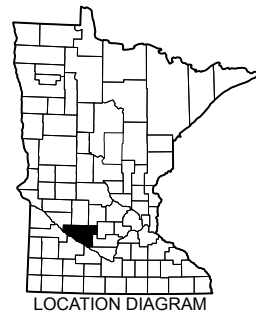


# Geologic Atlas of Renville County, Minnesota

County Atlas Series C-28

## Part B, Hydrogeology



## Map Figures 1–27

*To accompany these atlas components:*

Report

Plate 6, Chemical Hydrogeology

Plates 7–8, Hydrogeologic Cross Sections

**m** DEPARTMENT OF  
NATURAL RESOURCES

St. Paul  
2017

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Maps were compiled and generated in a geographic information system. Digital data products are available from the DNR County Geologic Atlas Program at [mndnr.gov/groundwatermapping](http://mndnr.gov/groundwatermapping).

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These bases were modified from Minnesota Geological Survey, Renville County Geologic Atlas, Part A, 2013. Universal Transverse Mercator projection, zone 15, North American Datum of 1983. North American Vertical Datum of 1988.



500 Lafayette Road  
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888-646-6367 or 651-296-6157  
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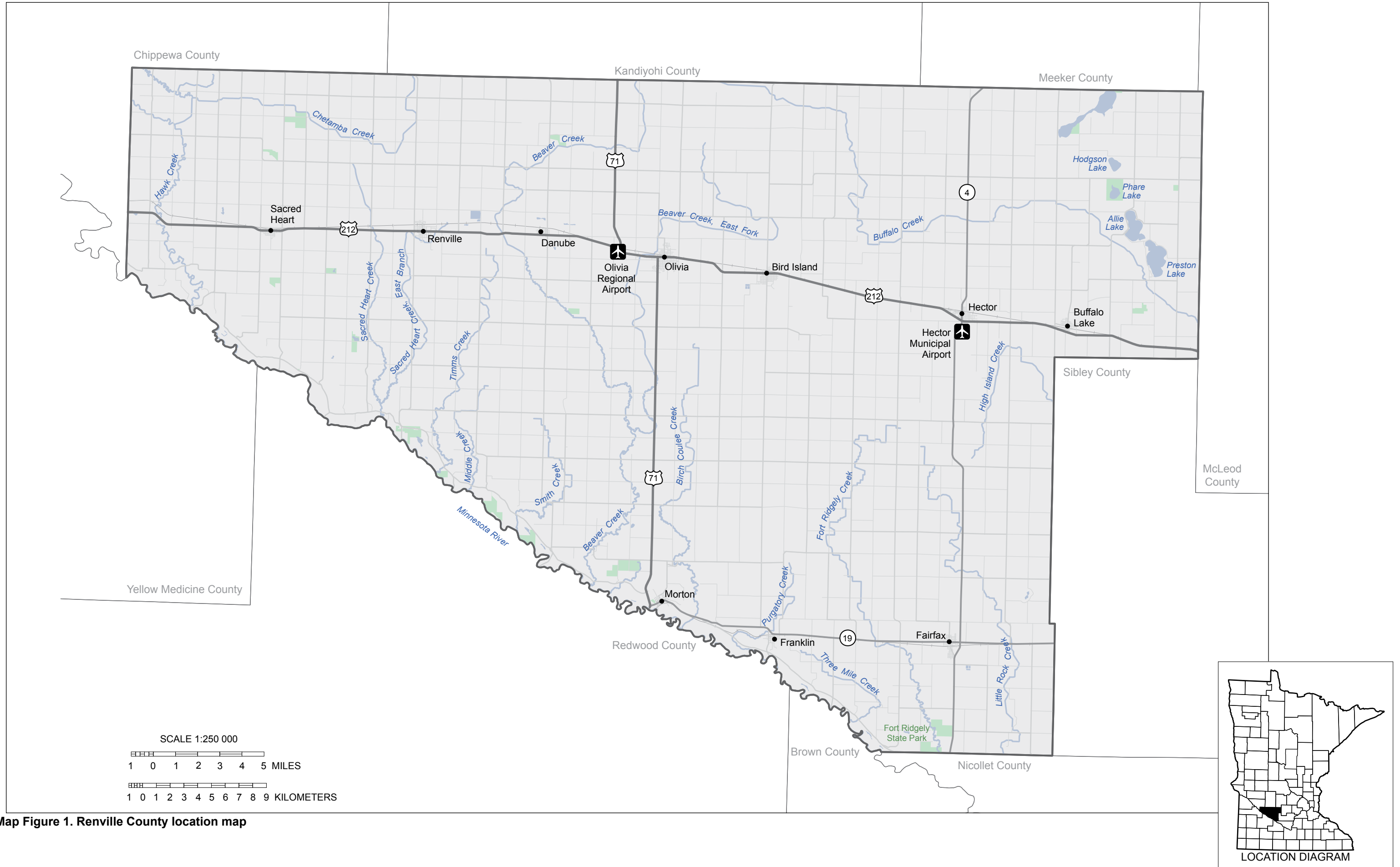
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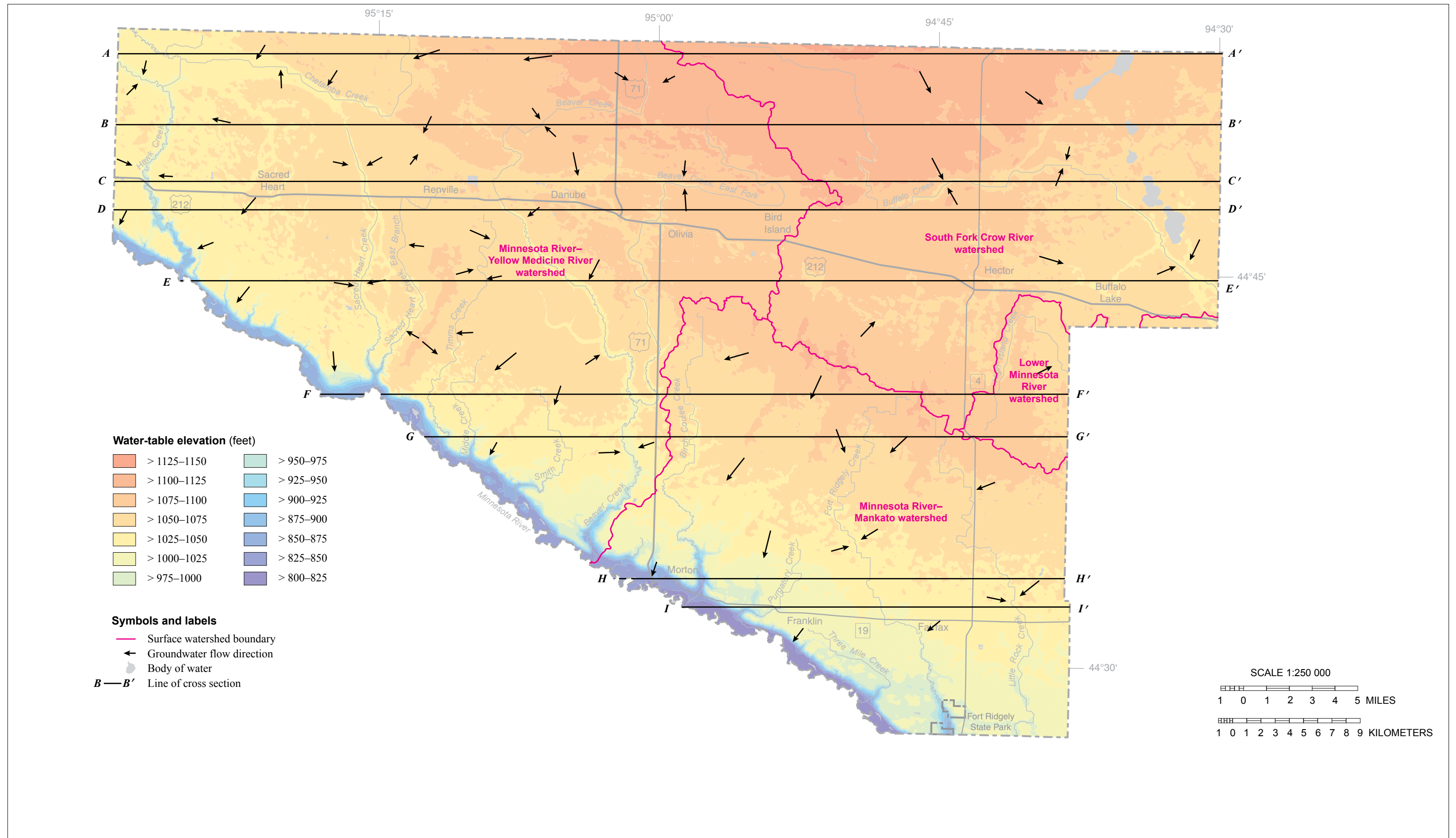
**Funding for this project was provided by the following:**

The Minnesota Environment and Natural Resources Trust Fund as recommended by the Legislative Citizen Commission on Minnesota Resources (LCCMR).

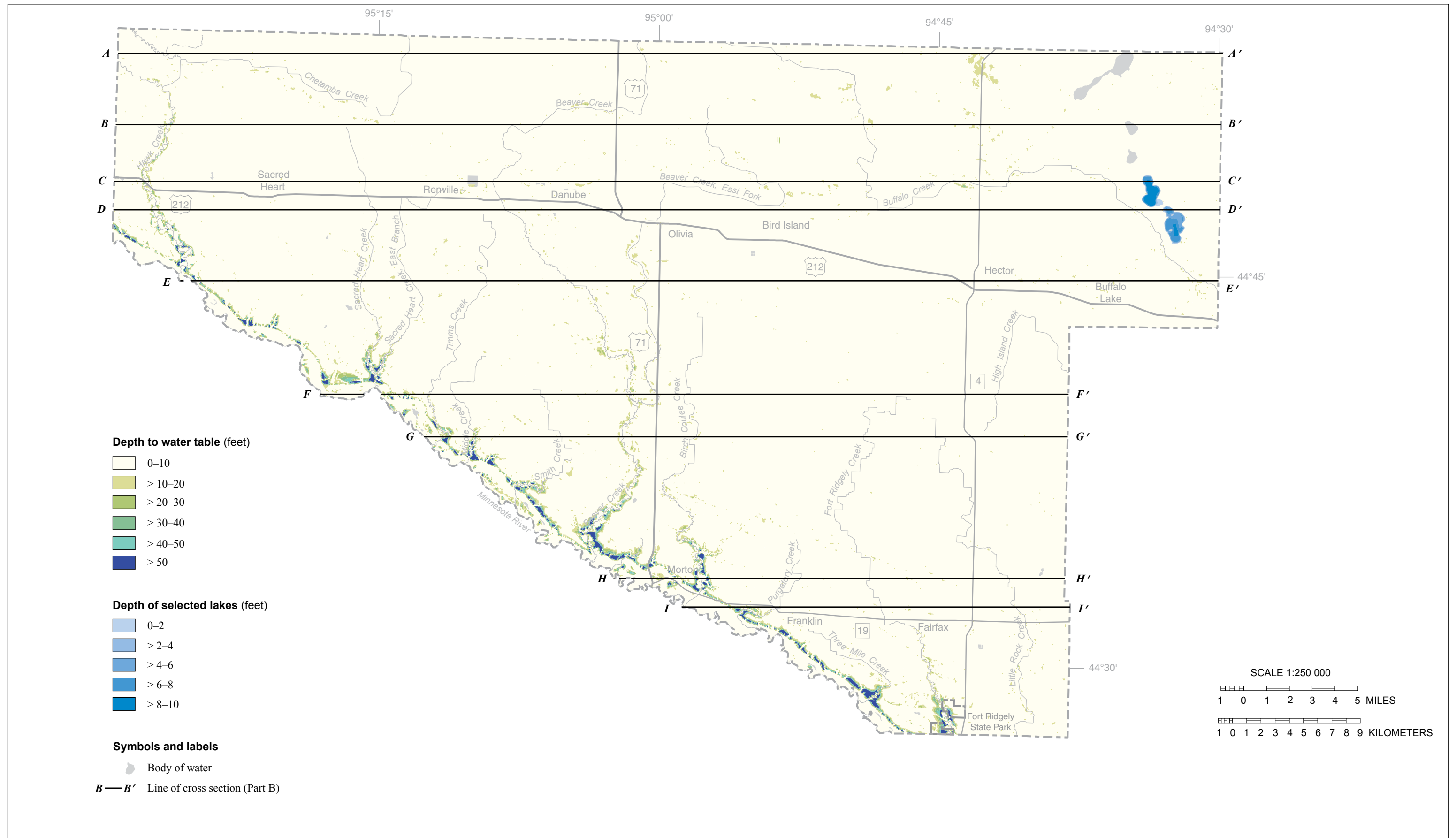
The Clean Water Fund, which receives 33 percent of the sales tax revenue from the Clean Water, Land and Legacy Amendment, approved by voters in November 2008.



