

RECLAMATION

Managing Water in the West

**DRAFT ENVIRONMENTAL ASSESSMENT
FOR
ESPANOLA DIKES CROSS-DRAINAGE
(BORREGOS ARROYO) PROJECT**



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

November 2005

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 the Borregos Arroyo Floodplain west of the dike at the Rio Grande, Rio Arriba County, NM; April, 2005

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Middle Rio Grande Project

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BUREAU OF RECLAMATION
Albuquerque Area Office
Albuquerque, New Mexico

Finding of No Significant Impact

Espanola Dikes Cross-drainage (Borregos Arroyo) Project
Rio Arriba County, New Mexico

Manager, Environment Division

Date

Area Manager, Albuquerque Area Office

Date

AAO-05-009
FONSI Number

BACKGROUND

Historically, the Borregos Arroyo emptied into a floodplain created by the Rio Grande. Originally, the river channel changed course as a result of flooding. The river would flow in one location until it had built its bed to a higher elevation than the adjacent lands. A high flow would then breach onto the lower lands and establish a new channel location. As a result, Reclamation performed floodway construction and channel rectification (channelization) activities on the Middle Rio Grande for the purpose of providing flood control. As part of Reclamation's channelization program, a pilot channel and spoil dike were constructed to straighten out the Rio Grande and confine the river between a system of levees.

A spoil dike was constructed at the outlets of the Estaca, Lopez, and Borregos Arroyos in the late 1940s. However, the dikes currently restrict stormwater flows of three arroyos from entering the Rio Grande. In addition, the dike restricts irrigation ditch overflows and stormwater flows from adjacent properties from entering the Rio Grande. As a result, the restrictions cause water to pond west of the dike on the adjacent landowner properties.

SUMMARY OF THE PROPOSED ACTION

The proposed action would include construction of a channel and an outlet to the Rio Grande to accomplish the following objectives:

- Eliminate ponding of stormwater on adjacent landowner properties.
- Provide an outlet for stormwater flows of the Borregos Arroyo and irrigation ditch overflows to the Rio Grande.
- Provide drainage of stormwater flows to the Rio Grande from the Estaca and Lopez Arroyos that pond north of the Borregos Arroyo.

An open riprap lined channel, and corrugated metal pipes (cmps) through the spoil dike would allow previously restricted flows to enter the Rio Grande. The new channel would have a 10-foot bottom width and berms approximately 6 feet high. The easement width for the new channel would be 97 feet.

Included in the project would be the replacement of the 12 cottonwood trees with 122 cottonwood pole plantings on private landowner property just south of the Borregos Arroyo. Through an agreement with the landowner, Reclamation would access the private land to monitor the condition of the cottonwood poles for the next five years (In accordance with the Corps of Engineers Mitigation and Monitoring Guidelines).

ENVIRONMENTAL IMPACTS RELATED TO THE RESOURCES OF CONCERN

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

Native Vegetation

The removal of 12 large cottonwood trees would be mitigated by planting 122 young cottonwood poles. In addition, all native vegetation would be mulched and spread on the slopes of the new channel susceptible to soil erosion. Therefore, environmental effects of vegetation removal from the proposed action would be mitigated.

Wetlands

Wetlands 196 feet north and approximately 300 feet south of the new channel would not be affected by the channel construction of the project.

Threatened and Endangered Species

The threatened Bald Eagle and the endangered Southwestern Willow Flycatcher are known to be present in the project area.

Bald Eagles are known to use the Rio Grande corridor during the winter months. Bald Eagles could potentially utilize large cottonwood trees within the area for perching. Removal of the large cottonwood trees and other trees in the project area would remove some potential perches that could be utilized by the Bald Eagle. However, other cottonwood forests are nearby and as a result, they would utilize those areas for perches when hunting and fishing. Should a Bald Eagle be observed within 0.25 mi. upstream or downstream of the active project site in the morning before project activity, the construction crew would be instructed not to begin. In addition, if an eagle is spotted following breaks in project construction activity, the crew would also be required to suspend all activity until the bird leaves on its own volition, or if the Reclamation biologist, in consultation with the Service, determines that the potential for harassment is minimal.

The Southwestern Willow Flycatchers were not found in the project area and the habitat in the project area is not suitable for nesting. Therefore, the species would not be affected by the proposed project.

Water Resources

The waters which flow in the wasteway ditch from the acequia to the dike of the Rio Grande has been identified by the Corps of Engineers as waters of the United States. The construction of the new channel would provide a more efficient tributary to the Rio Grande. In addition, the new channel would mitigate the replacement of the old wasteway ditch.

Private Land

Construction of the project would eliminate flooding of private landowner property which is adjacent to the project's new channel. The effects of the proposed action would allow private land owners to utilize their property more effectively.

Environmental Justice

No adverse effects to low-income or minority populations are anticipated.

Indian Trust Assets (ITAs)

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

Cultural Resources

An old concrete headgate located within the project area would be covered by construction material. However, the headgate would not be disturbed or affected by the new channel construction.

The dike at the Rio Grande would be disturbed as a result of the installation of three cmps described further in section 2.4. The purpose and function of the dike would remain; however breaching the dike and construction of the ramps would change the appearance. A report was sent to the New Mexico State Historic Preservation Office (NMSHPO) with pictures and a description of the scope of work. The NMSHPO responded by concurring that the documentation would serve as mitigation of any adverse effects that may occur as a result of the project.

Air Quality and Noise

Increased dust and noise would occur only during the construction phase of the project. As soon as the project is completed, noise and dust from the project would not continue.

ENVIRONMENTAL COMMITMENTS

The environmental commitments to minimize potential adverse effects are listed in Chapter 5 and will be implemented during construction activities. In addition, monitoring the planting of cottonwood poles in accordance with the mitigation plan submitted to the Corps of Engineers will continue for at least five years. At the end of five years, a "Certificate of Compliance" is required to be submitted to the Corps of Engineers.

COORDINATION

The U.S. Fish and Wildlife Service visited the project site to informally discuss any potential effects to endangered species as a result of the proposed project. During the visit the Service indicated that there are no species of concern within the project area. The ACOE and NMED were consulted with regarding CWA Section 404 and 401, respectively. NMDG&F was consulted through their website regarding any state protected animal species that could potentially occur in the project area. The NMSHPO of New Mexico was consulted by Reclamation to determine project compliance with state and federal laws (Section 106 of the NHPA) regarding cultural resources in the project area. San Juan Pueblo was contacted to inform them of the project and to request any comments on the project or the draft EA (copy of the letter in Appendix C). The public was consulted with during a public meeting held December 3, 2003.

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 implementing the preferred plan presented in the EA (for the construction of a new channel for Borregos Arroyo to the dike of the Rio Grande) 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

ACOE	U.S. Army Corps of Engineers
AQCR	Air Quality Control Region
CFR	Code of Federal Regulations
cfs	cubic feet per second
cmp (CMP)	corrugated metal pipe
cy	cubic yards
CWA	Clean Water Act
EA	Environmental Assessment
ft.	feet
in.	inches
ITAs	Indian Trust Assets
mi.	mile
N/A	Not Applicable
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NMED	New Mexico Environmental Department
NMDG&F	New Mexico Department of Game and Fish
NMSHPO	New Mexico State Historic Preservation Office
NPDES	National Pollution Discharge Elimination System
Reclamation	Bureau of Reclamation
Service	U.S. Fish and Wildlife Service
Stat.	Statute
SW	Southwest
UTM	Universal Transverse Mercator
U.S.C.	United States Code

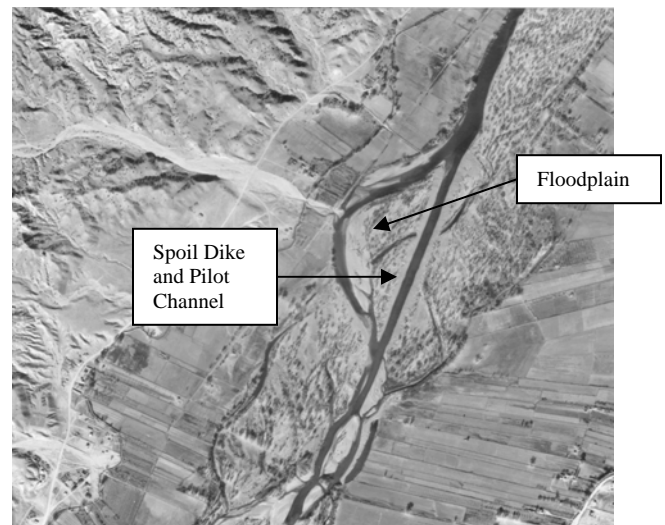
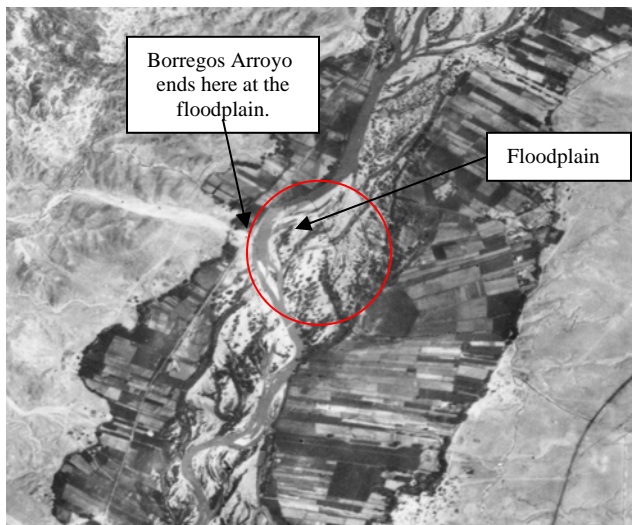
Chapter 1. PURPOSE AND NEED FOR ACTION

1.1 Introduction:

The Flood Control Acts of 1948 and 1950 authorized Reclamation and the Corps of Engineers to develop and implement a comprehensive plan for flood control and water conservation. The Middle Rio Grande Project was approved by Congress in the Flood Control Act of 1948 (62 Stat. 1171, 1179), and completion of the plan authorized in the Flood Control Act of 1950 (64 Stat. 170, 176). Originally, the river channel was the type to change course as a result of flooding (an avulsion-type channel). The river would flow toward one location until it had built its bed to a higher elevation than the adjacent lands. Then a high flow would break over into the lower lands and establish a new channel location. As a result, Reclamation implemented a system of channelization on the Middle Rio Grande for the purpose of providing flood control and straightening out the river on floodplains. In addition, as part of the channelization, the Rio Grande has been confined between a system of levees or a combination of levees and natural bluffs which control the river (Summary Report December 1967).

Historically, the Borregos Arroyo emptied into a floodplain created by the Rio Grande (see 1935 Photo below). As a result of the flood control acts, a pilot channel and spoil dike were constructed to straighten out the Rio Grande (see 1949 photo below).

The photo on the left was taken in 1935. The photo on the right was taken in 1949.



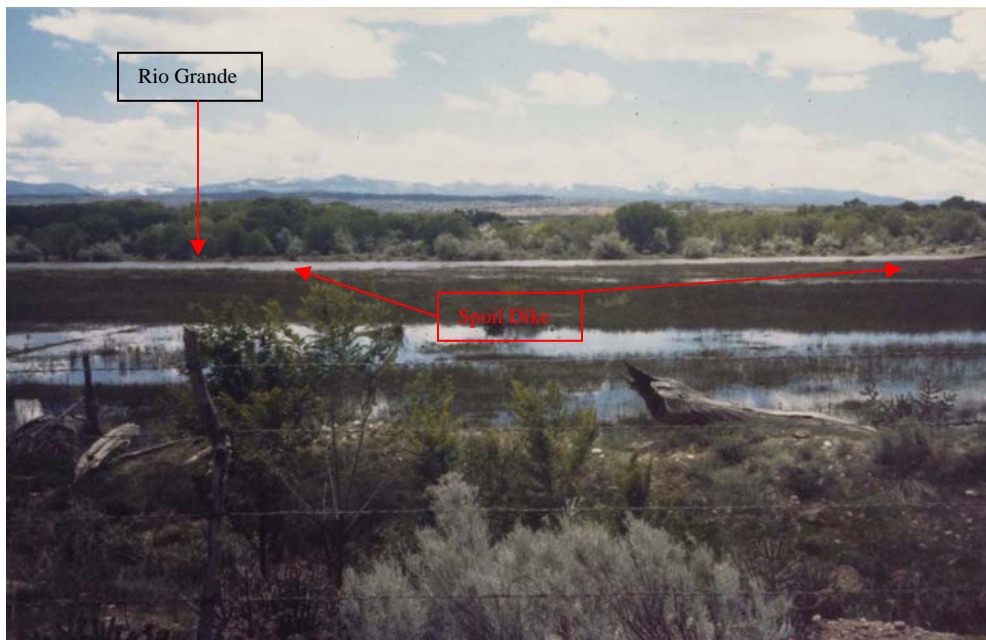
1.2 Proposed Action

The Bureau of Reclamation, Albuquerque Area Office, proposes to provide drainage of stormwater from the Estaca, Lopez, Borregos Arroyos impeded by an existing dike to the Rio Grande. In addition, water overflows from the El Guique Acequia (Acequia) would also be provided drainage to the Rio Grande (figure 1 for the location of the proposed project, figure 2 for the exact location of the arroyos).

1.3 Need for the Action

A spoil dike (see spoil dike on aerial photos in section 1.1) that was constructed in front of Estaca, Lopez, and Borregos Arroyos, restricts stormwater from draining into the Rio Grande. The dike also restricts acequia overflows and stormwater flows from adjacent properties from entering the Rio Grande. As a result, the restrictions cause water to pond up west of the dike on the adjacent landowner properties.

The picture below shows excessive ponding of water that occurred in 1987 onto the land west of the spoil dike in the vicinity of the Borregos Arroyo. Water flow in the river at that time was 8852 cfs.



