RECLAMATION

Managing Water in the West

Supplemental Environmental Assessment

Hunters Hole Restoration Project

U.S. Department of the Interior
Bureau of Reclamation
Yuma Area Office
Yuma, Arizona

September 2010

Mission Statements

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

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

Supplemental Environmental Assessment

Hunters Hole Restoration Project

prepared by

U.S. Bureau of Reclamation
Yuma, Arizona

Acronyms and Abbreviations

APE	Area of Potential Effects
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
Ft	Feet or Foot
FWS	United States Fish and Wildlife Service
Gpm	Gallons Per Minute
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
Limitrophe	Limitrophe Division
O.C.	Off-Center
Reclamation	Bureau of Reclamation
SHPO	State Historical Preservation Office
SWFL	Southwestern willow flycatcher
US	United States
USACE	United States Army Corps of Engineers
YCNHA	Yuma Crossing National Heritage Area
YCR	Yuma clapper rail

1.0 Purpose and Need

1.1 Background

The Bureau of Reclamation (Reclamation) in cooperation with the Bureau of Land Management (BLM) prepared and made available for a 30-day public review period the Hunters Hole Restoration Project Environmental Assessment (EA) and a draft Finding of No Significant Impacts (FONSI) in April 2009. The EA evaluated two alternatives, the proposed action and the no action. The proposed action consisted of restoring 95 acres of wetland, aquatic, riparian and upland habitat within the 435-acre Hunters Hole area located along the lower Colorado River's Limitrophe Division, see appendix A. The FONSI was signed on June 9, 2009; these documents are herein incorporated by reference and are available at http://www.usbr.gov/lc/yuma/environmental_docs/environ_docs.html.

Since completion of the EA, the Yuma Crossing National Heritage Area (YCNHA), the project proponent, has been in the process of obtaining other clearances (e.g. land access) and conducting test floods at the site in order to finalize their planting plan. Results from the site test floods determined that drainage will be an issue at the project site. The project area is located along the southernmost section of the Limitrophe Division, where sandy soils and existing hydrologic conditions of the area tend to promote a rapid drainage effect. Test runs of the existing Hunters Hole ground water well, showed that after filling the current deep areas with water, they were naturally drained within a couple of days. Based on the results, it was determined that current conditions at the site will restrict the ability to sustain open water and larger aquatic habitat areas at the project area. In addition, securing a long term funding commitment for operation and maintenance of the restored area and attempts to acquire consent from private land owners for accessing portions of the Hunters Hole project area have been unsuccessful.

On May 6, 2010, the YCNHA presented a new alternative to various stakeholders, including Reclamation's Lower Colorado River Multi-Species Conservation Program (LCR MSCP). The new alternative called for a change in the habitat type and an adjustment in the acreage proposed for restoration based on the results from the recent site studies and lack of access to adjoining private lands which limits access to portions of the 95-acre alternative presented in the 2009 EA. The LCR MSCP proposes to assist the YCNHA with the project, to include funding for the long-term operation and maintenance, pending approvals from the LCR MCP Steering Committee. Reclamation has prepared this supplemental EA to evaluate the potential impacts of a new restoration alternative.

1.2 Purpose and Need

The purpose and need described in the 2009 EA remains applicable for the new proposed alternative.

The purpose of the Proposed Action is to restore water delivery and maintain riparian, marsh, and open water habitat within the Hunters Hole area in a manner that will sustain wildlife values while providing for border security needs.

1.3 Compliance Update

Reclamation consulted with the U.S. Fish and Wildlife Service (Service) in accordance with Section 7(a) (2) of the Endangered Species Act of 1973 as amended. The Service concurred with Reclamations determination that the alternatives presented in the 2009 EA were "not likely to adversely affect" endangered species in a letter dated May 18, 2009. Reclamation will re-consult with the Service on the new alternative.

The YCNHA will continue to coordinate with the U.S. Army Corps of Engineers (USACE) regarding a Clean Water Act Section 404 permit for implementation of the new alternative.

The Arizona State Historic Preservation Office (SHPO) provided a concurrence with a "no effect determination" for the larger 95-acre alternative. The new alternative lies within the previously consulted Area of Potential Effect (APE).

