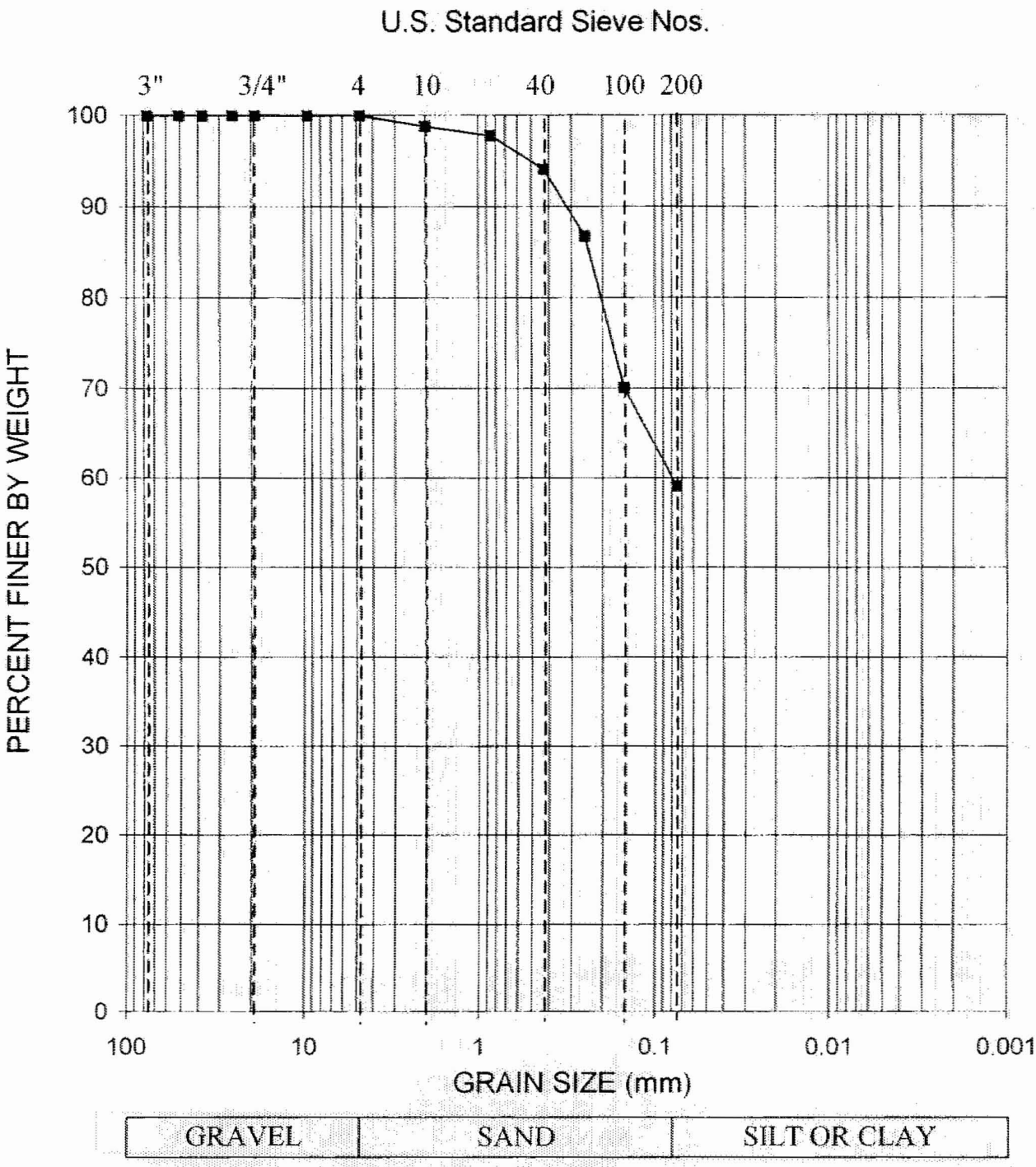

GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 9/12/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-407	183.5	Sandy ELASTIC SILT, dark green	MH	154	57

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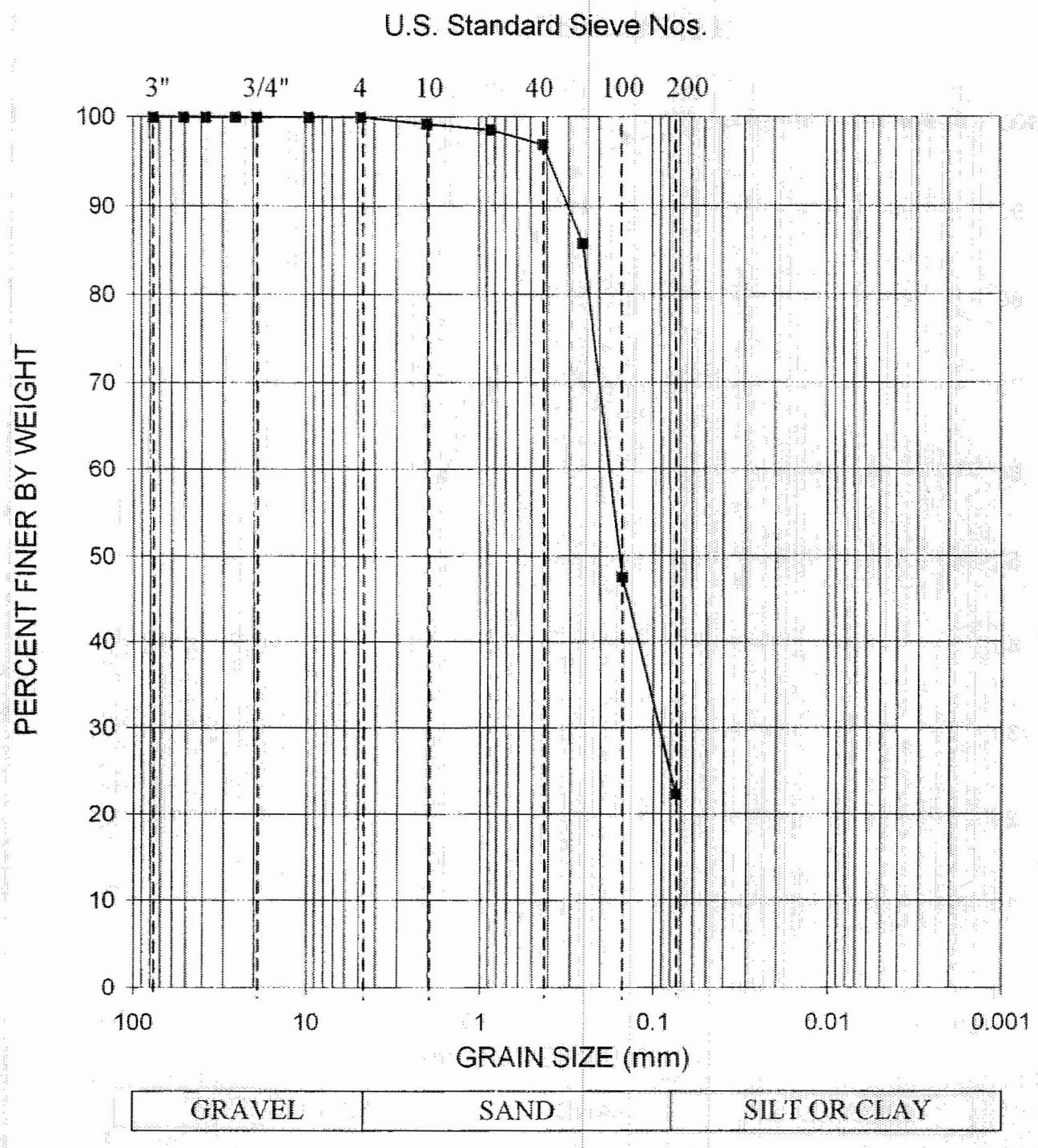
Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/12/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-407	198.5	Silty SAND, contains shells, green	SM		

