

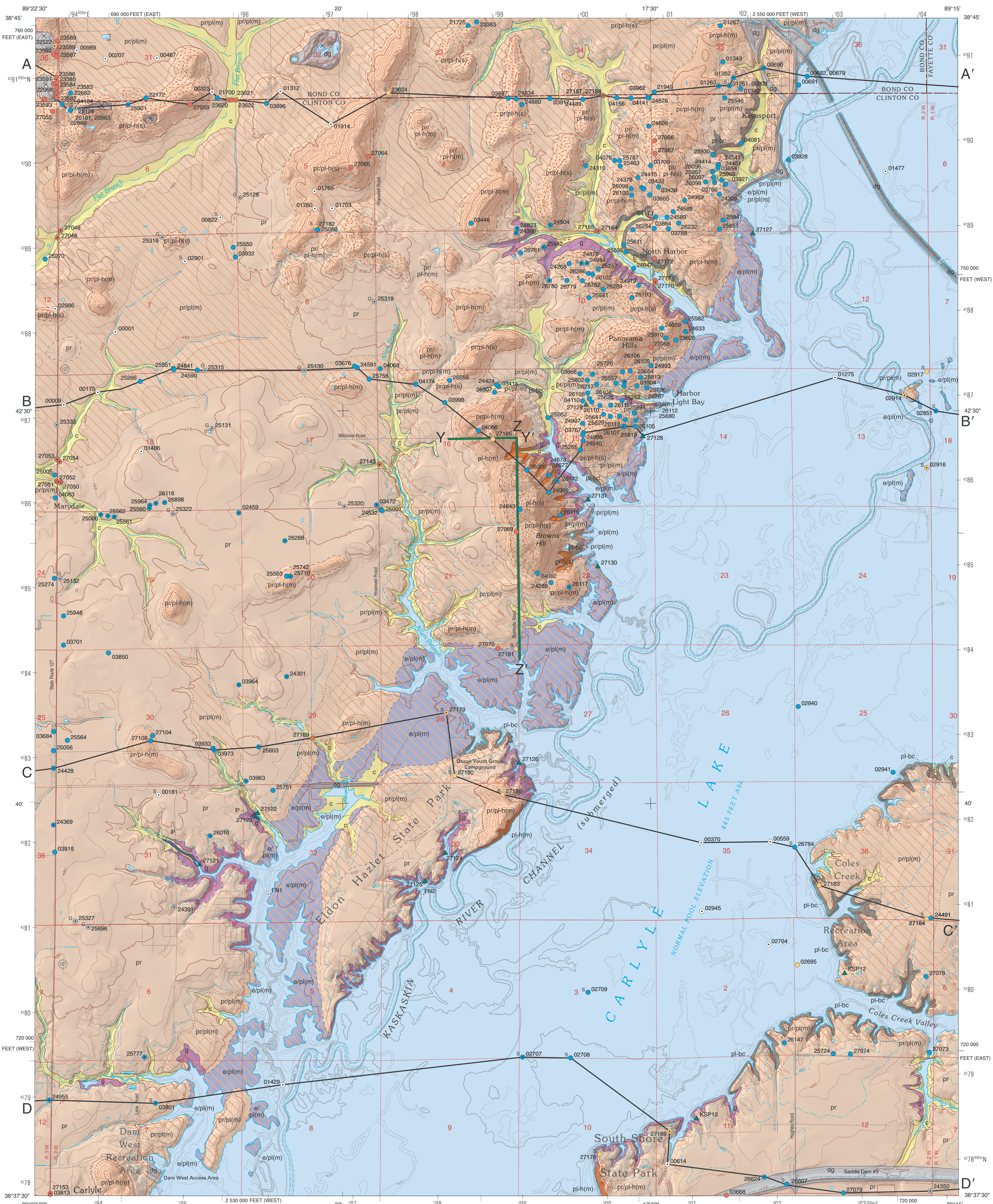
SURFICIAL GEOLOGY OF KEYESPORT QUADRANGLE

CLINTON, BOND, AND FAYETTE COUNTIES, ILLINOIS

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2017

Illinois Geologic Quadrangle Map
IGQ Keyesport-SG

Prairie Research Institute
ILLINOIS STATE GEOLOGICAL SURVEY



Base map compiled by the Illinois State Geological Survey from digital data (2012 U.S. Topo and 1966 Raster Feature Separates (contours)) provided by the United States Geological Survey. Contours in Lake Carlyle show pre-dam surface topography from USACE maps dated 1957. Shaded relief derived from 1966 data from the National Elevation Dataset.

