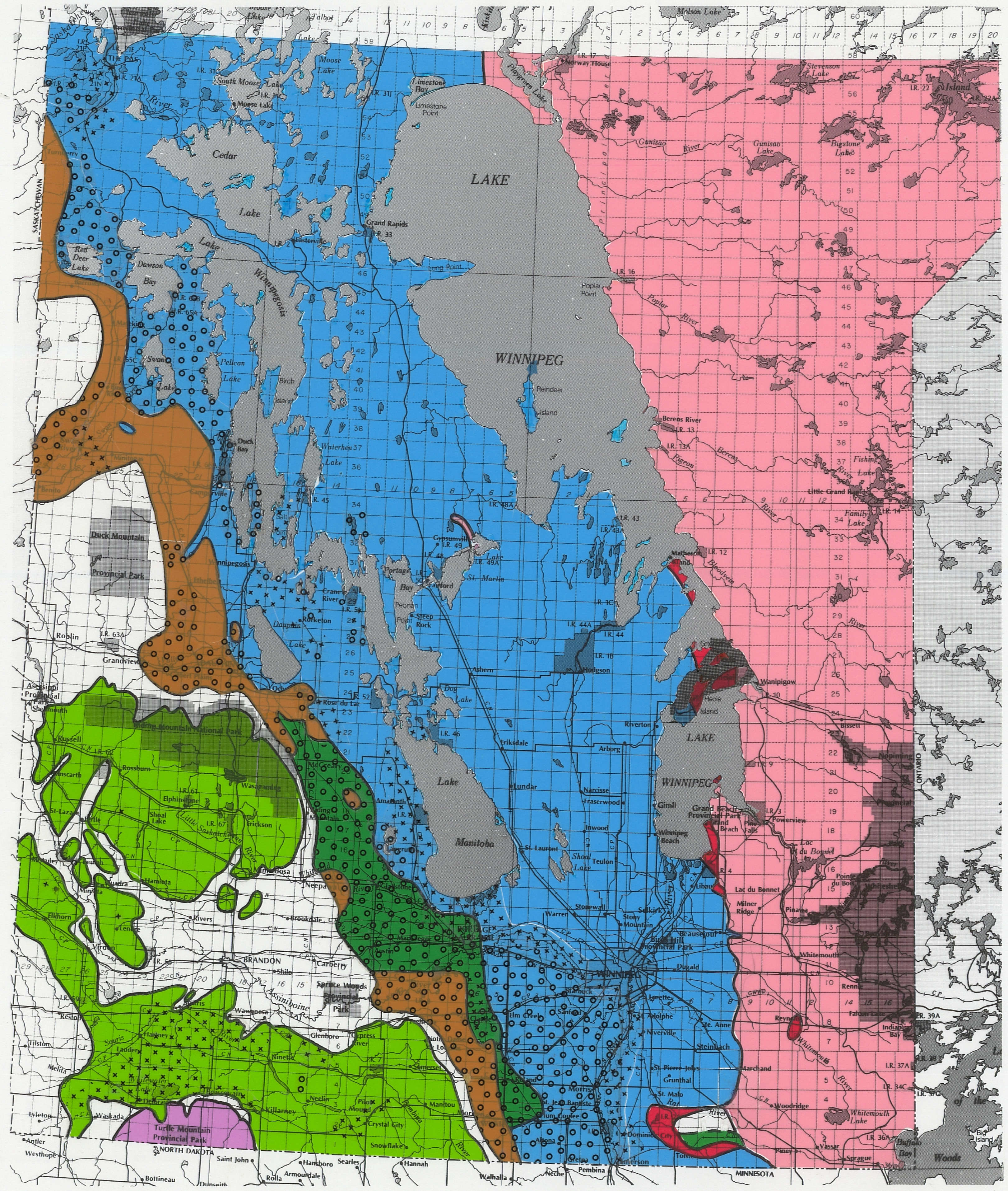

PROVINCE OF MANITOBA
DEPARTMENT OF NATURAL RESOURCES
WATER RESOURCES BRANCH

AQUIFER MAPS OF SOUTHERN MANITOBA
MAP 1 OF 2

BEDROCK AQUIFERS

LEGEND

SANDSTONE AND SAND (Paleocene Turtle Mountain Formation and Cretaceous Boissevain Formation): sandstone and,more commonly, sand layers interbedded with clay, silt, shale and coal beds. Water quality good to poor. Well yield generally is less than 1.0 L/s but up to 10 L/s at a few locations. Water bearing properties and water quality varies considerably from place to place within short distances.

SHALE (Odanah Member of the Cretaceous Pierre Shale Formation, undifferentiated Pierre Shale in some areas in the southwest corner of Manitoba): The aquifers are formed by fractured shale beds in hard silicious shale. Well yield generally is less than 1.0 L/s but intermittent pumping rates of more than 10 L/s can be obtained here and there. Water quality ranges from excellent to poor. Slightly saline and salty water areas are indicated with special symbols, (see below).

SANDSTONE AND SAND (Cretaceous Swan River Formation): Sand and sandstone beds interbedded with shale, silt and clay. The aquifer is more or less continuous over the indicated areas. Aquifer thickness ranges from a metre to tens of metres. Well yield generally around 1.0 L/s but yield of more than 10 L/s is not unusual. Water quality ranges from excellent to poor.Slightly salty and salty water areas indicated by special symbols.

LIMESTONE, SANDSTONE, SHALE (Jurassic Formations): The water bearing zones are formed mainly by limestone and some fairly permeable sandstone and shale zones within the low permeability Jurassic shale, siltstone, and gypsum formations. The water in these aquifers is salty and therefore they are not significant as a source of water supply with a possible exception of a small area in the southeast corner of the Province. The water bearing zones, however, may be significant flow zones of salty water.

