



The urgent need to replace, upgrade, and retrofit infrastructure drives the heavy civil, marine, and bridge construction industry. PND applies creative civil/structural design for increasingly complex projects that require the temporary structures necessary during construction while placing a premium on safety. PND provides end-to-end construction engineering support services, ensuring the infrastructure matches the design and project timelines remain on track.

**“PCCP was a very challenging project with many technically complex issues and a variety of contractual groups involved, including a very involved sponsor. During construction and throughout, PND coordinated with USACE for a safety and reporting plan that had daily and as-needed updates. I was impressed with both their technical capabilities and the ability to adapt to the unique project needs.”**

—JENNIFER KLINE, PE, LEAD  
TECHNICAL ENGINEER, USACE MVN

## PCCP OCSP™ COFFERDAMS & RETAINING WALLS

PND provided engineering services to Stantec for the award-winning Permanent Canal Closures & Pumps (PCCP) Project in New Orleans, Louisiana, a \$731M project for the U.S. Army Corps of Engineers (USACE), the first major design-build project for the USACE MVN District. The PCCP project featured unprecedented design and construction of deep excavation systems never before deployed in the region. PND designed nine cofferdams for the project, including a deep OPEN CELL SHEET PILE™ (OCSP) system for the pump station and permanent OPEN CELL™ retaining walls for the canals. Given the critical nature of the cofferdams, PND's design and calculations were subject to intense scrutiny from several subject matter experts.



### SEWARD HIGHWAY TEMPORARY BRIDGES

PND managed structural design services for temporary detour alignments at multiple traffic sites on the Seward Highway south of Anchorage, Alaska. The temporary detours carried public traffic during construction of the replacement bridges while the Alaska Department of Transportation & Public Facilities (DOT&PF) updated horizontal and vertical alignments to minimize detour fill volumes along the roadways. The temporary detour alignments from Milepost 75 to Milepost 90 included two temporary bridges and five temporary work trestles. PND provided wave equation analyses and site inspection services for the detours, and all deliverables were designed to meet AASHTO LRFD Bridge Design Specifications.



### KIVALINA LAGOON BRIDGE LAUNCH

PND provided construction engineering services to support the picking and erection of steel girder sections for the Kivalina Lagoon Bridge project in Kivalina, Alaska, located on the Chukchi Sea 80 miles north of the Arctic Circle. PND performed calculations and evaluated the contractor's proposed erection approach, then stamped an erection plan for DOT&PF review and approval per DOT&PF Standard Specifications for Highway Construction, DOT&PF Preconstruction Manual, and AASHTO LRFD Bridge Design Specifications. PND performed a post-fabrication condition inspection of the girders in Seattle, Washington before transit to the project site.



### ATKINSON/WSDOT I-5 GIRDERS ANALYSIS

PND designed a temporary work bridge for a 9-foot-diameter drilled shaft installation by Atkinson Construction, the prime contractor for a \$1.4B megaproject for the Washington State Department of Transportation (WSDOT) that widened and realigned Interstate 5 through Tacoma, Washington. The analysis involved a 123-ton and 223-foot-long bridge girder—the longest prestressed concrete girder in North America. PND provided work bridge engineering for the project, as well as design of a heavy-duty temporary tie-back wall on the river levees to support the lift cranes critical to hoisting the massive girders over the Puyallup River.

