

News

Haley & Aldrich earns engineering award with complex foundation design for Maine island's only bridge

Burlington, Mass., Dec. 1, 2022 — The American Council of Engineering Companies (ACEC) of Maine has recognized Haley & Aldrich with a 2022-23 Honor Award for Engineering Excellence for Application of a Complex Design for a Challenging Environment.

The award honors the foundation design for the Beals Island Bridge replacement, the only roadway linking residents of Beals, Maine, to the mainland. The new Beals Island Bridge opened in July 2020 and has an expected lifespan of at least 100 years — 25 years longer than the typical bridge design life.

Haley & Aldrich provided geotechnical engineering services to the Maine Department of Transportation (MaineDOT) and lead engineering firm Vanasse Hangen Brustlin on the design and construction of the new bridge. The structure replaced a previous bridge, built in the 1950s, that suffered from severe pile section loss at several pier locations.

MaineDOT wanted the Beals Island Bridge replacement to qualify as a "forever bridge" with a design life of at least 100 years — a challenge that had to be met in a coastal environment with 12-foot tidal fluctuations, strong currents, heavy boat traffic, deep water, heavy scour, and highly variable soil and bedrock conditions. The Haley & Aldrich team addressed those difficulties with technical rigor while also engaging extensively with the communities directly impacted by the bridge.

"The highly collaborative approach to this project made it possible to deliver what our clients and the local community needed: a durable and cost-effective foundation system that also had minimal impact on the existing bridge and

sensitive marine environment during construction," said Wayne Chadbourne,P.E., Haley & Aldrich's lead engineer on the project. "We're honored to have these efforts recognized."

Haley & Aldrich conducted multiple phases of exploration and testing of soil and rock samples and completed complex technical evaluations, working closely with Vanasse Hangen Brustlin to determine which type of foundation system would best meet the design goals and the challenges of the project site. This approach resulted in the development of an efficient, optimized foundation design that minimized environmental and marine impacts.

In addition, at MaineDOT's request, Haley & Aldrich provided full-time on-site engineering support during foundation construction and testing, allowing the department's staff to focus on other work.

The new Beals Island Bridge runs immediately east of the original bridge. It measures approximately 1,062 feet long and 28 feet wide and consists of eight prestressed concrete girder spans supported on two abutments with shallow foundations and seven piers on drilled shaft foundations.

For more information: ?
Contact our Media team.