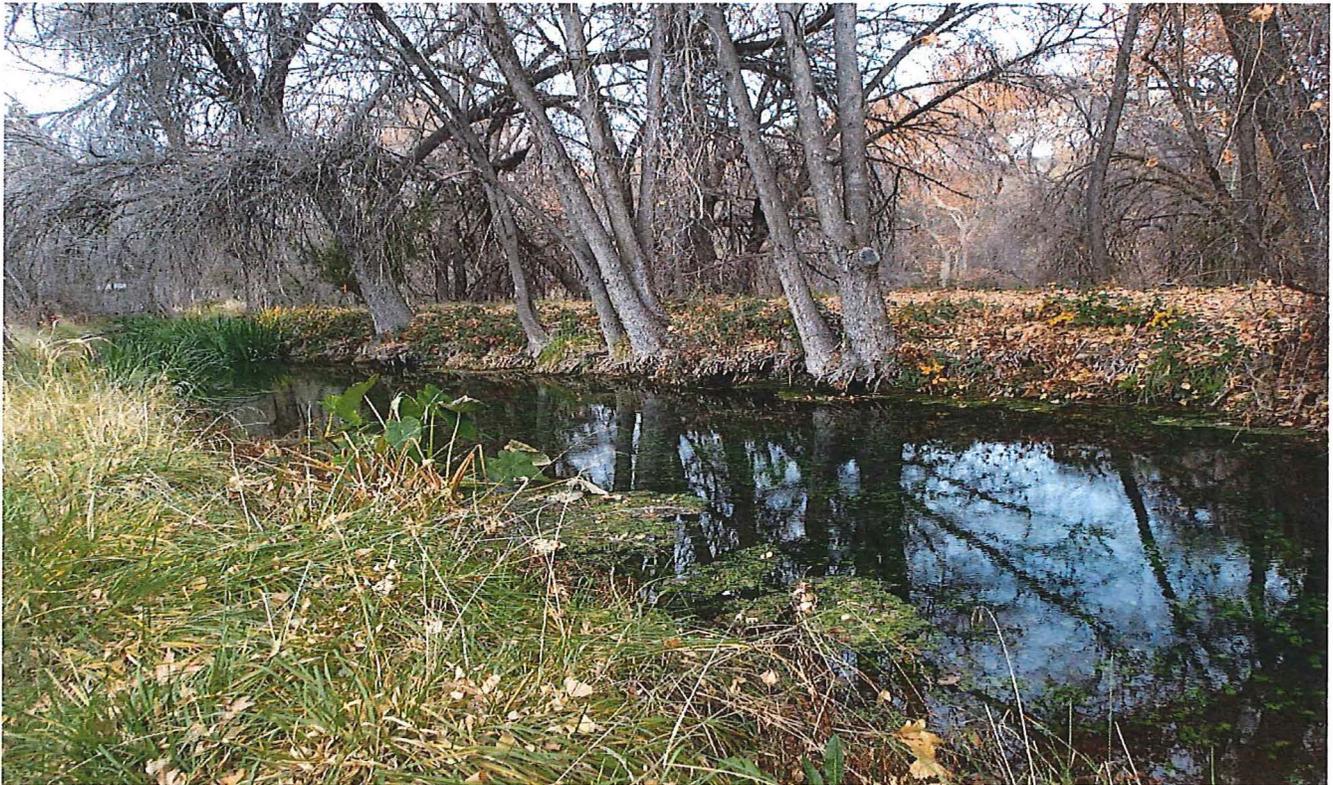


RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Bubbling Ponds Fish Hatchery Pipe Renovation, Yavapai County, Arizona



U.S. Department of the Interior
Bureau of Reclamation
Lower Colorado Region
Phoenix Area Office
Glendale Arizona

June 2018

Mission Statements

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated 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.

Draft Environmental Assessment

Bubbling Ponds Fish Hatchery Pipe Renovation, Yavapai County, Arizona

Prepared by:

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**U.S. Department of the Interior
Bureau of Reclamation
Lower Colorado Region
Phoenix Area Office
Glendale Arizona**

June 2018

Acronyms and Abbreviations

ADEQ	Arizona Department of Environmental Quality
AGFD	Arizona Game and Fish Department
AQP	Air Quality Program
BPH	Bubbling Ponds Fish Hatchery
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
CRMP	Cultural Resource Management Program
CWA	Clean Water Act
DOI	Department of the Interior
EA	Environmental Assessment
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
FPEIS	Final Programmatic Environmental Impact Statement
FR	Federal Register
HCP	Habitat Conservation Plan
HDP	High Density Polyethylene
IPaC	Information for Planning and Consultation
ITAs	Indian Trust Assets
LCR	Lower Colorado River
LCR MSCP	Lower Colorado Multi-Species Conservation Program
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollution Discharge Elimination System
O&M	Operations and Maintenance
PL	Public Law
PVC	Polyvinyl Chloride
RASU	Razorback sucker
Reclamation	Bureau of Reclamation
SHPO	State Historic Preservation Office
SR	State Route
SRP	Salt River Project
SWFL	Southwestern willow flycatcher
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
YBCU	Yellow-billed cuckoo

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1.0 Introduction

In accordance with the National Environmental Policy Act of 1969, (P.L. 91-190) the Bureau of Reclamation has prepared this Environmental Assessment (EA) to evaluate the potential impacts resulting from the proposed Bubbling Ponds Fish Hatchery (BPH) Pipe Renovation Project (Project). The proposed action includes sleeving an existing 30-inch corrugated pipe with a 24-inch high-density polyethylene (HDP) pipe, stabilizing a hill slope above and below the pipe, and replacing a metal rack at one of the outtakes. The Project is located on Arizona Game and Fish property and private lands in Cornville, Yavapai County, Arizona (Figure 1).

1.1 Background

The Bubbling Ponds Fish Hatchery property was acquired in 1952 with facility construction in 1954 as a warm water hatchery. The facility was originally managed as a satellite production unit of the Page Springs Hatchery complex. Currently, BPH is operated by the Arizona Game and Fish Department (AGFD). Water is supplied to the hatchery from Bubbling Springs, a natural spring located about 0.5 miles north of the hatchery. The water travels from the spring through an open ditch, then moves through a pipe until it reaches the hatchery ponds. About 600 feet of the pipe is on private property, with the remainder on AGFD property. Four private owners have rights to the water, although only two use the water currently.

The Lower Colorado Multi-Species Conservation Program (LCR MSCP) is a multi-stakeholder Federal and non-Federal partnership responding to the need to balance the use of the Lower Colorado River (LCR) water resources and the conservation of native species and their habitats in compliance with the Endangered Species Act (ESA). This is a long-term (50 year) plan to conserve at least 26 species along the LCR from Lake Mead to the Southerly International Boundary with Mexico through the implementation of a Habitat Conservation Plan (HCP). Razorback sucker (RASU) is listed by the AGFD as a species of special concern and was federally listed in 1991 as endangered under ESA. Reclamation is the implementing agency for the LCR MSCP and the AGFD is a committed signatory and partner to the program and the HCP.

