

- A. A summary of sand and gravel deposits
- B. Memorandum Report: Kickapoo Sand and Gravel Corporation
- C. United States Department of Agriculture, Soils, Geology of County
- D. Bedrock Topography
- E. Geologic Map
- F. Drift Thickness RP7

Sand and gravel in Miami County 1949.

Location.

The large deposits of assorted sand and gravel are found under the flood plains, and in terraces, along the major waterways. These waterways are, from north to south, Eel River, Wabash River, Mississinewa River, and Pipe Creek. Virtually no upland(kamal) gravel is being used, and indeed, may not be present in quantity,

Geology.

Outwash from the Packerton and Mississinewa moraines concentrate^d in the Miami County area. These outwash aprons were reworked by water, and possibly by readvance, and the gravel^{was} concentrated in the major valleys. This valley fill of limited silt, sand, and gravel, has been eroded by modern streams, leaving scattered terraces within the main valley floors and along the valley walls.

Future supply

Unlimited amount of sand and gravel may be dipped and pumped from the valleys of the major streams. As much as fifty feet of gravel can be expected, in selected areas, beneath the water-level. Overburden, and transportation distances are the main limiting factors.

Activity

June 1949,	Active Pits counted	-----	Fourteen
" "	Inactive " "	-----	Seventeen

By C.L.Bieber

August 30, 1950

MEMORANDUM REPORT BY ROBERT E. SARGENT

KICKAPOO SAND AND GRAVEL CORP., MIAMI COUNTY

Date of field examination -- August 23, 1950.

Location -- The Kickapoo Sand and Gravel Corporation plant is located at the western limits of Peru, in Miami County, in the $W\frac{1}{2}$ Sec. 29, T.27N., R.4E. and in the $E\frac{1}{2}$ sec. 30, T.27N., R.4E.. The pit now being worked (which was mapped) is in the $E\frac{1}{2}$ sec. 30, T.27N., R.4E..

Ownership -- The Kickapoo Sand and Gravel Corporation owns 162 acres of land on which the plant and pit are located. Robert E. O'Connor is president of the corporation and M. P. O'Connon is vice-president. The plant is managed by Paul Ingersoll.

Information for this report was furnished by Paul Ingersoll, plant manager.

Geology -- The pit is located in a Pleistocene terrace along the glacial sluiceway now occupied by the Wabash River (See Leverett and Taylor, 1915, Pl. 6). At the present site of operation (see accompanying sketch map) the deposit is at least 35 feet in thickness. However, the thickness of the deposit as a whole has averaged from 16 to 17 feet. This gravel is fairly well stratified and poorly to fairly well sorted. There is some cross bedding.

The overburden of the pit area is approximately 4 to 5 feet in thickness. The upper 1.5 feet is a brown silt loam. Below the silt loam is a red-brown clay soil containing imbedded sand and gravel scattered through it.

Samples -- Sample S5067 was taken by dragline crane from the north face of the new operation (see accompanying sketch map). The crane took this sample from a 35 foot gravel face. This sample should be fairly representative of the deposit.

Operations -- Gravel is removed with a dragline crane in an operation that is very similar to the stripping of coal. The gravel is carried by rail to the corporations screening, & washing plant. The corporation has its own track, cars and locomotives. The gravel is transported by truck and rail. The C. and O. Railroad takes the gravel to the freight yards where it may be carried by The C. and O. Railroad, The Wabash Railroad, or the Nickle Plate Railroad.

Production -- The average daily production of the plant is 1500 tons. The average annual production is 300,000 tons. Capacity production of the plant is 2100 tons per day.

The plant produces washed sand and gravel to all state highway specifications, railraod ballast, concrete sand and bituminous sand.

Reserves -- The corporation has 120 acres of land available for use. Test holes have shown an average of 16 to 17 feet of sand and gravel under this land.

Respectfully submitted,

Robert E. Sargent

Robert E. Sargent
Party Chief

Leverett, F. and Taylor, F. B. (1915) The Pleistocene of Indiana and Michigan and the history of the Great Lakes, U. S. Geol. Sur., Monograph vol. 53, 529 pp., 32 Pls., 11 figs..

