



The Land

The topography of Hancock County ranges from flat, broad lowlands to very steep-sloped uplands. The elevation ranges from about 380 feet above mean sea level at the river to about 830 feet in the uplands. Photograph courtesy of Rick Burbridge, Hancock County District Conservatorist.

Agriculture is a major land use in Hancock County. According to the Kentucky Agricultural Statistics Service, 19,197 acres (16 percent) of the 120,940 acres available were planted in corn, soybeans, and tobacco in 2002-2003. Photograph courtesy of Diane Perkins, Hancock County Extension Agent for Agriculture and Natural Resources.

Generalized Geologic Map for Land-Use Planning: Hancock County, Kentucky

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Geologic Hazards

The most prominent geologic hazard for Hancock County is flooding. Areas underlain by alluvium, unit 1 on the map, are often subject to flooding. Urban development often exacerbates flooding, and therefore potential flooding should always be considered in urban development plans. Areas of steep-walled drainage, such as that formed in terrain underlain by unit 3, are conducive to flash flooding, especially in developed areas. Flood information is available from the Kentucky Division of Water, Flood Plain Management Branch, www.water.ky.gov/floods/.

None of the faults that occur in Hancock County are considered to be active; however, the proximity of active seismic zones such as the New Madrid, Wabash, or East Tennessee do call for precautions to be taken for earthquake damage mitigation. The presence of thick alluvium, which normally has a high groundwater table, should also be treated with special concern because of the possibility of augmented shaking and liquefaction during a strong earthquake. In addition, alluvium often contains high amounts of clay minerals, which can give soil a high shrink/swell capacity.

Steep slopes are present, especially along streams in areas underlain by unit 3, throughout the county. Steep slopes can develop soil creep and landslides if not properly treated during development. Proper engineering techniques should be followed when developing on hillsides, and care should be taken not to affect property above and below a development site on a hillside.

Several underground coal mines are in Hancock County. The locations of known mine workings and shafts are shown on the map. Precautions need to be taken when developing over old mined areas because of the possibility of mine subsidence. Mine subsidence insurance is available in Kentucky.

Surface coal mine areas are prone to settling after reclamation, which may affect structural foundations and roads. Surface mine areas also lack soil structure, which inhibits the growth of vegetation during summer months. Abandoned deep and surface mine boundaries shown on the map are approximate and do not represent all the mining that has occurred in the county.

Soil piping is the phenomenon whereby subsurface tunnels or pipe-like cavities are formed by water moving through the soil. Piping may occur in various soil types, but particularly in alluvium and loess. The only way to treat soil piping is to fill the holes with rock or soil to keep the holes from enlarging and to divert drainage from the area.

EXPLANATION

- School
- Corporate boundary
- Water
- Wetlands
- Watershed divide
- Concealed fault
- Fault
- Projected fault
- Gas well
- Oil well
- Oil or oil and gas well
- Enhanced recovery well
- Mine adit
- Domestic
- Industrial
- Monitoring
- Public

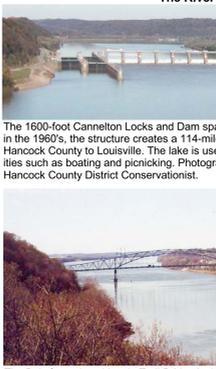
20-foot elevation contour interval

Groundwater Availability

The alluvium along the Ohio River is the best source of groundwater in the county. Nearly all drilled wells less than 150 feet deep in the alluvium are adequate for domestic use. Most wells yield more than 50 gallons per minute; some wells yield as much as 750 gallons per minute. In the northern three-quarters of Hancock County, most wells less than 300 feet deep that penetrate sandstone are adequate for a domestic supply. In the southern quarter of the county, only a few wells yield enough water for a domestic supply.

Generally, groundwater is hard to very hard, and iron and salt may be present in objectionable amounts. Often in deep wells, groundwater becomes too mineralized to use. For more information on groundwater resources in the county, see Carey and Stickney (2001).