2.0 Alternatives Considered

The scope of this supplemental EA is limited to the new alternative that the YCNHA has proposed since the original EA was issued. Since completion of the original EA, preliminary design work and site conditions indicate that in order to implement a restoration project that will re-establish riparian habitats and be managed in a manner that will support border security and safety in the area a new alternative was necessary. Figure 1 shows the proposed new alternative.

2.1 Description of New Alternative

Reclamation would still issue a License, pursuant to the Reclamation Act of June 17, 1902 (32 Stat. 388); the Reclamation Project Act of August 4, 1939 (53 Stat. 1187), as amended August 18, 1950 (64 stat. 463); and acts amendatory thereof or supplementary thereto; and provisions of 43 C.F.R. *§ 429,* to the YCNHA to implement the new alternative on Federal lands for a period of up to 25 years. This new alternative would consist of restoring and enhancing 35 acres of riparian and marsh habitat to include 1.9 acres of native marsh habitat, 21.7 acres of cottonwood/willow habitat, and 9.6 acres of mesquite habitat. In addition, the new alternative would retain and enhance the existing 0.9 acres of marsh, 0.7 acres of willow, and 0.2 acres of mesquite habitat.

First this action would consist of clearing and removing remaining invasive species (common reed and salt cedar) within the 35-acre area. The site experienced a wildfire that burned 68 acres of riparian plant community in late 2007. BLM as part of the San Luis Fire Rehabilitation project mechanically (masticated and root-knifed) and chemically treated the areas predominantly covered with saltcedar and arrowweed and certain areas were seeded (broadcast spread) with native plants. Any remaining burned dead wood in the project area would be mulched and re-sprouts of non native vegetation would be sprayed with herbicide in accordance with Reclamation pesticide use regulations and if needed, any existing dead wood physically removed or burned. Burning, if necessary, would follow Federal policy and would require a burn plan signed by Federal land managers.

The 35-acre site would be irrigated by flood irrigation. Four flood irrigation cells would be created with berms from excavated material at the site, and would be located in areas of low value to wildlife. The flood cell boundaries and outer perimeter of the restoration will have 24-foot (ft) wide drivable maintenance roads. Flood cells would be excavated and leveled and berms would be created using a combination of the following equipment: amphibious excavator, farm tractors, articulated dump trucks and low track bulldozers. In addition, excavated material would also be used to start forming a berm/levee along the perimeter of the valuable habitat. The purpose of the levee would be to provide flood protection to the habitat area and to also allow law enforcement agencies to use the 24-ft wide access road to patrol the area and facilitate any future maintenance requirements.

Irrigation would be supplied to each of the cells by the existing 7,000 gallons per minute (gpm) well and pump. Irrigation pipe would be placed along the eastern edge of the flood cells to carry water from the well/pump to each cell. Irrigation outfall structures would be located in the center of each flood cells to distribute water to each of the cells.

Marsh habitat would be created in areas located adjacent to the irrigation outfall. Existing marsh habitats that contain native species would be retained and undisturbed; however the areas that are overrun by invasive phragmites would be cleared and revegetated with native cattail and bulrush species. Phragmites is an aggressive weed that requires repeated removal techniques to eliminate it from an area. The marsh revegetation would consist of planting three-square bulrush (*Scirpus americanus*) plugs on 5-ft off-centers (O.C.). This species is low-lying which would promote line-of-site for border security. Cattail is expected to re-establish at the site naturally.

Cottonwood (*Populus fremontii*) and willow species (*Salix gooddingii* and *exigua*) would consist of the next closest band of planted vegetation to the irrigation outfall. Cottonwood and willow would be planted 7-ft O.C. in one gallon containers. The understory within the cottonwood/willow band would consist of inland saltgrass (*Distichis spicata*) plugs planted 5-ft O.C. Understory vegetation would help prevent invasive species to recolonize. Finally, mesquite (*Prosopis glandulosa* and *pubescens*) would be planted in the area furthest from the irrigation outfall. Mesquites would be planted 20-ft O.C. in one gallon containers. The understory within the mesquite planting area would be seeded with alkali sacaton (*Sporobolous airoides*) at 10 pounds per acre. All plant material would be ordered from a regional nursery.

