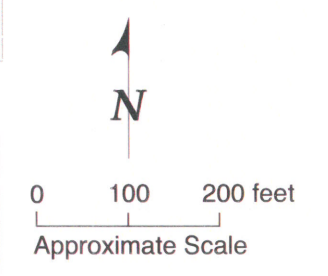
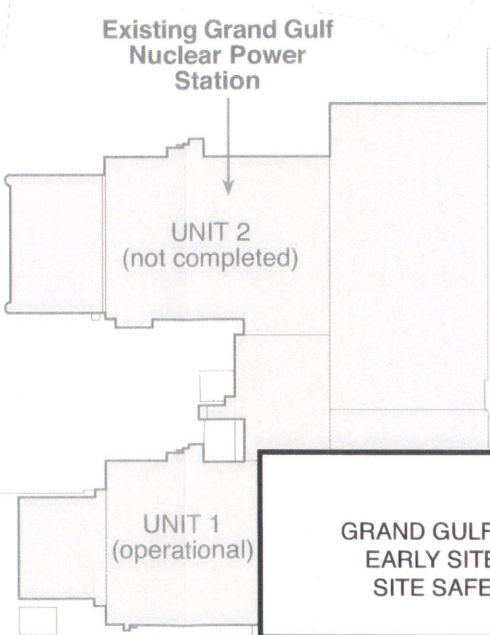


Explanation

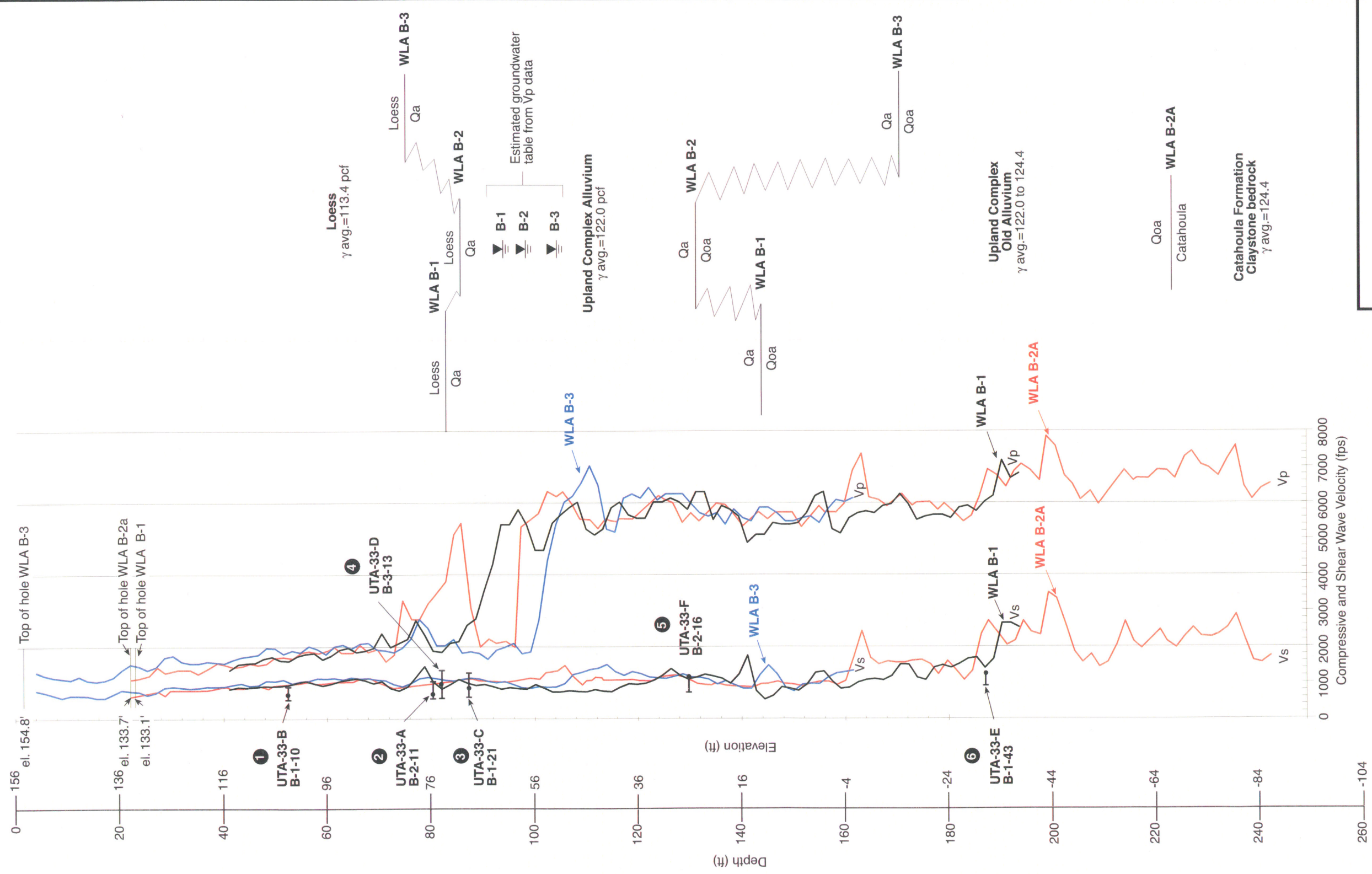
- WLA exploratory boring and top-of-hole elevation; 2003
- WLA Cone Penetrometer Test and top-of-hole elevation; 2003
- GGNS Borings for UFSAR, 1971 to 1972
- Geologic cross section location
- Elevation contact, in feet
- Bracketed numbers are elevations of contact in boreholes, in feet



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STRUCTURE CONTOUR MAP OF
 CONTACT BETWEEN LOESS AND
 UPLAND COMPLEX ALLUVIUM

FIGURE 2.5-79 REV. 1



Explanation

- ① Location of UTEXAS dynamic test sample, and sample number UTA-33-B-1-10.
- ↔ Range of laboratory determined shear wave velocity for UTEXAS test specimens. The range reflects variation in velocity under different confining pressures. Circle points indicate velocity determined at estimated in situ confining stress levels.

γ avg. Estimated average in situ unit weight for geologic layer, in pounds per cubic foot.

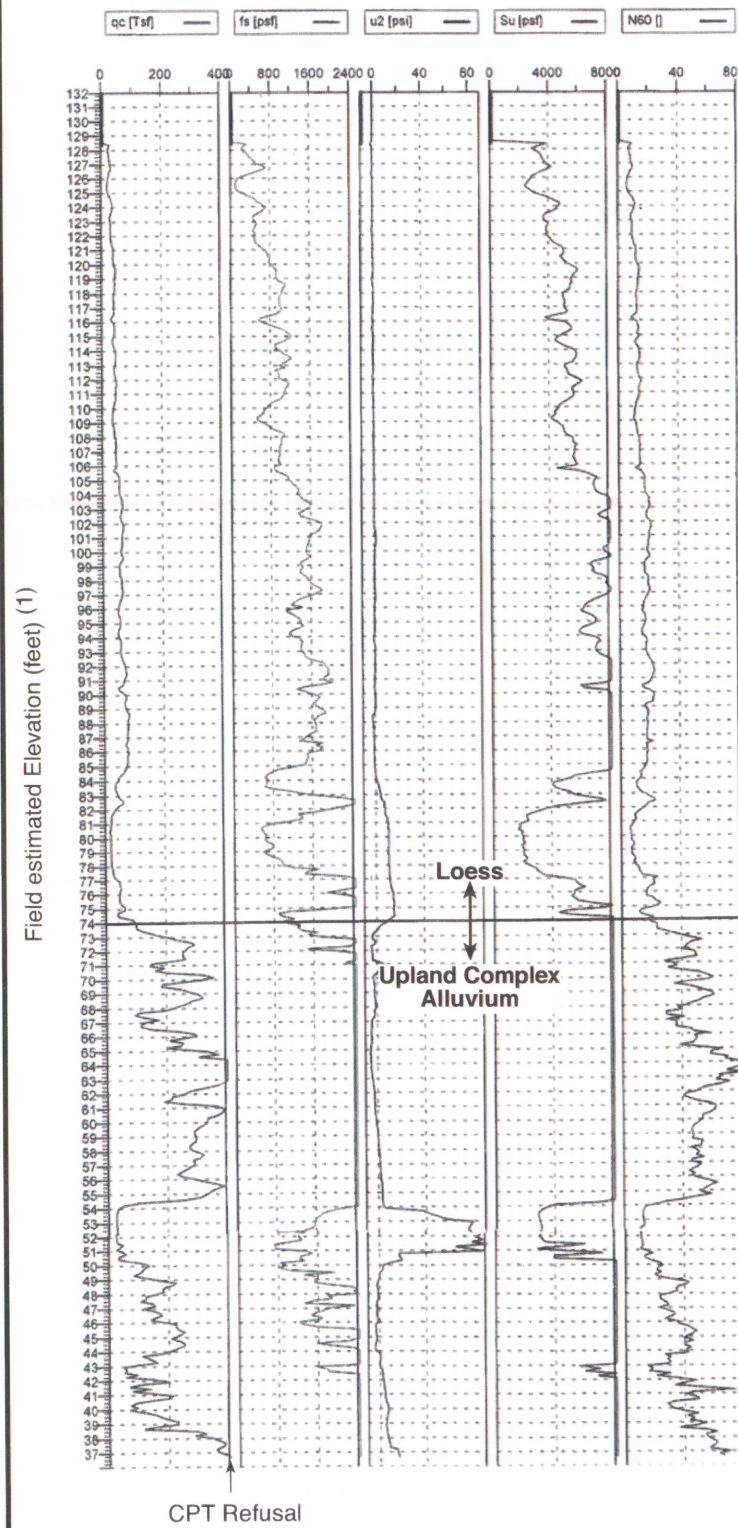
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SUMMARY OF P-S VELOCITY PROFILES

