WaterSMART Grants: Water and Energy Efficiency Grant
FOA # BOR-DO-19-F004

FY 2019

Applicant

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Executive Summary

The executive summary should include:

- ***The date, applicant name, city, county, and state***
- ***A one paragraph project summary that specifies the work proposed, including how project funds will be used to accomplish specific project activities and briefly identifies how the proposed project contributes to accomplishing the goals of this FOA***
- ***State the length of time and estimated completion date for the proposed project***
- ***Whether or ,:zot the project is located on a Federal facility***

Date: March 12, 2019

Applicant: Muddy Creek Irrigation Company
City, County, State: Emery, Emery County, Utah

Project Manager:
Merrial, P.E. Project Manager
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Project Funding Request: Funding group I – Up to $300,000 per agreement

Project Summary:

The Muddy Creek Irrigation Company (MCIC) provides water to approximately 7,800 acres of agricultural land. This project will serve 2566 acres and will replace 1.92 miles of open unlined canal and 2.82 miles of deteriorating non-pressurized pipe with a pressurized HDPE pipeline. A metering station will be constructed at the point of diversion from Muddy Creek main pipeline. Turnout meters for each water user are existing. The proposed project involves the design, construction, and implementation of a pressurized main line pipe which will support on-farm irrigation systems. The project will:

- Conserve 893 acre-feet of water annually
- Ensure a more reliable water supply system for water users
- Reduce the severity of future droughts
- Improve local water sustainability
- Increase economic resilience in surrounding communities

Approximate Project Length: 9 Months

Completion Date: December 31st, 2019

Federal Facility: The project is not located on a Federal facility

Background Data

Project Location

Provide specific information on the proposed project location or project area including a map showing the geographic location.

The proposed project lies in Emery County in southcentral Utah, approximately 3 miles to the north of Emery town. Service areas of the Moore Group Independent canal are primarily agricultural lands. The project location is shown in an overview of the proposed pipeline in **Figure 1** and listed in **Appendix E**. The Moore Group Independent Canal consists of an automated diversion structure that diverts the Moore Group water from a 63-inch pipeline installed by the Muddy Creek Irrigation Company. The water is diverted into a 1.92 mile open unlined canal followed by a 2.82 mile un-pressurized pipe. The proposed pipeline transects the landscape in the same vicinity as this existing conveyance system but along a more direct and stable path.

Applicant's Water Supply

As applicable, describe the source of water supply, the water rights involved, current water uses (e.g., agricultural, municipal, domestic, or industrial), the number of water users served, and the current and projected water demand. Also, identify potential shortfalls in water supply. If water is primarily used for irrigation, describe major crops and total acres served.

Source of water Supply

The MCIC has been in operation since 1886, and was incorporated in 1964. The applicant provides water to users in and around the towns of Emery, Utah; and Moore, Utah. Muddy Creek is the only water source and is fed by three small upstream reservoirs in the Manti-La Sal National Forest. These reservoirs include Julius Flat Reservoir, Spinner's Reservoir, and Emery Reservoir. The applicants' water rights correspond to water storage retained within these small reservoirs. Water is diverted from Muddy Creek near the mouth of Muddy Creek and conveyed 4.74 miles in a 63-inch HDPE pipeline before reaching downstream users.

The base water right for MCIC from muddy creek is 281 cubic feet per second (CFS). This base water right consists of four individual water rights dating back as far as 1881 (Table 1). Due to funding of previous projects, the Utah Board of Water Resources currently holds these rights as security. The rights are to be retained by the board until the project has been purchased fully by the applicant. The water delivery schedule for major owners of the Muddy Creek distribution system is shown below in Table 2.

Table 1: Water Rights Summary for Muddy Creek Irrigation Company

Muddy Creek Irrigation Company Water Rights			
Water Source	**Flow Rate (cfs)**	**Water Right #**	**Priority Date**
Muddy Creek	31.0	94-12	3/18/1914
	7.0	94-96	7/13/1966
	94.0	94-793	~1881
	148.5	94-1135	~1882
Total (cfs)	**281**		

The applicant serves approximately 107 shareholders owning 5,640 shares and irrigating 7,800 acres. Each share equals about 5 acre-feet. The shareholders are divided into the Emery Series

(west distribution area) and the Moore Group Independent Canal (east distribution area) with 93 and 14 shareholders, respectively. This project will directly benefit the Moore Group Independent Canal. It is anticipated that water demand for shareholders in the Moore Group will remain relatively constant following the completion of this project. However, the portion of water delivered for each shareholder allotment is expected to increase to meet currently unsatisfied demands.

Table 2: Muddy Creek Irrigation Company Water Delivery Schedule

MCIC Water Delivery Schedule			
Major Owner	Shares	% of Flow	Time hrs/week
Perry	211.1	12.9	21.5
Ginette	212.1	12.9	21.7
Greg	16	1.0	1.6
Dennis	8.2	0.5	1
Sub Total		27.2	45.8
CVR	1195.2	72.8	122.2
Total	1642.6	100.00%	168

Potential Water Supply Shortfalls

Water supply shortfalls are a recurring issue for the independent canal despite efforts to improve both water use efficiency and water quality. In 1999, the Colorado River Salinity Project allowed for users in the Moore group to transition from flood irrigation to sprinkler irrigation with on-farm pivots and wheel lines. Due to the presence of the underlying Mancos shale layer, switching from flood irrigation to pivots and wheel lines greatly reduced the problems associated with salt accumulation.

To further address this issue, an automated diversion and desiltation structure was constructed on the Muddy Creek in 2009. Despite reducing sediment loads and improving water quality, water leaving the de-siltation structure is then diverted into an unlined stretch of canal where salts and sediments are again picked up. This is because the unlined canal cuts through the underlying salt laden layer of Mancos shale. Salt and sediment accumulation is made still worse by runoff from upland Mancos shale areas emptying into the canal. As a result, the salt and sediment picked up from the canal is transported downstream, reducing pipeline capacity (30 to 26 CFS), plugging up sprinklers, and damaging croplands.

In addition to reduced pipeline capacity, water is lost significantly through infiltration and evaporation from the unlined canal as well as leakage from breaks in the unpressurized pipeline. By reducing water quantity and quality delivered to shareholders, shortfalls in supply are made more likely and destructive.

A secondary impact of the Mancos shale layer has been its foundational instability. Leaks in the unpressurized pipeline have caused the pipeline bed to destabilize leading to a dangerous cycle

of pipeline breakages and escalating soil instability. This cycle has led to several major breaks in recent years; requiring the replacement of over 300 feet of pipe and costing on average $14,050 per year. One of these major breaks is adjacent to Utah State Highway 10, thereby threatening erosion into the roadway. This issue will be addressed by locating the new pipeline about ¾ mile south toward the valley bottom in a safer area where the risk of bank cutting is eliminated.
In addition, these system breaks cause destructive interruptions in water delivery, especially during the irrigation season. Addressing such emergency situations can cause the system to be out of service for several days at a time. Irrigation inconsistencies such as these can jeopardize crop yields as well as the economic viability of the surrounding rural community. The existing infrastructure issues with Independent Canal are problematic to be sure. However, this highly arid region is also vulnerable to drought due to a singular dependence on mountain snowpack and resulting reservoir storage. During past droughts, the impact of water losses have been exacerbated leading to tension among water users.

If water is primarily used for irrigation, describe the major crops and total acres served.
Approximately 2566 acres are currently being served through irrigation by the MCIC to the Moore Group Independent Canal. Shareholders for the Moore Group Independent Canal irrigate approximately 2000 acres of Alfalfa and 566 acres of pasture entirely through sprinkler irrigation.

Water Delivery System

Describe the applicant's water delivery system as appropriate. For agricultural systems, please include the miles of canals, miles of laterals, and existing irrigation improvements.
The Moore Group Independent Canal travels through uninhabited areas of Emery County approximately 3 miles north of Emery town. The canal is comprised of 1.92 miles of open unlined canal and 2.82 miles of deteriorating unpressurized ABS pipe. All shareholders in the Moore group have transitioned from flood irrigation to sprinkler irrigation systems (pivots and wheel lines).

