Golf industry, environmental community issue principles

Ed. — The following document, "Environmental Principles for Golf Courses in the United States," was presented at the second conference on Golf &the Environment, held March 10-12, 1996, in Pinehurst, N.C. Excerpts appear below. For a complete copy of the "Principles," contact the Center for Resource Management at 801-466-3600, or your allied association.

A. PLANNING AND SITING

1. Developers, designers and others involved in golf course development are encouraged to work closely with local community groups and regulatory/permitting bodies during planning and siting and throughout the development process. For every site, there will be local environmental issues and conditions that need to be addressed.
2. Site selection is a critical determinant of the environmental impact of golf courses. A thorough analysis of the site or sties under consideration should be completed to evaluate environmental suitability. It is very important to involve both the designer and a team of qualified golf and environment professionals in this process.
3. Based on the site analysis and/or regulatory review process, it may be determined that some sites are of such environmental value or sensitivity that they should be avoided. Other less environmentally sensitive or valuable sites may be more suitable or even improved by the development of a golf course if careful design and construction are used to avoid or mitigate environmental impacts.
4. The presence and extent of some types of sensitive environments may render a site unsuitable or, in some cases, less suitable for golf course development. Examples include, but are not limit to:
- Wetlands
- Habitat for threatened or endangered plant or animal species
- Sensitive aquatic habitats

5. There may be opportunities to restore or enhance environmentally sensitive areas through golf course development by establishing buffer zones or by setting unmaintained or low-maintenance areas aside within the site.
6. Golf course development can be an excellent means of restoring or rehabilitating previously degraded sites (e.g., landfills, quarries and mines). Golf courses are also excellent treatment systems for effluent water and use of effluent irrigation is encouraged when it is available, economically feasible, and agronomically and environmentally acceptable.

B. DESIGN

1. When designing a golf course, it is important to identify existing ecosystems. Utilizing what nature has provided is both environmentally and economically wise. Emphasizing the existing characteristics of the site can help retain natural resources, allow for efficient maintenance of the course and will likely reduce permitting and site development costs.
2. A site analysis and feasibility study should be conducted by experienced professionals. The identification of environmentally sensitive areas and other natural resources is important so that a design can be achieved that carefully balances environmental factors, playability, and aesthetics.
3. Cooperative planning and informational sessions with community representatives, environmental groups and regulatory agencies should be part of the initial design phase. Early input from these groups is very important to the development and approval process. This dialogue and exchange of information should continue even after the course is completed.
4. Native and/or naturalized vegetation should be retained or replanted when appropriate in areas that are not in play. In playing areas, designers should select grasses that are best adapted to the local environmental conditions to provide the necessary characteristics of playability yet permit the use of environmentally sustainable maintenance techniques.
5. Emphasis should be placed upon the design of irrigation, drainage and retention systems that provide for efficient use of water and the protection of water quality. Drainage and stormwater retention systems should, when possible, be incorporated in the design as features of the course to help provide for both the short- and long-term irrigation needs of the maintained turf and the unmaintained areas of the course.
6. Water reuse strategies for irrigation should be utilized when economically feasible and environmentally and agronomically acceptable. It is important that recycled water meets applicable health and environmental standards and that special consideration be given to water-quality issues and adequate buffer zones. Water reuse may not be feasible on some sites that drain into high quality wetlands or sensitive surface waters. Suitable soils, climatic conditions, groundwater hydrology, vegetative cover, adequate storage for treated effluent and other factors will all influence the feasibility of water reuse.
7. Buffer zones or other protective measures should be maintained and/or created, if appropriate, to protect high quality surface water resources or environmentally sensitive areas. The design and placement of buffer zones will vary based on the water-quality classifications of the surface waters being incorporated into the course. Regulatory agencies and environmental groups can assist in the planning of buffer zones.
8. Design the course with sustainable maintenance in mind. The design should incorporate Integrated Plant Management and resource conservation strategies that are environmentally responsible, efficient, and cost effective. Integrated Plant Management includes integrated pest management and emphasizes plant nutrition and overall plant health.
9. The design of the course should enhance and protect special environmental resource areas and when present, improve or revive previously degraded areas within the site through the use of plants that are well adapted to the region. Seek opportunities to create and/or preserve habitat areas that enhance that area's ecosytem.

The following organizations have, at the time of publication, endorsed the "Environmental Principles for Golf Courses in the United States."
- American Society of Golf Course Architects
- Arizona Golf Association
- Audubon International
- Center for Resource Management
- Club Managers Association of America
- Friends of the Earth
- Golf Course Builders Association of America
- Golf Course Superintendents Association of America
- Ladies Professional Golf Association
- National Club Association
- National Coalition Against the Misuse of Pesticides
- National Golf Foundation
- National Wildlife Federation
- North Carolina Coastal Federation
- Pamlico-Tar River Foundation
- Save the Bay
- Southern Environmental Law Center
- United States Environmental Protection Agency
- United States Golf Association

C. CONSTRUCTION

1. Use only qualified contractors who are experienced in the special requirements of golf course construction.
2. Develop and implement strategies to effectively control sediment, minimize the loss of topsoil, protect water resources, and reduce disruption to wildlife, plant species and designated environmental resource areas.
3. Schedule construction and turf establishment to allow for the most efficient progress of the work while optimizing environmental conservation and resource management.
4. Retain a qualified golf course superintendent/project manager early in the design and construction process(es) to integrate sustainable maintenance practices in the development, maintenance and operation of the course.

