Instructions for Conducting an Environmental Information Search for a Site

Created by the Warrick County (Indiana) Soil and Water Conservation District through funding from USDA NRCS

NOTE: This instruction sheet is to be used with the bottom portion of Part B of the Urban Soil Health Evaluation (USHE). For help with completing this portion of the USHE, Purdue Extension and the Warrick County Soil and Water Conservation District prepared a series of instructional videos, found here:

https://www.youtube.com/playlist?list=PLveWDgbh5ujHGFv6zV24JTGTWLkgII7a_ .

Videos 11 through 18 pertain to Part B of the USHE, with videos 15 through 18 corresponding specifically to the instructions below.

Below is a list of things to look for that suggest an environmental concern may be present at a site. Keep these things in mind as you visit the site and research its history. This list is not exhaustive.

- Above-ground storage tanks (ASTs) and below-ground/underground storage tanks (USTs). *Note: Leaking underground storage tanks are referred to as* LUSTs.
- Gas stations
- Dry cleaners
- Former industrial operations
- Previous environmental cleanups
- Homes built prior to 1978
- Drums
- Plastic storage containers
- Mining operations
- Discolored and odiferous soil
- Discolored vegetation or bare spots
- Railways
- Chemical containers
- Partially buried objects
- Former building foundations or large chunks of concrete
- Storage ponds or other man-made bodies of water
- Stockpiles
- Junked or abandoned vehicles
- Signs of excavation
- Evidence of burning

Indiana Map

I*ndiana Map is a geographic information system (GIS)–based mapping tool that contains a wealth of information about environmental, geological, infrastructural, and hydrological features in Indiana.*

- Go to: http://maps.indiana.edu/
- Find your site on the map. It may be helpful to enable a basemap using the tab in the upper left-hand corner of the mapper.

- Once you have found your site, click on the "Add Content" (or "Add Layers") tab in the upper left-hand corner of the mapper. Click on "Environment."
- A drop-down menu will appear with different available layers. Click on the checkbox next to the layers that start with "Remediation" and "Waste." The "Storage Tanks Underground" is also an important layer. The "Petroleum Fields" and "Petroleum Wells" layers under "Geology" are also useful.
- To get more information about a layer or feature present at your site, make sure the "i" button is selected in the upper right-hand corner of the site, and click on the feature from a layer you activated. A window will open with information about the feature. Sometimes this information can be cross-referenced with other databases such as the IDEM Virtual File Cabinet (see below) and the Indiana Geological Survey.

Note: Indiana Map also contains soil information that can be helpful in planning a garden or agricultural site.

Google Earth Pro

Google Earth Pro is a free desktop application that contains a historical satellite imagery feature that can be useful in identifying potential environmental issues associated with a site. Please note that you will have to download the desktop application to use the feature described below; the Google Earth website does not have this feature. Also, this feature is not present on Google Maps.

- Go to: https://www.google.com/earth/. Click on "Earth Versions" at the top of the page.
- Three options will be visible at the top of the page. Click on "Google Earth Pro on desktop."
- Click on "Download Earth Pro on desktop," and follow the prompts to install this application on your computer.
- Find your site, and look through the historical imagery. The historical satellite imagery can be found by clicking on the button at the top showing a clock with an arrow. Look for items on the list at the beginning of this document.

Indiana Department of Environmental Management (IDEM) Virtual File Cabinet

IDEM maintains an online database of environmental documents associated with sites in Indiana.

- Go to: https://vfc.idem.in.gov/DocumentSearch.aspx
- Click on the "Facility Search" tab at the top of the screen.
- Start by entering the street address and city name. This search engine is finicky. It is sometimes best to enter in as little information as possible and then scroll through the search results. You may have to try several times using different variations (Ex: 213 S Maryland St vs. 213 Maryland St vs. 213 Maryland).

- If results are produced, click on the “Search” link at the end of the results row.
- Look for the document types such as “Report”, “Completion Document”, and “Notification”. More recent items are generally better and usually contain a narrative of what has been completed at the site up to the completion date of the document. Summaries are your friend.

Note: If you suspect your site has a preexisting environmental concern but no entries are produced for your site, it might be worth looking at adjacent properties as well.

