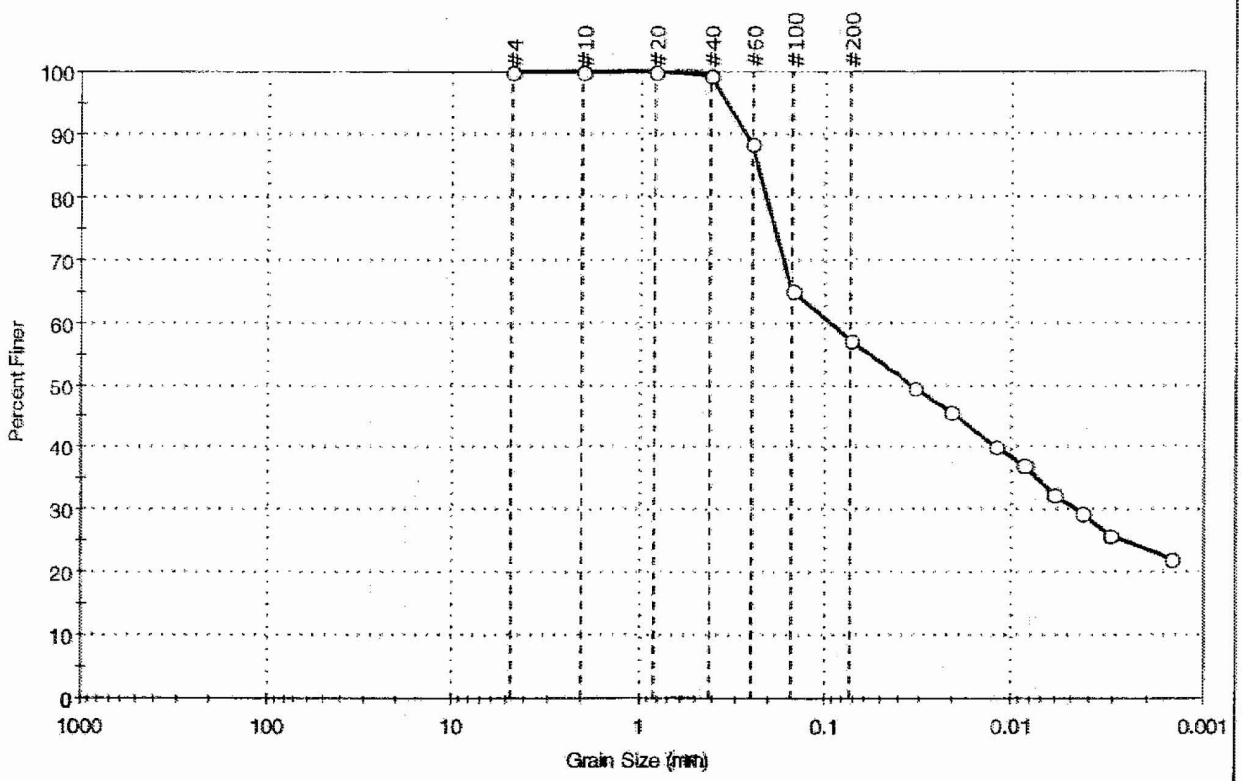
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-743	Sample Type: tube	Tested By:	sam
Sample ID: UD-1	Test Date: 09/28/06	Checked By:	mcm
Depth : 23.5-25.5 ft	Test Id: 97989		
Test Comment: ---			
Sample Description:	Moist, mottled pale yellow, weak red, and brownish yellow clay with sand		
Sample Comment: ---			

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	42.8	57.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.84	100		
#40	0.42	99		
#60	0.25	89		
#100	0.15	65		
#200	0.074	57		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
—	0.0328	50		
—	0.0207	46		
—	0.0122	40		
—	0.0086	37		
—	0.0062	32		
—	0.0044	30		
—	0.0031	26		
—	0.0015	22		

Coefficients

D_{85} = 0.2310 mm	D_{30} = 0.0046 mm
D_{60} = 0.0942 mm	D_{15} = N/A
D_{50} = 0.0343 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Sandy lean clay (CL)

