



GEOLABS, INC.

Geotechnical Engineering

Soil Classification Log Key

(with deviations from ASTM D2488)

GEOLABS, INC. CLASSIFICATION*

GRANULAR SOIL (- #200 <50%)

- **PRIMARY** constituents are composed of the largest percent of the soil mass. Primary constituents are capitalized and bold (i.e., **GRAVEL**, **SAND**)
- **SECONDARY** constituents are composed of a percentage less than the primary constituent. If the soil mass consists of 12 percent or more fines content, a cohesive constituent is used (**SILTY** or **CLAYEY**); otherwise, a granular constituent is used (**GRAVELLY** or **SANDY**) provided that the secondary constituent consists of 20 percent or more of the soil mass. Secondary constituents are capitalized and bold (i.e., **SANDY GRAVEL**, **CLAYEY SAND**) and precede the primary constituent.
- **accessory descriptions** compose of the following:
 - with some: >12%
 - with a little: 5 - 12%
 - with traces of: <5%accessory descriptions are lower cased and follow the Primary and Secondary Constituents (i.e., **SILTY GRAVEL with a little sand**)

COHESIVE SOIL (- #200 ≥ 50%)

- **PRIMARY** constituents are based on plasticity. Primary constituents are capitalized and bold (i.e., **CLAY**, **SILT**)
- **SECONDARY** constituents are composed of a percentage less than the primary constituent, but more than 20 percent of the soil mass. Secondary constituents are capitalized and bold (i.e., **SANDY CLAY**, **SILTY CLAY**, **CLAYEY SILT**) and precede the primary constituent.
- **accessory descriptions** compose of the following:
 - with some: >12%
 - with a little: 5 - 12%
 - with traces of: <5%accessory descriptions are lower cased and follow the Primary and Secondary Constituents (i.e., **SILTY CLAY with some sand**)

EXAMPLE: Soil Containing 60% Gravel, 25% Sand, 15% Fines. Described as: **SILTY GRAVEL** with some sand

RELATIVE DENSITY / CONSISTENCY

| Granular Soils | | | Cohesive Soils | | | |
|----------------------|---------|------------------|----------------------|---------|-------------------|--------------|
| N-Value (Blows/Foot) | | Relative Density | N-Value (Blows/Foot) | | PP Readings (tsf) | Consistency |
| SPT | MCS | | SPT | MCS | | |
| 0 - 4 | 0 - 7 | Very Loose | 0 - 2 | 0 - 4 | | Very Soft |
| 4 - 10 | 7 - 18 | Loose | 2 - 4 | 4 - 7 | < 0.5 | Soft |
| 10 - 30 | 18 - 55 | Medium Dense | 4 - 8 | 7 - 15 | 0.5 - 1.0 | Medium Stiff |
| 30 - 50 | 55 - 91 | Dense | 8 - 15 | 15 - 27 | 1.0 - 2.0 | Stiff |
| > 50 | > 91 | Very Dense | 15 - 30 | 27 - 55 | 2.0 - 4.0 | Very Stiff |
| | | | > 30 | > 55 | > 4.0 | Hard |

MOISTURE CONTENT DEFINITIONS

Dry: Absence of moisture, dry to the touch

Moist: Damp but no visible water

Wet: Visible free water

ABBREVIATIONS

WOH: Weight of Hammer

WOR: Weight of Drill Rods

SPT: Standard Penetration Test Split-Spoon Sampler

MCS: Modified California Sampler

PP: Pocket Penetrometer

GRAIN SIZE DEFINITION

| Description | Sieve Number and / or Size |
|---------------|-------------------------------------|
| Boulders | > 12 inches (305-mm) |
| Cobbles | 3 to 12 inches (75-mm to 305-mm) |
| Gravel | 3-inch to #4 (75-mm to 4.75-mm) |
| Coarse Gravel | 3-inch to 3/4-inch (75-mm to 19-mm) |
| Fine Gravel | 3/4-inch to #4 (19-mm to 4.75-mm) |
| Sand | #4 to #200 (4.75-mm to 0.075-mm) |
| Coarse Sand | #4 to #10 (4.75-mm to 2-mm) |
| Medium Sand | #10 to #40 (2-mm to 0.425-mm) |
| Fine Sand | #40 to #200 (0.425-mm to 0.075-mm) |

Plate

A-0.2

*Soil descriptions are based on ASTM D2488-09a, Visual-Manual Procedure, with the above modifications by Geolabs, Inc. to the Unified Soil Classification System (USCS).