Soils and Parent Materials of Spring Bay Quadrangle
Peoria and Woodford Counties, Illinois

Department of Natural Resources
ILLINOIS STATE GEOLOGICAL SURVEY
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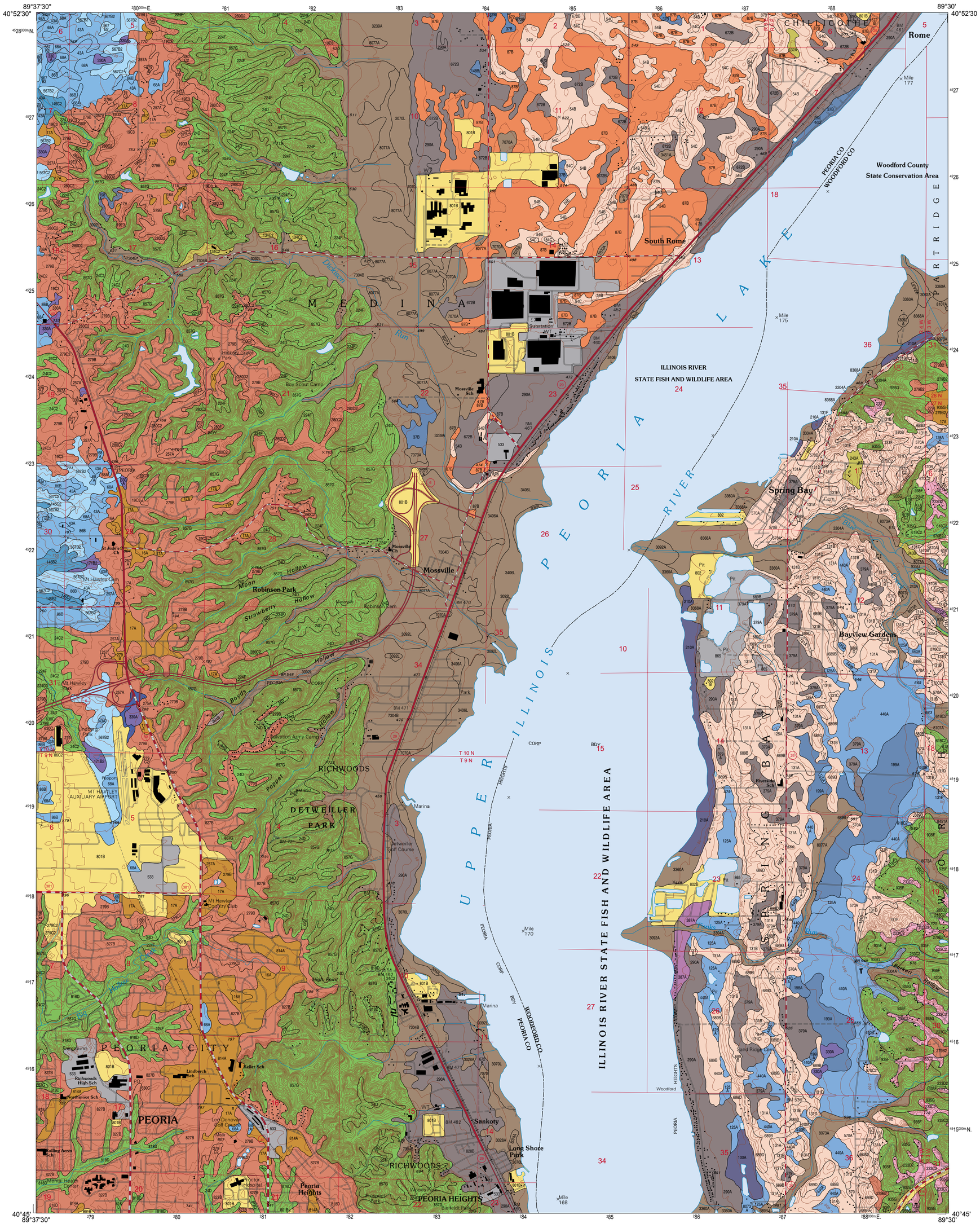
2004

