

# WaterSMART

WATER AND ENERGY EFFICIENCY GRANTS FOR FY 2019

NO. BOR-DO-19-F004  
FUNDING GROUP II

MORONI & MOUNT PLEASANT IRRIGATION  
COMPANY

2019 CANAL PIPING

SANPETE COUNTY, UTAH

FRANK ELIASON ■ PRESIDENT  
MORONI & MOUNT PLEASANT IRRIGATION COMPANY  
P.O. BOX 66  
MORONI, UT 84646  
435.436.8588

TYLER FADDIS  
PROJECT MANAGER  
JONES & DEMILLE ENGINEERING, INC.  
50 SOUTH MAIN, SUITE #4  
MANTI, UTAH 84642  
435.835.4540  
TYLER.F@JONESANDDEMILLE.COM

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## TABLE OF CONTENTS

<b>1.</b>	<b>Technical Proposal .....</b>	<b>1</b>
1.1.	Executive Summary .....	1
1.2.	Background Data .....	2
1.2.1.1.	Sources of Water Supply .....	2
1.2.1.2.	Water Rights Involved.....	2
1.2.1.3.	Current Water Users and Usage .....	2
1.2.1.4.	Potential Shortfalls in Water Supply .....	2
1.2.1.4.1.	Water Loss Due to Seepage .....	2
1.2.1.4.2.	Canal Risk Management and Maintenance.....	3
1.2.1.4.3.	Lack of Metering.....	3
1.2.2.	Describe Water Delivery System .....	3
1.2.3.	Renewable Energy or Energy Efficiency .....	4
1.2.4.	Prior Work with Reclamation .....	4
1.3.	Project Location.....	4
1.3.1.	Location .....	4
1.4.	Technical Project Description.....	6
1.5.	Evaluation Criteria .....	6
1.5.1.	Evaluation Criterion A: Quantifiable Water Savings.....	7
1.5.1.1.	Describe the Amount of Estimated Water savings .....	7
1.5.1.1.1.	Water Savings Estimate .....	7
1.5.1.2.	Describe Current Losses .....	7
1.5.1.3.	Describe the Support/Documentation of Estimated Water Savings .....	8
1.5.1.4.	Address the Following Questions According to the Type of Infrastructure Improvement You are Proposing for Funding. ....	9
1.5.2.	Evaluation Criterion B: Water Supply Reliability .....	13
1.5.3.	Evaluation Criterion C: Implementing Hydropower.....	16
1.5.4.	Evaluation Criterion D: Complementing On-Farm Irrigation Improvements ....	16
1.5.5.	Evaluation Criterion E: Department of the Interior Priorities .....	18
1.5.6.	Evaluation Criterion F: Implementation and Results .....	19
1.5.6.1.	Subcriterion No. F.1: Project Planning.....	19
1.5.6.2.	Subcriterion No. F.2: Performance Measures .....	20
1.5.6.3.	Subcriterion No. F.3: Readiness to proceed .....	21
1.5.7.	Evaluation Criterion G: Nexus to Reclamation Project Activites.....	22

1.5.8.	Evaluation Criterion H: Additional Non-Federal Funding .....	23
<b>2.</b>	<b>Project Budget .....</b>	<b>23</b>
2.1.	Funding Plan And Letters of Commitment.....	23
2.1.1.	Letters of Commitment .....	23
2.1.2.	Funding Plan .....	24
2.2.	Budget Proposal.....	25
2.3.	Budget Narrative.....	26
2.3.1.	Salaries and Wages .....	26
2.3.2.	Fringe Benefits .....	27
2.3.3.	Travel .....	27
2.3.4.	Equipment .....	27
2.3.5.	Material and Supplies.....	27
2.3.6.	Contractual .....	28
2.3.7.	Third-Party In-Kind Contributions .....	29
2.3.8.	Environmental and Regulatory Compliance Costs .....	29
2.3.9.	Other Expenses.....	30
2.3.10.	Indirect Costs .....	30
<b>3.</b>	<b>Environmental and Cultural Resources Compliance .....</b>	<b>31</b>
<b>4.</b>	<b>Required Permits or Approvals .....</b>	<b>32</b>
<b>5.</b>	<b>Letters of Support .....</b>	<b>32</b>
<b>6.</b>	<b>Official Resolutions .....</b>	<b>33</b>
<b>7.</b>	<b>Unique Entity Identifier and System For Award Management.....</b>	<b>35</b>
<b>Appendix A.</b>	<b>Budget &amp; Schedule.....</b>	<b>36</b>
<b>Appendix B.</b>	<b>Letters of Support &amp; Commitment .....</b>	<b>39</b>
<b>Appendix C.</b>	<b>Project Map .....</b>	<b>40</b>
<b>Appendix D.</b>	<b>Parshall Flume and Rectangular Weir Data .....</b>	<b>42</b>
<b>Appendix E.</b>	<b>Photographs .....</b>	<b>45</b>



## 1. TECHNICAL PROPOSAL

### 1.1. EXECUTIVE SUMMARY

Start Date: September 1, 2019

Applicant: Moroni & Mount Pleasant (M&M) Irrigation Company

Location: Sanpete County, Utah

Project Title: M&M Irrigation – 2019 Canal Piping

#### Project Summary:

The Moroni & Mount Pleasant Irrigation Company (hereafter referred to as M&M Irrigation) is proposing to partner with the Bureau of Reclamation for a Funding Group II project. Water is collected by M&M Irrigation from the San Pitch River, which is located in Sanpete County, Utah. The water from the M&M Irrigation canal is transported from the river diversion to a pumping pond north of Moroni City via canal and pipeline. M&M Irrigation began piping the open channel canal in 1976. The last project was in 2006 when M&M Irrigation piped 8 miles of earthen canal. The ultimate goal is to pipe the entire canal, which leaves the 3.5 miles of canal left to pipe. The 3.5 miles of open channel canal experiences losses from 35% to 60% depending on the flow rate. The proposed project consists of piping the open channel canal and installing a supervisory control and data acquisition (SCADA) system with modernized measuring devices and metering at each pipe outlet along the 3.5-mile pipeline. The project will eliminate water losses and increase efficiency in water delivery. A majority of the pipe will be placed in the existing ditch right-of-way, with short segments proposed to be realigned to straighten tight bends and curves. The realignment could decrease the total pipe length by approximately 0.7 miles. Post project water savings will be quantified using the new SCADA system, flow meters and other measuring devices. An increase in water will greatly benefit Moroni City and irrigators that have been deprived of water allotments for several years due to canal seepage and drought conditions. The project can begin immediately upon execution of any grant agreement; environmental compliance and design would be completed by the spring of 2020. Construction would then begin in the fall of 2020. Anticipating that no construction would occur during the irrigation season, the project will be completed by April 2022.

Length of Time: 30 Months, including environmental, design and construction

Completion Date: April 1, 2022

The proposed project is not located on a Federal facility.



## 1.2. BACKGROUND DATA

*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.*

### 1.2.1.1. SOURCES OF WATER SUPPLY

Water is collected from the San Pitch River which flows through the Sanpete County from north to south in central Utah.

### 1.2.1.2. WATER RIGHTS INVOLVED

M&M Irrigation has water rights for 13.22 cfs which is approximately 5,500 acre-feet for the irrigation season from April to October.

### 1.2.1.3. CURRENT WATER USERS AND USAGE

There are currently 81 users in the M&M Irrigation Company with a total of 1,059.25 shares. On average, with 3 shares per acre-foot of water, M&M Irrigation typically distributes 3,000 acre-feet per year (average taken from 2014 to 2018 acre-feet delivered data) depending on availability. Moroni City municipality holds 15% of the shares. The applicant operated system delivers water to approximately 2,000 acres of agricultural land. Irrigated crops consist of alfalfa, grain, grass hay, and livestock pasture.

Because of the canal losses and frequent drought conditions, the demand currently surpasses the total amount of water collected each year. The collected amount is typically less than the irrigator's allotment. The proposed project would result in water savings that would be enough to meet or significantly increase the allotments to allow water users to receive irrigation in sufficient quantity to meet their needs.

### 1.2.1.4. POTENTIAL SHORTFALLS IN WATER SUPPLY

Water savings from this project will mitigate shortfalls for M&M Irrigation and its stakeholders. Specific shortfalls that concern the applicant are detailed below.

#### 1.2.1.4.1. WATER LOSS DUE TO SEEPAGE

There is noticeable water loss in the open canal section. Much of the canal was built along the bench of the Moroni hills and traverses some moderately steep hillsides. With previous projects, samples of the native material have been taken and determined that the native

material is a silty sand with 2-inch rock. Water infiltrates the canal banks and has manifested itself by seeps that have surfaced. Replacement of the open canal with a pipeline would prevent the loss of water and allow the water to be beneficially used.

#### 1.2.1.4.2. CANAL RISK MANAGEMENT AND MAINTENANCE

There are two locations where the canal is situated at a higher elevation than adjacent houses, which creates potential risk locations for flooding if the canal were to fail or overtop.

Yearly maintenance costs are approximately \$7,500 for fuel and chemicals/sprays to keep the trees, willows, and other vegetation from overtaking the canal. A blocked canal could overrun its banks and cause catastrophic failure. While the risk of loss of life is low due to the canal's remote location, canal failure would be economically disastrous for the shareholders. To avoid canal failure requires the applicant to devote considerable resources to patrol and clean the canal.

#### 1.2.1.4.3. LACK OF METERING

Four separate turnouts along the 3.5 miles of open canal are controlled by head gates and the amounts of diverted water are estimated visually. A Supervisory Control and Data Acquisition (SCADA) system with modernized measuring devices would allow the applicant to better manage the delivery of water to its shareholders.

### 1.2.2. DESCRIBE WATER DELIVERY SYSTEM

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*In addition, 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 (e.g., type, miles, and acres). For municipal systems, please include the number of connections and/or number of water users served and any other relevant information describing the system.*

M&M Irrigation has a gravity-fed transmission canal for 3.5 miles that transports water from a diversion structure located in the Sanpitch River to a sluice structure, then transitions to a 30-inch pipe. The pipe conveys water for approximately 8 miles to a pump pond. From the pump pond, the remaining distribution system is pressurized pipe for 0.67 miles that pumps water to the Big Irrigation Pond, and privately-owned lateral lines branch off from the main line. The distributed water irrigates approximately 2,000 acres of alfalfa, grain, and pasture. M&M operates 3.5 miles of unlined open canal and 8.67 miles of pipeline. Additionally, M&M manages two ponds (Pump Pond – approximately 3 ac-ft and Big Pond – approximately 30 ac-ft). Moroni City owns 15% of M&M Irrigation shares and, with other sources, supplies irrigation water to approximately 1,451 people with around 470 service connections.



