



# LOWER SATSOP ASSESSMENT & DESIGN

## DRAFT CONCEPTUAL DESIGN

April 17, 2019

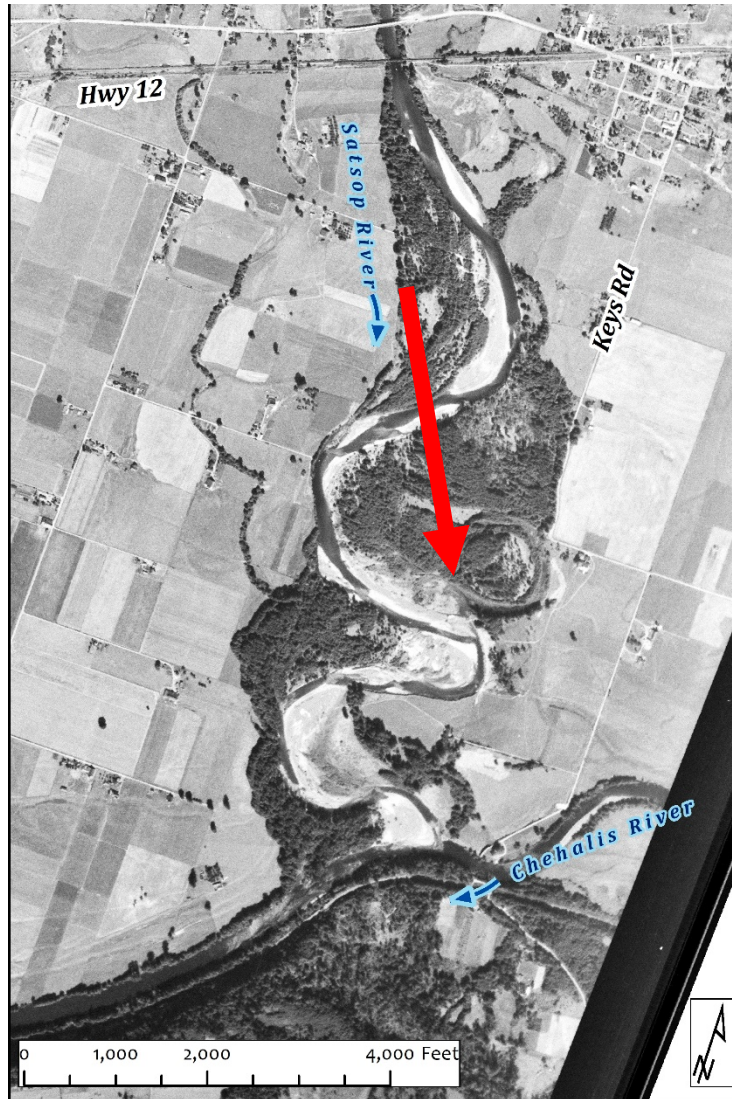
# Previous Studies

- Satsop River Floodplain Restoration, WEST 2004
- Satsop River Rip Rap Removal Project, WSE 2013

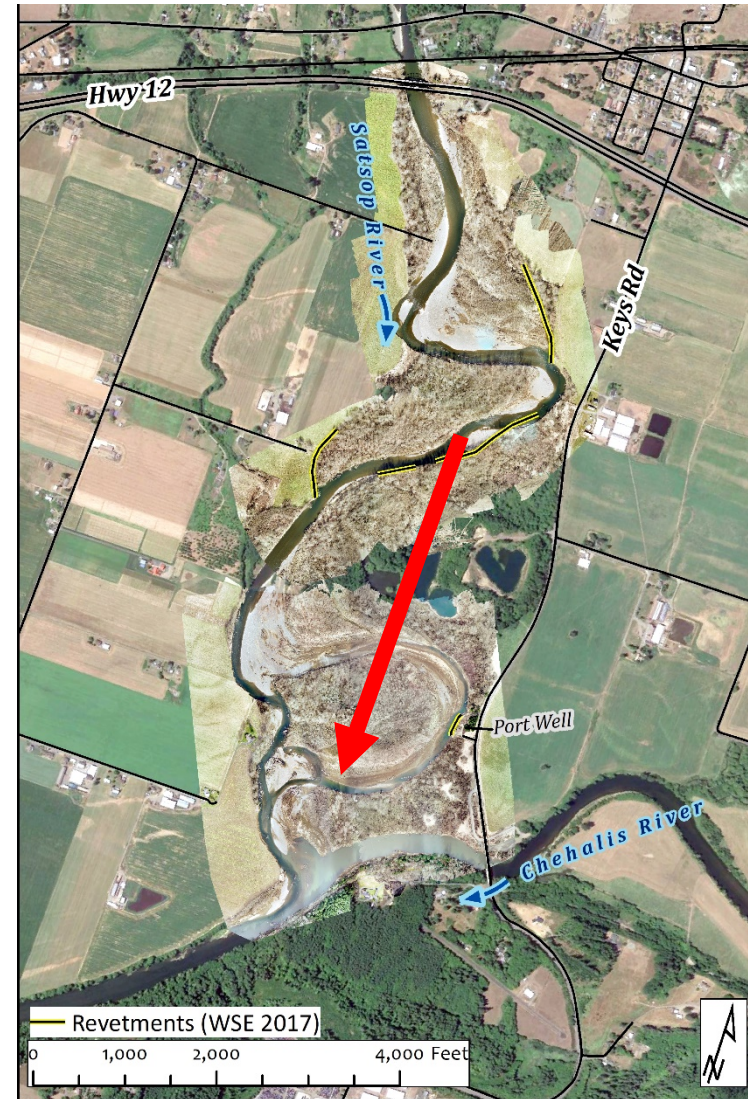
## Conclusions of Previous Studies

- Actions to restore the site previously occupied by a gravel mine include removal of culverts, spoils, dikes, and shallowing the ponds.
- Removal of the rip rap revetment could substantially increase risk to infrastructure and property along the study reach.

