

MULTIBENEFIT LAND REPURPOSING PROGRAM VISION AND EXECUTION APPROACH

TURLOCK GROUNDWATER SUBBASIN

MAY 31, 2023



SUMMARY

- **Challenge:**

Significantly decreasing groundwater demand in an area with limited surface water availability while maintaining a viable agricultural economy

- **Opportunity:**

Leverage existing collaborative water management partnerships and ongoing work to deliver viable land repurposing strategies adapted to local conditions that provide water, environmental and community benefits

- **Approach:**

Develop a framework and build capacity for project delivery, with an emphasis on projects with environmental and DAC benefits

Sustainable Groundwater Management Strategy

- Recharge Master Plan
- In lieu recharge
- Direct recharge
- Dispersed recharge
- Multi-benefit projects
- Optimization using GRAT

Recharge Projects



- Measurement and metering
- Pumping reduction
- Re-cropping, Land fallowing, Irrigation efficiency
- Land repurposing

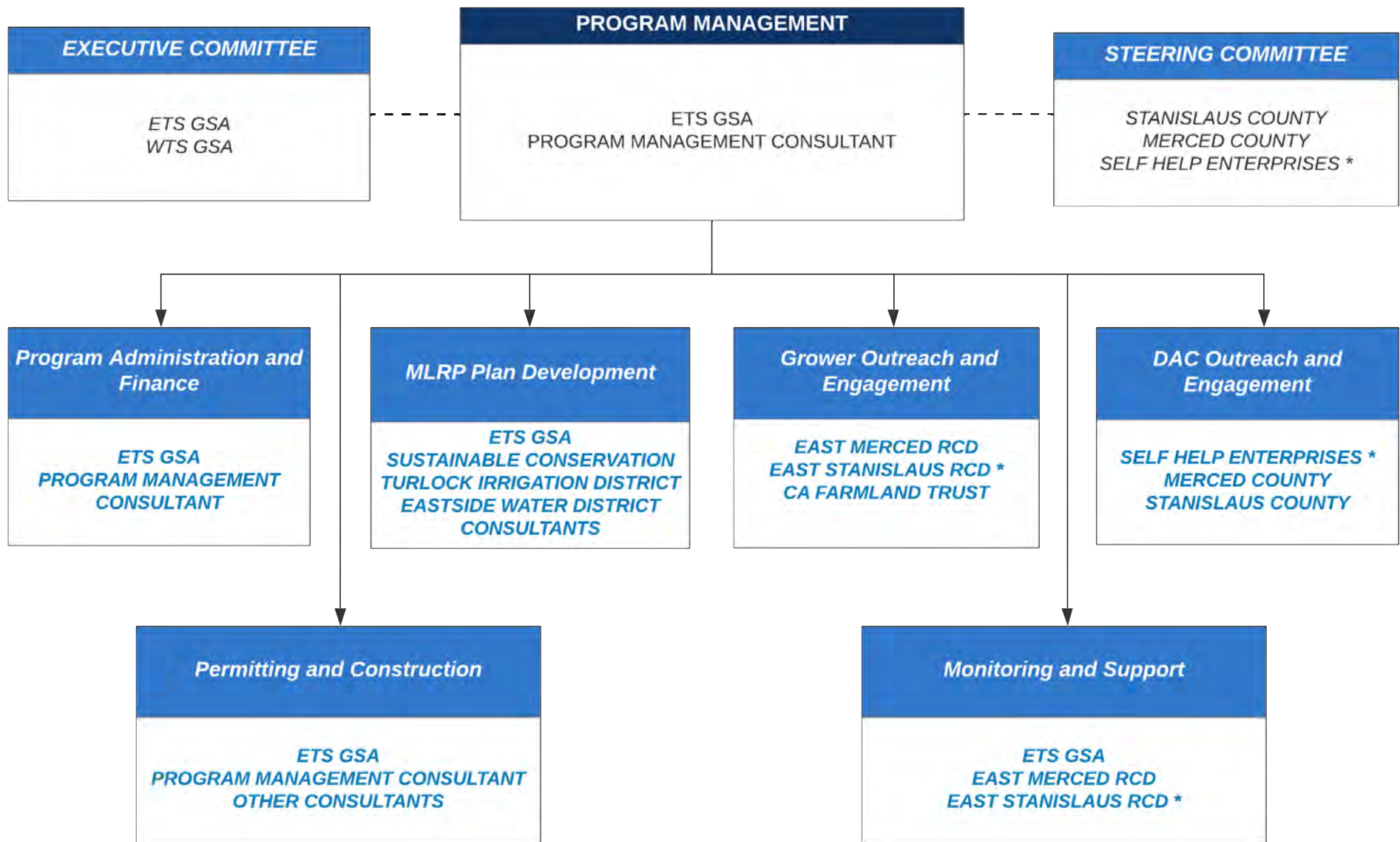
Demand Reduction



- Regional planning and collaboration
- Start early, ramp up and adapt as needed
- Seek multiple benefits
- Maintain viable long-term ag economy

