

**San Xavier District of the Tohono O'odham Nation –
Cemetery Wash Improvements Proposal for
Pima County Bond Advisory Committee Meeting –
January 23, 2015**





Existing Conditions: Presently approximately 900 of the 1,800 residents of the San Xavier District community are literally cut off every time a major rain event occurs. Flooding in Cemetery Wash prevents Emergency Vehicles (Police, Fire, Ambulance) from crossing the at-grade crossings over **Mission Road** and **San Xavier Road**, posing a grave threat to our citizens. Emergency vehicles are often unable to respond to calls during floods. Many residents have serious medical conditions which require access to medical facilities on a daily basis.

San Xavier Flood Hazard Study

Floodplain Results 100-YR Event

Legend

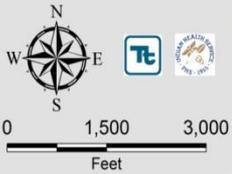
IHS Facilities

-  Arsenic Treatment Plant
-  Community Well
-  IHS Clinic Compound
-  Lagoons
-  Water Storage Tank
-  Structures Identified
-  Watercourses
-  100 year Floodplains

FEMA FIS Floodplains

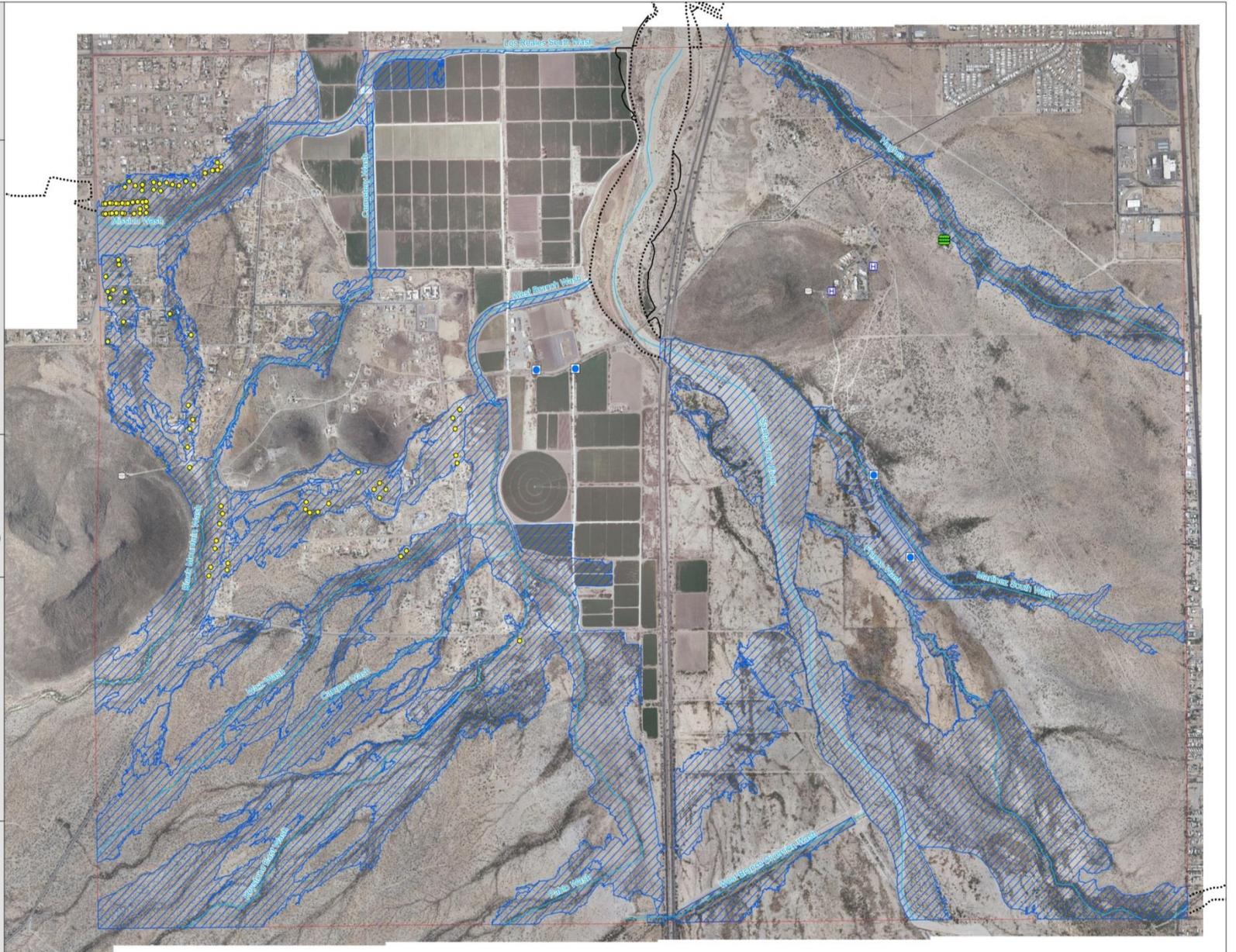
-  100 year
-  500 year
-  Study Area

Aerials are 2008 PAG Orthophotos



| Watercourse | Discharge (cfs) |
|-----------------------|-----------------|
| Black Mountain | 2,829 |
| Campus | 363 |
| Cemetery | 2,711 |
| Franco | 4,507 |
| Hughes | 3,727 |
| Keystone East | 3,378 |
| Los Reales South | 6,597 |
| Martinez South | 844 |
| Mission | 6,001 |
| Pablo | 2,099 |
| Wa.k | 883 |
| West Branch | 4,036 |
| West Branch Diversion | 4,831 |

Note:
Estimations of breakout flows and mapped floodplain boundaries are reflective of conditions recorded within 2008 PAG DEM data and/or observed during 2013 site visits. This study acknowledges that alluvial watercourses may change over time and this study represents our best approximation of the current flood hazards that impact the study area adjacent to the watercourses characterized by this study.



