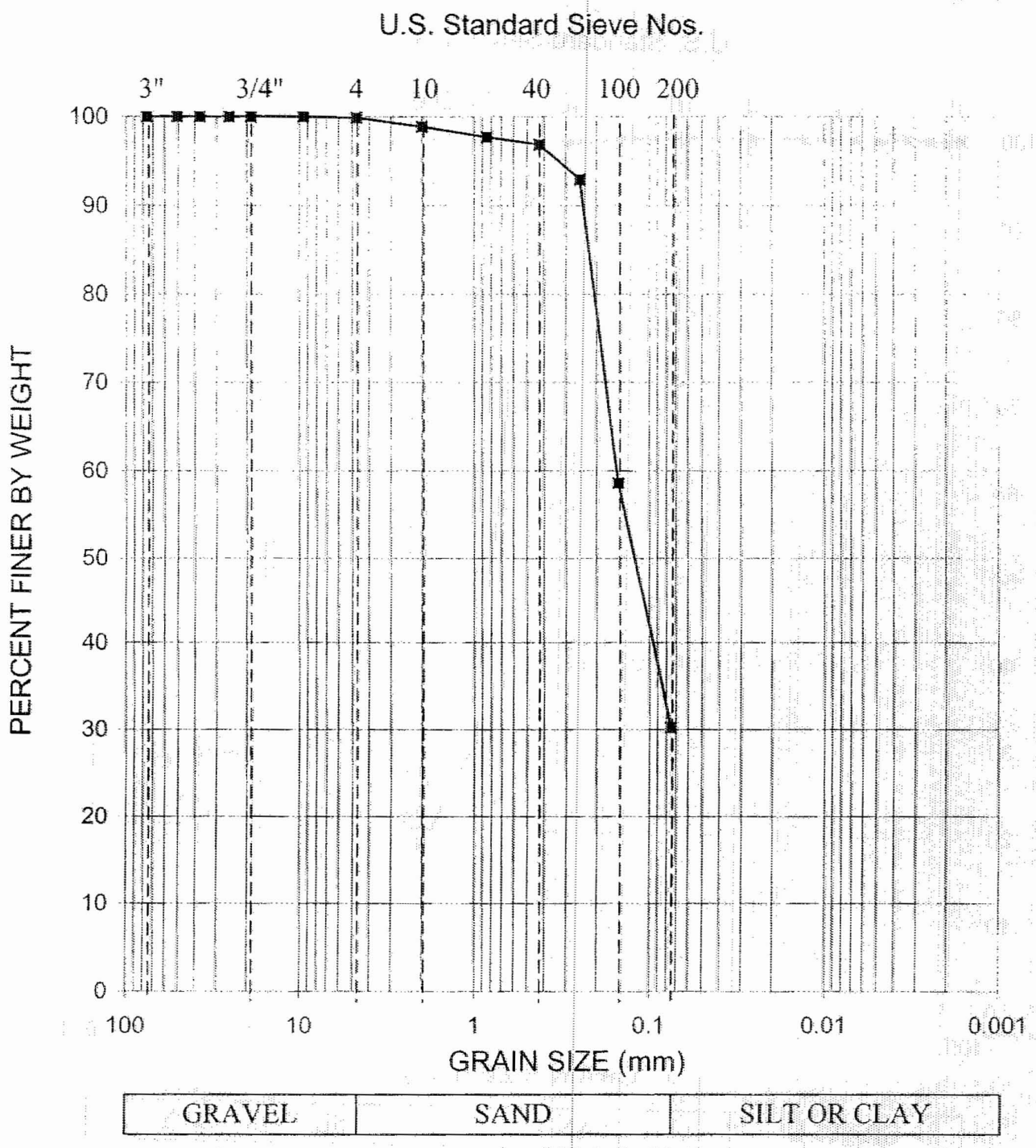


GRADATION CURVE

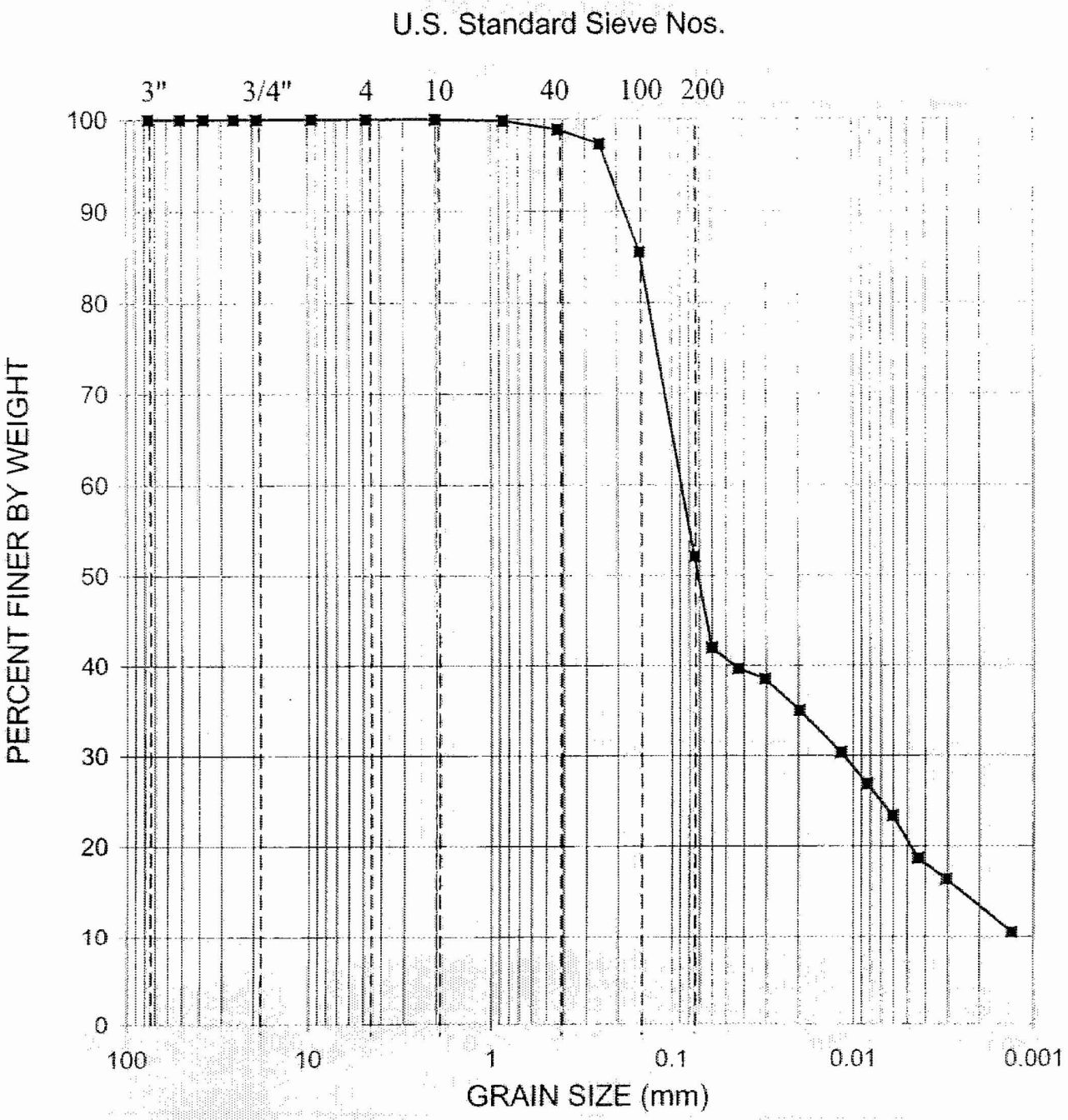
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	8/22/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-323	133.5	Silty SAND, contains shells, green	SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

