

Frank L. O'Bannon
Governor

Gregory A. Wilson, M.D.
State Health Commissioner



Indiana State Department of Health

An Equal Opportunity Employer

DATE: August 14, 2001

TO: Adams, Allen, Blackford, DeKalb, Delaware, Grant, Howard, Huntington, Jay, Miami, Noble, Randolph, Steuben, Wabash, Wells, and Whitley Counties

FROM: Howard W. Cundiff, P.E., Director *HWC*
Consumer Protection
AC (317) 233-7182

SUBJECT: Residential and Commercial On-site Sewage Systems and
Recessional Moraines in Northeastern Indiana
Update to Memoranda of June 19, and July 18, 2001

The following are revisions to the procedures for the evaluation of recessional moraine soils in the designated counties, or designated portions of counties, in northeast Indiana:

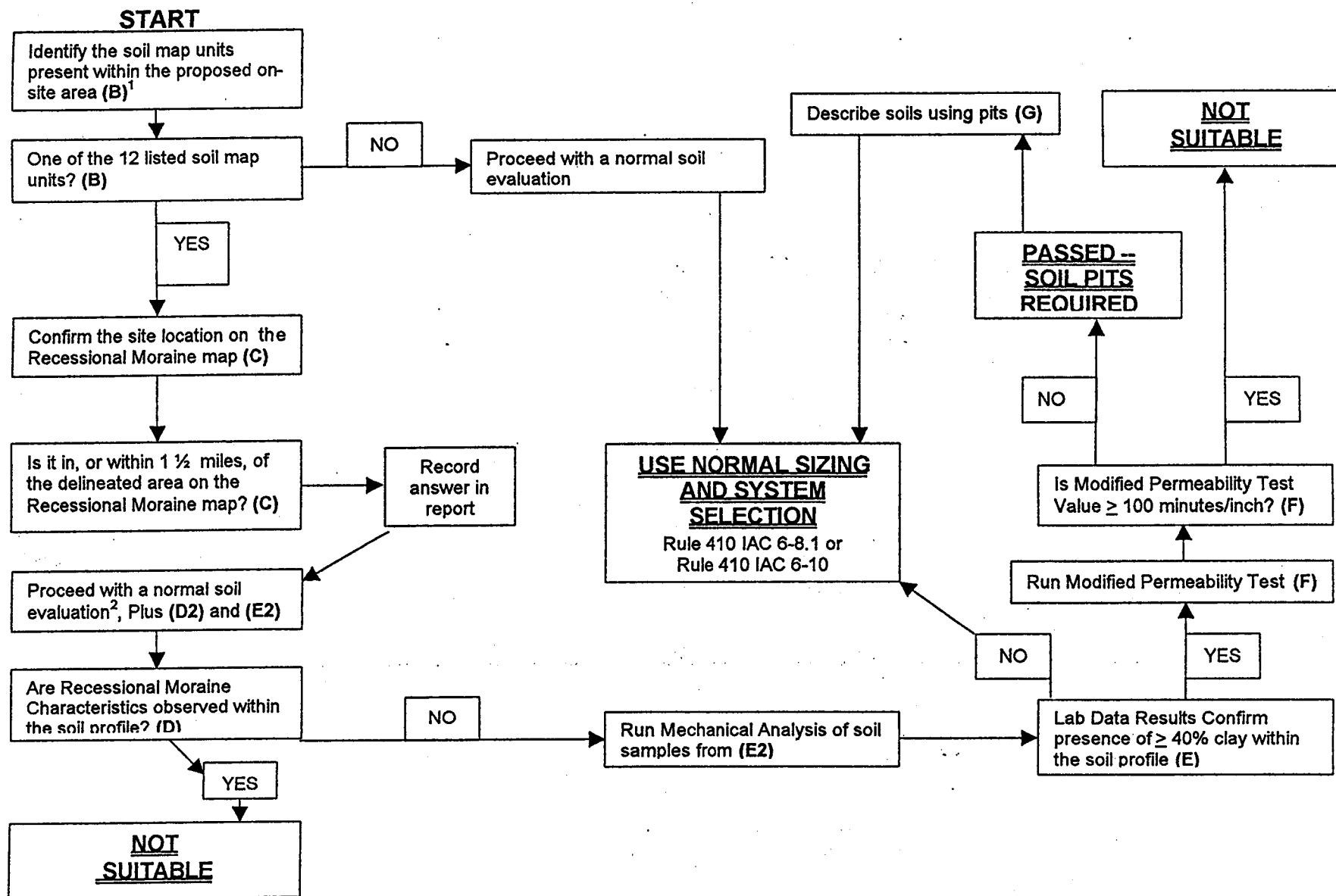
- The Del-Ray soil series must be added to the list of NRCS soil series which may contain recessional moraine soils characteristics. This list is now 1.) Blount, 2.) Bono, 3.) Del-Ray, 4.) Glynwood, 5.) Hoytville, 6.) Milford, 7.) Montgomery, 8.) Morley, 9.) Nappanee, 10.) Pewamo, 11.) St. Clair, and 12.) sites that contain areas of severely eroded soils that have clay loam, silty clay loam, silty clay, or clay surface textures.
- If the site being evaluated contains any of the eleven soil series named in my memorandum of July 18, 2001, the procedure in the flow chart must be followed. However, if the Soil Scientist conducting the evaluation determines that the soil is in a coarser textural family than the textural family of the soil series which has been mapped, the procedure does not need to be applied.
- If the site being evaluated does not contain any of the eleven soil series, the procedure does not need to be applied.
- If the site being evaluated does not contain one of the eleven soil series, but a soil scientist recognizes what may be moraine characteristics during an examination of the soils, the procedure must be applied.
- If the result of the mechanical analysis is forty (40) percent or greater, the modified permeability test must be conducted. This change in percentage from fifty to forty percent is due to modifications to the laboratory procedure. The modified procedure more accurately measures the clay content separately from the silt content.

