

Streambank Stabilization Republican River, Clay County, Kansas

PROJECT

"To provide a wide variety of natural resource related services to individuals, municipalities, state and federal agencies."

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The Watershed Institute, Inc. (TWI) personnel surveyed and designed a stabilization project for 4,300 feet of streambank along the Republican River in Clay County, Kansas. The landowner requested assistance to reduce the high streambank erosion rates and loss of valuable farmland.



Based on information from a detailed land survey and geomorphic assessment, TWI recommended installing bendway weirs to reduce streambank erosion. Bendway weirs reduce streambank erosion by re-directing flows away from the near bank region. These structures reduce the stream's width / depth ratio and move the thalweg (deepest part of channel) from the near-bank region to the ends of the structures. Doing this moves the stream toward a more naturally stable condition. When properly placed, bendway weirs reduce velocities in the near- bank region and induce deposition along the bank toe. The Watershed Institute personnel have the knowledge to properly size and space these structures for effective streambank stabilization. They also have the construction experience to properly install these structures as well as design riparian plantings.

Using information from the detailed field survey, our stream

design team laid out the number of weirs along with spacing and angles for each.



Once the structure sequence is determined, the structure heights and widths are selected based on water depth, channel materials, and channel dimensions. Our stream design team has developed effective and efficient methods for estimating rock quantities and the amount of soil to be moved in order to reshape the vertical stream banks as well as accurately estimate construction equipment time.

Once reshaped, the stream banks were planted with a variety of native grasses, trees, and shrubs. The goal of this project design was to use rock structures to reduce the streambank erosion in order to establish a native riparian corridor.

