2009 Mid-Atlantic Stream Restoration
Abstract

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Presentation Type	oral presentation
Category	**Innovative watershed and stream restoration approaches/methods**
Title	The Innovative Process of 3-Dimensional Natural Channel Design
Abstract	Stantec has developed a breakline program which can be used in conjunction with AutoCAD to create 3D designs for stream restoration. The 3D design process offers many advantages for natural channel design projects. The breakline program can be used to quickly go through a number of iterations (e.g., 10–15), thereby optimizing the design (e.g., balance cut and fill). The 3D design also allows the designer to evaluate the design using other multi-dimensional models (e.g. River 2D, Flow 3D). The 3D design can also be used in conjunction with GPS-guided construction equipment. This can eliminate the need for stakeout and can dramatically speed construction by eliminating the need to constantly check elevations. The 3D design can also provide opportunities for more effective monitoring. Using a 3D approach to post-construction monitoring provides more accurate assessments of channel stability than traditional cross-sections. In summary, the 3D design process offers a number of advantages, including placing more responsibility of the designer for an effective design.