### 1.2.3. RENEWABLE ENERGY OR ENERGY EFFICIENCY

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*If the application includes renewable energy or energy efficiency elements, describe existing energy sources and current energy uses.*

The proposed SCADA system would be powered by solar panels to stay as energy efficient as possible. The existing M&M Irrigation system is energy efficient due to gravity-fed canals and pipelines. A variable frequency drive (VFD) was installed in 2018 and has dramatically reduced the energy costs from pumping water to the Big Pond from \$19,500 to \$6,000 annually. Gravity flow components will be maintained and enhanced with the project. Piping the canal and SCADA system will also reduce required travel, man-hours, and equipment mobilization required to maintain water distribution.

### 1.2.4. PRIOR WORK WITH RECLAMATION

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*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).*

M&M Irrigation has not had the opportunity to work with Reclamation in the past but looks forward to partnering on this important project.

## 1.3. PROJECT LOCATION

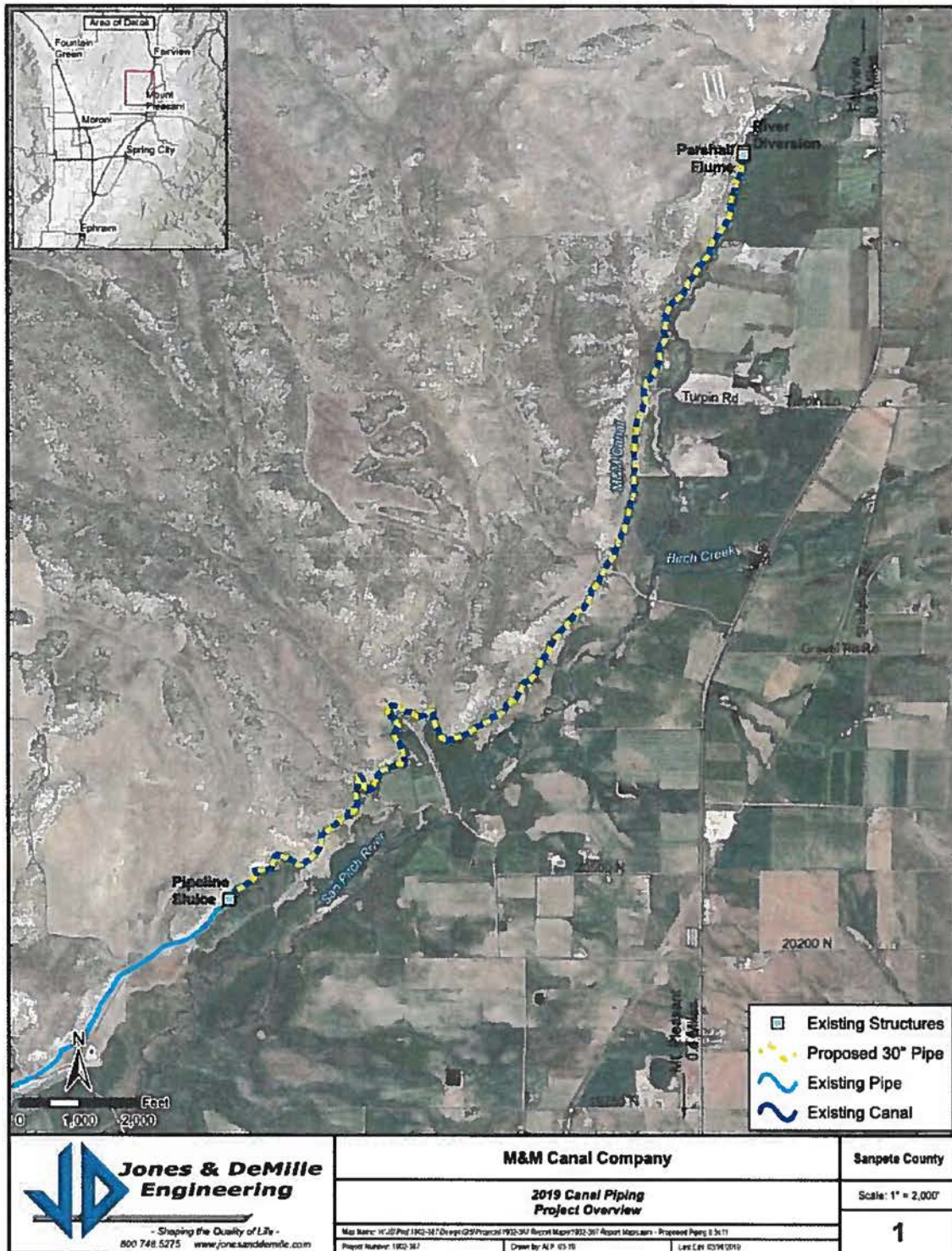
### 1.3.1. LOCATION

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*Provide detailed information on the proposed project location or project area including a map showing the specific geographic location, latitude and longitude (include the state, county, and direction from nearest town).*

The proposed project is within Sanpete County in central Utah. The geographic coordinates for the head of the system, where the proposed pipe will begin is latitude 39.605867, longitude -111.452928 and where the proposed pipe will end is latitude 39.571256, longitude -111.483825. M&M Irrigation supplies irrigation water to Moroni City and local farmers. See Project Location Map below in Figure 1.





**Figure 1. Project Location**

#### 1.4. TECHNICAL PROJECT DESCRIPTION

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

The proposed project will include the following milestones and activities:

- Preliminary design and hydraulic analysis of the M&M Irrigation canal.
- Environmental studies, permitting and construction easement acquisition.
- Contractor procurement.
- Installation of up to 3.5 miles of 30-inch HDPE pipe. (see Figure 1 and Appendix C for project map).
- Installation of SCADA and flow metering devices.
- Associated flushing valves, air vents, and access road restoration.
- Final reporting to Bureau of Reclamation.

The objectives of the project are to:

- Eliminate water losses from the canal.
- Improve water management and measuring capabilities.
- Enable farmers to improve their system through on-farm improvements by installing pressurized irrigation systems.
- Increase water supply reliability for local farmers and Moroni City residents.
- Minimize maintenance disturbances.

#### 1.5. EVALUATION CRITERIA

*The evaluation criteria portion of your application should thoroughly address each criterion and sub-criterion in the order presented to assist in the complete and accurate evaluation of your proposal. (Note: it is suggested that applicants copy and paste the below criteria and sub-criteria into their applications to ensure that all necessary information is adequately addressed). Applications will be evaluated against the evaluation criteria listed below. If the work described in your application is a phase of a larger project, only discuss the benefits that will result directly from the work discussed in the technical project description and that is reflected in the budget, not the larger project.*



### 1.5.1. EVALUATION CRITERION A: QUANTIFIABLE WATER SAVINGS

*Up to 30 points may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency by modernizing existing infrastructure. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will be allocated to give greater consideration to projects that are expected to result in significant water savings.*

#### 1.5.1.1. DESCRIBE THE AMOUNT OF ESTIMATED 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. Please include a specific quantifiable water savings estimate; do not include a range of potential water savings.*

##### 1.5.1.1.1. WATER SAVINGS ESTIMATE

The estimated amount of water to be conserved by the project is 1,221 acre-feet per year.

**Table 1. Average Monthly Flows and Estimated Seepage Losses for the M&M Canal**

MONTH	AVG FLOW (CFS)	% SEEPAGE LOSS	SEEPAGE LOSS (AC-FT)
JAN	0.00	0%	0.00
FEB	0.00	0%	0.00
MAR	0.00	0%	0.00
APR	5.84	60%	208.78
MAY	12.43	53%	404.79
JUN	6.58	49%	191.72
JUL	4.41	29%	78.58
AUG	3.72	33%	75.42
SEP	4.28	*43%	109.71
OCT	5.75	*43%	152.10
NOV	0.00	0%	0.00
DEC	0.00	0%	0.00
<b>TOTAL</b>			<b>1,221.10</b>

\*Indicates the % seepage loss is estimated based on the average seepage loss for the year.

#### 1.5.1.2. DESCRIBE CURRENT LOSSES

*Please 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)?*

The water that will be conserved is currently seeping into the ground along the canal. Consolidated seepage is manifesting as several seeps form below the canal; grasses and other vegetation below the canal banks remain green throughout the year. This was particularly noticeable during the extreme drought conditions in 2018.



### 1.5.1.3. DESCRIBE THE SUPPORT/DOCUMENTATION OF ESTIMATED WATER SAVINGS

*Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal. In addition, please note that the use of visual observations alone to calculate water savings, without additional documentation/data are not sufficient to receive credit under this section. Further, the water savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.*

Inflow/Outflow data was collected for the 3.5-mile section of the M&M Irrigation canal during the 2014 and 2018 irrigation seasons, where 2014 was a typical year for irrigation flows and 2018 was during an extreme drought condition. Inflow data was collected using the measuring Parshall flume at the head of the canal (see Figure 4 in Appendix E) and the outflow data was collected using a rectangular weir at the sluice structure before the water enters the piped section of the system (see Figure 5 in Appendix E).

There are two different sets of water flow data collection in 2014. The first set of data was collected by M&M Irrigation personnel at both measuring locations from April 30, 2014 to July 6, 2014. The second set of data was collected by the river commissioner at the head of the canal and M&M Irrigation personnel at the sluice structure from May 28, 2014 to August 14, 2014. While the inflow measurement readings for the second set of data were taken daily by the river commissioner, the outflow data measurements were taken on days where the sluice structure was flushed during the timeframe mentioned above; these dates are shown in the inflow/outflow data set #2 in Appendix E). A comparison and analysis of the two sets of data were completed and complement each other for accuracy. The first set of data reveals an average of 48% of the flow was lost and the second set of data reveals an average of 43% of the flow was lost. By combining the two sets of data, the estimated amount of seepage loss was just over 1,200 acre-feet over the 3.5-mile section of canal in 2014. A description of the analysis and calculations are included below.

