APPENDIX H

Time Rate of Settlement Calculations

$C_v = 1.5 \times 10^{-7}\ m^2/s$ (AVE. FROM CONSOL TEST RESULTS)

$C_{v_{RECOMPRESSION}} = 5 \times 10^{-7}\ m^2/s$ (NAVFAC)

ASSUME 30% OF TOTAL SETTLEMENT IS RELATIVELY RAPID RECOMPRESSION

$(250\ mm)(100\% - 30\%) = 175\ mm$ LONG TERM SETTLEMENT

$\frac{(250\ mm)(10\%)}{175\ mm} = 14\% \Rightarrow$ USE $T_{100-14} = T_{86}$ AS T_{90}

$T = 1.781 - 0.933 \log(100 - U\%)$

$T_{86} = 1.781 - 0.933 \log(100 - 86\%)$

$T_{86} = 0.71$

SR-7/I-8 & SR-7/HUNT RD

$t = \frac{T H_{dr}^2}{C_v}$

$t = \frac{(0.71)(2.35)^2}{1.5 \times 10^{-7}}$ $t = 302$ DAYS

SR-7 / SOUTH ALAMO CANAL BRIDGE

$t = \frac{(0.71)(0.98)^2}{1.5 \times 10^{-7}}$ $t = 53$ DAYS

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TIME RATE OF SETTLEMENT

Boring No.	Layer No.	Layer Thickness, H (m)	Layer Settlement, S (mm)	S x H	Weighted Average Layer Thickness, H_{ave} (m)	Drainage Length, 1/2 H_{ave} (m)
B1	1	1.9	62	118	3.83	1.92
	2	4.0	73	292		
	3	5.2	79	411		
	SUM		214	821		
B3	1	6.4	213	1363	5.53	2.76
	2	2.9	37	107		
	3	2.9	34	99		
	SUM		284	1569		
B5	1	4.6	131	603	4.81	2.40
	2	1.8	36	65		
	3	6.4	85	544		
	SUM		252	1211		
Average Drainage Length at SR-7/I-8 and SR-7/Hunt Road						2.36
B11	1	1.2	18	22	1.95	0.98
	2	0.8	6	5		
	3	1.2	12	14		
	4	3.5	19	67		
	SUM		55	107		
Average Drainage Length at SR-7/South Alamo Canal Bridge						0.98

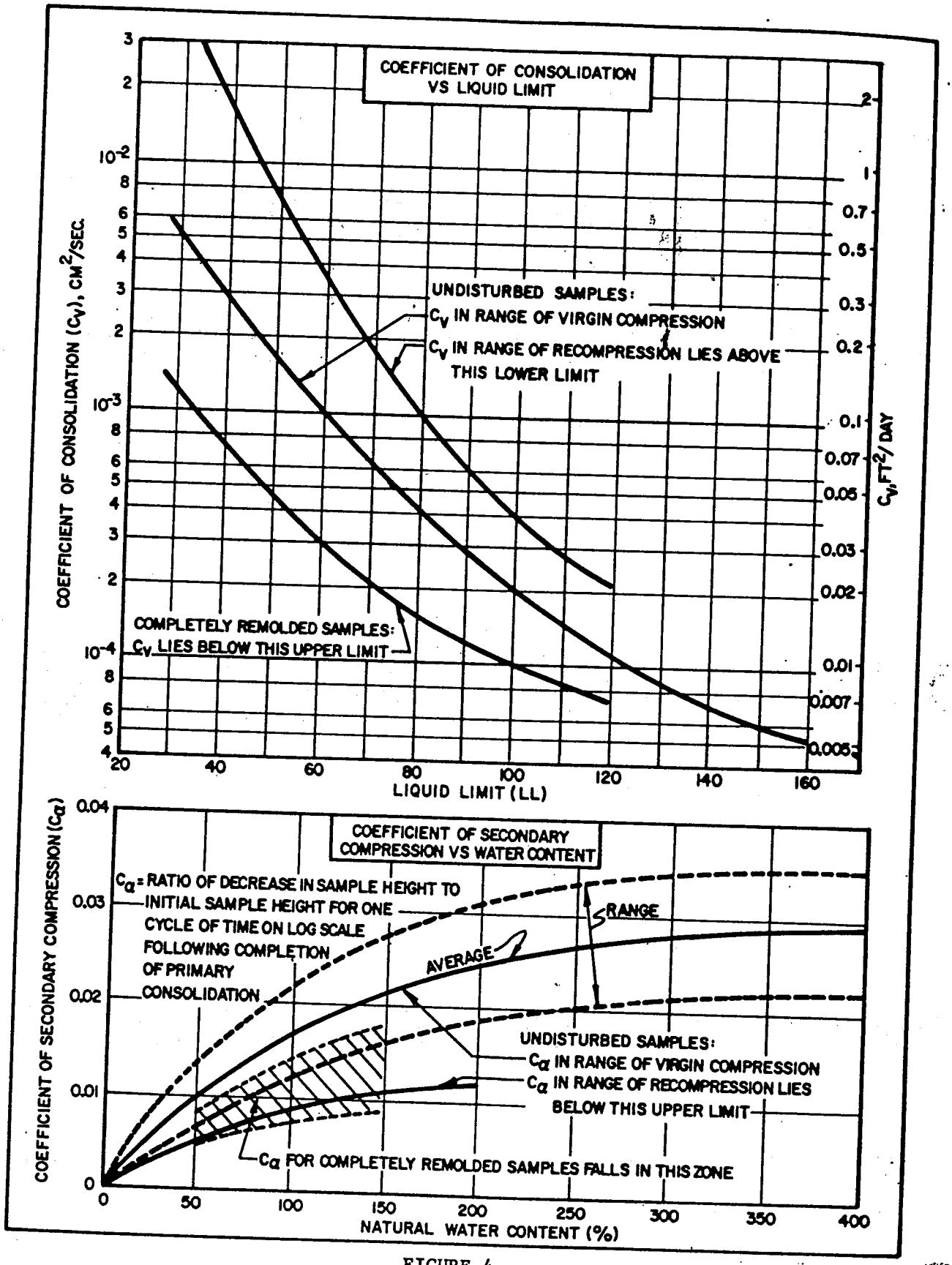

FIGURE 4
Approximate Correlations for Consolidation Characteristics of Silts and Clays

APPENDIX I

References

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