



Starting construction

Starting construction is always the ultimate high and I still love making site visits to see how my computer-generated ideas look in three dimensions as construction begins.

In the normal construction sequence, the contractor first moves in equipment, marks out environmentally sensitive areas to avoid and sets benchmarks and staking control points at tees, greens and landing zones. These help us all know exactly where things are.

I visit shortly thereafter to flag tree-clearing lines. Even with a clearing plan, the final clearing limits are determined in the field. Even on a partially wooded site like Firekeeper, it takes a few days, because I work forward and backward along the hole, saving specimen trees. One high-quality tree can cause us to re-do entire clearing lines, and move or redesign entire holes to make best use of the trees. It's difficult to stand those trees back up!

Early Scottish courses built on seaside links land were devoid of trees. American designers have gradually adapted courses to the American landscape, using trees both as backdrops and to provide strategic functions that surface hazards can't supply. Ground hazards like sand and grass bunkers, mounds and creeks can suggest shot patterns, but only trees can force shot patterns. Some still despise trees, calling them "sky bunkers," but we used them in several ways at Firekeeper. Trees:

- Located 180 to 200 yards from the tee match the apex of the parabolic flight pattern of a curved tee shot, best enabling a forced fade or draw.
- Gently encroaching one side of the fairway about 320 to 350 yards off the tee or just to one side of the green make golfers plan the tee shot to avoid them for the second shot. In the field design of the 10th hole, Notah Begay III, who's designing the course with me, removed one particularly tall tree to allow a reasonable chance to hit the green from behind the trees.
- That form a narrow tree chute force a straight shot.

There are also other considerations in tree clearing, such as clearing further on the east and south sides of tees and


greens to allow morning sunlight and good air circulation and brushing to create wind slots. If you look closely, holes that run east and west have more clearing south than north and north/south holes. I also design cart path, bunkers and mounds, etc., on the east and south sides to fill the additional space. North/south holes are cleared wider for more midday sun access, but an exception is the par-5 14th because it uses a natural opening and because I wanted one narrow, tree-lined hole on the course.

Knowing we were going to have a triple-row irrigation system with 65-foot rows, the clearing width had to match irrigation coverage. Three rows will water 190 to 225 feet effectively, depending on tree cover and wind direction. Two-hundred-foot play corridors are tough on average golfers, while 225 feet is better and 250 feet is comfortable for most. Some open, crosswind areas needed four rows for coverage and tee areas and par-3 holes used only two rows to save sprinklers.

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My corridors are gently curved for aesthetics and the "inside points" determine effective play width. Most holes should have only a few broad curves, with the distance between outside and inside points about 350 to 600 feet apart. Gentle curves (i.e. curving out about 14 to 20 feet in 200 feet of length depending on trees present) look best. The type of tree also affects clearing width, with tall straight pines suitable for narrower clearing than hardwoods.

The best part about clearing is seeing the hole without tripping over stumps, missing thorns or looking for snakes. It also means earthmoving is about to begin. That's like being a kid and playing in the sand box all over again. GCI



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Over the next few months, Jeff Brauer's column will detail the ins and outs of his experiences participating in the design and construction of a new golf course in Mayetta, Kan.