Project Location – El Guique, NM

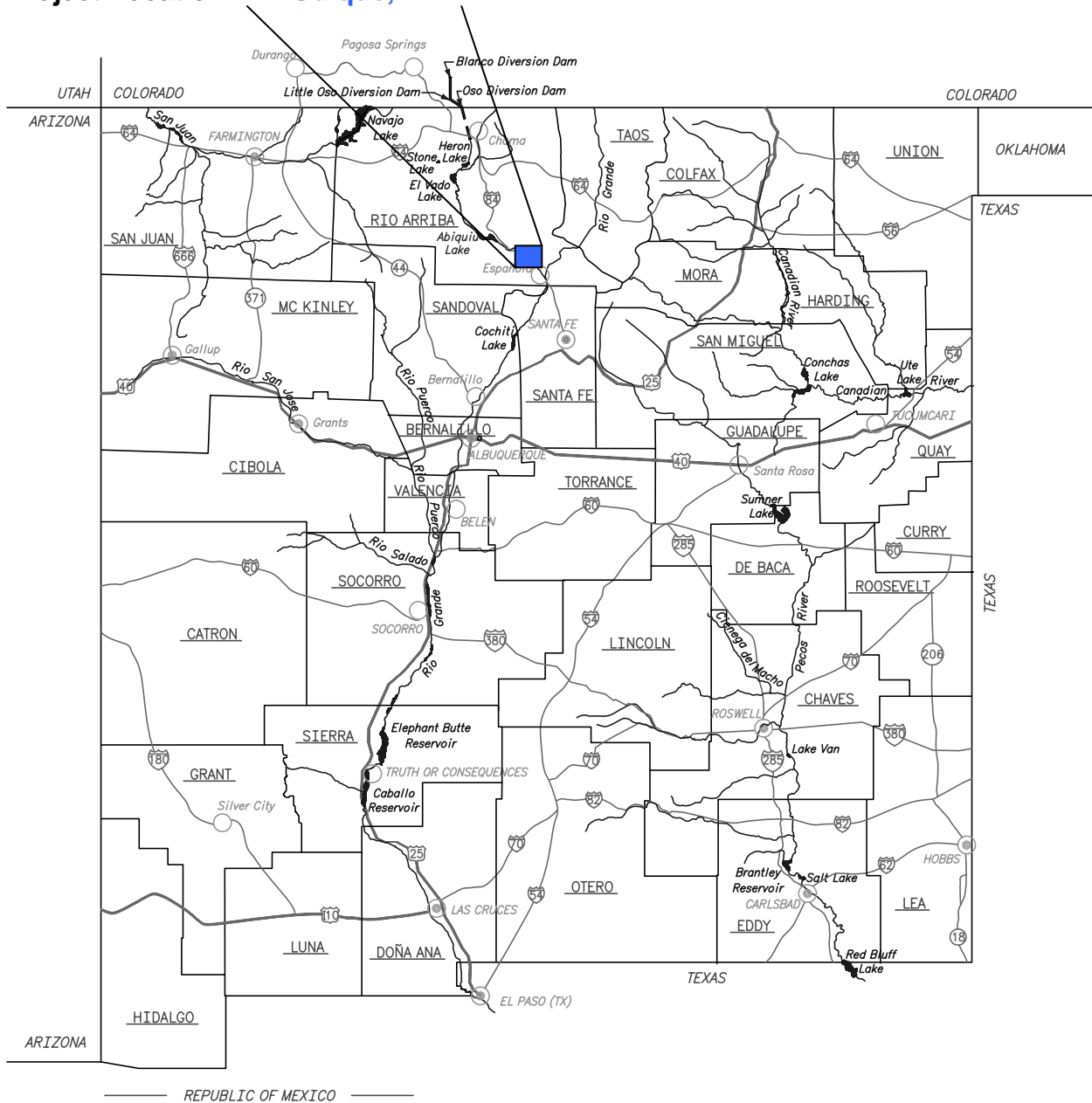


Figure 1 - New Mexico State Map

Location of Arroyos

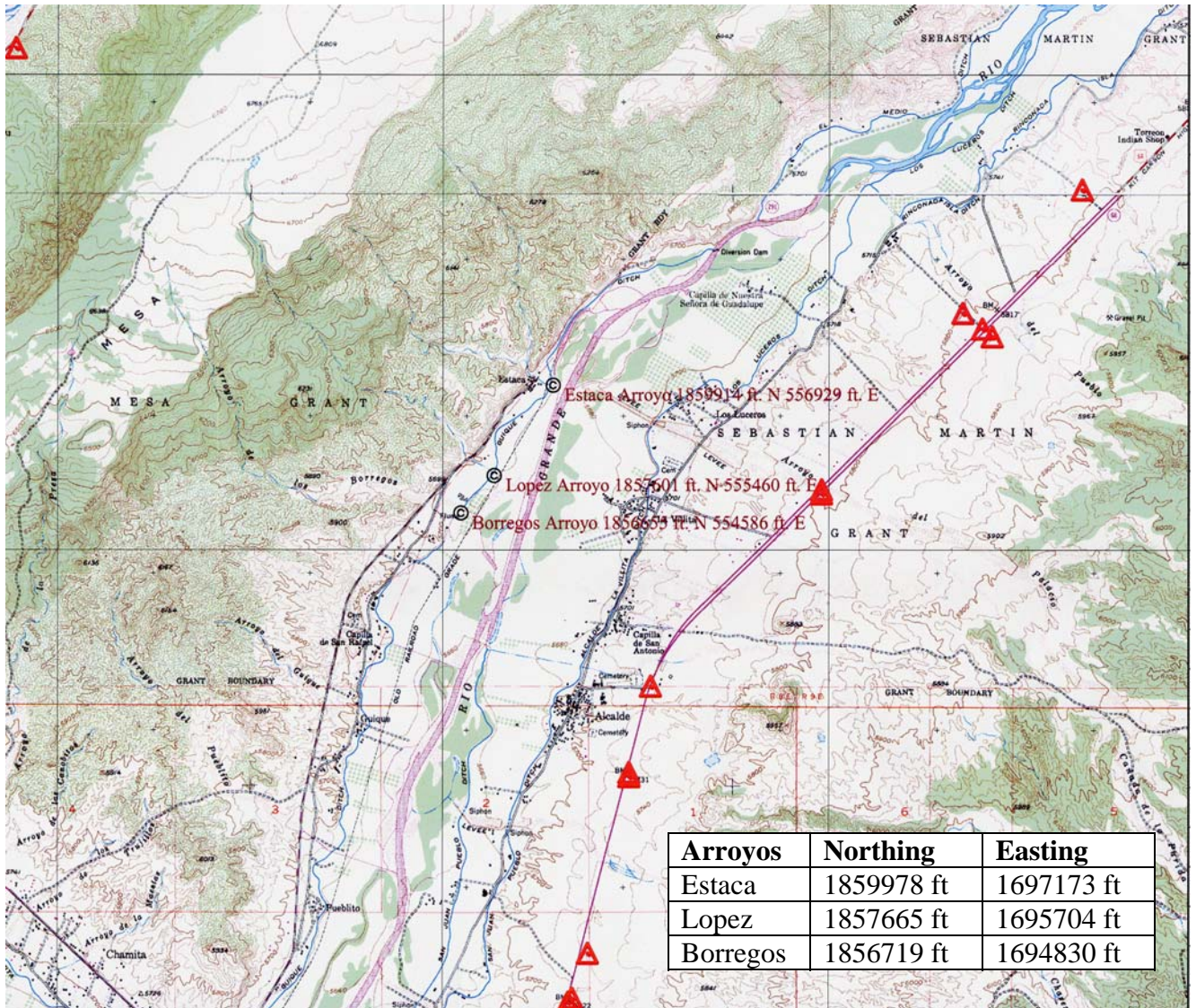
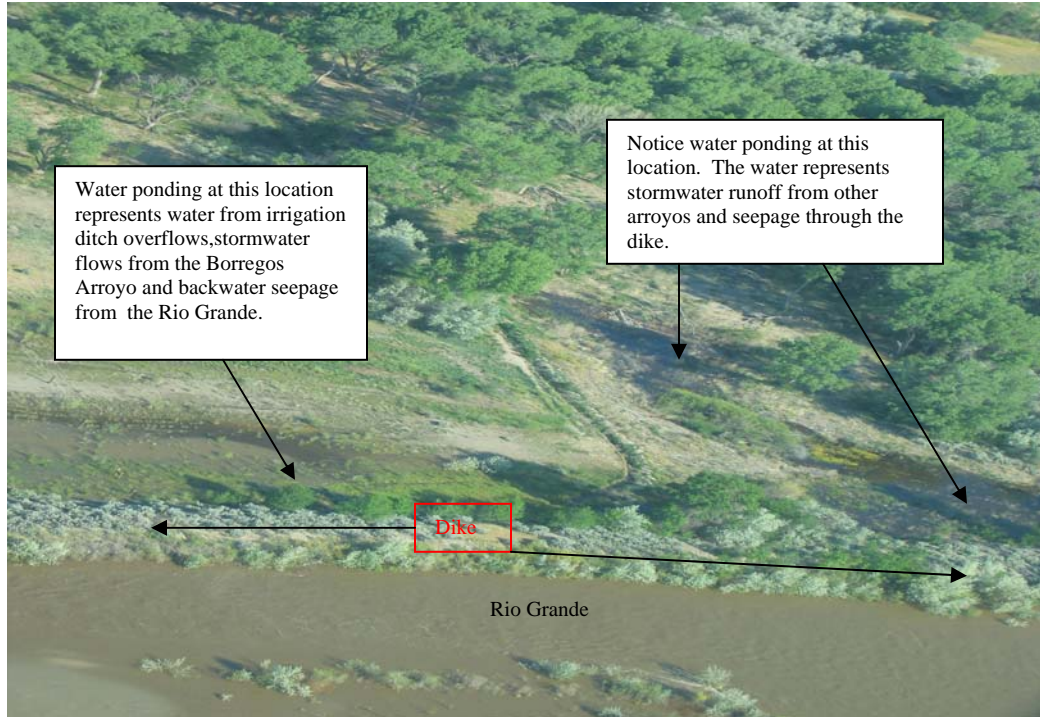


Figure 2 - Estaca, Lopez, and Borregos Arroyos

The following photo was taken on May 24, 2005, when the river was flowing at 5710 cfs. The excessive ponding on the west side of the dike increased as the river increased in flows. In addition, stormwater runoff from the arroyos and the irrigation ditch overflows were restricted from draining into the Rio Grande.



1.4 Purpose of the Action

The objective of the proposed action includes improving the drainage of stormwater flows back to the river channel. In addition, the improved drainage would reduce the extent of ponded water on the west side of the dike. Therefore, an outlet through the dike would need to be provided for three types of flows to drain into the river. These flows would include stormwater from the arroyos (Estaca, Lopez and Borregos), stormwater from adjacent land owner property, and irrigation ditch (El Guique Acequia) overflows.

The objective would require an action alternative for channeling and drainage of these flows into the Rio Grande. As a result, an alternative would need to be selected that would achieve the following:

- 1.4.1. Eliminate excessive water ponding of adjacent landowner properties.
- 1.4.2. Provide an outlet for stormwater flows of the Estaca, Lopez, and Borregos Arroyos, including El Guique ditch overflows to the Rio Grande.
- 1.4.3. Provide the opportunity for landowners to improve stormwater drainage of their property into the river.

1.5 Relevant Statutes, Regulations, and other Plans

The following table summarizes the statutes, permits, and MOUs that affect the proposed action:

Statute, Permit, MOU	Government Agency	Purpose	Requirements
62 Stat. 1171, 1179	Reclamation and Corps of Engineers	Protection from floods	Maintain levees and dikes
64 Stat. 170, 176	Same as above	Protection from floods	Same as above
404 and 401 permits	Corps of Engineers	Comply with the Clean Water Act	Mitigation plan to replace 12 mature cottonwood trees (See Appendix B)
402 stormwater permit	Environmental Protection Agency	Protect US waters from stormwater runoff	Pollution Prevention Plan and an Notice of Intent (NOI)
MOU dated 1/14/2004	Reclamation and El Guique Acequia organization	An agreement between Reclamation and the Acequia	Reclamation agrees to correct water flow restrictions.

According to the Memorandum of Agreement (see Appendix A) between Reclamation and the El Guique Acequia, Reclamation agreed to provide drainage of restricted flows to the Rio Grande. The decision to be made would be whether or not to construct certain features in the Borregos Arroyo and the levee for this purpose.

1.6 Issues, Public Scoping

On December 8, 2003, a public meeting was held in the conference center near Alcalde, NM. The purpose of the meeting included an explanation of the project at the Borregos Arroyo. In addition, Reclamation gave the public an opportunity to make any comments and voice any issues for or against the project.

Additional meetings were held at the proposed project site with representatives from the Corps of Engineers and the Fish and Wildlife Service. The following are issues identified during the public meeting, coordination with other government agencies, and employees of Reclamation:

- Removal of existing cottonwood trees from the proposed project area.
- Small wetlands near the project area may be affected.
- Wildlife habitat for endangered species such as the Southwestern Willow Flycatcher and Bald Eagles may be affected.
- Cultural resources are present near the proposed project area and may be affected.
- The proposed action would affect a wasteway ditch that has been identified by the Corps of Engineers as waters of the United States.
- Private land would be affected by the proposed project.
- Air quality and noise may affect private landowners during construction.

Chapter 2. ALTERNATIVES

2.1 Introduction

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

- Description of the Alternatives.
- Summary Comparison of the Alternatives, the Predicted Achievement of the Project Objectives, and the Predicted Environmental Effects of Reasonable Alternatives.
- Process Used to Develop the Alternatives Including those Considered but Eliminated.
- Discussion of the Preferred Alternative.

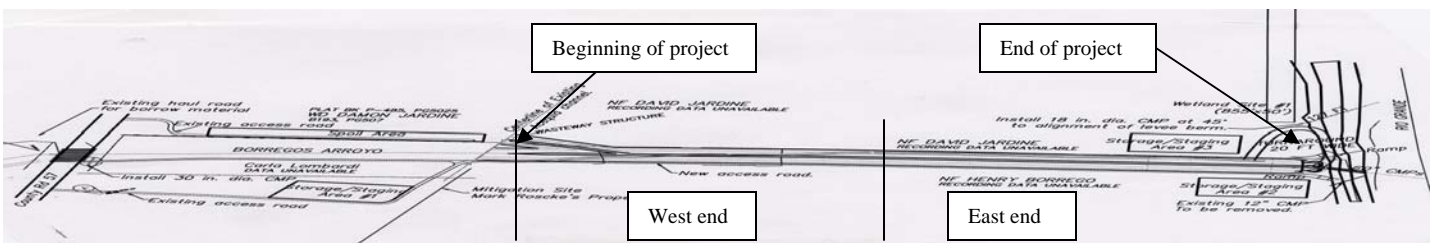
2.2 Description of the Alternatives

2.2.1. No Action:

Flooding from the arroyos would continue during stormwater flows, stormwater runoff from adjacent properties, and irrigation overflows. There would be no outlet to the Rio Grande to drain the flooding from private land.

