

**STATE OF SOUTH DAKOTA**  
Frank Farrar, Governor

**SOUTH DAKOTA GEOLOGICAL SURVEY**  
Duncan J. McGregor, State Geologist

Circular 39

**SAND AND GRAVEL RESOURCES IN  
BON HOMME COUNTY, SOUTH DAKOTA**

by  
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Science Center  
University of South Dakota  
Vermillion, South Dakota  
1970

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## INTRODUCTION

This circular is designed to aid in the exploration and development of the sand and gravel resources of Bon Homme County, South Dakota. Another publication entitled "Major Ground-Water Aquifers in Bon Homme County, South Dakota," South Dakota Geological Survey, Water Information Circular 4, describes the ground-water possibilities in the County. In addition, a comprehensive report on the technical aspects of the geology, hydrology, and the basic data will be published as Bulletin 21 at a later date.

The purpose of this report is two-fold; (1) to disseminate information about sand and gravel as quickly as possible, and (2) to express the technical data in a non-technical manner that will be useful to the lay reader. It must be stressed, however, that all of the pertinent geologic data used in compiling the technical reports has also been used in preparing this circular and the accompanying map.

It is recommended that the following publications be used as companion references to this circular:

- (a) Evaluation of exploration methods for coarse aggregate in eastern South Dakota: S. Dak. Geol. Survey Report of Investigations 95 ..... Price \$1.50
- (b) Geology and water resources of Bon Homme County, South Dakota: S. Dak. Geol. Survey Bull. 21 ..... Price \$2.00  
(not available until 1971)

The first of the above publications explains how sand and gravel maps are prepared from geologic maps and other data. The second publication contains all the test hole data and other information that was used in compiling this circular.

## GEOLOGIC TERMS

The following brief discussion of geologic terms is presented as an aid in understanding the discussion of sand and gravel deposits.

### Outwash

Glacial outwash is a general term referring to any deposit of clay, silt, sand, gravel or boulders that has been washed and sorted, and subsequently deposited by water from melting glacial ice. Depending on the amount of washing and sorting action, the material may contain an abundance of silt and clay, or in the other extreme, outwash may consist mostly of boulders. Most outwash is a mixture of material between the two extremes. That is to say an outwash deposit is usually composed primarily of sand and gravel.

### Till

Till is the term used to define the unsorted and unstratified material lodged by an active glacier or let down by a glacier as the ice melted away. This material on the whole has not been subjected to the action of running water and therefore is a mixture of clay and silt-size particles containing a random mixture of sand, gravel, and boulders. This material is locally called "boulder clay" or "blue clay."

The general distribution of the till is widespread throughout the county. However, within the large area of till there may exist small isolated hills or lenses of outwash material. In some cases these small areas of outwash may consist of usable sand and gravel. The size of the areas may range from a very small knob to an area the size of several acres or several tens of acres. Thickness of the lenses may vary from a thin veneer to over 50 feet; however, in general the thickness will be less than 20 feet.

Because of complexities in the mechanics of deposition from the ice these small hills and lenses of outwash have a very random occurrence. Their presence cannot generally be determined unless the outwash material is exposed or unless its location has been discovered through the use of hand auger holes, test holes, or other sampling procedures.

## Alluvium

Alluvium consists of a mixture of clay, silt, sand and gravel that has been deposited by streams since the retreat of the glaciers. The size of the deposits will depend primarily on the velocity of the stream and may vary from place to place in the stream valley. Where the deposits consist primarily of sand and gravel they may be mined for construction materials.

## Bedrock Deposits

Bedrock deposits refer to the consolidated rocks underlying the glacial deposits. In Bon Homme County the bedrock deposits are sedimentary rocks and consist primarily of shale and chalk. Where the bedrock is present at the surface no possibility exists of finding sand and gravel; however, sand and gravel deposits may occur in contact with bedrock deposits along some drainageways.

## ABOUT THE MAP

The map showing sand and gravel deposits of Bon Homme County is designed to serve two functions: (1) to express the possibility of finding sand and gravel in general areas within the county, and (2) to portray those areas that have been checked for sand and gravel and to relate those findings, either positive or negative, in a quick and easily understandable manner.