Schnabel

Schnabel Engineering

GeoTesting express
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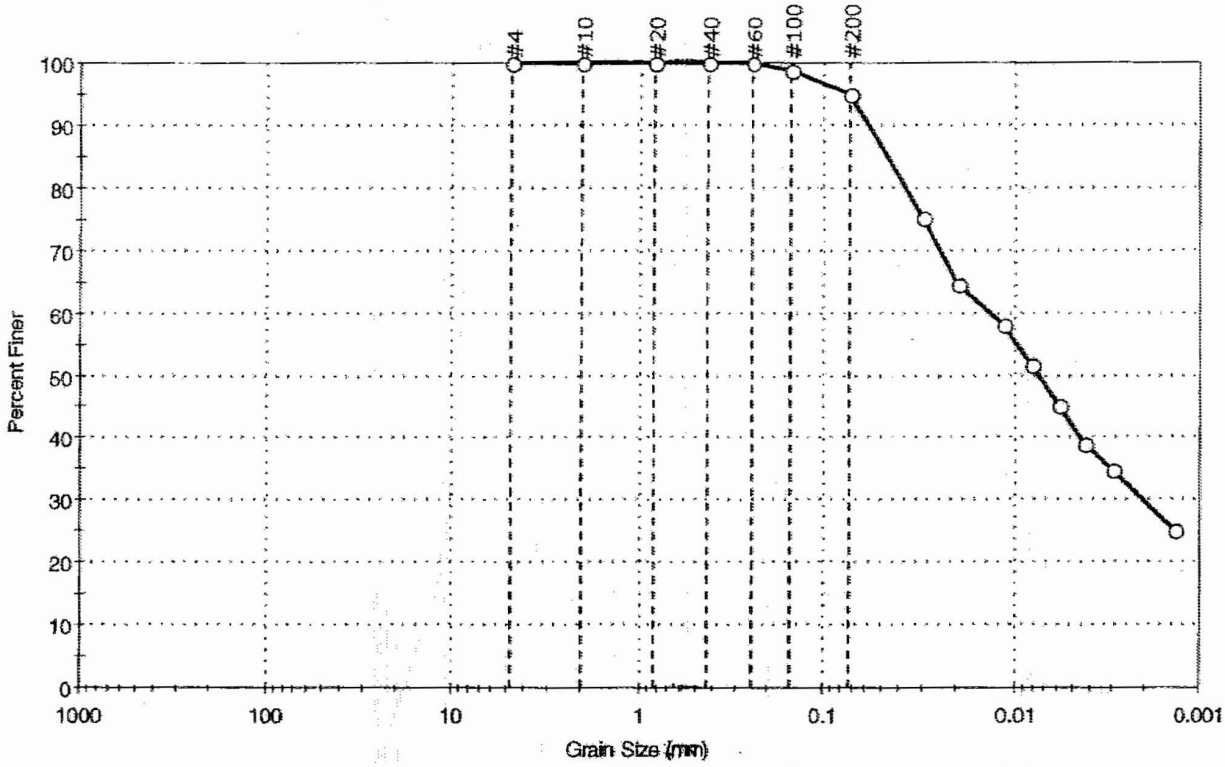
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-411	Sample Type: tube	Tested By:	sam
Sample ID: S-8	Test Date: 10/17/06	Checked By:	mcm
Depth : 23.5-25.5 ft	Test Id: 100604		
Test Comment: ---			
Sample Description:	Moist, dark gray organic clay with sand		
Sample Comment: ---			

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



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	5.0	95.0

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	100		
#60	0.25	100		
#100	0.15	99		
#200	0.074	95		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0304	75		
---	0.0195	64		
---	0.0114	58		
---	0.0082	52		
---	0.0059	45		
---	0.0043	39		
---	0.0030	35		
---	0.0014	25		

Coefficients

D_{85}=0.0472 mm D_{30}=0.0020 mm
D_{60}=0.0134 mm D_{15}=N/A
D_{50}=0.0076 mm D_{10}=N/A
C_u =N/A C_c =N/A

Classification

ASTM organic clay (OH)

AASHTO Clayey Soils (A-7-6 (48))

