FINAL REPORT
Redlands Water and Power Company
"Pumpline Replacement Project"

April 8, 2021

CWCB Loan Contract No. CT 2021-511
CWCB WSRF Contract No. POGG1 2020-2970

This report summarizes the purpose of the project, funding, and how the project was accomplished successfully. Other items covered in this report are:

- Obstacles encountered, and how those obstacles were overcome.
- Fulfilling all matching commitments for the grant funding.
- Photographs, engineering reports/designs, Close-Out documents.
- Engineer's Review of Final Payment Application and Acceptance, and As-Built drawings.

Background:

The Redlands Water and Power Company (RW&PC) provides irrigation water to much of the Redlands Area in the Grand Valley of Colorado. The Redlands is predominantly located on bench lands high above the Colorado and Gunnison Rivers, requiring most of the irrigation water to be pumped. RW&PC diverts water from the Gunnison River into the Redlands Power Canal which conveys between 750 and 850 cfs to their hydroelectric facility and adjacent pumping plant (Pump Station #1). Approximately 60 cfs is pumped onto the upper bench lands through a 48" concrete-lined steel pipe known as the "Pumpline"; the remainder of the water is run through the hydroelectric facility to power Pump Station #1 pumps and wholesale electricity to Xcel Energy.

Originally installed in 1944, the condition of the Pumpline has deteriorated, leading to leaks, and requiring frequent repair. In 2007, approximately 550 feet of the upper end of the Pumpline were replaced. Replacement of the remaining ~1000 feet of Pumpline was deferred and now needs replacement as well. If the Pumpline were to fail, the majority of the RW&PC's service area would not receive irrigation water.

Location:

PIPELINE OVERSHOT 48" STEEL PIPE and Walkway from Pump Station #1 Prior to Construction

Funding:

RW&PC was approved for $125,000 in WSRF funds in May 2020 ($50,000.00 from Basin Account; $75,000.00 from Statewide Account) to help with construction. Matching funds of $735,000.00 for engineering, construction, construction management, and materials provided by RW&PC. Actual costs are provided at the end of this report.

Note: For the November 2019 WSRF Grant Application the total project budget used was $450,279.00, and that was based on using a majority of RW&PC workforce and equipment at 50% design. The final project budget of $860,000.00 was based after two contractors provided construction budgets at 90% design plans in March 2020.

RW&PC also secured a loan to be used for the Pumpline Replacement Project (Project) at a total estimated Project cost of $860,000.00. This loan is made pursuant to the provisions of §§39-29-

109(1)(a)(l), 37-60-119 and 37-60-120, C.R.S., which authorize the CWCB to loan money for water projects from the CWCB Severance Tax
Perpetual Base Fund for the benefit of the people of the state, provided that the Borrower assures repayment of that money.

- CWCB approved a Project Loan from the Severance Tax Perpetual Base Fund, to the Borrower, in an amount up to $635,000.00 for Project Costs.
- CWCB Origination Fee of 1% in the amount of $6,350.00, in accordance with CWCB Policy No. 16, added to the Base Loan Amount.
- Total Loan Amount of $641,350.00, at an interest rate of 1.65% per annum for a repayment term of 20 years.

Redesigning to Lower Cost:

After reviewing two local contractors' budgets at 90% plans RW&PC and J-U-B worked towards reducing costs of the project by making changes and still provide a long-term quality product. RW&PC new Superintendent/Manager Kyle Vanderberg, had over 30 years prior construction experience before joining the company in September 2019, and with Nicholas (Nick) Emmendorfer, P.E. project engineer with J-U-B Engineers, Inc. this was accomplished by some of the following:

- Removing a 48" steel "wye" that was originally in place to allow pumping from a future pumpstation if it were moved.
- Using existing RW&PC owned steel pipe to fabricate bends rather than purchasing new steel.
- Leaving some of the existing concrete lined steel pipe in place and moving the new pipe where alignment allowed.
- Keeping the existing overshot pipe piers and just modifying new cradles. The existing concrete piers had good integrity and no movement.
- Purchasing all the 48" HDPE pipe and 4" HDPE pipe when cost was low and decreased bonding expenses for contractor and ultimately RW&PC.
- Providing 48" x ½" steel pipe and the Polyurea 50/mil pipe coating done locally in Grand Junction by WBS Coatings.
- Making the new overshot pipe walkway an alternate bid item that RW&PC could fabricate at a later date in-house.
- Getting soils information from excavation site and being able to utilize those materials screened on-site to use for pipe backfill.

