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# 56th and 64th Street Extensions (Bell Road - Pima Freeway) Environmental Assessment

U.S. Bureau of Reclamation  
Phoenix Area Office  
Lower Colorado Region  
Phoenix, AZ



July 31, 1997

497-2911

**Draft**  
**Environmental Assessment for the**  
**56<sup>th</sup> and 64<sup>th</sup> Street Extensions**  
**(Bell Road - Pima Freeway)**  
**City of Phoenix**

*Project Proponent:*

City of Phoenix

*Prepared for:*

U.S. Bureau of Reclamation  
Phoenix Area Office  
P.O. Box 9980  
Phoenix, AZ 85068-0908  
Contact: Sandy Eto  
602-395-5685

*Prepared by:*

Logan Simpson & Dye LLC  
398 S. Mill Avenue, Suite 200  
Tempe, Arizona 85281  
602-967-1343

July 31, 1997

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## I. LOCATION AND NEED FOR THE PROJECT

The City of Phoenix (City) is planning to extend 56th and 64th Streets from Bell Road north over the Central Arizona Project Canal (CAP Canal) to the future Pima Freeway (State Route 101L) in Maricopa County, Arizona. The purpose of the City's proposed project is to accommodate transportation needs associated with urban development north of the CAP Canal. The extensions of 56<sup>th</sup> and 64<sup>th</sup> streets would cross the CAP Canal (also known as the Hayden-Rhodes Aqueduct or Granite Reef Aqueduct), cut through the flood-retention dike north of the CAP Canal, and extend through the Paradise Valley Flood Detention Basin. The lands upon which the CAP Canal, dike and basin are located were acquired by Bureau of Reclamation (Reclamation) for the Central Arizona Project. Reclamation approval is needed by the City to construct the proposed crossings.

### A. Background

Construction of the CAP Canal was authorized by the Colorado River Basin Project Act (Public Law 90-537) in September 1968. The CAP Canal delivers Colorado River water to service areas in several Arizona counties. The *Granite Reef Aqueduct Central Arizona Project Arizona-New Mexico Environmental Impact Statement* (EIS) was completed in January 1974. The 1974 EIS stated that the actual number of road/bridge crossings over the CAP Canal would vary and would be negotiated with Federal, State, and local (municipalities and county) agencies, as well as the Native American communities.

As part of the CAP Canal, a flood-retention dike and the Paradise Valley Flood Detention Basin were constructed to provide flood water protection for the CAP Canal and the adjacent communities of Phoenix, Paradise Valley, and Scottsdale. This basin extends across Paradise Valley, beginning at Cave Creek and Deer Valley Roads, to just north of the intersection of Shea Boulevard and the CAP Canal, near 120th Street. The portion of the Paradise Valley Flood Detention Basin located between Cave Creek and Scottsdale Roads is managed by the City's Parks, Recreation and Library Department (PRLD) for secondary recreational purposes under a land use agreement with Reclamation, and is commonly known as the Reach 11 Recreation Area.

## 1. Land Use Agreement

In December 1986, Reclamation entered a formal recreational land use agreement with the City for public recreation management and development of the Reach 11 Recreation Area. Planning for Reach 11, however, had started in 1974, with an ad hoc committee consisting of representatives from the City, Maricopa County, Federal and State agencies. The committee developed a conceptual recreation plan for Reach 11 between Cave Creek and Scottsdale Roads that was accepted by Reclamation in 1975. The City's PRLD updated the 1975 conceptual plan in 1985 to reflect the needs of the community based upon City staff and citizen input. The plan essentially designated this portion of Reach 11 as a major, full-service, open space recreation green belt. Revised recreation master plans were adopted by the Phoenix Parks and Recreation Board (Board) in 1987 and 1995. These revised plans have not been approved by Reclamation. The City intends to update the recreation master plan starting in the fall of 1997, and obtain Reclamation's approval for its implementation. Reclamation currently anticipates that an environmental assessment will be prepared in association with this updated recreation master plan process<sup>1</sup>.

