



## **Montesano WWTP Flood Damage Protection Project**

### **I. PROBLEM**

- Wynoochee River is steadily migrating eastward toward City's WWTP and threatening future viability of WWTP.
- Shoreline erosion is expected to continue with each flood event thus increasing risk of a breach to the WWTP.
- Relocating WWTP is not a cost-effective nor a near-term option
- Left unaddressed, an environmental, economic and public health disaster is imminent.
- See Figures 1-4.

### **II. SOLUTION**

- Extend existing sheet pile wall 300 feet north of WWTP treatment plant in conjunction with natural solutions like engineered log jams, in river piles, river retraining and relic channel re-opening.
- See Figures 5-6 where:
  - Red line shows where sheet pile wall would be installed (2017) and followed by engineered log jams (2018/19) to provide aquatic habitat and deflect river away from WWTP.
  - Yellow lines show where relic channel would be reopened to provide additional flood storage, flood water conveyance and an additional river channel away from WWTP.
  - Yellow dots show where in-river piles would be placed to slow velocity, collect debris, and deflect river away from WWTP.
- The use of natural solutions such as engineered log jams, large woody debris, restoration of relic channels, etc. will have combined benefit of protecting WWTP and providing net uplift to aquatic habitat values including providing additional refuge for fish in the area.

### **III. FAILURE TO ACT**

- As Wynoochee River continues its eastward migration, it will either:
  - cut an additional channel east the WWTP turning the facility into an island; or
  - migrate behind existing sheet pile north of the WWTP causing an inevitable breach.
- Environmental Impacts:
  - Potential impacts include downstream fish kills in Wynoochee and Chehalis rivers as well water quality impacts to ESA-listed species (from changes in pH, BOD, TSS, DO, temperature, etc.).

- Depending on length of failure, these impacts could be more chronic and include longer-term impacts to shoreline and salmonid habitat.
- Public Health Impacts:
  - Failure of WWTP would pose substantial public health and fishery impacts due to presence of concentrated fecal coliform such as E. coli.
  - Risk of disease/illness from untreated, unsanitary conditions is very real including cholera, hepatitis, etc.
- Costs:
  - Emergency replacement/relocation of new WWTP would likely exceed \$50M.
  - Addressing resultant environmental, public health orders and notices of violation from regulatory authorities following a breach would likely exceed \$500K.

#### **IV. OPPORTUNITY**

- Protecting the WWTP with a sheet pile wall protects important infrastructure, public health, and the environment.
- Enhancing the project with engineered log structures, in river piles, river retraining and re-opening relic channels provides an opportunity to provide additional habitat, flood storage and long term protection for the WWTP.

#### **V. HOW CAN FEDERAL DELEGATION HELP?**

- Take an active interest in the project.
- Ensure federal agencies are on board with need to solve an imminent disaster (USFWS, NOAA Fisheries, USACE, etc.).
- Help with engaging Quinault Nation.
- Help with making a showcase project where in the end we achieve protection, habitat, and sustainable solutions (river retraining).
- Support funding where state comes up short.

#### **VI. MORE INFORMATION**

- March 25, 2017 drone video flight (2 min.) -- <https://youtu.be/zP5-VYdKMfo>
- Project website -- [https://www.ezview.wa.gov/site/alias\\_1916/overview/36509/overview.aspx](https://www.ezview.wa.gov/site/alias_1916/overview/36509/overview.aspx)
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Figure 1 – Wynoochee river movement eastward toward WWTP (1993-2017):