With this procedure, the location of the site in relation to the location of the recessional moraine is not necessary in order to determine if the procedure must be applied. However, in order to continue our assessment of recessional moraine soils and their impacts to on-site sewage disposal, the location of each site in relation to the location of the recessional moraine must be identified.

If you have any questions, please contact my on-site sewage disposal staff at 317-233-7177.

cc: On-Site Sewage Staff
Soil Scientists

FLOW CHART FOR EVALUATION OF RECESSIONAL MORaine SOILS FOR ON-SITE SEWAGE SYSTEMS



¹Letter in parenthesis () references corresponding letter in ISDH memorandum of 06/19/01 to local health departments

²Special care must be taken in observing and describing the soil horizons; especially the surface layers.

ISDH 06/19/01

UPDATE BY FW-AC Department of Health
08/16/01

Frank L. O'Bannon
Governor

Gregory A. Wilson, M.D.
State Health Commissioner



Indiana State Department of Health

An Equal Opportunity Employer

DATE: July 18, 2001

TO: Adams, Allen, Blackford, DeKalb, Delaware, Grant, Howard, Huntington, Jay, Miami, Noble, Randolph, Steuben, Wabash, Wells, and Whitley Counties

FROM: Howard W. Cundiff, P.E., Director *HWC*
Consumer Protection
AC (317) 233-7182

SUBJECT: Residential and Commercial On-site Sewage Systems and
Recessional Moraines in Northeastern Indiana
Update to Memorandum of June 19, 2001

The Recessional Moraines in Northeastern Indiana include parts of: Adams, Allen, Blackford, DeKalb, Delaware, Grant, Howard, Huntington, Jay, Miami, Noble, Randolph, Steuben, Wabash, Wells, and Whitley Counties.

Questions and issues have come up which require this memorandum to update my memorandum of June 19, 2001, and to clarify the procedures pertinent to the evaluation of recessional moraine soils for on-site sewage systems. This memorandum provides:

- ◆ The implementation of a new procedural flow chart. This revision is due to a question of application of the procedure outside of the moraine soils and the 1 1/2 mile buffer zone. The procedure is to be applied to the soil map units when the site is outside of the recessional moraine and the 1 1/2 mile buffer zone. A new flow chart is attached to reflect that requirement. Please replace the previous flow chart with this one.
- ◆ The addition of two NRCS soil series to the list of nine in the memorandum of June 19, 2001. The complete list of eleven NRCS soil series is below.
- ◆ That the flow chart must be followed, including all of the steps. To conduct the evaluation of the site in any procedure other than what is prescribed will not provide the health department with all of the information necessary to process an application for a permit.
- ◆ Clarification as to the use of the Modified Permeability Test. This test is to be used, when required, as a part of the procedure for the evaluation of recessional moraine soils for on-site sewage systems. It has no other application. The procedure itself has not changed from my memorandum of June 19, 2001, but the introduction has been modified to provide a clearer explanation as to the limits of its use. The new document for the Modified Permeability Test is attached. Please replace the previous document with this one.
- ◆ Clarification on procedures when the soils description differs from the modal description of the soil series mapped at the site. If the soil is mapped as one of the eleven NRCS soil series, the procedure must be followed, even if the soil scientist's descriptions differ from the modal description of the soil series.

