

# The Yuma East Wetlands



**Preserving East Wetlands Restoration:  
A 50-Year Plan for Sustainability**

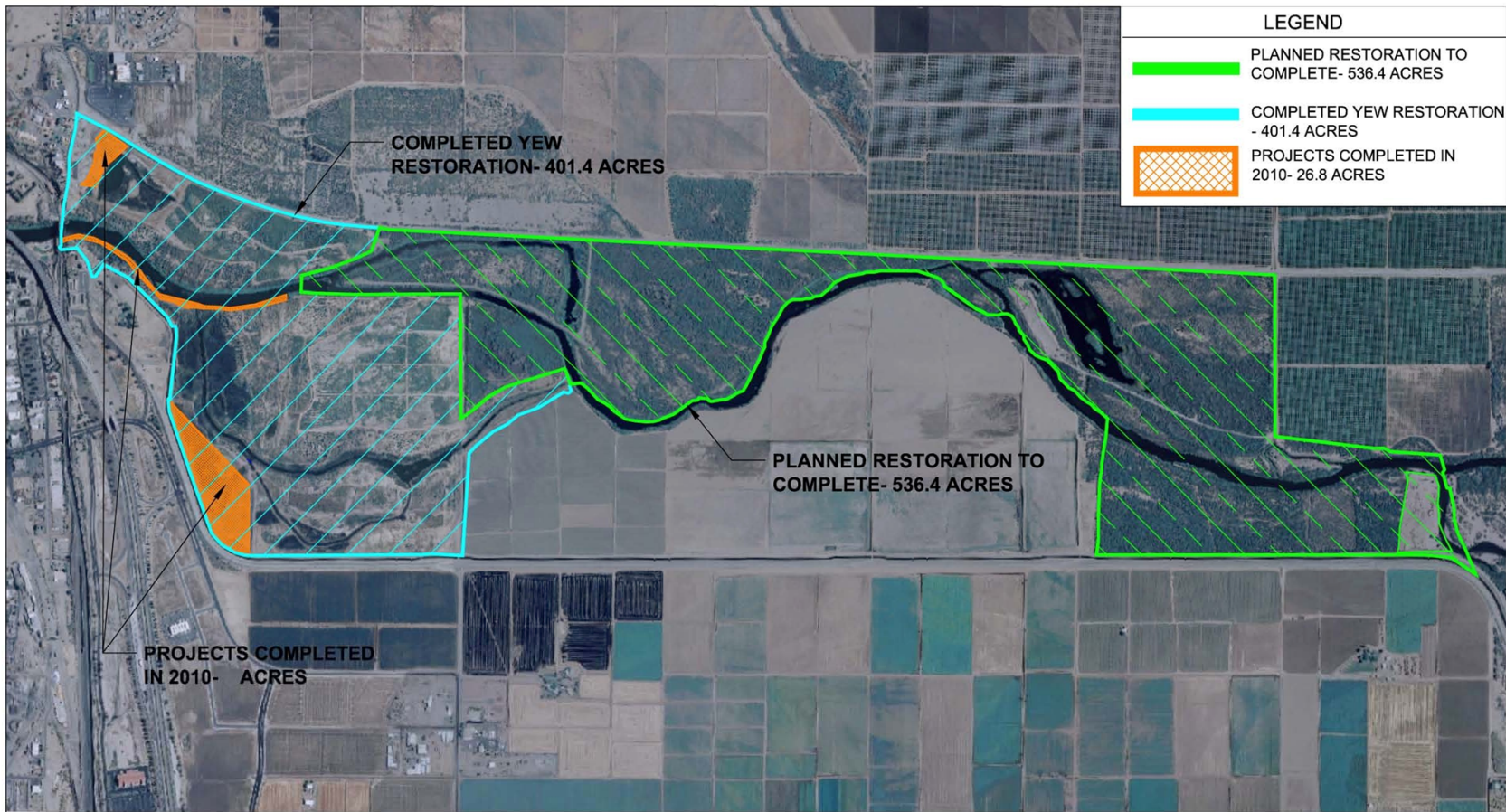
# Initial Challenges

- Site dominated by exotic plant species
- High soil and water salinities
- Minimal in stream water flows
- Area overrun by crime and illegal activities
- Complex partnership of federal, state, tribal and private landowners
- No funding In hand

# 10 years of accomplishment

- 350 Acres of aquatic, wetland and riparian restoration completed
- Over 7 million in funding secured from federal, state and private sources
- Strong Partnership among City of Yuma, Quechan Tribe, Arizona Game and Fish, Bureau of Reclamation, and Bureau of Land Management.
- Resident clapper rails on site
- Site being utilized by other endangered, threatened and rare bird species
- Increase in diversity and density of wildlife on site
- Completion of Yuma East Wetland Sunrise Park
- First 2 miles of public trail in wetlands opened in January 2009
- At the moment over 8 full time and 10 part time people employed by the project
- Farming community utilized in project for expertise and construction
- Over 7 million dollars in economic impact over the last 9 years in Yuma community

# Completed Restoration



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 401 SOUTH LEROUX STREET  
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 86001  
 TEL 928 773 1530  
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 Ecosystem Restoration Land Planning

PREPARED FOR:

REV.	COMMENT	DATE

YUMA EAST WETLANDS  
 COMPLETED &  
 PLANNED PROJECTS

CITY OF YUMA

YUMA, ARIZONA

SHEET TITLE :  
 YEW PROJECT  
 CONSTRUCTION  
 BOUNDARIES

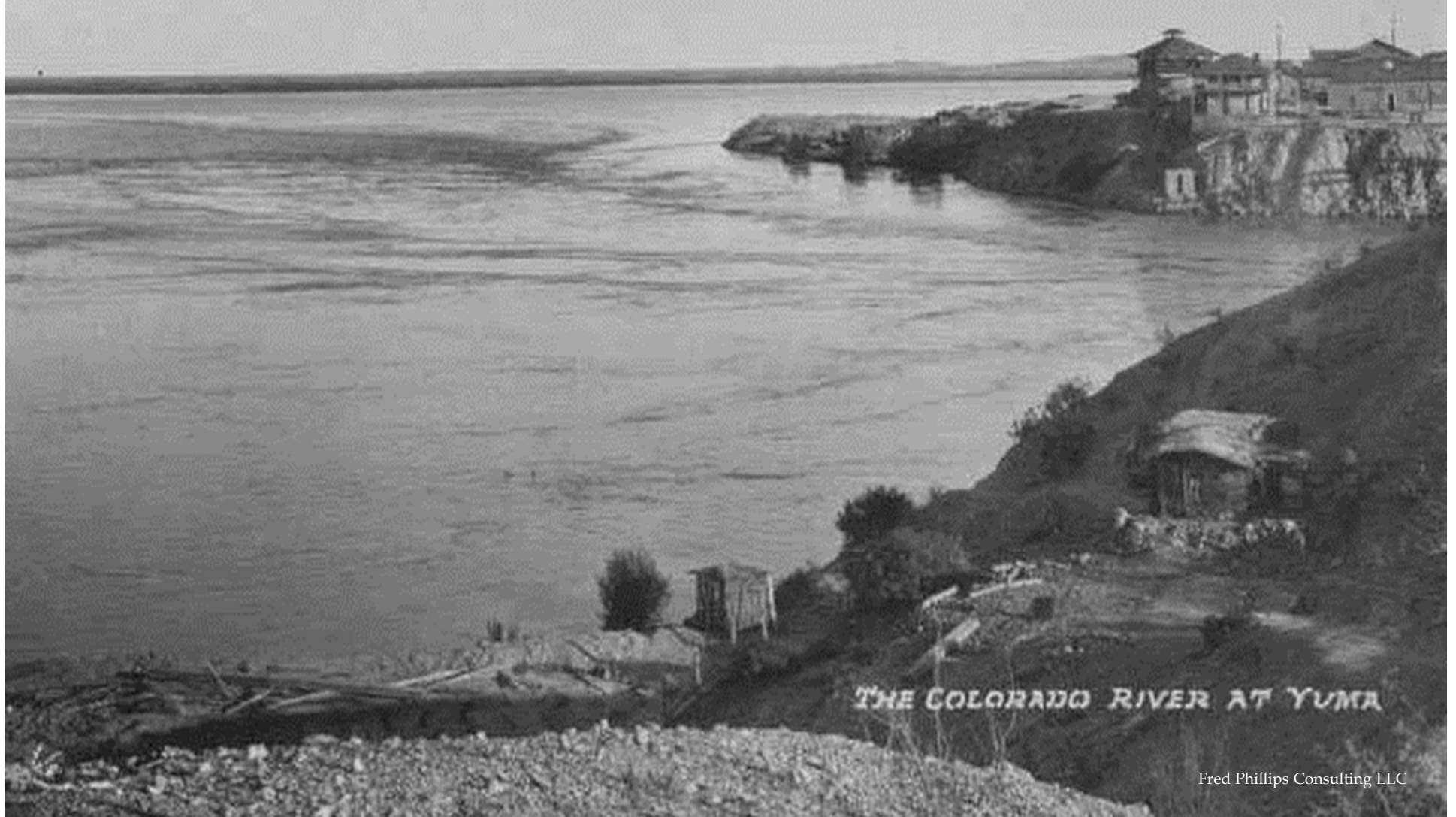
Scale: 1" = 1200'

DATE: JANUARY, 2011  
 JOB NO.:  
 DRAWN BY: KI  
 DESIGNED BY: FOP/DB  
 CHECKED BY: FOP

# Completed Restoration



**PICTURED BELOW IS THE YUMA EAST WETLANDS PICTURED FROM THE CROSSING MISSION DURING THE FLOOD OF 1905 WITH THE RIVER RUNNING IN EXCESS OF 150,000 CUBIC FEET PER SECOND (CFS)**



Pictured below is the same view from the crossing mission during the highest flow for 2002, about 3000 CFS. Completely infested with exotic plants. The Average river flows on the Colorado in Yuma average 300-600 cfs in most years.



Pictured below is the same view from the crossing mission four years after restoration in the YEW began.









Channel and wetland restoration using the tide  
of the Colorado River  
River level 600 cfs (normal flow)



Same area with river flow at 2500 cfs (pulse flow)