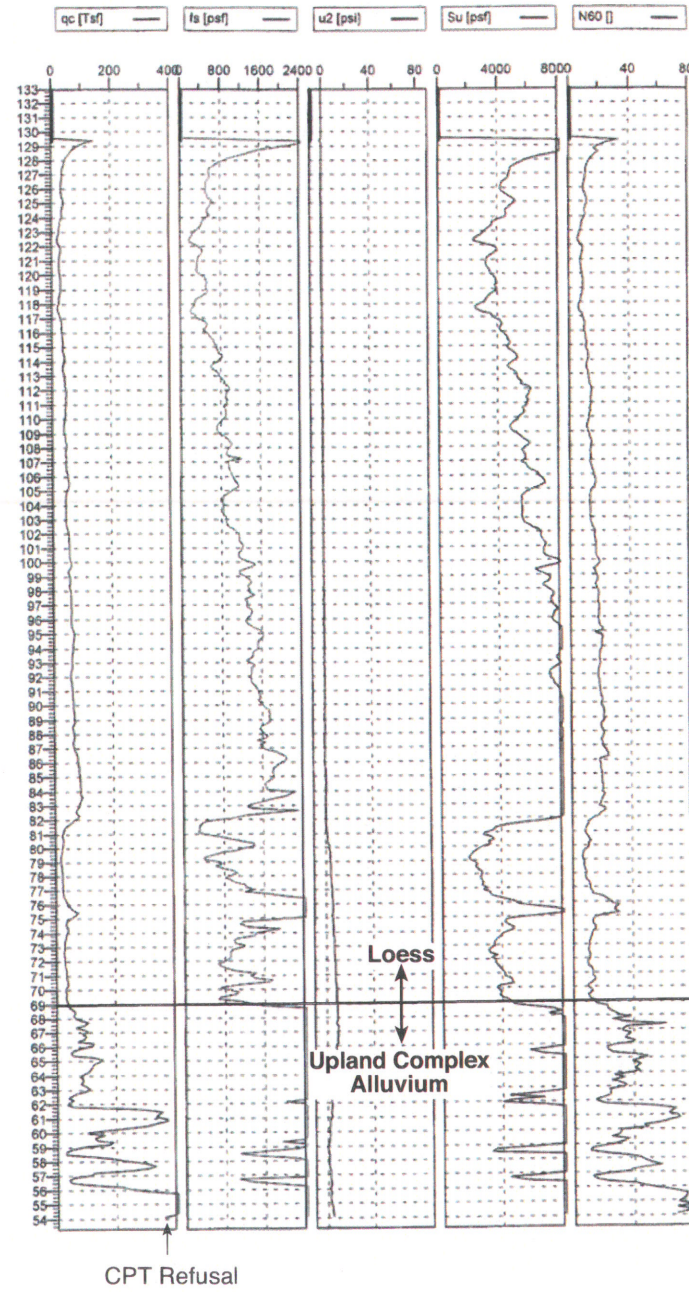
FIGURE 2.5-80

REV. 1

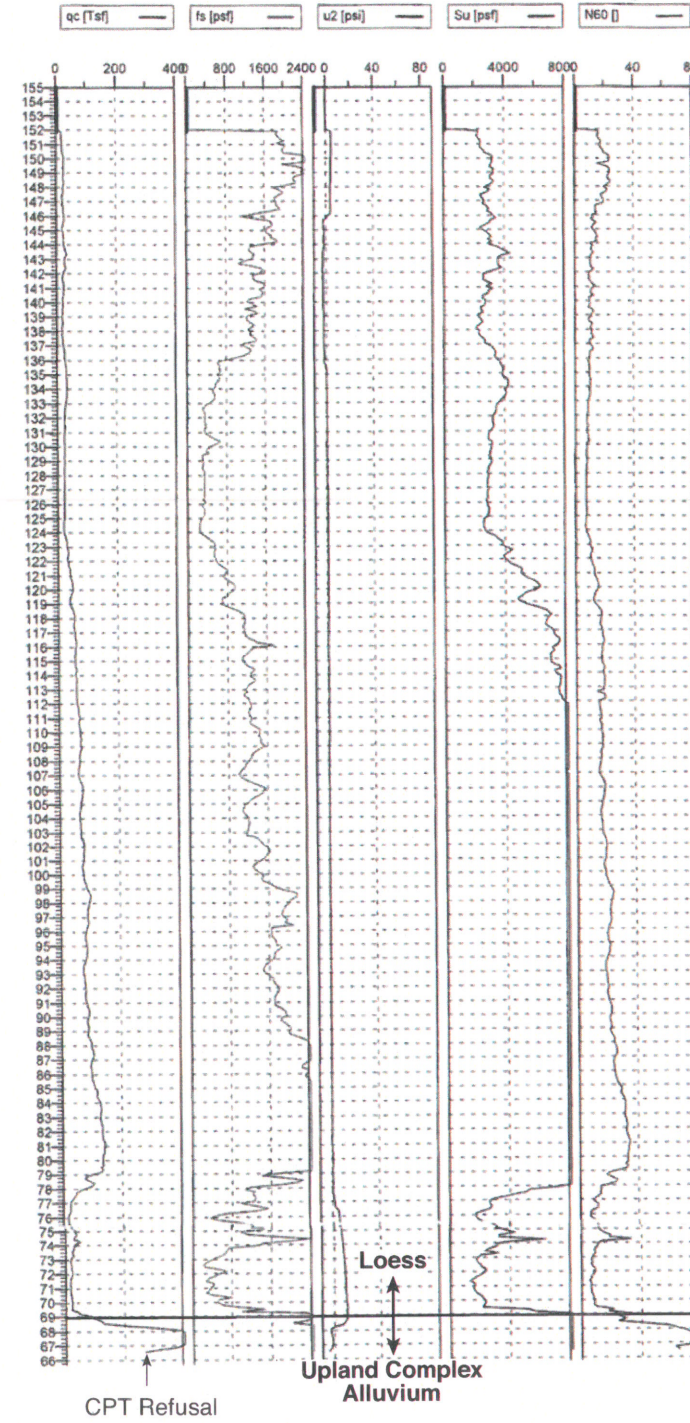
WLA CPT-1 Top of hole elevation 133.2 feet



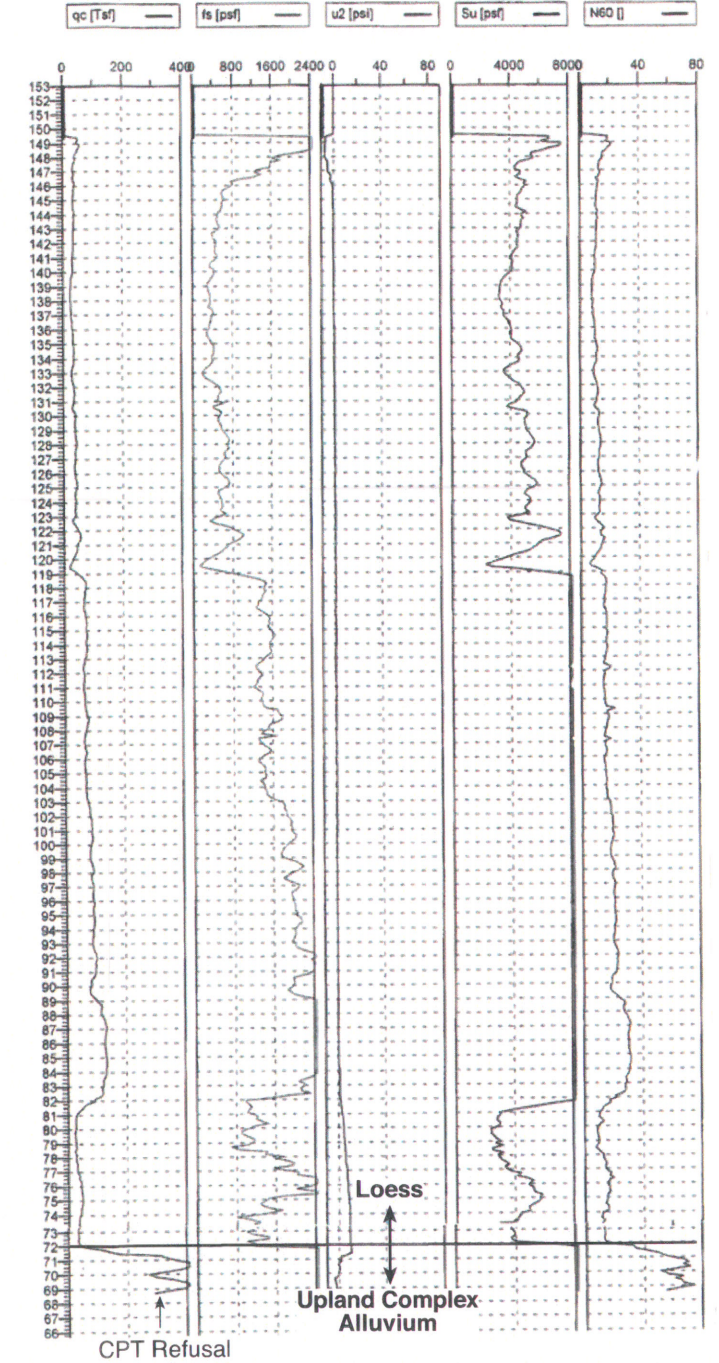
WLA CPT-2 Top of hole elevation 133.9 feet



WLA CPT-3 Top of hole elevation 157.6 feet



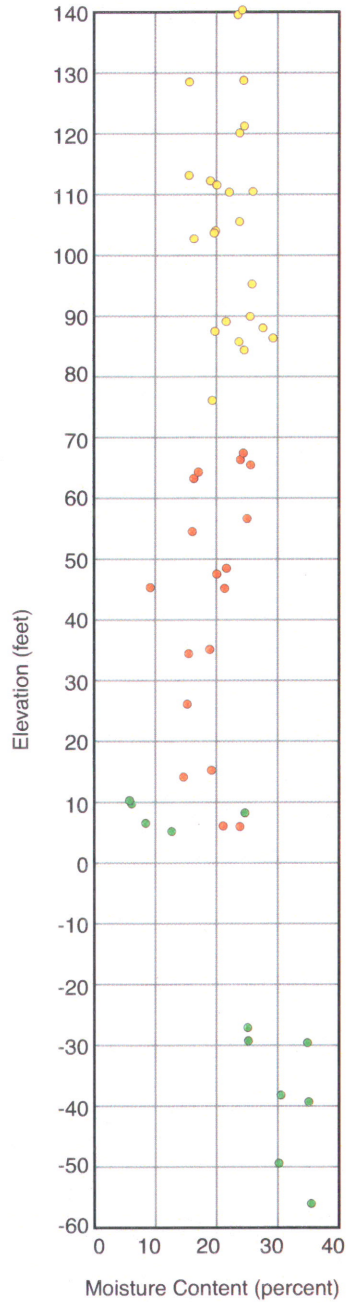
WLA CPT-4 Top of hole elevation 155.2 feet



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CONE PENETROMETER TEST (CPT)
 SUMMARY LOGS

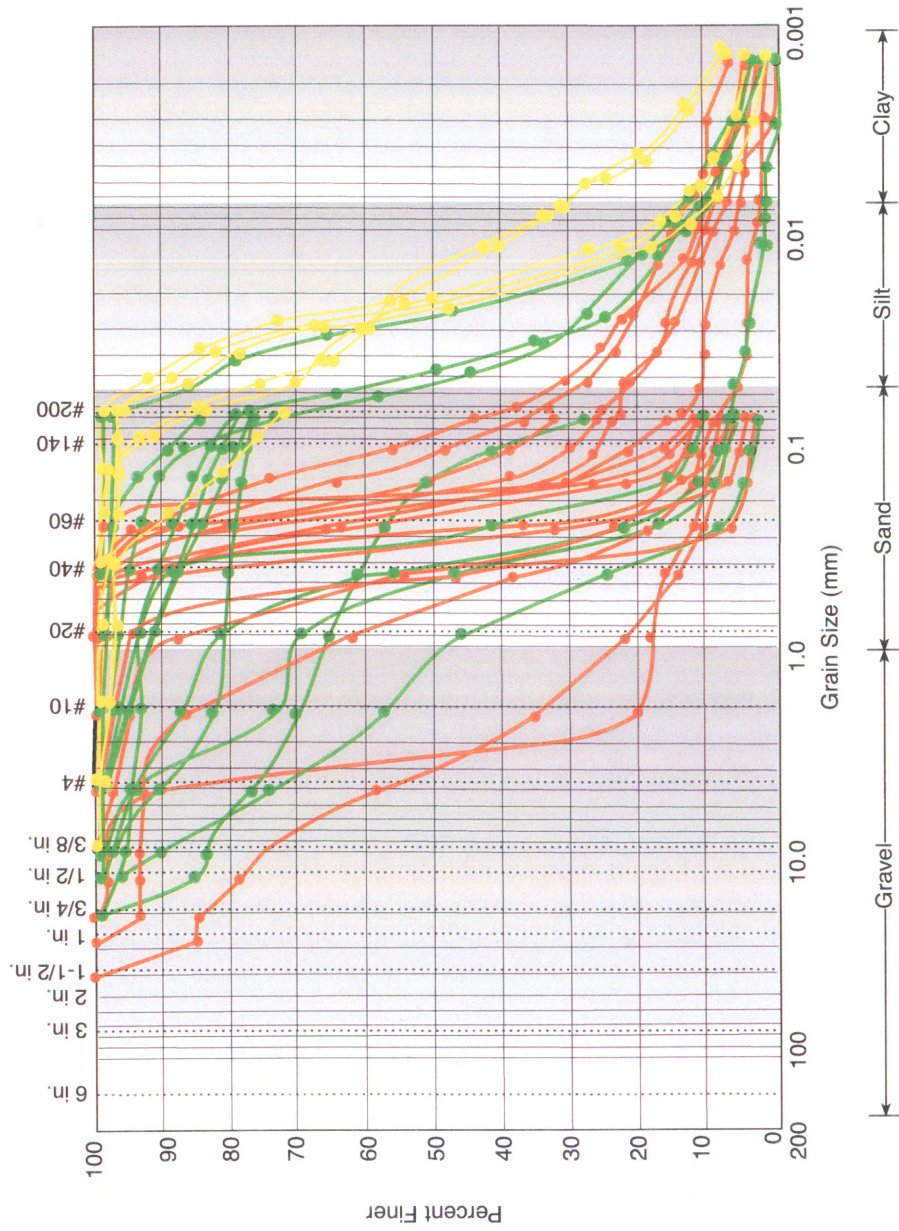
Note: (1) Field estimated elevations are shown on logs. Actual surveyed top of hole elevations are noted at the top of the logs, and supersede the field estimated elevations.



