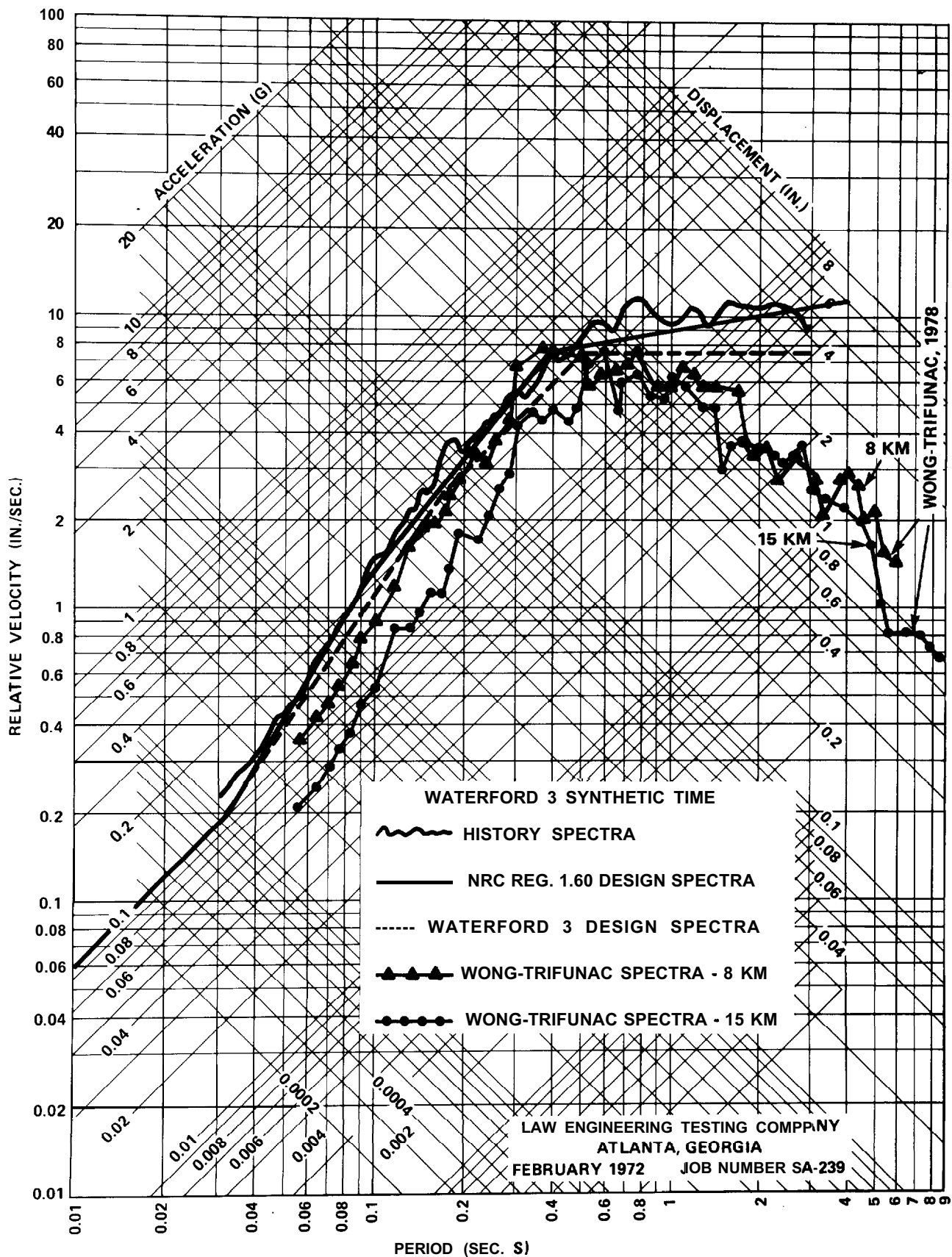


LOUISIANA
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Waterford Steam
Electric Station

HORIZONTAL RESPONSE SPECTRUM DESIGN BASIS
EARTHQUAKE 2% DAMPING-TOP OF PLEISTOCENE

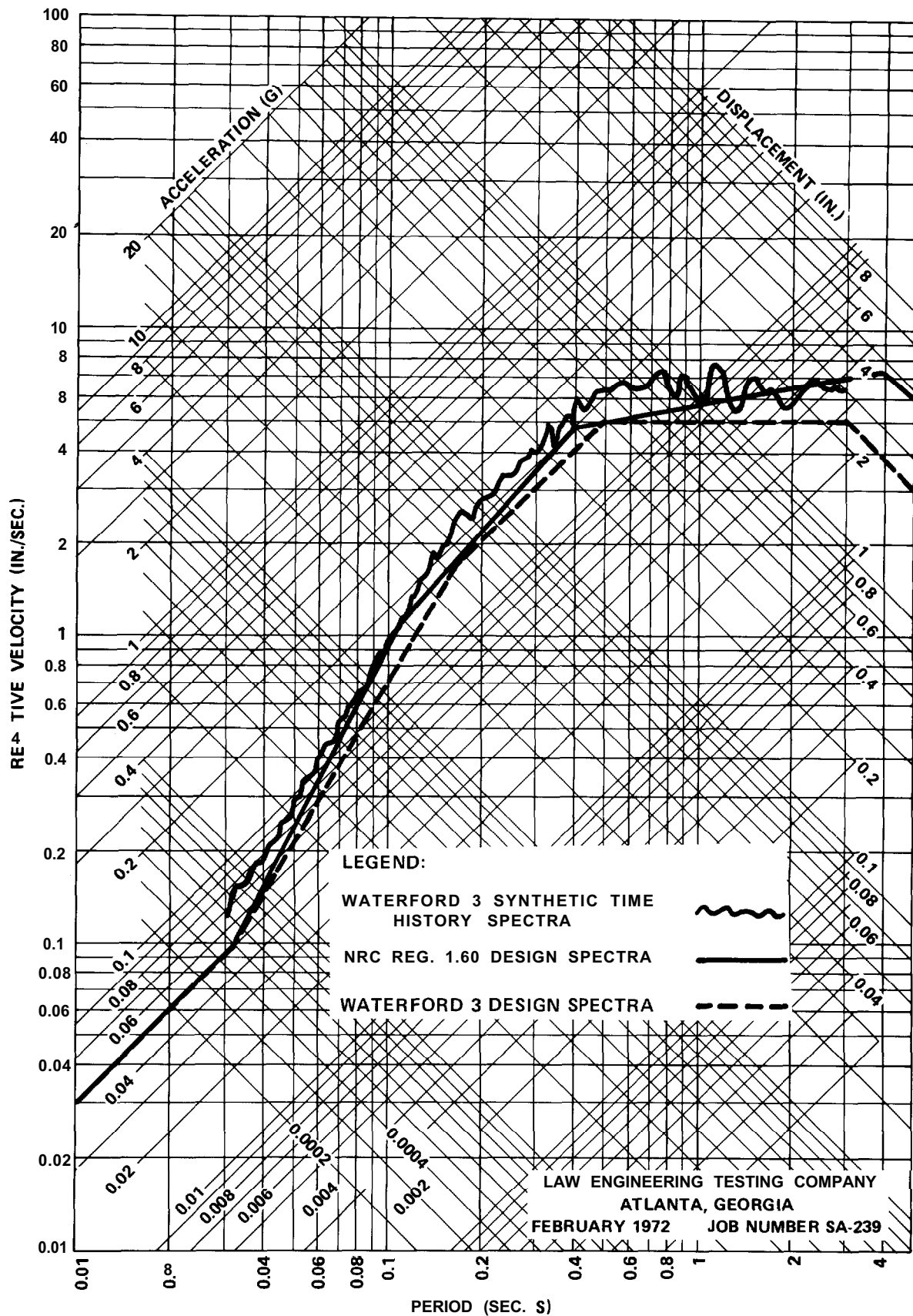
Figure
3.7-1



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Electric Station

HORIZONTAL RESPONSE SPECTRUM DESIGN BASIS
EARTHQUAKE 5% DAMPING-TOP OF PLEISTOCENE

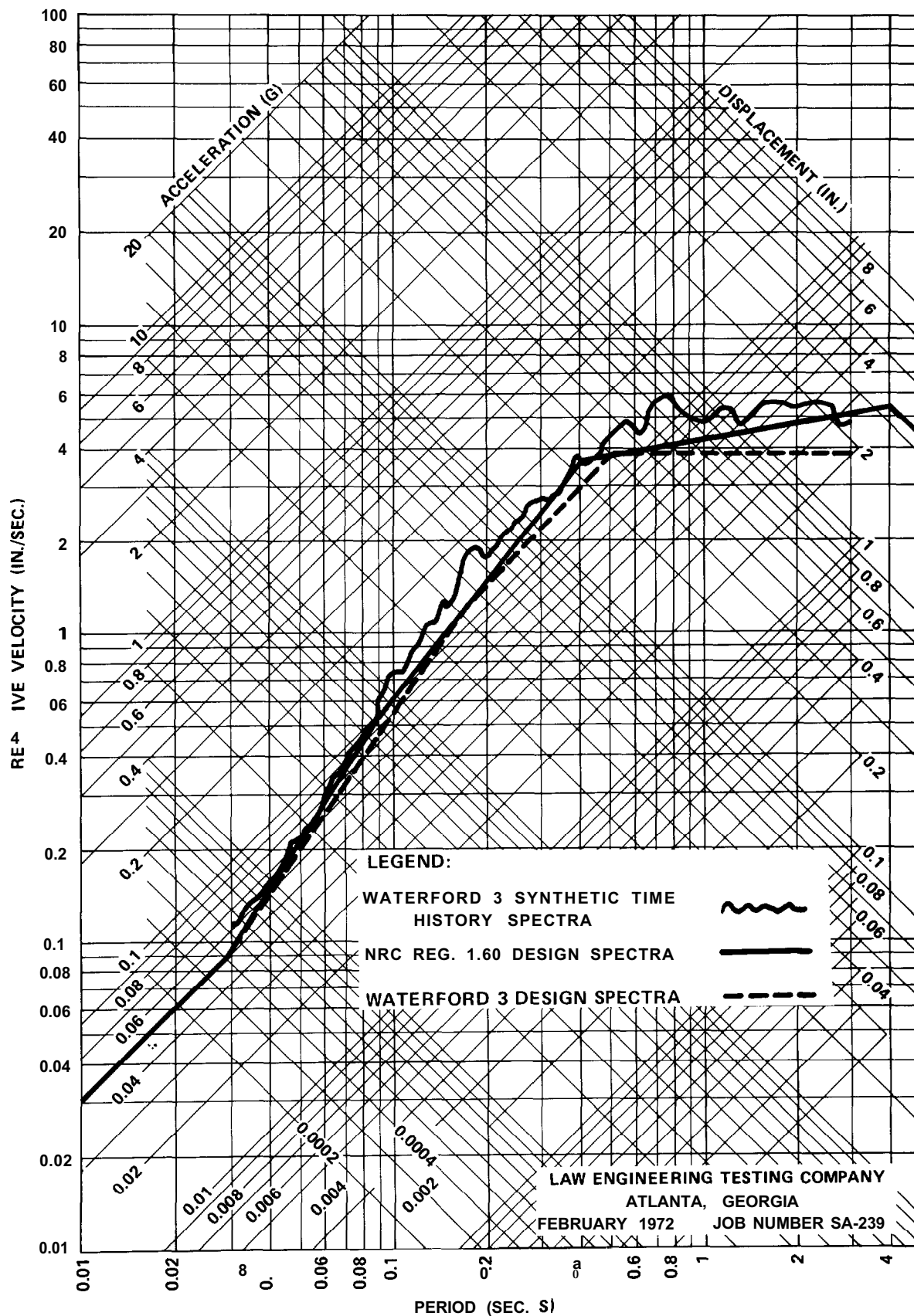
Figure
3.7-2



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HORIZONTAL RESPONSE SPECTRUM OPERATING BASIS
 EARTHQUAKE 2% DAMPING-TOP OF PLEISTOCENE

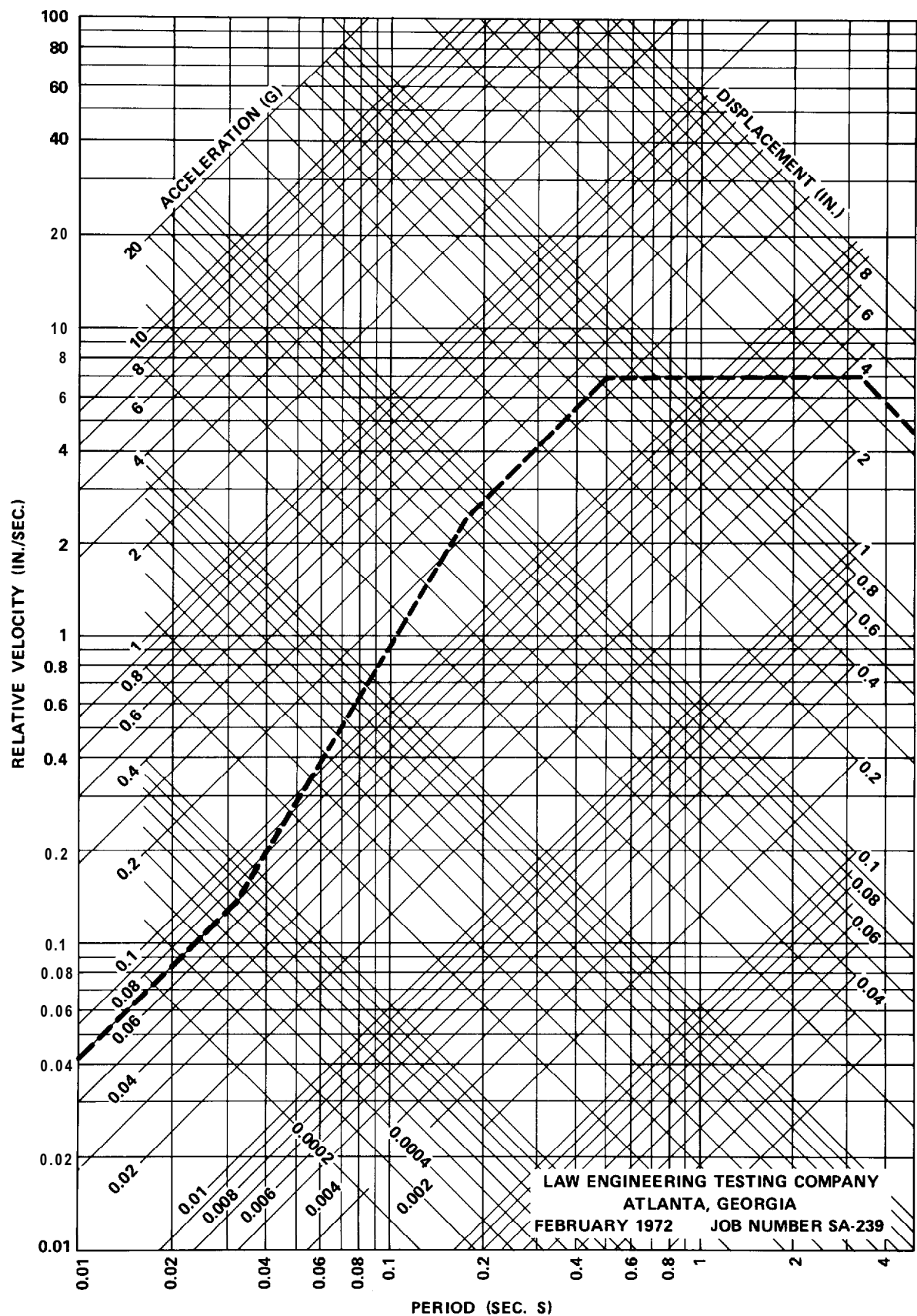
Figure
 3.7-3



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HORIZONTAL RESPONSE SPECTRUM OPERATING BASIS
EARTHQUAKE 5% DAMPING-TOP OF PLEISTOCENE