# Historic Context

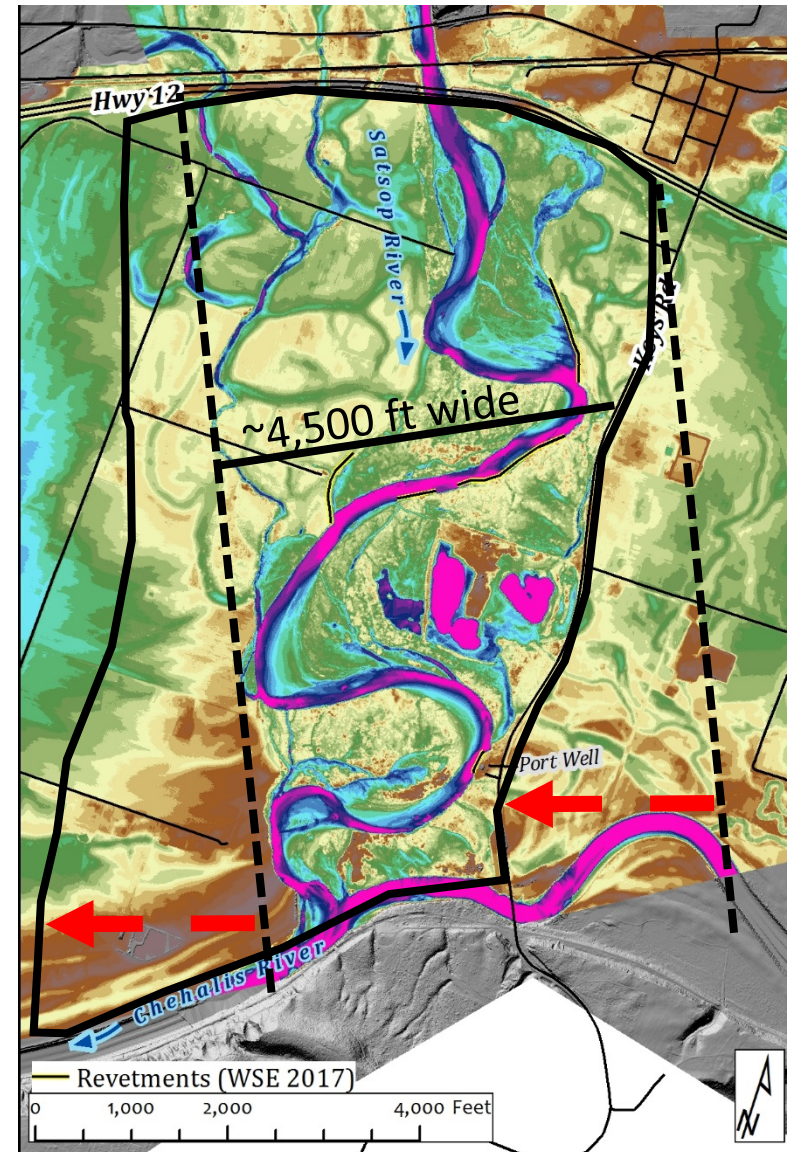
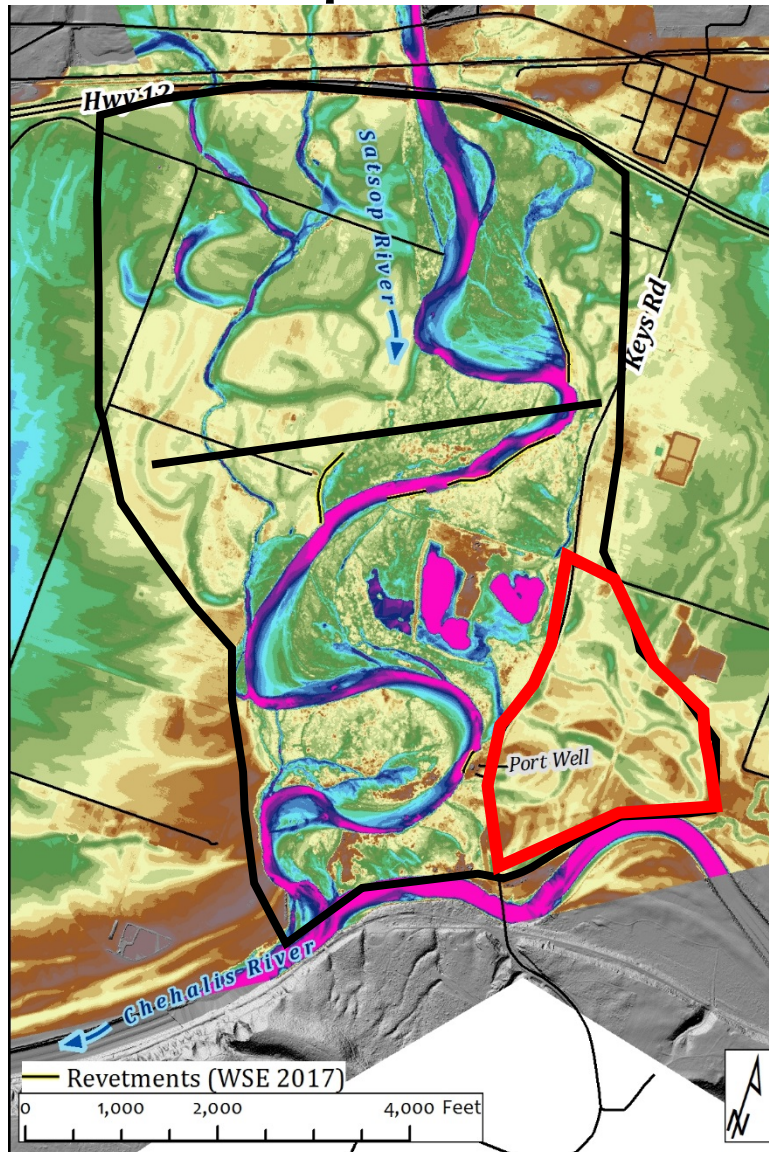


