



June 5, 2026

Letter No. 459
BY-CRE-05650

Evelyn Pao, P.E., Project Director
Washington State Department of Transportation
I-405/SR 167 Program
18911 N Creek Pkwy S, Suite 150
Bothell, WA 98011

Project: I-405/Brickyard to SR 527 – Improvement Project
Contract No.: 009727

**Subject: Notice of Protest 021 – Issue SKA-0320 - Fish Passage Streambed Material
Gradation – Supplemental Written Statement**

Reference:

1. Skanska Letter No. 388, Notice of Equitable Adjustment – Owner-Directed Changes to Fish Passage Streambed Material Gradation (Issue SKA-0320) (March 27, 2026)
2. Skanska Letter No. 392, Supplemental Exhibits to Notice of Equitable Adjustment (April 3, 2026)
3. WSDOT Serial Letter No. 9727-318 (April 10, 2026)
4. Skanska Letter No. 411, Notice of Protest 021 – Issue SKA-0320 (April 24, 2026)
5. WSDOT Serial Letter No. 9727-333 (April 30, 2026)
6. AECOM Notice of Protest Supplemental Information, PCN-00148 – WDFW Sediment Size (June 2, 2026)
7. Contract Section 2.30.5.2.1 and Table 2.30-B – Structure and Channel Design Characteristics
8. General Provisions Section 1-04.5 – Procedure, Protest, and Dispute by the Design-Builder

NOTICE OF PROTEST SUPPLEMENTAL INFORMATION

Dear Ms. Pao:

Skanska USA Civil (“Skanska” or “Design-Builder”) submits this Supplement to Notice of Protest in accordance with General Provisions Section 1-04.5(2). This supplement responds to WSDOT Serial Letter No. 9727-333, dated April 30, 2026, which granted an extension and established a supplemental written statement due date of Friday, June 5, 2026, and supplements Skanska’s Notice of Protest 021 (Skanska LTR 411), dated April 24, 2026.

Skanska hereby incorporates by reference the attached AECOM Notice of Protest Supplemental Information, dated June 2, 2026, including its enclosures. The AECOM supplemental provides a comprehensive timeline of events and supporting documentation, which Skanska adopts and supplements with the additional information set forth below.

a. The date and nature of the protested order, direction, instruction, interpretation, determination:

Date of Protested Order: April 10, 2026

Nature of Protested Order: The Design-Build team protests WSDOT’s assertion in letter SL No. 9727-318 that, after review of Skanska Serial Letter 388 (Notice of Equitable Adjustment – Owner-Directed Changes to Fish Passage Streambed Material Gradation, Issue SKA-0320) and the supplemental exhibits in Skanska Serial Letter 392, “No OIC or equitable adjustment is warranted” regarding the streambed material gradation at the I-405 fish passages.

b. A full discussion of the circumstances which caused the protest, including names of Persons involved, time, duration and nature of the Work involved, and a review of the Contract Documents/Design Documents referenced to support the protest:

The attached AECOM supplemental provides the detailed project record and crossing-by-crossing timeline. Skanska supplements that record with the following factual analysis.

1. **WSDOT Provided Written Direction to Proceed with Over-Coarsened Material.** WSDOT SL 318 asserts that no field explanation or interpretation at a meeting constitutes direction under GP 1-02.1, and that no Written Change Order issued. The project record contains written direction distinct from that exclusion. On November 1, 2024, Alex Strom, P.E., WSDOT's designated I-405/SR 167 Corridor Program GEC Fish Passage Lead, provided written direction to AECOM by email to: (1) document calculations showing the need for upsized material; (2) document that AECOM followed the Streambed Material Decision Tree; (3) document the sediment-starved system conditions; and (4) justify upsizing per the WSDOT Hydraulics Manual. AECOM satisfied each condition and complied in good faith.
2. **Official Meeting Minutes Record WSDOT's Direction.** The official minutes of Fish Passage Task Force Meeting (TFM) #18 (August 27, 2024), prepared and distributed by WSDOT and never formally disputed, record: "Per WSDOT: Northfork Perry, Queensborough 405, Stream 25L, and Juanita proceed with 20% larger sediment than existing..." This direction was reaffirmed in TFM #19 (September 10, 2024): "Continue with over-coarsened channel for Juanita and SR 527 FHDs." These are documented project records, not informal field notes.
3. **WSDOT Cannot Direct the Decision Tree Process and Then Deny the Result.** WSDOT itself, through its GEC Fish Passage Lead, directed AECOM to follow the Decision Tree and document the supporting conditions, assigning the path-forward action item at TFM #16 (July 30, 2024) and formally directing AECOM to proceed at TFM #18. The absence of a formal WSDOT-WDFW written agreement does not shift responsibility to the Design-Builder, nor permit WSDOT to direct a design path, accept fourteen months of development, and then recharacterize the effort as a unilateral Design-Builder decision.
4. **Compliance, Ratification, and Constructive Change.** The Design-Build team performed as directed under GP 1-05.1. From July 2024 through January 2025, WSDOT reviewed submissions, participated in bi-weekly TFMs, and accepted Release for Construction (RFC) submittals for Par Creek, North Fork Perry Creek, and Queensborough I-405 – all with gradations exceeding the 20% limit – ratifying the directed design path. WSDOT's subsequent reversal beginning in early 2025 constitutes a compensable constructive change under GP 1-04.4, regardless of whether a Written Change Order issued.
5. **Scope of the Protested Crossings.** Consistent with WSDOT's direction in SL 318 that each crossing be addressed separately, the enclosed AECOM supplemental is organized by crossing. The crossings for which Skanska asserts cost and schedule impact are Juanita Creek, Queensborough SR-527, Queensborough I-405, and North Fork Perry Creek. The supplemental additionally documents Par Creek and Stream 25.0L not as claimed crossings, but as supporting evidence of WSDOT's inconsistent enforcement – each accepted with over-coarsened material and neither subjected to the rework imposed on the four claimed crossings.

c. The estimated dollar cost, if any, of the protested Work and a detailed breakdown showing how that estimate was determined:

AECOM's additional labor cost to implement the directed changes at the Juanita Creek, North Fork Perry, Queensborough I-405, and Queensborough SR-527 fish passages, as detailed in the attached AECOM supplemental (PCN-00148), is summarized below. This cost has increased from the original Notice of Equitable Adjustment due to actualized costs and estimate to complete, and Skanska reserves the right to update it as costs continue to actualize.

Description	Amount
Section 2.1 General / Management (106 hrs)	\$41,645
Section 2.28 Design Quality Management (106 hrs)	\$27,456
Section 2.30 Water Crossings (1,540 hrs)	\$364,687
Total (1,751 hrs)	\$433,789

The above reflects design cost only. Construction cost impacts attributable to the directed gradation changes cannot be reliably estimated at this time, as the affected fish passage designs have not yet reached Release for Construction (RFC). Once design is complete, Skanska anticipates these impacts will include a cost premium per cubic yard of the upsized streambed material, as well as potential on-site sorting and blending operations. Based on Skanska's experience, the larger gradation material directed by WSDOT creates voids that require the addition of smaller-gradation material to fill, necessitating on-site sorting that is not contemplated under the base Contract. Skanska will quantify and submit construction cost impacts to WSDOT once the revised designs are RFC'd, and reserves all rights to recover those costs as part of this Change.

d. An analysis of the progress schedule showing the schedule change or disruption if the Design-Builder is asserting a schedule change or disruption:

AECOM is currently evaluating the full schedule impact. At this time, the disruption caused by WSDOT's direction and subsequent reversal on streambed material at the four claimed crossings is estimated to have delayed the work from February 2025 through May 2026, approximately thirteen months, with design revisions ongoing as of the date of this letter. A detailed delay analysis is underway. Upon completion, Skanska will supplement this submission to reflect the actual delay, corresponding cost, and a request for a time extension. This issue is likely to affect the Critical Path and has redirected resources from completion of the base Contract design.

Requested Relief

Skanska respectfully requests that WSDOT:

- Reconsider its determination in SL No. 9727-318 and acknowledge that WSDOT directed the Design-Build team to proceed with over-coarsened streambed material exceeding the 20% limit in Table 2.30-B;
- Process an Owner-Initiated Change (OIC) for the costs and time impacts resulting from WSDOT's directed design changes and subsequent reversal, in the amount of \$433,789 as detailed in Section c above, subject to the forthcoming delay analysis and time extension request; and
- Issue a formal OIC at Juanita Creek consistent with both parties' acknowledgment that site constraints justify a sediment gradation exceeding the 20% threshold in Table 2.30-B.

Reservation of Rights

Skanska will continue to perform the Work as directed while this matter is being resolved. This letter is without prejudice to, and with a full reservation of, Skanska's rights, remedies, causes of action, and defenses under the Contract, at law, in equity, or otherwise. Nothing in this letter shall be interpreted as a modification or waiver, or an estoppel of Skanska's right to assert the same. Skanska expressly preserves all rights related to each of the fish passage crossings addressed herein.

Should this matter remain unresolved following WSDOT's determination, Skanska reserves the right to refer this dispute to the Disputes Review Board in accordance with Section 1-04.5(1).1.

If you have any questions or require additional information, please contact me.



Respectfully,

A handwritten signature in black ink, appearing to be "P. Prendergast", written over a horizontal line.

Patrick Prendergast, Vice President

Skanska USA Civil
18911 N Creek Parkway S, Suite 300
Bothell, WA 98011

Attachments:

1. *AECOM Supplemental Information – Notice of Protest (PCN-00148, WDFW Sediment Size), dated June 2, 2026, including Enclosures (2024 WSDOT-AECOM Email Correspondence; RFI #00559 – Juanita Creek WDFW PHD Review).*

6/2/2026

Via E-mail

Patrick Prendergast
Contractor's Representative
Skanska USA Civil West California District Inc.
18911 N Creek Pkwy, Suite 300
Bothell, WA 98011
Patrick.Prendergast@skanska.com

**RE: I-405-Brickyard to SR 527 Improvement Project
Contract No:009727
AECOM Response to WSDOT SL No. 9727-318 - Streambed Material Gradation - Notice of Protest (PCN 00148 – WDFW Sediment Size) – Supplemental Information**

Dear Mr. Prendergast:

I am writing on behalf of AECOM in response to WSDOT's Serial Letters No. 9727-318, dated April 10, 2026 and No. 9727-333, dated April 30, 2026. In accordance with the protest procedures outlined in Section 1-04.5 of the RFP: Procedure, Protest, and Dispute by the Design-Build team, AECOM hereby disputes WSDOT's statement that after review of Skanska LTR 388, Notice of Equitable Adjustment - Owner-Directed Changes to Fish Passage Streambed Material Gradation (Issue SKA-0320), dated March 27, 2026 and Skanska LTR 392, dated April 3, 2026, providing supplemental exhibits, "No OIC or equitable adjustment is warranted" regarding the streambed material gradation at the I-405 Fish Passages. As required per the agreement between Skanska USA Civil West California District Inc. ("Skanska") and AECOM Technical Services, Inc. ("AECOM"), dated October 25, 2022 (the "Design Subcontract"), please forward this to WSDOT as soon as possible, but no later than the deadline of June 5, 2026.

As a supplement to AECOM's Notice of Protest, dated April 22, 2026, entitled, "AECOM Response to WSDOT SL No. 9727-318 - Streambed Material Gradation - Notice of Protest (PCN 00148 – WDFW Sediment Size)," AECOM provides additional information as requested by WSDOT, as follows:

a. The date and nature of the protested order, direction, instruction, interpretation, determination:

Date of Protested Order: April 10, 2026

Nature of Protested Order: The Design-Build team is protesting WSDOT's assertion in letter SL No. 9727-318 that after review of Skanska Serial Letter 388, RE: Notice of Equitable Adjustment - Owner-Directed Changes to Fish Passage Streambed Material Gradation (Issue SKA-0320), WSDOT believes "No OIC or equitable adjustment is warranted."

b. A full discussion of the circumstances which caused the protest, including names of Persons involved, time, duration and nature of the Work involved, and a review of the Contract Documents/Design Documents referenced to support the protest.

Section 2.30.5.2.1 of the Technical Requirements Table 2.30-B, Structure and Channel Design Characteristics, provides a table stating the proposed [stream]bed material at all fish passages must be, "20% (max.) coarser than existing" at all Fish Passage locations. It is widely understood that streambed material is an aggregation of individual particles, having a variety of particle sizes and shapes. The variation in particle size is represented by a gradation that indicates the size of the streambed material. WSDOT has elected to use the diameter of the median particle size-represented as 'D50'-as a proxy for the streambed gradation. Therefore, this document refers to both 'gradations' and 'D50' when discussing

this streambed material design requirement. AECOM worked to adhere to all contract requirements including the Table 2.30-B gradation. Following the Streambed Material Decision Tree (WSDOT Hydraulics Manual, March 2022), constraints due to streambed stability were identified to support a streambed sediment mix coarser than the 20% increase from the existing gradations at all Fish Passages on the I-405 Brickyard Project. The design team initially notified WSDOT that the 20% maximum gradation could not fully be met while maintaining a non-eroding streambed in the July 30, 2024 Fish Passage Task Force Meeting (TFM). This was continually discussed in TFM from July 2024 through October 2024. On October 29, 2024, AECOM requested direction on how to progress design with the streambed sediment gradation being over the 20% maximum allowable size, via email correspondence. WSDOT responded to AECOM's email (see attached) on November 1, 2024, providing direction for AECOM to:

- Provide our calculations showing we need upsized material
- Document that AECOM followed WSDOT directives from the sediment tree (Streambed Material Decision Tree, Page 7-34 WSDOT Hydraulics Manual, March 2022)
- Provide documentation showing that due to items out of AECOM's control, we are currently in a sediment starved system and if we were to place material, our findings show the material will transport out of the crossing, and the crossing will immediately be placed back on the injunction list
- Provide documentation showing that in an effort to keep this crossing passable, and not having the sediment wash out, it is appropriate to upsize our material per WSDOT guidelines (WSDOT Hydraulics Manual, March 2022).

In WSDOT's Serial Letter No. 9727-318, WSDOT alleges an Owner Initiated Change (OIC) is not warranted to the design builder regarding the sediment size at the I-405 fish passages. However, meeting minutes from the fish passage task force meetings and above described email proves WSDOT directed the design team to provide a design differing from contract requirements. Additionally, WSDOT accepted RFC (Release for Construction) for 3 of the 6 fish passage designs with sediment size in excess of 20% for portions of the streams. WSDOT's concurrence to release design for construction at Par Creek, North Fork Perry Creek, and Queensborough 405 fish passages acknowledged they were amenable to the increased sediment sizes and update to the contract.

As the project progressed, WSDOT retracted their original direction and provided new instruction for the design team to follow Table 2.30-B with no deviations, making sediment sizes at maximum 20% throughout all streams. WSDOT provided this new direction via RCSR comments on the Final design of Queensborough 527 and Juanita Creek Fish Passage Final Hydraulic Design (FHD). When AECOM received these comments, AECOM again explained the sediment size was unable to meet contract requirements in portions of the streams while maintaining a stable streambed, and the design followed original WSDOT guidance. AECOM also noted the three other fish passages that had been released for RFC with over-coarsened material. WSDOT did not acknowledge their previous direction, nor AECOM's explanation that the streambed would be unstable if design fully met the 20% maximum gradation requirement.

The first time WSDOT notified AECOM the over-coarsened sediment size was unacceptable was via RCSR comments provided for Queensborough 527 and Juanita Creek Fish Passages. In accordance with TR Section 2.30.7.3.1, "For each fish passage being replaced, the Design-Builder shall submit a PHD to WSDOT for Review and Comment. After WSDOT's comments are addressed by the Design-Builder, WSDOT will submit the PHD to the Tribe(s) and WDFW for Review and Comment. The Design-Builder shall address the comments of the Tribe(s) and WDFW."

Prior to AECOM submitting the FHD for Juanita Creek and Queensborough 527, a successor to submitting the PHD, WSDOT had not provided the hydraulic reports to the Tribe(s) or WDFW as is required by contract. To confirm the proceeding designs were sent to the Tribe(s) and WDFW, AECOM submitted RFI 559 on August 28, 2025, to WSDOT. WSDOT responded on September 12, 2025, "The FHD for all fish passages submitted to date **have been shared with the tribe and WDFW** as required by

contract. The preliminary comments were never closed with WSDOT acceptance. The RCSR form was submitted with the FHD with codes of "R" Resolve comment in the next submittal phase. The FHD contained similar comments to the PHD that to date are not closed. Juanita Creek was sent to WDFW on February 26, 2025. WDFW has not responded with comments."

WSDOT's response notified AECOM they had not been providing the PHD for fish passages as required by contract. The response specifically states "the FHD" for fish passages have been provided to the Tribe and WDFW. Additionally, WSDOT responds in bad faith stating that "preliminary comments were never closed with WSDOT acceptance." If these comments were not closed, WSDOT would never have allowed the design progress to FHD and certainly not the RFC, similar to their actions on Juanita Creek and Queensborough 527 fish passages which took over a year to close due to unresolved comments. Because WSDOT failed to adhere to the requirements of the contract, AECOM was hindered in their design delivery. AECOM did not foresee a necessity for redesigning RFC'd designs because WSDOT provided direction to proceed with a greater than 20 percent maximum gradation and did not provide the PHD's to the Tribe and WDFW timely, thus, AECOM was left fighting for an already accepted design.

WDFW notified AECOM that no permit would be issued for the three RFC'd plan sets until the over-coarsened material was removed from the design. WSDOT also expressed concern that if the previously RFC'd design was not updated, WDFW would not remove the fish passages from the state injunction list, which is a project requirement.

After months of back and forth, WSDOT refused to acknowledge their prior direction and AECOM was forced to redesign the two fish passage designs submitted for Final, Juanita Creek and Queensborough 527, prior to submitting RFC, and provide NDC's revising design for Queensborough 405 and North Fork Perry to update the sediment size in areas that did not meet 20% maximum.

Although WSDOT and WDFW made comments regarding increased sediment size at Juanita Creek Fish Passage, WSDOT agreed the sediment size could not be decreased below a 20% maximum gradation. Additionally, the last fish passage hydraulic design AECOM provided, Stream 25.0L, also included over coarsened (greater than 20% of existing) material in the design. WSDOT again accepted this increase in sediment size for this fish passage.

Please see below for the timeline highlighting fish passage design package submissions and WSDOT's responses. In summary, WSDOT accepted 3 fish passage sites, Par Creek, North Fork Perry Creek, and Queensborough 405, to be released for construction (RFC) even though portions of the proposed streambed material exceeded the 20% maximum RFP requirement. From Final to RFC design, AECOM received minimal comments regarding the increased sediment size and resolved all comments with the WSDOT team. All six fish passages have similar design requirements and AECOM worked diligently to ensure all designs were consistent and agreeable to WSDOT. As conceptual design development is determined through the PHD submittal, AECOM continued with the over-coarsened streambed gradation concept through the FHD submittal and into the RFC submittal. After the PHD submittal, more details are added and it is increasingly difficult to change design paths.

In continuity with the current design path for previously accepted fish passages, AECOM submitted Final design packages for Juanita Creek and Queensborough 527 fish passages with over-coarsened streambed material. These streams have nearly identical designs to the fish passages that had already been released for RFC; however, for these Final designs, WSDOT refused to close comments related to streambed material size without concurrence from WDFW. This was a new roadblock WSDOT presented which should have been identified during the PHD phase. Because WSDOT failed to provide the PHD to WDFW and the Tribe prior to AECOM submitting FHD, excessive delay was caused for Juanita Creek and Queensborough 527 fish passage designs. In the FHD phase, WDFW stated they would not accept designs with greater than 20% gradation at any portion of the stream. AECOM was now required to provide new designs for both Final design packages and previously accepted RFC designs for Queensborough 405 and North Fork Perry Creek. The 20% maximum RFP requirement was arbitrarily enforced and conflicted with direction provided by WSDOT, which caused excessive delays and extensive rework for multiple fish passage sites.

WSDOT has requested the design team provide individual timelines for each fish passage; this segregation is provided later in this narrative. However, AECOM feels it is also important to show the chronology of all fish passage designs and approvals cohesively because of the timing of WSDOT's decisions and retraction of decisions throughout the design processes. The following provides a timeline of fish passage milestones on the I-405 Brickyard Project:

- November 2023 – Par Creek Preliminary Hydraulic Design (PHD) submitted to Skanska and WSDOT. The design includes proposed streambed sediment that is more than 20% larger than existing material. **No comments related to oversized streambed material size were provided by WSDOT or other comanagers.**
- March 2024 – Par Creek Draft Final Hydraulic Design (FHD) submitted to Skanska and WSDOT. The design includes proposed streambed sediment that is more than 20% larger than existing material. **WSDOT comments are provided in March 2024 and were fully resolved, including those related to streambed sediment sizing, in the May 2025 RFC submittal.**
- April 2024 – North Fork Perry Preliminary Hydraulic Design and Queensborough 405 Preliminary Hydraulic Design (PHD) submitted to Skanska and WSDOT. The design includes “streambed material” 20% larger than existing. Streambed material is noted as being unstable at the design flood, which is consistent with Appendix H08 of the Contract, and indicates a risk analysis and coordination with WSDOT is required. AECOM’s design also proposes coarser material for stability and resistance to scour. **No comments related to streambed material size were provided by WSDOT throughout these design reviews.**
- May 2024 – Par Creek Release for Construction Design (RFC) submitted to Skanska and WSDOT. The design includes WSDOT standard streambed sediment, which is approximately 60 times larger than existing material, and provides stability of the streambed at the design flood. **Concurrence is reached on all RCSR comments, including those related to streambed sediment sizing. See the individual timelines below for these comments.**
- June 2024 – Juanita Preliminary Hydraulic Design (PHD) submitted to Skanska and WSDOT. The design includes WSDOT standard streambed sediment, over coarsened material. Justification for over coarsened sediment is provided by AECOM in the PHD and is consistent with Appendix H08, WSDOT’s Draft Preliminary PHD.
- June 2024 – Queensborough 527 Preliminary Hydraulic Design (PHD) submitted to Skanska and WSDOT. The design includes “streambed material” 20% larger than existing. Streambed material is noted as being unstable at the design flood, which is consistent with Appendix H08 of the Contract, and indicates a risk analysis is required, and that coordination with WSDOT will be needed. Additionally, coarser material is proposed for stability and resistance to scour.
- July 30, 2024 – Brickyard – Fish Passage Task Force Meeting Minutes: Meeting #16:

No.	Mtg Origin	Title	Assignment	Due Date	Priority	Status
3.5	16	Streambed Material Sizing				Open
Description						
• Streambed Material Sizing / Risk Assessment						
Official Documented Meeting Minutes						
• Design analysis indicates that the streambed material sizes need to be increased for stabilization. • Tribes have noted that over coarsening does not allow for natural streambed operation. Upstream is not providing coarse enough material to provide stabilization. • ACTION: WSDOT to provide direction for path forward on gradation. • Gradation provided in FHD's does meet technical requirements. Need resolution through RCSR process.						

