

Compaction Theory

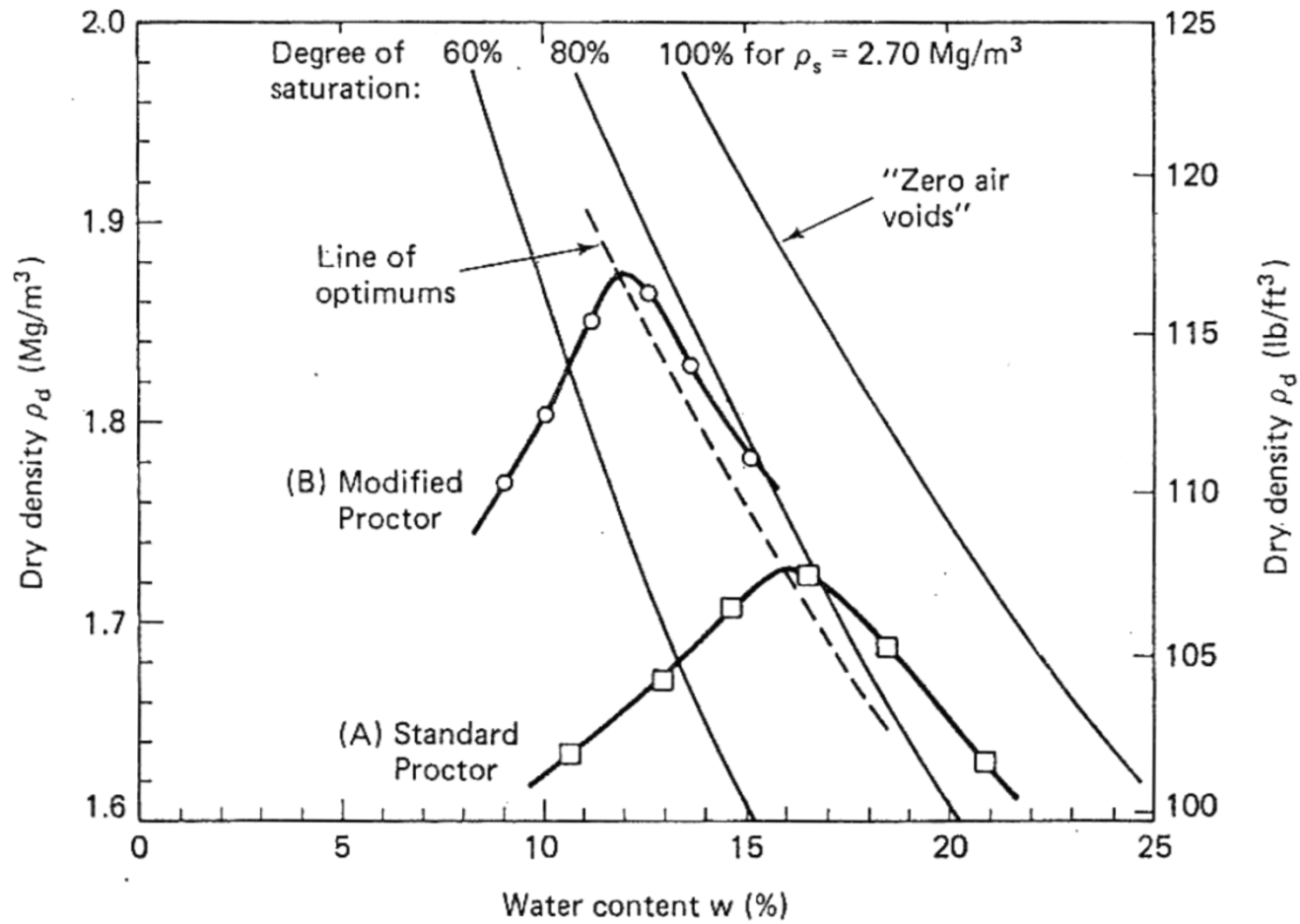


Fig. 5.1 Standard and modified Proctor compaction curves

(Holtz & Kovacs, *An Introduction to Geotechnical Engineering*, 1981)

Soil texture and plasticity data

No.	Description	Sand	Silt	Clay	LL	PI
1	Well-graded loamy sand	88	10	2	16	N.P.
2	Well-graded sandy loam	72	15	13	16	N.P.
3	Med-graded sandy loam	73	9	18	22	4
4	Lean sandy silty clay	32	33	35	28	9
5	Lean silty clay	5	64	31	36	15
6	Loessial silt	5	85	10	26	2
7	Heavy clay	6	22	72	67	40
8	Poorly graded sand	94	—	6	N.P.	—

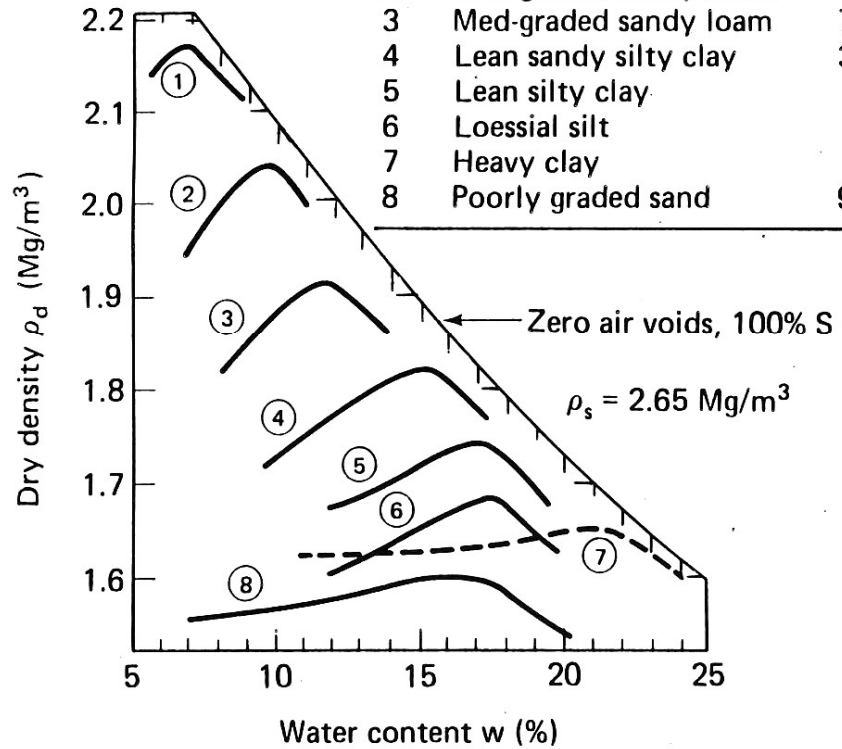
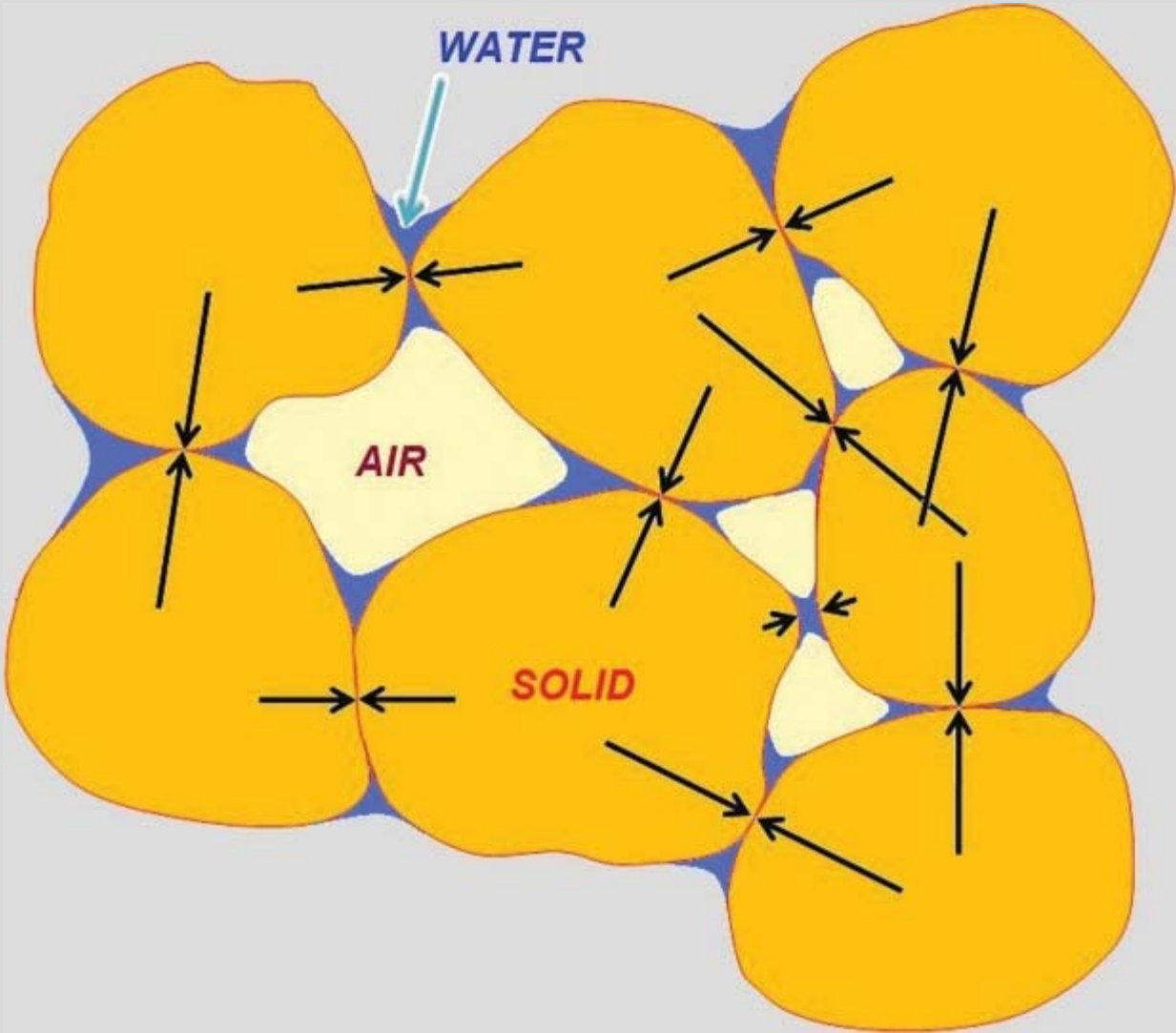


