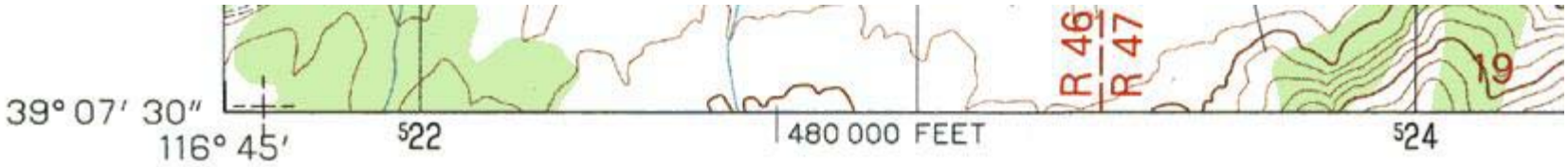
Map Anatomy: Datum



PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY
CONTROL BY . . . . . USGS, NOS/NOAA
COMPILED FROM AERIAL PHOTOGRAPHS TAKEN. 1956
PLANETABLE SURVEYS 1960
LIMITED REVISION FROM AERIAL PHOTOGRAPHS TAKEN 1983
FIELD CHECKED . . . . . 1987 MAP EDITED 1989
PROJECTION . . . . . TRANSVERSE MERCATOR
GRID: 1000-METER UNIVERSAL TRANSVERSE MERCATOR . . . . . ZONE 11
10,000-FOOT STATE GRID TICKS . . . . . NEVADA, CENTRAL ZONE
UTM GRID DECLINATION . . . . . 0°12′ EAST
1989 MAGNETIC NORTH DECLINATION . . . . . 15° EAST
VERTICAL DATUM . . . . . NATIONAL GEODETIC VERTICAL DATUM OF 1929
HORIZONTAL DATUM . . . . . 1927 NORTH AMERICAN DATUM

To place on the predicted North American Datum of 1983, move the projection lines as shown by dashed corner ticks (12 meters north and 79 meters east)

There may be private inholdings within the boundaries of any Federal and State Reservations shown on this map

Where omitted, land lines have not been established

Public Land Survey System is shown as published in 1960 and verified or supplemented in 1987

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field check

Map Anatomy: Datum

- If datum is recorded, usually found near the map scale or publisher's name
- Use Horizontal Datum, not Vertical
- Occasionally, if no datum is recorded but the reference ellipsoid is, then one can determine the datum using the pdf document found at http://earth-info.nga.mil/GandG/publications/tr8350.2/wgs84fin.pdf (Use Appendix B)

