Meeting the challenges of golf course development

By FRANK J. GETCHELL and WILLIAM K. BECKMAN

Whether you personally agree with Mark Twain's view of golf as a "good walk spoiled," or count yourself among the growing number of avid golfers for whom there is nothing finer than playing 18 holes on a sunny day, one thing is certain: developing a golf course is more challenging than ever. The approval process is becoming lengthier as regulatory agencies and the public require more detailed assurances that a new golf course will not adversely impact surface and groundwater systems and the environment overall. But developers can minimize delays and other problems by addressing water and other environmental issues early in the planning process.

One of the major issues is water allocation and public acceptance of the proposed diversion. In the past, if water were drawn from a surface-water source, planning boards typically were not concerned about potential adverse impact on groundwater, and vice versa. But as awareness has grown of the complex nature of hydrologic systems, developers today must evaluate the potential impact of a new golf course on the quantity and quality of both surface and groundwater — whatever their source.

As a result, it may take one to two years to obtain a water-allocation permit, depending on what state the course is located in. This schedule can be extended due to local planning board approvals, which may be contingent upon receipt of a state permit.

WATER RESOURCE MANAGEMENT

The availability of an adequate supply of potable water for a golf course is of minimal concern in most regions. Instead, irrigation water supply and water resource management are key concerns. Even after the turf-growing period, water consumption for golf course irrigation is significant. Peak irrigation demand tends to coincide with the peak period for community water supply use, and the season when aquifer recharge and surface water flow are at their minimum.

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This impact on local water resources and off-site usage must be addressed in siting irrigation wells. In certain instances, water may be pumped from wells into a surface water body, from which it is distributed through the irrigation system. Elsewhere, it may be feasible to pump water directly to the irrigation system.

Where hydraulically feasible, the latter tends to be the best option because the temperature of the ground water (52–56 degrees Fahrenheit) is optimum for turf, and there is no evaporation loss associated with the use of a pond.

Many developers are using effluent for irrigation. But this is not necessarily the "free" resource it appears. First, the site must be near enough to a treatment plant to make it practical economically. And the potential impacts of diverting gray water that may have been discharged into a local river or provided as recharge to a local aquifer must be assessed.

Another groundwater resource issue revolves around the fact that typically more than 80 percent of the water used for irrigation is consumed by evaporation and transpiration. Not much percolates back to the aquifer.

Developers also may be required to site and install monitor wells to track the impact of chemicals on the local groundwater and surface-water resources. Concern about this issue often is one of the first to be expressed by nearby residents and water purveyors.

These issues are faced not only in developing new golf courses, but in permitting for existing courses wishing to switch from using surface water to groundwater sources. Technological advances—from turf grasses to chemicals—can all work to minimize the impacts on water resources.

FROM WETLANDS TO TRAFFIC

Sensitivity to wetlands has increased.

Almost any type of large-scale land development will most likely have some kind of wetland. It often is difficult to avoid those features. Developers are required to identify wetlands, assess where the impacts will occur, and spell out ways to reduce the impacts. If this is not possible, they may be required to create additional wetlands to offset those that will be affected.

Sanitary waste disposal is another key issue. Often a golf course is to be sited in an area not served by sanitary sewers, and this requires design and approval of an on-site septic system. If the development consists only of a golf course, the design and approval for an onsite septic system differs little from that for the average residence. If the course has a lot of amenities, then a large waste-disposal system will be needed.

Officials are becoming increasingly careful to ensure that the design protects both the environment and public health. They often require a groundwater professional's assessment of the potential impact on the local aquifer and mandate an engineer's supervision during construction to avoid later failures in the system.

There is also heightened concern about stormwater management and the impacts on local water resources. Local and state requirements have become more strict, and officials are taking increasing care to ensure streams and neighboring properties are not impacted either during construction, when soils and sediments can be a problem, or after completion, when turf management chemicals are in use and paved areas increase the stormwater run-off and reduce ground-water recharge.

Permits and approvals on the local (i.e., planning and zoning, wetlands), state and federal (i.e., U.S. Army Corps of Engineers) levels each require an application and supporting documentation that addresses all of these topics and more, some major, others relatively "minor," including fuel storage, grading and landscaping, lighting for parking lots and roads (i.e., "light pollution"), hours of operation, parking and traffic.

HOW TO SMOOTH THE PROCESS

The process of obtaining permits and approvals for development is becoming lengthier, more detailed and more expensive. Today, applications usually are many pages and require a substantial amount of supporting documentation.

Permitting and approval can be more effective with early involvement of both engineering professionals and regulators.

Participate in meetings with agencies before submitting applications to answer questions, and incorporate their concerns into the planning process to the extent possible.

This approach will help minimize questions and delays during the approval process itself. Be sure that permit and approval applications are complete and easy to understand by the permitting agencies—that they are clearly written well indexed and cross referenced.

Finally, be realistic about the time involved in the process: some questions are inevitable in any case, and any changes in plans after submittal of applications will create delays.

Planning and follow-up will not always guarantee a smooth shot down the center of the fairway, but it can minimize the amount of time spent hacking around in the rough, or worse yet, stuck in a sand trap.

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