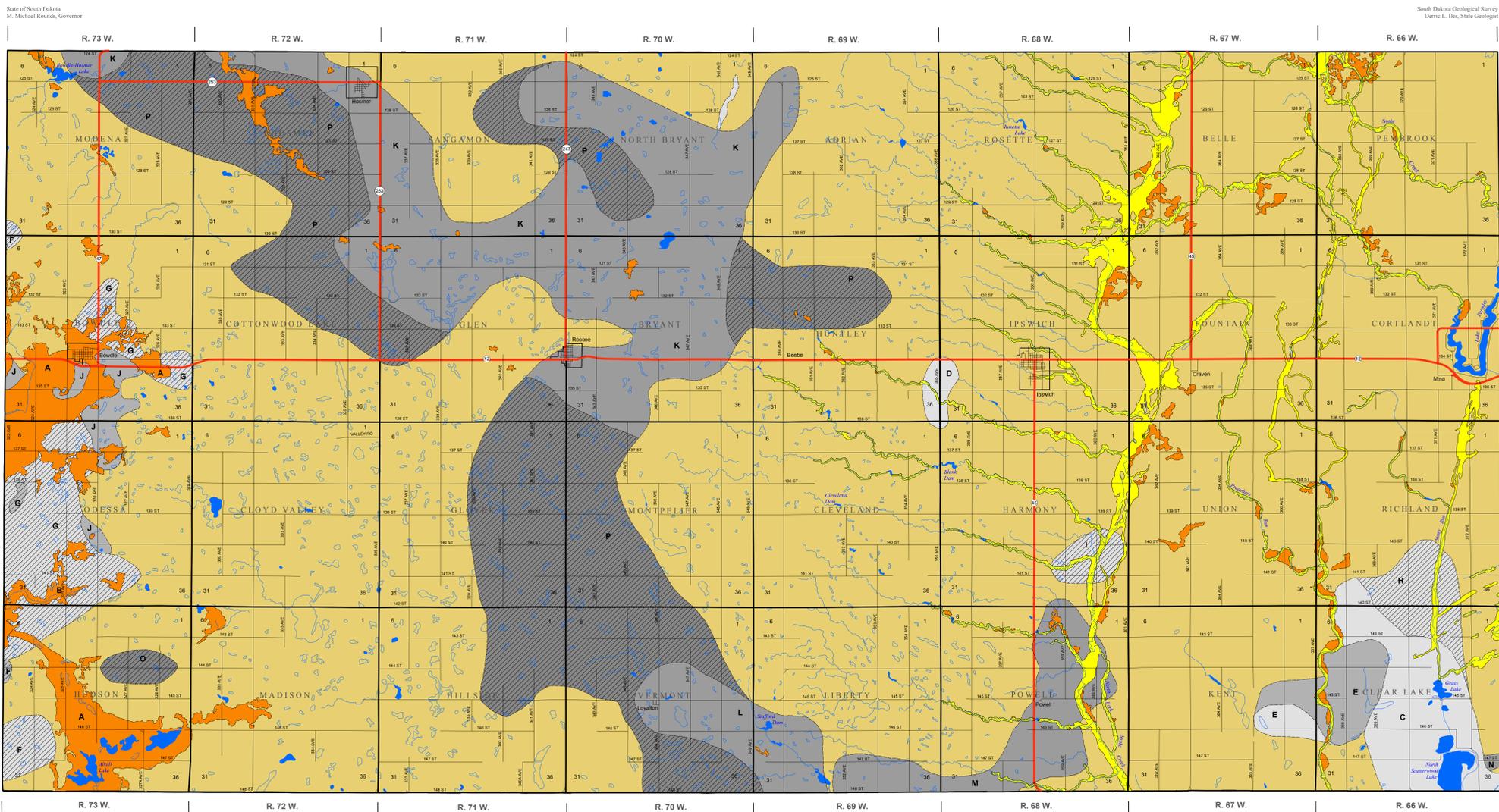


First Occurrence of Aquifer Materials in Edmunds County, South Dakota

Department of Environment and Natural Resources
Division of Financial and Technical Assistance
Geological Survey Program
Aquifer Materials Map 31
Tom Rich, 2010



Explanation

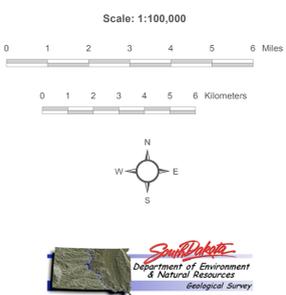
This map is intended for use as a tool to aid in identifying areas underlain by aquifer material. The aquifer materials shown on this map are categorized below. This map does not show individual aquifers. There may be more than one type of aquifer material present in an area. However, only the aquifer material that would be first encountered is shown. Within the boundaries of any given map unit, there may be localized areas where aquifer material is absent. The thickness and permeability of aquifer material may vary significantly. Also, no attempt was made to distinguish between saturated and unsaturated material. Therefore, not all of the areas defined on this map may be an aquifer. Site-specific information should always be examined when making land management or water development decisions.