RW&PC was able to purchase the HDPE pipe for less than $1/lb in June 2020 and had four competitive quotes.

Contractor took possession of the HDPE and steel pipe when it was delivered to jobsite or stored at their yard 1 mile away until ready to install.

All 48" x ½ " steel pipe was blasted to specifications and coated with a Sherwin Williams "Poly-Cote 110" Polyurethane, average of 52.42 mils. Lowest reading was 50.67 mils and a high reading of 63.6 mils. All inspected by third party inspector, Apex Inspections & Consulting, LLC.

The coating contractor was able to store the coated pipe in their yard until needed and deliver a few miles away to the site, or the fabrication site as requested by the contractor. This helped with logistics and schedule.

Bid/Solicitation:

J-U-B Engineers, Inc. provided the bidding documents that required a Cost Proposal, Qualification Document which included past performance, personnel, and technical approach. This the team felt would allow RW&PC to better define best value. The technical approach criteria included:

- Contain detailed explanations of proposed approaches to performing and accomplishing the work.
- Contain a specific statement of any problems or major difficulties anticipated in performing or accomplishing the work, an evaluation of the various methods considered for resolution of the problems/difficulties, substantiation of the method(s) selected, principals or techniques which are proposed to solve the problem, and the degree of success expected.
- Specific statements of any interpretations, deviations, and exceptions to the work statement, specifications, or other solicitation requirements contractor deemed necessary.
- Include a proposed project plan which divides the work into severable tasks or phases which indicates for each task or phase the work to be accomplished.
- Include a discussion of the method(s) and resources to be used in timely preparation and transmittal of reports and submittals required by the solicitation.
- Include an estimate of the extent of anticipated subcontracting together with a list of items or work to be subcontracted.
- Schedule: In the technical approach, provide start/completion dates, milestone dates, and labor hours. The basis for the hour estimates shall also be included.
- Discussion of canal crossing construction in relation to withholding of water from the Redlands Power Canal may be included. **LD's were part of this portion of work from lost power revenue.*
- Key Personnel to perform the work in accordance with the specifications.

Redlands Water and Power Company advertised this project for bid and received Four (4) Bids from contractors on July 2nd, 2020. Bidders were required to provide Bid Bond/Surety, Insurance coverage and Surety Letter of performance bonding ability. The Bid Packages were reviewed and scored by technical proposals, past performance, and experience first prior to opening the cost bid proposals by RW&PC Board Committee, Kyle Vanderberg, Superintendent/Manager and Nick Emmendorfer, P.E. project engineer.

One bid was determined incomplete and removed from the eligible bidders. Bid costs and technical proposals varied with the three good bids, and the two low bids were 30% difference. But after personal interviews with the low bidder, a written understanding of the complexities and concerns were addressed and a contract with CW Construction, Inc. was executed on July 28th, 2020 for $471,455.00 which included bid alternates for the Overshot Walkway and Imported Backfill by unit pricing.

RW&PC had some reservations with this general contractor, knowing that they typically were sub-contractor on most their projects and from conversations with their prior general contractors, that they would fall short on some administration and paperwork but would work to get the project done. For this reason, it required more hands-on from RW&PC's inspector and project manager, more engineers time, and oversight from RW&PC's Manager/Superintendent. But with the possible savings $250k or so, RW&PC felt this could be achieved successfully, and it was!

Construction:

RW&PC provided their own on-site field inspector/project manager to reduce the engineering time on-site and document daily activities, take photos, handle contractor requests for information, validate change orders, and inspect all work as it progressed. This was an asset to RW&PC, the contractor, and engineers, and was instrumental for keeping a schedule and RW&PC's liabilities to a minimum. This fell into the

hands of Sprague Mayger, who had 40 years prior construction experience, was easy to work with and also assisted the contractor daily with planning and RW&PC's manager on many items for the management of the project.

RW&PC provided construction survey staking by end of September and construction started on site October 5th, 2020 with mobilization of equipment for removal of the old pipe sections and overshot pipe. The contractor concentrated on the completion of the steel pipe work (overshot) and walkway since time was limited due to water in the canal for hydropower generation, and no delays required for that scope of work. Fabrication of some steel pipe sections and manways were fabricated off-site using the steel pipe RW&PC already had and coated.

