

76 Shearer Road Pond Dredging and Restoration Project Project Narrative with Work Sequence

DEW Construction LLC

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Existing Conditions:

As is typical, the approximately 8,000 sq. ft. pond has slowly been filled with sediments. These sediments, which consist primarily eroded soils and organic plant materials, have filled in approximately the pond to an average depth of only 18 inches. This process is referred to as cultural eutrophication and is a common occurrence. As the eutrophication process advances, the ability of the affected pond to support a diverse aquatic community diminishes. Sediment at the pond had been addressed previously some years ago; however, since that time the highly invasive phragmites have overtaken the pond, which has the effect of speeding up the eutrophication process.

Reasons for Project: Removal of Invasive Species and Habitat Restoration

Phragmites create a dense jungle of vegetation that chokes out native species. In addition, decomposing phragmites can fill in the pond more rapidly than slower-growing native pond vegetation. The CT DEEP recommends that pond restoration projects can assist in providing habitats for small, warm-water aquatic species. The recommendations are that the deepest portion of the pond should be no less than 8 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 extending out to a water depth of at least 4 feet. Spawning habitats of rounded gravel and submerged rock piles can be added as habitat enhancements.

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 aquatic community. This project proposes using the most common method to remove the invasives and pond sediment. An excavator and hauler will be used because these smaller machines with lower pounds-per-square-inch distribution of weight, cause less impact on the surrounding soils.

The level of the pond would be lowered slowly over a period of a couple of days. An excavator would be used to remove the exposed sediment and organic material up to the edge of the pond. The material would then be transported in an off-road hauler to a topsoil recycling company. A two-foot deep pond would remain during this process to protect aquatic life.

Sedimentation erosion control efforts will include silt fencing and, if necessary, hay. The soil will dry on land, and any remaining moisture would evaporate, rather than be absorbed by earth underneath. Nevertheless, silt fencing will delineate where dredged material pile is to be contained in the meadow to prevent encroachment into any other wetlands soils. The route of the pathway to the meadow follows an existing compacted trail path; this was selected to mitigate impact on wetlands. No tree removal will be necessary.

Herbicide Controls:

An herbicide solution formulated for applications in standing water or along a shoreline will be used to kill the phragmites. Two or three weeks following application of herbicide, we cut or mow down the stalks to stimulate the emergence and growth of other plants previously suppressed.

Careful and targeted application of herbicide by licensed DEEP pesticide user Mark Roland of (LIFE Inc) will be performed per his license. After herbicide application, the dead phragmites would be mulched. Herbicide can be applied directly to green phragmites foliage, so that the active ingredient moves through the plant tissues, where it kills phragmites by de-activating a protein found only in plants. Treated plants will begin to yellow, turn brown and eventually die. The herbicide works by translocating the toxin throughout the plant, particularly into the nutrient-rich rhizomes, where vegetative reproductive capacity is stored. In most instances, a repeat application or two is needed to ensure that nearly all the phragmites is treated and killed.

Herbicide application is generally most effective when combined with other control strategies that target landscape issues that caused the phragmites to invade in the first place. Herbicides used to treat phragmites specifically target plants. Mr. Roland is careful to spray only phragmites, because the herbicide can kill all green plants. The effects of the herbicides on birds, fish, and invertebrates have been found to be minimal. Moreover, the herbicide has low run-off potential because it quickly breaks down into non-toxic compounds that are absorbed onto soil particles and microorganisms in both water and sediment. Therefore, the Environmental Protection Agency and CT DEEP have approved application of specific herbicides by licensed applicators to control phragmites on sensitive aquatic sites.

After materials are moved to the edge of the pond, the material will be hauled a short distance (approximately 200') to a level area near the road. We chose a route that created less impact on wetland soil. To haul, we would begin at the far end of the pond and work backwards in order to disturb the area only once. The haul area, where the most compaction would take place, is an established trail with pre-compaction existing. Best erosion management practices will follow the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control. Any exposed banks within 5 - 10' will be replanted native with native winter rye grass and wild flowers, including butterfly and bee- friendly pollinators.

Project Timeline:

The timeline for the project depends on weather conditions.

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

Preparation Phase (1 day)

Active Work Phase (1 -2 weeks): includes mobilization, excavation and hauling, restoration and stabilization of pond and pond banks; fisheries management.

Restoration Phase (1 weeks) After dredged soil has stabilized, the area surrounding the pond will be graded and seeded.

Construction Methods:

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 and the WEO will be informed so that inspection can take place. 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 dry. This will reduce the making of ruts as well as to help prevent the disturbance of excess soils and roots of the vegetation. Upon completion of the project sedimentation and erosion controls will remain in place until the disturbed areas have been stabilized with vegetation.

The method proposed to dredge the Shearer Road pond is dry excavation. Using a pump, the water level of the pond will be lowered. This drawdown will take place slowly, over the course of several days 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. With a bucket excavator, the material will be pulled to the exposed edge of the pond to allow the water to drain out.

After the water drains sufficiently, the dredge material will be placed in flat area between the road and the pond, but far enough away so as not to disturb the pond banks. This area is outside of the wetlands, but partly within the regulated area. The material will be placed in a berm like fashion with a gentle grade across the top and side slopes.

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.

Future Maintenance:

A maintenance schedule will be developed in consultation with Limnology Information and Freshwater Ecology Inc.'s Mark Roland (845) 227-8805 based on the successful removal of the phragmites and the sediment it has caused. We expect that a repeated application of herbicide may be needed next year or the year after that. A much less impactful removal of sediment may be required before the expiration of 5-year permit, if granted; however, any disruption to the pond and its surroundings would be much more minimal.