Fig. 5.2 Water content-dry density relationships for eight soils compacted according to the standard Proctor method (after Johnson and Sallberg, 1960).



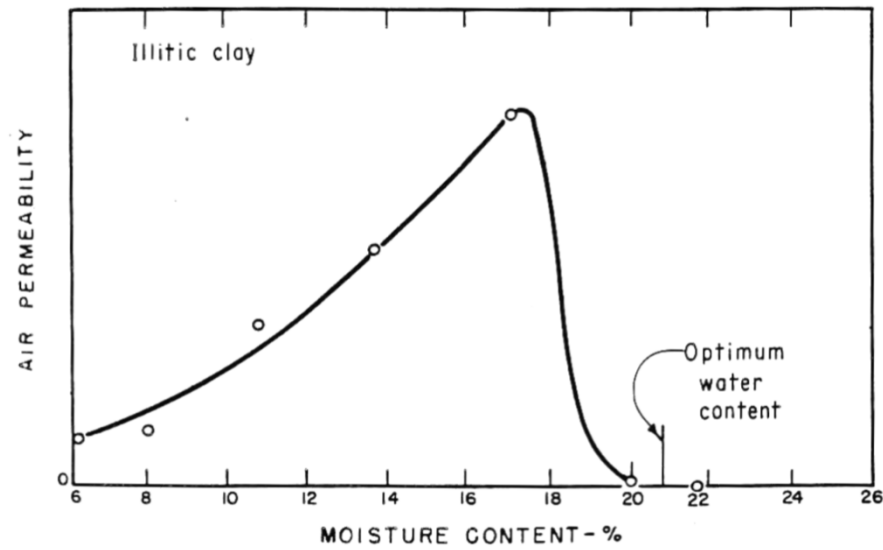
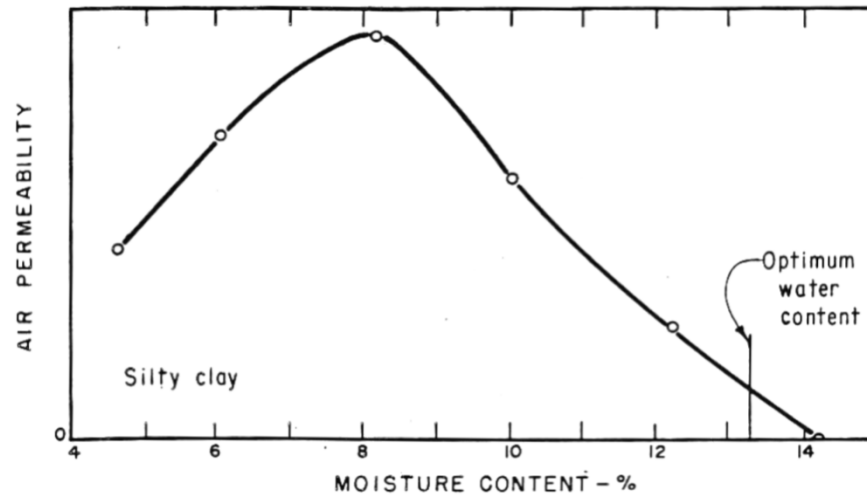


Fig. 7.8 Air permeability curves of compacted soils. (After Olson, 1963.)

(Fang, *Foundation Engineering Handbook*, 1991)