- Explanation**
- Loess
 - Alluvium
 - Old Alluvium
- } Upland Complex

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MOISTURE CONTENT OF GEOLOGIC UNITS



Explanation

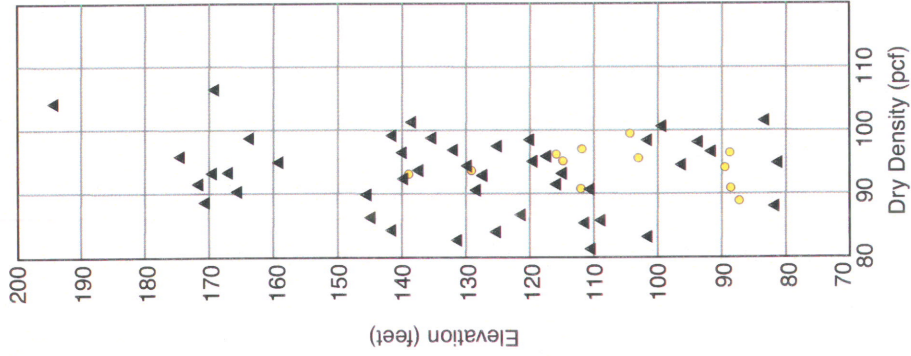
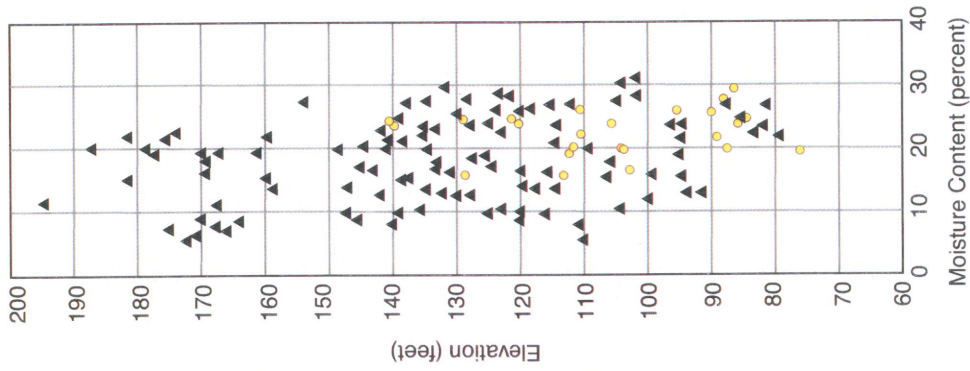
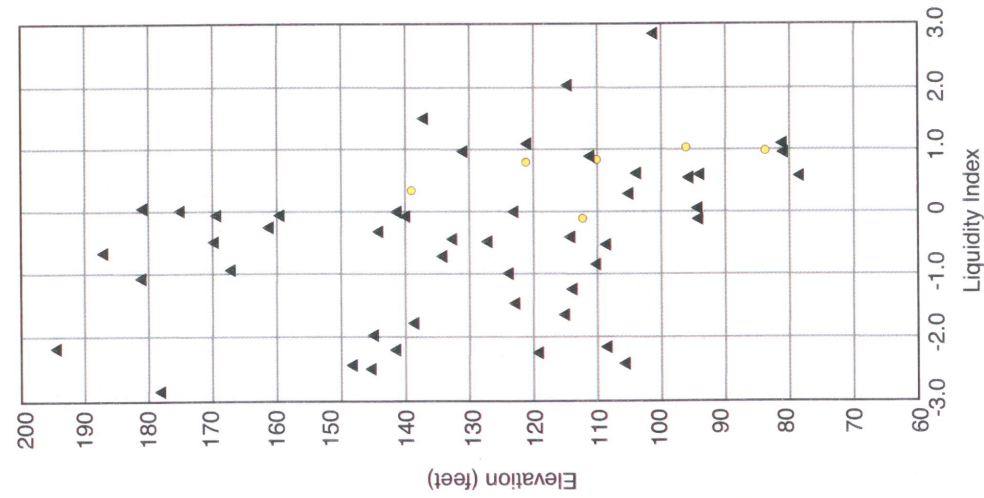
- Loess
 - Alluvium
 - Old alluvium
- } Upland Complex

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SIEVE ANALYSES GRAIN SIZE PLOTS

FIGURE 2.5-83

REV. 1



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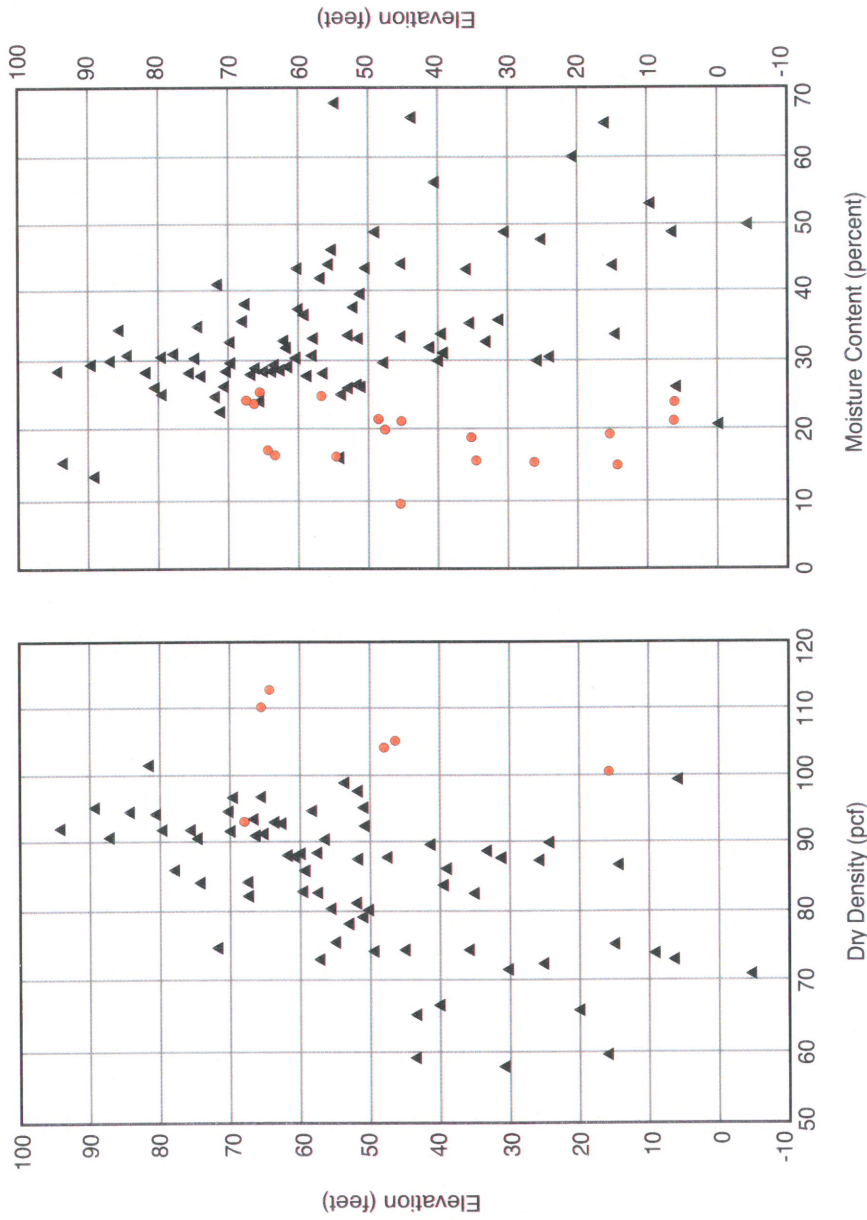
COMPARISON OF
 STATIC PROPERTIES OF LOESS

Explanation

- ▲ UFSAR data - Loess
- ESP data - Loess

Note: pcf= pounds per cubic foot.

FIGURE 2.5-84



Explanation

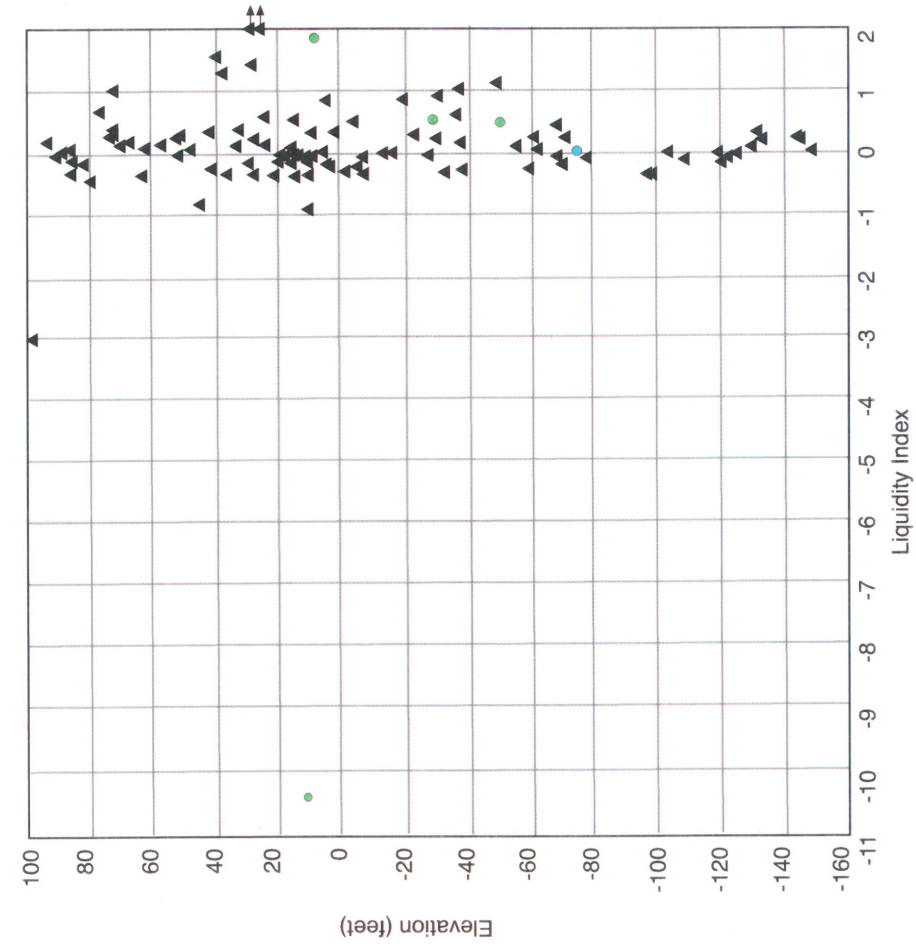
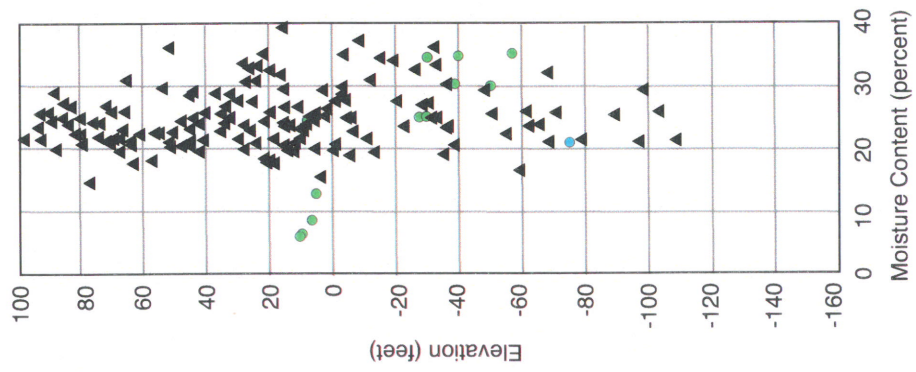
- ▲ UFSAR data - "Terrace Alluvium"
- ESP data - Upland Complex Alluvium

Note: pcf = pounds per cubic foot.