2.2.2. Proposed Action:

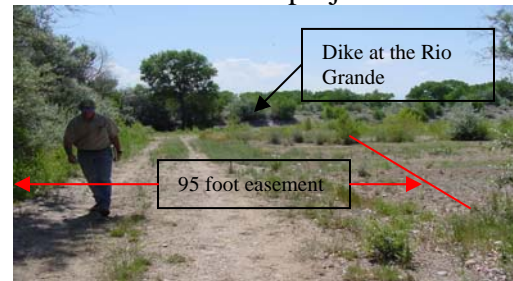
An open channel would be constructed and lined with riprap from El Guique Acequia to the dike at the Rio Grande covering a distance of approximately 1800 feet (see the summary comparison of the Alternatives in the table on page 8). The following drawing and pictures show part of the project area before construction would begin (Notice in the pictures below the vegetation that would have to be cleared before excavation would begin.):



Picture A West end of project area



Picture B East end of project area



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 proposed action on the Resource	Predicted Achievement of objective criteria listed in section 1.4 and section 2.3.1 to fulfill the need.
No Action	Native Vegetation	None	None
	Wetlands	None	None
	Threatened and Endangered Species	No affect on the Bald Eagle and the Southwestern Willow Flycatcher	None
	Water Resources	None	None
	Private Land	Flooding and ponding would occur.	None
	Environmental Justice	None	None
	Indian Trust Assets	No affect	None
	Cultural Resources	No affect	None
Proposed Action	Air Quality and Noise	None	None
	Native Vegetation	12 large cottonwood trees would be removed including their saplings.	Removal of the cottonwood trees would allow the channel to be built to achieve the objective criteria.
	Wetlands	None affected	Wetlands would be preserved
	Threatened and Endangered Species	No affect on Bald Eagle or the SW Willow Flycatcher	Removal of cottonwoods could eliminate perch trees for the Bald Eagles; however other cottonwood forests exist nearby that could be utilized. SW Willow Flycatchers were not found in the project site nor was the habitat suitable for nesting. Therefore, this species would not be affected.
	Water Resources	The wasteway ditch would be eliminated.	A new channel would be built with improved outlet to the Rio Grande.
	Private Land	Flooding and water ponding would not occur.	Eliminate flooding and water ponding would provide opportunities for development.
	Environmental Justice	None	N/A
	Indian Trust Assets	None	N/A
Cultural Resources	Excavation would occur through the dike.	Documentation to the SHPO would enable the proposed project to continue and help achieve the objectives.	
Air Quality and Noise	Excess dust and noise may occur during construction only.	Construction activities would achieve the objective criteria listed in section 1.4.	

2.3 Alternatives Considered but Eliminated from Further Study:

2.3.1. The following are criteria used for the process to select a preferred alternative:

- An engineering design that fulfills the objectives listed in section 1.4.
- An alternative that would cost the least amount.
- A channel design that would carry flows up to a maximum of 60 cfs.
- A design that would control backwater effects from high water of flows up to 5000 cfs in the Rio Grande.

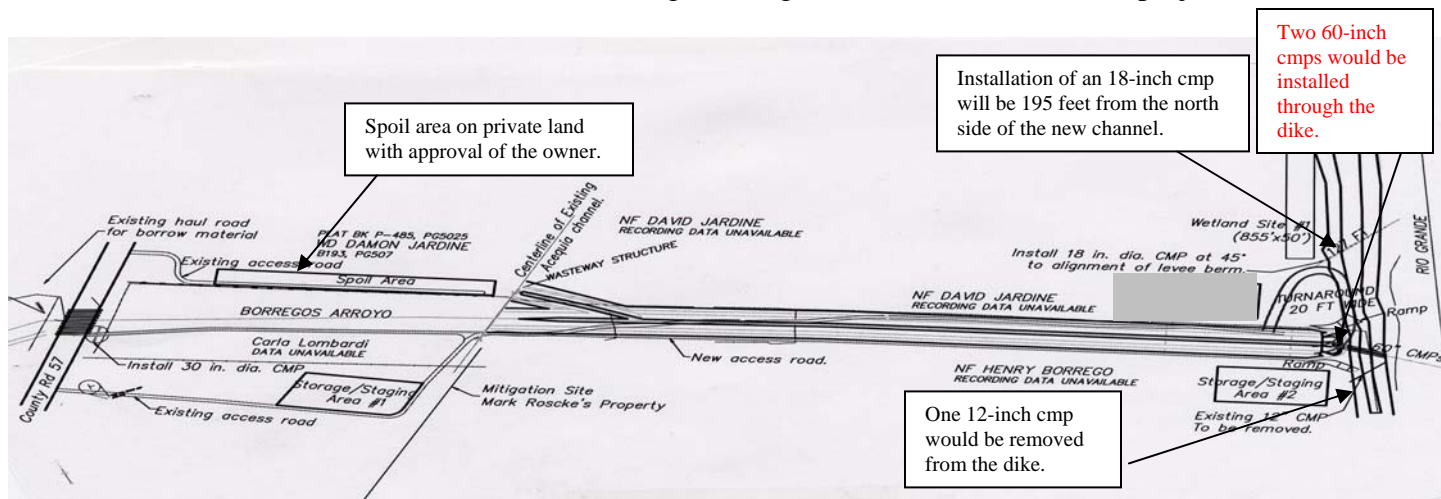
2.3.2. The following table compares alternatives considered including the preferred alternative:

Alternatives Considered	Criteria for Selecting the Preferred Alternative			
	Meets Objective criteria in sections 1.4 and 2.3.1	Cost Effective	Design Channel Flows would be 60 cfs	Design to meet backwater effects up to 5000 cfs
Concrete Pipe	Yes	No	Yes	Yes
Concrete Flume	Yes	No	Yes	Yes
Open Channel with Trashrack, CMPs with Flapgates	Yes	No	Yes	Yes
Open Channel with drop structures	Yes	No	Yes	Yes
Open Channel with riprap, CMPs with one Flapgate on 18-inch cmp and *no Flapgate on two 60-inch cmps	Yes	Yes	Yes	Yes

* Flapgates would be purchased by Reclamation for the two 60-inch cmps. However, the El Guique irrigation district would be responsible to install and maintain the flap gates.

2.4 Discussion of Preferred Alternative:

An open channel with riprap, two 60-inch cmps with no flapgate, and one 18-inch cmp with a flapgate is considered the preferred alternative. This alternative would best comply with the criteria listed in section 2.3.1. The following drawing shows an overview of the project area:



The preferred alternative's new channel, would have a 10-foot bottom width and berms approximately 6 feet high. The easement for the new channel is currently 97 feet wide. In addition, the berms would have an inside slope of 3:1 and an outside slope of 2:1. Riprap would be placed along the entire length of the inside portion of the channel. The new channel berms are designed to contain backwater effects due to high flows in the river greater than 5000 cfs.

Preparation for the construction of the channel would include clearing (removing all vegetation including 12 large cottonwood trees that dominate the site) and mulching the removed vegetation. The mulch would be placed on the outside slopes of the new channel for erosion control. Left over mulch would be placed in the proposed spoil area located in the northwest corner of the project (see drawing below). Any additional material (mulch or soil) will be placed on the top or on the west side of the dike.

Excavation of the dike would be required in 3 locations along the Rio Grande as follows: 195 feet north of Borregos Arroyo for installation of an 18-inch cmp with a flapgate; at the east end of the Borregos Arroyo for installation of two 60-inch cmps without flapgates; and removing an existing 12-inch cmp just south of the Borregos Arroyo (see overview drawing above). The 18-inch cmp with the flapgate would be installed to drain water ponding on the north side of the Borregos Arroyo. Gabion baskets would be installed at the outlet of the 18-inch cmp with riprap at the inlet (without concrete). In addition, two 60-inch cmps would also be provided with gabion baskets at the outlet; but with riprap encased in concrete at the inlet.

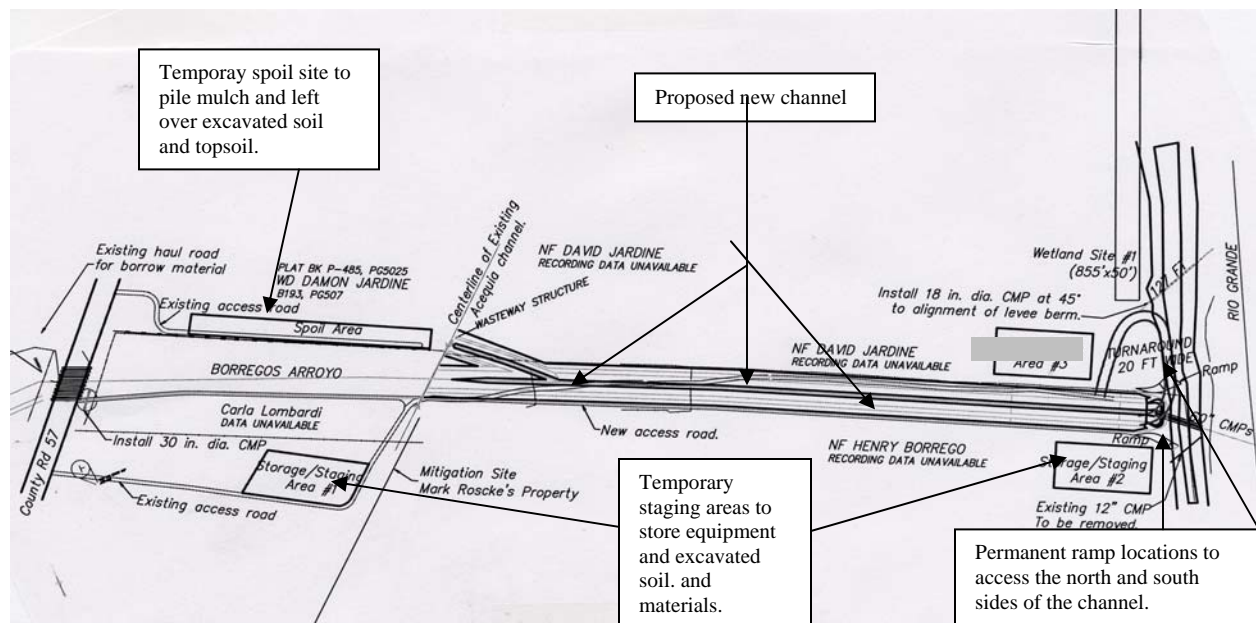
The dike would be graded and fences removed temporarily for an access road to install the 18-inch cmp. Two permanent ramps would be installed on the west side of the dike over the inlet of the 60-inch cmps and one temporary ramp would be installed and removed after construction where the 18-inch cmp is located. Since water would be required for the project to control dust, Reclamation has been given permission to pump water just south of the arroyo where there is an

existing road and ramp. The water would be pumped into a water truck that would spray the water onto the roads.

The project would replace (mitigate) 12 cottonwood trees with planting 122 cottonwood poles on private land adjacent to the project area. The location of the new trees (see the mitigation site on the drawing below and on the drawing at page 15.) would be south of the Borregos Arroyo between the following UTM coordinates: Northing 3,995,640 and Easting 403,935; Northing 3,995,804 and Easting 404,020, which is approximately 665 feet in length. Poles would be planted in the winter or early spring of 2006, when they are still dormant. Continued access to the private land would be by an agreement with the landowner to monitor the condition and establishment of the cottonwood poles.

A backhoe with an auger would be used to dig the hole for each cottonwood pole (10-12 feet long). A 4-foot wire fence (or equivalent) would be staked around each pole for protection. The landowner currently has a drip system along the acequia where the cottonwood poles would be planted. As the cottonwood poles mature, they would become self-sustaining. Monitoring the mitigation site would continue for five years to insure the trees become established (see map in section 4.2.1 for the location of the mitigation site).

The following drawing shows an overview of the proposed project with access roads and staging areas for heavy equipment, excavated soil, materials, and mulch:



Chapter 3. AFFECTED ENVIRONMENT

3.1 Introduction

The relevant resources described in this chapter are those that would 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 Affected Issues and Resources (See list of Issues in Section 1.6)

3.2.1. Native Vegetation

The Rio Grande cottonwood (*Populus deltoides* var. *wislizenii*) dominates the vegetation in the project area. The plant community also contains Russian olive, coyote willow, locust, and saltcedar. In addition, there is a variety of grass species such as orchard, smooth brome, and fescue grasses.

3.2.2. Wetlands

Two wetland surveys were conducted by Eco System Management, Inc. on March 18 and August 4, 2004, respectively. The first study results indicated that no wetlands existed in the project area. This study also identified a small wetland area out of the project area (less than an acre) about 300 feet south of the Borregos Arroyo along the toe of the dike.

The second study was conducted north of the project area along the dike's west toe between the Lopez Arroyo and the Borregos Arroyo. A wetland was identified which covered an area of approximately 1.02 acres. Results of both studies may be referred to in Appendix E.

Water that seeps from the Rio Grande as well as arroyo stormwater runoff have maintained these areas as wetlands.

3.2.3. Threatened and Endangered Species

A field trip with representatives of the Service was conducted at the proposed project area in the fall of 2003. The Southwestern Willow Flycatcher and the Bald Eagle were the only species discussed (see the wildlife species list in Appendix D). The nearest Southwestern Willow Flycatcher species have been observed approximately two miles south of the proposed project. Bald Eagles have also been observed during the winter months; however, no nests have been located in or near the proposed project area.

