APPENDIX A

REFERENCES

APPENDIX A

REFERENCES

ADKVAS Group, 2005, Development plans for commercial center, 32 condominium units and recreation project; undated.

Blake, T.F., 2000a, EQFAULT, A computer program for the estimation of peak horizontal acceleration from 3-D fault sources; Windows 95/98 version.

_____, 2000b, EQSEARCH, A computer program for the estimation of peak horizontal acceleration from California historical earthquake catalogs; Updated through June, 2005, Windows 95/98 version.

_____, 2000c, FRISKSP, A computer program for the probabilistic estimation of peak acceleration and uniform hazard spectra using 3-D faults as earthquake sources; Windows 95/98 version.

Bozorgnia, Y., Campbell, K.W., and Niazi, M., 1999, Vertical ground motion: Characteristics, relationship with horizontal component, and building-code implications; Proceedings of the SMIP99 seminar on utilization of strong-motion data, September 15, Oakland, pp. 23-49.

California Department of Conservation, Division of Mines and Geology, 1997, Guidelines for evaluation and mitigating seismic hazards in California, CDMG Special Publication 117.

Campbell, K.W. and Bozorgnia, Y., 1997, Attenuation relations for soft rock conditions; in EQFAULT, A computer program for the estimation of peak horizontal acceleration from 3-D fault sources; Windows 95/98 version, Blake, 2000a.

_____, 1994, Near-source attenuation of peak horizontal acceleration from worldwide accelerograms recorded from 1957 to 1993; proceedings, Fifth U.S. National Conference on Earthquake Engineering, Vol. III, Earthquake Engineering Research Institute, pp. 283-292.

Civil Tech Software, 2005, LiquefyPro, Liquefaction and settlement analysis software, Version 4.5a.

Hart, E.W. and Bryant, W.A., 1997, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps; California Division of Mines and Geology Special Publication 42, with Supplements 1 and 2, 1999.

International Conference of Building Officials, 2001, California building code, California code of regulations title 24, part 2, volume 1 and 2.

_____, 1998, Maps of known active fault near-source zones in California and adjacent portions of Nevada.

_____, 1997, Uniform building code: Whittier, California, vol. 1, 2, and 3.

Kanare, Howard, M., 2005, Concrete Floors and Moisture, Engineering Bulletin 119, Portland Cement Association

Morton, D.M, 2004, Preliminary digital geologic map of the Santa Ana 30' X 60' Quadrangle, Southern California, U.S. Geological Survey Open-file report 99-172, Version 2.0.

Morton, D.M. and Weber, F.H., 2003, Preliminary geologic map of the Elsinore 7.5' quadrangle, Riverside County, California, United States Geological Survey, open-file report 03-281.

Southern California Earthquake Center, 1999, Recommended procedures for implementation of DMG Special Publication 117, guidelines for analyzing and mitigating liquefaction in California, dated March.

State of California, Department of Transportation, Engineering Services Center, Office of Structural Foundations Transportation Laboratory, 2000, California bank and shore rock slope protection design, Practitioner's guide and field evaluations of riprap methods, Final report no. FHWA-CA-TL-95-10, Caltrans study no. F09TL03, Third edition - Internet, Prepared in cooperation with the US Department of Transportation, Federal Highway Administration, dated October.

Weber, H.F., Jr., 1977, Seismic hazards related to geologic factors, Elsinore and Chino fault zones, northwestern Riverside County, California, California Division of Mines and Geology Open-File Report 77-4, 96p.

United States Department of Agriculture, 1980, Aerial photographs, project no. 615020, flight date August 10, flight line 180, photos nos. 193 and 194.

United States Steel, 1975, Steel sheet pile design manual.

USACOE (US Army Corps Of Engineers), 2004, Coastal Engineering Manual.

_____, 1984, Shore Protection Manual, 4th ed. 2 Vols, US Army Engineer Waterways Experiment Station, Coastal Engineering Research Center, US Government Printing Office.

APPENDIX B

BORING AND CPT LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions			Group Symbols	Typical Names
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels 50% or more of coarse fraction retained on No. 4 sieve	Clean Gravels	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		Gravel with	GM	Silty gravels gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sands more than 50% of coarse fraction passes No. 4 sieve	Clean Sands	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly graded sands and gravelly sands, little or no fines
		Sands with Fines	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
Fine-Grained Soils 50% or more passes No. 200 sieve	Silts and Clays Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	Silts and Clays Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat, mucic, and other highly organic soils

CONSISTENCY OR RELATIVE DENSITY

CRITERIA

Standard Penetration Test

Penetration Resistance N (blows/ft)	Relative Density
0 - 4	Very loose
4 - 10	Loose
10 - 30	Medium
30 - 50	Dense
> 50	Very dense

Standard Penetration Test

Penetration Resistance N (blows/ft)	Consistency	Unconfined Compressive Strength (tons/ft^2)
<2	Very Soft	<0.25
2 - 4	Soft	0.25 - .050
4 - 8	Medium	0.50 - 1.00
8 - 15	Stiff	1.00 - 2.00
15 - 30	Very Stiff	2.00 - 4.00
>30	Hard	>4.00

	3"	3/4"	#4	#10	#40	#200 U.S. Standard Sieve

Unified Soil Classification	Cobbles	Gravel		Sand			Silt or Clay
		coarse	fine	coarse	medium	fine	

MOISTURE CONDITIONS

Dry	Absence of moisture: dusty, dry to the touch
Slightly Moist	Below optimum moisture content for compaction
Moist	Near optimum moisture content
Very Moist	Above optimum moisture content
Wet	Visible free water; below water table

MATERIAL QUANTITY

trace	0 - 5 %
few	5 - 10 %
little	10 - 25 %
some	25 - 45 %

OTHER SYMBOLS

C Core Sample
S SPT Sample
B Bulk Sample
▼ Groundwater
Qp Pocket Penetrometer

BASIC LOG FORMAT:
Group name, Group symbol, (grain size), color, moisture, consistency or relative density. Additional comments: odor, presence of roots, mica, gypsum, coarse grained particles, etc.

EXAMPLE:
Sand (SP), fine to medium grained, brown, moist, loose, trace silt, little fine gravel, few cobbles up to 4" in size, some hair roots and rootlets.

File:Mgr: c;\SoilClassif.wpd

PLATE B-1

BORING LOG

GeoSoils, Inc.

W.O. 5043-A-SC

PROJECT: RON & DANA JIRON
Jiron Plaza, Lake Elsinore

BORING B-1 SHEET 1 OF 2

DATE EXCAVATED 12-23-05

SAMPLE METHOD: 8" Hollow Stem Auger, 140 Lb @ 30" Drop

Approx. Elevation: 1,264' MSL

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
				SM				**ARTIFICIAL FILL - UNDOCUMENTED:** @ 0' SILTY SAND, grayish brown, dry, loose.
			33		116.5	6.3	40	@ 3' SILTY SAND, dark grayish brown, damp, medium dense.
5			18		114.7	9.8	59	@ 6' SILTY SAND, dark brown, moist, medium dense.
			14	SW/SM	110.5	8.0	43	**QUATERNARY ALLUVIAL FAN DEPOSITS:** @ 9' SAND to SILTY SAND, grayish brown, damp, medium dense.
10								
								@ 13½' Groundwater encountered.
15			6	SW		24.3		@ 15' SAND, grayish brown, wet, loose; fine to coarse grained.
20			50	SM	115.2	17.3	100	@ 20' SILTY SAND, brown, saturated, dense; mottled.
25			17			19.8		@ 25' SILTY SAND, brown, saturated, medium dense.

BORING LOG

GeoSoils, Inc.

W.O. 5043-A-SC

PROJECT: RON & DANA JIRON
Jiron Plaza, Lake Elsinore

BORING B-1 SHEET 2 OF 2

DATE EXCAVATED 12-23-05

SAMPLE METHOD: 8" Hollow Stem Auger, 140 Lb @ 30" Drop

Approx. Elevation: 1,264' MSL

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
			36	SM/SW	120.9	13.8	99	@ 30' SILTY SAND to SAND, dark reddish brown to grayish brown, saturated, medium dense.
35			25	SW		18.9		@ 35' SAND, grayish brown to reddish brown, wet, medium dense.
40			32	SM	110.6	19.3	100	@ 40' SILTY SAND, very dark red to grayish brown, saturated, medium dense; dark red layers are highly oxidized.
45			38	SW		16.5		@ 45' SAND, grayish brown, moist, dense.
50			64	SM	107.8	13.8	68	@ 50' SILTY SAND, medium brown, moist, dense.
55			38	SP/SM		21.8		@ 55' SAND w/interbedded SILTY SAND, grayish brown, wet, dense.
								Total Depth = 56½' Groundwater Encountered @ 13½' Backfilled 12-23-2005

BORING LOG

GeoSoils, Inc.

W.O. 5043-A-SC

PROJECT: RON & DANA JIRON
Jiron Plaza, Lake Elsinore

BORING B-2 SHEET 2 OF 2

DATE EXCAVATED 12-23-05

SAMPLE METHOD: 8" Hollow Stem Auger, 140 Lb @ 30" Drop

Approx. Elevation: 1,268' MSL

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
				SM/SC				
			15	SM		16.3		@ 32' SILTY SAND, medium brown to grayish brown, moist, medium dense.
35								Total Depth = 33½' Perched Groundwater Encountered @ 14' Backfilled 12-23-2005
40								
45								
50								
55								

BORING LOG

GeoSoils, Inc.

W.O. 5043-A-SC

PROJECT: RON & DANA JIRON
Jiron Plaza, Lake Elsinore

BORING B-3 *SHEET* 1 *OF* 2

DATE EXCAVATED 12-23-05

SAMPLE METHOD: 8" Hollow Stem Auger, 140 Lb @ 30" Drop

Approx. Elevation: 1,275' MSL

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
				SM				**COLLUVIUM/TOPSOIL:** @ 0' SILTY SAND, grayish brown, dry, loose.
5			25	SM	120.3	3.8	27	**QUATERNARY ALLUVIAL FAN DEPOSITS:** @ 3' SILTY SAND, medium to grayish brown, damp, medium dense.
			10	CL	116.6	15.7	100	@ 7' SANDY CLAY, grayish brown, saturated, medium stiff.
10			8			15.7		@ 10' As per 7'.
								@ 12' Perched groundwater encountered.
15			26	SM	111.1	18.2	99	@ 15' SILTY SAND, gray, saturated, medium dense; interbedded fine grained SILTY SAND, micaceous.
20			33	SW		15.0		@ 20' SAND, grayish brown, wet, dense; generally medium to coarse grained.
25			50	SM	118.8	13.6	92	@ 25' SILTY SAND w/Interbedded SANDS, brown, wet, dense; fine to coarse grained.

BORING LOG

GeoSoils, Inc.

W.O. 5043-A-SC

PROJECT: RON & DANA JIRON
Jiron Plaza, Lake Elsinore

BORING B-3 SHEET 2 OF 2

DATE EXCAVATED 12-23-05

SAMPLE METHOD: 8" Hollow Stem Auger, 140 Lb @ 30" Drop

Approx. Elevation: 1,275' MSL

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
			16	SC		15.4		@ 30' CLAYEY SAND, grayish brown, wet, medium dense.
								Total Depth = 31½' Perched Groundwater Encountered @ 12' Backfilled 12-23-2005
35								
40								
45								
50								
55								

BORING LOG

GeoSoils, Inc.

W.O. 5043-A-SC

PROJECT: RON & DANA JIRON
Jiron Plaza, Lake Elsinore

BORING B-4 *SHEET* 1 *OF* 2

DATE EXCAVATED 12-23-05

SAMPLE METHOD: 8" Hollow Stem Auger, 140 Lb @ 30" Drop

Approx. Elevation: 1,277' MSL

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
				SM				**COLLUVIUM/TOPSOIL:** @ 0' SILTY SAND, brown, dry, loose.
			22	SC	125.3	10.3	85	@ 2' CLAYEY SAND, dark brown, wet, medium dense.
5				SC				@ 3' **QUATERNARY ALLUVIAL FAN DEPOSITS:**
			18		120.1	12.4	87	@ 7' CLAYEY SAND, grayish brown, wet, medium dense.
10 ▽								@ 10' Perched groundwater encountered.
			28		117.0	15.7	100	@ 12' As per 7', saturated.
15								
			13	SM		14.9		@ 17' SILTY SAND, medium brown, wet, medium dense.
20								
			50	SM/SW	116.9	15.5	99	@ 22' SILTY SAND w/Interbedded SANDS, grayish brown, saturated, dense; fine to medium grained.
25								
			27	SM		15.3		@ 27' SILTY SAND, medium brown, wet, medium dense; fine to coarse grained.

BORING LOG

GeoSoils, Inc.

W.O. 5043-A-SC

PROJECT: RON & DANA JIRON
Jiron Plaza, Lake Elsinore

BORING B-4 *SHEET* 2 *OF* 2

DATE EXCAVATED 12-23-05

SAMPLE METHOD: 8" Hollow Stem Auger, 140 Lb @ 30" Drop

Approx. Elevation: 1,277' MSL

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
				SM				
		▨	35	CL	116.4	15.6	98	@ 32' SANDY CLAY, dark reddish brown, saturated, hard.
								Total Depth = 33' Perched Groundwater Encountered @ 10' Backfilled 12-23-2005
35								
40								
45								
50								
55								

BORING LOG

GeoSoils, Inc.

W.O. 5043-A-SC

PROJECT: RON & DANA JIRON
Jiron Plaza, Lake Elsinore

BORING B-5 SHEET 1 OF 2

DATE EXCAVATED 12-23-05

SAMPLE METHOD: 8" Hollow Stem Auger, 140 Lb @ 30" Drop

Approx. Elevation: 1,285' MSL

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
				SM				**COLLUVIUM/TOPSOIL:** @ 0' SILTY SAND, brown, dry, loose to medium dense.
			53	SM	128.8	8.5	79	**QUATERNARY ALLUVIAL FAN DEPOSITS:** @ 3' SILTY SAND, brown, wet, dense.
5			34		120.9	12.0	86	@ 7' SILTY SAND, grayish brown, wet, medium dense; locally oxidized.
10								
			31	SM/SC	117.3	14.5	94	@ 12' SILTY to CLAYEY SAND, wet, medium dense; locally oxidized. @ 13' Perched groundwater encountered.
15			23	SW		15.6		@ 15' SAND, grayish brown, wet, medium dense.
20			68		114.9	17.9	100	@ 20' SAND, gray, saturated, dense; trace gravel-sized clasts.
25			25	SW/SM		17.7		@ 25' SAND w/Interbedded SILTY SAND, gray to reddish brown, wet, medium dense.

BORING LOG

GeoSoils, Inc.

W.O. 5043-A-SC

PROJECT: RON & DANA JIRON
Jiron Plaza, Lake Elsinore

BORING B-5 *SHEET* 2 *OF* 2

DATE EXCAVATED 12-23-05

SAMPLE METHOD: 8" Hollow Stem Auger, 140 Lb @ 30" Drop

Approx. Elevation: 1,285' MSL

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
			38	SC	122.4	12.9	98	@ 30' CLAYEY SAND, gray, saturated, dense.
								Total Depth = 31'
								Perched Groundwater Encountered @ 13'
								Backfilled 12-23-2005
35								
40								
45								
50								
55								

BORING LOG

GeoSoils, Inc.

W.O. 5043-A-SC

PROJECT: RON & DANA JIRON
Jiron Plaza, Lake Elsinore

BORING B-6 SHEET 1 OF 1

DATE EXCAVATED 12-23-05

SAMPLE METHOD: 8" Hollow Stem Auger, 140 Lb @ 30" Drop

Approx. Elevation: 1,283' MSL

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
				SM				**COLLUVIUM/TOPSOIL:** @ 0' SILTY SAND, grayish brown, dry, medium dense.
			33/ 50-5"	SM	127.8	6.7	60	**QUATERNARY ALLUVIAL FAN DEPOSITS:** @ 2' SILTY SAND, dark brown, moist, dense; local roots.
5			32		128.2	6.2	57	@ 5' SILTY SAND, reddish brown, moist, medium dense; minor roots, porous.
10			9	SC		16.3		@ 10' CLAYEY SAND, grayish brown, wet, loose.
15			25		111.1	18.1	98	@ 15' As per 10', saturated, medium dense; trace rootlets. @ 15' Perched groundwater encountered.
20			11			16.1		@ 20' CLAYEY SAND, brown, wet to saturated, medium dense.
25			29	SM	109.5	19.0	99	@ 25' SILTY SAND, reddish brown, saturated, medium dense.
								Total Depth = 26' Perched Groundwater Encountered @ 15' Backfilled 12-23-2005

Geosoils

Operator: BH-JH
Sounding: CPT-01B
Cone Used: DSG0786

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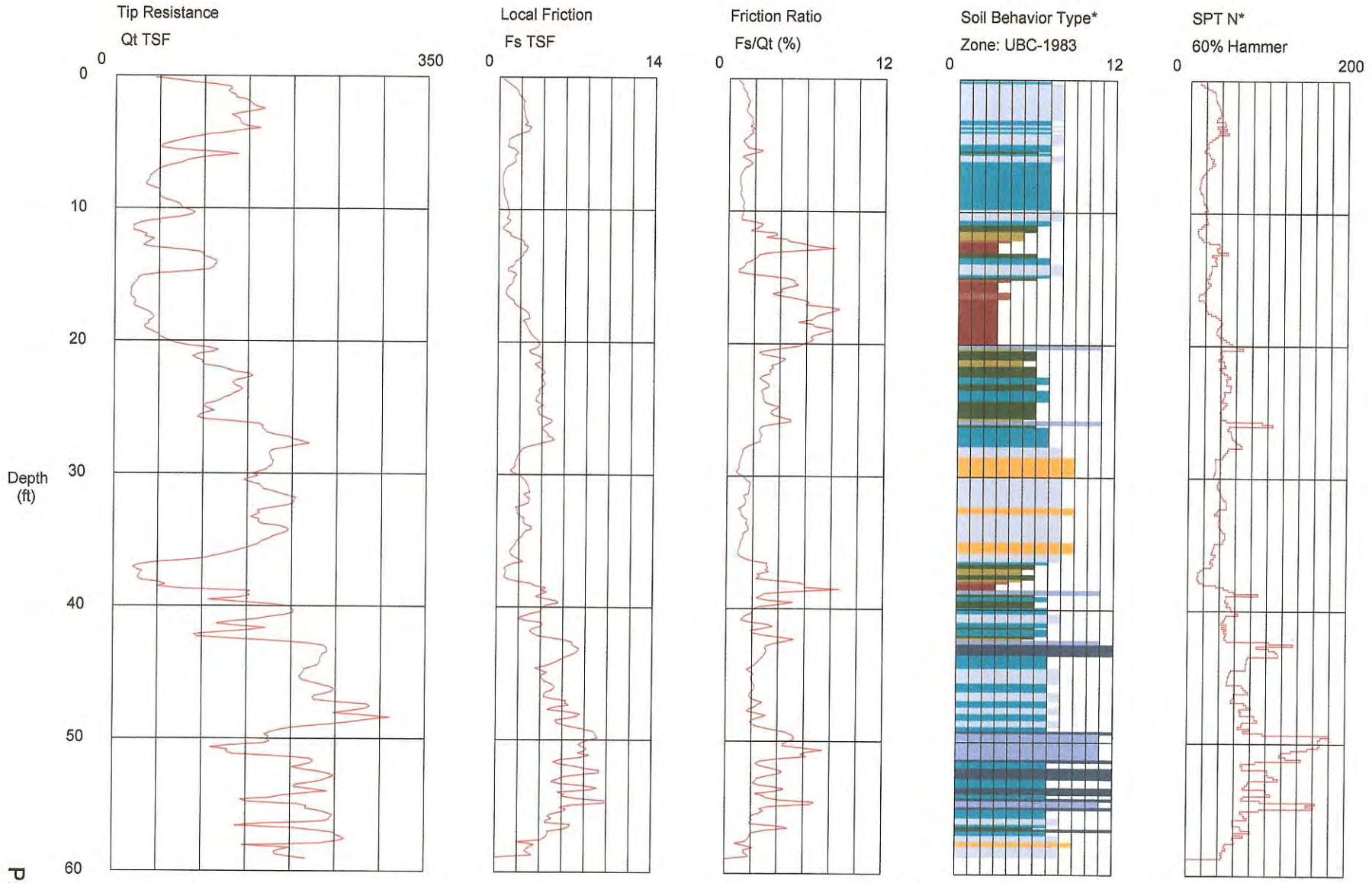
Job Number: 5043-A-SC



Maximum Depth = 59.06 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983

Plate B-13

Geosoils

Operator: JH-VO
Sounding: CPT-04
Cone Used: DSG0786

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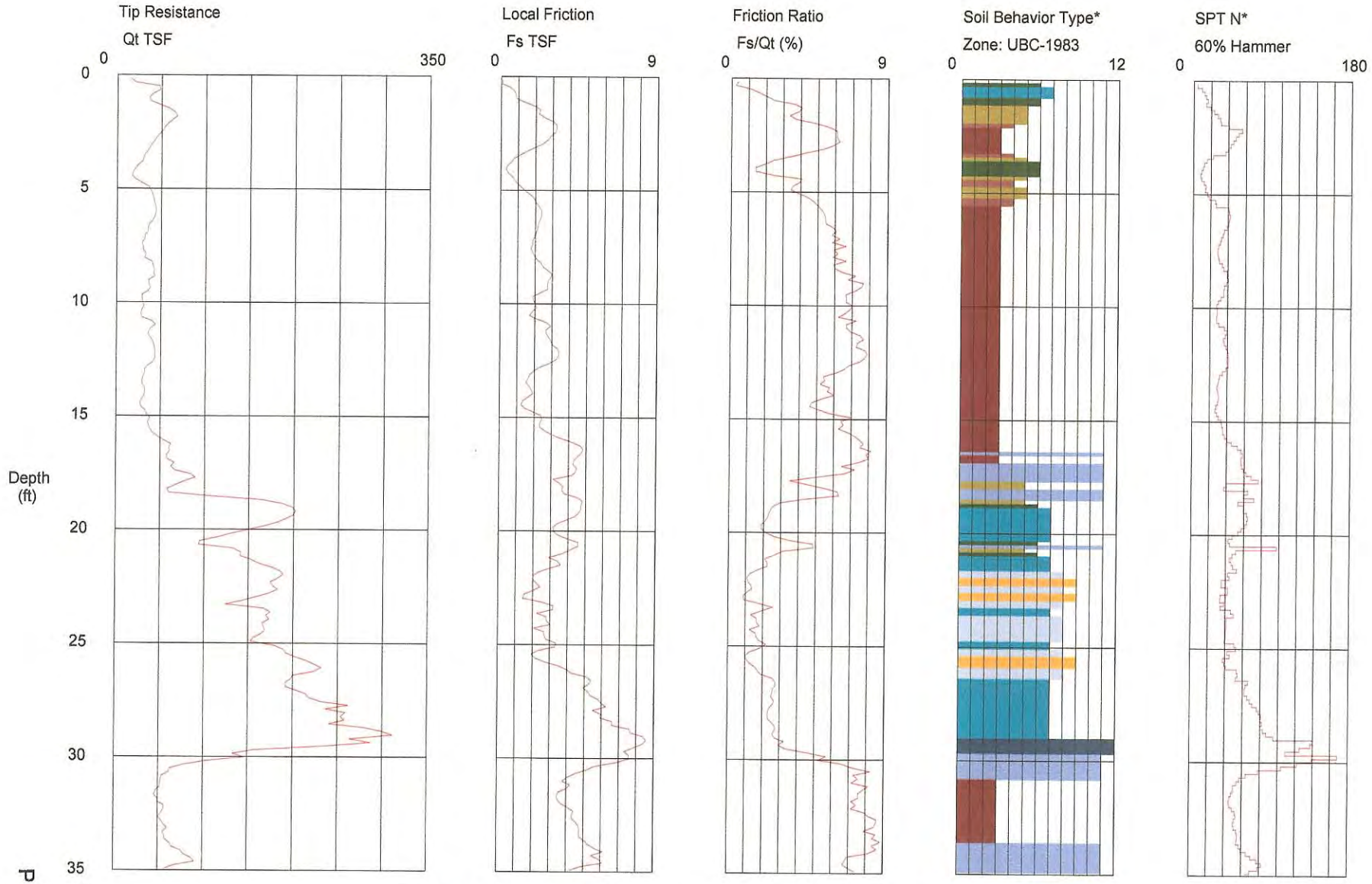
Job Number: 5043ASC



*Soil behavior type and SPT based on data from UBC-1983

Plate B-14

Geosoils

Operator JH-VO
Sounding: CPT-01
Cone Used: DSG0786

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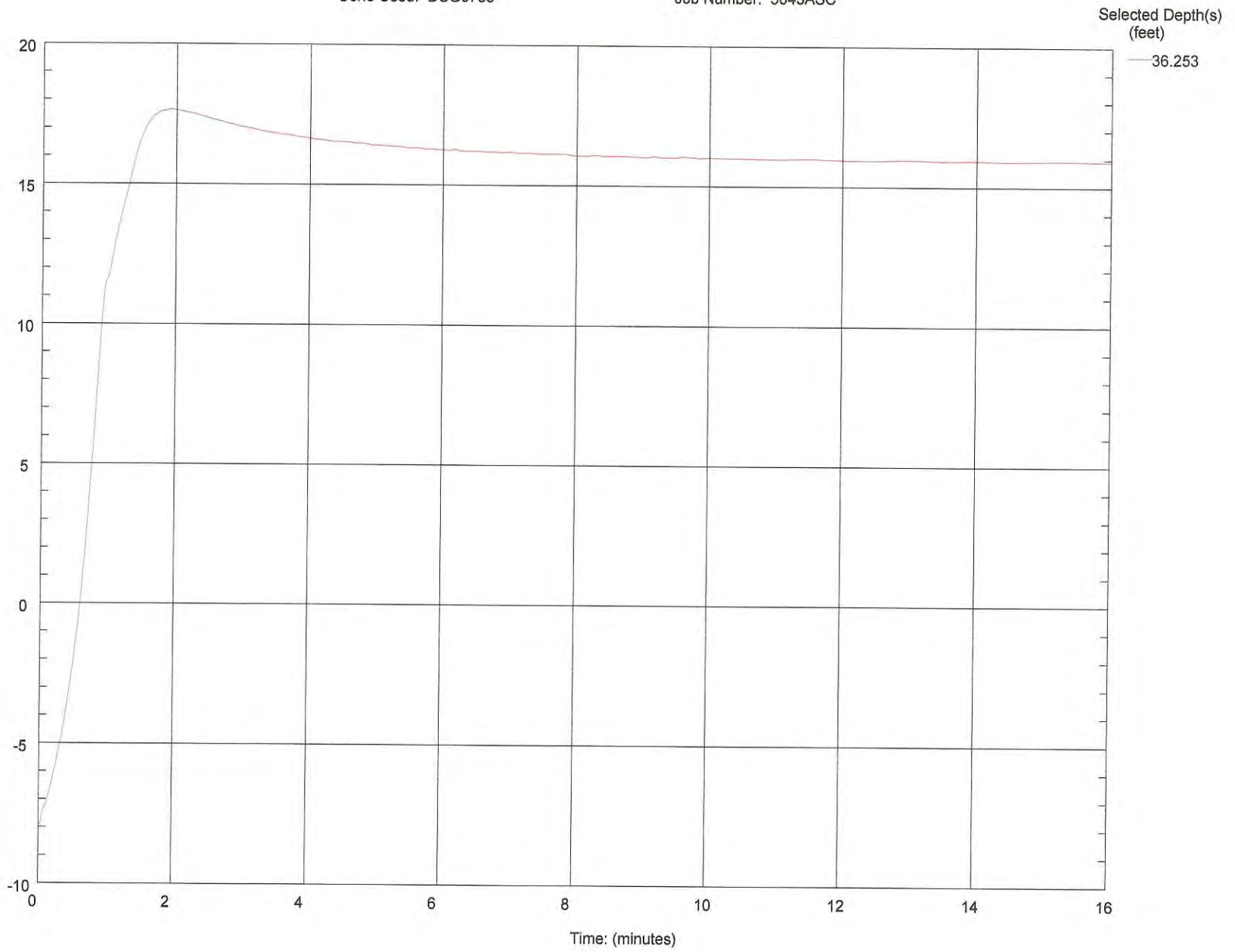
Job Number: 5043ASC



Maximum Pressure = 15.9 psi
Hydrostatic Pressure = -.474 ft.

Plate B-15

Geosoils

Operator: JH-VO
Sounding: CPT-03
Cone Used: DSG0786

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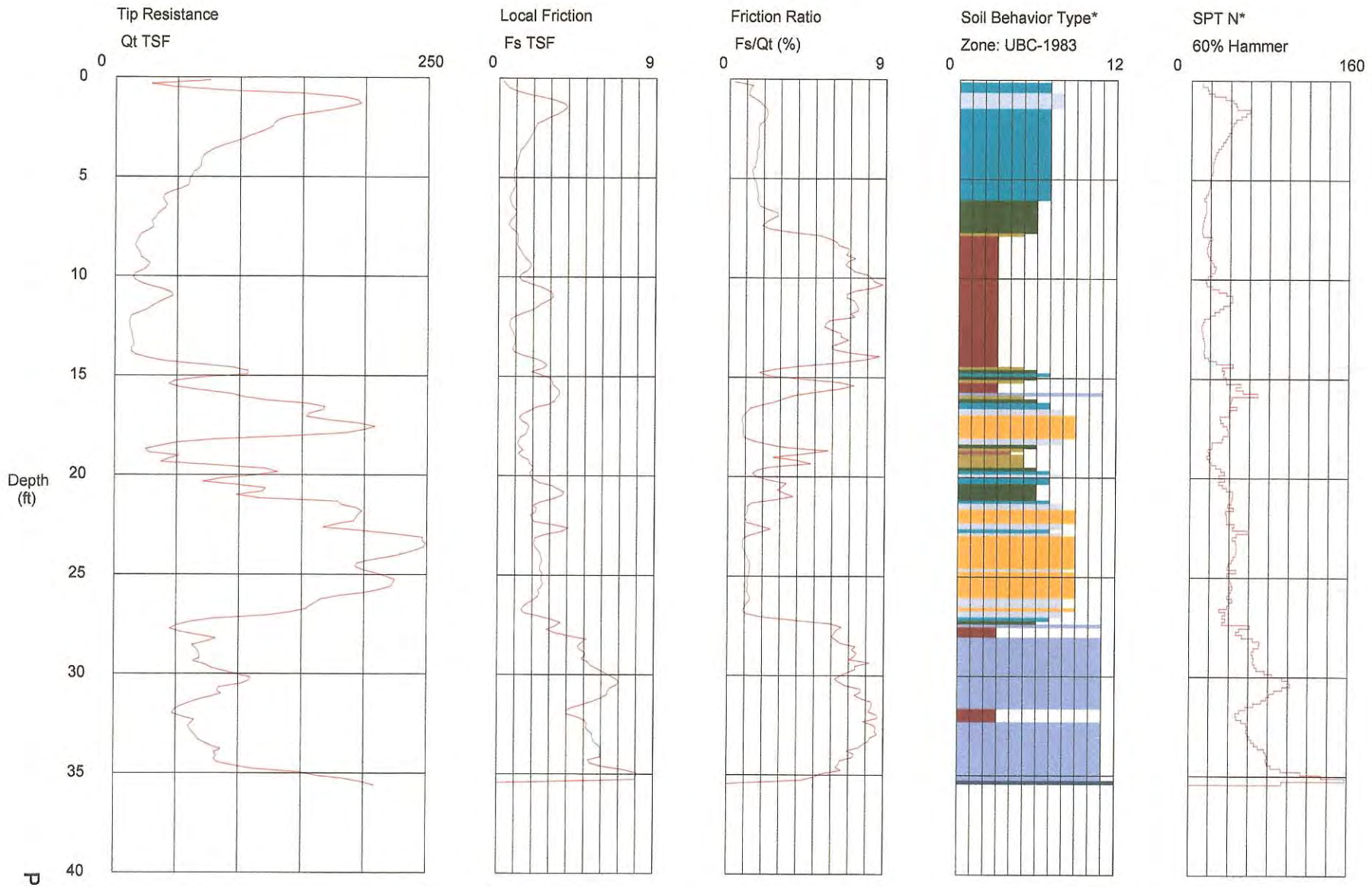
Location: Jiron Property
Job Number: 5043ASC



*Soil behavior type and SPT based on data from UBC-1983

Plate B-16

Geosoils

Operator JH-VO
Sounding: CPT-03
Cone Used: DSG0786

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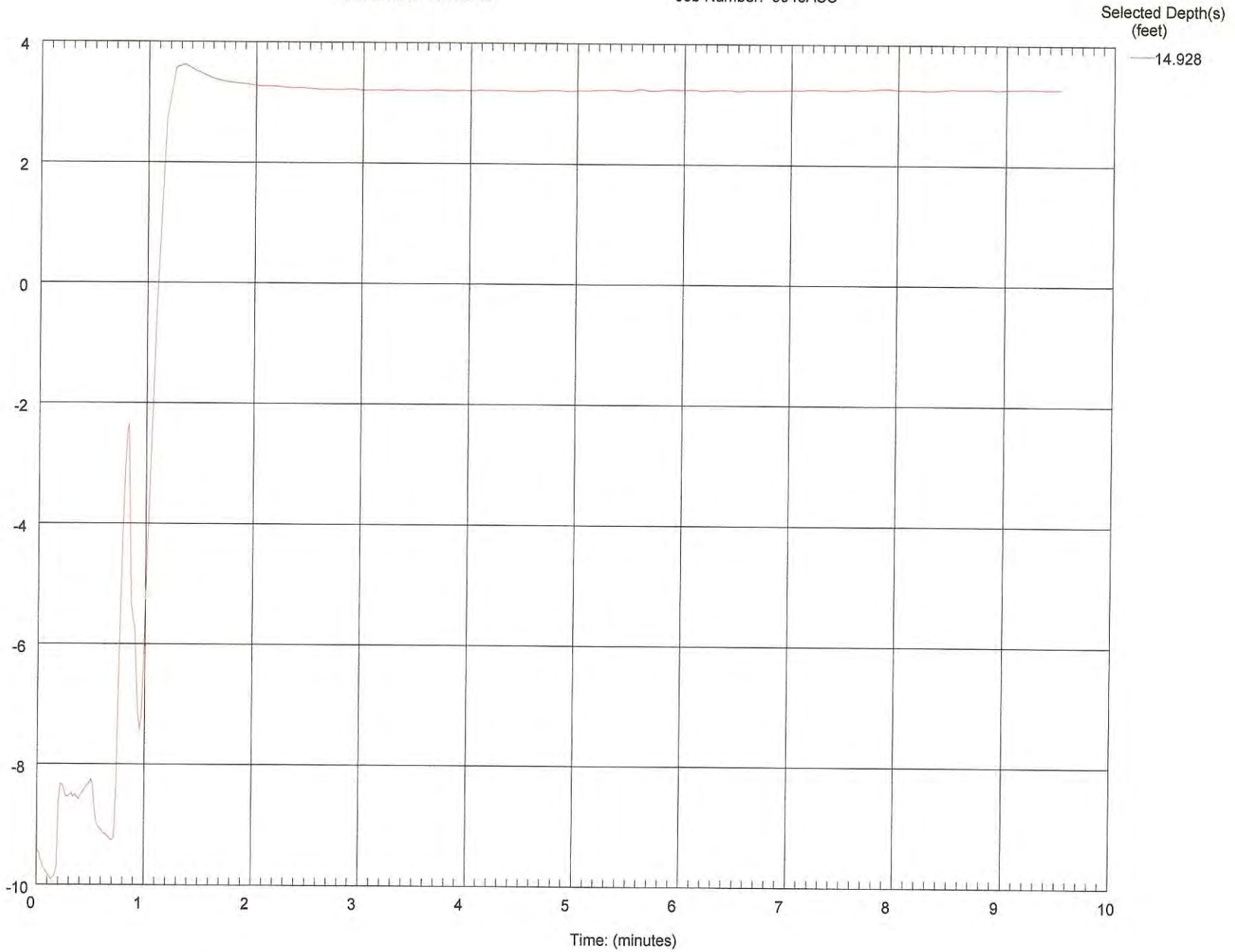
Job Number: 5043ASC



Maximum Pressure = 3.26 psi
Hydrostatic Pressure = 7.398 ft.

