

POTRERO CREEK WETLANDS
MANAGEMENT PLAN AND FEASIBILITY REPORT

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TABLE OF CONTENTS

Section	Page
1.0 INTRODUCTION	1
2.0 BIOLOGICAL AND HYDROGEOLOGICAL SURVEY FINDINGS	4
2.1 BIOLOGICAL SURVEY FINDING SUMMARY	4
2.2 HYDROGEOLOGICAL SURVEY FINDING SUMMARY	5
3.0 PUBLIC PARTICIPATION	7
3.1 PUBLIC PARTICIPATION PROCESS	7
3.2 PUBLIC RESPONSE	8
4.0 WETLAND ISSUES	9
4.1 WETLANDS HYDROLOGY	9
4.2 WETLANDS HABITAT	10
4.3 WETLANDS OWNERSHIP	11
5.0 MANAGEMENT ALTERNATIVES	12
5.1 MANAGEMENT ALTERNATIVES FOR PUBLIC LANDS AND FACILITIES	12
5.1.1 Golf Course Water Management	12
5.1.2 City of Nogales Planning	14
5.1.3 Well Inspection Program	15
5.1.4 Public Access/Educational Facilities	15
5.1.5 Wastewater Treatment Plant Wetland Enhancement	18
5.2 MANAGEMENT ALTERNATIVES FOR PRIVATE LANDS	18
5.2.1 Access for Management	18
5.2.2 Management Alternatives	20
6.0 FEASIBILITY	23
6.1 MANAGEMENT ALTERNATIVES FOR PUBLIC LANDS AND FACILITIES	23
6.1.1 Golf Course Water Management	23
6.1.2 City of Nogales Planning	23
6.1.3 Well Inspection Program	24
6.1.4 Public Access/Educational Facility	24
6.1.5 Proposed Wastewater Treatment Plant Wetland Enhancement	25
6.2 MANAGEMENT ALTERNATIVES FOR PRIVATE LANDS	26
7.0 RECOMMENDATIONS AND CONCLUSIONS	27

TABLE OF CONTENTS (CONCLUDED)

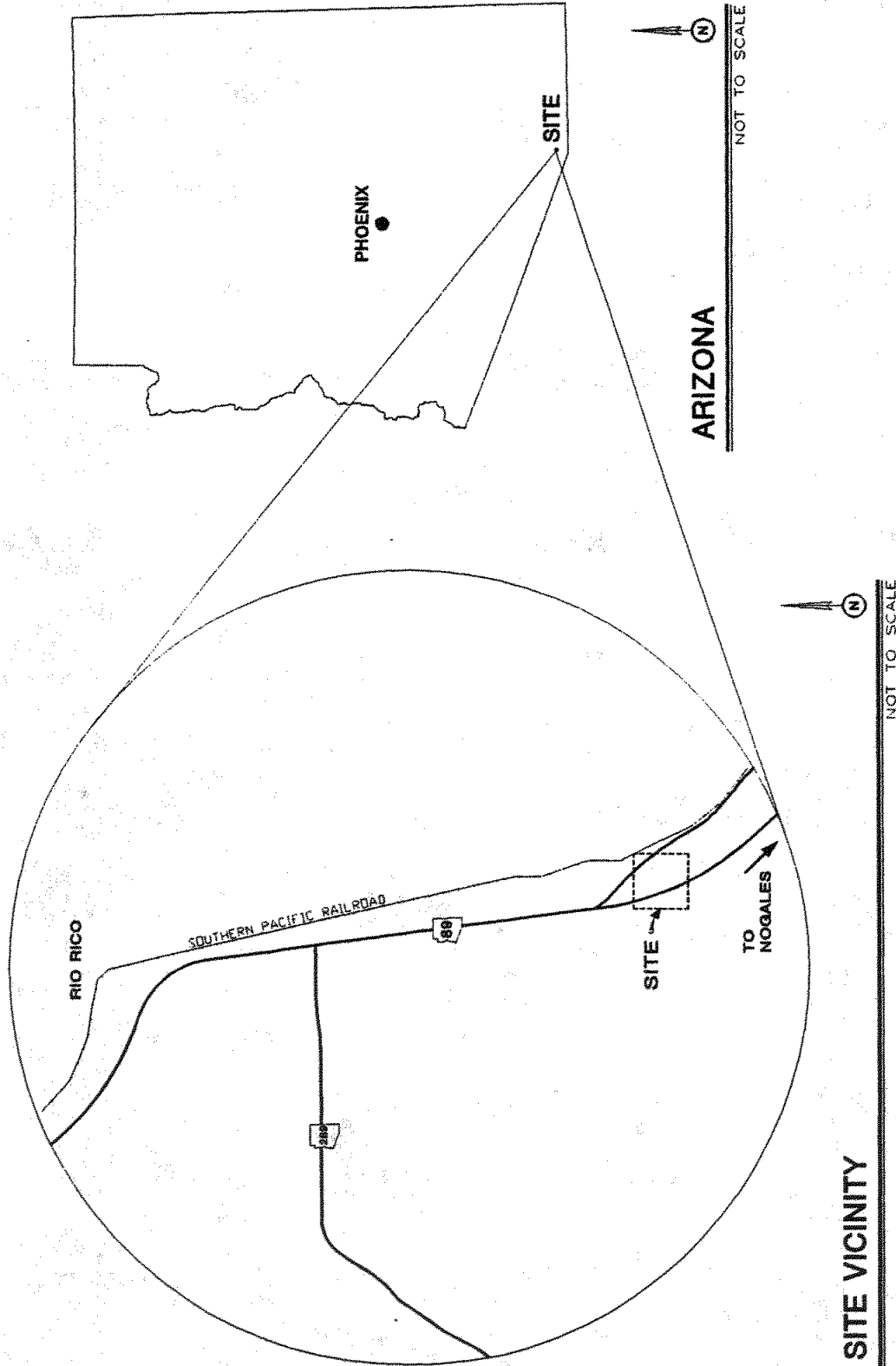
<u>Section</u>	<u>Page</u>
<u>FIGURES</u>	
Figure 1	Vicinity Map 2
Figure 2	Detailed Site Map 3
Figure 3	Proposed Public Access/Educational Facility on Public Lands 17
Figure 4	Proposed Public Access/Educational Facility on a Combination of Public and Private Lands 21
<u>TABLES</u>	
Table 1	Management Alternative Matrix 13
Table 2	Well Inventory and Inspection Program 16
<u>APPENDICES</u>	
Appendix A	Project Mailing List
Appendix B	Public Meeting Notices
Appendix C	Public Meeting Attendance Lists
Appendix D	Request For Activities in Drainage Easement Letter

The Potrero Creek wetlands support an abundant and diverse assemblage of plant and wildlife species. The wetlands, also known locally as Las Lagunas, Meadow Hills Cienega, and Country Club wetlands, are one of the last remaining cienegas (or desert stream marshlands) along Nogales Wash in the Santa Cruz River valley. The wetlands today (approximately 35 acres) are located about five miles north of Nogales, Arizona, just north of Interstate 19 and Country Club Drive (Figure 1). Historically, the wetlands area may have comprised 65 acres or more.

In 1995, the Arizona Water Protection Fund Commission awarded a grant to EnviroNet Inc. (EnviroNet) to conduct a biological and hydrogeological characterization of the wetlands. The results of the biological and hydrogeological characterizations are presented in separate reports. The second phase of the study focused on community involvement to assist in the development of management options for the wetlands. Public meetings were held on March 27, 1996, October 10, 1996, and January 14, 1997, to discuss issues and concerns regarding the wetlands and possible management alternatives to enhance, protect, or preserve the wetland area. The management alternatives were then evaluated for feasibility of implementation based on property ownership, funding sources, access, and effectiveness.

