Arizona Water Protection Fund
Application Cover Page
FY 2023

WPF2306

Title of Project: Protecting and restoring habitat and surface flow in Tanque Verde Creek

Type of Project:
- ☒ Capital or Other
- ☐ Water Conservation
- ☐ Research

Stream Type:
- ☐ Perennial
- ☒ Intermittent
- ☐ Ephemeral

Your level of commitment to maintenance of project benefits and capital improvements:
☐ < 5 years ☐ 5-10 years ☐ 11-15 years ☒ 16-20 years

Applicant Information:

Name/Organization: Watershed Management Group
Address 1: 1137 N Dodge Blvd
Address 2:
City: Tucson
State: AZ
ZIP Code: 85716
Phone: 520-396-3266
Fax: 520-300-6700
Tax ID No.: [redacted]

Inside an AMA: Yes ☒ No ☐

If yes, which AMA:
- ☐ Phoenix
- ☒ Tucson
- ☐ Prescott
- ☐ Pinal
- ☐ Santa Cruz

Type of Application:
- ☒ New
- ☐ Continuation

Contact Person:

Name: Catlow Shipek
Title: Program Director
Phone: 520-396-3266x4
Fax: 520-300-6700
e-mail: catlow@watershedmg.org

Any Previous AWPF Grants:
☐ Yes ☒ No

If yes, please provide Grant #(s):

Arizona Water Protection Fund Grant Amount Requested:

$195,657

If the application is funded, will the Grantee intend to request an advance:
☐ **Yes** ☒ **No**

Matching Funds Obtained and Secured:

Applicant/Agency/Organization:	Amount ($):
1. Applicant & Volunteer In-kind	$58,325
2. Forty-Niner Country Club	$2000
3. Forty-Niner HOA	$2000

Total: $62,325

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.

Catlow Shipek	Program Director, 520-396-3266x4
Typed Name of Applicant or Applicant's Authorized Representative	**Title and Telephone Number**
	8/22/2022
Signature	**Date Signed**

Protecting and Restoring Habitat and Surface Flow in Tanque Verde Creek
Executive Summary

The goals of this proposed project are to preserve seasonal flows in Tanque Verde Creek and enhance the area's riparian habitat, a critical remaining riparian wildlife linkage, through community-based restoration efforts. This project will focus on an intermittent (seasonal flow) reach of Tanque Verde Creek, stretching approximately 4 miles from Wentworth Road down to Houghton Road. The creek is located within a shallow groundwater area, with groundwater flowing within 50 feet below the ground, and still supports extensive riparian habitat and seasonal surface flows. Tanque Verde Creek is a critical wildlife linkage to both Saguaro National Park's Rincon Mountains and the US Forest Service's Santa Catalina Mountains.

The health of this riparian ecosystem that is supported by shallow groundwater and seasonal flows is threatened by the invasive *Arundo donax* (Giant cane), upstream erosion and hardening of land surfaces from residential development, and long-term drought.

The project objectives are to:

1) Eradicate invasive *Arundo donax* (Giant cane) from this upstream reach of Tanque Verde Creek to conserve shallow groundwater and restore native riparian habitat.
2) Reduce erosion and stormwater flooding impacts from adjacent parcels and neighborhood street landscape areas impacting Tanque Verde Creek's riparian floodplain habitat to improve water quality and increase stormwater infiltration.
3) Increase stewardship of Tanque Verde Creek by deepening community connections through community science monitoring of flow permanence, implementing a native vegetation response plan to Arundo removal, and engage residents and businesses in stormwater restoration efforts.

The proposed project builds on successful local efforts, including the recent eradication of Arundo from nearby Sabino Creek by the senior project manager leading this initiative, and ongoing efforts upstream of the project area. Additionally, WMG has implemented two stormwater restoration projects with landowners adjacent to Tanque Verde Creek in recent years. The landowners continue to successfully maintain these features.

This project will provide direct benefits to this intermittent stream and foster local stewardship by neighbors to maintain restoration project efforts for the long-term benefit of the riparian ecosystem's health. Support for the removal of invasive Arundo to reduce water loss through evapotranspiration, enhance native riparian habitat, and implement stormwater harvesting projects to enhance infiltration will help to restore local hydrologic conditions. Additionally, the stormwater projects will improve water quality by decreasing erosion and downstream sediment load.

WMG strives to engage local community members and businesses in the development, implementation, and maintenance of these efforts. This work is critical to strengthening community connections to the creek and riparian forest to ensure long-term stewardship that preserves flows and enhances riparian health in the face of long-term drought and other community and environmental pressures.

Applications: Protecting and Restoring Habitat and Surface Flow in Tanque Verde Creek

Profile
catlow@watershedmg.org

Project Title
Protecting and Restoring Habitat and Surface Flow in Tanque Verde Creek

Organization Name
Watershed Management Group

Application Cover Page
1_WMG_ApplicationCoverPageForm_AWPF_FY2023_signed.pdf

Executive Summary
2_WMG_ExecutiveSummary_AWPF_FY2023_24August2022.pdf

Project Overview
3_WMG_ProjectOverview_AWPF_FY2023_24Aug2022.pdf

Project Location and Environmental Contaminant Information
4_WMG_ProjectLocation_EnvironmentalContaminantInformationForm_AWPF_FY2023.pdf

Scope of Work
5_WMG_ScopeOfWork_AWPF_FY2023_24Aug2022.pdf

AWPF Detailed Budget
6_WMG_BudgetRequest_AZWPF_Aug2022.pdf

Matching / Cost Share Budget
7_WMG_BudgetMatch_AZWPF_Aug2022.pdf

Arizona Watershed Map
WMG_ArizonaWatershedMapForm_AWPF_FY2023.pdf

Project Location: Schematic Maps
8_AWPF_Grant_Layout_Maps_Aug2022.pdf

Project Location: Schematic Maps (cont.)

Project Location: Ownership Maps
AWPF_Grant_Layout_Landowner_Map_Aug2022.pdf

Project Location: Ownership Maps (cont.)

State Historic Preservation Office (SHPO) Review Forms
WMG_StateHistoricPreservationOfficeForms_AWPF_FY2023_Signed.pdf

State Historic Preservation Office (SHPO) Review Forms (cont.)

State Historic Preservation Office (SHPO) Review Forms (cont.)

State Historic Preservation Office (SHPO) Review Forms (cont.)

State Historic Preservation Office (SHPO) Review Forms (cont.)

Key Personnel
Catlow Shipek, Project Coordinator
Jim Washburne, PhD, Project Co-lead
James Lauder, Project Co-lead
Lauren Monheim, Community Outreach Assistance

Key Personnel (cont.)
Key Personnel.pdf

Project Site Photographs
Project Site Photos_AWPF_FY2023_24Aug2022.pdf

Project Implementation Plans
WMG will utilize its existing Flow365 Community Science volunteer monitors and recruit and train new volunteers to monitor flow permenance and any new Arundo sprouts following treatment along this reach.

WMG has implemented 9 vegetation monitoring plots (25ft radius plots) with established protocols under the guidance of Carianne Campbell of Strategic Habitats. These are done annually at established points and includes photo monitoring in each of the four cardinal directions at each plot. A trained WMG staff member conducts the survey with the aid of volunteers. This is done to assess short and long-term vegetative impacts from the removal of Arundo. These plots are monitored annually in May-June with the help of volunteers led by WMG's project staff. Ms. Campbell will review collected data to synthesize and report vegetation community trends of the plots. WMG will provide partners, interest groups, and residents with educational materials related to the identification and removal of invasive plants as well as the reported vegetative trends.

WMG trains and supervises a team of community volunteers, known as our Flow365 monitors, to observe flow permanence across the Tucson area. Additional flow monitors to specifically support Tanque Verde Creek monitoring will be recruited and trained to ensure observation consistency along Tanque Verde Creek and to include information about Arundo.

Existing Plans / Reports / Information
WMG_Plants_Reports_AWPF_FY2023_24Aug2022.pdf

Existing Plans / Reports / Information (cont.)

Existing Plans / Reports / Information (cont.)

Letters of Community Support
CommunitySupport_Letters_WMG.pdf

Letters from Entities Pledging Matching Funds
MatchingFunds_CommunitySupport_Letters_WMG.pdf

Evidence of Control and Tenure of Land
WMG_Evidence of Control and Tenure of Land.pdf

Evidence of Control and Tenure of Land (cont.)
Tanque Verde LandownerPermissionForm.pdf

Project Site Access / Permission to Conduct Work
WMG continues to engage adjacent landowners to formally request permission to access and remove Arundo. A landowner access agreement form (see attached) has been developed and will be shared with landowners. Formal agreement has already been received by Forty-Niners Country Club, Nik Crosby, and Pima County Regional Flood Control District who include the most strategic access points and portions of the creek. Additional agreements have been received by other adjacent landowners. Agreements by these and other landowners can be provided if project is selected for funding.

Evidence of Physical and Legal Availability of Water
Evidence of Physical and Legal Availability of Water.pdf

Evidence of Physical and Legal Availability of Water (cont.)