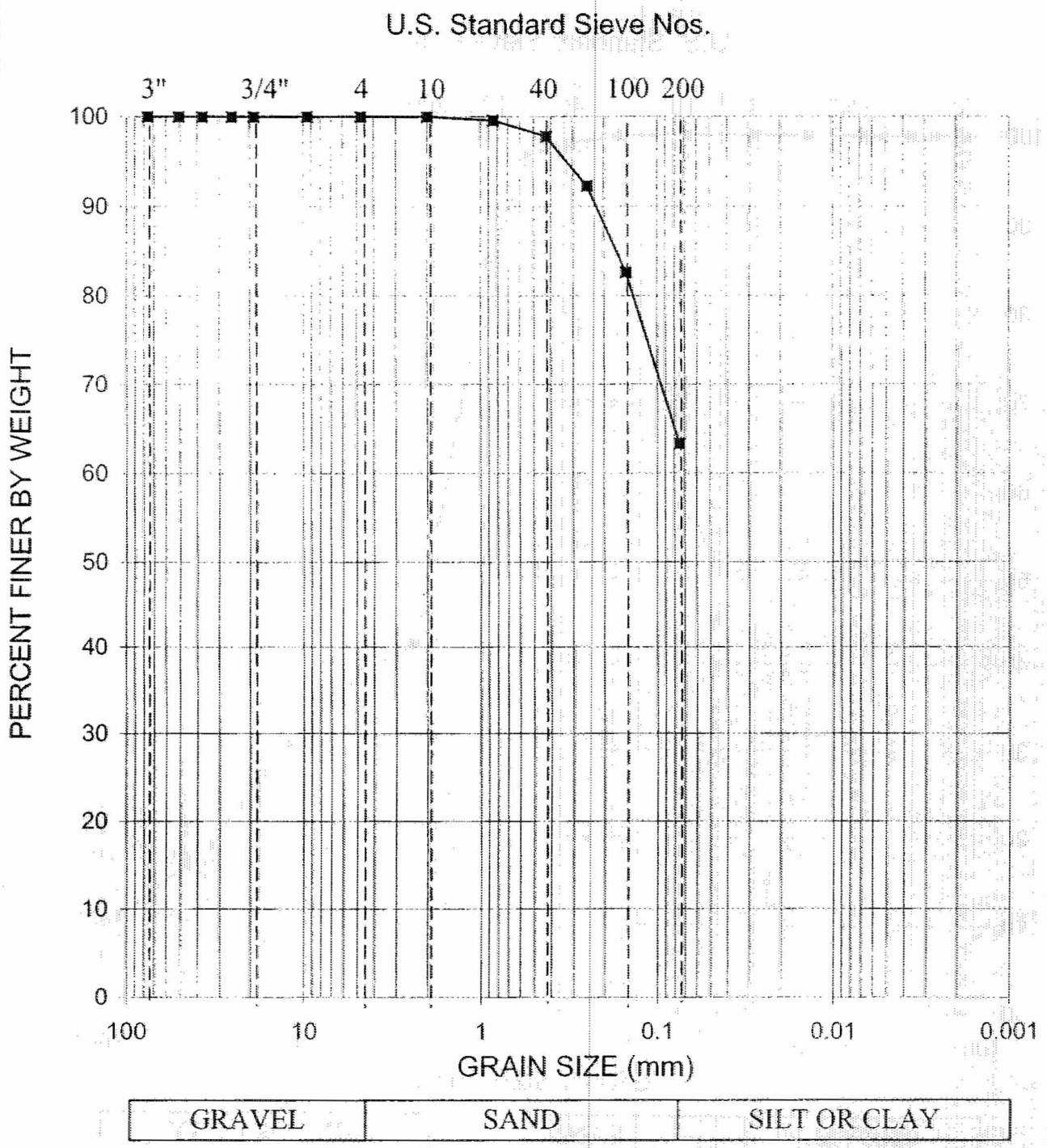
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/8/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-323	143.5	Sandy ELASTIC SILT, green	MH	73	35

Schnabel

Schnabel Engineering



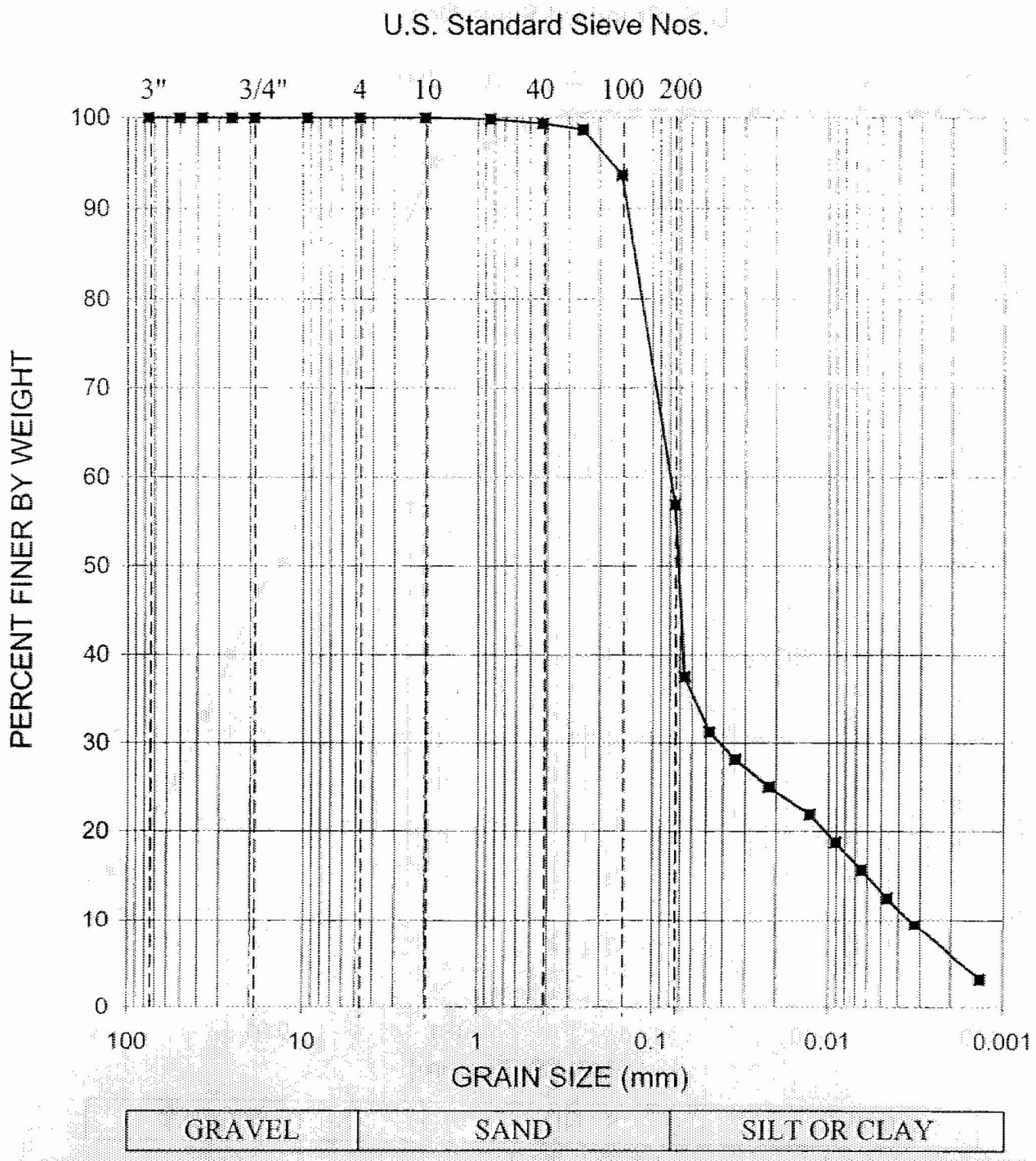
GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00		Date:	8/22/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI		
B-323	163.5	SANDY ELASTIC SILT, dark green	MH				