Project site boundaries consist of legally-accessible areas within the wetlands area between Interstate 19 and the Nogales Highway. The project site is intersected by Country Club Road (Figure 2). Access for this project was authorized on public lands and on selected privately-owned lands.

The Management Plan and Feasibility Report is organized into the following sections: 1.0 Introduction, 2.0 Summary of Biological and Hydrogeological Characterization Findings, 3.0 Public Participation, 4.0 Wetland Issues, 5.0 Management Alternatives, 6.0 Feasibility, and 7.0 Recommendations and Conclusions.



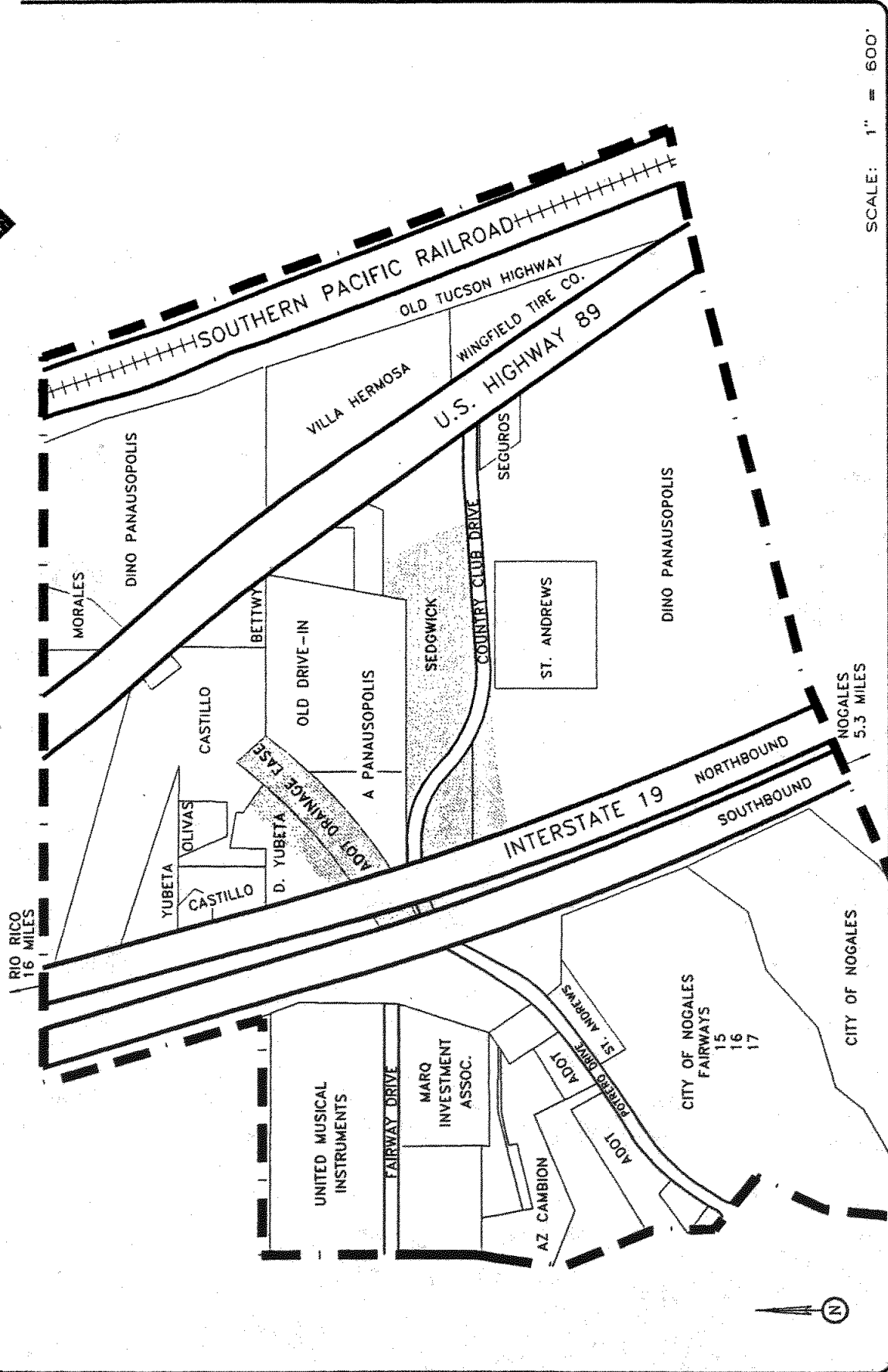
POTRERO CREEK WETLANDS CHARACTERIZATION AND MANAGEMENT PLAN

Vicinity Map

Project No. : 95X029A

4/30/96

FIGURE 1



KEY

PROJECT SITE (WETLAND ACCESS AREAS)

PROJECT VICINITY

POTRERO CREEK WETLANDS CHARACTERIZATION AND MANAGEMENT PLAN

Detailed Site Map

Project No. : 95X029A

4/17/96

FIGURE 2

2.0

BIOLOGICAL AND HYDROGEOLOGICAL SURVEY FINDINGS

2.1 BIOLOGICAL SURVEY FINDING SUMMARY

Initial biological surveys were conducted in the spring of 1996 and included vegetation transects, an aquatic biota survey, small mammal trapping, a bird survey, and bird banding. Biological monitoring of the project site was conducted through the winter of 1997.

Potrero Creek wetlands today represent a remnant cienega system which provides important riparian and wetland habitat. Three habitat communities within the wetland/riparian area (willow bosque, bulrush marsh, and cattail/open water marsh) composed of 71 vascular plants, were identified during the biological surveys. Three mammals (white-footed mouse, coyote, and collared peccary), one fish species (mosquitofish), two reptiles and amphibians (bullfrogs and whiptails), and three aquatic invertebrate species (crayfish and freshwater clams and snails) were observed within the project site during initial biological surveys. A diverse population of migratory and resident bird species was also observed. Fifty bird species (including 22 migrant, 18 summer resident, and 10 permanent resident species) were observed within the project site during spring biological surveys. Two bird species listed by the State of Arizona as sensitive species were observed during the surveys: gray hawk (*Buteo nitidus*; State Threatened) and belted kingfisher (*Ceryle alcyon*; State Candidate). An additional 20 bird species were observed during biological monitoring throughout the year.

Historical research indicates that the wetlands may have been much more extensive prior to habitat alterations including roadway development, construction of a drive-in theater, installation of a gas line, creek channelization and rerouting, construction of a stormwater control berm, groundwater fluctuations, and grazing. According to long-time residents of the area, surface water may have been available historically year-round at the wetlands.

The Potrero Creek wetlands area remains an important riparian/wetland system for wildlife habitat. Native riparian communities throughout the area support a diverse population of migratory and resident bird species. Factors constraining existing and

possibly future plant and wildlife diversity include the lack of a permanent water source, future development plans, and grazing.

2.2 HYDROGEOLOGICAL SURVEY FINDING SUMMARY

EnviroNet, in conjunction with Geological Consultants, Inc. (GCI), performed a hydrogeologic characterization of the wetlands area by performing the following tasks:

- Historic review, including aerial photographs,
- Literature review,
- Hydrogeological survey,
- Geophysical survey,
- Open water delineation, and
- Surface water sampling.

At least two groundwater aquifers are present within the Potrero Creek study area: a lower aquifer, and a shallow, perched aquifer. The lower aquifer is located in the upper portions of the older alluvium deposits underlying the project area. The lower aquifer does not appear to directly contribute water to the wetlands. City of Nogales pumps groundwater from wells which are completed in the lower aquifer.