3.2.4. Water Resources

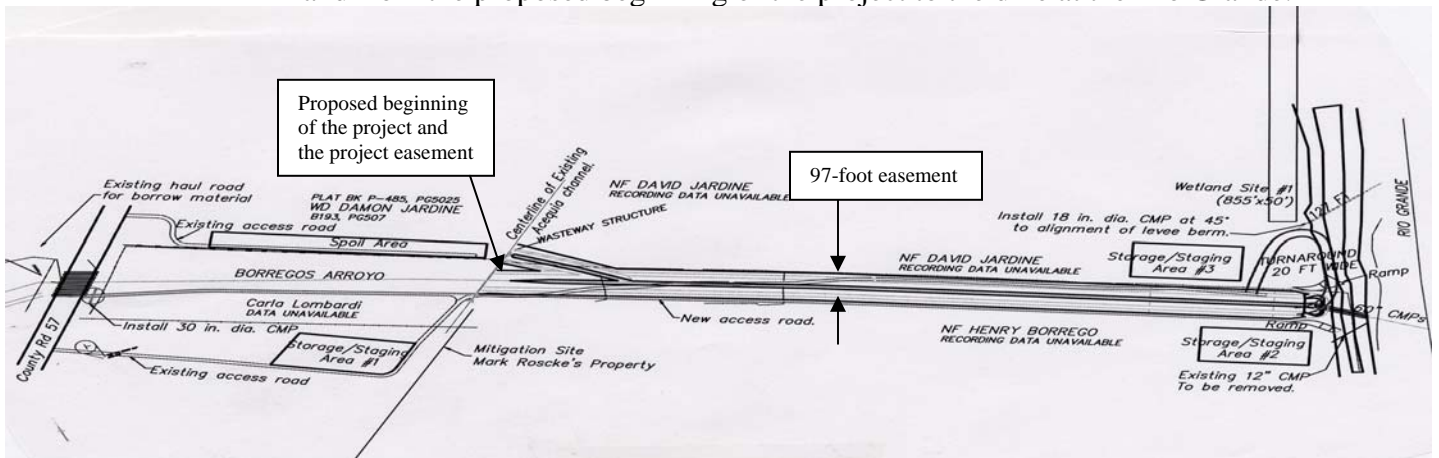
The proposed action would affect the wasteway ditch that has been identified by

the Corps of Engineers as a waters of the United States. The following photo shows the wasteway that leads from the headgate of the acequia to the dike at the Rio Grande:



3.2.5. Private Land

Four private land owners would be affected by the proposed project. The following drawing shows the easement of the acequia in relationship to private land from the proposed beginning of the project to the dike at the Rio Grande:



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.

3.2.7. Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States for Indian tribes or individuals. For example, ITAs include land, minerals, hunting and fishing rights, and water rights. The proposed project is not anticipated to have any effect on ITAs.

3.2.8. Cultural Resources

The following lists potential cultural resources associated with the proposed action:

- El Guique Acequia (irrigation ditch older than 50 years)
- Dike on the Rio Grande built between 1935 and 1949 (see contrasting aerial photos on page 1)
- Old headgate in the wasteway (older than 50 years)

3.2.9. Air Quality and Noise

The project area is located in Rio Arriba County, New Mexico. This county complies with all air pollutants identified in the National Ambient Air Quality Standards. Therefore, the county has been designated as part of an attainment area located in Air Quality Control Region 157 (40 CFR § 81.332). As a result, the Environmental Protection Agency would not require monitoring of air pollutants.

Noise levels from the project will reach as high as 96 decibels from bulldozers and backhoes. Conversation levels of noise reach as high as 70 decibels. Since the project area is located in a farming community, decibel levels are normally very low compared to the cities of Espanola and Sante Fe.

Chapter 4. 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. Native Vegetation

No Action

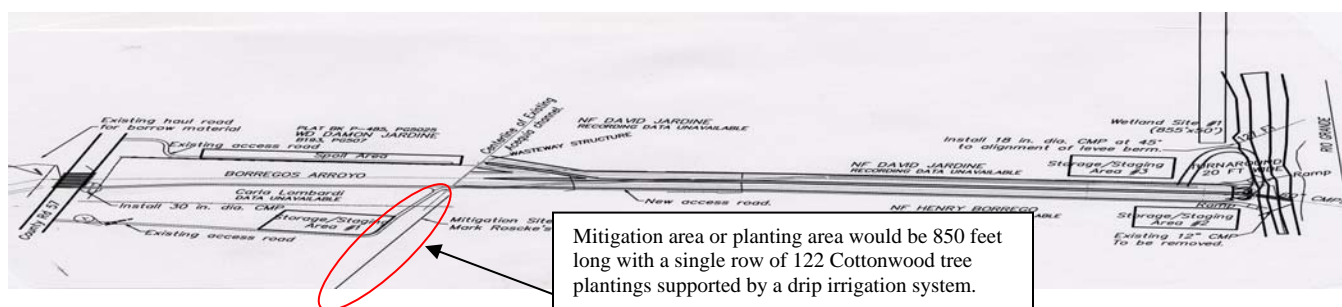
The existing vegetation would not be removed. The 12 large cottonwood trees and their saplings would remain in place. Numerous trees such as willows, saltcedar, Russian olive, and locust would remain. All the meadow grass species would also be maintained in the floodplain.

Proposed Action

The project would require removing all native vegetation within the 97-foot easement of the project area. This would include the removal of 12 large cottonwood trees that dominate the overstory of the plant community. In addition, willows, saltcedar, Russian olive, locust and meadow grasses would all be removed to facilitate the implementation of the project.

Mulching all the vegetation would be a part of this project. The mulch would be used to stabilize the outside slopes of the new channel to reduce soil erosion. Any mulch left over would be transported to an area designated as a stockpile area (see project plan view in section 2.4). As a result, the mulch would serve as a positive effect to help offset some of the negative effects of the vegetation removal.

Pole plantings of 122 young cottonwood trees would also be part of the project. The plantings would occur on private land adjacent to the project area. Notice on the following drawing the location of the planting area.



The planting area would be located south of the Borregos Arroyo on private land adjacent to the project area by agreement with Reclamation. The pole plantings would be maintained by the private landowner with a drip irrigation system. Monitoring of the plantings would be shared by Reclamation and the private landowner (see appendix B for the details of the mitigation plan). Observations and maintenance would occur regularly for five years until the cottonwood trees become self-sustaining.

4.2.2. Wetlands

No Action

The existing conditions of the wetlands would continue. Without an outlet to the Rio Grande, water ponding on the west of the dike and stormwater from the arroyos would continue to support the wetlands.

Proposed Action

Wetlands north or south of the new channel would not be affected by the proposed project. However, a cmp 195 feet north of the new channel would be installed through the dike at the south end of the wetlands. The cmp would be placed just above the wetland so as not to disturb any part of it. The purpose of the cmp would be to relieve flooding as a result of stormwater runoff from arroyos, irrigation ditch overflows, and private land stormwater runoff. This feature of the project would also protect the north berm of the new channel from erosion as a result of potential flooding. The wetlands would continue to exist without being impacted by the proposed project.

The small wetlands south of the new channel would not be affected by the project. This wetland has been preserved mainly by water seepage from the Rio Grande.

4.2.3. Threatened and Endangered Species

No Action

There would be no change to the existing conditions and no effects to federally listed species under the no action alternative.

Proposed Action

Bald Eagles are known to use the Rio Grande corridor during the winter months. Bald Eagles could potentially utilize large cottonwood trees within the area for perching. Removal of the large cottonwood trees in the project area would remove some potential perches that could be utilized by the Bald Eagle. However, other cottonwood forests are nearby and as a result, they would utilize those areas for perches when hunting and fishing. Should a Bald Eagle be

observed within 0.25 mi. upstream or downstream of the active project site in the morning before project activity, the construction crew would be instructed not to begin. In addition, if an eagle is spotted following breaks in project construction activity, the crew would also be required to suspend all activity until the bird leaves on its own volition, or if the Reclamation biologist, in consultation with the Service, determines that the potential for harassment is minimal.

The project area is located approximately two miles north of critical habitat for the Southwestern Willow Flycatcher. During site surveys of the area, no Southwestern Willow Flycatchers were observed at the project site. In addition, the habitat in the project area is not suitable for nesting. Reclamation has determined that the proposed action would have no affect the species.

There are no know occurrences of any other federal or state listed protected species of plants or animals in the project area.

4.2.4. Water Resources

No Action

The wasteway ditch located in the project area would not be replaced. As a result, there would be no affect upon the waters of the United States.

Proposed Action

The project would replace a wasteway ditch beginning at the headgate of the acequia to the dike at the Rio Grande. The wasteway has been identified as a waters of the United States by the Corps of Engineers. Since the construction of the new channel would take place, the wasteway would be replaced by a more efficient tributary to the Rio Grande. The new channel would allow stormwater runoff from arroyos and adjacent land as well as irrigation overflows to reach the Rio Grande without flooding adjacent landowners.

4.2.5. Private Land

No Action

Access permits would not be required if the project was not constructed. Flooding of private land would continue from stormwater runoff of arroyos and private land as well as irrigation overflows.

Proposed Action

The proposed project would eliminate flooding of private landowner property adjacent to the project's new channel. Access permits to private land by several owners would be required before the project could begin.

Installation of staging areas on private land to store equipment and materials would occur. Construction materials would be removed from the staging area and would be reseeded with native grass species at the conclusion of the project.

4.2.6. Environmental Justice

No Action

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

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

4.2.7. Indian Trust Assets

No Action

There would be no effects to ITAs.

Proposed Action

There would be no effects to ITAs.

4.2.8. Cultural Resources

No Action

No adverse effects would occur on nearby cultural resources.

Proposed Action

The proposed construction would not disturb any features of the El Guique Acequia (irrigation ditch) and therefore would not be affected.

The dike at the Rio Grande would be disturbed as a result of the installation of three cmps described further in section 2.4. The project would include excavating and temporarily breaching the dike in three locations for installation of an 18-inch cmp, two 60-inch cmps, and removal of an existing 12-inch cmp. At the end of the installation, the excavated sites (breaches) would be repaired and returned to their original strength and function. Included with Appendix C is a letter to NMSHPO office that contains their signed stamp concurring that the undertaking would have no adverse effect upon the dike.

According to the NMSPO, construction of this project would have no adverse affect.

4.2.9. Air Quality and Noise

No Action

This alternative would not have any construction activities and therefore would not produce any dust or noise.

Proposed Action

The proposed action would increase dust and noise levels due to construction. However, during the project, dust abatement measures would be taken by wetting down the soil to help control particulate dust. Reclamation has been given permission to pump water into water trucks just south of the arroyo on an existing road and ramp. Increased dust and noise would not continue after the completion of the project. As a result, the effects of this impact would only be for a short duration.

4.3 Irreversible and Irretrievable Commitment of Resources of the Proposed Action

Twelve large cottonwood trees and their saplings would be impacted by the proposed project. Top soil would be removed from the project site, and would not be replaced in the same location at the end of the project. Wildlife habitat within the project area would be completely destroyed and not replaced. Construction equipment would utilize fuel and lubricants that would be permanently used. One 12-inch cmp would be removed and disposed of off site.

4.4 Cumulative Impacts

4.4.1. Native Vegetation

Increased positive effects of the new cottonwood trees would be observed as the trees become larger from year to year. The effect of the plantings would offset the loss of 12 large cottonwood trees and provide additional habitat for wildlife for the future.

4.4.2. Wetlands

There would be no cumulative affects as a result of any current project construction.

4.4.3. Threatened and Endangered Species

Removal of the large cottonwood trees and other trees in the project area would

remove some potential perches that could be utilized by the Bald Eagle. Other cottonwood forests are nearby and as a result, they would utilize those areas for perches when hunting and fishing. As a result, there would be no immediate or future cumulative effects.

The Southwestern Willow Flycatcher would not be affected since habitat for the species does not exist in the project area and as a result there would be no cumulative effects.

4.4.4. Water Resources

The current wasteway (considered a waters of the United States) would be replaced by a new channel to provide for drainage of stormwater and irrigation ditch overflows. As a result, flooding and water ponding of private property west of the Rio Grande would be eliminated. Therefore, the effect would include improved opportunities for private land use and potential development.

4.4.5. Private Land

Reduced water ponding and flooding on private land as a result of the proposed project may become a positive impact. The possibility exists for the landowners to have the opportunity to further develop their land.

4.4.6. Environmental Justice

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

4.4.7. Indian Trust Assets

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

4.4.8. Cultural Resources

NMSHPO concurs that the proposed project would not have an adverse affect, therefore, no cumulative effects would occur.

4.4.9. Air Quality and Noise

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

Chapter 5. ENVIRONMENTAL COMMITMENTS

- 5.1 Pole plantings of 122 young cottonwood trees would occur on private land south of the project area as a condition of the mitigation plan submitted to the Corps of Engineers.
- 5.2 Should a Bald Eagle be observed within 0.25 mi. upstream or downstream of the active project site in the morning before project activity, the construction crew would be instructed not to begin. In addition, if an eagle is spotted following breaks in project construction activity, the crew would also be required to suspend all activity until the bird leaves on its own volition, or if the Reclamation biologist, in consultation with the Service, determines that the potential for harassment is minimal.
- 5.3 A letter from the New Mexico State Historic Preservation Office requesting their concurrence with the project actions on the dike can be referenced at Appendix C.
- 5.4 A "Certificate of Compliance" shall be submitted to the Corps of Engineers at the end of the monitoring period of the mitigation plan.
- 5.5 Dust abatement during construction would be required.

Chapter 6. CONSULTATION AND COORDINATION

The Service participated in a field review of the project site and were informally consulted about any species of concern. The ACOE and NMED were consulted with regarding CWA Section 404 and 401, respectively. NMDG&F was consulted with through their website regarding any state protected animal species that could potentially occur in the project area. The NMSHPO was consulted with by Reclamation to determine project compliance with state and federal laws (Section 106 of the NHPA) regarding cultural resources in the project area. San Juan Pueblo was contacted (refer to correspondence at Appendix C) to inform them of the project and to request any comments on the project or the draft EA. A public meeting was held December 3, 2003 to provide an opportunity for local land owners an opportunity to make comments on the proposed project.

The draft EA was distributed for public review and comment for 15 days from November 28, 2005 through December 12, 2005.

Chapter 7. LIST OF PREPARERS

NAME: Mr. Robert Maxwell

Affiliation: Bureau of Reclamation

Education: B.S., Botany and Range Management, Brigham Young University, 1975
Graduate Studies: Hazardous Waste Management, Arizona State University

Technical Experience: Environmental Protection Specialist with over 30 years of

experience in environmental resource management with the Bureau of Land Management, U.S. Forest Service, and Department of Defense. In addition, served 15 years in the private sector as an Environmental Engineer for Arizona Public Service Company and Woodgrain Millwork, respectively.

