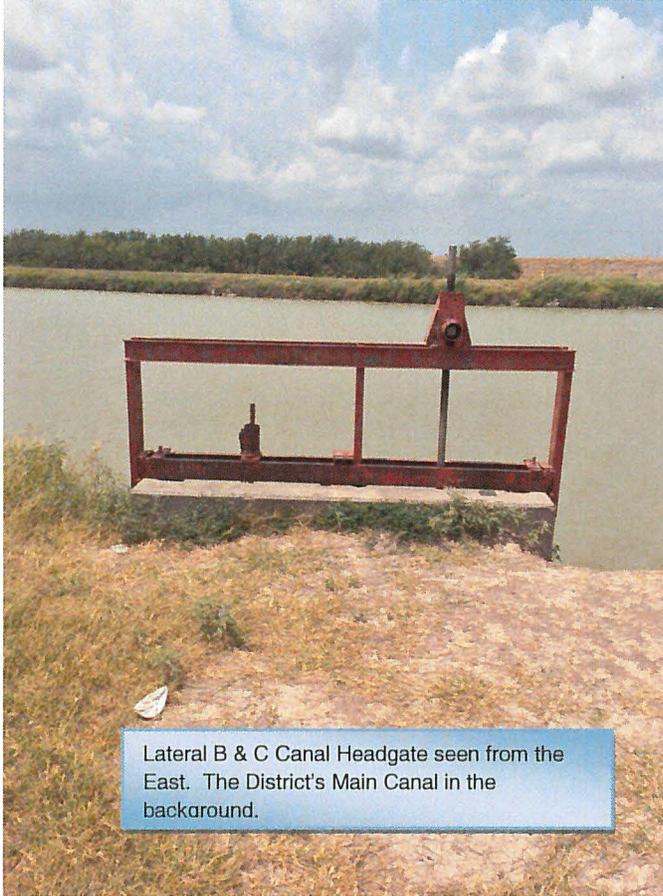


TECHNICAL PROPOSAL

H.C.I.D. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE

Small-Scale Water Efficiency Projects FY 2017 BOR-DO-17-F011



Lateral B & C Canal Headgate seen from the East. The District's Main Canal in the background.

APPLICANT:

Hidalgo County Irrigation District No. 2
326 North Standard Avenue
San Juan, TX 78589

PROJECT MANAGER:

Alfonso A. Gonzalez, P.E.
SWG Engineering LLC
611 Bill Summers Intl Blvd
Weslaco, TX 78596
PH: (956) 968-2194 / FX: (956) 968-8300
alfonso@siglerwinstongreenwood.com

April 24, 2017



Handwritten signature and date: 4/25/17

MAY 1 '17 PM 4:37

TECHNICAL PROPOSAL TABLE OF CONTENTS
Automation of the Lateral B & C Canal Headgate

1. Executive Summary	1
2. Background Data	2
3. Project Description	7
4. Evaluation Criteria	10
E.1.1. Evaluation Criterion A – Planning Efforts Supporting the Projects	10
E.1.2. Evaluation Criterion B- Project Benefits	10
E.1.3. Evaluation Criterion C- Project Implementation	12
5. Environmental and Cultural Resources Compliance	12
6. Required Permits or Approvals	13
7. Official Resolutions	13
8. Project Budget	13

H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL

EXECUTIVE SUMMARY

The Hidalgo County Irrigation District No.2 is located in the Lower Rio Grande Valley within the south-central portion of the Hidalgo County, Texas; refer to the District's General Location Map Figure 1.

The Lateral B Canal and Lateral C Canal begin at approximately 1,800 linear feet east of Jackson Rd. (FM 2061) and four miles South of U.S. Expressway 83 in Pharr, Texas; refer to the general location map **Figure 2**. The Lateral B Canal and Lateral C Canal systems serve **7,809 acres** of farm land corresponding to approximately 32% of the total deliveries and are the District's primary irrigation water conveyance facilities for the service area located east of the Main Canal and south of the IBWC Floodway. Both facilities are earthen open canals fed via the Main Canal and located downstream the River Pumping Plan. Water is diverted from the District's Main Canal into the Lateral B&C Main Trunk, a 7,835 linear feet open earthen canal before the waters are split to each canal system. The District's proposes to automate the Lateral B Canal and Lateral C Canal **by replacing the exiting check gates with a fully integrated Rubicon FlumeGate™ or equal and by adding hardware, and SCADA to operate both systems in real time and ultimately conserve water and energy**. The gates will be powered with solar panels which will implement the use of renewable energy. **Whereas the District's goal is to automate in its entirety both canal systems, the District seeks funding only for the replacement of the Headgate of the Lateral B & C Main Trunk Canal**. The District's proposal to replace only the headgate for both systems meets eligibility for a small scale on the ground efficient projects per FY 2017 BOR-DO-17-F011 Section C3.1. In the years ahead, the District will maintain progress of the overall automation project for both canal systems with the objective of conserving water, energy, and improving the delivery efficiency. The District will continue to work with the U.S. Bureau of Reclamation to ultimately achieve this objective.

The estimated project duration is 75 calendar days with estimated begin date September 2107 and completion date December 2017. The total estimated project cost is **\$149,956.75**. The District has capability to commit **50.00%** of the of total project cost using funds from the District's Capital Improvements Fund. Should the District's proposal be approved for funding, the District projects to utilize **\$74,978.38** from approved grant monies.

The project is located within the District's right of way, and complies with all environmental and cultural resources requirements.