## 2. Roadway Extension Studies

Until the early 1980s, long-range plans of both the City and the Maricopa Association of Governments (MAG) suggested three arterial street crossings (Cave Creek, Tatum and Scottsdale roads) of the CAP Canal in the northeast Phoenix area. In 1987, the City's Transportation Planning Studies for the Peripheral Area C and D Plan recommended four additional arterial street crossings, 32<sup>nd</sup>, 40<sup>th</sup>, 56<sup>th</sup>, and 64<sup>th</sup> Streets. However, the City subsequently decided that the Squaw Peak Parkway (State Route 51) eliminated the need for the 40<sup>th</sup> Street crossing, and removed it from the City's street system in 1992. The City determined in October of 1995 that a crossing at 32<sup>nd</sup> Street was not desirable because it would be too far west to serve the planned village core/major employment centers effectively, and because there is no interchange planned with the Pima Freeway at 32<sup>nd</sup> Street. As a result, the City determined that 56<sup>th</sup> and 64<sup>th</sup> street extensions would

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<sup>1</sup>The City's schedule for constructing the 56<sup>th</sup> Street Crossing and revising the master recreation plan does not permit the consolidation of these projects into one environmental assessment. To the extent possible, the process of identifying potential borrow areas to be used for both crossings has carefully taken into consideration the impacts to and opportunities for, future recreational development.

better serve the area's transportation system and planned development needs, and began an alignment study for roadway crossings over the CAP Canal and dike at 56<sup>th</sup> and 64<sup>th</sup> streets.

Public meetings were held in November and December of 1995 to receive citizens input on the specific roadway alignments and proposed mitigation features. The City worked closely with the residents to address their concerns regarding negative impacts to their neighborhood, such as access, aesthetics, noise, and safety. Presentations to the City Council on the proposed roadway extension alignments were made in February and March of 1996. At the present time, the 64<sup>th</sup> Street extension is not programmed for design or construction, but the 56<sup>th</sup> Street extension is currently funded for design and construction. Additional information on the specific roadway alignment considerations is provided in the Appendix A.

