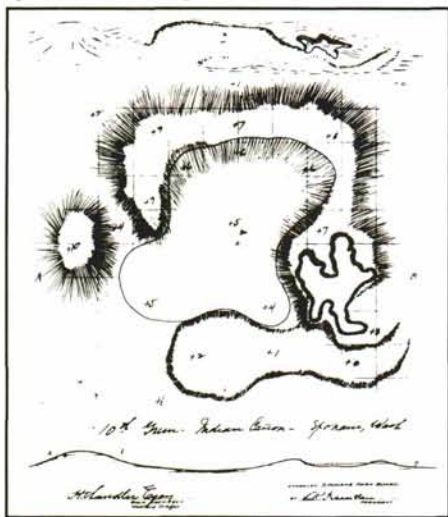


The original sketch of the 10th green, by H. Chandler Egan.



Bunker renovation at the 10th green at Indian Canyon, Spokane, Washington.

Before . . .

# Remodeling Sand Bunkers On Your Course

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**A**S A GOLF COURSE architect and a golfer I like to see sand bunkers. They are one of the game's original hazards. Often pleasing to the eye, they are an integral part of design in terms of adding interest, defining landing areas, and creating challenge. Often sand bunkers are the only fair method of creating sufficient difficulty on a flat, treeless, or otherwise uninteresting site.

Having remodeled many mature courses, it's always a pleasure to get an immediate and favorable response from golfers who see sudden improvement in their old layouts. However, anyone tinkering with an established course must remember that those same golfers can just as quickly become the most severe critics if the job isn't done right.

Remodeling by adding bunkers has a distinct advantage over new construction, from an architect's standpoint, in that you know how the hole is played at all times of the year and under all climatic conditions. There is really no excuse for



During . . .

After.





misplacing a bunker on an existing course.

In contrast, it is not uncommon to find a sand bunker located out of play on a new course, or one that unfairly penalizes golfers, especially the higher handicapper. That often occurs because what looked good on paper doesn't quite work that way when it becomes part of the topography, is affected by a particularly hard or soft fairway, or is blown out of proportion by regular winds not adequately considered at the time of construction.

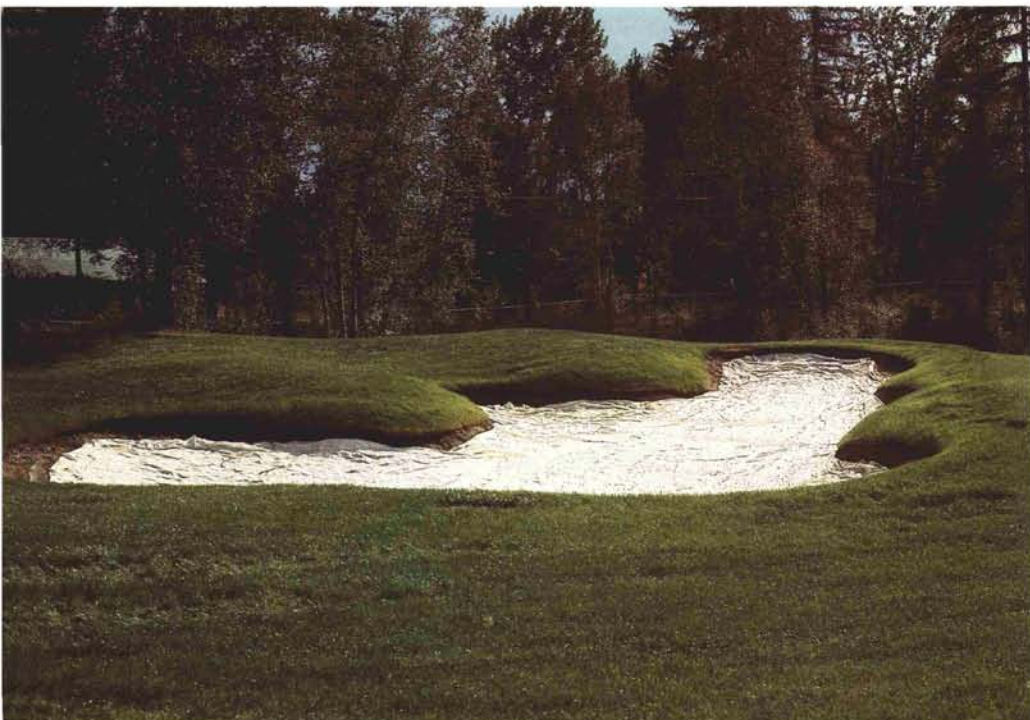
too much time worrying how the bunkers looked, rather than concerning myself with where they were placed and how they played.

