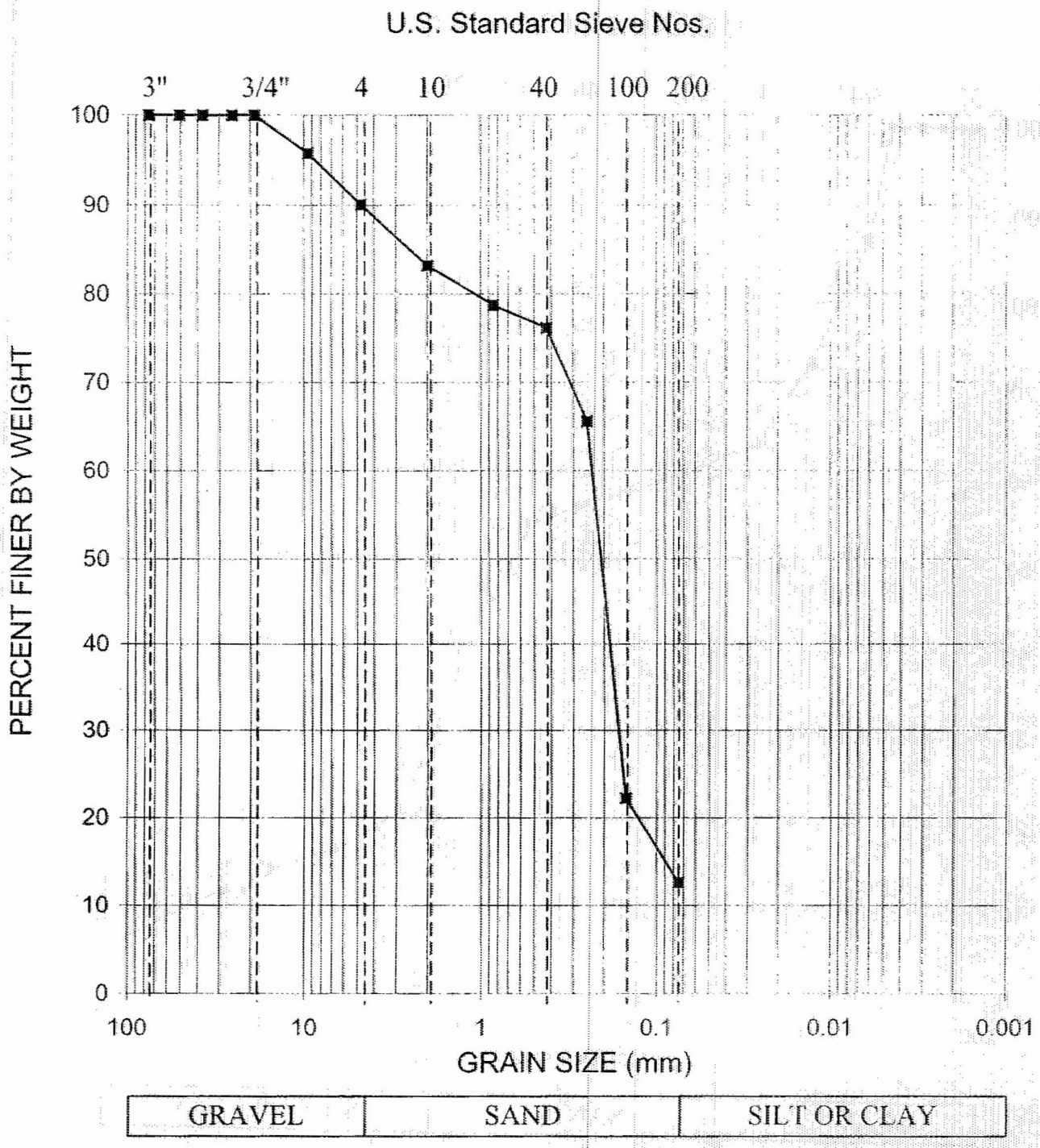


GRADATION CURVE

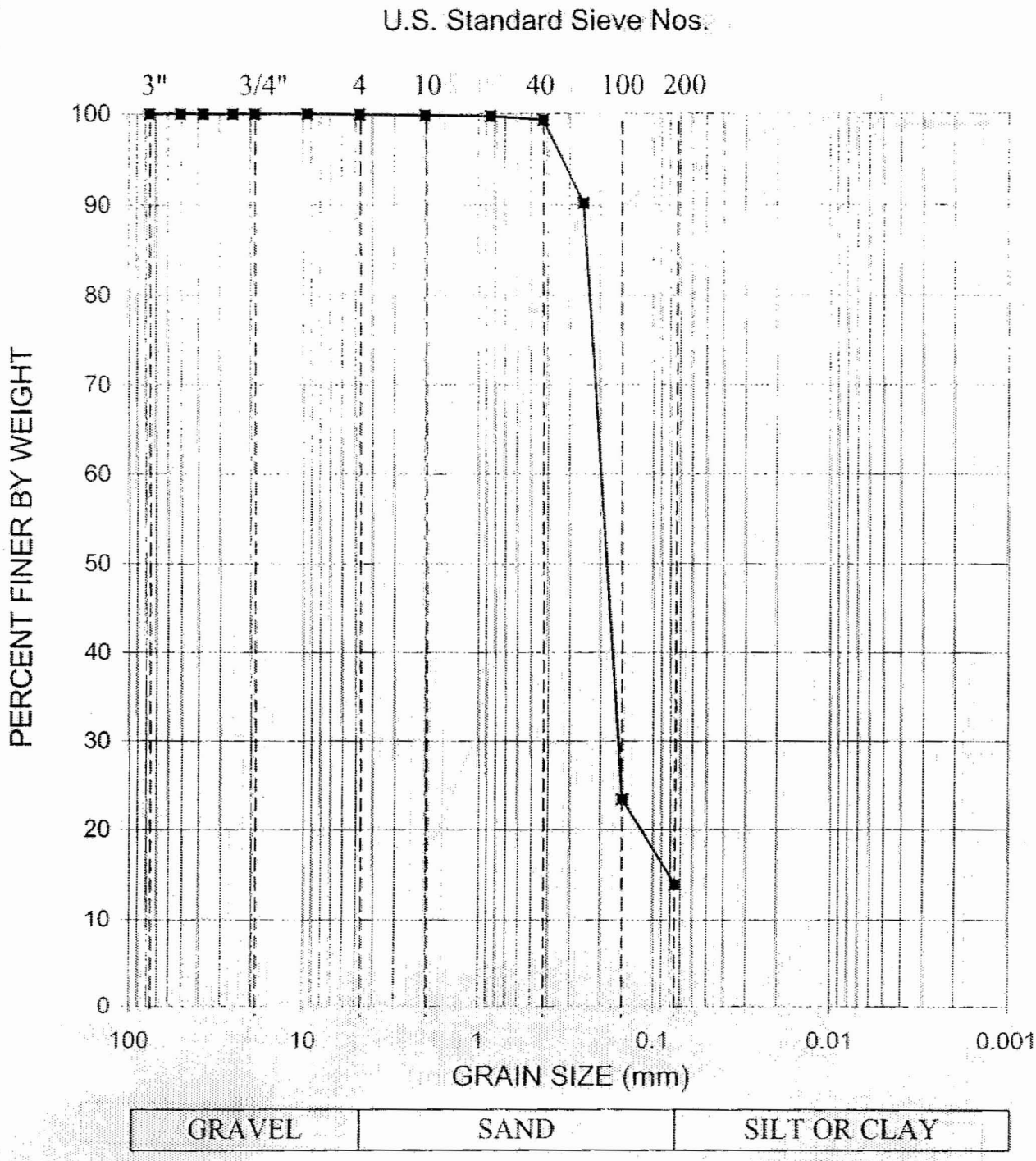
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/6/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-334	73.5	Silty SAND, trace shells, dark gray	SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

