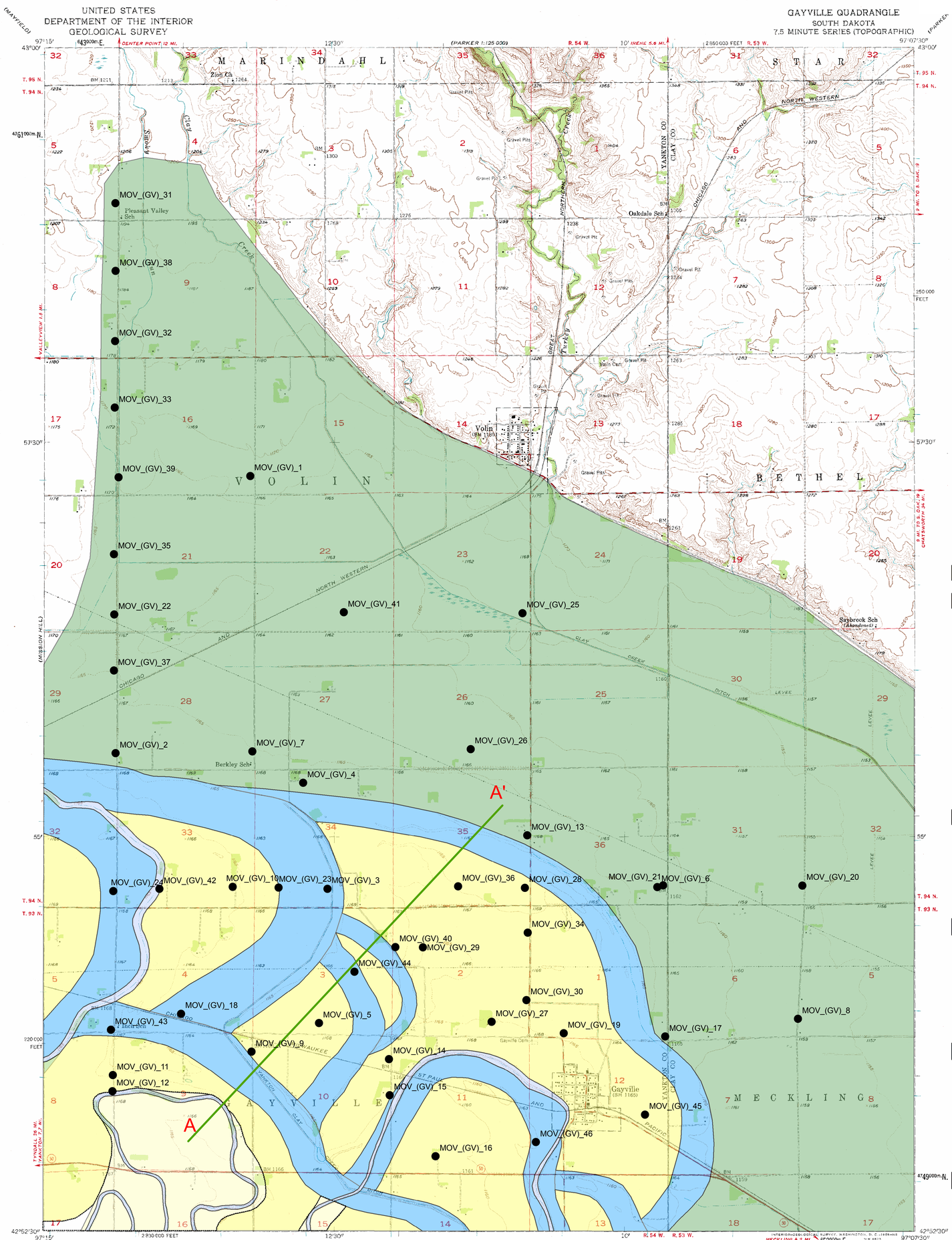

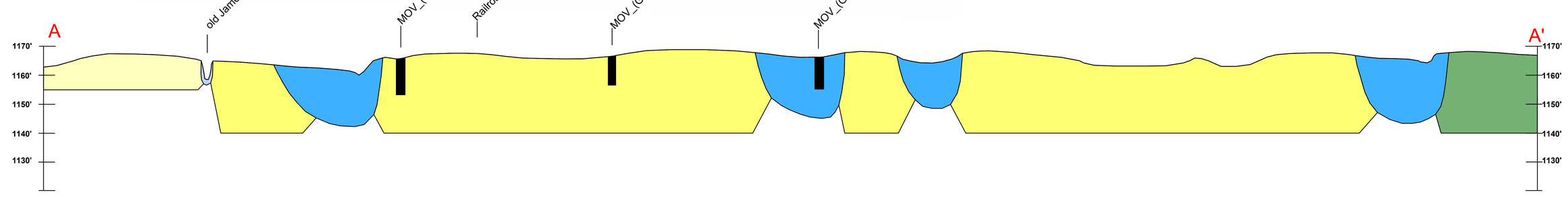

The University of South Dakota
MISSOURI RIVER INSTITUTE

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SURFICIAL MATERIAL G EOLOGIC MAP OF THE GAYVILLE 7.5' QUADRANGLE SOUTH DAKOTA, USA

Geology and Digital Compilation by
Neal Alexandrowicz, April Moreno, Michele Kashouh, Daniel Carlin

GIS Technical Assistance by
Daniel Carlin

Supervisor
Dr. John M. Holbrook

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Missouri **Modern Missouri River**

Hchmo **Abandoned Channel Fill of the Missouri River**

Includes channel fills that are comparable in size to full flow channels. Assumed to carry most or all of the contemporary Missouri River discharge at some point in time during history. Channel fills are floored by fine-to-medium sand, but are composed of fine-grained facies in the upper and thickest part. Upper fined-grained fill components comprise mostly "active fill" lithology with thin to thick inter-beds of silt loam, loam, and fine sand with local lenses and layers of clay and fine sand. The fine-grained component is less commonly formed of "passive fill" lithology of clay and silty clay with minor silt loams. The basal channel fill sand is not distinguished well from underlying sand; the upper-fine grained components range in thickness from 4 to over 7m thick, but are more typically 4 to 6m thick.

Hchmo(s) **Secondary Abandoned Channel Fill of the Missouri River**

Channel fills with less than two-thirds of the cross-sectional area of the larger contemporary primary channel fills, but larger than the smaller minor chute channels included below Hpmo. Fills are approximately equal to or larger than 2m thick, and are almost entirely "active fill" lithology with rare "passive fill" lithology.

Hpmo **Point Bar Deposits of the Missouri River**

Composed of fine-to-medium, well-sorted to loamy sand with local (<30cm) layers of fine-grained lithology. This grades upward into thin (>2cm) finer grained (silt-loam to loam) sections. These are capped by mud veneer layers (<80cm) composed of clay and silty clay. These may also be locally capped by thin (<2cm) chute channel fills composed of "active fill".

Hsmo **Splay Deposits of the Missouri River**

Splay deposits comprise mostly silty loam. They may contain thin beds of clay or sand. Locally, they contain thin to medium-thick lenses and ribbons of loamy- to fine-sand that are interpreted to have been deposited in small splay channels and bars. This unit tends to be less than 3m thick, and it forms a mantling veneer over the other units

Hbmo **Back swamp (Flood basin) Deposits**

Thick, more than six meters, deposits of mostly clay with minor silt loam. Underlying deposits not observed.

James River Channel Belt Sands

James River Channel Fill

Cross-Section Line

Terrace

Drill-hole Locations

Ghost Channels

James River Channel Belt Boundary