

RECLAMATION

Managing Water in the West

**FINDING OF NO SIGNIFICANT IMPACT
AND
DRAFT ENVIRONMENTAL ASSESSMENT
FOR
El Paso County Riverside Canal and Structure Improvement
Project**



**U.S. Department of the Interior
Bureau of Reclamation
Albuquerque Area Office
Environment Division
Albuquerque, New Mexico**

March 2008

MISSION STATEMENTS

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Front Cover Photo Caption – Photo showing Riverside Canal at the Partidor, El Paso, Texas, April 8, 2003

U.S. Department of the Interior

BUREAU OF RECLAMATION

Albuquerque Area Office
Albuquerque, New Mexico

Draft Finding of No Significant Impact

**El Paso County Riverside Canal and Structure Improvement
Project, El Paso County, Texas**

Manager, Environment Division

Date

Area Manager, Albuquerque Area Office

Date

AAO-07-004
FONSI Number

BACKGROUND

The El Paso County Water Improvement District Number One (District) of Texas established in 1917, provides water by way of the Riverside Canal to 69,010 acres of water rights lands. An evaluation of the Riverside Canal System was performed to identify weaknesses that could be corrected. These weaknesses include seepage and evaporation losses, and excess bypass waste flows from check structures. The project would be in cooperation with Reclamation under a Memorandum of Agreement (MOA, see appendix B). In addition, Authorization and requirements for funding the project are written in the Lower Rio Grande Valley Water Resources Conservation and Improvement Act of 2000 (P.L. 106-576), hereinafter referred to as "The Act".

SUMMARY OF THE PROPOSED ACTION

Due to excessive water losses found in the Riverside Canal as a result of evaluations, Reclamation proposes to concrete line the first 3 miles of the canal.

The proposed project area lies within El Paso County, Texas as indicated in Figure 1. The existing components of the segment of the canal system include approximately 16,000 feet of earthen-lined canal with bottom widths varying from 45 to 90 feet. The proposed canal (see Figure 2, section A, B, and C) begins at the downstream end of the existing American Canal. The project is divided into three segments: A, B, and C. Reach B connects to the middle of Reach, A at a point just downstream of the Wastewater Treatment Plant Bridge. Reach A terminates at the Partidor Check Structure. Reach C extends from the Partidor Check structure to the Wasteway One Check Structure.

Canal sections A, B, and C would be concrete lined with side slopes of 1:5:1 and a depth of about 11 feet. Each is designed to carry a maximum flow of 1590 cfs while maintaining about 4 feet of total freeboard. Section A would have a length of 7630 feet and a bottom width of 14 feet. Section B would have a length of 4000 feet and a bottom width of 18 feet. Section C would have a length of 4370 feet and a bottom width of 28 feet.

ENVIRONMENTAL IMPACTS RELATED TO THE RESOURCES OF CONCERN

As a result of analyzing the effects of the proposed action in the EA, the following summarizes the reasons why there would be a Finding of No Significant Impact:

Wildlife

Federally listed threatened and endangered wildlife species are not known to occur on or near the proposed project site. The Pecos River Muskrat known to exist in canals similar to the Riverside Canal was listed by Texas Parks and Wildlife as a Threatened Mammal; but has been delisted as a species of concern. A survey was conducted by the Texas Parks and Wildlife on the proposed canal improvement area. The results of the survey indicated that the Muskrat are living on the project site; but the project would not affect the species.

Cultural Resources

The Riverside Canal is included on the National Register of Historic Places. However, the Texas Historical Commission determined that the proposed improvements to the Riverside Canal have no adverse effects (see environmental commitments).

Wetlands

The Rio Bosque Wetlands Park (Park) immediately adjacent to the Riverside Canal would not be affected by lining the Riverside Canal with concrete. Technically the wetlands park is not a true wetlands as defined by the Army Corps of Engineers. However, the park has been planted with riparian vegetation that could be part of some wetlands. To support this vegetation, the University of Texas at El Paso and the “Friends of the Bosque” have provided surface water to the park. Seepage from the Riverside Canal does not provide any water to the park; therefore lining the canal to eliminate seepage to the aquifer would not affect the vegetation of the park.

Water Resources

Lining the Riverside Canal with concrete to eliminate seepage would not adversely affect the shallow Rio Grande Alluvium aquifer immediately under the canal or the Park.

Vegetation

Currently very little vegetation exists on the proposed project site. Vegetation does exist on the banks of the Riverside Canal. Lining the Canal with concrete would permanently destroy this vegetation. Some of the plant species are sacred plants to the Isleta del sur Pueblo. The Pueblo has indicated that transplanting these species would not be required since the same plants can be found near by along the Rio Grande.

Environmental Justice

Implementing the proposed action would not create any unsuitable affects to low-income or minorities out of proportion to the rest of the population.

Indian Trust Assets

There are no ITAs within the project area or within the vicinity to be affected.

Air Quality and Noise

Increased dust (PM10) and noise would increase during construction. However, construction would be restricted in time to avoid interference with religious ceremonies of the Isleta del sur Pueblo. At the conclusion of construction activities the Air Quality and Noise would return to the levels that currently existed before construction.

ENVIRONMENTAL COMMITMENTS

- Construction activities would be scheduled around the religious ceremonies of the Isleta del sur Pueblo.

The Isleta del sur Pueblo request that construction not be conducted from last week of May to the end of January. This request would mitigate effects of construction on the spiritual ceremonies of the Pueblo. In addition, Sacred plants of the Isleta del sur Pueblo that currently exist in the proposed project site would be surveyed under consultation with the Pueblo to insure that the same plants exist upstream and downstream of the project site. In addition, vegetative surveys would be conducted in the Rio Grande to insure that their sacred plants are not permanently destroyed near the Pueblo.

- A letter from the Texas Historical Commission can be found at Appendix A. The letter lists a few conditions if the project were to be implemented.

The Texas Historical Commission requires that the section of the canal that would be lined should be the same width (or as close to the same width as possible) as the current historic canal. In addition, the Commission requires that a representative section of the canal shall be maintained in its original appearance and condition in the event of any future improvements to the Riverside Canal.

- Should evidence of possible scientific, prehistorical, historical, or archeological data be discovered during the course of this action, work shall cease at that location and the Area archaeologist shall be notified by phone immediately, with the location and nature of the findings. Care shall be exercised so as not to disturb or damage artifacts or fossils uncovered during operations, and the proponents shall provide such cooperation and assistance as may be necessary to preserve the findings for removal or other disposition by the Government.

Any person who knows or has reason to know that he or she has inadvertently discovered human remains on Federal or tribal lands, must provide immediate telephone notification of the inadvertent discovery, with written confirmation, to the responsible Federal agency official with respect to Federal lands, and, with respect to tribal lands, to the responsible Indian tribe official. The requirement is prescribed under the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3042) of November 1990 and National Historic Preservation Act, Section 110(a)(2)(E)(iii) (P.L. 102-575, 106 Stat. 4753) of October 1992.

COORDINATION

Consultation took place with the Corps of Engineers, Texas Parks and Wildlife, US Fish and Wildlife, Friends of the Rio Bosque, Isleta del sur Pueblo, Texas Historical Commission, University of Texas at El Paso, El Paso Improvement District #1, and several private individuals who attended the public meeting. These individuals will have an opportunity to review the EA.

A government to government consultation with the Isleta del sur Pueblo took place on September 25, 2003, to review concerns regarding the proposed project. The Pueblo was concerned about air quality and noise during religious ceremonies and the effects on some of their sacred plants on the banks of the canal. Several informal meetings have been conducted with the Pueblo.

A public meeting was held September 10, 2003 to present the proposed project and receive comments from those who attended.

Additional meetings have taken place with the Friends of the Rio Bosque (Park), to insure that their members understand how the project would not affect groundwater or the park's vegetation.

CONCLUSION

In accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, and based on the analysis in the EA, Reclamation has determined that lining the Riverside Canal would not result in a significant impact on the human environment and does not require the preparation of an environmental impact statement.

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Acronyms and Abbreviations

EA	Environmental Assessment
DM	Departmental Manual
ITAs	Indian Trust Assets
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
Reclamation	Bureau of Reclamation
P.L	Public Law
EPA	Environmental Protection Agency
USGS	United States Geological Survey
MOA	Memorandum of Agreement
EIS	Environmental Impact Statement
UTEP	University of Texas at El Paso
NPDES	National Pollutant Discharge Elimination System
cfs	Cubic feet per second
CFR	Code of Federal Regulations

1.0 Purpose of and Need for Action

1.1. Introduction:

The El Paso County Water Improvement District Number One (District) of Texas proposes to reconstruct a portion of the Riverside Canal system (see map page 2). The project would be in cooperation with Reclamation under a Memorandum of Agreement (MOA, see appendix B). In addition, Authorization and requirements for funding the project are written in the Lower Rio Grande Valley Water Resources Conservation and Improvement Act of 2000 (P.L. 106-576), hereinafter referred to as “The Act”. This environmental assessment will analyze the potential impacts of the proposed action on canal reaches A, B, and C. A more detailed description of the Proposed Action will appear in Chapter 2.

1.2. Proposed Action:

Due to excessive water losses found in the Riverside Canal as a result of evaluations, Reclamation proposes to reconstruct the first 3 miles of the canal. The following five actions were considered for correcting the identified weaknesses:

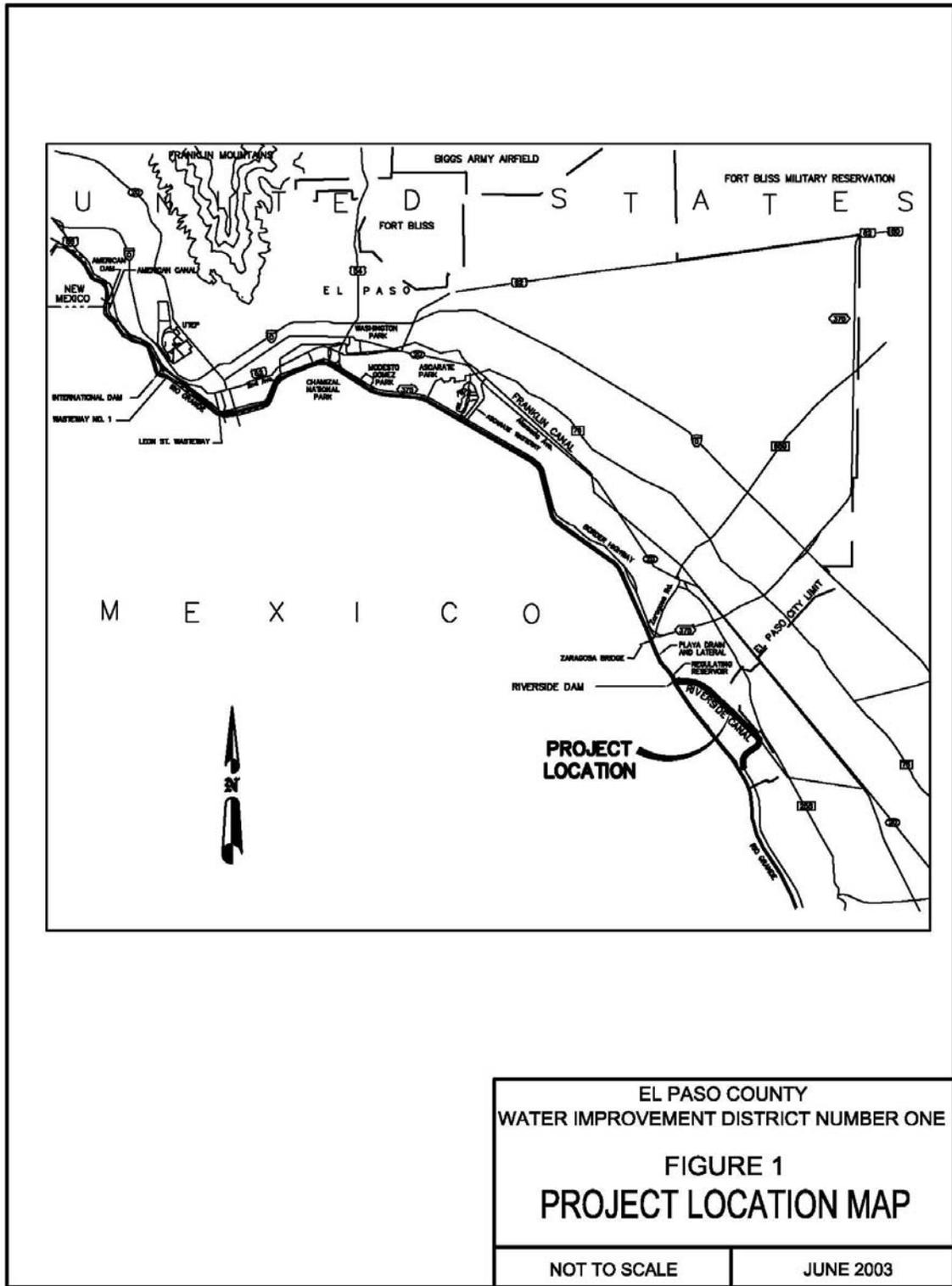
- Elimination of the canals
- Reconstruction of the earthen canal
- Concrete lining of the canal
- Lining the canal with other than concrete
- Replacement of canals with large diameter pipe

An alternative to line the canal with concrete has been subsequently identified as the preferred action. Therefore, the decision to be made would consider the preferred action as an alternative to correct the weaknesses in the canal.

1.3. Need for the Action

In the lower Rio Grande Valley, the Rio Grande has been severely impacted by prevalent drought conditions. A portion of the lower Rio Grande Valley includes the District and the City of El Paso (the City) in far west Texas. Water demands in this region are increasing each year dramatically as a result of population increases (EPA 1997). Waters of the Rio Grande are distributed in accordance with the Congressional Authorizations of Reclamation’s Rio Grande project. The District has primacy use of these surface waters during an eight month irrigation season.

Since 1941, the City has obtained about 43 percent of its water supply from the Rio Grande by way of contracts with the District authorized by the Act of February 25, 1920 (Sale of water for miscellaneous purposes other than for irrigation). The City also obtains 40 percent of its water from the Hueco Bolson groundwater aquifer, and 17 percent from the Mesilla Bolson groundwater aquifer (New Mexico-Texas Water Commission (Commission) 1998, 1999). However, according to the United States Geological Survey (USGS), these aquifers will begin to



run dry and will be severely depleted by 2025 in El Paso. As a result, depleted groundwater will also increase the demand for surface water in the Rio Grande. Therefore, irrigation system improvements, water conservation projects and increased efficiencies are critical to meet this region's growing need for potable water.

Limited options exist which would satisfy the need to increase the water supply. Of these options, conservation holds the greatest advantage over other potential approaches. Conservation programs allow previously developed, higher quality water sources to be extended, effectively creating new, "good" water sources.