Schnabel

Schnabel Engineering



GRADATION CURVE

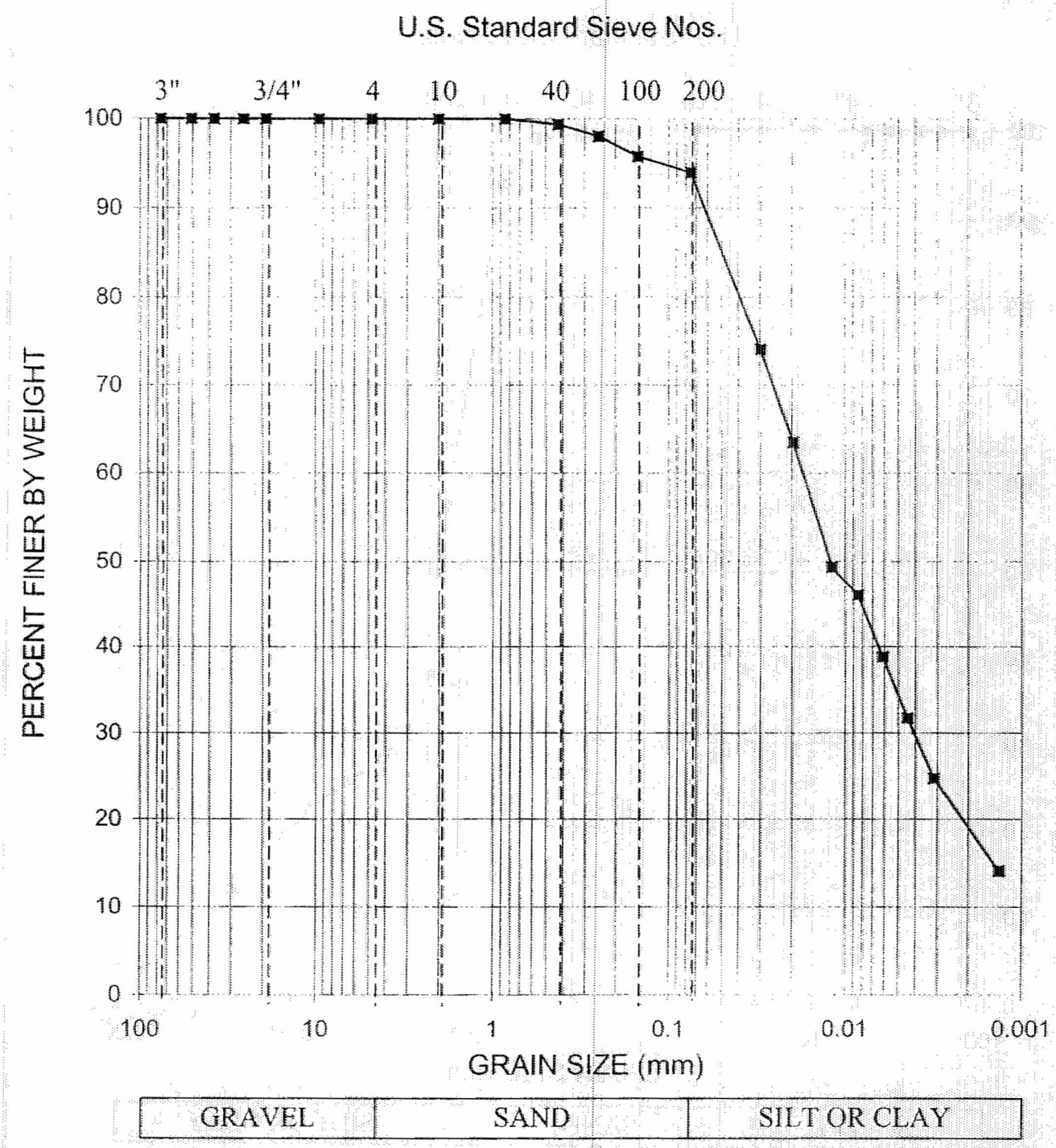
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 9/10/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-323	173.5	Sandy FAT CLAY, dark gray	CH	97	66

