Cowlitz River Flood Protection
Local Sponsor: Longview/Kelso

Project Description

The Cowlitz River is located on the Washington side of the Columbia River at approximately river mile (RM) 68. Public Law 99-88, The Supplemental Appropriations Act of 1985 authorized a project to provide a permanent solution to potential flooding on the Cowlitz River from sedimentation problems created by the eruption of Mt. St. Helens. Dredging in the lower portion of the Cowlitz River was defined as a near-term solution to the sedimentation problem to maintain flood protection. The Cowlitz River was last dredged in the mid-1980's. The current dredging effort is focused on maintaining authorized flood control levels by removing sediment that has deposited between river miles 0 and 5. The dredge depths are not proposed to exceed dredging depths from the early 1980 efforts. Figure 1 shows the Vicinity map from the mouth of the Cowlitz River to river mile 10. Figures 2 and 3 show representative proposed dredging geometry at RM 0.4 and 2.5, respectively. The figures identify current riverbed and material proposed for removal. These figures are indicative of the dredging efforts being considered. The current estimate for dredge material volume is between one (1) and two (2) million cubic yards.

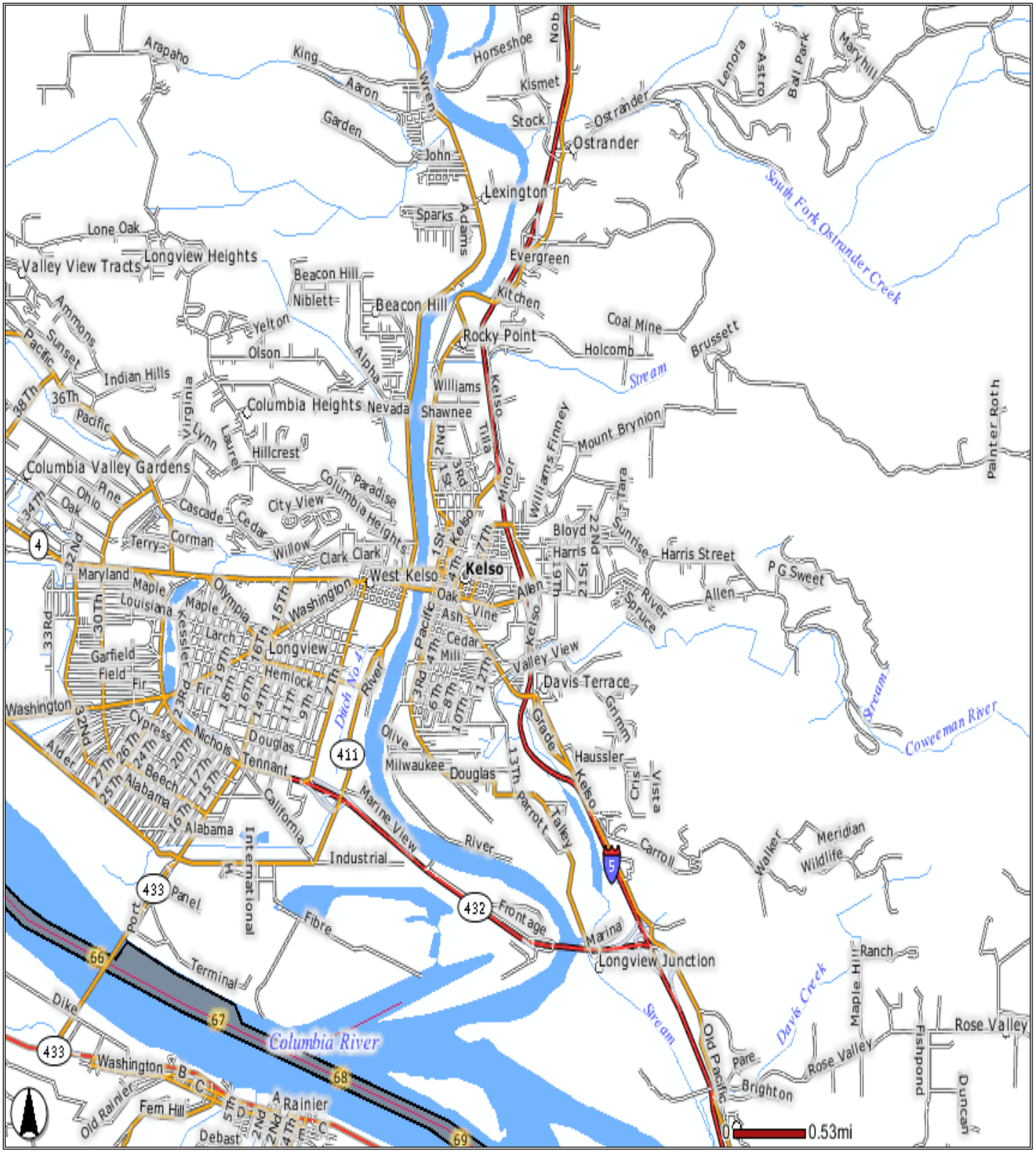
This sampling plan proposes to characterize the sediment between RM zero and 10, from the mouth of the river to the community of Lexington. It includes characterization of the 5 miles where the proposed dredging will occur and an additional 5 miles upstream, where the material is likely to migrate downstream as a result of the proposed dredging and natural river flow. The efforts will include the collection of ten (10) samples in the Cowlitz River, one for each river mile, and one sample in the Coweeman River for a total of eleven (11) samples. One of the ten (10) samples collected in the Cowlitz River will be located at the Coweeman – Cowlitz confluence. Approximately 500 yds upstream of the Coweeman – Cowlitz confluence, on the Coweeman River, there is a marina. This marina was created in 1979 and it was rendered unusable due to the Mt. St. Helens eruption. Figure 6 shows the condition of the abandoned marina. There is no expected contamination from this location and organotin will not be part of the chemical analysis suite. Proposed sampling locations are shown on Figures 4 and 5. Sample locations are summarized in Table 2.

