Remodeling: blueprint for better play (Part 2)

by Michael J. Hurdzan, Ph.D., and Jack Kidwell

A philosopher once made the statement that "all things in life are in the process of either growing or dying." This holds true for a golf course too, for the golf course is not a series of earth sculptures frozen in time. Rather it is a dynamic system of live and changing elements, such as the natural succession of trees, the meandering of streams, and the encroachment of vegetation into sandtraps.

These natural changes on a golf course are further confounded by artificial changes in golf course use and maintenance. Never before have courses experienced such large volumes of players, the traffic of golf cars and their associated problems, the need to speed play, the requirement to reduce maintenance costs, and the need to adapt to the skills and equipment of the modern golfer. Subsequently the older the golf course, the more likely is the need to adapt to these pressures and be rejuvenated — or else to give way to more functional facilities. Thus change in a golf course is inevitable, but it need not be undirected or without proper planning.

Pick a pro

All improvement planning must be done by those who have the professional expertise and experience to maximize the time and money allocated for such improvements. This is more important now than it was even 4 or 5 years ago, for several reasons. First, the cost of construction has risen to over $30,000 per hole and the cost to rebuild just one green is close to $15,000. With such large expenditures probable, it is a false economy to save a professional's fee and risk such large sums of money. This point is best illustrated by the next reason for retaining a competent golf course architect: that is, the technical sophistication of current construction methods.

Not long ago we visited a country club that at one time was forced to use 16 temporary greens due to turf failure on their regular greens only a few years after spending over $300,000 in remodeling. Upon careful analysis we found that those responsible for the quality control of the improvement program did not understand the theory, principle, or limitation of materials of the USGA green. Thus in order to keep their greens, they have had to limit their use and employ more hand labor for maintenance, while living with the constant threat of total loss of turf at any time. The only solution this club has is to rebuild the greens again, this time employing a competent golf architect to plan and inspect the construction.

The hiring of an outside golf consultant also allows the course to be viewed impartially and objectively. If improvements to courses are based on the greens committees' personal opinions and prejudice, we have a classic case of the horse designed by a committee that ends up being a camel. Further, with each change of the board you have a change in "what the golf course needs." Any improvement program that must run one or more years must have a thread of continuity that keeps the progress moving in one direction.

Lastly, any improvement to a course should be based on accepted design standards to avoid possible legal complications later. Currently our country is experiencing a mentality that says "sue the bastards," and even if you are right you must stand the cost of legal fees and social embarrassment. This is especially true if improvements to a course cause changes in play patterns. We have on numerous occasions seen new greens, built at the direction of an unaided greens committee, in locations that subject players to unnecessary danger from golf balls played from adjacent holes. This could be considered negligence in design and the club could be found guilty and liable for constructing a dangerous situation.

But legal actions are not confined to such large renovations. We are aware of cases where injuries from improperly set sprinkler heads and poorly placed golf car paths have caused court decisions. With such an aggressive legal climate, only an experienced professional golf course planner should be charged with any sizable improvement program. However, there are instances when even the professional golf course planner cannot totally eliminate congested play areas due to limited acreage, harsh topography, and/or irregularly shaped parcels of ground.

