2018 Project Completion Report
O'Dell Creek Phase 15 Stream and Wetland Restoration Project
Longhorn Ranch near Ennis, Montana

Project Partners
NorthWestern Energy, Inc.
U.S. Fish and Wildlife Service
Longhorn Ranch, LP
River Design Group, Inc.

Summary

Located approximately four miles south of the city of Ennis in Madison County, Montana (NW1/4 S28, T6S,R1W), East Branch O'Dell Creek is a perennial spring creek which flows south to north and into the mainstem O'Dell Spring Creek. Over the past 11 years, 12 phases of restoration have been designed and implemented in the O'Dell Creek headwaters, resulting in approximately 12 miles of spring creek restoration, and 888 acres of restored emergent, open water and scrub-shrub wetlands.

In 2015, NorthWestern Energy and River Design Group, Inc. (RDG) developed a five-year plan outlining the remaining restoration work to be completed in the O'Dell Creek headwaters, which extends from Varney Road north to Fever Point. The five-year plan anticipated five to six additional phases of restoration work to be completed over multiple years utilizing a phased approach to design and implementation. The five-year plan included two to three additional phases beginning at the end of the Phase 8 project implemented in 2012, and continuing downstream approximately 1.9 miles to Fever Point on the Longhorn Ranch. Phases 14A and 14B were completed in 2016 and 2017. Phase 15 (this completion report) was completed in 2018 and included approximately 4,600 feet of the East Branch O'Dell Creek (Figure 1).

Similar to other phases of work, this reach of O'Dell Creek had been heavily impacted by channel ditching, livestock grazing, vegetation removal, and loss of historic woody riparian shrub and emergent wetland vegetation communities. The primary goals for Phase 15 were to isolate onstream ponds to address temperature impairment, create floodplain conditions that support emergent and open water wetland habitats for the benefit of riparian dependent wildlife species, and reconstruct the stream channel to improve aquatic habitat complexity through the addition of riffle, run, pool and glide habitat features. Restoration treatments included lowering channel width-to-depth ratios through stream reconstruction, lowering high banks to floodplain elevation, and re-establishing complex aquatic habitat features including riffles, runs, pools and glides. Existing wetlands and ponds were regraded to create shallow to deep emergent and open water wetlands with nesting islands and varied shorelines.