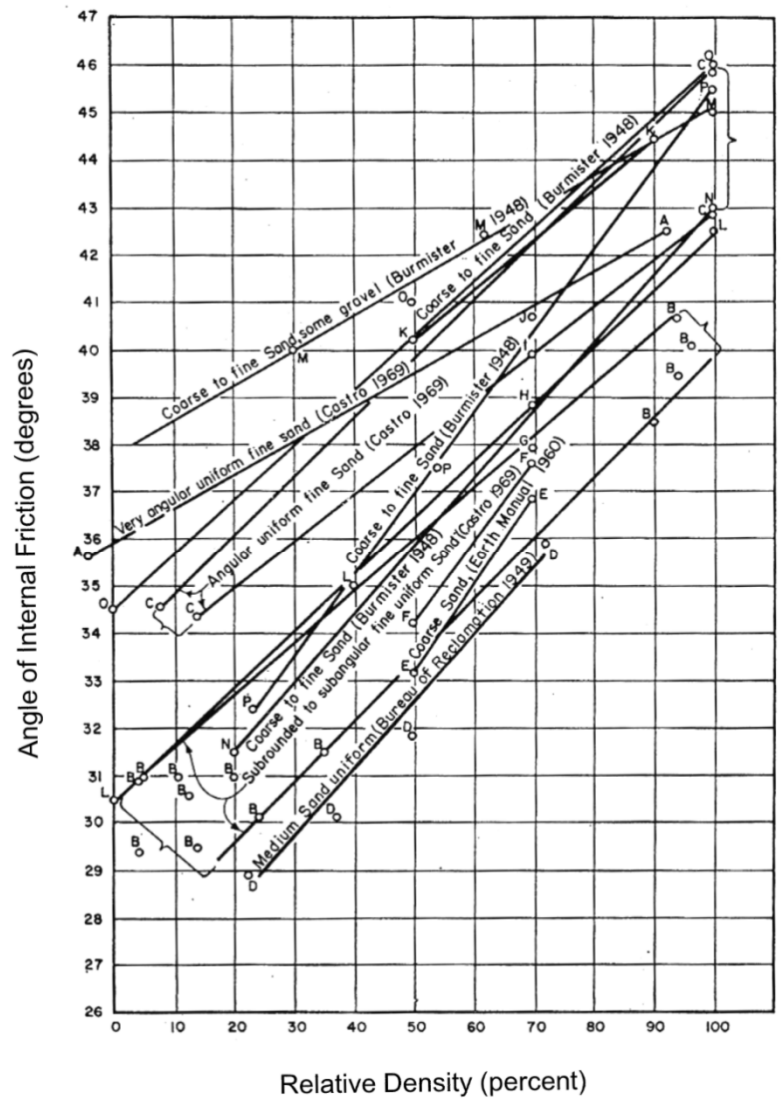


Fig. 8.26 Relative density vs. friction angle for cohesionless soils

(Fang, *Foundation Engineering Handbook*, 1991)

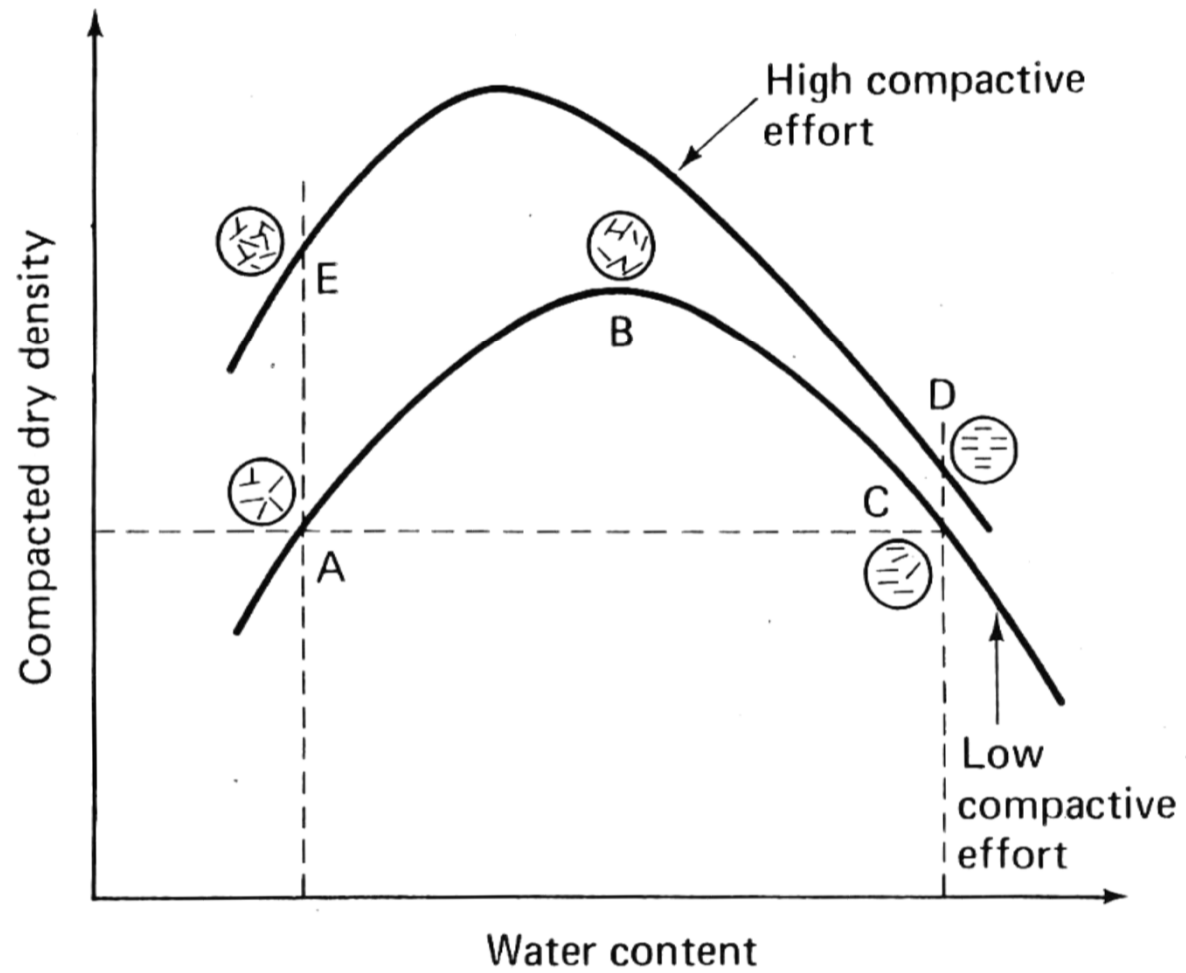


Fig. 5.5 Effect of compaction on soil structure (after Lambe, 1958a).

(Holtz & Kovacs, *An Introduction to Geotechnical Engineering*, 1981)



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Soil structure changes during compaction of a cohesive soil