Planting

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

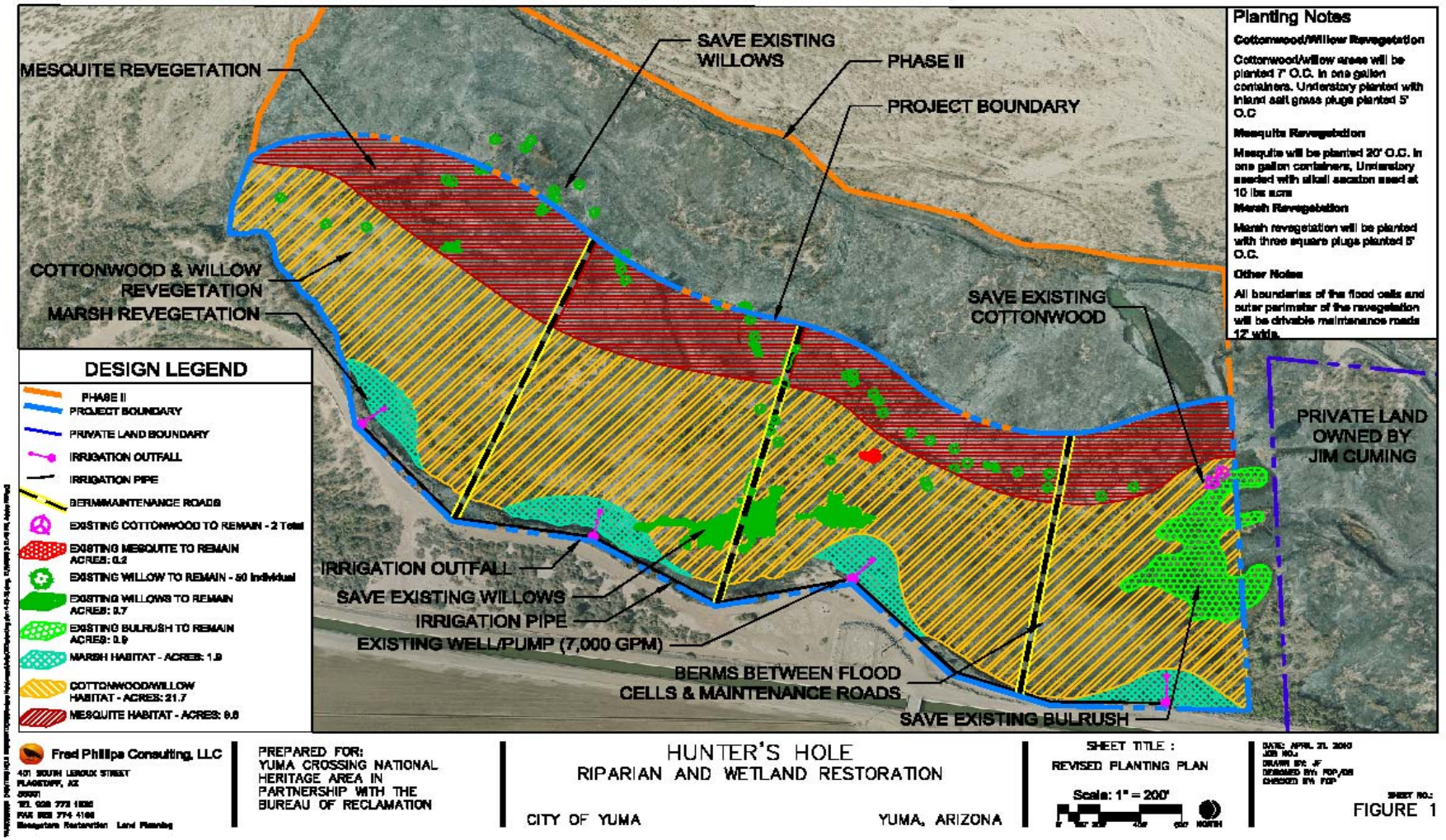
- Fremont cottonwood (*Populus fremontii*)
- Goodding willow (*Salix gooddingii*)
- Sandbar willow (*Salix exigua*)
- Honey mesquite (*Prosopis glandulosa*)
- Screwbean mesquite (*Prosopis pubescens*)
- Olney three-square bulrush (*Schoenoplectus americanus*)
- Inland saltgrass (*Distichis spicata*)
- Alkali sacaton (*Sporobolus airoides*)
- Other suitable native riparian and wetland species

