

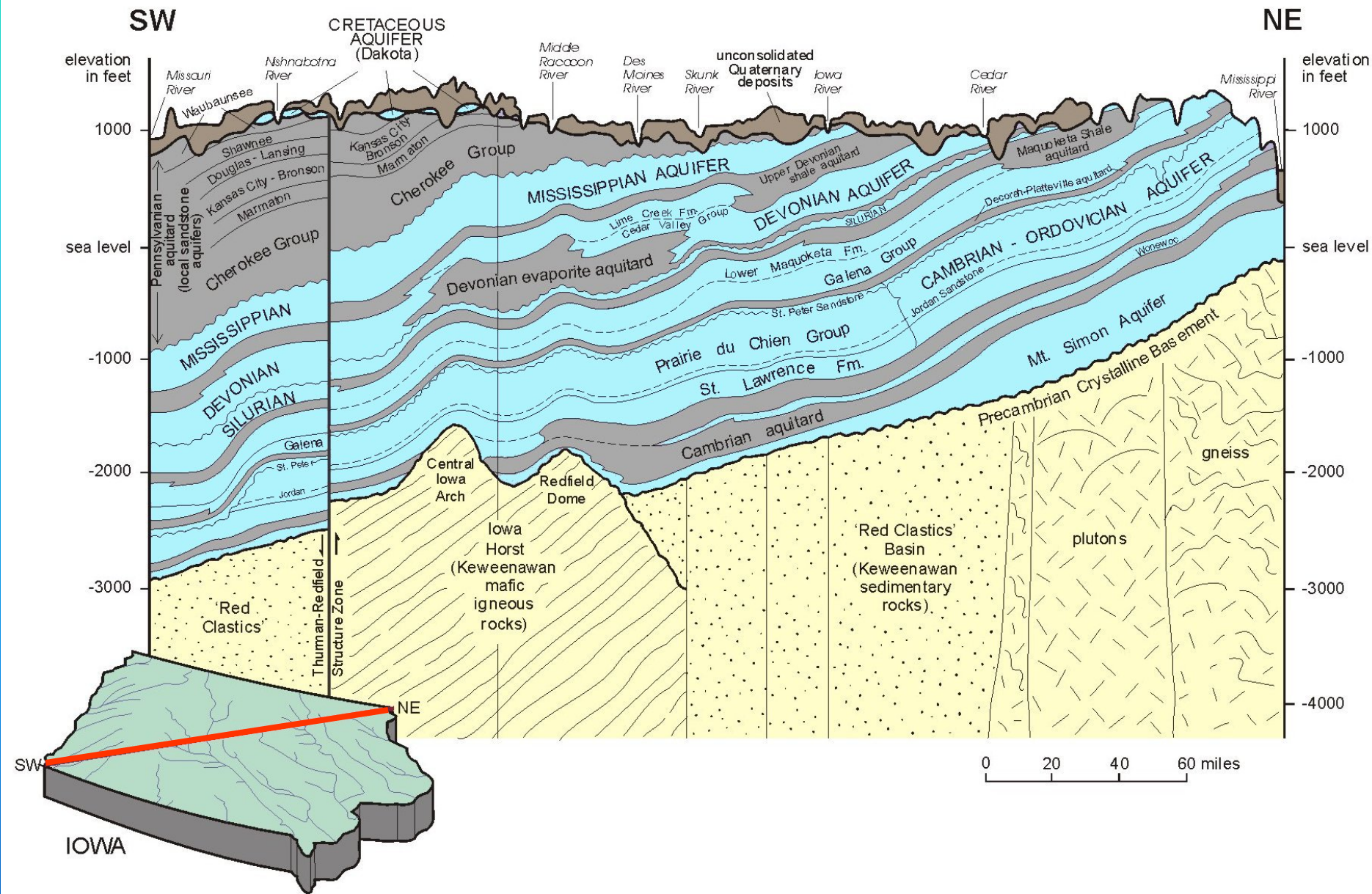
Status of Silica Sand Mining in Iowa



Bob Libra - State Geologist - Iowa DNR

