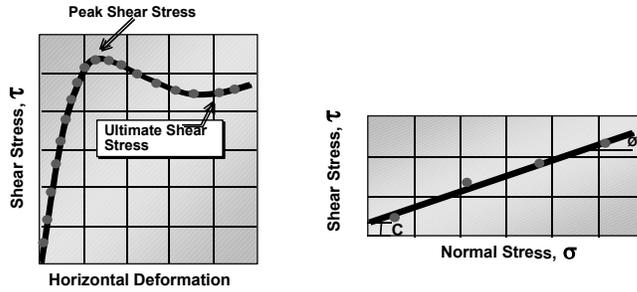


LESSON 4

Laboratory Testing for Foundation Design

Direct Shear Test Typical Results



Slide 4-48

Direct Shear Test

- *Normally Performed on Granular Soils to Find Friction Angle*
- *Particle Sizes Limited by Shear Box Size*
- *Residual Friction Angle Can be Determined at Large Strain Values*
- *Cohesive Soils Require Special Equipment*

Slide 4-49

SOILS AND FOUNDATIONS WORKSHOP

SOIL MECHANICS LABORATORY TEST REQUEST

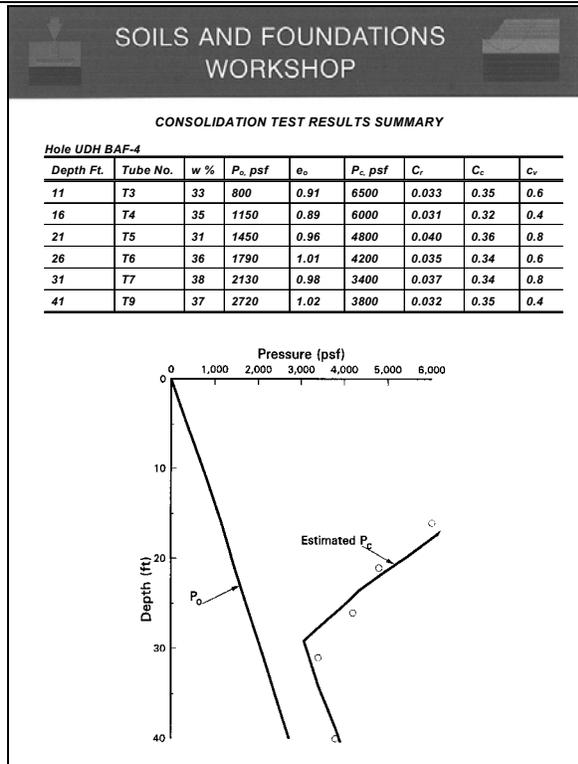
PROJECT: I-0 APPLE FREEWAY PROJ. NO. _____ HOLE NO. BAF-4
 DATE: 6-8-72 REQUEST BY _____ APPROVED BY _____ STATION: 92227 OFFSET: 60 FT
 ORIGINAL REQUEST SUPPLEMENTAL REQUEST

CONSOLIDATION TESTS				STRENGTH TESTS						SPECIAL AND ADDITIONAL TESTS**	
SAMPLE NO.	DIAMETER (IN)	CAPACITY (LB)	RECYCLE	STATUS	SAMPLE NO.	TYPE OF TEST AND CONSOLIDATION PRESSURE			STATUS	X	INERT
						U	W	CU			
T3	32	500	3 hr	Yes	T4	Full	✓				
T4	1000			Yes	T4	✓		✓			
T5				No	T5	Full	✓				
T6				Yes	T5	✓		✓			
T7				No	T6	Full	✓				
T9				No	T6	✓		✓			
					T7	Full	✓				
					T7	✓		✓			
					T9	Full	✓				
					T9	✓		✓			

ADDITIONAL REQUESTS: CONSOLIDATION TESTS - SPECIFIC GRAVITY ON ALL TESTS
STRENGTH TESTS - FITTERBURG LIMITS AND HYDROMETER ON ALL TESTS

* CHECK MARK WHEN TEST IS PUT IN PROGRESS ✓ ; CIRCLE WHEN COMPLETED ○ ; CROSS HATCH WHEN COMPUTED ⊗
 ** TO SUPPLEMENT ROUTINE CLASSIFICATION TESTS ON CONSOLIDATION AND STRENGTH TEST SAMPLES.

Slide 4-54

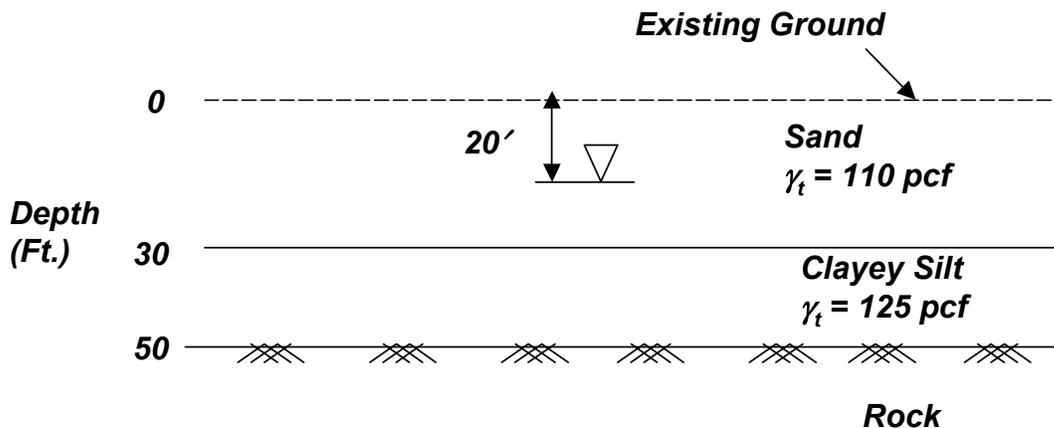


Slide 4-55

SOILS AND FOUNDATIONS WORKSHOP

Student Exercise No. 1

Compute and plot both the total and effective overburden stress diagrams for the soil profile below.



Assume Buoyant Unit Weights below static water level (∇).

Computations:

