

AGUA FRIA

WATERCOURSE MASTER PLAN

Request for Authorization Under Section 404 Nationwide Permit No. 6

Prepared for



A109.212

December 2001

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Request for Authorization under Section 404 Nationwide Permit No. 6

Agua Fria Watercourse Master Plan

Prepared For:

Flood Control District of Maricopa County

2801 West Durango

Phoenix, Arizona 85009

091131004

Prepared by:

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July 2000



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Appendices

- Appendix A: Completed Engineering Form 4345
- Appendix B: Ground Photography – Agua Fria Channel & Adjacent Areas

Attachments

- Attachment 1:** Aerial Photography - Agua Fria Channel & Adjacent Areas (1:500 B/W)
 - 1 set with proposed jurisdictional boundaries
 - 1 set unmarked
- Attachment 2:** Pre-Historical Cultural Resources Location Map
 - U.S. Geological Survey 7.5 minute Series (Topographic)
 - Tolleson Quadrangle, AZ
 - El Mirage, AZ
 - Calderwood Butte, AZ
 - Baldy Mountain, AZ
- Attachment 3:** Historical Cultural Resources Location Map
 - U.S. Geological Survey 7.5 minute Series (Topographic)
 - Tolleson Quadrangle, AZ
 - El Mirage, AZ
 - Calderwood Butte, AZ
 - Baldy Mountain, AZ



I. Introduction

Kimley-Horn and Associates, Inc. has been contracted by the Flood Control District of Maricopa County (FCDMC) to develop a Section 404 Nationwide Permit No. 6 Request for Authorization for sediment sampling as part of the Agua Fria River Watercourse Master Plan Study. The FCDMC has undertaken the master plan study to identify and develop alternative plans for providing flood control along the Agua Fria River. Additional environmental documentation, including possible Section 404 authorization for the implementation of the adopted Agua Fria Master Plan will be prepared later in the project timeline. This application is only for authorization to conduct the activities (sediment sampling) necessary to begin the evaluation phase of the study.

This document includes a preliminary delineation of the ordinary high water mark and isolated wetland/riparian sites. It also provides a non-inclusive list of vegetation and wildlife species that exist within the Agua Fria River corridor and a brief description of other site characteristics. A description of the methodology used to perform the delineation is presented along with **site ground photography (Appendix B)** that documents various areas. Documentation regarding potential effects from the proposed activity on cultural resources and protected species is also presented. A **completed Engineering Form 4345** is included with this document (**Appendix A**).

II. Project Location

The project limits are the channel and immediately adjacent areas from the confluence of the Agua Fria River and the Salt/Gila River, proceeding north for a distance of approximately 35 miles to the New Waddell Dam, just north of State Route 74 (**Figure 1**). The Agua Fria River corridor traverses Maricopa County through the cities of Peoria, Phoenix, Surprise, Glendale, and Avondale, the Towns of El Mirage and Youngtown, and the communities of Sun City and Sun City West. The river corridor (**Figure 2**) is in or adjacent to the following Sections:

- T6N-R1E Sections 20, 21, 22, 28, 29, 32, and 33
- T5N-R1E Sections 4, 5, 6, 7, 8, 9, 16, 17, 19, 20, 21, 28, 29, 30, 31, 32, and 33
- T4N-R1E Sections 5, 6, 7, 8, 17, 18, 19, 20, 30, and 31
- T4N-R1W Sections 1, 12, 13, 14, 23, 24, 25, 26, 35, and 36
- T3N-R1E Sections 6, 7, 18, 19, 29, 30, 31, and 32
- T3N-R1W Sections 1, 2, 12, 13, 23, 24, 25, 26, 35, and 36
- T2N-R1E Sections 5, 6, 7, 8, 17, 18, 19, 20, 30, and 31
- T2N-R1W Sections 1, 2, 11, 12, 13, 14, 23, 24, 25, 26, 34, 35, and 36
- T1N-R1W Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 21, 22, 23, 26, 27, 28, 29, 32, 33, 34, and 35



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FIGURE 1
Agua Fria River Study Corridor