D. MAINTENANCE:
Plant protection and nutrition

1. Employ the principles of Integrated Plant Management (IPM), a system that relies on a combination of common sense practices of preventing and controlling pests (e.g., weeds, diseases, insects) in which monitoring is utilized to identify pests, damage thresholds are considered, all possible management options are evaluated and selected control(s) are implemented. IPM involves a series of steps in the decision-making process:

a. Through regular monitoring and record keeping, identify the pest problem, analyze the conditions causing it, and determine the damage threshold level below which the pest can be tolerated.

b. Devise ways to change conditions to prevent or discourage recurrence of the problem. Examples include: utilizing improved (e.g. drought-resistant, pest-resistant) turfgrass varieties, modifying microclimate conditions, or changing cultural practice management programs.

c. If damage thresholds are met, select the combination of control strategies to suppress the pest populations with minimal environmental impact, to avoid surpassing threshold limits. Control measures include biological, cultural, physical, mechanical, and chemical methods. Biological control methods must be environmentally sound and should be properly screened and tested before implementation.

d. Non-chemical control measures should focus on practices such as the introduction of natural pest enemies (e.g. parasites and predators), utilizing syringing techniques, improving air movement, soil aerification techniques, and mechanical traps. The selection of chemical control strategies should be utilized only when other strategies are inadequate.

When chemical and nutrient products need to be applied the following practices should be utilized:

2. Always read and follow label directions when using any plant protectant products. Strive to treat problems at the proper time and under the proper conditions to maximize effectiveness with minimal environmental impact. Spot treatments may provide early, effective control of problems before damage thresholds are reached.
3. Store and handle all pest control and nutrient products in a manner that minimizes worker exposure and/or the potential for point or non-point source pollution. Employ proper chemical storage practices and use suitable personal protective equipment and handling techniques.
4. Use nutrient products and practices that reduce the potential for contamination of ground and surface water. Strategies include: use of slow-release fertilizers, selected organic products, and/or fertigtion.
5. Test and monitor soil conditions regularly and modify practices accordingly. Choose nutrient products and time applications to meet, not exceed, the needs of the turfgrass.
6. All plant protectant products should only be applied by or under the supervision of a trained, licensed applicator or as dictated by law.
7. Maintain excellence in the continuing education of applicators (including state licensing, professional association training and IPM certification). Training for non-English speaking applicators should be provided in the worker's native language.
8. Facilities should inform golfers and guests about golf course chemical applications. Common methods include permanent signs on the first and tenth tee boxes and/or notices posted in golf shops and locker rooms.

Water usage

1. Use native, naturalized or specialized drought-tolerant plant materials wherever possible. For areas in play (greens, tees and fairways), using plant materials that are: well-adapted to local environmental conditions; can be efficiently managed; and provide the desired playing characteristics.
2. Plan irrigation patterns and/or program irrigation control systems to meet the needs of the plant materials in order to minimize overwatering. When feasible, use modern irrigation technologies that provide highly efficient water usage. Inspect systems regularly for leaks and monitor water usage.
3. Water at appropriate times to minimize evaporation and reduce the potential for disease.
4. Consider converting to effluent irrigation systems when available, economically feasible and agronomically and environmentally acceptable.
5. Manage water use effectively to prevent unnecessary depletion of local water resources.

Waste Management

1. Leave grass clippings and other organic materials in place whenever agronomically possible. If clippings are removed, compost and, if possible, recycle them.
2. Dispose of chemical rinsate in a manner that will not increase the potential for point or non-point source pollution. Methods include rinsate recycling or "spraying out" diluted compound in previously untreated areas.
3. Dispose of chemical packaging according to label directions (e.g. triple rinsing, recycling or returning to manufacturer).
4. Other waste products, such as used motor oil, electric batteries and unused solvents, should be recycled or disposed of according to the law and available community disposal techniques.
5. Seek to reduce waste by purchasing products that minimize unnecessary packaging.

Wildlife Management

1. Habitat for wildlife species that help control pests (e.g., bats, bluebirds, purple martins, etc.) should be protected. Additional habitat for these beneficial species should be created whenever feasible and environmentally desirable.
2. Manage habitat to maintain healthy populations of wildlife and aquatic species.
3. Species such as skunks, non-migratory Canada geese, and deer, when they become damaging, should be managed through non-harmful means whenever possible. Non-harmful control methods could include dogs, noisemakers, repellents, and trapping and removal. Managed hunting may be appropriate where legal and safe.

Facility Operations

1. Facilities should conduct an environmental assessment in order to develop and implement an overall environmental policy and/or long-range plan that reflects or expands upon these principles.
2. Maintain ongoing records to measure and document progress towards environmental improvement.
3. The environmentally responsible practices adopted for the maintenance of the golf course should extend to all areas of the overall facility grounds.
4. Facilities should adopt practices and technologies that conserve natural resources, including water and energy.
5. Facilities should develop and initiate comprehensive programs for recycling, reuse and waste reduction.
6. Facilities should properly store and dispose of solvents, cleaning materials, paints and other potentially hazardous substances.
7. Facilities are urged to join programs that help to foster effective environmental management and policies.
8. Facilities should take active steps to educate golfers, neighbors and the general public about their environmental policies and practices.