OPTIONAL: Additional Project Information

OPTIONAL: Additional Project Information

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View Budget Worksheet

View Application Goals
https://portal.ecivis.com/#/peerGoals/E7A41C15-B234-45F6-BC6C-BC5746BA3636

Applications: File Attachments

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Key Personnel.pdf

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WMG_Evidence of Control and Tenure of Land.pdf

Evidence of Control and Tenure of Land (cont.)
Tanque Verde LandownerPermissionForm.pdf

Evidence of Physical and Legal Availability of Water
Evidence of Physical and Legal Availability of Water.pdf

Protecting and Restoring Habitat and Surface Flow in Tanque Verde Creek
Project Overview

Background Watershed Management Group and partners have launched a community campaign to restore native riparian habitat and surface flow to Tucson's rivers, including Tanque Verde Creek. This project will focus on an intermittent (seasonal flow) reach, about 4 miles in length of Tanque Verde Creek, stretching approximately from just upstream of Wentworth Road and down to Houghton Road. The creek is located within a shallow groundwater area, with groundwater levels within 50 feet of the ground, and still supports extensive riparian habitat and seasonal surface flows. Tanque Verde Creek is a critical wildlife linkage to both Saguaro National Park's Rincon Mountains and the US Forest Service's Santa Catalina Mountains.

The adopted Watershed Restoration Plan (http://santacruzwatershedcollaborative.net/) of the Santa Cruz Watershed Collaborative prioritizes the removal of invasive riparian species and the expansion of stormwater harvesting practices to replenish shallow groundwater areas. The health of the Tanque Verde Creek ecosystem is threatened by invasive *Arundo donax* (Giant cane), upstream erosion and hardening of land surfaces from residential development, and long-term drought.

The proposed project will provide direct benefits to this intermittent stream and foster local stewardship by neighbors to maintain restoration efforts for the long-term benefit of the riparian ecosystem's health. Support for the removal of invasive Arundo to reduce water loss through evapotranspiration, enhance native riparian habitat, and implement stormwater harvesting projects that enhance infiltration will help to restore local hydrologic conditions. Additionally, the stormwater projects will improve water quality by decreasing erosion and downstream sediment load.

Goals The goals of this project are to preserve Tanque Verde Creek's seasonal flows and enhance its habitat, a critical remaining riparian wildlife linkage, through community-based restoration efforts.

Objectives

1) Eradicate invasive *Arundo donax* (Giant cane) from this upstream reach of Tanque Verde Creek to conserve shallow groundwater and restore native riparian habitat.
2) Reduce erosion and stormwater flooding impacts from adjacent parcels and neighborhood street landscape areas impacting Tanque Verde Creek's riparian floodplain habitat to improve water quality and increase stormwater infiltration.
3) Increase stewardship of Tanque Verde Creek by deepening community connections through community science monitoring of flow permanence, implementing a native vegetation response plan to Arundo removal, and engage residents and businesses in stormwater restoration efforts.

Statement of Problems/Causes Tanque Verde Creek is part of a shallow groundwater area that supports some of the last remaining groundwater supported riparian ecosystems in the greater Tucson-area basin. Local groundwater levels are sensitive to seasonal and annual droughts, groundwater pumping demands, seasonal snowmelt, and summer floodplain recharge. After decades of declining groundwater levels in this area, local groundwater pumping was reduced in 2005 when the City of Tucson connected hundreds of homes to centrally-managed water resources and extended reclaimed water to the Forty-Niner Country Club, recovering groundwater levels and seasonal surface flows.

However, since 2014, *Arundo donax* (Giant cane) has become dominant along the banks of the aforementioned stretch of Tanque Verde Creek. Arundo consumes 3-4 times more groundwater than native riparian vegetation, increases flood risk by constricting the flood channel, and becomes a fire hazard during the drier season. Additionally, hotter and drier seasonal and annual temperatures (i.e. the record setting year of 2020) in recent years has led to greater competition for water resources between Arundo and native riparian vegetation.

Past residential and rural development and land use of adjacent floodplain areas has also led to erosional features along tributary arroyos of the Tanque Verde, contributing sediment and increased flow volumes downstream. This decreases the presence of locally available water resources that would otherwise replenish the Tanque Verde's shallow groundwater and native riparian vegetation. In addition, sediment and common roadway pollutants from neighborhood roads contribute to further degradation of the downstream riparian ecosystem.

To preserve the recent (past decade) return of seasonal flows to Tanque Verde Creek, the health of the riparian ecosystem, and to increase resilience in drier years, it is critical that we reduce invasive species competition for water and increase stormwater infiltration across adjacent floodplain areas.

Statement of Solutions WMG's multi-pronged approach to preserve and enhance streamflow and the riparian health in Tanque Verde Creek will increase the resilience of the ecosystem to prolonged drought in the long-term. This funding proposal will 1) build on initial efforts to eradicate Arundo from this upstream reach of Tanque Verde Creek, 2) increase infiltration from adjacent landscape stormwater runoff for the benefit of native habitat, mitigate sediment and other stormwater pollutants, and reduce flooding impacts, and 3) promote groundwater conservation and riparian health connections among local residents and businesses through outreach, community science monitoring, and participatory restoration activities.

Building on lessons learned from the successful eradication of *Arundo donax* along Sabino Creek several years prior led by Dr. James Washburne and partners, Watershed Management Group (WMG) in collaboration with local landowners, neighborhood associations, and businesses will recruit volunteers and lead workdays to remove invasive *Arundo donax* (Giant cane). From September through April, weekly four-hour volunteer workdays will focus on cutting and hauling Arundo cane and its shallow rhizomes out of the floodplain area.

WMG will lead parallel efforts to assist adjacent landowners and neighborhood associations along the creek with implementing stormwater harvesting basins that reduce erosion and increase infiltration for the benefit of the riparian ecosystem. The Forty-Niners Homeowners Association has identified over six sites experiencing erosion which could benefit from stormwater harvesting strategies across their flood prone areas. Several partnering landowners along the creek, have also expressed interest in receiving technical and project assistance to mitigate erosion and localized flooding on their properties. We will implement 4-6 stormwater harvesting projects in cooperation with local landowners and neighborhood associations that will best benefit the riparian ecosystem's health through diminished sediment and increased soil-moisture retention.

This work will build on two recent stormwater harvesting projects WMG successfully implemented in 2017 and 2019, in collaboration with landowners on the south side of the creek just downstream of Wentworth Road. These restoration projects successfully addressed gully erosion across two acres by slowing down flows, creating vegetative filters to bio-remediate pollutants, and enhancing the infiltration of flows that contribute directly to the creek's ecosystem. These features continue to function as planned and are being maintained successfully by the landowners.

Statement of Project Years of Benefit to the Resource and General Public

This 3-year project will enhance Tanque Verde creek flow permanence and riparian health by providing direct improvements to slow and infiltrate stormwater surface flows and eradicate invasive *Arundo donax*. The restoration plan will address additional benefits including flood mitigation, water quality, native habitat, and increased community investment in the health of the creek. Beyond the grant-funded years, our community-based approach will grow local stewardship and leverage community partners to ensure long-term (20-30+ years) maintenance of the stormwater harvesting basins and any Arundo removal follow up work based on community science monitoring observations.

Project Location & Environmental Contaminant Information
FY 2023

Project Location Information

1. County: Pima County	2. Section(s): 04-06	3. Township: 14S	4. Range: 16E

5. Watershed: Santa Cruz
6. 8 or 10 Digit Hydrologic Unit Code (HUC): 1505030203
7. Name of USGS Topographic Map where project area is located: Tanque Verde Peak and Tucson East
8. State Legislative District: 17 as of Jan 2022 (#10 as of Jan 2012)
   (Information available at: https://azredistricting.org/districtlocator/
9. Land ownership of project area: Private
10. Current land use of project area: Floodplain, residential, recreation
11. Size of project area (in acres): 40 acres
12. Stream Name: Tanque Verde Creek
13. Length of stream through project area: 4
14. Miles of stream benefited: 4 miles
15. Acres of riparian habitat: 36 acres will be:
    - ☒ Enhanced
    - ☐ Maintained
    - ☐ Restored
    - ☐ Created

16. General description and/or delineation for the area of impact of the project within the watershed.
Work will be along the channel and floodplain of Tanque Verde Creek, roughly from just upstream of Wentworth Road and down to Houghton Road. Additional work will be completed on tributary arroyos within this reach of the creek and in close proximity to the creek (within 1mile).

17. Provide directions to the project site from the nearest city or town. List any special access requirements: From Tucson drive east on Speedway Blvd, turn north on Wentworth Road. Tanque Verde Creek has a low water crossing at Wentworth Road. From here or at other neighborhood locations, access is by foot. No special access required.

Environmental Contaminant Location Information

1. Does your project site contain known environmental contaminants? ☐ **YES** ☒ **NO** If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants:

2. Are there known environmental contaminants in the project vicinity? ☐ **YES** ☒ **NO** If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants:

3. Are you asking for Arizona Water Protection Fund monies to identify whether or not environmental contaminants are present? ☐ **YES** ☒ **NO**

Protecting and Restoring Habitat and Surface Flow in Tanque Verde Creek
Scope of Work

TASK # 1

Task Title
Arundo donax (Giant cane) Eradication

Task Description
All applicable permits, authorizations, and agreements will be obtained prior to initiation of Arundo removal. Based on recent efforts supported by Arizona Department of Forestry and Fire Management's Invasive Plant program, this includes clearance by the State Historic Preservation Office. For landowner access agreements, we will initiate work with supportive landowners whose land borders 3 of the 3.85 creek miles combined. Staging and access points through these landowners (see letters of support from Forty Niners Country Club, Pima Country Regional Flood Control District, and Nik Crosby) will provide the ability to treat and dispose of Arundo from nearly the entire creek area. Additional landowners along the creek will be engaged and have access agreements requested of them, but these agreements are not critical to achieving successful Arundo removal goals.

