

Course Construction

A Checklist to Prevent Errors in Construction, or Errors from The Architect, Coming Back to Haunt You Once They've Left

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*The Bridges Golf Course
Blaine, Minnesota*

Get a contract in writing detailing specifications and responsibilities of each party involved. For technical specifications you are not familiar with, ask for a clear explanation in writing.

Make sure a performance bond is posted. These are generally in effect for two years from final payment. Do not fix construction problems during this time period unless you notify the construction company and architect and have an understanding as to who is responsible.

If you want your architect to specifically manage an area of construction, do not rely on promises made during hiring interviews. Put the responsibility in writing and note amounts being paid for this service. Examples would be irrigation design, soil testing, drainage, wetland permits, etc.

Checks to Make for Soil

FAIRWAYS

Depth of topsoil: Six to 10 inches, compacted to 70% of maximum density. (AASHTO +/-5%). Maximum density needs to be checked for both topsoil and subsoil. Pay attention to where the construction equipment was driven or where silt runoff collected. You don't want overly compacted soil or layers formed.

An acceptable definition of topsoil is a medium containing three to 10% humus with no rocks larger than one inch. Subsoil has 1% or less humus.

Any soil engineering firm can test maximum density (compaction level) for you.

Soil fertility. Get NPK and other nutrient requirements as well as soil pH and CEC. From this you can select both a type of grass and a variety that will thrive in your soil. These tests can be done at the University of Minnesota or by your fertilizer vendor.

Percolation should be in excess of one inch per hour. Easily done by cutting a cup and filling hole with water. If not, area needs to be tilled or chisel plowed to sufficient depth to allow required drainage.

If topsoil needs to be brought in, have it lab tested for compatibility with current topsoil and get recommendations for how deep to till or chisel plow it in.

TEES

If push-up using native soil, use fairway guidelines. There are many published articles that, depending on type of native soils, this may be method of choice.

If using 80-20 greensmix or similar: Use at least four to six inches unless compatible with subsoil. Just remember, this will be depth of your rootzone unless you can use frequent deep tine aeration. To lay your sand greensmix on top of a compacted or incompatible subsoil and then ring it with a sod grown with a peat soil, will give two dis-

tinct problems.

When it rains or after irrigation you will get puddling of water on the low sloped ends. This is due to the fact that the sand area has to be saturated before water will start to flow through the peat-sod layer you have surrounded the sand with. The results are compaction, disease, mechanical damage due to the wet conditions, etc.

The opposite but equally damaging effect happens during hot, dry conditions when the peat-sod ring will draw the water out of the sand. This will cause localized dry spots, wilting, disease due to stress, along the entire edge of the tee area.

A suggestion: It is easy during
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Construction—

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construction to run drain tiles through the subsoil which should solve the above two problems.

GREENS

□ Buy or borrow a set of sieves to check sand mix before it is dumped at green sites.

□ **Do not** let the end of drain tile, frequently referred to as the clean-out, be plugged up or buried. Run the end to a six- or 12-inch vented box. Your system needs air to properly drain and this is its only source.

□ Consider using a plastic barrier around the perimeter of the green, from the top to the subsoil before adding greensmix. This will prevent localized dry spots on edges. The surrounding area cannot leach water or nutrients from the sandmix and this may help prevent invasion of pythium root rot.

Checks for Ponds

□ Suggested depth is 12 feet with a 1-foot bounce in order to have the different water temperatures at different levels invert. This will keep water oxygenated, healthy, reduce algae growth, reduce the needs for chemicals. Remember deeper and smaller is better than shallower and larger

Checks for Design And Maintenance Concerns

□ You can prevent many future problems by playing the layout before, during, after construction with golfers of different abilities. Try to envision where the balls will land from all possible locations. Try to determine possible areas of slow play, areas where balls may land off site, and areas where balls could be hit and be a hazard to other golfers.

□ Look for changes that could be made so that your equipment can do the mowing. Notice too steep of slopes, too small of bunkers, humps that equipment will scalp and alignment of tee to fairway to green for correct direction of play.

Checks for Irrigation System

□ Is the system adequate for current needs at peak times? Is it ungradeable? And, do you have enough quick couplers to cover greens and tees?

□ Get an "as built" plan before final payment is made.

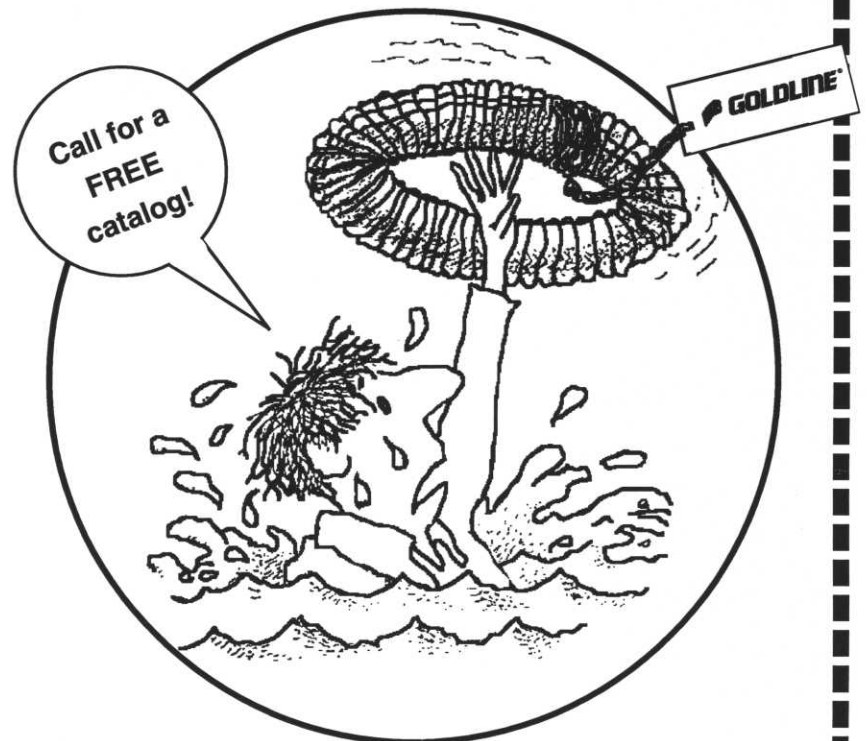
□ A handy tip is to have 110v and 220v service run to ponds and to pump

station for future pond aerators and other general uses.

Checks for Permits

□ Don't assume all permits such as wetlands, watershed, DNR, wetland delineation lines, etc. have been filed with copies available. Keep your own file because you are the one they will ask questions of in the future.

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