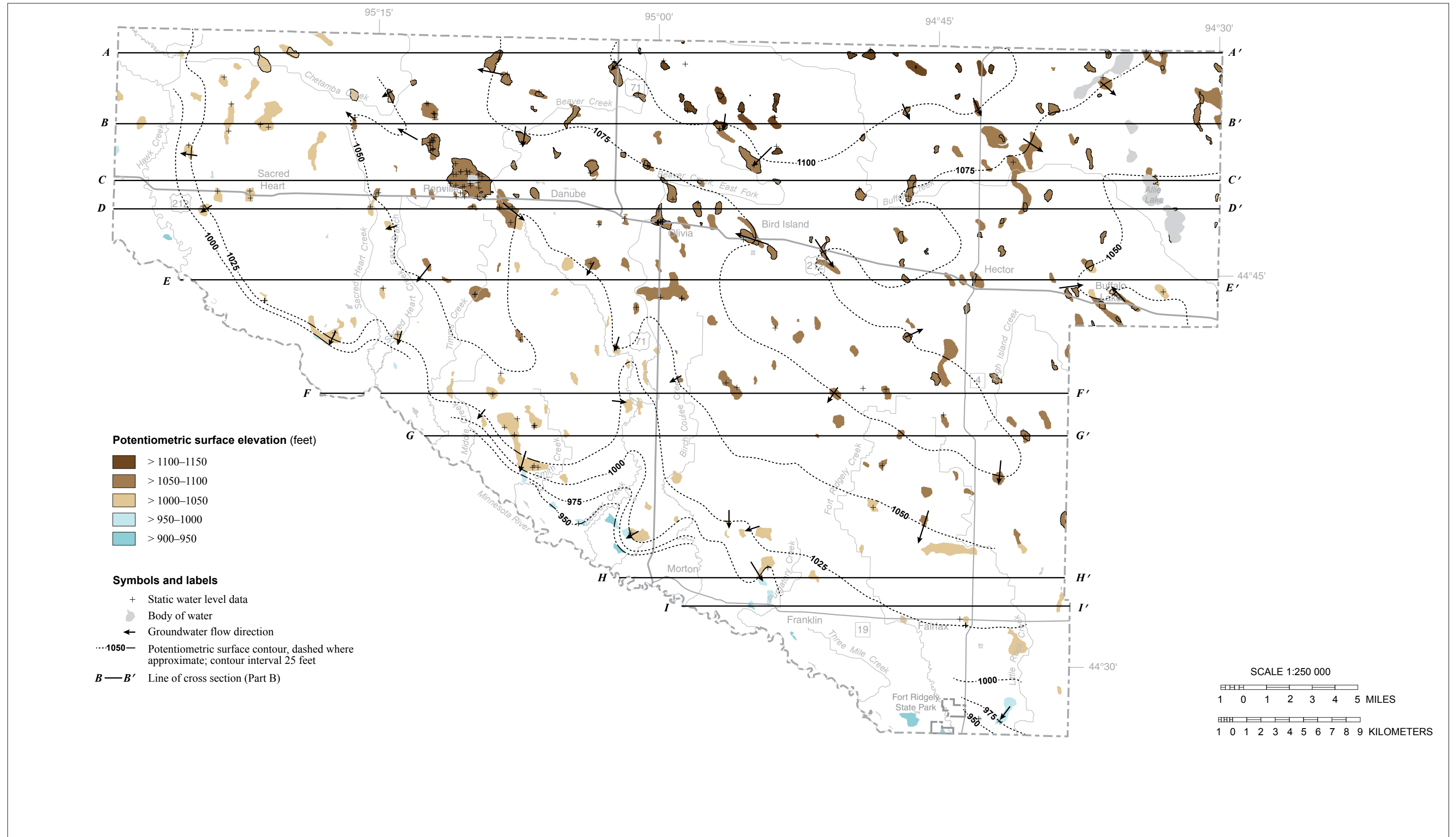
Map Figure 1. Renville County location map



**Map Figure 2. Water-table elevation**  
 Four major watersheds are mapped in Renville County. Most groundwater flows toward the Minnesota River and its tributary streams, except in the northeast where flow is toward Buffalo Creek. Map modified from the Minnesota Hydrogeology Atlas HG-03 (Adams, 2016a).

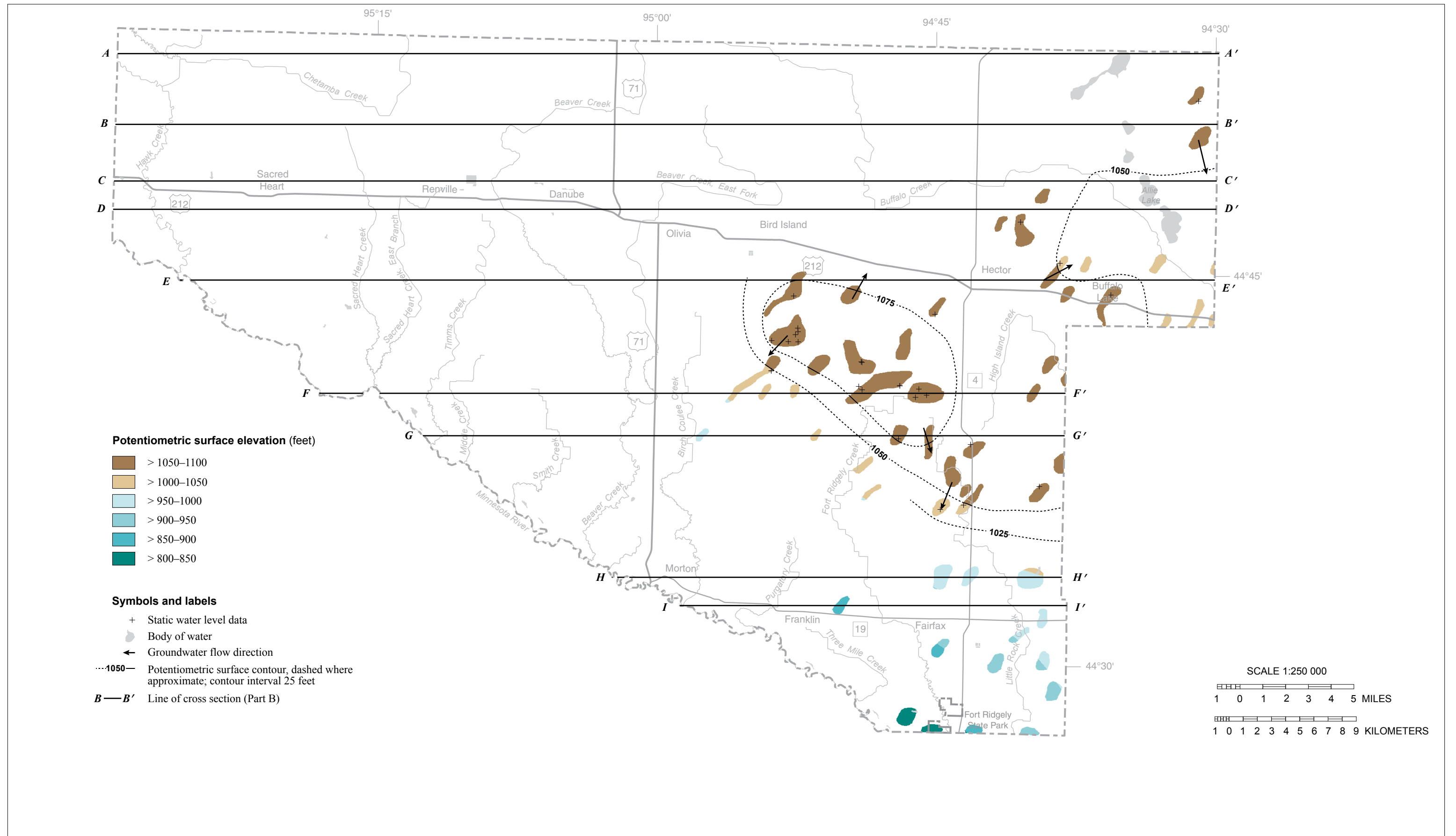


**Map Figure 3. Depth to water table**  
 The water table is within 10 feet of the land surface across the majority of Renville County, with the exception of the Minnesota River valley, its tributary valleys, and some of its large terrace deposits. Map modified from the Minnesota Hydrogeology Atlas HG-03 (Adams, 2016a).

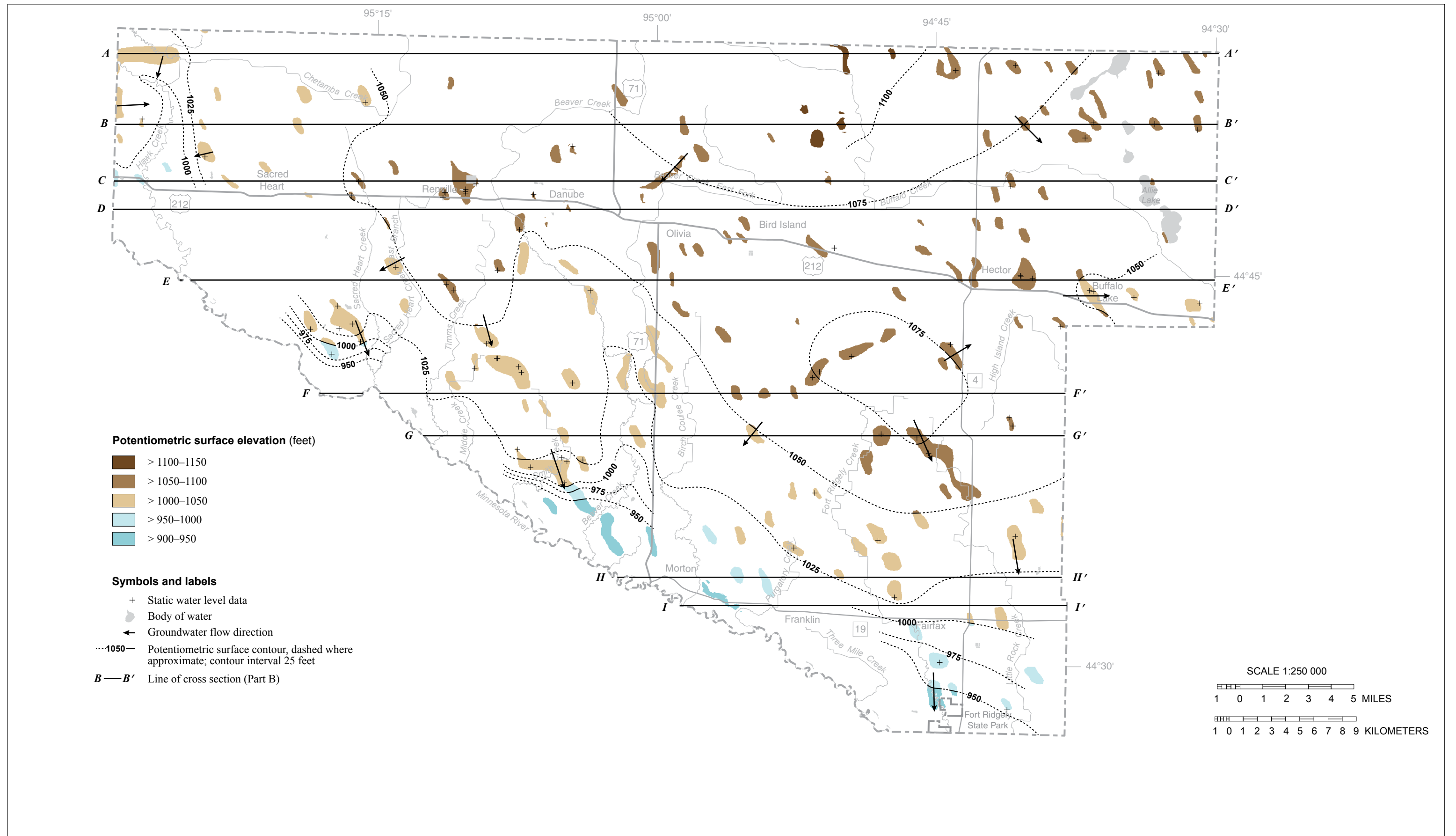


**Map Figure 4. Potentiometric surface of si and sm buried sand aquifers**

Elevation of the potentiometric surface for the combined si and sm aquifers. The si aquifer sand bodies are outlined in black to distinguish them from the stratigraphically lower sm aquifer units.