CARBONATE ROCKS: LIMESTONE AND DOLOMITE (Paleozoic Carbonate rock formations, Ordovician to Devonian). The aquifer, which is continuous over the indicated area, is formed by thick and extensive carbonate rock beds with minor shale beds. Domestic wells generally yield more than 1.0 L/s. The potential intermittent yield of high capacity wells may be more than 100 L/s in several areas. Water quality ranges from good to very salty but is good to fair in most of the area.

SANDSTONE AND SAND (Ordovician Winnipeg Formation): Sandstone and sand interbedded in shale, silt and clay. In general, well yield is around 1.0 L/s. Aquifer conditions for well yield in the 10 L/s to 30 L/s range are fairly common in some areas. Water quality ranges from excellent to very salty. Very soft but slightly salty water occurs in some areas.

IGNEOUS AND METAMORPHIC ROCKS(Precambrian rocks): Water in these rocks is found in fractures or fracture zones in the rock. The water bearing fractures often are very scarce and, therefore, considerable test drilling may be required to find them. The probibility of finding water in the Precambrian rocks varies considerably from area to area. Well yield generally ranges from 0.01 L/s to 0.5 L/s but sometimes exceeds 5 L/s. Water quality varies considerably from place to place within short distances and ranges from excellent to salty.

NO BEDROCK AQUIFERS AT LESS THAN 150 METRES

WATER QUALITY:
Aquifer symbol (colour)only: potable water, total dissolved solids concentration less than 2500 mg/L.

Slightly saline water: not potable but may be acceptable for some livestock and other uses. Total dissolved solids concentration from 2500 mg/L to 5000 mg/L.

Salty water:Total dissolved solids concentration 5000 mg/L to 100 000 mg/L.

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 th Water Resources Branch and Manitoba Mineral Resources Division Geological Map of Manitoba.

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

Cartography by: Water Resources Branch, Manitoba, 1987.

Scale
Kilometres 10 0 50 100 Kilometres
Miles 10 0 50 Miles

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