Strategy

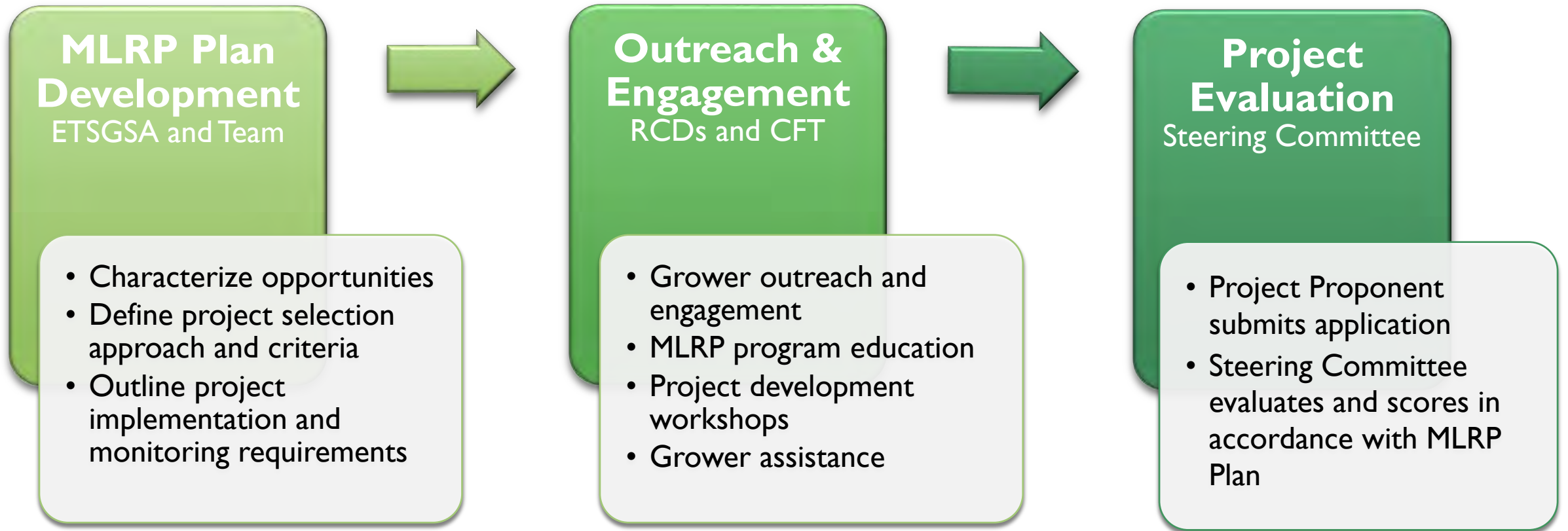




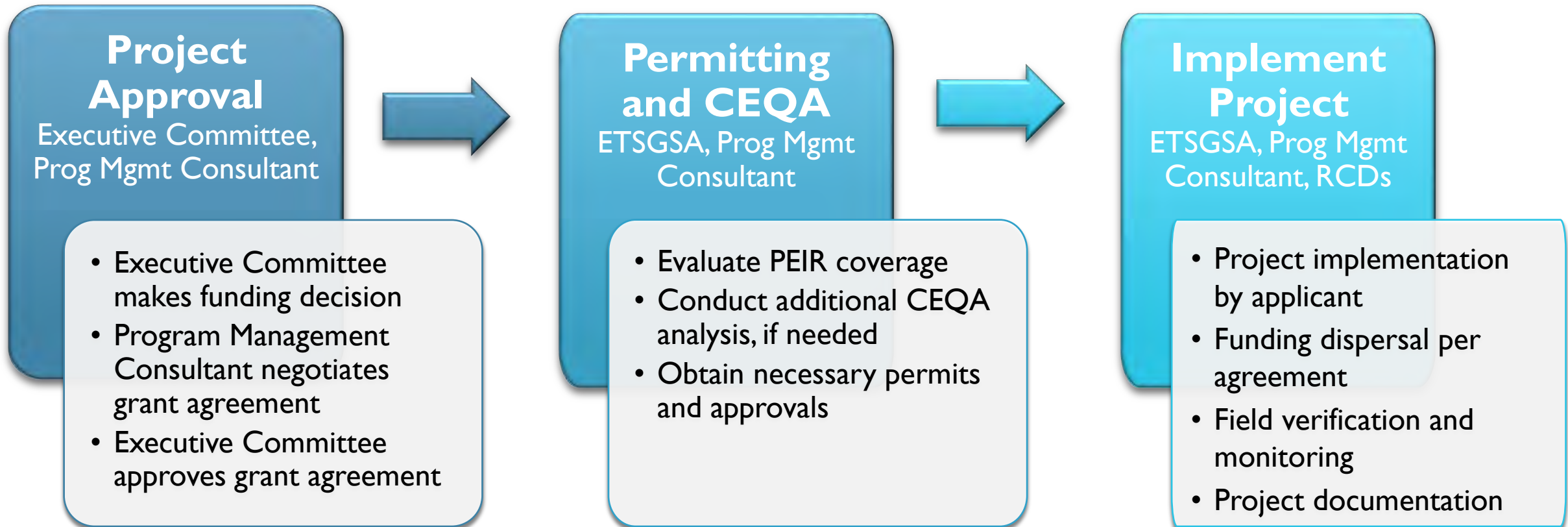
PROGRAM ORGANIZATION

• Partnerships with East Stanislaus RCD and Self Help Enterprises are currently under negotiation