The planting design would determine the density and location of these species within the site, which was based on the results of the soil and depth-to-water analyses and other site conditions. Wetland species would 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 would be determined in the final planting design. A 3-ft hog-wire fence would be installed around each 1-gallon cottonwood and willow propagules area to prevent browsing by beaver or other herbivores. The poles, plugs and seeds would not be fenced. The area would be hand-weeded (approximate 3-year period) during native vegetation establishment to limit the encroachment of tamarisk and giant cane, thereby enhancing the natural recruitment of native grasses and forbs. The success criteria goal for native vegetation species (cottonwood and willow) will be to

achieve an 80 percent survival rate at the end of five years and about 60 percent after ten years. Other vegetation (sandbar willow and mesquite) would range between 75 percent after five years and 60 percent at the end of 10 years.

2.1.2 Maintenance Activities

Once restored, the YCNHA expects to maintain the Hunters Hole area by cleaning out and repairing irrigation pipe and outfalls on an as needed basis to facilitate irrigation throughout the area. In addition, access points and roads would be maintained in support of monitoring activities and for supporting Border Patrol access security points.


MESQUITE REVEGETATION
SAVE EXISTING WILLOWS
PHASE II
PROJECT BOUNDARY
COTTONWOOD & WILLOW REVEGETATION
MARSH REVEGETATION
SAVE EXISTING COTTONWOOD
PRIVATE LAND OWNED BY JIM CUMING
IRRIGATION OUTFALL
SAVE EXISTING WILLOWS
IRRIGATION PIPE
EXISTING WELL/PUMP (7,000 GPM)
BERMS BETWEEN FLOOD CELLS & MAINTENANCE ROADS
SAVE EXISTING BULRUSH
DESIGN LEGEND
PHASE II
PROJECT BOUNDARY
PRIVATE LAND BOUNDARY
IRRIGATION OUTFALL
IRRIGATION PIPE
BERM/MAINTENANCE ROADS
EXISTING COTTONWOOD TO REMAIN - 2 Total
EXISTING MESQUITE TO REMAIN ACRES: 0.2
EXISTING WILLOW TO REMAIN - 50 Individual
EXISTING WILLOWS TO REMAIN ACRES: 0.7
EXISTING BULRUSH TO REMAIN ACRES: 0.9
MARSH HABITAT - ACRES: 1.9
COTTONWOOD/WILLOW HABITAT - ACRES: 21.7
MESQUITE HABITAT - ACRES: 0.6
Planting Notes
Cottonwood/Willow Revegetation
Cottonwood/willow areas will be planted 7' O.C. in one gallon containers. Understory planted with inland salt grass plugs planted 5' O.C
Mesquite Revegetation
Mesquite will be planted 20' O.C. in one gallon containers, Understory seeded with alkali sacaton seed at 10 lbs acre
Marsh Revegetation
Marsh revegetation will be planted with three square plugs planted 5' O.C.
Other Notes
All boundaries of the flood cells and outer perimeter of the revegetation will be drivable maintenance roads 12' wide.
Fred Phillips Consulting, LLC
401 SOUTH LEROUX STREET
FLAGSTAFF, AZ
PREPARED FOR:
YUMA CROSSING NATIONAL HERITAGE AREA IN PARTNERSHIP WITH THE BUREAU OF RECLAMATION
HUNTER'S HOLE
RIPARIAN AND WETLAND RESTORATION
CITY OF YUMA
YUMA, ARIZONA
SHEET TITLE :
REVISED PLANTING PLAN
Scale: 1" = 200'
NORTH
FIGURE 1

3.0 Affected Environment and Environmental Consequences

The new alternative has a similar footprint as Phase I of the alternative analyzed in the 2009 EA. With the exception of new updated information presented below, the new alternative would not affect the following resources beyond what was analyzed and disclosed in the 2009 EA: land use, air quality, Indian trust assets, energy policy, environmental justice and socio-economic conditions, fire management, floodplain, hazardous or solid waste, noise, recreation and visitor services, soils, surface and groundwater quality, visual resources, public health and safety, and travel management. The proposed action would not have any cumulative effects beyond what was analyzed in the 2009 EA. Therefore, those resource categories are not analyzed in further detail.

