

**Arizona Water Protection Fund
FY 2009 Grant Application Review**

Application # WPF 0374 Applicant: YUMA CROSSING NATIONAL HERITAGE AREA
Title of Project: HUNTER'S HOLE RIPARIAN AND WETLAND RESTORATION PROJECT

Additional materials were submitted with this application that could not be reproduced and distributed for review. These materials may be reviewed in person at the Arizona Water Protection Fund offices at (3550 N. Central Avenue, 4th Floor, Phoenix). The additional materials available are the following:

- Maps
- Photographs
- Disk APPLICATION
- Other

• HUNTER'S HOLE CONCEPT PLAN

**Arizona Water Protection Fund
Application Cover Page
FY 2009**

COPY

WPF0374

Title of Project: Hunter's Hole Riparian and Wetland Restoration Project

Type of Project: <input checked="" type="checkbox"/> Capital or Other <input type="checkbox"/> Water Conservation <input type="checkbox"/> Research	Stream Type: <input checked="" type="checkbox"/> Perennial <input type="checkbox"/> Intermittent <input type="checkbox"/> Ephemeral	Your level of commitment to maintenance of project benefits and capital improvements: <input type="checkbox"/> < 5 years <input type="checkbox"/> 5-10 years <input type="checkbox"/> 11-15 years <input checked="" type="checkbox"/> 16-20 years
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Applicant Information: Name/Organization: Yuma Crossing National Heritage Area Address 1: Address 2: City: State: ZIP Code: Phone: Fax: Tax ID No.:	Inside an AMA: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, which AMA: <input type="checkbox"/> Phoenix <input type="checkbox"/> Tucson <input type="checkbox"/> Prescott <input type="checkbox"/> Pinal <input type="checkbox"/> Santa Cruz
	Type of Application: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation

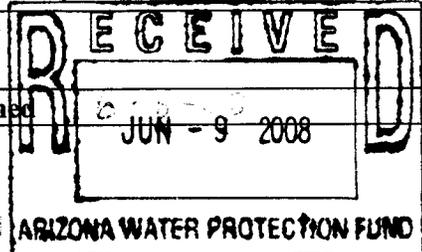
Contact Person: Name: C. Kevin Eatherly Title: Phone: Fax: e-mail:	Any Previous AWPFF Grants: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, please provide Grant #(s): 06-140WPF/ 07-147WPF/ 07-148WPF/ 08-152WPF/ 08-153WPF
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Arizona Water Protection Fund Grant Amount Requested: \$648,389 If the application is funded, will the Grantee intend to request an advance: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Matching Funds Obtained and Secured:	
	<u>Applicant/Agency/Organization:</u> 1. Applicant 2. 3.	<u>Amount (\$):</u> \$150,838.50 Total: 150,838.50

Has your legal counsel or contracting authority reviewed and accepted the Grant Award Contract General Provisions?
 Yes No N/A

Signature of the undersigned certifies understanding and compliance with all terms, conditions and specifications in the attached application. Additionally, signature certifies that all information provided by the applicant is true and accurate. The undersigned acknowledges that intentional presentation of any false or fraudulent information, or knowingly concealing a material fact regarding this application is subject to criminal penalties as provided in A.R.S. Title 13. The Arizona Water Protection Fund Commission may approve Grant Awards with modifications to scope items, methodology, schedule, final products and/or budget.

MR. CHARLES FLYNN	EXECUTIVE DIRECTOR YUMA CROSSING NATIONAL HERITAGE AREA CORPORATION
Typed Name of Applicant or Applicant's Authorized Representative	Title and Telephone Number
Signature	Date Signed



Executive Summary

This project proposes to restore a total of 36.75 acres, including 9.25 acres of open water and channels, 10.25 acres of native marsh, 7.5 acres of enhanced cottonwood, willow riparian and 9.75 acres of mesquite habitat along the lower Colorado River within the Limitrophe District at Hunter's Hole located in the Yuma, Arizona. The Limitrophe Division of the Colorado River is the 23 mile stretch of river that extends from Morelos Dam to the Southern International Boundary, delineating the border between Mexico and the United States. The Hunter's Hole project area is a total of 435 acres, which is proposed to be restored in three phases. This Pilot Project (Phase I) will be the first monumental effort to utilize habitat restoration to enhance security on the border by providing a visual corridor as well as restoring native habitat to recover wildlife. This project would also be a part of a larger, bi-national effort to restore contiguous habitat for a variety of wildlife species. There is a similar proposed restoration project on the Mexican side of the river, adjacent to Hunter's Hole. Endangered Yuma clapper rail were detected using this site as recent as 2002 and during the 2006 monitoring season up to 26 willow flycatchers were detected using the site as a migration stop-over.

The aquatic, wetland, and riparian ecosystems of the Lower Colorado River have been greatly altered and reduced by over a century of water development projects, deforestation, agriculture and development, and non-native species invasion. This degraded condition has promoted the establishment and dominance of aggressive non-native species, such as tamarisk and giant cane. As a result, habitat quality has declined and many wildlife species have become threatened or endangered due to the loss of habitat. Although the Colorado River in the Limitrophe Division is dry in this area, overbank flows in the 1980's and mid 1990's created conditions that produced some of the last remaining native riparian communities on the Lower Colorado River. The community provides a range of structure, biomass, biodiversity, and connectivity to create higher quality wildlife habitat. Infrequent flooding and shallow ground water in some areas have maintained these patches of native vegetation, however due to the recent dry period these habitat patches are threatened.

In an effort to recover the existing native habitats and restore the areas dominated by invasive vegetation in the Limitrophe, the Yuma Crossing National Heritage Area helped establish a coalition of 26 stakeholders, including multiple federal, state, local, city, private, and non-profit groups, with the primary goals of restoring native habitats, creating a safe recreation area for the public and providing an alternative form of border security for homeland security. In order to initiate this monumental effort, the coalition is focusing on conducting habitat restoration at Hunter's Hole, a 435 acre area located two miles north of the southern international boundary.

Habitat restoration for this project will follow similar techniques utilized to restore and enhance the successful Yuma East Wetlands Project. These techniques include excavation of existing and proposed open water ponds and channels, bioengineering and containerized stock planting of native species, and stop log structures that can be manipulated to flood irrigate the site. Much of the site burned in the fall 2007, therefore minimal invasive species clearing will have to be conducted.

In order to accomplish this 36.75 acre riparian and wetland restoration, the following objectives have been proposed:

1. Restore approximately 36.75 acres of self-sustaining, native cottonwood/willow/mesquite, open water, and marsh habitat in a pilot area within the Limitrophe District of the lower Colorado River.
2. Obtain valuable data to apply to future restoration activities within the Limitrophe District of the lower Colorado River.

This will be accomplished by completing the following tasks:

1. Clear invasive plant species.
2. Evaluate the site characteristics of the 36.75 acre site to formulate an optimum restoration design.
3. Create 36.75 acres of open water, channels, riparian and wetland habitats
4. Maintain the restored area to ensure successful establishment of the habitat
5. Monitor the success of the techniques used.

Introduction

Background:

Riparian ecosystems are renowned for their high levels of biodiversity, productivity, and dynamism (Noss and Cooperrider 1994). In the arid southwest, these ecosystems comprise of the smallest habitat areas, but support a disproportionately higher species diversity and density than any other habitat type in the overall landscape. However, particularly in Arizona, these ecosystems are increasingly imperiled due to extensive modification and exotic species invasion. The last 23 miles of the Colorado River within the United States, called the Limitrophe Division (Morelos Dam to the southern international boundary), has been extensively modified by over a century of flood-control, water delivery, and agricultural activities, which have affected the native vegetation and wildlife that depend on them. Despite this extensive modification, this reach has retained some natural features, including pockets of native riparian species and sinuous geomorphology that was typical of the historic floodplain, due to the high flows experienced out of the Gila and Colorado Rivers during the 1980s and 1990s. Morelos Dam, the northern boundary of the Limitrophe stretch, is a diversion dam which allows water to pass through or around during high flow events. The high flow events in the 1980s and 1990s deposited nutrient rich sediment and native seed in many areas along the Limitrophe promoting the growth of native species. However, during the recent dry period the much of the Colorado River in the Limitrophe Division has dried up with the exception of small pockets of water where the water table is shallow. Some areas still retain shallow ground water, which supports the existing native habitat. These pockets of native species are becoming more threatened as the ground water becomes lower and is not being replenished.

In an effort to recover the existing native habitats and restore the areas dominated by invasive vegetation in the Limitrophe, a coalition of stakeholders was formed, including multiple federal, state, private, and non-profit groups, with the primary goals of restoring native habitats, creating a safe recreation area for the public and providing an alternative form of border security for homeland security. The Colorado River in the Limitrophe Division delineates the border between the United States and Mexico, which currently supports a host of illegal activities including border crossing, crime and drug smuggling. In order to initiate this monumental effort, the coalition is focusing on conducting a three phase habitat restoration at Hunter's Hole, a 435 acre area located two miles north of the southern international boundary (Figure 1). Hunter's Hole is located in Township T10S, Range R25W and Sections 23, 24, 34 and 35 (Figure 1). Figure 2 delineates the land ownership in the project area.

Hunter's Hole was selected as a pilot project area because it has an existing water source (MODE Canal siphon inlet), which has created a wetland overrun by invasive vegetation and a channel that supports a variety of native cottonwood and willow species. Also, the Bureau of Reclamation is currently installing a ground water well on the site to provide additional water for restoration efforts. The archeological surveys have been conducted and the SHPO compliance is in review. NEPA compliance is currently being conducted and is anticipated to go out for public review in September, and completed by January 2009. The wetland delineation will be completed by August and application for the Army

Corps of Engineers 404 Permit will be submitted in January 2009 when the remainder of the NEPA compliance is complete. The depth to water and soil salinity site analyses have already been accomplished, which will be used to develop the final planting design. The restoration at Hunter's Hole will be a component of a larger, bi-national effort between the U.S. and Mexico to restore habitat within the Limitrophe. Mexico is accomplishing a similar restoration project on the Mexican side of the border using international funds.

This area once supported a host of wildlife species, including many species of concern. The endangered Yuma clapper rail have been detected using this habitat during breeding season in the as recent as 2002 and in 2006 up to 26 willow flycatchers were observed using the site as a stop-over site during migration to breeding habitats. Southwestern willow flycatchers historically nested within this region, with the proposed riparian and wetland habitat restoration efforts this species may be encouraged to breed here once again. In fall 2007, the Hunter's Hole area burned by a transient fire, which leveled 71.5 acres. The Bureau of Land Management (BLM) cleared an additional 257 acres for hazardous fuels reduction. While the fire created an easier platform for restoration, much of the useable habitat for neo-tropical migrating and resident bird species was decimated.

This proposal would initiate the Phase I restoration at Hunter's Hole by restoring a 36.75 acre pilot area. This project would consist of enhancing and restoring 9.25 acres of open water and channels, 10.25 acres of native marsh, 7.5 acres of cottonwood and willow riparian and 9.75 acres of mesquite habitat (Figure 3). Figure 4 displays photographs of the current conditions at the Hunter's Hole project area. The restoration techniques that will be employed to conduct this restoration will follow those utilized in the successful riparian and wetland restoration projects of the Yuma East Wetlands Project. These techniques include: excavation of the existing and proposed channels and open water areas, using stop-log gates to control water levels, bioengineering and containerized stock planting of native wetland and riparian species, and maintenance and monitoring activities to insure project success.

If funded, this 48.72 acre pilot project would be a monumental effort, which would restore habitat in a new location for Arizona Water Protection Fund. This project would be part of a bi-national effort to create native habitat, provide contiguous habitat for native wildlife communities, and also provide a visual corridor for homeland security. The Colorado River below the project site will also benefit by increased input of water from the project site, which will direct the excess water to the river channel.

Goal(s):

1. Establish 7.5 acres of self-sustaining cottonwood and willow riparian habitat to recover native wildlife communities.
2. Establish 9.75 acres of native mesquite bosque to provide increased wildlife habitat, especially for the invertebrate foodbase.
3. Establish 9.25 acres of open water and channels to provide habitat for winter migrants and resident water birds.
4. Establish 10.25 acres of native marsh habitat for marsh bird species of concern.

5. Monitor the project success of the 36.75 acre riparian, wetland, open water revegetation project through plant monitoring.

Objective(s):

3. Restore approximately 36.75 acres of self-sustaining, native cottonwood/willow/mesquite, open water, and marsh habitat in a pilot area within the Limitrophe District of the lower Colorado River.
4. Obtain valuable data to apply to future restoration activities within the Limitrophe District of the lower Colorado River.

Statement of problem(s):

- Damaged/Degrading riparian and wetland habitat.
- Increased soil salinities due to insufficient water-flow through historic channels and wetlands.
- Excessive reproduction of exotic plant species.
- Insufficient reproduction of native plant species.
- Lack of critical habitat for several endangered species including the Yuma clapper rail and southwestern willow flycatcher and other wildlife species.

Statement of cause(s) of the problem(s):

- Dams
- River channelization
- Siltation of historic river channels and backwaters
- Introduction of highly flammable, quickly-regenerating, exotic tamarisk
- Human encroachment /development

Statement of project-related remedies or solutions:

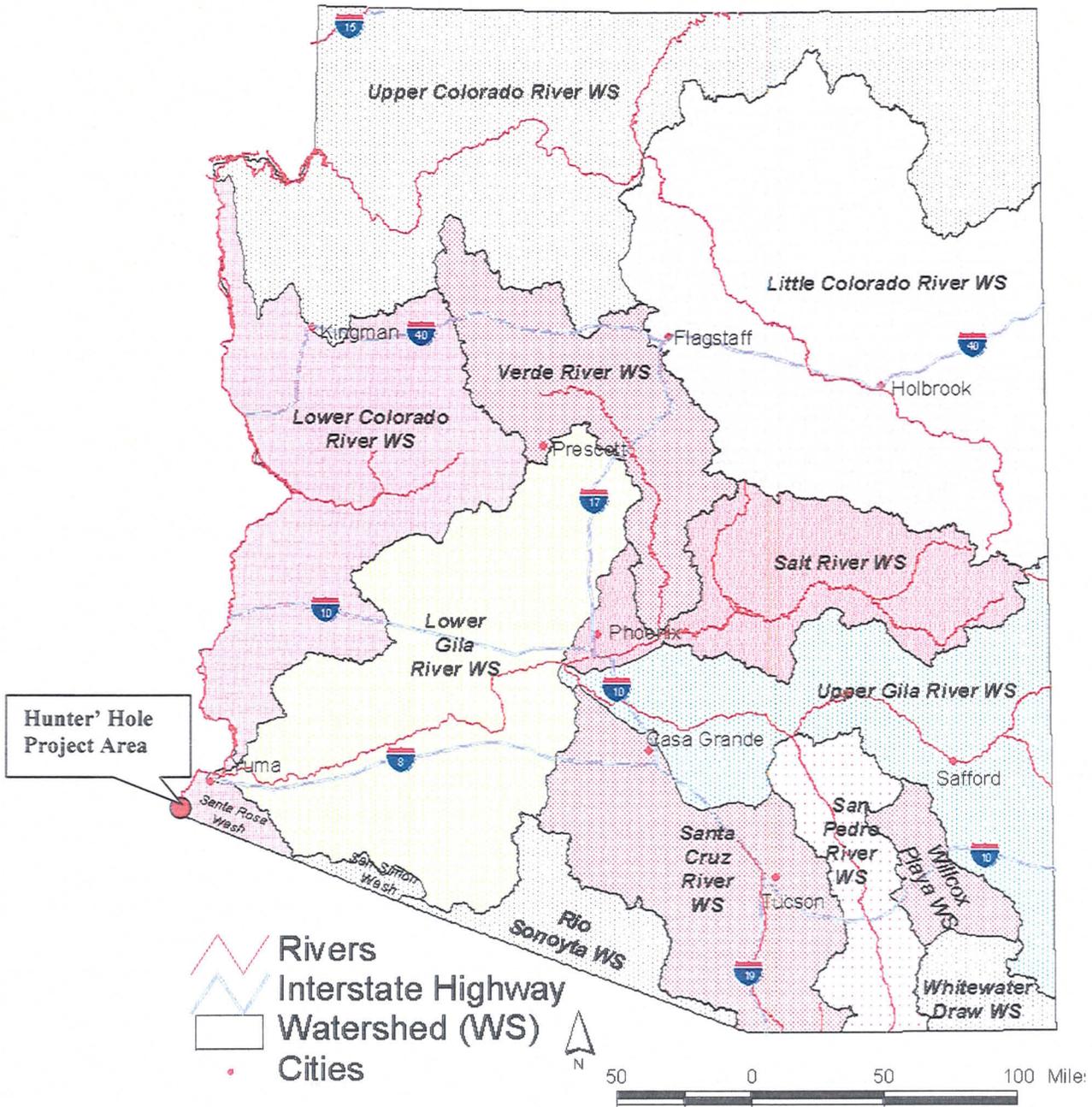
1. Clear and burn all non-native plant species in the project area
2. Investigate the existing site conditions to develop an optimum revegetation design
3. Plant native species in the cleared areas and flood irrigate these areas to establish the native trees, shrubs and grasses into the water table
4. Implement two years weeding and irrigation maintenance to establish trees
5. Monitor the revegetation project to measure the success of the methods used and compare with project goals set forth.

Statement of project years of benefit:

The 36.75 acre revegetation stand will be primarily planted within 1-12 feet of the water table, and therefore should become self-sustaining by the end of the second full growing season with the long term irrigation of the area with water from the groundwater well currently being constructed. The Heritage area and the Hunter's Hole Project Partnership intend to work to monitor the success of this project, will use the information to plan and, where feasible, implement control programs in the foreseeable future. Follow-up maintenance required at this site will consist of maintaining water pumps to insure

appropriate irrigation, limited fire control, weed eradication, and tree stand evaluation. The projected years of benefit for this project should exceed 50 years.

Arizona Watershed Map FY 2009



Title of Project: Hunter's Hole Riparian and Wetland Restoration Project

Project Location & Environmental Contaminant Information FY 2009

Project Location Information			
1. County: <u>Yuma</u>	2. Section: <u>23, 24, 34, 35</u>	3. Township: <u>T10S</u>	4. Range: <u>R25W</u>
<p>5. Watershed: <u>Lower Colorado River</u></p> <p>6. Name of USGS Topographic Map where project area is located: <u>Gadsden SE</u></p> <p>7. State Legislative District: <u>5</u> (Information available at http://156.42.40.10/mapping/default2.asp?tname=Interim.2004.Legislative.Map)</p> <p>8. Land ownership of project area: <u>Bureau of Reclamation</u></p> <p>9. Current land use of project area: <u>Degrading Habitat</u></p> <p>10. Size of project area (in acres): <u>36.75 acres</u></p> <p>11. Stream Name: <u>Lower Colorado River</u></p> <p>12. Length of stream through project area: <u>3775 LF</u></p> <p>13. Miles of stream benefited: <u>0.72 miles</u></p> <p>14. Acres of riparian habitat: <u>17.25 acres</u> will be:</p> <div style="margin-left: 200px;"> <input type="checkbox"/> Enhanced <input type="checkbox"/> Maintained <input checked="" type="checkbox"/> Restored <input type="checkbox"/> Created </div>			
<p>15. Provide directions to the project site from the nearest city or town. List any special access requirements: From downtown Yuma, head south bound on HWY 95 through Summerton and Gadsden. After Gadsden, turn right (west) on the west county 20th St. South. Please call Border Patrol to open the gate into Hunter's Hole. U.S. Border Patrol dispatch phone number is 928-341-2890. The contact for U.S. Border Patrol is Carlos Domingus. His phone number is 928-941-6134.</p>			
Environmental Contaminant Location Information			
<p>1. Does your project site contain known environmental contaminants? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants: •</p> <p>2. Are there known environmental contaminants in the project vicinity? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants: •</p> <p>3. Are you asking for Arizona Water Protection Fund monies to identify whether or not environmental contaminants are present? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>			

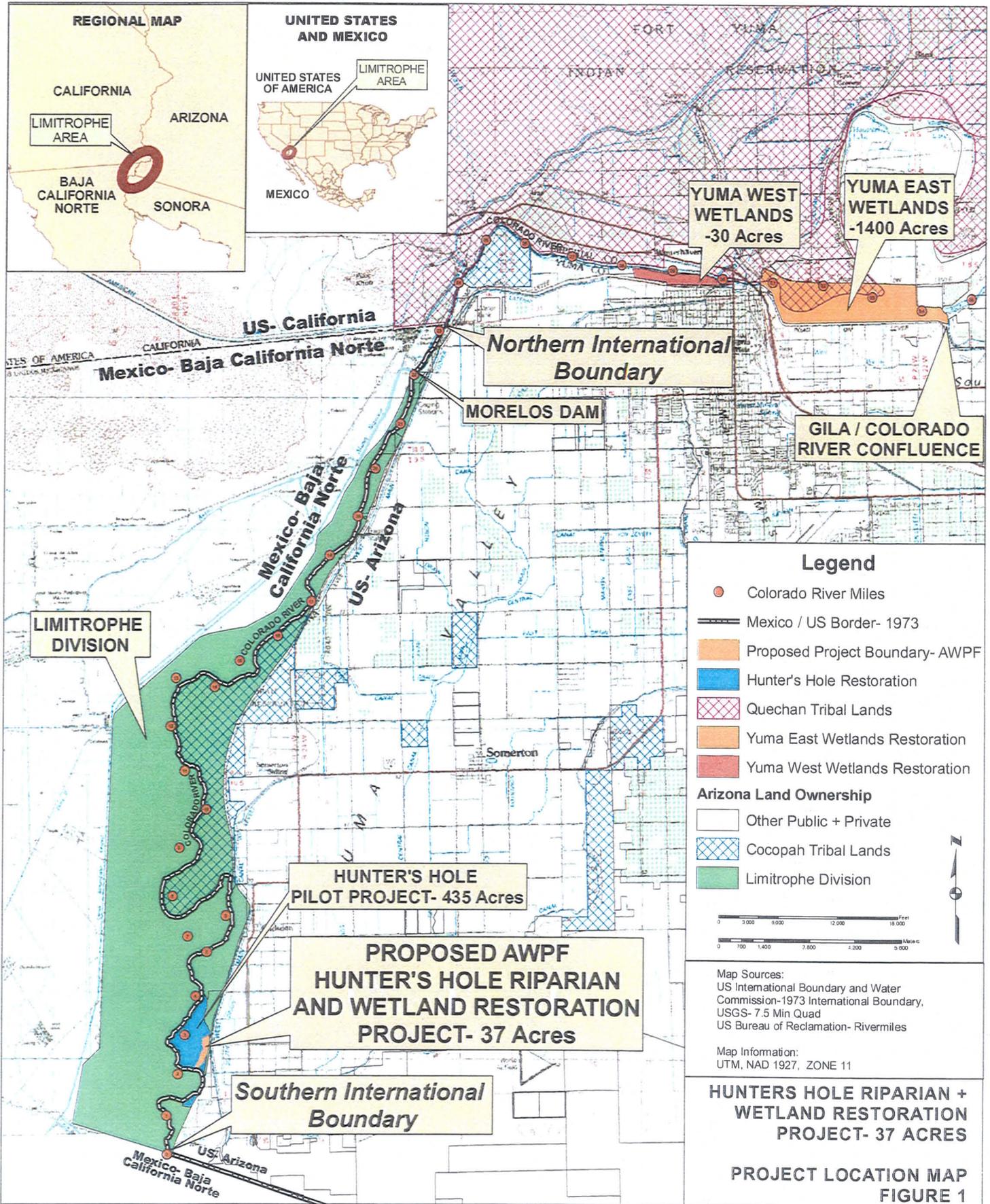
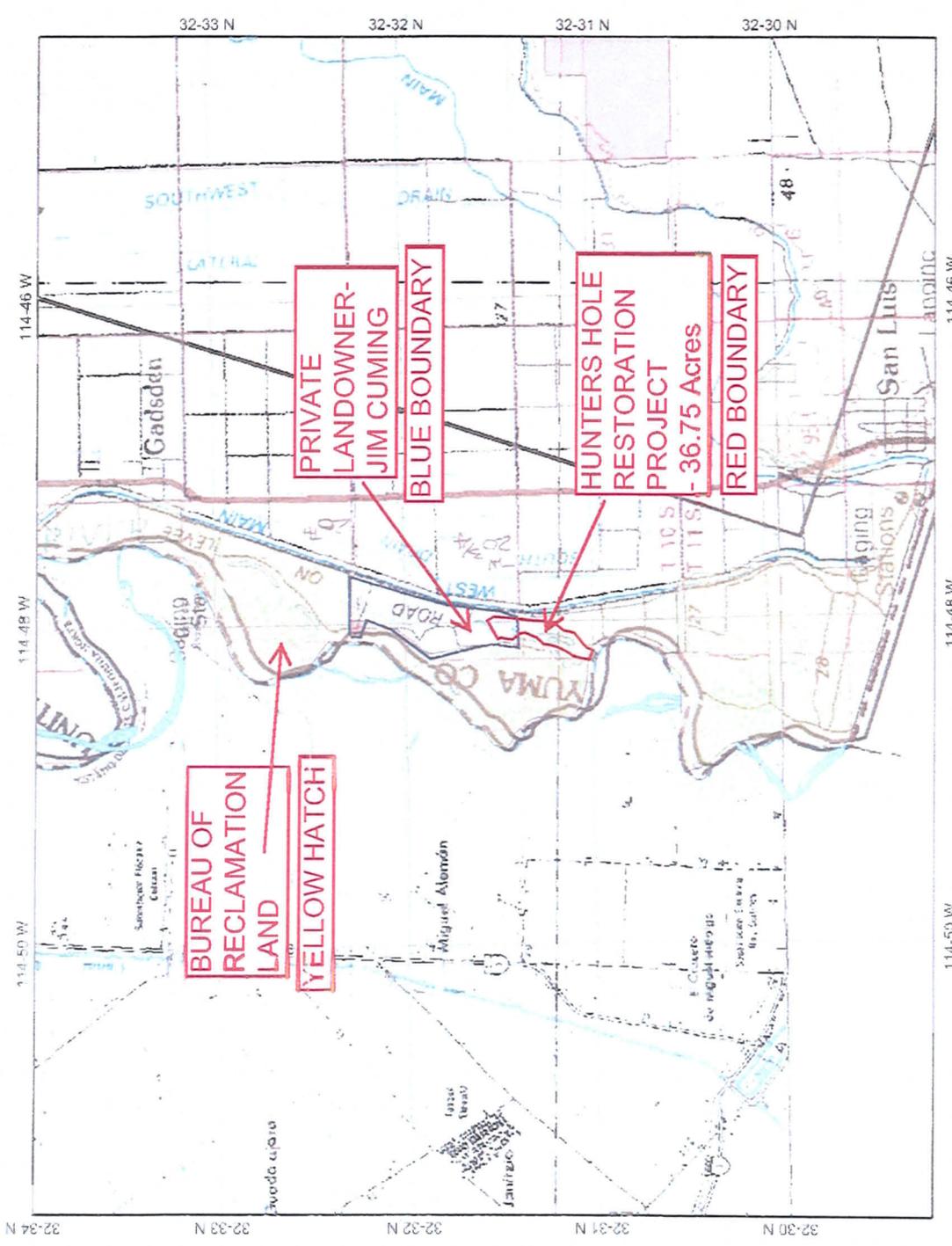


Figure 2. Hunter's Hole Land Ownership Map

Land Status/Hunter Hole



Map center: 32° 31' 34" N, 114° 48' 1" W

Scale: 1:61,561



Legend

- lcr_land_June_2007
- WITHDRAW1
- WITHDRAW2
- WITHDRAWN
- WITHDRAWN - INDIAN
- FEE
- EASMENT
- SOLD
- UNDEFINED
- Bndy_OvertonWMA
- Bndy_Security_Zones
- criver87
- LC_Lakes_poly_no_Mead_Moha-ve
- criver_all_arc_wo_res
- ca_trs
- az_trs
- NV_trs
- lcr_reg_bnd
- lcr_counties
- lcr_states_update
- Arizona
- California
- Nevada
- New Mexico
- Utah

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION

FIGURE 2- LANDOWNERSHIP MAP

Scope of Work: Task Descriptions

Task #1: Permits, Authorizations, Clearances and Agreements

Task Description: The Grantee shall obtain all permits, authorizations, clearances and agreements necessary to conduct the work described in this Scope of Work, including but not limited to cultural resource clearance (SHPO), NEPA compliance, necessary access agreements and resolutions in support of the project. All existing permit letters are provided as an attachment at the end of this document, including the Yuma Crossing National Heritage Area (YCNHA) and Bureau of Land Management and YCNHA and Bureau of Reclamation Resolutions and BOR water allocations. SHPO compliance, NEPA compliance (USFWS Section 7 Consultation), wetland delineation, USACOE Section 404 Permit, and HEC-RAS have been initiated and are proposed for completion by the initiation of this project.

Task Purpose: To comply with all local, state and federal permit requirements, environmental laws such as NEPA and obtain legal access to project area.

Deliverable Description: Copy of SHPO clearance, Wetland Delineation, USFWS Section 7 Consultation, NEPA compliance documentation, endangered species survey protocols and USACOE Section 404 Permit.

Deliverable Due Date: Prior to any ground disturbing activities

AWPF Reimbursable Cost: \$0

Task #2: Depth to Water and Soil Salinity Analyses

Task Description: The Depth to Water and Soil Salinity Analyses were completed for the project during the wetland delineation of the entire 435 acre Hunter's Hole Project Area. This task included evaluating the soil texture and salinity and depth to the water table within 11 transects across the site. Soils were evaluated at a total of 47 points and depth to water was evaluated at 59 points along these transects. While this information was necessary for the wetland delineation, the results will be used for evaluating the site conditions and selecting the appropriate native species to plant in each habitat type.

Task Purpose: To provide detailed information about the site and soil conditions in order to develop planting and monitoring designs. These maps will specify the percent of area suitable for the various riparian and wetland species (cottonwood/willow/mesquite).

Deliverable Description: The report will include a discussion of the depth to water and soil salinity analysis activities at the 36.75 acre site and will include a soil salinity and depth to water table maps of the site and all data collected.

Deliverable due date: 2 months after final contract execution

AWPF Reimbursable cost: \$0

Task #3: Prepare and Submit Restoration and Monitoring Plans

Task Description: The Grantee shall prepare and submit all plans necessary to conduct the Scope of Work described below. The project work plans shall consist of the following:

- Site Clearing and Herbicide Spraying Plan
The Site Clearing Plan will describe all the clearing activities and methodologies for invasive species removal for the 36.75 acre site. The site was burned within the last year and minimal clearing will have to be conducted to remove the re-sprouting vegetation and mulch the existing burned dead wood. This plan will contain a map that delineates how the remaining invasive vegetation will be sprayed with herbicide and existing dead wood burned.

- Excavation, Grading and Water Structure Schematic Design for CMAR Contract
Once site clearing is completed, the project design team and contractors will complete the final excavation, grading and CMAR design for the completion of the following by the Grantee:
 1. Excavation of existing open water and channels within the revegetation site. These open water channels and wetland areas will be connected to the well pumped water and MODE Canal Siphon inlet water. The bank line of these channels and graded riparian areas will be revegetated after the 36.75 acre revegetation plan is completed.
 2. Grading and leveling of the riparian and wetland areas adjacent to the open water channels.
 3. Construction of two stop log structures that will enable the water level in the channel to be raised and lowered.

