

## David Lothspeich

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**From:** Keith Gray [KGray@LakesManagement.com]  
**Sent:** Tuesday, April 23, 2013 11:47 AM  
**To:** David Lothspeich  
**Cc:** 'Sandy'; 'Sarah Zink'  
**Subject:** Pond Sediment Removal  
**Attachments:** Dredging Primer Update.pdf

Dave,

Per our conversation, I've laid out some figures relating to the cost of removing sediment from ponds. I just presented on this issue (estimating sediment removal costs) at the Illinois Lake Management Association conference, and cautioned attendees about putting too much stock in estimates since conditions, prices, circumstances, methods, and disposal options can vary widely.....but I'll go against my own advice and do it anyway. Some considerations affecting total project cost include:

- is there funding and/or a tolerance for completing all of the work at once?
- mechanical methods of removal might have a lower cost per yard of sediment removed, but may cause extensive damage to surrounding property requiring restoration costs to be added to the project.
- hydraulic methods may have a higher per yard cost for removal, but they are less damaging to the surrounding areas and allow for the sediment to not have to be relocated.
- if the reason for removing sediment is functionality for storm water management, it is possible that sediment removal in only targeted areas (less volume than whole pond removal) may achieve the desired effect.
- loading and hauling the sediment from the site and then finding an acceptable location for it can add as much as 100% to the cost of getting the sediment up and out of the pond.

Attached is a 'Dredging Primer' that we put out many years ago that elaborates on many of these considerations. While the technology and permitting requirements for these projects are constantly evolving, the basic information in the primer is useful. In the end, doing a 'dredging feasibility study' is highly recommended because it will identify the best possible options for the owner and create specifications that allow for qualified contractors to offer quotes based on reliable data.

The exercise we went through earlier today to get some order of magnitude of cost to remove the sediment from the ponds is as follows:

Calculate cubic yards of sediment:

East pond has rough dimensions of (550'x50')+(220'x650')=170,500 sq. ft.	
West pond has rough dimensions of 600'x 100'=	60,000 sq. ft.
Mill pond has rough dimension of 130'x130'=	<u>16,900 sq. ft.</u>
	247,400 sq. ft.

Below is the calculation of total sediment volume based on the following *average* sediment thicknesses:

1' sediment x 247,400 sq. ft = 247,400 cubic ft /27 cubic ft per cubic yard=	9,200 cubic yards
2' sediment x 247,400 sq. ft.=494,800	=18,400 cubic yards
3' sediment x	=27,600 cubic yards

In sediment removal projects, there are permitting, analysis, dewatering, landscape repair, and equipment mobilization/demobilization costs. These are typically rolled into the per yard cost and can range from \$20-\$40/cubic yard depending on many of the variables listed above. If you are removing only 10,000 cubic yards because that is all you have or that is all that is needed to achieve the desired effect, the cost would be in the \$250,000 range. If you remove 20,000 cubic yards you'd be about twice that much, and remember that this does not normally include the cost

to find a home for the material that has been removed. You can see how this project might put wind up being in the \$500,000 to \$1,000,000 range.

Sediment removal has a HUGE price tag, and one that has many options. We'd be happy to talk with you to discuss how a dredging feasibility study is an excellent investment....and how pond evaluations can allow for allocation of resources to remove sediment in small increments frequently (pro-active maintenance) thereby avoiding the need for these very large scale projects.

Keith Gray



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