- August 2024 – Queensborough 405 Draft Final Hydraulic Design (FHD) submitted to Skanska and WSDOT. The design includes “Type I streambed material,” 20% larger than existing. A risk assessment is included in AECOM’s FHD Appendix S, which indicates an over coarsened channel is

required. Therefore, additional, coarser material is proposed for stability and resistance to scour. **WSDOT comments are provided in September 2024 and were fully resolved, including those related to streambed sediment sizing, in the September 2025 RFC submittal.**

- August 13, 2024 – Brickyard – Fish Passage Task Force Meeting Minutes: Meeting #17

No.	Mtg Origin	Title	Assignment	Due Date	Priority	Status
2.5	16	Streambed Material Sizing				Open
Description • Streambed Material Sizing / Risk Assessment						
Official Documented Meeting Minutes • Will know if this is an issue when comments on FHD's are received. • ACTION: WSDOT to discuss internally how to respond if it is an issue. • Is there a template for streambed material risk assessment?						
No.	Mtg Origin	Title	Assignment	Due Date	Priority	Status
			• WSDOT not aware of one but will inquire internally.			

- August 27, 2024 – Brickyard – Fish Passage Task Force Meeting Minutes: Meeting #18

No.	Mtg Origin	Title	Assignment	Due Date	Priority	Status
2.6	16	Streambed Material Sizing				Open
Description • Streambed Material Sizing / Risk Assessment						
Official Documented Meeting Minutes • Par Creek to remain as designed in RFC • Per WSDOT: Northfork Perry, Queensborough 405, Queensborough 405, Stream 25L, and Juanita proceed with 20% larger sediment than existing showing that it will scour and will be mobile with narrative within document that Shields equation does not take into account wood. Will likely not see the depth of scour that the Shields shows. Need to confirm structure is deep enough. • Design team risk assessment found some risk to be reviewed by design-build team.						

- August 2024 – North Fork Perry Draft Final Hydraulic Design (FHD) submitted to Skanska and WSDOT. The design includes “Type I streambed material” 20% larger than existing. A risk assessment is included in Appendix Q, which indicates an over coarsened channel is required. Therefore, additional, coarser material is proposed for stability and resistance to scour. **WSDOT comments are provided in September 2024 and were fully resolved, including those related to streambed sediment sizing, in the April 2025 RFC submittal.**
- September 10, 2024 – Brickyard – Fish Passage Task Force Meeting Minutes: Meeting #19

No.	Mtg Origin	Title	Assignment	Due Date	Priority	Status
2.5	16	Streambed Material Sizing				Open
Description Streambed Material Sizing / Risk Assessment						
Official Documented Meeting Minutes - Shields Equation doesn't account for LWM / other complexity components - Models represent LWM through increased Manning's n values - Models include riffles and pools in terrain, riffles double as steep as average slope used in prelim WSDOT models - WSDOT's current direction to use streambed sediment mix within 20% of the existing stream gradation - Ultimate Goal is Fish Passage: - Compromise between engineering analysis (coarser material) with more fine material? 1-foot lift at finished grade of the type 1 sediment with coarser/stable material under? - Path Forward: Continue with over-coarsened channel for Juanita and SR 527 FHD's						

- November 2024 – Juanita Draft Final Hydraulic Design (FHD) submitted to Skanska and WSDOT. The design includes WSDOT standard streambed sediment and over coarsened material. A risk assessment is included in AECOM's FHD Appendix P, which indicates an over coarsened channel is required.
- January 2025 – Queensborough 527 Draft Final Hydraulic Design (FHD) submitted to Skanska and WSDOT. The design includes "Type I streambed material" that is 20% larger than existing. A risk assessment is included in Appendix Q, which indicates an over coarsened channel is required. Therefore, following an alternatives analysis per guidance in Appendix 7A of the WSDOT Hydraulics Manual, additional coarser material is proposed for stability and resistance to scour. WSDOT comments are provided in March 2025.
- March 2025 – Stream 25.0L Preliminary Hydraulic Design (PHD) submitted to Skanska and WSDOT with over coarsened, greater than 20% existing, material. WSDOT Comments provided in April 2025. **No comments were related to streambed sediment sizing.**
- April 2025 – North Fork Perry Release for Construction Design (RFC) submitted to Skanska and WSDOT. The design includes "Type I streambed material," 20% larger than existing. A risk assessment is included in Appendix Q, which indicates an over coarsened channel is required. Therefore, following an alternatives analysis per guidance in Appendix 7A of the WSDOT Hydraulics Manual, additional coarser material is proposed for stability and resistance to scour. **Concurrence is reached on all RCSR comments, from both WSDOT and the Tribe (MIT), including those related to streambed sediment sizing. See the below individual timelines for these comments.**
- August 28, 2025 – AECOM submits RFI 559_Juanita Creek WDFW PHD Review Question and Response shown below:

Question from Meredith Cote (AECOM (Seattle)) at 08:49 PM on 08/28/2025

Per technical requirement section 2.30.7.3.1 - Preliminary Hydraulic Design Report, 'After WSDOT's comments are addressed by the Design-Builder, WSDOT will submit the PHD to the Tribe(s) and WDFW for Review and Comment.' For Juanita Creek PHD, comments were returned to AECOM on 7/29/2024 and comments were resolved (as returned from WSDOT on 1/7/2025) and incorporated into a Draft Final Hydraulic Design (FHD) report sent to WSDOT on 1/24/2025.

Please confirm and provide documentation that the Juanita PHD was sent to WDFW for review and comment as required in the Contract. If confirmed, please identify if WDFW had no comments or was unresponsive.

Additionally, please confirm the PHD's for the other Project fish passages were sent to WDFW in accordance with 2.30.7.3.1.

Official Response: Nancy Alpuche (Washington State Department of Transportation) responded on Friday, September 12th, 2025 at 1:18PM PDT

As indicated in your question – the FHD as submitted by AECOM is **the document that resolves WSDOT's comments on the PHD. The FHD for all fish passages submitted to date have been shared with the tribe and WDFW** as required by contract. The preliminary comments were never closed with WSDOT acceptance. The RCSR form was submitted with the FHD with codes of "R" Resolve comment in the next submittal phase. The FHD contained similar comments to the PHD that to date are not closed.

Juanita Creek was sent to WDFW on February 26, 2025. WDFW has not responded with comments.

Per the approved Hydraulic Project Approval for Juanita Creek, Appendix P04, an HPA modification is required prior to construction.

To date WSDOT has not been asked or provided with the information to submit a permit modification in accordance with RFP Section 2.8.5.2.2, *Permit Compliance, Modifications, and Additional Approvals*, "The Design-Builder shall work with WSDOT to identify changes to the methods and means previously described as part of the original environmental documents and permit applications. WSDOT will bring final detailed proposals provided by the Design-Builder to the Federal, State and Local regulatory agencies for document updates, permit applications and modifications, and ESA consultation or Section 106 consultation updates or re-initiations, as required."

Please note the following:

- RFP Section 1-04.1(2), *General Obligations of the Design-Builder*, "The Design-Builder, in addition to performing all other requirements of the Contract Documents, shall...Construct the Project and maintain it during construction in accordance with the requirements of the Contract Documents, each applicable Contract Schedule, all applicable Legal Requirements, all Governmental Approvals..."
- RFP Section 1-04.4(5), *Matters Not Eligible for Change Orders*, "Changes of any nature to the Environmental Commitments List (Appendix C) that are imposed by, or agreed to by a Governmental Body having jurisdiction, that are the result of the Design-Builder's design choices within the Design-Builder's control."

- September 2025 – Queensborough 405 Release for Construction Design (RFC) submitted to Skanska and WSDOT. The design includes, "Type I streambed material" that is 20% larger than existing. A risk assessment is included in Appendix Q, which indicates an over coarsened channel is required for streambed stability. Therefore, following an alternatives analysis per guidance in Appendix 7A of the WSDOT Hydraulics Manual, additional coarser material is proposed for stability and resistance to scour. **Concurrence is reached on all RCSR comments, from both WSDOT and the Tribe (MIT), including those related to streambed sediment sizing. See the below individual timelines for these comments.**
- March 2025 to December 2026 – Queensborough 527 and Juanita Creek Release for Construction Designs (RFC) are delayed by RCSR comments, primarily those related to sediment sizing. AECOM continued to have discussions with WSDOT / WDFW to resolve comments to progress design at

WSDOT's direction. **WSDOT eventually retracted their direction and refused to close comments on the design packages.**

- February 20, 2026 – WSDOT (Gabe Ng) requested a meeting with AECOM. WSDOT stated they wanted more open conversation with the design team only. In this meeting WSDOT provides approval for AECOM to revise designs for fish passages:

2/20/2026

- Juanita Creek
 - Briefly discussed utility crossing upstream at Juanita Creek. The utility line is several feet below the scour depth. WSDOT recommended not including this discussion of the utility crossing in the justification for sediment sizing.
 - AECOM to coordinate a follow-up meeting to continue conversation on Juanita
- Stream 25L
 - Gabe shared comments on the streambed justification. In general, feedback is to lessen the engineering justification, lean on the existing stream condition for design. Photos are strongest piece for this justification.
 - WSDOT will share the RCSR form with comments closed, with the understanding that comments related to the step-pool design will be points of further discussion.
- Queensborough
 - AECOM shared revised mix is 100% streambed sediment, 100% mobile
 - WSDOT agreed with this approach and stated the existing conditions match this closely
 - AECOM to share revised gradation with WSDOT to close comments related to sediment mix
 - Discussed adjusting depth of material below 3 ft. Difficult to justify anything below that without documentation of the material below the streambed, borings must be taking in the stream. Can adjust in the field if possible.
 - WSDOT is preparing responses to the QB527 RCSR form and will send to AECOM
- North Fork Perry Creek
 - AECOM shared revised mix is 90% streambed sediment, 10% 4" cobbles, 100% mobile.
 - WSDOT generally agreed with this approach.
 - WSDOT shared photos of natural meander bars in the stream and could share photos

Ng, Gabe <Gabe.Ng@jacobs.com>

To: Cote, Meredith; Jones, Curtis; Raheem, Yacoub; Boyce, Samuel

Cc: Sam Michels-Boyce <smichelsboyce@hntb.com>

Fri 2/20/2026 12:12

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Report Suspicious

Thanks Meredith for taking these notes. They align with what we discussed.

Thanks,

- May 4, 2026 – Queensborough 527 Release for Construction Design (RFC) submitted to Skanska. The design includes “streambed material” that is 20% larger than existing and the following statement, “through coordination with WDFW and WSDOT HQ Hydraulics, it has been determined that no significant constraints exist to justify an over coarsened channel. **Because the risks described in Appendix Q are considered acceptable to the Project’s co-managers, [unstable bed material] is selected for this crossing.**” Concurrence is reached on all RCSR comments, including those related to streambed sediment sizing.
- May 14, 2026 – Queensborough 405 NDC 152 was submitted to Skanska. The design includes “streambed material” 20% larger than existing, and the following statement, “through coordination with WDFW and WSDOT HQ Hydraulics, it has been determined that no significant constraints exist to justify an over coarsened channel. **Because the risks described in Appendix Q are considered acceptable to the Project’s co-managers, [unstable bed material] is selected for this crossing.**”

- May 14, 2026 – North Fork Perry NDC 152 submitted to Skanska. The design includes “streambed material” that is 20% larger than existing, and the following statement, “through coordination with WDFW and WSDOT HQ Hydraulics, it has been determined that no significant constraints exist to justify an over coarsened channel. **Because the risks described in Appendix Q are considered acceptable to the Project’s co-managers, [unstable bed material] is selected for this crossing.**”

WSDOT’s inconsistencies have caused continuous disruption and delay to design. Despite the established precedent to use over coarsened material, WSDOT later reversed its position, requiring AECOM to redesign fish passage sites (notably Juanita Creek and Queensborough 527) to conform to the original 20% gradation limit—without issuing an OIC or acknowledging the prior direction. This abrupt change in direction, after significant design development and agency coordination, constitutes a material inconsistency and contradicts both the contract requirements and WSDOT’s own prior approvals.

AECOM’s fish passage team had collaborated with WSDOT for years. WSDOT initially held to their word, accepting RFC for three fish passages with over coarsened sediment size but did not follow contract requirements to incorporate WDFW and the Tribe(s) in their direction. Because WDFW and the Tribe(s) had not reviewed the PHD’s or subsequent design submittals for these Fish Passages, it wasn’t until AECOM submitted FHD for Juanita Creek and Queensborough 527 that WSDOT backtracked their direction and required AECOM to redesign streambeds.

AECOM revised the design at WSDOT’s new direction but still designed for over 20% gradation at the Juanita Creek and 25L Fish Passages as required for stability of the fish passages and requested by WSDOT / WDFW. WSDOT is still refusing to provide an OIC for providing misdirection.

When WSDOT rescinded their original request, forcing AECOM to redo multiple fish passage designs, a major delay was caused for the project. WSDOT’s back peddling required time and resources not previously accounted for, as AECOM could not have been aware a design was to be provided twice for five of the six fish passages. This second iteration of the design is due to WSDOT’s indecision and inability to follow through on their prior direction. For this additional effort and time, AECOM should be compensated appropriately and delay from the WSDOT team should be recognized.

As WSDOT has requested the fish passages be detailed as separate issues, AECOM has also provided individual analyses discussed below.

Par Creek: Overview

AECOM submitted the Par Creek Preliminary Hydraulic Design (PHD) in November 2023. In this document, AECOM provided engineering analyses conducted in accordance with the WSDOT Hydraulics Manual, and consistent with the Preliminary Hydraulic Design Report prepared by WSDOT (included as Appendix H08 of the Contract). The preliminary design proposed by AECOM recommended streambed material size to be coarser than a 20 percent increase over the observed existing sediment. This was in conflict with the Technical Requirements Table 2.30-B to provide streambed stability. No comments were provided by WSDOT on the streambed material size. Because of this, AECOM proceeded with gradations over 20% of the existing sediment size in the Final Hydraulic Design (FHD) in March 2024. Through multiple subsequent submittals and comment review cycles, still no comments were provided regarding the increased sediment size. After Final submission, AECOM proceeded with design, releasing the RFC submittal in May 2024. While other fish passage sites were delayed or required significant rework, Par Creek has not been impacted by issues related to streambed sediment sizing, even though it does not meet the 20% maximum RFP requirement, proving WSDOT's inconsistent direction and arbitrary enforcement of the design requirements.

Timeline of Relevant Events

- Meeting minutes pertaining to sediment size are shown on the cohesive timeline above.
- January 2021: Below is text from Section 9.3 Bed Material of Appendix H08, which was included as a reference document as part of the contract, and was the basis of the HPA:

9.3 Bed Material

In accordance with Chapter 7 of the WSDOT Hydraulics Manual, the combined streambed material will have a D_{50} that is within 20 percent of the reference reach D_{50} , or be 100% streambed sediment if streambed sediment is larger than the reference reach material, unless otherwise approved by WSDOT. Given the over-abundance of sands and silts in the existing channel, the WSDOT-approved streambed sediment will be used in the proposed design.

- 11/02/2023 – AECOM submitted Par Creek Preliminary Hydraulic Design (PHD) to Skanska and WSDOT. Section 4.3.1 Bed Material included the following statement:

4.3 Streambed Design

This section describes the streambed design developed for Par Creek at SR 522 MP 11.26.

4.3.1 Bed Material

The WCDG contains methodologies for five different types of crossings: No-Slope Culverts, Stream Simulation Culverts, Bridges, Temporary Culverts or Bridges, and Hydraulic Design Fishways. The permanent federal injunction allows for the use of the stream simulation method and bridge design method unless extraordinary circumstances exist on site. According to the WCDG, a bridge should be considered for a site if the FUR is greater than 3.0, the stream has a bankfull width of greater than 15 feet, the channel is believed to be unstable, the slope ratio exceeds 1.25 between the existing channel and the new channel, or the culvert would be very long. Using these design criteria, a modified stream simulation criteria was deemed the most appropriate method for this crossing due to unique characteristics not typically seen in Western Washington streams that provide potential salmonid habitat.

In compliance with Chapter 7 of the WSDOT *Hydraulics Manual*, the composition of the combined streambed material must either closely align with the reference reach D_{50} , within a 20 percent deviation, or entirely consist of streambed sediment if the sediment is equal to or larger than the reference reach material. Deviations from this standard require approval from WSDOT. Due to the abundance of sands and silts in the current channel, the proposed design will be 100 percent WSDOT-approved streambed sediment as shown in Table 4-5.

Comments from WSDOT and other comanagers were provided in November 2023, but none related to streambed material sizing.

- 03/06/2024 – AECOM submitted Par Creek Final Hydraulic Design (FHD) to Skanska and WSDOT. Section 4.3.1 Bed Material included the following statement:

4.3 Streambed Design

4.3.1 Bed Material

In compliance with Chapter 7 of the WSDOT *Hydraulics Manual*, the composition of the combined streambed material must either closely align with the reference reach D_{50} , within a 20 percent deviation, or entirely consist of streambed sediment if the sediment is equal to or larger than the reference reach material. Deviations from this standard require approval from WSDOT. Due to the abundance of sands and silts in the current channel, the proposed design will be 100 percent WSDOT-approved streambed sediment as shown in Table 4-5.

Table 4-5. Proposed Streambed Material (WSDOT Streambed Sediment)

Streambed Sediment	
Sieve Size	Percent Passing
2 ½"	99-100
2"	85-100
1"	50-82
½"	28-68
No. 40	10-20
No. 200	5-10

Note: WSDOT = Washington Department of Transportation

Comments from WSDOT and the Tribes were subsequently provided, including comments related to existing sediment size (but not proposed), that were resolved as the design progressed.

- 05/08/2024 – AECOM submitted RFC Design to Skanska. Section 4.3.1 Bed Material was consistent with the Final Design and included the following statement regarding stability of the proposed bed material:

For systems under 4 percent gradient, such as Par Creek, WSDOT requires the Modified Critical Shear Stress Approach for sediment sizing, as specified in Section 7-4.7 of the WSDOT *Hydraulics Manual*. This guideline indicates that a system is considered stable if the D_{84} is stable at the design flow event. Based on the WSDOT-approved streambed sediment standard specifications, the D_{84} is between 1 to 2 inches, and the D_{50} can be as low as 0.5 inches up to 1 inch. Since a range of particle sizes is specified, for the purpose of sediment mobility evaluation, the end members of these ranges were used in the modified shear stress approach. Two cases were evaluated—a larger particle size condition with a D_{84} of 2 inches and a D_{50} of 1 inch, and a smaller particle size condition with a D_{84} of 1 inch and a D_{50} of 0.5 inches, which resulted in a modified critical shear stress for D_{84} of 0.49 pounds per square feet (lb/ft^2) and 0.23 lb/ft^2 , respectively. Hydraulic modeling results for the 100-year design flow showed maximum active channel shear stress value of 0.19 lb/ft^2 . The D_{84} particle is stable at the 100-year flow because both modified critical shear stress values are greater than the modeled maximum active channel shear stress (see Appendix C). According to the Streambed Material Decision Tree in Appendix 7A of the WSDOT *Hydraulics Manual*, since the D_{84} of the designed streambed is not mobile at the 100-year flow, no risk analysis is required.

Concurrence was reached on all comments, including those relating to existing sediment size as shown below (9 and 10):

9	Section 2.7.3	ATS	It would be helpful to include a photo of the substrate to corroborate this sediment discussion and would be informative when the proposed sediment is discussed later in this report	A	Agree, will include if available	A
10	Section 2.7.3	ATS	A brief discussion of the lack of boulders within the system would assist in the proposed sediment later in the report	A	Agree, FHD updated to include	A

- WSDOT / WDFW has since not required any changes to the Par Creek streambed design.

North Fork Perry Creek:

Overview

AECOM's North Fork Perry Creek Preliminary Hydraulic Design (PHD) submitted in April 2024, documented engineering analyses that were conducted in accordance with the WSDOT Hydraulics Manual. The PHD stated that there may be a need for a portion of streambed material to be coarser than a 20 percent increase from the observed existing sediment. Through Preliminary, Final, and RFC submittals and comment review cycles, WSDOT agreed with AECOM's design approach and accepted the increased streambed gradations. As a result, AECOM proceeded with the increased sediment size design and submitted the RFC hydraulic report in April 2025. AECOM was not provided comments on gradation size at North Fork Perry Creek until after meetings with WDFW in early 2026, at which time AECOM was informed that the streambed sediment must be resized from the approved RFC design, irrespective of the supporting engineering analyses for sediment stability and risk. AECOM proceeded with WSDOT direction and submitted NDC 152 revising the sediment size at North Fork Perry Creek. The NDC resulted in additional design revisions and therefore effort and time from the design team.