Energy Efficiency

If the application includes renewable energy or energy efficiency elements, describe existing energy sources and current energy uses.
The Independent Canal is currently unpressurized between the diversion from Muddy creek and the distribution structure. In order to operate the on-farm irrigation improvements (pivots and wheel lines), the system requires pressurization. This pressure is presently delivered by two main pumps and a booster pump for the mainline and several private pumps to pressurize the pivots and wheel lines. The new pressurized pipeline would gain the head pressure from the entire Emery main line above the diversion structure, thus increasing the pressure for the Independent Canal users. The increased pressure will reduce substantially the need for pumps in the Independent group. As a result, the proposed project can be expected to save 124,000 kwh annually. This equals a cost savings of approximately $11,219 per year.

Relationship with Reclamation

Identify any past working relationships with Reclamation. This should include the date(s), description of prior relationships with Reclamation, and a description of the project(s).

The muddy creek receives the majority of the water delivered to its users annually from small reservoirs in the Manti-La Sal national forest. These reservoirs are Julius flat, Spinners, and Emery. In 1999, the Moore group received Bureau of Reclamation funding through the Colorado River Salinity Improvement program. On-farm pressurized irrigation equipment was placed on the farms and the low-head, non-pressurized pipe was installed.

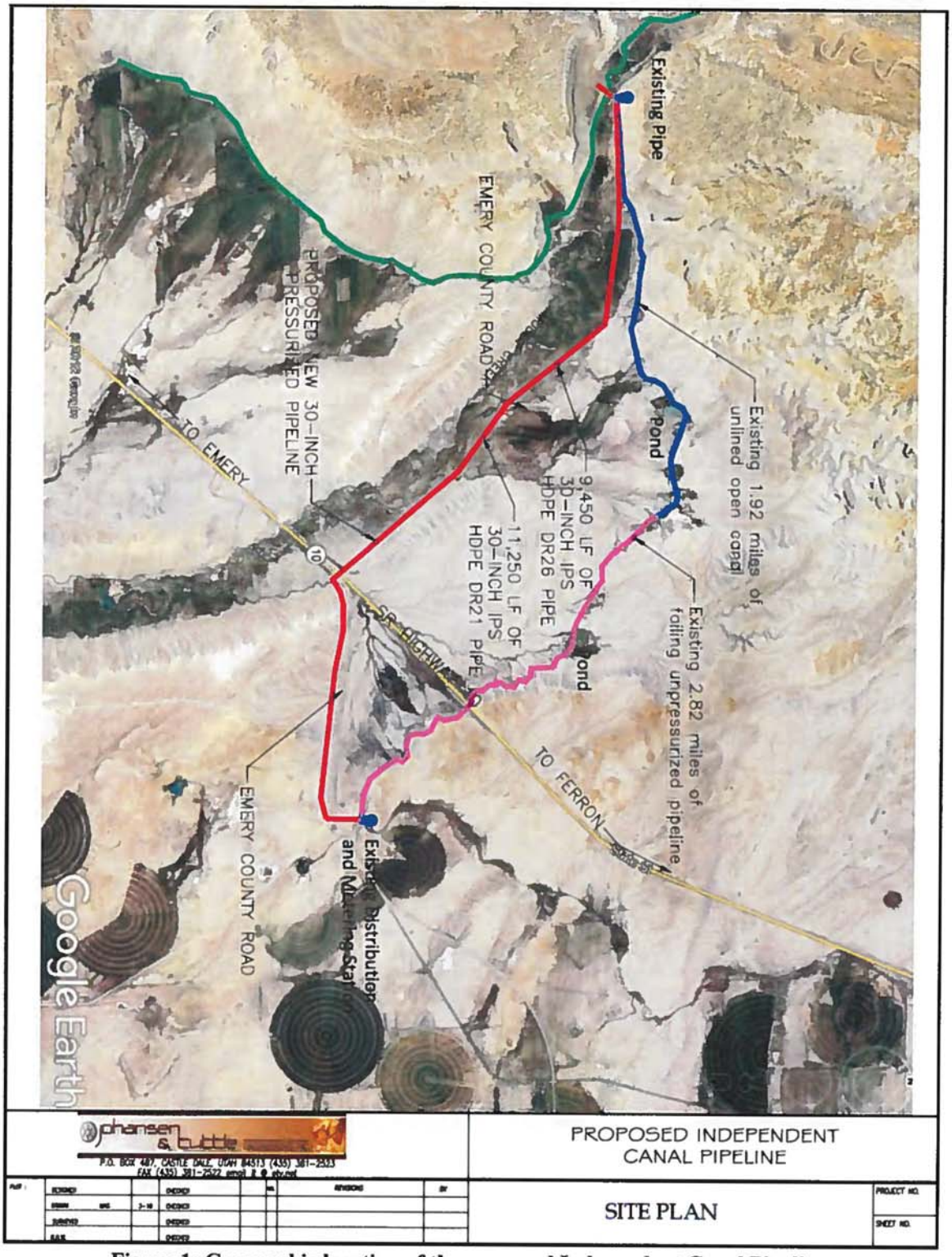


Figure 1: Geographic location of the proposed Independent Canal Pipeline

Project Description

The project description should describe the work in detail, including project milestones and specific activities that will be accomplished as a result of this project. This description shall have sufficient detail to permit a comprehensive evaluation of the proposal.

The total project involves replacing 1.92 miles of open canal and 2.82 miles of deteriorating ABS low pressure pipe with approximately 3.92 miles of 30" HDPE pipe along a shorter and more stable route. A new metering station will also be installed at the point of diversion from the Emery main pipeline. A portion of this new route will be constructed within the existing canal alignment. All other pipeline rights-of-way will be obtained from private land owners, all of which are shareholders in the irrigation company. The terminal end of the pipeline will tie into the existing distribution system which has metered user turnouts.

Evaluation Criteria

Evaluation Criterion A – Quantifiable Water Savings

Describe the estimated amount of water savings. For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project.

- ***Describe current losses, explain where the water that will be conserved is currently going (e.g. back to the stream, spilled at the end of the ditch, seeping into the ground)***
- ***Describe the support/documentation of estimated water savings. Provide sufficient detail supporting how the estimate was determined, including all supporting calculations.***
- ***How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.***
- ***What are the expected post project seepage/leakage losses and how were these estimates determined (e.g can data specific to the type of material being used in the project be provided?***
- ***What is the anticipated annual transit loss reduction in terms of acre-feet per mile for the overall project and for each section of canal included in the project?***
- ***How will actual canal loss seepage reductions be verified?***

Currently, water in the Independent canal is being lost in three ways. Seepage losses along the unlined canal section are entering the underlying soils through infiltration. Water is also lost along the unlined canal section by evaporation directly from the water surface. Lastly, leaking joints and periodic breakages in the un-pressurized pipe are losing water through infiltration into the surrounding soils.

As a direct result of this project, 893 acre-feet of water is expected to be conserved annually. Water losses for the existing unlined and unpressurized pipeline sections were estimated using the inflow-outflow method. Meters installed at the point of diversion from Muddy Creek and at the existing distribution structure were used for this estimation. Several metered service connections are also present along the pipeline and were thus accounted for in determining the unit water loss along the existing pipeline. As a result, water losses through the unlined canal and unpressurized pipe sections were found to be 13% of total inflow to the system under average flow conditions. These losses are comprised of seepage into the surrounding soil, leakage from the unpressurized pipe joints, and evaporation from the canal water surface.

The Independent canal primarily serves the irrigation needs of the Moore group shareholders during the irrigation season. However, several residences are also served year round. For this reason, water losses in the system are assumed to occur throughout the year. Upon completion of the proposed project it is assumed that all three components of water loss (seepage, leakage, and

evaporation) will be eliminated. The new pipeline will completely separate the flow from the underlying soils, thereby removing the cause of seepage. Evaporative losses will be removed by eliminating the effects of solar radiation. Leakage of the unpressurized pipe joints will also cease. Water saved through the elimination of these losses will go toward meeting currently unsatisfied portions of the shareholders water demand. Any saved water in exceedance of that demand will not enter the distribution system and be left as natural stream flow.

Following project completion, unit loss reductions will be verified through direct flow measurements at the point of diversion and at the distribution structure. This will allow for system losses to be monitored via the inflow-outflow method described previously.