Map Anatomy: Grid

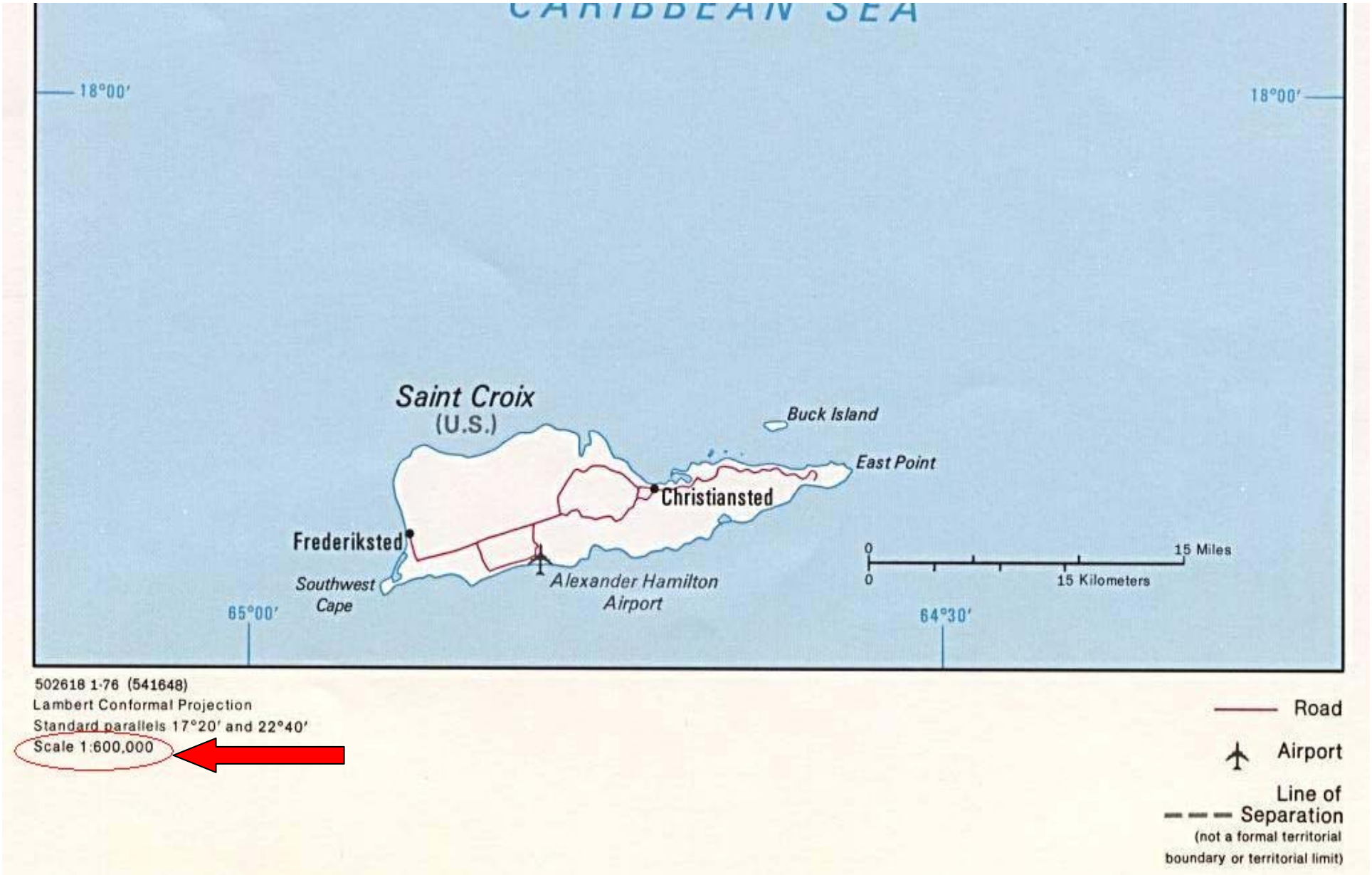
Map Anatomy: Grid

- Shows the placement of the parallels and meridians on maps
- Used to determine latitude and longitude
- Maps with no grid recorded cannot be used to determine coordinates – only to determine extents

