Ed Answers Your Frequently Asked Questions

Q: What is a Geological Survey versus a Soils Report?

A **geological survey** (or geological report) and a **soils report** (often called a geotechnical report) are both used to understand ground conditions prior to undertaking construction. While a soil report and “geo” report are often used synonymously, they do refer to different, yet related reports prepared by differently skilled and licensed *experts. These reports differ significantly in focus, scope, and the professional responsible for them.

- **Geological Survey/Report**: Focuses on the broad, natural, and regional geologic setting, identifying hazards like fault lines, landslides, and bedrock characteristics.
- **Soils/Geotechnical Report**: Focuses on the immediate, site-specific engineering properties of the soil to determine foundation design, bearing capacity, and settlement.

In many geographical areas throughout California, the expertise (and added project costs) of both an **engineer** and a **geologist** are required prior to project start and site development. This is the case whether it is a single-family or multi-family residence, an ADU/JADU, an Ag Building, or other building type that may be constructed on a hillside area, fault zone, and/or an area subject to high groundwater.

Geological Survey (Geology Report)

Prepared by an **Engineering Geologist**, this report looks at the *"big picture"* of the site's geology, focusing on natural hazards and site stability.

- **Purpose**: To identify geological hazards that may affect life safety, such as landslides, earthquake faults, and debris flows.
- **Contents**: Mapping of rock formations, age of soils, structural geology (faults), and groundwater behavior.
- **When Required:** Usually mandated for hillside projects, areas with known hazards, or large-scale developments.

Soils Report (Geotechnical Investigation)

Prepared by a **Geotechnical Engineer**, this report provides specific data needed for the structural design of a building.

- **Purpose:** To determine the engineering properties of the soil to support foundations and ensure the building doesn't sink, crack, or tilt.
- **Contents:** Results of soil borings (sampling), laboratory tests on soil strength, compaction, and permeability. It provides recommendations for foundation type, soil stabilization, and retaining walls.
- **When Required:** Almost always required for new construction, renovations, and structural improvements.

Comparison Table

Feature	Geological Survey/Report	Soils Report (Geotechnical)
Expert	Engineering Geologist	Geotechnical/Soils Engineer
Main Focus	Site stability & hazards (Natural)	Engineering design parameters (Structural)
Key Topics	Landslides, Faults, Bedrock	Soil strength, Settlement, Bearing Capacity
Method	Mapping, Field mapping, Trenching	Soil Borings, Laboratory testing
Use	Hazard avoidance/Safety	Foundation Design/Grading

Key Differences in Purpose

In many scenarios, particularly in complex terrain, both reports are required together to form a complete understanding of the site, often called a **Geology/Soils Report**.

- The **Geology Report** tells you if you can build safely on the site (e.g., "Do not build on this active fault line").
- The **Soils Report** tells you how to build on the site (e.g., "Use a mat foundation and remove 5 feet of clay").

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The 3 Phases of Preparation

Preparation of a soil/geology report typically consists of 3 main phases:

1. Scheduling and field exploration,
2. Laboratory testing, engineering and geologic analysis, and calculations, and
3. Summary and recommendation in a formal report.

Typically, soil and geologic investigations are required well before the site development and permitting process. This is because the findings of the subsurface made in the exploration phase will dictate the placement, design, and scope of the proposed site structures. Depending upon the specific project site, weather conditions, and ready availability of the necessary licensed experts, an investigation and report can take from a few weeks to several months, or more.

*In the state of California, **engineers** and **geologists** are licensed by the Board of Professional Engineers, Land Surveyors, and Geologists (BPELSG). Other states have similar licensing boards. To become an engineer or geologist requires a minimum of 5 years of professional work experience together with passing several licensing examinations, in addition to the requisite college degrees in engineering or earth science.

Ed Neir Construction is a **BBB A+ rated** licensed general contractor (license # 928715) who has worked with a variety of licensed experts on a wide range of projects (i.e. residential, commercial, and agricultural). Consequently, Ed understands how to manage the inherent complexities of projects that require an array of specialized surveys and reports, easing the process - and reducing the stress - for his clients.

To discuss any construction projects you may be exploring – especially a project that may require a soil or geo report - call or text Ed for a free consultation: (408) 368-7162.




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