To calculate the total annual transit loss reduction, average daily flow was first estimated. The average daily system flow was calculated using daily flow data for the years 2014 to 2017 (Figure 2). Daily system water loss (Acre-feet per Day) (Figure 2) was then estimated as the product of average daily flow and percent transit loss (13%). Finally, the total annual water saving was calculated as the sum of daily water loss throughout the year. Using this method the total annual water savings (assumed to be 100% of water loss) was found to be 893 acre-feet per year or 153 acre-feet per mile per year.

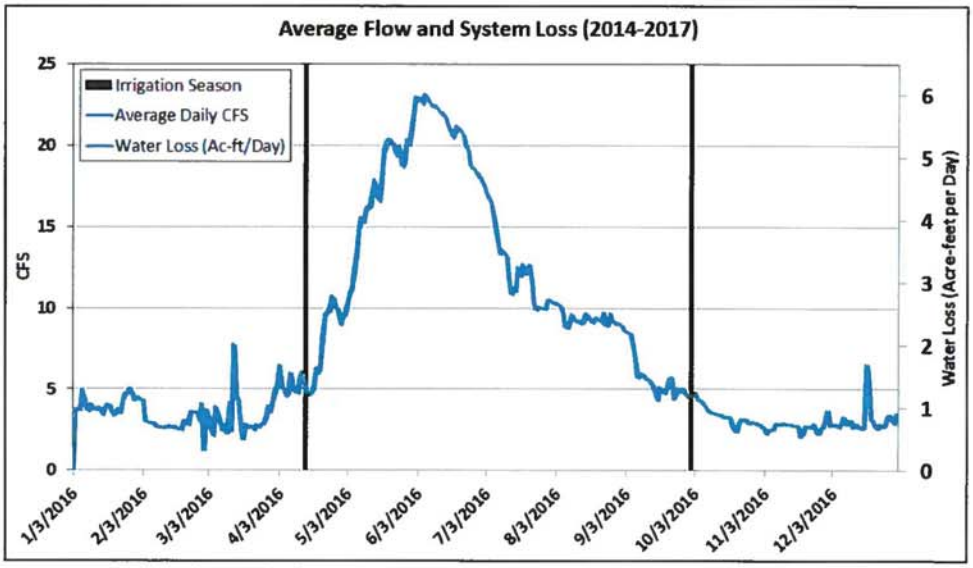


Figure 2: Average daily flow (CFS) and water loss (Ac-ft/day) for the Independent Canal 2014-2017

Include a detailed description of the materials being used.

High Density Polyethylene (HDPE) DR21 Pipe and fittings – This is a common pipe material frequently used in water conveyance. It will be produced in accordance with ANSI/AWWA C906 Polyethylene (PE) pressure pipe and fittings.

High Density Polyethylene (HDPE) DR26 Pipe and fittings – This is a common pipe material frequently used in water conveyance. It will be produced in accordance with ANSI/AWWA C906 Polyethylene (PE) pressure pipe and fittings.

Evaluation Criterion B – Water Supply Reliability

Address how the project will increase water supply reliability. Provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

- ***Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?***

Yes, this project is itself a collaborative effort between many parties. Shareholders especially have a long term collective investment in the success of this project for increasing the water supply reliability.

- ***Is there widespread support for the project?***

The need for this project is well understood by both shareholders and the community at large.

- ***What is the significance of the collaboration support?***

Several entities both state and federal have committed to financially support this project.

- ***Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?***

Due to more consistent water reliability and improved water quality, water users can more easily maintain their irrigated areas. This increased ability to maintain irrigated land in turn allows for additional water efficiency and crop yield improvements to be made such as drip irrigation.

Will the project make water available to address a specific water reliability concern? Please address:

- ***Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries.***

The communities of Moore and Emery exist in a highly arid environment which is susceptible to periodic droughts. These periods of uncertain water reliability highlight infrastructure related problems. One infrastructure issue is the buildup of salt and sediment in canals, ditches, and pipes which has reduced the capacity to deliver water to shareholders. Likewise, losses through seepage, evaporation, and leakage are negatively impacting water reliability.

- ***Describe where the conserved water will go/how it will be used. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g. population growth)? Will it be left in the river system?***

Water conserved as a result of this project will help to improve the reliability of shareholder allotments being received; especially during drought condition. Beyond this point, excess water will remain in the natural system. **Water conserved as a result of this project will not be used to expand the irrigated area for shareholders.**

- ***Describe how the project will address the water reliability concern?***

The water reliability issues detailed previously will be addressed primarily by separating water from the soil surface and ensuring water flowing in the pipeline does not leak. In addition, monitoring of individual water usage will allow for improvement of the water management system.

- ***Will the project help to prevent a water crisis or conflict? Is there frequently tension or litigation over water in the basin?***

Yes, the project will eliminate the frequent system interruptions for repairs and maintenance thereby improving water reliability. Supply quantity and quality will also be improved substantially through the reduction of water losses and the transportation of salts. There has been previous litigation to aid in the water distribution process for this system. The aforementioned

improvements to the system should lessen the severity if not eliminate altogether any potential conflicts over water in the basin.

- ***Provide a description of the mechanism that will be use, if necessary, to put the conserved water to the intended use.***

Water saved through the completion of this project will be put first toward satisfying the unmet portions of shareholder allotments. Any water savings beyond those demands will be left as natural streamflow.

- ***Describe the roles of any partners in the process. Please attach any relevant supporting documents.***

Partners of this project have been vital for obtaining financial support as well as first-hand knowledge for refining the system design. As a result, the project will be more appropriately designed for meeting user needs and assured of success through adequate funding. Partners of the project include:

1) Emery Canal Shareholders
2) Utah Conservation District
3) NRCS (Natural Resources Conservation Service)
4) Utah Board of Water Resources
5) Utah State Legislature

- ***Indicate the quantity of conserved water that will be used for the intended purpose.***

- ***Will the project benefit Native American tribes?***

Yes. Muddy creek is a tributary located in the Colorado River basin where 29 Native American tribes are represented. In fact, 20% of the total Colorado basin water rights are held by these tribes. A vast majority of the tribes are located downstream of the proposed project. For these tribes the Muddy creek is therefore a direct source of water. The largest impact associated with this project for downstream users is invariably reduced salinity. An estimate of salinity reduction as a direct result of this project was prepared by the Natural Resources Conservation Service (NRCS). The salt produced by Mancos shale in the 1.92 mile unlined canal is 104 tons per year. Water from the two major breaks in the unpressurized pipeline also pick up salt from the Mancos shale and wash back into Muddy creek (1/2 mile, 2640' = 11 tons; ¾ mile, 3960' = 16.5 tons)

- ***Will the project benefit rural or economically disadvantaged communities?***

Yes. The towns of Emery and Moore are extremely remote, lying on the western edge of the San Rafael desert. This region of Emery County is characterized by a dearth of economic activity, relying heavily on mining and farming. In general, an economically disadvantaged community is defined by a median household income less than 80% of the area median income (AMI) (Malinowski, 2017). By this metric, the region of Emery and Moore, Utah are not economically disadvantaged, but very close according to 2010 census data. The median household income for Emery town ($41,875) was 80.7% that of Emery County as a whole ($51,852).

- ***Will the project benefit species (e.g. federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance). Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project.***

Yes. The new pressurized pipeline will eliminate 10 acres of habitat for noxious weeds and invasive species. These pest plants include Russian olive, Tamarisk, and Phragmites that have

invaded the canal banks and areas around pipeline leaks. Emery County weed department and NRCS have a Russian olive control project on the adjacent Muddy Creek, and considerable effort has been made for removal. As a result, MCIC will be able to comply with the Utah Noxious weed law for prevention and control of these weeds.

- ***Will the project address water supply reliability in other ways not described above?***

No

Evaluation Criterion C – Complementing On-Farm Irrigation Improvements

If the proposed project will complement an on-farm improvement eligible for NRCS assistance, please address the following:

- ***Describe any planned or ongoing projects by farmers ranchers that receive water from the applicant to improve on-farm efficiencies***
    - ***Provide a detailed description of on-farm efficiency improvements***

All farmers have been equipped with on farm pivots and wheel lines for sprinkler irrigation. However, the effectiveness of these systems has been compromised by the lack of adequate in-line pressure and the accumulation of salts and sediment in the distribution system. This accumulation has reduced the capacity of the distribution pipelines and sprinklers and adversely impacted cropland productivity. The project will increase the pressure at the distribution station by 20 – 30 psi depending on the quantity of water in the pipe.