1953



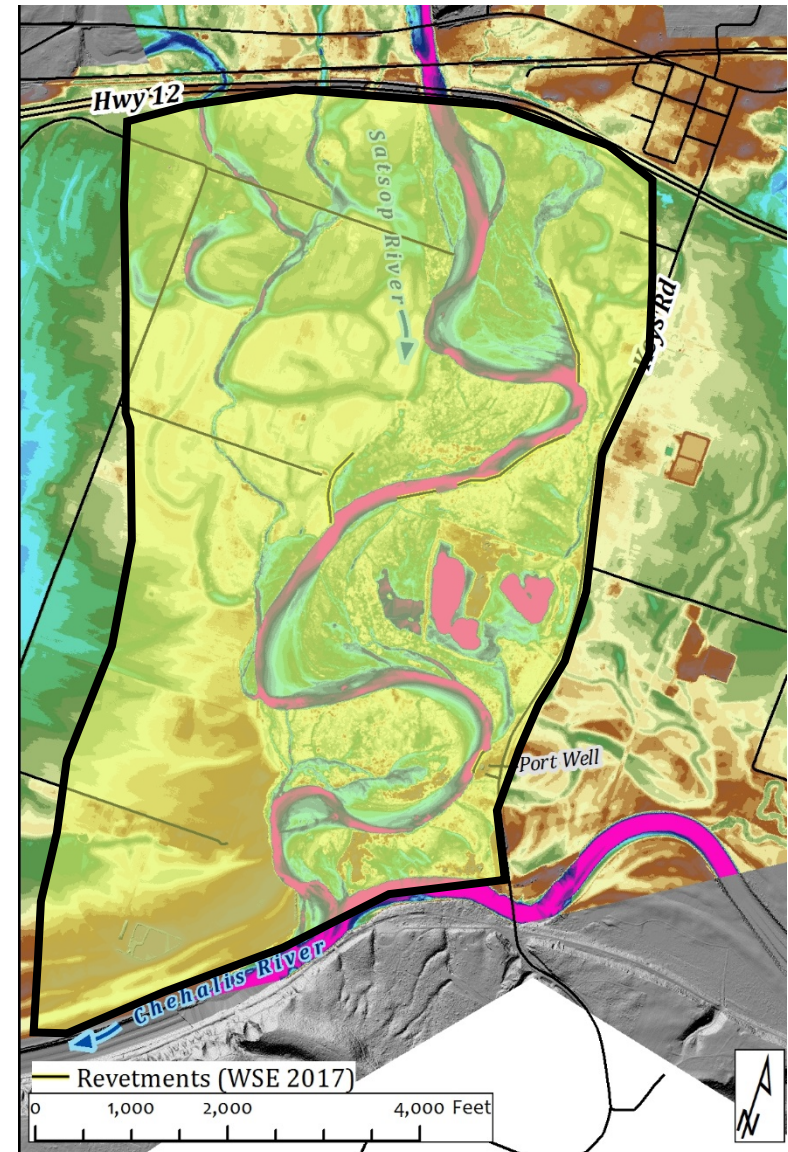
2019

# Geomorphic Context

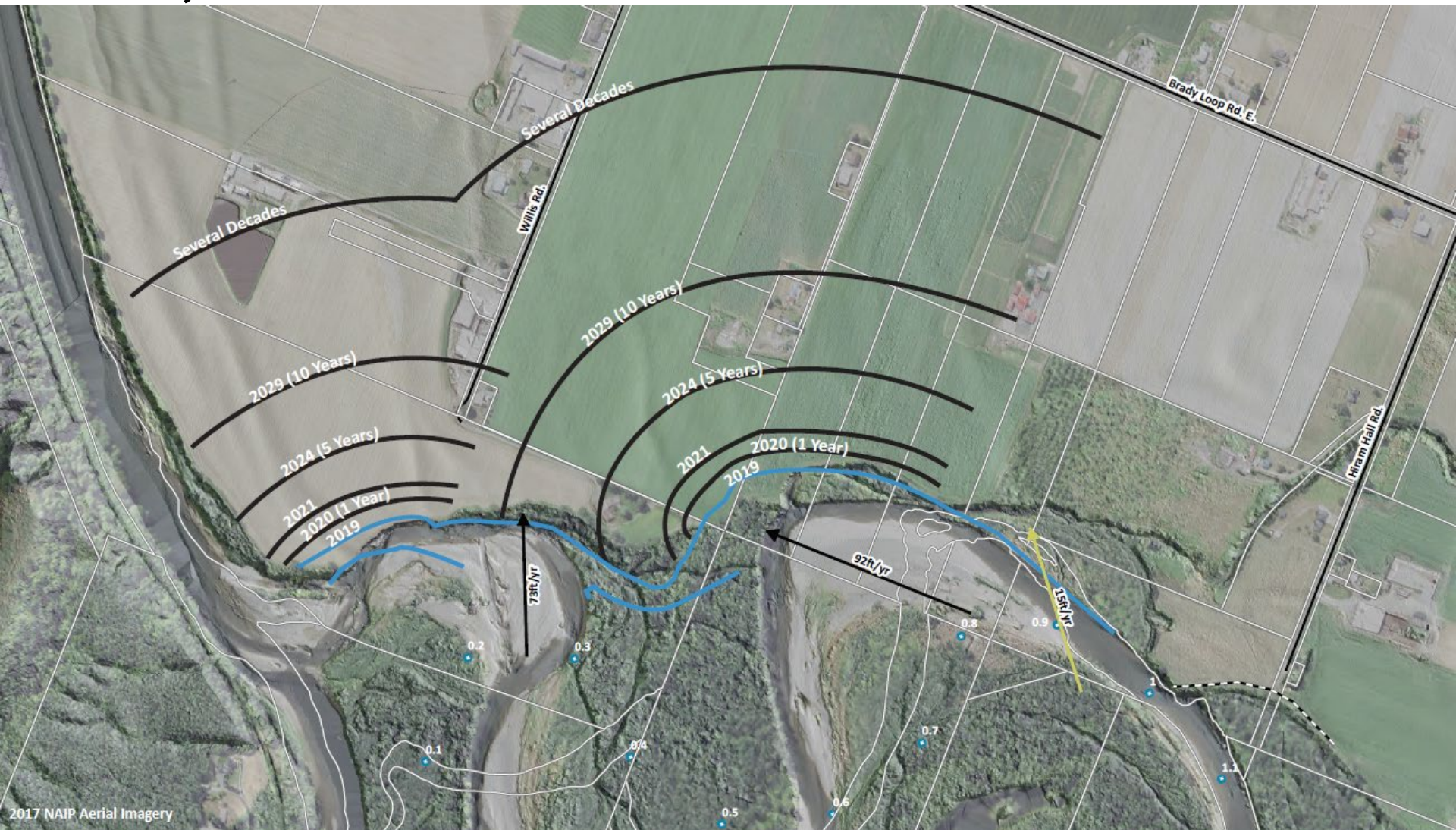


# Geomorphic Context

- Meander belt is moving west, likely due to a combination of left bank revetment (upstream of gravel pits) and location of lower segment of Keys Road.
- Erosion hazard zone includes lands not occupied by the river in thousand years or more.

