

Geotechnical Investigation

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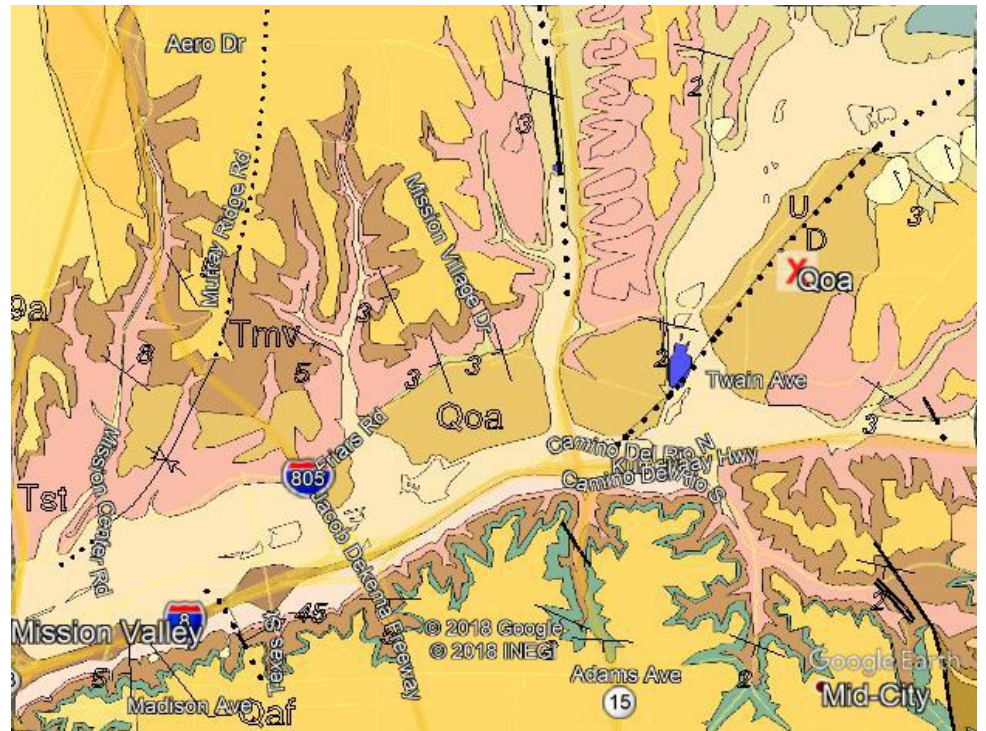
Know Before You Begin

Don't underestimate your costs for a geotechnical investigation study. Saving a little money up front can potentially cost you a lot in foundations. Talk to your GE!

7 Things that Could Affect the Cost of a Geotechnical Investigation

1. Expected Geology/Soil Type

We first review published geologic maps of your site to evaluate the existing geology. Based on our experience and typical characteristics of the existing geologic units, we begin to create an exploration program suitable for your soil conditions.



Geologic Map of Mission Valley Area of San Diego, California

2. Site Accessibility and Conditions

We would evaluate the existing site conditions for the optimal method of excavation. For example, we would perform small-diameter drilling in parking areas to limit disturbance (unless a fault evaluation would be required). Limited access drill rigs are available but are normally higher in cost. Limited access drilling options can be less efficient (due to lower torque) and low boom height. Existing utilities could limit the locations of the planned excavations as well.



No Obstructions



Park with Trees to Remain

3. Groundwater Conditions



Mud Rotary Drilling at the San Diego Convention Center

A county well permit would be required if we expect groundwater will be encountered. There are also additional costs with storing drilling mud (associated with mud rotary drilling) in drums, testing for environmental constituents and disposal of the drums to an appropriate site.

4. Expected Geologic Hazards

The more expensive geotechnical investigations are in areas of:

- Landslides: Requiring large diameter drilling for down-hole logging.
- Liquefaction (soil strength loss during an earthquake): Requiring Cone Penetrometer Tests (CPTs) and additional analyses.
- Faulting: Requiring a fault trench with associated repairs or CPTs if in an area where shallow groundwater exists.
- Hard Rock: Requiring a rippability study with air-track borings and/or geophysics.

5. Proposed Project

Projects that are proposed to be relatively light weight at existing grade are easier to design. If projects possess subterranean garages or large areas of cut and fill to achieve proposed grade, deeper borings and additional laboratory work are required. For example, borings should extend at least 10 feet below your deepest structural element (e.g. foundations, garages, shoring).



Sheet Piles and Auger Piles for Pacific Gateway in San Diego, California.

6. Storm Water Infiltration

Storm water infiltration feasibility is an important aspect of the geotechnical investigations. If your project is in an area that may be feasible for storm water infiltration, we would be required to perform additional field and laboratory tests. The type of field tests would be dependent on the project size, type and location.



Storm Water Basin Under Construction in Chula Vista, California.

7. Unfamiliar Engineer

Each areas of the country has unique geologic features and has varying “engineering standards of care” based on historic success and failures of engineering solutions. Unfortunately, engineering firms unfamiliar with our area are awarded projects and arrive on-site with rudimentary knowledge of the area, drilling companies and their capabilities and engineering aspects. You could be affecting your schedule and your pocketbook by not bringing on a geotechnical or environmental engineer that is familiar with the area and the local agencies.

Feel free to contact us so we can help your project. We strive to provide premium service and helping our client economize their project with appropriate engineering solutions. Geocon Incorporated has helped public and private clients since 1971.