During construction



Two years after planting





## **Channel Revegetation (tidal irrigation with water control structures)**



**April 2006**



**June 2010**







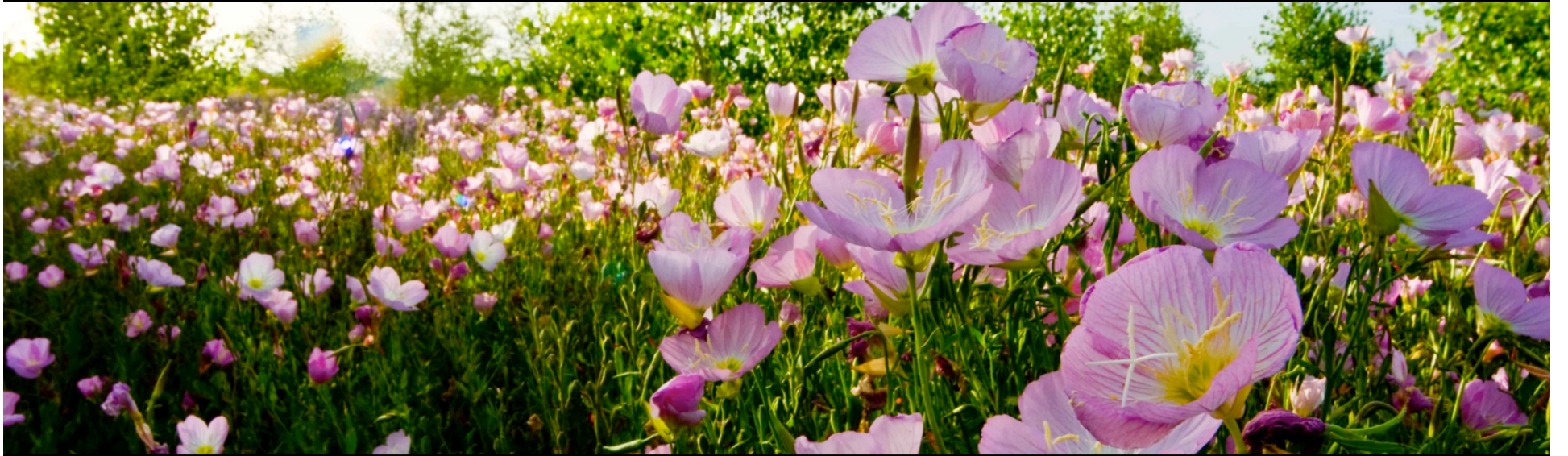




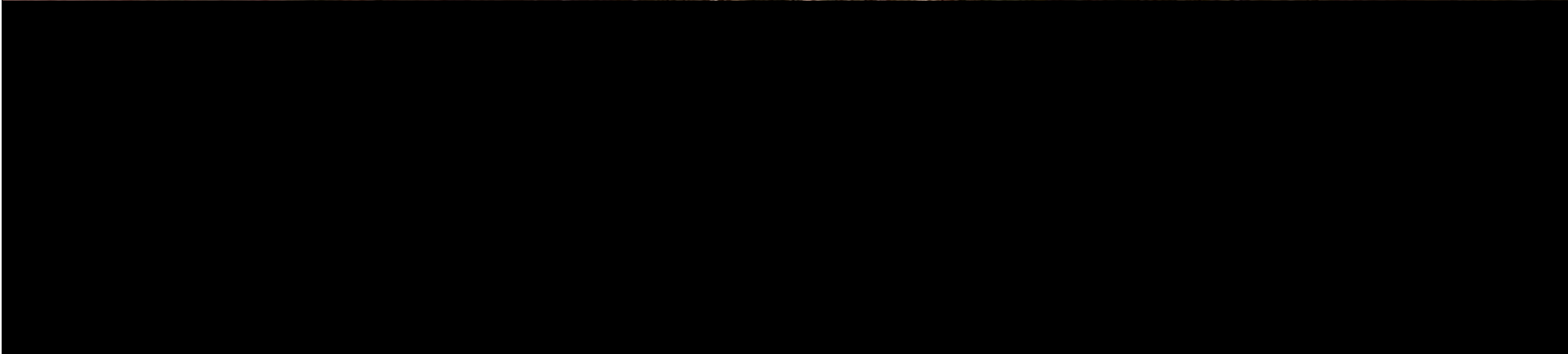
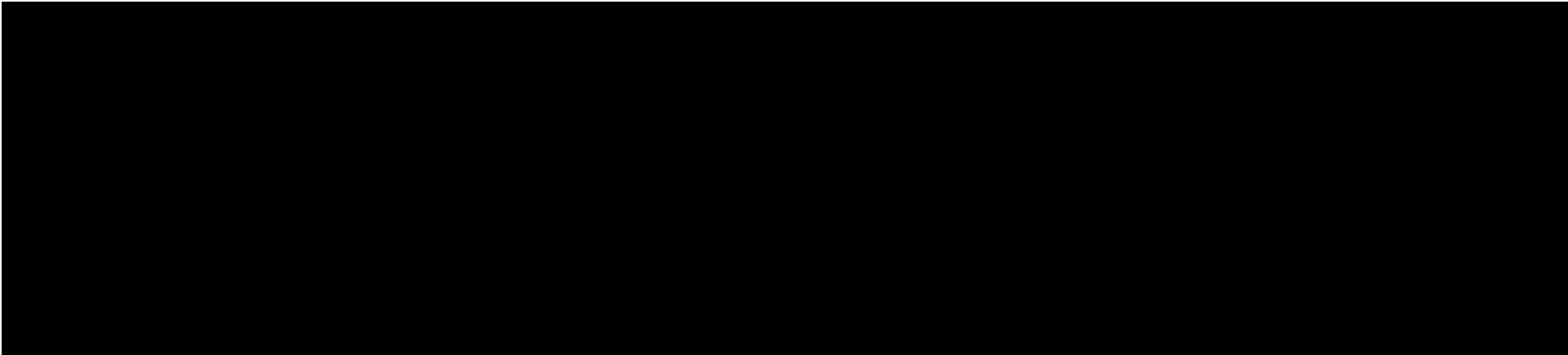


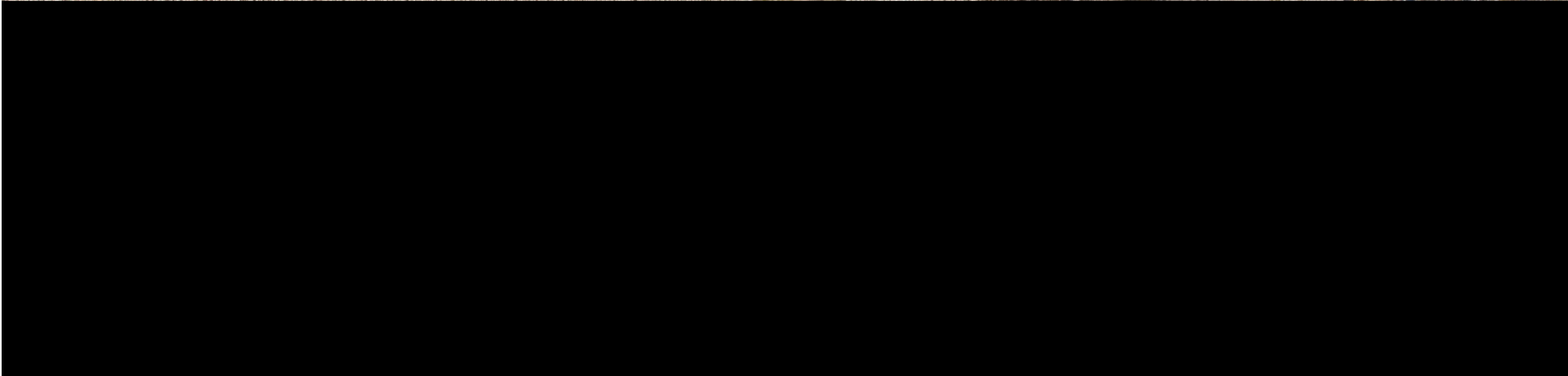
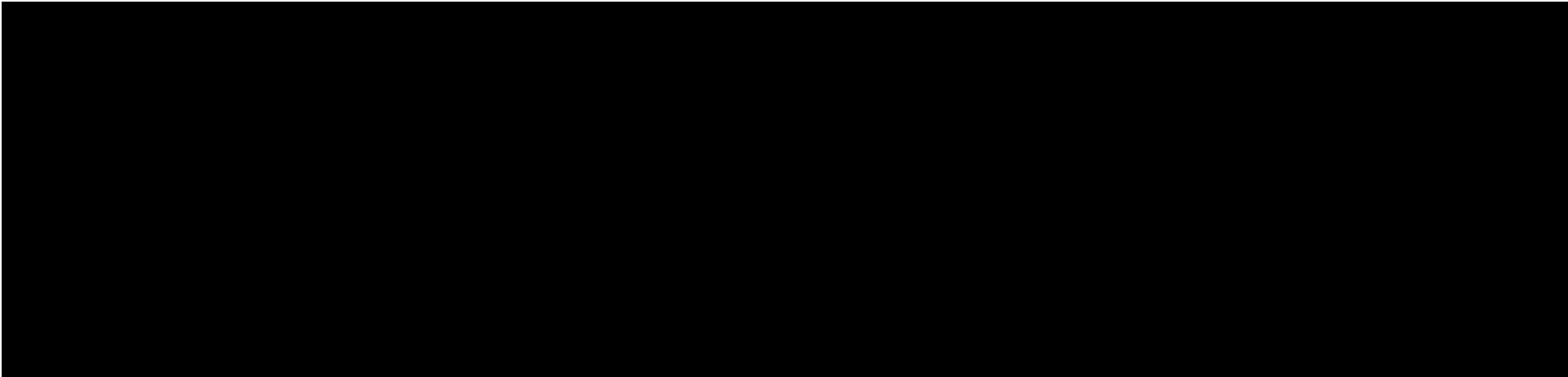


