52-C
Mike Moore

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Indianapolis, Indiana 46204

Subject: SOILS - Geology - Soils Field Trip
Miami - Kosciusko Counties

July 30, 1970

To: Ray Dideriksen
State Soil Scientist
SCS, Indianapolis, Indiana

Attached is a brief summary of observations made at each stop during the Geology - Soils field study made in Miami and Kosciusko Counties, July 6-9, 1970.

Those taking part in all or part of the study were Dr. Al Schneider, Dr. Ned Bleuer, and Mike Moore, Indiana Geological Survey; Stan Murdock, State Geologist, SCS; Frank Kirschner, Jack Deal, Denver Farmer, Paul McCarter, Rex Brock, Area II Soil Scientists; Joe Wilson, D. C., and Carl Diehl, Soil Conservation Technician, Kosciusko Co.; Jerry Pearson, D. C., Miami Co.; Dr. Al Zachary, Purdue University; Daniel Shipman, Summer Student Trainee, Peru. Information gained through the joint field study will be very helpful in the conduct of the soil surveys of these counties.

Will you please pass on my summary of observations to the others taking part in the study.

Frank W. Sanders
Frank W. Sanders
Asst. State Soil Scientist

attachment

July 1970

GEOLOGY AND SOILS FIELD STUDY IN
KOSCIUSKO AND MIAMI COUNTIES, INDIANA

A summary of observations made by F. W. Sanders, Asst. State Soil Scientist.

KOSCIUSKO COUNTY

STOP 1 - NW 1/4 Sec 32; T33N; R6E, N of Warsaw 2 1/2 miles, and west of Hwy #15 about 1/4 mile. Area shown on published map as Fox and Bellefontaine.

The profile at the base of the slope on nearly level topography had a 0-10", 10YR 4/3 loam layer (high in fine sand); the Bt 10-40" was dominately 7.5YR 4/4, clay loam, pH 5.4; the B3 40-50", 7.5YR 5/6 ls and sl, pH 5.4; 50-60", 10YR 3/2, fs, pH 5.6; 60-74" fs with thin strata of sl, 10YR 5/4, pH 6.4. This profile has characteristics of Martinsville but is leached to a greater depth than normal. Frank Kirschner reports that the area to the east is dominately Kalamazoo.

The profile on the 5% slope west of above profile is characteristic of the Riddles series. The Bt is a clay loam to 60 inches with calcareous loam till at 60 to 100 inches and underlain with calcareous gravel and sand at 100 to 120 inches. The road cut has a range of materials ranging from loam till to pockets of outwash sand or stratified materials.

STOP 2 - Gravel pit SW 1/4 of Sec 9; T33N; R6E, 1/2 mi SE of Leesburg. Area is mapped Bellefontaine and Miami sl on published map.

Profiles in edge of gravel pit are in the Riddles series with sola about 60" thick underlain with loam till (calcareous). Thickness of sola and till is 8 to 10 feet over gravel and sand. Pit is 50'+ in depth.

STOP 3 - NE 1/4 of Sec 22; T34N; R6E in edge of abandoned gravel pit.
A - 0-16" sl
B2t - 16-36" sl, 7.5YR 4/4, med clay films, 5YR 5/6, on faces of peds
B3 - 36-60" ls
C - 60"+ fine sand (calcareous)

Gravel and sand occurs directly below the sola at some places in the cut.

Boring in the field 300' from the pit has 12 inches of loam over a silty clay to heavy clay loam extending to 40 inches; 40-50" sl; 50-72" stratified vfs and coarse silt; 72"+ calcareous fine sand. Area was called Bellefontaine on published map. It is mapped Hillsdale fsl on aerial photo.

Conclusion - This area appears to be a complex of soils developed in outwash with some till seams and pockets. Material has a wide range in texture. Further study is needed. Such areas may be best handled as complexes.

STOP 4 - Center of Sec 11; T34N; R6E, large abandoned gravel pit. Published as Bellefontaine.

No soil profiles were studied. There are 10 feet and more of loam till (calcareous) overlying the gravel and sand beds along the north edge of the pit. Its extent was not determined. A small area of Miami is mapped to the west of the Bellefontaine area.

Conclusion - Some loam till is included in outwash areas where Bellefontaine is mapped. This till appears as islands, as pockets, as stratified layers interbedded in outwash material.