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COMPARISON OF STATIC PROPERTIES
 OF UPLAND COMPLEX ALLUVIUM

FIGURE 2.5-85



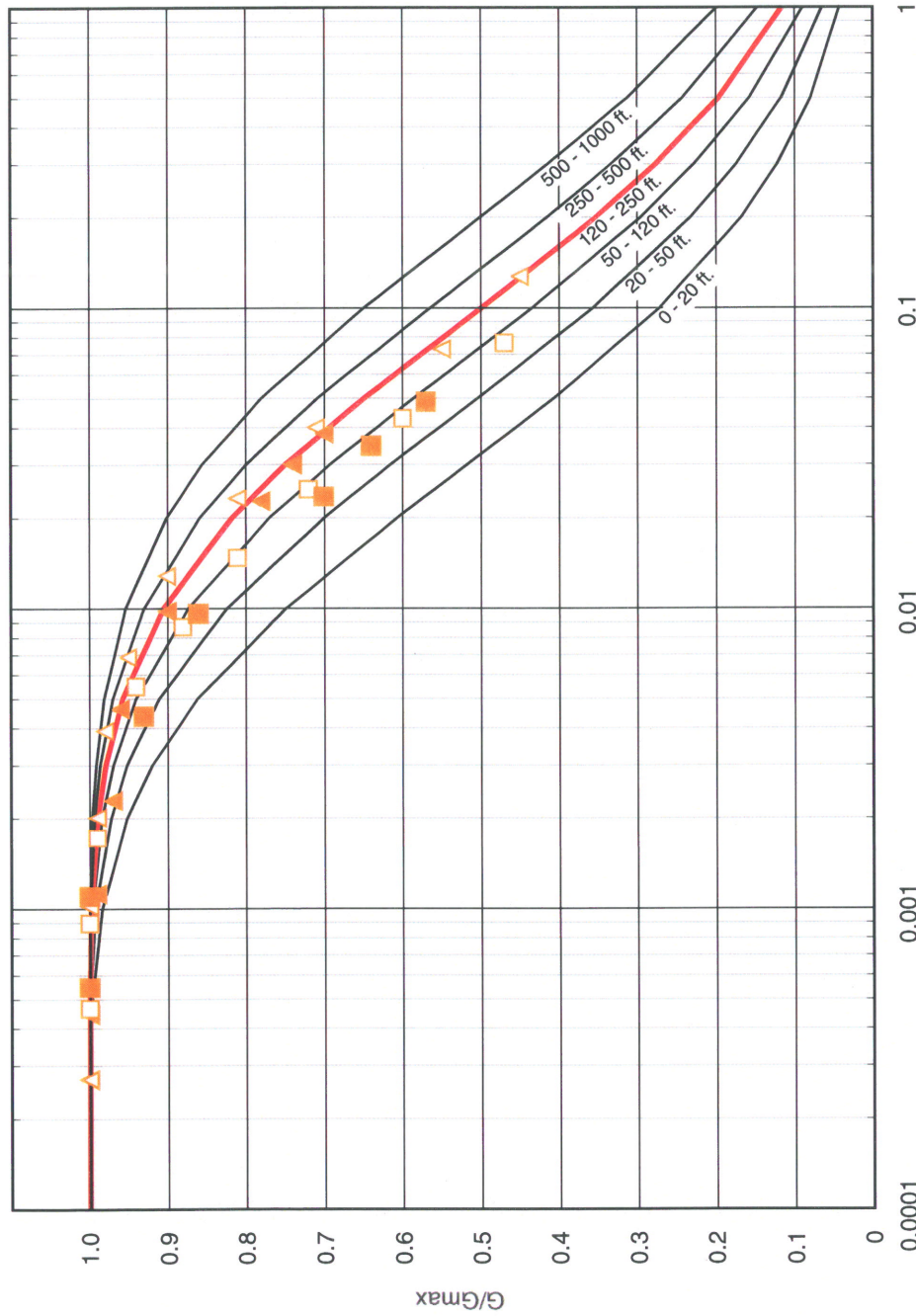
Explanation

- Upland Complex - old alluvium (ESP)
- Catahoula (ESP)
- ▲ Catahoula (UFSAR)

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COMPARISON OF STATIC PROPERTIES
 OF UPLAND COMPLEX OLD ALLUVIUM

FIGURE 2.5-86



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 SITE SAFETY ANALYSIS REPORT

SHEAR MODULUS REDUCTION CURVES
 FOR LOESS

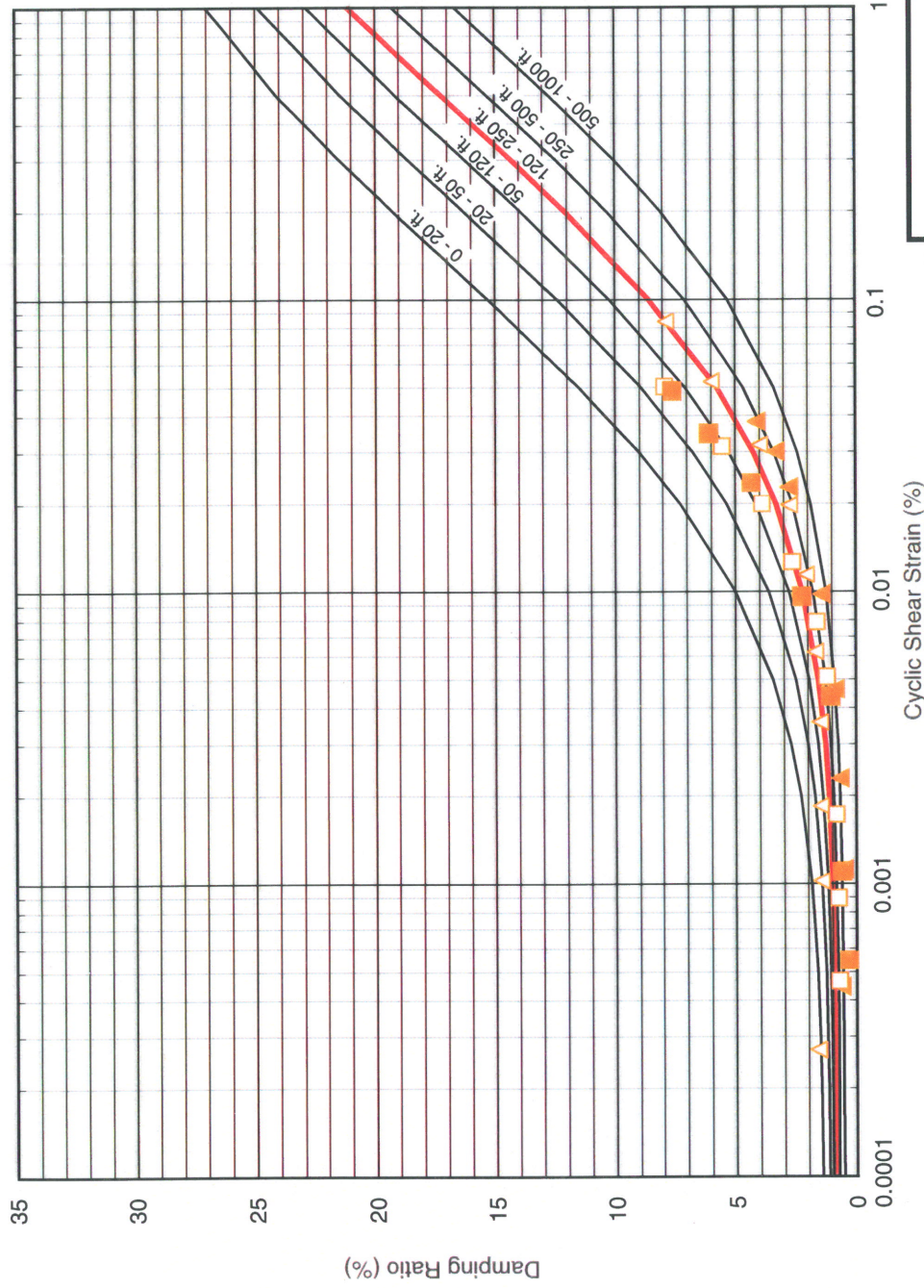
FIGURE 2.5-87

REV. 1

Explanation

Selected curve		Loess	
UTA Test No.	Confining Stress	Sample No.	Sample Depth
△	4.32 ksf	B-2-11	59 feet
▲	4.32 ksf	B-2-11	59 feet
□	2.30 ksf	B-1-10	30 feet
■	2.30 ksf	B-1-10	30 feet

- Notes: 1. ksf = kips per square foot.
 2. RC = Resonant Column test.
 3. TS = Torsional Shear test.



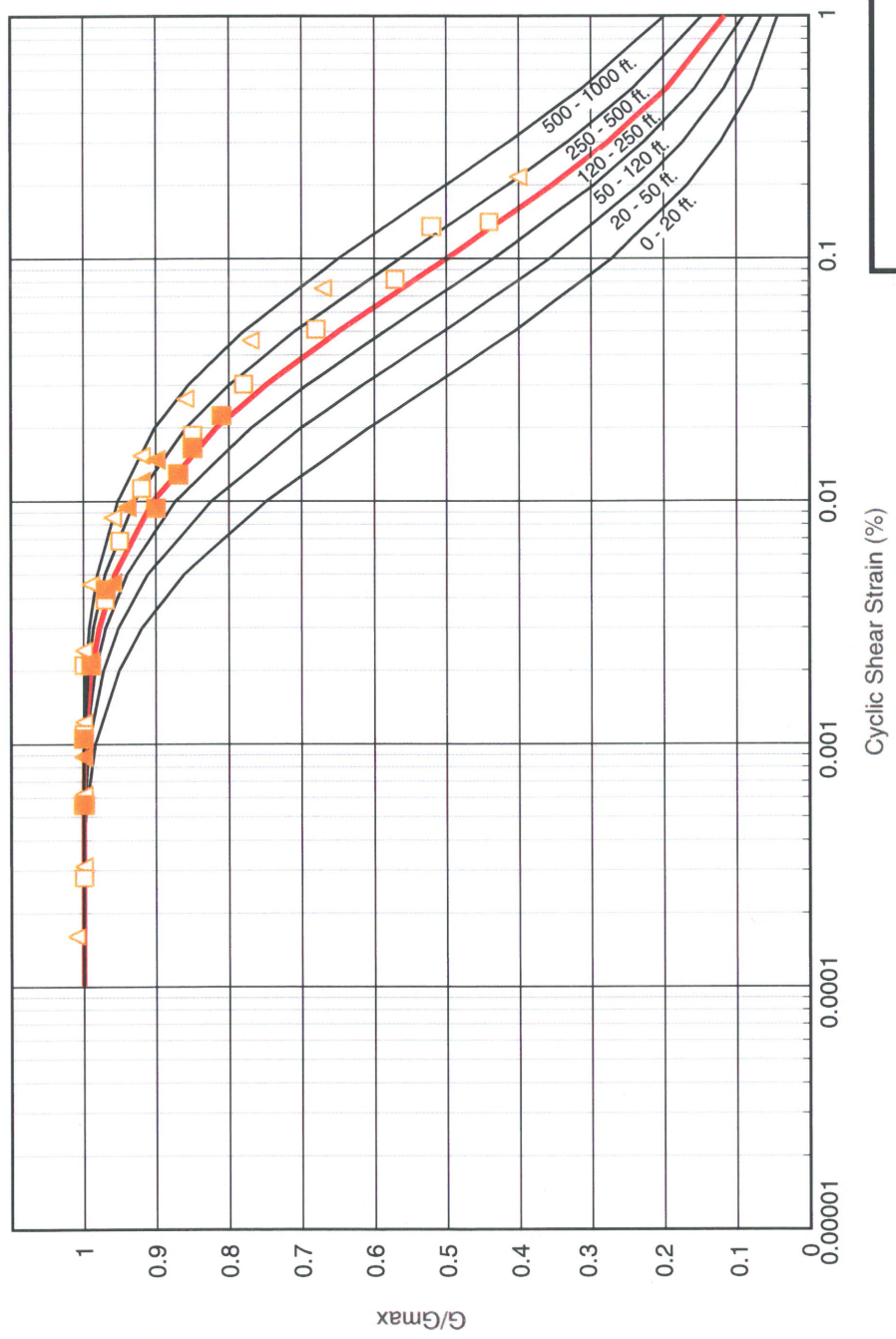
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Explanation

UTA Test No.	Confining Stress	Sample No.	Sample Depth
RC-2	4.32 ksf	B-2-11	59 feet
TS-2	4.32 ksf	B-2-11	59 feet
RC-1	2.30 ksf	B-1-10	30 feet
TS-1	2.30 ksf	B-1-10	30 feet

Notes: 1. ksf = kips per square foot.
 2. RC = Resonant Column test.
 3. TS = Torsional Shear test.

