

# KALAMAZOO RIVER CRITICAL EROSION SITES MITIGATION PROJECT

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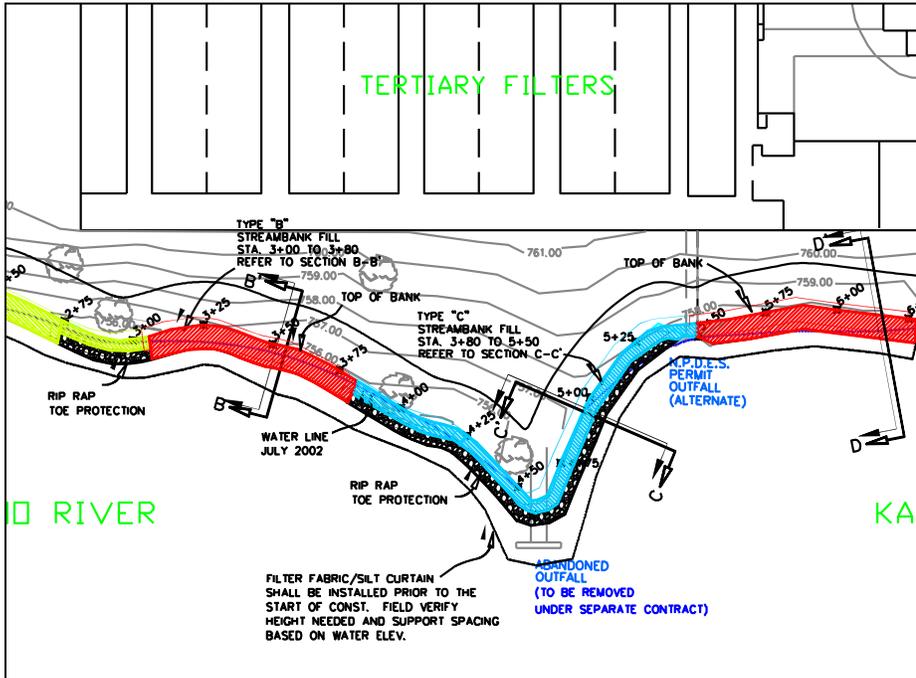
**Total Project Costs:** K&A \$15,000

**Project Completion:** 2005

Kieser & Associates, LLC (K&A), in partnership with the Kalamazoo Conservation District, three county road commissions, NRCS and the City of Kalamazoo, provided technical and planning assistance to a CMI-funded project addressing several severe erosion sites along the Kalamazoo River (9 sites in total). Erosion and sedimentation to Michigan lakes and streams threaten and impair water quality and aquatic ecosystem health, and it has been estimated that the Kalamazoo River contributes 435,000 tons of sediment each year to the Lake. Surface runoff of soils into waterways is especially problematic at commercial and industrial sites where protective vegetation is often sparse or managed in traditional fashion rather than using conservation techniques.



The City of Kalamazoo's Water Reclamation Plant (WRP) serves as an important regional wastewater treatment facility. This plant is situated on the west bank of the Kalamazoo River approximately one-quarter mile north of Paterson Avenue in the northeast corner of this municipality.



Over 900 feet of Kalamazoo River streambank at the City's WRP (site #10) was exposed and eroding. Riparian areas were previously maintained as a traditional landscaped lawn to accommodate access to outfalls and other structures. This former approach also resulted in neglect for streambank stabilization, significant soil loss, bank recession and potential destabilization of soils adjacent to significant WRP structures. This was reflected by approximately 750 feet of undercut low banks (<4 feet high) with another 165 feet of undercut higher banks (>4 feet high).

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K&A designed improvements that included the following features:

- Bank reshaping (back cutting upper bank for shallower slope) and re-vegetation
- Periodically placed biostabilization elements (log tie-backs, live fascines) for stabilization and habitat
- Reshaping and limited rock armoring (100 linear feet) around base of selective trees and outfalls

Other valuable site improvements being planned are prairie grass buffer plantings as a follow-up to slope re-stabilization. These riparian plantings will offer an improved wildlife corridor and habitat, improved aesthetics, a deterrent to resident geese, reduced grounds maintenance, a visual buffer and reduced maintenance costs.

Streambank stabilization efforts at the City site offer the unique opportunity to extend streambank and riparian buffer improvements from an approximately 1,000-foot, major streambank restoration project to the immediate south of the WRP. K&A has recently overseen the completion of extensive streambank and soil erosion controls at the 10-acre Graphic Packaging industrial site. This included streambank armoring to eliminate bank undercutting, grassed waterways, rock chutes and innovative prairie grass plantings for erosion and stormwater controls.

These industrial site improvements were part of a Water Quality Trading Demonstration Project on the Kalamazoo River (directed by K&A). Funding for prairie grass plantings was part of a current Great Lakes Commission grant associated with the Great Lakes Basin Program for Soil Erosion and Sediment Control through the Kalamazoo Conservation District (at the direction of K&A). This industrial site provided an incredible opportunity for restoring degraded areas to a more natural state through the use of carefully selected native plant species. Vegetative plantings at industrial sites are often treated as a last detail, serving mainly to hold soils in place. The Great Lakes Commission grant supported the exploration of various options for sediment control using native plants at this urban industrial site. The adjacent City WRP Erosion Mitigation Site was determined to be an ideal location for contiguous streambank improvements, soil loading reductions, as well as an extension of these unique habitat improvements.



Documentation of improvement efforts and computed loadings for each site are provided on a Kalamazoo River water resources website, <http://www.kalamazooriver.net/> which was developed by K&A as a community service for the general public and watershed stakeholders. The addition of information to the website for each of the nine erosion project sites was provided as an in-kind service by K&A.