STOP 5 - SE 1/4, Sec 8; T34N; R7E, North of Oak Park near Lake Wawasee. This area was published as Miami sl. The deep cut N of ball park is silty clay loam to clay loam till, 10 feet or more thick overlying fine sand. Profiles in the park to the N are in the Morley and Blount series.

Conclusion - This is the north edge of a projection of the Packerton Moraine. The Packerton Moraine appears to include silty clay loam till (cl) at this location.

STOP 6 - Boy Scout Camp, North edge of Robinson Lake between Whitley and Kosciusko Counties.

Typical Morley profile examined on a 4% ridge; the Bt was estimated to have 42% clay and the calcareous till to have about 35% clay. The topography here is hammocky with irregular slopes ranging from 3% to 30% and more on escarpments around the lake. Included in this area are profiles which are capped with sl and ls. On one small knoll, the profile was 1fs to 40 inches over ls, s, fsl stratified to 55 inches underlain at 55 to 80"+ with leached sandy clay till.

Conclusion - This part of the Packerton Moraine appears to be mostly cl, sicl till with pockets, smears and strata of sandy materials. A part of the area would include Metea and Rawson soils to a limited extent. The dominant soil is Morley.

STOP 7 - SE 1/4, Sec 11; T31N; R7E. This area was mapped Miami sandy loam on published map. The materials in the area are silty clay loam and clay loam till with sand smears and pockets. Some typical profiles of Morley profiles were examined; also some profiles of Owosso and Metea. It is estimated that the proportion of these series is about 1/3 Morley, 1/3 Rawson with minor inclusions of Metea and Owosso.

Conclusion - This part of the Packerton Moraine is cl till rather than loam till with inclusions of sandy materials as smears, as pockets and as strata. These areas are complexes of several soil series.

STOP 8 - NW 1/4 Sec 25; T31N; R6E, 1 mile west of Packerton. Area published as Miami loam. Soil was examined on a N-S road. Area to the South is considered by F. Kirschner to be Morley till, and area to the North, Miami till.

Profile examined to the South was within a delineation published as Coloma ls. It was on a 3% slope in a ridge about 200-300 feet wide. 0-10" of sl; B2t scl (some fine pebbles at 36 to 40"); 40-60" fs, sl and ls, leached; 60-100" scl, cl leached, and Co₃ in sand at 100".

Profile examined to the North was underlain with loam till with a sola within the Riddles series.

Conclusion - The line proposed by F. Kirschner in this area to separate dominately sicl, cl till from loam till appears to be reasonably accurate. Our observations of soils on both sides of this proposed boundary verifies Frank's observations.

MIAMI COUNTY

STOP 1 - SE corner of Sec 30; T26N; R4E on new #31 road cut W side of road, 1/2 mi W and 1/2 mi N of Bunker Hill. Till in road cut was loam. The upper calcareous till from the base of the sola to about 6' was underlain with sand and silt layers one foot or more thick; underlain with loam till. A rather sharp break at a depth of about 20' into a pinkish loam till that may be of Illinoian age. There are some structural faces in the pinkish till which are coated with iron oxides and possible clay films which indicate some weathering during an earlier period.

Profiles 500' further south in road cut has 36" of silt overlying fine sand and silt stratified layers, underlain with loam till at 6 feet. This exposure also has the pinkish till exposed at about 20 feet. This profile would classify - Typic Hapludalfs - fine silty, and is within the Camden series. It may not be extensive enough to map at this location.

Conclusion - The till here is loam till and has a silt cap on the ridges. Fincastle and Russell soils normally are expected. The steeper slopes are expected to be Miami soils.

STOP 2 - SW corner of SE 1/4 Sec 6; T25N; R4E.

Fincastle silt loam profile - 36" of silt over 10" of weathered till, over calcareous loam till.

STOP 3 - SE corner of NE 1/4 of Sec 33 (road cut N side of road), T26N; R4E.

Morley silt loam profile - Aquic Hapludalf - fine. Profile has about 12" of silt cap; a "Bt" of silty clay; underlain with heavy clay loam (calcareous C).

This profile is on the Union City moraine; the till here is heavy clay loam. Morley and Blount soils are normal for this material.

- STOP 4 - SW corner of SE 1/4 of Sec 27; T26N; R4E at junction of "T" road. This area is mapped Miami silt loam on the published map.