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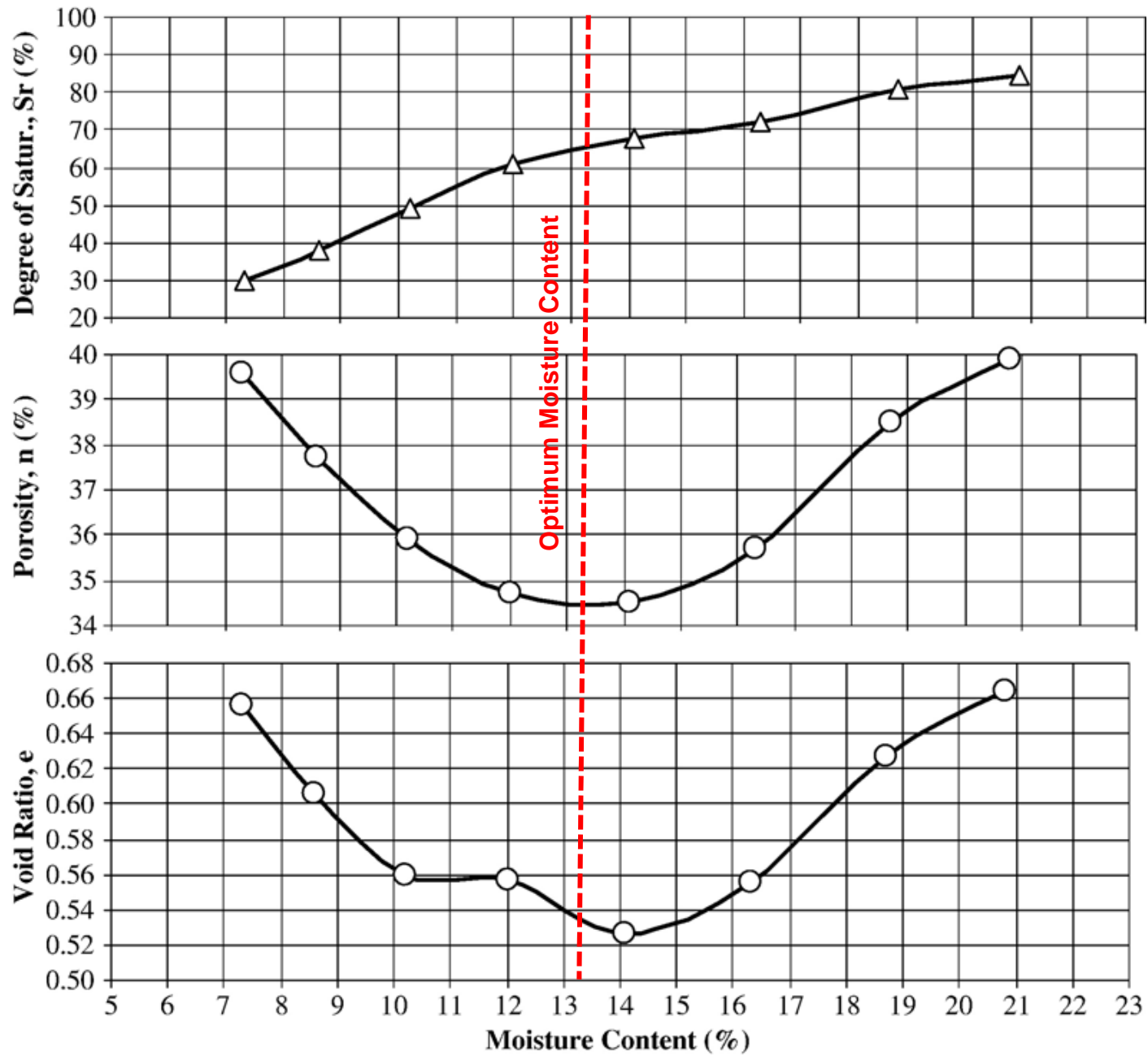
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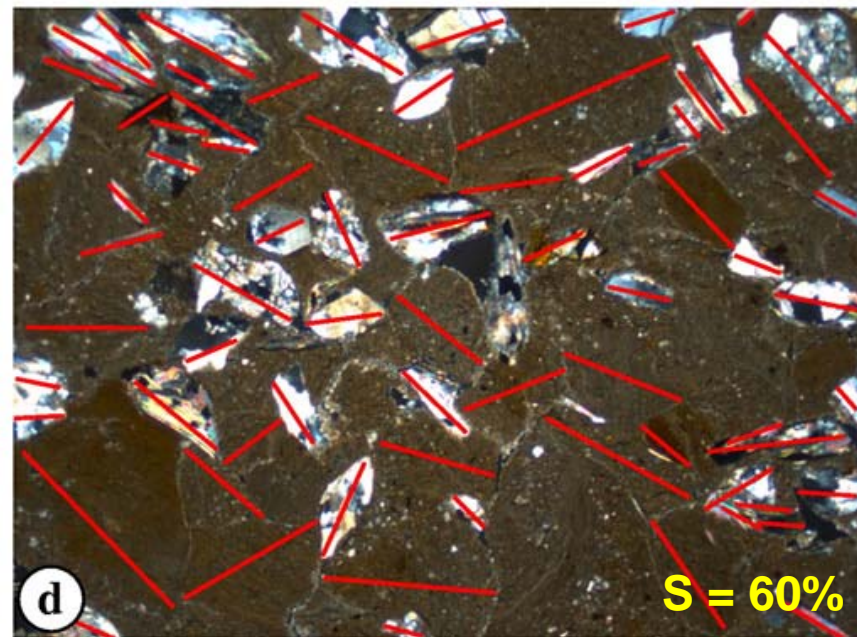
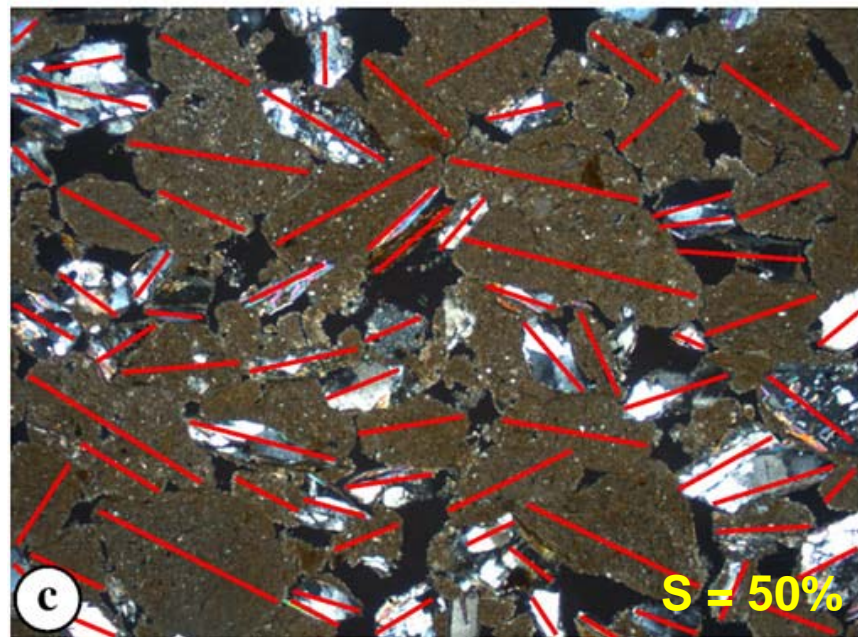
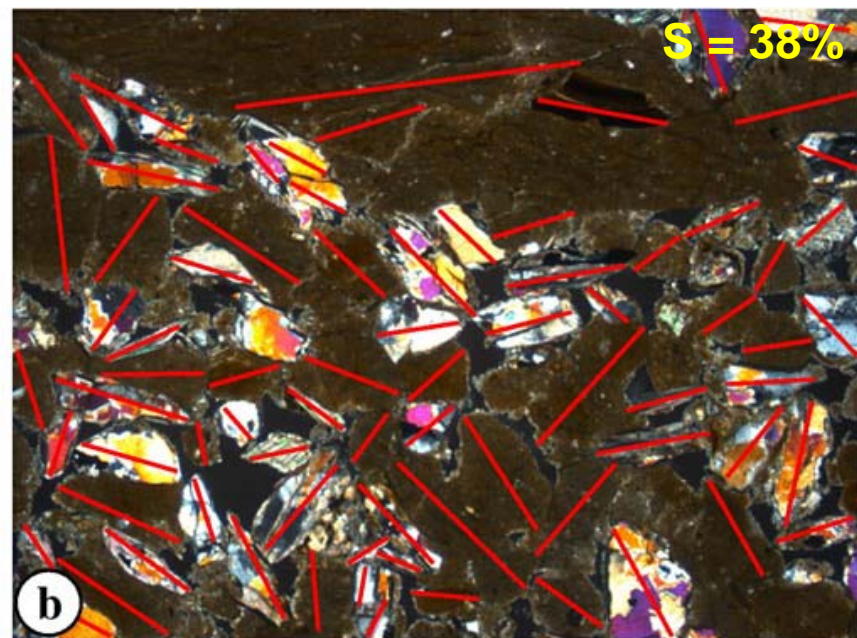
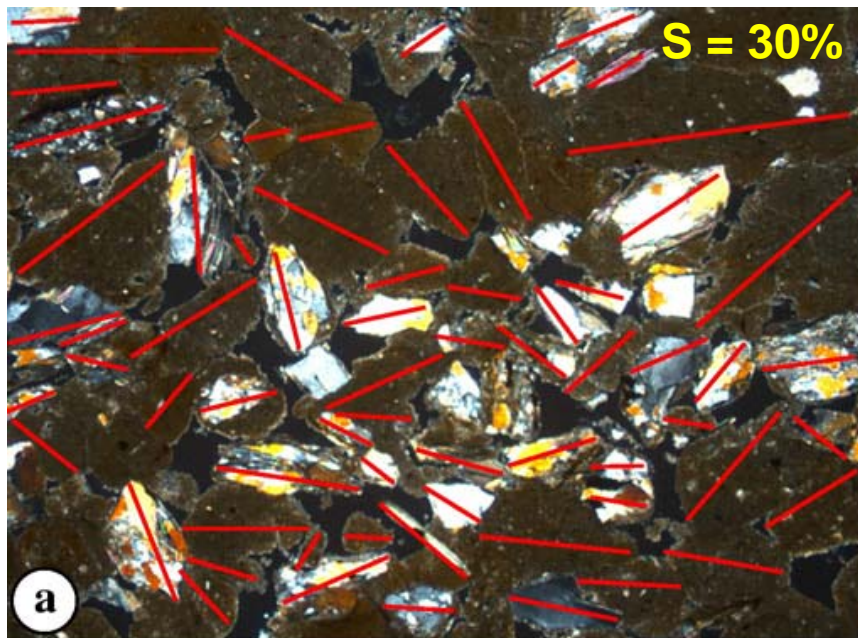