Schnabel

Schnabel Engineering



GRADATION CURVE

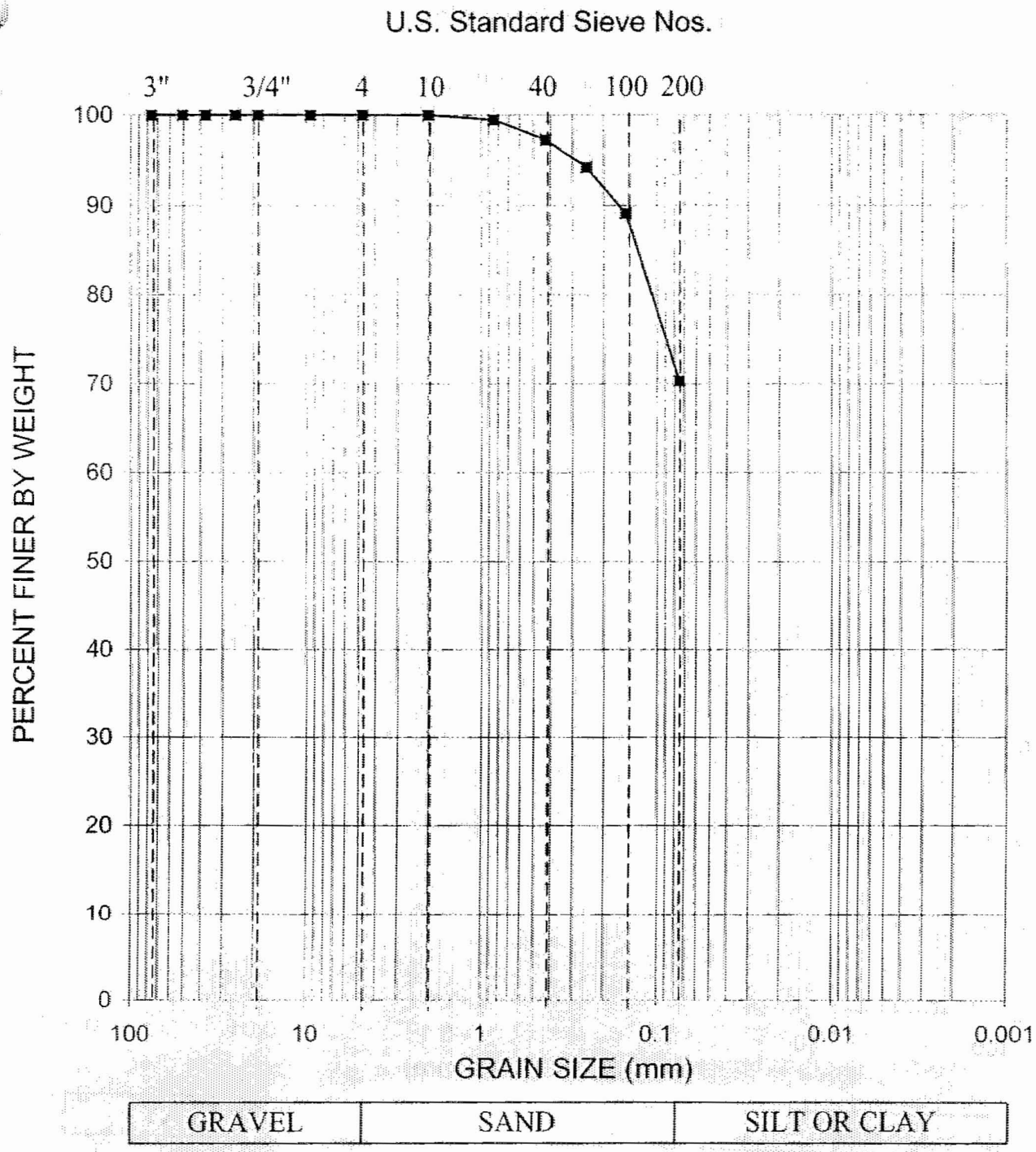
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/8/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-323	183.5	FAT CLAY, trace sand, dark gray	CH	124	91

Schnabel

Schnabel Engineering



GRADATION CURVE

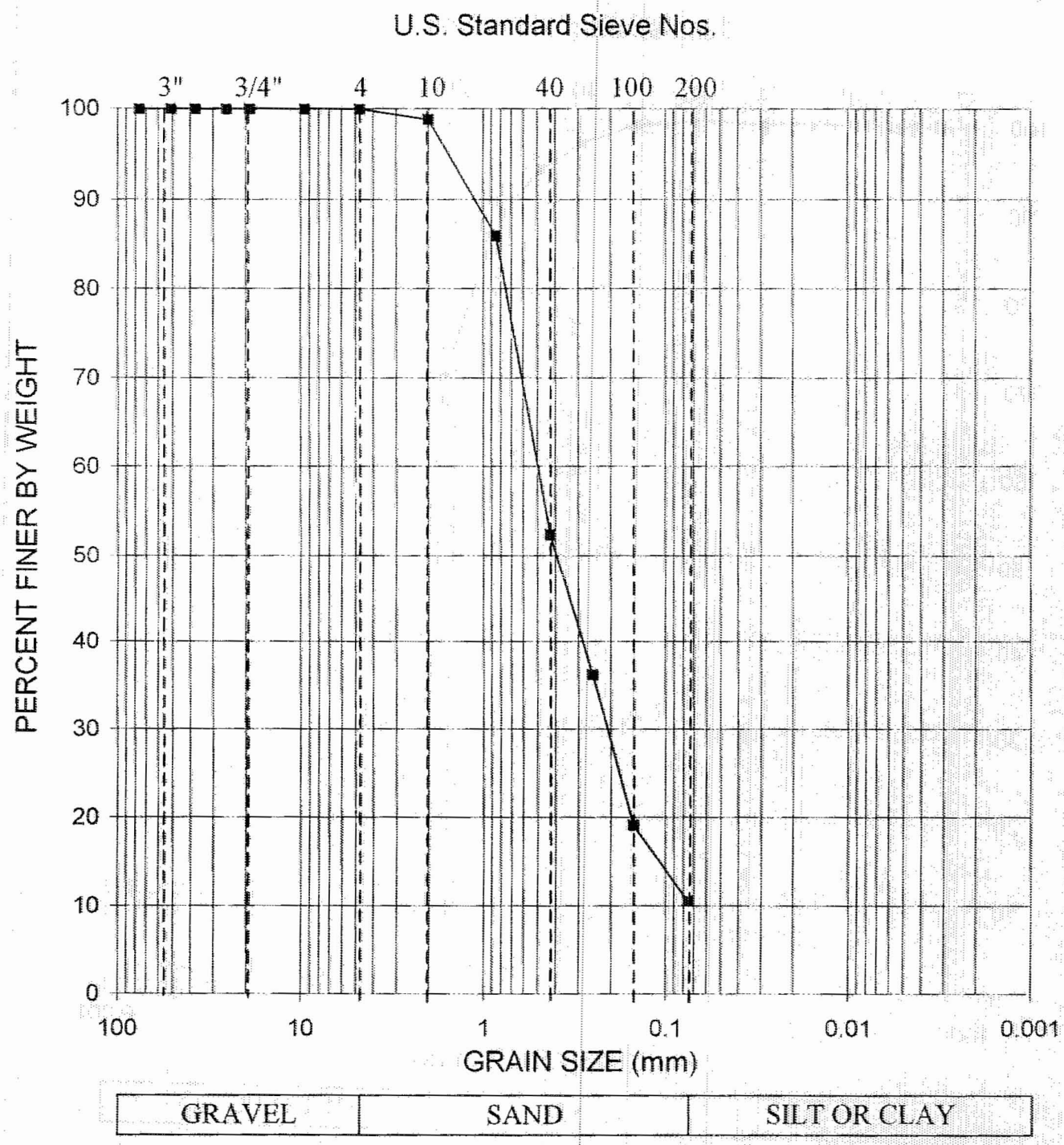
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	8/25/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-323	193.5	SANDY FAT CLAY, dark green	CH	116	80