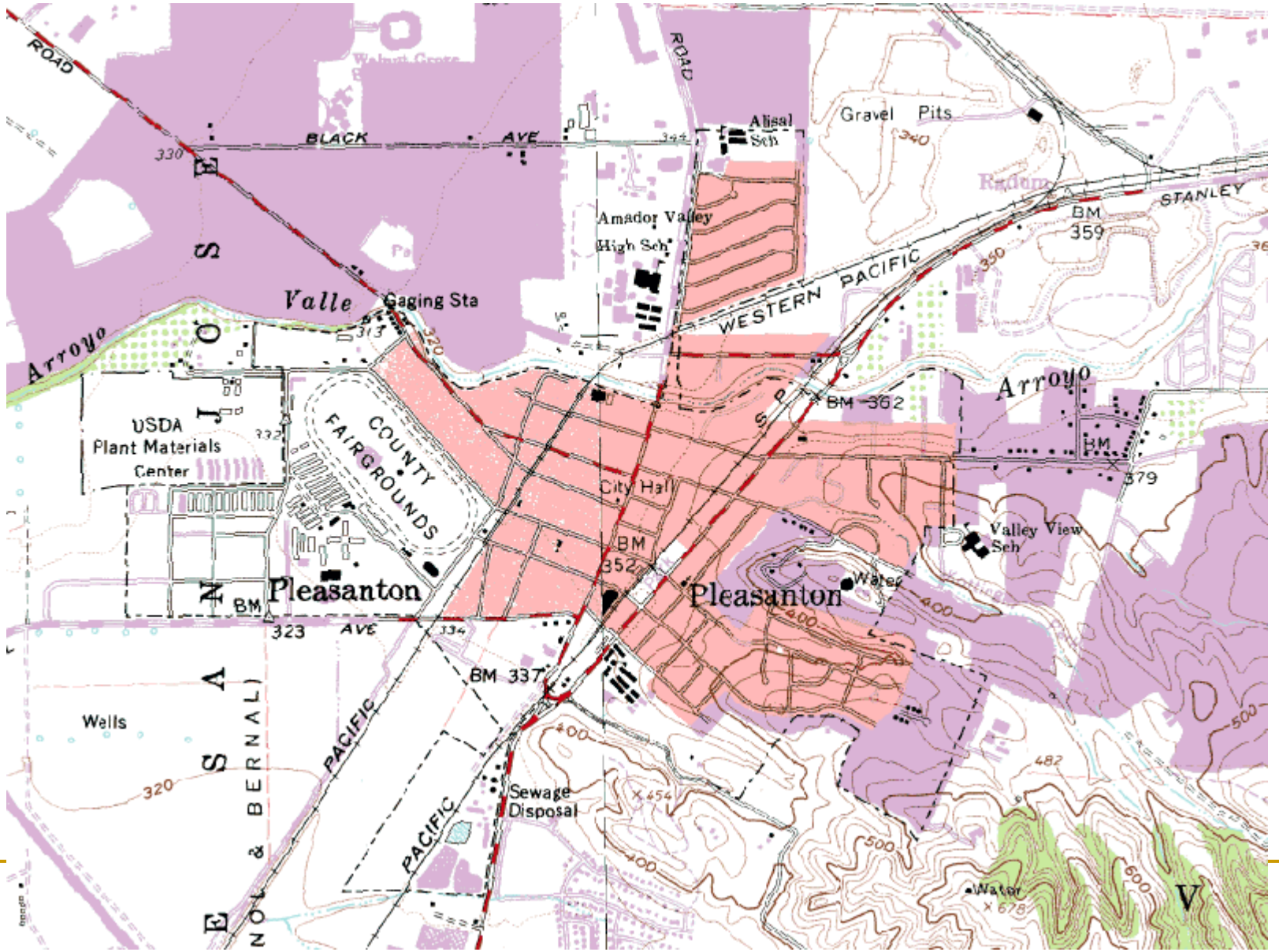
Map Anatomy: Grid

Map with no grid labeled

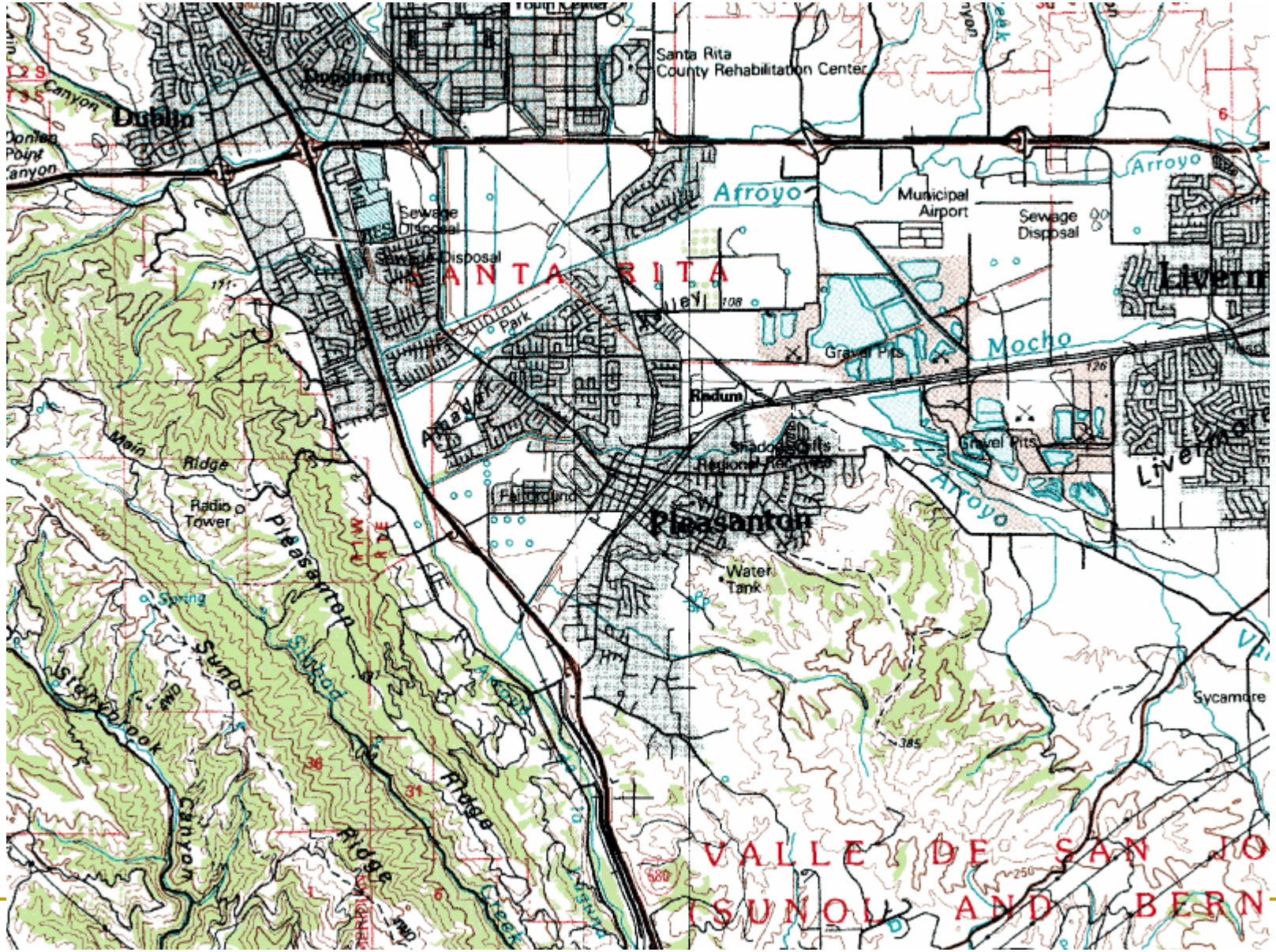
