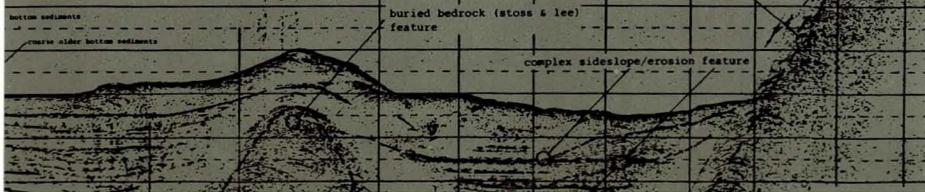
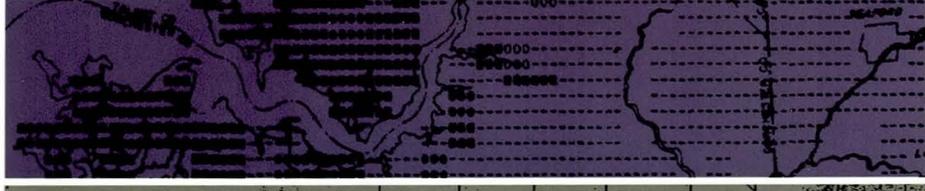
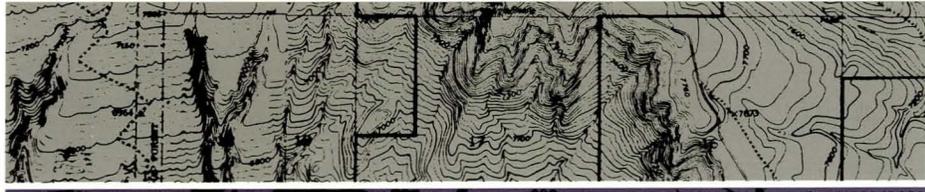
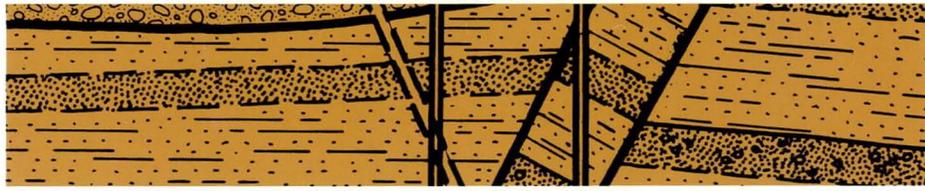
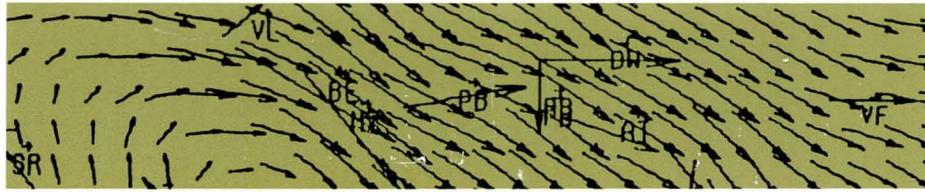


RGP
6/15/93



REPORT

**WATERS OF THE UNITED STATES
AND
WETLAND DELINEATIONS FOR STATE ROUTE 87**

**Job No. 11344-061-050
February 18, 1993**

DAMES & MOORE

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February 18, 1993

Ms. Cindy Lester
Mr. Ron Fowler
U.S. Army Corps of Engineers
Arizona Area Office
3636 N. Central Avenue
Phoenix, Arizona 85013

Dear Cindy and Ron:

Attached is a revised report and maps of wetlands and non-wetland, Waters of the United States for the State Route 87 upgrading project.

The revised report contains photographs of most of the wetlands that we looked at last September. I also took a number of Kodachrome slides of representative, non-wetland waters when I revisited the study area last week. The slides are still being processed, but I would be happy to make them available to you if that would assist you in your work on this project. The revised report also contains appendices in which I have included all of the field data forms from our work last September, as well as summaries of all the hand calculations I used to determine acreages of wetlands and non-wetland waters.

The attached maps are the same ones I gave to Ron in November. They are a little beat up and I made corrections directly on them so you could both see what I had done. I have also included estimated (scaled from aerial photographs) and actual field measurements of waters and wetlands on the maps. If you have any questions about any of the information I have put on the maps, please give me a call.

I believe the revisions I have made to the maps and the report fulfill the objectives for this work that we agreed upon at our last meeting on January 28. If there is anything I can do to assist your review of this information, please let me know.

Very truly yours,

DAMES & MOORE, INC.



E. Linwood Smith, Ph.D., Director,
Biological Resources Study Group

ELS:jc

Attachments: Revised Inventory Report
Revised Set of Nine Aerial Photography Panels

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WATERS OF THE UNITED STATES AND WETLAND DELINEATIONS FOR STATE ROUTE 87

INTRODUCTION

The Arizona Department of Transportation (ADOT) is planning to upgrade Arizona State Route 87 (SR 87) between the Saguaro Lake turnoff and Gila County line east of Phoenix. Upgrading of the highway is necessary due to the very heavy volume of traffic between Phoenix and recreation areas in the vicinity of Payson and elsewhere on the Mogollon Rim of Central Arizona. Upgrading of the highway will result in the deposition of fill materials and other impacts to jurisdictional waters and wetlands of the United States. Consequently, it is necessary for ADOT to obtain a Section 404 permit from the U.S. Army Corps of Engineers (COE) in accordance with mandates of the Clean Water Act.

In order to achieve compliance and develop the necessary information required for a Section 404 permit, ADOT, through an existing agreement, requested that Dames & Moore conduct a wetlands delineation for the project. In addition to identifying and delineating jurisdictional wetlands within the project area, the COE requested that non-wetland waters of the United States also be identified and potential impacts to those waters estimated.

The following report addresses the concerns of the COE, identifies jurisdictional wetlands and non-wetland waters of the United States, and provides an estimate of the level of impact likely to occur as a result of upgrading of SR 87.

METHODS

Inventory and delineation of Waters of the United States (both wetland and non-wetland waters) was accomplished through examination of aerial photography, National Wetland Inventory Maps published by the U.S. Fish and Wildlife Service (USFWS), and field reconnaissance. Guidelines published in the 1987 Wetlands Delineation Manual were used in making wetland determinations. Waters of the United States were generally defined as any drainage channel that was more than five feet from bank to bank (i.e., ordinary high water mark to ordinary high water mark on opposite sides of the channel) and did not possess at least one critical wetland indicator (usually hydric vegetation). The general guideline of five-foot width for Waters of the United States was not

absolutely applied and some drainages of narrower dimensions were identified as Waters of the United States if channel depth suggested that significant volumes of water were carried by the drainage. Procedures used for delineations followed those defined for routine wetland determinations described in the COE's 1987 Wetlands Delineation Manual.

Field studies were conducted by Dames & Moore biologists on September 10, 11, and 12, 1992, with a follow-up visit by one biologist on February 8, 1993. Field studies consisted of driving and/or hiking along alternative routes and recording data that would be used to assist in the delineation of Waters of the United States and wetlands. In the field, notes were kept and data transferred to Routine Wetland Determination data forms from the 1987 COE Wetlands Delineation Manual. Photographs were made of representative sections of most wetlands examined. During the February work, photographs were also made of representative non-wetland, Waters of the United States.

Field studies were augmented by aerial photography (scale=1:1,000) provided by the ADOT. NBS Lowry Engineering also provided mylars of aerial photography of the proposed alternative routes at a scale of 1"=400'. NBS Lowry also provided topographic overlays for the proposed affected areas along each alternative route. Topography was mapped at five-foot intervals. Field personnel also used National Wetland Inventory Maps provided by the USFWS.

Prior to the February 1993 field work, approximate dimensions of all Waters of the United States identified during earlier work were scaled from the 1":400' aerial photographs of alternatives and impact areas. Only those dimensions of Waters of the United States that fell within designated cut and fill impact or bridge construction areas depicted on the aerial photographs were determined. During the February field work, a subset of measurements made from the aerial photography was checked for accuracy. Accuracy checks were made by physically measuring the dimensions (primarily width) of drainages. Measurements that were made in the field are so indicated on the accompanying maps; estimated measurements that were scaled from aerial photographs are indicated as being estimates.

Following the February field work, the total acreage of each drainage and wetland present within the proposed disturbance zone for new construction was determined (see Appendix A). These estimates of acreages were then utilized to determine total acreage

of wetland and non-wetland, Waters of the United States that were likely to be affected along each potential alternative route for the project.

RESULTS

On the accompanying set of maps, waters of the United States are delineated in yellow and jurisdictional wetlands are delineated in green.

All wetlands delineated along alternative corridors are designated as riverine or palustrine. Riverine designations included some small patches of wetlands associated with springs in drainageways. Palustrine wetlands were universally associated with artificial impoundments built for providing water to livestock.

To facilitate the description of Waters of the United States in the remainder of this report, we refer to the set of aerial photographs that accompany this document. Wetland numbers (1-14) that are discussed are identified on the appropriate aerial photograph with a white label.

The following is a description of each of the aerial photograph panels and the Waters of the United States that are present on that panel, beginning at the southern end (i.e., Saguaro Lake Turnoff on SR 87) of the project. The status of plant species as wetland indicators (USFWS, 1988) in Region 7 (Arizona and New Mexico) is indicated in the parenthetical inclusion of the species' scientific name the first time the species is mentioned; following the first mention of a given plant species, its wetland indicator status is parenthetically included following the common name.

AERIAL PHOTOGRAPH PANEL A: FOUR PEAKS SEGMENT

There are no jurisdictional wetlands on the Four Peaks Segment. Ten separate, small, ephemeral washes that we designated as Waters of the United States are potentially affected along this segment of SR 87. These washes ranged between 5 and 7 feet in width and from about 6 inches to 4 feet in depth. A total of 16 potential impact points on these drainages were identified. A total of 0.18 (Table 1) acres of Waters of the United States are likely to be affected (see Appendix A; Sheet A).

All of the washes on Panel A traverse desertscrub habitats and there is no difference in plant species composition along these drainageways versus that which characterizes the

TABLE 1
Total Acreages of Waters of the United States and Wetlands
Likely to be Affected by Construction of Arizona State Route 87
 (Acres are summarized for the different route segments illustrated on the accompanying 1:400 scale maps)

SEGMENT/ MAP NUMBER	MILEPOSTS	WETLANDS	WATERS
Four Peaks Map A	201-204	0.00	0.18
Tombstone Hill Map B	204-207	0.07	0.75
Mesquite Wash . Map C	207-209.5	0.44	0.52
Pine Creek Map D	209.5-212.5	0.04	1.53
Screwtail Hill Maps E-1,E-2	212.5-217.5	1.17	1.25
Sycamore Canyon Maps F-1,F-2,F-3	217.5-226		
West Sycamore		0.56	2.89
Kitty Joe Canyon		0.73	3.13

adjacent uplands. Common plant species, along washes and in adjacent uplands, include desert hackberry (*Celtis reticulata*), catclaw (*Acacia greggii*), whitethorn (*A. constricta*), mesquite (*Prosopis velutina*), foothill paloverde (*Cercidium microphyllum*), crucifixion-thorn (*Canotia holacantha*), jojoba (*Simmondsia chinensis*), California buckwheat (*Eriogonum wrightii*), turpentine bush (*Haplopappus laricifolius*), banana yucca (*Yucca baccata*), barrel cactus (*Ferocactus wislizeni*), prickly pear (*Opuntia phaeacantha*), buckhorn cholla (*O. acanthocarpa*), Christmas cactus (*O. leptocaulis*), and a variety of forbs and grasses (e.g., *Bromus* sp., *Eragrostis* sp., *Sphaeralcea* sp., *Lotus* sp., and *Clematis* sp.).