    - ***Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects or do they plan to in the future.***

All farmers in the Moore Group Independent Canal have transitioned from flood irrigation to sprinkler systems. Technical and financial assistance through the BOR Colorado basin salinity program has allowed for these improvements to be made. These improvements have allowed for greater efficiency of water use as well as increased crop yield due to more appropriate application of irrigation. In addition, applying irrigation more appropriately has greatly reduced the presence of Mancos shale salt deposition.

- ***Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.***

The proposed WaterSMART project will complement existing on-farm efficiency improvements by ensuring the adverse effects of salt and sediment accumulation are minimized. By increasing the quantity and quality of the water delivered, the irrigation system life will be increased, improving crop production, and maximizing economic sustainability. Pumping costs will also be reduced through increased gravity pressure in the system.

    - ***Will the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how?***

Yes. By increasing the quantity and quality of the water supply, shareholders will have a cleaner and more reliable water supply. As a result, shareholders investing in additional on-farm improvements will have a lower associated risk. Increased gravity pressure will reduce pumping costs and sustain operational pressures for on-farm improvements.

OR

    - ***Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?***

The proposed project will complement on-farm improvements in several ways. By eliminating the existing water losses (13% improvement), shareholders can receive a higher portion of their allotted shares. This allotment increase will minimize potential shortfalls and system interruptions leading to better yields. Shareholders can also have more confidence in the system, allowing for investments to be made for improvements. Shareholders economic efficiency is also increased by eliminating the high cost of electricity and pump maintenance currently needed for pumping water to pressurize on-farm sprinkler irrigation systems.

- ***Describe the on-farm water conservation or water use efficiency benefits that would result from the on-farm component of this project.***

Conversion of sprinkler irrigated acreage to drip irrigation could result in significant water savings as well as increased economic opportunity. While the efficiency of sprinkler irrigation through wheel lines (67%) and center pivots (80%) is a large improvement over flood irrigation (30%), incorporating an on-farm drip irrigation system (95%) poses serious advantages.

- ***Estimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.***

A typical acre of alfalfa in the proposed project area requires 30-inches of consumptive use per year. Factoring in efficiency losses for the existing sprinkler systems means an acre of alfalfa actually requires 3.75-4.47 ac-ft of water for center pivots and wheel lines respectively. A similarly water demanding crop converted to drip irrigation would require 3.15 ac-ft of water annually, a savings of .6-1.3 ac-ft of water per acre converted. This project will directly affect 2766 acres of cropland. Conversion of a modest 10% of this total irrigated area would reflect a water savings of approximately 260 ac-ft of water per year. This value assumes an average per acre water savings of 0.95 ac-ft per acre converted.

$$\textbf{Average (Water Savings}_{\textbf{Pivot}}\textbf{ + Water Savings}_{\textbf{Wheel Line}}\textbf{) = ((0.6+1.3)/2) = 0.95 ac-ft per acre}$$

It should be noted that conversion to drip irrigation would require a change in the type of crop cultivated. These systems are often implemented for more marketable cash crops and vegetables. Such systems are also sensitive to the accumulation of sediment and would therefore be hinged upon the proposed systems' removal of salt and sediment from the water supply.

Evaluation Criterion D – Department of Interior Priorities

Address those priorities that are applicable to your project. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.

Restoring trust with local communities

MCIC risks losing the trust of both its shareholders and the surrounding community if the proposed pressurization project is not completed. Without the proposed improvements, water users will remain susceptible to drought, reduced water allocation, and burdensome maintenance requirements. By implementing the proposed project, the severity of these problems will be greatly reduced. Creating a buffer against future hardship is essential for these already marginal and economically disadvantaged communities.

Modernizing our Infrastructure

The Independent Canal Pipeline Improvement project aims to increase water quantity, quality, and efficiency of use by replacing dilapidated water conveyance infrastructure with new. This replacement is also expected to reduce routine and emergency maintenance requirements. Currently, sediment and debris removal is required consistently to keep the canal operational. The unpressurized nature of the system means that a significant amount of pumping is required to operate all on-farm irrigation improvements. Further, the high sediment loads in the water have a domino effect of increased downstream maintenance for these pumps and on-farm improvements. Lastly, the unpressurized sections of failing pipeline have required costly repairs due to the instability of the underlying shale layer.

The completion of this project will eliminate the buildup of sediment and debris in the system and increase the delivery pressure to shareholders. As a result, on-farm improvements will require less pumping and maintenance of equipment. Emergency repairs will also be greatly reduced by locating the new pipeline along a route with more stable soils. All these improvements will have the combined effect of increasing water user confidence, leading to further infrastructure improvements by shareholders. In arid environments like Emery County, this increased confidence is critical for ensuring the vitality of the surrounding communities.

Evaluation Criterion E – Implementation and Results

Project Planning

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOP) in place? Please self-certify, or provide copies of these plans where appropriate to verify that such a plan is in place.
Provide the following information regarding project planning:

(1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, or other planning efforts done to determine the priority of this project in relation to other potential projects.

(2) Describe how the project conforms to and meets the goals of any applicable planning efforts, and identify any aspect of the project that implements a feature of an existing wat r plan(s).

Performance Measures

Points may be awarded based on the description and development of performance measures to quantify actual project benefits upon completion of the project.
Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g. water saved or better managed, or energy, generated or saved).

The flow into and out of the piped section is presently metered. All user turnouts are presently metered and can be included in this inflow/outflow equation. It is assumed that seepage losses will be zero directly following construction of the proposed canal improvements. Each shareholder turnout has a meter. These meters are MCIC's performance metric for quantifying individual water use and improving their water management practices.

Evaluation Criterion F – Connection to Reclamation Project Activities

- ***How is the proposed project connected to Reclamation project activities?***

In 1999, the Moore group received Bureau of Reclamation funding through the Colorado River Salinity Improvement program. On-farm pressurized irrigation equipment was placed on the farms and the low-head, non-pressurized pipe was installed.

- ***Does the applicant receive Reclamation project water?***

No

- ***Are there other sources of water?***

There are no ground water aquifers in this area.

- ***Is the project on Reclamation project lands or involving Reclamation facilities?***

The project is not located on Reclamation project lands, and does not receive water from reclamation facilities.

- ***Is the project in the same basin as a Reclamation project or activity?***

The project is located within the Colorado River Basin which is characterized by a multitude of Bureau of Reclamation projects. This project is located in a small sub-basin and is not supplied by any Bureau of Reclamation projects. Muddy Creek flows directly from these small mountain reservoirs to Hite, Utah where it empties into Lake Powell.

- ***Will the proposed work contribute water to a basin where a Reclamation project is located?***

Yes. As mentioned previously, any water saved beyond the shareholder demand allocations will remain in Muddy creek which is a tributary of the Colorado River and empties into Lake Powell.

- ***Will the project help Reclamation meet trust responsibilities to Tribes?***

Yes. This project will help minimize the adverse impacts of Muddy Creek on downstream water quality and quantity in the Colorado River basin.

Evaluation Criterion G – Additional Non-Federal Funding

State the percentage of non-federal funding provided using the following calculation: Non-Federal Funding divided by Total Project Cost.

$$\frac{\text{Non–Federal Funding}}{\text{Total Project Cost}} = \frac{\$1{,}766{,}000}{\$2{,}566{,}000} = \mathbf{68.8\%}$$

Project Budget

Funding Plan and Letters of Commitment

Describe how the non-Federal share of project costs will be obtained.

Any non-federal share of project costs not being met by the applicant will be received through a grant from the Utah Conservation Commission, a special appropriation from the Utah State Legislature, and a loan from the Utah State Board of Water Resources.

How you will make your contribution to the cost-share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).

It is anticipated that the project will increase shareholder crop income and reduce the costs for operation and maintenance. Based on these expected changes Muddy Creek Irrigation Company will increase the annual per share assessment for shareholders to meet the required cost share contribution.