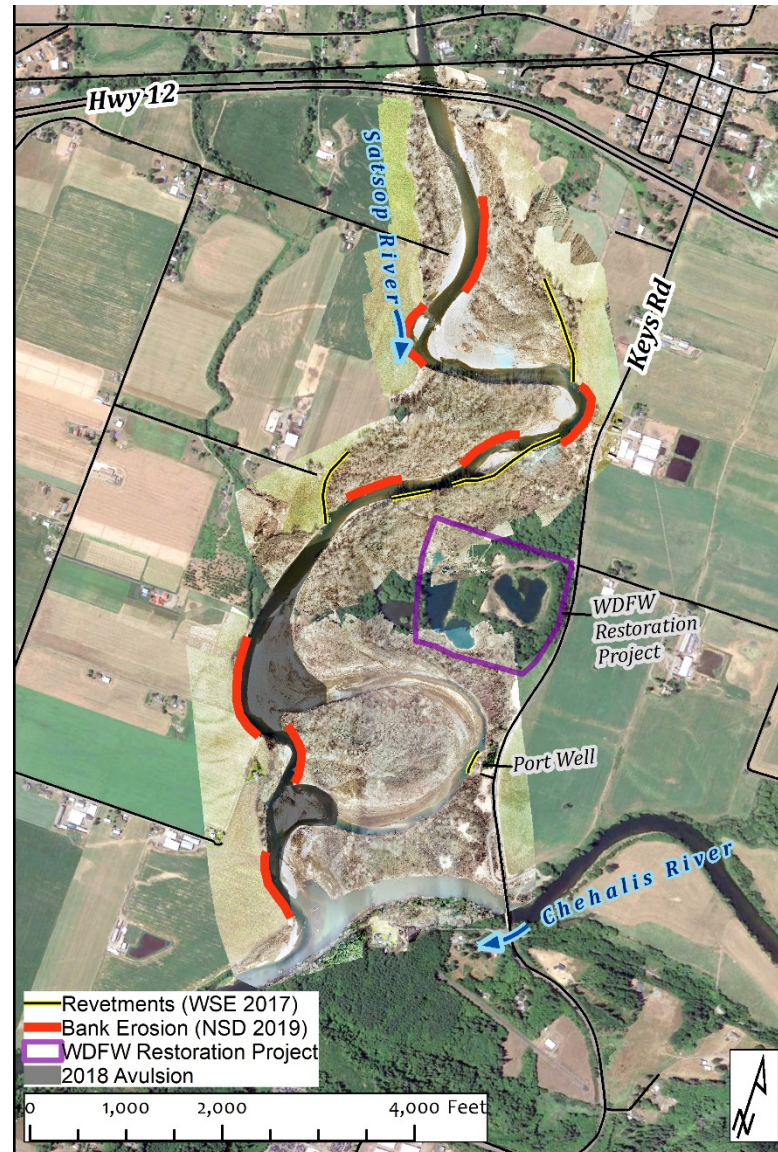


# Projected Erosion without Treatment



# Existing Conditions

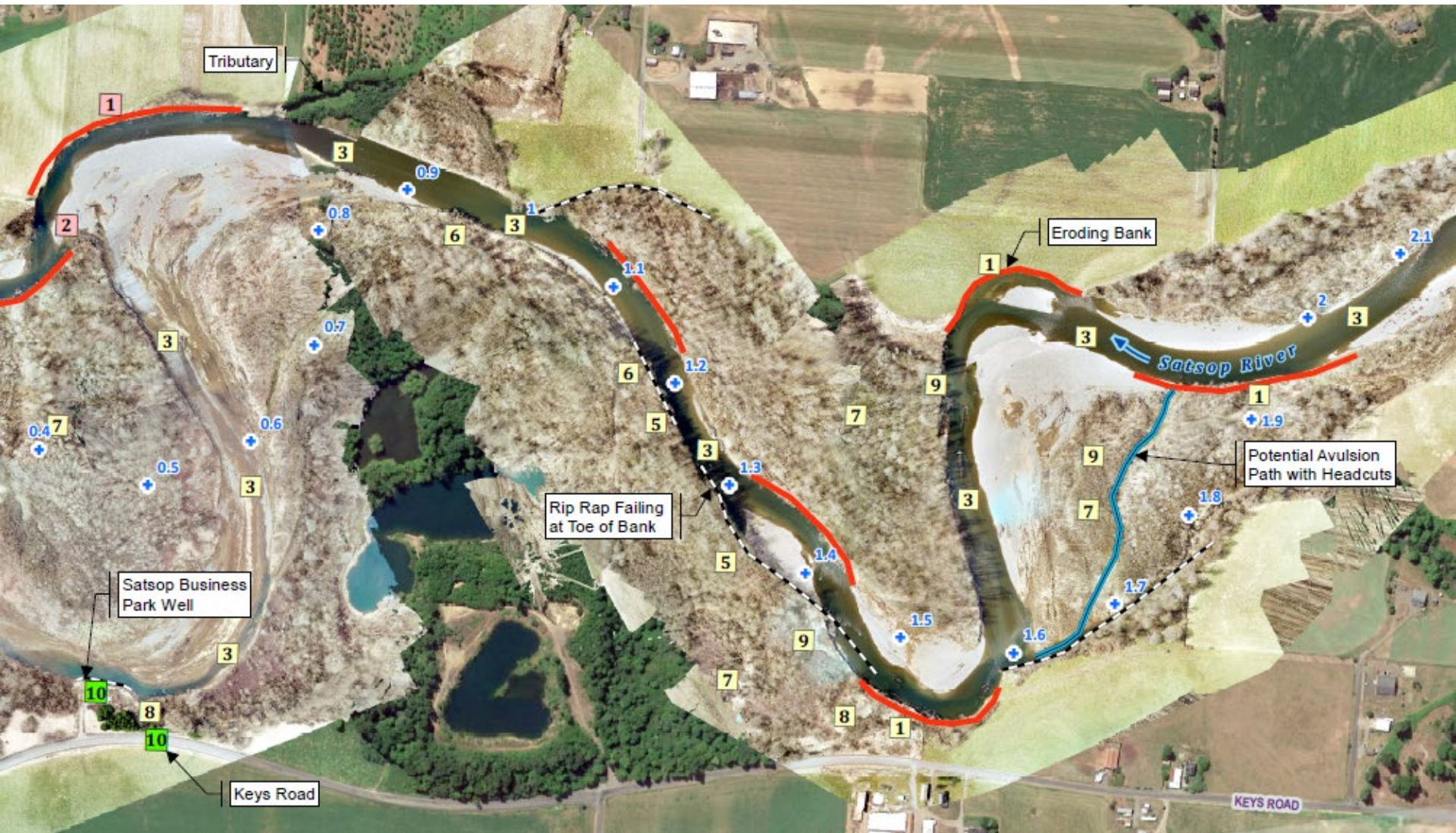
- Bank Erosion
- Revetments
- Keys Road
- Port Well
- WDFW Restoration Project
- 2018 Avulsion