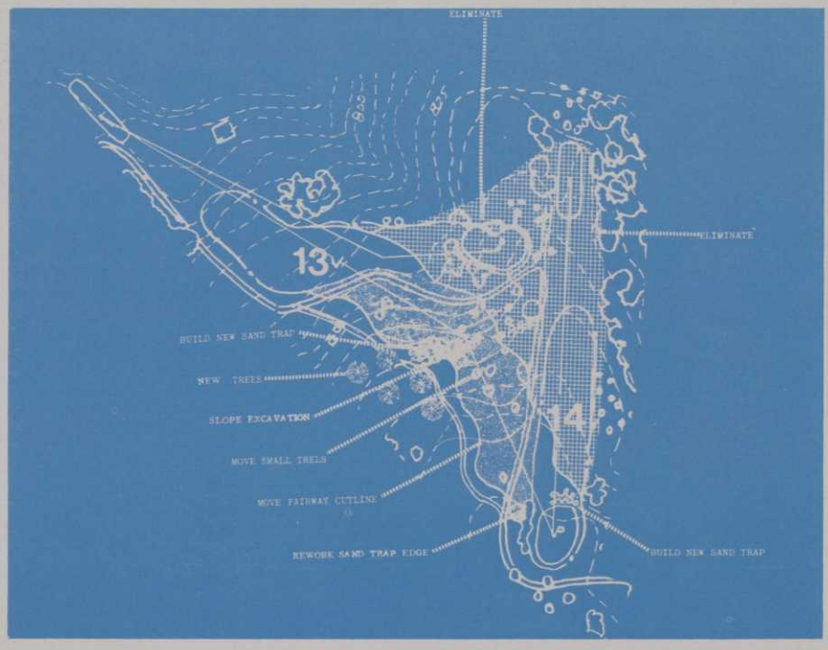
Proceed with planning

It is intuitive that not all golf course architects, of which there may be as many as 250, will have the same approach to an improvement plan or study. Therefore this professional should be very carefully selected, so that the long-range objectives of the club are fulfilled. The golf course

Dr. Mike Hurdzan and Jack Kidwell are partners in Kidwell and Hurdzan, Inc., golf course architects and consultants. Hurdzan has worked at all phases of greenskeeping, from laborer to superintendent; he holds bachelor's, master's, and doctorate degrees in turfgrass physiology and management. Kidwell has owned a golf course and was a golf superintendent and a Class A PGA professional; he has been a golf course architect for 20 years. Both are members of the American Society of Golf Course Architects.

Improvement planning at Kenwood CC included Ray Dustrade, grounds chairman; Bob Foppe, golf pro; Dr. Mike Hurdzan, golf architect; Don Norris, club manager; and Marion Mendenhall, golf superintendent.

Drawing at right illustrates the proposed change to combine two holes to make one that would be more in character with the rest of the course.



architect should not be selected only on the basis of reputation or the number of advertisements in magazines. Rather the golf architect should be hired on the basis of his past performance with nearby clubs, his personal philosophy of golf, his demonstrated knowledge of technical matters, and his projected schedule of planning and inspection visits. In our opinion, the golf architect should be "local" to the area, so he is accessible to provide maximum inspection of all improvements. The implementation phase of the design process is as important as the planning phase.

Further, the golf course architect should do all planning within the guidelines provided by the improvement committee. This will help insure consistency with the club's goals and objectives. *(The authors refer specifically to private clubs throughout this article, but their comments apply equally to public golf courses. — Ed.)* To properly do this means close liaison with the course superintendent, the golf pro, representative from the improvement committee, and a representative from the women's golf committee. This insures all problem areas are discussed and all golfing factions of the club are involved in the improvement planning. Not only will the needs of the entire club be served, but also this clears the way for ultimate acceptance by the entire membership and greatly improves the chances for implementation.