EA Responsibility: Project NEPA Team Leader responsible for project environmental compliance and preparation of the EA.

Chapter 8. REFERENCES

NMDG&F, 2003. New Mexico Department of Game and Fish, *New Mexico Species of Concern*, website:
[http://www.wildlife.state.nm.us/conservation/sharewithwildlife/documents/speciesofconcern .pdf](http://www.wildlife.state.nm.us/conservation/sharewithwildlife/documents/speciesofconcern.pdf)

Reclamation Summary Report Rio Grande 1967. Aggradation or Degradation from 1936-1962, December 1967.

APPENDIX A

UNITED STATES
DEPARTMENT OF THE INTERIOR

Memorandum of Agreement
the
Bureau of Reclamation
and the
El Guique Acequia

This Memorandum of Agreement entered into this 22nd day of December, 2003, pursuant to the Act of June 17, 1902 (32 Stat. 388), the Act of August 4, 1939 (53 Stat. 1187) and Acts amendatory thereof or supplementary thereto, and in particular the Flood Control Act of June 30, 1948 (62 Stat. 1171), by and between THE UNITED STATES OF AMERICA, Department of the Interior, Bureau of Reclamation (Reclamation) and the El Guique Acequia Commission, each represented by the duly authorized officer executing this Memorandum of Agreement:

RECITALS:

WHEREAS, Reclamation constructed a berm, from the San Juan Diversion Dam to upstream past the Estaca Arroyo on the west side of the Middle Rio Grande River impounding water on the adjacent properties from storm runoff, arroyo flows and irrigation ditch overflows; and,

WHEREAS, Reclamation's construction of berms across the confluence of the Estaca, Borrego and Lopez Arroyos (Arroyos) did not provide for adequate drainage of flows to the Rio Grande; and,

WHEREAS, the El Guique Acequia Commission has an easement and jurisdiction over the return flows from its Acequia; and,

WHEREAS, the El Guique Acequia Commission has requested Reclamation to clear the Arroyo of debris and channel the Arroyo flows towards the Rio Grande and provide for drainage of flows to the Rio Grande; and,

WHEREAS, Reclamation has assumed the obligation to correct the impediment and provide facilities to allow the Arroyo flows to reach the Rio Grande.

THEREFORE, in the interests of the parties hereto the following terms and conditions are provided to improve correct the existing conditions by improving drainage conditions and place culverts through the levees.

IT IS AGREED:

1. That Reclamation, where feasible, will design and place certain features within the Arroyos and provide drainage to the Rio Grande by placing culverts through the levee or by creating an open channel through the levee as appropriate to the best design criteria for such work.
2. That Reclamation will obtain the necessary permits for temporary access, staging and placement of facilities to complete the work as reviewed and approved by the El Guique Acequia Commission. Permits will be obtained from adjacent Borrego Arroyo (1st construction scheduled) land owners Mark Roschke, Paul Cedilla and Dave Jardine to access across their respective properties. Permits will be obtained from adjacent land owners for Estaca and Lopez Arroyos prior to construction anticipated to take place within 3 years of the signing of this agreement.

14-04

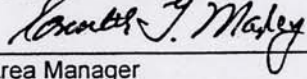
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3. The El Guique Acequia Commission provides Reclamation with the right to occupy, access, store and place features as needed to initiate and complete construction of the features mutually agreed to by the parties to this MOA.

4. The El Guique Acequia Commission, once the construction is complete, assumes the responsibility and obligations to operate and maintain the culverts or open channel at no expense to the United States.

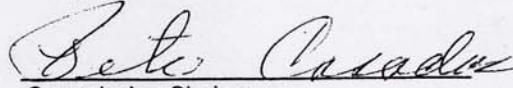
IN WITNESS WHEREOF this Memorandum of Agreement is entered into as of the date of execution written below.

UNITED STATES OF AMERICA
Bureau of Reclamation

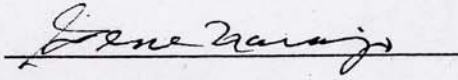


Area Manager
Albuquerque Area Office

Acequia Commission



Commission Chairman
Pete Casados



Commissioner El Guique
Gene Naranjo

APPENDIX B

Bureau of Reclamation
Espanola Dike Project

FINAL MITIGATION & MONITORING PLAN

1. SUMMARY:

The work described in this plan is the Espanola Dike Project – Miscellaneous Work, Middle Rio Grande, New Mexico. After 1970, Reclamation re-constructed a dike (repaired breaches) on the west side of the Rio Grande. The dike is located approximately 8 miles north of Espanola, between El Guique Diversion Dam (River Mile 277.5) and San Juan Diversion Dam (River Mile 275.3), approximately 2.2 miles. U.S. Geological Survey (USGS) quad name (township/range/ section(s)) is as follows: Township 22, Range 08E, Sections 26 and 35. The dike was originally built through the River Maintenance Program after 1940 for flood protection upstream of San Juan Pueblo and designed to pass 5,000 cfs (with a 3 foot freeboard), or a 5 year event in the Rio Grande. Placement of the dike has restricted flows in the arroyos west of the Rio Grande from directly entering into the Rio Grande. These arroyos include Estaca Arroyo, Lopez Arroyo, and Borrego Arroyo. The U.S. Bureau of Reclamation (Reclamation) has authority for maintenance of the Rio Grande river channel between Velarde, New Mexico, and Caballo Reservoir under the Flood Control Acts of 1948 and 1950. The existing dike is approximately 10 feet high with a 2:1 slope and top width varying from 15-30 feet. After the dike was constructed, water has ponded west of the dike on the adjacent properties from storm runoff, arroyo flows and irrigation ditch overflows. This dike has forced arroyo flows to be routed along the toe on the west side of the dike until an outlet is found at a lower elevation or these flows seep into the ground. Provisions for routing the water through the existing dike are necessary so that the flows are allowed to drain directly into the river at the downstream end of the arroyos. Water from the El Guique Acequia (acequia) flows through existing inverted concrete pipes or corrugated metal pipes (cmp's) under all three arroyos. There are also two wasteway structures that divert water from the acequia into the Estaca and Borregos Arroyos. These two wasteway structures cannot be fully utilized without inundating adjacent landowner properties. Because land easement has been difficult to acquire, construction will only occur on Borregos Arroyo this year. Installation of the open channel structures in the Borregos Arroyo can only be scheduled around irrigation season (November 2005 to March 2006) because of acequia wasteway flows which are diverted into the arroyo.

2. RESPONSIBLE PARTIES:

- a. Applicant: Connie Rupp, Albuquerque Area Manager, Bureau of Reclamation
- b. Entity for financial responsibility: Bureau of Reclamation
- c. Applicants agent: Robert Maxwell, Environmental Protection Specialist, Bureau of Reclamation
- d. Preparer of the proposal/plan: Robert Maxwell (Environmental Protection Specialist) and Renee Davis (Civil Engineer), Bureau of Reclamation

Bureau of Reclamation
Espanola Dike Project

3. PROJECT REQUIRING MITIGATION:

a. Location: Township 22, Range 08E, Sections 26 and 35, Southwest Quarter (Northing 1856719 ft, Easting 1694830 ft).

b. Brief summary of overall project: Borregos Arroyo is scheduled to be constructed beginning December 2005 - March 2006. The arroyo easement is approximately 97 feet wide between El Guique Acequia and the Rio Grande. An open channel lined with riprap will be constructed from El Guique Acequia to the dike, approximately 1500 feet. The new channel will have a 10 feet bottom width, berms approximately 6 feet high with 3:1 inside slopes and 2:1 outside slopes. Two 5 feet diameter cmps will be installed through the dike to the Rio Grande, approximately 110 feet. Riprap will be encased in concrete at the inlet and placed in gabion baskets at the outlet end of the pipes. The design also includes an 18 inch diameter cmp to be installed approximately 200 ft upstream of the north boundary of Borregos to prevent flows north of the arroyo from eroding the new channel berms. The 18 inch diameter cmp is approximately 127 feet long with a flapgate at the outlet. This cmp will route the upstream wetland high water flows through the existing dike directly into the river. Also refer to summary in #1 above.

4. MITIGATION GOALS AND OBJECTIVES:

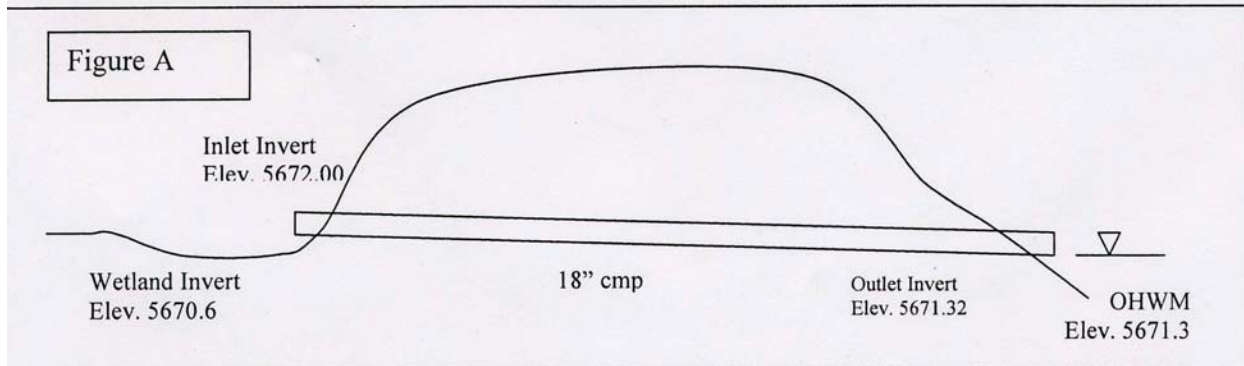
a. Impact Site: Reclamation has identified 12 cottonwood trees, including rootballs, within the Borregos Arroyo easement that will be removed.

1. Potential Effects to Wetland Site #1 (see drawing): Ecosystem Management, Inc. has conducted a wetland delineation study in the area north of Borregos Arroyo. Approximately one acre jurisdictional wetland exists between Lopez and Borregos Arroyos adjacent to the dike (UTM Coordinates for the northern and southern boundaries are in NAD27, zone 13N respectively; Northing 3,995,773 and Easting 404,619; Northing 3,995,518 and Easting 404,537). The wetland is bound on the east side by the dike and on the west side by higher ground creating a 250 meter long swatch of cattail and curly dock. The dike separates the arroyos and wetland from the Rio Grande. Water that flows down the arroyos is impounded behind the dike and contributes to the wetland hydrology of the site. The site qualifies as a man-induced wetland. It was determined that the boundary between wetland and upland is distinct along the dike to the east and the upland to the west. The wetland delineation stopped at the property fenceline, approximately 195 feet north of Borregos Arroyo. The south boundary of the wetland makes a more gradual transition from wetland to upland. Minimal disturbance to Wetland Site #1 will occur at the south boundary as a result of installation of the new 18 inch cmp.

This wetland is fed by the water table, stormwater runoff from adjacent property, stormwater flows from Lopez Arroyo (upstream of wetland) and seepage from the river. There will be minimal to no impacts to this wetland. Wetland will discharge into the Rio Grande when the water elevation reaches 5672.00 feet, before inundating the adjacent landowner property.

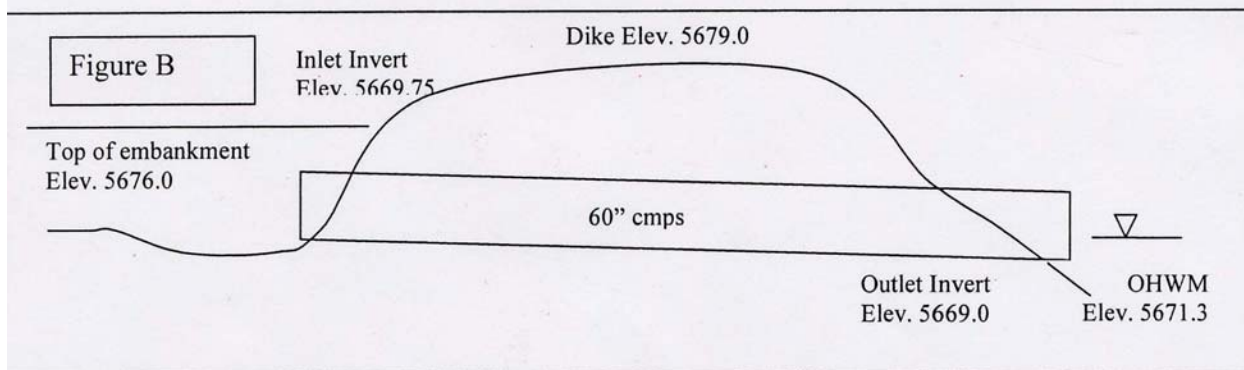
Bureau of Reclamation
Espanola Dike Project

The inlet invert of the 18" cmp is at Elevation 5672.00 and the bottom elevation of the wetland at approximately 5670.68. The elevation for the original highwater mark (OHWM) was determined in the field by COE and NM State Environmental Department and is approximately 5671.25 (see Figures A and B below for the 18" and 60"cmps). Riprap protection is to be place at the outlet end of the pipe (see drawings).



The OHWM is at elevation 5671.3. Quantities below the Ordinary Highwater Mark (OHWM) for the 18" cmp are as follows:

- Riprap = 2.0 Cu. Yds.
- Gravel Bedding = 1.0 Cu. Yds.
- Excavation = 3.0 Cu. Yds



The OHWM is at elevation 5671.3. Quantities below the OHWM for the 60" cmps are as follows:

- Riprap = 8.0 Cu. Yds.
- Gravel Bedding = 4.0 Cu. Yds.
- Excavation = 13.0 Cu. Yds.

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2. Potential Effects to Wetland Site #2: Wetland Site #2 is an area of approximately 100 ft by 200 ft, located on the southeast corner of Mark Roschke's property, (UTM Coordinates are in NAD27, zone 13S respectively: Northing 3,995,299 and Easting 404,363). There will be no disturbance to Wetland Site #2.

This wetland is fed by the water table, stormwater runoff from adjacent property and seepage from the river. No impacts to this wetland will occur. The invert elevation of the wetland is lower than the invert of an existing 12" diameter cmp, which is at elevation 5671.1. The elevation of the OHWM is 5671.3 feet.