# DRAFT Conceptual Design



# DRAFT Conceptual Design



# Proposed Action Time Frame

Priority  
Actions

Short Term

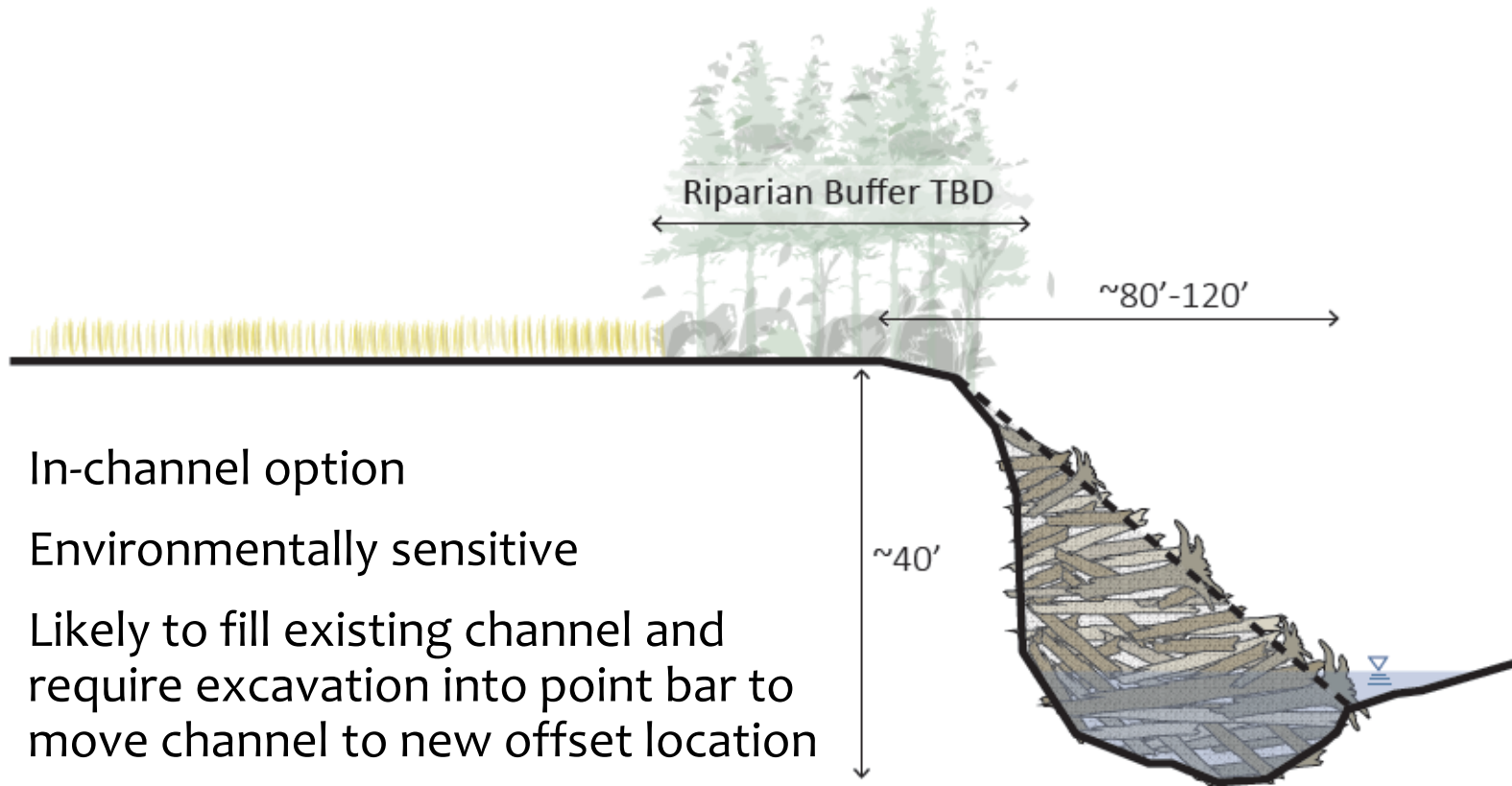
Long Term



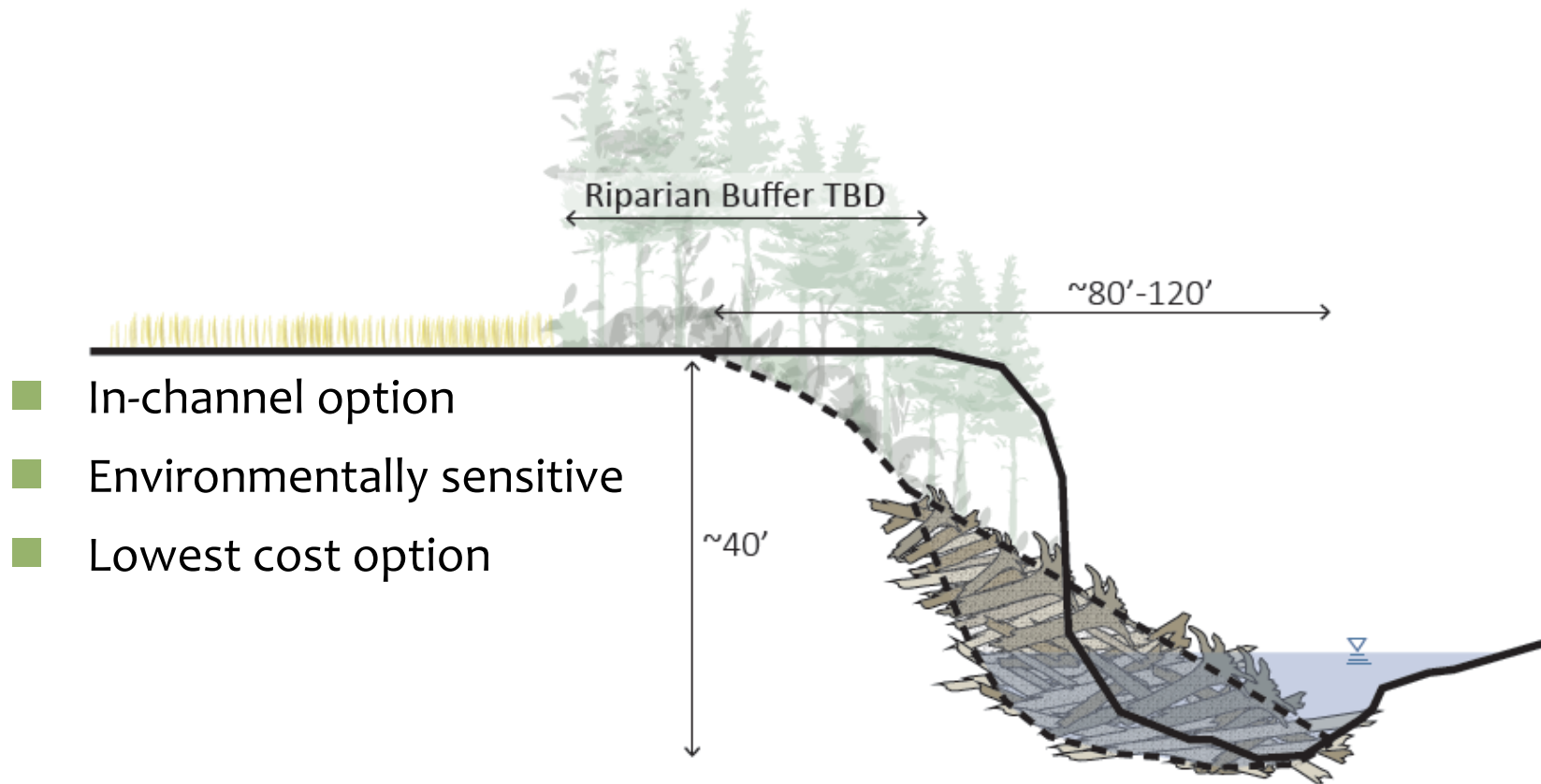
- Detailed plan for 2020 implementation. Possible emergency actions to reduce erosion rate.
- 2020 implementation of long-term environmentally sensitive protection of the right bank of Lower Satsop River.