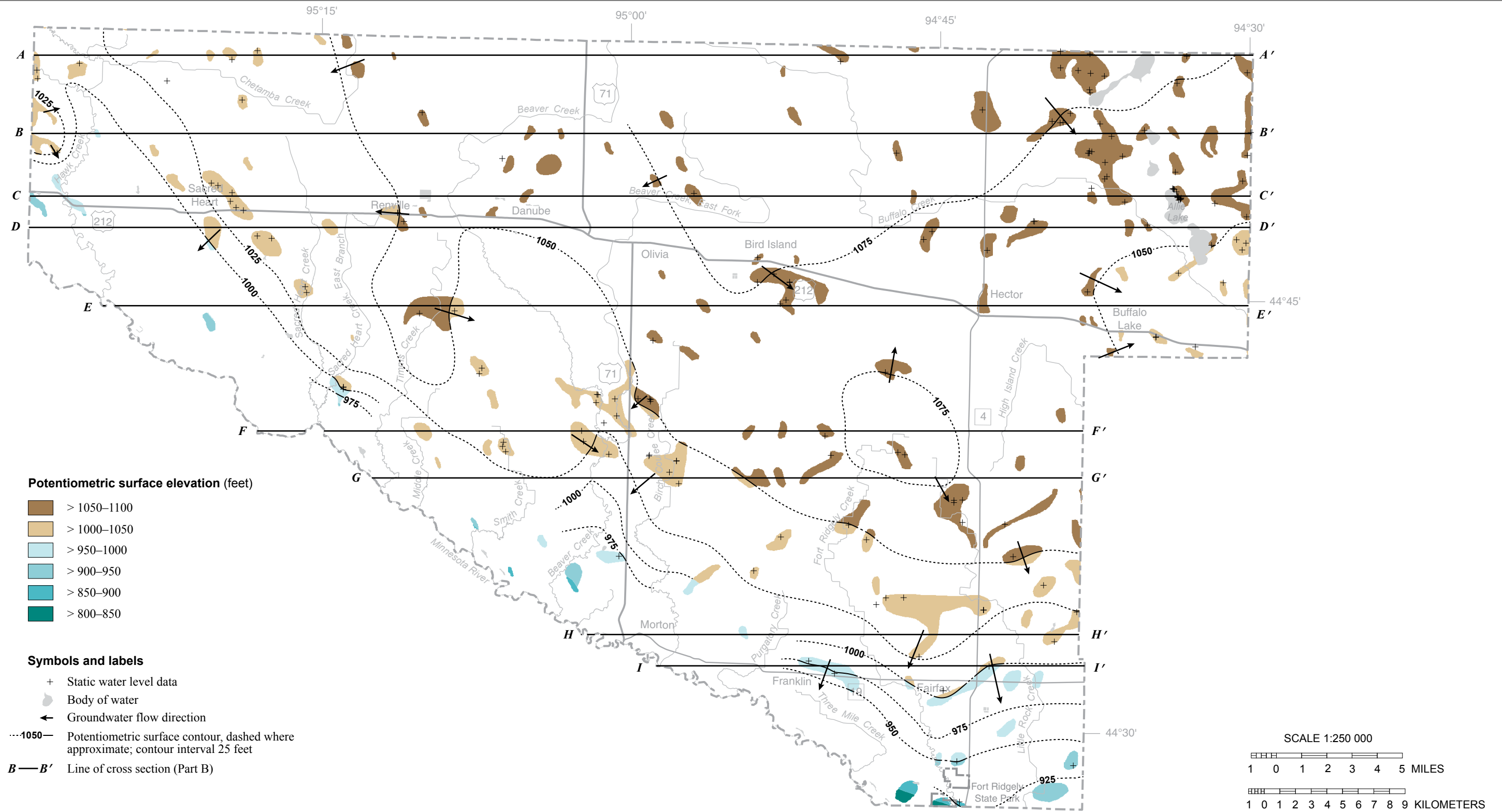


Map Figure 5. Potentiometric surface of st buried sand aquifer

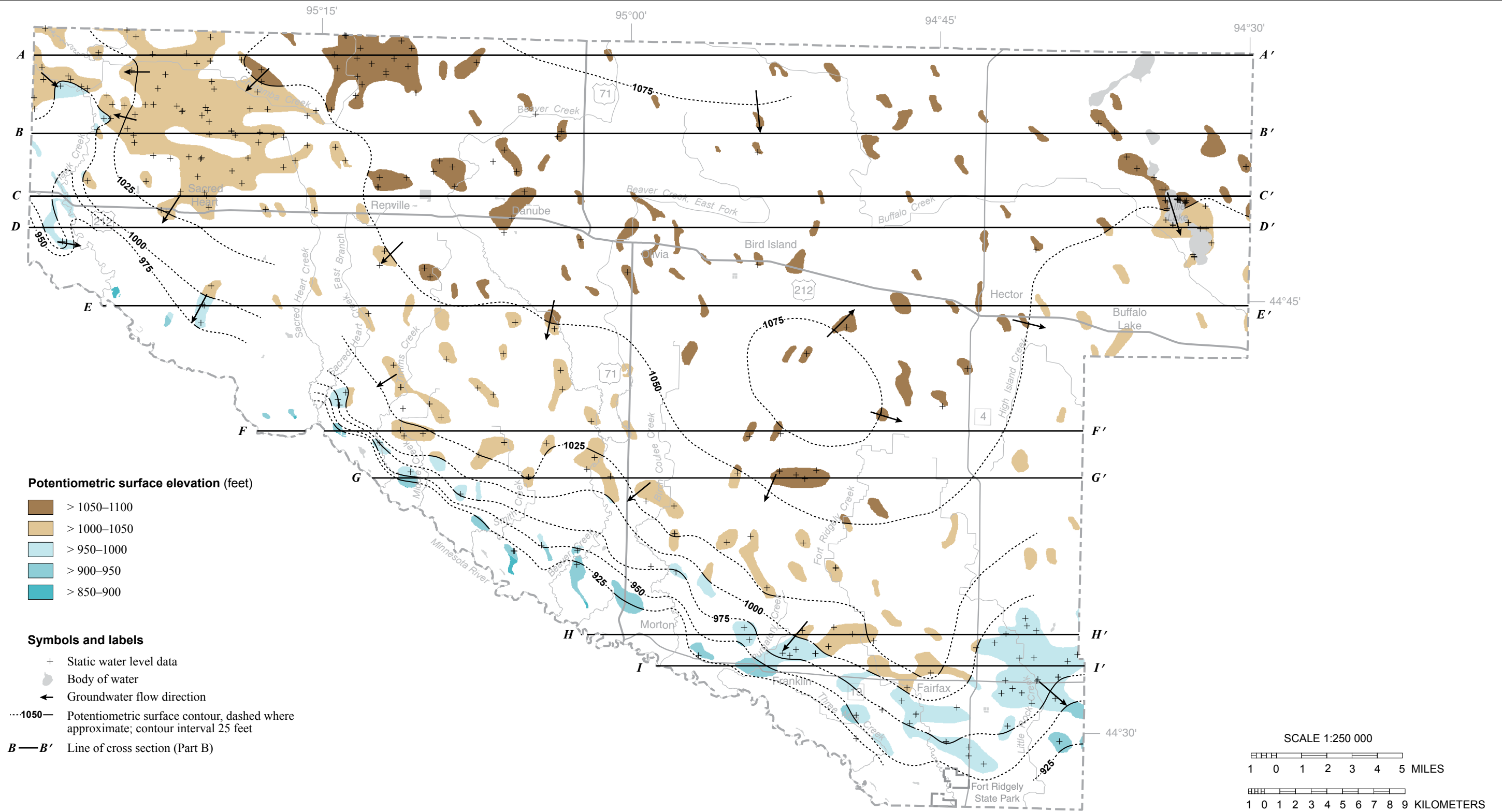


Map Figure 6. Potentiometric surface of sg buried sand aquifer

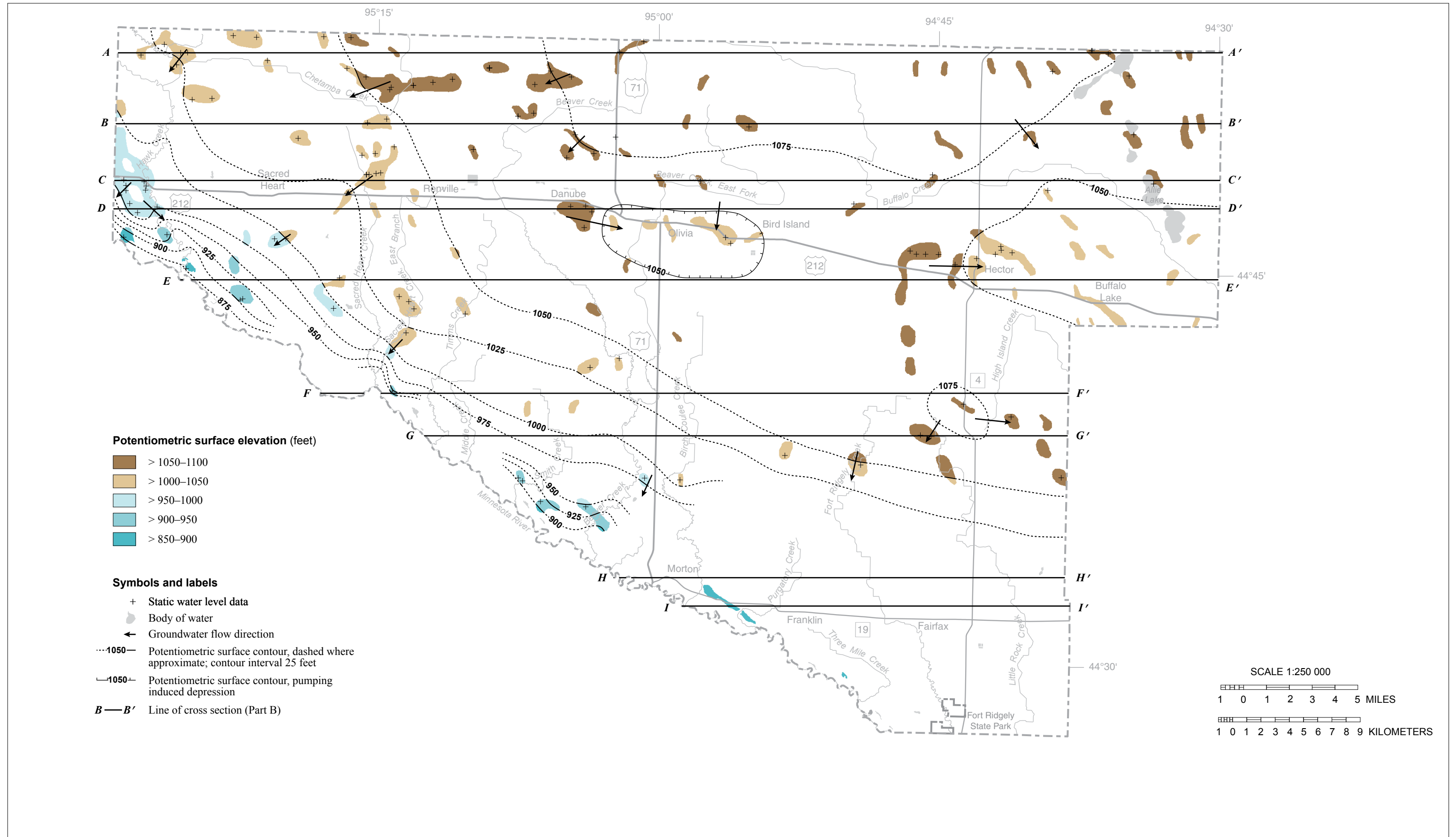




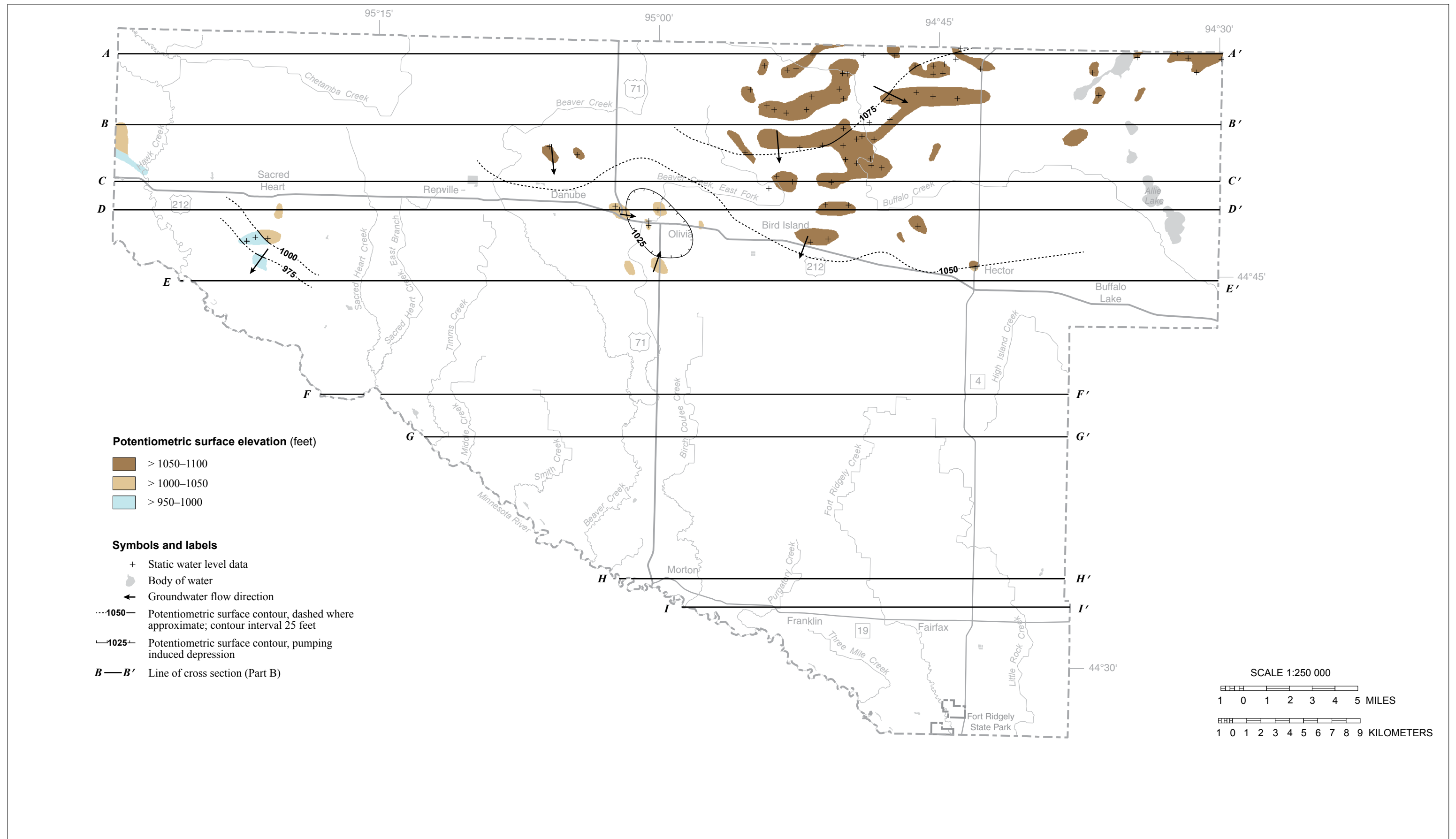
Map Figure 7. Potentiometric surface of s2 buried sand aquifer



