IDEAS INTO REALITY

Ports, Marine Terminals, and Waterfront Facilities Services
BergerABAM is a leader in the analysis, evaluation, underwater and above-water inspection, repair, upgrade, and design of waterfront and marine facilities and floating structures. The firm specializes in marine-related planning, engineering, construction support, and inspection services for commercial ports, department of defense agencies, passenger ferry systems, municipalities, and terminal operators.

NEW FACILITIES
MODERNIZATION
EMERGENCY RESPONSE
ASSETS MAINTENANCE
BergerABAM offers a worldwide perspective on ports and waterfront facilities. This unique background provides clients with innovative and appropriate solutions that are functional, flexible, and cost-effective to meet future needs. Expertise includes upgrade and modernization of existing facilities to accommodate the next generation of vessels, cranes, and other operating equipment.

Whether an owner needs a small waterside structure, multimillion dollar cargo terminal, or emergency repairs resulting from natural or man-made disasters, staff is highly skilled in the planning and engineering support to complete a broad spectrum of services.

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Our Capabilities

With 60 years of experience in waterfront and marine facilities design, BergerABAM has unique insight in the process of designing facilities for construction that can reduce capital and maintenance costs. Over 90 percent of the firm’s business is from repeat clients, testimony to consistent and high-quality project management and engineering performance on all projects.

BergerABAM is prepared to provide engineering services on projects across the United States; Mexico; Canada; the East, West, and Gulf Coasts; Alaska; Hawaii; and Guam. Active project work extends to international locations in the Caribbean, Central and South America, Africa, South and Southeast Asia, and the Middle East.

PIERS, WHARVES, BULKHEADS
CARGO STORAGE YARDS
INTERMODAL YARDS
GATE AND TERMINAL SUPPORT BUILDINGS
PORT AND TERMINAL ACCESS
DREDGING AND RECLAMATION
FLOATING AND SPECIAL STRUCTURES
PUBLIC WATERFRONT FACILITIES
RAIL/HIGHWAY VEHICLE GRADE SEPARATIONS

PIERCE COUNTY TERMINAL BUILDING | TACOMA, WASHINGTON
Public-Use, Ferry, and Cruise Terminals

Taylor Avenue Dock and Boardwalk Renovation
Bellingham, Washington
This new 1,500-foot overwater pier provides pedestrians safe access over busy rail lines, access to beaches, and stunning views of the local bay and islands. BergerABAM provided condition survey, environmental documentation and permitting, rehabilitation design, pedestrian pier design, and construction support; assisted in upland park facilities; and helped with funding requirement compliance. The curved overwater boardwalk completes a regional trail system and includes boat moorage, a pavilion, a gateway plaza, and stair access to the beach.

Ferry Terminals Design and Upgrade
Statewide, Washington
Washington State Ferries operates over 20 ferry terminals in the Puget Sound region. BergerABAM provided on-call design and construction management services on continuous contracts since the mid-1990s for facilities statewide. Task orders have included terminal deck and piling repairs, development of Standard Hydraulic Actuated Lift Span development, terminal tie-up slip relocation, maintenance facility upgrade, dolphin replacement, and emergency inspection and repair.

Cruise Terminal Expansion
Cozumel, Mexico
When Hurricane Wilma struck the island of Cozumel and the Yucatan Peninsula, it severely damaged the existing cruise terminals. BergerABAM implemented a three-phased approach to the restoration of operation: immediate emergency repairs to address life-safety concerns and allow a tendering operation to ferry passengers to anchored vessels, short-term repairs to put the facility back in limited operation, and long-term repairs to complete the restoration and allow berthing of the latest generation of cruise ships.

Inner Channel Dock and Boardwalk Revitalization
Eureka, California
This revitalization project involved over 1,600 feet of rundown, underutilized waterfront. BergerABAM provided overall project management and structural design and assisted in the public review process on the client’s behalf. The project included a large plaza and concrete boardwalk designed with simulated wood planking with a wide promenade with terraces and seating. The redevelopment also featured several floating docks and a separate dock area for small commercial fishing boats with public access.
Wharf Extension
Tacoma, Washington
This dedicated container berth facility is the gateway for Alaska and Pacific rim operations. The wharf extension provides additional berth length and depth in response to larger post-Panamax vessels. The extension provides the marine terminal with 2,200 linear feet of marginal wharf (two berths); six ship-to-shore, post-Panamax gantry cranes; a 125-acre container yard; plus administration and maintenance facilities. BergerABAM provided engineering design and construction support.