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Floodplain Results
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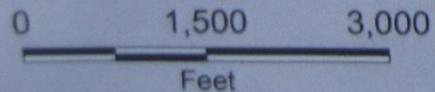
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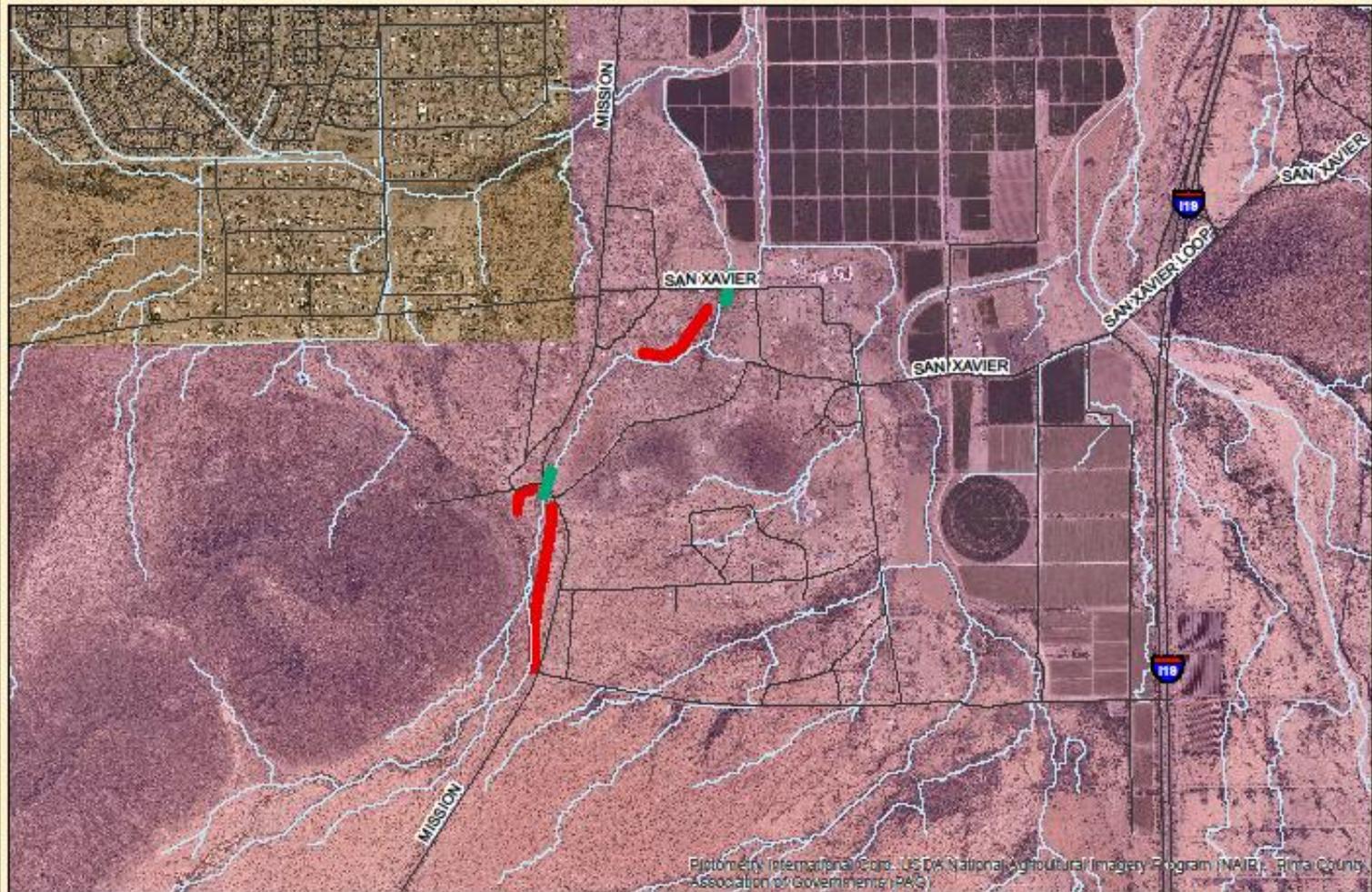


| Watercourse | Discharge (cfs) |
|----------------|-----------------|
| Black Mountain | 2,829 |





Project Scope: Construct approximately 2100 lineal feet of levee along Cemetery Wash with two reinforced concrete box culverts under Mission Road and San Xavier Road. This will collect and convey storm waters into constructed channels downstream of San Xavier Road, which ultimately drain into the Santa Cruz River.



Pictometry International Corp., US DA National Aerial Imagery Program (NAIP), Pima County Association of Governments (PAG)

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 http://www.pima.gov

Proposed Cemetery Wash Improvements

1 inch = 2,000 feet

- █ Levee
- █ Culvert
- Streets
- Washes
- Tohono O'odham Nation San Xavier District

