Project highlights and improvements

- Curtis Pond, a stormwater retention pond in west Curtis Prairie, needs to be rehabilitated to restore its functionality and protect Curtis Prairie and Lake Wingra from excess nutrients, weed seeds and other contaminants, and sediment. The pond will be dredged, and a concrete flume will be removed and replaced with an underground pipe.
- The project is expected to run mid-February through November 2020. Trails in west Curtis Prairie may be closed during parts or all of the project.
- To create access for heavy trucks and equipment, the service lane along the western and southern edge of west Curtis Prairie will be widened and reinforced. Some trees will be removed to widen the lane and remove the broken flume. The Arboretum is working with project partners to ensure the healthiest and most valued trees, particularly oaks, will be protected.
- McCaffrey Drive between the Seminole Highway entrance and the Curtis Prairie lot will have heavy truck use at times. Traffic will be directed by flaggers. The Curtis Prairie lot will be closed and used for project staging.
- An erosion-prone area in the northeast Grady Tract will be cleared and restored with native plantings to hold soil and infiltrate water.
- The stormwater pipe to Coyote Pond will be relined to increase its lifespan and avoid more invasive future repairs.
- The reed canary grass invasion in Curtis Prairie will be excavated and restored to native wet mesic prairie.
- The area of the broken flume will be restored with native savanna and prairie species once a new pipe is installed underground.
- The Curtis Pond shoreline will be restored.
- A connecting trail segment south of Curtis Pond will open when the project is finished.

Curtis Pond in west Curtis Prairie. Photo: Strand Associates

Arboretum
UNIVERSITY OF WISCONSIN–MADISON

1207 Seminole Highway
Madison, WI 53711
(608) 263-7888 | info@arboretum.wisc.edu
arboretum.wisc.edu

What's Happening in Curtis Prairie?

UW–Madison Arboretum Curtis Pond Rehabilitation Project

FREQUENTLY ASKED QUESTIONS

What is Curtis Pond?

Curtis Pond, located in west Curtis Prairie and surrounded by an earthen berm, is one of several stormwater retention ponds built in the 1970s and '80s on land managed by the Arboretum. The ponds were built in partnership with the City of Madison, Town of Madison, City of Fitchburg, and Wisconsin Department of Transportation to help lessen the impact of stormwater flowing through the Arboretum. These retention ponds are designed to slow water flow and remove sediment, excess nutrients, and other pollutants before the water continues through natural areas into Lake Wingra and downstream waters.

Due to the high volume of stormwater flowing into the Arboretum from the surrounding urban area, this project is necessary to restore Curtis Pond function and improve stormwater management for the health of Curtis Prairie and quality of water flowing to Lake Wingra.

Curtis Pond, built in 1970–71, has degraded over time and no longer functions adequately. The flume (concrete channel) meant to carry stormwater from the Beltline to the pond is broken and erosion in the area is significant.

The pond itself has become so full of deposited sediment that stormwater overflows the berm before sediment and nutrients can be filtered out. As a result, trail washouts and flooding around the pond are an ongoing problem. Reed canary grass, an aggressive non-native invasive species, has also invaded part of Curtis Prairie, helped by sediment and nutrient deposits that are carried into the prairie rather than settling in the stormwater pond.

What is stormwater?

Stormwater is the flow of water that occurs during and immediately following rainfall or snowmelt. In the past, open land absorbed (infiltrated) the water that resulted from these events. Today, due to urban development, the majority of it flows over impervious surfaces such as roofs, roads, and sidewalks before entering the Arboretum. Lawns filter less into the ground than diverse native plant communities. As a result, the volume and intensity of runoff flowing into Arboretum natural areas has greatly increased as the city grows.

Storm sewers transport runoff to natural areas and waterways. Every year, approximately 470 million gallons[1] of rainwater and snowmelt flow into and through the Arboretum and then to Lake Wingra and Lake Waubesa. Stormwater courses through stormwater ponds, wetlands, prairies, and eroded natural channels, ultimately feeding into Lake Wingra or Wingra Creek. Stormwater from the Grady Tract and Greene Prairie flow into the Nine-Springs Creek Watershed and to Lake Waubesa.

Stormwater from urban areas carries sediment, pollutants, invasive species seeds, nutrients such as phosphorus and nitrogen from fertilizers and yard and animal waste, and chloride from winter salt application. In heavy rain and snowmelt events, stormwater runoff can also cause extensive flooding and erosion.

[1] University of Wisconsin–Madison Arboretum Facility Stormwater Management Plan, July 2006

What areas will be affected, and what work is being done?

Curtis Pond is located in west Curtis Prairie, near the Leopold Pines and the southern boundary along the Beltline Highway. Project-related work will also take place in the northeast corner of the Grady Tract (south of the Beltline) and at Coyote Pond in central Curtis Prairie.

Trails in or leading to west Curtis Prairie may be closed for portions or the duration of the project. The Curtis Prairie parking lot will be closed for the duration of the project. At times, McCaffery Drive will be heavily used by construction trucks, and traffic will be directed by flaggers.