Schnabel

Schnabel Engineering



GRADATION CURVE

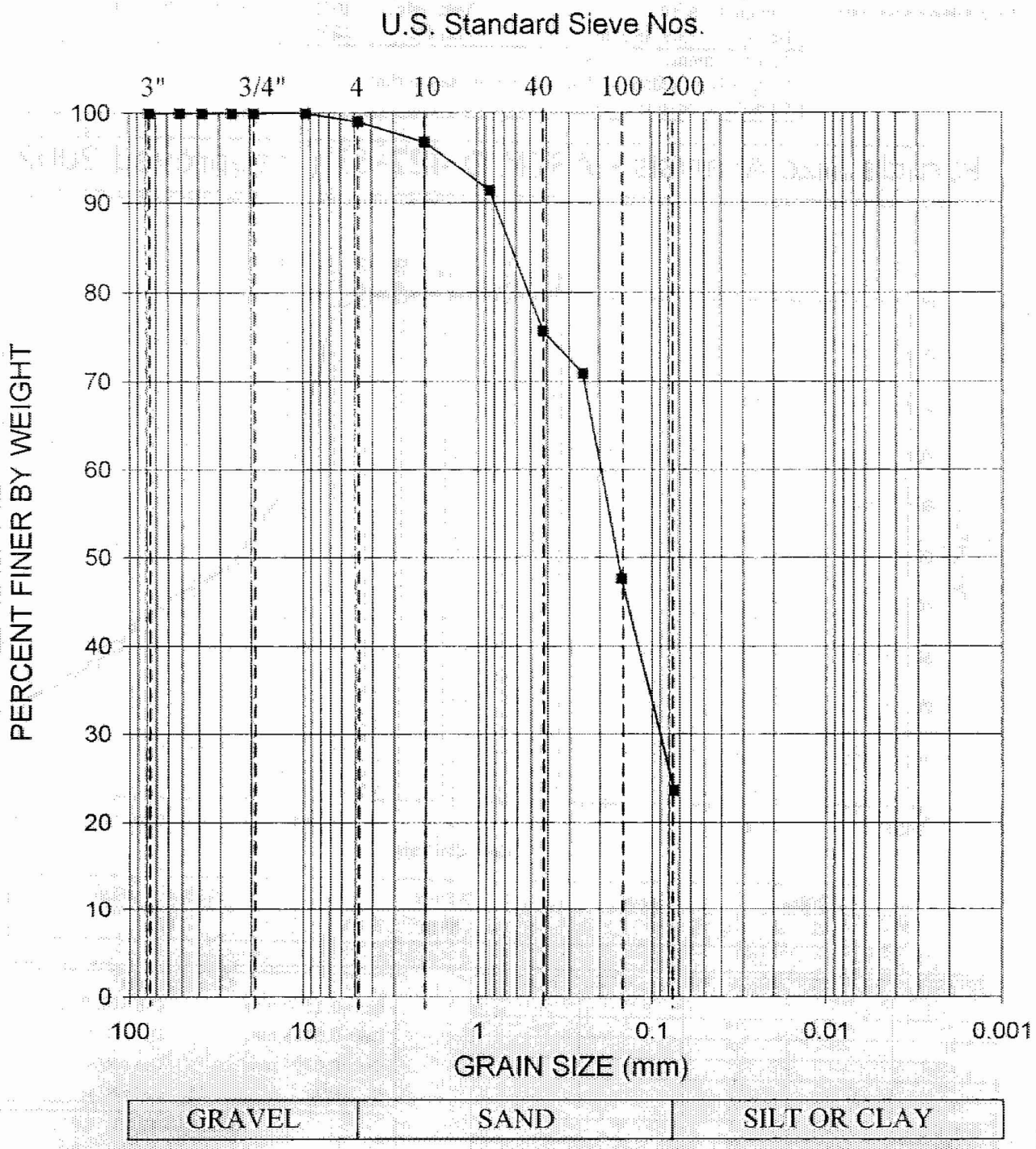
ASTM D422

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

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-326	13.5	Poorly Graded SAND, with silt, light brown	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:	10/3/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-326	23.5	Silty SAND, trace gravel brown	SM		

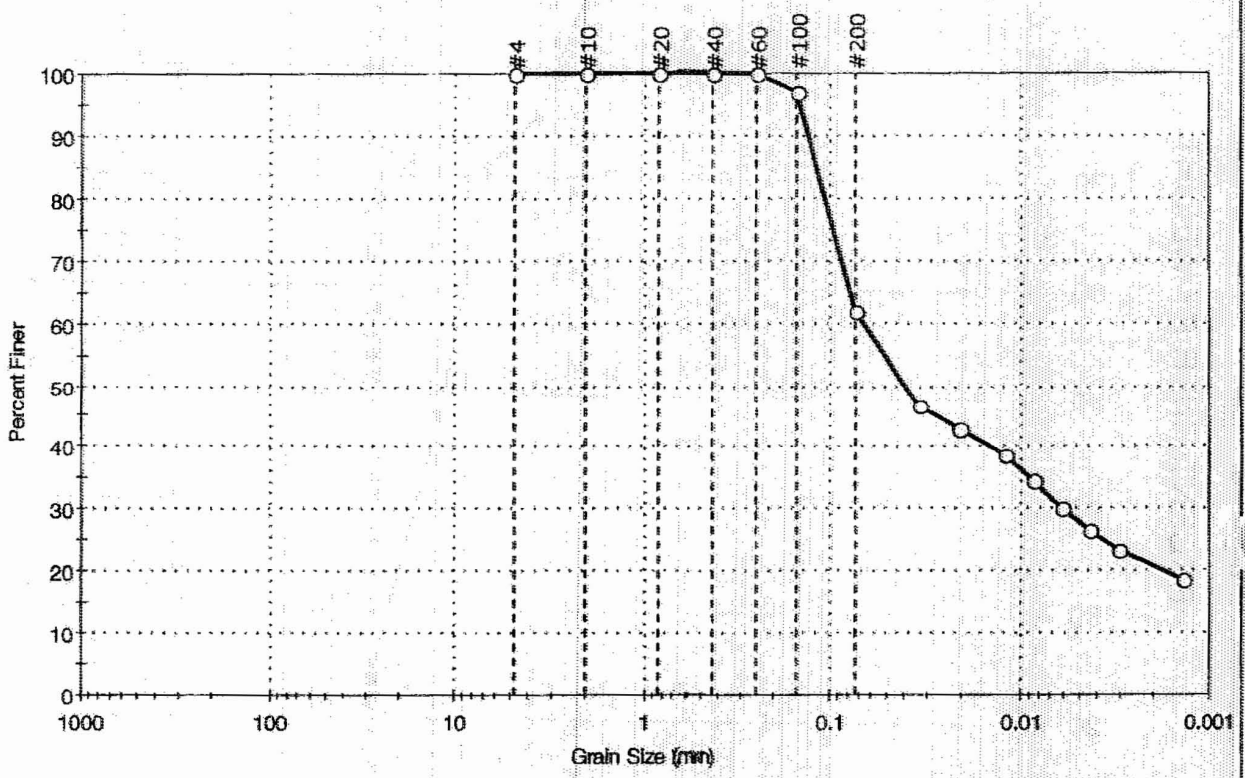
Schnabel

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-326	Sample Type: tube	Tested By:	sam
Sample ID: S-10	Test Date: 10/18/06	Checked By:	mcm
Depth : 33.5-35.5 ft	Test Id: 100407		
Test Comment: ---			
Sample Description:	Moist, dark gray sandy clay		
Sample Comment: ---			

