

RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Reaches WS-1E and WS-1F (MC-1, MC-2, and MC-3)

**Pima-Maricopa Irrigation Project
Gila River Indian Community
Maricopa County, Arizona**



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

July 2015

DISCLAIMER

Pursuant to the requirements of 40 CFR Section 1506.5, EcoPlan Associates, Inc., declares under oath that it has no interest, financial or otherwise, in the outcome of this project.



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July 30, 2015

Date

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Prepared for:

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

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July 2015

Mission Statements

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

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

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ACRONYMS AND ABBREVIATIONS

AGFD	Arizona Game and Fish Department
APE	area of potential effects
ASM	Arizona State Museum
ASU	Arizona State University
BIA	U.S. Bureau of Indian Affairs
CAA	Clean Air Act
CAP	Central Arizona Project
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CO	carbon monoxide
CO ₂	carbon dioxide
Community	Gila River Indian Community
CT	census tract
dBa	A-weighted decibel
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
FPPA	Farmland Protection Policy Act
FWCA	Fish and Wildlife Coordination Act
GHG	greenhouse gas
GR	Gila River
CRMP	Cultural Resource Management Program
HDRCR	historically documented historic resources
IPaC	Information, Planning, and Conservation
ITA	Indian Trust Assets
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
No.	number
NO ₂	nitrogen dioxide
NRCS	U.S. Natural Resources Conservation Service
NRHP	National Register of Historic Places
O&M	operation and maintenance
PEIS	Programmatic Environmental Impact Statement
PIE	permanent irrigation easement
PM _{2.5}	particulate matter less than 2.5 microns in diameter
PM ₁₀	particulate matter less than 10 but 2.5 or more microns in diameter
P-MIP	Pima–Maricopa Irrigation Project
RCRA	Resource Conservation and Recovery Act
Reclamation	U.S. Bureau of Reclamation
Reservation	Gila River Indian Reservation
SHPO	State Historic Preservation Office

SO ₂	sulfur dioxide
SRP	Salt River Project
TCE	temporary construction easement
TCP	traditional cultural property
THPO	Tribal Historic Preservation Office
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WS	Westside

1.0 PURPOSE AND NEED

1.1 INTRODUCTION

The Gila River Indian Community (Community)/Pima–Maricopa Irrigation Project (P-MIP) is constructing an extensive irrigation system to serve farmland within the Community. The P-MIP Westside (WS) Area system, in Districts 6 and 7, consists of a series of pipelines with control structures, turnouts, road crossings, valve vaults, and other miscellaneous structures. The Community/P-MIP is proposing the construction of two primary branches/reaches (WS-1E and WS-1F) and accompanying laterals (MC-1, MC-2, and MC-3) of that irrigation water conveyance system. These reaches and laterals are in the western portion of the Gila River Indian Reservation (Reservation), and are generally bounded by the Salt River and the Community boundary to the north, 51st Avenue and the Community boundary to the east, and the Gila River to the south and the west (Figure 1). The construction of the WS Area system is the subject of this Environmental Assessment (EA).

This EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] Parts 1500–1508), and Department of the Interior NEPA regulations 43 CFR Part 46). The U.S. Bureau of Reclamation (Reclamation) is the lead federal agency responsible for the preparation of this EA. The Community/P-MIP and the U.S. Bureau of Indian Affairs (BIA) are cooperating agencies in the preparation of this document.

1.2 BACKGROUND

Congress passed the Colorado River Basin Project Act (Public Law 90-537, as amended) on September 30, 1968. The act authorized the Secretary of the Interior, through Reclamation, to construct the Central Arizona Project (CAP), a water resource development and management project with the primary purpose of furnishing Colorado River water for irrigation, and municipal and industrial uses in central and southern Arizona. Section 403 (f)(2) of the act directs Reclamation to pay the costs associated with construction of CAP water delivery facilities on the Reservation.

By the 1990s, the Community determined that the maximum benefit of its CAP water entitlement could be obtained by integrating CAP water resources into a common-use irrigation system. When fully constructed, this common-use irrigation delivery system, known as P-MIP, will be capable of conveying irrigation water from all available sources to all lands identified for agricultural development in the Community Master Plan Report for Land and Water Use (Franzoy Corey Engineering, Inc. 1985). On May 15, 2006, the Secretary of the Interior entered into an amended water service contract with the Community for the annual delivery of 311,800 acre-feet of CAP water.

1.3 PURPOSE AND NEED FOR ACTION

The current service area for WS-1E and WS-1F is 4,947 gross acres for the Komatke and Maricopa Colony areas. The majority of this area was farmed at various times in the past; however, currently there is not an adequate water supply to support production agriculture for the entire 4,947 acres at the same time. Several wells in the study area are providing an adequate water supply to support production agriculture for 1,610 acres.

The purpose of the proposed project is to provide a reliable water supply to agricultural lands in the WS Area through the P-MIP system. Extending the P-MIP system to the WS Area will allow for more efficient use of Community water resources and expand agricultural production opportunities in this area. More specifically, the purpose of the project is to conserve Community water resources such as CAP water, ground water, Salt River Project (SRP) surface and stored water, and other water supplies, and reduce long-term O&M costs, and improve irrigation water delivery service to Community farmlands on the WS Area of the Community.

To address this purpose, the proposed project will construct new primary laterals (pipelines) and construct new secondary laterals (pipelines) to more efficiently deliver irrigation water to the agricultural lands. Primary activities of the proposed construction include new alignments, new pipelines to serve the planned acreage, and modern measurement and control amenities (e.g., control gates, turnout structures, water meters) to improve delivery and accountability services. Modernization of the irrigation system in the WS Area will improve the reliability of deliveries and pool water supplies to better serve the total needs of the Community.

1.4 PROJECT LOCATION

The project occurs within the Komatke and Maricopa Colony communities on the west side of the Reservation, in Maricopa County, Arizona (Figure 2). The project footprint is in Township 1 South, Range 1 East, Sections 1, 2, 11, 12, 13, and 24, and Township 1 South, Range 2 East, Sections 7 and 17–21 on the Reservation.

1.5 DECISIONS TO BE MADE

The responsible official for this EA is the area manager of Reclamation's Phoenix Area Office. This official must decide whether to implement the proposed action or implement an alternative action that will meet the purpose and need. If the proposed action is implemented, the Community/P-MIP will undertake rehabilitation of the WS Area and associated land acquisition with funds provided by Reclamation.

1.6 PRIOR COMPLIANCE WITH NEPA

This EA tiers from the Programmatic Environmental Impact Statement (PEIS) for the P-MIP completed in 1997. The PEIS addressed Community plans to construct and operate a common-use irrigation system and place up to 146,330 acres of land into agricultural production. The PEIS allowed for a programmatic-level evaluation of the P-MIP at full implementation. Because adequate details had not yet been determined when the PEIS was prepared, the PEIS included commitments to prepare subsequent NEPA documentation for project components, including those associated with the WS Area rehabilitation.

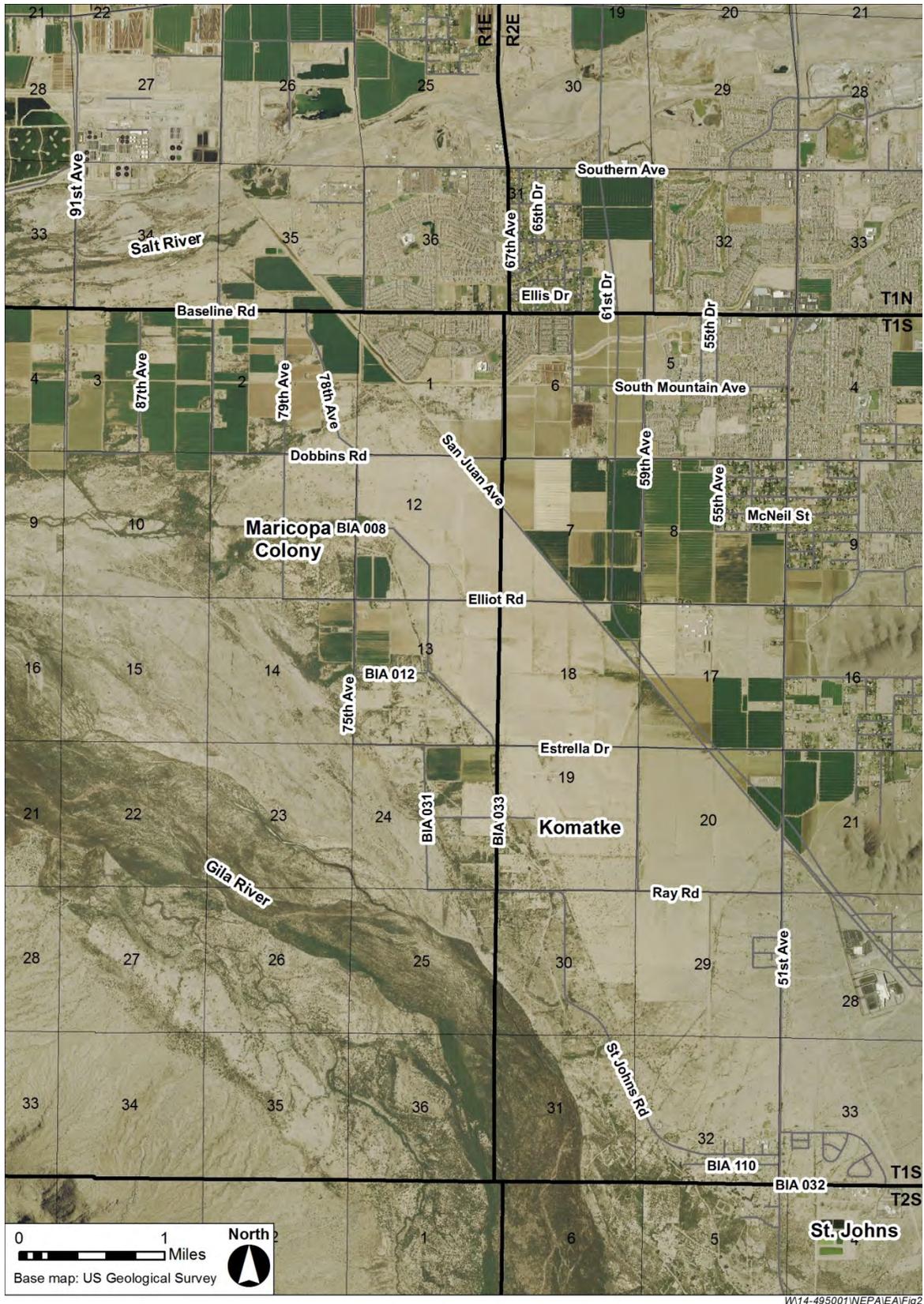


Figure 2. Project vicinity

2.0 DESCRIPTION OF ALTERNATIVES

This chapter describes the alternatives considered for the project—the no action alternative, the proposed action, and other alternatives considered but eliminated.

2.1 NO ACTION

Section 102(2)(E) of NEPA requires that “no action” be considered an alternative in an environmental review whenever there are unresolved conflicts about the proposed action with respect to alternative uses of available resources. A description of “no action” is also customarily used to provide the baseline for comparison of environmental effects of the action alternatives against conditions that are representative of the status quo.

For the purpose of this analysis, the no action alternative assumes that the existing WS Area system would not be constructed or otherwise modernized. A few farmers would continue to utilize wells, in conjunction with multiple independent canal systems, to irrigate their fields. The limited available water supply would continue to limit the area to be cultivated. New irrigation delivery facilities to the south of the service area that were constructed by P-MIP would not extend to the existing lands, and no additional lands would be brought into production. A reliable delivery of irrigation water would not be available, and the current service area would not increase.

2.2 PROPOSED ACTION

The proposed action involves the construction of two primary laterals (Reach WS-1E and Reach WS-1F) and the construction of three secondary laterals (MC-1, MC-2, and MC-3) in the WS Area (Figure 3). The primary laterals, WS-1E and WS-1F, would be gravity-fed, low-pressure pipelines ranging in diameter from 42 inches to 54 inches. The secondary laterals, MC-1, MC-2, and MC-3, would also be low-pressure gravity-fed pipelines ranging in diameter from 18 inches to 54 inches. Construction would require the acquisition of a 25- to 45-foot-wide permanent irrigation easement (PIE). In addition, to help facilitate construction activities, a 20-foot-wide temporary construction easement (TCE) parallel to both sides (or in some cases only one side) of the PIE would also be required. Associated construction activities would include control structures, turnouts, valve vaults, and an operation and maintenance (O&M) road. The proposed action is described in more detail in the following sections.

2.2.1 Reach WS-1E

Reach WS-1E would be a 25,809-foot pipeline that begins at the terminus of Level Top Canal at Ray Road and would follow the 55th Avenue alignment north about 1 mile to Estrella Drive. From Estrella Drive, the reach would generally follow the Community boundary northwest for approximately 2.5 miles to Dobbins Road. At Dobbins Road, the pipeline turns west and continues 0.75 mile to 75th Avenue, where the reach would turn north for approximately 0.5 mile and terminate at the Middle Lateral.

