PART II - FAIRWAYS

PREVENT OR CORRECT DRAINAGE AND TRAFFIC TO SLOW DOWN COMPACTION

By RON FREAM, golf course architect

Drainage problems *are evident on this fairway.*

The link between tee and green is regularly overlooked when construction occurs. How often is the topsoil scraped to form sand bunkers, elevated tees, or greensites? The underlying hard pan, impermeable or infertile subsoil that remains offers little as a friable growing medium.

Fairway areas, the aprons which surround a putting green, and the approach areas to the greensite deserve attention during construction or remodeling.

Earthmoving can be extensive in order to make unusable land more usable, to prevent or eliminate blind shots, and to transform the flat into the interestingly contoured. Earthmoving should consider conservation of topsoil, existing and proposed drainage patterns, and reestablishment of acceptable soil tilth.

Swales can be added to keep water from discharging onto a fairway.

It is possible for the golf architect to anticipate future drainage problems and to prepare a drainage plan for fairway areas as part of the set of construction working drawings. It certainly is less expensive to install catchbasins and subsurface drainage pipes during initial construction then to come back later and have to install them while play is underway.

Grading of fairways can provide surface drainage swales to collect and direct water flow. Attractive

contouring can be the result which is also fully machine mowable. Interceptor swales, catchbasins or open drains can be provided to prevent off course water from discharging onto a fairway.

Greensite aprons and approach areas frequently need soil amendments although these areas are ignored. The addition of organic humus, sand, the most desirable available sandy loam topsoil or a combination, can greatly assist in enhancing turfgrass growth.

It would be our recommendation to consider select gravel encasement, topped with washed sand in all entrance or exit areas of the apron around the putting surfaces. These drainage lines can greatly assist in carrying away excess surface runoff or subsurface seepage water. In either case, a reduction in compaction will occur.

In some specific instances of very heavy native soils, the green aprons may have to be covered with a sand and humus veneer in order to provide a drainable and compaction resisting seedbed.

Soggy areas fronting greensites are the result of surface drainage from the greensite and/or discharge of subsurface drainage pipes in the center of the fairway approach. A golf architect or construction superintendent should never stub off a drainage line in the approach area. However, all too often that is the situation, perhaps due to lack of concern or as a budgeting expediency.

The small extra cost of continuing all drainage outlets to sumps, ponds or other out-of-play areas is an investment in long term maintenance savings. Sand bunker drainage outlets should be similarly treated.

Inadequate tree clearing on a heavily wooded site can cause drainage problems due to insufficient sun to evaporate the water or inadequate air movement. Excessive shade also can induce disease problems. Turfgrass will not grow successfully in excessive shade and only playable turf is of primary consideration. Judicious tree thinning or removal may be a necessary evil but it can definitely prevent various maintenance problems.

A poorly designed or poorly functioning irrigation system can contribute greatly to compaction problems. Excessive wetness anywhere within the golf course will contribute to compaction and other problems as traffic passes. An irrigation system with improperly spaced sprinkler heads, heads with clogged nozzles, heads spraying directly upon adjacent trees or incorrect pumping pressure can all contribute to future problems.

Restrict golf carts *to paths wherever possible.*

Inadequate allowance for prevailing winds is another commonly encountered cause of both excessive wetness and excessively dried out areas. When effluent water is recycled for golf course use, an ever increasing occurance, compacted or poorly drained seedbeds inhibit proper periodic leaching and can contribute to excessive salt build-ups and resultant turfgrass deterioration.

No matter how sophisticated the irrigation system or the number of digital readouts on the controller, if the design engineering is not correct, if the pumping plant is inadequate or if the operator of the system uses it incorrectly, compaction and other maintenance problems are sure to be the result.

The use of wide tires on all maintenance equipment or using dual wheels in place of singles will assist appreciably in reducing the incidence and severity of compaction. This effort should include all tractors, utility vehicles, the superintendent's truck and any other maintenance equipment.

The new electric fairway reel mowers present an opportunity to mow at a high and uniform rate of speed while applying less weight to the turf and requiring a lighter tractor to pull the units.

Golf carts may be considered a physical and financial necessity at many courses. Even with wide turf tires, repeat traffic of these vehicles contributes to the inducement of soil compaction on fairways. While golf cart paths are not an aesthetic beauty and may hinder or interfere with play at times, they are in the best interests of turfgrass maintenance. At the very least, paths should be provided in the most heavily concentrated traffic areas at tees and greens.

Careful, thoughtful positioning of the cart paths is necessary. Allow enough width so that carts do not consistently run over the edge. Maintenance equipment should also be required to travel on the cart paths wherever possible.

On courses where bag trollies are in use, it should be mandatory that every pull trolley have the recently introduced 4 inch (10 cm) wide wheels rather than the old style narrow ones. One bag trolly will not cause much problem but successive traffic by even these seemingly inconsequential devices will, with time, contribute to the compaction problems and the resultant added maintenance expenses. **WTT**

Ronald Fream is a well published golf course architect based in Santa Rosa, California. He studied horticulture and agronomy at California State Polytechnic University and Washington State University. He has worked under Robert Muir Graves and Robert Trent Jones and performed design work in 25 countries. Ronald Fream Partnership was formed in 1979, later called Ronald Fream Design Group.