

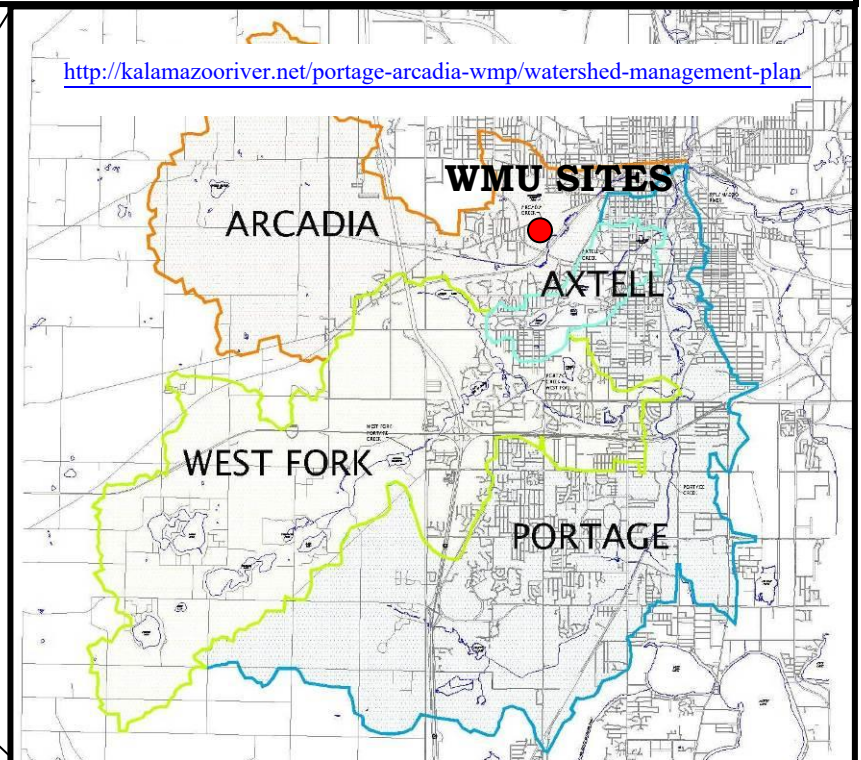


Implementing WMU Stormwater Controls in the Arcadia Creek Watershed

Nov 2011 to Dec 2014

This Section 319 grant provided funding for implementation of storm water best management practices (BMPs) related to urban storm water discharges to Arcadia Creek in Kalamazoo. The project involved five grant-funded BMP implementation sites and one matching funds site on the campus of Western Michigan University (WMU) targeting nutrient and sediment removal, and hydrology improvements. The majority of the campus that drains to Arcadia Creek is covered in impervious surfaces. Storm water runoff from WMU was a substantial load to Arcadia Creek in the campus headwater areas of this stream.

These new BMPs now reduce sediment loading and further reduce phosphorus loading to the Kalamazoo River and protect WMU campus facilities from damage by flooding and bank erosion. They also create a more sustainable setting on the WMU campus with respect to storm water controls, natural habitat, and native Michigan vegetation. Lastly, these efforts provide valuable watershed educational opportunities for both students and the general public.



Grant Amount: \$ 391,576.86
Match Funds: \$ 160,272.13
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Total Amount: \$ 551,848.99

Partners involved:

- MDEQ
- Western Michigan University
- Portage-Arcadia Creeks Steering Committee
- Kieser & Associates, LLC
- Driesenga & Associates, Inc. (surveyor)
- Fulton Excavating (contractor)
- Peters Construction (contractor)

I&E Activities:

- Temporary construction signs at each project site.
- One permanent educational sign at each project site.
- Kalamazoo Gazette articles.



WMU ARCADIA CREEK IMPLEMENTATION SITES 1-6

Best Management Practices:

- Drainage ditch/streambank erosion stabilization = 252 feet
- Treatment systems capacity = 2.68 acre-feet
- Annual urban stormwater treated = 69 acre-feet per year
- Drainage areas served = 37 acre
- Native seed vegetation = 2.7 acre

Annual Load Reductions:

- Reduction of 65.1 pounds total phosphorus per year
- Reduction of 22 tons sediment per year
- Reduction of 603.3 pounds total nitrogen per year



Photos WMU Sites

Construction Photos:

