DRAFT ENVIRONMENTAL ASSESSMENT

GOLF COURSE, THOMPSON PEAK PARKWAY and DESERT GREENBELT FLOOD CONTROL FACILITIES, CITY OF SCOTTSDALE

U.S. Bureau of Reclamation

Phoenix Area Office
Lower Colorado Region
Phoenix, AZ

August 1997

Draft Environmental Assessment for Golf Course, Thompson Peak Parkway and Desert Greenbelt Flood Control Facilities, City of Scottsdale

Project Proponent:

Capital Realty Corporation of Scottsdale
City of Scottsdale, AZ

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August 1997

DISCLAIMER

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

_____ _____

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Date

This document should be cited as:

Jones & Stokes Associates, Inc. 1997. Environmental assessment for golf course, Thompson Peak Parkway, and Desert Greenbelt flood control facilities. Draft. July 28. (JSA 95-334.) Phoenix, AZ. Prepared for U.S. Bureau of Reclamation, Phoenix, AZ.

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List of Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
AMA	Phoenix Active Management Area
APC	Maricopa County Environmental Services Department of Air Pollution Control
ARS	Arizona Revised Statutes
BMP	best management practice
CAP	Central Arizona Project
CEQ	Council on Environmental Quality
cfs	cubic feet per second
City	City of Scottsdale
CO	carbon monoxide
CRCS	Capital Realty Corporation of Scottsdale
dBA	A-weighted decibels
DGB	Desert Greenbelt
EA	environmental assessment
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ESLO	Environmentally Sensitive Lands Ordinance
FCDMC	Flood Control District of Maricopa County
FHWA	Federal Highway Administration
FONSI	finding of no significant impact
ITAs	Indian Trust Assets
ITE	Institute of Traffic Engineers
kV	kilovolt
msl	(above) mean sea level
NAC	noise abatement criteria
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act

NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	U.S. Natural Resources Conservation Service
NRHP	National Register of Historic Places
PM10	particulate matter less than 10 microns in diameter
ppm	parts per million
Reclamation	U.S. Bureau of Reclamation
ROG	reactive organic gases
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
TCP	Traditional Cultural Properties
TPC	Tournament Players Club
TPP	Thompson Peak Parkway
tpy	tons per year
USFWS	U.S. Fish and Wildlife Service
WSCA	wildlife of special concern in Arizona
$\mu g/m^3$	micrograms per cubic meter

Section 1. Purpose and Need

INTRODUCTION

The City of Scottsdale (City) currently operates an equestrian center and western theme park on property owned by the U.S. Bureau of Reclamation (Reclamation) north of Reach 11, Dike 4 of the Central Arizona Project (CAP) canal in Scottsdale, Arizona. Through a concession agreement with Scottsdale, Capital Realty Corporation of Scottsdale (CRCS), formerly WestWorld of Scottsdale, proposes to construct a portion of an 18-hole championship golf course on Reclamation property and to use CAP water to irrigate the golf course. The balance of the golf course would be located on private property immediately northeast of Reclamation's right-of-way. The City also proposes to construct the Thompson Peak Parkway (TPP) over the CAP dike on Reclamation property at the northern edge of the proposed golf course and proposes to construct two settling basins associated with the Desert Greenbelt (DGB) flood control project nearby on a portion of Reclamation's property.

A total of 210 acres of the golf course and portions of the TPP and DGB are proposed to be constructed on Reclamation's right-of-way, which would require Reclamation's approval before construction begins.

PURPOSE OF AND NEED FOR THE ENVIRONMENTAL ASSESSMENT

Project History

The Paradise Valley Flood Detention basin was constructed by Reclamation primarily to protect the CAP facility. Secondarily, Reclamation designated an area east of Pima Road adjacent to the north side of the CAP canal (Reach 11, Dike 4) to be developed for public recreational use. In July 1982, Reclamation entered into a Cost Sharing and Land Use Agreement with the City for development and management of this area for recreational use. The City later entered into a Use and Management Agreement with CRCS to develop and manage various public recreational facilities according to a management plan for the area.

A Management and Facilities Operations Plan for development of the property was prepared to implement CRCS's Use and Management Agreement with the City. The management plan, originally approved by Reclamation and the City in December 1986, also includes a master plan that was updated and approved in July 1995.

Phase I of the master plan encompasses existing facilities, which are now operated by the City. These facilities consist primarily of an equestrian center and arenas, polo fields and pens, livery stables, cookout areas, event barn, and recreational vehicle facilities located on approximately 146 acres of Reclamation's 356-acre detention basin. Phase II of the master plan, which encompasses future development in the detention basin, includes the concept of developing a public 18-hole golf course east of existing City facilities (formerly known as WestWorld of Scottsdale).

On December 31, 1996, the City entered into a Concession Agreement with CRCS to construct a golf course. With Reclamation approval, the agreement would allow CRCS to build and operate a golf course on 210 acres of the 356 acres of Reclamation land covered under the 1982 Land Use and Cost Sharing Agreement. The Concession Agreement between the City and CRCS operates in conjunction with the Land Use and Cost Sharing Agreement and requires CRCS to perform the necessary construction and maintenance to create a top-quality facility for the public's use and enjoyment.

The TPP and DGB portions of the proposed action were introduced during the golf course planning process as projects that should be coordinated with golf course development to accommodate the need for traffic circulation improvements and regional drainage needs in the project area. As planning for the golf course design proceeded, Reclamation's approval process for those portions of the TPP and DGB that affected Reclamation's right-of-way necessitated an integrated National Environmental Policy Act (NEPA) review encompassing all three project components. The City has been coordinating with Reclamation to obtain an easement for the TPP crossing and an approval for siting the DGB settling basins in Reclamation's right-of way. Reclamation has reviewed the City's proposed TPP crossing designs to ensure that the integrity and operation of the CAP structures, including the detention basin and dike, would not be adversely affected and that the proposed crossing design would be compatible with planned recreational uses within the detention basin. Of critical importance to Reclamation is maintenance of the CAP detention basin capacity to ensure that future flood flows will continue to be accommodated. Therefore, the volume of detention basin capacity displaced by the roadway embankment would need to be replaced with an equal amount of excavation within the basin. To ensure that capacity is maintained and that fill for the TPP crossing is available, the City and CRCS propose to excavate material from the golf course site for use in the TPP structure.

The City completed a concept design study for the TPP in November 1996 that presents four alternative CAP crossing concepts, a dike safety and traffic analysis, results of an April 7, 1993, public scoping workshop, and recommendations for the bridge crossing (The WLB Group 1996). The City also conducted a noise study in April 1997 to assess the noise effects of several TPP alignment alternatives on adjacent noise receptors. Because of the rate of growth and increased transportation demands in the area, the City has accelerated its original 2000-2005 time frame for implementation of the TPP and now proposes to construct the TPP as soon as possible.

The DGB flood control project has been developed by the City to provide a comprehensive stormwater management system for the Reata Pass and Beardsley wash alluvial fan area northeast of CAP Dike 4. The objectives of the DGB are to manage peak flows of the Reata Pass and Beardsley washes; remove the threat of property damage or loss of life due to alluvial fan flooding;

use and retain as many natural desert channels and as much environment as possible; effectively integrate the project with land owners, planned land uses, and transportation networks; and to maximize recreational, aesthetic and cultural public benefits (City of Scottsdale Parks Department, Planning and Community Development Department, and Transportation Department 1992).

In November 1992, the City adopted an amendment to the Drainage Element of the General Plan that established the DGB concept and the proposed alternative channel. In July 1993, the City undertook the Desert Greenbelt Preliminary Design Analysis that led to selection of the preferred DGB channel in May 1995. The proposed DGB channel development would involve discharge onto the Reclamation right-of-way northwest of the proposed TPP crossing at WestWorld. To ensure that DGB flood flows would not adversely affect the Reclamation right-of-way, the City proposes to install a series of three drop structures upstream of the Reclamation right-of-way to slow the water velocity. The City also proposes to install two settling basins within the Reclamation right-of-way to remove sediment and silt loads prior to water entering the proposed Golf Course/CAP detention basin. Analysis of the DGB in this environmental assessment (EA) focuses on the effect of these two basins and associated flood flows and sediment transport on Reclamation's right-of-way.

Purpose of This Environmental Assessment

The purpose of this EA is to assess the environmental effects of constructing and operating a golf course, roadway, and settling basins in the Reclamation right-of-way. The federal actions considered in this EA consist of:

- review and approval of the City's Concession Agreement with CRCS and plans for development of a public golf course on federal property pursuant to the 1982 Land Use and Cost Sharing Agreement,
- review and approval of plans to extend the TPP across the CAP canal and dike, and
- review and approval to construct two DGB settling basins within Reclamation's right-of-way.

Reclamation is responsible for ensuring that National Environmental Policy Act (NEPA) compliance is achieved. This EA has been prepared in compliance with NEPA, Council on Environmental Quality regulations (40 CFR 1500-1508), and Reclamation's NEPA handbook (U.S. Bureau of Reclamation 1990). Reclamation's goal in preparing this EA is twofold: 1) to approve the construction and operation of the golf course, TPP, and DGB that maintain the integrity and function of Reclamation's facilities, and 2) to assure that approval of the TPP and DGB basins is consistent with the recreational agreement or would not unduly restrict future recreational use and development in the area. Reclamation will use this EA to determine if an environmental impact statement (EIS) is needed or if a finding of no significant impact (FONSI) should be prepared.

This EA presents a description of the environment that would be affected by the proposed action. It contains an analysis of the potential environmental consequences and adopted mitigation measures related to various physical, biological, and cultural aspects of the project, including the following resource topics:

- land use, traffic, and noise;
- air quality;
- hydrology, water quality, and soils;
- visual resources;
- recreation;
- vegetation, wildlife, and special-status species;
- cultural resources;
- Indian Trust Assets;
- traditional cultural properties; and
- environmental justice

This EA also documents requirements for complying with the federal Endangered Species Act, the Clean Water Act, and the National Historic Preservation Act, including coordination with responsible and cooperating agencies.

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is for the City to obtain review and approval from Reclamation for: 1) CRCS to construct and operate a portion of the proposed public 18-hole championship golf course on Reclamation's right-of-way according to its Concession Agreement with the City, 2) construction of a TPP crossing over the CAP dike on Reclamation's right-of-way, and 3) construction of two settling basins on Reclamation's right-of-way that are associated with the DGB.

Golf Course

CRCS is requesting review and approval from Reclamation to allow the City, through CRCS, to construct a public 18-hole golf course. The City and CRCS have identified a need for additional public golf course facilities that would provide professional and recreational golfers the opportunity to enjoy a championship-level course that is open and affordable for public use.

Currently, 18 golf courses are in operation in Scottsdale. Of these, eight are private, with use restricted to members only. Of the 10 public courses, five are regarded as high-fee resort courses (up to $190.00 with green fees averaging over $100 for 18 holes during the peak season). This leaves five courses (one 9-hole facility, two 36-hole facilities, one 27-hole facility, and one 18-hole

facility) that could be regarded as affordable (approximately $30 to $40 depending on the season) to the general public.

Thompson Peak Parkway

The City is requesting review and approval from Reclamation to construct a crossing over the CAP canal and dike on Reclamation land. The entire project to extend the TPP consists of constructing the canal crossing, a crossing of the 35-foot-high flood dike, and a roadway between the equestrian facilities and the golf course. The TPP would connect the existing intersection at 100th Street with the existing McDowell Mountain Ranch Road intersection to the north and provide for a north-south right-of-way that will accommodate a four-lane arterial roadway initially and a six-lane arterial roadway by 2008.

The Scottsdale area north of the CAP canal is anticipated to experience a tremendous amount of growth over the next 20 years. In 1991, the City conducted a traffic analysis (The WLB Group 1996), which indicated that the canal crossing and road extension would be required in 2000-2005 depending on the rate of growth in the area. Because of the rate of growth and increased transportation demands in the area, the City has determined that the TPP is a high priority and the original 2000-2005 time frame should be accelerated to implement the TPP as soon as possible.

Desert Greenbelt Basins

The City is requesting review and approval from Reclamation to locate two DGB settling basins on Reclamation land. The DGB would reduce potential flooding threats caused by flows from the apex of the Reata Pass and Beardsley washes. The settling basins would be located at the end of the DGB and would collect silt and sediment introduced into the DGB during periods of heavy runoff. The basins would hold storm discharges and would allow silt and sediment to settle out of the drainage water before the water is either recharged to the groundwater basin or passed by gravity flow into detention basins at the golf course. The City would be responsible for cleaning and maintaining the basins (Appendix A). Please refer to Section 2, "Proposed Action and Alternatives," for a description and location of settling basins, filtration system, and recharge facilities.

The DGB system is being designed to contain the 100-year alluvial fan flood hazard that currently exists in Scottsdale north of the CAP canal. The concept of the DGB offers north Scottsdale the opportunity to blend effective flood control and open space amenities in the environmentally sensitive desert landscape while balancing homeowner concerns, development objectives, public safety, public landholder requirements, and city-wide planning goals.

Following guidelines for the drainage component of the City of Scottsdale General Plan in the area north of the CAP canal, the Federal Emergency Management Agency identified boundaries of potentially hazardous flooding conditions by delineating flood hazard zones. In the floodplains

north of the CAP canal, these flood zones are located on alluvial fans created by the erosion of upstream mountain ranges. On alluvial fans such as that north of the CAP canal, once the channels emerge from the McDowell Mountains onto the alluvial fan slopes, no confining land formations are present to contain larger overbank floodflows. Because of this lack of confinement, the location of previous flow paths is not a reliable predictor of future flow paths and possible locations of hazardous conditions. Most natural channels are capable of containing only the 2- to 5-year flood events; larger, less frequent events are not confined within these channels.

Section 2. Proposed Action and Alternatives

PROJECT LOCATION AND CONDITIONS

The proposed action involves three distinct yet related projects (golf course, TPP, and DGB settling basins) that would be located on federally owned property generally north of the CAP canal at Reach 11, Dike 4 in north Scottsdale, Arizona (Figure 2-1). The golf course would be situated southeast of the existing equestrian and western theme park facilities, predominantly within 210 acres of Reclamation's right-of-way. Most of this area was previously modified because it was used as a borrow site for obtaining embankment materials when the CAP canal facilities were constructed. The golf course project area is also located on approximately 69 acres of private land north of the Reclamation right-of-way that is currently undisturbed Sonoran desertscrub vegetation (Figure 2-2). The TPP would be located at the northern boundary of the proposed golf course and would separate existing facilities from the proposed golf course (Figures 2-3 and 2-4). Within the Reach 11 basin, the DGB basins would be situated north of the TPP on Reclamation property (Figure 2-5).

The Reclamation right-of-way primarily serves as a flood detention basin and provides recreational amenities such as the City-operated equestrian center. It is also used as a corridor for power transmission lines. The City uses portions of the project area for overflow parking and public horse trails.

The project site is bounded by CAP dike facilities to the south and southwest, by private property and a state-owned parcel to the northeast, by open space areas to the east, and by existing equestrian and theme park facilities to the northwest (Figure 2-1).

PROPOSED ACTION

Golf Course Facilities

As planned, the proposed golf course would be a public daily-fee golf facility. The project would include construction of a 18-hole championship golf course, practice facilities, a clubhouse, and a cart storage and maintenance compound. A multi-use trail system to accommodate equestrian and mountain bike use would also be incorporated into the golf course design. The course design is conceptual. Final design, construction, and grading plans and specifications would be submitted to Reclamation for approval. After 30 years of operation, the golf course would be owned by Reclamation according to the conditions of the Cost Sharing and Land Use Agreement.

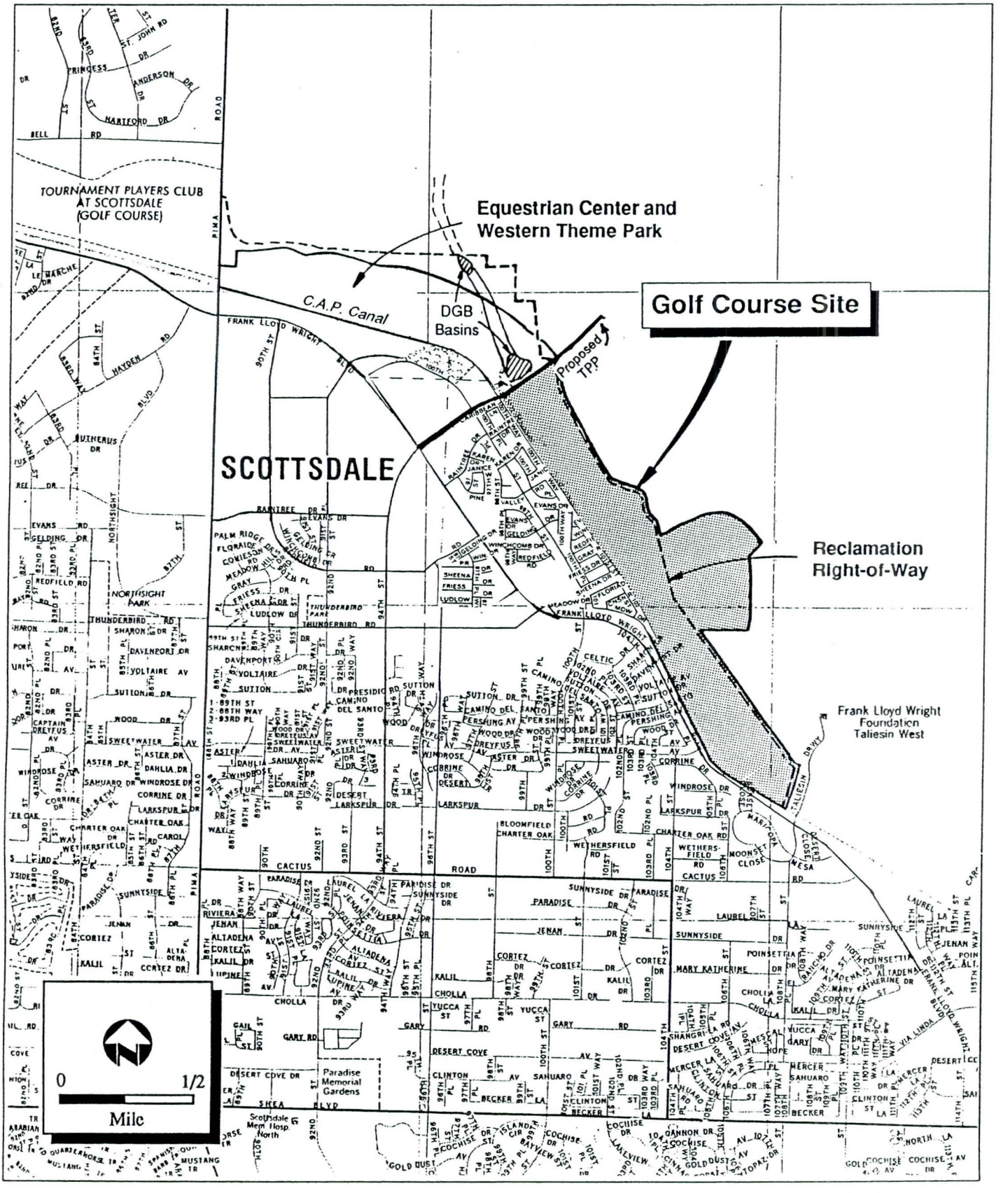

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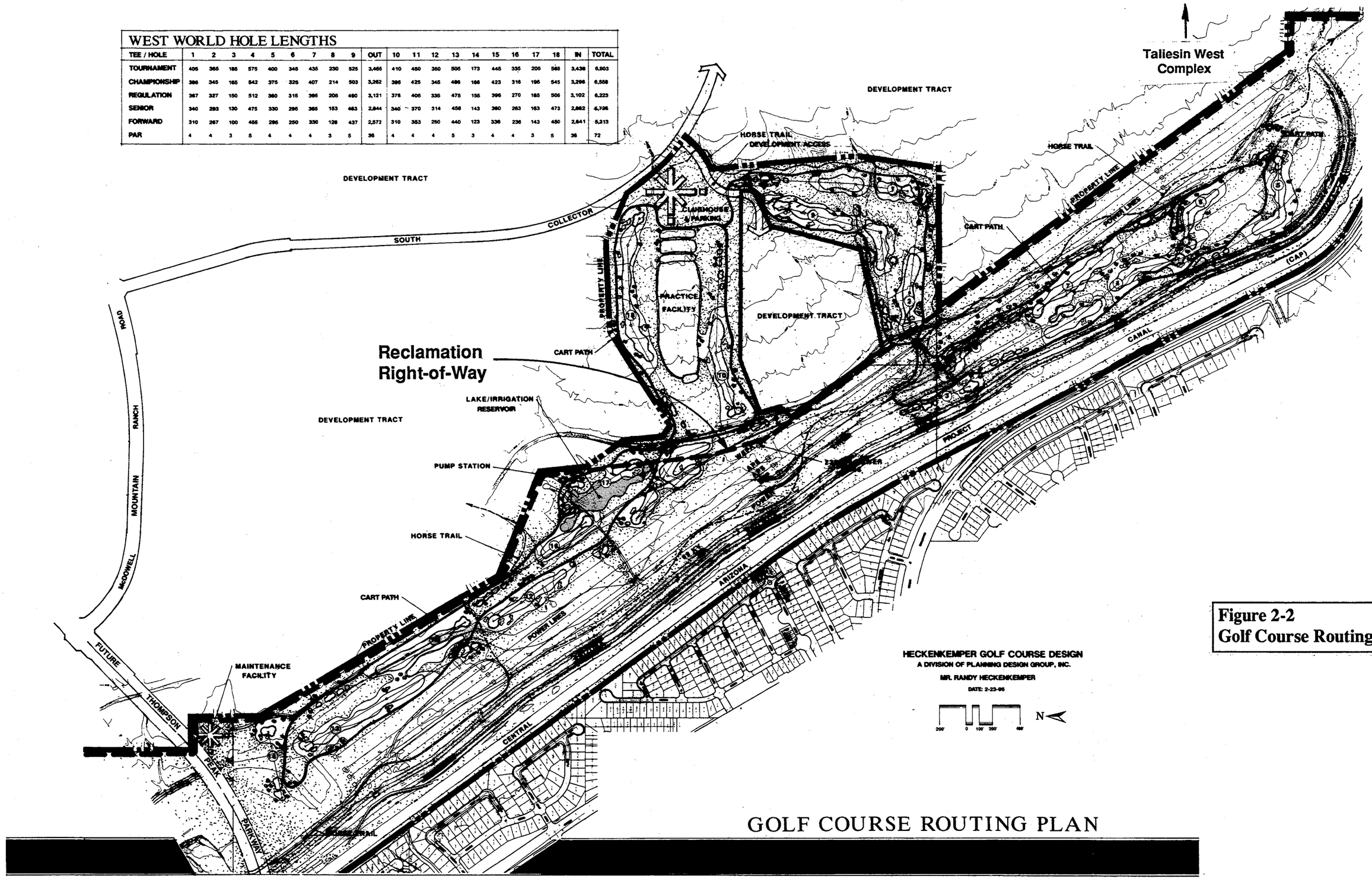
Figure 2-1
Project Location

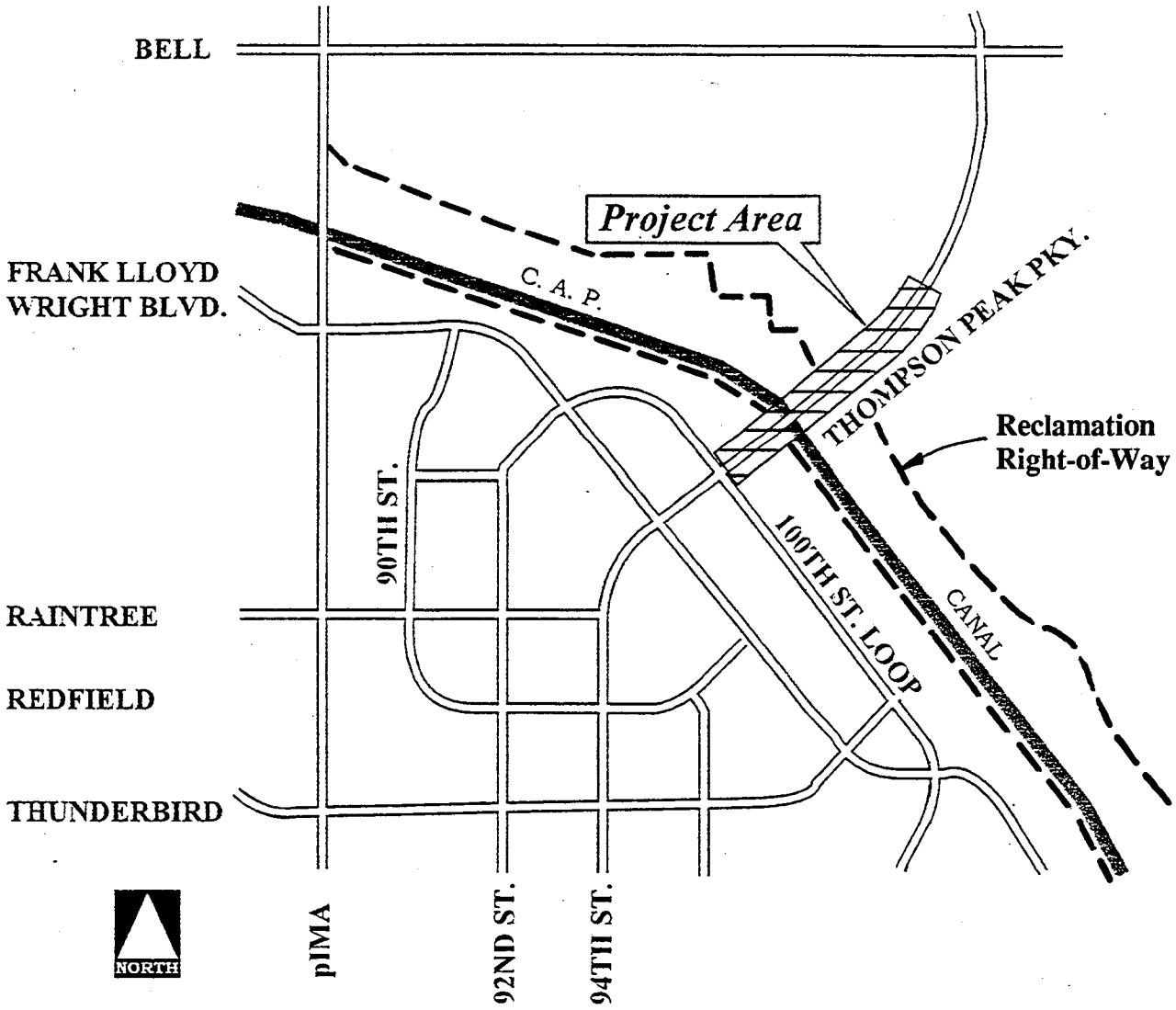
WEST WORLD HOLE LENGTHS

TEE / HOLE	1	2	3	4	5	6	7	8	9	OUT	10	11	12	13	14	15	16	17	18	IN	TOTAL
TOURNAMENT	405	365	185	575	400	345	435	230	525	3,465	410	450	350	505	173	445	335	205	565	3,438	6,903
CHAMPIONSHIP	396	345	165	542	375	325	407	214	503	3,262	396	425	345	486	166	423	316	196	545	3,296	6,558
REGULATION	367	327	150	512	360	315	395	205	490	3,121	375	405	335	475	155	396	270	185	506	3,102	6,223
SENIOR	340	293	130	475	330	296	365	153	463	2,844	340	370	314	456	143	360	263	163	473	2,882	5,726
FORWARD	310	267	100	456	295	250	330	128	437	2,572	310	353	250	440	123	336	236	143	450	2,641	5,213
PAR	4	4	3	5	4	4	4	3	5	36	4	4	4	5	3	4	4	3	5	36	72



GOLF COURSE ROUTING PLAN

Figure 2-2
Golf Course Routing Plan



CITY OF SCOTTSDALE ARIZONA

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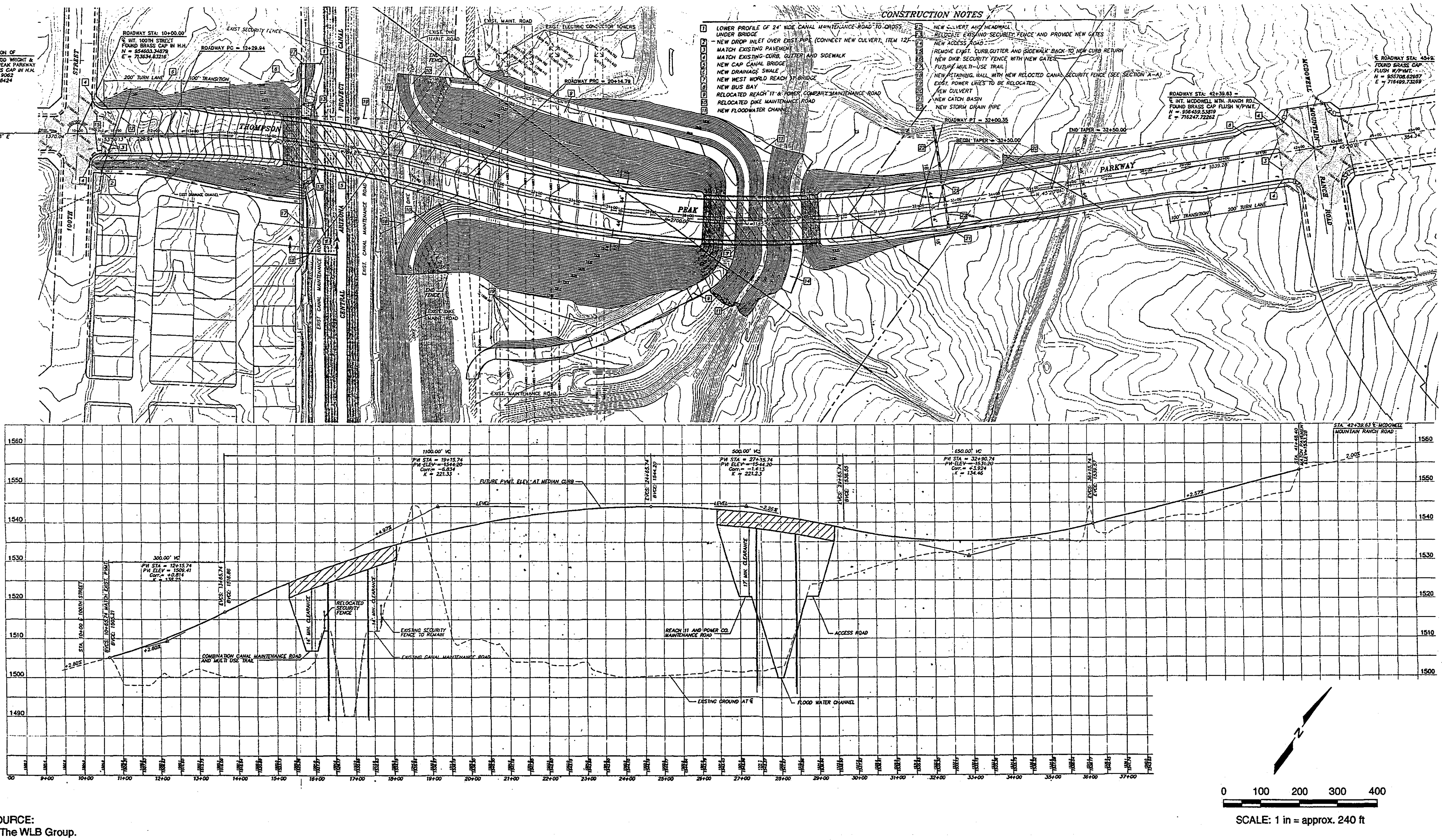
Figure 2-3
Thompson Peak Parkway Configuration across the CAP Dike and Canal



SOURCE:
The WLB Group.

Jones & Stokes Associates, Inc.

Figure 2-4
Recommended Thompson Peak Parkway Design

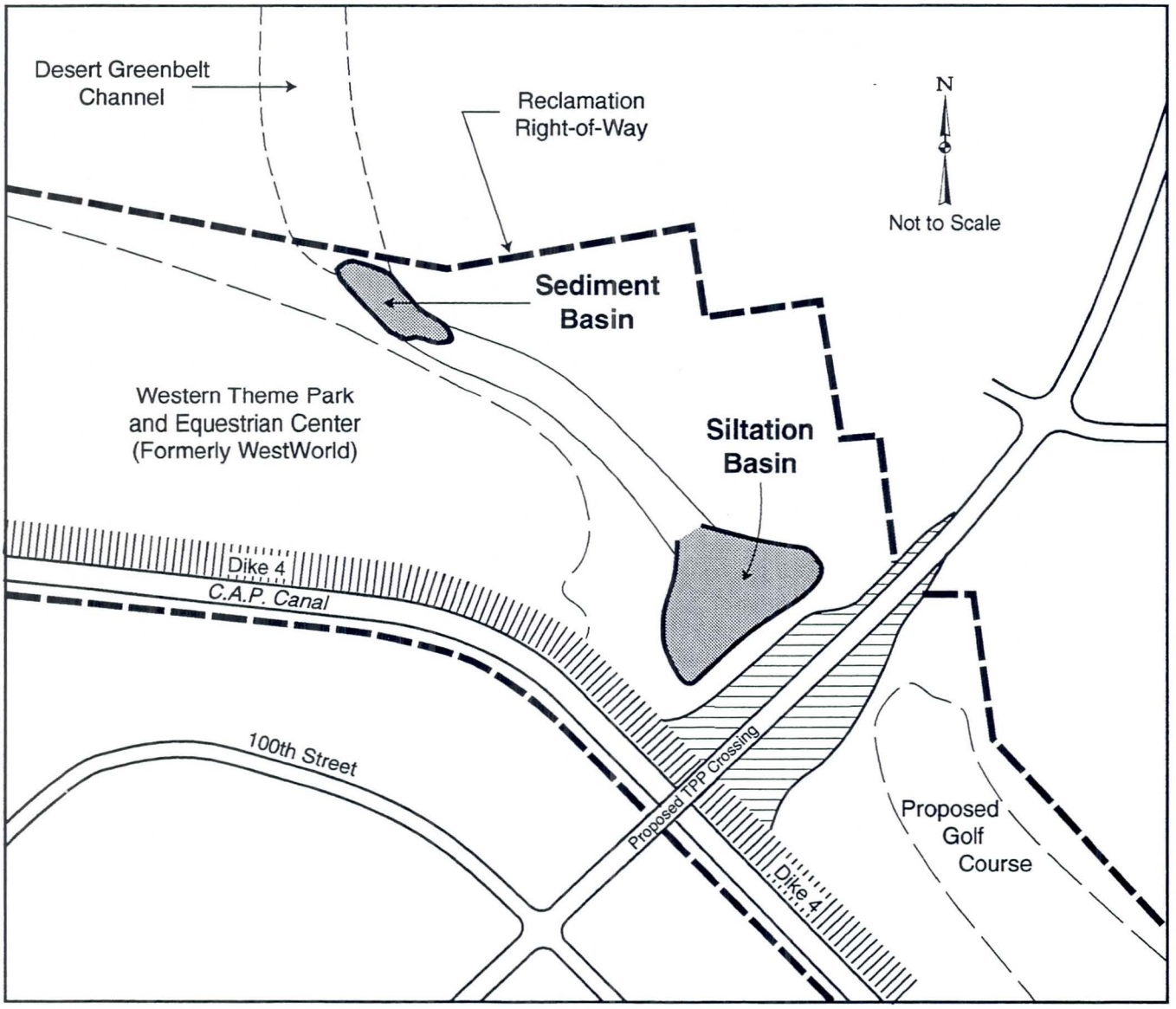


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Figure 2-5
Desert Greenbelt Settling Basin Locations

The golf course design provides a "target golf" development concept similar to many of the recently developed courses in north Scottsdale. This design reduces disturbance of and intrusion into the natural desert landscape through the use of "target" landing areas that are reached by carrying the ball from the tee over the native vegetation to the fairways and greens. The golf course would have less than 75 acres of maintained turf on the tees, fairways, and greens and would be irrigated with a state-of-the-art system to ensure maximum water conservation. Desert areas that would be disturbed during construction would be revegetated using native plants in a natural landscape.

The golf course is designed as a par 72 course. Multiple tee boxes would be provided at each hole, enabling players at all skill levels to have enjoyable and challenging experiences. The course length would vary from 5,213 yards to 6,903 yards, depending on which tee boxes are used.

Construction and Grading

The project would be constructed on 210 acres of Reclamation land, most of which was disturbed during construction of the CAP canal and detention basin. In addition, 69 acres of private property would be graded for construction of the clubhouse; practice range; and holes 1, 2, 9, 10, and 18. Additional excavation and grading would be required throughout the project site. Mounding of material would be required in the turfed golf course areas and at the clubhouse compound. The current proposal is to grade the golf course to provide fill for use in the proposed TPP project at the northwestern boundary of the project area. Using fill from the golf course for the TPP portion of the proposed action would provide a convenient and less expensive source of fill and would ensure that existing flood storage capacity in the detention basin is maintained (per Reclamation requirement). Approximately 400,000 cubic yards of material of the total 450,000 cubic years planned for excavation within the basin would need to be excavated from the golf course for use at the TPP site. The remaining 50,000 cubic yards of material would be excavated from the detention basin at the DGB settling basins. The finished elevation of the turfed portion of the course would be 1,520 feet and would be designed to be inundated by a 5-year or larger storm. The existing basins onsite would be widened and deepened to permit additional water to be stored below the 1,520-foot elevation.

The golf course would include a grading and drainage plan in the central portion of the course to ensure that drainage into the CAP basin is adequately accommodated. The current proposal is to protect facilities by mounding material around the clubhouse, practice facilities, and holes 10 and 18 to direct floodflows away from these areas and toward the CAP basin.

