



● REMEDIAL INVESTIGATION STUDIES, DESIGN, AND CONSTRUCTION

HOUSATONIC RIVER, PITTSFIELD, MASSACHUSETTS

Weston Solutions, Inc. (WESTON®) is providing comprehensive technical and analytical services including detailed assessment, alternative evaluation, engineering design, data management, and construction for one of the nation's highest profile environmental restoration projects: the remediation of soils and sediments contaminated by 1.5 million pounds of PCBs in Pittsfield, MA. The New England and Baltimore Districts of the U.S. Army Corps of Engineers (USACE), in a joint effort with



WESTON established an extensive system of dry areas and temporary dams to divert the Housatonic River and remediate 95,000 cubic yards of PCB-contaminated sediment.

USEPA, issued multiple task orders to perform cradle-to-grave services for the study, design, remediation, and short-term operation and maintenance (O&M) for the removal of 95,000 cubic yards of PCB-contaminated sediments for a 1.5-mile reach of the river.

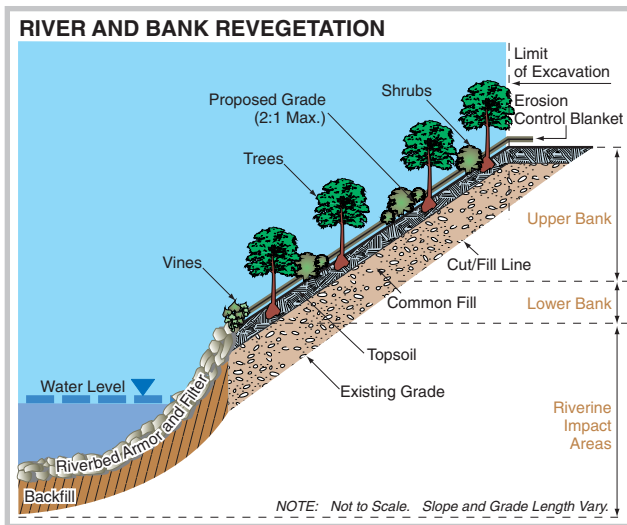
Remediation consists of a combination of sheetpiling, temporary dams, floodwalls, and pump bypass stations to allow for dry excavation. River restoration includes the establishment of suitable channel and flow characteristics and aquatic and terrestrial resources. Design review and construction oversight was also conducted for a 0.5-mile section of the river, which incorporated an active cap design with clean sand augmented with organic material to capture residual PCB inputs to the river.

WESTON is also conducting hydrologic, hydraulic, hydrodynamic, sediment transport, and bioaccumulation modeling as well as ecological and human health risk assessments for the 134-mile-long "Rest of River" operating unit.

Planning and Design

Following USEPA's approval of initial engineering analyses and cost estimates, WESTON planned, designed, and implemented the remedial program. All excavation and backfilling is performed in dry cells to minimize water content and facilitate sediment disposal. Design features included dewatering systems, river diversion, surface and groundwater treatment, stone slope protection, walls, dams, pumps, piping, modeling, sediment management, and habitat restoration. WESTON assessed disposal and treatment approaches for existing sediment disposal facilities, and developed the Engineering Evaluation/Cost Analysis (EE/CA) for 20 candidate treatment technologies for additional sediment removal and disposal/treatment.

WESTON also reviewed design and construction plans for the active sediment cap on the 0.5-mile reach and provided oversight of the responsible party remediation in that reach, including the long-term monitoring of PCBs within the cap. On the 1.5-mile reach, WESTON designed and constructed a cap to immobilize the contaminated sediments left after the removal action.



WESTON is restoring habitat using natural contours, revegetation, bioengineering, and installation of habitat improvement structures.

Assessments and Studies

WESTON prepared a Feasibility Study (FS), evaluating alternative approaches to ensure public safety and community acceptance for the remediation of PCB contamination at a nearby elementary school. WESTON also prepared the first Hazard Ranking System package for the site and conducted studies, investigations, and risk assessments in the upper reaches.

WESTON conducted an Ecological Risk Assessment (ERA) on the first 2 miles of the river, and drafted another ERA for the 134-mile Rest of River, including a 10.5-mile primary study area.

In addition to three ecological characterizations of 137 miles of the river and analyses of PCBs in 1,600+ biota samples, ecological studies were conducted on tree swallows, leopard and wood frogs, largemouth bass, bluegills, sediment benthos, and mink.

Extensive Modeling and Mapping

WESTON developed a hydrologic, hydraulic, and hydrodynamic modeling framework design that underwent a formal USEPA peer review, and we are undergoing calibration and validation of the watershed model, 2D and 3D hydrodynamics and sediment transport models, and a food chain model for the 10.5-mile primary study area.

Approximately 12,600 sediment/soil samples were collected and mapped for the first 12.5 miles of the river. Results of total PCBs, total organic carbon (TOC), and particulate sizes were evaluated at sediment depths of up to 12 feet. 3-D models and statistical assessments were used to identify data gaps, evaluate sample coverage in different habitats, and support the river modeling and risk assessments. The interim river models were revised and extended to examine PCBs in the river's broad floodplain in the 10.5-mile primary study area.

Hydrographic and Topographic Surveys

Over 300 river channel cross sections were surveyed and mapped using ArcView and CAD programs. The detailed survey information in the first 2 miles of the remedial reaches was used for removal estimates and restoration activities. Almost all of the 300 river cross sections were extended from the river bottom to the riverbank, and approximately 40 transect surveys were extended to the 10-year floodplain.

Geotechnical and Environmental Analysis

WESTON rapidly established interim processes for sample collection and analysis, and developed a multi-tiered analytical approach, using a field laboratory for the initial PCB and TOC analyses and base laboratories for confirmational analyses. The program sampled over 12,600 sediment and soil samples, 1,600 biota samples, 800 water samples, and 300 samples of other media including air. Analyses included total PCBs, PCB congeners, Appendix IX compounds, TOC, particulate sizes, bulk density, and water quality parameters. Geotechnical samples are routinely collected and analyzed during construction in the 1.5-mile reach to ensure backfill materials and riverbank restoration meet specifications.

Community Relations

WESTON prepared the Community Relations Plan for the project, supported USEPA community relations programs, and presented technical issues at Citizens Coordinating Councils in two states. We created a project Web site, produced the project's first public newsletter, developed internal technical advisory groups, and conducted over 20 technical status meetings with stakeholders.