With regard to general information (the first function mentioned above) the map has been divided into three areas expressing the probability of discovering previously unmapped supplies of sand and gravel. The areas colored yellow refer to a relatively high probability, whereas white areas refer to a low probability and brown areas refer to no probability.

The second function of the map, as previously stated, is to show the location of all known sand and gravel deposits in the county. This is done by using a series of symbols and two colors (red and green) to represent data of various types.

A red color pattern shows an area that was found to contain sand and gravel, whereas a green color shows an area that was found not to contain sand and gravel. Within these colored areas, spot sampling could show exactly the opposite as expected; however, this is highly unlikely.

A (X) indicates the presence of a gravel pit or quarry on the map and no distinction is made between those presently being used or those abandoned.

A (◆) represents a sand or gravel pit for which some type of data is available. These pits have been numbered on the map (page 5) and tabulated in the table (page 3).

A (O) represents a test hole that does not contain any useable amount of sand and gravel in the upper 20 feet.

The symbol (●) refers to a test hole that contains a useable amount of sand and gravel within 10 feet of the surface.

The symbol (⊙) refers to a test hole that contains sand and gravel within 10 to 20 feet of the surface.

## GENERAL HINTS FOR EXPLORATORY PURPOSES

It should be pointed out that the map is a general map to be used only as a guideline for further exploration and development of sand and gravel resources. The development of any specific site would depend upon materials specifications for the desired use, and the economics of further exploration and testing as opposed to the use of known sources of sand and gravel.

In general, further exploration for sand and gravel deposits in Bon Homme County should be concentrated in the red and yellow areas shown on the map. Although other areas of gravel may exist, they are widely disseminated and difficult to locate.

LIST OF KNOWN SAND AND GRAVEL PITS  
IN BON HOMME COUNTY  
(from South Dakota Department of Highways)

Pit No.	Owner and Address	Description	Type	Cubic Yards Tested
1	Nehousky, Jake, Tripp	W½NE¼ 9-96-60	Gravel	10,000
2	Ptak, Thom. & Ladimir, Tyndall	W½SE¼ and E½SW¼ 21-94-60	Gravel	423,000
3	Van Asperen, Virginia, Wagner	Lot 2, NW¼NE¼ 23-93-62	Gravel	31,900
4	Novotny, V. J., Tyndall	SE¼ 1-95-60	Gravel	16,000
5		SW¼ 9-96-60	Gravel	15,000
6	Bower, Clarence, Tyndall	SW¼ 26-95-59	Gravel	8,000
7	Wiederich, August, Tripp	NW¼ 9-96-60	Gravel	15,000
8	Hopkins, L. G., Tyndall	NE¼ 21-94-60	Gravel	30,000
9	Yankton County, Yankton	NE¼ 12-94-58	Gravel	
10	Sauhada, Leonard, Tabor	SE¼ 2-94-58	Gravel	189,000
11	Koletzky, Teofiel, Tabor	SE¼ 23-95-60	Gravel & Sand	2,500
12	Vyborny, George, Tabor	NW¼ 12-94-58	Gravel	115,500
13	Plihal, Emil, Tyndall	NE¼ 23-95-60	Gravel	96,000
14	Grajek, John, Scotland	SE¼NE¼ 10-96-58	Gravel	6,000
15	Nagel, John, Springfield	NE¼ 17-93-60	Gravel	
16	Jelsma, Nick, Springfield	S½ 8-93-60	Gravel	107,000
17	Schweitzer, D. C., Tyndall	W½SW¼ 26-95-60	Gravel	80,000
18	Cooley, Corbin, Tabor	W½NW¼ 30-94-58 E½NE¼ 25-94-59	Gravel	314,900
19	Pechous, E., Tabor	NW¼ 11-94-58	Gravel	57,000
20	Grimme, E. E., Tyndall	W½SW¼ SW¼NW¼ 21-94-60	Gravel	150,000
21	Raysby, Paul C., Avon	E½ 1-93-61	Gravel	181,500
22	Hale, J. J., Tabor	NW¼ 13-93-58	Sand	
23	Novak, Tillie, Tabor	SW¼ 2-94-58	Gravel	
24	Kocer, J., Tabor	NW¼ 25-94-58	Gravel	
25		NE¼ 11-96-59	Gravel	