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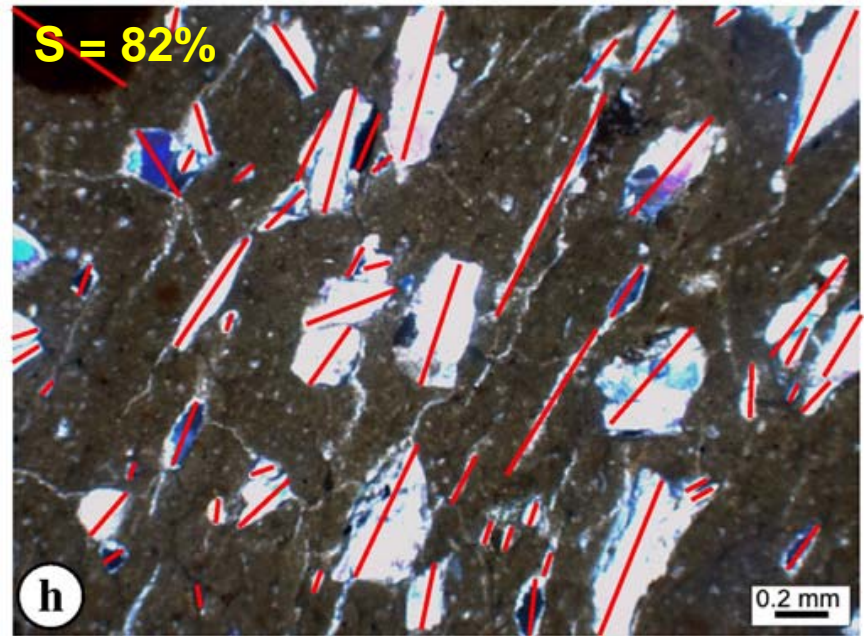
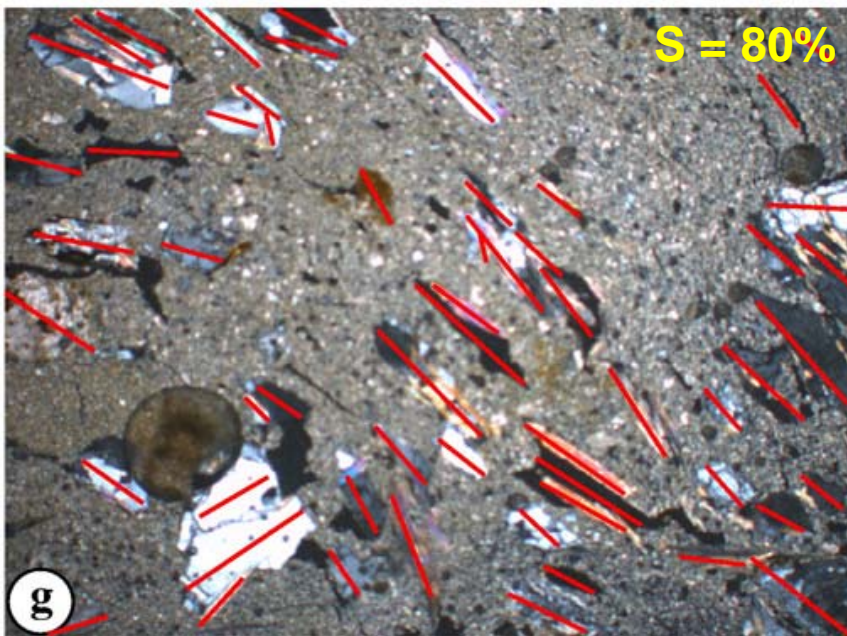
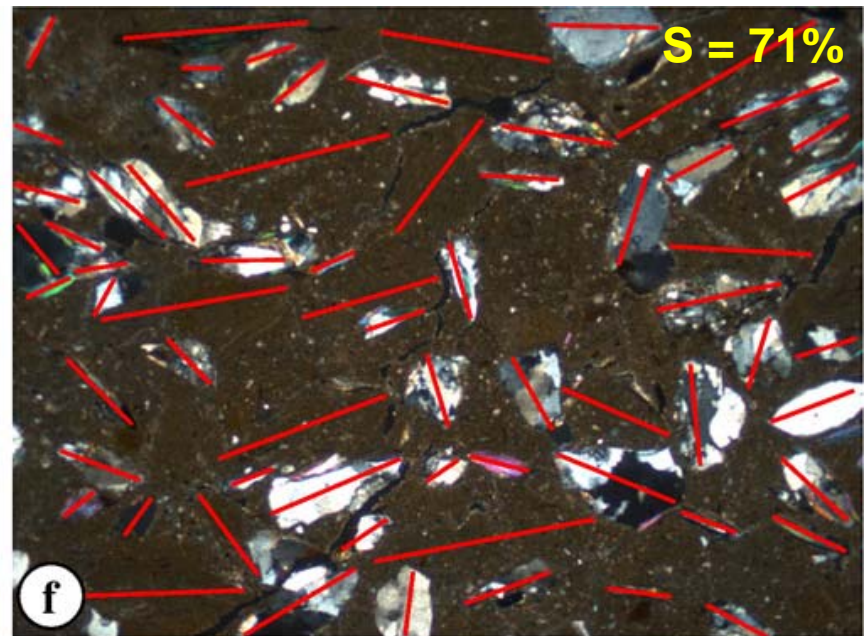
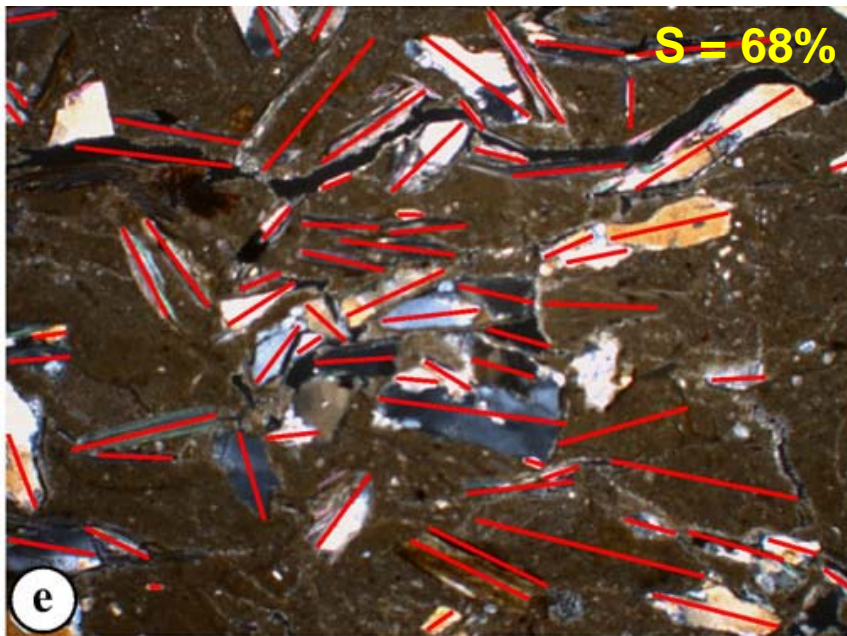
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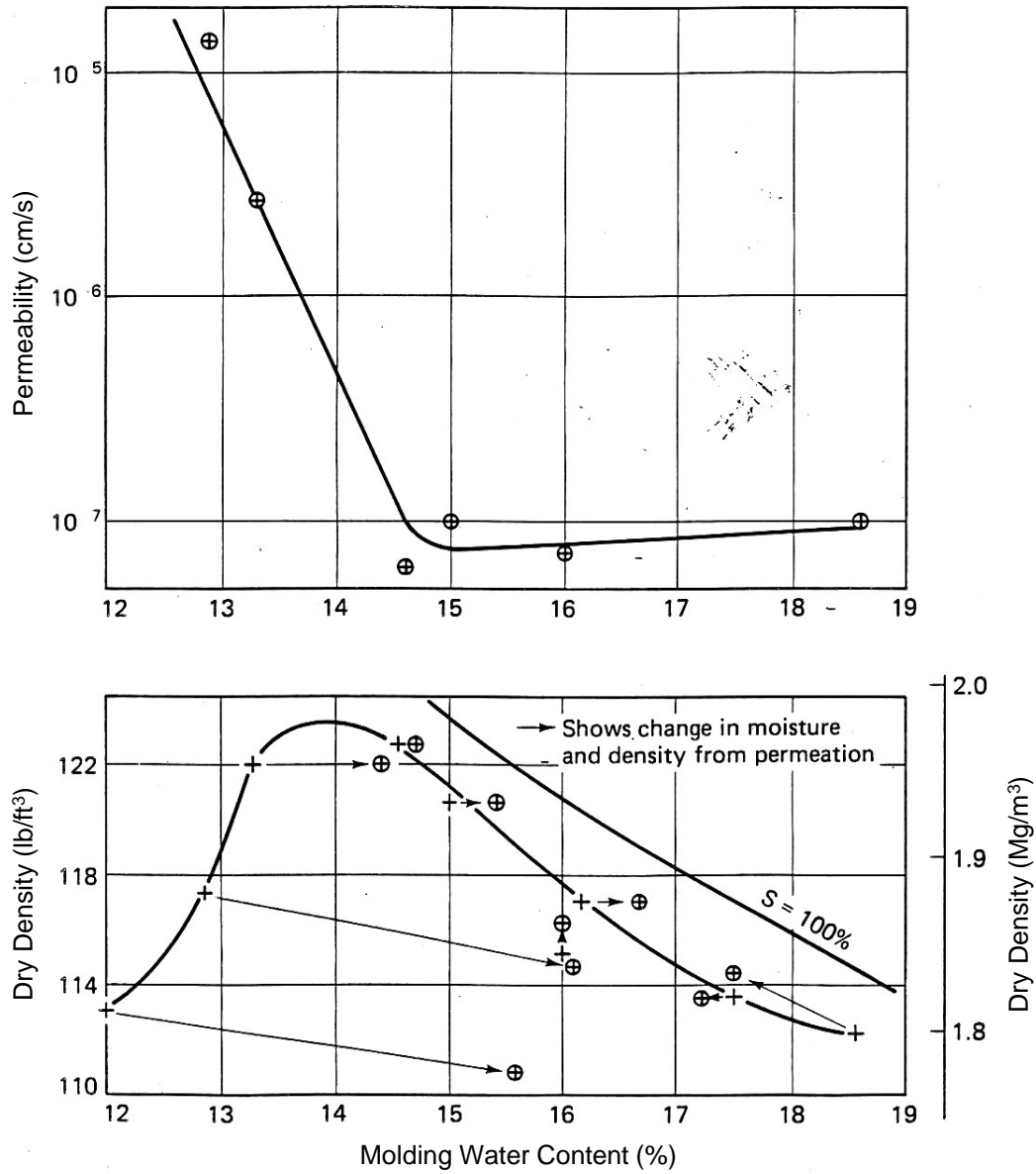