The inflows recorded for 2018 by the river commissioner were significantly lower than 2014 due to the extreme drought conditions, which dramatically impacted the water users. By applying the average percentage loss from the data collected in 2014 to the data collected in 2018, M&M Irrigation lost an estimated 655 acre-feet of the annual total inflow of 1,523 acre-feet. It is also important to note that, according to the graph shown in Figure 2, percentage of seepage losses based on canal flows show a much higher percentage of loss when the canal flows are lower; therefore, the losses in 2018 could be much higher.

Additionally, visual observations were made in the fall of 2018 by M&M personnel. It was noted that approximately 2 cfs was flowing at the head of the canal and only 1 cfs was observed at the sluice structure.

**1.5.1.4. ADDRESS THE FOLLOWING QUESTIONS ACCORDING TO THE TYPE OF INFRASTRUCTURE IMPROVEMENT YOU ARE PROPOSING FOR FUNDING.**

*(1) **Canal Lining/Piping:** Canal lining/piping projects can provide water savings when irrigation delivery systems experience significant losses due to canal seepage. Applicants proposing lining/piping projects should address the following:*

*(a) 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.*

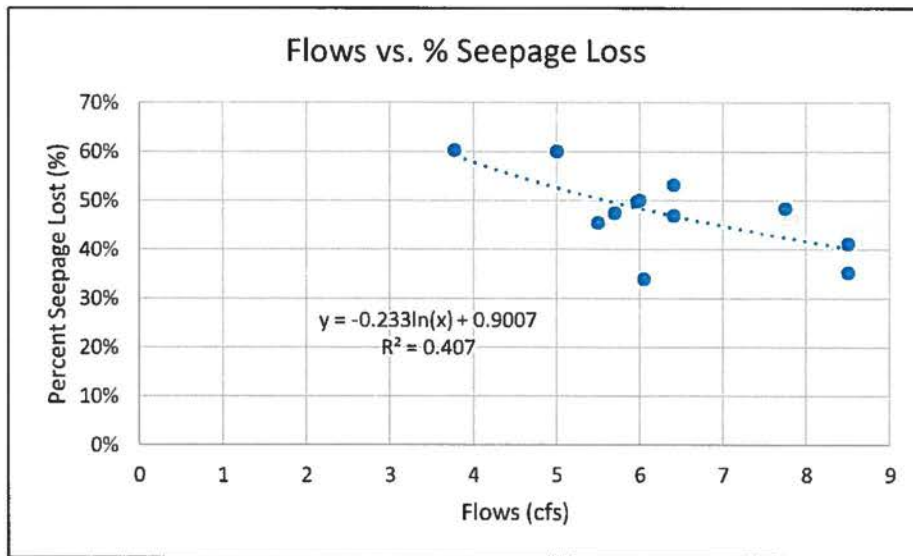
The water savings for this project will result from the decreased seepage losses along the canal. The estimate and supporting data for these water savings is detailed below.

*(b) How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canals.*

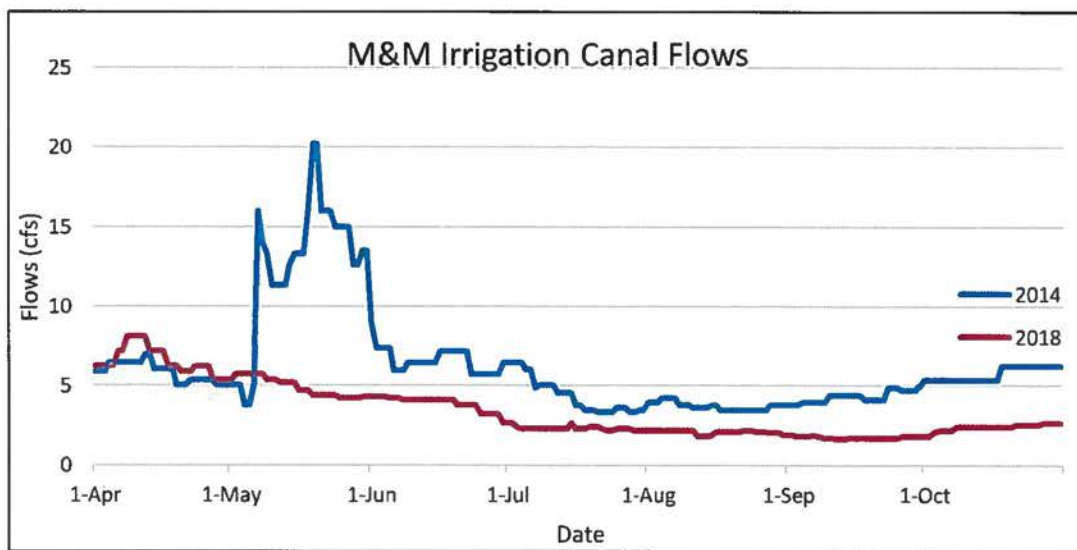
Canal seepage losses were determined using inflow/outflow measurements on the 3.5-mile canal. Data was collected during the spring and summer months from April to August of 2014. With the flow data collected using the Parshall flume (upstream end) and the rectangular weir (downstream end), water losses were determined (see appendix E). It was observed that the rate at which water is lost to seepage is proportional to the amount of discharge in the canal and varies throughout the year. Using the data, a trend line and curve fit were developed to estimate the percentage of seepage losses based on canal flows (see Figure 2 below).

Seepage losses can be estimated for the months that data was collected but is not necessarily representative of the water losses for the entire year. In order to get an estimate for the entire year, the flow data was supplemented with the river commissioner annual reports for both 2014 and 2018. The overall trend in daily flows for the two years was very similar except for the lack of spring high water flows in 2018 due to the extreme drought conditions. (See Figure 2 below)





**Figure 2. Seepage losses as a function of canal flows.**



**Figure 3. Flow rates in M&M Irrigation canal.**

Based on this data, average flow rates for each month were determined. Using the relationship of flows to seepage loss (Figure 2), the percent of water lost for each month was calculated. The sum of these losses constitutes the estimated seepage losses in the M&M Irrigation canal for 2014 (See Table 1). From this analysis it is estimated that the seepage losses for M&M Irrigation canal in 2014 is approximately 1,221 acre-ft. 2014 data was used to estimate the 655 acre-feet loss in 2018. It is important to note that there were lower flow



rates in 2018 but no data was collected at the rectangular weir (downstream end) for those flows. According to the flows vs. % seepage loss relationship shown in Figure 2, greater percentage of seepage loss occurs during lower flows in the canal. Therefore, the estimate for seepage losses in the M&M Irrigation canal for 2018 is lower than what typically is expected, which could be somewhere between 655 acre-feet to 1,221 acre-feet, depending on flows.

*(c) 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)?*

Post-project seepage losses will be eliminated with the installed pipe. Pipe material will be fused, high density polyethylene pipe.

*(d) What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of canal included in the project?*

There is a projected loss reduction of approximately 1,221 acre-feet over the course of about 3.5 miles. This results in 349 acre-feet per mile.

*(e) How will actual canal loss seepage reductions be verified?*

Inflow/outflow testing will be conducted after project completion to verify overall reduction in seepage and increase in efficiency. (See Subcriterion No. F.2 – Performance Measures.)

*(f) Include a detailed description of the materials being used.*

Materials to be used include:

- 30-inch HDPE Pipe, DR 41 & 32.5
- Supervisory control and data acquisition (SCADA) system
- Water depth sensor connected to SCADA
- Flow metering devices
- Gooseneck air vents
- Concrete thrust blocks
- 6" turnouts and valves

***(2) Municipal Metering:***

Municipal metering is not included in this proposal.

***(3) Irrigation Flow Measurement:***

*Irrigation flow measurement improvements can provide water savings when improved measurement accuracy results in reduced spills and over-deliveries to irrigators.*

*(a) How have average annual water savings estimates been determined?*

With the proposed pipe, virtually all water that has been lost due to canal seepage will be saved. It was determined by flow measurements, that on a normal irrigation flow year, 1,221 acre-feet was lost along 3.5 miles of canal. By conveying this water through an enclosed pipe, this water will be saved and put to beneficial use.

*(b) Have current operational losses been determined? If water savings are based on a reduction of spills, please provide support for the amount of water currently being lost to spills.*

Unless the canal is backed up from debris, spills and canal overtopping does not occur. Canal clearing and debris removal occur each year to reduce or eliminate operational losses and spills.

*(c) Are flows currently measured at proposed sites and if so what is the accuracy of existing devices? How has the existing measurement accuracy been established?*

A Parshall flume and stilling well is located at the head of the canal. Measurements are taken from a staff gauge. A rectangular weir is located on the downstream end and those measurements are also taken from a staff gauge bolted to the side of the structure. The accuracy of the measurements are only as good as the observation of the water level along the staff gauge, which can vary by a few tenths of a foot with the naked eye. The four existing turnouts along the canal are not currently being measured, but rather estimated with the use of head gates.

*(d) Provide detailed descriptions of all proposed flow measurement devices, including accuracy and the basis for the accuracy.*

The proposed project includes a SCADA system that will continue to read and record fluctuating flows. A water depth sensor increases the efficiency of reading the data, and according to product brochures, they have an accuracy of +/-0.1%. Flow meters will be installed at the four turnouts along the 3.5 miles of pipe to accurately deliver water and eliminate over deliveries.

*(e) Will annual farm delivery volumes be reduced by more efficient and timely deliveries? If so, how has this reduction been estimated?*

Since the irrigation water is not stored at the head of the canal, water is constantly being delivered and used as appropriated, but water savings from canal seepage will allow the irrigators to receive more of their allotments according to their shares.

*(f) How will actual water savings be verified upon completion of the project?*

The proposed SCADA system and modernized measuring devices will collect and record inflow/outflow data. (See Subcriterion No. F.2 – Performance Measures.)

**(4) Turf Removal:**

Turf removal is not included in this proposal.

**(5) Smart Irrigation Controllers and High Efficiency Nozzles:**

Smart irrigation controllers and high efficiency nozzles are not included in this proposal.

