

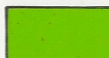
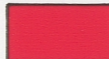
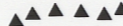
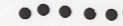
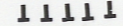



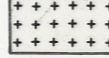

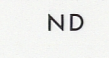


AQUIFER MAPS OF SOUTHERN MANITOBA  
MAP 2 OF 2

SAND AND GRAVEL AQUIFERS

LEGEND

-  THIN UNCONFINED SAND: well yield generally less than 0.5 L/s, quality is fair to good; the aquifers are more or less continuous over the indicated area.
-  THICK AND EXTENSIVE UNCONFINED SAND AND GRAVEL: well yield commonly in the 10 L/s to 75 L/s range; water quality is fair to excellent, small parts of the aquifers may be confined or semi-confined.
-  LENSES OF SAND AND GRAVEL: the aquifers occur in till and other surficial deposits; depth to the aquifers ranges from a few to more than 100 m; the size of the aquifers varies over a wide range - they can be from less than a hectare to several square kilometres in area; in some areas the aquifers are very common and in others they are scarce. Well yield ranges from less than 0.1 L/s to more than 10 L/s; water quality ranges from very poor to excellent.
-  MAJOR BURIED SAND AND GRAVEL: the aquifer is more or less continuous over the indicated area. The depth to the aquifer ranges from a few metres to more than 100 m; water quality ranges from poor to excellent; maximum instantaneous well yield ranges from less than 10 L/s to more than 100 L/s.
-  ALLUVIAL AND GLACIOFLUVIAL SAND AND GRAVEL: confined and unconfined aquifers in valleys and meander belts; aquifer size ranges from very small thin pockets to some fairly thick and extensive aquifers, well yield ranges from 0.1 L/s to 50 L/s; water quality ranges from poor to good.
-  BURIED VALLEY CONTAINING SAND AND GRAVEL: aquifer size ranges from minor pockets to fairly thick and extensive valley fill; well yield ranges from 0.1 L/s to more than 75 L/s; water quality ranges from saline to good.
-  BEACH RIDGE SAND AND GRAVEL: minor, shallow, thin aquifers formed by ancient beach deposits; well yield generally in the 0.1 to 0.5 L/s range but at a few locations more than 1.0 L/s; water quality ranges from poor to excellent. Only major beach ridges shown.
-  ESKER SAND AND GRAVEL: unconfined and confined aquifers in eskers; well yield can be more than 10 L/s at some locations; water quality generally good to excellent.
-  AREAS WITH VERY FEW WIDELY SCATTERED MINOR SAND AND GRAVEL AQUIFERS: bedrock at or near ground surface or surficial deposits consist mainly of low permeability materials, e.g. - clay and till; underlain by bedrock aquifers in some areas (See Map 1). Groundwater problem area where bedrock aquifers do not exist.
-  CANADIAN SHIELD: extensive outcrop and very thin glacial drift areas; sand and gravel aquifers may occur in or at the base of glacial drift between outcrops; sand and gravel aquifer area generally ranges from a fraction of a hectare to several hectares; well yield ranges from less than 0.1 L/s to more than 10 L/s/
- WATER QUALITY**
-  AQUIFER SYMBOL (COLOUR) ONLY: potable water, total dissolved solids concentration less than 2500 mg/L.
-  VERY POOR TO SLIGHTLY SALINE WATER: T.D.S. 2500 mg/L to 5000 mg/L; not potable but may be acceptable for some livestock.
-  SALTY TO VERY SALTY WATER: T.D.S. 5000 mg/L to more than 25 000 mg/L.
- ND** NO DATA: no well data and general geological information not adequate to map sand and gravel aquifers.

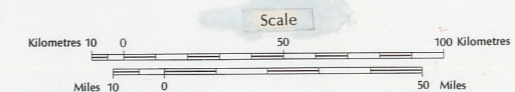
NOTE: Where several overlying aquifers exist the best in respect to quantity, quality and ease of development is shown.

REFERENCES

The map is based on hydrogeological information in published and unpublished reports by R.N. Betcher, J. Little, A. Pedersen, F. Render, M. Rutulis, and D. Sie of the Department of Natural Resources, Water Resources Branch; basic data on file with the Hydrogeology Section of the Water Resources Branch; Manitoba Mineral Resources Division Surficial Geology Map and soil maps of Manitoba Soil Survey

Base Map by: Surveys and Mapping Branch, Department of Energy, Mines and Resources, Ottawa.

Cartography by: Water Resources Branch, Manitoba, 1987.



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