1.4. Purpose of the Action:

In an effort to conserve water, the District proposes to correct weaknesses identified in the Riverside Canal System (Canal). These weaknesses were identified in evaluations of the first 2.25 miles of the Canal (District project report 2003). The following summarizes these weaknesses:

- Seepage of water and evaporation losses from existing earthen canals.
- Excess bypass of water and waste flows resulting from limitations of existing check structures.
- Inefficient withdrawal scheduling from the river due to a lack of storage in the system.

Each year the Canal loses approximately 3000 acre feet of water per mile through seepage and 55 acre feet per mile due to evaporation (see District project report 2003). Therefore, the canal loses approximately 7,000 to 9,000 acre feet of water per year in the project area.

In addition, diversion, check, and bypass structures along the project are in poor condition. As a result, inefficient withdrawal scheduling and excess bypass waste flows exist.

Therefore, the purpose and objectives of reasonable alternatives and the proposed action would be as follows:

- 1.4.1.** To reduce or eliminate seepage losses to the groundwater
- 1.4.2.** To reduce evaporation losses due to the current surface area of the canal
- 1.4.3.** Replace inefficient delivery, diversion and check structures

1.5. Laws, Regulations, and EISs that affect this EA:

The referenced MOA, the Act, and the EL Paso-Las Cruces Regional sustainable Water Project EIS (2001 EIS), dated January 16, 2001, affect this EA. Under the MOA dated June 11, 2003, Reclamation agreed to prepare an EA for the project plan to comply with the National Environmental Policy Act (NEPA). The Act requires that a project plan approved by Reclamation be prepared by the District to qualify for funds required for the proposed action.

According to the 2001 EIS (see page 4 and 6 of the Record of Decision), the project or the preferred alternative will strive to deliver water efficiently. In addition, the project will promote water conservation. Therefore, irrigation system improvements, water conservation projects and increased efficiencies are critical to meet this region's growing need for potable water. This EA will address these improvements to promote water conservation. Improvements to the Riverside Canal would help the District to reduce the need for pumping water from the Hueco Bolson groundwater aquifer to provide irrigation water.

1.6. Public Scoping and Issues:

A public meeting was held on September 10, 2003 at the District office. The purpose of the meeting was to provide an opportunity to discuss a proposal to improve the Riverside Canal. Several alternatives were presented including the preferred alternative to line the canal with concrete. Approximately 30 people attended representing the District, University of Texas at El Paso (UTEP), Ysleta del sur Pueblo, Friends of the Rio Bosque, Axiom-Blair Engineering, and Reclamation. Each of the representatives were encouraged to send comments regarding the proposed action in writing to Reclamation. The following issues were discussed:

1.6.1. Pecos River Muskrat

The Pecos River Muskrat was sighted 3 to 4 miles southeast in irrigation ditches. However, it can live in canal systems and around hydraulic structures (Prevention and Control of Animal Damage to Hydraulic Structures, Hegdal and Harbour USDA, BOR, US Government Printing Office, April 1991. page 51.).

1.6.2. Historic Features of the Riverside Canal

The proposed project takes place entirely within the District which is included on the National Register of Historic Places. Three hydraulic structures in excess of 50 years of age will be modified and/or replaced in the proposed project area.

1.6.3. Affects of lining the Canal with concrete to the Rio Bosque Wetlands Park

Lining the canal with concrete near the Rio Bosque Wetlands Park was identified as an issue in the public meeting of Sept. 10, 2003. Additional meetings were held with the Friends of the Bosque to further define their issues regarding the proposed action. Proponents of the park believe that lining the canal with concrete will impact the potential for creating and maintaining a wetlands park.

1.6.4. Affects of lining the Canal with concrete to the groundwater aquifer

Friends of the Bosque believe that lining the canal would affect the groundwater aquifer below the canal and the Rio Bosque Wetlands Park.

1.6.5. Impacts to the culture of the Ysleta del sur Pueblo.

Additional meetings were held with the Yselta del sur Pueblo to further define their issues regarding the proposed action. The following are their concerns:

1.6.5.1. Affects of lining the canal on their sacred plants.

1.6.5.2. Affects of construction activities during religious ceremonies.

1.6.6. Environmental Justice and Indian Trust Assets are issues that are required to be considered by the Department of Interior.

2.0 Description of Alternatives Including the Proposed Action

2.1. Introduction:

This chapter will be devoted to describing and comparing the alternatives including a summary of environmental consequences. The chapter has five sections as follows:

2.1.1. Description of Alternatives

2.1.2. Process Used to Consider, Select, and Eliminate Alternatives

2.1.3. Discussion of Reclamation's Preferred Alternative

2.1.4. Summary Comparison of the Activities, the Predicted Achievement of the Project Objectives, and the Predicted Environmental Effects of All Alternatives (see table on page 10)

2.2. Description of the Alternatives:

2.2.1. No Action Alternative (A):

Implementation of this alternative would not satisfy the purpose and need of the proposed action. Weaknesses in the canal would continue to exist including inefficiencies of the delivery structures. In addition, high seepage and evaporation losses would continue to exist at the present rate.

2.2.2. Proposed Alternative (B)

Three canal sections A, B, and C (see Figure 2, Page 8) would be concrete lined with side slopes of 1:5:1. Although the dimensions would be different for each section, it would be necessary to carry a maximum flow of 1590 cubic feet per second (cfs). The Partidor Check, Franklin Check, and the Wasteway One Check Structures would be replaced with new efficient Structures. The Partidor Check Structure would discharge water to Reach C of the Riverside Canal. The Franklin Check Structure would discharge water to the Franklin feeder, an existing, earthen-lined, irrigation canal which flows to the northeast to feed the Franklin Canal. Both check structures would contain two, twelve-foot wide radial gates to control flow. The Wasteway One Structure is intended to pass water from Reach C to the existing Riverside Canal. Its design would also include a side-channel

weir to allow water to be wasted in an emergency from Reach C to the Rio Grande.

2.3. Process Used to Consider, Select, and Eliminate Alternatives

2.3.1. An effective alternative would correct weaknesses in the canal and help satisfy the need to help increase the water supply and efficiency of water delivery to the District. The following are criteria used for the process to select a preferred alternative:

- 2.3.1.1.** An engineering design that fulfills the objectives listed in section 1.4.
- 2.3.1.2.** An alternative that would be comply with the Lower Rio Grande Act (P.L. 106-576) including any additions to the act that would affect this project.
- 2.3.1.3.** An alternative that would be most cost effective.

2.3.2. The following table compares alternatives considered including the preferred alternative:

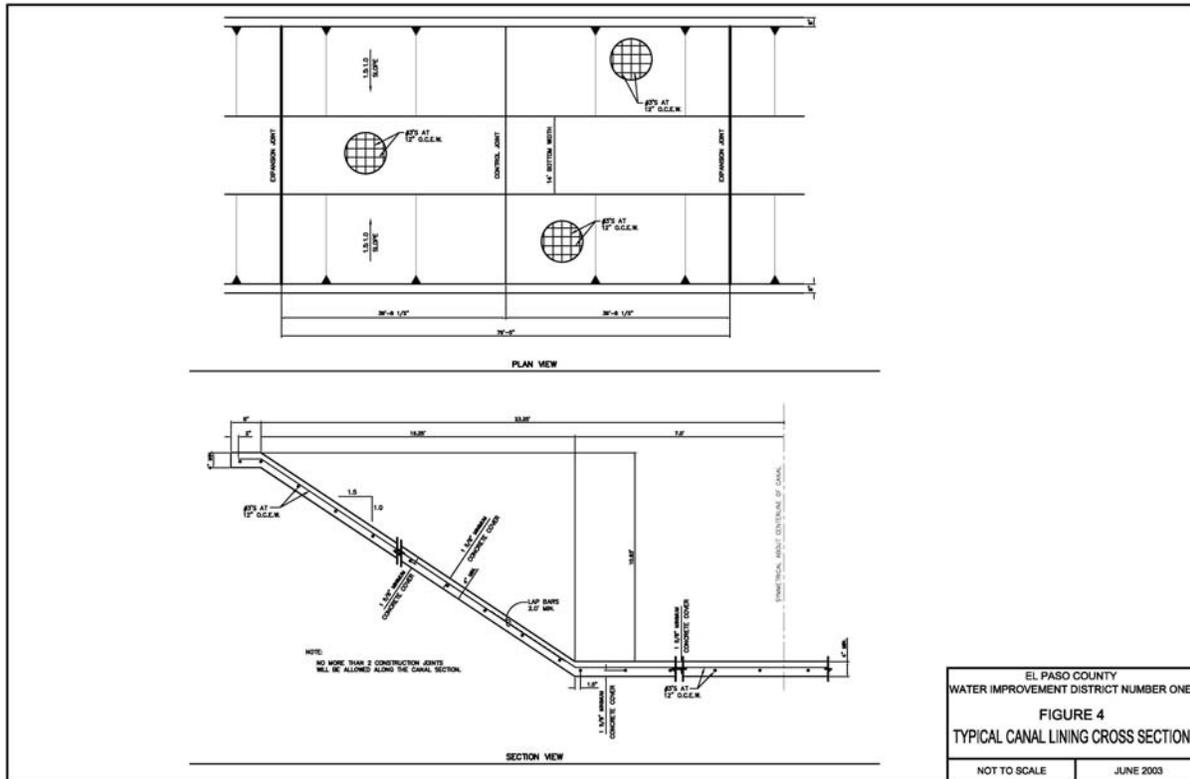
Alternatives Considered	Criteria for Selecting the Preferred Alternative		
	Meets Objective criteria in sections 1.4 and 2.3.1	Complies with Public Law 106-576	Cost Effective
No action	No	No	No
Elimination of canals	No	No	No
Reconstruction of canals	Partially	No	Yes
Replacement of canals with large diameter pipe	Yes	Yes	No
Concrete line canal sections A, B, and C	Yes	Yes	Yes

2.4. Discussion of Alternative B:

The proposed project area lies within El Paso County, Texas as indicated in Figure 1. The existing components of the segment of the canal system include approximately 16,000 feet of earthen-lined canal with bottom widths varying from 45 to 90 feet. The proposed canal (see Figure 2, section A, B, and C) begins at the downstream end of the existing American Canal. The project is divided into three segments: A, B, and C. Reach B connects to the middle of Reach, A at a point just downstream of the Wastewater Treatment Plant Bridge. Reach A terminates at the Partidor Check Structure. Reach C extends from the Partidor Check structure to the Wasteway One Check Structure.

Canal sections A, B, and C will be concrete lined with side slopes of 1:5:1 and a depth of about 11 feet. Each is designed to carry a maximum flow of 1590 cfs while maintaining about 4 feet of total freeboard. Section A has a length of 7630 feet and a bottom width of 14 feet. Section B has a length of 4000 feet and a bottom width of 18 feet. Section C has a length of 4370 feet and a bottom width of 28 feet. A typical canal lining cross-section is shown in Figure 4 as follows:

Figure 3.



The Partidor and Franklin Check Structures would be constructed to allow more concise and efficient management of water within the primary canal systems. Both check structures would contain two, twelve-foot wide radial gates to manage flow. The Partidor check would also contain overflow bypass channels on both sides of the radial gate bays, giving it a total bypass capacity of approximately 1590 cfs. The structures would each be approximately 140 feet long. Transition sections would be constructed from the proposed concrete-lined canal A, into the structure, and through to the Franklin Feeder. A Schematic Check Structure Layout is provided at Figure 5 on page 9.

Also the canal would be lined from the Partidor Check Structure to the Wasteway One Check Structure (see Figure 2, Page 8). The design of Wasteway One Check Structure would match that of the Franklin and Partidor Check Structures. Included at the Wasteway One Check Structure would be the construction of a side-channel weir to allow water to be wasted (in an emergency) or sluiced (for maintenance) from canal reach C to the Rio Grande through an existing wasteway culvert (see Figure 6, Page 9).

Figure 4.

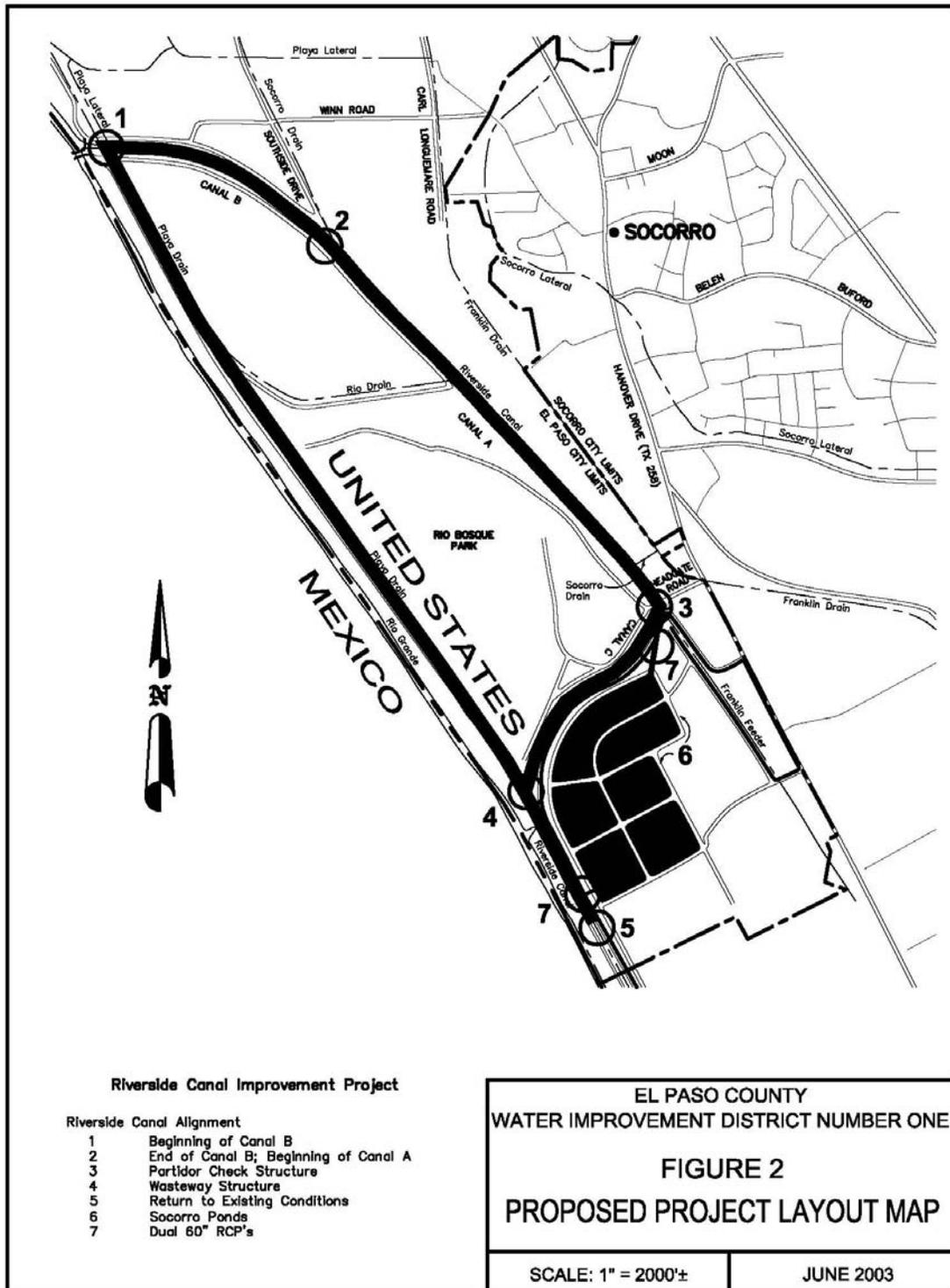


Figure 5.

