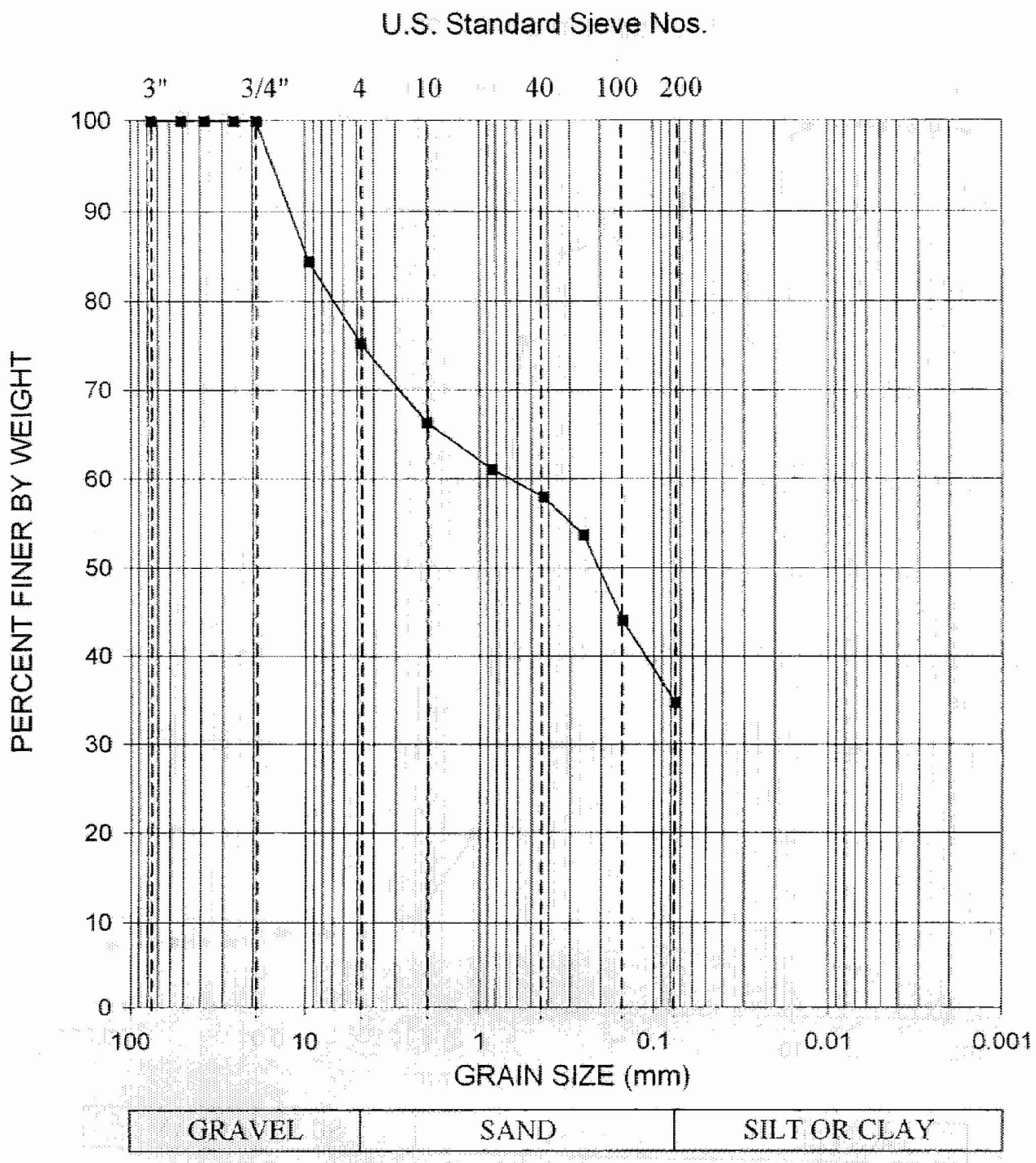


GRADATION CURVE

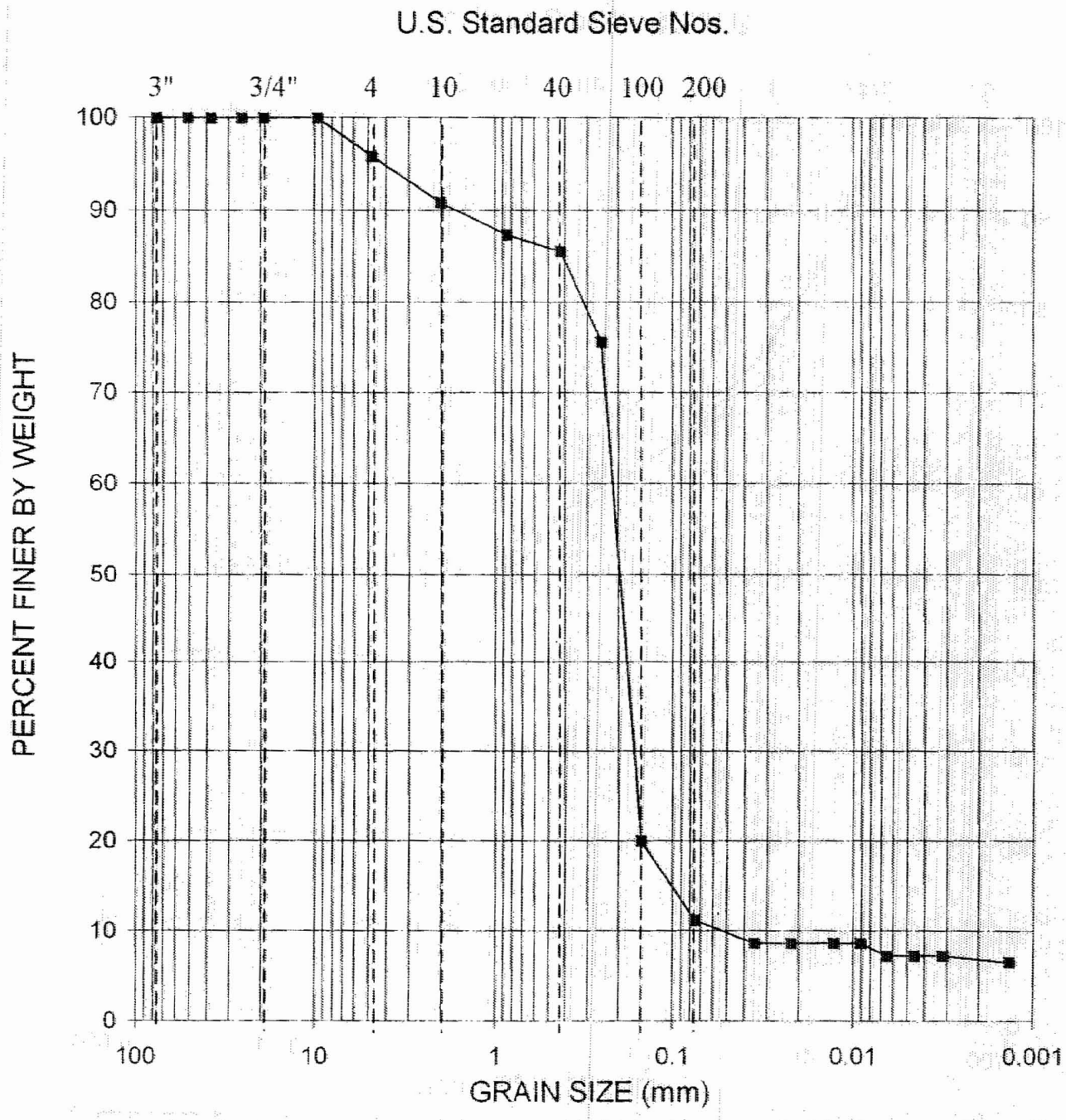
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/15/2006