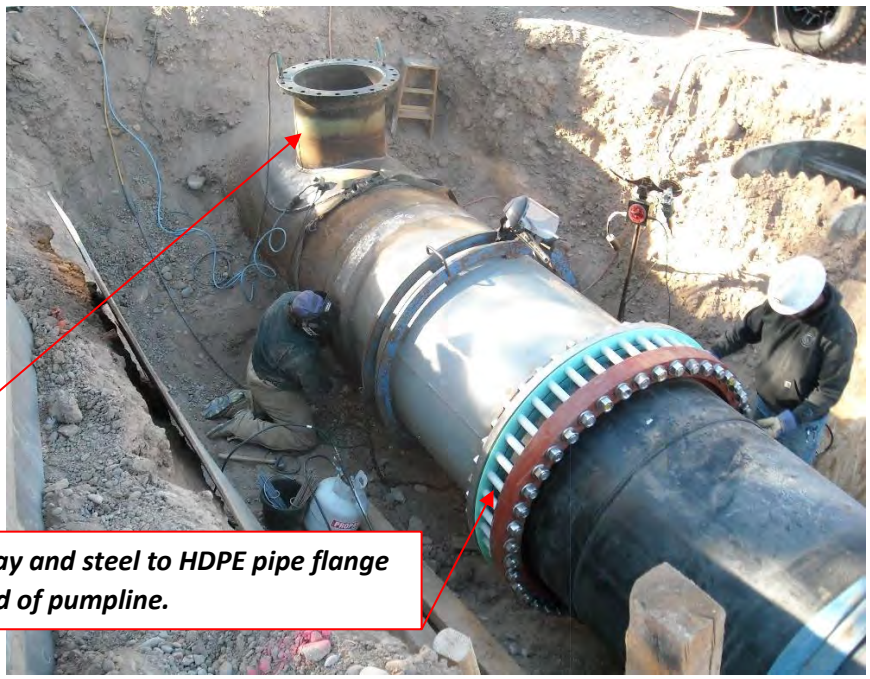
A temporary domestic water service line was required for the RW&PC houses and adjacent home during this phase, and later to be finalized with an updated valves and insulated water line secured to the overshot pipe.

Removal and replacement of the 48" steel pipe overshot and upper section of buried pipe. Concrete plugs were installed to abandon buried pipe with drainpipe at lower end. New pre-cast concrete pier saddles and baring pads were installed under new overshot pipe.

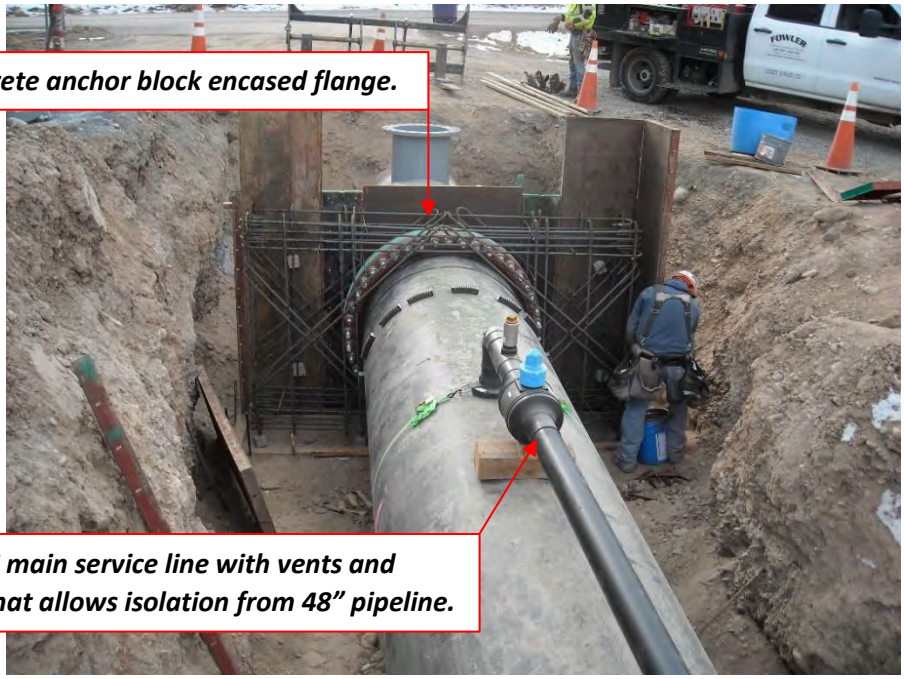
Installation of the 48" IPS DR32.5 HDPE Pipe was fused by a certified fusion technician and inspected during the process, fusion logs were provided and reviewed by J-U-B Engineers after fusion was completed and prior to backfill. One 50-foot section of 48" HDPE pipe did experience some "scares and grooving" during the installation and that section did have to be replaced by the contractor at their expense. Fortunately, RW&PC had enough 48" HDPE pipe for that to happen. Installation of two 48" steel pipe flanges to HDPE flanges were required at the overshot and upper end to the existing (2007 circa) steel pipe. It was decided to move both anchor blocks to encapsulate the flange connections, added reinforcement and concrete were by change order.