- ♦ Clarification of sampling for mechanical analysis. Sampling for mechanical analysis does not include a requirement for sampling of the parent material [BC, CB, or C horizon ("till" or densic material)].
- ♦ Clarification on the examination of soil characteristics using soil pits. When the soils are examined using a pit, the face of the pit wall must be fresh and moist with carefully limited "picking" at the time of examination. Therefore, the pit must be dug when the soil scientist is present and ready to do the evaluation.

The following procedure is included for use with the attached flow chart. Any changes in the following from my memorandum of June 19, 2001 are indicated by the above comments.

A. Use the "*FLOW CHART FOR EVALUATION OF RECESSIONAL MORaine SOILS FOR ON-SITE SEWAGE SYSTEMS*" published by ISDH.

A flow chart has been developed to maintain a consistent procedure for the evaluation of sites located in or adjacent to the recessional moraine areas or that have any of the NRCS soil series listed below. The flow chart is attached.

B. Soil Series Associated With The Recessional Moraines

Certain landscape conditions and NRCS soil series are present in areas where these on-site system failures have been identified:

1. Blount
2. Bono
3. Glynwood
4. Hoytville
5. Milford
6. Montgomery
7. Morley
8. Nappanee
9. Pewamo
10. St. Clair
11. Sites that contain areas of severely eroded soils that have clay loam, silty clay loam, silty clay, or clay surface textures

C. Locating Potential Moraine Areas

A general map has been developed using the *Miscellaneous Map 49*, developed by Henry H. Gray, Quaternary Geologic Map of Indiana, 1989. It is used to generally locate those moraine areas in northeast Indiana that have a high potential for OSS failure.

D. Wabash Recessional Moraine Characteristics

1. These are the characteristics that have been identified in Wells County as being present when premature OSS failures have occurred. At the present time, not all of the characteristics have been identified in the other recessional moraine soils. Only an experienced professional soil scientist can look for these characteristics from an evaluation of the soil using a backhoe soil pit.

Therefore, all soils descriptions in these areas must be conducted by a soil scientist, soil specialist, soil classifier, or registered professional soil scientist certified by:

- the American Registry of Certified Professionals in Agronomy Crops, and Soils (ARCPACS),
 - the Indiana Association of Professional Soil Scientists (IAPSS), or
 - the Indiana Board of Registration for Soil Scientists.
2. A soil pit at least 24 inches wide must be used to closely examine the surface soil and the upper part of the subsoil for the Recessional Moraine characteristics. The soil must be described to a depth of 60 inches or to a layer which cannot be readily penetrated, whichever is shallower.

E. Mechanical Analysis (Particle Size Analysis)

1. When required, soil samples will be collected and mechanical analyses conducted on selected horizons in the individual soil profiles. These analyses will be completed using the Hydrometer Method of particle size analysis developed by Bouyoucos. A facility or laboratory accepted by the local health department having jurisdiction must conduct the analyses. Copies of the Hydrometer Method of particle size analysis will be forwarded to local health departments by separate memorandum.
2. Collect soil samples (100 grams each) for mechanical analysis to determine percent clay, sand, and silt for each sample. The following horizons must be sampled:
 - a. Surface horizon.
 - b. Any horizon or horizons that the soil scientist suspects might have problems with permeability or the horizon that has the highest percent clay in the subsoil.
 - c. If present, the horizon below suspected horizons that appear to be acceptable for "normal" permeability for these textures.

Sampling for mechanical analysis does not include a requirement for sampling of the parent material [BC, CB, or C horizon ("till" or densic material)].

F. Modified Permeability Test for Recessional Moraine Soils

When required, modified permeability tests will be used as a pass/fail test for water movement through the subsoil material. These tests will be required only when indicated by the results of the initial soil evaluation and mechanical analysis. An individual accepted by the local health department having jurisdiction will conduct the tests. A minimum of seven (7) test holes will be required for residential sites. Additional test holes may be required by ISDH for commercial on-site projects. The minimum 7 holes will be located as follows:

1. A minimum of five (5) test holes will be placed in the proposed soil absorption field site. One hole will be located near each inside corner of the site and the fifth hole located near the center of the site.
2. A minimum of two (2) additional test holes will be required in the downslope dispersal area for a residential site. These two (2) test holes will be dug so that they are located ten (10) feet below the proposed soil absorption field and located approximately 1/3 of

the distance from each of the outside corners of the proposed soil absorption field. A copy of the Modified Soil Permeability Test for Recessional Moraine Soils is attached.