Sample/Test Description

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

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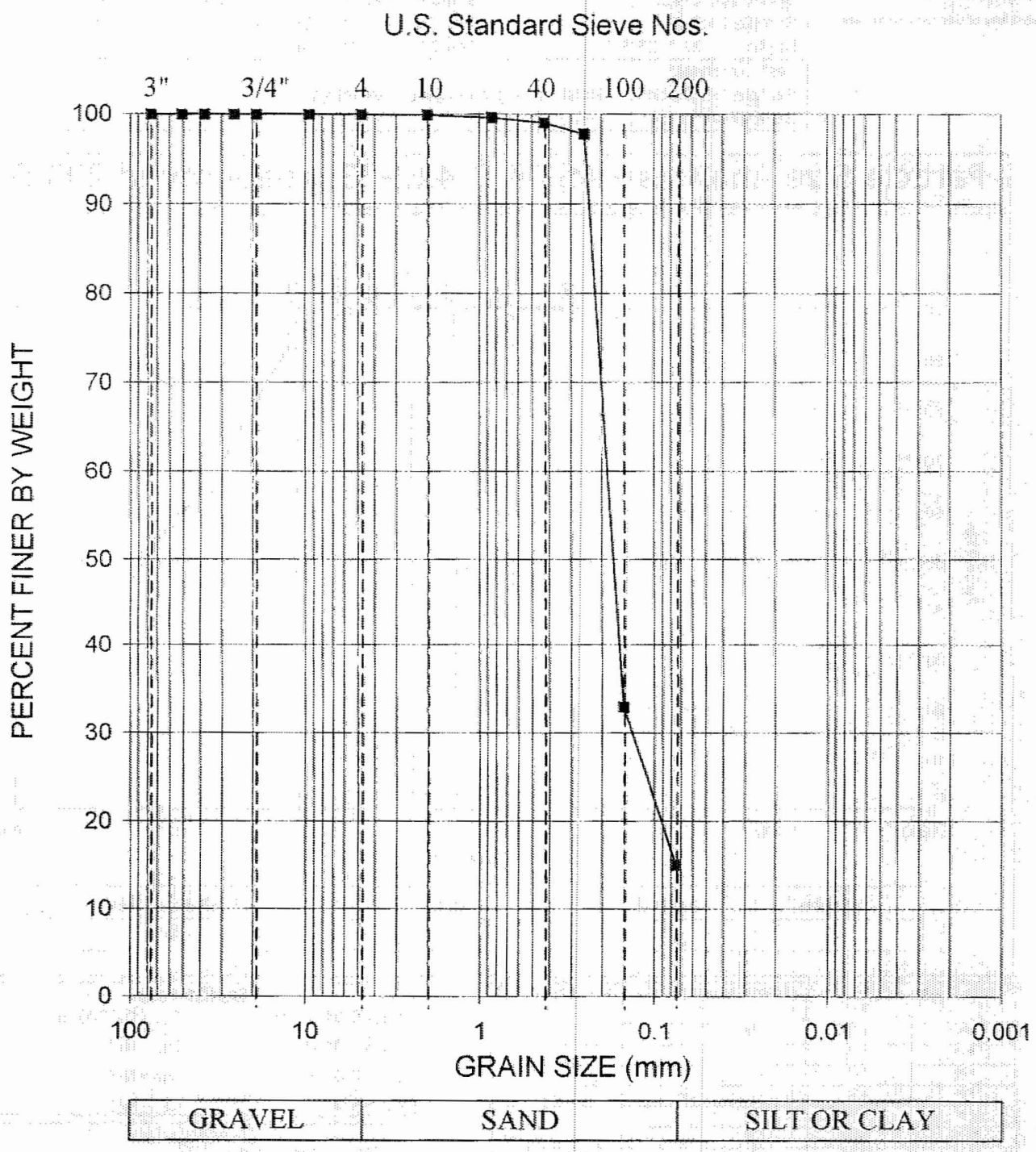

GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	10/3/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-411	43.5	Silty SAND, light green	SM			

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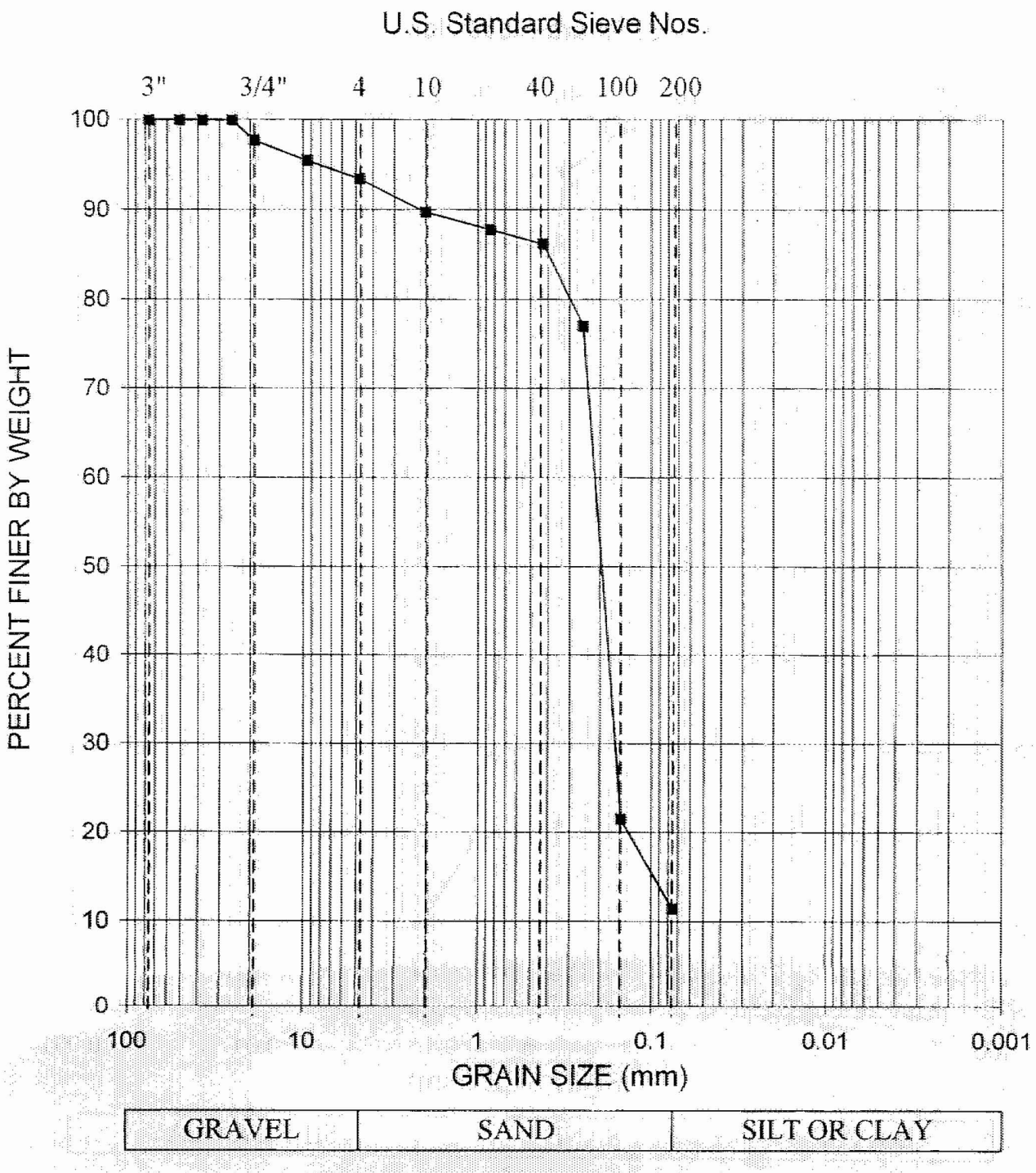
Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 10/3/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-411	63.5	Poorly Graded SAND, with silt, trace shells, gray	SP-SM		