Based on our current assessment of the extent and distribution of Arundo along Tanque Verde Creek, we anticipate that leading weekly work days (September through April) with an average of 4-5 volunteers is needed to remove Arundo stands from this reach of the Creek. Volunteers will be trained to identify and remove Arundo. A treatment schedule including volunteer work days will be coordinated with landowners and shared with the Sonoran Desert Cooperative Weed Management Area group, Santa Cruz Watershed Collaborative, and other agencies and organizations.

To recruit volunteers, we will collaborate with local neighborhood and special interest user groups to engage residents as well as coordinate with service-oriented groups and Watershed Management Group's (WMG's) general restoration volunteer pool. We will also engage with the local equestrian community, including horseback tour providers and stable owners, who are major users of the creek.

We will use an Integrated Vegetation Management approach. This will include hand cutting of Arundo canes (stems) and removal of cut cane from the floodplain; hand and backhoe excavation (estimated at 3-4 days per year, 12 days total over 3 years) of rhizome stands; and hand separation of rhizomes from soil and removal out of the floodplain. It is estimated that we will need 10 roll-off waste hauling containers per year (30 total over 3 years) to remove cut cane from flood prone areas.

Follow up treatments informed by monitoring will be done by hand removal. We have found that the application of herbicides does not effectively or efficiently kill the deeper rhizomes and leads to re-growth, so hand removal would be used instead. Additionally, several of the landowners stipulate in our access agreements that we are not to use herbicides on their parcels.

Following confirmation of Arundo removal based on annual monitoring during the summer growth season, native plantings — including pole plantings of riparian trees — will be targeted along select disturbed banks to prevent re-colonization of Arundo or other secondary invasive species.

Task Purpose/Objective
In compliance with all local, state, and federal permit requirements, laws, and legal access, to eradicate invasive *Arundo donax* (Giant cane) from this reach of Tanque Verde Creek to restore native riparian habitat.

Deliverable Description

- Copies of all approved permits, authorizations, clearances, and agreements
- 36 acres of riparian habitat treated

Deliverable Due Date

- Copies of required paperwork provided prior to ground disturbing activities
- Habitat acreage treatment to be realized 3 years from start of grant, estimated June 30, 2026

Responsible Personnel

WMG Project Lead: Dr. James Washburne, Arundo Removal Specialist
WMG Project Supervisor: Catlow Shipek, Program Director

Task Cost (rounded to the nearest dollar)

$140,406

TASK # 2

Task Title

Erosion Control and Stormwater Harvesting Projects

Task Description

All applicable permits, authorizations, and agreements will be obtained prior to initiation of Arundo removal. Based on recent efforts supported by Arizona Department of Forestry and Fire Management's Invasive Plant program this includes clearance by the State Historic Preservation Office. The project team in collaboration with local landowners will prioritize projects based on a) direct benefits to the riparian area, b) commitment to maintenance for the long-term, and c) ability to implement within year 1 or 2 of the grant-funded project. Detailed project designs will be developed by WMG staff for the selected sites in coordination with landowners. Floodplain permits will be acquired from Pima County Regional Flood Control District for the sites that are within a regulated floodplain. It is not expected that other permits will be required based on project site locations or project scopes.

Based on initial project scoping with Forty-Niners HOA, Forty-Niners Golf Course, and other private landowners we estimate 4-6 stormwater restoration project sites can be completed which will benefit the riparian health of Tanque Verde Creek. Over six project sites have already been identified by the Forty-Niners HOA and other landowners have expressed interest in technical and project assistance related to stormwater issues.

The projects will be implemented through a combination of contracted excavation services and volunteer education-based workdays. The education-based workdays with community partners and neighborhood volunteers will help connect the stormwater restoration efforts and Arundo eradication efforts to the long-term stewardship needs and goals for Tanque Verde Creek.

Stormwater restoration features will consist of channel and landscape restoration rock features such as one-rock dams, media lunas, and slope stabilization, as well as native plantings paired with stormwater harvesting basins to capture, retain, and infiltrate stormwater.

The landowner/neighborhood association will assist with volunteer recruitment for the stormwater restoration project workdays and with providing snacks and refreshments for the volunteers. The landowner/neighborhood association will also agree to monitor performance of the restoration features and assume maintenance responsibilities. WMG will assist the landowner/neighborhood association

with maintenance trainings and oversight during the duration of this grant. A maintenance and establishment guide will be provided to each landowner/neighborhood association.

Task Purpose/Objective
In compliance with all local, state, and federal permit requirements, laws, and legal access, to reduce stormwater pollution and flooding impacts from adjacent parcels and neighborhoods on Tanque Verde Creek's riparian floodplain habitat.

Deliverable Description
- Copies of all approved permits, authorizations, clearances, and agreements
- 4-6 stormwater restoration project sites completed and acreage of hydrologic impact

Deliverable Due Date
- Copies of required paperwork provided prior to ground disturbing activities
- Completion of stormwater projects to be within 2 years from grant start date, estimated June 30, 2025

Responsible Personnel
WMG Project Lead: James Lauder, Restoration Project Manager
WMG Project Supervisor: Catlow Shipek, Program Director

Task Cost (rounded to the nearest dollar)
$29,110

TASK # 3

Task Title
Monitoring Riparian Vegetation and Flow Response

Task Description
We will develop a long-term monitoring and management plan for Tanque Verde Creek, which will include mobilizing WMG's Flow365 Community Science volunteer monitors, local neighborhood and horseback riding organizations, and/or other volunteer groups to monitor the area for Arundo re-sprouts and new infestations.

WMG, with the assistance of Carianne Campbell of Strategic Habitats, has established vegetation monitoring protocols and 9 plots (each with a 25-foot radius) throughout the proposed project area to assess short and long-term vegetative impacts from the removal of Arundo. These plots are monitored annually in May-June with the help of volunteers led by WMG's project staff. Ms. Campbell will review collected data to synthesize and report vegetation community trends of the plots. WMG will provide partners, interest groups, and residents with educational materials related to the identification and removal of invasive plants as well as the reported vegetative trends.

WMG trains and supervises a team of community volunteers, known as our Flow365 monitors, to observe flow permanence across the Tucson area. Additional flow monitors to specifically support Tanque Verde Creek monitoring will be recruited and trained to ensure observation consistency along Tanque Verde Creek and to include information about Arundo.

As part of this project, WMG staff will provide informational presentations, mailings, and targeted emails to engage local residents to assist with restoration efforts, monitoring, and also to share annual reports on flow and Arundo results.

Task Purpose/Objective
Deepen community connections and stewardship of Tanque Verde Creek through community science monitoring to assess flow permanence and vegetative response to Arundo removal and associated restoration efforts.

Deliverable Description
# of volunteers trained; annual vegetative response monitoring of 9 plots; annual flow report highlighting Tanque Verde Creek flow trends

Deliverable Due Date
Annual reports, final report by end of 3-year grant project, estimated June 30, 2026

Responsible Personnel
WMG Community Science Lead: Lauren Monheim, Program Manager
WMG Project Supervisor: Catlow Shipek, Program Director

Task Cost (rounded to the nearest dollar)
$23,511

TASK # 4

Task Title
Final report and oral presentation of project results

Task Description
WMG will develop a final report and oral presentation to share project results and lessons learned with Arizona Water Protection Fund staff and commissioners and with the Santa Cruz Watershed Collaborative. The final report will include vegetation and flow monitoring trends, lessons learned throughout the various grant project tasks, and metrics accomplished. Suggested next steps will be included to inform partner and other agency/organization actions.

WMG will coordinate with Arizona Water Protection Fund staff to schedule an oral presentation in the final 4-6 months of the grant term.

Task Purpose/Objective
Share project results, lessons learned, metrics, and suggested next steps with project partners

Deliverable Description
Final report document (pdf) and oral presentation with visual slides

Deliverable Due Date
By end of 3-year grant project, estimated June 30, 2026

Responsible Personnel
WMG Project Supervisor: Catlow Shipek, Program Director

Task Cost (rounded to the nearest dollar)
$2,630

Arizona Water Protection Fund Grant Application Detailed Budget

Total Request: **$195,657**

Task 1: Arundo donax (Giant cane) Eradication					
	Quantity	**Unit**	**Unit Cost**	**Total**	**Notes**
Direct Labor Costs					
Project Supervisor & Coordinator	156	Hours	$ 60.00	$9,360	
Arundo Project Lead	1092	Hours	$ 50.00	$54,600	
Arundo Project Assist	312	Hours	$ 50.00	$15,600	
Community Engagement Lead	312	Hours	$ 50.00	$15,600	
Direct Labor Subtotal	**1872**	**Hours**		**$95,160**	
Outside Service Costs					
Carianne Campbell, Strategic Habitats (Consultant)	45	Hours	$ 75.00	$3,375	
Roll Off Waste Hauling (for Arundo cane removal)	30	Ea	$ 500.00	$15,000	10 per year
Excavator (12 days to help with rhizome removal and hauling)	12	per day	$ 1,100.00	$13,200	3-4 days per year
Outside Services Subtotal				**$31,575**	
Other Direct Costs					
Outreach Materials (mailings, flyers)	3	annual	$ 200.00	$600	1 mailing/ year
Other Direct Subtotal				**$600**	
Capital Outlay, Equipment, Supplies, Per Diem, Travel, etc. *(Note: mileage reimbursement is limited to $0.445/mile)*					
Mileage (30miles RT, 2 trips per week per year)	9360	per mile	$ 0.445	$4,165	
Hand tools (Arundo removal and habitat/erosion projects)	1	total	$ 250.00	$250	
Staff and volunteer PPE (gloves, first aid kits, masks)	1	total	$ 250.00	$250	
Volunteer workday snacks and refreshments	72	day	$ 10.00	$720	
Restoration plantings (native trees and shrubs; most will be sourced on-site from cuttings)	100	ea	$ 10.00	$1,000	
Other Direct Subtotal				**$6,385**	
Task Subtotal				$133,720	
Optional: AWPF Administrative Costs (not to exceed 5% of Task Subtotal)			5%	$6,686	