Timeline of Relevant Events

- Meeting minutes pertaining to sediment size are shown on the cohesive timeline above.
- January 2021: Below is text from Section 9.3 Bed Material of Appendix H08, which was included as a reference document as part of the contract, and was the basis of the HPA:

9.3 Bed Material

Proposed streambed material sizing will be similar to that of the gradation provided in the pebble count (Appendix B) and will be coordinated as design continues by the Design-Build Contractor. In accordance with Chapter 7 of the WSDOT Hydraulics Manual, the combined streambed material will have a D_{50} that

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is within 20 percent of the reference reach D_{50} , or be 100% streambed sediment if streambed sediment is larger than the reference reach material, unless otherwise approved by WSDOT.

Given the uniform slope of less than 4 percent, the Modified Shields Methodology was selected for the streambed design. Analysis indicates that the reference reach sediment sample would be mobile during all flood events. This conclusion is consistent with the channel stability analysis that described the streambed sediment consisting of only gravels and smaller material. For this project, streambed material would need to have a similar resistance to scour or it would be transported downstream. To achieve this level of resistance the bed materials must be substantially coarser than the sediment transported through the system.

To provide D_{84} stability at the 100-year flood flow, preliminary calculations indicate that the resultant D_{50} would be 1.99 inches, with the existing D_{50} of 0.69 (188 percent increase), and the D_{84} would be nearly 4.94 inches, with the existing D_{84} of 1.37 inches (160 percent increase). With this mix, the D_{50} would be mobile in events greater than the 2-year event and the D_{84} would become mobile in greater than the 100-year flow (Appendix B).

It is not desirable to increase the streambed sediment by this amount. Therefore, the streambed sediment mix will be increased by the WSDOT Hydraulics Manual prescribed 20%, as shown in Table 14 below:

Table 14. Comparison of Observed and Proposed Streambed Material

Particle	Observed Material Diameter (inches)	Proposed Material Diameter (inches)
D_{15}	0.32	0.40
D_{50}	0.69	0.83
D_{84}	1.37	1.64
D_{95}	1.80	2.16

To provide the needed channel stability, meander bars and/or other stability features are needed within the structure to prevent streambed sediment from being washed out. These meander bars, composed of a higher percentage small to medium cobbles and large gravels would be placed within the structure to provide additional stability.

Streambed cobbles, sediment, and boulder sizing for the design of fish passable structures shall be in accordance with the WSDOT Hydraulics Manual and the Standard Specifications. The final streambed material size and streambed mix configuration will be developed by the Design-Build Contractor and will be constructed using materials as described in WSDOT Standard Specifications.

- 04/05/2024 – AECOM submitted North Fork Perry PHD Design to Skanska and WSDOT. PHD Section 4.3.1 Bed Material included the following highlighted statement:

Appendix 7A Streambed Material Decision Tree in Chapter 7 of the WSDOT Hydraulics Manual indicates that a risk analysis is needed due to the expected mobility of the proposed D84 streambed material. Based on a preliminary risk assessment using the Criticality Matrix provided in Appendix 7A and considering a moderate likelihood of long-term degradation (discussed in Section 7.2) impacting the I-405 crossing structure with a resulting major impact to the I-405 crossing, it is possible that an overcoarsened channel may need to be considered in design. The design described in Section 4.3.2 coarsens the channel using habitat complexity features (e.g., coarse bands, meander bars, and LWM). These complexity features will help provide the needed channel stability within the structure to prevent streambed sediment from being washed out. Further consultation with WSDOT will be conducted in the next phase of design regarding this risk assessment process.

To provide channel stability, meander bars and other stability features are needed in the structure to prevent streambed sediment from being washed out. These meander bars and

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coarse bands, composed of a higher percentage of small to medium cobbles and large gravels, will be placed within the structure to provide additional stability. Outside of the structure, channel stability will be provided by coarsened material in riffle sections and framework rock.

The initial pool-riffle design has a channel slope of 3.68 percent in the riffle sections. With this channel grade, the Modified Critical Shear Stress Approach is still applicable for sediment sizing. This analysis results in the stable sediment sizes shown in Table 4-7. For stability at the 100-year flow, a D_{50} of 3.46 inches and a D_{84} of 8.64 inches is needed. These coarse sediments will be incorporated as part of the coarse band riffle features discussed in Section 4.3.2.1.3.

Table 4-7: Proposed sediment gradation for riffle sections in pool-riffle system

Sediment size	Proposed diameter (inches)
D ₁₆	1.08
D ₅₀	3.46
D ₈₄	8.64
D ₁₀₀	21.60

- 05/02/2024 – RCSR comments on the PHD were received. No comments were received regarding streambed sediment sizing.
- 08/25/2024 – AECOM submitted North Fork Perry Final Hydraulic Design (FHD) to Skanska and WSDOT. Section 4.3.1 regarding Bed Material of submitted FHD states:

A risk assessment regarding streambed material can be found in **Appendix Q**. The risk assessment indicates that habitat complexity features which overcoarsened the channel are required (WSDOT 2024b). Additional coarsening of the channel is accomplished with complexity features such as LWM, meander bars, and deformable grade control. These features are described further in the following sections.

Table 4-6: Comparison of observed and proposed streambed material

Sediment size	Observed streambed material diameter (inches)	Proposed Type I streambed material diameter (inches)	Proposed Type II streambed material diameter (inches)	Proposed meander bar material diameter (inches)
D ₁₆	0.32	0.40	1.77	1.77
D ₅₀	0.69	0.83	5.66	5.66
D ₈₄	1.37	1.64	14.16	14.16
D ₉₅	1.80	2.16	-	-
D ₁₀₀	-	-	23.00	23.00

- 09/26/2024 – RCSR comments on the Draft FHD were received from WSDOT. No comments were received regarding the risk assessment. Comment #57 and response are shown below:

COMMENT (WSDOT, City, Checker)				
No.	Report or Sheet No.	Comment By	TR/Spec Section	Comment
57	North Fork Perry - Pg. 38, Sec. 4.3.1 Bed Material	MIT	"For channel stability, streambed material would need to have enough resistance to scour for it to not be transported downstream. To achieve this level of resistance, the bed materials must be substantially coarser than the sediment currently transported through the system."	If sediment from upstream is being transported through the system, it should replace any sediment transported from the structure. To increase the streambed material by 20% over the observed size, this would create an anomaly in bedload egress/ingress and disrupt the natural dynamics afforded to habitat by this level of natural mobility. Further, the observed sediment is more prone to respond to wood, locally scouring pools and sorting spawning gravels. Coarser material will not likely have a similar response, and will likely sieve low flows and potentially form an adult salmon barrier. Having streambed sediment similar to observed sizes also more accurately meets the intent of Stream Simulation through the crossing.

AECOM provided the below response to comment #57:

RESPONSE TO COMMENT (Skanska, Originator of Document)		
Disposition Code	Response By	ACTION TAKEN / Remarks
D	JT	Sizing of streambed sediment has followed guidelines set in the WSDOT Hydraulics Manual including the Streambed Material Decision Tree in Appendix 7A. While consideration was made to limit all streambed sediment to within 20% of the existing pebble count size, calculations show that this streambed material would be undersized and mobile at the 100-year discharge, posing unacceptable risk to the crossing infrastructure as well as increasing the potential of a plane-bed geomorphic condition that may entrain flows along the structure walls, limiting fish passage. The proposed channel design still includes sediment within 20% of the existing pebble count size (Type I Streambed Material) to be included in the pools of the design pool-riffle sequence. The coarser Type II Streambed Material reduces the risk of undersized sediment mobilizing and undercutting creek banks and infrastructure while also being conducive to creating fish habitat by allowing the stream to develop and maintain riffles, that are different in geometry and bed material from pools, creating hydraulic diversity and allowing for microhabitats and multiple pathways for juvenile fish during low flows. The Type II Streambed Material is not expected to sieve low flows as fines have been included in the sediment gradation and the streambed will be constructed in lifts and sealed with fines to ensure flows do not permeate into the streambed.

No WSDOT Disposition Code or Response to Response was received for this comment response.

- 04/09/2025 – AECOM provided North Fork Perry RFC Design to Skanska and WSDOT.
- 11/20/2025 – WDFW requests WSDOT provide missing key information from the fish passage hydraulic designs, which are needed for the Hydraulic Project Approval permit application:

From: Dykstra, Jesse F (DFW) <Jesse.Dykstra@dfw.wa.gov>
 Sent: Thursday, November 20, 2025 12:33 PM
 To: Toney, Alicia (Consultant) <Alicia.Toney@consultant.wsdot.wa.gov>
 Cc: Pfeifer, Duncan E (DFW) <Duncan.Pfeifer@dfw.wa.gov>; Reinbold, Stewart G (DFW) <Stewart.Reinbold@dfw.wa.gov>
 Subject: HPA 45158 I405 SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Hey Alicia,

Reaching out regarding the recent application (App ID: 45158). Do you have an updated and consolidated plan set for this project? The final JARPA plan set drawings are missing key information that should be included in the design package (meander bars, LWM, step pools, ect.). With six PHD/FHD documents, it is difficult to identify and extract the information needed for permit review. Some of the FHD/PHDs sheets are missing some important information for a formal review.

Thanks again for your time.

- 12/29/2025 – WSDOT provides WDFW with FHDs and RFC plans:

From: Toney, Alicia (Consultant) <Alicia.Toney@consultant.wsdot.wa.gov>
 Sent: Monday, December 29, 2025 12:00 PM
 To: Dykstra, Jesse F (DFW) <Jesse.Dykstra@dfw.wa.gov>
 Cc: Pfeifer, Duncan E (DFW) <Duncan.Pfeifer@dfw.wa.gov>; Reinbold, Stewart G (DFW) <Stewart.Reinbold@dfw.wa.gov>; Schoettler, David (Consultant) <david.schoettler@consultant.wsdot.wa.gov>; Cote, Meredith <meredith.cote@aecom.com>; Mika Miyamoto <mika.miyamoto@oneatlas.com>; Berriz, Sonia (Consultant) <Sonia.Berriz@consultant.wsdot.wa.gov>; Kane, Betty (Consultant) <Betty.Kane@consultant.wsdot.wa.gov>
 Subject: RE: HPA 45158 I405 SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project - response to comments

External Email

Hi Jesse,

We have compiled information to respond to the comments below and it's been uploaded into APPS. There is a PDF package for design questions for each of the streams. There is also an FHD with all appendices and RFC plans for each stream except QB at 527 which is not RFC yet. There are also plans for the Sammamish River and USCG permitted drawings and the WQMPP that provide supporting information. Please also look inline below for some summary of information and also for places we discussed that we do not have the information at this time.

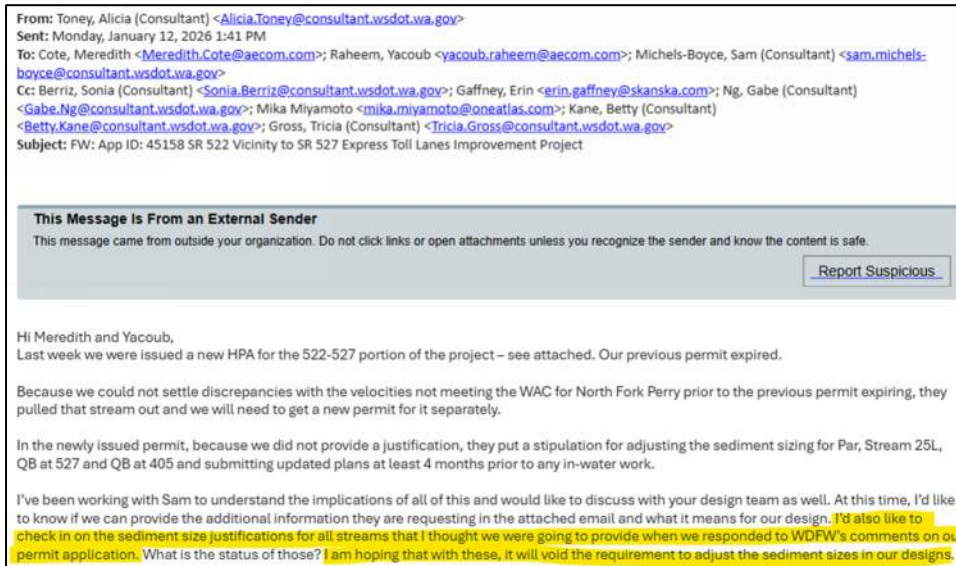
Once you've had a chance to review, let me know if you need anything else.

Thanks!

- 01/02/2026 – WDFW replies with follow-up questions, including those related to sediment size, and states additional justification was needed:

The alternatives analysis in the FHD indicates that sediment within the #20 percent median particle size range was considered to pose an unacceptable risk due to its potential mobility, including the likelihood of undercutting and development of a plane-bed morphology. While that concern is noted, the currently proposed sediment gradation appears to be considerably larger than the reference condition and may introduce the opposite risk—insufficient retention of surface water and reduced hydraulic connectivity across the culvert. Additional justification is needed to demonstrate that the proposed sediment mix will maintain stable surface flow conditions, achieve stream-simulation objectives, and balance the competing risks of sediment mobility and excessive coarseness.

- 01/12/2026 – WSDOT shares with AECOM that WDFW has issued a new Hydraulic Project Approval permit with a stipulation for adjusting the sediment size. WSDOT requests sediment size justifications from AECOM:



- 01/14/2026 – Coordination meetings with AECOM (Meredith Cote, Yacoub Raheem) and WSDOT consultants (Alicia Toney, Sonia Berriz, Sam Michel-Boyce). WSDOT expresses verbal support for sediment sizing justification based on the percent of streambed material expected to be mobile. AECOM prepares justification for North Fork Perry, which had been released for RFC eight months prior.
- 01/26/2026 – Coordination meeting with AECOM (Meredith Cote, Yacoub Raheem), WSDOT consultants (Alicia Toney, Sam Michel-Boyce, Gabe Ng, Sonia Berriz), and WDFW (Jesse Dykstra, Duncan Pfeifer, Stewart Reinbold). Streambed sediment sizing is discussed.
- 01/27/2026 – WSDOT consultant (Sonia Berriz) summarizes their understanding of the 01/26 meeting, and requests identification of AECOM's next steps:

From: Berriz, Sonia (Consultant) <Sonia.Berriz@consultant.wsdot.wa.gov>
 Sent: Tuesday, January 27, 2026 6:44 AM
 To: Cote, Meredith <meredith.cote@aecom.com>; Raheem, Yacoub <yacoub.raheem@aecom.com>; Gaffney, Erin <erin.gaffney@skanska.com>
 Cc: Toney, Alicia (Consultant) <Alicia.Toney@consultant.wsdot.wa.gov>; Sam Michels-Boyce <smichelsboyce@hntb.com>; Ng, Gabe <gabe.ng@jacobs.com>; Sharrer, Kyle <Kyle.Sharrer@skanska.com>; Guerrero, Jon <jon.guerrero@aecom.com>; Lovering, Janka (Consultant) <Janka.Lovering@consultant.wsdot.wa.gov>
 Subject: WDFW Meeting 1/26 Takeaways

Hi all,

I would like to summarize my understanding of the discussion held yesterday with WDFW and request clarification on AECOM's and Skanska's proposed next steps.

North Fork Perry – Velocities
 WDFW was clear that the concerns regarding North Fork Perry and the removal of this crossing from the permit are directly tied to the streambed sediment mix and its influence on hydraulic performance. WDFW will not evaluate velocities in isolation from sediment sizing; the stream must be evaluated as an integrated system.

Streambed Sediment Design
 Key points conveyed by WDFW included:

- WDFW is trying to keep the fish passage design in the stream simulation realm
- The proposed mixes are weighted heavily toward larger material sizes and appear to be overly armored.
- WDFW suggested that if larger material is necessary for stability, it should be placed deeper in the section, with a smaller mix placed above.
- The updated North Fork Perry streambed mix presented on screen is unlikely to be approved through iterative justification. While additional justification could be attempted, WDFW indicated this would be time-consuming and uncertain. The most direct path to approval is to continue revising the streambed sizing.

Next Steps
 To move this issue toward resolution, WSDOT requests the following:

- Skanska to provide a clear timeline for when the streambed material design resolution is needed.
- Identification of whether AECOM intends to pursue further justification of the current mix, or to proceed with revising the gradation consistent with WDFW's guidance and the contract.

WSDOT remains available to support technical discussions between SMEs and the Engineer of Record to achieve a permissible and contract-compliant design. Please advise how WSDOT can assist and what specific support would be helpful.

Thank you and please let me know if this was not in line with what you heard yesterday. I thought it was a helpful conversation to move the project forward.

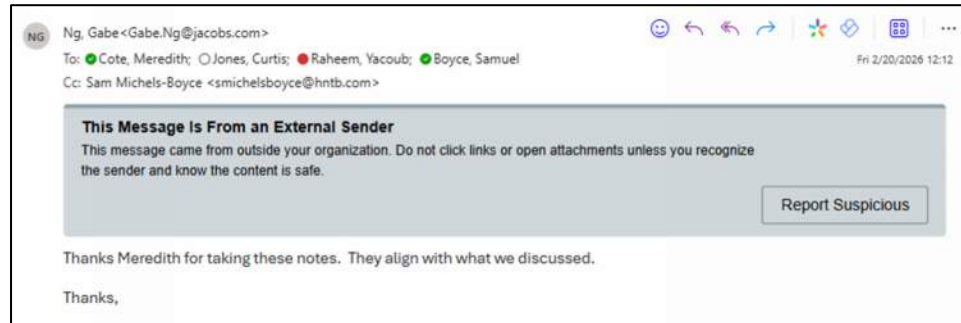
-Sonia

- 02/20/2026 – WSDOT provides approval for AECOM to revise designs for fish passages. Notes taken below are from AECOM (Meredith Cote) concurrence on notes from WSDOT consultant (Gabe Ng) shown in the below email:

2/20/2026

- Juanita Creek
 - Briefly discussed utility crossing upstream at Juanita Creek. The utility line is several feet below the scour depth. WSDOT recommended not including this discussion of the utility crossing in the justification for sediment sizing.
 - AECOM to coordinate a follow-up meeting to continue conversation on Juanita
- Stream 25L
 - Gabe shared comments on the streambed justification. In general, feedback is to lessen the engineering justification, lean on the existing stream condition for design. Photos are strongest piece for this justification.
 - WSDOT will share the RCSR form with comments closed, with the understanding that comments related to the step-pool design will be points of further discussion.
- Queensborough
 - AECOM shared revised mix is 100% streambed sediment, 100% mobile
 - WSDOT agreed with this approach and stated the existing conditions match this closely
 - AECOM to share revised gradation with WSDOT to close comments related to sediment mix
 - Discussed adjusting depth of material below 3 ft. Difficult to justify anything below that without documentation of the material below the streambed, borings must be taken in the stream. Can adjust in the field if possible.
 - WSDOT is preparing responses to the QB527 RCSR form and will send to AECOM
- North Fork Perry Creek
 - AECOM shared revised mix is 90% streambed sediment, 10% 4" cobbles, 100% mobile.
 - WSDOT generally agreed with this approach
 - WSDOT shared photos of natural meander bars in the stream and could share photos

1



- 05/14/2026 – Streambed sediment sizing is revised and NDC 152 is submitted to Skanska and WSDOT. WSDOT requests extended review period on 05/15/26.

From the initial PHD submittal in April 2024 through the RFC submittal in April 2025, AECOM communicated the WSDOT Hydraulics Manual based engineering analyses and results to support the proposed streambed sediment sizing through multiple review cycles at North Fork Perry Creek. WSDOT agreed with AECOM's assessments. Almost a year after accepting the RFC design, AECOM was forced to revise the streambed material per WDFW guidance. This direction was provided independent of the documented engineering analyses for sediment stability and risk. AECOM complied by revising the sediment sizing, resulting in additional design rework beyond contract requirements for which AECOM should be compensated.

Queensborough 405:

Overview

AECOM submitted the Queensborough 405 PHD in April 2024. In this document, AECOM provided engineering analyses conducted in accordance with the WSDOT Hydraulics Manual. Results indicated the need for a portion of streambed material size to be coarser than a 20 percent increase over the observed existing sediment. This conflicted with the Technical Requirements Table 2.30-B. AECOM notified WSDOT of this conflict; however, WSDOT directed AECOM to proceed with the gradations of over 20% of the existing sediment size. Through multiple subsequent submittals and comment review cycles, no comments were provided regarding the increased sediment size. After Final submission, AECOM proceeded with design, releasing the RFC submittal in September 2025. Three months after the RFC package was released, WSDOT and WDFW notified AECOM the RFC design must be revised to decrease sediment sizes, irrespective of the supporting engineering analyses for sediment stability and risk, and previous directions. AECOM collaborated with WSDOT and WDFW to again explain the reasoning for coarser streambed material, less eroding of streambed material, to no avail. AECOM complied with WSDOT / WDFW direction, issuing NDC 152, resulting in additional design revisions and rework.

Timeline of Relevant Events

- Meeting minutes pertaining to sediment size are shown on the cohesive timeline above.
- January 2021: Below is text from Section 9.3 Bed Material of Appendix H08, which was included as a reference document as part of the contract, and was the basis of the HPA:

9.3 Bed Material

Proposed streambed material sizing will be similar to that of the gradation provided in the pebble count (Appendix B) and will be coordinated as design continues by the Design-Build Contractor. In accordance with Chapter 7 of the WSDOT Hydraulics Manual, the combined streambed material will have a D_{50} that is within 20 percent of the reference reach D_{50} , or be 100% streambed sediment if streambed sediment is larger than the reference reach material, unless otherwise approved by WSDOT.

Given the uniform slope of less than 4 percent, the Modified Shields Methodology was selected for the streambed design. Analysis indicates that the reference reach sediment sample would be mobile during all flood events. This conclusion is consistent with the channel stability analysis that described the streambed sediment consisting of only gravels and smaller material. For this project, streambed material would need to have a similar resistance to scour or it would be transported downstream. To achieve this level of resistance the bed materials must be substantially coarser than the sediment transported through the system.