Ramp and Turndeck Facility
San Juan, Puerto Rico
A unique structure designed specifically to receive roll on/roll off barges with three decks; this project was designed and constructed to replace an aging floating dock. The new facility incorporated an innovative combination of deep and shallow foundations to support multi-level ramps and barge access platforms. Tailoring the design to suit locally available equipment resulted in this $4.5 million project being delivered in 9 months, just as the existing floating structure was reaching the end of its useful life.

Berth 10 Upgrade and Extension
Cristobal, Republic of Panama
Built circa 1915, Berth 10 was a 130-meter-long and 23-meter-wide wharf located at the Port of Cristobal. BergerABAM, working on the design/build team, provided civil and structural design for this $38 million berth upgrade for rail-mounted container crane operations and extension of the berth to accommodate post-Panamax container vessels. Extensive coordination and construction support were provided to complete the project successfully.

Berth 9 Terminal Development
Longview, Washington
The first export grain terminal developed on the West Coast in more than 25 years includes 36 concrete silos that accommodate 4,740,000 bushels of commodities. BergerABAM designed the in-water structures, including an 800-foot ship dock with three shiploader conveyor platforms, grated steel trestles, concrete abutment, ship breasting and mooring dolphins, and prefabricated walkways, as well as a barge unloading dock with a barge marine leg platform, grated steel trestle, four breasting dolphins, and two steel pile stand-off dolphins. BergerABAM also provided construction support services.
Gravity Base Structure Graving Dock
Harbor Island, Texas
The Port Pelican graving dock was designed for the construction and outfitting of two large gravity base structures (GBS). The GBS modules are designed for offshore installation and are used to receive, store, and regasify liquefied natural gas for distribution in the United States. BergerABAM served as design engineer to the construction project manager and developed the site analysis, concept designs, earthwork and utilities design, and construction estimates.

Liquefied Natural Gas Terminal
Cameron, Louisiana
A key component for fulfilling the national demands for energy resources, this receiving terminal is designed to accommodate two 250,000-cubic-meter liquefied natural gas bulk carriers. BergerABAM was responsible for design of the tied back sheet pile bulkhead, two unloading platforms, and the breasting and mooring dolphins. A mooring and berthing analysis was performed to identify appropriate design loads for the dolphins.

Arctic Drilling Structure
Beaufort Sea, Alaska
Designed to accommodate both the foundation and ice conditions of the oil-rich waters of the Beaufort Sea, this relocatable structure is able to operate in water depths from 60 to 132 feet. By incorporating strong, simple concepts, BergerABAM developed a structure that took advantage of modern construction techniques, resulting in reduced costs and compressed construction schedules.

Liquefied Natural Gas Terminal
Cove Point, Maryland
The increasing demands for liquefied natural gas (LNG) required that berths used for receiving and unloading LNG vessels be recommissioned at this facility. The upgraded berths had to comply with current operational and safety requirements and allow berthing of larger vessels not present when the facility was first built in 1970. BergerABAM worked with the prime to evaluate and upgrade the berths, including a condition assessment and analysis, mooring analyses, repairs, and procurement support, as well as construction support.
Carrier Pier Complex  
Everett, Washington  
Naval Station Everett is one of the first proposed naval bases to take part in the Strategic Homeport concept. The facility is home to destroyers, frigates, an aircraft carrier, and other government vessels, as well as thousands of sailors and civil service personnel. BergerABAM served as prime designer for a berthing pier, marginal wharf, and a combination breakwater and berthing pier.

Pier 36 Berth Alpha  
Seattle, Washington  
Providing homeland security support throughout North America, this busy facility required upgrades to provide effective support of multimission directives, including logistics, search and rescue, ship escort, environmental protection, and enforcement of laws and treaties. BergerABAM provided engineering to replace the original timber structure and dredging to deepen the entire slip basin, including an expanded berth area. Work also included final design of the new pier, dredging, and extensive construction support.

Dry Docks Updates  
Portsmouth, Virginia  
This historic naval shipyard is an important part of the nation’s past and provides significant naval ship repair capacity to the nation. Several aging dry docks needed upgrade and repairs. BergerABAM provided updates to the features, operations, and maintenance standards for each dry dock; seismic analysis; and structural evaluation and repair designs. A critical element of the work included updating facility certification reports (FCRs) for each dry dock, a government requirement to maintain facilities operations.

Floating Double-Deck Pier  
San Diego, California  
BergerABAM developed a pier design for the U.S. Navy with the goal of a maintenance-free service life of 100 years and flexible in function and location. A floating double-deck pier was designed of concrete modules joined to form the desired length and built in dry dock for transport/assembly at a site. The design allows the berthing of vessels with differing sizes, utilities, and access demands with the ability to move and reconfigure the pier as missions change.
Vietnam is one of the fastest growing economies in Asia. In order to keep pace with the influx of goods, an immediate port infrastructure program was warranted. BergerABAM was contracted to produce a master plan and feasibility study for a new, $200 million container terminal in Halong Bay. The master plan and feasibility was quickly approved and then funded by global investors. The project will consist of a new 594-meter-long quay with a 16-hectare container terminal.

