

# Treasure Coast "Tide"ings

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Rio Mar Country Club

## Correcting A Drainage Problem At Indian Hills

Nestled just east of U.S. 1 in downtown Ft. Pierce, Indian Hills Golf Club is fortunate because it sits right on top of the "east coast ridge". Because of its higher elevation (relatively speaking), drainage problems are few. In fact, the golf course is usually open when other area golf courses are closed due to wet conditions.

However, there is one low area at Indian Hills that resulted in problems after heavy rainfall. This situation was recently rectified by Golf Course Superintendent, Joe Briguglio.

The first and second holes at Indian Hills are situated on the lowest point of the golf course. Although this area is in the proximity of an irrigation lake, drainage had become a severe problem over the years due to compaction and high water table. Many times, this would be the only problem area on the golf course after heavy rainfall. Closing the golf course could not be justified because only two holes had standing water (especially since the golf course is operated for profit). Trying to direct golf carts around the sloshy areas proved futile and only added to the drainage problem by increasing compaction.

In order to rectify the situation, a drainage system had to be installed in this area. With his Greens Chairman, Joe surveyed the area and proposed a plan to correct the problem. After lengthy discussion and cost analysis, the project was approved.

As illustrated in figure 1, a basic herringbone drain field was installed in the first and second fairways to drain the surface water into the lake located to the south of the area. The first phase of the project included digging three parallel drainage ditches (4' - 5' deep x 2' wide) along the far sides of each fairway and between the fairways. A slope of 6" per 100' toward the lake was provided.

After the main ditches were in place, the project continued by installing the herringbone drain field. All the lateral drain flows into the drainage ditch between the two fairways as the purpose of the other two ditches is to aid in draining the area when the water table is naturally high or to relieve pressure from the system after extremely heavy rainfall. Again a slope of 6" per 100' was provided for when digging the herringbone field. Now that all main and lateral ditches were excavated, phase 2 could begin.

Fill rock was placed on the bottom of all ditches to a depth of 12" as diagrammed in illustration 2. On top of the fill rock, ADS drain pipe (4" - 6" diameter) was installed. Additional fill rock was then placed in the ditches to a depth 6" from the surface. In the area near the lake, tarpaper was placed over the fill rock to prevent water from entering the system in the event the lake overflowed and to enable the playing areas to drain more rapidly. The remaining 6" was filled with a sandy topsoil and aerifier plugs for regrassing. Within 5 weeks, no one could tell that the area had been disturbed.

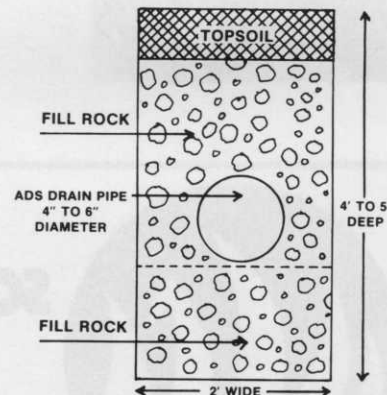


ILLUSTRATION 2.  
DRAIN FIELD CROSS-SECTION

Joe Briguglio stated, "After the first downpour, the system proved successful. We are now able to get the golfers off the first tee without the delays we encountered when the area held excessive amounts of water." Joe's employer is estatic about the drainage improvement - more golfers being able to tee off equals more revenue. Total cost of the project was \$4,800.00, \$200.00 below estimate!

Like many drainage problems encountered in Florida, Joe's predicament was unique. Although poor drainage was confined to a limited portion of the golf course, a COMPLETE analysis of the situation was in order. There are many variables that determine the cause of poor drainage (i.e. elevation, soil texture, water table, etc.).