H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL

2. BACKGROUND DATA

The Hidalgo County Irrigation District No.2, hereafter the District, was created in 1920 under the laws of the State of Texas. The District is located in the Lower Rio Grande Valley within the south-central portion of the Hidalgo County, Texas; refer to the Districts General Location Map **Figure 1**. Hidalgo County is one of the eight counties within the Rio Grande Regional Water Planning Group (also known as Region M). Region M is one of sixteen (16) local bodies established by the State of Texas under Senate Bill No. 1 (SB 1) to coordinate long term water supply planning; **Figure 1** provides the map of Region M. The District encloses approximately 71,000 gross acres of land around the cities of Pharr, San Juan, and Alamo Texas. The District borders with the City of McAllen along the western limits, and the City of Edinburg along the northwestern limits. The District's boundary map can be available upon request.

The District holds water rights to divert from the Rio Grande 137,775 acre -foot per year for irrigation purposes, and 12,732 acre-foot per year for domestic, municipal, and industrial (dmi) use.

In addition, the District holds 6,140 acre -foot per year of dmi water rights for the City of McAllen, 4,710 acre -foot per year of dmi water rights for the City of Pharr, 2,030 acre -foot per year of dmi water rights for the City of San Juan, and 1,202 acre -foot per year of dmi water rights for the City of Alamo.

The District also contracts with the City of McAllen, City of Pharr, City of San Juan, City of Alamo, City of Edinburg, and the North Alamo Water Supply Corporation, a rural water supplier, to deliver raw water for dmi use.

The District currently serves 39,731 acres of farmland and has 1,399 active irrigation accounts. The current annual irrigation water demand is 50,231 acre - foot per year. The current annual domestic, municipal, and industrial water demand is 28,044 acre - foot. The District projects a slow decrease in the demand of irrigation water due to the continuous conversion of farmland to residential, commercial, and/or industrial development within the District's boundaries. The projected irrigation water demand by 2020 is 45,062 acre - foot per year. The population of the Rio Grande Valley is projected to triple over the next 50 years; therefore, the District projects an increase in the demand of raw water for municipal and industrial use. The projected municipal and industrial water demand by 2020 is 34,480 acre – foot per year.

Water rights for the Lower Rio Grande were adjudicated by the State of Texas in the late sixties to domestic, municipal, industrial, and agricultural users. Year round, surface water from the Rio Grande is high in demand for domestic, municipal, industries and irrigation (agriculture) use. The surface water from the Rio Grande is always in **potential for shortfall**. In the mid nineties, and again in 2011, the State of Texas suffered a state wide drought. As an alternative to surface water, the municipalities of the Rio Grande Valley have considered other sources as ground water. For the most, ground water in the Rio Grande Valley is brackish. Few municipalities in the Rio Grande Valley have access to a good source of ground water. Some municipalities have been able to make use of the brackish water by blending it with surface water to meet the regulating body requirements for drinking water. Though this practice is only performed to meet the seasonal high demands (summer months). Based on Region M's Regional Water Plan, copy of which can be obtained from <http://www.riograndewaterplan.org>, the population within Region M is projected to triple by 2060. Therefore, the surface water from the Rio Grande will continue to be in potential for shortfall for years to come.

H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL

The primary use of the District's water is for agriculture (irrigation) use. The main crops grown within the District consist of citrus (grapefruit and oranges), sugarcane, cotton, grain sorghum, vegetables (cabbage, onions, and carrots), and pasture.

The District major facilities consist of the following:

- River Pumping Plant

- Re-Lift Pumping Plant

- Unit I – 7 Booster Pump Station

- 334.9 acre (1,800 acre – foot) Settling Basin

- 21 miles of lined canals

- 46 miles of earthen canals

- 225 miles of pipelines

- 74 miles of drainage canals (drainage ditches)