Map Anatomy: Map Scale



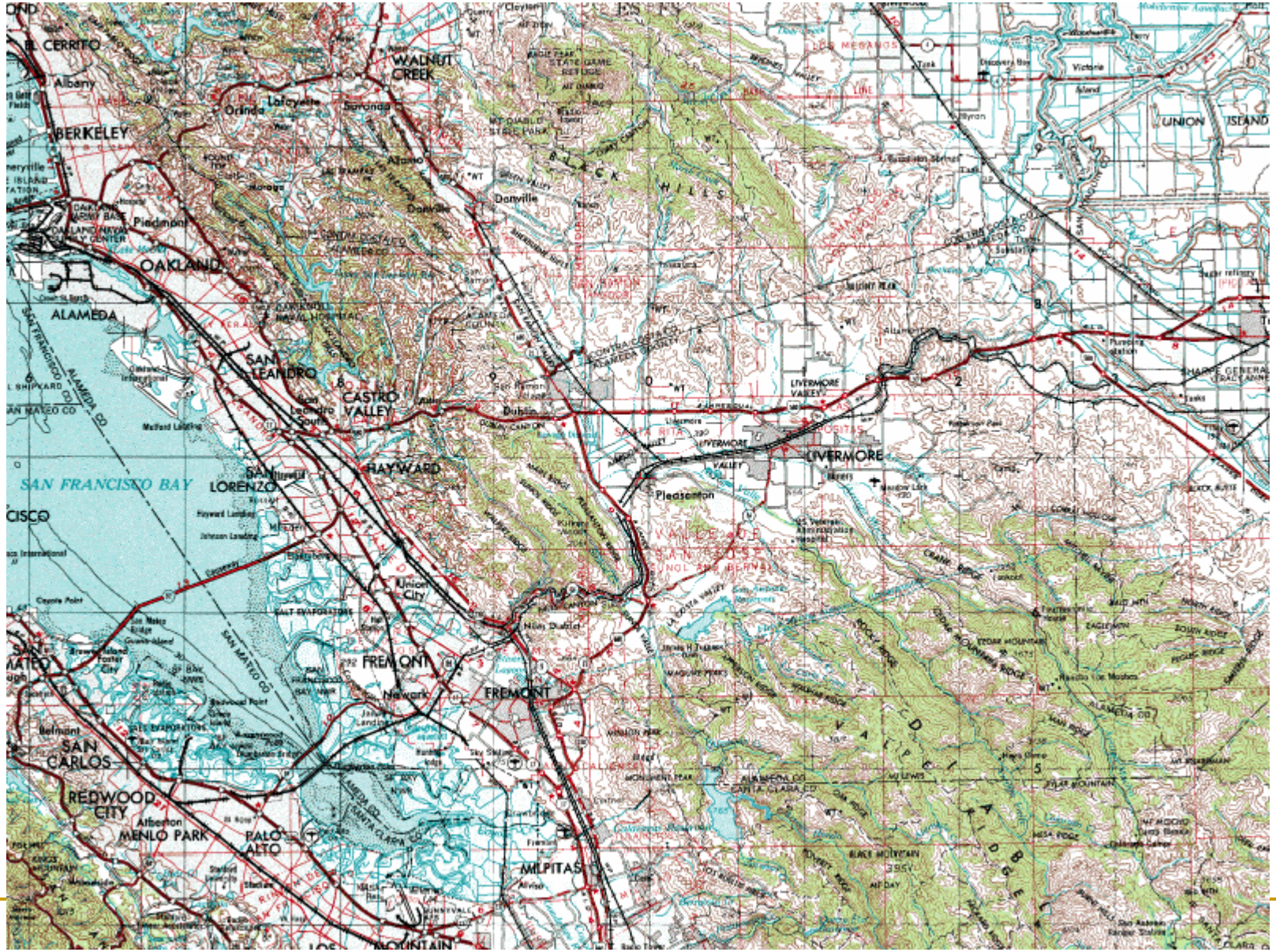
Map Anatomy: Map Scale 1:24,000
Large Scale Map