AERIAL PHOTOGRAPH PANEL B: TOMBSTONE HILL SEGMENT

A total of 20 Waters of the United States are traversed by the Tombstone Hill Segment. Of these, two are wetlands and the remainder are non-wetland waters. A total of 2 wetland impact points and 24 non-wetland impact points are illustrated on Panel B (see Also Appendix A: Sheet B and Appendix B - Routine Wetland Delineation Data Forms). Table 1 summarizes the total acreage of jurisdictional waters likely to be affected, including 0.07 acres of wetlands and 0.75 acres of non-wetland, Waters of the United States.

Wetland No. 1: This drainageway has been classified R4SBJ by the USFWS, indicating an intermittent riverine system whose streambed is intermittently flooded. On September 12, 1992, sandy soils were wet to the surface and some water was standing on the west side of existing SR 87. On February 8, 1993, the stream was flowing in a braided channel that ranged from about 2 to 8 feet in width. Vegetation along and in the stream channel is dominated by mesquite (FACU), catclaw, desert hackberry, and canyon ragweed (*Ambrosia ambrosioides*). In addition, hopbush (*Dodonea viscosa*) occurs on nearby hillsides and extends down to the edge of the wetland channel. Seepwillow (*Baccharis glutinosa* - FACW) is fairly common in the stream channel west of existing SR 87 as is horsebush (*Hymenoclea monogyra*) (see Photo 1). Vegetation on the upstream (east) side of existing SR 87 is similar except that the stream channel is very sandy and generally lacking horsebush, canyon ragweed, and seepwillow. However, in this drainageway on the east side of SR 87 are several cottonwoods (*Populus fremontii* - FACW) and at least one, fairly large Goodding willow (*Salix gooddingii* - OBL) (see Photo 2).



Photo 1. Downstream view of USFWS-designated wetland near the Sugarloaf turnoff on existing SR 87.



Photo 2. Upstream view of the same wetland in Photo 1. Large trees in the photo are cottonwood and willow.

Wetland No. 1 is likely to be affected by construction at two locations; at the existing SR 87 crossing and approximately 500 feet downstream at a proposed, new crossing.

Non-wetland waters on Photograph Panel 2 range from about 4 to 25 feet in width and generally drain uplands of exposed bedrock and boulders. Vegetation is mostly dominated by shrubs (e.g., catclaw, mesquite, whitethorn, hopbush, California buckwheat, jojoba, and others) with scattered individual paloverde and juniper (*Juniperus monosperma*) trees and several species of cacti.

Steep, rocky slopes along the east side of existing SR 87 (see Aerial Photograph Panel C) are drained by a complex of small (1 to 3 feet), generally shallow washes that are not designated non-wetland waters.

AERIAL PHOTOGRAPH PANEL C: MESQUITE WASH SEGMENT

The Mesquite Wash Segment traverses two jurisdictional wetlands, one on Mesquite Wash and another on Rock Creek (see Photograph Panel C and Appendix B - Routine Wetland Delineation Data Forms). A total of 0.44 acres of wetlands are likely to be affected, primarily on Rock Creek (0.39 acres). In addition, a total of 10, non-wetland, Waters of the United States, including Mesquite Wash and Rock Creek, are likely to be affected. Acreage of non-wetland waters totals 0.52 acres (Table 1 and Appendix A: Sheet C).

Wetland No. 2: This wetland area has been designated R4SBJ and R4SBA by the USFWS, and includes both Rock Creek and Mesquite Wash. R4SBA indicates that the intermittent streambed is temporarily (as opposed to intermittently) flooded. The wetland is a complex formed by Rock Creek and Mesquite Wash. On September 11, 1992, both streams were flowing within the project influence zone. Rock Creek was not flowing above the USGS stream gauge on the east side of SR 87 and a designation of Waters of the United States might be appropriate for this stream above the gauge. Fish, probably *Agosia chrysogaster*, were common-to-abundant in both Mesquite Wash and Rock Creek. Fish populations in Rock Creek west of SR 87 appeared, subjectively, to be smaller than those in Mesquite Wash. Fish numbers were much smaller in Mesquite Wash on the east side of SR 87 than on the west side where very large numbers (estimated 3 to 10 individuals/meter) were present. Lowland leopard frogs (*Rana yavapaiensis*) were also common on both Rock Creek and Mesquite Wash, but

approached being abundant immediately east of SR 87 on Mesquite Wash. One, individual, belted kingfisher (*Ceryle alcyon*) was observed on the west side of SR 87.

Streamside vegetation in the Mesquite Wash-Rock Creek area on the west side of existing SR 87 is dominated by mesquite (FACU) on upland terraces bordering the streams. Below the terraces, along the stream channel, the vegetation consists of mesquite, cottonwood (FACW), goodding willow (OBL), willow (*Salix* sp.- FACW-OBL), seepwillow (FACW), occasional sycamores (*Platanus wrightii* -FACW-), and a fairly common understory component, buttonbrush (*Cephalanthus occidentalis* - OBL) (see Photo 3). Bermuda grass (*Cynodon dactylon* - FACU) is a very common ground cover species. Streamside vegetation on the east side of SR 87 is more sparse on both Rock Creek and Mesquite Wash. Common plants include netleaf hackberry (*Celtis reticulata* - FACU), mesquite, horsebush, bermuda grass, and scattered seep willow.

Non-wetland waters, other than those associated with Rock Creek and Mesquite Wash, are fairly widely scattered and relatively small (ranging in width from about 4 to 20 feet). No wetland indicator plants were observed on any of these washes which are all ephemeral waters. On February 8, 1993, despite heavy rainfall, many of these washes were not flowing.

Vegetation associated with non-wetland waters is dominated by mesquite, catclaw, desert hackberry, mimosa, grasses, yucca, and a several species of cacti.

AERIAL PHOTOGRAPH PANEL D: PINE CREEK SEGMENT

The Pine Creek Segment traverses 10, Waters of the United States, including one wetland. A total of 24 impact points, totalling 1.53 acres, occur along the 9, non-wetland waters. One wash, near the north end of the segment, parallels the existing highway, winding in and out of the potential disturbance zone. The result is this one wash is represented by a total of 6 separate impact points (Aerial Photograph Panel D; Appendix A: Sheet D). The wetland traversed by the segment is on pine Creek (total affected acres 0.04). A second, USFWS-designated wetland occurs on Camp Creek. We question the validity of a wetland designation on Camp Creek (see Wetland No. 3 below). Total acres of wetland and non-wetland, Waters of the United States on this segment are presented in Table 1 (see also Appendix B - Routine Wetland Delineation Data Sheets).

Wetland No. 3: Camp Creek, within the influence zone of SR 87, is designated a wetland (R4SBJ) by the USFWS. It is vegetatively dominated on the stream banks by mesquite (FACU) and desert hackberry. Bermuda grass (FACU) is fairly common in the stream channel. Stream channel soils are sandy to coarse-sandy and were not moist within 2.5 inches of the surface on September 12, 1992. The stream was flowing on February 8, 1993. Clayey soils at the lower edges of the stream banks were moist on September 12, 1992.

Debris was noted about 1.5 feet above the ground in streamside shrubs and debris lines were in evidence 3 to 8 feet beyond the incised stream channel. The stream channel probably averages about 20 feet in width, locally up to 30 feet, within the project influence zone.

We question the USFWS wetland designation for this site based on soils and vegetation (see Photo 4) and have mapped it as a non-wetland Water of the United States for this project. Construction of a box culvert at this crossing of Camp Creek would result in an impact to approximately 0.11 acres. There is a small spring immediately on the downstream side of the existing box culvert that carries SR 87 over this drainageway. On September 12, 1992, this spring fed a small pool (about 3x3 feet and 1 inch deep) that contained 15, live and 1, dead fish (cf. *Agosia chrysogaster*). In addition to the fish, at least 10 individuals of *Rana yavapaiensis* were noted within about 45 feet of the pool and up under the culvert.

Wetland No. 4: The Pine Creek crossing of existing SR 87 is a designated USFWS wetland (R4SBJ). We concur with this designation. Within the proposed influence zone, the stream has a braided channel of boulders with sand and gravel interstices. On September 12, 1992, soil in the channel bottom was generally moist to within 1.5 to 2.0 inches of the surface and there were pools of standing water. Silt lines, drift lines, and water lines on streambed boulders were evident. We noted drift material 3 to 4.5 feet aboveground in sapling cottonwoods on the east side of existing SR 87. On February 8, 1993, the stream was flowing bank to bank at the proposed new crossing site.

Floodplain vegetation consists of mesquite (FACU), catclaw, foothill paloverde, jojoba, and canyon ragweed. Within the stream channel, we noted the presence of cottonwood (FACW), seep willow (FACW), netleaf hackberry (FACU), deergrass (*Muhlenbergia rigens* - FACU), clammy-weed (*Polanisia dodecandra* - FACU-), and buttonbrush (OBL) (see Photos 5 and 6).



Photo 3. Characteristic vegetation at Rock Creek. Much of the shrubby vegetation in the photo is buttonbush. Several, lowland leopard frogs were present at this site.



Photo 4. A characteristic aspect of Camp Creek. Note the lack of wetland indicator plants; vegetation shown here consists mostly of mesquite and catclaw.



Photo 5. Pine Creek at the approximate location of a proposed, new crossing. Note the young cottonwood trees at the left.

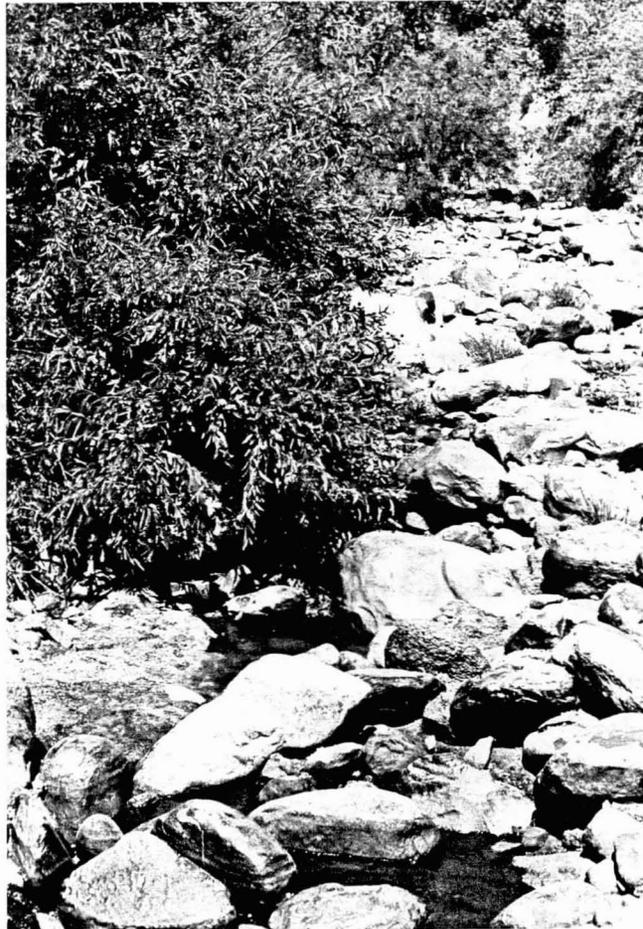


Photo 6. Pine Creek at the approximate location of a proposed, new crossing. Note the standing water, water marks on boulders, and buttonbush.