Sediment

The physical analyses for the Cowlitz River resulted in mean values of 2.4% gravel (0.00% to 9.0% range), 96.3% sand (90.7% to 98.9% range), and 1.44% silt/clay (0.14 % to 5.28% range), with 0.37% volatile solids (0.29% to 0.45% range). The material is classified as sand.

The physical analyses for the one sample taken in the Coweeman River indicated 25.5% gravel, 49.4% sand, and 25.1% silt/clay, with 9.81% volatile solids. The material is classified as sand, with gravel, silt and clay.

Figure 1: General site map.



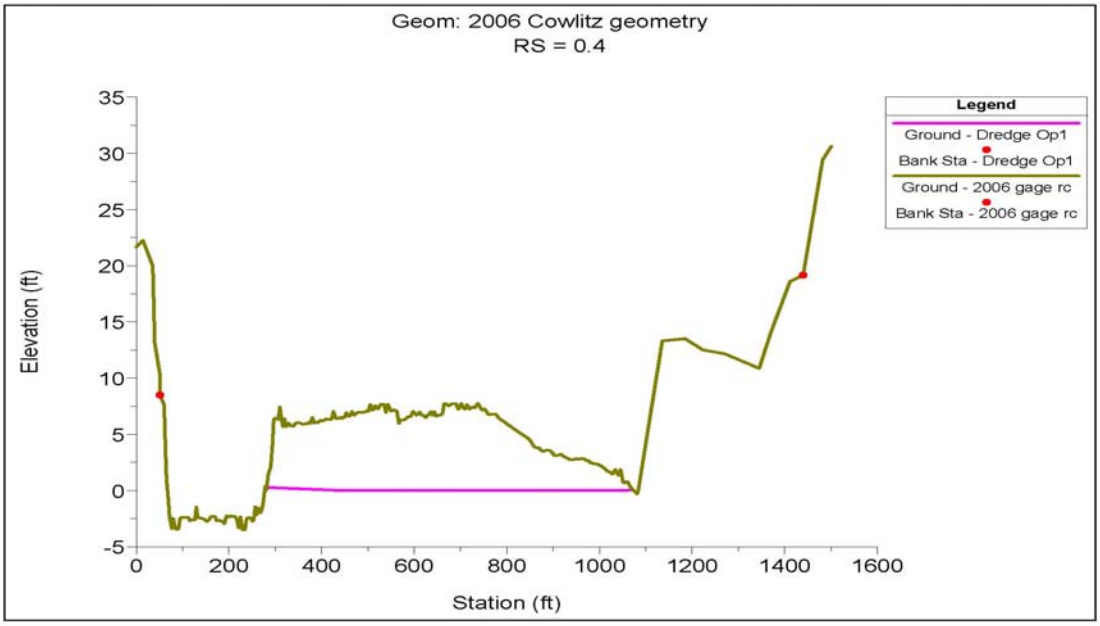


Figure 2: Cowlitz River at river mile 0.4, proposed dredging cross-section

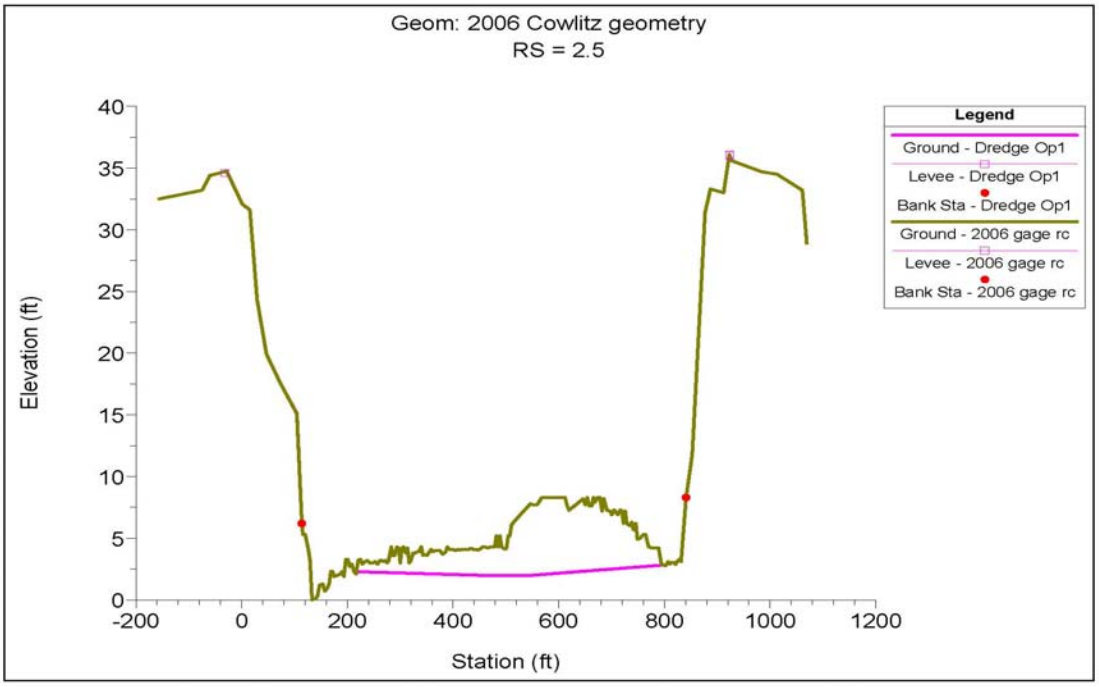


Figure 3: Cowlitz River at river mile 2.5, proposed dredging cross-section.

Sediment Evaluations

2006, There are no known sources of contamination within the Cowlitz or Coweeman River. In the spring of 2006, an assessment of the stream bed material and the stream load material was conducted. These samples were taken at Cowlitz Rivermile 5 near the Kelso Bridge; material was characterized as coarse sand.

January 2007, A total of eleven (11) samples were collected. Ten (10) samples were collected along the length of the Cowlitz River, approximately one per RM from the mouth to RM 10. One (1) sample was collected in the Coweeman River a couple of hundred feet above the Coweeman-Cowlitz confluence. All samples were submitted for physical analyses including total volatile solids. A total of six (6) samples were, also, analyzed for metals (9 inorganic), total organic carbon, pesticides and polychlorinated biphenyls, phenols, phthalates, miscellaneous extractables, and polynuclear aromatic hydrocarbon. The six (6) samples submitted for chemical analyses included samples collected in the lower five (5) miles of the Cowlitz River and the one (1) sample collected in the Coweeman River. All samples were collected as grab samples using a ponar sampler, as discussed in the Sampling and Analysis Plan (SAP); approved by the Project Review Group (PRG), prior to sampling.