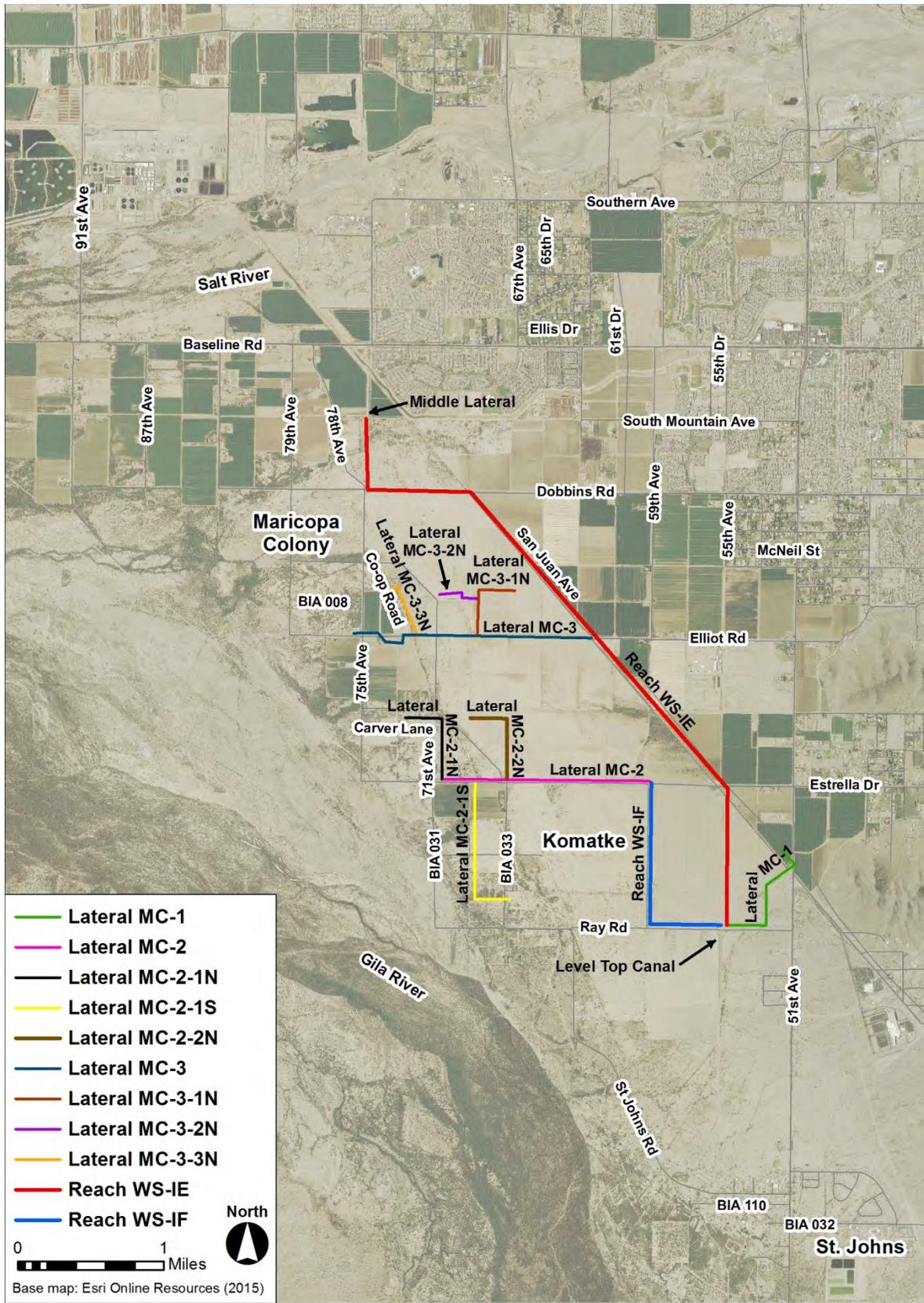


Figure 3. Location of reaches and laterals

As part of this reach, construction would include 18,655 feet of 54-inch pipeline, 1,226 feet of 48-inch pipeline, and 5,314 feet of 42-inch pipeline. WS-1E would include 12 pipeline turnout structures; 12 flow-meter manholes, one well connection, three utility crossings, and the construction of an O&M road within the PIE. In addition, construction would require crossing three major arterials (Ray Road, Estrella Drive, and Dobbins Road) and construction of a new tailwater ditch. The arterials would be crossed using “jack and bore” operations or road cuts. The reach would be constructed to a design capacity of approximately 78 cubic feet per second (cfs) at the outlet and reduce down to 72, 62, and then 56 at its terminus.

2.2.2 Reach WS-1F

Reach WS-1F would be a shorter gravity-fed pipeline (7,559 feet) and would also begin at the terminus of Reach WS-1D (Level Top Canal) and follow the Ray Road alignment west approximately 0.5 mile to 59th Avenue. The reach would parallel 59th Avenue north for approximately 1 mile to Estrella Drive, at which point matching Lateral MC-2. The reach would include 2,513 feet of 48-inch pipeline, 5,046 feet of 42-inch pipeline, six pipeline turnouts, six flow-meter manholes, and one utility crossing. An O&M road would be constructed within the existing PIE. The reach would be constructed to a design capacity of approximately 45 cfs.

2.2.3 Lateral MC-1

Lateral MC-1 would be a pipeline of approximately 4,446 feet in length that would also begin at the terminus of Reach 1D (Level Top Canal). MC-1 would parallel Ray Road from WS-1E east for approximately 0.25 mile before heading northeast to the Community boundary. Construction would include 4,050 feet of 48-inch pipeline, 396 feet of 30-inch pipeline, one control valve at the sublateral headgate, four pipeline turnout structures, and four flow-meter manholes. An O&M road would be constructed within the existing PIE. The lateral would be constructed to a design capacity of approximately 25 cfs.

2.2.4 Lateral MC-2

Lateral MC-2 would include three sublaterals: MC-2-1S, MC-2-1N, and MC-2-2N. MC-2-1S would be approximately 5,523 feet in length and begin approximately 0.25 mile west of the Estrella Drive/67th Avenue intersection and traverse south to approximately 0.25 mile north of Ray Road, where the lateral would turn east for 0.5 mile to 67th Avenue. MC-2-1N begins at the terminus of MC-2 and would generally follow the 71st Avenue alignment north from Estrella Drive to Carver Lane, where it would proceed west for 0.25 mile to the 73rd Avenue alignment, having a total length of approximately 5,104 feet. MC-2-2N would begin at Estrella Drive 1,400 feet east of the MC-2-1S alignment, and then turn north for 0.5 mile before turning west for 0.25 mile, for a total distance of 3,943 feet.

Construction of the three sublaterals would include 1,558 feet of 24-inch pipeline, 1,540 feet of 36-inch pipeline, 9,134 feet of 30-inch pipeline, and 2,537 feet of 42-inch pipeline. MC-2 would also include 14 pipeline turnout structures, two control valves at the sublateral headgate, 14 flow-meter manholes, one well connection, and three utility crossings. Jack and bore (or open cut) operations would occur at Estrella Drive and 67th Avenue. An O&M road would be constructed within the existing PIE. MC-2 would be constructed to a design capacity of approximately

45 cfs, and MC-2-1S and MC-2-1N would be constructed to a design capacity of 15 cfs, with MC-2-2N constructed to a design capacity of 30 cfs.

2.2.5 Lateral MC-3

Lateral MC-3 would be constructed as four sublaterals: MC-3, MC-3-1N, MC-3-2N, and MC-3-3N. Lateral MC-3 would generally follow Elliott Road from WS-1E along the Community boundary west to 75th Avenue for approximately 1.75 miles. Lateral MC-3-1N would traverse 0.25 mile north along the 69th Avenue alignment from Elliott Road, then turn east for an additional 0.25 mile as MC-3-1N, and west for 0.25 mile as MC-3-2N. Lateral MC-3-3N would traverse northwest for approximately 0.25 mile from Elliott Road just west of Co-op Road.

Construction of these four sublaterals would include 393 feet of 54-inch pipeline, 5,879 feet of 48-inch pipeline, 1,340 feet of 42-inch pipeline, 996 feet of 36-inch pipeline, 1,320 feet of 30-inch pipeline, 8,247 feet of 24-inch pipeline, and 149 feet of 18-inch pipeline. Construction of sublaterals would also include 13 pipeline turnout structures, ten control valves at sublateral headgates, 13 flow-meter manholes, and four utility crossings. Construction would require jack and bore (or open cut) operations at Elliott Road (two locations), Co-Op Road, 75th Avenue, and 67th Avenue. An O&M road would be constructed within the existing PIE. MC-3 would be constructed to a design capacity of approximately 45 cfs. MC-3-1N would be constructed to a design capacity of 15 cfs, and MC-3-2N and MC-3-3N would both be constructed to a design capacity of 15 cfs.

2.2.6 Project Construction

Construction would require equipment storage, stockpiling, and the setup of trailers for contractor offices. These areas would be located within the PIEs and TCEs. Construction vehicles and equipment would access the site using existing roads.

It is anticipated that construction could begin in fall 2016 and continue for 13 to 15 months; however, adjustments would be made to this schedule as needed.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED

2.3.1 Open Canal Delivery System Alternative

Consideration was given to the construction of an open canal delivery system instead of a pipeline. Though this alternative would meet basic conveyance needs, this alternative was eliminated from consideration because canal costs have increased in recent years (construction and O&M) and a significantly larger amount of PIE and TCE would be required, thus having a greater impact on the existing drainage patterns and residential areas.

Vandalism is also a concern in the WS Area. Compared with an open-channel system, a low-pressure closed system would afford the least impact due to vandalism.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

The “study area” consists of the lateral alignments and service areas. The term “project footprint” is used to indicate all land that would be directly affected by the land acquisition, construction, and operation of the proposed project. The project footprint consists of a 25-foot-wide to 45-foot-wide PIE as well as the proposed 20-foot-wide TCE on one or both sides of the PIE (Appendix A).

3.2 LAND OWNERSHIP, JURISDICTION, AND LAND USE

3.2.1 Affected Environment

The proposed study area is in the western portion of the Reservation and is generally bounded by the Salt River and the Community boundary to the north, 51st Avenue and the Community boundary to the east, and the Gila River to the south and the west. In total, the Reservation encompasses 372,929 acres, of which 275,537 acres are tribal lands and 97,392 acres are privately owned by Community members as allotments. Approximately 5,000 individual allotments are on the Reservation. The allotment system was established by the General Allotment Act of 1887, as amended. When executed between 1916 and 1921, the General Allotment Act allotted each tribal member 20 acres of land divided into two noncontiguous 10-acre parcels. Today, due to inheritance, individual allotments are owned by one to hundreds of people. Land not allotted to individuals remains tribal, owned collectively by the Community. A portion of the proposed project traverses the Co-Op Village. Some lands in the study area are owned by the Community as tribal lands; others are owned by private Community members as allotments.

The proposed action would require acquisition of PIE and TCEs. One common characteristic of allotted and tribal lands is the trust responsibility of the federal government administered by the BIA. All contracts, deeds, or use of these trust resources must follow federal law, regulation, and policy found in the BIA Manual (1984) and other federal regulations that require consent of landowners involved and, where appropriate, the consent and/or concurrence of the tribal government and approval by the BIA.

The acquisition of tribal lands would use the same procedure as for allotted lands. The tribal council would be consulted for consent or rejection. Upon receipt of consent, the BIA would issue the grant of easement after compensation is deposited with the Community and the Finance Department issues a letter of receipt of compensation to the BIA. Compensation for allotted land is paid directly to the BIA for distribution to landowners.

The general character of the study area is rural. Though surrounding lands include large areas of native, undeveloped desert, agriculture is a predominant land use in the study area. Land devoted to agriculture varies from active cultivation to fallow fields. The current service area for WS-1E and WS-1F is 4,947 gross acres for the Komatke and Maricopa Colony areas. The majority of this area was farmed at various times in the past; however, there is not an adequate water supply

to support agricultural production on all 4,947 acres. Currently, the Gila River Indian Irrigation and Drainage District well No. 6 provides water to the Co-op Canal and irrigates about 310 acres. Several other wells currently provide irrigation water to about 1,300 acres.

The Farmland Protection Policy Act (FPPA) (7 CFR Part 658) governs the definition and identification of farmlands. The FPPA states that the purpose of the act is to minimize the extent to which federal programs “contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses.” As defined by the FPPA, “farmland” is land that is not already in or committed to urban development. The FPPA requires that federal agencies identify proposed actions that would affect any land classified as farmland before federal approval of any activity that would convert farmland into other land uses. The U.S. Natural Resources Conservation Service (NRCS) administers the FPPA as it relates to protection of farmland.

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, and other agricultural crops. Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. Designation of prime or unique farmland is made by the NRCS. Farmland of statewide or local importance is land, in addition to prime and unique farmlands, that is important for the production of food, feed, fiber, forage, and oilseed crops. Designation of this farmland is determined by the appropriate state or local agency.

No prime farmland was identified in the study area; however, all soils within the project footprint are classified by NRCS as farmland of unique importance. Unique farmland is land that does not meet the criteria for prime farmland or farmland of statewide importance but is used for the production of specific high economic crops (NRCS 2014).

The project footprint encompasses several linear feet of dilapidated concrete-lined canals, irrigation pipelines, and irrigation infrastructure, including water wells, headworks, and other structures associated with agricultural activities.

Scattered residences and structures associated with agricultural lands are present throughout the study area. Several arterial and rural roads are in the study area.

No national parks, recreation areas, or designated wilderness areas; wildlife refuges; wild and scenic rivers; or other special status lands or waters are in the study area or vicinity.

