

Geotechnical Engineer Examination Sample Questions

Example No. 1

Which of the following is the most suitable test for obtaining in-situ shear strength measurements in very soft soil deposits?

- A. Vane shear
- B. Torvane shear
- C. Pressuremeter
- D. Cone penetration

Example No. 2

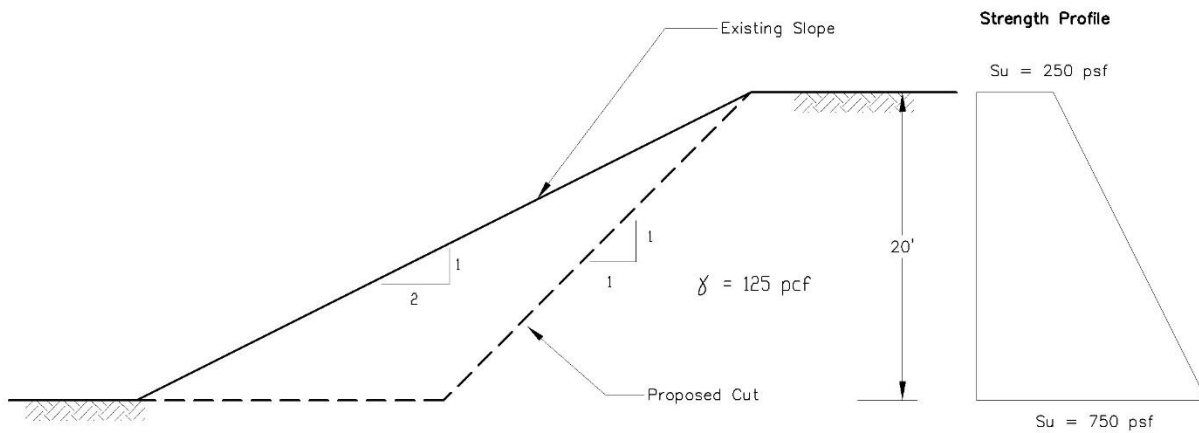
An existing construction access road will be converted to a paved driveway following construction. During grading, the contractor observes severe rutting and saturated soil conditions along the access road alignment. Trenches in this area reveal seasonal groundwater at 2 feet below the ground surface. The subsurface soil consists of soft clayey silt. Which mitigation option is the most appropriate?

- A. Increase proposed asphalt section from 2 inches to 4 inches.
- B. Scarify to a depth of 8 inches and recompact to 95% relative compaction.
- C. Overexcavate subgrade to a depth of 18 inches and replace with compacted, imported sandy soil.
- D. Overexcavate to a depth of 12 inches, place geotextile fabric and overlay with imported coarse gravel.

Example No. 3

Use the provided information and exhibit to answer the following question.

As shown on the exhibit, a 2:1 (H:V) slope is proposed to be reconfigured to a 1:1 (H:V) slope. The undrained shear strength of the clayey soil (S_u) varies as shown on the exhibit.



What is the factor of safety of the proposed cut?

- A. 0.6
- B. 0.8
- C. 1.3
- D. 1.7