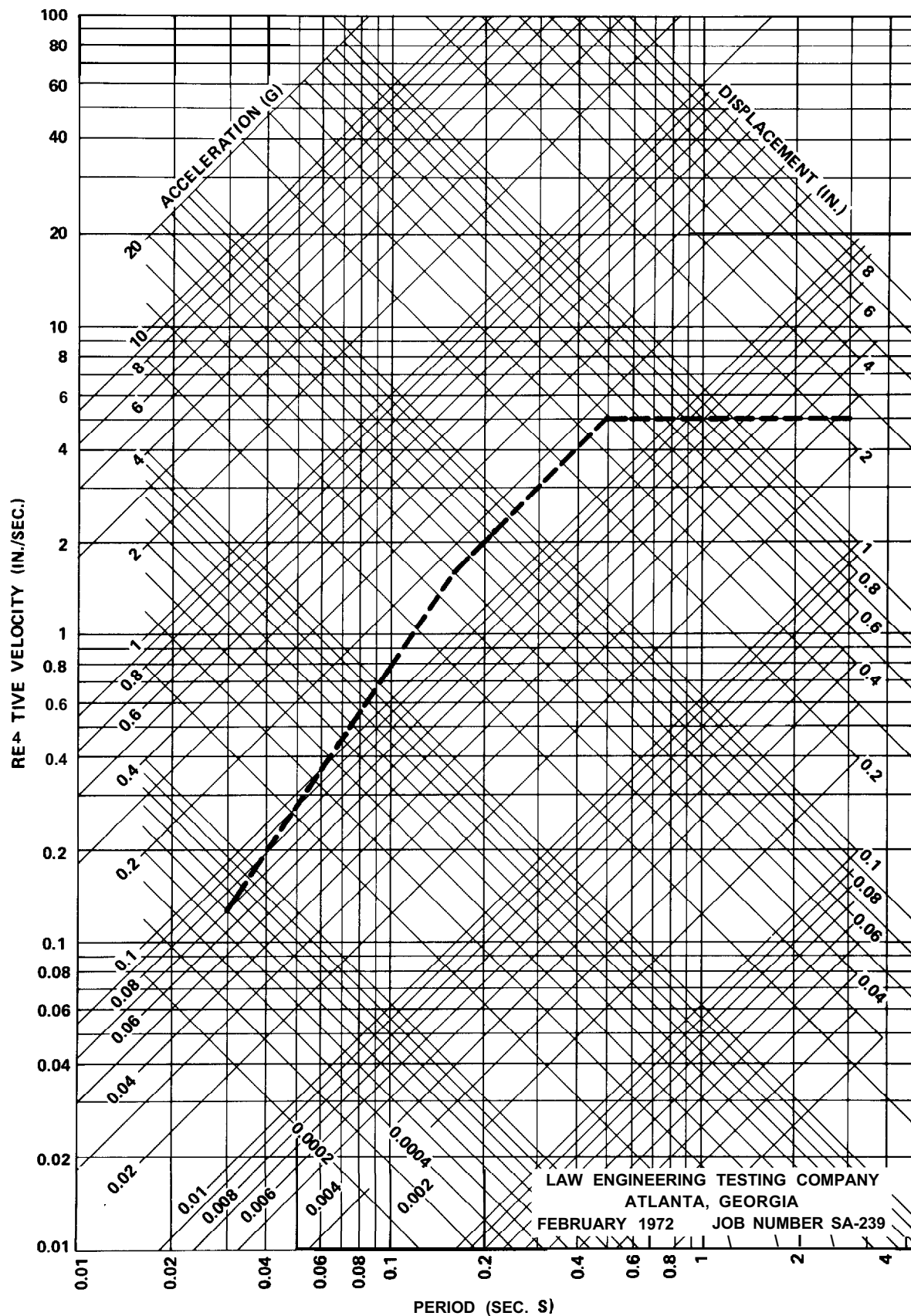
Figure
3.7-4



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Electric Station

VERTICAL RESPONSE SPECTRUM DESIGN BASIS
EARTHQUAKE 2% DAMPING-TOP OF PLEISTOCENE

Figure
3.7-5

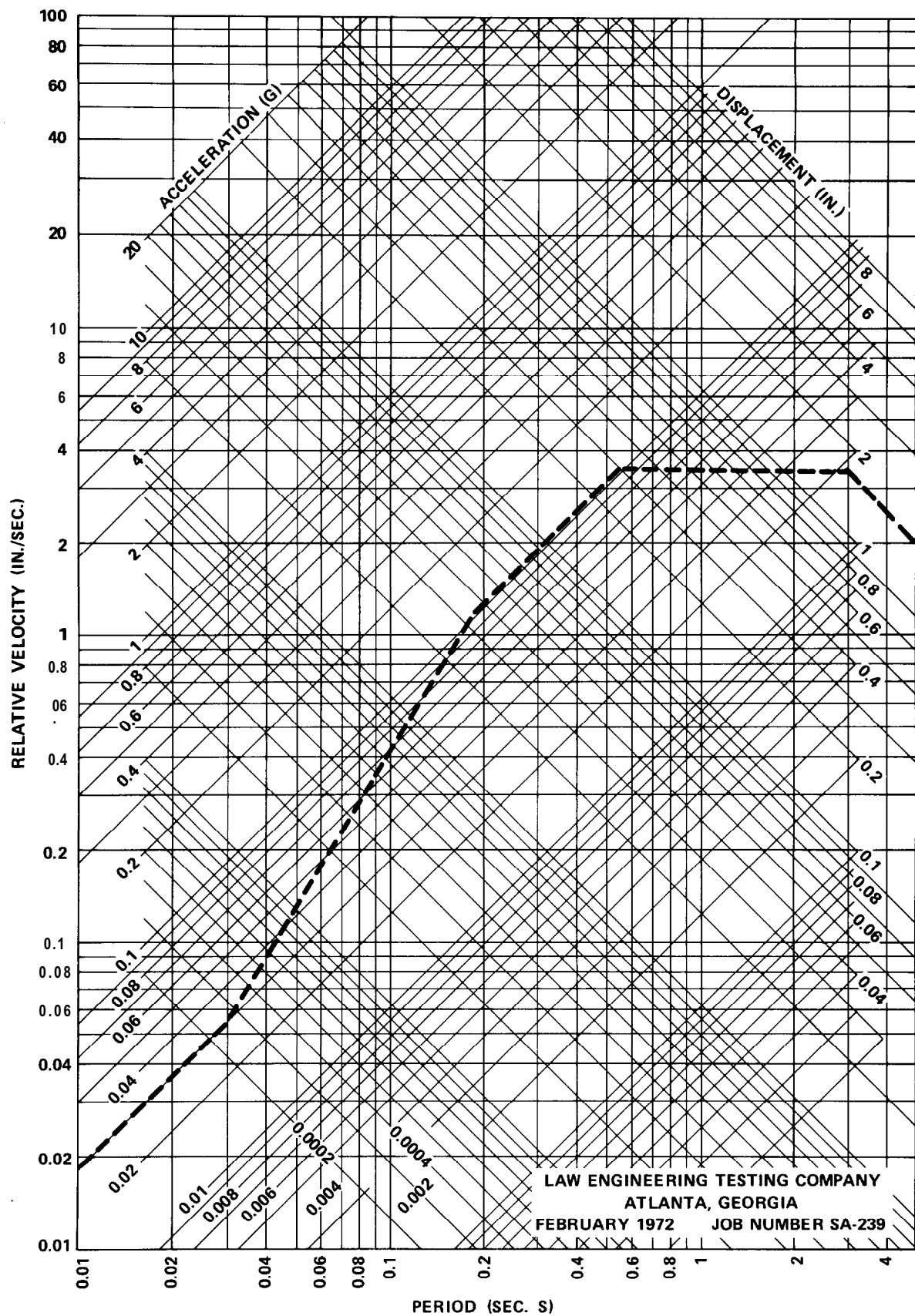


LAW ENGINEERING TESTING COMPANY
ATLANTA, GEORGIA
FEBRUARY 1972 JOB NUMBER SA-239

LOUISIANA
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VERTICAL RESPONSE SPECTRUM DESIGN BASIS
EARTHQUAKE 5% DAMPING-TOP OF PLEISTOCENE

Figure
3.7-6



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VERTICAL RESPONSE SPECTRUM OPERATING BASIS
EARTHQUAKE 2% DAMPING-TOP OF PLEISTOCENE