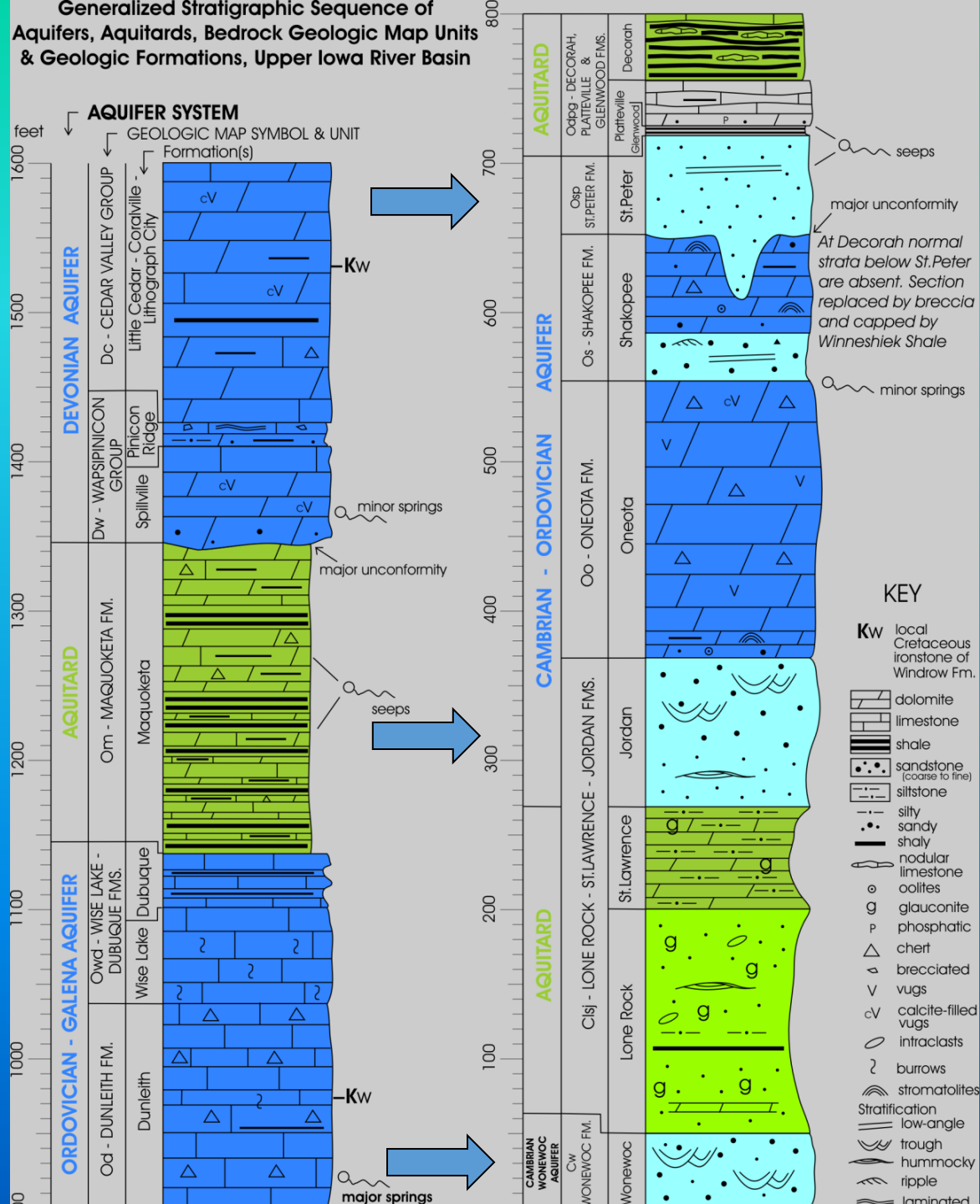
Bedrock Aquifer Systems across Iowa

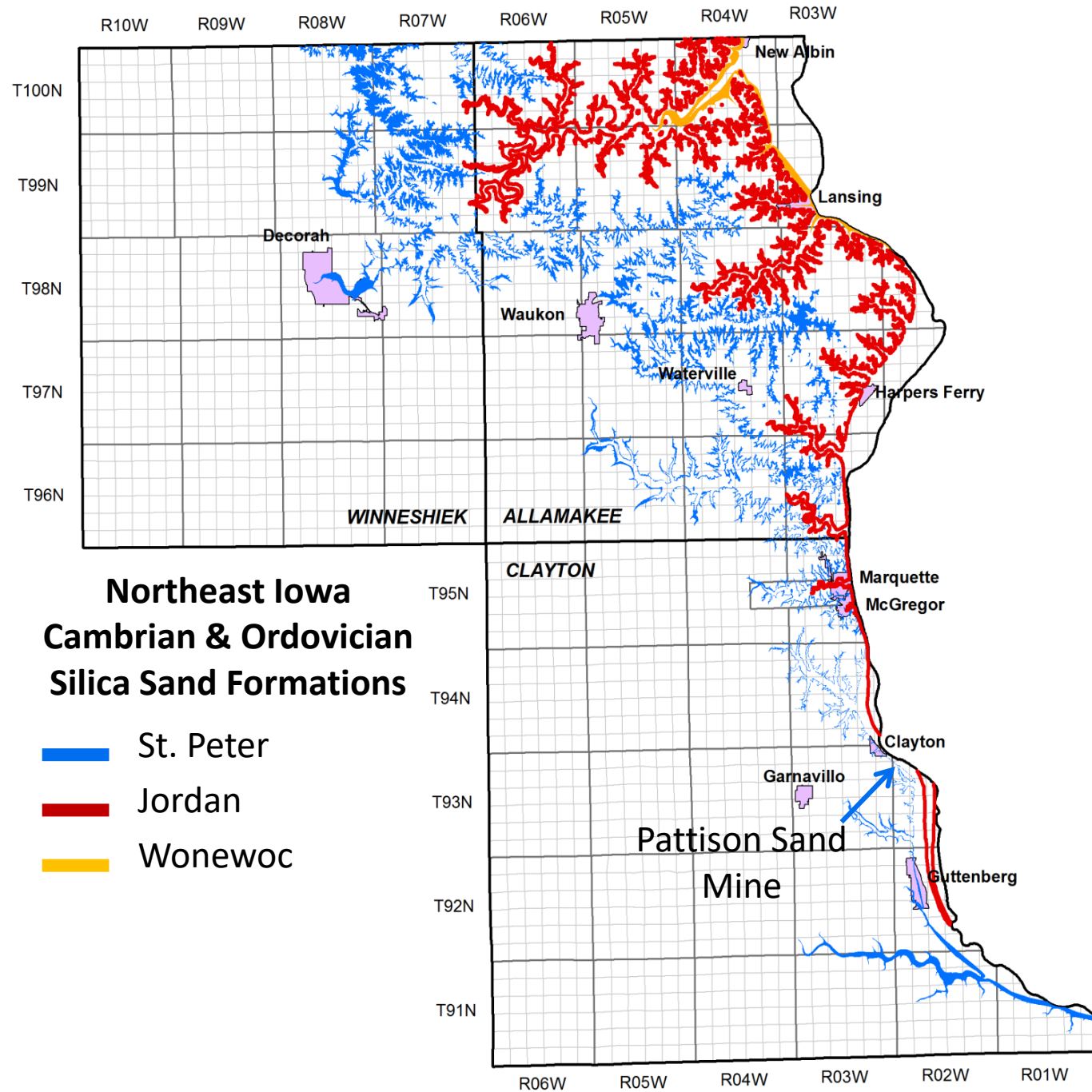
Southwest to Northeast