3.1 Biological Resources

3.1.1 Affected Environment

3.1.1.1 Vegetation

Since completion of the 2009 EA, no changes have occurred to the site. After BLM implemented the San Luis Fire Rehabilitation project which consisted of the mastication of standing dead saltcedar and arrowweed stems and root-knifing to discourage saltcedar resprouts, the project area continues to be dominated by the non-native, invasive salt cedar and common reed. Cattails (*Typha spp.*) and bulrush (*Scirpus spp.*) along saturated areas, and scattered willows that retained a root system after the fire have also re-sprouted.

3.1.1.2 Threatened and Endangered Species

There is no change in the total number of Federally-listed candidate, threatened, or endangered species identified and potentially occurring in the project area as listed in the 2009 EA. No new information is available since completion of the EA concerning the southwestern willow flycatcher (SWFL) and the Yuma clapper rail (YCR). After the 2007 wildfire, surveys for the SWFL and the YCR at Hunters Hole were discontinued due to lack of sufficient remaining habitat and security issues.

3.1.2 Environmental Consequences

The new alternative vegetation planting would be less dense than the pre-wildfire habitat, which consisted of dense vegetation dominated by saltcedar and phragmites intermixed with native mesquite, cottonwood and willow vegetation. The new 35 acre alternative would have a higher

density of cottonwood and willow trees (7-ft spacing O.C.) as compared to the 95-acre alternative (15-17-ft spacing O.C.).

Riparian and wetland restoration and enhancement at Hunters Hole would improve the ecological integrity of the lower Colorado River. This action would reduce fire risk (potentially improving firefighter and public safety), reduce soil salinity, and increase soil moisture. This planting density may have a beneficial effect on the habitat potential, and the site would still likely be used by neo-tropical migrating birds and other wildlife species. The new alternative's proposed plant density would continue to meet and not impair Border Patrol security concerns in the Hunters Hole area.

The new 35-acre restoration alternative is expected to provide both increased habitat quality for migrating willow flycatchers and as well as potential nesting habitat.

3.1.3 Management and Mitigation Measures

Implementation of this alternative would occur throughout the year to include migrating and nesting seasons of the SWFL and YCR because of the lack of wildlife habitat currently at the site. In addition, native riparian vegetation existing at the site would be avoided to the extent practical. Once the vegetation is established and endangered species are present at the site, use of heavy equipment during operation and maintenance activities would avoid or minimize operating during the YCR and SWFL breeding season.

3.2 Cultural Resources

3.2.1 Affected Environment

The Area of Potential Effect (APE) did not change as a result of the new 35-acre alternative. A records search and a Class III cultural resource study was conducted for the Hunters Hole restoration project (Reclamation 2008) to determine the presence or absence of significant prehistoric and historic resources within the proposed restoration boundaries that might be considered a historic property under 36 CFR 60.4. One new site was recorded as a result of the survey (AZ X:9:13 ASM). The site was determined as ineligible for the National Register of Historic Places based on a lack of integrity and Reclamation made a determination of "no adverse effect" (SHPO response dated October 9, 2008).

3.2.2 Environmental Consequences

The new 35-acre alternative would occur in one of the two parcels that were excluded from the cultural survey (Class III) due to poor ground visibility and very dense vegetation, see Figure 1 of *Cultural Resources Survey for Hunters Hole*. The combination of dense vegetation cover and standing water made the ground surface visibility almost non-existent, except along a few trails that were surveyed through the vegetation. Also, the 35-acre alternative project area is located away from the (AZ X:9:13 ASM) site and would not impact it.

3.2.3 Management and Mitigation Measures

The same Best Management Practices recommended in the 2009 EA to mitigate any potential effects to cultural resources from the project shall apply to the new 35-acre alternative. An archaeological monitor would be present for any excavation activities proposed in the two parcels that were not surveyed for cultural resources. If previously unidentified archaeological or historical resources are discovered during the restoration project, work will stop and the Reclamation Environmental Manager and project archaeologist will be notified immediately.

3.3 Surface and Groundwater Quality

3.3.1 Affected Environment

Since completion of the 2009 EA, there has been no change to surface water and groundwater in the project area, see EA for baseline information.

3.3.2 Environmental Consequences

Under the new 35-acre alternative, the source of water for restoration purposes is groundwater from the existing well located at the Hunters Hole site. The new alternative would require less water to be pumped for irrigating and maintaining the site. The site would be periodically irrigated and the total volume to be pumped annually is anticipated to be less than 1,000 acre-feet with a potential to increase to a rate of as high as 3,000 acre feet per year if the need arises for continued support of the habitat. Overall, the 35-acre area would only have standing open water areas during times of irrigation, except in isolated small deep pockets near the irrigation outfall areas.