Figure
3.7-7

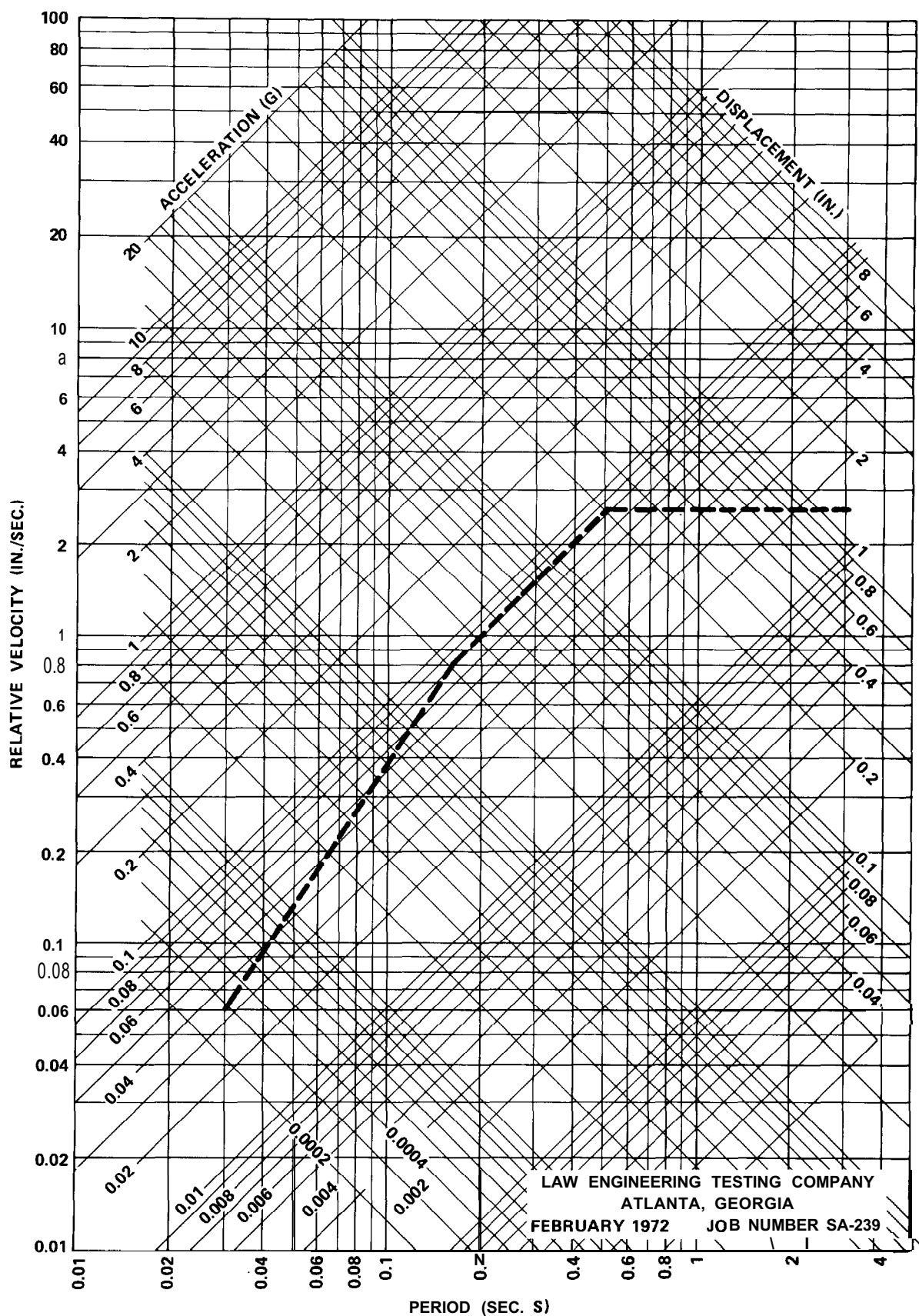
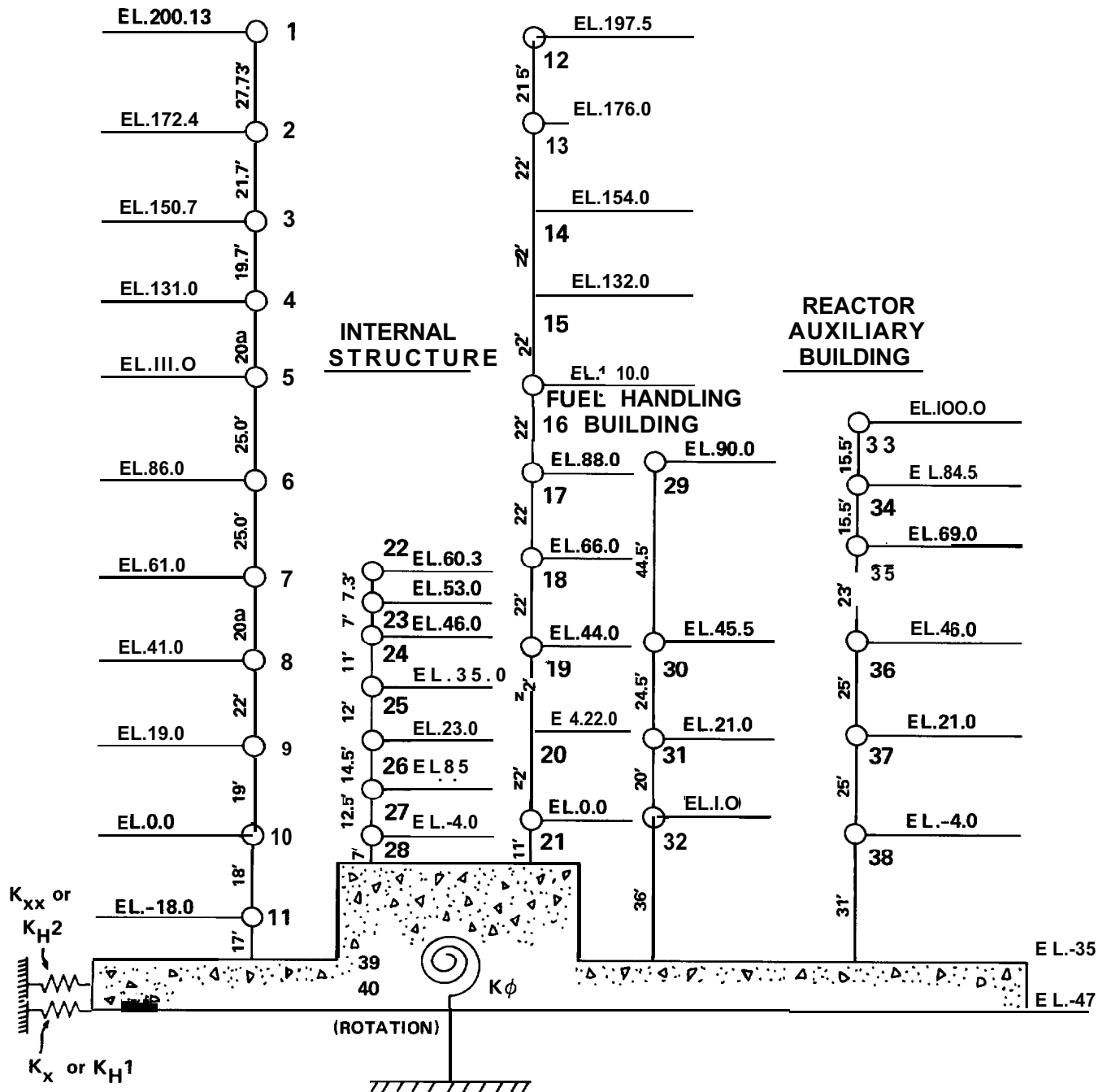
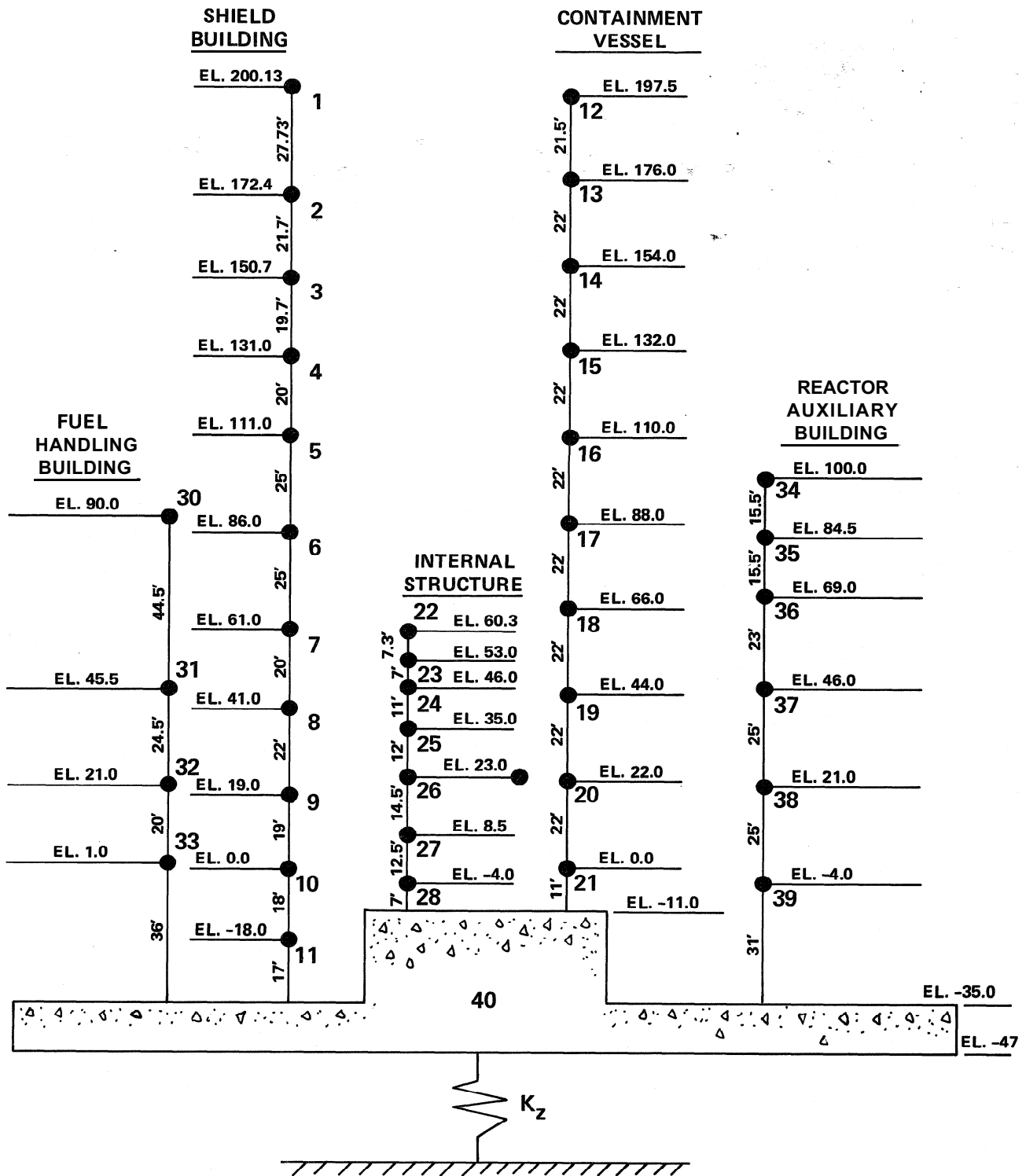


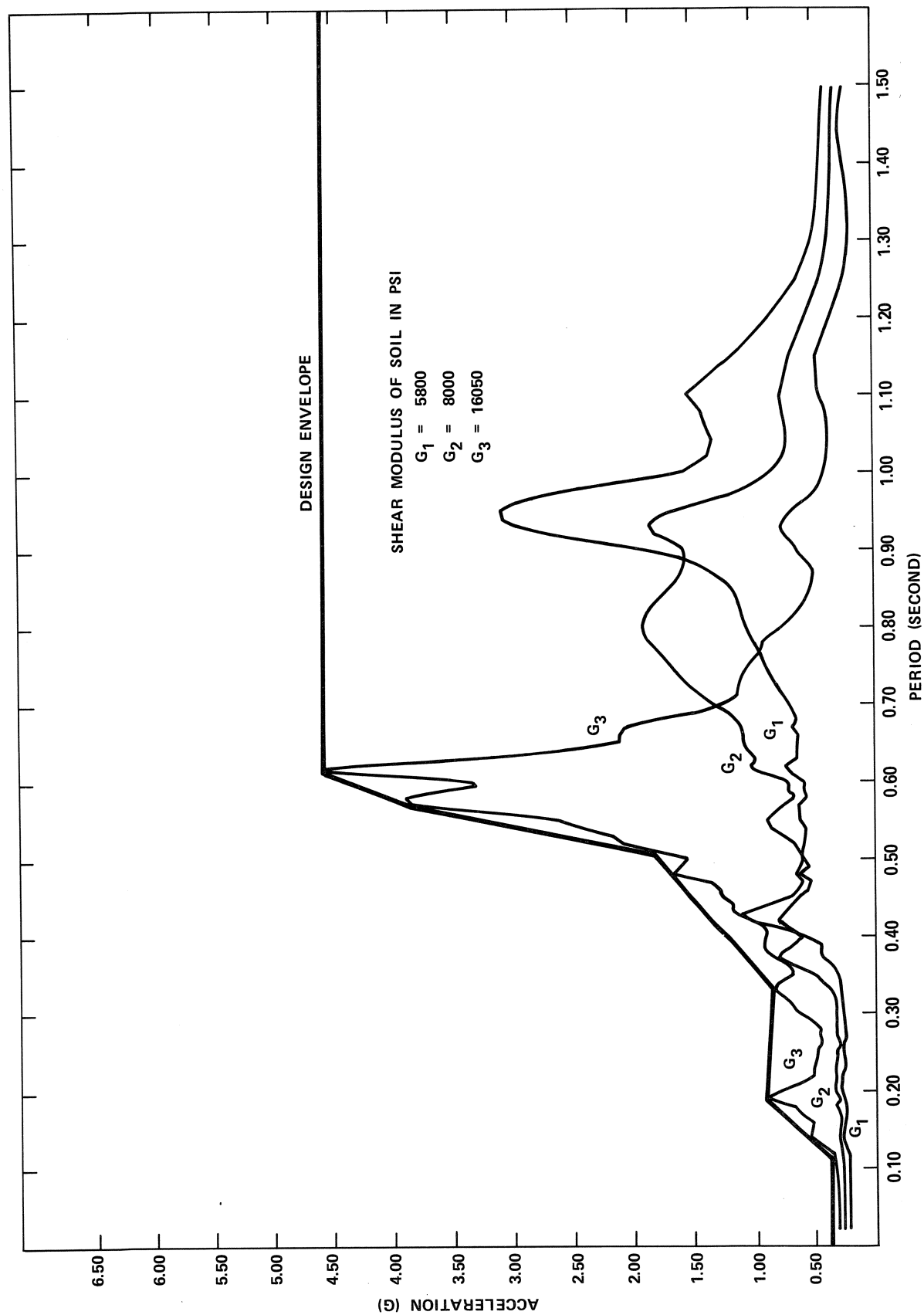
Figure
3.7-8

SHIELD BLDG.