**1.5.2. EVALUATION CRITERION B: WATER SUPPLY RELIABILITY**

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*Up to 18 points may be awarded under this criterion. This criterion prioritizes projects that address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflicts in the region.*

*Please address how the project will increase water supply reliability. Proposals that will address more significant water supply shortfalls benefitting multiple sectors and multiple water users, will be prioritized. General water supply reliability benefits (e.g., proposals that will increase resiliency to drought) will also be considered. Please provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to the following:*

- 1. Will the project address a specific water reliability concern? Please address the following:*
  - Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increase demand, or reduced deliveries. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?*

M&M Irrigation and its shareholders are negatively affected by canal seepage losses and drought. The lack of accurate measuring devices for the individual turnouts along the canal also raises concerns to irrigators, especially during a drought season where water deliveries are initially lower. Moroni City receives irrigation water from M&M. When the water delivery is below their allocated demand, the city pumps water from their underground culinary water wells to make up for the shortage, even though the city implements outside watering restrictions. Underground aquifer levels have lowered, causing some wells owned by residents and farmers outside city limits to dry up, therefore forcing these wells to be drilled deeper.

- Describe how the project will address the water reliability concern? In your response, please address where the conserved water will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address*



*shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.*

The proposed pipeline will eliminate loss due to seepage and evaporation over the remaining open channel canal that shows critical loss for the system. The conserved water will be made available to users for their allocated allotments. Also, with modernized measuring devices, water deliveries will be properly allocated to irrigators and reduce the confrontations that occur over water delivery and use. By eliminating losses caused by canal seepage, groundwater pumping will be greatly reduced, and energy costs associated with pumping will be reduced, therefore conserving the use of culinary water for outdoor usage.

With high amounts of water lost from leaks and seepage along the canal, there is a large volume of water lost during the course of a year of operations. Conserving water is a state priority as well and will benefit users by increasing the efficiency of the irrigation system. The adaptation strategy for this project is directly linked to the increase supply by delivering more water to users that normally was lost through seepage.

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

30" HDPE will be used to pipe the 3.5 miles of canal, which will allow the system to be converted to a pressurized system and make available on-farm improvements and water conservation. SCADA will be installed with a depth sensor at the Parshall flume to more accurately measure and record inflows and flow meters will be installed at the four turnouts along the 3.5-mile section to avoid over deliveries.

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

The project will conserve approximately 1,221 acre-feet of water that will be put to beneficial use.

2. *Will the project make water available to achieve multiple benefits or to benefit multiple water users? Consider the following:*

- *Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?*
  - *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)?*
  - *Will the project benefit a larger initiative to address water reliability?*

M&M Irrigation Company supplies water to farmers, ranchers, and Moroni City. Farming and ranching are a large part of the economy and water plays a major role in their success for raising crops.

- *Will the project benefit Indian tribes?*

The project will not benefit Indian tribes, as the project area is not located on or near tribal land, nor does any tribal member own shares with the M&M Irrigation Company.

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

M&M Irrigation provides water to rural communities in Sanpete County. Approximately 17% of the population in Sanpete County lives below the poverty line, compared to the national average of 14%. Agriculture remains a significant source of income to the area, which makes up 14.6% of the economy in the area. Efficiencies in irrigation systems boost crop production and stimulate the local economy. The demographic percentages listed come from data collected by Data USA in 2016.

3. *Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?*
  - *Is there widespread support for the project?*
  - *What is the significance of the collaboration/support?*
  - *Is the possibility of future water conservation improvements by other water users enhanced by the completion of this project?*
  - *Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?*
  - *Describe the roles of any partners in the process. Please attach any relevant supporting documents.*

There is widespread support for the proposed project given that all parties that are affected would have access to more water. There are many interested entities that stand to benefit from this project. Moroni City, local farmers and ranchers are all stakeholders in the M&M Irrigation Company. All these entities are supportive of this project as it would guarantee more reliability in the delivery of their allotted water. Letters of support have been included in Appendix B from several supporters of this project. Due to drought conditions, irrigators have not received their allocation of the water shares they own. Improving the water delivery efficiency of the system would prevent potential conflicts resulting from the continued lack of water.



### 1.5.3. EVALUATION CRITERION C: IMPLEMENTING HYDROPOWER

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*Up to 18 points may be awarded for this criterion. This criterion prioritizes projects that will install new hydropower capacity in order to utilize our natural resources to ensure energy is available to meet our security and economic needs.*

Implementing hydropower is not applicable to this project. Although M&M Irrigation reduced their energy consumption by purchasing a variable frequency drive (VFD) for their booster pump that lifts water to the Big Pond. The yearly energy costs prior to the VFD was \$19,458.77 and after installing the VFD, last year's energy cost was \$6,038.65. Additionally, the proposed SCADA system in the project will be powered by solar panels to stay as energy efficient as possible.

### 1.5.4. EVALUATION CRITERION D: COMPLEMENTING ON-FARM IRRIGATION IMPROVEMENTS

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*Up to 10 points may be awarded for projects that describe in detail how they will complement on-farm irrigation improvements eligible for NRCS financial or technical assistance.*

*Note: Scoring under this criterion is based on an overall assessment of the extent to which the WaterSMART Grant project will complement ongoing or future on-farm improvements. Applicants should describe any proposal made to NRCS, or any plans to seek funding from NRCS in the future, and how an NRCS-assisted activity would complement the WaterSMART Grant project. Financial assistance through the Environmental Quality Incentives Program (EQIP) is the most commonly used program by which NRCS helps producers implement improvements to irrigation systems, but NRCS does have additional technical or financial assistance programs that may be available. Applicants may receive maximum points under this criterion by providing the information described in the bullet points below. **Applicants are not required to have assurances of NRCS assistance by the application deadline to be awarded the maximum number of points under this sub-criterion.** Reclamation may contact applicants during the review process to gather additional information about pending applications for NRCS funding if necessary.*

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

- *If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.*
- *Applicants should provide letters of intent from farmers/ranchers in the affected project areas.*

The method of irrigation along the 3.5-mile open channel canal has been flood irrigation only. After the system improvements are made, options for on-farm pressurized sprinkler systems will be made available and allow farmers to invest in future improvements. Conversion from flood to sprinkler irrigation provides many benefits, including savings in water and labor. Farmers will be able to cover more ground more uniformly which increases the overall efficiency of the allocated water and increase crop yields. Flood irrigation requires more labor and attention daily as irrigators must regularly move dams throughout the day to ensure adequate water cover and avoid ponding and over saturating. Currently, there is not any ongoing on-farm projects, but there have been multiple projects in the past with the initial 8-mile pipeline project that was completed in 2006. There is interest among many water users for on-farm improvements including pressurized sprinklers. Letters of intent and support from farmers and the NRCS have been included in Appendix B.

- *Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.*
  - *Will the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how? For example, installation of a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.*

OR

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

The proposed project will directly facilitate on-farm improvements by providing a pressurized pipeline that will support sprinklers.

- *Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work*
  - *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.*

The farmers who elect to convert from flood to pressurized sprinkler irrigation will benefit from the water efficiencies. According to Stacy Pease, a soil conservationist with the U.S.



Department of Agriculture's Natural Resources Conservation Service, "average irrigation efficiencies increase from approximately 50 percent to 70 percent after converting from flood to sprinkler irrigation." (Shifting from flood to sprinkler irrigation, 2012)

#### 1.5.5. EVALUATION CRITERION E: DEPARTMENT OF THE INTERIOR PRIORITIES

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*Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports the Department of the Interior priorities. Please address those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. 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.*

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt.*
  - a. *Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment.*
  - b. *Examine land use planning processes and land use designations that govern public use and access.*
  - c. *Revise and streamline the environmental and regulatory review process while maintaining environmental standards.*
  - d. *Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity.*
  - e. *Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands.*
  - f. *Identify and implement initiatives to expand access to DOI lands hunting and fishing.*
  - g. *Shift the balance towards providing greater public access to public lands over restrictions to access.*

Best practices to conserve water and deal with drought are sprinklers over flood irrigation and piping over leaky canals.

2. *Utilizing our natural resources*
  - a. *Ensure American Energy is available to meet our security and economic needs.*
  - b. *Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications.*
  - c. *Refocus timber programs to embrace the entire 'healthy forests' lifecycle.*
  - d. *Manage competition for grazing resources.*

3. *Restoring trust with local communities*

- a. *Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands.*
- b. *Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.*

The proposed project emphasizes the desire M&M Irrigation has in water conservation. Striving to conserve our natural resources and improving our quality of life enhances our abilities to be better neighbors.

4. *Striking a regulatory balance*

- a. *Reduce the administrative and regulatory burden imposed on U.S. industry and the public.*
- b. *Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.*

5. *Modernizing our infrastructure*

- a. *Support the White House Public/Private/Partnership Initiative to modernize U.S. infrastructure.*
- b. *Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs.*
- c. *Prioritize DOI infrastructure needs to highlight:*
  1. *Construction of infrastructure.*
  2. *Cyclical maintenance.*
  3. *Deferred maintenance.*

This project will replace open channel canal with HDPE pipe, which will eliminate water loss due to canal seepage. Modernized SCADA system and measuring devices will ensure accurate water deliveries.

#### 1.5.6. EVALUATION CRITERION F: IMPLEMENTATION AND RESULTS

*Up to 6 points may be awarded for these subcriteria.*

##### 1.5.6.1. SUBCRITERION NO. F.1: PROJECT PLANNING

*Points may be awarded for proposals with planning efforts that provide support for the proposed project.*

***Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) 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, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.*

M&M Irrigation adopted a Water Conveyance Facility Management Plan in October 2016. The plan highlights the goals set by the irrigation company. "Beginning in 1976, M&M Irrigation Company commenced a project to replace all of the open channel sections of canal with pipe. The ultimate goal is to pipe the entire canal, but the project is being completed in stages as resources become available." The irrigation company piped 8 miles of open channel canal in 2006 and they are now ready to complete the remaining 3.5 miles of canal to reach their goal.

- (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 water plan(s).*

The proposed project would result in the stated goal of piping of the entire canal.

#### 1.5.6.2. SUBCRITERION NO. F.2: 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, energy generated or saved).*

*All Water and Energy Efficiency Grant applicants are required to propose a "performance measure" (a method of quantifying the actual benefits of their project once it is completed). A provision will be included in all assistance agreements with Water and Energy Efficiency Grant recipients describing the performance measure and requiring the recipient to quantify the actual project benefits in their final report to Reclamation upon completion of the project. If information regarding project benefits is not available immediately upon completion of the project, the financial assistance agreement may be modified to remain open until such information is available and until a Final Report is submitted. Quantifying project benefits is an important means to determine the relative effectiveness of various water management efforts, as well as the overall effectiveness of Water and Energy Efficiency Grants.*

To verify water savings, a physical measurement will be performed using an Inflow/Outflow test with the modernized measuring devices proposed in the project. The water will be measured flowing in at the head of the system and at the end of the conveyance system at the

pump pond. The post project results will be compared to the existing losses determined in 2014.