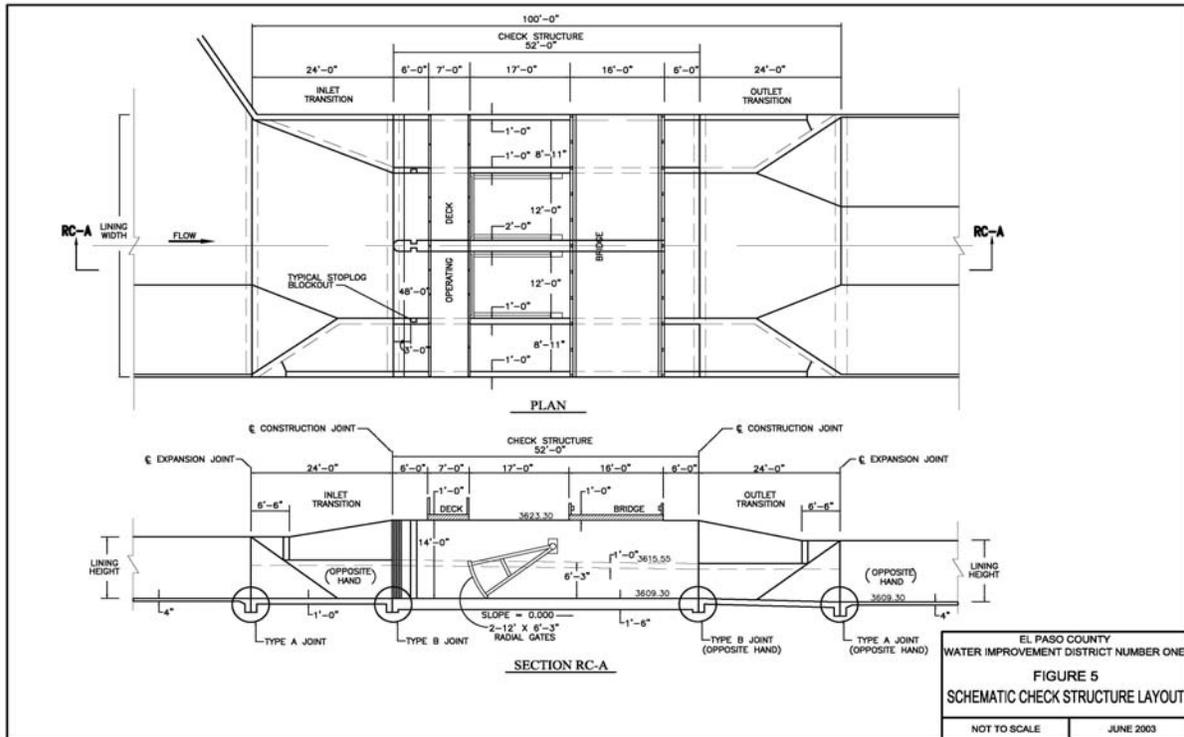
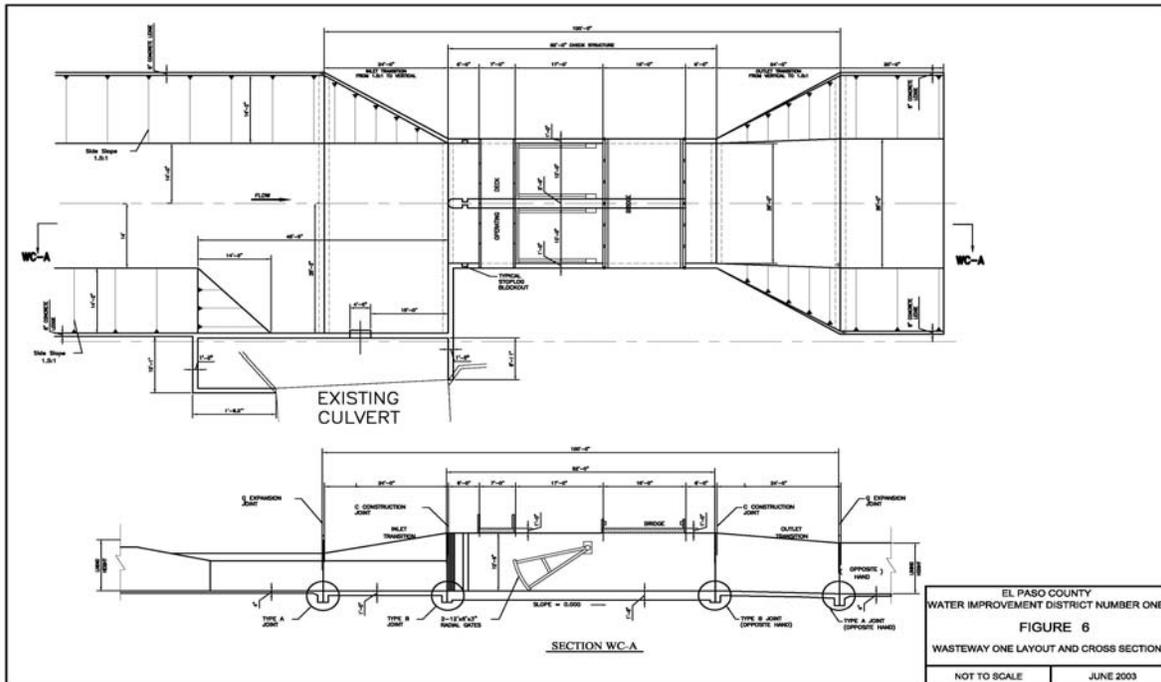


Figure 6.



2.5. Summary Comparison of the Alternatives, the Predicted Achievement of the Project Objectives, and the Predicted Environmental effects of Reasonable Alternatives.

Reasonable Alternatives	Affected Resources	Predicted Impacts (Issues section 1.6) of the Alternatives on the Resources	Predicted Achievement of objective criteria listed in section 1.4 and section 2.4.1 to fulfill the need.
No Action A	Vegetation	None	None
	Threatened and Endangered Wildlife Species	None	None
	Wetlands	None	None
	Water Resources	Continued seepage from the unlined canal	None
	Environmental Justice	None	None
	Indian Trust Assets	None	None
	Cultural Resources	None	None
	Air Quality and Noise	None	None
Proposed Action Alternative B	Vegetation	Destroys vegetation in the canal including some sacred pueblo plants	Not applicable (N/A)
	Threatened and Endangered Wildlife Species	None	N/A
	Wetlands	Eliminating seepage from the canal would not affect the Rio Bosque Park nor the potential for a wetland	Nearly eliminates seepage losses to the groundwater
	Water Resources	Eliminating seepage from the canal will reduce the amount of water going to the Hueco Bolson Aquifer	None
	Environmental Justice	None	None
	Indian Trust Assets	None	None
	Cultural Resources	The canal and the check structures would be replaced	Improvement in deliveries and diversion of water to the canal
	Air Quality and Noise	Increased dust and noise during construction	N/A

3.0 Affected Environment

3.1. Introduction

The relevant resources described in this chapter are those that would have the potential to be affected by the alternatives if they were implemented. The effects (impacts or issues) to these resources created by the alternatives if implemented are discussed in Chapter 4.

3.2. Description of Relevant Resources (see issues from 1.6 of Chapter 1)

3.2.1. Wildlife

Approximately 20 mammal and 216 bird species occur on or near the proposed project site. No known federal Threatened and Endangered species occur on or near the proposed project site. However, the Pecos River Muskrat (Muskrat) which is on the State of Texas Parks and Wildlife Threatened list has been sighted 3 to 4 miles southeast in irrigation ditches. In addition, the Muskrat is also known to live in canal systems and around hydraulic structures (Prevention and Control of Animal Damage to Hydraulic Structures, Hegdal and Harbour USDA, BOR, US Government Printing Office, April 1991. page 51.).

3.2.2. Cultural Resources (Issue #2 Historic Features of the Riverside Canal)

The proposed project takes place entirely within the El Paso County Water Improvement District No.1, which is included on the National Register of Historic Places. Three hydraulic structures in excess of 50 years of age would be replaced in the proposed project area. These structures include the Franklin, Partidor, and Wasteway One Check structures. In addition, the width of the Canal in the project area will be modified. Pages 12 and 13 show pictures of the existing structures on the National Register of Historic Places:

View of the upstream side of Franklin Check Structure (on the left) and the Partidor Check Structure (on the right).



View of the existing Wasteway One and Check Structure on the left.



Typical view of the width of the Riverside Canal as it currently exists



3.2.3. Wetlands

The Rio Bosque Wetlands Park (Park) which exists by name only near the project site does not fit the US Army Corps of Engineer's definition of a wetlands. The following is the definition from 33 CFR § 328.3(b):

The term wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

In addition to the previous definition, the US Army Corps of Engineers Wetlands Delineation Manual requires that one of each of the following criteria for a wetland must exist:

1. Vegetation that has the ability to grow in anaerobic soil conditions (prevalent saturated soil).
2. Soils that have been classified as hydric (saturated conditions that persist for at least 30 consecutive days or more and destroy aerobic bacteria conditions).
3. The area is inundated either permanently or periodically. In addition, surface observation as well as observation within the first 12 to 16 inches of the soil surface showing saturated soil conditions.

The Park may have some of the criteria listed above but not all and as a result would not be considered a wetland.

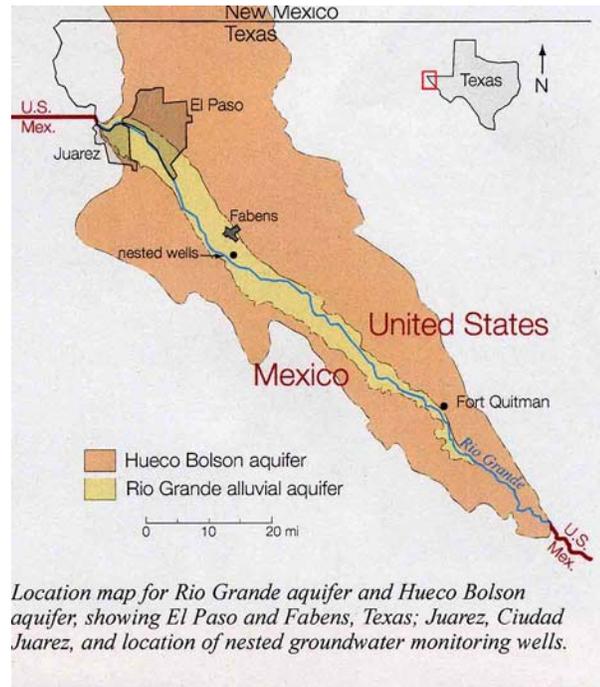
3.2.4. Water Resources (groundwater)

The Aquifer that may be affected by the proposed project is called the Rio Grande Alluvium (Alluvium). This aquifer is located unconfined on top of the Hueco Bolson aquifer and hydraulically connected (IBWC 1993). The Hueco Bolson is the principal aquifer for the Lower El Paso Valley and the Juarez areas. It occupies the majority of El Paso County (see Figure 7, page 15).

The water table of the Alluvium in 1993 was approximately 12 feet. During an aquifer test in 2007 (Axiom-Blair 2007), the Alluvium water table was about 16 feet as compared to 15 feet measured by Alvarez (Alvarez 1980).

Axiom-Blair refers to the shallow unconfined water table during a pump test of a well (CW6) located on the access road of the Riverside Canal. The table on page 15, following Figure 7, is additional data regarding the depth to ground water at other wells along the access road (Figure 8, page 16) adjacent to the Rio Bosque Park:

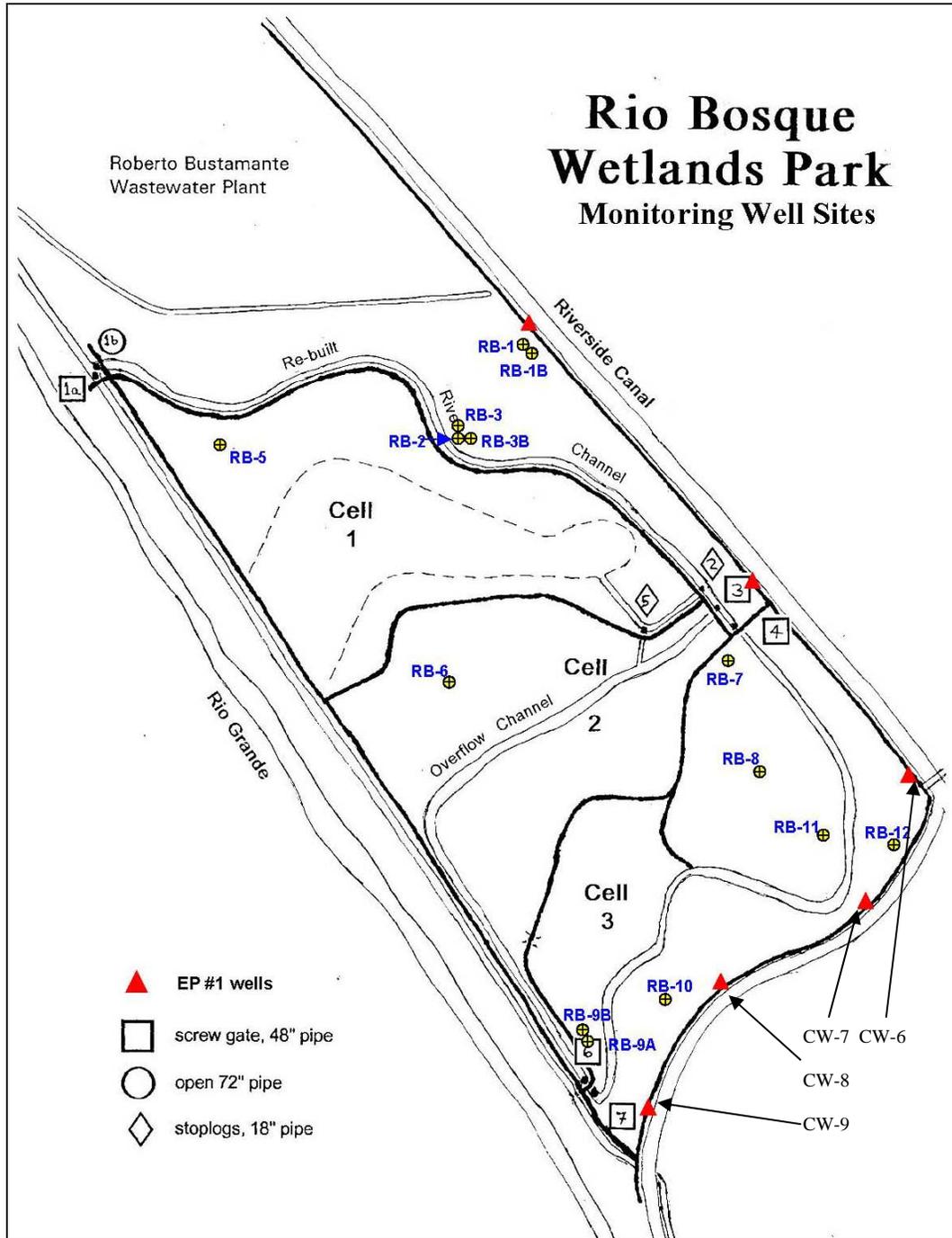
Figure 7.