CONTAINMENT VESSEL



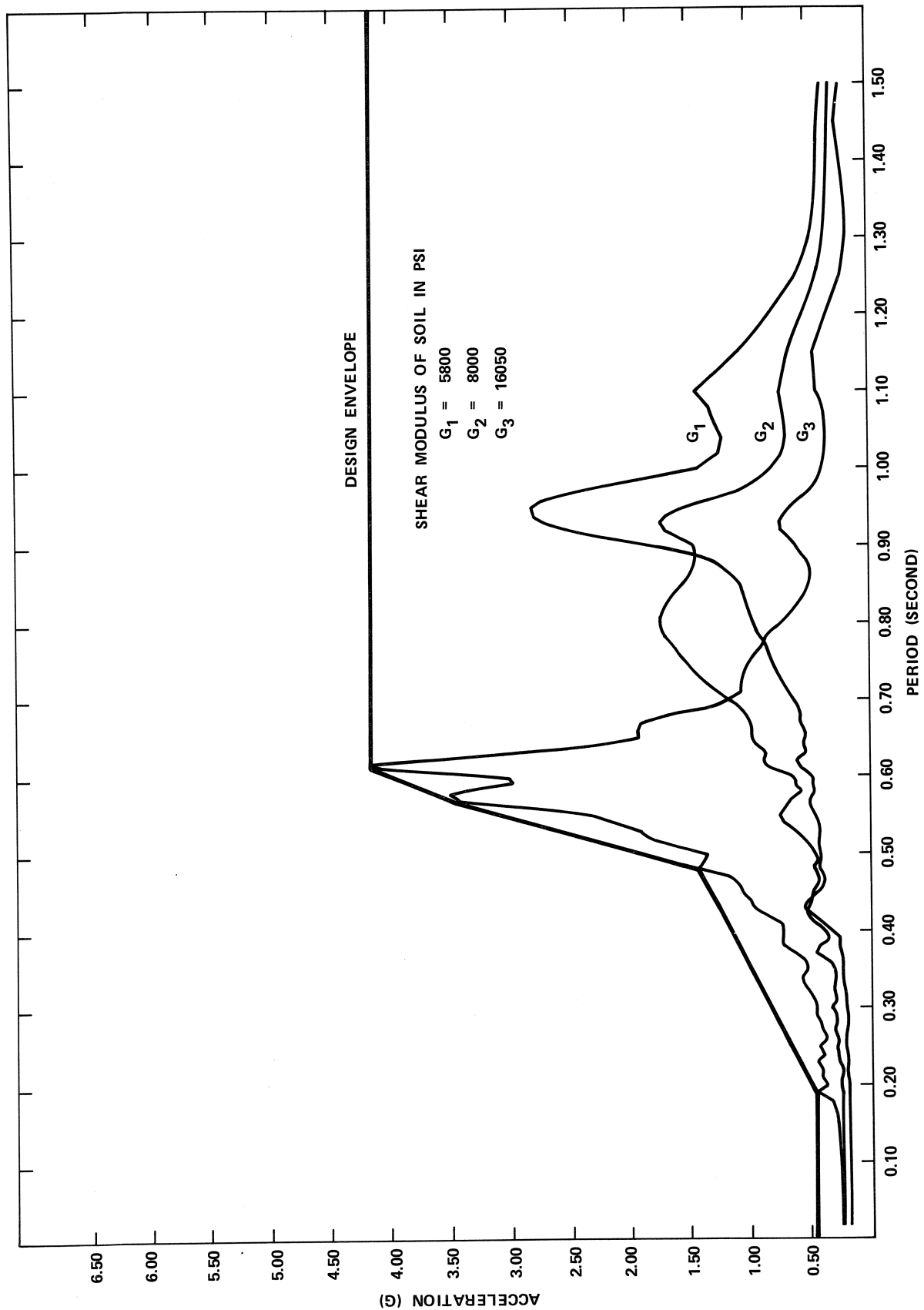




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FLOOR SPECTRA E-W SSE 1%
CONTAINMENT VESSEL ELEV. + 88 FT. MSL

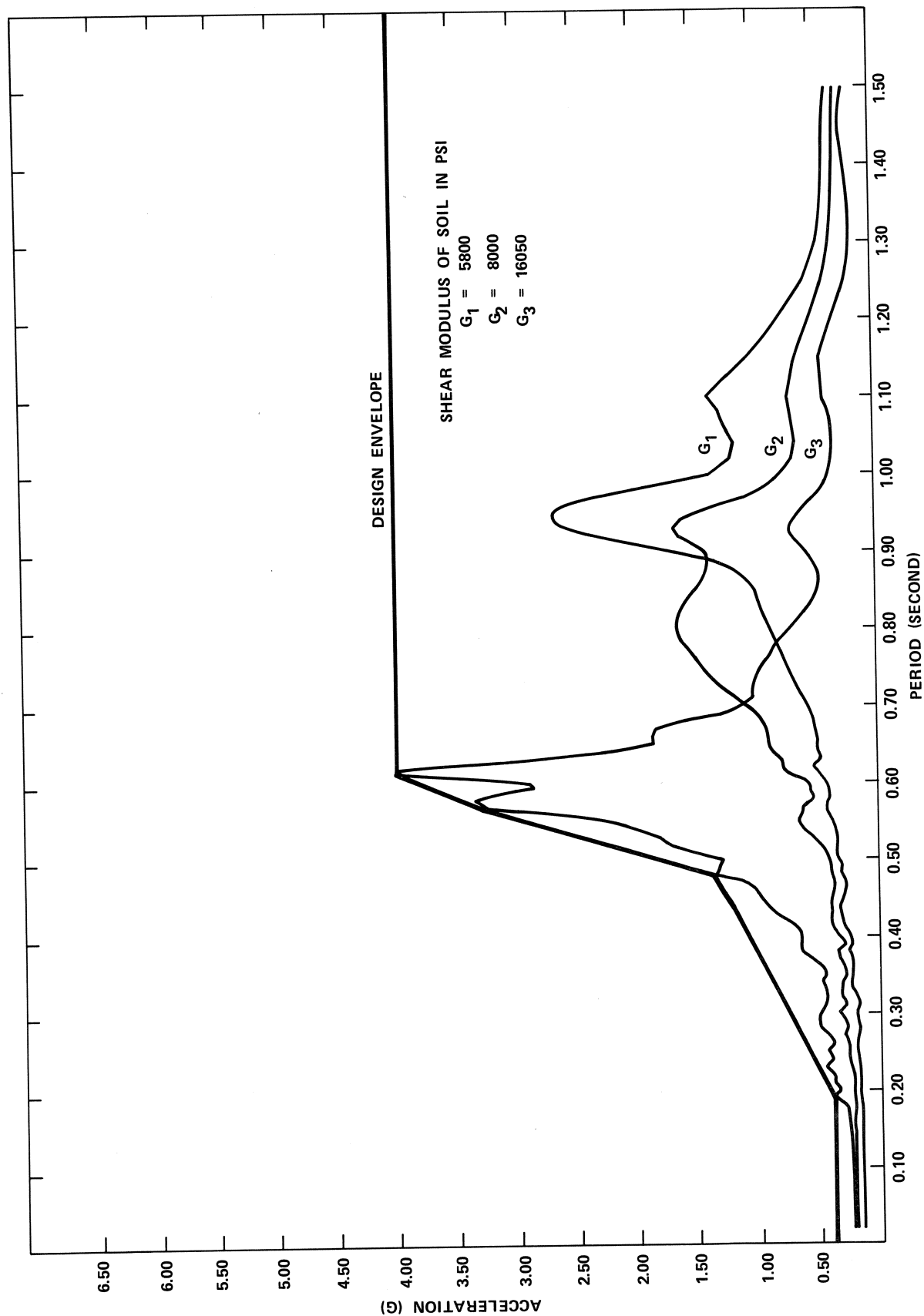
Figure
3.7-11



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Electric Station

FLOOR SPECTRA E-W SSE 1%
INTERNAL STRUCTURE ELEV. + 46 FT. MSL

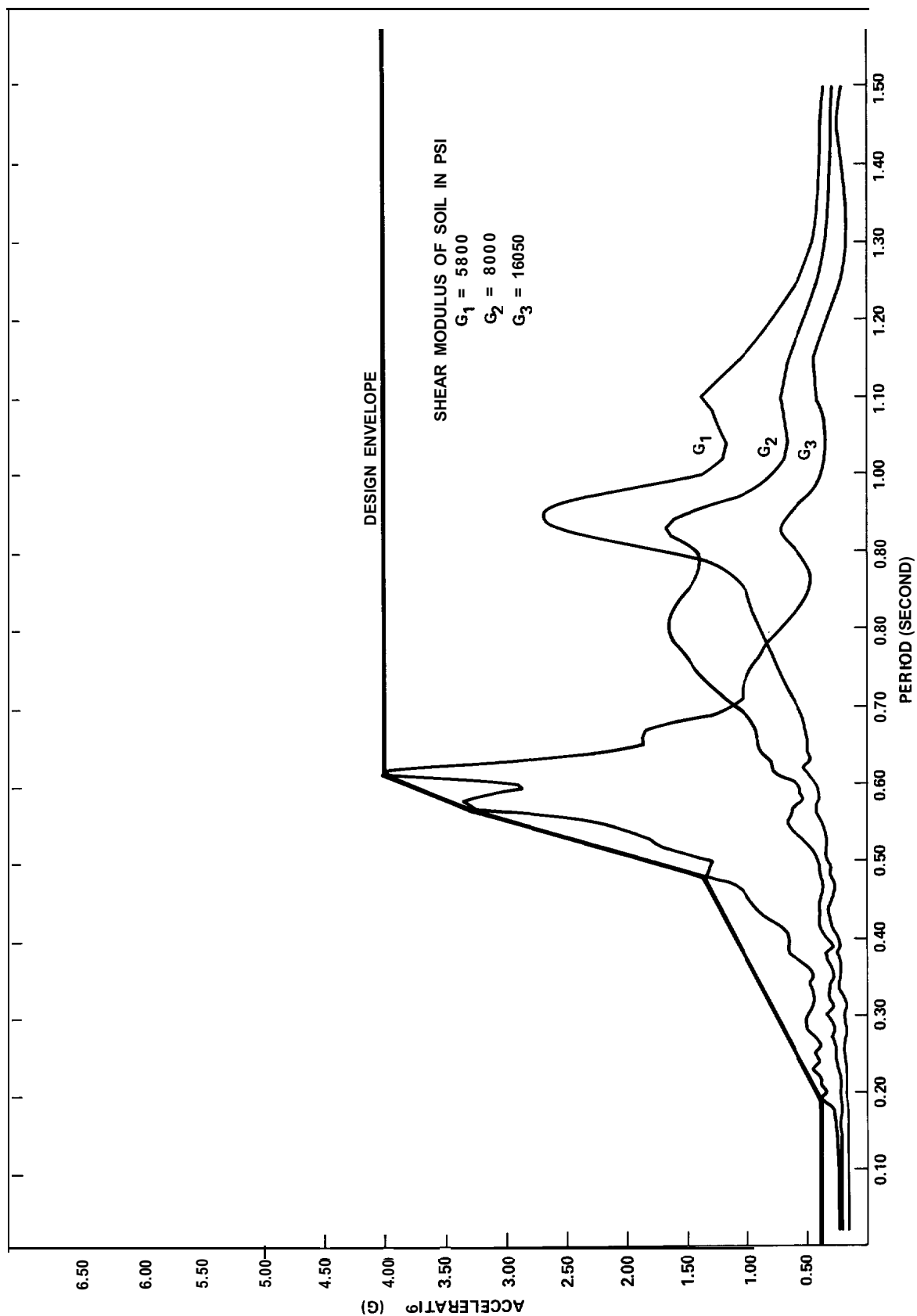
Figure
3.7-12.



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Electric Station

FLOOR SPECTRA E-W SSE 1%
FUEL HANDLING BLDG. ELEV. + 21 FT. MSL

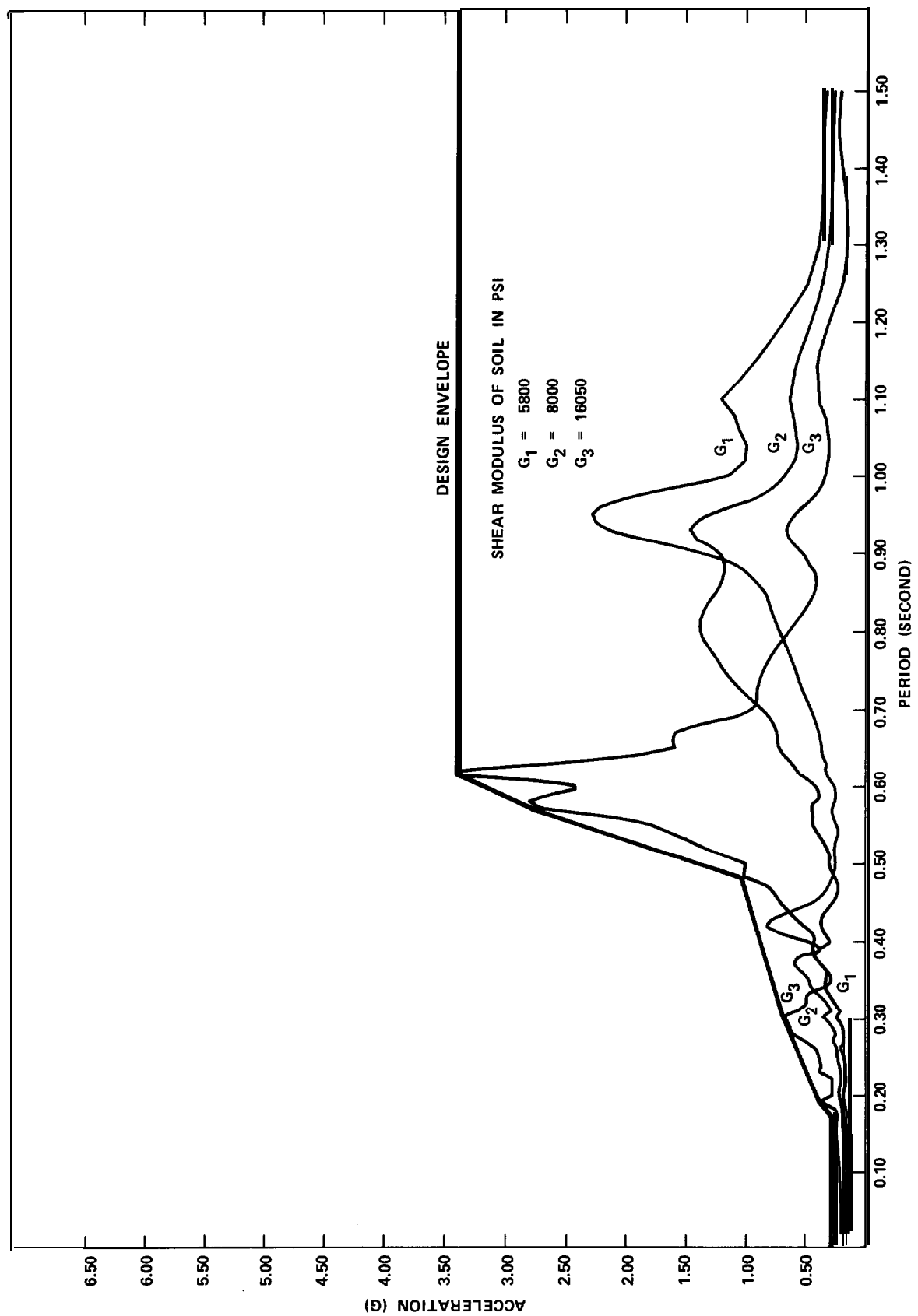
Figure
3.7-13



LOUISIANA
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Waterford Steam
Electric Station