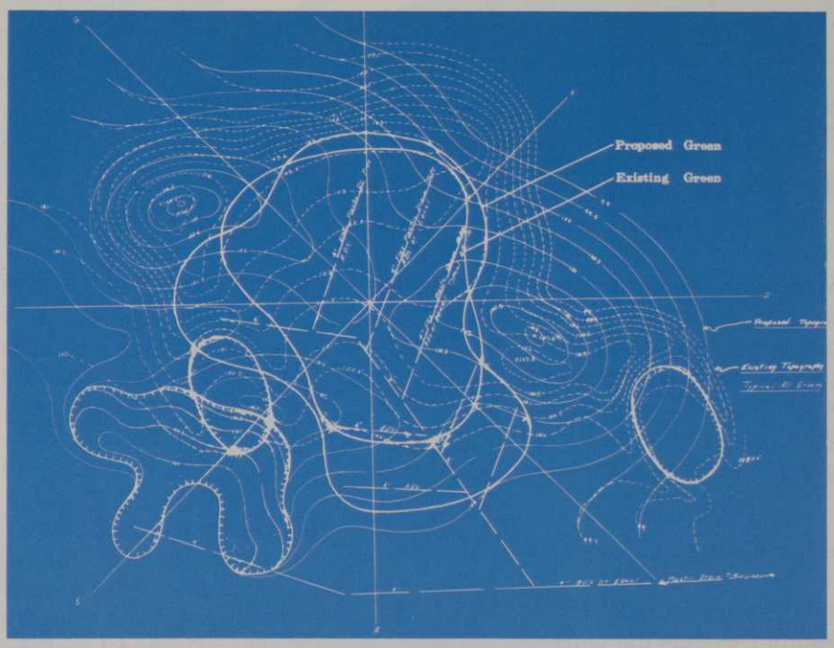
After the club has interviewed several firms and selected the golf course architect, the process is for the club to provide the architect with a recent, scaled aerial photograph and matching topography. The most inexpensive source of these maps is through the county or state highway department. If these maps are not available, then new mapping must be done. The cost of this mapping in Ohio for a 150-acre course, drawn with 2-foot contours, at a scale of 1 inch = 200 feet, is about $2,000, including ground survey of reference points. A contour interval of 2 feet is preferred, but 5-foot maps are acceptable.

Once the golf architect has these scaled maps, he is ready to analyze the course. He should walk or play each hole, looking at it from many different points, to internalize the conditions faced by golfers of all skill levels and by the golf course superintendent. Once he understands the design intent of the hole, and existing maintenance problems, he begins to evaluate what improvements might be made to solve problems in a manner consistent with the strategy of the hole.

The improvements range from raising, lowering, and realigning tees to eliminating, resculpturing, and building new sandtraps to reshaping or rebuilding greens. After all of these improvements are noted they should then be transferred to a comprehensive map with descriptive annotations. Although not mandatory, these improvements should be further described in larger scale drawings of the individual holes or groups of holes. Finally, the architect should make a list of priorities of work that should be done and also provide a rough estimate of the cost of these improvements by hole.

The study should then be presented to the improvement committee for comments. These should be evaluated, and any changes made in the drawings. At this point the completed study is ready for presentation to the entire membership. After approval and as money is made available for improvements, the work is predicated on the improvement study and the list of priorities. The best assurance that a club has that such a process will be followed is to vote an amendment into the bylaws at this presentation meeting, requiring any major improvement to be done consistent with the study.

The cost of such a study can be either a flat fee or based on an hourly rate. Since the planning phase is so important, it is good economy not to be overly restrictive on the golf architect's time. An average study will involve 100 to 125 hours of work including meetings, time on the course, travel, design and drafting time, and presentations. It should be noted that these are not construction drawings, but only schematic plans showing relative size, shape, and position of improvements. Before actual construction begins, detailed construction drawings are required, usually covered under a new agreement with the architect.



Working drawing at left, from Miami Shores GC, shows existing and proposed green and sandtrap contours, permitting contractor to bid accurately on the construction.

A case in point

Specifically, how does the golf course architect approach and produce an improvement study? A good example would be the process used at Kenwood Country Club in Cincinnati, Ohio. Kenwood was designed in the late 1920's by William Diddle, an ASGCA member, and was revamped in 1966 by Diddle to allow for construction of an interstate highway. The club has two 18-hole courses: Kenview, which plays to a middle distance of 6062 yards, and Kendale, which plays to 6592 yards. The club has a lovely clubhouse and provides for swimming and tennis as well. The board of governors realized that the club needed a long-range improvement plan and surveyed the entire membership to find what improvements were wanted most. Results of this mail survey indicated a strong need to reallocate space within the clubhouse and to improve certain features of the golf course — more specifically, the sandtraps.

