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Kentucky area mapped in cooperation with Kentucky
Geological Survey

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Topography in West Virginia and Virginia by photogrammetric methods
from aerial photographs taken 1957-68. Field checked 1964

Topography in Kentucky by photogrammetric methods from aerial
photographs taken 1951. Field checked 1954. Revised 1964

Polyconic projection. 1927 North American datum

10,000-foot grids based on West Virginia, Kentucky,
and Virginia coordinate systems, south zones

1000-meter Universal Transverse Mercator grid ticks.

zone 17, shown in blue

UTM GRID AND 1927 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

35° 62 MILS 0° 39' 12 MILS

LANDSLIDES AND RELATED FEATURES

OF THE MAJESTIC, W. VA. - KY. - VA. QUADRANGLE

by

William F. Outerbridge

1982

U.S. Geological Survey

OPEN FILE MAP 82-51 (E-16)

NOTE
Information shown is intended as a general guide to ground conditions as of the date of field check. Additional landslides and rockfalls should be anticipated in all map units. The map unit depicts the dominant condition in the area delineated and variations in slope stability may occur at any point in the unit. This map is suitable for general planning purposes and as a supplement to more detailed studies for site selection. The map cannot be used as a substitute for detailed geologic and engineering investigations to establish design and construction criteria of specific sites. Some symbols may not appear on this map. Some the description is applicable to a series of maps.

MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed of more than one type of strip mine)

sh bench with high wall

sf furrowed with high wall

sd multiple furrows and multiple benches

ss hilltop removed

srg reclaimed by grading

sru reclaimed by secondary use

sh/r regraded in part, high wall

remains

Coal refuse banks

r identified on aerial photographs; not classified in field check

rb not burnt nor on fire

rbb burnt

rbd burning

rbs sludge

Quarries

q quarry site

qub spoil bank, quarry waste

Gravel pits

g site of gravel pit

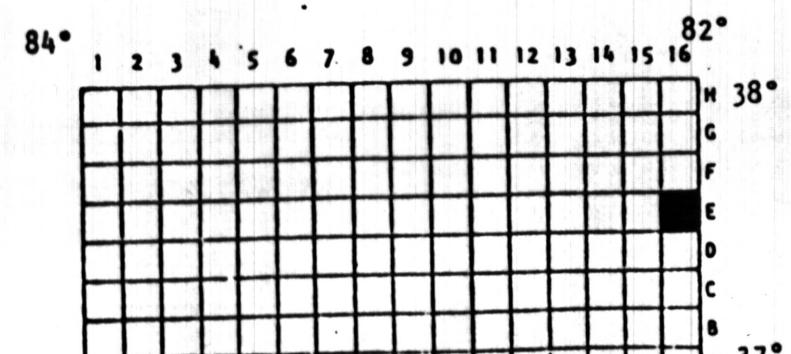
Slides in man-made features

af earth flow in fill

a/s earth flow in strip castings

a/r earth flow in coal refuse

JENKINS 1°x2° SHEET



Landslides and related features interpreted
from aerial photographs:

1:60,000 (black and white) 1959

1:80,000 (black and white) 1976

Photointerpretation and field check 1978,9

This report is preliminary and has not
been reviewed for conformity with U. S.

Geological Survey editorial standards.

Data on location of strip mines in part from:

Outerbridge, William F., 1968, Geologic map of

parts of the Majestic, Hurley, and Wharncliffe

Quadrangles, Pike County, Kentucky: U. S.

Geological Survey Geologic Quadrangle Map

QQ-748, scale 1:24,000.

ACTIVE OR RECENTLY ACTIVE LANDSLIDE

Complex landslide composed of earthflow, debris
slide, earth and rock slump. Identified from
historical records, and from scars, debris and
other field evidence. Ground extremely unstable;
sliding accelerated by excavation, loading and
changes in drainage conditions. May include
areas with several active slides too small to
be shown separately. Questioned where doubtful.

OLD LANDSLIDE

Area of extensive hummocky ground caused by
earthflow and earth and rock slump. Lacks
clear evidence of active sliding. Relatively
stable in natural, undisturbed state,

generally not affected by small structures properly
sited in areas away from the edge of the toe;

can be reactivated by extensive, rapid exca-

vation, loading, and changes in ground water and

surface water conditions. Area of old landslide

probably includes recent ones not documented

from field evidence or otherwise documented.

Upslope boundary of landslide generally defined

by modified scarp, but downslope (toe) may be

gradational and not well defined. Questioned
where doubtful.

COMBINATION LANDSLIDE

Area of recent and old slides in which
individual slides are not identified.

COLLUVIAL SLOPE

Valley wall along major streams with slope as
steep as 40° (85%); stony, clayey silt soil up
to 50 ft. (15 m) thick; commonly buttressed by
a terrace or bench at the toe of the slope; very
susceptible to sliding by cutting of toe area,
removal of terrace or bench, and overloading;
slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES

Landslides too small or obscure to map
individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS

AVALANCHES

Primarily shallow, narrow ravines and chutes with
accumulation of stony colluvium generally 10 ft.
(3 m) or less in thickness; susceptible to rapid
movement during intense rainfall. Most ravines
and chutes designated show evidence of former
debris flows and avalanches. Symbol & designates historical debris flow or debris avalanche.

AREAS SUSCEPTIBLE TO ROCKFALL

Steep, locally vertical, natural and man-made
slopes and cliffs, 15 ft. (4.5 m) or more high;
formed dominantly of sandstone, limestone, sandy
shale, mudstone and claystone. Interbedded mud-
stone, claystone and shale weather rapidly leaving
sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING

Soil and rock similar to that involved in land-
slides elsewhere in map area; primarily areas
underlain by claystone, mudstone and shale
associated with other rock types. Rock weathers
rapidly on exposure forming clayey soil highly
susceptible to sliding. Includes coves (U-shaped,
shallow valleys) containing thick layers of clayey
soil that are very susceptible to sliding where
excavation breaks continuity of slope and where
overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES

Map areas in which no patterns or symbols are shown;
primarily valley floors, ridge tops and broad
benches; modification by excavation and fill may
lead to local landslides.

The first four digits of the open file number designate the
specific 1:250,000 scale map sheet of which this quadrangle
is a part. The last two digits designate the position of the
quadrangle in a subdivision of the 1:250,000 scale map based
on rows and tiers shown in the diagram to the right. The
location of this quadrangle is shown by the black square.