Sanborn Maps

Fire insurance maps can potentially contain a wealth of information concerning past uses of a site. Some of these maps are available online.

- Go to: https://libraries.indiana.edu/union-list-sanborn-maps
- Find your town or city by scrolling down. (Note: Not all towns have Sanborn maps available).
- You will notice that several different years (map editions) are usually available for a given town or city. If a KEY (index) is not listed, the first map listed (“01”) is usually an index. Open this map and find the location of your site on the index.
- Next click on the corresponding map number within that year and locate your site. Look for labels that might indicate an environmental hazard such as storage tanks, gas stations, dry cleaners, etc. Don’t forget to look at adjacent properties as well while you’re there. Google “Sanborn map key” if you’re not sure what some of the symbols mean.

Notes:

- The online database is limited to older maps. If you want to research Sanborn maps further, contact your local library or historical society.
- If Sanborn maps indicate a home was present at the site prior to 1978 (usually indicated by “D.” on the structure), then there’s a good chance lead-based paint was used at the site.

Other Resources

County Assessor’s Office

Most websites for assessors’ offices have searchable databases that provide records of historical ownership of a property, although some counties only maintain paper records documenting ownership history. Many also provide historical aerial/satellite imagery.

Indiana Historical Aerial Photo Index

- Go to: https://igws.indiana.edu/IHAPI/Map/

- Using the navigation tool on the right side of the screen, select your county and the year of the imagery you want view.
- Navigate to the location of your site and look through the available imagery. Like the Indiana Map viewer, you can turn on a basemap using the tools in the upper left-hand corner of the page to show more recent imagery that can help you locate your site.

Note: The resolution is poor on some of the older imagery, so it might be difficult to get any useful information.

Indiana Department of Natural Resources Coal Mine Information System

- Go to: https://www.in.gov/dnr/reclamation/9310.htm
- Click on the link below the "CMIS Map Viewer" heading.
- Navigate to the location of your site to determine if mining has occurred at or near your site. Depending on the nature of the mining operation, coal mining may or may not pose an environmental threat.

Other Aerial Photography

Aerial photography may be available from other sources in your area, including:

- The county's USDA or Soil & Water Conservation District office
- The city or county surveyor's office
- The city or county engineer's office
- Local museum or historical society
- Local library

City Directories

Publishers such as Polk and Bennett produce city directories that contain historical information about what has existed at your site. These city directories can usually be found at the local library. Larger libraries have city directories that date back to the late 1800s.

Urban Soil Health Evaluation

Developed by the Warrick County Soil & Water Conservation District in cooperation with the USDA-NRCS and Purdue Extension

Evaluation Data Sheet—Part A: Soil Properties

Date: _____ Form Completed By:

Indicator	Poor (1–3)	Tolerable (4–7)	Best (8–10)	Rating (1–10)
Soil Structure [1, 2]	Hard dense chunks; tight; difficult to prepare seed bed	Firm; some large clods; crumbles, but only with moderate pressure	Pliable; crumbly; clods easily broken apart between fingers	
Surface Crusting [1, 3]	Powdery when dry; crusts easily after rain	Crust only in areas such as wheel tracks	No crusting; residue prevents surface hardening	
Compaction [1, 2]	Wire flag bends or cannot be inserted into soil; penetrometer reading >300 psi at < 3"	Can push wire flag into soil with force; penetrometer reading of >300 psi at 3–9"	Flag enters soil easily; penetrometer reading of <300 psi above 15"	
Water Infiltration and Drainage [3]	Water ponds or runs off following most rains.	Water drains slowly with some ponding visible after 12–24 hours.	Soil drains well after rain; little or no ponding or runoff following rain	
Soil Life [4]	No visible signs of earthworms and other soil life (worms, insects, worm casts, worm holes, etc.); 0–1 worms per shovelful	Occasional signs of earthworms and other soil life; 2–10 worms per shovelful	Signs of earthworms and other soil life common; 10+ worms per shovelful	
Soil Organic Matter [2]	Light color; no visible organic material in soil; no smell; soil test indicates OM <1.0%	Medium color; some visible organic material in soil; soil test indicates OM <1.0% to 2.0%	Dark color; visible organic material; earthy smell; soil test indicates OM >2.0%	
Plant Growth [4]	Scraggly, uneven crops; plants unhealthy; uneven color; crops susceptible to stress	Plant health varies; some color variation; crops somewhat resistant to stress	Healthy uniform plant growth; uniform deep-green color, stalks; crops resist stress such as drought	
Surface Cover [1]	Little or no soil cover; bare soil for most of the year	Some residue or vegetation present but soil surface not completely covered; bare soil during part of the year	Soil surface covered year-round; little bare soil; dense sod or other vegetation; heavy, well-distributed residue present	
Erosion [1, 3]	Obvious signs of erosion; muddy runoff; shallow topsoil; subsoil exposed at surface	Some visual signs of erosion; cloudy runoff	No gullies or visual evidence of erosion; any runoff that occurs is generally clear; deep topsoil	
Debris in the Soil (construction materials, bricks, concrete, glass, etc.) [1]	Debris is present at the surface across the majority of the site; too much to dig around	Debris is present at the surface in several smaller areas at the site; doesn't interfere with digging	No debris is present at the surface of the site.	
Neighborhood Pets [1]	Site is used heavily by animals.	Site is used by animals occasionally.	No animal evidence is observed.	
	Total Score 0 to 37: You have significant soil health issues. This site will require substantial resources to obtain healthy soil. **Total Score 38 to 74:** You have somewhat healthy soil but still have some work to do to improve your soil health. **Total Score 75 to 110:** You are well on your way to very healthy soil! Improve a few things, and enjoy the benefits of healthy soil.			**Total:**