DAMPING RATIO CURVES
 FOR LOESS

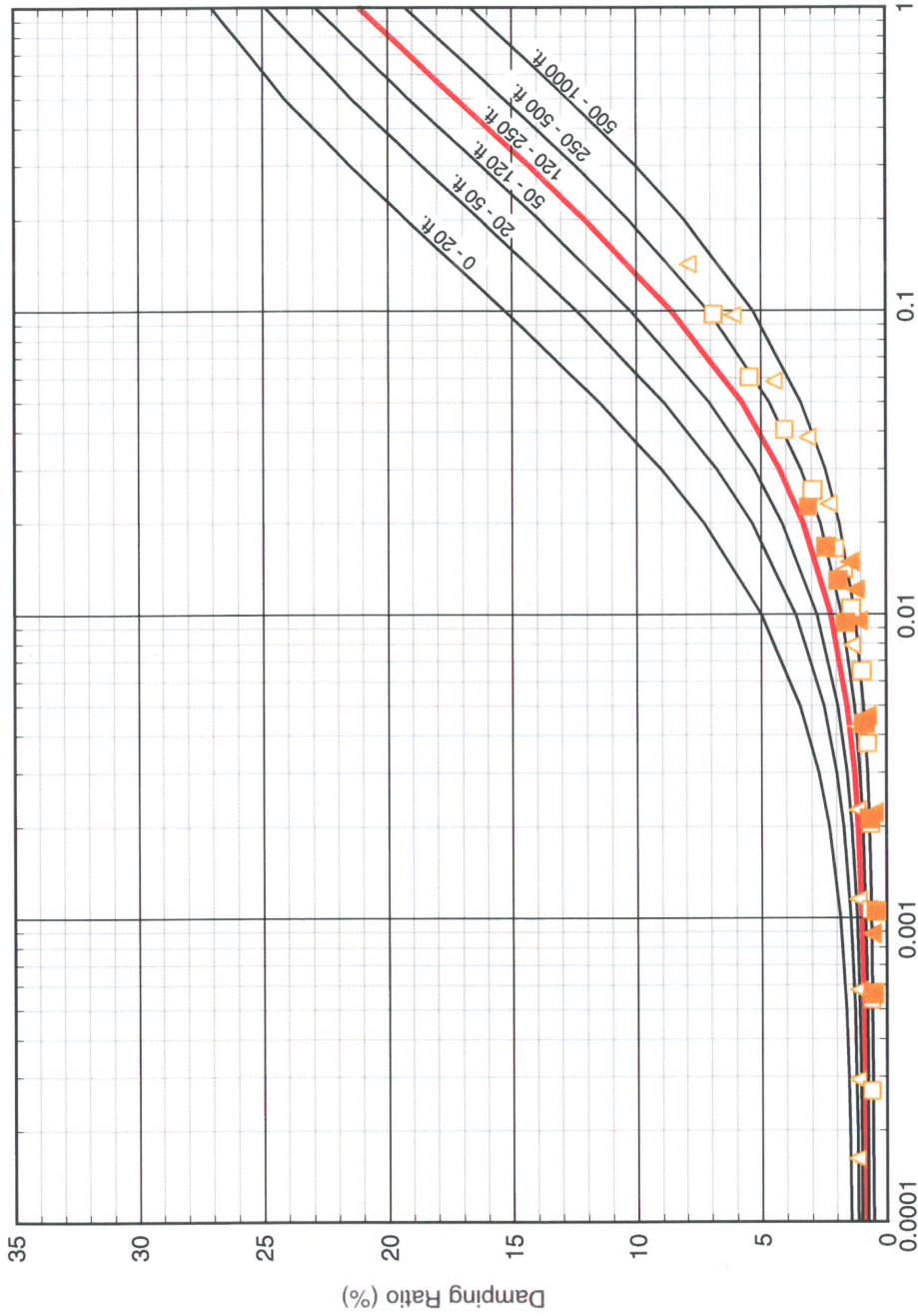


Notes: 1. ksf = kips per square foot.
 2. RC = Resonant Column test.
 3. TS = Torsional Shear test.

Explanation		Loess		
UTA Test No.	Confining Stress	Sample No.	Sample Depth	
120 - 250 ft.				Selected curve
△	17.28 ksf	B-2-11	59 feet	
▲	17.28 ksf	B-2-11	59 feet	
□	9.22 ksf	B-1-10	30 feet	
■	9.22 ksf	B-1-10	30 feet	

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SHEAR MODULUS REDUCTION CURVES
 FOR LOESS AT 4X CONFINING STRESS



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DAMPING RATIO CURVES
 FOR LOESS AT 4X CONFINING STRESS

FIGURE 2.5-90

REV. 1

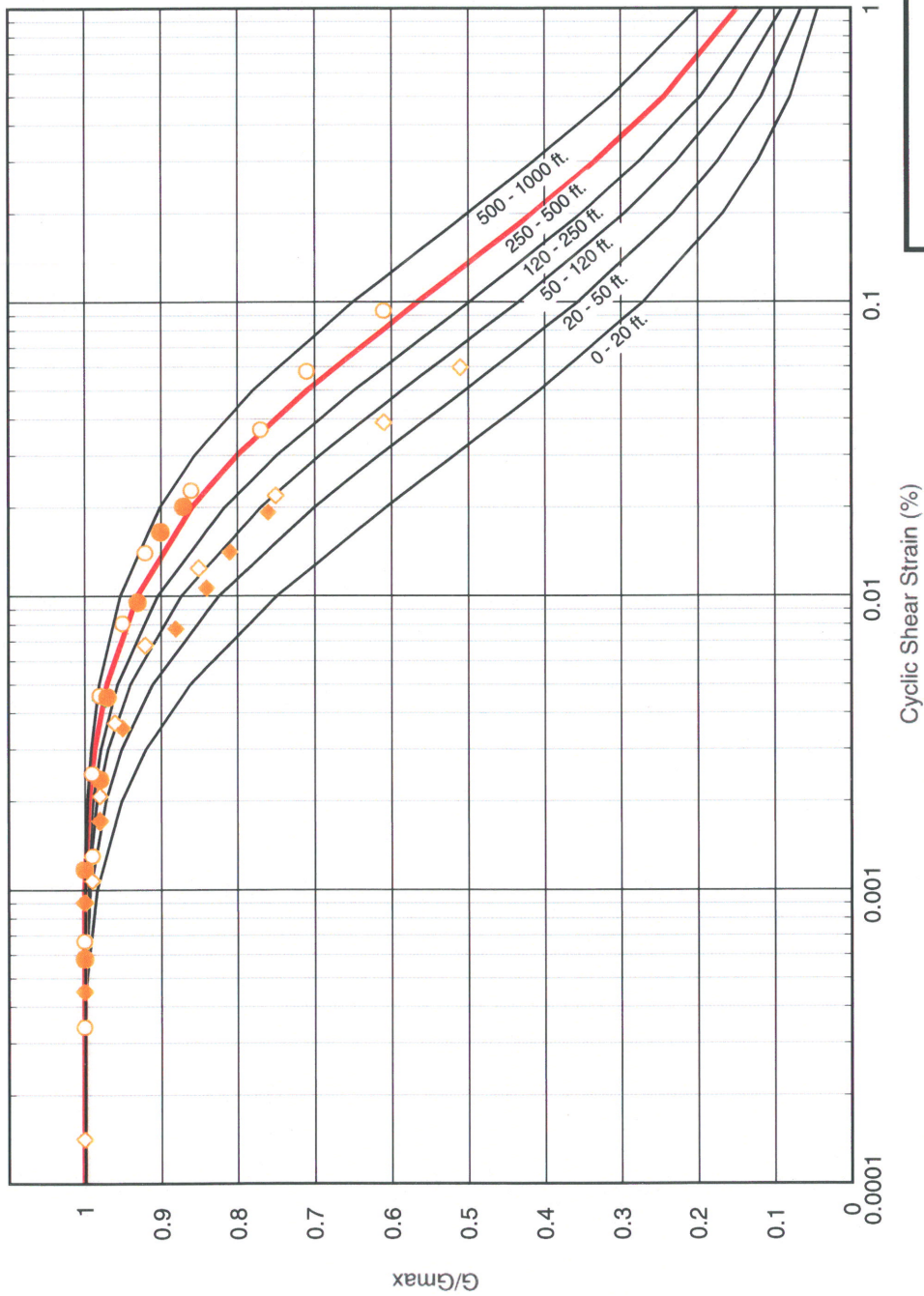
Explanation

120 - 250 ft. Selected curve

Loess

UTA Test No.	Confining Stress	Sample No.	Sample Depth
RC-2	17.28 ksf	B-2-11	59 feet
TS-2	17.28 ksf	B-2-11	59 feet
RC-1	9.22 ksf	B-1-10	30 feet
TS-1	9.22 ksf	B-1-10	30 feet

- Notes: 1. ksf = kips per square foot.
 2. RC = Resonant Column test.
 3. TS = Torsional Shear test.

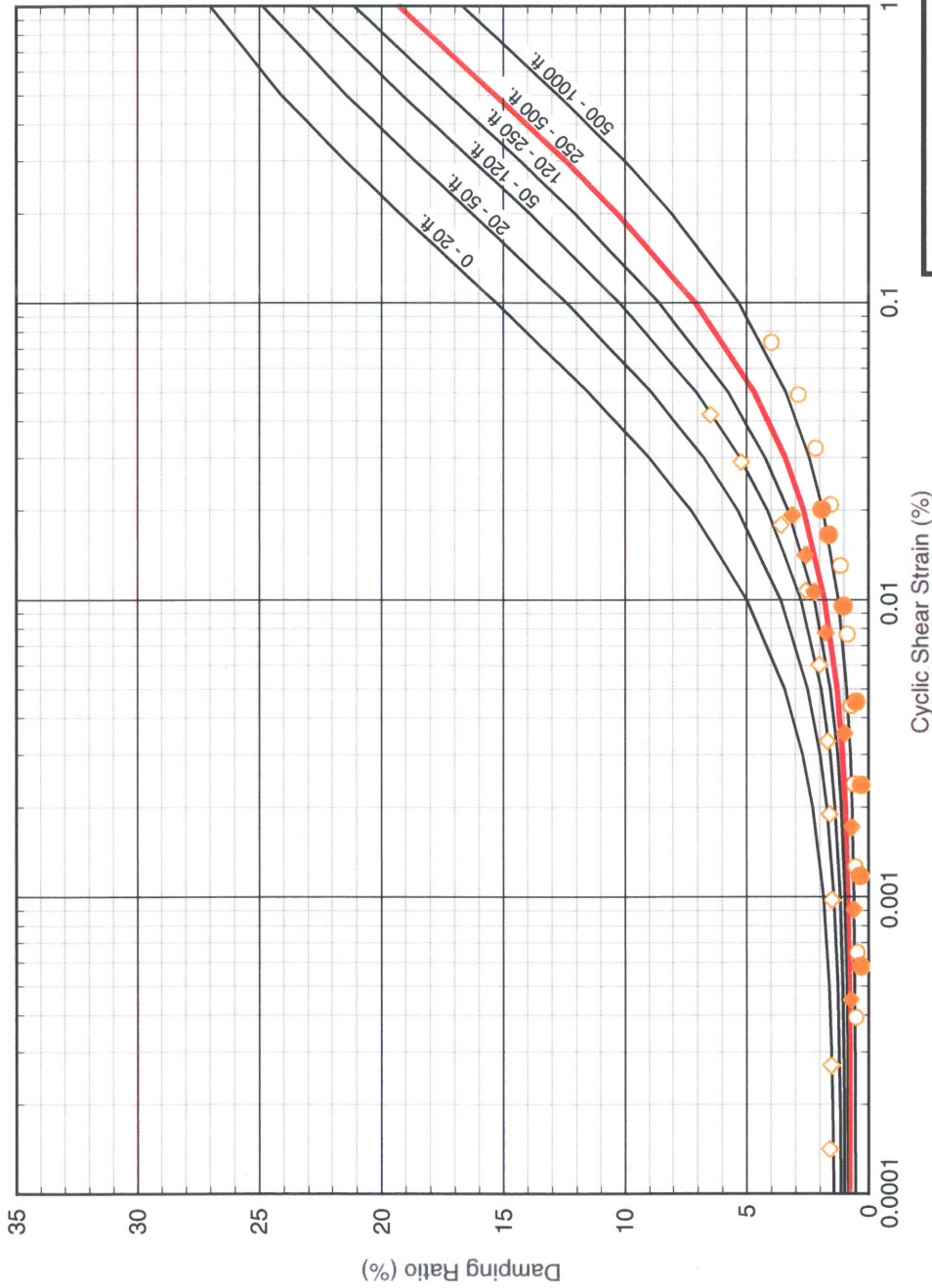


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SHEAR MODULUS REDUCTION CURVES
 FOR UPLAND COMPLEX ALLUVIUM

Explanation		Alluvium	
UTA Test No.	Confining Stress	Sample No.	Sample Depth
○	7.92 ksf	B-1-21	65 feet
●	7.92 ksf	B-1-21	65 feet
◇	8.64 ksf	B-3-13	81 feet
◆	8.64 ksf	B-3-13	81 feet

Notes: 1. ksf = kips per square foot.
 2. RC = Resonant Column test.
 3. TS = Torsional Shear test.