- 85 miles of drainage pipelines

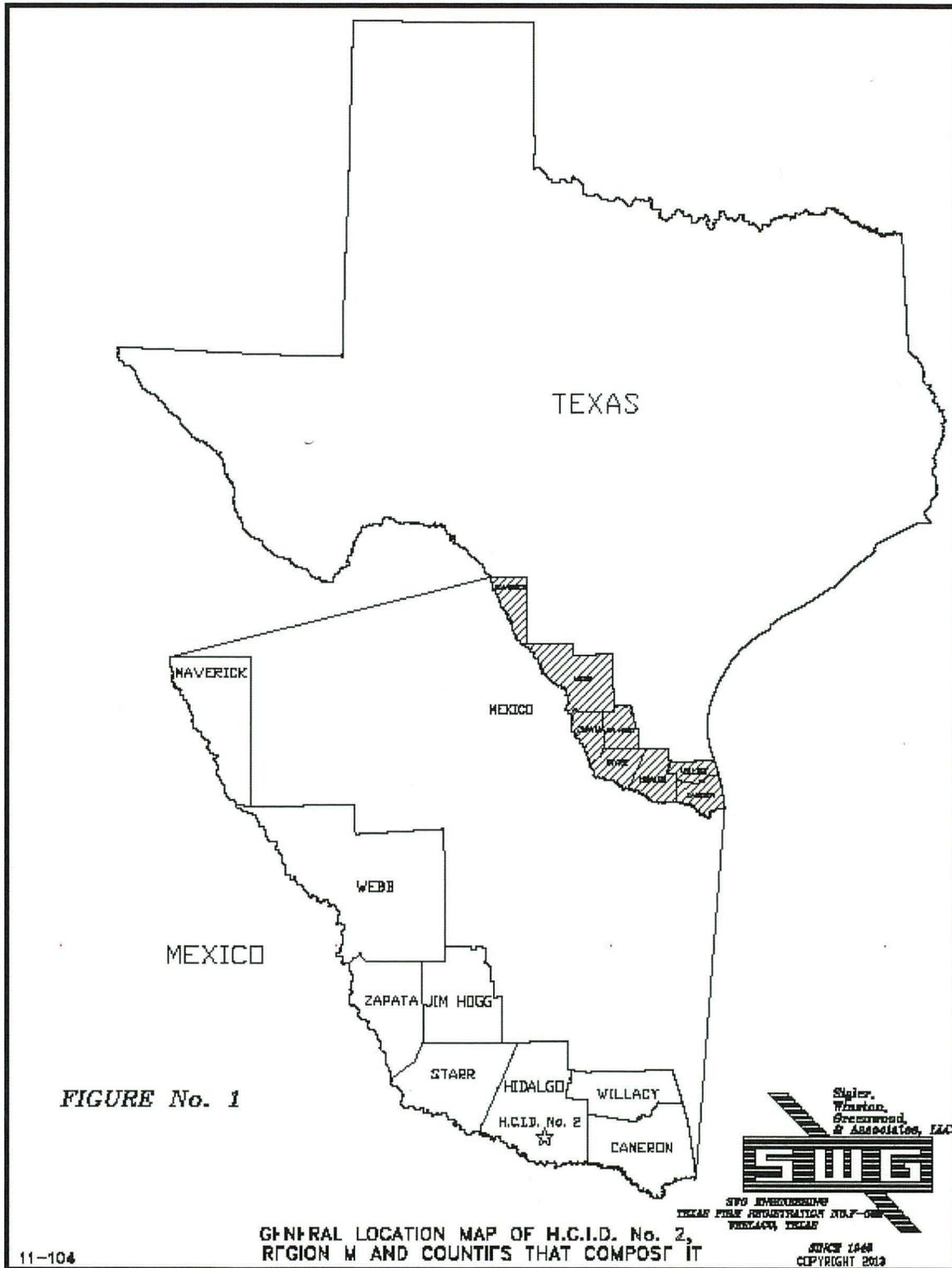
- Lateral A operates in full automation with 8 Automated Gates.

- Lateral E operates in full automation with 5 Automated Gates and one 36" Slipmeter

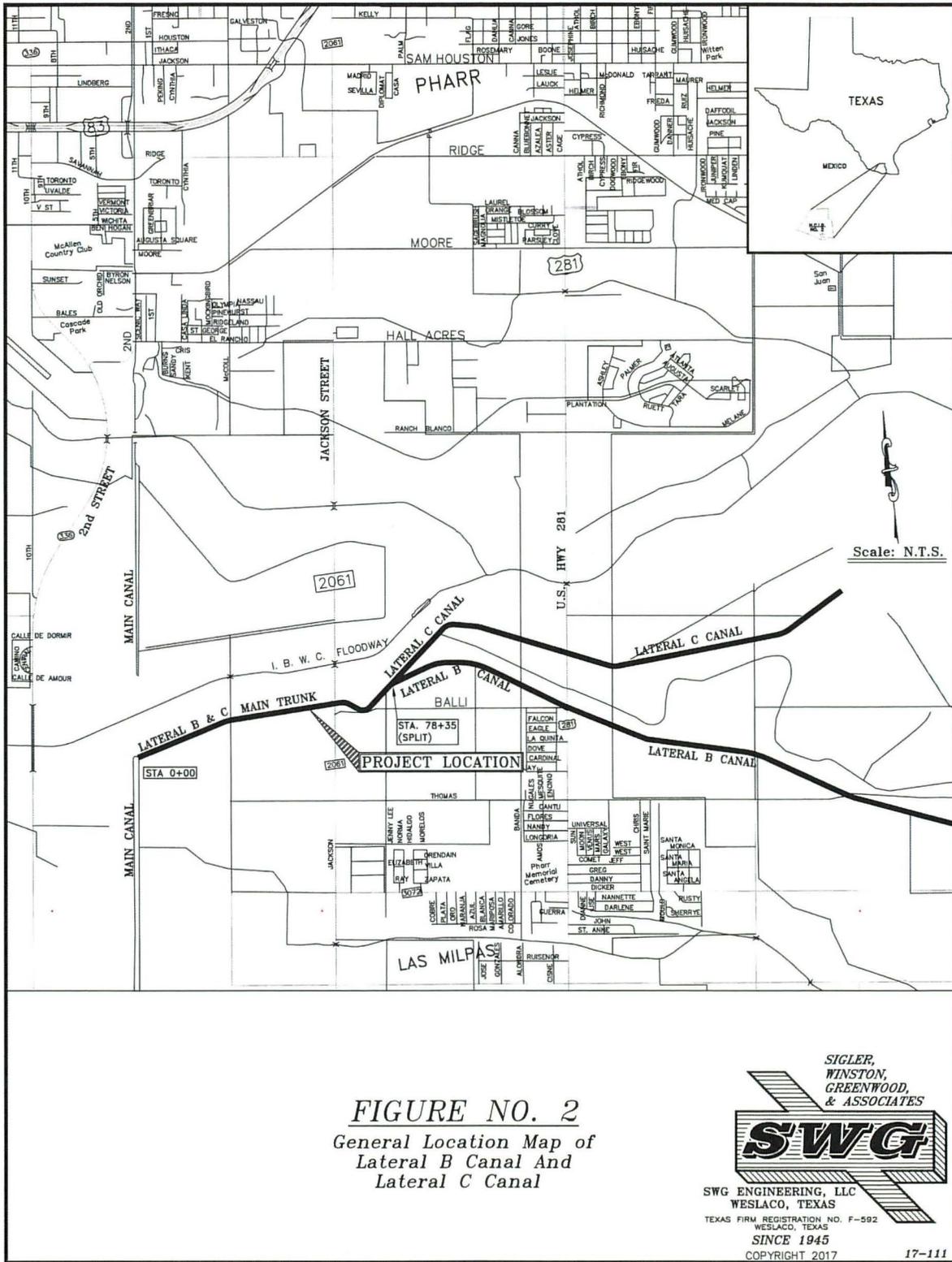
- Alamo Main Canal operates in full automation with 5 Automated Gates and (3) 42" Slipmeters