This Project is a partnership between Reclamation and AGFD for the principle purpose of maintaining the RASU population in the lower Colorado River and associated drainages pursuant to goals set forth in the LCR MSCP. The LCR MSCP has funds available for maintenance, repair and replacement of infrastructure used in production of native fish for the LCR. The LCR MSCP has entered into partnership with AGFD to provide rearing space at their facilities for native fish production.

Since the installation of the pipe for the hatchery many of the pipe line sections have become completely rusted through and failed to deliver water. Some of the buried supply line has been replaced within the hatchery facility, however, none of the pipeline supplying water to the hatchery from the spring have been replaced since the hatchery was acquired by the state. Since the spring supplies the only source of water to BPH, and is used to rear native fish for the LCR

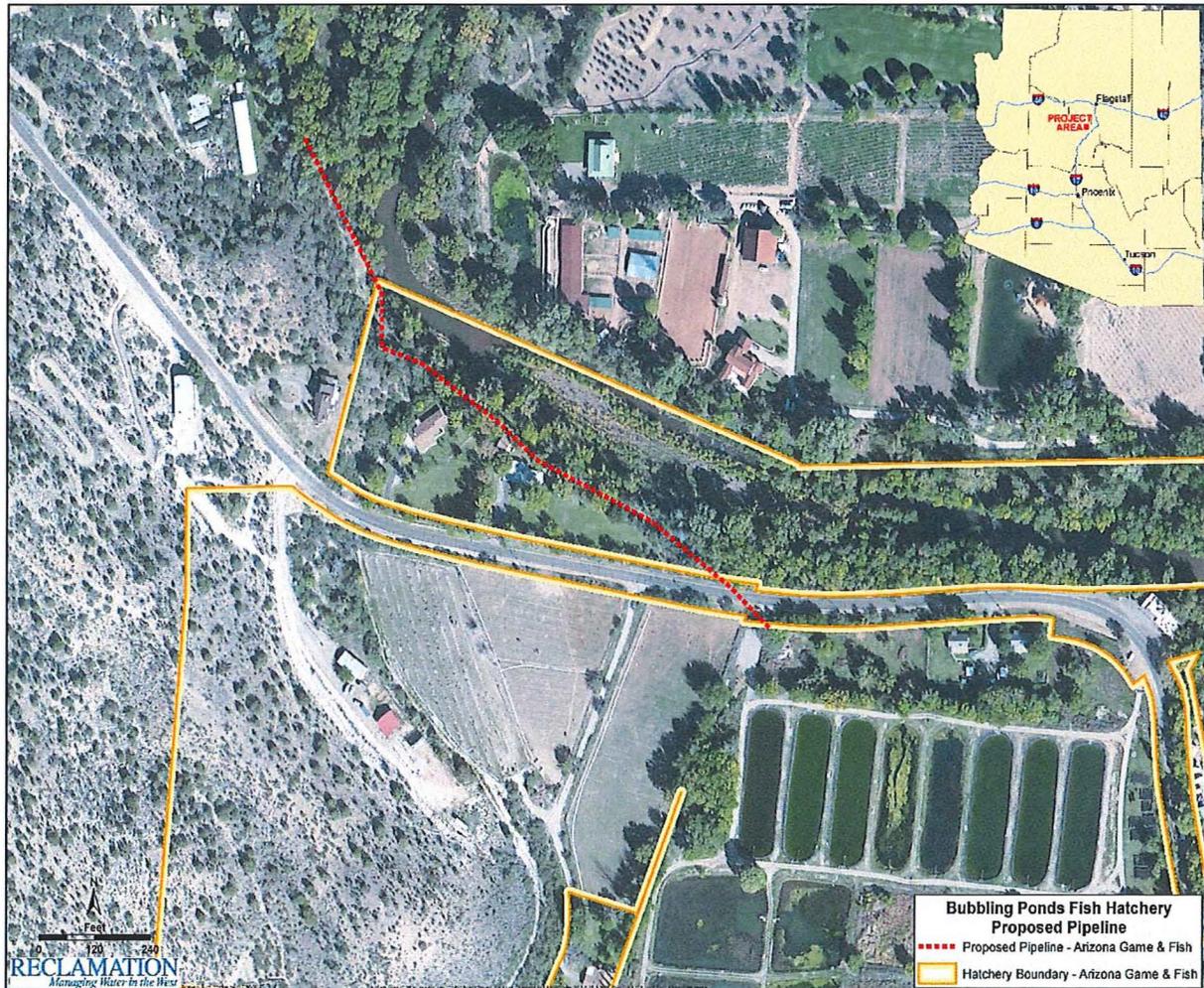
MSCP, it is vital to keep this supply continuous, and of proper quality. Interruption to the spring source could cause suffocation of endangered fish, and potential take under the ESA.

AGFD has supplied RASU for Reclamation projects on the LCR since 1999 and has met or exceeded target goals almost every year since the partnership was formed.

1.2 Project Location

The Project is located about 6 miles north of Cornville in Yavapai County, Arizona, in portions of Township 16 North, Range 4 East, and Section 23 (Gila and Salt River Baseline and Meridian; Figures 1 and 2). The pipe originates at Bubbling Pond, crosses under Page Springs Road, and continues into the hatchery pipe system.

Figure 1. Bubbling Ponds Pipeline Location



1.3 Purpose and Need

The purpose of the proposed Project is to repair or replace sections of pipe that have deteriorated and are no longer functioning as water conveyance as designed. The Project is needed to ensure that clean and adequate water is supplied to the hatchery, and to ensure the safe and continuous functioning of the hatchery's rearing facilities for native fish. Most of the water conveyance pipe was inspected by video in June 2009 and again in March 2016 and found to be in poor condition. The existing Bubbling Ponds pipe was installed when the hatchery was built in the 1950s and is vital to hatchery operations. The existing pipe has holes, leaks, and root blockages, with several locations of bowing caused by large rocks. The holes pose a safety risk to those walking above ground, as well as potential threats to water quality from contamination for hatchery fish. Without functional water conveyance pipes, the hatchery will be unable to continue the rearing of Arizona's endangered, threatened and sport fishes.

1.4 Public Involvement

Scoping letters were mailed to federal, state, local, and tribal parties and other potential stakeholders and interested parties on September 29, 2017. The only responses were from the State Historic Preservation Office (SHPO), and Salt River Project (SRP). The SHPO stated that they would participate via the National Historic Preservation Act and Section 6 process. SRP expressed concerns of an increase in consumptive use for AGFD and the downstream users, and impacts to SRP's flow measurement equipment. AGFD responded by letter dated November 17, 2017. There will be no increased water use, but the water will be off for a 3-4-day time period as permitted and no water will pass through the measuring device at those times. (Appendix A)

1.5 Decisions to be Made

The Responsible Official for Reclamation (Area Manager of the Phoenix Area Office) must determine whether the proposed action would have significant impacts on quality of the human environment, and therefore whether an Environmental Impact Statement must be prepared.