- Revegetation Planting Design/Construction Documents for 36.75 Acre Revegetation Site
Based on the data collected in the Depth to Water and Soil Salinity Analyses in Task #2 the Grantee will develop a Revegetation Plan. The Revegetation Plan will include the following details:
 1. A detailed planting design for the revegetation of the 7.5 acres of cottonwood/willow habitat and 9.75 acres of mesquite bosque. The plan will include plant species type, plant spacing and planting methods.
 2. A detailed planting design for the revegetation of the 8,408 linear feet channel bank line and 10.25 acre wetland habitat.

The Revegetation Plan will also include a discussion of the irrigation schedule, invasive species control, and all maintenance activities and schedules.

- Monitoring Plan
The Monitoring Plan shall be designed to evaluate the success of the revegetation efforts and survival of the species planted. Monitoring activities shall consist of,

but not limited to photo points and measurement of vegetation growth and vigor. The Monitoring Plan shall also describe routine monitoring for damage to the revegetation due to wildlife or human activities. The Monitoring Plan shall include, at a minimum:

- Map(s), to scale, of the Project Area showing the proposed monitoring sites
- Attributes to be measured
- Rationale for the number and location of monitoring points
- Procedures used to measure attributes
- Equipment list
- Discussion of quality assurance/quality control
- Sample data sheets and photo point record sheets

Task Purpose: To develop detailed plans for constructing and monitoring 36.75 acres of riparian, wetland and aquatic habitat at Hunter's Hole located in the Limitrophe Division of the Colorado River.

Deliverable Description:

1. Site Clearing and Burning Plan
2. Excavation, Grading and CMAR Design plan for Grantee
3. Site Assessment and Analysis Plan
4. 36.75 Acre Revegetation Plan
5. Revegetation Monitoring Plan

Deliverable Due Date: Site Clearing Plan will be submitted one month after Contract Execution and completion of the remaining plans will be after appropriate work needed for completion of plan.

AWPF Reimbursable Cost: \$26,478

Task #4: Implement Site Clearing and Herbicide Spraying Plan

Task Description: During 2007, a wildfire occurred on the 36.75 acre site, burning all of the existing non-native vegetation. Therefore, the minimal site clearing will need to be conducted. This will include herbicide treatments on the re-colonizing invasive tamarisk and phragmites. The standing deadwood will be cleared using a bulldozer and the material will be mulched using a front end loader. The created mulch will be dispersed through out the site. Details for clearing activities will be listed in the site clearing plan.

Task Purpose: To clear invasive vegetation from the site and enable native plant restoration.

Deliverable Description: A report with photo/written documentation of the cleared 36.75 acre area and a site map.

Deliverable Due Date: 2 months after final contract execution.

AWPF Reimbursable cost: \$19,215

Task #5: Implement Site Land Leveling and Excavation and Water Control Structures

Task Description: Excavation of 9.25 acres of existing and proposed open water areas and channels will be conducted using an amphibious excavator, a hydraulic dredge, a low-track and bulldozer. The channel will be dredged until an average width of 32 feet and an average depth of 6-10 feet is attained. The open water pond areas will be an average depth of 6-10 feet. The channel banks will be contoured on a 3:1 slope to accommodate small flows. The bank line will extend 12 ft on both sides of the channel. The 17.75 acres of marsh and riparian habitat adjacent to the open water and channel areas will be graded to fulfill the appropriate habitat conditions. The 10.25 acres of wetland habitats will be excavated down to the saturated soil zone adjacent to the channels. These areas will be excavated to just above the water table to provide wetland conditions and flood irrigation from the adjacent tributary channel. The 7.5 acre cottonwood and willow riparian habitat area will be excavated down to within the depth to water tolerance range of these species. The remaining 9.75 acres of mesquite bosque habitat will retain the current topography.

Valuable existing native habitat (cattail/bulrush, cottonwood/willow and mesquite) will be avoided during excavation. The established ground water pump and existing MODE Canal siphon inlet will supply water to fill the channels. Stop log structures will be positioned in two locations in order to raise and lower the water levels in the channels.

More detailed plans for this task are outlined in the revegetation and monitoring plans section at the end of this grant.

Task Purpose: The primary purpose is to create 9.25 acres of open water and channel habitat that could be used to irrigate surrounding wetland and riparian areas, 10.25 acres of lowered wetland habitat, and 7.5 acres of cottonwood/willow habitat. This new topographic configuration will diversify habitats for terrestrial and wetland wildlife.

Deliverable Description:

1. A report including photos and written documentation showing the completion of the open water and channel excavation and wetland and riparian habitat grading. The report will also include an as built drawing of the completed work and any problems encountered during this phase of the project.

Deliverable due dates: 6 months after final contract execution

AWPF Reimbursable cost: \$290,464

Task #6: Revegetate 27.5 Acres of Native Habitat

Task Description: The 27.5 acres of wetland, riparian and upland area will be revegetated with the appropriate vegetation that matches the site conditions based on the Depth to Water and Soil Salinity Analysis completed in Task #2. The channel bankline will be planted with low-lying wetland vegetation on the toe of the slope within the channel and the slope will be planted with sandbar willow. Native seed will be dispersed throughout the slope plantings to inhibit exotic weed regeneration. All plant material in this area will be planted in the ground water, therefore irrigation is not necessary.

The graded and leveled 10.25 acre wetland areas will primarily be planted with threesquare bulrush. This species is low-lying which will promote line-of-site for border security. The 7.5 acre cottonwood and willow habitat will be planted using bioengineering techniques. This area will have a shallow depth to water and poles will be planted directly into the water table. The ground will also be planted with native riparian seed species (alkali sacaton, inland saltgrass and other native species) to prevent the regeneration of invasive species. These wetland and riparian areas will be flood irrigated by the raising the water levels in the channel with the stoplog structures. Prior to planting, native plant propagules, poles, and plugs will be prepared for planting. In areas where the depth to water is too deep and soil salinities are too high for cottonwood and willow, mesquites will be planted (9.75 acres). The mesquite bosque habitats will be irrigated using pumped flood irrigation.

The site will be maintained during the first two growing seasons. This will include irrigation system operation and maintenance, site weeding and replanting of dead trees. More detailed plans on this task are outlined in the revegetation and monitoring plans section at the end of this grant.

Task Purpose: The purpose of this task is to restore 27.5 acres of native wetland, riparian and upland habitat to the lower Colorado River and to ensure successful establishment of plantings.

Deliverable Description:

1. Annual/Bi-annual reports including planting and irrigation plans, photos, and project revegetation activities to date.
2. A final year report describing all revegetation construction activities for the 27.5-acre project.

Deliverable due dates: 12, 18, 24, 36 Months after Contract Execution

AWPF Reimbursable cost: \$266,084

Task #7: Post Revegetation Monitoring Surveys

Task Description: Following revegetation efforts, the monitoring activities outlined in the Monitoring Plan will be conducted. Monitoring will consist of bi-monthly plant monitoring during the growing season (May-October) of all revegetation that is completed to date in the 36.75 acre project. The variables that will be monitored will include native tree and shrub height measurements, survivorship, condition, and factors affecting growth; rate of exotic weed re-colonization; and success of native herbaceous ground cover growth. Monitoring will help determine success of the project by documenting native wetland and riparian vegetation establishment and survivorship and control of exotic species re-growth. Additionally, this monitoring effort will help guide future revegetation efforts within Hunter's Hole and the Limitrophe District of the lower Colorado River.

Deliverable Description: Annual and final monitoring reports on the revegetation activities and growth success for the 36.75 acre project. The reports will include a detailed description of all monitoring activities and results and will include photos, growth data and cover analyses, project activities to date.

Deliverable due dates: 12 and 24 months after contract execution.
AWPF Reimbursable cost: \$15,330

Task #8: Overall Project Coordination

Task Description: For every project of this scale there must be a coordinator that is intimately familiar with the grant contract, the deliverables involved and the standard procedures of the AWPf program. The Yuma Crossing National Heritage Area and the project consultant will execute the project coordination. Project Coordination will include negotiating contracts with outside services involved with the project to make sure: 1. All deliverables are being fulfilled as stated in the contract. 2. All reporting information and budgetary forms are submitted to the AWPf in a timely matter in accordance with the grant contract. 3. That any problems or difficulties that arise during the grant project are addressed and satisfactorily resolved. The Project coordination will also include gathering deliverables from the involved parties and packaging the quarterly, annual and final reports necessary for project completion.

Task Purpose: To update AWPf on all project activities and ensure that all project activities are properly coordinated and progressing in a timely manner.

Deliverable description: Semi-Annual Progress Reports with a narrative of all project activities that relate to the deliverables in Tasks #1- 7, including photographs and all data collected in tabular or graphical format.

Deliverable due date: As needed and stated with the other deliverables described in this grant application.
AWPF Reimbursable Cost: \$17,850

Task #9: Final Report

Task Description: The Grantee shall prepare and submit a comprehensive final report in accordance with the Arizona Water Protection Fund Final Report Guidelines. The final report shall include a summary of all methodologies used, outcomes of all Tasks, analysis of all Project data, suggestions for any changes or future actions, and an evaluation of the success of meeting Project objectives. The Grantee shall provide all data generated under this Contract, unless otherwise specified in the Special Provisions.

Task Purpose: To provide a comprehensive final report for public distribution that gives a detailed description of the project and showcases its benefits to the State of Arizona.

Deliverable description: Final report
Deliverable due date: 36 months after contract execution
AWPF Fixed Cost: \$12,968

DETAILED BUDGET BREAKDOWN
Yuma Crossing National Heritage Area
Hunters Hole Riparian and Wetland Restoration Project

Item	AWPF Funding Request			
	Item/Hours	Unit	Rate	Total
Task #1 Permits, Authorizations, Clearances and Agreements				
In Progress (See match Sheet for details)				\$ -
Total for Task #1				\$ -
Task #2: Depth to Water and Soil Salinity Analyses				
Total for Task #2				\$ -
Task #3 Prepare and Submit Restoration and Monitoring Plans				
Site Clearing and Herbicide Spraying Plan				
Outside Services:				
Principle	12	Hours	\$ 85.00	\$ 1,020.00
Wildlife Biologist, MS	12	Hours	\$ 70.00	\$ 840.00
Autocadd/Arcview Operator	12	Hours	\$ 65.00	\$ 780.00
Other direct costs:				
Printing	Color Copies	30	\$ 1.00	\$ 30.00
	B & W Copies	200	\$ 0.10	\$ 20.00
Excavation, Grading and Water Structure Schematic Design for CMAR Contract				
Outside Services				
Principle	30	Hours	\$ 85.00	\$ 2,550.00
AutoCAD/Arc view Operator	40	Hours	\$ 70.00	\$ 2,800.00
CMAR Contractor	25	hours	\$ 65.00	\$ 1,625.00
Other Direct Costs:				
Travel	8	Days	\$ 96.00	\$ 768.00
Mileage	1400	Miles	\$ 0.57	\$ 798.00
Revegetation Planting Design/Construction Documents for 36.75 Acre Revegetation Site				
Outside Services:				
Principal	30	Hours	\$ 85.00	\$ 2,550.00
Ecologist II	50	Hours	\$ 65.00	\$ 3,250.00
Arc View/Cadd Operator	40	Hours	\$ 65.00	\$ 2,600.00
Other Direct Costs:				
Printing /Materials	Color Copies			
Color Copies 11x17"	40	each	\$ 2.00	\$ 80.00
Color Copies 8.5X11"	20	each	\$ 1.00	\$ 20.00
B&W Copies 8.5"X11"	100	each	\$ 0.10	\$ 10.00
Coil Binding	0	each	\$ 5.25	\$ -
24"x36" Color Plots	38	square feet	\$ 5.00	\$ 190.00
Travel Estimated	6	Days	\$ 96.00	\$ 576.00
Mileage	1400	Miles	\$ 0.57	\$ 798.00
Monitoring Plan				
Outside Services:				
Ecologist II	40	Hours	\$ 65.00	\$ 2,600.00
Arc View/Cadd Operator	20	Hours	\$ 65.00	\$ 1,300.00
Other Direct Costs:				
Color Copies 8.5X11"	4	each	\$ 1.00	\$ 4.00
B&W Copies 8.5"X11"	80	each	\$ 0.10	\$ 8.00
Subtotal				\$ 25,217.00
Administration: (5%)				\$ 1,260.85
Total for Task #3				\$ 26,478.00

Item	AWPF Funding Request			
	Item/Hours	Unit	Rate	Total
Task #4 Implement Site Clearing and Herbicide Spraying				
Outside Services:				
Pre Survey for land level design by Cmar Contractor	37	Acres	\$ 50.00	\$ 1,850.00
Bobcat with Hydro Axe Mulcher	10	Days	\$ 500.00	\$ 5,000.00
D6 H LGP Dozer	20	Hours	\$ 165.00	\$ 3,300.00
Gradeall with Tree Chopper	20	Hours	\$ 165.00	\$ 3,300.00
Supervision / Service (contractor)	20	Hours	\$ 75.00	\$ 1,500.00
Construction Oversight (consultant)	20	Hours	\$ 85.00	\$ 1,700.00
Other Direct Costs				
2 portable toilets with weekly service @ \$70 ea per mo.	2	months	\$ 120.00	\$ 240.00
Security Light Plant	2	months	\$ 200.00	\$ 400.00
Dump Fees:	10	Loads	\$ 65.00	\$ 650.00
Survey Equipment Rental	3	days	\$ 120.00	\$ 360.00
Subtotal				\$ 18,300.00
Administration: (5%)				\$ 915.00
Total for Task #4				\$ 19,215.00
Task #5: Implement Site Land Leveling and Excavation and Water Control Structures				
Outside Services:				
Mobilize and Prep Work				
Earthmoving	8	Loads	\$ 650.00	\$ 5,200.00
Prep Road for Concrete Trucks	1	LS for 35 Miles	\$ 5,000.00	\$ 5,000.00
Channel Excavation				
350 L Excavator	190	Hours	\$ 190.00	\$ 36,100.00
2- A25 C Trucks	190	Hours	\$ 250.00	\$ 47,500.00
Grade Checker	190	Hours	\$ 45.00	\$ 8,550.00
1165 Case Angle Dozer	190	Hours	\$ 135.00	\$ 25,650.00
1/2 Blade	190	Hours	\$ 62.50	\$ 11,875.00
Earthwork and Laser Leveling 27.75 Acres				
D6 H LGP Dozer	60	Hours	\$ 165.00	\$ 9,900.00
350 L Excavator	60	Hours	\$ 190.00	\$ 11,400.00
2- A25 C Trucks	60	Hours	\$ 250.00	\$ 2,700.00
Blade	60	Hours	\$ 140.00	\$ 8,400.00
Grade Checker	60	Hours	\$ 45.00	\$ 2,700.00
Laser Equipment	60	Hours	\$ 15.00	\$ 900.00
623 Scraper	60	Hours	\$ 190.00	\$ 11,400.00
Dust Control	60	Hours	\$ 135.00	\$ 8,100.00
Equipment Service	60	Hours	\$ 45.00	\$ 2,700.00
Contract Foreman	40	Hours	\$ 75.00	\$ 3,000.00
Construction oversight of channel construction Principal	40	Hours	\$ 85.00	\$ 3,400.00
Other Direct Costs:				
Construction of 72" Stop Log Water Control Structures				
Pump Inlet/Outlet 48" Structure	2	EA	\$ 35,000.00	\$ 70,000.00
Travel	10	Days	\$ 96.00	\$ 960.00
Mileage	2100	Miles	\$ 0.57	\$ 1,197.00
Subtotal				\$ 276,632.00
Administration: (5%)				\$ 13,831.60
Total for Task #5				\$ 290,464.00
Task #6: Revegetate 27.5 Acres of Native Habitat				
Construction Oversight of 27.5 Acre Revegetation				
Outside Services:				
Principal	40	Hours	\$ 85.00	\$ 3,400.00
Ecologist II	65	Hours	\$ 65.00	\$ 4,225.00
Other Direct Costs:				
Travel Estimated	10	Days	\$ 96.00	\$ 960.00

Item	AWPF Funding Request			
	Item/Hours	Unit	Rate	Total
Mileage	2100	Miles	\$ 0.57	\$ 1,197.00
8,408 LF of Channel Bank Revegetation (2 acres)				
Outside Services:				
Planting Labor	Lump		\$ 13,600.00	\$ 13,600.00
(5 laborersx2 wksx40hrs/wkx\$25/hr) (Foreman 2 wksx40hrs/wkx\$45/hr)				
Capital Outlay:				
6 Foot poles for Bankline Pole Planting and vertical bundles	2000	Poles	\$ 1.50	\$ 3,000.00
1 gallon sandbar willows	500	Propagules	\$ 3.00	\$ 1,500.00
Seed Mix	12	LBS	\$ 50.00	\$ 600.00
Glue, Gloves and Shovels	1		\$ 100.00	\$ 100.00
Other Direct Costs:				
Travel Mileage	1500	Miles	\$ 0.57	\$ 855.00
Per Diem	6	Days	\$ 96.00	\$ 2,400.00
ATV Rental	10	Days	\$ 70.00	\$ 700.00
Truck Rental	2	Weeks	\$ 250.00	\$ 500.00
Trailer rental	10	Days	\$ 75.00	\$ 750.00
Mini-excavator rental (for planting trenches on bankline)	5	Days	\$ 550.00	\$ 2,750.00
Riparian Revegetation of 25.5 Acres				
Outside Services:				
Planting Labor	Lump		\$ 20,400.00	\$ 20,400.00
(5 laborersx3 wksx40hrs/wkx\$25/hr) (Foreman 3 wksx40hrs/wkx\$45/hr)				
Capital Outlay:				
3 Foot poles for Pole Planting in Fields	2000	Poles	\$ 1.20	\$ 2,400.00
1 gallon cottonwood, mesquite and willows	5000	Propagules	\$ 2.90	\$ 14,500.00
Inland Salt Grass/Alkalai Sacaton Plugs	3000	Plugs	\$ 1.20	\$ 3,600.00
Three Square Plugs #"	3000	Plugs	\$ 1.20	\$ 3,600.00
Seed Mix	40	LBS	\$ 50.00	\$ 2,000.00
8" CMP John Deere Diesel Irrigation Pump for Flood irrigation of Mesquite Area	1	Each	\$ 35,000.00	\$ 35,000.00
Fuel for Water Delivery (Two Years)	3,420.0	Gallons	\$ 5.00	\$ 17,100.00
38 irrigation sessions a yearx2years (flood irr 25.5 ac 4x/month April-Oct and 2x month Nov-Mar)				
Each water session takes 15 hours pump time x 3gal/hr x38sessions x\$5 gal gas (for gas/oil and pump repairs)				
Other Direct Costs:				
Bobcat Rental (to auger 5000 holes for 1 gallon pots and willow clusters)	24	Days	\$ 500.00	\$ 12,000.00
Trailer Rental	15	Days	\$ 75.00	\$ 1,995.00
Hydraulic Auger (for pole plantings)	10	Days	\$ 70.00	\$ 700.00
ATV Rental	15	Days	\$ 70.00	\$ 1,050.00
Truck Rental (2 trucks x \$300/wk)	3	Weeks	\$ 600.00	\$ 1,800.00
Travel Estimated	16	Days	\$ 96.00	\$ 1,536.00
Travel Mileage	3500	Miles	\$ 0.57	\$ 1,995.00
Two Year Site Weed Maintenance/Discing/Irrigation/Month	20.0	Months	\$ 4,860.00	\$ 97,200.00
One month includes two maintenance people 20 hrs wkx4 wks/\$20/hr				
(Foreman 8 hrs/month @ \$45/hr) (Truck use \$300/week*4weeks=\$1200)				
(garlon herbicide 1 gal/\$100 gal/month (\$100/month grant)				
Subtotal				\$ 253,413.00
Administration: (5%)				\$ 12,670.65
Total for Task #6				\$ 266,084.00
Task #7: Two-Year Post Revegetation Monitoring				
Year One Plant Monitoring (bi-monthly 4 sessions 1.5 days session)				
Outside Services:				
Ecologist II	40	Hours	\$ 65.00	\$ 2,600.00
Laborer	40	Hours	\$ 25.00	\$ 1,000.00

Item	AWPF Funding Request			
	Item/Hours	Unit	Rate	Total
Plant Monitoring Report, FPC Ecologist II	50	Hours	\$ 65.00	\$ 3,250.00
Other Direct Costs:				
ATV Rental	6	Days	\$ 70.00	\$ 420.00
Year Two Plant Monitoring (2 sessions in May and October)				
Outside Services:	30			
Ecologist II	30	Hours	\$ 65.00	\$ 1,950.00
Laborer	30	Hours	\$ 25.00	\$ 750.00
Plant Monitoring Report, FPC Ecologist II	50	Hours	\$ 65.00	\$ 3,250.00
Other Direct Costs:				
ATV Rental	3	Days	\$ 70.00	\$ 210.00
Printing and Photomonitoring (for both years of reporting year one and two 10 copies of report each year)				
Fence Posts and Orange Fencing for Transects and Photo Points	16	Each	\$ 5.00	\$ 80.00
Fed EX	6	Each	\$ 20.00	\$ 120.00
Color Copies 11x17"	120	Each	\$ 2.00	\$ 240.00
Color Copies 8.5X11"	250	Each	\$ 1.00	\$ 250.00
B&W Copies 8.5"X11"	250	Each	\$ 0.10	\$ 25.00
Coil Binding	20	Each	\$ 5.25	\$ 105.00
24"x36" Color Plots	70	Square Feet	\$ 5.00	\$ 350.00
Subtotal				\$ 14,600.00
Administration: (5%)				\$ 730.00
Total for Task #7				\$ 15,330.00
Task #8 Overall Project Coordination				
Outside Services:				
Principal	200	Hours	\$ 85.00	\$ 17,000.00
Subtotal				\$ 17,000.00
Administration: (5%)				\$ 850.00
Total for Task #8				\$ 17,850.00
Task #9 Final Report				
Outside Services:				
Principal	40	Hours	\$ 85.00	\$ 3,400.00
Ecologist II	70	Hours	\$ 65.00	\$ 4,550.00
Principal Biologist	30	Hours	\$ 70.00	\$ 2,100.00
Editor	40	Hours	\$ 50.00	\$ 2,000.00
Other Direct Costs:				
Printing Materials Postage (4 copies of final report)				
Fed EX	2	Each	\$ 20.00	\$ 40.00
Color Copies 11x17"	41	Each	\$ 2.00	\$ 82.00
Color Copies 8.5X11"	85	Each	\$ 1.00	\$ 85.00
B&W Copies 8.5"X11"	120	Each	\$ 0.10	\$ 12.00
Coil Binding	4	Each	\$ 5.25	\$ 21.00
24"x36" Color Plots	12	Square Feet	\$ 5.00	\$ 60.00
Subtotal				\$ 12,350.00
Administration: (5%)				\$ 618.00
Total for Task #9				\$ 12,968.00
Total Grant Request				\$ 648,389.00

DETAILED MATCHING FUNDS BREAKDOWN
Yuma Crossing National Heritage Area
Hunters Hole Riparian and Wetland Restoration Project

Yuma Crossing National Heritage Area				
Item	Item/Hours	Unit	Rate	Total
Task #1 Permits, Authorizations, Clearances and Agreements				
Wetland Delineation				
Outside Services:				
Data Collection and Review	12	Hours	\$ 100.00	\$ 1,200.00
Principal, Certified Delineator	16	Hours	\$ 100.00	\$ 1,600.00
Ecologist, Certified Delineator (includes travel time)	80	Hours	\$ 85.00	\$ 6,800.00
Field Technician (includes travel time)	64	Hours	\$ 55.00	\$ 3,520.00
Botanist	16	Hours	\$ 70.00	\$ 1,120.00
Other Direct Costs:				
Trimble GPS Rental	8	Days	\$ 90.00	\$ 720.00
ATV Rental	8	Days	\$ 100.00	\$ 800.00
Backhoe	24	Days	\$ 65.00	\$ 1,560.00
Per Diem	14	Days	\$ 90.00	\$ 1,260.00
Mileage	2000	Miles	\$ 0.51	\$ 1,020.00
Wetland Delineation Report- Analyze Field Data, Map and Photo Sheet Production				
Outside Services:				
Principal, Certified Delineator	16	Hours	\$ 100.00	\$ 1,600.00
Ecologist, Certified Delineator	40	Hours	\$ 85.00	\$ 3,400.00
Ecologist- Photos, Contact Sheets	16	Hours	\$ 75.00	\$ 1,200.00
GIS/AutoCAD Operator	24	Hours	\$ 75.00	\$ 1,800.00
Other Direct Costs:				
Postage	1	Lump	\$ 60.00	\$ 60.00
Printing and Materials	1	Lump	\$ 1,000.00	\$ 1,000.00
Completion of USFWS Nepa Process (BE, EIS, Section Seven)				
Outside Services:				
USBR Project Manager	100	Hours	\$ 90.00	\$ 9,000.00
USBR Biologist	100	Hours	\$ 75.00	\$ 7,500.00
USBR Compliance Specialist	50	Hours	\$ 55.00	\$ 2,750.00
PC Director	10	Hours	\$ 100.00	\$ 1,000.00
PC Biologist, MS	50	Hours	\$ 85.00	\$ 4,250.00
Landscape Architect/Cadd/GIS Mapping	30	Hours	\$ 75.00	\$ 2,250.00
Completion of ACOE 404 Dredging and Restoration Permit				
Outside Services:				
PC Director	60	Hours	\$ 100.00	\$ 6,000.00
PC Biologist, MS	40	Hours	\$ 85.00	\$ 3,400.00
Total for Task #1				\$ 64,810.00
Task #2: Depth to Water and Soil Salinity Analyses				
Hydraulic Model of Concept Design				
Outside Services:				
Civil Engineer, Hydraulic model	40	Hours	\$ 100.00	\$ 4,000.00
Civil Engineer, Prepare Report	28	Hours	\$ 100.00	\$ 2,800.00
Civil Engineer, Coordinate with BOR, others	40	Hours	\$ 100.00	\$ 4,000.00
Landscape Architect	40	Hours	\$ 75.00	\$ 3,000.00
Other Direct Costs:				
Per Diem	6	Days	\$ 100.00	\$ 600.00
Plane Time (3 trips flagstaff)	12	Days	\$ 100.00	\$ 1,200.00
Printing and Materials	1	Lump	\$ 300.00	\$ 300.00
Total for Task #2				\$ 15,900.00
Task #3 Prepare and Submit Restoration and Monitoring Plans				
Direct Labor Costs:				
Grants Administrator Salary	30	Hours	\$ 40.00	\$ 1,200.00
Fringe	30	Hours	\$ 4.90	\$ 147.00
Senior Planner Salary	50	Hours	\$ 60.00	\$ 3,000.00
Fringe	50	Hours	\$ 12.20	\$ 610.00
Total for Task #3				\$ 4,957.00
Task #4 Implement Site Clearing and Herbicide Spraying				
Direct Labor Costs:				
Grants Administrator Salary	30	Hours	\$ 40.00	\$ 1,200.00
Fringe	30	Hours	\$ 4.90	\$ 147.00
Senior Planner Salary	200	Hours	\$ 60.00	\$ 12,000.00
Fringe	200	Hours	\$ 12.20	\$ 2,440.00
Total for Task #4				\$ 15,787.00
Task #5: Implement Site Land Leveling and Excavation and Water Control Structures				
Direct Labor Costs:				

Yuma Crossing National Heritage Area				
Item	Item/Hours	Unit	Rate	Total
Grants Administrator Salary	30	Hours	\$ 40.00	\$ 1,200.00
Fringe	30	Hours	\$ 4.90	\$ 147.00
Senior Planner Salary	30	Hours	\$ 60.00	\$ 1,800.00
Fringe	30	Hours	\$ 12.20	\$ 366.00
Total for Task #5				\$ 3,513.00
Task #6: Revegetate 27.5 Acres of Native Habitat				
Direct Labor Costs:				
Grants Administrator Salary	30	Hours	\$ 40.00	\$ 1,200.00
Fringe	30	Hours	\$ 4.90	\$ 147.00
Senior Planner Salary	60	Hours	\$ 60.00	\$ 3,600.00
Outside Services:				
Two Year Site Weed Maintenance/Discing/Irrigation/Monthly One month includes one maintenance person 10 hrs wkx4 wks/\$18/hr plus \$200 parts/herbicide/truck (Truck use \$175/week*4weeks=\$700)	20.0	Months	\$ 1,520.00	\$ 30,400.00
Fringe	60	Hours	\$ 12.20	\$ 732.00
Total for Task #6				\$ 36,079.00
Task #7: Two-Year Post Revegetation Monitoring				
Direct Labor Costs:				
Grants Administrator Salary	15	Hours	\$ 40.00	\$ 600.00
Fringe	15	Hours	\$ 4.90	\$ 73.50
Senior Planner Salary	30	Hours	\$ 60.00	\$ 1,800.00
Fringe	30	Hours	\$ 12.20	\$ 366.00
Total for Task #7				\$ 2,839.50
Task #8 Overall Project Coordination				
Direct Labor Costs:				
Grants Administrator Salary	30	Hours	\$ 40.00	\$ 1,200.00
Fringe	30	Hours	\$ 4.90	\$ 74.00
Senior Planner Salary	30	Hours	\$ 60.00	\$ 1,800.00
Fringe	30	Hours	\$ 12.20	\$ 366.00
Total for Task #8				\$ 3,440.00
Task #9 Final Report				
Direct Labor Costs:				
Grants Administrator Salary	30	Hours	\$ 40.00	\$ 1,200.00
Fringe	30	Hours	\$ 4.90	\$ 147.00
Senior Planner Salary	30	Hours	\$ 60.00	\$ 1,800.00
Fringe	30	Hours	\$ 12.20	\$ 366.00
Total for Task #9				\$ 3,513.00
Total Match				\$ 150,838.50

STATE HISTORIC PRESERVATION OFFICE Review Form

In accordance with the State Historic Preservation Act (SHPO), A.R.S. 41-861 *et seq*, effective July 24, 1982, each State agency must consider the potential of activities or projects to impact significant cultural resources. Also, each State agency is required to consult with the State Historic Preservation Officer with regard to those activities or projects that may impact cultural resources. Therefore, it is understood that **recipients of state funds are required to comply with this law** throughout the project period. All projects that affect the ground-surface that are funded by AWPf require SHPO clearance, **including those on private and federal lands.**

The State Historic Preservation Office (SHPO) must review each grant application recommended for funding in order to determine the effect, if any, a proposed project may have on archaeological or cultural resources. To assist the SHPO in this review, the following information **MUST** be submitted with each application for funding assistance:

- A completed copy of this form, and
 - A United States Geological Survey (USGS) 7.5 minute map
 - A copy of the cultural resources survey report if a survey of the property has been conducted, and
 - A copy of any comments of the land managing agency/landowner (i.e., state, federal, county, municipal) on potential impacts of the project on historic properties.
- NOTE: If a federal agency is involved, the agency must consult with SHPO pursuant to the National Historic Preservation Act (NHPA); a state agency must consult with SHPO pursuant to the State Historic Preservation Act (SHPA),
- OR**
- A copy of SHPO comments if the survey report has already been reviewed by SHPO.