# Bankline restoration











# Utilizing local agriculture expertise for restoration



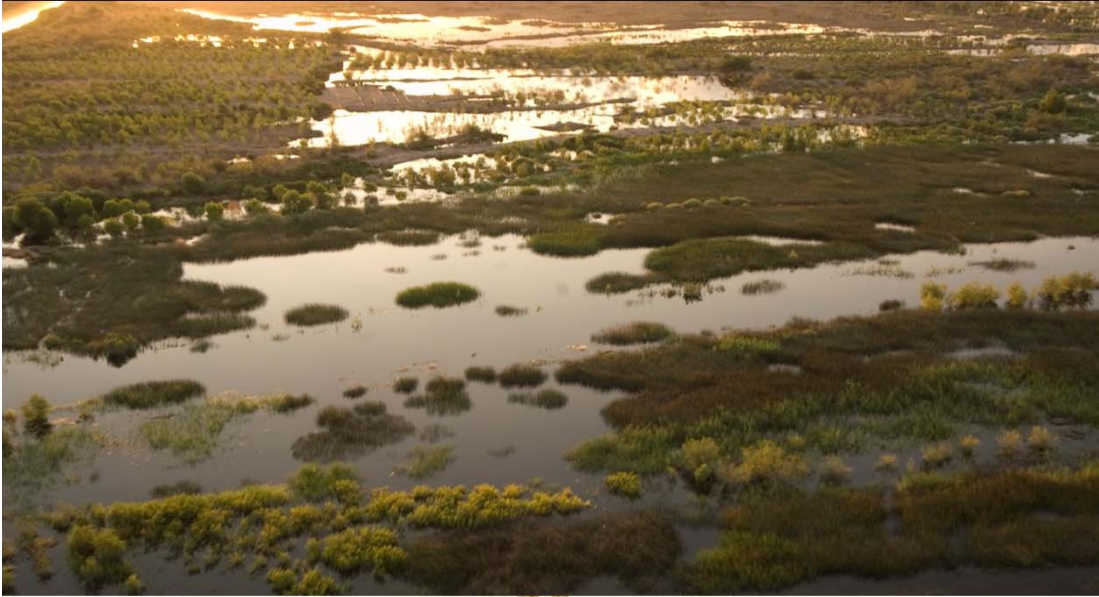




# The endangered Yuma clapper rail in the wetlands



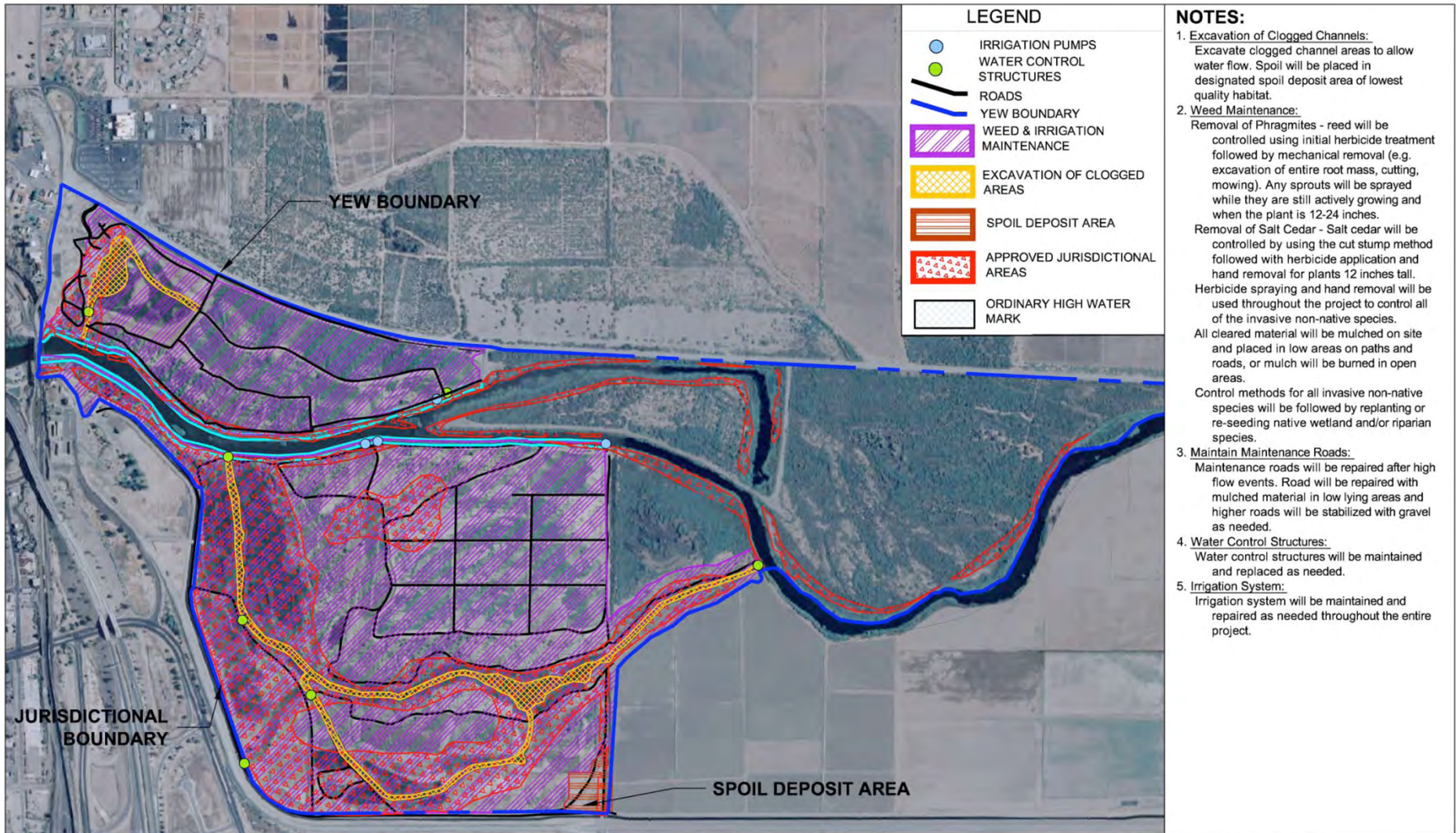
# Ongoing maintenance of 350 acres of completed restoration