Plate B-17

Geosoils

Operator: JH-VO
Sounding: CPT-05
Cone Used: DSG0786

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Location: Jiron Property
Job Number: 5043ASC

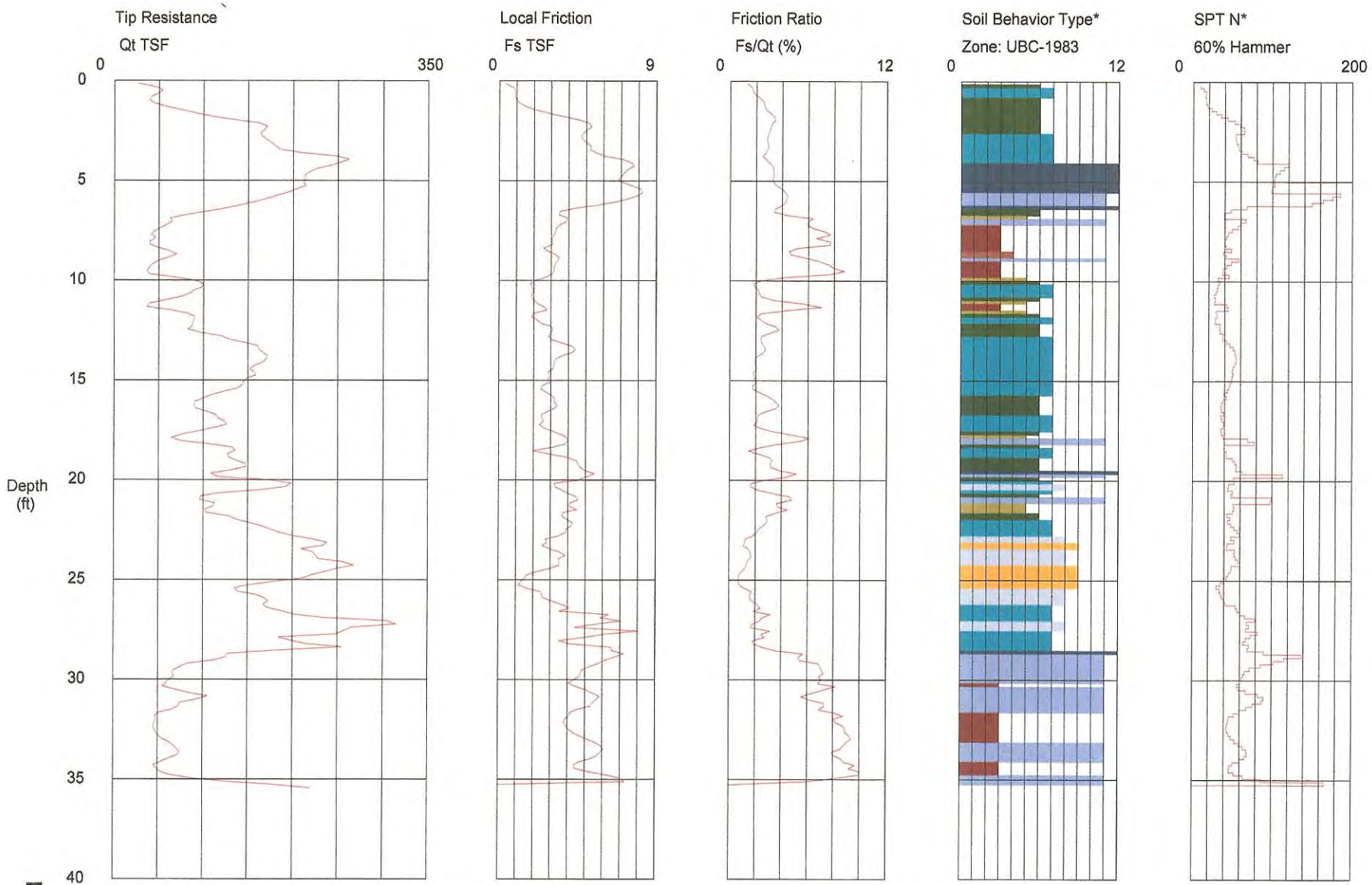

Plate B-18

*Soil behavior type and SPT based on data from UBC-1983

Geosoils

Operator: JH-VO
Sounding: CPT-02
Cone Used: DSG0786

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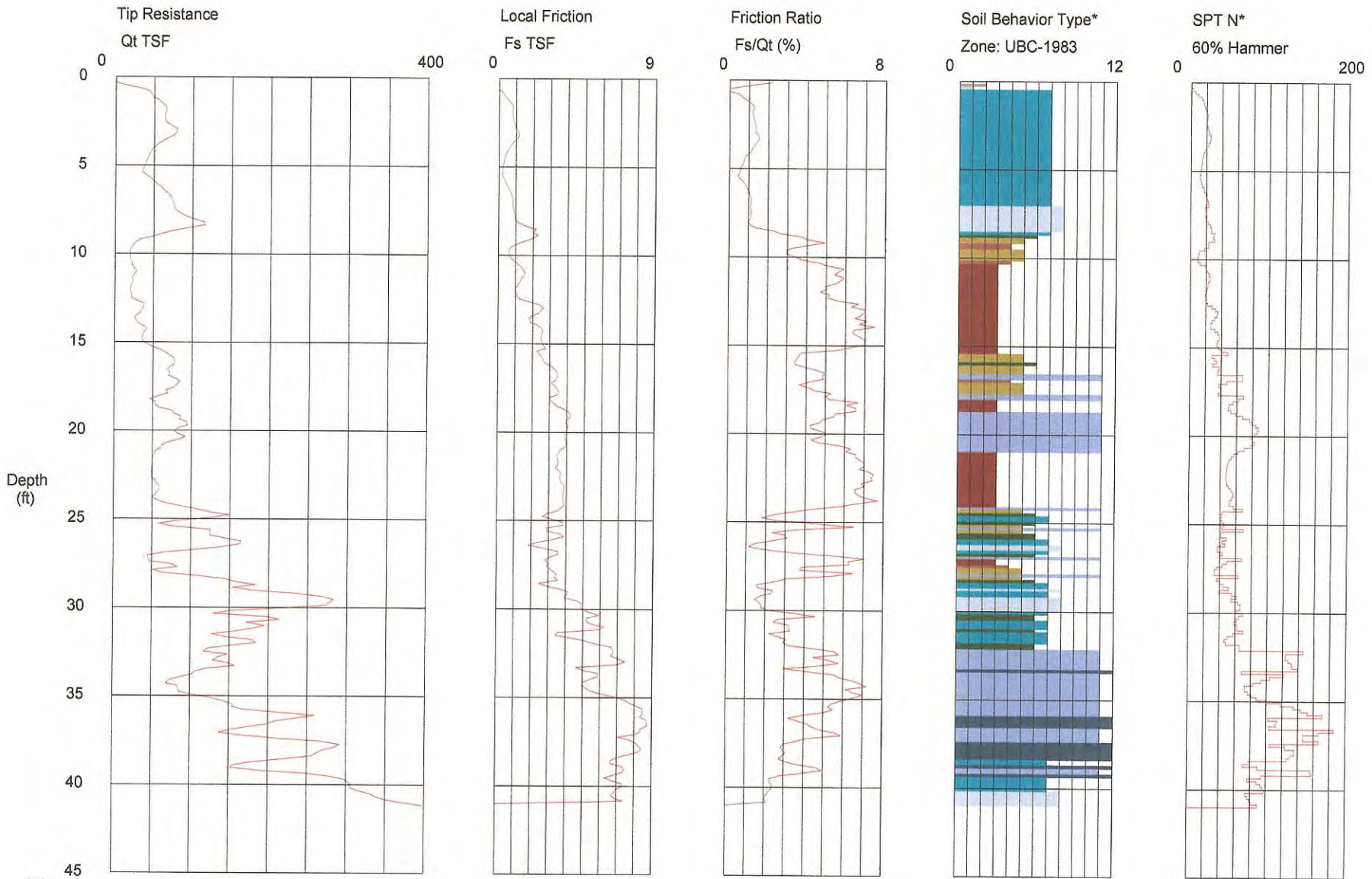
Job Number: 5043ASC



*Soil behavior type and SPT based on data from UBC-1983

Plate B-19

Geosoils

Operator JH-VO
Sounding: CPT-02
Cone Used: DSG0786

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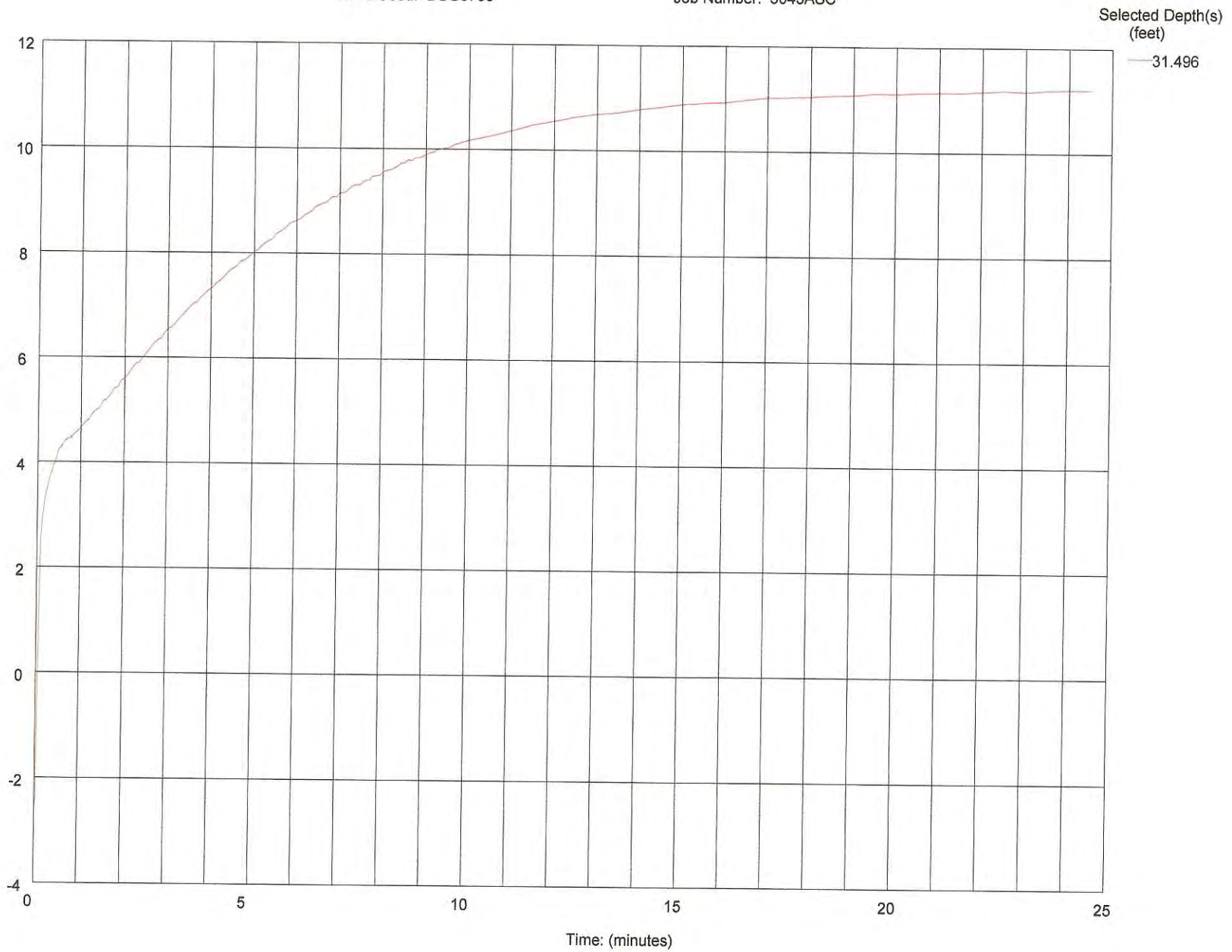
Location: Jiron Property
Job Number: 5043ASC



Maximum Pressure = 11.208 psi
Hydrostatic Pressure = 5.61 ft.

Plate B-20

Geosoils

Operator: JH-VO
Sounding: CPT-06
Cone Used: DSG0786

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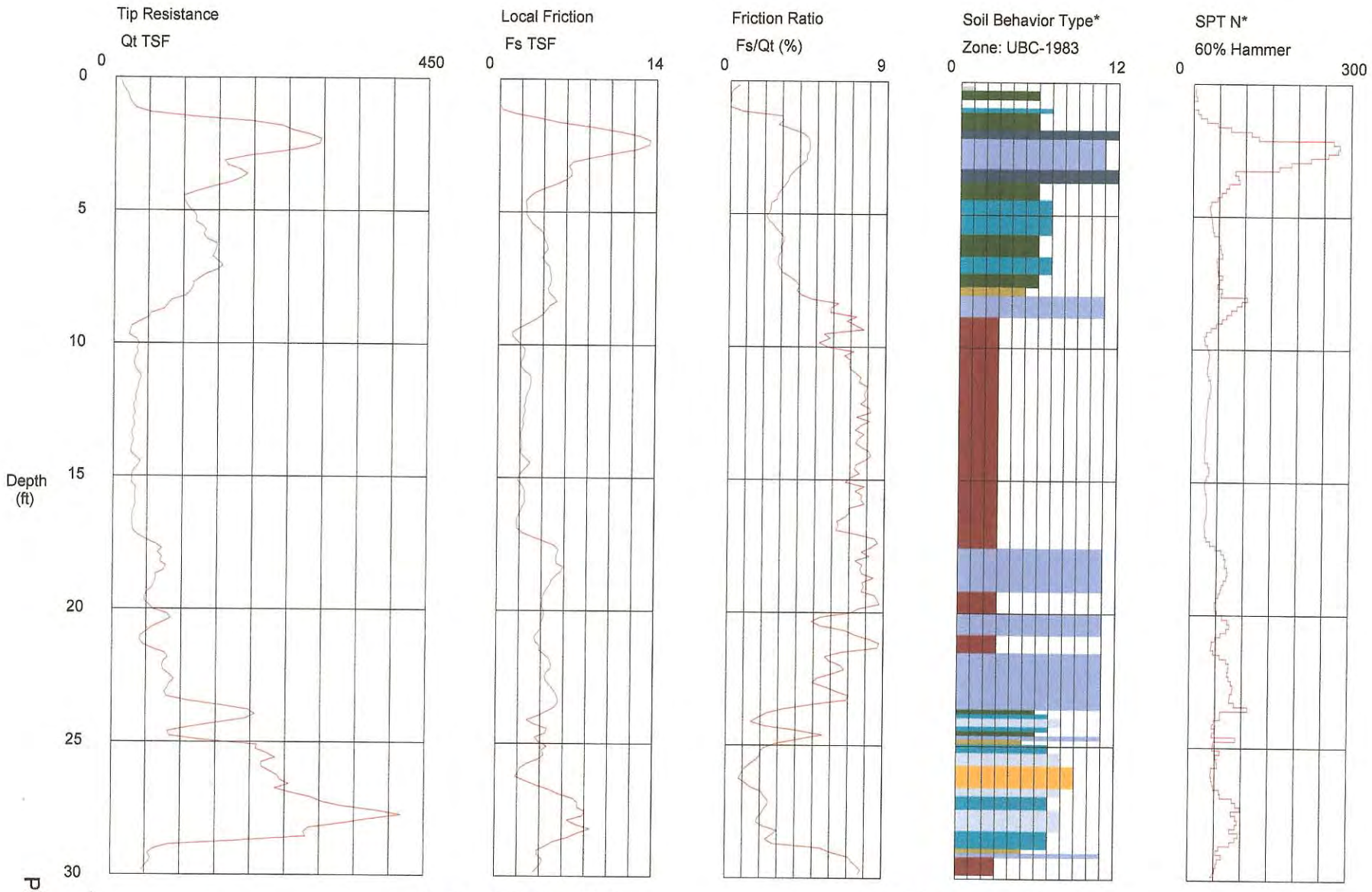
Job Number: 5043ASC



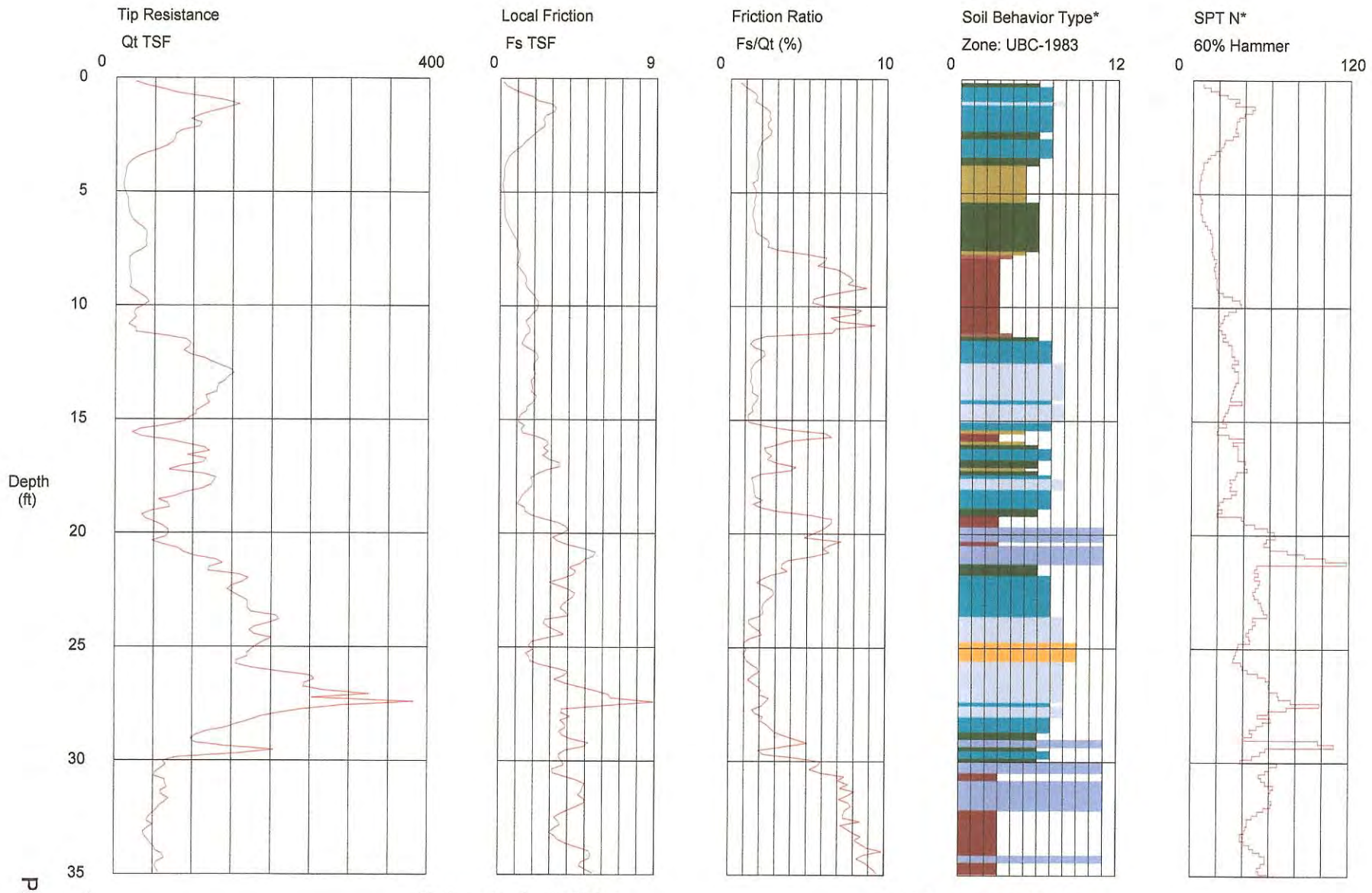
*Soil behavior type and SPT based on data from UBC-1983

Plate B-21

Geosoils

Operator: JH-VO
Sounding: CPT-07
Cone Used: DSG0786

CPT Date/Time: 1/10/2006 1:17:56 PM
Location: Jiron Property
Job Number: 5043ASC



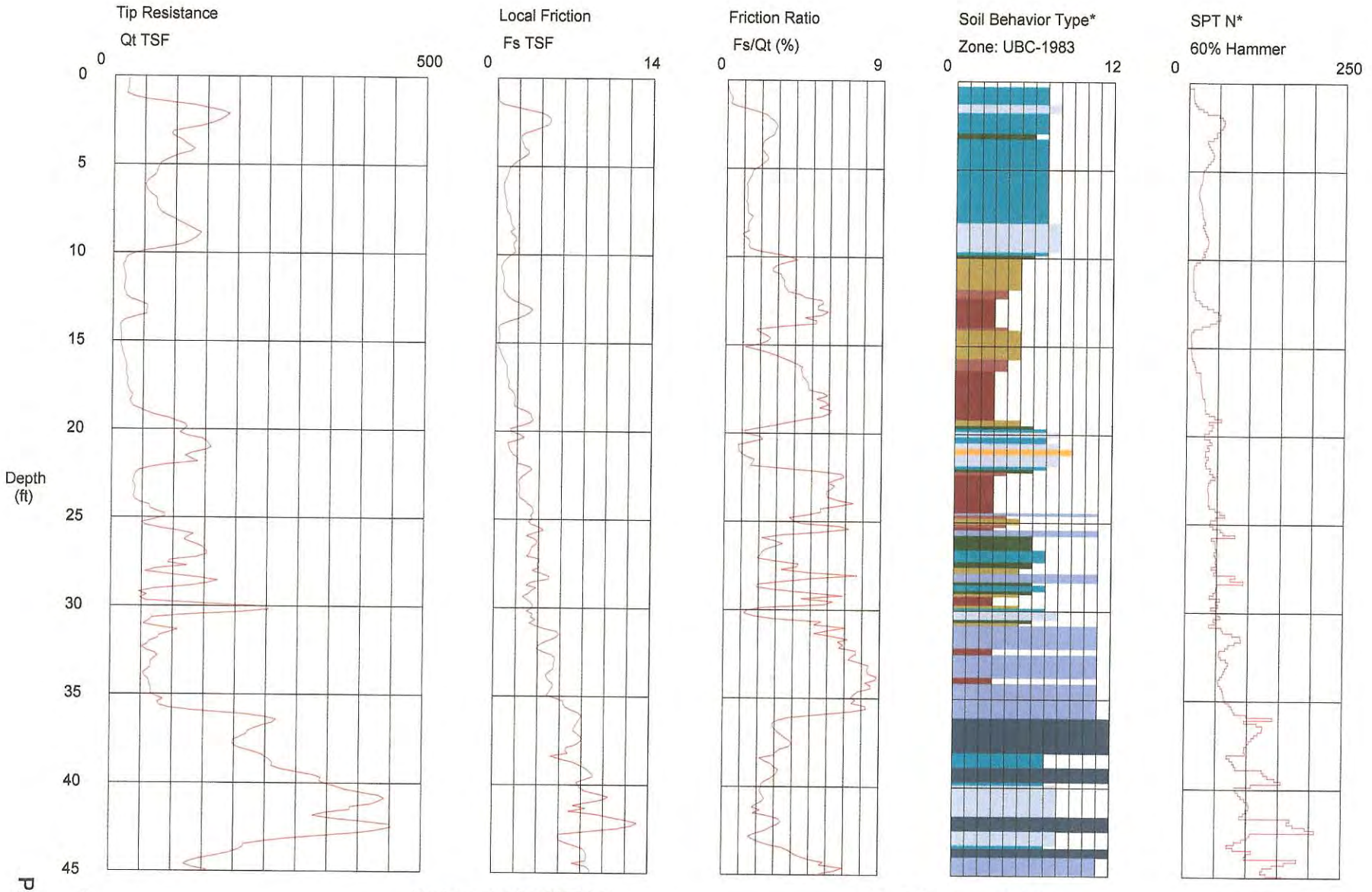
*Soil behavior type and SPT based on data from UBC-1983

Plate B-22

Geosoils

Operator: JH-VO
Sounding: CPT-08
Cone Used: DSG0786

CPT Date/Time: 1/10/2006 11:28:20 AM
Location: Jiron Property
Job Number: 5043ASC



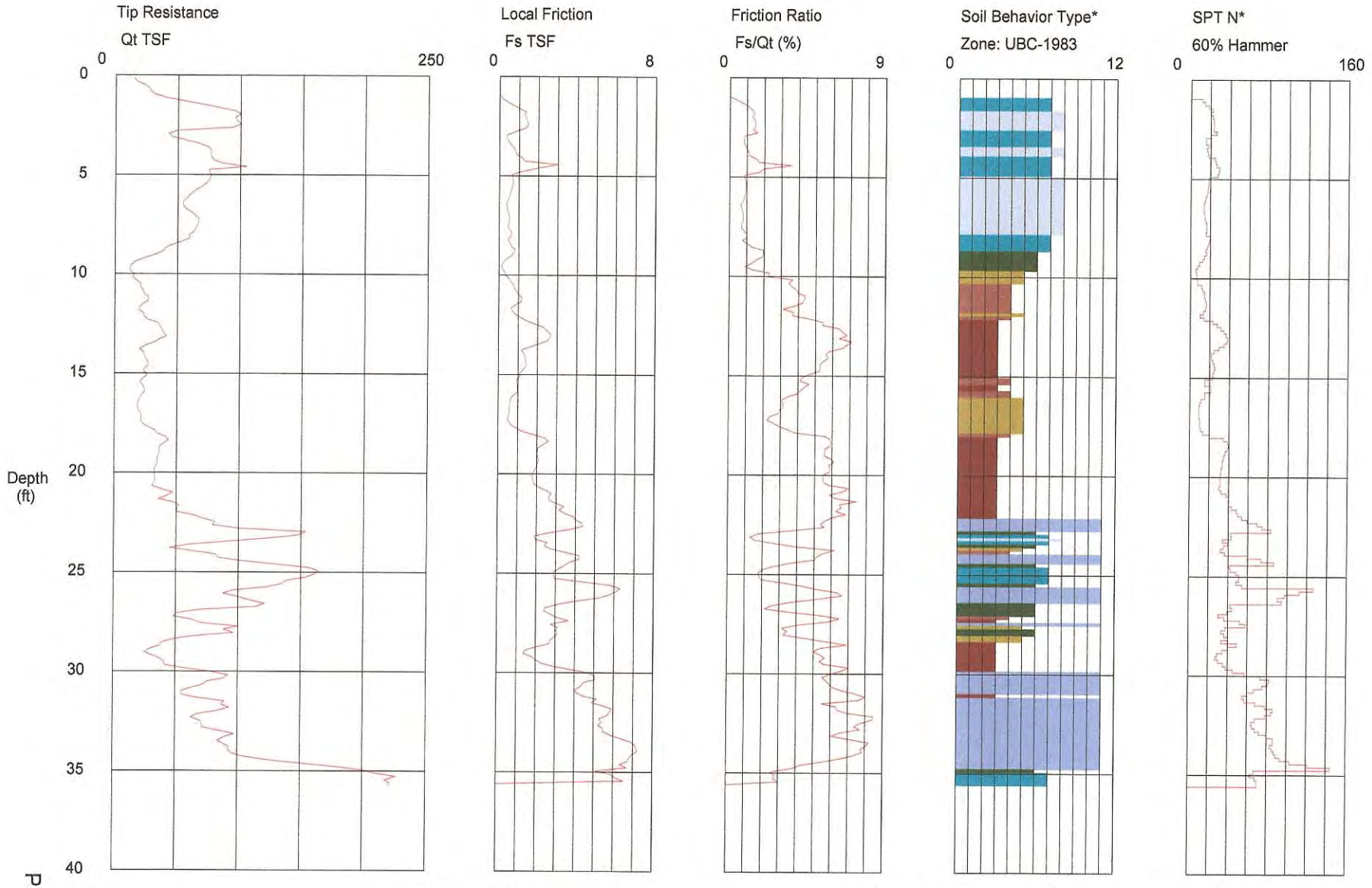
*Soil behavior type and SPT based on data from UBC-1983

Plate B-23

Geosoils

Operator: JH-VO
Sounding: CPT-09
Cone Used: DSG0786

CPT Date/Time: 1/10/2006 12:31:32 PM
Location: Jiron Property
Job Number: 5043ASC



Maximum Depth = 35.76 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

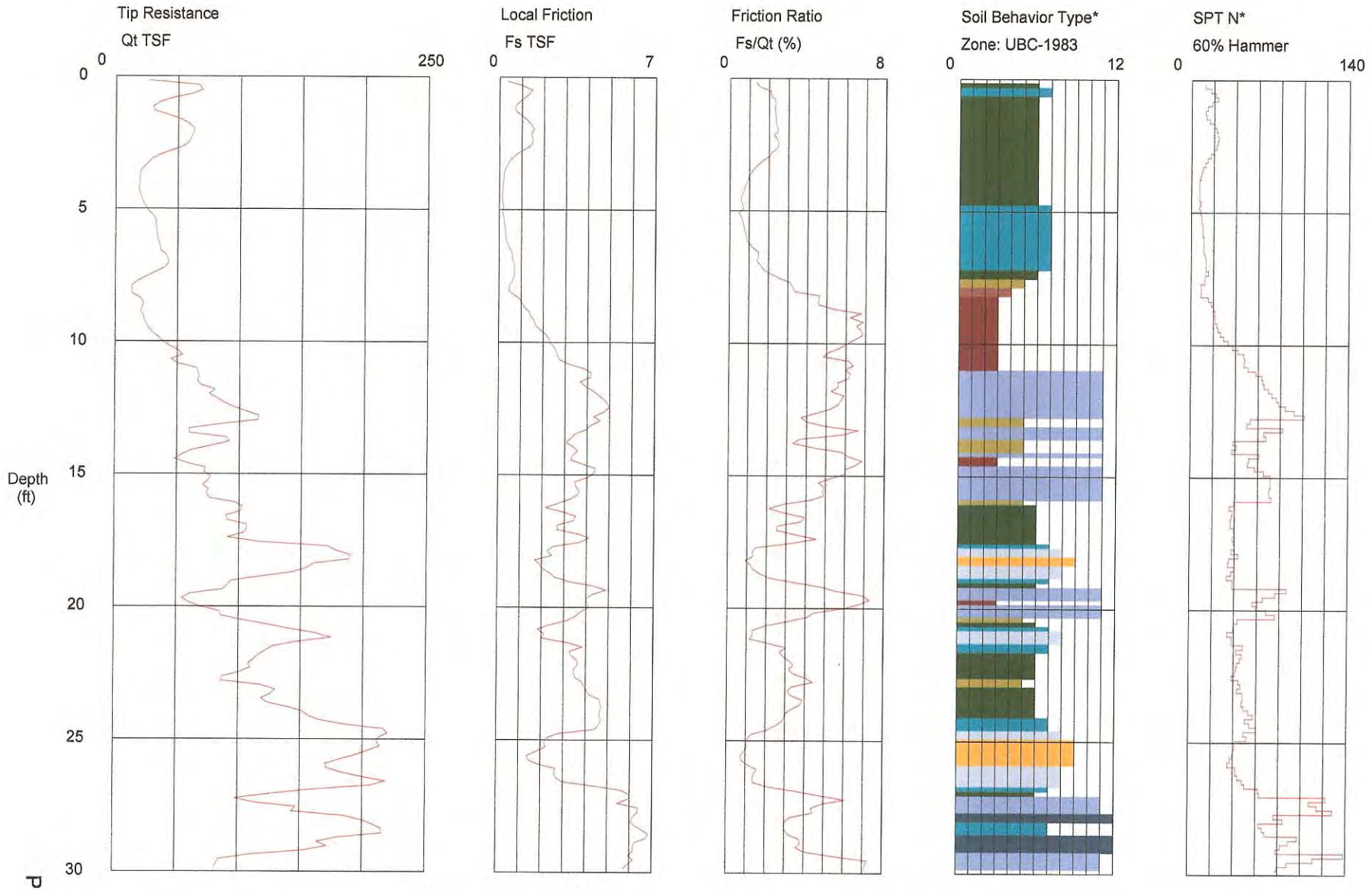
*Soil behavior type and SPT based on data from UBC-1983