Morley profile underlain with silty clay loam or clay loam (est. clay 32%) at 36". Below this at a depth of about 5' there is calcareous loam till (est. clay 25%). Boring in the corn field at this location had 24" of loess with a silt B2lt at 10 to 24"; the IIB22t was a clay (45% clay) underlain with a clay loam calcareous C.

Conclusion - There appears to be a thin loess cap over the Morley till in this area. The Morley till appears to be overlying loam till as exposed in eroded cut. Soils in this area are dominately within the Morley-Blount Catena.

- STOP 5 - SW corner of SE 1/4 Sec 10; T26N; R4E road cut. Till in road cut is estimated to have 32% clay.

Soils in the area are in the Morley-Blount Catena.

- STOP 6 - NW corner of NE 1/4 Sec 9; T26N; R5E.

Typical Morley profile underlain with clay loam calcareous till at 30 inches.

Conclusion - Till in this area is Morley-Blount till.

- STOP 7 - This was on the Mississinewa moraine in Wabash County. The soil examined was Morley. The Bt was estimated to have 40% clay and the underlying cl till about 35% clay.

The till in this moraine may contain slightly more clay than some of the till observed on the Union City moraine and east of it in Miami County.

- STOP 8 - Center of NE 1/4 Sec 21; T21N; R4E at base of steep bluff N of Peru about 1 1/2 miles.

Till exposed is silt (est clay content 37%).

- STOP 9 - NW 1/4 Sec 3; T27N; R4E. Area is published as Miami silt loam. Profile examined was Morley and underlain at 30 inches with cl (35% c) till.

This site is on the Tipton plain between the Eel River and the Wabash River.

- STOP 10 - NE corner of NE 1/4 Sec 16; T28N; R4E. This site on the Packerton Moraine. Soil published as Miami fine sandy loam.

Several profiles examined and all were different. Part of the area has a loamy sand or sandy loam cap over Morley till. One profile was complete in Morley till. One profile had the following characteristics - 0-30", 7.5YR 5/6 sandy loam; 30-60" leached silty clay or heavy silty clay loam (appears to be from Morley till); 60-90" stratified gravelly clay loam and gravelly loam (leached); 90 inches + is brown silt smooth (appears to be lacustrine but is not calcareous).

Conclusion - This part of the Packerton Moraine contains a wide variety of textural materials ranging from sand to silty clay loam or silty clay. These materials give rise to a complex pattern of soil profiles which vary widely within short distances. (This range appears to be confined to areas of soils published Miami fine sandy loam.)

STOP 11 - SE corner of SW 1/4 Sec 3; T28N; R4E (at site of N. Miami High School). This area is published as Miami loam.

Good Morley profiles examined in cuts back of school underlain with cl till (35% c).

Conclusion - This part of the Packerton Moraine appears to be uniformly Morley-Blount Till.

STOP 12 - NW corner Sec 35; T29N; R4E.

Morley profile B2t is clay (est c at 45%) underlain at 24 inches by cl till (est c 35-37%). Noticeable amount of black shale.

STOP 13 - NW corner Sec 24; T29N; R4E.

Morley s11 - B2t clay (40% c) with clay loam c at 40 inches. Horizon between 28 and 40 inches is a B3. It is partly calcareous and clay films are present. Slopes range in the area from 3 to 15%. Soils in the area appear to be dominately in the Morley-Blount Catena.

STOP 14 - NW corner of NE 1/4 Sec 11; T29N; R4E. Area published as Miami loam.

Slope about 2%.

0-14" - sandy loam

14-48" - clay Bt (45% c)

48"+ - clay loam calcareous C.

This soil is well drained on nearly level topography where Blount soils would normally occur. There may be coarser materials below the till in this area which is giving rise to better drained profiles than are expected on this slope on these materials.

STOP 15 - In Fulton Co, 1/2 mile N of Miami Co. line, N of Sec 2; T29N; R4E.

Profile examined was Morley.

STOP 16 - SE corner of Sec 6; T29N; R4E. Soil published Miami fine sandy loam.

Profile was Miami fine sandy loam with a Bt of clay loam (32% c); underlying "C" material below 30" is loam till.

Conclusion - This area appears to be in the Miami loam till.