In some areas, recent stream deposits underlying the project area are saturated, resulting in a shallow perched aquifer. Clayey zones beneath the perched aquifer impede the vertical movement of water between the two aquifers. The shallow perched aquifer is the source of groundwater which contributes to the support of the Potrero Creek wetlands. The perched aquifer collects infiltrating surface water during periods of streamflow in Potrero Creek and possibly from seepage losses into the alluvial deposits from golf course water features and septic systems located upstream from the wetlands area. It appears that this perched aquifer becomes constricted both horizontally and vertically near the outflow point from the project area (Nogales Highway/Potrero Creek Bridge). This impermeable constriction serves as a dam, which results in the relatively large ponds of water that are present in the wetlands area, at least during certain times of year.

Historically, several activities, including the construction of the drive-in theater, Route 89, Interstate-19, Country Club Drive, utility corridors, and development of the Meadow

Hills area, have resulted in alterations to drainage patterns and topography in the Potrero Creek wetlands area. The construction activities have resulted in changes to wetland dynamics, by fragmenting, draining, and damming the wetland over time.

Surface water quality and quantity investigations also provided interesting information. While the water sample at the inflow of Potrero Creek to the wetlands contained levels of lead (0.086 mg/l) and arsenic (0.078 mg/l) above primary drinking water standards, the water sample of the outflow of Potrero Creek from the wetlands contained no levels of analytes greater than primary drinking water standards. These results indicate that the wetland is acting as an effective filter for some contaminants. Groundwater data indicates that groundwater contaminated with volatile organic compounds from United Musical Instruments and the Nogales Wash study area has not migrated beneath the Potrero Creek wetlands. From the results of the open water delineation from April 1996 through January 1997, it appears that the amount of standing water present in the study area can fluctuate greatly, depending on the time of year and amount of recent precipitation.

Participation from the public in developing management strategies for Potrero Creek wetlands was the focal point of the management plan. Management alternatives were suggested by the public or formulated in response to issues, concerns, or desires of residents of the area or concerned public agencies and individuals for the wetlands area.

3.1 PUBLIC PARTICIPATION PROCESS

Three public informational meetings and a public poster presentation were held to gather information on potential issues associated with the wetlands and to inform interested parties of the project. The public informational meetings were held at the following dates, times, and places:

- Santa Cruz County Complex
Nogales, Arizona
March 27, 1996
3:30-5:00 PM
- Santa Cruz County Complex
Nogales, Arizona
October 10, 1996
11:30 - 1:30 P.M.
- St. Andrews Episcopal Church
969 West Country Club Drive
January 14, 1996
11:30-1:00 P.M.

Public meetings were advertised through personal invitation of the project mailing list. The project mailing list encompassing all interested parties gathered through January 14, 1997 is presented in Appendix A. In addition, two public notices advertising the public informational meeting held on October 10, 1996 were published in the Nogales

International on October 1 and October 4, 1996. The October 10, 1996 meeting was also advertised in the Friends of the Santa Cruz Newsletter "The Flow", Fall, 1996 edition. Public meeting notices are provided in Appendix B. The poster presentation was conducted at the Santa Cruz AMA Symposium in Rio Rico on May 31, 1996. Draft management alternatives were sent to individuals on the mailing list for discussion at the January 14, 1997 meeting.

3.2 PUBLIC RESPONSE

Ten people attended the March 27, 1996 meeting, which lasted approximately two hours. Twenty-seven people attended the October 10, 1996 meeting, which lasted for two and one-half hours. Nineteen people attended the January 14, 1997 meeting. The meeting lasted for one and one-half hours. The Arizona Department of Water Resources (ADWR) Santa Cruz AMA Symposium was attended by over 100 people. Seven people indicated interest in the Potrero Creek wetlands project at the symposium and were added to the project mailing list. Attendance sheets for the meetings are provided in Appendix C.

Information garnered from the public meetings was used to develop a list of issues concerning the wetland (presented in Section 4.0) and alternative management strategies for the wetlands area (Section 5.0).

Certain aspects of the wetland were recurrent topics during public meetings, telephone calls, and during the biological and hydrogeological surveys and characterizations. These aspects fall into three categories: wetlands hydrology (or water supply), wetlands habitat, and wetlands ownership. This section presents a consolidation of issues related to each primary aspect of wetland concern.

4.1 WETLANDS HYDROLOGY

A primary concern of the residents of the Meadow Hills area was the effect of groundwater pumping in the area on the wetlands. Results of the hydrogeological characterization indicate the following: 1) that the city is pumping groundwater from wells completed in the deeper, regional aquifer, rather than the perched aquifer which supports the wetlands, 2) that the perched aquifer and the deeper, regional aquifer are separated by a leaky aquitard, or sediments of low permeability, and 3) that the perched aquifer is largely supported by upstream runoff and recharge. Using this information, issues regarding water supply to the wetland were narrowed to the following items:

- golf course water management
- groundwater well conditions
- upstream development
- proposed Meadow Hills wastewater treatment plant

Golf Course Water Management. Management of water on the golf course has the potential to greatly impact the amount of water which is available to support the wetlands. In the past, two unlined ponds (now drained and planned for lining) contributed water to the wetlands downstream through seepage losses into the sediments. Draining of the ponds has diminished a wetland water source. An additional 9 holes for the golf course are also planned and may impact the amount of water available for the wetlands downstream.

Groundwater Well Condition. The condition of the groundwater well casings in the area may impact the wetlands hydrology. Older groundwater well casings in active or abandoned wells may allow the loss of water from the perched aquifer to the lower regional aquifer.

Upstream Development. As indicated by the hydrologic model, the majority of water from the wetlands is derived from surface water runoff upstream. Potential future development of these runoff or recharge areas may impact the wetlands hydrology.

Proposed Wastewater Treatment Plant. A wastewater treatment plant, located upstream of the wetlands, is proposed by the City of Nogales to treat wastewater from the Meadow Hills area. The wastewater treatment plant would replace and/or supplement the individual septic systems for Meadow Hills residents. Although the loss of seepage from septic systems may represent a loss of an available water source to the wetlands, treated effluent may provide a new water source for the wetlands.

4.2 WETLANDS HABITAT

Issues associated with wetlands habitat quality or quantity identified during the project include grazing within the wetlands, lack of a perennial water source, and wildlife viewing. These issues are described below.

Grazing. Two horses graze the willow bosque community to the north of Country Club Road. In comparison with the ungrazed willow bosque community to the south of Country Club Road, grazing may have contributed to a decrease in percent cover and diversity within the willow bosque community. Grasses likely introduced for grazing include bermuda grass (*Cynodon dactylon*), meadow fescue (*Paspalum distichum*), and Kentucky bluegrass (*Poa annua*).

Perennial Water Source. Lack of a perennial water source is the greatest constraint to further wildlife density and diversity. Interviews indicate that, historically, open water was available year-round.

Wildlife Appreciation. Wildlife appreciation and viewing was discussed during the public meetings. Local residents and visitors are attracted to the area by the opportunity to view neotropical birds of the area. Traffic along Country Club Road poses a serious problem for birdwatchers and those interested in the wetlands, as well as to those driving along the road. The lack of shoulders, sidewalks, and parking areas make wildlife viewing and enjoyment unsafe. The unsafe conditions are exacerbated by delivery trucks utilizing the route from Nogales Highway through Country Club Drive, commuters, and the traffic generated from two new schools in the area.

The City of Nogales has proposed to widen Country Club Road in response to the traffic problem. While this may provide safer walking areas along the road, road widening may disturb wetland habitat and promote additional traffic through the area.

4.3 WETLANDS OWNERSHIP

Land ownership of the wetlands area was a considerable point of discussion during public meetings. The wetlands area is owned by over six different owners, including both public and private entities. Although federal law constrains activities within the wetlands area to some degree, future plans for the land is a concern. In addition, trespassing onto private lands by bird watchers and potential liability to the landowners is an issue.

5.0 MANAGEMENT ALTERNATIVES

Based on the results of the biological and hydrogeological characterizations and the public meetings, possible alternatives for protecting, enhancing, and/or restoring the Potrero Creek wetlands are presented below. As shown in the management alternative matrix (Table 1), management alternatives were developed and are presented based on land ownership type: those activities allowed on public lands or through public facilities and those on private lands. Availability of land will determine the final scope of the management alternatives selected for implementation. Implementation of alternatives is discussed in Section 7.0 (Recommendations and Conclusions).