2.0 Proposed Action and Alternatives

2.1 Description of the Proposed Action

Under the proposed action, Reclamation would jointly fund the renovation of the pipe which conveys water from Bubbling Ponds Spring to the hatchery complex. The pipe is approximately 1,500 feet in length, originating from the diversion point ditch (from the spring) to an existing irrigation structure along the entrance to the hatchery on North Page Springs Road. The existing pipe is 30 inches in diameter, composed of corrugated metal, and buried at a depth of no more than 4 feet throughout its extent.

Project activities would begin in October 2018 and be completed by early January 2019. If the Project is delayed beyond January 2019, activities would be postponed to October 2019 through

Jan 2020. In order to complete the renovations, water to the hatchery would be shut off at 4-5-day intervals for sections of the pipeline to be repaired and sleeved. Water will have to be turned back on for 4-5 consecutive days following a shut off event to replenish water within the hatchery and to maintain water quality. An experimental cessation of water flow in early 2017 determined that 4-5 consecutive days without flow was the limit to maintain suitable conditions. The erosion control part of this Project can be accomplished outside the water shut off intervals.

Water Diversion and Gated Culvert/Valve Improvements

The first step of the sleeving and repair process would be to divert approximately half to two-thirds of the water at the spring using the bypass valve. The diverted water would flow from the spring into a ditch that terminates at a small pond on the private landowner's property. The outflow from this pond flows through a channel into Oak Creek. The remaining water from the spring will flow through the channel. This will provide the necessary water for the Page springsnails that are present throughout the channel. The temporary diversion would be installed approximately 33 feet above the gated culvert. First, the diversion will be used to direct water away from the bypass valve so the bypass valve can be replaced: the water will flow through the gated culvert down the existing 30-inch pipe to the hatchery. Second, the diversion structure will be placed in front of the culvert diverting the water through the open bypass valve. This water will flow through the valve into a channel which terminates at Oak Creek. The water diversion will allow the work at the culvert to take place. This work includes extending the concrete base (by pouring footers/pad) that the grate currently sits on to allow the grate to be placed at a 45-degree angle for more efficient cleaning.

Pipe Cleaning

The pipe would be cleaned using only physical methods, no chemical solution will be used. A combination of removal by hand, water jetting or vacuum, or pulling a mandrel through the line, will be used. Cleaning the existing pipe of any blockages such as roots, rocks, and sediment will be with a process known as hydro jetting. This involves the insertion of a hose with a high pressure forward facing water jet system that pushes and cuts through blockages with back facing jets that push debris remnants out toward the opening. The hydro jet system will be inserted at both the northern and southern extent of the pipe with expelled debris accumulating at both ends before their removal. Minimal debris and sediment will be returned to the creek downstream. Most debris in the pipe is made up of roots and larger rocks. Some smaller sediment may be caught in the roots and may dislodge during cleaning. A majority of this sediment would be captured in the hatchery or the existing boxes when normal flow is restored to the pipeline. No debris or sediment from the construction is expected to move upstream of the work.

Pipe Improvements

Once cleaned, a 24-inch HDP replacement pipe will either be sleeved at six predetermined connection points, or if necessary, the top half section of the pipe will be exposed and opened for direct placement of the replacement pipe. If any section of the existing pipe would have to be removed, the replacement pipe would be replaced in-kind along the same alignment and depth.

Trenching for sections of the replaced pipe segments would be about 42 inches wide and 4 feet deep, backfilled with native material, and compacted. The water would have to be diverted in the same manner as the diversion described above.

Proposed Staging Areas

There are five staging areas where there will be an opening in the existing corrugated metal pipe to enable work on the pipeline (Figure 2).

- Staging Area 1 is on the privately-owned land at the gated culvert. This area is large enough to allow access to vehicles and the insert can be pushed through from here.
- Staging Area 2 is behind the residence at 2075 N. Page Springs Road where there is currently a junction box with an irrigation pump that is used by AGFD and a private landowner who has a water right. One concrete pump and diversion vault measuring 5 feet by 4 feet will be installed along the pipeline at this junction. A flow meter will be installed in this vault to measure the water used for irrigation purposes.
- Staging Area 3 is behind the residence at 2055 N. Page Springs Road. There is an opening in the pipe that will be used as a pushing/pulling point for the insert. An old water pump and the vertical 30-inch pipe will be removed. Once the insert is put in place this opening will be covered so that it will be a straight pipe.
- Staging Area 4 is just north of the road across from the hatchery where the pipe curves to the east. The old pipe will be uncovered and opened. This opening will be used to push or pull the new liner. Once the liner is in place it will be covered with soil. The section of pipe that travels beneath the county road (Page Springs Road) will either need to be sleeved (preferred) or dug up and replaced. The AGFD or its contractor will coordinate with Yavapai County for Project activities affecting Page Springs Road.
- The fifth and last staging area is an existing junction box to the east of a parking lot used by birders adjacent to the hatchery.

In the event that permission is not given to do the work on the private land, a junction box measuring 3 feet by 3 feet by 3 feet will need to be installed approximately 15 feet within the AGFD property line to provide for the first staging area (Alternative Staging Area 1). The pipe will be uncovered, a section will be removed, and a pre-made concrete box will be installed with the pipe connecting to the box from either end. This scenario will still require the diversion of the water and communication with the private landowners/water users.

Bank Stabilization

Portions of the existing pipe are also threatened by existing bank erosion and erosional damage. One location along the pipeline would require stabilization due to the slope gradient and existing erosion. Bank stabilization will initially require the removal of any

dead limbs and/or shrubs that have accumulated and trimming the existing live vegetation in order to properly implement measures. The ground will be reshaped to fill in the channel cut into the bank while maintaining the existing drainage pattern. This may require approved material to be added to stabilize the area. An erosion mat with open cells will be laid down and filled with soil to promote future vegetative growth. Any imported soil will be from an Arizona Department of Transportation approved material source. (Figure 3)

Equipment used for pipeline replacement and erosion control may include a track excavator, bobcat, backhoe, and pickup trucks. Large equipment would not access the pipeline corridor due to width and weight of large vehicles, but remain in an upland staging area. All Staging Areas will be on AGFD property but some access points may also be on adjacent private property. All equipment access from Page Springs Road will occur on existing dirt or two-track roads; no overland travel will be necessary.

AGFD-Only Property Alternative

In the event that private property owners do not provide permission for access and construction, the following adjustments would be made to the Project plan:

- Alternative Staging Area 1 (see Proposed Staging Areas above) will be used in lieu of Staging Area 1.
- Pipeline improvements from the gated culvert to Alternative Staging Area 1 will not be performed.
- The gated culvert rack and diversion valve improvements will also not be constructed. Water will still have to be diverted at the gated culvert site by opening up the existing diversion valve; this can be accomplished by one person accessing the valve on foot.

