OF THE MONTH

Designed	
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Date	

BACK

The shear strength of a soil mass is the internal resistance per unit area that the soil mass can offer to resist failure and sliding along any plane inside it. 1

For a given soil, shear strength is anything but a unique property. This concept is often overlooked, even by experienced geotechnical engineers. The soil strength to be used in design analyses must be qualified in relation to whether the appropriate strength is: drained or undrained, peak, fully softened or residual, intact or remolded, static or cyclic, compression or extension; and other facets, such as direction of loading, rate of loading, and boundary conditions. As a consequence, soil strength is not a fundamental property, but instead, a specific behavioral response to a certain set of loading conditions. 2

References
1–Das 7th Edition
2–FHWA Geotechnical Engineering Circular No.5 6/18/18

FieldTools.dwg

FRONT

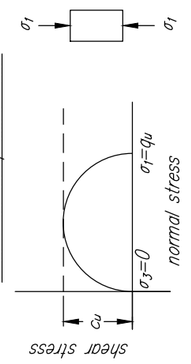
POCKET PENETROMETER

penetrate cohesive soils at constant rate until engraved line reached

Humboldt H–4200, error±0.124tsf, divide by 16 for 1"Ø foot

IBC15 fined grained bearing capacity, 0.75tsf

tsf=kg/cm²



c_u=undrained shear strength
q_a=allowable bearing capacity WAG, FS=3 Nc=6
unconfined compression test≠pocket penetrometer

Unconfined Compressive Strength, q_u, tsf	OSHA Classification	Consistency
0	Type C	very soft
0.5		soft
1.0	Type B	medium
1.5		stiff
2.0		
2.5		
3.0	Type A	very stiff
3.5		
4.0		hard
4.5		

0.05in²

1/4"

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