

Remediation of Sediment Sites in Washington and British Columbia: Lessons Learned

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Background/Objectives. Sediment remediation projects can be complicated and challenging when it comes to completing engineering designs and implementing construction activities. Engineers must develop design drawings and specifications that remediation contractors are able to review, evaluate, and understand during bid/tender periods. They must also implement construction management programs that track the progress, cost, and schedule for construction activities, while meeting project owner requirements and documenting how remediation objectives are achieved. This paper provides an overview of key lessons learned from recent design and implementation/construction efforts at large sediment remediation project sites in the Western United States and Canada (British Columbia). Based on this recent experience, additional observations are provided regarding mitigation measures that can be included in future sediment remediation project design and implementation efforts. Specific examples from relevant case studies will be discussed to support the lessons learned from these efforts.

Approach/Activities. Early in the planning phase of a project, the potential approaches to engineering design and construction implementation should be carefully considered to select the most appropriate approach that fits the site-specific needs for the project. Lessons learned during both the engineering design and implementation phases of a project should be thoroughly documented and evaluated so they can inform future efforts at similar sites. Additionally, remediation designs should build in some flexibility and an adaptive management approach while implementing projects to help manage project changes and potential shifts in schedule and cost. This paper will discuss recently completed projects, including the Whatcom Waterway Phase 1 Cleanup Project (Bellingham, Washington), Esquimalt Graving Dock Waterlot Multi-Phase Remediation Project (Esquimalt, British Columbia, Canada), Port Gamble Bay Cleanup Project (Port Gamble, Washington), Colwood Jetties Remediation Project (Colwood, British Columbia), and the Jorgenson Forge Early Action Area Cleanup Project (Seattle, Washington). This paper will also present a summary of lessons learned for each project regarding design and implementation, including dredge prism and engineered sediment cap design, schedule and cost control, coordinating with adjacent sites/projects, and adaptive management considerations.

Results/Lessons Learned. The lessons learned while completing engineering designs and implementing sediment remediation projects can be applied to future projects. Before selecting the design and implementation approach for a project, engineers will benefit from first understanding the complexity of the project, approach to risk tolerance, and requirements for budget and schedule. Reflecting on lessons learned from similar projects can shed light on potential challenges and help significantly improve future design and implementation projects.