#### 1.5.6.3. SUBCRITERION NO. F.3: READINESS TO PROCEED

*Points may be awarded based upon the extent to which the proposed project is capable of proceeding upon entering into a financial assistance agreement.*

*Applicants that describe a detailed plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion.*

- *Describe the implementation plan of the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.*
- *Describe any permits that will be required, along with the process for obtaining such permits.*
- *Identify and describe any engineering or design work performed specifically in support of the proposed project.*
- *Describe any new policies or administrative actions required to implement the project.*
- *Describe how the environmental compliance estimate was developed. Has the compliance cost been discussed with the local Reclamation office?*

The project can begin immediately upon execution of any grant agreement. Engineering design would commence as soon as agreements are in place. Environmental surveys, permitting, and easement acquisition will also start in the fall of 2019 as soon as our limits of disturbance are identified and before weather conditions can impede the necessary environmental surveys. Once the design and environmental surveys are complete, the NEPA analysis would begin and project plans and specifications will be reviewed by the appropriate agencies for approval before a contractor is procured. All easements will be in place and environmental compliance will be complete before construction begins during the fall of 2020. Depending on the severity of winter, construction could be completed by spring 2021. If the contractor was forced to stop construction in the winter due to extreme cold temperatures, and the project was not complete by April 2021, there would not be any construction during the irrigation season; construction would begin again during the fall of 2021 and would be completed by spring 2022. Upon project completion, final reporting and performance measures will be completed and submitted. See Appendix A for the proposed schedule with major tasks and dates.

Staff at the local Bureau of Reclamation office were briefly consulted regarding the development of environmental project costs. Environmental costs were developed by Jones



and DeMille Engineering (JDE) environmental staff after reviewing the location and scope of the proposed project. JDE environmental staff has extensive experience in NEPA, ESA, NHPA, CWA, and other environmental regulations. This specific project is designed to minimize impacts to the natural environment; the majority of the pipeline alignment would be confined to the existing canal, reducing impacts to undisturbed areas. The entire project would occur on privately owned land.

The USFWS IPaC system was accessed on 3-11-2019, and the following species were identified as potentially occurring within the project area: yellow-billed cuckoo and Jones cycladenia. Based on the lack of suitable habitat for either species, there would be no impact to threatened or endangered species. Further, there is no critical habitat for yellow-billed cuckoo within or near the project area. The project area may contain jurisdictional wetlands and would require an aquatic resources delineation as well as permitting with the U.S. Army Corps of Engineers; wetland impacts would likely be considered temporary and it is unlikely that compensatory mitigation would be required. A cultural resource survey would be needed; however, it is unclear as to whether mitigation would be required for impacts to cultural resources. It is assumed that the level of NEPA analysis required for the project would be an Environmental Assessment. Costs for all anticipated environmental tasks have been estimated based on JDE experience of the aforementioned environmental assumptions.

#### 1.5.7. EVALUATION CRITERION G: NEXUS TO RECLAMATION PROJECT ACTIVITIES

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*Up to 4 points may be awarded if the proposed project is in a basin with connections to Reclamation project activities. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.*

- *Is the proposed project connected to Reclamation project activities? If so, how?  
Please consider the following:*
  - *Does the applicant receive Reclamation project water?*
  - *Is the project on Reclamation project lands or involving Reclamation facilities?*
  - *Is the project in the same basin as a Reclamation project or activity?*
  - *Will the proposed work contribute water to a basin where a Reclamation project is located?*

There was a Water Quality Management Plan completed in January 2006 for the San Pitch River Watershed. The plan discusses the replacement of flood irrigation methods with sprinkler irrigation systems and states the benefits of increased farm productivity, improved water quality by reducing soil erosion and fewer absorbed pollutants (i.e. salt, fertilizer) that

enter downstream water bodies. This was also stated in the Utah State Water Plan, Division of Water Resources, 2001.

The plan also states *“By improving irrigation systems and management, there is the opportunity to improve irrigation practices both on flood and sprinkle irrigated ground. Improved practices will result in better water quality. Irrigation companies can assist with improved water quality by lining or piping canals. This reduces the sediment loading during the transport of the water from the supply source to the croplands. Several major irrigation companies that provide water for irrigation within the San Pitch River Watershed include the following:”* (5.14 Irrigated Cropland). M&M Irrigation Company is one of the irrigation companies identified in the plan.

- *Will the project benefit any tribe(s)?*

The proposed project does not involve or benefit any tribes.

#### 1.5.8. EVALUATION CRITERION H: ADDITIONAL NON-FEDERAL FUNDING

*Up to 4 points may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided using the following calculation:*

$$\frac{\text{Non – Federal Funding}}{\text{Total Project Cost}}$$

The proposed project has \$1,035,322 of Non-Federal funding, with a total project cost of \$1,882,403. The percentage of non-federal funding is 55%.

## 2. PROJECT BUDGET

### 2.1. FUNDING PLAN AND LETTERS OF COMMITMENT

*Describe how the non-Federal share of project costs will be obtained. Reclamation will use this information in making a determination of financial capability.*

#### 2.1.1. LETTERS OF COMMITMENT

*Project funding provided by a source other than the applicant shall be supported with letters of commitment from these additional sources. Letters of commitment shall identify the following elements:*

- *The amount of funding commitment*
- *The date the funds will be available to the applicant*



- *Any time constraints on the availability of funds*
- *Any other contingencies associated with the funding commitment*

*Commitment letters from third party funding sources should be submitted with your project application. If commitment letters are not available at the time of the application submission, please provide a timeline for submission of all commitment letters. Cost-share funding from sources outside the applicant's organization (e.g., loans or state grants), should be secured and available to the applicant prior to award.*

*Reclamation will not make funds available for an award under this FOA until the recipient has secured non-Federal cost share. Reclamation will execute a financial assistance agreement once non-Federal funding has been secured or Reclamation determines that there is sufficient evidence and likelihood that non-Federal funds will be available to the applicant subsequent to executing the agreement.*

Non-federal funding will be acquired from the Utah Board of Water Resources in the form of a loan in the amount up to 1,035,322. M&M Irrigation will also apply for a \$200,000 grant with the State of Utah Conservation Commission. Letters of support and commitment are included in Appendix B.

#### 2.1.2. FUNDING PLAN

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*Please identify the sources of the non-Federal cost share contribution for the project, including:*

- *Any monetary contributions by the applicant towards the cost-share requirement and source of funds (e.g., reserve account, tax revenue, and/or assessments)*
- *Any costs that will be contributed by the applicant*
- *Any third-party in-kind costs (i.e., goods and services provided by a third party)*
- *Any cash requested or received from other non-Federal entities.*
- *Any pending funding requests (i.e. grants or loans) that have not yet been approved and explain how the project will be affected if such funding is denied.*

The total project cost is \$1,882,403. M&M Irrigation will receive a loan from the Utah Board of Water Resources for up to \$1,035,322. M&M Irrigation will also apply for \$200,000 in a state grant to potentially reduce the loan amount required for the project. The loan will be paid back with assessments to the water users. If the \$847,081 grant requested by this application is not approved, it is unlikely that this project will be implemented until

additional sources of funding can be identified. The loan money will be made available upon execution of any Reclamation grant agreement.

*In addition, please identify whether the budget proposal includes any project costs that have been or may be incurred prior to award. For each cost, describe:*

- o The project expenditure and amount*
- o The date of cost incurrence*
- o How the expenditure benefits the Project*

Project expenses that have already been incurred this year (2019) include engineering costs associated with preparation of financial assistance applications, preliminary cost estimates and schedule, and preliminary conceptual design. The amount of these expenditures is \$2,500 and will not be in-kind contributions nor are they included in the budget proposal. These expenditures have allowed M&M Irrigation to evaluate the need for a pipeline and explore the different funding options available to implement this project.

## 2.2. BUDGET PROPOSAL

*The total project cost (Total Project Cost), is the sum of all allowable items of costs, including all required cost sharing and voluntary committed cost sharing, including third-party contributions, that are necessary to complete the project.*

**Table 2. Total Project Cost Table**

FUNDING SOURCES	FUNDING AMOUNT
<b>Non-Federal Entities</b>	
1. Utah Division of Water Resources	\$1,035,322
2. Utah Conservation Commission	<i>(Pending \$200,000)</i>
Non-Federal Subtotal	\$1,035,322
<b>Other Federal Entities</b>	
1. N/A	
Request Reclamation Funding	\$847,081
Total Project Funding	\$1,882,403

M&M Irrigation has applied for a \$200,000 grant with the Utah Conservation Commission. If approved, the amount from the Utah Division of Water Resources would be reduced by that amount.



*The budget proposal should include detailed information on the categories listed below and must clearly identify **all** items of costs, including those that will be contributed as non-Federal cost share by the applicant (required and voluntary), third-party in-kind contributions, and those that will be covered using the funding requested from Reclamation, and any requested pre-award costs. Unit costs must be provided for all budget items including the cost of services or other work to be provided by consultants and contractors. Applicants are strongly encouraged to review the procurement standards for Federal awards found at 2 CFR §200.317 through §200.326 before developing their budget proposal.*

*It is also strongly advised that applicants use the budget proposal format shown below in Table 2 or a similar format that provides this information. If selected for award, successful applicants must submit detailed supporting documentation for all budgeted costs.*

See Appendix A

### **2.3. BUDGET NARRATIVE**

*Submission of a budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information. The budget narrative provides a discussion of, or explanation for, items included in the budget proposal. The types of information to describe in the narrative include, but are not limited to, those listed in the following subsections. Costs, including the valuation of third-party in-kind contributions, must comply with the applicable cost principles contained in 2 CFR Part §200, available at the Electronic Code of Federal Regulations ([www.ecfr.gov](http://www.ecfr.gov)).*

#### **2.3.1. SALARIES AND WAGES**

*Indicate Project Manager and other key personnel by name and title. The Project Manager must be an employee or board member of the applicant. Other personnel may be indicated by title alone. For all positions, indicate salaries and wages, estimated hours or percent of time, and rate of compensation. The labor rates must identify the direct labor rate separate from the fringe rate or fringe cost for each category. All labor estimates must be allocated to specific tasks as outlined in the applicant's technical project description. Labor rates and proposed hours shall be displayed for each task.*

*The budget proposal and narrative should include estimated hours for compliance with reporting requirements, including final project and evaluation. Please see Section F.3. Program Performance Reports for information on types and frequency of reports required. Generally, salaries of administrative and/or clerical personnel will be included as a portion of the stated indirect costs. If these salaries can be adequately documented as direct costs, they should be included in this section; however, a justification should be included in the budget narrative.*

See Contractual rates, no reimbursement or salary of M&M Irrigation or other staff are anticipated or included in the project budget.

