Annual Report 2003: Geologic Mapping and Database for Portland Area Fault Studies
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Ian Madin
Oregon Department of Geology and Mineral Industries
Ian.p.madin@state.or.us

This project seeks to pull together numerous geologic map and database products generated over the last decade by the Oregon Department of Geology and Mineral Industries (DOGAMI) in the Portland Urban Area. The purpose is to build a better geologic model to help map faults and evaluate their history and earthquake potential. The goal of the project was to produce:

1. A seamless compilation of recent 1:24,000 scale mapping covering the Portland Urban area.
2. A database of located engineering borehole and water well logs.
3. Contoured and gridded geologic models prepared for ground response modeling.

To date we have largely completed the first task, pulling together al the recent DOGAMI 1:24,000 scale mapping (green quads on Figure 1). This involved digitizing several quads and edge matching, and the graphic elements of the map are now complete (Figure 2). We have developed a new geologic data model to attribute geologic maps with under an USGS-funded STATEMAP grant, and we will attribute this map with the new system. The final map will consist of polygon and line data files in MapInfo .tab and ArcInfo .shp format, along with polygon attribute data in Microsoft Access database format. We have also prepared a mosaic Digital Raster Graphic 1:24,000 scale base map for the entire area, and a mosaic 10m USGS Digital Elevation Model.

We have collected three different databases of engineering boreholes and water wells together containing about 5-6000 entries (Figure 3). We have adapted Microsoft Access database to enter the boreholes, and have about half the holes entered. We will enter the remaining holes, eliminate duplicates and locate as many new holes as possible in a corridor along the major fault zones, using digital taxlot data and online boring records.

We have extracted the gridded data from earlier GIS formats, and have converted them into our current MapInfo Grid format. We are now experimenting with ways to present the data in an easily read, non-platform specific format. We have had less success with recovering the original structure contour data from earlier cad formats. We have tried recovering the contours from the gridded data, but so far have had problems with very noisy lines produced this way. We are researching both routines to clean up the linework extracted from the gridded data, and conversion of the original line data directly.

Figure 1. Location map showing study area. Yellow tint is Portland Area Urban Growth Boundary. Red bounded quads are USGS mapping, green are DOGAMI