3.2.2 Environmental Consequences

No Action

Under the no action alternative, there would be no direct impact to ownership, jurisdiction, or land use because no project would be constructed or implemented. It is assumed that there would be no change in existing patterns of land ownership or land use.

Proposed Action

Construction of the proposed action would require the acquisition of PIE and TCEs. The PIE requirements for implementation of the proposed action include 56.32+/- acres, including 52.97+/- acres of allotted land and 3.35 +/- acres of tribal land. The TCE requirements include

30.51+/- acres, including 28.56+/- acres of allotted land and 1.95+/- acres of tribal land. There are a total of 140 allotments affected by PIE and TCE requirements. Table 1 lists the allotments affected by PIE and TCE requirements with implementation of the proposed action. Appendix A shows the location of PIE and TCE requirements in each area.

Table 1. Allotments impacted by proposed action.

Impacted Allotments						
WS-1E						
4771	4145	4144	4132	4129	4128	4127
4110	4112	4111	4120	3930	2673	2672
4230	4227	4455	4772	2186	3985	3986
3987	4605	4064	3960	4399	3909	2689
2688	3445	2969	2968	3159	2686	2685
2684	2847	2746	2745	2742	2738	4580
2908	2848	4764	2793	2905		
WS-1F						
3979	4029	4119	4124	4125	4126	4121
4493	3778	3777	3774	3776	3775	3771
3721	3720	4028	4027	4026	4087	4086
4088	3788	3789	3744	4116	4117	4118
MC-1						
4228	4229	4776	4569			
MC-2						
4305	3228	4181	4177	4178	4179	4180
4666	2698	2950	3338	2700	2809	4142
T40	T28	4183	4184	4113	2528	2529
3787	3786	3736	3737	4103	4104	1631
3800	4832	4599	2677	2676	2670	2671
4063	4062	3869	3870	3757	3756	3727
3728	3753	3754	3979	543	644	645
4296	4295	4183	2699			
MC-3						
3441	4774	3993	3992	2945	4345	4348
4371	4349	3687	4108	4355	4370	3745
3746	4342	4344	3990	3988	3991	3989

Land to be acquired as PIE and converted to project use under the proposed action would not fall under the purview of the FPPA, which was developed to mitigate actions that would convert farmland to nonagricultural uses. The proposed action would increase cultivated farmland from 1,610 acres to approximately 4,947 acres in the WS Area.

The proposed action would not directly result in residential or commercial displacements because no residences or commercial facilities are within the project footprint.

Construction activities would result in a temporary increase in truck traffic on various roads in the study area for the transport of construction materials and equipment to the construction site. Construction activities would not affect access to the project site or adjacent properties and would not be expected to interfere with traffic flow on public roads; therefore, the proposed action would have a minor and temporary effect on emergency response to the area.

The potential increase in truck traffic during construction would be cumulative to farm and other local traffic. The conversion of farmland for construction of irrigation infrastructure would be cumulative to past, present, and future farmland conversions, which have resulted primarily from residential and urban development in the region. The reoccurrence of irrigated agriculture on 3,337 acres of mostly fallow farmland in the Community would be contrary to the general trend of expanding urbanization and declining agriculture in Maricopa and Pinal counties. For example, between 1997 and 2007, the total acreage of farmland in Maricopa County decreased from 742,287 to 485,469 acres, representing a 35 percent reduction.

Mitigation

- Established procedures will be followed in acquisition of permanent irrigation easements and temporary construction easements needed for the project.
- Traffic control devices and/or flaggers will be employed, if needed, to ensure public safety and minimize traffic delays caused by construction.

3.3 VISUAL RESOURCES

3.3.1 Affected Environment

Visual resources are considered from the vantage point of user groups likely to be in the study area. The scenic quality of the study area is typical of areas in central Arizona with comparable landscape and vegetation. Foreground views for the majority of the project alignment are dominated by undeveloped desert and agricultural fields. Scattered residences can be seen from a few of the proposed alignments.

Midground views include views of the generally dry Gila River to the south and west, the generally dry Salt River to the north, and agricultural land to the east. The midground views to the southeast highlight larger tracts of undisturbed natural landscape and the scattered mountains in the background. Though the tracts of undisturbed desert are larger in this area, the vegetation remains somewhat shrubby and sparse, with larger and slightly denser corridors of vegetation along ephemeral washes draining toward the Gila River.

Background views consist primarily of scattered peaks, with undisturbed native desert and numerous ephemeral drainages to the north and west.

3.3.2 Environmental Consequences

No Action

Under the no action alternative, no impacts to the visual character are anticipated.

Proposed Action

This section addresses the impacts of the project on the overall appearance of the study area as well as scenic vistas from public vantage points. The perceived sensitivity level of a particular vantage point must also be considered. Residential land use, for example, is considered to have a higher visual sensitivity level than agricultural land use.

Implementation of the proposed action would further detract from the study area's rural character by introducing newly built elements into the visual setting. Though the character of the proposed construction would be similar to the existing built environment in the study area, the extent and intensity of the aboveground built environment would increase, causing a slight degradation in scenic quality. Because most construction would be underground, minimal degradation is anticipated.

Viewscape is "a visual connection that occurs between a person and the spatial arrangement of landscape features" (Du Toit et al. 1993). The degree of impact would be dependent on such considerations as the sensitivity level of the viewer, the viewer's existing setting and viewscape, and the distance and visibility of project features from the viewer's vantage point. Because concrete canals, wells, and irrigation pipelines already exist in the study area, there would be only a slight change in the existing scenic quality by installing new irrigation infrastructure. Overall, the proposed action would not impact visual resources. The construction of irrigation infrastructure would be cumulative to the past, present, and future project visual resource impacts resulting from agricultural, residential, and other land use development.

Mitigation

No mitigation is proposed.

3.4 ENVIRONMENTAL JUSTICE

3.4.1 Affected Environment

Title VI of the Civil Rights Act of 1964 and related statutes ensure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, and disability. Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which was signed by President Clinton on February 11, 1994, directs that federal programs, policies, and activities do not have disproportionately high and adverse human health and environmental effects on minority (e.g., Native American tribes) and low-income populations.

The majority of the study area consists of agricultural and undeveloped land, with sparsely scattered single-family dwellings. The entirety of the study area is on land under the jurisdiction of the Community. Data from the 2010 U.S. Census (U.S. Census Bureau 2010, American Community Survey 2014) were used for this analysis. Data on minority and low-income (below the 2010 poverty level of \$22,113 for a family of four) populations were obtained. One census tract (CT) covers the study area and vicinity (CT 9410). Census data for this CT were compared with those of Maricopa County and the State of Arizona as a whole.

Following environmental justice guidance (CEQ 1997), minority populations should be identified where either (1) the majority population exceeds 50 percent or (2) the minority population percentage in the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. For this analysis, the appropriate units of geographic analysis were Maricopa County and the State of Arizona. Minority populations, consisting predominately of Native Americans, represented a

majority of the population (94.9% of CT 9410) and were meaningfully higher than the comparison populations in Maricopa County (1.8%) and the State of Arizona (4.4%).

The percent of the population living below the poverty level in CT 9410 (61%) is considered to be meaningfully higher than the comparison population of Maricopa County (13.9%) and the State of Arizona (15.1%). Based on this analysis, CT 9410 is considered a protected population, warranting further analysis.

3.4.2 Environmental Consequences

No Action

Under the no action alternative, there would be no impact on populations or communities defined under EO 12898. Existing conditions would be expected to continue into the foreseeable future.

Proposed Action

Impacts to populations protected under EO 12898 could occur along populated segments of the project footprint. With the proposed action, short-term construction-related impacts on this population would be expected when construction is ongoing in the vicinity of sensitive receptors, including residences. These impacts could include the generation of air pollutants (e.g., dust), an increase in noise levels, public safety risk associated with the construction site, and disruption of traffic patterns associated with the movement of construction material and equipment on public roads. Because these effects would occur within the entire construction area, not just the area adjacent to a protected population, populations protected under EO 12898 would not be disproportionately affected. In accordance with local and regional rules, regulations, and ordinances, mitigation measures would be implemented to minimize these effects throughout the construction area.

Mitigation

See mitigation under the Land Ownership, Jurisdiction, and Land Use; Noise; and Air Quality sections.

3.5 SOCIOECONOMIC CONDITIONS

3.5.1 Affected Environment

The study area is primarily undeveloped or has been developed for agricultural purposes and is sparsely populated. Residential properties and commercial structures are in the study area but not within the project footprint. Land devoted to agriculture varies from active cultivation to fallow fields. The current service area for WS-1E and WS-1F is 4,947 gross acres. The majority of this area was farmed at various times in the past; however, there is not an adequate water supply to support production agriculture for the 4,947 acres. Currently, the Gila River Indian Irrigation and Drainage District well No. 6 provides water to the Co-op Canal and irrigates about 310 acres. Several other wells currently provide irrigation water to about 1,300 acres.

3.5.2 Environmental Consequences

No Action

Under the no action alternative, no additional farmland would be brought into production, and no additional jobs would be created. No residential or commercial displacement would occur.

Proposed Action

The proposed action would not directly result in residential or commercial displacements because no residences or commercial buildings are within the project footprint.

Implementation of the proposed action would result in approximately 3,337 acres of mostly fallow farmland brought into production in the WS service area. This added farmland has the potential to create agricultural jobs and add to the local economy.

Mitigation

No mitigation is proposed.

3.6 INDIAN TRUST ASSETS

3.6.1 Affected Environment

Indian Trust Assets (ITAs) are legal interests in assets held in trust by the United States for federally recognized Native American tribes or individual Native Americans. ITAs can include, but are not limited to, land resources, water rights, minerals, and hunting and fishing rights. The asset need not be owned outright but could be some other type of property interest, such as a lease or a right of use. These assets are held by the United States, with the Secretary of the Interior as the trustee. By definition, ITAs cannot be sold, leased, or otherwise encumbered without approval of the United States. It is the general policy of the Department of the Interior to perform its activities in ways that protect ITAs and avoid adverse effects whenever possible.

The Arizona Water Settlements Act waters, including the 1903 Haggard Decree waters, are considered ITAs. In the study area, allotted or tribal lands that would be affected by construction or put into production as a result of the proposed project are also considered ITAs.

3.6.2 Environmental Consequences

No Action

Under the no action alternative, WS-1E and WS-1F would not be constructed. Without construction new land would not be put into agriculture production.

Proposed Action

With water as a primary ITA, consideration was given to the project's potential to impact irrigation water quality and availability. The project would not alter Gila River water supplies available for diversion and would not interfere with irrigation water delivery. The value of any new lands that are put into agricultural production, approximately 3,337 acres, as a result of the project would be enhanced. Implementation of the proposed action would require the acquisition of PIE and/or TCEs from tribal and/or allotted lands. Allottees and the tribal council must give

consent to such acquisitions. The Bureau of Indian Affairs would be responsible for compensating the tribe or allottees for PIE and/or TCE acquisition.

Mitigation

No mitigation is proposed.

3.7 CULTURAL RESOURCES

Cultural resources are properties that reflect the heritage of local communities, states, and nations. Properties judged to be significant and to retain sufficient integrity to convey that significance are termed “historic properties” and are afforded certain protections in accordance with state and federal legislation. The National Historic Preservation Act (NHPA) defines historic properties as sites, buildings, structures, districts, and objects included in, or eligible for inclusion in, the National Register of Historic Places (NRHP), as well as the artifacts, records, and remains related to such properties. “Traditional cultural properties” (including sacred sites) having heritage value for contemporary communities (often, but not necessarily, Native American groups) also can be listed in the NRHP because of their association with historic cultural practices or beliefs that are important in maintaining the cultural identities of such communities.

Section 106 of the NHPA requires federal agencies to take into account the effects of their activities and programs on NRHP-eligible properties. Regulations for Protection of Historic Properties (36 CFR Part 800), which primarily implement Section 106, were most recently amended in 2004. These regulations define a process for responsible federal agencies to consult with the State Historic Preservation Office (SHPO) or the Tribal Historic Preservation Office (THPO), Native American groups, other interested parties, and, when necessary, the Advisory Council on Historic Preservation to ensure that historic properties are duly considered as federal projects are planned and implemented.

3.7.1 Affected Environment

The following sections describe relevant culture history and previously recorded cultural resources in the study area.

Culture History

This section briefly summarizes the culture history of the study area. Human utilization of Southern Arizona spans the past 11,500 years. Nine main chronological periods (Paleo-Indian, Archaic, Early Formative, Pioneer, Colonial, Sedentary, Classic, Protohistoric, and Historic) have been recognized; each is characterized by different social and cultural attributes (Figure 4). More detailed overviews can be found in Bayman 2001, Berry and Marmaduke 1982, Bronitsky and Merritt 1986, Crown and Judge 1991, Fish 1989, Fish and Fish 2008, and Gumerman 1991.

YEAR	PERIOD		PHASE	
A.D. 1900	HISTORIC	Late	American Era	Blackwater
A.D. 1800		Early	Hispanic Era	
A.D. 1700	PROTOHISTORIC		-	Bachi
A.D. 1600				
A.D. 1500	<i>Boundary not well defined</i>			
A.D. 1400	CLASSIC		Polvorón?	
A.D. 1300			Civano	
A.D. 1200			Soho	
A.D. 1100	SEDENTARY		Santan	
A.D. 1000			Sacaton	
A.D. 900	COLONIAL		Santa Cruz	
A.D. 800			Gila Butte	
A.D. 700	PIONEER		Snaketown	
A.D. 600			Estrella/Sweetwater	
A.D. 500	EARLY FORMATIVE		Vahki	
A.D. 400				
A.D. 300				
A.D. 200			Red Mountain	
A.D. 100	<i>Undefined Boundary</i>			
<<<<<<	ARCHAIC	Late Archaic		-
100 B.C.		Early Agricultural		
500 B.C.				
1000 B.C.				
2000 B.C.		Middle		-
3000 B.C.			-	
5000 B.C.			-	
7000 B.C.	Early		-	
9000 B.C.	PALEO-INDIAN			
10,000 B.C.				

