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QUATERNARY GEOLOGY OF THE STONEFORT 7.5-MINUTE QUADRANGLE, ILLINOIS

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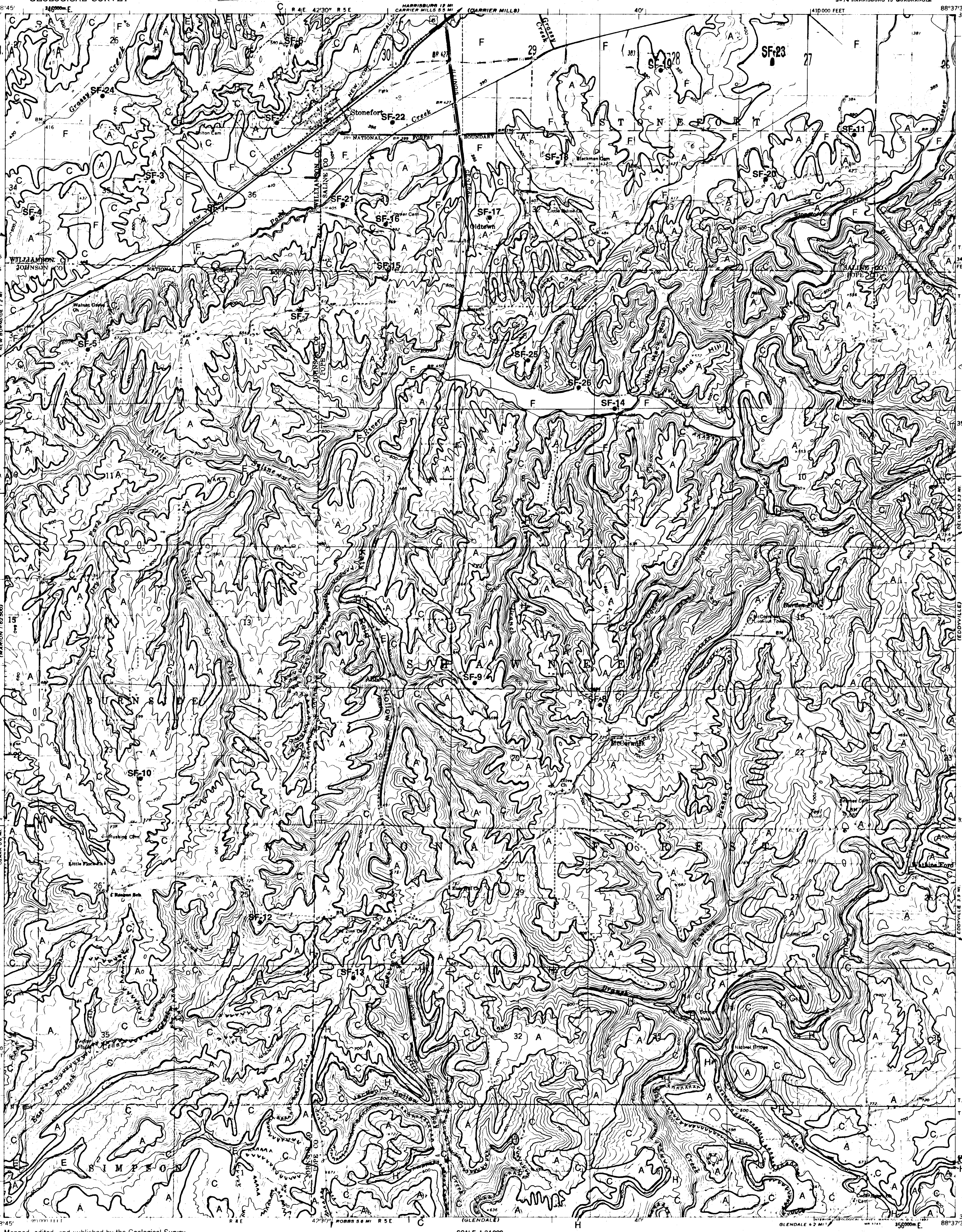
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STONEFORT QUADRANGLE
ILLINOIS
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 HARRISBURG 15' QUADRANGLE



