



Oregon

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Via Electronic Mail

Noelle Wooten
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(nwooten@bakerdonelson.com)

Re: DEQ Comments on Draft Bank Erodibility Assessment

Boise St. Helens/White Paper (Cleanup Program File No. 0014)

Dear Noelle Wooten:

The Department of Environmental Quality (DEQ) is preparing this letter to provide comment on the report entitled *Draft Bank Erodibility Assessment, Former Boise White Paper Mill Site* (Erodibility Assessment) regarding the property at 1300 Kaster Road in St. Helens, Oregon, which was prepared by AECOM on behalf of OfficeMax LLC (OfficeMax) on April 2, 2024. The Erodibility Assessment documents the evaluation of the stability of riverbanks adjacent to Sediment Area 1 through 3, which is critical information for evaluating Remedial Action Objective (RAO) 6 under the March 2023 Record of Decision. RAO 6 aims to prevent recontamination of the Sediment Areas from erodible contaminated riverbank soils. DEQ has the following comments on the Erodibility Assessment:

General

- 1) Based on Near Bank Stress (NBS) values of moderate and high and the results of the Supplementary Evaluation in accordance with EPA guidelines for the Portland Harbor Superfund Site (PHSS), DEQ agrees that bank segments 15-28, spanning most of Subarea SA-3E and all of Sediment Area 2, are potentially erodible and should be further characterized during the pre-design investigation (PDI).
- 2) DEQ understands there may be disagreement between the determinations by the different methods [i.e., Bank Erosion Hazard Index (BEHI), NBS and Supplementary Evaluation] used to evaluate riverbank erodibility. However, DEQ suggests that if results from two of the three methods agree regarding the potential for erosion and/or visual observations indicate active erosion is occurring, those bank segments should also be included in the list of bank segments to be sampled under the PDI. DEQ believes bank segments 5, 7, 14, 31-35, and 37 would meet these criteria.

- 3) While nicely summarized in Table A1, photographs of all bank segments and accompanying summaries of BEHI calculations should be included in Attachment A – not just representative examples of riverbanks with low, moderate and high erodibility as determined by BEHI. In addition, as shown in Worksheet 3-11 in Attachment A, a cross-section sketch should be provided for each bank segment assessed using BEHI. Please revise Attachment A to include this information for all bank segments.
- 4) Exhibit 1 provides a conceptual depiction of a riverbank showing relevant vertical datums at the site, although it is very generalized. The cross-sections for the NBS evaluation in Attachment B do not show location-specific features of interest including top of bank, toe of slope, relevant water levels, the extent of stabilizing vegetation, armoring, structures or other features. In addition, the Attachment B cross-sections do not have a useful scale on the y-axis of the plots. DEQ recommends that cross-sections showing these features be added to Attachments 1 or 2 as appropriate.

Specific

- 5) Section 1 Introduction – This section indicates that the United States Environmental Protection Agency (EPA) guidance is tailored to the conditions of the local waterways. DEQ notes that the Bank Assessment for Non-Point Source Consequences of Sediment (BANCS) erodibility evaluation was developed by D. Rosgen for natural river systems and therefore does not account for conditions that are more commonly found in more industrialized river systems such as armoring and waterfront structures. Therefore, the BANCS should be considered one line of evidence (LOE) in determining the erodibility and recontamination potential for project riverbanks. The text should be revised for clarity.
- 6) Section 2.1 Quantitative Bank Erodibility Assessment – DEQ agrees that the BANCS erodibility assessment does not provide a measure of erosion rates and that the results should be verified through supplemental evaluations consistent with EPA guidance to make a final determination of riverbank erodibility.
- 7) Section 2.1.1 Bank Erosion Hazard Index (BEHI) – EPA guidance defines the bankfull level as “the point on the river bank that contains normal non-flood-level flows of the river throughout the year and is typically identifiable by visible changes in topography, vegetation type, or sediment grain size.” At PHSS, bankfull is being approximated by the Ordinary High Water (OHW) elevation. Include a discussion in the text on whether the use of the OHW at the Site is appropriate based on field observations of the visual changes that define the bankfull level.
- 8) Section 2.1.2 Near Bank Stress (NBS) – Please provide additional discussion regarding how the appropriate location for the “near bank maximum depth” was determined for the cross sections extracted from the composite digital elevation model.
- 9) Section 3.4 Conclusions and Recommendations –