Plate B-24

Geosoils

Operator: JH-VO
Sounding: CPT-10
Cone Used: DSG0786

CPT Date/Time: 1/10/2006 2:37:49 PM
Location: Jiron Property
Job Number: 5043ASC



Maximum Depth = 30.51 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

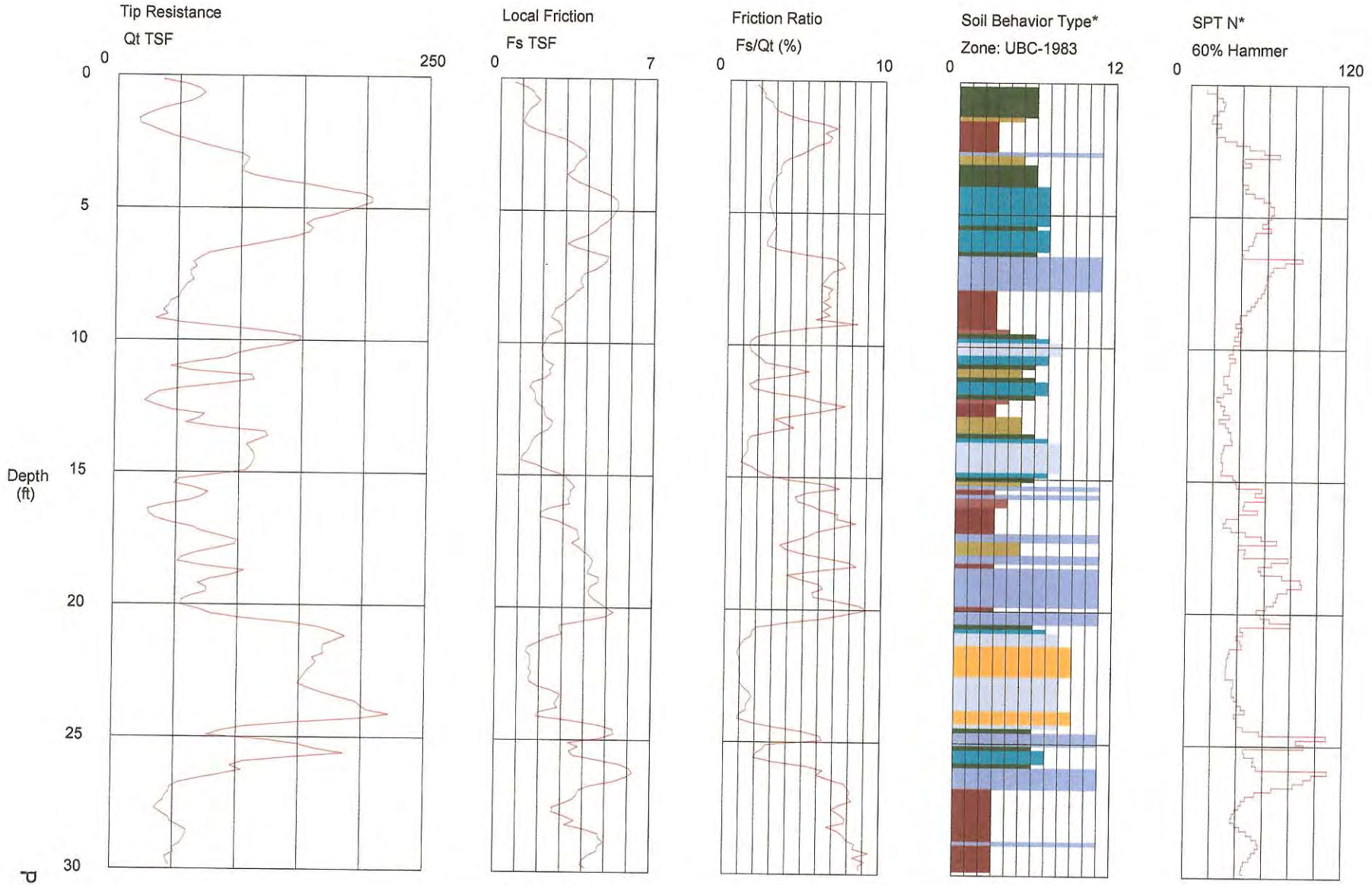
*Soil behavior type and SPT based on data from UBC-1983

Plate B-25

Geosoils

Operator: JH-VO
Sounding: CPT-11
Cone Used: DSG0786

CPT Date/Time: 1/10/2006 4:05:33 PM
Location: Jiron Property
Job Number: 5043ASC



Maximum Depth = 30.51 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983

Plate B-26

APPENDIX C

EQFAULT, EQSEARCH, AND FRISKSP DATA

MAXIMUM EARTHQUAKES

Jiron

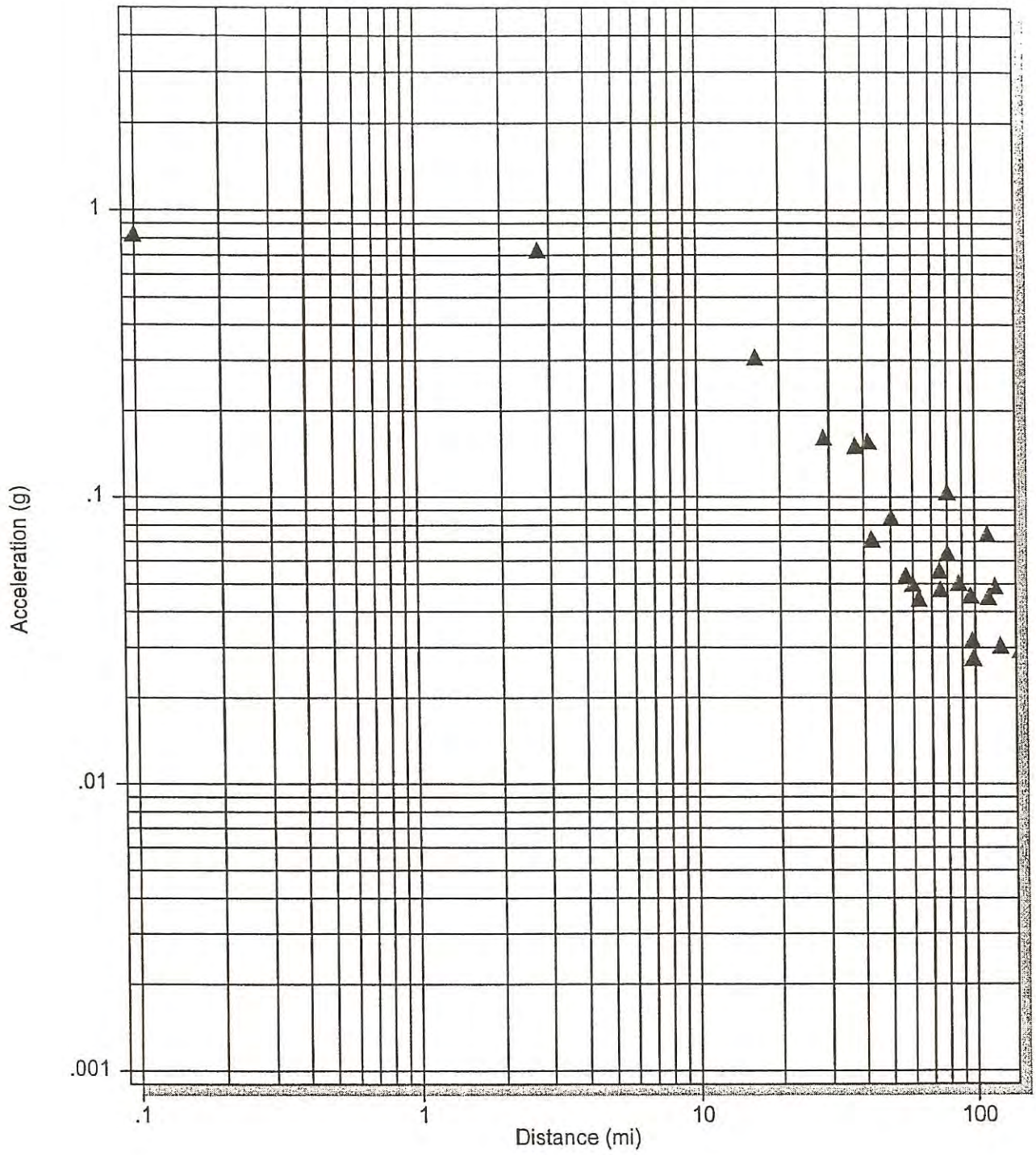


Plate C-1

EARTHQUAKE EPICENTER MAP

Jiron

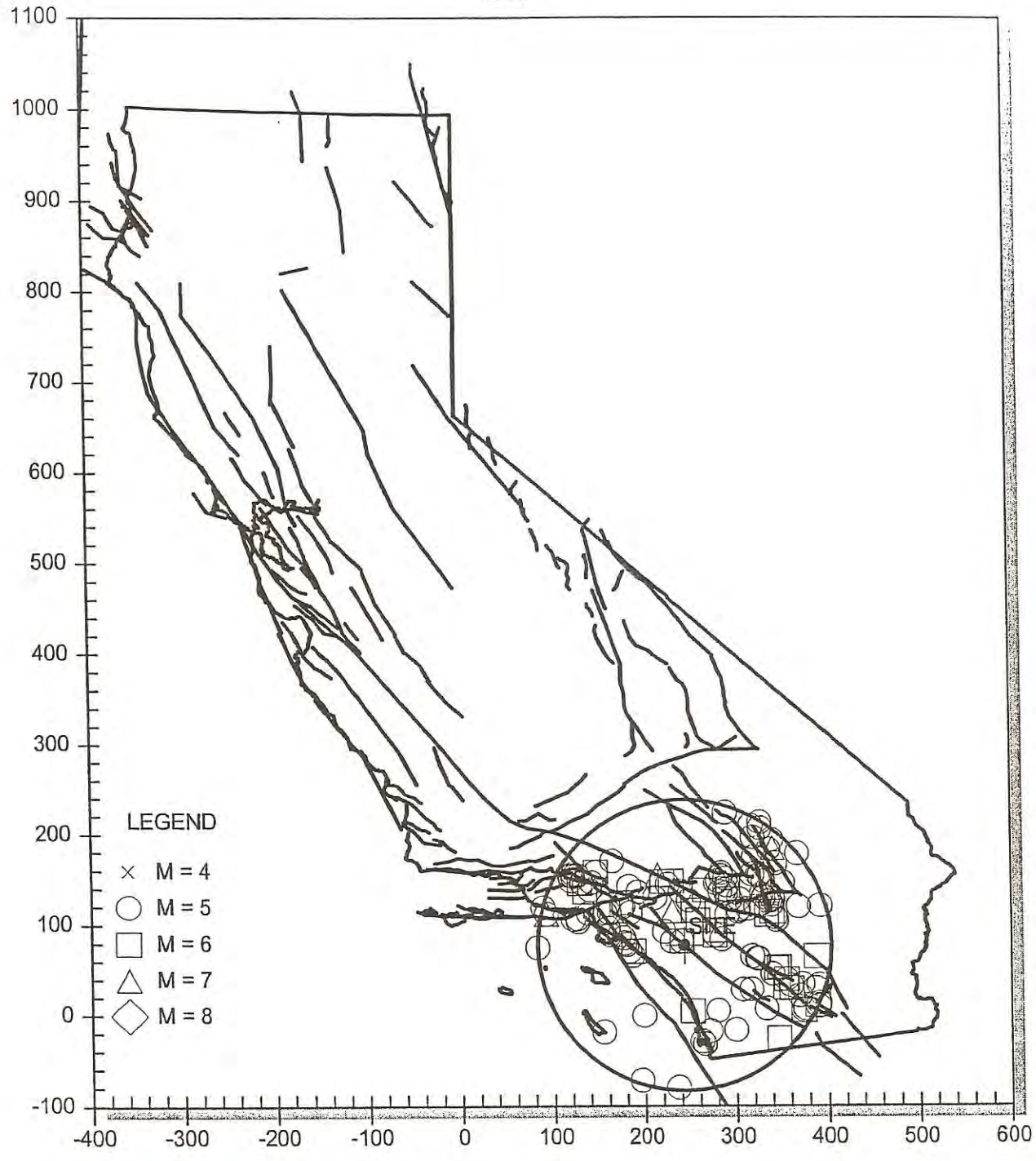


Plate C-2

EARTHQUAKE RECURRENCE CURVE

iron

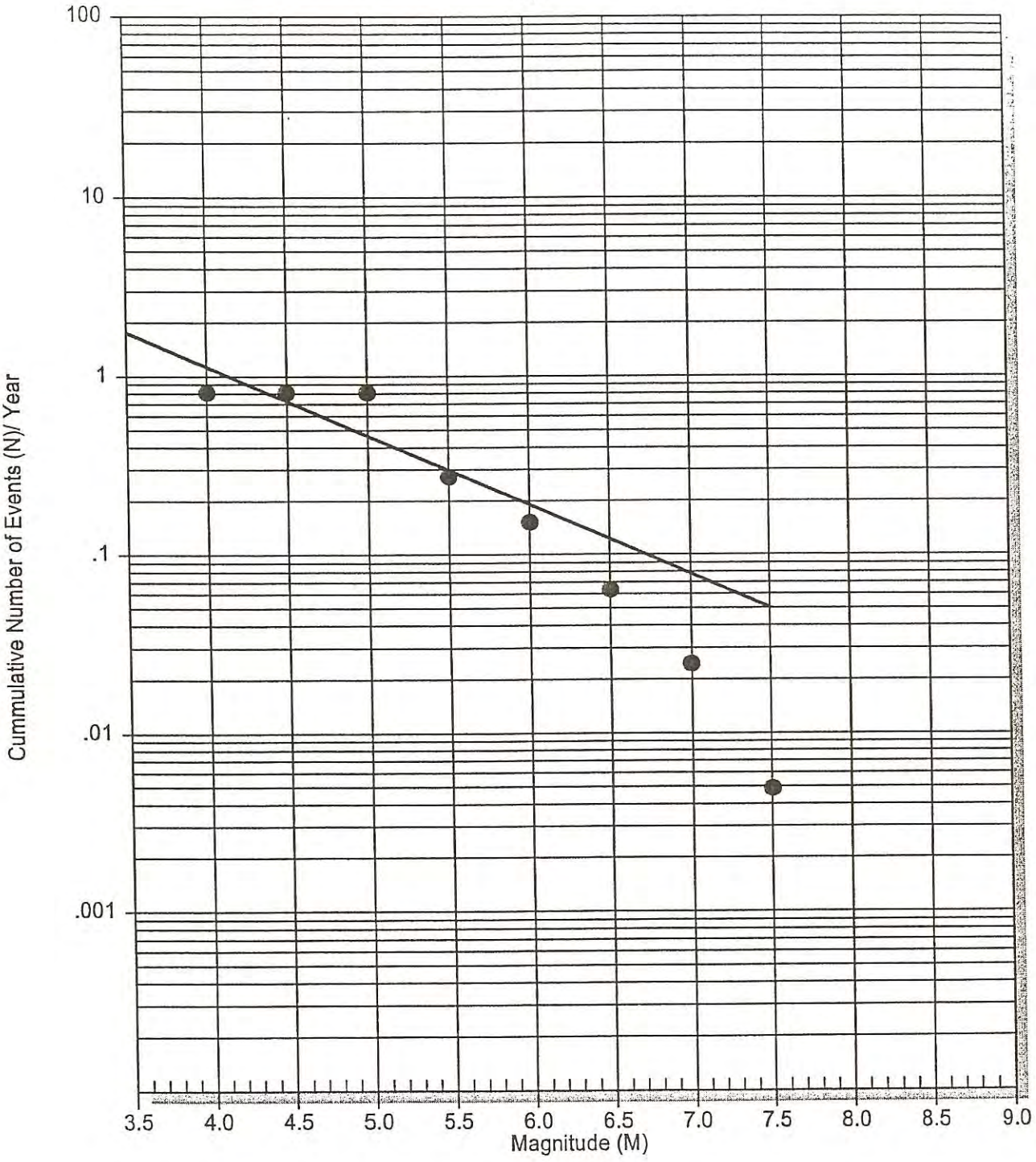


Plate C-3

RETURN PERIOD vs. ACCELERATION

BOZ. ET AL.(1999)HOR HS COR 1

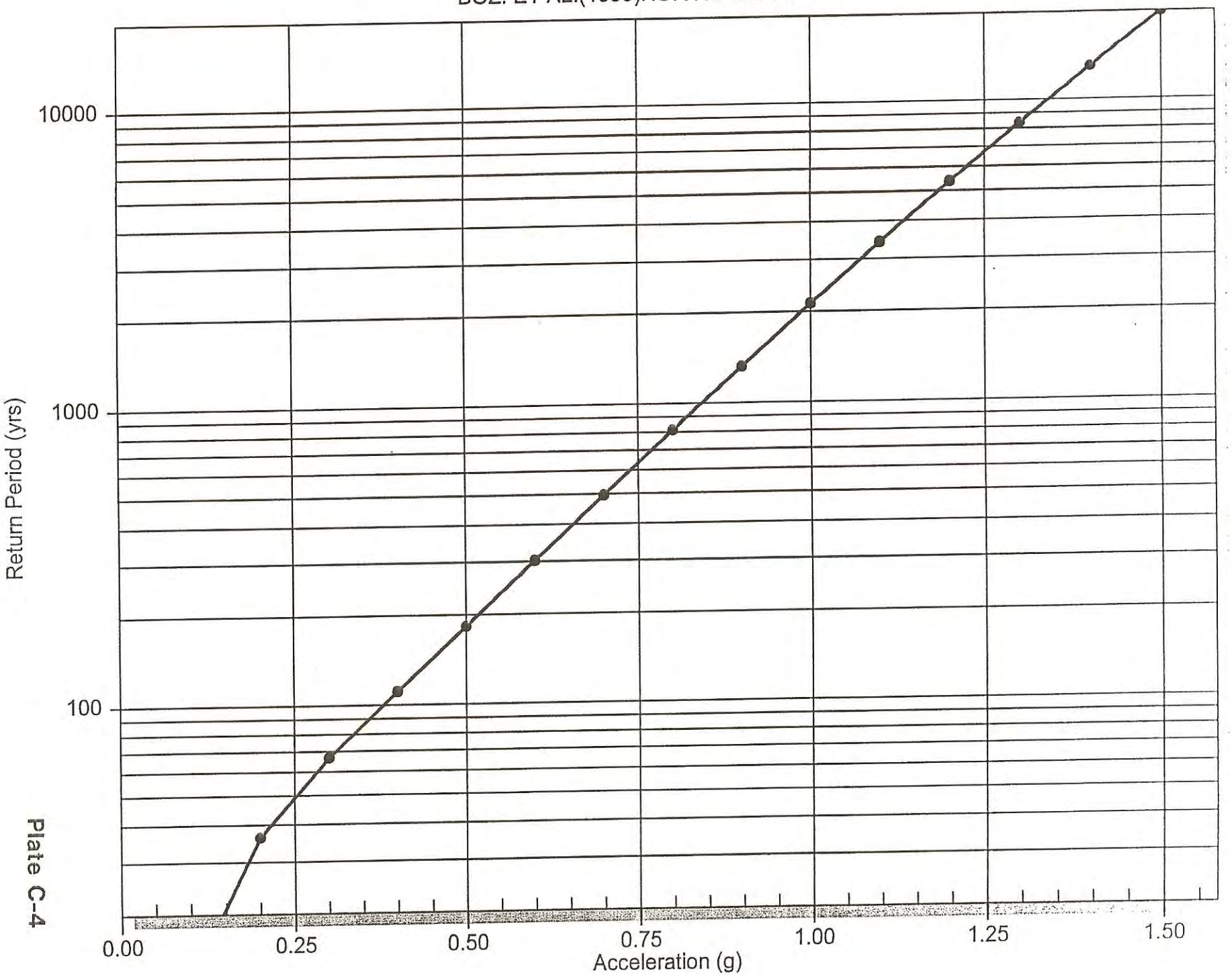


Plate C-4

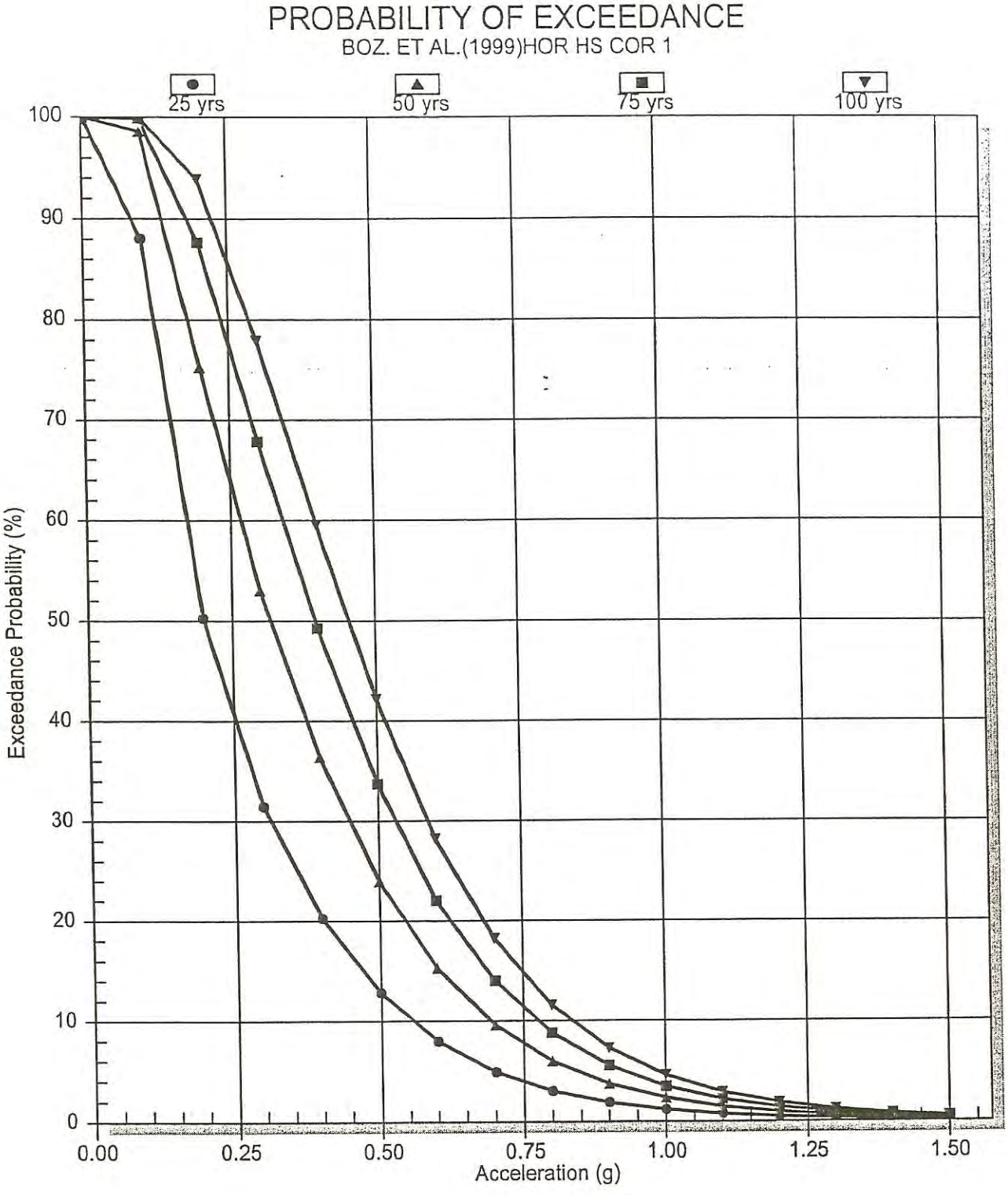

PROBABILITY OF EXCEEDANCE
BOZ. ET AL.(1999)HOR HS COR 1
25 yrs
50 yrs
75 yrs
100 yrs
Exceedance Probability (%)
100
90
80
70
60
50
40
30
20
10
0
0.00
0.25
0.50
0.75
1.00
1.25
1.50
Acceleration (g)

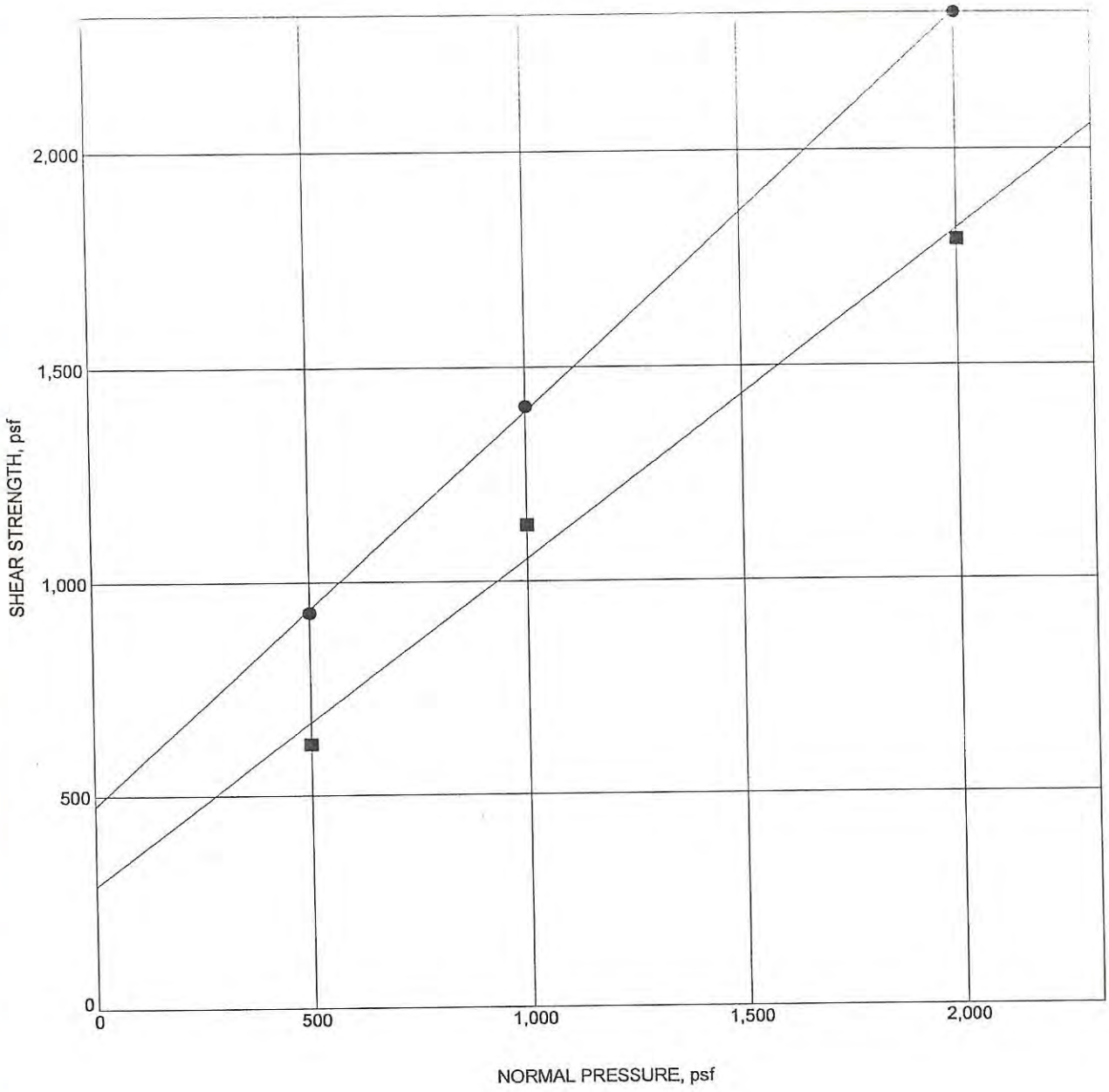
Plate C-5

APPENDIX D

LABORATORY TEST RESULTS

APPENDIX D

LABORATORY TEST RESULTS



	Sample	Depth/El.	Range	Classification	Primary/Residual	Sample Type	γ_d	MC%	c	ϕ
●	B-4	7.0	7-11	Silty Sand	Primary Shear	Undisturbed	120.3	12.4	476	43
■	B-4	7.0	7-11	Silty Sand	Residual Shear	Undisturbed	120.3	12.4	290	37

Note: Sample Innundated prior to testing

GeoSoils, Inc.
5741 Palmer Way
Carlsbad, CA 92008
Telephone: (760) 438-3155
Fax: (760) 931-0915

DIRECT SHEAR TEST

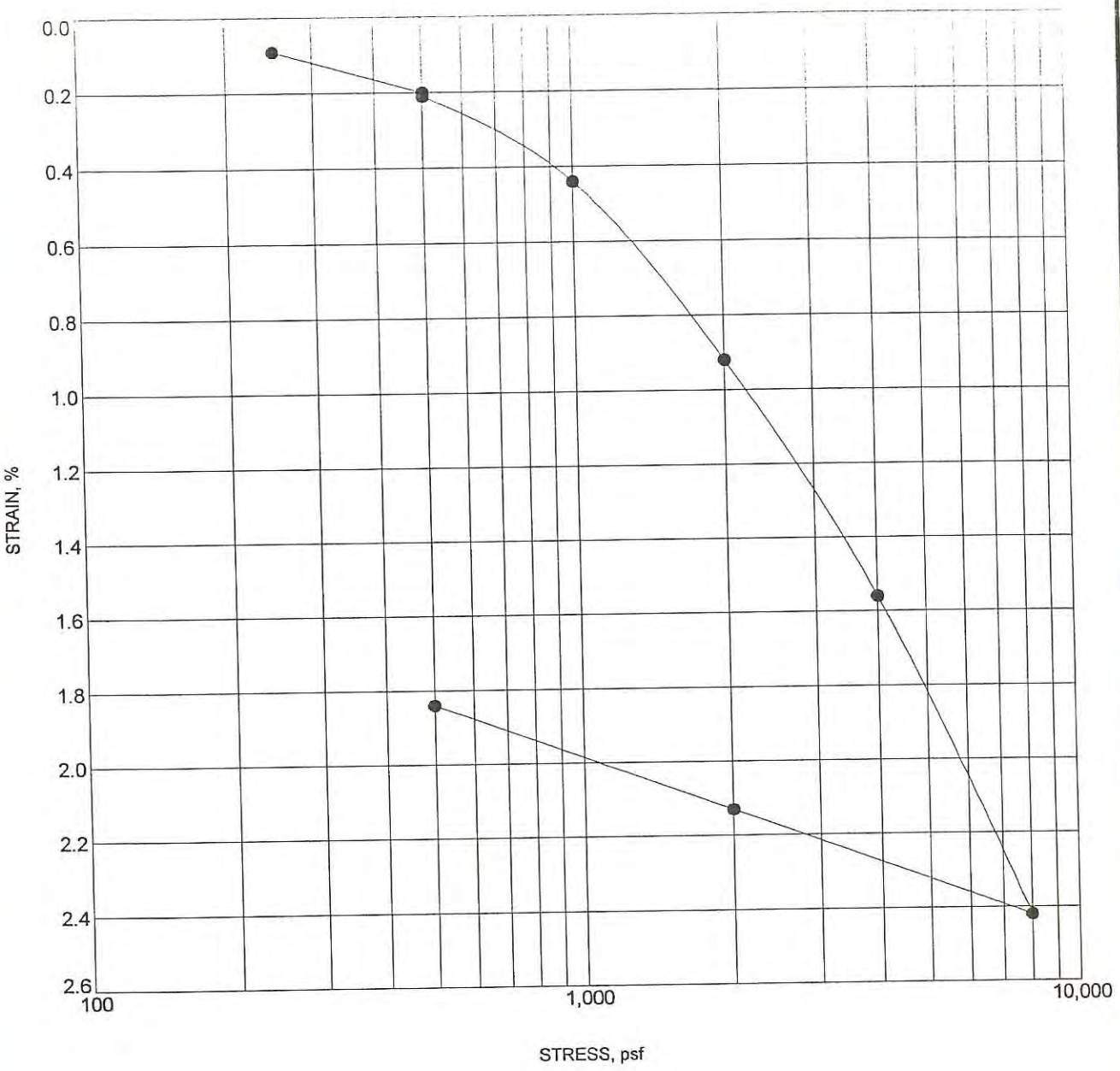
Project: JIRON PLAZA

Number: 5043-A-SC

Date: January 2006

Plate: D - 1

US DIRECT SHEAR 5043.GPJ US_LAB.GDT 1/18/06



Sample	Depth/El.	Visual Classification	γ_d Initial	MC Initial	MC Final	H20
● B-2	17.0	Clayey Sand	118.1	15.0	14.1	500

Stress at which water was added: 500 psf
Strain Difference: _ _ _ 9.99999999999998E-03%