Immediately on the upstream side of the existing box culvert that carries SR 87 over Pine Creek is a series of pools containing small-to-moderate numbers of fish, presumably *Agosia chrysogaster*. Also, we observed at least 250 to 300 individuals of *Rana yavapaiensis* associated with these pools (see Photo 7). On the downstream (west) side of the existing culvert, we observed 50 to 75 additional lowland leopard frogs near a small (4.5x3.0 feet) pool.

Construction of a new bridge at Pine Creek would result in a potential impact to 0.04 acres of wetland.

Non-wetland, Waters of the United States on the Pine Creek segment vary between about 7 and 25 feet in width (Appendix A: Sheet D). Vegetation associated with these waters is primarily desert-grassland mixed with juniper. No wetland indicator plant species were observed in any of the waters we have designated as non-wetlands. Mesquite (FACU) is a common component of the vegetation along most non-wetland waters on this segment. It is, however, also a common component of the upland plant community.

AERIAL PHOTOGRAPH PANELS E-1 AND E-2: SCREWTAIL HILL SEGMENT

The Screwtail Hill Segments of the proposed project traverse 15, Waters of the United States, 3 of which are wetlands (see Aerial Photograph Panels E-1 and E-2). A total of 1.25 acres of non-wetland waters and 1.17 acres of wetlands would be affected by construction along this segment of SR 87 (Table 1; Appendix A: Sheets E-1 and E-2).

Wetland No. 5: The crossing of existing SR 87 on Sycamore Creek in Round Valley is a fairly complex wetland with several USFWS designations in the vicinity of the projected influence zone. Existing USFWS designations include R2UBH (riverine, lower perennial, with an unconsolidated bottom and permanently flooded), R4SBA (riverine, intermittent, streambed temporarily flooded), R4SBJ (riverine, intermittent, streambed intermittently flooded), R4SBC (riverine, intermittent, streambed seasonally flooded), R2USC (riverine, lower perennial, unconsolidated shore, seasonally flooded), and PSSIJ (palustrine, scrub-shrub, broadleaf deciduous, intermittently flooded). The designation at the proposed location of the new bridge is R2UBH. We question the accuracy of this designation at that site because we doubt that the site is permanently flooded.

On September 12, 1992, we noted several pools of standing water upstream from the existing bridge; there was no standing water downstream from the bridge in the projected construction influence zone. There was no surface flow, but there were numerous, recently-dried pools covered with desiccated algal mats. Soils were moist to within about 4 to 6 inches of the surface and exoskeletons of crayfish were common in dried pools. The channel of Sycamore Creek at this location is somewhat variable in width, probably averaging in excess of 150 feet with an unconsolidated cobble/sand substrate channel bottom. On February 8, 1993, the stream was flowing, varying from about 45 to 60 feet in width. Non-wetland, Waters of the United States extended for approximately 60 feet on the south side of the flowing channel and about 120 feet on the north side.

Vegetation within the channel consists of seepwillow (FACW), horsebush, and scattered sycamores (FACW-). Heavy flows along this stretch of Sycamore Creek appear to limit perennial plant establishment in the stream channel (see Photo 8). We noted drift debris on a barbed-wire fence under the existing Sycamore Creek bridge more than 4.5 feet above the surface of the stream channel. Water marks were also obvious on bridge support structures in the stream channel at the south end of the existing bridge. Vegetation on terraces immediately above the stream channel is dominated by mesquite (FACU), with bermuda grass forming a common ground cover.

Construction of a new bridge at Sycamore Creek in Round Valley would impact about 0.10 (calculated at 0.07 - see Aerial Photograph Panel E-1) acres of wetlands and 0.20 acres of non-wetland, Waters of the United States

Wetland No. 6: Wetland No. 6 consists of two wetland designations, PUSCh (palustrine, unconsolidated shore, seasonally flooded, diked/impounded) on the west side of the existing highway and R4SBA (riverine, intermittent, streambed temporarily flooded) on the east side of the existing highway. Only wetlands on the east of SR 87, at the site of the Lower Screwtail Bridge, are likely to be affected by construction of the SR 87 upgrade project.

On September 12, 1992 both wetlands contained standing water (see Photos 9 and 10). The impoundment on the west side of the highway supports a number of large, mature Goodding willows (OBL-) and the upstream wash that drains into it supports strand vegetation of horsebrush and seep willow (FACW). The riparian community on the east side of the highway is strongly dominated by large cottonwood (FACW) and Goodding willows (OBL) immediately east of the existing highway. Downstream, the presence of



Photo 7. An individual *Rana yavapaiensis*. This frog was one of several that were occupying the pool shown in Photo 6.



Photo 8. Sycamore Creek at Round Valley looking downstream from the existing bridge. The large tree to the left of center is a sycamore. Shrubby plants in the stream channel are primarily horsebrush.

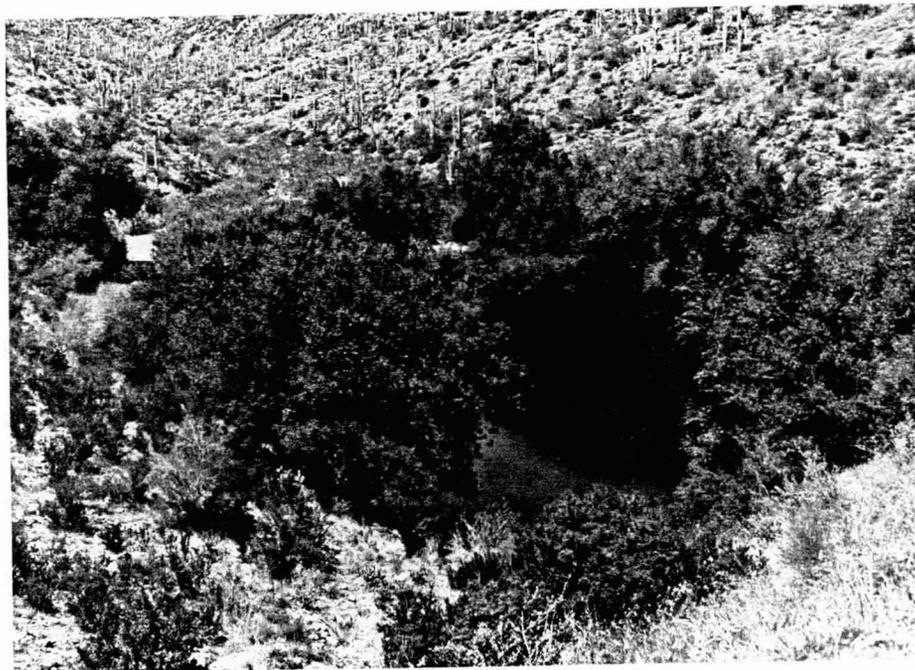


Photo 9. Tank on the west side of existing SR 87. Large trees surrounding the tank are willows, probably Goodding willow.



Photo 10. Wetland area extending downstream from SR 87 at the proposed site of the new, Lower Screwtail Bridge. This wetland is on the east side of the existing highway opposite the tank shown in Photo 9.

willow is reduced, but cottonwoods continue their presence beyond the proposed crossing of the SR 87 upgrade. Other plants noted on the east side of the existing highway include deer grass (FACU), desert broom (*Baccharis sarothroides* - FAC-), seep willow (FACW), mesquite (FACU), and catclaw. Many of the shrubby mesquite and other woody plants along the stream channel supported vines of *Clematis* sp. (some species are designated FAC by the USFWS).

Construction of the Lower Screwtail Bridge would affect approximately 0.03 acres of wetlands and 0.11 acres of non-wetland, Waters of the United States (see Aerial Photograph Panel E-1 and Appendix A: Sheet E-1).

Wetland No. 7: O'Neil Tank is a USFWS-designated palustrine, diked wetland with an unconsolidated shore that is seasonally flooded (PUSCh). The tank contained approximately 0.5 surface acres of water on September 12, 1992. The surface area of the tank was somewhat higher on February 8, 1993, but probably did not exceed 0.75 surface acres.

Vegetation on the upstream side of the tank is dominated by cocklebur (*Xanthium stumarium* -NI), bermuda grass (FACU), and seep willow (FACW) with scattered thorn-apple (*Datura* sp.). On the downstream, diked side of the tank, mesquite (FACU) and catclaw are common. Below the dike itself, seepage from the tank supports a stand of Goodding willow (OBL) and several cottonwood trees (FACW). On September 12, 1992, the willows and cottonwoods were standing in water at least 1.5 feet deep and debris in the lower branches of these trees suggested that water depths below the dike was, at times, at least twice that deep (see Photos 11-13).

Construction of a new highway at this location would probably result in the destruction of at least 1.13 acres of wetlands associated with O'Neil Tank.

See Appendix B (Routine Wetland Delineation Data Sheets) for additional information on wetland areas associated with the Screwtail Hill Segment wetlands. Non-wetland, Waters of the United States on the Screwtail Hill segment are not abundant and range from about 5 to 50 feet in width. The most significant non-wetland waters are associated with Sycamore Creek at Round Valley and the proposed location of the Lower Screwtail Bridge (each of these non-wetland waters are estimated to be about 50 feet in width). Other than these two major drainages, non-wetland waters range from 5 to 20 feet in width (Appendix A: Sheets E-1 and E-2). Non-wetland waters on the Screwtail Hill



Photo 11. Earthen dam at O'Neil Tank with seepwillow growing along the shoreline and mesquites on the dam itself.



Photo 12. Seepage area below the dam (to the right) at O'Neil Tank. The fill from existing SR 87 extends into the photo on the left.

Segment are ephemeral waterways through very rocky areas. Stream channel substrata are composed of bedrock, boulders, cobble, or coarse sands and gravels. None of these waterways contained flowing water on September 12, 1992, but most were observed to contain flows on February 8, 1993.

Vegetation associated with non-wetland waters on Aerial Photograph Panels E-1 and E-2 ranges from desert grassland at the more southerly, lower elevations (see Aerial Photograph Panel E-1) to mixed desert grassland-juniper woodlands at the higher elevations (near O'Neil Tank on Aerial Photograph Panel E-2, for example).

There are two problem areas (areas where determination of wetland or non-wetland status is difficult) along the Screwtail Hill Segment. Both are south of the North Crossover Bridge on Aerial Photograph Panel E-2. These areas support scattered cottonwood (FACW), willow (OBL-FACW), seepwillow (FACW), desert broom, and canyon ragweed (see Photo 14). These plants occur along channels that vary from 2 to 8 feet in width, and contained surface water (or were saturated to near the surface) on September 12, 1992. These areas also provided evidence of drift lines, but (other than being wet) did not exhibit strong hydric soil characters (see also Appendix B - Routine Wetland Determination Data Sheets). It appears that both of these problem areas are supported by runoff from existing SR 87 and might not demonstrate wetland characteristics (e.g., wetland plants) in the absence of the existing highway. Neither problem area, however, is within projected disturbance areas for the SR 87 upgrading.

AERIAL PHOTOGRAPHY PANELS F-1, F-2, AND F-3: SYCAMORE CANYON SEGMENT

The Sycamore Canyon Segments of the proposed project are divided into two basic alternatives: West Sycamore and Kitty Joe Canyon. The West Sycamore alternative potentially impacts 0.56 acres of wetlands and 2.89 acres of non-wetland waters. The Kitty Joe alternative could affect 0.38 acres of wetlands and 3.13 acres of non-wetland waters (Table 1; Appendix A: Sheets F-1, F-2, and F-3).

