

WHAT YOU NEED TO KNOW ABOUT

LIVING NEAR

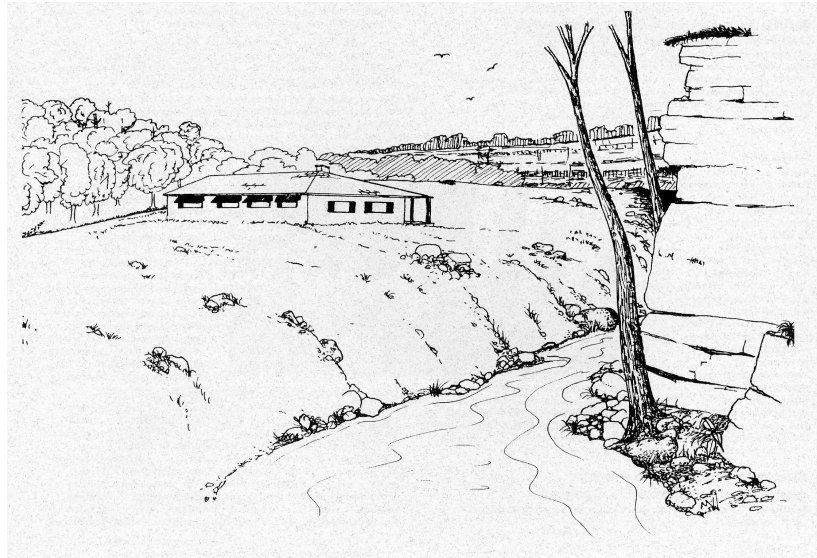
INDIANA COAL MINES



DNR
Indiana Department of Natural Resources
Division of Reclamation

Who Should Read This Guide?

Home Buyers/Owners	Lending Institutions
Landowners	Developers
Local Officials	Construction-Design Companies
Realtors	Zoning Board Members
Community Planners	Local Health Depts.
Engineers	
Insurance Agents	



Why You Should Read This Guide

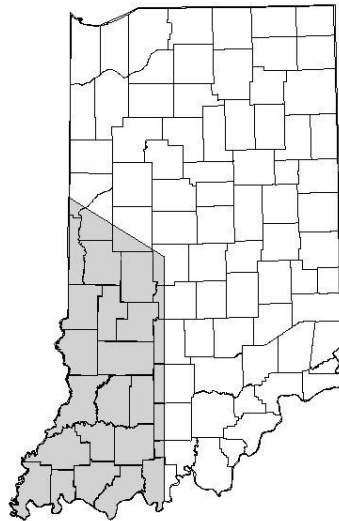
This guide is provided by the Indiana Division of Reclamation to inform the public and local officials about potential problems associated with previously mined areas. These problems are associated with both underground and surface mined sites and can result in serious damage to improvements.

Previously mined land may have many attractive features for development as residential, industrial and recreational sites. Unfortunately, mined land can have hidden dangers. Problems such as: dangerous mine openings, unstable highwalls, and unpredictable ground movement have resulted in serious damages to improvements on these sites. Additional problems can result from subsidence, mine spoils, mine impoundments, and landslides.

This guide is intended to provide general information about common problems associated with previously mined areas. The Indiana Division of Reclamation always suggests obtaining assistance from a qualified engineer for specific site evaluation before you buy or build on previously mined land. Also, a list of resources is provided at the end of this booklet to help in obtaining additional information.

Where Are Indiana Coal Mines?

Coal mines in Indiana are located in the southwest portion of the state. Coal has been mined in this region for over 150 years, and is still a very important and valuable activity today.



Within the shaded region above, specific areas may or may not have been mined. Very site specific information is available to every property owner via the internet. The Indiana Geological Survey has produced a comprehensive Coal Mine Information System (CMIS) that will allow anyone to determine if any piece of property has been mined for coal. Information on the dates, type, depth and extent of the mining operation is available for most coal mines that operated in the state of Indiana. See the Important Resources section at the end of this booklet.

Problem Type: HIGHWALL

Vertical rock faces, called highwalls, were sometimes left as the last cut of old strip mining operations. Some highwalls exceed 100 feet in height. Highwalls can be hazardous to people or structures.