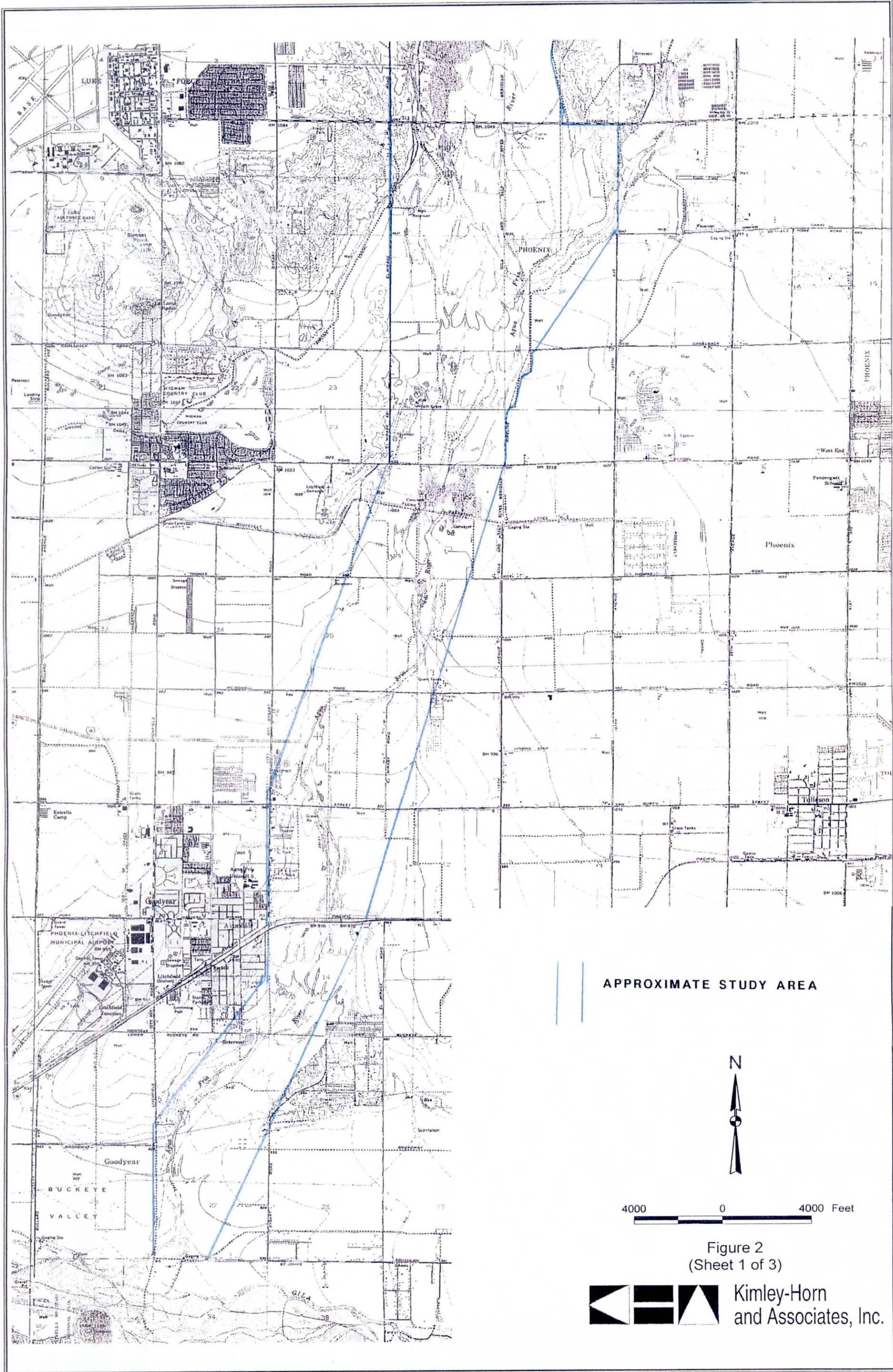
WEST VALLEY RECREATION CORRIDOR

AGUA FRIA WATERCOURSE MASTER PLAN

SECTION 404 NATIONWIDE PERMIT NO. 6



Kimley-Horn
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APPROXIMATE STUDY AREA



4000 0 4000 Feet

Figure 2
(Sheet 1 of 3)

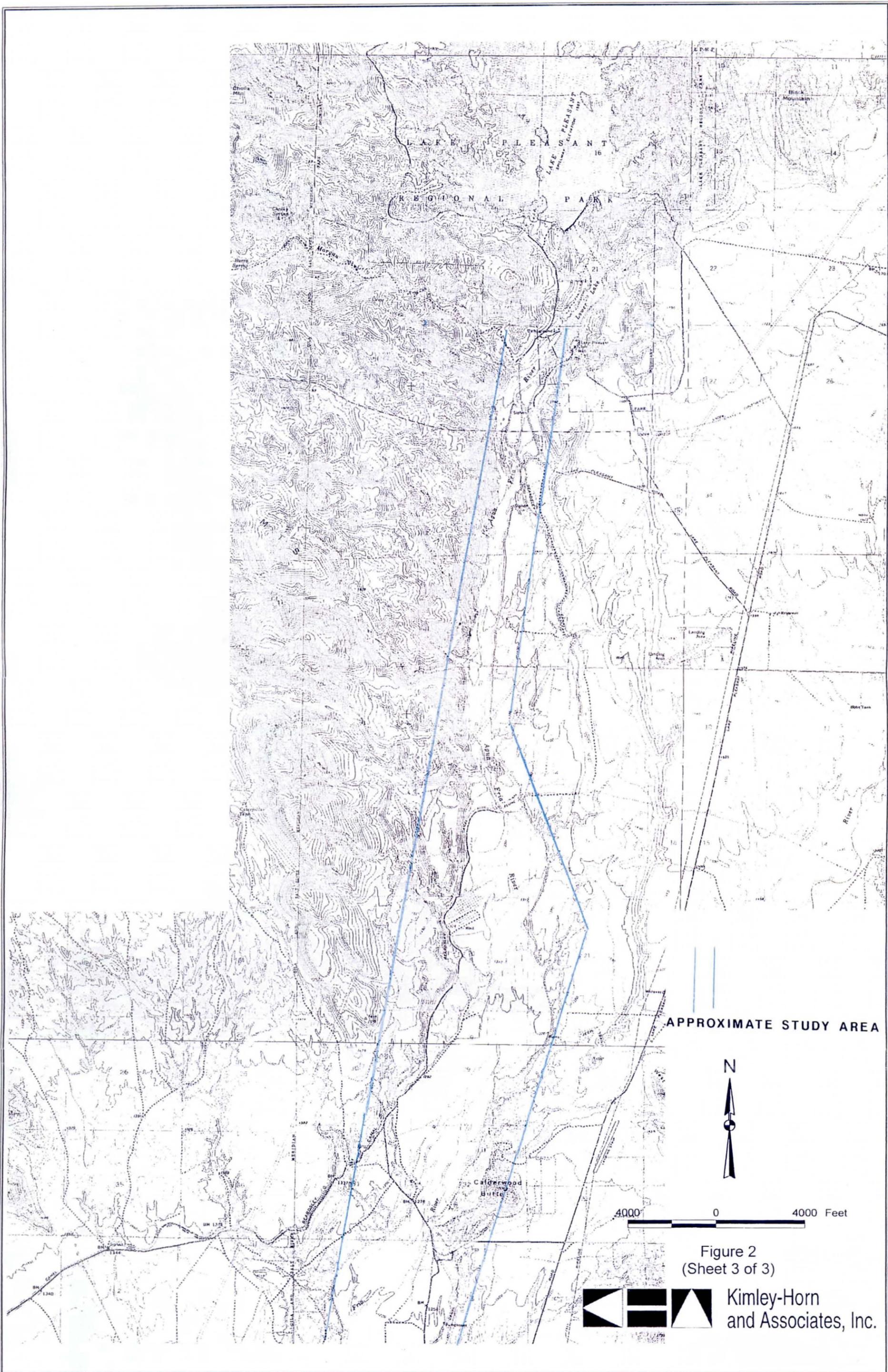
 Kimley-Horn
and Associates, Inc.



Figure 2
(Sheet 2 of 3)



Kimley-Horn
and Associates, Inc.