5.1 MANAGEMENT ALTERNATIVES FOR PUBLIC LANDS AND FACILITIES

Five management alternatives are identified for public lands and facilities at Potrero Creek wetlands to protect and/or enhance this natural resource. Detailed descriptions of these management options are provided, including, where applicable, steps for implementation. Potential funding sources for implementation are provided in Section 6.0.

5.1.1 Golf Course Water Management

Approximately 110 acre-feet of water is used to maintain the existing 9-hole golf course. Management policy for the water on the golf course could include specific procedures designed to benefit the Potrero Creek wetlands through maximizing percolation into the perched aquifer or surface water runoff into the wetlands. As an additional 9-holes are proposed for the golf course, discussions with golf course management regarding design and placement of water features and their potential impacts to the wetlands may prove beneficial to the wetlands. Incorporation of unlined ponds as a part of the golf course design would promote percolation into the perched aquifer and support the wetlands. Implementation of this alternative would begin with discussions with the golf course management and the engineering company, Collins-Peña Engineering, referencing the Hydrogeological Characterization Report to analyze impacts to the wetland.

TABLE 1**POTRERO CREEK WETLANDS
MANAGEMENT MATRIX
BY LAND TYPE**

LAND OWNERSHIP	PROTECT	ENHANCE	RESTORE
Public Lands Public Facilities	Golf course water management City planning (land use zoning upstream, traffic restrictions) Well inspection program	Public access/ educational facilities Wastewater treatment plant effluent release City planning (road improvements, litter control)	
Private Lands	Conservation easement Land donation/purchase/ exchange Cooperative management agreement Well inspection program	Public access/ educational facilities	Mitigation banking Clear vegetation Dredging Eliminate grazing

5.1.2 City of Nogales Planning

Several management alternatives proposed during the public hearings involve entering into discussions with the City of Nogales: road improvements, traffic restrictions, litter control, and land use zoning. Management practices to address these issues can be discussed with the city regarding public land management within the wetland, adjacent to the wetland, and upstream of the wetland, as described below. Implementation of these planning measures would be at the discretion of the city, as city resources, including land and fiscal resources, are involved.

Road Improvements and Traffic Restrictions. Road improvements and possible traffic restrictions along Country Club Road are issues which were brought up during the public meetings. Tourists visit the wetlands to view the neotropical birds in the area. The birdwatching spots within Potrero Creek wetlands are published in multiple birdwatching field guides. Commuters, trucks, and traffic generated from the presence of two new schools in the area create a traffic situation which is unsafe for the wildlife viewers and drivers, and possibly distracting or harmful to wildlife (noise and fumes).

Potential remedies available to the City of Nogales include 1) incorporating a sidewalk or walkway on Country Club Drive, 2) restricting traffic flow on Country Club Drive, and 3) constructing a parking area for cars and school buses along or near Country Club Drive.

Litter Control. The increased number of visitors to the area and the presence of the I-19 overpass has contributed to litter and debris in the Potrero Creek wetlands area. The placement of City of Nogales refuse containers and City refuse pick-up would reduce the amount of litter in the area.

Land Use Zoning. Surface water runoff and percolation from upstream areas was found to contribute most of the water to the perched aquifer system from the hydrogeological characterization study. Discussions with the City of Nogales regarding this information may increase the city planners' awareness of the water source of the wetlands. Zoning restrictions in areas upstream of the wetlands may facilitate planning and zoning

compatible with watershed areas to protect and reserve the recharge of the perched aquifer for the wetlands.

5.1.3 Well Inspection Program

Older well casings in the Potrero Creek wetlands area may be acting as conduits, moving water from the upper perched aquifer (which supports the wetlands) into the deeper, regional aquifer. A well inventory and well inspection program would evaluate the condition of the wells to determine if the casing condition of the wells could be resulting in communication between aquifers. The program involves the steps listed on Table 2. Ultimately, this program would result in information necessary to identify wells in need of proper abandonment or redevelopment.

5.1.4 Public Access/Educational Facilities

Public access and/or educational facilities could be constructed on public lands within the wetlands to promote habitat and wildlife appreciation and protection (Figure 3). Public lands within the wetland (shown on Figure 2) include a drainage easement in the northwest portion of the wetland/riparian area and right-of-way adjacent to Country Club Road. The facilities may be constructed in conjunction with City Parks, the School District, or the Arizona Department of Game and Fish, after receiving approval from the public agencies whose lands are affected (Arizona Department of Transportation and the City of Nogales). A letter submitted to Ms. Deborah Sykes, the Tucson District Permit Supervisor with the Arizona Department of Transportation, describing the proposed activities and the location would begin the approval process. A sample letter is provided in Appendix D.

An urban interpretive educational facility could consist of a nature trail with interpretive signs, and a pier to view wildlife on public lands. Interpretive signs would describe the willow bosque habitat requirements and inhabitants, and the cattail marsh inhabitants, using the identifications and descriptions provided in the Biological Characterization Report. The interpretive signs would include information on the flora and fauna of the riparian/wetland area, including migratory and resident birds, the resident small mammal, the white-footed mouse, and a discussion of the hydrology of the wetland area.

TABLE 2

WELL INVENTORY AND INSPECTION PROGRAM

STEP	EXPLANATION
Well Inventory	Conduct an inventory of public and private wells within the Potrero Creek area. The inventory may include wells that are unregistered or improperly abandoned.
Well Maintenance Evaluation	Determine what inspection/maintenance programs, if any, are currently implemented on inventoried wells.
Well Inspection	Inspect wells on inventory list that are not regularly or adequately inspected. Inspection program may include: <ul style="list-style-type: none">• determination of casing integrity• well scan to examine casing• water level readings using sounder
Well Closure	Wells that are not being used should be properly abandoned.
Funding	Investigate presence of local, state, or federal funds for well abandonment.



FIGURE 3
PROPOSED PUBLIC ACCESS/
EDUCATIONAL FACILITY ON
PUBLIC LANDS

The program may be designed in conjunction with School District curriculum to provide educational opportunities for all ages, including a bird banding program for the high school science classes. The interpretive educational facility may be expanded to include private lands upon authorization by the land owner (see Section 5.2).

5.1.5 Wastewater Treatment Plant Wetland Enhancement

An important long-term management strategy for the Potrero Creek wetlands enhancement is the release of a portion of the effluent from the proposed Meadow Hills wastewater treatment plant to the wetlands for recharge. This dependable source may constitute a permanent enhancement measure for the wetlands and promote the longevity of the wetlands. This alternative would be completed through stakeholder meetings with the City of Nogales. The city has indicated interest in beginning discussions on this matter in February, 1997.

5.2 MANAGEMENT ALTERNATIVES FOR PRIVATE LANDS

The majority of the wetland/riparian area is located on private lands. Implementing management alternatives for private lands requires voluntary participation from the landowners. Since management on private lands depends entirely upon the landowner's wishes, several management options are provided to present a range of alternatives to identify a mutually beneficial management arrangement.

5.2.1 Access for Management

Obtaining access to private land for management purposes may be accomplished through several land preservation or cooperative management tools. These methods vary based on the amount of control the landowner wishes to retain over his property and how secure and long-lasting he wishes the preservation to be. Establishing a cooperative management program between both public and private landowners to meet mutual objectives may be achieved through the establishment of a conservation easement, land donation or purchase, a cooperative management agreement, the establishment of a land trust, or mitigation banking, as described below.