Map Anatomy: Map Scale 1:100,000



Map Anatomy: Map Scale 1:250,000

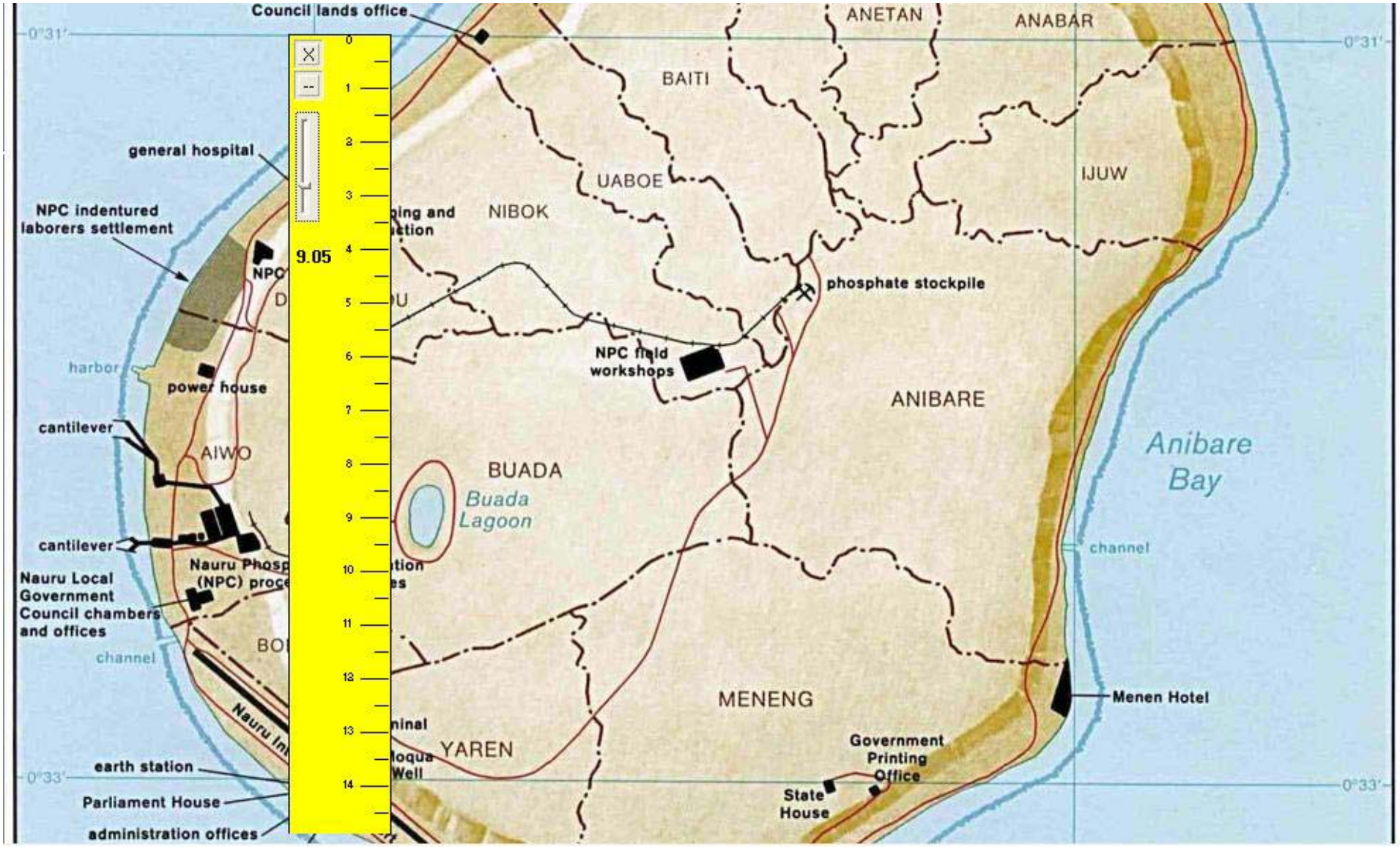


Determining Coordinates from Paper Maps

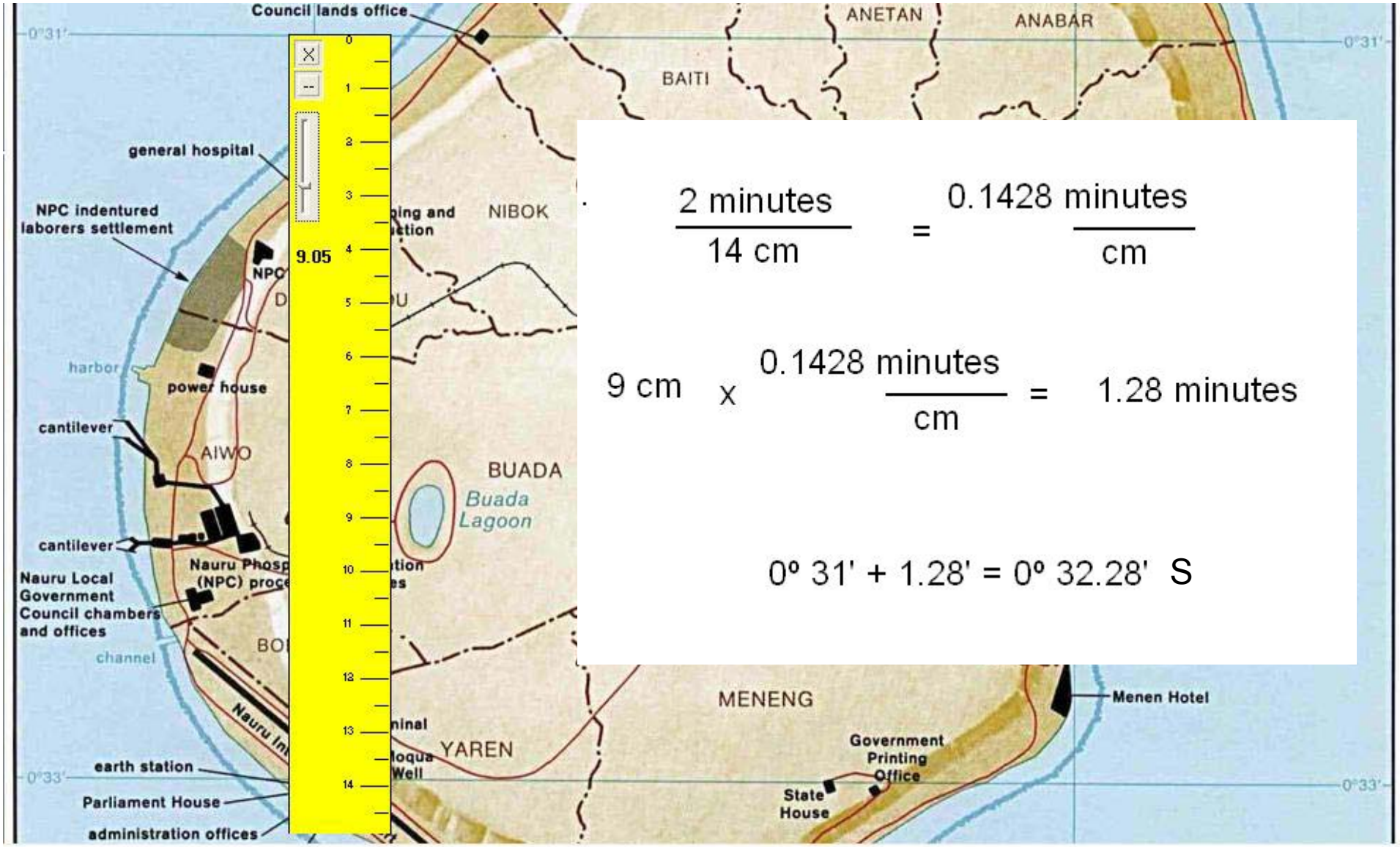
- Paper maps are necessary when gazetteers will not report needed coordinates
  - Especially useful for distances by roads and topographic features like rivers and mountain ranges
- Pay special attention to the grid lines and the hemisphere (latitudes in the southern hemisphere are negative, and longitudes in the western hemisphere are negative)