AASHTO Clayey Soils (A-6 (13))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : HARD

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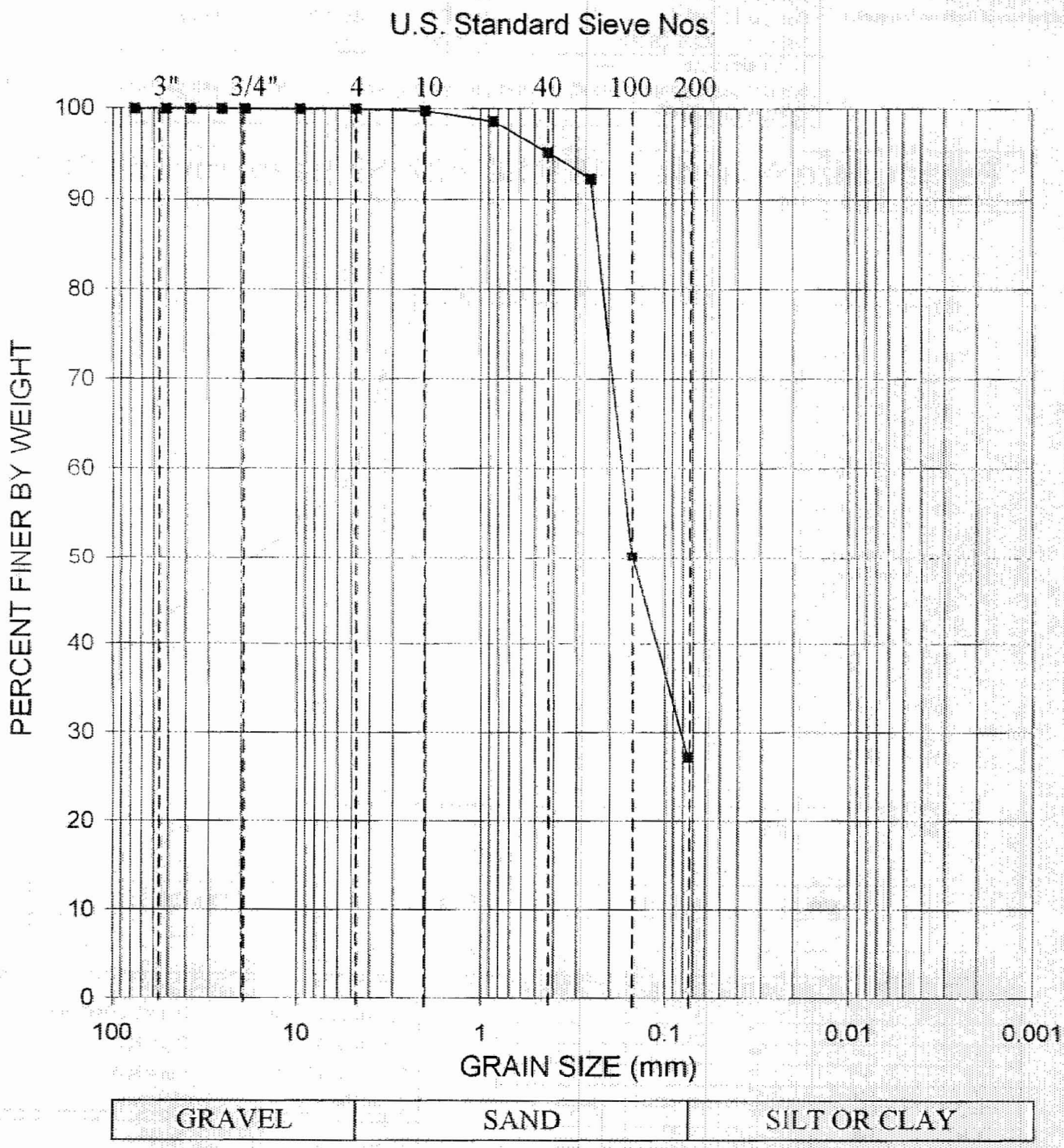

GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 10/4/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-746	7.5	Silty SAND, red-brown	SM		