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CONSOLIDATION TEST

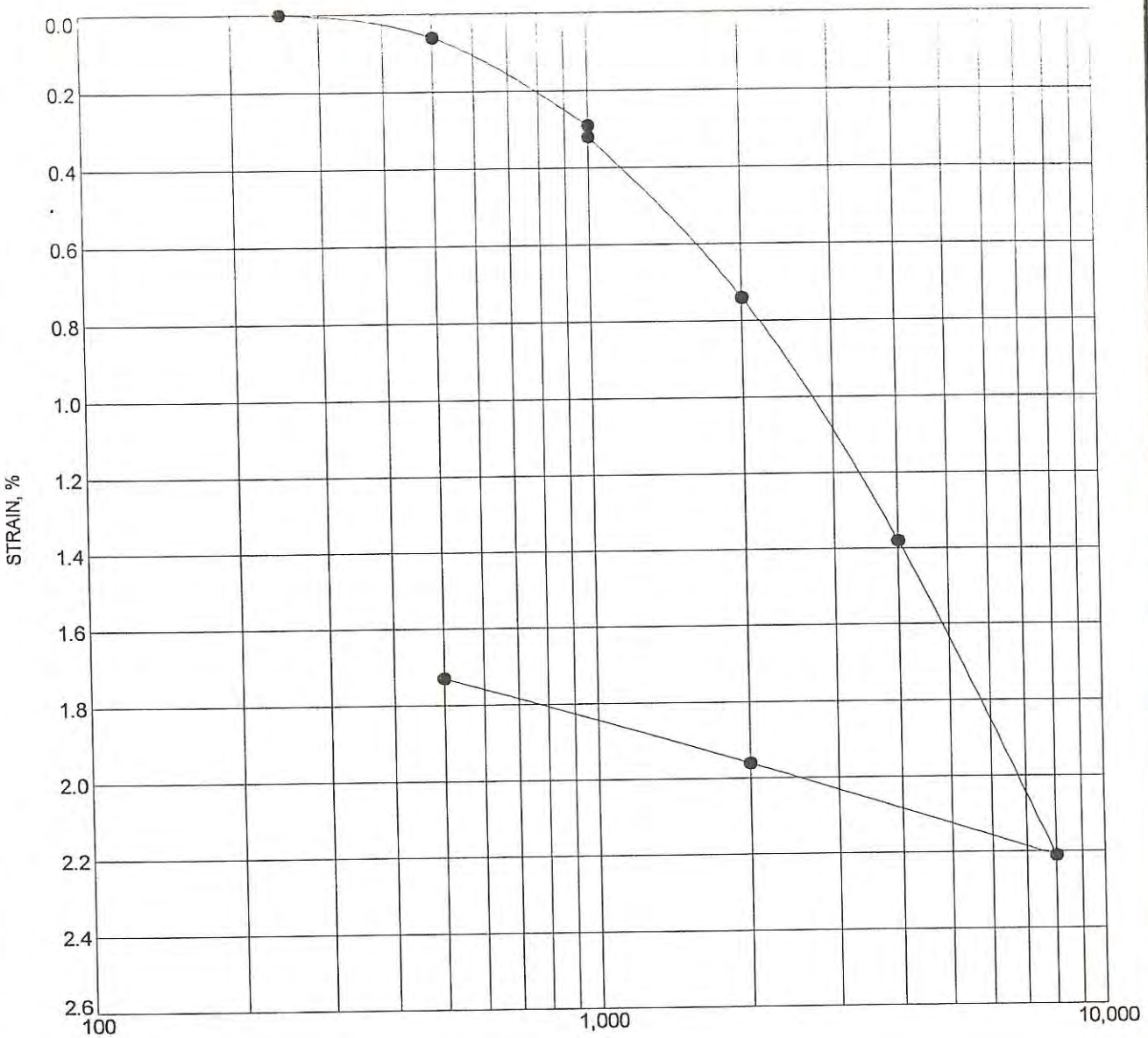
Project: JIRON PLAZA

Number: 5043-A-SC

Date: January 2006

Plate: D - 2

US CONSOL STRAIN 5043.GPJ US_LAB.GDT 1/18/06



Sample	Depth/El.	Visual Classification	γ_d Initial	MC Initial	MC Final	H20
● B-5	20.0	Sand w/ Silt	113.1	17.9	17.1	1000

Stress at which water was added: 1000 psf
Strain Difference: ____ 0.03%

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CONSOLIDATION TEST

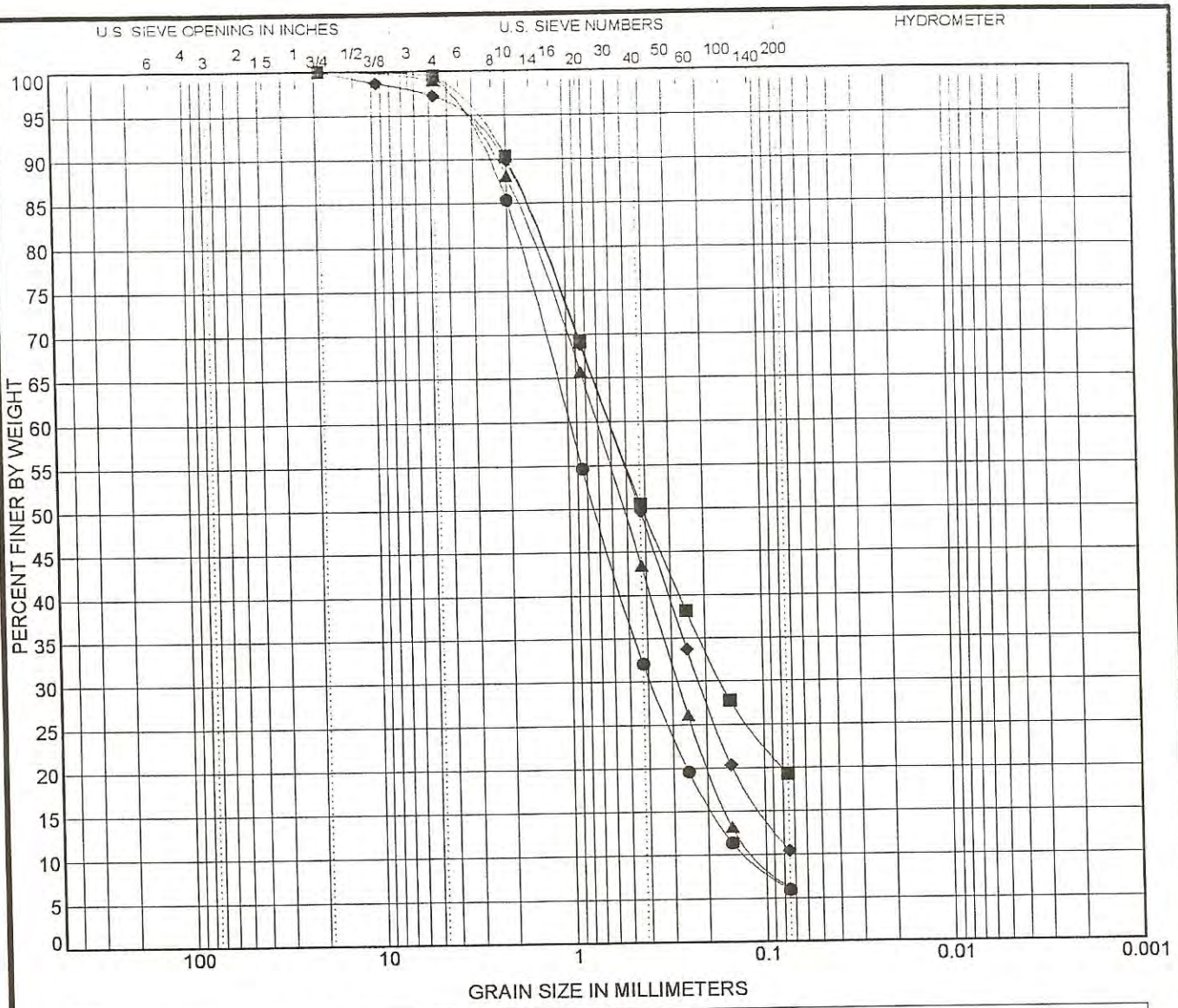
Project: JIRON PLAZA

Number: 5043-A-SC

Date: January 2006

Plate: D - 3

US CONSOL STRAIN 5043.GPJ US_LAB.GDT 1/18/06



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample	Depth	Visual Classification/USCS CLASSIFICATION	LL	PL	PI	Cc	Cu
●	B-1	15.0	Sand w/ Silt				1.22	7.84
■	B-1	25.0	Silty Sand					
▲	B-1	35.0	Sand w/ Silt				1.02	6.48
◆	B-1	45.0	Sand w/ Silt				1.05	8.49

	Sample	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1	15.0	19	0.987	0.39	0.126	0.5	93.6	5.9	
■	B-1	25.0	19	0.604	0.167		0.5	80.2	19.3	
▲	B-1	35.0	19	0.711	0.282	0.11	1.0	92.8	6.2	
◆	B-1	45.0	19	0.617	0.217		2.8	86.8	10.4	

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GRAIN SIZE DISTRIBUTION

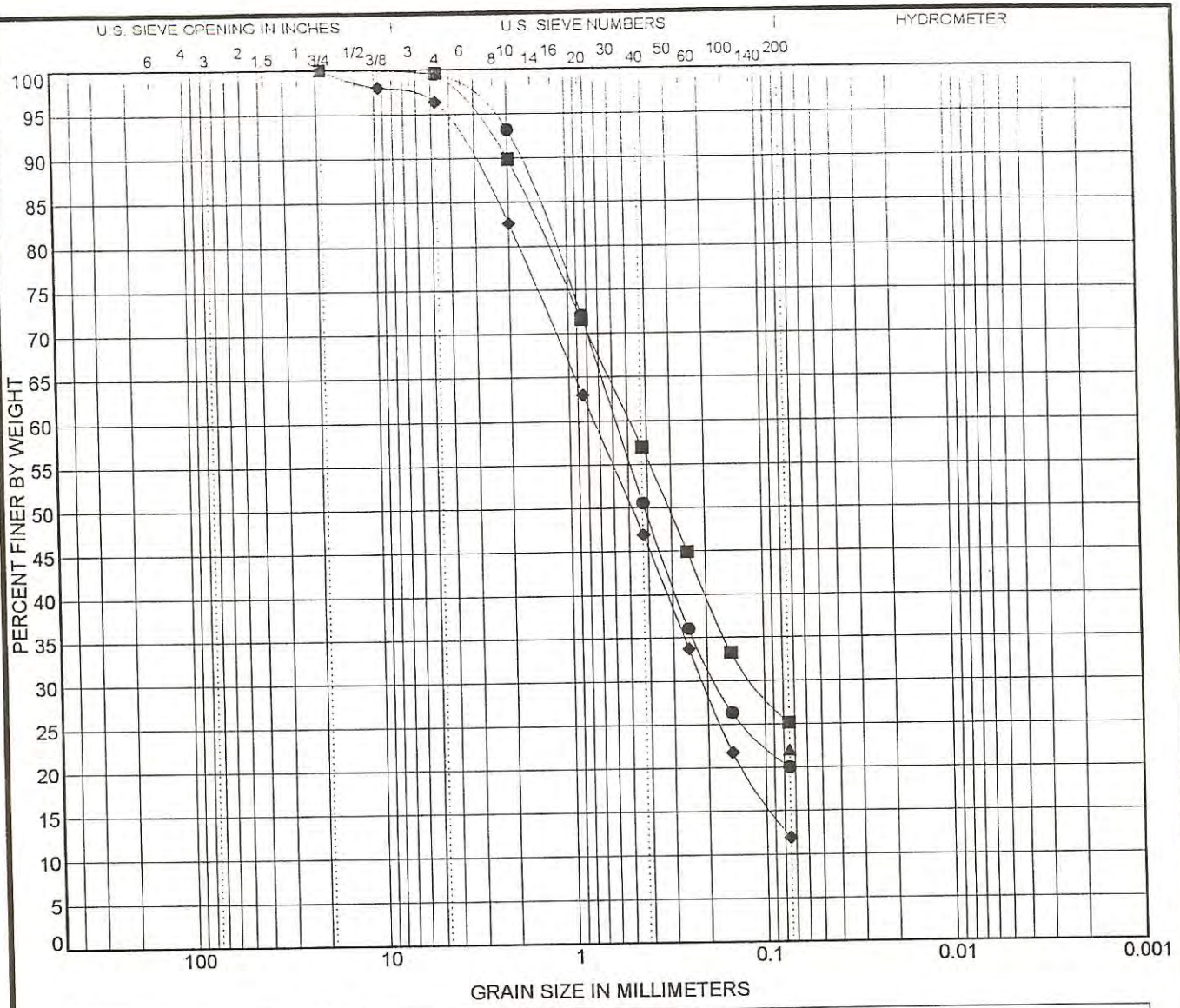
Project: JIRON PLAZA

Number: 5043-A-SC

Date: January 2006

Plate: D - 4

US GRAIN SIZE 5043.GPJ US LAB.GDT 1/18/06



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample	Depth	Visual Classification/USCS CLASSIFICATION	LL	PL	PI	Cc	Cu
●	B-2	17.0	Clayey Sand					
■	B-2	22.0	Silty Sand					
▲	B-4	7.0	Silty Sand					
◆	B-5	15.0	Sand w/ Silt				0.93	11.45

	Sample	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-2	17.0	19	0.576	0.182		0.5	79.5	20.0	
■	B-2	22.0	19	0.49	0.114		0.4	74.5	25.1	
▲	B-4	7.0	0.075				0.0	0.0	22.0	
◆	B-5	15.0	19	0.748	0.213		3.6	84.4	12.0	

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GRAIN SIZE DISTRIBUTION

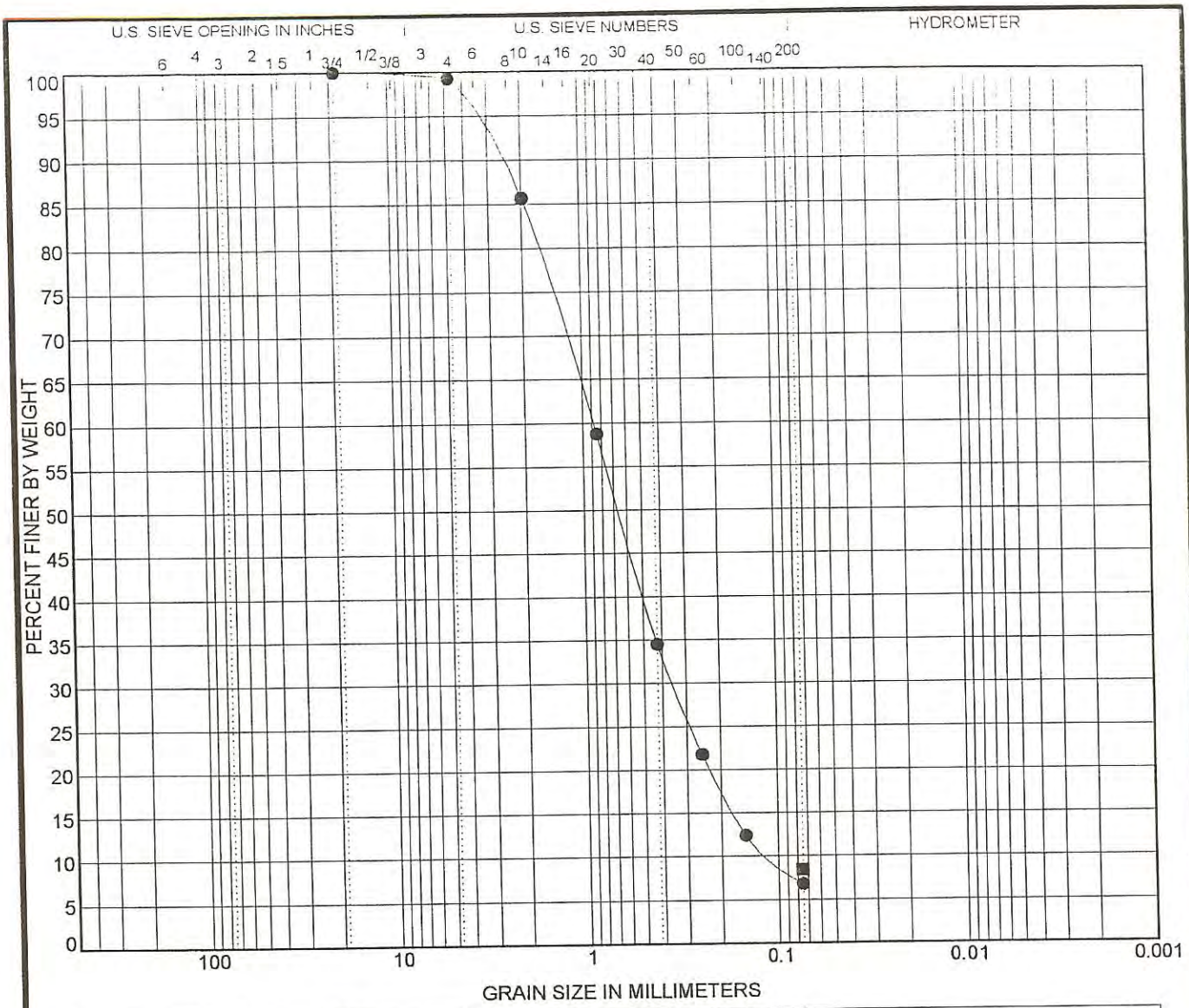
Project: JIRON PLAZA

Number: 5043-A-SC

Date: January 2006

Plate: D - 5

US GRAIN SIZE 5043.GPJ US LAB.GDT 1/18/06



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample	Depth	Visual Classification/USCS CLASSIFICATION	LL	PL	PI	Cc	Cu
●	B-5	20.0	Sand w/ Silt				1.26	7.95
■	B-5	25.0	Sand w/ Silt					

	Sample	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-5	20.0	19	0.884	0.352	0.111	0.7	92.4	6.8	
■	B-5	25.0	0.075				0.0	0.0	8.4	

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GRAIN SIZE DISTRIBUTION

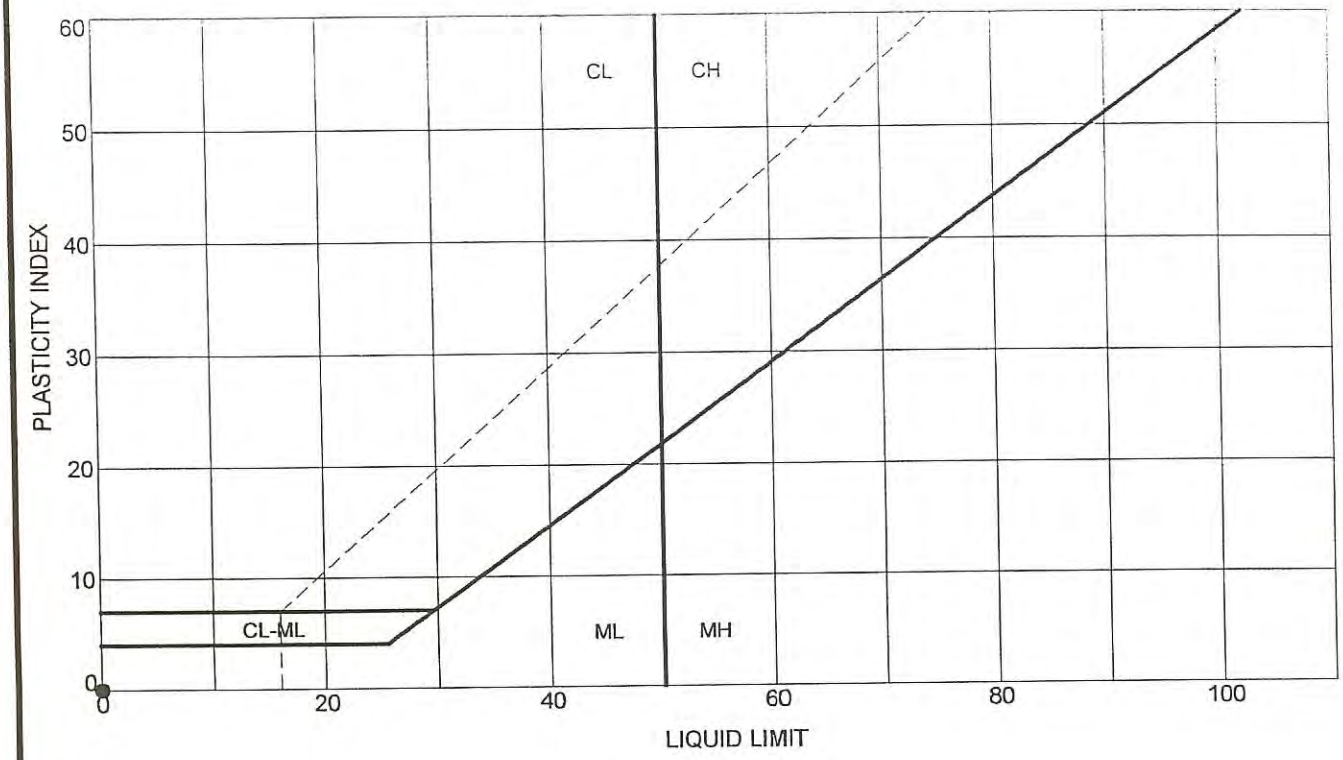
Project: JIRON PLAZA

Number: 5043-A-SC

Date: January 2006

Plate: D - 6

US GRAIN SIZE 5043.GPJ US LAB.GDT 1/18/06



Sample	Depth/El.	LL	PL	PI	Fines	USCS CLASSIFICATION
● B-6	10.0	NP	NP	NP		Silty Sand

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ATTERBERG LIMITS' RESULTS

Project: JIRON PLAZA

Number: 5043-A-SC

Date: January 2006

Plate: D - 7

US ATTERBERG LIMITS 5043.GPJ US LAB.GDT 1/18/06

TEST SPECIMEN		A	B	C	D
Compactor air pressure	PSI	350	350	350	
Water added	%	3.3	3.7	4.1	
Moisture at compaction	%	9.0	9.5	10.0	
Height of sample	IN	2.48	2.45	2.49	
Dry density	PCF	125.4	128.5	126.5	
R-Value by exudation		82	75	42	
R-Value by exudation, corrected		82	75	42	
Exudation pressure	PSI	391	273	119	
Stability thickness	FT	0.23	0.32	0.74	
Expansion pressure thickness	FT	0.00	0.00	0.00	

DESIGN CALCULATION DATA

Traffic index, assumed	5.0
Gravel equivalent factor, assumed	1.25
Expansion, stability equilibrium	0
R-Value by expansion	NA
R-Value by exudation	78
R-Value at equilibrium	**78**

SAMPLE INFORMATION

Sample Location: B-2 @ 5-10

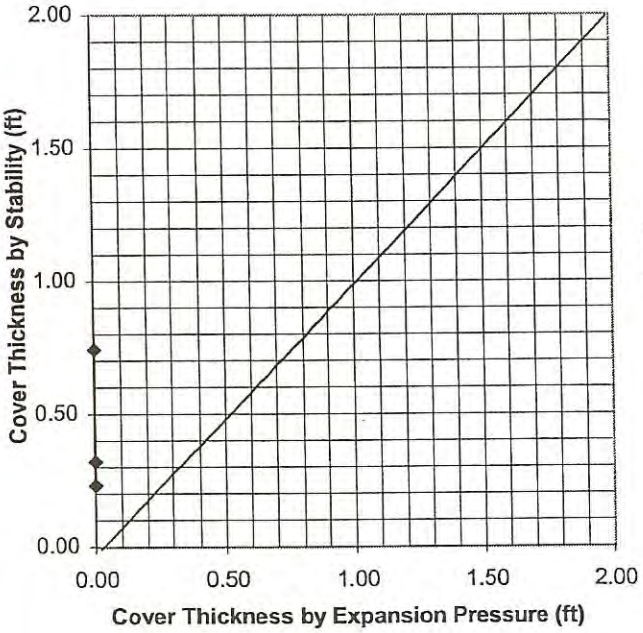
Sample Description: Brown Silty Sand

Notes:

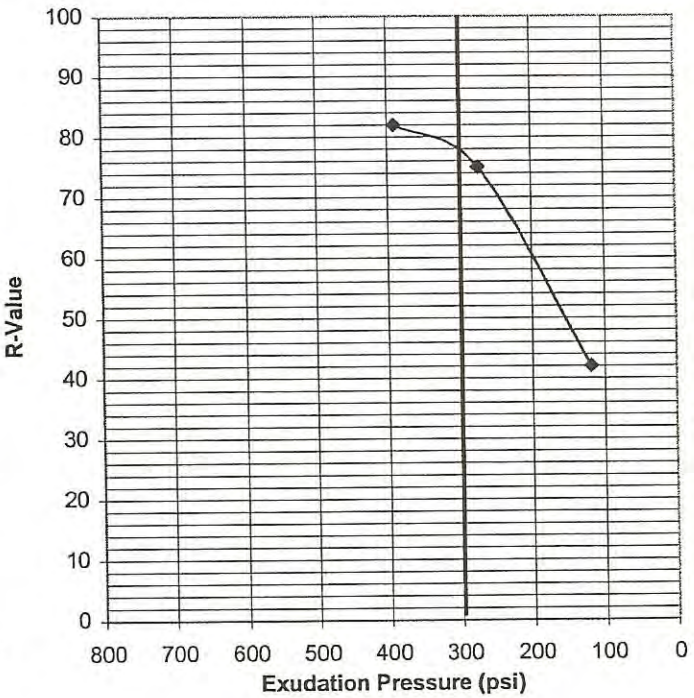
0% Retained on 3/4 inch sieve

Test Method: Cal-Trans Test 301

Expansion, Stability Equilibrium



R-Value By Exudation



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R - VALUE TEST RESULTS

Project: JIRON PLAZA

Number: 5043-A-SC

Date: Jan-06 Plate: D - 8

AP Engineering and Testing, Inc.
Geotechnical Testing Laboratory

PERCENT PASSING NO. 200 SIEVE

Client: GeoSoil, Inc.
Project Name: Jiron Plaza
Project Location: 5043-A-SC

Laboratory No.: 26-0115
Date: 01/10/06

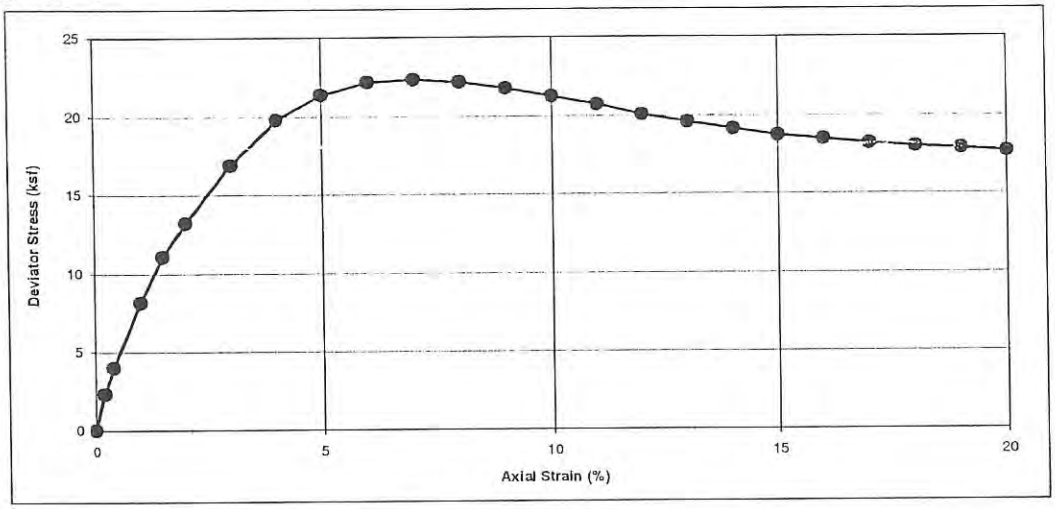
Boring No.	Sample No.	Sample Depth (ft)	Percent Fines (%)
B-1	-	40	14.8

2607 Pomona Boulevard. Pomona, California 91768
Tel. (909) 869-6316. Fax (909) 869-6318

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST

Project Name:	Jiron Plaza	Sample Type:	Undisturbed
Project No.:	5043-A-SC	Soil Description	Brown Silty Sand, slightly clay
Boring No.:	B-1	Dry Density (pcf):	121.5
Sample No.:	-	Moisture Content (%)	13.6
Depth (feet):	40	Test Date:	1/7/2006

Sample Diameter (inch):	2.360	Wt. Wet Soil+Container(gms)	971.51
Sample Hieght (inch):	5	Wt. Dry Soil+Container(gms)	878
Sample Weight (gms):	792.72	Wt. Container (gms)	189.39



Confining Pressure : 4.80 ksf

Load (lbs)	Deformation (inch)	Area (sq.in)	Deviator Stress (ksf)	Axial Strain (%)
0	0.00	4.37	0.00	0.00
70	0.01	4.38	2.30	0.20
122	0.02	4.39	4.00	0.40
249	0.05	4.42	8.11	1.00
341	0.075	4.44	11.06	1.50
409	0.10	4.46	13.19	2.00
530	0.15	4.51	16.92	3.00
627	0.20	4.56	19.81	4.00
683	0.25	4.60	21.36	5.00
717	0.30	4.65	22.19	6.00
730	0.35	4.70	22.35	7.00
733	0.40	4.75	22.20	8.00
727	0.45	4.81	21.78	9.00
717	0.50	4.86	21.24	10.00
707	0.55	4.92	20.71	11.00
694	0.60	4.97	20.10	12.00
684	0.65	5.03	19.59	13.00
677	0.70	5.09	19.17	14.00
671	0.75	5.15	18.78	15.00
670	0.80	5.21	18.53	16.00
668	0.85	5.27	18.25	17.00
668	0.90	5.33	18.03	18.00
672	0.95	5.40	17.92	19.00
673	1.00	5.47	17.72	20.00

Plate D-10

Table 1 - Laboratory Tests on Soil Samples

GeoSoils, Inc.
Jiron Plaza, Lake Elsinore, CA
Your #5043-A-SC, MJS&A #05-1897LAB
30-Dec-05

Sample ID			B-5 @ 5-8' Bulk
Resistivity		**Units**	
as-received		ohm-cm	99,000
saturated		ohm-cm	4,500
pH			7.5
Electrical Conductivity		mS/cm	0.17
Chemical Analyses			
Cations			
calcium	Ca^{2+}	mg/kg	88
magnesium	Mg^{2+}	mg/kg	34
sodium	Na^{1+}	mg/kg	ND
Anions			
carbonate	CO_3^{2-}	mg/kg	ND
bicarbonate	HCO_3^{1-}	mg/kg	250
chloride	Cl^{1-}	mg/kg	ND
sulfate	SO_4^{2-}	mg/kg	69
Other Tests			
ammonium	NH_4^{1+}	mg/kg	na
nitrate	NO_3^{1-}	mg/kg	na
sulfide	S^{2-}	qual	na
Redox		mV	na

Electrical conductivity in millisiemens/cm and chemical analysis were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

Table 1 - Laboratory Tests on Soil Samples

GeoSoils, Inc.
Jiron
Your #5043-A-SC, MJS&A #06-0011LAB
6-Jan-06

Sample ID			B-2 @ 5-10'
Resistivity		**Units**	
as-received		ohm-cm	180,000
saturated		ohm-cm	8,000
pH			7.2
Electrical Conductivity		mS/cm	0.09
Chemical Analyses			
Cations			
calcium	Ca^{2+}	mg/kg	44
magnesium	Mg^{2+}	mg/kg	216
sodium	Na^{1+}	mg/kg	ND
Anions			
carbonate	CO_3^{2-}	mg/kg	ND
bicarbonate	HCO_3^{1-}	mg/kg	98
chloride	Cl^{1-}	mg/kg	35
sulfate	SO_4^{2-}	mg/kg	66
Other Tests			
ammonium	NH_4^{1+}	mg/kg	na
nitrate	NO_3^{1-}	mg/kg	na
sulfide	S^{2-}	qual	na
Redox		mV	na

Electrical conductivity in millisiemens/cm and chemical analysis were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

AP Engineering and Testing, Inc.
Geotechnical Testing Laboratory

PERCENT PASSING NO. 200 SIEVE

Client: GeoSoil, Inc.
Project Name: Jiron Plaza
Project Location: 5043-A-SC

Laboratory No.: 26-0115
Date: 01/10/06

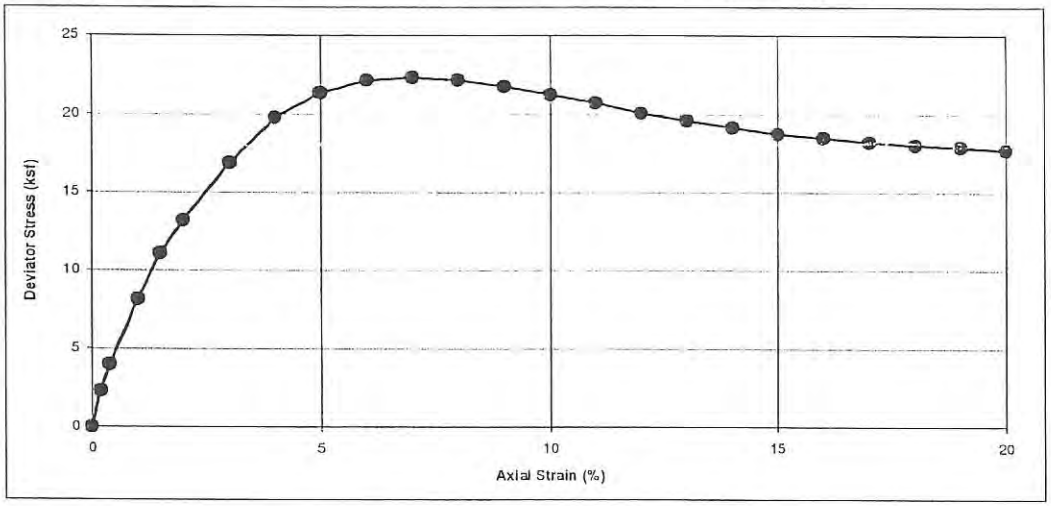
Boring No.	Sample No.	Sample Depth (ft)	Percent Fines (%)
B-1	-	40	14.8

2607 Pomona Boulevard, Pomona, California 91768
Tel. (909) 869-6316, Fax (909) 869-6318

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST

Project Name:	Jiron Plaza	Sample Type:	Undisturbed
Project No.:	5043-A-SC	Soil Description	Brown Silty Sand, slightly clay
Boring No.:	B-1	Dry Density (pcf):	121.5
Sample No.:	-	Moisture Content (%)	13.6
Depth (feet):	40	Test Date:	1/7/2006

Sample Diameter (inch):	2.360	Wt. Wet Soil+Container(gms)	971.51
Sample Hieght (inch):	5	Wt. Dry Soil+Container(gms)	878
Sample Weight (gms):	792.72	Wt. Container (gms)	189.39



Confining Pressure : 4.80 ksf

Load (lbs)	Deformation (inch)	Area (sq.in)	Deviator Stress (ksf)	Axial Strain (%)
0	0.00	4.37	0.00	0.00
70	0.01	4.38	2.30	0.20
122	0.02	4.39	4.00	0.40
249	0.05	4.42	8.11	1.00
341	0.075	4.44	11.06	1.50
409	0.10	4.46	13.19	2.00
530	0.15	4.51	16.92	3.00
627	0.20	4.56	19.81	4.00
683	0.25	4.60	21.36	5.00
717	0.30	4.65	22.19	6.00
730	0.35	4.70	22.35	7.00
733	0.40	4.75	22.20	8.00
727	0.45	4.81	21.78	9.00
717	0.50	4.86	21.24	10.00
707	0.55	4.92	20.71	11.00
694	0.60	4.97	20.10	12.00
684	0.65	5.03	19.59	13.00
677	0.70	5.09	19.17	14.00
671	0.75	5.15	18.78	15.00
670	0.80	5.21	18.53	16.00
668	0.85	5.27	18.25	17.00
668	0.90	5.33	18.03	18.00
672	0.95	5.40	17.92	19.00
673	1.00	5.47	17.72	20.00

Plate D-10

Table 1 - Laboratory Tests on Soil Samples

GeoSoils, Inc.
Jiron Plaza, Lake Elsinore, CA
Your #5043-A-SC, MJS&A #05-1897LAB
30-Dec-05

Sample ID			B-5 @ 5-8' Bulk
Resistivity		**Units**	
as-received		ohm-cm	99,000
saturated		ohm-cm	4,500
pH			7.5
Electrical Conductivity		mS/cm	0.17
Chemical Analyses			
Cations			
calcium	Ca^{2+}	mg/kg	88
magnesium	Mg^{2+}	mg/kg	34
sodium	Na^{1+}	mg/kg	ND
Anions			
carbonate	CO_3^{2-}	mg/kg	ND
bicarbonate	HCO_3^{1-}	mg/kg	250
chloride	Cl^{1-}	mg/kg	ND
sulfate	SO_4^{2-}	mg/kg	69
Other Tests			
ammonium	NH_4^{1+}	mg/kg	na
nitrate	NO_3^{1-}	mg/kg	na
sulfide	S^{2-}	qual	na
Redox		mV	na

Electrical conductivity in millisiemens/cm and chemical analysis were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

Table 1 - Laboratory Tests on Soil Samples

GeoSoils, Inc.
Jiron
Your #5043-A-SC, MJS&A #06-0011LAB
6-Jan-06

Sample ID			B-2 @ 5-10'
Resistivity		**Units**	
as-received		ohm-cm	180,000
saturated		ohm-cm	8,000
pH			7.2
Electrical Conductivity		mS/cm	0.09
Chemical Analyses			
Cations			
calcium	Ca^{2+}	mg/kg	44
magnesium	Mg^{2+}	mg/kg	216
sodium	Na^{1+}	mg/kg	ND
Anions			
carbonate	CO_3^{2-}	mg/kg	ND
bicarbonate	HCO_3^{1-}	mg/kg	98
chloride	Cl^{1-}	mg/kg	35
sulfate	SO_4^{2-}	mg/kg	66
Other Tests			
ammonium	NH_4^{1+}	mg/kg	na
nitrate	NO_3^{1-}	mg/kg	na
sulfide	S^{2-}	qual	na
Redox		mV	na

Electrical conductivity in millisiemens/cm and chemical analysis were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

APPENDIX E

LIQUEFACTION DATA

APPENDIX E

LIQUEFACTION ANALYSES

LiquefyPro (Version 4.5a) Analyses

The analyses for this project was performed using Borings B-1 through B-6 and corresponding CPT-1 through CPT-6 (CPT 7 through CPT-11 were also reviewed) within an area previously evaluated to be representative of the site subsurface conditions given the available body of subsurface data on this site available at the start of our evaluation.

