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1.12.3 Liquid Limit and Plastic Limit (Atterberg Limit); 1.12.4 Permeability Test; 1.12.5 Unconfined Undrained Compressive Strength Tests (UU Tests); 1.12.6 Tensile Failure; References; Chapter 2. Geotechnical Engineering Theoretical Concepts; 2.1 Vertical Effective Stress; 2.2 Lateral Earth Pressure; 2.3 Stress Increase Due to Footings; 2.4 Overconsolidation Ratio (OCR); 2.4.1 Overconsolidation Due to Glaciers; 2.4.2 Overconsolidation Due to Groundwater Lowering; 2.5 Soil Compaction; 2.5.1 Modified Proctor Test Procedure 2.5.2 Controlled Fill Applications 2.6 Borrow Pit Computations; 2.6.1 Procedure; 2.6.2 Summary of Steps for Borrow Pit Problems; Part 2: Shallow Foundations; Chapter 3. Shallow Foundation Fundamentals; 3.1 Introduction; 3.2 Buildings; 3.2.1 Buildings with Basements; 3.3 Bridges; 3.4 Frost Depth; Chapter 4. Bearing Capacity: Rules of Thumb; 4.1 Introduction; 4.2 Bearing Capacity in Medium to Coarse Sands; 4.3 Bearing Capacity in Fine Sands; Chapter 5. Bearing Capacity Computation; 5.1 Terms Used in the Terzaghi Bearing Capacity Equation 5.2 Description of Terms in the Terzaghi Bearing Capacity Equation 5.2.1 Cohesion Term; 5.2.2 Surcharge Term; 5.2.3 Density Term; 5.3 Discussion of the Terzaghi Bearing Capacity Equation; 5.3.1 Effect of Density; 5.3.2 Effect of Friction Angle f ; 5.4 Bearing Capacity in Sandy Soil; 5.5 Bearing Capacity in Clay; 5.6 Bearing Capacity in Layered Soil; 5.7 Bearing Capacity when Groundwater Present; 5.8 Groundwater Below the Stress Triangle; 5.9 Groundwater Above the Bottom of Footing Level; 5.10 Groundwater at Bottom of Footing Level; 5.11 Shallow Foundations in Bridge Abutments Chapter 6. Elastic Settlement of Shallow Foundations

Sommario/riassunto

Geotechnical Engineering Calculations Manual offers geotechnical, civil and structural engineers a concise, easy-to-understand approach the formulas and calculation methods used in of soil and geotechnical engineering. A one stop guide to the foundation design, pile foundation design, earth retaining structures, soil stabilization techniques and computer software, this book places calculations for almost all aspects of geotechnical engineering at your finger tips. In this book, theories is explained in a nutshell and then the calculation is presented and solved in an illustrated, step-by-step