### 2.3.2. FRINGE BENEFITS

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*Identify the rates/amounts, what costs are included in this category, and the basis of the rate computations. Federally approved rate agreements are acceptable for compliance with this item.*

All fringe benefits are included in fixed rates for billing through engineering and construction contracts.

### 2.3.3. TRAVEL

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*Identify the purpose of each trip, destination, number of persons traveling, length of stay, and all travel costs including airfare (basis for rate used), per diem, lodging, and miscellaneous travel expenses. For local travel, include mileage and rate of compensation.*

Travel costs will be part of the contracted portion of the project.

### 2.3.4. EQUIPMENT

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*If equipment will be purchased, itemize all equipment valued at or greater than \$5,000. For each item, identify why it is needed for the completion of the Project and how the equipment was priced. Note: if the value is less than \$5,000, the item should be included under materials and supplies.*

*If equipment is being rented, specify the number of hours and the hourly rate.*

*Local rental rates are only accepted for equipment actually being rented or leased.*

*If the applicant intends to use their own equipment for the purposes of the project, the proposed usage rates should fall within the equipment usage rates outlined by the United States Army Corps of Engineers (USACE) within their Construction Equipment Ownership and Operating Expense Schedule (EP 1110-1-8) at [www.publications.usace.army.mil/USACE-Publications/Engineer-Pamphlets/u43545q/313131302D312D38](http://www.publications.usace.army.mil/USACE-Publications/Engineer-Pamphlets/u43545q/313131302D312D38).*

Equipment will be part of the contractual portion of the project. Documentation of all contracts incurred during the project will be properly documented as required and will be made available upon request.

### 2.3.5. MATERIAL AND SUPPLIES

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*Itemize supplies by major category, unit price, quantity, and purpose, such as whether the items are needed for office use, research, or construction. Identify how these costs were estimated (i.e., quotes, past experience, engineering estimates, or other methodology).*



*Note: If the materials/supplies will be furnished and installed under a contract, the equipment should be included in the construction contract cost estimate.*

Materials and supplies will be part of the contractual portion of project and will be documented as required and will be made available upon request.

### 2.3.6. CONTRACTUAL

*Identify all work that will be accomplished by consultants or contractors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task. For each proposed contract, identify the procurement method that will be used to select the consultant or contractor and the basis for selection. Please note that all procurements with an anticipated aggregate value that exceeds the Micro-purchase Threshold (currently \$10,000) must use a competitive procurement method (see 2 CFR §200.320 – Methods of procurement to be followed). Only contracts for architectural/engineering services can be awarded using a qualifications-based procurement method. If a qualifications-based procurement method is used, profit must be negotiated as a separate element of the contract price. See 2 CFR §200.317 through §200.326 for additional information regarding procurements, including required contract content.*

Funding for the project will be used to pay for contractors, construction material, engineering consultants, environmental consultants, and attorney consultation. Engineering services will be awarded using the proper procurement method. A contractor will be procured to perform the construction tasks on the project. The table below includes the design and construction engineering laborer classifications and billing rates.

**Table 3. Design Engineering and Construction Administration Rates**

LABOR	RATE
Senior Project Manager	\$170.00
Project Manager I	\$125.00
Project Engineer	\$115.00
Graduate Engineer	\$97.00
Environmental Scientist	\$100.00
Senior CAD Designer	\$135.00
Senior CAD Technician	\$85.00
Professional Land Surveyor	\$125.00
Construction Project Manager	\$108.00
Administrative Assistant	\$60.00

Project Accountant	\$95.00
Engineering Intern	\$50.00

### 2.3.7. THIRD-PARTY IN-KIND CONTRIBUTIONS

*Identify all work that will be accomplished by third-party contributors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task. Third-party in-kind contributions, including contracts, must comply with all applicable administrative and cost principles criteria, established in 2 CFR Part 200, available at [www.ecfr.gov](http://www.ecfr.gov), and all other requirements of this FOA.*

Not included.

### 2.3.8. ENVIRONMENTAL AND REGULATORY COMPLIANCE COSTS

*Prior to awarding financial assistance, Reclamation must first ensure compliance with Federal environmental and cultural resources laws and other regulations (“environmental compliance”). Every project funded under this program will have environmental compliance costs associated with activities undertaken by Reclamation and the recipient.*

*To estimate environmental compliance costs, please contact compliance staff at your local Reclamation Office for additional details regarding the type and costs of compliance that may be required for your project. Note, support for your compliance costs estimate will be considered during review of your application. Contact the Program Coordinator (see Section G. Agency Contacts) for Reclamation contact information regarding compliance costs and requirements.*

*Environmental compliance costs are considered project costs and must be included as a line item in the project budget and will be cost shared accordingly*

*The amount of the line item should be based on the actual expected environmental compliance costs for the project, including Reclamation’s cost to review environmental compliance documentation. Environmental compliance costs will vary based on project type, location, and potential impacts to the environment and cultural resources.*

*How environmental compliance activities will be performed (e.g., by Reclamation, the applicant, or a consultant) and how the environmental compliance funds will be spent, will be determined pursuant to subsequent agreement between Reclamation and the applicant. The amount of funding required for Reclamation to conduct any environmental compliance activities, including Reclamation’s cost to review environmental compliance documentation,*



*will be withheld from the Federal award amount and placed in an environmental compliance account to cover such costs. If any portion of the funds budgeted for environmental compliance is not required for compliance activities, such funds may be reallocated to the project, if appropriate.*

*Costs associated with environmental and regulatory compliance must be included in the budget. Compliance costs include costs associated with any required documentation of environmental compliance, analyses, permits, or approvals. Applicable Federal environmental laws could include NEPA, ESA, NHPA, CWA, and other regulations depending on the project. Such costs may include, but are not limited to:*

- The cost incurred by Reclamation to determine the level of environmental compliance required for the project*
- The cost incurred by Reclamation, the recipient, or a consultant to prepare any necessary environmental compliance documents or reports*
- The cost incurred by Reclamation to review any environmental compliance documents prepared by a consultant*
- The cost incurred by the recipient in acquiring any required approvals or permits, or in implementing any required mitigation measures*

Staff at the local Bureau of Reclamation office were briefly consulted regarding the development of environmental project costs. Environmental costs are included in the project budget in Appendix A. Approximately two percent (2%) of the total budget was allocated to environmental costs, including environmental coordination with agencies, cultural resource survey, aquatic resource delineation, permitting with the U.S. Army Corps of Engineers, preparation of an Environmental Assessment, and the amount anticipated for Reclamation's review of the environmental compliance documentation. See Appendix A for project budget.

#### **2.3.9. OTHER EXPENSES**

---

*Any other expenses not included in the above categories shall be listed in this category, along with a description of the item and why it is necessary. No profit or fee will be allowed.*

Not Included.

#### **2.3.10. INDIRECT COSTS**

---

*Indirect costs are costs incurred by the applicant for a common or joint purpose that benefit more than one activity of the organization and are not readily assignable to the activities specifically benefitted without undue effort. Costs that are normally treated as indirect costs include, but are not limited to, administrative salaries and fringe benefits associated with overall financial and organizational administration; operation and maintenance costs for facilities and equipment; and, payroll and procurement services. If indirect costs will be*

*incurred, identify the proposed rate, cost base, and proposed amount for allowable indirect costs based on the applicable cost principles for the applicant's organization. It is not acceptable to simply incorporate indirect rates within other direct cost line items.*

*If the applicant has never received a Federal negotiated indirect cost rate, the budget may include a de minimis rate of up to 10 percent of modified total direct costs. For further information on modified total direct costs, refer to 2 CFR §200.68 available at [www.ecfr.gov](http://www.ecfr.gov).*

*If the applicant does not have a federally approved indirect cost rate agreement and is proposing a rate greater than the de minimis 10 percent rate, include the computational basis for the indirect expense pool and corresponding allocation base for each rate. Information on "Preparing and Submitting Indirect Cost Proposals" is available from Interior, the National Business Center, and Indirect Cost Services, at [www.doi.gov/ibc/services/finance/indirect-cost-services](http://www.doi.gov/ibc/services/finance/indirect-cost-services). If the proposed project is selected for award, the recipient will be required to submit an indirect cost rate proposal with their cognizant agency within 3 months of award.*

**Not Included.**

### **3. ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE**

*All projects being considered for award funding will require compliance with the National Environmental Policy Act (NEPA) before any ground-disturbing activity may begin. Compliance with all applicable state, Federal and local environmental, cultural, and paleontological resource protection laws and regulations is also required. These may include, but are not limited to, the Clean Water Act (CWA), the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), consultation with potentially affected tribes, and consultation with the State Historic Preservation Office.*

*Reclamation will be the lead Federal agency for NEPA compliance and will be responsible for evaluating technical information and ensuring that natural resources, cultural, and socioeconomic concerns are appropriately addressed. As the lead agency, Reclamation is solely responsible for determining the appropriate level of NEPA compliance. Further, Reclamation is responsible to ensure that findings under NEPA, and consultations, as appropriate, will support Reclamation's decision on whether to fund a project. Environmental and cultural resources compliance costs are considered project costs. These costs will be considered in the ranking of applications.*

*Note, if mitigation is required to lessen environmental impacts, the applicant may, at Reclamation's discretion, be required to report on progress and completion of these*



commitments. Reclamation will coordinate with the applicant to establish reporting requirements and intervals accordingly.

***Under no circumstances may an applicant begin any ground-disturbing activities (e.g., grading, clearing, and other preliminary activities) on a project before environmental and cultural resources compliance is complete and a Reclamation Grants Officer provides written notification that all such clearances have been obtained. This pertains to all components of the proposed project, including those that are part of the applicant's non-Federal cost-share. An applicant that proceeds before environmental and cultural resources compliance is complete may risk forfeiting Reclamation funding under this FOA. Costs incurred for ground-disturbing activities performed prior to award are not eligible for reimbursement or cost share unless the recipient can provide documentation that Federal environmental and cultural resource clearances were obtained for the Project prior to the commencement of the activities***

See Subcriterion F.3 - Readiness to Proceed for Environmental and Cultural Resources Compliance.