Design and Operation Guidelines

Irrigation and Water Conservation. Water for golf course irrigation would be provided from the CAP, and negotiations are under way to acquire water rights from a CAP allocation holder. Transfer of water from the CAP to CRCS would involve constructing a control structure and delivery pipeline. Depending on the final design of these facilities, additional Reclamation review and approval may be required. Total water demand for golf course irrigation would be limited to 22.23 acre-feet per year per golf hole, or approximately 400 acre-feet per year.

The golf course would be designed and operated with a state-of-the-art irrigation system to ensure a high level of water conservation. The use of "target" areas for 75 acres of tees, fairways, and greens would also limit the amount of turf requiring irrigation on the 280-acre course.

The irrigation system would use gear-driven, valve-in-head sprinklers that are controlled by a central computer assisted by a weather station. The sprinkler heads would be spaced approximately 60-70 feet apart. The trajectory of the water spray is planned to be approximately 20 feet at its highest point. Watering would generally occur during nighttime hours.

Groundwater Recharge. The City and CRCS have indicated that an undetermined number of dry wells may be constructed in the unturfed areas of the golf course to help evacuate water from the basin below the 1,520-foot elevation and to recharge the groundwater basin. CRCS is also considering other water supply options, such as acquiring groundwater recharge credits from operation of dry wells to allow use of the City's municipal well system. Filtered water from the DGB settling basin could be used for this purpose, subject to Arizona Department of Environmental Quality (ADEQ) and Arizona Department of Water Resources requirements.

Taliesin West Viewshed. The southeastern portion of the golf course would be designed to substantially reduce the potential for visual impacts on the Taliesin West National Historic Landmark viewshed. The course has been redesigned to move the southern portion approximately 500 feet northwest of an original design location. Portions of the golf course that could be visible from the Taliesin West observation deck would also be screened from view by native vegetation planted along the Old Verde Canal and the CAP dike toe. (Refer to the discussions of this issue under "Cultural Resources" and "Visual Resources" in Section 3.)

In response to concerns expressed by Taliesin West during the scoping process regarding visual impairment, irrigation of turf areas within the Taliesin West view corridor would be restricted primarily to nighttime hours, except during the initial growth period, during the 2-week reseeding period in the fall, and during fertilizer applications. Water discharged from sprinklers would not exceed the vertical extent of surrounding vegetation.

Pesticide and Fertilizer Application. Maintaining turf areas would involve applying the minimum amounts of pesticide and fertilizer needed to maintain a championship-level golf course. Pesticides would be applied as required on approximately 75 acres of turf. Fertilizer would be applied up to eight times per year, on turf areas only.

Landscaping, Lighting, and Sound Systems. Landscaping at the golf course would consist primarily of native plant material. Areas that must be disturbed and do not involve placement of turf grasses would be revegetated using salvaged native plant materials and seeding. Tree species that tolerate frequent watering would be planted within the boundaries of the maintained turf to help frame golf holes and screen transmission towers and power poles from view.

Golf course lighting would be used only around the clubhouse compound in the north-central portion of the course. No path lighting is proposed on the golf course.

A sound system is planned as part of the operation of the golf course to announce groups scheduled to tee off and provide tournament instruction. Speakers would be positioned adjacent to the putting clock and the practice range tee. Additional speakers or storm alert sirens may be positioned throughout the golf course to advise golfers of potentially threatening weather conditions.

Water and Sediment Management. CRCS and the City have agreed to a management and operations plan to ensure coordination of water and sediment management activities during operation of the golf course and flood control facilities (Appendix A).

Multi-Use Trail. The proposed multi-use trail would accommodate three major uses: hiking, biking, and horseback riding. When completed, it would link the equestrian center and proposed golf course to the McDowell Mountain Preserve to the east, the 7-mile DGB to the north, a major hiking and riding trail to the south, two major community parks, and a library.

The trail would consist of graded natural terrain surfaced with A-minus granite fines. Granite would create a smooth surface and provide the necessary coverage to limit dust generation from heavy traffic. The trail would generally be 6 feet wide to accommodate two-way traffic. In areas where the trail is near the golf course or existing residential neighborhoods, appropriate buffers would be provided through the use of constructed landforms or native vegetation.

Thompson Peak Parkway

The proposed extension of the TPP, planned for construction in 1997-1998 as a four-lane roadway, would form the northwestern boundary of the proposed golf course. This arterial roadway would require construction of two bridges and a right-of-way to ultimately accommodate a six-lane roadway by 2008 across the CAP canal to a connection to the existing McDowell Mountain Ranch Road. A southern collector road would provide access to the golf course clubhouse compound and residential and commercial development to the north. The City proposes to obtain borrow material from the golf course and DGB portions of the project. Constructing the parkway would require placing approximately 450,000 cubic yards of excavated fill material from the golf course and DGB settling basins in the CAP detention basin to support the bridge structure.

The CAP canal crossing would consist of a bridge with a span of approximately 280 feet. The bridge's width is 125 feet, which includes the 104-foot roadway section and 8-foot sidewalks (this will accommodate up to a 6 lanes of traffic). The bridge would span the CAP canal, the maintenance roads on each side of the canal, and the multi-use trail located along the south side of the canal. To construct the recommended alignment for the roadway, the top 8 feet of the existing CAP dike would have to be removed. The dike would then be realigned in a configuration that protrudes northward into the basin. The dike maintenance road located on top of the dike would continue along the new dike alignment and cross the TPP at grade. A second 300-foot-long bridge would be constructed behind the CAP dike to provide adequate cross drainage in the detention basin and to accommodate theme park and golf course operation. The TPP would cover approximately

0.6 mile between 100th Street and McDowell Mountain Ranch Road and would encompass approximately 1,500 linear feet within Reclamation's right-of-way.

Desert Greenbelt Basins

In November 1992, the Scottsdale City Council adopted an amendment to the drainage element of the general plan that established the DGB concept and the proposed corridors. This regional drainage project is designed to contain the 100-year alluvial fan flood in Scottsdale north of the CAP canal. The DGB uses natural washes wherever possible and preserves the character of the surrounding desert environment. The southern outlet of the drainage facility at the Reclamation detention basin near the existing equestrian facility could affect the proposed golf course. Two settling basins (DGB basins) would be constructed at the end of the DGB within Reclamation's right-of-way to collect silt and sediment introduced into the DGB during periods of heavy runoff, as described in Appendix A. Excavated material (50,000 cubic yards) from these basins would also be used as fill material for the proposed TPP.

The upper, 1-acre settling basin would be approximately 8-feet deep and would remove most of the sediment from frequent storms (Figure 2-5). This upper basin would be designed to slow the velocity of flood waters to allow sediment loads to fall out and would not be designed to store water. The rate of sediment deposition would be highly variable depending on frequency and velocity of the floodflows. Stationary gauges would be placed in the basin to measure sediment deposition. When the sediment load reaches 12 inches on the stationary gauge, the sediment would be excavated to maintain basin capacity.

The lower, 7-acre settling basin would be capable of storing 50 acre-feet of water and would hold minor storm discharges allowing silt to settle out of the floodwaters. The lower settling basin would be constructed with two discharge pipes that would allow discharge from the upper 8 feet of the basin and the bottom of the basin. The basin would also be equipped with stationary siltation gauges and would be maintained in a fashion similar to that of the upper basin. Disposed sediment and silt deposits are expected to be used for cover at the Salt River Indian Community or Maricopa County landfills pending negotiations with those entities (Appendix A).

Evacuation of stormwaters from the settling basins below the 1,520-foot elevation would be accomplished by either groundwater recharge using dry wells or by filtering the water and then recharging using dry wells. The filtering system for removal of silt would most likely be an automatic backwash rapid sand filter that can handle a substantial quantity of solids and does not require removal of filters for cleaning purposes. Filtered water that is intended for groundwater recharge of dry wells in the golf course would be required to meet ADEQ dry well registration requirements. No hazardous materials issues associated with stormwater discharge to dry wells is expected because of the residential nature of planned land uses north of the CAP dike and because of experience with the dry wells in the Tournament Players Club golf course, northwest of the proposed golf course (Dueker pers. comm.). In the unlikely event that hazardous materials violations

did occur, operation of the dry wells would be subjected to the ADEQ's Aquifer Protection Permit requirements.

NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the projects identified for the proposed action would not be developed within the Reclamation right-of-way at the proposed locations. The site would remain vacant and would be used mainly for open space activities, such as equestrian trails, other passive recreation pursuits, and as a drainage channel. The project area would continue to serve as a detention basin. The proposed golf course would not be built at its present location; therefore, fill material would not be excavated and readily available for use in construction of the TPP. The 69 acres of private land would probably be developed at presently approved residential densities. However, because of regional needs for flood control and transportation improvements, the TPP (or a similar project) and the DGB project would probably be implemented in a manner that does not involve alteration of the CAP dike or Reclamation's detention basin. For the TPP project, implementing the No-Action Alternative would require building a similar structure at an alternative location that would avoid the CAP canal, dike, and detention basin.

Under the No Action Alternative, the DGB project would need to be implemented either without constructing two settling basins in the Reclamation right-of-way or by developing an alternative DGB configuration that does not involve construction in the detention basin. Flood waters would likely continue to be discharged to the CAP detention basin under any of the viable options.

Also under the No-Action Alternative, the City would not implement an amended Use and Management Agreement with CRCS for expansion of its facilities, and Reclamation and the City would have no reason to amend its Cost Sharing and Land Use Agreement to include use of the project site. Because of the City's identified need for golf course facilities that are open to the public, the City would probably pursue development of a public golf course at another suitable location.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Golf Course

CRCS originally designed a golf course as part of its July 1995 master plan that included a larger area of development than the area currently proposed. The 1995 golf course design included an alignment of golf holes that extended farther south than is currently planned and a different configuration of the clubhouse and practice facility complex. The original golf course design was

later modified primarily because of concerns about visual effects on the Taliesin West complex. This alternative was considered infeasible based on its possible effects on a National Historic Landmark (refer to "Cultural Resources" in Section 3 for further discussion).

CRCS also addressed the possibility of constructing all of the golf course facilities west of the old Thunderbird Road alignment. Eliminating the golf course facilities southeast of this alignment would have eliminated all concerns related to effects on Taliesin West visual resources, but was determined to be infeasible because the remaining area available for the project was not large enough to accommodate an 18-hole golf course.

Thompson Peak Parkway

The alternative to constructing the crossing over the CAP dike is that the TPP would not be completed as a major arterial roadway in this area and would remain an interim roadway with only one outside traffic lane and bicycle lane in each direction north of McDowell Mountain Ranch Road. This alternative was dropped from consideration following traffic analyses showing an expected increase in traffic congestion on Pima Road to the west and Bell Road to the north and the need for another major travel artery in this region. Barring construction would most likely result in continuing increased traffic congestion, as well as higher pollution from vehicles in stop-and-go traffic situations.

The City also evaluated several alternative configurations for the TPP crossing of the CAP canal, as described in the Thompson Peak Parkway - Concept Design Study for Crossing the CAP Canal (The WLB Group 1996). Appendix F contains workshop materials developed for the TPP scoping process that involved a workshop on April 7, 1993. Comment sheets received during the meeting are also included. The purpose of the workshop was to learn about the concerns and thoughts of local residents and nearby landowners. Twenty-three people attended the workshop and 19 comment sheets were received. Of the 19 respondents, four made reference to the TPP. All four respondents expressed a desire for a cut-through-the-dike type crossing at the CAP.

The City's evaluation of four alternatives involved evaluating the advantages and disadvantages of each alternative, including the cost, adjacent land use effect, detention basin effects, aesthetics, structural considerations, and the effect on 230 kilovolt (kV) power lines. The proposed TPP design (Alternative 2 from the TPP concept design study) was selected because it was found to be the least expensive and would be a lower profile structure, which could reduce aesthetic effects. One other alternative that had a lower profile than the proposed TPP was eliminated because its cost was greater and the CAP detention basin displacement was greater.

Desert Greenbelt Basins

The alternative to locating the siltation basin on Reclamation land would be to build it offsite north of Reclamation's right-of-way, requiring the City to acquire additional land for this purpose. This is a less desirable alternative because of the high cost ($62,000/ acre) of adjacent land and other problems related to acquisition and construction in that area. Less fill material, if any, would be available for the TPP if DGB basins were built off of Reclamation's right-of-way. This offsite alternative was also eliminated from further consideration because the best location for settling basins is on Reclamation's right-of-way because the slope of the channel is substantially lower in this area as compared to locations to the north.

Section 3. Affected Environment and Environmental Consequences

LAND USE, TRAFFIC, AND NOISE

Affected Environment

Existing and Planned Land Uses

The project site is currently used for horse trails (operated and maintained by the City) and a power line easement within the Reclamation right-of-way. Northwest of the project site, the existing equestrian center and theme park are also within the Reclamation right-of-way. The privately owned portion of the proposed golf course is undeveloped open space. The Taliesin West National Historic Landmark is located near the southern portion of the project site (see discussion under "Cultural Resources" below). Lands further east of the project site are undeveloped open space that are privately owned. Residential areas are generally south and west of the CAP canal, within the boundaries of Scottsdale. Residential areas are also located in the immediate vicinity of the planned southwestern approach to the TPP bridge.

Planned uses of Reclamation property are described in Phase II of CRCS's management plan. The management plan was required by the Use and Management Agreement between the City and CRCS. Additional future uses that are addressed in Phase II of the management plan, but that are not currently proposed for implementation, include a Native American cultural center, a new trailhead and livery operation, a historic village, a modified polo field, and a small outdoor amphitheater.

Planned land uses adjacent to the project area include extension of the TPP, the McDowell Mountain Ranch residential development, and the extension of the DGB drainage project (as described in Section 2).

Existing and Planned Land Use Designations

The City's General Plan Land Use Element designates the proposed site as Developed Open Space, and the CAP canal is designated as Utilities (Figure 3-1). The Developed Open Space designation includes public or private recreation areas, such as golf courses and city parks, that may be used as drainage facilities for flood control. Land east of the proposed site is designated as

residential. Land southwest and northeast of the CAP canal is designated for residential and commercial development (City of Scottsdale 1994).

Traffic Volumes

The expansion of the City northward has led to heavy traffic volumes in the area of consideration. The equestrian center adds to the congestion, especially during special events, when traffic must be rerouted. Data from the City regarding traffic volumes on road segments near the project area show steady increases in vehicle miles traveled and population. In 1996, data showed that the segment of Frank Lloyd Wright Boulevard between Pima and 92nd Street carried an average of 17,000 vehicles per day, and the segment of Frank Lloyd Wright Boulevard between 92nd Street and the proposed TPP site averaged 15,600 vehicles per day. Current traffic conditions in the project vicinity are considered congested and future projections without the TPP project indicate continued increases in congestion at major intersections in the area (The WLB Group 1996).

Existing Noise Conditions

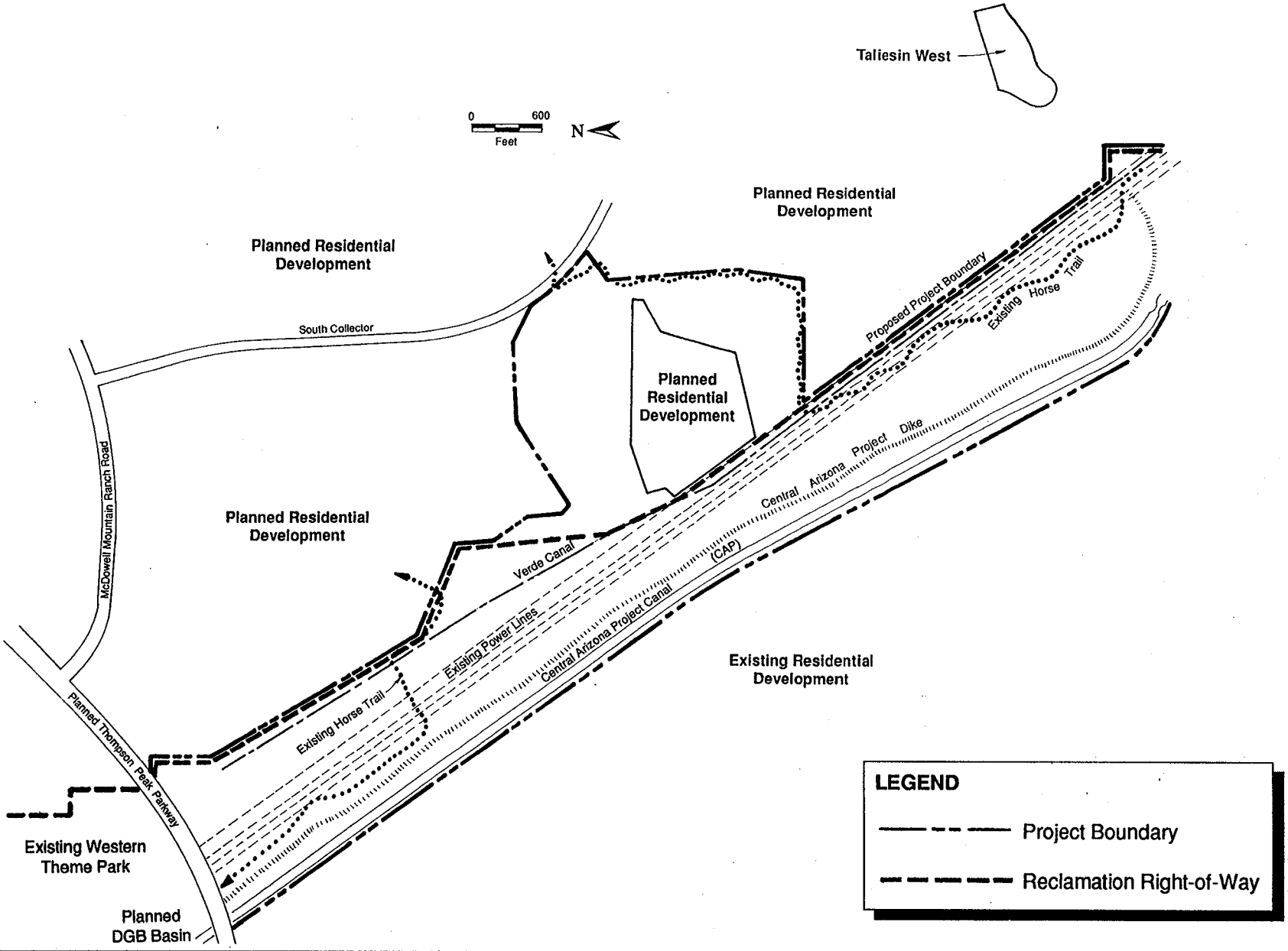
Existing traffic noise levels on roadways in the project vicinity have been estimated during the TPP planning process. A noise analysis of the TPP crossing area, assuming a six-lane facility, was completed for the City in April 1997 by Higgins & Associates. Noise levels at five monitoring sites near the TPP alignment averaged 56 A-weighted decibels (dBA), with a range of 51-64 dBA (Higgins & Associates 1997).

Environmental Consequences and Mitigation Measures

Significance Criteria

Impacts on land use, traffic, and noise would be considered significant if the proposed action would:

- conflict with environmental goals, objectives, or policies of the City of Scottsdale General Plan;
- conflict with an adopted land use designation;
- convert prime agricultural land to nonagricultural land uses;
- substantially conflict with adjacent land uses;
- create traffic congestion in the project area; or



Jones & Stokes Associates, Inc.

Figure 3-1
Existing and Planned Land Uses

- create noise conditions that would exceed applicable noise abatement criterion.

Proposed Action

Impact: Potential Conflict with CAP Operation and Maintenance. Construction and operation of the proposed facilities (golf course, TPP, and DGB) immediately adjacent to or near Reclamation's CAP dike structure could result in temporary or intermittent conflicts associated with operation and maintenance requirements of the CAP canal and dike. Contractors and operators for the facilities will be required to coordinate with CAP to ensure that operations do not conflict with planned CAP maintenance activities. The proposed action has been coordinated to ensure that it meets the requirements of Reclamation's "Guidelines for Road Crossings and Development within Drainage Basins". These requirements include requirements to ensure hydrologic dike safety, restrictions for development on the dike or in the detention basin, and controls to eliminate effects on the CAP canal (Johnson pers. comm.) This impact is considered minor because possible conflicts would be temporary or intermittent and will be resolved through minimal coordination efforts.

Impact: Conflicts with Adjacent Land Uses. Implementation of the proposed action would result in the conversion of vacant open space land in the project area to a 280-acre landscaped golf course that would include 75 acres of turf and approximately 136 acres of revegetated Sonoran desertscrub vegetation, a six-lane roadway with CAP bridge approaches, a 1-acre sedimentation basin, and a 7-acre siltation basin. Because golf course turf would be planted only in target areas, CRCS anticipates that approximately 75 acres of the total golf course area would be converted to irrigated turf. Construction of the golf course in the proposed location is considered to be consistent with desired recreational use of the Reclamation detention basin and would not conflict with operation of the CAP canal or maintenance of the canal dike. The golf course is also consistent with western theme park recreational uses to the north within the basin and is being designed to be integrated into planned residential development to the west. Please refer also to the "Visual Resources" section below.

Construction of the TPP could result in temporary effects on the existing residential community southwest of the CAP associated with truck traffic and noise and dust nuisances over approximately a 1-year construction period. Long-term operation effects of the TPP could result from an increase in traffic-related nuisances, such as noise and light effects near an established residential community adjacent to the southwest approach to the TPP bridge. Combined traffic-related nuisances could create a greater overall nuisance for a relatively small number of residential units immediately adjacent to the TPP structure. Please refer also to the discussion of TPP noise effects below.

Construction and operation of the settling basins are not expected to adversely affect adjacent land uses, including the CAP, because the basins are not located near any sensitive land uses.

Overall, the proposed action would be generally consistent with surrounding land uses in terms of its overall physical and nuisance effects (e.g., noise, traffic, and dust impacts). The golf course and DGB settling basins would not create adverse land use effects and the TPP project would

have a relatively minor land use effect on a small residential area. Therefore, the potential for conflicts with adjacent land uses is considered minimal.

Impact: Consistency with the City of Scottsdale Land Use Guidelines and Environmentally Sensitive Lands Ordinance. The proposed golf course, TPP, and DGB have been determined to be consistent with Guideline 10 of the City's General Plan Land Use Element, which encourages the transfer of sensitive land uses out of drainageways. Development of the golf course, TPP, and DGB within the CAP detention basin have been identified as acceptable nonresidential uses.

A 69-acre portion of the golf course would also be subject to the City's Environmentally Sensitive Lands Ordinance (ESLO) because this private parcel is within ESLO jurisdiction. CRCS and the City would include this acreage in the calculations of the amount of open space that would be required in the residential development area east of the CAP drainage basin. In general, the City requires 20-25% of the overall development area to be protected as open space (Ekblau pers. comm.). Because the project elements would be designed to be consistent with the City's ESLO, this impact is considered minor.

Impact: Increased Traffic Generation. Traffic that would be generated by the proposed golf course consists of trips that would be redistributed from other golf courses in the area and new trips that would result from creation of a new recreation destination in north Scottsdale. Using an average trip generation rate for golf courses provided by the Institute of Traffic Engineers (ITE), the project would generate approximately 38 trips per golf hole per day (Institute of Traffic Engineers 1991). At the proposed 18-hole golf course, therefore, as many as 684 average daily trips would be generated. Most of these trips would likely be distributed to Pima Road, Bell Avenue/Frank Lloyd Wright Parkway, and the proposed TPP. This impact is considered minor because the number of average daily trips generated by use and operation of the golf course is relatively small and the greatest number of trips would occur on weekends rather than during peak-hour weekday periods.

The WestWorld Golf Course/Desert Greenbelt Management and Operations Plan (Appendix A) indicates that removal of sediment from the DGB basins in the Reclamation right-of-way could result in more than 900 truck trips per year traveling offsite to a nearby landfill. Trucks would be involved in sediment removal operations at least once per year.

Construction of the TPP would eventually redistribute traffic away from the Pima Road/Bell Road intersection, as well as other crowded intersections in the area, and facilitate movement of traffic throughout the region. At ultimate capacity, the roadway is expected to accommodate an average of 3,400 vehicles per hour that would be diverted from other surface streets. Without this major arterial, growth in this area would result in heavy traffic congestion, especially during peak hours, which in turn could lead to an increase in accidents and higher automobile-generated pollution levels (The WLB Group 1996). Redistribution of traffic to the TPP would result in increased traffic levels in adjacent neighborhoods.

Overall, the combined effect of increased traffic volumes associated with golf course construction and operation and DGB maintenance is considered minor in comparison to existing

traffic volumes and is expected to be adequately accommodated by construction of the TPP and other future roadway improvements in the area.

Impact: Potential Bird Strike Hazard. The potential exists for waterfowl at the golf course lake to interfere with flights into or out of Scottsdale Municipal Airport or result in aircraft hazards for those flights. This potential is considered minor because the golf course layout identifies only two 2-3 acre reservoirs, which are not directly in the airport flight line and because approaches to the airport near the proposed golf course are at a considerable elevation above ground level. The closest reservoir would be located approximately 2 miles east of the airport flight line and would not be subject to any Federal Aviation Administration bird air-strike hazard requirements for development in airport approach zones. Approaches to the airport would also be generally parallel to most of the proposed golf course. A small possibility exists that waterfowl and other birds could move between the Tournament Players Club (TPC) golf course, which is in the flight line, and the proposed golf course reservoirs, thereby creating potential hazards for aircraft.

Impact: Noise Effects Related to TPP Use. Noise generated by future use of the TPP is a major concern to local residents. Currently, north of McDowell Mountain Ranch Road, the TPP is an interim roadway with one outside traffic lane and a bicycle lane in each direction. Completion of the crossing would provide a new travel corridor carrying relatively heavy volumes of traffic, especially during rush hours and special events. Based on noise monitoring results conducted for the TPP, a predictive model (based on predicted traffic volumes and speeds supplied by The WLB Group) was used to estimate noise levels in the project area in 2010 and 2040 (Higgins & Associates 1997). Noise levels were predicted for two roadway configurations, and modeled receptor locations did not exceed Federal Highway Administration's (FHWA's) noise abatement criteria (NAC). Only one receptor approaches the NAC for design year 2040. This receptor, located at the future TPP and 100th Street intersection, would be considered for noise abatement; however, a noise barrier would likely not be constructed for only one receptor location. Despite this conclusion, several barrier configurations were evaluated by the City, resulting in the recommendation for an 8-foot-high barrier located at the TPP shoulder break and for 130 feet along the north side of 100th Street to further reduce noise levels (Higgins& Associates 1997). Refer to Section 4, "Environmental Commitments", for further discussion of this measure.

Impact: Temporary Construction-Related Noise. Construction of the proposed golf course, TPP and DGB settling basins would result in a temporary increase in noise levels in the project area. The types of construction equipment that would likely be used in the project area would generate noise levels of 80-90 a-weighted decibels (dBA) at a distance of 50 feet while the equipment is operating (U.S. Environmental Protection Agency 1971, Toth 1979, Gharabegian et al. 1985). The operations of construction equipment can vary from intermittent to fairly continuous and many pieces of equipment can operate at the same time. Assuming a bulldozer (87 dBA), backhoe (90 dBA), and front-end loader (82 dBA) are operating simultaneously in the same area, peak construction-period noise could be approximately 94 dBA at 50 feet from the construction sites.

Although construction-related noise levels could be substantial in the construction area for the golf course and the TPP and DGB settling basins during a construction period of up to 1 year (for the TPP structure), these effects are considered relatively minor for the following reasons:

construction noise effects would be temporary, the period of most intense construction activity would occur in a relatively short period of time (several months) for the southern TPP approach that is near residences, and most of the construction activity would occur northeast of the CAP dike in an area that is not near sensitive noise receptors.

Impact: No Effects on Environmental Justice. The proposed action would not affect minority or low-income communities because none are present in the project area.

No-Action Alternative

Impact: Potential Conflict with CAP Operation and Maintenance. Under the No-Action Alternative, the golf course, TPP, and DGB would not be constructed as proposed and potential conflicts with the CAP dike structure from these specific projects would not occur. However, under the City and Reclamation's cost sharing agreement, some type of recreational improvement would likely occur in the area, including the possibility of implementing the remaining elements of Phase II of the Master Plan for the basin. Because of the need for regional transportation and drainage improvements, modified versions of the TPP and DGB settling basins would likely be implemented in areas that do not require use of Reclamation land or Reclamation approval. No plans for these modified facilities currently exist. Possible future actions under the No-Action Alternative would affect CAP operation and maintenance if they resulted in substantial alteration of the CAP and dike structures.

Impact: Conflicts with Adjacent Land Uses. Under the No-Action Alternative, no conflicts with adjacent land uses from these specific projects would exist because no sensitive land uses are known in the project area or adjacent areas. Land use conflicts from other possible activities within Reclamation's right-of-way would likely be minor because no sensitive land uses occur near the project area. Land use conflicts could occur that would be associated with the TPP and settling basins at alternative locations outside of the Reclamation right-of-way.

Impact: No Increase in Traffic Volumes or Noise Levels from Project Implementation. Under the No-Action Alternative, no increase in traffic volumes or noise levels associated with the golf course, DGB maintenance, or TPP operation would occur in the project area. However, the need for these facilities would necessitate constructing them at another location, where traffic and noise effects from construction and operation of these facilities would occur in a similar manner as identified for the proposed action. Moving the TPP to another site would result in continued traffic increases and congestion in the project area.

RECREATION

Affected Environment

Recreation opportunities in the project area are limited. Horse trails maintained by the City as part of the equestrian center are located on a portion of the proposed golf course site (Figure 2-2). Equestrian center and western theme park facilities are located northwest of the proposed golf course and TPP. Recreation opportunities at the existing facilities include polo fields, horse stables, and arenas. The Taliesin West complex, located east of the southern portion of the project area, allows visitors to learn about Frank Lloyd Wright and his architectural style. The Frank Lloyd Wright School of Architecture is also located at Taliesin West where apprentices learn the Wrightian principals of "organic architecture." Outlying areas east of the site are primarily undeveloped desert and are either state trust lands or are privately owned. Farther to the east, the McDowell Mountains offer various forms of open space recreation, including hiking and horseback riding. A city park, schools, and a library are being constructed on a 70-acre site immediately east of the northern portion of the proposed golf course, just south of the proposed TPP alignment.

Environmental Consequences and Mitigation Measures

Significance Criteria

The proposed action could have a significant impact on recreation if it would:

- conflict with established open space or recreational uses of an area,
- affect the quality or quantity of existing recreational opportunities, or
- conflict with local guidelines or goals related to existing and planned recreational uses.

Proposed Action

Impact: Change in Recreation Opportunities at the Golf Course. Implementing the proposed action would convert the former vacant borrow site with an equestrian trail to a public championship golf course. The existing equestrian trails located in the project area would be extended and improved, as shown in Figure 2-2, as part of the proposed action and would be sited to ensure no conflicts occur between equestrian and golf course uses. The project would also convert Sonoran Desert open space to a clubhouse; practice facilities; and holes 1, 2, 9, 10, and 18 on 69 acres of property that is now privately owned. The TPP and DGB settling basins have also been designed to be consistent with the intended recreational uses in the detention basin. Few recreational activities are available in this area that could be adversely affected by the proposed action. Therefore, the proposed action would have a beneficial impact on recreation.

No-Action Alternative

Impact: No Effect on Existing Recreation Opportunities or Facilities. Under the No-Action Alternative, the golf course would not be constructed at the proposed location and no change would take place in recreation resources in the project area. Current recreational access to the basin equestrian trails would remain unchanged, and no modification to the trails system would be needed to accommodate the TPP or golf course. Planned development of residential areas in the McDowell Mountain Ranch area would be subject to the City's ESLO, requiring dedication of open space areas for recreation and desert habitat protection purposes. The potential exists that the relocation of these projects to another site could result in unknown effects on recreation resources.

VISUAL RESOURCES

Affected Environment

Visual Elements

The project area is located primarily in the flood detention basin of Reach 11, Dike 4 of the CAP canal. Dominant visual elements in this area are the CAP dike at the western boundary of the project area, the CAP detention basin, the Old Verde Canal, and Sonoran Desert open space on 69 acres of private property. The existing equestrian center and theme park facilities are visible northwest of the project site, residential areas are present southwest of the CAP canal, and the Taliesin West complex is east of the southern boundary of the site. The McDowell Mountains are a unique and visually dominant background element to the east.

Visual Quality

The visual quality of the site is low to moderate because approximately 210 acres of the project site, within Reclamation's right-of-way, were excavated and extensively disturbed during construction of the CAP dike. This activity has reduced the site's visual continuity. In addition, few visually unique or vivid features are present. The feature that exhibits the highest visual quality is the Old Verde Canal, which is slightly upslope of the main drainage area and is lined with trees and dense desert vegetation in several areas. This canal provides some visual variety in a predominantly homogeneous landscape. The portion of the project area that would be constructed on private property is the most intact and consists of undisturbed Sonoran desertscrub that is typical of the landscape north and east of the project area.

The visual quality of immediately adjacent lands is moderate north and east of the project area in areas that are representative of Sonoran Desert landscape. Views of these areas from the project site are limited at many locations because of intervening terrain and visually intrusive elements such as transmission line towers. The project site is visually enclosed on the west, south,

and north sides by the CAP dike and existing equestrian facilities, except for a portion of the TPP structure that would cross the CAP canal southwest of the dike. The quality of views in these areas is generally low because they are not intact and do not exhibit unique or vivid features. The entire TPP alignment is either near existing residential development or has been previously disturbed, and the DGB is located within the scoured Reata Pass channel. Generally, the highest quality views are those from the privately owned portion of the proposed golf course area toward the surrounding desert. The McDowell Mountains to the east offer high quality background views from the portion of the project area located northeast of the CAP dike.

Views from the Taliesin West complex are described in Reclamation's Section 106 consultation for the project area (U.S. Bureau of Reclamation 1996a; Appendix B). Currently, views from Taliesin West toward the project area include foreground views of Sonoran Desert habitat; middleground views of the CAP dike, transmission line towers, and red clay-tiled rooftops of Scottsdale residences; and background views of distant mountains. Views of residents toward the proposed TPP site are of disturbed areas with little vegetation and the CAP dike and the McDowell Mountains in the distance.

Environmental Consequences and Mitigation Measures

Significance Criteria

Project development would result in significant visual impacts if it were to result in:

- a substantial decline in visual quality of onsite visual resources,
- a substantial decline in the visual quality of offsite visual resources,
- disruption of views of the surrounding Sonoran Desert, or
- disruption of current views from the Taliesin West complex.

Proposed Action

Impact: Changes in Onsite Visual Resources. Implementation of the golf course project would convert vacant open space to a developed and landscaped 280-acre golf course. The visual changes would involve 75 acres of irrigated turf for fairways, tees, and greens with landscaped borders, as well as a clubhouse and parking area that would eventually surround future residential development (Figure 2-2). Implementing the TPP project would change the view over the CAP canal by adding a visible structure, although the structure would be screened by an 8-foot-high soundwall and desert vegetation. Background views of the McDowell Mountains from residences northwest of the TPP could be partially blocked in areas immediately adjacent to the TPP structure. The DGB basins would be constructed below eye level and would also be screened by desert vegetation.

The changes in visual resources from the proposed action are considered a minor environmental effect because the quality of onsite visual resources is currently low to moderate, the project would include restoration of native desert habitat in some areas, and most of the site is visually enclosed by the dike structure and existing equestrian facilities. Views of the McDowell Mountains would be affected only in areas immediately northwest of the proposed TPP structure. No new visual resources would be adversely affected by increased golf course traffic or parking facilities.

Impact: No Decrease in Visual Quality of Views from Taliesin West. Implementing the proposed action would not decrease the quality of views of the site from Taliesin West because the golf course has been designed to eliminate major views of the golf course turf and has been realigned 500 feet north of its original location so that less of the non-turf areas of the golf course would be visible from the Taliesin West complex. CRCS also proposes to provide berms and native desert landscaping at two locations along the Old Verde Canal to screen views of the golf course from Taliesin West looking southwest (Figure 3-2). Trees would also be planted at the north toe of the CAP dike to mitigate visual effects associated with views from Taliesin West. Concerns about possible views of sprinkler spray have been reduced by ensuring that watering would usually occur in the evening, except as required for initial turf growth and during application of pesticides and fertilizers. Because the golf course has been modified to reduce concerns of the Taliesin West staff and because the TPP and DGB would not be visible from Taliesin West, this visual impact is considered minor.

No-Action Alternative

Impact: Changes in Views of the Project Area. Under the No-Action Alternative, CRCS would not develop the proposed golf course at the proposed site and visual resources at the site would remain in their current condition. Views of the project area from Taliesin West would not be altered. The City would not construct the TPP and the DGB settling basins at the proposed locations. Because the TPP and DGB basins would need to be constructed elsewhere, visual resource effects could be greater than those expected in Reclamation's right-of-way if the basins were to be built in less disturbed Sonoran desertscrub habitat. Background views from residences northwest of the TPP structure towards the McDowell Mountains would not be affected.

AIR QUALITY

This section describes the existing air quality conditions and regulatory requirements in the project area. The air pollutants of greatest concern in the project area are ozone, inhalable particulate matter less than 10 microns in diameter (PM10), and carbon monoxide (CO). These pollutants are of concern because of the potential health risks they pose, as described below under "Federal Ambient Air Quality Standards".

Affected Environment

Climate

The proposed action is located in the eastern portion of Maricopa County. Scottsdale, a suburb of Phoenix, is characterized by the very hot summers and cold winters typical of a desert environment. The mean average high and low temperatures for the greater Phoenix area are 85°F and 59°F, respectively. Rainfall averages 7.66 inches per year. At an elevation of 1,500 feet, Scottsdale is situated in a flat valley, surrounded by the McDowell Mountains to the northeast, Camelback Mountain to the west, and South Mountain to the southeast.