Site #3
Lawson Ice Arena - Lots 63 & 64



Construction Photo:
construction signage

Arcadia Creek: WMU Stormwater 319 Grant Project
Tracking Code #2011-0030
WMU Sites - Fact Sheet

WMU ARCADIA CREEK MATCH SITE (Sangren Hall)

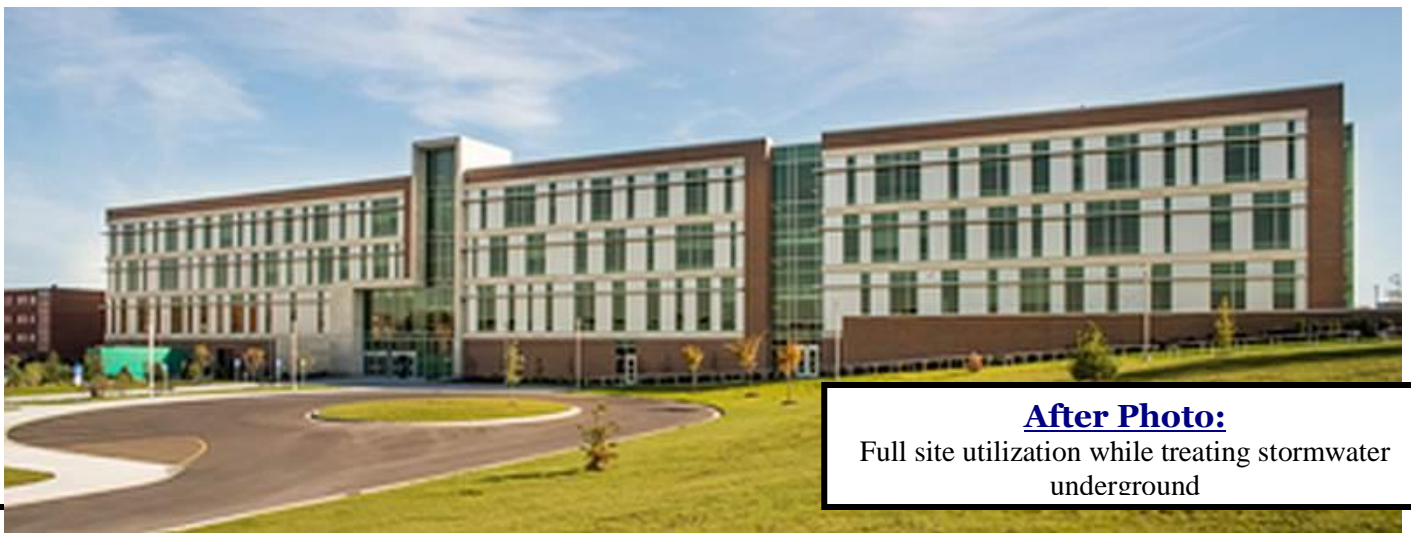
Best Management Practices:

- Underground infiltration = 14,835 feet²
- Drainage area served = 6.54 acres
- Porous pavement = 11,400 feet²
- Treatment system capacity = 0.54 acre-feet
- Annual urban stormwater treated = 11.8 acre-feet per year



Annual Load Reductions:

- Reduction of 7.7 pounds total phosphorus per year
- Reduction of 1.6 tons sediment per year
- Reduction of 105 pounds total nitrogen per year



After Photo:

Full site utilization while treating stormwater underground



Construction Photo:
N. Sangren Infiltration Basin

Photos WMU Match Site



Construction Photo:
N. Sangren Infiltration Basin

Photos
WMU Sites



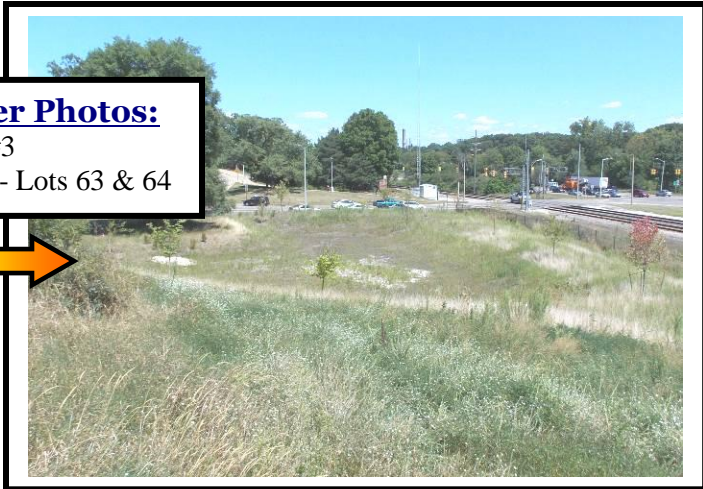
Before & After Photos:
Site #1
Lawson Ice Arena - Lots 63 & 75