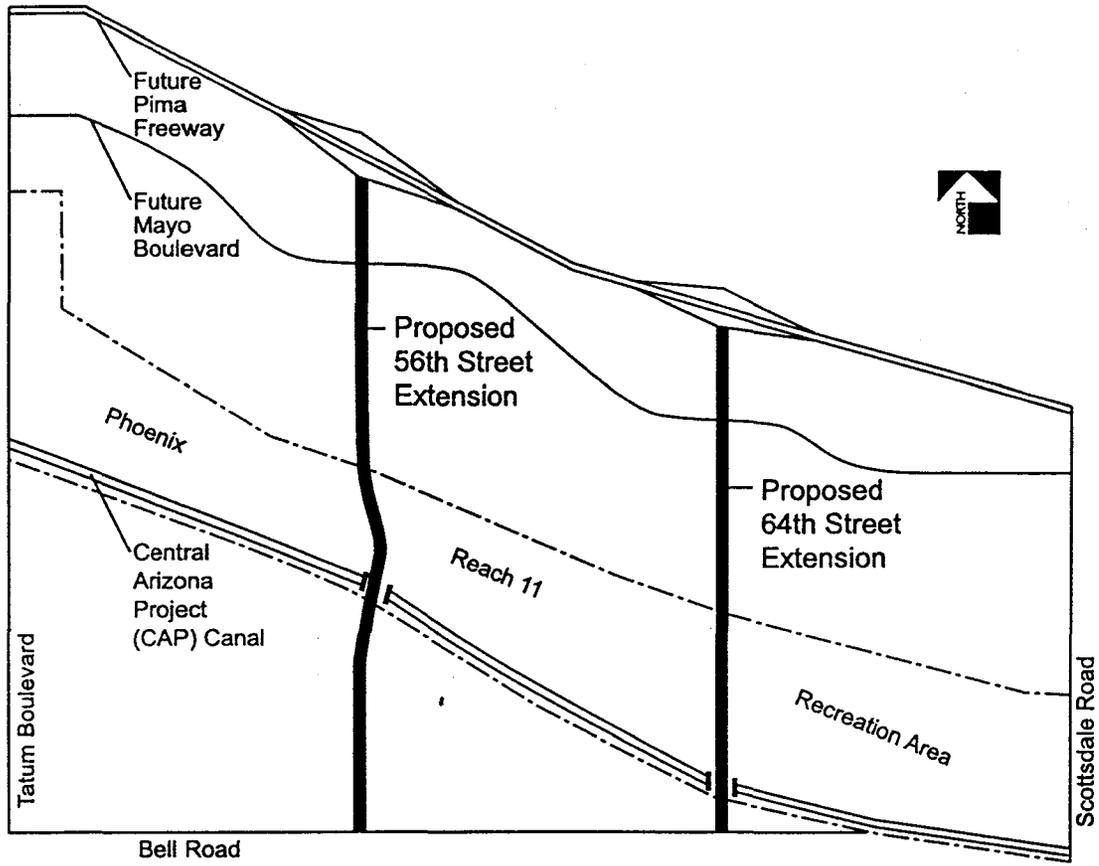
## **B. Project Location**

The proposed action includes the extension of both 56<sup>th</sup> and 64<sup>th</sup> Streets from Bell Road to the future Pima Freeway in Maricopa County, Arizona (Figure 1). The project area is bounded on the west by Tatum Boulevard and on the east by Scottsdale Road.

## **C. Purpose and Need**

### **1. Roadway Extensions**

The purpose of the 56<sup>th</sup> and 64<sup>th</sup> street extensions is to add north-south CAP Canal crossings in order to alleviate traffic congestion, and increase the capacity of the City's regional transportation network. The northeast Phoenix area north of the CAP Canal near Reach 11 is experiencing rapid growth. Approximately 150,000 people currently reside in the Paradise Valley area. By the year 2020, this area is expected to expand to a total population of approximately 335,000. A village core (the central focus of a community planning area with the highest development intensity) is planned for the area between Tatum Boulevard and 56<sup>th</sup> Street, near the Pima Freeway. Planned land uses within this core will include residential development, regional shopping and major employment centers. The 1996 Amendment to the Desert Ridge Specific Plan allows



**Figure 1. Project Location**  
 56th and 64th Street Extensions (Bell Road to Pima Freeway)  
 Environmental Assessment

intensified commercial development and additional employment centers between Tatum Boulevard and Scottsdale Road, and between Reach 11 and the Pima Freeway.

The entire Pima Freeway should be completed by 2005. Traffic volume on Tatum Boulevard at that time is projected to be 46,000 vehicles per day, exceeding the capacity of this six-lane arterial street. Travel across the CAP Canal is expected to increase from 142,000 in 2005 to 254,000 in 2015. These forecasted traffic projections are considered conservative by the City. The City acknowledges that the construction of Mayo Hospital, Sitix of Phoenix, and the Desert Ridge Master Planned Community could significantly accelerate development of the Paradise Valley area, especially north of the CAP Canal. Based on these traffic forecasts, population projections, anticipated future development, and the completion of the MAG freeway system, widening both Tatum Boulevard and Cave Creek Road to six lanes will not provide adequate service to the area. Therefore, the 56<sup>th</sup> and 64<sup>th</sup> Street extensions are needed to satisfy the transportation needs of the City.

## 2. Environmental Assessment

The purpose of the environmental assessment is to describe the environmental consequences anticipated to result from Reclamation's approval of the City's proposed roadway crossings. Reclamation's approval of the project is needed to ensure that: (1) the integrity and operation of the CAP Canal structures, including the detention basin and dike, would not be adversely affected by the construction and operation of the proposed action; (2) the proposed roadway extensions would be compatible with planned and/or potential recreational uses within the detention basin; and (3) any anticipated reduction in recreational development potential would be addressed through mitigation measures. This environmental assessment has been prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended.

## II. PROJECT DESCRIPTION

This section describes the 56<sup>th</sup> and 64<sup>th</sup> Street extension alignments across Reach 11, and the alternatives considered for the material borrow sites<sup>2</sup>. The public and affected agencies participated in the development of these street extension alignments and borrow site locations by providing input on environmental and user considerations.

### A. Background

Because the primary purpose of the flood detention basin is to provide flood protection for the CAP Canal and the areas south of the CAP Canal, decreasing the overall flood storage capacity of the dike basins is prohibited by Reclamation. If material is imported into the basin, an equal volume of material must be removed from that basin to compensate for the reduced capacity. Excavating the material needed to construct the crossing embankments from within the basin itself would maintain the flood storage capacity. Obtaining borrow material adjacent to the basin would require a hydrological connection between the resulting borrow area and the flood detention basin. Other Reclamation requirements for this portion of Reach 11 include no excavation within 200 feet of the dike and a five-foot maximum depth of excavation within the basin area between 200 feet and 500 feet from the toe (base) of the dike.