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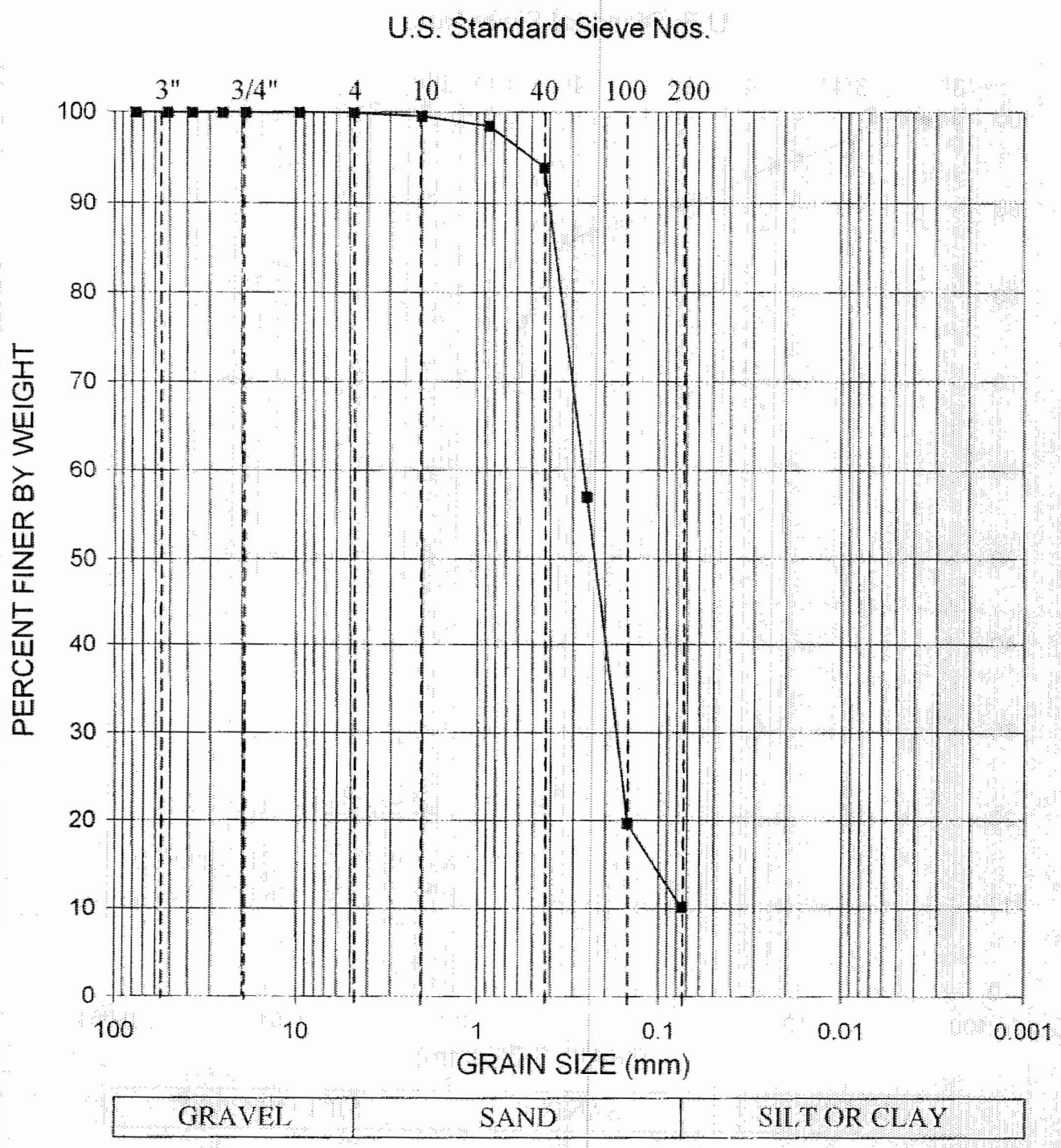
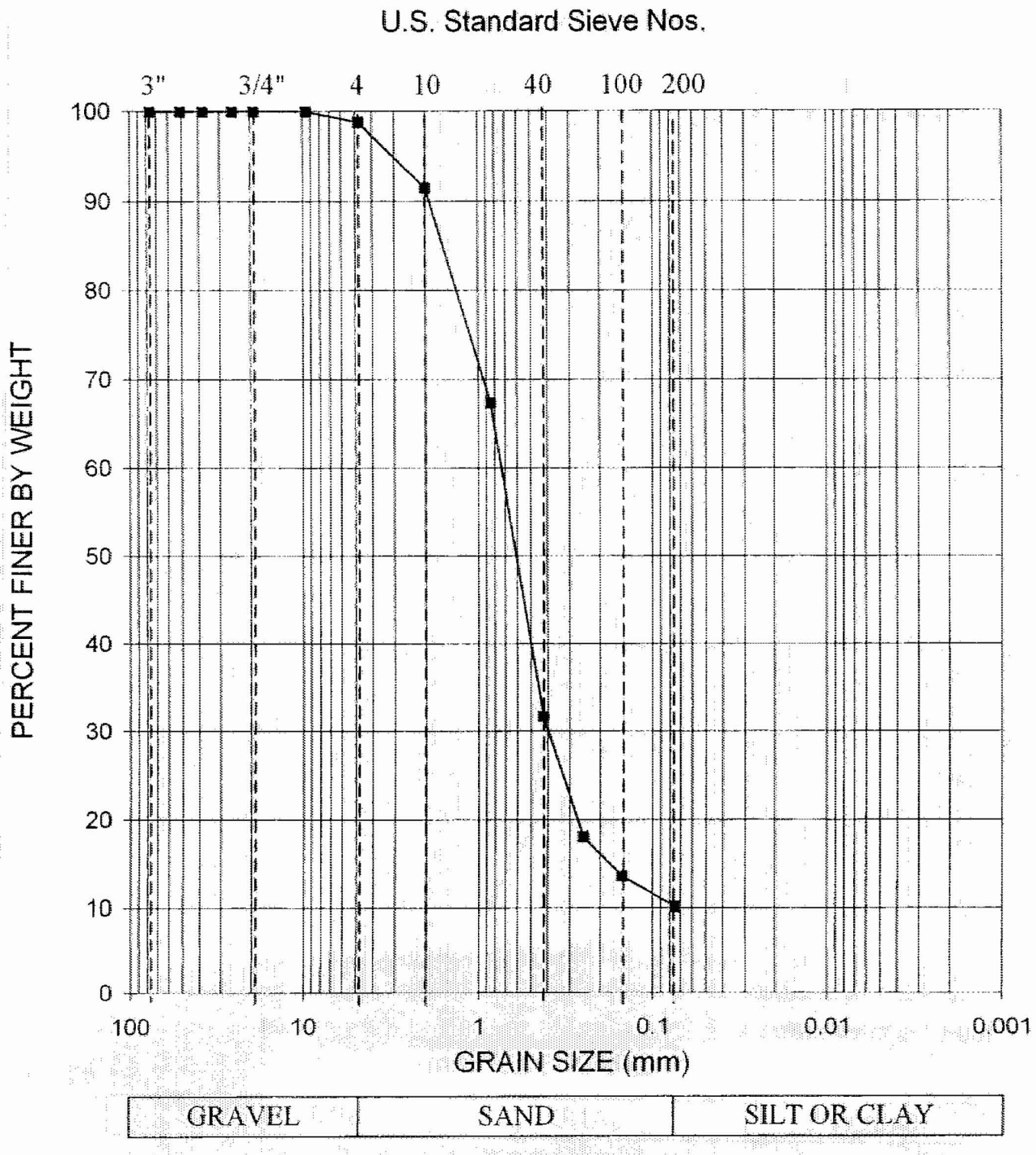


