Langlois Creek Log Weir Removal

Snoqualmie Valley Watershed Improvement District

Snohomish Basin Salmon Recovery Technical Committee

Map of Langlois Creek and surrounding areas.
Site Overview
Existing Weir

- Roughly 50 feet downstream of Culvert # 933064
- Channel-spanning
- 18-inch diameter
- 16 feet long
- Vertical drop of 0.85 feet

(ESA, Jan. 2020)
Existing Weir

- Vertical drop > 0.79 feet
- WDFW fish passage barrier
- Traps upstream sediment
- Increases upstream streambed grade

(ESA, Jan. 2020)
Goal of Weir Removal

- Remove 18-inch diameter log
- Eliminate 0.85 foot vertical drop
- Regrade streambed to match the new upstream culvert profile, 1.7%
- Allow for fish passage
- Reduce the risk of a head cut moving upstream to new culvert
Proposed Design

- **Log Weir Removal Grading**
  - **Plan**
  - Scale: 1:70

- **Culvert Alignment Outlet**
  - Scale: 1:70

- Details:
  - 0.5% drop at existing log weir
  - Remove weir and grade smooth
  - 2.5' slope creek profile at 1.7% to match new culvert profile
  - Installation of coarse band

Legend:
- CHW: Culvert Head Wall
- CULVERT: Culvert
- INSTALL: Installation
- FOR:CULVERT: For Culvert
- GRADE: Grade
-Latch: Latch
- REMOVE: Remove
- WEIR: Weir
- LOG: Log
- SLOPE: Slope
- CREEK: Creek
- PROFILE: Profile
- ELEVATION: Elevation
- STATION: Station
- LIMITS OF WORK: Limits of Work
- PROPERTY LINE: Property Line
- 10'00: 10 feet
- 6': 6 feet
- 5': 5 feet
- 3.0': 3 feet
- 2.5': 2.5 feet
- 0.5%: 0.5% grade
- 1.7%: 1.7% grade
- 10:10: 10 feet
- 20: 20 feet

References:
- SVWID
- esassoc.com
- ESA
Proposed Design
Proposed Design

- Install coarse band of cobble mix to provide a deformable, light grade control
  - Use same coarse band cobble mix as used in new culvert
  - 12” cobble mix (gradation including ‘streambed sediment’)
  - Deformable to allow for long-term channel evolution without resulting in a drop
  - Stable enough to hold its form during typical flows, prevent head cut
Proposed Design Elements

- Stream dewatering
  - Flow bypass
  - Pump, diversion pump, temporary energy dissipater
- Log removal
- Streambed regrading
  - 1.7%
- Install coarse band (light grade control structure)
  - Band of coarse streambed material downstream of Culvert # 933064
  - Prevent head cut from moving upstream to Culvert # 933064
Project Examples – Suds Creek, Clark County, WA
Grade Control Structures

(ESA, Oct. 2014)
Project Examples – Derry Dell Creek, Tigard, OR
Grade Control Structure

• Larger grade control, but similar concept of using a deformable streambed mix
• Utilities present at this site

(ESA, Oct. 2014)
Project Examples – Derry Dell Grade Control Structure

(ESA, September 2020)
Project Examples – Derry Dell Grade Control Structures

(ESA, September 2020)
Project Examples – Derry Dell Grade Control Structures

(ESA, September 2020)
Conclusion

• Questions?

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(ESA, Jan. 2020)