G. Backhoe Soil Pits Will Be Used To Describe Soil Properties Used To Select System Type And Size OSS Soil Absorption Fields

The ISDH is adopting the procedure developed by the Wells County Health Department for their Wabash Recessional moraine soils to describe soils characteristics for selecting system type and size. During parts of the initial investigation, the soil scientist may have already completed some or all of the following requirements:

1. Minimum of two (2) soil pits.
 - a. One soil pit dug ten (10) feet directly upslope of the upslope edge of the proposed soil absorption field.
 - b. A second soil pit dug ten (10) feet below the downslope edge of the proposed soil absorption field.
 - c. Each soil pit must be at least (six) 6 feet long and two (2) feet wide. The depth of each soil pit must be sufficient to adequately describe the subsoil, but may be no greater than five (5) feet.
2. A minimum of five (5) soil borings taken in the proposed soil absorption field site, with one hole located near each corner of the site and the fifth hole located near the center of the site.

Finally, the following requirements will be applied to sites where on-site sewage systems are installed in soil containing more than 50 percent clay, the site passed the modified permeability test, and the site meets all other minimum state and local code requirements for permit issuance:

1. Observation ports will be installed in the absorption trench laterals and, when installed, in the perimeter drainage system.
2. The local health departments and ISDH will have the right to visit and inspect the system to determine the status of the system.
3. The local health departments and ISDH will have the right to conduct dye tests and to collect effluent and perimeter drain water samples for testing.
4. The testing and visits will be at the discretion of the local health departments and ISDH, but will be conducted during normal working hours unless the owner has been notified.

If you have questions or desire assistance prior to the workshops, please contact my on-site sewage staff at (317) 233-7177.

cc: On-Site Sewage Staff
Soil Scientists

Attachments

Flow Chart for Evaluation of Recessional Moraine Soils for On-Site Sewage System
The Modified Soil Permeability Test for Recessional Moraine Soils

The Modified Soil Permeability Test for Recessional Moraine Soils

The Modified Soil Permeability Test will be used as a pass/fail test for water movement through the subsoil material in recessional moraine soils. It is similar to the percolation test except that:

- ◆ Only subsoil horizons are evaluated using the specific criteria. Surface horizons cannot be evaluated using this test.
- ◆ This test will be required only when indicated by the results of the initial soil evaluation and mechanical analysis.
- ◆ It is a "pass/fail" test. The sole purpose is to determine whether or not the soil will accept water. It is not used for system selection or sizing. System selection and size are determined from soil characteristics from soil pits and borings.
- ◆ This test is to be used on natural, undisturbed soils as a part of the procedures for recessional moraine soils evaluations. For a variety of reasons, this test is not suitable for use in other applications. Therefore, its use must be limited to this application.
- ◆ The failure test value shall be equal to or greater than 100 minutes/inch.

Procedure for the Modified Soil Permeability Test:

1. A minimum of seven (7) test holes will be required for residential sites. Additional test holes may be required by ISDH for commercial on-site projects. The intent of the procedure is to uniformly position the holes within the proposed OSS site. The minimum 7 holes will be located as follows:
 - a. A minimum of five (5) test holes will be placed in the proposed soil absorption field site. One hole will be located near each inside corner of the site and the fifth hole located near the center of the site.
 - b. A minimum of two (2) additional test holes will be required in the downslope dispersal area for a residential site. These two (2) test holes will be dug so that they are located ten (10) feet below the proposed soil absorption field and located approximately 1/3 of the distance from each of the outside corners of the proposed soil absorption field.
2. Notify the local health department of the date and time of the start of the modified soil permeability test at least one working day prior to the start of the test.
3. Dig or bore each hole with horizontal diameter dimension of eight (8) to twelve (12) inches.
4. Each test hole must have a minimum hole depth of at least 36 inches or be dug into densic material, whichever is shallower.
5. Remove all loose soil from each test hole.
6. Carefully fill each hole with clean tap water. Keep the hole full of water for at least 12 hours.
7. After the 12-hour saturation period, allow the water in the hole to seep away until it is below any A soil horizons at the site.
8. If needed add additional water until it just reaches the top of the first subsoil (B) horizon.
9. Establish a reference point by use of a nail stuck in the side of the hole at the top of the first subsoil (B) horizon.
10. From this point obtain a measurement to the top of the water level. Record the date, exact time, and the measurement.
11. Continue the measurement to the top of the water surface while recording the date and time until at least three (3) consecutive readings of consistent rates are obtained.
12. Convert the time interval obtained in (11) above to minutes and divide this figure by the number of inches of water which has seeped away in that interval to obtain the time for one inch of water to seep away.

If any test hole in the area being tested fails, the area being tested for the proposed absorption field is deemed unsuitable for any type of on-site system. An adjacent area can be evaluated as a new site, as long as the new area is a minimum of fifty (50) feet away from the location of any test hole(s) that have failed. Any of the test holes that previously passed this test can be utilized as test holes for the new area, if they meet the requirements for the new location.