Please answer the following questions:

1. Grant Program: _____
2. Project Title: Hunters Hole Restoration Project
3. Applicant Name and Address: Yuma Crossing National Heritage Area Corporation, 180 W. First Street, Suite E, Yuma AZ 85364-1407
4. Current Land Owner/Manager(s): Bureau of Reclamation - Reclamation Withdrawn Lands.
5. Project Location, including Township, Range, Section: Portions of sections 23, 26, 27, 34, and 35 of T. 10 S., R. 25 W. GRSRB&M.
6. Total Project Area in Acres (or total miles if trail): 36.75 acres
7. Does the proposed project have the potential to disturb the surface and/or subsurface of the ground?
 YES NO
8. Please provide a brief description of the proposed project and specifically identify any surface or subsurface impacts that are expected: Proposed project will restore deteriorated wetlands by reestablishing sufficient water surface in the ponds, and also reestablish additional riparian habitat. A groundwater well will supply water to the ponds. Existing ponds and historic channels would be excavated (deepened) and cleared of non-native vegetation. Material excavated would be placed along the outside perimeter of the

pond area to create a protective berm/levee. Wetland vegetation will be planted along the shoreline. In addition, native trees and grasses would be planted throughout the site in the higher ground areas.

9. Describe the condition of the current ground surface within the entire project boundary area (for example, is the ground in a natural undisturbed condition, or has it been bladed, paved, graded, etc.). Estimate horizontal and vertical extent of existing disturbance. Also, attach photographs of project area to document condition: Proposed project site where the existing ponds are located experienced a recent wildfire in late October 2007 that wiped out all remaining vegetation in the area. Also in 2007 (spring) the project site (area outside the ponds) was cleared of non native vegetation as part of a Homeland Security Project. Project site is located within an active floodplain that has been impacted by flooding. Currently the area is dry and saltcedar is starting to reestablish in the area.

10. Are there any known prehistoric and/or historic archaeological sites in or near the project area? YES NO

11. Has the project area been previously surveyed for cultural resources by a qualified archaeologist? YES NO UNKNOWN

If YES, submit a copy of the survey report. Please attach any comments on the survey report made by the managing agency and/or SHPO

12. Are there any buildings or structures (including mines, bridges, dams, canals, etc.), which are 50-years or older in or adjacent to the project area? YES NO

If YES, complete an Arizona Historic Property Inventory Form for each building or structure, attach it to this form and submit it with your application.

13. Is your project area within or near a historic district? YES NO

If YES, name of the district: The Project area borders the historic Yuma Irrigation Project, essentially a historic district.

Please sign on the line below certifying all information provided for this application is accurate to the best of your knowledge.

Applicant Signature /Date

Applicant Printed Name

FOR SHPO USE ONLY

SHPO Finding:

- Funding this project will not affect historic properties.
- Survey necessary – further GRANTS/SHPO consultation required (*grant funds will not be released until consultation has been completed*)
- Cultural resources present – further GRANTS/SHPO consultation required (*grant funds will not be released until consultation has been completed*)

Supporting information for questions 10 – 13 of the AWPf SHPO review forms.

Questions:

10. Yes.

Multi-component site AZ X:9:13 (ASM) was recently recorded by ASM Affiliates (Shelley and Schaefer 2008). That report is currently under review by the Bureau of Reclamation. The site appears to be not-eligible for the National Register based on poor integrity.

The West Main Canal and Yuma Valley Levee are considered contributing elements of the NRHP eligible Yuma Irrigation Project (AZ SHPO concurred with Reclamation's eligibility determination in April 2003). Both features are adjacent to the current project area but neither will be impacted by the project.

11. Yes.

The project area was recently inventoried by ASM Affiliates to Class III standards (Shelley and Schaefer 2008).

12. Yes,

See #10 above. (We can provide a copy of the final report and site forms when ASM resubmits the report). Inventory forms for the Yuma Project features are enclosed.

13. Yes,

The project area borders the historic Yuma Irrigation Project, essentially an historic district.

Renee Corona Kolvet
Environmental Protection Specialist/Archeologist
Bureau of Reclamation, Lower Colorado Regional Office
500 Fir Street (LC-2632)
Boulder City, NV 89005
Telephone: (702) 293-8443
Fax: (702) 293-8146



United States Department of the Interior



BUREAU OF RECLAMATION
Yuma Area Office
7301 Calle Agua Salada
Yuma, Arizona 85364

IN REPLY REFER TO:

YAO-7210
ENV-11.00

JUN 06 2008

Mr. Charles Flynn
Executive Director
Yuma Crossing National Heritage Area Corporation
180 West First Street, Suite E
Yuma, AZ 85364-1407

Subject: Hunters Hole Restoration Project (Project) - Arizona Water Protection Fund Grant
Application Requirements

Dear Mr. Flynn:

The Bureau of Reclamation, Yuma Area Office is providing you with information requested by your office to help complete the requirements of the Arizona Water Protection Fund grant application process. This information will assist you in your efforts to solicit funds for the proposed Project and provide supporting documentation of land accessibility and water availability for the Project.

The proposed Project is located along the lower Colorado River's Limitrophe Division, below Morelos Dam, on Reclamation withdrawn lands (federal managed lands), see enclosed map. The Project area is located south of Gadsden, Arizona all within portions of sections 23, 26, 27, 34, and 35 of Township 10 South, Range 25 West, Gila Salt River Meridian Yuma County, Arizona.

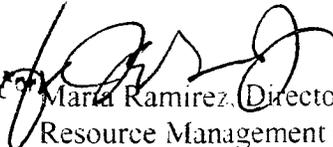
Any project undertaken on federal lands requires issuance of a permit, license, easements, and/or crossing agreement. As the lead federal agency, Reclamation would issue to the Yuma Crossing National Heritage Area (YCNHA) a license to use Reclamation lands. The proposed license would grant the YCNHA (including their consultants) use of the site for a term of up to 25 years. The YCNHA would be required to apply for this license by submitting a Right-of-Use Application before project implementation. The license would not be issued until the National Environmental Policy Act (NEPA) process is completed and design plans have been reviewed and approved by Reclamation.

To ensure compliance with Section 106 of the National Historic Preservation Act (NHPA), Reclamation proposes to consult with the Arizona State Historic Preservation Office (SHPO). A cultural resources survey (class III) was conducted on the Project area in the fall of 2007 by Reclamation's cultural resources consultant (ASM Affiliates). Once the report is completed, Reclamation will submit the report to SHPO for review and concurrence.

If you have any questions, please contact Mr. Sean Torpey, Environmental and Compliance Group Manager at 928-343-8268 and/or Mr. Julian DeSantiago, Environmental Protection Specialist at telephone No. 928-343-8259.

Sincerely,

Acting


Maria Ramirez, Director
Resource Management Office

Enclosures - 4

1. Maps
2. Master title plats
3. County assessor plats
4. AWPf SHPO review form

cc: Ms. Heidi Kloeppe
Principle Biologist
Fred Phillips Consulting LLC
9730 Rosewood Drive
Flagstaff, AZ 86004
(w encl)

Survey Forms

Yuma Valley Levee and West Main Canal

**Department of the Interior
BUREAU OF RECLAMATION**

HISTORIC RESOURCES INVENTORY RECORD

IDENTIFICATION AND LOCATION									
1. Historic Name		Levee, Valley					Ser. No.		
2. Common or Current Name		same					National Register status 3D		
Reclamation Field Number		Y59; AZ X:5:10; AZ X:6:15					Local designations		
3. Number and Street			n.a.			State		Arizona	
City	Yuma		Vicinity only		X	Zip	n.a.	County	Yuma
4. UTM Zone		A	721060		B	708220		C	D
11			3623440			3596380			
5. Quad Map No.		Parcel No.		Other					
Section(s)		Beg 35, End 12			Township		16 S, 11 S	Range	22 E, 25 W
Quad Map Name		USGS Yuma West 7.5' 1965 PR1979, USGS Grays Well NE 7.5' 1964 PR1979, USGS Gadsden 7.5' 1965							
DESCRIPTION									
6. Property Category		structure			If district, number of documented resources				
7. Briefly describe the present physical appearance of the property, including condition, boundaries, related features, surroundings, and (if appropriate) architectural style.									
<p>The Yuma Valley Levee is an earthen levee with sloping sides blanketed by rocks to prevent erosion. The levee extends from the City of Yuma along east bank of the Colorado River to the Mexican boundary.</p>									
8. Planning Agency		Bureau of Reclamation, Lower Colorado Region, Yuma Projects Office							
9. Owner and Address		Bureau of Reclamation, Lower Colorado Region, Yuma Projects Office, Yuma, Arizona							
10. Type of Ownership		Federal							
11. Present use		irrigation							
12. Zoning		agriculture							
13. Threats		none identified at this time							

Photographs and Location Maps Attached on Supplemental Pages

This form used in lieu of California and Arizona state inventory forms with approval by both State Historic Preservation Offices.

HISTORICAL INFORM.

Field Number: Y59

14. Construction date(s)	October 1905-March 1906	Original Location	Yes	Date moved	
15. Alterations and date					
16. Architect		Builder	Miller & Peasley, Reclamation (USRS or BOF)		
17. Historic attributes (with number from list): 2j--levee					

RECLAMATION STATUS

Constructed	Jurisdiction	Administers	Operates/Maintains
Yes	Yes	No	No

SIGNIFICANCE AND EVALUATION

18. Context for evaluation: Theme	Reclamation, Irrigation, Agriculture	Area	Yuma Valley
Period	1902-present	Property Type	irrigation structure
		Context formally developed?	Yes

19. Briefly discuss the property's importance within the context. Use historical and architectural analysis as appropriate. Compare with similar properties.

The Yuma Valley Levee was the first of a series of levees built on the Yuma Project to protect the City from floods of the Gila and Colorado Rivers. Construction of the levees began in 1905 with the bulk of work being completed by 1912. Thereafter, maintenance and repair work was performed, especially following damaging floods. The levee system was completed by 1920. The Yuma Valley Levee was the first of the levees constructed. The initial portion, constructed in 1905, extended south from Yuma along the eastern bank of the Colorado River. Work was accomplished under a contract with Miller & Peasley of Los Angeles. Between 1907-1911, the levee was extended to the Mexican boundary by force account. The Yuma Valley Railroad was constructed on top of the Valley Levee between 1914-1915. (see Y58) The Valley Levee is an integral part of the Yuma Project irrigation system, a historic resource which is eligible for the National Register of Historic Places. This feature is not individually eligible, but contributes to the function and significance of the irrigation system.

20. Sources

Stanley, J.W. Brief History of Colorado River Levees Near Yuma, Arizona. 1955.

21. Applicable National Register criteria	Criteria A and C
22. Other recognition	
State Landmark No. (if applicable)	
23. Evaluator	Christine Pfaff (Architectural Historian), Rolla Queen (Historical Archaeologist)
Date of evaluation	2/92 and 4/92
24. Survey type	C (Comprehensive)
25. Survey name	The Historic Yuma Project Inventory
26. Year form prepared	1992
By (name)	Christine Pfaff, Rolla Queen, and David Clark
Organization	Bureau of Reclamation
Address	PO Box 25007, Bldg 67, Denver Federal Center
City & Zip	Denver, Colorado 80225
Phone	303-236-8742/8747



DESCRIPTION: Yuma Valley Levee

PROJECT: Historic Yuma Project Inventory

ROLL: 10

FRAME: 4

SITE: Field Number Y59; AZ X:5:10; AZ X:6:15

VIEW:

DATE: Feb-April 1992

PHOTO BY: Rolla Queen/Christine Pfaff

Photo Record Attachment

Department of the Interior
BUREAU OF RECLAMATION

HISTORIC RESOURCES INVENTORY RECORD

IDENTIFICATION AND LOCATION									
1. Historic Name	Canal, West Main (Valley)					Ser. No.			
2. Common or Current Name	same					National Register status 3D			
Reclamation Field Number	Y57; AZ X:5:9; AZ X:6:63					Local designations			
3. Number and Street	n.a.				State		Arizona		
City	Yuma		Vicinity only		X	Zip	n.a.	County	Yuma
4. UTM Zone	A	721840		B	707280		C		D
	11	3623000			3596840				
5. Quad Map No.	Parcel No.				Other				
Section(s)	Beg 34, End 11				Township		16 S, 11 S	Range	23 W, 25 W
Quad Map Name	USGS Yuma West 7.5 1965 PR1979, USGS Grays Well NE 7.5' 1965 PR1979, USGS Gadsden 7.5' 1965								
DESCRIPTION									
6. Property Category	structure				If district, number of documented resources				
<p>7. Briefly describe the present physical appearance of the property, including condition, boundaries, related features, surroundings, and (if appropriate) architectural style.</p> <p>The West Main Canal begins at the bifurcation point of the Yuma Main Canal into the East and West Main Canals. This point is located near the junction of Second Street and Eleventh Avenue in West Yuma. The canal runs generally in a southwesterly direction near the Colorado River to the Mexican border. A series of laterals branch off the canal, serving the Valley Division. A majority of the canal is unlined. The width varies with the widest portion being at the beginning and measuring forty feet. The West Main Canal is 21.4 miles long.</p>									
8. Planning Agency	Bureau of Reclamation, Lower Colorado Region, Yuma Projects Office								
9. Owner and Address	Bureau of Reclamation, Lower Colorado Region, Yuma Projects Office, Yuma, Arizona								
10. Type of Ownership	Federal								
11. Present use	irrigation								
12. Zoning	agriculture								
13. Threats	none identified at this time								

Photographs and Location Maps Attached on Supplemental Pages

This form used in lieu of California and Arizona state inventory forms with approval by both State Historic Preservation Offices.

HISTORICAL INFORMATION

Field Number: Y57

14. Construction date(s)	1912-1915	Original Location	Yes	Date moved	
15. Alterations and date					
16. Architect		Builder	Reclamation (USRS or BOR)		
17. Historic attributes (with number from list): 20--canal					

RECLAMATION STATUS

Constructed	Jurisdiction	Administers	Operates/Maintains
Yes	Yes	No	No

SIGNIFICANCE AND EVALUATION

18. Context for evaluation: Theme	Reclamation, Irrigation, Agriculture	Area	Yuma Valley	
Period	1902-present	Property Type	irrigation structure	Context formally developed? Yes

19. Briefly discuss the property's importance within the context. Use historical and architectural analysis as appropriate. Compare with similar properties.

The West Main Canal is one of the original, principle canals built as part of the Yuma Irrigation Project. Along with the East Main Canal, the West Main Canal delivers water to the Yuma Valley, an area of about 55,000 acres. Construction of the first 2.5 mile section of the canal took place between January and May 1912 with a width varying from 30 to 40 feet. Work was done by force account under the direction of R.M. Priest, resident engineer. Construction of an eight mile extension with a bottom width varying from 28-30 feet was begun in November 1913. By 1915, the canal was finished to the border. The West Main (Valley) Canal is an integral part of the Yuma Project irrigation system, a historic resource which is eligible for the National Register of Historic Places. This feature is not individually eligible, but contributes to the function and significance of the irrigation system.

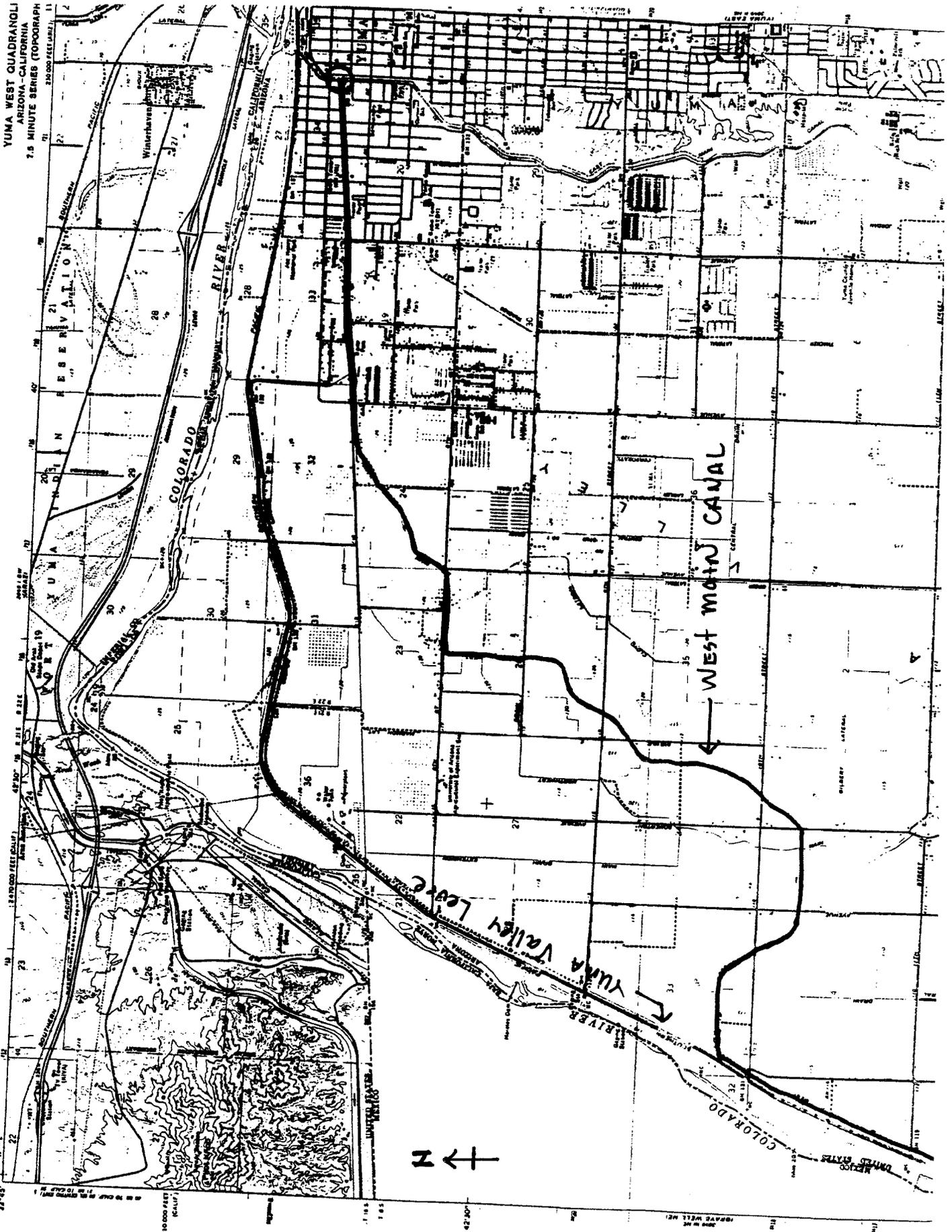
20. Sources

Water and Power Resources Service. Project Data. Denver: Government Printing Office. 1981.
 Sellow, Francis L. Yuma Project, Historical Sketch 1902-1912.

21. Applicable National Register criteria	Criteria A and C
22. Other recognition	
State Landmark No. (if applicable)	
23. Evaluator	Christine Pfaff (Architectural Historian), Rolla Queen (Historical Archaeologist)
Date of evaluation	2/92 and 4/92
24. Survey type	C (Comprehensive)
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Organization	Bureau of Reclamation
Address	PO Box 25007, Bldg 67, Denver Federal Center
City & Zip	Denver, Colorado 80225
Phone	303-236-8742/8747

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

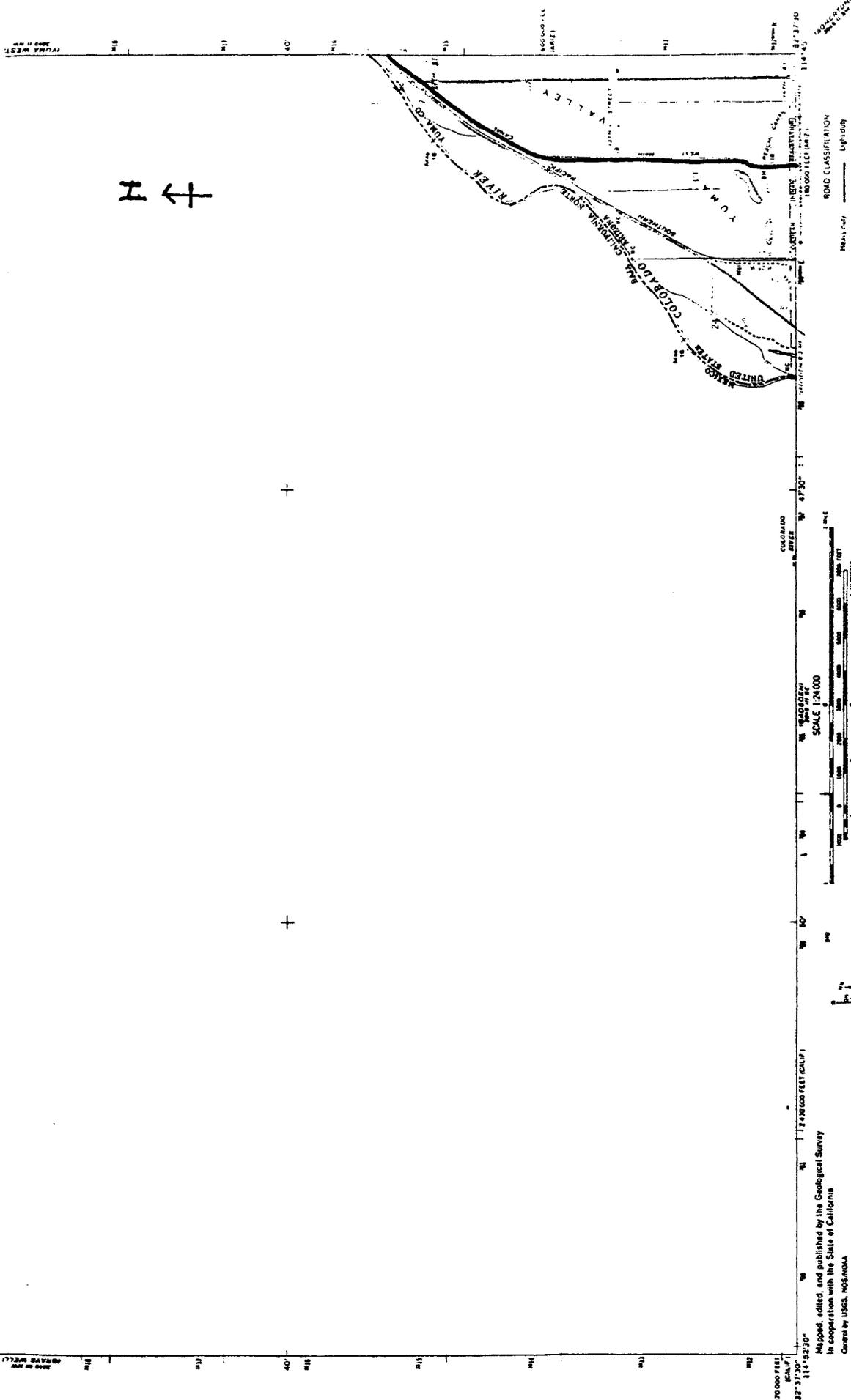
YUMA WEST QUADRANT
ARIZONA-CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPH)



↑ N

← WEST MAIN CANAL

YUMA VALLEY LEVEE



ROAD CLASSIFICATION
 Heavy Duty
 Unimproved dirt
 Light duty
 Int. Nat. Road U. S. Road

GRAYS WELL, CALIF.—ARIZ.
 N1237 B—W11445/75

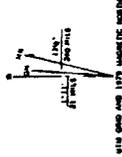
1:24,000
 NATIONAL COAST AND GEODETIC SURVEY
 DATA 1916 TO 1918—SHEETS 1425

Remains shown in purple and woodblock (contour, elevation, photographs taken 1916 and other sheets 1914). This information not yet checked. Map dated 1919.



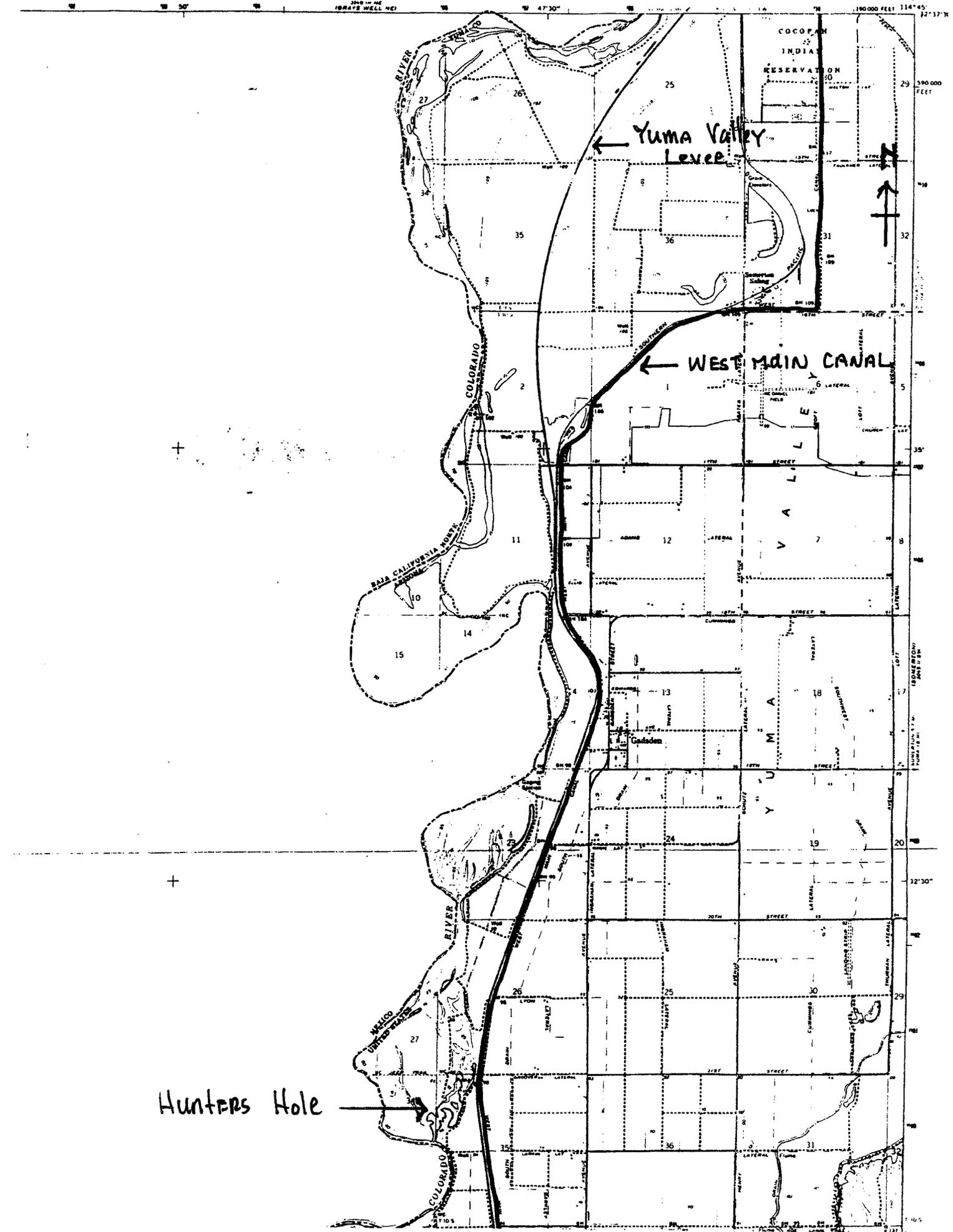
SCALE 1:24,000
 CONTOUR INTERVAL 20 FEET
 COAST AND GEODETIC SURVEY
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR REGION, WASHINGTON, 20509. A FURTHER EXPLANATION OF THE NATIONAL MAP ACCURACY STANDARDS IS AVAILABLE ON REQUEST.



Maped, edited, and published by the Geological Survey in cooperation with the State of California. Control by U.S.G.S. NGS-6000. Topography by photogrammetric methods from aerial photographs taken 1948 and photostereos taken 1962. Revised from aerial photographs taken 1962. Field checked 1964. Polyconic projection. 1927 North American datum. 10,000-foot grid based on California coordinate system, zone 6, and Arizona coordinate system, west zone. The 1927 North American datum is used for the 10,000-foot grid. To place the projection lines in relation to the 1927 datum, the projection lines are marked with 75 meters east as shown by dashed corner ticks. This map is printed on a sheet within the boundaries of the National or State territories shown on this map.

↑
 ↑



← Yuma Valley Level

← WEST MAIN CANAL

Hunters Hole



3948 IN. ME (GRAY'S WELL ME)

47°30'

114°45'

390,000 FEET

180,000 FEET

12°30'

12°37' N

COCOPAH INDIAN RESERVATION

MEXICO UNITED STATES

Y U M A VALLEY

RIVER

COLORADO RIVER

SAJA CALIFORNIA RIVER

RIVER

COLORADO RIVER

Cadaden

CLAYTON



DESCRIPTION: Head of West Main Canal, Valley Division

PROJECT: Historic Yuma Project Inventory

ROLL: 10

FRAME: 30

SITE: Field Number Y57; AZ X:5:9; AZ X:6:63

VIEW:

DATE: Feb-April 1992

PHOTO BY: Rolla Queen/Christine Pfaff

Photo Record Attachment

Key Personnel

The following pages include the resumes of the Yuma Crossing National Heritage Area Project Coordinator, and the two main contractors that will perform a majority of the work specified in this grant application. The project team has over 50 years combined experience in riparian revegetation, land grading and large scale excavation, grant and construction project management and ecological monitoring on the Lower Colorado River. Currently this same project team is implementing, maintaining and managing over 250 acres of restoration within the YEW project.

CHARLES W. FLYNN
180 West 1st Street, Suite E
Yuma, AZ 85364

PROFESSIONAL EXPERIENCE

Executive Director **1999 – Present**
Riverfront Development & Yuma Crossing National Heritage Area
Yuma, Arizona

Manages and coordinates projected \$100 million Riverfront Development Project, including new park development, Wetlands Restoration and commercial revitalization. Coordinates with private sector development partner for planning and implementation of a 22-acre commercial development opportunity on the Riverfront. Coordinates planning and implementation of Yuma Crossing National Heritage Area with multiple partners, including two (2) Indian Nations. (See yumaheritage.com)

Executive Director **1994 - 1999**
Wheeling National Heritage Area Corporation
Wheeling, West Virginia

Responsible for planning and implementation of a \$25 million redevelopment project in downtown Wheeling, WV, an Ohio River Valley industrial city of 35,000. Projects included:

- *Wheeling Artisan Center* - Managed the reconstruction of an 1860's industrial building, now a multi-use facility with private micro-brewery/restaurant, retail craft center, and exhibition space.
- *Wheeling Intermodal Center* - Coordinated a multi-agency effort to construct a transit facility with parking for 850 cars and visitor center, with other private tenants including Greyhound.
- *Heritage Port* - Managed the demolition of a dilapidated parking structure and the construction of a new Riverfront Park and Port.

President and CEO **1981 - 1993**
Conneaut Lake Park
Conneaut Lake, Pennsylvania

Responsible for planning, development, marketing and operations of a 150-acre summer family resort with annual revenues of \$4 million. Facility expansion included hotel and nightclub renovation, campground development and installation of new water park. Aggressive marketing increased revenues by 50% from 1982 - 1988.