WELL MEASUREMENTS ALONG THE CANAL REPRESENTING THE ALLUVIUM WATER TABLE		
Well Number	April 11, 2007	April 30, 2007
CW-3	16.3	16.4
CW-4	16.8	17
CW-5	15.8	16
CW-6	17.6	17.4
CW-7	20	19.7
CW-8	17.5	17.1
CW-9	19.6	18.2
Socorro Pond Well	16.1	No measurement

WELL MEASUREMENTS IN THE BOSQUE PARK NEXT TO THE CANAL	
RB-1	9.3
RB-3	8
RB-5	10.2
RB-6	10.4
RB-7	10.4
RB-8	10
RB-9A	15.3
RB-9B	15.4
RB-10	11.5
RB-11	10.9

Figure 8.



Notice in the table, on page 15, wells labeled “RB”. These are groundwater measurement wells in the Bosque Park next to the canal (Figure 8). RB-11 (water table at 10.9 feet) is close to CW-6 (water table at 16 feet) used as the well for the pump test (Axiom-Blair). However, the groundwater table in either case is at the same elevation of 3650 feet above sea level.

The pump test of CW-6, referred to in the previous paragraph, was conducted by Axiom-Blair in July of 2007. Results indicate that after 15 hours of pumping, the CW-6 and CW-7 recovered from the pumping to near the original elevation 6 hours after the pumping stopped. Since wells RB-10 and 11 in the Bosque Park are adjacent to the test wells, recovery of water in those wells are expected to be the same.

Sources of water in the shallow alluvium comes from nearby irrigation, canals systems, and as a result of the hydrologic connection to the deeper Aquifer known as the Hueco Bolson.

3.2.5. Vegetation (Ysleta del Sur Pueblo affected resources)

The following is a table listing traditional plants of the Ysleta del Sur Pueblo in or near the proposed Riverside Canal lining project:

Common Name	Scientific Name (Genus)	Existing in the Riverside Canal
Cottonwood	Populus	No
Grass	Poaceae	Yes
Jaras	Salix	Yes
Jaria	Asteraceae	Yes
Jimson Weed	Datura	No
La lengua de vaca	Rumex/Rheum	No
Quelites	Chenopodium	No
Quelites	Amaranthus	No
Sunflower	Helianthus	No
Te de abuela	Polygonum	No
Tornillo	Prosopis	No
Toritos	Tribulus	No
Trompillo	Solanum	No
Varas	Salix	Yes

Only four plants from this list were found in the canal and proposed project area. The rest of the plants listed are known to exist near the proposed project. (See chapter 4 consequences of the project on traditional and sacred plants)

3.2.6. Environmental Justice

Federal agencies are required to identify and address disproportionately high and adverse human health or environmental effects of its activities on minority and low-income populations. The proposed project site was selected based on the need to reduce seepage and evaporation from the canal. The project would therefore provide additional water through conservation to the farmers of the district. If the proposed project was implemented, additional water would be available for agriculture and, therefore, enhance the possibility of low income families to obtain employment. This project would not have any disproportionate effects on minority or low-income populations.

3.2.7. Indian Trust Assets

Indian trust assets (ITAs) are legal interests in property held in trust by the U.S. for Indian tribes or individuals. For example, ITAs include land, minerals, hunting and finishing rights, and water rights. The proposed project is not anticipated to have any effect on ITAs. The Ysleta del Sur |Pueblo was formally consulted with regarding identification of potential effects on ITAs, traditional cultural properties, sacred sites and other resources important to the Pueblo. No potential concerns related to ITAs have been identified.

3.2.8. Air Quality and Noise

3.2.8.1. Air Quality

EPA Region 6 describes areas along the U.S.-Mexican border that do not meet National Ambient Air Quality Standards (NAAQS). El Paso County is designated as non-attainment for PM-10 (dust). The project area is in an area that fails to meet or attain NAAQS for particulate matter or PM-10. High particulate levels have been attributed to the many unpaved streets and roads in the lower valley (Parkhill, Smith & Cooper, Inc. and CH2M Hill 1997).

3.2.8.2. Noise

Typical noise levels in the project area may normally range from 25 to 60 dBA (A-weighted decibels).

4.0 Environmental Consequences

4.1. Introduction

This chapter discusses the scientific and analytical basis for the summary comparison of effects in section 2.4 of Chapter 2. Included in the chapter are predicted effects of each alternative on selected environmental resources.

4.2. Predicted Effects on Each Relevant Issue and Resources

4.2.1. Wildlife

No Action A

Lining Riverside Canal with concrete would not occur. As a result, wildlife such as the Pecos River Muskrat would not be affected.

Proposed Action B

Federally listed threatened and endangered wildlife species are not known to occur on or near the proposed project site. The Pecos River Muskrat (Muskrat) known to exist in canals similar to the Riverside Canal was listed by the Texas Parks and Wildlife as a Threatened Mammal; but has been delisted as a species of concern. A survey was conducted by the Texas Parks and Wildlife on the proposed canal improvement area. The results of the survey indicated that the Muskrat are living on the project site; but the project would not affect the species.

Other wildlife species habitat would not be affected by relining the canal.

Secondary and Cumulative Effects

The Pecos River Muskrat habitat along the banks of the canal would be permanently destroyed. However, since only a small portion of the canal would be lined with concrete, the proposed action would not permanently affect the Muskrat in the area. The Muskrat would simply move to another location on the banks of the canal that would not be disturbed by the project.

4.2.2. Cultural Resources

No Action A

There would be no change to the existing conditions and no effects to cultural resources.

Proposed Action B

The proposed project to line the Riverside Canal with concrete will affect its historical

features. However, the Texas Historical Commission responded to a description of the proposed action in a letter to Mr. Allen Rhames of Axiom-Blair Engineering from Lawrence Oaks the State Historic Preservation Officer. Mr. Oaks determined that the proposed Improvements to the Riverside Canal would have no adverse effects. However, Mr. Oaks indicated two conditions that would be required as follows:

- 4.2.2.1.** The section of the canal proposed to be lined would be required to be the same width (or as close to the same width as possible) as the current historic canal.
- 4.2.2.2.** As any future improvements to the Riverside Canal are made, a representative section shall be maintained in its original appearance and condition.

Secondary and Cumulative Effects

The purpose of the canal would not change. However, the look of the canal would change within the project area; but would not change outside of the project area and as a result the historical look of the canal would be preserved.

4.2.3. Wetlands

No Action A

There would be no change to the existing conditions and no effects to any wetland resources.

Proposed Action B

If seepage were to be eliminated or significantly reduced as a result of lining the canal with concrete, the Rio Bosque Wetlands Park (Park) would not be affected. Since seepage would be eliminated, the regional aquifer would maintain the groundwater level much the same as before lining of the canal. Pump tests have shown that the rate of recovery from pumping wells installed within a few feet of the canal is very high. Since recovery rate of water is very high, this shows that the regional aquifer would rapidly replace any water lost from canal seepage.

Secondary and Cumulative Effects

True wetlands do not exist along or near the canal in the Rio Bosque Park and as a result the project would have no effect on wetlands.

4.2.4. Water Resources

No Action A

There would be no change to the existing conditions and no effects to water resources would occur.

Proposed Action B

Lining the Riverside Canal would reduce or eliminate seepage of water from the canal to the shallow Rio Grande alluvial aquifer. However, due to the high transmissivity (Axiom-Blair 2007) of the aquifer, water from other locations would recharge the loss from seepage in a very short period of time. Therefore, the impact to the groundwater aquifer would only be for a short period of time (less than a half a day). As a result, water resources under the Bosque Park would also be affected for only a short period of time.

Secondary and Cumulative Effects

Elimination of seepage within the boundaries of the project site would occur. However, this would have negligible effect to the Rio Grande alluvial and Hueco Bolson regional aquifers.

The purpose of the project would be to conserve water. As a result, increased water in the canal would be available for farmers downstream of the project site.

4.2.5. Vegetation

No action A

There would be no change to the existing conditions and no effects to Vegetation.

Proposed Action B

With in the proposed project site, very little vegetation exists as a result of being previously disturbed from the operation of the Riverside Canal. However, a small amount of vegetation exists on the banks of the canal that include some sacred plants of the Isleta del Sur Pueblo. Lining the canal with concrete would eliminate those sacred plants. A list of common plants that may include some sacred plants provided by the Pueblo is listed in the table on page 15.

Secondary and Cumulative Effects

Plants along the banks of the Riverside Canal within the project area which includes sacred plants would be permanently destroyed for the future. However, a good supply of the same species of plants exist in the Rio Grande and along the banks of the canal reaches that would not be lined with concrete. As a result, sacred plants would be available for the Isleta del Sur Pueblo for the future

4.2.6. Environmental Justice

No Action A

There would be no effects expected of any kind to the local population. No adverse

effects to low-income or minority populations are anticipated.

Proposed Action B

There would be no effects expected of any kind to the local population. No adverse effects to low-income or minority populations are anticipated.

Secondary and Cumulative Effects

As a result of no effects to the local populations, there would be no cumulative effects either adverse or beneficial.

4.2.7. Indian Trust Assets

No Action A

There would be no effects to ITAs.

Proposed Action B

As a result of consultation with the neighboring Isleta del sur Pueblo, there are no known ITAs within the project area of the proposed action. Therefore, there would be no effects to ITAs.

Secondary and Cumulative Effects

As a result of no effects to ITAs, there would be no cumulative effects

4.2.8. Air Quality and Noise

No Action A

There would be no change to the existing conditions and no effects to air quality or noise.

Proposed Action B

As a result of the use of heavy equipment during construction, particulate matter and noise would increase in the area of the project. The increased levels of dust and noise would only be during the time of construction. After construction air quality and noise would be returned to the same conditions as existed before construction activities.

Increased dust and noise would affect religious activities of the Isleta del sur Pueblo. However, construction activities would be scheduled around the time of the religious ceremonies and as a result would have no effect upon their religious activities.

Secondary and Cumulative Effects

Upon completing the project, dust and noise from construction would be eliminated. As a result, no cumulative effects are expected in the future.

4.3. Irreversible and Irretrievable Commitment of Resources of the Proposed Action.

Seepage to the regional aquifer within the project site would be eliminated. Sacred plants currently existing on the banks of the canal would be destroyed and not be replaced.

5.0 Environmental Commitments

5.1. Construction activities would be scheduled around the religious ceremonies of the Isleta del sur Pueblo.

5.2. A letter from the Texas Historical Commission can be found at Appendix A. The letter lists a few conditions if the project were to be implemented.

5.3. Sacred plants of the Isleta del sur Pueblo that currently exist in the proposed project site would be surveyed under consultation with the Pueblo to insure that the same plants exist upstream and downstream of the canal. The vegetative surveys would be conducted in the Rio Grande and other canals to insure that their sacred plants are not permanently destroyed.

6.0 Consultation and Coordination

Consultation took place with the Corps of Engineers, Texas Parks and Wildlife, US Fish and Wildlife, Friends of the Rio Bosque, Isleta del sur Pueblo, Texas Historical Commission, University of Texas at El Paso, El Paso Improvement District #1, and several private individuals who attended the public meeting. These individuals will have an opportunity to review the draft EA.

The Texas Parks and Wildlife would like to have a presence or absence survey completed prior to construction of the Pecos River Muskrat (on the Texas State threatened list).

A government to government consultation with the Isleta del sur Pueblo took place on September 25, 2003, to review tribal concerns regarding the proposed project. The Pueblo was concerned about air quality and noise during religious ceremonies and the effects of lining the canal on some of their sacred plants on the banks of the canal. Several informal field trips have been conducted with the Pueblo to consult further and understand their needs.

The Pueblo would like construction to be conducted from last week of May through January 13th since ceremonies exist during that time. This request would mitigate effects of construction on the spiritual ceremonies of the Pueblo.

The Texas State Historic Preservation Office (SHPO) requires that some of the canal show original appearance and condition in future canal improvements. In addition, SHPO requests

that the design be as close to the width of the original canal as much as possible.

A public meeting was held September 10, 2003 to present the proposed project and receive comments from those who attended.

7.0 List of Preparers

NAME	JOB TITLE	EA RESPONSIBILITY	COMMENTS
Robert Maxwell	NEPA team leader for the project	Author of the EA	Consulted with the Pueblo on environmental issues and ITAs
Woodrow Irving	Project Engineer	Coordinated issues with the Pueblo, reviewed design for Reclamation requirements	Reviewed and commented on EA
Al Blair	Lead Project Engineer and EP #1 Engineering Consultant	Supervised the Design of project proposed action	Reviewed and commented on EA, Provided Aquifer Test Analysis and Technical Report
Jeff Hanson	Archaeologist	Reviewed cultural resources section EA for accuracy	Provided SHPO letter and comments for EA

8.0 References

Alvarez, Henry and Wayne Bucker, 1980, Report 246, Groundwater Development in the El Paso Region, Texas with Emphasis on the Resources of the Lower El Paso Valley, Texas Water Development Board.

International Boundary and Water Commission (IBWC), 1993, Final Environmental Assessment Rio Grande American Canal Extension, El Paso, Texas, Ground Water Resources, page 17.

El Paso County Water Improvement District Number One. Project Report. May 2003.

New Mexico-Texas Water Commission 1998, 1999. El Paso-Las Cruces Regional Sustainable Water Project. Community Newsletter. 1:1 and 1:4.

U.S. Bureau of Reclamation. Prevention and Control of Animal Damage to Hydraulic Structures. U.S. Government Printing Office. April 1991.

U.S. Environmental Protection Agency. 1997. *Jonathon Rogers Water Treatment Plant Expansion Project Environmental Assessment*. December 1997.