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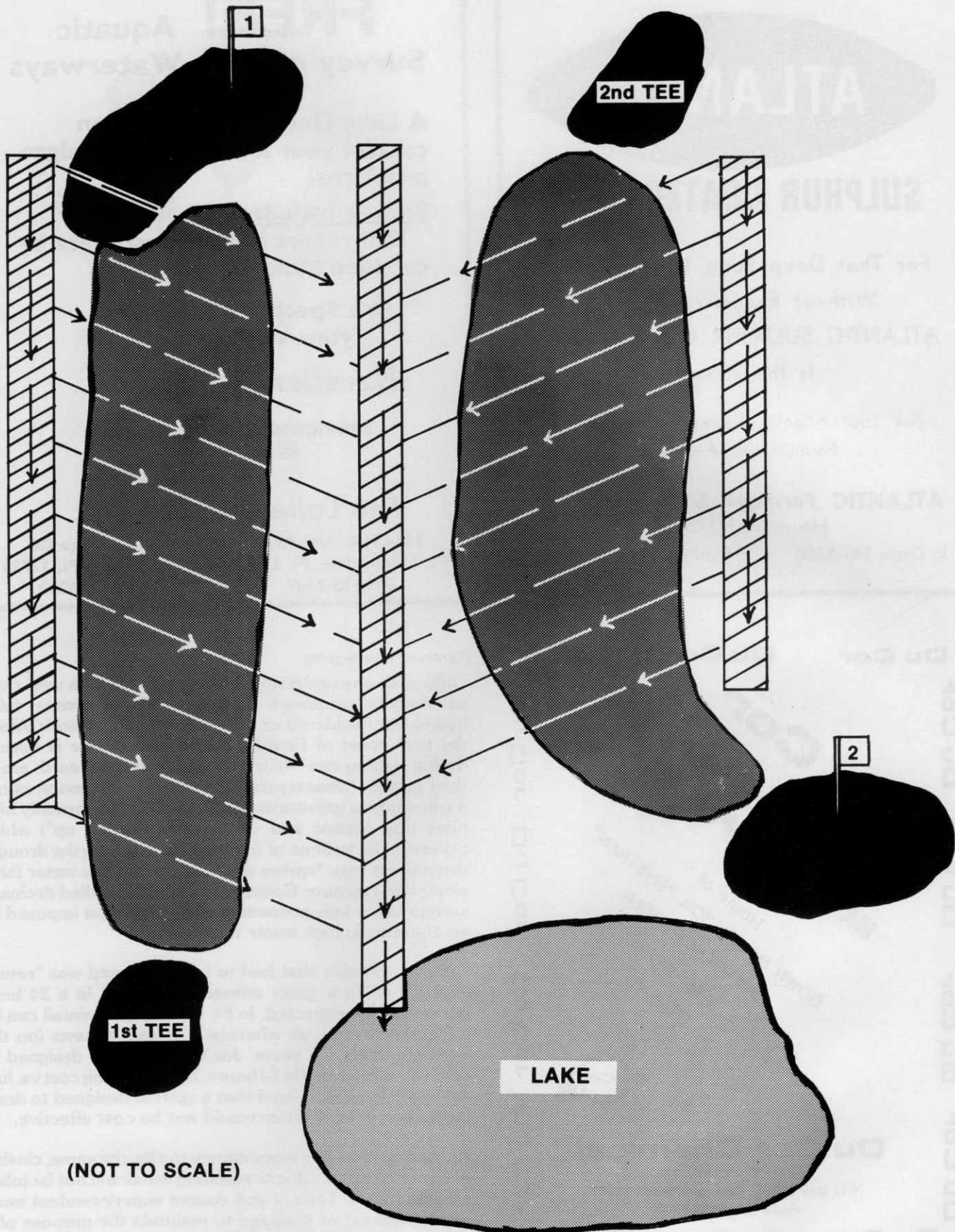


ILLUSTRATION 1.  
 INDIAN HILLS GOLF CLUB — FT. PIERCE

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Only after one understands why an area holds water can solutions be proposed. At Indian Hills, high water table had to be considered or the system wouldn't work. Along the east coast of Florida, a high water table is normal during "spring tide" -when the moon and the earth are at their perigee (closest point). At this time, the moon exerts a tremendous gravitational pull creating abnormally high tides (the oceans and water table "spring up") which occurs in the autumn of the year. Even during the drought three years ago, "spring tide" created a high water table along the Treasure Coast. Joe's newly installed drainage system takes into account for any limitation imposed by an abnormally high water table.

Another variable that had to be considered was "return period" -when a given amount of rainfall in a 24 hour period can be expected. In Ft. Pierce, a 3" rainfall can be expected every year whereas a 6" rain returns (on the average) every 2.5 years. Joe's system was designed to drain off a 3" rainfall in 24 hours. By estimating cost vs. lost revenue, Joe determined that a system designed to drain larger amounts of water would not be cost effective.

As more golfers pay more money to play the game, closing of the golf courses due to standing water will not be tolerated as much. Today's golf course superintendent must master the art of drainage to maintain the purpose of a golf course -BEING ABLE TO PLAY A GAME OF GOLF WHENEVER THE ELEMENTS ARE FAVORABLE.■

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