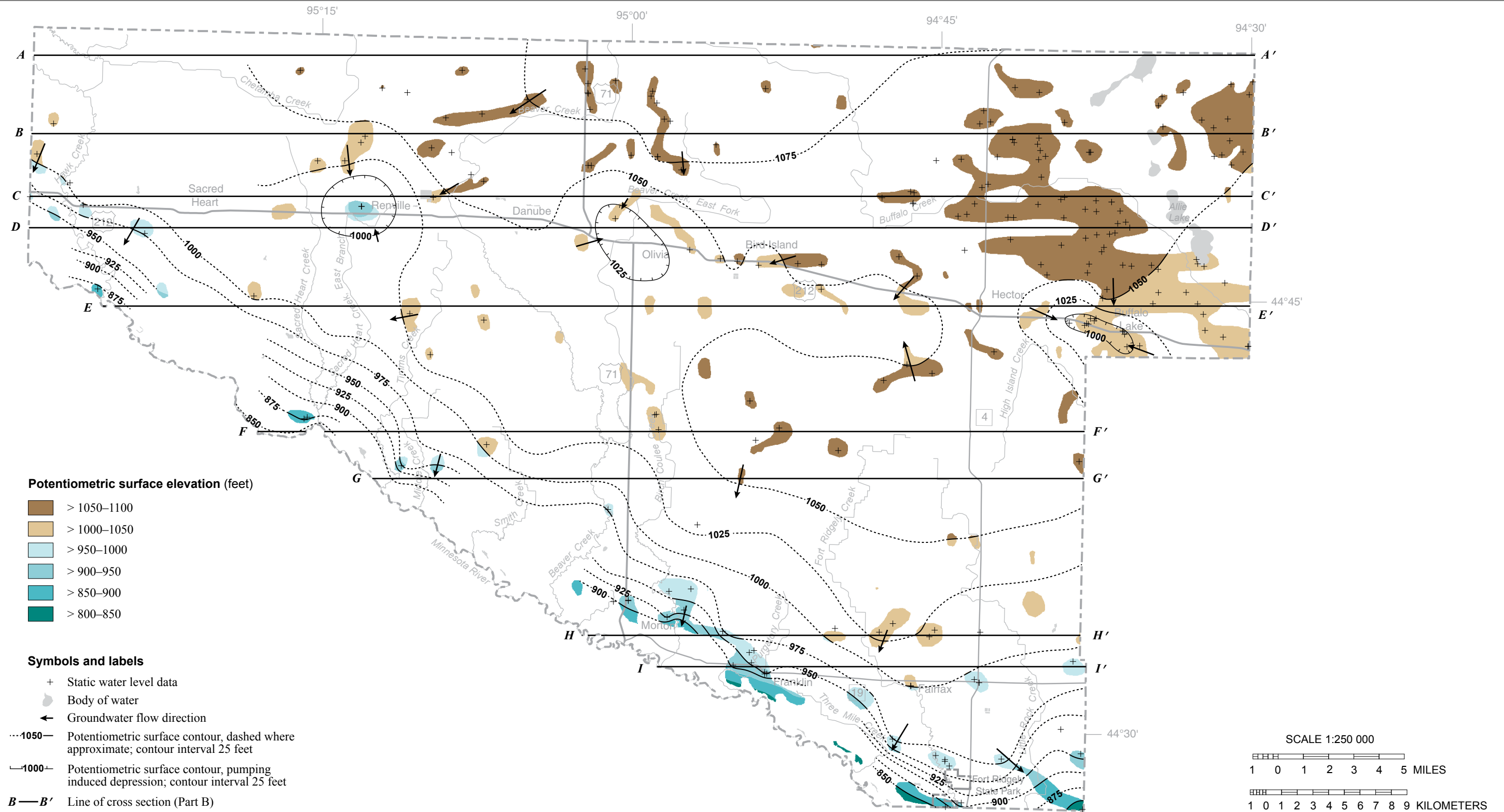
Map Figure 8. Potentiometric surface of s3 buried sand aquifer



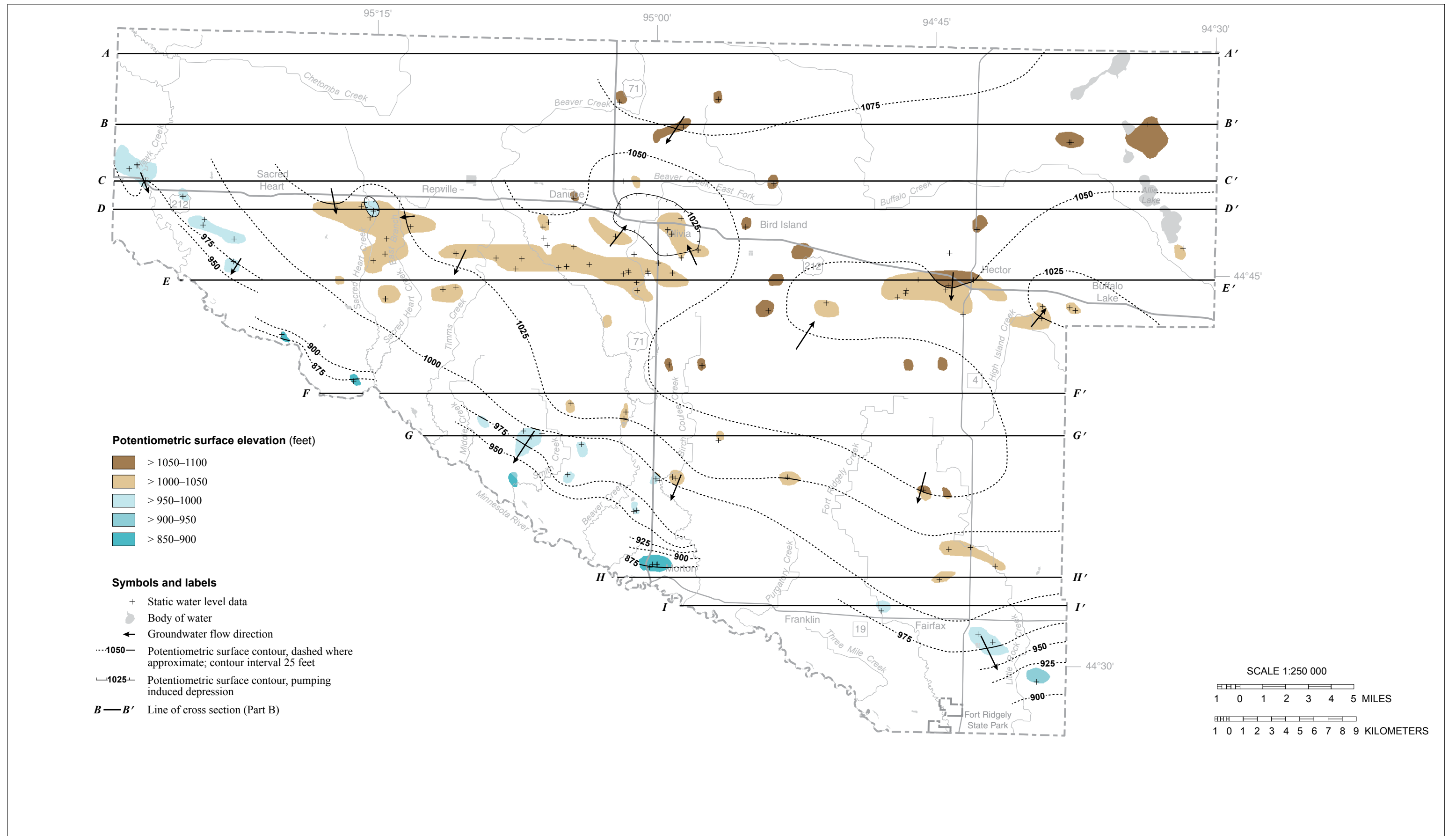
Map Figure 9. Potentiometric surface of s4 buried sand aquifer



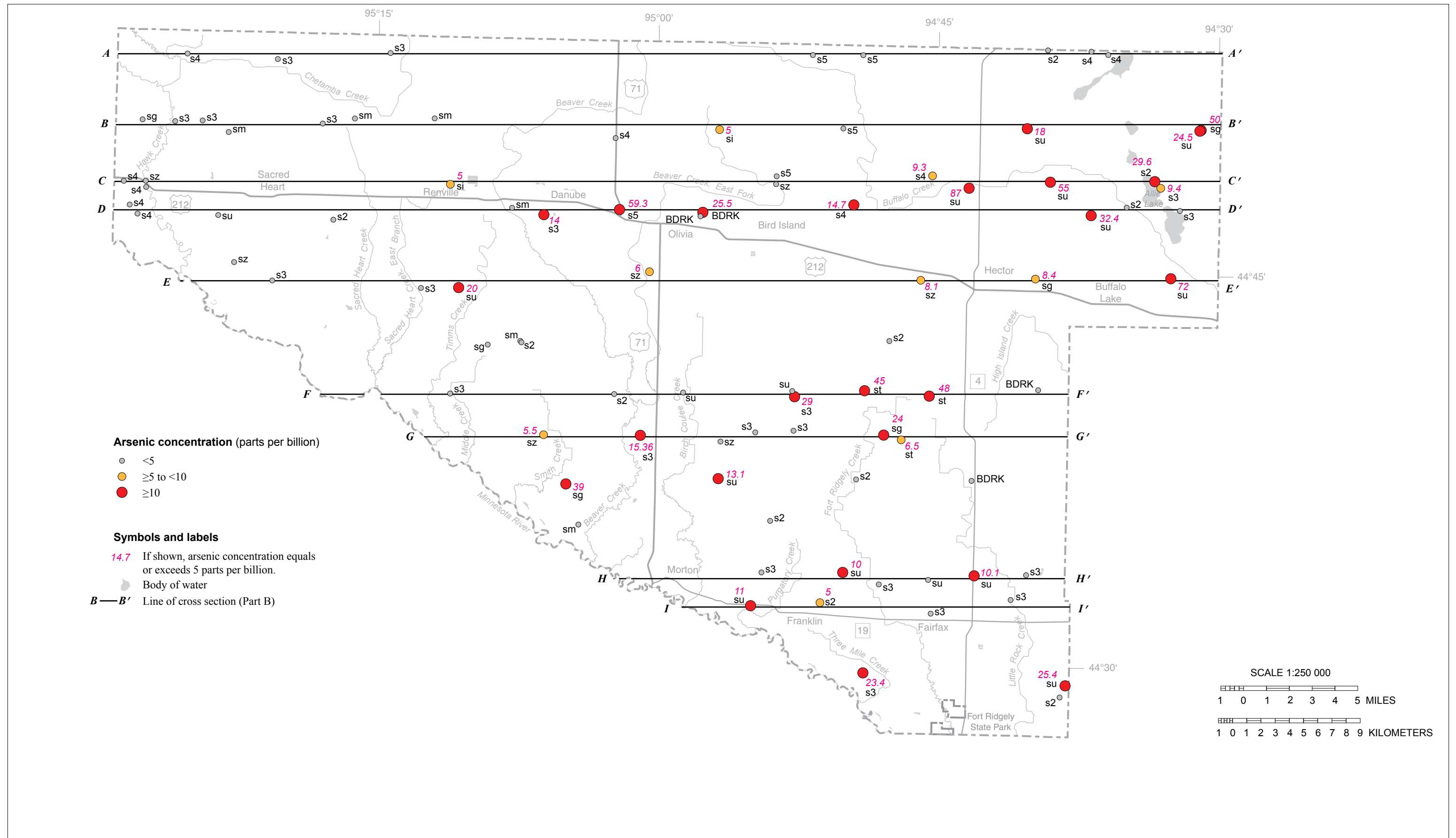
Map Figure 10. Potentiometric surface of s5 buried sand aquifer