To expand throughput in an increasingly competitive Pacific Coast market, the operators turned to BergerABAM for master planning and engineering of the 16-hectare container storage yard. The limited area terminal was configured for maximum possible throughput using a high-density back-to-back electric rubber-tire gantry operation with associated high mast lighting, drainage, and utilities. To mitigate the liquefaction risk of existing fill, the program included ground improvement with stone columns and paving with high-performance concrete blocks.

Owners of this aging grain terminal enlisted BergerABAM to perform a planning study to decide on rehabilitation or replacement. The planning effort included development of three fundamental marine terminal concepts for bulk loading of grains to oceangoing vessels, plus a grain barge unloading facility. The engineering effort included a detailed condition survey, design of new mooring hardware, and recommendations for repair of an existing timber wharf, to maintain operations while development decisions could be finalized.

BergerABAM provided master planning and technical feasibility study for this major transshipment terminal located near the Caribbean entrance to the Panama Canal. The firm also provided detailed engineering and construction support for the multiphased development over a period of two decades. The 100-plus-hectare terminal has over 1,700 meters of container berths and is planned to have another 25 hectares of container yard and a 1,100-meter berth when completed by year 2015.
Waterfront Facilities Emergency Repairs
Beaumont, Texas
The government maritime transportation agency required condition survey of the Beaumont Reserve Fleet waterfront facilities. BergerABAM conducted underwater and above-water surveys, developed repair concepts, and subsequently designed a replacement pier. While in design, Hurricane Ike damaged the entire facility. The BergerABAM dive team mobilized and arrived on site within 24 hours of notice to proceed. Emergency inspections were conducted and a damage report prepared presenting repair and replacement costs.

Terminal Berths Underwater Inspections
Manzanillo, Mexico
Pile damage on a pier structure was discovered by the terminal operator during routine maintenance. BergerABAM quickly mobilized to the site and performed dive inspection on the concrete piles and the steel sheet pile bulkhead. Core samples from the concrete piles were obtained for petrographic analysis to determine the cause of deterioration. Plans and specifications were prepared for pile jacket repairs to restore the structural integrity of the piles.

Bridge and Waterfront Facilities Underwater Inspections
Statewide, Alaska
The state department of transportation required on-call condition survey of bridge and waterfront structures’ pile and pier supports. BergerABAM conducted underwater and topside inspection, nondestructive testing and analysis, scour evaluation, riprap condition evaluation, an assessment of the current structural condition, and provided recommendations of repairs required. Environmental conditions at each of these sites varied significantly, including high-water velocity, zero visibility, subfreezing temperatures, and diving beneath the ice.

Terminal 7 Berths A and B Inspections
Tacoma, Washington
Structural deficiencies were discovered on this part timber, part concrete wharf built in the 1960s and rebuilt in 1977 to repair a portion due to fire damage. BergerABAM performed in-depth above- and below-water inspections of the wharf underside. The inspections included all of the approximately 1,800 timber piling, over half of the approximately 900 concrete and steel piling, all 1,800 linear feet of timber bulkhead, the majority of timber and concrete pile caps, and the laminated timber decking.
Container Terminal Redevelopment
Seattle, Washington
Reopening a previously idle container terminal required upgrade to the wharf for new cranes and upland improvements for new equipment and utilities. BergerABAM provided overall site layout and circulation studies of a narrow, linear terminal; new gate facilities with scales, optical card reader, and radiation portal monitoring equipment; fencing and other security features; new pavement; reefer racks; and new storm drainage features, including stormwater filters to meet water quality regulations.

Container Terminal Expansion
Balboa, Republic of Panama
The rapidly growing terminal near the Pacific entrance to the Panama Canal required more berth length and container yard. BergerABAM designed a dredging, filling, and densification program to reclaim land from the bay, as well as a wick drain and surcharge program to consolidate existing soils. Vibrodensification reaching 20 meters in depth was required to reduce liquefaction potential. A unique concrete plinth system was used to support the containers. Paved aisles and roadways were integrated with the drainage and utilities.

Container Terminal Site Stabilization
Cai Mep, Vietnam
The 60-hectare container terminal site near Ho Chi Min City is an intertidal salt marsh comprising 45 meters of poorly consolidated clays. BergerABAM devised a cost-effective wick drain/surcharge program to consolidate the upper 25 meters of the soft clays that allowed predicted settlements to be within acceptable limits. The project required reclaiming the existing site with 3.5 million cubic meters of imported sand placed in thin layers to mitigate slope failure. The civil design also included dredging, slope protection, paving, drainage system, and electrical utilities.