Wetland No. 8: The crossing of Sycamore Creek by the preferred Kitty Joe Creek alignment is in an area that is designated by the USFWS as wetland category R4SBC (riverine, intermittent, streambed seasonally flooded).



Photo 13. Willows growing in the seepage area below O'Neil Tank.



Photo 14. A wetland designation problem area along existing SR 87. Prominent wetland indicator plants shown are cottonwood (center) and willow (lower right).

On September 12, 1992, there was no flowing water in this section of Sycamore Creek, but small pools persisted upstream of the existing Bushnell Tanks Road crossing of the creek. Soils were variably moist between 1 and 6 inches of the surface. Drift material was noted in branches of sapling cottonwoods and seep willows up to 3 feet above the streambed. In addition to drift material, we noted several dried up pools that were covered with desiccated algal mats and contained the remains (exoskeletons) of numerous crayfish. On February 8, 1993 the stream was flowing, about 30 feet wide, at the proposed bridge sites.

The stream channel within the proposed influence zone is boulder-strewn with interstitial material ranging from gravel and cobble, to fine sand and silt.

Vegetation in this area can be divided into two basic units. First, the vegetation of the more upland terrace adjoining the stream channel, especially on the east side and, secondly, the vegetation that occurs within and along the borders of the channel. Vegetation on the more upland terrace is a mix of species that probably originated in or along an old channel. The terrace overstory is dominated by large, Sycamore (FACW-), occasional velvet ash (*Fraxinus velutina* - FAC+), and net-leaf hackberry (FACU) trees. Plants in the understory are more xeric-adapted and include such species as juniper, Arizona cypress (*Cupressus arizonica*), barberry (*Berberis* sp.), sugar sumac (*Rhus ovata*), and wait-a-minute bush (*Mimosa biuncifera*). The wetland stream channel is characterized by scattered, mostly small, individual perennial plants including cottonwood (FACW), sycamore (FACW-), salt cedar (*Tamarix chinensis*) desert willow (*Chilopsis linearis*), and seep willow (FACW). Clammy-weed (FACU-), several species of buckwheat (*Eriogonum* sp.), and other herbaceous genera (e.g., *Melilotus*, *Euphorbia*, *Convolvulus*, *Boerhavia*, *Mentzelia*, *Heterotheca*, *Haplopappus*, *Datura*, and *Bouteloua*) were common to locally abundant in the stream channel on September 12, 1992. For additional information see Appendix B.

Wetland No. 9: This wetland is undesignated by the USFWS, but should be classified as an R4SBA wetland. It is located in the SW 1/4 of Section 4 and SE 1/4 of Section 5, T6N, R9E. It occurs along a drainageway of Kitty Joe Canyon and is crossed by the Kitty Joe Canyon preferred route for the SR 87 upgrade project.

The wetland is apparently supported by a spring in the SW 1/4 of Section 4. On September 10, 1992, there were numerous pools of standing water connected by very limited surface flow. The stream channel is of variable width, probably averaging about

25 to 30 feet and is incised about 5 to 8 feet below the adjacent upland terrace. The channel is physically dominated by boulders with cobble and gravel interstices.

Vegetation along the stream channel is dominated by sycamore (FACW-). One, large cottonwood tree (FACW) is present at the spring and overshadows a pool (see Photo 15) in which we observed six *Rana yavapaiensis*. Occasional velvet ash (FAC+) and net-leaf hackberry (FACU) are also present. *Muhlenbergia rigens* (FACU) is a common to abundant perennial grass species growing among the boulders in the stream channel. The terrace above the stream channel is dominated by juniper, wait-a-minute bush, mesquite (FACU), scrub oak (*Quercus turbinella*), barberry, holly-leaf buckthorn (*Rhamnus crocea*), and squawbush (*Rhus trilobata*). Occasional, small walnut (*Juglans major*-FACW-) trees are also present on the terrace. As one travels downstream toward Kitty Joe Canyon, the wetland influence declines until about 600 to 900 feet upstream from the confluence with Kitty Joe Canyon, the vegetation becomes more xeric in nature and dominated by mesquite, juniper, and wait-a-minute bush.

Highway construction at this location could potentially impact approximately 0.14 acres of wetland and at least 0.08 acres of associated non-wetland, Waters of the United States

Wetland No. 10: The bottomlands of Kitty Joe Canyon on the west side of the Kitty Joe Alternative for the SR 87 upgrade project are a USFWS-designated R4SBA (riverine, intermittent flow, streambed intermittently flooded) wetland. We examined the segment of this wetland between the NE 1/4 of Section 8 through Section 5, T6N, R9E to the SW 1/4 of Section 32, T7N, R9E on September 10, 1992.

The stream channel, as is characteristic of the entire length of Kitty Joe Canyon near the proposed project influence zone, is generally characterized by small-to-large boulders with interstices of cobble, gravel, sand, and/or silt. The area is quite active hydrologically and most of the channel is boulder strewn with coarse (cobble and gravel) interstices. The stream channel is of variable width, probably averaging around 50 to 75 feet and is occasionally braided, depending on terrace geomorphology. Similarly, channel incision is variable ranging between being level with floodplain terraces and incised to 6 to 9 feet.

In the areas we examined, soils were moist to wet within 0.5 to 2.0 inches of the surface, although there were short reaches (e.g., 150 to 300 feet) where no evidence of soil moisture was present within 6 inches of the surface. These "dry" areas occurred where immediate and obvious changes in the elevation of the stream bottom over short linear



Photo 15. Spring and pool in an unnamed tributary of Kitty Joe Canyon. *Rana yavapaiensis* was noted at this site. Similar pools occur along most of this drainage nearly to its confluence with Kitty Joe Canyon.

distances occurred. In such situations, the stream bottom tended to consist of small-to-medium sized boulders (e.g., 12 to 24+ inches) or was characterized by exposure of bedrock.

Standing and running water (see Photo 16) was present along this reach of Kitty Joe Canyon to within 450 to 600 feet of a major fork in the canyon in Section 32, R9E, T7N (see Aerial Photograph Panel F-2). The USFWS has designated the two major portions of this fork as an R4SBA wetland. We disagree with that designation and believe a designation of Waters of the United States is more appropriate based on vegetation. No wetland indicator plant species were present on September 10, 1992 in the east fork which is crossed by the Kitty Joe Alternative. A few desert willows were present in the stream channel. Soils ranged from sandy to cobble to boulders. There was no flow in this drainage nor were soils moist within 10-15cm of the surface. The site is obviously hydrologically active as evidenced by a deep incision (in excess of 2m) and debris lines, but we do not concur with the USFWS wetland designation.

A well-developed riparian plant community exists along this reach of Kitty Joe Canyon. The community is generally dominated by sycamore (FACW-) with local domination (e.g., in the vicinity of Whiskey Spring) by Arizona alder (*Alnus oblongifolia* - FACW+). Other tree species present include walnut (FACW-), cottonwood (FACW), velvet ash (FAC+), seep willow (FACW), and net-leaf hackberry (FACU). Small individuals of Goodding (?) willow (OBL) were also noted scattered along the stream channel, but large, mature trees of this species are not a common element in the riparian community. In addition to being locally dominant, Arizona alder is a common component of the riparian plant community throughout much of this reach. Plant species present on more xeric upland terraces include mesquite, scrub oak, wait-a-minute bush, juniper, and squawbush.

A variety of moisture-dependent wildlife species were found in Kitty Joe Canyon on September 10, 1992. We counted a total of 21, lowland leopard frogs along the stretch of stream in the SE 1/4 of Section 5. We also noted the presence of fish (probably *Agosia chrysogaster*) in one, large pool located approximately on the section line between Sections 5 and 8, T6N, R9E. Fish were not observed in any other pools and leopard frogs were only occasionally encountered beyond the northern border of the SE 1/4 of Section 5. Other species observed throughout the length of the reach we surveyed included canyon treefrog (*Hyla arenicolor*), black-necked garter snake (*Thamnophis cyrtopsis*), and a variety of aquatic beetles and bugs, including numerous Belostomatids.



Photo 16. A typical pool and associated riparian vegetation in Kitty Joe Canyon to the west of the proposed Kitty Joe Canyon Alternative for the SR 87 upgrade project.

We included Kitty Joe Creek and associated wetlands and riparian habitats in this report because of their potential sensitivity and proximity to the proposed Kitty Joe Canyon Alternative. None of the wetlands associated with this reach of Kitty Joe Canyon is within the projected cut and fill disturbance zone of the project (see Aerial Photograph Panel F-2).

Wetland No. 11: This wetland, not so designated by the USFWS, is on the West Sycamore alignment at the Little Saddle Mountain Bridge location (see Aerial Photograph Panel F-2). We believe this Water of the United States should be designated an R4SBJ wetland. The most significant portions of the wetland are located upstream of the proposed bridge location, although wetland characteristics persist at the bridge site.

The channel in which this wetland is located is generally narrow, probably averaging between 9 and 30 feet in width and variably incised (0 to 9 feet), depending on terrace geomorphology. Non-wetland, Waters of the United States extend beyond the channel bottom for variable distances ranging from about 9 to 18 feet. Channel substrate is primarily boulder and bedrock with coarse interstices of cobble and gravel being most common.

Standing and/or running water was present throughout this area west of the proposed bridge site. Occasional pools were present downstream of the bridge site. The riparian plant community associated with the drainage is dominated by sycamore (FACW-) with scattered cottonwood (FACW), and very large individuals of Goodding willow (OBL), along with at least two other species of *Salix*. Also, in the stream channel, we observed monkey flower (*Mimulus* sp. - OBL), timothy (*Phleum pratense* - FACU), bermuda grass, and scattered patches of cattail (*Typha* sp. - OBL) and sedges.

We counted 46, lowland leopard frogs along the surveyed reach, mostly upstream of the proposed bridge location. Canyon treefrogs, and a variety of aquatic bugs and beetles, including Belostomatids, were also noted.

We estimate that construction of the Little Saddle Mountain Bridge across this drainage could result in an impact to approximately 0.03 acres of wetlands and about 0.04 acres of non-wetland, Waters of the United States associated with the stream channel.

Wetland No. 12: This USFWS R4SBC-designated wetland is located on Sycamore Creek, upstream from the Cross F Ranch. An evaluation of this site was conducted on August 17, 1990 as part of a riparian habitat inventory for the project.

The stream channel is variable in width, probably averaging about 10 m, moderately entrenched (1.5 to 9 feet), and characterized by scattered pools and soils moist to within 2 inches of the surface. Non-wetland, Waters of the United States extend for approximately 9 feet on either side of the wetland channel. Depending on streambed geomorphology, there are areas where non-wetland lateral extensions may be more or less than 9 feet. As with much of Sycamore Creek, the area is hydrologically active and the stream channel is variably characterized by boulders with coarse interstitial material to areas of sand and silt with few surface boulders evident. There was no surface flow at this location on Sycamore Creek in August 1990 or September 1992, but the stream was flowing on February 8, 1993.

Riparian vegetation in this area is also dominated by sycamore (FACW-) with scattered individuals of velvet ash (FAC+) and Arizona oak (*Quercus arizonica*). Within the stream channel proper, we noted the presence of sparse-to-dense stands of seep willow (FACW) and sapling sycamores. More upland terraces support Arizona oak, squawbush, sycamore, and occasional walnut trees.