GRADATION CURVE

ASTM D422

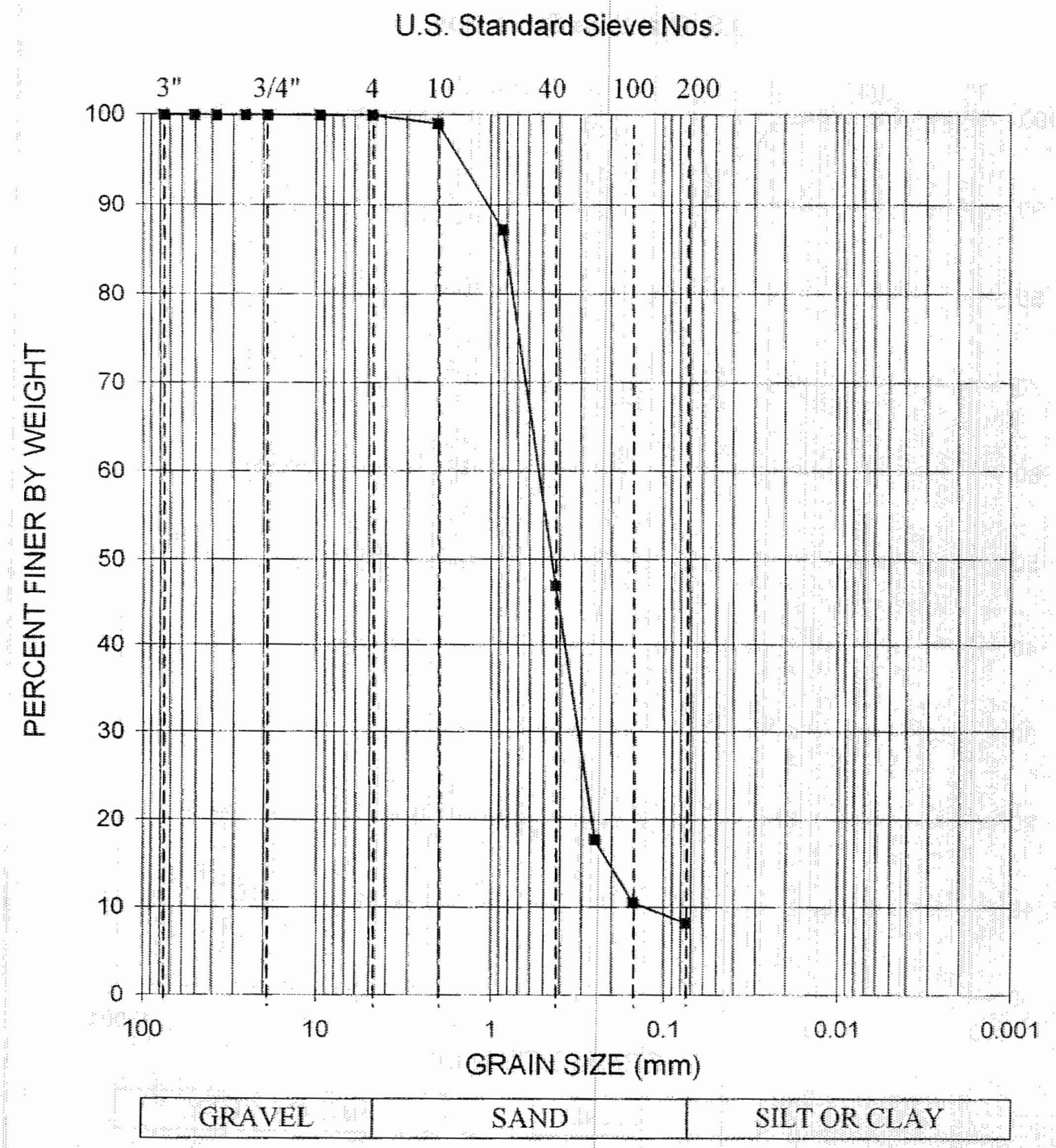
Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 9/13/2006	
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-413	7.5	Poorly Graded SAND, with silt, tan	SP-SM			Schnabel Engineering



GRADATION CURVE

ASTM D422

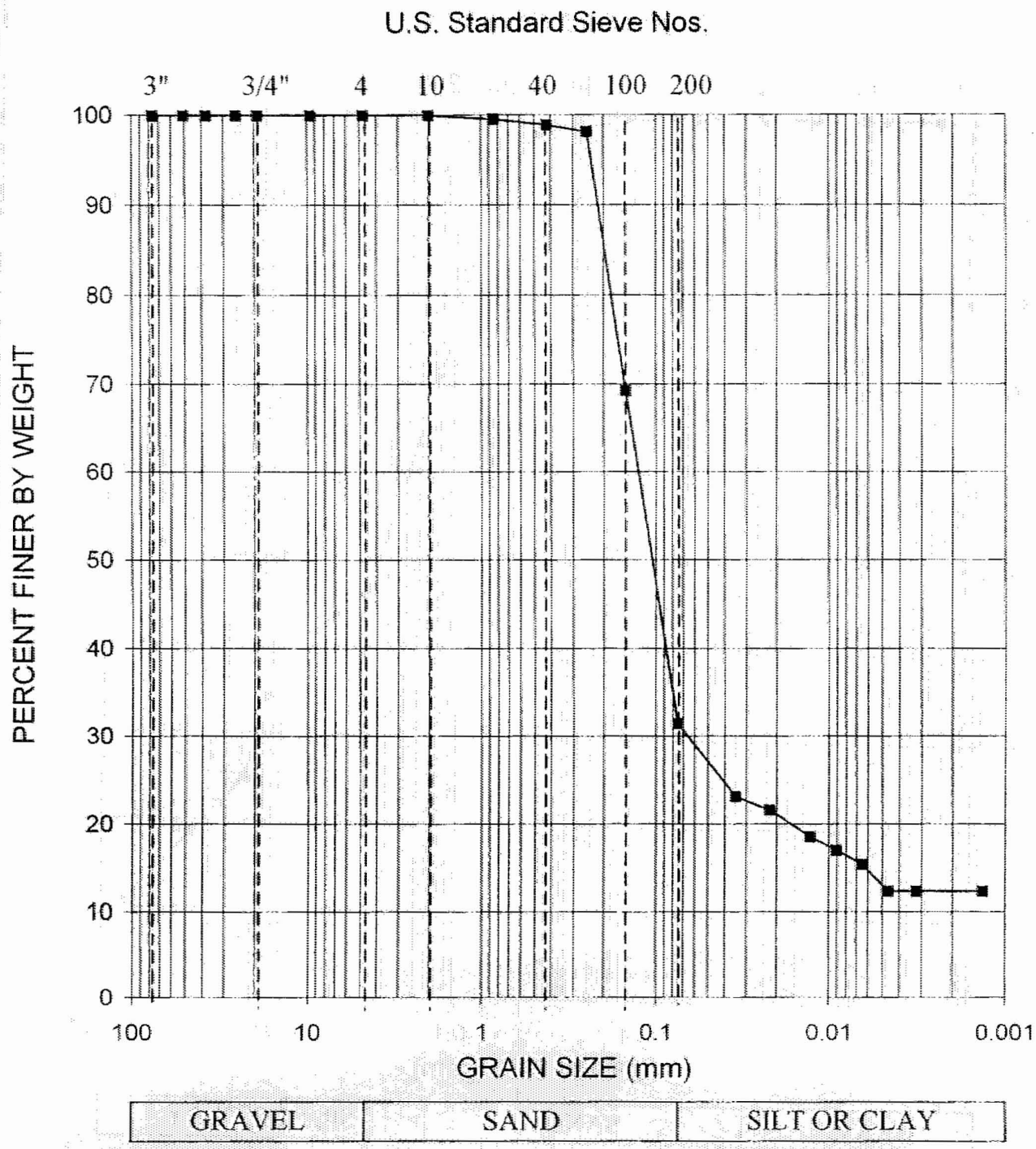
Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 9/12/2006	
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	Schnabel Engineering
B-413	18.5	Poorly Graded SAND, with silt, brown	SP-SM			