The project corridor is divided into three reaches for the purposes of planning and public outreach programs. Channel geomorphology and land use, as well as vegetation and existing or potential wildlife habitat, categorize the reaches. The study reaches are as follows:

- Upper Study Reach – From New Waddell Dam to Jomax Road
- Middle Study Reach – From Jomax Road to Camelback Road
- Lower Reach – From Camelback Road to the Gila River Confluence

III. Section 404 Delineation Methodology

The methodology for the establishment of the proposed Section 404 jurisdictional boundaries of the Agua Fria River channel included aerial photographic interpretation and field reconnaissance. The field reconnaissance was conducted by environmental scientists in January and February 2000 and was re-verified in May and June 2000. It is presented on one-inch equal to 500 feet (1:500) black and white **aerial photography** dated January 1999 (**Attachment 1**). No significant flow events have occurred in the Agua Fria channel since the photography was prepared.

The field evaluation methodology varied based on the hydroperiod of the section of the river channel. In the limited areas, where channel hydrology was augmented and wetlands or suspected wetlands were noted, the field evaluation was conducted based on the three – parameter methodology of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual. Where the “normal” ephemeral hydrologic conditions were present the field evaluation was concerned with establishing an ordinary high water mark as the boundary of the jurisdictional channel. Where a wetland area occurred within the confines of the ordinary high water mark its boundary was approximated and noted on the aerial photography. Riparian areas or other potentially higher functional value areas were also noted on the aerial photography.

The ordinary high water mark delineation is based on discernable field evidence such as erosion scars, bank definition, sediment deposition, debris flows, vegetation patterns and other field indicators. The aerial photography was utilized to determine overall trends and channel patterns that were combined with the field information to develop a likely ordinary high water mark boundary. In some areas more than one low-flow channel may be evident and the sub-braided channel may be best represented as a dynamic system that meanders within an established zone. As an example, after infrequent flow events the low flow channel may relocate within the braided system or isolated incidental flows from the surrounding area may alter the local flow pattern.

Therefore, in some instance an “outer” defined bank was chosen as representing the ordinary high water mark for the channel reach. This may result in the inclusion of interfluvial areas within the jurisdictional boundary that otherwise might not be considered jurisdictional under the strictest of field interpretations. Some of these areas are marked on the accompanying aerials as marginal upland or marginal jurisdictional area. A solid red line denotes the proposed ordinary high water mark (jurisdictional boundary) of the Agua Fria Channel on the accompanying 1:500 aerial photography. A dashed red line is used where channel and/or adjacent activity has disturbed normal conditions to the extent that the channel is too convoluted to use field indicators to establish the mark. Where the Agua Fria Channel is confined within armored or stabilized banks, the armored bank is noted as the boundary (solid red line).



IV. Project Area Description

A) Land Use

Upper Reach

Land adjacent to the upper reach is primarily undeveloped, although some of this reach (excluding State Lands) has been master planned for future development. There are several orchards just north of Jomax Road and there is evidence of cattle grazing activity in the northern portion of the corridor. The Beardsley Canal, the Central Arizona Project (CAP) Canal, and State Route 74 all cross this section of the channel. Most of the disturbance in this area is due to use by off-road vehicles, and possibly grazing activity.

Middle Reach

Land adjacent to the middle reach is heavily urbanized with the exception of the most northern portion. Major roadway crossings are located approximately every mile. Several utility crossings are located within this reach. The reach is channelized in many areas and is altered in other locations by numerous aggregate operations. This section of the channel is also used by off-road vehicles.

Lower Reach

Land adjacent to the lower reach is primarily agricultural, except the area between Thomas and Camelback Roads, where numerous sand and gravel operations are located. Major roadway crossings are located approximately every mile. Power line structures are located within the channel area in the southern most portion of the reach. This section of the channel is also used by off-road vehicles.

No impacts to land use are anticipated from the sampling activity. No structures will be disturbed. Access permission will be obtained prior to entry from all affected property owners. Sampling will be conducted during daylight hours and will not be conducted on weekends.

B) Cultural Resources

A pre-historic and historic archaeological assessment of the study corridor was completed by Scientific Archeological Services and Archeological Consulting Services to identify recorded resources. These sites are noted on **U.S.G.S. 7 ½ minute Quadrangle Topographic Maps (Attachments 2 & 3)**. The proposed sediment sample sites are noted on these maps (denoted with a solid green triangle). Most of the sample sites are not in the vicinity of recorded archeological sites. Scientific Archeological Services will review sample sites locations and will conduct on-site monitoring of the sampling where they deem appropriate.

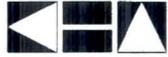
With the application of this methodology, there are no effects to sites listed or potentially eligible for listing on the National Register of Historic Places (NRHP).

C) Soils

Soil determinations were based on data gathered from the 1986 Soil Conservation Service's (now the National Resource Conservation Service) Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona maps.

Upper Reach

Soils in the upper reach of the Agua Fria corridor exhibit gravelly sandy loams and sandy loams associated with Carrizo-Brios complex in the river bottom. One to five percent slopes are



common with a typical annual precipitation of seven to ten inches. The river is bound on the west by the Gachado-Lomitas complex with 8-25 percent slopes and 1200-2600 feet of elevation. The unit is very gravelly sandy loam, but also contains Carrizo soils and exposed volcanic breccia in drainageways. Unweathered bedrock is at an approximate depth of 15 inches. The river is bound on the east by Ebon-Carefree units with gently sloping cobbly and gravelly, loamy soils. None of the soils seen on site in this reach are listed as hydric soils.

Middle Reach

Soils in the middle reach of the corridor are primarily Brios sandy loam, Torripsamments and Torrifluents in the river bottom while displaying Carrizo and Brios soils on the eastern edge of the river banks through much of the middle reach. Also dominant in the banks of the middle reach are Mohall-Laveen association and Rillito-Gunsight-Perryville association consisting mostly of loams associated with alluvial fans and valley plains. None of the soils seen on site in this reach are listed as hydric soils.

Lower Reach

Soils in the river bottom of the lower reach consist of Carrizo-Brios association with level to slightly sloping gravelly sandy loams and sandy loams in stream channels and on low stream terraces. This analysis is based on data collected from *Soil Survey of Maricopa County, Arizona Central Part* (US Department of Agriculture Soil Conservation Service). Soils consistent in the banks include Gilman-Estrella-Avondale association with nearly level loams and sandy loams on low stream terraces. The dominant groups consistently throughout the river bottom are the Brios sandy loam, Torripsamments and Torrifluents. None of the soils identified on site are listed as hydric soils.

