Integrating Remedial Objectives into a Capital Improvement Project (Department of National Defence A and B Jetties): Lessons Learned

Shauna Davis (Shauna.Davis@dcc-cdc.gc.ca) and Becky MacInnis (Defence Construction Canada, Esquimalt, BC, Canada)
Michael Bodman (Department of National Defence, Esquimalt, BC, Canada)
Derek Ormerod (Anchor QEA, LLC, Bellingham, WA, USA)

Background/Objectives. Esquimalt Harbour, located at the south end of Vancouver Island, British Columbia, Canada, is the primary Pacific homeport for the Royal Canadian Navy (RCN). Most of the aquatic lands in the harbour are owned and managed by the Department of National Defence (DND). Addressing environmental risks associated with contaminated sediments in the harbour is a high priority for the RCN and DND based on the levels of contamination present and the potential for these sediments to result in human health and environmental risks. The harbour contains sediment contamination associated with industrial activity and naval operations. DND recognized the opportunity to remediate the contaminated sediment in conjunction with the recapitalization project to demolish and rebuild the A and B Jetty structures. Remedial actions took advantage of the removal of structures to dredge the maximum extent of sediment contamination, thereby reducing DND's corresponding liability. Coordination between the facility upgrade projects and contaminated sediment remediation activities included incorporating the remedial dredging elements into the structural design packages. This presentation will explore the unique challenges of integrating remedial elements into existing capital improvement projects.

Approach/Activities. To integrate remedial actions into the phased capital improvement project—with four potential separate contracts to complete the work—a preliminary remedial sequence needed to be developed to ensure remedial objectives would be met when the work was ultimately completed. Key elements for meeting these remedial objectives included minimizing the risk of recontaminating adjacent areas previously dredged, as well as developing a long-term strategy to retest the entire remedial footprint and allow for potential contingency redredging. Remedial-focused representatives were actively involved in both the design and implementation stages. During design, remedial-based specifications and drawings were provided to the structural team, who incorporated key elements into their design documents, a process that included numerous coordination meetings. During implementation, as the project's and contractor's methods and sequencing continued to evolve, support focused on real-time adaptive management and contingency actions to address changing conditions.

Results/Lessons Learned. Integrating remedial actions into design and implementation presented many challenges and lessons learned, especially determining which remedial elements could be flexible and which were mandatory to meet remedial objectives. Certain typical remedial elements, such as overdredge allowance, were not incorporated into the design, and construction sequencing was sometimes driven by capital works instead of remedial actions. However, some remedial elements were key to meeting remedial objectives, even though they may have contributed to increased cost or schedule delays. Successful design integration required educating the structural consultants/project owners on the importance of these key remedial elements, as well as understanding which remedial actions were key and which could be sacrificed to complete structural objectives. Other considerations and challenges encountered during construction included competing drivers for the contractor both for sequencing and dredge production rates and measurement and payment planning and tracking.