In addressing issues specifically related to Reach 11, representatives from the City's Street Transportation, Water Services, and PRLD, Reclamation, and Arizona Game and Fish Department (AGFD) worked together to identify potential borrow site location alternatives for both roadway crossings. In January 1997, Reclamation requested scoping comments from the public and from Federal, State and local agencies. Input from local residents, interested individuals, and agencies was taken into consideration in determining the proposed borrow sites and the additional alternative borrow sites identified and described in this environmental assessment.

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<sup>2</sup> Borrow material is defined as excavated earthen material taken from one place and used in another.

## **B. Proposed Action**

The major design features of the 56<sup>th</sup> and 64<sup>th</sup> Street extensions would include: a 4-lane roadway with bike lanes and sidewalks that would cut through the upper portion of the dike; a bridge over the CAP Canal; a bridge inside the Reach 11 Recreation Area; multi-use recreational paths connecting 56<sup>th</sup> and 64<sup>th</sup> Streets to the existing Reach 11 trail system; and two borrow material areas within the Reach. Figure 2 illustrates the location of the 56<sup>th</sup> and 64<sup>th</sup> street extensions and the proposed borrow sites. Preliminary roadway plan and profile information for roadway extensions are included in Appendix B. A basin equalization bridge structure would be required within the Reach to pass flood waters under each roadway (Figure 3). Earthen embankments would be required within the Reach 11 Recreation Area to build the roadway and reconfigure part of the dike to maintain flood protection. The embankment fill for 56<sup>th</sup> Street would require approximately 130,000 cubic yards of material; for 64<sup>th</sup> Street, approximately 315,000 cubic yards of material would be needed. Approximately 23 acres of land within Reach 11 would be disturbed by the roadways, and an estimated 35.5 acres for the two borrow sites. The proposed borrow locations (Sites #3 North and #5) for the roadway embankments are adjacent to the roadway alignments. The depth of the borrow site for 56<sup>th</sup> Street would range from five to ten feet, while the borrow site depth for 64<sup>th</sup> Street would be approximately ten feet.

The approximate construction cost of both roadway extensions including right-of-way acquisition, roadway, and bridges, would be \$17,100,000 (\$8,600,000 for 56<sup>th</sup> Street and \$8,500,000 for 64<sup>th</sup> Street). For the excavation of the proposed borrow sites, including haul cost and cost of borrow material from Reclamation, the approximate construction cost would be \$360,000 for 56<sup>th</sup> Street and \$870,000 for 64<sup>th</sup> Street, for a total of \$1,230,000. The combined total estimated cost of the proposed action for the roadway extensions and borrow material is \$18,330,000.

## **C. Alternative Borrow Sites Under Consideration**

A total of eight borrow site locations was evaluated as feasible sites for the proposed action (Figure 4). An evaluation matrix was prepared (Table 1) for comparative purposes. The criteria for evaluating the borrow sites included the depth of excavation, wildlife effects, recreation compatibility, drainage impacts and other considerations such as potential effect on cultural

resources. In addition, minimizing the length of construction haul roads and obtaining all the borrow material needed from no more than two sites were also considered in the evaluation of the borrow sites. The longer the haul roads, the greater the temporary impacts would be to existing vegetation and recreation activities within the Reach during construction.

Three borrow site locations, Alternative Sites #1, #3, and #7 were identified for further consideration and are illustrated in Figure 5. Alternative Site #1 is located at the easternmost edge of Reach 11, adjacent to the west side of Scottsdale Road. Site #1 would be used for borrow material for both 56<sup>th</sup> and 64<sup>th</sup> Streets. This site would range in size from 20 acres to 50 acres depending on the depth of the basin, which could vary from five feet to 14 feet. The cost estimate for the excavation, hauling of material and material cost for Alternative Site #1 would be approximately \$1,740,000.

Alternative Site #3<sup>3</sup> would cover approximately 40 acres with depths ranging from four feet to 11 feet, and would provide borrow for both 56<sup>th</sup> and 64<sup>th</sup> Streets. The cost estimate for the excavation, hauling of material, and material cost for this entire site would be approximately \$1,340,700.