I personally prefer to look at irregularly shaped, curvilinear sand bunkers. They should also be designed with maintenance in mind. I think most golfers prefer that treatment, although much of the bunker design that appears in articles of popular golf magazines today features those with steep grass or sand faces or ones that are extremely unusual in shape or appearance.

often alibied by the mistaken belief that bunkers unnecessarily cause slow play. In my opinion, such layouts are not particularly interesting, challenging or attractive. I find that at least 40 bunkers are necessary on even the most heavily played municipal course to insure sufficient challenge and interest. A course with more than 80 bunkers has them for aesthetics, special effect, or some other reason, but that many are certainly not needed for playability. One bunker properly located can do the job of three or four in the wrong place.

After it has been decided where the bunkers are to go, it must be decided what they should be like. As I mentioned earlier, many professional and part time golf course architects worry too much about appearance. Although I've already stated my preference in bunker design, that isn't necessarily what I always build. Each project requires a design plan that takes into consideration what is right for that course, its maintenance budget, the climate, and the golfers who are going to play it regularly.

If a course is in an area of frequent heavy rainfall or high winds, it makes no sense to construct bunkers with steep faces that will require constant attention just to keep the sand in place. If a course is played by mostly high handicappers, it makes sense to keep the sand hazard flatter. However, if a course really takes itself seriously, that type of design is unacceptable. On a course with a limited budget, the need for hand work must be kept to a minimum, which means no steep grass slopes, or turf fingers, or islands protruding into the bunkers, although the use of growth retardants may help some. Finally, I have nothing against either oval-shaped or pot bunkers if they are appropriate. Many great courses have sand bunkers that are pretty unremarkable visually. An architect should not force his style upon a course.



*A liner in a bunker, placed beneath the sand, not only prevents weeds from reaching the surface but also keeps the sand in place. Second hole, Whitefish Lake, Montana.*

If the bunkers are to be placed or remodeled on your course, it is extremely important that the course be considered as a whole. It is possible to add or delete them on different holes on separate occasions and believe you are making proper decisions, but this often results in a course on which holes of a similar nature are all bunkered in a similar manner. I find that the preparation of a master plan for remodeling that allows for ideas from the golf professional, golf course superintendent, and the green committee eliminates this possibility.

In retrospect, my most common mistake earlier in my career was spending

**O**BVIOUSLY, sand bunkers cost money to build and maintain. At \$35 to \$45 per cubic yard — more in some locations — white sand and large bunkers can add up to a very expensive proposition. Still, I believe that the cost of bunker maintenance depends much more upon the amount and quality of edge maintenance than it does on the total area of the sand. Though mechanical rakes have their drawbacks, they have made taking care of large bunkers much easier.

It would be far less expensive to have a course without sand bunkers. Such courses usually arise from a tight budget,

**P**ROPER SELECTION of sand for new or remodeled sand bunkers is a subject that should not be dealt with lightly. For the most part, golfers and superintendents know what sand works best in their area. If sand is too coarse or packs too easily, it won't stay in use very long. The United States Golf Association has tested some sand characteristics to determine their suitability for bunker use.

