

SUMMARY OF WORK PERFORMED

GRANT RECIPIENT:

Big Stick Ditch Company, Inc.

FUNDING SOURCE:

Basin Water Supply Reserve Account

GRANT CONTRACT NUMBER:

POGGI 2018-415

WATER ACTIVITY NAME:

Lightner Creek Canal Improvement and Water Efficiency Project

SUMMARY:

The Big Stick Ditch Company Inc. completed the Lightner Creek Canal Improvement Project. The original scope of work included cleaning and re-grading approximately two miles of ditch. The final work product included rebuilding over three miles of ditch and reconstructing an access road along the ditch route.

Work began at the Sawmill Canyon headgate where water flows into the ditch. Grade was set at 0.2% and within the first 1/4 mile we found that the ditch was not set to an accurate grade during the original construction, as we were soon digging up to two feet deep in virgin sandstone. While excavating, we uncovered a broken piece of drill steel in the bedrock, where the drill end was close to our plan grade. Throughout the length of the ditch, an average of two feet of overburden (materials that slid or fell into the ditch) and one to three feet of virgin ground was removed. There were very few spots that we encountered that were set to an appropriate grade. Vegetation and large rocks were also removed from the ditch and banks to help prevent future blockages.

Aside from the lack of ditch grade, we found that the overall condition of the ditch was in good condition for its lack of previous maintenance, which led us to believe that the ditch would function properly if set to grade. We continued setting grade stakes approximately 300-feet apart with the slope set at .18%. The trackhoe maintained grade with a laser level between survey stakes. Halfway through the project, we observed a rainstorm and found the runoff flowing adequately through the newly rebuilt ditch, confirming our belief that it would work.

The project continued to experience the repetitive nature of having a length of ditch that was close to grade, followed by a two to three foot cut into virgin ground. At mile 2.4 from the Sawmill Canyon headgate is the divide where the natural drainage ceases to flow east towards the Animas River and slopes towards the La Plata River. The original measuring flume is located at that intersection. The flume was not to grade; therefore, the State removed the telemetry equipment and the box and flume was lowered approximately 0.7 feet. We anticipated that the La Plata River side of the divide had originally been designed at a steeper grade as there was no "saddle" to get over, just a gradual downward slope to the river.

Unfortunately, we experienced the same flat grade with ups and downs, just like the previous sections of the ditch. As before, this work continued for the next 0.9 miles.

At approximately 0.2 miles past the flume at the divide, there was a section of ditch where the hillside had slid in years past, completely wiping out the ditch. A 30-inch pipe approximately 20-feet long was placed in this spot 20 years earlier with the intention of conveying the water from the ditch through the pipe. The pipe was set close to grade but the ditch just beyond it was 2-feet higher not allowing water to flow through the pipe. It was determined that the lack of flow was causing water to stand in that spot, making the hill soft and susceptible to slide. The pipe was removed, a new ditch was constructed to grade, an access road built alongside the ditch, and the entire hillside was restored by the contractor. This work was not within the original scope of work and funded under the grant; the contractor provided the ditch company an additional bill to cover expenses.

At 3.1 miles from the headgate, the ditch grade was set at a more reasonable elevation as it descends towards the La Plata River. The remaining work entailed cleaning and rebuilding the ditch and access road. Finally, the last 0.2 miles required the least maintenance along the ditch which had not seen any upkeep previously.

The original proposal included the installation of five culverts with screw headgates to drain the ditch in the winter months and prevent puddles that could potentially lead to settlement. The final work product included installation of two culverts and rebuilding one existing drainage structure. We believe that setting the ditch to a proper grade will allow water to flow through without experiencing ponding problems; therefore, installing gates to assist in drainage was no longer necessary. The access road along the ditch was unusable for the last 8-10 years due to negligence and damage by previous ditch repair attempts. After construction, a full-size ATV can access the entire ditch run, which will help for future maintenance and is greatly appreciated by landowners, hunters, and presumably cattle and wildlife. Photos of work performed are attached.

The Big Stick Ditch Company, Inc. extends their deepest gratitude to the contractor Tony Meador, who took it upon himself to “make this ditch work whatever it takes.” The work completed created a canal that will provide water to downstream irrigators and last well into the future. We (Tony especially) did more than twice of the original work outlined in the proposal with little increase in costs.

Lastly, the Big Stick Ditch Company would like to thank the Southwestern Water Conservation District and the Colorado Water Conservation Board for funding this project. Our ditch company is a small, irrigator-owned company with limited annual dues. Having the additional funds allowed this project to be successful now and well into the future.