# Challenges

- Existing in stream river flows
- Capturing pulse flows in river to recharge wetlands
- Securing long term O and M funds to maintain YEW restored habitats
- Securing funds for completing 500 acres of “shovel ready” projects

# Current maintenance area



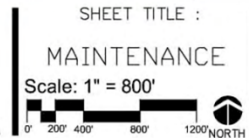
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REV.	COMMENT	DATE

FIGURE 6  
 YUMA EAST WETLANDS  
 MAINTENANCE ACTIVITIES MAP

CITY OF YUMA

YUMA, ARIZONA



DATE: MARCH 10, 2010  
 JOB NO.:  
 DRAWN BY: JF  
 DESIGNED BY: FOP/DB  
 CHECKED BY: FOP

FIGURE NO.: 6





# Preserving the East Wetlands

- LCR/MSCP willing to provide 70% of maintenance costs over 50 Years
- Heritage Area, Quechan Tribe, and City of Yuma each to provide 10% of maintenance cost. Agreements are now being drawn up for enactment in 2011
- Heritage Area plays key role as maintenance agent and arbiter

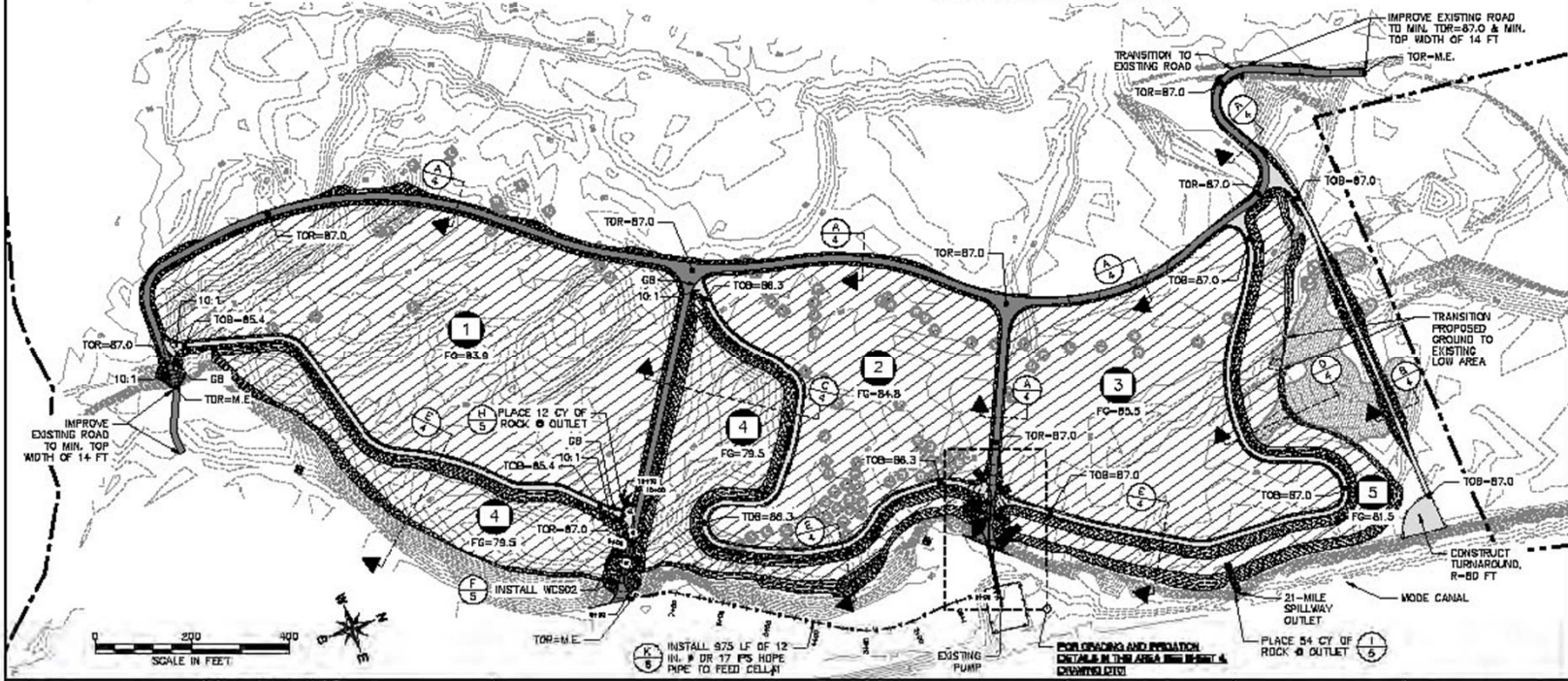
# Planned future projects

**Remaining acres in YEW to be  
restored**

# Common Ground Restoration (Hunters Hole)



- LEGEND:**
- CONTROL POINT (SEE SHEET 2)
  - ⊙ RE-SPROUTING WILLOWS (TO BE PROTECTED)
  - ⊙ SURVIVING COTTONWOODS (TO BE PROTECTED)
  - ⊙ EXISTING BULRUSH (TO BE PROTECTED)
  - U.S./MEXICO BORDER (APPROX)
  - PRIVATE LAND OWNED BY JIM CLIMING (APPROX)
  - XX EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - ① HABITAT CELL NUMBER