Illinois Geologic Quadrangle Map
IGQ Spring Bay-SPM



Soils and Parent Materials

The soils and parent materials map of the Spring Bay Quadrangle was developed from the compilation and correlation of the soil surveys for Peoria County (Walker 1992), Woodford County (Teater 1999), and Tazewell County (Teater 1996). This compilation was produced specifically for the Illinois State Geological Survey (ISGS) project as part of an agreement with the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA, NRCS). The soil map unit boundaries (soil series) were transferred onto mylar overlays superimposed on 1:12,000 scale (quarter-quadrangle) prints of the 1998/1999 Digital Orthophoto Quadrangles and 1996 U.S. Geological Survey Digital Line Graph hypsography (contour lines). The mylar overlays with hand-drawn boundaries were then scanned. The resulting raster image was translated into vector data using ArcInfo® software. This process created a digital database to which various attributes of the soil series were added.

Prior to the release of NRCS soils data, correlation of Major Land Resource Areas (MLRA) in Peoria and Woodford Counties was required. The updated MLRA legends for Peoria County, Woodford, and Tazewell Counties were used to compile the map unit legend. Because this update was applied only to the soils on this map, its publication makes available the most recent interpretation of the soils and parent materials on the quadrangle.

The soil series displayed on this map are organized by their parent material in the map legend using a soil key provided by the NRCS office in Champaign (table 1). Because soil properties are closely related to the characteristics of their parent materials, the individual soil series within parent material classes were categorized using information from the USDA soil associations of Illinois (table 2) and information collected during field work for the surficial geology map of the quadrangle (Stumpf and Weibel in review).

Within each parent material class, the soil series were further organized based upon the thickness of a silty or loamy surface cover, the vegetation type under which the soil series formed, and the USDA drainage class. The soil series or map unit is color-coded according to the soil association in which it belongs. The colors correspond to those used in the soil associations of Illinois (table 2). Soil associations of Illinois, as defined in Fehrenbacher et al. (1984), group soils on the basis of the parent materials in which they formed, their surface-soil color, degree of development, and natural soil drainage. The soils in an association tend to form a characteristic pattern on the landscape that is often repeated.

References

Fehrenbacher, J.B., J.D. Alexander, I.J. Jansen, R.G. Darmody, R.A. Pope, M.A. Flock, E.E. Voss, J.W. Scott, W.F. Andrews, and L.J. Bushue, 1984, Soils of Illinois: University of Illinois at Urbana-Champaign, College of Agriculture, Agricultural Experiment Station and U.S. Department of Agriculture, Soil Conservation Service, Bulletin 778, 85 p.

Teater, W.M., 1996, Soil survey of Tazewell County, Illinois: Washington DC, United States Department of Agriculture, Natural Resources Conservation Service, 210 p.

Teater, W.M., 1999, Soil survey of Woodford County, Illinois: Washington DC, United States Department of Agriculture, Natural Resources Conservation Service, 326 p.

Walker, M.B., 1992, Soil survey of Peoria County, Illinois: United States Department of Agriculture, Soil Conservation Service, 225 p.

Table 1 Soil series (map unit) by parent materials and drainage class.[1]