Federal Ambient Air Quality Standards

Ozone is a respiratory irritant that increases susceptibility to respiratory infections. Ozone causes substantial damage to leaf tissues of crops and natural vegetation and damages many materials by acting as a chemical oxidizing agent. Ozone is of concern primarily during summer because it is created by the interaction between high temperatures, sunlight, and atmospheric inversion layers, inducing photochemical reactions between reactive organic gases (ROG) and nitrogen oxides (NO_x). For this reason, emission standards are set for ozone precursors rather than for ozone itself. The federal standard for ozone precursors, set for a 1-hour averaging time, is 0.12 part per million (ppm), not to be exceeded more than three times in any 3-year period.

Health concerns associated with suspended particles focus on those particles small enough to reach the lungs when inhaled because they can lodge in the lungs and contribute to respiratory problems, including permanent lung damage. Fine particles interfere with the body's mechanism for clearing the respiratory tract or act as carriers of absorbed toxic substances. Few particles larger than 10 microns in diameter reach the lungs, so federal standards focus on limiting PM10 emissions. Federal PM10 standards have been set at 150 micrograms per cubic meter (µg/m3) for a 24-hour average and 50 µg/m3 for an annual average. Federal 24-hour PM10 standards may not be exceeded more than 1 day per year, and annual standards may not be exceeded at all.

CO is a mildly toxic pollutant that bonds to hemoglobin in the bloodstream when inhaled and interferes with oxygen transport to body tissues. The federal CO standard is an 8-hour average of 9 ppm and may not be exceeded more than 1 day per year.

Existing Air Quality Conditions

In 1995, federal standards for ozone, PM10, and CO were violated in Maricopa County. Three ozone monitoring stations are located near the project site, one in Phoenix and two in Scottsdale; one of the stations in Scottsdale recorded one exceedance of the federal 1-hour average ozone standard in 1995 (Young pers. comm.). Two CO and PM10 monitoring stations are located

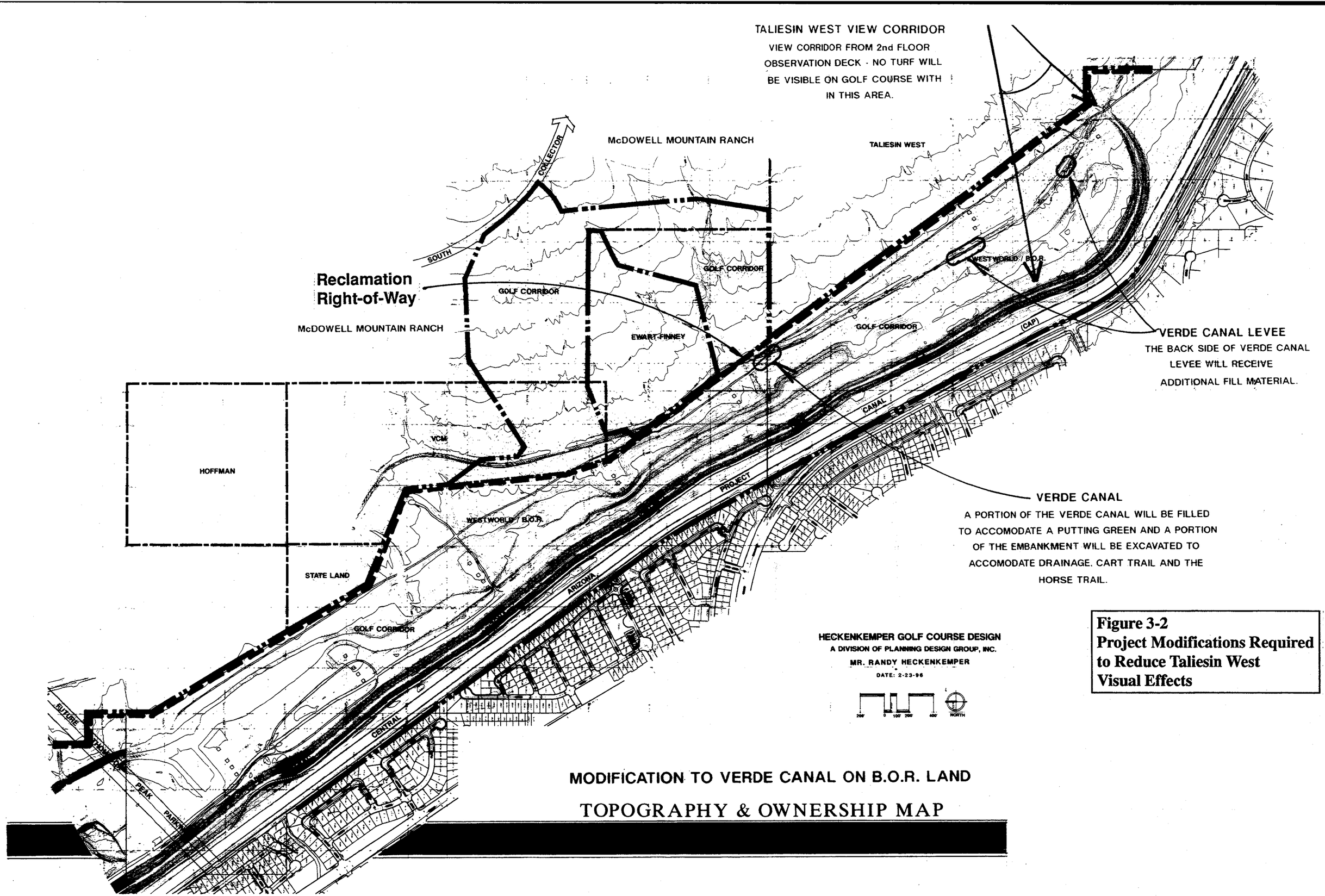


Figure 3-2
Project Modifications Required to Reduce Taliesin West Visual Effects

near the project site, one in Phoenix and one in Scottsdale. Neither station recorded an exceedance of the federal CO or PM10 standard in 1995 (Young pers. comm.).

Emission Sources

Ozone precursor pollutants (ROG and NO_x) and CO emissions are generated primarily by motor vehicle traffic associated with urban development. A variety of emission sources contribute to PM10 problems in the area. Major sources of PM10 are agricultural activities, motor vehicle traffic, construction and demolition activities, and photochemical smog.

Attainment Status and Air Quality Planning

Air quality management in Arizona is governed by the federal Clean Air Act, which is implemented by the U.S. Environmental Protection Agency (EPA). The ADEQ and the Maricopa County Environmental Services Department of Air Pollution Control (APC) oversee air quality planning and control in Maricopa County. ADEQ is responsible for controlling portable and refinery sources, whereas APC is responsible for controlling stationary and indirect sources, monitoring air quality, and preparing air quality attainment plans for Maricopa County. The federal Clean Air Act mandated the establishment of ambient air quality standards and requires areas that violate these standards to prepare and implement state implementation plans (SIPs) to achieve them. A separate SIP must be prepared for each pollutant for which an area is in nonattainment. Maricopa County has completed SIPs for ozone, PM10, and CO (Young and Anthony pers. comms.).

Conformity Screening

The proposed action is subject to EPA's general air quality conformity regulation because it requires federal approval. The conformity regulation states that, for any new project using federal funds or requiring federal approval, the project proponent must show that the project would not cause or contribute to the deterioration of air quality in areas that are in violation of federal ambient air quality standards. These pollutant threshold levels, called "de minimis" emission levels, vary for specific pollutants and depend on the attainment status of individual air basins. The project area is a nonattainment area for federal ozone, PM10, and CO. The nonattainment status of the area is classified as "serious" for CO; the classification for PM10 was changed from "moderate" to "serious" on June 10, 1996; and the classification for ozone is "serious" as of July 1996 (Anthony pers. comm.).

According to EPA, the applicable de minimis levels for this project at current classifications are 50 tons per year (tpy) for ozone precursors ROG and NO_x, 100 tpy for CO, and 70 tpy for PM10.

Environmental Consequences and Mitigation Measures

Criteria for Significance

For this analysis, construction- and operation-related impacts are based on a qualitative assessment of potential air quality emissions related to the project.

The proposed action could have a significant effect on the environment if it would:

- violate any ambient air quality standard,
- cause excessive exposure to substantial pollutant concentrations, or
- contribute considerably to an existing or projected air quality violation.

Significance criteria developed by EPA were used to determine the significance of air quality impacts related to the proposed action. APC has included a list of pollutant-reducing construction measures in its control plan application (Appendix C).

Operation-related emissions were considered significant if emissions could exceed the following federal de minimis levels:

- ROG - 50 tpy,
- CO - 100 tpy,
- NO_x - 50 tpy, and
- PM10 - 70 tpy.

If the project were to exceed the de minimis levels, the City and CRCS could be required to implement measures to reduce NO_x and ROG emission levels.

Proposed Action

Impact: Conformity Screening. No conformity analysis was conducted for the proposed action because emissions of CO, ROG, NO_x, and PM10 would not exceed EPA's de minimis levels. Based on an estimate of 684 average daily vehicle trips associated with the golf course and more than 900 truck trips per year for DGB and drainage way maintenance, combined operation of these facilities would be expected to generate levels of emissions only slightly higher than those estimated below for the golf course operation alone and would be well within EPA's de minimis levels. The operation of the TPP is also expected to substantially reduce traffic congestion and emissions in the project area by more efficiently distributing traffic on surface streets.

Impact: Short-Term Increase in ROG, NO_x, and CO Emissions during Project Construction. Construction would result in a short-term increase in generation of CO, ROG, and NO_x emissions attributable to the operation of construction equipment. Available mitigation would minimize ROG and NO_x emissions during construction. Construction-related emissions would be

short term and are not expected to exceed federal de minimis levels because of the relatively short duration of the construction period. This is considered a minor adverse effect on air quality.

Impact: Short-Term Increase in PM10 Emissions during Project Construction. Construction would result in a short-term increase in generation of PM10 emissions, attributable primarily to earth-moving activities. As a condition of the construction contract, and in accordance with Maricopa County's Rule 310 for Fugitive Dust, APC requires the City and CRCS to submit an Earth Moving Permit, Demolition & Dust Control Plan for the reduction of fugitive dust emissions (and PM10) related to construction activities (Young pers. comm.). Because PM10-reducing measures are included as part of the proposed action, this would be considered a minor adverse effect on air quality.

Impact: Potential Long-Term Increase in ROG, NO_x, and CO Emissions during Golf Course Operation. Operation of the golf course would result in vehicle trips generated by golf course users and staff, and trips made by truck hauls to remove sediment. Development of a new golf course would primarily redistribute the number of trips made by golfers in the area. Most of the trips to the golf course would be redistributed from the current trips made by golfers traveling to existing golf courses; newly generated trips would be a small portion of the total trips associated with the project. Based on ITE trip generation rates (Institute of Transportation Engineers 1991), assumed trip length, assumed vehicle speeds, and associated emissions were calculated for the proposed action (using 1995 as the analysis year). The estimated emissions are summarized below:

- ROG - 5.6 tpy,
- CO - 72.8 tpy,
- NO_x - 7.3 tpy, and
- PM10 - 1.8 tpy.

Comparing these levels to the federal de minimis levels presented above indicates that ROG, NO_x, and CO emissions do not exceed the de minimis emission levels. The additional 900 truck trips per year associated with settling basin maintenance would not substantially change the emission levels calculated above because of the small number of daily trips associated with this activity. Long-term operation of the TPP would also improve traffic circulation conditions in the project area, thus potentially reducing detrimental air quality effects resulting from traffic congestion. Therefore, this air quality impact is considered minor.

Impact: Potential Long-Term Increase of PM10 Emissions during Project Operation. Operation of the golf course would not result in earth-moving activities that are expected to generate PM10 emissions. Automobiles traveling to the golf course and vehicles operated onsite by maintenance crews, groundskeepers, and employees are expected to generate PM10 emissions. As indicated above, the proposed golf course could generate as much as 1.8 tpy of PM10, and the de minimis level for PM10 is 70 tpy. Additional PM10 created by maintenance of the settling basins and drainageway would not substantially increase the amount of PM10 generated because siltation removal would take place in a relatively small area (1-acre sediment basin and 7-acre siltation basin) and truck trips would average only slightly more than 900 trips per year. The removal of the estimated 16,956 cubic yards of sediment per year in the basins is not expected to generate

substantial PM10 emissions during basin management because a relatively small amount of the material would be suspended as long as operations are in compliance with the County's Rule 310 Dust Control Plan (Appendix A). Because the de minimis level would not be exceeded, this is considered a minor air quality effect.

No-Action Alternative

Impact: No Effect on Existing Air Quality Conditions. Under the No-Action Alternative, Reclamation would not allow CRCS to construct an 18-hole championship golf course or the City to construct the TPP or DGB basins at the currently proposed locations. No temporary or long-term effects on air quality would be associated with implementing the proposed action at this location. However, increased traffic congestion on adjacent roadways would probably occur without the TPP, resulting in higher localized emission levels. Temporary and long-term air quality emissions impacts could occur in other unknown locations if these projects were relocated to other sites.

HYDROLOGY, WATER QUALITY, AND SOILS

Affected Environment

Surface Water Hydrology

All the streams or washes in the project area are ephemeral. Intense, short-duration storms, however, create shallow overland runoff that accumulates into substantial flows in desert washes. The project site is within Reclamation's detention basin north of Reach 11, Dike 4 of the CAP canal. The detention basin receives stormwater flows from the Reata Pass and Beardsley Washes and overland flows from adjacent areas northeast of the canal. Floodflows into the detention basin are estimated to exceed 16,000 cubic feet per second (cfs) during a 100-year flood (Greiner 1995).

Geology and Groundwater Hydrology

The major groundwater-bearing materials in the Scottsdale region are the valley fill deposits that underlie the East Salt River Valley basin. These valley fill deposits are extremely heterogeneous, although three distinct water-bearing units have been identified. The units are, in order of ascending elevation, the lower conglomerate unit, the middle fine-grained unit, and the upper alluvial unit (Arizona Department of Water Resources 1991). The primary source of groundwater is the upper alluvial unit. The thickness of this unit varies from zero near the basin margins to more than 1,100 feet east of Chandler. Groundwater is usually unconfined, but semiconfined areas are present locally in fine-grained materials. Perched water tables may also be present.

A secondary source of groundwater is the lower conglomerate unit, which ranges from zero to 2,000 feet or more in thickness. Depths to groundwater range from 300 feet to 600 feet below the ground surface (Arizona Department of Water Resources 1991). No specific data on the quality of groundwater in the detention basin exists.

The geology of the East Salt River Valley consists of basin fill deposits that increase in thickness from negligible proportions near the margin of the basin to several thousand feet thick near the center of the basin. The deposits have been divided into the upper, middle, and lower alluvial units. The upper alluvial unit is 100-500 feet thick and consists primarily of gravels, caliche, sands, and silts from alluvial fan, channel, and floodplain deposits. The middle alluvial unit is 200-1,200 feet thick and consists of clay, silt, mudstone, and gypsiferous mudstone with some interbedded sand and gravel. The thickness of the lower alluvial unit ranges from 100 feet near the basin margins to several thousand feet near the center of the Salt River Valley. The lower alluvium consists of sand and conglomerates near the basin margins and mudstone, gypsiferous mudstone, and evaporate deposits in the central basin.

Soils in the area consist primarily of loams, sandy loams, and clay loams. The coarser sandy loams generally are associated with valley plains and alluvial fans. Finer loams and clay loams are located on the valley plains and floodplains.

Water Quality

In general, mineral concentrations in area groundwater and CAP water meet the applicable federal and state standards for drinking water quality. Groundwater tests indicate that some areas may exceed drinking water quality standards for some minerals, chemicals, and constituents. In the region, chromium and arsenic are chemicals of potential concern. The range of chemical constituents is similar for the two water supplies (Table 3-1). CAP water is usually higher in sulfates and hardness than area groundwater.

No details are available on the water quality of surface streams in the study area. Based on the physical characteristics of the terrain, storms probably are large enough to produce substantial flow in desert washes and have enough energy to transport relatively high loads of sediment and debris.

Environmental Consequences and Mitigation Measures

Significance Criteria

Criteria for evaluating impacts related to the proposed action were determined based on professional judgment and the standards and guidelines established by U.S. Environmental Protection Agency (EPA), Arizona Department of Water Resources (ADWR), and ADEQ. The significance of impacts of the proposed action and the No-Action Alternative was evaluated based on the potential intensity and context of effects.

Table 3-1. Applicable Drinking Water Quality Standards and Concentration Ranges of Selected Constituents in CAP Water and Groundwater

Measured Parameter	Drinking Water Quality Standard	Groundwater	CAP Water
Total dissolved solids (mg/l)	500	224-750	230-690
pH (standard units)	6.5-8.5	7.6-8.5	8.0-8.5
Hardness (as $CaCO_3$, mg/l)	NA	29-170	110-320
Calcium (mg/l)	NA	11-86	28-77
Magnesium (mg/l)	NA	2.6-33	9-31
Sodium (mg/l)	NA	34-110	30-110
Sodium adsorption ratio	NA	1:6	2:6
Potassium (mg/l)	NA	1.4-3.9	3.4-5.3
Chloride (mg/l)	250	13-110	22-98
Sulfate (SO_4, mg/l)	250	17-78	39-290
Nitrate + nitrite (N, mg/l)	10	0.71-20	0.6-0.7[a]
Arsenic (mg/l)	0.05	0.001-0.022	0.002-0.004

Notes: mg/l = milligrams per liter.
NA = not applicable.

[a]Results reported as total nitrogen (mg/l).

Source: Southwest Groundwater Consultants 1995.

Hydrologic, water quality, and soil impacts of the proposed action would be considered significant if the project would:

- substantially increase the rate, volume, or depth of floodwaters;
- substantially decrease the water conveyance capacity of drainage facilities;
- increase soil or channel erosion and associated downstream sedimentation; or
- adversely affect surface water and groundwater quality or recharge capabilities.

Proposed Action

Impact: Potential Acceleration of Erosion and Encroachment of Flood Detention Basin. The design and location of the golf course, TPP and DGB basins would alter the pattern of floodwater drainage to the CAP detention basin. Construction of the golf course holes, practice facility, and clubhouse complex would redirect overland flow from storm events into channels. Berms would be constructed around the tee and green areas and the practice facility to protect the managed turf areas, and the resulting channels would concentrate runoff. Sedimentation of the CAP detention basin would continue and sediment removal operations would be necessary to maintain basin capacity (see Appendix A). Overall, no flooding or erosion impacts on adjacent areas would occur because they are encompassed by a detention basin.

The golf course, TPP and DGB basins would reduce the potential acceleration of erosion because these project components would be designed to accommodate the amount of runoff already occurring in the project area and to ensure that no adverse effects from increased runoff velocities would occur in the drainage basin. Grading would be planned to ensure that the capacity of Reclamation's detention basin remains at its current level. In addition, the detention basin would be overexcavated to provide fill for the proposed TPP structure and to offset TPP encroachment into the basin.

Because the golf course, TPP and DGB basins would be designed to accommodate floodflows and the projects would be required to meet City and Reclamation drainage requirements, the potential effects on drainage and flood storage are expected to be minor.

Impact: Potential Degradation of Surface Water Quality. Golf course, TPP and DGB basin construction would disturb soil and could result in temporary construction-related discharges of sediment, fuel, and oil-based materials into desert wash areas in the CAP detention basin. Stormwater probably would not be contaminated with hazardous substances because currently the watershed is mostly undeveloped and few potential sources of contamination are present. However, substantial residential development is planned or ongoing that would modify runoff patterns and could provide a potential source of hazardous substances. The DGB project would also concentrate runoff and transport it to the detention basin. CRCS and the City would implement best management practices (BMPs) during construction and as needed during operation of facilities to reduce the potential effects of these discharges. Such BMPs include refueling and servicing heavy equipment outside of recognized drainageways, protecting soil stockpiles from concentrated runoff, and implementing a hazardous materials spill response plan.

Because rainfall is infrequent, streamflow is ephemeral, and the proposed action would include BMPs to protect water resources, the potential effects on surface water quality are considered minor. (Refer to Section 4, "Environmental Commitments", for a detailed discussion of the BMPs.)

Impact: Potential Degradation of Groundwater and CAP Surface Water Quality. Groundwater resources could be degraded if water were contaminated during construction and operation of the golf course, TPP, and DGB basin facilities and allowed to infiltrate into groundwater.

Typical concerns about groundwater quality effects include the potential for contamination from overapplication of pesticides and fertilizers in golf course turf areas that could result in leaching of contaminants from the soil root zone to groundwater. Generally, the possibility of these types of effects is minimal because pesticides used in turf areas are absorbed to soil or turf and chemicals typically remain in the application zone where they degrade rapidly. Commonly applied pesticides rarely penetrate deeply into the soil and turf grass has a high capacity for binding many pesticides and has been shown to increase the degradation of some pesticides. This lack of leaching, coupled with degradation processes, such as photodecomposition and microbial breakdown, reduce the likelihood of groundwater or surface water pollution associated with the golf course (U.S. Army Corps of Engineers 1990).

The potential impact on groundwater and CAP surface water quality from turf management is considered minor because commonly used pesticides with low water solubility and high degradation rates can be used, modern turf management techniques greatly reduce the potential for overapplication of chemicals and irrigation water, the depth to groundwater is more than 300 feet, and managed turf areas are set back from the CAP dike.

Potential use of water from the proposed DGB basins for groundwater recharge in dry wells is not expected to adversely affect groundwater quality because settling basin water would be filtered before it is used for recharging in dry wells; dry wells would not be located near turf areas where pesticides or other chemicals are applied, and recharge operations would be subject to the City's and ADEQ's dry well groundwater recharge requirements which ensure that dry well contamination does not occur in the area. ADEQ approval of dry wells requires that no contaminated water or hazardous materials are introduced in the area of the wells. If violations occur, operation of the dry wells would be subjected to ADEQ's Aquifer Protection Permit requirements.

Impact: Potential Acceleration of Soil Erosion. Soil erosion could be accelerated as a result of created channels directing runoff through the golf course, increased runoff rates caused by impervious surfaces associated with the clubhouse complex and trail system, and approach berms for the TPP in the drainageway. Because the channels and berms would be designed, in accordance with local requirements, to handle postproject runoff and because the proposed DGB basins would reduce floodflow velocities, accelerated erosion is not likely to take place in the project area. CRCS and the City would also ensure that berms are designed to be structurally sound and are properly maintained to reduce the potential for soil erosion.

Impact: Potential Flood Control Operations Effects. Implementing the DGB flood control project could result in increased floodflows and continued sedimentation in the detention basin. Development and operation of the golf course facilities and DGB basins would be designed to compensate for these effects. The City and CRCS jointly developed the WestWorld Golf Course/Desert Greenbelt Management and Operations Plan to ensure that the drainage basin is adequately maintained and sedimentation does not substantially reduce basin capacity (Appendix A). The management and operations plan is intended to ensure that the golf course and DGB projects would:

- not adversely affect flood control storage capacity that is specified for CAP Dike 4 by Reclamation;
- provide a means to remove silt and sediment from floodwaters;
- provide a method for evacuating floodwaters from the site promptly and efficiently; and
- provide a method of disposing of basin silt and sediment.

Because of the flood control and sedimentation facilities that would be provided as part of the management and operations plan, flooding and siltation effects on the golf course are considered minor. (Refer to Section 4, "Environmental Commitments", for a discussion of mitigation measures.)

No-Action Alternative

Impact: Effects on Hydrology and Water Quality. Under the No-Action Alternative, no changes to hydrology or water quality associated with the proposed action would result because the site would not be developed for use as a golf course, TPP or DGB basins. Hydrologic effects on the CAP detention basin from offsite DGB flood control improvements would be an issue and would be subject to Reclamation guidelines to ensure acceptable flow velocities. Development of a similar TPP crossing at another location would require that no adverse hydrologic or water quality effects occur on Reclamation's right-of-way.

VEGETATION, WILDLIFE, AND SPECIAL-STATUS SPECIES

Affected Environment

This section describes vegetation and wildlife in the project area. Information contained in this analysis is based on the biological assessment prepared by Reclamation (U.S. Bureau of Reclamation 1996b; Appendix D).

A Reclamation biologist conducted a reconnaissance-level field survey of the project area on January 30, 1996. The survey effort emphasized habitat assessments for special-status plant and animal species. Common vegetation and wildlife species occupying the project area are described below. Common species are widely distributed and regionally or locally abundant.

Special-status plant and animal species that are known or have the potential to occur in the project area are presented in Appendix D. Special-status species are defined to include:

- federally proposed or listed threatened or endangered species (16 USC 1532);
- wildlife of special concern in Arizona (WSCA) identified by the Arizona Game and Fish Department; and
- protected native plants as defined by the Arizona Native Plant Law (1993) (Carmichael pers. comm.).

Existing Resources

Excavation of borrow material for constructing the CAP dike has created a highly disturbed habitat and vegetation community on the Reclamation right-of-way portion of the project site. Several native plant species have colonized the area, but generally their abundance and stature are greatly reduced relative to those of the adjacent undisturbed Sonoran desertscrub community. Dominant plants in this disturbed area are triangle leaf bursage (Ambrosia deltoidea), desert broom (Baccharis sarothroides), jimmy weed (Haplopappus pluriflorus), creosote bush (Larrea tridentata), sweetbush (Bebbia juncea), foothill palo verde (Cercidium microphyllum), blue palo verde (Cercidium floridum), purple three-awn (Aristida purpurea), and red brome (Bromus rubens).

Vegetation on the privately owned portion of the property is a relatively undisturbed Sonoran desertscrub (Arizona upland subdivision) typical of lower bajadas in the area. Dominant plant species in this area are triangle leaf bursage, brittlebush (Encelia farinosa), creosote bush, chuparosa (Justicia californica), teddy bear cholla (Opuntia bigelovii), cane cholla (Opuntia spinosior), hedgehog cactus (Echinocereus spp.), barrel cactus (Ferocactus spp.), saguaro (Carnegia gigantea), foothill palo verde, velvet mesquite (Prosopis velutina), ironwood (Olneya testota), desert senna (Cassia spp.), purple three-awn, and red brome.

Wetlands and other special aquatic sites are not present in the project area; however, the privately owned 69-acre parcel is crossed by several washes that support more abundant desert vegetation and wildlife habitat than the surrounding areas. Javelina (Tayassu tajacu), great horned owl (Bubo virginianus), Anna's hummingbird (Calypte anna), cactus wren (Campylorhynchus brunneicapillus), red-tailed hawk (Buteo jamaicensis), mourning dove (Zenaida macroura), Gamble's quail (Callipepla gambelii), and Gila woodpecker (Melanerpes uropygialis) were observed in or near the wash habitat. Scat of deer (Odocoileus sp.), rabbit (Sylvilagus sp. and Lepus sp.), and coyote (Canis latrans) were also identified.

Special-Status Species

In accordance with Section 7 of the federal Endangered Species Act of 1973, as amended, Reclamation requested that the U.S. Fish and Wildlife Service provide a list of endangered, threatened, and candidate species that may occur in the project area and Maricopa County (Appendix D).

A comparison of the habitat in the project area with the habitat needs of the special-status species listed by the U.S. Fish and Wildlife Service indicates that suitable conditions and habitat for protected species do not occur in the project area. American peregrine falcon (Falco peregrinus), a wide-ranging migratory bird, is a possible transient in the area, but lack of water and nesting habitat (cliffs and steep slopes) would limit its use of the affected habitat. Lesser long-nosed bats (Leptonycteris curasoae) could forage on saguaro cactus in the northern portion of the project area (private lands), but a lack of daytime roosting habitat (caves and tunnels) in the area would restrict their use of the affected habitat. Avoiding saguaro during project construction or salvaging the plants and incorporating them into the course landscaping would reduce possible impacts on transient long-nosed bats.

Environmental Consequences and Mitigation Measures

Significance Criteria

The following impacts on common and special-status plant and animal species were considered in this analysis:

- direct mortality,
- loss or degradation of existing habitat,
- temporary loss of habitat that may result in increased mortality or lower reproductive success, and
- mortality or reduced reproduction success of wildlife related to avoidance of biologically important habitat.

Impacts on special-status species would be significant if the project would result in:

- the take of federally listed threatened or endangered species, or
- the loss of a substantial portion of a local population of a federal candidate, sensitive species, or special-emphasis species, resulting in a trend toward federal listing.

Criteria for establishing thresholds to determine significance of impacts for common plant and wildlife species assume that elimination of a local species population or a substantial amount of high quality habitat could result in a significant impact.

Proposed Action

Impact: Potential Loss of Protected Native Plants. Native plants, including native species of cacti and trees such as palo verde and mesquite, could be adversely affected during construction of the golf course. CRCS and the City would design the proposed action to reduce the loss of native cacti and trees according to the City's Native Plant Requirement. If CRCS determines that it cannot avoid adverse effects on native species, and if it proposes to remove native plants in an area exceeding 0.25 acre, CRCS shall notify the City and submit a notice of intent to the Arizona Department of Agriculture, in writing, at least 60 days before the plants are scheduled to be removed. CRCS may not begin removing native plants until it receives written confirmation from the Arizona Department of Agriculture. CRCS plans to salvage as much material as possible for course landscaping. The TPP and DGB basins may also require salvage of native plants and would follow the same guidelines as described for the golf course. Because preconstruction surveys and notification to the City and the Arizona Department of Agriculture are part of the proposed action, no additional adverse effects on native plants are anticipated.

Impact: Loss of Sonoran Desertscrub Vegetation. Golf course construction would result in the loss of up to 210 acres of disturbed desertscrub habitat and 69 acres of relatively undisturbed upland Sonoran Desertscrub vegetation. The loss of this habitat is not anticipated to substantially affect existing biological resources. The portions of the golf course that surround turf areas would be revegetated with native plant species, replacing some lost habitat value for wildlife species. Open water habitat created in golf course lakes would be managed to support native vegetation, such as willows (Salix spp.) and cottonwoods (Populus sp.), and a variety of wildlife species, including wintering shorebirds and waterfowl species. Loss of desertscrub vegetation associated with the TPP alignment and DGB basin sites would be minor because these sites are already highly disturbed and support marginal habitat. Because the loss of minimal amounts of marginal desertscrub habitat would not substantially affect biological resources in the project area and because native landscaping on the golf course would provide habitat value for wildlife species, this effect is considered minor.

Impact: Effects on Desert Wash Habitat. Construction of the proposed action would require removal or temporary disturbance of a small number of xeroriparian plants in several desert washes and along the Old Verde Canal. The golf course would disturb small areas (less than 0.5 acre) of riparian habitat at each wash; adverse effects would largely be avoided because golf holes are not proposed to be located in washes. No wash habitat would be affected by the proposed TPP. The DGB basins would be located in the Reata Pass Wash and would affect only minor amounts of desert wash habitat because vegetation is sparse in these areas. Overall, effects on desert washes are considered minor because habitat loss would be temporary or would affect a limited area. The City would also obtain the appropriate Clean Water Act permits (most likely nationwide permits) from the U.S. Army Corps of Engineers for work conducted in washes.

Impact: No Loss of Special-Status Plant and Animal Species. Excluding plants protected by the Arizona Native Plant Law, the proposed action would not affect any special-status species because no special-status species are known or have the potential to occur in the project area (Appendix D). No federally listed species would be affected.

Impact: Potential Loss of or Harm to Common Wildlife Species. Development on approximately 210 acres in the CAP drainage basin would convert disturbed desertscrub habitat that could be used by common wildlife species known to occur in the area, as described above. Development on the 69-acre private parcel would affect higher quality desertscrub habitat that supports common wildlife species. The effect on wildlife species is considered minor because most of the area affected contains only marginal wildlife habitat. Revegetation associated with landscaping will improve habitat value in some areas.

No-Action Alternative

Impact: No Effects on Native Plants, Wildlife, and Special-Status Species in the Project Area. Under the No-Action Alternative, no effects on native plant, wildlife, or special-status species would occur because the golf course and TPP and DGB basins would not be constructed at the proposed location. However, because of the need for these facilities, they would likely be constructed at another location outside Reclamation's right-of-way. If facility construction were to occur in areas with greater habitat value than the CAP detention basin, effects on biological resources could be greater than those expected under the proposed action.

CULTURAL RESOURCES

Affected Environment

Reclamation, CRCS, and the City are required to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and with its implementing regulations (36 CFR Part 800). Section 106 requires that federal agencies take into account the effects of their actions on properties that may be eligible for listing in or that are already listed in the National Register of Historic Places (NRHP). To determine whether a project could affect properties eligible for NRHP listing, cultural sites, including archaeological, historical, architectural properties, and traditional cultural properties must first be inventoried and evaluated to determine their eligibility for listing.

The Section 106 review process is implemented using a five-step procedure:

- identify and evaluate historic properties,
- assess the effects of the undertaking on properties eligible for NRHP listing,

- consult with the State Historic Preservation Officer (SHPO) and other agencies to develop an agreement regarding the treatment of historic properties,
- receive Advisory Council on Historic Preservation (ACHP) comments on the agreement or results of consultation, and
- proceed with the project according to the conditions of the agreement.

Reclamation's Section 106 consultation package for the proposed action is included as Appendix B.

Cultural Context

Prehistory

No significant prehistoric archaeological sites were identified during surveys of the project area conducted in 1978 and 1996 (U.S. Bureau of Reclamation 1996a).

History

Old Verde Canal. The Old Verde Canal is a historical resource located near and within the project site. It extends west-northwest from the base of the McDowell Mountains for about 12 miles, ending approximately 0.5 mile east of Cave Creek Road north of Union Hills Road. The canal was one component of a large planned water storage and delivery system that would have irrigated up to 400,000 acres of land in Paradise Valley, Deer Valley, the Agua Fria River Valley, and the Hassayampa River Valley. Although it was never completed, the system's scope would have dwarfed all other similar proposals and included five reservoirs, one diversion dam, 140 miles of main canal, and other pertinent hydraulic works (e.g., conduits, flumes, tunnels, and laterals). It also included plans for hydropower generation. The extant portions of the Old Verde Canal are unchanged from their original 1893 excavation except for natural deterioration, thereby retaining their historic integrity. (U.S. Bureau of Reclamation 1996a.)

Taliesin West. Frank Lloyd Wright was influential in the world of architecture during the first half of the 20th century for his style, use of materials, naturalism, and his extensive portfolio. Taliesin West, located about 0.5 mile east of the southern boundary of the project site, was designed and built by Wright in 1938 as his winter home. Taliesin West is now a National Historic Landmark managed by the Frank Lloyd Wright Foundation. In addition to being a second home for Wright, Taliesin West was built as a planned community and school of architecture. The Fellowship, a select group of architecture students studying under the apprenticeship of Wright, also spent winters with Wright at Taliesin West (Twombly 1979). The proposed action would cross a portion of the property boundary of Taliesin West that is outside the National Historic Landmark boundary, but within the National Register of Historic Places boundary of the property (Appendix B).

Findings

Separate Class III (inventory) cultural resource surveys were conducted in 1978 and 1996 to identify cultural resources located in and near the project boundaries.

The 1978 and 1996 surveys identified no prehistoric archaeological sites in the project area. Based on results of the surveys, Reclamation has recommended that a determination of no effect is appropriate for documentation that no significant prehistoric archaeological sites are present in the project area.

Based on findings concerning the Old Verde Canal, Reclamation has recommended that the extant portions of the canal are eligible for listing in the NRHP under criterion (a), association with events that have made a significant contribution to the broad patterns of American history, and under criterion (b), association with the lives of persons significant in American history. Reclamation has also recommended that only portions of the Old Verde Canal located on Reclamation property be listed on the NRHP. Private landowners whose property is crossed by the Old Verde Canal were not interested in listing their portions of the canal in the NRHP. (U.S. Bureau of Reclamation 1996a).

Reclamation determined that the proposed golf course development could affect the subjective visual integrity of the Taliesin West National Historic Landmark, an adjacent property, but that the effect is not adverse (U.S. Bureau of Reclamation 1996a). The SHPO has concurred with all of these recommendations and determinations (Appendix B).

Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property and assets held in trust by the United States for federally recognized Native American tribes or individual Native Americans. Such trust status is derived from rights reserved by or granted to tribes or individuals by treaties, statutes, and executive orders. ITAs may include land, minerals, water rights, and hunting and fishing rights. No ITA's exist within the proposed project area.

Environmental Consequences and Mitigation Measures

Criteria for Significance

NEPA and Section 106 of the NHPA describe the criteria for assessing impacts on cultural resources. Under Section 106(b), three possible findings of effect can be made: no effect, no adverse effect, or adverse effect. ACHP regulations define a project as having an effect on a historic property when the project:

may alter the characteristics of the property that may qualify the property for inclusion in the NRHP, including alteration of the property's location, setting, or use. An undertaking may have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:

- physical destruction or alteration of all or part of the property;
- isolation of the property from alteration of the property's setting when that character contributes to the property's qualification for the NRHP;
- introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
- neglect of a property resulting in its deterioration or destruction; and
- transfer, lease, or sale of the property (36 CFR 800.9).

Impacts would be significant under NEPA if a project would diminish the integrity of a resources's location, design, setting, materials, workmanship, feeling, or association or cause the loss or destruction of significant scientific, cultural, or historical resources (40 CFR 1508.27).

NEPA and Section 106 of the NHPA also require consideration of project-related effects on traditional cultural properties. Traditional Cultural Properties (TCPs) are properties that are eligible for listing on the NRHP because of their association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. Cultural resources surveys for the proposed project did not identify TCPs in the area. Reclamation will consult with Indian tribes who have a recorded presence, or who have claimed ancestry to the area to ensure that TCPs have been identified, recorded and impacts on them considered. The tribes are: Ak-Chin Indian Community, Ft. McDowell Mojave-Apache Indian Community, Gila River Indian Community, Hopi Tribe, Salt River Pima-Maricopa Indian Community, Yavapai-Prescott Indian Tribe, and Zuni Pueblo.