Boring No.	Depth (ft)	Sample Description	Class	LL	PI
B-427	93.5	Silty SAND, with shells, gray	SM		

Schnabel

Schnabel Engineering



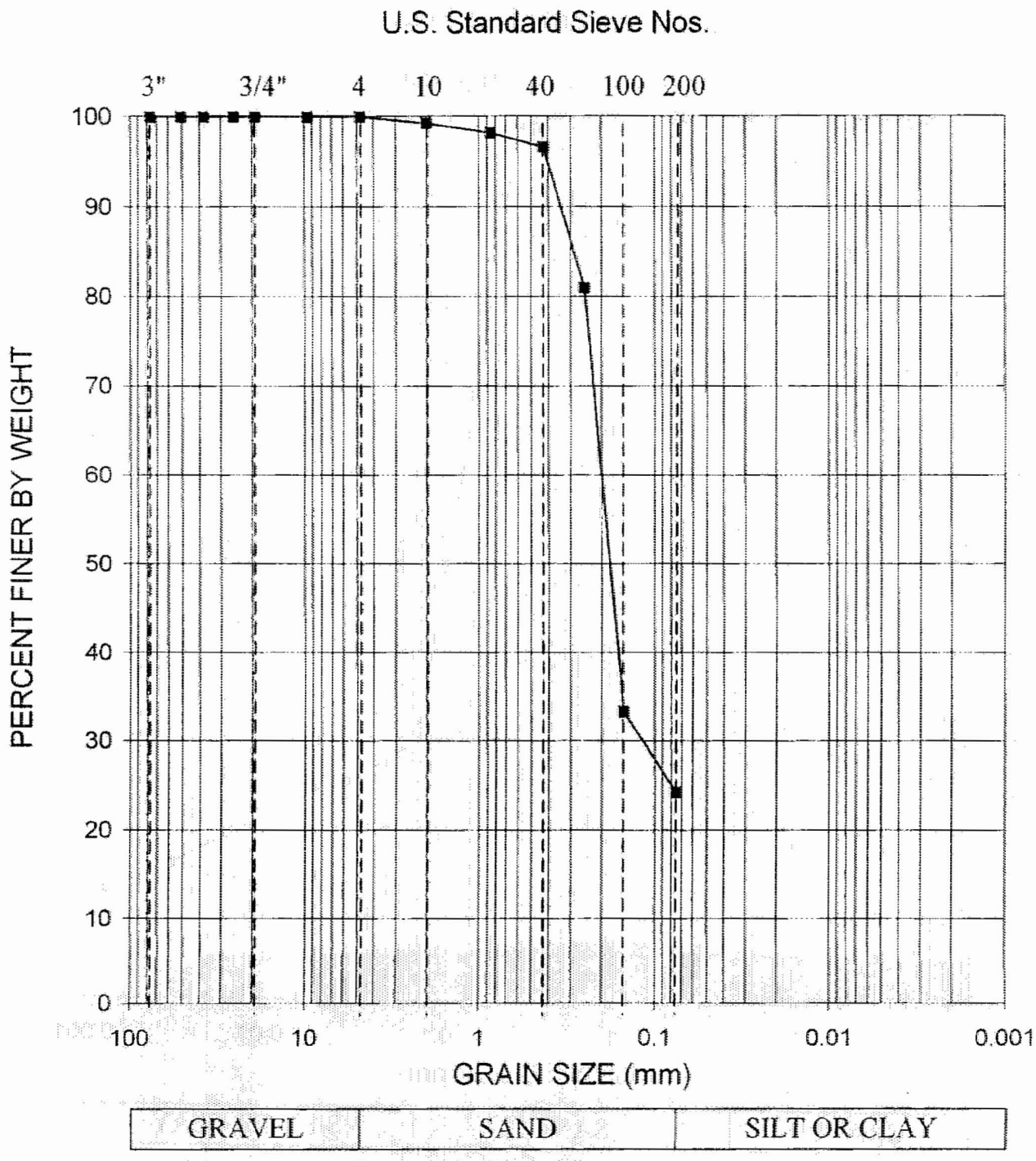
GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.	06120048.00	Date:	9/22/2006
Boring No.	Depth (ft)	Sample Description	Class	LL	PI	
B-427	103.5	Poorly Graded SAND, with silt, trace shells, gray	SP-SM			