The existing groundwater pump would not conflict with Reclamation water delivery obligations, substantially deplete groundwater supplies or interfere substantially with groundwater recharge, substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner which would result in substantial erosion or flooding.

3.3.3 Management and Mitigation Measures

The existing well would be metered by Reclamation as well as the International Boundary and Water Commission, to ensure compliance with the international agreement and obligations.

4.0 Consultation, Coordination, and list of Preparers

4.1 Agencies Consulted

For a more complete look at the consultation and coordination that has been achieved for this project, please see Appendix A of the 2009 EA.

Bureau of Land Management
U.S. Fish and Wildlife Service
U.S. Border Patrol's Yuma Sector Office
International Boundary and Water Commission
Arizona Game and Fish Department
Arizona State Historic Preservation Office
Yuma County Sherriff's Office
Quechan Indian Tribe
Cocopah Indian Tribe
City of Yuma
Yuma Crossing National Heritage Area

4.2 List of Preparers

4.2.1 Bureau of Reclamation

Julian DeSantiago	Environmental Protection Specialist

4.2.2 Bureau of Land Management

Dave Daniels	Planning and Environmental Coordinator
Karen Reichhardt	Assistant Field Manager
Jeffrey Young	Wildlife Biologist
Erica Faulkner	Fire Ecologist