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



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	38.0	62.0

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	97		
#200	0.074	62		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0331	47		
---	0.0206	43		
---	0.0120	39		
---	0.0086	35		
---	0.0061	30		
---	0.0044	27		
---	0.0031	23		
---	0.0014	18		

Coefficients

D_{85} = 0.1170 mm	D_{30} = 0.0062 mm
D_{60} = 0.0665 mm	D_{15} = N/A
D_{50} = 0.0394 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Sandy lean clay (CL)

AASHTO Clayey Soils (A-7-6 (15))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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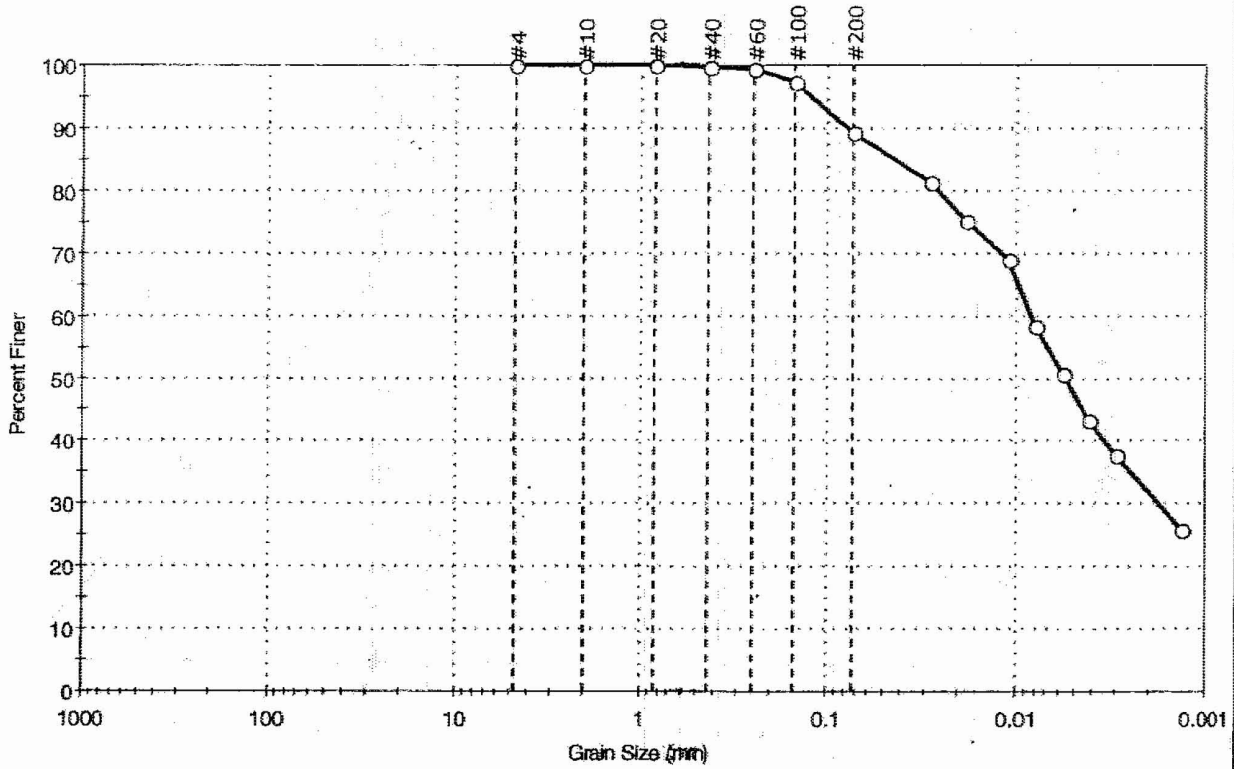
GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-326	Sample Type: tube	Tested By:	sam
Sample ID: S-12	Test Date: 10/17/06	Checked By:	mcm
Depth : 43.5-45.5 ft	Test ID: 100408		
Test Comment:	---		
Sample Description:	Moist, very dark gray organic clay		
Sample Comment:	---		

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



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	10.7	89.3

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	97		
#200	0.074	89		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0284	81		
---	0.0186	75		
---	0.0109	69		
---	0.0080	58		
---	0.0058	51		
---	0.0042	43		
---	0.0030	36		
---	0.0013	26		

Coefficients

D_{85} = 0.0439 mm D_{30} = 0.0018 mm
D_{60} = 0.0084 mm D_{15} = N/A
D_{50} = 0.0056 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM organic clay (OH)

AASHTO Clayey Soils (A-7-6 (44))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : ---

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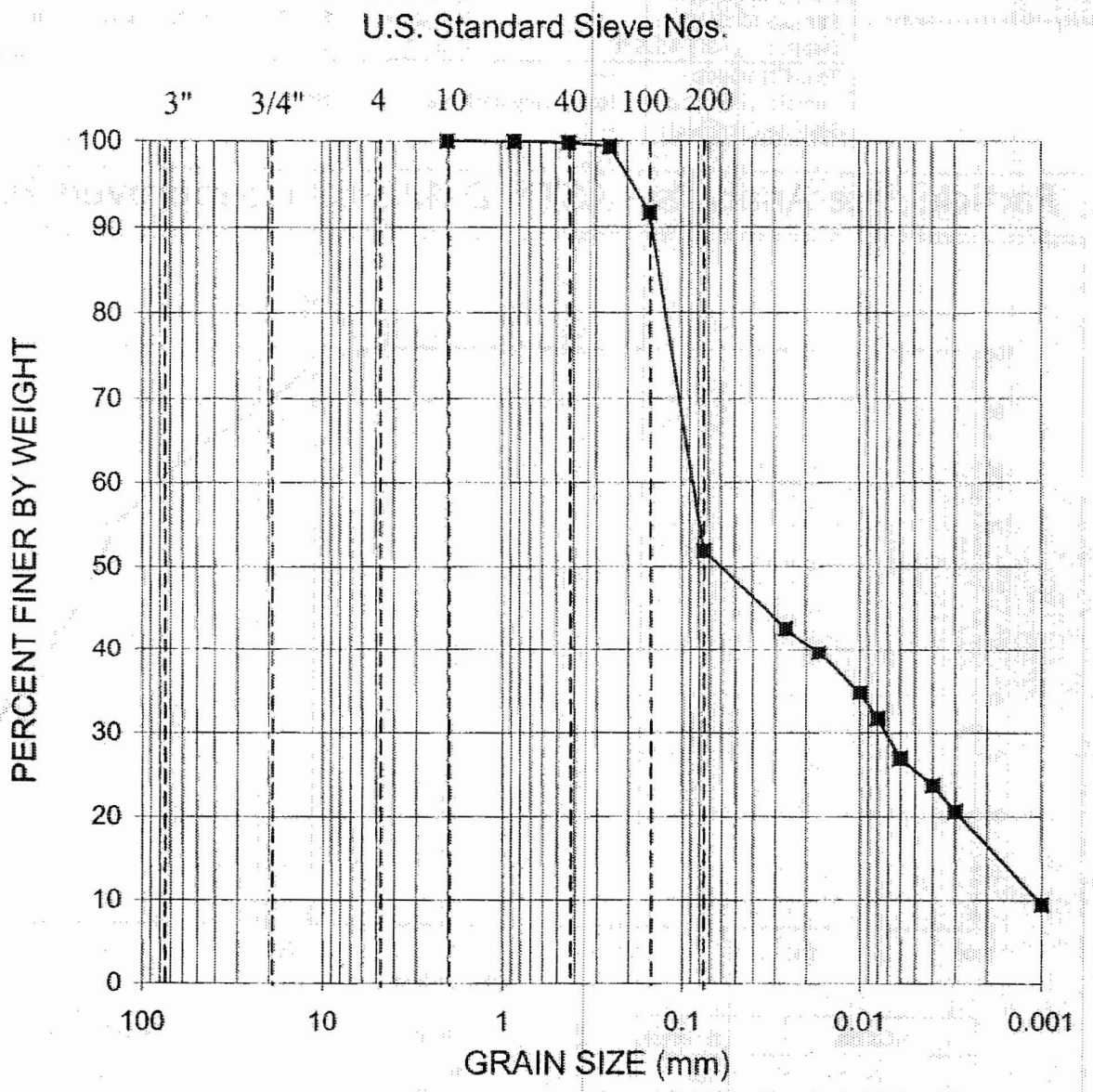