Task 1 Total	**$140,406**

Task 2: Erosion control and stormwater harvesting projects					
	Quantity	**Unit**	**Unit Cost**	**Total**	**Notes**
Direct Labor Costs					
Project Supervisor & Coordinator	104	Hours	$ 60.00	$6,240	
Stormwater Project Lead	120	Hours	$ 50.00	$6,000	
Community Engagement Lead	52	Hours	$ 50.00	$2,600	
Direct Labor Subtotal	**276**	**Hours**		**$14,840**	
Outside Service Costs					
Excavator (8 days for habitat/erosion projects)	8	per day	$ 1,100.00	$8,800	1-2 days per project
Outside Services Subtotal				**$8,800**	
Other Direct Costs					
Outreach Materials (mailings, flyers, informational handouts)	1	annual	$ 200.00	$200	
Other Direct Subtotal				**$200**	
Capital Outlay, Equipment, Supplies, Per Diem, Travel, etc. *(Note: mileage reimbursement is limited to $0.445/mile)*					
Mileage (30miles RT, 25 trips)	750	per mile	$ 0.445	$334	
Hand tools (habitat/erosion projects)	1	total	$ 200.00	$200	
Staff and volunteer PPE (gloves, first aid kits, masks)	1	total	$ 150.00	$150	
Restoration plantings (native trees and shrubs)	200	ea	$ 10.00	$2,000	
Rock for restoration projects	30	per ton	$ 40.00	$1,200	
Other Direct Subtotal				**$3,884**	
Task Subtotal				$27,724	
Optional: AWPF Administrative Costs (not to exceed 5% of Task Subtotal)			5%	$1,386	

Task 2 Total	**$29,110.00**

Task 3: Monitoring riparian vegetation and flow response					
	Quantity	**Unit**	**Unit Cost**	**Total**	**Notes**
Direct Labor Costs					
Project Supervisor & Coordinator	156	Hours	$ 60.00	$9,360	
Vegetation Monitoring Lead	90	Hours	$ 50.00	$4,500	
Flow365 Community Science Lead	156	Hours	$ 50.00	$7,800	
Direct Labor Subtotal	**402**	**Hours**		**$21,660**	
Outside Service Costs					
Outside Services Subtotal				**$0**	
Other Direct Costs					
Outreach Materials (printing annual monitoring report to share)	1	annual	$ 500.00	$500	
ArcGIS Nonprofit License	3	annual	$ 110.00	$330	1 license/year
Other Direct Subtotal				**$330**	
Capital Outlay, Equipment, Supplies, Per Diem, Travel, etc. *(Note: mileage reimbursement is limited to $0.445/mile)*					
Mileage (30miles RT, 10 trips per year)	900	per mile	$ 0.445	$401	
Other Direct Subtotal				**$401**	
Task Subtotal				$22,391	
Optional: AWPF Administrative Costs (not to exceed 5% of Task Subtotal)			5%	$1,120	

Task 3 Total	**$23,511**

Task 4: Final report and oral presentation of project results					
	Quantity	**Unit**	**Unit Cost**	**Total**	**Notes**
Direct Labor Costs					
Project Supervisor & Coordinator	40	Hours	$ 60.00	$2,400	
Direct Labor Subtotal	**40**	**Hours**		**$2,400**	
Outside Service Costs					
Outside Services Subtotal				**$0**	
Other Direct Costs					
Other Direct Subtotal				**$0**	
Capital Outlay, Equipment, Supplies, Per Diem, Travel, etc. *(Note: mileage reimbursement is limited to $0.445/mile)*					
Mileage (1 RT Tucon-Phoenix-Tucson)	235	per mile	$ 0.445	$105	
Other Direct Subtotal				**$105**	
Task Subtotal				$2,505	
Optional: AWPF Administrative Costs (not to exceed 5% of Task Subtotal)			5%	$125	

Task 4 Total	**$2,630**

Arizona Water Protection Fund Grant Application Detailed Budget

Total Match **$62,325**

Task 1: Arundo donax (Giant cane) Eradication					
	Quantity	**Unit**	**Unit Cost**	**Total**	**Notes**
Labor In-kind					
Volunteer Labor (4 volunteers per week, 4hr workdays, for 3 years)	1536	Hours	$ 15.00	$23,040	
Direct Labor Subtotal	**1536**	**Hours**		**$ 23,040**	
Other Direct Costs					
Forty-Niner Country Club Direct Funding	1	lump	$ 2,000.00	$20,000	see letter of support
Other Direct Subtotal				**$20,000**	
Capital Outlay, Equipment, Supplies, Per Diem, Travel, etc. *(Note: mileage reimbursement is limited to $0.445/mile)*					
Volunteer Mileage (10miles RT, 2 trips per week per year)	3120	per mile	$ 0.445	$1,388	
Other Direct Subtotal				**$1,388**	
Task Subtotal				$44,428	
Administrative Costs (5% of direct match and 5% of Requested funds)			5%	$6,686	

Task 1 Total	**$51,114**

Task 2: Erosion control and stormwater harvesting projects					
	Quantity	**Unit**	**Unit Cost**	**Total**	**Notes**
Labor Inkind					
Volunter Labor (8 volunteers for 6, 4-hour workdays)	192	Hours	$ 15.00	$2,880	
Direct Labor Subtotal	**192**	**Hours**		**$2,880**	
Other Direct Match					
Forty-Niner HOA direct funding for project costs	1	lump	$ 2,000.00	$2,000	see letter of support
Other Direct Subtotal				**$2,000**	
Capital Outlay, Equipment, Supplies, Per Diem, Travel, etc. *(Note: mileage reimbursement is limited to $0.445/mile)*					
Other Direct Subtotal				**$0**	
Task Subtotal				$4,880	
Administrative Costs (5% of direct match and 5% of Requested funds)			5%	$1,486	

Task 2 Total	**$6,366**

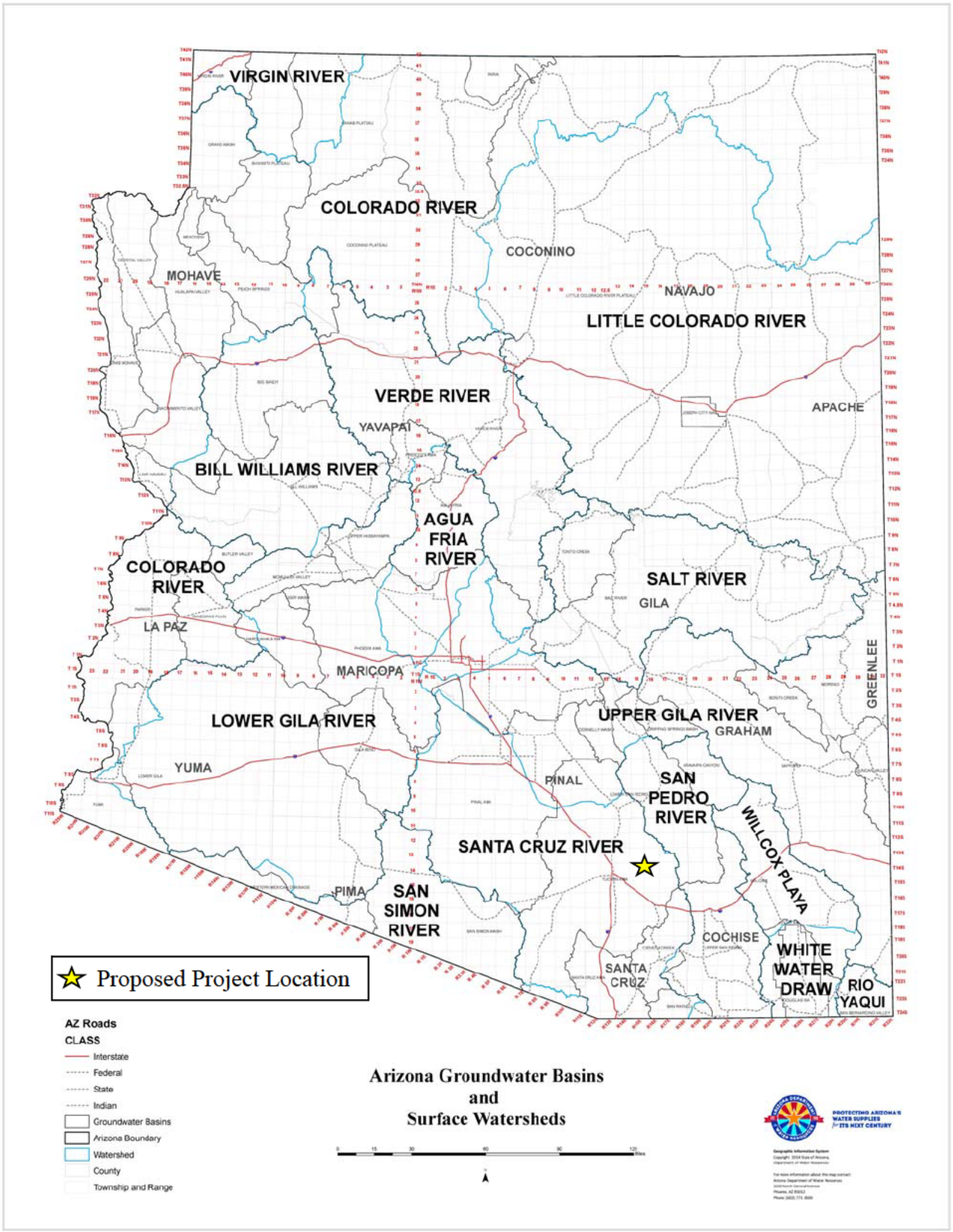
Task 3: Monitoring riparian vegetation and flow response					
	Quantity	**Unit**	**Unit Cost**	**Total**	**Notes**
Labor Inkind					
Volunteer Labor (2 volunteers, 40hrs per year, 3 years)	240	Hours	$ 15.00	$3,600	
Direct Labor Subtotal	**240**	**Hours**		**$3,600**	
Task Subtotal				$3,600	
Administrative Costs (5% of direct match and 5% of Requested funds)			5%	$1,120	