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	9/12/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-413	33.5	Poorly Graded SAND, with silt, 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:	9/19/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-413	48.5	Silty SAND, light brown	SM	NP	NP

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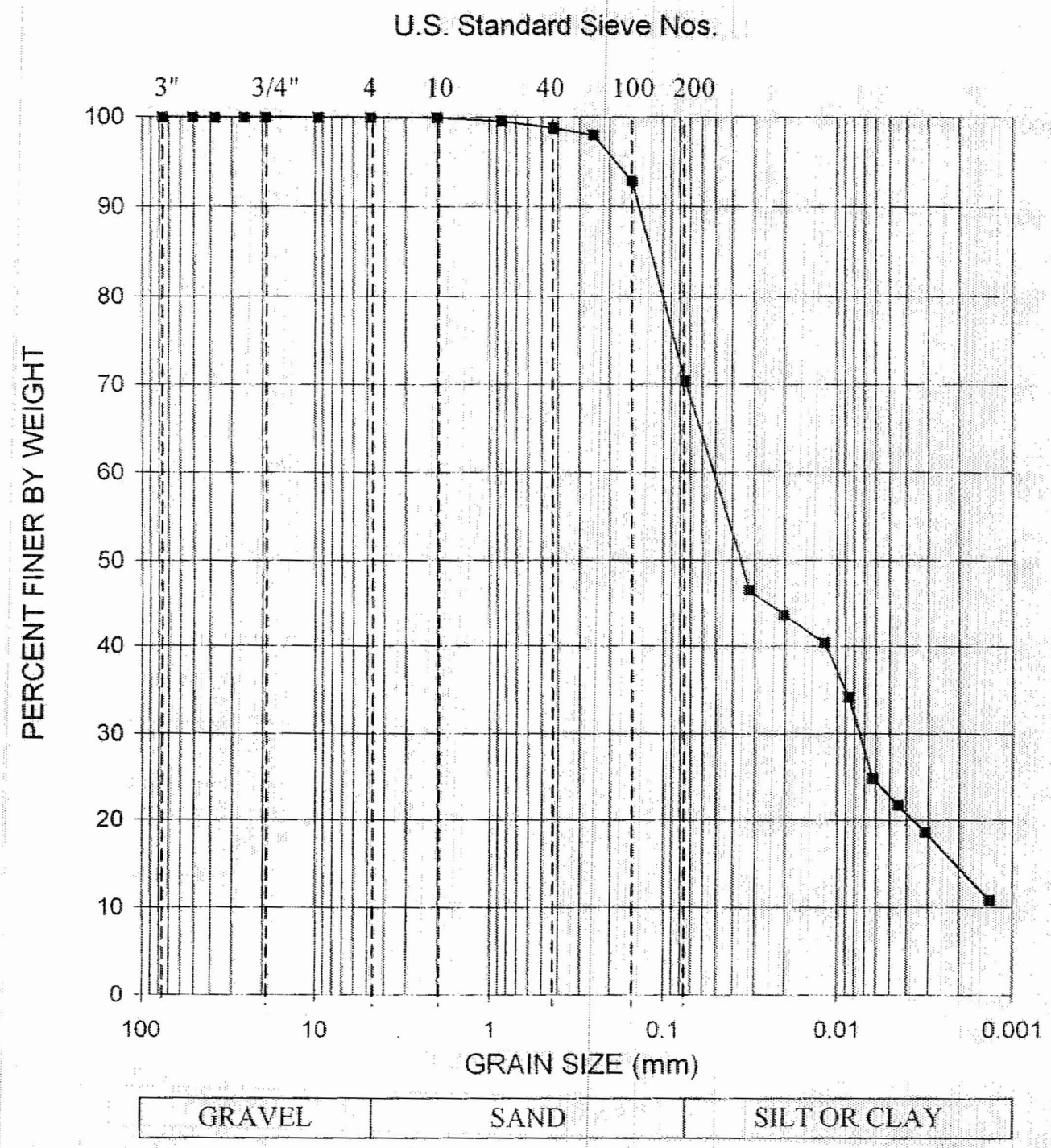

GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/14/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-413	58.5	ELASTIC SILT, with sand, gray	MH	58	29

Schnabel

Schnabel Engineering

GeoTesting express
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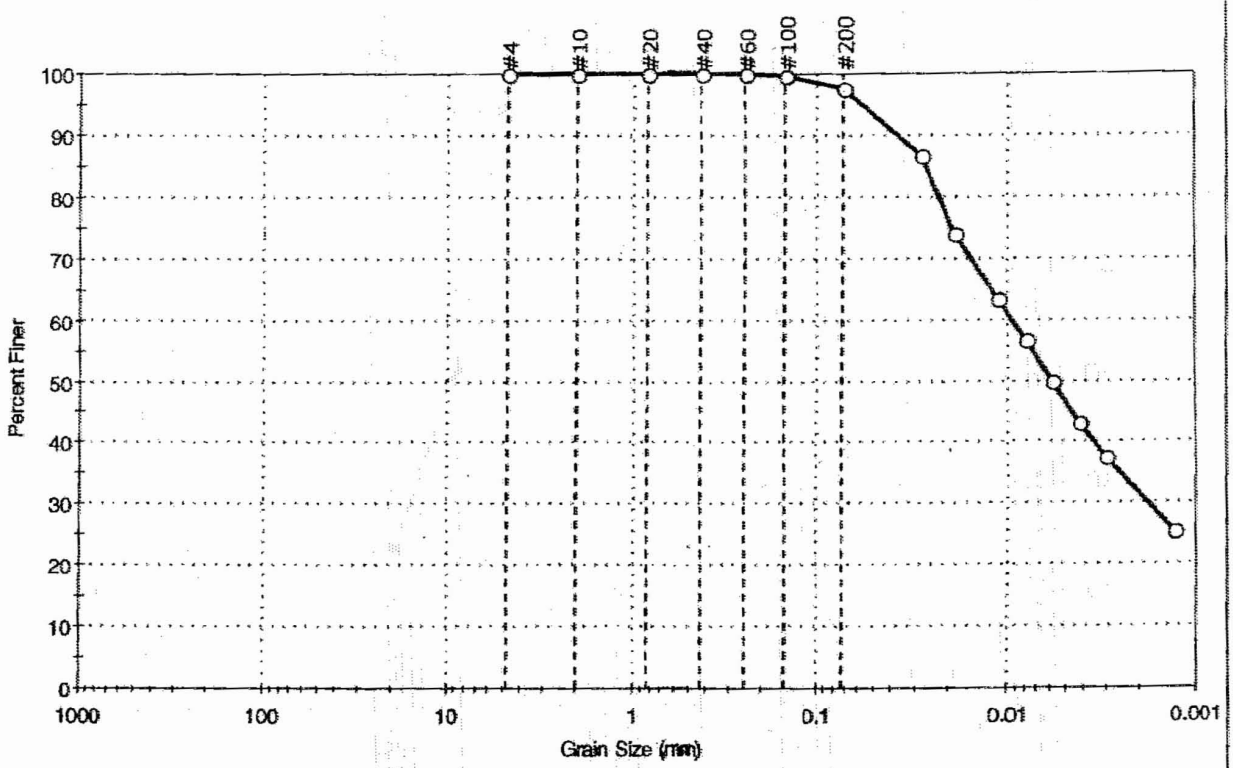
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-413	Sample Type: tube	Tested By:	sam
Sample ID: S-17	Test Date: 11/07/06	Checked By:	mcm
Depth : 73.0-75.0 ft	Test Id: 98060		