Pit No.	Owner and Address	Description	Type	Cubic Yards Tested
26	Kocer, James, Tabor	NW¼NE¼ 25-94-59	Gravel	56,000+
27	Peterson, Virgil, Avon	W½SE¼ 19-94-61	Gravel	106,000
28	Schneider, E., Tyndall	SE¼ 3-95-60	Gravel & Sand	28,000
29	Hebbert, Donald E., Federal Land Bank, Scotland	NW¼ 3-96-58	Gravel	38,200
30	Berka, August, Tyndall	NE¼ 26-95-60	Gravel	35,000
31	Frick, Henry, Tabor	NW¼ 6-93-58	Gravel	38,000
32	Johnson, Martin, Tyndall	N½SE¼ 20-94-60	Gravel	88,000
33	Boese, Gustav, Springfield	NE¼ 7-93-60	Gravel	8,200
34	Sestak, Adolph, Tabor	SE¼SE¼ 12-94-58	Gravel	125,000
35	Grimme, Mrs. Ervin, Tyndall	S½SE¼ SE¼SW¼ 20-94-60	Gravel	40,000
36	Crouse, Kenneth M., Avon	N½ 19-94-61	Gravel	
37	Crouse, Kenneth M., Avon	S½SW¼ 18-94-61	Gravel	85,000
38	Coleman, Percy, Springfield	SE¼ 28-93-60	Sand	20,000
39	Chladek, Lou, Tyndall	Lot 1 19-95-61	Gravel & Sand	21,200
40	Pudwill, John (Estate) Otto & Jame Pudwill, Admin.	S½SE¼ 16-96-61	Fine Sand	30,500
41	Van Aspern, H. Virginia, Avon	E½SE¼ 23-93-61	Gravel	38,667
42	Chladek, L. F., Avon	NE¼NW¼ 29-95-61	Gravel	
43	Thompson, Dewey, Tabor	SE¼ 2-93-59	Gravel	
44	Grimme, Harold, Tyndall	W½SW¼ 29-94-60	Sand	9,500
45	Plihal, J. V., AREA "A" AREA "B"	E½NW¼ 29-94-60 W½NE¼ 29-94-60	Sand	9,500
46	Wormsbecker, Otto	NW¼ 32-96-61	Gravel	49,000
47	Stole, Leonard, Tripp	NE¼ 29-96-61	Sand	
48	Winckler, John, Tyndall	SW¼NW¼ 35-96-60	Gravel	4,100
49	Schneider, Elmer, Tyndall	NW¼SW¼ 35-96-60	Gravel	12,000
50	Hauge, Mrs. Kenneth, Alexandria	E½ SE¼ 32-96-61	Gravel	12,800
51	Bednar, Ed, Chicago, Illinois	E½SW¼ 32-96-61	Gravel	11,000

# MAP SHOWING SAND AND GRAVEL DEPOSITS OF BON HOMME COUNTY



Good probability of finding sand or gravel deposits



Poor probability of finding sand or gravel deposits



No probability of finding sand or gravel deposits



Areas that have been field checked and are known to contain sand or gravel



Areas that have been field checked and are known not to contain sand or gravel

- Test hole - does not contain sand or gravel in upper 20 feet
- Test hole - contains sand or gravel with less than 10 feet of overburden
- ⊕ Test hole - contains sand or gravel with 10 to 20 feet of overburden
- ⊗ Gravel pit - no distinction between those presently used or abandoned
- ◆ Gravel pit for which data is available (see Table 1)
- ☁ Intermittent lake

