

From
2009 Report on Ohio Mineral Industries:
An Annual Summary of the State's Economic Geology

SAND AND GRAVEL

Sand and gravel were reported sold or produced by 178 companies at 252 operations in 59 Ohio counties during 2009. Estimated sales of sand and gravel totaled 28,101,886 tons, down 15.4 percent from 2008. Sand accounted for 14,849,005 tons of the total sand and gravel sold, and gravel accounted for 13,252,881 tons. Reported known production of sand and gravel totaled 28,190,712 tons in 2009.

Out of 50 producing states and Puerto Rico, Ohio ranks eleventh in the production of construction sand and gravel. Ohio ranks ninth in the production of industrial sand and gravel and ranks sixth in the production of aggregates, including crushed stone.

The total value of sand and gravel sold in 2009 was \$183,292,778. Average price per ton was \$6.52.

Commercial and residential building, portland cement concrete, asphaltic concrete, and road construction/resurfacing were the major uses for Ohio sand and gravel in 2009.



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**CREATING A SAND AND GRAVEL RESOURCES
DERIVATIVE MAP FOR THE MANSFIELD
1:100,000 QUADRANGLE, OHIO**

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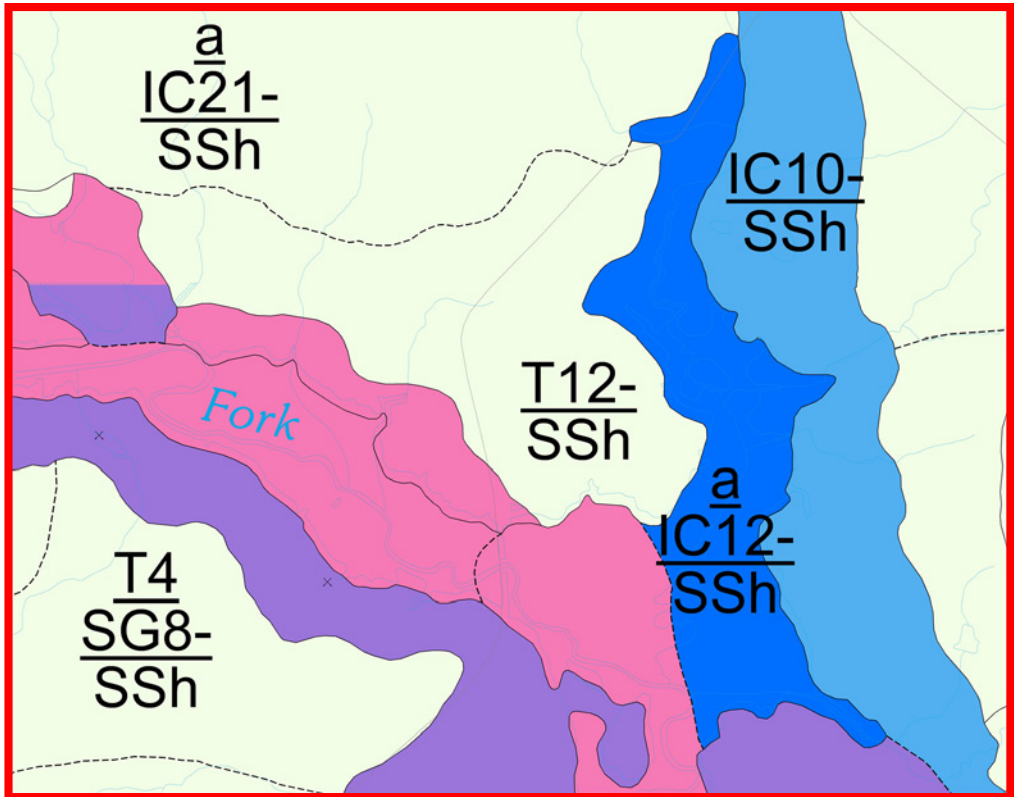