Deputy Commissioner, Finance, and Administration **1979-1981**
New York City Department of General Services
New York, New York

Responsible for overall financial management, personnel, and administration of \$300 million agency. Duties included crafting and implementing 10% cost reduction plan with the agency during fiscal crisis.

PROFESSIONAL EXPERIENCE (Continued)

Department of Housing Preservation and Development **1978-1979**
City of New York
New York, New York

Initially involved in the Mayoral transition for Honorable Edward Koch. Tasked to the department to assist in development of program manage "In Rem" tax-foreclosed residential and commercial property.

Legislative Assistant **1974 - 1977**
Congressman Edward Koch

Responsibilities included constituent services, legislative drafting, speech writing, and concentration on appropriations committee matters.

EDUCATION

Stanford University
B.A., M.A. History
1974

Three (3) week seminar for Senior Executives in State and Local Government

Harvard University, Kennedy School of Government
1980

PERSONAL

Married to Ann Walker, Attorney
Two Children: Brendan, 23; Adam, 20

Councilmember
City of Meadville, Pennsylvania
1984 - 1994

KEVIN EATHERLY
180 West 1st Street Suite E
Yuma, AZ 85364

PROFESSIONAL EXPERIENCE (City of Yuma)

CIP Project Manager **1999 – Present**
Riverfront Development & Yuma Crossing National Heritage Area
Yuma, Arizona

Has been the principal project manager for the City of Yuma for all Capital Improvement Projects (CIP) in the north end of the City of Yuma and specifically along the Colorado River. Also serves as the project manager for the Yuma Crossing National Heritage Area, a 22 square mile area designated by the US Congress along the Lower Colorado River. The following is a list of projects managed to date:

1999

- Maiden Lane 30" water line construction and street reconstruction from 1st Street to 5th Street (\$70,000).
- 1st Street 30" water line and street reconstruction from Madison Avenue to 4th Avenue (\$900,000).

2000

- Madison Avenue reconstruction and gateway enhancements, 1st Street to Jones Street (\$450,000).
- West Wetlands master Plan (\$45,000) with U.S. Bureau of Reclamation (USBR).
- Multi-Use Pathway from the Colorado River Levee to 8th Street (\$375,000) in cooperation and with funding with USBR and Arizona State Trails Program.
- Other planning and design work.

2001

- Settling Tank Hill Demolition, removal of 682,000 cubic yard material removal adjacent to the escarpment of the Colorado River (\$154,000).
- Redondo interchange construction on Interstate 8 under Federal Highways permit (\$1,200,000).

2002

- City of Yuma Municipal Complex; 150,000 square foot infill development requiring the acquisition of 13 properties, reconstruction of four (4) city blocks, installation of two (2) supplemental parking lots, construction of all applicable adjacent utilities joint parking agreements and facilities with private and public entities (\$32,000,000).
- Yuma West Wetlands Park - Phase One; Project funded through USBR, State of Arizona (SLIF, LRSP and State Trails), Arizona Game and Fish, EPA and the City of Yuma. Conversion of 35 acres of a 110-acre former city landfill to a recreational park.
- Yuma West Wetlands Riparian Revegetation and Wetland Restoration Project; 35 acres of restored riparian habitat and wetlands adjacent to the Colorado River (\$1,000,000).

PROFESSIONAL EXPERIENCE (City of Yuma - Continued)

2003

- TEA-21 Transportation Enhancement Project - Managing, concurrently, eight (8) separate TEA-21 grants valued at (\$5,700,000).
- Yuma East Wetland Pilot Project; 33 acres of riparian habitat restoration, construction of 2 waterlines, construction of a decant waterline (\$1,412,000) funded by USBR, Sonoran Joint Venture (USF&W Service), National Fish and Wildlife Foundation, Yuma Crossing National Heritage Area and City of Yuma.
- 1st and 5th Street waterline construction (\$375,000).
- West Wetland Lake and Wetland Flood Irrigation Detention Facility (\$350,000) USBR and City of Yuma.
- Water Treatment Sludge Drying Bed Relocation.

2004-2006

- Managed additional 200 acres of riparian restoration in Yuma East Wetlands, including excavation and replanting of the 1.5 mile long South Channel.
- Managed design and construction of Main Street Reconstruction (\$4 million).
- Managed design and construction of Gateway Park (\$4.4 million).
- Managing design and restoration of Hotel Del Sol Multi-Modal Transit Center.
- Managing design of Arizona Welcome Center.
- Managed mitigation for West Wetlands Park development.

EDUCATION

Northern Arizona University
Bachelor of Arts Degree
Recreational Management

PROJECT DESIGN AND CONSTRUCTION CONSULTANTS

Fred Phillips Consulting, LLC

Fred Phillips Consulting, LLC (FPC) is a Landscape Architecture/Ecosystem Restoration based small business in Flagstaff, Arizona. Fred Phillips established Phillips Consulting in 1998, and now has over 14 years experience in landscape architecture, ecosystem restoration, natural resources planning, restoration ecology, GIS Mapping, site analysis and soil surveying. Our projects include multidisciplinary wetland/aquatic/riparian restoration, commercial and residential landscape design, natural resource planning, and fundraising/eco-business development projects for Native American Tribes, non-profit organizations, federal and state agencies, and private individuals. We strive to accomplish the wise planning, restoration and development of the natural landscapes and ecosystems of the western United States and beyond. FPC also teams with a diverse group of highly qualified engineers and other specialists giving us the ability to implement any type of project.

Project Experience

WETLAND RESTORATION & NATIVE PLANT REVEGETATION

Yuma East Wetlands Restoration Project

Quechan Indian Tribe & City of Yuma, AZ

- Developed restoration plan for 1,400 acre Yuma East Wetlands riparian and wetland restoration, habitat enhancement and agricultural conversion, including restoration detail designs.
- Conducted design, site analysis, engineering, biological monitoring and construction management of over 250 acres of restoration projects.
- Conducted wetland delineation, endangered species surveys, and project construction management; applied for and obtained environmental compliance permits.
- Conducted design, site analysis, engineering, biological monitoring and construction management of over 250 acres of restoration projects.
- Excavated a mile long backwater channel and restored topography of native wetlands.

'Ahakhav Tribal Preserve

Colorado River Indian Tribes, Parker, AZ

- Designed and implemented 5 acres of park facilities, 300 acres of native riparian plant restoration, 500 acres of aquatic/ wetland restoration and protection, ecological monitoring, 3.5 mile trail system and an environmental education program.
- Administrated all construction and restoration operations, personnel management and an annual budget of over \$1.5 million for 5 years.
- Designed, obtained funding for, and established 'Ahakhav native plant nursery that currently grows and sells over 40,000 native plants annually.

Yuma West Wetlands Revegetation Project

City of Yuma, AZ

- Contracted to perform site analysis, design, construction management and monitoring of 50 acre native riparian revegetation project along the Colorado River.

- Fabricated and implemented mitigation plans and compliance for USCOE violations on riverfront project.

Las Vegas Wash Master Revegetation Project

City of Las Vegas/Clark County/Southern Nevada Water Authority

- Developed 200 acre 'Revegetation Master Plan for Las Vegas Wash'.
- Developed revegetation construction documents for three riparian and wetland restoration projects, including over 90 acres of the Las Vegas Wash Revegetation Project.

Glen Canyon Riparian Restoration Project

Glen Canyon National Recreation Area, AZ

- Completed revegetation design, implemented construction and biological monitoring for a 16-acre riparian restoration project at Lees Ferry, AZ in partnership with Grand Canyon Wildlands Council.
- Developed a revegetation master plan for the entire Colorado River corridor within the Glen Canyon National Recreation Area, a 15-mile reach from Glen Canyon Dam to Lees Ferry, in coordination with Grand Canyon Wildlands Council.

The Limitrophe Restoration Plan

Environmental Defense

- Developed restoration master plan for 25 miles of Colorado River corridor in the Limitrophe District, including existing data research, stakeholder consensus building, and grant writing for the pilot project

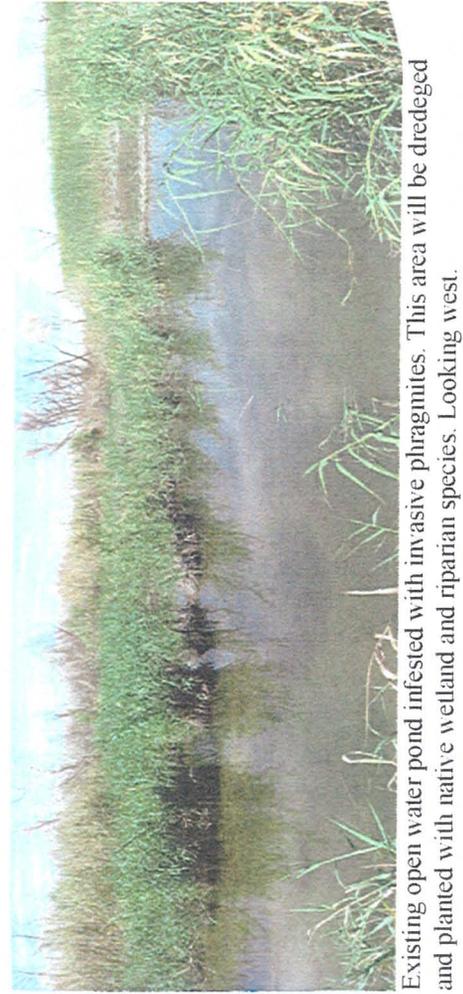
Multi-Species Conservation Plan Conservation Opportunity Area Plans

Bureau of Reclamation

- Served as Tribal liaison between federal agencies and other stakeholders in relation to the Multi-Species Conservation Plan.
- Developed riparian restoration plans for the Quechan, Hualapai, Cocopah, Chemehuevi, Quechan and Ft Mojave Indian Tribes.



Overview of the Phase I Hunter's Hole Restoration Project Area. Aerial view looking west.



Existing open water pond infested with invasive phragmites. This area will be dredged and planted with native wetland and riparian species. Looking west.



Excavation of soil using a soil auger for the soil salinity and depth to water analyses.



Drilling of the well to provide water for habitat restoration. The well is located on the east side of the project area.



Looking west over a wet area created by the MODE Canal siphon. Burned, standing dead wood is evident in the background.

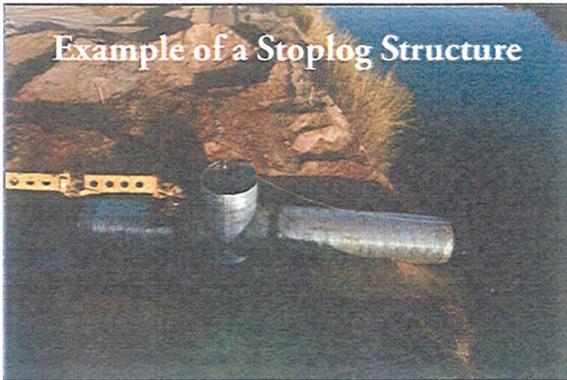
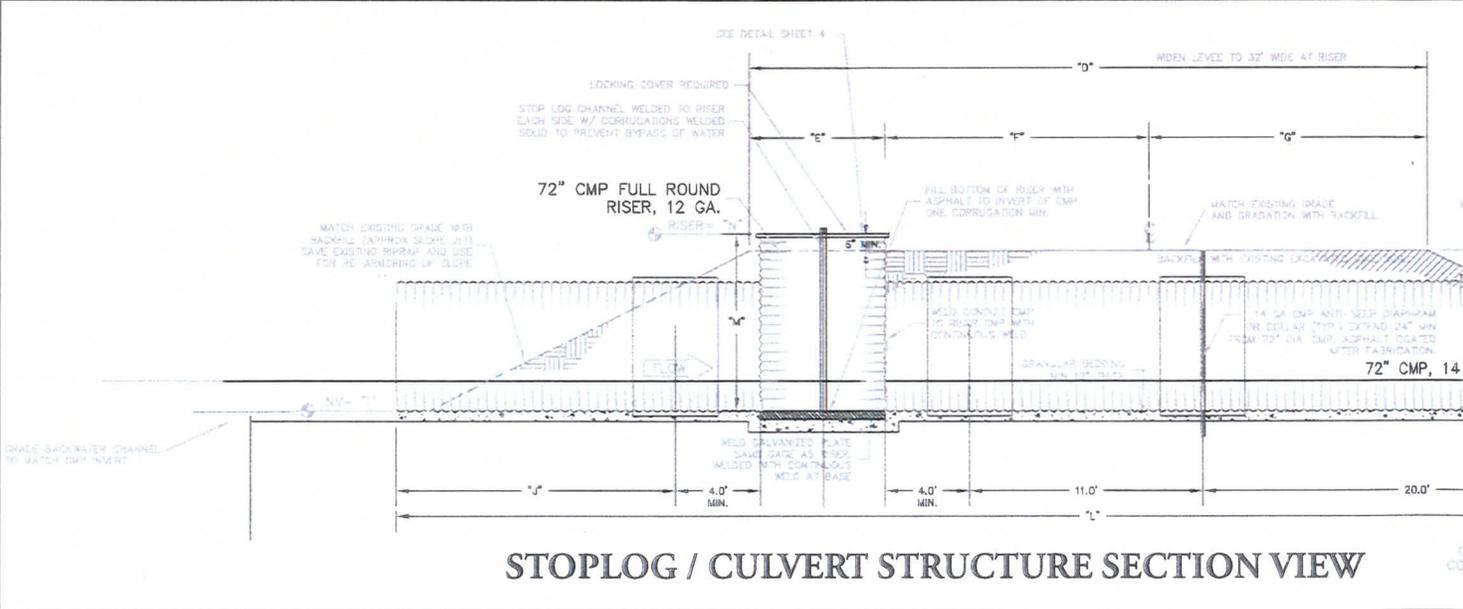
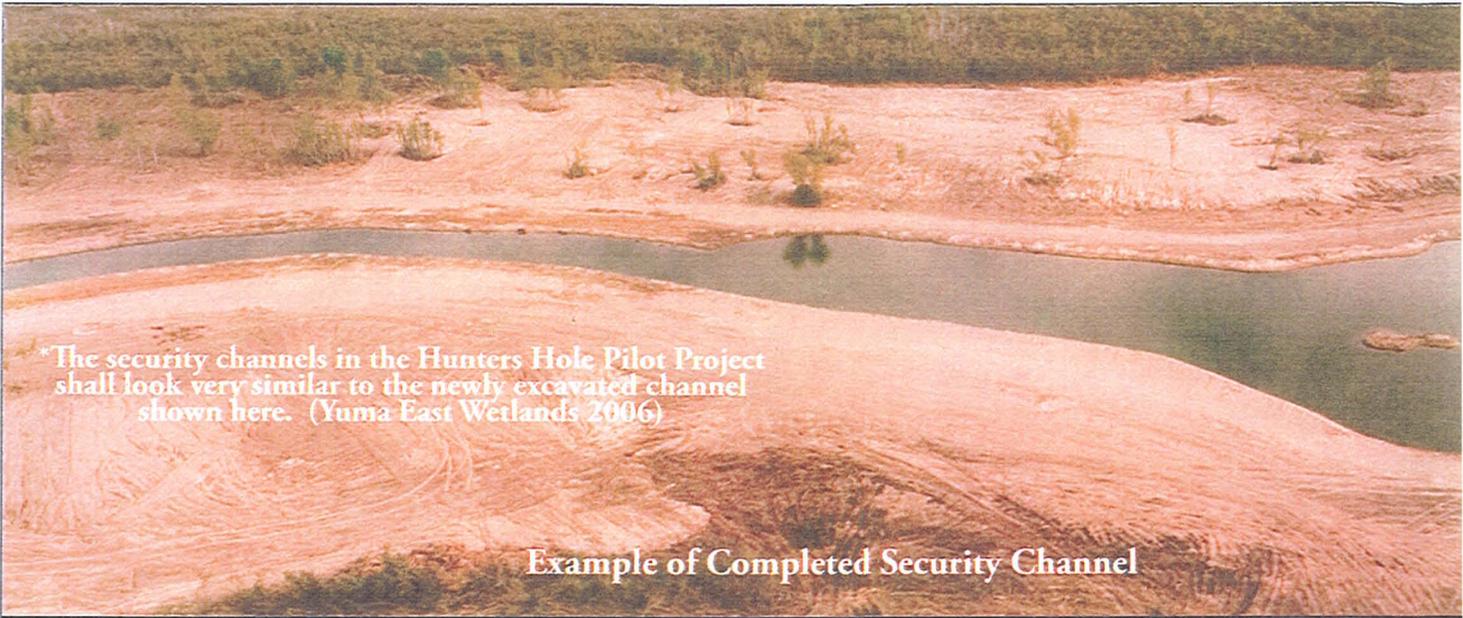


Burned, standing dead wood with re-colonizing invasive species.



Hunter's Hole Riparian and Wetland Restoration Project

Figure 4



PREPARED BY:
 FRED PHILLIPS CONSULTING, LLC
 401 SOUTH LEROUX STREET
 FLAGSTAFF, AZ 86001
 928-773-1530

PREPARED FOR:
 YUMA CROSSING HERITAGE AREA
 180 WEST FIRST STREET SUITE E
 YUMA, AZ 85364
 928-373-5190

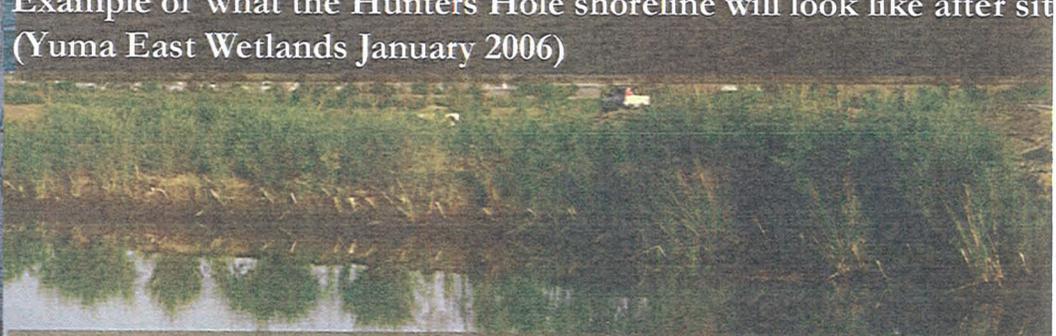
Figure 6: Riparian Revegetation



Certain areas within the Hunters Hole project will require plantings at wider spacing and pruning to provide a visual corridor to assist law enforcement agencies. This 7 year old revegetation shows that providing a visual corridor is possible with proper pruning and wider plant spacing. (Ahakhav Tribal Preserve)



Example of what the Hunters Hole shoreline will look like after site preparation. (Yuma East Wetlands January 2006)



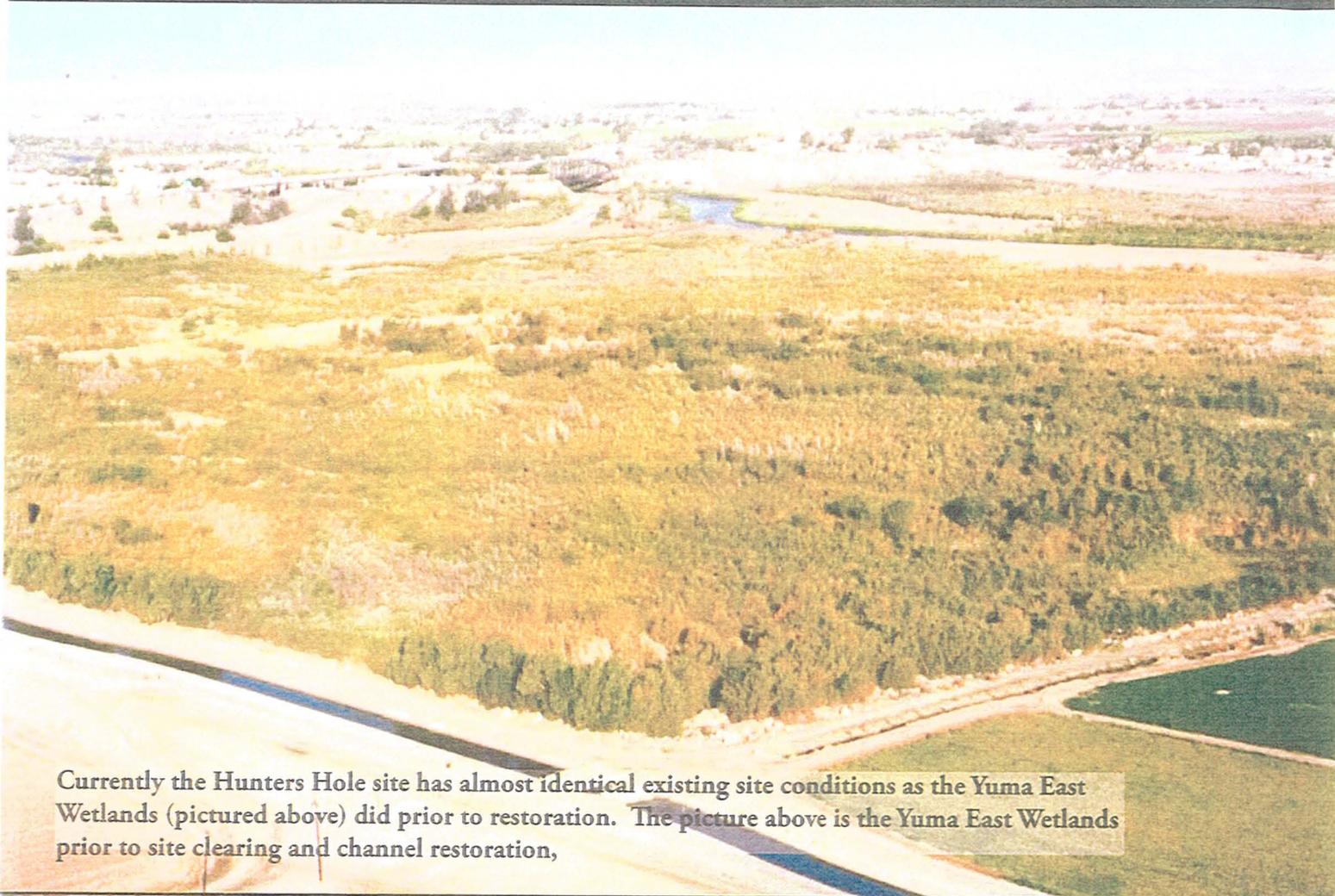
Same shoreline one year later after willow and bulrush plantings, now providing habitat in areas directly adjacent channel. (Yuma East Wetlands 2007)



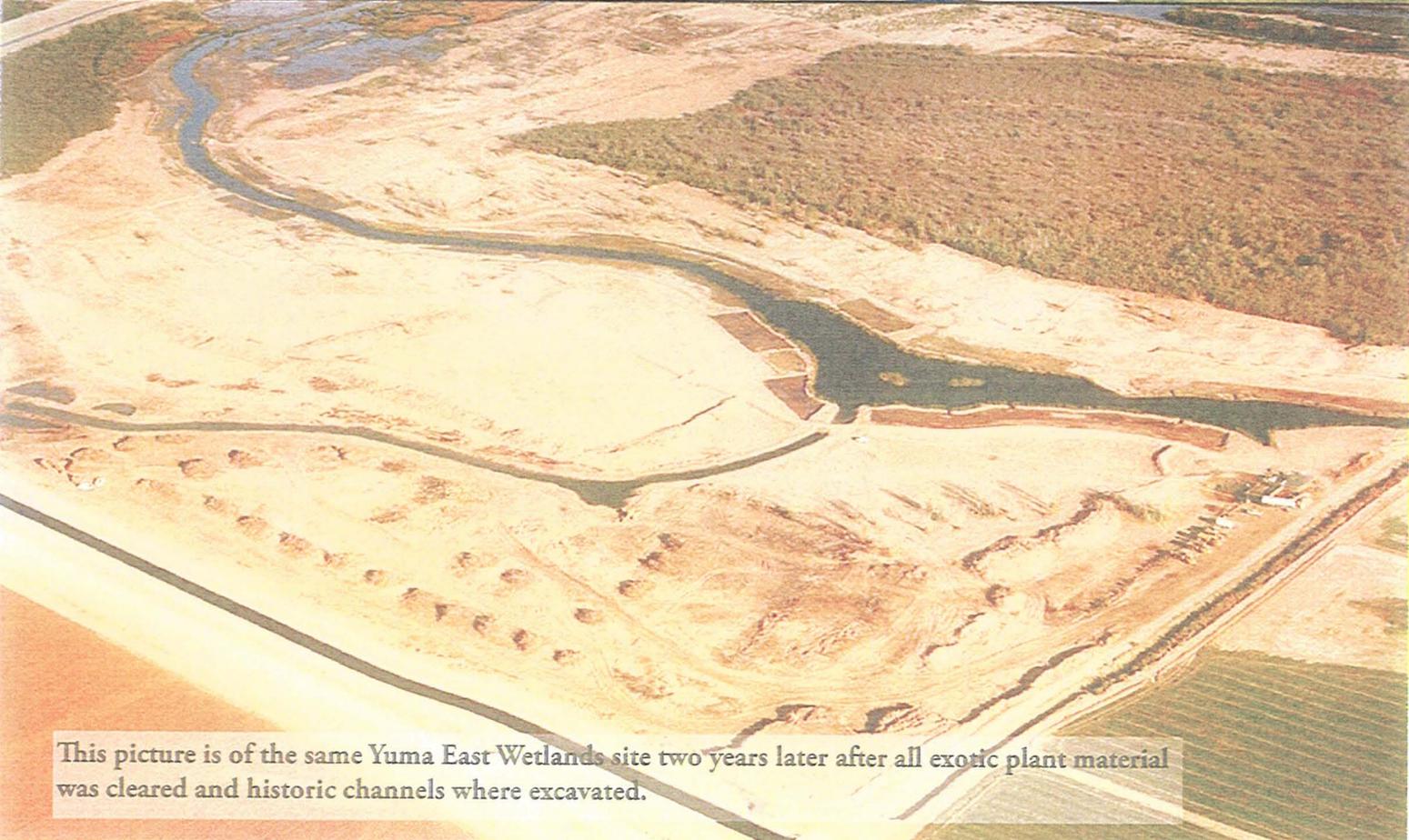
Shorelines will be planted with plantings of willows, bulrush and tree square collected locally (shown above).



Areas located within the security levee will resemble this 7 year old fishery, bulrush marsh habitat and restored cottonwood willow forest in stopping crime before it reaches these areas that are valuable.



Currently the Hunters Hole site has almost identical existing site conditions as the Yuma East Wetlands (pictured above) did prior to restoration. The picture above is the Yuma East Wetlands prior to site clearing and channel restoration,



This picture is of the same Yuma East Wetlands site two years later after all exotic plant material was cleared and historic channels were excavated.

Revegetation and Monitoring Plans

The following are the sampling, revegetation, monitoring and photo point plans for 36.75 acre Hunter's Hole channel excavation, grading and revegetation project.

EXOTIC SPECIES CLEARING

Since the site burned within the last year, clearing will consist of herbicide spraying re-colonizing invasive vegetation and mulching the standing deadwood. Re-colonizing invasive tamarisk and phragmites will be sprayed with Garlon 4 using a backpack sprayer. Care will be taken to prevent over-spraying into other areas and will not be sprayed on windy days. The entire 36.75 acre site will be treated with this technique. The remaining burned standing deadwood on the 36.75 acre site will be cleared using a bulldozer and mulched using a front end loader. All mulched material will be left on site.

CHANNEL EXCAVATION AND HABITAT GRADING AND LEVELING

After the site is cleared of invasive vegetation, the existing pond and channels will be excavated using an amphibious excavator, a hydraulic dredge, a low-track bulldozer, and land-grading equipment. The channel will be dredged until they attain an average width of 32 feet and an average depth of 6-8 feet. The channel banks will be contoured on a 3:1 slope to accommodate small flow channels and will extend 12 ft on both sides of the channel. The water level in the channel will be dictated by the amount of water provided by the ground water well, which will be determined based on necessity. The 10.25 acre wetland area will be graded and leveled to just above the water table and the 7.5 acre cottonwood and willow riparian area will be graded so that the planted poles are submerged into the water table. Both these areas will be flood irrigated by the fluctuations of the channel. Valuable existing native habitat (cattail/bulrush, cottonwood/willow, and mesquite) will be avoided during excavation. This new topographic configuration will diversify habitats for terrestrial and aquatic wildlife.

The contractor selected for the channel excavation work will be provided a schematic design of the excavated channels and lowered wetland and riparian areas by the grantee. The contractor will work with the grantee to finalize a "not to exceed cost" for the excavation of channels and grading of wetland habitats as described in the grant. During construction the contractor will work with the grantee to make design revisions as needed in the field, any changes in design will be submitted to the AWPf for comment and approval. When channel construction is completed the grantee will provide the AWPf with an as built map of the created, channel and wetland cells.

Spoils Placement

The excavated material will generally be surrounded by containment berms. Water flowing from these berms will be directed onto the adjacent riparian habitat, where it can increase soil moisture and promote the natural regeneration of cottonwood and willow trees. This design largely eliminates turbid inflow from the bermed areas to the channels and open water. Berm construction may be limited or impossible in areas where bulldozer access to spoil piles is limited by wet soils, deep water, or high organic content.

The excavated spoils will be placed in areas with low wildlife habitat value, using methods that minimize disturbance to the few existing cottonwood, willow, or mesquite trees. Excavated material can be successfully revegetated if soil type, depth to groundwater levels, and soil salinity are suitable. The numbers and species of plants used for revegetation will be determined after dredging operations have been completed. Whenever possible, cottonwood and willow will be planted on the lower terraces and mesquite will be planted on higher areas.

DEPTH TO WATER AND SOIL SALINITY ANALYSES

Depth to water and soil salinity analyses were completed with the wetland delineation field work in March 2008. This task was accomplished at the 435 acre Hunter's Hole site using the following equipment:

- A Trimble Geo XT survey unit
- A hand or mechanical auger to collect samples

Soil samples were collected at 47 data points along 11 transects. At each point soil samples were collected at the surface and 5-foot depths. At each sampling point, the Trimble survey unit identified the location and elevation. Soil samples were sent to Utah State (a licensed soil lab) for analysis. The depth to water was measured at 59 sampling points that coincide with the soil sample and wetland delineation points. Maps displaying the depth-to-water and soil salinity at the surface and 5 foot depth were prepared and will be used for the revegetation planting design. These maps will specify the percent of area suitable for the various riparian species (cottonwood, willow, and mesquite).

These analyses will be used to complete the planting, irrigation, and monitoring designs for the site. The planting design will specify the species to be planted, along with planting locations, monitoring transects, and a detailed irrigation design.

IRRIGATION DESIGN AND SET-UP

Vegetation planted along the channel and open water bank line will not be irrigated since the propagules will be planted directly into the water table or saturated soil along the site. The created 10.25 acre lowered wetland habitat and 7.5 acre riparian habitat will be flood irrigated by raising the water level in the channel by placing the stop logs in the culverts and pumping water from the well into the channel. The remaining 9.75 acres of mesquite bosque habitat will be watered with flood irrigation. A gas powered pump will draw water from the channel and sheet flood the mesquite revegetation areas. The mesquite areas will be flood irrigated once a week for 6 months (April-Sept) and twice a month (Oct-March) until the end of the first growing season. The second growing season the trees will be irrigated at the same application rates unless it is determined that less frequent irrigation is possible.