IMPLEMENTATION APPROACH













































IMPLEMENTATION APPROACH



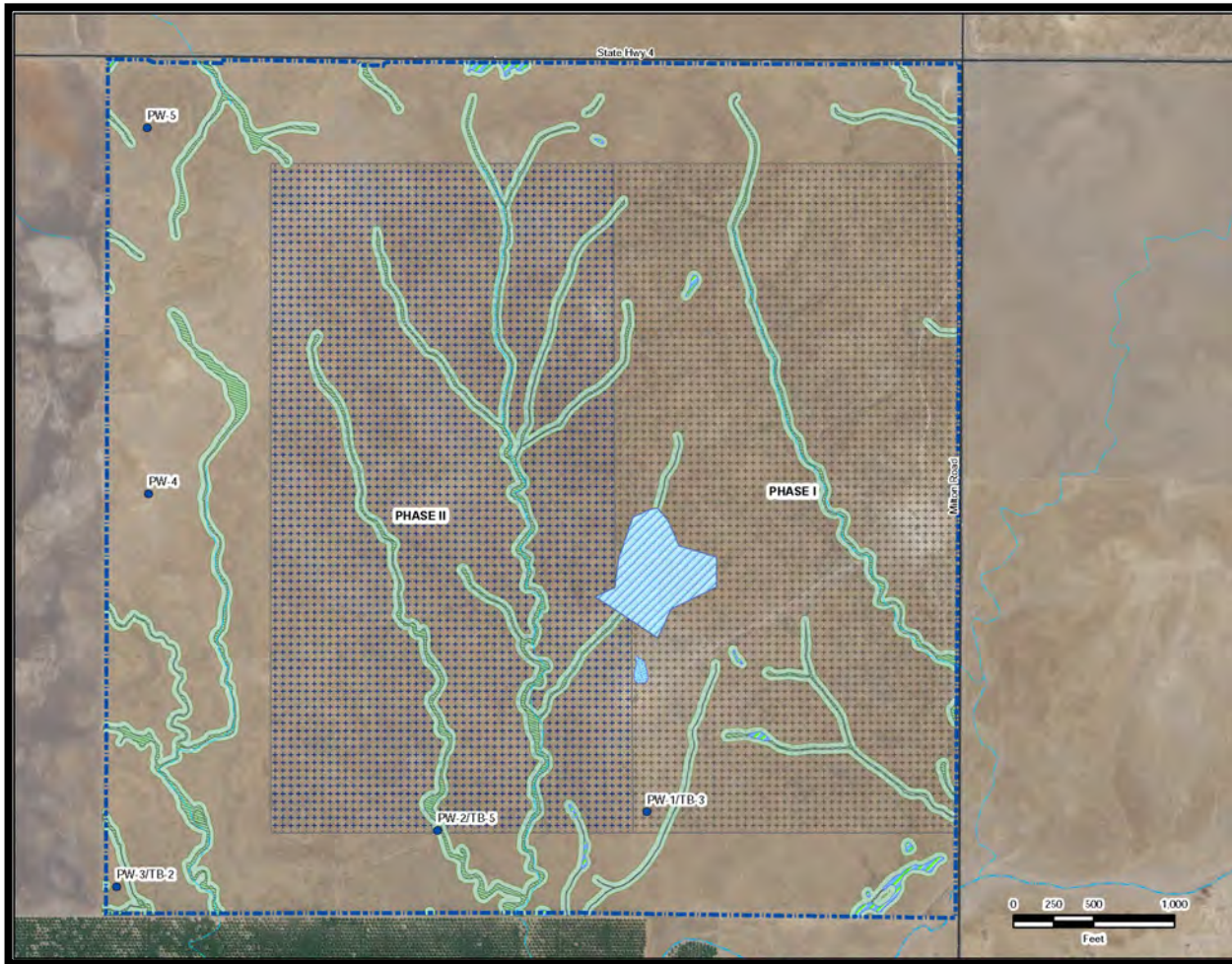
LAND REPURPOSING VISION AND STRATEGY

- Use an “All of the Above” strategy
- Special focus on multi-benefit strategies that solve local and regional sustainability issues

END USE BENEFITS	Increased Recharge	Decreased Demand	Water Quality	Habitat Benefits	Flood Risk Reduction	Climate Change Resilience	Disadvantaged Community	Sustainable Agriculture
Orchard Swale Rewilding								
Floodplain Reconnection								
Habitat Restoration, Rewilding								
