Regional Geologic Map
(Dibblee)

Legend

- Recent Alluvium
- Beach Deposits
- Older Alluvium
- Landslide
- Artificial Fill
- Monterey Formation
- Topanga Formation
- Trancas Formation
- Conejo Volcanics

- Bedding
- Upright, Overturned
- Fault
- Thrust Fault
- Barbs on Upthrown Side

Figure 3a
From Dibblee, 1993a, b
Regional Geologic Map
(USGS)

Legend

- Recent Alluvium
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Courtois, Escondido, & Ramirez Canyon, Latigo Parking and Malibu Bluffs September 21, 2009

Mountains Recreation and Conservation Authority
Corral, Escondido, & Ramirez Canyon, Latigo Parking and Malibu Bluffs September 21, 2009

Southwestern Engineering Geology Project No. 1-208/707-2006

Figure 3b
From Campbell et. al., 1996 and Yerkes and Campbell, 1980.
California Seismic Hazard Zones and Earthquake Fault Zone

Figure 4

California Division of Mines and Geology, 1995, 2001 & 2002
California Geological Survey, 2007

MAP EXPLANATION
Zones of Required Investigation:

- **Liquefaction**
  - Areas where historical occurrences of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 26103.5 would be required.

- **Earthquake-Induced Landslides**
  - Areas where previous occurrences of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 26103.5 would be required.

**NOTE:** Seismic Hazard Zones identified on this map may include developed lands where designated hazards have already been mitigated to city or county standards. Please contact the local planning department for information regarding the location of such mitigated areas.
Winding Way Landslides

Landslide
Approximate boundaries as published on small scale maps by Campbell et al. (1970) and on Dibblees (1983b). Geomorphology suggests boundaries that extend further west as recognized in consultant studies (California GeoSystems, 1985a).

6100 Via Escondido

Existing Debris Flow
Note that inset of debris blocks existing bench.

Latigo Parking Area

Latigo Parking Area Landslide

Figure 5

Figure 2

6100 Via Escondido

Latitude Parking Area

Existing Debris Flow
Note that inset of debris blocks existing bench.

Latigo Parking Area

Latigo Parking Area Landslide
Photo 1 - Water line, retaining wall and road fill at proposed trailhead parking area at Pacific Coast Highway at Corral Canyon.

Photo 2 - Existing trail along steep slope at Location 3, Corral Canyon.
Photo 3 - Recently active landslide just north of Camp Area 2.

Photo 4 - Vicinity of proposed 15,000 sf parking area near trailhead at Escondido Canyon. Constructing parking area may require substantial grading. Road cracks suggests fill settlement and possible downhill creep. The road and descending slope were resurfaced prior to September, 2009.
Photo 5 - Closer view of cracking along Winding Way. The outer five to ten feet of the roadway are affected. Road was resurfaced prior to our site reconnaissance in September 2009.

Photo 6 - Erosion due to concentrated drainage across existing maintenance road at Escondido Canyon between trailhead and ADA Camp Area.
Photo 7 - Outfall of pipe that carries flow along Escondido Creek below crossing for access road. Surrounding fill is eroded to a steep angle to vertical.

Photo 8 - Inlet to pipe that carries flow along Escondido Creek below crossing for access road. Note fill contains debris including old tracks from heavy equipment.
Photo 9 - View looking north along rock retaining wall on east bank of Ramirez Canyon Creek at proposed bridge crossing. Wall is about 7 feet high, and is located about five feet above the streambed.

Photo 10 - View looking south along rock retaining wall on east bank of Ramirez Canyon Creek at proposed bridge crossing. Creek encroaches within about five feet of the wall.
Photo 12 - Steep, rocky outcrop above camp area proposed at Note 8 on Plate 3B. A potential for large topples and rockfall from this outcrop preclude camp areas at the bottom of the canyon (above the wall) or in the meadow north of the adjacent protective ridge.

Photo 11 - Slope repair upslope of the "Barwood" under repair in 2006.
Photo 13 - View looking south along upper section of Delaplane Road. Slopes ascend and descend from the edge of the existing pavement at a gradient of about 2:1.

Photo 14 - View looking east across landslide south of proposed parking area, showing headscarp and displacement of existing trail.
Photo 15 - Erosion encroaching into existing trail along blufftop.

Photo 16 - Existing garden surrounded by railroad ties at grade of Malibu Road where small parking area is proposed. Slosson and Moran identified foreground of photo as ancient landslide.
Photo 17 - Areas of slope instability west of the parking area proposed along Latigo Canyon Road. Recent landslide below Latigo site is at right side of photo, a shallow soil slip/debris flow near the photo center, and a general area where a landslide is indicated on published studies in the left third of the photo.