D) Vegetation Communities

Vegetation communities are dependent on channel moisture regime and frequency of disturbance. Vegetation communities along the Agua Fria River corridor were categorized based on species composition, growth patterns (primarily density) and maturity. The following vegetation communities were noted:

- Desert Scrub Vegetation Community
- Floodplain/Ephemeral Channel/Desert Wash Vegetation Community
- Riparian/Wetland/Open-Water Vegetation Community

Desertscrub Vegetation Community

The upper banks and the vegetation community located adjacent to these areas are classified as Sonoran Desertscrub – Arizona Upland Subdivision - Paloverde-Cacti Mixed Scrub Series (Brown et. al, 1994). This community is primarily found in the upper reach. Table 1 lists the species found within this vegetation community.

E) Sampling Methods

While some sites will be hand sampled, a backhoe will be necessary for larger sample areas. A backhoe will be used to excavate the sampling trenches. Each trench will be no more than 3-ft wide, 20-ft long, and 6-ft deep (hand sampling sites will be smaller). The excavated material will be temporarily stockpiled adjacent to the sample trenches and then re-deposited in the trench as soon as practical after evaluation is complete. No fill will be imported. It may be necessary to construct temporary access at some of the sediment sample sites. The temporary disturbances will be as non-invasive as practical and will be removed as soon as practical after the sampling event.



Table 1: Agua Fria River – Desert Scrub Vegetation Community

(Located primarily in the upper banks & adjacent areas)

(U = upper reach, M = middle reach, L = lower reach; as defined in the Project Area Description)

| <u>COMMON NAME</u> | <u>SCIENTIFIC NAME</u> | <u>FREQUENCY</u> | <u>REACH</u> |
|-------------------------|-------------------------------|-------------------------|--------------|
| saguaro | <i>Carnegiea gigantea</i> | scattered | U, M |
| paloverde | <i>Cercidium spp.</i> | scattered | U, M, L |
| creosote bush | <i>Larrea tridentata</i> | common | U, M, L |
| ironwood | <i>Olneya tesota</i> | sparse | U, M, L |
| desert christmas cactus | <i>Opuntia leptocaulis</i> | scattered | M, L |
| mesquite | <i>Prosopis spp.</i> | scattered | U, L |
| four-wing saltbush | <i>Atriplex canescens</i> | common | U, M, L |
| barrel cactus | <i>Ferocactus spp.</i> | scattered | U, M |
| jumping cholla | <i>Opuntia fulgida</i> | scattered | U, M |
| desert broom | <i>Baccharis sarothroides</i> | common | U, M, L |
| catclaw | <i>Acacia greggii</i> | scattered | U, M, L |
| tumbleweed | <i>Salsola iberica</i> | common | U, M, L |
| burrobush | <i>Hymenoclea monogyra</i> | scattered | U, M, L |
| brittlebush | <i>Encelia farinosa</i> | common | U, M, L |
| cottonwood | <i>Populus fremontii</i> | sparse (riparian areas) | M, L |
| willow | <i>Salix goodingi</i> | sparse (riparian areas) | U, L |

No significant effects to this vegetation community are anticipated. This community is not widely represented in most areas of the channel. Field location of sampling sites will avoid areas of significant vegetation.

Floodplain/Ephemeral Channel/Desert Wash Vegetation Community

These areas, located within or on the first or second terrace of the channel, are characterized by an ephemeral moisture regime. The areas exhibit primarily early to mid level successional species and invasive annual species. Densities vary and there is moderate disturbance. Table 2 lists the species found within this vegetation community.



Table 2: Agua Fria River – Floodplain/Ephemeral Channel Vegetation Community

(U = upper reach, M = middle reach, L = lower reach; as defined in the Project Area Description)

| <u>COMMON NAME</u> | <u>SCIENTIFIC NAME</u> | <u>FREQUENCY</u> | <u>REACH</u> |
|--------------------|-------------------------------|---------------------|-------------------|
| paloverde | <i>Cercidium spp.</i> | very scattered | U, M, L |
| creosote bush | <i>Larrea tridentata</i> | scattered to common | U, M, L |
| ironwood | <i>Olneya tesota</i> | sparse | U, M, L |
| mesquite | <i>Prosopis spp.</i> | very scattered | U, L |
| four-wing saltbush | <i>Atriplex canescens</i> | common | U, M, L |
| desert broom | <i>Baccharis sarothroides</i> | common | U, M, L |
| catclaw | <i>Acacia greggii</i> | scattered | U, M, L |
| tumbleweed | <i>Salsola iberica</i> | common | U, M, L |
| burrobush | <i>Hymenoclea monogyra</i> | scattered | U, M, L |
| brittlebush | <i>Encelia farinosa</i> | common | U, M, L |
| saltcedar | <i>Tamarix ramosissima</i> | common | U, M, L |
| cottonwood | <i>Populus fremontii</i> | sapling only | U, M, L |
| willow | <i>Salix goodingii</i> | sapling only | U, L |
| snakeweed | <i>Gutierrezia Sarothrae</i> | scattered to common | U, M, L |
| apache plume | <i>Fallugia paradoxa</i> | common | in isolated areas |
| seepweed | <i>Suaeda torreyana</i> | common | in isolated areas |

Some of this community will be disturbed by the sampling activity. The disturbance will be minimized to the extent practical.

Riparian/Wetland/Open-Water Vegetation Community

These limited areas are characterized by an enhanced hydroperiod. The areas are slightly species diverse and exhibit dense vegetation thickets. The moisture regime is mainly the result of augmented hydrology and there is minimal disturbance. Table 3 lists the species found within this vegetation community.