- Alluvium:** Consists of clay and silt with minor amounts of sand and gravel; occurs at land surface
- Sand and Gravel:** First occurrence is generally at land surface; may be silty and clayey
- A** Collapsed outwash and terrace sand and gravel of the Howdle aquifer; maximum thickness is approximately 40 feet
- B** Valley train outwash sand and gravel of the Howdle aquifer; maximum thickness is approximately 50 feet
- Sand and Gravel:** First occurrence is generally below land surface and may be continuous in lateral extent; may be silty and clayey
- C** Outwash sand and gravel of the Elm aquifer; maximum thickness is approximately 25 feet
- D** Outwash sand and gravel formerly considered part of the Elm aquifer; maximum thickness is approximately 25 feet
- E** Outwash sand and gravel which may be connected to the Elm aquifer; maximum thickness is approximately 50 feet
- Sand and Gravel:** First occurrence is generally below land surface and may be discontinuous in lateral extent; may be silty and clayey
- F** Extension of outwash and alluvial sand and gravel mapped in Walworth County; maximum thickness is approximately 20 feet
- G** Outwash sand and gravel; maximum thickness is approximately 30 feet
- H** Outwash sand and gravel of the Elm aquifer; maximum thickness is approximately 30 feet
- I** Outwash sand and gravel previously considered to be part of the Elm aquifer; maximum thickness is approximately 30 feet
- Sand and Gravel:** Generally continuous in lateral extent; may be silty and clayey
- E** Outwash sand and gravel which may be connected to the Elm aquifer; maximum thickness is approximately 50 feet
- J** Unnamed buried outwash sand and gravel occurring immediately above, or a short distance above, the bedrock surface; maximum thickness is approximately 20 feet
- Sand and Gravel:** May be discontinuous in lateral extent; may be silty and clayey
- F** Extension of outwash and alluvial sand and gravel mapped in Walworth County; maximum thickness is approximately 20 feet
- G** Outwash sand and gravel; maximum thickness is approximately 30 feet
- Sand and Gravel:** Generally continuous in lateral extent; may be silty and clayey
- K** Outwash sand and gravel of the Grand aquifer occurring at depths from about 300 to 500 feet; maximum thickness is approximately 50 feet
- L** Outwash sand and gravel of the Grand aquifer occurring at depths of approximately 150 to 400 feet; maximum thickness is approximately 150 feet
- M** Outwash sand and gravel of the Grand aquifer occurring at depths of approximately 150 to 250 feet; maximum thickness is approximately 50 feet
- N** Outwash sand and gravel of the Deep James aquifer occurring at a depth of approximately 180 feet; maximum thickness is approximately 50 feet
- Sand and Gravel:** May be discontinuous in lateral extent; may be silty and clayey
- O** Unnamed buried outwash sand and gravel occurring at a depth of approximately 200 feet; maximum thickness is approximately 15 feet
- P** Outwash sand and gravel of the Grand aquifer occurring at a depth of approximately 300 feet; occurs sporadically; maximum thickness is approximately 40 feet
- Dakota Sandstone:** Consists of interbedded sandstone, siltstone, and shale; maximum thickness is approximately 300 feet; depth to the Dakota aquifer ranges from approximately 850 feet in the eastern part of the county to approximately 1,600 feet in the western part of the county

First occurrence is generally less than or equal to 50 feet below land surface

First occurrence is generally greater than 50 feet and less than or equal to 100 feet below land surface

First occurrence is generally greater than 100 feet below land surface



This map was developed from lithologic logs and published reports. The major sources of information were:
 Christensen, C.M., 1973, *Sand and gravel resources in Edmunds County, South Dakota*, South Dakota Geological Survey Special Report Pamphlet 7, 16 p.
 1977, *Geology and water resources of McPherson, Edmunds, and Faulk Counties, South Dakota, Part I: Geology*, South Dakota Geological Survey Bulletin 26, 58 p.
 Hamilton, L.J., 1974, *Major aquifers in McPherson, Edmunds, and Faulk Counties, South Dakota*, South Dakota Geological Survey Information Pamphlet 8, 12 p.
 1982, *Geology and water resources of McPherson, Edmunds, and Faulk Counties, South Dakota, Part II: Water resources*, South Dakota Geological Survey Bulletin 26, 60 p.
 Lee, K.Y., 1957, *Geology and shallow water resources between Hoven and Bowdle, South Dakota*, South Dakota Geological Survey Report of Investigations 83, 59 p.
 Pettraz, S.W., 1965, *Ground water supply for the city of Ipswich, South Dakota*, South Dakota Geological Survey Special Report 32, 37 p.
 Rukstad, L.R. and Hodges, L.S., 1964, *Ground water supply for the city of Bowdle, South Dakota*, South Dakota Geological Survey Special Report 30, 28 p.
 Schulz, L.D., Green, S.A., and DeMartino, C.V., 1997, *Ground water investigation for the city of Roscoe, South Dakota*, South Dakota Geological Survey Open-File Report 84-UR, 17 p.
 South Dakota Geological Survey, Lithologic logs database.
 U.S. Department of Agriculture, 1977, *Soil survey of Edmunds County, South Dakota*, 82 p.

- River or stream
- Lake
- Slough or intermittent lake
- Major highway
- Road
- Township boundary

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

Sectionized township

The Geological Survey Program, Department of Environment and Natural Resources, engages in an ongoing data collection and interpretation process. An outcome of that process is to reflect those interpretations on maps such as this one. Reasonable efforts have been made to ensure that this map accurately reflects the source data used in its preparation. This map is date specific. As additional data become available, geologic interpretations may be revised and the map may be updated by the Geological Survey Program. This map should not be enlarged or otherwise used in an attempt to interpret more detail than can be seen at the 1:100,000 scale.

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