Alternative Site #7 is located outside Reach 11, east of the proposed 64<sup>th</sup> Street alignment. This site would be used for borrow material for both 56<sup>th</sup> and 64<sup>th</sup> streets. Alternative Site #7 would be approximately 20 acres in size and 28 feet deep. In addition, a pipe would be required to hydraulically connect the borrow site to the Reach to meet Reclamation flood water storage requirements for the basin. Reclamation requested that at least one site outside Reach 11 be evaluated for further consideration. Alternative Site #7 was considered to be the best of the three borrow areas located outside Reach 11. The cost estimate for the excavation, hauling of material, material cost and land acquisition would be approximately \$3,360,000.

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<sup>3</sup>The northern area of this site is referred to as Alternative #3 North and is the proposed borrow site location described previously for the 64th Street embankment material.

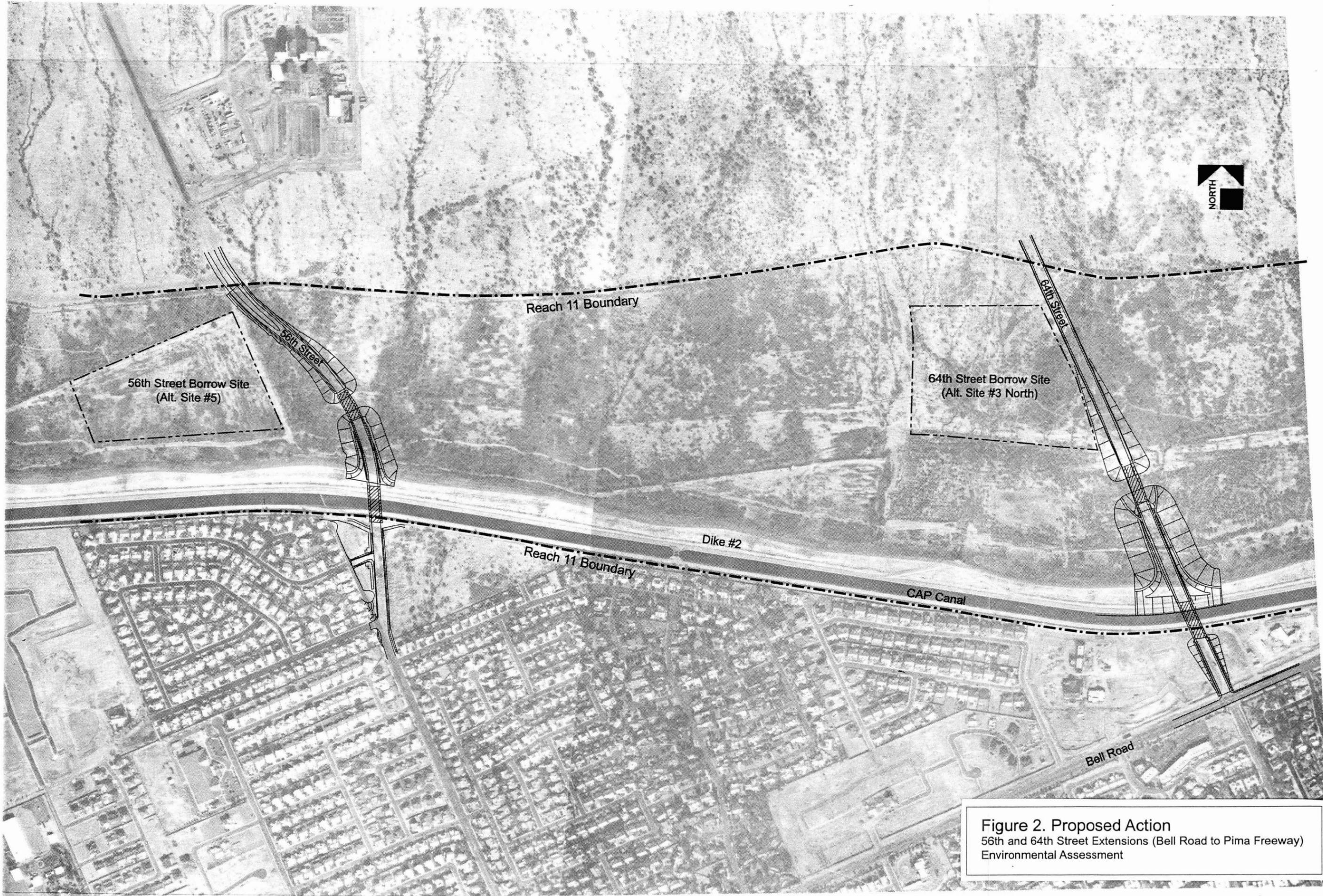
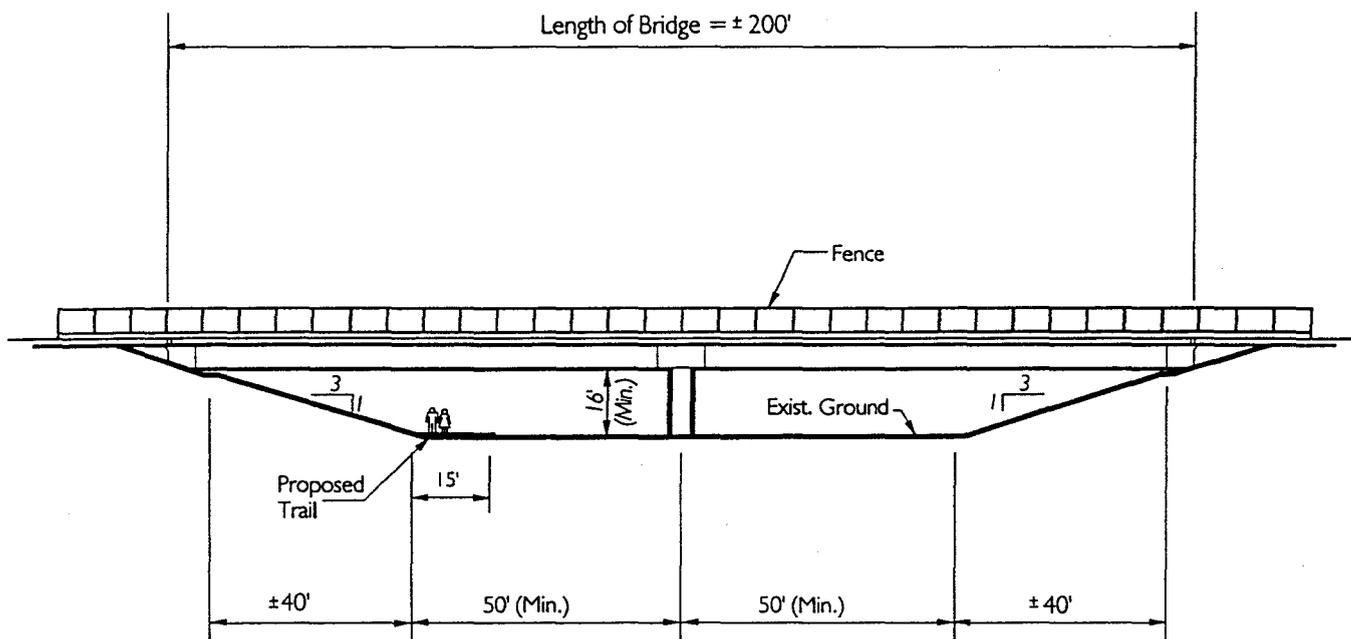