Conservation Easement. A conservation easement is a voluntary and permanent restriction limiting development on a property in order to protect conservation values. The easement is a recorded restriction as part of the property deed and therefore applies to all subsequent owners. A conservation easement is granted to a qualified conservation organization or governmental entity which has the responsibility of monitoring and enforcing the terms of the easement. The landowner continues to own and manage the property. Since a conservation easement is treated as a charitable gift, the landowner is entitled to a charitable deduction on their income tax equal to the difference between the fair market value and the restricted value of the property. With the grant of a conservation easement, the landowner retains full control over public access and is not required to permit public access (Arizona State Parks, Verde River Greenway Management Plan). Programs for conservation easements exist with the U.S. Fish & Wildlife Service (Partners in Wildlife) and the Arizona Department of Game and Fish (Stewardship Program).

Land Donation/Purchase. A landowner may wish to donate their properties to public entities or non-profit public benefit agencies. A gift to a public agency (e.g. U.S. Fish & Wildlife Service, Arizona Department of Game and Fish, Arizona State Parks, City of Nogales, Santa Cruz County, etc.) entitles the owner to a charitable deduction for income tax purposes equal to the value of the property. A public agency or non-profit public benefit agency may instead purchase the property through a cash purchase (at fair market value), an installment purchase (a purchase spread out over a term of years), a bargain sale (combination gift and sale of a property that allows a tax deduction as a charitable gift), or a land exchange.

Cooperative Agreement. The land may remain with the private landowner who agrees to allow and participate in implementation the management alternative on his land. A cooperative agreement is entered into with a public entity (U.S. Fish & Wildlife Service, Arizona Department of Game and Fish, City of Nogales, School District, etc.). The landowner retains ownership of the land and remains responsible for maintenance.

Land Trust. The landowner may set up a 501(c)(3) public benefit foundation to acquire and/or manage the land, or donate the land to an established conservation land trust, such as the Arizona Open Land Trust.

Mitigation Banking. A willing landowner may encourage the use of his property as a mitigation bank which would be established in perpetuity. Mitigation banking has been defined as wetland restoration, creation, enhancement, and in exceptional circumstances, preservation undertaken expressly for the purpose of compensating for unavoidable wetland losses in advance of development actions, when such compensation cannot be achieved at the development site or would not be as environmentally beneficial. Units of restored, created, enhanced, or preserved wetlands are expressed as "credits" which may subsequently be withdrawn to offset "debits" incurred at the development site. This method of compensating for impacts to wetlands is encouraged by public agencies by federal law (Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks, Federal Register, Nov. 28, 1995).

5.2.2 Management Alternatives

Once access to the private land is obtained through one of the methods described above, three management alternatives for the lands are possible: well inventory and inspection program, public access/educational facility, and restoration, as described below.

Well Inventory and Inspection Program. The well inventory and inspection program, described in Section 5.1.3 under public lands, also applies to private lands. This alternative may not require the same level of access for management as described above, as access would be only be required for a limited duration (see Table 2).

Public Access/Educational Facility. An expanded public access/education facility (as described in Section 5.1.4) may be constructed on private lands with a willing landowner. The urban interpretive educational facility described under public land management would be expanded to include public parking for school buses and other vehicles and an interpretive trail/pier to view wildlife on private lands in conjunction with the public lands. The interpretive signs would include information on the flora and fauna of the riparian/wetland area, including willow bosque, cattail/open water marsh, and bulrush marsh communities, migratory and resident birds, the resident small mammal, the white-footed mouse, and a discussion of the hydrology of the wetland area. A depiction of alternative interpretive trail areas is presented in Figure 4.

INTERPRETIVE TRAIL
SIGN

POW

PARKING AREA

EDUCATIONAL
CENTER

WOODS

FIGURE 1
PROPOSED PUBLIC ACCESS/
EDUCATIONAL FACILITY ON A
COMBINATION OF PUBLIC AND
PRIVATE LANDS



Restoration. Restoration of the wetlands would include a combination of clearing dead vegetation and dredging sediment build-up from the open water areas. These types of restoration activities may increase the year-round open water areas within the wetland and increase accessibility and visibility to the wildlife areas. Sediment build-up is common within wetland/riparian systems which receive sedimentation from storm events. A Section 404 permit would be required to dredge any areas classified as water of the United States by the U.S. Army Corps of Engineers.

Another restoration activity is the elimination of grazing which occurs in the willow bosque community to the north of Country Club Road (Willow Bosque Community A). In comparison with the ungrazed willow bosque community to the south of Country Club Road, grazing may have contributed to a decrease in percent cover and diversity within the willow bosque community. Grasses likely introduced for grazing include bermuda grass (*Cynodon dactylon*), meadow fescue (*Paspalum distichum*), and Kentucky bluegrass (*Poa annua*). Landowners whose horses graze the riparian area may be willing to graze their horses outside the wetland/riparian area.

The feasibility of each management alternative is presented below based on land ownership. The most significant factor in determining feasibility for each alternative is discussed, including investment (time and effort required for implementation), availability of funding sources, access (including required permits and approvals from public or private entities), and effectiveness (evaluated based on previous studies and public input).

6.1 MANAGEMENT ALTERNATIVES ON PUBLIC LANDS

6.1.1 Golf Course Water Management

Discussions with golf course management personnel regarding design of the course and course water management to maximize water recharge to the wetlands represents a cost-effective management option. Actual implementation of the management strategy, maximizing recharge benefits to the wetlands, would be the decision of the golf course owner and operator. As this management alternative relies on the decision of a competitive water user, the feasibility of this option, while possible, is likely to be low. However, discussions with golf course management regarding the Potrero Creek Wetlands Hydrogeological Characterization Report may sensitize them to the impacts of design of the proposed 9-holes and existing course area on the wetlands downstream.

6.1.2 City of Nogales Planning

The City of Nogales is open to discussion regarding management of the Potrero Creek wetlands (Ms. Michelle Kimpel and Mr. Mike Hein, personal communication). Discussions with the city on several different methods to protect or enhance the wetland or areas which may impact the wetlands may ensure long-term wetland preservation. Discussions with the city regarding the possibility of constructing sidewalks along Country Club Drive and/or a parking area, traffic restrictions, refuse container placement, and appropriate zoning for wetland recharge areas are low-risk management alternatives which may provide less visible, however, long-term benefits for wildlife and interested

public, as well as educational opportunities. Implementation would depend on city financing and participation.

6.1.3 Well Inspection Program

The feasibility of implementing the well inspection program depends upon the willingness of the well owners to allow inspection and the availability of funding for the program. Landowners in the area may be willing to participate in the investigation if it is clear that any rehabilitation or well closure activities would be voluntary and/or funded. The well inspection program may be eligible for funding or participation from the following public agencies:

- Arizona Water Protection Fund
- U.S. Environmental Protection Agency State Wetlands Protection Development Grant Program
- City of Nogales Wellhead Protection Program
- Rural Infrastructure Committee, Department of Commerce
- Department of Agriculture Rural Development Grants

6.1.4 Public Access/Educational Facility

Access to the drainage easement and possible City of Nogales right-of-way for construction and maintenance of the public educational facility, the interpretive nature trail, is possible through discussions with the Arizona Department of Transportation and the City of Nogales. These public agencies will consider the repercussions of permitting access to the property. The fact that trespassers do indeed frequent the area presently to view wildlife may encourage the agencies to consider active third-party management.