FLOOR SPECTRA E-W SSE 1%
REACTOR AUX. BLDG. ELEV. + 21 FT. MSL

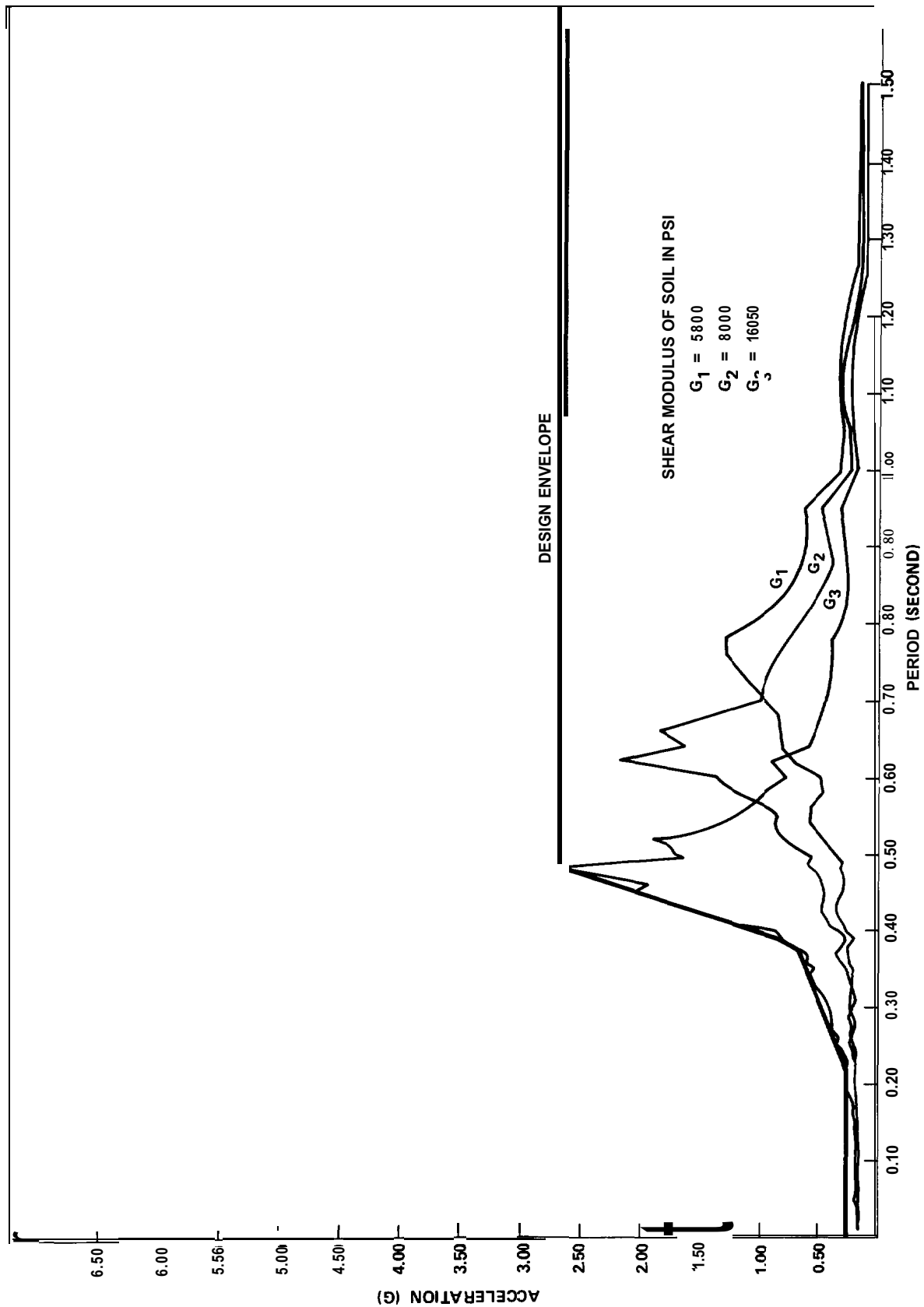
Figure
3.7-14



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FLOOR SPECTRA E-W SSE 1%
FOUNDATION MAT ELEV. -35 FT. MSL

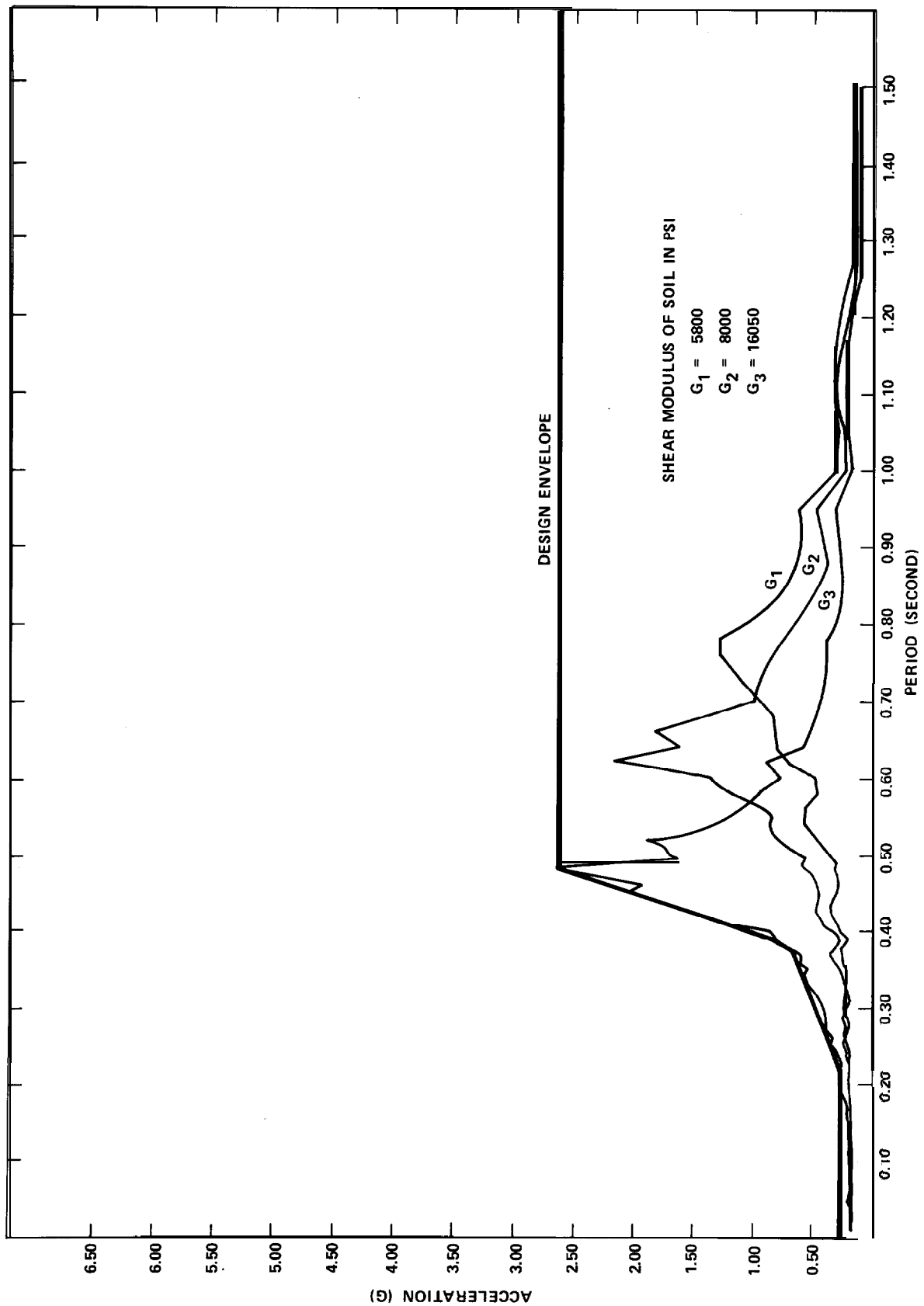
Figure
3.7-I 5



LOUISIANA
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Electric Station

FLOOR SPECTRA VERTICAL SSE 1%
CONTAINMENT VESSEL ELEV. + 88 FT. MSL

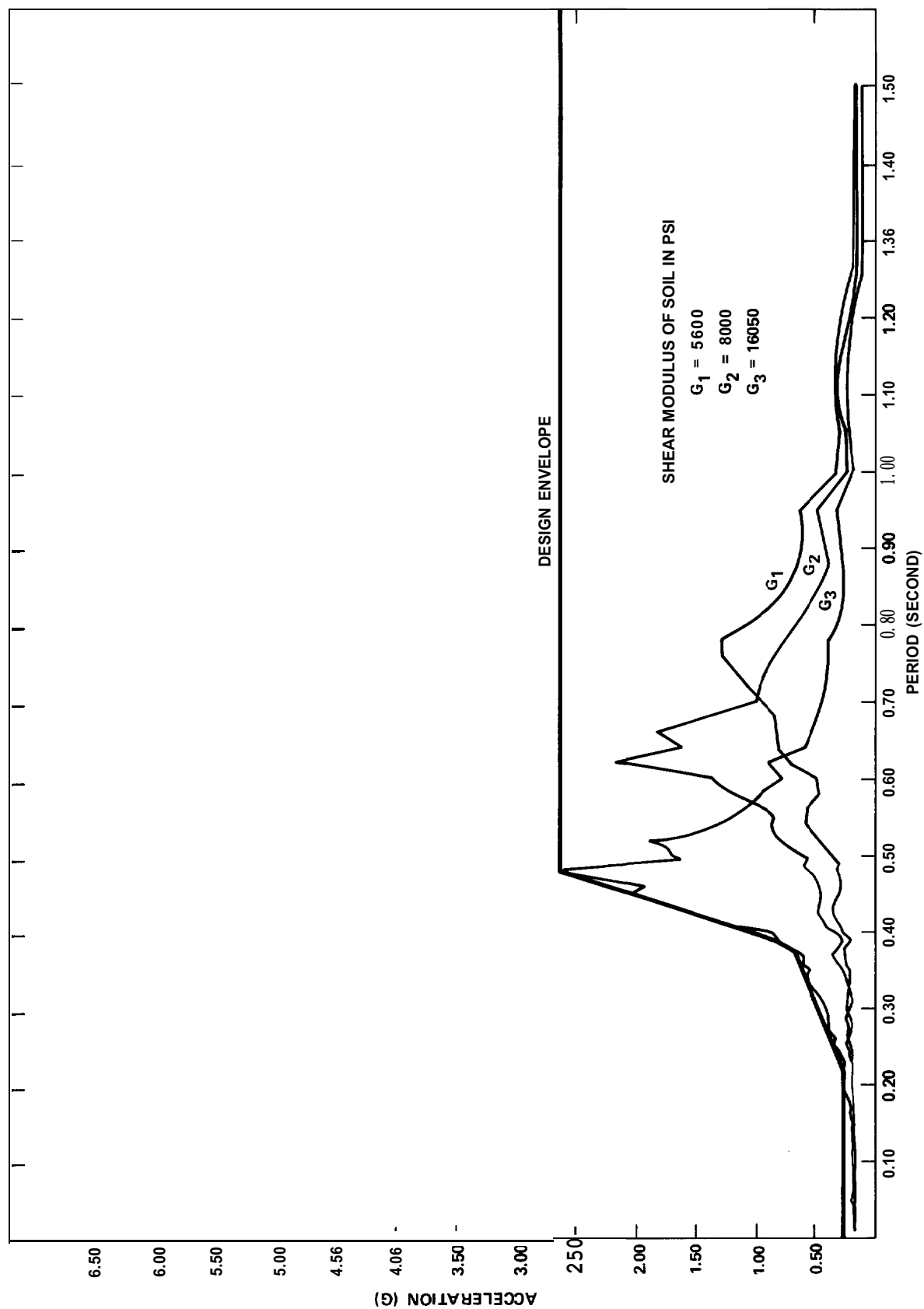
Figure
3.7-16



LOUISIANA
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Waterford Steam
Electric Station

FLOOR SPECTRA VERTICAL SSE 1%
INTERNAL STRUCTURE ELEV. + 46 FT. MSL

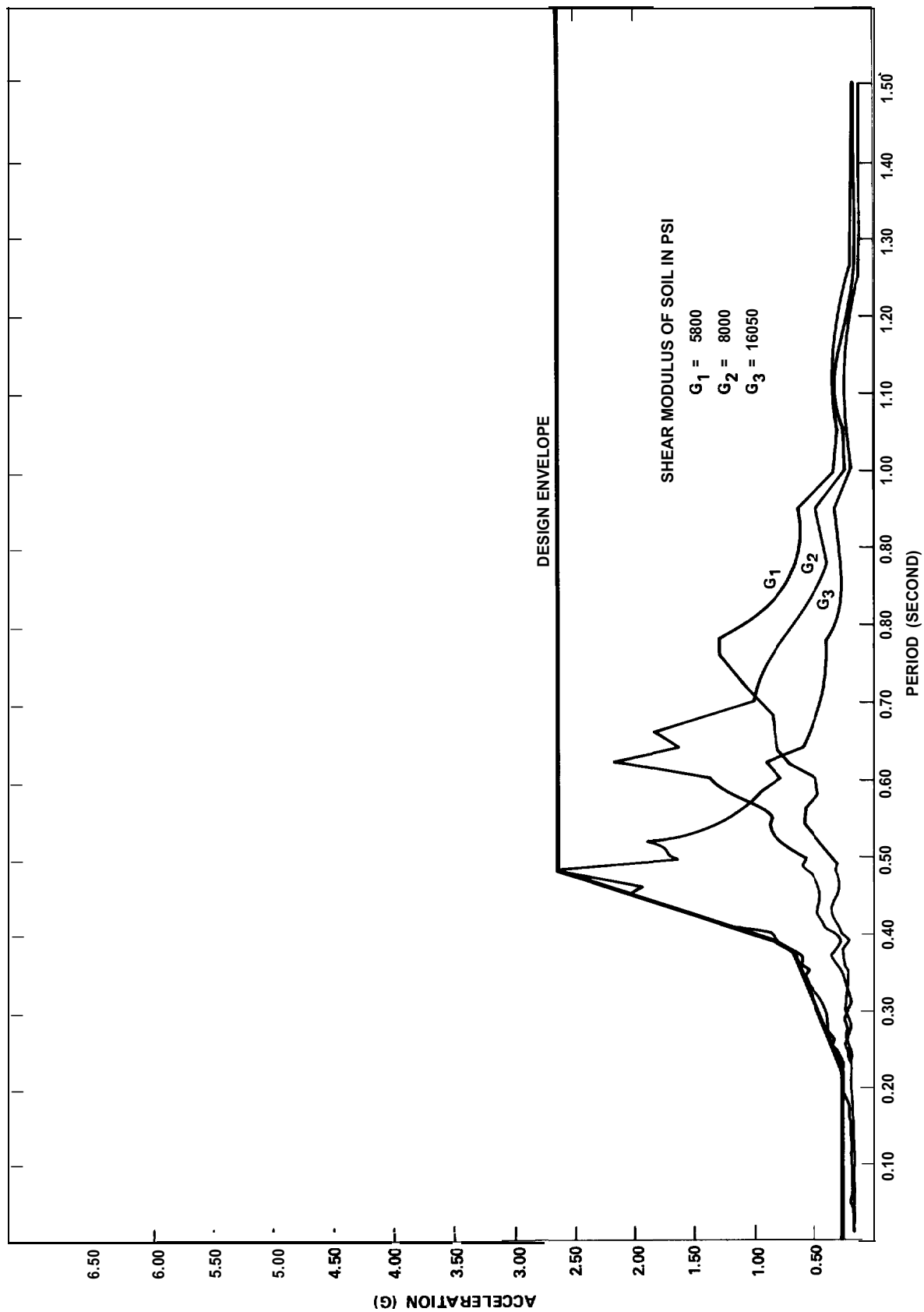
Figure
3.7-1 7



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Electric Station

FLOOR SPECTRA VERTICAL SSE 1%
REACTOR AUX. BLDG. ELEV. + 21 FT. MSL

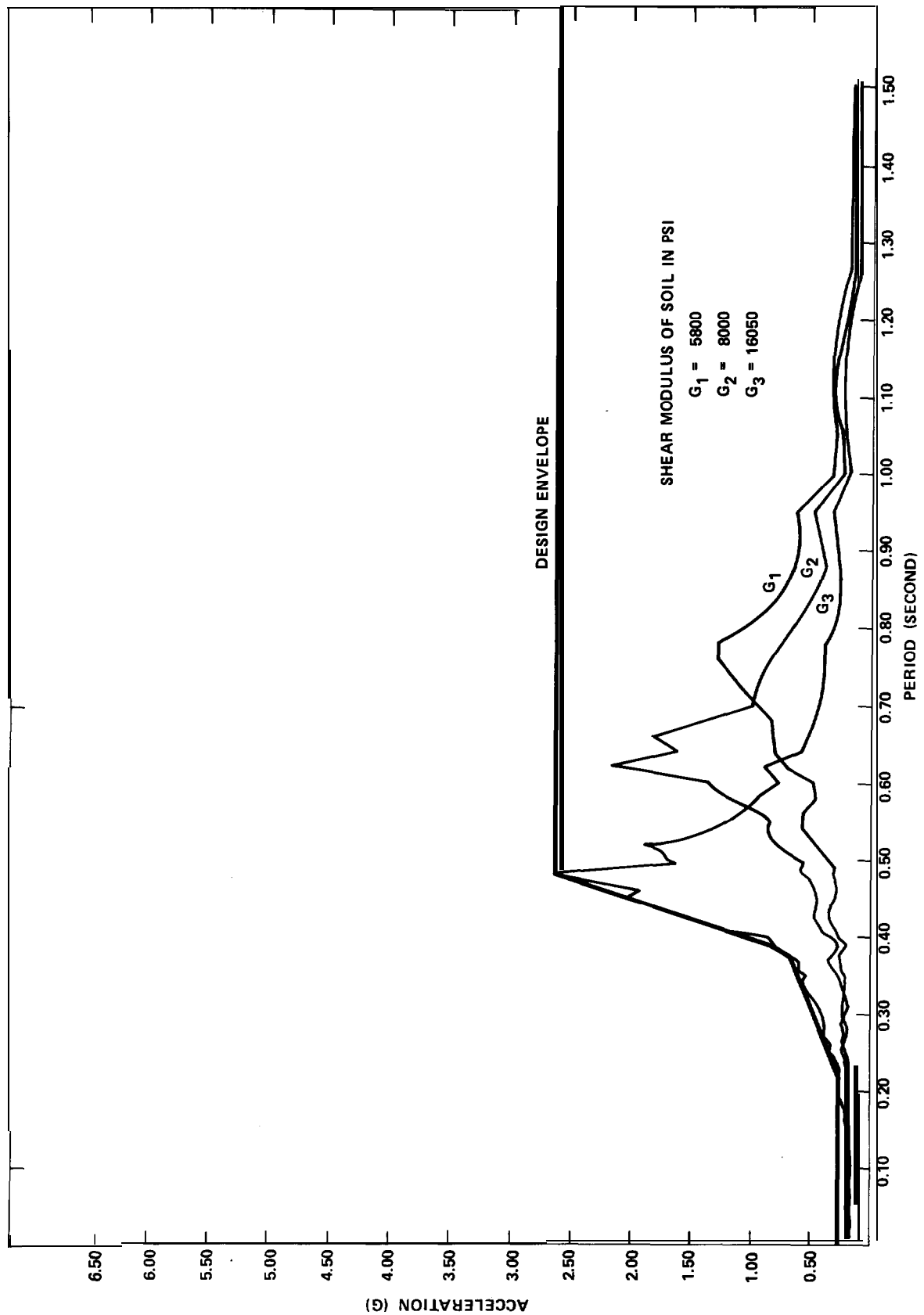
Figure
3.7-18



LOUISIANA
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Waterford Steam
Electric Station