Task 3 Total	**$4,720**

Task 4: Final report and oral presentation of project results					
	Quantity	**Unit**	**Unit Cost**	**Total**	**Notes**
Labor Inkind					
Direct Labor Subtotal	**0**	**Hours**		**$ -**	
Task Subtotal				$0	
Administrative Costs (5% of direct match and 5% of Requested funds)			5%	$125	

Task 4 Total	**$125**

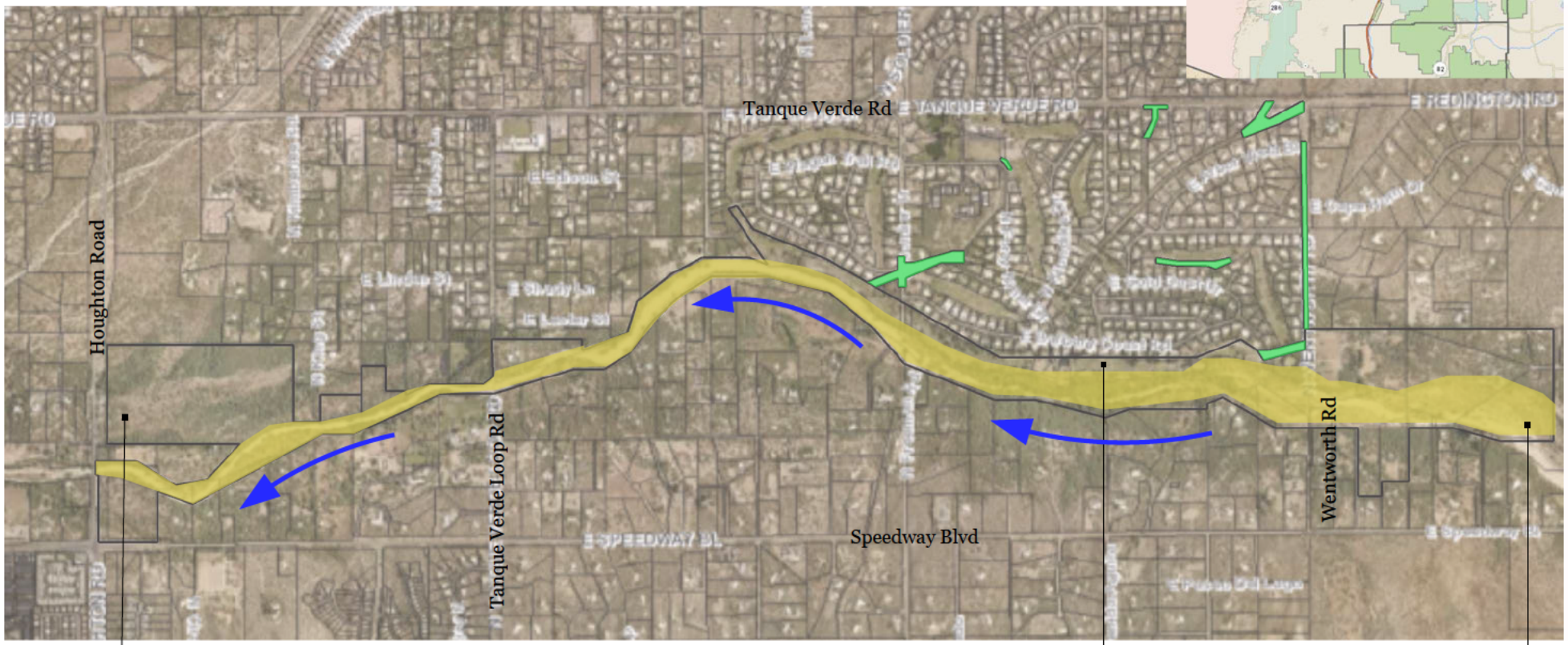
Arizona Watershed Map
FY 2023



Title of Project: **Protecting and restoring habitat and surface flow in Tanque Verde Creek**

Location: (include UTM's & Township/Range/Section): T14S R16E S04-S06; UTM 525392.88, 3567114.59

Full Project Area Map
Houghton Road and Upstream past Wentworth Road



Black polygon outlines access areas including private lands

Arundo has been removed upstream (east of here) of this point

Arundo donax Removal Focus Area

Initial Stormwater Project Sites

Creek Flow Direction

0 750' 1500'

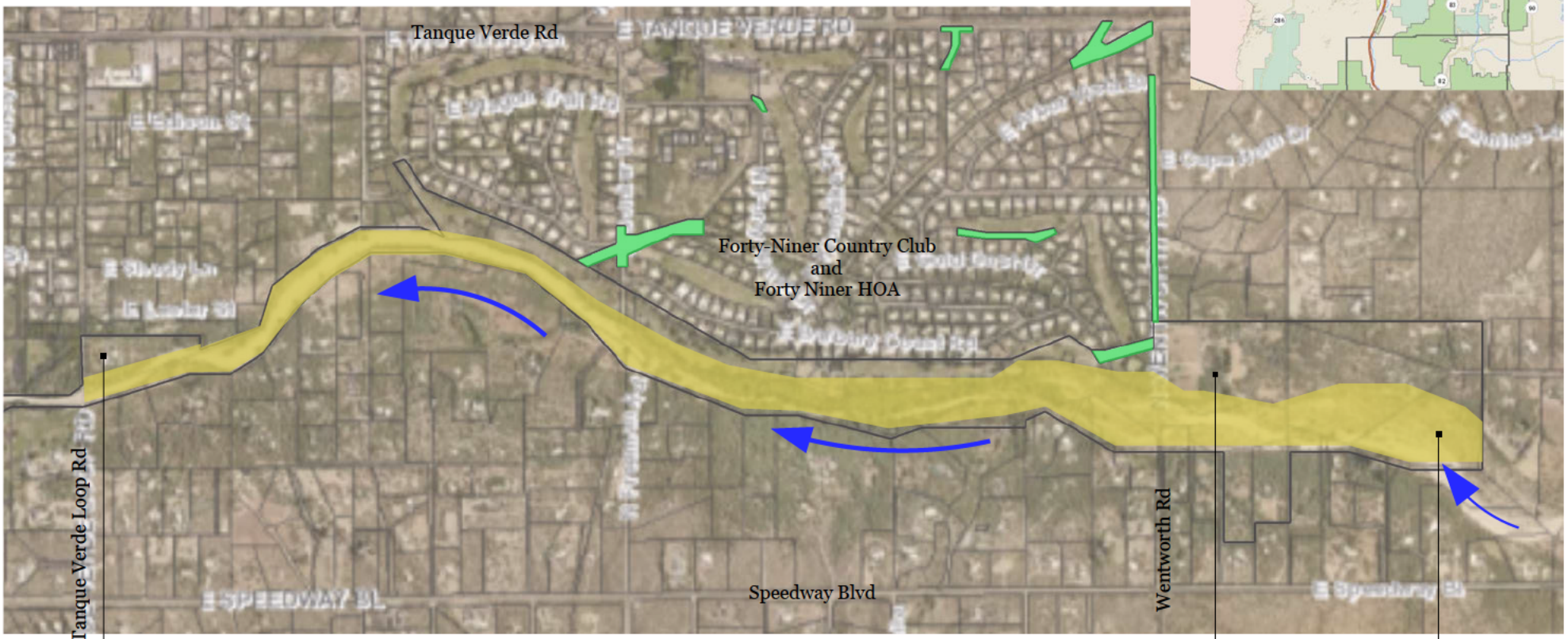
N

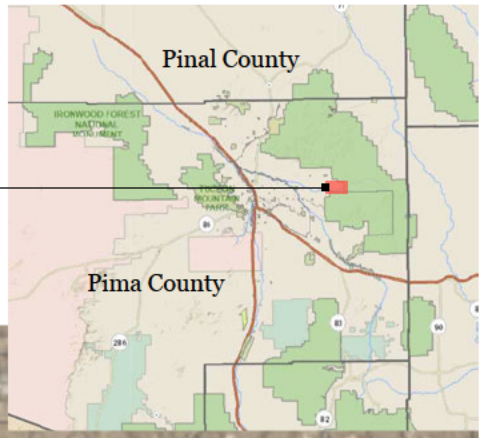
Watershed Management Group

Tanque Verde Creek Restoration Area :: August 2022

Map
01

Forty-Niner Country Club and Forty-Niner HOA Focus Area
Stormwater Enhancement Projects & Arundo Eradication Effort Area