The River



The 1600-foot Cannelton Locks and Dam spans the Ohio River. Completed in the 1960s, the structure creates a 114-mile-long lake that stretches from Hancock County to Louisville. The lake is used for various recreational activities such as boating and picnicking. Photograph courtesy of Rick Burbridge, Hancock County District Conservatorist.

The Bob Cummings Lincoln Trail Bridge is the only bridge crossing the Ohio River in Hancock County, making it a vital part of the county's economy. Photograph courtesy of Rick Burbridge, Hancock County District Conservatorist.



Planning Guidance by Rock Unit Type

Rock Unit	Foundation and Excavation	Septic Tank Disposal System	Residence with Basement	Highways and Streets	Access Roads	Light Industry and Malls	Intensive Recreation	Extensive Recreation	Reservoir Areas	Reservoir Embankments	Underground Utilities
1. Alluvium	Fair to good foundation material. Easily excavated.	Refer to soil report (Cox, 1974).	Refer to soil report (Cox, 1974).	Refer to soil report (Cox, 1974).	Refer to soil report (Cox, 1974).	Refer to soil report (Cox, 1974).	Refer to soil report (Cox, 1974).	Refer to soil report (Cox, 1974).	Refer to soil report (Cox, 1974).	Refer to soil report (Cox, 1974).	Refer to soil report (Cox, 1974).
2. Limestone	Excellent foundation material. Difficult to excavate.	Severe limitations. Impermeable rock. Locally fast drainage through fractures. Difficult to excavate.	Severe to moderate limitations. Rock excavation; locally, upper few feet may be ripable. Sinks common; local drainage problems.	Slight to moderate limitations. Rock excavation; locally, upper few feet may be ripable. Sinks common; local drainage problems.	Slight limitations. Local drainage problems from seeps or springs; sinks common.	Slight to moderate limitations. Rock excavation; locally, upper few feet may be ripable. Sinks common; local drainage problems.	Moderate to severe limitations, depending on topography.	Slight limitations, depending on topography.	Severe limitations. Leaky rock.	Severe limitations. Reservoir might leak where rocks are fractured.	Severe limitations. Rock excavation.
3. Shale, siltstone, sandstone, limestone, coal, and underclay.	Fair to good foundation material. Difficult excavation.	Severe limitations. Thin soils and impermeable rock.	Severe to moderate limitations. Rock excavation; locally, upper few feet may be ripable. Steep slopes.	Severe limitations. Rock excavation; locally, upper few feet may be ripable. Underclay susceptible to slumping; steep slopes.	Moderate limitations. Rock excavation; locally, upper few feet may be ripable. Swelling clays may be present. Steep slopes.	Severe limitations. Rock excavation; locally, upper few feet may be ripable. Steep to moderate slopes. Swelling clays may be present.	Severe limitations. Steep slopes.	Slight to moderate limitations.	Slight limitations. Reservoir might leak where rocks are fractured.	Severe limitations.	Moderate limitations. Highly variable amount of rock and earth excavation.
4. Sandstone, shale, and limestone	Fair to good foundation material. Difficult excavation.	Severe limitations. Thin soils and impermeable rock.	Severe to moderate limitations. Rock excavation; locally, upper few feet may be ripable. Steep to moderate slopes.	Severe limitations. Rock excavation; locally, upper few feet may be ripable. Swelling clays may be present. Steep slopes.	Moderate limitations. Rock excavation; locally, upper few feet may be ripable. Swelling clays may be present.	Severe limitations. Rock excavation; locally, upper few feet may be ripable. Steep to moderate slopes. Swelling clays may be present.	Moderate to severe limitations. Steep to moderate slopes.	Slight to moderate limitations.	Slight limitations. Reservoir might leak where rocks are fractured.	Severe limitations.	Moderate limitations. Possibility of rock and earth excavation.
5. Limestone and shale	Fair to good foundation material. Difficult excavation.	Severe limitations. Thin soils and impermeable rock.	Moderate limitations. Rock excavation; locally, upper few feet may be ripable. Steep slopes along major drainages.	Moderate limitations. Rock excavation; locally, upper few feet may be ripable. Swelling clays may be present.	Minor limitations. Rock excavation; locally, upper few feet may be ripable. Swelling clays may be present.	Minor limitations. Rock excavation; locally, upper few feet may be ripable. Swelling clays may be present.	Moderate to severe limitations. Steep to moderate slopes.	Slight limitations.	Slight limitations. Reservoir might leak where rocks are fractured.	Severe limitations.	Moderate limitations. Possibility of rock and earth excavation.