Before & After Photos:
Site #2
Schneider Hall - Lot 72



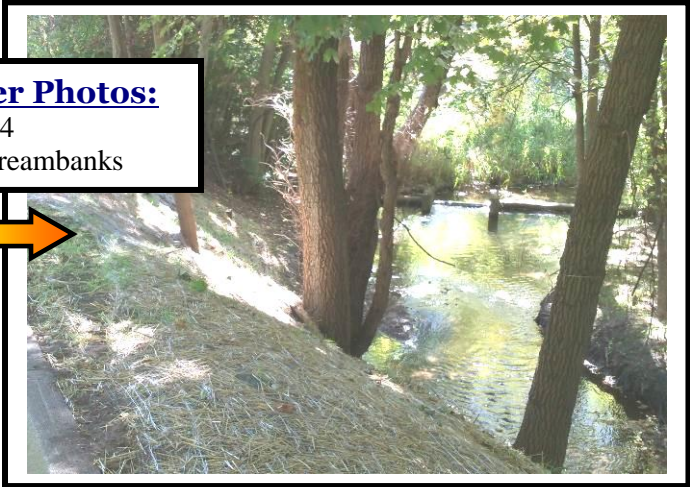
Before & After Photos:
Site #3
Lawson Ice Arena - Lots 63 & 64



Photos
WMU Sites



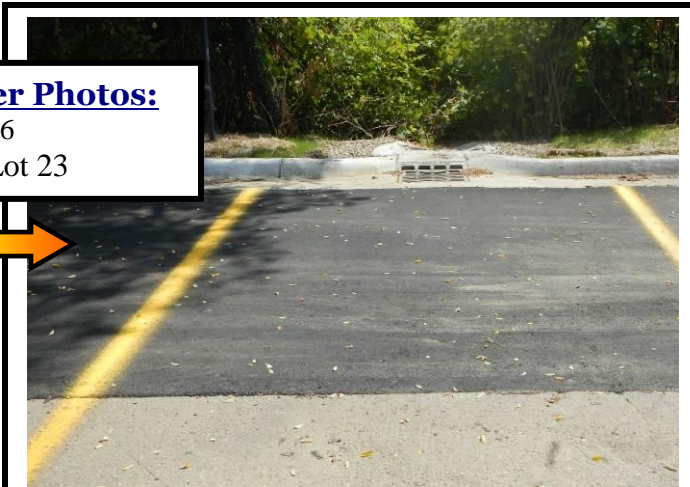
Before & After Photos:
Site #4
Power Plant Streambanks

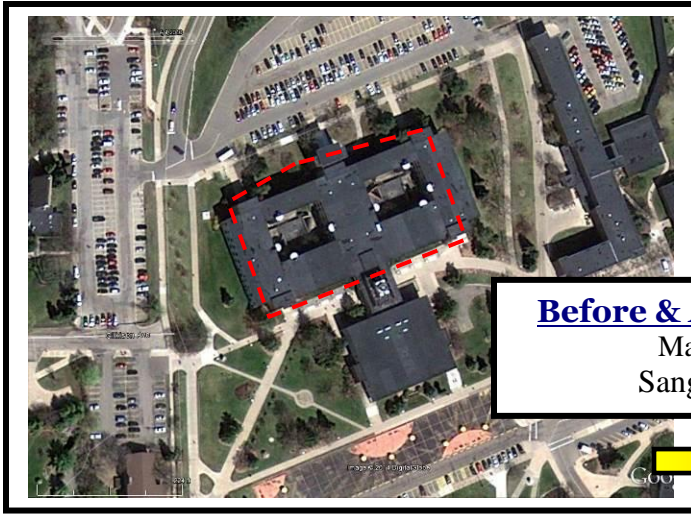


Before & After Photos:
Site #5
Lawson Ice Arena - Lot 70



Before & After Photos:
Site #6
Parking Lot 23





Before & After Photos:
Match Site
Sangren Hall