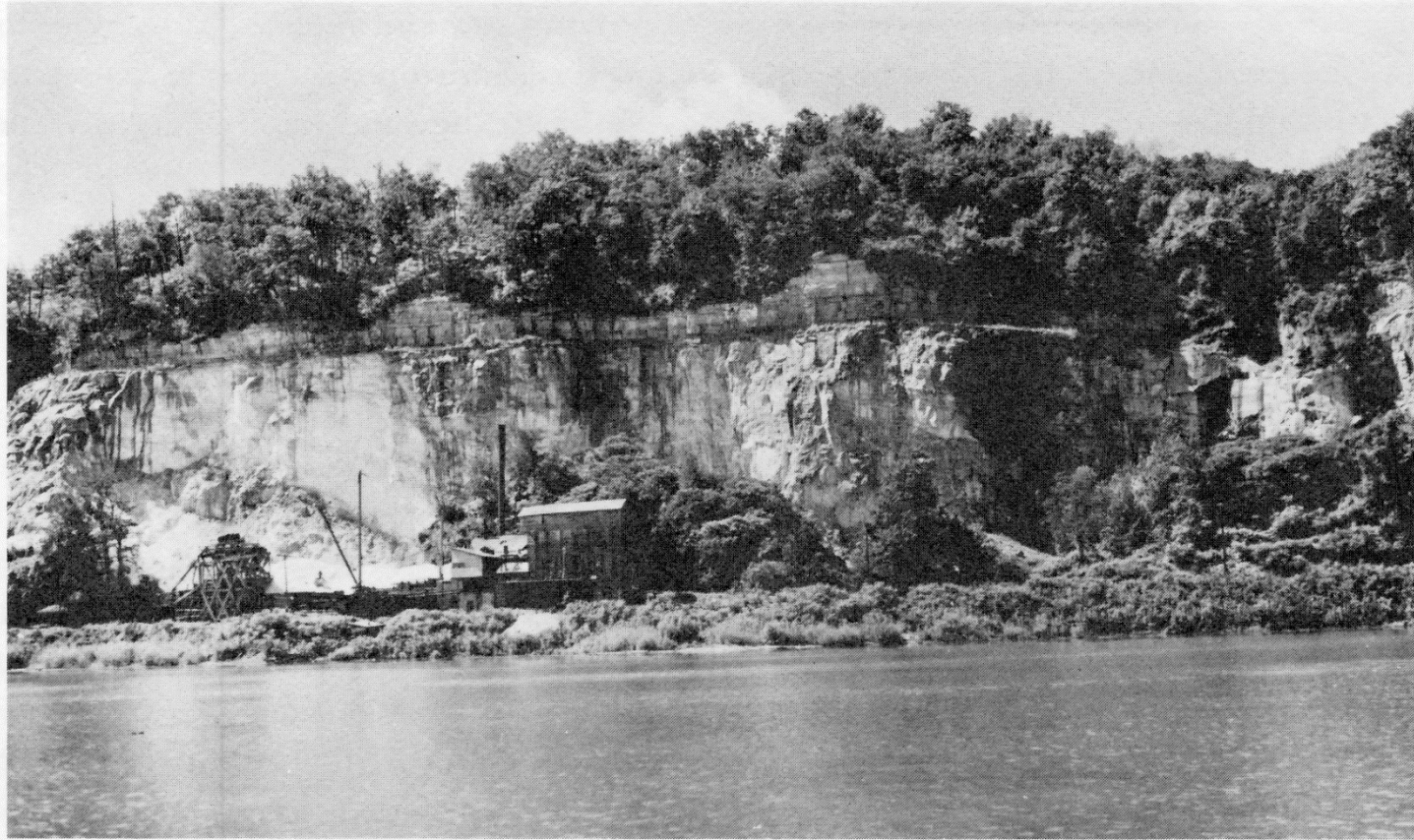
Stratigraphic column for NE IA

Several quartz-rich sandstones are present near the surface in the 3 most northeastern counties.





ST. PETER SANDSTONE Sand Mine at Clayton, IA - 1940



The Langworthy mine operation in 1940.