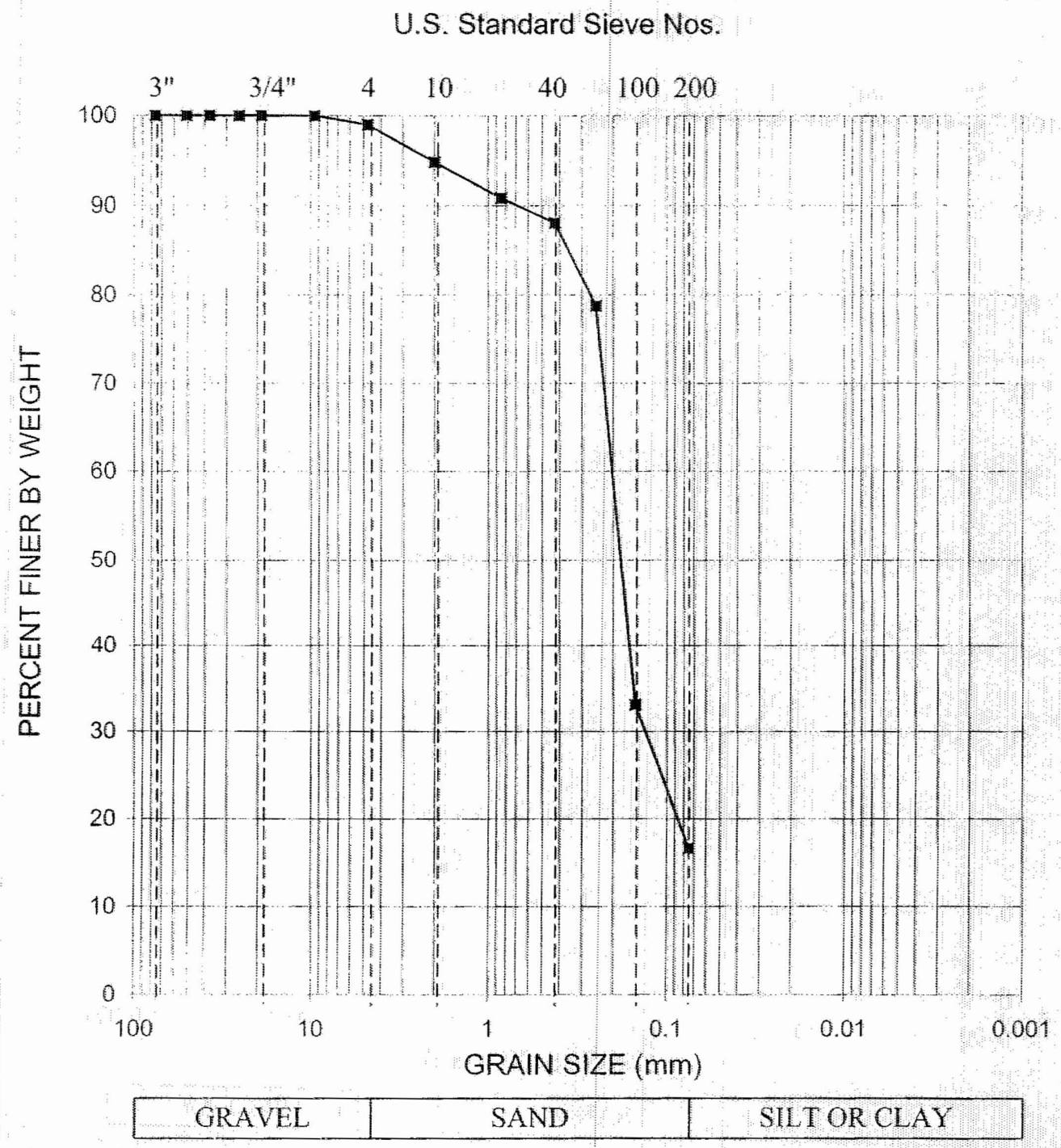
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.	06120048.00	Date:	9/6/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-334	83.5	Silty SAND, contains shells, dark gray	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:	9/6/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-334	98.5	Silty SAND, trace shells, dark gray	SM		