Arundo donax Removal Focus Area

Initial Stormwater Project Sites

Creek Flow Direction

0 750' 1500'

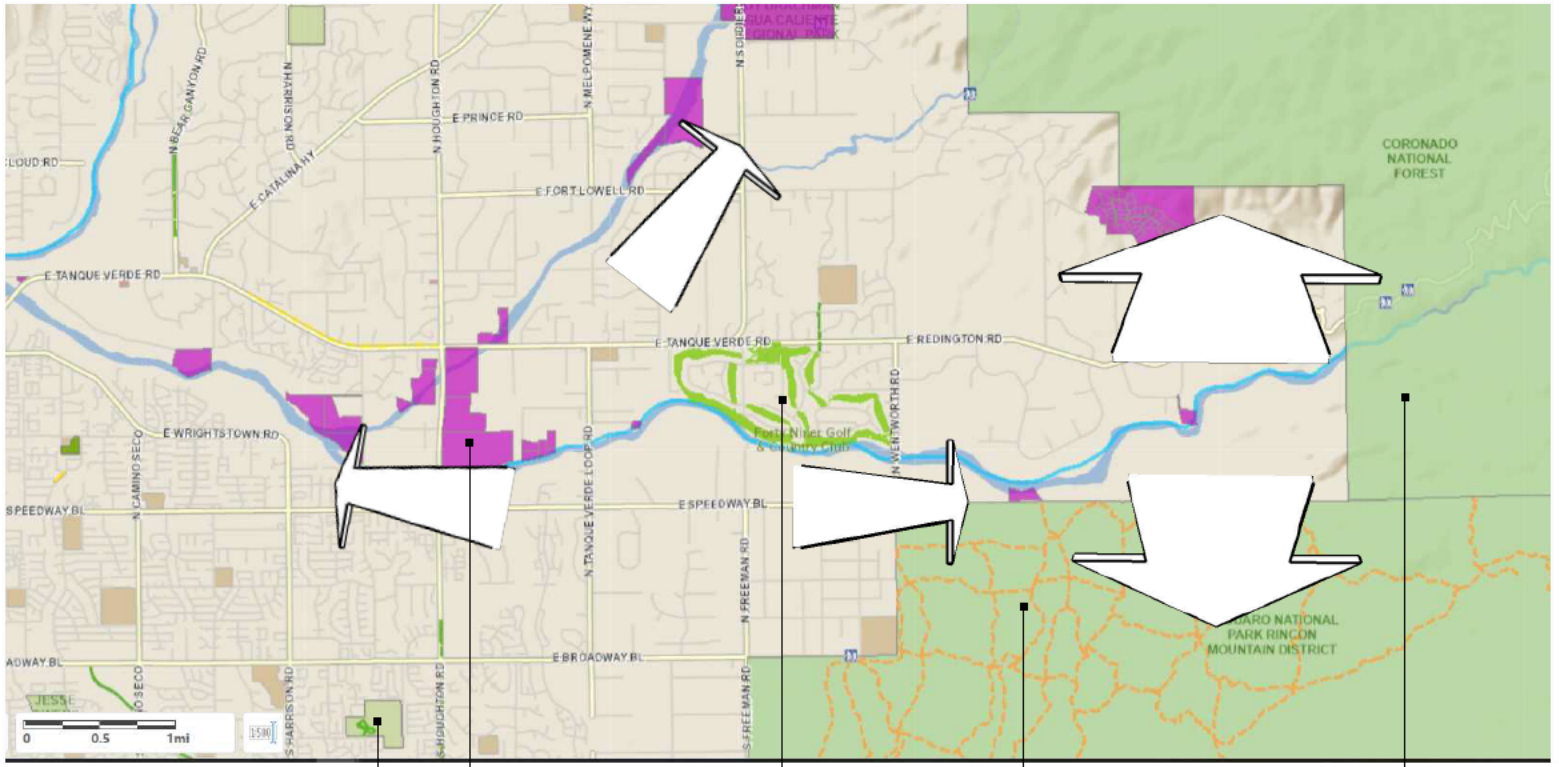
N

Watershed Management Group

Tanque Verde Creek Restoration Area :: August 2022

Map
02

Recreation and Wildlife Corridor Highlight Map



Pima County preserves

City of Tucson parks

US Forest Service, Catalina Ranger District

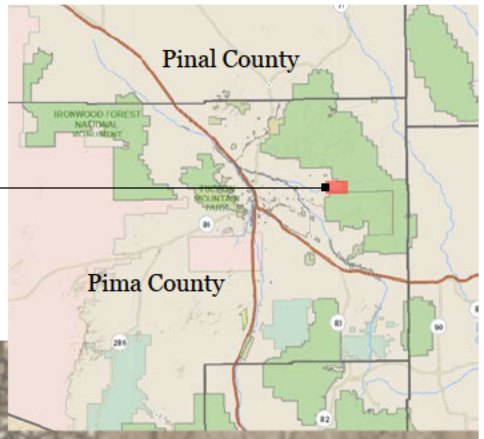
Saguaro National Park

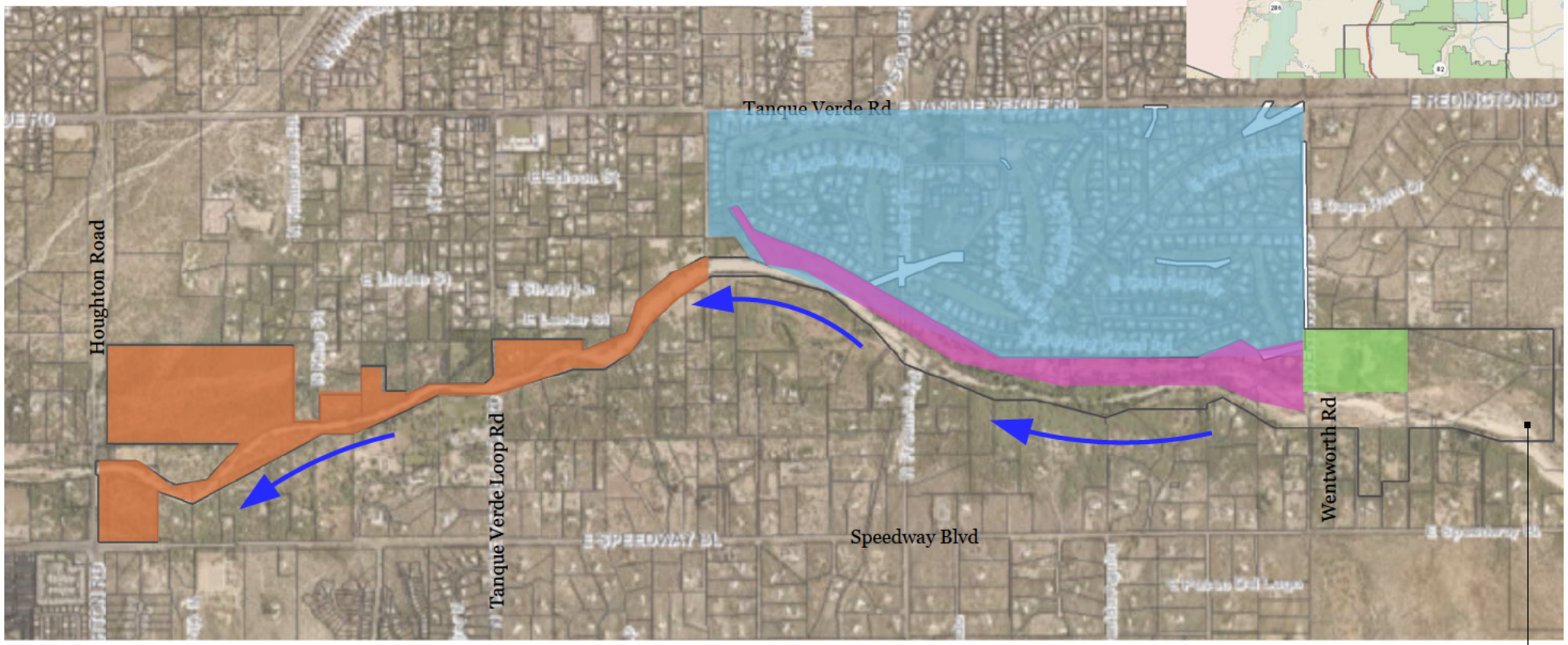
Wildlife Corridor

Forty-Niner Country Club golf course

N

Full Project Area Map
Partnering Landowners with Access Permissions





Pima County Regional Flood Control District

Forty-Niners Country Club

Forty-Niners HOA OR Forty-Niners Country Club

Nik Crosby, private landowner

Creek Flow Direction

Arundo has been removed upstream (east of here) of this point

0 750' 1500'

N

Watershed Management Group

Tanque Verde Creek Restoration Area :: August 2022

Map
04

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: Arizona Water Protection Fund

2. Project Title: Protecting and restoring habitat and surface flow in Tanque Verde Creek

3. Applicant Name and Address: Watershed Management Group, 1137 N Dodge Blvd, Tucson, AZ 85716

4. Current Land Owner/Manager(s): multiple, largely the Forty-Niners Country Club and Forty-Niners HOA

5. Project Location, including Township, Range, Section: T14S R16E S04 to S06

6. Total Project Area in Acres (or total miles if trail, fence line, etc.): 40 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: Task 1 includes removal of invasive Arundo donax (Giant cane) from channel bottom and channel banks along Tanque Verde Creek. This work is in an active floodplain and is generally confined to the top 6-8 inches. Task 2 includes creation of stormwater harvesting basins and erosion control structures within an existing residential and golf course development and other nearby residential parcels. This involves digging 6 to 12 inches in depth typically.