Figure 2. Proposed Action  
56th and 64th Street Extensions (Bell Road to Pima Freeway)  
Environmental Assessment



**NOTE:**  
 Bridge design to provide for  
 under bridge lighting and low  
 flow drainage as necessary.

**Figure 3. Typical Section for 56th and 64th  
 Street Reach 11 Bridges**  
 56th and 64th Street Extensions (Bell Road to Pima Freeway)  
 Environmental Assessment

#### **D. "No Action" Alternative**

Under the "No Action" Alternative, the two street extensions and consequently the borrow areas, would not be constructed across the CAP Canal or Reach 11. The "No Action" Alternative would not meet the purpose and need for the project, but will be used in the discussion of environmental consequences for comparative purposes.

#### **E. Alternatives Considered but Eliminated from Further Consideration**

Alternative Sites #2, #4, #6, and #8 were initially evaluated as borrow sites, but eliminated from further evaluation. Alternative Site #2 was eliminated because of the length of the haul road necessary during construction, and because it provided less flexibility for future recreational development when compared to Site #1. Alternative Site #4 would only provide approximately half the borrow needed for 56<sup>th</sup> Street, therefore requiring that more than two sites be excavated to supply all of the borrow material. Of the three off-Reach borrow sites, Site #6 was eliminated because it would be the most difficult to provide a satisfactory hydrologic connection to the basin. Alternative Site #8 would have a longer haul road route than the more centrally located Site #7, and was consequently eliminated from further consideration.