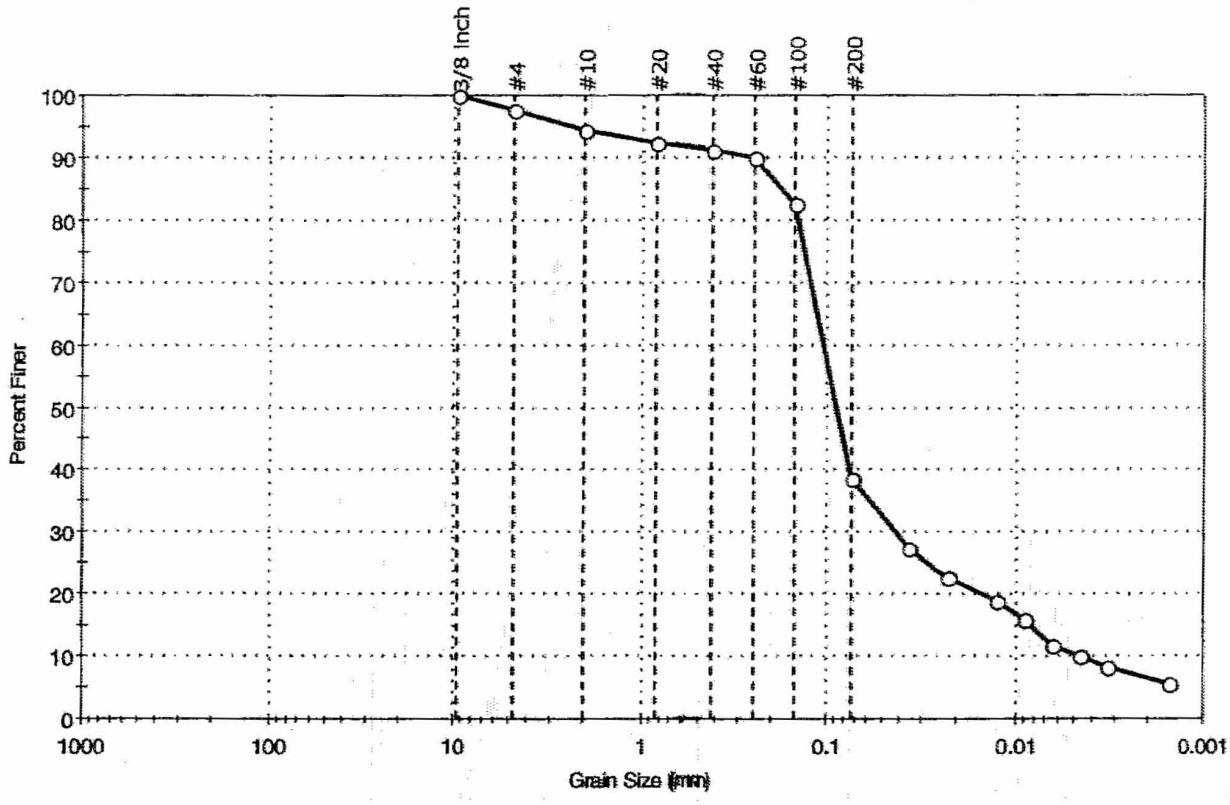
Schnabel

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-337	Sample Type: tube	Tested By:	sam
Sample ID: S-14	Test Date: 09/28/06	Checked By:	mcm
Depth : 53.5-55.5 ft	Test Id: 95810		
Test Comment: ---			
Sample Description:	Moist, olive gray clayey sand		
Sample Comment:	---		

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



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	2.3	59.0	38.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3/8 Inch	9.51	100		
#4	4.75	98		
#10	2.00	94		
#20	0.84	92		
#40	0.42	91		
#60	0.25	90		
#100	0.15	83		
#200	0.074	39		
--	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
--	0.0354	28		
--	0.0222	23		
--	0.0127	19		
--	0.0090	16		
--	0.0065	12		
--	0.0046	10		
--	0.0033	8		
--	0.0015	6		

Coefficients

D_{85} = 0.1754 mm D_{30} = 0.0417 mm
D_{60} = 0.1038 mm D_{15} = 0.0084 mm
D_{50} = 0.0885 mm D_{10} = 0.0045 mm
C_u = N/A C_c = N/A

Classification

ASTM Clayey sand (SC)

AASHTO Clayey Soils (A-6 (4))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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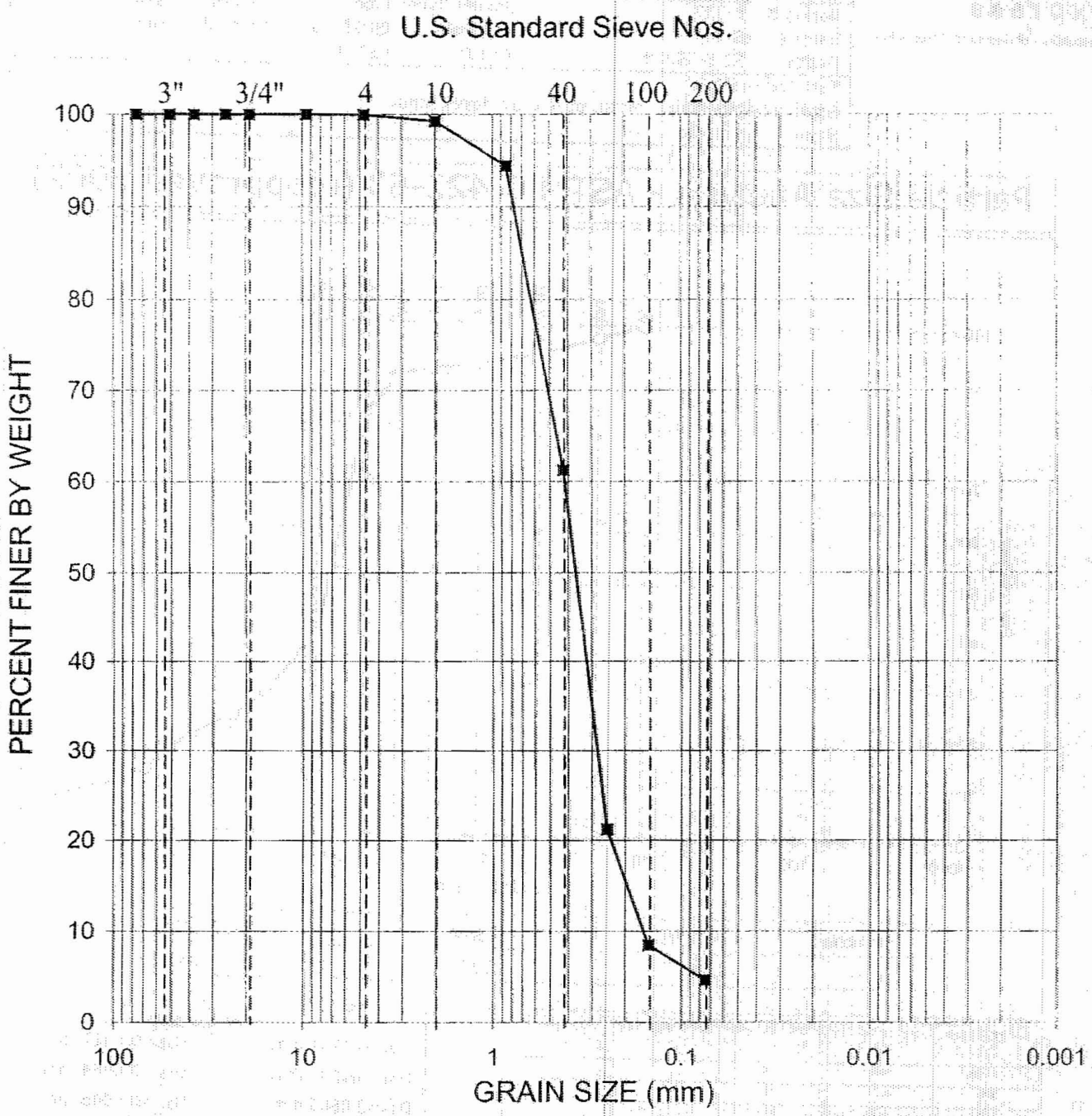


