

## Patrick R. Graney, PE

Senior Civil and Structural Engineer  
Associate Vice President

### EDUCATION

MCE, Civil Engineering,  
North Carolina State  
University, 1997

BS, Civil Engineering,  
Magna Cum Laude,  
North Carolina State  
University, 1995

### REGISTRATION

North Carolina, 25930, 2000

Alabama, 31470-E, 2010

Georgia, 30361, 2005

Indiana, PE11300121, 2013

Kentucky, 29630, 2013

Maryland, 50701, 2017

Michigan, 62010 58238,  
2010

Missouri, 2015012999,  
2015

Ohio, 78735, 2015

Washington D.C., 908898,  
2017

West Virginia, 19655, 2012

USVI, 0-38794-2B, 2017

### AFFILIATIONS

American Association of Port  
Authorities

Chi Epsilon, the National Civil  
Engineering Honor Society

Tau Beta Pi, the National  
Engineering Honor Society

### EXPERIENCE

Mr. Graney is project manager and senior waterfront structural engineer with 20 years experience on a wide variety of urban waterfront and marina projects. His broad background covers planning, design, and preparation of construction documents for urban waterfront and marina components such as floating dock systems, piers, bulkheads, and shore protection, as well as the acquisition of permits from regulatory agencies. He has extensive experience designing structures in exposed to extreme flooding, waves and ice loading.

- Project Management
- Familiar with multiple engineering disciplines
- Planning, permitting, and designing marinas and waterfront facilities
- Preparing construction documents
- Preparing opinions of probable costs
- Proving construction services

**Recreation Pier, Washington, D.C.** Project Manager and senior structural engineer responsible design, drawings, specifications, and construction support services for the new pedestrian access pier. The pier is a 430 foot long, pile supported concrete pier, clad in Kebony, a sustainable engineered wood. The main pier structure consists of steel pipe piles, precast bent caps, precast panels, and cast in place closure pours. A floating concrete dock, also clad in Kebony, provides public access to the waterside and a means to launch kayaks from an accessible launch. The longitudinal axis of the pier curves horizontally and vertically, slightly arcing out from the landside bulkhead, while descending in elevation to a low point before ascending to the end of the structure. Additional features of the pier include a large 23 foot tall shade structure, vendor kiosk, floating wetlands, a 600,000 BTU fire feature, and public swings.

**Transit Pier, Washington, D.C.** Senior structural engineer responsible QA/QC of design, drawings, and specifications.

**District Pier, Washington, D.C.** Senior structural engineer responsible QA/QC of design, drawings, and specifications.

**Chattanooga 21<sup>st</sup> Century Waterfront, Chattanooga, Tennessee.** Structural engineer for design and construction documents for riverwalk, cruise ship berth, new pier, marina dock replacement, various floating dock systems, and assorted waterfront utilities.

**Paulus Hook Pier and Ferry Terminal, Jersey City, New Jersey.** Structural engineer for planning, design, construction documents, and construction support services to create a new ferry terminal consisting of new fixed and floating piers to support ferry service, private helistop, and support structure for the historic Colgate Clock. Developed multiple alternatives for the ferry pier including input to permit support. For the selected design alternative, provided design and construction documents for a 325-foot-long steel pipe pile foundation, concrete superstructure ferry pier that included the guide pile system for floating ferry docks and foundation support for the ferry terminal building.

**North Shore Riverfront Park, Pittsburgh, Pennsylvania** Structural engineer for underwater and topside inspection of existing structures and preliminary and final



design of new waterfront structures associated with the redevelopment of Pittsburgh's downtown waterfront. Provided final design of two water taxi land access ramps involving steel sheet pile bulkhead to form the ramp's perimeter, interior fill material, and interlocking pavers topping the ramp. Designed mooring posts and foundations for berthed water taxis. Assisted preparation of construction documents.

**Downtown Dayton RiverScape, Dayton, Ohio.** Structural engineer for the development of design alternatives involving schematic design for riverside bulkhead, travel ways, and breaches to be cut into the existing floodwall to allow access to the walkway. Provided final design support and opinions of probable costs for these components.

**East River Waterfront Pier 15, New York, New York.** QA/QC manager who reviewed design, drawings, and specifications. Also provided construction services.

**East River Waterfront Esplanade A, New York, New York.** QA/QC manager who reviewed design, drawings, and specifications. Also provided construction services.

**Port Newark Berth 14 Wharf Reconstruction, Newark, New Jersey.** Senior structural engineer for completing the design and analysis activities associated with the development of a proposed new wharf at Berth 14. Developing the structural analysis models for the new wharf, completing the design of steel and concrete elements, assisting in the mooring evaluation for the vessels expected to call at the berth, and completing the civil design works. Assisting in the development of the Contract Drawings for the project.

**30th Street Pier Municipal Recycling Facility, Brooklyn, New York.** Senior structural engineer responsible for design and construction support for both the new wharf facility and building foundations. This facility is envisioned to be the flagship facility for this client and includes an education center to teach children and adults alike the importance of and steps involved with recycling. The project included the installation of a new low-level relieving platform wharf with a king pile bulkhead wall. Instrumental in providing an economical solution to the need for installing piles into soils with limited geotechnical capacity. Involved the design of the pile supported barge offloading facility, which included a steel sheet pile bulkhead, fender and mooring system, concrete ballasted deck, monopile dolphins and warehouse foundations. During construction, provided technical support to ensure construction of the waterfront structures met the operational needs of the facility. Provided technical support, as necessary, and coordination with the Owner and the contractors to ensure construction issues were addressed in a timely manner.

**Norfolk Naval Shipyard Ship Repair Pier 5 Replacement, Portsmouth, Virginia.** Lead waterfront structural engineer/assistant project manager for planning, analysis, design, and construction document preparation for demolition of two piers and replacement by a new 1,225-foot-long, 230-foot-wide Pier 5 with the primary function of maintaining, servicing, and repairing all Navy vessels in the fleet. Mr. Graney led a team of 15 engineers to complete the project. In addition to Pier 5, project's structural aspects also included upgrade adjacent Hitchcock Street marginal wharf (1000 lf) and design of the adjacent Pier 3's heavy weather moorings. As part of project planning, he participated in the week-long FACD study to analyze and refine the joint venture's recommended alternative. FACD study results included optimizing vessel berthing arrangements, refining the pier's loading requirements, and completing material selection. Study recommended a construction sequencing approach and phasing plan to avoid impacts to shipyard operations. FACD process improved pier functionality and reduced overall coast by approximately \$10 million.