Schnabel

Schnabel Engineering



GRADATION CURVE

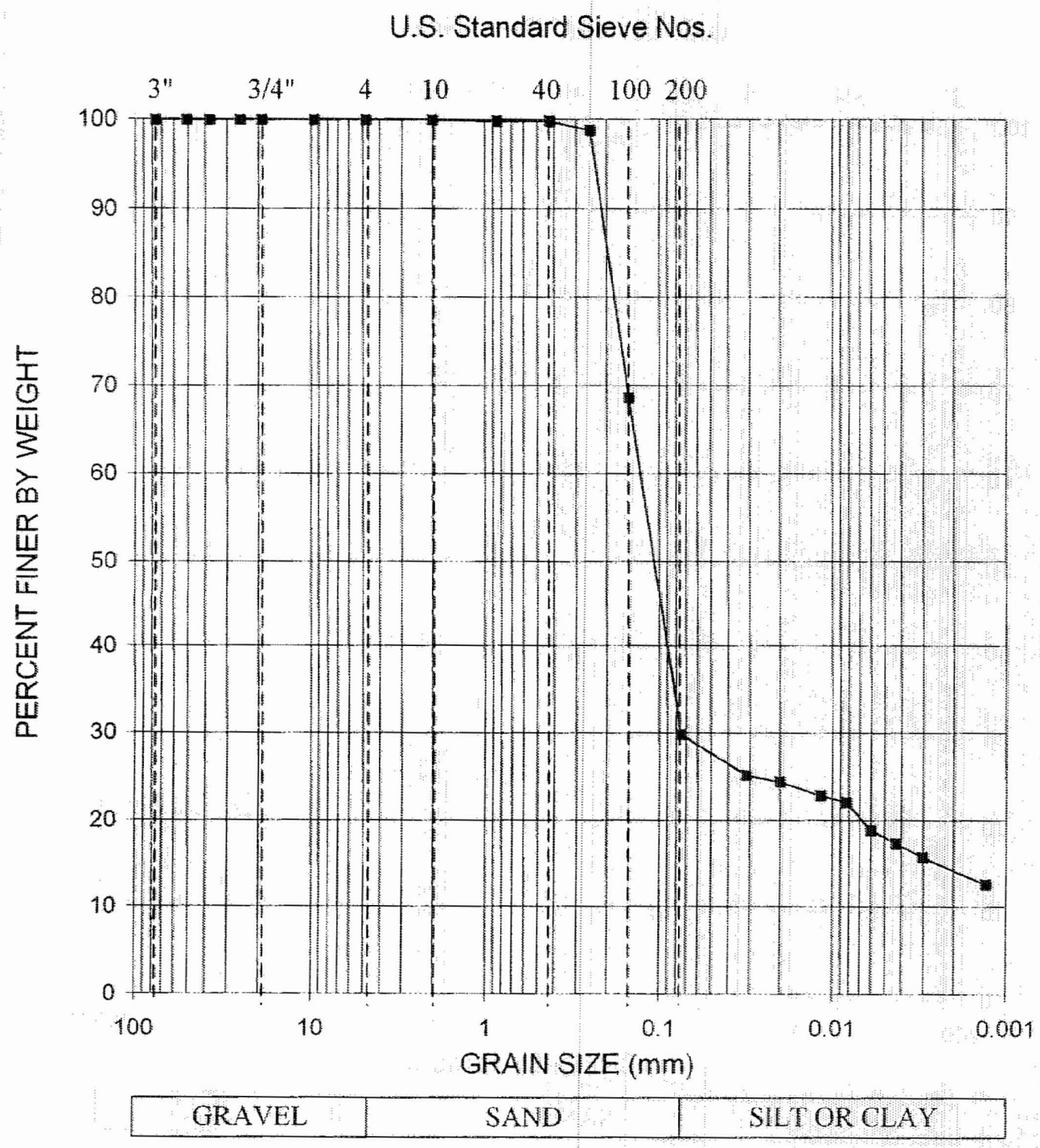
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/15/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-427	118.5	Silty SAND, contains shells, gray	SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

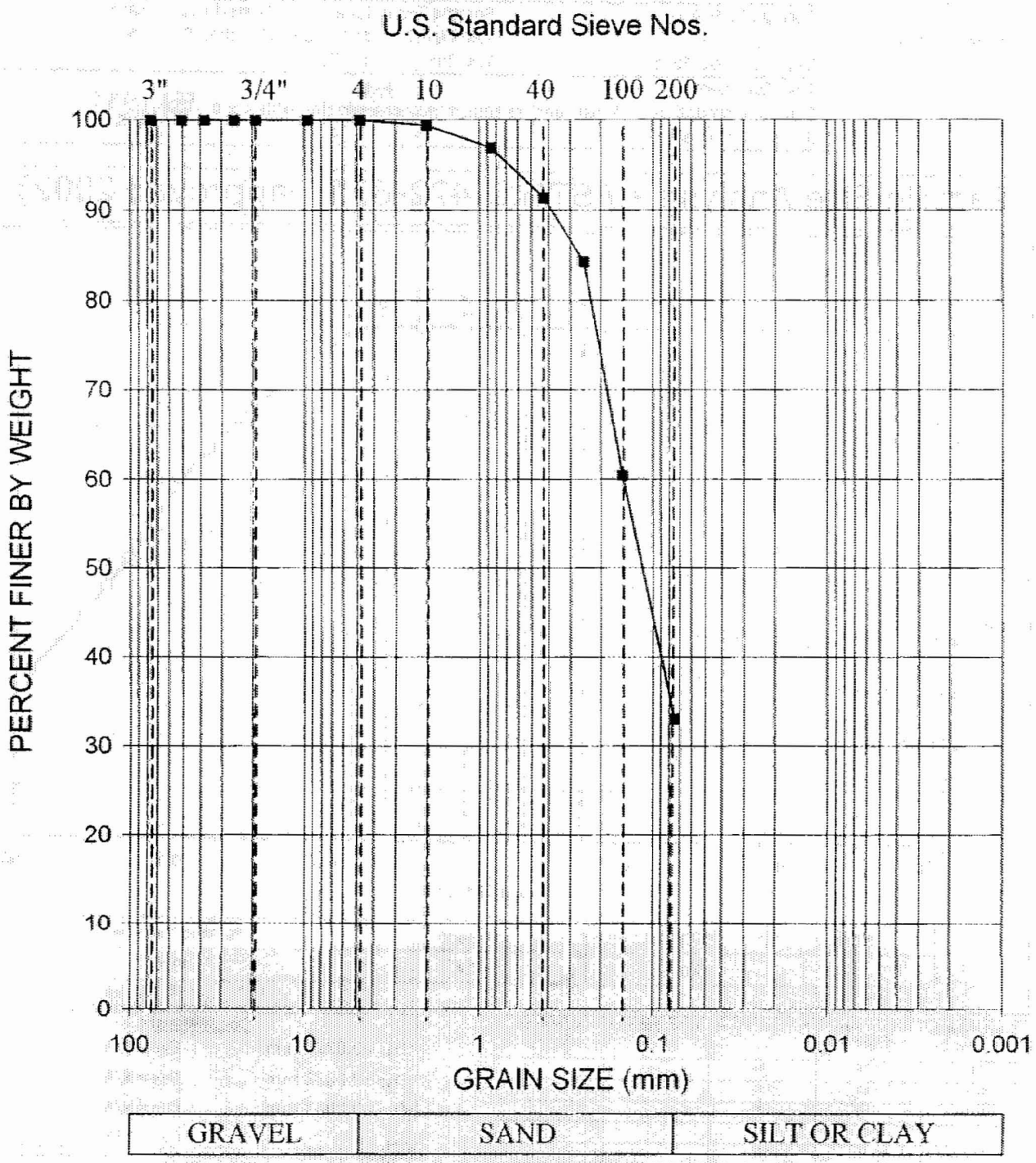
ASTM D422

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

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-427	138.5	Silty SAND, contains 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:	9/15/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-427	148.5	Silty SAND, contains shells, green	SM		

