

## Erosion and Sedimentation Control in Bent Tree

Erosion is a natural process accelerated by development activities. In areas such as Bent Tree, with severe topography and alluvial soil types, uncontrolled erosion contributes significantly to sediment deposits in streams and in Lake Tamarack. Regulation of development and/or construction activities is conducted on Federal, State and local levels depending on the specific project, but in most cases enforcement is delegated to the local level (Pickens County). Federal and State law protects “waters of the state” to ensure adequate water quantity and quality for all citizens. Mitigation of erosion and sediment problems are normally addressed through best management practices (BMPs). BMPs are also utilized to control debris (leaves, sticks, etc.) from clogging ditches and culverts.

In stream and river geomorphology, sediment is normally transported when the velocity of flow is increased during storm events. With the severe topography of Bent Tree, non soluble soil particles and debris are swept into running water and are conveyed until velocity diminishes to a point where particles can settle out. This is the way river deltas are formed.

Best Management Practices are typically determined through the development of a Watershed Management Plan (WMP). The WMP considers the specific information applicable for the Lake Tamarack watershed to identify BMPs that mitigate damage caused by development and impervious area. In Bent Tree, BMPs should specifically focus on prevention of debris and sediment transport downstream. It is far more cost effective to construct and maintain facilities in strategic, accessible areas in the upper reaches of the watershed.

Constructed BMPs are classified by two types, vegetative and structural. Vegetative BMPs involve the establishment of ground cover, shrubs or other plant material to hold soil particles in place through root and foliage. Structural BMPs are constructed from natural materials such as rock or stone, or man made materials such as concrete. In most cases, vegetative measures are preferred over structural due to their natural appearance and usually lower maintenance. Vegetation is also an effective filter material to allow water to pass into streams while retaining debris and soil. Monitoring and maintenance BMPs are essential elements to minimize adverse environmental impacts.

Bent Tree has constructed several BMPs in the past including silt dams, ditch checks and retention ponds. Many of these facilities were initially successful but lack of maintenance has rendered most of them useless or even detrimental to the ecosystem. Without a commitment from management for ongoing monitoring and maintenance, it is pointless to install these measures. The WMP should also address responsibilities for and frequency of these monitoring and maintenance tasks. Many of these tasks can be conducted by volunteers, but most will require heavy equipment and will have to be performed by trained BTCI staff and/or contractors. BTCI management has the responsibility to establish funding to address these issues which are critical to the sustainability of Bent Tree.