Determining Coordinates from Paper Maps

Determining Coordinates from Paper Maps: Latitude



Determining Coordinates from Paper Maps: Latitude

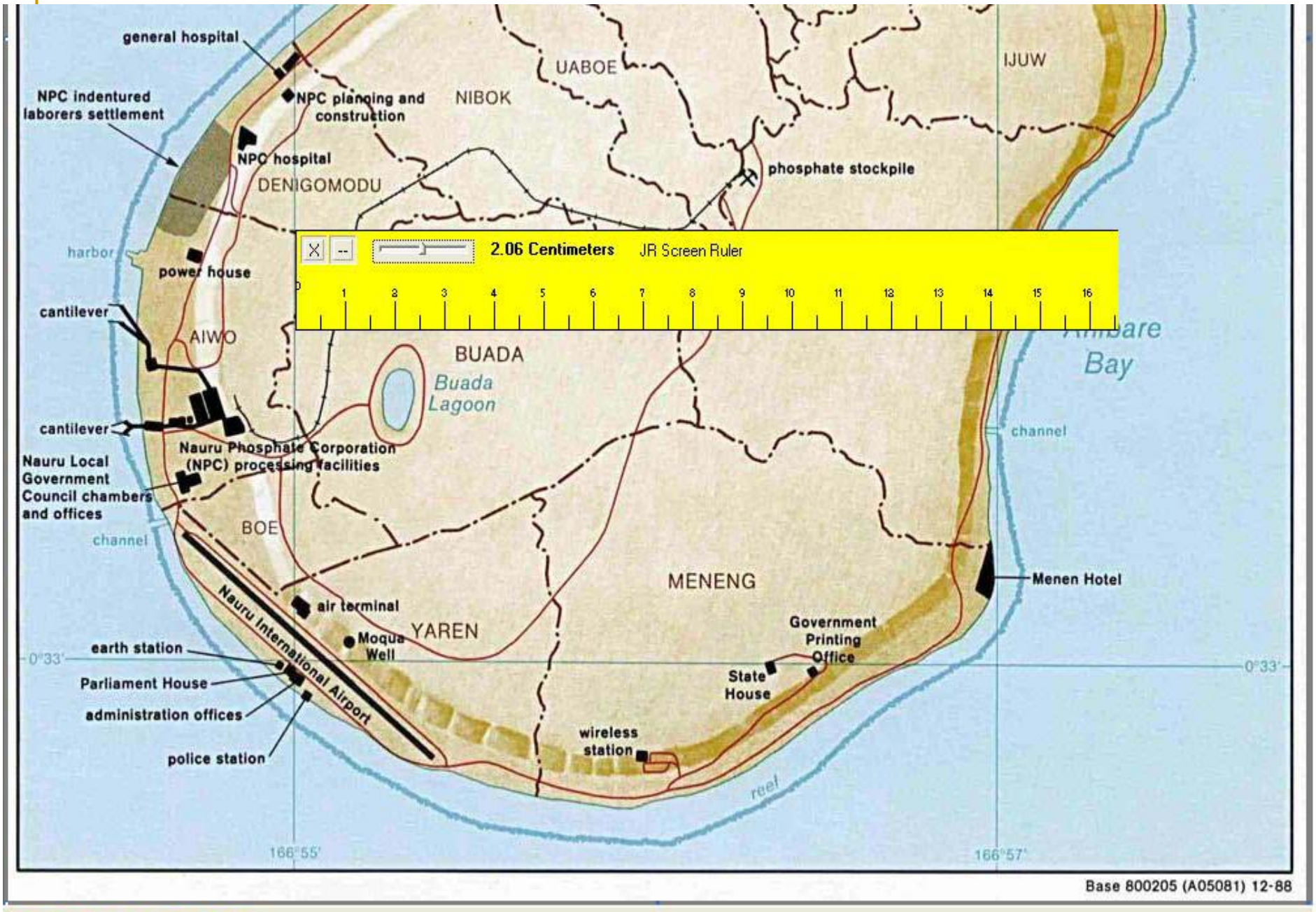