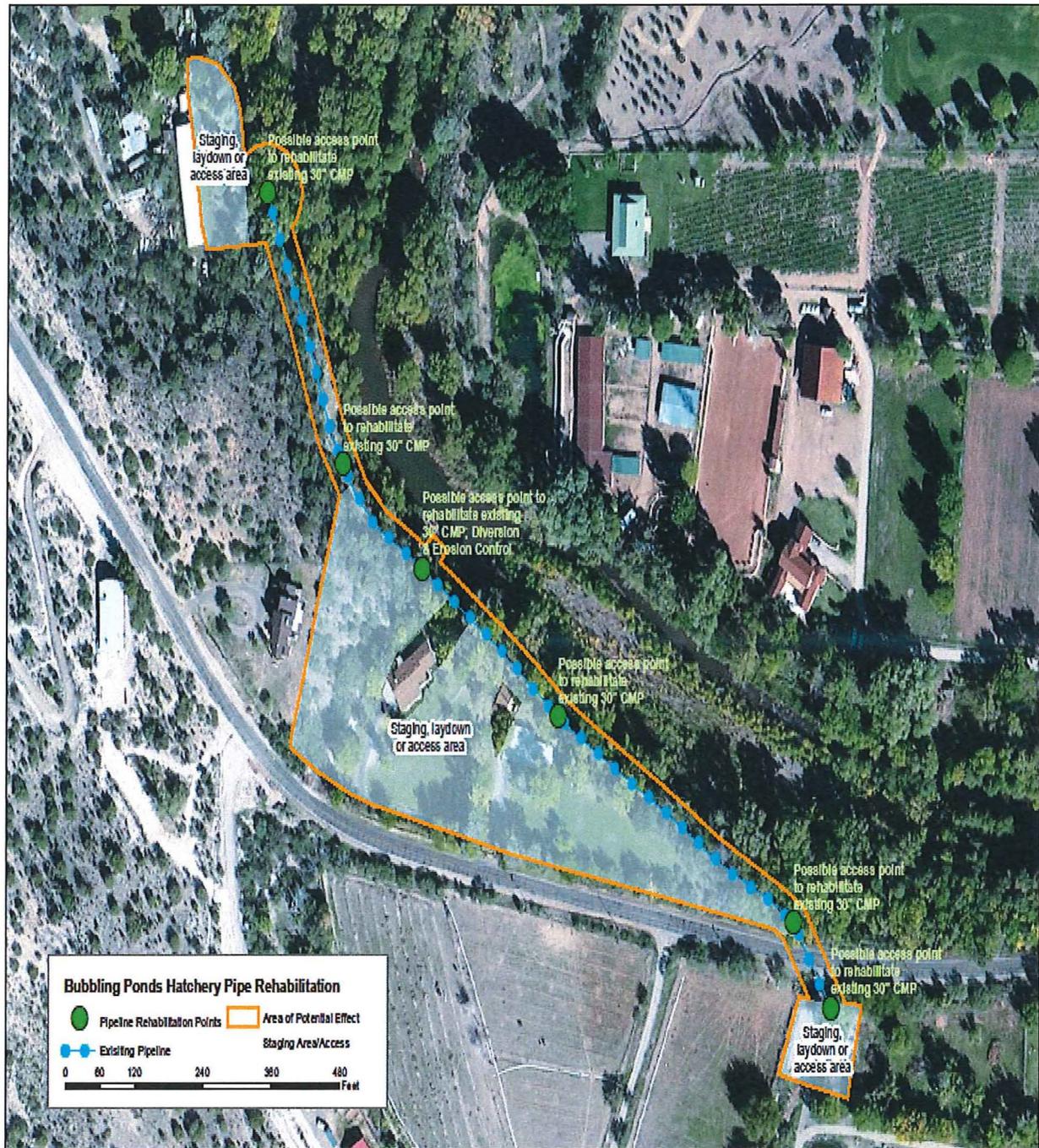


Figure 2. Locations of construction (All staging/laydown on AGFD property)



Figure 3. Erosion Area

2.2 No Action

Under the No Action alternative, renovations to the hatchery pipe would not be conducted. Without renovation, the pipe would continue to deteriorate in condition and function and would eventually cease to function as designed for adequate water conveyance.

2.3 Alternatives Considered but Eliminated from Further Study

One alternative was to completely dig up the pipe throughout its current location and replacing it with a similar pipe. This alternative was not feasible due to cost, time and environmental concerns.

3.0 Affected Environment, Environmental Consequences, and Cumulative Effects

This chapter describes the affected environment (existing setting or baseline conditions) and analyzes the potential environmental consequences (impacts or effects) that would occur as a result of implementing the proposed Project. Reclamation takes a "hard look" at all potential impacts by considering the direct, indirect, and cumulative effects of the proposed action on the environment, along with connected and cumulative actions. In those cases where impacts are either not anticipated or are expected to be negligible, the issues and impact topics are dismissed from detailed analysis. As described in NEPA regulations, NEPA analysis should focus on issues that are truly significant to the action in question, rather than amassing needless detail (CEQ NEPA regulations, 40 CFR 1500.1 (b)).

The CEQ NEPA regulations require an assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Therefore, a cumulative impact analysis captures the effects that result from the proposed action in combination with the effects of other actions in the proposed action's region of influence.

Cumulative impacts were determined by combining the impacts of the alternatives with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects in the vicinity of the study area. The geographic scope for this analysis includes actions both, within and outside of the study area, depending on the resource. The temporal scope includes projects within a range of approximately ten years.

Table 1 lists cumulative projects that were identified in the study area based on readily available information. Current status of these cumulative projects may change and proposals for new projects may be developed. The table indicates the project name, location, status, description, and timeframe for each project.

Table 1. Other Projects in the Analysis Area

Project Name	Location	Status	Description	Timeframe
Bubbling Ponds Hatchery now Aquatic Research and Conservation Center (ARCC) rehabilitation/modernization project is in the final year of a 3 year project.	At hatchery	In Final year of project	The land has been cleared and construction of facilities is underway.	Present

Cumulative biological, cultural, and geological and soils impacts from improvements to and construction of water delivery facilities could result in localized effects on desert habitat and cultural resources, but the severity and extent of such impacts would be minor given the limited scope of the proposed action. Cumulative adverse impacts to cultural resources would not occur as a result of the proposed Project, with the implementation of avoidance measures.

3.1 Resources Eliminated from Further Study

The following resources were considered but are not addressed further in this EA because it was determined that the resource is not present or that minimal or no impacts would result from the proposed action.

3.1.1 Air Quality

The proposed action would cause short-term emissions of pollutants during construction. The laydown sites are already cleared and the areas for pipe construction are small and work will be of short duration of up to 4 days at a time. This is not expected to impact air quality. The Project is not located within a nonattainment or maintenance area for emission constituents. Therefore, air quality was eliminated from further study in this EA.

3.1.2 Water Resources

The Project requires water from a spring to be bypassed around a gated culvert for a short duration to reconstruct the gate to a 45-degree angle. This part of the Project would require 1 days' work. Water to the hatchery would only be cut off for up to 3-4 days at a time to renovate sections of pipe by sleeving. During public scoping September 29, 2017 the SRP had two concerns which were: an increase in acreage and location of water use, and any adverse impact to SRPs monitoring and flow measurement equipment at the hatchery as a result of the new piping. AGFD replied to these concerns by stating that there would be no increase in the amount of water or consumptive use for them or other downstream water right owners. The water will be diverted into Oak Creek while construction to the pipe is occurring and bypass SRP's monitoring device as the hatchery in the 4-5 days that the work can be done. Then water will pass to the hatchery for 5-7 days and be turned off again for 3-5 days. Overall, the work is expected to take

60-90 days. The proposed action would have no effect on water quality or quantity in the area; therefore, water resources were eliminated from further study in this EA.

