

## **204-251 Willow Creek Water Quality Enhancement**

### **Pre-project condition**

On the West side of the property, a 1.7 acre pond exists within a 13 acre pasture. This pond had a dual purpose of capturing irrigation tail water and storing it for reuse, and providing stock water. Livestock had free access to the pond, which provides habitat for a variety of wildlife species including ducks and geese. The pond had potential of providing more wildlife habitat, but the livestock grazing kept the vegetation cropped off fairly short. In addition, water quality could have been adversely affected due to the livestock access in and around the pond.

The old irrigation system consisted of a combination of dirt and broken cement ditches. Water and sediment from the bottom of the fields would flow into an open ditch, which ran into Willow Creek. Due to the proximity of the creek to the project site, the situation likely contributed to the high levels of suspended sediment entering Willow Creek and high spikes of E-coli, not to mention the loss of prime topsoil due to irrigation induced erosion. Dirt ditches are the least efficient irrigation system; the water level is hard to control and properly manage, which made it difficult to get adequate amounts of water on the fields. Dirt ditches also have a tendency to “blow out”, which can be caused by more water than the ditch can handle or not enough siphon tubes set to match the volume of water. When a ditch blows out, it washes away a portion of the ditch bank, which creates an enormous soil erosion problem. A third issue with the dirt ditches is the fact that water is lost to seepage before any water is applied onto the fields.

### **Post-project condition**

- The pond was fenced and a watering trough was installed.
- 2,850 of dirt ditch was replaced with a cement ditch.
- Installation of a return flow pump back system, this improved irrigation system increase irrigation efficiency from 35% to 55%.

The landowner is very happy with the project and the project has saved 1/3 of his water through re-use of the water. Water that used to return to Willow Creek with E.coli, nitrates, sediment, and phosphates now does not leave the property. The only water that leaves is in the fall when the water is drained from the pump back system. Not only has the project been a success, the landowner has expanded where water is being pumped to and now has 14 additional acres of land that is being irrigated and captured with the water. The wildlife benefits have been obvious to the migratory, upland birds and fish that he has in his 1<sup>st</sup> capture pond.

**Pre and post-project photos**



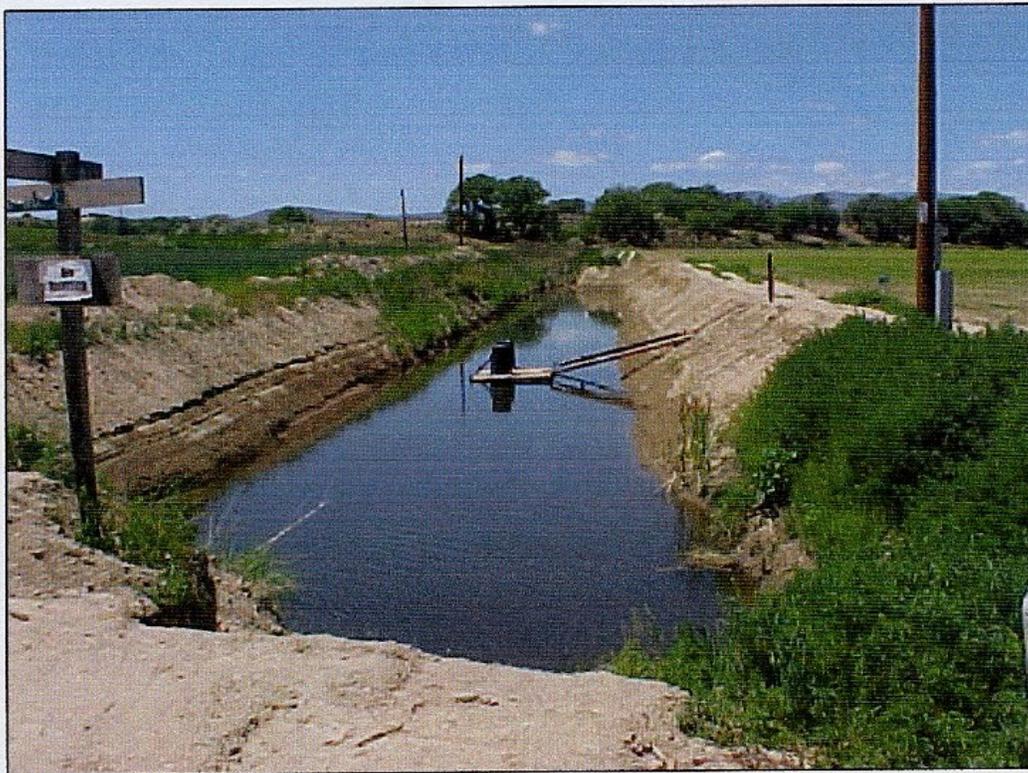
Existing dirt ditch 4/28/03



New cement ditch 6/2/04



Proposed pond site 4/28/03



Pond & Pump Site 6/2/04