Our analyses utilized the LiquefyPro computer program, version 4.5a. This software was written by CivilTech. A registered copy of this software is in use in our Carlsbad, California office and documentation of the authenticity is available either through GeoSoils, Inc. (GSI) or CivilTech Corporation.

LiquefyPro software evaluates the liquefaction potential and calculates the settlement of soil deposits due to seismic loading. The software is based on the recent NCEER workshop and Special Publication No. 117 (SP117 [SCEC, 1999]). We have used the Cone Penetration Test (CPT) features of the software for this project. We have utilized the Tokimatsu and Seed settlement analysis. These evaluations utilized the cyclic stress ratio and a factor of safety of 1.25 defines the potential vertical deformation (liquefaction and dry sand settlement) due to seismic loading. The ground surface was assumed to remain at approximately the same soil elevation following development or up to 4 feet of fill (in the area of CPT-1b). Groundwater depth was selected based on available perched water levels in the borings as 11 feet below existing ground surface. The localized groundwater in this area is likely below 15 to 20 feet based on the available data and the lake level at 1,245 to 1,267 feet MSL. However, the perched depth of groundwater was used in all following analyses. Our analyses utilized a Probabilistic Horizontal Site Acceleration (PHSA) of 0.70g and an earthquake magnitude (Mw) of 6.8.

Our analyses evaluated CPT-1 through CPT-11 that were advanced onsite by GSI. CPT-1 was advanced to a depth of approximately 59 feet. The following printouts (Plates E-1 through E-11 Present the results of our liquefaction analyses:

Vertical Deformation Analysis

Jiron 5043-A-SC

Hole No.=CPT-1B/B-1 Water Depth=10 ft Surface Elev.=1264

Magnitude=6.8

Ground Improvement of Fill=4 ft

Acceleration=0.7g

GeoSoils, Inc. Cone Pen No.1 B Plate E-1

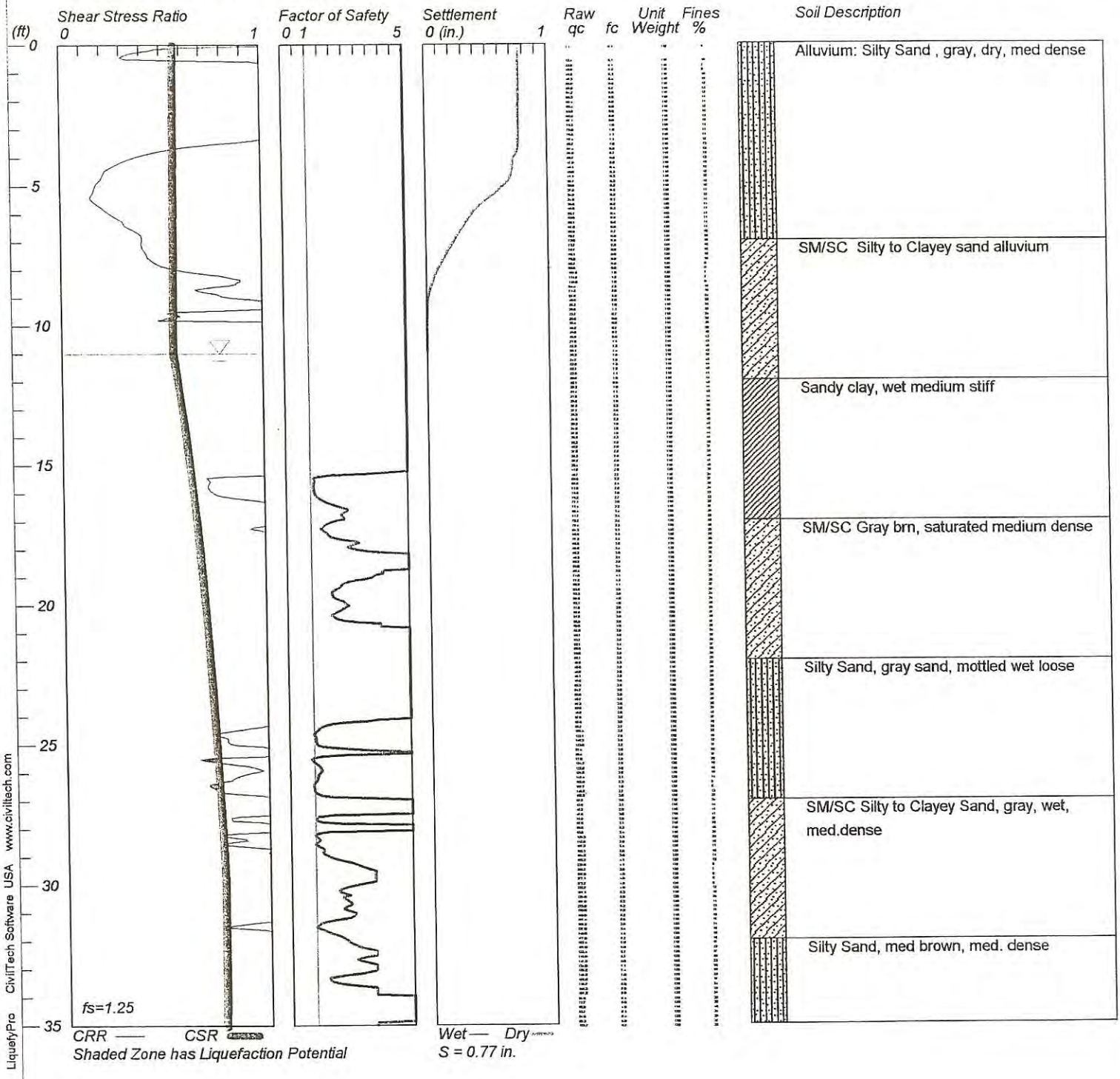
Vertical Deformation Analysis

Jiron/ Lake Elsinore/5043-A-SC

Hole No.=CPT-2/B-2 Water Depth=11 ft Surface Elev.=1268

Magnitude=6.8
Acceleration=0.7g

Ground Improvement of Fill=1 ft



GeoSoils, Inc.

Cone Pen Test No. 2

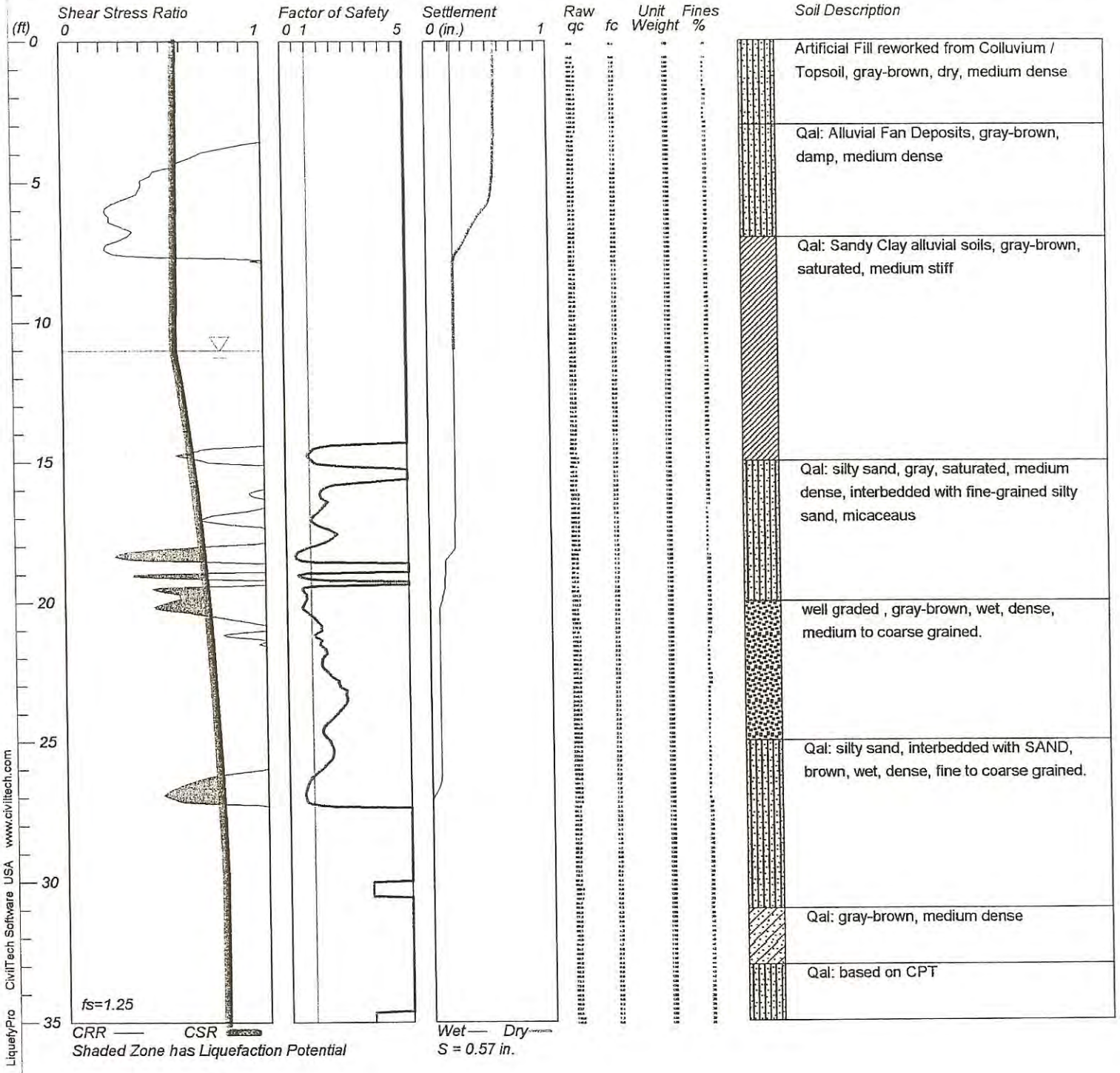
Plate E-2

Vertical Deformation Analysis

Jiron/ Lake Elsinore/5043-A-SC

Hole No.=CPT-3/B-3 Water Depth=11 ft Surface Elev.=1275

Magnitude=6.8
Acceleration=0.7g



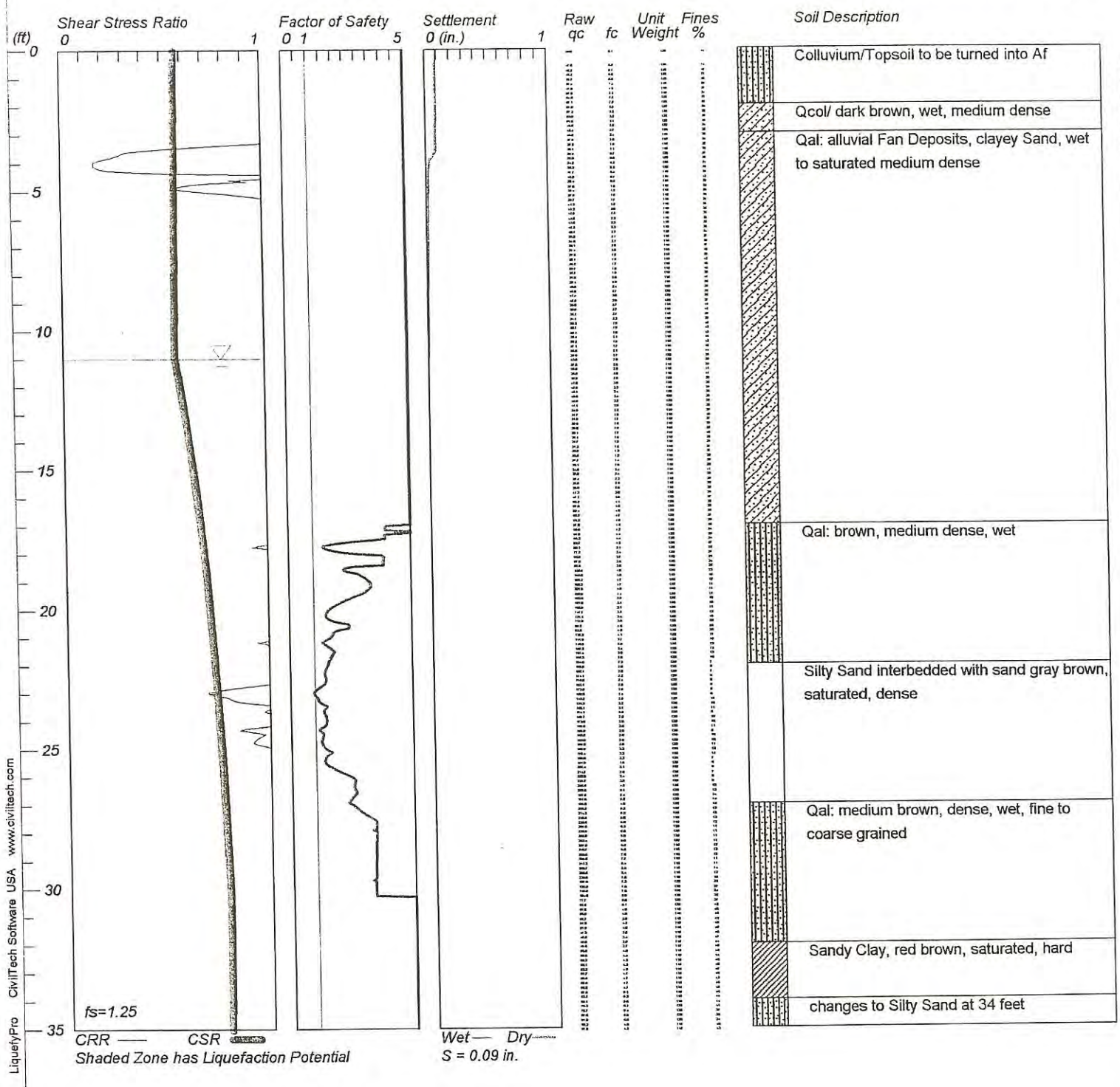
GeoSoils, Inc. Cone Pen Test No.3/B-3 Plate E-3

Vertical Deformation Analysis

Jiron/ Lake Elsinore/5043-A-SC

Hole No.=CPT-4/B-4 Water Depth=11 ft Surface Elev.=1277

Magnitude=6.8
Acceleration=0.7g



GeoSoils, Inc.

Cone Pen Test No.4/B-4

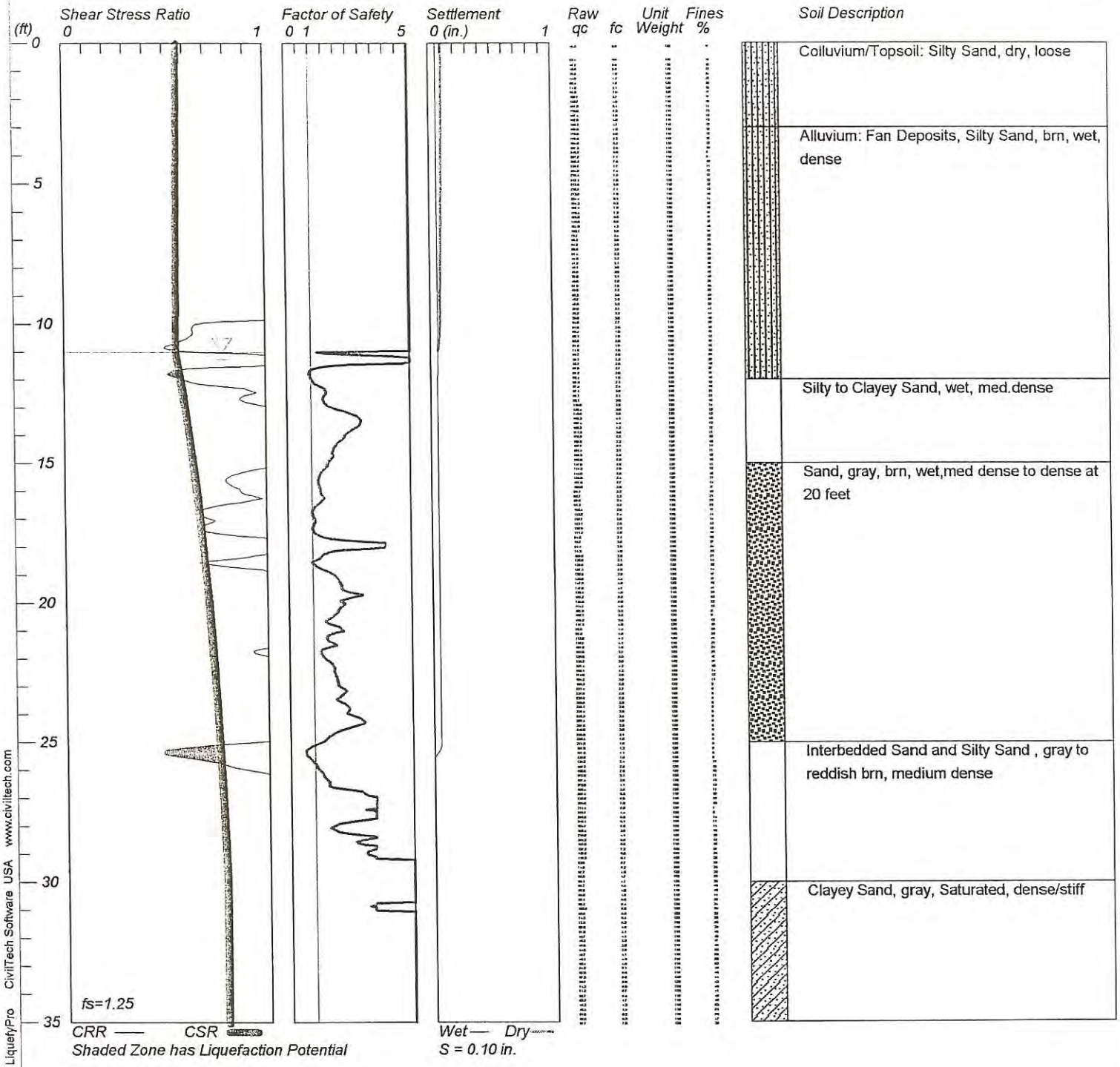
Plate E-4

Vertical Deformation Analysis

Jiron/ Lake Elsinore/5043-A-SC

Hole No.=CPT-5/B-5 Water Depth=11 ft Surface Elev.=1285

Magnitude=6.8
Acceleration=0.7g



GeoSoils, Inc.

Cone Pen Test No.5/B-5

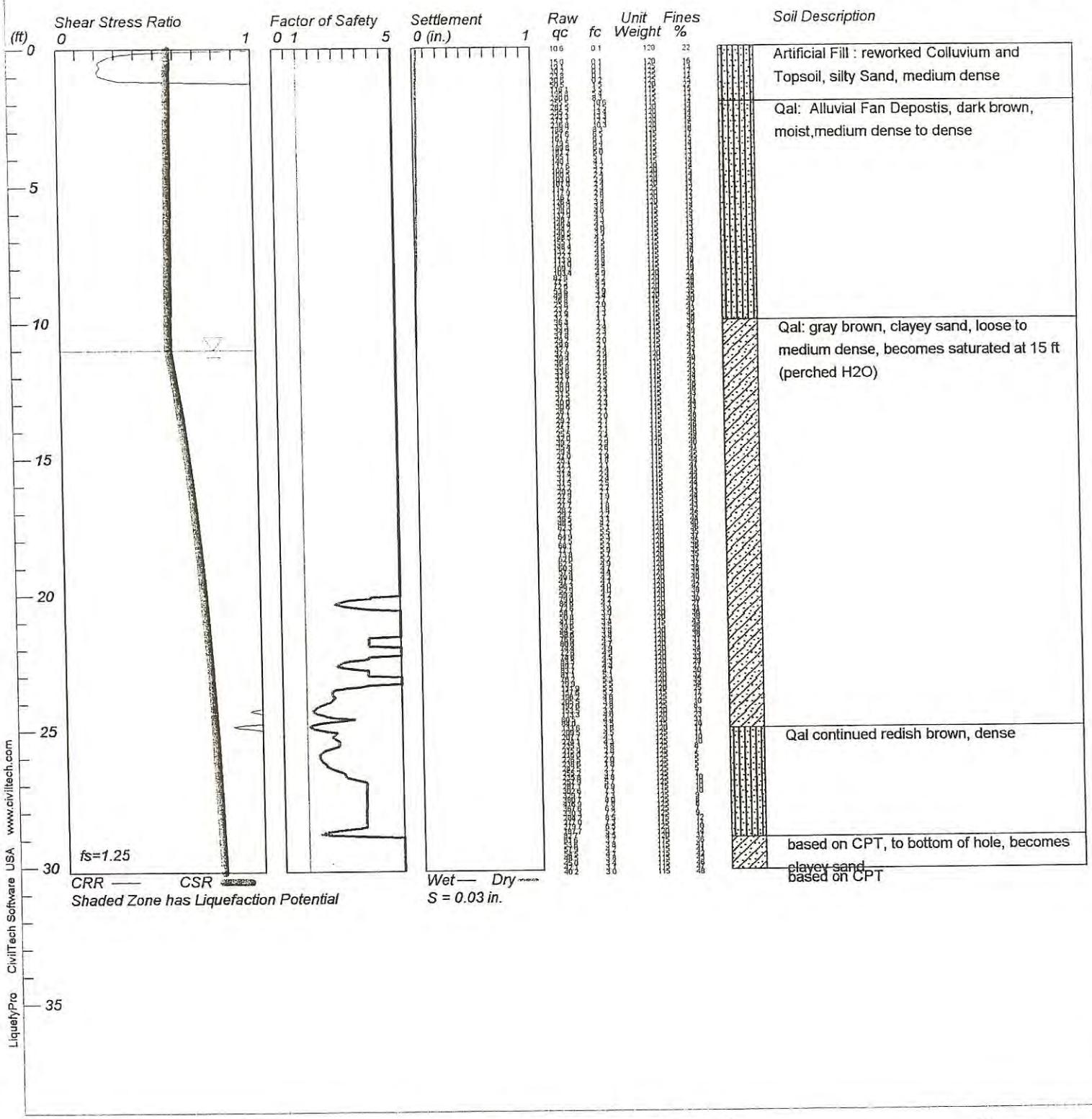
Plate E-5

Vertical Deformation Analysis

Jiron/ Lake Elsinore/5043-A-SC

Hole No.=CPT-6/B-6 Water Depth=11 ft Surface Elev.=1283

Magnitude=6.8
Acceleration=0.7g



GeoSoils, Inc.

Cone Pen Test No.6/B-6 (No fill)

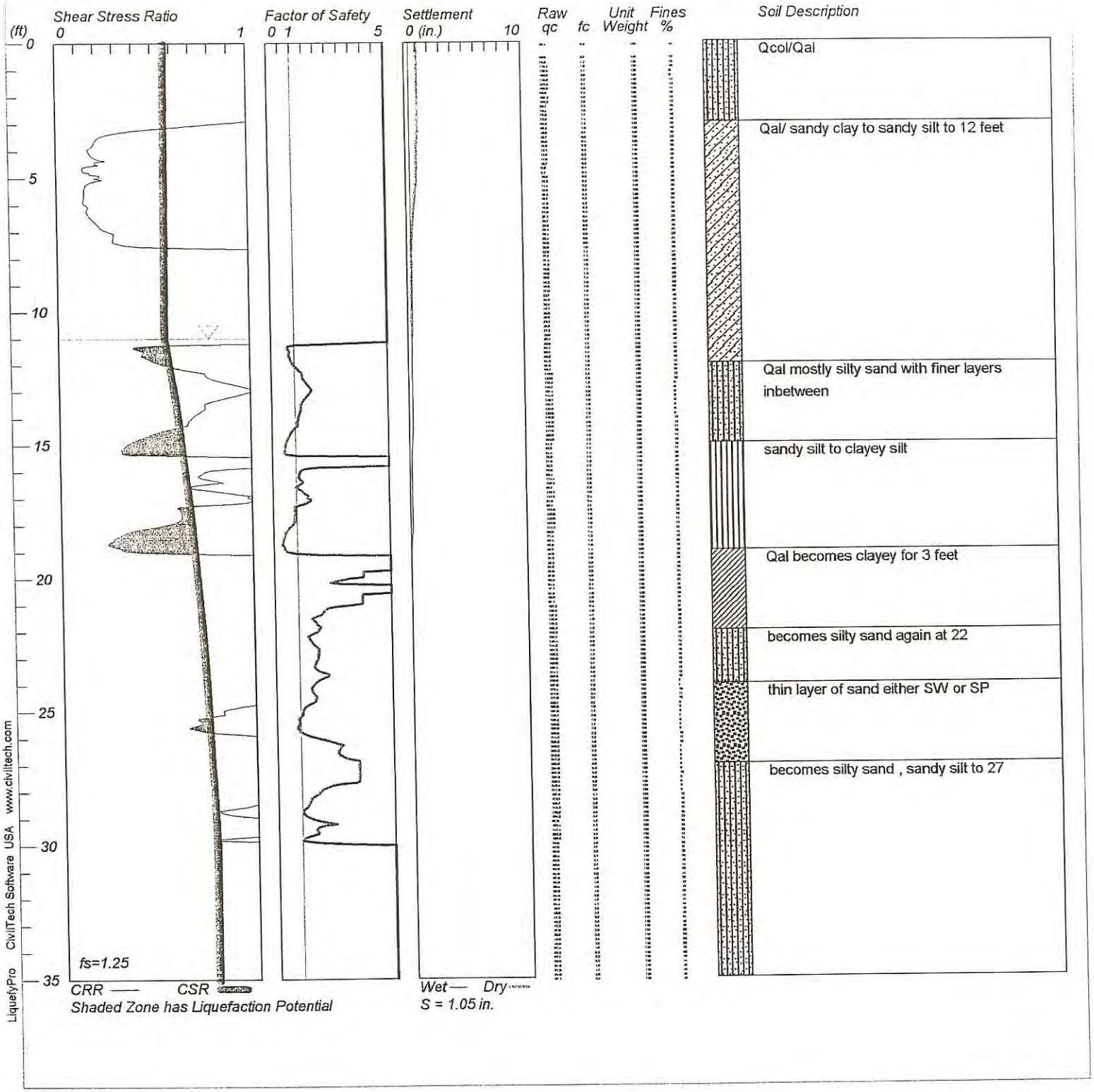
Plate E-6

Vertical Deformation Analysis

Jiron/ Lake Elsinore/5043-A-SC

Hole No.=CPT-7 Water Depth=11 ft Surface Elev.=1273

Magnitude=6.8
Acceleration=0.7g



GeoSoils, Inc.

Cone Pen Test No.7

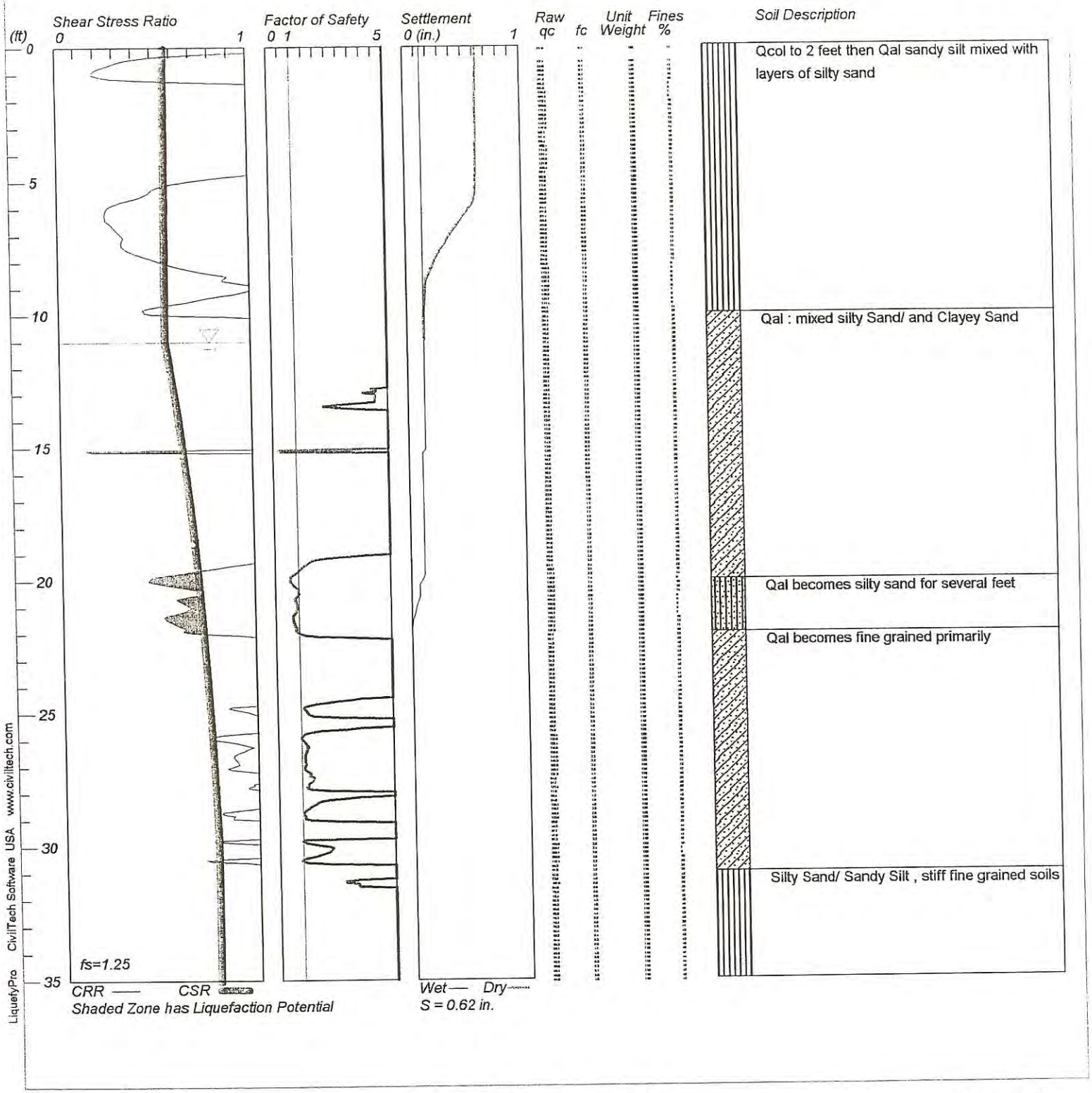
Plate E-7

Vertical Deformation Analysis

Jiron/ Lake Elsinore/5043-A-SC

Hole No.=CPT-8 Water Depth=11 ft Surface Elev.=1271

Magnitude=6.8
Acceleration=0.7g



GeoSoils, Inc.

