



Engineering Geology (Domain G)

[Note: Examples given below are descriptive only and are not all-inclusive lists of items]

G-1. Geologic properties, soil origins (in-situ and transported), and groundwater

G-2. Soil mechanics

- G-2.1 Soil properties: physical and index (e.g., grain size, soil gradation, density/unit weight, water content, void ratio, porosity, cohesive, non-cohesive)
- G-2.2 Soil classification (e.g., sieve analysis, specific gravity, Atterberg limits)
- G-2.3 Classification systems (e.g., USCS, AASHTO)
- G-2.4 Compaction and consolidation
- G-2.5 Shear strength (e.g., cohesive v. non-cohesive soils)
- G-2.6 Stability of soil slopes

G-3. Rock mechanics

- G-3.1 Classification and index properties (e.g., rock type, weathering, deformation)
- G-3.2 Rock mass classifications (e.g., rock fabric orientation, joint spacing, joint/planar surface features, joint filling materials, rock quality designation [RQD])
- G-3.3 Rock strength failure criteria (e.g., uniaxial compressive strength, shear strength of discontinuities, tensile strength, Hoek-Brown geological strength index, Mohr-Coulomb)
- G-3.4 Failure modes (e.g., wedge, topple, planar)
- G-3.5 Planes of weakness and testing planes (e.g., friction angle, cohesion of failure planes, water content of fractures)
- G-3.6 Deformability of rock (e.g., direct shear test, ripability)
- G-3.7 Kinematic analysis (e.g., stereonet)

G-4. Geologic hazards

- G-4.1 Hazard and risk analysis (e.g., floods, landslides, earthquakes, subsidence, erosion)

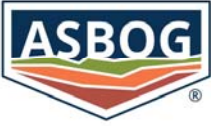
G-5. Engineering geology methods of investigation

- G-5.1 Well drilling methods (e.g., direct push technologies, sonic, hollow stem, rotary)
- G-5.2 Geophysical methods (e.g., borehole geophysics, seismic refraction, surface resistivity, ground penetrating radar)
- G-5.3 Image analysis and interpretation

G-6. In-situ and laboratory testing

- G-6.1 In-situ testing (e.g., standard penetration testing, cone penetration testing, infiltration, slug/pumping test)
- G-6.2 Laboratory testing (e.g., triaxial, uniaxial, point load, drained, undrained)

G-7 Project planning and development (*PG only*)



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- G-7.1 Scope of work and cost estimation
 - G-7.2 Literature and regulatory review
 - G-7.3 Site-specific maps and health and safety plans

