PREPARED IN COOPERATION WITH THE CITY OF MENLO PARK

### EXPLANATION

Contours of residual gravity. Contour interval 0.5 mGal. Barbed lines enclose areas of low residual gravity.

Gravity station collected by USGS, March-July 1989.

Gravity station collected by others.

## INTRODUCTION

A gravity study was conducted by the U.S. Geological Survey as part of a request by the City of Menlo Park to help determine the location and quantity of groundwater. The study area includes Menlo Park, Atherton, and Menlo Park Municipal Water District land. New gravity measurements were made primarily in the study area, but additional gravity measurements were made in adjoining areas in East Palo Alto, Palo Alto, Redwood City, Woodside, and adjacent unincorporated areas to improve regional coverage near the study area.

## COLLECTION AND REDUCTION OF GRAVITY DATA

## DENSITY MEASUREMENTS

## INTERPRETATION

The isostatic residual gravity anomalies in the Palo Alto quadrangle are caused mainly by variations in thickness of alluvial deposits and the Tertiary sequence and variations in density in the various lithologies within the Franciscan assemblage.

### TABLE 1.—Rock density data for the Palo Alto 7.5' quadrangle.

| lithology | number of samples | average density (g/cm³) | std. error (g/cm³) | range (g/cm³) |
|---|---|---|---|---|
| alluvial deposits | n. a.[1] | 2.12 | n. a.[1] | 1.80-2.33 |
| Tertiary sequence | 88 | 2.36 | n. a.[1] | 1.59-2.99 |
| Miocene sedimentary rocks | 40 | 2.28 | 0.04 | 1.84-2.71 |
| Page Mill Basalt | 10 | 2.73 | 0.08 | 2.42-2.99 |
| Eocene sedimentary rocks | 38 | 2.44 | 0.03 | 1.90-2.67 |
| Franciscan assemblage | 71 | 2.67 | n. a.[1] | 2.08-3.40 |
| graywacke | 28 | 2.63 | 0.03 | 2.34-3.10 |
| greenstone | 13 | 2.82 | 0.04 | 2.49-3.06 |
| serpentinite | 10 | 2.47 | 0.12 | 2.08-3.40 |
| chert | 8 | 2.60 | 0.07 | 2.40-2.68 |
| limestone | 6 | 2.65 | 0.01 | 2.62-2.68 |
| blueschist | 6 | 2.98 | 0.03 | 2.90-3.08 |

[1] n. a. = not applicable

SCALE 1:24000

Base from U.S. Geological Survey
Palo Alto 7.5'
1:24,000 1961 (revised 1968, 1973)
1000-meter Universal Transverse Mercator grid marks, zone 10

AREA OF MAP

# SHEET 2.   ISOSTATIC RESIDUAL GRAVITY ANOMALY MAP OF THE PALO ALTO 7.5' QUADRANGLE, CALIFORNIA
## By
### Steven F. Carle and V. E. Langenheim

# PRELIMINARY GROUND WATER QUALITY DATA AND THE EXTENT OF THE GROUND WATER BASIN FROM DRILL HOLE, SEISMIC, AND GRAVITY DATA IN THE PALO ALTO 7.5' QUADRANGLE, CALIFORNIA

## Howard W. Oliver
### Editor
### 1990