Recharge or Storage Basins								
Non-irrigated Working Land								
Recropping								
Solar								

Note: Final list of target end uses and benefits to be developed in MLRP Plan

ORCHARD SWALE REWILDING

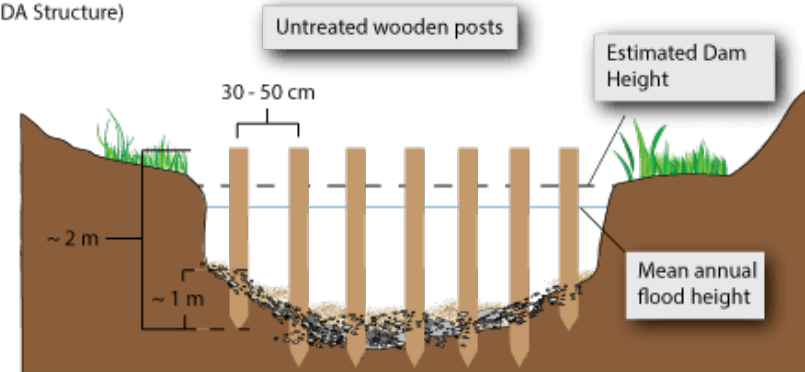


- About 10% of area of orchards in rolling foothill terrain
- Typically lower yield trees
- Decreases groundwater demand
- Surface modification with check dams and earth buds retains runoff and promotes seasonal wetlands
- Improves water quality
- Attenuates storm runoff
- Promotes recharge; however, impeding soil layers often present