GRADATION CURVE

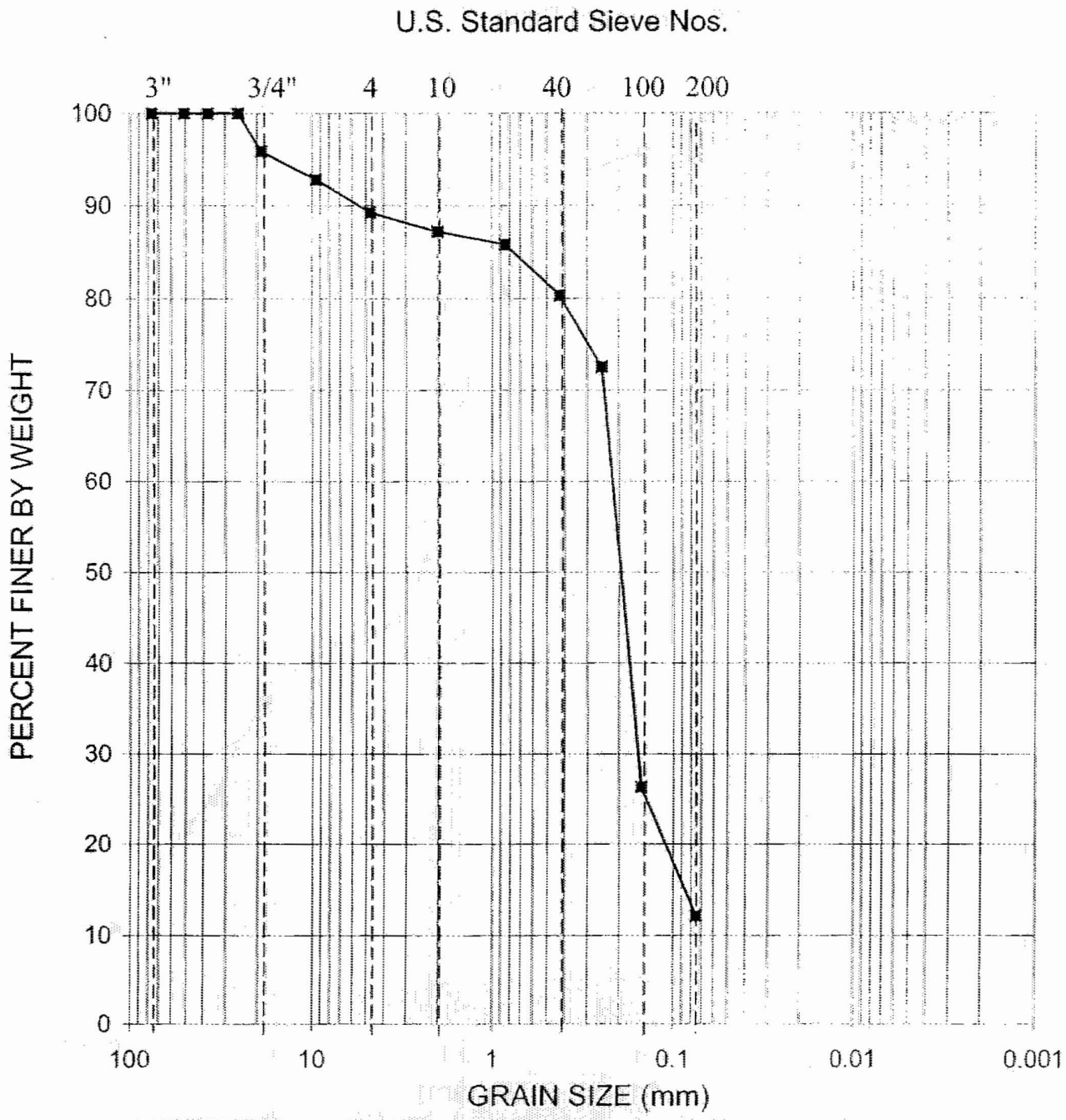
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 8/31/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-339	5.0	Poorly Graded SAND, trace silt, tan	SP		

Schnabel

Schnabel Engineering



GRADATION CURVE

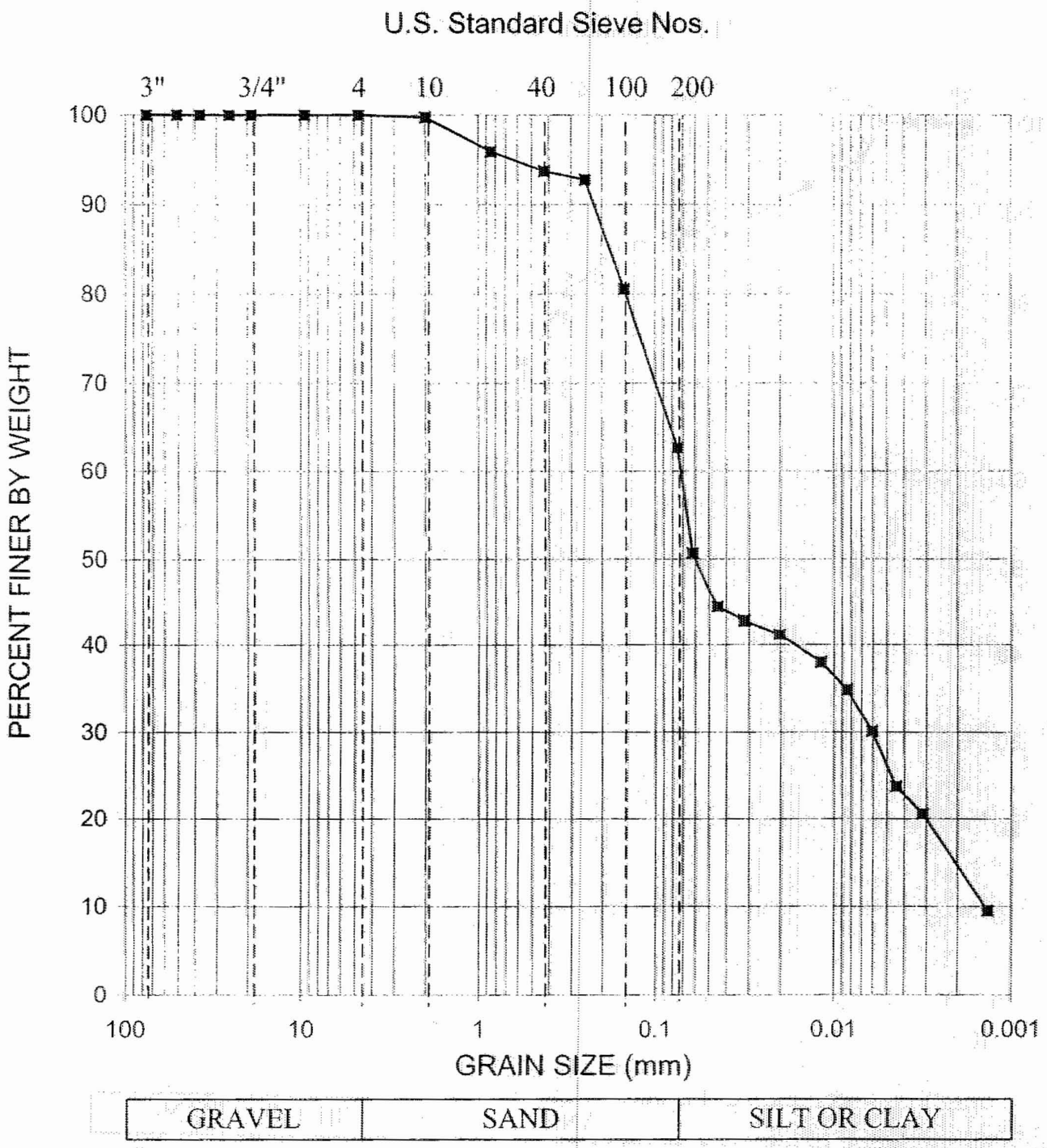
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	8/31/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-339	13.5	Silty SAND, trace rock fragments, red-brown	SM		