Describe any costs incurred before the anticipated Project start date that you seek to include as project costs. For each cost, identify:

NA

Provide the identity and amount of funding to be provided by funding partners, as well as the required letters of commitment.

Funding partners and corresponding contribution amounts are summarized below in Table 3. Letters of support are provided in Appendix C.

Table 3: Summary of Non-Federal and Federal Funding Sources

Funding Source	2018	2019	2020	Total
NRCS	$ 200,000	$ 200,000	$ 100,000	$ 500,000
Utah Conservation Commission Strategic Fund	$ 50,000	$ 100,000	$ 100,000	$ 250,000
Utah Legislature Special Appropriation		$ 465,700		$ 465,700
Bureau of Reclamation Water SMART Grant		$ 300,000		$ 300,000
Utah Board of Water Resources		$ 1,050,300		$ 1,050,300
Total				**$ 2,566,000**

Describe any funding requested or received from other Federal partners. Note: other sources of Federal funding may not be counted towards the required cost share unless otherwise allowed by statute.

The Natural Resources conservation service (NRCS) has committed to contributing $500,000 toward the completion of this project.

Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.

Regardless of the level of funding provided by currently committed financial partners and the outcome of this grant application, the project will proceed with the balance of non-federal project costs being met through a loan from the Utah Board of Water Resources.

Budget Proposal

The budget proposal shall include detailed information on the categories listed below and must clearly identify all project costs. Unit costs shall be provided for all budget items including the cost of work to be provided by contractors. The budget proposal should also include any in-kind contributions of goods and services provided to complete the Project. It is strongly advised that applicants use the budget proposal format shown below or a similar format that provides this information. If selected for award, successful applicants must submit detailed supporting documentation for all budgeted costs.

Table 4: Itemized Budget for the proposed project

Budget Item Description	Computation		Quantity Type	Total Cost
	$/Unit	Quantity		
30-inch HDPE Pipe	$90	20700	LF	$1,863,000
30-inch HDPE Pipe Meter	$40,000	1	LS	$40,000
Connection to Existing System	$25,000	1	LS	$25,000
SR 10 Highway and County Road Bore	$400	200	LF	$80,000
Terminal Connections	$5,000	8	EA	$40,000
Miscellaneous Air/VAC and Controls	$20,000	1	LS	$20,000
			Construction Cost	**$2,068,000**
			Contingency	$279,017
			Environmental Services	$7,902
			Cultural Resource Services	$7,581
			Design and Construction Engineering	$177,000
			Legal and Administrative	$26,500
			Total	**$2,566,000**

Budget Narrative

Salaries and Wages
No Separate salaries or wages outside of contractual costs will be included.

Fringe Benefits
No separate fringe benefits will be included.

Travel
No separate travel expenses will be included

Equipment
No separate equipment costs will be included. All of these costs are included in the contractual contracts.

Materials and Supplies
No separate materials and supplies costs will be included. All of these costs are included in the

Contractual
Unit costs were determined based upon contract unit prices from similar projects recently completed. MCIC follows the State of Utah procurement process for procuring a contractor for this project. They will bid the construction portion of the project to several prequalified construction companies. The contractual costs shown are estimates for each of the components to furnish and install all the pipe and equipment. Generally, the low bidder will be selected based on a determination of acceptable qualifications.

Environmental and Regulatory Compliance Costs
An environmental evaluation was conducted by the NRCS for this project. The project was found to be categorically excluded from further environmental analysis and there were no circumstances found of extraordinary significance.

Indirect Costs
No indirect costs will be part of the proposed project.

Environmental and Cultural Resources Compliance

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

Impacts will be those associated with piping the existing canal and un-pressurized pipeline. That is, excavation and subsequent burial of the proposed pipeline within the existing right of ways. Generally, projects of this nature have minimal impacts. Restoration of native vegetation will be done upon construction completion.

Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

No. A biological survey was conducted and no critical habitat for federally listed threatened or endangered species was identified.

Are there wetlands or other surface waters inside the project boundaries that potentially fall under Clean Water Act (CWA) jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have.

MCIC is not aware of any wetlands in the project area that would fall under the jurisdiction of "Waters of the United States".

When was the water delivery system constructed?

Several improvements to the Moore Group Independent Canal have been made over the years. As a part of the completed environmental document, the required historical documentation for the project will be completed.

Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., head gates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

No. The existing canal and un-pressurized pipeline will be replaced with a new pipeline along a different route. The existing irrigation infrastructure being replaced will be abandoned or perhaps used as storm water overflow capacity.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

Yes. A cultural resource study was conducted which identified six sites which are eligible to the National Registry of Historic Places (NRHP).The aforementioned sites are Identified as follows: 42Em2521, 42Em2522, 42Em22, 42Em2912, 42Em4975, 42Em4857. Sites 42Em2521 and 42Em2522 are eligible under Criterion A, sites 42Em22, 42Em2912, and 42Em4975 are eligible under Criterion D, and site 42Em4857 is eligible under Criteria A, C, and D.

The Independent Canal (42Em2521) will be bisected by the proposed irrigation pipeline, yet all the associated canal features will be avoided by at least 35 ft. The main canal is bisected in Section 22 of Township 21 South, Range 6 East. Within this same section, the main canal ranges from 13 to 100 ft from the proposed pipeline. The documented lateral canal segment in Section 30 of Township 21 South, Range 7 East will be bisected by the proposed pipeline. It is recommended that any portion of the main canal and lateral impacted by pipeline construction be rebuilt to its pre-construction appearance to maintain integrity under Criterion A.

Site 42Em4857 is bisected by the proposed irrigation pipeline near its northern boundary. The nearest features are Feature 1 (cabin), located 16 ft from the centerline, and Feature 2 (granary), located 30 ft from the centerline. It is recommended that environmental fencing be placed between the structures and work area to ensure their avoidance. It is also recommended that construction activities be limited to the existing pipeline disturbance through the site.
Site 42Em4975 is 20 feet from proposed undertaking. It is recommended that environmental fencing be erected along the site boundary prior to construction. It is also recommended that an archaeologist inspect the open trench for cultural horizons, features, of artifacts before the trench is back filled (spot monitor). Based on these findings and adherence to the recommendations, a recommendation of "no historic properties adversely affected" is proposed for the project pursuant to 36 CFR 800.

Are there any known archeological sites in the proposed project area?

Yes. The previous section outlined recommendations provided by a cultural resource specialist detailing how to proceed to ensure that no historical properties are adversely affected by the proposed project.

Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

No, a portion of the project will be constructed within the existing canal alignment. All other pipeline right-of-way will be obtained from private land owners, of which the majority are shareholder in the company.

Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

No.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

No.

Required Permits or Approvals

Applicants must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals.

Army corps of engineers claims no jurisdiction over the proposed project site (see Appendix G). All required permits for the project shall be obtained by contractor and should be relatively easy to obtain.

Letters of Support

Please include letters from interested stakeholders supporting the proposed project. To ensure your proposal is accurately reviewed, please attach all letters of support/partnership letters as an appendix. (Note: this will not count against the application page limit.) Letters of support received after the application deadline for this FOA will not be considered in the evaluation of the proposal

Letters of support are included in Appendix C. These include the following entities:

- Independent Canal
- Muddy Creek Irrigation Company (MCIC)
- Utah Department of Transportation
- Emery County Road Department

Official Resolution

Include an official resolution adopted by the applicant's board of directors or governing body, or for state government entities, a signed statement from an official authorized to commit the applicant to the financial and legal obligations associated with receipt of a financial assistance award under this FOA, verifying:

- ***The identity of the official with legal authority to enter into an agreement***
- ***The board of directors, governing body, or appropriate official who has reviewed and supports the application submitted***
- ***The capability of the applicant to provide the amount offending and or in-kind contributions specified in the funding plan***
- ***That the applicant will ·work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement.***

An official resolution meeting the requirements set forth above is mandatory. If the applicant is unable to submit the official resolution by the application deadline because of the timing of board meetings or other justifiable reasons, the official resolution **may be submitted up to 30 days after the application deadline.**

The signed official resolution is shown in Appendix D.