Once access is obtained and construction may occur, several funding sources for construction and maintenance of the public educational facilities are available. Funding sources may include the following:

- Arizona Game and Fish Department Heritage Fund
- Arizona Game and Fish Stewardship Program

- Arizona Water Protection Fund
- U.S. Fish and Wildlife Partners in Wildlife Program
- Meadow Hills Homeowner's Association
- Environmental Protection Agency Border 21 Program - Natural Resources Committee
- Community Development Block Grants, Department of Commerce
- Rural Infrastructure Committee, Department of Commerce (technical financial assistance)
- Department of Agriculture Rural Development Grants
- Army Corps of Engineers (technical assistance)
- Department of Interior Bureau of Reclamation (technical assistance, capital projects)
- Rural Community Assistance Corporation

6.1.5 Proposed Wastewater Treatment Plant Wetland Enhancement

Discussions with the City of Nogales regarding releasing a portion of the effluent from the proposed Meadow Hills wastewater treatment plant to the wetlands requires an investment which may not be soon realized, but may represent the most effective management strategy for enhancement, restoration, and preservation of the wetland and riparian habitat. The construction and operation of the wastewater treatment plant itself is a controversial step which may take years to realize. In addition, the wetlands would be in competition with the golf course as a recipient of the effluent. However, illustrating the value of the wetlands as not only a natural resource but as an educational resource for the city and the public school system, and possibly as a visitor attraction for the city may provide incentive. Beginning discussions early would streamline the permit process in terms of consolidating the necessary reuse and aquifer protection permits for the wastewater treatment plant, golf course, and wetland system. Funding sources for acquiring the water for the wetlands may be available from the following agencies:

- City of Nogales
- Meadow Hills Homeowners Association
- Arizona Water Protection Fund

6.2 MANAGEMENT ALTERNATIVES FOR PRIVATE LANDS

The feasibility of implementing management alternatives on private lands depends entirely on the wishes of the landowners. Based on input at the public meetings, the desires of the landowners encompass a wide range, determined in part by individual economic and living situations. Discussions with the landowners may prove fruitful if the land management strategy can be tailored to the needs of each landowner.

Feasibility of the well inventory and inspection program is presented in Section 6.1.3. Feasibility of the public educational facility and potential funding sources are presented in Section 6.1.4. Funding sources to implement restoration activities, namely clearing dead vegetation and dredging for maintenance include the following:

- Arizona Game and Fish Department Heritage Fund
- Arizona Game and Fish Stewardship Program
- Arizona Water Protection Fund
- U.S. Fish and Wildlife Partners in Wildlife Program
- U.S. Environmental Protection Agency State Wetlands Protection Development Grant Program
- Meadow Hills Homeowner's Association
- Environmental Protection Agency Border 21 Program - Natural Resources Committee
- Community Development Block Grants, Department of Commerce
- Rural Infrastructure Committee, Department of Commerce (technical financial assistance)
- Department of Agriculture Rural Development Grants
- Army Corps of Engineers (technical assistance)
- Department of Interior Bureau of Reclamation (technical assistance, capital projects)
- Rural Community Assistance Corporation

The feasibility of eliminating grazing within the wetland/riparian areas depends on the availability of other grazing areas and willingness of the landowner to graze their horses elsewhere.

7.0 RECOMMENDATIONS AND CONCLUSIONS

Implementation of several of the management alternatives described in this plan is quite feasible. Methods to enhance, restore, and protect may be applied in concert to provide broad-base wetland conservation. An implementation strategy is described below, beginning with the development of an implementation team.

In order to address issues expressed during public meetings, EnviroNet suggests the formation of a local wetland stakeholders group to adopt a goal of implementing one or more of the management alternatives described in this plan. The stakeholders may be comprised of concerned citizens, landowners, city representatives, and residents of the area. The stakeholders group could be responsible for implementation of the management alternatives by working with the city, beginning discussions with property owners, writing grant proposals, and working with the school district or other potential management partners. The mailing list developed for this project may serve as a way to keep individuals and public agency representatives informed and interested (Appendix A). The stakeholders group may wish to maintain copies of the Biological Characterization and Hydrogeological Characterization Reports and this Management Plan and Feasibility Report for reference during management implementation.

A course of action to begin implementing the most feasible management strategies for the stakeholders group is summarized below. These steps are not mutually exclusive; steps may be carried out concurrently.

1. Begin discussions with the City of Nogales regarding the golf course water management, city planning issues, and proposed wastewater treatment plant effluent.
2. Pursue public land access for public access/educational facility by writing to the Arizona Department of Transportation for approval and discussing access with the City of Nogales.
3. Pursue private land access by evaluating landowner needs and interest in a method of land conservation, described in Section 5.2.1 (land exchange, conservation easement, etc.) Identify potential partnerships, where applicable.
4. Define areas of accessible land based on the results of steps 2 and 3 above.

5. Identify interested partners for management implementation based on accessible lands (city, landowners, school district, U.S. Fish & Wildlife Service, Arizona Department of Game and Fish, the Arizona Department of Transportation) to apply for funding.
6. Select public access/educational facility alternative to best fit available lands and interested partners (see Figures 3 and 4).
7. Apply for funding to implement management alternatives, including the well inspection and inventory program, the public access/educational facility, restoration activities, and the proposed wastewater treatment plant effluent release, where required.

APPENDIX A
PROJECT MAILING LIST

Lilian and Raymond Hoff
1660 W. Meadows Hills Drive
Nogales, Arizona 85621

Mr. Cabot Sedgwick
1386 Sante Fe Ranch
Nogales, Arizona 85628

Mr. Dino Panousopoulos
P. O. Box 1683
Nogales, AZ 85628

Mr. Joel Floyd
Friends of the Santa Cruz River
P. O. Box 154
Tumacacori, Arizona 85640

Ms. Sherry Sass
President
Friends of the Santa Cruz River
P. O. Box 4275
Tubac, AZ 85646

Mr. Roy Ross
Friends of the Santa Cruz River
P. O. Box 4275
Tubac, AZ 85646

Ms. Matty Proto
President, Meadows Hills Homeowner
Association
1729 Mesquite Lane
Nogales, AZ 85621

Mr. John Bache-wiig
2185 Old Patagonia Road
Nogales, AZ 85621

Mr. Wayne Schifflet
USFWS
P. O. Box 109
Sasabe, AZ 85633

Mr. Mario Castenieta
Arizona Dept. of Environmental Quality
3033 N. Central Avenue
Phoenix, AZ 85012

Ms. Susan Miller and Matt Chen
Arizona State Parks
1300 W. Washington Street
Phoenix, AZ 85007

Ms. Deborah Sykes
Arizona Dept. of Transportation
Tucson District Permit Supervisor
1221 S. Second Avenue
Tucson, AZ 85713-1602

Mr. Ronald Morris
Chairman, Groundwater Users Advisory
Council
857 West Bell Road, Suite 3
Nogales, Arizona 85621

Mr. Keith Nelson
Arizona Department of Water Resources
Santa Cruz Active Management Area
857 West Bell Road, Suite 3
Nogales, Arizona 85621

Mr. Alejandro Barcenas
City of Nogales
Public Works
777 N. Grand Avenue
Nogales, AZ 85621

Mr. David Yubeta, Jr.
P. O. Box 562
Nogales, AZ 85628

Neil Krug
Nogales High School
1905 N. Apache Blvd.
Nogales, Arizona 85621

Ms. Kathy Groschupf, Ph.D
415 E. Citation Lane
Tempe, AZ 85284

Mr. Mark Baker
Southwest Botanical Research
1217 Granite Creek Lane
Chino Valley, AZ 86323

Mr. Mark Larkin
Friends of the Santa Cruz River
P. O. Box 4275
Tubac, AZ 85646

Mr. Scott Richardson
Arizona Department of Game and Fish
555 N. Greasewood
Tucson, Arizona 85745

Mr. Frank Baucom
U.S. Fish and Wildlife Service
2321 W. Royal Palm Road, Suite 103
Phoenix, AZ 85021-4951

Ms. Mary Helen Maley
Nogales Justice Court
P. O. Box 1150
Nogales, Arizona 85628

Mr. Ken Euge
Geological Consultants
2333 W. Northern Avenue, Suite 1A
Phoenix, AZ 85021

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3650 Frontage Road #2
Nogales, AZ 85621

Michael and Beverly Karam
Robert and Barbara Lawler
415 Cid Court
Rio Rico, AZ 85621