Appendix A

Correspondence and Letters



TEXAS
HISTORICAL
COMMISSION

The State Agency for Historic Preservation

RICK PERRY, GOVERNOR

JOHN L. NAU, III, CHAIRMAN

F. LAWRENCE OAKS, EXECUTIVE DIRECTOR

July 7, 2003

Mr. Allen Rhames
Axiom-Blair Engineering, L.P.
2711 W. Anderson Lane, Suite 210
Austin, Texas 78757

Re: *Project review under Section 106 of the National Historic Preservation Act of 1966
Proposed Changes to Riverside Canal, El Paso County. (Bureau of Reclamation)*

Dear Mr. Rhames:

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission.

The review staff, led by Pam Opiela, has completed its review of the project documentation provided. The proposed improvements to the Riverside Canal will have no adverse effect on this section of the National Register Listed El Paso County Water Improvement District #1 under the following conditions:

1. The section of the canal that you propose to line with concrete will be of the same width (or as close to the same width as possible) as the current historic canal.
2. Proposed new ponds will be located outside the listed boundaries of the Riverside Canal and any other sections of the listed district.
3. As any future improvements to the Riverside Canal are made, a representative section shall be maintained in its original appearance and condition.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review or if we can be of further assistance, please contact Pam Opiela at 512/463-6218.**

Yours truly,

A handwritten signature in cursive script, appearing to read "F. Lawrence Oaks".

for: F. Lawrence Oaks, State Historic Preservation Officer

cc. Will DeBusk, El Paso CHC Chair

P.O. BOX 12276 • AUSTIN, TX 78711-2276 • 512/463-6100 • FAX 512/475-4872 • TDD 1-800/735-2989
www.thc.state.tx.us

Att: Robt. Maxwell

NOTICE OF PUBLIC MEETING

to be held at

**El Paso County Water Improvement District No. 1
294 Candelaria
El Paso, Texas 79907**

A public meeting will be conducted to present the proposed **El Paso County Water Improvement District No. 1 - 2003 Water Conservation Project**. The El Paso County Water Improvement District No. 1 (the District) is proposing a project consisting of canal rehabilitation and the possible modification of the Socorro Effluent Holding Ponds for use as a regulating reservoir, which will temporarily store irrigation water.

The proposed project includes the renovation of selected sections of the District's Riverside Canal with an impervious lining. A significant reduction of seepage and loss of water can be accomplished by the lining of the canals.

A copy of the Project Plan is available for review at the El Paso County Water Improvement District No. 1 between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday or on the Internet at www.axiomblairengineering.com.

**Public Meeting
Wednesday, September 10, 2003 at 5:30 p.m.**

The public meeting on the proposed project will include a briefing of the various aspects of the project and a hearing of public comments.

All those interested in the District are invited to attend this meeting and express their views. Oral and written comments may be presented at this Public Meeting. For further information, contact Deborah Schaefer at 512/394-1011.

Maria A. Trunk
 1100 Kelly Way
 El Paso, TX 79902
 (915) 545-5214
mtandck@elp.rr.com

2 October, 2003

Re: Proposed Modifications to the Riverside Canal,
 El Paso County Water Improvement District No. 1
 El Paso County, Texas

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OCT 22 '03		
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Date	Initial	To
		153

Mr. Robert H. Maxwell
 U.S. Bureau of Reclamation
 555 Broadway NE, Suite 100 (ALB-153)
 Albuquerque, NM 87102

Dear Mr. Maxwell,

Thank you very much for the opportunity to submit comments regarding the proposed concrete lining of a section of the Riverside Canal. I am a resident of El Paso County and a member of the Friends of the Rio Bosque with concerns about the potential impact this project could have on the health and viability of Rio Bosque Wetlands Park. I respectfully request that you consider the details below as you prepare your environmental assessment for the proposal.

From your meetings with local groups, I'm sure you're aware that Rio Bosque Wetlands Park (RBWP) is a natural area that encompasses a former bend of the Rio Grande river in the El Paso/Ciudad Juárez metropolitan area, home to more than 2 million residents. The park is owned by the City of El Paso and managed by the Center for Environmental Resource Management of the University of Texas at El Paso (CERM/UTEP) with the support of many local partners.

As a wetlands mitigation project, the park is being managed with the goal of restoring and enhancing valuable riparian habitat along the Rio Grande while providing public open space and educational opportunities. The beginnings of a young bosque have taken root there, anchoring the diverse mix of native wetland, riparian and upland habitats that project managers seek to recreate. RBWP is unique in El Paso County, the only public park where local residents can experience native riparian flora and fauna in the actual historic path of the Rio Grande.



Success in establishing a viable wetland at RBWP, however, is frustrated by current water management practices. In many years, such as this one, the park receives no water during the growing season, the supply of effluent from the Roberto Bustamante Wastewater Treatment Plant being directed exclusively to the Riverside Canal at the request of El Paso County Water Improvement District No. 1. As you have seen, stopping the flow of water early this year has caused the death of many riparian plants and a dramatic reduction in the numbers and kinds of animals sighted in the park. Continuing subject to such drastic and uncertain fluctuations, it seems unlikely that RBWP will ever fulfill the goals set forth when it was established as a wetlands mitigation project.

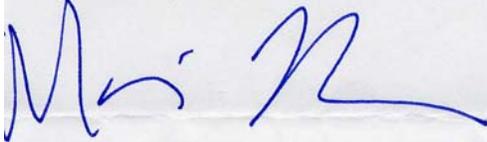
The proposed concrete lining of the Riverside Canal now threatens the health of RBWP's upland habitat. A mature stand of native tornillos (*Prosopis pubescens*) is found at the base of the levee road parallel to a long stretch of the canal. These trees, along with an historic, landmark cottonwood (the only one of its age and size left in the park) are rooted in groundwater fed by seepage from the Riverside Canal. Suddenly dropping their water source beyond the reach of their root systems (as the lining project will certainly do) will have a devastating effect on the trees, with cascading impacts on the wildlife that depend on them for habitat.

An additional impact to groundwater levels at RBWP has come with the recent installation of a large pump by El Paso County Water Improvement District No. 1 at the edge of the levee road near the main entrance to the park. Our groundwater measurements at a well located approximately 1000 feet from the pump have shown levels quickly responding to pumping activity (please see accompanying chart). The combination of cutting off the flow of surface water to the park, pumping groundwater and now eliminating seepage from the Riverside Canal entirely jeopardizes efforts to create a meaningful wildlife refuge at RBWP.

Wetlands mitigation can not be transferred to a different location; there is no other place like RBWP in the region. El Paso County is one of the poorest in the nation, with 25% of its population living below the poverty level according to the 2000 US Census. The city of Socorro, located less than a quarter mile from RBWP, has a median household income of \$24,087 (compared to \$39,842 for the state of Texas), a high unemployment rate and low educational level for adult residents. There is a chronic shortage of public open space for the expanding population of El Paso County. RBWP has the potential to offer excellent recreational and educational opportunities to the local populace, but it cannot do so without a basic, secure supply of water. It is a clear case of environmental injustice that a park located in an impoverished area should be denied the minimal resources necessary to allow it to serve the people who need it most.

Mr. Maxwell, I sincerely hope that you can transform this environmental assessment into the first step toward crafting a permanent solution to the water problem at RBWP. I am aware of and fully support El Paso County Water Improvement District No. 1's efforts to conserve and safeguard water. I would like agriculture to continue to thrive in El Paso County; farmland enhances the scenic value of the river valley and contributes to the health of a diverse economy. I believe that a plan can be designed that meets the needs of farmers and RBWP, and I feel confident in your efforts to strike the right balance.

Yours truly,



Maria A. Trunk

Enc.

Cc: John Sproul, CERM, UTEP
Ray Cox, Parks and Recreation Department, City of El Paso

Robert H. Maxwell
Bureau of Reclamation
555 Broadway NE Ste 100 (ALB-153)
Albuquerque, NM 87102



October 6, 2003

Dear Mr. Maxwell,

I have looked at the document entitled Environmental Summary for the EPCWID No. 1 Canal, Structure, Pond and Pumping Improvements Project and would like to make the following comments

The report concludes that the project will have no significant environmental impact. I feel that this conclusion is not correct. This project could have a negative impact on the Rio Bosque Wetlands Park, which is immediately adjacent to the project site. Here are a few reasons why:

- Currently, many cottonwoods and other deep-rooted trees benefit from water seepage from the Riverside Canal; an impervious lining would alter groundwater levels at Rio Bosque and this change could have a serious effect on the park's health.
- The effect of the canal on the water table has been clearly demonstrated by our routine groundwater monitoring measurements. When the Irrigation District turns on their pump on the park side of the levee to recover water lost to seepage, water levels at nearby monitoring wells quickly drop by a few feet.
- There is a single, very old cottonwood tree living on the Park side of the levee. It is a landmark tree for park visitors that is clearly thriving off water from the canal seepage. This tree could be damaged by construction work and is likely to decline from having its water supply cut off.

Because the Environmental Summary does not address any of these issues, I feel it is neither correct nor complete. Specific areas of the text that could discuss the negative environmental impact to the Park, but do not, are listed below:

- In Section 5 Subsection K: "Public Land," the report states, "The project area also abuts Rio Bosque Park.... The park is open, recreational space used by citizens of El Paso." It *should* state that Rio Bosque **Wetlands** Park was constructed under an agreement with the Bureau of Reclamation to mitigate the removal of wetlands in a previous irrigation project. The park is owned by the City of El Paso and managed

by UTEP. As stipulated in the agreement between UTEP and the City of El Paso, management of the Park is to be focused on restoring and enhancing valuable riparian habitat along the Rio Grande in the Chihuahuan Desert while providing public open space and educational opportunities.

- The fact of an adjacent wetlands mitigation project should also be added to Part C: “Vegetation Impacts;” Part E: “Wildlife Habitat;” and Part G: “Wetlands.” Each of these sections of the report should properly consider the possible environmental impact on this adjacent wetland mitigation park that could be caused by lowering its water table.
- With regard to Part S: “Obstruction of Scenic Views”: The view of the canal itself will be degraded if it is changed from a wide flowing river-like structure to a narrow concrete one. This will negatively impact the aesthetic experience of visitors to the Rio Bosque.

The Rio Bosque Wetlands Park is a valuable asset to the community. The EA must consider the negative environmental impacts on the Park that would result from the canal-lining project, and propose ways that those impacts could be mitigated. The Friends of the Rio Bosque will be happy to work with the Bureau and the Water Improvement District to reach a compromise that achieves everyone’s goals.

Sincerely,

Chuck Kooshian
President

Maria A. Trunk
1100 Kelly Way
El Paso, TX 79902
(915) 545-5214
mtandck@elp.rr.com

2 October, 2003

Re: Proposed Modifications to the Riverside Canal,
El Paso County Water Improvement District No. 1
El Paso County, Texas

Mr. Robert H. Maxwell
U.S. Bureau of Reclamation
555 Broadway NE, Suite 100 (ALB-153)
Albuquerque, NM 87102

Dear Mr. Maxwell,

Thank you very much for the opportunity to submit comments regarding the proposed concrete lining of a section of the Riverside Canal. I am a resident of El Paso County and a member of the Friends of the Rio Bosque with concerns about the potential impact this project could have on the health and viability of Rio Bosque Wetlands Park. I respectfully request that you consider the details below as you prepare your environmental assessment for the proposal.

From your meetings with local groups, I'm sure you're aware that Rio Bosque Wetlands Park (RBWP) is a natural area that encompasses a former bend of the Rio Grande river in the El Paso/Ciudad Juárez metropolitan area, home to more than 2 million residents. The park is owned by the City of El Paso and managed by the Center for Environmental Resource Management of the University of Texas at El Paso (CERM/UTEP) with the support of many local partners.

As a wetlands mitigation project, the park is being managed with the goal of restoring and enhancing valuable riparian habitat along the Rio Grande while providing public open space and educational opportunities. The beginnings of a young bosque have taken root there, anchoring the diverse mix of native wetland, riparian and upland habitats that project managers seek to recreate. RBWP is unique in El Paso County, the only public park where local residents can experience native riparian flora and fauna in the actual historic path of the Rio Grande.

Success in establishing a viable wetland at RBWP, however, is frustrated by current water management practices. In many years, such as this one, the park receives no water during the growing season, the supply of effluent from the Roberto Bustamante Wastewater Treatment Plant being directed exclusively to the Riverside Canal at the request of El Paso County Water Improvement District No. 1. As you have seen, stopping the flow of water early this year has caused the death of many riparian plants and a dramatic reduction in the numbers and kinds of animals sighted in the park. Continuing subject to such drastic and uncertain fluctuations, it seems unlikely that RBWP will ever fulfill the goals set forth when it was established as a wetlands mitigation project.

The proposed concrete lining of the Riverside Canal now threatens the health of RBWP's upland habitat. A mature stand of native tornillos (*Prosopis pubescens*) is found at the base of the levee road parallel to a long stretch of the canal. These trees, along with an historic, landmark cottonwood (the only one of its age and size left in the park) are rooted in groundwater fed by seepage from the Riverside Canal. Suddenly dropping their water source beyond the reach of their root systems (as the lining project will certainly do) will have a devastating effect on the trees, with cascading impacts on the wildlife that depend on them for habitat.

An additional impact to groundwater levels at RBWP has come with the recent installation of a large pump by El Paso County Water Improvement District No. 1 at the edge of the levee road near the main entrance to the park. Our groundwater measurements at a well located approximately 1000 feet from the pump have shown levels quickly responding to pumping activity (please see accompanying chart). The combination of cutting off the flow of surface water to the park, pumping groundwater and now eliminating seepage from the Riverside Canal entirely jeopardizes efforts to create a meaningful wildlife refuge at RBWP.

Wetlands mitigation can not be transferred to a different location; there is no other place like RBWP in the region. El Paso County is one of the poorest in the nation, with 25% of its population living below the poverty level according to the 2000 US Census. The city of Socorro, located less than a quarter mile from RBWP, has a median household income of \$24,087 (compared to \$39,842 for the state of Texas), a high unemployment rate and low educational level for adult residents. There is a chronic shortage of public open space for the expanding population of El Paso County. RBWP has the potential to offer excellent recreational and educational opportunities to the local populace, but it cannot do so without a basic, secure supply of water. It is a clear case of environmental injustice that a park located in an impoverished area should be denied the minimal resources necessary to allow it to serve the people who need it most.

Mr. Maxwell, I sincerely hope that you can transform this environmental assessment into the first step toward crafting a permanent solution to the water problem at RBWP. I am aware of and fully support El Paso County Water Improvement District No. 1's efforts to conserve and safeguard water. I would like agriculture to continue to thrive in El Paso County; farmland enhances the scenic value of the river valley and contributes to the health of a diverse economy. I believe that a plan can be designed that meets the needs of farmers and RBWP, and I feel confident in your efforts to strike the right balance.

Yours truly,

Maria A. Trunk

Enc.