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

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ADJOINING QUADRANGLES
1 Beaver Creek
2 Pleasant Mound
3 Wildcat Lake
4 Stolltown
5 Boulder
6 Beckemeyer
7 Carlyle
8 Centralia West

APPROXIMATE MEAN DECLINATION, 2017

ROAD CLASSIFICATION

State Route
Local road

QUATERNARY DEPOSITS		
Description	Unit	Interpretation
HUDSON EPISODE (~12,000 years before present [B.P.] to today)¹		
Fill or removed earth; includes overburden material from sand and gravel mining and compacted earth materials in road, railway, and levee embankments	Disturbed ground dg	Anthropogenic fill or excavations; includes area of former sand and gravel pits in northwestern part of the quadrangle, railway embankments near the Village of Keyesport and crossing Carlyle Lake, and a levee embankment in southeast area of the quadrangle
Silt loam to silty clay loam to sandy loam; may contain thin sandy or loamy zones; dark brown to grayish brown; massive to weakly stratified; noncalcareous; soft consistency; weak and thin modern soil profile is typical (<1 ft); localized beds with organics; up to 30 ft thick	Cahokia Formation c	Alluvium (river deposits), overbank or channel deposits; in floodplains of Flat Branch Creek, Allen Branch, Coles Creek, and several unnamed tributaries to the former Kaskaskia River; occurs in the subsurface below much of Carlyle Lake (former Kaskaskia River Valley); derived mainly from erosion of loess, fill, and outwash sediments; adjacent uplands and slopes; includes some historical deposition
WISCONSIN EPISODE (~60,000–12,000 years B.P.)		
Silt loam to sandy loam; dark yellowish brown to light brownish gray to grayish brown; massive to finely laminated; weak soil structure; gray mottles and bright iron stains; noncalcareous; soft to medium stiff consistency; overlain by 2 to 4 ft of loess, recent Carlyle Lake flood deposits, or both; up to 10 ft thick	Equality Formation e	Lacustrine or alluvial deposits; may include distal outwash in some areas (Henry Fm.); occurs in terraces proximal to Carlyle Lake with surface elevations typically 455 ft asl (near Village of Keyesport) to 445 ft asl (south of Hazel State Park)
Silt loam to silty clay loam; upper 50 to 80% of thickness (Peoria Silt) is brown to yellowish brown to grayish brown; lower 20 to 50% (Roxana Silt) is dark yellowish brown to brown with a slight pinkish hue; lower part of the Roxana can be loamy; noncalcareous; contains a weak soil structure throughout but a strong structure in modern soil solum (upper few feet); soft to moderately stiff; massive to faintly laminated; typically 5 to 7 ft thick	Peoria and Roxana Silts pr	Mainly loess (windblown silt) and redeposited loess; redeposited loess and colluvium common in sloping areas; Peoria Silt (upper unit) contains modern soil; basal Roxana Silt (lower unit) is pedogenically mixed and is gradational with the units below; the Peoria and Roxana are sometimes indistinguishable in the field; various Illinois Episode facies and members in the subsurface are indicated on the map by unique patterns (see below) and labels (e.g., pr-pl-h(m))
SANGAMON AND ILLINOIS EPISODES (~150,000–60,000 years B.P.)		
Clay loam to sandy clay loam; gray to light grayish brown to dark yellowish brown; mottled; rare to few pebbles; noncalcareous; strong soil structure and cutans in upper few feet of the unit; manganese and iron oxide stains; medium consistency; up to 20 ft thick	Berry Clay Member, Pearl or Glasford Formation pl-bc	Accretionary deposits, pedogenically mixed loess, lacustrine, ice-contact, and alluvial deposits; pedogenically altered, especially upper portions; attributed to the interglacial Sangamon Geosol; includes highly weathered portions of the Pearl and Glasford Formations (Illinois Episode); occurs below the Peoria and Roxana Silts (loess) and within the upper part of the Pearl or Glasford Formations; mapped along slopes where eroded loess cover is <5 ft thick
ILLINOIS EPISODE (~200,000–130,000 years B.P.)		
Fine sand and loamy sand to coarse sand with gravel; gravel content is mainly <20% and <1 cm in diameter; brown to yellowish brown; stratified below the zone of alteration; typically weathered or more clayey in upper portions; moderately to well sorted; leached to calcareous; up to 70 ft thick	Pearl Formation (Mascoutah facies) (cross sections only) pl(m) (in subsurface)	Outwash, deposited during ice-margin retreat; diagonal line pattern shown on loess-covered Illinois Episode terraces and outwash plains; upper portion contains alteration in the Sangamon Geosol solum; occurs in the subsurface beneath the Berry Clay Member, Equality Formation, or Cahokia Formation
Sand to loamy sand to gravelly sand; may contain loamy, silty, or diamictic beds; yellowish brown to brown; upper 5 to 10 ft is weathered to clay loam or sandy loam; otherwise loose to weakly cohesive; noncalcareous to calcareous; up to 85 ft thick	Hagarstown Member, Pearl Formation (sandy facies) pl-hs (in subsurface)	Ice-contact sediment, in glacial hills and ridges; includes eskertine or ice-walled channel deposits; also may include debris flows and melt-out deposits; upper portion contains alteration in the Sangamon Geosol solum; intertongues with the Mascoutah facies and the Glasford Formation; may be overlain by the Berry Clay Member