Schnabel

Schnabel Engineering



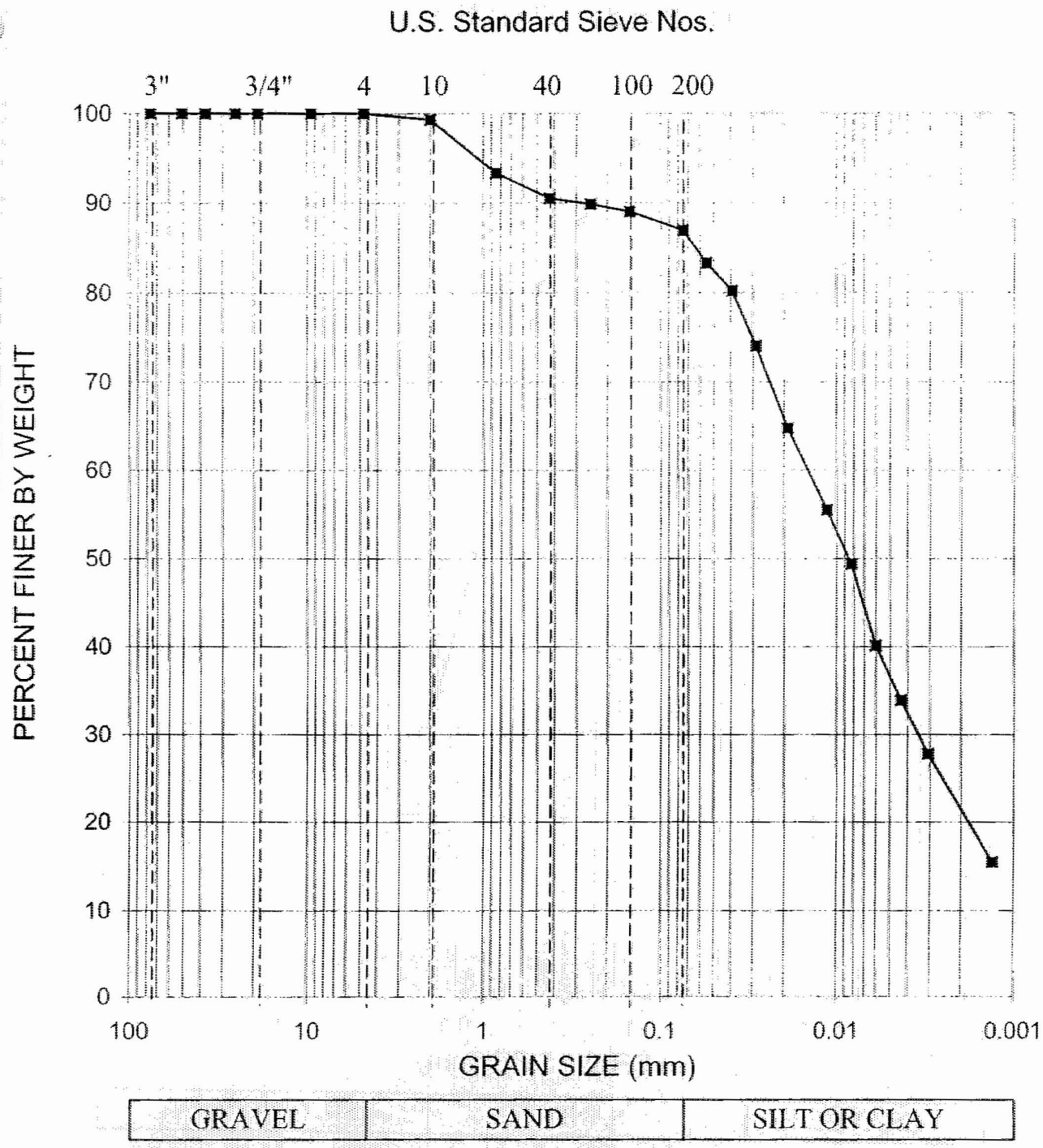
GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	9/5/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-339	33.5	Sandy FAT CLAY, dark gray	CH	62	41	

Schnabel

Schnabel Engineering



GRADATION CURVE

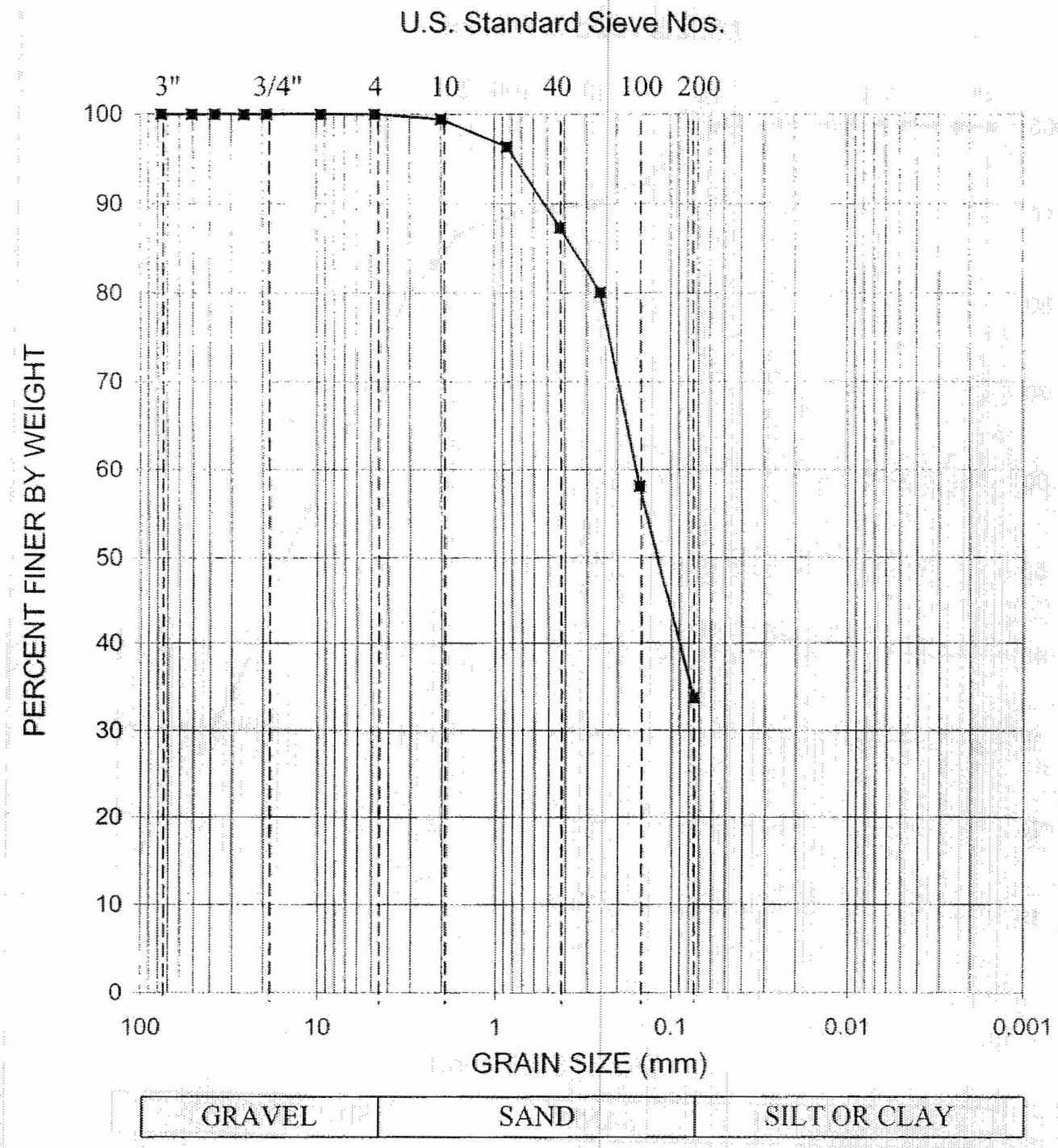
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/5/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-339	43.5	FAT CLAY, trace sand , dark gray	CH	60	38