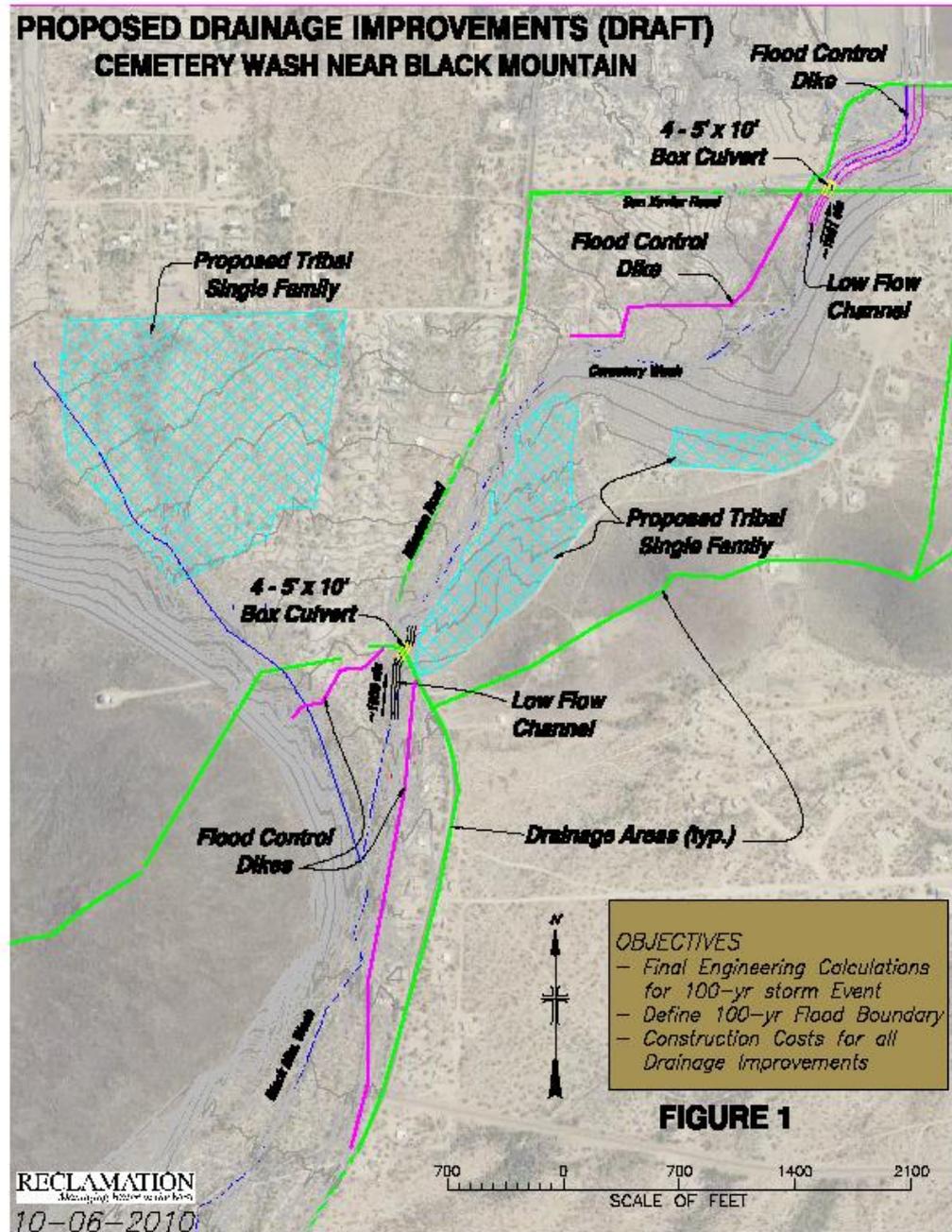


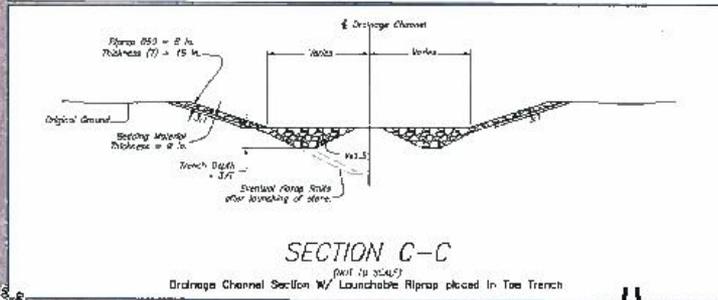
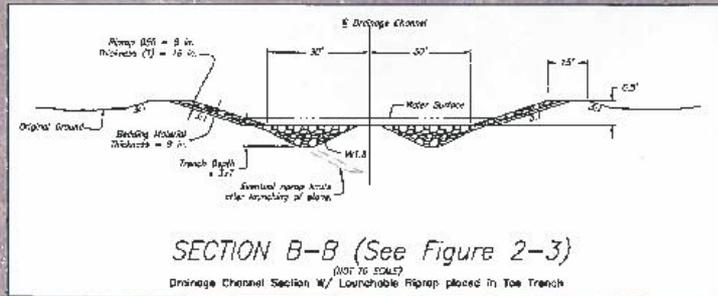
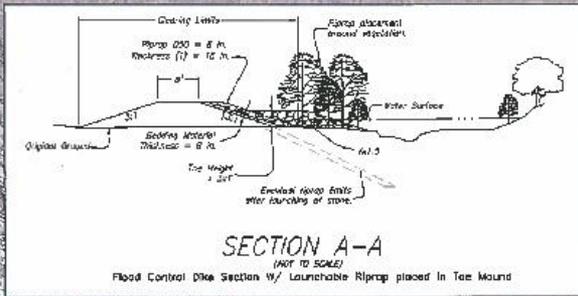
Date: 6/6/2014

The information depicted on this display is the result of digital analysis performed on a variety of databases provided and maintained by several governmental agencies. The accuracy of the information presented is limited to the collective accuracy of these databases on the date of the analysis. The Pima County Regional Flood Control District makes no claims regarding the accuracy of the information depicted herein.

This product is subject to the GIS Division Disclaimer and User Restrictions.