Test Comment: ---
Sample Description: Moist, dark greenish gray clay
Sample Comment: ---

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



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	0.0	2.5	97.5

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	98		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0285	87		
---	0.0187	74		
---	0.0111	64		
---	0.0080	57		
---	0.0058	50		
---	0.0042	43		
---	0.0030	37		
---	0.0013	25		

Coefficients

D_{85} = 0.0269 mm D_{30} = 0.0018 mm
D_{60} = 0.0094 mm D_{15} = N/A
D_{50} = 0.0059 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM fat clay (CH)

AASHTO Clayey Soils (A-7-6 (51))

Sample/Test Description

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

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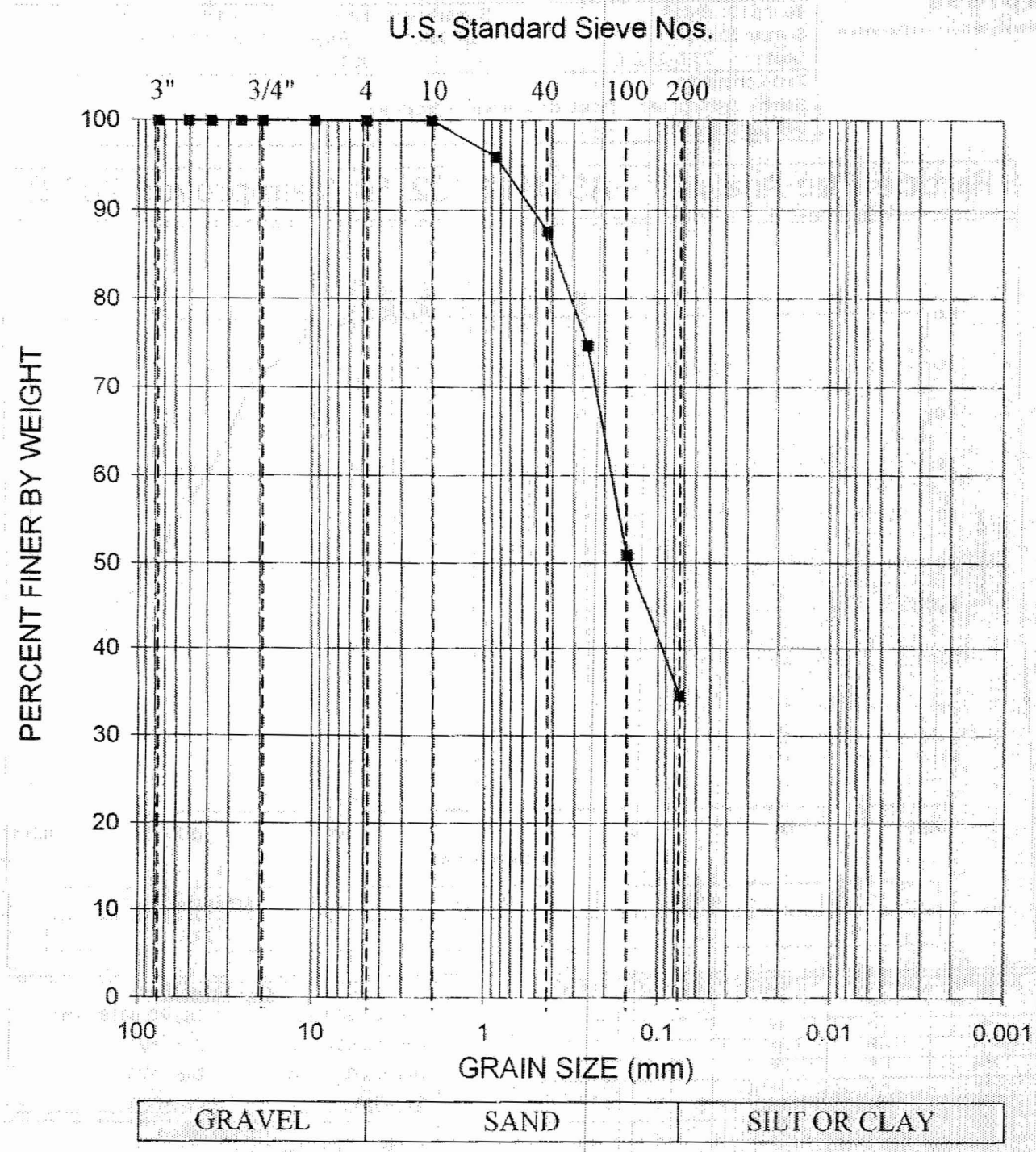