Schnabel

Schnabel Engineering



GRADATION CURVE

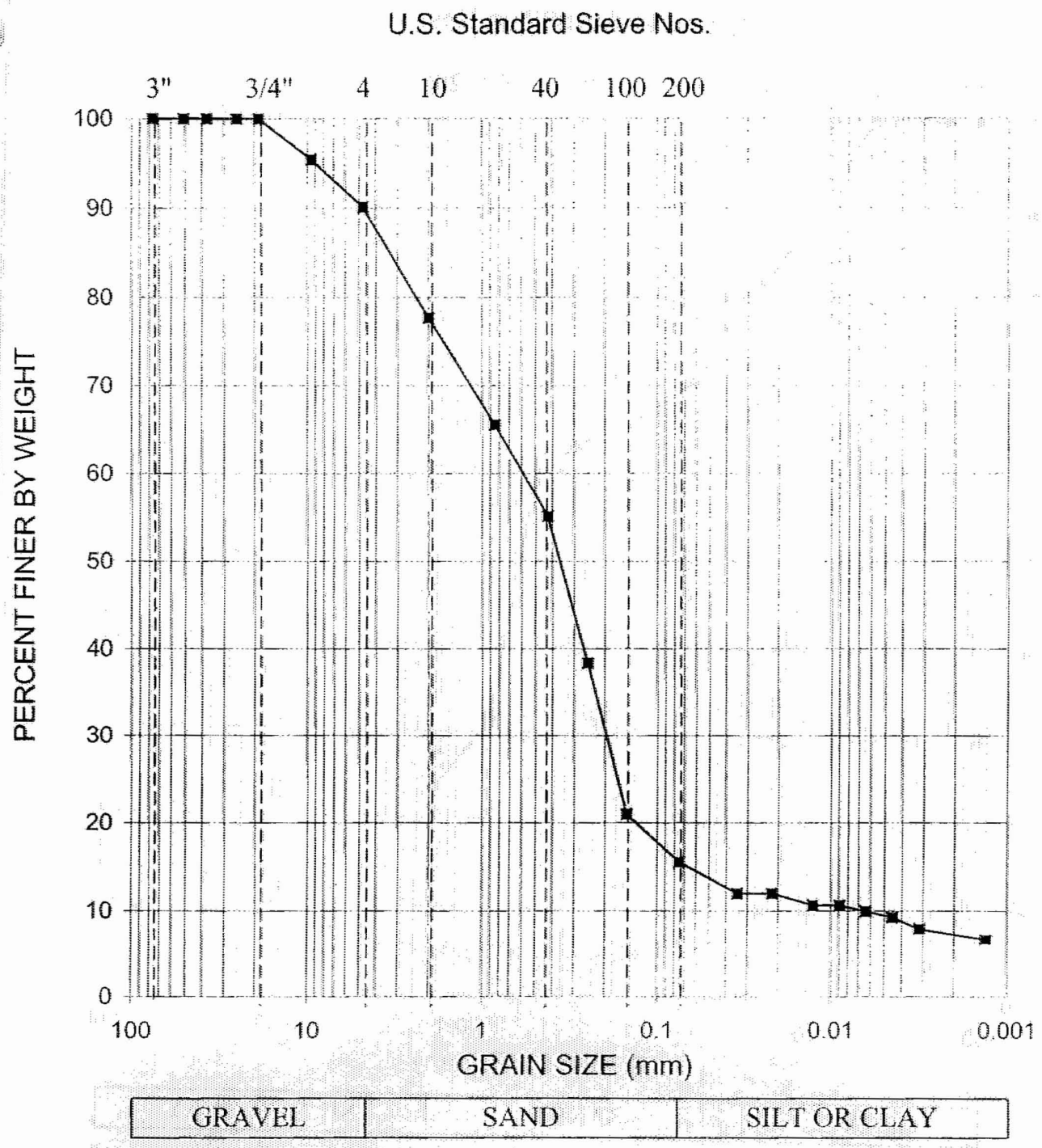
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 8/31/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-339	53.5	Silty SAND, dark green	SM	48	18

Schnabel

Schnabel Engineering



GRADATION CURVE

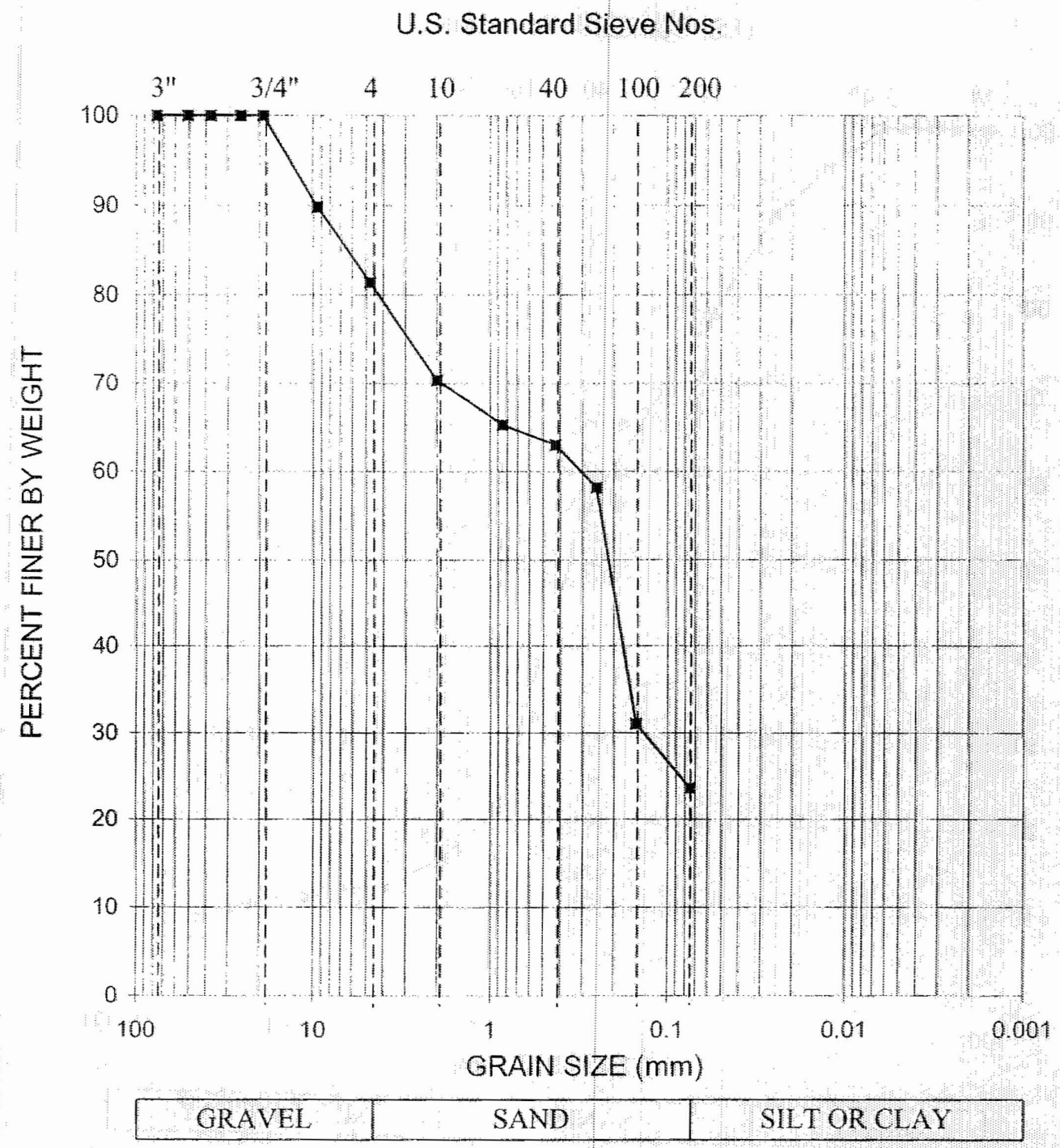
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 9/11/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-339	63.5	Clayey SAND, trace shells, dark gray	SC	49	28