Reclamation has evaluated the significance of all cultural resources identified based on criteria from the NRHP, in consultation with the SHPO.

An impact could be considered beneficial if it would result in the protection, stabilization, or restoration of cultural properties listed or eligible for listing in the NRHP.

Proposed Action

Impact: Potential Disturbance of Unknown Cultural Resources. The two Class III (inventory) surveys conducted for the project area located no significant prehistorical archaeological sites (U.S. Bureau of Reclamation 1996a). The presence of subsurface cultural resources is always possible, however. Should any artifacts or an unusual amount of bone, shell, or non-native stone (obsidian, for instance) be uncovered during construction or other ground-disturbing activities, construction would be halted, and a qualified archaeologist would be consulted immediately to evaluate the find. If bone is found that appears to be human, Reclamation would contact the SHPO and the appropriate Indian tribes, and comply with the requirements of the Native American Graves Protection and Repatriation Act (43 CFR Part 10, Subpart B Section 10.4). (Refer to Section 4, "Environmental Commitments", for further details on the required monitoring and evaluation.)

Impact: Disturbance to the Old Verde Canal. Implementing the proposed action would involve constructing a protective dike to reduce visual impacts on the Taliesin West National Historic Landmark. This dike would connect to the downstream side of the Old Verde Canal dike. The addition would minimally alter the original canal dike, but canal integrity would be maintained (U.S. Bureau of Reclamation 1996a). Construction and operation of tees 6 and 7 would adversely affect part of the Old Verde Canal because fill would be added to accommodate the tees; although the vertical height of the canal would not be raised, the canal's integrity would be partially compromised in that area if fill were added to the base of the dike. The canal would also be incorporated into the green for Tee 2; some integrity would be lost in that area if fill were added and part of the dike were removed to accommodate drainage. Canal integrity is not expected to be adversely affected by native plantings used to screen views from Taliesin West because the canal structure would not be modified in these areas. Adverse effects on the Old Verde Canal will be reduced by implementing a series of measures designed to mitigate those effects (U.S. Bureau of Reclamation 1996a).

At Reclamation's request, CRCS would reduce project-related effects on the Old Verde Canal by incorporating a heritage education component into the design of the golf course, using interpretive signs near the canal. An interpretive brochure would also be prepared as a handout available to guests using the facility. In addition, Reclamation will photograph affected sections of the Old Verde Canal to standards established by the National Park Service for historic American Engineering Record determination and formally nominate the Old Verde Canal to the National Register of Historic Places. Because of the incorporation of the proposed mitigation measures Reclamation has recommended a determination of no adverse effect on the Old Verde Canal (U.S. Bureau of Reclamation 1996a) and the SHPO has concurred with this determination.

Impact: Potential Visual Disturbance to Taliesin West National Historic Landmark. The proposed action would be constructed on a portion of the Taliesin West property and adjacent to the Taliesin West National Historic Landmark. The project could adversely affect the subjective visual integrity of the Taliesin West National Historic Landmark. In response to concerns about this visual impact, CRCS has made design and operational changes to minimize visual effects. In addition to moving the southern end of the golf course 500 feet to eliminate direct visual impacts on Taliesin West, CRCS would also incorporate the Old Verde Canal as a natural barrier between

Taliesin West and the golf course by placing the golf course in the CAP basin between the Old Verde Canal and the CAP dike. As an additional visual screen for the golf course, CRCS would plant native vegetation at the bases of both the Old Verde Canal and the CAP dike. To further limit possible views of golf course operations, CRCS has agreed to limit watering operations to nighttime hours, except during the initial 2-week growth period for the golf course turf and during fertilizer and pesticide applications (about eight times per year). Because of the incorporation of CRCS's environmental commitments into the proposed action, Reclamation has recommended a determination of no adverse effect on the Taliesin West National Historic Landmark (U.S. Bureau of Reclamation 1996a), and the SHPO has concurred with this determination (Appendix B).

Impact: No Effect on Indian Trust Assets. Reclamation has reviewed the proposed action for possible effects on ITAs. ITAs have not been identified within the project area and, thus, would not be affected by the proposed action. The nearest federally recognized Native American tribe and reservation is the Salt River Pima-Maricopa Indian Community located about 4 miles (6.5 kilometers) south from the project area. The following tribes are being provided an opportunity to comment on the draft EA: Salt River Pima-Maricopa Indian Community, Fort McDowell Mohave-Apache Indian Community, Gila River Indian Community, and Ak-Chin Indian Community.

Impact: No Effect on Traditional Cultural Properties (TCP's). Construction of the proposed project will have no effect on known TCP's. Seven Indian tribes that have a recorded presence, or who have claimed ancestry to the area will be provided an opportunity to comment on the draft EA to ensure that TCP's have been identified, recorded, and impacts to them considered.

No-Action Alternative

Impact: No Effect on Existing Cultural Resources. The No-Action Alternative would not involve any earth-moving or construction activities at the proposed golf course, TPP, and DGB basin sites and, thus, would have no impacts on prehistoric or historic cultural resources in the project area. Construction of these facilities elsewhere could result in the possibility of cultural resource effects at the alternate sites.

CUMULATIVE IMPACTS

Cumulative impacts result from the incremental impact of project-related actions when they are combined with other past, present, and reasonably foreseeable future actions (40 CFR 1508.7).

CRCS and the City are proposing to expand the western theme park within their currently permitted area according to the Management and Facilities Operations Plan, as amended. The management plan includes development of the proposed golf course and accommodation of the TPP and DGB basin sites on Reclamation's right-of-way. The management plan also encompasses future development of additional western theme park elements within the existing theme park boundaries (north of the TPP crossing). These possible future land uses on Reclamation-owned property combined with the facilities identified under the proposed action would not create

substantial cumulative impacts in the CAP detention basin because Reclamation's right-of-way has been modified previously and improvement of the area for public uses would not result in new adverse effects.

The City also has developed plans involving considerable suburban uses north and east of the CAP right-of-way. As described in Section 2, "Proposed Action and Alternatives", the City is currently planning for residential development east of the project area associated with the McDowell Mountain Ranch, VCM, and Moore properties. To accommodate this development, the City is proposing to extend the TPP roadway from its proposed CAP crossing in the Reclamation right-of-way to a connection with McDowell Mountain Ranch Road across private property to provide access to future residential development and the proposed golf course clubhouse (Figures 2-2 and 3-1). The City is also proposing construction of the DGB flood control project, extending north from Reclamation's right-of-way along the Reata Pass Wash. The DGB would terminate at the southern end of the current equestrian center site at the two settling basins proposed within Reclamation's right-of-way.

These future projects located near Reclamation's right-of-way could affect several types of resources in the project vicinity as described below.

Land Use, Traffic, and Noise

Long-term development in the City could result in substantial changes in land uses that are related to conversion of Sonoran Desert open space to an urban or suburban environment. Increasing the intensity of land uses in this area with residential development would have growth-related effects, such as increased traffic volumes on the local roadway system, increased traffic-generated air quality emissions and noise, and increased demand for public services and utilities. The proposed action, within the Reclamation right-of-way would not substantially contribute to these land use, traffic, and noise effects because the golf course and DGB basins would not create substantial land use, traffic or noise effects, and the TPP is intended to reduce localized traffic congestion effects.

Air Quality

Cumulative construction-related air quality impacts could result from cumulative development planned for Scottsdale north and east of the CAP detention basin. Construction-related air quality effects would be temporary and would involve ozone precursor and NO_x emissions from construction equipment and PM10 emissions from construction activities. Increases in residential development would also result in long-term traffic-related air quality emissions in a nonattainment area. The proposed action, within Reclamation's right-of-way, would not substantially contribute to these air quality effects because the golf course and DGB basins would not create substantial construction-related or long-term air quality emissions and the TPP is intended to reduce localized traffic congestion that results in elevated pollutant levels.

Hydrology, Water Quality, and Soils

Buildout of proposed City development would result in the potential for increased amounts of contaminated water to be discharged to surface waters of the DGB and the local groundwater basin. Although cumulative flooding, water quality, and soil erosion impacts are possible, these impacts could be reduced to acceptable levels if BMPs were implemented following careful evaluation by the City, Reclamation, and other regulatory agencies. No other mitigation measures would be necessary. The facility development under the proposed action has also been designed to accommodate the cumulative drainage and flooding issues in the area and is therefore considered beneficial. The City's future dry well recharge activities could also benefit groundwater resources and would be subject to ADEQ's requirements.

Vegetation, Wildlife, and Special-Status Species

Cumulative development in Scottsdale would result in the loss Sonoran desertscrub habitat in areas identified for residential development north and east of the CAP right-of-way. Loss of this habitat could result in fragmentation of wildlife habitat and interruption of migratory wildlife corridors. Implementation of the DGB project in Reata Pass wash could result in effects on xeroriparian habitat along washes in the area. Projects in this area would also be subject to the City's ESLO, which could require 20-25% of the development area to be set aside for open space protection (Ekblau pers. comm.). The proposed action, within Reclamation's right-of-way would not substantially contribute to these cumulative habitat and wildlife effects because development within the CAP detention basin would not result in the direct loss of important desertscrub or wash habitat that would adversely affect wildlife. Construction of the TPP would eliminate one barrier to growth north of the CAP detention basin that could indirectly result in loss of vegetation and wildlife resources in development areas.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Constructing and operating the proposed golf course, TPP and DGB basins would result in an irreversible and irretrievable commitment of desertscrub open space within the CAP detention basin. CRCS plans to restore portions of the golf course within the CAP detention basin (210 acres) to a natural landscape setting, and facilities under the proposed action would be designed to maintain the detention basin capacity. Approximately 69 acres of higher quality Sonoran Desert habitat would be converted to golf course and residential uses on the private property included in the golf course design (adjacent to Reclamation's right-of-way). Use of Reclamation's right-of-way for the TPP crossing and DGB basins would involve use of approximately 25 total acres of the Reclamation right-of-way for public facilities.

Section 4. Environmental Commitments

The following environmental commitments have been incorporated into the description of the proposed action and are conditions of project approval.

LAND USE, TRAFFIC, AND NOISE

The City shall incorporate an 8-foot-high soundwall at the shoulder break of the TPP and an 8-foot-high soundwall on the north side of 100th Street for 130 feet as described in the TPP Extension Noise Technical Report (Higgins & Associates 1997).

VISUAL RESOURCES

Refer to "Cultural Resources" below.

AIR QUALITY

CRCS and the City shall obtain all necessary permits in compliance with all applicable regulations of Maricopa County Environmental Services, APC. CRCS also shall apply dust suppression measures in accordance with Rule 310 for fugitive dust to control excessive PM10 dust emissions generated from construction and operational activities on the project site. If the proposed project construction- or operation-related emissions were to exceed the federal de minimis level standards, CRCS and the City would be required to implement some of the following mitigation measures to reduce the ROG and NO_x emission levels.

To reduce ROG emission levels:

- electrify equipment, where feasible;
- maintain equipment in accordance with manufacturers' specifications;
- restrict the idling of construction equipment to 10 minutes at a time; and
- encourage the use of reformulated diesel fuel.

To reduce NO_x emission levels:

- require injection timing retard of 2° on all diesel vehicles, where applicable;
- install high-pressure injectors on all vehicles, where feasible;
- use Caterpillar prechamber diesel engines or equivalent, together with proper maintenance and operation;
- electrify equipment, where feasible;
- maintain equipment in accordance with manufacturers' specifications, except as otherwise stated above;
- restrict the idling of construction equipment to 10 minutes;
- install catalytic convertors on gasoline-powered equipment; and
- substitute gasoline-powered equipment for diesel-powered, where feasible.

HYDROLOGY, WATER QUALITY, AND SOILS

CRCS and the City shall minimize adverse effects on drainage and floodplain characteristics by complying with the City, Reclamation, and Federal Emergency Management Agency floodplain and drainage management plans for development within the detention basin.

CRCS shall implement the following BMPs within and on private property adjacent to Reclamation's right-of-way to minimize soil disturbance, erosion, and sediment transport to the detention basin:

- Erosion control plan to reduce the likelihood of accelerated erosion during construction and operation of the project. CRCS shall implement BMPs to control erosion. These BMPs should include, but are not limited to, the following measures:
  - construction activities shall be limited to the minimum area necessary for implementation of the project;
  - vegetative buffer strips shall be left in place adjacent to watercourses when possible;
  - soil stockpiles shall not be located within watercourses;
  - silt fences or straw bales shall be used to filter runoff and control sediment; and

- vegetation shall be established or other erosion control materials shall be applied to bare soils prior to onset of the rainy season.

- Hazardous Materials Management Plan to reduce the likelihood of chemical and other hazardous spills during construction. CRCS shall develop and implement a specific protocol for the proper handling and disposal of materials used or produced onsite, such as petroleum products, concrete, construction debris, and sanitary waste.

- Operational BMPs to reduce the likelihood of accelerated erosion and failure of flood control systems. CRCS shall implement BMPs to:

  - control the volume and velocity of stormwater runoff by means such as detention/retention basins, porous pavement, dry wells, and debris basins;

  - stabilize channels as necessary by adding revetment, energy dissipators, and other structures; and

  - conduct routine maintenance and repair operations to ensure that the berms required to protect the managed turf areas and to confine surface flows are structurally sound.

CRCS and the City shall also implement provisions of the WestWorld Golf Course/Desert Greenbelt Management and Operations Plan as indicated in Appendix A and outlined below.

CRCS will design the golf course at elevation 1,520 above mean sea level (msl) to accommodate minor storm activity less than a 5-year storm. The existing CAP dike basins will be widened and deepened to accommodate the storage of additional water below the 1,520 msl elevation. Evacuation of water below 1,520 msl elevation will be accomplished by either groundwater recharge using dry wells or by filtering the storm water and recharging using dry wells. An undetermined number of dry wells will be located in unturfed portions of the golf course to provide a means for evacuating flood waters and to provide groundwater recharge. Draft and final plans for any groundwater recharge activities would be subject to approval by Reclamation, Flood Control District of Maricopa County (FCDMC), ADEQ, and ADWR before well development begins.

Under normal conditions, the detention basins within the golf course would be maintained by the golf course operator. Silt deposits in the basin would be removed at least one time per year or as necessary. In the event of a storm that overtops the siltation and settling basins, the City would remove silt deposited in the golf course basin.

The golf course will be constructed to accommodate flows from north to south, and areas subject to erosion will receive slope protection.

The City will also construct two settling basins to aid in slowing water and settling sediment before its introduction to the golf course drainage basin. Details of the required DGB facilities and operations are identified in Appendix A.

VEGETATION, WILDLIFE, AND SPECIAL-STATUS SPECIES

Excavation of borrow material for constructing the flood detention dike has created a highly disturbed habitat and vegetation community within most of the project area (U.S. Bureau of Reclamation 1996b); however, if CRCS proposes to destroy or remove native species as a result of the project (for example, in the privately owned portion of the project site), CRCS shall notify the City and Arizona Department of Agriculture in compliance with the City's native plant requirements and Arizona Native Plant Law before construction of the project begins. Disposition of plant material will be made in compliance with the provisions of Section 3-902 of the Arizona Revised Statutes (ARS) and the Arizona Native Plant Law.

CRCS shall provide native landscaping in unturfed portions of the golf course that are representative of the surrounding Sonoran Desert and shall minimize impacts on riparian habitat along desert washes and the Old Verde Canal.

Avoiding saguaro during the construction of the golf course or salvaging the plants and incorporating them into the course landscaping would significantly reduce any possible impacts on transient lesser long-nosed bats.

CULTURAL RESOURCES

CRCS and the City shall stop all work and immediately notify Reclamation if cultural materials are encountered during construction or other activities. Work shall not proceed in the immediate area until a qualified archaeologist can evaluate the finds. CRCS and the City shall also comply with requirements of the NHPA and the Native American Graves Protection Repatriation Act. CRCS is required to secure an Antiquities Permit (ARS 41-841 to 41-846) from the Arizona State Museum for any archaeological activities that occur on private land. CRCS is also required to comply with the Burial Protection Law of 1990 (ARS 41-844 and ARS 41-865) and the State Historic Preservation Act of 1982 (ARS 41-861 to 41-864) if such discoveries are made on private land. CRCS shall consult with the Arizona State Museum and the Arizona SHPO in the early planning stages of the project. If significant cultural resources are identified, the City shall be required to prepare a mitigation plan in consultation with the SHPO and the ACHP, other participating parties, and the interested public.

CRCS shall incorporate a heritage education component into the design of the golf course that will interpret the Old Verde Canal to the public. CRCS shall also prepare an interpretive brochure of the Old Verde Canal for distribution to guests using the facility.

CRCS shall incorporate the Old Verde Canal as a natural barrier between Taliesin West and the golf course, thereby screening the golf course from view in the CAP basin between the Old Verde Canal and the dike. CRCS shall plant natural Sonoran Desert vegetation at the bases of both

the Old Verde Canal and the CAP dike at the locations shown in Figure 3-2. CRCS shall also restrict watering operations to nighttime hours within the Taliesin West viewshed only, except during the initial 2-week growth period for the golf course grass and during fertilizer applications (which occurs about eight times per year).

Section 5. Consultation and Coordination

RELATED LAWS, RULES, REGULATIONS, AND EXECUTIVE ORDERS

Clean Water Act

The Clean Water Act was enacted as a means to "restore and maintain chemical, physical, and biological integrity of the Nation's water" (33 USC 1251 et seq.). The goals of the act are achieved through a system of water quality standards, discharge limitations, and permits. If the water quality of a water body could be affected by a proposed project, a National Pollutant Discharge Elimination System (NPDES) permit may be required. If a project may result in the placement of material into waters of the United States, a U.S. Army Corps of Engineers dredge and fill permit may be required under Section 404 of the Clean Water Act. The individual Section 404 permit also applies to activities in wetlands and riparian areas. CRCS and the City anticipate that a nationwide permit would apply to the proposed project.

Before either an NPDES or a Section 404 permit is issued, a water quality certification or waiver of certification must be obtained pursuant to Section 401 of the Clean Water Act.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act requires federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the state fish and wildlife resource agency before undertaking or approving water projects that impound or divert surface water. This consultation is intended to promote conservation of fish and wildlife resources by preventing their loss or damage and to provide for development and improvement of fish and wildlife resources in connection with water projects. Federal agencies undertaking water projects are required to fully consider recommendations made by USFWS, NMFS, and the state fish and wildlife resource agency in project reports, such as NEPA documents and include measures to reduce impacts on wildlife in project plans. The Fish and Wildlife Coordination Act does not apply to the proposed action because the project does not impound or divert, or modify surface streams as described in the act.

Endangered Species Act

The Endangered Species Act provides protection for animal and plant species in danger of extinction (listed as endangered) and those that may become so in the foreseeable future (listed as threatened). Section 7 of the Endangered Species Act requires federal agencies to ensure that all federally associated activities in the United States do not have adverse impacts on the continued existence of threatened or endangered species or on designated areas that are important in conserving those species. Acting agencies must consult with USFWS to determine the impacts that a project may have on protected species.

This EA has disclosed all impacts related to biological resources in the project area. No endangered or threatened species are present in the project area, no nesting or foraging habitat for federally protected species is found within the project area, and no adverse effects related to the proposed action are expected to occur to federally protected species. (Refer to Appendix D, "Biological Assessment", for more specific information.)

National Historic Preservation Act

The NHPA establishes as federal policy the protection of historic sites and values in cooperation with other national, state, and local governments. The act designates the SHPO as the individual responsible for administering programs in the individual states and describes the duties of the ACHP. Federal agencies are required to consider the effects of their undertakings on historic properties and to give the ACHP a reasonable opportunity to comment on those undertakings.

For this EA, Reclamation has conducted a Class III (inventory) survey and completed a Section 106 consultation with the SHPO and ACHP for the project area. (Refer to Appendix B, "Section 106 Determination of Effect", for more specific information.) Mitigation measures will be initiated or completed before construction begins.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) specifies the procedures that agencies must follow when burials of Native American origin are found on federal land (43 CFR Part 10). The regulations implementing the requirements of NAGPRA relating to the inadvertent discovery of human remains of Native American origin are described in 43 CFR Part 10, Subpart B, Section 10.4. These regulations include the following provisions, which should be implemented if human remains are discovered during project construction:

- notify, in writing, the responsible federal agency and
- cease activity in the area of discovery and protect the human remains.

Upon notification that human remains have been discovered on federal land, the responsible federal agency shall:

- certify receipt of the notification,
- take steps to secure and protect the human remains,
- notify the Native American tribe or tribes likely to be culturally affiliated with the discovered human remains within 1 working day, and
- initiate consultation with the Native American tribe or tribes in accordance with regulations described in 43 CFR Part 10, Subpart B, Section 10.5.

Executive Order 11988, Floodplain Management

Executive Order 11988 requires a construction agency to "avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative" within the 100-year floodplain.

The purpose of this directive is to avoid, where practicable alternatives exist, short- and long-term adverse impacts associated with development in a floodplain. In carrying out their responsibilities, federal agencies are required to reduce the risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains.

CRCS would comply with Reclamation and the City permit or license requirements as they apply to uses in the floodplain. CRCS and the City would also be required to maintain the current flood capacity in the CAP dike basin pursuant to its management and operations plan (Appendix A). The DGB basins development within the Reclamation right-of-way would be consistent with Executive Order 11988, policy to reduce the risk of flood loss, to restore and preserve the natural and beneficial values served by floodplains, and to minimize the impact of floods on human safety because these are all goals of the DGB project.

Executive Order 11990, Wetlands

Executive Order 11990 requires a construction agency to "avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative".

Executive agencies, in carrying out their land management responsibilities, must act to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Each agency shall avoid undertaking or assisting in wetland construction projects unless the head of the agency determines that no practicable alternative to such construction exists and that the proposed action includes measures to minimize harm.

The proposed action would not affect any wetland areas and would provide beneficial wetland amenities with the construction of two 2-3-acre artificial lakes associated with the golf course.

Farmland Protection Policy Act

The U.S. Natural Resources Conservation Service (NRCS) is responsible for administering the Farmland Protection Policy Act. The NRCS office in the project area should be contacted and asked to identify whether the proposed action would affect any lands classified as prime and unique farmlands. No such farmland has been identified in this EA.

SUMMARY OF PUBLIC AND AGENCY INVOLVEMENT

As part of the public scoping for the golf course portion of the environmental assessment, Reclamation sent a scoping notice on February 21, 1996, to 76 interested agencies, organizations, and individuals. The mailing provided for a 30-day public scoping comment period before preparation of the EA. During the scoping period, Reclamation received three comment letters and 15 telephone calls from individuals requesting copies of the EA or identifying areas of concern that should be addressed in the EA. Comment letters and a summary of issues raised are shown in Appendix E. The City and CRCS also conducted several project planning meetings involving a representative from the Frank Lloyd Wright Foundation to reduce potential visual resource effects on Taliesin West.

The City of Scottsdale also conducted a public workshop for the TPP project and the Greenway-Hayden Loop project on April 7, 1993, to receive comments on the preferred TPP concept (The WLB Group 1996). Twenty-three people attended the workshop and 19 comment sheets were received (Appendix F). Of the 19 responses, four made specific reference to the TPP. All four respondents expressed their desire for a cut-through-the-dike type of crossing. Three of the four recommended the preferred TPP alternative and one recommended a lower profile alternative that would reduce noise and visual effects on residents south of the CAP. The City also conducted a public meeting for the TPP project in January 1997.

The City of Scottsdale conducted extensive public and agency coordination activities during the planning and preliminary design stages of the DGB, including over 10 meetings designed for public input and numerous property owner, stakeholder, and public agency meetings to provide

updates, receive input and gain consensus on the DGB project. The City has met quarterly with representatives from the Greater Pinnacle Peak Homeowners Association over the past year and presented a project update at the March 25, 1997 City Council Study Session. The public outreach for this project also has included a DGB information line and a newsletter to update members of the public and encourage questions or concerns about the project. A complete list of the planning and coordination meetings conducted for the DGB project is shown in Appendix F.

The EA analyses were conducted with assistance from the following federal, state, and local agencies, and public institutions:

- U.S. Bureau of Reclamation, Phoenix area office;
- U.S. Fish and Wildlife Service;
- Arizona Game and Fish Department;
- Arizona Department of Water Resources;
- Arizona Department of Environmental Quality;
- State Historic Preservation Officer;
- Advisory Council on Historic Preservation;
- Maricopa County Air Pollution Control District;
- Maricopa County Flood Control District;
- City of Scottsdale; and
- Frank Lloyd Wright Foundation.

Section 6. Citations

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Ekblau, Kroy. City planner. City of Scottsdale Planning Department, Scottsdale, AZ. May 23, 1996 - telephone conversation.

Johnson, Steve. Engineer. U.S. Bureau of Reclamation, Phoenix Area Office, Phoenix, AZ. June 13, 1997 - memorandum.

McGinnis, James. Manager, Native Plants. Arizona Department of Agriculture, Phoenix, AZ. December 7, 1995 - telephone conversation; December 14, 1995 - letter.

Young, Kara. Environmental planner. Maricopa County Environmental Services Department, Field Services Division, Air Pollution Control, Phoenix, AZ. February 27, 1996 - telephone conversation and facsimile; March 7, 1996 - telephone conversation; and March 8, 1996 - telephone conversation and facsimile.

Section 7. List of Preparers

U.S. BUREAU OF RECLAMATION

Bruce Ellis	Chief, Environmental Resources Management Division
Brian S. Mihlbachler	Biologist
Thomas R. Lincoln	Chief, Cultural Resources Branch
Robert Michaels	Natural Resource Specialist
Sandy Eto	NEPA Specialist

CAPITAL REALTY CORPORATION OF SCOTTSDALE

Bill Ensign	Golf Course Project Manager

JONES & STOKES ASSOCIATES

Harlan Glines	Principal-in-Charge
Steve Centerwall	Project Manager
Dave Harris	Assistant Project Manager
Susan Pierce	Project Planner
Stephanie Myers	Biologist
Jeff Lafer	Water Quality Specialist
Simon Page	Hydrology/Soils Specialist
Kristy Chew	Environmental Planning Specialist
Debra Lilly	Publication Specialist
Tony Rypich	Graphic Artist
Bev Fish	Report Production

CITY OF SCOTTSDALE

Alex McClaren	TPP and DGB Project Manager
Dave Meinhart	Public Works Planner

Appendix A. WestWorld Golf Course/Desert Greenbelt Management Operations Plan

WESTWORLD GOLF COURSE<>DESERT GREENBELT

MANAGEMENT- OPERATIONS PLAN

PREAMBLE

The document which follows is an agreement between the City of Scottsdale ("Licensor"), and Capital Realty Corp. (Scottsdale) ("CRCS"), an Arizona Corporation ("Licensee"). This agreement is necessary to identify all possible contingencies with regard to a proposed golf course and a major flood control project. The agreement will assign responsibilities regarding control of flood waters, removal of sediment, environmental controls, construction, and operation of the golf course, as well as the methods to accomplish the necessary tasks. The identified parties agree to commit the resources necessary to perform the work as outlined below.

OVERVIEW

The flood control basin in which WestWorld was constructed is part of Dike 4 of Reach 11 of the Central Arizona Project canal system. WestWorld is located on the north side of the canal and extends from Pima Road to 108th Street in Scottsdale. The basin was designed and constructed to accommodate storm water flows in excess of a 100 year flood. It is important to note that the Bureau of Reclamation (BOR) assumed that a 50 year sediment accumulation would be in place when a major strom occurred. Based on data published by the BOR, Dike 4 can hold 10,700 acre feet of water at elevation 1,542. This would include 1,080 acre feet or 1,742,400 cubic yards of sediment.

It is obvious from the report prepared by the BOR that when the dike and detention basin were constructed it was assumed that the basin would be allowed to accumulate silt over long periods of time; hence, the predicted 50 year, 1,080 acre foot estimate for sediment. From an operational standpoint, the 50 year sediment accumulation will not be allowed because the basin has been assigned to the City of Scottsdale for management and operation. A park, WestWorld, was constructed in 1986 on 146 acres of the 356-acre basin. The City of Scottsdale has now entered into a concession agreement with CRCS to construct an 18-hole, championship golf course on the remaining 210 acres. See (Exhibit A -WestWorld Master Plan) The City of Scottsdale has assumed responsibility to see that the basin is properly maintained. A significant portion of this responsibility is to assure that sediment is not allowed to accumulate.

The City of Scottsdale is also in the process of designing a flood control channel north of WestWorld. This channel will alleviate flooding and control storm waters within the Reata Pass/Beardsley Wash channel, from the north boundary of WestWorld to Pinnacle Peak Road. The primary purpose of the channel is to safely contain the 100-year flood discharge, approximately 16,000 cfs, and to convey these waters to the detention basin at WestWorld.

It is fully understood that flows which may impact WestWorld could have a serious, adverse effect on the Golf Course unless appropriate measures are taken to control the water and remove sediment and debris which might result. The flood control project, known as the Desert Greenbelt, and the WestWorld Golf Course will work in cooperation to assure both projects are successful. The course is designed to also accommodate flood control, provide fill for a major roadway project, conserve water, be environmentally sensitive, and, in so doing, provide a recreational amenity to the general public. As with any project which has more than one purpose, it is necessary to assign responsibility for future actions and assure a commitment for follow through to see that all needs are addressed.

To this end the City of Scottsdale, the Golf Course Developer and the BOR understand and agree that the Golf Course and the Desert Greenbelt Projects will

- **not** adversely impact the flood control storage capacity that is specified for CAP Dike 4 by the BOR,

- provide a means to remove silt and sediment from flood waters,

- provide a method of evacuating flood waters (either ground water recharge using dry wells only or pre-filtering and recharging through dry wells) from the site in a timely manner,

- provide a method of disposing of silt and sediment which may be deposited in the basin as a result of flooding,

- provide up to 450,000 cubic yards of fill material to construct embankments for the Thompson Peak Parkway,

- utilize native plant material to re-vegetate the site and provide buffering for adjacent properties.

The Golf Course and the Desert Greenbelt are equally important projects, though care must be taken to assure that the Desert Greenbelt does not have an adverse effect on the course and that the course is capable of accommodating flows which may be generated by the flood control project. To assure that all items are addressed, each project will be described and actions required by each responsible entity will be assigned.

GOLF COURSE

The Golf Course (Exhibit B WestWorld Golf Course) has purposely been designed to provide fill for Thompson Peak Parkway and to enhance storm water storage to accommodate flows which will be directed to the property by the Desert Greenbelt Project. The finished elevation of the course will be set at 1,520 which would be inundated by a five (5) year and larger storm. The existing basins on site will be widened and deepened to accommodate the storage of additional water below the 1,520 elevation.

The evacuation of water from the basins below 1,520 will be accomplished by either ground water recharge using dry wells or by filtering the storm water and then recharging through dry wells.

Under normal conditions the detention basins within the Golf Course will be maintained by the Golf Course operator. Silt deposits will be removed a minimum of one (1) time per year or as necessary. In the event of a storm which over tops the first and second settling basins, the City of Scottsdale will remove silt which is deposited downstream. Material removed from the basins will be used to maintain the trail system, both on the Golf Course and in the City Preserve. Material which is not suitable for use on the trails will be removed from the site by the City of Scottsdale. It will be critical to the Golf Course operator that silt not be allowed to accumulate, as lost flood water storage capacity may affect playability of the course.

The Golf Course will be constructed to accommodate flows from north to south. Areas subject to erosion will receive slope protection where necessary.

Cart path crossings will be designed and installed to allow water to pass through in small flows and over top in larger flows.

Plant material which is removed during construction will be relocated on site with preference for the area adjacent to Taliesin West.

DESERT GREENBELT

As described earlier, the Desert Greenbelt Project will discharge onto BOR land at WestWorld. To assure that the Desert Greenbelt does not have an adverse effect on federal lands, the following precautions will be taken.

1. A series of three (3) drop structures will be installed upstream of WestWorld to slow the water and dissipate energy prior to its entering the park. The water will enter WestWorld at a velocity no greater than seven (7) feet per second.

2. Two basins will be installed to remove sediment and silt loads prior to the water entering the Golf Course.

The upper basin (sediment basin), which will be approximately (1) one acre in size with an average depth of (8) feet, will remove the majority of the sediment from the frequent storms which historically cause minor flooding in the upstream watershed. The upper basin is not designed to store water but to slow it down long enough to allow the large particles of sand, granite, and rock to fall out. Stationary gauges will be placed in the sediment basin and sediment will be removed when a load of twelve (12) inches or (1 acre foot) has been reached.

The lower basin (settling basin), which will be seven (7) acres in size and capable of storing fifty (50) acre feet of water, will hold the minor storm discharges and allow silt to settle out of the water prior to pumping for ground water recharge or for moving gravity flow into the detention basins within the Golf Course. The settling basin will be constructed with two discharge pipes. One pipe will allow clean water to be discharged from the upper eight (8) feet of the basin. The other pipe will be in the bottom of the structure to accommodate total drainage for cleaning purposes. The bottom pipe will also allow water to flow back into the settling basin as water is pumped out for recharge or irrigation. The settling basin will be equipped with a stationary gauge to measure silt deposits. The settling basin will be cleaned when the deposit reaches twelve (12) inches, but in no case will the basin go for longer than one (1) year without cleaning.

It is understood that the sediment basin and the settling basin are designed to handle minor storms which could occur on an annual basis. Under normal conditions the City of Scottsdale is responsible the cleaning and maintenance of the sediment and settling basins. In the event of larger storms, water will flow over the structures and silt and sediment will be deposited downstream within the Golf Course detention basins and upon the golf course. See (Exhibit C) If larger storms occur, the City of Scottsdale and the Golf Course operator will work jointly to remove debris, silt, and sediment as soon as the basins and the course are in a condition to allow equipment operation. The City will remove sediment from the detention basins and the golf course operator will remove silt from the golf course. The City of Scottsdale will remove the material from the site and haul to the landfill or other approved location.

The detention basins will be cleaned as necessary, but in no case less than one (1) time per year.

Stationary gauges will be installed in the downstream detention basins to measure sediment accumulations. Cleaning of the basins will consist of removal of all deposited debris and silt, and reshaping of side slopes. It is understood by the City of Scottsdale and the Golf Course operator that, under normal conditions, the downstream detention basins must be maintained free of silt deposits so as not to affect storage volumes.

It is estimated that approximately 10.51 acre feet (16,956 cu.yds.) of sediment will be deposited in the WestWorld basin per year after the Desert Greenbelt is completed. If the estimate is correct 1,211 truck loads will be generated at 14 yards per load. Of the 1,211 truck loads which would be generated approximately 25% or 302 truck loads would be usable material which could be used on the Greenbelt trail system. The remaining 909 truck loads would have to be hauled to the Maricopa County Landfill.

The City of Scottsdale may negotiate with the Salt River Indian Community or Maricopa County to develop an agreement whereby silt material could be utilized for covering garbage at the land fill which would avoid tipping fees. The silt material would make excellent covering material.

The City of Scottsdale and the Golf Course operator understand, and will comply with the Arizona State Environmental Services Department Air Pollution Controls and will apply for an earth moving permit prior to disposing of silt or sediment.

To assure compliance with all maintenance requirements, the City of Scottsdale and the Golf Course operator will conduct quarterly inspections of both projects and will provide written reports to the BOR.

We the undersigned have read and understand the requirements set forth above and agree to commit the resources necessary to operate and maintain the WestWorld Golf Course and the Desert Greenbelt as outlined.