Fig. 5.6

(Holtz & Kovacs, *An Introduction to Geotechnical Engineering*, 1981)

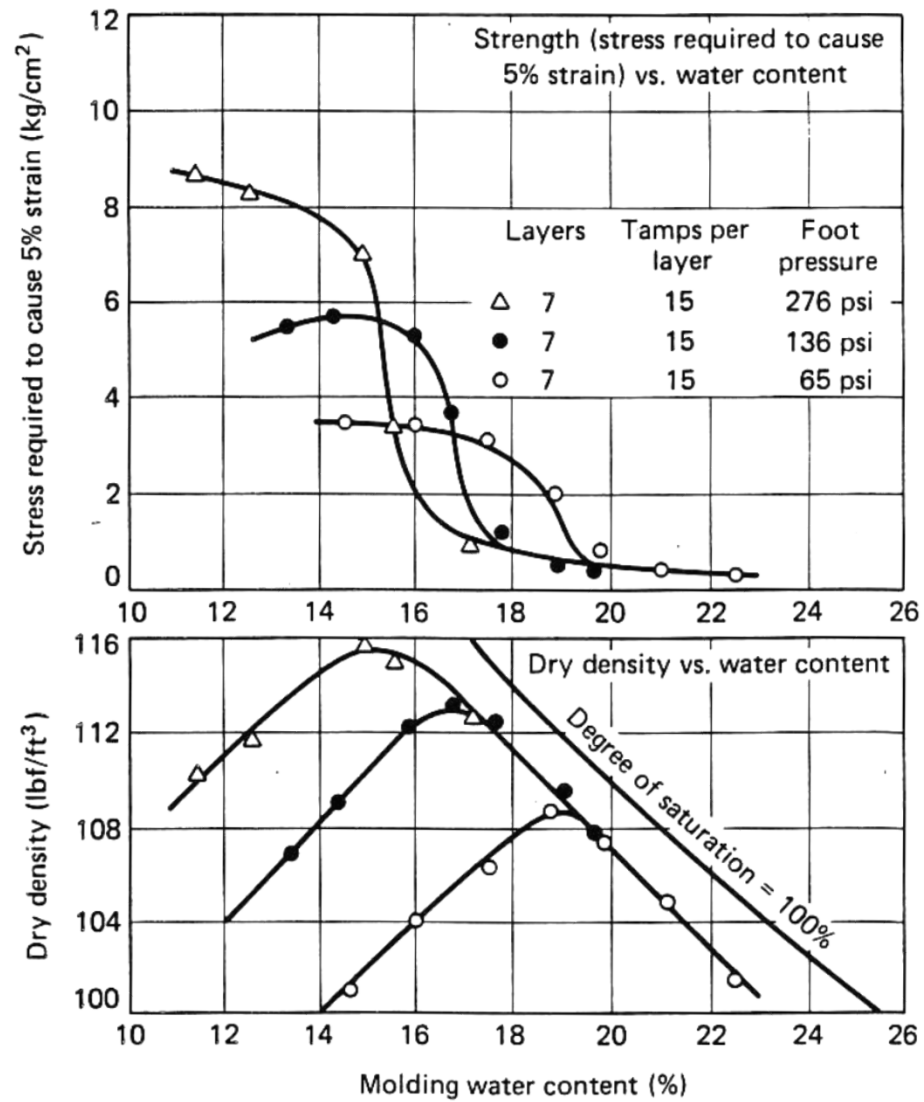


Fig. 5.7a

(Holtz & Kovacs, *An Introduction to Geotechnical Engineering*, 1981)