Schnabel

Schnabel Engineering



GRADATION CURVE

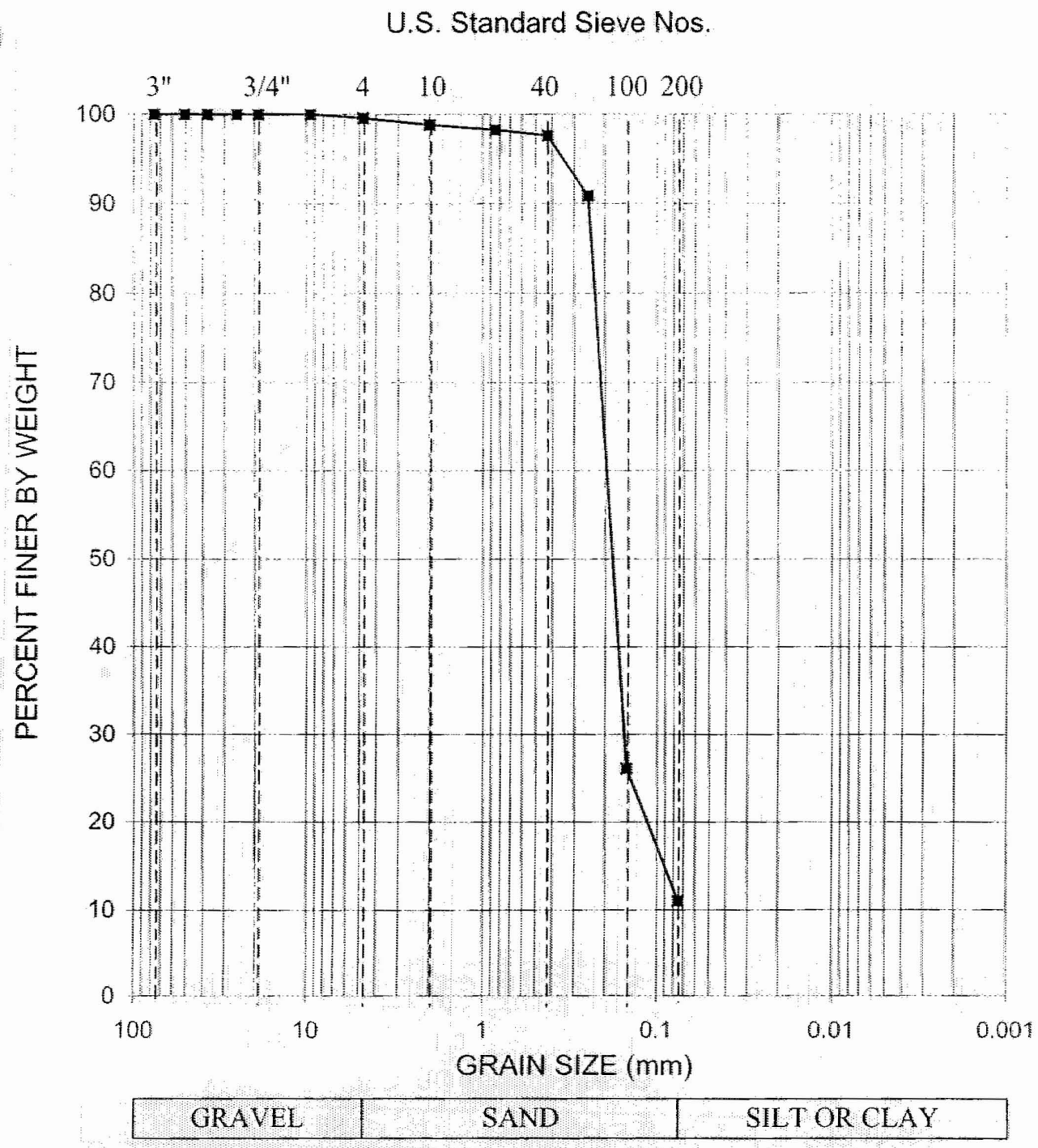
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 8/31/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-339	78.5	Silty SAND, with shells, green	SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

