

- Areas containing soil deposits of latest Pleistocene age (between 11,000 years and 15,000 years), where the M7.5-weighted peak acceleration that has a 10% probability of being exceeded in 50 years is greater than or equal to 0.30 g and the historic high water table is less than or equal to 20 feet below the ground surface.

Based on probabilistic mapping described earlier, only the easternmost portion of the County (Blythe region) has acceleration values below the criteria thresholds (Table 1-6).

Application of these criteria allows compilation of hazard maps that are useful for preliminary evaluations, general land-use planning and delineation of special studies zones where site-specific studies may be required before major development is approved (Youd, 1991). In developing a liquefaction hazard map for Riverside County, the Quaternary geology is taken from existing maps (Geologic Map for Riverside County, California), and described in detail within Chapter 2-Geologic Hazards of this Technical Background Report. Hydrologic data are compiled (Ground Water Contour Map for Riverside County, California; Plate 1-4), as described below.

#### 1.6.2.1 Geographic Information System Coverage of Shallow Ground Water for Riverside County (Plate 1-4)

**Coverage Description:** Depth to Groundwater in Riverside County

**Coverage distribution file name:** gwcntrs.e00; gwwells.e00

**Coverage Area:** Riverside County

**Source:** Earth Consultants International

**Accuracy:** Only areas where groundwater exists within the upper 200 feet were mapped.

Groundwater was mapped using data from the Regional Water Quality board, Santa Ana Watershed Project Authority (SAWPA), and U.S. Geological Survey reports on groundwater within Riverside County. The groundwater is reported as the highest recorded elevation. Groundwater is only mapped in areas where sufficient data were available. There may be areas of perched water that have not been mapped throughout the county. Contours were created based on data collected from the various water districts through Santa Ana Watershed Project Authority. Reports located at the Regional Water Quality board were used to augment the data collected from the various water districts. All data were analyzed for highest historical recorded elevation. These data should be considered for regional analysis only.

The Western Municipal Water District (Mains, Steven E., *personal communication*, 1999) provided groundwater data from 56 agencies for over 2,300 wells. These data contain water levels from monitoring wells at selected service stations within Riverside and San Bernardino counties. The data include abandoned or destroyed wells. Many measuring point elevations are estimated from topographic maps and may be 5 to 10 feet in error. Also many agencies supply data using air lines that may have an accuracy of "several feet. Data were also obtained from the California Regional Water Quality Control Board, Santa Ana Region; Leaking Underground Storage Tank Information System (LUSTIS).

### 1.6.3 Liquefaction Hazard Zones in Riverside County

Based on the criteria described above and illustrated on the flow chart presented in Figure 1-10, a detailed Liquefaction Susceptibility Map for Riverside County was produced at a 1:250,000 scale (Plate 1-5). These data are summarized on the Generalized Liquefaction Susceptibility Map (Figure 1-11). Figure 1-11 includes the liquefaction potential zones described in Table 1-9.

Riverside County development policies should be implemented based on this liquefaction potential mapping (Table 1-9). Site-specific geotechnical liquefaction hazard investigations should be required for proposed construction projects in zones of moderate, high and very high liquefaction potential. The policy for construction projects involving critical facilities should extend to include all liquefaction ranks from "very low" to "very high". Based on relatively low potential for ground shaking, the region near Blythe ( $< 0.1 g$ , 10% probability of exceedance in 50 years) should be excluded from policies requiring hazard investigations for general construction projects. However, projects involving critical facilities should address liquefaction hazards if they are proposed within a potential liquefaction zone.