APPROVED BUDGET

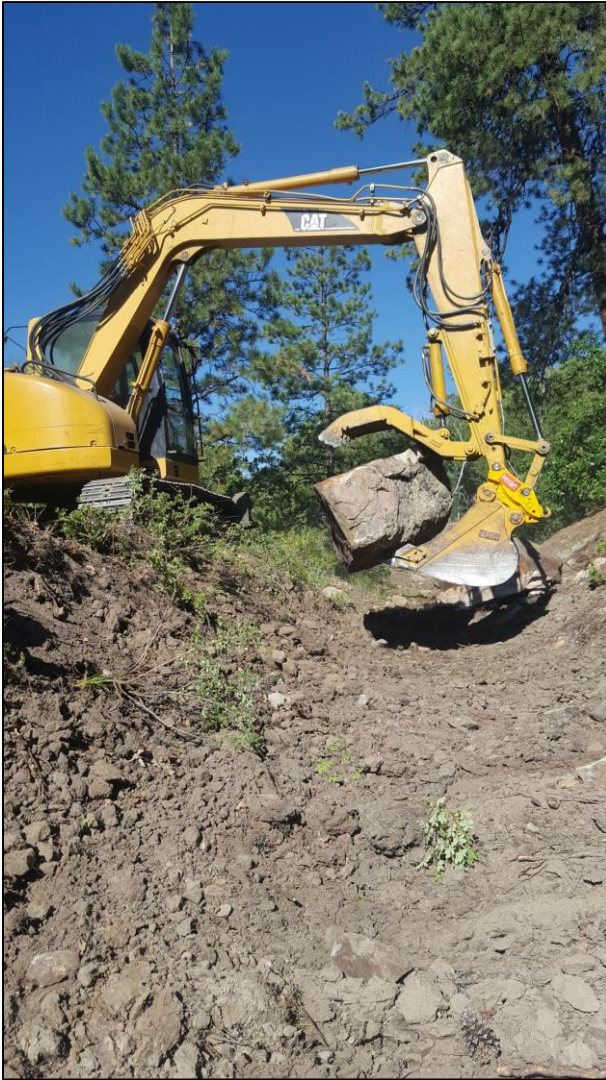
Item	Description	WSRF Funding	SWCD Funding	Matching Funds	Total Costs
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Task 1	Cleaning, repairing, and lining sections of the Lightner Creek Canal	\$ 30,000	\$ 17,000	\$ 21,900	\$ 68,900
Task 2	Installing pipe and gates	\$ -	\$ 10,000		\$ 10,000
Task 3	Surveying and grade staking	\$ -	\$ 3,000	\$ 2,200	\$ 5,200
Task 4	Project Management	\$ -	\$ -	\$ 6,000	\$ 6,000
Total Costs		\$ 30,000	\$ 30,000	\$ 30,100	\$ 90,100
Note:					
Matching funds includes \$11,900 from Big Stick Ditch Company and in-kind contributions of \$10,000 from contractor Tony Meador, \$2,200 from surveyor Jeff Helmer, and \$6,000 from Big Stick Ditch Company Board members for project management and oversight.					

FINAL DETAILED BUDGET

Item	Description	WSRF Funding	SWCD Funding	Matching Funds	Total Costs
Task 1	Ditch sealing materials: bentonite, lime, and trucking		\$ 3,328		\$ 3,328
	Labor for sealing material placement	\$ 5,000			\$ 5,000
	Equipment: trackhoe, dozer, ATV, and trucks	\$ 25,000	\$ 15,732	\$ 22,408	\$ 63,140
	Stabilize hillside and rebuild ditch			\$ 1,920	\$ 1,920
Task 2	Corrugated metal pipe and screw gates		\$ 4,940		\$ 4,940
	Labor for install of pipes and gates		\$ 3,000		\$ 3,000
Task 3	Surveying and grade staking		\$ 3,000	\$ 2,100	\$ 5,100
Task 4	Project Management			\$ 6,000	\$ 6,000
Total Costs		\$ 30,000	\$ 30,000	\$ 32,428	\$ 92,428
Note:					
Matching funds includes \$14,228 from Big Stick Ditch Company and \$18,200 of in-kind contributions from contractor Tony Meador, surveyor Jeff Helmer, and Big Stick Ditch Company Board members.					

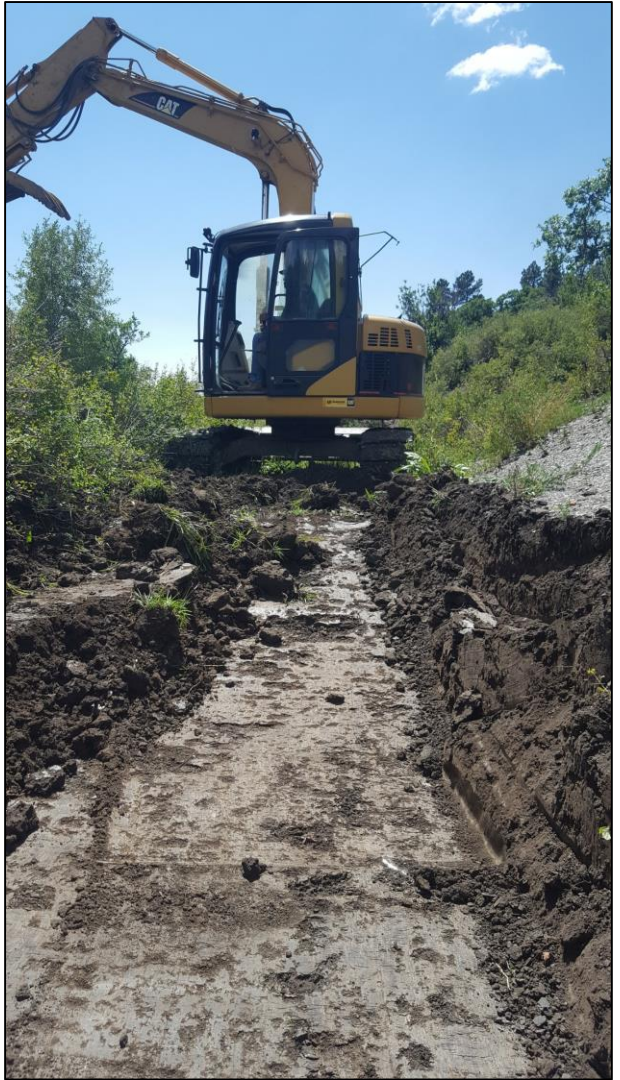
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