

# Supplemental LGC Geotechnical Letter Reports

July 31, 2014

Project No. 10106-01

Mr. Larry Netherton  
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**Subject:**        *Location of Whittier Fault, Cielo Vista, Tentative Tract Map No. 17341, County of Orange, California*

### **Introduction**

LGC Geotechnical, Inc. (LGC Geotechnical) has prepared this letter to discuss the location of the Whittier Fault relative to the proposed Cielo Vista development, tentative tract map no. 17341, County of Orange, California. LGC Geotechnical had previously conducted geotechnical trench work on the Cielo Vista development site and prepared a report titled, “Geotechnical Feasibility Study Proposed Development of Tentative Tract Map No. 17341, County of Orange, California”, dated March 1, 2013. This letter report provides additional information with respect to the location of the Whittier Fault.

### **Method of Fault Evaluation**

An evaluation of the area of proposed development within the Fault Rupture Hazard Zone (CDMG, 1980) was initiated by LGC Geotechnical in 2012. Our evaluation included the following:

- Review of available geologic maps and geotechnical documents for the subject site, as well as adjacent and nearby sites along the Fault Rupture Hazard Zone for the Whittier Fault. Our research supplied data with regard to where the active trace of the Whittier Fault had been identified in the vicinity of the site. A previously published report (ERA, 1985) established the location of the Whittier Fault on the western property line of the Cielo Vista project site.
- Excavation of four fault trenches (Fault Trench FT-1 through FT-4 as depicted on our Whittier Fault Location Map, Sheet 1). Each of the fault trenches was excavated to a depth of approximately 10 feet below the existing ground surface and ranged in lengths from approximately 105 feet to 320 feet. The trenches were excavated within the area of the proposed Cielo Vista development within the southern portion of the Fault Rupture Hazard Zone – the boundaries of which are depicted on Figure 4.5-1 of the Draft EIR. The trenches were oriented approximately perpendicular to the primary fault trace.
- Fault trenching was not conducted within the northern portion of the Fault Rupture Hazard Zone on the Cielo Vista site due to the presence of deep saturated alluvium, a drainage channel, and landslide areas. However, our review of fault trenching performed east (AGI, 2012) and west (ERA, 1985) of

the northern Fault Rupture Hazard Zone on the site has indicated the absence of active faulting projecting towards this area.

- Observation of fault trenches excavated as part of American Geotechnical's Fault Hazard Assessment Report prepared in connection with the Esperanza Hills development adjacent to the east side of the subject site and review of the referenced report and fault trench logs (AGI, 2012).

**Conclusion**

The primary trace of the Whittier Fault is well-defined as a narrow fault zone less than approximately 15-foot-wide along the east-west drainage in the central portion of the Cielo Vista site as depicted on our Whittier Fault Location Map (Sheet 1). The findings of our study are in general concurrence with the findings of the previous fault studies in the vicinity of the subject site, including the recent fault study performed east of the site prepared in connection with the Esperanza Hills development (AGI, 2012). The fault trace location was established by projection of the fault trace across the site using the fault trace locations established at the eastern and western property boundaries of Cielo Vista.

Should you have any questions regarding this letter-report, please do not hesitate to contact our office. We appreciate this opportunity to be of service.