Some touring professionals have expressed a dislike for silica sands. Apparently these sands don't allow a player to stop the ball as easily on the green. It has



been my experience that such sands are easier for the average golfer to play out of, and clients seem to like their brilliant white color. Once again, you must consider who will be playing your course before making a decision.

Two years ago I was retained by the City of Spokane, Washington, to provide golf course design services for three municipal courses, including the picturesque Indian Canyon Golf Course, which was to be host to the 1984 U.S. Amateur Public Links Championship. Part of the job required preparing plans and super-

I was fortunate to have a set of Egan's original plans as a guide. Some bunkers on his plans were either never constructed or filled in over the years. The City and I saw no reason to change the design of the course.

It was obvious, however, that whether or not the Public Links Championship was going to be played there, the bunkers needed work; just edging them would not be enough. Sand had built up the lips on some to over 18-inches high. They weren't lips anymore — they were cliffs! Turf around the bunkers had

great. I doubt that anyone who hadn't played the course in a year or two noticed any difference, even though the total area of sand surface was probably doubled. The result requires more maintenance by hand and the bunkers are a little steeper at Indian Canyon than on many of my other courses, but as the local USGA committeeman kept advising me, that was how it should be, because Indian Canyon is a special golf course. He was right, of course, but I didn't tell him that every course is special to some golfer.

This is not a technical article because building good sand bunkers is not all that technical. Successful sand bunker remodeling requires the involvement of at least one individual who can properly balance the artistic and the practical with the golf. I would like to offer three points to keep in mind if you are thinking of reconstructing or adding bunkers on your golf course.

**F**IRST, make sure the hazard is necessary. I have found that a twenty-yard-long fairway bunker, properly placed, is often all that is needed to tighten a landing area. The proper place is generally beyond a good drive of a short hitter from the regular tee, yet set far enough out so that the bunker cannot be carried by the best golfers from the tournament tees.

Second, pay special attention to drainage, both inside and outside the bunker. A complaint I always hear from golf course superintendents is that sand washes off the faces. This can be eliminated if most water from higher ground is intercepted and redirected before it gets to the bunker. Furthermore, the sand face itself should never be built on a slope greater than 3:1. Steeper slopes mean daily hand raking. Remember also to drain your bunkers. Whether it's in the form of sump, drainline, or both, it isn't just the heavy shower that causes problems, but it's also nightly irrigation.

Finally, know in advance what you are trying to build, especially in relation to the maintenance it will require. Be wary of trying to build a bunker like the one you saw on television last week or one your green committee chairman saw on his vacation in Palm Springs. Even if you could duplicate the hazard, it probably won't work as well on your course.

Proper study, planning, knowledge of construction and maintenance were prime factors in our success at Indian Canyon and I believe they are the keys for all successful remodeling.



*Fallen into considerable disrepair.*

vising the renovation of the course's sand bunkers, which over the years had fallen into considerable disrepair.

Indian Canyon was designed by H. Chandler Egan, a former U.S. Amateur Champion; it was built in the early 1930s by a WPA crew (Egan also had a hand in the redesign of Pebble Beach). The Indian Canyon Course is not long and the site is heavily wooded and very hilly. In my opinion, Egan designed the best hilly golf course I have ever seen. The greens are medium in size and many of them are well designed. There are no fairway bunkers and only 23 on the entire course. The bunkers generally frame the greens, and even if they are in front of the greens, they tend to be set toward the sides.

grown in considerably, and there were other signs of old age. The edges were broken, turf had encroached on the original design, and sand that should have been in bunkers had washed down and out, creating a mess at the lowest point. This was partly caused by the original design, which did not install drainage lines.

The work was done by the City crew with my supervision during the fall of 1983 and spring of 1984. It was completed just in time for the tournament. The renovation required a lot of hand labor, which I believe helped maintain the course's original flavor. Drainage was installed at the low points of all bunkers.

The result has been very successful. The bunkers play very well and look