  - ① CROSS SECTION LOCATION
  - ① SHEET REFERENCE CROSS SECTION IDENTIFIER
  - ▨ CONSTRUCT LAND-LEVELLED FIELD
  - CONSTRUCT ACCESS ROAD (MIN TURNING RADIUS OF 80 FT)
  - CONSTRUCT AGRICULTURAL (AG) BERM (MIN TURNING RADIUS OF 35 FT)
  - PLACE EROSION PROTECTION ROCK
  - INSTALL WATER CONTROL STRUCTURE (WCS)
  - INSTALL 12 IN. DR17 IPS HOPE IRRIGATION PIPELINE
  - FG FINISHED GRADE ELEVATION OF LAND-LEVELLED HABITAT CELL
  - TDR TOP OF ACCESS ROAD ELEVATION
  - TDB TOP OF AGRICULTURAL BERM ELEVATION
  - X:1 TRANSITION RAMP SLOPE (HORIZONTAL:VERTICAL)



Natural Channel Design, Inc.  
 208 S. 21st Street  
 Phoenix, AZ 85004  
 (602) 754-5559

DRAWN BY: G. CATHEY  
 DESIGNED BY: G. CATHEY  
 REVIEWED BY: S. YARD, F. PHILLIPS

REV	DATE	BY	REVISION

**GRADING & IRRIGATION PLAN**

HUNTER'S HOLE  
 RIPARIAN & WETLAND RESTORATION PROJECT  
 GRADING & IRRIGATION PLAN

UNAUTHORIZED CHANGES & USES OF THESE PLANS ARE PROHIBITED. THE ENGINEER PROVIDING THESE PLANS WILL NOT BE RESPONSIBLE FOR ANY CHANGES OR USES OF THESE PLANS. ALL CHANGES MUST BE IN WRITING AND MUST BE APPROVED BY THE PROVIDER OF THESE PLANS.

DATE: 08-05-11	DRAWING NO.: GDD1
NCD PROJECT NO.: 09-170-AZ	SHEET NO.: 3 OF 6



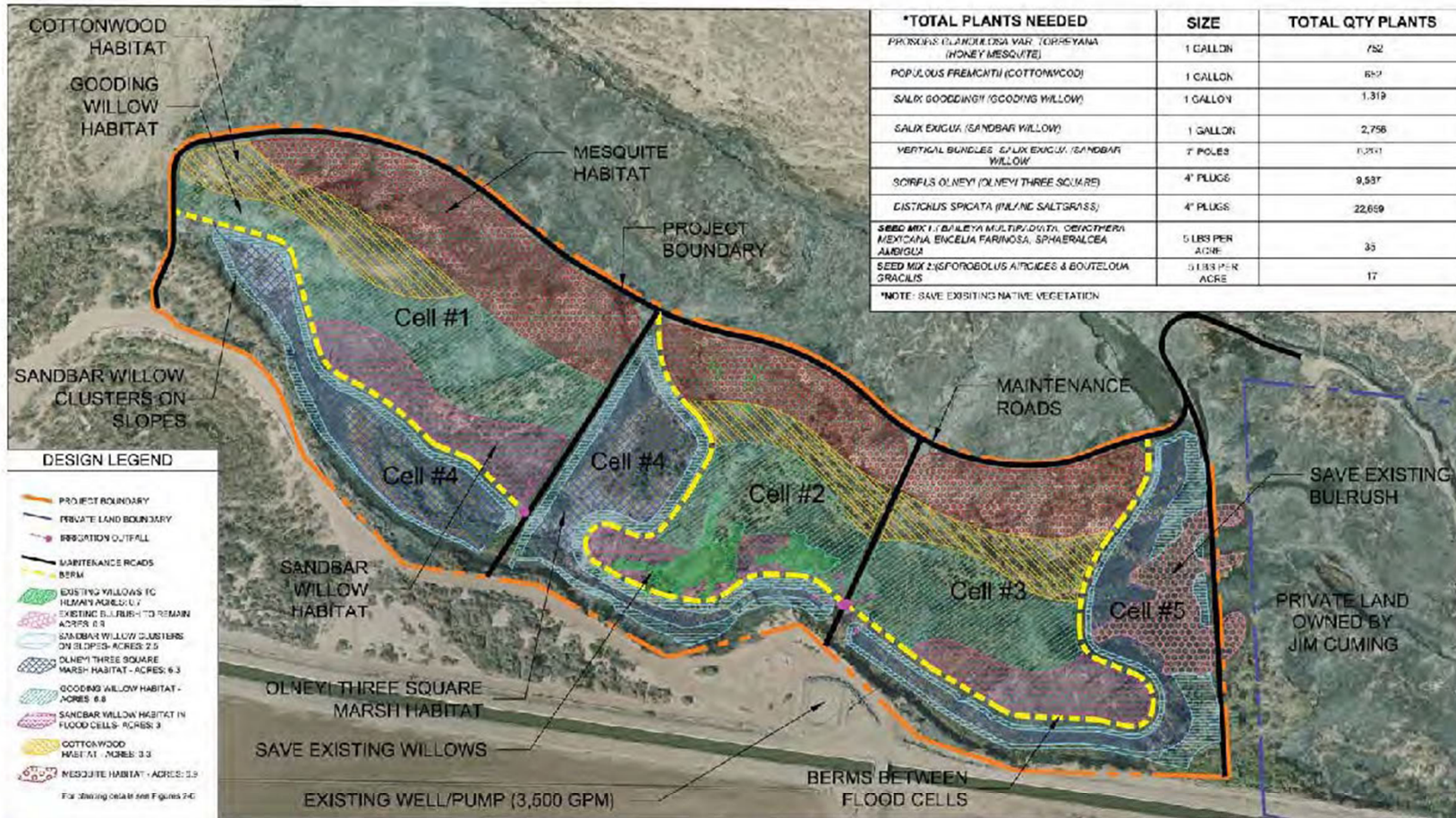












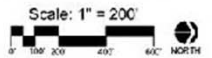
**Fred Phillips Consulting, LLC**  
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 Ecosystem Restoration Land Planning