Frank L. O'Bannon
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Indiana State Department of Health

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DATE: June 19, 2001

TO: Adams, Allen, Blackford, DeKalb, Delaware, Grant, Howard, Huntington, Jay, Miami, Noble, Randolph, Steuben, Wabash, Wells, and Whitley Counties

FROM: Howard W. Cundiff, P.E., Director *HWC*
Consumer Protection
AC (317) 233-7182

SUBJECT: Residential and Commercial On-site Sewage Systems and
Recessional Moraines in Northeastern Indiana

The Recessional Moraines in Northeastern Indiana include parts of: Adams, Allen, Blackford, DeKalb, Delaware, Grant, Howard, Huntington, Jay, Miami, Noble, Randolph, Steuben, Wabash, Wells, and Whitley Counties.

The staff of Sanitary Engineering, Indiana State Department of Health (ISDH) has become aware that there are serious problems with the proper function of on-site sewage systems in several, but not all, of the recessional moraines in northeastern Indiana. We have learned that there are on-site sewage systems (OSS) that have failed prematurely in these soils. ISDH staff has observed and studied some of these sites. As it is nearly impossible to repair failed on-site systems in the problem moraine soils, extra measures must be taken when on-site systems are to be installed in these recessional moraine areas. Therefore, this memorandum, and the procedures outlined, must be applied immediately to both residential and commercial projects.

These soil problems were first identified in Wells County, in an area known locally as "Buttermilk Ridge." Similar soil conditions occur in neighboring counties. This area first received attention when the soil absorption field of a newly constructed home failed immediately after installation. The investigations and studies that followed have pointed out that in northeastern Indiana there are soils that have special physical and chemical characteristics that cannot readily be observed in the field. Unfortunately, those characteristics severely limit their use for OSS.

Since that time, extensive studies have been done on this specific recessional moraine, the Wabash Recessional Moraine in Wells County. From the data collected, Wells County has been able to develop a policy and procedures for use in the Wabash Recessional Moraine areas. The policy and procedures appear to be working.

Last fall ISDH staff encountered similar on-site system failures in Allen County on some of their recessional moraine soils. At this time, we are unable to determine if these failures are specifically limited to only these recessional moraine areas. Individuals from ISDH, Natural Resources Conservation Service (NRCS), Indiana Geological Survey (IGS), and consulting soil scientists are studying these areas with the assistance of local health departments and OSS installers. All of the individuals are working on these studies with the ultimate goal of identifying the soil properties that are limiting the performance of on-site systems. When we are able to identify these properties we may then be able to delineate areas in the recessional moraines where OSS will function properly.

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A properly conducted soil evaluation by a soil scientist does not adequately detect the specific soil properties or characteristics that are causing the OSS failures in the recessional moraines. Because of these undetected characteristics, backhoe soil pits are necessary so that the professional soil scientists and geologists can more closely study and identify small changes that exist in the soil profile. Local health departments need to be aware that where these soil properties exist, newly installed OSS will nearly always go into immediate failure. Repair of these failing systems becomes a very serious problem because, at the present time, we are not aware of any OSS that will function properly in these soil situations. With additional study and analysis, we hope to provide on-site technologies which will overcome the limitations posed by these soils. Until that time, when any "soil moraine" characteristics are encountered in a soil profile, that specific area should not be used for any type of OSS.

Because of this situation with recessional moraine soils, the following procedure must be implemented when evaluating proposed soil absorption fields for residential and commercial on-site sewage projects in these areas.

A. Use the "*FLOW CHART FOR EVALUATION OF RECESSIONAL MORaine SOILS FOR ON-SITE SEWAGE SYSTEMS*" published by ISDH.

A flow chart has been developed to maintain a consistent procedure for the evaluation of sites located in or adjacent to the recessional moraine areas in northeastern Indiana. The flow chart is attached.

B. Soil Series And Geologic Materials Associated With The Recessional Moraines

The following geologic materials always appear to be involved with these OSS failures:

1. Glacial till materials
2. Lacustrine materials
3. Water reworked combination of both glacial till and lacustrine sediments

In addition, certain landscape conditions and NRCS soil series are present in areas where these on-site failures have been identified:

1. Morley
2. Glynwood
3. Blount
4. Pewamo
5. St. Clair
6. Nappanee
7. Hoytville
8. Montgomery
9. Sites that contain areas of severely eroded soils that have clay loam, silty clay loam, silty clay, or clay surface textures

C. Locating Potential Moraine Areas

A general map has been developed using the *Miscellaneous Map 49*, developed by Henry H. Gray, Quaternary Geologic Map of Indiana, 1989. It is used to generally locate those moraine areas in northeast Indiana that have a high potential for OSS failure. This map is included as an attachment.