4.2.3 Fred Phillips Consulting

Fred Phillips	Owner/Director
Heidi Trathnigg	Principal Biologist

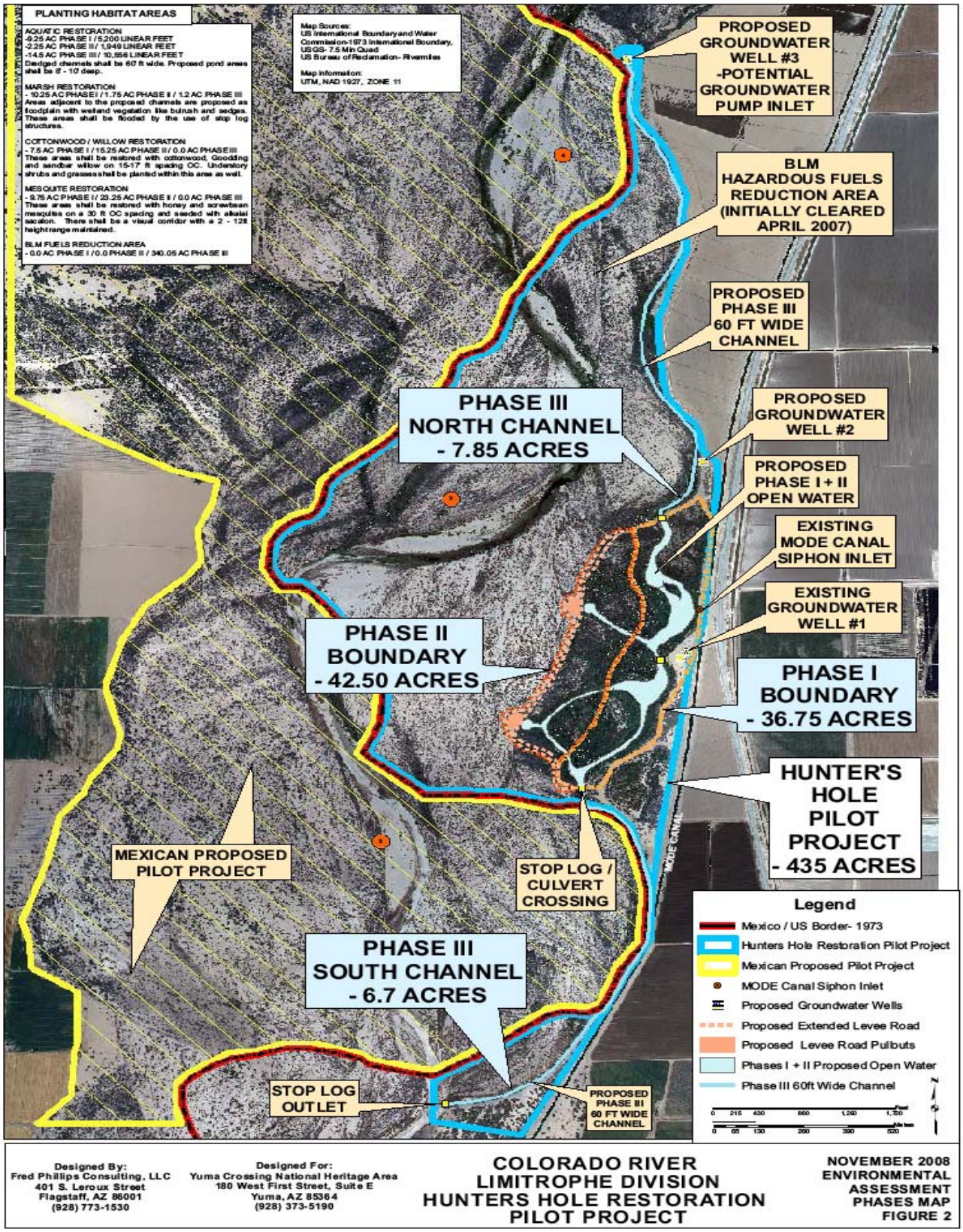
5.0 References

Bureau of Reclamation
2008 Cultural Resources Survey for the Hunters Hole Restoration. 2008. Bureau of Reclamation, Yuma Area Office.

Bureau of Reclamation
2009 Environmental Assessment Hunters Hole Restoration Project. 2009. Bureau of Reclamation, Yuma Area Office.

Appendix A

(Figure showing the 95-acre alternative)


PLANTING HABITAT AREAS
AQUATIC RESTORATION
-9.25 AC PHASE I / 5,200 LINEAR FEET
-2.25 AC PHASE II / 1,949 LINEAR FEET
-14.5 AC PHASE III / 10,556 LINEAR FEET
Dredged channels shall be 60' ft wide. Proposed pond areas shall be 8' - 10' deep.
MARSH RESTORATION
- 10.25 AC PHASE I / 1.75 AC PHASE II / 1.2 AC PHASE III
Areas adjacent to the proposed channels are proposed as floodplain with wetland vegetation like bulrush and sedges. These areas shall be flooded by the use of stop log structures.
COTTONWOOD / WILLOW RESTORATION
- 7.5 AC PHASE I / 15.25 AC PHASE II / 0.0 AC PHASE III
These areas shall 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.
MESQUITE RESTORATION
- 9.75 AC PHASE I / 23.25 AC PHASE II / 0.0 AC PHASE III
These areas shall be restored with honey and screwbean mesquites on a 30 ft OC spacing and seeded with alkalai sacaton. There shall be a visual corridor with a 2 - 12ft height range maintained.
BLM FUELS REDUCTION AREA
- 0.0 AC PHASE I / 0.0 PHASE II / 340.05 AC PHASE III
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 (INITIALLY CLEARED APRIL 2007)
PROPOSED PHASE III 60 FT WIDE CHANNEL
PHASE III NORTH CHANNEL - 7.85 ACRES
PROPOSED GROUNDWATER WELL #2
PROPOSED PHASE I + II OPEN WATER
EXISTING MODE CANAL SIPHON INLET
EXISTING GROUNDWATER WELL #1
PHASE II BOUNDARY - 42.50 ACRES
PHASE I BOUNDARY - 36.75 ACRES
HUNTER'S HOLE PILOT PROJECT - 435 ACRES
MODE CANAL
MEXICAN PROPOSED PILOT PROJECT
STOP LOG / CULVERT CROSSING
PHASE III SOUTH CHANNEL - 6.7 ACRES
STOP LOG OUTLET
PROPOSED PHASE III 60 FT WIDE CHANNEL
Legend
Mexico / US Border- 1973
Hunters Hole Restoration Pilot Project
Mexican Proposed Pilot Project
MODE Canal Siphon Inlet
Proposed Groundwater Wells
Proposed Extended Levee Road
Proposed Levee Road Pullbuts
Phases I + II Proposed Open Water
Phase III 60ft Wide Channel
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 RESTORATION
PILOT PROJECT
NOVEMBER 2008
ENVIRONMENTAL
ASSESSMENT
PHASES MAP
FIGURE 2

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