



Area LiDAR and 2 Dimensional Model Grid Developed to Support Restoration Design Components and Alternatives

**Client:** Lehigh Hanson, Inc

**Services Provided:**

- ✓ Geomorphic Site Assessments
- ✓ Stream Restoration Design
- ✓ Hydraulic Modeling
- ✓ State and Federal Permitting
- ✓ ESA consultation
- ✓ Construction Oversight

## Project Objective

In 2007, a groundwater treatment system was installed as part of Washington State Department of Ecology's Model Toxics Control Act (MTCA) remedial actions at the Leigh Hanson site in Metaline Falls. The groundwater system treats downgradient flow from a closed cement kiln dust pile and discharges into Sullivan Creek through a side channel streambank. Following hydraulic modifications as part of a downstream bend structure and area grading, local changes to stream characteristics and channel morphology have been observed since 2010 with treatment bank failure noted over the winter of 2014. Additionally, upstream Mill Pond Dam has been slated for removal in 2018/2019, necessitating long-term project interface in the context of channel morphology, sediment transport and natural habitat development. The objective of this project was to develop a process-based stream restoration design that would 1) promote long-term bank stability and protection of the existing groundwater treatment system and, by extension, the water quality in Sullivan Creek and 2) enhance local habitat development through increased stream complexity, habitat connectivity and design hydraulics to help capture additional allochthonous materials.

## Geosyntec's Scope of Services

Geosyntec's services for the Sullivan Creek restoration project cover all project components outside of construction from initial site and watershed characterization through construction oversight. These services have included:

- Geomorphic assessment of Sullivan Creek and qualitative historic watershed analyses
- Bioengineering and habitat structure design
- Two dimensional hydraulic modeling to support design alternatives
- Regulatory negotiation, preparation and submittal of all appropriate state and federal permits
- Endangered Species Act consultation

The project design has considered upcoming watershed enhancement projects (e.g., up and downstream habitat structures, sediment traps, etc.) and the removal of Mill Pond Dam in 2018/2019 which is expected to mobilize over 500,000 cubic yards of retained sediment.

## Notable Accomplishments

The design has been completed, protects approximately 250-feet of stream bank and creates approximately 3,000 square feet of instream habitat. All state and federal permit documents and materials have been submitted on-time and with regulatory consent under an accelerated project schedule. Final contractor specifications and scopes of work are currently being prepared with construction scheduled for August 2015. United States Army Corps of Engineers has stated that Geosyntec has gone above and beyond typical stream restoration project requirements and expressed a desire that all project proponents follow suite.