D. Wabash Recessional Moraine Characteristics

1. These are the characteristics that have been identified in Wells County as being present when premature OSS failures have occurred. At the present time, not all of the characteristics have been identified in the other recessional moraine soils. Only an experienced professional soil scientist can look for these characteristics from an evaluation of the soil using a backhoe soil pit. Therefore, all soils descriptions in these areas must be conducted by a soil scientist, soil specialist, soil classifier, or registered professional soil scientist certified by:
 - the American Registry of Certified Professionals in Agronomy Crops, and Soils (ARCPACS),
 - the Indiana Association of Professional Soil Scientists (IAPSC), or
 - the Indiana Board of Registration for Soil Scientists.
2. A soil pit at least 24 inches wide must be used to closely examine the surface soil and the upper part of the subsoil for the Recessional Moraine characteristics. The soil must be described to a depth of 60 inches or to a layer which cannot be readily penetrated, whichever is shallower.

E. Mechanical Analysis (Particle Size Analysis)

1. When required, soil samples will be collected and mechanical analyses conducted on selected horizons in the individual soil profiles. These analyses will be completed using the Hydrometer Method of particle size analysis developed by Bouyoucos. A facility or laboratory accepted by the local health having jurisdiction must conduct the analyses. Copies of the Hydrometer Method of particle size analysis will be forwarded to local health departments by separate memorandum.
2. Collect soil samples (100 grams each) for mechanical analysis to determine percent clay, sand, and silt for each sample. The following horizons must be sampled:
 - a. Surface horizon
 - b. Any horizon or horizons that the soil scientist suspects might have problems with permeability or that the horizon has the highest percent clay in the subsoil
 - c. If present, the horizon below suspected horizons that appear to be OK for "normal" permeability for these textures

F. Modified Permeability Test for Recessional Moraine Soils

When required, modified permeability tests will be used as a pass/fail test for water movement through the subsoil material. These tests will be required only when indicated by the results of the initial soil evaluation and mechanical analysis. An individual accepted by the local health department having jurisdiction will conduct the tests. A minimum of seven (7) test holes will be required for residential sites. Additional test holes may be required by ISDH for commercial on-site projects. The minimum 7 holes will be located as follows:

1. A minimum of five (5) test holes will be placed in the proposed soil absorption field site. One hole will be located near each inside corner of the site and the fifth hole located near the center of the site.

2. Two (2) additional test holes will be required in the downslope dispersal area for a residential site. These two (2) test holes will be dug so that they are located ten (10) feet below the proposed soil absorption field and located approximately 1/3 of the distance from each of the outside corners of the proposed soil absorption field.

A copy of the Modified Soil Permeability Test for Recessional Moraine Soils is attached.

G. Backhoe Soil Pits Will Be Used To Describe Soil Properties Used To Select System Type And Size OSS Soil Absorption Fields

The ISDH is adopting the procedure developed by the Wells County Health Department for their Wabash Recessional moraine soils to describe soils characteristics for selecting system type and size. During parts of the initial investigation, the soil scientist may have already completed some or all of the following requirements:

1. Minimum of two (2) soil pits.
 - a. One soil pit dug ten (10) feet directly upslope of the upslope edge of the proposed soil absorption field.
 - b. A second soil pit dug ten (10) feet below the downslope edge of the proposed soil absorption field.
 - c. Each soil pit must be at least (six) 6 feet long and two (2) feet wide. The depth of each soil pit must be sufficient to adequately describe the subsoil, but may be no greater than five (5) feet.
2. A minimum of five (5) soil borings taken in the proposed soil absorption field site, with one hole located near each corner of the site and the fifth hole located near the center of the site.

Finally, the following requirements will be applied to sites where on-site sewage systems are installed in soils that are either in the recessional moraine delineation or soils containing more than 50 percent clay:

1. Observation ports will be installed in the absorption trench laterals and, when installed, in the perimeter drainage system.
2. The local health departments and ISDH will have the right to visit and inspect the system to determine the status of the system.
3. The local health departments and ISDH will have the right to conduct dye tests and to collect effluent and perimeter drain water samples for testing.
4. The testing and visits will be at the discretion of the local health departments and ISDH, but will be conducted during normal working hours unless the owner has been notified.

ISDH staff will contact local health departments to schedule workshops in the near future to review this information and address questions. If you have questions or desire assistance prior to the workshops, please contact my on-site sewage staff at (317) 233-7177.