Table 3: Agua Fria River - Hydric Vegetation Communities

(Wetland, Open-Water Pools, and Riparian Areas)

(U = upper reach, M = middle reach, L = lower reach; as defined in the Project Area Description)

| <u>COMMON NAME</u> | <u>SCIENTIFIC NAME</u> | <u>FREQUENCY</u> | <u>REACH</u> |
|--------------------|-------------------------------|-------------------------|--------------------|
| paloverde | <i>Cercidium spp.</i> | scattered | U, M, L |
| creosote bush | <i>Larrea tridentata</i> | common | U, M, L |
| ironwood | <i>Olneya tesota</i> | sparse | U, M, L |
| mesquite | <i>Prosopis spp.</i> | scattered | U, M, L |
| four-wing saltbush | <i>Atriplex canescens</i> | common | U, M, L |
| desert broom | <i>Baccharis sarothroides</i> | common | U, M, L |
| catclaw | <i>Acacia greggii</i> | scattered | U, M, L |
| tumbleweed | <i>Salsola iberica</i> | common | U, M, L |
| burrobush | <i>Hymenoclea monogyra</i> | scattered | U, M, L |
| brittlebush | <i>Encelia farinosa</i> | common | U, M, L |
| saltcedar | <i>Tamarix ramosissima</i> | common | U, M, L |
| cottonwood | <i>Populus fremontii</i> | sparse (riparian areas) | M, L |
| willow | <i>Salix goodingi</i> | sparse (riparian areas) | U, L |
| cat-tails | <i>Typha spp.</i> | scattered | in saturated areas |
| bullrush | <i>Scirpus spp.</i> | scattered | in saturated areas |
| Common Reed | <i>Phragmites</i> | scattered | in saturated areas |

The sample sites will be located to avoid these areas; therefore, this community will not be affected by the sampling activity.

F) Wildlife

The methodology for gathering data included ground truthing and recording information based on wildlife seen or inferred. Wildlife inferences were based on scat, tracks, or borrows along the Agua Fria River corridor. Table 4 is a non-inclusive list of the wildlife species that inhabit the Agua Fria River corridor.



Table 4: Agua Fria River Corridor Wildlife Species

(U = upper reach, M = middle reach, L = lower reach; as defined in the Project Area Description)

(S = sighted, I-inferred)

| <u>COMMON NAME</u> | <u>SCIENTIFIC NAME</u> | <u>REACH</u> | <u>STATUS</u> |
|-------------------------|--|--------------|---------------|
| common raven | <i>Covus corax</i> | U, M, L | S |
| house sparrow | <i>Passer domesticus</i> | M, L | S |
| egrets | <i>Casmerodius albus</i> | L | S |
| red-winged blackbird | <i>Agelaius phoeniceus</i> | U, M, L | S |
| red-tailed hawk | <i>Buteo jamaicensis</i> | M, U | S |
| mourning dove | <i>Zenaida macroura</i> | U, M, L | S |
| roadrunner | <i>Geococcyx californianus</i> | U, M, L | S |
| cactus wren | <i>Campylorhynchus brunneicapillus</i> | U, M, L | S |
| great blue heron | <i>Ardea herodias</i> | L | S |
| Gila woodpecker | <i>Melanerpes uropygialis</i> | U, M, L | S |
| gambel quail | <i>Lophortyx gambelii</i> | U, M, L | S |
| peregrine falcon | <i>Falco peregrinus</i> | U, M | S |
| whiptail lizard | <i>Cnemidophorus tigris</i> | U, M, L | S |
| blacktailed jack rabbit | <i>Lepus californicus</i> | U, M, L | S |
| coyote | <i>Canis latrans</i> | U, M, L | I |
| mule deer | <i>Odocoileus hemionus</i> | U | S |

No significant effect to wildlife usage is anticipated from the sampling activity.

G) Protected Species/Areas

The U.S. Fish and Wildlife Service Endangered Species Act database was accessed for a list of threatened and endangered species in Maricopa County and the Arizona Fish and Game Department (AGFD) Heritage Program was queried for recorded sightings of state or federal species of concern. The numerous field reconnaissance conducted by environmental scientist include evaluation for protected habitat or species inhabitation. The majority of the site does not provide habitat for listed state or federal species. Areas at the confluence of the Gila/Agua Fria (southern most portion) provide open water and therefore potential habitat for avian species including migratory waterfowl. The northern most area also provides some, at least semi-permanent open water and vegetation cover that is potential migratory bird habitat. Increased wildlife activity was noted in both of these areas, although no evidence of threatened species was noted at either site. A suspected Blue Heron nesting Colony was observed at the Gila/Agua Fria Confluence.



Sampling in the lower reach (near the confluence) will be timed so as to not disturb nesting migratory species. No adverse effects to protected species are anticipated from the sampling activity.

V. Proposed Activity

A) Purpose of Sediment Sampling

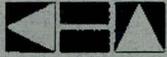
The purpose of sediment sampling is to obtain data to conduct an evaluation of the potential of channel lateral migration and to project sediment loads, aggradation/degradation potential, and scour. The information gathered from the samples will include sediment size and gradation, physical character (i.e. – shape, texture, etc.), stratification, compaction, and other depositional criteria.

B) Location of Sediment Sample Sites

There are approximately 60 proposed sediment sample sites for the complete project. Forty-two of these sites are located within or adjoin the Section 404 jurisdictional boundaries as based on preliminary establishment of the ordinary high water mark. These sites are noted on the submitted aerial photos (denoted with solid green triangles). In addition, sediment samples will be taken from locations outside of these jurisdictional boundaries. The data obtained from the samples collected will help determine soil age and historic conditions of the river channel.

Avoidance of activity within the jurisdictional area was not possible because of the necessity to obtain sediment information on the “active” river channel. The number of sampling sites has been reduced to the minimum needed for scientifically defensible results.

Impacts are minimized by using rubber tired equipment, keeping sampling site size to a minimum, locating sampling sites outside of wetland/riparian areas, and utilizing hand sampling techniques where practical.



Kimley-Horn
and Associates, Inc.

