TEMPE, ARIZONA SURVEY CONTROL

I Steven A. Wood, hereby certify that I am a registered Land Surveyor in the State of Indiana that this map correctly represents a survey made under my supervision during the months of January through March, 1984 and that the survey complies with the minimum standards for land surveys as prescribed by the Indiana Code Commission for the condition of Second Order Class II horizontal control accuracy. Monuments indicated on this map as "Quarter Section Corners" are such accepted by common usage, or as designated for the purposes of this survey by the City Engineer of Tempe, Arizona.

Certified this 29th day of March, 1984

MID-STATES ENGINEERING CO., INC.

Steven A. Wood
Registered Land Surveyor #10334 - Indiana

I, Rudy J. Umbanhowar, hereby certify that I am a registered Land Surveyor in the state of Arizona, and that the data presentation on this map correctly reflects specifications made under my supervision.

Elevations are based on Mean Sea Level/U.S.G.S. 1929

All coordinates shown hereon indicate project datum ground coordinates, projected from the Arizona Coordinate System, Central Zone, by a combination scale and sea level factor of L0000576 and translated by -500,000 in the X direction, and by -400,000 in the Y direction. Coordinate values hereon are listed in Y-X, or Northing-Easting order. To convert coordinate values shown hereon to their corresponding Arizona Coordinate System values, utilize the following formulas

Y ACS = Y coordinate value on Arizona Coordinate System
X ACS = X coordinate value on Arizona Coordinate System
Y PD = Y project datum coordinates
X PD = X project datum coordinates

$Y_{ACS} = Y_{PD} + 400{,}000 + 0.9999429$

$X_{ACS} = (X_{PD} + 500{,}000) \div 0.9999429$

Distances shown hereon indicate ground level(GD) feet (U.S.S.L.) distances converted from sea level datum.

Elevertion are referred to grid north of the Arizona Coordinate System, Central Zone.

- Derivation of Combination Factors

In the Central Zone of the Arizona State Plane Coordinate System, the grid distances along this central meridian (longitude 33D 30m 00s) differ from actual distances between ground stations. Because grid distances differ from the actual/polar ground distances, a combination factor must be used to convert ground distances to grid distances. Average scale factors derived for the City of Tempe are:

0.9999002 ground to grid
L0000998 grid to ground

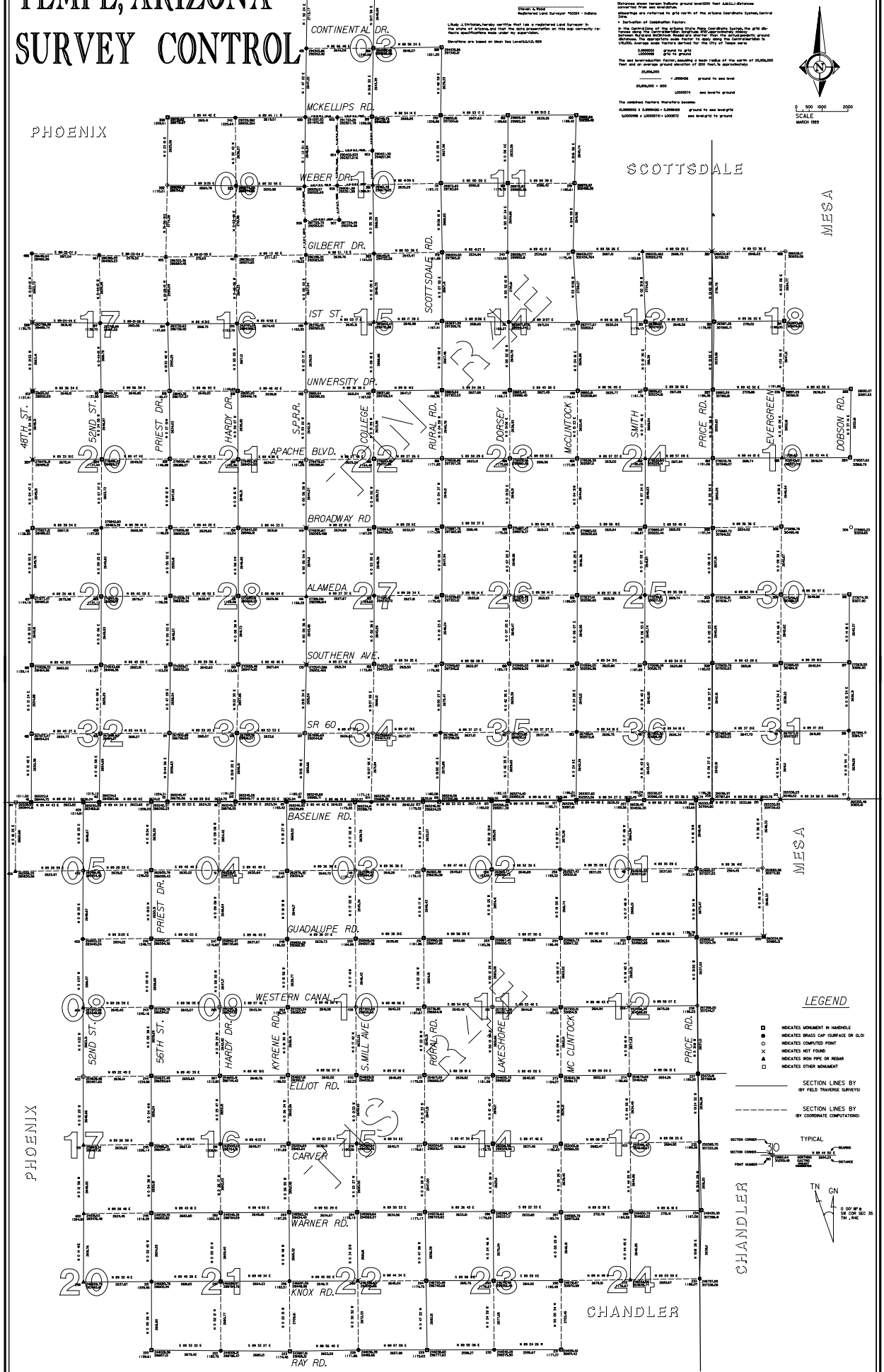
The sea level/reduction factor, assuming a mean radius of the earth of 20,906,000 feet and an average ground elevation of 1200 feet, is approximately:

$$\frac{20{,}906{,}000}{20{,}906{,}000 + 1200} = .9999426 \quad \text{ground to sea level}$$

L0000574 sea level to ground

The combined factors therefore become:

0.9999002 x 0.9999426 = 0.9999428 ground to sea level/grid
L0000998 x L0000574 = L0000572 sea level/grid to ground



DRAWN BY ENGINEERING / G.I.S.
LAST UPDATED 07/08/07

PREPARED BY THE CITY OF TEMPE ENGINEERING DIVISION