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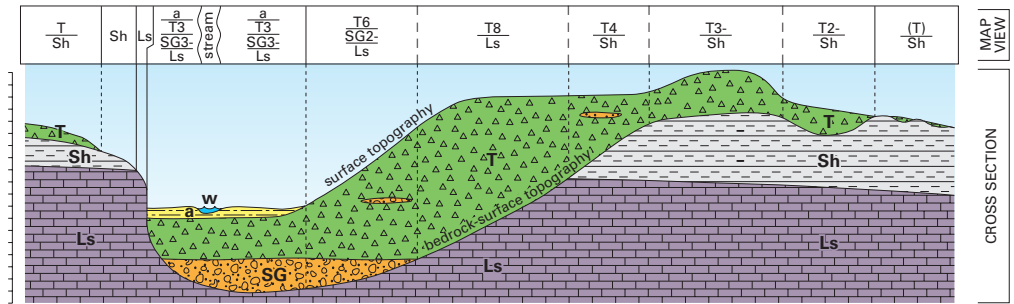
The Ohio Department of Natural Resources, Division of Geological Survey (ODGS) has an ongoing program for surficial mapping based upon creating a 1:100,000 scale USGS Quadrangle each year. The main component of these maps is creating a polygon which contains a three-dimensional "stack" which summarizes the gross lithologic material and thickness for the entire package of glacial/Holocene materials and finishes with the appropriate bedrock lithology at the base of the stack. Common lithologies include glacial till, ice-contact deposits, silty-clayey lacustrine deposits, sand and gravel deposits, etc. Thicknesses are reported in thicknesses of feet which are multiplied by a factor of 10. As an example, a polygon may contain a labeled stack such as T5/SG3/T2/LS which would indicate this sequence contains 50 ft of till over 30 ft of sand and gravel over 20 feet of till over limestone bedrock. The maps are color-coded using the uppermost layer.

As of this date, the ODGS has mapped approximately 19 of the 34 complete or partial 1:100,000 quadrangles that cover Ohio. This progress includes a large portion of glaciated Ohio. The surficial maps contain information that is highly useful for water well drillers, construction activities, waste disposal and siting, and other planning activities.

The maps also have utility for the sand and gravel aggregate industry. To make a more useable product for this industry, the ODGS is creating a series of derivative maps based upon the 1:100,000 scale surficial geology "stack" maps. A series of queries were run for the GIS layers used to create the stacks to verify polygons with a thickness of sand and gravel units that exceed the thickness of overlying or interbedded finer-grained materials by at least a ratio of 4:1. The final resulting map is then color-coded based upon this ratio and also the total thickness of the sand and gravel units. A series of three smaller inset maps provide locations of sand and gravel mining operations, drift thickness, and the classic-geomorphic-based Quaternary Map of Ohio for the 1:100,000 scale quadrangle.



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Partial funding for *Potential Sand and Gravel Resources of the Mansfield 30 x 60 Minute Quadrangle*, Map SG-2a MAN, comes from the USGS Great Lakes Geologic Mapping Coalition; member states are Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin.

FIGURE 4.—Map view and cross section of a hypothetical stack-unit map. See lithologic-unit for explanation of symbols. In the map view (top), solid-line boundaries separate map-unit areas having different lithologic units at the surface; underlying lithologic units may or may not differ. Dashed-line boundaries separate map-unit areas having the same surface lithologic unit but different thicknesses or different underlying lithologic units. The cross section illustrates thickness and mapping conventions. Thickness values are in tens of feet. Values are gross averages that can vary up to 50 percent, except (1) those followed by a minussign (-), which represent the maximum thickness of a thinning trough- or wedge-shaped sediment body, or (2) units in parentheses (), which indicate a discontinuous distribution of that unit. Precise surface topography can be determined from topographic maps that are available from the ODNR Division of Geological Survey at several scales; bedrock-surface topography and bedrock geology are available from the ODNR Division of Geological Survey as 1:24,000-scale quadrangle maps.