



### When is a Soils Investigation Required?

Handout No: 31  
Revised: 1/27/2020

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A soils investigation is a report prepared by a California licensed civil (geotechnical) engineer after conducting testing and analysis of soils at a project site. Chapter 4 of the California Residential Code (CRC) and Chapter 18 of the California Building Code (CBC) establish the requirements for soils investigations. The prescriptive structural requirements of the California Residential Code are applicable to one- and two-family dwellings, townhouses with a separate means of egress and not more than three stories above grade in height and accessory buildings associated with those uses. Residential buildings not meeting the prescriptive structural requirements of the CRC must comply with the requirements of the CBC.

Soils investigations are required under any of the following circumstances:

1. Subdivisions where a tentative or final map is required; or
2. Where the building official finds that the classification, strength or compressibility of the soil is in doubt.
3. Areas of suspected slides, slumps, or soil creep; or
4. Areas with previous fill placement; or
5. Areas with suspected expansive soil (most areas within Sonoma City limits) [CRC R401.4.1 & 403.1.8]; or
6. Areas without sufficient slope setback; or
7. Areas subject to possible liquefaction; or
8. Areas of suspected soft, compressible, or organic soil with low bearing capacity; or
9. Areas within stream or creek setback; or
10. Areas of high water table or moisture content in soil; or
11. Areas subject to high erosion; or
12. Areas of soft soil due to past deep ripping, excavation or cultivation below minimum foundation depth; or
13. Areas located within 1,000 feet of a solid waste disposal site; or
14. Areas located on a hillside or subject to hillside development review; or
15. Buildings are designed with an assumed soil-bearing capacity that exceeds 1,500 lbs. per square foot; or
16. Buildings designed with assumed low-expansive soil conditions; or
17. Buildings proposed to be located within 50 feet of a known fault or branch fault line; or
18. When an existing building or portion thereof has an inadequate or failing foundation; or
19. Buildings constructed with concrete or masonry walls, steel moment frames or steel braced frames; or
20. Engineered slabs designed to support a building; or
21. When determined necessary by the City's building official to determine or verify soil conditions.

As a matter of policy, soils investigations are typically not required under the following circumstances:

- A. In lieu of a complete geotechnical evaluation, buildings subject to the requirements of the California Residential Code shall use a design Load-Bearing Pressure not exceeding 1,500 lbs per square foot. [CRC R401.4.1]
- B. For trash enclosures, small storage sheds and other accessory structures which are not occupied by human beings and in the opinion of the Building Official would not pose a safety hazard as a result of adverse soil conditions.
- C. Where the building official determines that satisfactory data from adjacent areas is available that demonstrates an investigation is not necessary to meet the requirements of the code. [CBC 1803.2. Exception and CRC 401.4.1.1]]
- D. Sites that have existing soils investigations where an update letter is submitted to the Building Department, from a qualified geotechnical engineer, regarding the adequacy of the existing report to be used.
- E. Remodels, alterations or tenant improvements with no increase in square footage or foundation loads.
- F. If an addition, the existing perimeter or pier and grade beam foundation design match that of the existing structure foundation, provided that the foundation loading is similar and the system complied with the code when it was constructed.
- G. Existing building foundation replacement or repair unless:
  - The proposed replacement or foundation repair is designed with an assumed low-expansive soil condition; or
  - The proposed foundation is designed with an assumed soil bearing capacity that exceeds 1,500 lbs. per square foot; or
  - The proposed foundation is part of moment-resistant frame.
- H. Swimming Pools, unless the proposed pool:
  - Is in an area that requires hillside development review; or
  - Is in a suspected landslide area, over a fault line, or over suspected fill; or
  - Is not designed with assumed high-expansive soils; or
  - The product listing of the proposed pool requires a soils investigation.
- I. Retaining walls, unless the proposed retaining wall:
  - Has a surcharge load from above or supports a structure; or
  - Exceeds 60 inches in total height from bottom of footing to the top of fill.

#### General Notes:

The requirements noted above are general policy guidelines. The building official may require or waive a soils investigation for any project on a case-by-case review substantiated by appropriate documentation. Upon inspection of a footing excavation, the City's building inspector may require a soils investigation, inspection or a report by a licensed geotechnical engineer to verify the integrity of soils supporting the proposed structure.

Regardless of whether a soils investigation is required by the Building Department, it may be beneficial to have a soils investigation performed for your project. Information provided in the soils investigation may allow a design professional to design a less expensive and/or more appropriate foundation system for the project.