

Nicholas Bugosh's abstract for the paper presented 12 September 2006:

A Primer to the GeoFluv™ Method for Reclamation Landform Design
(using **Natural Regrade** software to design and evaluate landforms)

This presentation provides an overview of the reasons that using the GeoFluv™ design approach can offer: greater stability against erosion, greater opportunities for plant and animal diversity, lower construction and maintenance costs, and promotion of successful bond release, as compared to traditional reclamation landform design methods.

The term GeoFluv™ is not a generic term describing landform designs that incorporate fluvial geomorphic characteristics, but rather GeoFluv™ is a trademark for a very specific fluvial geomorphic landform design algorithm. The GeoFluv™ landform design method has proven to provide landform designs that are stable against erosion in what is arguably the most erosive area in North America, just east of the Grand Canyon. The GeoFluv™ landform design method forms the heart of the **Natural Regrade** computer software module that simplifies and speeds the making of these complex landform designs.

The fundamental concepts of the GeoFluv™ approach to stable landform design begin with the development of landforms over time, from youthful, actively eroding landforms to mature, 'stable' landforms. The approach has critical elements that must be incorporated into the design correctly to achieve success.

These critical elements include empirically determined measurements for critical stable landform dimensions that the designer will make in the design area. These empirical measurements integrate the effects of local variation in climate, earth materials, and vegetation that define local landform stability against erosion. By collecting empirical measurements from stable landforms in the area of interest and using these as inputs to the design, the designer can have a high degree of certainty that the GeoFluv™ landform design will perform similarly to the stable, natural landform.

The **Natural Regrade** software can also be used to evaluate a landform design that has been made with the software, or by other methods. The reviewer can use the software to check the critical landform design element values, or the reviewer can make a GeoFluv™ landform design for an area designed by other methods and compare the two designs for variances that can represent potential erosion sites.