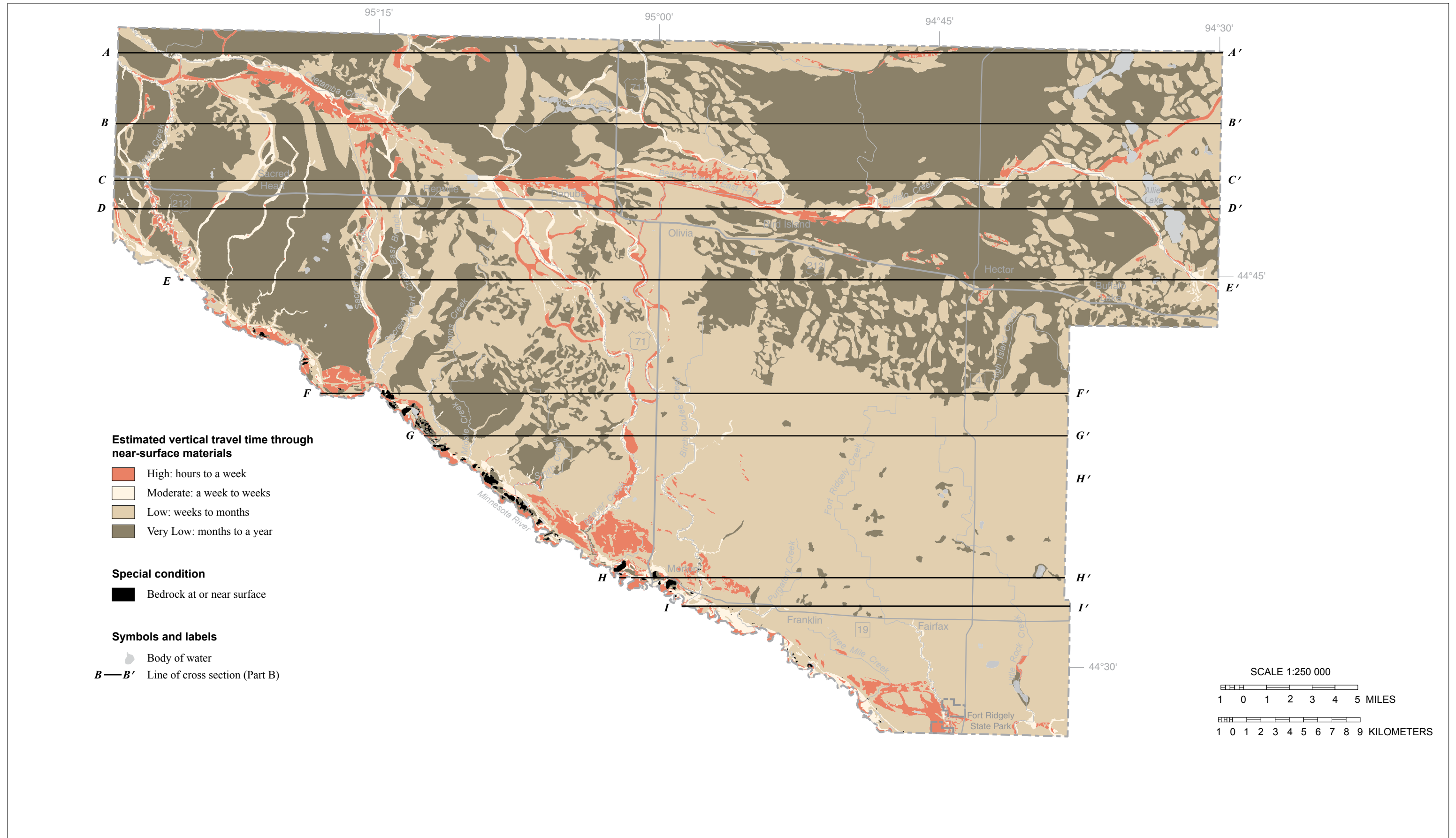
Map Figure 11. Potentiometric surface of su buried sand aquifer



Map Figure 12. Potentiometric surface of sz buried sand aquifer

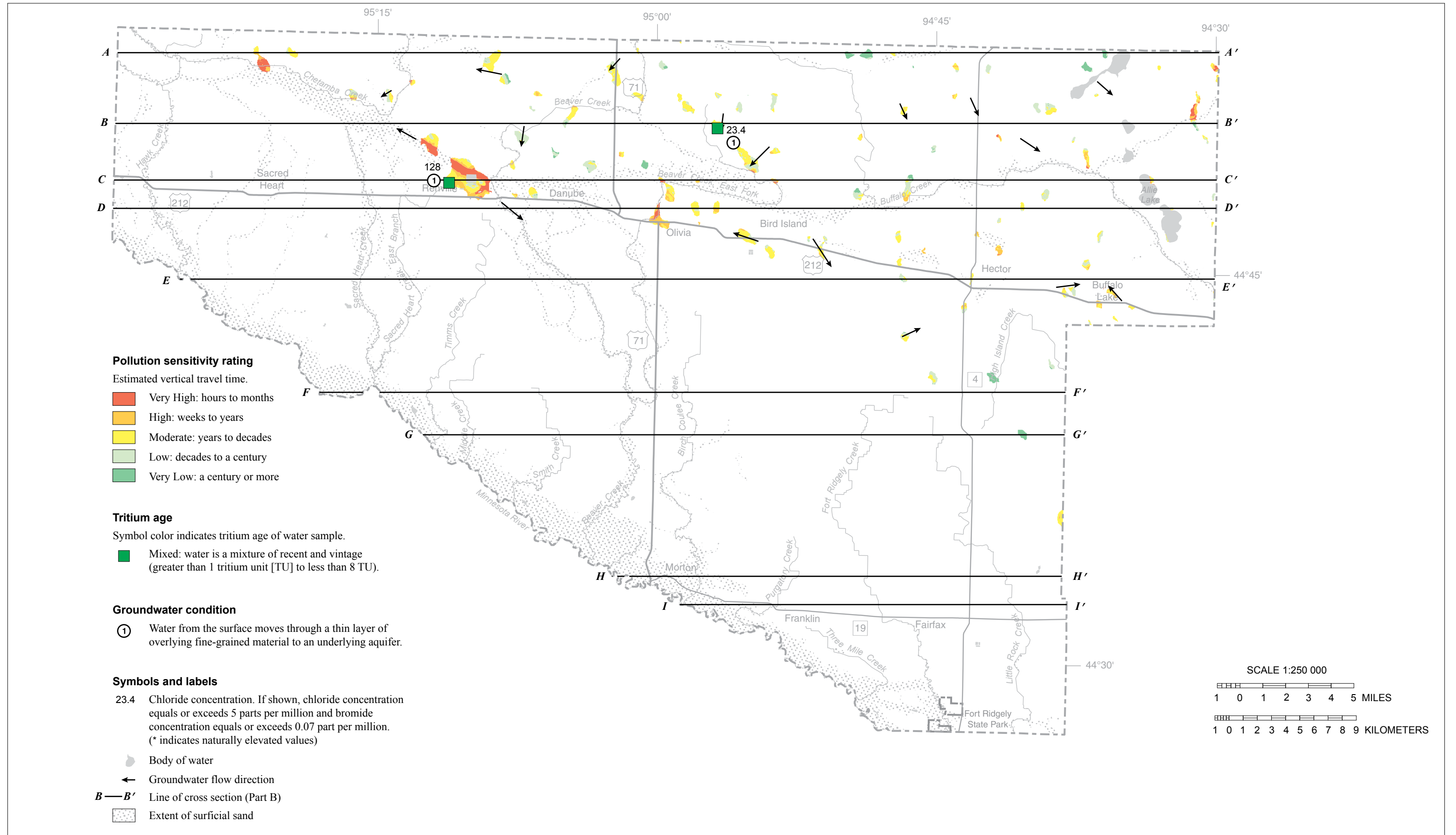


**Map Figure 13. Arsenic concentration**  
 Arsenic concentrations equaled or exceeded federal drinking water standards (10 ppb) in 25 groundwater samples collected from 87 buried sand and 4 bedrock aquifers.

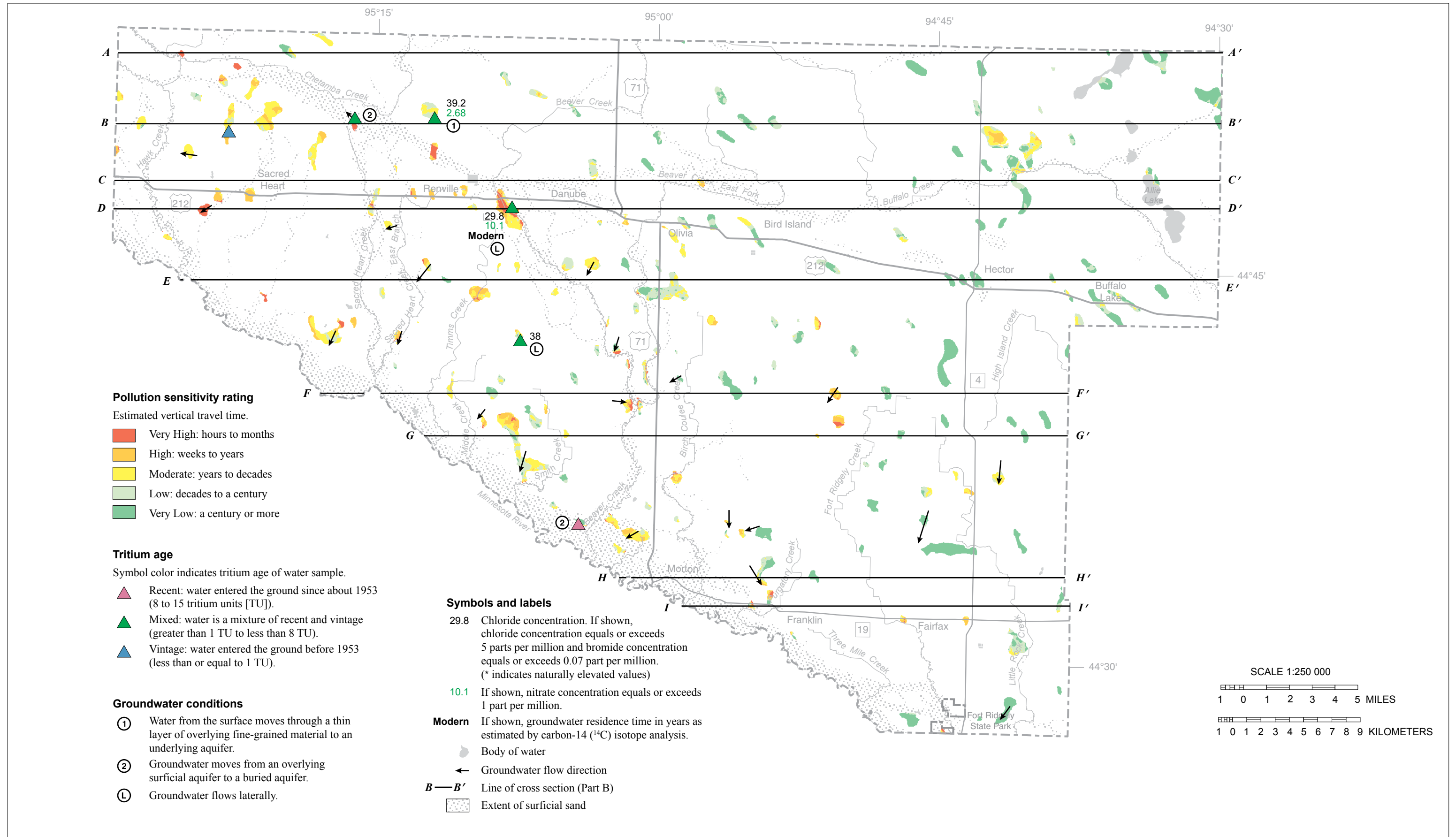


**Map Figure 14. Pollution sensitivity of near-surface materials**  
 Very low to low pollution sensitivity ratings are common throughout most of the county. The exception is in river and stream valleys, where the ss surficial sand and gravel deposits are mapped. Map modified from the Minnesota Hydrogeology Atlas HG-02 (Adams, 2016b).