GRAVEL	SAND	SILT OR CLAY

Key	Sample	Depth(ft.)	Sample Description	Class.	LL	PI
■	B-327	113.5-114.2	Sandy FAT CLAY - gray	CH	60	36
▲						
●						

Schnabel

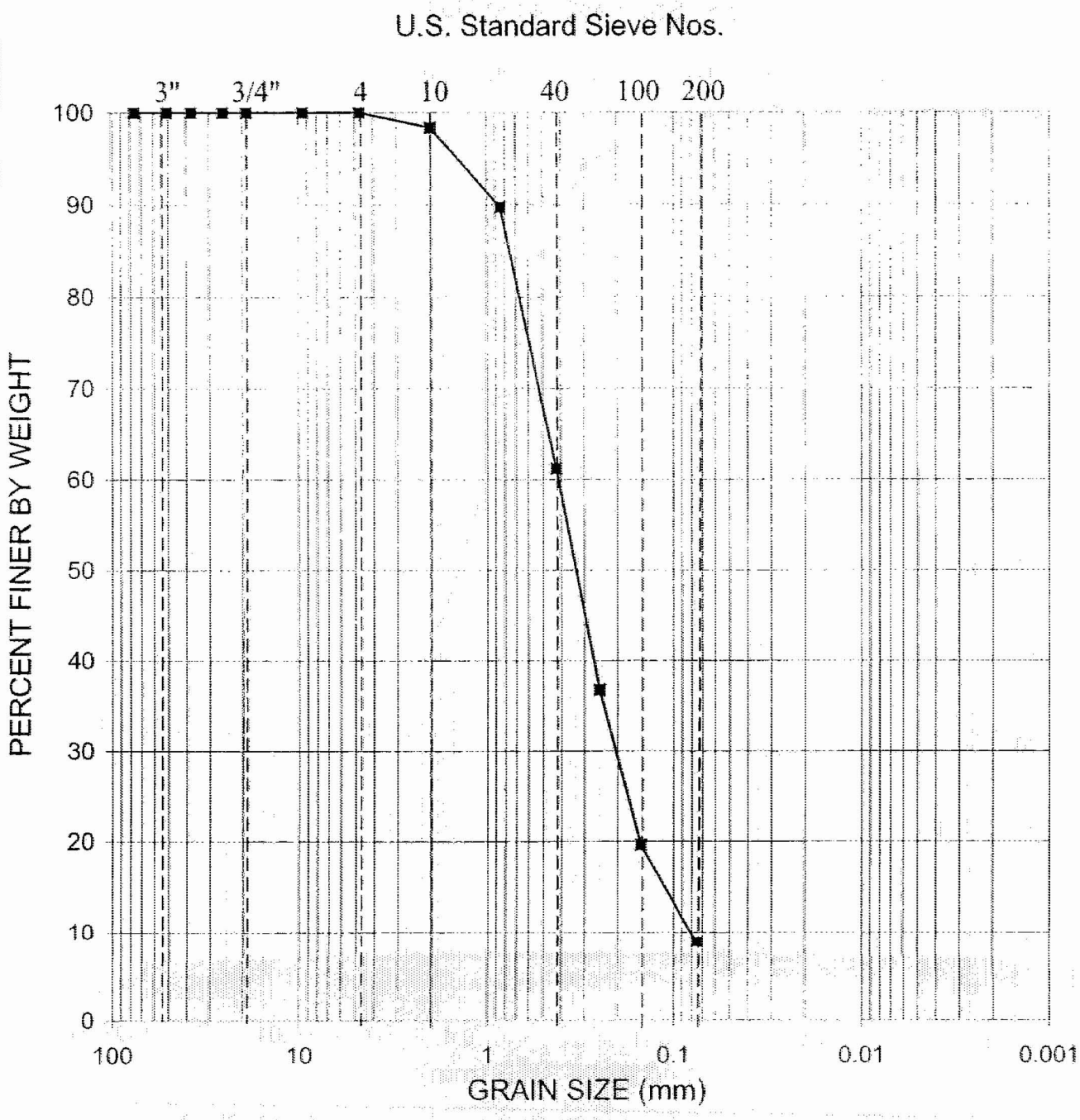
Schnabel Engineering

GRADATION CURVES

Project: Calvert Cliffs Nuclear Power Plant

Contract No. 06120048

Date: 10/30/06 Method: ASTM D422



GRAVEL	SAND	SILT OR CLAY

GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	8/28/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-328	2.5	Poorly Graded SAND, with silt, tan	SP-SM	NP	NP

