

Stillaguamish Tribe FY11 PSP Final Report

The Stillaguamish Tribe was awarded a Puget Sound Partnership grant for fiscal year 2011 in order to conduct some monitoring of stormwater systems in the City of Arlington and to implement a BMP project to help alleviate the impacts of stormwater to surface water systems. The project was piggybacked on our 2010 funding and the initial plan was to conduct more monitoring, if needed, and implement a BMP project addressing stormwater at one of the sites previously monitored. We determined early on that further stormwater monitoring would only occur if other parties, namely the City of Arlington, Washington Department of Transportation, and the Tribe agreed it would provide more insight on pollutants needing to be treated. This was not viewed as a necessity, but we did, however, decide to conduct water level monitoring of the infiltration trench at the project site and the level of water in the stormwater receiving body, Portage Creek. This was decided in order to determine how frequent the infiltration trench was being inundated and “untreated” stormwater was flowing into Portage Creek.

Level Logger Data

We placed three HOBO® U20 Water Level Loggers in the project area to determine water levels in the infiltration trench during rain events, and to determine how those levels would impact delivery to Portage Creek. As a result, one logger was placed in Portage Creek (Figure 1a) and two were placed in the manhole that provided access to the infiltration trench (Figure 1b). Of the two in the manhole, one was placed at the bottom to measure water level above it. The other was used to measure ambient air pressure in order to subtract it out from water level.

Water level data was downloaded and sent to Anchor QEA. Anchor adjusted the water levels to NAVD 88 datum by taking field measurements of the sensor elevation relative to a surveyed elevation. Once the sensor elevation was established on NAVD 88 datum, we then added the adjusted time series water depth data (relative to each sensor) to the sensor elevation to get the time series depth data converted to elevation data on the NAVD 88 datum. These data were plotted in a graph in Appendix 1. We also downloaded local precipitation data from the Arlington Airport so that we could draw comparisons from precipitation to water levels in the infiltration trench and Portage Creek. The precipitation data and how it relates to water elevation in the infiltration trench are shown in Appendix 2. During the period of record (10/1/2014 – 4/30/2015) there were 61 days (29% of the time) in which the level of water in the infiltration trench was inundated and “untreated” stormwater made its way to Portage Creek. It is this water, plus additional water from Hwy 9 and on the other side of 204th, that we aim to treat in designing a bioswale at the Safeway site (see Appendix 3).



Figure 1a. Level logger in Portage Creek.

Figure 1b. Level loggers in Infiltration Trench.

Next Steps :

1. We have shared the design plans with the City of Arlington and WSDOT, however we have not yet received feedback from these two agencies. Next steps will be to receive their feedback and incorporate into the project designs.
2. In order for the project to be complete we will need to secure funding to implement. With the estimated costs ranging as high as \$800,000, we will need to find some type of cost sharing with the City and WSDOT along with grant funding. We will work on finding this funding in the coming year.

Appendix 1 (Data Assessment Plot)

Appendix 2 (Precip Data Arlington)

Appendix 3 (Preliminary Design)