Welding of 48” HDPE pipe and 8” steel pipe for the drainpipe at the lower end of the overshot. All welding was inspected by engineers or third-party inspectors required by contract, in addition to RW&PC inspections on site.

All welding for this project went well and done by experienced certified welders. This was no place to take any risks or be short on time required for a good quality weld!



New manway and steel to HDPE pipe flange at upper end of pumpline.



The old pipeline had irrigation services plumbed directly to the 48" concrete steel pipe. With the new 4" service main all irrigation service taps are now isolated with the ability to better control repairs or issues. All new services also have air vents, valves, and boxes to allow for flow meter testing of flows to each shareholder's service.

A new flow meter vault was installed the proper distance above the steel overshot pipe and HDPE flange. This vault was supposed to be a concrete pre-cast vault but ended up being a cast-in-place concrete vault with aluminum hatch door cast into the lid. The flow meter was designed to be run by solar panel and mounted inside the vault. A change was made to run the flow transducer cables through conduit to the pump station for easier reading.

Flow Meter Vault

Pressure testing of both the 48" pipes and the 4" main service line were done successfully. Temporary pressure plugs were installed for the 48" system testing with manway lids secured prior to backfill and testing of the 4" main service HDPE pipe system separately.

Some shareholder irrigation services were unknown as to their exact type, location, sizes, and condition which lead to some investigations beyond the taps that were connected to the old concrete lined pipe. Some modifications were required and change orders for those items. The responsibility of maintenance and control for RW&PC stops at the new valves, beyond the valve it is the shareholders responsibility, just like our canal and ditch headgates. The shareholders on this portion of RW&PC system have been good to work with and happy for the changes.

In total nine (9) service taps/valves were installed with boxes and air vents.

This project did come with some unknowns and some changes as it was being constructed. However, RW&PC, the contractor, and J-U-B Engineers were able to make those changes, negotiate change orders, and stay on track within the budget. Change orders accounted for slightly over 3% of the contracted construction work. Some help with areas at the pumps and flow meter were done with RW&PC employees and their labor. RW&PC also provided some additional materials in these scopes of work not included in original plans.

On February 2nd, 2021 RW&PC met with the contractor, CW Construction, Inc., and J-U-B Engineers to walk the project and establish the few punch-list items for the contractor to finish and determine the project was substantially completed. A Certificate of Substantial Completion was executed, A Letter of Completion was provided by the CW Construction, and other close-out documents were submitted to RW&PC and the project engineer.

Close-Out Documents:

- Contractor's Affidavit and Lien Waiver for Final Payment
- Lien Waivers from all subcontractors and material suppliers
- Product Warranty Letter by Contractor
- Bond Status Report from Contractor's Surety
- O & M Manual with Materials/Product data sheets
- Binder from J-U-B Engineers, Inc. of all project material or information submittals
- Consent of Surety for Final Payment
- Engineer's Review of Final Payment Application and Acceptance
- "AS-BUILT" Plan Set with Redlines and Notes, by Contractor, RW&PC Inspector, and J-U-B CAD RECORD SET, Signed by Contractor and RW&PC

Project Budget and Costs Summary:

- Final General Contractor Total with Change Orders……$479,885
- Engineering and Administration Costs…… $76,532 (to be finalized)
- Materials & Services Purchased Direct by RW&PC Costs……. $120,000 (to be finalized)

TOTAL: **$676,417**

- **Project Budget for Complete Build**…….. **$860,000**

Redlands Water and Power Company (RW&PC) would like to thank the Gunnison River Basin Roundtable for their part in obtaining the WSRF Grant Funding, and the Colorado Water Conservation Board and those who helped RW&PC secure their loan, and particularly Cole Bedford, P.E. our project manager for this project who helped make this process move successful and easy.

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