Intermixed sand, sandy loam, clay loam, silt loam, and diamictic; yellowish brown to light olive brown; massive to faintly or well stratified; typically more weathered or clayey in upper portions; leached to calcareous; up to 60 ft thick	Hagarstown Member, Pearl Formation (mixed facies) pl-h(m) (in subsurface)	Ice-contact and supraglacial sediment; in glacial hills and ridges; includes debris flows and melt-out deposits; upper portion contains alteration in the Sangamon Geosol solum; intertongues with the Mascoutah facies, Pearl Formation, and Glasford Formation; may be overlain by the Berry Clay Member
Pebbly loam to clay loam diamictic; some sand lenses; light olive brown to dark grayish brown to dark gray; contains about 3 to 6% pebbles, mainly less than 2 in. in diameter; pebbles include sandstone, shale, dolomite, limestone, chert, coal, and granite; oxidized and iron stained along fracture faces, especially in upper 20 ft; mainly calcareous, but leached in upper portions; rare cobbles or boulders encountered within the unit; few conifer wood fragments, particularly in lower part of the unit; dense, massive; stiff to very stiff; up to 60 ft thick	Glasford Formation g	Till and ice-marginal sediment; upper few feet of diamictic may contain Sangamon Geosol solum (mainly included in the Berry Clay Member); consists mainly of subglacial till (Vandalia facies) with some supraglacial and glacioluvial sediments; intertongues with the Pearl Formation; has <5 ft of loess cover in mapped areas; no pattern shown where found below >5 ft of loess in till plain areas
Fine sand to gravelly coarse sand; may include beds of loamy sand or silt; up to 30% gravel; light yellowish or olive brown to grayish brown; stratified; moderately to well sorted; loose to very weakly cemented; saturated; may contain thin zones of manganese-oxide staining; pebbles (typically <1 in. in diameter) include clastics, carbonate, coal, and igneous types; calcareous; up to 55 ft thick	Grigg tongue, Pearl Formation (cross sections only) pl-g	Outwash (meltwater deposits); proglacial sedimentation during Illinois Episode glacial events; likely hydraulically connected to the Mascoutah facies or other tongues of the Pearl Formation; occurs as a basal tongue of outwash below the Glasford Formation
PRE-ILLINOIS EPISODE (~700,000–420,000 years B.P.)		
Silt loam to clay loam diamictic, with beds of sand and gravel or silt; dark grayish brown to dark gray to olive gray; few small pebbles of local (Pennsylvanian) micaceous fine-grained sandstone, bluish gray mudstone, or weathered shale fragments are typical in diamictic; may include beds of sand and gravel up to 20 ft thick; massive (in diamictic) to stratified; noncalcareous to calcareous; loose to very stiff; up to 40 ft thick	Banner Formation, undifferentiated (cross sections only) b	Till, ice-marginal sediment, lake deposits, outwash, and colluvium; may contain Yermouth Geosol weathering (oxidation, leaching, and pedogenic features) in upper portions; proglacial sand and gravel may occur in lower portions below diamictic or interspersed with diamictic; a few feet of colluvial deposits may occur above bedrock
PENNSYLVANIAN BEDROCK		
Shale, mudstone, siltstone, limestone, and sandstone; greenish gray to light gray to brown, laminated (in shale and mudstone) to bedded; fractures and iron stains are common where exposed; limestone units (including Carthage limestone) may contain marine fossils (e.g., crinoids and bryozoans); sandstone is typically fine grained and micaceous with some coarse beds; noncalcareous to weakly calcareous (in shale to strongly calcareous (in limestone))	Pennsylvanian bedrock p	Bedrock or near-surface bedrock (within 5 ft of land surface); shallow marine, deltaic, or terrestrial bedrock outcrops (typically <5 ft in thickness) occur locally in southwest part of the quadrangle; additional outcrops once existed prior to damming of the river to form Carlyle Lake; includes Bond or Shelburn-Patoka Formation

¹The time periods for the Wisconsin Episode and the Hudson Episode are reported as calibrated radiocarbon years and can be directly compared to calendar years before 1950 (Sluiter et al. 2015).

Data Type		
▲ Outcrop	×	Abandoned sand and gravel pit
△ Outcrop from field notes (ISGS Archives)	—	Contact
● Stratigraphic boring	- - -	Inferred contact
● Water-well boring	⋯	Buried contact
● Engineering boring	---	Areas between the normal pool elevation (445 ft) and the dashed light-blue line (elevation 462 ft) are subject to controlled inundation of Carlyle Lake.
● Coal boring		
● Other boring, including oil and gas		
SO 26211 A	Labels indicate samples (s) or geophysical logs (g). Boring and outcrop labels indicate the county number. A dot indicates the boring or outcrop extends to bedrock.	Z — Z' A — A'

Note: The county number is a portion of the 12-digit API number on file at the ISGS Geological Records Unit. Most well and boring records are available online from the ISGS website.

