



# City of La Quinta

## MEMORANDUM

**TO:** All Structural Plan Reviewers, Other Interested Parties  
**FROM:** Greg Butler, Building & Safety Manager *GB*  
**DATE:** June 16, 2008  
**RE:** Clarification of CBC Requirements for Soils Reports

As you know and have been enforcing, most construction projects require foundation and soils investigations in accordance with CBC Section 1802. Recently, some exceptionally poor soil conditions have been identified in several areas of La Quinta. Our Public Works Department has expressed concerns related to test borings where blow counts in adjacent strata change suddenly from low- to mid-30s to single digit counts at 10- to 30-foot depths. The condition is exacerbated by dry conditions (single digit moisture percentages), which increase the potential for collapse. This raises questions about the potential for long-term and differential settlement of a structure.

While we do not intend to prescribe a particular methodology, Public Works has advised me that when expected settlements, as determined by the Schmertmann Layer Analysis or other common method, exceed 0.75" to 1.00" in a 50-year lifespan, there is cause for concern that should be addressed by the geotechnical engineer. When these conditions are found, modifications to overexcavation depth(s) and/or footing designs may be applicable.

These questions can be addressed better if very early in the review process we identify deficiencies in the geotechnical report required by Section 1802.6. At a minimum, the Code requires that the report include, but need not be limited to, the following information:

1. A plot showing the location of test borings and/or excavations.
2. A complete record of the soil samples.
3. A record of the soil profile.
4. Elevation of the water table, if encountered.
5. Recommendations for foundation type and design criteria, including, but not limited to:
  - a. Bearing capacity of natural or compacted soil.
  - b. Provisions to mitigate the effects of expansive soils.
  - c. Mitigation of the effects of liquefaction.
  - d. Mitigation of the effects of differential settlement.
  - e. Mitigation of the effects of varying soil strength.
  - f. The effects of adjacent loads.
6. **Expected total and differential settlement.** [emphasis mine]
7. Pile and pier foundation information in accordance with Section 1808.2.2.
8. Special design and construction provisions for footings and foundations founded on expansive soils, as necessary.
9. Compacted fill material properties and testing in accordance with Section 1803.5.

Please verify that soils reports contain **all** of the above information. In addition, to assure continuity between the investigation/reporting stage and the execution stage, please use the following checklist to verify that the conclusions and recommendations in the report cover all the required elements. Only then can we be assured that the construction documents address all of the site soil conditions.

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### La Quinta Geotechnical Report Checklist

Does the "Conclusions and Recommendations" section of the report address each of the following criteria?

"Address" means:

- (a) the criterion is considered significant and mitigation measure(s) noted, or;
- (b) the criterion is considered insignificant and explicitly so stated.

- | <b>Yes</b>               | <b>No</b>                | <b>Criterion</b>  |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Foundation criteria based upon bearing capacity of natural or compacted soil.               |
| <input type="checkbox"/> | <input type="checkbox"/> | Foundation criteria to mitigate the effects of expansive soils.                             |
| <input type="checkbox"/> | <input type="checkbox"/> | Foundation criteria based upon bearing capacity of natural or compacted soil.               |
| <input type="checkbox"/> | <input type="checkbox"/> | Foundation criteria to mitigate the effects of liquefaction.                                |
| <input type="checkbox"/> | <input type="checkbox"/> | Foundation criteria to mitigate the effects of seismically induced differential settlement. |
| <input type="checkbox"/> | <input type="checkbox"/> | Foundation criteria to mitigate the effects of long-term differential settlement.           |
| <input type="checkbox"/> | <input type="checkbox"/> | Foundation criteria to mitigate the effects of varying soil strength.                       |
| <input type="checkbox"/> | <input type="checkbox"/> | Foundation criteria to mitigate expected total and differential settlement.                 |

Any "No" answers to the above checklist should be noted as specific required corrections.

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