General Remarks: From this study we conclude that clay loam - silty clay loam till occurs in the Union City Moraine and to the east on the ground moraine and north to the Wabash bottoms or terraces. The ground moraine between the Wabash R. and the Eel R. in Miami County contains dominately clay loam - silty clay loam till (Morley-Blount till). The Packerton Moraine in the northern part of Miami County is largely clay loam - silty clay loam till except for some of the materials along its northern boundaries where the materials vary from sands to clays. These mixed materials dominately occur in areas which have been published as Miami fine sandy loam. These areas are dominately in the NW part of Miami County. Mostly in Allen and Union Townships.

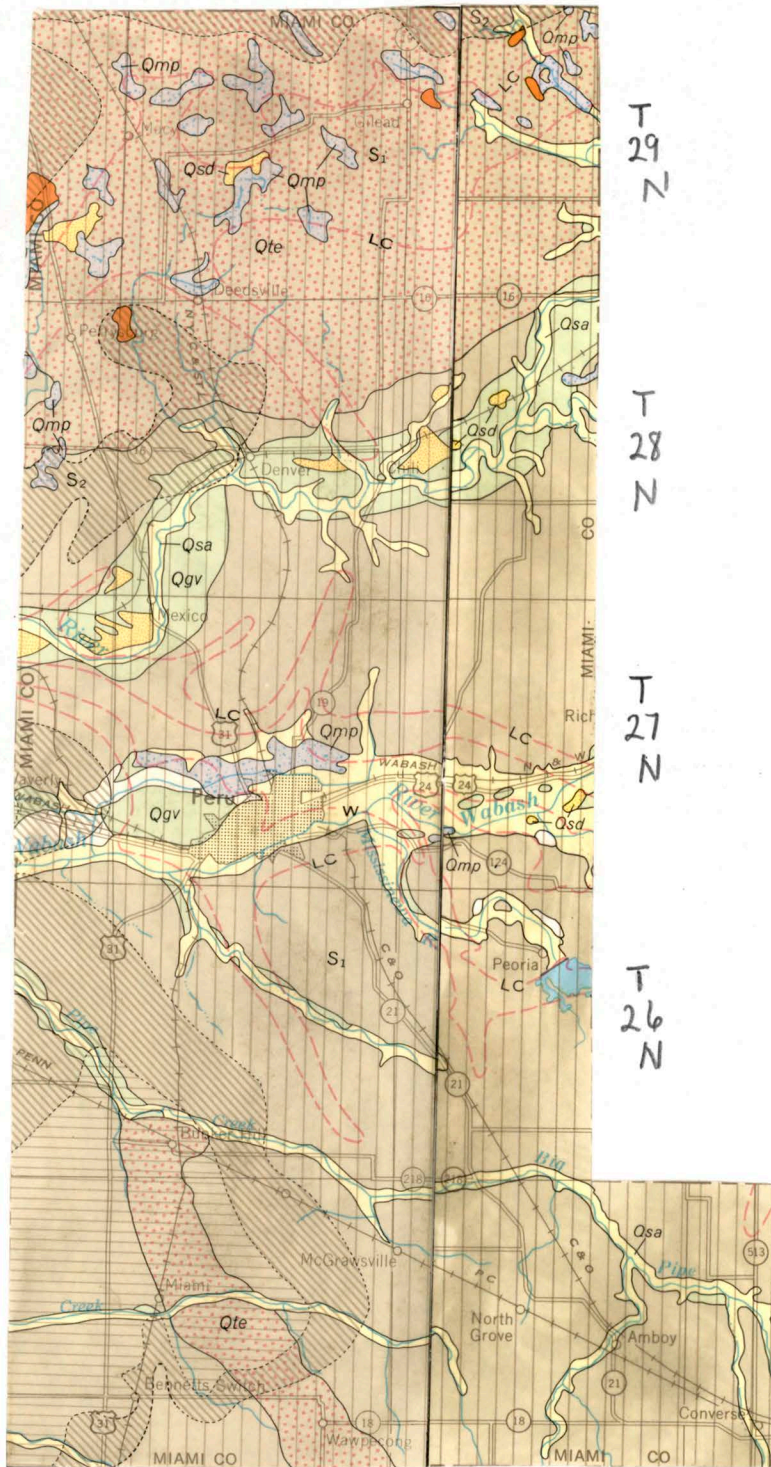


R3E

R4E

R5E

32-E



T 29 N

T 28 N

T 27 N

T 26 N

T 25 N

Scale 1:250,000