To provide D_{84} stability at the 100-year flood flow, preliminary calculations indicate that the resultant D_{50} would be 2.11 inches, with the existing D_{50} of 0.70 (201 percent increase), and the D_{84} would be

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nearly 5.76 inches, with the existing D_{84} of 2.10 inches (174 percent increase). With this mix, the D_{50} would be mobile in events greater than the 2-year event and the D_{84} would become mobile in greater than the 100-year flow (Appendix B).

It is not desirable to increase the streambed sediment by this amount. Therefore, the streambed sediment mix will be increased by the WSDOT Hydraulics Manual prescribed 20%, as shown in Table 20 below. The final sediment mix will be calculated by the Design Build contractor.

Table 20. Comparison of Observed and Proposed Streambed Material

Particle	Observed Material Diameter (inches)	Proposed Material Diameter (inches)
D_{15}	0.32	0.38
D_{50}	0.70	0.84
D_{84}	1.42	1.70
D_{95}	2.10	2.52

To provide the needed channel stability, meander bars and/or other stability features are needed within the structure to prevent streambed sediment from being washed out. These meander bars, composed of a higher percentage small to medium cobbles and large gravels would be placed within the structure that would provide additional channel diversity.

Streambed cobbles, sediment, and boulder sizing for the design of fish passable structures shall be in accordance with the WSDOT Hydraulics Manual and the Standard Specifications. The final streambed material size and streambed mix configuration will be developed by the Design-Build Contractor and will be constructed using materials as described in WSDOT Standard Specifications.

- 04/2024 - AECOM submitted Queensborough 405 PHD Design to Skanska. Section 4.3.1 Bed Material included the following:

4.3.1 Bed Material

Although the stream simulation method bases the proposed bed material gradation on the native material found in reference reaches, analysis indicates that the average Wolman Pebble Count D_{84} (Table 2-5) would be mobile during all flood events. As a result, the designed streambed mix must be increased.

In accordance with Chapter 7 of the WSDOT Hydraulics Manual, the designed streambed material must have a D_{50} that is within 20 percent of the reference material D_{50} , unless otherwise approved by WSDOT.

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Because preliminary analysis indicates that the reference material is unstable during all flood events, the proposed streambed material is increased by the maximum allowable 20 percent over the observed reference material gradations (Table 4-4). This proposed streambed gradation will meet the WSDOT-approved streambed sediment mix shown in Table 4-5.

The proposed streambed sediment mix is then evaluated using the Modified Shields Methodology because the proposed slope is less than 4 percent. Based on the WSDOT-approved streambed sediment standard specifications, the D_{84} is between 1 and 2 inches, and the D_{50} can be as low as 0.5 inches up to 1 inch. Because a range of particle sizes is specified, for the purpose of sediment mobility evaluation, the end members of these ranges were used in the modified shear stress approach. Two cases were evaluated: a larger particle size condition with a D_{84} of 2 inches and a D_{50} of 1 inch, and a smaller particle size condition with a D_{84} of 1 inch and a D_{50} of 0.5 inch. These resulted in a modified critical shear stress for D_{84} of 0.49 pound per square foot (lbs/ft²) and 0.23 lbs/ft², respectively. If the boundary shear stress of the stream's discharge exceeds these critical shear stress values, then the sediment will be mobilized.

As shown in Appendix C, boundary shear stress results from the proposed model (Section 5.3) exceed the critical shear stress. Thus, the proposed streambed D_{84} is still mobile at the 100-year discharge.

Appendix 7A Streambed Material Decision Tree in Chapter 7 of the WSDOT Hydraulics Manual indicates that a risk analysis is needed due to the expected mobility of the proposed D_{84} streambed material. Based on a preliminary risk assessment using the Criticality Matrix provided in Appendix 7A and considering a moderate likelihood of long-term degradation (discussed in Section 7.2) impacting the I-405 crossing structure with a resulting major impact to the I-405 crossing, it is possible that an overcoarsened channel may need to be considered in design. The design described in Section 4.3.2 coarsens the channel using habitat complexity features (e.g., coarse bands, meander bars, and LWM). These complexity features will help provide the needed channel stability within the structure to prevent streambed sediment from being washed out. Further consultation with WSDOT will be conducted in the next phase of design regarding this risk assessment process.

- 05/2024 - PHD comments were received from WSDOT in Excel file "Segment-3-Preliminary-Fish-Passage-Water-Crossings_RCSR_WSDOT.xlsx". No comments were received regarding streambed sediment sizing.
- 08/2025 - AECOM submitted FHD Design to Skanska. Section 4.3.1 Bed Material stated:

4.3.1 Bed Material

The proposed channel follows a pool-riffle morphology, and different bed material is designed for the distinct "pool" and "riffle" segments. Sediment used for pools is designated as Type I Streambed Sediment and is based on native streambed material per the stream simulation design methodology. Sediment used for riffles is designated as Type II Streambed Sediment and is designed to be stable at the 100-year discharge (i.e., the design flow). Both bed materials follow the design guidance in Chapter 7 of the WSDOT *Hydraulics Manual*. **Table 4-5** summarizes and compares existing and proposed streambed material gradations.

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Analysis indicates that Type I Streambed Sediment is mobile at flows less than the 100-year discharge (see **Appendix C**). This is accepted, as pools are designed to naturally scour and regrade, thus replicating natural conditions. The Type I Streambed Sediment gradation falls within the range defined by WSDOT's standard streambed sediment as shown in **Table 4-6**. Therefore, WSDOT's standard streambed sediment will be used as the Queensborough I-405 Type I Streambed Sediment.

Type II Streambed Sediment is coarser than existing reference reach material (**Table 4-5**) and is also used for bank and overbank areas within the structure to ensure overall channel stability. The design of Type II Streambed Sediment and Meander Bar Material can be found in **Appendices O** and **P**, respectively. Note that Type II Streambed Sediment and Meander Bar Material have the same gradation, as both are designed for stability at the 100-year discharge.

A risk assessment regarding streambed material can be found in **Appendix S**. The *Hydraulics Manual* (WSDOT 2024) indicates that habitat complexity features are required. Additional coarsening of the channel is accomplished with complexity features such as LWM, meander bars, and deformable grade control. These features are described further in the following sections.

- 09/2025 - AECOM submitted RFC Design to Skanska. Concurrence was reached on all comments, including those relating to streambed sediment size as shown below (#42 and #66):

42	QB Section 4.3.1	ATS		How are the meanders meant to be built if they are the same size as the streambed material? This statement is not consistent with what is shown in the plans.	R	JT	Additional description in section 4.3.2.3 to explain building of meander bar head with boulders to be added for RFC submittal.
66	QB - Pg 36, Sec. 4.3.1 Bed Material	MIT	"Type II Streambed Sediment is coarser than existing reference reach material (Table 4-5) and is also used for bank and overbank areas within the structure to ensure overall channel stability."	It is not clear where Type I and Type II mixes will be placed. These locations are not specified in Appendices O and P as well. We will have concerns if Type II material is placed in areas other than the meander bars, where it may be impeding the local diversity in habitat response to the placed wood, such as locally scoured points and sorting spawning gravels. Coarser material in the bank may also create and maintain an over-steepening of the edge, minimizing margin habitat. These margins are important for fish to hold and migrate, as the velocities are slower than out from the banks. The steeper the bank, the smaller the margin area. Type II material should be used minimally, such as in the head of the meander bar with mixed small woody material. Having streambed sediment similar to observed sizes also more accurately meets the intent of Stream Simulation through the crossing.	D	BB	Extent of Type I and Type II Streambed Sediments will be more clear in RFC plans. As described above for comment #57, sizing of streambed sediment has followed guidelines set in the WSDOT Hydraulics Manual including the Streambed Material Decision Tree in Appendix 7A. While consideration was made to limit all streambed sediment to within 20% of the existing pebble count size, calculations show that this streambed material would be undersized and mobile at the 100-year discharge, posing unacceptable risk to the crossing infrastructure as well as increasing the potential of a plane-bed geomorphic condition that may entrain flows along the structure walls, limiting fish passage. The proposed channel design still includes sediment within 20% of the existing pebble count size (Type I Streambed Material) to be included in the pools of the design pool riffle sequence. The coarser Type II Streambed Material reduces the risk of undersized sediment mobilizing and undercutting creek banks and infrastructure while also being conducive to creating fish habitat by allowing the stream to develop and maintain riffles, that are different in geometry and bed material from pools, creating hydraulic diversity and allowing for microhabitats and multiple pathways for juvenile fish during low flows. The Type II Streambed Material is not expected to sieve low flows as fines have been included in the sediment gradation and the streambed will be constructed in lifts and sealed with fines to ensure flows do not permeate into the streambed.

- 11/20/2025 – WDFW requests WSDOT provide missing key information from the fish passage hydraulic designs, which are needed for the Hydraulic Project Approval permit application:

From: Dykstra, Jesse F (DFW) <Jesse.Dykstra@dfw.wa.gov>
 Sent: Thursday, November 20, 2025 12:33 PM
 To: Toney, Alicia (Consultant) <Alicia.Toney@consultant.wsdot.wa.gov>
 Cc: Pfeifer, Duncan E (DFW) <Duncan.Pfeifer@dfw.wa.gov>; Reinbold, Stewart G (DFW) <Stewart.Reinbold@dfw.wa.gov>
 Subject: HPA 45158 I405 SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Hey Alicia,

Reaching out regarding the recent application (App ID: 45158). Do you have an updated and consolidated plan set for this project? The final JARPA plan set drawings are missing key information that should be included in the design package (meander bars, LWM, step pools, ect.). With six PHD/FHD documents, it is difficult to identify and extract the information needed for permit review. Some of the FHD/PHDs sheets are missing some important information for a formal review.

Thanks again for your time.

- 12/29/2025 – WSDOT provides WDFW with FHDs and RFC plans:

From: Toney, Alicia (Consultant) <Alicia.Toney@consultant.wsdot.wa.gov>
 Sent: Monday, December 29, 2025 12:00 PM
 To: Dykstra, Jesse F (DFW) <Jesse.Dykstra@dfw.wa.gov>
 Cc: Pfeifer, Duncan E (DFW) <Duncan.Pfeifer@dfw.wa.gov>; Reinbold, Stewart G (DFW) <Stewart.Reinbold@dfw.wa.gov>; Schoettler, David (Consultant) <david.schoettler@consultant.wsdot.wa.gov>; Cote, Meredith <meredith.cote@aecom.com>; Mika Miyamoto <mika.miyamoto@oneatlas.com>; Berriz, Sonia (Consultant) <Sonia.Berriz@consultant.wsdot.wa.gov>; Kane, Betty (Consultant) <Betty.Kane@consultant.wsdot.wa.gov>
 Subject: RE: HPA 45158 I405 SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project - response to comments

External Email

Hi Jesse,

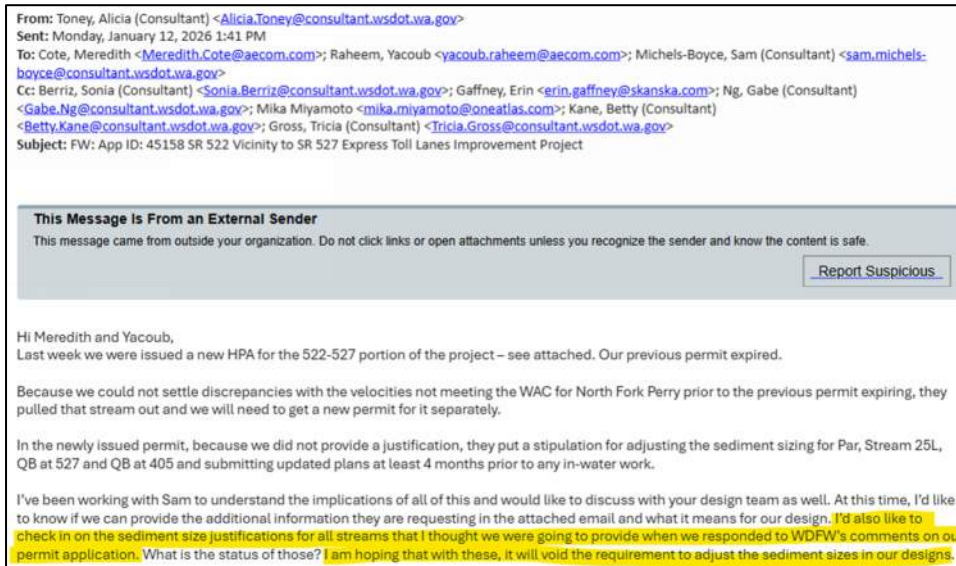
We have compiled information to respond to the comments below and it's been uploaded into APPS. There is a PDF package for design questions for each of the streams. There is also an FHD with all appendices and RFC plans for each stream except QB at 527 which is not RFC yet. There are also plans for the Sammamish River and USCG permitted drawings and the WQMPP that provide supporting information. Please also look inline below for some summary of information and also for places we discussed that we do not have the information at this time.

Once you've had a chance to review, let me know if you need anything else.
 Thanks!

- 01/02/2026 – WDFW replies with follow-up questions, including those related to sediment size, and states additional justification was needed:

The alternatives analysis in the FHD indicates that sediment within the #20 percent median particle size range was considered to pose an unacceptable risk due to its potential mobility, including the likelihood of undercutting and development of a plane-bed morphology. While that concern is noted, the currently proposed sediment gradation appears to be considerably larger than the reference condition and may introduce the opposite risk—insufficient retention of surface water and reduced hydraulic connectivity across the culvert. Additional justification is needed to demonstrate that the proposed sediment mix will maintain stable surface flow conditions, achieve stream-simulation objectives, and balance the competing risks of sediment mobility and excessive coarseness.

- 01/12/2026 – WSDOT shares with AECOM that WDFW has issued a new Hydraulic Project Approval permit with a stipulation for adjusting the sediment size. WSDOT requests sediment size justifications from AECOM:



- 01/14/2026 – Coordination meetings with AECOM (Meredith Cote, Yacoub Raheem) and WSDOT consultants (Alicia Toney, Sonia Berriz, Sam Michel-Boyce). WSDOT expresses verbal support for sediment sizing justification based on the percent of streambed material expected to be mobile. AECOM prepares justification for Queensborough 405, which had been released for RFC three months prior.
- 01/26/2026 – Coordination meeting with AECOM (Meredith Cote, Yacoub Raheem), WSDOT consultants (Alicia Toney, Sam Michel-Boyce, Gabe Ng, Sonia Berriz), and WDFW (Jesse Dykstra, Duncan Pfeifer, Stewart Reinbold). Streambed sediment sizing is discussed.
- 01/27/2026 – WSDOT summarizes their understanding of the 01/26 meeting, and requests identification of AECOM's next steps:

From: Berriz, Sonia (Consultant) <Sonia.Berriz@consultant.wsdot.wa.gov>
 Sent: Tuesday, January 27, 2026 6:44 AM
 To: Cote, Meredith <meredith.cote@aecom.com>; Raheem, Yacoub <yacoub.raheem@aecom.com>; Gaffney, Erin <erin.gaffney@skanska.com>
 Cc: Toney, Alicia (Consultant) <Alicia.Toney@consultant.wsdot.wa.gov>; Sam Michels-Boyce <smichelsboyce@hntb.com>; Ng, Gabe <gabe.ng@jacobs.com>; Sharrer, Kyle <Kyle.Sharrer@skanska.com>; Guerrero, Jon <jon.guerrero@aecom.com>; Lovering, Janka (Consultant) <Janka.Lovering@consultant.wsdot.wa.gov>
 Subject: WDFW Meeting 1/26 Takeaways

Hi all,

I would like to summarize my understanding of the discussion held yesterday with WDFW and request clarification on AECOM's and Skanska's proposed next steps.

North Fork Perry – Velocities
 WDFW was clear that the concerns regarding North Fork Perry and the removal of this crossing from the permit are directly tied to the streambed sediment mix and its influence on hydraulic performance. WDFW will not evaluate velocities in isolation from sediment sizing; the stream must be evaluated as an integrated system.

Streambed Sediment Design
 Key points conveyed by WDFW included:

- WDFW is trying to keep the fish passage design in the stream simulation realm
- The proposed mixes are weighted heavily toward larger material sizes and appear to be overly armored.
- WDFW suggested that if larger material is necessary for stability, it should be placed deeper in the section, with a smaller mix placed above.
- The updated North Fork Perry streambed mix presented on screen is unlikely to be approved through iterative justification. While additional justification could be attempted, WDFW indicated this would be time-consuming and uncertain. The most direct path to approval is to continue revising the streambed sizing.

Next Steps
 To move this issue toward resolution, WSDOT requests the following:

- Skanska to provide a clear timeline for when the streambed material design resolution is needed.
- Identification of whether AECOM intends to pursue further justification of the current mix, or to proceed with revising the gradation consistent with WDFW's guidance and the contract.

WSDOT remains available to support technical discussions between SMEs and the Engineer of Record to achieve a permissible and contract-compliant design. Please advise how WSDOT can assist and what specific support would be helpful.

Thank you and please let me know if this was not in line with what you heard yesterday. I thought it was a helpful conversation to move the project forward.

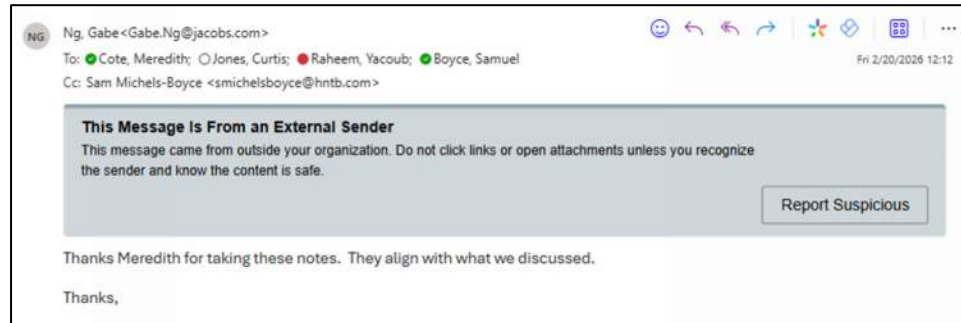
-Sonia

- 02/2026 – WSDOT provides approval for AECOM to revise designs for fish passages:

2/20/2026

- Juanita Creek
 - Briefly discussed utility crossing upstream at Juanita Creek. The utility line is several feet below the scour depth. WSDOT recommended not including this discussion of the utility crossing in the justification for sediment sizing.
 - AECOM to coordinate a follow-up meeting to continue conversation on Juanita
- Stream 25L
 - Gabe shared comments on the streambed justification. In general, feedback is to lessen the engineering justification, lean on the existing stream condition for design. Photos are strongest piece for this justification.
 - WSDOT will share the RCSR form with comments closed, with the understanding that comments related to the step-pool design will be points of further discussion.
- Queensborough
 - AECOM shared revised mix is 100% streambed sediment, 100% mobile
 - WSDOT agreed with this approach and stated the existing conditions match this closely
 - AECOM to share revised gradation with WSDOT to close comments related to sediment mix
 - Discussed adjusting depth of material below 3 ft. Difficult to justify anything below that without documentation of the material below the streambed, borings must be taking in the stream. Can adjust in the field if possible.
 - WSDOT is preparing responses to the QB527 RSCR form and will send to AECOM
- North Fork Perry Creek
 - AECOM shared revised mix is 90% streambed sediment, 10% 4" cobbles. 100% mobile.
 - WSDOT generally agreed with this approach
 - WSDOT shared photos of natural meander bars in the stream and could share photos

1



- 05/14/2026 – Streambed sediment sizing is revised and NDC 152 is submitted to Skanska and WSDOT. WSDOT requests extended review period on 05/15/26.

In summary, the Queensborough 405 timeline demonstrates that from the initial PHD submittal in April 2024 through the RFC submittal in September 2025, AECOM consistently communicated WSDOT Hydraulics Manual based engineering analyses to support the proposed streambed sediment sizing through multiple review cycles and WSDOT agreed with AECOM's assessments. Direction to revise the streambed material sizing was not communicated until meetings with WDFW in early 2026, after the RFC design had been completed for three months. This direction was provided independent of the documented engineering analyses for sediment stability and risk. AECOM has since complied by revising the sediment sizing with NDC 152, resulting in additional design rework beyond the previously submitted design.

Queensborough 527:

Overview

AECOM submitted Queensborough 527 Preliminary Hydraulic Design (PHD) in June 2024. In this design, AECOM documented engineering analyses conducted in accordance with the WSDOT Hydraulics Manual. Results indicated the need for a portion of the streambed material sizing to be coarser than a 20 percent increase over the observed existing sediment. This increased sediment size conflicts with TR Table 2.30-B. WSDOT provided a comment on the design package requesting the design team provide justification for the over-coarsened material. AECOM submitted Queensborough 527 Final Hydraulic Design in January 2025 and noted the justification for increased sediment size to increase stability as requested by WSDOT. See the timeline below with snippets taken for additional details. Although Queensborough 527 FHD presented an almost identical bed material design as Queensborough 405 RFC design, Queensborough 527 FHD design was delayed due to WSDOT comments on streambed material sizing. WSDOT stated comments would not be resolved without concurrence from WDFW. This was the first time WSDOT incorporated WDFW be included in design review. WSDOT did not adhere to their contract requirement and had not shared the preliminary or final design with WDFW. No comments from WDFW on this design element were received until meetings in early 2026, at which time AECOM was directed by WSDOT to resize the streambed sediment, irrespective of the supporting engineering analyses for sediment stability and risk. AECOM has since complied with this direction, resulting in additional design revisions.