PREPARED FOR:  
 YUMA CROSSING NATIONAL  
 HERITAGE AREA IN  
 PARTNERSHIP WITH THE  
 BUREAU OF RECLAMATION

**HUNTER'S HOLE  
 RIPARIAN AND WETLAND RESTORATION**

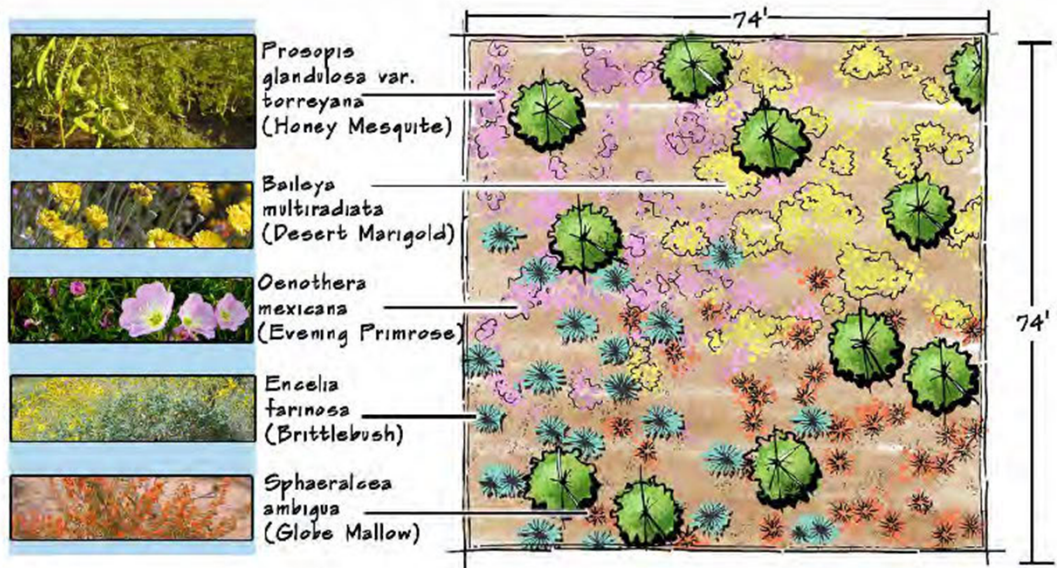
CITY OF YUMA YUMA, ARIZONA

SHEET TITLE:  
 REVISED PLANTING PLAN



DATE: July 8, 2011  
 JOB NO.:  
 DRAWN BY: K  
 DESIGNED BY: FCP/DB  
 CHECKED BY: FCP

SHEET NO.:  
**FIGURE 1**



*Prosopis glandulosa* var. *torreyana*  
(Honey Mesquite)



*Baileya multiradiata*  
(Desert Marigold)



*Oenothera mexicana*  
(Evening Primrose)

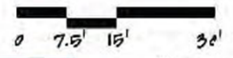


*Encelia farinosa*  
(Brittlebush)

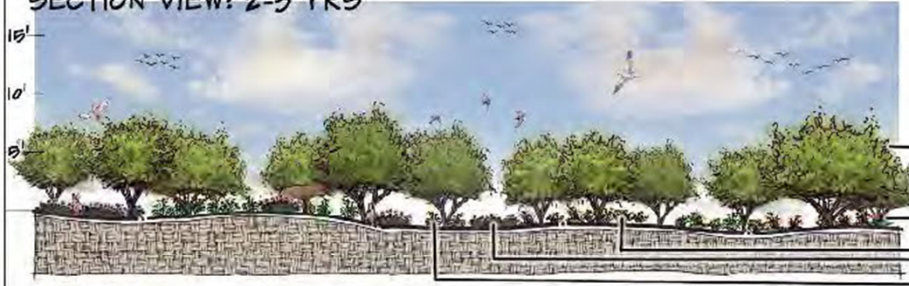


*Sphaeralcea ambigua*  
(Globe Mallow)

PLAN VIEW  
1/8 of an Acre



SECTION VIEW: 2-3 YRS



*Prosopis glandulosa* var. *torreyana*

*Sphaeralcea ambigua*

*Baileya multiradiata*

*Oenothera mexicana*

*Encelia farinosa*

**PLANTING ZONE PROPERTIES**

Plant Specs:  
\* *Prosopis glandulosa* var. *torreyana*, 1 gallon, hand planted randomly 20' O.C.

Seed entire area 5 lbs per acre with Seed Mix 1:  
\* *Oenothera mexicana*  
\* *Baileya multiradiata*  
\* *Encelia farinosa*  
\* *Sphaeralcea ambigua*



Designed By: FPC

**HUNTERS HOLE RIPARIAN AND WETLAND RESTORATION PROJECT**  
**PLANTING DETAIL MESQUITE HABITAT**

Figure 2  
Date: 7/8/11





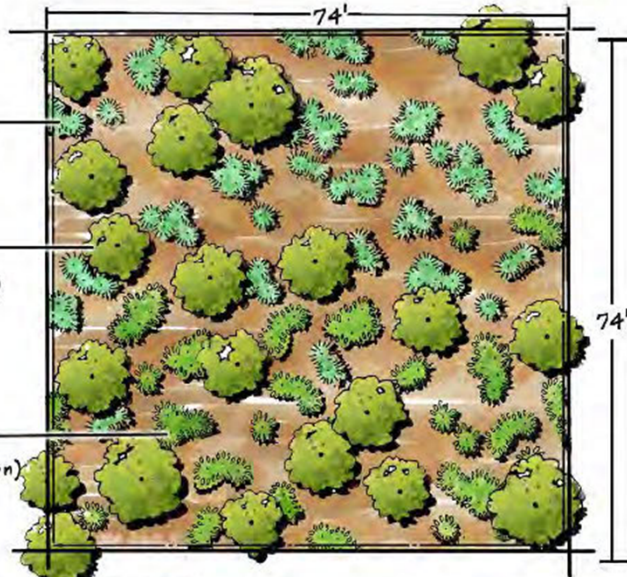
*Bouteloua gracilis*  
(Blue grama)



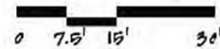
*Populus fremontii*  
(Cottonwood)



*Sporobolus airoides*  
(Alkali sacaton)



PLAN VIEW  
1/8 of an Acre



SECTION VIEW: 2-3 YRS



*Populus fremontii*  
*Sporobolus airoides*  
*Bouteloua gracilis*

PLANTING ZONE PROPERTIES:

\* *Populus fremontii* 1 gallon, hand planted randomly 15' O.C.