The improvement committee interviewed many consultants and selected Kidwell and Hurdzan, Inc., to evaluate the golf course. (Although the completed study has not been approved at this writing, the following specifics have been reviewed by the planning committee.)

At Kenwood the basic golf course design was sound, so the courses had good rhythm, flow, and balance and there were no obviously unsafe areas, so no major rerouting of the golf course was necessary. In one instance, however, the architects felt that a very short par 4 and a very long par 3 could be combined using the par 4 tee and the par 3 green to form a new par 4 that was more in character with the rest of the golf course.

This left a deficit of one par 3, which called for building a new hole by using an abandoned green and building a new lake, tee and sandtraps. This improvement called for earthmoving, irrigation relocation, building of golf features, moving of trees, and reshaping of fairways — all of which could be done without halting play on the course. This is not always possible, however, and some disruption of play is normally unavoidable.

Another suggested improvement to Kenwood was an attempt to transform a pleasant, but short, par 3 into a more exacting test of golf consistent with the aura of the Kendale course. The 14th hole is a 112-yard par 3 protected in front of the green by a large sandtrap with two pot traps behind the green. As with most par 3's, the tee for the 14th is much too small for the use it receives. The architects saw that the landform in front of the green was gentle enough to permit a pond to be excavated below existing grade. This mean that little spoil from this excavation would be needed for the levee of the pond, and most of the spoil could be used to enlarge the tee and rebuild the sandtraps to the rear of the green. This would still leave enough fill material for construction on other parts of the course.

This illustrates another point as well: most improvements to a very old course are to soften or enlarge golf features such as sandtraps, tees, or greens, and this requires fill material. The reason for the abrupt form of these features in the initial construction was that prior to World War II, most earthmoving was done by crude, low-capacity earthmovers or teams of horses or mules. In Kenwood's case, as many as 100 teams of horses were used to build the course, and the construction notes said to "dig the pot traps as deep as the horses can cut" and the slopes were to be "as steep as the horses can pull." In those days less thought was given to long gentle slopes, because earth was so hard to move and usually only hand labor was used for maintenance. Today, however, the need to cut labor costs by using large, multi-unit riding mowing equipment requires that outslopes be gentle. Also, gentle outslopes appear more natural. So to improve old facilities requires that additional fill must be used to soften and enlarge. For the most economical construction, fill ideally should come from another improvement project such as a pond excavation or a hill cut.

As mentioned earlier, an improvement study only shows the relative location, size, and shape of the suggested improvement and is not sufficiently detailed to permit actual construction. Construction drawings are usually covered under a separate agreement with the golf course architect.

The next step

An example of the kind of construction drawings needed is shown by those for the new greens planned for Miami Shore Golf Course in Troy, Ohio. This course was designed in 1947 by Donald Ross and reflects much of Ross' style of pot traps and steep banks when initial construction money was low. For the amount of play this public course receives, the greens are too small, poorly drained, and costly to maintain. The Troy Recreation Committee wisely decided to rebuild the greens by putting them out for competitive bidding.

To develop construction drawings requires the architect to first measure and draw the contours of the existing green at the lowest scale possible (one foot is preferred). Then with this map of the existing green, the new green is designed over it. These drawings are accompanied by 30 to 40 pages of written specifications, so no mistakes will be made in the rebuilding process. As one can imagine, much time is required using this method, but it is the most accurate method. Another alternative is to simply bulldoze the old

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green away and build a new green in its place, but this too requires detailed drawings and specifications.

Detailed drawings and specifications permit the contractor to bid intelligently and more competitively, for all elements of construction are fully defined — so there is little guessing about labor and materials needed. To build a green or golf course with only routing plans or a rough drawing is like building a house with only a floor plan. It can be and is done, but it usually forces the contractor to overestimate his projected cost because he can not accurately define and estimate the extent of his problems and liability. Further, he may not be able to get performance bonding, for the same reasons. The point should again be strongly expressed that close inspection of the work while in progress determines the ultimate success of the improvement.