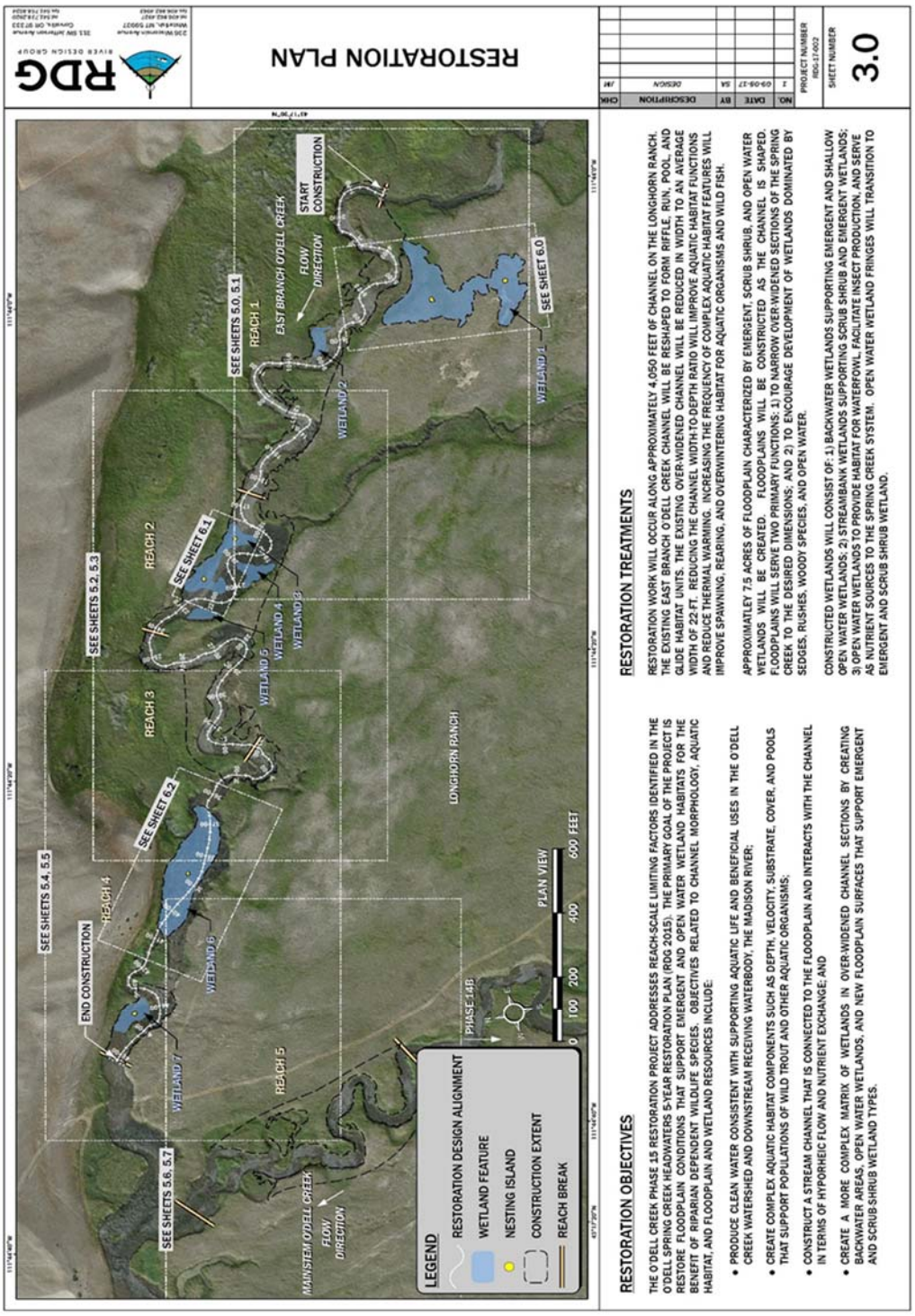

Figure 1. Phase 15 stream and wetland restoration project restoration overview.


Figure 2. Construction photos from Phase 15.

2018 Project Work

Project work was completed on June 30, 2018 and included a seven-week construction period. Restoration strategies included expanding the existing belt width by lowering high banks, re-shaping the channel at the current base elevation and within the existing pattern, creating off-channel connected and disconnected wetlands, increasing the cover of wet meadow habitat types, and improving aquatic habitat conditions for the target fish species. The techniques were similar to those employed in previous phases of restoration on O'Dell Creek. Existing over-widened channel segments were narrowed and high banks were lowered to: 1) encourage emergent wetland and wet meadow development; and 2) re-establish hydrologic connectivity between the channel and floodplain. Constructed floodplain surfaces have varied elevations to encourage natural establishment of diverse plant communities. A variety of wetlands were constructed including: 1) off-channel open water and shallow emergent wetlands, and 2) streambank wetlands including palustrine emergent and scrub shrub wetlands. As noted above, approximately 4,600 feet of channel were restored, with an estimated 40 acres of restored wetlands. Total project cost was $232,935. NorthWestern Energy provided $210,435 in funding. The U.S. Fish and Wildlife Service provided $15,000 in cash match. The Longhorn Ranch contributed $7,500 to construction. A cost break-down is included in Table 1.

Table 1. Cost summary of the O'Dell Phase 15 stream and wetland restoration project.

Item / Task	Total Budget	Budget Allocation		
		NorthWestern	USFWS	Longhorn Ranch
Task 1 - Project Management	$ 2,000.00	$ 2,000.00	$ -	$ -
Task 2 - Engineering/Permitting	$ 32,375.00	$ 32,375.00	$ -	$ -
Task 3 - Construction	$ 193,500.00	$ 171,000.00	$ 15,000.00	$ 7,500.00
Task 4 - Direct Costs	$ 5,060.00	$ 5,060.00	$ -	$ -
Total	**$ 232,935.00**	**$ 210,435.00**	**$ 15,000.00**	**$ 7,500.00**
Percent of Total Budget		**90.3%**	**6.4%**	**3.2%**

Figure 3. Post-restoration conditions from bluff. The large onstream pond was isolated and the channel reconstructed around the wetland complex.

Figure 4. Enhanced wetland complex with nesting islands.

Figure 5. Restored East Branch O'Dell Creek approaching Fever Point (Station 44+00).

Figure 6. Isolated and enhanced wetland complex and spring creek (foreground of photo).

Figure 7. Post restoration condition from overlook looking south and east.

Figure 8. Post restoration conditions from overlook looking south and west. The project terminates in the middle of the photo. Phase 16 is shown in right hand side of photo.

--END OF COMPLETION REPORT--