The Curtis Pond project has several main components:

- Remove the broken flume (concrete channel) and replace it with a new underground pipe
- Dredge the pond to remove excess sediment
- Excavate reed canary grass in Curtis Prairie
- Control erosion in the Grady Tract
- Restore areas disturbed by the project with native plantings

These repairs will restore the pond's functioning and protect Curtis Prairie and the Lake Wingra watershed.

Project preparation

The broken flume lies in a fenced area between the Beltline Highway and the south end of Curtis Pond. In order to remove the concrete channel and dredge the pond, access has to be created for trucks and other equipment.

In preparation, silt fencing and orange visibility fencing will be installed to define the path and protect natural areas from construction traffic. The service lane from Arboretum Drive to the pond (C3 to C6 trail segment) will be widened by six feet on the wooded side of the trail. The path will be reinforced with rock and extended to the south end of Curtis Pond, where a turnaround will be created (in the area of B7 trail marker).

Approximately 90 trees will be removed to create the path and remove the broken flume. The removed trees will include pines, cherry, box elder, and other species, many of which are not desirable for the savanna and woodland systems managed by the Arboretum. A number of them are also unhealthy. The Jackson Oak and other young oaks around it will be preserved and protected.

The Arboretum is working with the contractors to identify trees for removal and ensure that the healthiest and most valued trees, particularly oaks, will be protected. While it is disappointing to lose trees, the prairie, savanna, and woodlands in the project area will be healthier in the long run.

Flume removal, pond dredging, and other work

The pond will be drained using a pump and silt bag. Dump trucks will drive to the pond where they will be filled with sediment and then haul it off site. Once Curtis Pond is dredged and the broken flume is removed, a new pipe will be installed underground. The pond will be lined with clay if needed before being refilled.

Related erosion control work will be done in the northeast corner of the Grady Tract (near T5 to T7 trail segment). Sediment from this area is currently carried to Curtis Pond during stormwater events. Approximately 40 trees will be removed for this part of the project. The area will be cleared and restored with native plantings.

In other project components, reed canary grass growing in Curtis Prairie—an invasion attributed to the poorly functioning flume and pond—will be excavated. A culvert that runs under the Curtis Pond berm and carries filtered stormwater into Curtis Prairie will be replaced. Another pipe that carries stormwater from the Beltline to Coyote Pond (in central Curtis Prairie) will be relined to prolong its lifespan and avoid more invasive future repairs.

Restoration

Disturbed project areas will be restored to prairie and savanna using native seed mixes designed by the Arboretum. The land over the underground pipe will be restored to prairie. Trees will not be planted in this area because their roots could grow through the pipe.

The turnaround area will be restored to prairie and the pond shoreline will be restored with native plants.

The reed canary grass invasion east of Curtis Pond will be restored with a wet mesic prairie native seed mix and plugs. The rehabilitated Curtis Pond should be more effective in keeping reed canary grass seeds out of the prairie.

The area of erosion in the northeast corner of the Grady Tract will be restored with a woodland and savanna native seed mix to hold the soil and infiltrate water.

Restorations will be maintained and supplemented by contractors for three years. After this time, Arboretum staff will incorporate maintenance of these areas into their land care work.

The broken flume will be removed. An underground pipe will be installed and the area will be restored. Photo: UW Arboretum

A silt bag will be used to drain Curtis Pond. The permeable material will collect sediment as water flows through it. Photo: Strand Associates

How long will the project take?

The entire project is scheduled to last from about mid-February through November of 2020.

The preparation work will begin mid- to late February. This phase will happen while the ground is frozen to protect the roadbed and adjacent natural area while heavy equipment is working.

The dredging and flume removal will begin in spring after the thaw. During this time, many trucks will be using McCaffrey Drive and the access path. The Curtis Prairie parking lot will be closed and used as a construction staging area. Trucks and visitor traffic will be directed by flaggers on McCaffrey Drive. This phase of the project is expected to last through the summer.

The final phase—restoring project areas to native habitat—will be done in late summer and fall.

Who is doing the work?

Strand Associates, Inc. is the lead engineering firm and project manager. Integrity Grading and Excavation, Inc., based in Schofield, Wisconsin, is the construction firm. UW–Madison Facilities, Planning, and Management is the campus representative to the project team. The State of Wisconsin Department of Facilities, Development, and Management oversees the contract and construction. Arboretum staff provide expertise and guidance about the land and its restoration. The Arboretum Stormwater Committee, chaired by David Liebl, was involved with preplanning for more than a decade.

I have more questions – who do I contact?

Brad Herrick, Arboretum ecologist,
(608) 692-1076 or bradley.herrick@wisc.edu

Karen Oberhauser, Arboretum director,
(608) 262-2748 or koberhauser@wisc.edu

For more information and project updates, visit: arboretum.wisc.edu » visit » curtis pond rehabilitation project