Cone Pen Test No.8

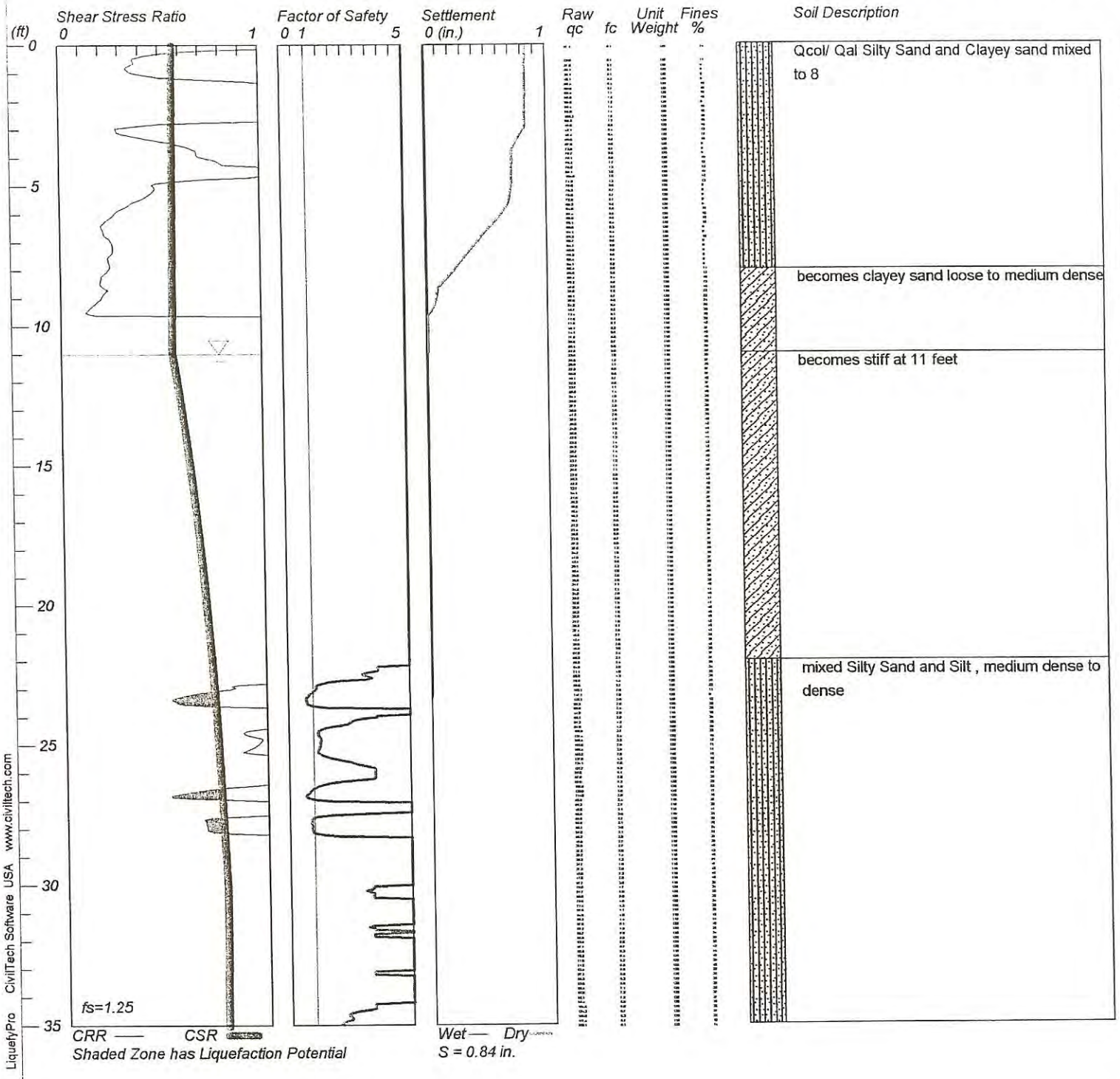
Plate E-8

Vertical Deformation Analysis

Jiron/ Lake Elsinore/5043-A-SC

Hole No.=CPT-9 Water Depth=11 ft Surface Elev.=1271

Magnitude=6.8
Acceleration=0.7g



GeoSoils, Inc.

Cone Pen Test No.9

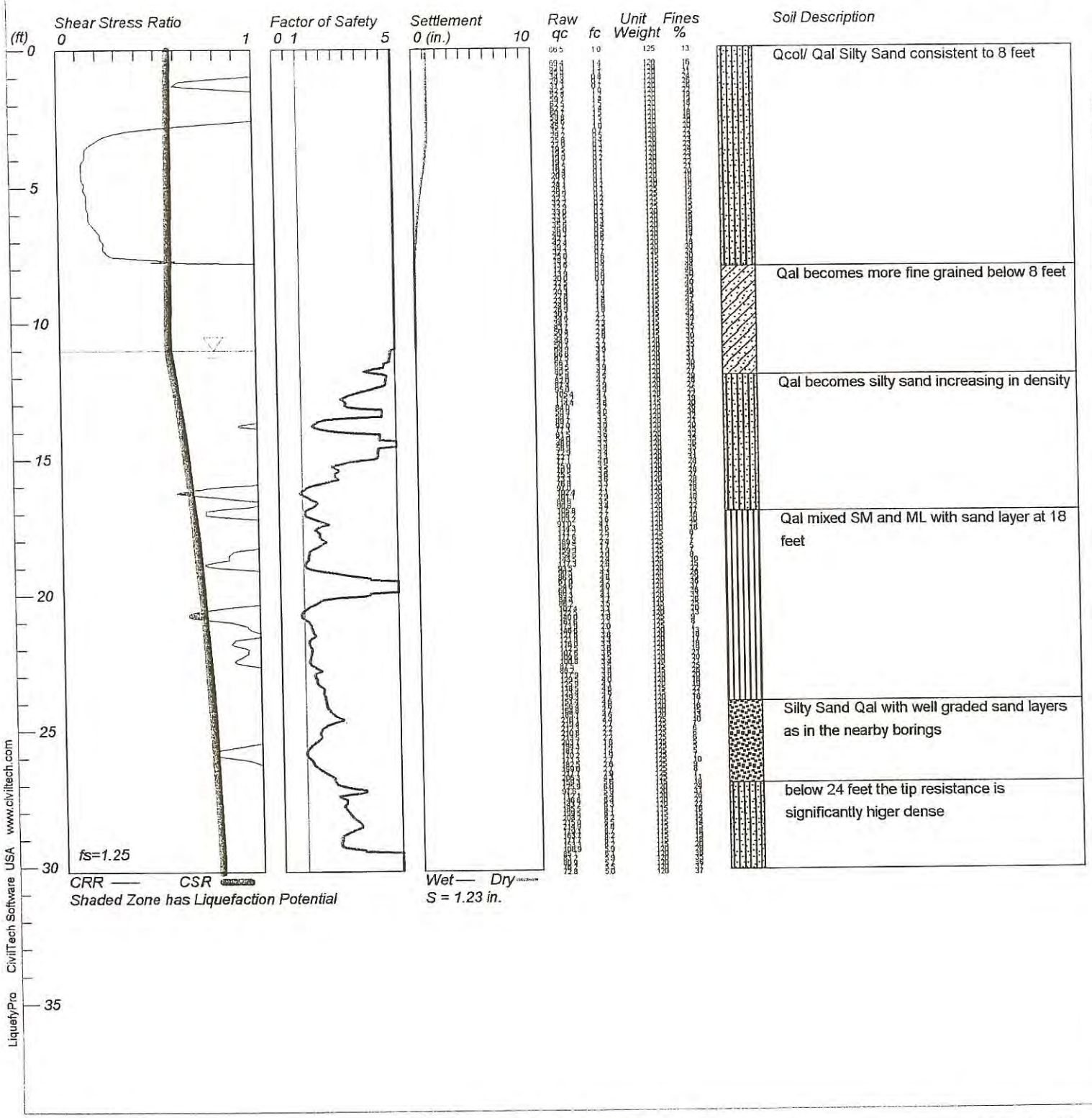
Plate E-9

Vertical Deformation Analysis

Jiron/ Lake Elsinore/5043-A-SC

Hole No.=CPT-10 Water Depth=11 ft Surface Elev.=1277

Magnitude=6.8
Acceleration=0.7g



GeoSoils, Inc.

Cone Pen Test No.10

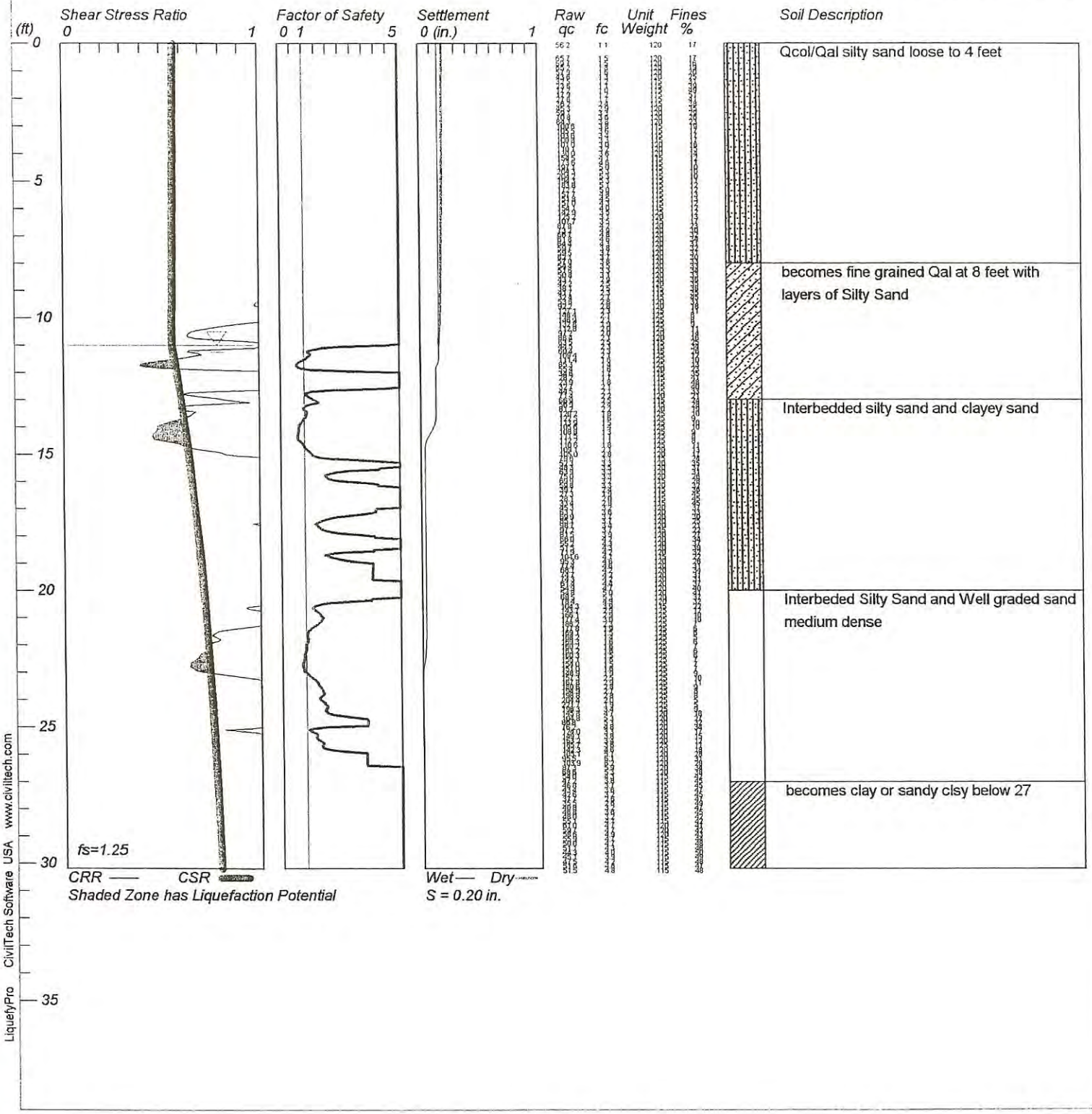
Plate E-10

Vertical Deformation Analysis

Jiron/ Lake Elsinore/5043-A-SC

Hole No.=CPT-11 Water Depth=11 ft Surface Elev.=1284

Magnitude=6.8
Acceleration=0.7g



LiquefyPro CivilTech Software USA www.civiltech.com

GeoSoils, Inc. Cone Pen Test No.11 Plate E-11

APPENDIX F

GENERAL EARTHWORK AND GRADING GUIDELINES

GENERAL EARTHWORK AND GRADING GUIDELINES

General

These guidelines present general procedures and requirements for earthwork and grading as shown on the approved grading plans, including preparation of areas to filled, placement of fill, installation of subdrains, and excavations. The recommendations contained in the geotechnical report are part of the earthwork and grading guidelines and would supercede the provisions contained hereafter in the case of conflict. Evaluations performed by the consultant during the course of grading may result in new or revised recommendations which could supercede these guidelines or the recommendations contained in the geotechnical report.

The contractor is responsible for the satisfactory completion of all earthwork in accordance with provisions of the project plans and specifications. The project soil engineer and engineering geologist (geotechnical consultant), or their representatives, should provide observation and testing services, and geotechnical consultation during the duration of the project.

EARTHWORK OBSERVATIONS AND TESTING

Geotechnical Consultant

Prior to the commencement of grading, a qualified geotechnical consultant (soil engineer and engineering geologist) should be employed for the purpose of observing earthwork procedures and testing the fills for general conformance with the recommendations of the geotechnical report, the approved grading plans, and applicable grading codes and ordinances.

The geotechnical consultant should provide testing and observation so that determination may be made that the work is being accomplished as specified. It is the responsibility of the contractor to assist the consultants and keep them apprised of anticipated work schedules and changes, so that they may schedule their personnel accordingly.

All remedial removals, clean-outs, prepared ground to receive fill, key excavations, and subdrain installation should be observed and documented by the project engineering geologist and/or soil engineer prior to placing and fill. It is the contractor's responsibility to notify the engineering geologist and soil engineer when such areas are ready for observation.

Laboratory and Field Tests

Maximum dry density tests to determine the degree of compaction should be performed in accordance with American Standard Testing Materials test method ASTM designation D-1557. Random or representative field compaction tests should be performed in accordance with test methods ASTM designation D-1556, D-2937 or D-2922, and D-3017,

at intervals of approximately ±2 feet of fill height or approximately every 1,000 cubic yards placed. These criteria would vary depending on the soil conditions and the size of the project. The location and frequency of testing would be at the discretion of the geotechnical consultant.

Contractor's Responsibility

All clearing, site preparation, and earthwork performed on the project should be conducted by the contractor, with observation by a geotechnical consultant, and staged approval by the governing agencies, as applicable. It is the contractor's responsibility to prepare the ground surface to receive the fill, to the satisfaction of the soil engineer, and to place, spread, moisture condition, mix, and compact the fill in accordance with the recommendations of the soil engineer. The contractor should also remove all non-earth material considered unsatisfactory by the soil engineer.

It is the sole responsibility of the contractor to provide adequate equipment and methods to accomplish the earthwork in accordance with applicable grading guidelines, codes or agency ordinances, and approved grading plans. Sufficient watering apparatus and compaction equipment should be provided by the contractor with due consideration for the fill material, rate of placement, and climatic conditions. If, in the opinion of the geotechnical consultant, unsatisfactory conditions such as questionable weather, excessive oversized rock or deleterious material, insufficient support equipment, etc., are resulting in a quality of work that is not acceptable, the consultant will inform the contractor, and the contractor is expected to rectify the conditions, and if necessary, stop work until conditions are satisfactory.

During construction, the contractor shall properly grade all surfaces to maintain good drainage and prevent ponding of water. The contractor shall take remedial measures to control surface water and to prevent erosion of graded areas until such time as permanent drainage and erosion control measures have been installed.

SITE PREPARATION

All major vegetation, including brush, trees, thick grasses, organic debris, and other deleterious material, should be removed and disposed of off-site. These removals must be concluded prior to placing fill. In-place existing fill, soil, alluvium, colluvium, or rock materials, determined by the soil engineer or engineering geologist as being unsuitable, should be removed prior to any fill placement. Depending upon the soil conditions, these materials may be reused as compacted fills. Any materials incorporated as part of the compacted fills should be approved by the soil engineer.

Any underground structures such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipelines, or other structures not located prior to grading, are to be removed or treated in a manner recommended by the soil engineer. Soft, dry, spongy, highly

fractured, or otherwise unsuitable ground, extending to such a depth that surface processing cannot adequately improve the condition, should be overexcavated down to firm ground and approved by the soil engineer before compaction and filling operations continue. Overexcavated and processed soils, which have been properly mixed and moisture conditioned, should be re-compacted to the minimum relative compaction as specified in these guidelines.

Existing ground, which is determined to be satisfactory for support of the fills, should be scarified to a minimum depth of 6 to 8 inches, or as directed by the soil engineer. After the scarified ground is brought to optimum moisture content, or greater and mixed, the materials should be compacted as specified herein. If the scarified zone is greater than 6 to 8 inches in depth, it may be necessary to remove the excess and place the material in lifts restricted to about 6 to 8 inches in compacted thickness.

Existing ground which is not satisfactory to support compacted fill should be overexcavated as required in the geotechnical report, or by the on-site soils engineer and/or engineering geologist. Scarification, disc harrowing, or other acceptable forms of mixing should continue until the soils are broken down and free of large lumps or clods, until the working surface is reasonably uniform and free from ruts, hollows, hummocks, or other uneven features, which would inhibit compaction as described previously.

Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical [h:v]), the ground should be stepped or benched. The lowest bench, which will act as a key, should be a minimum of 15 feet wide and should be at least 2 feet deep into firm material, and approved by the soil engineer and/or engineering geologist. In fill over cut slope conditions, the recommended minimum width of the lowest bench or key is also 15 feet, with the key founded on firm material, as designated by the geotechnical consultant. As a general rule, unless specifically recommended otherwise by the soil engineer, the minimum width of fill keys should be approximately equal to ½ the height of the slope.

Standard benching is generally 4 feet (minimum) vertically, exposing firm, acceptable material. Benching may be used to remove unsuitable materials, although it is understood that the vertical height of the bench may exceed 4 feet. Pre-stripping may be considered for unsuitable materials in excess of 4 feet in thickness.

All areas to receive fill, including processed areas, removal areas, and the toes of fill benches, should be observed and approved by the soil engineer and/or engineering geologist prior to placement of fill. Fills may then be properly placed and compacted until design grades (elevations) are attained.

COMPACTED FILLS

Any earth materials imported or excavated on the property may be utilized in the fill provided that each material has been determined to be suitable by the soil engineer. These materials should be free of roots, tree branches, other organic matter, or other deleterious materials. All unsuitable materials should be removed from the fill as directed by the soil engineer. Soils of poor gradation, undesirable expansion potential, or substandard strength characteristics may be designated by the consultant as unsuitable and may require blending with other soils to serve as a satisfactory fill material.

Fill materials derived from benching operations should be dispersed throughout the fill area and blended with other approved material. Benching operations should not result in the benched material being placed only within a single equipment width away from the fill/bedrock contact.

Oversized materials defined as rock, or other irreducible materials, with a maximum dimension greater than 12 inches, should not be buried or placed in fills unless the location of materials and disposal methods are specifically approved by the soil engineer. Oversized material should be taken offsite, or placed in accordance with recommendations of the soil engineer in areas designated as suitable for rock disposal. Per the UBC/CBC, oversized material should not be placed within 10 feet vertically of finish grade (elevation) or within 20 feet horizontally of slope faces (any variation will require prior approval from the governing agency).

To facilitate future trenching, rock (or oversized material) should not be placed within 10 feet from finish grade, the range of foundation excavations, future utilities, or underground construction unless specifically approved by the soil engineer and/or the developer's representative.

If import material is required for grading, representative samples of the materials to be utilized as compacted fill should be analyzed in the laboratory by the soil engineer to determine it's physical properties and suitability for use onsite. If any material other than that previously tested is encountered during grading, an appropriate analysis of this material should be conducted by the soil engineer as soon as possible.

Approved fill material should be placed in areas prepared to receive fill in near horizontal layers, that when compacted, should not exceed about 6 to 8 inches in thickness. The soil engineer may approve thick lifts if testing indicates the grading procedures are such that adequate compaction is being achieved with lifts of greater thickness. Each layer should be spread evenly and blended to attain uniformity of material and moisture suitable for compaction.

Fill layers at a moisture content less than optimum should be watered and mixed, and wet fill layers should be aerated by scarification, or should be blended with drier material. Moisture conditioning, blending, and mixing of the fill layer should continue until the fill materials have a uniform moisture content at, or above, optimum moisture.

After each layer has been evenly spread, moisture conditioned, and mixed, it should be uniformly compacted to a minimum of 90 percent of the maximum density as determined by ASTM test designation D-1557, or as otherwise recommended by the soil engineer. Compaction equipment should be adequately sized and should be specifically designed for soil compaction or of proven reliability to efficiently achieve the specified degree of compaction.

Where tests indicate that the density of any layer of fill, or portion thereof, is below the required relative compaction, or improper moisture is in evidence, the particular layer or portion shall be re-worked until the required density and/or moisture content has been attained. No additional fill shall be placed in an area until the last placed lift of fill has been tested and found to meet the density and moisture requirements, and is approved by the soil engineer.

In general, per the UBC/CBC, fill slopes should be designed and constructed at a gradient of 2:1 (h:v), or flatter. Compaction of slopes should be accomplished by over-building a minimum of 3 feet horizontally, and subsequently trimming back to the design slope configuration. Testing shall be performed as the fill is elevated to evaluate compaction as the fill core is being developed. Special efforts may be necessary to attain the specified compaction in the fill slope zone. Final slope shaping should be performed by trimming and removing loose materials with appropriate equipment. A final determination of fill slope compaction should be based on observation and/or testing of the finished slope face. Where compacted fill slopes are designed steeper than 2:1 (h:v), prior approval from the governing agency, specific material types, a higher minimum relative compaction, special reinforcement, and special grading procedures will be recommended.

If an alternative to over-building and cutting back the compacted fill slopes is selected, then special effort should be made to achieve the required compaction in the outer 10 feet of each lift of fill by undertaking the following:

1. An extra piece of equipment consisting of a heavy, short-shanked sheepsfoot should be used to roll (horizontal) parallel to the slopes continuously as fill is placed. The sheepsfoot roller should also be used to roll perpendicular to the slopes, and extend out over the slope to provide adequate compaction to the face of the slope.

2. Loose fill should not be spilled out over the face of the slope as each lift is compacted. Any loose fill spilled over a previously completed slope face should be trimmed off or be subject to re-rolling.

3. Field compaction tests will be made in the outer (horizontal) ±2 to ±8 feet of the slope at appropriate vertical intervals, subsequent to compaction operations.

4. After completion of the slope, the slope face should be shaped with a small tractor and then re-rolled with a sheepsfoot to achieve compaction to near the slope face. Subsequent to testing to evaluate compaction, the slopes should be grid-rolled to

achieve compaction to the slope face. Final testing should be used to evaluate compaction after grid rolling.

5. Where testing indicates less than adequate compaction, the contractor will be responsible to rip, water, mix, and recompact the slope material as necessary to achieve compaction. Additional testing should be performed to evaluate compaction.

6. Erosion control and drainage devices should be designed by the project civil engineer in compliance with ordinances of the controlling governmental agencies, and/or in accordance with the recommendation of the soil engineer or engineering geologist.

SUBDRAIN INSTALLATION

Subdrains should be installed in approved ground in accordance with the approximate alignment and details indicated by the geotechnical consultant. Subdrain locations or materials should not be changed or modified without approval of the geotechnical consultant. The soil engineer and/or engineering geologist may recommend and direct changes in subdrain line, grade, and drain material in the field, pending exposed conditions. The location of constructed subdrains, especially the outlets, should be recorded by the project civil engineer.

EXCAVATIONS

Excavations and cut slopes should be examined during grading by the engineering geologist. If directed by the engineering geologist, further excavations or overexcavation and refilling of cut areas should be performed, and/or remedial grading of cut slopes should be performed. When fill over cut slopes are to be graded, unless otherwise approved, the cut portion of the slope should be observed by the engineering geologist prior to placement of materials for construction of the fill portion of the slope. The engineering geologist should observe all cut slopes, and should be notified by the contractor when excavation of cut slopes commence.

If, during the course of grading, unforeseen adverse or potentially adverse geologic conditions are encountered, the engineering geologist and soil engineer should investigate, evaluate, and make appropriate recommendations for mitigation of these conditions. The need for cut slope buttressing or stabilizing should be based on in-grading evaluation by the engineering geologist, whether anticipated or not.

Unless otherwise specified in soil and geological reports, no cut slopes should be excavated higher or steeper than that allowed by the ordinances of controlling governmental agencies. Additionally, short-term stability of temporary cut slopes is the contractor's responsibility.

Erosion control and drainage devices should be designed by the project civil engineer and should be constructed in compliance with the ordinances of the controlling governmental agencies, and/or in accordance with the recommendations of the soil engineer or engineering geologist.

COMPLETION

Observation, testing, and consultation by the geotechnical consultant should be conducted during the grading operations in order to state an opinion that all cut and fill areas are graded in accordance with the approved project specifications. After completion of grading, and after the soil engineer and engineering geologist have finished their observations of the work, final reports should be submitted subject to review by the controlling governmental agencies. No further excavation or filling should be undertaken without prior notification of the soil engineer and/or engineering geologist.

All finished cut and fill slopes should be protected from erosion and/or be planted in accordance with the project specifications and/or as recommended by a landscape architect. Such protection and/or planning should be undertaken as soon as practical after completion of grading.

JOB SAFETY

General

At GSI, getting the job done safely is of primary concern. The following is the company's safety considerations for use by all employees on multi-employer construction sites. On-ground personnel are at highest risk of injury, and possible fatality, on grading and construction projects. GSI recognizes that construction activities will vary on each site, and that site safety is the prime responsibility of the contractor; however, everyone must be safety conscious and responsible at all times. To achieve our goal of avoiding accidents, cooperation between the client, the contractor, and GSI personnel must be maintained.

In an effort to minimize risks associated with geotechnical testing and observation, the following precautions are to be implemented for the safety of field personnel on grading and construction projects:

Safety Meetings: GSI field personnel are directed to attend contractor's regularly scheduled and documented safety meetings.

Safety Vests: Safety vests are provided for, and are to be worn by GSI personnel, at all times, when they are working in the field.

Safety Flags: Two safety flags are provided to GSI field technicians; one is to be affixed to the vehicle when on site, the other is to be placed atop the spoil pile on all test pits.

Flashing Lights: All vehicles stationary in the grading area shall use rotating or flashing amber beacons, or strobe lights, on the vehicle during all field testing. While operating a vehicle in the grading area, the emergency flasher on the vehicle shall be activated.

In the event that the contractor's representative observes any of our personnel not following the above, we request that it be brought to the attention of our office.

Test Pits Location, Orientation, and Clearance

The technician is responsible for selecting test pit locations. A primary concern should be the technician's safety. Efforts will be made to coordinate locations with the grading contractor's authorized representative, and to select locations following or behind the established traffic pattern, preferably outside of current traffic. The contractor's authorized representative (supervisor, grade checker, dump man, operator, etc.) should direct excavation of the pit and safety during the test period. Of paramount concern should be the soil technician's safety, and obtaining enough tests to represent the fill.

Test pits should be excavated so that the spoil pile is placed away from oncoming traffic, whenever possible. The technician's vehicle is to be placed next to the test pit, opposite the spoil pile. This necessitates the fill be maintained in a driveable condition. Alternatively, the contractor may wish to park a piece of equipment in front of the test holes, particularly in small fill areas or those with limited access.

A zone of non-encroachment should be established for all test pits. No grading equipment should enter this zone during the testing procedure. The zone should extend approximately 50 feet outward from the center of the test pit. This zone is established for safety and to avoid excessive ground vibration, which typically decreases test results.

When taking slope tests, the technician should park the vehicle directly above or below the test location. If this is not possible, a prominent flag should be placed at the top of the slope. The contractor's representative should effectively keep all equipment at a safe operational distance (e.g., 50 feet) away from the slope during this testing.

The technician is directed to withdraw from the active portion of the fill as soon as possible following testing. The technician's vehicle should be parked at the perimeter of the fill in a highly visible location, well away from the equipment traffic pattern. The contractor should inform our personnel of all changes to haul roads, cut and fill areas or other factors that may affect site access and site safety.

In the event that the technician's safety is jeopardized or compromised as a result of the contractor's failure to comply with any of the above, the technician is required, by company policy, to immediately withdraw and notify his/her supervisor. The grading contractor's representative will be contacted in an effort to affect a solution. However, in the interim, no further testing will be performed until the situation is rectified. Any fill placed can be considered unacceptable and subject to reprocessing, recompaction, or removal.

In the event that the soil technician does not comply with the above or other established safety guidelines, we request that the contractor bring this to the technician's attention and notify this office. Effective communication and coordination between the contractor's representative and the soil technician is strongly encouraged in order to implement the above safety plan.

Trench and Vertical Excavation

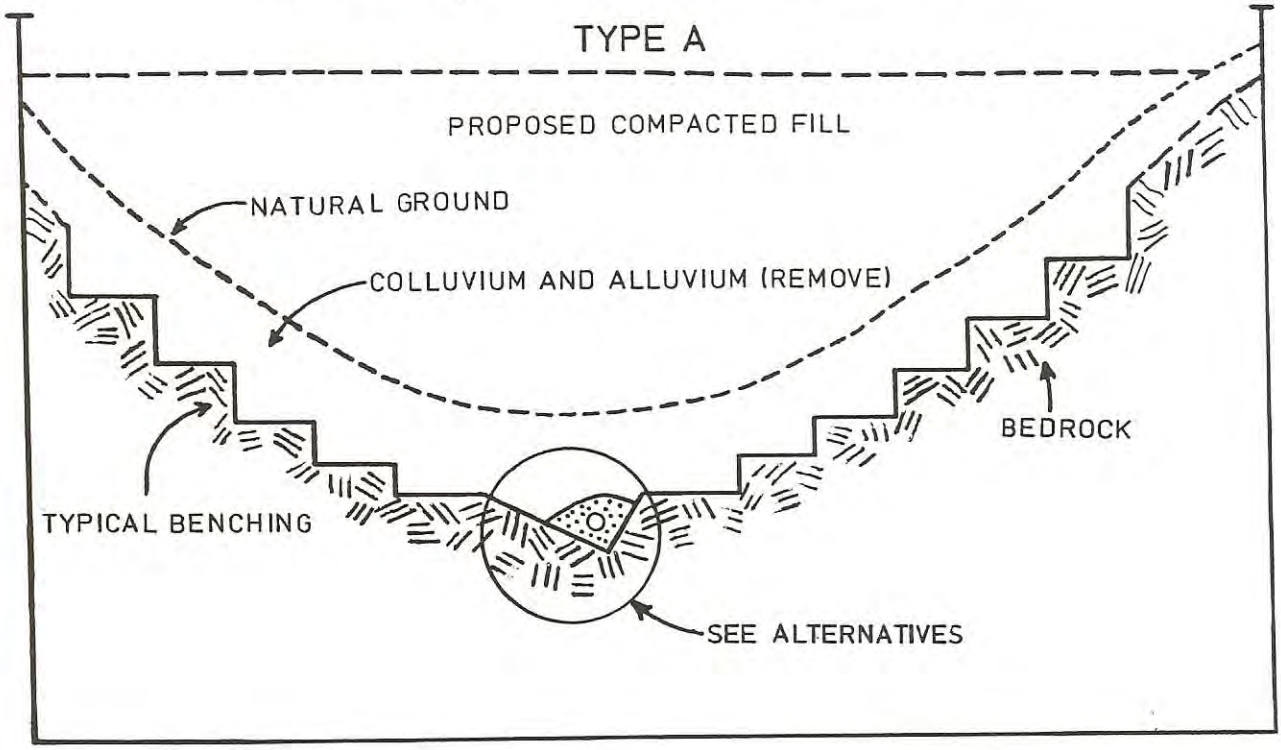
It is the contractor's responsibility to provide safe access into trenches where compaction testing is needed. Our personnel are directed not to enter any excavation or vertical cut which: 1) is 5 feet or deeper unless shored or laid back; 2) displays any evidence of instability, has any loose rock or other debris which could fall into the trench; or 3) displays any other evidence of any unsafe conditions regardless of depth.

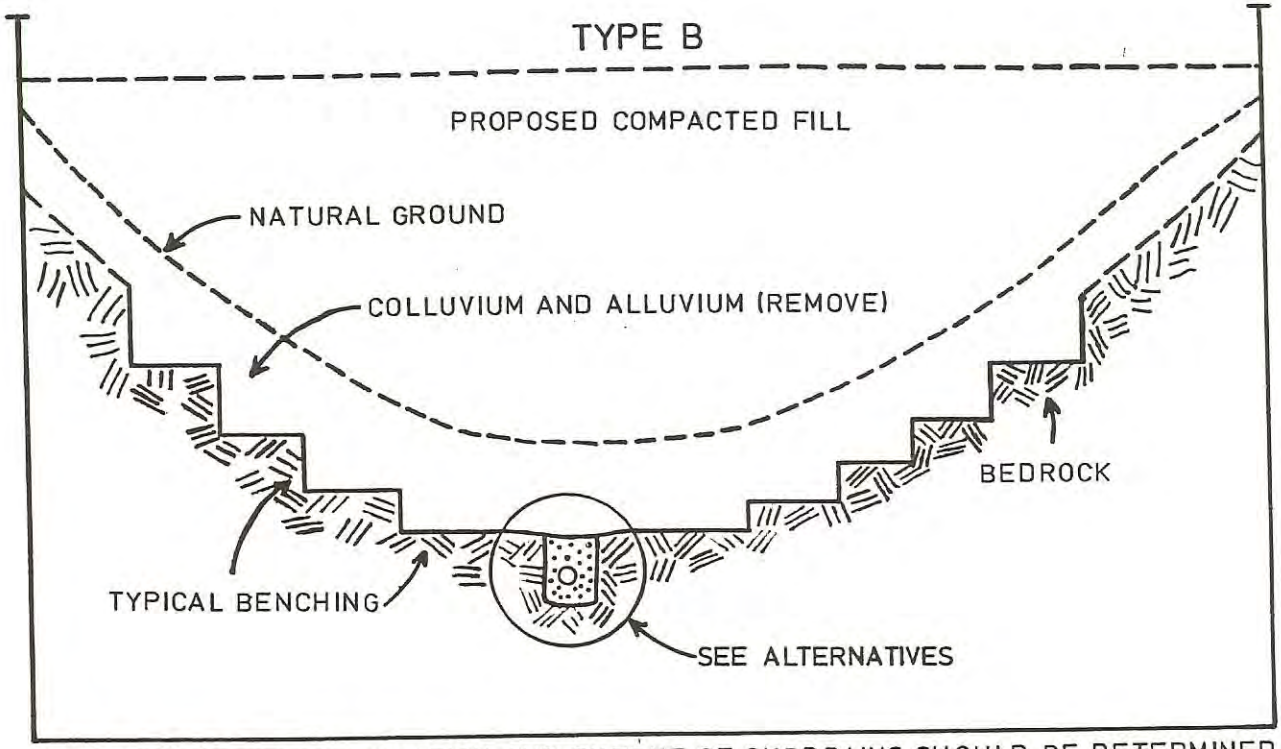
All trench excavations or vertical cuts in excess of 5 feet deep, which any person enters, should be shored or laid back. Trench access should be provided in accordance with CAL-OSHA and/or state and local standards. Our personnel are directed not to enter any trench by being lowered or "riding down" on the equipment.