Timeline of Relevant Events

- Meeting minutes pertaining to sediment size are shown on the cohesive timeline above.
- January 2021: Below is text from Section 9.3 Bed Material of Appendix H08, which was included as a reference document as part of the contract, and was the basis of the HPA:

9.3 Bed Material

Proposed streambed material sizing will be similar to that of the gradation provided in the pebble count (Appendix B) and will be coordinated as design continues by the Design-Build Contractor. In accordance with Chapter 7 of the WSDOT Hydraulics Manual, the combined streambed material will have a D_{50} that is within 20 percent of the reference reach D_{50} , or be 100% streambed sediment if streambed sediment is larger than the reference reach material, unless otherwise approved by WSDOT.

Given the uniform slope of less than 4 percent, the Modified Shields Methodology was selected for the streambed design. Analysis indicates that the reference reach sediment sample would be mobile during all flood events. This conclusion is consistent with the channel stability analysis that described the streambed sediment consisting of only gravels and smaller material. For this project, streambed material would need to have a similar resistance to scour or it would be transported downstream. To achieve this level of resistance the bed materials must be substantially coarser than the sediment transported through the system.

To provide D_{84} stability at the 100-year flood flow, preliminary calculations indicate that the resultant D_{50} would be 2.11 inches, with the existing D_{50} of 0.70 (201 percent increase), and the D_{84} would be

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nearly 5.76 inches, with the existing D_{84} of 2.10 inches (174 percent increase). With this mix, the D_{50} would be mobile in events greater than the 2-year event and the D_{84} would become mobile in greater than the 100-year flow (Appendix B).

It is not desirable to increase the streambed sediment by this amount. Therefore, the streambed sediment mix will be increased by the WSDOT Hydraulics Manual prescribed 20%, as shown in Table 20 below. The final sediment mix will be calculated by the Design Build contractor.

Table 20. Comparison of Observed and Proposed Streambed Material

Particle	Observed Material Diameter (inches)	Proposed Material Diameter (inches)
D_{15}	0.32	0.38
D_{50}	0.70	0.84
D_{84}	1.42	1.70
D_{95}	2.10	2.52

To provide the needed channel stability, meander bars and/or other stability features are needed within the structure to prevent streambed sediment from being washed out. These meander bars, composed of a higher percentage small to medium cobbles and large gravels would be placed within the structure that would provide additional channel diversity.

Streambed cobbles, sediment, and boulder sizing for the design of fish passable structures shall be in accordance with the WSDOT Hydraulics Manual and the Standard Specifications. The final streambed material size and streambed mix configuration will be developed by the Design-Build Contractor and will be constructed using materials as described in WSDOT Standard Specifications.

- 06/2024 - AECOM submitted PHD Design to Skanska. Section 4.3.1 Bed Material included the following statement:

4.3.1 Bed Material

As stated in **section 4.1.1**, Queensborough Creek follows a pool-riffle morphology. Thus, bed material falls into one of three categories for the streambed design of Queensborough Creek at SR 527: (1) pool material, (2) riffle material, and (3) meander bar material.

Following the stream simulation method, proposed pool material gradation is based on native material found in reference reaches, in this case taken as the Wolman pebble count data presented in **Table 2-5**.

Because preliminary analysis indicates that the observed material is unstable during all flood events (see **Appendix C**), the reference reach gradation was increased by the maximum

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allowable 20 percent in accordance with the *WSDOT Hydraulics Manual* (see **Table 4-4**). This proposed pool material gradation falls within the *WSDOT streambed sediment range* shown in **Table 4-5** but remains mobile at the 100-year discharge.

For riffle and meander bar material, three methods were used to size sediment for the design discharge (100-year): the Modified Shields Methodology (USDA 2008), the Bathurst Equation (Bathurst 1987), and the U.S. Army Corps of Engineers (USACE) riprap equation (Barnard 2013). The Modified Shields Methodology produced the most conservative results and was used to develop the sediment sizes shown in **Table 4-4**. See **Appendix P** for riffle and meander bar material sizing calculations.

Table 4-4: Comparison of observed and proposed streambed material

Sediment Size	Observed Streambed Material Diameter (inches)	Proposed Pool Material Diameter (inches)	Proposed Riffle Material Diameter (inches) ¹	Proposed Meander Bar Material Diameter (inches) ¹
D ₁₆	0.32	0.38	0.96	0.96
D ₅₀	0.70	0.84	3.12	3.12
D ₈₄	1.42	1.70	7.92	7.92
D ₉₅	2.10	2.52	-	-
D ₁₀₀ ²	-	-	19.80	19.80

Note:

¹ See Appendix P for riffle and meander bar material sizing.

² Maximum particle size (D₁₀₀) is of greater interest than D₉₅ for sizing cobbles and/or boulders.

- 07/2024 - PHD comments were received from WSDOT in Excel file "Package-8-Preliminary-Fish-Passage-Water-Crossings_RCSR_WSDOT.xlsx". Comment #14 stated:

14	QB 527 PHD Section 4.3.1 Pg 35	ATS	We are proposing a sediment mix that is well over the 20% allowable from the Design Manual, there needs to be further justification for this.
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- 01/2025 - AECOM submitted FHD Design to Skanska. Section 4.3.1 Bed Material included alternatives analysis of streambed sediment sizes:

4.3.1.1 Alternatives Analysis

In accordance with the WSDOT Streambed Material Decision Tree (WSDOT 2022a), an alternatives analysis was conducted due to the criticality rating of "medium" associated with undersized sediment. The following alternatives were identified and evaluated:

- Alternative 1: Design channel with streambed sediment size within 20 percent of the existing reach pebble-count size.
- Alternative 2: Design an overcoarsened channel with D_{84} sized to be stable at the 100-yr flow.
- Alternative 3: Design an overcoarsened channel with D_{84} sized to be stable at the 100-yr flow with channel-spanning non-deformable boulder grade controls in riffles.

Alternative 1 was determined to have unacceptable risk due to the mobility of the undersized sediment and the potential to undercut creek banks and infrastructure, while increasing downstream flood risk. Additionally, undersized sediment is more likely to result in a plane-bed

geomorphic condition that may entrain flows along structure walls, potentially limiting fish passage.

While Alternative 3 was determined to reduce the risk of undersized sediment mobility, it would also potentially increase the risk of a fish barrier forming in the vicinity of the channel-spanning boulder grade controls.

Alternative 2 was determined to be the preferred alternative as it reduces the risk of undersized sediment mobilizing and undercutting creek banks and infrastructure while allowing the creek to naturally respond to geomorphic processes due to the absence of rigid boulder grade controls. Furthermore, the Type II Streambed Material is more conducive to creating diversity in fish habitat because it allows the stream to develop and maintain riffles and pools, creating hydraulic diversity for microhabitats and multiple pathways for juvenile fish during low flows. Habitat complexity features such as woody material, meander bars, and deformable grade control will also provide added channel stability and hydraulic diversity that will improve instream habitat for fish. These features are discussed in the following sections.

- 03/2025 - Comments are provided by WSDOT. Comments related to streambed material sizing include 52, 56, 87, 88, 89:

52	41	HQH		prior to getting to the end. This Type 2 mix is significantly oversized and will not be supported by WDFW and MIT, particularly in the bed. It can be justified in the head of the Meander Bars as those are bank features, but in the streambed it will be a difficult sell to MITF and WDFW that this material will be beneficial to fish life.
56	42	HQH		properly designed meander bars will prohibit entrainment and plane bed. concerns with the size of this material. There's no explanation of what the min. size particle is stable at the 100yr. Need to understand what is stable and what is not. Need to understand how much of this material is in the bed of the stream, according to the previous sections, majority of the streambed is made of this Type 2 streambed material. RFP Table 2.30B states Proposed bed material 20% max coarser than existing.
87	80	HQH		profile that is concave that more closely matches the topography and the geology layers. This calculation essentially tells me that this Type 2 mix is an armored bed and will not be accepted by WDFW and MITF; and doesn't match the RFP.
88	80	HQH		This calculation will need to be updated once revision on the Type 2 sediment is made.
89	83	HQH		May need to revisit bend scour calcs. with revision to Type 2 Sediment sizing.

- 05/09/2025 through 12/30/2025 – multiple efforts by AECOM for comment concurrence are rejected by WSDOT.

A	05/09/25: There are two potential drawbacks to having coarser material in the proposed design: 1) Loss of surface flow that could create a barrier to fish due to inadequate depths and 2) the reduction in deformability of the channel bed and sediment transport. We believe our design addresses both of these concerns because 1) The design gradation that is presented in Table 4-4 does not include the additional fines that will be washed in between each lift and the final placed streambed will be finer than the design gradation. The means of construction here will facilitate the adequate incorporation of fines whose sole purpose is to prevent flow from going subsurface. 2) The introduction of more fines during construction will allow the bed to be even more mobile than the design gradation has been demonstrated to be. This design gradation will be largely mobile even at lower flows and only the D84 is designed to be stable up to the 100-year flow. Coarser material can provide additional benefits similar to LVM, including more hydraulic habitat complexity, increased roughness, multiple flow paths, and cover that are particularly beneficial to juveniles. Coarse material within the structure may mitigate for the lack of LVM within the structure (WISDOT requirement) and may provide some of the benefits that wood provides outside of the structure. A recent flume study and publication by the University of Idaho, highlights the biological benefits to coarser sediment for salmonid egg survival. The artificial egg pocket causes convergence of the downwelling flows as well as increased dispersion of the flow within the egg pocket. These characteristics may be beneficial for embryo survival because 1) the increased downwelling flows can provide more DO, and 2) the increased dispersion around the larger grain and within the larger pore spaces will provide better distribution of DO to all eggs. https://www.researchgate.net/publication/350397105/figure/fig/50397105/50397105503971050006021. The pressure variance induced by large wood increases hypoxic exchange and dissolved oxygen and nutrient exchange between the surface and subsurface. The literature above indicates that coarser sediment can provide similar benefits as large wood. Because bed material generally covers a larger area of the stream than wood does, the benefits that some coarse material provides can have a significant impact on the mentioned processes, especially in areas lacking of LVM like within the crossing. Additionally, the current design gradation does not include fines that will be washed in during construction of each streambed lift to prevent sub-surface flow. No changes. 08/18/25: Coordination with WDFW is ongoing at this time. 11/26/25: Type II streambed sediment has been revised: D50 is reduced by over 50%. See emailed documentation. 1. All MTF comments have been closed, and documented in previous RCSR forms for QBS27. No comments received from WDFW on previous streambed sediment mix. 2. By area of constructed streambed, approximately 50% of the channel will be lined with Type I Sediment Mix and 50% will be lined with Type II Sediment Mix. The Type I gradation remains unchanged from previously proposed gradations. The resulting bed material size is more similar to the existing pebble count D50. AECOM also notes, as stated in the FHD, that excessive fines were observed moving through the system which may have skewed the pebble count data. We would request avoiding a DBC to change the table based on this revision; however, can provide upon request. 3. AECOM has reviewed the HPA and did not find any provisions that would require modification. Provision #50 states "size streambed material to mimic the stream's natural gradation." The revised Type II streambed sediment, following stream simulation design, more closely mimics the stream's natural gradation. Also note that the finer Type II streambed sediment mixture will be provided in pools. 12/30/25: See email sent 11/26 and emailed attachments for requested information.	A 12/18/25: I don't disagree with your response and will consider this request. 1. You have supporting documentation showing concourse since from MTF and WDFW. 2. You submit a DBC to change the table 2.30 to allow greater than 20% increase in sediment rates. 3. Receive HPA modification documenting acceptance by WDFW. 12/10/25: No response - see email dated 12/18/25. 2/20/26: Review of the Word Document titled: Sediment_Size_NFP_OB_20260220.docx sent Feb. 20, 2026, identifies QB405 and QB527 as revised to be 100% Streambed Sediment. This addresses original comment and matches more closely the existing streambed material to within 20%. Please update the FHD accordingly with supplemental calculations including scour and provide for final backcheck. 4/15/25: "OK" updated to A by SRB
A	05/09/25: Long-term degradation is considered under dominant discharge conditions (i.e., the 2-year flood). Riffles are designed with a streambed gradation of which "B4"; is mobilized during the 100-year discharge. Episodic, lower probability flood events will naturally regrade the channel and should prevent the formation of fish barriers. Additionally, the current design gradation does not include fines that will be washed in during construction of each streambed lift to prevent sub-surface flow. 08/18/25: Coordination with WDFW is ongoing at this time. Long-term degradation is considered under dominant discharge conditions (i.e., the 2-year flood). Riffles are designed with a streambed gradation of which "B4"; is mobilized during the 100-year discharge. Episodic, lower probability flood events will naturally regrade the channel and should prevent the formation of fish barriers. Additionally, the current design gradation does not include fines that will be washed in during construction of each streambed lift to prevent sub-surface flow. 11/26/25: See responses to #52 and #55. Type II Streambed Sediment and Long-Term Degradation calculations have been revised. 12/30/25: See previous responses. AECOM recommends closing this comment concurrently with #52.	A 07/18/25: (no response) 12/10/25: (no response) 2/20/26: See resolved response #52 4/15/25: "OK" updated to A by SRB


Cote, Meredith

To: Ng, Gabe <Gabe.Ng@jacobs.com>

Cc: Raheem, Yacoub; Gentzler, Seth; Boyce, Samuel; Seattle; Abraham, Ryan; Guerrero, Jon; +1 other

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Hi Gabe,

I am reaching out to follow up on your remaining open comments on the QB527 submittal. These include #52, 56, 85, 87, 88, and 89, which all relate to the proposed streambed sediment gradation. Please see revised responses for these 6 comments attached.

Along with these comment responses, we would like to provide a few additional pieces of information regarding how we have adjusted our Type II sediment gradation. The gradation has been adjusted to be based on the Bathurst method, as shown in the table below. The Type I gradation remains unchanged from previously proposed gradations.

Material Size	Previous Type II Sediment Gradation	Revised Type II Sediment Gradation
D100 (in)	18.0	12.0
D84 (in)	9.8	5.9
D50 (in)	4.2	1.9
D16 (in)	0.5	0.1
D8 (in)	0.1	0.1

By area of constructed streambed, approximately 50% of the channel will be lined with Type II Sediment Mix and 50% will be lined with Type I Sediment Mix. The figure below documents the stream's existing streambed gradation (as documented by pebble counts) (+20%, light blue), compared to our Type I and Type II streambed sediment mixes (Type II previous, dark green and Type II revised, dark blue), as well as a combined bed material of Type I and Type II (light green). This revision provides a sediment mix that is closer to the existing streambed material (+20%). Type I mix gradation show in purple.

Ng, Gabe <Gabe.Ng@jacobs.com>
 To: Cote, Meredith
 Cc: Raheem, Yacoub; Gentzler, Seth; Boyce, Samuel; I405-Seattle; Abraham, Ryan; Guerrero, Jon; +3 others

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Hi Meredith,

The revised Type II sediment is more than 2x the observed material sizes at D50 and above. Which exceeds the 20% from existing/observed material which violates the WCDG, WAC, HPA and the RFP.

For reference PHD:
 below. The final sediment mix will be calculated by the Design Build contractor.

Table 20. Comparison of Observed and Proposed Streambed Material

Particle	Observed Material Diameter (inches)	Proposed Material Diameter (inches)
D ₁₅	0.32	0.38
D ₅₀	0.70	0.84
D ₈₅	1.42	1.70
D ₉₅	2.10	2.52

As I mentioned today, I'm willing to work with the design team on where and how to use this over-coarsened material; but logically it also makes sense to consider the above constraints can be overcome prior to or concurrently.

The over-coarsened material could be justified from hydraulics perspective and applied as riffles; as you've indicated. But your justification for what type of "constraints" prohibit you from matching or closely matching the existing material per the HM is lacking. I'm having a hard time understanding the need to over-coarsen; as I've seen successful projects matching streambed material and include engaged LWM (which inherently holds sediment).

I'd need to see 1. justification for over-coarsening and 2. where this material is being applied in both the plan and profile.

- 11/20/2025 – WDFW requests WSDOT provide missing key information from the fish passage hydraulic designs, which are needed for the Hydraulic Project Approval permit application:

From: Dykstra, Jesse F (DFW) <Jesse.Dykstra@dfw.wa.gov>
 Sent: Thursday, November 20, 2025 12:33 PM
 To: Toney, Alicia (Consultant) <Alicia.Toney@consultant.wsdot.wa.gov>
 Cc: Pfeifer, Duncan E (DFW) <Duncan.Pfeifer@dfw.wa.gov>; Reinbold, Stewart G (DFW) <Stewart.Reinbold@dfw.wa.gov>
 Subject: HPA 45158 I405 SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Hey Alicia,

Reaching out regarding the recent application (App ID: 45158). Do you have an updated and consolidated plan set for this project? The final JARPA plan set drawings are missing key information that should be included in the design package (meander bars, LWM, step pools, ect.). With six PHD/FHD documents, it is difficult to identify and extract the information needed for permit review. Some of the FHD/PHDs sheets are missing some important information for a formal review.

Thanks again for your time.

- 12/29/2025 – WSDOT provides WDFW with FHDs and RFC plans:

From: Toney, Alicia (Consultant) <Alicia.Toney@consultant.wsdot.wa.gov>
 Sent: Monday, December 29, 2025 12:00 PM
 To: Dykstra, Jesse F (DFW) <Jesse.Dykstra@dfw.wa.gov>
 Cc: Pfeifer, Duncan E (DFW) <Duncan.Pfeifer@dfw.wa.gov>; Reinbold, Stewart G (DFW) <Stewart.Reinbold@dfw.wa.gov>; Schoettler, David (Consultant) <david.schoettler@consultant.wsdot.wa.gov>; Cote, Meredith <meredith.cote@aecom.com>; Mika Miyamoto <mika.miyamoto@oneatlas.com>; Berriz, Sonia (Consultant) <Sonia.Berriz@consultant.wsdot.wa.gov>; Kane, Betty (Consultant) <Betty.Kane@consultant.wsdot.wa.gov>
 Subject: RE: HPA 45158 I405 SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project - response to comments

External Email

Hi Jesse,

We have compiled information to respond to the comments below and it's been uploaded into APPS. There is a PDF package for design questions for each of the streams. There is also an FHD with all appendices and RFC plans for each stream except QB at 527 which is not RFC yet. There are also plans for the Sammamish River and USCG permitted drawings and the WQMPP that provide supporting information. Please also look inline below for some summary of information and also for places we discussed that we do not have the information at this time.

Once you've had a chance to review, let me know if you need anything else.
 Thanks!

- 01/02/2026 – WDFW replies with follow-up questions, including those related to sediment size, and states additional justification was needed:

The alternatives analysis in the FHD indicates that sediment within the ± 20 percent median particle size range was considered to pose an unacceptable risk due to its potential mobility, including the likelihood of undercutting and development of a plane-bed morphology. While that concern is noted, the currently proposed sediment gradation appears to be considerably larger than the reference condition and may introduce the opposite risk—insufficient retention of surface water and reduced hydraulic connectivity across the culvert. Additional justification is needed to demonstrate that the proposed sediment mix will maintain stable surface flow conditions, achieve stream-simulation objectives, and balance the competing risks of sediment mobility and excessive coarseness.

- 01/12/2026 – WSDOT shares with AECOM that WDFW has issued a new Hydraulic Project Approval permit with a stipulation for adjusting the sediment size. WSDOT requests sediment size justifications from AECOM, and hopes it will void the requirement to adjust the sediment sizes:

From: Toney, Alicia (Consultant) <Alicia.Toney@consultant.wsdot.wa.gov>
Sent: Monday, January 12, 2026 1:41 PM
To: Cote, Meredith <Meredith.Cote@aecom.com>; Raheem, Yacoub <yacoub.raheem@aecom.com>; Michels-Boyce, Sam (Consultant) <sam.michels-boyce@consultant.wsdot.wa.gov>
Cc: Berriz, Sonia (Consultant) <Sonia.Berriz@consultant.wsdot.wa.gov>; Gaffney, Erin <erin.gaffney@skanska.com>; Ng, Gabe (Consultant) <Gabe.Ng@consultant.wsdot.wa.gov>; Mika Miyamoto <mika.miyamoto@oneatlas.com>; Kane, Betty (Consultant) <Betty.Kane@consultant.wsdot.wa.gov>; Gross, Tricia (Consultant) <Tricia.Gross@consultant.wsdot.wa.gov>
Subject: FW: App ID: 45158 SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

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Hi Meredith and Yacoub,
Last week we were issued a new HPA for the 522-527 portion of the project – see attached. Our previous permit expired.

Because we could not settle discrepancies with the velocities not meeting the WAC for North Fork Perry prior to the previous permit expiring, they pulled that stream out and we will need to get a new permit for it separately.

In the newly issued permit, because we did not provide a justification, they put a stipulation for adjusting the sediment sizing for Par, Stream 25L, QB at 527 and QB at 405 and submitting updated plans at least 4 months prior to any in-water work.

I've been working with Sam to understand the implications of all of this and would like to discuss with your design team as well. At this time, I'd like to know if we can provide the additional information they are requesting in the attached email and what it means for our design. I'd also like to check in on the sediment size justifications for all streams that I thought we were going to provide when we responded to WDFW's comments on our permit application. What is the status of those? I am hoping that with these, it will void the requirement to adjust the sediment sizes in our designs.