- b. Mitigation Site: Mitigation Site #1 for cottonwood pole planting will be on an adjacent landowner's (Mark Roschke) property south of Borregos Arroyo. The location where 120 cottonwood poles will be planted is between the following UTM coordinates (NAD17, zone 13S) respectively; Northing 3,995,640 and Easting 403,935; Northing 3,995,804 and Easting 404,020, which is approximately 665 ft in length (see revised drawing). Cottonwood poles will be planted at a ratio of ten poles per one cottonwood tree. Survival rate is expected to be 80% or better to allow for mortality and wildlife. Poles will be planted in January to March 2006, when they are still dormant. Reclamation has an agreement with the landowner for continued access onto property to monitor the condition of the cottonwood poles. The existing access road will be used, as shown on the drawings

A backhoe with an auger will be used to dig the hole to plant the 10-12 feet cottonwood poles. For protection a 4 feet high wire fence (or equivalent) will be staked around the pole. The landowner currently has a drip system along the acequia where the cottonwood poles are to be planted. As the cottonwood poles mature, they will become self sustaining. Monitoring the mitigation site will be by visual observation after they are planted for three to five years or until performance standards have been successfully achieved according to COE. The landowner will also monitor the site on the weekends.

- c. Waste material: If the spoil area is filled to the existing ground elevation, then any additional waste material will be spread evenly on top of the dike and on the west slope of the dike between the 18" diameter cmp and 60" diameter cmps (within the 195 feet).
- d. Erosion protection and seeding: Silt fence will be placed along the north and south boundary of the arroyo, as necessary, to prevent erosion during construction. Fiber material log filled with compost, haybails or a small berm will be placed on the east side of the dike to prevent erosion into the Rio Grande. All disturbed areas will be reseeded with native grass, including the spoil area.

Bureau of Reclamation
Espanola Dike Project

5. BASELINE INFORMATION FOR IMPACT AND PROPOSED MITIGATION SITES:

a. Location:

1. Refer to application and #3 above (see drawings).
2. See attached vicinity map(s).
3. See Figures 1 & 2 on the attached preconstruction report of the New Mexico map and the topographic map.

b. Classification: Rio Grande and Borregos Arroyo. Natural Resource Conservation Services' classification for this area is 18-Abiquiu-Peralta complex (see typical profile in Appendix B of the report). The impact site is within the Abiquiu-Peralta complex. The mitigation site may also include classification 39-Fruitland sandy loam. Classifications for soil samples #1-4 are: Clayey Sand, Brown (SC); Silty Clay, Brown (CH); Silty Clay, Brown (CL); and Organic Clay, Brown (OH).

c. Quantify: NRCS information lists the composition to be 50% Abiquiu & similar soils, 40% Peralta & similar, and 10% contrasting inclusions for #18. The composition for #39 is 85% Fruitland & similar soils and 15% contrasting inclusions.

d. Assessment method used: Engineering and environmental field assessments.

e. Existing hydrology:

1. Water budget: Stream flow data close to the project area is the Embudo NM gauging station. Runoff is approximately 5 cubic feet per second (cfs). The El Guique Acequia wasteway overflow is approximately 5 cfs. The principal spillway at the Soil Conservation Service (SCS) Dam Site No. 4 will drain the reservoir only when a volume is produced by a 25 year event.
2. Hydroperiod: unknown
3. Historical hydrology: A peak flow frequency study was conducted for regulated and unregulated peak flows for selected return periods on the Middle Rio Grande. The analysis includes 10 stream gauge stations. The regulated flows in the Rio Grande represent the return period and peak flows, respectively, for the Embudo gauge site as follows: 2 yr – 4,360 cfs; 5 yr – 7,920 cfs; 10 yr – 10,560 cfs; 25 yr – 14,110 cfs; 50 yr – 16,860 cfs; and 100 yr – 19,660. These flows were used when calculating the water surface elevation in the Rio Grande at the confluence of Borregos Arroyo. Also refer to Historical Information and Data in the preconstruction report. The impact and mitigation sites were considered a floodplain area before the SCS Dam Site No. 4 was built.
4. Contributing drainage area: Tributaries of the Rio Grande and particularly the SCS Dam Site No. 4 and the wasteway flow from the El Guique Acequia.
5. Results of water quality analysis: N/A (sediment from the El Guique Acequia wasteway, quality and quantity unknown).

f. Existing vegetation: Dominant vegetation would be shrubs, Russian Olives, and cottonwood trees.

Bureau of Reclamation
Espanola Dike Project

- g. Existing soils: See #5 (b) and (c) above for soil classification from the Natural Resources Conservation Service. From observation, the soil is a very sandy silt loam with bedrock within the arroyo easement.
- h. Existing wildlife habitat/use:
1. Protection of the southwestern willow flycatcher territories would not be affected by this project.
 2. Bald eagle habitat would not be impacted by this project.
- i. Threatened/Endangered Species: Southwestern willow flycatcher territories and the bald eagle habitat would not be impacted by this project.
- j. Historic and current land use: The project site is within the Borregos Arroyo easement. Adjacent land is private grazing and agricultural land that is irrigated from the El Guigue Acequia.
- k. Current Owners: The Borregos Arroyo will be maintained and operated by the El Guigue Commissioner and the Waterboard Commission.
- l. Watershed context/surrounding land use:
1. The watershed associated with this project is within the Borregos Arroyo drainage system.

6. MITIGATION SITE SELECTION AND JUSTIFICATION:

- a. Site Specific objectives: The mitigation objective is to plant 120 cottonwood poles.
- b. Watershed/regional objectives: Control stormwater runoff and ponding on private land.
- c. Describe mitigation project contributions to aquatic resource functions: N/A
- d. Describe likely future adjacent land uses: Private land used for agriculture.
- e. Site selection practicability: To perform mitigation on site will cost more, and require more work than doing it off site.
- f. Practicability of on-site or in-kind options: N/A
- g. Mitigation site restrictions, easements, rights of way: There are no restrictions for access to the mitigation site for the Bureau of Reclamation.

Bureau of Reclamation
Espanola Dike Project

- h. Sustainable and self maintaining mitigation design: The landowner has a drip system along the acequia where the cottonwood poles are to be planted and will become self maintaining.
- i. USFWS: Not required.
- j. Cultural Resources: Has been cleared by Reclamation Archeologist.

7. MITIGATION WORK PLAN:

- a. Site Boundary maps: See drawings for mitigation site.
- b. Timing of mitigation: During construction between January to March 2006.
- c. Grading Plan: N/A
- d. Construction methods: A backhoe with an auger will be used to dig the hole to plant the cottonwood tree poles. A chicken wire fence (or equivalent) will be installed around the pole for protection (see attachment "Revegetating Southwest Riparian Areas – Steps for Successful Pole Planting).
- e. Construction schedule: December 2005 – March 2006
- f. Planned hydrology: N/A
- g. Planned Vegetation: Cottonwood tree poles planted at a ratio of 10:1.
- h. Pest Plant Removal: N/A
- i. Planned Soils: N/A
- j. Planned habitat features: N/A
- k. Planned buffers: N/A
- l. Other Planned Features: N/A
- m. Construction Monitor: Reclamation Construction Representative will be on site during construction.

8. PERFORMANCE STANDARDS:

- a. Identify success criteria: Survival rate expected to be 90% or better.
- b. Set target ranges for identified parameters: N/A

9. SITE PROTECTION AND MAINTENANCE:

- a. Long-term legal protection instrument: N/A

bureau of reclamation
Espanola Dike Project

- b. Responsible parties: Bureau of Reclamation
- c. Maintenance plan schedule: Site visit once a month until poles have been established and then once a year for 5 years.
- d. Invasive species/noxious weed control plan: During construction, spray and wash down the equipment prior to moving backhoe from project site to mitigation site. After construction has been completed, visit site once a month to determine if there are noxious weeds on site. Spray noxious weeds from a backpack with arsenal once a year, for 5 years if there is re-growth.

10. MONITORING PLAN:

- a. Responsible parties: Bureau of Reclamation
- b. Data to be collected and reported: Information to be reported on monitoring data sheets.
- c. Assessment tools and methodologies: Visual observation
- d. Format for reporting monitoring data: See "Reclamation Plant Monitoring Report" format attached.
- e. Provide monitoring schedule: Landowner will monitor site on the weekends. Weekly during construction, once a month, after construction until cottonwood poles have been established and once a year for 5 years.

11. ADAPTIVE MANAGEMENT PLAN:

- a. Identify party(ies) and responsibilities: Bureau of Reclamation
- b. Discuss design relative to potential challenges: N/A
- c. Potential remedial measures: N/A
- d. Performance standard modification procedures: N/A

12. FINANCIAL ASSURANCES:

- a. Identify party responsible for and contents of each assurance: Bureau of Reclamation is responsible to establish and manage the financial assurance for the construction phase, maintenance, monitoring, remedial measures/adaptive management, and project success.
- b. Specify types of assurances: Bureau of Reclamation under the Middle Rio Grande Project.

Bureau of Reclamation
Espanola Dike Project

- c. Assurance review schedule: N/A

13. FORMAT:

- a. Reports/Proposals: Progress and monitoring reports will be submitted as required. Reclamation will follow Mitigation Guideline in section E.3 for Monitoring Reports.
- b. Figures: Refer to preconstruction report and attachments.
- c. List of tables, schedules, and maps to be submitted: Refer to preconstruction report and attachments.

Bureau of Reclamation
Espanola Dike Project

**ADDENDUM to APPLICATION
to
MITIGATION PLAN**

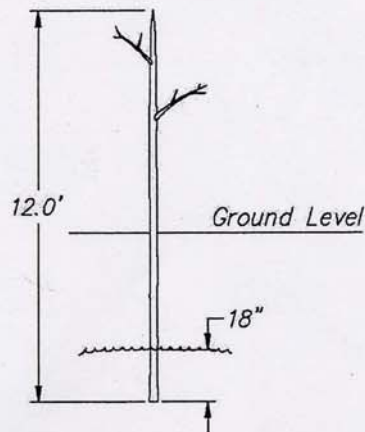
Addendum to Application for the following items on ENG FORM 4345:

20. Project Schedule: Start Date has been moved to December 2005 and the End Date to March 2006.
23. Material Discharged into US Waters:
The Native material sediment will be discharged into the Rio Grande. The sediment concentration is approximately 80% less in the arroyo than before the Soil Conservation Service detention dam was constructed.
26. Impacts to the water quality will occur two months during the scheduled timeframe in item #20. There should not be any irrigation flows occurring during construction. Dewatering may be required depending on the elevation of the water table during excavation of the cutoff collars, placement of the soil cement slurry under cmps, and placement of riprap below the invert of the pipe. See (d) for quantities below original highwater mark below. See Figure B below and revised drawings for elevations.
27. Should dewatering be required during installation of the 18" cmp and the two 60" cmps, the outflow hose from the dewatering pump will be placed within the existing river flow to keep erosion from occurring at the toe of the dike and the bank of the river.

Revegetating Southwest Riparian Areas

Steps for Successful Pole Plantings

1. Cut poles while dormant during February. Remove all side branches except the top two.
2. Soak poles in water for 10 to 14 days before planting.
3. Dig holes to the depth of the lowest anticipated water table. Sites where the water table will be within one foot of ground surface during the growing season are better suited for willows than cottonwoods.
4. Place the poles in the holes the same day they were removed from the soak treatment. Set the butt as close to the lowest annual water table elevation as possible. Four to six feet of the pole should remain above the ground surface after planting.
5. Backfill the holes carefully to prevent air pockets. Use dry surface soil.
5. Put tree guards around the poles to protect from rodents and rabbits.
7. As buds begin to swell (usually in April or May), wipe them off the lower two-thirds of the pole. This will reduce evaporation water loss and stimulate root growth.
8. Exclude the planting area from livestock grazing for two to three growing seasons. Control beaver, or place protective screening around the trees, if necessary.



Reclamation Plant Monitoring Report

Date:

Site:

Temp:

PMC Soak Time:

Planted by:

#:

#:

Type:

Plant Origin:

Planting Technique & Field Soak Time for Poles:

Total pole length (meters):

Depth to water:

Pole diameter at base (after planting):

Total pole height (after planting):

Average pole height:

Soil type (NR/R):

Plant Protection? (V/W/N):

Comments / Condition (E/G/F/P/D):

Seedmix:

**Certification of Compliance
with Department of the Army Nationwide Permit**

Action Number: 2003 00529
Name of Permittee: Bureau of Reclamation Albuquerque Area Office
Project: Espanola Dikes - Borregos Arroyo
Nationwide Permit: No. 12, Utility Line Activities
No. 43, Stormwater Management Facilities

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

District Engineer
Albuquerque District, Corps of Engineers
ATTN: Ms. Lesley McWhirter, Regulatory Branch
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109-3435

Please note that your permitted activity is subject to a compliance inspection by an Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

Please enclose photographs showing the completed project (if available).

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

Date Work Started _____

Date Work Completed _____

Date

Signature of Permittee

APPENDIX C

Acequia del Guique
RR 2 Box 115
San Juan Pueblo, NM 87566
January 5, 2004

Mr. Karl A. Martin, Manager
Technical Services Division
Bureau of Reclamation
555 Broadway NE, Suite 100
Albuquerque, NM 87102

Ref: Espanola Dike Project - Borrego, Estaca
and Lopez Arroyos.

Dear Mr. Martin:

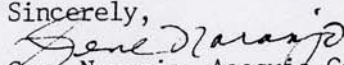
The Acequia Commission approves the Borregos Arroyo Plan/Profile and requests that Reclamation schedule the work to start this Spring or Summer if at all possible. We will keep the acequia water from running over the spillway and into the arroyo. The end of the irrigation season is mid October. Cutting trees and clearing the construction site can be scheduled to start at anytime. The construction of the earthen canal with the outlet pipes will be a great improvement over the present drainage condition. It will confine the water in the arroyo and will eliminate the flooding of private property.

We did not find photos of the Borregos Arroyo bed before the construction of the roadway and the installation of the five 12" diameter CMP's in the river berm. Wonder if Mr. Don Collman from the Socorro BOR office would have any information? No luck either on the construction plans for the siphon on the Borregos Arroyo. Mr. Edward Romero at the Natural Resources Conservation Services in Espanola said he could not find records that far back. Our records show that the siphon was constructed during the fall of 1966.