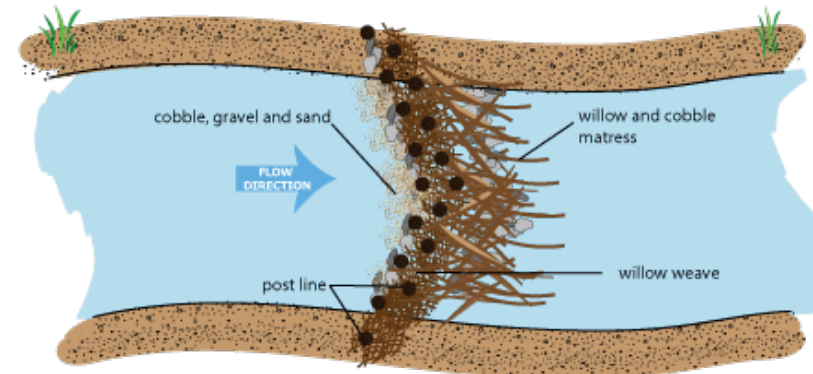
FLOOD PLAIN RECONNECTION



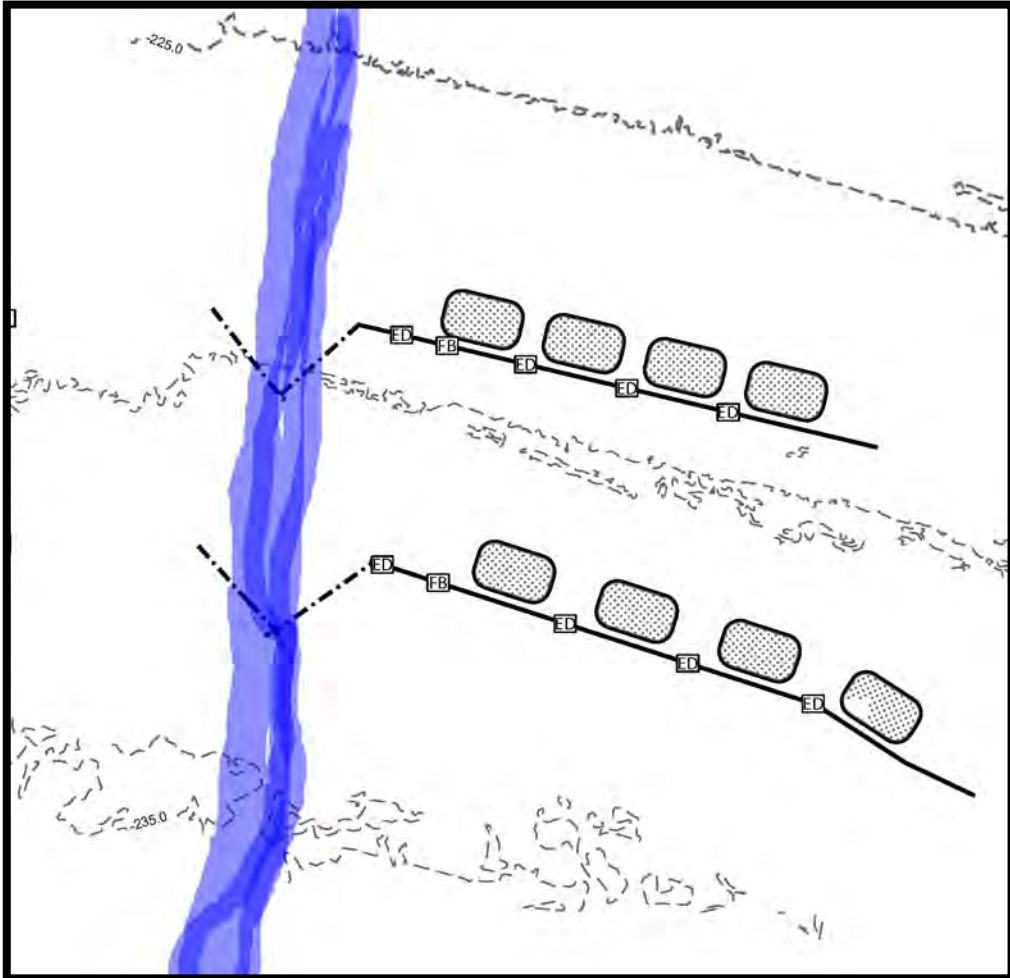
Cross Section View
(Generic BDA Structure)



Plan View
(Convex Primary Dam)



FLOOD PLAIN RECONNECTION



- Lower reaches of local creeks run across sandy soil; stable isotope analysis indicates significant recharge
- Beaver Dam Analogs (BDAs) retain and spread water onto the floodplain; Approach accentuates natural processes
- Decreases groundwater demand
- Promotes recharge
- High quality habitat
- Improves water quality
- Attenuates flood intensity

RECHARGE OR STORAGE BASIN

- Conversion of cropland at optimal recharge locations
- Capture and infiltrate runoff.
- Decrease groundwater demand and increase groundwater supply
- Designed for habitat benefit
- Improve water quality
- Attenuate storm runoff