3.1.3 Geology and Soils

The proposed action will occur on a moderately compacted dirt bench, located above another bench and occur 100-200 feet above Oak Creek. There are scattered rocks and low vegetation as this has been used for many years as a trail along Oak Creek. The areas for the laydown are also compacted and open with gravel or low weedy vegetation. The proposed Project will not cause changes in the topography, soils, or geologic composition of the surrounding area. Therefore, geology and soils were eliminated from further study in this EA.

3.1.4 Vegetation

The Project area encompasses two primary vegetation communities: 1) Semidesert Grassland, and 2) Sonoran Riparian Deciduous Forest and Woodlands. The location of the pipeline, erosion repair and laydown areas are in previously disturbed locations. The location of the pipe is under a well-worn path from the day to day operation of the hatchery and people checking the pumps and facilities. The shelf or ledge where the pipeline resides has a low growing grass/forb mix and weeds, and has small and large rocks in places. Very little vegetation will be removed from the proposed action, and predominantly trimming and removal of dead trees may take place. Recreational use of the area by local people is for horseback riding, hiking and birding.

3.1.5 Floodplains and Wetlands

Executive Order (EO) 11988 (Floodplain Management) requires Federal agencies to avoid, where practicable alternatives exist, the short- and long-term adverse impacts associated with floodplain development. Federal agencies are required to reduce the risk of flood loss; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains in carrying out agency responsibility.

Installation of new infrastructure would be limited to an area above the 100-year floodplain. There would be no effect to floodplain capacity or flood flow characteristics.

EO 11990 (Wetlands) requires Federal agencies, in carrying out their land management responsibilities, to take action that would minimize the destruction, loss, or degradation of wetlands and take action to preserve and enhance the natural and beneficial values of wetlands. The proposed Project would not impact wetlands.

All areas of the proposed Project are outside the 100-year flood zone, and above the floodplain of Oak Creek. The pipeline runs along an upper bench, which is above a secondary bench 20 feet above Oak Creek. No wetlands will be impacted by this Project, and all work will not impact the functionality of the floodplain.

3.1.6 Noise

A few residential homes exist across Oak Creek from where this Project will take place as well as a few homes above the location of the pipe. No noise-sensitive receptors (e.g., libraries, schools, campgrounds, etc.) are located in the vicinity of the proposed action. Construction activities would be limited to pickup trucks and a bobcat, and be of very short duration. All work will take place during daylight hours, and during winter months. Therefore, noise was eliminated from further study in the EA.

3.1.7 Socioeconomic

The proposed action would not have an immediate socioeconomic impact within the Town of Cornville or Yavapai County. Therefore, socioeconomic impacts were eliminated from further study in the EA.

3.1.8 Environmental Justice

EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations," directs Federal agencies to review and develop strategies that address disproportionately high and adverse human health or environmental impacts on minority and low-income populations. The Town of Cornville has a population of 3,280 of which 93 percent are white and 91 percent have lived above the poverty line in the last 12 months (U.S. Census Bureau 2016). The proposed action would not affect any minority or low-income populations, and no disproportionately high and adverse human health or environmental impacts will result from the proposed action. Therefore, Environmental Justice has been eliminated from further study in this EA.

3.2 Cultural Resources

3.2.1 Affected Environment – Cultural Resources

The Project area is located along Oak Creek Canyon, a perennial stream running through the surrounding arid environment. This stream would have been used by various cultural groups from the prehistoric Paleo and Archaic groups to the Southern Sinagua, followed by proto-historic Yavapai, Apache, and Pai peoples and into the modern era with the historic European settlement.

Two Class III Cultural resource surveys were completed within the Project area. These surveys examined the entire Project area footprint. The first was completed in 2014 when new land was added to the hatchery and reported in *A Cultural Resources Survey of 31.5 Acres Prior to Land Acquisition by the Arizona Game and Fish Department near Cornville, Yavapai County Arizona*. The second report was completed as part of the current pipe repair project that surveyed the private land involved. That report is entitled: *Class III Cultural Resources Survey of 2.20 Acres for the Bubbling Ponds Fish Hatchery Pipe Rehabilitation Project in Cornville, Yavapai County, Arizona*. Neither report identified any eligible cultural resources within the Project area footprint.

Based on the two surveys there are no known National Register eligible historic properties within the Project area. Consultation was initiated with the Arizona State Historic Preservation Office and interested Native American Tribes on Reclamation's finding of *No Historic Properties affected*.

3.2.2 Environmental Consequences – Cultural Resources

3.2.2.1 No Action

Under the No Action alternative there would be no impact to cultural resources because no project will be implemented. Continued use of the eroding pipe will have no effect on cultural resources as there are none known to exist in the area.

3.2.2.2 Proposed Action

As with the No Action alternative, the proposed action will also have no effect on cultural resources as the entire Project area has been surveyed and there are no known cultural resources in the Area of Potential Effect.

3.2.2.3 Cumulative Effects

Since the Project is not anticipated to have any effects to cultural resources, there would not be any cumulative effects.

3.3 Indian Trust Assets

3.3.1 Affected Environment – Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in assets held in trust by the U.S. Government for Indian tribes or individuals. Assets can be real property, physical assets, or intangible property rights. ITAs cannot be sold, leased, or otherwise encumbered without the approval of the U.S. Government. A trust relationship is established through a congressional act or Executive Order (EO), as well as by provisions identified in historic treaties. As trustee, the Department of the Interior (DOI) is legally obliged to fulfill treaty and statutory obligations and to manage, protect, and conserve Indian trust resources and lands in utmost good faith. Lands associated with a reservation, rancheria, or public domain allotments are examples of ITAs. Resources located within reservations, including timber, minerals, oil and gas, and others, are also considered trust assets. Treaty rights and water rights, as well as hunting and fishing rights, may also be ITAs.

Environmental Consequences – Indian Trust Assets

3.3.2 Environmental Consequences – Indian Trust Assets

3.3.2.1 No Action

Under the No Action alternative, no new construction would occur. Therefore, this alternative would have no impact on ITAs.

3.3.2.2 *Proposed Action*

Under the proposed action there would be no change to water use and, therefore no effect to ITAs.

3.3.2.3 *Mitigation Measures*

None proposed.

3.3.2.4 *Cumulative Effects*

No Cumulative effects are expected.

3.4 Biological Resources

3.4.1 Affected Environment – Terrestrial Wildlife

Neotropical migrants that may be observed in riparian habitat near the Project area include the summer tanager (*Piranga rubra*), Bell's vireo (*Vireo bellii*), common yellowthroat (*Geothlypis trichas*), and yellow warbler (*Dendroica petechia*). Birds of prey that can be found in the area include the red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), Cooper's hawk (*Accipiter cooperii*), and American kestrel (*Falco sparverius*). There is a seasonal bald eagle (*Haliaeetus leucocephalus*) nest to the south on Oak Creek but outside the action area. Golden eagles (*Aquila chrysaetos*) have also been seen in the area, as well as Gambel's quail (*Callipepla gambelii*).