36.75 ACRE REVEGETATION PROJECT PLAN

The restored area will feature native riparian species, open water and channel aquatic habitat, wetland and upland habitats—a much greater diversity of habitat than currently

exists at this site. The result will be wetlands and riparian habitats that will be more functional and attractive to birds and wildlife.

Revegetation Construction Activities

This project will involve a total of 36.75 acres of native plant revegetation and open water habitat enhancement, including 8,408 linear feet of bank line vegetation flanking both sides of the channel; 10.25 acre created lowered wetland habitat; 7.5 acres of cottonwood and willow riparian habitat; and 9.75 acres of mesquite bosque upland habitat. The bank line will be planted with wetland plugs and seeds at the toe of the slope and poles, plugs, vertical bundles and seeds of riparian species, including cottonwood and willow, on the slope. The lowered wetland habitat will be planted with poles, plugs, and seeds of native wetland species, and will be irrigated using flood irrigation from the channel. The riparian/upland habitat will be planted with propagules of native riparian species, including cottonwood, willow, and mesquite. The mesquite bosque upland revegetation will be drip irrigated using pumps drawing water from the channel. The final revegetation design will be completed based on the excavation and the results from the soil and depth to water analyses.

Planting

The following native plant species will be used in the revegetation project

- Fremont cottonwood (*Populus fremontii*)
- Goodding willow (*Salix gooddingii*)
- Sandbar willow (*Salix exigua*)
- Honey mesquite (*Prosopis glandulosa*)
- Screwbean mesquite (*Prosopis pubescens*)
- Quailbush (*Atriplex lentiformis*)
- Alkali bulrush (*Schoenoplectus maritimus*)
- Olney three-square bulrush (*Schoenoplectus americanus*)
- Hardstem bulrush (*Schoenoplectus acutus*)
- Inland saltgrass (*Distichulus Spicata*)
- Alkali sacaton (*Sporobolus airoides*)
- Yerba mansa (*Anemopsis californica*)
- Western sea purslane (*Sesuvium verrucosum*)
- Wild heliotrope (*Heliotropium curassavicum*)
- Other suitable native riparian and wetland species

The final planting design will determine the density and location of these species within the site, which will be based on the results of the soil and depth-to-water analyses and other site conditions. Wetland species will primarily be planted by seed and plugs from local native stock and purchased from a nursery local to the region. The planting density of the wetland species will be determined in the final planting design. In the riparian area, approximately 150-300 trees (cottonwood, Goodding willow, and sandbar willow) per acre will be planted at 5-15 ft. spacing, depending on site suitability. A 3-foot hog-wire fence will be installed around each 1 gallon cottonwood and gooding willow propagules area to prevent browsing by beaver or other herbivores, the poles, plugs and seeds will

not be fenced. The area will be hand-weeded during native vegetation establishment to limit the encroachment of tamarisk and giant cane, thereby enhancing the natural recruitment of native grasses and forbs. Planting activities also include hand-broadcasting seeds of alkali sacaton (*Sporobolus airoides*), salt heliotrope (*Heliotropium curassavicum*), yerba mansa (*Anemopsis californica*), and other native under-story species to promote under-story development in the revegetation area.

Weeding

When planting is complete the grantee will conduct regular maintenance of the revegetation site for two years. Maintenance activities will be conducted during the growing season and will include: maintaining the irrigation system, removing exotic weeds, and re-planting vegetation in the case of mortality. By the end of the first growing season, the plantings should be well established for long-term self-sustainability.

MONITORING STRATEGY AND SUCCESS CRITERIA

In addition to providing information about the success of this project, this monitoring plan will help test the methods proposed for the remaining actions.

Vegetation Monitoring

The primary purpose of monitoring vegetation is to determine if vegetation is establishing and thriving, if conditions are suitable for the vegetation planted, document the success of the project, and help guide future revegetation efforts. Vegetation sampling will target about 3 percent of the population. Monitoring will occur bi-monthly throughout the first two growing seasons (May through October). Both quantitative and qualitative techniques will be used to monitor vegetation growth at the site. Transects will be established at the site to measure quantitative growth parameters for tree, shrub, and herbaceous vegetation species. Transects will include all tree/shrub species that are present on the site and will be selected randomly using the following method:

1. A computer will be used to generate one random number within each acre of the site. The random number will correspond to a planting hole on the overall planting design for the area.
2. Vegetation transects will be assigned to random planting holes. These transects will include the randomly selected planting hole plus the consecutive holes that correspond to each plant species until all species planted on site are accounted for.

For tree and shrub species, including cottonwood, willow, and mesquite, the following parameters will be measured:

- Tree height (ft) – From base of the trunk to the top of the tallest up-stretched leaf.
- Tree condition – Dead- healthy
- Factors affecting growth (i.e. insect/mammal browsing, high salinities, etc.)
- Percent survival rate – Dead verses alive.

Qualitative data-collection methods for vegetation will include photo point monitoring. The Design Team will establish four such locations on the revegetation site. Photo monitoring will be conducted using AWPf methods and guidelines.

Success Criteria

Productive native habitat development is the primary criterion that measures project success. The following table specifies success criteria for vegetation, criteria that the Design Team will use to assess the success of this revegetation project in relation to pre-treatment conditions.

Success Criteria for Native Vegetation Species in the Revegetation Project

Species	5-year goal		10-year Goal	
	Percent Survival	Height (inches)	Percent Survival	Height (inches)
Fremont Cottonwood	80-100	200-300	60-90	240-360
Gooding Willow	80-100	200-265	60-75	220-300
Sandbar Willow	75-80	135-265	60-80	140-280
Mesquite (Screwbean, Honey)	75-80	135-265	60-80	140-280
Four-Wing Saltbush	60-80	24-60	50-80	24-72

Certain site features may influence vegetation health, including: insect damage, browsing, soil erosion and drift, and “edge effects,” including vandalism. These conditions will be noted through the monitoring period. Baseline conditions for vegetation at Hunter’s Hole were documented in the Hunter’s Hole biological evaluation from the results of preliminary site analysis. This data provides information that is required to assess whether the project objectives are being met. The Design Team can use it to compare survival and growth rates to soil salinity, depth-to-water, and plant health. Plant health is a function of growth rate, survival, extent of insect damage or browsing, weed encroachment, and regeneration.

Existing Plans/Reports/Information

The Yuma Crossing National Heritage Area has taken the lead in building a partnership with multiple stakeholders to formulate a workgroup that aims at providing an alternative to the security fence along the U.S. and Mexico border within the Limitrophe District of the Lower Colorado River. The stakeholders include a variety of federal, Mexican and U.S. state, private, Mexican and U.S. non-profit and local groups that are working together to restore habitat in order to provide increased security by providing an increased line-of-site for border security and obstacle for border crossers, while restoring and enhancing wildlife habitat. The area of focus for this group is Hunter's Hole. This project would be the first of its kind in this section of the Colorado River. Many of the preliminary permitting reports have been initiated, but are still currently in progress. The Bureau of Reclamation is currently working on the Archeological survey and SHPO documentation and the NEPA compliance. Fred Phillips Consulting, LLC is preparing the wetland delineation and the Army Corps of Engineers Section 404 of the Clean Water Act permit. The following reports are currently completed in order to initiate this monumental effort:

- a. Hunter's Hole Concept Plan
- b. Common Ground International Plan
- c. Limitrophe Restoration Plan



Limitrophe Binational Restoration, Phase 1

Restauración Limítrofe Binacional, Borrador

Legend / Leyenda

-  Marsh / Marisma
-  Dryland (Upland) Revegetation / Restauración de Zonas Áridas (Terrenos Altos)
-  Cottonwood / Willow Revegetation / Reforestación con Sauces y Álamos
-  Mesquite Revegetation / Reforestación con Mezquite
-  Mexico & US Border- 1973 / Frontera Mexico Y USA- 1973
-  Cleared Public Safety & Flood Control / Zona Limpia para la Seguridad Pública y el Control de Inundaciones
-  Open Water / Agua Superficial
60 Ft Channel / Canal de 60 Pies (18 metros)
-  Agriculture / Agricultura
-  Colorado River Miles / Millas del Rio Colorado

Total Acres/ Total de Actes

Mexico Park Area: 27.0 Acres, 11.0 Hectares
 Área del Parque en México: 27.0 Actes, 11.0 Hectáreas

Total Open Water: 39.0 Acres, 15.8 Hectares
 Total de Agua Superficial: 39.0 Acres, 15.8 Hectáreas

Total 60 Ft Channel: 16,265 Linear Feet, 4,958 Linear Meters
 Total del Canal de 60 Pies (18 metros): 16,265 pies lineales, 4,958 metros lineales

Total Dryland (Upland) Revegetation: 560.0 Acres, 227.0 Hectares
 Total de Restauración de Zonas Áridas (Terrenos Altos): 560.0 Acres, 227.0 Hectáreas

Total Cleared Public Safety / Flood Control: 511.5 Acres, 207.0 Hectares
 Total de Zona Limpia para la Seguridad Pública y el Control de Inundaciones: 511.5 Acres, 207.0 Hectáreas

Total Marsh: 45.0 Acres, 18.2 Hectares
 Total de Marisma: 45.0 Acres, 18.2 Hectáreas

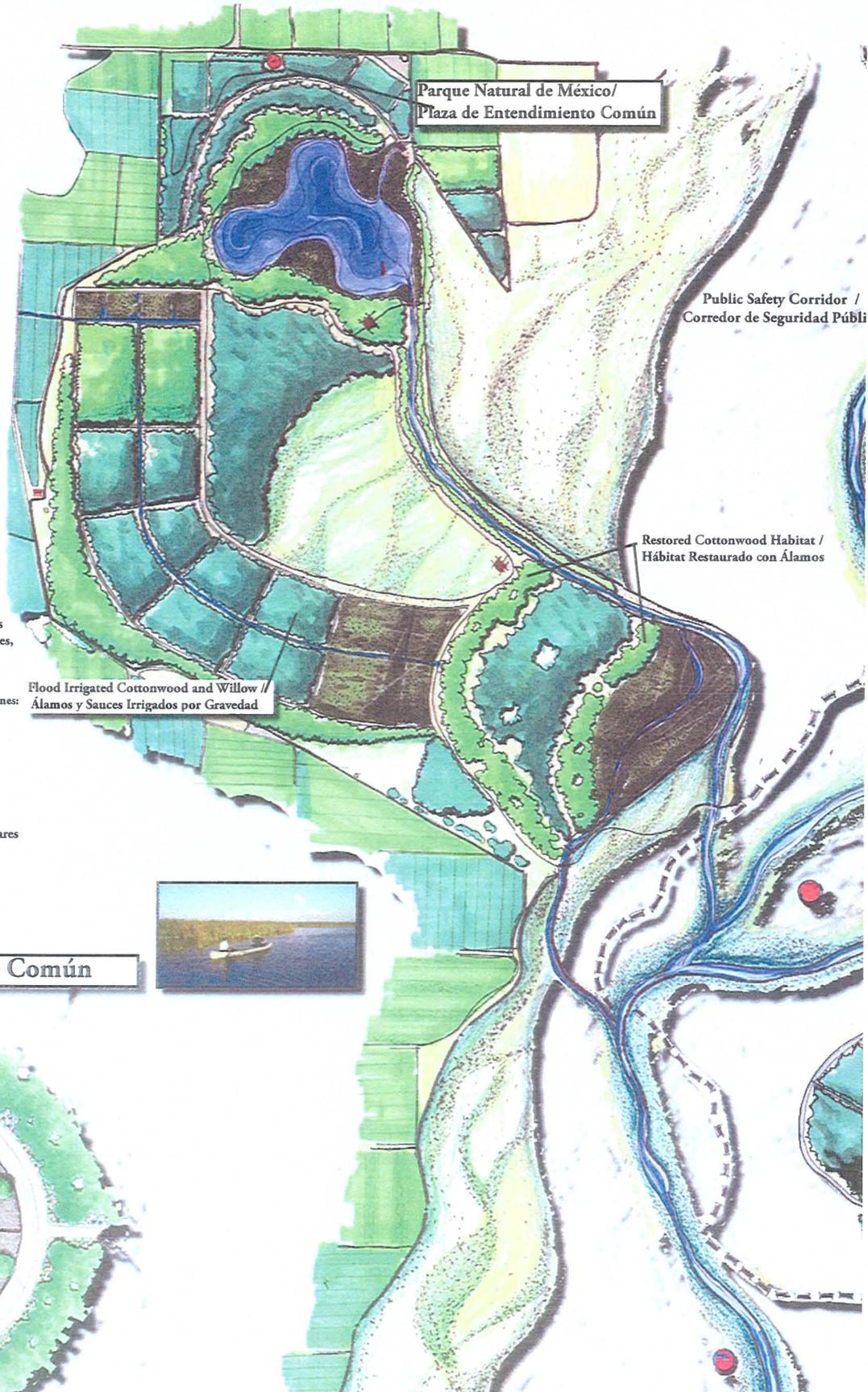
Total Mesquite Revegetation: 165.5 Acres, 67.0 Hectares
 Total de Reforestación con Mezquite: 165.5 Acres, 67.0 Hectáreas

Total Cottonwood / Willow Revegetation: 119.3 Acres, 48.3 Hectares
 Total de Reforestación con Sauces y Álamos: 119.3 Acres, 48.3 Hectáreas

Total Saltgrass: 22.31 Acres, 9.0 Hectares
 Total de Pasto Salado: 22.31 Acres, 9.0 Hectáreas

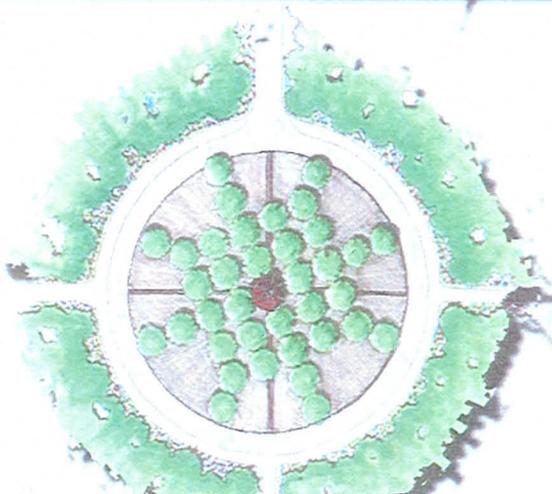
Total Riverbank Revegetation: 119.0 Acres, 48.2 Hectares
 Total de Reforestación Ribereña: 119.0 Acres, 48.2 Hectáreas

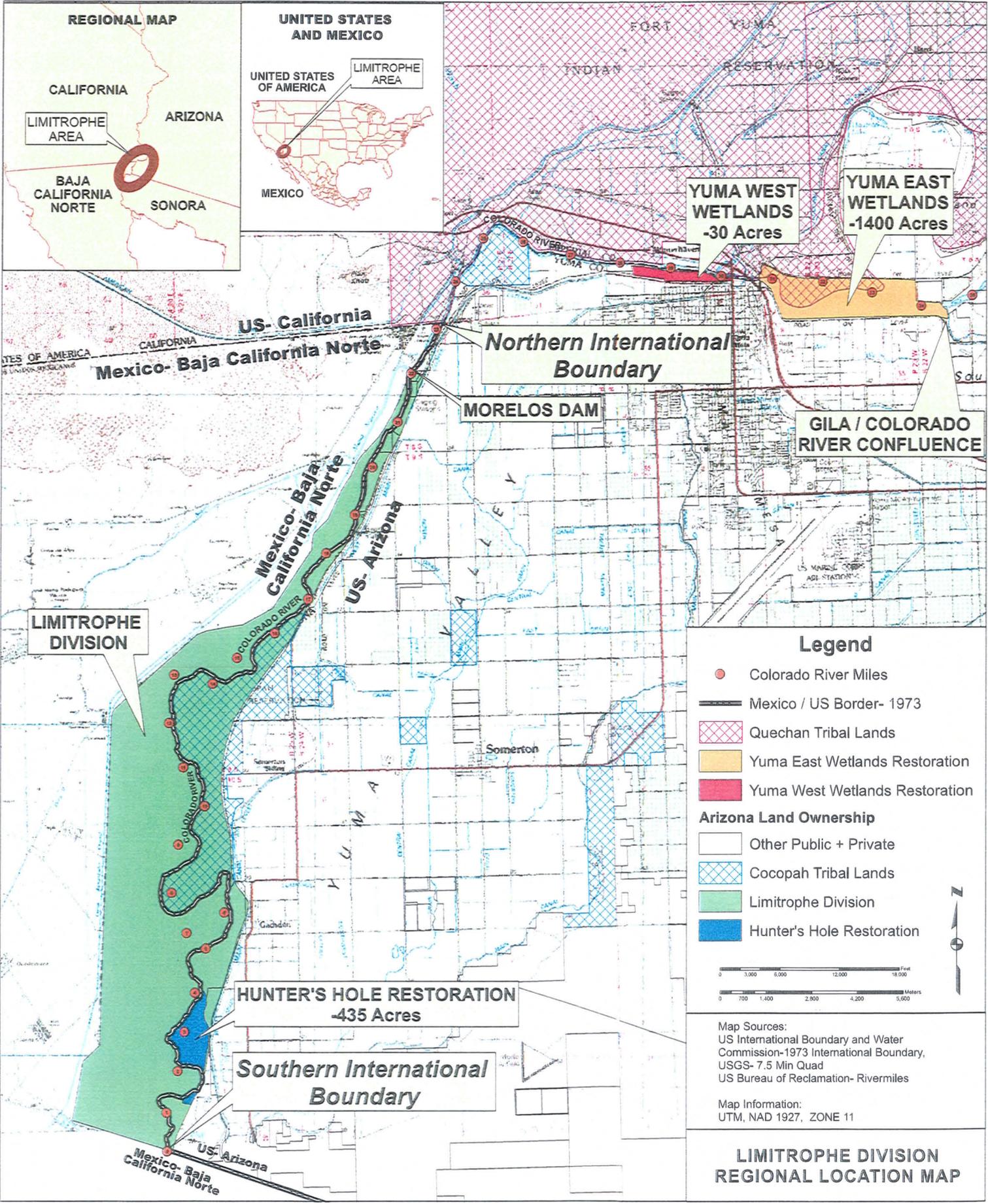
Plaza de Entendimiento Común



Flood Irrigated Cottonwood and Willow / Álamos y Sauces Irrigados por Gravedad

Restored Cottonwood Habitat / Hábitat Restaurado con Álamos



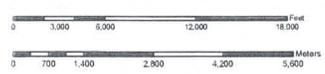


REGIONAL MAP

UNITED STATES AND MEXICO

Legend

- Colorado River Miles
 - Mexico / US Border- 1973
 - Quechan Tribal Lands
 - Yuma East Wetlands Restoration
 - Yuma West Wetlands Restoration
- Arizona Land Ownership**
- Other Public + Private
 - Cocopah Tribal Lands
 - Limitrophe Division
 - Hunter's Hole Restoration



Map Sources:
 US International Boundary and Water Commission-1973 International Boundary,
 USGS- 7.5 Min Quad
 US Bureau of Reclamation- Rivermiles

Map Information:
 UTM, NAD 1927, ZONE 11

LIMITROPHE DIVISION REGIONAL LOCATION MAP

CALIFORNIA

ARIZONA

LIMITROPHE AREA
 BAJA CALIFORNIA NORTE

SONORA

UNITED STATES OF AMERICA

LIMITROPHE AREA

MEXICO

FORT YUMA

INDIAN RESERVATION

YUMA WEST WETLANDS -30 Acres

YUMA EAST WETLANDS -1400 Acres

Northern International Boundary

MORELOS DAM

GILA / COLORADO RIVER CONFLUENCE

LIMITROPHE DIVISION

US- California

Mexico- Baja California Norte

Mexico- Baja California Norte

US- Arizona

HUNTER'S HOLE RESTORATION -435 Acres

Southern International Boundary

Mexico- Baja California Norte

US- Arizona

YUMA VALLEY

Somerton

Gachden



**AWPF RIPARIAN + WETLAND RESTORATION PROJECT
PHASE 1 ONLY- 37 ACRES**

MARSH RESTORATION- 10.25 ACRES
Areas adjacent to the proposed channel are proposed as floodplain with wetland vegetation like bulrush and sedges. These areas shall be flooded by the use of stop log structures.

MESQUITE RESTORATION- 9.75 ACRES
These areas shall then be restored with honey and screwbean mesquites on a 30 ft OC spacing and seeded with alkalai sacton. There shall be a visual corridor with a 2 - 12ft height range maintained.

COTTONWOOD / WILLOW RESTORATION- 7.5 ACRES
These areas shall then be restored with cottonwood, Goodding and Sandbar willow on 15-17' ft spacing OC. Understory shrubs and grasses shall be planted within this area as well.

AQUATIC RESTORATION- 9.25 ACRES / 5,200 LINEAR FEET
Dredged channels shall be 60' ft wide. Proposed pond areas shall be 8' - 10' deep.

Legend

- Mexico / US Border- 1973
- Mexican Proposed Pilot Project
- PHASE I Project Boundary
- PHASE II Project Boundary
- Cottonwood_Willow Revegetation
- Marsh Restoration
- Mesquite Restoration
- Aquatic Restoration
- Ag Well Ground Water Pipe
- Proposed Stop Log Structure
- MODE Canal Siphon Inlet
- Proposed Boat Ramp
- Extended Levee Road / Security Road
- Levee Road Pullouts- Phase II
- Phase II- Aquatic Restoration- Phase II
- Honey Mesquite Reveg- Phase III
- Screwbean Mesquite Reveg- Phase III



Map Sources:
US International Boundary and Water Commission-
1973 International Boundary,
USGS- 7.5 Min Quad
US Bureau of Reclamation- Rivemiles

Map Information: UTM, NAD 1927, ZONE 11

Designed By:
Fred Phillips Consulting, LLC
401 S. Leroux Street
Flagstaff, AZ 86001
(928) 773-1530

Designed For:
Yuma Crossing National Heritage Area
180 West First Street, Suite E
Yuma, AZ 85364
(928) 373-5190

**COLORADO RIVER
LIMITROPHE DIVISION
HUNTERS HOLE RIPARIAN +
WETLAND RESTORATION PROJECT**

JUNE 11, 2008
**FIGURE 3
DESIGN MAP**

**LIMITROPHE DIVISION
HUNTERS HOLE RESTORATION
PILOT PROJECT**

INSIDE NEW SECURITY LEVEE

SECURITY EXTENDED LEVEE ROADS- 7,447 LINEAR FEET
HIGH LEVEE- 3,542 LF
LOW LEVEE- 3,905 LF

SECURITY CHANNELS- 60 FT WIDE AND OPEN WATER-
11.5 ACRES / 8,403 LINEAR FEET

RESTORED MARSH- 12 ACRES

MESQUITE REVEGETATION- 33 ACRES

EXISTING COTTONWOOD / WILLOW AREAS- 22.25 ACRES

OUTSIDE NEW SECURITY LEVEE

HUNTERS HOLE RESTORATION PILOT PROJECT
- 435 ACRES

SECURITY CHANNEL- 60 FT WIDE / OPEN WATER-
14.5 ACRES / 10,555 LINEAR FEET

LOWER SECURITY ROAD- 3,757 LF

SCREWBAN MESQUITE REVEGETATION- 16 ACRES

HONEY MEQUITE REVEGETATION- 20.25 ACRES

RIVERBANK REVEGETATION- 43.5 ACRES
WESTSIDE- 24.5 ACRES
EASTSIDE-19 ACRES

Map Sources:
US International Boundary and Water
Commission-1973 International Boundary,
USGS- 7.5 Min Quad
US Bureau of Reclamation- Rivermiles
Map Information:
UTM, NAD 1927, ZONE 11

**PROPOSED
GROUNDWATER
WELL #3
-POTENTIAL
GROUNDWATER
PUMP INLET**

**BLM
HAZARDOUS FUELS
REDUCTION AREA
(CLEARED APRIL 2007)**

**RIVERBANK
REVEGETATION
SANDBAR WILLOWS
AND BULRUSH**

**MEXICAN PROPOSED
PILOT PROJECT**

**PROPOSED
60 FT WIDE
CHANNEL**

**PROPOSED
GROUNDWATER
WELL #2**

**UPLAND AREA-
CONTINUED TAMARISK
MAINTENANCE AND
SEDED WITH UPLAND
GRASSES AND SHRUBS**

**EXISTING
MODE CANAL
SIPHON INLET**

**PROPOSED
GROUNDWATER
WELL #1**

**MEXICAN
PROPOSED
PILOT PROJECT**

**HUNTER'S
HOLE
PILOT
PROJECT
- 435 ACRES**

**ALL REVEGETATION PLANTINGS SHALL BE
SPACED AT DENSITIES ACCEPTABLE TO THE
DEPARTMENT OF HOMELAND SECURITY AND
YUMA COUNTY SHERIFF'S DEPT TO MAINTAIN
A VISUAL CORRIDOR FOR LAW ENFORCEMENT
ACTIVITIES.**

**STOP LOG /
CULVERT
CROSSING**

**STOP LOG
OUTLET**

Legend

- Mexico / US Border- 1973
- Mexican Proposed Pilot Project
- Hunters Hole Restoration Pilot Project
- Colorado River Miles
- Restored Bulrush / Threesquare Marsh
- Cottonwood / Willow Protection and Restoration
- Mesquite Revegetation
- Restored Channel- 60ft Wide / Open Water
- Screwbear Mesquite Revegetation
- Honey Mesquite Revegetation
- Riverbank Revegetation
- BLM Hazardous Fuels Reduction Areas
- Upland Area- Maintained and Seeded
- Proposed Levee Road Pullouts
- Proposed Extended Levee Road
- MODE Canal Siphon Inlet
- Proposed Groundwater Wells

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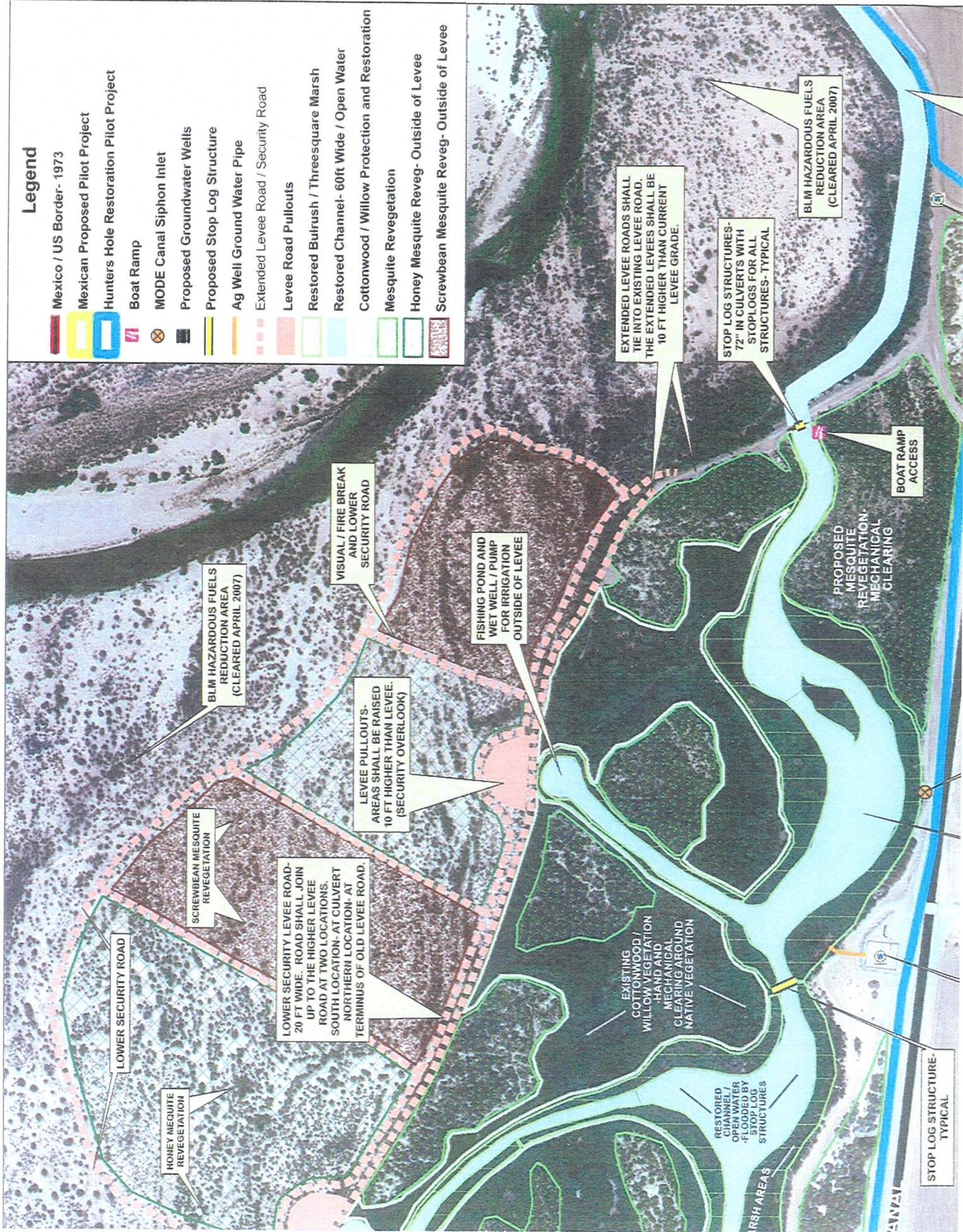
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**COLORADO RIVER
LIMITROPHE DIVISION
HUNTERS HOLE RESTORATION
PILOT PROJECT**

**MAY 31, 2007
CONCEPT PLAN
LOCATION MAP**

Legend

- Mexico / US Border - 1973
- Mexican Proposed Pilot Project
- Hunters Hole Restoration Pilot Project
- Boat Ramp
- MODE Canal Siphon Inlet
- Proposed Groundwater Wells
- Proposed Stop Log Structure
- Ag Well Ground Water Pipe
- Extended Levee Road / Security Road
- Levee Road Pullouts
- Restored Bulrush / Threesquare Marsh
- Restored Channel- 60ft Wide / Open Water
- Cottonwood / Willow Protection and Restoration
- Mesquite Revegetation
- Honey Mesquite Reveg- Outside of Levee
- Screwbean Mesquite Reveg- Outside of Levee



BLM HAZARDOUS FUELS REDUCTION AREA (CLEARED APRIL 2007)

VISUAL / FIRE BREAK AND LOWER SECURITY ROAD

FISHING POND AND WET WELL / PUMP FOR IRRIGATION OUTSIDE OF LEVEE

LEVEE PULLOUTS- AREAS SHALL BE RAISED 10 FT HIGHER THAN LEVEE. (SECURITY OVERLOOK)

LOWER SECURITY LEVEE ROAD- 20 FT WIDE. ROAD SHALL JOIN UP TO THE HIGHER LEVEE ROAD AT TWO LOCATIONS. SOUTH LOCATION- AT CULVERT NORTHERN LOCATION- AT TERMINUS OF OLD LEVEE ROAD.