$$\frac{2 \text{ minutes}}{14 \text{ cm}} = \frac{0.1428 \text{ minutes}}{\text{cm}}$$

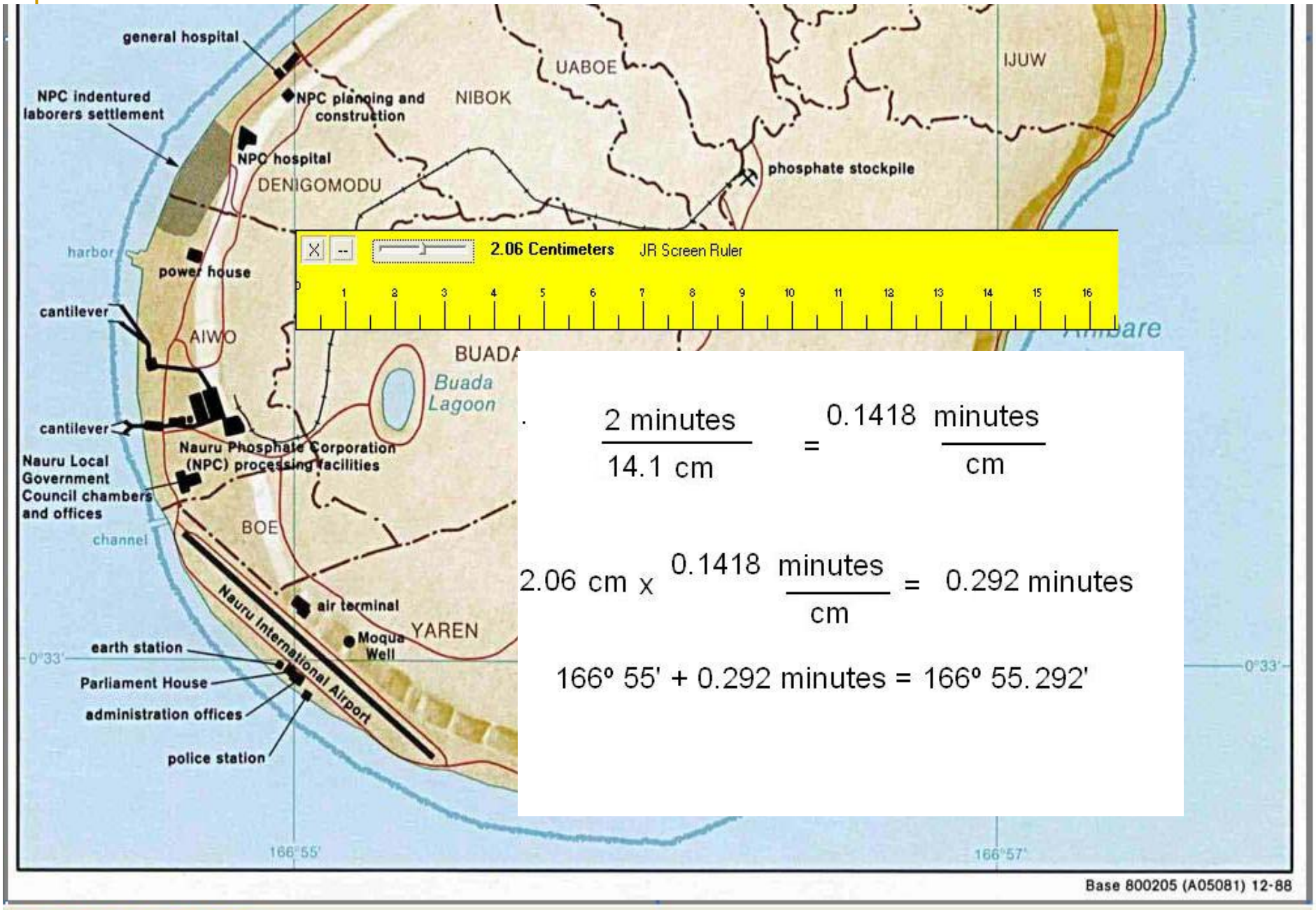
$$9 \text{ cm} \times \frac{0.1428 \text{ minutes}}{\text{cm}} = 1.28 \text{ minutes}$$