FLOOR SPECTRA VERTICAL SSE 1%
FUEL HANDLING BLDG. ELEV. + 21 FT. MSL

Figure
3.7-19

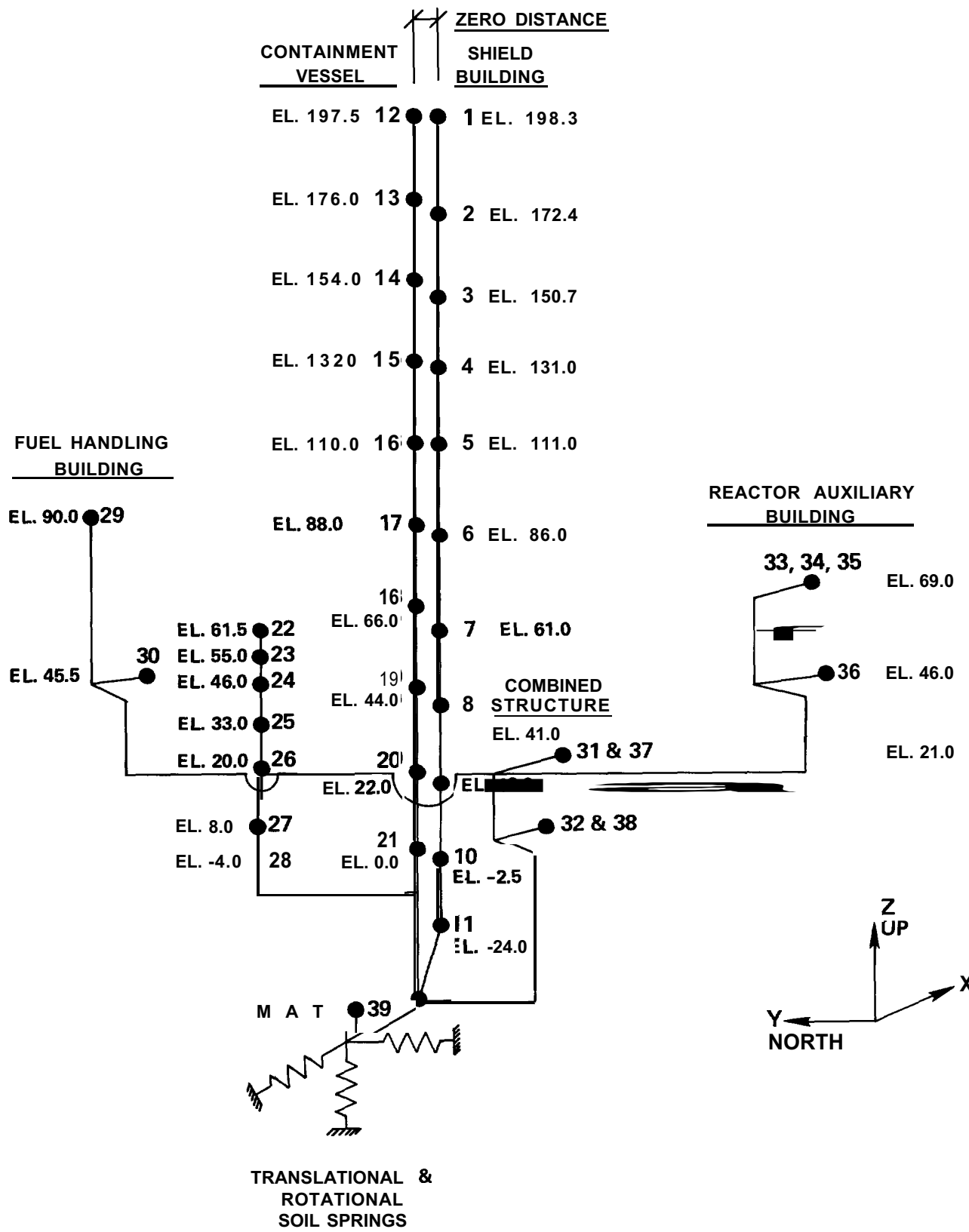


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FLOOR SPECTRA VERTICAL SSE 1%
 FOUNDATION MAT ELEV. -35 FT. MSL

Figure

3.7-20

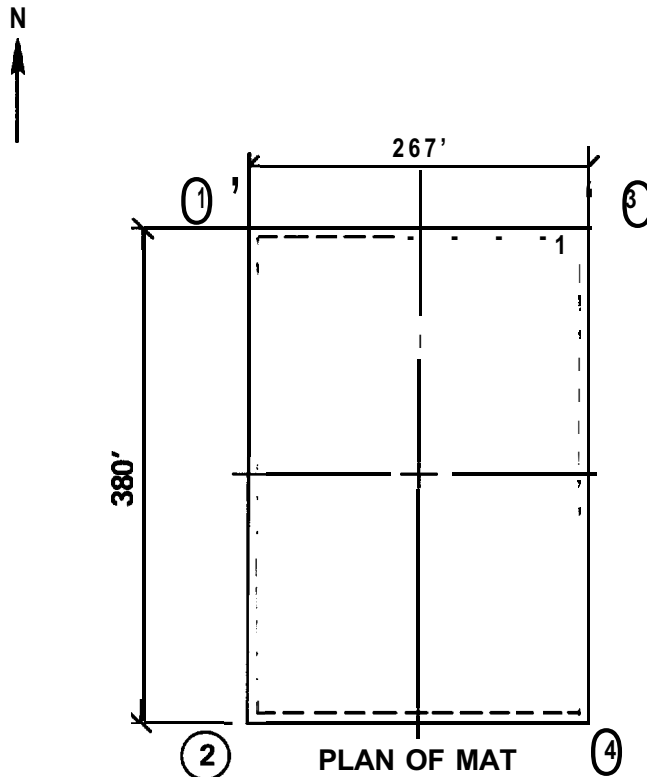


1. MAXIMUM SOIL BEARING PRESSURE INCLUDING BUOYANCY EFFECT

$$P_1 = 7.22, P_2 = 7.04, P_3 = 7.02 \text{ AND } P_4 = 6.64 \text{ KSF}$$

2. FACTOR OF SAFETY AGAINST A BEARING CAPACITY FAILURE =

$$1517.22 = 2.06$$



DATA:

A. MOMENTS DUE TO SSE IN E-W AND N-S DIRECTIONS ARE APPLIED SIMULTANEOUSLY.

$$M_{E-W} = 8,893,000 \text{ 1K}$$

$$M_{N-S} = 8,791,000 \text{ 1K}$$

B. BUOYANCY EFFECTS ARE CALCULATED BASED ON MINIMUM GROUND WATER LEVEL AT EL + 5.0 FT. MSL

C. TOTAL LOADS =

$$1.10 (D + L') + 1.0 (E' + B'')$$

WHERE:

D = DEAD LOAD

L' = EQUIPMENT LOAD

E' = SAFE SHUTDOWN EARTHQUAKE

B'' = BUOYANCY

D. ULTIMATE BEARING CAPACITY

$$= 15.0 \text{ KSF}$$

3. FACTOR OF SAFETY AGAINST OVERTURNING

$$\text{OVERTURNING MOMENT} = \sqrt{(M_{E-W})^2 + (M_{N-S})^2} = M_o = 12,505,000 \text{ 1K}$$

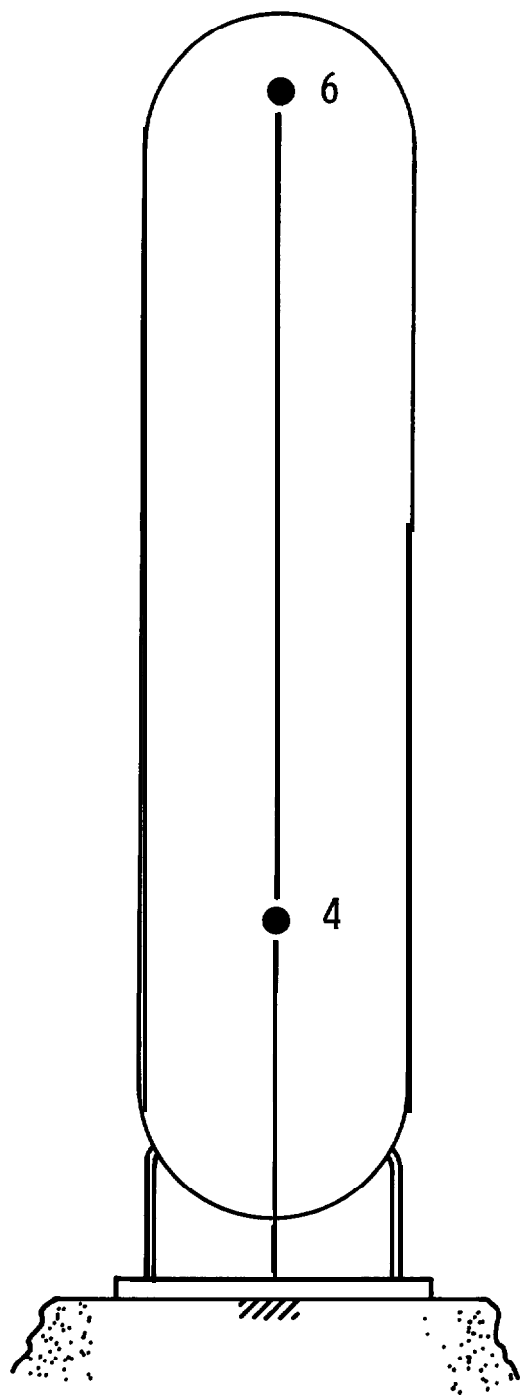
$$\text{RESISTING MOMENT} = M_R = 34,700,000 \text{ 1K} \quad (\text{BASED ON MAXIMUM GROUND WATER LEVEL AT EL + 13.0 FT MSL})$$

$$\text{F.S.} = \frac{M_R}{M_o} = 2.77$$

➔ (EC-8458, R307)

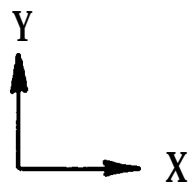
FIGURE 3.7-23
HAS BEEN DELETED

➔ (EC-8458, R307)



● MASS POINT

▨ SUPPORT POINT



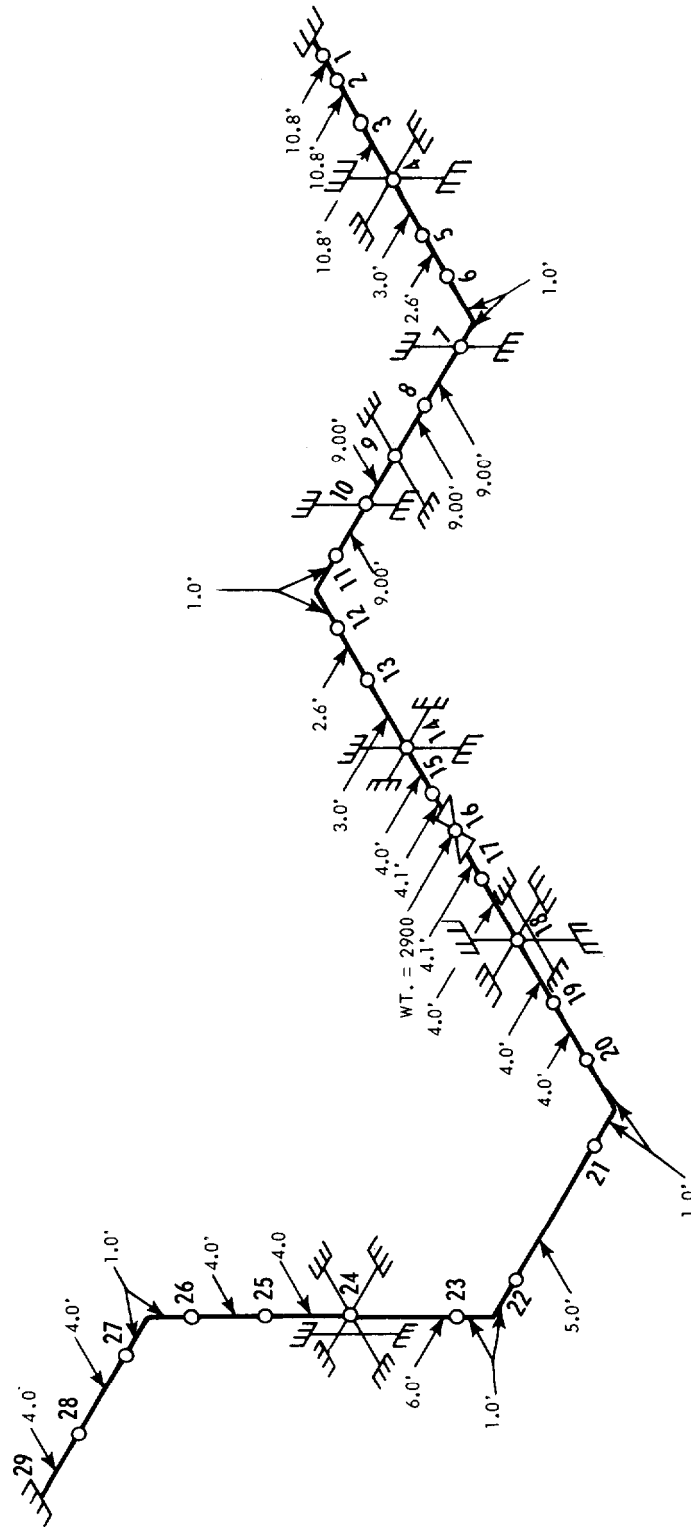
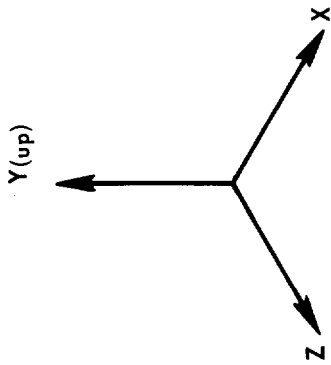
MASSPOINT	DEGREE OF FREEDOM
4	X
6	X, Y

