

Geotechnical • Geologic • Coastal • Environmental

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November 6, 2008

W.O. 5166-A1-SC

**Rancho Paseo De Valencia**

1253 Enterprise Road  
Corona, California 92882

Attention: Mr. Manuel Valencia

Subject: Geotechnical Review of Fire Protection/Fuel Modification Plan, Tentative Tract No. 34760, Corona, Riverside County, California

Dear Mr. Valencia:

In accordance with your request and authorization, GeoSoils, Inc. (GSI), is submitting this report to summarize our geotechnical review of the fire protection/fuel modification plan for Tentative Tract No. 34760, Corona, Riverside County, California. The scope of our services has included a review of the referenced plans and reports for the project (see the Appendix), analysis of data, and preparation of this summary report. Unless specifically superseded by recommendations presented herein, the conclusions and recommendations contained in the appropriate referenced reports by GSI and Firewise 2000, Inc. (Firewise 2000) listed in the Appendix remain pertinent and applicable, and should be appropriately implemented during planning, design, and construction of the project.

**PLAN REVIEW**

GSI has reviewed the referenced report and plan by Firewise 2000 (2008). The report and plan appear to be in general accordance with the project geotechnical recommendations with the following comments:

- All vegetation and plantings chosen should conform to state, and local fire and safety codes. **GSI does not consult in the field of fire safety engineering or fire protection/prevention.** The landscape architect and/or other qualified professionals are ultimately responsible for site safety and the vegetation and plantings chosen, as they relate to fire protection/prevention within the proposed fuel modification landscape zones onsite. Our review does not relieve City staff, fire department staff, and/or other professionals from providing the attention and level of care exercised by similar professionals performing these types of fire protection/prevention reviews.

- It is our understanding that a Home Owners Association (HOA) and/or its designated landscape maintenance company shall be responsible for proper up-keep and maintenance of the projects irrigation system and landscape planting after the project installation is complete, to keep the project in conformance with all applicable fire protection/prevention codes. A lack of maintenance or improper maintenance may result in damages to properties and/or structures. The various maintenance standards/criteria, including geotechnical recommendations by GSI, should be disclosed to all interested/affected parties, homeowners, and any HOA.
- Only the amount of irrigation necessary to sustain plant life should be provided. Over-watering the landscape areas will adversely affect proposed site improvements. Graded slope areas should be planted with drought resistant vegetation. Consideration should be given to the type of vegetation chosen and their potential effect upon surface improvements (i.e., some trees will have an effect on concrete flatwork with their extensive root systems). Trees planted in close proximity to improvements have been known to adversely or negatively impact the long-term performance of the improvement. The location of tree planting should be considered in light of this geotechnical concern. Consideration should be given to providing retaining devices, up-hill and down-hill, for significant plantings that are “benched” into slope faces to mitigate the potential for slope creep. From a geotechnical standpoint leaching is not recommended for establishing landscaping. If the surface soils are processed for the purpose of adding any amendments, they should be recompacted to 90 percent minimum relative compaction.
- Water has been shown to weaken the inherent strength of all earth materials over time. Slope stability is significantly reduced by overly wet soil conditions. Positive surface drainage away from slopes should be maintained and only the amount of irrigation necessary to sustain plant life should be provided for planted slopes. Over-watering should be avoided as it adversely affects site improvements, and causes perched groundwater conditions. Graded slopes constructed utilizing onsite materials would be erosive. Eroded debris may be minimized and surficial slope stability enhanced by establishing and maintaining a suitable vegetation cover soon after construction. Compaction to the face of fill slopes would tend to minimize short-term erosion until vegetation is established. Plants selected for landscaping should be light weight, deep rooted types that require little water and are capable of surviving the prevailing climate. Jute-type matting or other fibrous covers may aid in allowing the establishment of a sparse plant cover. Utilizing plants other than those recommended above will increase the potential for perched water, staining, mold, etc., to develop. A rodent control program to prevent burrowing should be implemented. Irrigation of natural (ungraded) slope areas is generally not recommended. These recommendations regarding plant type, irrigation practices, and rodent control should be provided to each homeowner. Over-steepening of slopes should be avoided during building construction activities and landscaping.

- Disturbances of native or fill soils in slope areas should be minimized or avoided during implementation of fuel modification zone activities. Loosened/disturbed soils would have an increased potential for erosion and/or instability. A representative of GSI should observe fuel modification activities (i.e., thinning and/or pruning) to evaluate and/or comment on the effects on site soils.

### **CLOSURE**

Based on our limited geotechnical review, the referenced report and plan by Firewise 2000 appears to be in general conformance with the intent of geotechnical recommendations provided by GSI (see the Appendix). This review does not constitute any review of disciplines other than geotechnical consultation and does not relieve the landscape architect, civil designer, or other design professionals from practicing the standards-of-care that is similar to other professionals at this location.

### **LIMITATIONS**

The materials encountered on the project site and utilized for our analysis are believed representative of the area; however, soil and bedrock materials vary in character between excavations and natural outcrops or conditions exposed during mass grading. Site conditions may vary due to seasonal changes or other factors.

Inasmuch as our study is based upon our review and engineering analyses and laboratory data, the conclusions and recommendations are professional opinions. These opinions have been derived in accordance with current standards of practice, and no warranty, either express or implied, is given. Standards of practice are subject to change with time. GSI assumes no responsibility or liability for work or testing performed by others, or their inaction; or work performed when GSI is not requested to be onsite, to evaluate if our recommendations have been properly implemented. Use of this report constitutes an agreement and consent by the user to all the limitations outlined above, notwithstanding any other agreements that may be in place. In addition, this report may be subject to review by the controlling authorities. Thus, this report brings to completion our scope of services for this portion of the project.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to contact our office.

Respectfully submitted,

GeoSoils, Inc.

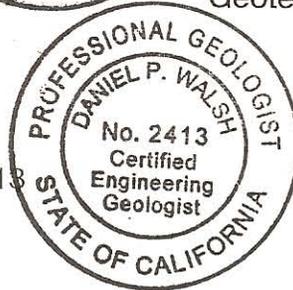
  
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DPW/PLM/ATG/jh

Attachment: Appendix - References

Distribution: (3) Addressee (2 wet signed)  
(1) Armstrong & Brooks Engineering Consultants, Attn: Mr. Jay Stables

## APPENDIX

### REFERENCES

- Armstrong & Brooks Consulting Engineers, Inc., 2007, City of Corona, Tentative tract map No. 34760, 100-scale, Job No. 105-588, dated June 25.
- Firewise 2000, Inc., 2008, Fire protection plan, Corona tract 34760, Corona fire department, Corona CA, County of Riverside, dated October 3, 2008.
- GeoSoils, Inc., 2007a, Tentative tract map review, tentative tract no. 34760, Corona, Riverside County, California, W.O. 5166-A1-SC, dated November 20.
- \_\_\_\_\_, 2007b, Memorandum regarding slope stability and value engineering, existing slope - non-grading option, tentative tract no. 34760, City of Corona, Riverside County, California, W.O. 5166-A-SC, dated November 20.
- \_\_\_\_\_, 2006, Updated preliminary geotechnical investigation and fault rupture hazard evaluation, tentative tract 34760, Corona, Riverside County, California, W.O. 5166-A-SC, dated October 9.
- International Conference of Building Officials (ICBO), 2001, California building code, California code of regulations title 24, part 2, volume 1 and 2.
- \_\_\_\_\_, 1997, Uniform building code: Whittier, California, vol. 1, 2, and 3, dated April.