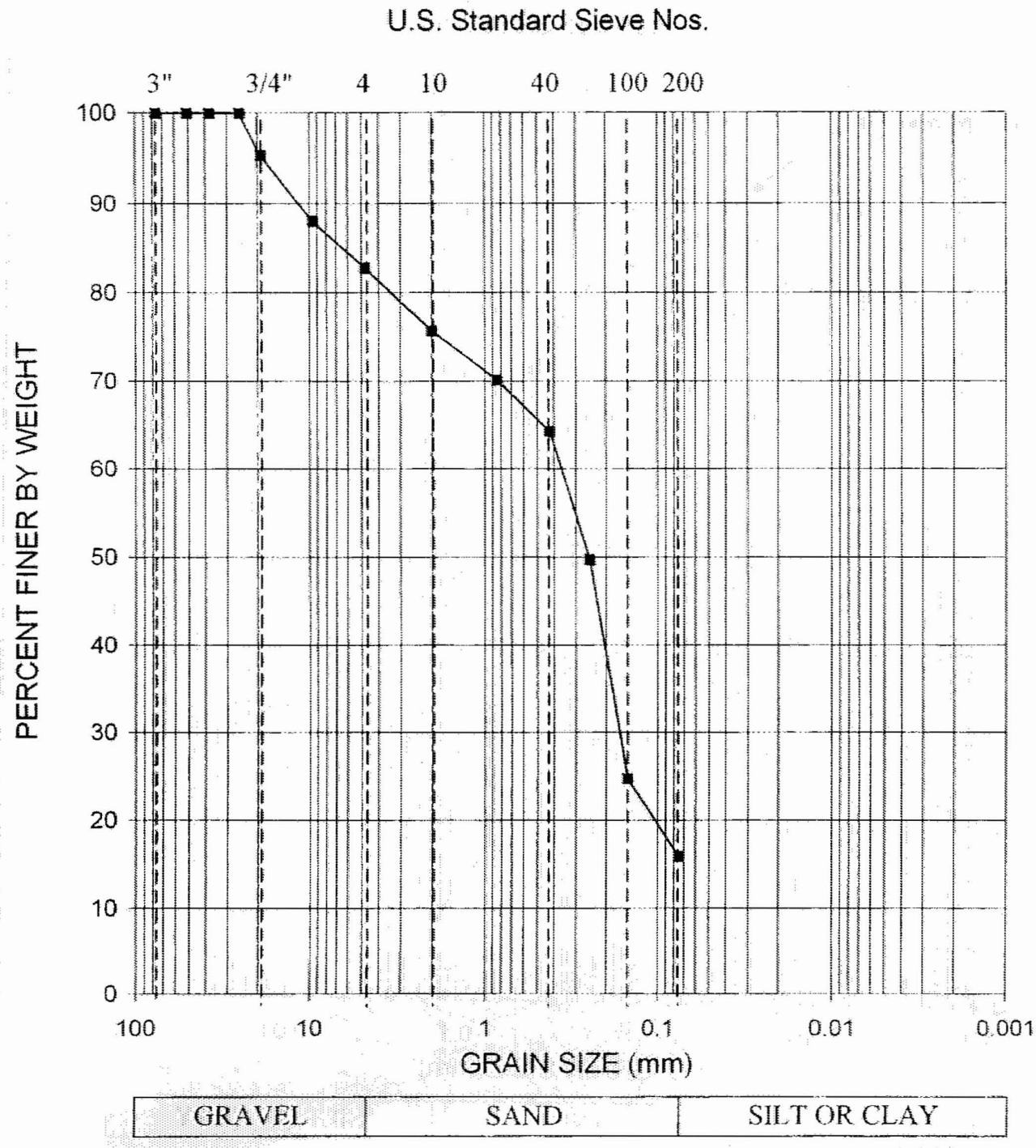
GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	9/12/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-413	78.5	Silty SAND, dark gray	SM			

Schnabel

Schnabel Engineering



GRADATION CURVE

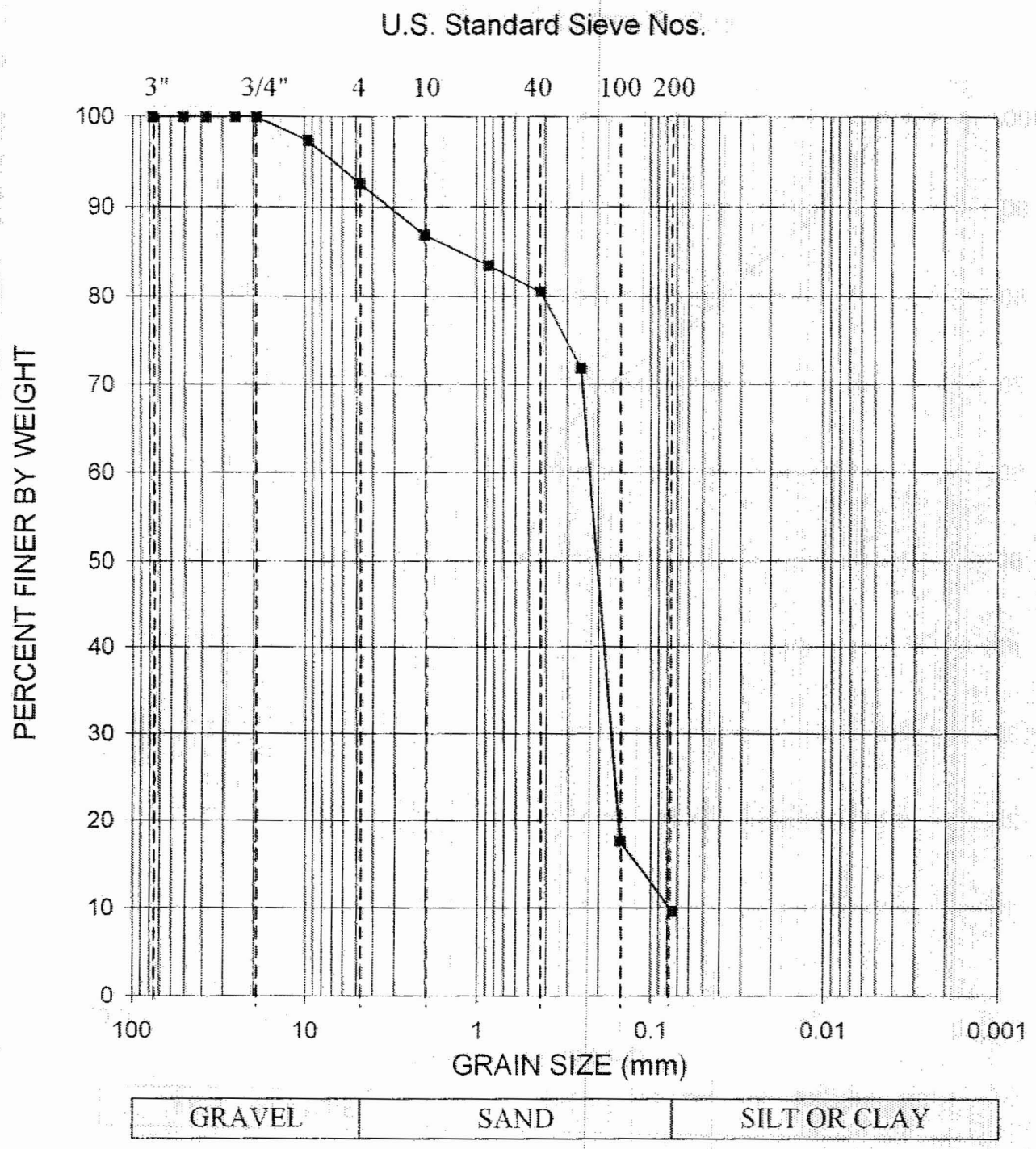
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/12/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-413	98.5	Silty SAND, with shells, gray	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:	9/12/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-413	108.5	Poorly Graded SAND, with silt, trace shells, gray	SP-SM		

Schnabel

Schnabel Engineering