Appendix A:
Environmental Compliance

WESTERN-ENVIRO
RESOURCES

08.03.2018
Invoice 470 Johansen and Tuttle Engineering
WESTERN-ENVIRO RESOURCES - 856 N 500 E Springville, UT 84663 - (435)841-7065

JOHANSEN AND TUTLE ENGINEERING - INDEPENDENT CANAL PIPELINE

Date	Project Name/#	Description of Work	Status	Hours	Rates	Number of Miles	Mileage Rate	Per Diem	Per Diem Rate	Meals &IE	Meals & EI Rate	Printing	Rate	GPS Rental	Rate	TOTAL
February 14 - August 22, 2018	Independent Canal	**Bridget M. Atkin:** Alignment change review	Delineation of V3 alignment, Feburary 27, 2018	8	$ 85.00	240	$ 0.545	0	$ 89.00	0	$ 51.00	0	$ 20.00	1.00	$ 50.00	$ 860.80
February 14 - August 22, 2018	Independent Canal	**Bridget M. Atkin:** Coordination with client, USACE, NRCS, BLM, and USFWS regarding jurisdictional exemption 404(f)(3) and BYU Herbarioum visit to review plant voucher specimins for listed species.	No anticipated actions needed for this task	17.5	$ 85.00	0	$ 0.545	0	$ 89.00	0	$ 51.00	0	$ 20.00	0.00	$ 50.00	$ 1,487.50
February 14 - August 22, 2018	Independent Canal	**Bridget M Atkin:** Established reference location and determine detectability for USFWS T&E plant surveys prior to plant survey	No pending tasks for this action	15.5	$ 85.00	378	$ 0.545	0	$ 93.00	0	$ 51.00	0	$ 20.00	0.00	$ 50.00	$ 1,523.51
February 14 - August 22, 2018	Independent Canal	**Bridget M Atkin:** Field botanical survey	No pending tasks for this action. Survey completed April 2018	16.5	$ 85.00	245	$ 0.545	0	$ 93.00	0	$ 51.00	0	$ 20.00	1.00	$ 50.00	$ 1,586.03
February 14 - August 22, 2018	Independent Canal	**Bridget M Atkin:** Preparation of biological report and client delivery	No pending actions for this task. Report delivered to client August 22, 2018	28.75	$ 85.00	0	$ 0.545	0	$ 93.00	0	$ 51.00	0	$ 20.00	0.00	$ 50.00	$ 2,443.75
											TOTAL					$ 7,901.59

Appendix C:

Letters of Support

INDEPENDENT CANAL

P.O. BOX 270

ORANGEVILLE, UT 84537

January 3, 2017

Bureau of Reclamation mail services
Attn: Ms. Rupal Shah Denver Federal Center Bldg. 67,
Rm. 152
6th Avenue and Kipling Street
Denver, Colorado 80225

RE: Independent Canal Company
Independent Canal Pipeline Improvements
WaterSMART Application

Independent Canal Company is in support of the application being submitted for WaterSMART Grants: Water and Energy Efficiency Grants consideration. We also offer support by contributing to the funding of the project.

We appreciate your consideration of this project for funding.

Sincerely,

Jim Fauver
Independent Canal Company

Muddy Creek Irrigation Company
PO Box 104
Emery, Utah 84522

January 3, 2017

Bureau of Reclamation mail services
Attn: Ms. Rupal Shah Denver Federal Center Bldg. 67,
Rm. 152
6th Avenue and Kipling Street
Denver, Colorado 80225

RE: Muddy Creek Irrigation Company
Independent Canal Pipeline Improvements
Application

Muddy Creek Irrigation Company is in support of the application being submitted for WaterSMART Grants: Water and Energy Efficiency Grants consideration. We also offer support by contributing to the funding of the project.

We appreciate your considering this project for funding.

Sincerely, Morris Sorenson

Morris Sorensen, President
Muddy Creek Irrigation Company

State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

CARLOS M. BRACERAS, P.E.
Executive Director

SHANE M. MARSHALL, P.E.
Deputy Director

May 22, 2017

To who it may concern,

UDOT supports the efforts of the Moore Group Independent Canal to install a new Pressurized pipeline to be installed ¾ of a mile south of the existing pipeline. Two of the major repairs have been adjacent to Highway 10, on both the west and east side of the highway. This is a vulnerable spot on a Mancos Shale hillside where any water leaking erodes the banks and destabilizes the pipe bed. The potential threat is that it would erode back into the roadway.

To move this pipeline from the Shale hill to the flats below would be a good step. The new line will be required to be in a steel casing. We do not know if the old pipeline is in a casing. The Old pipe has leaked many times.

UDOT supports this project but is not participating in any financial responsibility.

Sincerely,

Kurt McFarlane
UDOT Permits
435-650-1156

Region Four, 210 West 800 South, Richfield, Utah 84701
telephone 435-893-4799 • facsimile 435-896-5458 • www.udot.utah.gov/go/region4

EMERY COUNTY

Road Department

March 20, 2018

To who it may concern,

Emery County Road Department supports the efforts of the Moore group Independent Canal to install a new Pressurized pipeline along County Road 806 and 803. The new pipeline will be near the bar ditch of each road. The County will require the owner to have the contractor obtain a construction encroachment permit before construction begins. The owner will be responsible to enforce proper compaction of the backfill and road crossings. The owner will be required to level off any areas that have settled due to the new trench.

Sincerely,

Wayde Nielsen

P.O. Box 889 300 West SR29 Castle Dale, Utah 84513 Telephone (435) 381-3510 FAX (435) 381-5239

Appendix D:

Official Resolution

MABEY WRIGHT & JAMES PLLC
ATTORNEYS AT LAW

175 SOUTH MAIN, SUITE 1330
SALT LAKE CITY, UTAH 84111

TELEPHONE: (801) 359-3663 www.mwjlaw.com FACSIMILE: (801) 359-3673

October 1, 2018

Utah Division of Water Resources
c/o Tom Cox
1594 West North Temple, Suite 310
P.O. Box 146201
Salt Lake City, UT 84114

ATTORNEY'S OPINION

This firm acts as legal counsel for Muddy Creek Irrigation, a Utah non-profit corporation ("Muddy Creek"). This opinion is being rendered in connection with financial assistance for project number E405 made available to Muddy Creek by the Utah Board of Water Resources ("Board").

In this connection, I have examined and relied on the following: Utah Division of Corporations and Commercial Code's database, representations from Muddy Creek, and the database of the Utah Division of Water Rights. In such examination, I have assumed the genuineness and authenticity of all documents reviewed. I have relied upon certifications of Muddy Creek with respect to the accuracy of factual matters contained therein for the opinions hereinafter set forth and I know of no reason why I should not rely thereon.

Based on the foregoing, I am of the opinion that:

1. Based on Attachment 1, Muddy Creek is a duly organized and validly existing non-profit corporation for at least the term of the contract and in good standing under the laws of the State of Utah.

2. Based on Attachment 2, Muddy Creek's Board and its shareholders passed a resolution authorizing its officers to (a) assign properties, easements, and water rights required for the project to the Board; and (b) enter into a contract with the Board for construction of the project and subsequent purchase of the project from the Board. This resolution was passed consistent with Utah law and the Articles of Incorporation and Bylaws of Muddy Creek.

3. Muddy Creek is not required to obtain a stream alternation permit because none of the piping will be placed in the stream. Muddy Creek worked with the Natural Resources Conservation Service in preparing an environmental assessment under NEPA. NRCS determined that a categorical exclusion applied to the project. No other permits are necessary.

4. Muddy Creek holds easements and rights-of-way for the entire length of the project, excluding for a section along an Emery County Road. The contractor will obtain a permit from Emery County for this section, prior to construction. These can be legally transferred to the Board.

5. Based on a review of the Utah Division of Water Rights database and representations from Muddy Creek, Muddy Creek's water rights (94-12, 94-793, and 94-1135) are unencumbered and legally transferrable to the Board. I have not reviewed records at the county recorder's office. Muddy Creek will not irrigate any additional acres with this project.

6. Muddy Creek has not complied with Utah Code §§10-9a-211, and 17-27a-211. Muddy Creek does not believe it needs to comply with Utah Code §73-10-33 because once it completes this project, it will no longer convey water in a piped system and not in an open canal.