SCREWBEAN MESQUITE REVEGETATION

HONEY MESQUITE REVEGETATION

EXISTING COTTONWOOD / WILLOW VEGETATION HAND AND MECHANICAL CLEARING AROUND NATIVE VEGETATION

RESTORED CHANNEL OPEN WATER FLOODED BY STOP LOG STRUCTURES

PROPOSED MESQUITE REVEGETATION MECHANICAL CLEARING

BOAT RAMP ACCESS

EXTENDED LEVEE ROADS SHALL TIE INTO EXISTING LEVEE ROAD. THE EXTENDED LEVEES SHALL BE 10 FT HIGHER THAN CURRENT LEVEE GRADE.

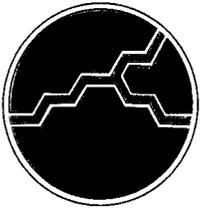
STOP LOG STRUCTURES- 72" IN CULVERTS WITH STOPLOGS FOR ALL STRUCTURES- TYPICAL

BLM HAZARDOUS FUELS REDUCTION AREA (CLEARED APRIL 2007)

STOP LOG STRUCTURE- TYPICAL

Community Support

The following pages are resolutions and letters of support for the 36.75 acre wetland and riparian revegetation project within Hunter's Hole.



City of YUMA

**OFFICE OF THE MAYOR
AND CITY COUNCIL**

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(928) 373-5002
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MAYOR

Lawrence K. Nelson

COUNCILMEMBERS

Cody T. Beeson
Ross J. Hieb
Paul B. Johnson
Leslie L. McLendon
Raul Mendoza
Ema Lea Shoop

May 23, 2008

Charles Flynn, Executive Director
Yuma Crossing National Heritage Area
180 West 1st Street, #E
Yuma, Arizona 85364

RE: *Hunter's Hole Riparian and Wetlands Project*

Dear Charles:

On behalf of the City of Yuma, I support the concepts of the Hunter's Hole Project. This project offers a new, innovative alternative to the staggering costs associated with Homeland Security by restoring the Colorado River's native wetlands. Adoption of this approach along riparian segments of the United States/Mexican Border, could lead to saving millions of dollars in security construction projects and at the same time preserve precious habitat.

Following the success of the Yuma East and West Wetlands projects developed by the Yuma National Heritage Area, the *Hunter's Hole Riparian and Wetlands Project* along the Colorado River, re-establishes the native flora in a wetlands habitat. All the while adding technological border security advances to this natural area and providing for higher visibility of illegal incursions into the United States. Employing a "moat" concept, the Hunter's Hole offers a unique opportunity to enhance the natural environment, while saving water through a return to the native species. Through controlled conservation methods, vision corridors can be established in the natural areas allowing for the Border Patrol to do its job easier, while saving the costs of a major border fence.

I strongly urge your support of this innovative project which will be a welcome approach to border security and environmental protection.

Sincerely,

Lawrence K. Nelson
Mayor
City of Yuma



United States Department of the Interior



BUREAU OF RECLAMATION
Yuma Area Office
7301 Calle Agua Salada
Yuma, Arizona 85364

IN REPLY REFER TO:

YAO - 7200
ENV - 11.00

JUN 06 2008

Mr. Charles Flynn,
Executive Director
Yuma Crossing National Heritage Area Corporation
180 W. First Street, Suite E
Yuma, AZ 85364-1407

Subject: Support for the Hunter's Hole Riparian and Wetlands Restoration Project

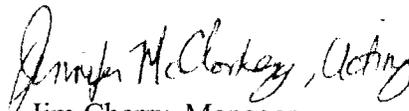
Dear Mr. Flynn:

I am writing to express my support for the Hunter's Hole Project and to express my best wishes for the success of the project. The goal of the project is to meet both border security and environmental concerns. Through the innovative design on this restoration project and extensive consultation, I am confident that this vision can become a reality. I am particularly pleased that there has been such a strong collaboration among all of the stakeholders. This is a project that the local community really supports, and it is aligned with my office's intent to support local restoration efforts.

We look forward to the strengthening of this partnership as we work together on completing the National Environmental Policy Act (NEPA) document needed to have this project move forward. We support your *Riparian and Wetlands* Arizona Water Protection Funding request and initiating a comprehensive approach to conserve natural resources and strengthen security along the border. Please continue to consult with Mr. Sean Torpey of my office. You can reach him at (928) 343-8268.

Sincerely,

Acting

For  Acting
Jim Cherry, Manager
Yuma Area Office



THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT

5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV
REGION IV, 9140 E. 28TH ST., YUMA, AZ 85365

GOVERNOR
JANET NAPOLITANO
COMMISSIONERS
CHAIRMAN, WILLIAM H. MCLEAN - GOLD CANYON
BOB HERNBRODE, TUCSON
JENNIFER L. MARTIN, PHOENIX
ROBERT R. WOODHOUSE, ROLL
MICHAEL M. GOLIGHTLY, FLAGSTAFF
DIRECTOR
LARRY D. VOYLES
DEPUTY DIRECTOR
STEVE K. FERRELL



May 30, 2008

Charles Flynn, Executive Director
Yuma Crossing National Heritage Area
180 W. First Street, Suite E
Yuma, AZ 85364

RE: Hunter's Hole Riparian and Wetlands Project

Dear Mr. Flynn:

The Arizona Game and Fish Department (Department) has reviewed your Draft Hunter's Hole Concept Plan (June 2007) for enhancing wildlife habitat, recreational opportunities, public safety, and border security in the Hunter's Hole area of the Colorado River. The following comments are provided for your consideration.

The Department supports this concept plan and your efforts to enhance aquatic, wetland, and riparian habitats at Hunter's Hole while also considering current safety and security issues associated with the International Boundary. As you know, we prepared a restoration plan for Hunter's Hole in 2002 under contract to the U.S. Bureau of Reclamation. That plan focused on restoring aquatic, wetland, and riparian habitats and related recreational opportunities that have all degraded over time. Since then safety and security issues associated with the International Boundary have become significant. Your concept plan incorporated many design features from our 2002 plan, which should enhance wildlife habitat and recreational opportunities in the area. Your plan also incorporates design features that should facilitate law enforcement activities to improve public safety and border security in the area.

The Department notes and appreciates the fact that you involved us in the development of this plan from the beginning. Thank you for the opportunity to review and comment on this draft plan. We look forward to working with you as this project progresses.

Sincerely,

Russell K. Engel
Habitat Program Supervisor
Region IV, Yuma

cc: Pat Barber, Regional Manager, Region IV
Josh Avey, Chief, Habitat Branch

May 29, 2007

Charles W. Flynn
Executive Director
Yuma Crossing National Heritage Area Corporation
180 W. 1st Street, Suite E
Yuma, Arizona 85365

Dear Mr. Flynn:

In July 2007, I signed a letter of support for the proposed improvements in the "Hunter's Hole Concept Plan". I understand that you are now seeking a grant from the Arizona Water Protection Fund in the amount of \$648,389.00 to begin the first phase implementation of the restoration effort. I also understand that you have already received private foundation funding to proceed with design and permitting for the pilot project through the rest of 2008, so that you are in a position to start construction in 2009.

This project is an opportunity to reclaim this land which is currently in such a degraded condition. As the private property owner in the northern section of Phase I, I authorize access and use of this acreage for the purposes of restoration.

I look forward to working with you to restore Hunter's Hole.

Sincerely,



Jim Cumming



United States Department of the Interior



BUREAU OF LAND MANAGEMENT
Yuma Field Office
2555 East Gila Ridge Road
Yuma, AZ 85365
www.blm.gov/az/

In Reply Refer To:
1782 (AZ-320)

May 28, 2008

Charles Flynn, Executive Director
Yuma Crossing National Heritage Area
180 W. First Street, Suite E
Yuma, Arizona 85364

RE: Hunter's Hole Riparian and Wetlands Project

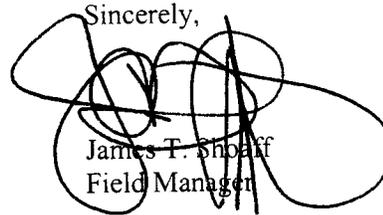
Dear Mr. Flynn:

The Yuma Field Office of the Bureau of Land Management is writing to express our support for the Hunter's Hole Demonstration project to meet environmental and border security concerns along the Limitrophe reach of the lower Colorado River. This project will provide an innovative approach to our current border challenges along with restoring critical wildlife habitat and will potentially provide recreation opportunities. The Yuma Crossing National Heritage Area and you have provided critical leadership in the coordination and collaboration among numerous stakeholders and recognize that communication will remain the key to successfully implementing this project.

We have reviewed the draft design and believe that it addresses both environmental and safety concerns in an effective manner. We look forward to the continued input and development of the concept, design, and implementation. As the federal land agency responsible for the management of the natural resources, we support completion of the pilot project as a first step of implementing a comprehensive approach which will conserve natural resources and strengthen security along the border. The Limitrophe is an extremely valuable wildlife habitat, especially as a flyway for international migratory songbirds. Escalated crime levels in the area have left the Limitrophe's natural resources at risk.

Thank you for the time and energy you have devoted to developing solutions which address these complex problems.

Sincerely,



James T. Shoaff
Field Manager



**YUMA COUNTY BOARD OF SUPERVISORS
RESOLUTION NO. 08-22**

A Resolution of the Yuma County Board of Supervisors supporting the environmental restoration efforts in the Limitrophe, promoting public safety, economic development, and improved border relations.

WHEREAS, the 23 mile Limitrophe section of the Colorado River, which serves as the border between the United States and Mexico, has suffered from both environmental degradation and high levels of crime; and

WHEREAS, the clearing of dense non-native vegetation and restoration of marsh, riparian, and upland habitat are important components in reclaiming this land for recreational and other public uses; and

WHEREAS, the U.S./Mexico Border Counties Coalition has previously endorsed these efforts by resolution in September 2007; and

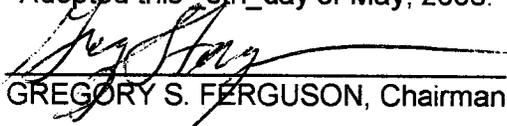
WHEREAS, a joint and concerted effort by the communities, local governments, and tribal nations bordering the Colorado River in Baja California and Arizona can help improve public safety, create jobs, improve the environment and improve the dynamics of border relations;

WHEREAS, THE "Common Ground" Conference of April 10-11, 2008 was held to promote these goals;

NOW, THEREFORE, BE IT RESOLVED that the Yuma County Board of Supervisors hereby:

- I. Specifically endorses the Limitrophe Bi-National Restoration Draft Plan Phase I unveiled at the conference, which involves 1,000 acres of restoration between River Miles No. 2 and No. 4 – also known as Hunter's Hole in the United States and known as Colonia Miguel Alemán in Mexico;
- II. Pledges to carry forth the Spirit of "Common Ground", which believes that our riverfront borderlands and its existing farmlands should be a protected common asset, not a "no-man's land". Reclaiming our joint river heritage can help serve as a model for a new era of border relations.

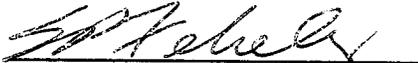
Adopted this 5th day of May, 2008.


GREGORY S. FERGUSON, Chairman

ATTEST:


Sue Stallworth, Clerk of the Board

APPROVED AS TO FORM:


Jon Smith, Yuma County Attorney



**YUMA COUNTY BOARD OF SUPERVISORS
RESOLUTION NO. 08-22**

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WHEREAS, the U.S./Mexico Border Counties Coalition has previously endorsed these efforts by resolution in September 2007; and

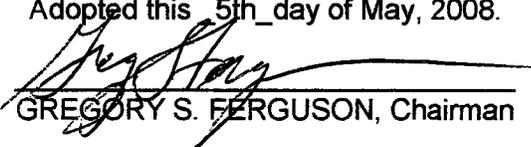
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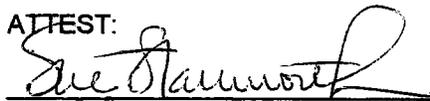
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- I. Specifically endorses the Limitrophe Bi-National Restoration Draft Plan Phase I unveiled at the conference, which involves 1,000 acres of restoration between River Miles No. 2 and No. 4 – also known as Hunter's Hole in the United States and known as Colonia Miguel Alemán in Mexico;
- II. Pledges to carry forth the Spirit of "Common Ground", which believes that our riverfront borderlands and its existing farmlands should be a protected common asset, not a "no-man's land". Reclaiming our joint river heritage can help serve as a model for a new era of border relations.

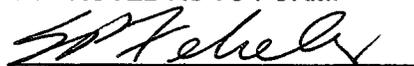
Adopted this 5th day of May, 2008.


GREGORY S. FERGUSON, Chairman

ATTEST:


Sue Stallworth, Clerk of the Board

APPROVED AS TO FORM:


Jon Smith, Yuma County Attorney

Evidence of Control and Tenure of Land

The applicant must have legal and physical access and authority to manage the area where grant tasks are to be performed and the area to be benefited by the grant. Cooperative agreements with all parties having such access and authority, or letters of support with a plan to obtain cooperative agreements prior to grant award shall meet this requirement.

- **If you do not own or manage the land on which the proposed project is located**, attach documentation verifying ownership (as noted above) and attach a copy of the permit, agreement or letter of intent that allows you access to the site. (See Attached Letter)

Evidence of Physical and Legal Availability of Water

If water will be used in the project the water must be physically and legally available to the applicant for the proposed purpose. Provide a projection of the total number of acre-feet per year necessary for the project. The City of Yuma also currently supports this proposed project and is providing their water allocation to irrigate this project (see support letter).



United States Department of the Interior



BUREAU OF RECLAMATION
Yuma Area Office
7301 Calle Agua Salada
Yuma, Arizona 85364

IN REPLY REFER TO:

YAO-7210
ENV-11.00

JUN 06 2008

Mr. Charles Flynn
Executive Director
Yuma Crossing National Heritage Area Corporation
180 West First Street, Suite E
Yuma, AZ 85364-1407

Subject: Hunters Hole Restoration Project (Project) - Arizona Water Protection Fund Grant
Application Requirements

Dear Mr. Flynn:

The Bureau of Reclamation, Yuma Area Office is providing you with information requested by your office to help complete the requirements of the Arizona Water Protection Fund grant application process. This information will assist you in your efforts to solicit funds for the proposed Project and provide supporting documentation of land accessibility and water availability for the Project.

The proposed Project is located along the lower Colorado River's Limitrophe Division, below Morelos Dam, on Reclamation withdrawn lands (federal managed lands), see enclosed map. The Project area is located south of Gadsden, Arizona all within portions of sections 23, 26, 27, 34, and 35 of Township 10 South, Range 25 West, Gila Salt River Meridian Yuma County, Arizona.

Any project undertaken on federal lands requires issuance of a permit, license, easements, and/or crossing agreement. As the lead federal agency, Reclamation would issue to the Yuma Crossing National Heritage Area (YCNHA) a license to use Reclamation lands. The proposed license would grant the YCNHA (including their consultants) use of the site for a term of up to 25 years. The YCNHA would be required to apply for this license by submitting a Right-of-Use Application before project implementation. The license would not be issued until the National Environmental Policy Act (NEPA) process is completed and design plans have been reviewed and approved by Reclamation.

To ensure compliance with Section 106 of the National Historic Preservation Act (NHPA), Reclamation proposes to consult with the Arizona State Historic Preservation Office (SHPO). A cultural resources survey (class III) was conducted on the Project area in the fall of 2007 by Reclamation's cultural resources consultant (ASM Affiliates). Once the report is completed, Reclamation will submit the report to SHPO for review and concurrence.

The Project site is located in an area where a Colorado River entitlement or contract will not be required. However it is also located within the Five-Mile Zone Protective and Regulatory Pumping Unit, which was established pursuant to the Colorado River Basin Salinity Control Act of 1974 (Act). The Act authorized the United States to construct, operate, and maintain, consistent with Minute No. 242, well fields capable of furnishing approximately one hundred and sixty thousand acre-feet of water per year for use in the United States and for delivery to Mexico in satisfaction of the 1944 Mexican Water Treaty. Minute 242 further provides that "...each country shall limit pumping of groundwaters in its territory within five miles (eight kilometers) of the Arizona-Sonora boundary near San Luis to 160,000 acre-feet (197,358,000 cubic meters) annually." Therefore, water that will be pumped and used for or within the Project area is required to be metered and reported to Reclamation, as well as the International Boundary and Water Commission, on a monthly and annual basis to ensure compliance of this international agreement and obligation.

Based on conversations between Reclamation staff and Mr. Fred Phillips, it is our understanding that approximately 3,000 acre-feet of water will be pumped annually for use within the Project. Because of Reclamation's international obligations to Mexico and the Five-Mile Zone pumping limitations, it is possible that, at some point in the future, project pumping may have to be curtailed, or cease altogether. Termination of pumping is not likely, but should be taken into consideration.

One well has been drilled at the Project site by Shuck Drilling Company. Well construction began on March 10, 2008, and was completed April 7, 2008. Although additional wells are currently proposed to be drilled, it is anticipated that the maximum use of 3,000 acre-feet (af) per annum will remain the same. Water use in excess of 3,000 af will need Reclamation approval. The following well information is provided for your information and use:

Well Registration Number: 55-217109

Depth: 320 feet

Borehole diameter: 16-inch

Pump size: 100 hp

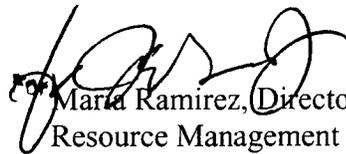
Estimated depth/length of perforated/screened intervals: 60 feet of perforated (mills knife) casing beginning at a depth of 230 feet and ending at a depth of 290 feet.

Method of well drilling: cable tool

If you have any questions, please contact Mr. Sean Torpey, Environmental and Compliance Group Manager at 928-343-8268 and/or Mr. Julian DeSantiago, Environmental Protection Specialist at telephone No. 928-343-8259.

Sincerely,

Acting

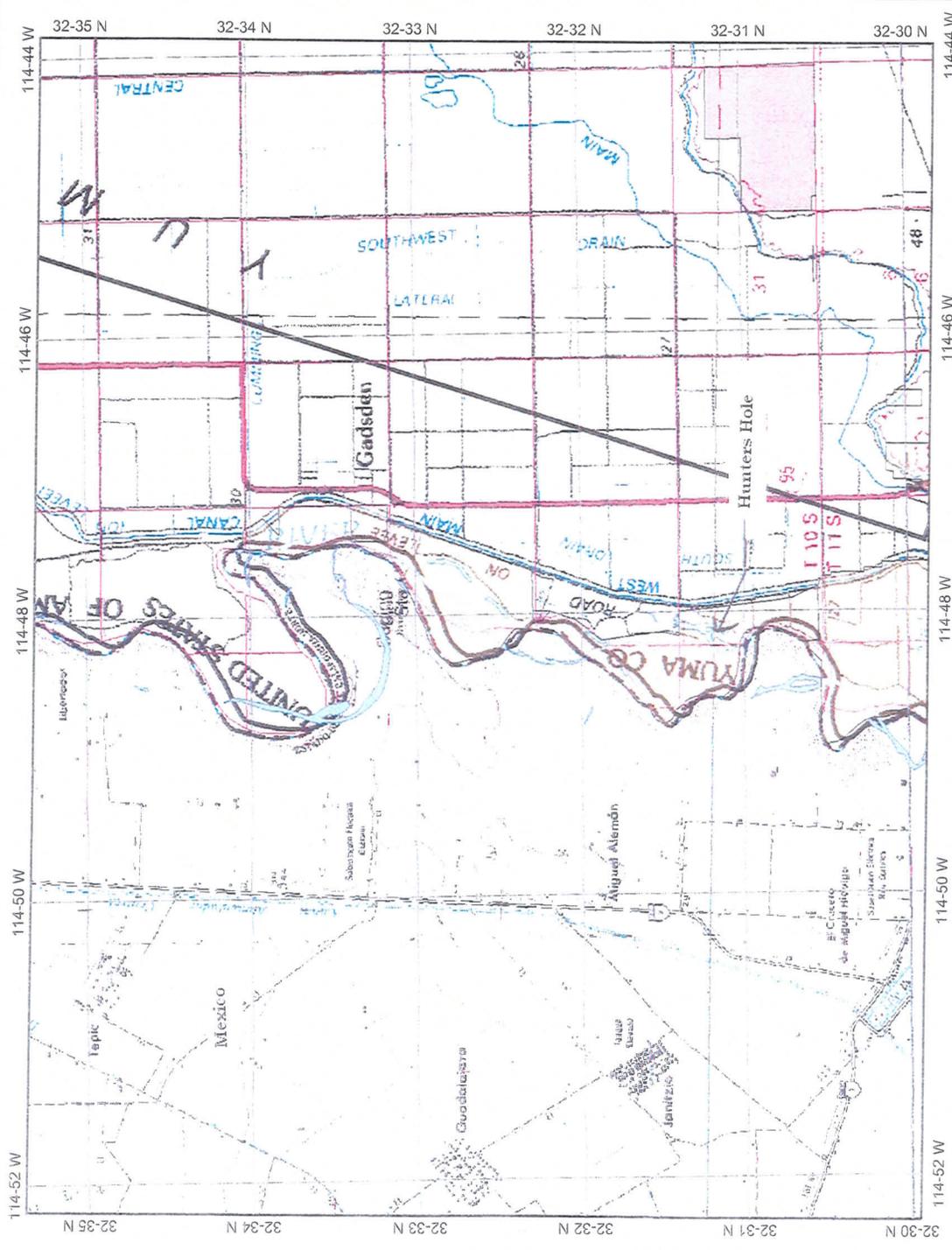

Maria Ramirez, Director
Resource Management Office

Enclosures - 4

1. Maps
2. Master title plats
3. County assessor plats
4. AWPf SHPO review form

cc: Ms. Heidi Kloeppe
Principle Biologist
Fred Phillips Consulting LLC
9730 Rosewood Drive
Flagstaff, AZ 86004
(w/encl)

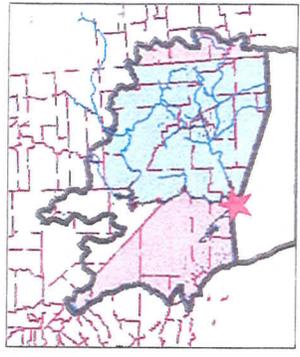
Portions of Land Status - Limitrophe Area



This map is a user generated static output from an internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Notes: Yellow - Federal Lands

Map center: 32° 32' 36" N, 114° 48' 5" W

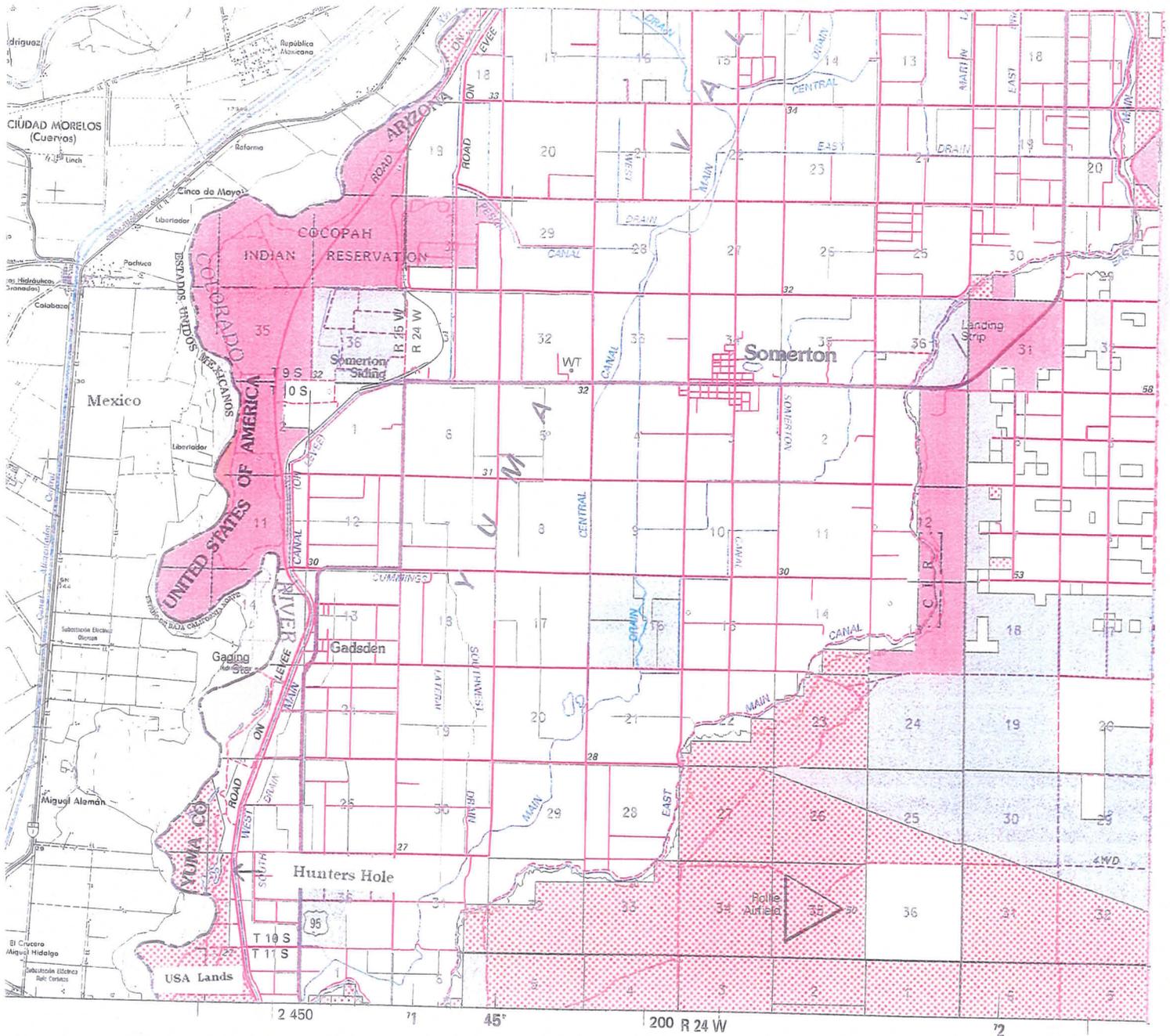


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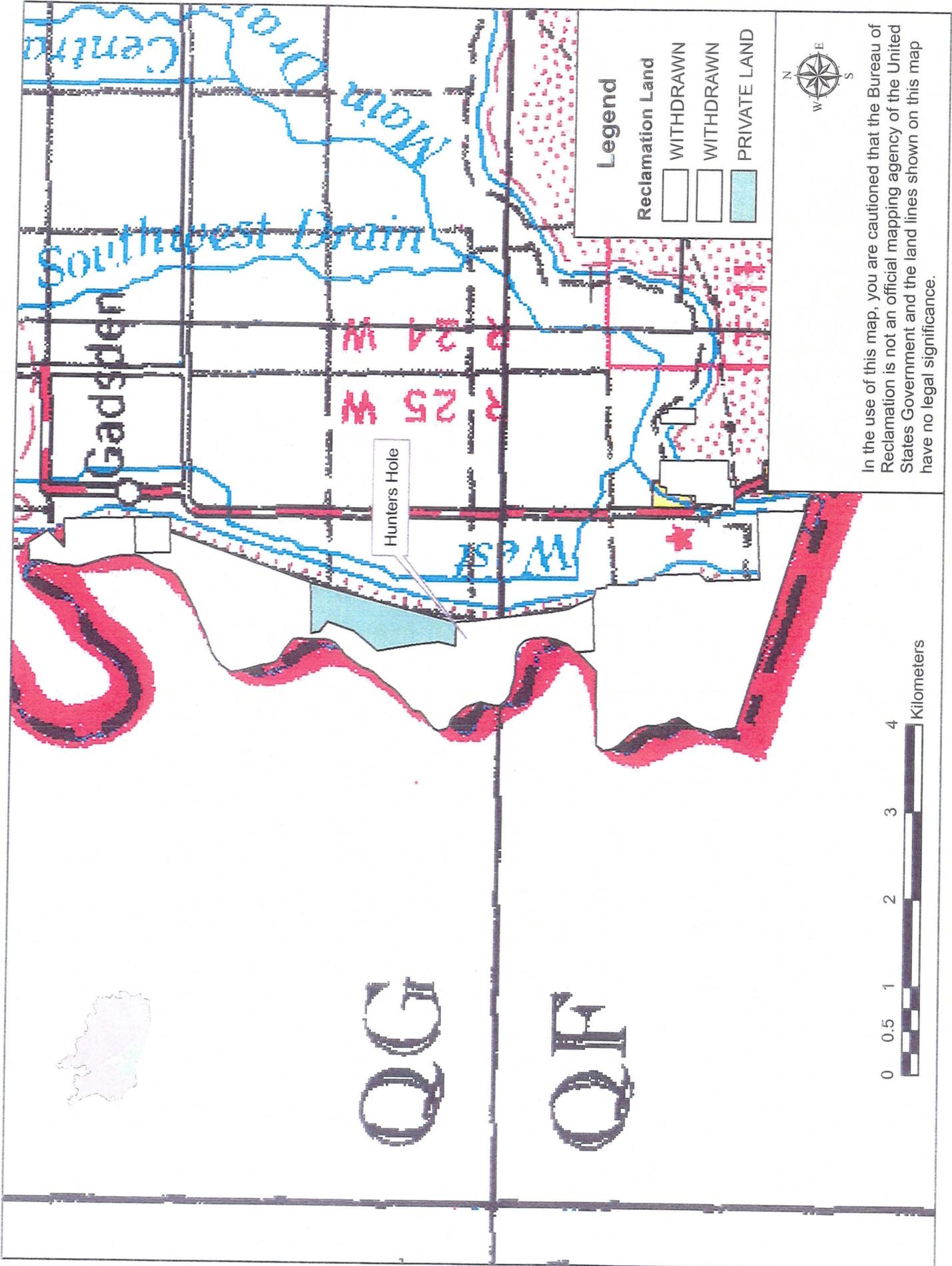
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- WITHDRAW2
- WITHDRAWN
- WITHDRAWN - INDIAN
- FEE
- EASMENT
- SOLD
- UNDEFINED
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- Brdy_Security_Zones
- criver97
- LC_Lakes_poly_no_Mead_Moha-
- VE
- criver_all_arc_wo_res
- ca_trs
- az_trs
- NV_trs
- lcr_reg_bnd
- lc_counties
- lcr_states_update
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- California
- Nevada
- New Mexico
- Utah



Scale: 1:70,435

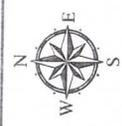


Bureau of Land Management
 Land Status Map 1998
 Portion showing T. 10 S., R. 25 W., G&SRM, AZ



Legend

- Reclamation Land
- WITHDRAWN
 - WITHDRAWN
 - PRIVATE LAND



In the use of this map, you are cautioned that the Bureau of Reclamation is not an official mapping agency of the United States Government and the land lines shown on this map have no legal significance.