Appendix A – Completed Engineering Form 4345

Public reporting burden for this collection of information is estimated to average 5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Service Directorate of Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authority: 33 USC 401, Section 10; 1413, Section 404. Principal Purpose: These laws require permits authorizing activities in, or affecting, navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Routine Uses: Information provided on this form will be used in evaluating the application for a permit. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application cannot be processed nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

| | | | |
|--------------------|----------------------|------------------|-------------------------------|
| 1. APPLICATION NO. | 2. FIELD OFFICE CODE | 3. DATE RECEIVED | 4. DATE APPLICATION COMPLETED |
|--------------------|----------------------|------------------|-------------------------------|

(ITEMS BELOW TO BE FILLED BY APPLICANT)

| | |
|---|--|
| 5. APPLICANT'S NAME Flood Control District of Maricopa County ATTN: Doug Williams | 8. AUTHORIZED AGENT'S NAME AND TITLE (see Agent is not required) Kimley-Horn and Associates, Inc. ATTN: Bruce Wilcox |
| 6. APPLICANT'S ADDRESS 2801 West Durango Phoenix, AZ 85009-6399 | 9. AGENT'S ADDRESS 7600 N. 15th Street, Suite 250 Phoenix, AZ 85020 |
| 7. APPLICANT'S PHONE NOS. W/AREA CODE a. Residence daw@mail.maricopa.gov b. Business 602-506-8743 | 10. AGENT'S PHONE NOS. W/AREA CODE a. Residence bwilcox@kimley-horn.com b. Business 602-906-1373 or 602-538-3491 |

11. STATEMENT OF AUTHORIZATION

I hereby authorize, Kimley-Horn and Associates to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

APPLICANT'S SIGNATURE

DATE

NAME, LOCATION AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
AGUA FRIA SEDIMENT SAMPLING PROGRAM

| | |
|--|--|
| 13. NAME OF WATERBODY, IF KNOWN (if applicable) Agua Fria River | 14. PROJECT STREET ADDRESS (if applicable) Not Applicable |
| 15. LOCATION OF PROJECT Maricopa COUNTY AZ STATE | |

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN, (see instructions)
Please see attached location map and project description.

17. DIRECTIONS TO THE SITE

18. Nature of Activity (Description of project, include all features)

Sediment sampling at approximately 60 sites within and adjacent to the Agua Fria river channel. Please see attached Project Description.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

Collection of scientific data for engineering and environmental analysis to support alternative analysis for Flood Control Master Plan.

USE BLOCKS 20-22 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Temporary stockpiling of material during sediment sampling - See accompanying description.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards

In-Situ channel alluvium - Estimated to be appx. 10-15 cubic yards per trench to be re-deposited in trench at conclusion of sampling operation.

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

No permanent fill - Excavated material will be returned to trench.

23. Is Any Portion of the Work Already Complete? Yes No

IF YES, DESCRIBE THE COMPLETED WORK

NO

24. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

Not applicable for Nationwide Authorization

25. List of Other Certifications or Approvals/Denials Received from other Federal, State or Local Agencies for Work Described in This Application.

| AGENCY | TYPE APPROVAL* | IDENTIFICATION NUMBER | DATE APPLIED | DATE APPROVED | DATE DENIED |
|--------|----------------|-----------------------|--------------|---------------|-------------|
| SHPO | Clearance | | | | |

*Would include but is not restricted to zoning, building and flood plain permits

26. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT

DATE

SIGNATURE OF AGENT

DATE

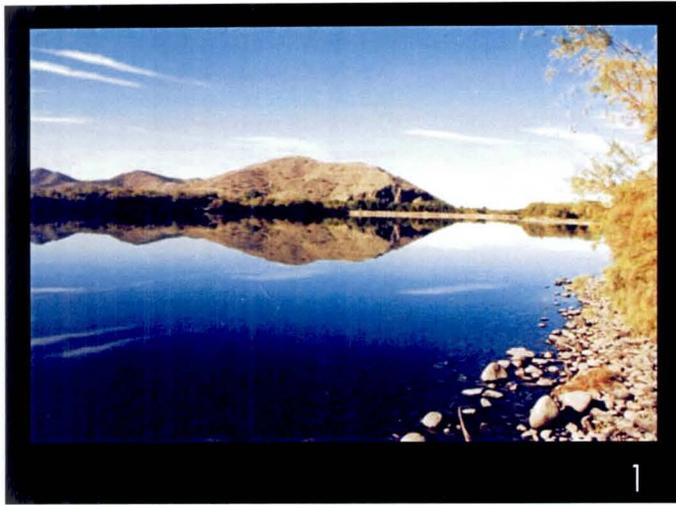
The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.



Kimley-Horn
and Associates, Inc.

Appendix B – Ground Photography



1



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3



4

GROUND PHOTOGRAPHY
AGUA FRIA WATER COURSE MASTER PLAN

L O W E R R E A C H

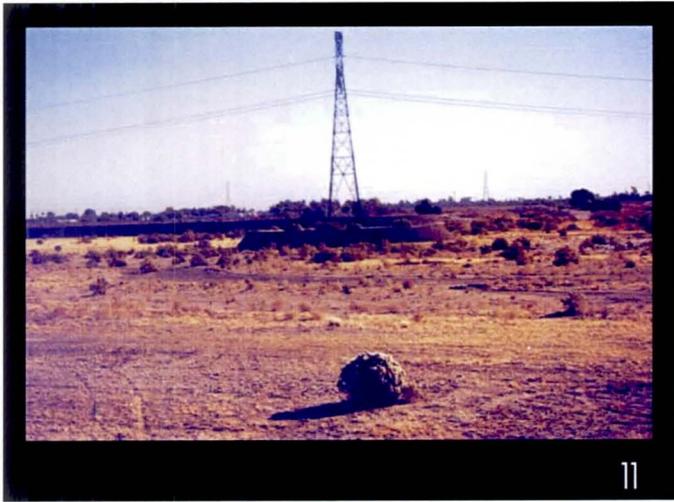




9



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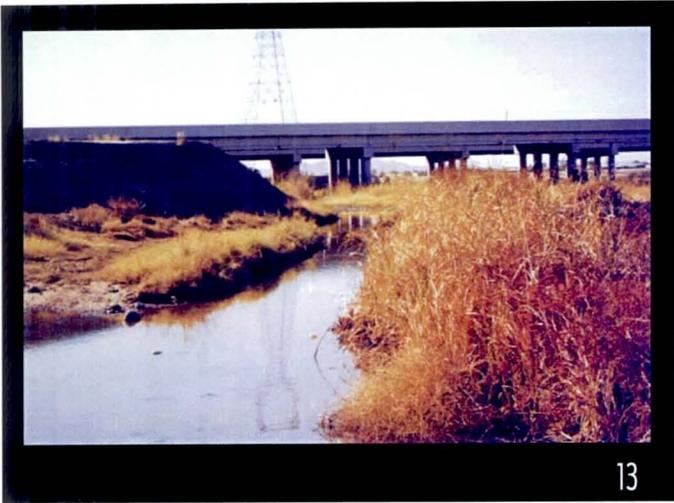
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12