- Total Canal Automation System located in the District's Main Office

H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL



H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL



H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL

The District has maintained a long relation with the U.S. Bureau of Reclamation. Below is a list of the most recent projects on which the District worked together with the U.S. Bureau of Reclamation;

<u>Project Name</u>	<u>Status</u>	<u>Project Description</u>
River Pump Station	Completed in 1983	Construction of the River Pump Station.
Wisconsin Canal Improvements	Completed in 2004	Replacement of the open canal with a 48" r.c.p. with flexible joints.
Re-lining of Lateral A Canal	Completed in 2005	Relining of the canal using 8-20-8 geocomposite liner covered with 3" of shotcrete.
Replacement of Unit I – 18	Completed in 2008	Replacement of an existing concrete mortar joint pipe-line with r.c.p. w/ flex-joints.
Rehabilitation of the Lateral E Canal	Completed in 2012	Replacement of the existing check gates with integrated Rubicon Flume™ Gates to operate the canal facility in real time.
Rehabilitation of the Lateral A Canal	Completed in 2013	Replacement of the existing check gates with integrated Rubicon Flume™ Gates to operate the canal facility in real time.
Rehabilitation of the Alamo Main Canal	Open	Lining and Replacement of the existing check gates with integrated Rubicon Flume™ Gates to operate the canal facility in real time.

H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL

3. PROJECT DESCRIPTION

The Lateral B Canal and Lateral C Canal are fed via a trunk canal that begins at the District's Main Canal thence it heads east and away from the District's Main Canal for approximately 7,835 linear feet before it splits to its respective branches, the Lateral B Canal and Lateral C Canal. The District's proposes to replace the headgate of the main trunk canal. The District currently operates both the Lateral B Canal and the Lateral C Canal manually. The District's canal operator travels the canal several times a day to adjust the manual slide check gates; therefore, the primary source of energy needed to operate the facility comes from fossil fuel (gasoline) used by the operator's vehicle. Electrical power is employed to deliver water to the Lateral B and C Canals. The water is lifted at the Rio Grande the River Pumping Plant to feed the Main Canal and source of water to both laterals. The District's proposal includes the use of **renewable energy** to operate gate motors, SCADA, radios, hardware, and other equipment needed **to operate the system in real time**.

The canal operator maintains the canal sections at the highest operational level possible thereby maintaining the highest volume of water available in each section (pool) to meet the variable demands. The canal operator travels the canal several times a day to adjust manually the slide check gates up or down to either lower or raise the water surface elevation of the canal sections (pools). The operator lags behind the demand and makes adjustments to the presented conditions resulting in an inefficient operation with some of the canal sections overflowing while other sections lowering below the operational level.

The headgate and the gates found at the split were recently tie to state plane coordinates and each was assigned a field station beginning with Station 0+00 at the Headgate; refer to **Figure 2. The District proposes to replace the existing check gate at Station 0+00 using a fully integrated Rubicon FlumeGate™ or equal and by adding hardware, software, and SCADA to operate the system in real time and ultimately conserve water and energy.** A picture of the current conditions at Station 0+00 can be found in the following page. Whereas the District seeks assistance for funding for the Lateral B & C Main Trunk Canal Headgate only, the District will continue to expand the project and apply to future funding opportunities to complete the automation of both the Lateral B Canal and Lateral C Canal. A preliminary count of existing gates at both systems indicates that there will be need to replace 39 gates, with 20 located in the Lateral B Canal to achieve full automation of both canal systems:

The District proposes selection of the fully integrated Rubicon FlumeGate™ since this a complete package offered by the Rubicon Water Company that includes all components as the hardware, software, SCADA package, radios, tower, antennas, solar panels, aluminum walkways, and all necessary equipment to operate the gates remotely from the District's Office and **attain total canal control**. By implementing total canal control, the District will conserve water by reducing significantly overflow spillage which will translate into energy savings by reduced pumping, and by assuring sufficient pressure in the system the users will be able to push water faster thru the field thus reducing water loss into the subsurface. Other benefits are advanced metering and reduced driving currently needed to manually adjust each gate. The proposed fully integrated Rubicon FlumeGate™ will be constructed of high quality aluminum with an expected service life of forty (40) years. The gate will be equipped with a programmable logic controller (PLC), water level sensors in the upstream side of the gate, and SCADA instrumentation to be remotely operated. The fully integrated flume gate will also be able to measure flow and to communicate to other gates to be installed in future projects. The gate will have

H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL

capability to self adjust to meet a targeted performance whether it be flow or water elevation. In the field, the gate motors, SCADA, electronic hardware, and other instruments will be **powered by solar cells**. **Figure 3** provides a generic detail of the proposed actuated flume gate.