Construction of two new bridges over Sycamore Creek at this location would result in an impact to at least 0.20 acres of wetlands and 0.20 acres of associated non-wetland, Waters of the United States (Appendix A: Sheet F-3; Aerial Photograph Panel F-3).

Wetland No. 13: This undesignated wetland consists of a small patch of Sycamore (FACW-), cottonwood (FACW), Arizona oak, and velvet ash (FAC+), somewhat overgrown with canyon grape (*Vitis arizonica* - FAC).

The wetland is apparently associated with a perennial spring on the east side of the existing SR 87. The wetland is located at the toe of existing fill material. Standing water was present at the site on September 11, 1992 (see Appendix B).

This wetland is adjacent to, but outside of, projected cut and fill disturbance zones for the SR 87 upgrading project. There should be no impact associated with the project.

Wetland No. 14: This wetland, designated PUSCh, is a stock-watering tank which is seasonally flooded. The tank contained water when we examined it on September 11, 1992, but did not support perennial wetland vegetation (see Appendix B).

The tank is entirely within the projected cut and fill disturbance zone on Kitty Joe Alignment K-1. Construction on this alignment would probably eliminate the tank which represents approximately 0.35 acres of wetland.

Non-wetland, Waters of the United States associated with the Sycamore Canyon Segment total 21 drainages on both the West Sycamore and Kitty Joe Canyon alternatives.

Utilizing the West Sycamore Alternative would result in an impact to approximately 2.89 acres of non-wetland, Waters of the United States while the Kitty Joe Alternative would result in an impact to approximately 3.13 acres (Table 1; Appendix A: Sheets F-1, F-2, and F-3).

SUMMARY AND ROUTE COMPARISONS

Table 2 summarizes total acreages of wetlands and non-wetland, Waters of the United States likely to be affected by the upgrading of SR 87. Potential impacts to waters and wetlands are identical for both major alternatives on all segments south of the Sycamore Canyon Segment (i.e., Aerial Photograph Panels A through E-2). The most significant (i.e., most acres) wetland impact, south of the separation of the Kitty Joe Canyon and West Sycamore alternatives, occurs at O'Neil Tank where approximately 1.13 acres of wetland would be affected. On the Kitty Joe Canyon Alternative, the most significant wetland impact is associated with the potential destruction of an artificial stock tank (0.35 acres on alignment K-1).

The most significant impacts to natural wetlands are associated with stream crossings. Most stream crossings will, however, be bridged, thereby eliminating the impact from cut and fill operations. Exceptions occur at the proposed new Rock Creek crossing where approximately 0.39 acres of wetland will be filled and on an unnamed tributary of Kitty Joe Canyon where approximately 0.14 acres will be affected. These two natural sites represent approximately 21 to 27 percent of the total wetland impact expected from the project. Conversely, the two stock tanks, the O'Neil Tank and unnamed tank on Kitty Joe Alignment K-1, represent 58 to 76 percent of the potential wetland impact, depending on the alternative examined.

TABLE 2
Total Acreages of Wetlands and Non-wetland Waters of the United States Likely to
be Affected by Construction on the Various Route Alternatives of Arizona State
Route 87

(Map Identification refers to the accompanying 1:400 scale maps)

MAP IDENTIFICATION	WETLANDS	WATERS
A through E-2	1.72	4.23
F-1 and F-2		
West Sycamore Alternative	0.12	1.53
Kitty Joe Canyon Alternative	0.38	2.11
F-3		
Alternative K-1 Alone	0.35	0.19
Alternative K-2 Alone	0.00	0.00
Alternative W-1 Alone	0.34	0.39
Alternative W-2 Alone	0.10	0.14
Alternative W-1 and K-1	0.35	0.10
Alternative W-2 and K-2	0.00	0.73
ROUTE TOTALS		
West Sycamore		
using W-1 and K-1	2.53	6.25
using W-2 and K-2	1.94	6.63
Kitty Joe Canyon		
using K-1 and W-1	2.45	6.44
using K-2 and W-2	2.10	7.07

REFERENCES CITED

U.S. Fish and Wildlife Service. 1988. National list of plant species that occur in wetlands: Southwest (Region 7). Biol. Rep. 88(26.7) 71 pp.

APPENDIX A

Acreage Calculations



Four Peaks Segment

Sheet H

Widths ft² Acres

140x6 840 .02

40x6 240 .005

100x6 600 .01

110x5 550 .01

40x6 240 .005

80x6 480 .01

35x6 210 .005

75x5 375 .008

25x5 110 .002

110x7 770 .02

90x7 630 .01

125x7 875 .02

100x5 500 .01

120x6 720 .02

65x6 390 .009

95x6 570 .01

8100 0.18

Tombstone Hill segment



Sheet B

Waters ft² Acres

70x10 700 0.02

135x10 1350 0.03

110x22 2420 0.05

165x15 2475 0.06

35x10 350 0.01

140x12 1680 0.04

210x25 5250 0.12

270x18 4860 0.11

285x7 1995 0.04

225x7 1575 0.04

25x40 1000 0.02

35x5 175 0.004

40x5 200 0.004

55x5 275 0.006

190x5 950 0.02

200x5 1000 0.02

145x5 725 0.02

175x5 875 0.02

150x5 750 0.02

110x10 1100 0.02

130x6 780 0.02

150x4 600 0.01

140x6 840 0.02

90x6 540 0.01

TOTALS 32,465 0.75

wetlands ft² Acres

210x8 1680 0.04

270x5 1350 0.03

TOTALS 3030 0.07



SR 87 Acreage Calculations

Mesquite Wash Segment

Sheet C

Wetlands ft² Acres

75x4 300 0.01

80x40 3200 0.07

150x50 7500 0.17

155x4 620 0.01

330x5 1650 0.04

110x4 440 0.01

85x4 340 0.01

35x16 560 0.01

290x20 5800 0.13

155x14 2170 0.05

TOTALS 22580 0.52

Wetlands ft² Acres

50x40 2000 0.04

196x90 17,100 0.39

TOTALS 0.44

SR 87 Acreage Calculations
Pine Creek Segment

Sheet D

Waters ft ² Acres			Wetlands ft ² Acres		
215 x 8	1720	.04	50 x 35	1750	0.04
150 x 20	3000	.07			
100 x 7	700	.01			
260 x 8	2080	.05			
110 x 8	880	.02			
150 x 7	1050	.02			
215 x 10	2150	.05			
235 x 25	5875	.13			
90 x 25	2250	.05			
285 x 25	7175	.16			
240 x 25	6000	.14			
185 x 25	4625	.10			
115 x 25	2875	.07			
235 x 25	5875	.13			
130 x 10	1300	.03			
770 x 10	7700	.17			
20 x 25	500	.01			
70 x 10	700	.01			
10 x 10	100	.002			
1300 x 5	6500	.15			
350 x 7	2450	.05			
70 x 7	490	.01			
40 x 7	280	.006			
100 x 7	700	.01			
Totals	66,925	1.53			



Pine Creek Segment of Screwtail Hill

Sheet E-1

<u>Waters</u> Ft ² Acres			<u>Wetlands</u> Ft ² Acres				
180x50	9000	.21	- Round Valley	50x60	300	0.006	- Round Valley
180x8	1440	.03		25x50	1250	0.03	- Lower Screwtail
70x8	560	.01					
270x20	5400	.12			1550	0.036	
390x8	3120	.07					
335x10	3350	.07					
100x50	5000	.11	- Lower Screwtail				
340x7	2380	.05					
300x10	3000	.07					
	33,250	0.76					

SR 87 Acreage Calculations



Sheet E-2

Screwtail Hill

Waters ft² Acres

190 x 7 1330 .03

175 x 7 1225 .03

225 x 5 1125 .02

280 x 15 4200 .09

40 x 15 600 .01

80 x 10 800 .02

65 x 6 390 .008

155 x 6 930 .02

175 x 10 1750 .04

400 x 5 2000 .05

70 x 5 350 .008

260 x 10 2600 .06

70 x 18 1260 .02

160 x 18 2880 .06

21,440 0.49

Wetlands ft² Acres

260 x 190 49,400 1.13 -O'Neil Tank

SR 87 Acreage Calculations

Sheet F-1

West Sycamore

Waters ft² Acres

Wetlands ft² Acres

210x10 2100
 60x10 600
 445x10 4450
 490x20 9800
 390x8 3120
 430x6 2580
 * 90x30 2700
 * 90x20 1800
 235x18 4230
 * 180x20 3600
 390x10 3900
 225x10 2250

* 90x25 2250
 90x20 1800
 4050 .09

41,130 0.94

* Assumes some impact between bridges (105' instead of 80')

SE 87 Acreage Calculations

Sheet F-1

Kitty Joe

Waters (42) Acres

wetlands (42) Acres

5x15	75	.002
300x8	2400	.05
25x15	375	.009
100x12	1200	.03
110x14	1540	.03
20x22	1540	.03
145x12	1740	.04
390x15	5850	.13
90x5	450	.01
180x8	1440	.03
140x8	1120	.02
* 180x100	18,000	.41
* 180x20	3600	.08
360x10	3600	.08
190x10	1900	.04
240x15	3600	.08
255x8	2040	.05
210x8	1680	.04
35x15	525	.01
90x8	720	.01
250x8	2000	.04
TOTAL	65,195	1.50

* 180x32	5760	.13
90x15	1350	.03
90x35	3150	.07
255x25	6375	.14
40x16	400	
	16,635	0.38

-Delete

* Assumes some impact will occur between bridges on Sycamore Trce.

SR 87 Acreage Calculations

Sheet F-2

Kitty Joe

Waters ft² Acres

Wetlands ft² Acres

90x40 3600 .08

None

210x20 4200 .09

190x20 3800 .09

260x15 3900 .09

220x20 4400 .10

450x15 6750 .15

TOTAL 26,650 0.61

West Sycamore

Waters Acres

Wetlands Acres

490x12 5880 .13

90x15 1350 .03

400x12 4800 .11

190x15 2850 .06

215x12 2580 .06

135x10 1350 .03

215x10 2150 .05

200x15 3000 .07

250x12 3000 .07

25,610 0.59

SP 87 Acreage Calculations

Sheet F-3

Alternative K-2 Alone - No Wetlands

K2 + W2

Waters ft² Acres

90x15 1350 .05

200x25 5000 .11

135x25 3375 .08

190x25 4750 .11

425x30 12,750 .29

90x25 2250 .05

90x25 2250 .05

31,725 0.73

Total

W2 Alone

Waters ft² Acres

110x15 1650 0.04

110x40 4400 0.10

Total 6050 0.14

W-1 Alone

Waters ft² Acres

110x40 4400 .10

240x15 3600 .08

165x8 1320 .03

240x7 1680 .04

245x25 6125 .14

Total 17,125 0.39

Wetlands ft² Acres

None

W1 + K1

Waters ft² Acres

90x5 450 .01

540x19 5400 .12

110x6 660 .01

560x7 3920 .09

TOTAL 10,430 0.24

Wetlands Acres

110x40 4400 0.10

Wetlands ft² Acres

110x40 4400 0.10

50x60 3000 0.07

80x80 6400 0.17

K-1 Alone TOTAL 0.34

Waters Acres

335x25 8375 0.19

Wetlands

110x140 15,400 0.35

} posch - probably longer
on 2/8/93

-NEW (Not in previous totals)