GG

QF

Gadsden

Southwest Drain

Hunters Hole

R 25 W

R 24 W

Main Drain



TOWNSHIP 10 SOUTH RANGE 25 WEST OF THE GILA AND SALT RIVER MERIDIAN, ARIZONA

SECTION	SUBDIVISION				ACRES	KIND OF ENTRY OR PURPOSE OF ORDER	SERIAL FILE OR ORDER NUMBER	DATE OF ACTION	DATE POSTED	REMARKS - E G DATE CLOSED, TERMINATED, REJECTED OR RESCINDED AND INDIAN TREATIES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS
	NE 1/4	NW 1/4	SW 1/4	SE 1/4						
	FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHIN RANGE FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, AND INDIAN TREATIES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS	FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHIN RANGE FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, AND INDIAN TREATIES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS	FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHIN RANGE FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, AND INDIAN TREATIES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS	FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHIN RANGE FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, AND INDIAN TREATIES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS						
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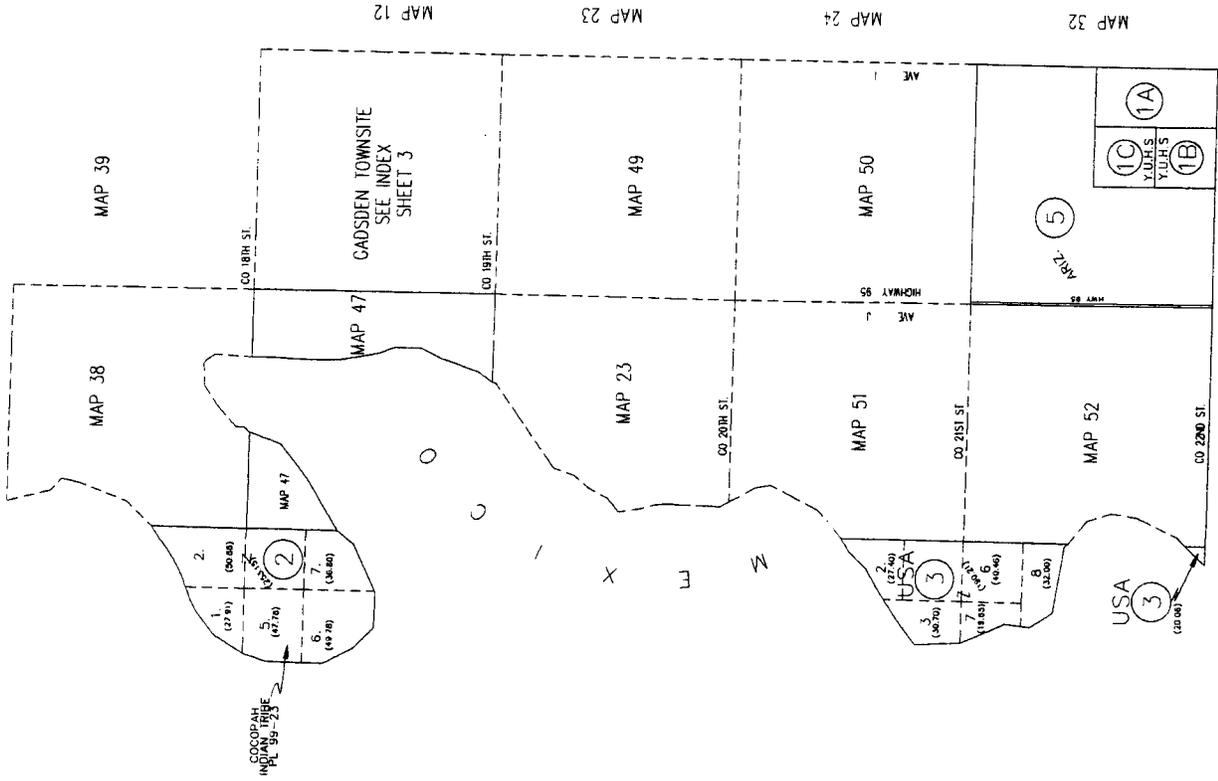
TOWNSHIP 10 SOUTH RANGE 25 WEST OF THE GILA AND SALT RIVER MERIDIAN, ARIZONA

SECTION	SUBDIVISION				ACRES	KIND OF ENTRY OR PURPOSE OF ORDER	SERIAL FILE OR ORDER NUMBER	DATE OF ACTION	DATE POSTED	REMARKS - E. G. DATE CLOSED, TERMINATED, REJECTED OR RESCINDED
	NE 1/4	NW 1/4	SW 1/4	SE 1/4						
10				1, 2						
11				12 thru 15						
14				8, 9						
15	X			5, 6, 7						
27			X	2, 3						
34				6, 7, 8						
35				6	691.94	OG Use.	A 17503	2/27/1982		Eff. 3/7/1982, excluding 60' reservation for International Boundary;
36	X	X	X		320.00	R/W Joint Use Agreement	A 18441	1/26/1983		
7						OG Use.	A 18568	9/5/1983		Eff. 10/1/1983 Term. 10/1/1990.
11						See Remarks				Within, over and across the Salt River Canal.
2						See Remarks				Within, over and across the Salt River Canal; Eff. 8/20/1964;
10				12-17, 19-27		R/W Transmission Lines	A 18438	12/1/1983		
11				1, 2						
11				5-16, incl.						
14				8, 9						
15	X			5-7, incl.	1,121.61	P. L. 99-23	A-21020	4/15/1985		Transfer to West Gocopah Indian Reser.; To be held in Trust by U.S.; DOE
14						LUP	A-23509	1/1/1987		To Term. 12/31/1991;
23				11, 12						
23				2, 7		Agricultural Land Use Lte.	A-22505	9/11/1987		To Term. 12/31/1991
35					13.22	Land Use Permit	A-23093	10/6/1988		Effective 1/1/1988; To term 12/31/1991; Agriculture Lease
36	X	X	X			PLD 7 REV.	PLD-7162	10/10/1995		(AZA-13400)

BOOK 102
MAP 35

TOWNSHIP 10S
RANGE 25W
SECTION 36
& PT OF 10,
15, 27, 34

YUMA COUNTY ASSESSOR	
SCALE	1" = 2000
FOR INFORMATION ONLY NO LIABILITY ASSUMED YUMA COUNTY ASSESSOR	
MAP LAST AMENDED	
05-29-87 555	001-5001 A, B
07-29-86 555	001 A-5001 A, B
01-08-01 555	001 A-5001 A, B
OS DIVISION UPDATE 01-12-01 BY JAMES BARRAZA DRAWN BY JCB 05-15-99 SUBDIVISIONS ON THIS MAP	



SAN LUIS SEE INDEX SHEET 4

Yuma County Assessor Plats
Books: 102 Maps: 35, 48, 51 & 52
Yuma County Land Status Records

BOOK 102
MAP 48

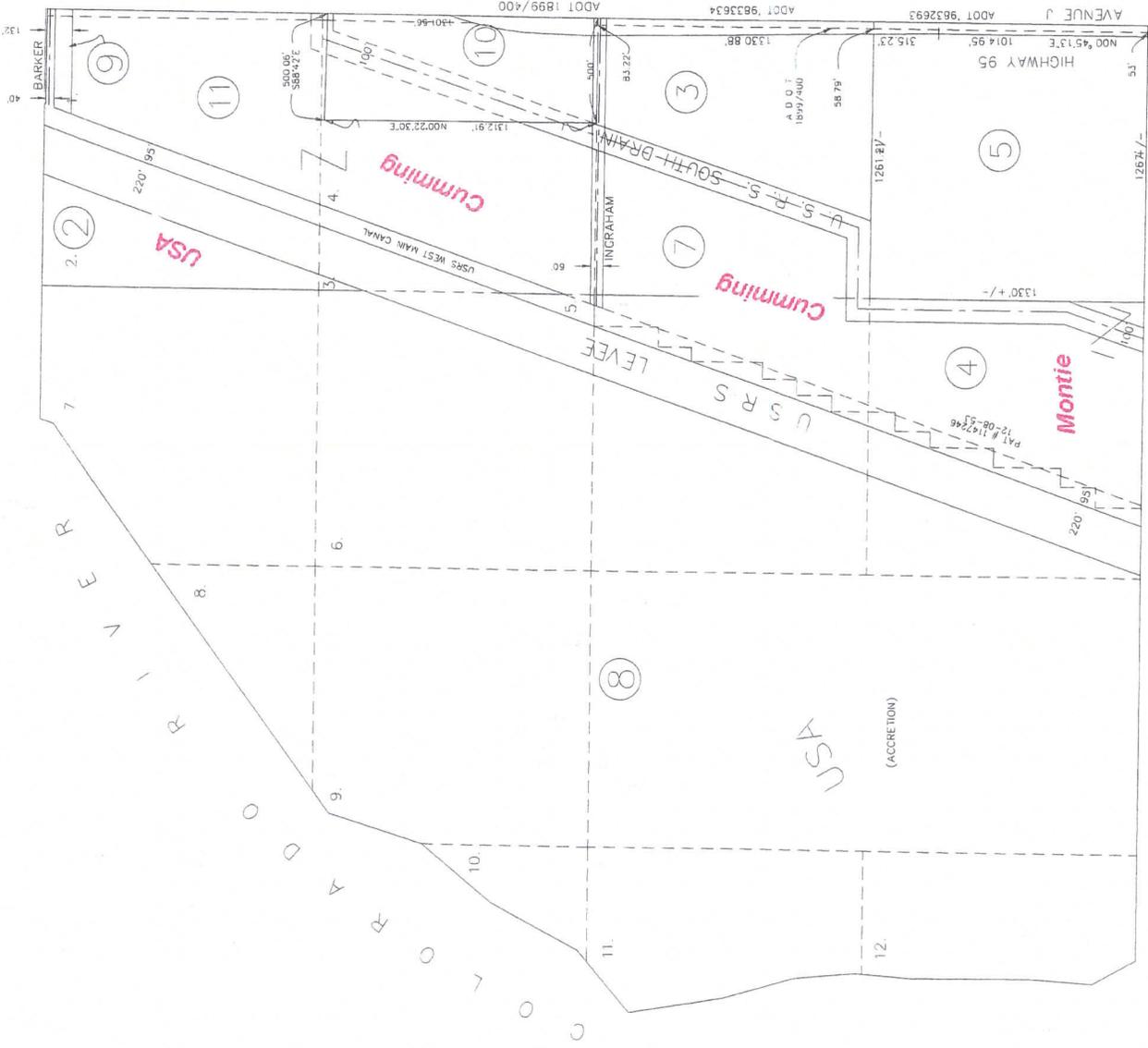
TOWNSHIP 10S
RANGE 25W
SECTION 23

YUMA COUNTY ASSESSOR	
SCALE	1" = 400'
FOR INFORMATION ONLY NO LIABILITY ASSUMED YUMA COUNTY ASSESSOR	
MAP LAST AMENDED	
12-10-03 SCS 08-13-99 SCS	ESMT. OFF. 005, 003
US DIVISION, LETALE 09-05-99 DRAWN BY SCS 05-24-99 SUBDIVISIONS ON THIS MAP	



SEE 102-47

SEE 102-49



SEE 102-51

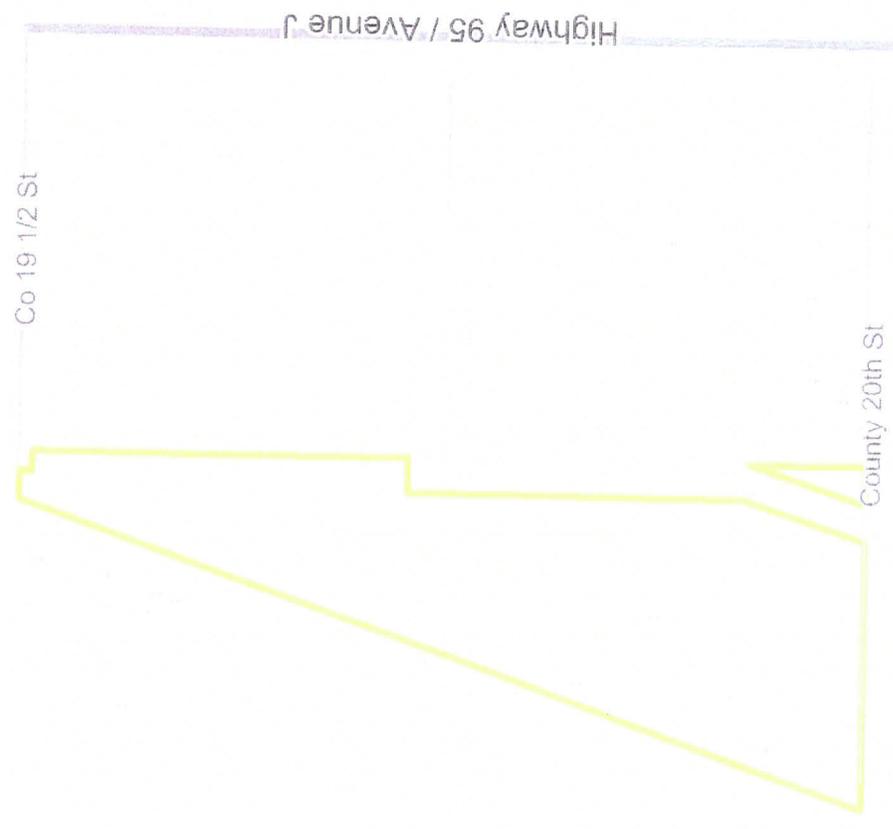
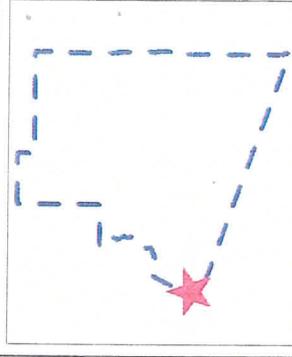
14-759-33-008
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002
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Yuma County Assessor Plats
Books: 102 Maps: 35, 48, 51 & 52
Yuma County Land Status Records



YUMA COUNTY
Internet Mapping Application

Monti/Prcl. 4 - Sec. 23



Legend

- County Border**
- Streets**
 - Primary / Secondary Roads
 - Local streets
 - Vehicular trail, road passable only by 4WD
 - Access ramp or service drive
 - Driveway, Stairway, Walkway, Alley or other thoroughfare
 - Other Roads
- Tax Parcels**
- Municipalities**
 - City of San Luis
 - City of Somerton
 - City of Yuma
 - Town of Wellton
 - Yuma County



Scale: 1:6,877

Map center: 178845, 562311

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.



Cumming/Prcl. 11, lots, 1, 4 & 5/Sec. 23

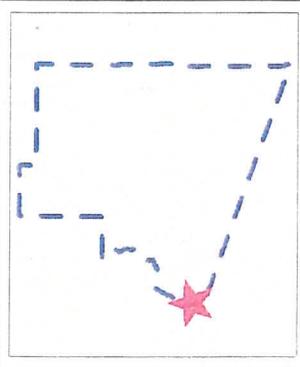


Map center: 180000, 564900

Scale: 1:6,612



This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.



- Legend**
- County Border
 - Streets
 - Primary / Secondary Roads
 - Local streets
 - Vehicular trail, road passable only by 4WD
 - Access ramp or service drive
 - Driveway, Stairway, Walkway, Alley or other thoroughfare
 - Other Roads
 - Tax Parcels
 - Municipalities
 - City of San Luis
 - City of Somerton
 - City of Yuma
 - Town of Wellton
 - Yuma County

Cumming/Prcl. 7 - sec. 23

Highway 95 / Avenue J / Main St

Co 19 1/2 St



0 240 480 ft.

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Map center: 179728, 563011

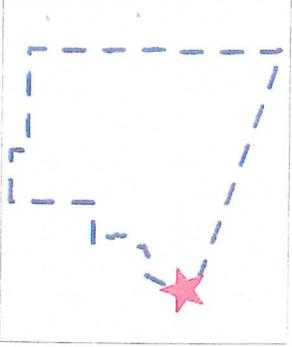


Scale: 1:4,090



Legend

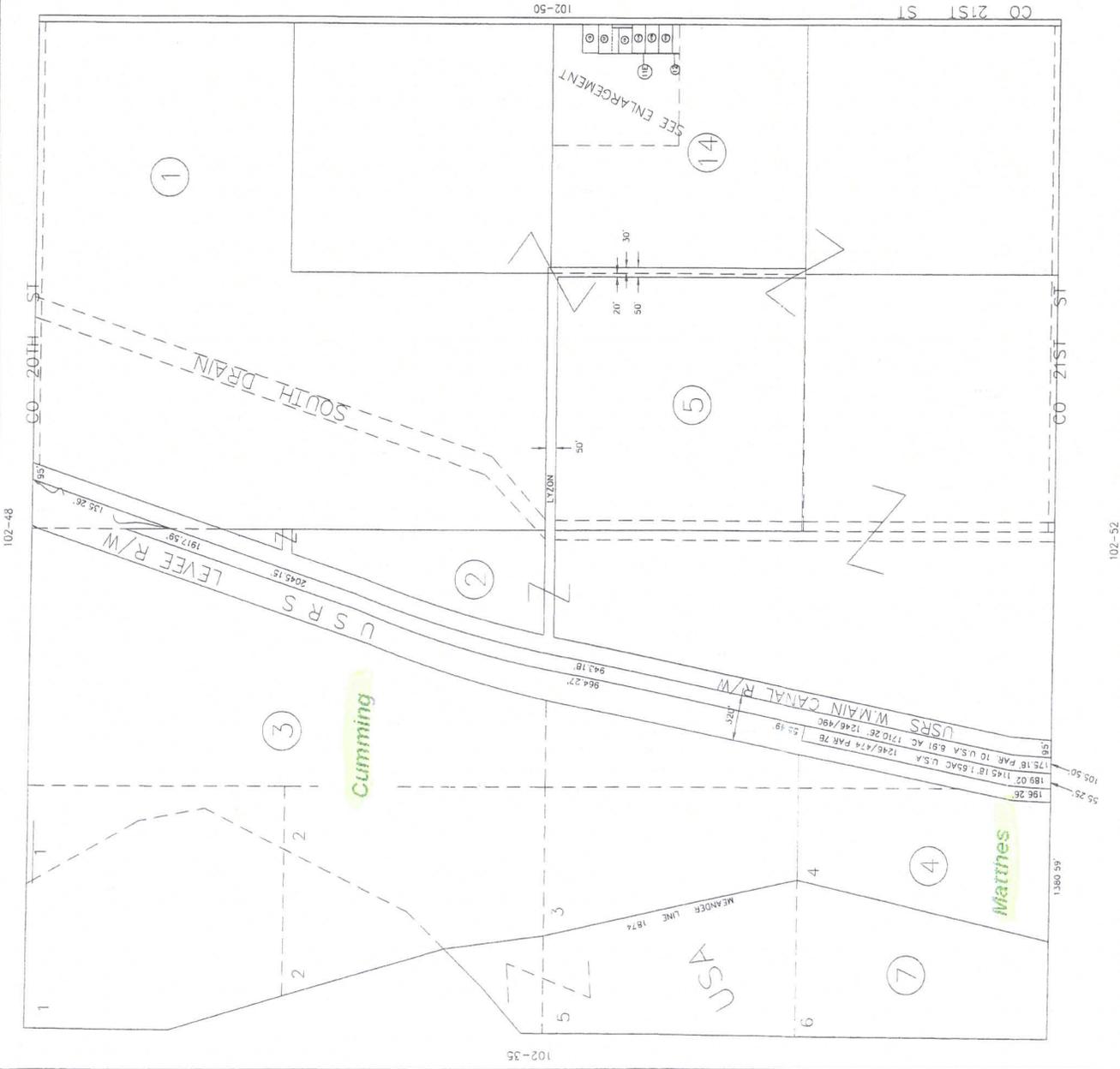
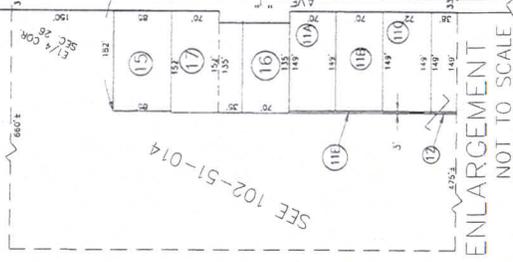
- County Border
- Streets
 - Primary / Secondary Roads
 - Local streets
 - Vehicular trail, road passable only by 4WD
 - Access ramp or service drive
 - Driveway, Stairway, Walkway, Alley or other thoroughfare
- Other Roads
- Tax Parcels
- Municipalities
 - City of San Luis
 - City of Somerton
 - City of Yuma
 - Town of Wellton
 - Yuma County



BOOK 102
MAP 51

TOWNSHIP 10S
RANGE 25W
SECTION 26

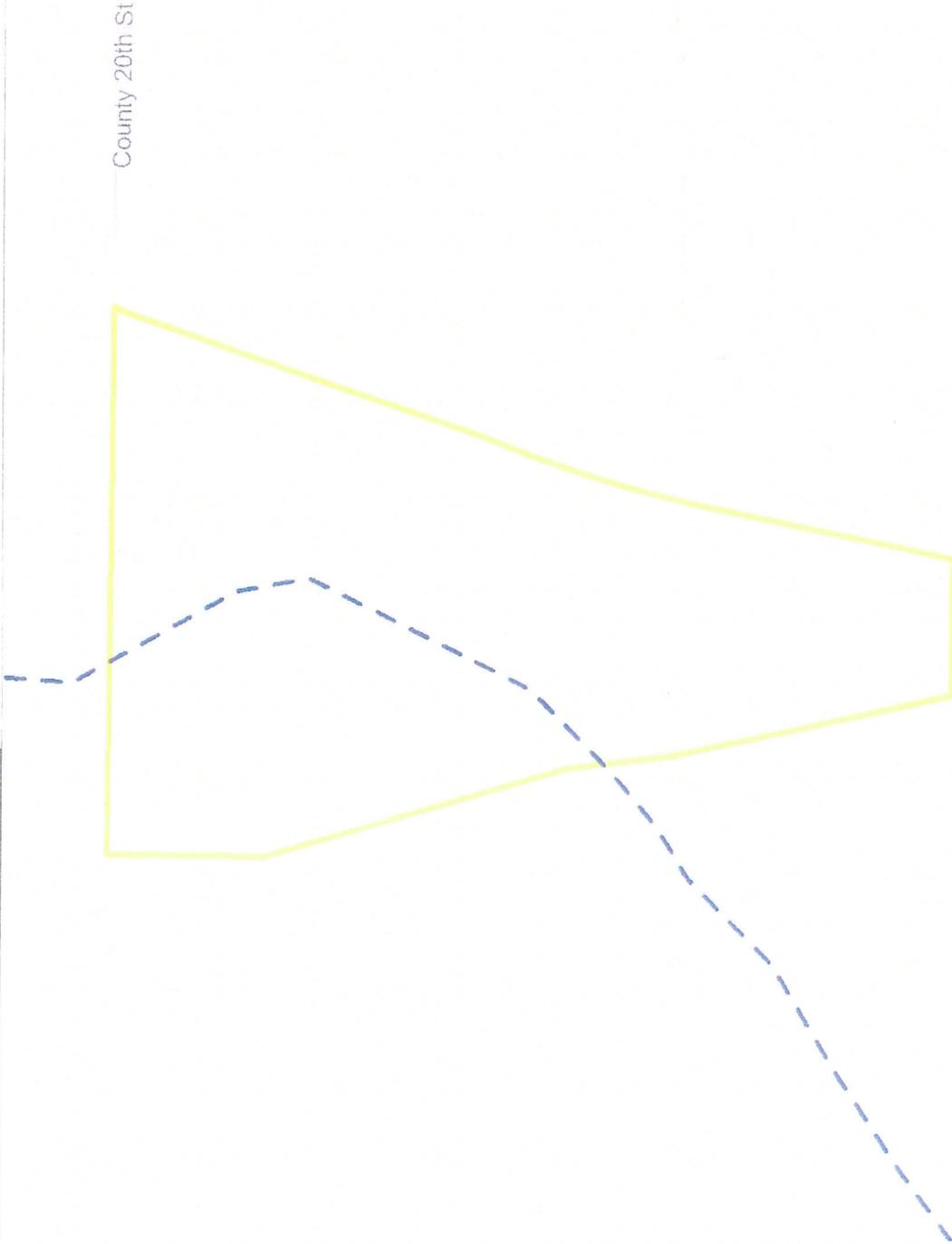
YUMA COUNTY ASSESSOR	
SCALE	1" = 400'
FOR INFORMATION ONLY NO LIABILITY ASSUMED YUMA COUNTY ASSESSOR	
MAP LAST AMENDED	
09-26-87 SCS 04-09-02 SCS	009 F+009 G--2016, 017
GCS DIVISION UPDATE 04-11-02 BY JAVIER BARRAZA DRAWN BY ERIC GUTIERREZ ON 10-27-99 SUBDIVISIONS ON THIS MAP	



Yuma County Assessor Plats
Books: 102 Maps: 35, 48, 51 & 52
Yuma County Land Status Records

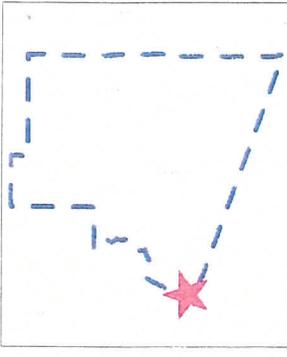


West of Levee, Sec. 26



Map center: 176767, 559011

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.



Legend

- County Border
- Streets**
 - Primary / Secondary Roads
 - Local streets
 - Vehicular trail, road passable only by 4WD
 - Access ramp or service drive
 - Driveway, Stairway, Walkway, Alley or other thoroughfare
- Other Roads
- Tax Parcels
- Municipalities**
 - City of San Luis
 - City of Somerton
 - City of Yuma
 - Town of Wellton
 - Yuma County



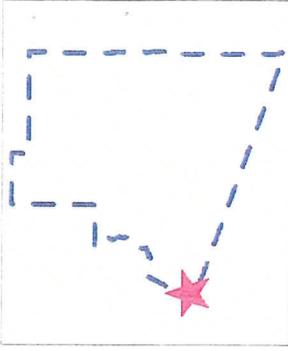
Scale: 1:9,407





YUMA COUNTY
Internet Mapping Application

Parcel 4/W Levee, Sec. 26, SWSW



Legend

- County Border
- Streets
 - Primary / Secondary Roads
 - Local streets
 - Vehicular trail, road passable only by 4WD
 - Access ramp or service drive
 - Driveway, Stairway, Walkway, Alley or other thoroughfare
 - Other Roads
- Tax Parcels
- Municipalities
 - City of San Luis
 - City of Somerton
 - City of Yuma
 - Town of Wellton
 - Yuma County



Scale: 1:4,369



Map center: 176405, 556350

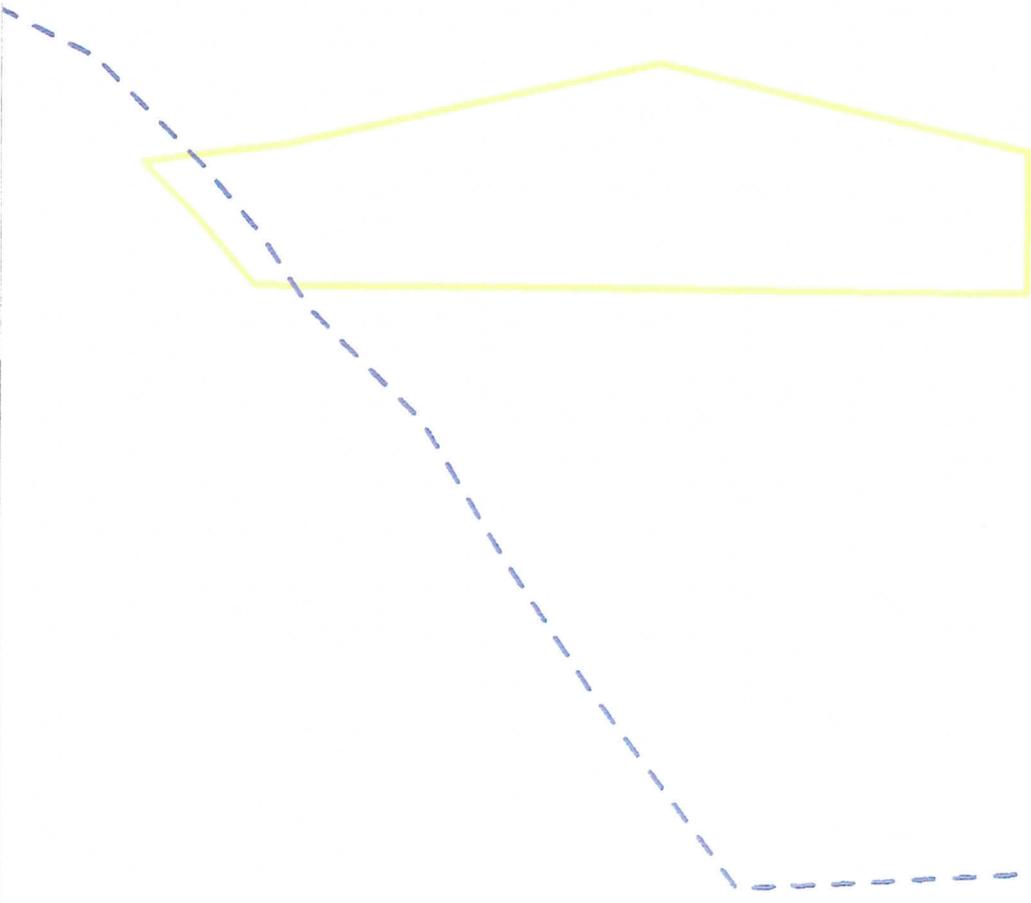
This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.