With the implementation of modern equipment as the one offered by the Rubicon Water Company into the District's canal operation it will help improve the efficiencies in the distribution and application of the water. The SCADA instrumentation will allow the operator to remotely set the flows at each gate, or position the gate to maintain the level in the upstream side of the gate structure at a specified level. **In automatic control, the gates will self adjust to meet a target performance, either at a set flow or a water level.** Each gate will release a flow to maintain the level of the pool downstream by continually reading the next gate's upstream level. As water is taken from a pool through a turnout, it is replenished from the pool upstream. In this manner, only the total demand from each pool is drawn through the head gate(s). The gates will be equipped with highly accurate level sensors and **gate position motors that will enable the gate to reliably and accurately measure the flows through the gate.** The sensitive controls will allow each pool to be maintained at the highest operational level thereby maintaining the highest

volume of water available in each pool to meet the variable demands.

The main operation center is located at the District's Main Office where a radio, tower, antenna, PC workstation, network gateway, and license software are already in existence. Flow and water surface elevations will be transmitted to the PC workstation. The data will be available real time and will be saved electronically. From the main operation center, the District will have capability of adjusting the gate to deliver a specific flow, or set these to operate the canal pools at specific water surface elevations, **and monitor the operation of the canal system overall.**

Improvements will be required to install the new actuated flume gate. Improvements will mainly consist of removing the existing check gates, demolishing the existing reinforced concrete gate structures, and construct a new reinforced concrete gate structure. The new reinforced concrete gate structure will provide structural support for the proposed actuated flume gate. The frame of the new gate will be epoxy anchored to the new reinforced concrete gate structure. A manual slide gate will be provided to by-pass the automated gate only in case of malfunctioning. The manual gate will remain closed during normal operation.

The District will maintain the canal facility operating while construction work takes place. The work area will be isolated with cofferdams, and bypassed with a temporary pipe(s). The District will perform all construction work in-kind. The gate manufacturer will install the SCADA hardware and software, and communication equipment needed for the connection of the headgate to the main operation center.