I assume no obligation to update, revise or supplement this opinion to reflect any facts or circumstances that may come to my attention or any changes in the law that may occur after this opinion.

Sincerely,
MABEY, WRIGHT & JAMES, PLLC

Jonathan R. Schutz

Exhibit 1

Utah Department of Commerce
Division of Corporations & Commercial Code
160 East 300 South, 2nd Floor, PO Box 146705
Salt Lake City, UT 84114-6705
Service Center: (801) 530-4849
Toll Free: (877) 526-3994 Utah Residents
Fax: (801) 530-6438
Web Site: http://www.commerce.utah.gov

04/26/2018
592846-014004262018-2804014

CERTIFICATE OF EXISTENCE

Registration Number:	592846-0140
Business Name:	MUDDY CREEK IRRIGATION COMPANY
Registered Date:	June 10, 1964
Entity Type:	Corporation - Domestic - Non-Profit
Current Status:	Good Standing

The Division of Corporations and Commercial Code of the State of Utah, custodian of the records of business registrations, certifies that the business entity on this certificate is authorized to transact business and was duly registered under the laws of the State of Utah. The Division also certifies that this entity has paid all fees and penalties owed to this state; its most recent annual report has been filed by the Division (unless Delinquent); and, that Articles of Dissolution have not been filed.

Kathy Berg

Kathy Berg
Director
Division of Corporations and Commercial Code

MUDDY CREEK IRRIGATION COMPANY

Update this Business

Entity Number: 592846-0140
Company Type: Corporation - Domestic - Non-Profit
Address: 297 W 525 N PO BOX 5 Emery, UT 84522
State of Origin: UT
Registered Agent: MORRIS R SORENSEN
Registered Agent Address:
386 S 100 E PO BOX 104
Emery, UT 84522

View Management Team

Status: Active

Purchase Certificate of Existence

Status: Active *as of 06/11/2012*
Renew By: 06/30/2019
Status Description: Current
The "Current" status represents that a renewal has been filed, within the most recent renewal period, with the Division of Corporations and Commercial Code.
Employment Verification: Not Registered with Verify Utah

History

View Filed Documents

Registration Date: 06/10/1964
Last Renewed: 04/30/2018

Additional Information

NAICS Code: 2213 **NAICS Title:** 2213-Water, Sewage and Other Systems

<< Back to Search Results

Search by: Business Name | Number | Executive Name | Search Hints

Business Name:

Exhibit 2

Board of Directors

CERTIFICATION AND ACKNOWLEDGMENT

STATE OF UTAH)
: ss
County of Emery)

Comes now Abbie Christiansen, who being first duly sworn upon oath deposes and says: That she is the duly qualified Secretary of the MUDDY CREEK IRRIGATION COMPANY, a corporation organized under the laws of the State of Utah; that on the 23 day of April, 2015, a meeting of the BOARD OF DIRECTORS of the aforesaid corporation was held at Emery, Utah, which meeting was held in the manner required by law and after due notice had been given to the aforesaid BOARD OF DIRECTORS in the manner prescribed by law; that at such meeting a quorum of the Board was present to legally authorize the aforesaid Board to transact the business for which the aforesaid meeting was held; and that at said meeting the following resolution was made, seconded, and passed by a legal majority of the Board.

RESOLUTION

IT IS HEREBY RESOLVED that Morris Sorenson, President, and Abbie Christiansen, Secretary, acting on behalf of the MUDDY CREEK IRRIGATION COMPANY are hereby authorized to enter into a contract with the State of Utah, acting through the Board of Water Resources, for the construction of a water conservation project to extend existing pipeline 4.1 miles and install regulating ponds, located in and around Section 17, T22S, R06E, Salt Lake Base & Meridian.

FURTHER, that the total estimated cost of completing the project will be $4,800,000, of which amount the Board of Water Resources will pay 20.8% of the cost of construction but not to exceed $1,000,000 and all additional costs to complete the project will be paid by the MUDDY CREEK IRRIGATION COMPANY; and

FURTHER, that this corporation shall assign to the Board of Water Resources its properties, easements, and water rights, appurtenant to said project on condition that the same be reconveyed to this corporation upon the payment of the purchase price thereof, such purchase price to be the combined total of all money paid by the Board of Water Resources for the construction of the project, but not to exceed $1,000,000, including all

expense incurred by the Board of Water Resources for investigation, engineering, and inspection in its accomplishment of project; and

FURTHER, that this corporation shall have full use of such properties and water rights during the life of this contract, provided this corporation is not delinquent in any of its obligations under the contract. We further authorize the Board of Directors of this corporation to assess all the outstanding corporate stock for any payments that may become delinquent under the terms of the aforesaid contract.

Abbie Christiansen
Secretary

STATE OF UTAH)
: ss
County of Emery)

On this 18 day of May, 2018, appeared before me Abbie Christiansen who is personally known to me to be the Secretary of the MUDDY CREEK IRRIGATION COMPANY and who did acknowledge to me under oath that she executed the aforesaid document entitled "Certification and Acknowledgment" on behalf of said corporation.

Lynne M Lake
NOTARY PUBLIC

LYNNE M LAKE
Notary Public - State of Utah
Comm. No. 690785
My Commission Expires on
Sep 11, 2020

Stockholders

CERTIFICATION AND ACKNOWLEDGMENT

STATE OF UTAH)
: ss
County of Emery)

Comes now Abbie Christiansen being first duly sworn upon oath deposes and says: That she is the duly qualified Secretary of the MUDDY CREEK IRRIGATION COMPANY, a corporation organized under the laws of the State of Utah; that on the 23 day of April, 20 18, a meeting of the STOCKHOLDERS of the aforesaid corporation was held at Emery, Utah, which meeting was held in the manner required by law and after due notice had been given to the aforesaid STOCKHOLDERS in the manner prescribed by law; that at such meeting 100 percent of the total shares of stock in this corporation were represented and that the following resolution was made, seconded and passed by 75 % percent of the company stock represented at the meeting.

RESOLUTION

IT IS HEREBY RESOLVED that Morris Sorenson, President, and Abbie Christiansen, Secretary, acting on behalf of the MUDDY CREEK IRRIGATION COMPANY are hereby authorized to enter into a contract with the State of Utah, acting through the Board of Water Resources, for the construction of a water conservation project to extend existing pipeline 4.1 miles and install regulating ponds, located in and around Section 17, T22S, R06E, Salt Lake Base & Meridian.

FURTHER, that the total estimated cost of completing the project will be $4,800,000, of which amount the Board of Water Resources will pay 20.8% of the cost of construction, but not to exceed $1,000,000, and all additional costs to complete the project will be paid by the MUDDY CREEK IRRIGATION COMPANY; and

FURTHER, that this corporation shall assign to the Board of Water Resources its properties, easements, and water rights, appurtenant to said project on condition that the same be reconveyed to this corporation upon the payment of the purchase price thereof, such purchase price to be the combined total of all money paid by the Board of Water Resources for the construction of the project, but not to exceed $1,000,000, including all expense incurred by the Board of Water Resources for investigation, engineering, and inspection in its accomplishment of project; and

FURTHER, that this corporation shall have full use of such properties and water rights during the life of this contract, provided this corporation is not delinquent in any of its obligations under the contract. We further authorize the Board of Directors of this corporation to assess all the outstanding corporate stock for any payments that may become delinquent under the terms of the aforesaid contract.