We are unsure of the structural condition of the Borrego siphon. The inlet side, proposed route to haul the spoil material, unlike the outlet side has never had any traffic at all. Maybe an alternate route should be used. As to the removal of the spoil material, I had suggested that some should be used on the arroyo service road.

We wonder why the Borregos Arroyo Dam was not considered as a borrow site? The haul would be alot closer. The East Rio Arriba Watershed Board will be addressing the Archuleta Borrow Site on Wednesday January 21, 2004 at 1:00 PM at the NRCS office in Espanola, San Pedro Plaza.

Please send us three copies of the EA when its published.

Sincerely,

Gene Naranjo, Acequia Commissioner

Enclosure
KC Mrs. Renee Davis, Project Engineer
Mr. Robert H. Maxwell, Environmental Engineer
Mr. Pete Casados, Chairman
Mr. Ben Chavez, Mayordomo
File

JAN 14 2004

01-14-04



United States Department of the Interior

BUREAU OF RECLAMATION

Albuquerque Area Office
555 Broadway Blvd., NE Suite 100
Albuquerque, New Mexico 87102-2352

IN REPLY REFER TO:

ALB-215
PRJ-8.10

FEB - 1 2005

Gene Naranjo, El Guique Commissioner
Rural Route 2
P.O. Box 115
San Juan Pueblo, NM 87566-9603

Subject: Espanola Dike Project – Borregos Arroyo, Schedule for Constructing Open Channel Riprap w/Corrugated Metal Pipes through the Dike.

Dear Mr. Naranjo:

The Bureau of Reclamation has rescheduled the tentative date for construction on Borregos Arroyo to November 2005. Reclamation had a site visit with the Corp of Engineers and the New Mexico State Environmental Department on January 7, 2005 to discuss the work. The design has changed from installing sheetpile drop structures in the open channel, to lining and placing riprap along the berm slopes inside the channel. The invert of the channel will also be lined with riprap at the beginning of the new channel, and at the inlet of the corrugated metal pipes that will be installed through the dike near the Rio Grande.

Reclamation is continuing the process of obtaining 404 permits and driveway permits and preparing the drawings. We have received the Arroyo Maintenance Plan signed by the Commission Board.

Should you have any further questions, please do not hesitate to contact Renee Davis of my staff at 505-462-3620.

Sincerely,

Karl A. Martin
Manager, Technical Services Division

bc: ALB-100, ALB-184, ALB-210, ALB-240, ALB-422, ALB-440, S-10, S-30

From: "McWhirter, Lesley A SPA" <Lesley.A.McWhirter@spa02.usace.army.mil>
To: "Renee Davis" <RDavis@uc.usbr.gov>
Date: 4/18/2005 2:04:44 PM
Subject: RE: Espanola Dikes - Borregos Arroyo

Hi Renee,

Our letter authorizing the use of nationwide permit (NWP) Nos. 12 and 43 was issued on February 8, 2005. The letter was mailed to Jack Garner. Hopefully, it was forwarded to the appropriate person(s)? Items that need to be done prior to construction are:

- Submit a final comprehensive mitigation and monitoring plan to the Corps for review and approval (Special Condition a) >
- Notify this office of the start date of construction (Special Condition f).

Please let me know if there are any other questions.

Thanks,

Lesley McWhirter
Regulatory Branch, Albuquerque District
U.S. Army Corps of Engineers
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109-3435
Phone: (505) 342-3678
Fax: (505) 342-3498
Website: www.spa.usace.army.mil/reg/

-----Original Message-----

From: Renee Davis [mailto:RDavis@uc.usbr.gov]
Sent: Monday, April 18, 2005 10:25 AM
To: McWhirter, Lesley A SPA
Cc: Frank Montoya; Robert Maxwell
Subject: Espanola Dikes - Borregos Arroyo

We recieved the 401 certification back in February 2005 from NM State Env. Dept. You probably have a copy. Have you sent the 404 permit information? Just wanted to get an update from COE. Was there anything else Reclamation said we were suppose to provide to you after our last meeting?

Hope all is well,
Renee, Project Lead Engineer

CC: "Frank Montoya" <FMontoya@uc.usbr.gov>, "Robert Maxwell" <RMaxwell@uc.usbr.gov>

Acequia del Guique
Arroyo Maintenance Plan
Borregos & Lopez Arroyo

The compacted arroyo channels and embankments will be prone to erosion from stormwater runoff, growth of noxious trees and vegetation, livestock and ATV traffic. The drop structures and the drainage outlet CMP's sediment and debris.

Within three (3) days after a stormwater runoff the Mayordomo will check the arroyo channel, drop structures and the CMP drainage for erosion, sediment and debris accumulation. Report to the Commission the extent of damage. Determine the manpower and equipment required for the repair work. Schedule work as soon as weather permits.

The eroded channels and embankments will be repaired with rock and soil dredged from the silted area. The excess dredged material will be placed on the right-of-way area of the access road.

The drainage pipes will be cleared of debris and if necessary flushed out with water from the ditch wastway. The 18" drainage pipe at the vegetated buffer may require water and a portable pump in order to flush out the silt.


The noxious trees and vegetation that crop up on the arroyo channels and embankments will be removed periodically and hauled off to the Rio Arriba land fill.


The arroyo boundaries will be fenced and gates will remain locked at all times to eliminate livestock and ATV traffic. Key will be kept by the Mayordomo and the Ditch Commission.


Equipment type mostly used will be backhoes and skid-steer loaders.

Arroyo Maintenance Plan approved by The Commission:

This 31st Day of December 2004.


Pete Casados


Gene Naranjo


Ben Chavez

GN



United States Department of the Interior

BUREAU OF RECLAMATION

Albuquerque Area Office
555 Broadway Blvd., NE Suite 100
Albuquerque, New Mexico 87102-2352

IN REPLY REFER TO:

SEP 21 2005

ALB-189
ENV-3.00

FEDERAL EXPRESS

Ms. Lisa Meyer
New Mexico State Historic Preservation Office
New Mexico Historic Preservation Department
228 E. Palace Ave
Santa Fe, NM 87501

Subject: Borregos Arroyo Project

Dear Ms. Meyer:

In order to comply with Section 106 of the National Historic Preservation Act of 1966, the Albuquerque Area Office of the Bureau of Reclamation requests your views on this project. The Bureau of Reclamation, Albuquerque Area Office, proposes to construct a channel and outlets to the Rio Grande to eliminate the restrictions of storm water flow and irrigation overflows.

Background

Historically, the Borregos Arroyo emptied into a floodplain from the west side of the Rio Grande (see map 1). Originally, the river channel was the type to change course as a result of flooding. The river would flow in one location until it had built its bed to a higher elevation than the adjacent lands. Then a high flow would break over into the lower lands and establish a new channel location. As result, Reclamation implemented a system of channelization on the Middle Rio Grande for the purpose of providing flood control. As part of this project, a pilot channel and spoils dike were constructed, in approximately 1940, to straighten out the river and confine it between the levees. Now, however, the dike restricts storm water flows from Borregos Arroyo from entering the Rio Grande. In addition, the dike restricts irrigation ditch overflows and storm water flows from adjacent properties from entering the Rio Grande. This has resulted in flooding of landowners lands west of the dike.

Construction Elements

The objective of the proposed action would be to provide an alternative for channeling and drainage of these flows into the Rio Grande. An open channel with riprap will be constructed to move water, and three cmps (corrugated metal pipe culverts), one with a flap gate and two without flap gates, will be installed through the existing levee. Excavation of the dike would be required in three locations: north of Borregos Arroyo for installation of an 18" cmp; at Borregos Arroyo for installation of two 60" cmps; and the removal of an existing cmp just south of the



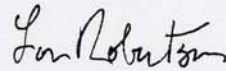
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traffic will use an existing road.

Effect on Cultural Resources.

The only historic property within the project footprint is the levee. It is the Albuquerque Area Office's (Reclamation) view that the installation of the cmps and the project will not have an adverse effect on the integrity of function of the existing levee. Therefore, Reclamation is requesting archaeological clearance for this project. If construction activities inadvertently uncover or disturb any significant cultural remains, activity will cease and the Albuquerque Area Office's Archaeologist will be notified immediately.

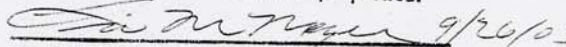
Sincerely,



Lori Robertson
Manager
Environment Division

Enclosures -2

This undertaking will not have an adverse effect on registered or eligible properties.



for NM State Historic Preservation Officer



IN REPLY REFER TO:

United States Department of the Interior

BUREAU OF RECLAMATION

Albuquerque Area Office
555 Broadway Blvd., NE Suite 100
Albuquerque, New Mexico 87102-2352ALB-215
PRJ-8.10

OCT 18 2005

Gene Naranjo
El Guique Commissioner
P.O. Box 115
San Juan Pueblo, NM 87566-9603

Subject: Española Dike Project – Borregos Arroyo Cross Drainage, Design for Constructing an Open Channel-Riprap Lined with Corrugated Metal Pipes through the Dike, Middle Rio Grande Project

Dear Mr. Naranjo:

The Bureau of Reclamation previously informed you that the subject design changed from installing sheetpile drop structures in the open channel, to lining and placing riprap along the berm slopes inside the channel, as well as the channel invert.

Two 60-inch corrugated metal pipes (CMP) will also be installed through the dike near the Rio Grande. Reclamation has met with you on several occasions to discuss the design flow for the Borregos Arroyo cross drainage and recommended that the channel be designed to adequately convey 80 cubic feet per second (cfs). Because of right-of-way issues, the Acequia Commission requested that Reclamation only design the channel to convey 60 cfs. As you are aware, the project purpose is to provide arroyo cross drainage through the riverside dike to the Rio Grande. The outfall channel is designed to provide a drainage function when flows in the Rio Grande reach 5,000 cfs. Should the river experience flows greater than 5000 cfs, water will backup into the new channel and may overtop the new berms. This would cause water to pond on the west side of the dike. Reclamation also discussed constructing a headwall for a trashrack at the inlet of the 60-inch CMPs and flapgates at the outlet. The Acequia Commission requested that Reclamation not construct the headwall with trashrack or flapgates because of maintenance concerns.

We have received the Arroyo Maintenance Plan signed by the Commission Board. Additionally, Reclamation has obtained the 404 and 401 permits from the U.S. Army Corps of Engineers and the New Mexico State Environmental Department. The Notice to Proceed will be issued in early November 2005.

Should you have any further questions or do not agree with Reclamation's design criteria, please contact Renee Davis of my staff at 505-462-3620.

Sincerely,

Karl Martin

Karl A. Martin
Manager, Technical Services Division

cc: ALB-100, ALB-184, ALB-210, ALB-240, ALB-422, ALB-440, S-10, S-30

WBR:RDavis:tturner:10/17/05:505-462-3620

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United States Department of the Interior

BUREAU OF RECLAMATION

Albuquerque Area Office
555 Broadway Blvd., NE Suite 100
Albuquerque, New Mexico 87102-2352

IN REPLY REFER TO:

ALB-215
PRJ-8.10

OCT 12 2005

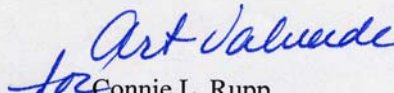
Honorable Joe Garcia
San Juan Pueblo
P.O. Box 1099
San Juan Pueblo, NM 87566Subject: Espanola Dike Project – Borregos Arroyo, Construction Schedule for Constructing
Open Channel Riprap w/ Corrugated Metal Pipes through the Dike

Dear Governor Garcia:

The Bureau of Reclamation is notifying the San Juan Pueblo (Pueblo) of the scheduled date for construction of the proposed work on Borregos Arroyo. This construction will take place in November 2005, and will occur approximately 0.4 miles upstream of the San Juan Diversion Dam. Reclamation has designed an open channel which will be lined with riprap along the berm invert and the berm slopes inside the channel. Corrugated metal pipes (CMP) will be installed through the dike near the Rio Grande. The flows from the El Guique Acequia will discharge into the arroyo and eventually into the river.

Should you have any further questions, please do not hesitate to contact Renee Davis of my staff at 505-462-3620.

Sincerely,


for Connie L. Rupp
Area Manager

bc: ALB-100, ALB-184, ALB-210, ALB-240, ALB-422, ALB-440, S-10, S-30

ORIGINAL



DEPARTMENT OF THE ARMY
 ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
 4101 JEFFERSON PLAZA NE
 ALBUQUERQUE NM 87109-3435

February 8, 2005

Operations Division
 Regulatory Branch

Mr. A. Jack Garner
 Area Manager
 Bureau of Reclamation
 Albuquerque Area Office
 555 Broadway NE, Suite 100
 Albuquerque, NM 87102-2352

Dear Mr. Garner:

This is in reference to the pre-construction notification submitted by the Bureau of Reclamation (USBR) for the proposed channelization of approximately 1500 feet of the Arroyo de los Borregos in Rio Arriba County, New Mexico. We have assigned Action No. 2003 00529 to this activity.

The Corps of Engineers has published Nationwide Permits pursuant to Section 404 of the Clean Water Act (33 CFR 330). Nationwide Permit Nos. 12 and 43 authorize discharges of dredged or fill materials into waters of the United States for utility line activities (including outfall structures) and stormwater management facilities, respectively. Summaries of Nationwide Permit Nos. 12 and 43 are enclosed for your information.

After reviewing the project in accordance with the nationwide permit pre-construction notification procedures (General Condition No. 13), we have determined that the proposed work will not result in more than minimal individual or cumulative adverse environmental effects. The public interest would best be served by allowing the work to proceed under the nationwide permits, with special conditions.