\* Seed entire area @ lbs per acre with Seed Mix 2:

- \* *Sporobolus airoides*
- \* *Bouteloua gracilis*



Designed By: FFC

HUNTERS HOLE RIPARIAN AND WETLAND RESTORATION PROJECT

PLANT DETAIL COTTONWOOD HABITAT

Figure 3

Date: 7/8/11

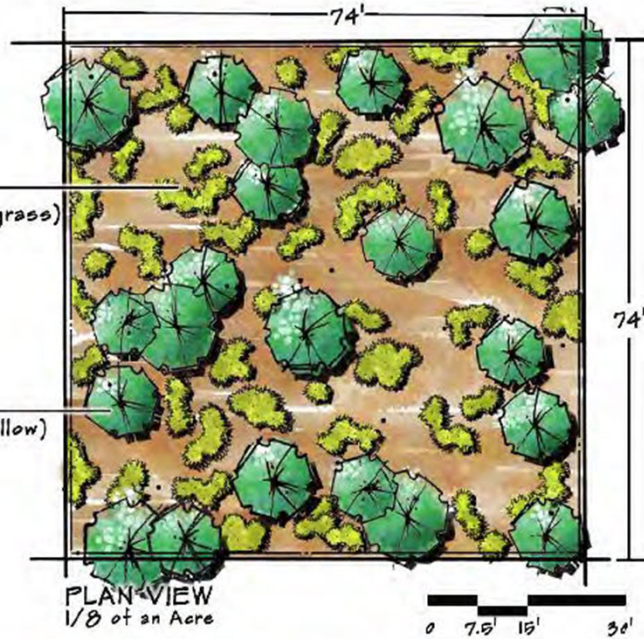




*Distichlis spicata*  
(Inland Saltgrass)



*Salix gooddingii*  
(Gooding Willow)



SECTION VIEW: 2-3 YRS



PLANTING ZONE PROPERTIES:

- \* *Salix gooddingii* 1 gallon, hand planted randomly 15' O.C.
- \* *Distichlis spicata* 4" plugs, hand planted randomly 5' O.C.



Designed By: FFC

HUNTERS HOLE RIPARIAN AND WETLAND RESTORATION PROJECT

PLANT DETAIL GOODING WILLOW HABITAT

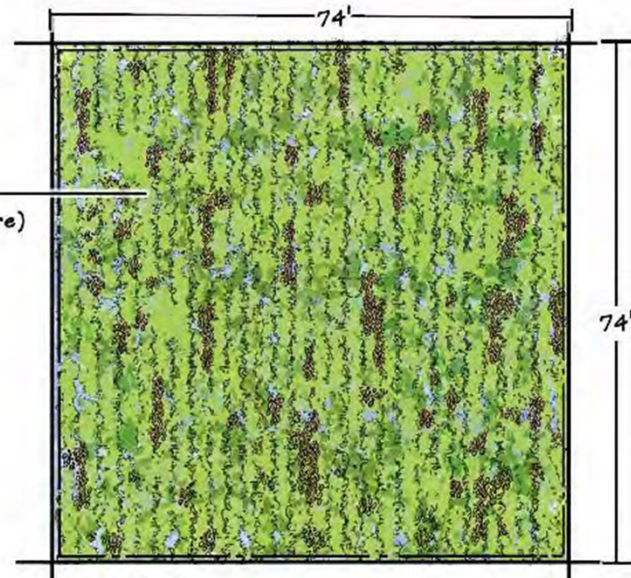
Figure 4

Date: 7/8/11

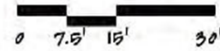




Scirpus olneyi (Three Square)



PLAN VIEW  
1/8 of an Acre



PLANTING ZONE PROPERTIES:

\* Scirpus olneyi 4" plugs hand planted randomly 5' O.C.

SECTION VIEW: 2-3 YRS



Scirpus olneyi



Designed By: FPC

HUNTERS HOLE RIPARIAN AND WETLAND RESTORATION PROJECT

PLANT DETAIL THREE SQUARE MARSH HABITAT

Figure 6

Date: 7/8/11





# ACKNOWLEDGEMENTS

WITH SPECIAL THANKS TO SENATOR JON KYL AND SENATOR JOHN MCCAIN AND CONGRESSMAN ED PASTOR AND CONGRESSMAN RAUL GRIJALVA. WITHOUT THERE SUPPORT THE YUMA EAST WETLANDS WOULD NOT BE POSSIBLE

WITH SPECIAL THANKS TO THE YUMA EAST WETLANDS SPONSERS YUMA ROD AND GUN CLUB SUPPORTERS AND PARTICIPANTS

QUECHAN INDIAN TRIBE  
CITY OF YUMA  
YUMA CROSSING NATIONAL HERITAGE AREA  
US BUREAU OF RECLAMATION  
ARIZONA WATER PROTECTION FUND  
NATIONAL PARK SERVICE  
NATIONAL FISH AND WILDLIFE FOUNDATION  
NORTH AMERICAN WATERFOWL CONSERVATION ASSOCIATION  
SONORAN JOINT VENTURE  
ENVIRONMENTAL DEFENSE  
WALTON FAMILY FOUNDATION  
ARIZONA GAME AND FISH DEPARTMENT  
BUREAU OF LAND MANAGEMENT  
US FISH AND WILDLIFE SERVICE  
YUMA FARM BUREAU  
ARIZONA WESTERN COLLEGE  
CAL STATE LOS ANGELOS  
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KEVIN EATHERLY  
TINA CLARK  
ALI BEICHLER  
HERB GUENTHER  
THE YARD DOGS ROAD SHOW  
KEITH SECOLA AND THE WILD JAVALINS  
THUNDERBIRD  
VLA PROJECT  
696 PROJECT  
DRIFTWOOD  
PROJECT CONTRACTORS  
FRED PHILLIPS CONSULTING, LLC (LEAD CONSULTANT)  
PG&E CONSTRUCTION  
TAYLORBIRD ENTERPRISES  
STEVENS ECOLOGICAL CONSULTING  
SHEPPARD WESNITZER ENGINEERING  
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