



MOFFATT & NICHOL

NEWS

Vol 4 Issue 4



A View to World Ports

SOON AFTER MOFFATT & NICHOL INAUGURATED ITS LONDON OFFICE IN JULY 2005, members of the core team of U.K.-based maritime professionals—Mark Simmons, Dean Davison, and Eleanor Hadland—

International Collaboration Key to Concession Award

launched a market study for the world's largest port terminal operator, Hutchison Port Holdings. HPH was moving forward on its tender for the concession to build and operate what will be the largest container terminal in the Port of Barcelona, and required a comprehensive market study as a key component of the bid package.

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NEWS UPDATES

ASPA Awards M&N Contract for Strategic Study



THE ALABAMA STATE PORT AUTHORITY (ASPA) has awarded Moffatt & Nichol a contract to develop a Maritime Strategic Development Study for the Port of Mobile. The port facility, which ranks 11th among U.S. ports in total trade, is a significant economic contributor to Alabama's economy. In an effort to expand port operations to meet future demand, the port authority commissioned the study to assess the port's potential for growth, define improvements that will optimize its facilities and operations, and—most important—identify the economic benefits of these improvements for Mobile's local and regional community. Moffatt & Nichol has a strong track record of performance with the ASPA, having conducted a number of planning and design assignments for its facilities.

M&N Recognized for Air Emissions Model

MOFFATT & NICHOL RECEIVED AN ENGINEERING Excellence Award from the American Council of Engineering Companies of Virginia for developing an integrated air emissions model for the Virginia Port Authority. The activity-based computational model quantifies air emissions produced by port operations by integrating accepted Environmental Protection Agency air emission factors with the firm's proprietary port planning models.

Proposed Charleston Naval Complex (CNC) - Marine Container Terminal



A View to World Ports International Collaboration Key to Concession Award

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SEEN AS ONE OF THE MOST SIGNIFICANT GREENFIELD OPPORTUNITIES IN EUROPE, bidding for the new 93-hectare Prat Pier mega terminal was highly competitive and comprised the world's leading terminal operators and shipping lines, including Moffatt & Nichol's then-confidential client HPH and its local partner Tercat, who subsequently won the concession. For Moffatt & Nichol, the project was the first large-scale development to fully integrate the firm's New York and London teams in an international collaboration that reflected the groups' capabilities and strengths in maritime facilities and infrastructure analysis.

"It represented the deployment of the groups' maritime expertise from a commercial and financial basis," London Operations Director Mark Simmons said. "Using Moffatt & Nichol provided the added value required to differentiate the clients approach in their submission."

As project manager for the effort in the London office, Eleanor Hadland brought relevant skill sets to the fore, which included a strong familiarity with the Mediterranean market and experience with the process and methodology to build the highly detailed and complex forecasts required to meet the challenge.



"The market study was a very high profile project with a very tight deadline."

"The market study was a very high profile project with a very tight deadline. We were coordinating the work between the two offices and meeting client needs well in advance of the final submission date for the concession bid," commented Hadland. "The client was working simultaneously on its overall concession bid and financial model, so there was no flexibility with regards to timescales. Importantly, we were able to deliver the key results ahead of time to enable the client's financial modeling team to do its work sooner."

The report submitted to the client identified a range of market and commercial factors that will drive the growth in different sectors of the market, which in turn will trigger the expansion phases for the terminal. The analysis comprised cargo forecasts, analysis of shipping line strategy, a comprehensive competitive study of regional port facilities, and a thorough examination of existing and potential hinterlands, which looked at the modes of transport and carried out a sensitivity analysis of the least-cost areas to market.

According to the Barcelona Port Authority the analysis and commitment by the successful bidder to increase intermodal transport to and from the port, particularly in the rail sector, accounted for a significant portion of the concession award. The 93-hectare facility will be the first built as part of the port's ongoing expansion program, and is due to be operational by 2008. ■

NEW CONTAINER TERMINAL FOR OLD NAVAL COMPLEX

THE SOUTH CAROLINA STATE PORTS AUTHORITY awarded a \$3.6 million site preparation and consolidation contract to Moffatt & Nichol to begin the design of a marine container terminal on the southern portion of the former Charleston Naval Complex, in North Charleston, South Carolina.

At full build-out, the terminal will occupy 286 acres and consist of three berths, state-of-the-art terminal gates, associated buildings, and container storage yards. The \$600-million project is being completed on a fast-track delivery schedule, and Moffatt & Nichol will manage the development of construction documents and contracts for efforts to stabilize and fill the site, which is on the west bank of the Cooper River. The site includes an inactive dredge material disposal area, freshwater wetlands, tidal marshes, open waters, and high ground.