The most sophisticated and detailed construction drawings, if improperly interpreted by inexperienced people, have the same affect as a great piece of music played by people who cannot read music. To have drawings and simply say that the golf course superintendent can supervise and inspect this work is at best naive. Not only are entirely different skills required for new construction as opposed to continual maintenance, but that time period in the fall when construction should take place is when the superintendent has the least time and help.

We also consider it grossly unfair for an improvement committee to force a superintendent to be responsible for construction work. For if all works well, then it is expected and little thanks is given — if not, the superintendent must bear the blame and perhaps lose his reputation or job.

The job of inspection must lie clearly with the golf course architect, and he alone should assume the blame for poor implementation. But no matter who is charged with inspection, there are times when mitigating circumstances result in a less than inspiring product. This is because most improvements are done in the fall (after Labor Day) when the golf season is over, the temperatures are conducive to good grass establishment, and the probability of violent convective thundershowers that cause wholesale erosion is lessened. But also the actual construction time is prostituted to the vicissitudes of the weather, and an extremely wet or cold fall will turn a simple project into a survival race with a rapidly vanishing growing season.

A reverence for history

Returning to the subject of old construction and design, it should be noted that no one respects the work of past masters of golf course design more than does the modern golf architect. The profession of golf course architecture dates back to the late 1800's and is steeped in its heritage — as attested by the symbolic blazer worn by members of The American Society of Golf Course Architects. This blazer is a red, Scottish plaid of the Ross Clan in honor of Donald Ross, the father of golf architecture in America. So it is with great reverence that the modern golf architect evaluates work of his predecessors when improvement studies are made.

It should be equally stated that not all past golf architects were worth their salt, and that not all golf courses are good simply because they are old. But when examining a piece of good, old work, the modern golf course designer is careful to preserve as much of the character of the existing course as is practical and compatible with modern design requirements and limitations.

So often when we visit golf clubs that recognize the need for improvement, we are made aware that this is a "Tillinghast golf course," or a "Ross course," or a "Toomey and Flynn project." The implied, if not stated, inference is that "we don't want you to butcher up this historic design with a lot of that modern stuff." But one must realize that the *form* of all things in nature is a result of the *function* that they must serve. Darwin's Theory of Natural Selection is based on the supposition that those biological systems that are most adaptable to changing conditions will have the greatest chance of survival. A golf course is a biological system that must adapt to changes as well.

Some early designers, either by foresight or fortune, had a design philosophy that was adaptable enough to fit even current conditions of use and maintenance which dictate our "modern look." Scientific research since the late 1940's has shown us the requirement for high percolation rate, amended soils, greens. Records indicate that in 1916 when Donald Ross built Scioto Country Club in Columbus, Ohio, he used a textural barrier system of greens construction that is very similar to modern USGA greens construction. Also in 1916, a man by the name of Taylor patented a method of greens construction that is nearly identical to PURR-WICK construction. But these installations were designed to conserve water because irrigation systems produced only 20 to 30 gallons per minute, and all the watering was done by hand with a hose. Our modern systems are now usually 1000 gallons per minute with from three to five automatic sprinkler heads around a green. Unless the surface and subsurface drainage and the texture of the green's soil is able to handle this large volume of water, the grass may be overwatered and the soil compacted — resulting in a weak turf stand that is subject to loss. The old style of punch bowl greens that drained all surface water to the middle and out the front of the green has been replaced by the modern-looking green that drains surface water in many directions.

Similar points could be made regarding the advancements in chemical use, weed control, and power equipment and how a green must adapt in order to endure.

So when a competent golf course architect begins a program of improvement, he is equally aware of the nostalgia that the old course evokes as well as what must be done to keep good turf under modern maintenance regimes.

It has always been our personal feeling that if the old golf architects were around today that they would understand and approve any changes we suggest in their original design because these changes are based in scientific fact and not just personal fancy. But even in areas of personal fancy, such as sandtrap design, we believe that these men would perhaps make the exact same changes given our current trends in aesthetic and fashionable design. □