YUMA COUNTY
Internet Mapping Application

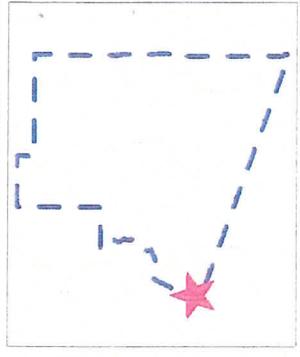
W/Levee Parcel 7 EESW



This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Map center: 175833, 557272

Scale: 1:7,808



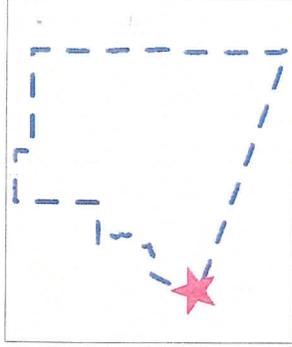
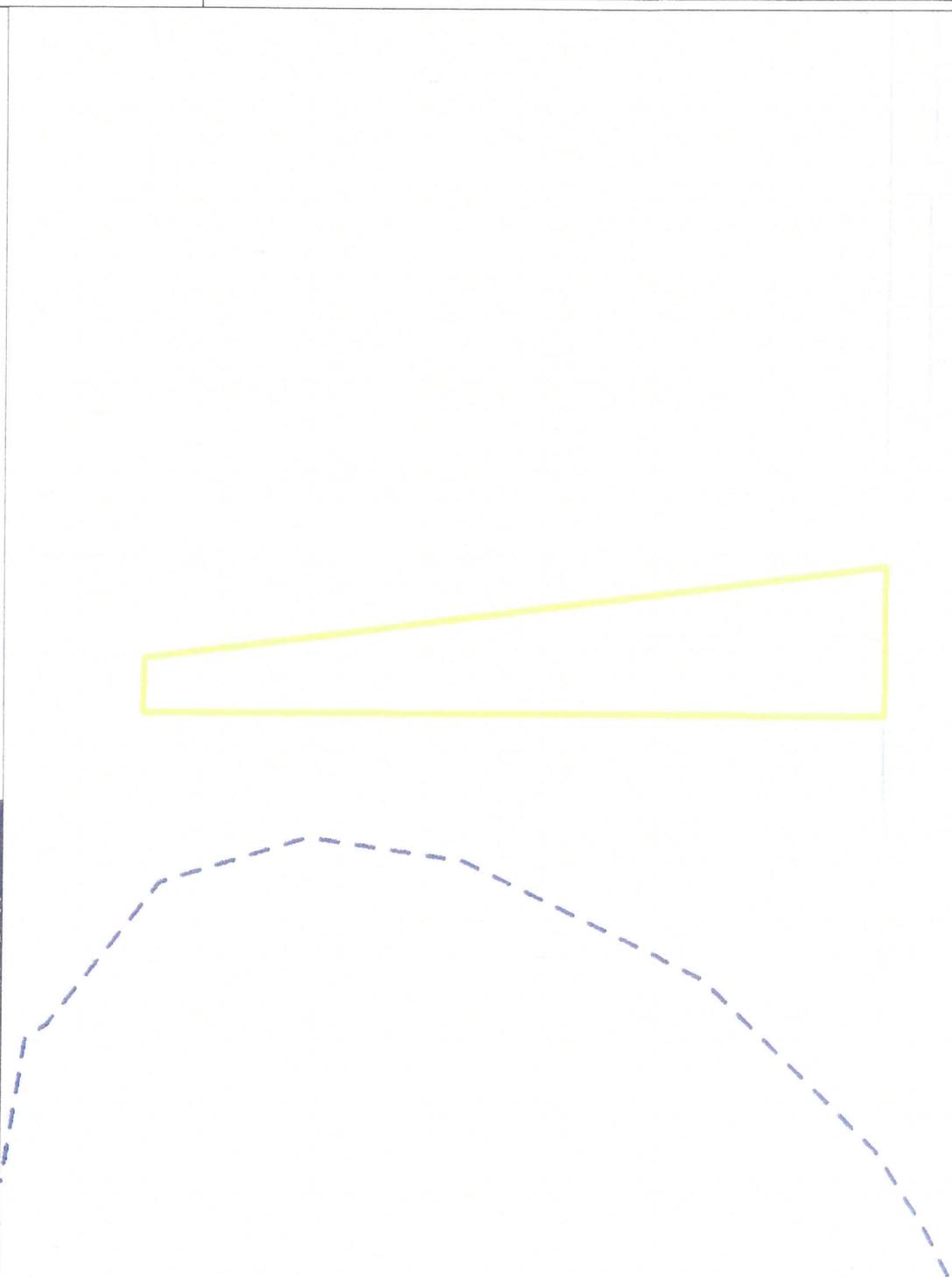
Legend

- County Border
- Streets
 - Primary / Secondary Roads
 - Local streets
 - Vehicular trail, road passable only by 4WD
 - Access ramp or service drive
 - Driveway, Stairway, Walkway, Alley or other thoroughfare
- Other Roads
- Tax Parcels
- Municipalities
 - City of San Luis
 - City of Somerton
 - City of Yuma
 - Town of Wellton
 - Yuma County



YUMA COUNTY
Internet Mapping Application

W/Levee, sec. 35 - Parcel 6



Legend

- County Border
- Streets
 - Primary / Secondary Roads
 - Local streets
 - Vehicular trail, road passable only by 4WD
 - Access ramp or service drive
 - Driveway, Stairway, Walkway, Alley or other thoroughfare
 - Other Roads
- Tax, Parcels
- Municipalities
 - City of San Luis
 - City of Somerton
 - City of Yuma
 - Town of Wellton
 - Yuma County



Scale: 1:6,902



Map center: 176964, 551679

This map is a user generated static output from an internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.



ARIZONA DEPARTMENT OF WATER RESOURCES

3550 N. Central Avenue, Phoenix, Arizona 85012

Telephone (602) 771-8500

Fax (602) 771-8691

December 27, 2007



Janet Napolitano
Governor

Herbert R. Guenther
Director

YUMA CROSSING NATIONAL HERITAGE AREA
180 W 1ST STREET SUITE A
YUMA, AZ 85364

Registration No. 55-217109
File No. C(10-25) 35 BBD

Dear Well Owner:

Enclosed is a copy of the Notice of Intention (NOI) to Drill a well that you recently filed with this Department pursuant to A.R.S. § 45-596. This is to inform you that the Department has approved the NOI and has mailed or otherwise provided a drilling card authorizing the drilling of the well to the well driller identified in the NOI. The driller may not begin drilling until he has received the drilling card, which must be displayed on the drill rig during drilling. **PLEASE NOTE:** The Authorization to drill this well **DOES NOT constitute or guarantee an approval to use the well for the purpose of withdrawing groundwater for transportation to an Active Management Area (AMA)** pursuant to A.R.S. § 45-552, 45-553, 45-554 or 45-555(A). Groundwater **may not** be withdrawn from this well for these transportation purposes **without official prior approval from the Department**. Please contact the office in the AMA where the groundwater is to be transported to determine what additional forms are needed and for more information on this process.

Well drilling activities must be completed within one year after the date the NOI was filed with the Department. If drilling is not completed within one year, you must file a new NOI before proceeding with further drilling. If in the course of drilling the well, it is determined that the well cannot be successfully completed as initially intended (dry hole, cave in, lost tools, etc.), the well must be properly abandoned and a Well Abandonment Completion Report must be filed as required by A.A.C. R12-15-816(F).

If you change drillers, you must notify the Department of the new driller's identity. Please ensure that the new driller is licensed by the Department to drill the type of well you require. A new driller may not begin drilling until he receives a new drilling card from the Department. If you are drilling a new or replacement well and it is necessary to change the location of the proposed well, you may not proceed with drilling until you file an amended NOI with the Department and the Department issues an amended drilling card to the driller. If county approval was required for the original well site plan (this applies to domestic wells on parcels that are five acres or less), you must submit a new well site plan with the new well location to your local county health authority for approval prior to filing the amended NOI with the Department.

A.R.S. § 45-600 requires the registered well owner to complete and file a Pump Installation Completion Report form (DWR form 55-56) within 30 days after the installation of pumping equipment. A form is enclosed for your use. Also enclosed is a well owner's guide that provides useful information and advice concerning your upcoming well construction project. A.R.S. § 45-600 also requires the driller to file a complete and accurate Well Drillers Report and Well Log (DWR form 55-55) within 30 days after completion of drilling. That form was mailed to your driller with the drilling card. You should insist and ensure that all of the required forms are accurately completed and timely filed with the Department.

Please be advised that A.R.S. § 45-593(C) requires the person to whom a well is registered to notify the Department of a change in ownership of the well and/or information pertaining to the physical characteristics of the well in order to keep this well registration file current and accurate. Any change in well information or a request to change well driller must be filed on a Request to Change Well Information form (DWR form 55-71A) that may be downloaded from the ADWR Internet website at <<http://www.water.az.gov/adwr/content/forms/default.htm#NOI>>.

Sincerely,

Toni Bergeman

NOI Unit

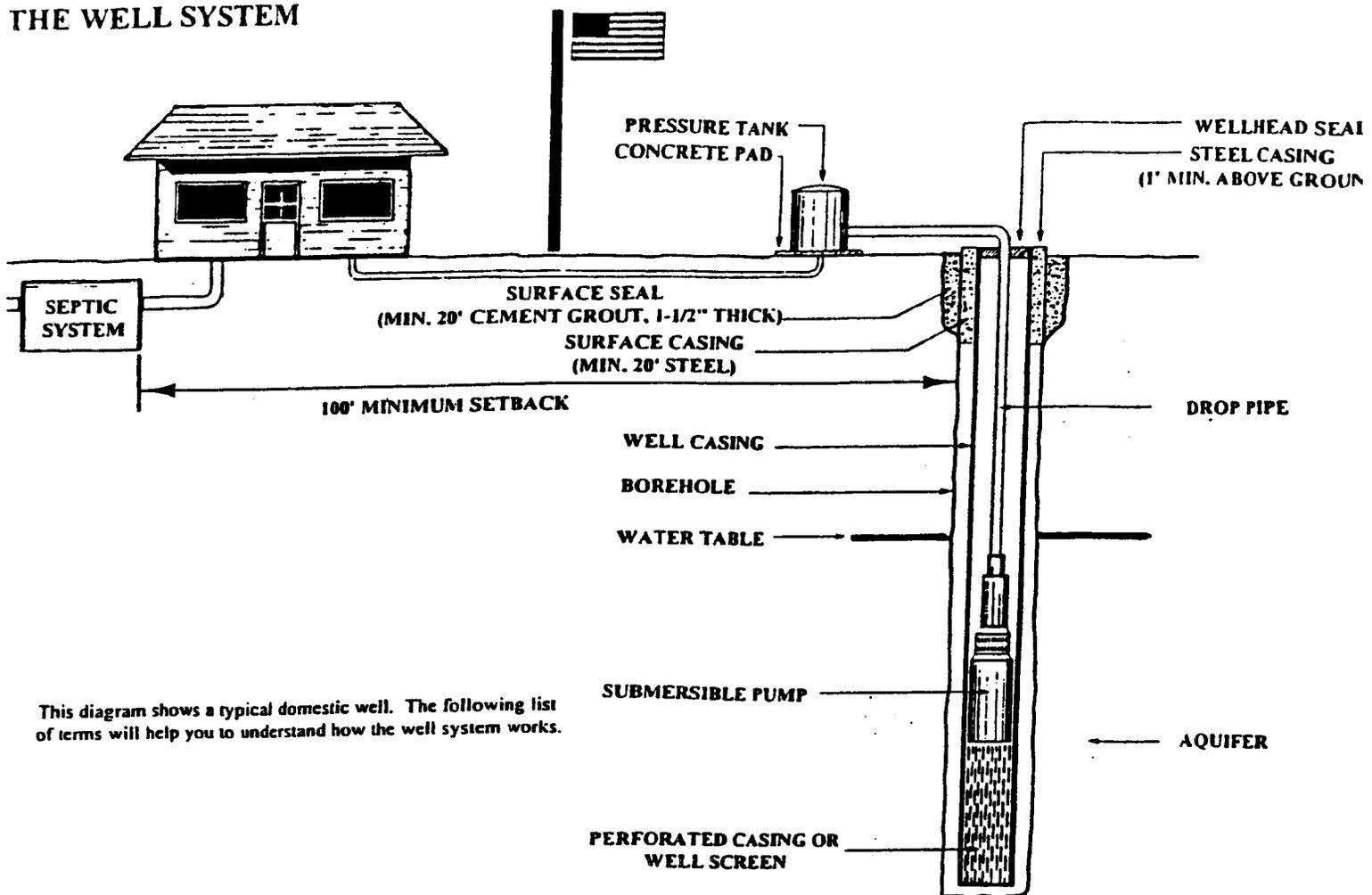
Water Management Support Section

Enclosures



Printed on recycled paper. Each ton of recycled paper saves 7,000 gallons of water.

THE WELL SYSTEM



This diagram shows a typical domestic well. The following list of terms will help you to understand how the well system works.

NOTE: THIS DIAGRAM IS NOT TO SCALE

Aquifer: An underground formation capable of yielding or transmitting usable quantities of water.

Borehole: The hole which is created by any one of a number of well construction methods, i.e. drilled, dug, jetted or driven.

Cap: A tamper-resistant, watertight cover which is affixed to the top of the casing to help prevent contaminants, as well as small animals and children, from entering the well.

Casing: A steel or plastic (PVC) pipe installed in the borehole during or after drilling to support the sides of the well and prevent caving.

Drop pipe: The pipe that hangs in the well and is attached to the pump. Water travels through the drop pipe to the surface.

Open well: A well which is not equipped with either a cap or a pump.

Perforated casing: A series of openings in a casing, made either before or after installation of the casing, to permit the entrance of water into the well.

Pressure tank: A tank used to store water under pressure for household use.

Pump: The part of the well that mechanically draws water up to the surface. There are many different types of pumps. This diagram shows a submersible pump which is typical for domestic wells.

Surface seal: A cement grout seal that is installed around the top 20 feet of the steel casing to prevent contaminants from entering the well from the land surface.

Water table: The point where groundwater is encountered below the land surface. To withdraw water, a well must be drilled deep enough to reach below the water table.

Well depth: The total depth of your well. This will vary depending upon the depth to useable water in your area.

Well screen: A factory manufactured steel or PVC screen that keeps sand or gravel from being drawn into the well as water is pumped. The perforated casing or well screen is usually located at the bottom of the well or in the water-producing zone.

Wellhead seal: A device used to seal between the drop pipe and the casing.

Glen U. FAX

317-0950

DEC 24

 <p>Arizona Department of Water Resources Water Management Support Section P.O. Box 33589 Phoenix, Arizona 85067-3589 (602) 771-8500 • (800) 352-8488 (602) 771-8691 fax • www.azwater.gov</p>	<p>Notice of Intent to Drill, Deepen, Replace or Modify a Well (except a Non-Exempt Well in an Active Management Area)</p>	<p>\$150 or \$100 FEE</p>
	<p>Review instructions prior to completing form in black or blue ink. You must include with your Notice: • Check or money order in the amount of the appropriate filing fee. • For a well located within an AMA or INA, the fee is \$150.00. • For a well not located within an AMA or INA, the fee is \$100.00 if the well will be used solely for domestic purposes (see page 2 and instructions) and will have a pump with a maximum capacity of not more than 35 gallons per minute. Otherwise, the fee is \$150.00. • Authority for fee: A.R.S. § 45-596. ** PLEASE PRINT CLEARLY **</p>	

AMA / INA	8	58	FILE NUMBER
RECEIVED	DATE	WS	C(10-25)35BBD
12-24-07	02		WELL REGISTRATION NUMBER
ISSUED	DATE	WDARP	55-217109
12-26-07		CERCLA	

SECTION 1. COUNTY OR LOCAL HEALTH AUTHORITY APPROVAL (If Required)

If water from the proposed well will be used for domestic purposes on a parcel of land of 5 or fewer acres, the applicable county or local health authority must endorse all items in Section 1 within one year before submission to the Department of Water Resources. You must also attach a site plan (pg. 3).

CHECK ONE

County or Local Health Authority Recommends Approval (pursuant to A.R.S. § 45-596 (G) and (F))

Field Inspection Performed

Site Plan Review Only

Insufficient Information to Make a Determination

COUNTY OR LOCAL AUTHORITY NAME AND TITLE

TELEPHONE NUMBER

DATE

COUNTY OR LOCAL AUTHORITY SIGNATURE

Official County or Local Seal or Stamp

N/A

SECTION 2. REGISTRATION INFORMATION

<p>Well Type</p> <p>CHECK ONE</p> <p><input type="checkbox"/> Exempt (Pump has a maximum capacity of not more than 35 gpm and water is not used for irrigation purposes inside an AMA.) (See instructions.)</p> <p><input checked="" type="checkbox"/> Non-Exempt (Pump has a maximum capacity of more than 35 gpm and the well is located outside an AMA.) (See instructions.)</p> <p>DESIGN PUMP CAPACITY 3500 Gallons Per Minute</p>	<p>Proposed Action</p> <p>CHECK ONE</p> <p><input checked="" type="checkbox"/> Drill New Well</p> <p><input type="checkbox"/> Deepen</p> <p><input type="checkbox"/> Replace</p> <p><input type="checkbox"/> Modify</p> <p>If Deepening, Replacing or Modifying: ORIGINAL WELL REGISTRATION NUMBER 55 -</p> <p>MAXIMUM CAPACITY OF ORIGINAL WELL Gallons Per Minute</p> <p>DISTANCE & DIRECTION FROM ORIGINAL WELL Feet</p>	<p>Location of Well</p> <p>WELL LOCATION ADDRESS (IF ANY) Lever Rd & County 21st St.</p> <table border="1"> <tr> <td>TOWNSHIP (N/S)</td> <td>RANGE (E/W)</td> <td>SECTION</td> <td>160 ACRE</td> <td>40 ACRE</td> <td>10 ACRE</td> </tr> <tr> <td>10S</td> <td>25W</td> <td>35</td> <td>NW 1/4</td> <td>NW 1/4</td> <td>SE 1/4</td> </tr> </table> <p>COUNTY ASSESSOR'S PARCEL ID NUMBER</p> <table border="1"> <tr> <td>BOOK</td> <td>MAP</td> <td>PARCEL</td> <td># OF ACRES</td> </tr> <tr> <td></td> <td></td> <td></td> <td>500</td> </tr> </table> <p>PLACE OF WATER USE (ONLY IF DIFFERENT FROM LOCATION OF WELL)</p> <table border="1"> <tr> <td>TOWNSHIP (N/S)</td> <td>RANGE (E/W)</td> <td>SECTION</td> <td>160 ACRE</td> <td>40 ACRE</td> <td>10 ACRE</td> </tr> <tr> <td></td> <td></td> <td></td> <td>1/4</td> <td>1/4</td> <td>1/4</td> </tr> </table> <p>COUNTY WHERE WELL IS LOCATED YUMA</p>	TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE	10S	25W	35	NW 1/4	NW 1/4	SE 1/4	BOOK	MAP	PARCEL	# OF ACRES				500	TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE				1/4	1/4	1/4
TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE																													
10S	25W	35	NW 1/4	NW 1/4	SE 1/4																													
BOOK	MAP	PARCEL	# OF ACRES																															
			500																															
TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE																													
			1/4	1/4	1/4																													

SECTION 3. OWNERS INFORMATION

<p>Well Owner:</p> <p>FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL Yuma Crossing National Heritage Area</p> <p>MAILING ADDRESS 180 W. 1st Street, Suite A</p> <p>CITY / STATE / ZIP CODE Yuma AZ 85364</p> <p>CONTACT PERSON NAME AND TITLE Kevin Eatherly, CIP Project Manager</p> <p>TELEPHONE NUMBER 928-373-5195</p> <p>FAX 928-373-5191</p>	<p>Landowner (if different from Well Owner):</p> <p>FULL NAME OF COMPANY, GOVERNMENT AGENCY, OR INDIVIDUAL US Bureau of Reclamation</p> <p>MAILING ADDRESS 7301 Calle Agua Salada</p> <p>CITY / STATE / ZIP CODE Yuma AZ 85364</p> <p>CONTACT PERSON NAME AND TITLE Cindy Hoeft</p> <p>TELEPHONE NUMBER 928-343-3185</p> <p>FAX 928-343-3320</p>
--	---

SECTION 4. Questions

Questions	Yes	No	If Yes:
1. Is the proposed well site within 100 feet of a septic tank system, sewer disposal area, landfill, hazardous materials or petroleum storage area or tank?		X	You must also request a variance (A.A.C. R12-15-818).
2. Is there another well name or identification number associated with this well (e.g., Lot 35 Well, Smith Well, etc.)?		X	PLEASE STATE
3. Is the proposed well a NEW well to be located within an Active Management Area? (See instructions)		X	Unless the well is a replacement well and the total number of operable exempt wells on the land is not increasing, you must also file a supplemental form A.R.S. § 45-454(C) & (D).
4. Is the proposed well the second exempt well on this parcel for the same use?		X	If the proposed well is in an Active Management Area, you must also file a supplemental form 55-40A.

ORIGINAL

Notice of Intent to Drill, Deepen, Replace or Modify a Well

DEC 2 4

WELL REGISTRATION NUMBER
55-217109

SECTION 1: DRILLING AUTHORIZATION		SECTION 2: WATER USE INFORMATION	
Drilling Firm NAME: Shuck Drilling AZ LLC DWR LICENSE NUMBER: 244 ROC LICENSE CATEGORY: A-04 TELEPHONE NUMBER: 928-726-5153 FAX: 928-726-6411 MAILING ADDRESS: 18927 S. Ave 3E CITY / STATE / ZIP CODE: Yuma AZ 85365 DATE CONSTRUCTION IS TO BEGIN: January 7, 2008		Principal Use of Water CHECK ONE <input checked="" type="checkbox"/> Irrigation <input type="checkbox"/> Utility <input type="checkbox"/> Commercial <input type="checkbox"/> Domestic <input type="checkbox"/> Municipal <input type="checkbox"/> Industrial <input type="checkbox"/> Mining <input type="checkbox"/> Stock <input type="checkbox"/> Recharge <input type="checkbox"/> Dewatering <input type="checkbox"/> Other* (please specify):	Other Uses of Water CHECK ALL THAT APPLY <input type="checkbox"/> Irrigation <input type="checkbox"/> Utility <input type="checkbox"/> Commercial <input type="checkbox"/> Domestic <input type="checkbox"/> Municipal <input type="checkbox"/> Industrial <input type="checkbox"/> Mining <input type="checkbox"/> Stock <input type="checkbox"/> Recharge <input type="checkbox"/> Dewatering <input type="checkbox"/> Other* (please specify):

NOTE: If this is an application to construct a new well that will be used for the purpose of withdrawing groundwater for transportation to an Active Management Area (AMA) pursuant to A.R.S. § 45-552, 45-553, 45-554 or 45-555(A), the authorization to drill the well issued in association with this Notice shall not be considered the approval to transport groundwater to an AMA. (see instructions)

Borehole			Casing														
DEPTH FROM SURFACE		BOREHOLE DIAMETER (inches)	DEPTH FROM SURFACE		OUTER DIAMETER (inches)	MATERIAL TYPE (T)				PERFORATION TYPE (T)				GROUTING MATERIAL			
FROM (feet)	TO (feet)		FROM (feet)	TO (feet)		STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE		SLOTTED	IF OTHER TYPE, DESCRIBE	
0	20	48	0	20	30	X											
0	200	30	0	200	30	X											Cement
200	280	20	200	280	30	X				X				X			3/8 Grout 3/8 Grout

* ADWR well construction standards require a surface seal consisting of a minimum of 20 feet of steel casing. Cement grout must be used to fill the annular space between the surface casing and the borehole. (A.A.C. R12-15-81(B))

The Department's issuance of an authorization to drill a well is not a determination of whether water withdrawn from the well is legally surface water or groundwater. The legal nature of the water withdrawn from the well may be the subject of court action in the future as part of a determination of surface water rights in your area. If there are court proceedings that could affect your well, you will be notified and be given the opportunity to participate. If you have questions regarding the legal nature of the water to be withdrawn from your proposed well, please consult with an experienced civil engineer, hydrologist or water rights attorney.

For the purposes of determining appropriate fees outside AMAs or INAs, "domestic purposes" is defined as "uses related to the supply, service and activities of households and private residences and includes the application of water to less than 2 acres of land to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry, as such terms are defined in A.R.S. § 3-1201."

I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and belief.

TYPE OR PRINT NAME AND TITLE	
SIGNATURE OF WELL OWNER	DATE
SIGNATURE OF LANDOWNER, IF APPLICABLE (SEE INSTRUCTIONS)	DATE

ORIGINAL



ARIZONA DEPARTMENT OF WATER RESOURCES
 Information Management Unit
 P.O. Box 33589, Phoenix, Arizona 85067-3589
 (602) 771-8527 * (800) 352-8488
 www.water.az.gov

Pump Installation Completion Report

Review instructions prior to completing form
 The registered well owner should file this report with the Department within 30 days
 following installation of pump equipment

FILE NUMBER
C(10-25) 35 BBD
 WELL REGISTRATION NUMBER
55-217109

**** PLEASE PRINT CLEARLY ****

SECTION 1. REGISTRY INFORMATION

Well Owner		Location of Well					
FULL NAME OF COMPANY, ORGANIZATION OR INDIVIDUAL YUMA CROSSING NATIONAL HERITAGE AREA		WELL LOCATION ADDRESS (IF KNOWN)					
MAILING ADDRESS 180 W 1ST STREET SUITE A		TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
CITY / STATE / ZIP YUMA, AZ 85364		COUNTY	ASSESSOR'S PARCEL ID NUMBER (MOST RECENT)	BOOK	MAP	PARCEL	
CONTACT PERSON NAME AND TITLE		COUNTY WHERE WELL IS LOCATED					
TELEPHONE NUMBER 928-373-5195	FAX						

SECTION 2. EQUIPMENT INSTALLED

DATE PUMP INSTALLED	Pitless Adaptor	
Pump Type	CHECK ONE (SEE INSTRUCTIONS FOR DEFINITION)	
CHECK ONE	Was a pitless adaptor installed? <input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Air Lift	IF YES, DEPTH BELOW GROUND LEVEL THE DEVICE WAS INSTALLED	
<input type="checkbox"/> Bucket	Feet	
<input type="checkbox"/> Centrifugal	Power Type	
<input type="checkbox"/> Jet	CHECK ONE	
<input type="checkbox"/> Piston	<input type="checkbox"/> Diesel Engine <input type="checkbox"/> Natural Gas	
<input type="checkbox"/> Rotary	<input type="checkbox"/> Electric Motor <input type="checkbox"/> Windmill	
<input type="checkbox"/> Submersible	<input type="checkbox"/> Gasoline Engine <input type="checkbox"/> Other (please specify)	
<input type="checkbox"/> Turbine	<input type="checkbox"/> Hand	
<input type="checkbox"/> Other (please specify)	HORSE POWER RATING CF MOTOR	
RATED PUMP CAPACITY	Gallons Per Minute	

SECTION 3. WELL TEST

Pump Test Data	Method of Discharge Measurement	Method of Measuring Water Level
DATE WELL TESTED	CHECK ONE	CHECK ONE
STATIC WATER LEVEL (A) Feet Below Land Surface	<input type="checkbox"/> Bailer	<input type="checkbox"/> Air Line
PUMPING WATER LEVEL (B) Feet Below Land Surface	<input type="checkbox"/> Bucket - Barrel - Stopwatch	<input type="checkbox"/> Electric Measuring Line (Sonder)
DRAWDOWN [(B) - (A)]	<input type="checkbox"/> Current	<input type="checkbox"/> Steel Tape
TEST PUMPING RATE Gallons Per Minute	<input type="checkbox"/> Estimated - Air Lift	<input type="checkbox"/> Other (please specify)
DURATION OF PUMP TEST (Minimum 4 Hours) Hours	<input type="checkbox"/> Gauge	
TOTAL PUMPING LIFT Feet	<input type="checkbox"/> Meter	
FOR FLOWING WELL, MEASURED SHUT IN HEAD	<input type="checkbox"/> Orifice	
<input type="checkbox"/> FT	<input type="checkbox"/> Volume	
<input type="checkbox"/> PSI	<input type="checkbox"/> Weir - Flume	
	<input type="checkbox"/> Other (please specify)	

I HEREBY CERTIFY that the above statements are true to the best of my knowledge and belief according to A.R.S § 45-600(B)

SIGNATURE OF WELL OWNER _____ DATE _____



Pump Installation Completion Report

INTRODUCTION

These instructions are a guide to filling out Form DWR 55-56 (Rev. 03/20/03), entitled "Pump Installation Completion Report." Please review the instructions prior to completing the form in black or blue ink. Forms may be obtained at any Arizona Department of Water Resources (ADWR) office and at ADWR's Web site, <http://www.azwater.gov>. For information about the form or these instructions, contact the Supervisor of the Notice of Intent Program at (602) 771-8500. There is no fee for filing this form.

WHEN FORM DWR 55-56 MUST BE FILED

A Pump Installation Completion Report must be filed by the owner of a well within 30 days after a pump is installed in the well. It is recommended that the report be filled out with the assistance of the firm that installed the pump. The information in the report, including where the well is located, who owns the well, and what pump equipment was installed in the well, will be placed in ADWR's database of all wells in Arizona. Because the report will describe conditions in the well as they actually exist, the information is very valuable to ADWR. For that reason, it is very important to fill out the report with the most accurate information possible.

INSTRUCTIONS FOR FILLING OUT THE FORM

WELL REGISTRATION NUMBER

Fill in the registration number of the well in the box in the upper right-hand corner of the form. If this is a new well, the number will be the registration number that ADWR assigned to the well when the Notice of Intent to drill the well was filed.

SECTION 1 - REGISTRY INFORMATION

WELL OWNER

Fill in the well owner's name, mailing address and telephone and fax numbers. If the well owner is a corporation, governmental unit or other entity, provide the name of a contact person.

LOCATION OF WELL

Fill in the following information relating to the location of the well:

- The street address of the property where the well is located, if the property has a street address.

- The legal description of the well location. The legal description is the township, range, section, and in decreasing order, the quarters of that section so that the well location falls in a 10-acre block within that section. This will usually be the same as the legal description for the well location submitted with the original Notice of Intent to drill the well, but occasionally a more accurate legal description is discovered after the Notice is filed.

- The county tax assessor's parcel identification number for the land where the well is located. This information can normally be taken from the original Notice of Intent to drill the well, and may also be obtained from the county tax assessor's office. Federal or State land will not have a parcel identification number.

- The name of the county where the well is located.

SECTION 2 - EQUIPMENT INSTALLED

Section 2 requires information on the pump equipment installed in the well. In the space in the upper left-hand corner of the section, fill in the date the pump equipment was installed. In the block labeled Pump Type, check the appropriate box indicating the type of pump installed. If the type of pump is not listed, check "Other" and describe the pump type. Below that block, fill in the rated pump capacity of the pump in gallons per minute. In the block labeled Power Type, check the appropriate box indicating the type of power the pump uses. If the type of power is not listed, check "Other" and describe the power type. Below that block, fill in the horsepower rating of the motor. This information can be obtained from the firm that installed the pump.

SECTION 3 - PUMP TEST

Section 3 contains three blocks for providing information on the results of the pumping test that is required to be performed on the well and pump. In the block labeled Pump Test Data, fill in the following information:

- The date the well was tested.
- The static water level in the well. This is the water level in the well immediately prior to the pumping test, as measured in feet below the land surface.

- The pumping water level. This is the water level in the well immediately after the pump was operated for at least four hours, as measured in feet below the land surface.

- Drawdown. This is the difference between the pumping water level and the static water level.

- The pumping rate during the test, as measured in gallons per minute.

- The duration of the pumping test, which must be at least four hours of continuous operation.

- The total pumping lift, if known, as measured in feet.

- If the well is a flowing or artesian well, the shut-in pressure head in feet or pounds per square inch.

In the block labeled Method of Discharge Measurement, check the appropriate box indicating how the discharge was measured during the pumping test. If the method of measurement is not listed, check "Other" and provide a brief description of the method.

In the block labeled Method of Measuring Water Level, check the appropriate box indicating the method by which the water levels were measured during the pumping test. If the method used is not listed, check "Other" and provide a brief description of the method.

SIGNATURE BLOCK

The form must be signed and dated by the well owner.

WHERE TO FILE FORM

Completed forms may be mailed to ADWR at the following address:

Arizona Department of Water Resources
Records Management Section
3550 N. Central Avenue
Phoenix, Arizona 85012-2105

Completed forms may also be submitted to any of ADWR's outlying offices listed below:

Pinal Active Management Area
1729 N. Trezell Road, Suite 105
Casa Grande, AZ 85222-2215

Prescott Active Management Area
2200 E. Hillsdale Road
Prescott, AZ 86301-4941

Santa Cruz Active Management Area
857 W. Bell Road, Suite 3
Nogales, AZ 85621-4545

Tucson Active Management Area
400 W. Congress, Suite 518
Tucson, AZ 85701-1374

The completed form must be legible and of good quality when received by ADWR so that it can be scanned into ADWR's permanent records.