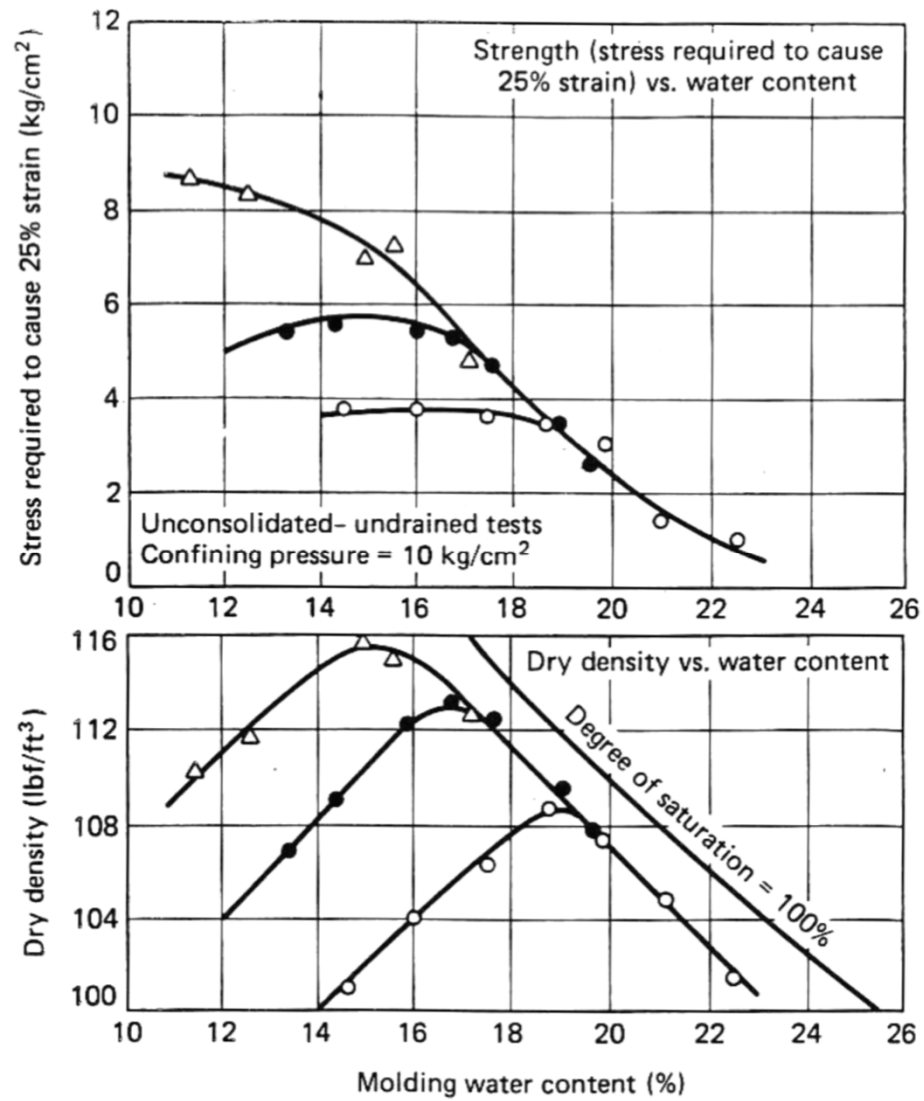


Fig. 5.7b

(Holtz & Kovacs, *An Introduction to Geotechnical Engineering*, 1981)

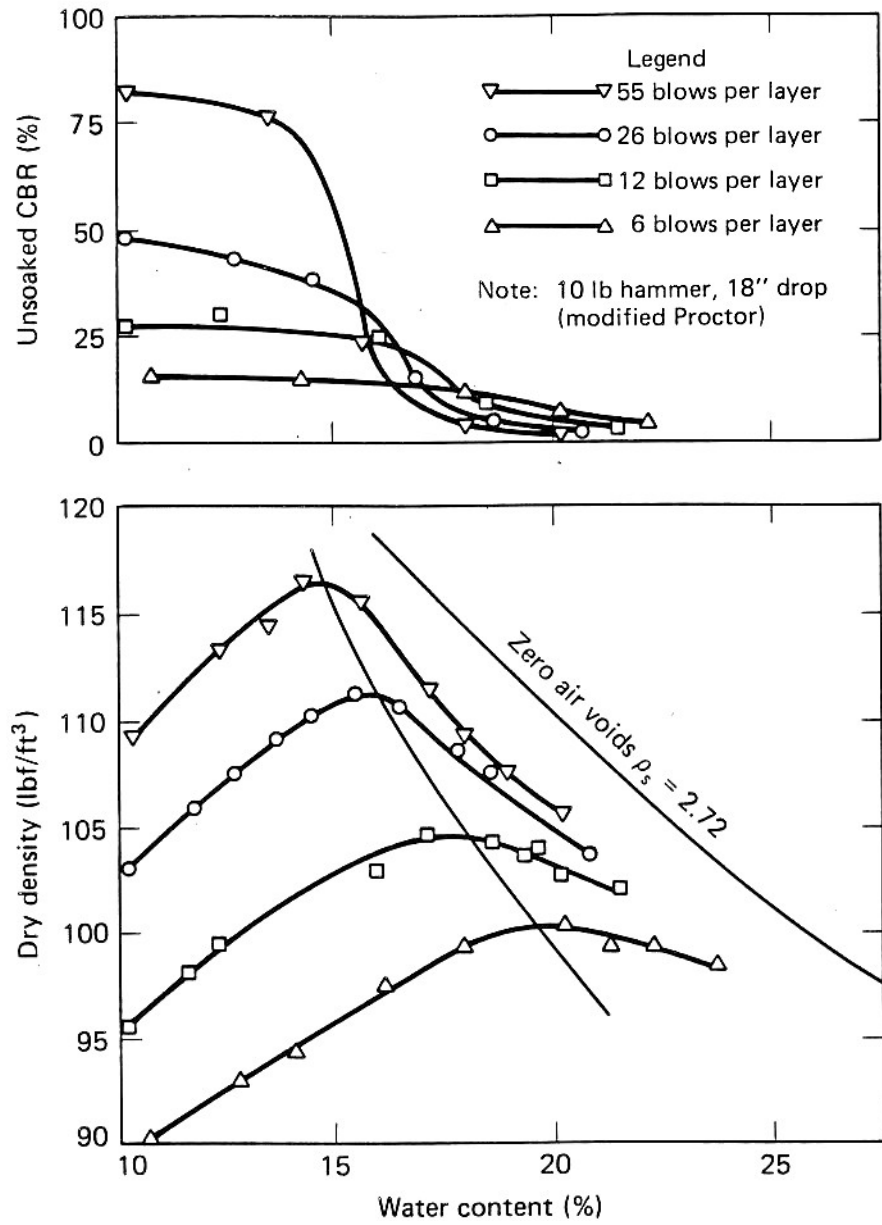


Fig. 5.8

(Holtz & Kovacs, *An Introduction to Geotechnical Engineering*, 1981)