Lelon "Lee" Bley
1743 W. Mesquite Lane
Nogales, AZ 85621

Mr. Tom Newman
Nogales Ranger District
303 Old Tucson Road
Nogales, AZ 85621

Mr. Bob Canchola
Superintendent of Schools
2150 N. Congress
Nogales, AZ 85621

Mr. Ben Stepleton
Director
Santa Cruz County Health Department

Robert Hartman
Facilities Environmental Manager
United Musical Instruments
1310 West Fairway Drive
Nogales, AZ 85621

Mrs. Mary Orealiz Munguia
P. O. Box 1505
Nogales, AZ 85621

Mr. Mike Hein
Assistant City Administrator
777 N. Grand Avenue
Nogales, AZ 85621

Mr. George Bell
P.O. Box 1405
Nogales, AZ 85628

Ms. Tricia McGraw
Arizona Water Protection Fund
ADWR
500 N. Third Street
Phoenix, AZ 85004

Ms. Cynthia Guedel
Coronado School
310 West Plum
Nogales, AZ 85621

Ms. Marina Suarez
Coronado School
310 West Plum
Nogales, AZ 85621

Ms. Michele Kimpel
City of Nogales
777 North Grand Avenue
Nogales, AZ 85621

Ms. Lorena Lopez
City of Nogales
777 N. Grand Avenue
Nogales, AZ 85621

Mr. Mike Alcala
Santa Cruz County Health Dept.
2150 N. Congress
Nogales, AZ 85628

Terry Sprouse
2545 N. Richey Boulevard
Tucson, AZ 85716

Mr. Louis Chapper
St. Andrews Episcopal Church
969 West Country Club Drive
Nogales, Arizona 85621

Mr. Bob Damon
1715 Mesquite Lane
Nogales, AZ 85621

Ms. Norma Renteria
Coronado School
310 West Plum
Nogales, AZ 85621

Ms. Lucille Wofford
1683 Meadow Hills Drive
Nogales, AZ 85621

Ms. Jill Himes
EnviroNet Inc.
7776 South Pointe Parkway West, Suite 160
Phoenix, Arizona 85044

Thomas Martinez
The WLB Group
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Tucson, AZ 85716

Ms. Olga Lohr
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Nogales, AZ 85621

Mr. Rick Gagnon
Sonoita Creek State
Natural Area
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Patagonia, AZ 85624

Mr. Pierre S. Boffert Jr.
1478 W. Camino Campestre
Nogales, AZ 85621

Ms. Marlene Hollen Williams
2521 N. Camino Alto
Nogales, AZ 85621

Ms. Kathy Vandervoet
268 West Viewpoint Drive
Nogales, AZ 85621

Ms. Linda Robbeloth
9229 E. La Palma Drive
Tucson, AZ 85747

APPENDIX B
PUBLIC MEETING NOTICES

PUBLIC NOTICE

As part of the Potrero Creek Wetlands Characterization and Management Plan project funded by the Arizona Water Protection Fund, a public meeting will be held on Thursday, October 10, 1996 to discuss possible future management alternatives to protect, enhance, and/or preserve the Potrero Creek wetlands. The public meeting will be held at the Santa Cruz County Complex, located at 2150 North Congress Drive in Nogales, Arizona from 11:30 A.M. to 1:30 P.M., on October 10, 1996.

We encourage you to come and voice your ideas and/or concerns regarding future management options for the wetlands. For information contact Jill Himes at (602) 438-0318.

Pub: 9/27,10/1/96
Req: Environet

AFFIDAVIT OF PUBLICATION

STATE OF ARIZONA

COUNTY OF SANTA CRUZ

} ss.

Brendan FitzSimons being of first duly sworn, deposes and says: that he/she is Publisher of the NOGALES INTERNATIONAL, a newspaper published in the County of Santa Cruz, State of Arizona, and of general circulation in said County, State and elsewhere, and that the hereto attached legal notice Public Meeting re Potrero Creek Wetlands Project

was printed and published correctly in the regular and entire issue of said NOGALES INTERNATIONAL for 2 issues; that the first publication was made on the 27 day of Sept, 19 96, and the last publication thereof was made on the 1 day of Oct, 19 96.

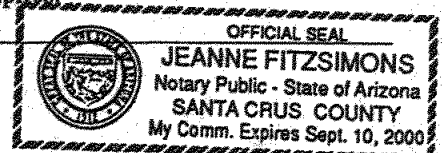
NOGALES INTERNATIONAL

By Brendan FitzSimons

Subscribed and sworn to before me this 1 day of Oct, 19 96.

Jeanne FitzSimons
Notary Public

My commission expires:



LAS LAGUNAS: Part II

The two guest articles that follow concern the cienega, or marsh, in Nogales formed by Potrero Creek before it empties into the Nogales Wash. Jill Himes' group, EnviroNet, is studying the cienega for the development of a management plan to protect this area rich in plant life and wildlife. Philip Halpenny, a hydrologic authority on the area, summarizes more evidence of humans use of the area that goes back perhaps 1200 years.

Potrero Creek Wetlands Investigation

*by Jill Himes
EnviroNet Inc.*

The Arizona Water Protection Fund grant financed our study of the Potrero Creek wetlands, also known as Las Lagunas. This is a historic and unique wetland area located 5 miles north of Nogales and approximately 16 miles south of Rio Rico, bisected by Interstate 19, east of the City of Nogales golf course.

Field investigations were initiated in April 1996 with biological, hydrological and geological characterizations to document the current conditions of the wetlands. These studies were conducted to provide a baseline of plants and animals that inhabit the wetlands, what the water source is, and groundwater conditions. Historical aerial photographs of the area were reviewed to evaluate past surface water hydrology conditions.

Vegetation, bird, aquatic, and mammal surveys were conducted to characterize the biological resources of the area. These surveys identified over 75 species of plants and 50 species of birds within the wetland. Other observed species included javelina, common white footed mouse, bullfrogs and mosquito fish. Recently observed was a nesting adult pair of Gray hawks and two recently fledged offspring. This is State protected (threatened) species. As part of the historical research, five archeological sites were also identified in the area.

Hydrological surveys included surface water sampling and flow monitoring, geophysical surveys, and an investigation of groundwater data from



View of Potrero Creek Wetland, also known as Las Lagunas, near Meadow Hills in Nogales. This naturally occurring marsh system is a rare wetland habitat for the desert Southwest. With the major landowner eager for its preservation, it is being studied to see what options are available for protection and management.

City of Nogales wells and nearby monitoring wells from the United Musical Instrument study site:

The second phase of the study focuses on community involvement to assist in development of a management plan for the wetlands. The initial site investigations have been completed and interpreted, a now a public meeting will be held to discuss public concerns about the wetland and possible management alternatives to enhance, protect, or preserve the wetlands area and/or water source. These management alternatives will be evaluated for feasibility in implementation based on funding sources, access, and effectiveness.

Our biological characterization report for the Potrero Creek Wetlands and a report on the hydrology of the area will be available at the public meeting in Nogales this October 10th. For

more information, contact:

Ms. Jill Himes
EnviroNet, Inc.
7776 South Pointe Parkway West,
Suite 160
Phoenix, Arizona 85044
Ph# (602) 438-0318

Public Meeting
on
**Potrero Creek Wetlands
Characterization and
Management Plan**
presented by
EnviroNet, Inc.
Thursday, October 10th
11:30 am to 1:30 pm
Santa Cruz County Complex
Nogales, Arizona
bring lunch, drinks provided

September 20, 1996

Dear Interested Party:

A public meeting will be held on Thursday, October 10, 1996, to discuss possible future management alternatives to protect, enhance, and/or preserve the Potrero Creek wetlands, located just east of the intersection of Interstate Highway 19 and Country Club Drive, approximately 5 miles north of Nogales.

