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ICE-WALLED LAKE PLAINS HIGHLIGHTED ON NEW SURFICIAL GEOLOGY MAP OF KANE COUNTY, ILLINOIS

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A 1:62,500-scale surficial geology map of Kane County, a western collar county of suburban Chicago, has recently been digitally compiled from published and unpublished 1:24,000 maps. The map's digital database includes information from more than 200 borings and outcrops sampled over the past 45 years by the Illinois State Geological Survey (ISGS). Many include down-hole natural gamma-ray logs, and core subsample analyses of clay minerals and particle-size distribution. Mapping in the digital environment has benefited from new base maps of shaded relief from LiDAR-based DEMs.

Our new map highlights the distribution of ice-walled lake plains which occur primarily between the Arlington and Bloomington moraines, and between the St. Charles and Marengo moraines. Mapped as a facies of the silty and clayey surficial lacustrine/glaciolacustrine unit (the Equality Formation), ice-walled lake plains (IWLPs) include deposits of sand and gravel that occur, relative to the core of laminated silty lake sediment at the base (as a lag), on the sides (as ice-contact deltas), and in the sub-loess mantle (as solifluction deposits). The total facies package is typically 4 to 8 m thick. IWLPs rise 1 to 3 m above the surrounding landscape which may include deposits of diamicton or younger terraces

underlain by younger glaciolacustrine deposits. Glacial Lake Pingree, a large proglacial lake mapped originally by Willman and Frye (1970), is a complex of IWLPs encased in younger lake sediment. Some lower level terraces may reflect stepwise lowering of base level, and could be interpreted as IWLPs.

Notable features in Kane County include: 1) Seventy-meter thick deposits of clay loam diamicton of the Tiskilwa Formation (Wedron Group) forming the Marengo Moraine, 2) High-level terraces along the Fox River formed during by catastrophic overflow ("Fox Torrent" of Alden) of a proglacial lake dammed by the Woodstock Moraine, 3) Deep bedrock valleys with glaciofluvial fills of Illinois Episode sand and gravel, that contain important regional aquifers, and 4) An outstanding array of data characterizing Quaternary deposits. Data density is especially high at the former Fermi Accelerator Laboratory, which allowed differentiation of three facies of the Yorkville Member and the Batestown Member of the Lemont Formation.

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