

McGovern Pond Dredging and Restoration Project Spicebush Swamp Park – 173 Mountain Road, West Hartford, CT

History: Established in 1962, Spicebush Swamp Park was West Hartford’s first park to be set aside as a natural area for nature study or walking, and as a 33-acre, outdoor classroom for schools to use. McGovern Pond was created in the park by excavating an area of approximately one acre in Spicebush Swamp Park around 1968. The pond is maintained by a flow of water from a branch of the Trout Brook. Since its creation, McGovern pond has slowly been filled with sediments washed in from upstream watershed sources. These sediments, which consist primarily of road sand, eroded soils from construction sites and organic plant materials, have filled in approximately one quarter of the upstream side of the pond to an average depth of only 1 foot. This process is referred to as “cultural” eutrophication and is a common occurrence in heavily developed watersheds. As the eutrophication process advances, the ability of the affected pond to support a diverse aquatic community diminishes. Sediment at McGovern Pond was addressed once, approximately 15 years ago, when Public Works established a sediment trap, but they did not dredge the pond or address organic matter that had built up around the pond edges.

Reasons for Project – Habitat restoration and Environmental Education: In a letter from 2006, Don Mysling, a Senior Fisheries Biologist with the CT DEEP, recommended that pond restoration projects for this area of Connecticut should be planned to provide habitat for warm water fish species such as largemouth bass and sunfish. “Ideally,” he wrote, “the deepest portion of the pond should **be 8 to 10 feet deep** and encompass **a minimum of 25% of the pond area**. The bottom contour along the pond shoreline should be graded to a 3:1 slope (3 feet horizontal for every 1 foot vertical) extending out to a water depth of at least 4 feet. Spawning habitat (rounded gravel) and submerged cover (brush piles, rock piles) can be added as habitat enhancements.”

McGovern Pond plays an important role as a location for Ecoventure, the Town’s environmental education program. In the past, the site has supported nearly 1,000 fourth grade visitors annually, where they learn about fresh water biology through hands-on lessons. They test water chemistry and temperature, and study invertebrates, such as frogs and salamanders. Numerous warm water fish species would also benefit from a deeper, healthy pond, including fresh water trout, bass, sunfish, pickerel, yellow perch and suckers. A vibrant fish population helps reduce mosquitoes.

Dredging: The removal of sediment deposits by dredging is the most efficient method to reverse the eutrophication process and restore the pond to a condition that supports a diverse fish community. There are two methods most commonly used to remove pond sediment. One method uses equipment such as excavator, hauler and bulldozers; a second method involves a hydraulic dredge (sort of mud vacuum). Each method has its own set of benefits and drawbacks. We compared environmental impacts, equipment limitations and budget constraints and have opted to use the excavator, off-road hauler and bulldozer method. Given the size of the resource (pond) that we are trying to restore, the hydraulic dredge was too large

for a pond of this size; it was feasible but not prudent, based on size and character of the pond and surrounding wetland area. The size of the alternative equipment provided a more suitable option. The excavator, hauler and bulldozer method utilizes smaller machines with lower pounds per square inch distribution of weight, which causes less soil impact.

The level of the pond would be lowered slowly over a period of days. An excavator would be used to remove the exposed sediment and organic material to the edge of the pond. The material would then be transported in an off-road hauler to a nearby meadow. A 3(+/-) foot deep pond would remain during this process to protect aquatic life. Sedimentation erosion control efforts would include silt fencing, hay bales and/or hay socks.

Dredged material from the pond will be reused onsite. The soil will be placed in a nearby meadow, outside of the wetland area and outside of the floodplain. It is the experience of Town staff and the soil consultant that the majority of the remaining moisture would evaporate, rather than be absorbed by earth underneath. Nevertheless, construction fencing will delineate where wetland soils are in the meadow where the proposed dredge material will be laid to prevent encroachment into the soils. The route of the pathway to the meadow follows an existing compacted trail path, and was selected to mitigate impact on wetlands and limit tree removal.

Project Timeline: The Town's Engineering developed preliminary plans and secured approval from DEEP and the Army Corps of Engineers. Approval has also been received from the West Hartford Town Plan + Zoning commission. Julie Viera, a Town engineer, and Al Adaskaveg, former Superintendent at Rockledge Golf Club, will coordinate the project. The project will begin on Monday, February 1, 2021, and we expect the pond restoration to take two months to complete, with additional weeks to complete restoration of the surrounding grounds.

The timeline for the project depends on weather conditions. We have chosen winter as the ideal time for pond restoration, because the ground is suitable frozen. The stream feeding the pond will be diverted into an existing small streambed and enter the stream after the sluice at the outflow end of the pond.

