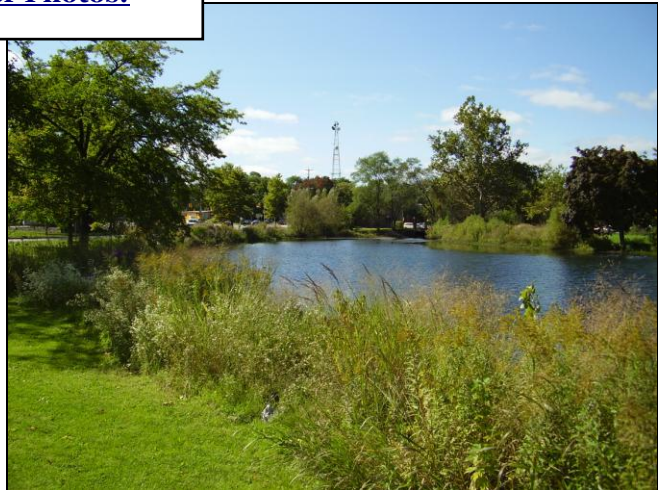
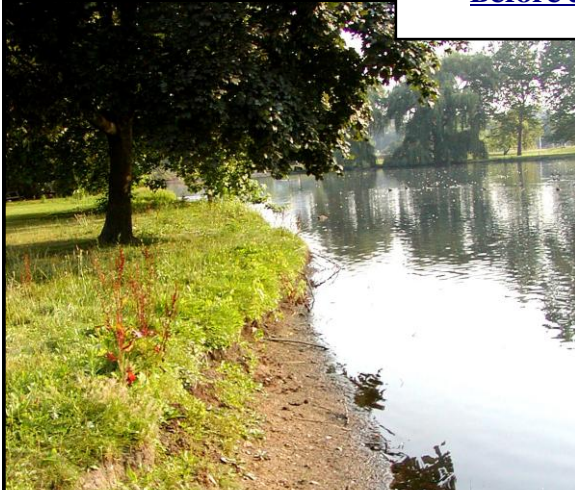


## AXTELL CREEK SOUTH CROSTOWN POND STREAMBANK RESTORATION KALAMAZOO, MICHIGAN

Erosion and sedimentation to Michigan lakes and streams threaten and impair water quality and aquatic ecosystem health. Over 1,500 feet of the City of Kalamazoo's South Crosstown Pond streambanks were exposed and eroding along Axtell Creek. These concerns were cited within the approved Watershed Management Plan for Portage-Arcadia Creeks. Kieser & Associates, LLC (K&A) assisted the City of Kalamazoo by providing environmental consulting services such as DEQ permitting, engineering site design, competitive contractor bidding, project coordination and limited construction oversight. Streambank bioengineering and habitat restoration methods utilized at this site included wet detention seed mixes and plugs, live willow/dogwood stakes and shrubs, erosion control blankets and limited riprap toe protection. Project benefits included:

- Streambank stabilization/bioengineering = 1,600 ft
- Visual native riparian buffer vegetation = 0.6 acres
- Riprap toe protection measures = 275 ft
- Installation of dormant seedlings = 175 shrubs
- Supplemental vegetative plugs = 2,000 native plants
- Temporary fencing to protect new vegetation
- Use of photodegradable erosion control blankets
- Improved wildlife habitat
- Improved aesthetics
- Deterrent to resident geese
- Reduced grounds maintenance
- Reduction of 60 lbs total phosphorus/yr
- Reduction of 75 tons sediment/yr

### Before & After Photos:



### Project partners included:

- City of Kalamazoo
- Portage-Arcadia Creeks Steering Committee
- Michigan Department of Environmental Quality
- Terra Contracting
- Kalamazoo Conservation District
- Heartland Restoration Services, Inc.
- Kieser & Associates, LLC