#### **4. 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.*

*Note that improvements to Federal facilities that are implemented through any project awarded funding through this FOA must comply with additional requirements. The Federal government will continue to hold title to the Federal facility and any improvement that is integral to the existing operations of that facility. Please see P.L. 111-11, Section 9504(a)(3)(B). Reclamation may also require additional reviews and approvals prior to award to ensure that any necessary easements, land use authorizations, or special permits can be approved consistent with the requirements of 43 CFR Section 429, and that the development will not impact or impair project operations or efficiency.*

It is assumed that the level of NEPA analysis required for the project would be an Environmental Assessment. It is anticipated that the project would impact jurisdictional waters of the U.S. and would require permitting with the U.S. Army Corps of Engineers. If the project is funded, the construction contractor may be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) and submit an NOI to the Utah Division of Water Quality to gain coverage under the Utah Construction General Permit.

#### **5. 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. Letters of support received after the application deadline for this FOA will not be considered in the evaluation of the proposed project.*

Letters of support from stakeholders are included in Appendix B, including Moroni City and the NRCS.

## **6. OFFICIAL RESOLUTIONS**

*Include an official resolution adopted by the applicant's board of directors or governing body, or, for state government entities, 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 of funding 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.***



**OFFICIAL RESOLUTION  
OF THE  
MORONI & MOUNT PLEASANT IRRIGATION COMPANY**

**RESOLUTION # 1**

**WHEREAS**, the United States Department of the Interior, Bureau of Reclamation has announced the *WaterSMART Water and Energy Efficiency Grants* in order to prevent water supply crises and ease conflict in the western United States, and has requested proposals from eligible entities to be included in the WaterSMART Program, and

**WHEREAS**, the Moroni & Mount Pleasant (M&M) Irrigation Company has need for funding to complete an irrigation project that will upgrade a conveyance system so that water can be conserved and efficiently delivered to the water users.

**NOW, THEREFORE, BE IT RESOLVED** that the M&M Irrigation Company Board of Directors agrees and verifies that:

1. The application has been reviewed and supports the application submitted;
2. The M&M Irrigation Company is capable of providing the amount of funding as specified in the funding plan;
3. If selected for a WaterSMART Grant, the applicant will work with Reclamation to meet established deadlines for entering into a cooperative agreement; and
4. The Company Official signing this document has the legal authority to enter into this agreement.

DATED: 3-11-19

SIGNED: Frank Eliason

NAME: Frank Eliason  
TITLE: President, M&M Irrigation Company

ATTEST: Yury Pustov

## 7. UNIQUE ENTITY IDENTIFIER AND SYSTEM FOR AWARD MANAGEMENT

*All applicants (unless the applicant has an exception approved by Reclamation under 2 CFR §25.110[d]) are required to:*

- (i) Be registered in the System for Award Management (SAM) before submitting its application;*
- (ii) Provide a valid unique entity identifier in its application; and*
- (iii) Continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by a Federal awarding agency.*

***Meeting the requirements set forth above is mandatory. If the applicant is unable to complete registration by the application deadline, the unique entity identifier must be obtained, and SAM registration must be initiated within 30 days after the application deadline in order to be considered for selection and award.***

*Reclamation will not make a Federal award to an applicant until the applicant has complied with all applicable unique entity identifier and SAM requirements and, if an applicant has not fully complied with the requirements by the time the Reclamation is ready to make an award, Reclamation may determine that the applicant is not qualified to receive a Federal award and use that determination as a basis for making a Federal award to another applicant.*

M&M Irrigation Company has registered with the System for Award Management (SAM), but the process is not complete.

The unique entity identifier will be provided once received.



**APPENDIX A. BUDGET & SCHEDULE**

Owner: Moroni & Mount Pleasant Irrigation Company  
 Project: 2019 Canal Piping  
 Location: M&M Irrigation System  
 Date: March 12, 2019  
 PM: Tyler Faddis  
 Estimate prepared by: Tyler Faddis



1-800-748-5275  
[www.jonesanddemille.com](http://www.jonesanddemille.com)

**PRELIMINARY OPINION OF PROBABLE COST**

	ITEM	QUANTITY	UNIT	UNIT PRICE	COST
1	Mobilization	1	Lump Sum	\$ 33,500.00	\$ 33,500.00
2	Pipe Inlet Structure	1	Each	\$ 6,000.00	\$ 6,000.00
3	SCADA	1	Each	\$ 40,000.00	\$ 40,000.00
4	30 Inch HDPE, DR-32.5	3,700	L.F.	\$ 83.00	\$ 307,100.00
5	30 Inch HDPE, DR-41	14,788	L.F.	\$ 71.00	\$ 1,049,948.00
6	30 Inch Valve	2	Each	\$ 11,000.00	\$ 22,000.00
7	30 Inch Turnout	1	Each	\$ 5,000.00	\$ 5,000.00
8	6 Inch Turnout and Valve	4	Each	\$ 4,000.00	\$ 16,000.00
9	6 Inch Meter	4	Each	\$ 3,000.00	\$ 12,000.00
10	Air Vent	8	Each	\$ 3,500.00	\$ 28,000.00
<b>Construction Subtotal</b>					<b>\$ 1,519,548.00</b>
	Construction Contingency - 10%	1	Lump Sum		\$ 151,955.00
<b>TOTAL PROBABLE CONSTRUCTION COST</b>					<b>\$ 1,671,503.00</b>
<b>ENGINEERING, ENVIRONMENTAL, AND LEGAL PROFESSIONAL SERVICES</b>					
1	Design Engineering	1	Lump Sum	\$ 60,200.00	\$ 60,200.00
2	Construction Easements	1	Hourly	\$ 5,000.00	\$ 5,000.00
3	Construction Engineering/Administration	1	Hourly	\$ 93,700.00	\$ 93,700.00
4	Environmental Compliance/Permitting	1	Hourly	\$ 37,000.00	\$ 37,000.00
5	Federal Contracting Administration	1	Lump Sum	\$ 5,000.00	\$ 5,000.00
<b>Engineering, Environmental, and Easement Services Subtotal</b>					<b>\$ 200,900.00</b>
6	Bonding, Attorney Fees, Permit Fees, Advertising, Financial	1	Lump Sum	\$ 10,000.00	\$ 10,000.00
<b>Bonding, Permitting, Legal Services</b>					<b>\$ 10,000.00</b>
<b>TOTAL PROBABLE PROJECT COST</b>					<b>\$ 1,882,403.00</b>



Project Tasks	2019			2020			2021			2022		
	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr-Sep	Oct	Nov	Dec
Project Award												
Non-Federal Funding												
Engineering Design												
Exemptions/Permitting												
Agencies Plan Review												
Contractor Procurement												
Construction												
Final Reporting												

Moroni & Mount Pleasant Irrigation Company

**APPENDIX B. LETTERS OF SUPPORT & COMMITMENT**





GARY R. HERBERT  
Governor

SPENCER J. COX  
Lieutenant Governor

## State of Utah

### DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

#### Division of Water Resources

ERIC L. MILLIS  
Division Director

March 13, 2019

Frank Eliason, President  
M&M Irrigation Company  
PO Box 447  
Moroni, UT 84646

RE: Letter of Support for M&M Irrigation Company Pipeline Project (RE422)

Mr. Eliason:

The Utah Division of Water Resources understands that M&M Irrigation Company is seeking federal funds to pipe and pressurize approximately 3.5 miles of an existing open canal and install SCADA equipment. Piping open, earthen canals typically saves up to one-third of the water available, and for a project of this size, the savings would be significant. SCADA equipment further improves water management and efficiency.

As an agency, our mission is to plan, conserve, develop and protect Utah's water resources. Through revolving loan funds overseen by the Utah Board of Water Resources, the division is able to provide financial assistance to help construct projects that further this mission. The board has provided funding for numerous projects like this in the past and has adequate funds currently to fund additional projects.

On March 12, 2019, the division received an application from your company requesting a non-federal cost share of approximately \$1,035,000 to help construct the proposed project. The board will take action on your project at its June 20 meeting and, if it authorizes funds, it will take another few months to complete the process and commit funds.

The Utah Division of Water Resources wishes to express its strong support of your project and hopes that you are successful in obtaining the desired federal funding.

Sincerely,

Todd Stonely, P.E.  
Project Funding Manager

TES:db

cc: Tyler Faddis, P.E. Jones & DeMille Engineering (via email)



**SANPETE CONSERVATION DISTRICT**

5 South Main, Suite 203  
Ephraim, Utah 84627



**SUPERVISORS:**

Michael Larson, Scott Sunderland, Scott Mower,  
Jarvis Sorensen, Thomas Blackham

March 13, 2019

To whom it may concern,

Re: Jones and Demille Engineering  
In behalf of M&M Canal Company, Sanpete County, Utah  
WaterSmart Application

The Sanpete Conservation District (CD) supports the application for U.S. Bureau of Reclamation WaterSmart grant funds for the M&M Canal Company. As a Conservation District:

We are acting under Utah State Law 17D-3-103, which gives the Conservation Districts statutory authority: (2) (ii), "...devise and implement on state or private land a measure to prevent soil erosion, floodwater or sediment damage, non-point source water pollution, or other degradation of a watershed or of property affecting a watershed;"; and, (viii) (E): "the development or restoration, or both, of range or forest lands or other natural resources, whether in private, state or federal ownership;".

We believe that this is a good project and that it is in line with the Sanpete Conservation District long range plan and resource assessment. We have noted in our long range plan that the quality and quantity of water is our number one resource concern. We believe that this project will help us achieve water savings and work on the quality of water.

We, as a CD, will also be applying for grant funds for this project in the following amounts to go along with this project:

- NRCS Strategic grant funding in the amount of \$500,000
- State of Utah Conservation Commission grant funding in the amount of \$200,000.

Thank you,

A handwritten signature in black ink that reads "Michael D. Larson". The signature is written in a cursive style with a long horizontal flourish at the end.

Michael Larson, Chair  
Sanpete CD





United States Department of Agriculture

---

3/12/19

Bureau of Reclamation  
P.O. Box 25007  
Denver, CO 80225

Subject: M&M Irrigation

To Whom it may concern;

The Moroni and Mount Pleasant Irrigation Company (M&M) are planning on piping an open channel canal for 3.5 miles. After installation of the pipelines agricultural producers can apply to install on farm irrigation improvements through NRCS programs. The canal runs above the San pitch River, current flood irrigation methods allow tail water to enter the river causing sedimentation and water quality problems. The project falls in the priority area for the San pitch River Stewardship group to improve the river and adjacent land uses.