After materials are moved to the edge of the pond, the material will be hauled a short distance (approximately 500') to a meadow in the park. We chose a route that created less impact on wetland soil but it still has a vegetation impact. To haul, we would begin at down-stream end of the pond and work backwards, regrading as we go. The haul road, where the most compaction would take place, is an established trail with pre-compaction existing. To cross a small stream, we found no advantage to a culvert installation; instead, we will rely on an existing gravel base crossing with best practices to protect and stabilize the tail and the streambed. All ruts would be addressed daily to keep channel free and open. Best erosion management practices will follow the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

Banks will be restored within 10'-15' from shore with native winter rye grasses so that the pond is accessible to the public. Areas beyond the banks will be cleared of existing invasive shrubs

such as buckthorn, barberry and multiflora rose, and replanted with native shrubs, such as witch hazel, red osier dogwood and spicebush, plus wild flowers, including butterfly and bee-friendly pollinators. After grading, the meadow will be seeded with turf-forming winter rye grasses, mulch and native wildflower mix.

The entire project will take approximately five weeks, and will be executed in three stages:

- Preparation Phase (1-2 weeks)
- Active Work Phase (4 weeks): includes mobilization, excavation and hauling, restoration and stabilization of pond and pond banks; fisheries management.
- Restoration Phase (1-2 weeks) After a period of time to allow dredged soil to be stabilized, at least one month, the meadow would be graded and seeded after soil is stabilized; planting plan.

Construction:

Best Management Practices for performing the proposed work will be applied. All sediment and erosion controls will be in place before the commencement of the work. Sedimentation and erosion control measures would be supplemented as needed during construction. The work area will be minimized for each location. The best time to perform the work is when the ground is nearly frozen. This will reduce the making of ruts as well as to help prevent the disturbance of excess soils and roots of the vegetation. The equipment will be inspected daily for leaks. The Contractor will notify the Engineering Division immediately when problems arise. After construction, sedimentation and erosion controls will remain in place until the disturbed areas have been stabilized with vegetation.

The method proposed to dredge McGovern Pond is dry excavation. Using the on-site sidewalk slabs as a diversion structure, the main inflow into the pond will be rerouted into the existing secondary channel. This will allow the water level to drop in the pond to within approximately 3 feet in the middle and less around the perimeter. If necessary, we will pump water to lower the pond level. This drawdown will take place slowly, over the course of several days or a week to allow for animals living in the shallow water to retreat to the deeper area. The drawdown will expose pond banks to expose the areas that need removal. The depth in the pond center is of significant depth that it won't be disturbed. The diversion structure will be checked and maintained daily. With a bucket excavator, the material will be pulled to the exposed edge of the pond to allow the water to drain out.

Special attention will be given to the forebay, the deep, artificial pool of water at the beginning of the pond where the stream enters the pond. This forebay functions upstream of the pond to trap sediment in order to keep the pond clean and prevent siltation in the future.

After the water drains sufficiently, the dredge material will be placed in meadow area near the pond, but far enough away so as not to disturb the pond banks. This area is outside of the 100-year flood plain and outside of the wetlands, but within the 150 foot regulated area. The material will be placed in a berm like fashion with a gentle grade across the top and side slopes. There will be no trucking of sediments off site. Depending what time of year the work takes

place, the bermed material will be stabilized with either a seed mixture or mulch until such time seed can be placed. The berm area will have sediment and erosion controls in place until the area stabilizes.

After completing the dredging, the pond will be refilled. To avoid erosion and sediment transport within the pond, the re-filling of the pond will be controlled at first. The refilling should not take place during any large rainfall events (0.5" or greater) are forecasted. A controlled removal of the diversion will be implemented to allow the pond to refill slowly. Once the level of water in the pond reaches a stable elevation, close to the existing elevation, the diversion structure will be fully removed. Then all project clean-up will take place, including removing temporary laydown areas and restoring any areas disturbed or damaged during the process.

To restore habitat for smaller fish, staff will place logs or brush to a few selected locations in the pond. Fishery management may also include the installation of a few artificial structures, such as a "fish porcupine," as needed. Smaller fish will need these structures to hide from larger fish or other predators.

After the work is completed, other site improvements are planned, including planting native shrubs and flowers. Native species include witch hazel and spicebush, as well as plants to support bees and butterflies, such as milkweed. The park's welcome sign is in disrepair and would be replaced with a sign of like size in the same location. A flower bed surrounding it will be completed in conjunction with the West Hartford Garden Club during the growing season.

Future Maintenance:

Town staff will inspect the forebay annually to assess its effectiveness. The forebay is designed to alleviate major sediment accumulation from happening in the future. A maintenance schedule will be developed based on the successful functioning of the forebay. We expect that some minor maintenance would occur every five years. Smaller, less impactful sediment removal would minimize disruption to the pond and its surroundings.