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1959. Field checked 1961

Polyconic projection. 1927 North American datum
10,000-foot grid based on Illinois coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

APPROXIMATE MEAN DECLINATION, 19

SCALE 1:24 000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON 25, D. C.
AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ILLINOIS
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Unimproved dirt
U.S. Route

STONEFORT, ILL.
SW/4 HARRISBURG 15' QUADRANGLE
N3730—W8837.5/7.5
1961

For a detailed discussion, refer to the report, *Geology of the Eddyville, Stonefort, and Creal Springs Quadrangles, Southern Illinois,* ISGS Bulletin 96 (Nelson et al. 1991). The bedrock geology appears on Illinois Geologic Quadrangle 6, *Geologic Map of the Stonefort Quadrangle, Illinois* (Nelson and Lumm 1990).

EXPLANATION

Map symbol*	Stack-unit symbol	Sequence of materials**
A	zm-p	Peoria Silt
	zm-r	Roxana Silt
	(zs-l)	Loveland Silt
	((zs,zy)-o)	Oak formation
	Pa	Bedrock
C	zm-py	Peyton Colluvium
	((zs,zy)-o)	Oak formation
	Pa	Bedrock
E	zm-c	Cahokia Alluvium
	Pa	Bedrock
F	zm-c	Cahokia Alluvium
	((zl)-e)	Equality Formation
	Pa	Bedrock
H	(zm)	Oak formation
	Pa	Bedrock

ʌʌ Bedrock outcrop

- SF-1 Location of borings described by Henderson (1987)

* Map units correlate to legend prepared for this set of Quaternary maps of Creal Springs, Eddyville, and Stonefort 7.5-Minute Quadrangles; based on field work by Lannon (1989, 1992), Henderson (1987, 1992), and Riggs (1990, 1992).

** Stratigraphic sequence of materials to a depth of 20 feet. Some units are discontinuous or difficult to distinguish. Depth to bedrock under broad valleys is greater than 20 feet.