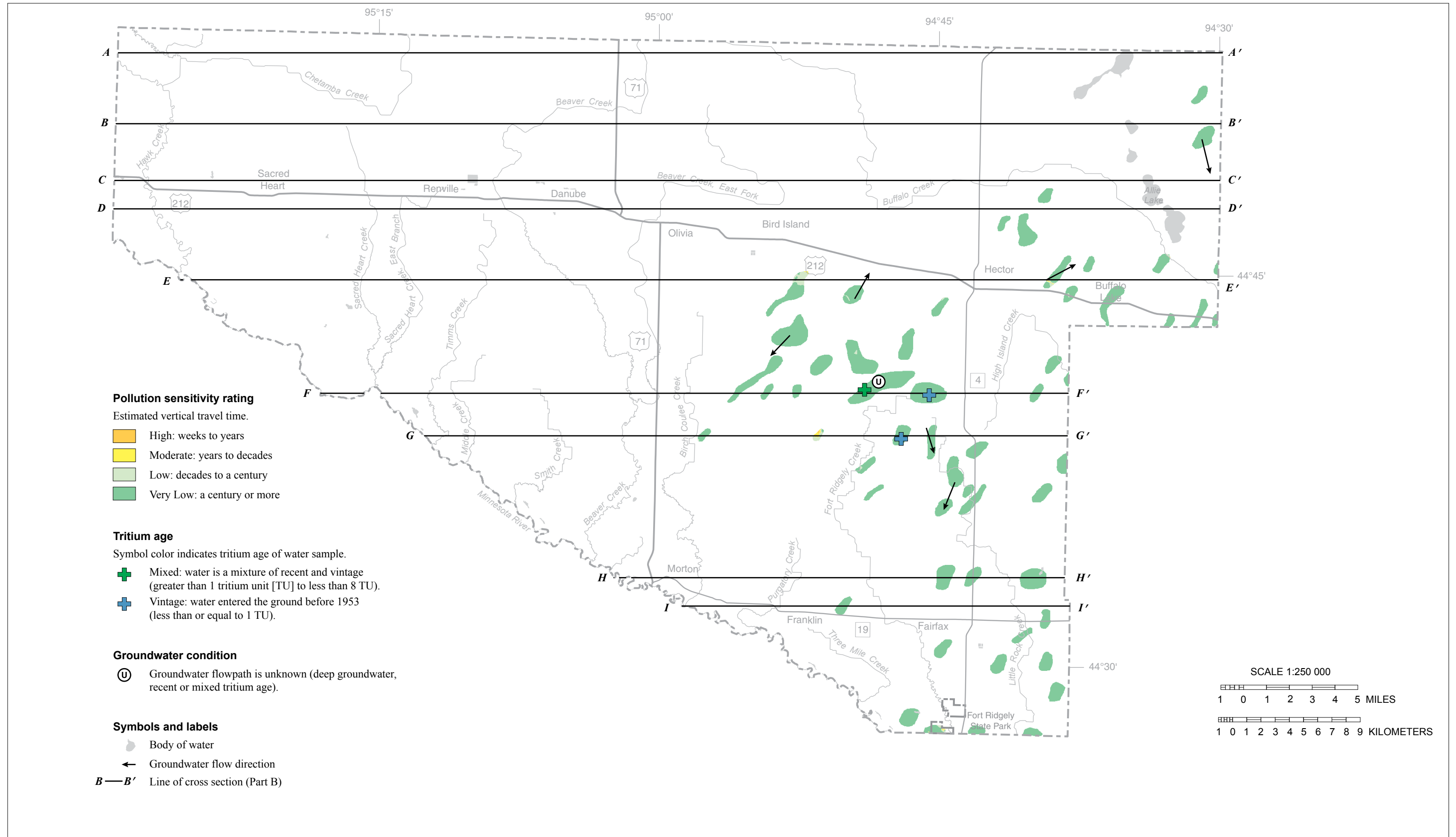


**Map Figure 15. Pollution sensitivity of si buried sand aquifer**  
 The si aquifer is generally shallow (average 27 feet) and exhibits low to very high sensitivity.

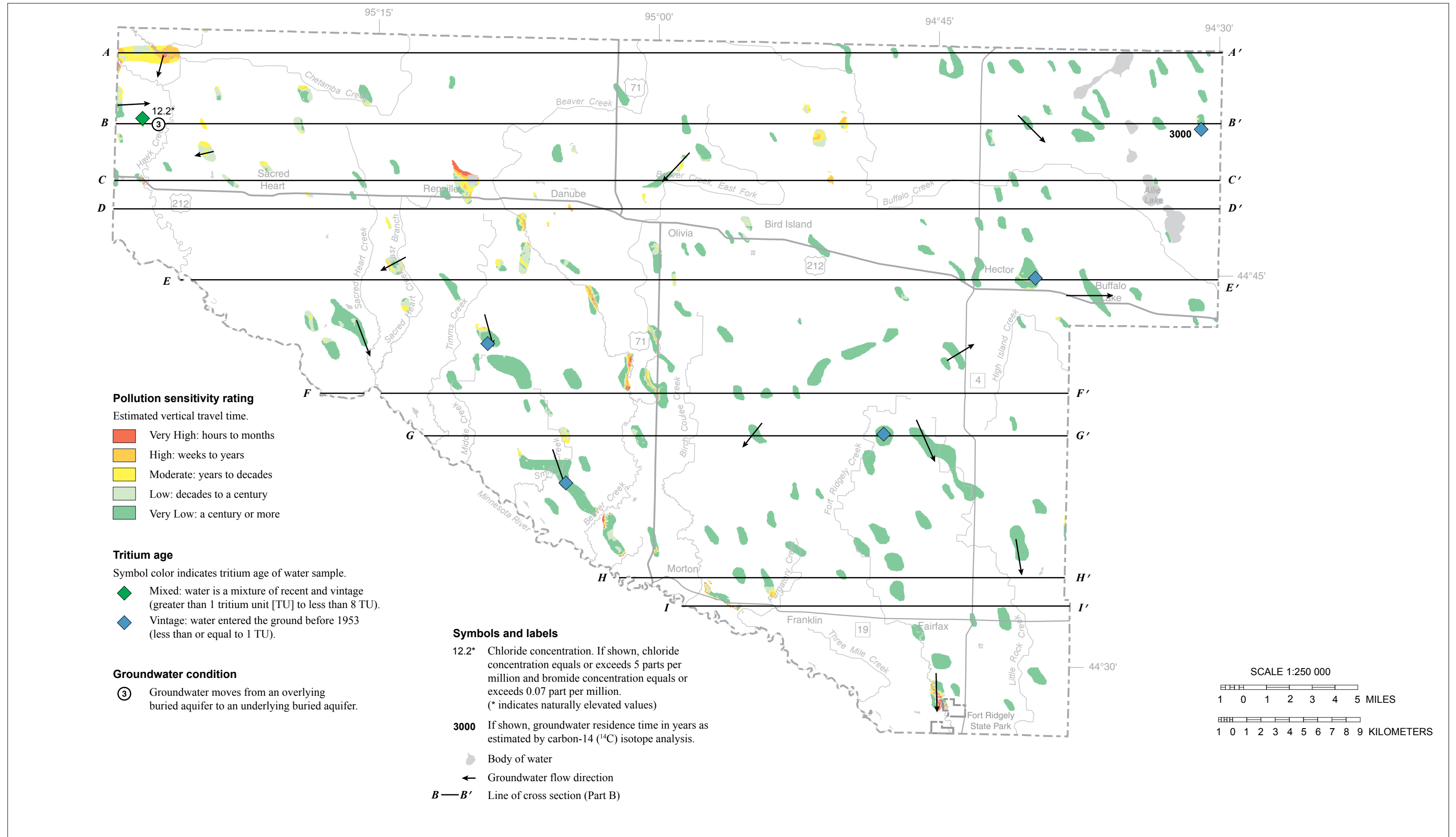


**Map Figure 16. Pollution sensitivity of sm buried sand aquifer**

The sm aquifer is shallow (average 38 feet) and exhibits very low to very high sensitivity. The few locations with a very low sensitivity rating are mostly in the eastern portion of the county where the aquifer is more deeply buried.

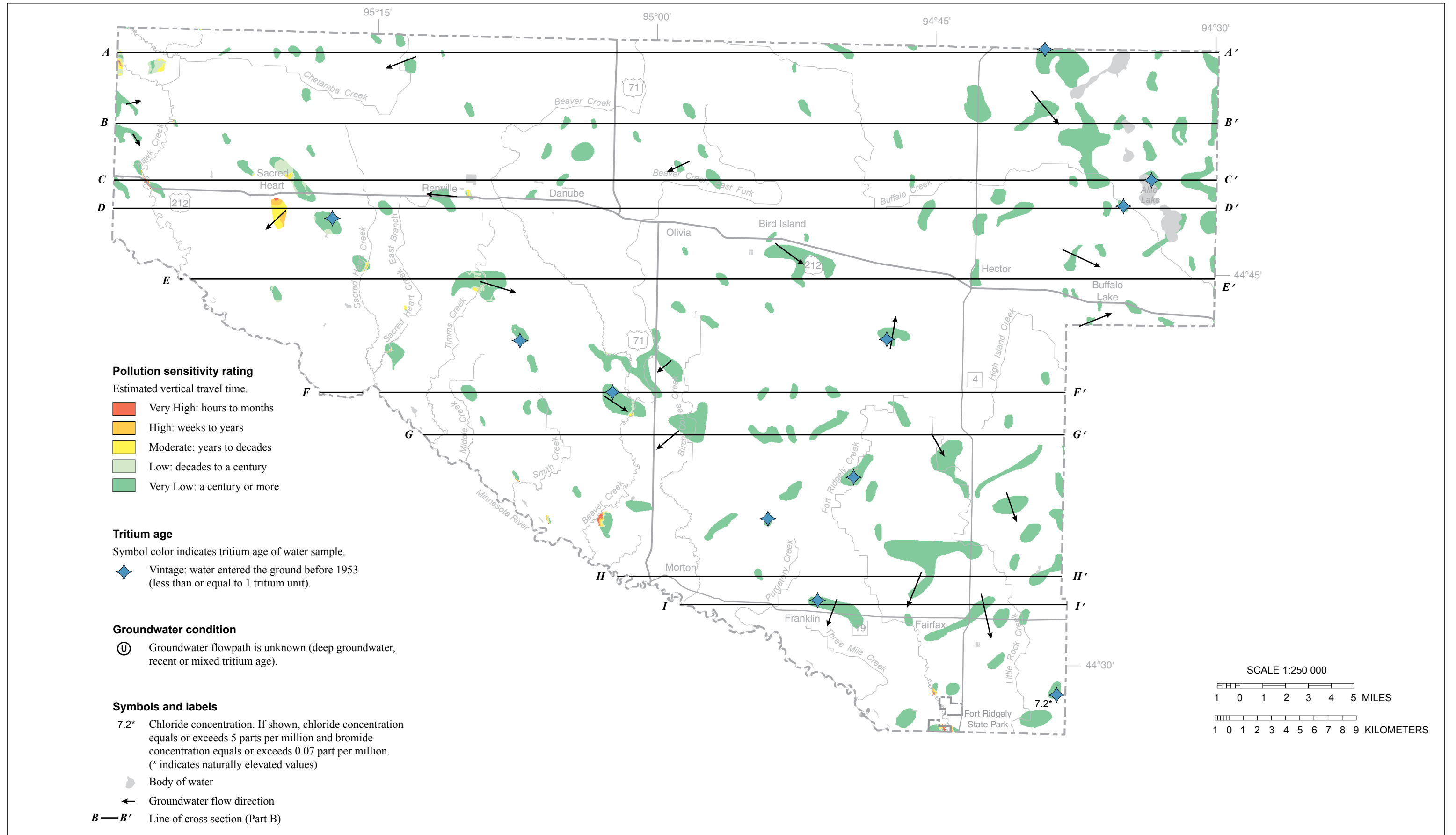


**Map Figure 17. Pollution sensitivity of st buried sand aquifer**  
 The st aquifer typically has a very low pollution sensitivity rating, with a few minor exceptions.

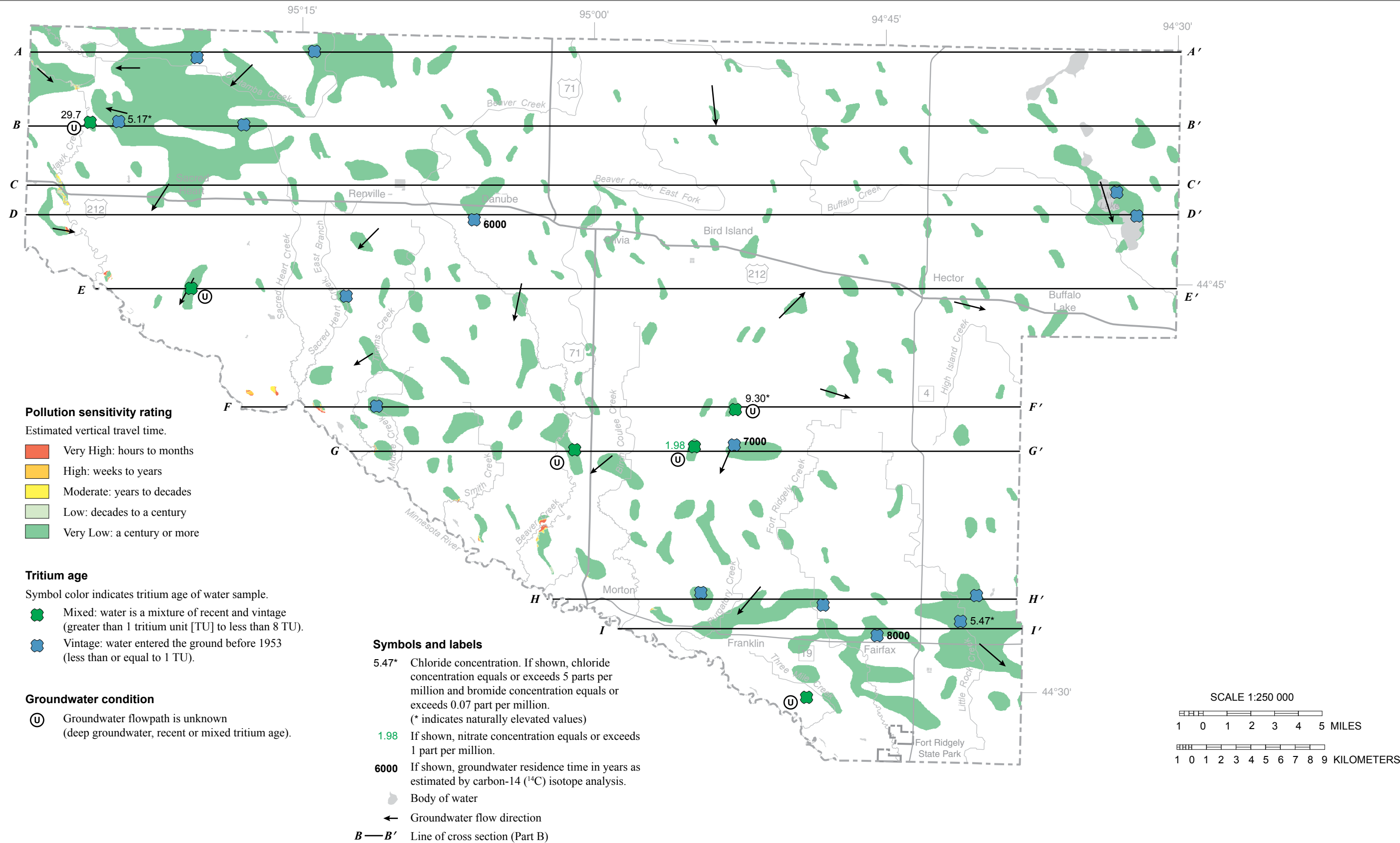


**Map Figure 18. Pollution sensitivity of sg buried sand aquifer**

The sg aquifer has a very low pollution sensitivity rating except for shallower occurrences in the north-central and northwestern portions of the county and in river valleys.