**PROPOSED DRAINAGE IMPROVEMENTS (DRAFT)
CEMETERY WASH NEAR BLACK MOUNTAIN**

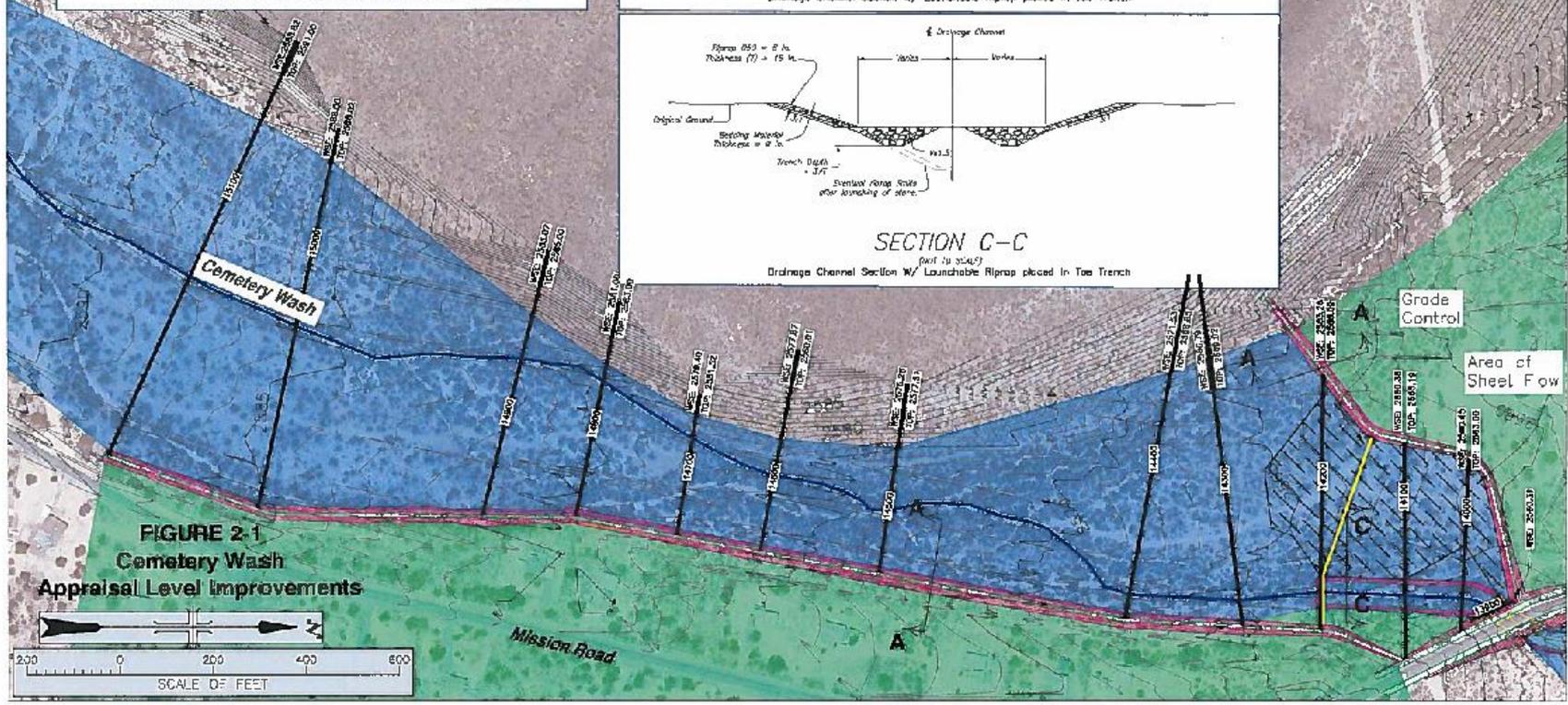




LEGEND

- Hydraulic Modeling Section
- 100 yr. Flood Boundary
- Flood Hazard Zone (Existing)
- WSE: 2563.26
- WSP: 2566.06
- Theswap
- Proposal improvements

RECLAMATION
Managing Water in the West





BENEFITS

The Tetra Tech study identified the following structures within the floodplain, that would be removed from the Floodplain by this project:

- **30 residential homes and structures in the 100-year floodplain located within the San Xavier District.**
- **12 residential homes and structures within Pima County jurisdiction in the 100 year floodplain, and reduce flood impacts for another 44 residences.**
- **Provide all-weather access to residents and emergency vehicles.**
- **Provide tourists visiting San Xavier del Bac Mission with improved access during the monsoon season.**

Partnerships & Financial Support:

- The San Xavier District has worked with the Bureau of Reclamation (approximately \$100,000 worth of assistance to date) on a preliminary design and cost estimate since 2010, and is anticipating additional Bureau of Reclamation assistance to complete the design.
- Flood hazard mapping has been completed in the project area by Tetra Tech under Indian Health Service funding (\$131,665 worth of assistance) which also supports the need for the Cemetery Wash drainage improvements.
- The Bureau of Reclamation has completed a preliminary jurisdictional delineation in preparation for a US Army Corps of Engineers 404 permit for the proposed drainage improvements.
- San Xavier District has secured access to a source of rip-rap from ASARCO to line the berms and dikes, which could save up to 30% of the riprap costs.

Phasing of Cemetery Wash Project – Cost Saving Alternative

PHASE ONE – Construction of two sets of reinforced concrete box culverts under Mission Road and San Xavier Road, which will provide all-weather access for Emergency Vehicles (Police, Fire, and Ambulance), School Buses, and Residents, & Tourists to cross both Cemetery Wash roads crossing safely during large storm events. **Estimated Construction Costs - \$ 2,000,000**

PHASE TWO - Construct approximately 2100 lineal feet of levee along Cemetery Wash, to collect and convey storm waters into constructed channels downstream of San Xavier Road, which ultimately drain into the Santa Cruz River. Pima County Flood Control staff estimates that the project mitigates flooding for a total of 70 homes, 30 in the District and 40 in unincorporated Pima County. **Estimated Construction Costs - \$ 2,000,000**

Thank you for your time. We will be happy to answer any questions now, or can provide you answers later along with any additional informational requests regarding this proposal.

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