Information for Planning and Consultation (IPaC) from the U. S. Fish and Wildlife Service (USFWS) lists several migratory birds of conservation concern that could be in the area. These birds include: Bendire's Thrasher (*Toxostoma bendirei*), black throated sparrow (*Amphispiza bilineata*), black-chinned sparrow (*Spizella atrogularis*), black-throated gray warbler (*Sendroica nigrescens*), blue-throated hummingbird (*Lampornis clemenciae*), Elf owl (*Micrathene whitneyi*), Grace's warbler (*Dendroica graciae*), gray vireo (*Vireo vicinior*), Lark bunting (*Calamospiza melanocorys*), Lewis's woodpecker (*Melanerpes lewis*), Mexican whip-poor-will (*Antrostomus arizonae*), Phainopepla (*phainopepla nitens*), pinyon jay (*Gymnorhinus cyanocephalus*), Red-faced warbler (*Cardellina rubrifrons*), Rufous hummingbird (*selasphorus rufus*), rufous-winged sparrow (*Aimophila carpalis*), and Virginia warbler (*Vermivora virginiae*).

The area also exhibits a wide diversity of mammal species such as the black bear (*Ursus americanus*), collared peccary (*Tayassu tajacu*), bobcat (*Felis rufus*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), and mule deer (*Odocoileus hemionus*). Other mammals include the ringtail (*Bassariscus astutus*), mountain lion (*Puma concolor*), and bobcat (*Lynx rufus*).

Common lizards found in the area include the greater earless lizard (*Cophosaurus texanus*), side-blotched lizard (*Uta stansburiana*), and plateau lizard (*Sceloporus tristichus*). Small mammals of the area provide an abundant prey source for snakes such as the ground snake (*Sonora*

semiannulata), ring-necked snake (*Diadophis punctatus*), and black-tailed rattlesnake (*Crotalus molossus*). Amphibians known to the area include the Mexican spadefoot (*Spea multiplicata*), red-spotted toad (*Bufo punctatus*), and Woodhouse's toad (*Bufo wodhousii*).

3.4.2 Environmental Consequences – Terrestrial Wildlife

3.4.2.1 No Action

Under the no action alternative, there would be no direct effect to terrestrial wildlife because no project would be implemented.

3.4.2.2 Proposed Action

The proposed action would impact approximately 7,330-feet² (0.17 acres) total in already disturbed habitat. Work will take place in winter outside breeding season for the majority of migratory birds. Although several birds such as the phainopepla, Lewis woodpecker, pinyon jay, Bedire's thrasher and the three sparrow species are year-round residents no habitat would be impacted by this Project. This Project is not expected to impact migratory birds.

3.4.2.3 Mitigation Measures

A biological monitor will be conducting Project clearance prior to any construction and be on site during the proposed work. This Project will have no impacts on terrestrial wildlife.

3.4.2.4 Cumulative Effects

The effects of the proposed Project will not remove any habitat for terrestrial wildlife and will be cumulative to land development, agriculture and other human influences affecting the area along Oak Creek.

3.5 Special Status Species

3.5.1 Affected Environment – Special Status Species

A compilation of federally listed species that occur within a 5-mile radius of the Project location was obtained from AGFD's Arizona Environmental Online Review Tool Report, dated April 3, 2017 and the USFWS's IPaC. This Trust Resource Report was generated for the Project area on July 12, 2017 and the quick reference guide to all Arizona Species (Table 2 and 3). Of the 15 species with occurrence records, only the yellow-billed cuckoo and northern Mexican gartersnake is likely to be found in the wild near the Project location. Several species of federally-listed fish, however, are housed and propagated at the hatchery and will not be impacted by the Project. Section 7 of the ESA requires consideration of only listed and proposed species. The Page springsnail is protected by a Candidate Conservation Agreement with Assurances and is present within Bubbling Ponds and the diversion channel.

Table 2. Compilation of federally-listed species

These are the federally-listed species that occur within five miles of the Project location, based on the Arizona Environmental Online Review Tool Report, January 14, 2018. E = endangered, T = threatened, C = candidate, PT = Proposed Threatened, EXPN = Experimental Non-Essential Population, CCAA = Candidate Conservation Agreement with Assurances.

Species	Federal Status	Habitat	Occupancy Determination/Explanation
BIRDS			
Southwestern willow flycatcher <i>(Empidonax traillii extimus)</i>	E	Cottonwood/willow and tamarisk vegetation communities along rivers and streams.	Unlikely to occur. The Project will take place outside the flycatcher season. The nearby cottonwood/willow and tamarisk vegetation also lacks the density that is needed for flycatchers.
Yellow-billed cuckoo <i>(Coccyzus americanus)</i>	T	Large blocks of cottonwood, willow, or tamarisk galleries.	Likely to occur. Species has numerous recent records near Project area. See page 19.
FISH			
Gila chub <i>(Gila intermedia)</i>	E	Pools, springs, cienegas, and streams.	Unlikely to occur. There is no suitable aquatic habitat in the Project area.
Headwater chub <i>(Gila nigra)</i>	PT	Medium-sized streams in large, deep pools often associated with cover.	Unlikely to occur. There is no suitable aquatic habitat in the Project area.
Loach minnow <i>(Tiaroga cobitis)</i>	E	Small to large perennial streams with swift shallow water over cobble and gravel.	Unlikely to occur. There is no suitable aquatic habitat in the Project area.
Razorback sucker <i>(Xyrauchen texanus)</i>	E	Riverine and lacustrine areas, generally not in fast moving water and may use backwaters.	Unlikely to occur. There is no suitable aquatic habitat in the Project area.

Roundtail chub <i>(Gila robusta)</i>	PT	Cool to warm waters of rivers and streams, often occupy the deepest pools and eddies of large streams.	Unlikely to occur. There is no suitable aquatic habitat in the Project area.
Spikedace <i>(Meda fulgida)</i>	E	Medium to large perennial streams with moderate to swift velocity waters over cobble and gravel substrate.	Unlikely to occur. There is no suitable aquatic habitat in the Project area.
Woundfin <i>(Plagopterus argentissimus)</i>	EXPN	Inhabits shallow, warm, turbid, fast-flowing water.	Unlikely to occur. There is no suitable aquatic habitat in the Project area.
AMPHIBIANS and REPTILES			
Narrow-headed gartersnake <i>(Thamnophis rufipunctatus)</i>	T	Clear, rocky streams using predominantly pool and riffle habitat that includes cobbles and boulders.	Unlikely to occur. There is lack of habitat for this species and there are no known records.
Northern Mexican gartersnake <i>(Thamnophis eques megalops)</i>	T	Cienegas, stock tanks, large-river riparian woodlands and forests, streamside gallery forests.	Likely present. Species has numerous recent records near Project area.
PLANTS			
Arizona cliffrose <i>(Purshia subintegra)</i>	E	White limestone soils derived from tertiary lakebed deposits.	Unlikely to occur. There are no limestone deposits within the Project area. Nearest record is 4.5 miles southwest of Project.
INVERTEBRATES			
Page springsnail <i>(Pyrgulopsis morrisoni)</i>	CCAA	Permanently saturated cienegas, firm substrate like cobble, gravel, woody debris, and aquatic vegetation.	Present. Records identify presence within Bubbling Ponds.