You are therefore authorized to proceed under authority of the nationwide permits for utility line activities and stormwater management facilities. In addition to the conditions described in the permit summaries, the following conditions must be met:

- a. To mitigate for unavoidable impacts to riparian habitat, native woody vegetation shall be replaced at a 10:1 ratio. Prior to construction of the authorized activity in waters of the U.S., a final comprehensive mitigation and monitoring plan shall be submitted for review and approval by the Army Corps of Engineers (Corps). The mitigation plan will include revegetation of all

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 ALBUQUERQUE AREA OFFICE
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NEXT

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- 2 -

disturbed areas, including uplands, with native herbaceous and woody species. The plan will be prepared in accordance with the Albuquerque District Mitigation and Monitoring Guidelines.

b. As described in the Mitigation and Monitoring Guidelines, an annual monitoring report will be submitted to the Corps for a minimum of five years after completion of the mitigation, or upon successful achievement of the performance standards, whichever occurs first. At any stage during the monitoring period, the Corps may require modifications to or revegetation of the mitigation area. If the Corps determines that the mitigation is not successful, a new mitigation plan will be required. The purpose of this requirement is to ensure replacement of the functions and values of the aquatic environment that will be lost through project implementation.

c. To the extent practicable, compensatory mitigation prescribed by this plan shall be constructed prior to or concurrently with construction of the authorized activity in waters of the U.S. If construction and revegetation of the mitigation area is not completed in the same growing season in which impacts occur, additional mitigation may be required to compensate for the temporal loss of aquatic functions.

d. Access roads, staging areas, and spoil areas shall be located only in those areas shown on the drawings dated January 31, 2005. Avoid disposal of construction debris or trash in any channel or anywhere at the project site. Use approved landfills for trash and debris disposal.

e. Equipment must be cleaned and serviced well away from any aquatic or riparian areas. Construction equipment shall be cleaned prior to construction to ensure that no leaks or discharges of lubricants, hydraulics fluids or fuels occur in aquatic or riparian ecosystems. Construction equipment shall be inspected daily and promptly repaired as necessary to prevent leaks. Any petrochemical spills, including contaminated soil, shall be contained and removed to an approved upland site.

f. This office must be notified of the start and completion dates of construction.

General Condition No. 11 requires that no activity is authorized under any Nationwide Permit which is likely to jeopardize the continued existence of a listed or proposed threatened or endangered species, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. USBR has

- 3 -

determined, and the Corps of Engineers concurs, that the proposed work as described will have no effect on any listed or proposed endangered or threatened species or its critical habitat.

The permittee must ensure compliance with all conditions of the permit, including submittal of the enclosed Compliance Certification required by General Condition No. 14. Please note Nationwide Permit Regional Condition i., which requires that flowing water be temporarily diverted away from work areas with non-erodible materials.

A portion of the proposed project is located in the Rio Grande, a perennial stream. You are required to obtain a water quality certification from the New Mexico Environment Department prior to discharging dredged or fill material into the Rio Grande. They may be contacted at:

NMED - Surface Water Quality Bureau
Attention: Mr. Chris Cudia
505 National Avenue, Suite 3
Las Vegas, NM 87701
Telephone: (505) 425-6764

This verification will be valid for 2 years unless the nationwide permit is modified, reissued or revoked. The verification will remain valid if, during that time, the nationwide permit is reissued without modification or the activity complies with any subsequent modification of the nationwide permit authorization. If the nationwide permit authorization expires, is suspended, revoked, or modified such that the activity would no longer comply with the terms and conditions of the nationwide permit, the provisions of 33 CFR 330.6(b) will apply.

If you have any questions, please contact Ms. Lesley McWhirter by telephone at (505) 342-3678 or by email at lesley.a.mcwhirter@usace.army.mil. At your convenience, please complete and return the attached Customer Service Survey.

Sincerely,



Daniel Malanchuk
Chief, Regulatory Branch

ORIGINAL

Done 3/7/05
Nancy Gu



BILL RICHARDSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT

Office of the Secretary
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-2855
Fax (505) 827-2836



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OFFICIAL FILE SECRETARY

DEBBIE WATCHMAN MOORE
FEB 23 2005
DEPUTY SECRETARY

February 18, 2005

Mr. A. Jack Garner, Area Manager
Bureau of Reclamation
Albuquerque Area Office
555 Broadway NE, Suite 100
Albuquerque, NM 87102-2352

Subject: Clean Water Act Section 401 Water Quality Certification for **NMED SWQB**
Arroyo de los Borregos Stormwater Management and Flood Control Project

Class	ENV-8.0	Action
Pri	GF	
Cont #	5000348	
Fldr #	39096	
Date	2/23/05	
File #	107	
	3/3 150	✓ NEXT
	200	

Dear Mr. Garner:

The Surface Water Quality Bureau (SWQB) of the New Mexico Environment Department has reviewed your application for authorization of the project indicated above under Sections 404 and 401 of the federal Clean Water Act. According to the application, flow from the Borregos Arroyo to the Rio Grande River is restricted by the dike that parallels the river together with an undersized outfall structure. This project involves channelizing approximately 1500 feet of the Borregos Arroyo and constructing a new outfall structure. Two 60-inch CMPs will be installed in the exiting dike to convey stormwater flows. The inlet will be concrete encased riprap while the outlet will be armored with gabion baskets. As indicated above, the Rio Grande River is the receiving system. All construction activities occurring within the normal high water mark of the Rio Grande will be done under dry conditions.

The U.S. Army Corps of Engineers (USACE) will regulate this project under Nationwide Permit Nos. 12 for Utility Line activities and 43 for Stormwater Management facilities. (USACE Action #2003-00529). Because this project involves work in the Rio Grande a perennial river, State Water Quality Certification is required by Section 401 of the Federal Clean Water Act in order to ensure that your project will comply with the state water quality standards (*Standards for Interstate & Intrastate Surface Waters*, New Mexico Water Quality Control Commission, 20.6.4 NMAC: 10/11/2002). According to these standards this segment of the Rio Grande River is designated for the following uses:

• Irrigation	• Livestock Watering
• Wildlife Habitat	• Marginal Coldwater Fishery
• Primary Contact	• Warmwater Fishery

Selected water quality standards relevant to your project include:

1. Turbidity shall not exceed 50 NTU
2. pH shall be within the range of 6.0 to 9.0

This is only a partial list of standards for this segment of the Rio Grande River. For a complete list of the water quality standards that apply to your project, refer to the following sections of the *Standards for Interstate & Intrastate Surface Waters*, New Mexico Water Quality Control Commission, 20.6.4 NMAC: 10/11/2002.

- 20.6.4.8 *Antidegradation Policy and Implementation Plan*
- 20.6.4.12 *General Standards*
- 20.6.4.900 *Standards Applicable to Attainable or Designated Uses*
- 20.6.4.114 *Rio Grande Basin-The main stem of the Rio Grande from the headwaters of Cochiti reservoir upstream to Taos Junction bridge...*

These standards are available on the web at:

www.nmenv.state.nm.us/NMED_regs/swqb/20_6_4_nmac.html

401 Water Quality Certification with Conditions:

Pursuant to Section 401 of the Clean Water Act and 40 Code of Federal Regulations Part 121, the SWQB hereby issues a 401 Water Quality Certification for USACE Action #2003-00529: Arroyo de los Borregos Stormwater Management and Flood Control Project. This certification is subject to conditions to ensure that the project will comply with state water quality standards and the Antidegradation Policy. **Therefore, this Certification is not valid unless the following conditions are adhered to:**

Flow Conditions:

1. Work occurring in and around the channel must be limited to periods of no flow.
2. Any work in a channel below the ordinary high water mark must be limited to low flow periods. Avoid working in these channels during the spring runoff and summer monsoon season.
3. When working in a stream channel, flowing water must be temporarily diverted around the work area to minimize sedimentation and turbidity problems. Acceptable diversion structures are non-erosive and include water bladders, concrete barriers lined with plastic, and flumes.

Erosion Control:

4. Prior to beginning construction, erosion control measures such as silt fences and straw bales must be installed to prevent the movement of disturbed soil or other contaminants into surface water. The erosion control measures must be inspected and maintained on a regular basis to ensure they are working properly. These erosion control measures must be maintained until the disturbed areas are permanently vegetated.
5. Temporary protective mats are required for heavy equipment working in wetlands, to minimize impacts to soil and vegetation. Protective mats are also recommended for use on stream banks and riparian areas.
6. Temporary access roads must be restored to pre-project conditions.
7. All areas that are disturbed as a result of the project must be replanted with native vegetation and protected until the area is no longer subject to erosion into surface water. The native plant species must be appropriate for the moisture conditions of the affected area, whether it be wetland, riparian, or upland.

Construction Materials:

8. All asphalt, concrete, and other construction materials must be properly handled and contained to prevent releases to the stream channels. Dumping of materials in the vicinity of watercourses is strictly prohibited.

Use of Heavy Equipment:

9. Heavy equipment will be operated from the bank and not enter the stream.
10. All heavy equipment used in the project area must be cleaned before the start of the project and inspected daily for leaks. Equipment must be steam cleaned before working in the water. Leaking equipment must not be used in or near any watercourse. Park equipment outside of channel when not in use.
11. Spill clean-up materials such as booms and absorbent pads must be available on-site at all times during construction. Report all spills immediately to the SWQB as required by the New Mexico Water Quality Control Commission regulations (20.6.2.1203 NMAC).
12. Fuel, oil, hydraulic fluid, or substances of this nature must not be stored within the normal floodplain, and must have secondary containment systems to prevent spills if the primary storage container leaks. Refuel equipment at least 100 feet from surface water.

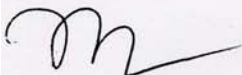
General Conditions:

13. A copy of this 401 certification must be kept at the project site during all phases of construction. All contractors involved in your project must be provided a copy of this certification and made aware of the conditions prior to starting construction.
14. The SWQB must be notified at least five days before starting construction, to allow time to schedule monitoring or inspections.

Violations of State water quality standards could lead to penalties under the New Mexico Water Quality Act. Section 74-6-10.1 B of the Act states, "Any person who violates any provision of the New Mexico Water Quality Act other than Section 74-6-5 NMSA 1978 or any person who violates any regulation, water quality standard, or compliance order adopted pursuant to that act shall be assessed civil penalties up to the amount of ten thousand dollars (\$10,000) per day for each violation."

The SWQB specifically reserves the right to amend or revoke this 401 Certification at any time to ensure compliance with water quality standards. If you have any questions regarding this 401 Water Quality Certification please feel free to contact Chris Cudia of my staff at (505) 425-6764. Thank you for your cooperation.

Sincerely,



Marcy Leavitt, Chief
Surface Water Quality Bureau

JHD: ns/cc/dm

cc: NMED District II Manager, Santa Fe
Lesley McWhirter, U.S. Army Corps of Engineers
Jim Herrington, Wetlands, Region 6, USEPA
Lisa Kirkpatrick, NM Department of Game and Fish
Joy Nicholopoulos, U.S. Fish and Wildlife Service
401 Certification File #LV010-05

APPENDIX D

FEDERAL ENDANGERED, THREATENED,
PROPOSED, AND CANDIDATE SPECIES
AND SPECIES OF CONCERN IN NEW MEXICO
Consultation Number 2-22-04-I-0660

August 30, 2004

Rio Arriba County

ENDANGERED

- Black-footed ferret (*Mustela nigripes*)**
- Interior least tern (*Sterna antillarum*)
- Southwestern willow flycatcher (*Empidonax traillii extimus*)
- Rio Grande silvery minnow (*Hybognathus amarus****)

THREATENED

- Bald eagle (*Haliaeetus leucocephalus*)
- Mexican spotted owl (*Strix occidentalis lucida*) with critical habitat

CANDIDATE

- Yellow-billed cuckoo (*Coccyzus americanus*)
- Boreal western toad (*Bufo boreas boreas*)

SPECIES OF CONCERN

- Goat Peak pika (*Ochotona princeps nigrescens*)
- New Mexican meadow jumping mouse (*Zapus hudsonius luteus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Southwestern otter (*Lutra canadensis sonora*)
- American peregrine falcon (*Falco peregrinus anatum*)
- Arctic peregrine falcon (*Falco peregrinus tundrius*)
- Baird's sparrow (*Ammodramus bairdii*)
- Black tern (*Chlidonias niger*)
- Mountain plover (*Charadrius montanus*)
- Northern goshawk (*Accipiter gentiles*)
- Rio Grande cutthroat trout (*Oncorhynchus clarki virginalis*)
- Rio Grande sucker (*Catostomus plebeius*)
- Roundtail chub (*Gila robusta*)
- Jemez Mountains salamander (*Plethodon neomexicanus*)
- New Mexico silverspot butterfly (*Speyeria nokomis nitocris*)
- Arizona willow (*Salix arizonica*)
- Ripley milk-vetch (*Astragalus ripleyi*)

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- Endangered = Any species which is in danger of extinction throughout all or a significant portion of its range.
- Threatened = Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
- Candidate = Candidate Species (taxa for which the Service has sufficient information to propose that they be added to list of endangered and threatened species, but the listing action has been precluded by other higher priority listing activities).
- Proposed = Any species of fish, wildlife or plant that is proposed in the Federal Register to be listed under section 4 of the Act.
- Species of Concern = Taxa for which further biological research and field study are needed to resolve their conservation status OR are considered sensitive, rare, or declining on lists maintained by Natural Heritage Programs, State wildlife agencies, other Federal agencies, or professional/academic scientific societies. Species of Concern are included for planning purposes only.
- * = Introduced population
- ** = Survey should be conducted if project involves impacts to prairie dog towns or complexes of 200-acres or more for the Gunnison's prairie dog (*Cynomys gunnisoni*) and/or 80-acres or more for any subspecies of Black-tailed prairie dog (*Cynomys ludovicianus*). A complex consists of two or more neighboring prairie dog towns within 4.3 miles (7 kilometers) of each other.
- *** = Extirpated in this county
- † = May occur in this county from re-introductions in Colorado.

APPENDIX E

Mar 22 04 08:59a

P. 1



March 21, 2004

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

RE: Borregos Arroyo

Mr. Maxwell,

On March 18, Jessica Jewell and I examined four soil samples collected for the project referenced above. The project area is on a floodplain of the Rio Grande near Velarde. The area is presumed to have been altered by agricultural practices. The examination was to determine whether the samples were hydric soils. The samples had been excavated to a depth of approximately 10 inches and placed into plastic 5-gallon buckets. A summary of the soil descriptions are as follows:

Site	Hydric Characteristics	Hydric Soil
1 South	Gleyed inclusions in a sandy matrix with sulfidic odor and black organic material.	Yes
2 South	High chroma soils with darker inclusions. Dark inclusions taken to be organic material but no sulfidic odor or mottles.	No
3 East	High chroma soils with no mottles.	No
3 West	High chroma soils with no mottles.	No

Please let me know if you have any questions.

Sincerely,

Bill Hevron