Figure 4. Chronological periods and phases defined for the study area

The Paleo-Indian, Archaic, and Early Formative Periods

Evidence of occupation during the Paleo-Indian period (ca. 10,000–8,500 B.C.) and Early Archaic periods (ca. 8,500–5000 B.C.) has been elusive in the Community (Huckell 1984a, 1984b). The first definitive evidence of human habitation along the middle Gila River dates to the Middle Archaic period. Recent work on the Community (Bubemyre et al. 1998, Neily et al. 1999, Woodson and Davis 2001) has documented Middle Archaic period sites, and numerous surface finds of projectile points suggest the widespread use of the Phoenix Basin during this period (Loendorf and Rice 2004). Beginning around 1500 B.C., during the Late Archaic period, the first agricultural villages were established in the Sonoran Desert, mainly in southern Arizona (Diehl 2003, Mabry 1998, Matson 1991, Sliva 2003). Comparable preceramic semisedentary horticultural settlements have not been identified in the middle Gila Valley.

The succeeding Early Formative period (roughly A.D. 1–600) is characterized by small, seasonally occupied hamlets and more widespread use of plain ware pottery in the region. However, pottery was not as widely used as in the later Hohokam occupations, and the range of types produced was comparatively limited (Garraty 2011, Whittlesey and Ciolek-Torrello 1996). Current evidence suggests that specialized pottery production began by around A.D. 450 in the vicinity of South Mountain (Abbott 2009).

The Hohokam Sequence

The many antecedents of Hohokam cultural attributes imply *in situ* development of Hohokam society from earlier Archaic period populations (Bayman 2001, Cable and Doyel 1987, Doyel 1991, Wallace et al. 1995, Wilcox 1979). The Hohokam sequence begins with the Pioneer period (ca. A.D. 650–700), which is marked by the introduction of decorated pottery (Ciolek-Torrello 1995, Wallace et al. 1995, Whittlesey 1995). Over the next five centuries, residents of the middle Gila River valley manufactured decorated pottery on a large scale and supplied it throughout the Phoenix Basin, including the Salt River valley to the north (Abbott 2009). The Hohokam tradition initially appeared in the Phoenix Basin and was characterized by the development of large-scale irrigation agriculture, red-on-buff pottery, a distinctive iconography, exotic ornaments and artifacts, a cremation mortuary complex, and larger as well as more complex settlements (Fish 1989, Howard 2006).

During the Colonial period (ca. A.D. 700–900), villages became more formalized, and groups of houses were arranged around central courtyards (Wilcox et al. 1981). Villages consisted of multiple courtyard groups organized around a large central plaza used for communal gatherings and a cemetery (Abbott and Foster 2003, Fish 1989, Howard 2006, Wilcox et al. 1981). Larger villages contained ballcourts, which likely functioned as loci of intercommunity ceremonial activities and public gatherings. Agricultural intensification occurred in the subsequent Sedentary period (ca. A.D. 900–1150), a time when marketplaces may have emerged and the ballcourt system reached its maximum extent, with more than 230 courts spread across much of central and southern Arizona (Abbott 2009, Abbott et al. 2007, Bayman 2001, Wilcox and Sternberg 1983).

The transition to the Classic period (ca. A.D. 1150–1400) is evidenced archaeologically by various dramatic social, cultural, and economic changes, including changes in burial practices from cremation to inhumation, the replacement of semisubterranean pit-houses with surface

structures and walled compounds, and a shift from a focus on red-on-buff pottery to red wares (Bayman 2001; Crown 1994; Doyel 1974, 1980, 1991). The scale of regional interaction and exchange also contracted drastically at this time (Abbott 2009, 2010; Abbott et al. 2007), giving way to more localized patterns of interaction along the various canal systems and the middle Gila River and lower Salt River valleys (Abbott 2000). This span also witnessed the decline of the extensive ballcourt system, which was replaced by widespread construction of platform mounds in the larger villages (Abbott 2003, 2006; Abbott et al. 2007; Bayman 2001).

The end of the Classic period around A.D. 1450 is marked by the collapse of the platform mound system and the abandonment of many Hohokam sites along the lower Salt River (Ravesloot et al. 2009). Possible explanations for these dramatic changes include salinization of fields, epidemics, overpopulation, warfare, and various climatic calamities, such as flooding and drought (Abbott 2003, Bayman 2001, Dean 2000, Ezell 1983, Graybill et al. 2006, Grebinger 1976, Haury 1976, Hegmon et al. 2008, Mindeleff 1897, Ravesloot et al. 2009, Redman 1999, Reid and Whittlesey 1997, Wilcox 1991). These explanations are not mutually exclusive, and likely some combination of factors was responsible for these changes.

The Protohistoric and Historic Period

The Protohistoric period (ca. A.D. 1500–1700) is generally defined as the interval between the end of the Hohokam Classic period and the earliest evidence of Spanish contact (Wells 2006, Whittlesey et al. 1998). Unfortunately, archaeological evidence of Protohistoric period occupation has been elusive in southern Arizona, and few archaeological sites on the reservation can be firmly assigned to this time span. Historic documents indicate the presence of settlements in the vicinity of the Casa Blanca settlement, along the Gila River between Pima and Gila buttes (Wilson 1999). It is possible that subsurface evidence of Protohistoric period occupation would be encountered in the study area, though settlement more likely was concentrated farther south, closer to the Gila River.

The Historic period is traditionally defined to encompass a span for which written records became available, from about A.D. 1694 to 1950. The first definitive European contact occurred in A.D. 1694, when Father Kino visited the Akimel O’odham villages along the middle Gila River (Ezell 1983, Russell 1908, Wilson 1999). The Akimel O’odham did not experience intensive colonial contact during the Hispanic era (A.D. 1694–1853), however, and interactions were mainly limited to parties traveling through the territory or community members visiting the European settlements to the south. Nevertheless, the Akimel O’odham and possibly Pee Posh communities along the middle Gila River were indirectly affected by introduced European elements, such as new cultigens (e.g., wheat), religious practices, livestock, metal, and especially disease (Ezell 1983; Shaw 1994, 1995; Wells 2006).

The American era (A.D. 1853–1950) began in 1853 with the Gadsden Purchase, when southern Arizona officially became part of the United States (Ezell 1983). Starting in the 1850s, new market opportunities arose to supply grain to the military and to Euro American immigrants heading for California, which benefitted Akimel O’odham and Pee Posh farmers in the region (DeJong 2009, Doelle 1981, Ezell 1983, Hackenberg 1983, Russell 1908). The Community was established soon after in 1859. By the 1870s and 1880s, churches, schools, and trading posts were established at Casa Blanca and Sacaton, which led to the growth of these villages as administrative and commercial hubs on the Community (Webb 1959, Wilson 1999). Around the

same time, the BIA constructed an agency headquarters (Pima Agency) in Sacaton, which, starting in the early 1900s, initiated and oversaw the allocation of agricultural allotments to Akimel O’odham and Pee Posh households on the community.

Starting in the late 1800s, following the establishment of the Pima Agency, the U.S. government placed acculturative pressures on the Akimel O’odham and the Pee Posh, which affected their traditional livelihoods and culture. Since World War II, however, the Akimel O’odham and Pee Posh have experienced a resurgence of interest in tribal sovereignty and economic development. The community has now become a self-governing entity, has developed several profitable enterprises in fields such as telecommunications, and has built several casinos. The tribe has also worked to revitalize its farming economy by constructing a water delivery system across the reservation (Ravesloot et al. 2009).

3.7.2 Environmental Consequences

Previously Recorded Cultural Resources

At Reclamation’s request, the Community Cultural Resource Management Program (CRMP) completed a Class I overview (archival records review) for the subject undertaking to identify all previous archaeological investigations and documented cultural resources within 1/8 mile of the area of potential effects (APE) as initially defined (Letter report: Woodson [Community CRMP] to Czaplicki [Reclamation] 7 May 2014). The APE and 1/8-mile buffer, which was used to accommodate any revisions to the original project limits, are hereinafter referred to as the cultural study area.

In accordance with the 2012 revised Programmatic Agreement (Appendix B) among the Community, Reclamation, SHPO, and the Advisory Council on Historic Preservation regarding “Treatment of Cultural Resources Affected by Development of the P-MIP on the Gila River Indian Reservation,” Reclamation consulted with the Community THPO on the adequacy, results, and recommendations of the Class I overview (Smith [Reclamation] to Lewis [Community THPO] 21 May 2014; Community THPO concurrence 5 June 2014) (Appendix C). In consideration of the Class I results, a Treatment Plan (Fertelmes and Woodson 2014) was prepared to address the need for additional intensive survey, identification and extent testing, and phased data recovery as warranted. The final APE and affected cultural resources were identified in the Treatment Plan and form the basis for the following discussion. Reclamation consulted with the Community THPO on the adequacy of, and recommendations presented in, the Treatment Plan (Smith [Reclamation] to Lewis [Community THPO] 20 November 2014; Community THPO concurrence 1 December 2014) (Appendix D).

The final APE is defined as being coincident with the project limits along 11 canal segments. The right-of-way for each of these canals is composed of a PIE and a TCE. The PIE encompasses the area of impact related to the canal construction and future maintenance. The TCE is a temporary buffer zone surrounding the PIE. Substantial ground disturbances are not expected in the TCE, but impacts to cultural resources in this area are possible as a result of the movement of equipment and laborers, hauling materials, and construction of temporary access roads or facilities. All of the canals will be built as pipelines with an 85-foot-wide right-of-way corridor, consisting of a 45-foot-wide PIE and a 20-foot-wide TCE on either side of PIE. The APE for the 11 P-MIP WS Canals totals approximately 144.6 acres. This APE includes both

tribal (133.2 acres) and allotted (private) (11.3 acres) land within the Community reservation boundary.

Previous cultural resources investigations in the P-MIP WS cultural study area have covered almost the entire APE (138.0 acres; 95.4%), and have documented a total of 12 cultural resources (Table 2 and Appendix E). The majority of the survey was completed as part of previous P-MIP investigations (Ensor and Doyel 1997, with other areas surveyed in advance of residential development; the Class I overview lists all prior investigations in the cultural study area. A small portion (6.6 acres; 4.6%) of unsurveyed land in the APE occurs alongside Reach WS-IE in Section 20, Township 1 South, Range 2 East; this area will be subjected to intensive, systematic pedestrian survey in accordance with the above-referenced Treatment Plan in advance of construction and any historic properties found therein treated in accordance with the plan. The 12 previously documented cultural resources within the APE consist of nine archaeological sites (GR-977, GR-983, GR-1028, GR-1057, GR-1058, GR-1059, GR-1061, GR-1066, and GR-1080), two unnamed laterals of the historic-modern Western Canal (AZ T:12:154 [ASM]), and one historically documented Euro-American well. Six of the cultural resources (GR-977, GR-983, GR-1057, and GR-1080) have been determined eligible for inclusion in the NRHP and, therefore, are identified as historic properties. The other six cultural resources require further investigation to evaluate their NRHP eligibility status.

Table 2. Cultural resources within the area of potential effects for construction of the P-MIP Westside Canals

GR No.	Other Site Name/No.	Site Type	Cultural/Temporal Affiliation	NRHP Status	References
977	Canal Primero—South Branch; Canal Three	Canal	Hohokam/Prehistoric, undefined	Eligible (D)	Howard 1992, Midvale 1968, Lack and Burden 2014
983	–	Habitation	Akimel O’odham, Pee Posh/Late Historic	Eligible (D)	Baldwin et al. 2005
1028	–	Habitation	Akimel O’odham, Pee Posh/Late Historic	Additional investigation required	Ensor and Doyel 1997
1057	Villa Buena; AZ T:12:9 (ASM); AZ T:12:3 (ASU); NA15677	Village with trash mounds, platform mound, ballcourts, and artifact scatters	Hohokam/Colonial to Sedentary	Eligible (A, C, and D)	Ensor and Doyel 1997; Foster 2000; Foster and Ravesloot 1999; Huckell 1981; Kaler 1986a, 1986b; Darling and Loendorf 2012; Midvale 1968; Morgan 2004; Morgan and Darling 2001; Randolph and Greenspan 2003; Rinker 2001; Rinker and Foster 2000; Sires 1986; Stafford 1979; Turney 1929a; Wilcox and Sternberg 1983
1058	–	Artifact scatter	Hohokam/Colonial to Sedentary	Additional investigation required	Ensor and Doyel 1997, Darling 2010

Table 2. Cultural resources within the area of potential effects for construction of the P-MIP Westside Canals

GR No.	Other Site Name/No.	Site Type	Cultural/Temporal Affiliation	NRHP Status	References
1059	AZ T:12:52 (ASU)	Habitation	Akimel O'odham, Pee Posh/Late Historic	Additional investigation required	Ensor and Doyel 1997
1061	–	Artifact scatter	Hohokam/Colonial to Sedentary	Additional investigation required	Ensor and Doyel 1997, Greenspan 2003
1066	–	Artifact scatter	Akimel O'odham, Pee Posh/Late Historic	Additional investigation required	Ensor and Doyel 1997
1080	Co-operative Canal	Canal	Pee Posh/Historic, undefined	Eligible (D)	Doyel and Ensor 1997, Ensor and Doyel 1997, Morgan 2004, Southworth 1914, USGS 1952
–	Lateral of Western Canal; AZ T:12:154 (ASM)	Canal	Euro-American/Late Historic	Eligible (D)	USGS 1952
–	Lateral of Western Canal; AZ T:12:154 (ASM)	Canal	Euro-American/Late Historic	Eligible (D)	USGS 1952
–	Well	Water-management feature	Euro-American/Late Historic	Additional investigation required	USGS 1952

No Action

Under the no action alternative, it is assumed that current limited agricultural production would continue and that there would be no effect to historic properties (cultural resources listed on, or eligible for listing on, the NRHP).