Clayton Sand Mine - 1974



A conveyor which carries the silica out of the mine (Neal Brown photo).



A truck rumbles through the cavernous rooms of the present-day mine (Neal Brown photo).

Timeline of Mining Developments

2007 - Pattison Sand restarts the Clayton Mine.

October 2012 - Request for zoning change for mining in Allamakee County.

February 2013 - Allamakee County Supervisors put an 18-month moratorium on sand mining in place.

June 2013 - Winneshiek County follows suit.

2015 - Regulations adopted by the two counties.

Pattison Sand Mine, Clayton, IA - 2010



A pile of frac sand sits on a bluff overlooking the Mississippi downriver from Clayton, Iowa. One of three entrances to the Pattison Sand Company's mine is in the lower right, in this 2010 photo. Bagley, Wis., sits at the base of the bluff across the river. (Robert J. Hurt)

Pattison Sand - Surface Quarry 2013



Pattison Sand – West Mine Entrance - 2013



Timeline of Mining Developments

2007 - Pattison Sand restarts the Clayton Mine.

October 2012 - Request for zoning change for mining in Allamakee County.

February 2013 - Allamakee County Supervisors put an 18-month moratorium on sand mining in place.

June 2013 - Winneshiek County follows suit.

2015 - Regulations adopted by the two counties.

Timeline of Mining Developments

2007 - Pattison Sand restarts the Clayton Mine.

October 2012 - Request for zoning change for mining in Allamakee County.

February 2013 - Allamakee County Supervisors put an 18-month moratorium on sand mining in place.

June 2013 - Winneshiek County follows suit.

2015 - Regulations adopted by the two counties.

Timeline of Mining Developments

2007 - Pattison Sand restarts the Clayton Mine.

October 2012 - Request for zoning change for mining in Allamakee County.

February 2013 - Allamakee County Supervisors put an 18-month moratorium on sand mining in place.

June 2013 - Winneshiek County follows suit.

2015 - Regulations adopted by the two counties.

Regulations Prohibit:

- The use of any excavation or mining process that injects, applies or uses any chemical or toxic substance, unless expressly permitted in the conditional use permit.
- The use of any excavation or mining process that includes hydraulic dredging or other similar processor method.
- The use or application of any flocculants or chemicals to wash or process excavated and mined industrial minerals at a mining site.
- The use or placement of previously mined, processed and contaminated sand as fill material or reusing that sand at the mining site.

- Mining operators shall not excavate or mine closer than 40 feet to the groundwater table.
- No conditional use permit shall be approved for any site that exceeds 40 (20) acres, including all area up to the parcel boundaries.
- Within any portion of the Bluffland Protection District,
- Within 1,000 feet of any identified Karst features, or
- Within one mile (1/2) or within the viewshed of any stream, river, recreational trail, or scenic byway.