Blair Waterway Widening
Tacoma, Washington
A major Pacific Northwest port wanted to widen one of its waterways to allow the next generation of ships unimpeded access to current and future terminals. BergerABAM’s team designed the dredging for two locations involving 200,000 cubic yards and 2 million cubic yards. A key accomplishment was the design reclaimed enough of the dredged and excavated materials for future use in raising the elevation of adjacent parcels of land to make them suitable for marine terminal use.

Civil Site Development
Our Clients

PORTS AND Terminals
- Jacksonville Port Authority, FL
- Port of Washington, OR
- Port of Bellingham, WA
- Port of Camas-Washougal, WA
- Port of Coos Bay, OR
- Port of Corpus Christi, TX
- Port of El Paso, TX
- Port of Everett, WA
- Port of Grays Harbor, WA
- Port of Houston, TX
- Port of Kalamazoo, MI
- Port of Lewiston, ID
- Port of Long Beach, CA
- Port of Los Angeles, CA
- Port Metro Vancouver, BC
- Port of Savannah, GA
- Port of Seattle, WA
- Port of Tacoma, WA
- Port of Vancouver, WA
- South Carolina Ports Authority
- Tamarack Port Authority, FL

Contractors
- American Civil Constructors
- American Construction
- Atkinson Construction
- Bergeron Construction
- General Constructors
- Gabrielle Fuentes, Jr. Construction Company, Inc.
- Granite Construction Company, FL
- Hal Jones Contractor Inc.
- Hochstetl Construction AG
- Howe Engineering Company
- Intercoastal Marine, Inc.
- Kiewit Corporation
- Misener Marine Construction, Inc.
- Pacific Construction Services, Inc.
- PCL/AT Curd Structures
- Rochnol, Inc.

Private Sector
- Abu Dhabi Department of Transport, Dubai
- APM Terminals North America, Inc., NC
- Arthausch (Australia) Limited
- Bausch & Lomb, Inc.
- Bell Atlantic, Gaithersburg, MD
- BHP Billiton Limited, TX
- BNSF Railways, Various
- Cai Meo and Cai Lan Container Terminals, Vietnam
- Chevres Corporation, TX
- Congressional Research Corporation, VA
- ConocoPhillips, TX
- Coastal Container, Ltd., India
- Domtar Resourcing, TX
- ExxonMobil, TX
- Fisur Maritime, NY
- Global Terminal, NJ
- Hilbert Schneider, Inc., TX
- Marubeni of Texas University, CA
- Ittayon, NY
- JLC International, TX
- Jungshin Marine, Ltd.
- Larson & Trobner, Limited, India
- Manzanares International Terminals, PA
- Panama Ports Company, Panama
- Port of Anchorage, AK
- Port of Astoria, OR
- Port of Coos Bay, OR
- Port of Long Beach, CA
- Port of Oakland, CA
- Port of Panama, Panama
- Port of Portland, OR
- Port of Savannah, GA
- Port of Seattle, WA
- Port of Tampa, FL
- Port of Tacoma, WA
- Port of Tyne, UK
- Port of Vancouver, Vancouver
- Sempra CA, CA
- SSA Marine, Various
- SSA Terminals, Various
- Schneider Steel Industries, Inc., WA
- Tacony Terminals, PA
- Teekay Brothers, CA
- Trailer Bridge, Inc., TX
- Transco Services, Inc.
- Western Terminal, CA
- Union Pacific Railways, VA
- U.S. Navy
- U.S. Rail and Refining Company, WA
- U.S. Shipping Co.

Local and State Agencies
- Alaska State Department of Transportation
- Bering Alaska, AK
- California State Department of Justice, CA
- City of Anchorage, AK
- City of Bellingham, WA
- City of Clarkston, WA
- City of Kent, WA
- City of Puyallup, WA
- City of Yakima, WA
- City of Yakima, WA
- City of Seattle, WA
- City of Tukwila, WA
- City of Vancouver, WA
- City of Wenatchee, WA
- City of White Center, WA
- City of Wilkes-Barre, PA
- City of Woodburn, OR
- City of Wrangell, AK
- City of Anchorage, AK
- City of Seattle, WA
- City of Tacoma, WA
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- City of Wrangell, AK
- City of Yakima, WA

Federal Government
- National Park Service
- U.S. Agency for International Development
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Department of Transportation
- U.S. Marine Administration
- U.S. Navy
- U.S. Trade and Development Agency