Parent material class	Parent materials in soil profile (USDA)	Natural soil drainage[2,3]: Excessively to well drained	Moderately well drained	Somewhat poorly drained	Poorly drained
Loess: Windblown silt and fine-grained sand; dark yellowish gray to yellowish brown in color; texturally ranges from a silt to silt loam; blankets upland areas along the Illinois River valley; absent from geomorphic surfaces that postdate its deposition (e.g., floodplains).	Loess (>60 inches thick)			Joy (275)P	
			Osco (86)P	Ipava (43)P	Sable (68)P
		Elkhart (567)P			
				Clarksdale (257)TR	
			Rozetta (279)(827)T	Keomah (17)(814)T	Rushville (16)(814)T
		Fayette (280)(827)T			
		Navlys (630)T			
		Sylvan (19)T			
Glacial till: Sediment composed of a mixture of clay, silt, sand, and rocks deposited by glaciers; reddish brown to dark grayish brown in color; loamy textured; hard to firm; forms many of the uplands in the area; absent in the Illinois River valley where it has been removed by postglacial erosion.	Loess (40–60 inches thick) over glacial till		Catlin (171)P		
			Birkbeck (233)T		
	Loess (20–40 inches thick) over glacial till		Saybrook (145)P		
	Loess (0–20 inches thick) over glacial till	Dodge (24)T			
		Senachwine (618)T			
		Hennepin (935)(818)(87)T			
		Hickory (818)T			
		Strawn (224)(818)(857)T			
Glacial outwash: Stratified deposits of sand, gravel, cobbles, and boulders; yellowish brown to grayish brown in color; mostly clean with very little silt; very well to moderately sorted proglacial fluvial sediments deposited by meltwater flowing in front of melting glaciers; forms a series of terraces, bars, and channel deposits in the Illinois River valley.	Loess (40–60 inches thick) over glacial outwash	Plano (199)P		Elburn (198)P	
		St. Charles (243)T			
	Loess (20–40 inches thick) over glacial outwash	Proctor (148)P			
		Camden (134)T		Starks (132)T	
	Loess (0–20 inches thick) over glacial outwash	Jasper (440)P			Selma (125)P
		Ockley (987)T			
		Martinsville (570)T			
	Loamy materials (40–60 inches thick) over glacial outwash	Cresent (672)P			
	Loamy materials (20–40 inches thick) over glacial outwash	Warsaw (290)(828)P			
		Dakota (379)(828)P			
		Fox (327)T			
Aeolian sand: Very fine- to medium-grained sand; loose; non-calcareous in upper part; postglacial windblown sand composing dunes and undulating sandy deposits on terraces and uplands.	Aeolian sand (>60 inches thick)	Plainfield (54)T*			
		Coloma (689)T*			
	Loamy materials (20–40 inches thick) over aeolian sand	Dickinson (87)P			
		Alvin (131)T			
Colluvium: Stratified or massive, silty or clayey deposits infilling depressions on the uplands and on foot slopes of valley walls; remobilized till, outwash, and loess.	Silty and clayey materials	Worthen (37)P			
	Silty and loamy materials (>40 inches thick)				Peotone (330)P
Organic soil material: Peat, organic silt, and muck; dark gray to black; usually water saturated; accumulates in abandoned channels, shallow lakes, and low-lying depressions on the modern floodplain.	Sapric materials (muck) (>51 inches thick)				Lena (210A)
	Sapric materials (muck) (16–51 inches thick) over glacial drift				Palms (100A)
Alluvium: Stratified sand and gravel with some beds of silt and clay or diamicton; yellowish brown to gray; may be either calcareous or non-calcareous; seasonally wet and often gleyed; subject to flooding and overland flow; the finer-grained sediments often contain humus, dispersed wood fragments and shells, or man-made waste; upper part weathered; postglacial (modern) lake or stream sediments deposited over the past 12,000 years on floodplains, along channels, and in seasonally ponded lakes; also includes sediments forming fan-shaped landforms in areas where streams or ravines emerge from uplands onto lower-gradient floodplains.	Alluvium (sandy) (20–40 inches thick) over alluvium (loamy)	Sarpy* (3092A, 3092L)			
		Landes (3304A, 7304B)			
	Alluvium (loamy)	Ross (8073A)			
				Raveenwash (8368A)	
	Alluvium (silty)				Slackwater (3360A)
		Jules (3028A)		Paxico (3406A, 3406L)	
			Dorchester (3239A)		
			Huntsville (8077A)	Lawson (3451A, 8451A)	
				Radford (8074A)	Beaucoup (3070L, 7070A)
					Sawmill (8107A)
	Alluvium (clayey)			Bowdre (589B)	
Orthents (silty to loamy): Materials generally in cut-and-fill areas. In the cut areas, the topsoil has been removed and the subsoil or underlying material has been exposed. In fill areas, additional loamy material has been placed on the original surface and in many cases has been mixed with the original soil.	ORTHENTS (801, 802)				
Man-made land (human-disturbed deposits): The map unit consists of areas from which gravel, sand, or both have been removed (including the surrounding area in which the mining by-products have been placed) and urban land (areas covered by buildings, roads, and parking lots).	MAN-MADE MATERIALS (865, 533)				

