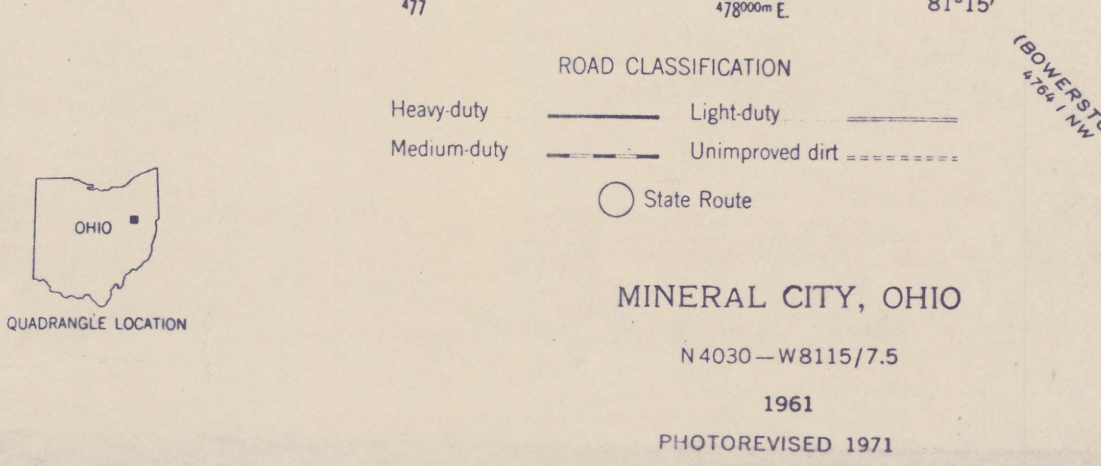
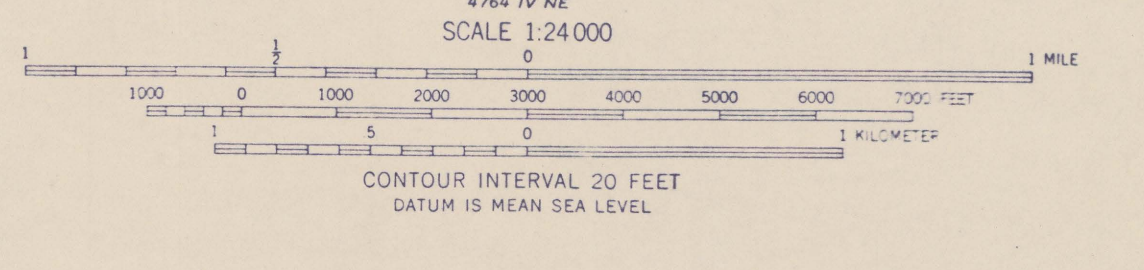
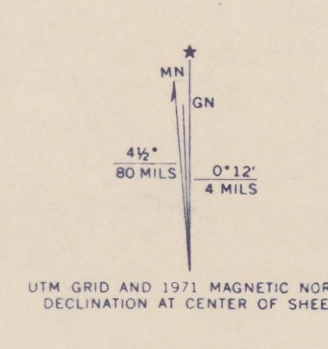




Mapped, edited, and published by the Geological Survey
Control by USGS and USCGS
Topography by photogrammetric methods from aerial
photographs taken 1960. Field checked 1961
Polyconic projection. 1927 North American datum. 10,000-foot grid
based on Ohio coordinate system, north zone. 1000-meter Universal
Transverse Mercator grid ticks, zone 17, shown in blue
Land lines within the Old Seven Ranges based on the Ohio River Base
Land lines within the United States Military District based on the
Base Line of the United States Military District
Areas covered by dashed light blue pattern are subject to
controlled inundation to 916 feet by Dover Dam, 962 feet by
Bolivar Dam and 941 feet by Atwood Reservoir



Landslides and related features interpreted
from aerial photographs:
1:60,000 scale black and white 1960
1:40,000 scale black and white 1973
1:80,000 scale black and white 1976
Photointerpretation and field check 1976
This map has not been edited or reviewed
for conformity with Geological Survey
standards and nomenclature.

LANDSLIDES AND RELATED FEATURES

OF THE MINERAL CITY, OHIO QUADRANGLE
by
WILLIAM E. DAVIES and GREGORY C. OHLMACHER
1978
U. S. Geological Survey
OPEN FILE MAP 78-1057 (E-6)

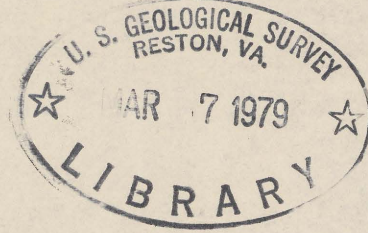
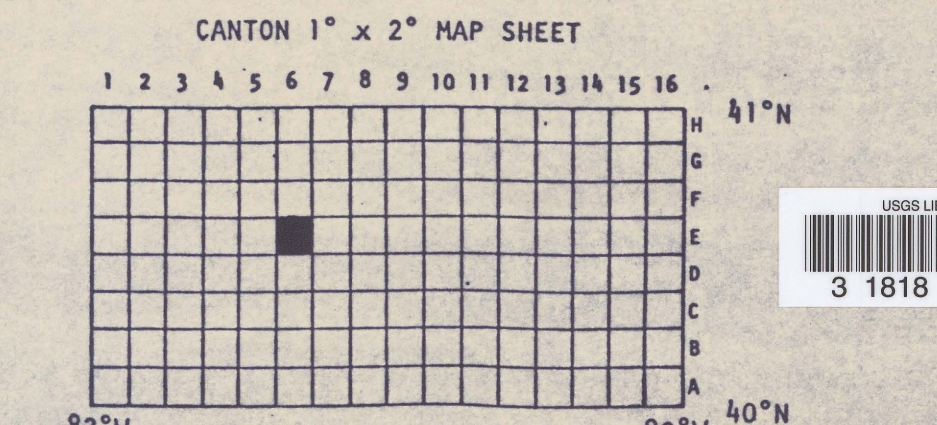
NOTE
Information shown is intended as a
general guide to ground conditions as of
the date of field check. Additional
landslides and rockfalls should be anticipated
in all map units. The map unit depicts
the dominant condition in the area
delineated and variations in slope stability
may occur at any point 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 because
the description is applicable to a series of maps.

- 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.
- 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 excavation,
loading, and changes in ground water and surface water
conditions. Area of old landslide probably includes
recent ones not identified 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.
- 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; landslide commonly activated
without apparent cause.
- 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 designated
show evidence of former debris flows and avalanches.
Symbol - **a** - 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 higher.
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.
- COVE UNDERLAIN BY CLAY LAYER**
Rounded or U-shaped valley with steep concave
slope of valley floor (coves) and valley
heads underlain by clayey soils forming a
coherent layer generally 8 ft. (2.5 m) or less
in thickness. Zone of water commonly at the
base of the clay layer is under 2 to 8 ft. (0.6 -
2.5 m) artesian head. Clay soil is underlain by
claystone and shale. Clay slab moves as a coherent
mass up to 1 ft. (0.3 m) per year; very
susceptible to more rapid sliding when overloaded
by fill or structure and by excavations that break
the continuity of slope. Recent soil slips (earth
flows) as much as 40,000 square feet (3,700 square
meters) in size are common.
- SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING**
Soil and rock similar to that involved in
landslides 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.
- 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.

- 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
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
a/f earth flow in fill
a/s earth flow in strip castings
a/r earth flow in coal refuse

The first five 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.



M(200)
R29c
no. 78-1057
Mineral City, OH
no. E-6
c.1