"There are a number of challenges to creating a container terminal at the site, the biggest of which is the stabilization and improvement of very weak, compressible soils," says Tim Reid, Moffatt & Nichol's Raleigh operations manager. "Since the proposed facility extends out into the Cooper River, an additional challenge is the large amount of imported

fill required to surcharge the site and backfill behind the wharf to develop the backlands. Because of these issues, we'll break the work down into sub-projects to allow independent completion and to accelerate the project development."

The Charleston Naval Shipyard dates back to 1901, becoming a major Navy port during World War II, when the base was reorganized as the Charleston Naval Complex to house five major naval commands (the Naval Shipyard, the Naval Station, the Naval Fleet and Industrial Supply Center, the Fleet and Mine Warfare Training Center, and the Naval Reserve Center). As a result of 1993 recommendations by the Base Realignment and Closure Commission, the base closed April 1, 1996. Efforts immediately began to revitalize the 2,922-acre site.

Moffatt & Nichol's Raleigh, North Carolina office will lead Phase I of the project. The firm's port planning specialists and waterfront structural, civil, coastal, electrical, and mechanical engineers will complete the contract, which is a continuation of the terminal development planning consulting services that Moffatt & Nichol has provided to the port authority since April 2005. ■

"There are a number of challenges to creating a container terminal at the site..."





Growing Port Committed to staying green

WITH THE GOAL OF A BIGGER, greener port, the Port of Long Beach selected Moffatt & Nichol to provide management services for its Container Terminal Development Program, in part because of the firm's track record of producing environmentally-conscious master plans.

In anticipation of cargo volumes doubling within the next 20 years, the port implemented its \$1.9-billion program in 2001, a 10-year effort to expand service while mitigating the related environmental impacts on

Photos above courtesy of POLB

the larger community. Pier G, the first terminal slated for redevelopment under this program, will comprise a 315-acre state-of-the-art container terminal with new gates, berths, backland areas and buildings for maintenance, operations, and administration.

Moffatt & Nichol Project Manager Larry Nye believes that the first step toward a greener Pier G is Leadership in Energy and Environmental Design (LEED).

"The majority of the buildings are aged, have served beyond their useful life, and will need to be replaced or reconstructed. This gives us a great oppor-

tunity to develop a sustainable and more energy efficient terminal," comments Nye.

In fact, Moffatt & Nichol is designing terminals that are environmentally friendly from pier to rail yard.

Berths retrofitted with ship-to-shore power facilities will allow docked ships to use onshore electrical power rather than onboard diesel-burning auxiliary engines. This is an imperative for the POLB, which has committed to providing shore power to all berths at major container cargo and cruises ship terminals over the next five to 10 years.

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Air Emissions Models Help Port Clients Meet EPA Goals

NOW MORE THAN EVER PORT AND HARBOR management must focus on managing engine emissions associated with vessels and vehicles that call at their facilities. From diesel-powered ships at anchor, to the trucks and locomotives that move cargo toward its final destination, all are potential polluters. To better serve our port clients, Moffatt & Nichol has leveraged our expertise in facility operations and construction to help our clients rise to the challenge of managing and minimizing the environmental impact of growing emissions cargo throughput.

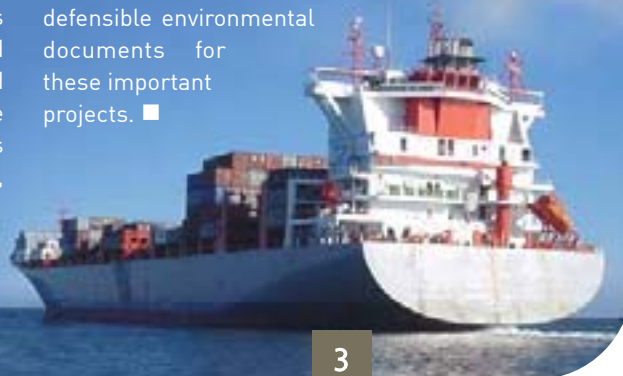
At present, Moffatt & Nichol is under contract to develop an air quality management plan for the Port of Stockton, assessing emissions from existing terminal operations and addressing long term growth opportunities and alternatives to reduce the port's overall emissions. Other recent such projects include construction emission estimates and general conformity analyses performed for the San Francisco Airport Runway Reconfiguration Project and the Delaware River Main Channel Deepening Project. In addition, we are performing a comprehensive baseline emissions inventory and forecast for the Virginia Port Authority.

In the course of a study, all emissions associated with goods moving through a container terminal are estimated by an air model that includes emissions from ships transiting and at berth, harbor craft and assist tugs, cargo handling equipment, and on- and off-terminal trucks and trains. Because we base the analysis on the same capacity models developed as part of our many years of port planning experience, the air model can be used to forecast the impact throughput growth and operational changes will have on overall emissions.