Cc: John Sproul, CERM, UTEP
Ray Cox, Parks and Recreation Department, City of El Paso

ORIGINAL

THE UNIVERSITY OF TEXAS AT EL PASO



September 30, 2003

Mr. Robert H. Maxwell
U.S. Bureau of Reclamation
555 Broadway NE, Suite 100 (ALB-153)
Albuquerque, NM 87102

Re: Riverside Canal Modifications,
El Paso County Water Improvement District No. 1
El Paso County, Texas

Center for

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Dear Mr. Maxwell:

Thank you very much for meeting with us at Rio Bosque Wetlands Park last week to discuss the Park and its relationship to the Riverside Canal. As you know, we are very interested in the planning for the concrete-lining of the canal, and we offer these comments as part of the scoping process for the project.

At Rio Bosque, UTEP is working with a diverse partnership to re-create, over time, approximate examples of the native plant and animal communities characteristic of the Rio Grande and its floodplain in pre-settlement days. These native ecosystems will in turn be the foundation for a range of educational, recreational, tourism and research benefits for the El Paso community.

The water that maintains the wetlands at the Park is treated wastewater from the adjacent Roberto Bustamante Wastewater Treatment Plant. El Paso Water Utilities and El Paso County Water Improvement District No. 1 (El Paso #1) cooperate to deliver this water to the Park when it is not being used for irrigation, and we greatly appreciate their contributing to the success of the project in this way.

Potential Impacts of Lining the Riverside Canal

Currently, seepage from the Riverside Canal influences groundwater levels at Rio Bosque Wetlands Park and thus influences the vegetation found in the Park, particularly in areas near the canal. Lining the canal can be expected to alter groundwater conditions in the Park (Fig. 1) and thus alter the range of vegetation potentially found there. We are concerned about this potential impact and ask that you please address it in the environmental assessment for the canal-lining project.

Burges Hall
500 W. University Ave.
El Paso, Texas
79968-0645
(915) 747-5494
FAX: (915) 747-5145
www.cerm.utep.edu



Mr. Robert Maxwell
September 30, 2003
Page 2

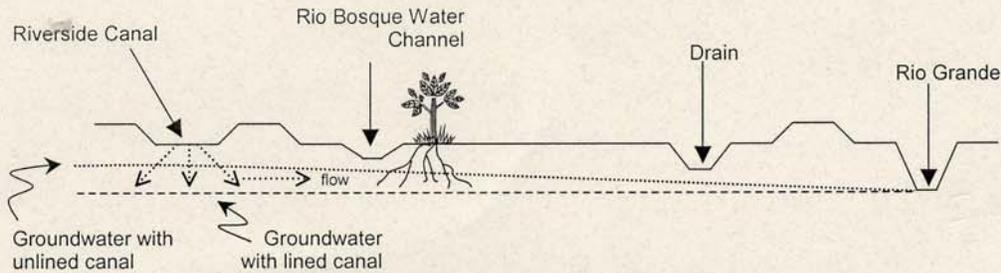


Figure 1. Change in groundwater levels expected at Rio Bosque Wetlands Park during irrigation season with lining of Riverside Canal.

Entrance Bridge

There are two projects we would like to pursue in cooperation with El Paso #1 that are critical to the success of Rio Bosque Wetlands Park. Both would need to be integrated with any modifications planned for the Riverside Canal. The first is an entrance bridge for the Park.

Currently, many members of the public have difficulty finding and getting to the Park. To provide better access, our long-range plans include an entrance bridge that would cross the Riverside Canal at a point just upstream from the Partidor Check Structure. El Paso #1 removed a previous bridge at this location in 1999 due to its unsafe condition and to prepare for concreting the canal. An entrance at this point would provide convenient, easy-to-find access to the Park from Socorro Road, located just 800 feet to the east.

At the public meeting on September 10, we learned one element of the canal-lining project would be a limited-access bridge incorporated into the Partidor Check Structure. If this bridge could be modified to include a pedestrian walkway open to the public, that walkway could serve as the entrance bridge to the Park and would greatly benefit the Park.

Providing Water for the Park during the Irrigation Season

The other project we wish to pursue cooperatively with El Paso #1 involves making a small amount of water available to the Park during the irrigation season. To realize Rio Bosque's full potential as an educational, recreational and ecological resource, we need at least a small amount of water flowing through our main channel during the growing season to maintain examples of wetland and riparian vegetation. Today, this is not possible because during the irrigation season in many years, all treated wastewater from the Bustamante Plant is used for irrigation, and the Park is completely dry.

Mr. Robert Maxwell
September 30, 2003
Page 3

At Rio Bosque Wetlands Park, one of our main goals is to meet ecosystem water needs in a way that is compatible with other regional water-management practices. One way to achieve this goal is to modify Rio Bosque's water system to permit water that has flowed through the Park to be delivered to the Riverside Canal for irrigation use. Under such an arrangement, most of the Bustamante Plant effluent could be discharged directly to the Riverside Canal during the irrigation season, as is the case today, but a small amount, 5-10%, could be routed through Rio Bosque before delivery to the canal.

Some of this water would seep from the Park's main water channel, but the amount would be small relative to the amount conserved due to lining the canal. The seepage test of the Riverside Canal in November 1998 indicated a seepage rate of approximately 3,000 acre-feet/mile/year, or 250 acre-feet/mile/month. Rio Bosque's main channel is approximately 2 miles long, and the section of drain that delivers water from the Bustamante Plant to the Park is approximately 0.4 miles long. Assuming (1) the width of the Riverside Canal is 80 feet, (2) the width of the wetted area in the Park's water channel is 4 feet under low-flow conditions, and (3) seepage rates in the Park's water channel and the upstream drain are similar to that in the canal, then the amount of water that would seep from the Park's water channel and the upstream drain during an 8-month (Feb 15 to Oct 15) irrigation season would be approximately 240 acre-feet:

$$(250 \text{ af/mi/mo}) * (2.4 \text{ mi}) * (8 \text{ mo}) * (4 \text{ ft}/80 \text{ ft}) = 240 \text{ acre-feet}$$

This amount represents 2.6% of the 9,075 acre-feet estimated to be conserved annually by lining the Riverside Canal.

How would Rio Bosque's water system be modified to permit delivery of water to the Canal? Possible approaches include:

- Creating a small holding pond within the Park from which water could be pumped to the canal.
- Building a gate structure at the point where the Playa Drain now passes under the Riverside Canal that would allow water in the drain, once it has reached a suitable elevation, to be delivered to the canal by gravity flow.
- Holding the water within the Park, allowing it to percolate to groundwater, and pumping groundwater to the canal.

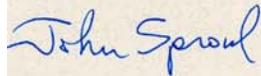
We would like to work cooperatively with El Paso #1 to explore the feasibility of these different approaches and to pursue the best approach. We believe such a diversion of a small amount of irrigation water through the Park during the irrigation season would mitigate impacts of lining the Riverside Canal. As with the bridge, if modifications to Rio Bosque's water system were pursued, they would need to be integrated with the planned lining of the canal.

Thank you for your consideration of these ideas. As you prepare the environmental assessment for the canal-lining project, we would like to request an opportunity to review and comment on

MR. ROBERT MAXWELL
September 30, 2003
Page 4

those portions relating to Rio Bosque Wetlands Park. Please feel free to contact me if you have any questions, and please keep us informed as planning for the project proceeds.

Very truly yours,



John Sproul
Program Coordinator/Manager
Rio Bosque Wetlands Park
(915) 747-8663
(915) 747-5145 fax
sproul@utep.edu

cc: Al Blair, Axiom-Blair Engineering
Ray Cox, Parks and Recreation Dept., City of El Paso
Richard Garcia, Parks and Recreation Dept., City of El Paso
Jesus Reyes, Acting General Manager, El Paso #1
John Walton, CERM, UTEP

ORIGINAL

10/08/03

Robert H. Maxwell
U.S. Bureau of Reclamation
555 Broadway NE Ste 100 (ALB-153)
Albuquerque, NM 87102

Dear Mr. Maxwell,

RE: El Paso County Water Improvement District No.1 Proposed Canal Lining Project

Thank you for meeting with the Friends of Rio Bosque and offering us this opportunity to comment on the proposed project. Since then, we have visited with concerned local residents and groups to give them an opportunity to express their concerns. Thank you for your fair and even-handed oversight of this project. We are proud and determined to insure compliance with the National Environmental Protection Act (NEPA).

On behalf of the 240 (two hundred and forty) signatories attached to the ten letters of petition that are attached to this cover letter, I strongly urge you to heed our comments. We unanimously request that the environmental assessment you are preparing for this project include your consideration of the many issues that have arisen regarding this project.

Progress in the Rio Bosque Wetlands Park restoration efforts must not be jeopardized. The proposed canal lining of the Riverside canal will result in unforeseen losses or depreciation in the environmental, social, educational, scientific, cultural, and historic value of the park. The delicate ecological balance of the emerging native river valley ecosystems at this park can be easily disrupted, jeopardizing the potential of a fully restored park and all that this means to the future of El Paso, Texas.

Please recommend implementing one, or more, of the many modern engineering options available for similar earthen canal lining projects. The project engineer should be able to evaluate and employ designs that have minimal impact on the environment.

The best alternative, though, is to move this entire project downstream of the pre-selected site. A comprehensive study should reveal areas where the water table is so high that it is actually causing problems for area farmers. An impermeable canal lining in those problematic areas will have the added advantage of restoring farmland plus meet your other water delivery and conservation goals. Only by exploring and selecting the best options available and considering input from the surrounding community and others, will taxpayer's money and community resources be responsibly handled.

Please provide me with a draft of your environmental assessment report so that I may review and comment on its content prior to your filing deadline.

Sincerely,

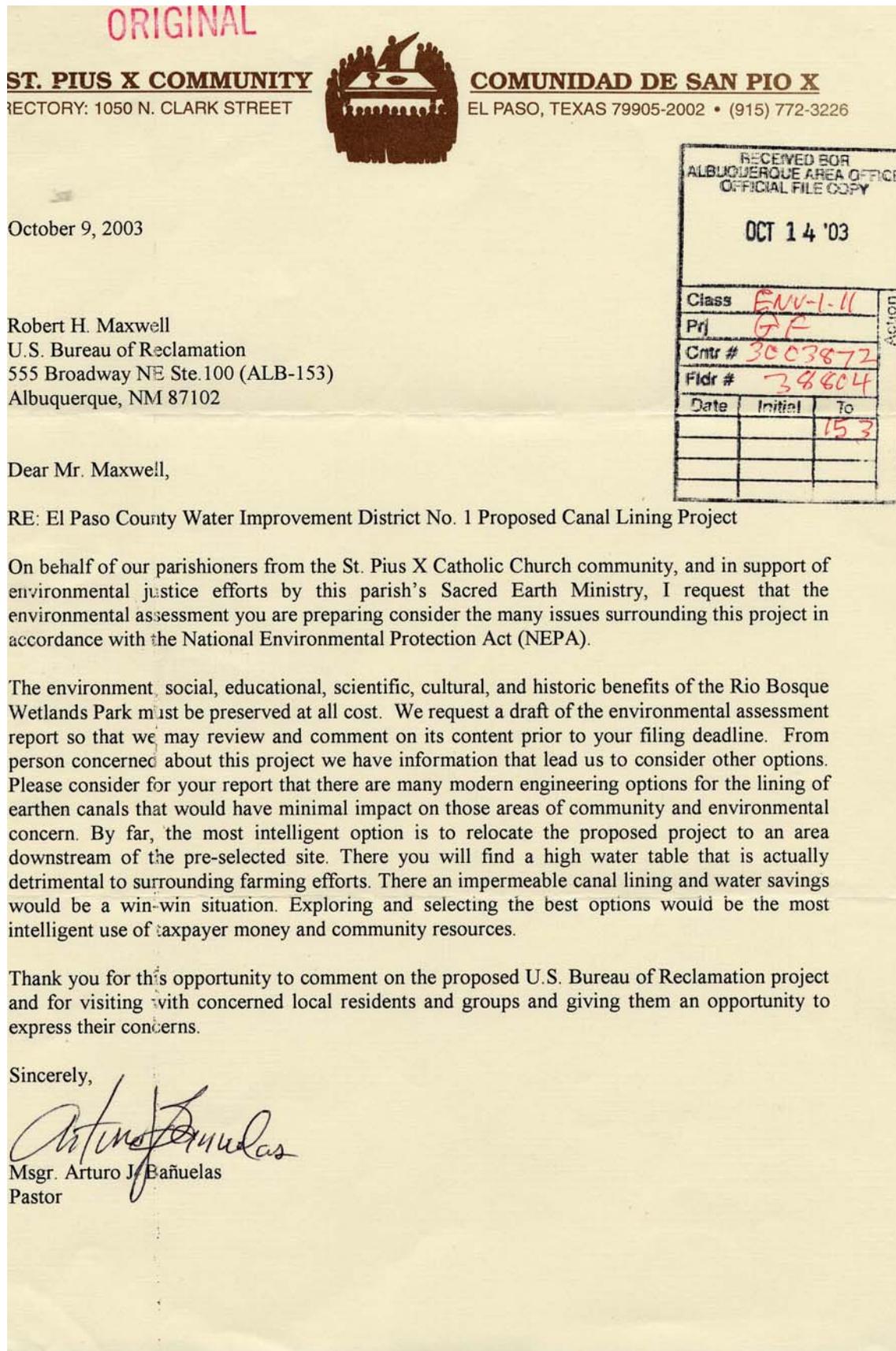
David J. Ochoa
4431 Trowbridge Dr.
El Paso, TX 79903
915.873.5374

Cc: L. Ray Cox, Director
City of El Paso
Parks & Recreation Dept.
1 Civic Center Plaza Ste 600
El Paso TX 79901

Jesus Reyes, General Mgr.
EPWID#1
294 Candelaria
El Paso, TX 79915

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Fldr #	38804	
Date	Initial	To
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ORIGINAL
ST. PIUS X COMMUNITY
 RECTORY: 1050 N. CLARK STREET



COMUNIDAD DE SAN PIO X
 EL PASO, TEXAS 79905-2002 • (915) 772-3226

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Fldr #	38804	
Date	Initial	To
		153

October 9, 2003

Robert H. Maxwell
 U.S. Bureau of Reclamation
 555 Broadway NE Ste. 100 (ALB-153)
 Albuquerque, NM 87102

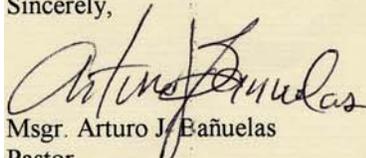
Dear Mr. Maxwell,

RE: El Paso County Water Improvement District No. 1 Proposed Canal Lining Project

On behalf of our parishioners from the St. Pius X Catholic Church community, and in support of environmental justice efforts by this parish's Sacred Earth Ministry, I request that the environmental assessment you are preparing consider the many issues surrounding this project in accordance with the National Environmental Protection Act (NEPA).