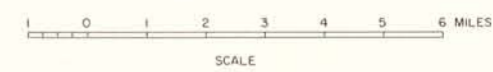
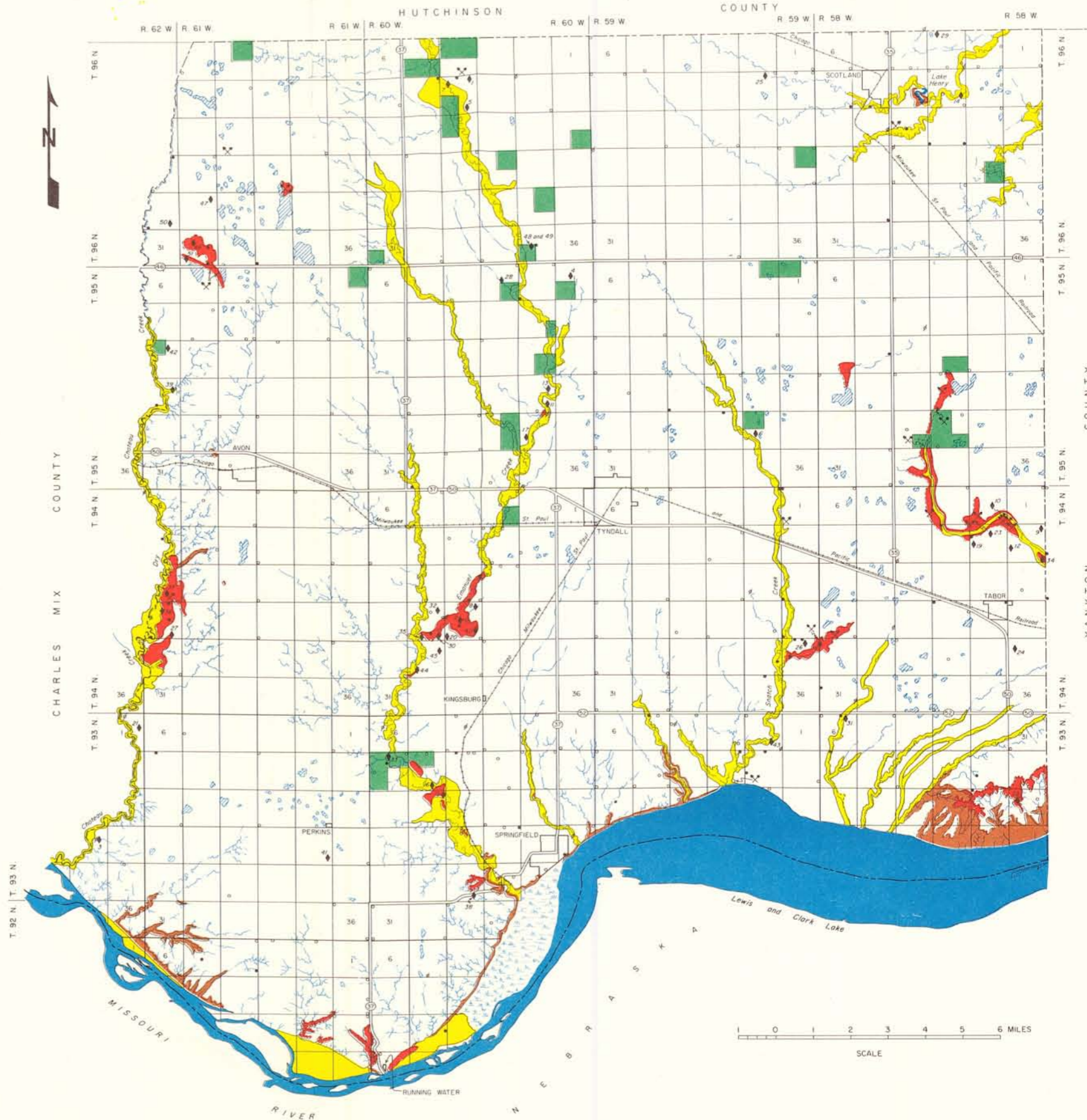


Index map showing location of Bon Homme County

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Sectionized township

by C. M. Christensen, 1970



SCALE