Preparation of a management plan is funded by the Arizona Water Protection Fund as part of the Potrero Creek Wetlands Characterization and Management Plan. The public meeting will be held at the following time and location:

Santa Cruz County Complex
2150 North Congress Drive
Nogales, Arizona 85621
11:30 A.M - 1:30 P.M.
October 10, 1996

We encourage you to come and voice your ideas and/or concerns regarding future management options for the wetlands. Management alternatives discussed during the meeting will then be analyzed for feasibility based on land ownership, cost, and effectiveness. Feel free to bring your lunch - drinks will be provided.

If you have any questions regarding the meeting, please contact Ms. Jill Himes, Project Manager, at (602) 438-0318.

Sincerely,

ENVIRONET INC.

Jill Himes
Project Scientist



January 3, 1997

Dear Interested Party:

A Homeowner's/ Public meeting will be held on Tuesday, January 14, 1997, to review possible future management alternatives to protect, enhance, and/or preserve the Potrero Creek wetlands, located just east of the intersection of Interstate Highway 19 and Country Club Drive, approximately 5 miles north of Nogales.

We encourage you to attend and voice your ideas and/or concerns regarding future management options for the wetlands. Comments concerning the draft wetland management alternatives (enclosed) will be discussed and incorporated into the feasibility plan. Management alternatives discussed during the meeting will be analyzed for feasibility based on land ownership, cost, and effectiveness.

Preparation of a management plan is funded by the Arizona Water Protection Fund as part of the Potrero Creek Wetlands Characterization and Management Plan. The meeting will be held at the following time and location:

St. Andrews Episcopal Church
969 West Country Club Drive
(across from the wetlands)
Nogales, Arizona 85621
11:30 A.M - 1:30 P.M.
January 14, 1997

If you have any questions regarding the meeting, please contact Ms. Jill Himes, Project Manager, at (602) 438-0318.

Sincerely,

ENVIRONET INC.

A handwritten signature in cursive script that reads "Jill Himes".

Jill Himes
Project Scientist

APPENIDIX C

PROJECT MEETING ATTENDANCE LISTS

PLEASE SIGN IN

3/27/96

NAME AFFILIATION ADDRESS PHONE

^{LILLIAN} ~~Lillian~~ ^{HOFF} ~~Hoff~~ 1660 W. Meadow Lane
Nogales, AZ 85621 281-0406

Delon "Lee" Bley 1743 W. Mesquite Lane. 281-0846

Robert Sedgewick 1386 Santa Fe ^{Nogales} Ranch 281-8993

Matilde Proto 1729 Mesquite Lane 281-0163
281-0163

Scott Richardson ALFD 555 N. Grandwood 628-5376
P.O. Box 1150 85628

Mary Helen Maley Nogales Justice Court P.O. Box 1150 85628 761-7849

Shermy Sass FOSCR- P.O. Box 4275 Tubac 85646 398-9091

Jim Hines Environet 438-0318

Stere Glass " "

Stacy Savell " "

ARIZONA WATER PROTECTION FUND
 POTRERO CREEK WETLAND MANAGEMENT
PLEASE SIGN IN OCTOBER 10, 1994

<u>Name</u>	<u>Affiliation</u>	<u>Phone</u>
William Hoff	1660 W. Meadow Hills NOGALES, AZ 85621	281-0406
LEE BLEY	1743 W. MESQUITE LN	281-0846
Cleavie L. Bots	1729 W. Mesquite Ln	281-0163
Carolee Allen	U.S. Forest Service 303 Old Tucson Rd, Nogales	281-2296
Louis Chapper	St. Andrews Episcopal Church 969 W. Country Club Rd Nog.	287-5929
Jesse Rogers	None	
BOB DAMON	1715 W. Mesquite Ln.	281-9071
Lucille Wofford	1683 Meadow Hills Dr.	281-9569
Sherry Sass	FOSCR P.O. Box 4275 Tubac, AZ 85646	398 9093
JOEL FLOYD	" D.O.B. 154 Tumacacori AZ 85640	398-9515
Pierre S. Boffert Jr.	1478 W. Camino Campestre Nogales, AZ 85621	287-4694
Robert H. Boffert	Nogales, Arizona 85621	281-0664
Marianne Heller Williams	252 N. Camino Alto Nogales, AZ	761-4002
KEITH NELSON	857 Bell Rd Nogales	761-1814
Bill Walnymph	Nogales, AZ 85621	281-1008
Ismari Garcia	Nogales High School	287-2708
Linda Robbello	9229 E. La Palma Dr. Tucson AZ 85747	574-8226
FRANK BAUMANN	U.S. Fish & Wildlife 2321 W. Royal Palm Rd. Suite 103 Phoenix 85021	602 640-2720
Kathy Groschopf	Ornithological Consulting 415 E. Cotation Street	838-1158

Mary Greg Liz Barje Munguía
683 Walnut St Nogales Ariz 287-1225

Scott Richardson	AGFD 555 N. Greasewood Tucson	624-5374
Robert Rojas	City of Nogales	Nogales, AZ. 287-6571
Douglas R. Hill	Santa Cruz County	Nogales, AZ 761-7800
Ben Stepleton	Santa Cruz County Health Dept.	761-7800

PLEASE SIGN IN

JANUARY 14, 1997

Cynthia Guedel
Cabot Sedgwick

SCHOOL # 287-0860
Home 761-8107
287-8993

CORONADO SCHOOL
310 W. PLUM
NOGALES, AZ 85601

Sherry Soss (FOSCK)

398-9093

Candace Kupli
Norma Kenten's

281-0110

281-7397 Coronado School

Olga E. Lohr

287-5427 Coronado School
968 N Ventana C

RANA BADRI

LEE BLEY

281 0846

Michele Kimpel

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Nogales, AZ 85621

George B. Bell

761-3117 S.P.O. Box 1405
Nog., AZ 85628

Marina Suarez

281-0524 Coronado School

Marlene Williams

761-4002

Rick GIAGNONO - SONOITA CREEK STATE NATURAL AREA 287-2791

Ray A. Hall - Enviro Net

Leon R. Ray Huff HHTA 281-0406

Michael ALCALA — 520-761-7893

SANTA CRUZ COUNTY HEALTH DEPT.
U.S. PUBLIC HEALTH SERVICE
2150 N. CONGRESS
NOGALES, ARIZONA 85621

Amelia Barba

287-0860 Coronado School

Joe Himes

438 0318

APPENDIX D

REQUEST FOR ACTIVITIES IN DRAINAGE EASEMENT

February 1, 1997

Ms. Deborah Sykes
Tucson District Permit Supervisor
Arizona Department of Transportation
1221 South Second Avenue
Tucson, AZ 85713-1602

Dear Ms. Sykes:

We are very interested in implementing a management plan for the Potrero Creek wetlands, located approximately 5 miles north of Nogales, Arizona, which includes activities within an Arizona Department of Transportation (ADOT) drainage easement. The drainage easement is located under the I-19 underpass adjacent to Country Club Road in Nogales, Arizona (see attached map).

The area is actively used by birdwatchers and is listed in several bird books as an excellent spot for birdwatching. We would like to establish an interpretive nature trail along the berm which provides views into both the willow bosque to the north of the berm (private property and drainage easement) and into the open water/cattail marsh area to the south of the berm (private property). The trail would incorporate signs describing the habitat and wildlife found in this unique wetland, trail access and possibly trail maintenance (weed control). This project would be fully funded and not require financial participation from ADOT.

Sincerely,

Responsible Party

Address

Phone Number

POTRERO CREEK WETLANDS
MANAGEMENT PLAN AND FEASIBILITY REPORT

Prepared for:
Arizona Water Protection Fund Commission
Grant Number 95-024WPF

Prepared by:
EnviroNet Inc.
7776 South Pointe Parkway West
Suite 160
Phoenix, Arizona 85044

January 1997