Sincerely,

*LGC Geotechnical, Inc.*



Tim Lawson  
Geotechnical Engineer



TJL/kmb

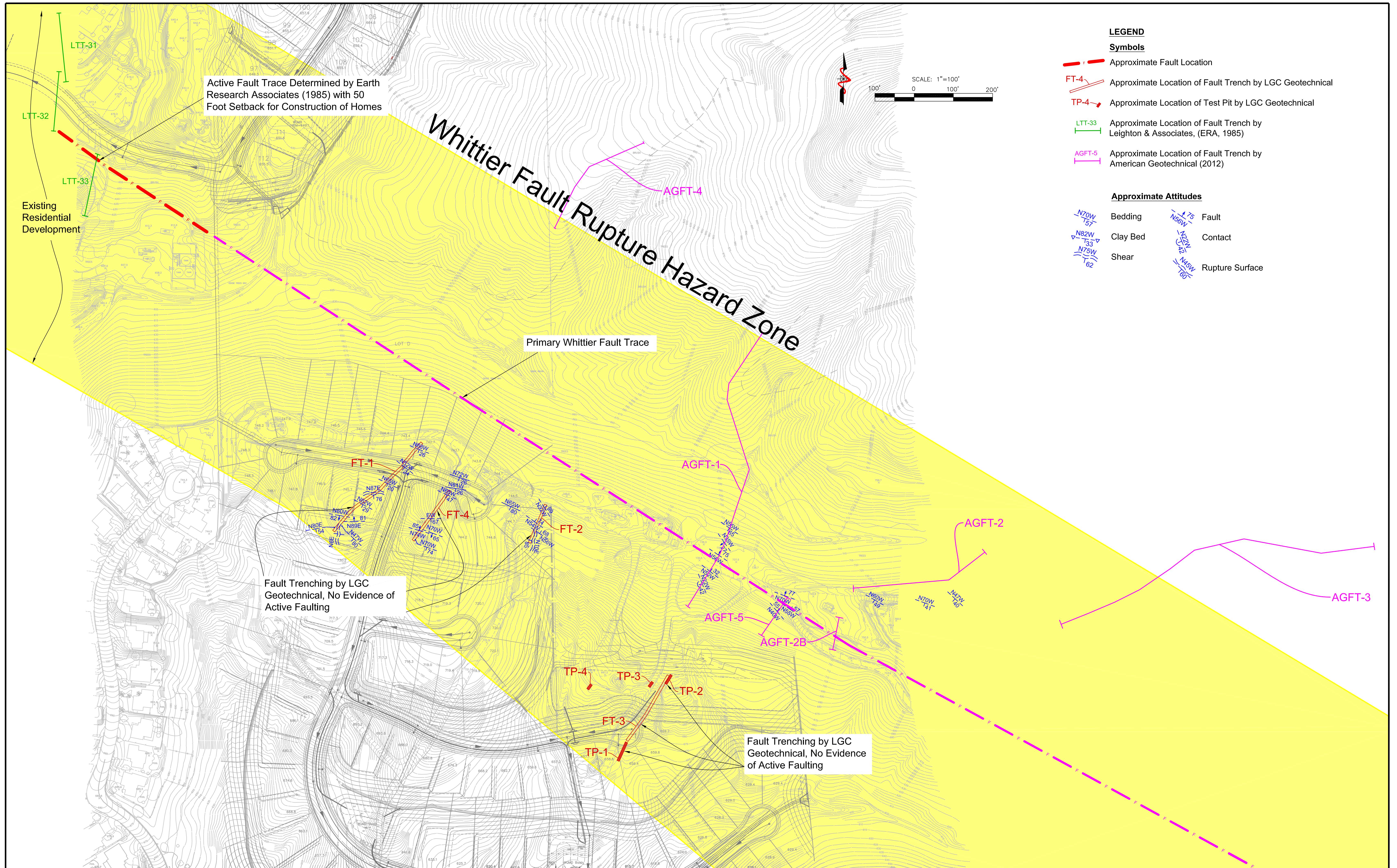
Attachments: References  
Sheet 1 – Whittier Fault Location Map

Distribution: County of Orange

### References

- American Geotechnical, Inc., 2012, Fault Hazard Assessment Report “Whittier Fault Zone: Addressing a Portion of the Proposed Esperanza Hills Residential Development Project in the Southeastern Puente Hills Unincorporated Orange County, Southern California, Project No. 33366-01, dated November 2012.
- California Department of Conservation, Division of Mines and Geology (CDMG), 1980, State of California Special Studies Zones, Yorba Linda Quadrangle, Official Map Effective: January 1, 1980.
- \_\_\_\_\_, 2007, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps, Special Publication 42, Interim Revision 2007.
- Earth Research Associates, Inc., 1985, Preliminary Soils Engineering and Engineering Geologic Investigation, Tentative Tract No. 9813, City of Yorba Linda, California, Job No. 233-84, dated March 27, 1985.
- LGC Geotechnical, Inc., 2013, Geotechnical Feasibility Study, Proposed Development of Tentative Tract Map No. 17341, County of Orange, California, Project No. 10106-01, dated March 1, 2013.





**LEGEND**

**Symbols**

- Approximate Fault Location
- FT-4 Approximate Location of Fault Trench by LGC Geotechnical
- TP-4 Approximate Location of Test Pit by LGC Geotechnical
- LTT-33 Approximate Location of Fault Trench by Leighton & Associates, (ERA, 1985)
- AGFT-5 Approximate Location of Fault Trench by American Geotechnical (2012)

**Approximate Attitudes**

- |          |          |          |                 |
|----------|----------|----------|-----------------|
| N70W 157 | Bedding  | N56W 75  | Fault           |
| N82W 133 | Clay Bed | N42W 127 | Contact         |
| N75W 162 | Shear    | N45W 105 | Rupture Surface |



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**Whittier Fault Location Map**

PROJECT NAME	Cielo Vista	<b>SHEET 1 of 1</b>
PROJECT NO.	10106-01	
ENG. / GEOL.	TJL/KBC	
SCALE	Not to Scale	
DATE	July 2014	