➔ (EC-8458, R307)

FIGURE 3.7-25
HAS BEEN DELETED

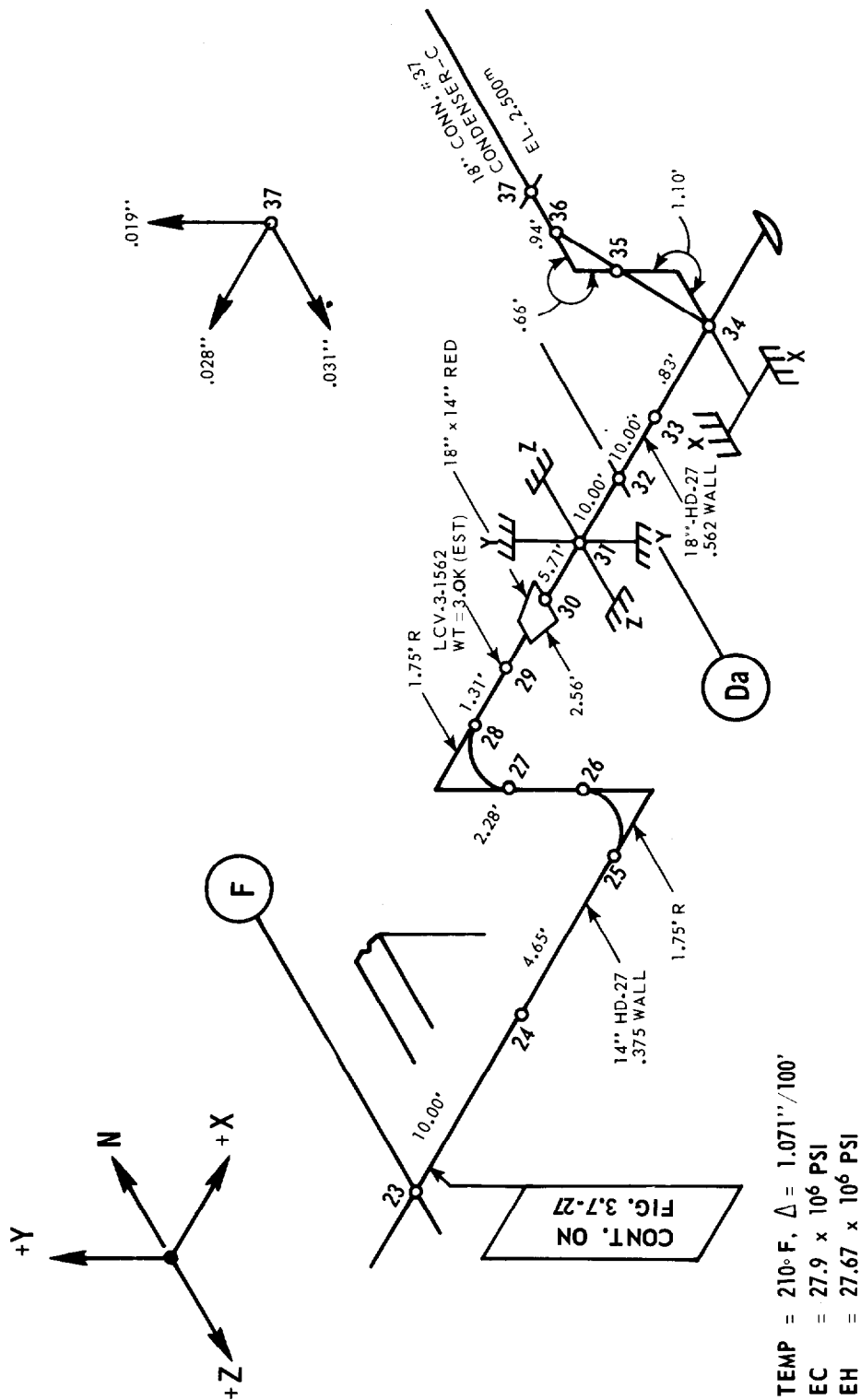
➔ (EC-8458, R307)

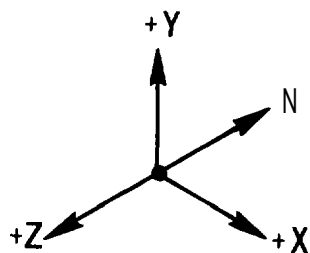
8" SCH. 40 C.S. WATER FILLING PIPING



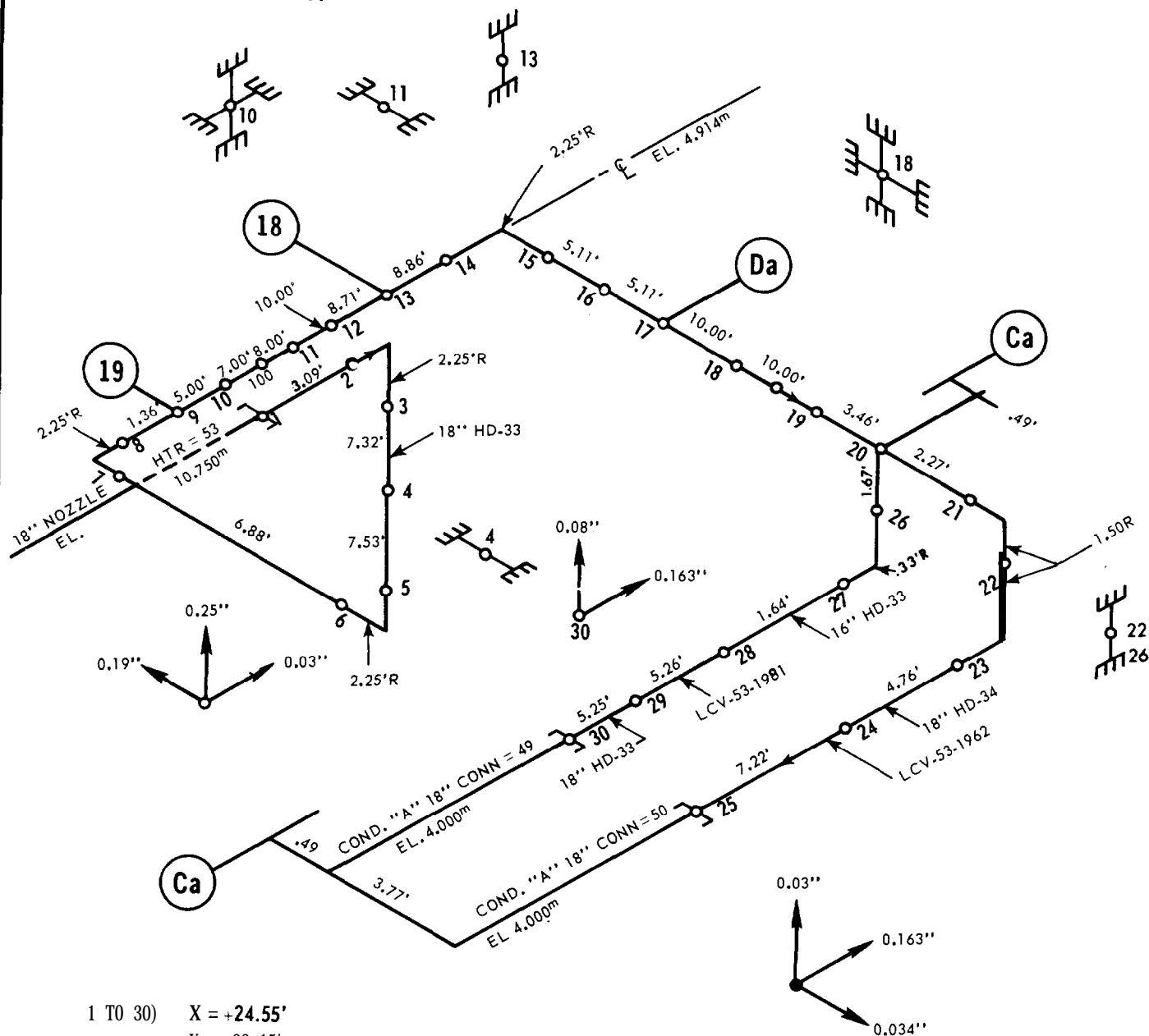
TO 29 X → 54.0'
 Y → 16.0'
 Z → 70.8'