SR87 Acreage Totals Wetlands/Waters

Sheet A - Four Peaks Segment	201-204
Sheet B - Tombstone Hill Segment	204-207
Sheet C - Mesquite Wash Segment	207-209.5
Sheet D - Pine Creek Segment	209.5-212.5
Sheet E-1 Scurtail Hill / Pine Creek Segment	212.5 to 217.5
Sheet E-2 Scurtail Hill Segment	212.5-217.5
Sheet F-1 Sycamore Canyon Segment	217.5-226
Sheet F-2 " " " "	" "
Sheet F-3 " " " "	" "

	Ac. Wetland	Ac. Waters
Sheet A-	0.0	0.10
Sheet B.	0.07	0.75
Sheet C	0.44	0.52
Sheet D	0.04	1.53
Sheet E-1	0.04	0.76
Sheet E-2	1.13	0.49
Sheet F-1		
West Sycamore	0.09	0.94
Kitty Joe	0.38	1.50
Sheet F-2		
West Sycamore	0.03	0.59
Kitty Joe	0.00	0.61
Sheet F-3		
K-1 Alone	0.35	0.19
K-2 Alone	0.00	0.00
W-1 Alone	0.34	0.39
W-2 Alone	0.10	0.14
W-1 + K-1	0.35	0.10
W-2 + K-2	0.00	0.73

APPENDIX B

Routine Wetland Delineation Data Sheets

Wetland No. 1

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>SR87 - USFWS wetland N of Sugarbark Turnoff</u>	Date: <u>12 Sept 1972</u>
Applicant/Owner: <u>ADOT - FHA</u>	County: <u>Maricopa</u>
Investigator: <u>E. L. Smith / M. H. Cochran</u>	State: <u>Arizona</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: _____ Transect ID: _____ Plot ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Is the area a potential Problem Area? <input checked="" type="radio"/> Yes <input type="radio"/> No (If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Mesquite</u>	<u>Tree</u>	<u>FACW-</u>	9. _____	_____	_____
2. <u>Sagebrush</u>	<u>Shrub</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Desert Hackberry</u>	<u>Shrub</u>	<u>-</u>	11. _____	_____	_____
4. <u>Canon Sagebrush</u>	<u>Shrub</u>	<u>-</u>	12. _____	_____	_____
5. <u>Catclaw</u>	<u>Shrub</u>	<u>-</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). < 50%

Remarks: Vegetation generally suggests non-wetland waters of the U.S. Some wetland indicators upstream of proposed SR87 crossing. Crossing site is, however, very xeric.

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pic: _____ (in.) Depth to Saturated Soil: <u>Not checked</u> (in.)	Remarks: <u>Debris along edges of wash, some standing water on west side of SR87 - right of toe of K. No standing water evident beyond this point.</u>

Enclosure

Wetland No. 2
DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

*Rock Creek Upstream
from existing SR 87
Culvert*

Project/Site: <u>SR 87 - Rock Creek</u> Applicant/Owner: <u>ADOT-FHA</u> Investigator: <u>E. L. Smith / M. H. Cochran</u>	Date: <u>11 Sept. 1992</u> County: <u>Maricopa</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? * <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

* Gauging station and associated concrete present + Culvert under SR 87

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Goodding willow</u>	<u>Tree</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Buttonbrush</u>	<u>Shrub</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Bermuda Grass</u>	<u>Ground</u>	<u>FACU</u>	11. _____	_____	_____
4. <u>Scop willow</u>	<u>Shrub</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Mosquito</u>	<u>Tree</u>	<u>FACU</u>	13. _____	_____	_____
6. <u>Catclaw</u>	<u>Shrub</u>	<u>-</u>	14. _____	_____	_____
7. <u>Netleaf Hackberry</u>	<u>Tree</u>	<u>FACU</u>	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 90% ±

Remarks: 4 large Goodding willows likely to be removed immediately upstream of existing culvert - Also several net-leaf hackberry trees

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>1" - 12"</u> (in.) Depth to Free Water in Pit: <u>-</u> (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>Rock Creek flowing from existing culvert to at least 200m upstream - Pools associated with culvert 8'-10' across and ~12" deep</u>

Enclosure

Wetland No. 2

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Mesquite wash - above & below existing bridge

Project/Site: <u>SR-87 Mesquite Wash</u>	Date: <u>11 Sept. 1992</u>
Applicant/Owner: <u>ADOT-FHA</u>	County: <u>Maricopa</u>
Investigator: <u>E.L. Smith / M.H. Cochran</u>	State: <u>AZ</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	Transect ID: _____
Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No	Plot ID: _____
(If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Mesquite</u>	<u>Tree</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Scopwillow</u>	<u>shrub</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Goodding Willow</u>	<u>shrub</u>	<u>OBL</u>	11. _____	_____	_____
4. <u>Bermuda Grass</u>	<u>Ground</u>	<u>FACW</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 85%

Remarks: Vegetation more sparse than along Rock Creek, Mesquite is dominant species, bermuda common ground cover, Scopwillow also present both above & below existing bridge, willow much less common than on Rock Creek

HYDROLOGY

<p>___ Recorded Data (Describe in Remarks):</p> <p>___ Stream, Lake, or Tide Gauge</p> <p><input checked="" type="checkbox"/> Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>2" - 10"</u> (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p>___ Local Soil Survey Data</p> <p>___ FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
<p>Remarks: <u>Water flow is ~8'-30' wide immediately below existing bridge, some over bedrock in braided channels - flowing into broad, sandy area</u></p>	

Enclosure

Wetland No. 2
DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

→ Rock Creek downstream from 56
to junction
w/ Mesquite
Wash

Project/Site: <u>SR-87 Mesquite Wash / Rock Creek</u> Applicant/Owner: <u>ADOT-FHA</u> Investigator: <u>E. L. Smith / M. H. Cochran</u>	Date: <u>11 Sept 1992</u> County: <u>Maricopa</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Goodding willow</u>	<u>Canopy</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Cottonwood, Fremont</u>	<u>Canopy</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Mesquite</u>	<u>"</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Sycamore</u>	<u>"</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Seepwillow</u>	<u>Shrub</u>	<u>FACW</u>	13. _____	_____	_____
6. <u>Buttonbrush</u>	<u>Shrub</u>	<u>OBL</u>	14. _____	_____	_____
7. <u>Bermuda Grass</u>	<u>Ground</u>	<u>FACU</u>	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 95%

Remarks: Very well developed willow-dominated woodland along stream with buttonbrush, seepwillow and bermuda grass. Mesquite bosque well developed - scattered cottonwoods and sycamore

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input checked="" type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>21" - 10"</u> (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
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Remarks: water flowing over sandy substrate - fish (probably *Agoia chrysoptera*) locally common - *Rana foveolata* present to common

Enclosure

WETLAND NO. 3
DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>SR87 - Camp Creek Crossing</u> Applicant/Owner: <u>ADOT - FMA</u> Investigator: <u>E. L. Smith / M. H. Cochran</u>	Date: <u>12 Nov. 1992</u> County: <u>Maricopa</u> State: <u>Arizona</u>
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? (If needed, explain on reverse.) Yes No	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Mesquite</u>	<u>Trees</u>	<u>FACW-</u>	9. _____	_____	_____
2. <u>Desert Hackberry</u>	<u>Shrub</u>	<u>-</u>	10. _____	_____	_____
3. <u>Bermuda Grass</u>	<u>Ground</u>	<u>FACU</u>	11. _____	_____	_____
4. <u>Desert Yucca</u>	<u>shrub</u>	<u>FAC-</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 45%

Remarks: Vegetation along Camp Creek at the proposed crossing of SR87 is primarily upland - No real wetland indicators

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated moist <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>>12</u> (in.)	Remarks: <u>Soils moist within 12" of surface, but not saturated. Dried material up to 0.5 m in shoreline shrubs. Sediment deposition not highly evident, consisting mostly of sand</u>

Enclosure

Wetland No. 4

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>SR87- Pine Creek Crossing</u> Applicant/Owner: <u>ADOT-FHA</u> Investigator: <u>E.L. Smith / M.H. Cochran</u>	Date: <u>12 Sept. 1992</u> County: <u>Maricopa</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Cottonwood</u>	<u>Tree/Shrub</u>	<u>FACW</u>	9. _____		
2. <u>Buttonbush</u>	<u>Shrub</u>	<u>OBL</u>	10. _____		
3. <u>Mesquite</u>	<u>Tree</u>	<u>FACW-</u>	11. _____		
4. <u>Canyon Ragweed</u>	<u>Herb</u>	<u>-</u>	12. _____		
5. <u>Muhlenbergia v. gans</u>	<u>Herb</u>	<u>FACU</u>	13. _____		
6. <u>Seepwillow</u>	<u>Shrub</u>	<u>FACW</u>	14. _____		
7. <u>Clammy Weed</u>	<u>Herb</u>	<u>FACU-</u>	15. _____		
8. <u>Netleaf Hackberry</u>	<u>Tree</u>	<u>FACU</u>	16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 750%

Remarks: Cottonwood and buttonbush occur as scattered individuals in stream channel. Seepwillow common. Mesquite dominates stream banks w/ cactew, jojoba and a number of other more upland species

HYDROLOGY

___ Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge <u>X</u> Aerial Photographs ___ Other ___ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <u>X</u> Inundated - locally <u>X</u> Saturated in Upper 12 Inches <u>X</u> Water Marks <u>X</u> Drift Lines <u>X</u> Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0-18</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>< 5"</u> (in.)	Remarks: <u>Stream not flowing throughout study reach. Soils moist to very near surface in most places where channel bottom is sandy versus rocky to cobbly or bedrock. Scattered pools throughout length of study reach. Drift materials to 1.0 m up in cottonwood saplings - Drift lines > 10' beyond channel bottom. Organics in dry pools - local patches of mucky, silty soils on pool edges and tails. Water marks common on larger boulders in stream channel</u>

Enclosure

Wetland No. 5
DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>SR07 - Sycamore Creek at Round Valley</u> Applicant/Owner: <u>ADOT-FHA</u> Investigator: <u>E.L. Smith / M.H. Cochran</u>	Date: <u>12 Sept. 1992</u> County: <u>Maricopa</u> State: <u>Arizona</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? Yes <input type="radio"/> <input checked="" type="radio"/> No Is the area a potential Problem Area? Yes <input type="radio"/> <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Sycamore</u>	<u>Tree</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Seepwillow</u>	<u>Shrub</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Horsebrush</u>	<u>Shrub</u>	<u>-</u>	11. _____	_____	_____
4. <u>Mesquite</u>	<u>Tree/shrub</u>	<u>FACW-</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 766%

Remarks: Very little vegetation in wetland (= stream channel) 1° horsebrush and seepwillow

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Describe in Remarks):</p> <p style="margin-left: 20px;"><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p style="margin-left: 20px;"><input checked="" type="checkbox"/> Aerial Photographs</p> <p style="margin-left: 20px;"><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: <u>7-10</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Remarks: <u>Drift debris 1.5m above channel bottom on fence. Water marks 1.0-1.25m up on existing bridge abutment</u></p> <p><u>No flow in creek. Some standing pools upstream from SR07</u></p>	

Enclosure

wetland No. 6
 DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

SE Block Mesa
 S. 31 T6N R9E

Project/Site: <u>SR 87 - SE Block Mesa - Lower Scowtail Bridge</u> Applicant/Owner: <u>ADPT - FHA</u> Investigator: <u>E.L. Smith / M.H. Cochran</u>	Date: <u>12 Sept. 1972</u> County: <u>Maricopa</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