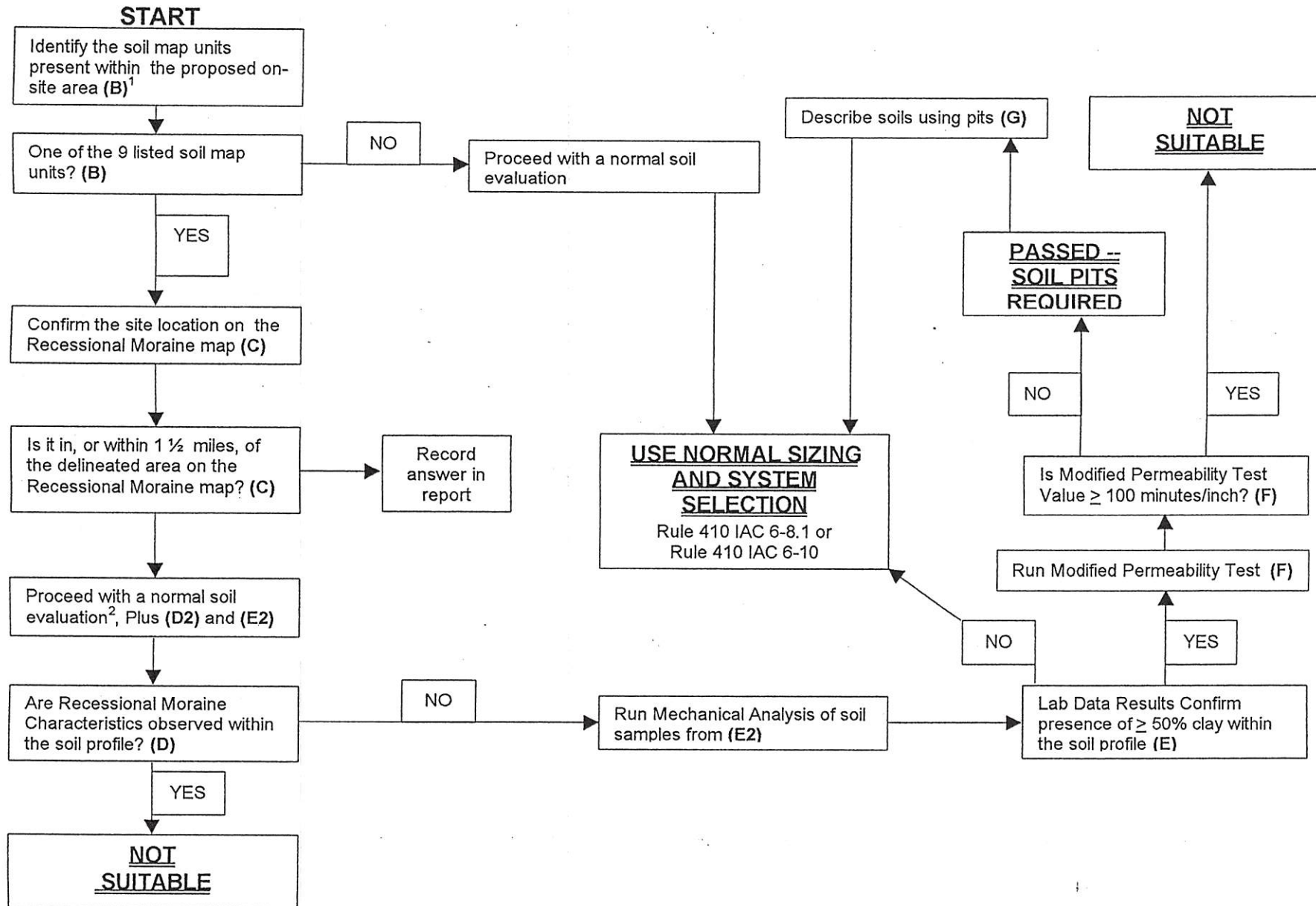
cc: On-Site Sewage Staff
Soil Scientists

Attachments

General Map of Recessional Moraine Soils in northeast Indiana
Flow Chart for Evaluation of Recessional Moraine Soils for On-Site Sewage System
The Modified Soil Permeability Test for Recessional Moraine Soils

1. Wabash Recessional Moraine Characteristics
2. Hydrometer Method of particle size analysis developed by Bouyoucos

FLOW CHART FOR EVALUATION OF RECESSIONAL MORaine SOILS FOR ON-SITE SEWAGE SYSTEMS



¹Letter in parenthesis () references corresponding letter in ISDH memorandum of 06/19/01 to local health departments

²Special care must be taken in observing and describing the soil horizons; especially the surface layers.

The Modified Soil Permeability Test for Recessional Moraine Soils

When required, the Modified Soil Permeability Test will be used as a pass/fail test for water movement through the subsoil material in the Recessional Moraine soils. This test will be required only when indicated by the results of the initial soil evaluation and mechanical analysis. An individual accepted by the local health department having jurisdiction will conduct the tests.

