

Creek Restoration To Reduce Erosion And Preserve Habitats

St. Thomas Golf And Country Club
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Issue

St. Thomas Golf and Country Club was designed by famed Canadian golf course architect Stanley Thompson. The course layout winds through exceptional terrain with Beaver Creek running through a portion of the property. Over time, creek bank erosion became a pronounced issue and course officials knew they had to take action to protect wildlife habitat and local water quality.

Action

A partnership with the local conservation authority helped secure outside funding for the planning and materials needed. A fluvial morphologist was hired to design proper measures to help control water flow and prevent further erosion problems. The project was complex and involved a variety of techniques for reducing erosion and enhancing wildlife habitat including:

1. River stone was installed to structurally stabilize and protect creek banks and promote revegetation in restored areas.
2. Riffles and pools were introduced to the creek. Riffles are shallow, fast-moving segments of a stream where turbulent water breaks over cobble and gravel. Riffles assist in oxygenating stream water and providing habitat for a variety of aquatic organisms that thrive in an oxygen-rich environment. Pools are deeper, calmer zones within a stream that provide valuable habitat for fish when streams reach high temperature and low-flow conditions during summer.
3. Rootwads, which are the lower sections of large trees, were strategically placed in key areas of the creek bank to collect sediment and encourage bank formation and stabilization. These structures also provide in-stream habitat for fish.
4. Vortex weirs were used in select areas to direct flow to the center of the stream and control stream grade, reducing bank erosion and preventing disruption of sediment transport. These in-stream structures also create variable water velocities that provide areas for fish passage.
5. Lunkers, which are crib-like wooden structures, were installed along the base of the stream bank to create overhead cover and cooler, protected resting areas for fish.
6. An upstream J-hook was installed. A J-hook is a gently sloping rock structure that helps disperse stream energy and reduce erosion by redirecting water flow to the center of the stream. These structures also provide in-stream habitat for fish and other aquatic organisms.

The entire creek restoration project was completed by the golf course staff with help from golfers and community volunteers. The primary challenge faced during the creek restoration was dealing with the ongoing water flow. Temporary flumes were created to dam off the work zones and create dry working conditions. The project was complete after just 10 days and the golf course was not significantly impacted at any point.

Results

The creek restoration project has been a tremendous success. The project has prevented further erosion of the creek bank, reduced sediment contamination in the stream and improved water quality. The stabilized banks also offer a more reliable habitat for wildlife. Changes to water flow within the creek also helped improve habitat value and water quality. The golf club is enjoying the improvements to the landscape and has benefited from positive collaboration with the local community.

The Beaver Creek restoration project is an excellent example of how golf courses can contribute toward improving the environment. The project also highlights how partnerships between golf courses and local environmental and wildlife authorities can benefit the environment and strengthen community relationships.



The Beaver Creek restoration project has been a tremendous success, resulting in stabilized creek banks, improved water quality and enhanced wildlife habitat.