City of Scottsdale
Desert Greenbelt

ALEX McCARON

WestWorld Golf Course
Capital Realty Corp (Scottsdale)

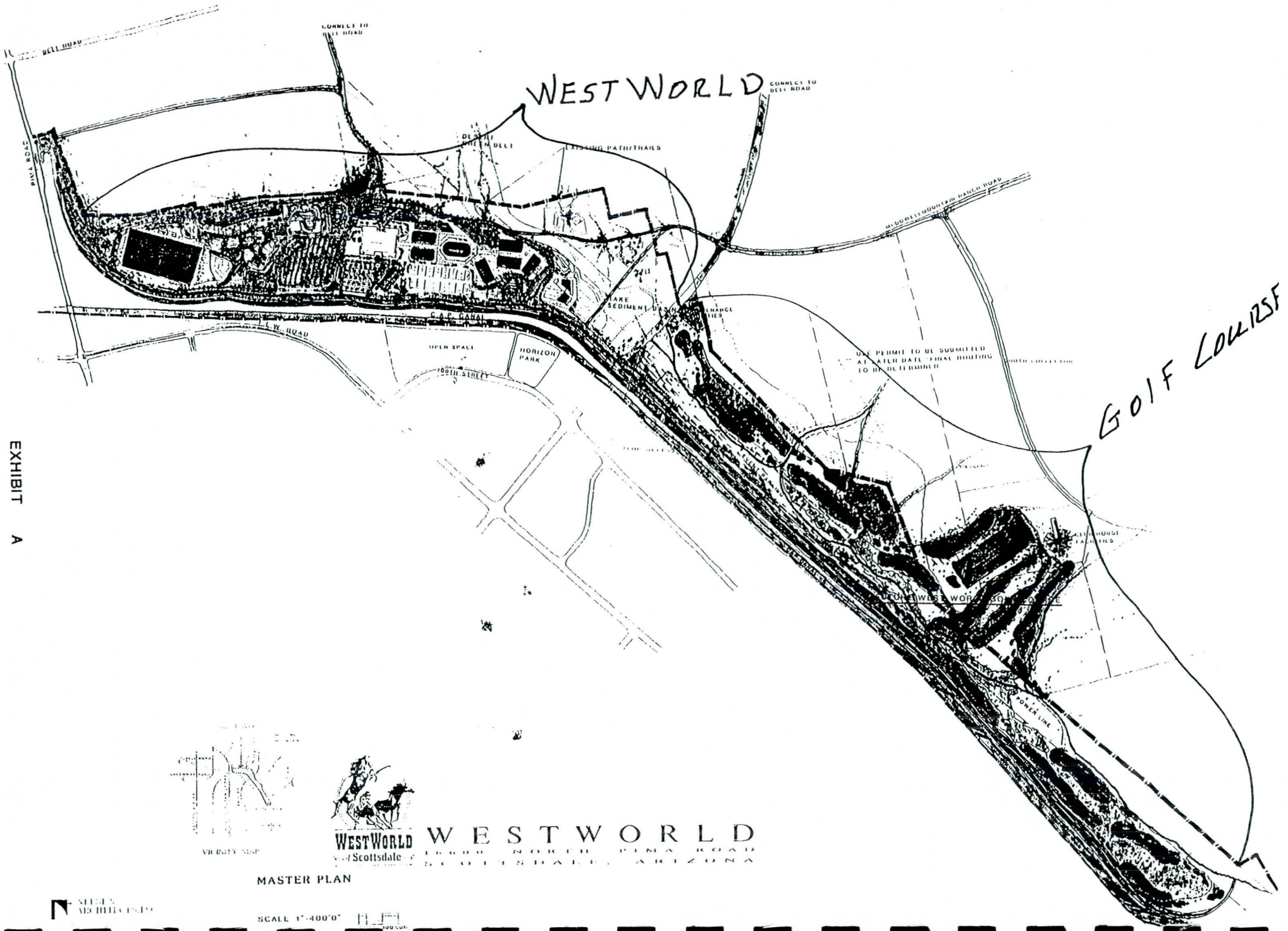
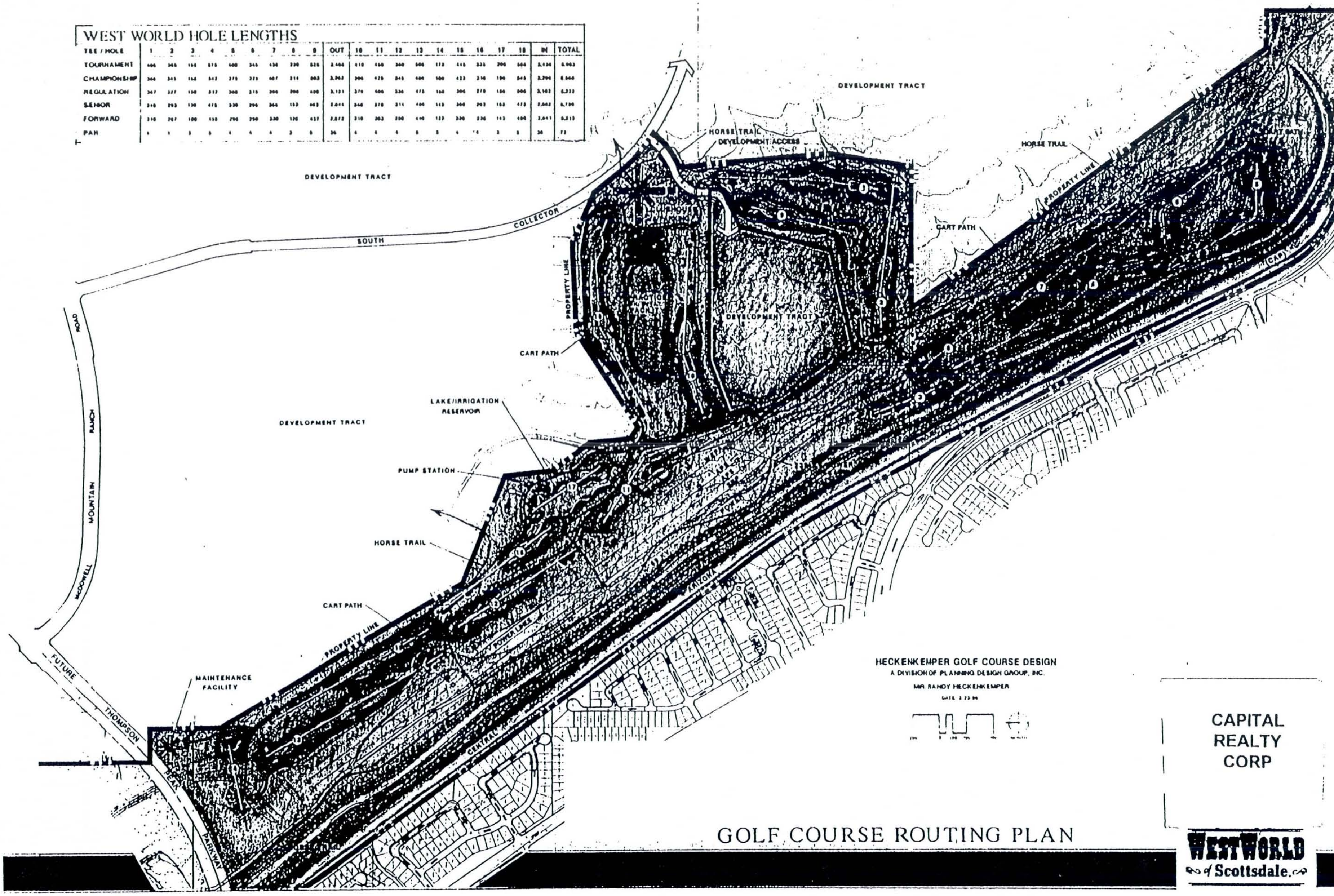

WEST WORLD
GOLF COURSE
CONNECT TO DEER ROAD
EXISTING PATH/TRAILS
C.A.P. CANAL
L.W. ROAD
OPEN SPACE
HORIZON PARK
POWER LINE
WESTWORLD
Scottsdale
WESTWORLD
MASTER PLAN
SCALE 1"=400'-0"

EXHIBIT A

EXHIBIT B

WEST WORLD HOLE LENGTHS

TEE / HOLE	1	2	3	4	5	6	7	8	9	OUT	10	11	12	13	14	15	16	17	18	IN	TOTAL
TOURNAMENT	406	365	165	575	400	345	430	230	525	3,466	410	460	300	500	172	445	335	200	566	3,430	6,903
CHAMPIONSHIP	366	345	164	542	375	375	407	214	503	3,363	366	425	345	400	160	423	316	190	545	3,294	6,640
REGULATION	367	327	150	517	360	215	366	300	400	3,121	370	400	336	475	166	366	270	166	366	3,102	6,233
SENIOR	340	293	130	475	330	296	366	153	463	2,844	340	370	314	400	143	300	263	153	475	2,862	5,706
FORWARD	310	267	100	450	296	290	330	126	437	2,872	310	363	290	440	123	330	236	143	406	2,641	5,513
PAR	4	4	3	5	4	4	4	3	5	36	4	4	4	5	3	4	4	3	5	36	72

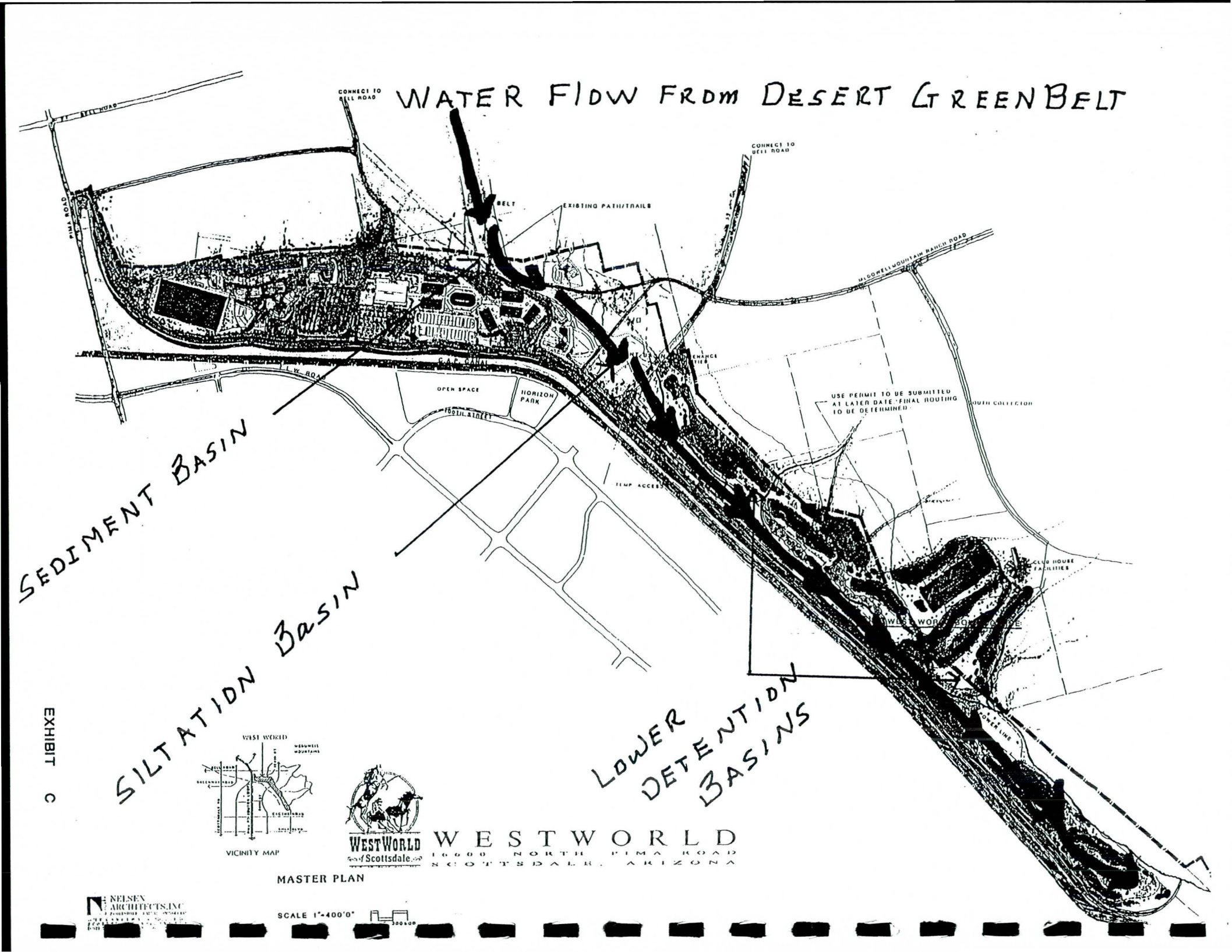


HECKENKEMPER GOLF COURSE DESIGN
A DIVISION OF PLANNING DESIGN GROUP, INC.
MR. RANDY HECKENKEMPER

CAPITAL REALTY CORP

GOLF COURSE ROUTING PLAN

WESTWORLD of Scottsdale


WATER FLOW FROM DESERT GREENBELT
SEDIMENT BASIN
SILTATION BASIN
LOWER DETENTION BASINS
CONNECT TO DELL ROAD
CONNECT TO DELL ROAD
BELT
EXISTING PATH/TRAILS
OPEN SPACE
HORIZON PARK
FOOTHILL STREET
USE PERMIT TO BE SUBMITTED AT LATER DATE. FINAL ROUTING TO BE DETERMINED
CLUB HOUSE FACILITIES
WEST WORLD
VICINITY MAP
WESTWORLD
16600 NORTH PIMA ROAD
SCOTTSDALE, ARIZONA
MASTER PLAN
NELSEN ARCHITECTS, INC
SCALE 1"=400'0"
EXHIBIT C

Appendix B. Section 106 Consultation

United States Department of the Interior

BUREAU OF RECLAMATION
Phoenix Area Office
P.O. Box 9980
Phoenix, Arizona 85068-0980

IN REPLY REFER TO:

PXAO-1500 ENV-3.00
86992586 7986

Mr. James Garrison
State Historic Preservation Officer
Arizona State Parks
1300 West Washington
Phoenix, Arizona 85007

Subject: Section 106 Consultation - Cultural Resources Survey for the city of Scottsdale (Scottsdale) Thompson Peak Parkway Right-of-Way Easement over the Central Arizona Project (CAP) Canal

Dear Mr. Garrison:

Pursuant to Section 106 of the National Historic Preservation Act, enclosed for your review and comment is a Class I (literature search) cultural resources survey for the construction of the Thompson Peak Parkway over the CAP canal. The project area is located northeast of Frank Lloyd Wright Boulevard and is a continuation of 94th Street in Section 8, T3N, R5E, NW1/4 of the United States Geological Survey (USGS) Sawik Mountain quadrangle, 7.5 minute series, and in Section 5, T3N, R5E, S1/2 of the USGS McDowell Peak quadrangle, 7.5 minute series (Figures 1 and 2). Ground disturbing activities will consist of a borrow area which is approximately 200 feet wide by 1600 feet long, with depths that vary from 15 feet to 3 feet. This will be used as fill for the construction of a dirt ramp leading to and away from the CAP embankment. The ramp located within Reclamation's right-of-way is approximately 500 feet wide by 1150 feet long (Figure 3).

Class I (literature search) cultural resources survey revealed nine previous surveys had been conducted, and five sites were identified which incorporates both the road and borrow area. The 1993 survey identified three sites, and the recent 1996 (upon which this information is based) identified the other two sites in the project area. The other surveys did not identify any sites. The information was taken from "A Cultural Resources Survey of 56 Acres of Private Land Adjacent to McDowell Mountain Ranch, North Scottsdale, Maricopa County, Arizona" by Eric Hansen, 1996 (Figure 4). His archaeological research was quite thorough, and was conducted at Arizona State Museum, State Historic Preservation Office, Arizona State University, and Bureau of Land Management. The present Thompson Peak Parkway project is surrounded by the same area in which Hansen completed his Class I survey. Class III (inventory) cultural resources survey did not identify any cultural resources.

No archaeological features or artifacts were identified; and based on the numerous previous surveys and sites identified in the area, I believe this area has been completely inventoried for cultural resources. The most significant site in the area is the Old Verde Canal [AZ U:5:175(ASM)] which is located north and outside Reclamation's right-of-way.

Based on this information, it is my conclusion that no significant cultural resources will be impacted by construction of the Thompson Peak Parkway over the CAP and associated borrow area. Therefore, I recommend that a determination of no effect is appropriate for this action. I seek your concurrence with this recommendation. Please direct your response and any questions to Mr. Thomas Lincoln at 602-395-5690. As always, thank you for your continued cooperation with our cultural resources program.

Sincerely,

Bruce D. Ellis

Bruce D. Ellis
Chief, Environmental Resource
Management Division

Enclosure

CONCUR

for Ann E. Howard 6/18/

ARIZONA STATE HISTORIC PRESERVATION OFFICER
ARIZONA STATE PARKS BOARD

United States Department of the Interior

BUREAU OF RECLAMATION
Phoenix Area Office
P.O. Box 9980
Phoenix, Arizona 85068-0980

IN REPLY REFER TO:

PXAO-1500 ENV-3.00
96003045 7986

MAY 3 1996

Mr. James Garrison
State Historic Preservation Office
Arizona State Parks
1300 West Washington
Phoenix, Arizona 85007

Subject: Section 106 Consultation, WestWorld Golf Club Development, Reach 11, Hayden-Rhodes Aqueduct, Central Arizona Project (CAP)

Dear Mr. Garrison:

As part of its recreation program, Reclamation's Phoenix Area Office (PXAO) entered into a contract with the city of Scottsdale (Scottsdale) for the development of recreation projects within the right-of-way of the Hayden-Rhodes Aqueduct, a feature of the CAP. Scottsdale and its contractor, WestWorld of Scottsdale (WestWorld), have proposed the construction of an 18-hole championship golf course in the aqueduct's detention basin in north Scottsdale. The proposal consists of a combination of public and private lands (approximately 210 and 70 acres, respectively). Cultural resource impact analysis suggests that impacts could affect two historic properties; the Old Verde Canal and Taliesin West National Historic Landmark. This letter initiates Section 106 consultation for this proposed development.

A cultural resource investigation indicates three issues that require resolution during the Section 106 process. These are: (1) documentation of a Class III (inventory) cultural resource survey and the identification of no significant prehistoric archaeological properties; (2) determinations of eligibility and effect for the Old Verde Canal; and (3) determination of effect for impacts to Taliesin West.

Prehistoric Archaeological Survey

A Class III (inventory) archaeological survey was conducted for this portion of the Hayden-Rhodes Aqueduct (formerly the Granite Reef Aqueduct) in 1978 (Brown 1978). No significant cultural resources were identified in the project area, and Section 106 consultation with your office and the Advisory Council on Historic Preservation (ACHP) concluded that a determination of no effect was warranted for that section of the aqueduct. In January 1996, a Class III (inventory) cultural resource survey was conducted on the 70 acres of private property that is included in the project proposal (Enclosure No. 1). That survey identified no cultural resources.

Based on the results of the 1978 and 1996 surveys, I recommend that a determination of no effect is appropriate for issue No. 1, documentation of no significant prehistoric archaeological sites within the project area.

Old Verde Canal: Determinations of Eligibility and Effect

The Old Verde Canal is a recognizable feature on the landscape in north Scottsdale and Phoenix. Although prior to major development of this area beginning in approximately 1980, it was only known to the residents of Taliesin West and a few researchers interested in Arizona history. The Old Verde Canal stretches from the base of the McDowell Mountains in an east-northeast direction for about 12 miles, ending approximately ½-mile east of Cave Creek

Road north of Union Hills Road. Over the past 100 years, the canal has been impacted by neglect and development, most notably construction of the Hayden-Rhodes Aqueduct, but still has visible remnants extant on the landscape. The unlined canal prism and detention dike are currently visible; no other canal features are present.

Brown's 1978 Class III (inventory) survey identified the Old Verde Canal but did not recommend it eligible for listing on the National Register of Historic Places (NRHP). However, Brown (1978:11) did recommend that archival research be conducted on the "historic and recent utilization of the Reach 11 study area."

In 1988, the Arizona Department of Transportation identified the western end of the Old Verde Canal near, but not within, the right-of-way of the Outer Loop Freeway near 32nd Street and Beardsley Road. The consultants, Archaeological Research Services, Inc., suggested that the Old Verde Canal (they labeled it the Rio Verde Canal) was not eligible for listing on the NRHP because it lacked integrity, and because the Rio Verde Project was never completed or put into operation.

Enclosed (Enclosure No. 2) for your information and review are copies of aerial photos of Reach 11 showing the Old Verde Canal alignment, and photo documentation of a ground survey of the Old Verde Canal (Enclosure No. 3). The survey was conducted by PXAO cultural resource specialists. In addition, archival documents research was conducted into the history of the Old Verde Canal and water resource development plans for Paradise Valley. Contrary to previous administrative decisions, evidence developed by Reclamation suggests that the Old Verde Canal may be eligible for listing on the NRHP.

The proposed golf course development will minimally impact the Old Verde Canal (Enclosures 4 and 5). At site No. 1, a protective dike that will reduce visual impacts to Taliesin West will be joined to the downstream side of the Old Verde Canal dike. The addition will minimally affect the original canal dike, however, canal integrity will be maintained. Course hole No. 6 will impact part of the Old Verde Canal at site No. 1 as fill will be added to accommodate the tee. Even though the vertical height of the canal will not be raised, integrity will be partially lost in that area as fill is added to the base of the dike. The area between course holes No. 6 and 7, site No. 2, will impact the Old Verde Canal in a similar fashion as fill is added to the base of the dike. At site No. 3, the Old Verde Canal will be incorporated into the green for hole No. 2; integrity will be partially lost in that localized area as fill is added and part of the dike is removed to accommodate drainage.

The Old Verde Canal was one component of a large water storage and delivery project that would have irrigated up to 400,000 acres of land in Paradise Valley, Deer Valley, the Agua Fria River Valley, and the Hassayampa River Valley. The project included five reservoirs, one diversion dam, 140 miles of main canal, and other pertinent hydraulic works e.g., conduits, flumes, tunnels, and laterals. It also included plans for hydropower generation. The extant portions of the Old Verde Canal are unchanged from their original 1893 excavation except for normal natural deterioration, and thus, they retain their historic integrity.

Mr. Augustus C. Sheldon was the driving force behind the Verde River development. Mr. Sheldon, along with Messrs. Samuel C. Symonds and Prosper P. Parker, surveyed the Verde Valley in 1889 and named the upper valley between the Phoenix and McDowell Mountains "Paradise Valley." They incorporated the Rio Verde Canal Company in 1891 with the purpose that "the company proposes to build irrigation dams, canals, reservoirs, hydraulic works, and to operate water and power generally . . . ." Mr. Sheldon was the company's first president; Messrs. Charles Silloway, vice-president; Prosper Parker, secretary; and Benjamin W. Thompson, treasurer. Mr. Donald W. Campbell, a hydraulic

engineer of international standing, was the company's consulting engineer. Messrs. Sheldon and Parker were individuals of some importance. Mr. Sheldon, a law graduate from Albany University, was important as a leading developer of irrigation projects. Mr. Parker was a very prominent figure in Arizona. Arriving in 1888 as contractor for the South Gila Canal near Yuma, "Judge" Parker went on to become a justice of the peace. He was elected to the territorial legislature in 1896 and chaired the irrigation committee. In 1901 he was elected speaker of the 21st legislature.

While the Rio Verde Canal Project post-dates construction and use of the Arizona Canal, one of the main canals of what became the Salt River Project (SRP), was a significant, though failed, water development venture. Even though it was never completed, its scope dwarfs all other similar proposals. It was not until the unification of many competing canal companies in the early 1900's, did the SRP begin to compare in size and scope. And, for approximately 45 years, SRP and its forbearers waged what was ultimately a successful war with the Rio Verde Canal Company over Verde River water rights and the pre-eminent position in the development of irrigation agriculture in central Arizona. Because of these reasons, I am recommending that the extant portions of the Old Verde Canal are eligible for listing on the NRHP under criteria a (association with events that have made a significant contribution to the broad patterns of American history). Because of its association with Messrs. Sheldon, Parker, and Campbell, I further recommend that criteria b (association with the lives of persons significant in American history) is also appropriate.

Reclamation has contacted several landowners whose property contains the Old Verde Canal. The McDowell Mountain Ranch is not interested in having their portion of the canal listed on the NRHP. Similarly, The Finney Company, a private landowner holding property adjacent to Taliesin West, is not interested in having its portion of the Old Verde Canal listed. Therefore, I am recommending that only those portions of the Old Verde Canal that are located on Reclamation property be listed (see Enclosure No. 2). Except where noted, these sections retain site integrity. Reclamation will complete documentation of the Old Verde Canal and present a nomination to the Keeper of the National Register upon your concurrence of eligibility.

Impacts to Taliesin West National Historic Landmark

The proposed golf course development will not directly impact Taliesin West. However, the development is adjacent to the National Historic Landmark property and will be constructed in a portion of the Taliesin West National Register property boundary (see map in Enclosure No. 1). It is Reclamation's opinion that the golf course development could have an impact on the subjective visual integrity of Taliesin West, but that the effect is not adverse.

The Frank Lloyd Wright Foundation (Foundation), managing entity for Taliesin West, has expressed concern over the proposed project (Enclosure No. 6; copies of July 27, 1995, November 21, 1995, and February 14, 1996, letters). In addition, the Foundation's representative has stated to Reclamation during project planning meetings that the Foundation does not consider the golf course compatible with Taliesin West, and it will oppose efforts to construct the project. Enclosed for your reference and review are photographs (Enclosure No. 7) showing views from Taliesin West toward the golf course development and from the top of the Hayden-Rhodes dike toward Taliesin West.

Because Taliesin West is a National Historic Landmark property, Reclamation notified Scottsdale that they and WestWorld should make every effort to involve the Foundation in the project, and to strongly consider recommendations by the

Foundation that would reduce impacts to Taliesin West. To their credit, Scottsdale and WestWorld have actively sought the Foundation's opinion, have included the Foundation in the golf course design, and have designed the project to minimize impacts to Taliesin West.

The original plan (Enclosure No. 8) called for development immediately adjacent to the southern toe of the Hayden-Rhodes Aqueduct dike. The Foundation's primary concern was that desert views from Taliesin West would be negatively impacted because of the presence of nonnative grass on the golf course. The Foundation was also concerned that during watering times a plume of mist would rise from the golf course, again causing an unnatural visual impact to Taliesin West's viewshed. WestWorld has made design and operation changes to minimize these affects (Enclosure No. 9). The southern end of the golf course was moved approximately 500 feet to eliminate direct visual impacts.

WestWorld also proposed to incorporate the Old Verde Canal as a natural barrier between Taliesin West and the golf course by hiding the golf course in the CAP basin between the Old Verde Canal and the Hayden-Rhodes dike and planting natural Sonoran vegetation at the bases of both the Old Verde Canal and the Hayden-Rhodes dike. WestWorld's latest design essentially eliminates any possibility of seeing nonnative vegetation and grass from Taliesin West. In addition, WestWorld has agreed to operate the golf course in such a manner so that normal watering in the viewshed of Taliesin West will mostly occur during nondaylight hours, and also that water discharged from sprinklers will not exceed the vertical extent of surrounding vegetation. Exceptions to normal watering are during initial growth period for grass, when rye grass is over seeded in the fall (2-week period), and during fertilizer applications (estimated at eight times per year). All daylight watering will be kept to a minimum. These measures eliminate any visual impact that might be caused by watering.

Based on the final course design, it is my opinion that secondary visual impacts to Taliesin West National Historic Landmark have been eliminated. Therefore, I recommend that a determination of no adverse effect is warranted for that aspect of the project. The concerns expressed by the Foundation are met by the proposed mitigative design measures and golf course operating plan. Enclosed (Enclosure No. 10) is a copy of the Foundation's April 22, 1996, letter that concurs with our recommendation and supports the golf course development.

I recognize that the mitigation measure, planting of Sonoran vegetation designed to reduce visual impacts to Taliesin West, may impact the Old Verde Canal. It is my opinion that these impacts are minimal and will not affect the integrity, or change the character of the Old Verde Canal. The canal prism is currently overgrown with native Sonoran vegetation, and the additional planting would only constitute an acceleration of an existing condition. In addition, Reclamation has directed WestWorld to incorporate a heritage education component into the design of the golf course that will interpret the Old Verde Canal to the public. WestWorld is enthusiastic to include this component to the project. The interpretive program is currently under design, and I expect it will take the form of signage along the golf cart path, possibly incorporating hole Nos. 2, 5, 6, 7, 8, and 10. In addition, an interpretive brochure will be prepared as a handout to guests who will use the facility. Because of these public education mitigative measures, I further recommend that a determination of no adverse effect is warranted for the mitigative impacts to the Old Verde Canal.

Summary

In summary, Class III (intensive) cultural resource survey of the proposed project area did not identify significant prehistoric cultural resources. The historic Old Verde Canal is located within the project area, and I recommend that it is eligible for listing on the National Register under

recommend that it is eligible for listing on the National Register under criteria a and b. Reclamation will prepare a formal nomination and submit it to the Keeper of the National Register. The canal will be impacted by planting Sonoran vegetation on the upstream side of its dike. Mitigation proposed for the Old Verde Canal consists of public education and interpretation through signage and educational brochures. I recommend a determination of no adverse effect for impacts to the Old Verde Canal. The viewshed from Taliesin West could be impacted by development of the golf club. However, mitigation measures are incorporated in the golf course design that will eliminate any visual impact that may occur by the presence of the golf course, or course operation. I recommend a determination of no adverse effect for impacts to Taliesin West National Historic Landmark.

As required by 36 CFR Part 800.10, because the proposed project will have an affect upon a National Historic Landmark, the ACHP is invited to participate in this consultation. It is my hope that both you and the ACHP will concur with my recommendation for a determination of no adverse effect upon Taliesin West National Historic Landmark. If you concur, Reclamation shall prepare a Memorandum of Agreement (MOA) as specified in 36 CFR Part 800.5(e)(4). The Foundation and Scottsdale have participated in project design meetings as interested members of the public. In addition, other publics will be invited to comment when the draft environmental assessment is made available. Reclamation hopes to have the MOA fully executed by August 31, 1996.

Thank you for your continued participation and cooperation with our cultural resource program. If you have any questions or comments, please address them to Mr. Thomas Lincoln at 602-870-6761.

Sincerely,

Bruce D. Ellis

Bruce D. Ellis
Chief, Environmental Resource
Management Division

References Cited

Brown, Patricia Eyring
1978 A Cultural Resource Survey of Reach 11 of the Granite Reef Aqueduct, Central Arizona Project. Interim Report. Arizona State University. Tempe.

Enclosures 10

cc: Ms. Claudia Nissley, Director, Western Office, Advisory Council on Historic Preservation, 730 Simms Street, Room 401, Golden, Colorado 80401
Mr. Tom Beat, Contract Officer, City of Scottsdale, 3939 Civic Center Blvd., Scottsdale, Arizona 85252
Mr. Bill Ensign, General Manager, WestWorld of Scottsdale, 16601 North Pima Road, Scottsdale, Arizona 85260
Mr. Arnold Roy, Secretary, Frank Lloyd Wright Foundation, Taliesin West, Scottsdale, Arizona 85261-4430
(w/encls to ea)

* CONCUR
for Jan G. Howard 6/7/96
ARIZONA STATE HISTORIC PRESERVATION OFFICER
ARIZONA STATE PARKS BOARD

*Contingent upon HAER-like documentation of the three areas of the Old Verde Canal, a National Register-eligible property, to be impacted by golf course development.

Advisory Council On Historic Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Reply to: 730 Simms Street, #401
Golden, Colorado 80401

June 18, 1996

Mr. Bruce D. Ellis
Chief, Environmental Resource
Management Division
Bureau of Reclamation
Phoenix Area Office
P.O. Box 9980
Phoenix, AZ 85068-0980

REF: *WestWorld Golf Club Development, Reach 11, Hayden-Rhodes Aqueduct, Central Arizona Project*

Dear Mr. Ellis:

On June 6, 1996, we received the written concurrence of the Arizona State Historic Preservation Officer (SHPO) with your determination that the above-referenced project would not adversely affect Taliesin West, a National Historic Landmark, and the Old Verde Canal, a property eligible for the National Register of Historic Places. As you know, you requested the comments of the Council in accordance with 36 CFR Section 800.10.

We commend the Bureau's consultation with WestWorld and the representatives of the Frank Lloyd Wright Foundation at Taliesin West. We believe that you have addressed well the landscape and compatibility issues potentially affecting Taliesin West. Accordingly, we have no objection to your determination of no adverse effect if the project is implemented in accordance with the conditions outlined in your letter and supporting documentation received on May 6, 1996 and the additional condition outlined in the Arizona SHPO's concurrence dated June 7, 1996.

Sincerely,

Claudia Nissley
Director, Western Office
of Review

Appendix C. Application for Earth-Moving Permit, Demolition, and Dust Control Plan

Maricopa County
Environmental Services Department
Field Services Division - Air Pollution Control

Phoenix, Arizona 85034
(602) 506-6700 • [FAX] (602) 506-6862

Application for Earth Moving Permit, Demolition & Dust Control Plan

Applicant: ☐ Owner/Operator/ Leasee ☐ General/Prime Contractor ☐ Developer

Legal Business Name:_____

Address: _____

City/State/Zip:_____

Phone: _____ Fax:_____

Primary Contact Person: _____

FOR OFFICE USE ONLY	
Dist. #	
NOV #	
Permit #	
Date Issued	
Fee Paid	
Approved by	
PD	Mail

Title _____ Pager/Mobile Phone _____ Onsite Phone _____ Offsite Phone _____

Property Owner/General Contractor _____

Phone _____ Contact Person _____ Title _____

Project Location/Street Address_____

Nearest Major Intersection: _____ City _____

Legal Description (from Phoenix Metropolitan Map Book): Township_____ Range_____ Section_____

Size of Project in Acres (include staging and stockpile areas: _____ Project Start Date: _____

Fee Schedule:

Total Surface Area Disturbed:	Fee
0.1 to less than one acre	$ 65.00
One to less than five acres	$110.00
Five acres or greater	$ 8.00 per acre plus $80.00

Brief description of the project: _____

Type of Project (mark all applicable codes):

☐**Residential (RD)** ☐**Commercial/Industrial (CD)** ☐**Road Work (RC)** ☐**TemporaryStorage/Yard (TS)**
☐**Trenching (TR)** ☐**Site Preparation/Land Dev (SP)** ☐**Weed Control (WC)** ☐**Demolition (DE)**

For renovation or demolition activities the following information is required:

Is asbestos present?_____ AHERA Determination made by _____ Date _____

Has 10 Day NESHAP Notification been submitted? _____ If Yes, date: _____ Copy of 10 Day Notification attached? ☐Yes ☐No Start Date:_____

In accordance with Rule 310, Section 401.2, a plot plan is required. Provide a plot plan sketch on 8 1/2 in. by 11 in. paper which includes the total area to be disturbed. Indicate sources of fugitive dust emissions on the plot plan, including delivery, transport, and storage areas. Be sure to include linear dimensions in feet on plot plan. Pursuant to Rule 310, Section 303, a dust control plan is required with any earthmoving application.

Additional measures and comments may be attached to this form. Pursuant to Rule 310, Section 503, records of actual implementation or application of these measures must be maintained daily and kept on site and made available upon request by the Control Officer or designee. The records must be retained for at least 3 years by the permittee.

DUST CONTROL PLAN

Choose at least one measure as a primary RACM (Reasonably Available Control Measure) per category. Unless designated, any other control measure in the category will be considered a contingency or back-up control measure. You may prepare your own plan to submit by following the guidelines in Rule 310, Section 401.

Earthmoving / Demolition (ie.,trenching, rough grading, final grading, landscaping, material handling)

_____ Conduct watering as necessary to prevent visible emissions
_____ Prewet site
_____ Cease operations (contingency only, cannot be used as a primary RACM)

Disturbed surface areas

On the last day of active operations and when active operations will not occur for not more than fifteen days;

_____ Apply chemical stabilizers. Reapply as necessary to maintain stabilization.
_____ Apply water to all unstablized disturbed areas 3 times per day
_____ Install wind fences/screens
_____ Construct berms

Within 8 months of the last day of active operations:

_____ Pave the affected area
_____ Physical stabilization with gravel/recycled asphalt
_____ Physical stabilization with vegetation

Unpaved roads

_____ Stabilize with gravel/recycled asphalt
_____ Apply chemical stabilizers to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface
_____ Water all roads used for any vehicular traffic as needed to control emissions
_____ Water all roads used for any vehicular traffic at least once daily and restrict vehicle speeds to 15 miles per hour

Open storage piles

_____ Apply chemical stabilizers
_____ Apply water to the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust
_____ Install temporary coverings/enclosures

Access points

_____ Install a stabilized construction entrance/gravel pad (Required for all access points on sites of 5 acres or more)
_____ Install a wheel washer
_____ Limit, restrict, reroute motor vehicle access
_____ Vacuum/ Wet broom daily

Hauling

__X__ Haul trucks carrying bulk materials must be tarped

Describe available water supply, distance from worksite, method of application, & water storage:

_____

_____

_____

I certify that I am familiar with the operations presented in this application and agree to conduct all operations related to the worksite in compliance with the above dust control plan, Rule 310, any permit conditions and all applicable environmental regulations.

Signature of Responsible Official _____

Print Name & Title _____

(The responsible official is an officer or designated signer from the company named as applicant. If a designated signer is used, a written designation signed by an officer shall be on file with this office.)

Construction Checklist
Daily Recordkeeping for Compliance with Rule 310: Fugitive Dust

Project (as listed on earthmoving equipment permit) : _____

Yes	No	Does Not Apply	
[ ]	[ ]		Is the dust control plan and earthmoving equipment permit on site?
[ ]	[ ]		Are the control measures listed in the dust control plan installed on the site and being implemented?
[ ]	[ ]	[ ]	If the site is greater than 5 acres, are gravel pads installed at all access points?
[ ]	[ ]		Are construction on-site traffic routes and parking restricted to areas specifically designated for those uses?
[ ]	[ ]		Is there any evidence of sediment, debris or mud on public roads at site access points?
[ ]	[ ]		Was any sediment, debris or mud cleaned by a sweeper truck or manually cleaned from the public road in the last 24 hrs?
[ ]	[ ]		Are records of cleaning/sweeping activities available?
[ ]	[ ]		Is there sufficient water available for dust control on site?
[ ]	[ ]		Are records available confirming amount of water purchased and amount applied?

List any corrective action taken: _____

_____

_____ _____

Name & Signature of Employee/ Contractor Date

_____

Name of Company

Appendix D. Biological Assessment

May 9, 1997

MEMORANDUM

TO: PXAO-1500 Files

FROM: Brian Mihlbachler, Biologist, PXAO-1500

SUBJECT: Record of Section 7 Consultation and Biological Assessment, WestWorld Golf Course, Desert Greenbelt, and Thompson Peak Parkway Projects

Introduction

As part of the Central Arizona Project (CAP), a detention basin and dike system was constructed upslope of the CAP canal, on Bureau of Reclamation (Reclamation) right-of-way, to provide flood protection for the water delivery facility. Subsequently, Reclamation made available a portion of the Reach 11, Dike 4 detention basin for development of public recreational facilities. In July 1982, Reclamation entered into a "Cost Sharing and Land Use Agreement" with the City of Scottsdale for the recreational area; resulting in a private development of the WestWorld western theme park and equestrian facility. Recently, The City of Scottsdale has entered into a "Concession Agreement" with Capital Realty Corporation of Scottsdale (CRCS) to develop a public 18-hole golf course in the detention basin, adjacent to the existing WestWorld facilities. The City of Scottsdale has also proposed two projects - Desert Greenbelt (DGB) and Thompson Peak Parkway (TPP) - which would be partially constructed in the Dike 4 detention basin concurrent with the golf course development.

