Golf Course Pond Construction

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Ponds on golf courses can serve many functions. One of the most important functions of today's golf course superintedent is water management. Golfer's demand optimal playing conditions throughout the season and one of the most important tools in providing these conditions is a supply of irrigation water that the superintendent can use at his discretion.

The pond can serve as a reservoir for storm water drainage. Compaction of the soil, shallow rooting of turf and trees and the denitrification of available nitrogen can result from large puddles of water standing in the fairways and rough. Mechanical damage done by mowing equipment and golf carts can further destory the turfgrass stand. Having to close the course or sections of the course is inconvenient for the golfer and not profitable for the management, but after an extended period of precipitation, the superintendent may not have any alternatives. The construction of a pond in a perennial wetspot, assuming the soil characteristics allow for water retention and the economical aspects are justified, can alleviate the problems associated with flooded areas. With the world's useable water supply reaching a critical shortage point, any opportunity to retain storm water on the course is to the superintendent's advantage.

The third function of a golf course pond is to provide beauty and improve the playability of a golf hole or holes. Golfers enjoy the beauty and the challenge associated with water, and oftentimes, the most memorable shot of the day is the one that was hit over the lake.

The lake should be designed by a golf course architect, with the assistance of the superintendent. The architect will take into consideration the effect the lake will have on the golfer, as well as the effect of the lake on maintenance practices. The architect will design the lake so that the character of the golf course is not altered. All lakes should be designed so that the high handicap has a chance to clear it and as with any hazard on the golf course, it should be visible to the golfer and not create slow play.

The lake and the area affected by the lake construction should not create maintenance headaches for the superintendent. The superintendent should be consulted about existing tile lines that should be preserved during construction and his opinion is important concerning what should be done with the soil generated from the excavation. Steep banks and other hard to mow areas should be avoided or designed to require low maintenance. A recent trend in minimal maintenance practices is the incorporation of wild flower mixes into the landscape. A variety of mixes are available with assorted sizes, colors and textures. The superintendent should choose a mix suitable for the area to be seeded.

Knowing the sight and soil features that affect the proposed lake location are important in the planning, building and maintenance of a man-made lake. Soil permeability and the amount of runoff created by the watershed are the important factors. Soil permeability is the quality that enables the soil to transmit water downward. Any soil with the permeability of less than ½ inch per hour is suitable for lake construction. Clay and silty clay soils are soils with low permeability and will lose only 1 to 2 feet of water per year. Sand, gravel and sand-gravel soils are unsuitable for pond construction and are only acceptable if the need for water retention justifies the cost of sealing the pond. A permeable soil can lose more than 4 feet of water per year. A soil survey map is a good reference for the initial planning, but soil core samples should be taken to insure water retention.

Not only does the lake have to be able to retain water, it has to have the capabilities to act as a reservoir for stormwater drainage. The extent of the storm and the distribution of rainfall during a rainstorm effect the rate of runoff. The area of the source of the runoff, known as the watershed, has to be determined. Hydraulic engineers should be consulted to make recommendations. They will determine the size of the inlet pipe, the type of overflow structures and the materials that can satisy their specifications. All lakes should be designed and engineered with an overflow device, so that the water level in the lake does not exceed the lake's banks. Storage capabilities should be sufficient to store excess flows from 100-year storms of all intensities and durations.

The excavation of the lake should be done by an earthmoving contractor. Bulldozers and scrapers are the most common and efficient pieces of equipment to excavate a lake site, but logistics may require the use of large backhoes and semi trailers to dig and haul the soil generated. This soil can be used to build new tees, add on to existing tees or for the construction of berms. The perimeter of the lake should be deep enough so that the establishment and growth of aquatic weeds and algae is kept at a minimum.

Although the superintendent should oversee all aspects of the lake project, including the planning, designing, engineering and construction of the lake, his primary concern is to reestablish the effected area for play. With the use of progressive turfgrass management practices, the hole should be ready for play just a few months after the construction has been completed.

A golf course pond can be an asset to any golf course layout and the benefits can be enjoyed by both the golfer and the superintendent. Careful planning and implementation of the plans is essential for a successful project.

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	INCOME TAX SAVINGS*		
TAXABLE INCOME	SINGLE $2,000 CONTRIBUTION	MARRIED, ONE WORKING $2,250 CONTRIBUTION	MARRIED, TWO WORKING $4,000 CONTRIBUTION
$ 18,000	$ 460	$ 388.00	$ 668
$ 25,000	$ 542	$ 495.00	$ 880
$ 35,000	$ 680	$ 630.00	$1,117
$ 45,000	$ 833	$ 743.00	$1,320
$ 60,000	$ 960	$ 855.00	$1,520
$ 75,000	$ 960	$ 945.00	$1,680
$100,000	$1,000	$1,012.50	$1,800
$130,000	$1,000	$1,102.50	$1,960
$175,000	$1,000	$1,125.00	$2,000

*Based on 1985 tax rate tables