* Site is traversed by existing SR 87 and is partially covered by highway fill

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Goodding Willow</u>	<u>Tree</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Cottonwood</u>	<u>Tree</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Seepwillow</u>	<u>Shrub</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Desert Broom</u>	<u>Shrub</u>	<u>FAC-</u>	12. _____	_____	_____
5. <u>Clematis</u>	<u>Vine</u>	<u>?</u>	13. _____	_____	_____
6. <u>Mesquite</u>	<u>Tree/Shrub</u>	<u>FACW-</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 75%

Remarks: Immediately downstream from toe of fill on existing SR87 is best development of wetland plants - downstream at proposed bridge site, mesquite, cottonwood, seepwillow and broom dominate

HYDROLOGY

___ Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs ___ Other ___ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated ___ Saturated in Upper 12 Inches ___ Water Marks <input checked="" type="checkbox"/> Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: <u>Standing water present in tank on west side of highway. Water also present on east side but not flowing in the vicinity of the proposed bridge. Drift lines minimal - Soil moisture not checked</u>	

Enclosure

WETLAND No. 7
DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>SRB7 - O'Neil Tank S19, T6N R 9E</u> Applicant/Owner: <u>ADOT - FNA</u> Investigator: <u>E. L. Smith / M. H. Cochran</u>	Date: <u>12 Sept. 1992</u> County: <u>Maricopa</u> State: <u>Arizona</u>
Do Normal Circumstances exist on the site? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes No <input type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Goodding Willow</u>	<u>Tree</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Cottonwood</u>	<u>Tree</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Mesquite</u>	<u>Tree</u>	<u>FACW-</u>	11. _____	_____	_____
4. <u>Seepwillow</u>	<u>Shrub</u>	<u>FRW</u>	12. _____	_____	_____
5. <u>Cockle-bur</u>	<u>Herb</u>	<u>NE</u>	13. _____	_____	_____
6. <u>Unicorn Plant</u>	<u>Herb</u>	<u>FAC2</u>	14. _____	_____	_____
7. <u>Bermuda Grass</u>	<u>Herb</u>	<u>FACU</u>	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): > 70%

Remarks: Willows and cottonwoods growing on downstream side of earthen dam between dam and existing SRB7. In standing water on this date

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>> 36</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>Water marks and debris suggest water has been higher at this location - extensive deposits of silty, mucky soil around tank and of north edge of wetland that exists downslope from dam</u>

Enclosure

wetland No. 8
 DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>SR 87 - Sunflower Bridge on Sycamore Cr.</u> Applicant/Owner: _____ Investigator: _____	Date: <u>12 Sept. 1992</u> County: <u>Maricopa</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? Yes <input checked="" type="radio"/> No <input type="radio"/> Is the area a potential Problem Area? Yes <input checked="" type="radio"/> No <input type="radio"/> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Sycamore*</u>	<u>Tree</u>	<u>FACW</u>	9. <u>Sweet Clover*</u>	<u>Herb</u>	<u>FACU+</u>
2. <u>Cottonwood*</u>	<u>Tree</u>	<u>FACW</u>	10. <u>Cockle-bur*</u>	<u>NI</u>	
3. <u>Velvet Ash</u>	<u>Tree</u>	<u>FAC+</u>	11. <u>Datura</u>		
4. <u>Netleaf Hackberry</u>	<u>Tree</u>	<u>FACU</u>	12. _____		
5. <u>Salt Cedar*</u>	<u>Shrub</u>	<u>NE</u>	13. _____		
6. <u>Seep willow*</u>	<u>Shrub</u>	<u>FACW</u>	14. _____		
7. <u>Desert willow*</u>	<u>Shrub</u>	<u>-</u>	15. _____		
8. <u>Clammy-wood*</u>	<u>Herb</u>	<u>FACU-</u>	16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 60-70%

Remarks: Trees mostly on stream bank - many cottonwood seedlings/saplings in stream channel - some salt cedar in channel. Dried pools covered by algal mats, dried algae common on rocks/gravels
 * - Plants growing in channel as opposed for in addition to banks

HYDROLOGY

<p>___ Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs ___ Other ___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>No Flow</u> (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: <u>< 2"</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits ___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)</p>
<p>Remarks: <u>Drift lines up to 1 m above ground in seep willow & cottonwoods in channel</u></p>	

Enclosure

SOILS

Map Unit Name (Series and Phase): _____		Drainage Class: _____	
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No	
Profile Description:			
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)
			Mottle Abundance/Contrast
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Hydric Soil Indicators:			
<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions		
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/> Sulfidic Odor	<input checked="" type="checkbox"/> Organic Streaking in Sandy Soils		
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List		
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List		
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: Soils poorly defined - stream channel is primarily boulder/cobble grading into coarse sands. At edges and tails of dry pools, organic streaking present in fine sandy/silty soils			

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No (Circle)	
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	(Circle)
Hydric Soils Present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
			Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Remarks: Widespread algal mats present in dried pools. Exoskeletons of crayfish found throughout dried pools in stream channel			

Wetland No. 9
DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Site #1 on Kitty Joe Cyn.
SW/4 Sec 4 T6N R9E

Project/Site: <u>SR 07 - Kitty Joe Cyn Alternative</u> Applicant/Owner: <u>ADOT - FHA</u> Investigator: <u>E. Leonard Smith / Mark H Cochran</u>	Date: <u>10 Sept. 1992</u> County: <u>Maricopa</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Sycamore</u>	<u>Canopy</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Cottonwood</u>	<u>"</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Walnut</u>	<u>"</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Canyon Hackberry</u>	<u>"</u>	<u>FACU</u>	12. _____	_____	_____
5. <u>Alhambria ripens</u>	<u>Ground</u>	<u>FACU*</u>	13. _____	_____	_____
6. <u>Bridges Perstemon</u>	<u>"</u>	<u>-</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). ± 65%

Remarks: Uplands away from wetland/riparian area are dominated by Juniperus, Berberis, Quercus turbinella, Acacia greggii, Mimosa biuncifera, Rhus trilobata, Mannus crocea + a variety of grasses & forbs - No OBL Plant species observed (i.e. higher plants - algae common)

HYDROLOGY

<input checked="" type="checkbox"/> Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs Other _____ <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated - <u>locally</u> <input checked="" type="checkbox"/> Saturated in Upper 12 Inches - <u>throughout</u> <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u><1" to 30"</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>0</u> (in.)	

Remarks: Soil moist to surface throughout wash bottom - Surface flow and pools intermittently present to within 300m of Kitty Joe Canyon. Channel incised ~5'-7' below adjacent uplands

Enclosure

Wetland No. 10
DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Kitty Joe Cyn
SE 1/4 S. 5 T6 N. R9 E to
SW 1/4 S 32 T7 N R9 E
outside Impact Area

Project/Site: <u>SR 87-Kitty Joe Alternative</u> Applicant/Owner: <u>ADOT-ITHA</u> Investigator: <u>E.L. Smith / M.H. Cochran</u>	Date: <u>10 Sept. 1992</u> County: <u>Maricopa</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? Yes <input checked="" type="radio"/> No <input type="radio"/> Is the site significantly disturbed (Atypical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION - Variable along length of Kitty Joe

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Sycamore</u>	<u>Tree</u>	<u>FACW</u>	9. <u>Muhlenbergia rigens</u>	<u>Ground</u>	<u>FACU</u>
2. <u>Cottonwood</u>	<u>"</u>	<u>FACW</u>	10. <u>Vitis arizonica</u>	<u>Vine</u>	<u>FACW</u>
3. <u>Willow Goodling</u>	<u>"</u>	<u>OBL</u>	11. <u>Willow sp</u>	<u>Mixed</u>	<u>FACW</u>
4. <u>Seepwillow</u>	<u>Shrub</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Desert Willow</u>	<u>"</u>	<u>-</u>	13. _____	_____	_____
6. <u>Arizona Alder</u>	<u>Tree</u>	<u>FACW+</u>	14. _____	_____	_____
7. <u>Walnut</u>	<u>"</u>	<u>FACW-</u>	15. _____	_____	_____
8. <u>Canyon Hackberry</u>	<u>"</u>	<u>FACU</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). ± 80%

Remarks: *Vegetation varies along length of Kitty Joe Creek described above from open oak/sycamore, mixed canopy to very dense Arizona Alder, willow uncommon, Cottonwood uncommon, Primary canopy species is sycamore*

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>21" - 36"</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>0 - 6"</u> (in.)	Remarks: <i>Scouring common - many areas areas where tree/shrub roots exposed along banks and in pools. Water locally permanent owing to observations of fish (<u>Aegleia sp. ?</u>) and frogs + larvae.</i>

Enclosure

Wetland No. 10
 DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

*Kitty Joe Canyon
 Sect. 32, T7N R9E
 USFWS Designated R458A
 Wetland on E Fork*

Project/Site: <u>SR87 - Kitty Joe Canyon Alternative</u> Applicant/Owner: _____ Investigator: _____	Date: <u>10 Sept. 1992</u> County: <u>Maricopa</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? Yes <input checked="" type="radio"/> No <input type="radio"/> Is the site significantly disturbed (Atypical Situation)? Yes <input checked="" type="radio"/> No <input type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Desert willow (Chilopsis)</u>	<u>Tree</u>	<u>-</u>	9. _____		
2. <u>Juniper</u>	<u>Tree</u>	<u>-</u>	10. _____		
3. <u>Catclaw</u>	<u>Shrub</u>	<u>-</u>	11. _____		
4. _____			12. _____		
5. _____			13. _____		
6. _____			14. _____		
7. _____			15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0

Remarks: *This reach of Kitty Joe Canyon is deeply incised - 5-8' with no "wetland plants". Several desert willows in wash bottom, no streamside riparian vegetation.*

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>> 10</u> (in.)	
Remarks: <i>Dry wash with moist soils more than 10" below surface</i>	

Enclosure

Wetland No. 11
DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

West Sycamore - Little Saddle
Mtn. Bridge NW 1/4 S. 36, T7
RBE

Project/Site: <u>SP AZ / Little Saddle Mtn. Bridge</u> Applicant/Owner: <u>ADOT-EMA</u> Investigator: <u>E. L. Smith / D. H. Cochran</u>	Date: <u>11 Sept. 1992</u> County: <u>Maricopa</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? Yes <input type="radio"/> <input checked="" type="radio"/> No Is the area a potential Problem Area? Yes <input type="radio"/> <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Goodding Willow</u>	<u>Tree</u>	<u>OBL</u>	9. <u>Timothy</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Willow sp.</u>	<u>Tree/shrub</u>	<u>FACW/OBL</u>	10. <u>No-leaf Hackberry</u>	<u>Tree</u>	<u>FACU</u>
3. <u>Sycamore</u>	<u>Tree</u>	<u>FACW</u>	11. <u>Bermuda Grass</u>	<u>Herb</u>	<u>FACU</u>
4. <u>Cottonwood</u>	<u>Tree</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Cattail</u>	<u>Herb</u>	<u>OBL</u>	13. _____	_____	_____
6. <u>Sedges</u>	<u>Herb</u>	<u>OBL</u>	14. _____	_____	_____
7. <u>Mimulus</u>	<u>Herb</u>	<u>OBL</u>	15. _____	_____	_____
8. <u>Juniper</u>	<u>Tree</u>	<u>-</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 80% +

Remarks: Area supports several very large willow trees - most highly developed wetland plant community is upstream of proposed bridge site.