Since the proposed projects would involve Reclamation land, the related Federal action is the approval of facilities construction and the issuance of a right-of-way permit or easement. Reclamation, therefore, is responsible for conducting any necessary National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Fish and Wildlife Coordination Act (FWCA) analysis or consultation. Because of the strong interrelationship (described below) between the golf course, DGB, and TPP projects, the NEPA and Endangered Species Act (Section 7) compliance activities and analysis for each project have been combined in single NEPA and ESA documents. CRCS and City of Scottsdale have a private consultant preparing the required NEPA Environmental Assessment (EA), which Reclamation will review for approval of a Finding of No Significant Impact (FONSI). Fish and Wildlife Service (FWS) agreed that their review of the EA will constitute adequate initial FWCA consultation for the projects (pers. comm., Don Metz, January 18, 1996).

Project Location

The proposed golf course, DGB, and TPP projects would each be partially located on Reclamation right-of-way parallel to the CAP canal at Reach 11, Dike 4, in north Scottsdale, Arizona (Maricopa County). Most of the golf course would be constructed on the southeastern portion of the designated recreational use area within the flood detention basin (Figure 1). Approximately 75 acres of private land upslope of Reclamation's right-of-way would also be included in the golf course design. The portion of the DGB project that would be constructed within the right-of-way is limited to the lower outlet of the Reata Pass Wash channel, which enters the detention basin north of the proposed golf course (Figure 1 and 2). The TPP would cross the CAP canal and detention basin between the DGB and the northern boundary of the golf course (Figure 1 and 3).

Project Description

The proposed CRCS golf course project includes a public 18-hole golf course and clubhouse constructed adjacent to the existing WestWorld facilities. Water for the golf course would be pumped directly from the CAP

canal, or possibly from wells developed in association with a local groundwater injection/recharge system.

The DGB project is a local drainage and flood control plan, adopted by the City of Scottsdale, which would utilize natural washes and engineered channels to contain the 100-year alluvial fan flows coming off of the west-side of the McDowell Mountains. The Reata Pass Wash channel analyzed in this document is one of several components of the DGB project, but is the only project feature that impacts the Reach 11, Dike 4 area. Approximately 4.5 acres of the channel on Reclamation's right-of-way would be impacted by the project. The City of Scottsdale has submitted a Clean Water Act (Section 404, Letter of Permission) permit application with the U.S. Army Corps of Engineers to address impacts to jurisdictional waters of the United States.

The TPP project, also proposed by City of Scottsdale, is designed to improve traffic management and access to recent commercial and residential development east of the CAP canal. Extension of the TPP would require construction of a bridge and roadway segment to cross the CAP canal and detention basin to connect to a future McDowell Mountain Ranch Road. Constructing the parkway would require excavation of fill material (approximately 418,000 cubic yards) within the detention basin to support the roadway structure and, thereby, maintain the existing flood capacity of the basin. Borrow material for TPP would be provided by surplus excavation designed into the grading plans for the adjacent golf course and DGB projects.

Existing Resources

Excavation of borrow material for constructing the flood detention dike has created a highly disturbed habitat and vegetation community within the detention basin. Several native plant species have recolonized the area, but generally their abundance and/or stature is greatly reduced in comparison with the adjacent native Sonoran Desertscrub (Brown 1982). Dominant plants include triangle leaf bursage (*Ambrosia deltoidea*), desert broom (*Baccharis sarothroides*), jimmy weed (*Haplopappus pluriflorus*), creosotebush (*Larrea tridentata*), sweetbush (*Bebbia juncea*), foothill palo verde (*Cercidium microphyllum*), blue palo verde (*Cercidium floridum*), purple three-awn (*Aristida purpurea*), and red brome (*Bromus rubens*). On Reclamation's right-of-way, the ephemeral Reata Pass Wash channel is incised and sparsely vegetated with desert broom, sweetbush, bermudagrass (*Cynodon dactylon*), and various annual and perennial forbs. The TPP crossing would impact a section of right-of-way including areas devoid of vegetation, or highly disturbed and vegetated as described above.

Land upslope of Reclamation's right-of-way that would be impacted by the golf course and TPP are vegetated by a Sonoran Desertscrub (Arizona Upland Subdivision) (Brown 1982) community typical of lower bajadas in the region. Dominant plant species include triangle leaf bursage, brittlebush (*Encelia farinosa*), creosotebush, chuparosa (*Justica californica*), teddy bear cholla (*Opuntia bigelovii*), cane cholla (*Opuntia spinosior*), hedgehog cactus (*Echinocerus spp.*), barrel cactus (*Ferocactus spp.*), saguaro (*Carnegia gigantea*), foothill palo verde, velvet mesquite (*Prosopis velutina*), ironwood (*Olneya tesota*), desert senna (*Cassia spp.*), purple three-awn, and red brome.

Wetlands and other special aquatic sites do not occur within the detention basin, however, lands upslope of the basin are dissected by several desert washes which support more abundant vegetation and wildlife habitat. Javelina, great horned owl, Anna's hummingbird, cactus wren, red-tailed hawk, mourning dove, Gamble's quail, and Gila woodpecker were observed on the private land portion of the golf course development during a January 30, 1996, survey. Scat of deer, rabbit, and coyote were also noted.

Species of Concern

In accordance with Section 7 (c) of the Endangered Species Act of 1973, as amended, Reclamation requested (December 11, 1995 memorandum) that FWS

provide a list of endangered, threatened, and candidate species which may occur in the project area (Consultation No. 2-21-96-I-098). On December 13, 1995, FWS provided a list which included all protected species potentially occurring in Maricopa County, Arizona (attached).

A comparison of the habitat described above with the habitat needs of the listed threatened and endangered species indicates that suitable conditions and resources for protected species are absent in the project area. American peregrine falcon, a wide ranging migratory bird, is a possible transient in the area, but a lack of water and nesting habitat (cliffs and steep slopes) would limit its use of the affected habitats. Lesser long-nosed bats could forage on the saguaro cactus, but an absence of daytime roost habitat (caves, tunnels) in the immediate area would restrict their use of the affected habitat. The planned avoidance and/or salvaging and replanting of saguaro's in the golf course landscaping plan would significantly reduce any possible impact on transient lesser long-nosed bats. The density and structural diversity of riparian (ephemeral wash) and upland vegetation in the areas is insufficient to possibly support southwestern willow flycatcher or cactus ferruginous pygmy owls.

Conclusions

No federally listed threatened or endangered species will be adversely affected by the construction of the golf course, DGB, or TPP projects on Reclamation's right-of-way or adjacent non-federal lands. Listed species have not been documented in the immediate area, and suitable habitat for threatened and endangered species potentially occurring in Maricopa County, Arizona, has been determined to be absent.

Literature Cited

Brown, D.E.(Ed.) 1982. Biotic communities of the American Southwest-United States and Mexico. Desert Plants, Vol. 4, No. 1-4.

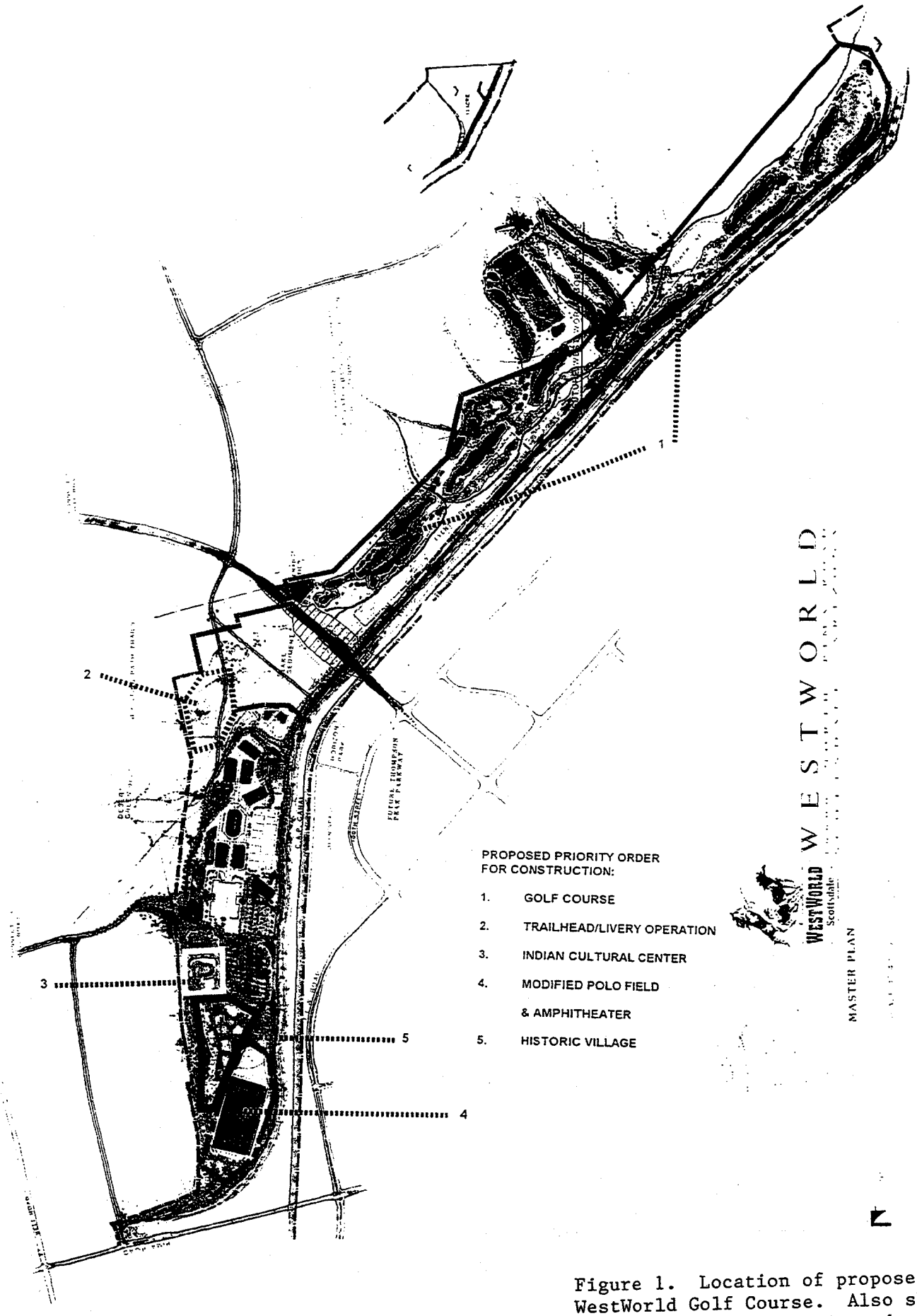
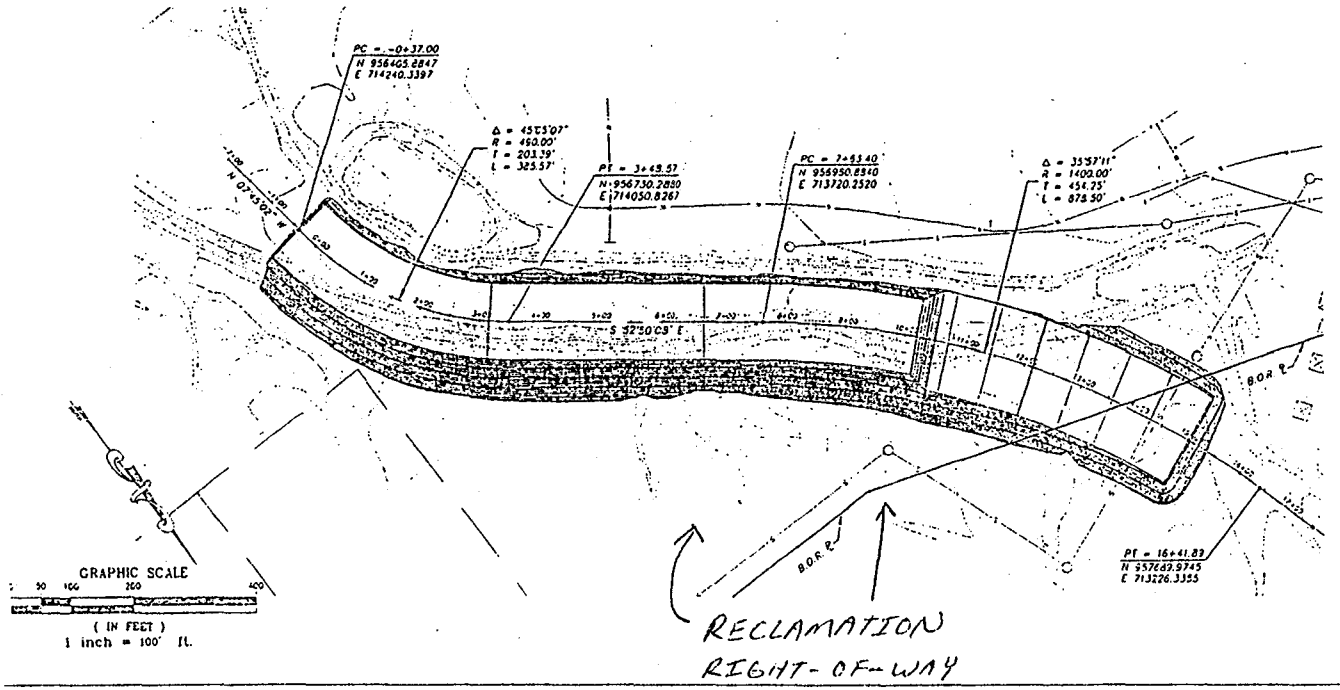
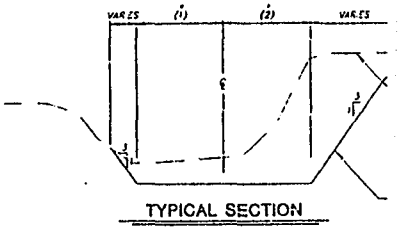


Figure 1. Location of proposed WestWorld Golf Course. Also shown are the Desert Greenbelt and Thompson Peak Parkway Crossing.



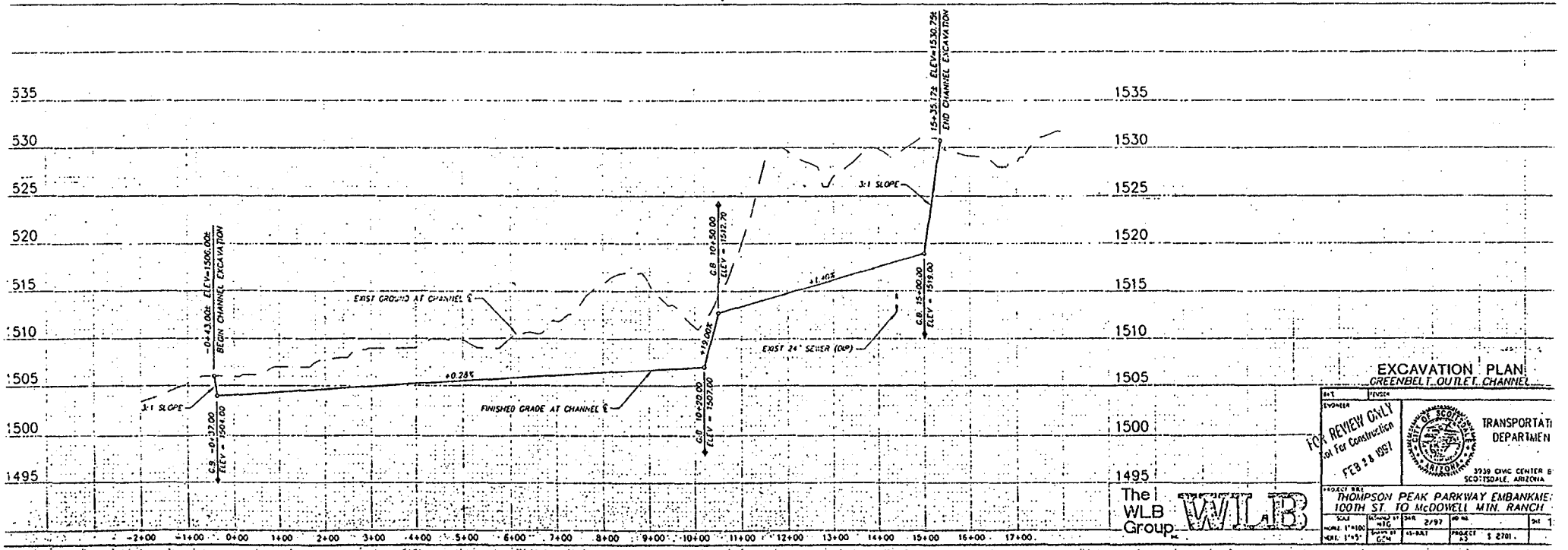
RECLAMATION
RIGHT-OF-WAY



DIMENSION TABLE

FROM STATION	TO STATION	(1)	(2)
-0+37.00	10+20.00	60.00'	60.00'
10+20.00	10+50.00	TRANSITION 60.00' to 80.00'	TRANSITION 60.00' to 80.00'
10+50.00	15+00.00	80.00'	80.00'

Figure 2. Excavation Plan for Desert Greenbelt Outlet Channel.



EXCAVATION PLAN
GREENBELT OUTLET CHANNEL

FOR REVIEW ONLY
Not For Construction
FEB 28 1997

The WLB Group

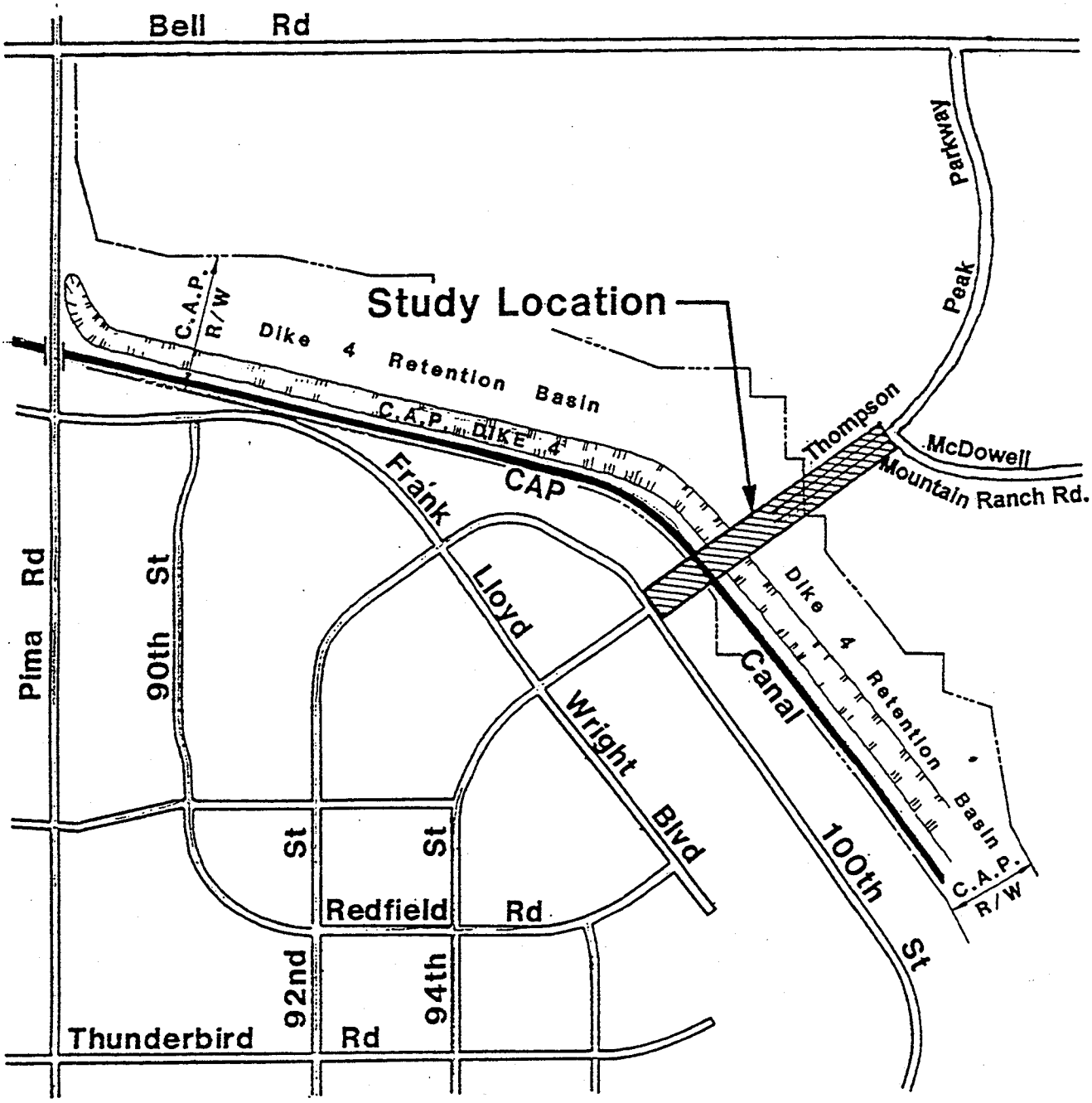
TRANSPORTATI
DEPARTMEN
3939 CIVIC CENTER B
SCOTTSDALE, ARIZONA

PROJECT NAME
THOMPSON PEAK PARKWAY EMBANKME
100TH ST. TO McDOWELL MTN. RANCH

SCALE	DESIGNED BY	DATE	SHT NO.	SHT
HORIZ. 1"=100' VERT. 1"=5'	NG	2/97		1
	DRAWN BY	CHECKED BY	PROJECT NO.	
	GCM	RS-BAT	2701.	

THOMPSON PEAK PARKWAY

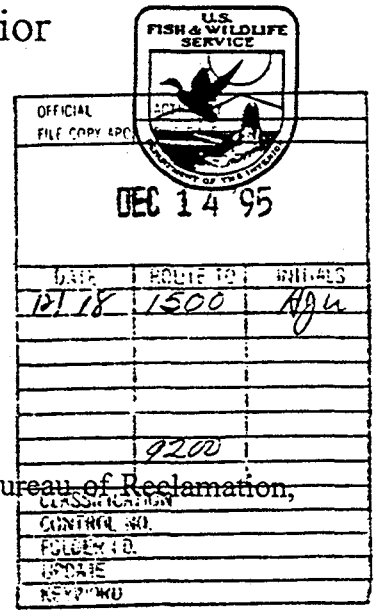
Concept Design Study
for
Crossing The CAP Canal



The WLB Group WLB

Figure 3. Thompson Peak Parkway Crossing of CAP Canal and Detention Basin.

United States Department of the Interior
Fish and Wildlife Service
Arizona Ecological Services Field Office
2321 W. Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
(602) 640-2720 Fax (602) 640-2730



In Reply Refer To:
AESO/SE
2-21-96-I-098

December 13, 1995

MEMORANDUM

TO: Chief, Environmental Resource Management Division, Bureau of Reclamation, Phoenix Area Office, Arizona

FROM: ACTING Field Supervisor

SUBJECT: Section 7 Consultation for WestWorld Golf Course

This memorandum responds to your December 11, 1995, request for a list of species which are listed as threatened, endangered, or are proposed to be listed as such under the Endangered Species Act of 1973, as amended (Act), which may potentially occur in your project area (Maricopa County). The attached list may include candidate species as well. In the past, the U.S. Fish and Wildlife Service has provided project-specific species lists and information. However, staff reductions no longer permit us to provide this detailed level of assistance. We regret any inconvenience this may cause you and hope the attached county list of species will be helpful. In future communications regarding this project, please refer to consultation number 2-21-96-I-098.

The attached list of the endangered, threatened, proposed, and candidate species includes all those potentially occurring anywhere in the county, or counties, where your project occurs. Please note that your project area may not necessarily include all or any of these species. The information provided includes general descriptions, habitat requirements, and other information for each species on the list. Also on the attached list is the Code of Federal Regulations (CFR) citation for each listed or proposed species. Additional information can be found in the CFR and is available at most public libraries. This information should assist you in determining which species may or may not occur within your project area. Site-specific surveys could also be helpful and may be needed to verify the presence or absence of a species or its habitat as required for the evaluation of proposed project-related impacts.

Endangered and threatened species are protected by Federal law and must be considered prior to project development. If the action agency determines that listed species or critical habitat may be adversely affected by a federally funded, permitted, or authorized activity, the action agency must request formal consultation with the Service. If the action agency determines that the planned action may jeopardize a proposed species or destroy or adversely modify proposed critical habitat, the action agency must enter into a section 7 conference with the Service. Candidate species are those which are being considered for addition to the list of threatened or endangered species. Candidate species are those for which there is sufficient information to

support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event that they become listed or proposed for listing prior to project completion.

If any proposed action occurs in or near areas with trees and shrubs growing along watercourses, known as riparian habitat, the Service recommends the protection of these areas. Riparian areas are critical to biological community diversity and provide linear corridors important to migratory species. In addition, if the project will result in the deposition of dredged or fill materials into waterways or dredging in waterways, we recommend you contact the Army Corps of Engineers which regulates these activities under Section 404 of the Clean Water Act.

The State of Arizona protects some plant and animal species not protected by Federal law. We recommend you contact the Arizona Game and Fish Department and the Arizona Department of Agriculture for State-listed or sensitive species in your project area.

The Service appreciates your efforts to identify and avoid impacts to listed and sensitive species in your project area. If we may be of further assistance, please contact Tom Gatz.

For Sam F. Spiller

Attachment

cc: Director, Arizona Game and Fish Department, Phoenix, AZ

LISTED, PROPOSED, AND CANDIDATE CATEGORY-1 SPECIES FOR THE FOLLOWING COUNTY: "MARICOPA"

LISTED TOTAL= 13

NAME: ARIZONA AGAVE *AGAVE ARIZONICA*

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 49 FR 21055, 05-18-1984

DESCRIPTION: HAS ATTRACTIVE ROSETTES OF BRIGHT GREEN LEAVES WITH DARK MAHOGANY MARGINS. FLOWER: BORNE ON SUB-UMBELLATE INFLORESCENCES.

ELEVATION RANGE: 3000-6000 FT.

COUNTIES: GILA, YAVAPAI, MARICOPA

HABITAT: TRANSITION ZONE BETWEEN OAK-JUNIPER WOODLAND & MOUNTAIN MAHOGANY-OAK SCRUB

SCATTERED CLONES IN NEW RIVER MOUNTAINS AND SIERRA ANCHA. USUALLY FOUND ON STEEP, ROCKY SLOPES. POSSIBLY MAZATAL MOUNTAINS SHOULD BE LOOKED FOR WHEREVER THE RANGES OF Agave toumeyana var. bella AND Agave chrystantha OVERLAP.

NAME: ARIZONA CLIFFROSE *PURSHIA SUBINTEGRA*

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 49 FR 22326 5-29-84

DESCRIPTION: EVERGREEN SHRUB OF THE ROSE FAMILY (ROSEACEAE). BARK PALE SHREDDY. YOUNG TWIGS WITH DENSE HAIRS. LEAVES 1-5 LOBES AND EDGES CURL DOWNWARD (REVOLUTE). FLOWERS: 5 WHITE OR YELLOW PETALS <0.5 INCH LONG.

ELEVATION RANGE: <4000 FT.

COUNTIES: GRAHAM YAVAPAI MARICOPA MOHAVE

HABITAT: CHARACTERISTIC WHITE SOILS OF TERTIARY LIMESTONE LAKEBED DEPOSITS CAN BE SEEN FROM A DISTANCE.

NAME: ARIZONA HEDGEHOG CACTUS *ECHINOCEREUS TRIGLOCHIDIATUS ARIZONICUS*

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 44 FR 61556,10-15-1979

DESCRIPTION: DARK GREEN CYLINDROID 2.5-12 INCHES TALL, 2-10 INCHES IN DIAMETER, SINGLE OR IN CLUSTERS. 1-3 GRAY OR PINKISH CENTRAL SPINES LARGEST DEFLEXED AND 5-11 SHORTER RADIAL SPINES. FLOWER: BRILLIANT RED, SIDE OF STEM IN APRIL- MAY

ELEVATION RANGE: 3700-5200 FT.

COUNTIES: MARICOPA, GILA, PINAL

HABITAT: ECOTONE BETWEEN INTERIOR CHAPPARAL AND MADREAN EVERGREEN WOODLAND

OPEN SLOPES, IN NARROW CRACKS BETWEEN BOULDERS, AND IN UNDERSTORY OF SHRUBS. THIS VARIETY IS BELIEVED TO INTERGRADE AT THE EDGES OF ITS DISTRIBUTION WITH VARIETIES MELANCANTHUS AND NEOMEXICANUS CAUSING SOME CONFUSION IN IDENTIFICATION.

LISTED, PROPOSED, AND CANDIDATE CATEGORY-1 SPECIES FOR THE FOLLOWING COUNTY: "MARICOPA"

NAME: LESSER LONG-NOSED BAT *LEPTONYCTERIS CURASOAE YERBABUENAE*

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 53 FR 38456, 09-30-88

DESCRIPTION: ELONGATED MUZZLE, SMALL LEAF NOSE, AND LONG TONGUE. YELLOWISH BROWN OR GRAY ABOVE AND CINNAMON BROWN BELOW. TAIL MINUTE AND APPEARS TO BE LACKING. EASILY DISTURBED.

ELEVATION RANGE: <6000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ, GRAHAM, PINAL, MARICOPA

HABITAT: DESERT SCRUB HABITAT WITH AGAVE AND COLUNMNAR CACTI PRESENT AS FOOD PLANTS

DAY ROOSTS IN CAVES AND ABANDONED TUNNELS. FORAGES AT NIGHT ON NECTAR, POLLEN, AND FRUIT OF PANICULATE AGAVES AND COLUMNAR CACTI. THIS SPECIES IS MIGRATORY AND IS PRESENT IN ARIZONA , USUALLY FROM APRIL TO SEPTMBER AND SOUTH OF THE BORDER THE REMAINDER OF THE YEAR.

NAME: SONORAN PRONGHORN *ANTILOCAPRA AMERICANA SONORIENSIS*

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67

DESCRIPTION: BUFF ON BACK AND WHITE BELOW, HOOFED WITH SLIGHTLY CURVED BLACK HORNS HAVING A SINGLE PRONG. SMALLEST AND PALEST OF THE PRONGHORN SUBSPECIES.

ELEVATION RANGE: 2000-4000 FT.

COUNTIES: PIMA, YUMA, MARICOPA

HABITAT: BROAD, INTERMOUNTAIN ALLUVIAL VALLEYS WITH CREOSOTE-BURSAGE & PALO VERDE-MIXED CACTI ASSOCIATIONS

TYPICALLY, BAJADAS ARE USED AS FAWNING AREAS AND SANDY DUNE AREAS PROVIDE FOOD SEASONALLY. HISTORIC RANGE WAS PROBABLY LARGER THAN EXISTS TODAY. THIS SUBSPECIES ALSO OCCURS IN MEXICO.

NAME: DESERT PUPFISH *CYPRINODON MACULARIUS*

STATUS: ENDANGERED CRITICAL HABITAT: Yes RECOVERY PLAN: Yes CFR: 51 FR 10842, 03-31-1986

DESCRIPTION: SMALL (2 INCHES) SMOOTHLY ROUNDED BODY SHAPE WITH NARROW VERTICAL BARS ON THE SIDES. BREEDING MALES BLUE ON HEAD AND SIDES WITH YELLOW ON TAIL. FEMALES & JUVENILES TAN TO OLIVE COLORED BACK AND SILVERY SIDES.

ELEVATION RANGE: <5000 FT.

COUNTIES: LA PAZ, PIMA, GRAHAM, MARICOPA, PINAL, YAVAPAI, SANTA CRUZ

HABITAT: SHALLOW SPRINGS, SMALL STREAMS, AND MARSHES. TOLERATES SALINE & WARM WATER

CRITICAL HABITAT INCLUDES QUITOBAQUITO SPRING, PIMA COUNTY, PORTIONS OF SAN FELIPE CREEK, CARRIZO WASH, AND FISH CREEK WASH, IMPERIAL COUNTY, CALIFORNIA. TWO SUBSPECIES ARE RECOGNIZED: DESERT PUPFISH (C. m. macularis) AND QUITOBAQUITO PUPFISH (C. m. eremus).

LISTED, PROPOSED, AND CANDIDATE CATEGORY-1 SPECIES FOR THE FOLLOWING COUNTY: *MARICOPA*

NAME: **GILA TOPMINNOW** *POECILIOPSIS OCCIDENTALIS OCCIDENTALIS*

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-1967

DESCRIPTION: SMALL (2 INCHES), GUPPY-LIKE, LIVE BEARING, LACKS DARK SPOTS ON ITS FINS. BREEDING MALES ARE JET BLACK WITH YELLOW FINS.

ELEVATION RANGE: <4500 FT.

COUNTIES: GILA, PINAL, GRAHAM, YAVAPAI, SANTA CRUZ, PIMA, MARICOPA, LA PAZ

HABITAT: SMALL STREAMS, SPRINGS, AND CIENEGAS VEGETATED SHALLOWS

NAME: **RAZORBACK SUCKER** *XYRAUCHEN TEXANUS*

STATUS: ENDANGERED CRITICAL HABITAT: Yes RECOVERY PLAN: No CFR: 55 FR 21154, 05-22-1990; 59 FR 13374, 03-21-1994

DESCRIPTION: LARGE (UP TO 3 FEET AND UP TO 16 POUNDS) LONG, HIGH SHARP-EDGED KEEL-LIKE HUMP BEHIND THE HEAD. HEAD FLATTENED ON TOP. OLIVE-BROWN ABOVE TO YELLOWISH BELOW.

ELEVATION RANGE: <6000 FT.

COUNTIES: GREENLEE, MOHAVE, PINAL, YAVAPAI, YUMA, LA PAZ, MARICOPA (REFUGIA), GILA, COCONINO, GRAHAM

HABITAT: RIVERINE & LACUSTRINE AREAS, GENERALLY NOT IN FAST MOVING WATER AND MAY USE BACKWATERS

SPECIES IS ALSO FOUND IN HORSESHOE RESERVOIR (MARICOPA COUNTY).

NAME: **AMERICAN PEREGRINE FALCON** *FALCO PEREGRINUS ANATUM*

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 35 FR 16047, 10-13-70; 35 FR 8495, 06-02-70

DESCRIPTION: A RECLUSIVE, CROW-SIZED FALCON SLATY BLUE ABOVE WHITISH BELOW WITH FINE DARK BARRING. THE HEAD IS BLACK AND APPEARS TO BE MASKED OR HELMETED. WINGS LONG AND POINTED. LOUD WAILING CALLS ARE GIVEN DURING BREEDING PERIOD.

ELEVATION RANGE: 3500-9000 FT.

COUNTIES: MOHAVE COCONINO NAVAJO APACHE SANTA CRUZ MARICOPA COCHISE YAVAPAI GILA PINAL PIMA GREENLEE GRAHAM

HABITAT: CLIFFS AND STEEP TERRAIN USUALLY NEAR WATER OR WOODLANDS WITH ABUNDANT PREY

THIS IS A WIDE RANGING MIGRATORY BIRD THAT USES A VARIETY OF HABITATS. BREEDING BIRDS ARE YEAR-ROUND RESIDENTS. OTHER BIRDS WINTER AND MIGRATE THROUGH ARIZONA. SPECIES IS ENDANGERED FROM REPRODUCTIVE FAILURE FROM PESTICIDES.

LISTED, PROPOSED, AND CANDIDATE CATEGORY-1 SPECIES FOR THE FOLLOWING COUNTY: "MARICOPA"

NAME: BALD EAGLE *HALIAEETUS LEUCOCEPHALUS*

STATUS: THREATENED CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 60 FR 35999, 07-12-95

DESCRIPTION: LARGE, ADULTS HAVE WHITE HEAD AND TAIL. HEIGHT 28 - 38"; WINGSPAN 66 - 96". 1-4 YRS DARK WITH VARYING DEGREES OF MOTTLED BROWN PLUMAGE. FEET BARE OF FEATHERS.

ELEVATION RANGE: VARIES FT.

COUNTIES: YUMA, LA PAZ, MOHAVE, YAVAPAI, MARICOPA, PINAL, COCONINO, NAVAJO, APACHE, SANTA CRUZ, PIMA, GILA, GRAHAM

HABITAT: LARGE TREES OR CLIFFS NEAR WATER (RESERVOIRS, RIVERS AND STREAMS) WITH ABUNDANT PREY

SOME BIRDS ARE NESTING RESIDENTS WHILE A LARGER NUMBER WINTERS ALONG RIVERS AND RESERVOIRS. AN ESTIMATED 200 TO 300 BIRDS WINTER IN ARIZONA. ONCE ENDANGERED (32 FR 4001, 03-11-1967; 43 FR 6233, 02-14-78) BECAUSE OF REPRODUCTIVE FAILURES FROM PESTICIDE POISONING AND LOSS OF HABITAT, THIS SPECIES WAS DOWN LISTED TO THREATENED ON AUGUST 11, 1995. ILLEGAL SHOOTING, DISTURBANCE, LOSS OF HABITAT CONTINUES TO BE A PROBLEM.

NAME: MEXICAN SPOTTED OWL *STRIX OCCIDENTALIS LUCIDA*

STATUS: THREATENED CRITICAL HABITAT: Yes RECOVERY PLAN: Yes CFR: 56 FR 14678, 04-11-91

DESCRIPTION: MEDIUM SIZED WITH DARK EYES AND NO EAR TUFTS. BROWNISH AND HEAVILY SPOTTED WITH WHITE OR BEIGE.

ELEVATION RANGE: 4100-9000 FT.

COUNTIES: MOHAVE, COCONINO, NAVAJO, APACHE, YAVAPAI, GRAHAM, GREENLEE, COCHISE, SANTA CRUZ, PIMA, PINAL, GILA, MARICOPA

HABITAT: NESTS IN CANYONS AND DENSE FORESTS WITH MULTI-LAYERED FOLIAGE STRUCTURE

GENERALLY NESTS IN OLDER FORESTS OF MIXED CONIFER OR PONDERSA PINE/GAMBEL OAK TYPE, IN CANYONS, AND USE VARIETY OF HABITATS FOR FORAGING. SITES WITH COOL MICROCLIMATES APPEAR TO BE OF IMPORTANCE OR ARE PREFERED.