Proposed Action

As noted above, the small amount of unsurveyed area within the APE will be subjected to intensive, systematic pedestrian survey in accordance with the above-referenced Treatment Plan in advance of construction and any historic properties found therein treated in accordance with the Plan. Implementation of the proposed action would adversely affect a number of NRHP eligible or potentially NRHP eligible cultural resources in the cultural study area (Table 3). To mitigate these effects, the above-referenced Treatment Plan was developed and will be implemented in accordance with the 2012 revised Programmatic Agreement.

Table 3. Treatment of cultural resources within the area of potential effects for construction of the P-MIP Westside Canals

GR No.	Other Site Name/No.	NRHP Status	Management Recommendation	Area in APE (meters ²)
977	Canal Primero—South Branch; Canal Three	Eligible (D)	No adverse effect (mitigated); proceed—no further investigation	167
983	–	Eligible (D)	No adverse effect (mitigated); proceed—no further investigation	630
1028	–	Additional investigation required	Possible adverse effect; eligibility testing	1,126
1057	Villa Buena	Eligible	Adverse effect	50,310
	AZ T:12:9 (ASM); AZ T:12:3 (ASU); NA15677	A, C, and D	Phase I data testing followed by Phase II, as warranted	
1058	–	Additional investigation required	Possible adverse effect; eligibility testing	14,334
1059	AZ T:12:52 (ASU)	Additional investigation required	Possible adverse effect; eligibility testing	6,164
1061	–	Additional investigation required	Possible adverse effect; identification/eligibility testing	4,350
1066	–	Additional investigation required	Possible adverse effect; eligibility testing	790
1080	Co-operative Canal	Eligible (D)	No adverse effect (mitigated); proceed—no further investigation	20,640
–	Lateral of Western Canal; AZ T:12:154 (ASM)	Eligible (D)	No adverse effect; proceed—no further investigation	260
–	Lateral of Western Canal; AZ T:12:154 (ASM)	Eligible (D)	No adverse effect; proceed—no further investigation	52
–	Well	Additional investigation required	No adverse effect; proceed—no further investigation	N/A

The Treatment Plan calls for archaeological survey, identification testing, NRHP eligibility testing, and phased data recovery as warranted. The specific work effort is as follows:

- A Class III (systematic, pedestrian) cultural resources survey will be conducted for a portion (6.7 acres) of the APE along Reach WS-IE in Section 20, Township 1 South, Range 2 East. The purpose of the survey is to augment the current assessment of the nature and scope of historic properties within the APE (per 36 CFR Part 800.4B).
- Cultural resources identification testing is planned for archaeological site GR-1061. A preliminary review of archaeological site files indicates that GR-1061 potentially extends into the APE for Reach WS-IE. The purpose of the identification testing is to determine whether significant archaeological data elements are present within the APE (per 36 CFR Part 800.4B).
- NRHP eligibility testing is planned for four archaeological sites (GR-1028, GR-1058, GR-1059, and GR-1066) that require further data to evaluate their NRHP eligibility status. The

testing will be limited to the portion of these sites within the APE. The purpose of the testing is to evaluate the historical significance and integrity of archaeological resources in the APE (per 36 CFR Part 800.4C).

- Phase I data recovery is planned for GR-1057 (Villa Buena). This site is a large prehistoric Hohokam village that is eligible for inclusion in the NRHP under Criteria A, C, and D. The purpose of the work is to gather the information necessary for assessing the nature, diversity, and integrity of NRHP data-contributing elements within the APE, and from these results, to develop a Phase II data recovery plan that will mitigate the adverse effects of the proposed undertaking on GR-1057 (per 36 CFR Part 800.6A).

No further investigations are required for GR-977, GR-983, GR-1080, two unnamed laterals of the Historic period Westside Canal (AZ T:12:254 [ASM]), and an unnamed Historic period Euro-American well. GR-977, GR-983, and GR-1080 have been sufficiently documented and require no further investigation. No further investigation of the Euro-American canals is necessary because the proposed undertaking will have not have an adverse effect on these features. Lastly, surface indications of the well are no longer present in the APE, suggesting that the feature lacks integrity.

Mitigation

- No ground disturbance will begin until the Treatment Plan and any supplemental Phase II data recovery plans have been implemented in accordance with the stipulations of the 2012 revised Programmatic Agreement for the treatment of cultural resources affected by P-MIP.

3.8 GEOLOGY AND SOILS

3.8.1 Affected Environment

The project footprint is in the Lower Colorado River Valley Subdivision of the Sonoran Desertscrub portion of the Basin and Range Physiographic Province in Maricopa County, Arizona (Brown 1994). The Sonoran Desert evolved after millions of years of volcanic eruption, uplift, mountain building, and faulting. The Basin and Range topography is the result of Pliocene and Miocene east–west–directed extensional tectonic movement (spreading) creating north–south–oriented mountain ranges with intervening north–south–oriented desert plains (USGS 2014a). This province is characterized by broad, subparallel mountain ranges. Young alluvium and alluvium with less abundant talus and eolian deposits (Arizona Geological Survey 2000) characterize much of the project footprint. The study area is between the Salt River to the north and the Gila River to the south and west; both are meandering, braided streams that are characteristic of more mature topography.

Land subsidence in the basins of Arizona is generally due to compaction of the alluvium caused by lowering of the water table. As the water table declines, pores in the alluvium once held open by water pressure are no longer supported and collapse. Collapse and subsequent lowering in elevation of the land surface is defined as land subsidence. According to the Arizona Department of Water Resources Arizona Land Subsidence Map, the project area is not located in an area where land subsidence has occurred. The Basin and Range seismic source zone extends from Mexico into southern California and includes most of southwestern and central Arizona, including the project footprint. With no known history of earthquake activity, the project

footprint is considered tectonically stable, with low levels of seismic activity and no active faults (USGS 2014b).

Six main soil types occur in the project footprint: Casa Grande; Glenbar; Laveen; Shontik-Redun complex; Trix; and Yahana-Indio complex (NRCS 2014). These soil complexes are commonly referred to as sandy loams and loamy alluviums with minor amounts of silt loam, and are characterized by sands, gravels, and silty clays, which allow a moderate absorption of storm water to seep into the group. These are well-drained soils, runoff is medium, and the hazard of water erosion is slight to moderate. No hydric soils or wetlands were mapped within the project footprint (Arizona Game and Fish Department [AGFD] 1978, NRCS 2014).

3.8.2 Environmental Consequences

No Action

Under the no action alternative, undeveloped lands would not be disturbed by construction activities. Fallow agricultural fields and undeveloped lands would not be developed and would continue to slowly erode.

Proposed Action

The potential for land subsidence and earth fissuring would not increase because the proposed action would not contribute to ground water level declines. The proposed action would not likely be affected by seismic activity because of the low seismic potential in the area.

With the proposed action, materials generated from project excavation would be largely offset by fill requirements associated with forming the O&M roads and other support facilities along the proposed PIE. Any excess excavated materials would be transported to adjacent construction areas with fill requirements. The project has been designed to balance the earthwork. Depending on scheduling, some excavated material may need to be temporarily stockpiled until needed for construction. These temporary stockpiles would be within the designated PIE and TCE. Excess excavation is not anticipated. If unanticipated excess materials are encountered during construction, such as unsuitable material, these materials would be spoiled within the PIE along the O&M roads. If there is not adequate room for the unanticipated excess material within the PIE, it would need to be spoiled at approved sites.

The proposed action would directly disturb surface soils within the project footprint as a result of the removal of vegetation, operation of large equipment, and the use of trucks to transfer sediment to storage areas, increasing the potential for soil erosion and sedimentation. Erosion control measures, including physical barriers and post-construction site stabilization, would be used to control storm water runoff and associated sedimentation. With the use of these measures and because of the coarse nature of the sediment piles, soil erosion and sedimentation from the sediment piles would constitute a minor but ongoing effect of project operations. These effects would be incremental to historic, ongoing, and future uses in the study area.

Mitigation

- Erosion control measures and post-construction site stabilization will be implemented within the project footprint, as necessary.

- Structural barriers or best management practices will be used to prevent the removed sediment from discharging downstream.
- Any excess materials will be spoiled within the PIE or in an approved disposal site.

3.9 WATER RESOURCES AND WATER QUALITY

3.9.1 Affected Environment

The study area is within the Middle Gila River watershed. The Gila River flows south of the study area from east to west–southwest. Several small, unnamed ephemeral washes outfall to the Gila River in the project footprint. The Salt River flows north of the study area from east to west as well.

The 649-mile Gila River originates in western New Mexico, flows generally west–southwest across Arizona, and outlets in the Colorado River near the city of Yuma, Arizona. In its upper reaches, the Gila River is free-flowing. Coolidge Dam, approximately 75 miles upstream of the study area, is the only major dam on the Gila River. Stream flow within the Gila River upstream of the Ashurst–Hayden Diversion Dam is highly variable and dependent on upstream releases from Coolidge Dam, flows from tributaries, including the San Pedro River (downstream of Coolidge Dam), and precipitation in the area.

The Salt River is the largest tributary of the Gila River. The portion of the Salt River below the Granite Reef Diversion Dam, 22 miles north of downtown Phoenix, is within the Middle Gila River watershed. Below the dam, the Salt River is a dry riverbed, except following rain or upstream runoff (Arizona Department of Environmental Quality 2014).

Currently, the Gila River Indian Irrigation and Drainage District well No. 6 provides water to the Co-op Canal and irrigates about 310 acres in the study area. Several other wells provide irrigation water to about 1,300 acres.

3.9.2 Environmental Consequences

No Action

Under the no action alternative, fallow agricultural fields and undeveloped lands would continue to slowly erode.

Proposed Action

Temporary impacts to surface water quality could result due to construction activities. Excavation materials would be stockpiled away from the laterals and natural drainages to minimize the risk of unintentional transport of excavated materials into surface water supplies. Project construction would require the short-term use of fuels, lubricants, and other fluids to operate construction equipment, which would have the potential to contaminate water resources. The use, storage, and disposal of these materials would be in accordance with federal and state regulations to minimize potential impacts to water resources and downstream water quality.

A high ground water table in the study area is high in dissolved solids and minerals (Stantec 2013). The use of fertilizers and pesticides on farmland can be a source of pollutants to the water

supply. With project implementation, the volume of fertilizers and pesticides applied to cultivated lands in the service area would vary from year to year, proportionate to the number of acres cultivated. The cultivation of additional farmland may have a negligible impact on the quality of ground water and associated potable water supplies as a result of the project.

In accordance with Section 402 of the Clean Water Act, because more than 1 acre of land would be disturbed, a National Pollutant Discharge Elimination System permit would be required. The contractor would be required to prepare a Storm Water Pollution Prevention Plan to identify temporary and permanent measures to prevent erosion.

Increased agricultural activity would increase the potential for salts from irrigation water to percolate into ground water aquifers, negatively affecting water quality. Salt buildup is managed on agricultural fields by farmers, who apply additional water to the fields, as needed, to leach salt out of the plant root zone. The effects of the additional use of fertilizers and pesticides, as well as the increase of salt in the ground water, would be incremental to historic, ongoing, and future uses in the project footprint.

Mitigation

- A National Pollutant Discharge Elimination System Permit Notice of Intent will be filed with the U.S. Environmental Protection Agency (EPA) prior to construction.
- In accordance with the National Pollutant Discharge Elimination System Permit requirements, a Storm Water Pollution Prevention Plan will be prepared, approved, and available for inspection prior to construction.

3.10 FLOODPLAINS AND FLOODING

3.10.1 Affected Environment

EO 11988, Floodplain Management, which was signed by President Carter on May 24, 1977, requires federal agencies to avoid, where practicable alternatives exist, the short- and long-term adverse impacts associated with floodplain management. In carrying out its responsibilities, 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. The 100-year floodplain has not been delineated on the Reservation.

Surface drainage patterns in the study area consist of wide, shallow sheet flow and shallow, concentrated sheet flow areas that generally drain northwest and/or west. Several drainage pathways separated by high ridges allow surface water to drain to the Gila River (Stantec 2013). Some off-site drainage crosses the Community boundary and flows across the study area. According to the Laveen Area Drainage Master Plan, 100-year off-site drainage exceeds the SRP tailwater capacity (Flood Control District of Maricopa County 2001). When the SRP tailwater ditch capacity is exceeded, the drainage flow breaks out and drains across the study area as shallow concentrated and sheet flow.

3.10.2 Environmental Consequences

No Action

No changes to the current flooding regime or alterations to the current floodplain would result from the no action alternative.

