ABSTRACT

GROUND WATER RESOURCE EVALUATION OF THE WEST-SIDE UPLAND AREA: SACRAMENTO VALLEY, CALIFORNIA

by

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Residential development along the west-side upland physiographic province of the Sacramento Valley, California, has raised questions about the sustainable quantity and quality of ground water in the region. Established procedures for ground water resource investigations are used to characterize the aquifers and determine the ground water sustainability for the west-side upland area beneath Rancho Tehama Residential Development.

The primary source of ground water is the Tehama Formation. Depth to water ranges from approximately 10 to 360 feet, with an average of 150 feet. Well yields range from 5 to 110 gpm, with an average of 40 gpm. Aquifer testing determined transmissivity and storativity to be approximately 32,000 gal/day/ft², and .001, respectively.
The average specific yield for all aquifers was calculated at 5.7 percent.

Ground water movement is generally to the east. Ground water gradients range from 1:54 in the western study area to 1:200 in the eastern study area.

Total aquifer thickness decreases dramatically from east to west due to a ridge of Cretaceous rocks which strikes N25W beneath the western study area. This ridge of impermeable rock appears to be a barrier to the underflow of ground water recharge from the west.

Ground water storage to a depth of 400 feet was estimated at 58,000 acre-feet. Between Fall 1988 and Fall 1992, ground water storage declined by approximately 3,500 acre-feet.

Sustainability of ground water resources for the upland area beneath Rancho Tehama is largely dependent upon the extent and location of future development and the aquifers' response to periods of normal rainfall.