Sincerely,

Brian R Miller  
NRCS, District Conservationist

Natural Resources Conservation Service  
EPHRAIM FIELD OFFICE  
5 S MAIN ST 2ND FL  
EPHRAIM, UT 84627  
Phone: (435) 283-8004 Fax: (844) 715 - 4933  
Helping People Help the Land

USDA is an equal opportunity provider, employer, and lender.

# Moroni City Corporation

Phone (435) 436-8359 - Fax (435) 436-8178  
PO Box 870, Moroni, Utah 84646



*Mayor Paul Bailey*

---

Frank Eliason, President  
Moroni & Mount Pleasant Irrigation Co.  
P.O. Box 66  
Moroni, UT 84646

RE: M&M Irrigation Co. – 2019 Canal Piping

Dear Mr. Eliason:

I am writing this letter in support of the M&M Irrigation Company, piping the remaining 3.5 miles of open channel earthen canal. This will eliminate water losses due to canal seepage and provide the water savings to be used as intended. I believe this project will enhance the quality of life to the citizens of Moroni City, providing an increase in outdoor water supply and minimizing the use of culinary water from our underground culinary water wells.

Sincerely,

*Orson Cook*

Signature

*3-13-19*

Date

Orson Cook

Print

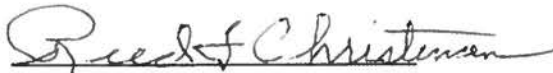
Frank Eliason, President  
Moroni & Mount Pleasant Irrigation Co.  
P.O. Box 66  
Moroni, UT 84646

RE: M&M Irrigation Co. – 2019 Canal Piping

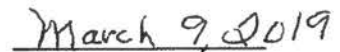
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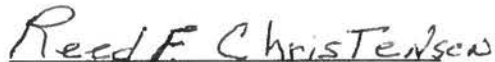
Sincerely,



Signature



Date



Print



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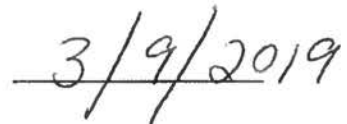
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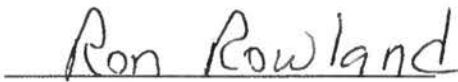
Sincerely,



Signature



Date



Print

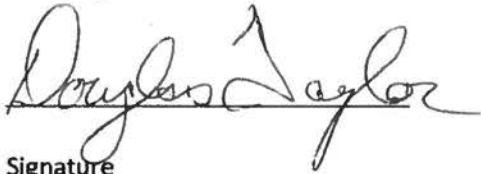
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P.O. Box 66  
Moroni, UT 84646

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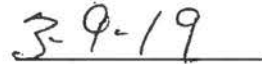
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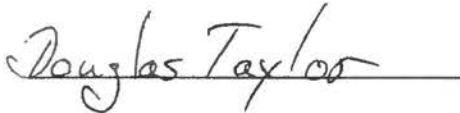
Sincerely,



Signature



Date



Print

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Sincerely,

Frank Eliason

Signature

3-9-19

Date

FRANK ELIASON

Print



Frank Ellason, President  
Moroni & Mount Pleasant Irrigation Co.  
P.O. Box 66  
Moroni, UT 84646

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Sincerely,

  3-12-2019  
Signature Date

CORY C SHAW VICKIE J SHAW 3-12-2019  
Print

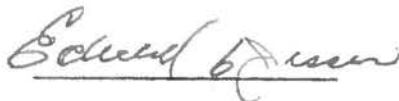
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Sincerely,



Signature

3-12-19.

Date

Edward G. Wessell

Print

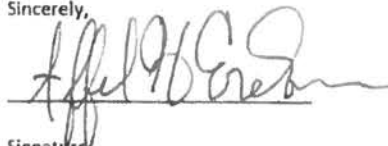
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Sincerely,



Signature

3-12-2019

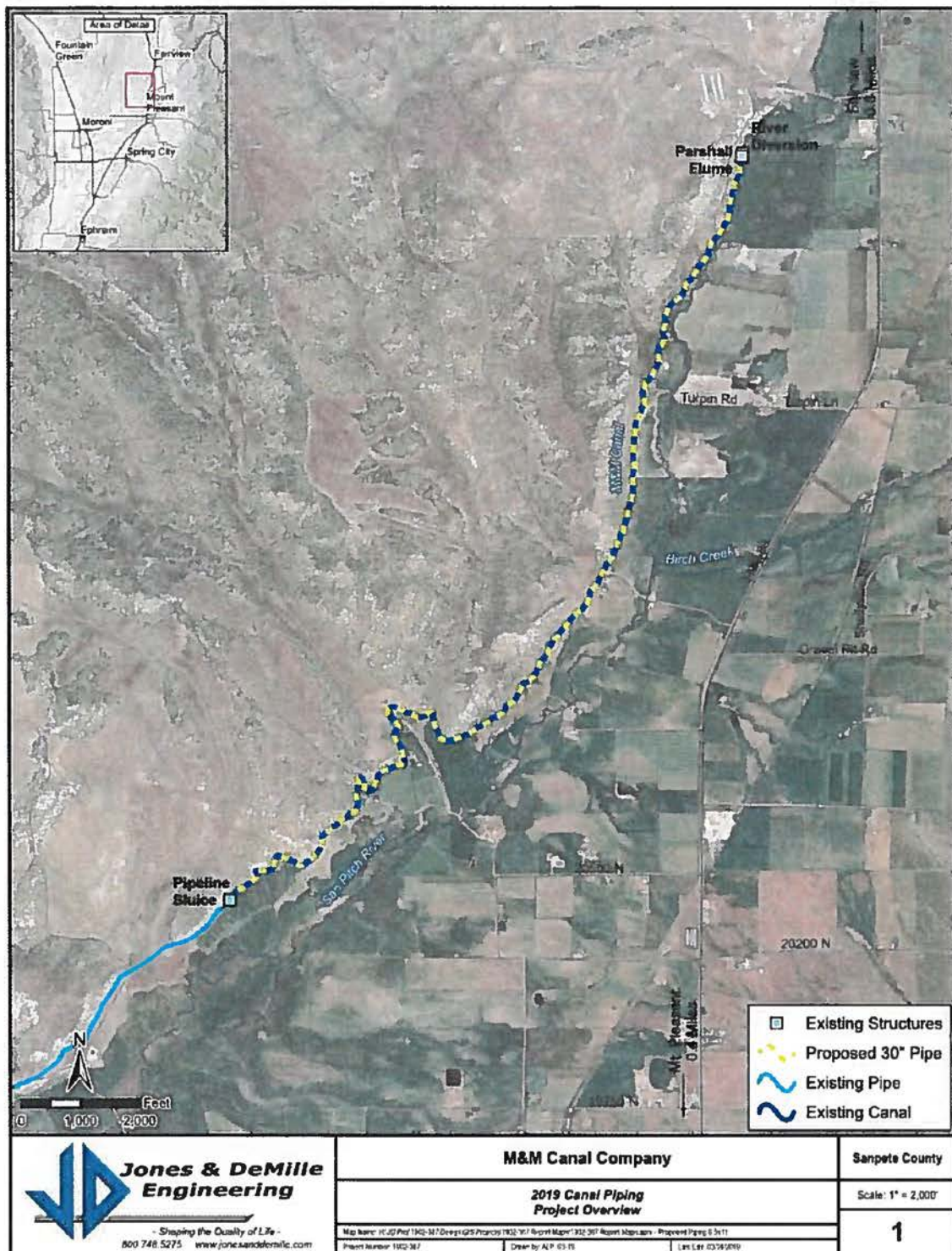
Date

AFFEL H. EREKSON

Print



**APPENDIX C. PROJECT MAP**



**APPENDIX D. PARSHALL FLUME AND RECTANGULAR WEIR DATA**



**Table 4. Inflow/Outflow Data**

<b>Inflow/Outflow Data set #1</b>				
<b>Date</b>	<b>Inflow (CFS)</b>	<b>Outflow (CFS)</b>	<b>Water Loss (CFS)</b>	<b>% Loss</b>
30-Apr	5	2	3	60%
1-May	3.77	1.5	2.27	60%
14-May	8.5	5	3.5	41%
28-May	8.5	5.5	3	35%
2-Jun	7.75	4	3.75	48%
5-Jun	6	3	3	50%
8-Jun	5.5	3	2.5	45%
8-Jun	5.97	3	2.97	50%
11-Jun	6.41	3.4	3.01	47%
14-Jun	6.41	3	3.41	53%
17-Jun	5.5	3	2.5	45%
29-Jun	5.7	3	2.7	47%
30-Jun	6.41	3	3.41	53%
6-Jul	6.05	4	2.05	34%
<b>Daily Average</b>			<b>2.93</b>	<b>48%</b>

Inflow/Outflow Data set #2				
Date	Inflow River Commissioner Records	Outflow M&M Records	Water Loss (CFS)	% Loss
28-May	12.6	5.5	7.1	56%
29-May	12.6	4.5	8.1	64%
31-May	13.5	5	8.5	63%
2-Jun	7.34	4	3.34	46%
5-Jun	7.34	3	4.34	59%
8-Jun	5.97	3	2.97	50%
11-Jun	6.41	3.4	3.01	47%
14-Jun	6.41	3	3.41	53%
17-Jun	7.15	3	4.15	58%
21-Jun	7.15	3	4.15	58%
28-Jun	5.7	4	1.7	30%
29-Jun	5.7	3	2.7	47%
30-Jun	6.41	3	3.41	53%
1-Jul	6.41	5	1.41	22%
3-Jul	6.41	5	1.41	22%
6-Jul	6.05	4	2.05	34%
11-Jul	5.03	2	3.03	60%
13-Jul	4.54	4	0.54	12%
21-Jul	3.33	2	1.33	40%
30-Jul	3.48	3	0.48	14%
1-Aug	3.92	2	1.92	49%
14-Aug	3.62	3	0.62	17%
Daily Average			3.17	43%

**APPENDIX E. PHOTOGRAPHS**





**Figure 4. M&M Irrigation, Head of System**



**Figure 5. Sluice Structure, End of Canal**