Schnabel

Schnabel Engineering

GeoTesting express
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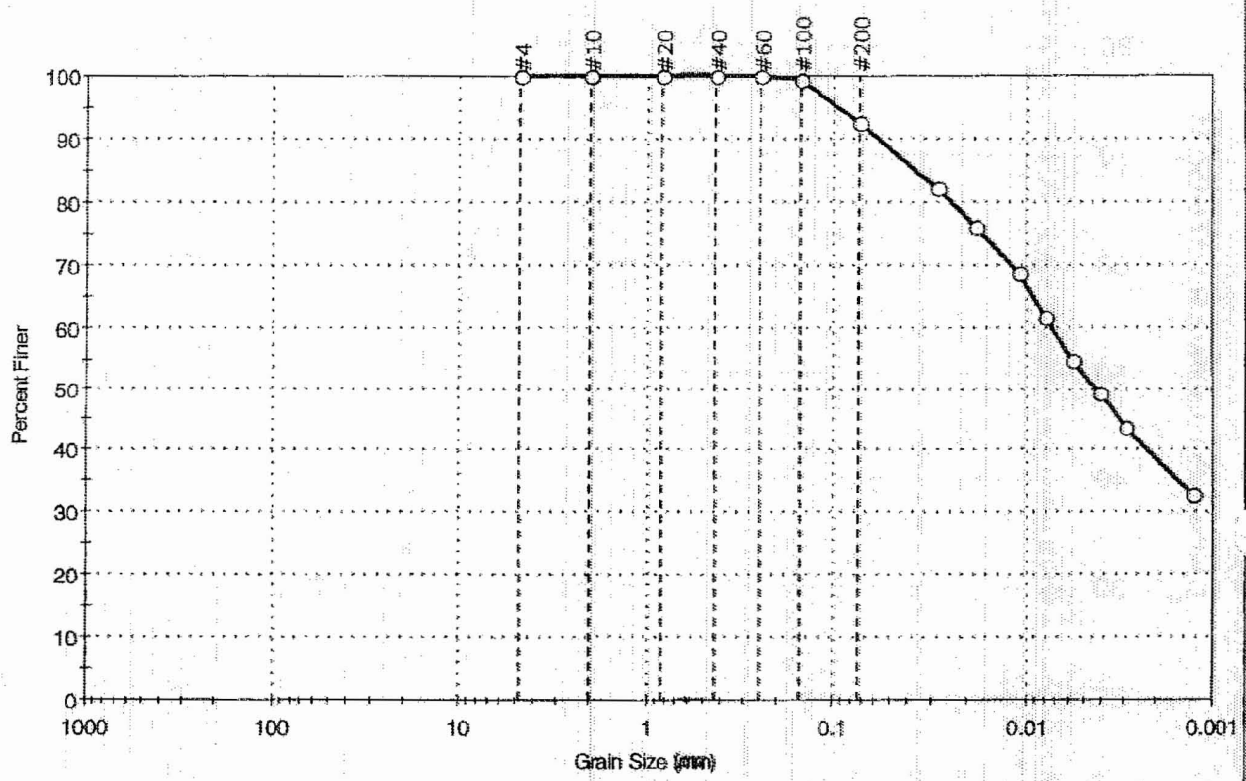
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-428	Sample Type: tube	Tested By:	sam
Sample ID:---	Test Date: 10/27/06	Checked By:	mcm
Depth : 60-62 ft	Test Id: 101390		
Test Comment: ---			
Sample Description:	Moist, dark greenish gray ~~organic~~ fat clay with sand BB/4/6/07		
Sample Comment:	---		

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



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	0.0	7.4	92.6

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	93		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0292	82		
---	0.0185	76		
---	0.0108	69		
---	0.0079	62		
---	0.0057	55		
---	0.0041	49		
---	0.0029	44		
---	0.0013	33		

Coefficients

D_{85} = 0.0371 mm	D_{30} = N/A
D_{60} = 0.0072 mm	D_{15} = N/A
D_{50} = 0.0043 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM ~~organic~~ fat clay (~~O~~H) C BB/4/6/07

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

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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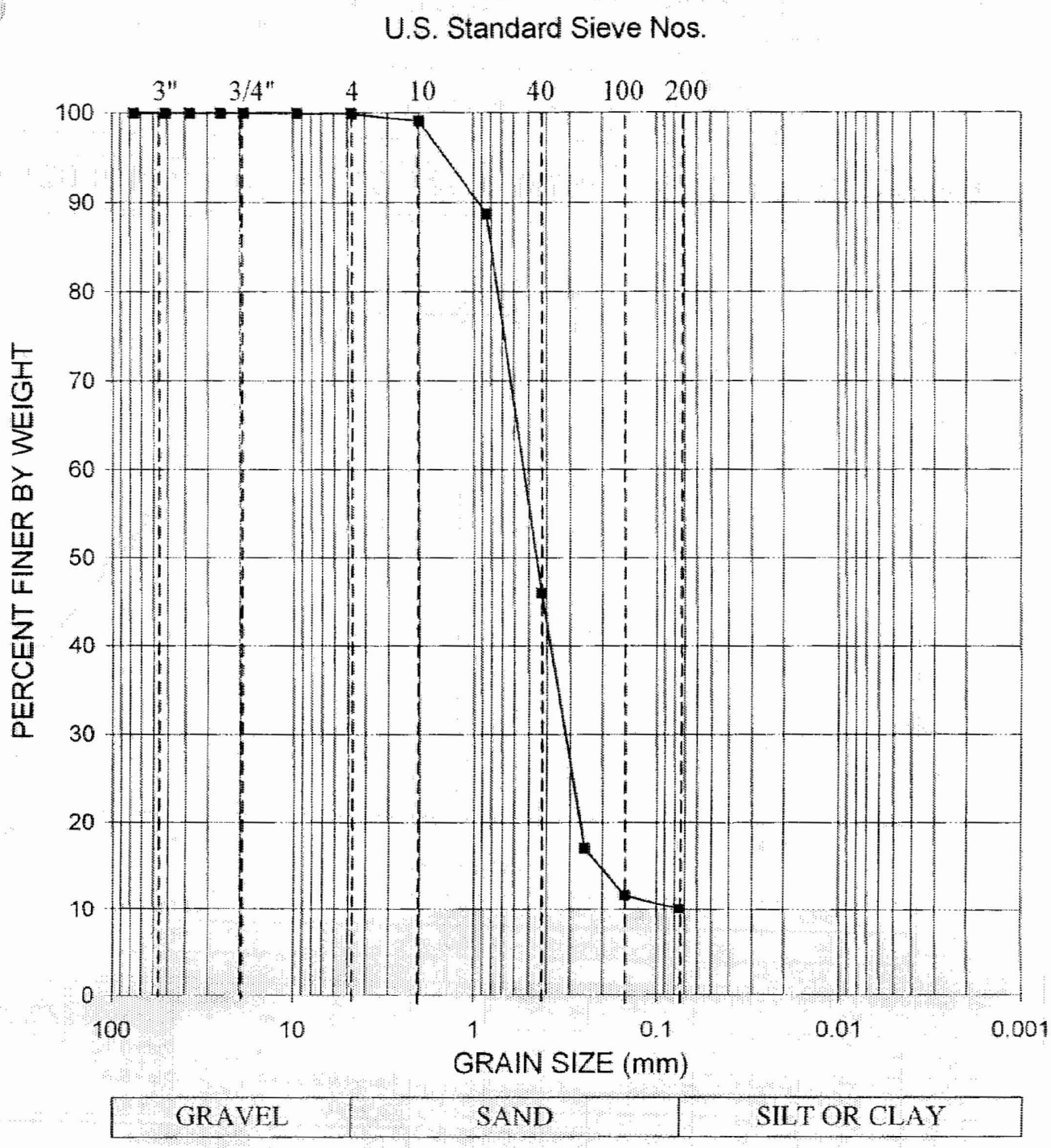


GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/15/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-433	10.5	Well Graded SAND, with silt, dark brown	SW-SM		

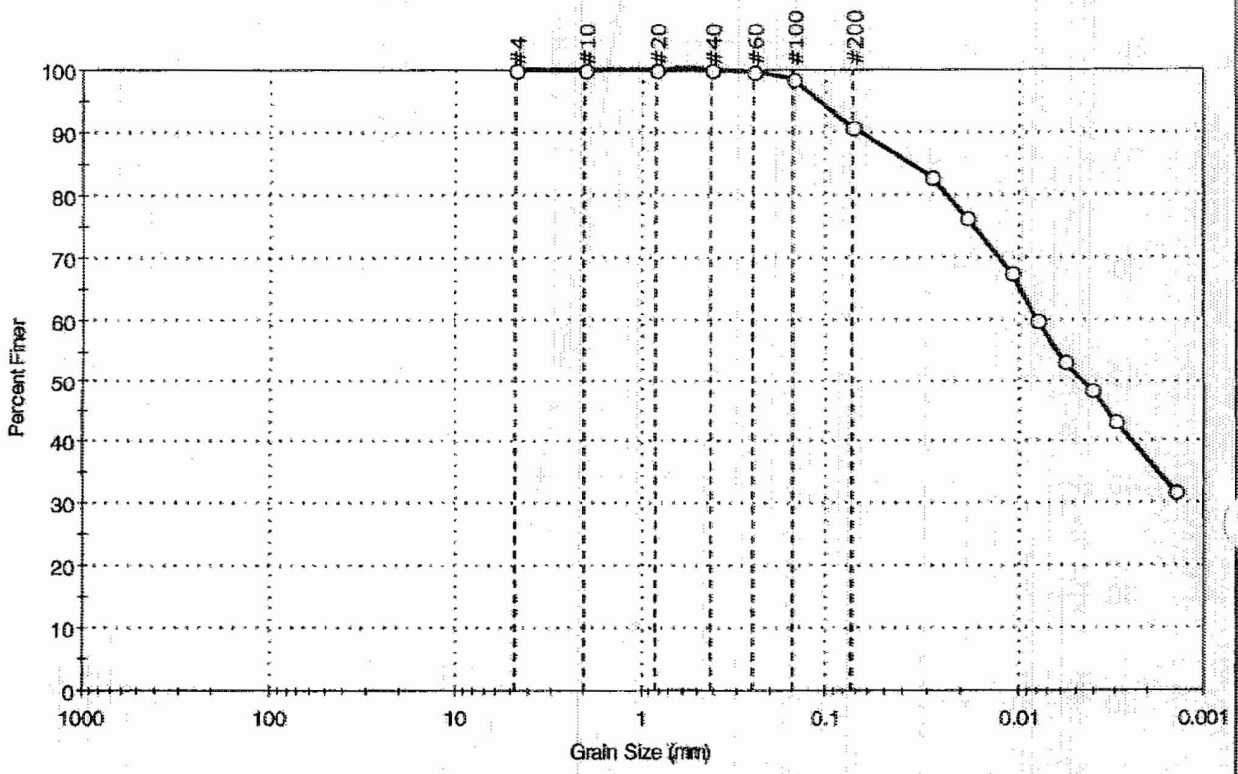
Schnabel

Schnabel Engineering

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-433	Sample Type: tube	Tested By:	sam
Sample ID: S-11	Test Date: 09/28/06	Checked By:	mcm
Depth : 38.5-40.5 ft	Test Id: 98613		
Test Comment: ---			
Sample Description: Moist, very dark gray clay			
Sample Comment: ---			

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



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	9.0	91.0

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	91		
—	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
—	0.0288	83		
—	0.0187	76		
—	0.0110	68		
—	0.0079	60		
—	0.0058	53		
—	0.0041	48		
—	0.0030	43		
—	0.0014	32		

Coefficients

D_{85}=0.0369 mm D_{30}=N/A
D_{60}=0.0079 mm D_{15}=N/A
D_{50}=0.0046 mm D_{10}=N/A
C_u =N/A C_c =N/A

Classification

ASTM fat clay (CH)

AASHTO Clayey Soils (A-7-6 (50))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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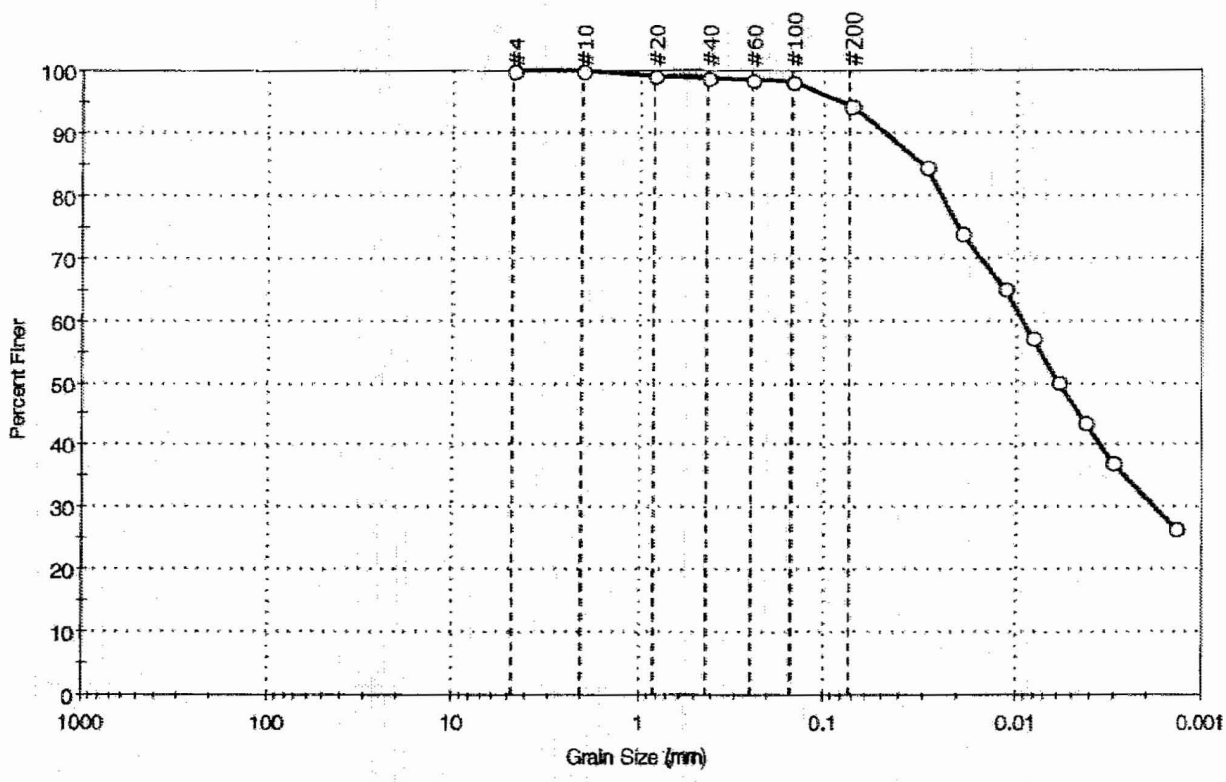
GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-433	Sample Type: tube	Tested By:	sam
Sample ID: S-13	Test Date: 10/11/06	Checked By:	mcm
Depth : 48.5-50.5 ft	Test Id: 98631		
Test Comment: ---			
Sample Description:	Moist, black clay with sand		
Sample Comment:	---		