Proposed Action

Construction of the proposed action is not expected to alter the current or future floodplain or contribute to downstream flooding.

Mitigation

No mitigation is proposed.

3.11 BIOLOGICAL RESOURCES

3.11.1 Affected Environment

The study area lies between 1,000 and 1,065 feet in elevation¹ on relatively flat, gently westerly sloping terrain in the Gila River Valley. The Gila River is as close as 1 mile south and west of the study area, and the Salt River is 1.2 miles north of the study area. The two rivers converge approximately 4 miles northwest of the study area. The study area is mostly developed for agricultural use, though there is some residential and commercial development. Overall, little natural vegetation or terrain exists.

Vegetation

The study area consists of active and fallow agricultural fields; related infrastructure, including access roads and irrigation canals; and limited residential development interspersed with natural terrain and native plants. The native plant community in the area is classified as Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community (Brown 1994). Plants of undeveloped areas include four-wing saltbush (*Atriplex canescens*), wolfberry (*Lycium* spp.), triangle-leaf bursage (*Ambrosia deltoidea*), paloverde (*Parkinsonia* spp.), desert broom (*Baccharis sarothroides*), mesquite (*Prosopis* spp.), globemallow (*Sphaeralcea* sp.), creosote bush (*Larrea tridentata*), and saguaro (*Carnegiea gigantea*), though these are rare. Other species present in “disturbed” areas, including access roads, consist of Bermuda grass (*Cynodon dactylon*), carelessnessweed (*Amaranthus palmeri*), puncturevine (*Tribulus terrestris*), Russian thistle (*Salsola kali*), Southern goldenbush (*Isocoma pluriflora*), trailing four o’clock (*Allionia incarnata*), and annual shrubs and grasses. Robust stringers of mesquite and saltcedar (*Tamarix* spp.), are present along small portions of the project footprint, especially where agricultural irrigation water runoff is directed.

Wildlife

Due to previous ground disturbance, most of the study area consists of low-quality wildlife habitat. This habitat is concentrated beyond the edges of the roads along the canals and where

¹ Elevation in this document is referenced to mean sea level.

vegetation has been allowed to establish in the canals. Surrounding areas, such as agricultural fields and residential developments, may include marginal habitat for small mammals and birds. Native desert habitat supports various levels of wildlife use.

Some examples of wildlife expected to inhabit the natural desert in the study area are zebra-tailed lizards (*Callisaurus draconoides*), rattlesnakes (*Crotalus* spp.), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbits (*Lepus californicus*), round-tailed ground squirrels (*Xerospermophilus tereticaudus*), mice (*Peromyscus* spp.), javelina (*Pecari tajacu*), and coyotes (*Canis latrans*). Breeding birds may include Cooper's hawk (*Accipiter cooperii*), Gambel's quail (*Lophortyx gambelii*), mourning dove (*Zenaida macroura*), Gila woodpecker (*Melanerpes uropygialis*), curve-billed thrasher (*Toxostoma curvirostra*), phainopepla (*Phainopepla nitens*), verdin (*Auriparus flaviceps*), burrowing owl (*Athene cunicularia hypugea*), and roadrunner (*Geococcyx californianus*) (Brown 1994). Many of these species probably use the agricultural fields and canal access roads. The agricultural fields likely attract wildlife due to the increased presence of water.

Migratory Birds

The study area supports migratory bird breeding habitat, including potential nesting support structures for many species and the burrows of Western burrowing owls.

Western Burrowing Owl

In Arizona, the Western burrowing owl occurs in open areas, generally year-round, with only a few winter records on the Colorado Plateau in the northeast part of the state. They are known from the Navajo Nation, broad valleys near Seligman, along the bottomlands of the Colorado River, the lower Colorado River Valley, the Yuma area, south and southeast Arizona, and in agricultural areas of Maricopa County (deVos 1998).

Their habitat is variable in open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands, often associated with burrowing mammals. They are sometimes found in open areas such as vacant lots near human habitation, golf courses, or airports (deVos 1998).

Federally Listed Species

The U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation (IPaC) System website was accessed on October 1, 2014, to obtain an official list of federally protected species with the potential to occur within the project footprint (USFWS 2014) (Appendix F). The list was reviewed by a qualified biologist (Patrick E.T. Dockens, EcoPlan Associates, Inc.) to determine which species may occur within the project footprint (Table 4).

Table 4. USFWS listed, proposed, and candidate species; their habitat requirements; and potential for occurrence.

Name	Status	Habitat Requirements	Potential for Occurrence
Birds			
<p>California least tern <i>Sterna antillarum browni</i></p>	E	<p>Nesting habitat includes open, bare, or sparsely vegetated sand, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, or drainage systems.</p> <p>Elevation: <2,000 feet.</p>	<p>California least terns are considered a rare visitor to Arizona, typically only present due to storm activity forcing them from their normal range in California into Arizona. California least terns have never been detected in the study area. The immediately adjacent Gila and Salt river floodplains contain marginally suitable foraging habitat, though areas with water impoundments, such as recharge basins or Tempe Town Lake, are much more typical foraging habitat in Arizona. However, it is highly unlikely that least terns would occur in the study area, even temporarily.</p> <p><i>Very low potential for occurrence and most likely only as a transient individual.</i></p>
<p>Southwestern willow flycatcher <i>Empidonax traillii extimus</i></p>	E	<p>Cottonwood/willow and saltcedar vegetation communities along rivers and streams.</p> <p>Elevation: <8,500 feet.</p>	<p>No suitable habitat is present. The closest dense thickets of riparian vegetation occur along the Gila and Salt rivers, at least 1 mile north and southwest of the study area, respectively. The nearest known occurrences are approximately 4 miles away at the confluence of the Salt and Gila rivers (AGFD 2014a). No designated critical habitat occurs in the study area.</p> <p><i>No potential for occurrence.</i></p>
<p>Sprague's pipit <i>Anthus spragueii</i></p>	C	<p>Strong preference to native grasslands with vegetation of intermediate height and lacking woody shrubs.</p> <p>Elevation: <5,000 feet.</p>	<p>The study area contains potentially suitable wintering habitat. Rare, wintering individuals have been known to use grass and alfalfa fields near Phoenix (AGFD 2010).</p> <p><i>Low potential for occurrence.</i></p>
<p>Yellow-billed cuckoo <i>Coccyzus americanus</i></p>	T	<p>Large blocks of riparian woodlands. Cottonwood, willow, or tamarisk galleries.</p> <p>Elevation: <6,500 feet.</p>	<p>No suitable habitat is present. The closest dense thickets of riparian vegetation occur along the Salt and Gila rivers, at least 1 mile north and west of the study area, respectively. The nearest known occurrences are approximately 4 miles away at the confluence of the Salt and Gila rivers (AGFD 2014b). No proposed critical habitat occurs in the study area.</p> <p><i>No potential for occurrence.</i></p>
<p>Yuma clapper rail <i>Rallus longirostris yumanensis</i></p>	E	<p>Fresh water and brackish marshes.</p> <p>Elevation: <4,500 feet.</p>	<p>No suitable habitat is present. The closest large stands of cattails occur along the Gila and Salt rivers, at least 1 mile north and west of the study area, respectively. The nearest known occurrences are approximately 4 miles away at the confluence of the Salt and Gila rivers (AGFD 2014c).</p> <p><i>No potential for occurrence.</i></p>

Table 4. USFWS listed, proposed, and candidate species; their habitat requirements; and potential for occurrence.

Name	Status	Habitat Requirements	Potential for Occurrence
Fishes			
Roundtail chub <i>Gila robusta</i>	C	Cool to warm waters of rivers and streams; often occupy the deepest pools and eddies of large streams. Elevation: 1,000 to 7,500 feet.	The study area is outside the current range of the roundtail chub. The nearest known populations are in the canal system near the Granite Reef Diversion Dam on the Salt River, approximately 35 miles northeast of the study area (AGFD 2002). <i>No potential for occurrence.</i>
Mammals			
Lesser long-nosed bat <i>Leptonycteris curasoae yerbabuena</i>	E	Desertscrub habitat with agave and columnar cacti present as food plants. Elevation: 1,600 to 11,500 feet.	Food plants, such as saguaro, are present in the study area, though they are rare at best. The project falls within the foraging range of bats occupying the closest roost, approximately 45 miles to the south; however, occurrence is unlikely because no individuals have ever been detected in the vicinity, and food plants are rare (USFWS 2008, AGFD 2014d). <i>Very low potential for occurrence.</i>
Sonoran pronghorn <i>Antilocapra americana sonoriensis</i>	E	Arizona Upland and Lower Colorado River Sonoran desertscrub in southwestern Arizona. Elevation: 2,000 to 4,000 feet.	The study area is outside the current range of the Sonoran pronghorn. The nearest known populations are on the Barry M. Goldwater Firing Range, approximately 50 miles southwest of the study area (USFWS 2003). <i>No potential for occurrence.</i>
Reptiles			
Sonoran Desert tortoise <i>Gopherus morafkai</i>	C	Primarily rocky (often steep) hillsides and bajadas of Mohave and Sonoran desertscrub but may encroach into desert grassland, juniper woodland, interior chaparral habitats, and even pine communities. Washes and valley bottoms may be used in dispersal. Elevation: <7,800 feet.	Though the study area occurs within the known range of the Sonoran Desert tortoise, there is little to no suitable habitat present. The closest known occurrences are approximately 3 miles east in the South Mountains (AGFD 2014e). <i>Low potential for occurrence only where suitable habitat exists and individuals are likely in transit between nearby, more suitable habitat.</i>

C = Candidate, E = Endangered, T = Threatened (USFWS 2014).

3.11.2 Environmental Consequences

Vegetation

No Action

Under the no action alternative, the existing WS Area system would not be rehabilitated or otherwise modernized. The area to be cultivated would be limited to those lands currently

irrigated. Existing impacts to fauna, such as clearing vegetation, due to current O&M activities related to the irrigation systems would continue under the no action alternative.

Proposed Action

Project construction under the proposed action would result in permanent and temporary impacts on vegetation. The PIE requirements for implementation of the proposed action include approximately 56.3 acres, while the TCE requirements include approximately 30.5 acres. Vegetation within the PIE and TCE ranges from none (bare soil) to dense stands of trees and shrubs. Construction would have impacts through loss of vegetation from clearing activities within the PIE and TCE areas, and potential spread of invasive plant species from associated disturbance. Agricultural fields in the study area are in various states of disturbance based on how recently the field was cultivated, ranging from currently in use to partial recolonization by nonagricultural plants (native and nonnative) on fallow fields. Implementation of the proposed action would likely increase the frequency these fields are put into cultivation, decreasing the chance they are recolonized by nonagricultural vegetation.

Project effects on vegetation resources would be incremental to the reasonably foreseeable past and future actions, which are related predominantly to agricultural activity. The incremental effect of the proposed project on vegetation would be mostly short-term and negligible.

Wildlife

No Action

Under the no action alternative, the existing WS Area system would not be rehabilitated or otherwise modernized. The area to be cultivated would be limited to those lands currently irrigated.

Proposed Action

Permanent impacts to wildlife under the proposed action include the removal of habitat within the PIE and TCE as a result of project construction activities. Individual small mammals, lizards, and snakes may be impacted during construction by crushing, loss of habitat (vegetation clearing), and/or disruption of movement and foraging activities. Under the proposed action, construction activities would result in some displacement or avoidance by wildlife in adjacent natural areas due to noise and/or human presence. These effects would be temporary and limited to the period of construction.

Construction of the pipeline would likely increase the frequency agricultural fields in the study area are put into cultivation, resulting in a decrease in suitability for many wildlife species. Increasing the number of fields put into cultivation would also result in an increase in irrigation in general and in the number of fields irrigated. The corresponding increase in moisture levels and the availability of water may improve conditions for many wildlife species present in the study area. Construction would impact migratory bird nesting habitat through the loss of vegetation.

Construction of the proposed action would temporarily impact 30.5 acres of potential plant and wildlife habitat. Much of this land has been developed for agriculture; however, even developed lands can represent suitable wildlife habitat. For example, burrowing owls are known to inhabit

abandoned agricultural fields or the berms surrounding active or fallow fields (deVos 1998). Project construction may impact the burrowing owl by eliminating burrows or otherwise disturbing their habitat.

Project effects on wildlife resources would be incremental to the reasonably foreseeable past and future actions, which are related primarily to agricultural activity in the study area. The incremental effect of the proposed project on wildlife would be mostly short-term and negligible.

Federally Listed Species

No Action

Under the no action alternative, the existing WS Area system would not be rehabilitated or otherwise modernized. The area to be cultivated would be limited to those lands currently irrigated, and there would be no impacts to federally listed species

Proposed Action

Sonoran Desert Tortoise

The Sonoran Desert tortoise (tortoise) has been found in the South and Estrella mountain ranges approximately 2 and 4 miles away, respectively, from the study area (AGFD 2014e). Suitable tortoise habitat in the study area is limited to undisturbed Sonoran Desertscrub habitat that makes up very little of the study area. The sandy nature of the soils in the area precludes development of suitable sheltersites. Tortoise presence in the study area is likely restricted to individuals dispersing from or moving between the South and Estrella mountains. If tortoises are present in the project footprint, the proposed action may impact individuals through displacement or inadvertent death.