For a variety of reasons, this test is not suitable for use in other applications. Therefore, its use shall be limited to this application.

The surface horizons cannot be included for determining the permeability rate for a specific test hole. The failure test value shall be equal to or greater than 100 minutes/inch.

Procedure for the Modified Soil Permeability Test:

1. A minimum of seven (7) test holes will be required for residential sites. Additional test holes may be required by ISDH for commercial on-site projects. The minimum 7 holes will be located as follows:
 - a. A minimum of five (5) test holes will be placed in the proposed soil absorption field site. One hole will be located near each inside corner of the site and the fifth hole located near the center of the site.
 - b. Two (2) additional test holes will be required in the downslope dispersal area for a residential site. These two (2) test holes will be dug so that they are located ten (10) feet below the proposed soil absorption field and located approximately 1/3 of the distance from each of the outside corners of the proposed soil absorption field.
2. Notify the local health department of the date and time of the start of the modified soil permeability test at least one working day prior to the start of the test.
3. Dig or bore each hole with horizontal diameter dimension of eight (8) to twelve (12) inches.
4. Each test hole must have a minimum hole depth of at least 36 inches.
5. Remove all loose soil from each test hole.
6. Carefully fill each hole with clean tap water. Keep the hole full of water for at least 12 hours.
7. After the 12-hour saturation period, allow the water in the hole to seep away until it is below any A soil horizons at the site.
8. If needed add additional water until it just reaches the top of the first subsoil (B) horizon.
9. Establish a reference point by use of a nail stuck in the side of the hole at the top of the first subsoil (B) horizon.
10. From this point obtain a measurement to the top of the water level. Record the measurement and the exact time.
11. Continue the measurement to the top of the water surface and time recording until at least three (3) consecutive readings of approximately the same rates are obtained.
12. Convert the time interval obtained in (11) above to minutes and divide this figure by the number of inches of water which has seeped away in that interval to obtain the time for one inch of water to seep away.

If any test hole in the area being tested fails, the area being tested for the proposed absorption field is deemed unsuitable for any type of on-site system. An adjacent area can be evaluated as a new site, as long as the new area is a minimum of fifty (50) feet away from the location of any test hole(s) that have failed. Any of the test holes that previously passed the Modified Permeability Test can be utilized as test holes for the new area, if their location permits. The new proposed area must then be retested using the procedures outlined above.

Frank L. O'Bannon
Governor
Gregory A. Wilson, M.D.
State Health Commissioner



Indiana State Department of Health

FOR IMMEDIATE RELEASE
June 21, 2001

CONTACT: Margaret Joseph
317-233-7315

MORaine SOILS IN PARTS OF 16 NORTHEAST INDIANA COUNTIES MAY BE CAUSING SOME SEPTIC SYSTEMS TO FAIL

INDIANAPOLIS—The Indiana State Department of Health has notified local health departments in 16 counties in northeast Indiana that the recessional moraines may be causing some septic system failures in their area.

Some recessional moraines may have soils that don't absorb water well. Recessional moraine soils were formed by sediments from glaciers in the periods when the glaciers were receding.

The problem has been found in Indiana only in portions of these counties: Adams, Allen, Blackford, DeKalb, Delaware, Grant, Howard, Huntington, Jay, Miami, Noble, Randolph, Steuben, Wabash, Wells, and Whitley.

"We recently became aware that there are serious problems with the functioning of septic systems in several, but not all, of the recessional moraines in northeast Indiana," said Howard Cundiff, P.E., director of the Consumer Protection Division at the State Department of Health.

In a memorandum sent this week to the health departments in the affected counties, Cundiff said, "As it is nearly impossible to repair on-site systems (septic systems) in the problem moraine soils, extra measures must be taken when on-site systems are to be installed in these recessional moraine areas. Therefore, this memorandum, and the procedures outlined, must be applied immediately to both residential and commercial projects."

The procedures call for special soil tests for a proposed site for a septic system if that site is located in a recessional moraine area.

"At present, there is no known on-site sewage technology that will function properly in moraine soils," Cundiff said. "But it may be that as little as 10 percent of the land area in these recessional moraines contains these soils."

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MORaine SOILS
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The soil problems were first identified in Wells County, in an area known as Buttermilk Ridge. Cundiff says that subsequent studies conducted on the recessional moraine in that county have enabled the Wells County Health Department to develop a septic systems policy and procedures that appear to be working.

Cundiff says that studies are underway to delineate areas in the recessional moraines where septic systems will function properly. The research is being conducted by the State Department of Health, the U.S. Natural Resources Conservation Service, the Indiana Geological Survey, and consulting soil scientists, assisted by local health departments and septic system installers.

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