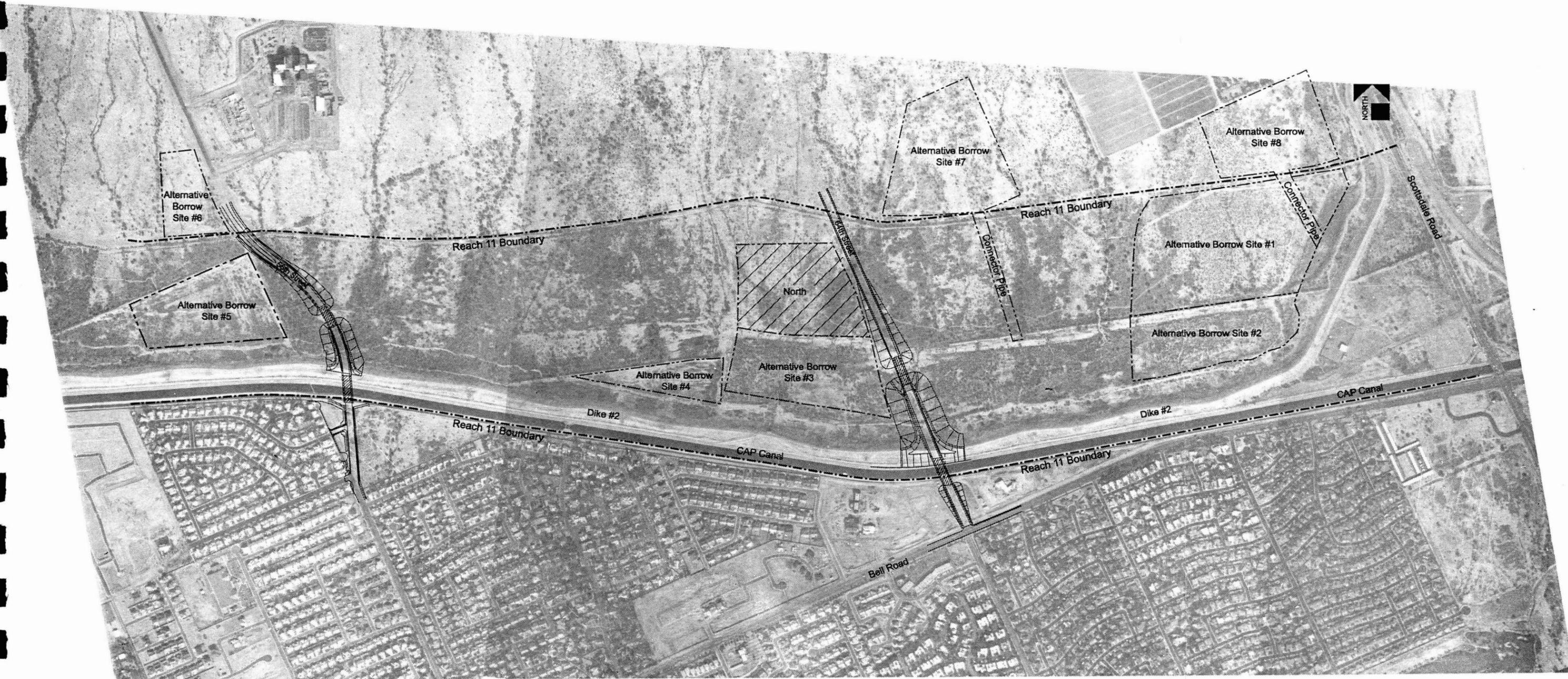


Figure 4. Potential Borrow Sites  
56th and 64th Street Extensions (Bell Road to Pima Freeway)  
Environmental Assessment