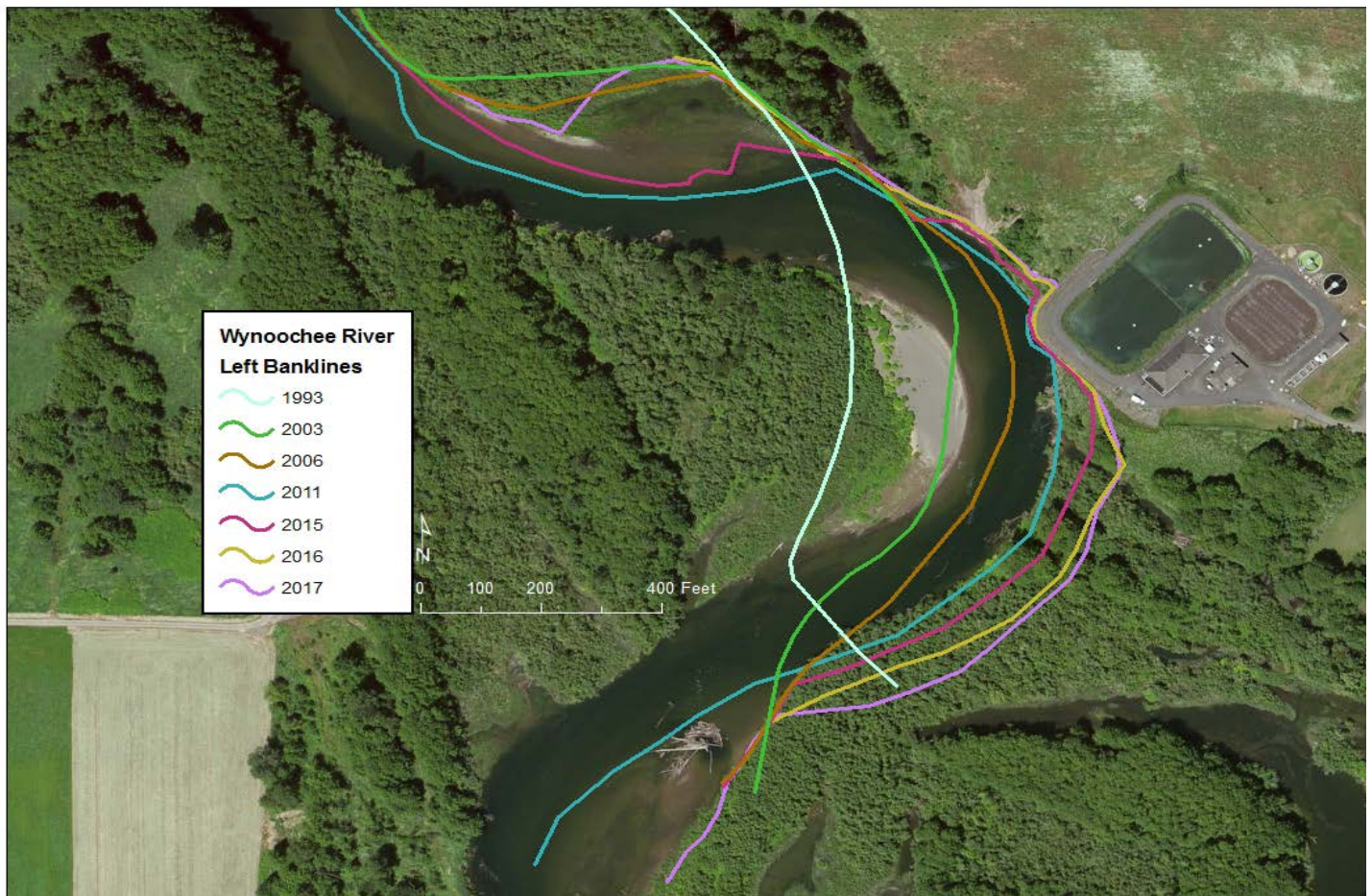


Figure 2 – Google maps showing WWTP (summer 2016):





**Figure 3 – WWTP aerial view (March 25, 2017):**



**Figure 4 – WWTP aerial view (March 25, 2017):**





Figure 5 – Solution (red = sheet pile protection wall; yellow = redirection of river into relic channel):



Figure 6 – Relic channel aerial view (March 25, 2017):





Figure 7 – Vicinity aerial view (Google Maps, 2017):