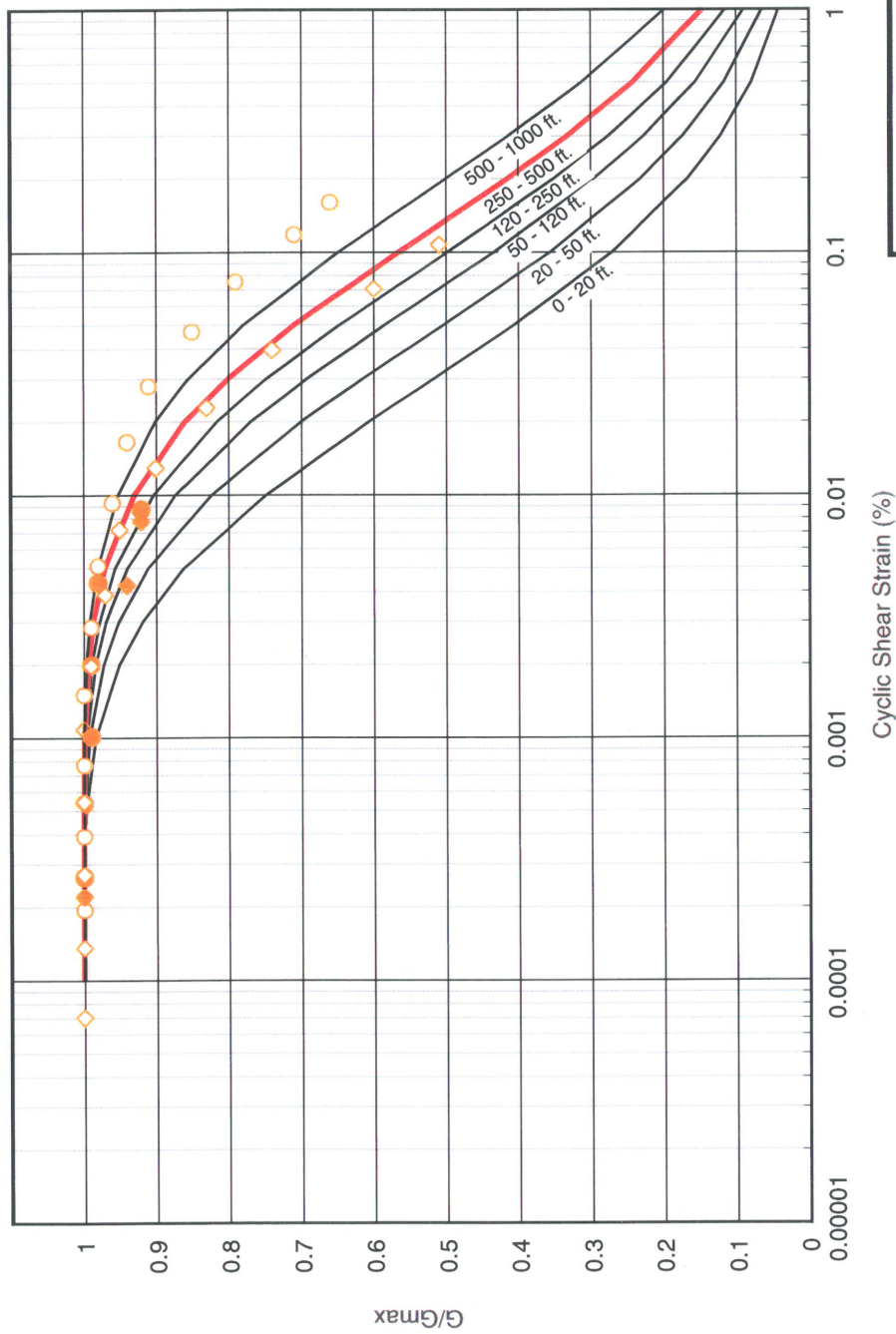
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DAMPING RATIO CURVES
 FOR UPLAND COMPLEX ALLUVIUM

Explanation

UTA Test No.	Confining Stress	Sample No.	Sample Depth
RC-3	7.92 ksf	B-1-21	65 feet
TS-3	7.92 ksf	B-1-21	65 feet
RC-4	8.64 ksf	B-3-13	81 feet
TS-4	8.64 ksf	B-3-13	81 feet

Notes: 1. ksf = kips per square foot.
 2. RC = Resonant Columnn test.
 3. TS = Torsional Shear test.



Notes: 1. ksf = kips per square foot.
 2. RC = Resonant Column test.
 3. TS = Torsional Shear test.

Explanation

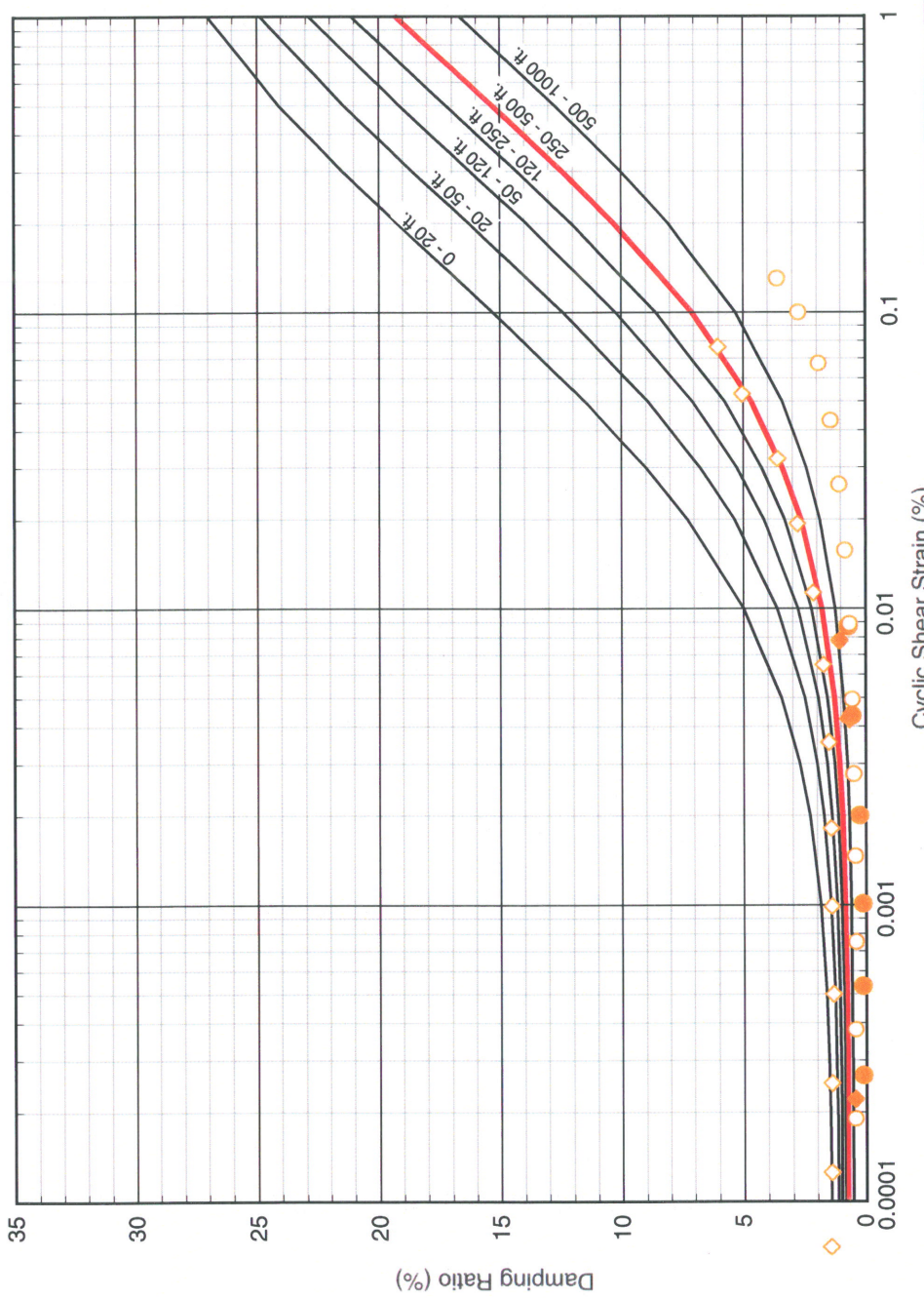
Selected curve		Alluvium	
UTA Test No.	Confining Stress	Sample No.	Sample Depth
○	7.92 ksf	B-1-21	65 feet
●	7.92 ksf	B-1-21	65 feet
◇	8.64 ksf	B-3-13	81 feet
◆	8.64 ksf	B-3-13	81 feet

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SHEAR MODULUS REDUCTION CURVES
 FOR UPLAND COMPLEX ALLUVIUM
 AT 4X CONFINING STRESS

FIGURE 2.5-93

REV. 1



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DAMPING RATIO CURVES
 FOR UPLAND COMPLEX ALLUVIUM
 AT 4X CONFINING STRESS