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



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	0.0	5.5	94.5

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	99		
#60	0.25	99		
#100	0.15	98		
#200	0.074	95		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0297	85		
---	0.0192	74		
---	0.0113	65		
---	0.0082	57		
---	0.0059	50		
---	0.0043	44		
---	0.0031	37		
---	0.0014	27		

Coefficients

D_{85}=0.0303 mm D_{30}=0.0018 mm
D_{60}=0.0091 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 (49))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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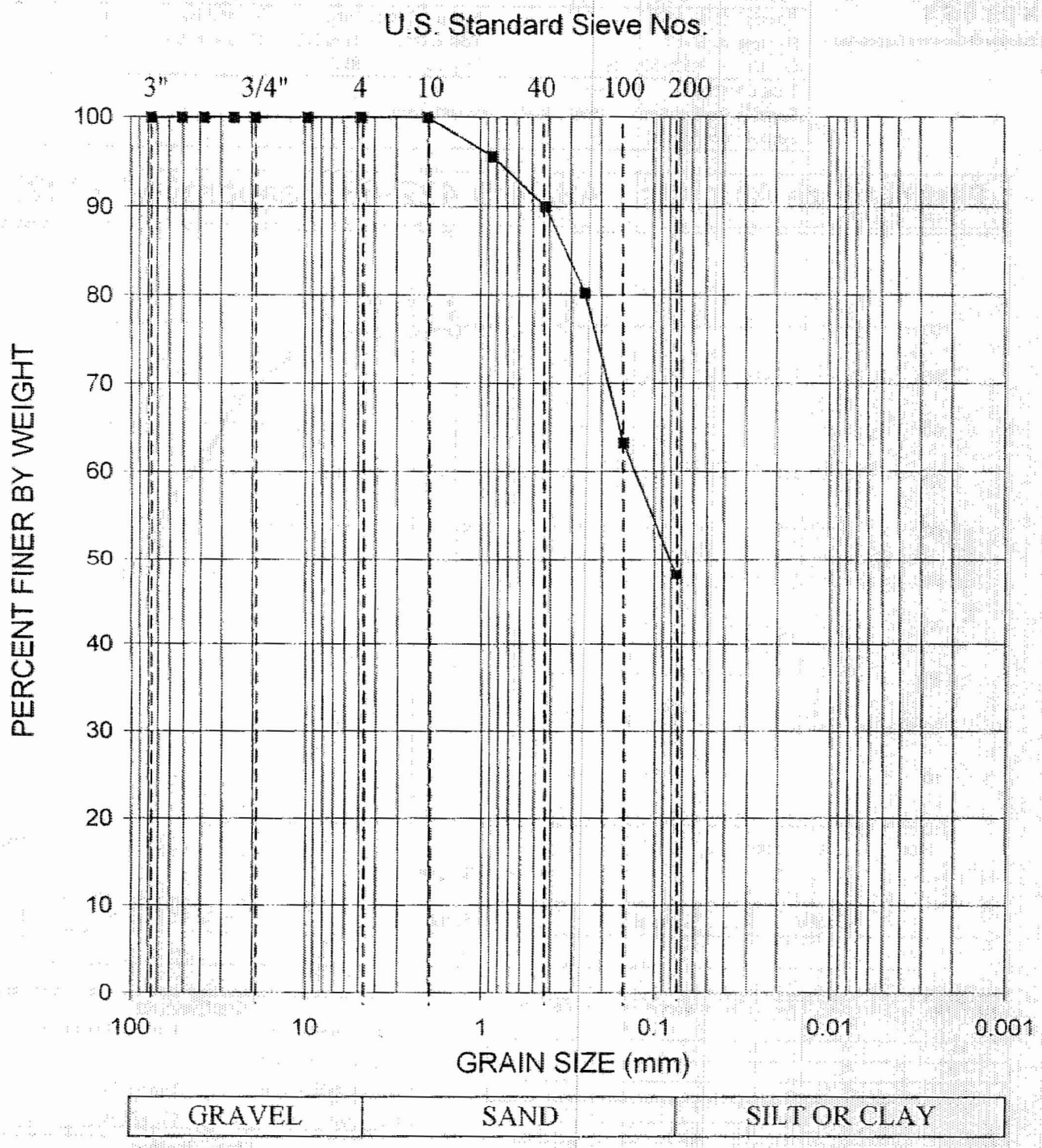


GRADATION CURVE

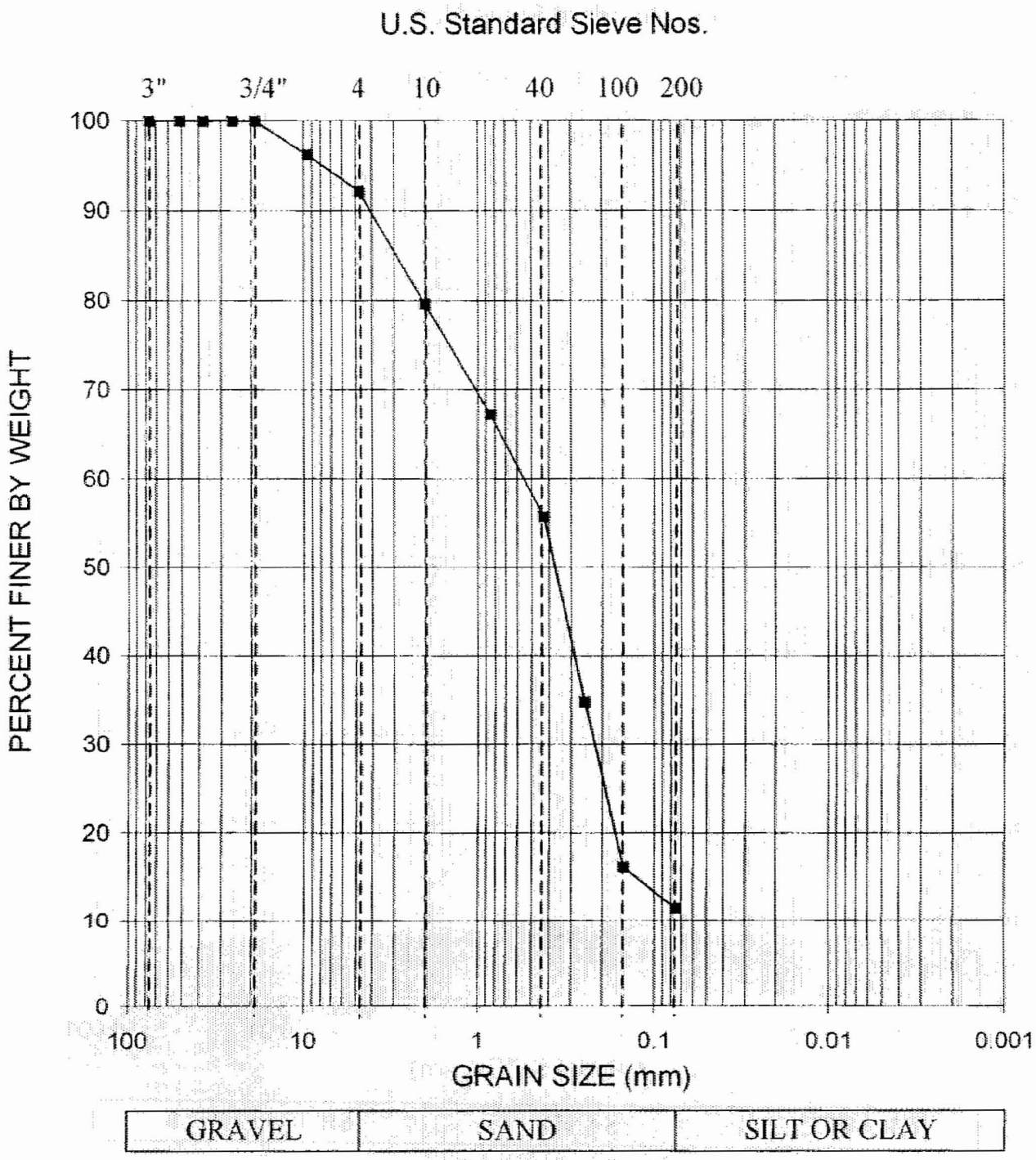
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/15/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-433	58.5	Silty SAND, dark brown	SM	44	9