NAME: SOUTHWESTERN WILLOW FLYCATCHER *EMPIDONAX TRAILLII EXTIMUS*

STATUS: ENDANGERED CRITICAL HABITAT: Yes RECOVERY PLAN: No CFR: 60 FR 10694, 02-27-95

DESCRIPTION: SMALL PASSERINE (ABOUT 6") GRAYISH-GREEN BACK AND WINGS, WHITISH THROAT, LIGHT OLIVE-GRAY BREAST AND PALE YELLOWISH BELLY. TWO WINGBARS VISIBLE. EYE-RING FAINT OR ABSENT.

ELEVATION RANGE: <8500 FT.

COUNTIES: YAVAPAI, GILA, MARICOPA, MOHAVE, COCONINO, NAVAJO, APACHE, PINAL, LA PAZ, GREENLEE, GRAHAM, YUMA, PIMA, COCHISE, SANTA CRUZ

HABITAT: COTTONWOOD/WILLOW & TAMARISK VEGETATION COMMUNITIES ALONG RIVERS & STREAMS

MIGRATORY RIPARIAN OBLIGATE SPECIES THAT OCCUPIES BREEDING HABITAT FROM LATE APRIL TO SEPTEMBER. DISTRIBUTION WITHIN ITS RANGE IS RESTRICTED TO RIPARIAN CORRIDORS. DIFFICULT TO DISTINGUISH FROM OTHER MEMBERS OF THE EMPIDONAX COMPLEX BY SIGHT ALONE. TRAINING SEMINAR REQUIRED FOR THOSE CONDUCTING FLYCATCHER SURVEYS.

LISTED, PROPOSED, AND CANDIDATE CATEGORY-1 SPECIES FOR THE FOLLOWING COUNTY: "MARICOPA"

NAME: YUMA CLAPPER RAIL *RALLUS LONGIROSTRIS YUMANENSIS*

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67; 48 FR 34182, 07-27-83

DESCRIPTION: WATER BIRD WITH LONG LEGS AND SHORT TAIL. LONG SLENDER DECURVED BILL. MOTTLED BROWN ON GRAY ON ITS RUMP. FLANKS AND UNDERSIDES ARE DARK GRAY WITH NARROW VERTICAL STRIPES PRODUCING A BARRING EFFECT.

ELEVATION RANGE: <4500 FT.

COUNTIES: YUMA, LA PAZ, MARICOPA, PINAL, MOHAVE

HABITAT: FRESH WATER AND BRACKISH MARSHES

SPECIES IS ASSOCIATED WITH DENSE EMERGENT RIPARIAN VEGETATION. REQUIRES WET SUBSTRATE (MUDFLAT, SANDBAR) WITH DENSE HERBACEOUS OR WOODY VEGETATION FOR NESTING AND FORAGING. CHANNELIZATION AND MARSH DEVELOPMENT ARE PRIMARY SOURCES OF HABITAT LOSS.

LISTED, PROPOSED, AND CANDIDATE CATEGORY-1 SPECIES FOR THE FOLLOWING COUNTY: "MARICOPA"

PROPOSED TOTAL= 1

NAME: CACTUS FERRUGINOUS PYGMY-OWL *GLAUCIDIUM BRASILIANUM CACTORUM*

STATUS: PROPOSED ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 59 FR 63975, 12-12-94

DESCRIPTION: SMALL (APPROX. 7"), DIURNAL OWL REDDISH BROWN OVERALL WITH CREAM-COLORED BELLY STREAKED WITH REDDISH BROWN. SOME INDIVIDUALS ARE GRAYISH BROWN

ELEVATION RANGE: <4000 FT.

COUNTIES: MARICOPA, YUMA, SANTA CRUZ, GRAHAM, GREENLEE, PIMA, PINAL, GILA, YAVAPAI

HABITAT: MATURE COTTONWOOD/WILLOW, MESQUITE BOSQUES, AND DESERT SCRUB

RANGE LIMIT IN ARIZONA IS FROM NEW RIVER (NORTH) TO GILA BOX (EAST) TO CABEZA PRIETA MOUNTAINS (WEST). ONLY A FEW DOCUMENTED SITES WHERE THIS SPECIES PERSISTS ARE KNOWN. ADDITIONAL SURVEYS ARE NEEDED. CRITICAL HABITAT HAS BEEN PROPOSED FOR THIS SPECIES.

Appendix E. Comments Received during Scoping

April 18, 1997

Steve Centerwall
Jones & Stokes Associates, Inc.
2600 V Street, Suite 100
Sacramento CA 95818-1914

APR 24 1997

Hello Steve:

Enclosed are copies of letters received during the 30-day public scoping period for the proposed WestWorld golf course development. You may want to include these in the EA. During the scoping period, 15 individuals also contacted Reclamation by phone to request a copy of the draft EA. Some of these callers also identified areas of specific concern; their comments are summarized in my February 29, 1996, fax to you.

Sincerely,

Brian S. Mihlbachler, Ph.D.
Bureau of Reclamation - Biologist

February 29, 1996

Steve Centerwall
Jones and Stokes Associates

RE: WestWorld Golf Course Environmental Assessment

Hello Steve:

We have received numerous phone calls from individuals interested in the project who want to comment and/or obtain a copy of the draft EA. Here is a short summary of the concerns expressed so far:

1) What is the source of the water to be used on the golf course? We don't need another golf course - this isn't a good use of water. Who is paying for the water?

2) What impact will this development have on local traffic congestion?

3) What impact will this development have on local air pollution and air quality?

4) What type of visual impact from lights/lighting will result from this development?

5) How will this development affect the McDowell Mountain Preserve?

I'm sure that your standard EA write-up covers many of these issues, but if not, let's make sure and get these comments addressed in the draft.

Brian Mihlbachler
Bureau of Reclamation - Biologist

CAMPANA & VIEH, P.C.
ATTORNEYS AT LAW
7373 NORTH SCOTTSDALE ROAD
SUITE 130C
SCOTTSDALE, ARIZONA 85253
(602) 951-2653
TELECOPIER (602) 991-8972

RICHARD V. CAMPANA
JAMES E. VIEH
WILLIAM F. SHORE III
BERNARD C. OWENS
DONALD O. LOEB
ROBERT W. GOLDWATER III

February 28, 1996

Mr. Dennis E. Schroeder
Area Manager
United States Department of the Interior
Bureau of Reclamation
P.O. Box 9980
Phoenix, Arizona 85068-0980

Re: WestWorld Golf Course Environmental Assessment
PXAO-1500

Dear Mr. Schroeder:

I received a notification from your office announcing the preparation of an Environmental Assessment for a proposed 18-hole public golf course project at WestWorld in north Scottsdale. I represent a partnership that owns land nearby the proposed golf course.

I believe that the proposed WestWorld Golf Course represents the highest and best use of the Bureau of Reclamation land and, frankly, represents the best hope that WestWorld will become financially viable, thereby providing a major public service to the entire Scottsdale area. I believe that the proposed public golf course is desperately needed in that area and would also aid in the solution of the drainage/flood control problems for other property owners in the area. I believe that the Bureau of Reclamation should be very proud of what was done in concert with the City of Scottsdale and the PGA for the two TPC courses, which are very successful. I believe that this will be another feather in the cap of the United States Department of Interior and show once again that our government is forward thinking and can make multiple use of lands for the advantage of the public.

Although I have seen preliminary design of the golf course, I would be most pleased to receive a copy of the WestWorld golf course layout.

Very truly yours,

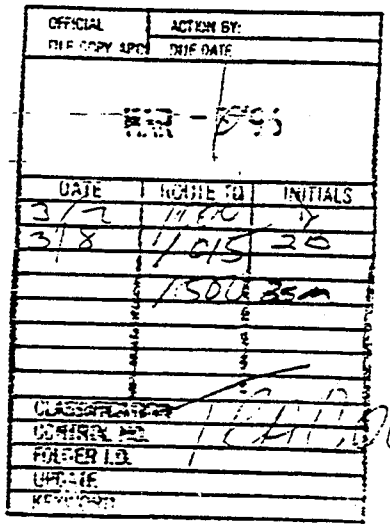
CAMPANA & VIEH, P.C.

Richard V. Campana

RVC/ls
cc: Dr. Brian Mihlbachler

THE FINNEY COMPANY

March 5, 1996



Dennis Schroeder
Area Manager
Bureau of Reclamation
United States Department of the Interior
P. O. Box 9980
Phoenix, AZ 85068

Re: Westworld Golf Course Environmental Assessment
PXAO-1500 ENV-1.00
96001302 8111

Dear Mr. Schroeder,

Thank you for your letter of February 21, 1996. I am one of the adjacent private landowners cooperating with the development of the proposed Westworld Golf Course, and am writing to express my support for this project.

Best Regards,

Doug Finney

cc: Bill Ensign

P.O. Box 5500
Scottsdale, AZ 85261-5500
Telephone (602) 451-1755
Fax (602) 451-7878
Toll Free (800) 884-1433

FLOOD CONTROL DISTRICT
of
Maricopa County

2801 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 506-1501
Fax (602) 506-4601
TT (602) 506-5859

March 12, 1996

Dr. Brian Mihlbachler
Phoenix Area Office; Attn: PXAO-1500
Bureau of Reclamation
P.O. Box 9980
Phoenix, AZ 85068-0980

Subject: West World Golf Course Environmental Assessment

Dear Dr. Mihlbachler:

Thank you for providing an announcement to the Flood Control District concerning the preparation of an Environmental Assessment for the proposed West World golf course. The location of the proposed golf course is within a detention area of the Central Arizona Project (CAP) aqueduct dikes.

The Flood Control District is coordinating a regional flood control project with the City of Scottsdale that will control flows along the Reata Pass Wash and outlet them into the CAP detention area behind Dike 4 of the Hayden/Rhodes Aqueduct.

Scottsdale is the lead agency for this flood control project and should be included in any future coordination concerning the proposed golf course improvements.

Please provide a copy of the environmental assessment to us when it is completed.

Sincerely,

Richard G. Perreault
Planning Branch Manager

Appendix F. City of Scottsdale Public Comments and Workshop Materials for the Thompson Peak Parkway Scoping Process and Meeting List for the Desert Greenbelt Basins Planning Process

PUBLIC WORKSHOP
April 7, 1993

SIGN - IN SHEET

6:00 to 9:00 P.M.
Zini Elementary School

NAME	ADDRESS	ORGANIZATION	PHONE
George L. Crider	17627 N 14th Ave	CAWCD	870-2850
Nancy Seale	P.O. Box 9980 Phoenix	Bur. of Reclamation	870-6733
Dean Wingert	333 E. Wetmore #250 Tucson 85705	Forest City	888-3962
Joe Valerio	#202 15255 N. F.L.W. Blvd		451-4649
[illegible]	15267 N 75th St		998-5559
Sterling Johnson	15267 N 75th St		998-5559
Chuck Matthews	4201 N 24th St	DMB	956-7877
Judy Thomas	PO Box 714 Scottsdale Az 85252	Homeowner	991-6726
Billie Gentry	P.O. Box 4082 Scottsdale 85261	Self H.O.	991-0391
Howard M Gentry	PO Box 4082 Scotts 85261	Self. H.O.	991-0391
Jim Kessler	7845 E Redfield Rd	[illegible]	[illegible]
Gary Neese	15255 N FLW #1096	Res.	860-9527

PUBLIC WORKSHOP
April 7, 1993

SIGN - IN SHEET

6:00 to 9:00 P.M.
Zini Elementary School

NAME	ADDRESS	ORGANIZATION	PHONE
Roger J. Juszczak	11411 N. Tatum	Western	953-6266
David W. Ash II	23887 N. 74th St.	Home Owner	585-9166
Greg Keller	Az S 1616 W. Adams Phx	Az State Land Dept	542-3671
George Bosworth	6991 E Camelback Rd.	Evans Withycombe	840-1040
Mark Hammons	7585 E Redfield Rd #203	Newhall Land	443-1201
[illegible] Thomas	7500 E Lincoln Dr.	Property owner	948-3590
Irving W. Zubel	7500 E. Buttherus #101	Prop Owner	951-8412
Bill Phillips	P.O. Box 52025	SRP	236-8092
Diana Smith	15855 N Greenway-Hayden Rd.	Transportation Comm.	991-9657
Joe Gross	COS		994 7857
Ross Smith	9140 E [illegible]	Resident	265-9644

Scottsdale Bond Project 1989

"Our Future In Progress"

PUBLIC WORKSHOP

April 7, 1993

Transportation Planning

C A P CANAL CROSSING STUDIES

- *Greenway-Hayden Loop*
- *Thompson Peak Parkway*
- *Trail Crossing at Thompson Peak Parkway*

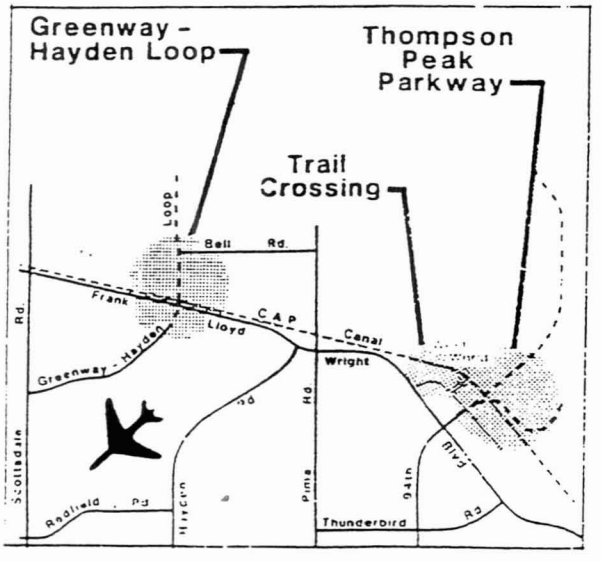
INTRODUCTION

In order to accommodate the traffic needs of the anticipated development north of the CAP Canal, the City of Scottsdale General Plan includes two future roadway crossings over the Canal. One at Greenway-Hayden Loop and the other at Thompson Peak Parkway. In addition, a trail crossing is proposed at Thompson Peak Parkway.

The extension of these roadways not only have to cross over the CAP Canal; they also have to cross over the dike that lies north of the Canal and through the stormwater basin behind the dike. This presents the design challenges of maintaining the storage capacity in the basin and providing adequate cross drainage either over or under the roadway to equalize the water level in the basin. The Thompson Peak Parkway crossing has the added challenge of crossing under the 230 KV electric lines north of the dike.

To prepare for the design and construction of these crossings the City is developing concept design studies. The study team consists of the City of Scottsdale Transportation Planning Department, The WLB Group (consulting civil engineers), Lee Engineering (consulting traffic engineers) and Cannon and Associates (consulting structural engineers).

LOCATION MAP



PURPOSE OF PUBLIC WORKSHOP

The purpose of this workshop is for the study team to meet with the public and learn about the concerns and thoughts of local residents and land owners. The next step in the study process is to select the preferred alternative and prepare preliminary plans for each crossing. This workshop will enable the study team to incorporate public comment into the selection of the preferred alternatives and into the preparation of preliminary plans.

STUDY PROGRESS

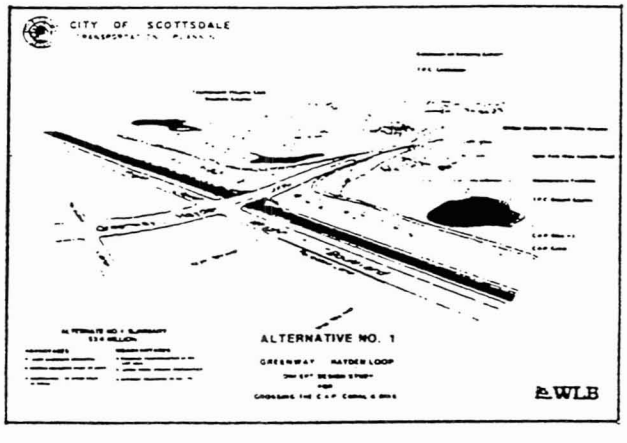
To date, the study team has 1) prepared traffic studies, 2) developed several alternatives with cost estimates for each crossing, 3) conducted hydrologic analyses to determine the affect on the CAP stormwater basin north of the Canal and 4) held coordination meetings with several affected agencies and land developers.

RESULTS OF TRAFFIC STUDIES

The results of the traffic analysis indicates that the Greenway-Hayden Loop and Thompson Peak Parkway canal crossings will be necessary in the 2000 - 2005 time period. Further traffic analysis is currently being done to determine the required number of traffic lanes and intersection configurations.

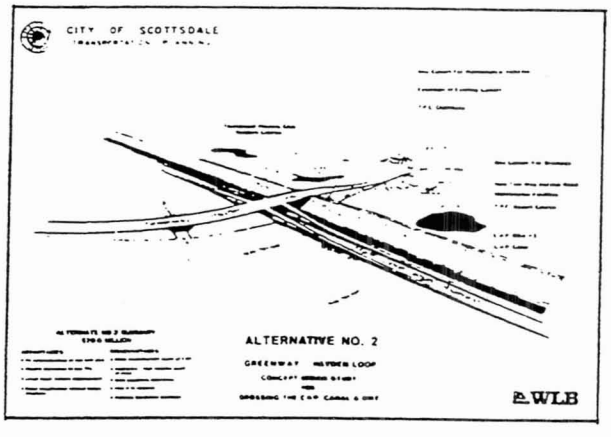
DESCRIPTION OF ALTERNATIVE CONCEPTS

GREENWAY-HAYDEN LOOP



Alternative Alignment No. 1 matches the existing pavement elevation at Frank Lloyd Wright Boulevard and extends north; passing over the CAP Canal and through the dike. In order to contain the floodwaters, the dike is reconstructed on each side of Greenway-Hayden Loop and the roadway profile rises up to the top of dike elevation. The roadway profile then drops back down to match existing pavement elevation on Bell Road. This lowering of the profile, north of the dike, allows floodwaters to pass over the top of the roadway.

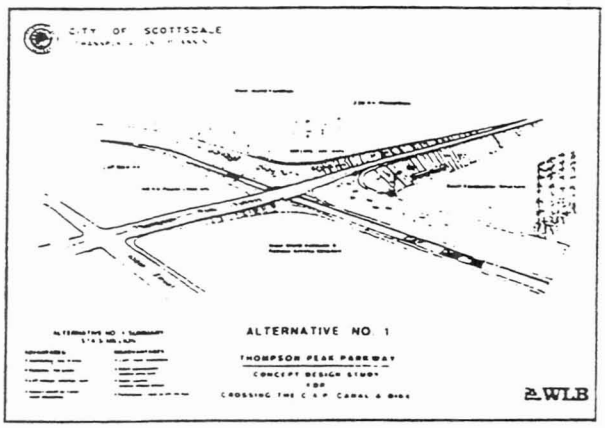
This alternative requires a 100-foot long bridge just south of Bell Road to allow floodwaters to pass under the roadway. The combination of the bridge opening and the flow over the roadway will adequately balance the water surface elevation on each side of Greenway-Hayden Loop.



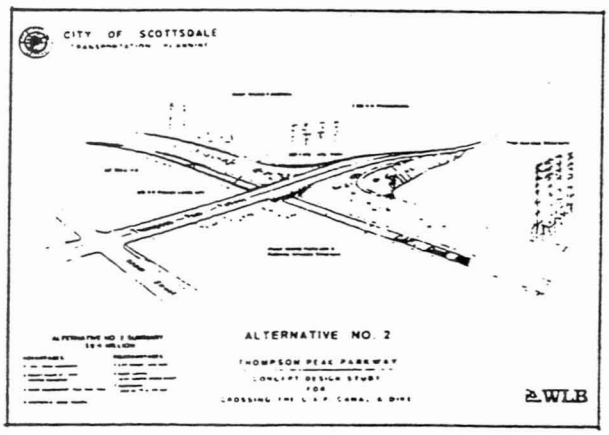
Alternative No. 2 crosses over the top of the dike. This alignment requires the roadway to be elevated which results in reconstruction of a considerable amount of the existing roadway south of the Canal.

The preliminary results of the traffic analysis for this study indicate that all of the turning movements are necessary at the intersection of Frank Lloyd Wright Boulevard and Greenway-Hayden Loop. Therefore, exit and entrance ramps for Frank Lloyd Wright Boulevard are included on the concept design.

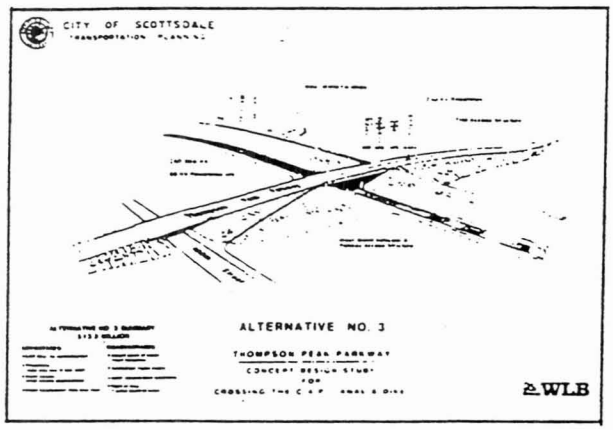
THOMPSON PEAK PARKWAY



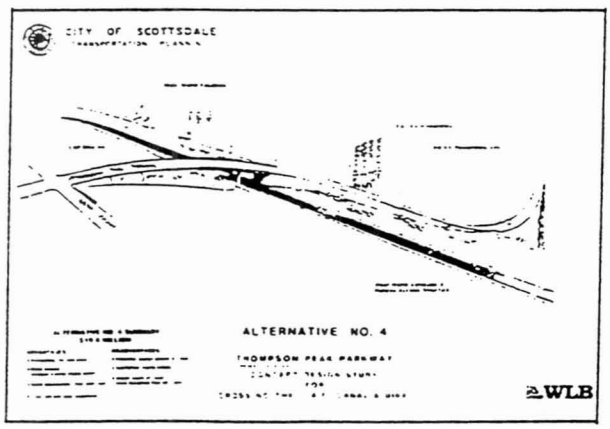
Alternative No. 1 is similar to the existing crossings at Scottsdale Road and Pima Road. That is, the roadway passes through the dike and a new dike is constructed on each side of the roadway to contain the floodwaters in the basin. There is, however, a major difference between Alternative No. 1 and the existing Scottsdale Road and Pima Road crossings. The stormwater basins on either side of those roadways were designed to act independently with no requirement for floodwaters to flow under the roadway. By contrast, Thompson Peak Parkway will segregate an existing basin. Therefore, the design will have to provide sufficient stormwater conveyance under the roadway to equalize the water surface on each side during times of flooding.



Alternative No. 2, as is the case with Alternative No. 1, passes through the existing dike. However, in contrast to No. 1, the profile rises up to the top of dike elevation and then drops back down within the basin to allow floodwaters to pass over the top of the roadway.



Alternative No. 3 crosses over the top of the dike. The alignment requires a considerable length of the roadway to be elevated south of the Canal. It also requires reconstruction of approx. 1/4 mile of the existing roadway to the south with a bridge over 100th Street.

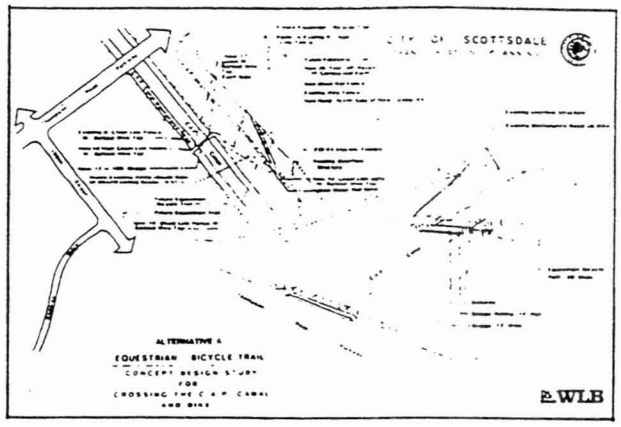


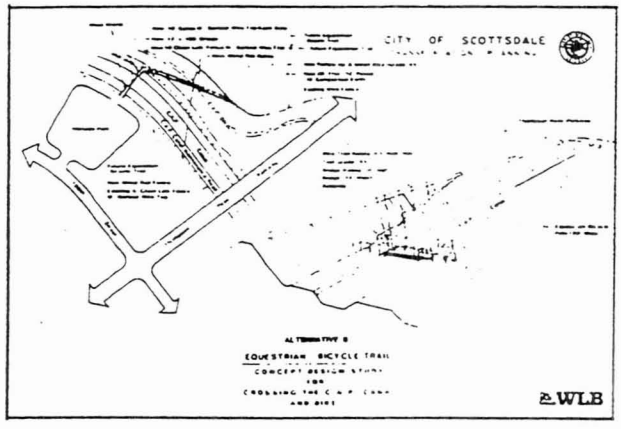
Alternative No. 4 was developed to provide an alignment that does not require any modification to the existing 230 KV electric transmission lines. Rather than going straight across the Canal and Dike like the other three alternatives, this alignment curves to the right with its profile rising up along the south face of the dike and going back down along the north face. The alignment then curves to the north under the 230 KV electric lines with more than adequate clearance under all four sets of transmission lines.

TRAIL CROSSING

The City of Scottsdale General Plan identifies a future bicycle path that crosses the CAP Canal between Thompson Peak Parkway and Pima Road. It also calls for an equestrian trail to be located on Thompson Peak Parkway. The concept designs for Thompson Peak Parkway combine both the bicycle and equestrian crossings on one 20 foot wide multi-use trail that is located adjacent to the roadway. As an alternative to constructing the trail with Thompson Peak Parkway, a separate trail crossing has been investigated.

Two alternative plans have been prepared (Alternatives A & B) for the trail crossing. Both plans employ the same concept of a pedestrian bridge over the canal with a trail climbing up along the south face of the dike and descending back down the north face. The difference in the two plans is primarily location. Alternative A is located east of Thompson Peak Parkway and Alternative B is located west of the Parkway at Horizon Park.





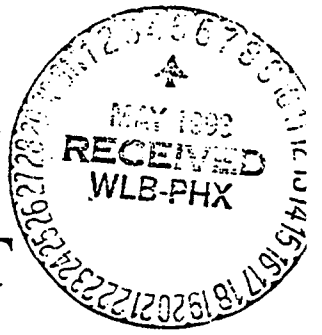
City of Scottsdale
Transportation Planning

The WLB Group Inc WLB

Engineering • Planning • Surveying
Landscape Architecture • Urban Design

Offices located in Tucson, Phoenix,
Las Vegas and Rancho Cucamonga
3333 East Osborn Road Suite 380
Phoenix, Arizona 85012 (602) 279-

RCD AP 20,93



PUBLIC WORKSHOP
April 7, 1993

PUBLIC COMMENT SHEET

We are interested in your thoughts about the proposed CAP Canal Crossings at Greenway-Hayden Loop and Thompson Peak Parkway including the separate trail crossing located near Thompson Peak Parkway. Please take a few minutes to complete this sheet.

- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  [X] Yes [ ] No [ ] Already on Mailing List

- Name and Address

  Name: Core North, Inc.

  Address: 7001 N. Scottsdale Road, Suite 1034

  City, State, Zip: Scottsdale, AZ 85253

  Phone: 602-998-4144

- Are you a resident, property owner, or merchant within the study area?

  [ ] Resident [X] Property Owner [ ] Merchant

  [ ] Other _____

- Comments?

  Thanks for the opportunity to comment on the Hayden Rd. Extension over the CAP Canal. Based on cost, property access and aesthetics, I would like to express my favor for the Greenway-Hayden Loop Alternative

Thank you. Your input is valuable.

- More room for comments on the back -

Alignment No. 1.

Sincerely,

Gregg E. Tryhus

President

PUBLIC WORKSHOP
April 7, 1993

PUBLIC COMMENT SHEET

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☒ Yes ☐ No ☐ Already on Mailing List

- Name and Address

  Name: G Bosworth

  Address: 6991 E Camelback Rd

  City, State, Zip: Scottsdale AZ 85251

  Phone: 840-1040

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☒ Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

  Recommend Alt. #1 for TPP as stated in letter previously submitted.
  Recommend Alt. B for Trail with trail

Thank you. Your input is valuable.

- More room for comments on the back -

at Raintree crossing 103rd ft and then continuing along 100th up to TPP and then paralleling TPP up to canal

PUBLIC WORKSHOP
April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☐ Yes ☐ No ☒ Already on Mailing List

- Name and Address

  Name: GREGORY V. KELLER
  Address: AZ STATE LAND DEPT 1616 W. ADAMS
  City, State, Zip: PHOENIX, AZ 85007
  Phone: 542-3671

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☒ REPRESENT A Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

  THE STATE LAND DEPARTMENT HAS ONLY ONE CURRENT CONCERN REGARDING OPTION #2 FOR THE GREENWAY/HAYDEN CROSSING. THIS OPTION SHOWING BELL ROAD SHIFTING

Thank you. Your input is valuable.

- More room for comments on the back -

NORTH OF THE SECTION LINE SERVES TO DIMINISH THE DEVELOPABILITY, AND HENCE THE VALUE OF AT LEAST PART OF CURE SOUTH TRACT IS AND THE LANDS DEPARTMENT WOULD PREFER MAINTAINING THE BELL ROAD ALIGNMENT ALONG THE SECTION LINE AS CURRENTLY SHOWN ON THE APPROVED CURE SOUTH DEVELOPMENT PLAN.

PUBLIC WORKSHOP
April 7, 1993

PUBLIC COMMENT SHEET

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☑ Yes ☐ No ☐ Already on Mailing List

- Name and Address

  Name: DEAN WINGERT / FOREST CITY SCOTTSDALE CO.

  Address: 333 E. WETMORE #250

  City, State, Zip: TUCSON AZ. 85705

  Phone: 602-888-3962

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☑ Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

  MY INTEREST IS IN THE HAYDEN-GREENWAY CROSSING. FOREST CITY CONTROLS 300 ACRES OF PROPERTY UNDER LONG-TERM LEASE FROM

Thank you. Your input is valuable.

- More room for comments on the back -

THE AZ. STATE LAND DEPT. THAT GOES FROM HAYDEN OVER TO SCOTTSDALE RD. JUST SOUTHERLY OF THE OUTER LOOP ALIGNMENT.

WE STRONGLY SUPPORT ALT. #1 FOR THE HAYDEN EXTENSION. THE DESIGN IS LOGICAL AND IMPOSES A MINIMUM IMPACT ON THE AREA AND ITS USES.

THE COST OF ALT. #2 IS RIDICULOUS IN COMPARISON TO ALT. #1 AND WOULD LOOK ATROCIOUS FOR THE LOCAL ENVIRONS. SURELY, THE BOR CAN BE CONVINCED OF THE APPROPRIATE SOLUTION HERE.

WE SUPPORT THE DESIGN & CONSTRUCTION OF ALT. #1 FOR HAYDEN-GREENWAY AS SOON AS POSSIBLE.

PUBLIC WORKSHOP
April 7, 1993

PUBLIC COMMENT SHEET

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☐ Yes ☐ No ☒ Already on Mailing List

- Name and Address

  Name: Sterling Johnson

  Address: 15207 N 75th St

  City, State, Zip: Scottsdale 85260

  Phone: 998-5559

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☒ Property Owner ☒ Merchant

  ☐ Other _____

- Comments?

  With the special event traffic as it is and increasing, we need the Greenway Hayden bridge ASAP. We need a third viable north/south route

(over)

Thank you. Your input is valuable.

- More room for comments on the back -

and Since this was approved in the 1989 bond election we would like to see this built first, and alternative #1, by far, makes the most sense.

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April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☐ Yes ☐ No ☒ Already on Mailing List

- Name and Address

  Name: Laura Johnson

  Address: 15207 N. 75th Street

  City, State, Zip: Scottsdale, AZ 85260

  Phone: 998-5559

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☒ Property Owner ☒ Merchant

  ☐ Other _____

- Comments?

  I am in favor of the Greenway-Hayden Loop Alternative I because it is greatly needed for events and because it is the most

Thank you. Your input is valuable.

- More room for comments on the back -

cost effective. The Thanksgiving Parkway should be a lower priority and we voted in the 1989 bond election for Greenway-Haydon.

Also, the Greenway-Haydon Loop will assist with the traffic being created by Cracker Jack and Core Ninth (the area north of the Princess) as well as Herbanger's development in Plumb across from the Airport

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April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☐ Yes ☐ No ☒ Already on Mailing List

- Name and Address

  Name: IRV ZIRBEL

  Address: 7500 E. BUTHERUS # 101

  City, State, Zip: SCOTTSDALE AZ 85260

  Phone: 951-8412

- Are you a resident, property owner, or merchant within the study area?

  ☒ Resident ☒ Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

  The intersection of Greenway - Hayden & Scottsdale Road will be impossible.

Thank you. Your input is valuable.

- More room for comments on the back -

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April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☒ Yes ☐ No ☐ Already on Mailing List

- Name and Address

  Name: JOHN G THOMAS

  Address: 7500 E. LINCOLN DR

  City, State, Zip: SCOTTSDALE AZ 85250

  Phone: 948-5725

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☒ Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

  COST TO PROPERTY OWNERS NOT ADJACENT TO PICWY. RIGHT TO CONNECT INTO ROADWAY (ACCESS).

Thank you. Your input is valuable.

- More room for comments on the back -

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April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☑ Yes ☐ No ☐ Already on Mailing List

- Name and Address

  Name: Judy Thomas

  Address: P.O Box 714

  City, State, Zip: Scottsdale Az 85252

  Phone: 991-6726

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☑ Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

_____

_____

_____

Thank you. Your input is valuable.

- More room for comments on the back -

PUBLIC WORKSHOP
April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☒ Yes ☐ No ☐ Already on Mailing List

- Name and Address

  Name: ROGER J. JUSZCZAK

  Address: 11411 N. TATUM BLVD

  City, State, Zip: PHX AZ 85028

  Phone: 953-6266

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☒ Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

  CAP - GREENWAY - HAYDEN
  ALT #1 has our support.
  FALL 98 Completion of construction
  IS A DISAPPOINTMENT!!

Thank you. Your input is valuable.

- More room for comments on the back -

PUBLIC WORKSHOP
April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☒ Yes ☐ No ☐ Already on Mailing List

- Name and Address

  Name: Warren GENTRY

  Address: P.O. BOX 4082

  City, State, Zip: SCOTTSDALE, AZ. 85261

  Phone: 602-991-0391 602-526-3248

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☒ Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

  Thompson Peak Alternative #2 Appears to be the best Alternative

Thank you. Your input is valuable.

- More room for comments on the back -

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April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☑ Yes ☐ No ☐ Already on Mailing List

- Name and Address

  Name: Billie Conley

  Address: P.O. Box 4087

  City, State, Zip: Scottsdale 85261

  Phone: 991-0391

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☐ Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

  I like Thompson Peak alternative two due to better traffic circulation & more attractive

Thank you. Your input is valuable.

- More room for comments on the back -

PUBLIC WORKSHOP
April 7, 1993

PUBLIC COMMENT SHEET

We are interested in your thoughts about the proposed CAP Canal Crossings at Greenway-Hayden Loop and Thompson Peak Parkway including the separate trail crossing located near Thompson Peak Parkway. Please take a few minutes to complete this sheet.

- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☑ Yes ☐ No ☑ Already on Mailing List

- Name and Address

  Name: Jim Keeley

  Address: 7845 E. Redfield Rd S-10

  City, State, Zip: Scottsdale AZ 85260

  Phone: (602) 998-2677

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☑ Property Owner ☐ Merchant

  ☑ Other Com'l R.E. Company owner in The Airpark

- Comments?

  I Feel as though The Greenway/Hayden Loop should be First Priority to be built. Alt #1 is my preference. Alt 2 would be very destructive to The #1 Low South of CAP.

Thank you. Your input is valuable.

- More room for comments on the back -

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April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☑ Yes ☐ No ☐ Already on Mailing List

- Name and Address

  Name: GARY NEISS

  Address: 15755 N. FRANK LLOYD WRIGHT #1096

  City, State, Zip: SCOTTSDALE AZ 85260

  Phone: 860 · 9527

- Are you a resident, property owner, or merchant within the study area?

  ☑ Resident ☐ Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

_____

_____

_____

Thank you. Your input is valuable.

- More room for comments on the back -

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April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☒ Yes ☐ No ☐ Already on Mailing List

- Name and Address

  Name: Mark Hammons

  Address: 7535 E. Gelfield Rd St. 208

  City, State, Zip: Scottsdale, Az 85260

  Phone: 443-1201

- Are you a resident, property owner, or merchant within the study area?

  ☒ Resident ☒ Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

  Alt #2 Thompson Peak

Thank you. Your input is valuable.

- More room for comments on the back -

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April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☑ Yes ☐ No ☐ Already on Mailing List

- Name and Address

  Name: CHARLES MATTHEWS / DMB ASSOCIATES, INC.

  Address: 4201 N 24TH STREET ST. 120

  City, State, Zip: PHOENIX, AZ 85016

  Phone: 956-7877

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☑ Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

_____

_____

_____

Thank you. Your input is valuable.

- More room for comments on the back -

PUBLIC WORKSHOP
April 7, 1993

PUBLIC COMMENT SHEET

We are interested in your thoughts about the proposed CAP Canal Crossings at Greenway-Hayden Loop and Thompson Peak Parkway including the separate train crossing located near Thompson Peak Parkway. Please take a few minutes to complete this sheet.

- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  [X] Yes [ ] No [ ] Already on Mailing List

- Name and Address

  Name: JAMES B MOORE 4-10-93

  Address: P.O. BOX 1509

  City, State, Zip: MARTINEZ, CALIFORNIA 94553

  Phone: 510-798-7701 FAX 510=798-7703

- Are you a resident, property-owner, or merchant within the study area?