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Describe in Remarks):</p> <p style="padding-left: 20px;"><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p style="padding-left: 20px;"><input type="checkbox"/> Aerial Photographs</p> <p style="padding-left: 20px;"><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available - No</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>1-24</u> (in.)</p> <p>Depth to Free Water in Pit: <u>-</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Remarks: <u>No aeriats of this portion of West Sycamore alignment available. Intermittent surface flow connecting a series of small to large pools.</u></p>	

Enclosure

Wetland No. 12
 DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>SR87 Sycamore Creek at Cross F</u> Applicant/Owner: <u>ADOT-EHA</u> Investigator: <u>E. L. Smith / M. H. Cochran</u>	Date: <u>17 Aug. 1990</u> County: <u>Maricopa</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Sycamore</u>	<u>Tree</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Seepwillow</u>	<u>Shrub</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Velvet Ash</u>	<u>Tree</u>	<u>FACt</u>	11. _____	_____	_____
4. <u>AZ Oak</u>	<u>Tree</u>	<u>-</u>	12. _____	_____	_____
5. <u>Poison Ivy</u>	<u>shrub</u>	<u>-</u>	13. _____	_____	_____
6. <u>Barnyard Grass</u>	<u>Herb</u>	<u>FACU</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 760%

Remarks: Heavily grazed area, seepwillow most common in-channel species. Moderate number of sycamore saplings in channel

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0-2</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>No running water, some small, shallow pools - Drift lines variable - up to 8' feet from rocky channel</u>

Enclosure

wetland No. 13

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Spring - Sect. 18, T2N R9E
 Adjacent to existing SRB
 on N. Slope of Iron Dike

Project/Site: <u>SRB7 - Spring at Iron Dike</u>	Date: <u>11 Sept. 1992</u>
Applicant/Owner: <u>ADOT-FHA</u>	County: <u>Maricopa</u>
Investigator: <u>E.L. Smith / M.H. Cochran</u>	State: <u>AZ</u>
Do Normal Circumstances exist on the site? Yes <input type="radio"/> No <input checked="" type="radio"/>	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? Yes <input checked="" type="radio"/> No <input type="radio"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/>	Plot ID: _____
(If needed, explain on reverse.)	

Spring & wetland partially covered by fill from existing highway - wetland plants on both sides of highway

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Sycamore</u>	<u>Tree</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Cottonwood</u>	<u>Tree</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Oak, Arizona?</u>	<u>Tree</u>	<u>-</u>	11. _____	_____	_____
4. <u>Velvet Ash</u>	<u>Tree</u>	<u>FAC+</u>	12. _____	_____	_____
5. <u>Canyon Grape</u>	<u>Vine</u>	<u>FAC</u>	13. _____	_____	_____
6. <u>Sumac</u>	<u>Shrub</u>	<u>-</u>	14. _____	_____	_____
7. <u>Biscuit Ery</u>	<u>Herb</u>	<u>-</u>	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 80% ±

Remarks: Small patch located at toe of fill on existing hwy - indicators present on both sides of hwy - Spring present

HYDROLOGY

<p>Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations: Depth of Surface Water: <u>± 1-10</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)</p>	
<p>Remarks: <u>Some standing water among boulders at toe of fill</u></p>	

Enclosure

Wetland No. 14

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Stock Tank (S. 29 T2N R9E)
east of Cottonwood Basin
USFWS desig. Pusch

Project/Site: <u>SR 87 - Kitty Ice Alternative 1</u>	Date: <u>11 Sept. 1992</u>
Applicant/Owner: <u>ADOT - FNA</u>	County: <u>Maricopa</u>
Investigator: <u>E. L. Smith / M. H. Cochran</u>	State: _____
Do Normal Circumstances exist on the site? Yes <input type="radio"/> No <input checked="" type="radio"/>	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes No <input type="radio"/>	Transect ID: _____
Is the area a potential Problem Area? <input checked="" type="radio"/> Yes No <input type="radio"/>	Plot ID: _____
(If needed, explain on reverse.)	

Artificial Stock tank created by damming flow out of small basin
- no clearly identifiable waters associated w/ tank - some small drainages
VEGETATION approaching 5'± in width - shallow

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Juniper</u>	<u>Tree</u>	<u>-</u>	9. _____	_____	_____
2. <u>Scrub Oak</u>	<u>Shrub</u>	<u>-</u>	10. _____	_____	_____
3. <u>Sonchibus</u>	<u>Shrub</u>	<u>-</u>	11. _____	_____	_____
4. <u>Manzanita</u>	<u>Shrub</u>	<u>-</u>	12. _____	_____	_____
5. <u>Curly Mesquite</u>	<u>Grass</u>	<u>-</u>	13. _____	_____	_____
6. <u>Four Cocks Bur</u>	<u>Forb</u>	<u>FAC-</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 0

Remarks: No "wetland plants" - large area (50-100') of exposed, dry mud surrounds water - very little vegetation - tank is probably ephemeral

HYDROLOGY

<p>Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations: Depth of Surface Water: <u>712"</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)</p>	
<p>Remarks: Stock tank I 50% capacity</p>	

Enclosure

SOILS

Map Unit Name (Series and Phase): _____		Drainage Class: _____	
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No	
Profile Description:			
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)
			Mottle Abundance/Contrast
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Hydric Soil Indicators:			
<input checked="" type="checkbox"/> Histosol ? <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)	
Remarks: <i>Soils around tank are fine-textured, clayey, light charcoal in color</i>			

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Circle)	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	(Circle)
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <i>Site probably contains water for more than 30 days per year, is artificially created, and does not support hydric vegetation - highly disturbed by livestock use.</i>		

Problem Area
DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>SR87 - S. 31 T6N R9E</u>	Date: <u>12 Sept. 1992</u>
Applicant/Owner: <u>ADOT - FNA</u>	County: <u>Maricopa</u>
Investigator: <u>E.L. Smith / M.H. Cochran</u>	State: <u>AZ</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input type="radio"/> No	Transect ID: _____
Is the area a potential Problem Area? <input checked="" type="radio"/> Yes <input type="radio"/> No	Plot ID: _____
(If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Cottonwood</u>	<u>Shrub/Tree</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Willow</u>	<u>Shrub</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Seepwillow</u>	<u>Shrub</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Canyon Ragweed</u>	<u>Herb</u>	<u>NI</u>	12. _____	_____	_____
5. <u>Desert Broom</u>	<u>Shrub</u>	<u>FAC-</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 750%

Remarks: wetland plants scattered along narrow (2'-8") rocky channel parallel to existing highway

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p>___ Stream, Lake, or Tide Gauge</p> <p><input checked="" type="checkbox"/> Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: <u>5-7</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p>___ Local Soil Survey Data</p> <p>___ FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
<p>Remarks: <u>Drift material in overlapping catclaws along bank and to 0.25m above stream bottom in desert broom, seepwillow, and cottonwood. Channel < 2' wide and > 2' deep in spots up to ± 8' wide</u></p>	

Enclosure

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>SR 87 - Lower Kitty Joe Canyon Bridge</u> Applicant/Owner: <u>ADOT-FHA</u> Investigator: <u>E. L. Smith / M. H. Cochran</u>	Date: <u>12 Sept 1992</u> County: <u>Maricopa</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Sycamore*</u>	<u>Tree</u>	<u>FACU</u>	9. _____	_____	_____
2. <u>White Ash</u>	<u>Tree</u>	<u>FACU</u>	10. _____	_____	_____
3. <u>Net-leaf Harkberry</u>	<u>Tree</u>	<u>FACU</u>	11. _____	_____	_____
4. <u>Juniper</u>	<u>Tree</u>	<u>-</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. <u>Bridge's Penstemon</u>	<u>Herb</u>	<u>-</u>	14. _____	_____	_____
7. <u>Muhlenbergia rigens</u>	<u>Herb</u>	<u>FACU</u>	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 240%

Remarks: Very xeric site - Sycamore saplings most common species in stream channel - stream banks are scrub oak, juniper, catalpa, mimosa
* common as saplings in stream channel

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to ^{Moist} Saturated Soil: <u>6-8</u> (in.)	Remarks: <u>Soil (sand) moist within 6-8 inches of surface, no clay d. materials 0.5 m above ground in sapling streamers</u>

Enclosure

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

*Slate Creek Crossing by
 SR 87 Alt R2+W2*

Project/Site: <u>SR 87- New Slate Creek Bridge Site</u> Applicant/Owner: <u>ADOT-FHA</u> Investigator: <u>E.L. Smith / M.H. Cochran</u>	Date: <u>11 Sept 1992</u> County: <u>Gila</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? Yes <input type="radio"/> No <input checked="" type="radio"/> * Is the site significantly disturbed (Atypical Situation)? Yes <input checked="" type="radio"/> No <input type="radio"/> Is the area a potential Problem Area? Yes <input checked="" type="radio"/> No <input type="radio"/> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

* Site has been disturbed by previous highway construction and has been excavated according to USFWS

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Juniper</u>	<u>Tree</u>	<u>-</u>	9. _____	_____	_____
2. <u>Scrub Oak</u>	<u>Shrub</u>	<u>-</u>	10. _____	_____	_____
3. <u>Manzanita</u>	<u>Shrub</u>	<u>-</u>	11. _____	_____	_____
4. <u>Catclaw</u>	<u>Shrub</u>	<u>-</u>	12. _____	_____	_____
5. <u>Mimosa</u>	<u>Shrub</u>	<u>-</u>	13. _____	_____	_____
6. <u>Savubush</u>	<u>Shrub</u>	<u>-</u>	14. _____	_____	_____
7. <u>Cottonwood</u>	<u>Tree</u>	<u>FACW</u>	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 21% - A single, small cottonwood

Remarks: _____

HYDROLOGY

___ Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge <u>X</u> Aerial Photographs ___ Other ___ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated ___ Saturated in Upper 12 Inches <u>X</u> Water Marks <u>X</u> Drift Lines <u>X</u> Sediment Deposits - local, uncommon ___ Drainage Patterns in Wetlands
Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>-</u> (in.) Depth to Saturated Soil: <u>Not checked</u> (in.)	Secondary Indicators (2 or more required): ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Remarks: _____	

Enclosure

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

*Slate Creek 1.1 miles
 downstream from project
 end - on Hwy 87 opposite
 (i.e. N.) of Rattlesnake Mine*

Project/Site: <u>SR 87 - Slate Creek - beyond Project End</u> Applicant/Owner: <u>ADOT - FNA</u> Investigator: <u>E.L. Smith / M.H. Cochran</u>	Date: <u>11 Sept. 1992</u> County: <u>Ala Gila</u> State: <u>AZ</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? * <input checked="" type="radio"/> Yes <input type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

* *Some disturbance from previous highway construction in vicinity*

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Cottonwood</u>	<u>Tree</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Goodding Willow</u>	<u>Shrub</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Sycamore</u>	<u>Tree</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Walnut</u>	<u>Tree</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Cattail</u>	<u>Herb</u>	<u>OBL</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 95% ±

Remarks: *Adjacent uplands of Qutu, Rhus, Manzanita, Juniper, Cattails present in protected plunge pools*

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Describe in Remarks):</p> <p style="padding-left: 20px;"><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> Aerial Photographs</p> <p style="padding-left: 20px;"><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Remarks: <i>Area consists of a series of pools connected by surface flow 1.1 miles downstream from proposed crossing of Slate Creek by Alternatives K2 + W2</i></p>	

Enclosure