Table 3. Critical habitat

Species	Presence of Critical Habitat in Project Area
Northern Mexican gartersnake	Project area located in proposed critical habitat.
Narrow-headed gartersnake	Project area located in proposed critical habitat.
Yellow-billed cuckoo	Project area located in proposed critical habitat.

Northern Mexican gartersnake – Members of this species are known to heavily utilize the Bubbling Ponds complex for denning, foraging, and reproductive purposes during the active season which is approximately April to October, or when air temperatures consistently range above 71 degrees Fahrenheit. For the remaining months or when the air temperature is consistently below that threshold, which is considered the dormant season, individuals usually travel to and stay within close proximity to their preferred denning sites. Many individuals at Bubbling Ponds retreat to denning sites south and east of the adjacent ARCC complex while others utilize concealed sites around the ponds (Bateman et al. 2015). It is believed that northern Mexican gartersnakes inhabiting Bubbling Ponds serve as a source population for satellite populations elsewhere along Oak Creek (Jeff Servoss, USFWS, personal communication, 1/14/15).

The location of the pipeline and characteristics of adjacent habitat gives high probability that northern Mexican gartersnakes likely utilize the area during the active and dormant season. The pipeline borders riparian habitat along Oak Creek and there is a modified water channel and a series of pools that parallels a portion of the pipeline. Members of this species utilize a series of structures such as rodent burrows and cavities in riparian habitat near aquatic edges, open floodplain, mesquite bosque, and along habitat edges. They are also known to communal den, which means multiple snakes will utilize a den at the same time (Emmons and Nowak 2013). As part of their study, Emmons and Nowak (2013) identified two winter dens approximately 2.5 and 4 meters from a graveled walking trail near a lagoon at Dead Horse Ranch State Park. Other snakes used winter den sites that were 0.5-156 meters from the nearest water source.

In order to minimize disturbance to the greatest extent possible, sleeving the existing pipeline with a 24-inch HDP pipe will be the first option that will be pursued. If sleeving the entire length or a segment is not possible, then the top half section of the pipe will be exposed and opened for direct placement of the replacement pipe. This will result in the greatest extent of disturbance at 7,330-feet² (0.17 acres) due to the temporary removal of soil at the surface, the utilization of equipment along a portion or the entire alignment, and improvement of the erosion control area. The movement of equipment and displacement of soil creates a greater opportunity for the collapse and removal of den sites and disturbance or mortality of snakes. If permission is denied to work on private land, then the total scale of impact would be reduced by 1,400 feet² (0.03 acres), for a total of 5,930 feet² (0.14 acres). If the pipeline is successfully sleeved along the entire length, the installation of concrete joint boxes will still result in a surface disturbance of approximately 80-feet² (0.001 acres).

Yellow-billed cuckoo – The proposed Project falls within designated critical habitat, and there are recent records of cuckoos a short distance downstream from the proposed Project (Sabra Tonn, AGFD, personal communication, 7/24/17). The area of Oak Creek that runs parallel to the pipeline is considered suitable habitat for cuckoos, but the immediate vicinity of the Project area has been modified for human use and may not have the ideal conditions necessary for breeding cuckoos. The surrounding area still provides suitable foraging conditions.

Trimming branches will be kept to a minimum and will occur along the outer western edge to the riparian corridor. While most cuckoos are known to have left Arizona by the end of September, there are some records of individuals in southeast Arizona that stayed into early October to feed older fledglings (Corman and Magill 2000). The Project is scheduled to start sometime in

October which may result in some individuals being briefly disturbed and displaced till they start their migration south. The higher likelihood of impacts to the species will be to the habitat itself, but the extent of that impact will be minimum and exclusive to trimming branches.

Page springsnail – The primary objective of this Project is the replacement of an existing pipeline that starts 434-meters (0.27-miles) from the southern edge of Bubbling Ponds, where the Page springsnail resides. It is believed that proximity to spring vents plays a critical role for this endemic species by maintaining higher quality habitat by minimizing sediment accumulation through higher water velocity (Martinez and Thome 2006). Man-made outflow channels such as the one that diverts water from the springs to the existing pipeline were also believed to be of no benefit to the species. In 2006 a water flow measuring station was installed at the downstream end of the pond where it drains into the existing outflow channel. The flow station changed the habitat features of the channel, and in 2008 hundreds of snails were found on watercress (*Nasturtium officinale*) and water pennywort (*Hydrocotyl verticillata*) downstream from the springs (Sorensen and Martinez 2015). Colonization of that channel may not have been possible without the addition of rocky fill material to the eastern shoreline which was quickly inhabited within three months. Prior to the eastern shoreline improvements, no Page springsnails were found in the southern end of the pond. In October 2017, the channel was resurveyed and Page springsnails were found along the entire length of the outflow channel and within close proximity to the existing bypass valve and grated culvert.

Impacts to Page springsnail habitat will be minimized by maintaining at least one-third of base flows within the channel. Only a section of approximately 10 meters in length will be completely dewatered upstream from of the grated culvert. Additional minimization will occur by salvaging and moving a majority of the affected springsnails from areas in the channel that will be dried, specifically around the end where the culvert and diversion valve is located, and also along the length where the water level is reduced and springsnails may be stranded. Salvage will be done prior to sleeving the pipe and modify to the culvert, ideally before or during the reduction of water. AGFD staff experienced in springsnail identification will conduct the salvage. They will be supervised on site by the Invertebrate Wildlife Program Manager, who will help confirm snail identifications and direct the relocation of snails back to Bubbling Springs Pond and the upper 35-meter of the channel (the “core habitat” for the springsnail population).

Springsnails and the rocky substrate and aquatic vegetation they are attached to will be collected by hand and moved in 5-gallon buckets partially filled with water from the channel. We will attempt to minimize dislodging the snails from their substrate as much as possible and move smaller rocks and plants to locations upstream so that they will maintain their natural shelter and forage substrates. Dislodged snails will be in the water in the transport buckets and will be poured into the nearshore rocky habitats of Bubbling Ponds and the upper 35 meters of the channel. Rocks that are too large to move in the lower channel will be gently brushed to dislodge springsnails into smaller trays or pails and added to the transport buckets for movement upstream.

While it will be impossible to salvage all springsnails that may be affected by reduced flows in the channel and the 10-meter area immediately above the culvert, it is anticipated that a significant portion of the channel population will be moved and safeguarded; easily thousands of snails. This action and any resultant loss of the remaining springsnails in the areas being

dewatered, will not have long-term impacts to the snail population at Bubbling Springs Pond or within the channel. Once the repair work is complete and normal flows are resumed, the springsnail population will recolonize the channel on its own. Our past experience with salvage efforts for the springsnail prior to the 2010 rotenone treatment of Bubbling Springs Pond (as documented in Ward et al. 2010 and Sorensen and Martinez 2015) demonstrate that it can be successful in moving and protecting the springsnail population at this site. Likewise, initial studies by the USFWS (Martinez and Sorensen 2007) on the Page springsnail populations at Page Springs have demonstrated that the species is fairly resilient to temporary reductions in their population numbers and capable of rebounding in size.