GROUND PHOTOGRAPHY
AGUA FRIA WATER COURSE MASTER PLAN

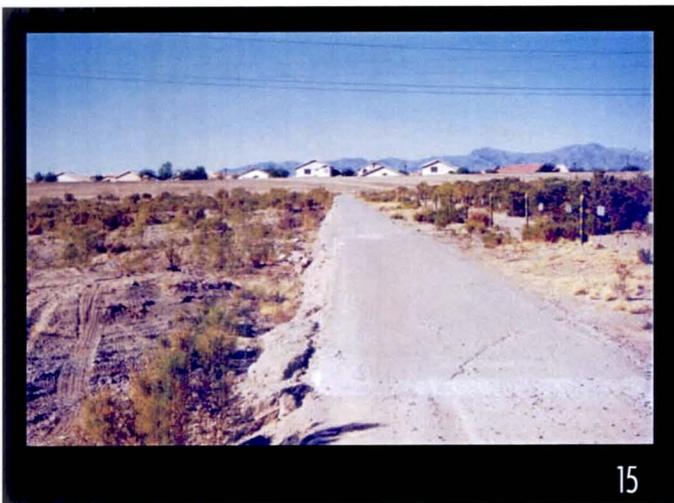
L O W E R R E A C H



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16

GROUND PHOTOGRAPHY
AGUA FRIA WATER COURSE MASTER PLAN

L O W E R R E A C H



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GROUND PHOTOGRAPHY
AGUA FRIA WATER COURSE MASTER PLAN

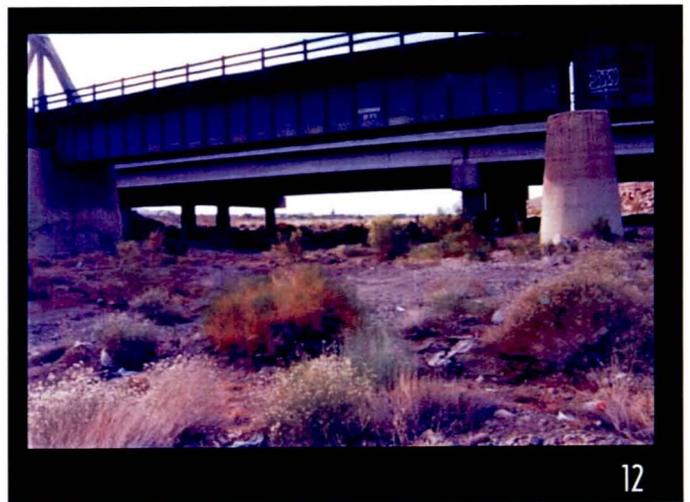
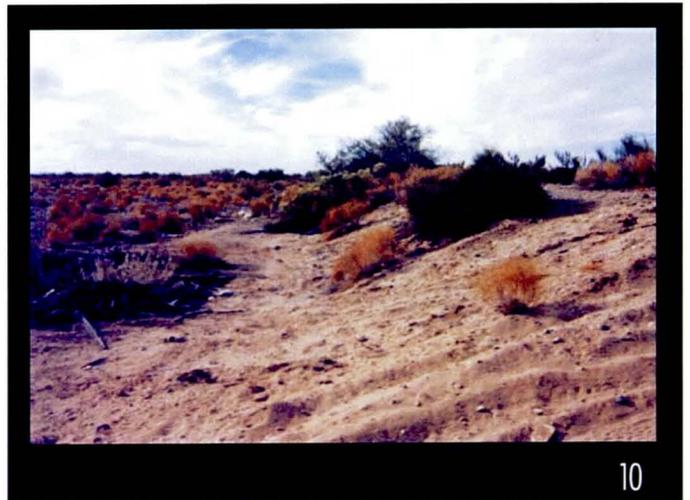
L O W E R R E A C H