Sprague's Pipit

Sprague's pipit does not breed in Arizona, though it is known to winter in the state. Sprague's pipit has been observed fairly regularly, though in low numbers, using agricultural fields in the City of Phoenix, the City of Casa Grande, and, in larger numbers, the area around Willcox. Individuals may pass through the study area while in transit, and the agricultural fields in the study area may support foraging Sprague's pipits during the wintering season. If construction activities occur during the wintering season, these activities may impact individual pipits through disruption of normal foraging behavior and movement, though the relative mobility of the species and the large number of nearby suitable agricultural fields would make these effects negligible and discountable.

Increased cultivation as a result of the rehabilitation and modernization of the WS Area system would likely result in an increase in suitable habitat for wintering Sprague's pipits relative to the current available suitable habitat in the study area.

Cumulative effects to federally listed species would be similar to those described for vegetation and are related to past, ongoing, and future agricultural activity in the study area.

Mitigation

- To prevent the introduction and establishment of invasive weed species, all construction equipment will be power-washed at the contractor's storage facility prior to entering the construction site.
- To prevent the off-site transport of invasive species seeds from the site, the contractor will power-wash all equipment prior to leaving the site.
- All disturbed lands that will not be permanently incorporated into project operations, except sediment piles, will be revegetated or otherwise stabilized if the original ground was vegetated prior to construction.
- P-MIP will employ a qualified biologist to ensure compliance with the Migratory Bird Treaty Act (MBTA). Every attempt will be made to complete vegetation-clearing activities from September 1 through February 28 to avoid the breeding season of migratory birds. If clearing activities occur during the breeding period (March 1 through August 31), a qualified biologist will begin surveying the area in mid-February to determine the presence or absence of nesting birds.
- Between March 1 and August 31, all vegetation scheduled to be disturbed by the proposed project that may contain active bird nests will be surveyed immediately prior (within 48 hours) to being disturbed. If an active nest or nests are discovered, vegetation-clearing activities will not be allowed to proceed in the vicinity of the nest(s). No activities will occur within a 50-foot buffered distance from active nests until after the young birds have fledged from the nest.
- The contractor will employ a biologist to complete a preconstruction survey for burrowing owls 96 hours prior to construction in all suitable habitat that will be disturbed. The biologist will possess a burrowing owl survey protocol training certificate issued by the AGFD. Upon completion of the surveys, the contractor will provide survey results to the Phoenix area Reclamation office.
- If any burrowing owls are located during preconstruction surveys or construction, the contractor will employ a biologist holding a permit from the USFWS to relocate burrowing owls from the study area, as appropriate. Organizations such as Wild at Heart and Liberty Wildlife also could be contacted to remove/relocate burrowing owls.
- If burrowing owls or active burrows are identified during the preconstruction surveys or during construction, no construction activities will take place within 100 feet of any active burrows until the owls are relocated.
- If Sonoran Desert tortoises are encountered during construction, the contractor will follow the Arizona Game and Fish Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects." Any tortoises relocated will be moved by a biologist trained under the guidelines.
- If any federally listed species are identified in the study area, construction activities will be halted until consultation with the USFWS can be initiated.
- Contractor personnel will be instructed not to collect, disturb, or molest wildlife species.

3.12 NOISE

3.12.1 Affected Environment

Ambient noise levels in rural portions of the study area are relatively low. Higher noise levels are associated with vehicular traffic on major arterial roads such as Baseline Road and Dobbins Road. Noise is also generated from operation of farm equipment and machinery on adjacent agricultural lands.

In general, residences, schools, hotels, hospitals, and nursing homes are considered to be the most sensitive to noise. Agricultural and industrial land uses are considered the least noise-sensitive. In the study area, sensitive noise receptors occur within 500 feet along the project alignment in Co-op Village (i.e., residences)

3.12.2 Environmental Consequences

No Action

Under the no action alternative, it is anticipated that existing noise sources and low noise intensity would prevail into the foreseeable future.

Proposed Action

Numerous environmental factors determine the level of perceptibility of sound at a given point of reception. These factors include distance from the source of sound to receptor, surrounding terrain, ambient sound level, time of day, and wind direction. The characteristics of a sound (i.e., loudness, pitch, and duration) are also important factors for determining possible noise effects. Generally, at distances greater than 50 feet from a noise source, every doubling of the distance produces a 6 decibel (dBA)² reduction in sound. Additional noise attenuation (approximately 1.5 dBA for every doubling of distance) is provided by “soft” natural topography, such as soil, shrubs, and trees between the point of noise generation and noise reception. There is also a 15–20 dBA reduction between the exterior and interior of most homes.

The operation of earthmoving equipment, concrete mixers, portable generators, haul trucks, and power equipment would result in short-term levels of noise of varying duration and magnitude along the project alignment. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated and, as a result, change the noise levels along the project alignments as construction progresses. Typical noise levels generated by representative pieces of construction equipment are listed in Table 5. Generally, noise levels become intrusive at 70 dBA.

² Sound pressure levels (decibels) on the A-scale of a sound meter are abbreviated dBA.

Table 5. Typical construction equipment and reference maximum (Lmax) noise levels.

Sound Source	dBA (Lmax at 50 feet)
Haul truck Cement mixer truck Backhoe Excavator Grader Scrapers	80–92
Front-end loader	76–82
Generators	70–80
Utility trucks	72

For the purpose of this EA, temporary noise impacts during construction are considered substantial if they would appreciably interfere with affected land uses. Substantial interference could result when sustained daytime noise at sensitive receptor locations equals or exceeds 90 dBA for one week or more, or construction activities would adversely affect noise-sensitive receptors at night, or both.

Several residential structures are within 500 feet of the proposed pipelines and laterals. Maximum noise at the affected properties would fall below 80 dBA once the construction activities move beyond a distance of 200 feet. At a distance of 500 feet, maximum noise levels would be less than 70 dBA. No substantial adverse effect on sensitive receptors is anticipated.

Temporary construction noise from the proposed action would be incremental to noise generated by traffic on nearby city streets and highways. Development of agricultural lands would also result in temporary increases in ambient noise levels. Normal agricultural operations may cause infrequent, isolated increases in noise levels similar to what is presently occurring on existing agricultural lands. The proposed action would have no long-term impacts resulting from operation of the pipeline or new agricultural areas. Noise from agricultural operations would be site-specific and of short duration.

Mitigation

- Construction equipment will be equipped with properly functioning mufflers.
- Unnecessary idling time of construction machinery will be minimized near residences.
- Construction will be limited to daytime hours (6 a.m. to 7 p.m.) near residences.
- P-MIP will notify nearby residents in areas where peak noise levels may exceed 80 dBA.

3.13 AIR QUALITY

3.13.1 Affected Environment

As directed by the federal Clean Air Act (CAA), the EPA established National Ambient Air Quality Standards (NAAQS) for six “criteria” pollutants in 40 CFR Part 50. These standards were adopted by the EPA to protect the public health and welfare. The six pollutants of concern are carbon monoxide (CO), nitrogen dioxide (NO₂), ozone, sulfur dioxide (SO₂), lead, and particulate matter (PM₁₀, inhalable coarse particles less than 10 but 2.5 or more microns in

diameter, and PM_{2.5}, fine particles less than 2.5 microns in diameter). States are required to adopt standards that are at least as stringent as the NAAQS.

The CAA requires that states classify air basins (or portions thereof) as either “attainment” or “nonattainment” with respect to criteria pollutants. If an air basin does not meet the NAAQS for one or more pollutants, then the area is classified as “nonattainment” for that pollutant. For nonattainment areas, states are required to formulate and submit State Implementation Plans to the EPA that outline measures the state would use to attain and maintain compliance with NAAQS (40 CFR Part 51).

In January 2011, the EPA approved the Tribal Implementation Plan (Community 2008). Community lands in Maricopa County are currently designated attainment/unclassifiable for the following NAAQS pollutants: 8-hour ozone, CO, NO₂, SO₂, PM_{2.5}, and PM₁₀. In 2001, the EPA designated Community lands attainment/unclassifiable under the 8-hour ozone NAAQS and designated the Community a separate Air Quality Control Region for the purposes of managing ozone. In the study area, air quality is affected primarily by fugitive dust emissions from agricultural activity, traffic on unpaved roads, and vehicle emissions on paved roads.

Current federal visibility regulations under the CAA were designed to protect mandatory Class I areas for visibility (e.g., national park and wilderness areas) and are aimed primarily at the regulation of industrial point sources such as power plants and mining smelters. No specially designated areas are in the study area.

EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance, which was signed by President Obama on October 5, 2009, directs federal agencies to promote pollution prevention and reduce emissions of greenhouse gases (GHGs) from actions under their control. In accordance with EO 13514, the CEQ defines GHGs as carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The CEQ has proposed an annual reference threshold of 25,000 metric tons of direct carbon dioxide (CO₂)–equivalent GHG emissions as a useful indicator for agencies to consider when analyzing potential action-specific GHG emissions in NEPA documents (CEQ 2010). This threshold was considered relevant by the CEQ because it is a minimum standard for reporting GHG emissions from specified industries under the CAA (EPA’s Mandatory Reporting of Greenhouse Gases Final Rule, 74 Federal Register 56260). Regional sources of CO₂-equivalent GHGs include combustion emissions from heavy equipment and light vehicles.

3.13.2 Environmental Consequences

No Action

Under the no action alternative, there would be no direct impact to air quality because no project construction would occur. Existing sources and activities of air pollutant emissions—fugitive emissions from agricultural activity, traffic on unpaved roads, and vehicle emissions on paved roads—would persist into the foreseeable future.

Proposed Action

Operations associated with the proposed action would increase the generation of fugitive dust in the study area. The use of unpaved roads (for site access as well as for site operations) would result in a minor but ongoing increase in particulates (PM₁₀).

Under high wind conditions, sediment stored on-site could become a source of fugitive dust. However, due to the coarse nature of the sediment being removed and stored, the presence of fine particles in these sediment piles would be limited, and any dust generated from these piles would be expected to be minor, intermittent, and localized.

The operation of motor vehicles, including trucks, and other heavy equipment during project construction would generate minor amounts of engine combustion products such as nitrogen and NO₂, CO₂, CO, and reactive organic gases. A minor amount of electricity would also be consumed in the construction of the proposed action. The burning of fossil fuels in the generation of electricity would result in a minor and indirect effect from the proposed action. The emissions generated on-site would not produce measurable changes in ambient concentrations of regulated pollutants or result in a change in attainment status for the air quality region. In consideration of GHGs, the annual emission of CO₂-equivalent GHGs from the proposed action would be substantially below the threshold proposed by the CEQ to be relevant to the decision-making process.

Construction activities, including the operation of earthmoving equipment, would generate fugitive dust, a minor transient effect on ambient air quality in the study area. The temporary operation of construction equipment and motor vehicles would generate minor amounts of engine combustion products described previously.

The gaseous and particulate emissions would contribute to pollutants emitted into the atmosphere from other natural and human sources. These sources include fugitive dust from nearby agricultural operations and vehicular travel on unpaved rural roads, and the emission of engine combustion products from vehicular travel on local roadways in the study area. Long-term impacts from agricultural activities may make minor contributions to overall levels of PM₁₀. Several tradeoffs must be given consideration when estimating the long-term net contribution of agricultural lands. No estimates have been made to determine the amounts of PM₁₀ generated from the existing farmland and/or sparsely vegetated desert lands and; therefore, it is unknown whether agricultural development will result in an increase or decrease of fugitive dust.

Susceptible periods for agriculture are during field preparation, planting, and early stages of crop growth when cover is developing. During these periods, farmers would employ best management practices to prevent soil erosion and generation of PM₁₀. The emissions generated on-site during construction and agricultural production would not produce measurable changes in ambient concentrations of regulated pollutants or result in a change in attainment status for the air quality region.

Mitigation

- The contractor will obtain an Earth Moving Permit, including a Dust Control Plan, from the Community Department of Environmental Quality.

- The contractor will minimize land disturbance during site preparation and construction.
- To suppress dust on unpaved roads during construction, the contractor will use watering trucks, chemical dust suppressants, or other reasonable precautions.
- Trucks hauling soil or sediment for extended hauls will be covered.
- With the exception of long-term storage of sediment, unused materials will be removed from the project footprint following construction.
- All disturbed lands that will not be permanently incorporated into project operations, except sediment piles, will be revegetated or otherwise stabilized if the original ground was vegetated prior to construction.

3.14 HAZARDOUS MATERIALS

3.14.1 Affected Environment

A review of a regulatory database (Allands 2015) was performed to identify the presence of hazardous materials or similar environmental concerns that may be adversely affected by the proposed action.

State (Arizona Revised Statutes 49-1001 to -1014) and federal (Resource Conservation and Recovery Act Facilities Subtitle 1) laws require that persons who own or have owned underground storage tanks containing “regulated substances” complete a notification form and register the tank with the state.

The regulatory database search report found one Resource Conservation and Recovery Act (RCRA) facility (Flood Control District at 67th Avenue and Gila River); one Federal Emergency Response Notification System (two 55-gallon drums illegally dumped along the SRP canal 0.5 mile north of Dobbins Road); two registered underground storage tanks (along Elliot Road); and two registered leaking underground storage tanks (along Elliot Road and 0.5 mile west of 59th Avenue) within the project footprint. The RCRA facility is registered as an inactive generator. The Federal Emergency Response Notification System was removed. The underground storage tanks have been removed, and the leaking underground storage tanks have been closed.

3.14.2 Environmental Consequences

No Action

Under the no action alternative, the project would not be constructed, and there would be no impact from hazardous materials.