The physical analyses for the Cowlitz River resulted in mean values of 2.4% gravel (0.00% to 9.0% range), 96.3% sand (90.7% to 98.9% range), and 1.44% silt/clay (0.14 % to 5.28% range), with 0.37% volatile solids (0.29% to 0.45% range). The material is classified as sand.

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The chemical analyses indicated only very low levels of contamination in any of the samples, with all levels below their respective SEF screening levels (SLs). The laboratory report for chlordane indicated that the method detection limit (MDL) for chlordane was above the SEF screening level for this compound. In the current SEF chlordane is reported as “technical” chlordane, which can represent a verity of different commercial preparations. Each of these commercial preparations contains one or more of the chlordane constituents. Because the initial lab report had an elevated MDL for technical chlordane, the lab was requested to look at individual constituents that were present in the chromatogram used to report the technical chlordane. Two chlordane constituents (alpha-chlordane and gamma-chlordane) were identified by the analytical laboratory. Since the laboratory MDL for chlordane is above the SEF screening levels, the MDLs for the constituent analytes are used to evaluate the material. Making use of the chlordane constituents, rather than technical chlordane, all MDLs were sufficiently low to evaluate the material proposed for dredging. Sediments represented by all samples in this sampling event are determined to be suitable for unconfined, in-water placement without further characterization.