

Soil Survey Saves Lake County Taxpayers' Money

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A progressive soil survey of Lake County was started in April 1963. At that time approximately 80,000 acres had already been surveyed for agricultural purposes. The field work is expected to be completed by the end of 1965 and the report to be ready for publication by 1967.

Three soil scientists with the Soil Conservation Service and two from Purdue University are actively working on the soil survey. In addition the Cooperative Extension Service and the Lake County Commissioners have hired a soil scientist to do educational work and special soil interpretations.

Lake County has over 300 soil phases. The soils are developed from Wisconsin age till, glacial outwash, and lacustrine deposits. In the northern and southern quarters of the county the soils are predominantly sandy, while in the central half the soils are predominantly developed in silty clay loam or clay loam till.

The northern third of the county is now predominately urban while the central third is interspersed with urban development and agriculture. The southern third is mainly agricultural. The county population is now approaching 550,000 or 13 percent of the population of Indiana. One percent of the people are actively engaged in farming.

A large percentage of the recent population increase is located in the 50 new subdivisions platted since 1950 outside of municipal corporations. The biggest problem faced by the subdivisions is sewage disposal. The earlier units were developed in sandy soils, which were satisfactory for the use of septic tanks; however, with the increasing demand for space, the newer units were platted on the more clayey soils. It soon became apparent that clay soils were unsuitable for septic systems unless the lot sizes were larger. To help meet this problem, the soil scientists worked with the County Health Department and the Lake County Plan commission to evaluate the soils in proposed sub-divisions and determine the minimum lot size. In some cases complete subdivision sites were turned down for septic tank usage because the soil survey indicated the soils to be too impervious.

Health Department regulations on the use of septic systems are based on the soil percolation rate, or the rate at which water will soak into the soil as measured in minutes per inch. These rates are established by the contractor on each site. The rates were variable due to existing soil moisture conditions and length of pre-saturation on the same soil. To save the contractor time and money, an estimated rate has been established for each soil. These estimates were determined by conduct-

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ing tests on selected soil types. The Health Department is finding these pre-established and estimated rates more accurate and reliable than tests formerly submitted by engineering firms. Each proposed unit must now have a complete soils map with interpretation before approval by the Lake County Plan Commission.

In addition to the subdivision work, the soil survey has been used extensively by the Lake County Plan Commission staff in the preparation of a proposed land use plan and zoning map for the entire county. In the preparation of these plans, the soils have been interpreted as to their potential for: agriculture, subdivisions, estate type with septic tanks and small lots with sewers; recreation, both developed and natural; and industrial and commercial uses.

The demand for land has put pressure on the use of flood plain soils for building and development. A proposed flood control and drainage project for the little Calumet river basin was estimated by the Army Corps of Engineers to cost \$47 million dollars. To realize a tax benefit from the protected areas, a very intensive land use is needed. Prior to the soil survey, a land use plan has been tentatively proposed. This proposal was delayed pending the results of the soil survey. When the soils were evaluated, it was found necessary to change many of the proposals.

The value of the survey was realized during the investigations of several school sites. One site consisted of approximately 40 acres. The proposed usage was for a school building and a large parking area. The building was to be located on a relatively level sand ridge and the parking lot was to extend into the lower adjacent area. This latter area consisted of an average of 4 feet of muck over sand. The cost to remove this muck was estimated at \$40,000. Another site was to be an addition to an existing structure. The architect had proposed a 3 foot deep footing all the way around the building. The top $3\frac{1}{2}$ feet of soil material consisted of yellow clay fill; but beneath the fill material existed several drainage channels with soft silts extending to a depth of at least five feet.

Another way in which the soil survey saved Lake County money was the discovery of gravel in the southern part of the county. Previous to the soil survey, no large commercial deposits were known. Because of the rapid growth of the county, much gravel is needed for roads and public works. The nearest gravel source or limestone deposit had been some 60 miles from the Gary area. The new deposit, which is estimated to contain 7 millions tons of gravel and sand, is within 25 miles. The hauling bill alone will be a huge saving to taxpayers and private enterprise alike.

Use of the soil survey for land appraisal became a reality during the buying of land for Interstate Route 65. The appraisers for the state evaluated the potential of a farm based on the soils data. This data was then compared with the recent sale of farms having similar soils in the same general area.

The city of Munster in Lake County became the first community to have a completely urban soil survey report. The local Chamber of

Commerce was willing to provide money for publishing the report and maps if the information was compiled for the area. The report was completed in June, 1964, and includes only urban soils interpretations. The main topics included were: flooding and drainage; turf and plant materials guide; soil interpretative ratings for roads, buildings, and land use; and an engineering table. Other communities have seen this report and are interested in similar reports on a local basis.