

PROJECTS AND MANAGEMENT ACTIONS: MANAGED GROUNDWATER RECHARGE

WHAT IS IT?

In Sierra Valley this approach directs excess (high water) winter stream flows through existing drainages to areas where the geology provides a path for recharge water to reach the aquifer.

This supplements natural recharge and increases water supplies.

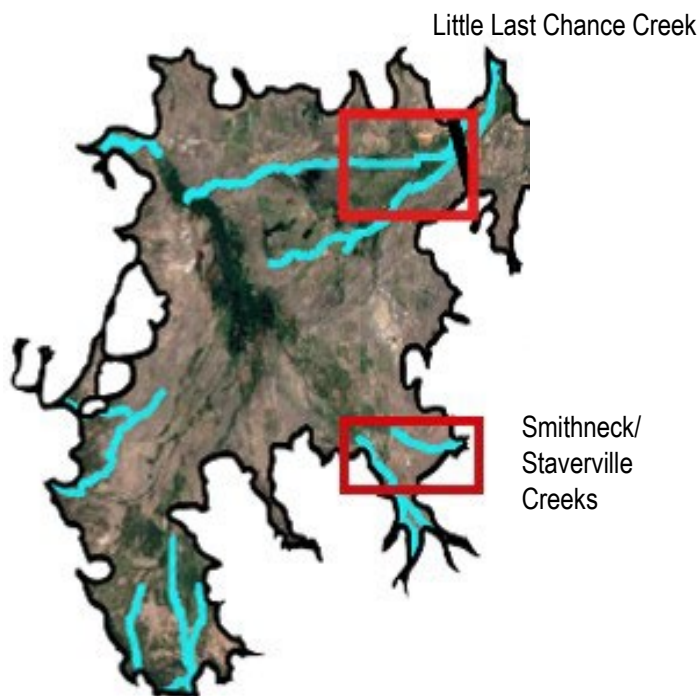
Recharge areas are located in the upslope grades found at the edges of Sierra Valley (see red boxes below). In the valley floor, layers of clay soils prevent recharge to the deep aquifer.

WHY DO IT?

High stream flows can occur due to heavy rains, snow-on-rain events or rapid snow melt. These high-water conditions can cause flooding. Using excess water for recharge can help reduce flood risks while improving local groundwater supplies.

Managed aquifer recharge will slow peak flood flows in dedicated areas where waters can seep down into the aquifer – keeping excess flows available for future use and enhancing long-term water supply.

POTENTIAL RECHARGE AREAS IN SIERRA VALLEY



PROTECTING WATER RIGHTS

Authorization to use excess (high water) winter flows comes from temporary permits issued by the State Water Resources Control Board. These temporary permits are not water rights and only allow use of water that is not claimed by a water right holder.

All groundwater recharge pilot projects in Sierra Valley are coordinated with the Watermaster. This ensures that use of excess flows (capped at 20% of streamflow under high flow conditions and only during the winter season) does not impair any existing water rights.

DOES IT WORK?

During the 2025/2026 winter season, recharge occurred at the four projects located in the area of Smithneck and Staverville creeks. Calculations indicate that recharge infiltration rates approach up to 1 cubic foot per second (cfs) at individual sites for a total of 2.5 cfs, resulting in approximately 120 AF recharged to the basin.

DRAFT
For Board Review

See other side for description and photos of recharge pilot projects.



MANAGED GROUNDWATER RECHARGE PROJECTS IN SIERRA VALLEY

Identifying and evaluating potential recharge sites

- Assessment of local geology and hydrology
- Data collection/studies (geodetic, seismic, satellite)
- Drilling test bore holes
- Geological conditions in the Little Last Chance Creek area did not support direct recharge but conjunctive use projects are being evaluated to reduce use of groundwater by using excess creek water (when available)

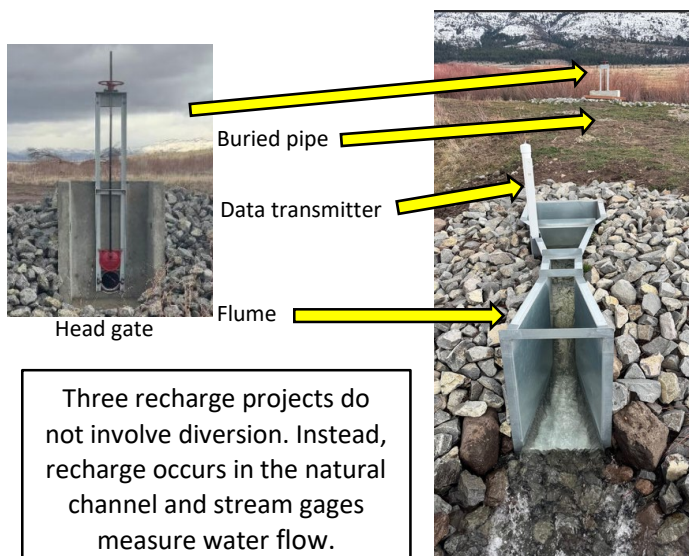
Four aquifer recharge projects in Smithneck & Staverville creek areas

- Can be located on-stream or off-stream (diverted)
- Concrete retaining blocks installed to slow water.
- Removable check boards help to control flow and the amount of water detained.



Managing and measuring water for recharge

One recharge project involves using a head gate to divert excess flow from the natural channel through a buried pipe, where it is released into a flume where water flow is measured and transmitted.



Three recharge projects do not involve diversion. Instead, recharge occurs in the natural channel and stream gages measure water flow.

Enhancing infiltration

A 20' dry well was installed at the bottom of one of the detention areas. Installation involved drilling through a thin clay layer, allowing excess flows to recharge to the deeper aquifer.



Dry



With Flow

Results will be provided in annual recharge reports and displayed real-time in an online dashboard.

See other side for overview of groundwater recharge.