

SOIL TESTING

Visual Test

During the visual test, the competent person should check for crack-line openings along the failure zone that would indicate tension cracks, look for existing utilities that indicate that the soil has been previously disturbed, and if so, what sort of backfill was used and observe the open side of the excavation for indications of layered geologic structuring.

This person should also look for signs of bulging, boiling, or sloughing, as well as for signs of surface water seeping from the sides of the excavation or from the water table.

In addition, the area adjacent to the excavation should be checked for signs of foundations or other intrusions into the failure zone, and the evaluator should check for surcharging and the spoil distance from the edge of the excavation.

Manual Tests

Thumb Penetration Test

Attempt to press the thumb firmly into the soil in question. If the thumb penetrates no further than the length of the nail, it is probably Type B soil. If the thumb penetrates the full length of the thumb, it is Type C. It should be noted that the thumb penetration test is the least accurate testing method.

Dry Strength Test

Take a sample of dry soil. If it crumbles freely or with moderate pressure into individual grains, it is considered granular (Type C). Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can only be broken with difficulty), it is probably clay in combination with gravel, sand, or silt (Type B).

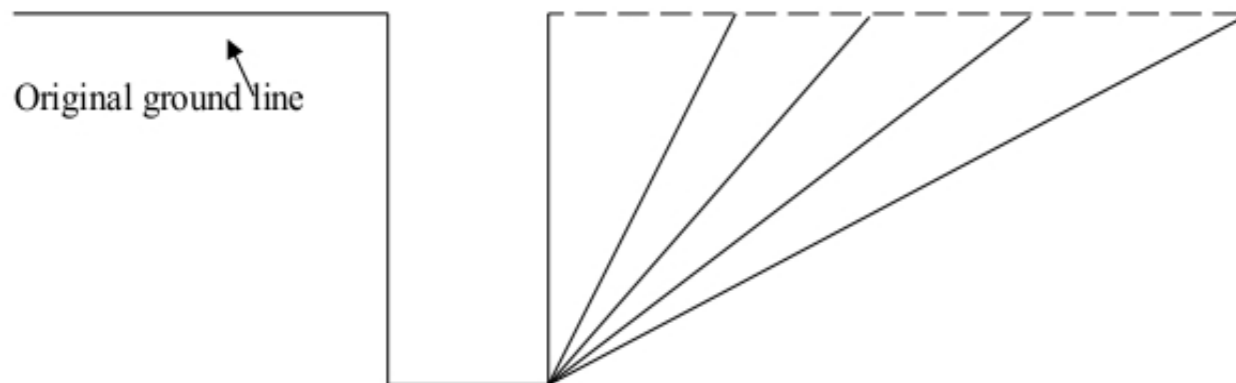
Plasticity or Wet Thread Test

Take a moist sample of the soil. Mold it into a ball and then attempt to roll it into a thin thread approximately 1/8 inch in diameter by two inches in length. If the soil sample does not break when held by one end, it may be considered Type B.

Approximate Angle of Repose For sloping of sides of excavations

Note: Clays, silts, loams or non-homogenous soils require shoring and bracing	Solid rock and compact shale (90°)	Compacted angular gravels, glacial till 1/2:1 (63°26')	Recommended slope For Average soils 1:1 (45°)	Compacted sharp sand 1 1/2:1 (33°41')	Well rounded loose sand 2:1 (26°34')
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The presence of ground water requires special treatment



One big family

Trenching and Excavation



Excavation: Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

Trench: A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench is not greater than 15 feet. If forms or other structures are installed or constructed in an excavation as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less, the excavation is also considered to be a trench.

Competent Person: One who is capable of identifying existing and predictable hazards in the surroundings, or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. A competent person should have and be able to demonstrate the following:

- Training, experience, and knowledge of:
 - Soil analysis,
 - Use of protective systems, and
 - Requirements of 29 CFR 1926 Subpart P.
- Ability to detect:
 - Conditions that could result in cave-ins,
 - Failures in protective systems,
 - Hazardous atmospheres, and
 - Other hazards including those associated with confined spaces.



Authority to take prompt corrective measures to eliminate existing and predictable hazards and to stop work when required.

NOTE: Reasonable care has been taken in preparing this document and the information provided herein is believed to be accurate. However, this information is not intended to constitute an "authoritative resource"