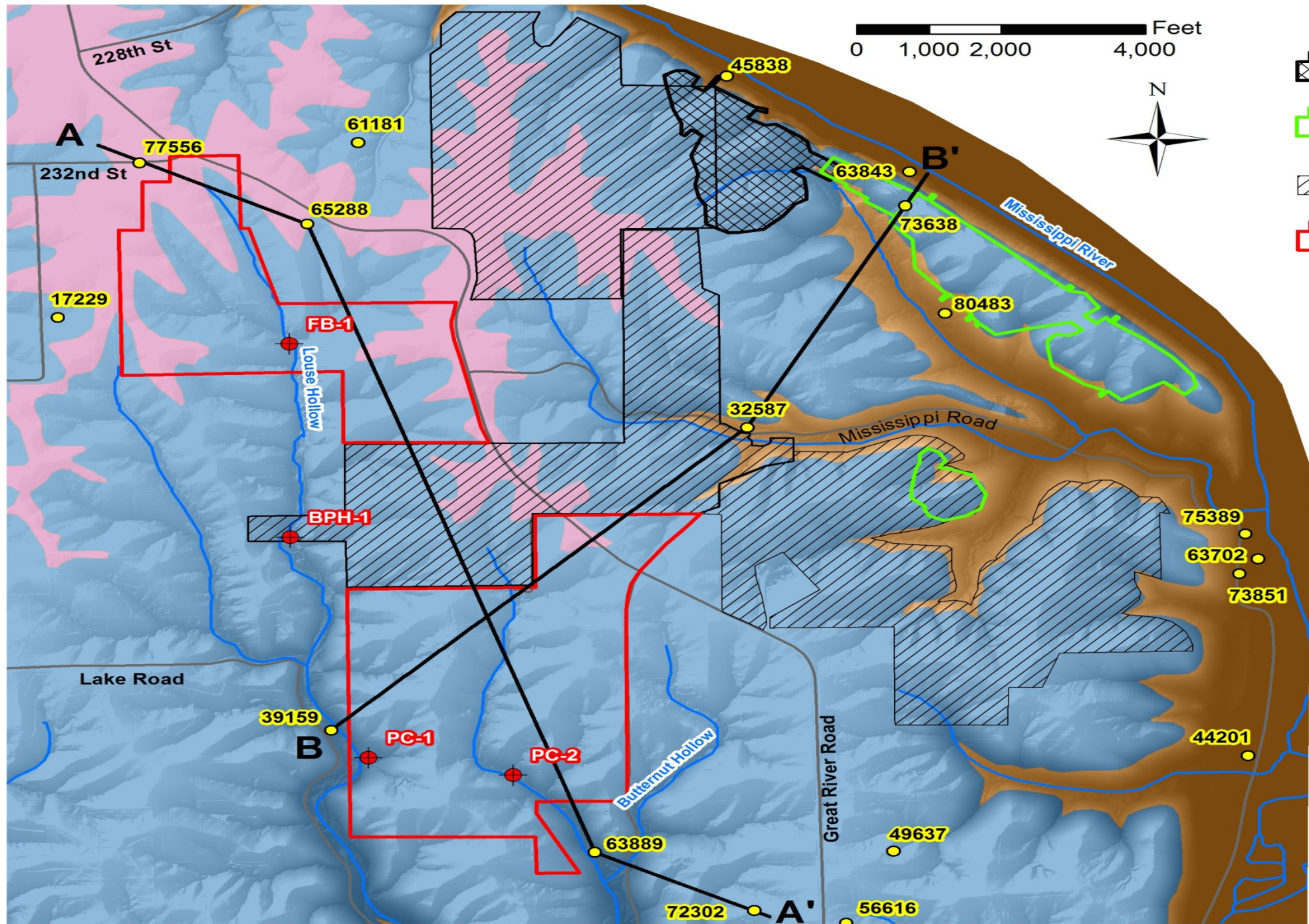
- No site within a 5 mile radius of any other large scale or industrial minerals extraction pit site or within 2000 feet of an existing church, public or private school, residence or residential subdivision, unless the setback requirement is waived in writing by the owners and occupants.
- No mining or excavation within 200 feet of the site boundaries.
- All mining operations limited to Mondays through Fridays, 6:00 AM to 8:00 PM CDT and Monday through Fridays, 7:00 AM to 5:00 PM CST.

- The use or application of water to wash or process excavated and mined industrial minerals at a mining site. Mining operators will be entitled to dry screen and sort industrial minerals at the mining site, but must transfer all excavated and mined industrial minerals to sites outside the county jurisdiction of this Zoning Ordinance for further processing or washing.