$$0^\circ\ 31' + 1.28' = 0^\circ\ 32.28'\ \text{S}$$

Determining Coordinates from Paper Maps: Longitude



Determining Coordinates from Paper Maps: Longitude

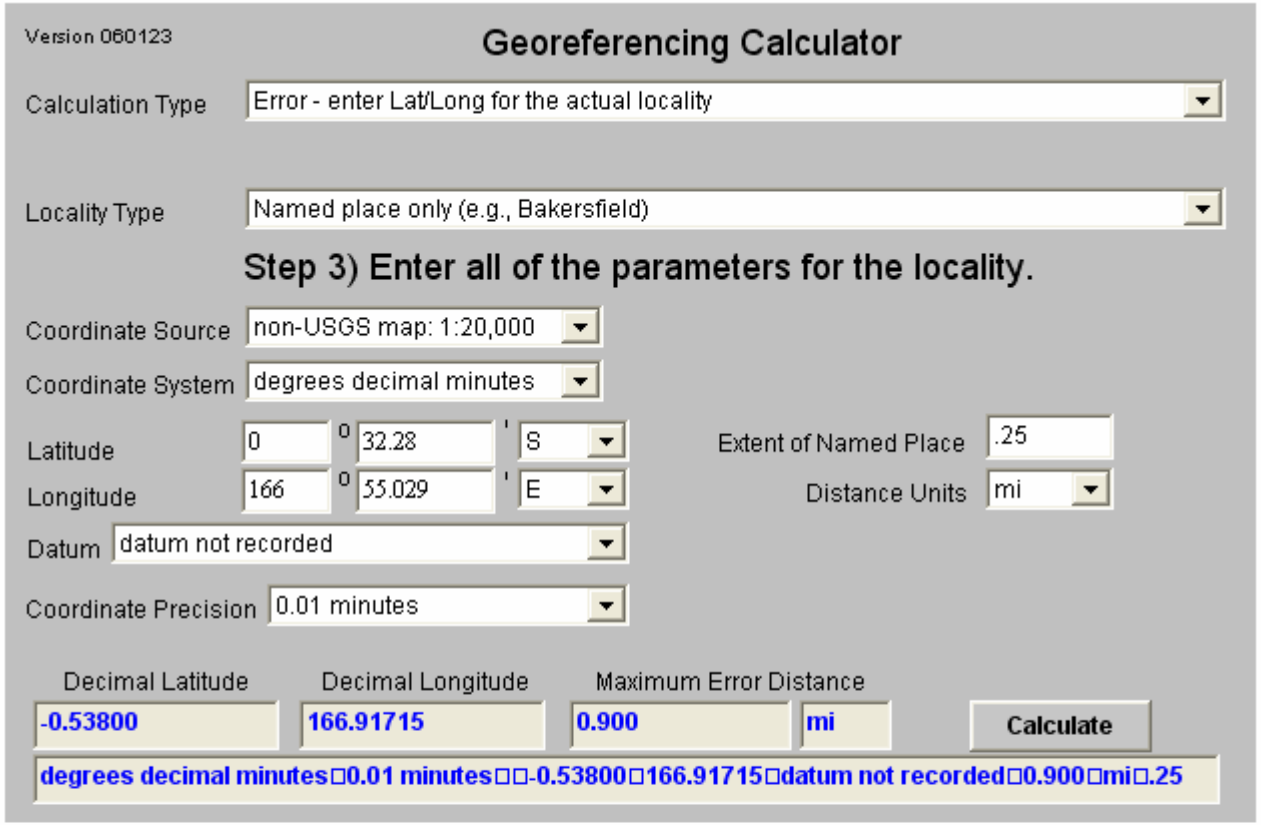


$$\frac{2 \text{ minutes}}{14.1 \text{ cm}} = \frac{0.1418 \text{ minutes}}{\text{cm}}$$

$$2.06 \text{ cm} \times \frac{0.1418 \text{ minutes}}{\text{cm}} = 0.292 \text{ minutes}$$

$$166^\circ\ 55' + 0.292 \text{ minutes} = 166^\circ\ 55.292'$$

Determining Coordinates from Paper Maps: Error Calculation



Determining Coordinates from Paper Maps: Determination Reference

- For Determination Reference: be sure to include the following:
  - Map name
  - Publisher name
  - Map Scale
  - Map Date
- Example: United States Geological Society (USGS) Topographic Map California, 1956, map scale 1:24,000, map name “Boone”

Referencias geográficas

- Nominales
- Numerales (coordenadas)
    - Mapas en papel
        - Ejercicios 2 (sólo uno)
            - Añadir campos
            - Buscar coordenadas