Schnabel

Schnabel Engineering



GRADATION CURVE

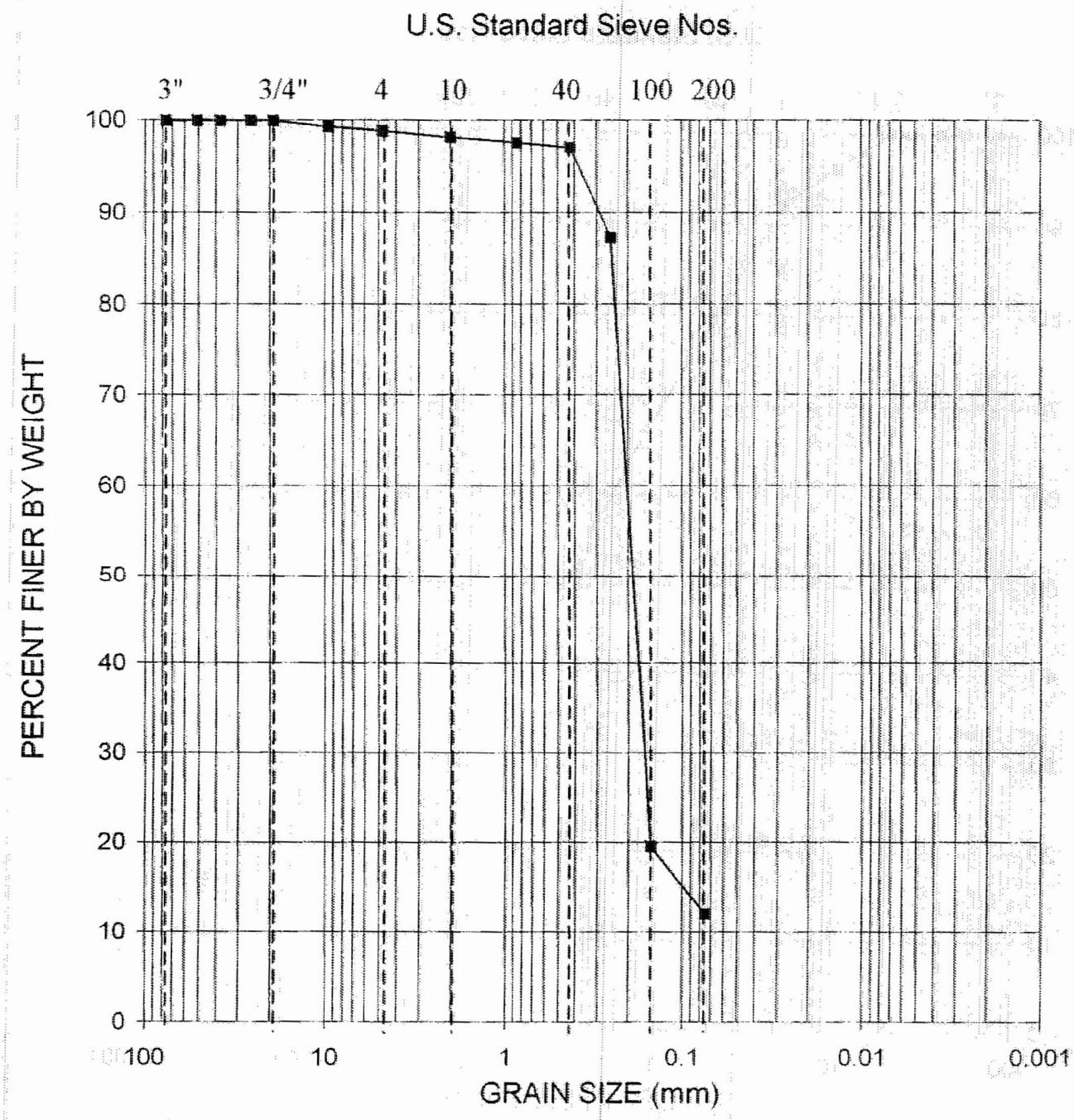
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 9/15/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-433	73.5	Well Graded SAND, with silt, trace shells, gray	SW-SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