Highwall Site Development Problems

Structures built above or below highwalls may be damaged by slope failure or falling rock. Highwalls are inherently unstable because blasting and heavy mining equipment used to create these vertical rock faces fracture and weaken the natural rock layers. Unstable highwalls erode and crumble. The material on top falls as the rock continues to weather. Injuries can result from walking above or below highwalls as rock faces give way suddenly.



Problem Type: SUBSIDENCE

The room and pillar method of extracting coal from deep mines can result in mine subsidence when the pillars of coal and the roof supports in the mine can no longer support the bedrock above the mine. This loss of support is transferred to the ground surface, which also drops, creating structural problems for houses, roads or utilities in subsidence areas as well as public safety concerns on other improved property.

Mine Subsidence Site Development Problems

Building homes, garages, roads, septic systems and other such features above underground mines can result in structural problems if subsidence occurs. Building near or above an abandoned underground mine, like many AML areas, requires a thorough review to determine the subsidence potential and the need for stabilization *before* construction.



Problem Type: MINE OPENINGS

Deep mines are entered through horizontal or sloped entrances (portals) or vertical openings (shafts). Most mine openings have been permanently sealed and present no danger. However, many openings were improperly filled or sealed and present a very substantial danger from the sudden collapse of the fill material or deterioration of the seal. Problems can include the presence of methane gas released from the mine, or low oxygen levels in the mine itself.

Mine Openings Site Development Problems

Mine openings may be easy to see or they may be concealed by trash filling, years of vegetative growth, or past landscaping practices. Problems with building near mine entries can include: foundation problems in the event of a collapse, mine drainage seepage into foundation areas, mine drainage seepage can cause slope instability, and mine gas emissions can cause toxic or explosive levels of mine gases. Mine openings are an attractive nuisance, especially to children.



Problem Type: MINE SPOIL and REFUSE

Mine spoil is intermixed unconsolidated rock, rock fragments and soil that result from a surface mining operation. Coal refuse is waste coal and crushed rock impurities left as a result of coal processing. In its post-mining state, mine spoil and coal refuse, if not vegetated, can be highly erosive, and can be a source of significant sediment and acid mine drainage to streams.

Mine Spoil Site Development Problems

Mine spoil is subject to settling for years after placement, and can become very unstable under certain circumstances. Buildings, septic systems and other rigid structures located on mine spoil may settle, move or have leachate problems over an extended period of time. Mine spoils may release toxic gases into confined areas.

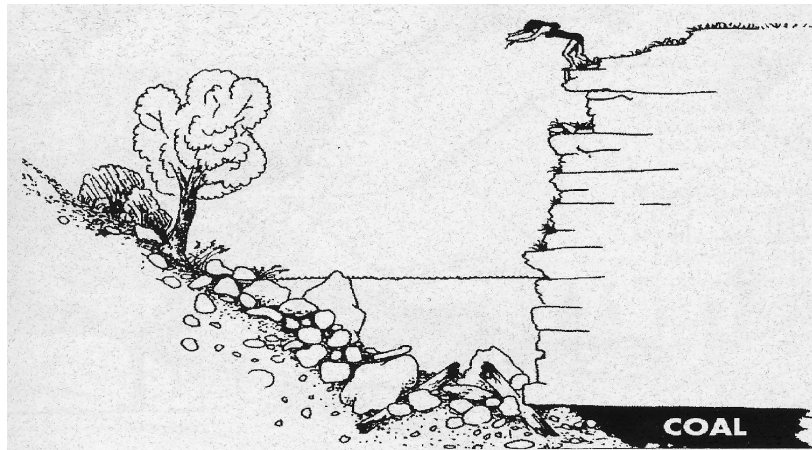


Problem Type: MINE IMPOUNDMENTS

Surface mining for coal often leaves a pit between the highwall face and the last spoil removed during mining. If drainage is blocked, these pits often contain water, with depths ranging from very shallow to extremely deep. These water filled pits may contain abandoned mining equipment and are often attractive nuisances to recreational enthusiasts.