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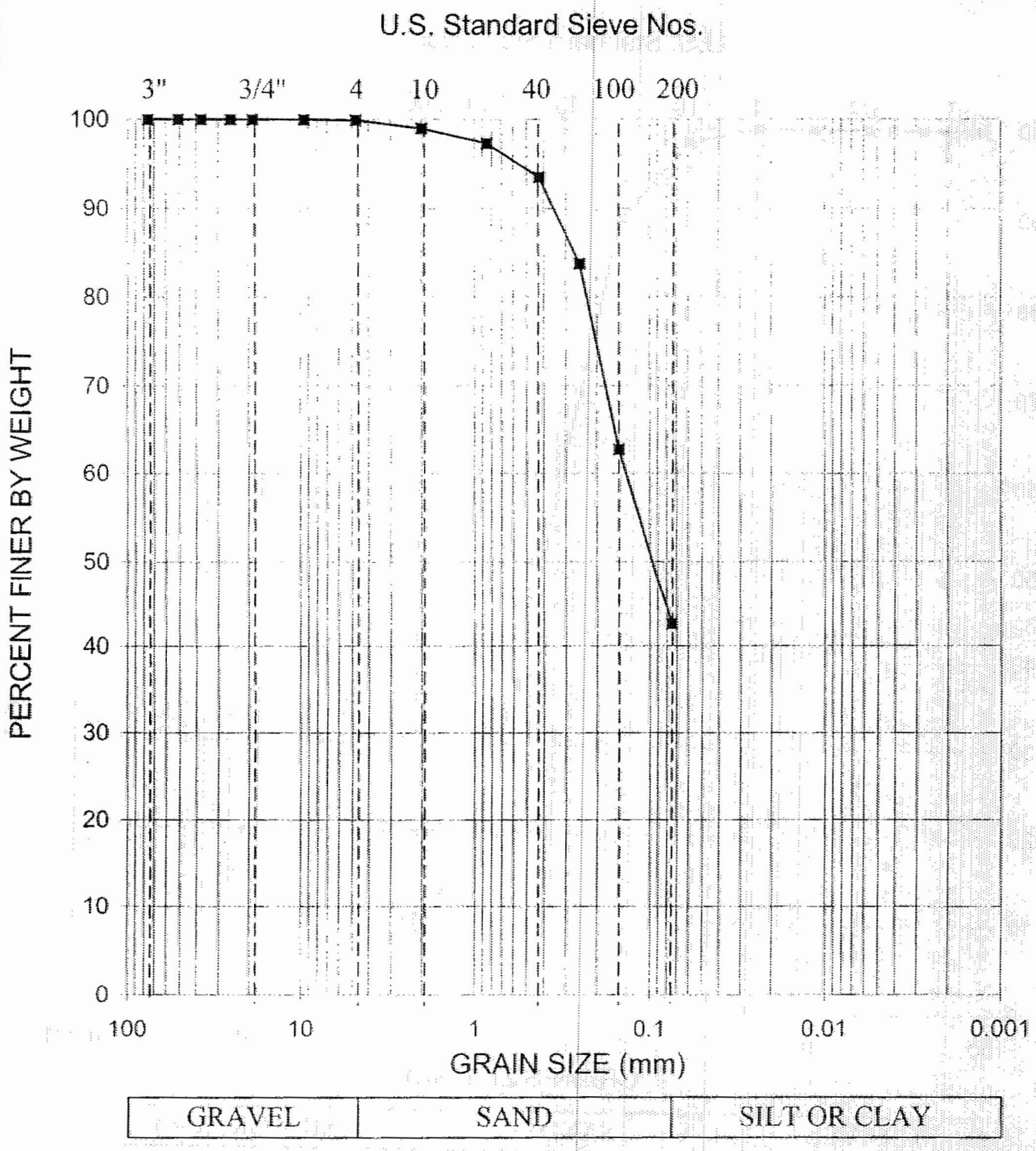


GRADATION CURVE

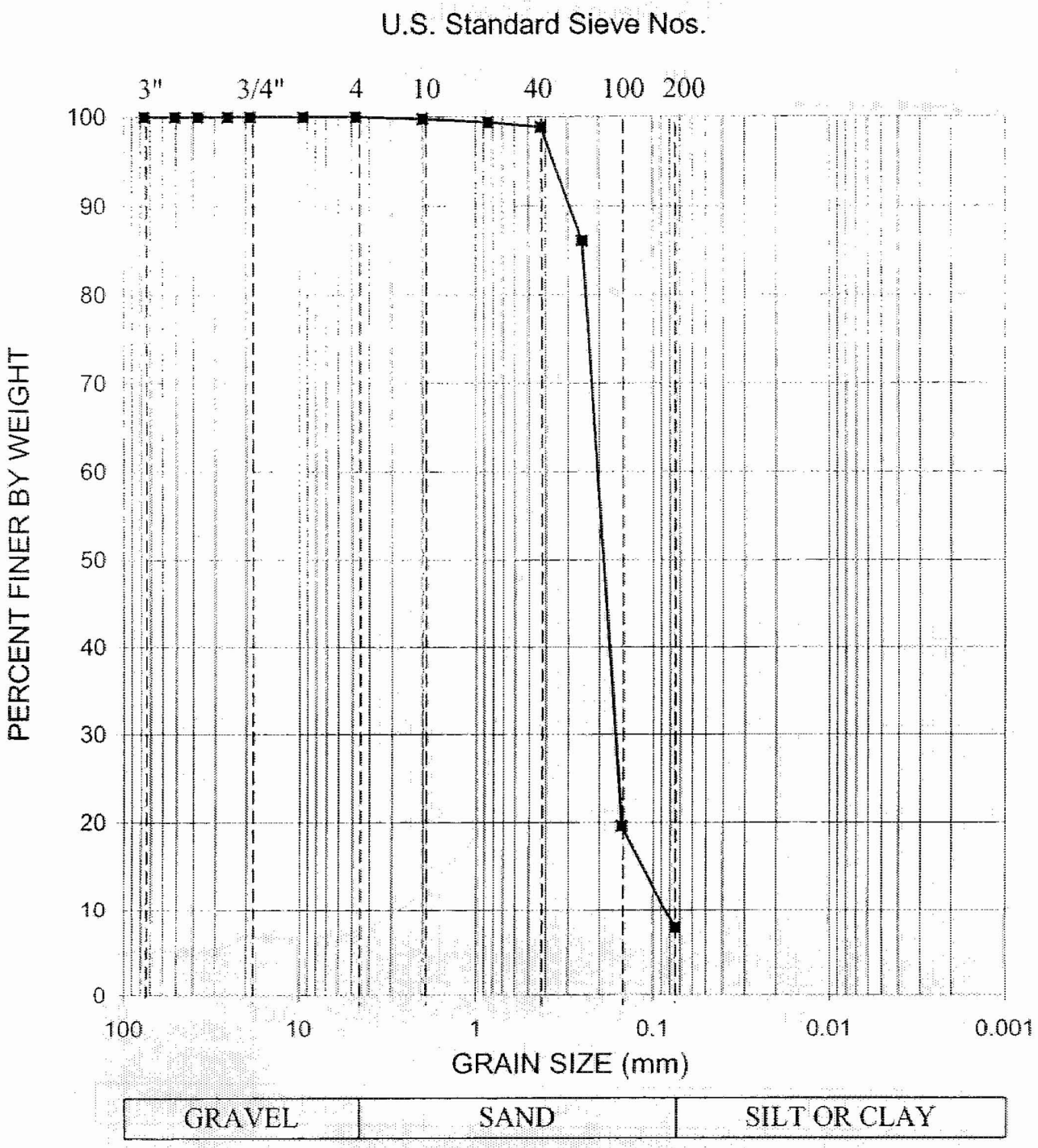
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	8/28/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-328	28.5	Clayey SAND, contains shells, dark gray	SC	40	19

Schnabel

Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	8/22/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-328	38.5	Poorly Graded SAND, with silt, dark gray	SP-SM		

Schnabel

Schnabel Engineering