MAP UNIT DESCRIPTIONS

Lithostratigraphy

Cahokia	c	Silty and sandy stratified alluvial deposits in stream valleys with distinct flood plains; variable thickness up to 8.4 m, generally less than 3 m; brown and yellowish brown near the surface, grading to gray and bluish gray with depth; silt loam texture typical with beds of loamy sand, sandy loam, silty clay loam, silty clay, and loam; leached; generally shows pedogenic features of poorly drained modern cumulic soil; discontinuous thin Holocene paleosols may be found with depth; surface deposit.
Peyton	py	Reworked loess and weathered bedrock clasts deposited by creep and slope wash forming an apron around the base of steep slopes; generally less than 2 m thick; oxidized brown to yellowish brown; silt loam matrix with pebble- to boulder-size clasts of local bedrock; leached; surface deposit.
Equality	e	Stratified silty sediment deposited in a quiet-water environment (lacustrine) found in the tributaries of the Saline River below an elevation of about 152 m above mean sea level; maximum thickness is unknown, typical sections are 4 to 6 m thick; gray to greenish gray; silt loam to silty clay loam textures with sandy loam and loam beds; organic-rich laminations; generally leached.
Peoria	p	Surface deposit of loess blanketing the uplands; 0.5 to 1.3 m thick; silt loam to silty clay loam texture; yellowish brown; leached; shows pedogenic features of the Modern Soil; high percentage of illite clay near the surface with increasing percentage of expandable clay minerals with depth.
Roxana	r	Loess deposit found on the uplands; 0.5 to 1.8 m thick, typically around 1 m thick; dark yellowish brown with reddish hue in places; silt loam; leached; Farmdale Soil developed through unit; more sand than overlying Peoria Silt; high percentage of expandable clay minerals near the surface with increasing percentage of kaolinite plus chlorite with depth.
Loveland	l	Loess and reworked loess on lower upland positions below primary divides and immediately above valley floors; patchy distribution with maximum observed thickness of 1.25 m; yellowish brown to reddish brown; silty clay loam to silt loam texture; leached; shows pedogenic features of a Sangamon Soil; contains high percentage of kaolinite and chlorite clay minerals where observed. The Loveland Silt was undifferentiated in the Creal Springs and Eddyville 7.5-Minute Quadrangles.
Teneriffe	t	Member B (upper unit); coarse-textured alluvial? unit in the valleys of Sugar Creek and its tributaries; 0.4 to 2.9 m thick; yellowish brown or brown; silt loam, loam, sandy loam, and clay loam textures; leached; shows pedogenic features of the Sangamon Soil.
		Member A (lower unit); stratified fine-textured sediment in the valleys of Sugar Creek and its tributaries; formed in an ice-marginal lake along the Illinoian glacial boundary (Lake Sugar); thickness unknown, 9.1 m thick in one section; yellowish brown to brown near the top becoming gray, greenish gray, and bluish gray with depth; mainly a silty clay with silt loam, silty clay loam, sandy clay loam, sandy loam, loam and clay beds; leached in the upper part, becoming calcareous with depth; upper part may show evidence of pedogenesis associated with the Sangamon Soil.
Glasford	g	Glacial diamicton found only in the extreme northwest corner of the Creal Springs Quadrangle; patchy distribution with thickness of 3 m or more; highly weathered and leached on upland positions; yellowish brown to brown; silt loam, silty clay loam, and loam textures containing chert, sandstone, igneous, metamorphic, and coal pebbles; shows pedogenic features of the Sangamon Soil; contains high percentages of illite and kaolinite plus chlorite clay minerals.
Oak	o	Informal stratigraphic unit; relatively continuous residual product of weathering above the bedrock; 0.3 to 2.7 m thick; colors commonly reddish brown, yellowish brown, to brown; clay, clay loam, silt loam, sandy loam, loam, or sandy clay loam matrix containing clasts of subjacent bedrock; leached; generally contains high percentages of kaolinite and chlorite clay minerals; pronounced pedogenic features including well-developed soil fabric and clay films associated with either the Yarmouth or Sangamon Soils.
	Pa	Undifferentiated Pennsylvanian bedrock, includes indurated sandstone and shale.

Pedostratigraphy

Modern	zm	Consult the Williamson, Saline, Johnson, and Pope County Soil Surveys for details on the characteristics of the Modern Soil.
Farmdale	z	Paleosol developed in the Roxana Silt, but may occur in the Equality Formation in places; distinct AE horizon with platy soil structure, silt coats, weak granular structure where poorly expressed; dark yellowish brown; masked by Modern Soil in most places.
Sangamon	zs	Paleosol developed in the Loveland Silt, Glasford Formation, Teneriffe Silt, and Oak formation (if overlain by Wisconsinan units); typically reddish brown, strong brown, and dark yellowish brown; moderately well- to well-developed subangular blocky to prismatic structure; typically has thick discontinuous clay films lining peds, biological pores, and joints; iron-oxide and manganese-oxide stains and concretions common.
Yarmouth	zy	Paleosol developed in the Oak formation where it is overlain by the Loveland Silt; displays colors and pedologic features as described for the Sangamon Soil.

ACKNOWLEDGMENTS

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The geologic mapping of sixteen 7.5-minute quadrangles and the publication of quadrangle maps (1:24,000 scale) and accompanying reports were the objectives of this project. The bedrock geology was mapped by geologists of the Illinois State Geological Survey; the Quaternary geology was mapped by graduate students of the Department of Geology, Southern Illinois University at Carbondale.

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