[1]Map symbols consist of numbers or of a combination of numbers and a letter. The initial numbers represent the kind of soil. An uppercase letter following these numbers indicates the class of slope, A = 0–2%, B = 2–5%, C = 5–10%, D = 10–15%, E = 15–25%, F = 25–35%, G = 35–60%, except for the letter "L," which indicates flooding of long duration. Symbols without a slope letter are for miscellaneous areas. A final number of 2 following the slope letter indicates that the soil is moderately eroded, and a final number of 3 indicates that the soil is severely eroded.

[2]Asterisk denotes soils that are excessively to somewhat excessively drained.

[3]The type of vegetation cover associated with each soil series is denoted by symbols: P = prairie; TR = transitional cover; T = timber (forested).

Table 2 Soil associations of Illinois in the Spring Bay Quadrangle (after Fehrenbacher et al. 1984).

Soil parent materials	Prairie (dark and moderately dark)	Timber (light and moderately dark)
Thick loess (> 60 inches)	Port Byron-Joy Tama-Ipava-Sable Herrick-Virden-Piasa	Fayette-Rozetta-Stronghurst Clinton-Keomah-Rushville
Moderately thick loess (40–60 inches) on medium- to fine-textured, Wisconsinan loamy sands or sands	Catlin-Flanigan-Drummer	Birkbeck-Sabina-Sunbury
Moderately thick to thin loess or silty material (24–60+ inches) on medium-textured, Wisconsinan outwash	Plano-Proctor-Worthen	St. Charles-Camden-Drury
Thin loess (10–40 inches) on loam, Wisconsinan till	Saybrook-Dana-Drummer	Dodge-Russell-Miami
Thin loamy or silty materials on gravelly Wisconsinan outwash	Lorenzo-Warsaw-Wea	Casco-Fox-Ockley
Thin silty or loamy materials on sandy and loamy Wisconsinan outwash	Jasper-LaHogue-Selma	Martinsville-Sciotoville
Thick, sandy Wisconsinan outwash and aeolian materials	Sparta-Dickinson-Onarga	Oakville-Lamont-Alvin
Sandy to clayey alluvial sediments on bottomlands	Lawson-Sawmill-Darwin	
Organic materials (peat and mucks)	Houghton-Palms-Muskego	

Base map compiled by Illinois State Geological Survey from digital data provided by the United States Geological Survey. Topography compiled by the United States Geological Survey from imagery dated 1946. Revised and updated from imagery dated 1995. Field checked 1996.

North American Datum of 1983 (NAD 83)
Projection: Transverse Mercator
10,000-foot ticks: Illinois State Plane Coordinate system, west zone (Transverse Mercator)
1,000-meter ticks: Universal Transverse Mercator grid system, zone 16

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SCALE 1:24000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

BASE MAP CONTOUR INTERVAL 10 FEET
SUPPLEMENTARY CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Released by the authority of the State of Illinois: 2004

Transfer of soil map units by Soil Survey staff, Natural Resources Conservation Service, Rock Falls, Illinois.

Raster to vector conversion completed by C. Abert.

Map review provided by Soil Survey staff, Natural Resources Conservation Service, Champaign, Illinois.

Digital cartography by M. Barrett, Illinois State Geological Survey.

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United States Department of Agriculture
NRCS Natural Resources Conservation Service

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

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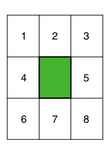
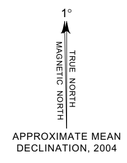


ADJOINING QUADRANGLES
1 Edelstein
2 Rome
3 Chillicothe
4 Dunlap
5 Germantown Hills
6 Peoria West
7 Peoria East
8 Washington



APPROXIMATE MEAN DECLINATION, 2004

ROAD CLASSIFICATION

Primary highway, hard surface
Secondary highway, hard surface
Light duty road, hard or improved surface
Unimproved road
64 Interstate Route
50 U.S. Route
158 State Route