*This unit may be overlain by loess.
**Coal beds and underclays should not be used for foundations or reservoir embankments because of the presence of expanding pyrite in coal and underclays and the weakness of underclay when it becomes wet.

Additional Planning Resources

Listed below are Web sites for several agencies and organizations that may be of assistance with land-use planning issues in Hancock County.

- www.hancockcounty-ky.com/—Hancock County
- ces.ca.uky.edu/hancock/—University of Kentucky Cooperative Extension Service
- www.grand.org/—Green River Area Development District
- www.thinkkentucky.com/edis/cmny/cw045/—Kentucky Economic Development Information System
- www.uky.edu/KentuckyAtlas/21091.html—Kentucky Atlas and Gazetteer
- quickfacts.census.gov/qfd/states/21/21091.html—U.S. Census data
- kgsweb.uky.edu/download/kgsplanning.htm—Planning information from the Kentucky Geological Survey

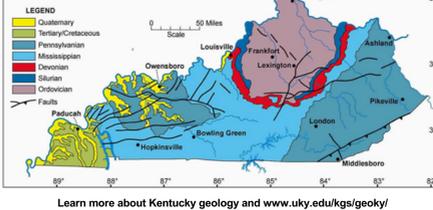
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- Soils, M.P., and Venard, E.A., 2002c. Spatial database of the Pellville quadrangle, Kentucky. Kentucky Geological Survey, ser. 12, Digitally Vectorized Geologic Quadrangle Data DVQG-284. Adapted from Spencer, F.D., 1963. Geology of the Pellville quadrangle, Kentucky. U.S. Geological Survey Geologic Quadrangle Map GQ-284, scale 1:24,000.
- Soils, M.P., and Venard, E.A., 2002d. Spatial database of the Rockport and Lewisport quadrangles, Kentucky. Kentucky Geological Survey, ser. 12, Digitally Vectorized Geologic Quadrangle Data DVQG-315. Adapted from Spencer, F.D., 1964. Geology of the Rockport and Lewisport quadrangles, Kentucky. U.S. Geological Survey Geologic Quadrangle Map GQ-315, scale 1:24,000.
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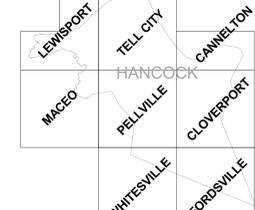
HANCOCK COUNTY



Geology of Kentucky



7.5-Minute Map Index



Flooding



Repairing the floodwall in Hawesville. The wall was breached by floodwaters of the Ohio River in 1997. Flat, low-lying areas associated with unit 1 (see table) are subject to flooding. Photograph courtesy of Diane Perkins, Hancock County Extension Agent for Agriculture and Natural Resources.



The stream erosion pictured here is a result of the 1997 flood that swept the area. Many corridors sustained damage and were costly to restore. Funding was provided by the Emergency Watershed Protection Fund through the Federal Emergency Management Agency to assist in the restoration process. Photograph courtesy of Rick Burbridge, Hancock County District Conservatorist.

Industry



The 775 employees of Century Aluminum, just downriver from Hawesville off Ky. 271, can produce up to 244,000 metric tons of aluminum a year. Aerial photo (2004) by the U.S. Department of Agriculture, Farm Services Administration, National Agricultural Imagery Program.



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View the KGS World Wide Web site at:
www.uky.edu/kgs