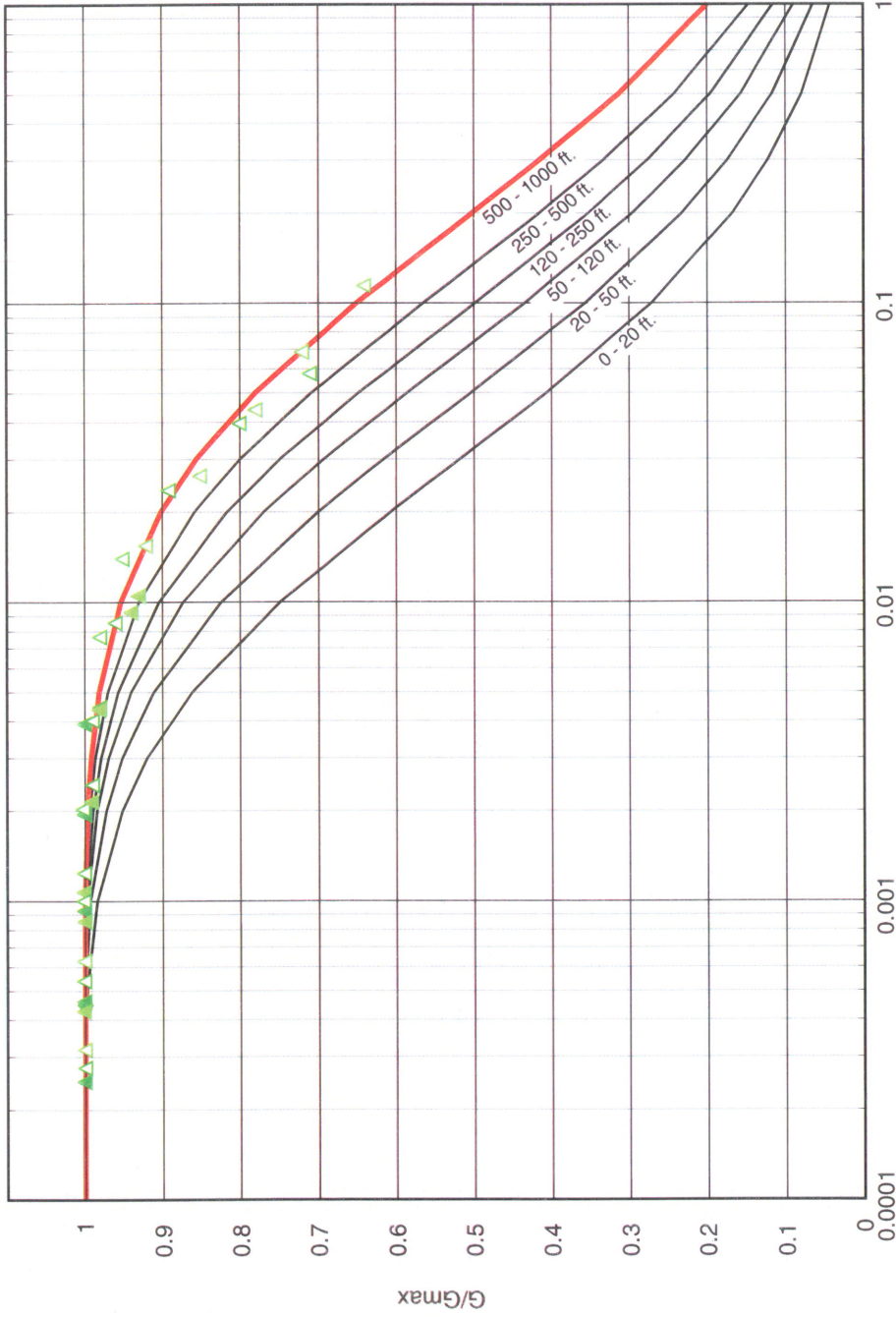
Explanation

Selected curve		Alluvium		
UTA Test No.	Confining Stress	Sample No.	Sample Depth	
RC-3	7.92 ksf	B-1-21	65 feet	○
TS-3	7.92 ksf	B-1-21	65 feet	●
RC-4	8.64 ksf	B-3-13	81 feet	◇
TS-4	8.64 ksf	B-3-13	81 feet	◆

- Notes: 1. ksf = kips per square foot.
 2. RC = Resonant Column test.
 3. TS = Torsional Shear test.

FIGURE 2.5-94

REV. 1



Cyclic Shear Strain (%)

Explanation

UTA Test No.	Confining Stress	Sample No.	Sample Depth
RC-6	12.96 ksf	B-2-11	165 feet
TS-6	12.96 ksf	B-2-11	165 feet
RC-5	10.37 ksf	B-2-11	109 feet
TS-5	10.37 ksf	B-2-11	109 feet

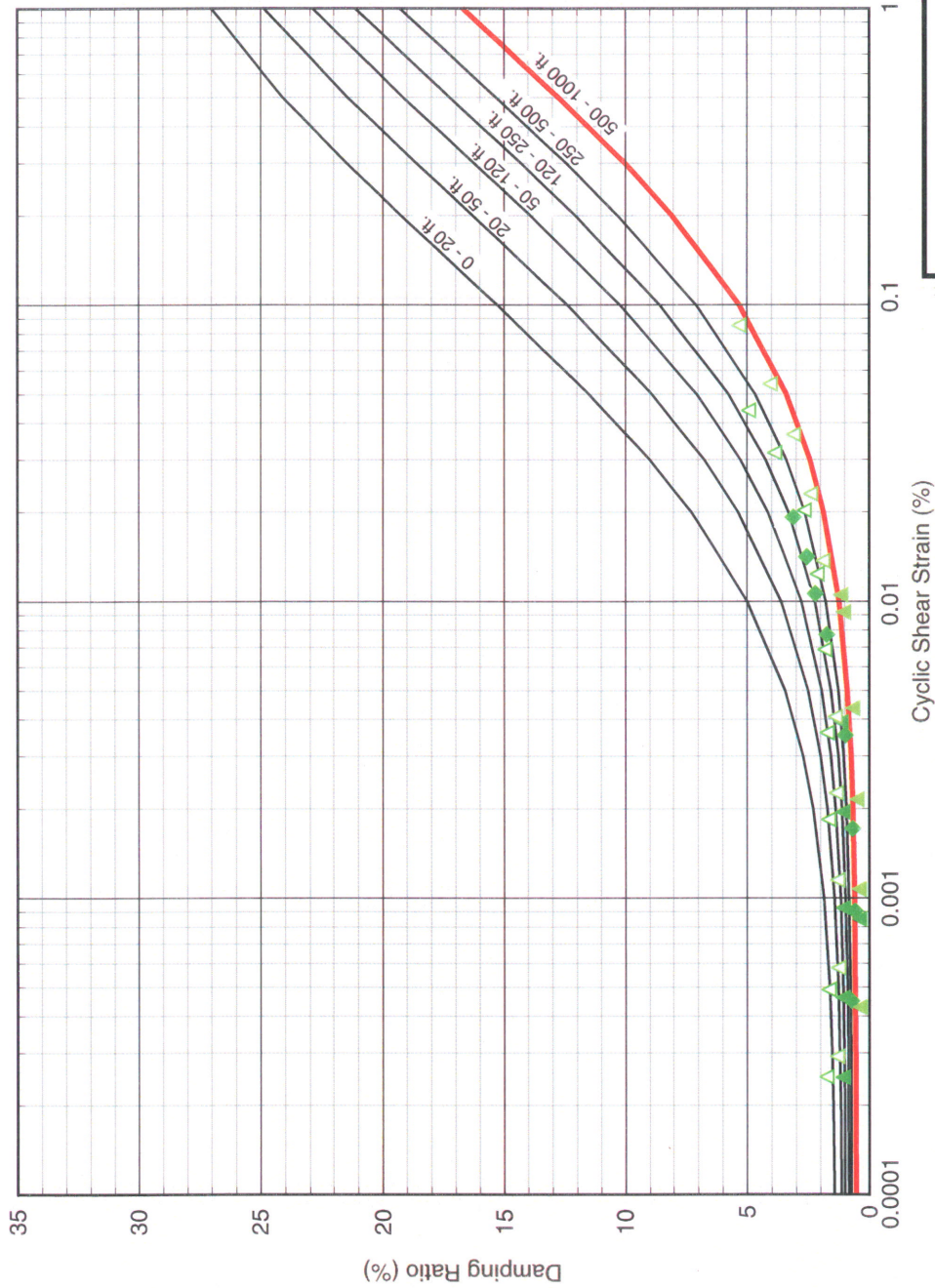
- Notes: 1. ksf = kips per square foot.
 2. RC = Resonant Column test.
 3. TS = Torsional Shear test.

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SHEAR MODULUS REDUCTION CURVES
 FOR OLD ALLUVIUM

FIGURE 2.5-95

REV. 1



Explanation

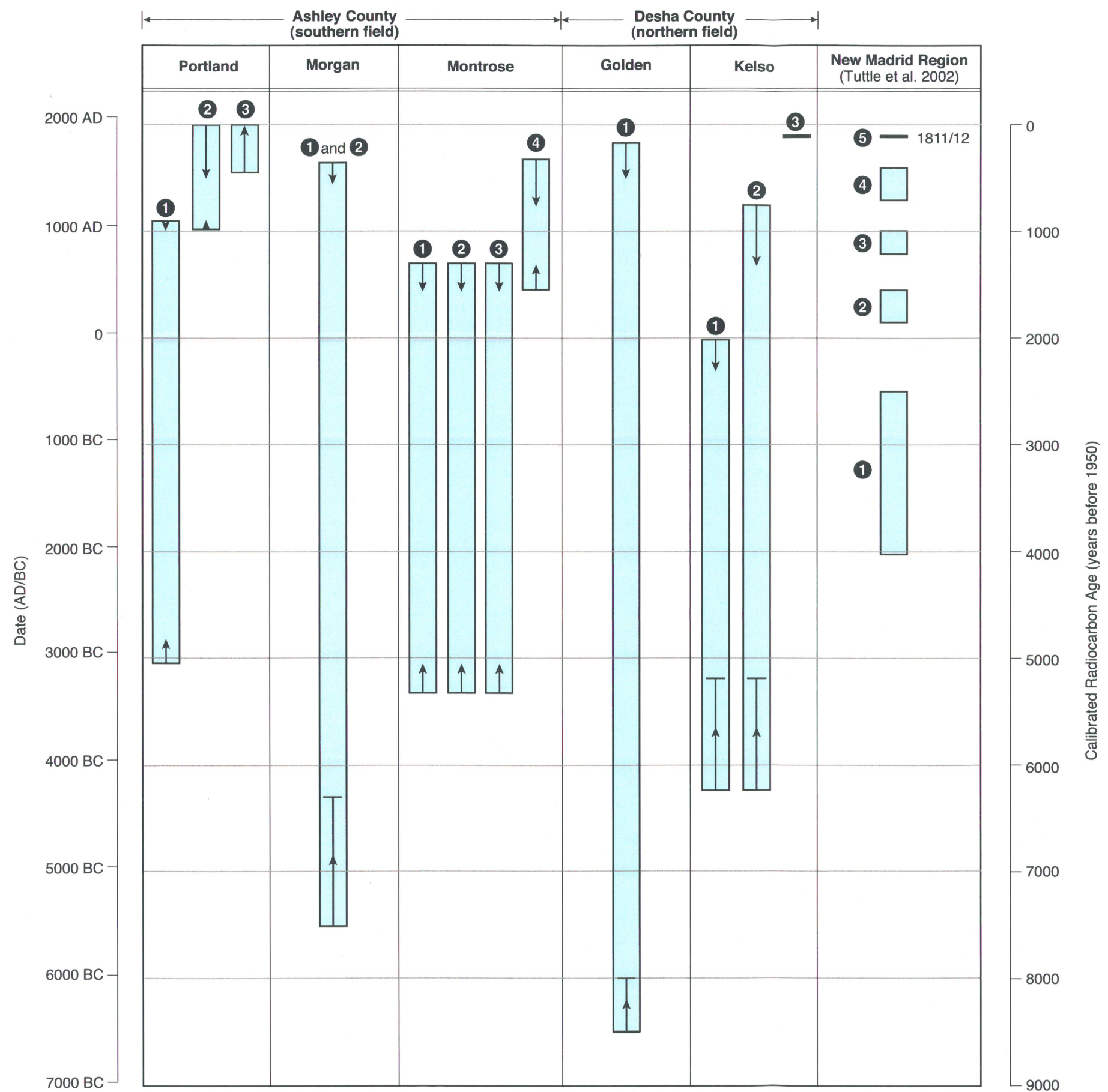
UTA Test No.	Confining Stress	Sample No.	Sample Depth
RC-6	12.96 ksf	B-1-43	165 feet
TS-6	12.96 ksf	B-1-43	165 feet
RC-5	10.37 ksf	B-2-16	109 feet
TS-5	10.37 ksf	B-2-16	109 feet

Notes: 1. ksf = kips per square foot.
 2. RC = Resonant Column test.
 3. TS = Torsional Shear test.