Fall of 2015 Pattison requests rezoning to expand mine area












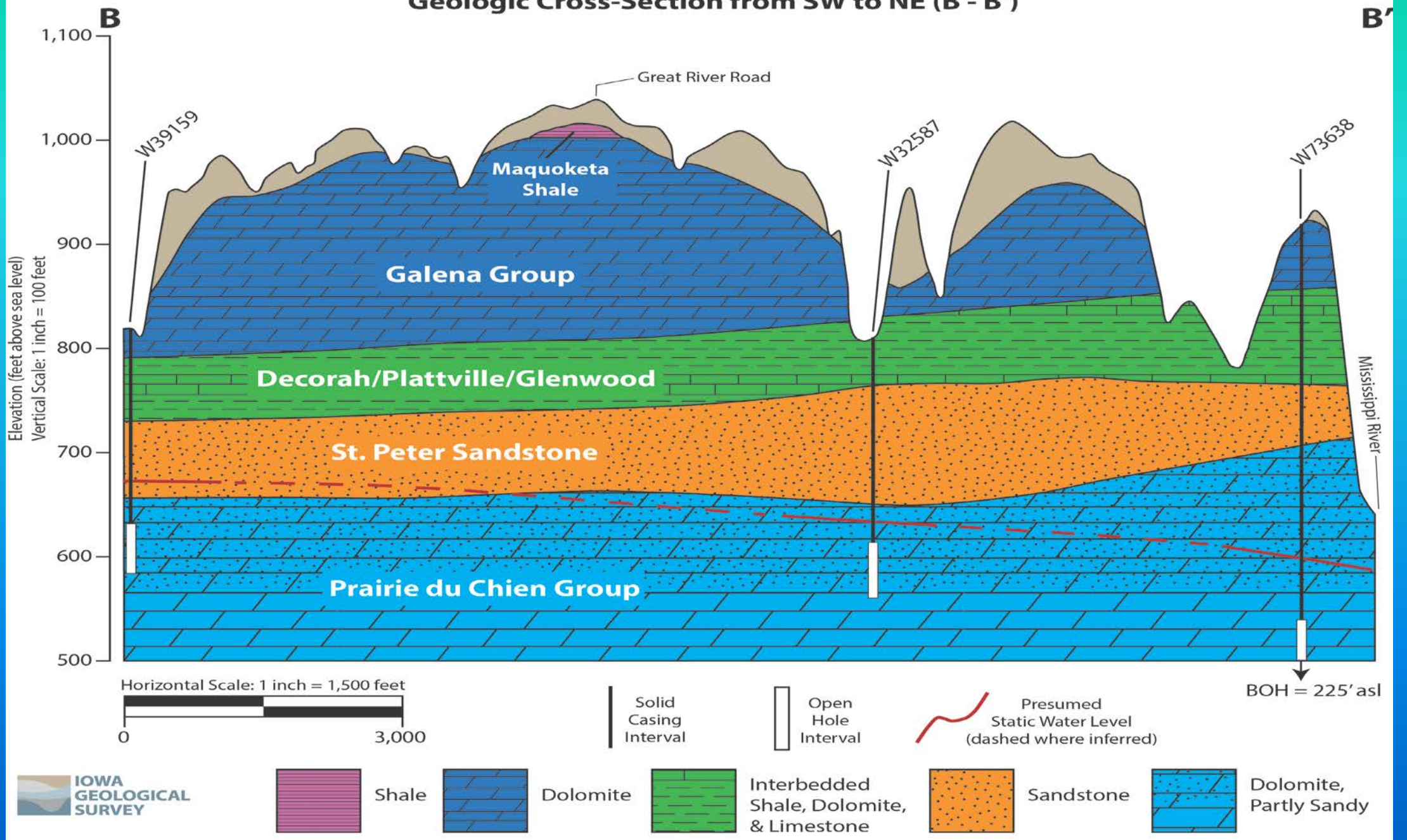
Legend

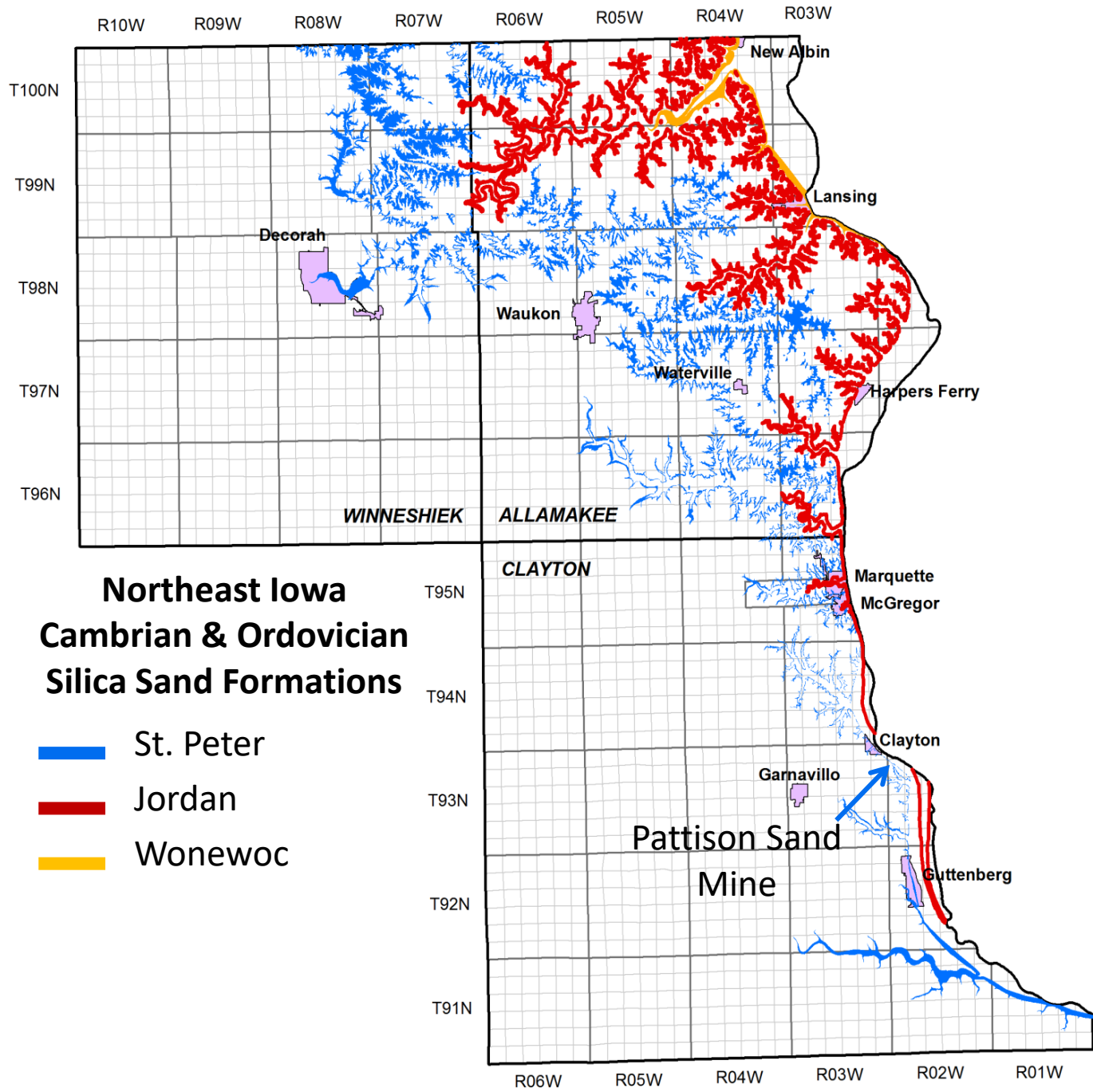
-  Old Underground Workings
-  Current Underground Workings
-  Current Mine Boundary
-  Proposed Mine Boundary

Bedrock Geology

-  Maquoketa Formation
-  Galena Group & Platteville Formation
-  St. Peter Sandstone & Prairie du Chien Group
-  GeoSam Points
-  New Borings
-  Cross-Section Line
-  Waterways

Geologic Cross-Section from SW to NE (B - B')





Thanks - Questions?

Bob Libra

Robert.libra@dnr.iowa.gov