



## Concrete Culvert Over a Protected Waterway Supported by *ECP Torque Anchors*™

Nashville Area, Tennessee

This project was to design and build a concrete culvert over an environmentally protected waterway that cut through a golf course. The golfers needed to cross to get to other greens but the waterway made crossing difficult, and the traffic was damaging the waterway.



GroundUp Foundation Repair was contacted to solve the problem.

They enlisted the assistance of Culver Engineering along with a preliminary design analysis from ECP Engineering Office. A plan was presented to the owner that used *ECP Torque Anchors*™ Helical Screw Piles for support of the concrete culvert and *ECP Torque Anchors*™ Tieback Anchors for lateral support to the foundation.



*ECP Torque Anchors*™ were the perfect solution for foundation support with minimal disruption to the environment. Once the footings were excavated GroundUp installed 56 *ECP Torque Anchor*™ Vertical Piles. The plan also called for 106 *ECP Torque Anchor*™ Tieback Anchors installed at a downward batter angle to resist lateral forces against the culvert from soil and ground water.

The project was extremely successful for GroundUp Foundation Repair. The new concrete culvert allows water to flow freely in the protective waterway while allowing the golfers easy access to the greens without any damage to the sensitive waterway.



The top photo shows installing a vertical pile with a hydraulic gear motor. Directly below is the same machine installing a tieback anchor. Above are photos of the *ECP Torque Anchor*™ installations and the wooden form work for casting the concrete footing.



**Earth Contact Products, LLC.**  
*“Designed and Engineered to Perform”*

### Products Installed

- 56 – 4-1/2 inch diameter pile with tubular shaft with a 10 inch, a 12 inch and a 14 inch diameter helical plate
- 56 – TAB-T 450 4-1/2 inch diameter Tension Pile Caps
- 106 – 1-1/2 inch solid square steel shaft with three 12 inch diameter helical plates
- 106 – TAB-T 150 Tension Pile Caps for 1-1/2 inch square bar