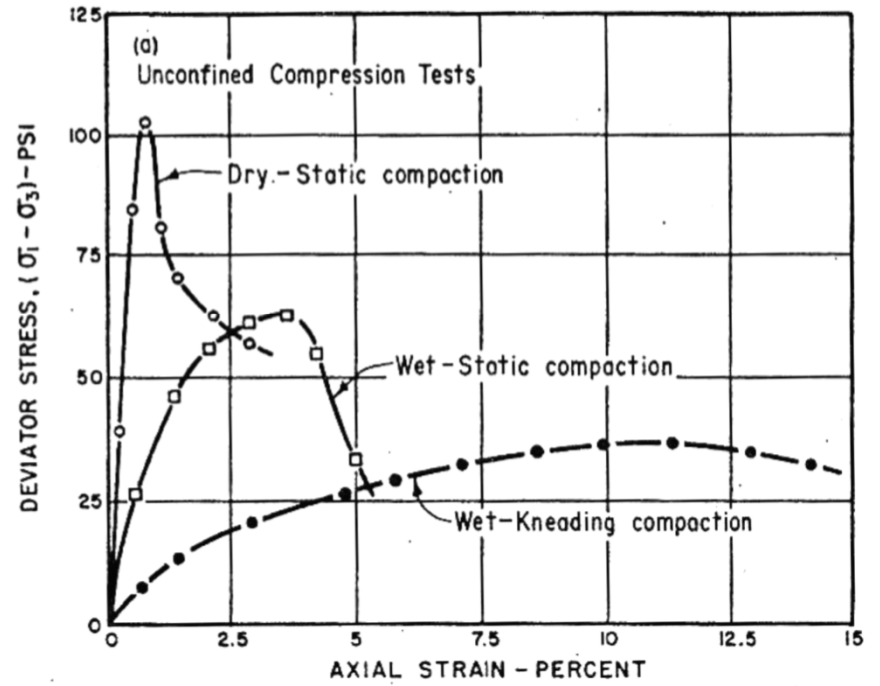
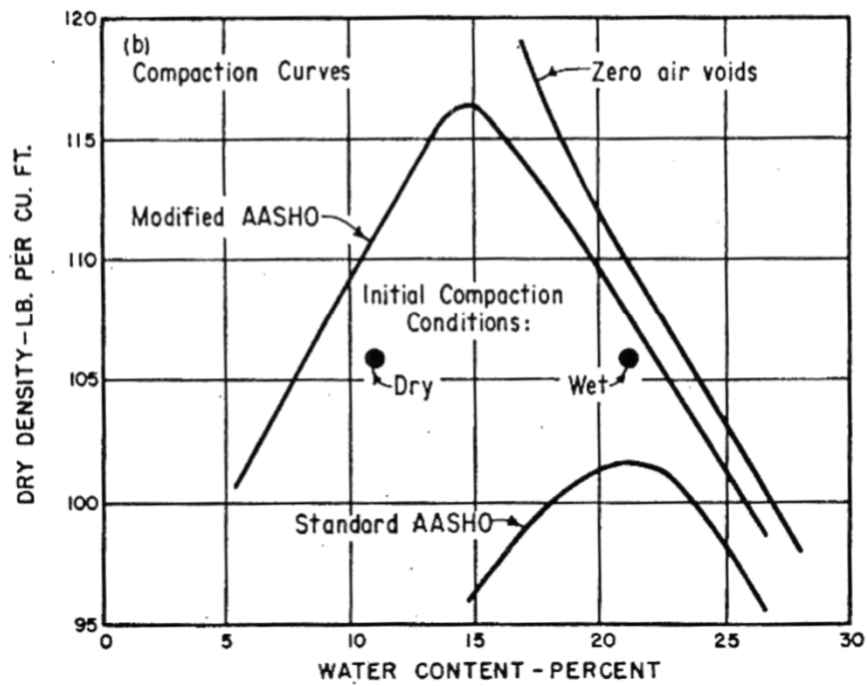


Fig. 8.12 Compaction and unconfined compression characteristics of Higgins clay. (After Lee and Haley, 1968.)

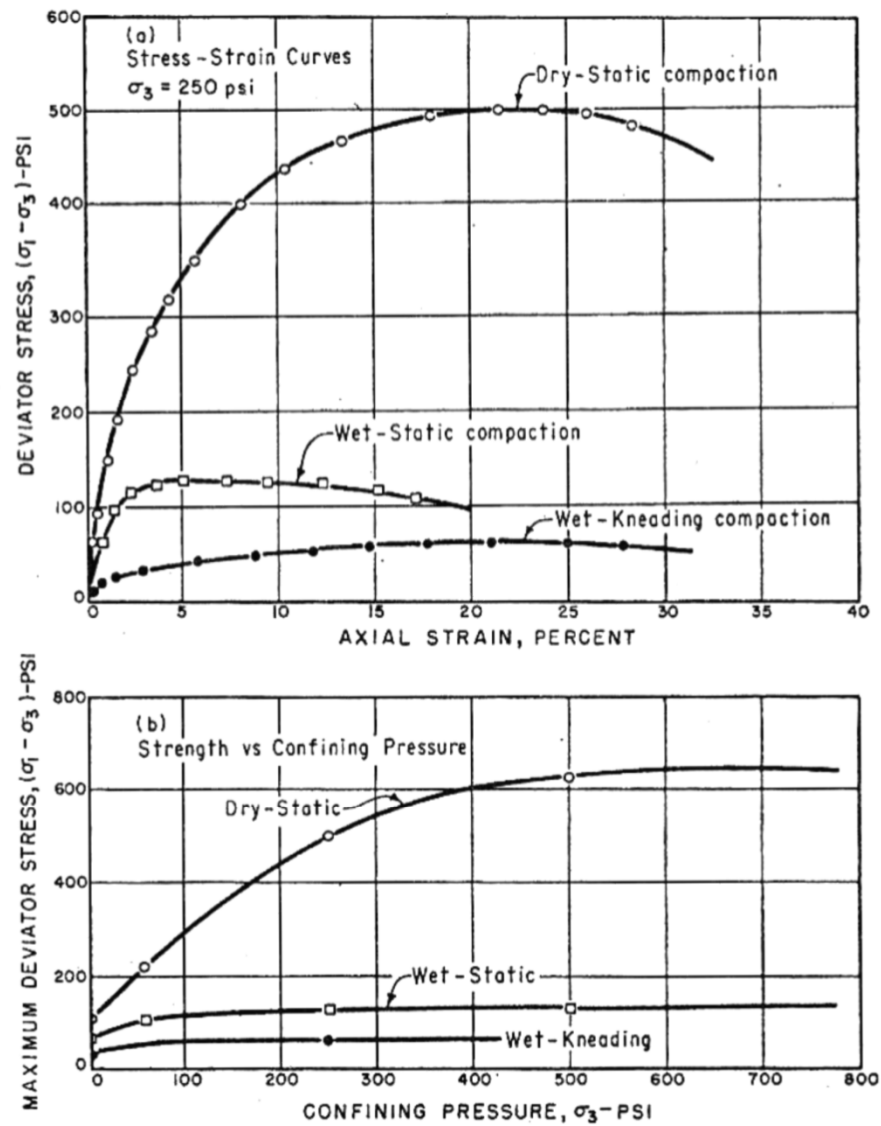


Fig. 8.13 Unconsolidated-undrained tests on compacted Higgins clay. (After Lee and Haley, 1968.)

(Fang, *Foundation Engineering Handbook*, 1991)