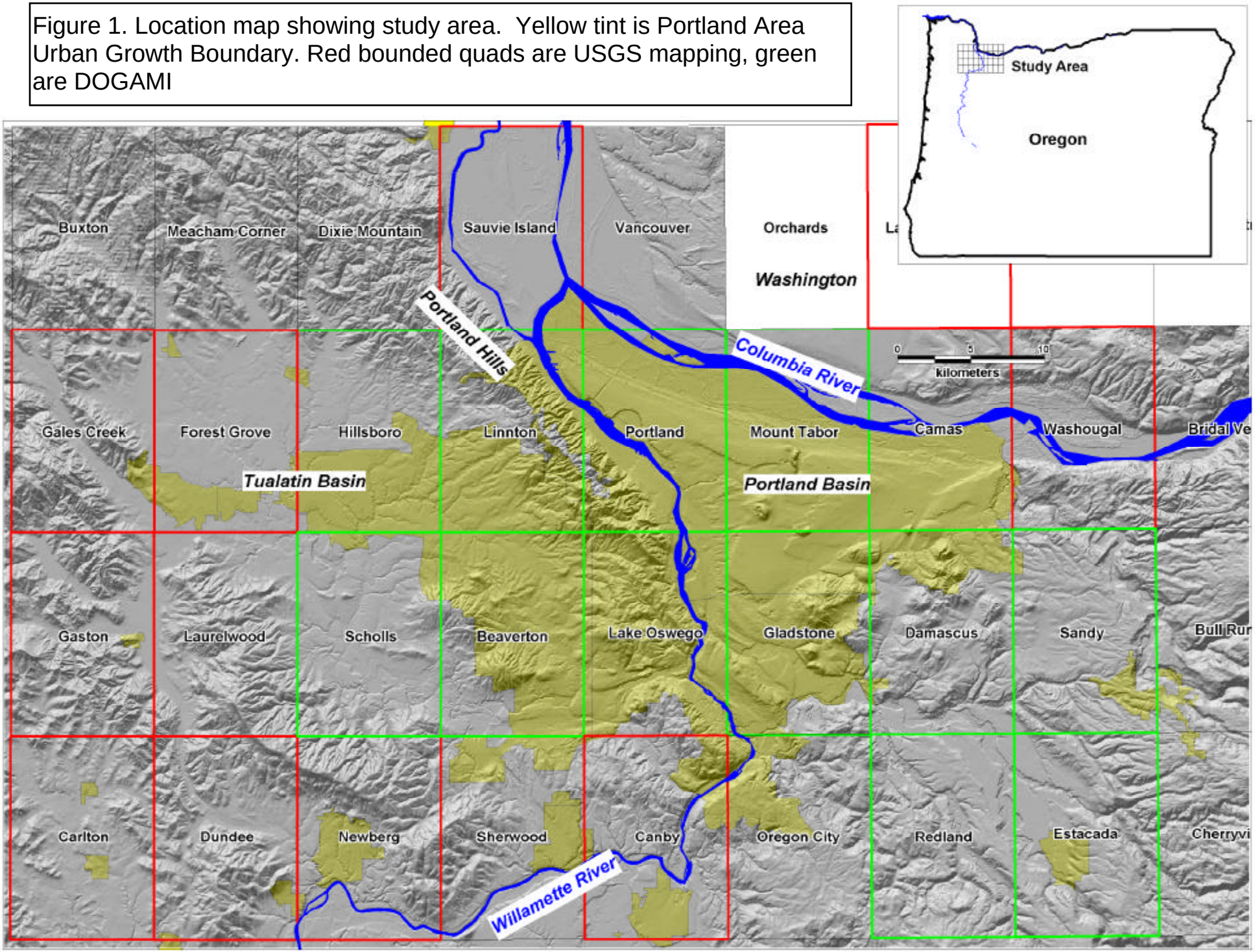

Figure 2. Geologic Map

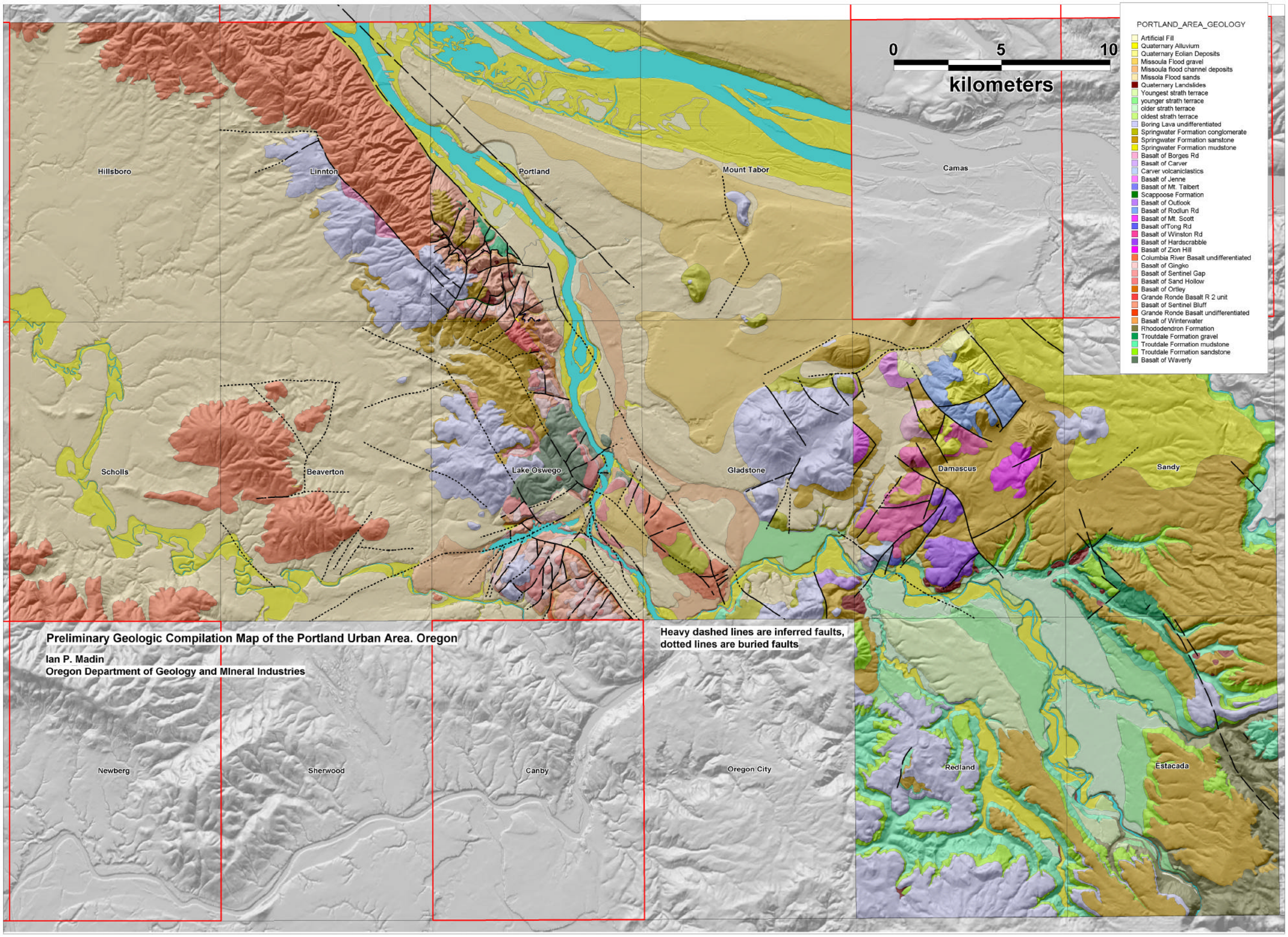