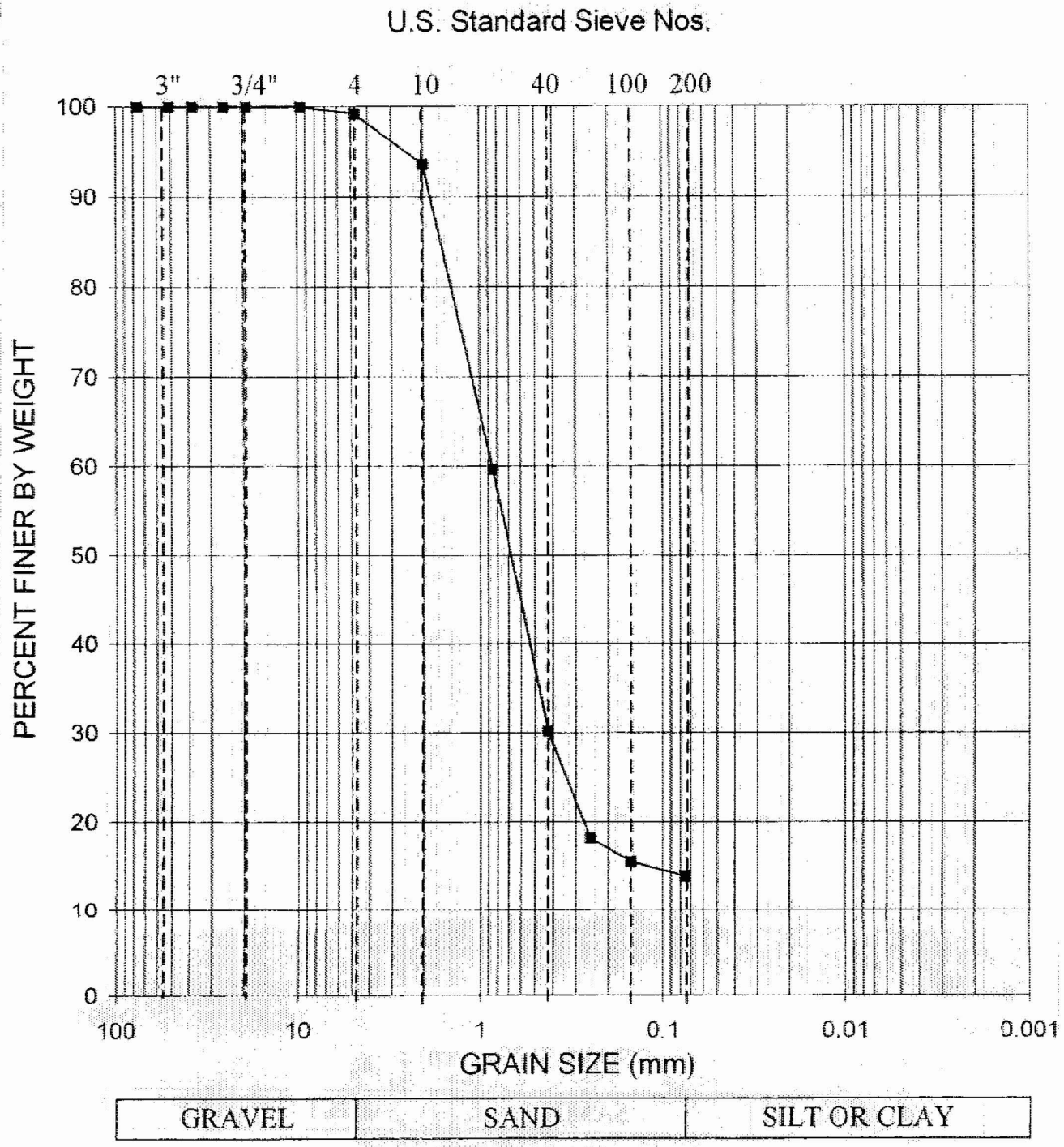
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/15/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-433	93.5	Sandy SILT, trace shells, gray	ML		

Schnabel

Schnabel Engineering



GRADATION CURVE

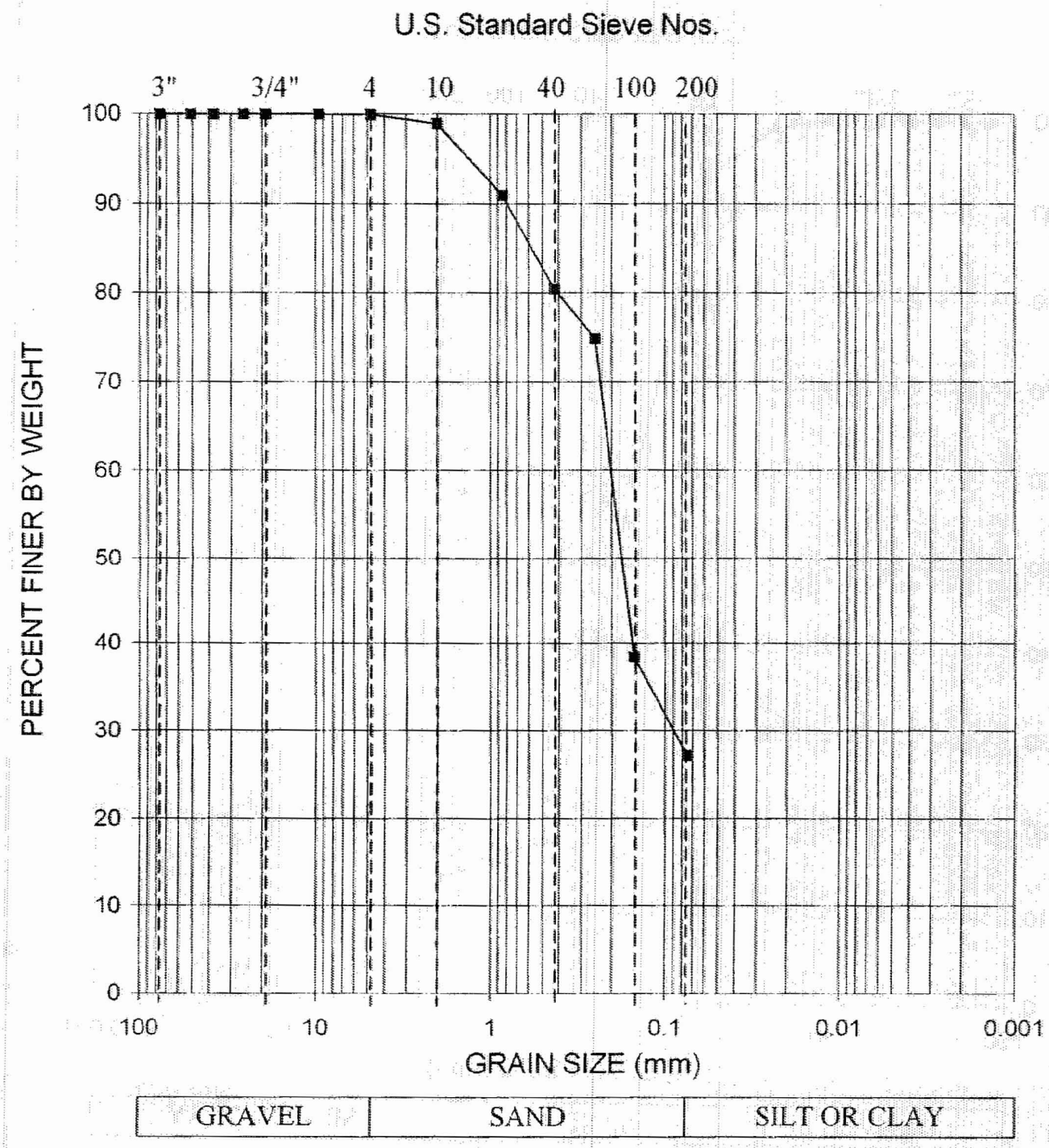
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.	06120048.00	Date:	9/15/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-434	13.5	Silty SAND, trace gravel, brown	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:	9/18/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-434	28.5	Silty SAND, light brown	SM			Schnabel Engineering