[1] Anytime
[2] With adequate moisture
[3] After rain
[4] During growing season

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Evaluation Data Sheet—Part B: Environmental Considerations

Environmental Indicators	Poor	Tolerable	Best	Rating (Poor, Tolerable, or Best)
Discolored Soil [1]	Stained or discolored soil is present throughout the site.	Isolated pockets of stained or discolored soil are present at the site.	No evidence of stained or discolored soil is identified at the site.	
Evidence of Hazardous Materials [1]	Evidence of potentially hazardous materials is observed throughout the site (ex., empty drums, cans, storage containers, partially buried objects, stockpiles, old vehicles, or machinery, etc.).	Evidence of potentially hazardous materials is observed in isolated locations at the site.	No evidence of potentially hazardous materials is observed at the site.	
Smell of Soil [1, 3]	Smells like oil, chemicals, gasoline, or rotten eggs; has a bad or strange smell	No smell	Fresh, earthy	
Was the building on site built before 1978?	Yes	Unknown	No or not applicable	
Verbal History of the Site	Interviews clearly suggest historical activities at the site that present an environmental concern.	Interviews might suggest historical activities at the site that present an environmental concern, but this information has not been verified.	No interviews suggest historical activities at the site that present an environmental concern.	

Refer to the Instructions for Conducting an Environmental Information Search for a Site instruction sheet for completing the section below.

Indiana Map	One or more entries that suggest the site may contain contaminated soil are present at or near the site.	Some environmental entries are present at or near the site, but it's unclear if they constitute an environmental concern.	No entries are present at or near the site.	
Google Earth Pro	Obvious features that suggest an environmental concern are present on historical satellite images.	Some features that may indicate an environmental concern are present on historical satellite images; however, it's difficult to determine what they are.	No features that suggest environmental concerns are present on historical satellite images.	
IDEM Virtual File Cabinet	One or more entries that suggest the site may contain contaminated soil are present at or near the site.	Some environmental entries are present at or near the site, but it's unclear if they constitute an environmental concern.	No entries are present at or near the site.	
Sanborn Maps	One or more features that suggest the site may contain contaminated soil are present at or near the site.	Some features are present at or near the site, but it's unclear if they constitute an environmental concern.	No features that suggest an environmental concern are present at or near the site.	
	If site is classified as "poor" in one or more categories: Practice extreme caution. Consult an environmental professional before using the site for agriculture. **If site is classified as "tolerable" in one or more categories:** Practice caution. You may still have a significant environmental condition. Gather more information before using the site for agriculture. **If site is not classified as "poor" or "tolerable" in any categories:** This site can be considered safe for agriculture. However, caution should be exercised in all urban environments when practicing agriculture.			

[1] Anytime
[2] With adequate moisture
[3] After rain
[4] During growing season