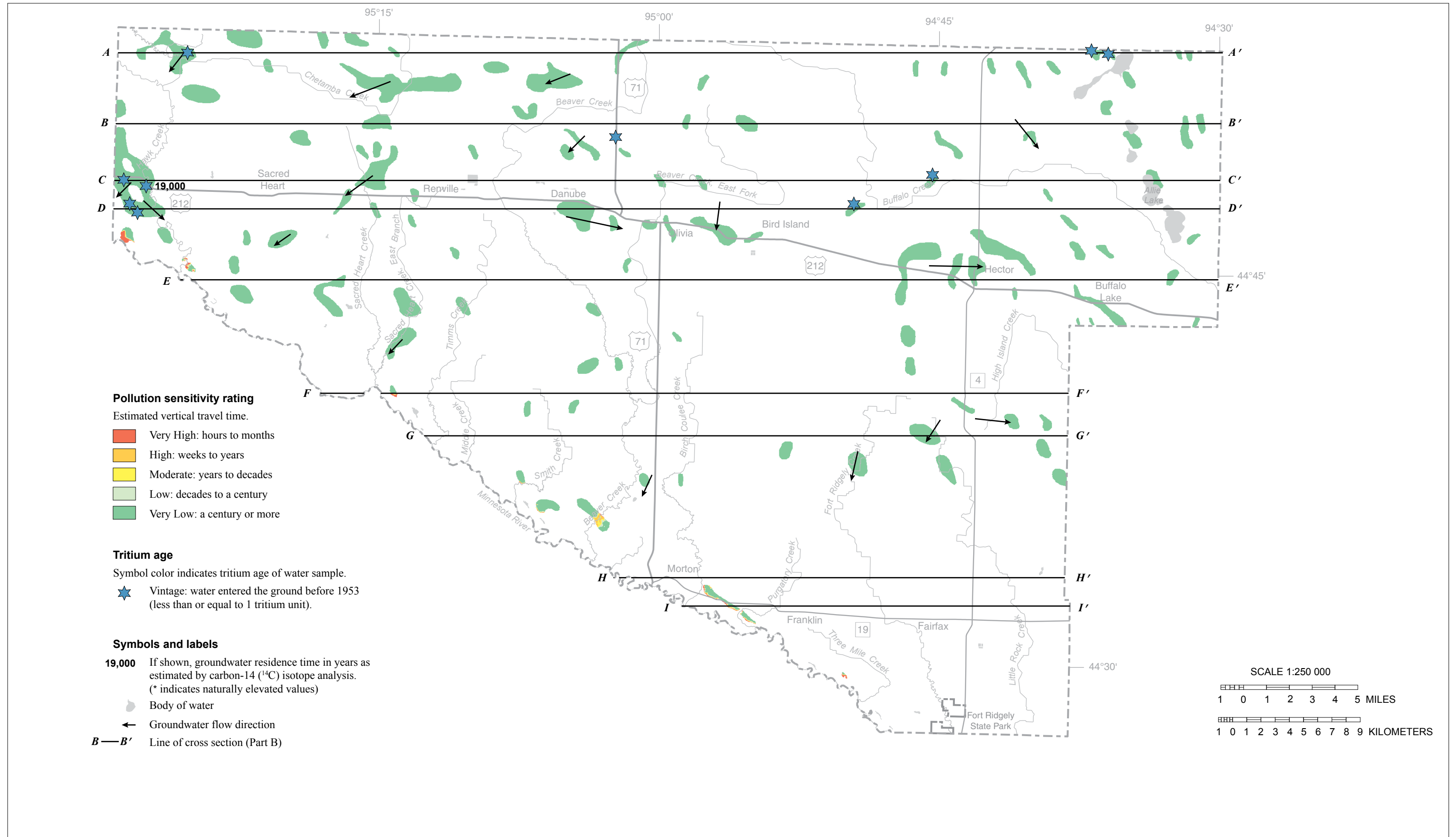


**Map Figure 19. Pollution sensitivity of s2 buried sand aquifer**  
 The s2 aquifer has a very low pollution sensitivity rating except for shallower occurrences in the northwest part of the county, and in some river valleys.

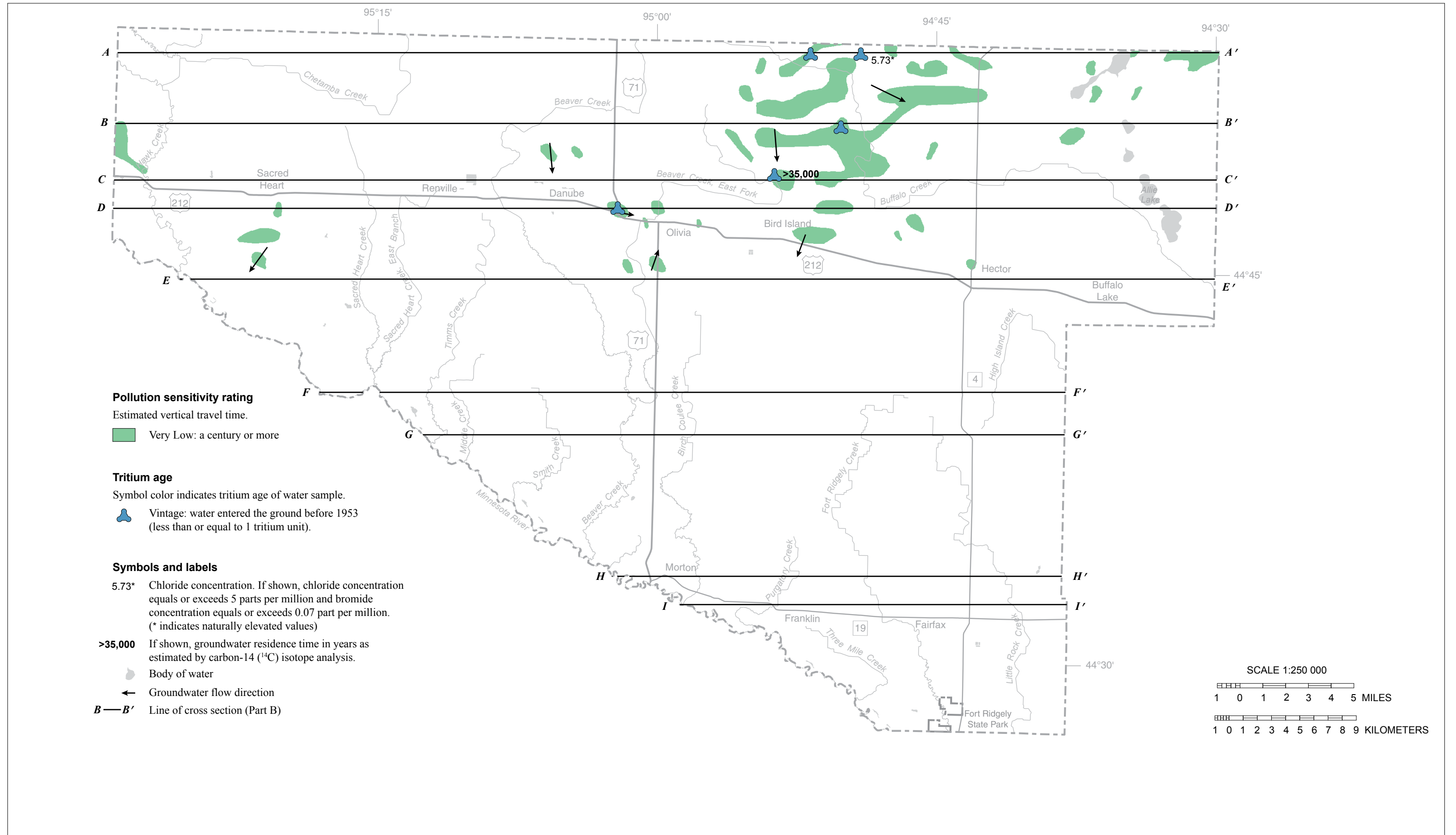


**Map Figure 20. Pollution sensitivity of s3 buried sand aquifer**

The s3 aquifer has a very low pollution sensitivity rating except for a few locations along the Minnesota River valley and lower portions of its tributaries, where the top of the aquifer is closer to the land surface.

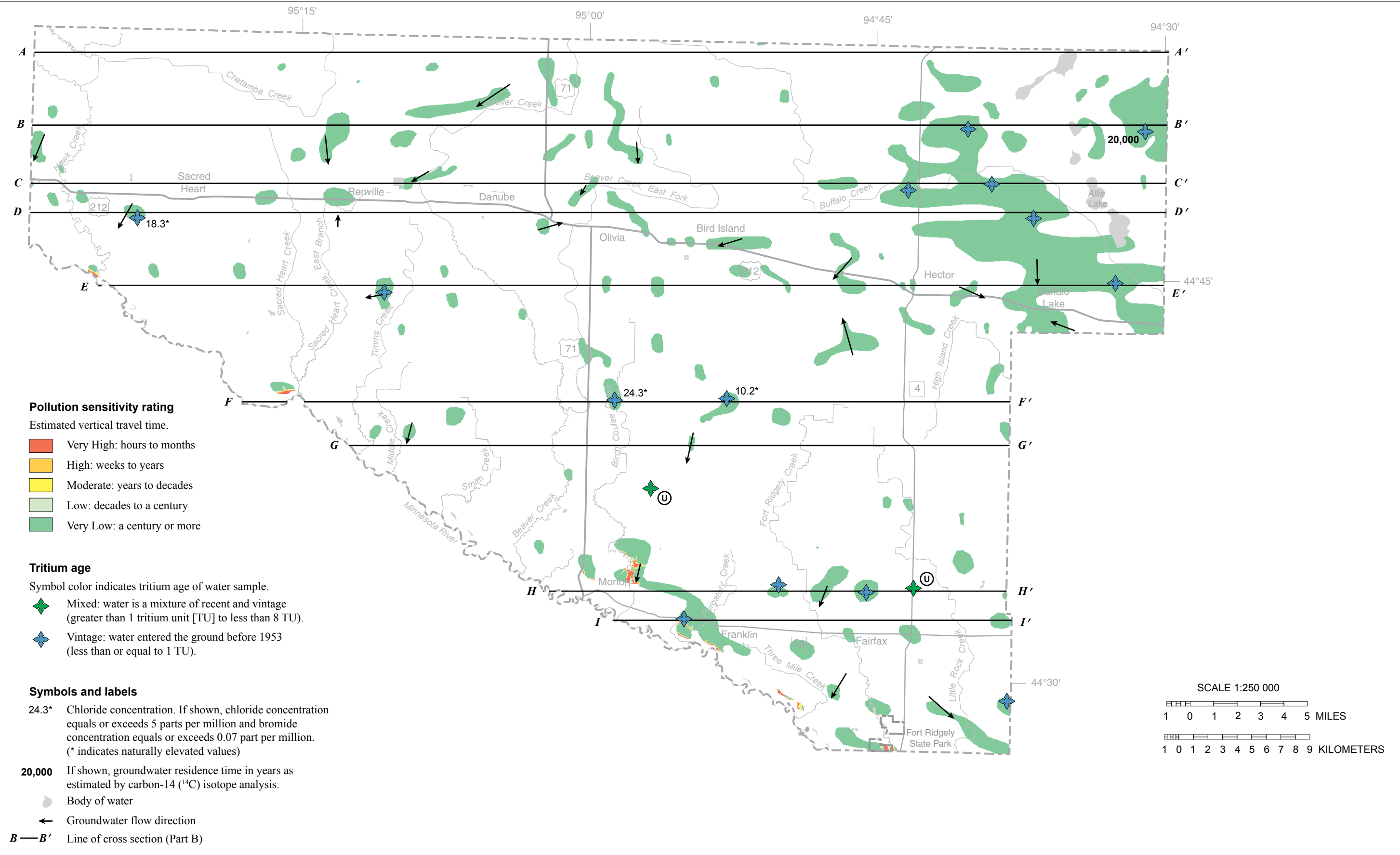


**Map Figure 21. Pollution sensitivity of s4 buried sand aquifer**  
 The s4 aquifer has a very low pollution sensitivity rating except for a few locations along the Minnesota River valley and lower portions of its tributaries.