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DAMPING RATIO CURVES
 FOR OLD ALLUVIUM

FIGURE 2.5-96
 REV. 1



Explanation

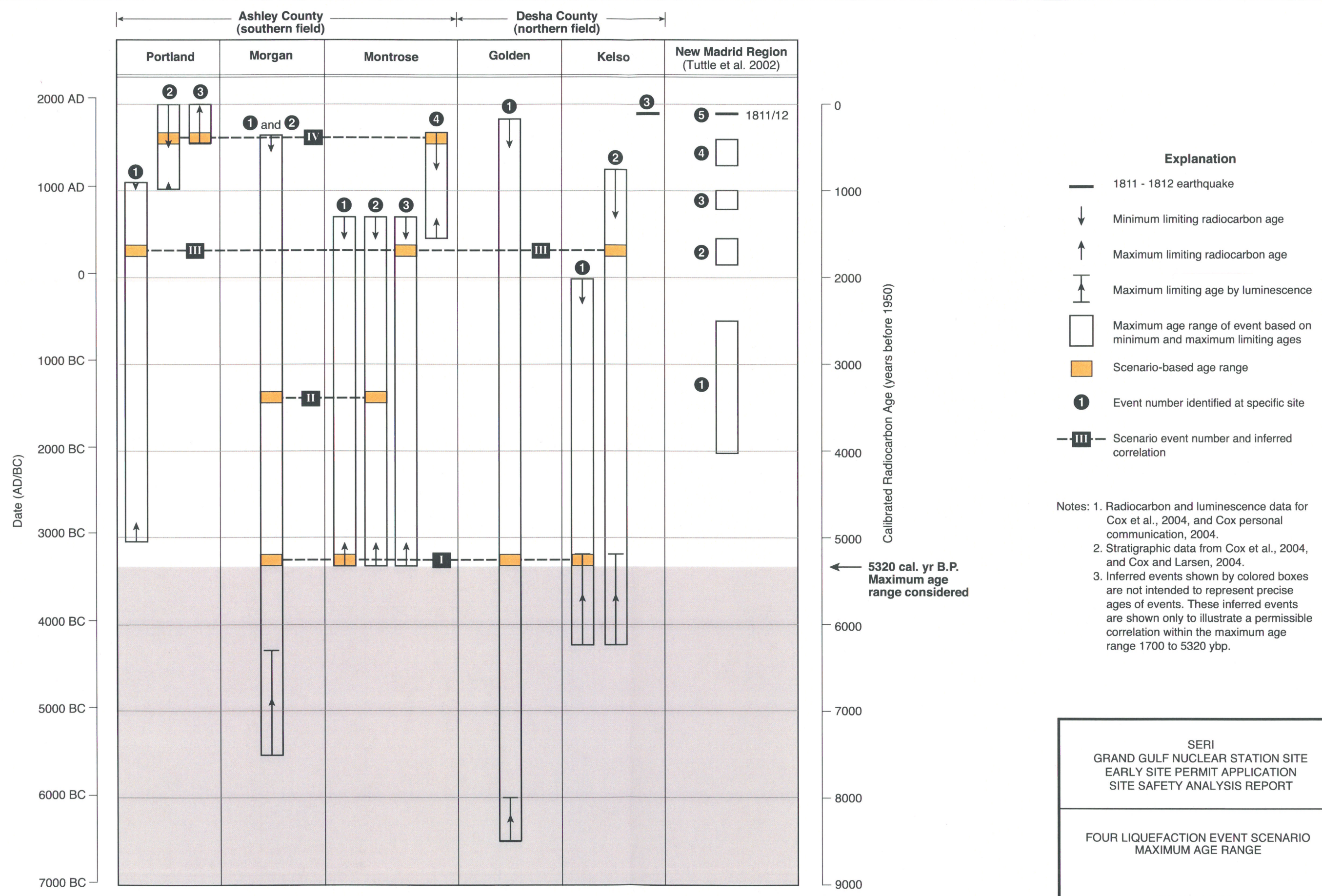
- ↓ Minimum limiting radiocarbon age
- ↑ Maximum limiting radiocarbon age
- ⌈ Maximum limiting age by luminescence
- Maximum age range of event based on minimum and maximum limiting ages
- ① Event number identified at specific site
- 1811 - 1812 earthquake

Notes: 1. Radiocarbon and luminescence data for Cox et al., 2004, and Cox personal communication, 2004.
 2. Stratigraphic data from Cox et al., 2004, and Cox and Larsen, 2004.

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SUMMARY OF SALINE RIVER
 AND NEW MADRID
 PALEOLIQUEFACTION DATA

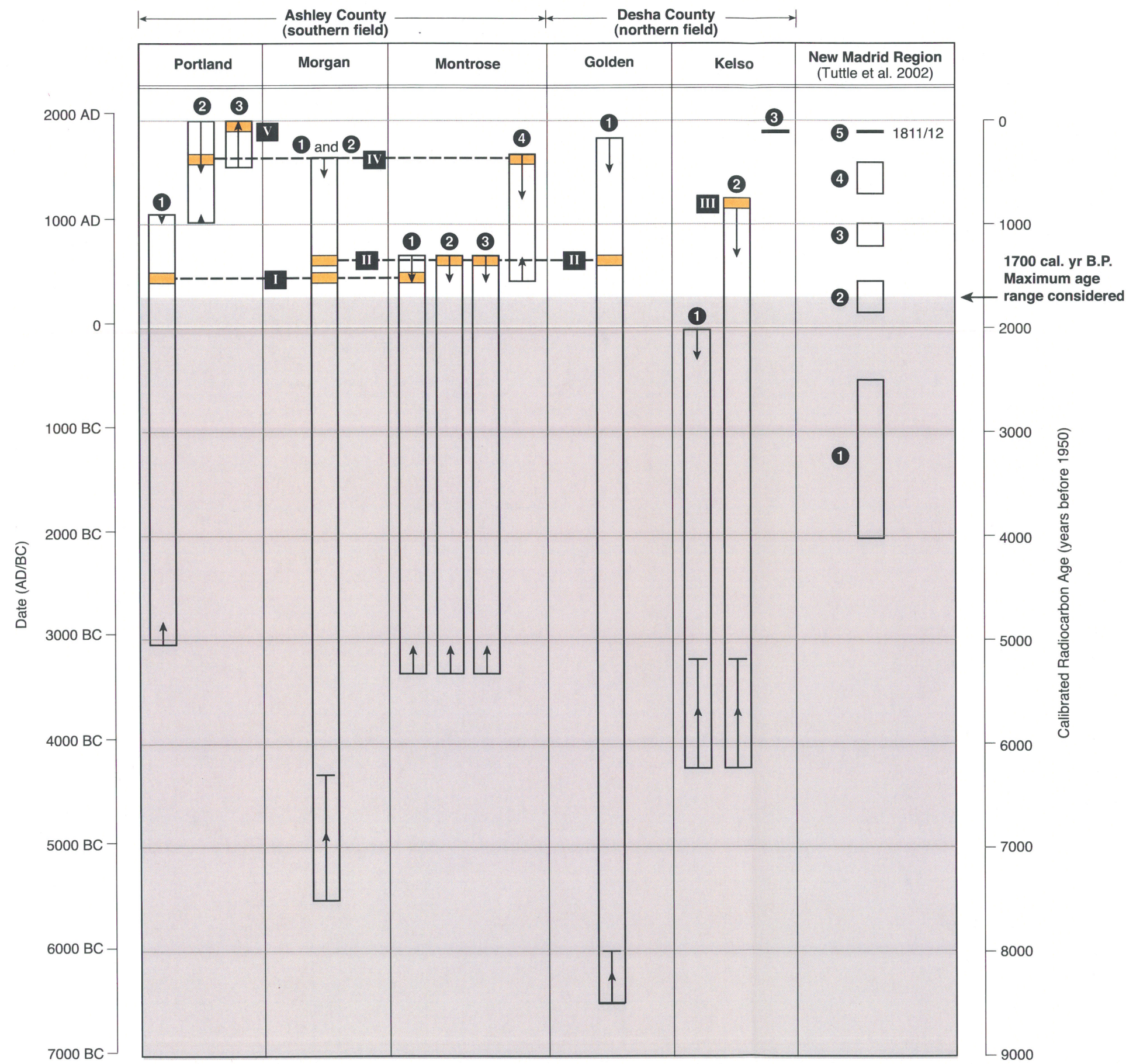
FIGURE 2.5-97 REV. 1



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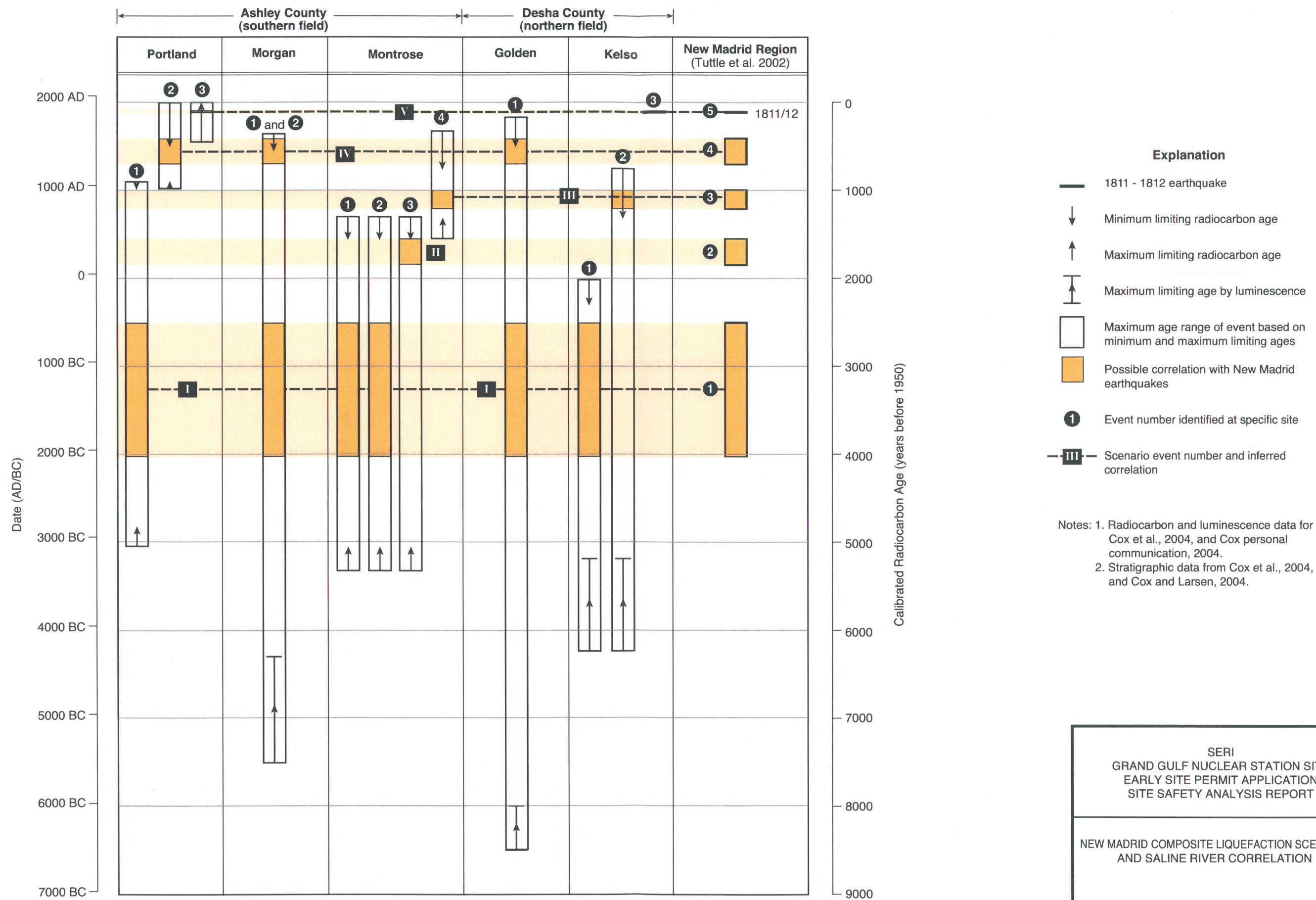
FOUR LIQUEFACTION EVENT SCENARIO
 MAXIMUM AGE RANGE

FIGURE 2.5-98 REV. 1



- Explanation**
- 1811 - 1812 earthquake
 - ↓ Minimum limiting radiocarbon age
 - ↑ Maximum limiting radiocarbon age
 - ⊥ Maximum limiting age by luminescence
 - Maximum age range of event based on minimum and maximum limiting ages
 - Scenario-based age range
 - ① Event number identified at specific site
 - III — Scenario event number and inferred correlation

Notes: 1. Radiocarbon and luminescence data for Cox et al., 2004, and Cox personal communication, 2004.
 2. Stratigraphic data from Cox et al., 2004, and Cox and Larsen, 2004.
 3. Inferred events shown by colored boxes are not intended to represent precise ages of events. These inferred events are shown only to illustrate a permissible correlation within the minimum age range 150 to 1700 ybp.



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NEW MADRID COMPOSITE LIQUEFACTION SCENARIO
 AND SALINE RIVER CORRELATION

FIGURE 2.5-100 REV. 1