Schnabel Engineering

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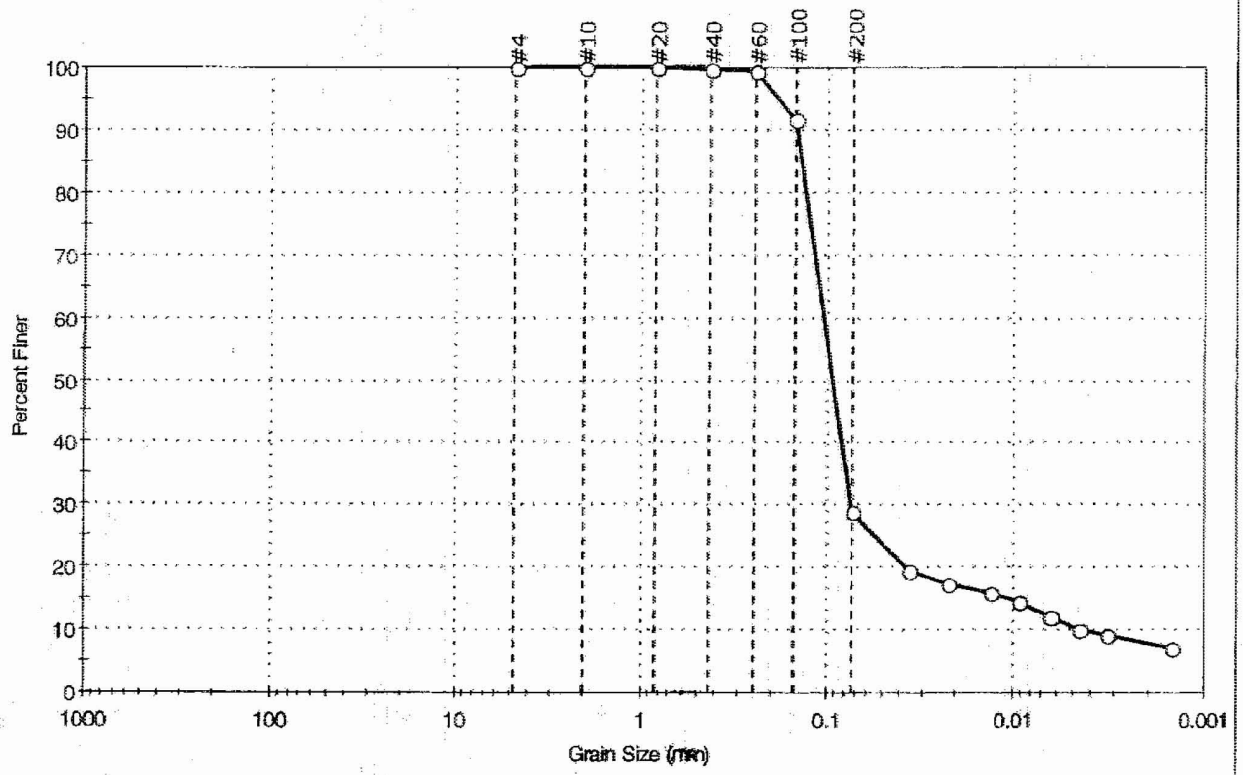
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-746	Sample Type: tube	Tested By:	sam
Sample ID: S-6	Test Date: 11/08/06	Checked By:	mcm
Depth : 13.5-15.5 ft	Test Id: 102400		
Test Comment: ---			
Sample Description:	Moist, dark olive gray silty, clayey sand		
Sample Comment: ---			

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	—	71.2	28.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.84	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	92		
#200	0.074	29		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0362	19		
---	0.0220	18		
---	0.0132	16		
---	0.0092	15		
---	0.0065	12		
---	0.0046	10		
---	0.0033	9		
---	0.0015	7		

Coefficients

D_{85} = 0.1383 mm	D_{30} = 0.0750 mm
D_{60} = 0.1047 mm	D_{15} = 0.0103 mm
D_{50} = 0.0937 mm	D_{10} = 0.0047 mm
C_u = N/A	C_c = N/A

Classification

ASTM Silty, clayey sand (SC-SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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