The environment, social, educational, scientific, cultural, and historic benefits of the Rio Bosque Wetlands Park must be preserved at all cost. We request a draft of the environmental assessment report so that we may review and comment on its content prior to your filing deadline. From person concerned about this project we have information that lead us to consider other options. Please consider for your report that there are many modern engineering options for the lining of earthen canals that would have minimal impact on those areas of community and environmental concern. By far, the most intelligent option is to relocate the proposed project to an area downstream of the pre-selected site. There you will find a high water table that is actually detrimental to surrounding farming efforts. There an impermeable canal lining and water savings would be a win-win situation. Exploring and selecting the best options would be the most intelligent use of taxpayer money and community resources.

Thank you for this opportunity to comment on the proposed U.S. Bureau of Reclamation project and for visiting with concerned local residents and groups and giving them an opportunity to express their concerns.

Sincerely,

 Msgr. Arturo J. Bañuelas
 Pastor





July 2, 2003

- COMMISSIONERS
 KATHARINE ARMSTRONG
 CHAIRMAN, AUSTIN
 ERNEST ANGELO, JR.
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 CHAIRMAN-EMERITUS
 FORT WORTH
 ROBERT L. COOK
 EXECUTIVE DIRECTOR

Ms. Janis Smith
 Axiom-Blair Engineering
 2711 Anderson Lane, Suite 210
 Austin, Texas 78757

Dear Ms. Smith:

This letter is in response to your review request, dated May 7, 2003, for potential impacts to rare, threatened, and endangered species from the proposed concrete lined canals, three check structures, and Socorro ponds within the El Paso Water Improvement District No. 1 in El Paso County.

Given the small proportion of public versus private land in Texas, the TPWD Biological and Conservation Data System (BCD) does not include a representative inventory of rare resources in the state. Although it is based on the best data available to TPWD regarding rare species, the data from the BCD do not provide a definitive statement as to the presence, absence, or condition of special species, natural communities, or other significant features in your project areas. These data cannot substitute for an on-site evaluation by your qualified biologists. The BCD information is intended to assist you in avoiding harm to species that may occur on your sites.

Based on the project description, when suitable habitat is present, the following species could potentially be impacted by the proposed activities:

State Listed Threatened

Chihuahuan Mud Turtle (*Kinosternon hirtipes murrayi*)

Species of Concern

Pecos River Muskrat (*Ondatra zibethicus ripensis*)

As noted in the text the Pecos River Muskrat is known to inhabit the El Paso canal system. Concrete lining of the canal would negatively impact this species, if it is currently burrowing into the earthen sides for its dens. Conversely, allowing the muskrat access into and out of the ponds could potentially provide habitat suitable for floating dens/lodges. A printout for this occurrence record is included for your planning reference. **Please do not include this species occurrence printout in your draft or final documents. Because some species are especially sensitive to collection or harassment, this record is for your reference only.**



Take a kid
 hunting or fishing
 . . .
 Visit a state park
 or historic site

200 SMITH SCHOOL ROAD
 USTIN, TEXAS 78744-3291
 512-389-4800
 www.tpwd.state.tx.us

To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.

elnaWID1Canals&SocorroPonds.doc



Ms. Janis Smith, Axiom-Blair Engineering
El Paso WID No 1, Canals, Check Structures, & Socorro Ponds
Page 2

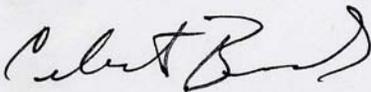
Also, please review the entire county list, as other rare species could be present depending upon habitat availability. If during construction, the project area is found to contain rare species, natural plant communities, or special features, TPWD recommends that precautions be taken to avoid impacts to them.

Excluding bank-clearing activities during the breeding season for migratory bird species will help minimize impacts to this group. The Migratory Bird Treaty Act (MBTA) implicitly prohibits intentional and unintentional take of migratory birds, including their nests and eggs, except when authorized under a US Fish and Wildlife (FWS) permit. Additional information regarding the MBTA may be obtained through the Southwest Regional Office (Region 2) Division of Migratory Birds, FWS, at (505) 248-7882.

This letter does not constitute a review of general fish and wildlife habitat impacts for this project. Should you need such a review, contact Kathy Boydston of the Wildlife Habitat Assessment Program, Wildlife Division (512/389-4571).

Thank you for the opportunity to comment on this project. Please contact me if you have any questions or need additional assistance (512/912-7021).

Sincerely,



Celeste Brancel, Environmental Review Coordinator
Wildlife Habitat Assessment Program, Wildlife Division
Threatened and Endangered Species

Enclosures (3)



United States Department of the Interior

FISH AND WILDLIFE SERVICE

10711 Burnet Road, Suite 200
 Austin, Texas 78758
 (512) 490-0057

JUN 30 2003

Janis J. Smith, EIT
 Axiom-Blair Engineering
 2711 West Anderson Lane #210
 Austin, Texas 78757

Consultation # 02-15-03-I-0364

Dear Ms. Smith:

The U.S. Fish and Wildlife Service (Service) has reviewed the Environmental Summary for the El Paso County Water Improvement District Number One (District), Canal, Structure, Pond, and Pumping Improvements Project. The Project is located in the city of El Paso, west of Socorro, along the Rio Grande River at the U.S./ Mexico border. The project is to be constructed using Texas Water Development Board funds under the Lower Rio Grande Valley Water Resources Conservation and Improvement Act of 2000 (PL-106-576). The District is also seeking a federal grant to share half the cost. The purpose of the project is to decrease water loss in an existing canal system.

The existing irrigation system includes about 16,000 feet of earthen-lined canal and a check structure at the downstream outlet of the canal system. Three new canal sections totaling about 16,000 feet are proposed. The new canals will be concrete lined with side slopes of 1.5:1 and will be about 11 feet deep. Two check structures (Partidor and Franklin) are proposed to deliver water to the canals and feed the Socorro Ponds. The Socorro Ponds will be off-line, earthen storage ponds for water diverted during peak river flows. A third structure, Wasteway One, will be constructed to allow water to return to the Rio Grande River in the event of an emergency or for maintenance needs. Our comments and recommendations follow.

Threatened and Endangered Species

The following federally listed endangered, threatened, and candidate species are known to occur in El Paso County:

Least tern	(E ~)	<i>Sterna antillarum</i>
Northern aplomado falcon	(E)	<i>Falco femoralis septentrionalis</i>
Southwestern willow flycatcher	(E ‡)	<i>Empidonax traillii extimus</i>
Sneed pincushion cactus	(E)	<i>Coryphantha sneedii</i> (= <i>Escobaria</i> = <i>Mammillaria</i>) var. <i>sneedii</i>
Mexican spotted owl	(T ‡)	<i>Strix occidentalis lucida</i>
Black-tailed prairie dog	(C)	<i>Cynomys ludovicianus</i>
Yellow-billed cuckoo	(C)	<i>Coccyzus americanus</i>



JAMES J. SMITH, EIT

2

The Service does not believe that habitat for any of the above species occurs in the project area. Therefore, we do not anticipate impacts to the species by the proposed project.

Wetlands

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks, and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, or major construction. Construction activities near such areas should be carefully designed to minimize impacts. The installation and maintenance of Socorro Ponds should greatly increase the availability of open water habitat which should mitigate the impacts to existing wetlands.

If vegetation clearing is needed in riparian areas, please revegetate these areas with native wetland and riparian vegetation to prevent erosion and loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental reestablishment of herbaceous vegetation at the proposed work sites. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711.

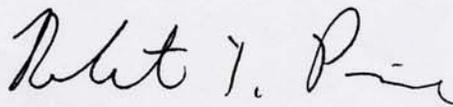
Other Fish and Wildlife Resources

A total of about 340 acres of soil disturbance is anticipated for the construction activities; however, all of the land used for construction has been previously disturbed. No significant long-term impact on the distribution, diversity, and coverage of vegetation is anticipated. Vegetation is expected to be rapidly reintroduced by adjacent undisturbed areas of plants. Since the adjacent areas are described as consisting of scattered grasses and weedy annuals, the Service recommends that the area be planted in native grasses once construction is completed. These grasses may need to be irrigated to become properly established.

Overall, it is anticipated that water withdrawals from the Rio Grande will be lessened by the proposed project. The more efficient system should reduce the current amount of pumping from the river. This will benefit wildlife species along the river. Any construction impacts should be minimal and of relatively short duration.

We appreciate the opportunity to comment on the proposed project and appreciate your support of fish and wildlife habitat management. If you have any further questions or comments please contact Matthew Lechner at (512) 490-0057, extension 234.

Sincerely,



Robert T. Pine
Supervisor

Appendix B

AGREEMENT NO. 03-CF-40-210

AGREEMENT

between

UNITED STATES OF AMERICA

and

EL PASO COUNTY WATER IMPROVEMENT DISTRICT NUMBER 1

for

PRELIMINARY COORDINATION AND CONSULTATION BY THE UNITED STATES FOR FEDERAL COMPLIANCE ISSUES AND FOR REVIEW OF PROJECT PLAN AND PROJECT REPORT

This AGREEMENT is made pursuant to the Lower Rio Grande Valley Water Resources Conservation and Improvement Act of 2000 (P.L. 106-576), hereinafter referred to as "the Act", and is between the UNITED STATES OF AMERICA, acting through the Bureau of Reclamation, Department of Interior, hereinafter referred to as "Reclamation" and, EL PASO COUNTY WATER IMPROVEMENT DISTRICT NUMBER 1, hereinafter referred to as the "District", a Water Improvement District organized and existing under and by virtue of Article XVI, Section 59, of the Texas Constitution, and governed in part by Chapters 49 and 55 of the Texas Water Code.

RECITALS

WHEREAS, as the District has identified an opportunity to improve the District's supply of water within the program area by project for canal lining and water conservation project for the Riverside Canal, El Paso County, Texas;

WHEREAS, the District desires that Reclamation review a document to be prepared by the District and entitled "El Paso County Water Improvement District No. 1 Draft of its Project Plan" for determination that the project could qualify for funding under the "Guidelines for Preparing and Reviewing Proposals for Water Conservation and Improvements Projects under Public Law 106-576" (June 2001), hereinafter referred to as "Guidelines" and prepare a Preliminary Review of the Project Plan. In addition the District desires that Reclamation begin coordination



AGREEMENT NO. 03-CF-40-210

with the District as regards the National Environmental Protection Act (NEPA) and other federal requirements for compliance and consultation;

WHEREAS, after Reclamation has determined that the Project Plan is sufficient to qualify under the Act, the District shall prepare a report (the "Project Report"), containing detailed descriptions, assessments, cost estimates, feasibility level engineering designs, and documentation of environmental and cultural resource compliance must be prepared and submitted by the District to Reclamation for review. District desires that Reclamation meet with and advise the District as to requirements and course of action during the preparation of this report. District desires that Reclamation review the Project Report, and complete all other requirements in the process, including the final step of prioritizing under the Act; and

WHEREAS, the District has entered into a contract with the Texas Water Development Board dated July 16, 2003 and labeled TWDB CONTRACT NO. G18500 (attached to this AGREEMENT as Exhibit B and made a part herein) for a grant for engineering services which includes conditions under which the Texas Water Development Board will reimburse the District for all cost considered under this AGREEMENT due from the District to Reclamation.

NOW, THEREFORE, the parties agree as follows:

A. Reclamation agrees that this AGREEMENT is subject to the conditions and provisions of the TWDB CONTRACT NO. G18500, and that any payment by the District to Reclamation under this AGREEMENT is subject to approval by the Texas Water Development Board.

B. Activities to be performed under this AGREEMENT by Reclamation shall include, but are not limited to:

1. Designation of a Reclamation representative responsible for coordinating with District as regards the project. The designated representative will be the principal contact for this AGREEMENT and any modifications.

2. Review of the Project Plan, as required under the Act. On or before sixty days after the date of the last signature on this AGREEMENT, and receipt by Reclamation of advance funds provided for herein, Reclamation will complete a review of the Project Plan. If the Project Plan can be qualified for federal funding, a letter so stating will be forwarded to the District and the project will be accepted

Page 2

AGREEMENT NO. 03-CF-40-2101

into the program under the Guidelines. If there are changes, additions or corrections required in the Project Plan, Reclamation will notify District and make arrangements for further discussions and delivery of written suggestions as to such changes, additions or corrections. Within thirty (30) days of the re-submittal of the amended Project Plan, Reclamation will complete a review of the amended Project Plan. If the Project Plan, as amended, can be qualified, a letter accepting the document as the Final Project Plan will then be forwarded to the District.

3. Preliminary coordination with District for the purpose of discussion of anticipated environmental and cultural resource compliance requirements under all applicable federal and state laws, and necessary documentation required in the Project Report. Such compliance activities shall be commensurate with the requirements of the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). Work items and costs necessary in order to achieve environmental and cultural compliance for the project will be negotiated.

4. Conducting any site visits and attending any meetings as necessary and appropriate with District and/or other agencies and interested groups regarding the development of the proposed Project Report.

5. Review of the Project Report, as required under the Act. With the advance of the necessary funds, and the completion of the review and qualification of the Project Plan, District will begin work on the Project Report. Within 45 days of submittal by District to Reclamation, Reclamation will complete a review of the Project Report. Once the Project Report is approved by Reclamation, a determination of financial capability will be made by Reclamation, and a cost share AGREEMENT for construction will be prepared for signature by Reclamation and the District. A letter will be given to the District stating that all requirements of the Act have been met and showing the prioritization of this project under the Guidelines.

6. Provide District with regular reports of actual expenditures and services required to accomplish the terms of this AGREEMENT until such activities and expenditures are complete.

7. Accept advance funding. Provide District with timely requests for additional advance funding in order that no hiatus may occur in the tasks enumerated above. Refund to District, after completion of the tasks enumerated in this AGREEMENT, any funds not expended or obligated. Reclamation has provided District an estimate of \$20,000 for the review of the Project Plan and Report and

AGREEMENT NO. 03-CF-40-2101

completion of coordination and environmental compliance activities. Such payment of \$20,000 by the District to Reclamation shall be in accordance with all provision of the contract between the District and the Texas Water Development Board dated July 16, 2002 (Exhibit B of this AGREEMENT).

8. Review comments and requirements by the Texas Water Development Board that might require changes and amendments to this AGREEMENT between Reclamation and the District, to the Project Plan or the Project Report. Reclamation will coordinate with the District's Representative and Engineer-of-Record in its attempt to satisfy such comments and requirements.

9. Reclamation shall schedule any meetings regarding work performed under this AGREEMENT with the District's Representative and the Engineer-of-Record.

10. Reclamation shall provide to the District Representative and the Engineer-of-Record at least copy, each, of all correspondence, reports, reviews, or any other work products prepared by Reclamation under this AGREEMENT.