Of course, not all emissions are equal—they don't necessarily grow linearly with throughput, an important consideration when planning for the future. As throughput grows, ships often get bigger with fewer calls to port, and container yards become more grounded and queuing at gates increases. These effects can be captured by the air model. Another important consideration is the spatial distribution of emissions. Diesel particulate matter emitted by a ship in the approach channel miles away from port may be less significant for purposes of analysis than cargo handling equipment emissions in the terminal or intermodal yard near commercial and residential neighborhoods.

Beyond goods movement, emissions generated by construction associated with port projects have become an important issue. Because of the Environmental Protection Agency's 1990 Clean Air Act General regulations, emissions resulting from a federal action in air pollution impacted areas must be either included in a state's Clean Air Act implementation plan or offset to zero. This can be a major hurdle for significant port development projects as most include some level of federal action such as a USACE permit. Moffatt & Nichol's detailed understanding of construction equipment, operations, and phasing can be critical to developing defensible environmental documents for these important projects. ■

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NEWS UPDATES

B.C.'s Finance Minister Visits Fairview Container Terminal



BRITISH COLUMBIA'S FINANCE MINISTER CAROLE TAYLOR toured the Port of Prince Rupert's Fairview Container Terminal in October to view progress on Phase One of the terminal's conversion from break bulk to container handling capabilities. The terminal represents a new transportation corridor to meet marketplace demands on the West Coast and establishes the port as a gateway to Asian trade.

Moffatt & Nichol is providing project management services for all facets of the project, from initial planning through construction supervision and terminal commissioning. Phase One will convert the existing 22-hectare bulk cargo terminal to a facility capable of handling 500,000 TEU (twenty-foot equivalent units) per year.

Construction works include extending a 1,180-foot-long wharf seaward 70 feet to accommodate three new 100-foot-gauge container cranes and about 20,000 feet of intermodal working and support track. In addition, new container yard services, utilities, pavement, maintenance and administration facilities, and electrical transmission and distribution systems will be provided.

The port is currently pursuing regulatory activity and environmental studies required prior to implement Phase Two construction.



Oakland Bay Bridge East Span Design Wins Popular Science Award

POPULAR SCIENCE AWARDED

Moffatt & Nichol and joint venture partner T.Y. Lin International a 2006 Best of What's New Award for the firms' redesign of the San Francisco-Oakland Bay Bridge, New East Span.

Severely damaged during the 1989 Loma Prieta earthquake, the 2.2-mile-long replacement span is an example of innovative seismic design. The bridge will have expandable deck joints, enabling the bridge to expand and contract during tremors, and the steel beams will deform under pressure, absorbing force. The design also includes twin 1.5-mile-long viaducts that will carry five lanes of traffic in each direction and a 15-foot-wide pedestrian/bike lane on the south side of the eastbound deck.

Since opening in 1936, the bridge has served as the primary route between San Francisco and Oakland, and the East Bay communities beyond.

Growing Port Committed to staying green

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For cargo, the facility has been master-planned for conversion to electric container handling equipment, although, in the interim, Pier G is being designed for the diesel-powered equipment now in use. Berths will receive updated electric container cranes, and the container yard will be designed to allow the use of either rubber-tired gantry cranes or rail-mounted electric gantry cranes. Low-emission yard tractors will be used to transport cargo containers from ships to storage areas. To further reduce emissions, the existing rail yard serving piers G and J will become an on-terminal intermodal rail loading facility and container yard that will allow about 35 percent of containers to ship directly from the terminal, decreasing truck traffic and emissions.

Developing a green port also means addressing water quality issues.

Container ship photo courtesy of POLB

“The port plans to dredge to accommodate deep-draft vessels, which require a berth depth of 55 to 60 feet mean lower low water (MLLW), since the depths fronting the existing wharfs are only 35 to 42 feet below MLLW,” explains Alan Alcorn, deputy project manager on the project. “Having experienced dredging experts on staff, who have designed projects that comply with the strictest water quality standards, reduces the likelihood that the work will adversely affect water quality. Also, the dredged sediment will probably be

reused for future projects in the port. For example, reused material will be used to fill in the terminal’s current slip. Filling in the slip, which cuts the terminal in two, will improve the terminal’s efficiency.”

In addition, Moffatt & Nichol is supporting the port’s plans to install a stormwater system that complies with Standard Urban Stormwater Mitigation Plan requirements. The system will collect and clean stormwater before it drains into the ocean. “The port already has a stormwater control program that includes regular facilities inspections, so this will augment those efforts and ensure that Pier G is as green as possible,” concludes Nye. ■

“This gives us a great opportunity to develop a sustainable and more energy efficient terminal.”



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