3.5.2 Environmental Consequences - Special Status Species

With the exception of the federally threatened northern Mexican gartersnake and the candidate species Page springsnail, the proposed action would not affect any other federally-listed and candidate species that occur near the Project area because suitable habitat is absent in the Project area, or current ranges of the species are outside the Project area. The federally listed yellow-billed cuckoo would not be present during the construction window for this proposed action.

3.5.2.1 No Action

Under the no action alternative, there would be no direct effect to the federally-threatened northern Mexican gartersnake or the Page springsnail because no project would be implemented. There would be no loss of or disturbance to the species other than from routine operation and maintenance of the existing pipe.

3.5.2.2 Proposed Action

Northern Mexican gartersnake has the potential to be present in the Project area. The proposed Project may have localized, short-term adverse effects to northern Mexican gartersnake because of possible lethal contact with construction equipment and/or other disturbances from Project implementation activities.

In an attempt to avoid, minimize or mitigate potential negative effects of the Project to northern Mexican gartersnake an AGFD permitted biologist would conduct a biological survey of the Project area potentially affected by construction immediately prior to initiation of construction, and move any gartersnakes encountered away from the Project area. During the course of construction, Reclamation or its designee will monitor for presence of northern Mexican gartersnake. If any gartersnakes are detected in the immediate Project area, work would cease at the site until the individual(s) was captured and transported away from the area.

Once the Project is completed, localized effects to northern Mexican gartersnake are expected to be neutral. The 0.14-acre Project area does not contain all the primary constituent elements of critical habitat; therefore, the Project would not adversely affect proposed critical habitat. All work activities will take place during winter months when the snakes are less active and less likely to be impacted. There is still a small chance of harm to a snake and therefore our determination is that this project may affect and is likely to adversely affect the northern Mexican gartersnake. There are no anticipated impacts to proposed critical habitat.

Impacts to Page springsnail habitat will be minimized by maintaining at least one-third of base flows within the channel. Only a section of approximately 10 meters in length will be completely dewatered upstream from of the grated culvert. Additional minimization will occur by salvaging and moving a majority of the affected springsnails from areas in the channel that will be dried, specifically around the end where the culvert and diversion valve is located, and also along the length where the water level is reduced and springsnails may be stranded. Salvage will be done prior to sleeving the pipe and modify to the culvert, ideally before or during the reduction of water. AGFD staff experienced in springsnail identification will conduct the salvage. They will be supervised on site by the Invertebrate Wildlife Program Manager, who will help confirm snail identifications and direct the relocation of snails back to Bubbling Springs Pond and the upper 35 meters of the channel (the “core habitat” for the springsnail population).

Springsnails and the rocky substrate and aquatic vegetation they are attached to will be collected by hand and moved in 5-gallon buckets partially filled with water from the channel. We will attempt to minimize dislodging the snails from their substrate as much as possible and move smaller rocks and plants to locations upstream so that they will maintain their natural shelter and forage substrates. Dislodged snails will be in the water in the transport buckets and will be poured into the nearshore rocky habitats of Bubbling Springs Pond and the upper 35 meters of the channel. Rocks that are too large to move in the lower channel will be gently brushed to dislodge springsnails into smaller trays or pails and added to the transport buckets for movement upstream.

3.5.2.3 *Cumulative Effects of Special Status Species*

In December 2014, the AGFD acquired 31.5 acres of property adjacent to the Bubbling Ponds Fish Hatchery to conserve northern Mexican gartersnake and increase native fish production capacity of the hatchery. Construction of native fish production ponds and protection of habitat for northern Mexican gartersnake on the newly acquired land would have a beneficial cumulative effect on this species. Adverse effects to northern Mexican gartersnake could occur from a number of possible actions in the area that might affect water or habitat quality, such as road maintenance or construction, land development, livestock grazing in riparian bottoms, and wildfire. These events can singularly or cumulatively affect northern Mexican gartersnake through alterations in habitat characteristics. Ultimately, the native fishes propagated at the hatchery and repatriated to the wild would enhance prey availability for northern Mexican gartersnake in portions of its range.

4.0 Environmental Commitments

The following section is a comprehensive listing of the mitigation measures incorporated into this EA. These mitigation measures will be implemented as part of the proposed Project.

Bio-1 A permitted and approved biological monitor will be present prior to and during construction to surveys for any listed species present and during construction. They will be able to relocate any species that may be impacted by the construction.

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- CR-1 An archaeological monitor shall be present during all ground-disturbing activities at [site] in order to identify and record any inadvertently discovered cultural remains and to ensure there is no adverse effect to the site.
- V-1 Vegetation disturbances will be limited to the Project area and all revegetation efforts will involve the use of native plant species to the extent possible.

5.0 Consultation and Coordination

Reclamation submitted information on the Project proposal to the following entities during the development of the Draft NEPA document. The names of the individuals are retained in the administrative record.

Cooperating Agencies:

Arizona Game and Fish Department

Other Federal Agencies:

USDA Forest Service (Coconino NF)
U.S. Fish and Wildlife Service

County Agencies:

Yavapai County Development Services Department
Yavapai County Flood Control District

Other State Agencies:

Arizona Department of Environmental Quality
Arizona Department of Water Resources
Arizona State Land Department
Arizona State Historic Preservation Office

Indian Communities:

Fort McDowell Yavapai Nation
Yavapai-Apache Nation
Yavapai-Prescott Tribe
Hualapai Tribe
Hopi Tribe
Navajo and Historic Preservation
Navajo Nation

Conservation, Environmental, and Recreation Organizations:

Center for Biological Diversity
Sierra Club

Other Agencies and land owners

Salt River Project
Richard and Annie Pena
Donna Ross
Claudette Cave
Veronica Moody

6.0 List of Preparers

This EA was prepared by Carol Evans, Biologist, Bureau of Reclamation, Phoenix Area Office, Glendale, Arizona.

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7.0 References

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_____. 2003. Final Environmental Assessment, Blackwater Area of the Pima-Maricopa Irrigation Project. Prepared for U.S. Bureau of Reclamation, Phoenix Area Office, Arizona.

U.S. Census Bureau 2016. Web site <https://www.census.gov/search-results.html>

U.S. Fish and Wildlife Service (FWS) Information for Planning and Conservation (IPaC).

Appendix A. Scoping Letters

There were only two comments from the original scoping letters.

- 1 Arizona State Historic Preservation Office responded that they would participate via the NHPA/Section 106 process.
- 2 A clarification letter was received from Salt River Project on the water use for downstream users during construction when water would be cut off. Arizona Game and Fish responded to their questions.

Appendix B. Biological Opinion

Appendix C. Cultural Consultation Letter(s)