Mine Impoundment Site Development Problems

Flooding of mine impoundments is possible unless adequate water control structures have been built into the pit outlet. Impoundments will saturate surrounding spoil areas, potentially causing seeps and soil instability. Impoundments can be dangerous for swimmers due to very steep banks, vertical drop-offs close to shore, unstable rock faces, and rocks beneath the water.



Problem Type: MINE-RELATED LANDSLIDES

The indiscriminate placement of steeply sloped unconsolidated mine spoil, prevalent on abandoned surface mines, can result in landslides that impact existing roads, structures and streams. Drainage from underground mines and surface mine impoundments can saturate native, undisturbed soil units and result in instability of these slopes.

Landslide Site Development Problems

Mine spoil may be unstable due to particle or rock size, subsurface water flow paths, ponding of surface water or mining method. Instability is often not visible to the casual observer until a very wet year. Structures and roads built either on the bench where spoil is removed, or near the bottom of a spoil slope may be damaged by a mine related landslide. Landslides may cover structures or roads with dirt or rock, clog streams causing flooding, or disrupt utilities such as electric or telephone service. Spoil is not a compacted base for purposes of construction and as such may not have the load bearing capacity of normal undisturbed soils in the same region.



IMPORTANT RESOURCES TO HELP YOU DECIDE

Indiana Division of Reclamation
R.R. #2 Box 129
Jasonville, IN 47438
812-665-2207
<http://www.in.gov/dnr/reclamation>

Indiana Geological Survey
Coal Mine Information System
(Interactive maps for all coal mines)
812-855-7636
<http://igs.indiana.edu/>

Indiana Mine Subsidence Insurance Program
1-800-332-4674
<http://www.in.gov/idoi>

Other Local Assistance May Be Obtained From:
(See local listings)

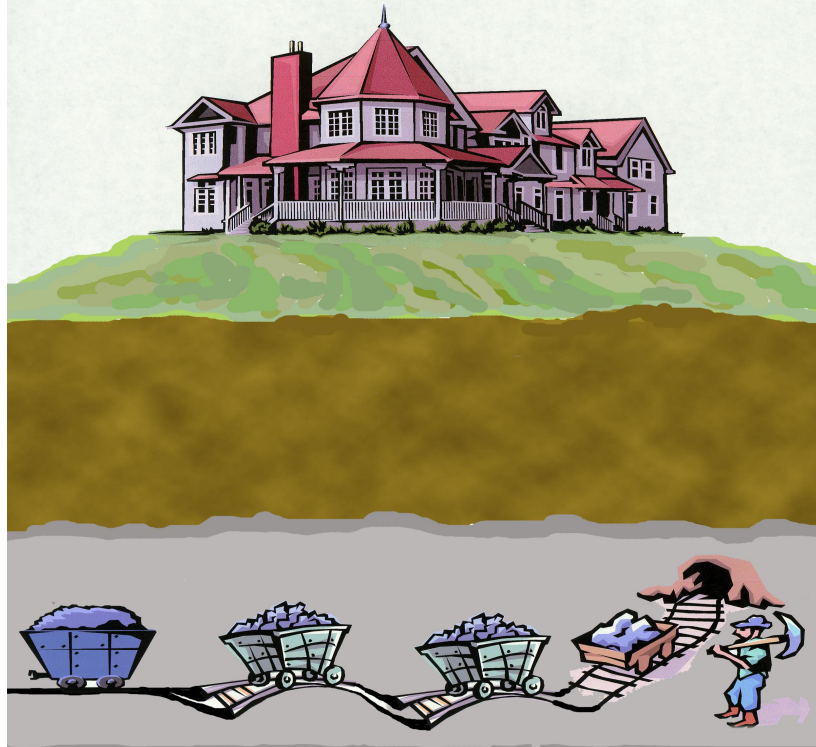
Soil and Water Conservation Districts and the Natural Resource Conservation Service

County and/or City Engineers

Regional, County or City Planning Agencies

County and City Health Departments

Do you know what went on under your land?



The Indiana Division of Reclamation always recommends that the buyer, owner or developer *contact an experienced, qualified engineering firm* to assist in site evaluation when previously mined land is being considered for development.