GROUND PHOTOGRAPHY
AGUA FRIA WATER COURSE MASTER PLAN

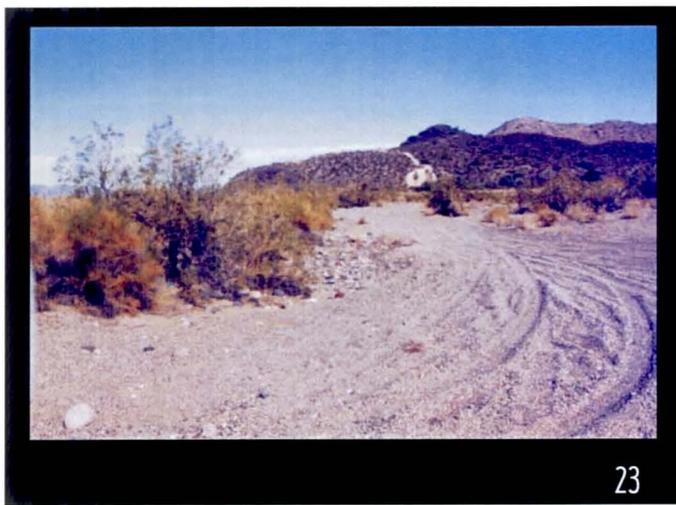
M I D D L E R E A C H













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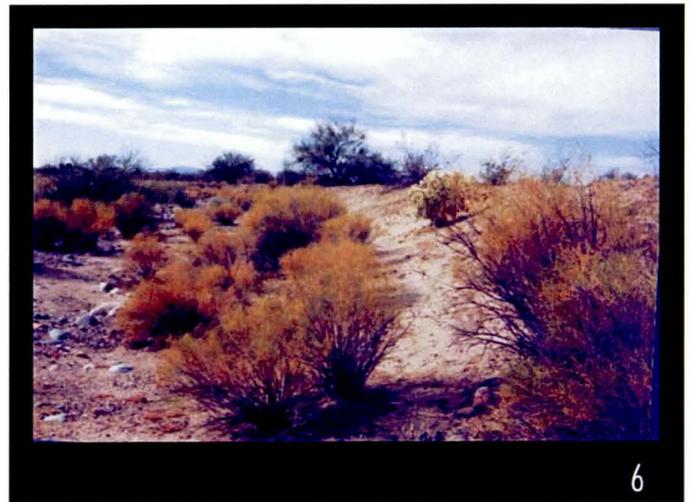
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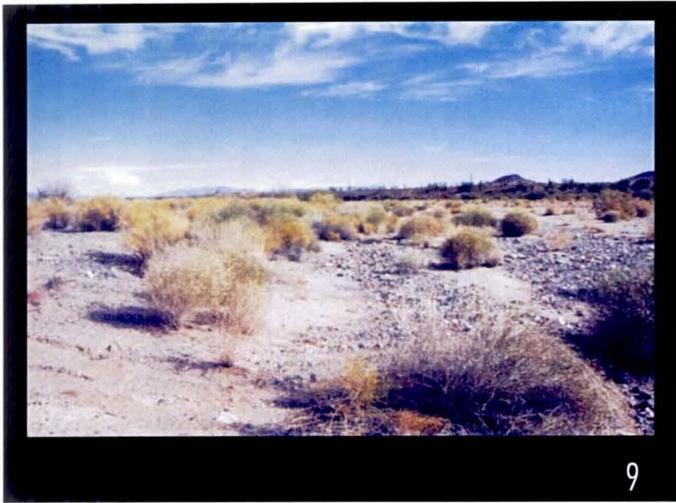


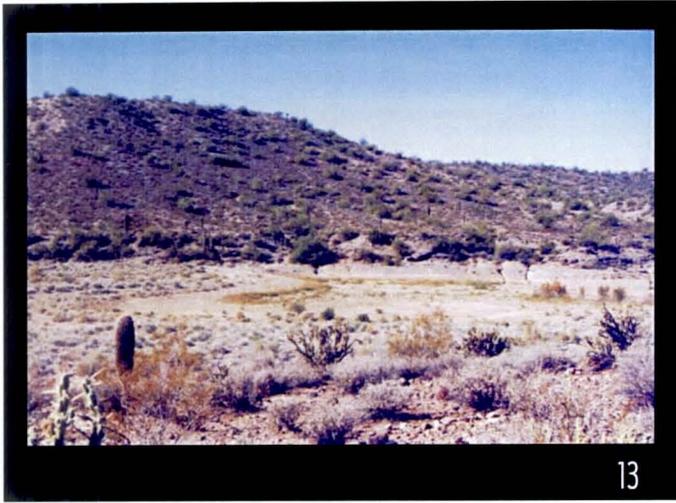
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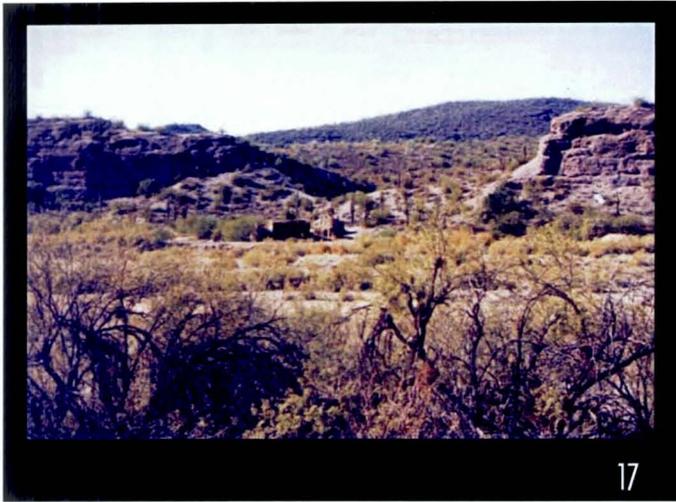
GROUND PHOTOGRAPHY
AGUA FRIA WATER COURSE MASTER PLAN

U P P E R R E A C H









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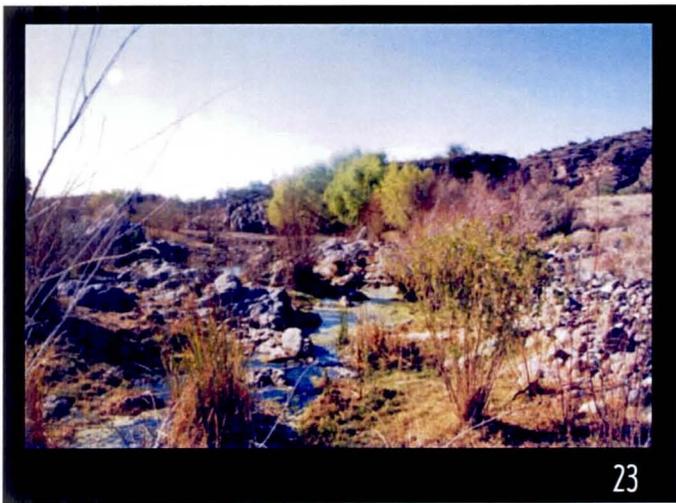
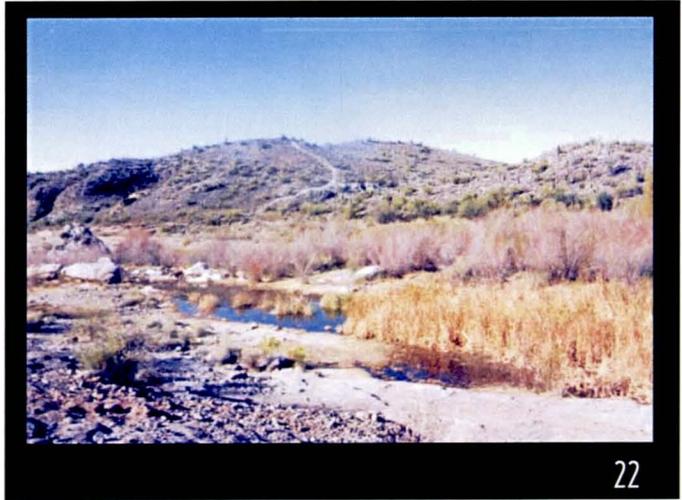
20

GROUND PHOTOGRAPHY
AGUA FRIA WATER COURSE MASTER PLAN

U P P E R R E A C H



Kimley-Horn
and Associates, Inc.





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