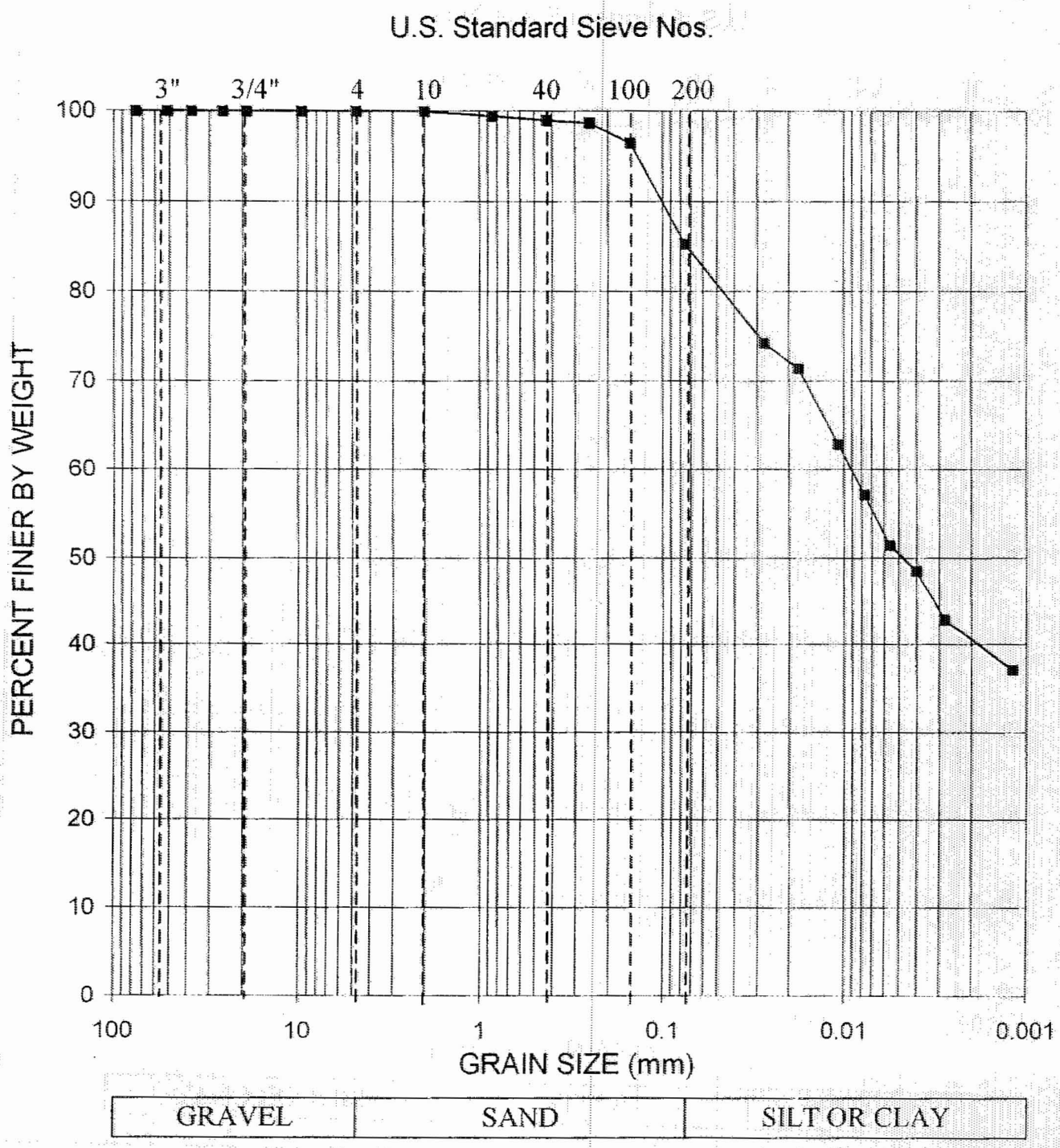
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 8/31/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-339	88.5	Poorly Graded SAND, with silt, contains shells, dark green	SP-SM		

Schnabel

Schnabel Engineering



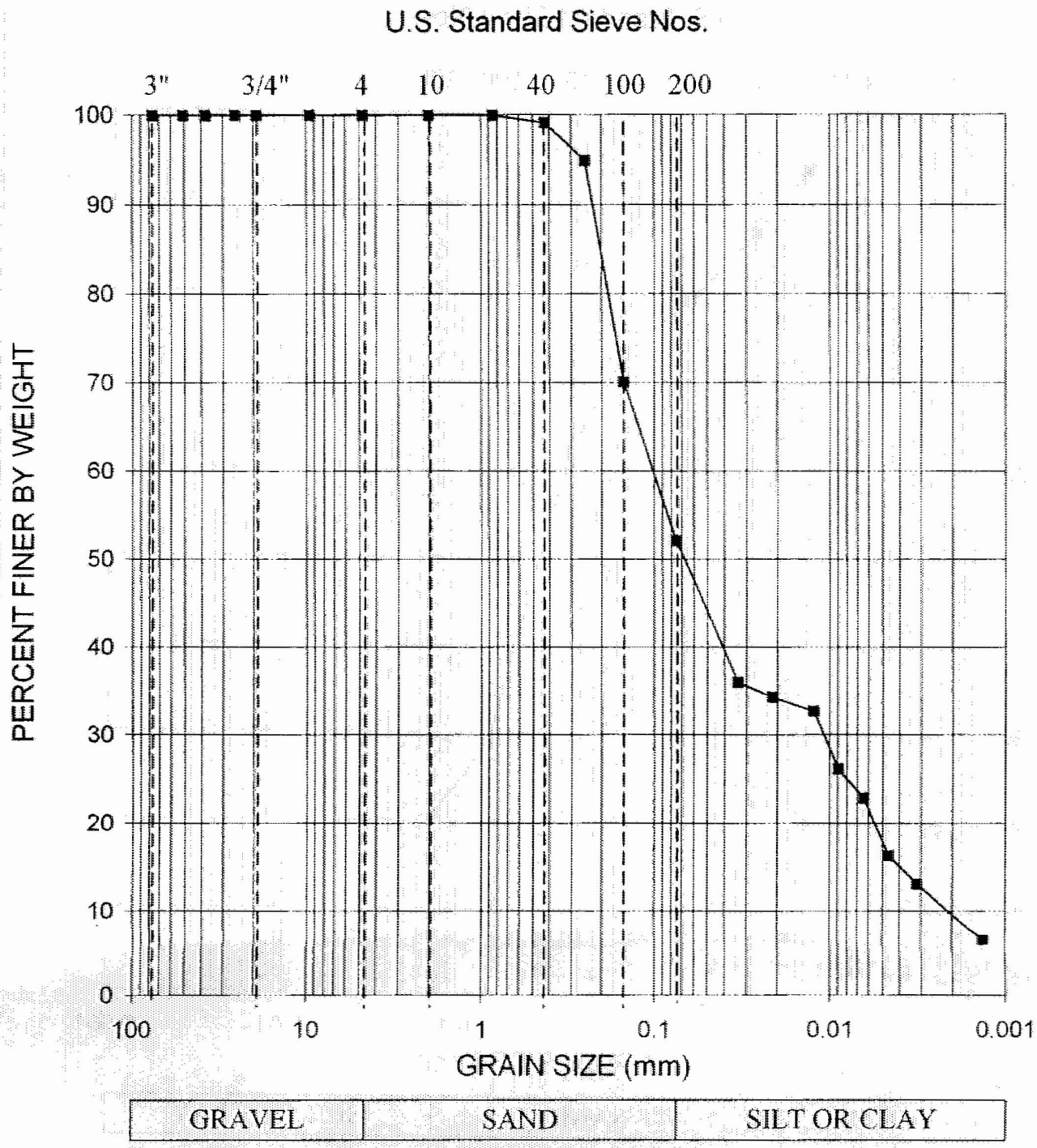
GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	9/14/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-401	10.5	FAT CLAY, with sand, gray-brown	CH	66	46	

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:	9/14/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-401	23.5	Sandy LEAN CLAY, dark gray	CL	47	19

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Schnabel Engineering