- Partial flow deflection to abandoned meander.
- Partial removal of WDFW left bank revetment.
- Installation of ELJ's to improve fish habitat and deflect flows from property and infrastructure.
- Construction of side channels through WDFW property and associated modifications to remaining left bank revetment.
- Install setback revetments to establish protected forest buffer along critical infrastructure.
- Setback infrastructure restricting Lower Satsop meander belt, Keys Road and Port Well.

# Minimum Setback Option

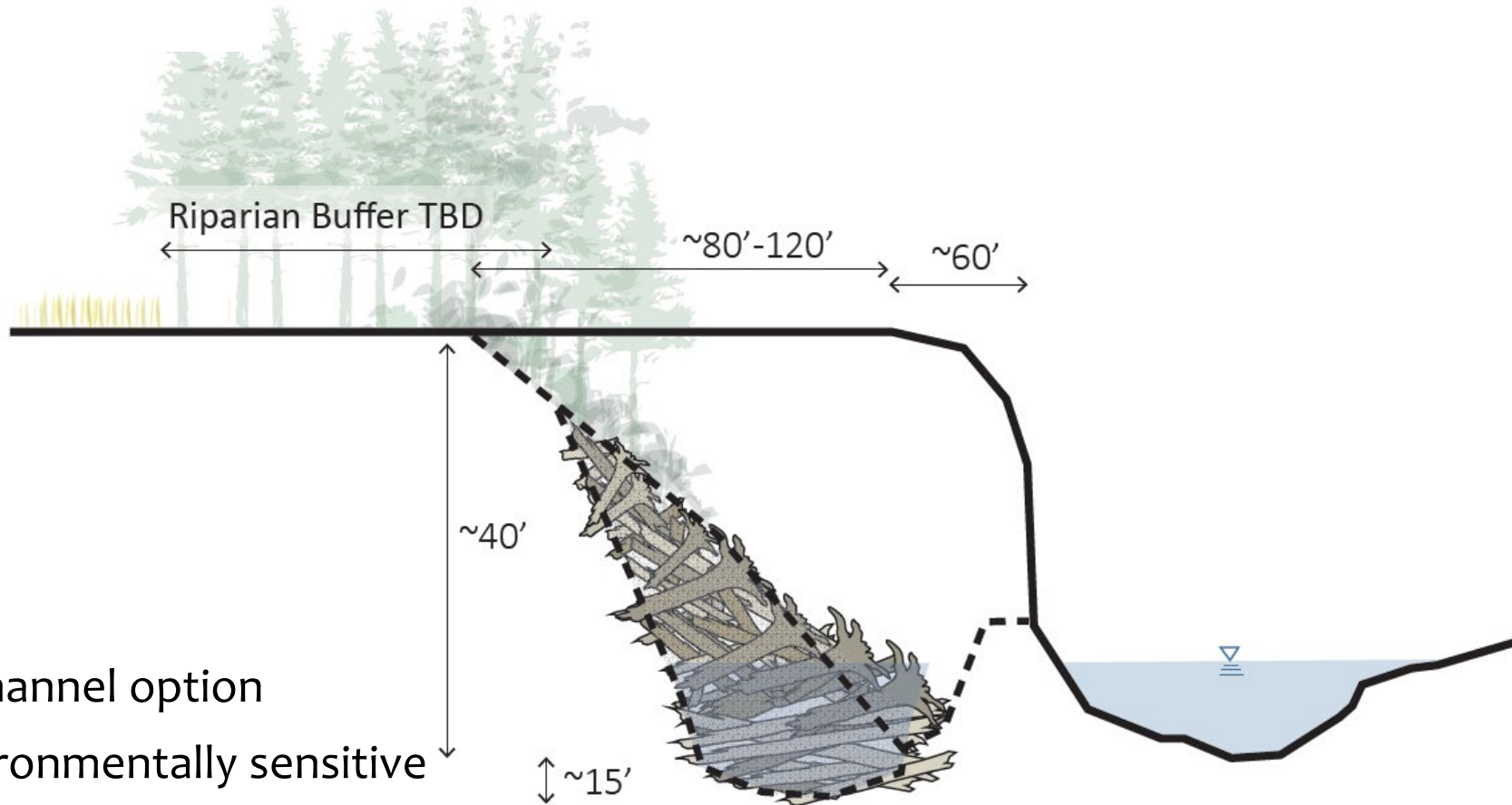
- In-channel option
- Environmentally sensitive
- Likely to fill existing channel and require excavation into point bar to move channel to new offset location