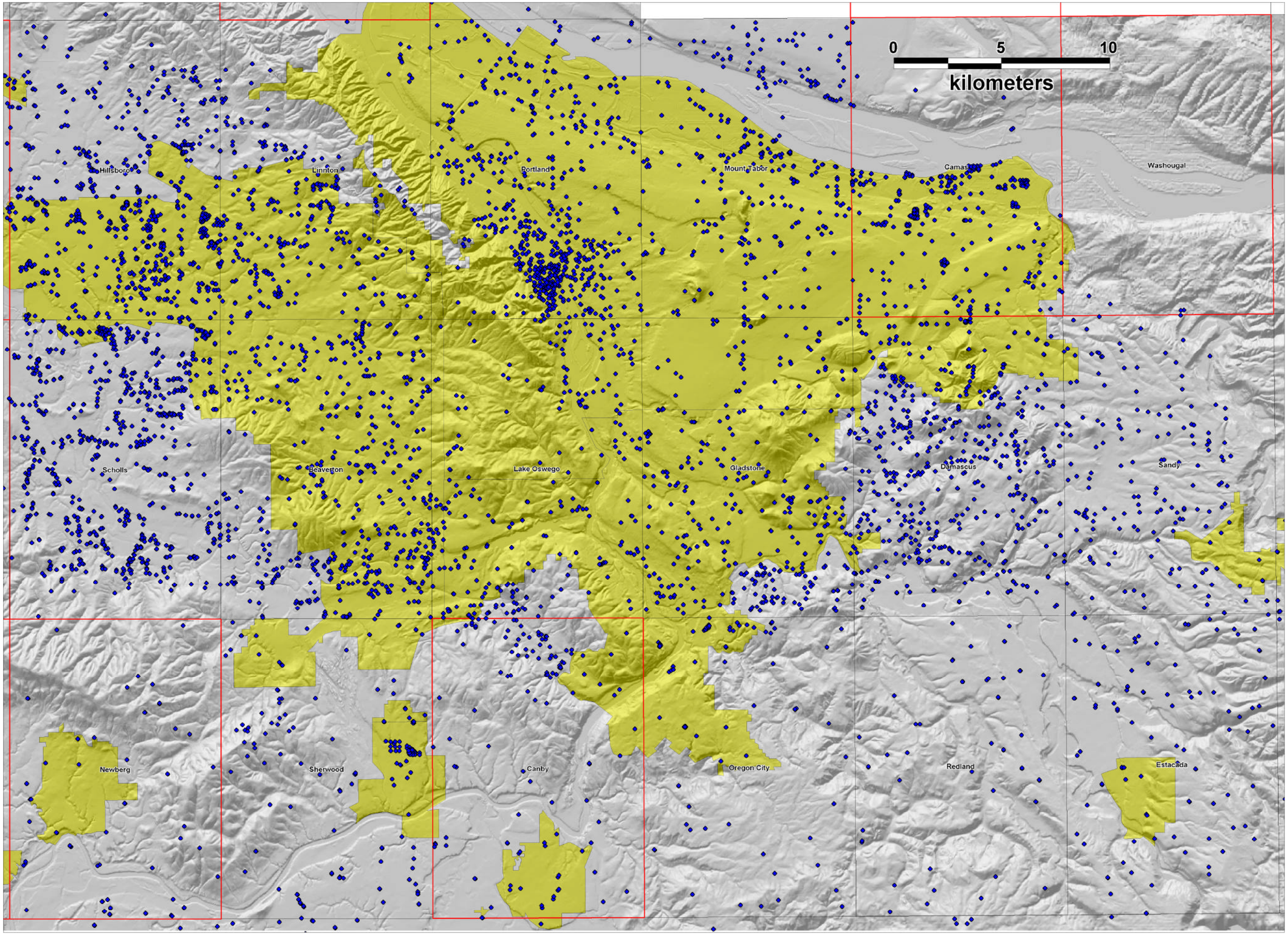
Figure 3, Locations of engineering borings and water wells in database.