If the contractor fails to provide safe access to trenches for compaction testing, our company policy requires that the soil technician withdraw and notify his/her supervisor. The contractor's representative will be contacted in an effort to affect a solution. All backfill not tested due to safety concerns or other reasons could be subject to reprocessing and/or removal.

If GSI personnel become aware of anyone working beneath an unsafe trench wall or vertical excavation, we have a legal obligation to put the contractor and owner/developer on notice to immediately correct the situation. If corrective steps are not taken, GSI then has an obligation to notify CAL-OSHA and/or the proper controlling authorities.

CANYON SUBDRAIN DETAIL



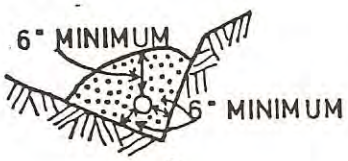


NOTE: ALTERNATIVES, LOCATION AND EXTENT OF SUBDRAINS SHOULD BE DETERMINED BY THE SOILS ENGINEER AND/OR ENGINEERING GEOLOGIST DURING GRADING.

PLATE EG—1

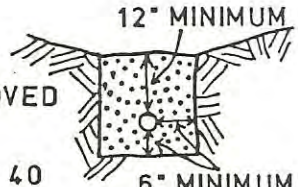
CANYON SUBDRAIN ALTERNATE DETAILS

ALTERNATE 1: PERFORATED PIPE AND FILTER MATERIAL



A–1

FILTER MATERIAL: MINIMUM VOLUME OF 9 FT.³ /LINEAR FT. 6" Ø ABS OR PVC PIPE OR APPROVED SUBSTITUTE WITH MINIMUM 8 (1/4" Ø) PERFS. LINEAR FT. IN BOTTOM HALF OF PIPE.
ASTM D2751, SDR 35 OR ASTM D1527, SCHD. 40
ASTM D3034, SDR 35 OR ASTM D1785, SCHD. 40
FOR CONTINUOUS RUN IN EXCESS OF 500 FT. USE 8" Ø PIPE

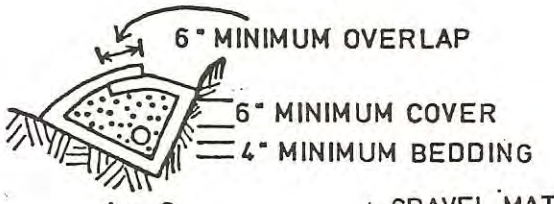


B–1

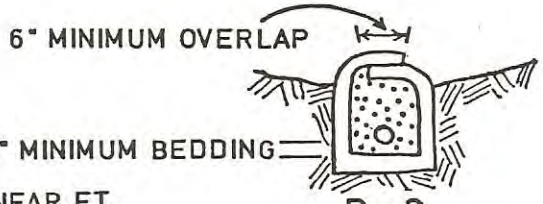
FILTER MATERIAL

SIEVE SIZE	PERCENT PASSING
1 INCH	100
3/4 INCH	90–100
3/8 INCH	40–100
NO. 4	25–40
NO. 8	18–33
NO. 30	5–15
NO. 50	0–7
NO. 200	0–3

ALTERNATE 2: PERFORATED PIPE, GRAVEL AND FILTER FABRIC



A–2

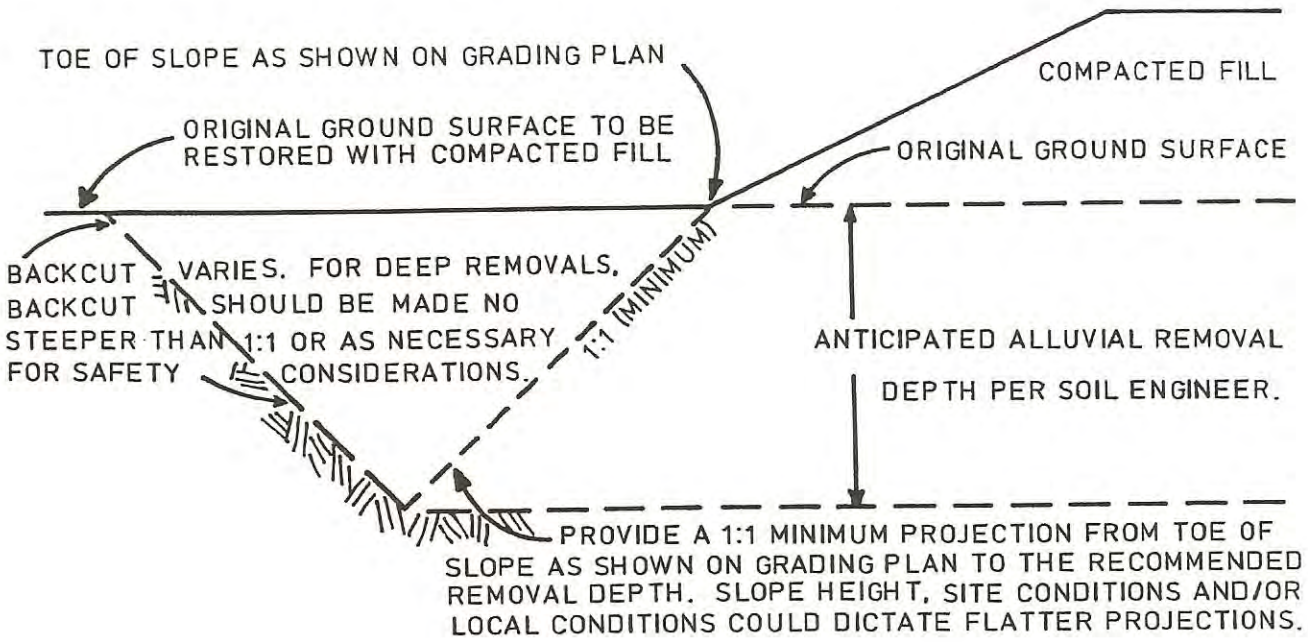


B–2

GRAVEL MATERIAL 9 FT³/LINEAR FT.
PERFORATED PIPE: SEE ALTERNATE 1
GRAVEL: CLEAN 3/4 INCH ROCK OR APPROVED SUBSTITUTE
FILTER FABRIC: MIRAFI 140 OR APPROVED SUBSTITUTE

PLATE EG–2

DETAIL FOR FILL SLOPE TOEING OUT ON FLAT ALLUVIATED CANYON



REMOVAL ADJACENT TO EXISTING FILL

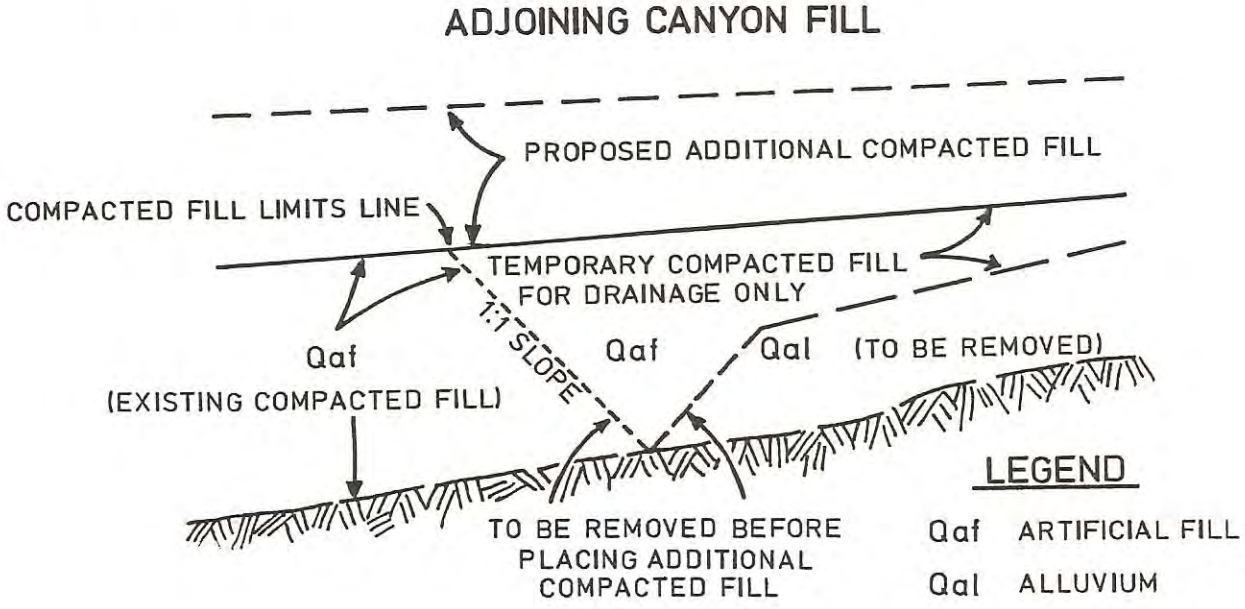


PLATE EG—3

TYPICAL STABILIZATION / BUTTRESS FILL DETAIL

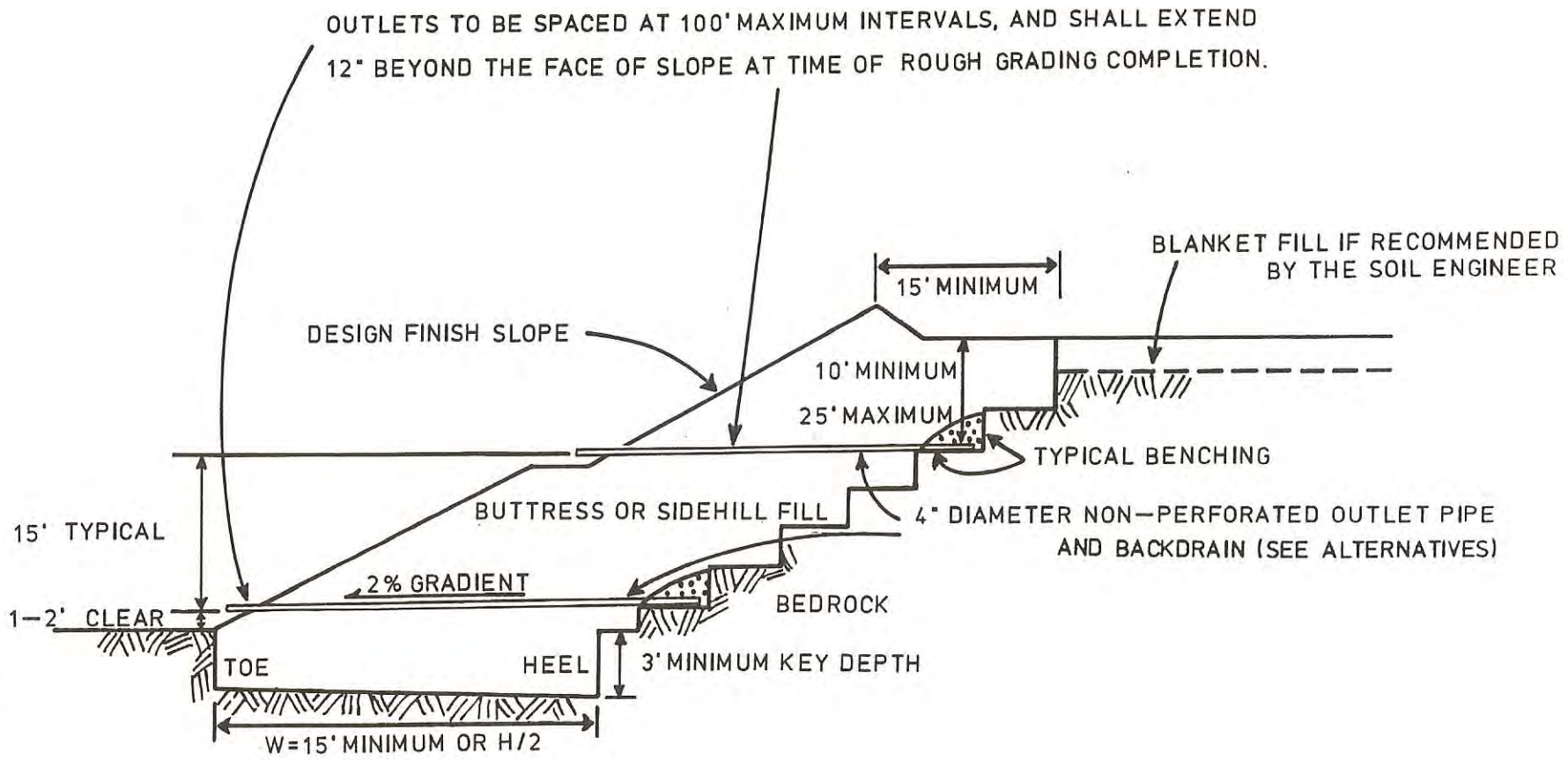
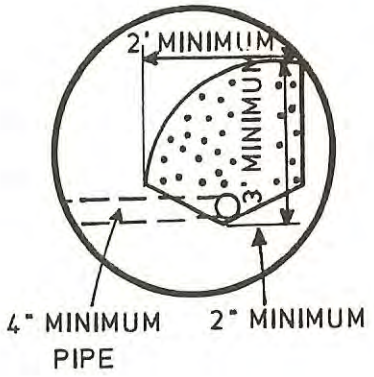
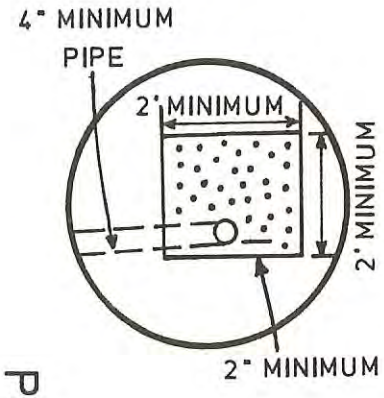


PLATE EG-4

TYPICAL STABILIZATION / BUTTRESS SUBDRAIN DETAIL





FILTER MATERIAL: MINIMUM OF FIVE Ft^3/LINEAR Ft OF PIPF OR FOUR Ft^3/LINEAR Ft OF PIPE WHEN PLACED IN SQUARE CUT TRENCH.

ALTERNATIVE IN LIEU OF FILTER MATERIAL: GRAVEL MAY BE ENCASED IN APPROVED FILTER FABRIC. FILTER FABRIC SHALL BE MIRAFI 140 OR EQUIVALENT. FILTER FABRIC SHALL BE LAPPED A MINIMUM OF 12" ON ALL JOINTS.

MINIMUM 4" DIAMETER PIPE: ABS—ASTM D—2751, SDR 35 OR ASTM D—1527 SCHEDULE 40 PVC—ASTM D—3034, SDR 35 OR ASTM D—1785 SCHEDULE 40 WITH A CRUSHING STRENGTH OF 1,000 POUNDS MINIMUM, AND A MINIMUM OF 8 UNIFORMLY SPACED PERFORATIONS PER FOOT OF PIPE INSTALLED WITH PERFORATIONS OF BOTTOM OF PIPE. PROVIDE CAP AT UPSTREAM END OF PIPE. SLOPE AT 2% TO OUTLET PIPE. OUTLET PIPE TO BE CONNECTED TO SUBDRAIN PIPE WITH TEE OR ELBOW.

NOTE: 1. TRENCH FOR OUTLET PIPES TO BE BACKFILLED WITH ON—SITE SOIL.

2. BACKDRAINS AND LATERAL DRAINS SHALL BE LOCATED AT ELEVATION OF EVERY BENCH DRAIN. FIRST DRAIN LOCATED AT ELEVATION JUST ABOVE LOWER LOT GRADE. ADDITIONAL DRAINS MAY BE REQUIRED AT THE DISCRETION OF THE SOILS ENGINEER AND/OR ENGINEERING GEOLOGIST.

FILTER MATERIAL SHALL BE OF THE FOLLOWING SPECIFICATION OR AN APPROVED EQUIVALENT:

SIEVE SIZE	PERCENT PASSING
1 INCH	100
3/4 INCH	90—100
3/8 INCH	40—100
NO. 4	25—40
NO. 8	18—33
NO. 30	5—15
NO. 50	0—7
NO. 200	0—3

GRAVEL SHALL BE OF THE FOLLOWING SPECIFICATION OR AN APPROVED EQUIVALENT:

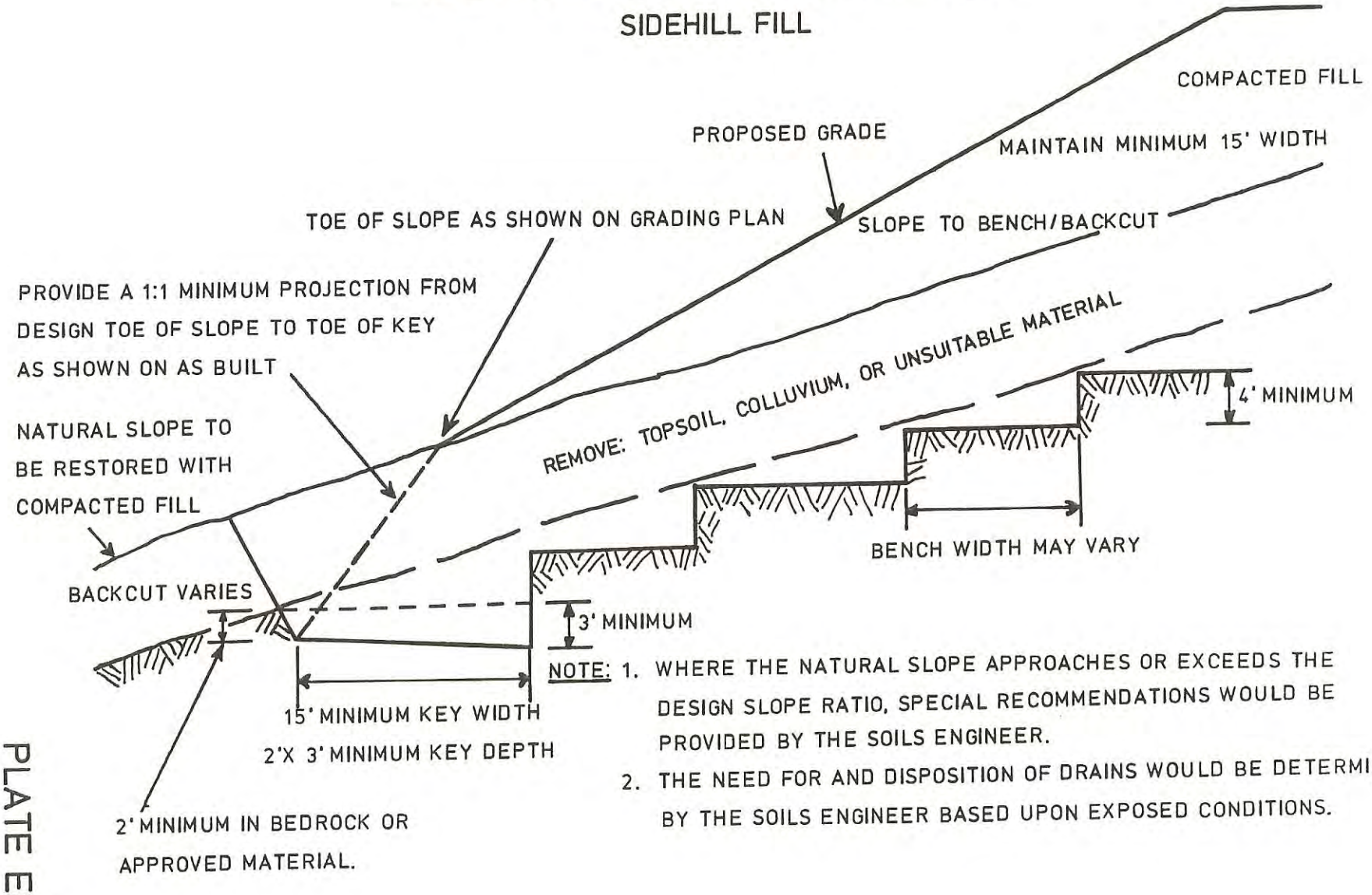
SIEVE SIZE	PERCENT PASSING
1 1/2 INCH	100
NO. 4	50
NO. 200	8

SAND EQUIVALENT: MINIMUM OF 50

PLATE EG—5

FILL OVER NATURAL DETAIL

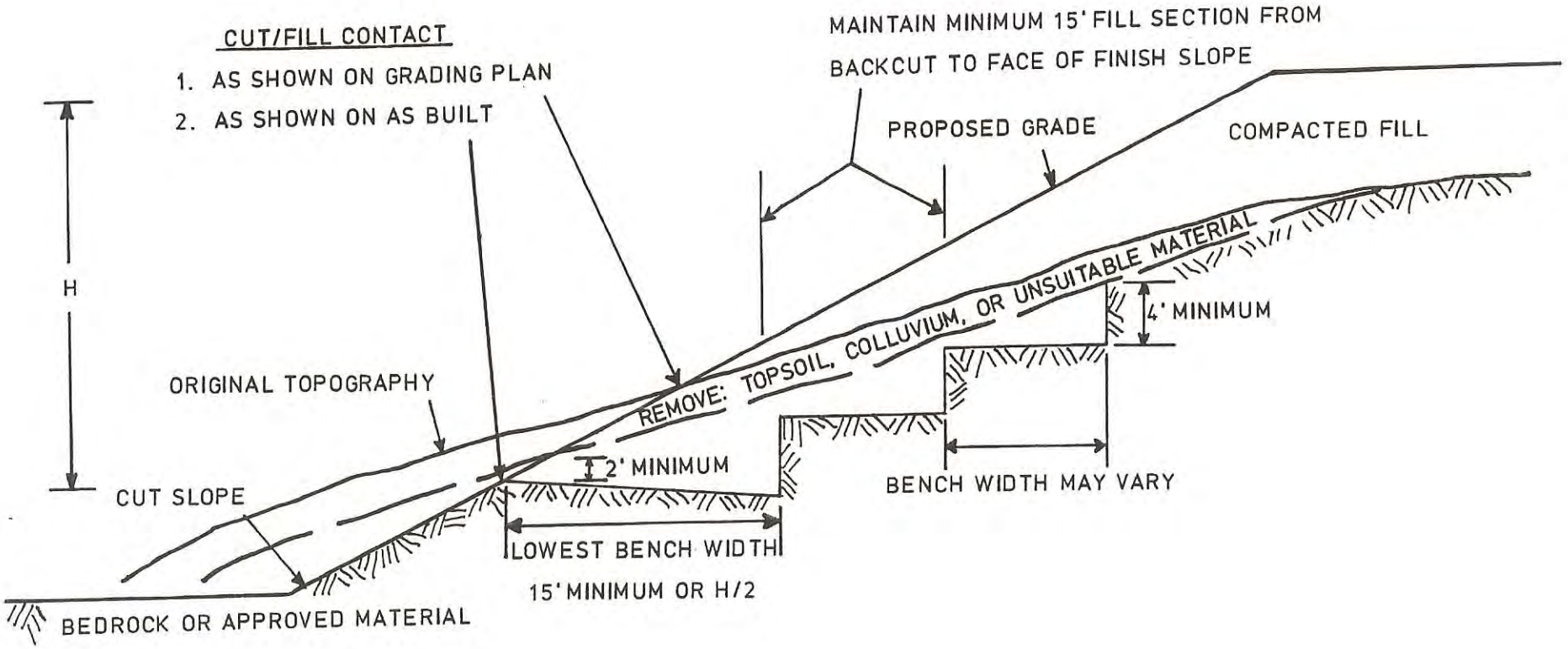
SIDEHILL FILL



NOTE:
1. WHERE THE NATURAL SLOPE APPROACHES OR EXCEEDS THE DESIGN SLOPE RATIO, SPECIAL RECOMMENDATIONS WOULD BE PROVIDED BY THE SOILS ENGINEER.
2. THE NEED FOR AND DISPOSITION OF DRAINS WOULD BE DETERMINED BY THE SOILS ENGINEER BASED UPON EXPOSED CONDITIONS.

PLATE EG—6

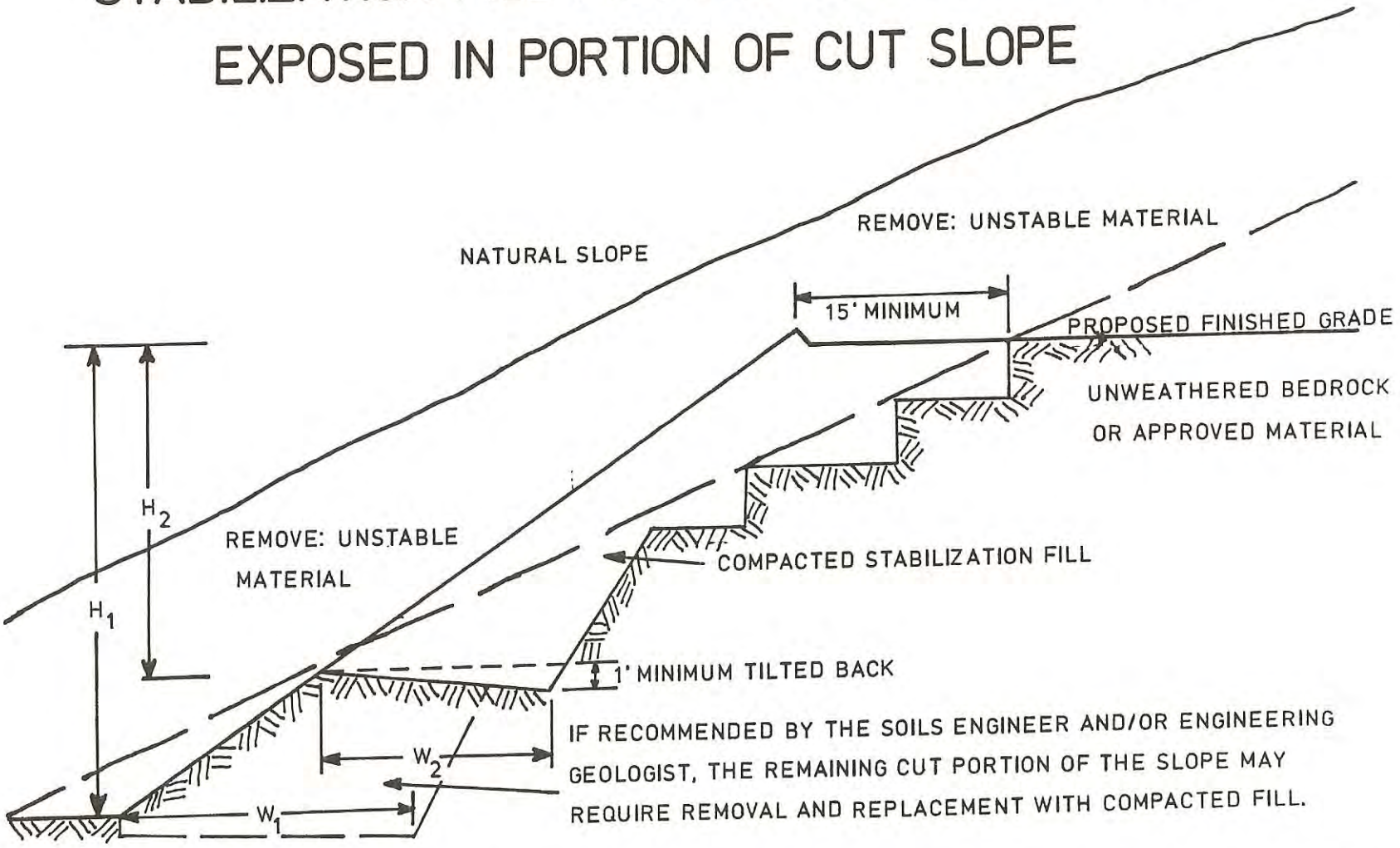
FILL OVER CUT DETAIL



NOTE: THE CUT PORTION OF THE SLOPE SHOULD BE EXCAVATED AND EVALUATED BY THE SOILS ENGINEER AND/OR ENGINEERING GEOLOGIST PRIOR TO CONSTRUCTING THE FILL PORTION.

PLATE EG—7

STABILIZATION FILL FOR UNSTABLE MATERIAL EXPOSED IN PORTION OF CUT SLOPE

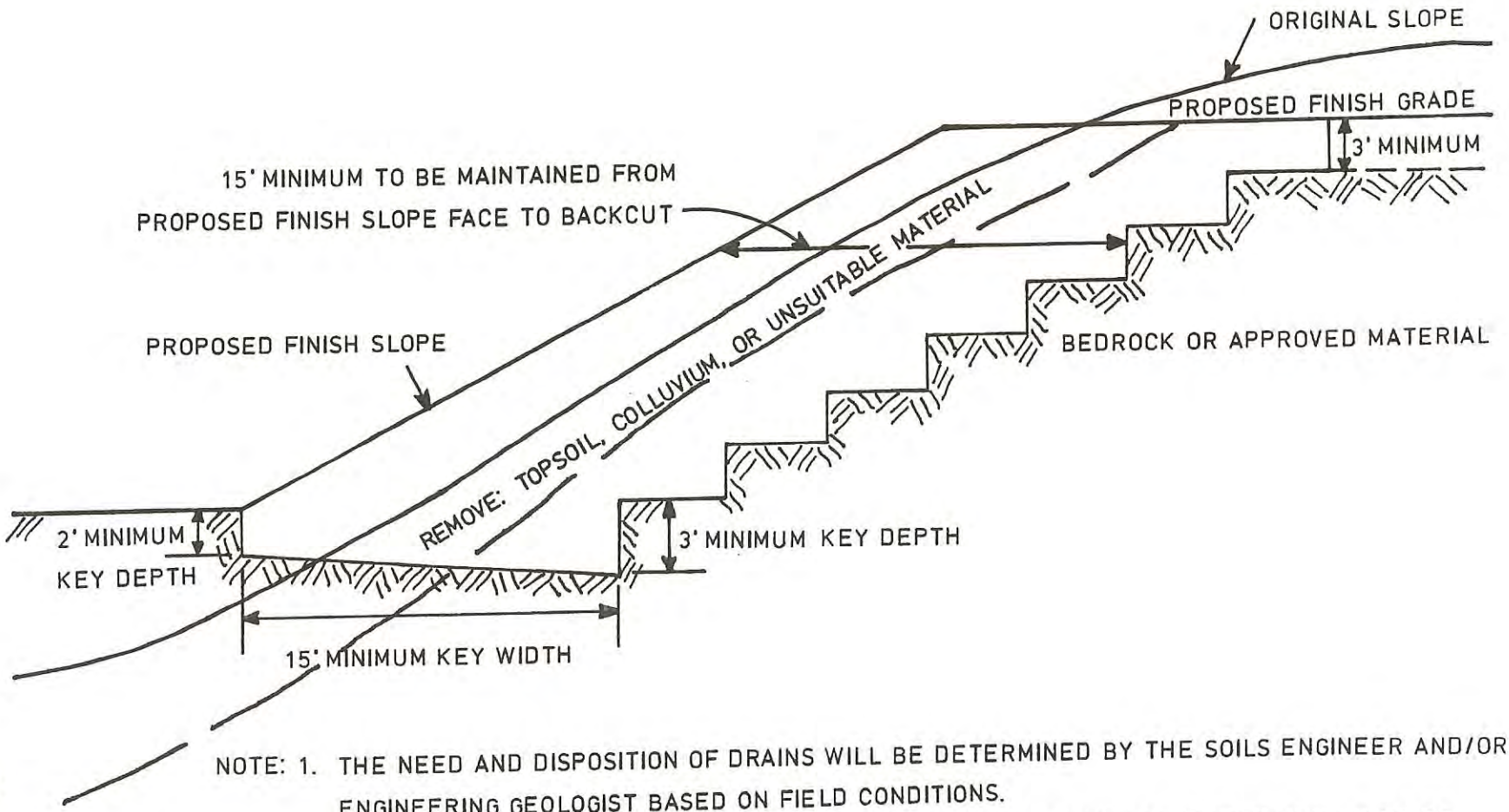


NOTE: 1. SUBDRAINS ARE NOT REQUIRED UNLESS SPECIFIED BY SOILS ENGINEER AND/OR ENGINEERING GEOLOGIST.

2. "W" SHALL BE EQUIPMENT WIDTH (15') FOR SLOPE HEIGHTS LESS THAN 25 FEET. FOR SLOPES GREATER THAN 25 FEET "W" SHALL BE DETERMINED BY THE PROJECT SOILS ENGINEER AND /OR ENGINEERING GEOLOGIST. AT NO TIME SHALL "W" BE LESS THAN H/2.

