



Kids Creek Restoration - Phase II

9/1/14 through 6/30/18

The Grand Traverse Bay watershed contains 976 square miles of land and contains more than 50 local units of government including cities, villages, and townships. Sediment and excessive nutrient loading are the two highest ranking pollutants that are impacting the watershed, with stormwater being their primary entry points. In fact, a portion of Kids Creek, a major tributary to the Boardman River and Grand Traverse Bay, is on the State's Impaired Waters List due to impacts related to stormwater. This project built upon The Watershed Center's (TWC) continuing work in the Kids Creek area by implementing a variety of BMPs (Best Management Practices) that utilized green infrastructure to reduce the quantity and improving the quality of stormwater entering the creek. In addition, this project worked with the Boardman Dams Implementation Team to assist with a floodplain reconnection and streambank stabilization project upstream of the former Brown Bridge impoundment on the newly exposed bottomlands.

Grant Amount:	\$648,400
Match Funds:	\$223,700
Total Amount:	\$872,100

Partners involved:
 Munson Medical Center, Michigan Department of Technology Management and Budget, Boardman Dams Implementation Team, Oleson Foundation, Walker Foundation




Best Management Practices

- Munson Medical Center - Medical Campus Drive
 - 3 rain gardens
 - 5 StormTree boxes
- State of Michigan Office Building on Elmwood Ave.
 - Rain garden


Pollutants Reduced

- 1.18 tons sediment
- 2.8 lb Phosphorus
- 15.5 lb Nitrogen



I&E Activities:

- Published annual/bi-annual TWC newsletters and Annual Reports
- TWC website and social media postings about project activities



Before/After BMP Photos



State of Michigan Office Building: Rain Garden



Munson Medical Center - Medical Campus Drive: Rain Garden #1



Looking South



Looking North



Munson Medical Center - Medical Campus Drive: Rain Garden #2

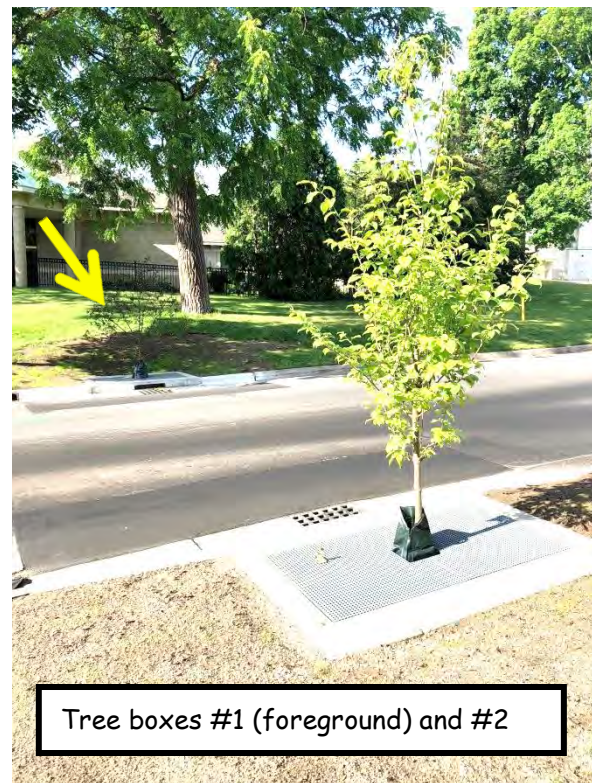
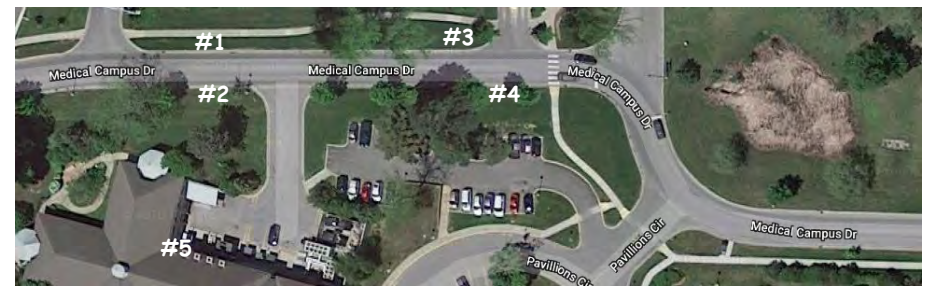


Pre-treatment structures:
Far Left - Rain Garden Turret
Immediate Left - Vegetated Swale

Munson Medical Center - Medical Campus Drive: Rain Garden #4



Munson Medical Center - Medical Campus Drive: Storm Tree Boxes



Tree boxes #1 (foreground) and #2



Tree boxes #3 (right) and #4 (close left)



Tree box #5 (across from stormwater wetland from DEQ project #2013-0010)

Boardman River - Floodplain Reconnection and Streambank Stabilization Activities Upstream of Former Brown Bridge Impoundment



Figure 1. Technique 1. Bank is excavated and the tops of alders are placed underneath transplants. Technique 1 is used when the toe is devoid of vegetation.

Figure 2. Technique 2. In many places, vegetation was established along the bank toe, so the bench was simply excavated behind the vegetation. This photo shows the toe vegetation being preserved and the transplants being placed on the excavated bench.



During and immediately after pictures of restoration site.