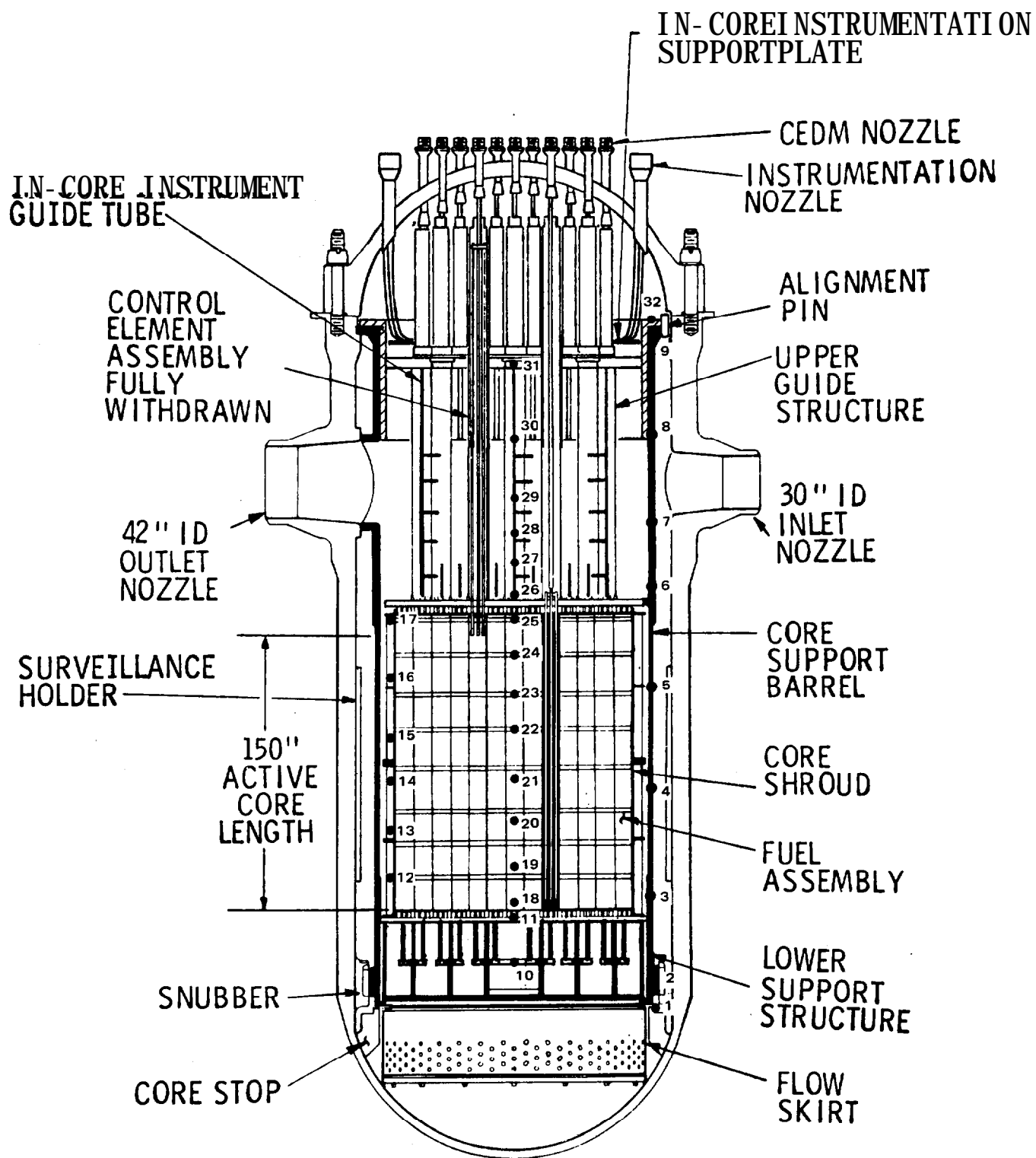


TEMP. Δ 1 10° F. $\Delta = .304''/100'$
 EC = 27.9×10^6 PSI
 EH = 27.84×10^6 PSI



1 TO 30) X = +24.55'
 Y = -22.15'
 Z = -50.29'

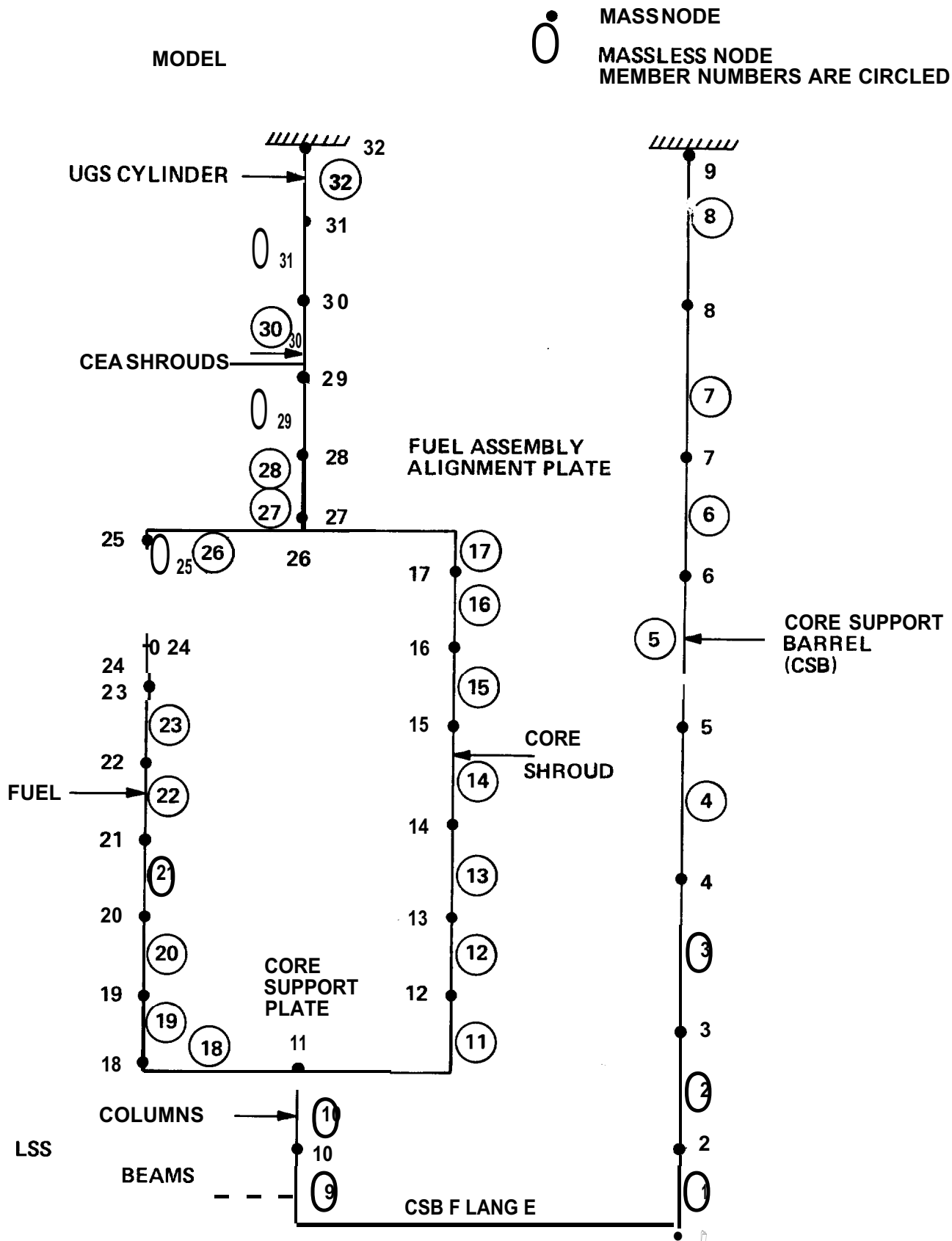
1 TO 25) X = +28.32'
 Y = -22.15'
 Z = -50.29'

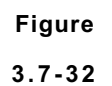


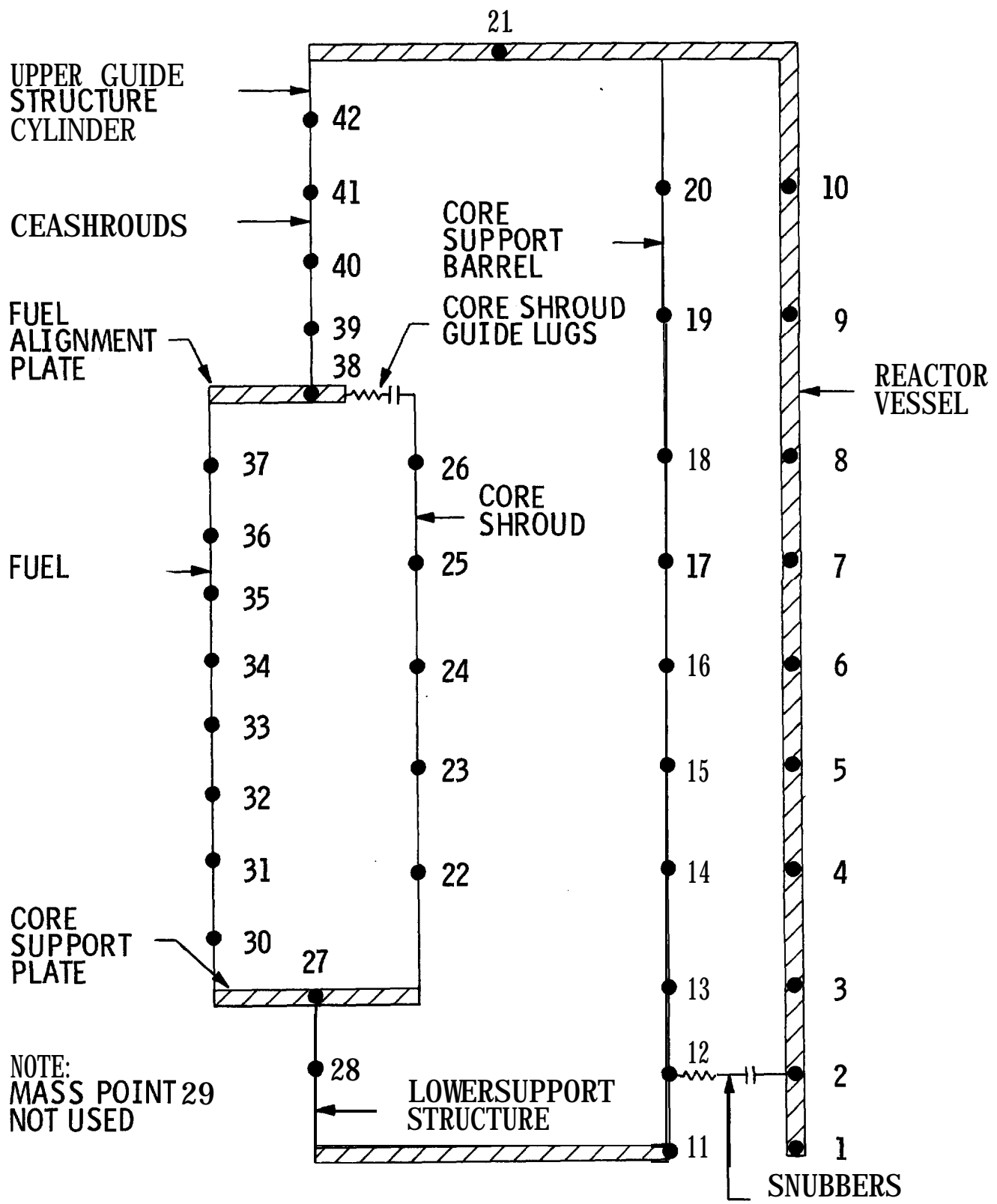
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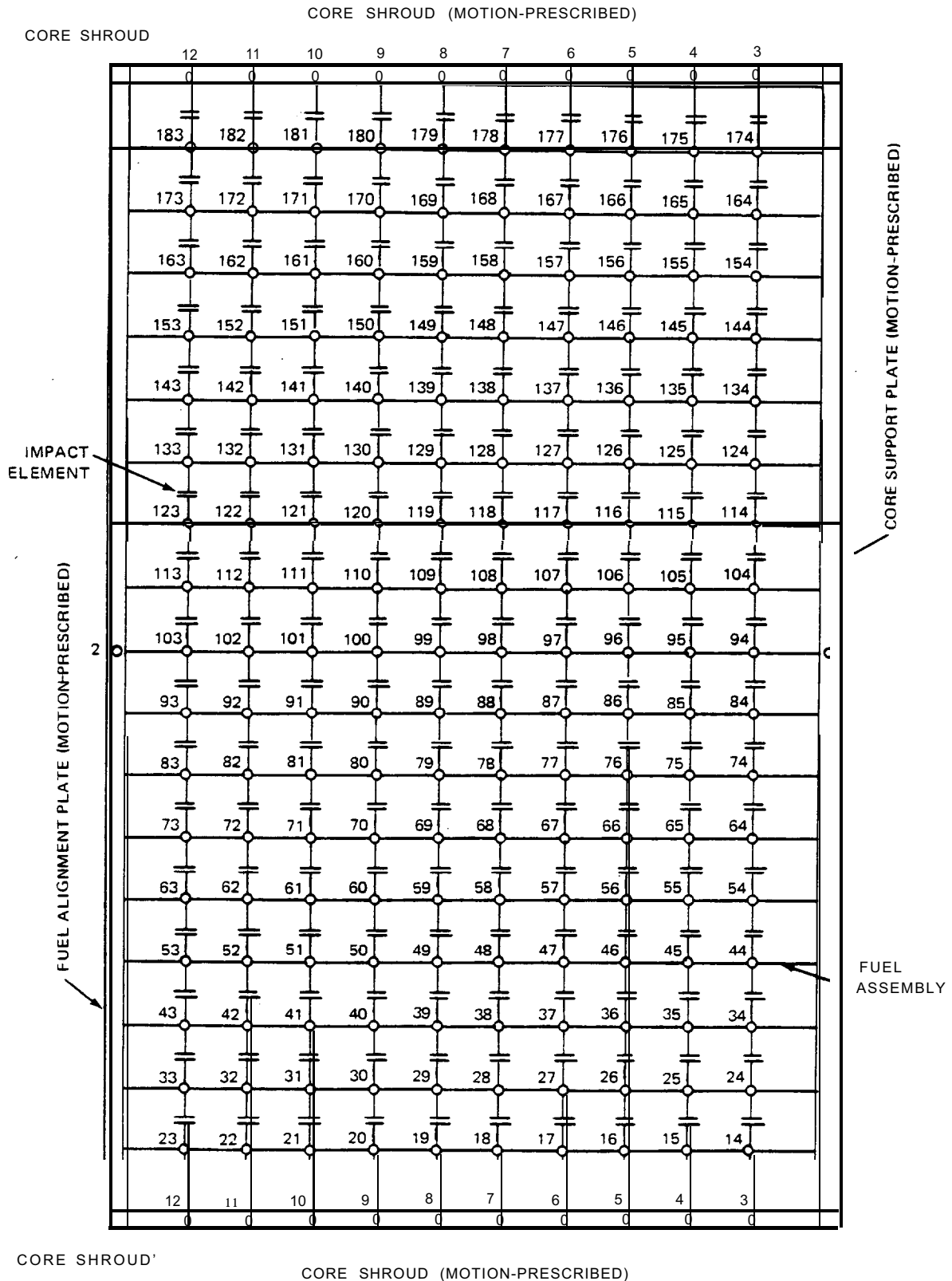
REPRESENTATIVE NODE LOCATIONS
SEISMIC MATHEMATICAL MODEL

Figure
3.7-30

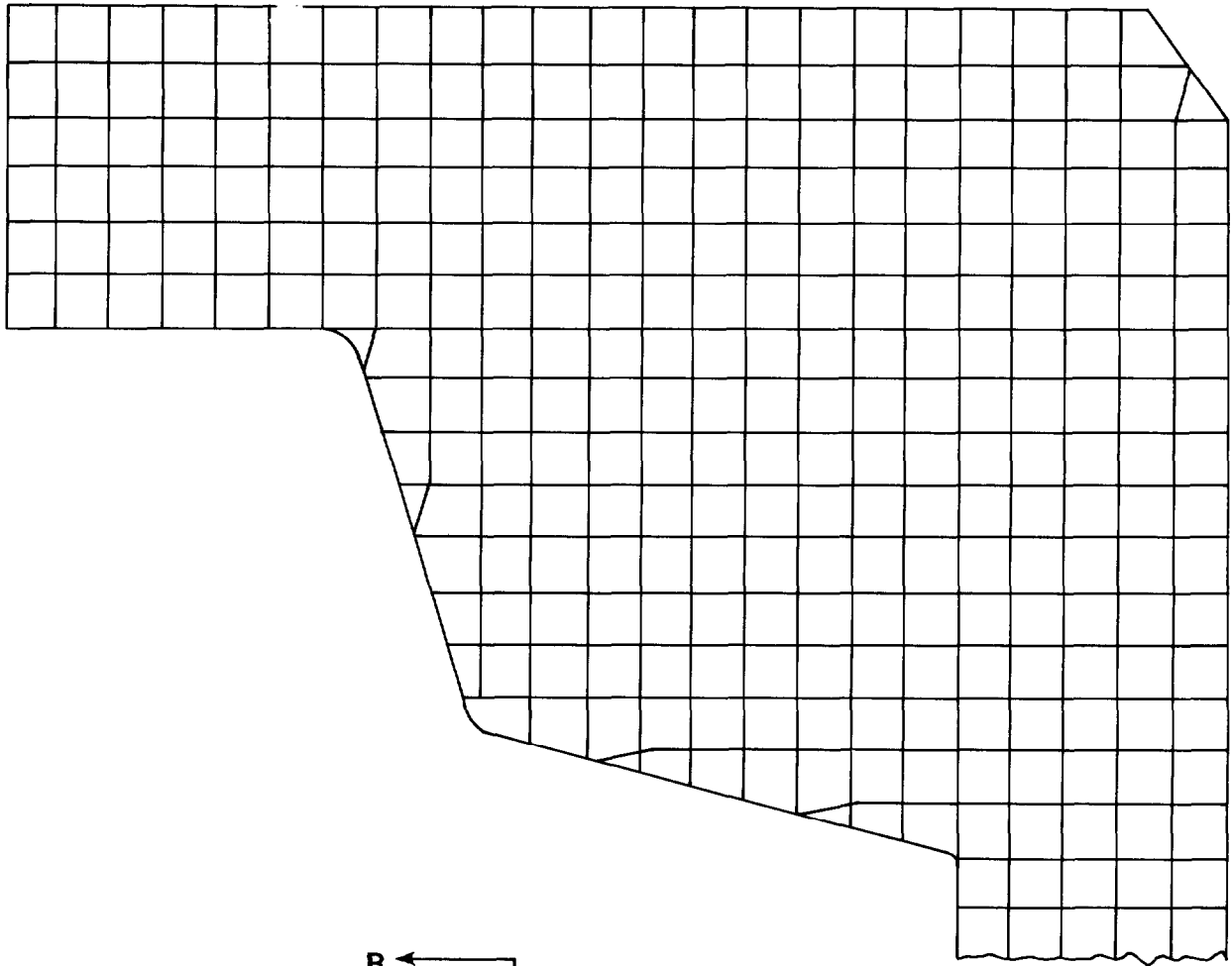








NOTE:
 DETAILED CORE SEISMIC MODEL
 (ONE ROW OF 17 FUEL ASSEMBLIES)



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CORE-SUPPORT BARREL UPPER FLANGE
FINITE-ELEMENT MODEL

Figure
3.7-35

