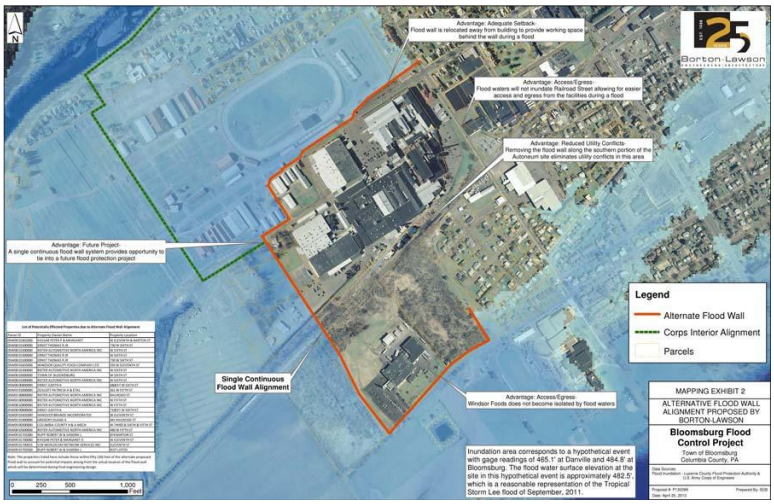
TITLE AND LOCATION *(CITY AND STATE)*	YEAR COMPLETED
BLOOMSBURG FLOOD CONTROL PROJECT **BLOOMSBURG, PENNSYLVANIA**	PROFESSIONAL SERVICES **June 2013 – Present**
PROJECT OWNER'S INFORMATION	
a. PROJECT OWNER **County of Columbia**	b. POINT OF CONTACT NAME **Ms. Kristy Coulter (Borton Lawson)**
c. POINT OF CONTACT TELEPHONE NUMBER **(570 815-2618)**	

RIZZO Associates (RIZZO), working as a sub-consultant to Borton Lawson, has been retained to supply Geotechnical Design and Construction Support Services for the Bloomburg Flood Control Project.



Columbia County is a largely Rural County located at the confluence of the North Branch of the Susquehanna River and Fishing Creek. The town of Bloomsburg is the only large community on the Susquehanna River between Wilkes-Barre and Sunbury without flood protection and the presence of these two waterways has produced frequent flooding. The flood stage in Bloomsburg is 19'. Since 1904, approximately 36 flood events have occurred in Bloomsburg; 24 of these have taken place since 1955, including two in 2011.

The Bloomsburg Flood Control Project original design entailed building two independent flood protection systems around the perimeters of Autoneum North America, Inc., and Windsor Foods, major employers in the town of Bloomsburg that have experienced severe devastation as a result of multiple flood events. Borton Lawson and RIZZO, proposed an alternate U shaped wall design that decreased the projected cost and reduced the time to completion of the project. The project includes a total of 8,500 ft. of flood protection wall, 10 gates and 1 Railroad closure,

Specific work includes:

- Subsurface Investigation and Report
  - Preliminary Borings at 500 ft. spacing and Final Borings at approximately100 ft spacing;
  - Oversight of drilling and laboratory testing programs;
  - Geologic profiles along the alignment; and
  - Phase 1 and Phase II Subsurface Investigation Report.
- Seepage Analyses
  - Calculations to evaluate design options for flood walls and closure structures, and
  - Seepage rates and uplift pressures,
- Foundation Analysis
  - Slope Stability, Settlement and Bearing Capacity for sections of the wall where earth levees will be constructed,
  - Bearing Capacity of foundation soils with estimates of short and long term settlement for critical sections of the wall and closure structures.
- Scour Evaluation using modeled water velocities in areas where scour protection is required
- Flood Wall Design
  - Conceptual design for sheet pile, H pile and combination earth levee/sheet pile walls
  - Cost estimates for 3 alternative walls
  - Matrix for acceptable wall types for walls from 0 to 14 ft. in 4 ft. increments
- Engineering Services during Construction