- 01/14/2026 – Coordination meetings with AECOM (Meredith Cote, Yacoub Raheem) and WSDOT consultants (Alicia Toney, Sonia Berriz, Sam Michel-Boyce). WSDOT expresses verbal support for sediment sizing justification based on the percent of streambed material expected to be mobile. AECOM prepares justification for Queensborough 405, which had been released for RFC three months prior.
- 01/26/2026 – Coordination meeting with AECOM (Meredith Cote, Yacoub Raheem), WSDOT consultants (Alicia Toney, Sam Michel-Boyce, Gabe Ng, Sonia Berriz), and WDFW (Jesse Dykstra, Duncan Pfeifer, Stewart Reinbold). Streambed sediment sizing is discussed.
- 01/27/2026 – WSDOT summarizes their understanding of the 01/26 meeting, and requests identification of AECOM's next steps:

From: Berriz, Sonia (Consultant) <Sonia.Berriz@consultant.wsdot.wa.gov>
 Sent: Tuesday, January 27, 2026 6:44 AM
 To: Cote, Meredith <meredith.cote@aecom.com>; Raheem, Yacoub <yacoub.raheem@aecom.com>; Gaffney, Erin <erin.gaffney@skanska.com>
 Cc: Toney, Alicia (Consultant) <Alicia.Toney@consultant.wsdot.wa.gov>; Sam Michels-Boyce <smichelsboyce@hntb.com>; Ng, Gabe <gabe.ng@jacobs.com>; Sharrer, Kyle <Kyle.Sharrer@skanska.com>; Guerrero, Jon <jon.guerrero@aecom.com>; Lovering, Janka (Consultant) <Janka.Lovering@consultant.wsdot.wa.gov>
 Subject: WDFW Meeting 1/26 Takeaways

Hi all,

I would like to summarize my understanding of the discussion held yesterday with WDFW and request clarification on AECOM's and Skanska's proposed next steps.

North Fork Perry – Velocities
 WDFW was clear that the concerns regarding North Fork Perry and the removal of this crossing from the permit are directly tied to the streambed sediment mix and its influence on hydraulic performance. WDFW will not evaluate velocities in isolation from sediment sizing; the stream must be evaluated as an integrated system.

Streambed Sediment Design
 Key points conveyed by WDFW included:

- WDFW is trying to keep the fish passage design in the stream simulation realm
- The proposed mixes are weighted heavily toward larger material sizes and appear to be overly armored.
- WDFW suggested that if larger material is necessary for stability, it should be placed deeper in the section, with a smaller mix placed above.
- The updated North Fork Perry streambed mix presented on screen is unlikely to be approved through iterative justification. While additional justification could be attempted, WDFW indicated this would be time-consuming and uncertain. The most direct path to approval is to continue revising the streambed sizing.

Next Steps
 To move this issue toward resolution, WSDOT requests the following:

- Skanska to provide a clear timeline for when the streambed material design resolution is needed.
- Identification of whether AECOM intends to pursue further justification of the current mix, or to proceed with revising the gradation consistent with WDFW's guidance and the contract.

WSDOT remains available to support technical discussions between SMEs and the Engineer of Record to achieve a permissible and contract-compliant design. Please advise how WSDOT can assist and what specific support would be helpful.

Thank you and please let me know if this was not in line with what you heard yesterday. I thought it was a helpful conversation to move the project forward.

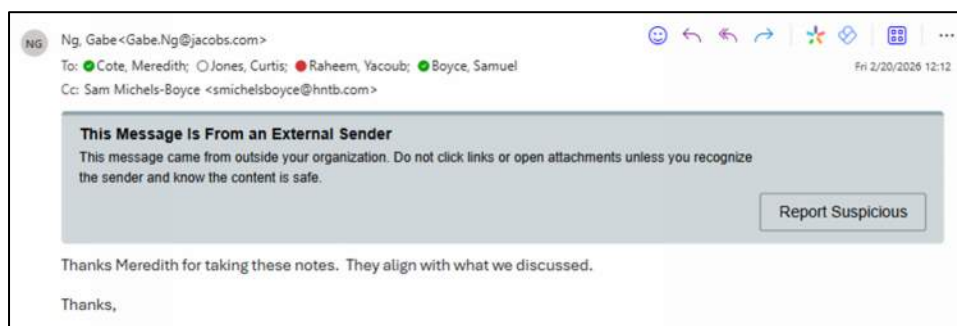
-Sonia

- 02/202026 – WSDOT provides approval for AECOM to revise designs for fish passages:

2/20/2026

- Juanita Creek
 - Briefly discussed utility crossing upstream at Juanita Creek. The utility line is several feet below the scour depth. WSDOT recommended not including this discussion of the utility crossing in the justification for sediment sizing.
 - AECOM to coordinate a follow-up meeting to continue conversation on Juanita
- Stream 25L
 - Gabe shared comments on the streambed justification. In general, feedback is to lessen the engineering justification, lean on the existing stream condition for design. Photos are strongest piece for this justification.
 - WSDOT will share the RCSR form with comments closed, with the understanding that comments related to the step-pool design will be points of further discussion.
- Queensborough
 - AECOM shared revised mix is 100% streambed sediment, 100% mobile
 - WSDOT agreed with this approach and stated the existing conditions match this closely
 - AECOM to share revised gradation with WSDOT to close comments related to sediment mix
 - Discussed adjusting depth of material below 3 ft. Difficult to justify anything below that without documentation of the material below the streambed, borings must be taking in the stream. Can adjust in the field if possible.
 - WSDOT is preparing responses to the QB527 RSCR form and will send to AECOM
- North Fork Perry Creek
 - AECOM shared revised mix is 90% streambed sediment, 10% 4" cobbles. 100% mobile.
 - WSDOT generally agreed with this approach
 - WSDOT shared photos of natural meander bars in the stream and could share photos

1



- 05/04/2026 - AECOM submitted RFC Design to Skanska. Concurrence reached on all comments, including those relating to streambed sediment size:

A	05/03/25: There are no potential drawbacks to having coarser material in the proposed design: 1) Loss of surface flow that could create a barrier to fish due to inadequate depths and 2) the reduction in deformability of the channel bed and sediment transport. We believe our design addresses both of these concerns because 1) The design gradation that is presented in Table 4-4 does not include the additional fines that will be washed in between each lift and the final placed streambed will be finer than the design gradation. The means of construction here will facilitate the adequate incorporation of fines whose sole purpose is to prevent flow from going subsurface. 2) The introduction of more fines during construction will allow the bed to be even more mobile than the design gradation has been demonstrated to be. This design gradation will be largely mobile even at lower flows and only the DB4 is designed to be stable up to the 100-year flows. Coarser material can provide additional benefits similar to LWF, including more hydraulic habitat complexity, increased roughness, multiple flow paths, and cover that are particularly beneficial to juveniles. Coarser material within the structure may mitigate for the lack of LWF within the structure (WSDOT requirement) and may provide some of the benefits that wood provides outside of the structure. A recent flume study and publication by the University of Idaho, highlights the biological benefits to coarser sediment for salmonid egg survival. The artificial egg pocket causes convergence of the downwelling flows as well as increased dispersion of the flow within the egg pocket. These characteristics may be beneficial to the survival because 1) the increased downwelling flow can provide more DO, and 2) the increased dispersion around the larger grains and within the larger pore spaces will provide better distribution of DO to all eggs. https://www.sciencedirect.com/science/article/abs/pii/S0303108250006121. The pressure variance induced by large wood increases hypoxic exchange and dissolved oxygen and nutrient exchange between the surface and subsurface. The literature above indicates that coarser sediment can provide similar benefits as large wood. Because bed material generally covers a larger area of the stream than wood does, the benefits that some coarse material provides can have a significant impact on the mentioned processes, especially in areas lacking or LWF like within the crossing. Additionally, the current design gradation does not include fines that will be washed in during construction of each streambed lift to prevent sub-surface flow. No changes. 08/18/25: Coordination with WDFW is ongoing at this time. 11/26/25: Type II streambed sediment has been revised. D50 is reduced by over 50%. See emailed documentation. 1. All MTF comments have been closed, and documented in previous PCSR forms for DBS27. No comments received from WDFW on previous streambed sediment mix. 2. By area of constructed streambed, approximately 50% of the channel will be lined with Type I Sediment Mix and 50% will be lined with Type I Sediment Mix. The Type I gradation remains unchanged from previously proposed gradations. The resulting bed material size is more similar to the existing pebble count D50. AECOM also notes, as stated in the FHD, that excessive fines were observed moving through the system which may have sieved the pebble count data. We would request avoiding a DBIC to change the table based on this revision; however, can provide upon request. 3. AECOM has reviewed the HPA and did not find any provisions that would require modification. Provision R10 states "use streambed material to mimic the stream's natural gradation." The revised Type II streambed sediment, following stream simulation design, more closely mimics the stream's natural gradation. Also note that the finer Type I streambed sediment mixture will be provided in pools. 12/30/25: See email sent 11/26 and emailed attachments for requested information.	A 07/18/25: I don't disagree with your response and will consider this resolved. 1. you have supporting documentations showing concurrence from MTF and WDFW. 2. You submit a DBIC to change the table 2.30 to allow greater than 20% increase in sediment sizes. 3. Review HPA modification documenting acceptance by WDFW. 12/10/25: No response - see email dated 12/16/25 12/30/25: Review of the Word Document titled: 'Sediment_Sizes_SPH_QB_100900000.docx' sent Feb. 20, 2025, identifies DB405 and DBS27 v as revised to be 100% Streambed Sediment. This addresses original comment and matches more closely the existing streambed material to within 20%. Please update the FHD accordingly with supplemental calculations including cover and provide for final backcheck. 4/15/25: "OK" updated to A by SPB
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Table 4-7: Percent of streambed material gradation susceptible to particle entrainment

Bed Material	2-year	25-year
Alternative 3: D ₈₄ sized for stability at 100-year flow	43.0	58.0
Alternative 4: within 20% of existing size	100.0	100.0

Both Alternative 3 and Alternative 4 present designs that are consistent with Stream Simulation design methodology and allow the channel to naturally regrade. Given the mobility analysis (Table 4-7), the degraded habitat caused by excessive fines, and the special considerations for long culverts in the design guidance, AECOM recommends Alternative 3 for the proposed crossing. However, through coordination with WDFW and WSDOT HQ Hydraulics, it has been determined that no significant constraints exist to justify an overcoarsened channel (Alternative 3). Because the risks described in Appendix Q are considered acceptable to the Project's co-managers, Alternative 4 is selected for this crossing.

Juanita Creek: Overview

Juanita Creek's WSDOT Draft PHD (Appendix H08) states, "With the proposed streambed material at the D50 well over allowed 20 percent increase, the streambed sediment mix will not be increased by the WSDOT Hydraulics Manual prescribed 20%, as shown in Table 13 below. The larger increase to the streambed sediment will account for this stream reach being returned to a natural flowing channel rather than a reach affected by backwatering of the regional detention facility". WSDOT's Draft PHD states the Existing D50 as 1.01 inches and recommends a D50 of 3.89 inches, a 385% increase from the existing sediment size.

The gradation proposed in the FHD, based on updated hydraulic modeling and following the Modified Critical Shear Stress Approach from the WSDOT hydraulics manual, was a D50 of 7.44 inches, a 737% increase from the existing sediment size.

After Juanita Creek FHD was submitted in January 2025, WDFW provided RCSR comments in June 2025 regarding the sediment size and stated the over-coarsened streambed material was unacceptable. As WSDOT had previously provided direction to proceed with the material exceeding 20% of the existing size, AECOM wrote RFI 559 requesting additional information and clarification that WSDOT had provided the PHD's for fish passages to WDFW and the Tribe in accordance with TR Section 2.30.7.3.1. WSDOT responded on September 12, 2025 that they had provided the Juanita Creek design to WDFW on February 26, 2025; one month after the FHD was submitted, inferring they had provided FHD, not PHD, which is not in accordance with the contract. WSDOT also failed to provide dates for submission of the additional fish passages to the Tribe and WDFW.

The design-build team, WDFW, and WSDOT met many times over a period of 11 months (from June 2025 to May 2026) to coordinate and agree on a revised path forward. AECOM's updated the D50 after discussions with WSDOT and WDFW, using the Unit-Discharge (Bathurst) method to 3.1 inches (307% increase from existing) within the structure and downstream of the structure and 3.6 inches (356% increase from existing) upstream of the structure.

AECOM has complied with WSDOT's direction resulting in additional design revisions. AECOM is requesting an OIC to accept the design change as well as additional design revision efforts.

Timeline of relevant events

- Meeting minutes pertaining to sediment size are shown on the cohesive timeline above.
- May 2022: Below is text from Section 5.1 Bed Material of Appendix H08, which was included as a reference document as part of the contract, and was the basis of the HPA. It states that the proposed sediment gradation will be substantially larger than the 20% increase from existing conditions:

With the proposed streambed material at the D₅₀ well over allowed 20 percent increase, the streambed sediment mix will not be increased by the WSDOT Hydraulics Manual prescribed 20%, as shown in Table 13 below. The larger increase to the streambed sediment will account for this stream reach being returned to a natural flowing channel rather than a reach affected by backwatering of the regional detention facility. Further streambed sediment data collection will be completed prior to RFP issuance to confirm these preliminary calculations. The final sediment mix will be calculated by the Design Build contractor.

Table 13: Comparison of Observed and Proposed Streambed Material

	Existing	Riffle-Pool System
	Average Diameter (in)	Proposed Diameter (in)
D ₁₆	0.38	0.78
D ₅₀	1.01	3.89
D ₈₄	2.21	13.20
D ₁₀₀	5.69	18.00

- 7/3/2024 – AECOM submitted Juanita Creek Preliminary Hydraulic Design (PHD) to Skanska and WSDOT. The PHD states: “Existing condition hydraulics of Juanita Creek are influenced by the regional detention facility located under I-405. The proposed Juanita Creek structure under I-405 will not have such a facility, and velocities and shear stresses will be higher than existing conditions. Bed materials will need to be substantially coarser than current bed materials to resist scour and mobilization.”
- 7/30/2024 – PHD comments were received from WSDOT. No comments were received from WDFW or the Tribes as provided by article 2.30.7.3.1
 - Despite this requirement, AECOM understands that WSDOT did not submit plans to WDFW until 7/27/2025, nearly a year later and after PHD comments were closed. See response to RFI #559 shown above.
 - PHD RCSR comment related to sediment size:

9	Juanita PHD Section 4.3.1 Pg 31	ATS		We are proposing a sediment mix that is well over the 20% allowable from the Design Manual, there needs to be further justification for this.	R	YR	A sediment mix within 20% of the existing streambed material is unstable for the design storm. The design requires a coarser mix for stability. A compromise was discussed to provide 1 ft of standard WSDOT streambed sediment within the bankfull channel which will be provided in the next phase of the construction documents.	R
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- 1/24/2025 – AECOM submitted Juanita Creek Final Hydraulic Design (FHD) to Skanska and WSDOT. Design included step-pools and sediment greater than 20% increase from existing.
- 2/20/2025 – AECOM received WSDOT comments including Muckleshoot Indian Tribe (MIT) comments on the FHD. FHD RCSR comments related to sediment size:

122	SMB	Typical WSDOT modeling approach is to only include "rigid" features into the mesh surface, and to simplify deformable features into a typical cross-section/gradient. Including the steps is appropriate, but including riffle features implies they are rigid. Additionally, sizing that material based on the localized steep run slope of the riffle almost ensures they will be immobile.	D	CMJ	To be clarified for RFC submittal. The riffle pool morphology is designed to persist over time and not develop a plane bed condition. This is accomplished by designing the largest 16% of material to be stable at the 100-year flow and thus providing sufficient large material to support the development of riffles. This does not mean that they are rigid and non-deformable as 64% of the riffle mix will be mobile at the 2-year flow. Further, the riffle gradation is designed based on the riffle sections in the hydraulic model through regions of the stream where LVM does not heavily influence hydraulics. Due to this, the D84 is designed to be stable for the condition without LVM and in reality, the increased turbulence, vortices, and shear stresses around the logs will result in the material to be more mobile than illustrated with the D84 being stable at the 100-year. In pools where wood is placed, the streambed is expected to respond beyond the pre-formed condition and is not expected to be rigid. See comment response to #118. Modeling the non-rigid features like riffles and pools provides more detailed hydraulic results that can be useful when evaluating fish passage velocities, depths and how the overall design is functioning. Modeling these does not necessarily imply they are rigid; this is intended to model more accurately the preformed as-built conditions and the conditions that may develop over time when riffles and pools form, whether they exist in the same locations with the same geometry (which is not necessarily expected) or not. Either way, the more detailed results are useful to inform design decisions and how the crossing will function.	A	
157	ATS	The average slope of the crossing should be used to size bed material. Using an oversteepened riffle slope has substantially oversized the proposed bed material.	D	YTR	Our modeling approach has been discussed with WSDOT. We are designing preformed pools. We are modeling the condition immediately after construction is complete. We want to confirm the stability/mobility of our riffles. By using a detailed surface for modeling we learning more about the hydraulics of the system, improving our design. Because the system is highly disturbed, for the RFC, what was the reference reach will now be classified as a "design reference reach" and direct application of the stream simulation and comparison of existing to proposed bed material sizes is not as informative or useful compared to when a pure reference reach is used. There are two potential drawbacks to having coarser material in the proposed design: 1) Loss of surface flow that could create a barrier to fish due to inadequate depths and 2) the reduction in deformability of the channel bed and sediment transport. We believe our design addresses both of these concerns because 1) The design gradation that is presented in Table 4-4 does not include the additional fines that will be washed in between each lift and the final placed streambed will be finer than the design gradation. The means of construction here will facilitate the adequate incorporation of fines whose sole purpose is to prevent flow from going subsurface. 2) The introduction of more fines during construction will allow the bed to be even more mobile than the design gradation has been demonstrated to be. This design gradation will be largely mobile even at lower flows and only the D84 is designed to be stable up to the 100-year flows. Note that 64% of the mix will be mobile at the 2-year and 73% of the mix will be mobile at the 10-year and the proposed gradation is well graded. Coarser material can provide additional benefits similar to LVM, including more hydraulic/habitat complexity, increased roughness, multiple flow paths, and cover that are particularly beneficial to juveniles. Coarse material within the structure may mitigate for the lack of LVM within the structure and may provide some of the benefits that wood provides outside of the structure. A recent flume study and publication by the University of Idaho, highlights the biological benefits to coarser sediment for salmonid egg survival: "The artificial egg pocket causes convergence of the downwelling flows as well as increased dispersion of the flow within the egg pocket. These characteristics may be beneficial for embryos survival because (1) the increased downwelling flows can provide more DO, and (2) the increased dispersion around the larger grains and within the larger pore spaces will provide better distribution of DO to all eggs. (https://www.sciencedirect.com/science/article/abs/pii/S0309170825000612). The pressure variance induced by large wood increases hyporheic exchange and dissolved oxygen and nutrient exchange between the surface and subsurface. The literature above indicates that coarser sediment can provide similar benefits as large wood. Because bed material generally covers a larger area of the stream than wood does, the benefits that some coarser material provides can have a significant impact on the mentioned processes, especially in areas lacking of LVM like within the	A	Using oversteepened riffles for sizing is still not suggested
166	ATS	Table 2 - this sediment gradation is too large. Refer to previous comments in the FHD. This sediment will not encourage natural stream function through the crossing, as required by the terms of the injunction.	D	YTR	See comment responses for #157 (and #122, 131, 213). We do not believe the sediment gradation is too large. This has been discussed with WSDOT.	C	Although discussions have occurred, I still believe that this overcoarsened bed material does not allow for natural regrade of the system, as required by the Injunction.

- 2/28/2025 - Concurrence meetings with Gabe Ng, Alex Strom (WSDOT consultants) were hosted by Yacoub Raheem
- 3/5/2025 - Concurrence meetings with Gabe Ng, Alex Strom (WSDOT consultants) were hosted by Yacoub Raheem

- 3/12/2025 – AECOM received all FHD RCSR comments including from Tribes. The Tribes agreed with the design approach as submitted. RCSR comment from Tribes related to sediment size:

213	MIT	"The Type I pool sediment is expected to be mobile at the 100-year design discharge. The Type II riffle and bank sediment and meander bar material has D84 size designed to be stable at the 100-year design discharge." - If sediment is too stable, it loses the ability to form scour pools and respond dynamically to wood placement within the channel. When material is resistant to mobility, it also resists deformation, making it unlikely to create the plunge pools and other key features that facilitate fish movement upstream. To enhance fish passage and habitat complexity, sediment gradation should allow for sufficient mobility to promote natural scour and pool formation while relying on the natural particle gradation and wood to maintain channel shape and structure.	D	CMJ	Modified critical shear stress evaluation of the proposed gradation results in 64% of the mix being mobile at the 2-year and 73% mobile at the 10-year flow events and illustrates the deformability of the streambed. LWM that is designed to be stable at the 100-year flow is placed in the pre-formed pools that will have residual pool depths after construction that will provide slower velocity areas for migrating fish. These pre-formed pools are also expected to respond to LWM by allowing some additional scour to their as-built condition as demonstrated by large portions of the Type II material being mobile at lower flows. Increased turbulence, vortices, and shear stresses around logs will also result in the Type II material potentially being more mobile in these local areas than what is illustrated by the D84 being stable up to the 100-year flow, since the streambed gradation is designed based on typical riffle sections of the stream that do not include significant wood influence. In summary, the sizing of streambed material did not take into account additional forces created by LWM and therefore the bed is expected to adjust and respond to LWM within the channel and in pools.	A	Comment Closed
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- 3/21/2025, - Concurrence meetings with Gabe Ng, Alex Strom (WSDOT consultants) were hosted by Yacoub Raheem
- 3/27/2025 - Concurrence meetings with Gabe Ng, Alex Strom (WSDOT consultants) were hosted by Yacoub Raheem
- 4/11/2025 – AECOM submitted responses to Tribe RCSR comments
- 5/2/2025 – AECOM submitted RCSR forms and review checklist comments.
- 5/12/2025 – WSDOT requested over the shoulder documents to facilitate reviewer backcheck.
- 6/5/2025 – AECOM provided over the shoulder documents to facilitate reviewer backcheck.
- 6/16/2025 - Concurrence meetings with Gabe Ng, Alex Strom (WSDOT consultants) were hosted by Yacoub Raheem
- 6/27/2025 - Concurrence meetings with Gabe Ng, Alex Strom (WSDOT consultants) were hosted by Yacoub Raheem: In this meeting Gabe requested official review from WDFW, tribes, and to set up a meeting with co-managers because the design was non-compliant even though WSDOT had previously agreed with this design approach. Alex was to check with Alicia Toney to coordinate.
- 7/3/2025 – WDFW provided first set of questions.
- 7/14/2025 - AECOM submitted responses to first set of WDFW questions.
- 7/23/25 - AECOM followed up with WSDOT consultant team on via email, at task force meetings and at all concurrence meetings asking for reviewer backcheck responses.
- 7/25/2025 - First WDFW meeting.** WDFW stated they were concerned with pool spacing, and turbulence, sizing. WDFW indicated WSDOT PHD does not meet the Washington Administrative Code (WAC) or stream simulation, due to slope ratio, step-pools, and sediment size. WDFW action to review question responses before next meeting.
- 8/15/2025 – AECOM submitted responses to second set of WDFW questions.