Abbie Christiansen
Secretary

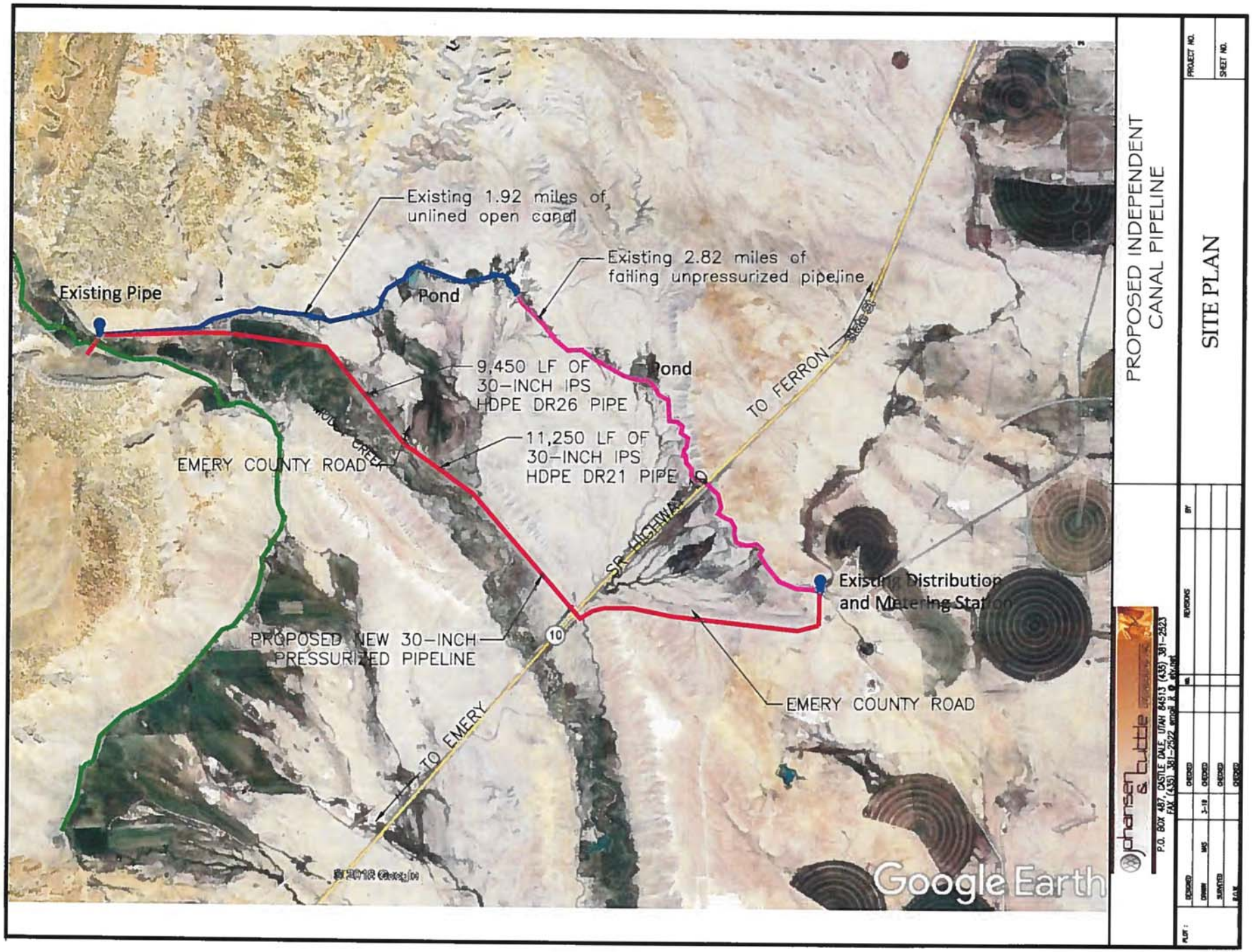
STATE OF UTAH)
: ss
County of Emery)

On this 18 day of May, 2018, appeared before me Abbie Christiansen, who is personally known to me to be the Secretary of the MUDDY CREEK IRRIGATION COMPANY and who did acknowledge to me under oath that she executed the aforesaid document entitled "Certification and Acknowledgment" on behalf of said corporation.

Lynne M. Lake
NOTARY PUBLIC

Appendix E:

Geographic and Project Location Map



PROPOSED INDEPENDENT CANAL PIPELINE

SITE PLAN

PROJECT NO.

SHEET NO.

phansen & tuttle engineering

P.O. BOX 487, CASTLE DALE, UTAH 84513 (435) 381-2523
FAX (435) 381-2522 email it @ pt-ut.net

NO.	REVISIONS	BY

DESIGNED

DRAWN MS 3-19

CHECKED

SURVEYED

CHECKED

DATE

PLOT:

PROPOSED INDEPENDENT
CANAL PIPELINE
LOCATION MAP
PROJECT NO.
SHEET NO.
johansen & tuttle
P.O. BOX 487, CASTLE DALE, UTAH 84513 (435) 381-2523
FAX (435) 381-2522 email jt @ etv.net
PROJECT LOCATION
GREEN RIVER
ELMO
CLEVELAND
LAWRENCE
HUNTINGTON
CASTLE DALE
ORANGEVILLE
CLAWSON
FERRON
EMERY
COLORADO
UTAH
NEVADA
ARIZONA
NEW MEXICO
WYOMING
IDAHO

Appendix F:

Project Budget and Schedule

Funding Source	2018	2019	2020	Total
NRCS	$ 200,000	$ 200,000	$ 100,000	$ 500,000
Utah Conservation Commission Strategic Fund	$ 50,000	$ 100,000	$ 100,000	$ 250,000
Utah Legislature Special Appropriation		$ 465,700		$ 465,700
Bureau of Reclamation Water SMART Grant		$ 769,800		$ 769,800
Utah Board of Water Resources		$ 580,500		$ 580,500
Total				**$ 2,566,000**

Budget Item Description	Computation		Quantity Type	Total Cost
	$/Unit	Quantity		
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			Environmental Services	$7,902
			Cultural Resource Services	$7,581
			Design and Construction Engineering	$177,000
			Legal and Administrative	$26,500
			Total	**$2,566,000**

Project Schedule	
March 20th	Pipe Solicitation
March - April 2019	Plan Review and Contract Advertisement
April 4th 2019	Bid for Construction
April 15th 2019	Construction Contract Signing
April 25th 2019	Begin Construction
Sep. 19th 2019	Complete Construction
Dec. 31st 2019	Complete Project

Appendix G:

Permitting Attachment

Michael Steiff

From: Craig <craig@jandtengineering.com>
Sent: Thursday, March 07, 2019 11:43 AM
To: michael@jandtengineering.com
Cc: Trinidi@jandtengineering.com
Subject: FW: Independent Pipeline 404 (f)(3) Exemption

From: Bridget Atkin [mailto:bridget.atkin@gmail.com]
Sent: Friday, March 09, 2018 10:49 AM
To: Merrial Johansen <merrial@jandtengineering.com>; Craig Johansen <craig@jandtengineering.com>; nicole@jandtengineering.com
Subject: Independent Pipeline 404 (f)(3) Exemption

Hi Merrial and Craig,
After talking with Kevin Williams regarding the dewatering of the current portion of the Independent system that is open, I reached out to Mike Pectol to see if there would be any mitigation effort needed for this project component. Based on my discussion with Mike, he relayed that this project qualifies for the 404 (f) (3) exemption, meaning we are not required to get a 404 permit from the USACE for this project. A few qualifiers that Mike cited when I spoke to him:

1) Wetland impacts will be minimal,
2) Impacts will be temporary in nature,
3) The canal that will be dewatered will be abandoned in place (e.g. not filled), and
4) This is an irrigation specific project related to providing water for crops/agriculture.

So, good news for Friday that you won't be held to that constraint as far as permitting submittal and review with the USACE. I'll forward the email for your records that I received from Mike with confirmation.

Nicole, I have data collected from last week's site visit. Doesn't sound like you will need it since you don't need to do any wetland maps, but I will send it so you can put it in the project file.

One thing that you may want to follow up with Lowell and Laurel Nelson (or I can if you like) are their NEPA requirements that they may have for this project. The wildlife survey has of course been completed, so if you want to ask if they would like that data for their NEPA process, let me know and I can get that sent over.

Also, I attended the Utah Native Plants Society Conference (annual summit for plant nerds) this week and was able to touch base with the Price BLM botanist. IF NRCS still needs T&E plant surveys done, sounds like we can reduce the area that needs to be surveyed by quite a bit as that phone line has recently been placed in the county ROW paralleling the Moore cutoff might not require survey as the area has recently already been disturbed. Anyway, let me know if there is anything that I can still help with on that front if needed. When I spoke to Laurel earlier this week she had mentioned being interested in the results for her NEPA documentation, so that's why it is on my radar.

That's all I have, hope you guys have a great weekend. I am around if you need to go over any of the above, don't hesitate calling.

Bridget

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