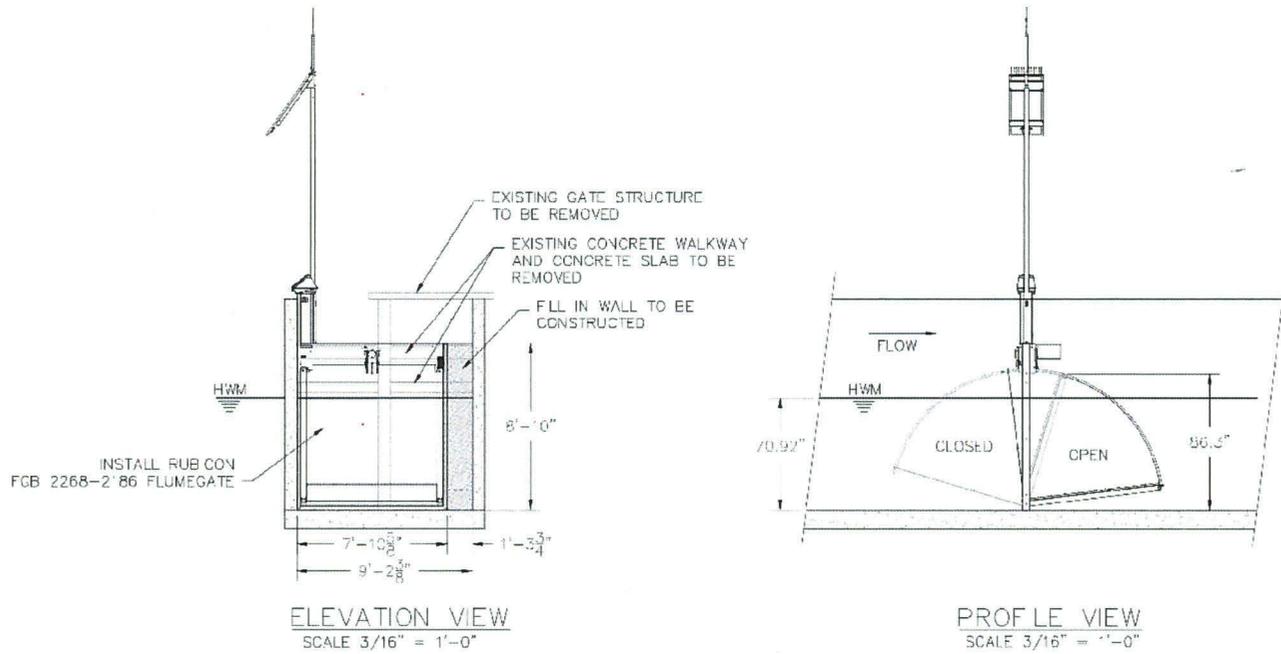


FIGURE NO. 5

REVISIONS		RUBICON™		COPYRIGHT		APPLICABLE STANDARDS		DESIGNED: -		DRAWN: -		DESCRIPTION: -	
0		4563 DENROSE COURT FORT COLLINS, CO 80524 PHONE: 970-482-3290 FAX: 970-482-3222		THIS DRAWING AND ANY INFORMATION SET OUT HEREON IS THE COPYRIGHT PROPERTY OF RUBICON SYSTEMS AUSTRALIA AND MUST NOT BE LOANED, REPRODUCED, COPIED OR USED FOR CONSTRUCTION, MANUFACTURE OR ANY PURPOSE OTHER THAN THAT RELATING TO THE PROJECT FOR WHICH THIS DRAWING WAS WRITTEN WITHOUT WRITTEN PERMISSION FROM RUBICON SYSTEMS AUSTRALIA.		AS 1100		DESIGN CHK: -		DWG CHK: -		GENERIC DETAIL	
No.	DATE	DESCRIPTION	DRAWN	ECN	MATERIAL: -		SHEET No.		DWG. No.		REV. SIZE		
					UNLESS NOTED OTHERWISE, ALL MATERIALS SHALL BE AS SHOWN.						A3		
CAD FILE LOCATION:													

H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL

4. EVALUATION CRITERIA**E.1.1. Evaluation Criterion A – Planning Efforts Supporting the Projects**

The District's proposal to automate the Lateral B Canal and Lateral C Canal is consistent with the water management strategies recommended in the 2016 Rio Grande Regional Water Plan to conserve irrigation water, meter the water delivery flows, improve the irrigation water delivery efficiency, and improve the on farm water use efficiency. The Region M's Regional Water Plan can be downloaded from <http://www.riograndewaterplan.org>.

The Lateral B & C Canals are the District's primary irrigation water conveyance facilities located south of the IBWC Floodway and north of U.S. 281. The Lateral B Canal and Lateral C Canal systems serve **7,809 acres** of farm land corresponding to approximately 32% of the total deliveries. The District determines that resource allocated to capital improvement are best implemented in water conservation projects that allow for improvements to the District's main conveyance facilities as the Lateral B Canal and Lateral C Canal. Since 2011, the District planned and completed the automation to the three largest conveyance systems consisting of the Lateral E, Lateral A, and the Alamo Main Canal. Following these systems are the Lateral B and Lateral C; hence, the decision to proceed with the automation of these canals.

E.1.2. Evaluation Criterion B- Project Benefits

Real time remote operation and automatic logic (self adjustment) of the fully actuated gates will improve management and delivery of the irrigation waters. The District operates both canal facilities at maximum capacity to maximize the deliveries to the users. During operation, the canal rider adjusts the check gates up or down to either lower or fill the different sections (pools) of the canals. Overflow occurs when a section of the canal is filled above capacity. Water lost to overflow spills out of the system to drain into the Arroyo Colorado and eventually reaches the Gulf of Mexico. The Lateral B Canal and Lateral C Canal convey irrigation water year round even during seasons of low demand. By replacing the existing manual check gates with fully integrated Rubicon FlumeGate™ or equal, the District will have capability to operate both canals in real time and ultimately conserve water and energy which is currently lost to a less efficient operational method. The District has implemented the use of this technology in the Lateral A Canal, Lateral E Canal, and Alamo Main Canal, and has significantly improved the efficiency in their water management and delivery operation.

Real time remote operation and automation of the District's delivery system's most significant benefit is the improved water delivery efficiency. By maintaining a high operating canal pool level, the user is assured a constant water pressure; thus, completing the irrigation faster. The higher the canal pressure, the higher flow assured for the user. As a result the user can push the water faster thru the field resulting in a reduced volume of water penetrating into the sub-soil layer (excessive permeation). **The District estimates users can become 3% more efficient with canal automation.** The Lateral B Canal and Lateral C Canal convey an average annual volume of 22,000 ac-ft of irrigation water. Three percent of the total volume conveyed is **660 ac - ft** of water that could be saved by preventing excessive permeation.

As documented in the 2013 Lower Rio Grande Basin Study, "The magnitude and frequency of water supply shortages within the study area are severe, even before projecting the effects of climate change. Based on an analysis of the currently adapted Region M Plan, which is incorporated in the State Water

H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL

Plan, the population in the eight-county region is expected to grow from 1.7 million in 2010 to 4.0 million in 2060, resulting in the need for an additional 592,000 ac-ft/yr, or about 35%, of the total water demand. The State Water Plan identified strategies to meet those needs. This study determined that climate change may likely increase the shortage by an additional 86,438 ac-ft/yr, and this was the focus of this Basin Study.” The water supply issues facing the Lower Rio Grande River basin are extremely complex, ranging from a multi-national to local scale. First, because the **water basin** is shared by both the U.S. and Mexico, numerous issues are presented both politically and technically. Flows within the Lower Rio Grande River are dependent upon reservoir operations and run-off emanating from both the U.S. and Mexico, which is complicated by issues relating to required reservoir releases pursuant to stipulations set forth in the 1944 U.S.-Mexico Water Treaty. The **2013 Lower Rio Grande Basin Study considered on farm and irrigation system water conservation as a management strategy** and states “According to the Texas Project for AgWater Efficiency, **as much as 80% of all agricultural conservation in the Lower Rio Grande area occurs within irrigation district conveyances.**” The Basin Study further states that that water conservation projects such as these are “a vital component of a portfolio of strategies specifically targeted to alleviate the predicted supply imbalance in the study area, **but would be better pursued through other opportunities, including Reclamation’s WaterSMART Water and Energy Efficiency Grants**, with the potential to implement conservation programs.” The completed study can be obtained from;

<http://www.usbr.gov/WaterSMART/bsp/docs/finalreport/LowerRioGrande/LowerRioGrandeBasinStudy.pdf>

The District’s project will address water supply shortages by making the water to be conserved available for future domestic, municipal, and industrial demand. Further, the project will generally make more water available locally and in the water basin. The District’s proposed project will increase the collaboration and information sharing among water managers in the region. Water conservation improvements are welcomed by the by all the regional water managers including water suppliers, irrigation districts, municipalities, private investors, and industry.