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: For the removal of arundo, this is in primarily active floodway areas with significant channel and

bank disturbance following seasonal floods. For the stormwater and erosion control work this is in areas that have been previously disturbed for residential or roadway development. Vertical extents in both tasks are up to 8 to 12 inches in depth.

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 ☒ UNKOWN

    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:

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
Catlow Shipek	/ 8/22/2022	Catlow Shipek

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*)	
SHPO Comments:	
For State Historic Preservation Office:	Date:

STATE OF ARIZONA
HISTORIC PROPERTY INVENTORY FORM

Please type or print clearly. Fill out each applicable space accurately and with as much information as is known about the property.

PROPERTY IDENTIFICATION

For properties identified through survey: Site No. _____ Survey Area: _____

Historic Names (e*nter the name(s), if any that best reflect the property's historic importance*): _____

Address: _____

City or Town: _____ ☐ Vicinity County: _____ Tax Parcel No.: _____

Township: _____ Range: _____ Section: _____ Quarters: _____ Acreage: _____

Block: _____ Lot(s): _____ Plat (Addition): _____ Year of plat (addition): _____

UTM Reference – Zone: _____ Easting: _____ Northing: _____

USGS 7.5' quadrangle map: _____

ARCHITECT: _____ ☐ not determined ☐ known Source: _____

BUILDER: _____ ☐ not determined ☐ known Source: _____

CONSTRUCTION DATE: _____ ☐ known ☐ estimated Source: _____

STRUCTURAL CONDITION

☐ Good (*well maintained; no serious problems apparent*)
☐ Fair (*some problems apparent*) Describe: _____
☐ Poor (*major problems; imminent threat*) Describe: _____
☐ Ruin/Uninhabitable

USES/FUNCTIONS

Describe how the property has been used over time, beginning with the original use: _____

Sources: _____

PHOTO INFORMATION

Date of photo: _____
View Direction (looking towards): _____

Attach a recent photograph of property in this space. Additional photographs may be appended.

SIGNIFICANCE

To be eligible for the National Register, a property must represent an important part of the history or architecture of an area. The significance of a property is evaluated within its historic context, which are those patterns, themes, or trends in history by which a property occurred or gained importance. Describe the historic and architectural contexts of the property that may make it worthy of preservation.

A. HISTORIC EVENTS/TRENDS – *Describe any historic events/trends associated with the property:* _____

B. PERSONS – *List and describe persons with an important association with the building:* _____

C. ARCHITECTURE – Style: _____ ☐ no style

Stories: _____ ☐ Basement Roof Form: _____

Describe other character-defining features of its massing, size and scale: _____

INTEGRITY

To be eligible for the National Register, a property must have integrity (i.e. it must be able to visually convey its importance). The outline below lists some important aspects of integrity. Fill in the blanks with as detailed a description of the property as possible.

Location - ☐ Original Site ☐ Moved: Date: _____ Original Site: _____

DESIGN

Describe alterations from the original design, including dates: _____

MATERIALS

Describe the materials used in the following elements of the property:

Walls (structure): _____

Walls (sheathing): _____

Windows: _____

Roof: _____

Foundation: _____

SETTING

Describe the natural and/or built environment around the property: _____

How has the environment changed since the property was constructed? _____

WORKMANSHIP

Describe the distinctive elements, if any, of craftsmanship or method of construction: _____

NATIONAL REGISTER STATUS (*if listed, check the appropriate box*)

☐ Individually Listed; ☐ Contributor; ☐ Non-contributor to _____ Historic District

Date Listed: _____ ☐ Determined eligible by Keeper of National Register (date: _____)

RECOMMENDATIONS ON NATIONAL REGISTER ELIGIBILITY (opinion of SHPO staff or survey consultant)

Property ☐ is ☐ is not eligible individually.

Property ☐ is ☐ is not eligible as a contributor to a listed or potential historic district.

☐ More information needed to evaluate.

If not considered eligible, state reason: _____

Key Personnel

Catlow Shipek, WMG Program Director. Catlow will serve as the grant project supervisor and project coordinator. Catlow with a masters in Watershed Management from the University of Arizona has over 15 years of experience managing state and federal grant contracts and budgets for successful restoration project outcomes. He also has experience complying with local, state, and federal permitting, clearances, and regulations. Catlow successfully led the watershed planning and recent formal adoption effort for the Santa Cruz Watershed Collaborative.

Jim Washburne, PhD, WMG Restoration Project Specialist. Jim successfully led the Sabino Creek Arundo eradication effort, in part funded through Arizona Water Protection Fund many years ago, through volunteer and contracted assistance. Since joining WMG in 2021, he has initiated the removal of Arundo from the upper reaches of Tanque Verde Creek working with landowners to build support as he systematically moves downstream.

James Lauder, WMG Restoration Project Manager. James has experience managing state and federal grant funded riparian restoration and stormwater harvesting projects including rain gardens, hillslope and gully erosion control rock structures, native riparian pole plantings, native plant habitat restoration, and monitoring.

Lauren Monheim, WMG River Run Network Program Manager. Lauren manages WMG's Flow365 Community Science monitoring program recruiting, training, and working directly with community volunteers. Lauren also leads efforts to recruit neighborhood and community volunteers for current riparian restoration project workdays.

Protecting and restoring habitat and surface flow in Tanque Verde Creek

Project Site Photographs

A stand of *Arundo donax* (Giant cane) along an intermittent reach of Tanque Verde Creek occupies a channel bank. Arundo constricts the channel's flood conveyance increasing flood risk of adjacent landowners as well as evapo-transpires 3-4 times more than native, riparian vegetation.

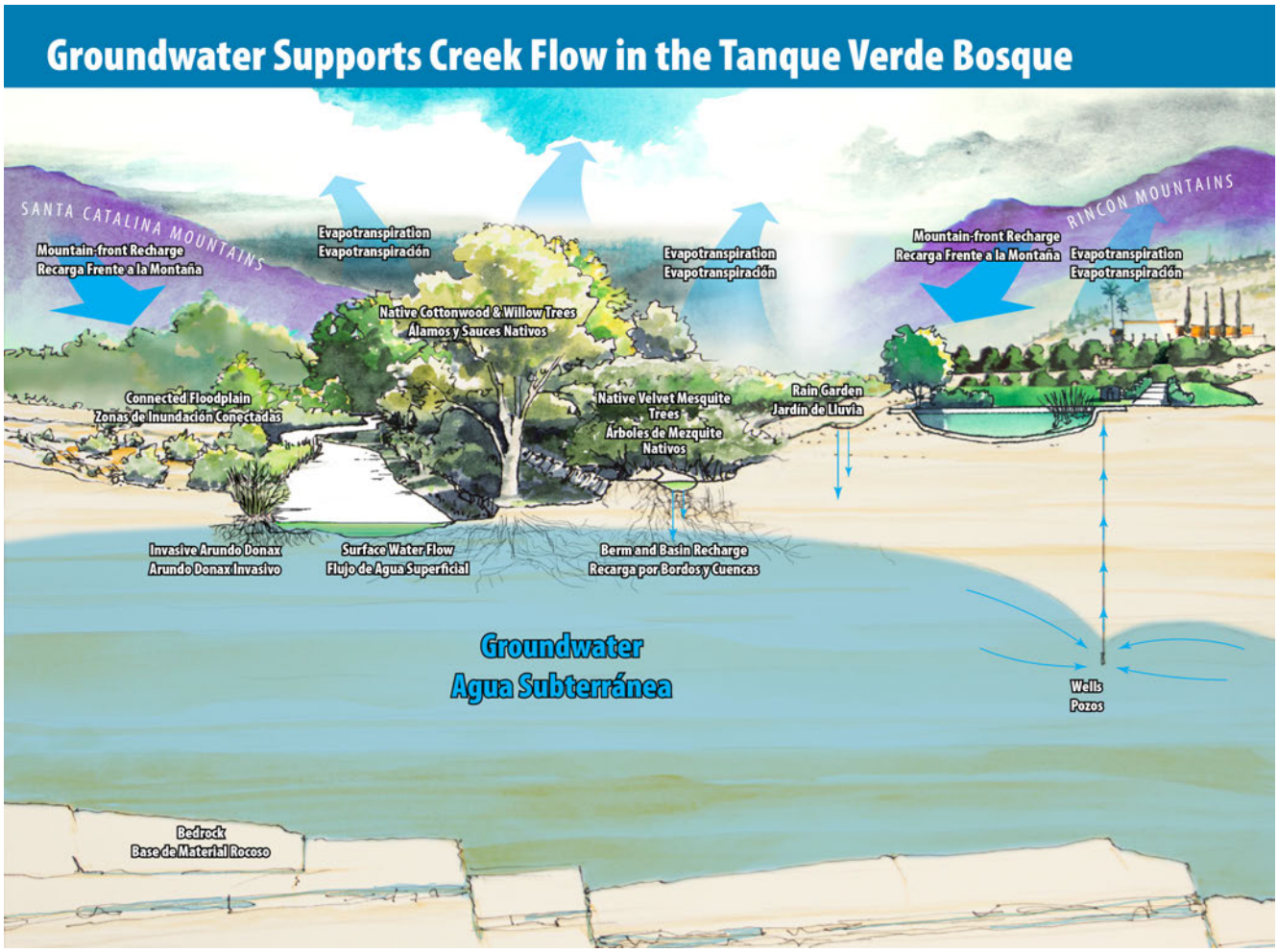
A stand of *Arundo donax* (Giant cane) chokes out native, riparian vegetation understory and the ability for cottonwoods and other riparian trees to get established. In the dry season it increases the fire risk by allowing fire to carry across the riparian forest.

