

Restoration project key to new J Levee construction

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HAMILTON CITY —

Southeast of Hamilton City, what looks like a new orchard is going in, with thousands of young plants planted along drip irrigation lines.

But it looks pretty scraggy for an orchard, with plants of different sizes and shapes poking up from sleeves made of misprinted Costco milk cartons. That's because there are a couple of dozen different kinds plants in the rows, all Sacramento Valley natives ranging from valley oaks and sycamores, to mugwort and poison oak.

It's phase one of the floodplain restoration project associated with replacement of the J Levee that protects Hamilton City.

Although one might think the restoration is auxiliary to the levee, it might actually be the other way around. The new levee would not be under construction if the restoration project weren't included.

History

The J levee was built in 1905, right up against the Sacramento River bank. It wasn't built to modern standards, and became decrepit over the years as floodwaters scoured past.

Sometimes the waters didn't go past. Hamilton City has flooded six times in recent history — in 1983, 1986, 1995, 1997 and 1998.

The residents attempted to raise funds to fix the problem but the community was just too small. The Corps of Engineers wouldn't help because a cost-benefit analysis didn't find enough value that would be protected by the levee to justify its cost.

In 2000, the community asked the Nature Conservancy if it could help, according to Ryan Luster, the Sacramento River Project coordinator for the conservancy.



A tractor tows a trailer loaded with dozens of different kinds of young plants, between two irrigation lines Friday at the Hamilton City restoration project associated with the J Levee replacement. The two workers on foot take the appropriate plants off the trailer and place them by the labeled planting stakes. (Steve Schoonover -- Enterprise-Record)

The idea of a setback levee was developed — one that was built away from the river — with a restored floodplain in the area in between.

When the corps was convinced to add the value of the floodplain restoration in front of the levee to the value of the property protected behind it, the project penciled out and the corps authorized it.

It was a first — the first time the corps ever took on a project planned to both reduce flood threat and restore an ecosystem at the same time.

The conservancy began work on figuring out where the levee should go, and purchasing the land that would be necessary. Most of the money came from the Department of Water Resources, with private parties pitching in too. Luster estimates about \$22 million was spent buying the land.

Ultimately the land was transferred to Reclamation District 2140, which the citizens of Hamilton City formed to maintain the levee.

That was critical. The federal government puts up about 65 percent of the cost of levee project, with the local entity responsible for 35 percent. With the levee project costing about \$90 million, the Reclamation District would have to come up with more than \$31 million.

However the value of the land counts toward the local share. The Glenn-Colusa Irrigation District is donating the dirt for the new levee from the piles left from digging its canal, and the value of the dirt also counts toward the local share.

The state of California provided the bulk of the rest that was needed.

Construction began in 2016. Completion is expected in 2023.

Today

The new levee is under construction now north of Hamilton City, but it's already completed south of town. It's not awe-inspiring; not the mighty bulwark you might think necessary to hold back the Sacramento River. It's just a mild hump when you cross it on Glenn County Road 23 on the way toward the river.

"It doesn't have to be 30-feet tall when it's set back from the river," said John Carlon of River Partners, which is doing the restoration.

It's the floodplain that does most of the flood protection. When completed it will be 1,480 acres that can be inundated several feet deep, adding that much capacity to the river. The water will also slow as it crosses the plain, putting less pressure on the levee.

The 925 acres River Partners is working on used to be orchard, mostly walnuts, and there was still one area of trees that was still being pulled out during a visit earlier this month.

The old levee has been removed in this area already, which means the property could flood. River Partners can't work in flood season — Nov. 15 to March 15 — due to the possibility equipment or debris could be washed into the river.

Timing of the removal of the last piece of orchard was also impacted when a raptor and an owl nested there, and the trees around the nests couldn't be removed until the young birds had fledged.

The tree branches are ground up and taken to co-generation plants. The root structures have dirt in them that makes them unsuitable for burning, so they are ground and worked into the soil.

Most of the area has been readied and a lot of it has been planted. When all is said and done, 192,000 native plants will be placed in the first phase of restoration.

The floodplain will have seven different plant communities scattered throughout. Each community is designed to attract a different population of birds and critters.

"If you're a bird, there's a specific structure of plants you're looking for," Carlon said. Different animals rely on the shade of the valley oaks than live in the grasslands. "Every single one has this little niche."

Carlon said the design was done by the Nature Conservancy based on analysis of the soil and conditions of the property. Then the design was run through a hydrological model to see if the plantings would disrupt the flow of flood waters over the property.

To convert the design into plants in the ground, first windrows of dirt are made, and a drip irrigation system is laid out on top.

Then a roll of stickers is printed out for each row, one for each plant to be placed, in the order they go into the ground. A worker then walks down the row with the roll, putting the stickers on small stakes and sticking them in the ground where the emitters on the drip line are.

That's followed by a tractor pulling a trailer full of many different kinds of plants. A worker walking beside the trailers reads the plant codes on the stickers, selects the proper plants, and drops them beside the labeled sticks. The Kirkland milk cartons, attached to stakes, have also been dropped beside the sticks.

Finally, another crew of workers moves down the row, plants the plants and places the milk carton around them. A handful of wood shavings is added to each and stirred around with the labeled stick, which is then stuck back in the ground with the plant.

Field manager Ruben Reynoso said each planter can do about 25 an hour, and there have been as many as 40 working at one time.

River Partners' contract requires a 75 percent survival rate. Reynoso said about 95 percent of the plants they are placing were surviving.

Carlon said they sometimes are criticized for planting in rows, but it's really required by the irrigation system, necessary when the plants are young. They get decreasing amounts of water for three years, then the irrigation lines are pulled out.

Since the rows are made up of different kinds of plants the rows are less obvious when grow out. During a visit earlier this month, Carlon spent several minutes trying to pick out a row of plants in an adjacent restoration area that River Partners planted 16 years ago, and was less than successful.

Benefits

Recent experience has found floodplains play a big role in the health of rivers, Carlon said. The shallow waters provide a haven for small salmon as they head toward the sea.

The water flowing over the floodplain also washes insects and plankton into the river, increasing the food supply.

There is also likely to be an improvement in the water table as flood waters percolate into the soil, not to mention that 14 wells that used to irrigate the orchards will be capped. "What happens to the water that used to be used here?" Carlon asked. "It remains in the aquifer."

The project also has financial benefits. The workers are being paid prevailing wage. The 192,000 plants were grown from seed by Floral Native Nursery in Chico.

There are also the obvious flood-protection benefits, not just for Hamilton City but for areas downstream. Carlon said that a restoration project River Partners completed a few years back at the confluence of the Bear and Feather rivers provided those benefits during the Oroville Dam spillway crisis.

The future

Luster said the Nature Conservancy continues to work for the project, lobbying in Washington, D.C. and Sacramento for money, and participating in what has already amounted to hundreds of meetings.