Last water conservation projects provide positive impacts and benefits to the local sector and economy. The District’s project concurs with the recommended strategies of the Regional Water Plan to conserve water. The project will have full support from Region M, and Rio Grande Regional Water Authority, and the community over all. The Lower Rio Grande Valley experienced an exceptional drought in 2012 and 2013. Recently, droughts in 2009 contributed to losses of \$19 million for south Texas farmers. Dry land farming was most affected, although irrigated agriculture lost nearly \$1.5 million (Agrilife News, Texas A&M University, Nov. 13, 2009). Other reports have estimated the annual regional impact of agricultural water shortages costs the local economy \$135 million and 4,130 jobs. (J. R. C. Robinson et al. / Water Policy 12 (2010) 114–128 Mitigating water shortages in a multiple risk environment) The economic impacts of unmet irrigation water demands directly contribute to reduced economic activity in other sectors and the slowing or reversal of job growth in the region. In the long term, an economic slowdown could result in water districts forgoing projects that could increase efficiency and provide adequate service to all users. With the shift to urbanization in the region, while continuing to rely on existing scarce supplies, these impacts can be expected to intensify in the future.

H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL

E.1.3. Evaluation Criterion C- Project Implementation

Sigler, Winston, Greenwood, & Associates, hereafter SWG, begin preliminary engineering design to replace the existing headgate in January 2017. A thorough field survey is scheduled for the month of May, 2017, and preparation of the construction plans will also begin at this time. The engineering plans will be available by August 2107.

The Hidalgo County Irrigation District No.2 stands ready to proceed with the project. The District's maintenance and repair crews performed the in-kind construction work in connection to the installation of all automated gates at the Lateral E Canal, Lateral A Canal, and Alamo Main Canal. The crews are skilled and experience to replace the Lateral B & C Main Trunk Canal Headgate. The District also owns power equipment and has capability to perform the excavation, and water diversion. Water diversion will be needed to maintain uninterrupted service for the users. Seasonal low demand begins in September and ends in December; therefore, the construction activities will be scheduled during this period. SCADA hardware and software, and communication equipment will be installed by the gate manufacturing company, and will be scheduled for in November, 2107. Table 1 below provides the project schedule.

Table 1. Project Schedule

Task Name	Duration	Start	Finish
Preparation & Submittal of Grant Appl.	28 days	3/20/2017	4/26/2017
Field Survey	15 days	5/1/2017	5/19/2017
Preparation of Engineering Plans and Specifications	60 days	5/15/2017	8/4/2017
Construction	60 days	9/4/2017	11/24/2017
Installation of SCADA & Instrumentation	15 days	11/27/2017	12/15/2017
Project Concludes	0 days	12/15/2017	12/15/2017

All work will be performed within the District's right of way; therefore, there will be no need for permits or administrative action required to implement the project.

5. ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

Below are direct answers to the outline of questions found under Section D.2.2.5 Environmental and Cultural Resources Compliance of FOA BOR-DO-17-F011.

- The construction activities will have no impact to the surrounding environment. Construction work will take place within the existing canal. The District will maintain the canal facility on-line while construction work takes place. The work area will be isolated with cofferdams and temporarily by-passed with double barrel 36" pipe. Minimum excavation will be required to install the temporary by-pass. The cofferdams may be constructed with sand bags filled with material obtained from a local supplier(s). Alternate means to isolate the work area may consist of employing a synthetic barrier as an Aquadam™ or equal.
- The construction work will have no impact to known species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat. Construction work will be confined within the canal alignment.

H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL

- There are no wetlands or other surface waters inside the project boundaries that potentially fall under Federal Clean Water Act jurisdiction as “Waters of the United States”.
- The water delivery system was constructed in the early 1900. The Lateral B & C Canals were re-constructed in 1973 when the IBWC had to relocate both systems to its current location. At said time both systems were in conflict with the Floodway improvement project; therefore, were relocated to its current location.
- The construction work will impact an individual feature; the head gate of the Lateral B & C Canals. As stated above, this individual feature was constructed in 1973.
- The District is listed on the National Register of Historic Places.
- There are no known archeological sites in the proposed project area.
- The project will not have a disproportionately high and adverse effect on low income or minority populations.
- The project will not limit access to ceremonial use of Indian sacred sites or result in other impacts on tribal lands.
- The project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native species known to occur in the area

6. REQUIRED PERMITS OR APPROVALS

There are no known permits or approvals required. All work will be performed within the District’s canal right of way.

7. OFFICIAL RESOLUTION

The official resolution will be mailed separately as soon it becomes available.

8. PROJECT BUDGET***Funding Plan and Letters of Commitment***

The District has capability to commit 50.00% of the total project cost using funds from the District’s Capital Improvements Fund. The District will perform all construction work in-kind. The letter of Commitment will be mail by the HCID 2 separately as soon as it becomes available.

There will be no other Federal, State, Local, and or third party(ies) partnering with the District to contribute with funds towards the District’s 50.00% percent cost share.