- a. The text discusses the riverbank results in terms of the individual transects or segments while the conclusions broadly identify sediment for sampling based on their proximity to the Sediment Areas. It would be helpful if the conclusions were more specific about which river bank segments are proposed for PDI riverbank sampling for DEQ review and concurrence. Please include this information as a list or summary table.
 - b. DEQ believes it is appropriate to use the identified erosional areas and/or areas determined to have a moderate to high potential for erosion to inform bank segments for sampling under the PDI. However, this should not preclude other bank segments for sampling during a future phase of the PDI or Supplemental PDI if necessary. For example, information obtained from riverbank soil and surface sediment sampling planned under the PDI may reveal data gaps such as areas of riverbank soil contamination needing further delineation or other data needs. This section should acknowledge that the results of the PDI will inform the need for subsequent sampling to address identified data gaps (if any).
- 10) Attachment A, BEHI Low Rating Example, Bank No. 13 –
- a. DEQ notes that in calculating the ratio of study bank height (10.0 feet) to bankfull height (10.2 feet), the result was rounded to the nearest whole number (1.0). However, in the other examples provided, the result was expressed to a precision of a hundredth of a foot. Please provide explanation regarding the convention for rounding in performing this calculation.
 - b. Photographs of each bank sediment would be helpful to support review of the applied parameters and material adjustments.
- 11) Attachment A, Table A1, BEHI Data and Calculations –
- a. DEQ notes that for virtually all bank segments, there is at least one foot (i.e., and frequently, several feet) of difference between the study bank height and the bankfull height for calculating BEHI. For riverbank segment 13 (and 16A), the difference amounts to a matter of inches. It's not immediately apparent from the photograph in the summary sheet for segment 13 why this difference is so small. Please clarify.
 - b. With one exception, the BEHI Material Adjustment value applied to calculate the BEHI Rating was negative or neutral. Considering the number of bank segments evaluated and variable conditions reported along the entirety of the riverbank, it seems plausible that more than one of the BEHI Material Adjustments would be positive, although the level of detail provided is not sufficient to determine. Furthermore, although an adjustment of -10 for rip-rapped banks is consistently applied, there is no description of the size, condition, or % coverage for the riprap. Lastly, information regarding the relative abundance of silt vs. clay in the bank is not provided, which is important to determining the magnitude and direction of the BEHI Material Adjustment. Based on the information provided in Table A1, the adjustments appear to consistently lower the BEHI Rating. For each bank segment, please provide additional explanation for the decision logic in determining the appropriate BEHI Material Adjustment.

- c. As an alternative to the clarification requested in Specific Comment 11b above, in accordance with EPA guidance, a separate Qualitative Evaluation to account for surface armoring could be completed. EPA guidance on the use of BANCs does not include material adjustments and states that the empirical information parameters "...are not adjustable or scalable to accommodate different rivers." Completion of the Qualitative Evaluation, which accounts for conditions like rip-rapped banks, would be in line with the multiple LOE approach (Specific Comment 5) consisting of unadjusted BANCs, Supplemental Evaluation, and Qualitative Evaluation to determine erodibility.
- d. Table A1 does not include information regarding the presence/absence of stratification and observations regarding stratification are not discussed in the report, despite there being several references to (for example) a sandy beach transitioning to a silt-clay bank. Stratification indicates changing conditions over time at the point of deposition, which can result in layers with variable physical properties and resulting resistance to erosion. Please discuss the occurrence and locations of stratification in bank sediments adjacent to Sediment Areas 1 through 3 and how those observations correlate to/predict areas with observable erosion.

DEQ appreciates OfficeMax's submittal of this Erodibility Assessment to identify erodible or potentially erodible riverbank segments and help inform the scope of sampling to be completed as part of the PDI. Please prepare a Response to Comment and revise the Erodibility Assessment in accordance with the provided comments. Please contact me at 503-863-0810 or by email at jeff.schatz@deq.oregon.gov if you have questions or wish to discuss these comments further.

Sincerely,



Jeff K. Schatz, R.G.
Project Manager and Hydrogeologist
Northwest Region Cleanup Program

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(jks:JKS)