# Partial Setback Option

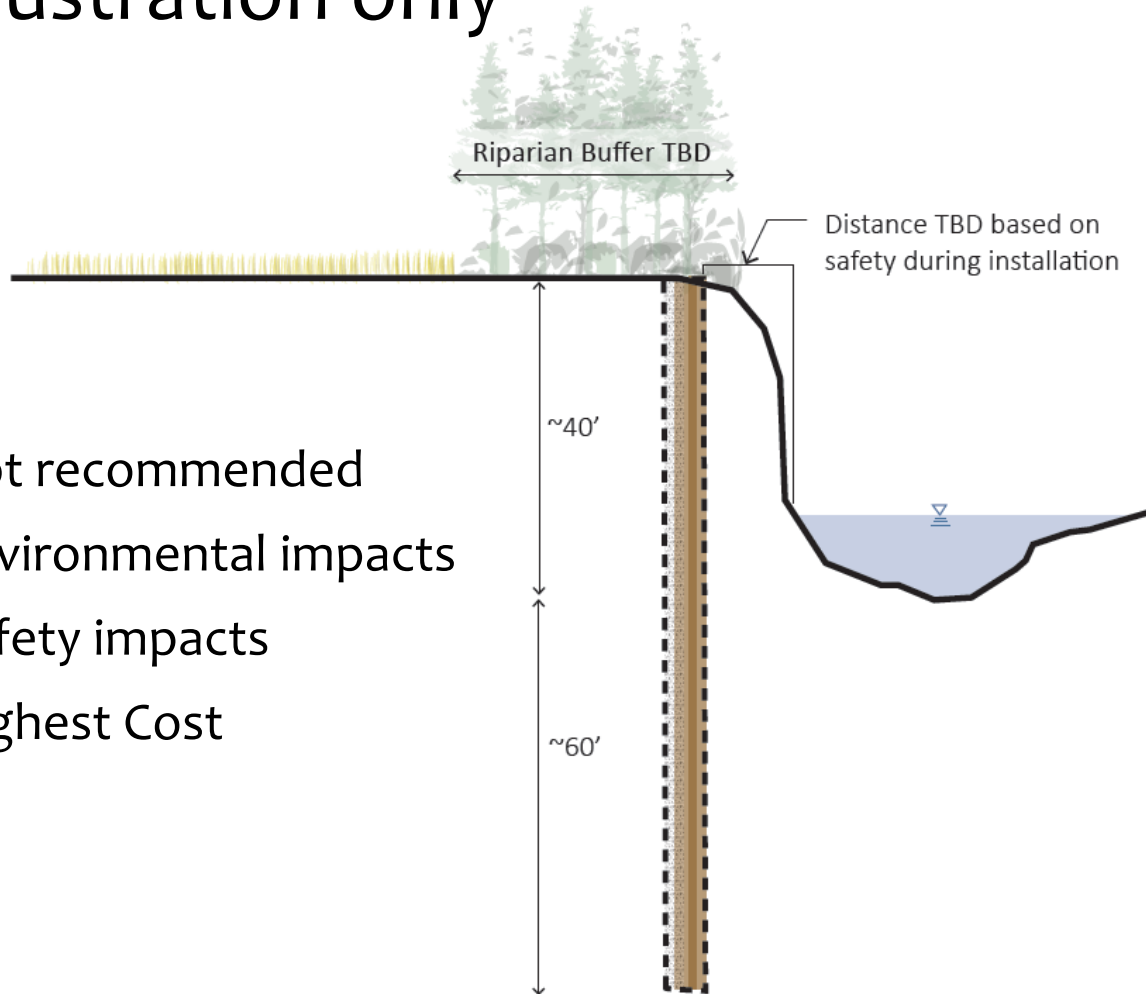


# Full Setback Option



- In-channel option
- Environmentally sensitive
- Will require significant excavation and disposal of bank materials

# Vertical Cutoff Wall - Not Recommended for illustration only



- Not recommended
- Environmental impacts
- Safety impacts
- Highest Cost

# Dolosse and Dolotimber Options

- Only for emergency action and would not work as a viable long term solution.
- Would be completely buried or replaced in 2020 with long term solution.
- Self settling design placed at toe.



Source: Pierce County Dolosse & Dolotimbers™ fact sheet