- 8/28/2025 – AECOM received WSDOT reviewer backcheck responses (10 weeks after providing our responses on 6/5/2025) and most were set to “C”, requesting clarification that had already been provided on 6/5/2025. The following include some of the relevant responses for comments related to sediment size:

COMMENT (WSDOT, City, Checker)			RESPONSE TO COMMENT (Skanska, Originator of Document)			RESPONSE TO RESPONSE (WSDOT, City, Checker)	
118	SMB	We should have better justification for why a stable bed is necessary. What is the sediment supply from upstream, and why can't we assume mobilized sediment will be replenished? If this proposed streambed mixture has not been reviewed/approved by the comanagers, I'm concerned the comanagers will push back on this design claiming an overly coarse, roughened channel.	R	CMJ	More information on the sediment supply will be added to the RFC report and additional explanation how large portions of the riffle streambed sediment is expected to be mobile at lower flows to try and address concerns of a rigid/stable bed. MIT comments have been received and comment responses have been provided. See comment MIT comment #209 response for details. These will be added to the RFC report.	A/C	Please resubmit to WSDOT for verification and acceptance of revision prior to progressing to RFC.
161	ATS	This sediment grade mix appears to invite subsurface flow.	C	CMJ	Additional clarification will be added to the RFC FHD. The current design does not include the fines that will be washed in during construction which will prevent subsurface flow. The means of construction here will facilitate the adequate incorporation of fines whose sole purpose is to prevent flow from going subsurface. The current design follows the 2013 WDFW WCDG which recommends 5-10% fines. A D8 will be added to the gradation to reduce the porosity of the mix and the amount of fines needing to be washed in during construction.	A/C	Please resubmit to WSDOT for verification and acceptance of revision prior to progressing to RFC.
166	ATS	Table 2 - this sediment gradation is too large. Refer to previous comments in the FHD. This sediment will not encourage natural stream function through the crossing, as required by the terms of the injunction.	D	YTR	See comment responses for #157 (and #122, 131, 213). We do not believe the sediment gradation is too large. This has been discussed with WSDOT.	C	Although discussions have occurred, I still believe that this over coarsened bed material does not allow for natural regrade of the system, as required by the injunction. This comment is not resolved.

- 8/26/2025 and 8/29/2025: WSDOT and AECOM met to discuss a path forward. The teams discussed design alternatives to help erosion control of the streambed including more deformable steps, over steepened riffles, plane bed, or extending upstream with shallower slopes. Extending upstream was eliminated due to property limits.
- During the 8/29/2025 meeting, there was a discussion about possibly reverting back to riffle-pool system in the upstream reach and grading further upstream to flatten out slopes. As discussed previously, the WSDOT PHD proposed sediment gradation did not meet contractual requirements; the proposed sediment gradation discussed at this meeting more closely aligns with the WSDOT PHD design and similarly does not meet contractual requirements. The proposed bed material exceeds the allowable limit of 20% coarser than existing conditions, and the required 1.25% slope ratio is not achieved. There was the discussion of decreasing sediment size to be closer to the WSDOT PHD (D50=3-4", with the agreement that riffles would be designed more stable, similar to deformable grade control, with slash and wood), but this still not small enough sediment size to meet the contract requirement.
- On 9/2/2025, WSDOT consultant (Alicia Toney) moved the WDFW meeting back to 9/9/2025 to allow for "additional internal coordination".
- On 9/9/2025, WSDOT (Alicia Toney) moved the WDFW meeting back to 9/15/2025 due to a WDFW schedule conflict.
- 9/15/2025: Second WDFW / WSDOT / AECOM / Skanska meeting. At this meeting AECOM explained the design methodology to WDFW. WDFW asked about AECOM's responses to their second round of questions. WSDOT informed the group that AECOM had provided the responses but WSDOT did not forward them to WDFW. AECOM began to answer WDFW questions in the meeting. WSDOT interrupted this explanation and ended the meeting. WSDOT stated they would provide AECOM's responses to WDFW's second round of questions.

- 9/23/2025 - Meeting with WSDOT, Skanska, and AECOM to discuss a technical path forward regarding this issue. AECOM is hopeful that the parties can agree on the required contract changes, obviating the need for this protest to proceed.
- 2/13/2026 – Meeting with WSDOT to discuss streambed material gradations at Stream 25.0L, Juanita Creek, North Fork Perry Creek, and Queensborough Creek sites. WSDOT (Gabe Ng.) was in support of the updated material gradation presented and justification needs to be provided.
- 2/20/2026 – Follow-up meeting with WSDOT to discuss streambed material gradations. Justification for coarser streambed material was discussed and documented in the following meeting minutes.

- Juanita
 - Discussed that the proposed stream will be shorter in length than existing, and thus slope is increasing. WSDOT recommended not including this discussion in the justification for sediment sizing.
 - Consider showing changes in shear stress from existing to proposed conditions in addition to changes in velocity, emphasize that flows are increasing and thus the stream will be in a different hydrologic regime, highlighting that we shouldn't be comparing existing and proposed conditions.
 - Emphasize that the stream will be allowed to natural regrade.
 - AECOM to send WSDOT and Skanska the sediment size justification and provide comments. Once in agreement, WSDOT will send to WDFW for approval. AECOM and WSDOT will then work towards closing RCSR comments.

- 2/20/2026 – AECOM (Yacoub Raheem) sent WSDOT consultant (Gabe Ng) Juanita's streambed material justification memo.
- 2/24/2026 – WSDOT consultant (Gabe Ng) discussed some comments at Task Force meeting. WSDOT (Ng) did not object to aggregate sizes but had concerns over where the material was applied and wanted to discuss how the woody material impacted movement/distribution of streambed materials.
- 2/25/2026 – WSDOT consultant (Gabe Ng) attached comments to Juanita streambed sediment justification memo.
- 3/03/2026 – WSDOT consultant (Gabe Ng) was sent updated Juanita streambed material justification with comments and track changes.
- 3/10/2026 – WSDOT consultant (Gabe Ng) emailed saying he doesn't object to aggregate sizes and can help support sediment gradations. Gabe requested minor revisions to the Juanita streambed sediment justification memo.
- 3/20/2026 – AECOM (Yacoub Raheem) requested WSDOT consultant (Gabe Ng) send an updated Juanita streambed material justification to WDFW for over the shoulder review. The following is from the streambed material justification memo:

Existing Gradation

Table 1. Juanita Creek Existing Streambed Material Gradations (100-yr Flow = 41 cfs)

Sediment Size	Average Diameter—Upstream of Crossing (in.)	Average Diameter—Downstream of Crossing (in.)
D ₁₆	0.4	0.5
D ₅₀	1.0	1.1
D ₈₄	2.2	1.9
D ₉₅	3.5	2.8
D ₁₀₀	5.7	3.6
Observed Max	24	-

Proposed Gradation

The Structure/Downstream Streambed Material Streambed Material will be placed in the structure and downstream reach. The Upstream Streambed Material will be placed in the upstream reach. These were developed based on the Bathurst (Unit Discharge) Method. These were designed to allow for the D₈₄ sediment size to be stable at the 100-year flow event. At lower flows, all particle sizes below the D₈₄ may be mobile. This will allow the stream to naturally regrade. These proposed gradations are smaller than the previously proposed gradation from the WSDOT Draft PHD (D₅₀=3.89 in, D₁₀₀ = 18 in), which was the basis of the HPA. Additional hydraulic modeling will be required to confirm these proposed gradations. Table 2 shows the proposed streambed material gradations. Table 3 show the proposed stream material percent composition.

Table 2. Juanita Creek Proposed Streambed Material Gradations (100-yr Flow = 111 cfs)

Sediment Size	Proposed Structure/Downstream Streambed Material Diameter (inches)	Proposed Upstream Streambed Material Diameter (inches)
D ₁₆	1.0	1.1
D ₅₀	3.1	3.6
D ₈₄	7.7	9.0
D ₁₀₀	11.3	13.2

Table 3. Juanita Creek Proposed Streambed Material Percent Composition (100-yr Flow = 111 cfs)

Streambed Aggregate	Proposed Structure/Downstream Streambed Material (% composition)	Proposed Upstream Streambed Material (% composition)
Streambed Sediment ¹	30	30
Streambed Cobbles, 8-inch ²	30	40
Streambed Cobbles, 10-inch ²	30	0
Streambed Boulder, 12-inch ²	0	20
Type One Streambed Boulders ²	10	10

Note: All percentages are by weight

¹Reference: RFP 230.53.1

²Reference: [WSDOT 2022 Standard Specifications for Road, Bridge, and Municipal Construction M41-10](#)

- 3/30/2026 WSDOT (Alicia Toney) forwarded AECOM's over the shoulder review to WDFW (Jesse Dykstra).

- 4/9/2026 – WDFW responds to WSDOT after OTS review of Juanita streambed material justification memo.
- 4/21/2026 – WSDOT (Alicia Toney) forwards the WDFW response to AECOM. WDFW (Jesse Dykstra) comments made on 04/09/2026 requested information on if the new sediment gradation would need to be revised based on the revised upstream hydraulic modeling that was not yet completed.
- 4/24/2026 – AECOM (Yacoub Raheem) sent response regarding WDFW's comment to WSDOT (Alicia Toney) stating the new sediment sizing is based on unit discharge approach using WSDOT's Bathurst equation and does not use inputs from final hydraulic model, and thus final hydraulic model results are not required for sediment gradation determination.
- 4/27/2026 – WSDOT (Alicia Toney) forwards AECOM's response to WDFW.
- 5/11/2026 – Email from WSDOT (Alicia Toney) states that WDFW can provide additional feedback during their review of the information that will be submitted for the permit modification, and reminded AECOM that Juanita is in the Brickyard HPA and that permit was originally issued with a provision that the final sediment sizes would be submitted as a permit modification request.
- 5/12/2026 – Email from WSDOT (Alicia Toney) saying that the follow up from WDFW on AECOM's response was that stream simulation is based upon site specifics and that they will be able to provide more feedback once modeling is done. WDFW is requesting to see the wood layout.

Juanita Creek Fish Passage Hydraulic Design is another example of the disruption caused by WSDOT. Until submitting the FHD for Juanita Creek and Queensborough 527, submissions only a few weeks apart, AECOM had progressed design in accordance with the previously RFC'd fish passages as requirements are similar. From WSDOT's RFI 559 response, it appears they had not coordinated with WDFW until early 2025, which did not allow for continuity in design development and progression for all fish passages. In continuing discussions with WSDOT and WDFW, parties agreed over coarsened streambed material, greater than 20% existing, is necessary in the Juanita Creek Hydraulic Design. For this misdirection WSDOT should issue an OIC.

Stream 25.0L:**Overview**

Stream 25.0L did not have any direct schedule delay or rework specifically associated with over-coarsened streambed material. Stream 25.0L is included in this letter to highlight the inconsistencies in WSDOT / WDFW approval of streambed materials between 25.0L, North Fork Perry Creek, Queensborough 405, Queensborough 527, and Juanita Creek fish passages. Stream 25.0L PHD was provided to WSDOT in March 2025. This design contained over coarsened material exceeding the 20% gradation requirement listed in Table 2.30-B of the technical requirements. AECOM received no comments from WSDOT regarding the sediment size in the 25.0L PHD. In February and March 2026, the design team met with WSDOT / WDFW multiple times and discussed the over coarsened streambed material. At these meetings, WSDOT / WDFW were amenable to the increased sediment size at 25.0L and even stated the design should be composed of larger sediment, boulder type material, to support a stable cascade stream morphology. The large gradations requested by WSDOT conflict with Table 2.30-B.

Timeline of Relevant Events

- Meeting minutes pertaining to sediment size are shown on the cohesive timeline above.
- May 2020: Below is text from Section 9.3 Bed Material of Appendix H08, included as a contract reference document, and is the basis of the HPA:

To provide D_{84} stability at the 100-year flood flow, preliminary calculations indicate that the resultant D_{50} would be 1.48 inches, with the existing D_{50} of 1.18 (25 percent increase), and the D_{84} would be 3.55 inches, with the existing D_{84} of 3.14 inches (13 percent increase). With this mix, the D_{50} would be mobile

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in events greater than the 2-year event and the D_{84} would become mobile in greater than the 100-year flow (Appendix B).

With the proposed streambed material at the D_{50} just over allowed 20 percent increase, the streambed sediment mix will be increased by the WSDOT Hydraulics Manual prescribed 20%, as shown in Table 17 below. The final sediment mix will be calculated by the Design Build contractor.

Table 17. Comparison of Observed and Proposed Streambed Material for Riffle Pool System

Particle	Observed Material Diameter (inches)	Proposed Material Diameter (inches)
D_{15}	0.46	0.55
D_{50}	0.83	1.00
D_{84}	1.18	1.42
D_{95}	3.14	3.77

To provide the needed channel stability, meander bars and/or other stability features are needed within the structure to prevent streambed sediment from being washed out. These meander bars, composed of a higher percentage small to medium cobbles and large gravels, would be placed within the structure that would provide additional stability. In addition, Large Woody Material (LWM), will be arranged within the structure to provide additional roughness, channel stability, and habitat variability.

For the slopes greater than 4 percent, the Bathurst Method is used for the streambed design. A spreadsheet for this method developed by WSDOT HQ Hydraulics is included in Appendix B. This method indicates that proposed material is stable at the 25-year flow rate inside of the proposed step-pool sections of the proposed design. Table 18 shows the bed material needed for the proposed slopes greater than 4 percent.

Table 18. Comparison of Observed and Proposed Streambed Material for Step Pool System

Particle	Observed Material Diameter (inches)	Proposed Material Diameter (inches)
D_{15}	0.46	0.75
D_{50}	0.83	2.41
D_{84}	1.18	6.03
D_{100}	3.14	15.08

Streambed cobbles, sediment, and boulder sizing for the design of fish passable structures shall be in accordance with the WSDOT Hydraulics Manual and the Standard Specifications. The final streambed material size and streambed mix configuration will be developed by the Design-Build Contractor and will be constructed using materials as described in WSDOT Standard Specifications.

- 3/25/2025 – Stream 25.0L Preliminary Hydraulic Design (PHD) submitted to Skanska and WSDOT.
- 4/8/2025 – Received RCSR comments from WSDOT on PHD design. No comments received on streambed material gradations despite the design including sediment 20% coarser than existing material.
- 7/29/2025 - Responses to comments sent with updated documents. Comment concurrence process concluded 3/27/2026 with all comments closed. This process took 8 months due to WSDOT refusing to close comments. None of these comments were related to sediment size.
- 2/13/2026 – AECOM (Samuel Boyce) held meeting with WSDOT consultant (Gabe Ng) where sediment size at 25L is discussed. WSDOT indicated they are in support with the sediment sizes proposed although coarser than 20% of the existing material. WSDOT requested justification for why

the over-coarsened material is necessary. See internal meeting minutes taken by Meredith Cote for documentation:

- Stream 25L Streambed Gradation
 - AECOM provided understanding of where we left off for 25.0L after last meeting with WDFW, WSDOT was we were OK with the streambed gradations proposed but the justification for oversizing was missing
 - AECOM presented background information on existing gradation based on pebble counts (D50 of 2.2 inch), proposed gradations through upstream step-pool reach (D50 of 2.1 inch), riffle-pool reach (D50 2.2 inch), and downstream step-pool reach (D50 of 1.2 inch)
 - AECOM sent Stream 25L Risk Assessment 2/12 for over the shoulder to Gabe, Sam, asked for feedback on the document
 - Gabe identified biggest gap in justification is the slope. We need to document that pebble counts were taken in a reach ranging between 9-10.5%, the proposed step pool reach is much steeper. Also document larger boulders in the stream that are not captured in the pebble count (ranging from 12-24", average of 18" (Type 1 boulder)
 - Gabe also identified propose design features are not valid constraints (e.g. proposed structure design, wingwalls, etc.). Consider existing constraints, those are the constraints to document. Provided examples of utilities where previous designs had overcoarsened the streambed in specific reaches where underground utilities are present, not appropriate to overcoarsen an entire streambed because of one area like this
 - Gabe identified the best constraint we identified is the sediment deposition in the wetland reducing flood storage capacity; however, it's missing quantification and further explanation (e.g. do we expect over time that sediment will deposit there?)
 - Gabe suggested starting with our constraints, then doing the alternatives assessment, then justifying the design. (In the example of the sediment depositing in the wetland, other alternatives could have been grade control, overcoarsening the streambed, a detention pond)
 - Meredith asked if this was the right location to document this (Appendix R of the FHD)
 - Gabe thinks is OK to have in Appendix R, summarize in the FHD, refer to Appendix R for detail
- Gabe also identified that we do not have a reference reach for this site, it's wrong to compare the existing gradations to proposed. Also, when we get to the sediment tree, it means we were unable to geomorphically justify sizing of the material, because it focuses on infrastructure constraints.
- Gabe asked about the design of the three reaches looking odd because the riffle-pool reach is larger than the step-pool reaches.
- Curtis clarified riffle-pool reach was designed using mod critical shear for 3%, bathurst for steeper reaches.
- Meredith asked about how to include larger boulders into design
- Gabe offered that boulders should be taken out of the streambed mix, approximately upper portion of the streambed could be mixed in with approximately 10% of Type 1 boulders. Placement would be as determined by the engineer in the field.
- Gabe indicated that the risk assessment may not be needed and adequate justification could be completed with better documented existing sediment and proposed slope differences. If additional constraint justification is needed, then the risk assessment could be used.

- Feb 2026 – Sediment justification memo sent from AECOM to WSDOT.
- 2/20/2026 – AECOM and WSDOT met again to discuss sediment size justifications for other sites and minor revisions to the Stream 25.0L sediment justification memo. WSDOT consultant (Gabe Ng) provided comments and suggested changes but concurred on approach. WSDOT consultant (Gabe Ng) stated he would not need to review an updated version of the justification.
- 2/25/2026 – AECOM sent updated sediment justification memo to WSDOT to send to WDFW for over the shoulder review.
- 3/12/2026 – WDFW meeting to discuss a revision to the profile upstream of I-405 and alignment downstream of I-405. Sediment size was not discussed beyond WDFW stating that they would need to review to confirm the design meets stream simulation. Action items include WDFW, Duncan P., discussing the profile revisions and any follow-up comments or meetings.

Meeting Minutes

1. AECOM clarifies meeting goals are to present high-level preliminary concepts of profile adjustment to get feedback prior to proceeding with changes.
2. AECOM presents potential upstream profile adjustment.
 - a. Presented adjustment concept.
 - i. Raise profile by approximately 6 ft. Reduction of ~164 LF of stream grading and impacts.
 - ii. Change would reduce number of step-pools from ~70 to ~50 upstream of I-405.
 - b. WDFW feedback
 - i. Discussed concerns with a less gradual transition from steep 14% slope to the 3% profile through the structure.
 - ii. Generally supportive of the reduction in impacts to the existing stream.
 - iii. Step-pools should meet criteria of drop heights and minimize drop heights to less than the currently designed 0.7 ft if possible (WAC requirement of 0.8 ft). Tribes prefer 0.5 ft drops. Pool sizes should be large enough for fish use.
 - iv. Main concern is velocity. Hydraulic modeling has not been conducted to support velocities being acceptable as this was a preliminary idea.
 - v. Large tree near adjusted tie-in location discussed. Preference would be to keep the tree in place for stream stability.
 - vi. Design to provide large resting pools.
 - vii. Discussed whether the design will meet stream simulation. WDFW indicated that confirming slope, sediment size, velocities and hydraulics will help determine this. WDFW to meet with Duncan P. to discuss.

- 3/18/2026 – WSDOT (Alicia Toney) provided comments via email from WDFW on the step-pool design and potential alternative considerations including a change to cascade morphology. Comments included that the current proposed streambed sediment does not meet the 20% requirement. Alicia Toney agreed to schedule a follow-up meeting with WDFW as soon as possible.

FW: 522/527 HPA next steps

TA Toney, Alicia (Consultant) <Alicia.Toney@consultant.wsdot.wa.gov>
 To: Jen Shore; Austin Danforth; Cote, Meredith; Jones, Curtis; Gaffney, Erin; Berz, Sonia (Consultant); Ng, Gabe;
 Michaels-Boyce, Sam (Consultant)
 Cc: Schoettler, David (Consultant); Kane, Betty (Consultant)

You forwarded this message on 3/18/2026 10:48 AM.

This message came from outside your organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Report Suspicious

Hi All,

Please see below for written acceptance of our sediment sizes for the QB's and NFP. The email also outlines what the permit still requires prior to construction of the streams and provides additional feedback on Stream 25L. I will get a meeting with WDFW set up for ASAP to continue the Stream 25L discussion.

See one question from me in red inline below too.

Let me know if you have any questions or would like to chat.

Thanks!