PLATE EG—8

SKIN FILL OF NATURAL GROUND

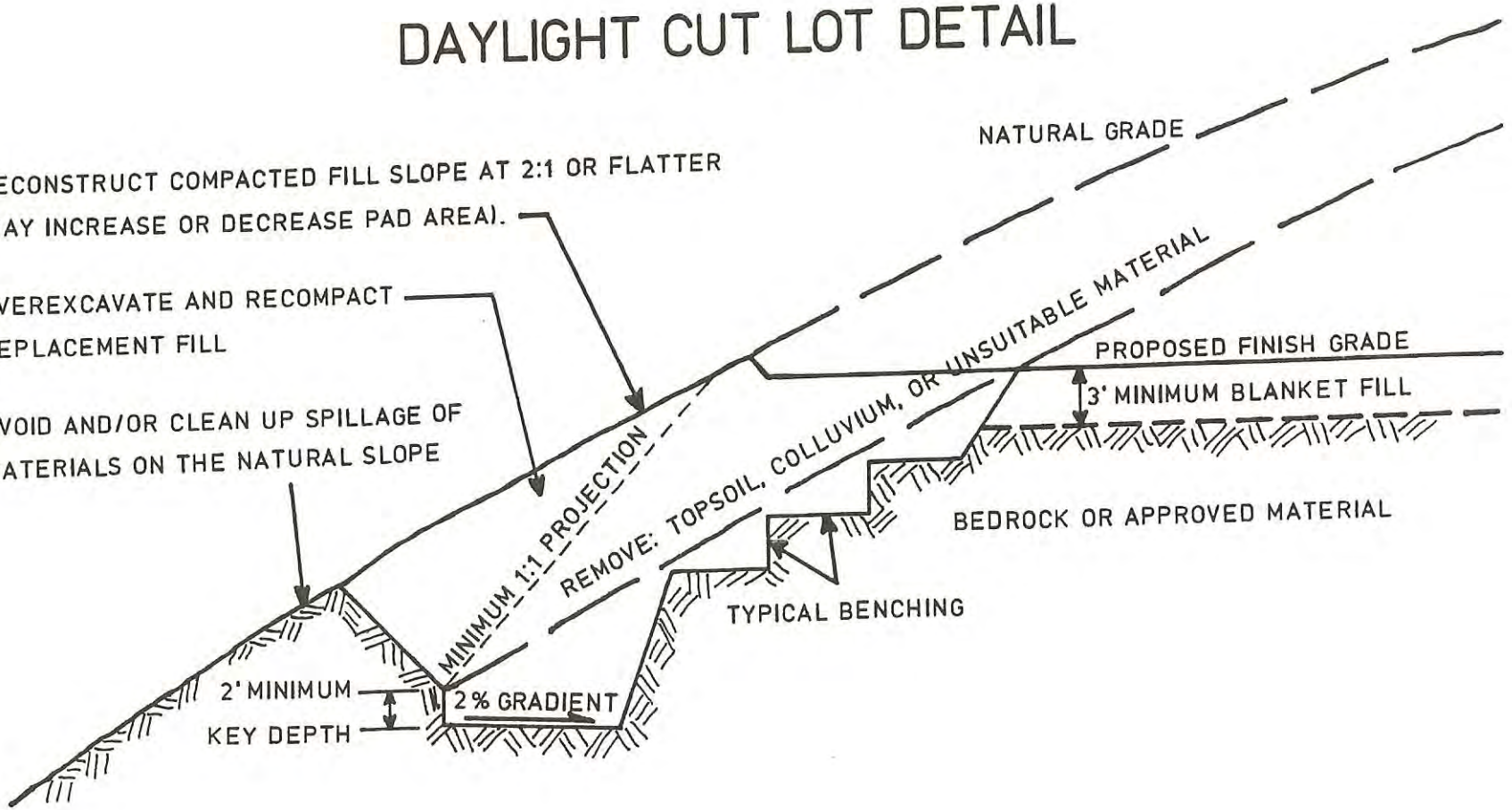


NOTE: 1. THE NEED AND DISPOSITION OF DRAINS WILL BE DETERMINED BY THE SOILS ENGINEER AND/OR ENGINEERING GEOLOGIST BASED ON FIELD CONDITIONS.

2. PAD OVEREXCAVATION AND RECOMPACTION SHOULD BE PERFORMED IF DETERMINED TO BE NECESSARY BY THE SOILS ENGINEER AND/OR ENGINEERING GEOLOGIST.

PLATE EG—9

DAYLIGHT CUT LOT DETAIL



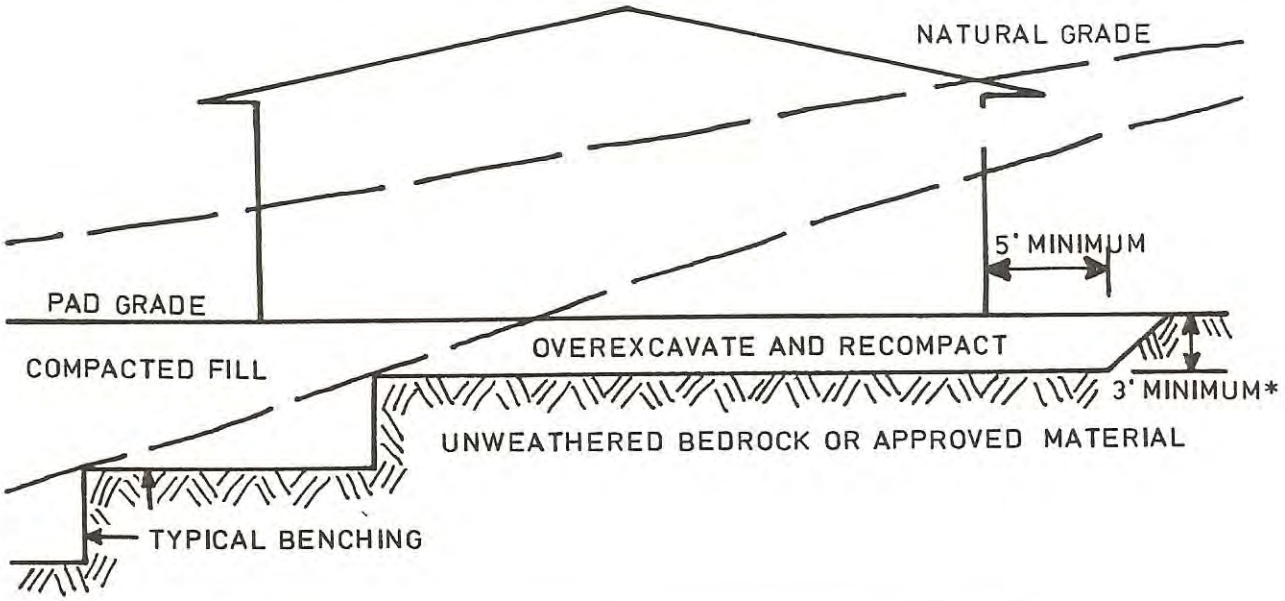
NOTE: 1. SUBDRAIN AND KEY WIDTH REQUIREMENTS WILL BE DETERMINED BASED ON EXPOSED SUBSURFACE CONDITIONS AND THICKNESS OF OVERBURDEN.

2. PAD OVER EXCAVATION AND RECOMPACTION SHOULD BE PERFORMED IF DETERMINED NECESSARY BY THE SOILS ENGINEER AND/OR THE ENGINEERING GEOLOGIST.

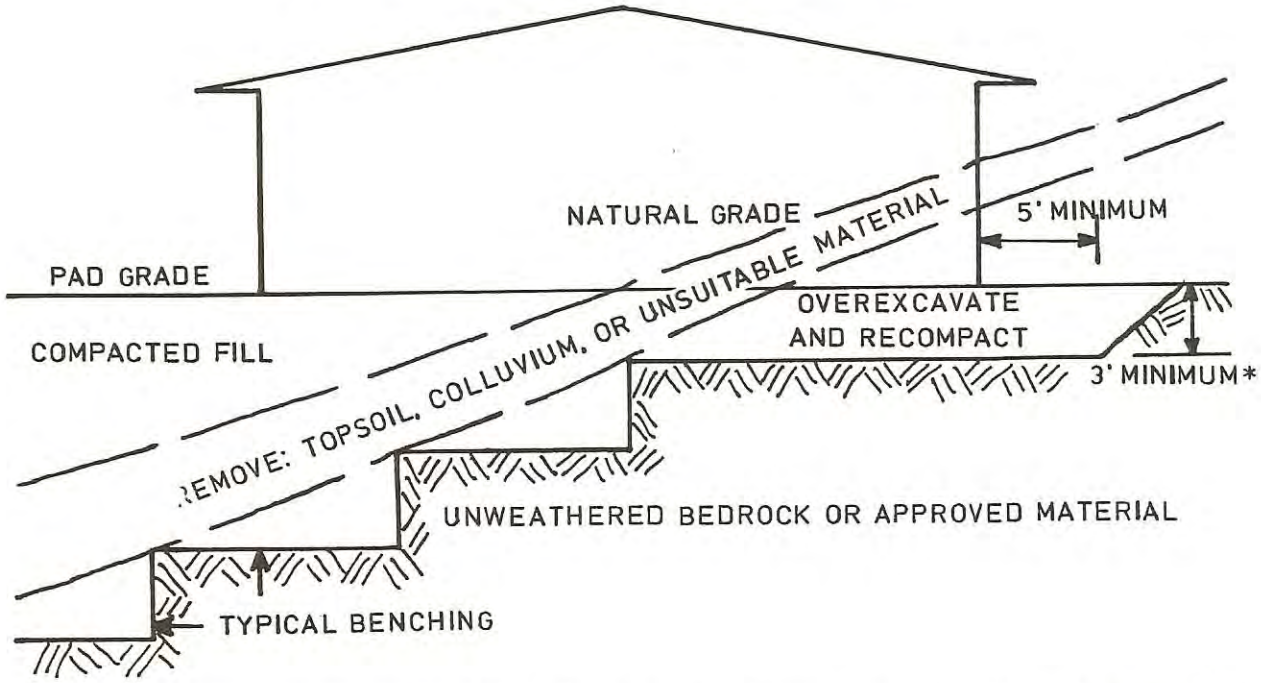
PLATE EG—10

TRANSITION LOT DETAIL

CUT LOT (MATERIAL TYPE TRANSITION)



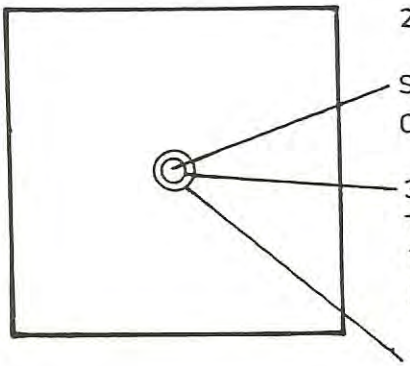
CUT–FILL LOT (DAYLIGHT TRANSITION)



NOTE: * DEEPER OVEREXCAVATION MAY BE RECOMMENDED BY THE SOILS ENGINEER AND/OR ENGINEERING GEOLOGIST IN STEEP CUT–FILL TRANSITION AREAS.

PLATE EG–11

SETTLEMENT PLATE AND RISER DETAIL

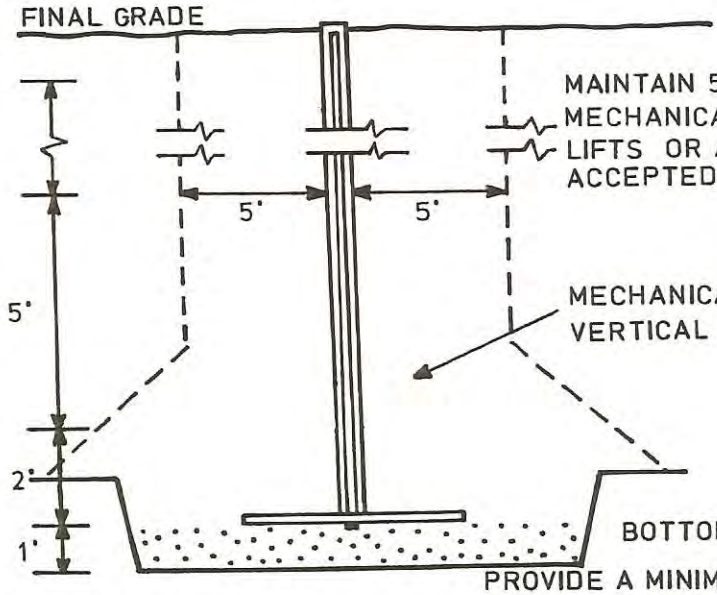


2' X 2' X 1/4" STEEL PLATE

STANDARD 3/4" PIPE NIPPLE WELDED TO TOP OF PLATE.

3/4" X 5' GALVANIZED PIPE, STANDARD PIPE THREADS TOP AND BOTTOM. EXTENSIONS THREADED ON BOTH ENDS AND ADDED IN 5' INCREMENTS.

3 INCH SCHEDULE 40 PVC PIPE SLEEVE, ADD IN 5' INCREMENTS WITH GLUE JOINTS.



NOTE:

1. LOCATIONS OF SETTLEMENT PLATES SHOULD BE CLEARLY MARKED AND READILY VISIBLE (RED FLAGGED) TO EQUIPMENT OPERATORS.
2. CONTRACTOR SHOULD MAINTAIN CLEARANCE OF A 5' RADIUS OF PLATE BASE AND WITHIN 5' (VERTICAL) FOR HEAVY EQUIPMENT. FILL WITHIN CLEARANCE AREA SHOULD BE HAND COMPACTED TO PROJECT SPECIFICATIONS OR COMPACTED BY ALTERNATIVE APPROVED BY THE SOILS ENGINEER.
3. AFTER 5' (VERTICAL) OF FILL IS IN PLACE, CONTRACTOR SHOULD MAINTAIN A 5' RADIUS EQUIPMENT CLEARANCE FROM RISER.
4. PLACE AND MECHANICALLY HAND COMPACT INITIAL 2' OF FILL PRIOR TO ESTABLISHING THE INITIAL READING.
5. IN THE EVENT OF DAMAGE TO THE SETTLEMENT PLATE OR EXTENSION RESULTING FROM EQUIPMENT OPERATING WITHIN THE SPECIFIED CLEARANCE AREA, CONTRACTOR SHOULD IMMEDIATELY NOTIFY THE SOILS ENGINEER AND SHOULD BE RESPONSIBLE FOR RESTORING THE SETTLEMENT PLATES TO WORKING ORDER.
6. AN ALTERNATE DESIGN AND METHOD OF INSTALLATION MAY BE PROVIDED AT THE DISCRETION OF THE SOILS ENGINEER.

PLATE EG—14

TYPICAL SURFACE SETTLEMENT MONUMENT

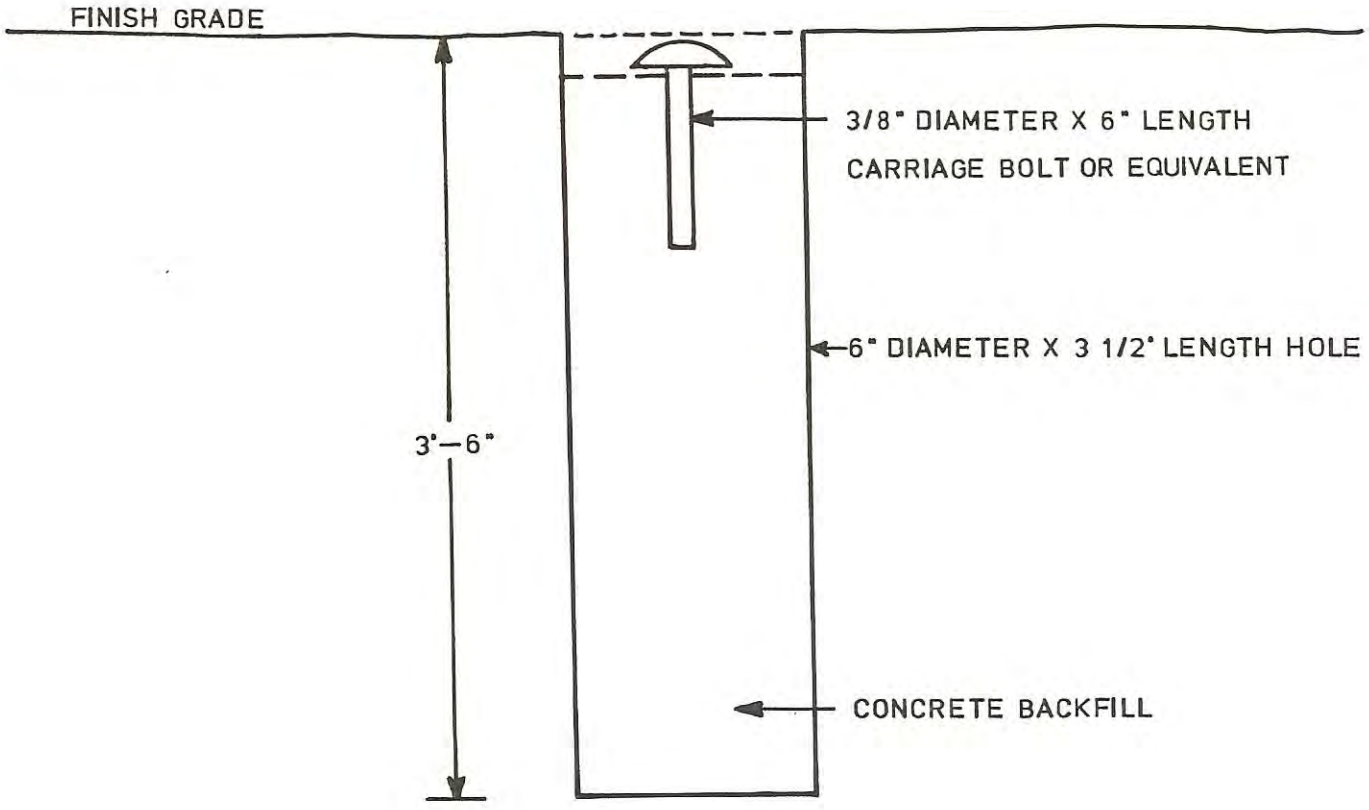
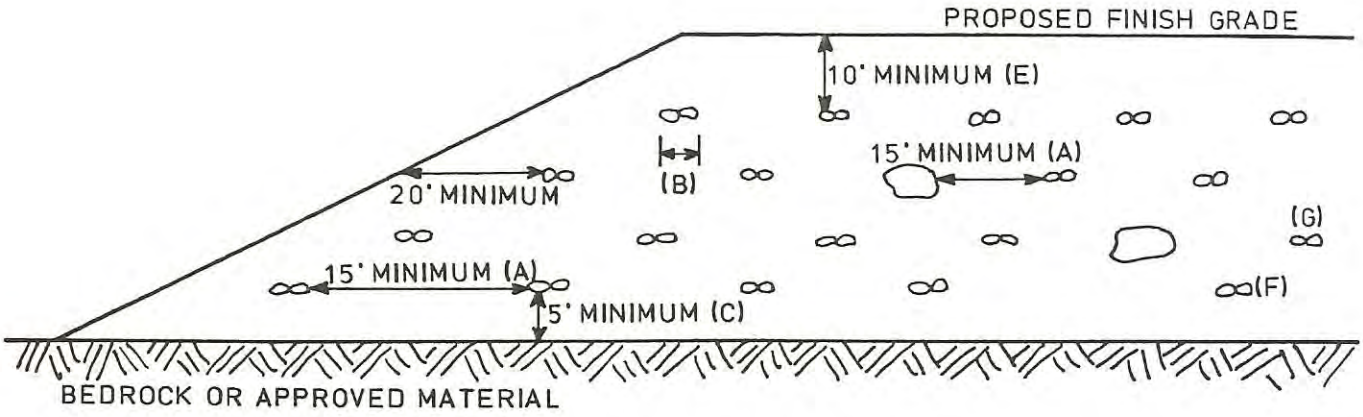


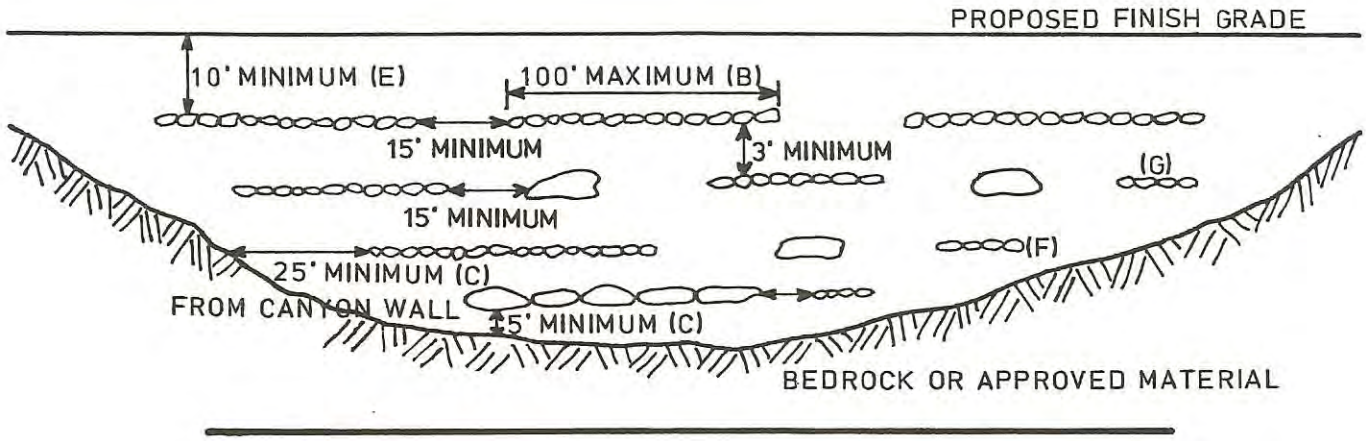
PLATE EG-15

OVERSIZE ROCK DISPOSAL

VIEW NORMAL TO SLOPE FACE



VIEW PARALLEL TO SLOPE FACE

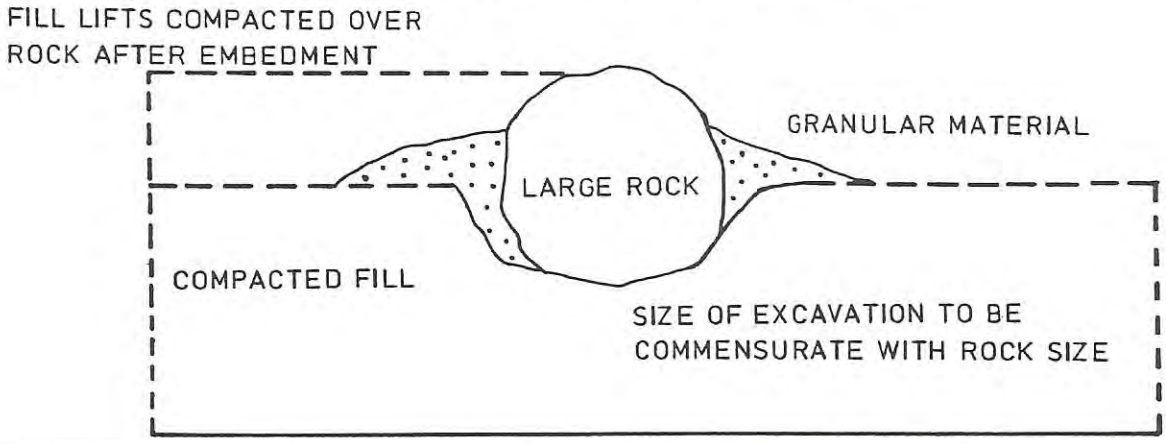


NOTE: (A) ONE EQUIPMENT WIDTH OR A MINIMUM OF 15 FEET.
(B) HEIGHT AND WIDTH MAY VARY DEPENDING ON ROCK SIZE AND TYPE OF EQUIPMENT. LENGTH OF WINDROW SHALL BE NO GREATER THAN 100' MAXIMUM.
(C) IF APPROVED BY THE SOILS ENGINEER AND/OR ENGINEERING GEOLOGIST, WINDROWS MAY BE PLACED DIRECTLY ON COMPETENT MATERIAL OR BEDROCK PROVIDED ADEQUATE SPACE IS AVAILABLE FOR COMPACTION.
(D) ORIENTATION OF WINDROWS MAY VARY BUT SHOULD BE AS RECOMMENDED BY THE SOILS ENGINEER AND/OR ENGINEERING GEOLOGIST. STAGGERING OF WINDROWS IS NOT NECESSARY UNLESS RECOMMENDED.
(E) CLEAR AREA FOR UTILITY TRENCHES, FOUNDATIONS AND SWIMMING POOLS.
(F) ALL FILL OVER AND AROUND ROCK WINDROW SHALL BE COMPACTED TO 90% RELATIVE COMPACTION OR AS RECOMMENDED.
(G) AFTER FILL BETWEEN WINDROWS IS PLACED AND COMPACTED WITH THE LIFT OF FILL COVERING WINDROW, WINDROW SHOULD BE PROOF ROLLED WITH A D-9 DOZER OR EQUIVALENT.
VIEWS ARE DIAGRAMMATIC ONLY. ROCK SHOULD NOT TOUCH AND VOIDS SHOULD BE COMPLETELY FILLED IN.

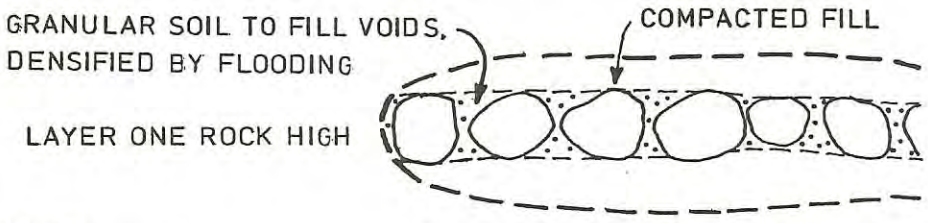
PLATE RD-1

ROCK DISPOSAL PITS

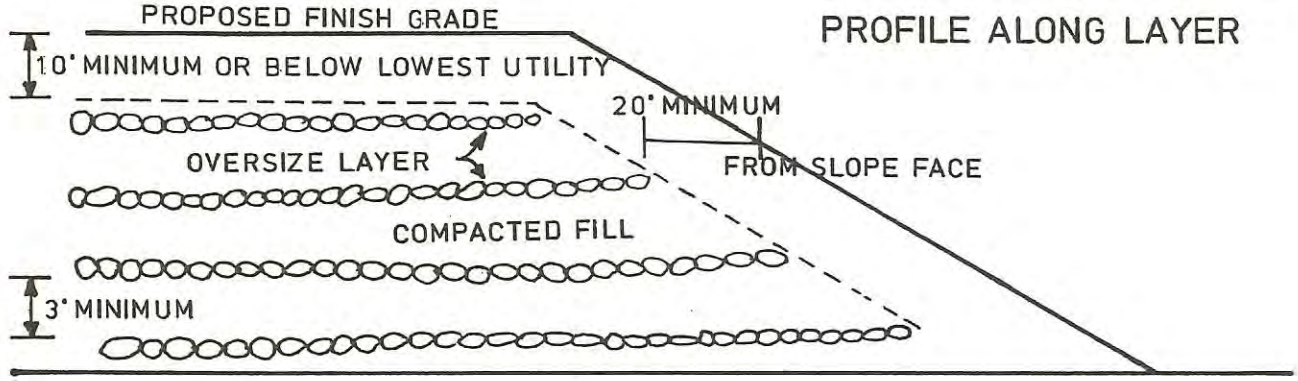
VIEWS ARE DIAGRAMMATIC ONLY. ROCK SHOULD NOT TOUCH AND VOIDS SHOULD BE COMPLETELY FILLED IN.



ROCK DISPOSAL LAYERS



PROFILE ALONG LAYER



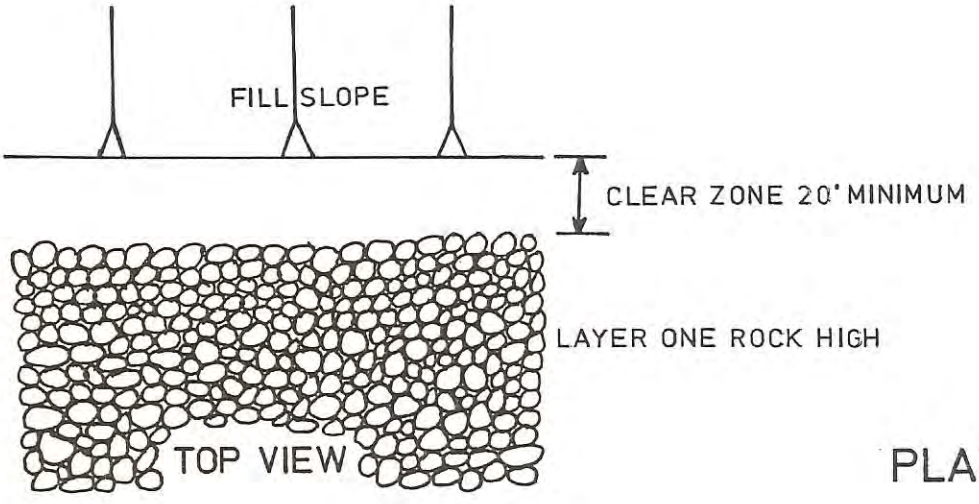
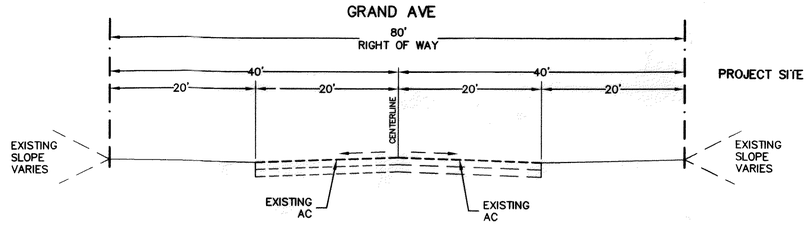


PLATE RD—2

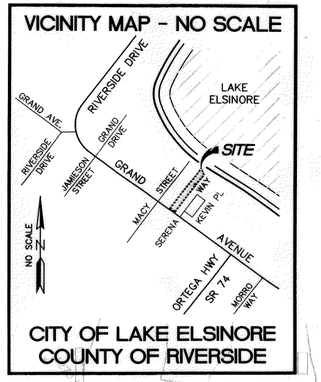


EXISTING STREET SECTION ~ GRAND AVE NO SCALE

EASEMENT DATA TABLE

1 ELECTRICITY DISTRIBUTION EASEMENT TO SOUTHERN CALIFORNIA EDISON CO, REC. 7/24/2001 AS DOC#2001-343984 O.R. (6' WIDE)

2 PROPOSED 29' PRIVATE ROAD AND UTILITY EASEMENT



MATCH LINE SEE SHEET 2

GeoSoils, Inc.
RIVERSIDE CO.
ORANGE CO.
SAN DIEGO CO.

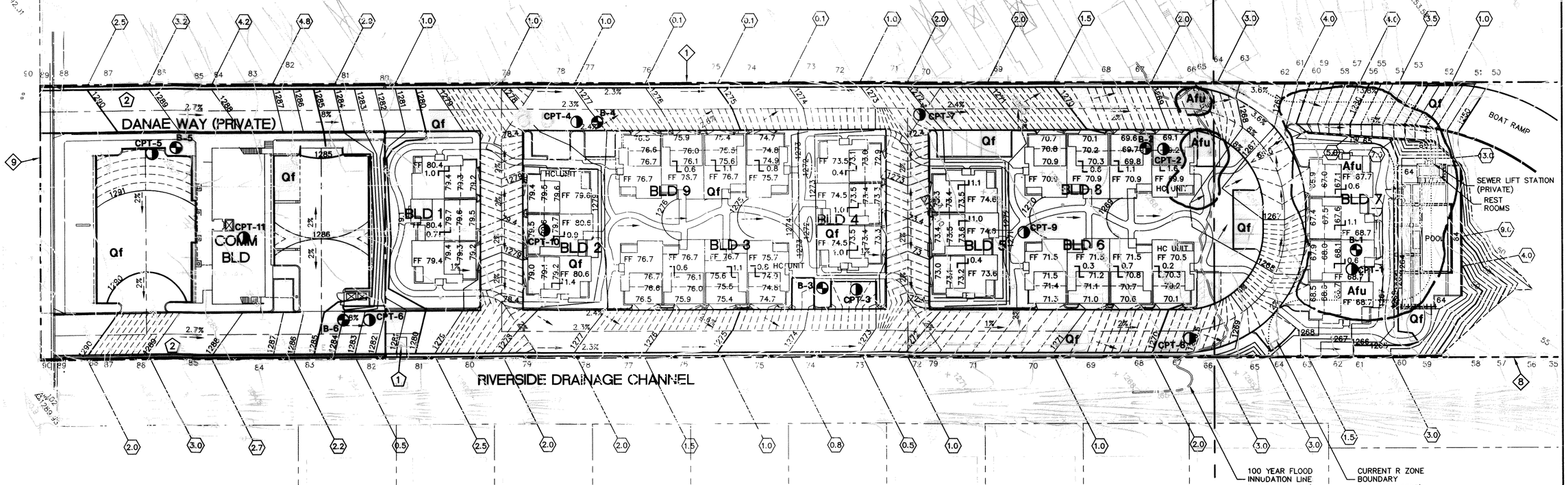
GEOTECHNICAL MAP

Plate 1

W.O. 5043-A-SC DATE 05/06 SCALE 1"=30'

ALL LOCATIONS ARE APPROXIMATE

05-021 JIRON ~ LAKE ELSINORE CONDOS



LEGEND

Afu	Artificial fill - undocumented
Qf	Quaternary fan deposits
	Approximate location of geologic contact
B-6	Approximate location of exploratory boring
CPT-11	Approximate location of cone penetration test (CPT) sounding

NORTH
SCALE: 1"=30'
15' 10' 5' 0 30' 60'
SCALE: 1"=20'

PRELIMINARY SKETCH No. 4

REDESIGN PROGRESS PRINT 03/06/06

REVISIONS	BY	APPROVED	DATE

COORDINATE INDEX
N. E.

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Civil Engineers/Surveyors/General Engineering Contractors AB412412
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CITY OF LAKE ELSINORE
ENGINEERING DEPARTMENT
130 SOUTH MAIN STREET, LAKE ELSINORE, CA 92530

PRELIMINARY GRADING PLANS FOR:
LAKE ELSINORE CONDOMINIUMS
15712 GRAND AVENUE APN 381-030-005
LAKE ELSINORE, CA REF. TPM 34372

SCALE: HOR. 1"=30' VERT. -

SHEET 1 OF 2 SHEETS

Conway & Associates, Inc.
Civil Engineers/Surveyors/General Engineering Contractors AB412412
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