Proposed Action

Implementation of the proposed action would not affect any known hazardous materials sites. Construction activities would not affect these sites.

Construction would require the short-term use of fuels, lubricants, and other fluids that create a potential contamination hazard. Use, storage, and disposal of hazardous materials and solid waste during construction have the potential to adversely affect the environment if these

materials are improperly managed. Potential impacts could be associated with the release of these materials to the environment. Direct impacts of such releases would include contamination of soil, water, and vegetation, which could result in indirect impacts to wildlife, aquatic life, and humans.

Though hazardous waste³ generation is not anticipated, any such wastes produced during construction would be properly containerized, labeled, and transported to an approved hazardous waste disposal facility. All nonhazardous waste materials, including construction refuse, garbage, sanitary waste, and concrete, would be removed from the work area and transported to an approved disposal facility.

Mitigation

- The contractor will ensure that appropriate Occupational Safety and Health Administration recommendations are followed for levels of personal protective equipment (i.e., dust masks and protective eyewear to minimize contact with airborne dust) to be used by all persons entering or working within the project footprint.
- If storage occurs on-site, fuel and lubricants will be placed in clearly marked above-ground containers that will be provided with approved secondary containment.
- Any hazardous wastes will be properly containerized, labeled, and transported to a permitted disposal facility in accordance with federal and state regulations.

³ Hazardous waste is defined in 40 CFR Part 261.

4.0 ENVIRONMENTAL COMMITMENTS

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

P-MIP/Contractor Responsibilities

- Established procedures will be followed in acquisition of permanent irrigation easements and temporary construction easements needed for the project.
- Traffic control devices and/or flaggers will be employed, if needed, to ensure public safety and minimize traffic delays caused by construction.
- No ground disturbance will begin until the Treatment Plan and any supplemental Phase II data recovery plans have been implemented in accordance with the stipulations of the 2012 revised Programmatic Agreement for the treatment of cultural resources affected by P-MIP.
- Erosion control measures and post-construction site stabilization will be implemented within the project footprint, as necessary.
- Structural barriers or best management practices will be used to prevent the removed sediment from discharging downstream.
- Any excess materials will be spoiled within the PIE or in an approved disposal site.
- A National Pollutant Discharge Elimination System Permit Notice of Intent will be filled with the EPA prior to construction.
- In accordance with the National Pollutant Discharge Elimination System Permit requirements, a Storm Water Pollution Prevention Plan will be prepared, approved, and available for inspection prior to construction.
- To prevent the introduction and establishment of invasive weed species, all construction equipment will be power-washed at the contractor's storage facility prior to entering the construction site.
- To prevent the off-site transport of invasive species seeds from the site, the contractor will power-wash all equipment prior to leaving the site.
- All disturbed lands that will not be permanently incorporated into project operations, except sediment piles, will be revegetated or otherwise stabilized if the original ground was vegetated prior to construction.
- P-MIP will employ a qualified biologist to ensure compliance with the MBTA. Every attempt will be made to complete vegetation-clearing activities from September 1 through February 28 to avoid the breeding season of migratory birds. If clearing activities occur during the breeding period (March 1 through August 31), a qualified biologist will begin surveying the area in mid-February to determine the presence or absence of nesting birds.
- Between March 1 and August 31, all vegetation scheduled to be disturbed by the proposed project that may contain active bird nests will be surveyed immediately prior (within 48 hours) to being disturbed. If an active nest or nests are discovered, vegetation-clearing activities will

not be allowed to proceed in the vicinity of the nest(s). No activities will occur within a 50-foot buffered distance from active nests until after the young birds have fledged from the nest.

- The contractor will employ a biologist to complete a preconstruction survey for burrowing owls 96 hours prior to construction in all suitable habitat that will be disturbed. The biologist will possess a burrowing owl survey protocol training certificate issued by the AGFD. Upon completion of the surveys, the contractor will provide survey results to the Phoenix area Reclamation office.
- If any burrowing owls are located during preconstruction surveys or construction, the contractor will employ a biologist holding a permit from the USFWS to relocate burrowing owls from the study area, as appropriate. Organizations such as Wild at Heart and Liberty Wildlife also could be contacted to remove/relocate burrowing owls.
- If burrowing owls or active burrows are identified during the preconstruction surveys or during construction, no construction activities will take place within 100 feet of any active burrows until the owls are relocated.
- If Sonoran Desert tortoises are encountered during construction, the contractor will follow the Arizona Game and Fish Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects." Any tortoises relocated will be moved by a biologist trained under the guidelines.
- If any federally listed species are identified in the study area, construction activities will be halted until consultation with the USFWS can be initiated.
- Contractor personnel will be instructed not to collect, disturb, or molest wildlife species.
- Construction equipment will be equipped with properly functioning mufflers.
- Unnecessary idling time of construction machinery will be minimized near residences.
- Construction will be limited to daylight hours (6 a.m. to 7 p.m.) near residences.
- P-MIP will notify nearby residents in areas where peak noise levels may exceed 80 dBA.
- The contractor will obtain an Earth Moving Permit, including a Dust Control Plan, from the Community Department of Environmental Quality.
- The contractor will minimize land disturbance during site preparation and construction.
- To suppress dust on unpaved roads during construction, the contractor will use watering trucks, chemical dust suppressants, or other reasonable precautions.
- Trucks hauling soil or sediment for extended hauls will be covered.
- With the exception of long-term storage of sediment, unused materials will be removed from the project footprint following construction.
- All disturbed lands that will not be permanently incorporated into project operations, except sediment piles, will be revegetated or otherwise stabilized if the original ground was vegetated prior to construction.
- The contractor will ensure that appropriate Occupational Safety and Health Administration recommendations are followed for levels of personal protective equipment (i.e., dust masks

and protective eyewear to minimize contact with airborne dust) to be used by all persons entering or working within the project footprint.

- If storage occurs on-site, fuel and lubricants will be placed in clearly marked above-ground containers that will be provided with approved secondary containment.
- Any hazardous wastes will be properly containerized, labeled, and transported to a permitted disposal facility in accordance with federal and state regulations.

5.0 CONSULTATION AND COORDINATION

5.1 AGENCIES AND PERSONS CONTACTED

P-MIP conducted public meetings in District 6 on September 29, 2014, and District 7 on September 2, 2014, to provide residents with information regarding the proposed project. In addition, P-MIP provided detailed information in the Winter 2015 P-MIP newsletter (Appendix G) to residents, agencies, and other interested parties. The USFWS and the NRCS were contacted to solicit any environmental concerns. In addition, the Community THPO was consulted during Section 106 consultation and provided a concurrence letter, which is included in Appendix D. No other comments were received during consultation and coordination.

5.2 PUBLIC AND AGENCY COMMENTS ON THE DRAFT EA

The Notice of Availability of the Draft EA was distributed to agencies and the public on August 14, 2015. The Draft EA was posted on Reclamation's Phoenix Area Office website at <http://www.usbr.gov/lc/phoenix/>.

6.0 LIST OF PREPARERS

This EA has been prepared by P-MIP and Reclamation with the assistance of EcoPlan Associates, Inc.

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7.0 RELATED ENVIRONMENTAL LAWS/DIRECTIVES

The CEQ regulations encourage agencies to “integrate the requirements of NEPA with other planning and environmental review procedures required by law.” Coordinating NEPA procedures with those of other federal environmental statutes and EOs facilitates NEPA objectives by promoting efficiencies in environmental planning and development of relevant information on which to base agency decisions. This integrative approach to NEPA ensures planning, review, and compliance processes run concurrently rather than consecutively with procedures required by other environmental laws.

The following is a list of federal laws, EOs, and other directives that apply to the action alternatives discussed in this EA:

The National Environmental Policy Act (NEPA) of 1969, as amended, requires federal agencies to evaluate the potential environmental consequences of major federal actions. An action becomes “federalized” when it is implemented, wholly or partially funded, or requires authorization by a federal agency. The intent of NEPA is to promote consideration of environmental impacts in the planning and decision-making process prior to project implementation. NEPA also encourages full public disclosure of the proposed action, accompanying alternatives, potential environmental effects, and mitigation.

This EA has been prepared in accordance with NEPA, CEQ regulations (40 CFR Parts 1500–1508), and Department of the Interior NEPA regulations (43 CFR Part 46). Pursuant to those regulations, information was made available for public comment. Those comments were considered during the preparation of this document.

The Fish and Wildlife Coordination Act (FWCA) of 1958, as amended, provides a procedural framework for the consideration of fish and wildlife conservation measures in federal water resource development projects.

A FWCA report was prepared by the USFWS for the P-MIP PEIS. Scoping information and the EA were provided to the USFWS for comment on mitigating losses to wildlife that may result from the project. This review process satisfies the coordination requirements of the FWCA.

The Endangered Species Act of 1973, as amended, provides protection for plants and animals that are currently in danger of extinction (endangered) and those that may become so in the foreseeable future (threatened). Section 7 of this law requires federal agencies to ensure that their activities do not jeopardize the continued existence of threatened or endangered species or adversely modify designated critical habitat.

The USFWS list of endangered, threatened, proposed, and candidate species was reviewed by a qualified biologist to determine which listed species may occur in the study area. Table 4 summarizes the potential for endangered, threatened, and candidate species to occur in the study area. Reclamation determined that the proposed action would not affect federally listed species.

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, implements various treaties and conventions between the United States and Canada, Japan, Mexico, and the former

Soviet Union for the protection of migratory birds. The MBTA prohibits the take, possession, import, export, transport, selling, or purchase of any migratory bird, their eggs, parts, or nests. Mitigation measures are included to address species protected under the MBTA.

The Western burrowing owl was identified as potentially occurring in the study area. Measures have been included to avoid or mitigate impacts to this species.

The Clean Air Act (CAA) of 1963, as amended, requires any federal entity engaged in an activity that may result in the discharge of air pollutants to comply with all applicable air pollution control laws and regulations (federal, state, or local). It also directs the attainment and maintenance of NAAQS for six different criteria pollutants: carbon monoxide, ozone, particulate matter, sulfur oxides, oxides of nitrogen, and lead. Air quality in the study area is in attainment of NAAQS.

Short-term construction emissions (particulate matter) and long-term vehicle/equipment emissions (hydrocarbons) associated with the proposed project would have localized and minor effects on the air quality in the study area. Adoption of mitigation measures identified under the Air Quality section would reduce dust emissions that could result from implementation activities.

The National Historic Preservation Act (NHPA) of 1966, as amended, mandates that all federally funded undertakings that have the potential to affect historic properties are subject to Section 106 of the NHPA. Federal agencies are responsible for the identification, management, and nomination to the NRHP of cultural resources that could be affected by federal actions.

No ground disturbance would begin until the cultural resources treatment plan has been approved by THPO and requirements of the plan have been fulfilled.

The Resource Conservation and Recovery Act (RCRA), as amended, establishes thresholds and protocols for managing and disposing of solid waste. Solid wastes that exhibit the characteristic of hazardous waste, or are listed by regulation as hazardous waste, are subject to strict accumulation, treatment, storage, and disposal controls.

The proposed project is not expected to generate hazardous waste as defined and regulated under RCRA. To minimize the possible impact of hazardous materials (petroleum, oil, and lubricants) used during construction, all equipment would be periodically inspected for leaks. Any major leaks would be promptly corrected. Nonhazardous solid waste would be disposed of in accordance with state and federal regulations at an approved landfill. Mitigation measures have been included to address potential effects on human health and the environment from hazardous materials used or encountered during construction.

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.

Most of the study area is within the 500-year floodplain of the Salt River and the Gila River. The proposed action would not reduce floodplain capacity or increase the flood risk to people or property.

Executive Order 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. No wetlands were identified in the study area.

Executive Order 12898 (Environmental Justice) requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health and environmental effects of their programs, policies, and activities on minority and low-income populations.

Because the project would not introduce disproportionately high and adverse human health and environmental effects on minority and low-income populations, there would be no adverse effect as defined by this EO.

Executive Order 13514 (Federal Leadership in Environmental, Energy, and Economic Performance) directs federal agencies to promote pollution prevention and reduce emissions of GHGs from actions under their control. In accordance with EO 13514, the CEQ defines GHGs as carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The proposed action would result in a short-term increase in CO₂-equivalent GHGs during construction.

Secretarial Order 3175 (512 Departmental Manual 2) requires that if any Department of the Interior agency actions impact ITAs, the agency must explicitly address those impacts in planning and decision-making, and the agency must consult with the tribal government whose trust resources are potentially affected by the federal action.

Reclamation has reviewed the proposed action for possible effects to ITAs. Extension of the P-MIP system to the WS Area would provide for greater utilization of the water rights associated with water from the Gila River and other sources. In addition, the value of Community lands would be enhanced in areas where water that is conserved as a direct result of the project is available for irrigation.

The Farmland Protection Policy Act (FPPA) and 7 CFR Part 658 are intended to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural purposes. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, and oilseed crops and is available for these uses. In general, prime farmland has acceptable soil conditions with few rocks, a favorable temperature and growing season, and an adequate and dependable water supply from precipitation or irrigation. Unique farmland is land other than prime farmland that is used for production of specific high-value foods and fiber crops.

The NRCS has general responsibility nationwide for implementing the FPPA and to review projects that may affect prime, unique, or statewide important farmland and/or wetlands associated with agriculture. The proposed action would not result in the conversion of prime or unique farmland to nonagricultural purposes.

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