

**Appendix B7**

**Laughing Jacobs Creek Project**

**Discharge Memo**

Prepared by AHBL, Inc.

September 7, 2021

# PROJECT MEMO



**TO:** Tom Mullins  
Issaquah School District

**DATE:** September 7, 2021

**FROM:** Todd Sawin, PE  
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**PROJECT NO.:** 2180412.10

**PROJECT NAME:** Issaquah HS#4 and ES#17

**SUBJECT:** Laughing Jacobs Creek Project Discharge

This memorandum is intended to provide a summary of the stormwater system on the Issaquah High School #4 and Elementary School #17 project as it relates to discharge to Laughing Jacobs Creek. The memo is provided in bullet points to keep it concise and begins with a summary of the goals of the stormwater manual that specifically point to some of the community concerns regarding Laughing Jacobs Creek.

Stormwater Manual Goals related to natural drainage features - The stated objectives in both stormwater manuals for the stormwater treatment and flow control standards is to protect streams that provide salmonid habitat and production.

- Per the 2012 DOE SMMWM, the objective of the flow control requirement is “to prevent increases in the stream channel erosion rates that are characteristic of natural conditions (i.e., prior to disturbance by European settlement). The standard intends to maintain the total amount of time that a receiving stream exceeds an erosion-causing threshold based upon historic rainfall and natural land cover conditions. That threshold is assumed to be 50% of the 2-year peak flow. Maintaining the naturally occurring erosion rates within streams is vital, though by itself insufficient, to protect fish habitat and production.” Per the 2106 King County SWDM the intent of the Conservation Flow Control (Level 2) is to “limit the amount of time that erosive flows are at work generating erosion and sedimentation within natural and constructed drainage systems. Such control is effective in preventing development-induced increases in natural erosion rates and reducing existing erosion rates where they may have been increased by past development of the site...Maintaining natural erosion rates within streams and their tributary areas is important for preventing increases in stream channel erosion and sediment loading that are detrimental to salmonid habitat and production.”
- The stated stormwater treatment goal of the DOE SMMWM is “to reduce pollutant loads and concentrations in stormwater runoff... so that beneficial uses of receiving waters are maintained and, where applicable, restored.” The KCSWD states that the treatment goal for its Sensitive Lake Protection treatment is “50% annual average total phosphorous removal...This goal was chosen as a realistic and cost-effective level of phosphorous removal.”
- The project is required to meet the applicable stormwater treatment and flow control standards in the adopted stormwater manuals for both jurisdictions. Within those manuals, there is a requirement to meet the standards provided unless there is an adopted basin plan or some other guiding document by the jurisdiction providing permits. We can find no adopted basin plans, studies, etc. for Laughing Jacobs Creek by either City of Issaquah nor City of Sammamish which gives direction to follow treatment and flow control standards above and beyond what is outlined in the governing stormwater manuals.
- The City of Sammamish amendment to the KCSWDM does identify known water quality problems with Laughing Jacobs Creek. These are Bacteria, bioassessment, temperature, and dissolved oxygen. These are given a Category 5 designation and is noted that it requires a Total Maximum Daily Load (TMDL) cleanup plan for these known problems. While, there are TMDL plans provided for other impaired waterbodies, there is not one provided for Laughing Jacobs Creek in the addendum, nor can a published/adopted one can be found. Section 1.2.2.3. KCSWDM provides guidance for addressing the noted problems above. The provided design meets the requirement of this section both on and offsite by providing underground detention and treating the stormwater to enhanced and phosphorous treatment goals.



- The provided stormwater design meets or exceeds the published and adopted requirements of both the City of Issaquah and City of Sammamish for discharges to Laughing Jacobs Creek. As outlined above, the basis of stormwater design in western Washington is to protect streams. It should be noted there are many existing developments in the Laughing Jacobs Creek watershed that are discharging runoff that is not being held to the current standards of design that are causing the known problems in the waterbody. It should not be a requirement to hold this project at a higher standard than what is adopted by the jurisdictions in an attempt to fix problems created by previous development.

#### Project specific information

- Discharge location – the project site is made up of multiple small basins that leave or project site in different locations. Each of these discharge locations has a downstream conveyance path that conveys runoff to Laughing Jacobs Creek. As part of the required downstream analysis AHBL reviewed each of these downstream paths and their discharge to Laughing Jacobs Creek. It was noted as part of this review that a number of the downstream conveyance paths converge prior to discharging to Laughing Jacobs Creek. As a result of some downstream conveyance concerns withing the Providence point system the stormwater being discharged to their system was limited the historic runoff rates to ensure their system would not become overloaded. This rerouting of stormwater does not change the discharge location to Laughing Jacobs Creek because the downstream conveyance paths converge prior to this outfall location. This project will match natural discharge locations as required by the Stormwater Manual.
- Treatment of stormwater – the project is providing enhanced and phosphorus treatment for all pollution generating surfaces of the site. It should also be noted that the proposed detention system also includes additional filtration that will trap sediment from stormwater for all stormwater as a secondary form of treatment. Although not required this system will trap things like pine needles and sediment that could come from the roof areas. As a result of this system, the water leaving the site will be cleaner than the runoff leaving the site in current conditions.
- Flow Control – As noted above, the project site is made up of multiple small basins and is required by the stormwater manual is to match flows leaving the site to the predeveloped (forested) condition for storm durations of 50% of the 2-year peak flow up to the full 50-year peak flow. In order to meet this requirement, the project includes onsite detention systems located throughout the site. These systems are equipped with control structures designed to meter the flow of stormwater leaving the project site and match the allowable release rate for each area. While a model combining the Issaquah and Sammamish portions of the site has not been created, with each system sized to meet the predeveloped rate combining them would meet the required flow control rates. The runoff leaving the project site will be reduced from both the previous development runoff rates and the existing disturbed area runoff as required by the stormwater manual.

Based on the above information, the project will have no adverse impacts to Laughing Jacobs Creek and no additional mitigation of stormwater is proposed by this project.

TCS/

c: Jordan Kiel, Bassetti

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