Alicia

From: Dykstra, Jesse F (DFW) <Jesse.Dykstra@dfw.wa.gov>
 Sent: Tuesday, March 17, 2026 4:52 PM
 To: Drochak, Terry <Terry.drochak@wsdot.wa.gov>; Kucharski, Margaret <margaret.kucharski@wsdot.wa.gov>; Toney, Alicia (Consultant) <Alicia.Toney@consultant.wsdot.wa.gov>; Gross, Tricia (Consultant) <Tricia.Gross@consultant.wsdot.wa.gov>; Reinbold, Stewart G (DFW) <Stewart.Reinbold@dfw.wa.gov>; Reeves, Marcus A (DFW) <Marcus.Reeves@dfw.wa.gov>; Pfeifer, Duncan E (DFW) <Duncan.Pfeifer@dfw.wa.gov>
 Subject: FW: 522/527 HPA next steps

Hey Elizabeth,

Thank you for sending over the notes from today's meetings. I have provided the next steps regarding this project. Please let me know if you have any questions or need clarification.

Project Name: I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project additional information needed.

- Bypass and fish exclusion plans for each crossing must be submitted and approved prior to installation.
- Provide final design/plan set for the westernmost bridge over the Sammamish River. – can someone from DB team please check on the status of this?
 - o Include fish exclusion and isolation methods for the four in-water piers associated with the existing Sammamish River bridge.
- Sediment gradation specifications have been reviewed and approved; updated plan sheets reflecting the approved gradations are required.
 - o Queensburgh Creek 527 crossing
 - o Queensburgh Creek 405 crossing
 - o North Fork Perry

Stream 25L Design comments for future meeting:

- Sediment: The current proposed stream bed sediment does not meet the 20% requirement.
- Upstream Profile & Design Approach:
 - o Continued discussions on how the design will meet stream simulation criteria.
 - o The revised profile proposes fewer step pools and reduced disturbance; however, no hydraulic analysis has been provided. Evaluation is needed for slope, step height, velocity, turbulence

- 3/23/2026 – WDFW and WSDOT meeting to discuss step-pool design comments and alternative design considerations. Sediment size was discussed in context of the current step-pool design and in changing the design to cascade morphology. WDFW stated significantly larger sediment (boulder sizes) to achieve a stable cascade morphology is acceptable. WDFW stressed the importance of properly sized and stable material even if it is coarser than 20% of the existing material. See meeting minutes taken by AECOM (Curtis Jones) below:

1.	Review WDFW comments on step-pool design (provided by email on 3/18/2026).
a.	Design concerns
i.	WDFW stated that step-pools shouldn't be present at 14%, cascade morphology would be more appropriate.
ii.	WDFW stated that the current step-pool design does not meet Stream Simulation and would be permitted as fishway.
iii.	AECOM stated willingness to adjust the design per WDFW recommendations.
b.	Design details
i.	WDFW and AECOM discussed pebble counts and proposed sediment size.
ii.	WDFW: Sediment should adjust based on different reach slopes – ok to have larger sediment than existing (up to bolder sizes) in the steeper reaches if necessary.
iii.	If some version of a step-pool design remains, WDFW will want to see hydraulic criteria <u>is</u> met.
c.	Step height and maintenance
i.	WSDOT indicated that when natural steps are greater than 0.8 ft, site specific drop height exemptions have been granted in the past for design/maintenance.
ii.	WDFW stated exemptions have been granted in the past and could be considered. We shouldn't move forward with the assumption that higher than 0.8 ft drops will be approved. Stick to 0.8 ft maximum drops, tribes prefer 0.5 ft.
2.	Downstream of I-405 channel realignment
i.	WDFW prefers the alternative longer stream alignment with lower slope.
ii.	WSDOT indicated there is no property access and the alignment will not be altered.
iii.	WDFW raised concerns of the stream being too steep and confined by the levee and proposed retaining wall and those elements being at risk of erosion.
iv.	Alluvial fan development may reduce the slope naturally over time.
3.	Design considerations and changes
i.	Cascade morphology with properly sized and stable streambed material. Include roughness elements like boulders and wood.
ii.	WDFW prefers design changes to be made for the FHD submittal to avoid redundant comments/communication.
iii.	WDFW indicated willingness to have periodic check-ins as design progress.

- 3/27/2026 – WSDOT consultant (Gabe Ng) closed remaining 25.0L PHD comments
- 5/5/2026 – 25.0L Final Hydraulic Design submitted to WSDOT / Skanska via Procore.

Summary

Prior to submitting preliminary design for fish passages on the I-405 Brickyard Project, AECOM notified WSDOT that the requirement stated in Table 2.30-B of the Technical Requirements could not be met and maintain streambed stability. AECOM requested guidance from WSDOT on how to progress the design and was directed to proceed with using material over the 20% existing gradation. From April 2024 to January 2025, AECOM progressed designs using the over coarsened material. WSDOT's explicit direction to use over-coarsened material is well-documented through meeting minutes, email correspondence, and acceptance of multiple Release for Construction (RFC) submittals for Par Creek, North Fork Perry Creek, and Queensborough 405, all of which included sediment gradations exceeding the 20% limit. In January 2025, the design team submitted Queensborough 527 and Juanita Creek Final Hydraulic Designs with designs similar to those released for RFC and was notified the streambed size was unacceptable. WSDOT informed the design team, through RCSR comments, that the increased gradation size would only be accepted if approved by WDFW.

In accordance with 2.30.7.3.1, "WSDOT will submit the PHD to the Tribe(s) and WDFW for Review and Comment. The Design Builder shall address the comments of the Tribe(s) and WDFW". At the time WSDOT stated the over coarsened streambed material was unacceptable and needed to be approved by WDFW, AECOM had submitted and closed all comments on the PHD for Par Creek, North Fork Perry Creek, Queensborough 405, Queensborough 527, and Juanita Creek Fish Passages. In violation of the contract, WSDOT did not provide the PHD to the Tribe or WDFW until AECOM had submitted FHD for Queensborough 527 and Juanita Creek Fish Passages and RFC'd the remaining designs. RFI 559 response dated September 12, 2025 confirmed WSDOT did not adhere to the contract.

WDFW had not previously been involved in discussions regarding sediment size as required by the contract. However, as WDFW approves permits for the fish passages, WDFW notified AECOM the permits would not be issued unless the fish passage design was revised. AECOM collaborated with WSDOT / WDFW explaining WSDOT's previous direction to progress design using over coarsened material and the streambed sediment would be unstable if the design met the 20% maximum requirement. The design team also explained that the fish passage designs provided were in accordance with the WSDOT provided Hydraulic Reports in Appendix H08 of the Technical Requirements. Even with this information, WSDOT / WDFW refused AECOM's design. WSDOT did not acknowledge their previous direction and required all designs to be reworked except for Par Creek and Stream 25.0L. The lack of clear, documented criteria for these exceptions, combined with WSDOT's failure to follow the contractually mandated review process, resulted in inconsistent and unpredictable project direction. This inconsistency led to unnecessary redesigns and delays, undermining the efficiency and fairness of the project delivery process.

During development of the revised designs, WSDOT / WDFW again agreed over coarsened sediment size was necessary at Juanita Creek and Stream 25.0L. WSDOT's inconsistent guidance directly resulted in substantial rework, schedule delays, and increased costs. AECOM was forced to redesign five of six fish passage sites, duplicating effort and expending resources that could not have been anticipated under the original contract terms. Incorporated in this Change shall be costs and delay attributed to the direction and rework caused by WSDOT's inconsistencies to Fish Passage Hydraulic Designs. AECOM progressed design in good faith at WSDOT's direction and should not be liable for rework and delay due to WSDOT's indecisive and contradictory behavior.

Given the documented history of WSDOT's direction, acceptance of over-coarsened designs, and subsequent reversal without an OIC, AECOM is contractually and equitably entitled to an Owner Initiated Change and corresponding compensation for additional costs and schedule impacts. The lack of timely coordination with WDFW and the Tribes by WSDOT further exacerbated these issues, as required reviews and comments were not obtained until late in the design process, compounding delays and rework.

AECOM respectfully requests that WSDOT issue an OIC to provide equitable adjustment for the additional costs and delays incurred as a direct result of WSDOT's inconsistent and contradictory direction. This action is necessary to resolve the dispute, ensure fair compensation, and maintain the integrity of the project delivery process.



c. The estimated dollar cost, if any, of the protested Work and a detailed breakdown showing how that estimate was determined.

AECOM's additional labor cost to implement the changes stemming from the disruption caused by WSDOT direction and redirection for the increased sediment size at Juanita Creek, North Fork Perry, Queensborough 405, and Queensborough 527 Fish Passages are shown below. This cost has increased from the original letter provided March 18, 2026 due to actualized costs and the estimate for completion:

[illegible]

d. An analysis of the progress schedule showing the schedule change or disruption if the Design-Build is asserting a schedule change or disruption.

AECOM is currently evaluating the full impact of these issues. At this time, AECOM estimates the approximate disruption caused by WSDOT directing over coarsened stream bed material at the Juanita Creek, North Fork Perry, Queensborough 405, and Queensborough 527 Fish Passages delayed the work from February 2025 through May 2026, 13 months. This was determined because WSDOT / WDFW first stated they would not accept the increased gradation size in Queensborough 527 and Juanita Creek RCSR review, and design revisions due to this issue are still ongoing as of May 2026. AECOM is currently



developing a delay analysis that will determine the actual delay. Upon completion, AECOM will revise this request to reflect actual delay, corresponding cost and a request for a time extension. This design will be worked through concurrently with other contractual design plan sets and will cause delay to the contractual submittals. Actual design delay is currently being evaluated and will be provided once full delay is assessed.

This letter is without prejudice to, and with a full reservation of, AECOM's rights, remedies, causes of action, and defenses under the Subcontract, at law, in equity, or otherwise. Nothing in this letter shall be interpreted as a modification or waiver, or an estoppel of AECOM's right to assert the same.

I appreciate your prompt attention to this matter. If you have any questions, please do not hesitate to contact me directly.

Yours sincerely,

AECOM Technical Services, Inc.

A handwritten signature in black ink, appearing to read 'Jon Guerrero', is positioned above the typed name.

Jon Guerrero, PE

M: 206.579.0292

E: jon.guerrero@aecom.com

cc: Evan Grant (AECOM)

Richard Patterson (AECOM)

Enclosure:

2024 WSDOT_AECOM Email Correspondence

RFI #00559 – Juanita Creek WDFW PHD Review

Just, Madison

Subject: FW: RE: I-405 Brickyard - Segment 2 Final Sammamish River Bridge WSDOT comment concurrence

From: Strom, Alex (Consultant) <Alex.Strom@consultant.wsdot.wa.gov>

Sent: Friday, November 1, 2024 12:55 PM

To: Gentzler, Seth <seth.gentzler@aecom.com>

Cc: Berriz, Sonia (Consultant) <Sonia.Berriz@consultant.wsdot.wa.gov>; Gaffney, Erin <erin.gaffney@skanska.com>; Kyle.Sharrer@skanska.com; Abraham, Ryan <ryan.abraham@aecom.com>; Guerrero, Jon <Jon.Guerrero@aecom.com>; Cote, Meredith <Meredith.Cote@aecom.com>

Subject: RE: RE: I-405 Brickyard - Segment 2 Final Sammamish River Bridge WSDOT comment concurrence

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Seth,

Regarding #2 below.

I discussed with Gabe, and came to the conclusion that as long as we document our calculations show we need upsized material, and that we document that we followed WSDOT directives from the sediment tree, we should be able to state that in our response.... What we can add to these responses is that we have documented that we are in systems that due to things out of our control (i.e upstream barriers) that we are currently in a sediment-starved system, and if we were to place material that we have shown will transport out of the crossing, we will be left with a crossing that immediately gets placed back on the injunction list. In an effort to keep this crossing passable, and not having the sediment coming to us from upstream, upsizing our material per WSDOT guidelines is the approach to these crossings...

Make sense? If not, let's talk soon.

Alex Strom, PE
I-405/SR 167 Corridor Program GEC Fish Passage Lead
406.794.6144 | stroma@consultant.wsdot.wa.gov

From: Gentzler, Seth <seth.gentzler@aecom.com>

Sent: Tuesday, October 29, 2024 5:19 PM

To: Strom, Alex (Consultant) <Alex.Strom@consultant.wsdot.wa.gov>

Cc: Berriz, Sonia (Consultant) <Sonia.Berriz@consultant.wsdot.wa.gov>; Gaffney, Erin <erin.gaffney@skanska.com>; Kyle.Sharrer@skanska.com; Abraham, Ryan <ryan.abraham@aecom.com>; Guerrero, Jon <Jon.Guerrero@aecom.com>; Cote, Meredith <Meredith.Cote@aecom.com>

Subject: [EXTERNAL] RE: I-405 Brickyard - Segment 2 Final Sammamish River Bridge WSDOT comment concurrence

WARNING: This email originated from outside of WSDOT. Please use caution with links and attachments.

Alex.

Hope all is well. A few items for you:

1. Circling back on scour/lateral migration concurrence email below and confirming whether you or Sonia were able to forward to Gabe.
2. Hoping to get an update on any discussions with Gabe or tribes regarding direction for us on the streambed sediment gradation.
3. Hoping to get concurrence on our responses to your comments on Package 8. Meredith sent a reminder email late last week.

Let us know your thoughts.

Thanks,

-Seth

Seth Gentzler, PE

Vice President

West Coast Hydrology & Hydraulics Practice Lead

M: [415-722-5129](tel:415-722-5129)

D: [510-874-3018](tel:510-874-3018)

300 Lakeside Drive, Suite 400

Oakland, CA 94612, USA

www.aecom.com

From: Gentzler, Seth

Sent: Friday, October 25, 2024 2:54 PM

To: Strom, Alex (Consultant) <Alex.Strom@consultant.wsdot.wa.gov>

Cc: Berriz, Sonia (Consultant) <Sonia.Berriz@consultant.wsdot.wa.gov>; Gaffney, Erin <erin.gaffney@skanska.com>;
Kyle.Sharrer@skanska.com; Abraham, Ryan <ryan.abraham@aecom.com>; Guerrero, Jon <Jon.Guerrero@aecom.com>;
Cote, Meredith <Meredith.Cote@aecom.com>

Subject: I-405 Brickyard - Segment 2 Final Sammamish River Bridge WSDOT comment concurrence

Alex/Gabe. (hoping Alex or Sonia can forward to Gabe – I didn't have his email)

Hoping to resolve this final comment (see comment and response in the table below) on the Segment 2 Final Sammamish River Bridge pier scour calculations. We've followed the WSDOT guidance, contract TRs and the determination in the attached 2023 opinion paper on lateral migration, to complete "further analysis during final design as part of the Hydraulic Design Report for this water crossing."

Our analysis uses a multi-disciplinary evaluation (per WSDOT requirements) recommended by the Federal Highway Administration (Stream Stability at Highway Structures, HEC No. 20), and is included in the attached working draft HDR. The attached incorporates the additional geotechnical data requested in the comment below, and uses that information in the multi-disciplinary evaluation.

Please take a look and let us know your thoughts. Also, please note that nearly all of the proposed piers are outside of the 500-year flood extents, and the few that are not, barely overlap with the edge of the flood extents.

Thanks,

-Seth

Seth Gentzler, PE

Vice President

West Coast Hydrology & Hydraulics Practice Lead

M: [415-722-5129](tel:415-722-5129)

COMMENT (WSDOT, City, Checker)				
No. ▾	Report or Sheet No. ▾	Comment By ▾	TR/Spec Section ▾	Comment
3	Appendix A	L. Assink		There needs to be some geotechnical data showing that the risk is low; I information here to change the original determination of not low



Skanska USA Civil
1995 Agua Mansa Road
Riverside, California 92509

Project: 90009590 - I-405 - Brickyard to SR527
Bothell, Washington 98011

BY-CRE-03393_009727_RFI_00559_16.03.01_Juanita Creek WDFW PHD Review

TO:	Nancy Alpuche (Washington State Department of Transportation) Rachel Gehrlein (Washington State Department of Transportation) Ron Haukom (Washington State Department of Transportation) Sokha Men (Washington State Department of Transportation) Emma Hutchinson (Washington State Department of Transportation)	FROM:	Meredith Cote (AECOM (Seattle))
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DATE INITIATED:	08/28/2025	STATUS:	Closed on 09/17/25
LOCATION:		DUE DATE:	09/12/2025
COST CODE:		REFERENCE:	
COST IMPACT:		SCHEDULE IMPACT:	
DRAWING NUMBER:		SPEC SECTION:	2.30 - Water Crossings
PRIORITY:			
LINKED DRAWINGS:			
RECEIVED FROM:			

COPIES TO:
Nancy Alpuche (Washington State Department of Transpor), Sonia Berriz (Washington State Department of Transpor), Document Control - Skanska (Skanska USA Civil West), Meredith Cote (AECOM (Seattle)), Erin Gaffney (Skanska USA Civil West), Rachel Gehrlein (Washington State Department of Transpor), Ron Haukom (Washington State Department of Transpor), Emma Hutchinson (Washington State Department of Transpor), Janka Lovering (Washington State Department of Transpor), Sokha Men (Washington State Department of Transpor), Michelle Petterson (Skanska USA Civil West), Jacob Schmidt (Atlas Technical Consultants, LLC), Kyle Sharrer (Skanska USA Civil West)

RFI Response Date	Estimated Hours
RFI Priority	RFI Type

Question from Meredith Cote (AECOM (Seattle)) at 08:49 PM on 08/28/2025

Per technical requirement section 2.30.7.3.1 - Preliminary Hydraulic Design Report, ‘After WSDOT’s comments are addressed by the Design-Builder, WSDOT will submit the PHD to the Tribe(s) and WDFW for Review and Comment.’ For Juanita Creek PHD, comments were returned to AECOM on 7/29/2024 and comments were resolved (as returned from WSDOT on 1/7/2025) and incorporated into a Draft Final Hydraulic Design (FHD) report sent to WSDOT on 1/24/2025.

Please confirm and provide documentation that the Juanita PHD was sent to WDFW for review and comment as required in the Contract. If confirmed, please identify if WDFW had no comments or was unresponsive.

Additionally, please confirm the PHD's for the other Project fish passages were sent to WDFW in accordance with 2.30.7.3.1.

Attachments:
[BY-CRE-03393_009727_RFI_00559_16.03.01_Juanita Creek WDFW PHD Review.pdf](#)



Official Response: Nancy Alpuche (Washington State Department of Transportation) responded on Friday, September 12th, 2025 at 1:18PM PDT

As indicated in your question – the FHD as submitted by AECOM **is the document that resolves WSDOT's** comments on the PHD. The FHD for all fish passages submitted to date **have been shared with the tribe and WDFW** as required by contract. The preliminary comments were never closed with WSDOT acceptance. The RCSR form was submitted with the FHD with codes of "R" Resolve comment in the next submittal phase. The FHD contained similar comments to the PHD that to date are not closed.

Juanita Creek was sent to WDFW on February 26, 2025. WDFW has not responded with comments.

Per the approved Hydraulic Project Approval for Juanita Creek, Appendix P04, an HPA modification is required prior to construction.

To date WSDOT has not been asked or provided with the information to submit a permit modification in accordance with RFP Section 2.8.5.2.2, *Permit Compliance, Modifications, and Additional Approvals*, "The Design-Builder shall work with WSDOT to identify changes to the methods and means previously described as part of the original environmental documents and permit applications. WSDOT will bring final detailed proposals provided by the Design-Builder to the Federal, State and Local regulatory agencies for document updates, permit applications and modifications, and ESA consultation or Section 106 consultation updates or re-initiations, as required."

Please note the following:

- RFP Section 1-04.1(2), *General Obligations of the Design-Builder*, "The Design-Builder, in addition to performing all other requirements of the Contract Documents, shall...Construct the Project and maintain it during construction in accordance with the requirements of the Contract Documents, each applicable Contract Schedule, all applicable Legal Requirements, all Governmental Approvals..."
- RFP Section 1-04.4(5), *Matters Not Eligible for Change Orders*, "Changes of any nature to the Environmental Commitments List (Appendix C) that are imposed by, or agreed to by a Governmental Body having jurisdiction, that are the result of the Design-Builder's design choices within the Design-Builder's control."

Attachments:

All Replies:

Response from Kim Christian (Skanska USA Civil West) at 04:02 PM on 09/12/2025

Assigned BY-REC-02677

Attachments:


Response from Nancy Alpuche (Washington State Department of Transpor) at 01:18 PM on 09/12/2025

As indicated in your question – the FHD as submitted by AECOM **is the document that resolves WSDOT's comments on the PHD. The FHD for all fish passages submitted to date have been shared with the tribe and WDFW** as required by contract. The preliminary comments were never closed with WSDOT acceptance. The RCSR form was submitted with the FHD with codes of "R" Resolve comment in the next submittal phase. The FHD contained similar comments to the PHD that to date are not closed.

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- RFP Section 1-04.4(5), *Matters Not Eligible for Change Orders*, "Changes of any nature to the Environmental Commitments List (Appendix C) that are imposed by, or agreed to by a Governmental Body having jurisdiction, that are the result of the Design-Builder's design choices within the Design-Builder's control."

Attachments:

Response from Jacob Schmidt (Atlas Technical Consultants, LLC) at 02:05 PM on 08/29/2025

Ready for WSDOT review.

Attachments:

Response from Erin Gaffney (Skanska USA Civil West) at 11:36 AM on 08/29/2025

Okay to submit to WSDOT

Attachments:

BY

DATE

COPIES TO

	Washington State Department of Transportation I-405, Brickyard to SR 527 Improvement Project Contract No. 009727	Doc Type: RFI
		REV#: 0
		SPEC SECTION: 2.30.7.3.1
		DATE: 08/29/2025
		CRE #: BY-CRE-03393

To: Washington State Dept. of Transportation 777 108 th Ave NE Suite 800 Bellevue, WA 98004	From: Skanska USA Civil West 1995 Agua Mansa Road Riverside, CA 92509
Submittal: BY-CRE-03393_009727_RFI_00559_16.03.01_Juanita Creek WDFW PHD Review	

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