  [ ] Resident [X] Property Owner [ ] Merchant

  [ ] Other _____

- Comments? THERE ARE SEVERAL CONCERNS ABOUT THIS PROJECT. THE BOND HAS BEEN APPROVED SINCE 1989 AND IT SEEMS TO ME THAT IT SHOULD HAVE BEEN COMPLETED BY NOW. SPECIAL EVENTS TRAFFIC MAKES IF VERY DIFFICULT TO TRAVEL ON SCOTTSDALE ROAD AND PIMA ROAD. THE BUILDING OF THE HAYDEN/GREENWAY LOOP WILL GIVE YOU ANOTHER NORTH AND SOUTH ROUTE AND WOULD CUT DOWN SOME OF THE TRAFFIC JAMS. THE COST DIFFERENCE OF ALL OF THE ALTERNATIVES POINTS TO THE ORIGINAL BOND WHICH IS THE LEAST EXPENSIVE AND PROBABLY THE MOST EFFECTIVE.

  ANY OVERHEAD ROADS WILL MAKE THE DESERT UGLY AND SHOULD HAVE THE SAME ATTENTIONS AS SCOTTSDALE SIGN ORDINANCE.

  PLEASE KEEP US INFORMED OF THE PROGRESS ON THIS PROJECT.

Thank you. Your input is valuable.

- More room for comments on the back -

PUBLIC WORKSHOP
April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☒ Yes ☐ No ☐ Already on Mailing List

- Name and Address

  Name: DON WEINTRAUB

  Address: SCOTTSDALE PRINCESS 7575 E. PRINCESS DR.

  City, State, Zip: SCOTTSDALE, AZ 85255

  Phone: 602-585-4848

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☐ Property Owner ☒ Merchant

  ☐ Other _____

- Comments?

  WHILE OUR ESTABLISHMENT IS HIGHLY IN FAVOR OF BOTH EXTENSIONS, THE ALTERNATIVES OF EACH REQUIRE FURTHER STUDY

Thank you. Your input is valuable.

- More room for comments on the back -

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April 7, 1993

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- Would you like to be mailed a notice for the next public workshop regarding these Canal crossings?

  ☒ Yes ☐ No ☐ Already on Mailing List

- Name and Address

  Name: MIKE LEART - NORTHSIGHT CORPORATION

  Address: 15100 N. 78th Way

  City, State, Zip: SCOTTSDALE, AZ 85260

  Phone: 991-1111

- Are you a resident, property owner, or merchant within the study area?

  ☐ Resident ☒ Property Owner ☐ Merchant

  ☐ Other _____

- Comments?

  AT $20.6M, Alternative #2 For G-H Loop crossing isn't much of an alternative. The Flow over the roadway on Alternative #1 is a concern unless it only occurs during an unusual (100yr) event.

Thank you. Your input is valuable.

- More room for comments on the back -

City of Scottsdale - Desert Greenbelt Public Meetings
(through acceptance of preferred alignments)

Date	Meeting Type	Location
10/30/90	City Council Study Session	Scottsdale Airport
11/5/90	General Public Meeting	Mustang Library
11/8/90	Development Review Board Study Session	City Hall
11/12/90	Planning Commission Study Session	City Hall
11/14/90	Parks & Recreation Commission	City Hall
11/15/90	Transportation Commission	City Hall
2/7/91	City Bond Committee	Main Library
5/14/91	City Council Study Session	City Hall
6/6/91	Development Review Board Study Session	City Hall
6/10/91	Planning Commission Study Session	City Hall
6/12/91	Parks & Recreation Commission	City Hall
6/13/91	General Public Meeting	Troon Country Club
6/24/91	Planning Commission Study Session	City Hall
8/1/91	Transportation Commission	Desert Botanical Garden
11/20/91	General Public Meeting	Troon Country Club
11/26/91	General Public Meeting	Mustang Library
12/19/91	Transportation Commission Study Session	City Hall
2/13/92	General Public Meeting	Troon Country Club
2/25/92	City Council Study Session	City Hall
10/13/92	City Council Study Session	City Hall
10/21/92	General Public Meeting	Troon Country Club
10/22/92	Development Review Board Study Session	City Hall
10/23/92	Parks & Recreation Commission	City Hall
10/29/92	Planning Commission - Remote	Mustang Library
11/7/92	Planning Commission - Approve General Plan Amendment	City Hall
11/17/92	City Council - Approve Desert Greenbelt Alignments	City Hall

DESERT GREENBELT
PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Developer/Landowner Meeting	City staff met with representatives of Corrigan-Marley and DMB Developers to update them on the Reata Pass/Beardsley Washes.	April 1993
Agency Meeting	City staff met with the Maricopa County Flood Control District to provide them with an update and to discuss potential funding opportunities.	April 1993
Developer Meeting	City met with Gregg Tryhus of Grayhawk Developers to discuss the Rawhide Wash.	April 1993
Neighbor Meeting	City staff gave Mr. Dillion, an Upper Reata neighbor, an update on his property relative to the Upper Reata Pass Wash.	April 1993
Citizen's Meeting	The City conducted a meeting for "Section 11" property owners within or adjacent to the Rawhide Wash to present a phased approach to construction.	April 1993
Developer Meeting	City staff and management met with representatives of DMB, a developer in the Reata Pass/Beardsley Washes area, on two occasions to discuss DGB and future development plans in the area.	May 1993
Agency Meeting	City staff met with representatives of the State Land Department to discuss the proposed Rawhide Wash outlet.	May 1993
Agency Meeting	City staff met with representatives of FEMA to discuss FEMA flood control requirements for DGB.	June 1993
Developer Meeting	City staff met with representatives of David Evans Associates (DEA), a contractor for Stardust Developers who is developing along the Rawhide Wash, on two occasions. The first meeting was an update on the Rawhide Wash and the second was a Rawhide Wash walk-through.	June 1993
Agency Meeting	The City met with the Maricopa County Flood Control District to discuss mapping for Intergovernmental Agreement.	June 1993
Agency Meeting	The City met with the State Land Department to discuss Bell Road drainage.	June 1993
Agency Meeting	City staff met with the State Land Department on two occasions to discuss the Rawhide Wash and the Rawhide Outlet into the City of Phoenix.	July 1993
Developer Meeting	City staff met with UDC Homes, a major developer in the area, and Nick Taralsas.	July 1993

DESERT GREENBELT
PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Developer Meeting	City staff met with DEA/Stardust on two occasions to discuss the west flood wall and Rawhide Wash hydrology.	July 1993
Agency Meeting	The City met with the Maricopa County Flood Control District to discuss potential funding opportunities.	July 1993
Agency Meeting	City staff met with Bob Ward, representing Newhall, to discuss the Thompson Peak Wash/Reata Pass Wash.	July 1993
Developer Meeting	City representatives met with UDC Ironwood to discuss the Pima Channel.	July 1993
Developer Meeting	The City met with Tim Kelly and Baker to discuss the Rawhide Wash.	July 1993
Information Line	As part of an ongoing effort to increase public involvement, an information line was established at the City in conjunction with the DGB preliminary design effort. Throughout the project, the public has been notified in newsletters that they could call to ask questions or discuss concerns about the project with the project manager.	August 1993
Developer Meeting	City staff met with representatives of Grayhawk to discuss the Rawhide Wash.	August 1993
Agency Meeting	City representatives met with the Army Corps of Engineers to provide them with an update on DGB.	August 1993
Developer Meeting	City staff met with Chuck Mathews of DMB Developers on two occasions to discuss the Reata Pass/Beardsley Washes.	August 1993
Agency Meeting	The City met with the Maricopa County Flood Control District to discuss mapping specifications for GIS.	August 1993
Agency Meeting	City staff met with Mr. Ott, a primary contact at the State Land Department, to discuss updates to DGB.	August 1993
Developer Meeting	City staff met with representatives of US Homes and La Vista to discuss the Rawhide Wash.	August 1993
Agency Meeting	City representatives met with the City of Phoenix to discuss the proposed Rawhide Wash outlet.	August 1993
Project Logo/Identity	Eight possible logos were prepared by the Greiner team. One logo was selected.	August 1993
Agency Meeting	City staff met with the Bureau of Reclamation to provide them with an update on DGB.	September 1993
Developer Meeting	City staff met with Stardust, a developer, and DEA, their contractor, on two separate occasions to discuss concept plans for the Rawhide Wash western flood wall.	September 1993

DESERT GREENBELT
PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Developer Meeting	The City met with representatives of Grayhawk, a developer, to discuss Rawhide Wash on three occasions. Two of these meetings were with Gregg Tryhus and Connie Padian, respectively.	September 1993
Developer Meeting	City staff met with Reflection Homes to discuss Rawhide Wash.	September 1993
Agency Meeting	The City met with Mr. Ott and other representatives of the State Land Department to discuss Rawhide Wash on two separate occasions. The City also met with Hon Ruziska of the State Land Department on a separate occasion.	September 1993
Realtor Meeting	City staff met with Frank Boxberger, an area realtor, to discuss Rawhide Wash.	September 1993
Agency Meeting	City representatives met with Dave Meinhart of the Maricopa County Flood Control District to update him on DGB.	September 1993
Mailing List	A study-area-wide mailing list of approximately 4,000 people was developed by the Greiner team and was used to distribute the first two newsletters. These newsletters included requests to the public that if they were interested in continuing to receive project-related information, call Dames & Moore or return a mailing list "coupon." To date, the mailing list has been paired down to approximately 750 interested residents, property owners, developers, state agencies, local officials, and other interested parties.	October 1993 (Updated continually)
Community Interviews	Greiner team conducted 22 interviews with residents, property owners, developers, state agencies, and local officials to provide information and get feedback about the project. Some of the people interviewed included Burt Prosser, Beverly Jordano, Dr. Roy Ellis, Cynthia Lukas, Member GPPHA; Nicki Hansen, Greg Keller, State Land Dept.; A.J. Salcito, AJS Custom Homes; Gene Samter, UDC homes; Dick Perrault and Dave Meinhart, Flood Control District of Maricopa County; Mike Snep, Chas Turner, Pinnacle Peak Realty; Gregg Tryhus and Brian Baehr, Grayhawk Development; Councilwoman Mary Manross, Bob Bigler, local builder; Chet Andrews, McDowell Sonoran Land Trust; Sara Bollman, horse trail interest group; Fred Davidson, Attorney; Francis Bills, Pima Acres HOA President; and Drew Brown, Chuck Mathews, and Lois Savage, DMB Associates.	September & October 1993
Up to Date Fall 1993 Fact Sheet	This fact sheet was developed by the Greiner team and distributed to the project mailing list. This document included the following: information on what has been accomplished in the project thus far; explanation of what the Desert Greenbelt is and how the concept works; information about the project design studies and what they involve; information on how the public can be involved and participate; and a project mailing list coupon.	Distributed October 1993

DESERT GREENBELT
PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Meeting with Scottsdale Progress Tribune	City and Greiner team representatives met with Hal Dekeyser and Marty Sauerzopf of the Scottsdale Progress Tribune. The purpose of the visit was to introduce the team and the project and to discuss future story opportunities. An introductory video explaining the purpose, need, and goals of the project and the studies performed to identify the preferred channel alignments were also given to them.	October 1993
Developer Meeting	City staff met with representatives of Stardust, a developer, to discuss the Rawhide Wash.	October 1993
Property Owner Meeting	The City met with Mr. Glovers and Bill Schukoit, individual property owners, to discuss the Reata Wash.	October 1993
Developer Meeting	City staff met with representatives of Los Portones Parcel 4 to discuss Rawhide Wash.	October 1993
Property Owner Meeting	The City met with Fred Fleet, a Rawhide property owner in Sonoran Hills, to discuss Rawhide Wash.	October 1993
Developer Meeting	City staff met with Gregg Tryhus of Grayhawk to discuss Pima Road Channel.	October 1993
Agency Meeting	City staff met with Mr. Ott of the State Land Department to discuss Grayhawk development plans.	October 1993
Communications Protocol Memorandum	Greiner team prepared a memorandum to identify specific communication procedures (both internally as a team and externally with the public). The memo included the identification of project spokespeople; how to document public contacts; listed existing communication tools, such as absolute statements, key messages, and commonly asked questions and answers; and included media contact tips and techniques.	November 1993
Upper Reata Neighbor Survey Letter	The Greiner team prepared a letter and distributed it door-to-door to describe upcoming survey activities in the area and the proposed schedule -- helped residents understand what to expect during these activities.	November 1993
McDowell Sonoran Land Trust (MSLT) Presentation	City and Greiner team representatives attended MSLT meeting to describe the Desert Greenbelt concept and preliminary design process and schedule to approximately 20 members.	November 1993
Property Owner Meeting	City staff met with Mr. Glover, a Reata property owner, to discuss the Reata bridge.	November 1993
Developer Meeting	City representatives and the Greiner team met with DEA, a contractor to Stardust Developers, about the Rawhide Wash. On a separate occasion, a meeting was held with Stardust.	November 1993
Developer Meeting	City met with representatives of Grayhawk, a developer, to discuss Pima Road Channel. On a separate occasion, the City and Greiner met with Grayhawk to discuss Reata Pass Wash.	November 1993

DESERT GREENBELT
PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Agency Meeting	The City met with Bob Ward of the Arizona Department of Transportation to discuss the Outer Loop and DG8 stormwater drainage conveyance.	November 1993
Neighbor Meeting	City staff met with Mr. Dillion, an Upper Reata neighbor, and the Mayor to discuss the Reata Wash.	November 1993
Commonly Asked Questions and Answers, Key Messages, and Project Absolute Statements	Greiner team prepared lists of commonly asked questions and answers, key messages, and project absolutes for the Winter 1993 newsletter. These lists were also used by the project team to communicate with the public during small-group workshops.	December 1993; continually updated
Up to Date Winter 1993 Newsletter	This newsletter was developed by the Greiner team and distributed to the project mailing list. Information included what has happened in the last few months with the preliminary design effort; update by wash; explanation of a 100-year storm; list of most commonly asked questions and answers; summary of interviews conducted in September and October; and a project mailing list coupon.	Distributed December 1993
Upper Reata Neighbor Workshops	The Greiner team conducted two small-group workshops with 17 residents and property owners adjacent to or within the Upper Reata Pass Wash corridor. Participants were able to see the first refinement of the channel before the plans went public, talk individually with project team members about their concern, and better understand next steps in the preliminary design process.	December 1993
Rawhide Wash "Section 11" Small-Group Meeting	City and Greiner team representatives conducted a meeting for those property owners located within "Section 11" of the Rawhide Wash. The meeting was to discuss preliminary design progress and the benefits of a phased approach to construction.	December 1993
Intragovernmental Meeting #1	City and Greiner team conducted the first intragovernmental meeting to present Preliminary design study process and schedule. Approximately 8 people attended, representing the City of Scottsdale, City of Phoenix, Flood Control District of Maricopa County, State Land Department, Arizona Department of Transportation, and U.S. Bureau of Reclamation.	December 1993
Developer Meeting	City staff met with Gordon Wark of Maracaay Homes to discuss Rawhide Wash.	December 1993
Agency Meeting	City staff met with the City of Phoenix to discuss the Rawhide Wash outlet.	December 1993
Developer Meeting	The City met with Stardust Developers to discuss the Rawhide Wash.	December 1993
Agency Meeting	City staff gave a presentation on the Rawhide Wash to the State Land Department.	December 1993

DESERT GREENBELT
PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Property Owner Meeting	City representatives met with Jerry Hirsch, owner of Rawhide Theme Park, to discuss the Rawhide Wash.	December 1993
Developer Meeting	The City met with Corrigan Marley to discuss the Reata Wash.	December 1993
Property Owner Meeting	City staff met with Howard Fleishon, an Upper Reata property owner, to give him an update on the Upper Reata Pass Wash preliminary design effort.	December 1993
Developer Meeting	City staff met with Vern Swaback, John Sather, and Dale Gordon, architects for DMB.	December 1993
Upper Reata Workshop Summaries	Meeting summaries of the Upper Reata workshops were prepared by the Greiner team and distributed to all Upper Reata Pass Wash small-group meeting participants.	January 1994
Rawhide Wash "Section 11" Meeting Summary	A summary of the December small-group meeting was prepared by the Greiner team and distributed to all participants.	January 1994
Presentation to Multiple Listing Service Realtor Group	City and Greiner team presented brief description of Desert Greenbelt Preliminary Design process and schedule to approximately 100 area realtors.	January 1994
Developer Meeting	City staff met with John Sather and Swaback to discuss DMB development plans.	January 1994
Agency Meeting	City representatives met with Dave Melnhart of the Maricopa County Flood Control District to update him on DGB progress.	January 1994
Agency Meeting	City staff met with the State Land Department to discuss DGB. On a separate occasion, the City met with Mr. Ott to discuss the proposed detention basin.	January 1994
Developer Meeting	City met with Stardust Developers to discuss Rawhide Wash.	January 1994
Property Owner Meeting	City met with Phil Bontsen, and Ms. Aldridge, a La Vista property owner, to discuss Rawhide Wash.	January 1994
Developer Meeting	City representatives met with CDM to discuss drainage at the waste transfer site on Pima Road.	January 1994
Special Interest Meeting	City representatives met with the Sierra Club to update them on the DGB concept and preliminary design progress.	January 1994
Developer Meeting	City staff met with Grayhawk to discuss the Pima Road Channel.	January 1994
Developer Meeting	City met with Stardust Developers to discuss proposed Rawhide western flood wall.	February 1994

DESERT GREENBELT
PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Agency Meeting	City staff had a Rawhide technical meeting with the State Land Department.	February 1994
Developer Meeting	City staff met with Richard Venert to discuss Pima Channel Outlet.	February 1994
Realtor Meeting	City met with Alex Dorst, an Upper Reata realtor who represents an area property owner, to discuss the Reata Pass Wash.	February 1994
Agency Meeting	City representatives met with Cindy Lester of the Army Corps of Engineers to update her on DGB progress. Another meeting with the Corps on Engineers was held on a separate occasion.	February 1994
Mapping Status/Delay Letter	The Greiner team prepared and distributed a letter to general public and Upper Reata neighbors about the delay in receiving new and more detailed topographic mapping and the likelihood of a project delay.	March 1994
Sierra Club Presentation	The City presented the Desert Greenbelt preliminary design process and schedule at a special meeting for the Sierra Club.	March 1994
Public Participation Evaluation and Update	The City and Greiner team met to review the public participation program progress and results and make adjustments, where needed.	March 1994
City Meeting	City staff gave a management update to Dick Bowers and Frank Fairbanks of the City. City staff then met with Jean Hasell, Jack Tevlin, and Jim Matteson of the City of Phoenix to discuss the detention basin.	March 1994
Resident Meeting	City staff met with CJ Summers, a north Scottsdale resident who is highly interested in DGB and writes editorials about the project to discuss DGB.	March 1994
Developer Meeting	City representatives met with Los Portones Parcel 4 to discuss Rawhide Wash.	March 1994
Property Owner Meeting	City staff met with Fred Fleet, Engineer for a Rawhide property owner in Sonoran Hills, to discuss the Rawhide Wash.	March 1994
Developer Meeting	City met with Roger Tornow to discuss the Pima Road Channel.	March 1994
Developer Meeting	City staff met with IBI Homes (Los Portones Parcel 4) to discuss Rawhide Wash.	March 1994
Property Owner Meeting	City met with Vic Ostro of Rawhide Theme Park to explain the temporary Rawhide dip in Pinnacle Peak Road.	March 1994

DESERT GREENBELT
PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Developer Meeting	City met with Greg of Los Portones Parcel 4 to discuss Rawhide Wash.	March 1994
Developer Meeting	City staff had a project review meeting with Stardust Developers. On a separate occasion, they met with Stardust to discuss Rawhide Wash development plans.	March 1994
Developer Meeting	City met with CMX about Los Portones Parcel 4 structural wall.	March 1994
Builder Meeting	City representatives met with Home Builders Association to discuss the Rawhide Wash.	March 1994
City Employee Videoline	City and Greiner team worked with City Cable Channel 7 to produce Desert Greenbelt segment for April Videoline; this video was shown to all City employees.	April 1994
Agency Meeting	City staff met with State Land Department to discuss Rawhide Wash.	April 1994
Developer Meeting	City met with Brian Baehr and other members of the Grayhawk staff on two occasions to discuss aesthetic issues for Pima Road.	April 1994
Community Open House and Small-Group Workshops Announcement Bulletins	Bulletins were distributed by the Greiner team to residents or property owners along the Upper Reata Pass Wash, the Rawhide Wash, and the Lower Reata/Beardsley Washes to announce upcoming small-group workshops. Bulletins were also mailed to the project mailing list to announce the June open house.	May 1994
Realtor Meeting	City met with Arizona's Best Realtors to give a presentation on DGB.	May 1994
Agency Meeting	City staff met with the State Land Department to discuss DGB.	May 1994
Neighbor Meeting	City met with Milt Eberhard, an Upper Reata neighbor involved in a lawsuit with the City, to discuss DGB.	May 1994
Neighbor Meeting	City staff met with Darrel Smith, a resident of La Vista, to discuss Rawhide Wash.	May 1994
Agency Meeting	City conducted a field trip for Karl Mohr and FEMA.	May 1994
Advertisements in Scottsdale Progress Tribune	The City placed a 1/4-page advertisement into the Scottsdale Progress Tribune to announce June open house.	June 1994

DESERT GREENBELT
PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Press Release	A press release containing details of the upcoming June open house was distributed by the City to local media, city officials, and posted in City employee common areas. It was also used as an announcement in City newsletters and on CityCable Channel 7.	June 1994
Preliminary Design Open House	City and Greiner team representatives held an open house at the Troon Country Club in Scottsdale to present the Phase I Preliminary Design results and to encourage public participation and input into the project's design. Nearly 200 people attended, representing residents, property owners, developers, real estate agents, city officials, special interest groups, agency representatives, and others. The City and the Greiner team were available to speak individually with attendees about their concerns, comments, and questions as well as provide information on the Phase I results. Information on the project was displayed in topical stations which included existing environmental conditions; multi-use opportunities; design concepts; project financing; and project history. Eighty-five of the 200 attendees completed comment cards, which provided team members with valuable information on public concerns and issues.	June 1994
Upper Reata Neighbor Small-Group Workshop	A second workshop was conducted by the City and the Greiner team for neighbors to review further refinements to the alignment and landscape treatments, next steps in preliminary design process, and about alternatives for trails and paths through the area. Eight residents/property owners attended.	June 1994
Rawhide Wash Small-Group Workshop	The City and the Greiner team conducted another workshop for property owners and residents located within or adjacent to the Rawhide Wash alignment. Eleven property owners/residents attended the workshop.	June 1994
Lower Reata Pass/Beardsley Wash Small-Group Workshop	A workshop was conducted by the City and the Greiner team for eight property owners located just south of Bell Road, within the Lower Reata Pass/Beardsley Wash alignment. Although the project team was available, no-one attended this workshop.	June 1994
Follow-up Letter	Because no-one attended the June workshop, a letter was prepared by the Greiner team and mailed to property owners reminding them of how important their input and participation is to the project and asking them to call the City if they would like personal briefings.	June 1994
Developer Meeting	City held a meeting with Los Portones Parcel 4 to discuss Rawhide Wash.	June 1994
Developer Meeting	City staff met with Ron Coleman to discuss DGB alignments.	June 1994
Developer Meeting	City met with David George, Engineer, to discuss Pinnacle Reserve drainage.	June 1994
Developer Meeting	City representatives met with Stardust Developers to discuss Ken Equie's geology results.	June 1994

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PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
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ACTIVITY	RESULT	DATE
Developer Meeting	City staff met with DC Ranch to discuss drainage.	June 1994
Neighbor Meeting	City met with Marion Aldrich of La Vista to discuss Rawhide Wash.	June 1994
Upper Reata Neighbor Small-Group Workshop Summary	The Greiner team prepared a summary of the June workshop which was mailed to all Upper Reata Pass Neighbors.	July 1994
Rawhide Wash Small-Group Workshop Summary	A summary of the June workshop was prepared by the Greiner team and mailed to more than 50 property owners and residents invited to participate in the workshop.	July 1994
Upper Reata Specific Option Briefing	A briefing was conducted by the Greiner team for those residents and landowners with property located within the Upper Reata Pass Wash Corridor. One attorney and two realtors representing residents and landowners attended the briefing. Handouts were made available to the participants.	July 1994
Neighbor Meeting	City conducted a field visit of Rawhide Wash for Marion Aldridge of La Vista.	July 1994
Developer Meeting	City met with Stardust Developers in anticipation of a City Council study session.	July 1994
City Meeting	City conducted a City Council study session to update them on DGB.	July 1994
Agency Meeting	City staff met with State Land Department to discuss North Scottsdale/Phoenix communities.	July 1994
Developer Meeting	City staff conducted a drainage meeting for DMB Developers.	July 1994
Neighbor Meeting	City representatives met with Dick Stover to discuss Upper Reata right-of-way purchase.	July 1994
Property Owner Meeting	City met with Dick Stover, a property owner, and Dennis Haley to discuss the City's right-of-way.	July 1994
Homeowners Association Meeting	City staff met with Beverly Jordano of the Greater Pinnacle Peak Homeowners Association to give her an update on DGB progress.	July 1994
Developer Meeting	City met with DC Ranch to discuss drainage on Reata Pass/Beardsley Wash.	July 1994
Upper Reata Specific Option Briefing Summary	Greiner team prepared and distributed a summary of the July briefing to participants and to all Upper Reata neighbors since no Upper Reata neighbors attended the briefing.	August 1994

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APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Pima Road State Land Department Briefing	A briefing was conducted by the City and the Greiner team for the State Land Department to discuss the implications and benefits for alignment issues for the area between Deer Valley Road north to Jomax Road. Three representatives of the State Land Department attended the briefing.	August 1994
Pima Road State Land Department Briefing Summary	A summary of the August briefing was prepared by the Greiner team and distributed to all participants of the briefing.	August 1994
Developer Meeting	City met with David Hay, Rod DeSpain, and Jon Barry to discuss development at the northeast corner of Pinnacle Peak/Pima Road relative to the Pima Road Channel.	August 1994
Property Owner Meeting	City staff met with Don Hinanon of LaVista to discuss Rawhide Wash.	August 1994
City Meeting	City met with the Design Review Board to conduct a DGB study session.	August 1994
Neighbor Meeting	City conducted a field analysis of Trunkett's, an Upper Reata neighbor's, house.	August 1994
City Meeting	City met conducted a study session/update for the Planning Commission.	August 1994
Agency Meeting	City staff met with Dave Mooty of the City of Phoenix to discuss DGB.	August 1994
Intragovernmental Meeting #2	A second meeting for participating agencies will be conducted by the City and the Greiner team on September 13.	September 1994
Developer Meeting	City met with Grayhawk Developers to discuss the Rawhide AO zone.	September 1994
Developer Meeting	City staff met with Heyl Corporation to discuss Pima Road Channel alignment options.	September 1994
Developer Meeting	City met with Monterey Homes to discuss Pima Road Channel alignment options.	September 1994
Developer Meeting	City representatives met with Grayhawk Developers to discuss proposed detention basin.	September 1994
Developer Meeting	City staff met with Heyl Corporation a consultant to Ash Pattelle to discuss Pima Road Channel alignment options.	September 1994
Property Owner Meeting	City met with Howard Fleishon, an Upper Reata property owner, to discuss Upper Reata Pass Wash alignment.	September 1994
City Council Briefing	City staff briefed the City Council on DGB process and progress.	September 1994

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PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
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ACTIVITY	RESULT	DATE
City Council Open House	City staff participated in the City Council Open House. An informational booth for the Desert Greenbelt Project was established. Newsletters were available for interested parties. A mailing list sign-up sheet was also available for individuals who wanted to receive information materials. Members of the project team were available to answer questions from the public.	October 1994
Up to Date Fall 1994 Newsletter	This newsletter was developed by the Greiner team and distributed to the project mailing list. The newsletter contained a description of preliminary design progress and general information about the project, its design requirements and goals, and public participation program progress and results. It also announced the upcoming open house in October.	October 1994
Agency Meeting	City met with the State Land Department to discuss the Rawhide Wash.	October 1994
Property Owner Meeting	City staff met with Craig Eisenberg to discuss his property located on the northeast corner of Pinnacle Peak and Pima Roads, near the Pima Road Channel.	October 1994
City Council Study Session	The City and Greiner Team participated in a City Council study session to update them and give them a status report on DGB.	October 1994
Developer Meeting	City met with Monterey Homes to discuss the Pima Road Channel.	October 1994
Property Owner Meeting	City staff met with the Brandies regarding the Upper Reata Pass Wash.	October 1994
Neighbor Meeting	The City held an individual meeting for the Happy Valley Ranch neighbors, hosted by Red Hatter, to discuss the design process and what the Rawhide Wash might look like. Approximately five neighbors and property owners attended.	October 1994
Developer Meeting	City staff met with Heyl Corporation to discuss the Pima Road Channel.	October 1994
Neighbor Meeting	The City held an individual meeting for Vistana neighbors, hosted by Teri May, to discuss the Rawhide Wash design process and what the wash might look like. About eight people attended the meeting.	October 1994
Property Owner Meeting	Met with David George, an engineer for Pinnacle Reserve, to discuss the Rawhide Wash.	October 1994
Board Meeting	City conducted a Design Review Board study session to update them on DGB.	October 1994
Commission Briefing	City conducted a Transportation Commission study session to update them on DGB.	October 1994

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PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Realtor Meeting	City met with Nick Bannano, a realtor for La Vista properties, to discuss the Rawhide Wash.	October 1994
Commission Briefing	City participated in a Planning Commission study session to update them on DGB.	October 1994
Property Owner Meeting	City staff met with Mr. Dillon, a resident, and Mr. Stover, a property owner, to discuss the Upper Reata Pass Wash.	October 1994
Board Briefing	City participated in a Parks Board study session to update them on DGB.	October 1994
Specific Option Open House	A community open house was conducted by the City and Greiner Team at WestWorld in Scottsdale to present the specific options for each wash and to encourage public participation during the design studies. Approximately 80 people attended the open house, representing home owners, property owners, developers, realtors, and others. City and Greiner staff were available to speak individually with participants to address their comments, concerns, and questions, to the extent possible. Information presented at the open house was displayed in topical stations which included project background and history; environmental guidelines; design concepts by wash; multi-use opportunities; and project financing concepts. Attendees were asked to complete comment sheets to express any concerns and comments while providing the team with valuable information about their preferences and desires relative to DGB. Approximately 40 people completed comment sheets.	October 1994
Agency Meeting	City met with State Land Department to update them on the Rawhide Detention Basin and present information on DGB.	November 1994
Realtor Meeting	City staff met with Nick Bannano, a realtor for La Vista properties, to discuss the Rawhide Wash.	November 1994
Developer Meeting	The City met with DMB to discuss drainage issues for the Reata Pass/Beardsley Washes.	November 1994
Property Owner Meeting	City met with Mark Unicome, a resident, regarding the Upper Reata Pass Wash.	November 1994
Property Owner Meeting	City staff met with Mr. Marklo, a resident, to discuss the Reata Pass Wash.	November 1994
Realtor Meeting	City met with John Long about the Reata Pass Wash.	November 1994
Agency Meeting	The City met with John Miller, Chairman of Flood Control District Advisory Board, to discuss funding opportunities for the Upper Reata Pass Wash.	December 1994
Property Owner Meeting	City staff met with property owners of Los Portones Parcel 4 to discuss Rawhide Wash.	December 1994

DESERT GREENBELT
PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Elected Officials Meeting	City staff met with new Congressmen Salmon, Hayworth, and Shadegg to give them an update on DGB.	December 1994
Property Owner Meeting	City met with representatives of Los Portones Parcel 4 and Greater Pinnacle Peak Homeowners' Association to discuss Rawhide Wash.	December 1994
Developer Meeting	City staff met with DMB and DC Ranch to discuss Reata Pass/Beardsley Washes.	December 1994
Agency Meeting	The City met with the State Land Department regarding the Rawhide Wash Detention Basin.	January 1995
Realtor Meeting	The City and Greiner Team met with a group of realtors who belong to the Multiple Listing Service and presented a general overview of the Desert Greenbelt Project and its planning process. Attendees were able to ask questions and have their concerns addressed following the presentation during a question and answer session.	January 1995
Agency Meeting	City staff met with Mike Tomak of the Corps of Engineers to discuss DGB.	January 1995
Agency Meeting	The City met with FEMA to discuss the Rawhide Wash special flood hazard area.	February 1995
Realtor Meeting	Greiner Team met with a group of realtors with Russ Lyon Realtors and presented a general overview of the Desert Greenbelt Project and its planning process. Attendees were able to ask questions and have their concerns addressed following the presentation during a question and answer session.	February 1995
Developer Meeting	City staff met with Pinnacle Reserve regarding Rawhide Wash drainage issues.	February 1995
Property Owner Meeting	City met with Ted Freeman, a property owner, to discuss Upper Reata Pass Wash.	February 1995
Property Owner Meeting	City held a meeting with Pinnacle Reserve neighbors about Rawhide Wash.	February 1995
Agency Meeting	City staff met with ADOT to discuss Pima Road Channel.	February 1995
Property Owner Meeting	City met with Steven Voss, who owns property near Pima and Bells Roads, regarding the Pima Road Channel.	February 1995
Commission Briefing	City staff met with the Planning Commission regarding Pinnacle Reserve.	February 1995
Developer Meeting	City met with Phil Benson of Pinnacle Builders to discuss Desert Village and the placement of retention basins within the Pima Road Channel.	March 1995

DESERT GREENBELT
PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Up to Date Spring 1995 Newsletter	A newsletter was developed by the Greiner team and was distributed to the project mailing list. The newsletter addressed some of the funding methods and concepts under consideration, summarized comments heard at the October 1994 Community Open House, and discussed ways the public could review upcoming reports.	March 1995
Specific Wash Brochures	Three separate brochures were developed by Greiner for Rawhide Wash, Reata/Beardsley Washes, and Pima Road Channel. Each contained information about progress made with Desert Greenbelt, the proposed solution for each individual wash, a map locating the wash, cross-section treatments and options, a comment sheet requesting feedback on the proposed solution, and an invitation to open houses for the proposed solutions. These brochures were mailed to those individuals who own property or live adjacent to a wash and are most impacted by Desert Greenbelt.	March 1995
Specific Wash Open Houses	City and Greiner team held Open Houses on three consecutive evenings for the proposed solutions for each wash. Invitees included those individuals who own property or live adjacent to a wash. Project team members were available to discuss questions and concerns individually. In addition, comment sheets requesting feedback on the proposed solutions were available for attendees to complete. Overall, approximately 25 people attended the open houses.	March 1995
Developer Meeting	City staff met with Convest regarding right-of-way issues specific to Lothar Rowe's property in the Upper Reata Pass Wash area.	March 1995
Property Owner Meeting	City met with Tony LaRussa, an individual property owner, to tour his lot and discuss Upper Reata Pass Wash design.	March 1995
Agency Meeting	City met with State Land Department to discuss the Rawhide Wash.	March 1995
Property Owner Meeting	City staff met with Perimeter Center and WestCor to discuss the Pima Road Channel.	March 1995
Agency Meeting	The City met with ADOT to discuss the Outer Loop along Pima Road Channel.	March 1995
Developer Meeting	City met with Brian Baehr of Grayhawk developers about the Pima Road Channel.	April 1995
Developer Meeting	The City met with DMB on assessments for the Reata Pass Wash and Pima Road Channel.	April 1995

DESERT GREENBELT
PRELIMINARY DESIGN PUBLIC PARTICIPATION ACTIVITIES
APRIL 1993-MAY 1995

ACTIVITY	RESULT	DATE
Up to Date Summer 1995 Newsletter	A newsletter, developed by the Greiner team, was distributed to the project mailing list. The newsletter presented the results of the preliminary design effort, described the funding recommendations for each wash, summarized comments heard at the March Specific Wash Open Houses and the June Community Open House, explained the upcoming final design process, and discussed ways for the public to review project reports.	June 1995

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ACTIVITY	RESULT	DATE
Up to Date Summer 1995 Newsletter	A newsletter, developed by the Greiner team, was distributed to the project mailing list. The newsletter presented the results of the preliminary design effort, described the funding recommendations for each wash, summarized comments heard at the March Specific Wash Open Houses and the June Community Open House, explained the upcoming final design process, and discussed ways for the public to review project reports.	June 1995

Appendix G. Metric/English Conversion Table

Common Conversion Factors

Class	Multiply:	By:	To Get:
Area	acre	4,047.0	m^2
	acre	0.4047	ha (10,000 m^2)
	ft^2	0.0929	m^2
	yd^2	0.8361	m^2
	mi^2	2.590	km^2
Length	ft	0.3048*	m
	in	25.4*	mm
	mi	1.6093	km
	yd	0.9144*	m
Volume	ft^3	0.0283	m^3
	gal	3.785	L**
	fl oz	29.574	mL**
	yd^3	0.7646	m^3
	acre ft	1,233.49 or 325,900	m^3 or gal
Mass	oz	28.35	g
	lb	0.4536	kg
	kip (1,000 lbs)	0.4536	tonne (1000 kg)
	short ton (2,000 lbs)	907.2	kg
	short ton	0.9072	tonne (1000 kg)
Density	lb/yd^3	0.5933	kg/m^3
	lb/ft^3	16.0185	kg/m^3
Pressure	psi	6,894.7	Pa
	ksi	6.8947	MPa (N/mm^2)
	lb/ft^2	47.88	Pa
Velocity	ft/s	0.3048*	m/s
	mi/h	0.4470	m/s
	mi/h	1.6093	km/h
Light	footcandle (lumen/ft^2)	10.764	lux (lx) (lumen/m^2)
Temperature	°F	$t_{°C} = (t_{°F} - 32)/1.8$	°C

* Exact

** Both "L" and "l" may be used for liter. However, "L" is preferred so as not to be confused with the numeral "1".