C. Activities to be performed under this AGREEMENT by District shall include, but are not limited to:

1. Provide a sum not to exceed \$20,000 for the tasks to be performed by Reclamation as regards the review of the Project Plan and Report and the coordination and environmental compliance activities described in this document. Exhibit A of this AGREEMENT, attached and made apart itemizes the Reclamation estimate An AGREEMENT signed by Reclamation and the District, evidence of approval by the District's Board of the signatures on the AGREEMENT, and an advance of \$20,000 will be made prior to any work by Reclamation. After this AGREEMENT has been signed and funds advanced, such funds will be used by Reclamation for its costs, expenses, obligations and services related to the tasks enumerated in this AGREEMENT or any amendment thereof. Additional funds will be advanced by District when notified by Reclamation that such additional funds are needed for continuation of the activities under the AGREEMENT, and if District desires Reclamation to continue the tasks under this AGREEMENT, District will advance the requested funds within fifteen days of such notification.

2. Provide arrangements and assistance to Reclamation personnel during any site visits or meetings.

AGREEMENT NO. 03-CF-40-2101

3. Notify Reclamation of any problems that may change the plan for the project.

DISTRICT'S REPRESENTATIVE

Greg Lane, Maintenance Supervisor
El Paso County Water Improvement District No. 1
294 Candelaria St.
El Paso, Texas 79907
Office: 915-859-4186
Fax: 915-860-1038
E-mail: glane5698@aol.com

DISTRICT'S ENGINEER-OF-RECORD FOR PROJECT

A.W. Blair, P.E.
Axiom-Blair Engineering, L.P.
3933 Steck Avenue Suite B-119
Austin, Texas 78759
Office: 512-349-0117
Direct: 512-858-1997
Fax: 512-349-0385
E-mail: awblair@texas.net

TERMINATION

This AGREEMENT may be modified or terminated upon written mutual AGREEMENT of the parties hereto. The AGREEMENT may be terminated or suspended, at Reclamation's option, if District elects not to advance monies within fifteen days of notification by Reclamation of the need for additional advance funds. If Reclamation elects to suspend the AGREEMENT, all work by Reclamation will cease until it is in receipt of the next required start-up funds. The AGREEMENT, unless amended, will in any event terminate upon completion and transmittal to District of the letter approving and prioritizing the Project Report. All duties and obligation of the parties under this AGREEMENT will cease at that time except as to provisions related to accounting and reimbursing and refunding of funds.

AGREEMENT NO. 03-CF-40-210

GENERAL PROVISIONS

No member of or delegate to Congress, or resident Commissioner, shall be admitted to any share or shall be a part of this AGREEMENT or receive any benefit that may arise from this AGREEMENT other than as a water user or landowner in the same manner as other water users or landowners.

This AGREEMENT shall become effective on the date of the last signature hereto.

IN WITNESS WHEREOF, THE PARTIES HAVE EXECUTED THIS AGREEMENT in duplicate.

THE UNITED STATES OF AMERICA

By: *[Signature]* Date: 6/19/03

EL PASO COUNTY WATER IMPROVEMENT DISTRICT NUMBER 1

By: *[Signature]* Date: 6/11/03



Appendix C

Technical Memorandum

El Paso County Water
Improvement District No. 1

Water Conservation Program

Aquifer Test Analysis for the
Riverside Canal Improvement Project

Prepared for
United States Department of Interior
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A handwritten signature in black ink, appearing to read "Allie Blair".

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1. Scope of Work

This technical memorandum was prepared to provide supplemental information regarding the characteristics of the shallow aquifer near the heading of the Riverside Canal at the request of the Bureau of Reclamation staff. No funds were available or budgeted for this work and as such the scope of the work was limited to a single test using hand measured data. An aquifer test was performed to estimate the transmissivity and storage coefficient of the aquifer (Boonstra 1999, and Driscoll 1987). Two existing irrigation wells were used in the test. Water was pumped from one well (CW6) for approximately 15 hours and the change in water level was observed in the other well (CW7). No water was pumped from the second well.

1.1. Location of Test

Figure 1 is a USGS map showing the location of the test wells. Figure 2 is an aerial photograph of the test area.

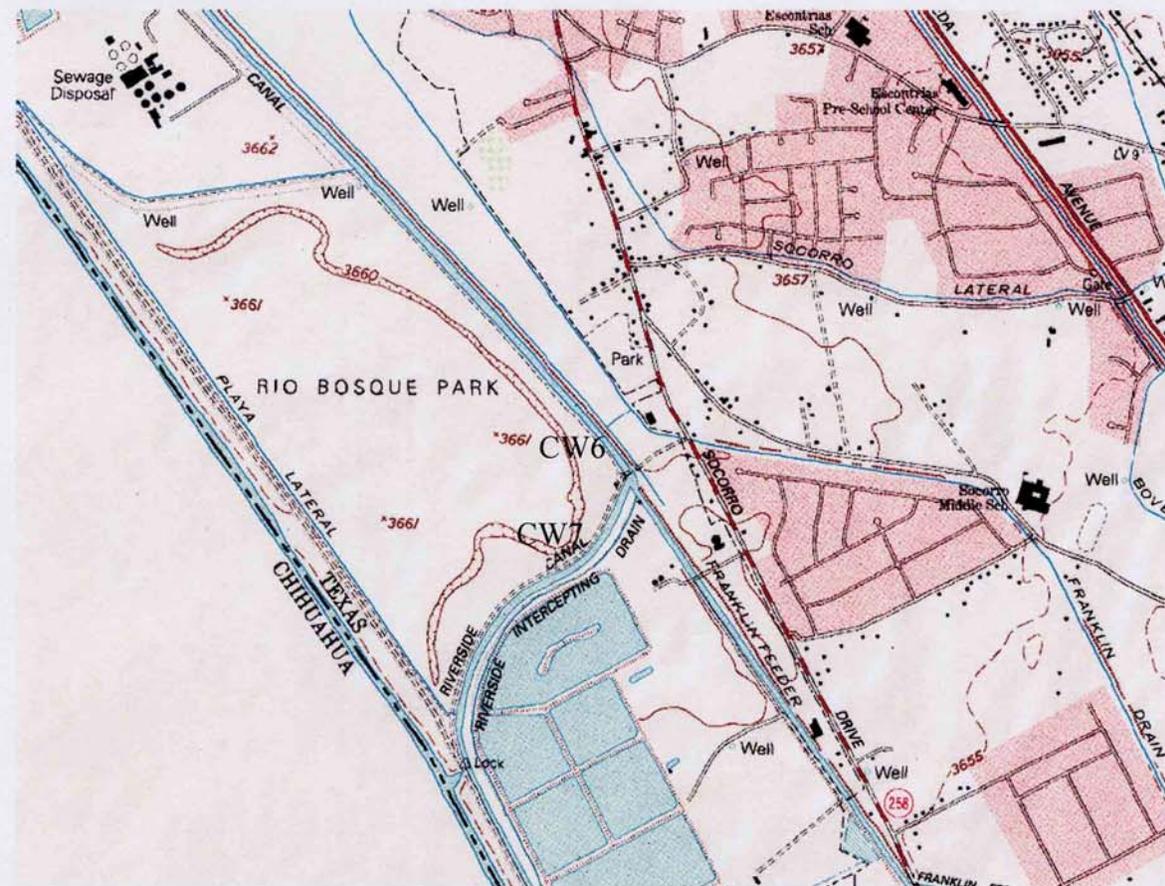


Figure 1 – USGS Topographic Map of Aquifer Test Area



Figure 2 – Aerial Photograph of Aquifer Test Area

1.2. Depth to Water Measurements

Table 1 list the depth to the groundwater surface measured from the top of the well casing. The estimated pumping rate was 750 gpm from Well CW6. At the start of the test the depth to groundwater was approximately 15 to 16 feet below the surrounding ground surface. After 15 hours of pumping, the measured draw down of the in well CW7 was 0.10 feet. Well CW7 is approximately 750 feet south of well CW6. After approximately 6 hours after the pumping was stopped, the water level in CW6 had recovered to 0.80 feet below the original water level.

The specific capacity of the well was approximately 28 gpm per foot of draw down. The total volume of water pumped was 675,000 gallons or 2.1 acre-feet.

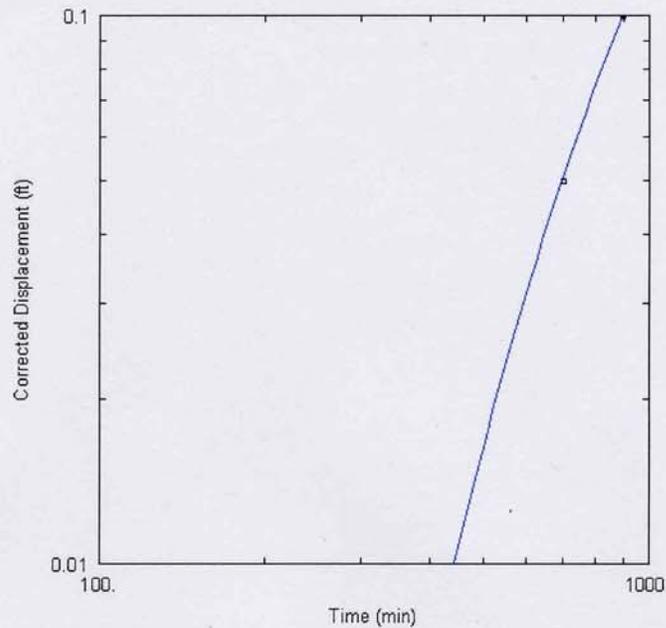
Table 1 : Depth to Groundwater

Elapsed Time minutes	Well ID	
	CW6 feet	CW7 feet
0	17.50	18.70
5	43.00	
700	44.00	18.75
900	44.50	
905	23.00	
906	22.00	
912	21.50	
917	21.50	18.80
1245	18.30	

1.3. Analysis

Based on the measurements made during the draw down and recovery period of the aquifer test and the assumption that the shallow aquifer is unconfined, AQTESOLV, 2002, software estimated transmissivity is be 8,200 sq.ft/day and the specific yield of approximately 0.06 (see Figure 3). Alvarez (1980) reported transmissivity values of 4,010 sq.ft/day and specific yield of 0.15 to 0.20, and a saturated thickness of 190 feet. The hydraulic conductivity for these values is approximately 21 feet per day.

Figure 3 – Theis Curve for Well CW7

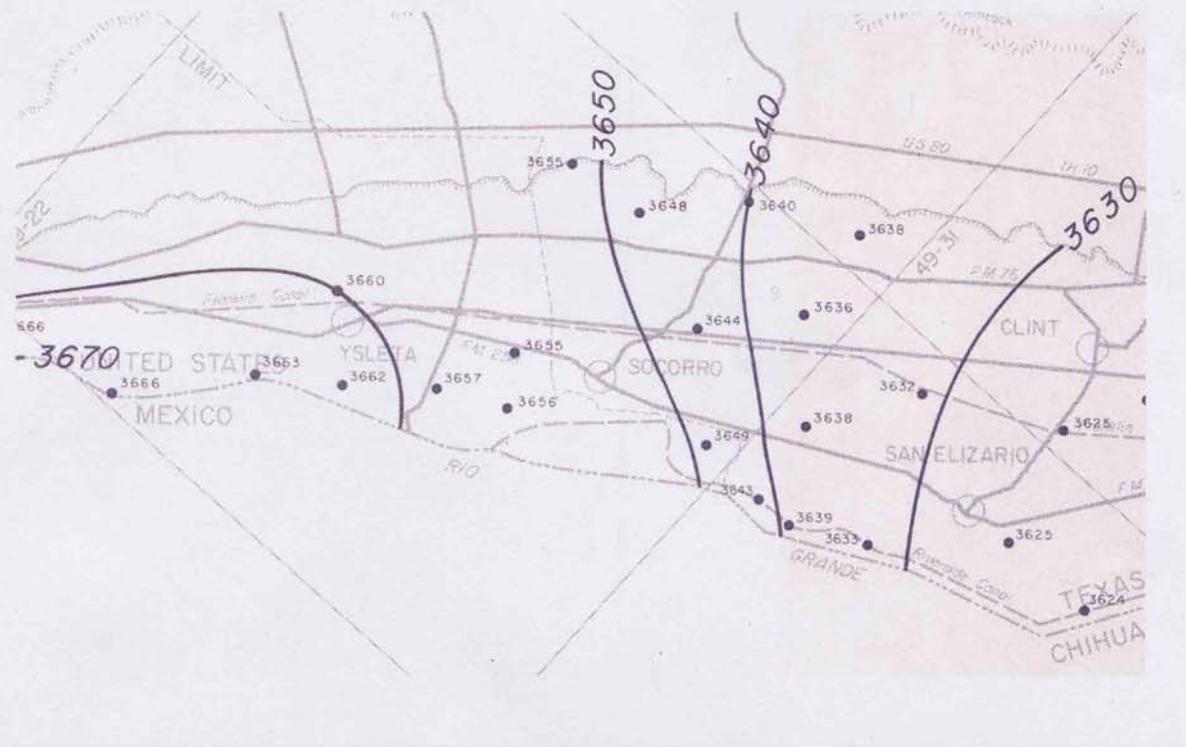


El Paso County Water Improvement District No. 1 Water Conservation Program – Riverside Canal Project

Alvarez reported a groundwater elevation in 1973 near the test area of approximately 3,650 feet or about 15 below the ground elevation of the Riverside Canal bank (see Figure 4). The current groundwater elevation is approximately the same as it was in 1973. This is because the shallow groundwater elevation is primarily controlled by the elevation of the water in the nearby agricultural drainage canal system. Any increase in the amount of water pumped in Texas and Mexico from the shallow aquifer or decrease in the amount of recharge from irrigation or canal seepage would have to be greater than the current drain flow to change the elevation of the groundwater. Furthermore, the high transmissivity of the aquifer allows water to readily flow horizontally from other locations to the recharge any loss due to a pumping well.

Van der Heijde’s THWELLS computer program was used to simulate the pumping of 300 acre-feet of water per year from the test well during the primary irrigation season. The simulation results predicted a decline on the shallow aquifer at a distance of 2,500 feet from the irrigation well equal of approximately 1 foot after 122 days after pumping stopped (243 days of pumping and 122 days of recovery). The model assumed no recharge to the aquifer. If the flow in the nearby drains is greater than 300 acre-feet per year, then the groundwater removed by the well would be offset by similar reduction of flow in the drains. Also, any irrigation or other water applied to nearby lands would help reduce or stabilize the amount of decline cause by the pumping.

Figure 4 – 1973 Groundwater Elevations from Alvarez (1980)



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2. References

Alvarez, Henry and Wayne Bucker, 1980, Report 246, Groundwater Development in the El Paso Region, Texas with Emphasis on the Resources of the Lower El Paso Valley, Texas Water Development Board.

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Driscoll, F.G., 1987, Collection and Analysis of Pumping Test Data. in F.G. Driscoll (Ed.), Groundwater and Wells (pp 534-579). St. Paul, Minnesota: Johnson Division.

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