Community volunteers celebrate after two hours of work to remove a large stand of *Arundo donax* (Giant cane) along Tanque Verde Creek.

The cut cane is carefully organized and carried out of the active channel to dry and then be removed from the floodplain prior to potential flood flows.

A potential stormwater restoration project site identified by the Forty-Niners HOA and Forty-Niners Country Club. Stormwater from upstream and adjacent development erodes the soil surface.

Implementation of simple stormwater harvesting basins to capture and infiltrate stormwater while supporting native, riparian plant re-establishment can benefit these drainage-based wildlife corridors while helping to replenish the underlying shallow groundwater which feeds the Tanque Verde Creek.



A diagram highlights the hydrologic interactions of groundwater and surface water along Tanque Verde Creek. The diagram illustrates the role of stormwater runoff capture and infiltration along with the ET loss of arundo donax.

An illustrated map of the Tanque Verde Creek shallow groundwater area which includes the proposed project area within the area #3 on the map. This is part of WMG's outreach materials recently developed to help draw the connections of various efforts to protect and enhance surface flows along Tanque Verde Creek.

Protecting and restoring habitat and surface flow in Tanque Verde Creek
Plans and Reports

Existing Plans, Reports, Information Relevant to the Project

Lower Santa Cruz River Basin Study, Bureau of Reclamation, includes meeting presentations which list potential strategies to assist in areas of concern including Tanque Verde Creek: https://www.usbr.gov/lc/phoenix/programs/lscrbasin/LSCRBSMDOCS.html

Pima Association of Government's 2012 Shallow Groundwater Report: https://pagregion.com/sustainability/water-quality/water-reliability/

Santa Cruz Watershed Collaborative, A Watershed Restoration Plan, adopted 2022: https://sites.google.com/site/santacruzcollaborative/plan-resources/plan

Nik Crosby
[redacted]

August 22, 2022

Re: Support for Watershed Management Group's Proposal for "Protecting and restoring habitat and surface flow in Tanque Verde Creek"

To Whom It May Concern,

I am writing as a landowner at [redacted] (north bank and just upstream of Wentworth) to convey our support for Watershed Management Group's (WMG) grant proposal to the Arizona Water Protection Fund (AZWPF).

I understand that the funding WMG is requesting from the Arizona Water Protection Fund will further support the beneficial removal of Arundo and implement a neighborhood stormwater capture effort to address erosion and sedimentation issues along Tanque Verde Creek. I expect that these on-the-ground restoration actions that are being proposed will help to grow local appreciation for the benefits of healthy urban watersheds and communities, which in turn fosters long-term behavior change and social adaptation to improve our water resilience.

I continue to be an active partner in Watershed Management Group's efforts to restore the riparian integrity of Tanque Verde Creek and will assist with outreach to our neighbors and allow parking and property access for continued maintenance of these efforts.

Sincerely,

Nik Crosby

PIMA COUNTY
FLOOD CONTROL

August 11, 2022

Arizona Department of Water Resources
Arizona Water Protection Fund
1802 W. Jackson Street, Box #79
Phoenix, AZ 85007

Subject: Watershed Management Group's Proposal for "Protecting and Restoring Habitat and Surface Flow in Tanque Verde Creek" – Letter of Support

To Whom It May Concern:

I am writing on behalf of the Pima County Regional Flood Control District (District) to convey our support for Watershed Management Group's (WMG) grant proposal to the Arizona Water Protection Fund.

The District continues to be an active partner in WMG's efforts to engage the community and implement projects to help restore the Tanque Verde Creek. Funding that the WMG receives from the Arizona Water Protection Fund will enable an expansion of restoration initiatives across the Tanque Verde Creek shallow groundwater area to make a significant and long-term impact on restoring seasonal creek flows and associated riparian habitat. Additionally, on-the-ground restoration actions as proposed will help to grow local appreciation for the benefits of healthy urban watersheds and communities, which in turn fosters long-term behavior change and social adaptation to improve our water resilience.

The District can specifically provide assistance in stormwater restoration project guidance and help coordinate with other restoration and planning efforts.

We are excited to partner and assist with outreach. If you have any questions, please contact me.

Sincerely,

Eric Shepp, P.E.
Deputy Director and Floodplain Administrator

ES/tj

Suzanne Shields, P.E., Director
201 N. Stone Avenue, 9th Floor, Tucson, Arizona 85701-1207 • **Phone**: 520-724-4600 • **Fax**: 520-724-4621

Forty Niners Country Club
12000 Tanque Verde Rd

August 15, 2022

Re: Support for Watershed Management Group's Proposal for "Protecting and restoring habitat and surface flow in Tanque Verde Creek"

To Whom It May Concern,

I am writing as a landowner and owner of the Forty Niners Country Club to convey our support for Watershed Management Group's grant proposal to the Arizona Water Protection Fund. Our home and the Country Club is located along an intermittent flow reach of Tanque Verde Creek.

Forty Niners Country Club continues to be an active partner in Watershed Management Group's (WMG) efforts to restore the Tanque Verde Creek.

Funding WMG receives from the Arizona Water Protection Fund will be beneficial for full removal of Arundo and implementation of stormwater restoration features to address erosion and sedimentation to benefit Tanque Verde Creek for the long-term. Additionally, these on-the-ground restoration actions as proposed will help to grow local appreciation for the benefits of healthy urban watersheds and communities, which in turn fosters long-term behavior change and social adaptation to improve our water resilience.

We are excited to partner and will contribute $2,000 in direct funding match to support grant objectives.

Sincerely,

Cheryl and Ron Mckenzie

Forty Niners C.C.

Forty-Niner Country Club Estates Homeowners Association
8987 E Tanque Verde Rd #309-169
Tucson, AZ 85749

August 9, 2022

Re: Support for Watershed Management Group's Proposal to the Arizona Water Protection Fund for "Protecting and restoring habitat and surface flow in Tanque Verde Creek"

To Whom It May Concern,

I am writing on behalf of the Forty-Niner Country Club Estates Homeowners Association (Forty-Niner HOA) to convey our support for the Watershed Management Group (WMG) grant proposal to the Arizona Water Protection Fund. Our HOA is located along an intermittent flow reach of the Tanque Verde Creek and is made up of approximately 330 households on ½ to 1-acre lots.

Forty-Niner HOA is an active partner in WMG's efforts to restore the Tanque Verde Creek through landowner engagement, which helps to connect individual water conservation efforts with neighborhood and arroyo restoration projects in our riparian habitat, with an emphasis on surface flow enhancement. In the last two years, HOA projects have included tree plantings and working in partnership with Pima County Flood Control District to remove invasive species and grade washes and surrounding areas to better support native species habitat. Several individual homeowners have added rain cisterns and basins in their yards to capture stormwater and increase groundwater infiltration.

The funding WMG that receives from the Arizona Water Protection Fund will enable us to expand these efforts across the Tanque Verde Creek shallow groundwater area to make significant and long-term impacts. Additionally, on-the-ground restoration actions as proposed will help to grow local appreciation for the benefits of healthy urban watersheds and communities, which in turn fosters long-term behavior change and social adaptation to improve our water resilience.

We are excited to partner with WMG again and will assist with outreach to our HOA members through our website, quarterly newsletters, and social events. We also routinely communicate with leadership of three surrounding HOAs and expect that we will share details of this project with those HOAs as well.

Our HOA's contribution to the successful completion of the grant objectives to be counted toward the match for this grant is $2,000.

Sincerely,

Sara Birtalan, PhD
Forty-Niner HOA President

Evidence of Control and Tenure of Land

See letters of support previously attached. Additional letters from adjacent neighbors can be provided upon request.

Evidence of Control and Tenure of Land including Legal Access

- Forty-Niners Country Club
- Forty-Niners Homeowners Association
- Nik Crosby
- Pima County Regional Flood Control District

Tanque Verde ARUNDO REMOVAL – LANDOWNER PERMISSION FORM

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I give Watershed Management Group (WMG), Jim Washburne and any volunteers working with them permission to access and cut down and dig-up Arundo donax (Giant Cane) from the riparian or flood-prone area of my property along Tanque Verde Creek. The general plan is to stack and chip the cane after it dries**.** The rhizomes that we dig out need to stay out of the flood plain for at least 9 months to fully desiccate. **We will work with individual owners to determine the best way to proceed.**

Property Owner: _____ Date: _____

Signature: _____

Property Address: _____

Pima Co Parcel number: _____

The best way to contact me is (email, cell, text): _____

Special Conditions:

__ You have my permission to stack cut Arundo cane on my embankment. yes no

__ You have my permission to pile Arundo rhizomes on my embankment. yes no

__ You have my permission to access the wash via my driveway (park:_____). yes no

__ Please contact me before working on my property. Best time (circle) AM PM

__ Please just leave a message before working on my property @ _____

__ Glyphosate/Roundup can be used to treat re-sprouts (circle). yes no

__ There are some buried pipes/hazards that I need to show you (circle). yes no

__ Other: _____

Questions or Comments: _____

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Watershed Management Group, 520-396-3266

Project Manager: jwashburne@watershedmg.org; [redacted] (cell)

Evidence of Physical and Legal Availability of Water

Not Applicable.