The District does not have any pending funding requests that have not yet been approved.

Budget Proposal

Below is Table 2 containing the Summary of non-Federal and Federal funding sources.

H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL

Table 2. Summary of non-Federal and Federal funding sources.

Funding Sources	Percent of Total Project Cost	Total Cost by Source
Recipient Funding:	50.00%	\$ 74,978.38
Other Recipient Funding:	0.00%	\$0.00
Reclamation Funding:	50.00%	\$ 74,978.38
Other Federal Funding:	0.00%	\$0.00
TOTALS	100.00%	\$149,956.75

Budget Narrative

The unit price used to estimate the cost for the flumegate and SCADA was obtained from a tabulation of a competitive bid received January 7th, 2015. The unit price includes equipment (flumegate, SCADA, hardware as radios, solar panel, batteries, walkway, etc...), installation, insurance, and freight delivery from manufacturing plant to the District's yard.

The District proposes to perform all construction activities in-kind as it did in the Lateral A Canal, Lateral E Canal, and Alamo Main Canal. Rates, wages, demolition and removal work, and material costs as earthen material for the construction of the temporary dams, concrete and steel to construct the new check gate structures were estimated based on the previously listed past in-kind projects performed by District. The unit prices are inclusive of labor, equipment, fuel, tools, and incidentals necessary to remove from the site of work and dispose of the concrete rubble, prepare the site, set forms & steel, pour concrete, remove forms and reinstate the site to original state.

The detailed breakdown of the project cost can be found in the following page.

H.C.I.D. No. 2 AUTOMATION OF THE LATERAL B & C CANAL HEADGATE TECHNICAL PROPOSAL

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
Salaries and Wages				\$11,000.00
Labor to remove exist. check gates and demolish existing concrete structure.	\$125.00	20	hr	\$ 2,500.00
Labor to form and cast new reinforced concrete gate structure; this item includes excavation, setting forms and steel reinforcement.	\$125.00	60.0	hr	\$ 7,500.00
Labor to install the Flumegate.	\$125.00	8.0	hr	\$ 1,000.00
Fringe Benefits				
N/A				
Travel				
N/A				
Equipment				\$40,110.00
FlumeGate, 1 at each structure; includes frame, aluminum Includes calibration, startup, commissioning & training walkway, sensors,	\$28,860.00	1	EA	\$ 28,860.00
SCADA Hardware - Radio, antenna, cables, and equipment	\$9,750.00	1	ea	\$ 9,750.00
Light crane to remove exist. check gates.	\$750.00	1	day	\$ 750.00
Light crane to install the Flumegate.	\$750.00	1	day	\$ 750.00
Supplies and Materials				\$69,972.00
36" Double Barrel Irrigation Water Diversion and Management	\$206.90	130	lf	\$ 26,897.00
Earthen material for construction of temporary dams.	\$11.50	1300	cy	\$ 14,950.00
Removal of exist. reinforced concrete column, beam, and walkway.	\$1,250.00	7	cy	\$ 8,750.00
Structural Concrete.	\$550.00	25	cy	\$ 13,750.00
Steel Reinforcement.	\$15.00	375	lb	\$ 5,625.00
Contractual/Construction				
N/A				
Other				\$28,874.75
Engineering Fees in Connection to Preparation of Grant Application				\$ 1,000.00
Field Surveying Services				\$ 2,891.50
Engineering Fees in Connection to Preparation of Plans & Specifications				\$ 15,903.25
Environmental Review				\$ 5,000.00
Construction Inspection Services	\$1,360.00	3	months	\$ 4,080.00
TOTAL DIRECT COSTS				\$121,082.00
Indirect Costs				\$28,874.75
				\$0.00
TOTAL ESTIMATED PROJECT COSTS				\$149,956.75

RESOLUTION

WaterSMART Small-Scale Water Efficiency Grants

WHEREAS, the Hidalgo County Irrigation District No.2 (District) is applying with the United States Department of Interior-Bureau of Reclamation for grant financial assistance through the WaterSMART (Sustain and Manage America's Resources for Tomorrow) program, Funding Opportunity No. BOR-DO-17-FO11; and,

WHEREAS, Sonny Hinojosa, General Manager of the District, has reviewed the application and is hereby authorized to submit an application and enter into agreement on behalf of the District for the WaterSMART: Small-Scale Water Efficiency Grant; and,

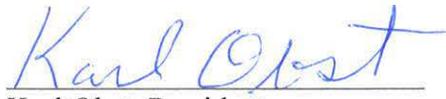
WHEREAS, the District's Board of Directors support the application submitted; and,

WHEREAS, the District has sufficient funds in its Capital Improvements Fund to satisfy its portion of the cost share as specified in the funding plan; and,

WHEREAS, the District is committed to cooperate with the United States Department of Interior-Bureau of Reclamation to meet established deadlines for entering into cooperative agreements.

NOW, THEREFORE, BE IT RESOLVED that the Hidalgo County Irrigation District No.2 prays it is awarded the WaterSMART: Small-Scale Water Efficiency Grant and is fully committed to automate the Lateral B and C Canal Headgate with a fully automated gate as expeditiously as possible to conserve energy and water and help increase future water supplies for agricultural, domestic, municipal, industrial, mining, and environmental purposes.

Passed and adopted this fourth day of May, 2017.
HIDALGO COUNTY IRRIGATION DISTRICT No.2


Karl Obst, President


Fred Schuster, Secretary