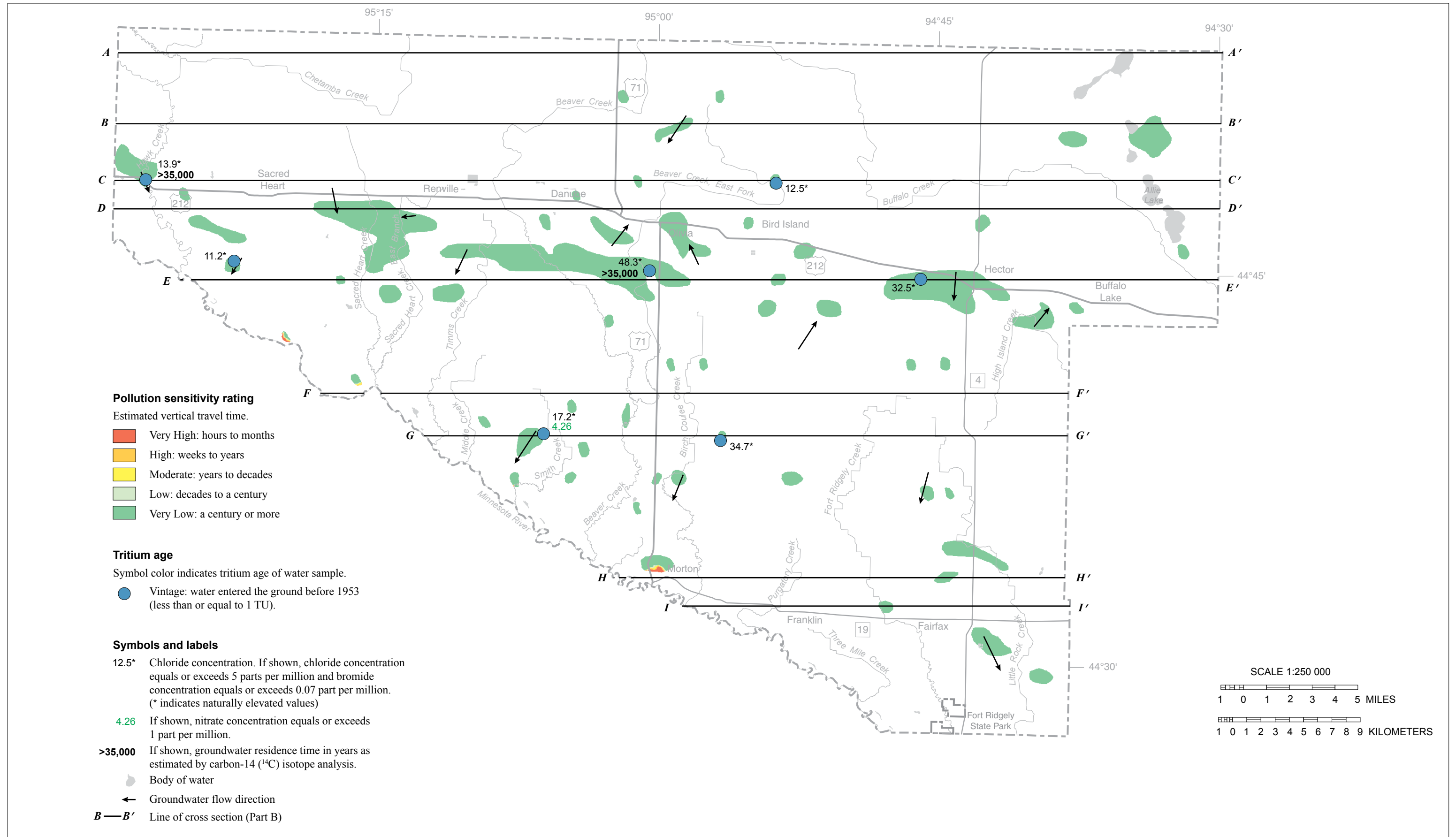


**Map Figure 22. Pollution sensitivity of s5 buried sand aquifer**  
 The s5 aquifer generally has a very low pollution sensitivity rating.

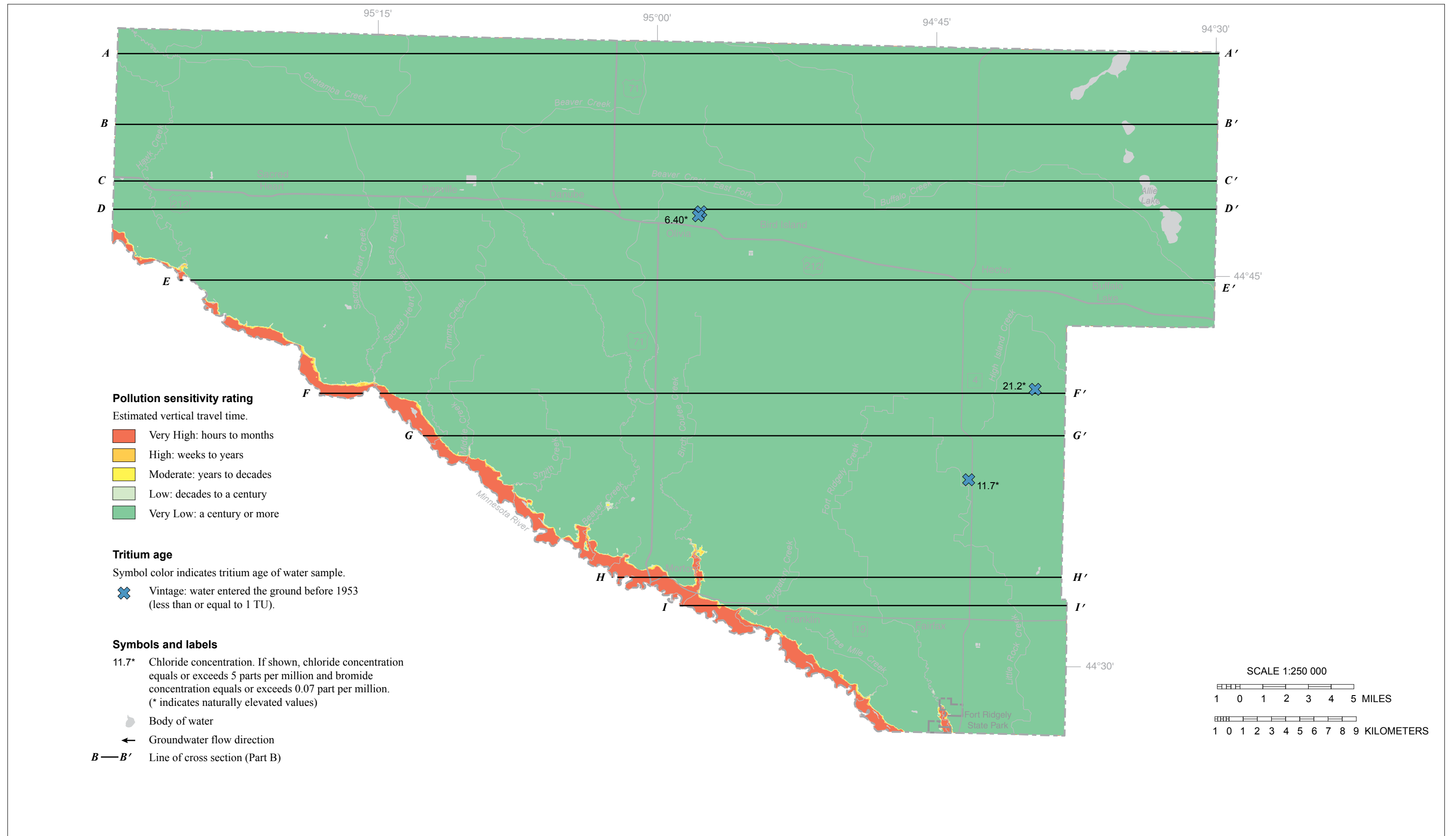




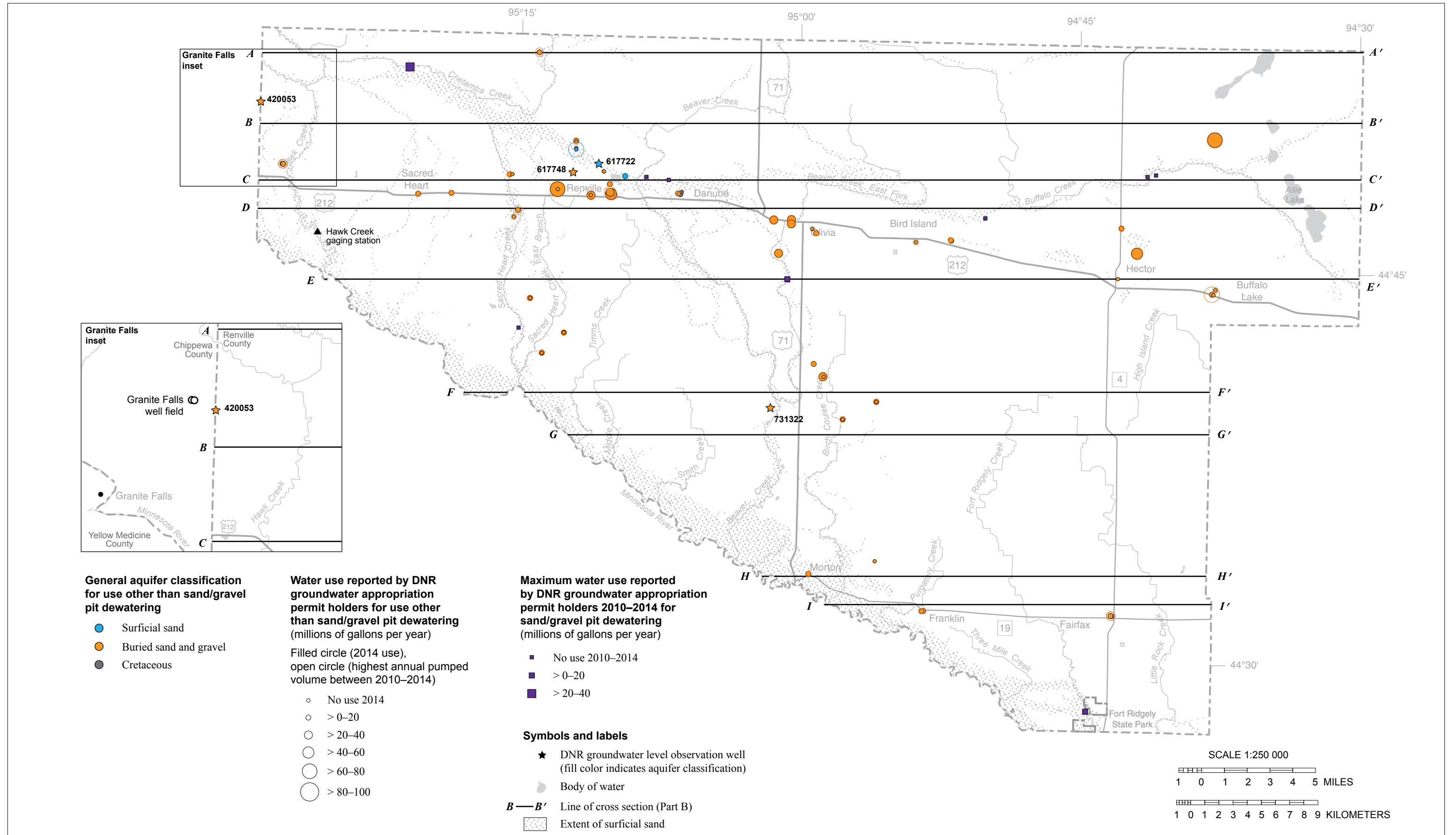
**Map Figure 23. Pollution sensitivity of the buried sand aquifer**  
 The su aquifer has a very low pollution sensitivity rating except for a few locations along the Minnesota River valley and lower portions of its tributaries.



**Map Figure 24. Pollution sensitivity of sz buried sand aquifer**  
 The sz aquifer has a very low pollution sensitivity rating except for a few locations along the Minnesota River valley and lower portions of its tributaries.



**Map Figure 25. Pollution sensitivity of bedrock surface**  
The pollution sensitivity of the bedrock surface is very low except in the Minnesota River valley where the bedrock is locally exposed or overlain by sand and gravel deposits and in the lower reaches of major tributaries.



**Map Figure 26. Groundwater appropriation by general aquifer type**  
 The majority of water appropriation is from confined sand and gravel aquifers. Four DNR observation wells are located in western Renville County.



**Map Figure 27. Groundwater appropriation by water use category**  
 The primary use type for the permitted water is municipal/public water supply.