Table 1. Borrow Site Location Evaluation Matrix

Site #	Evaluation Criteria												
	Volume of Fill Material Available	Approx. Area of Land Disturbance	Approx. Depth of Excavation	Recreation Compatibility/Potential Recreation Value <sup>1</sup>	Approx. Haul Road Distance	Previous Land Use	Wildlife Habitat Value	Future Wildlife Habitat Value	Fragmentation of Habitat	Impacts to Existing Washes	Site Drainage	Other Considerations	Cost <sup>2</sup>
1	Both 56th & 64th Streets.	20 acres to 50 acres depending on depth of excavation.	5 ft for 50-acre basin; 14 ft for 20-acre basin.	Does not prohibit planned developed recreation activities.	2 mile haul road distance to 56th St. and approx. 1 mile haul road to 64th St.	Relatively undisturbed area.	Low to moderate habitat value.	Low habitat value.	Minimal fragmentation.	One existing wash would be impacted. The upstream watershed has been cut off by Chauncy Ranch.	Excavated site can drain to the previous CAP borrow site.	Potential impact on Rio Verde Canal.	\$1,740,000 for both 56th and 64th St.; \$590,000 for 56th St.; \$1,150,000 for 64th St.
2	56th Street only.	14 acres.	5 ft. within 500 ft. of the dike and 10 ft. beyond 500 ft. of the dike.	Does not prohibit planned developed recreation activities.	2 mile haul road to 56th St.	Site is within previous CAP borrow site.	Low habitat value.	No change.	Minimal fragmentation.	No impact to existing washes.	Site is within previous CAP borrow site.		\$590,000 for 56th St.
3	Both 56th & 64th Streets.	40 acres for both; 20 acres for 56th St.	4 ft. to 10 ft.	Does not prohibit planned developed recreation activities.	0.75 mile haul road to 56th St. and 0.25 miles haul road to 64th St.	Portion of site lies within previous CAP borrow site; remainder in undisturbed area.	Low habitat value within previous CAP borrow site; low to moderate in undisturbed area.	Low to Moderate habitat value.	Minimal fragmentation.	Four existing washes in undisturbed area would be affected.	Site would create a low spot in the west end of the previous CAP borrow site.		\$1,340,700 for both 56th and 64th St.; \$475,000 for 56th St.; \$865,700 for 64th St.
4	Half of 56th St.	9 acres.	5 ft.	Does not prohibit planned developed recreation activities.	0.5 mile haul road to 56th St.	Site previously used for agriculture.	Low habitat value.	No change.	Minimal fragmentation.	None.	Site could drain to previous CAP borrow site.		\$195,000 for 45% of 56th St. requirement.
5	56th St. only.	15 acres.	5 ft to 10 ft (5 ft within 500 ft of dike).	Does not prohibit planned developed recreation activities.	Minimal haul; site adjacent to 56th St.	Site previously used for agriculture.	Low habitat value.	No change.	Moderate fragmentation.	None.	Site creates a low spot; however it only collects on-site runoff. Off-site runoff is diverted.		\$360,000 for 56th St.
6	56th St. only.	10 acres (9 acres for borrow site and 3 acres for connector pipe).	15 ft.	Increased recreation opportunity. Site has moderate suitability for developed or passive recreation activities due to security concerns.	Minimal haul; site adjacent to 56th St.	Undisturbed area.	Moderate habitat value.	Very low habitat value.	Moderate fragmentation.	One existing wash in undisturbed area would be affected.	Site would include connector storm drain to Reach 11 Basin; hydraulic connection to Reach more difficult.		\$1,400,000 for 56th St.; includes cost of land.
7	Both 56th and 64th St.	20 acres (19 acres for borrow site and 1 acre for connector pipe).	28 ft.	Increased recreation opportunity. Site has low suitability for developed or passive recreation activities due to security concerns and depth of site limits public access.	1 mile haul road to 56th St.; minimal haul to 64th St.	Undisturbed area.	Low habitat value.	Low habitat value.	Minimal fragmentation.	One existing wash would be impacted.	Site would include connector storm drain to Reach 11 Basin.	Potential impact on Rio Verde Canal.	\$3,360,000 for both 56th and 64th St.; \$1,240,000 for 56th St.; \$2,120,000 for 64th St.; includes cost of land.
8	Both 56th and 64th St.	20 acres (19 acres for borrow site and 1 acre for connector pipe).	28 ft.	Increased recreation opportunity. Site has low suitability for developed or passive recreation activities due to security concerns and depth of site limits public access.	2 mile haul road to 56th St.; 1 mile haul road to 64th St.	Undisturbed area.	Low to Moderate habitat value.	Low habitat value.	Minimal fragmentation.	One existing wash would be impacted. The upstream watershed has been cut off by Chauncy Ranch.	Site would include connector storm drain to Reach 11 Basin.		\$3,700,000 for both 56th and 64th St.; \$1,300,000 for 56th St.; \$2,400,000; includes cost of land.

(1) Information based on 1987 Recreation Master Plan.

(2) Cost estimate includes haul cost and cost of borrow material from Reclamation.

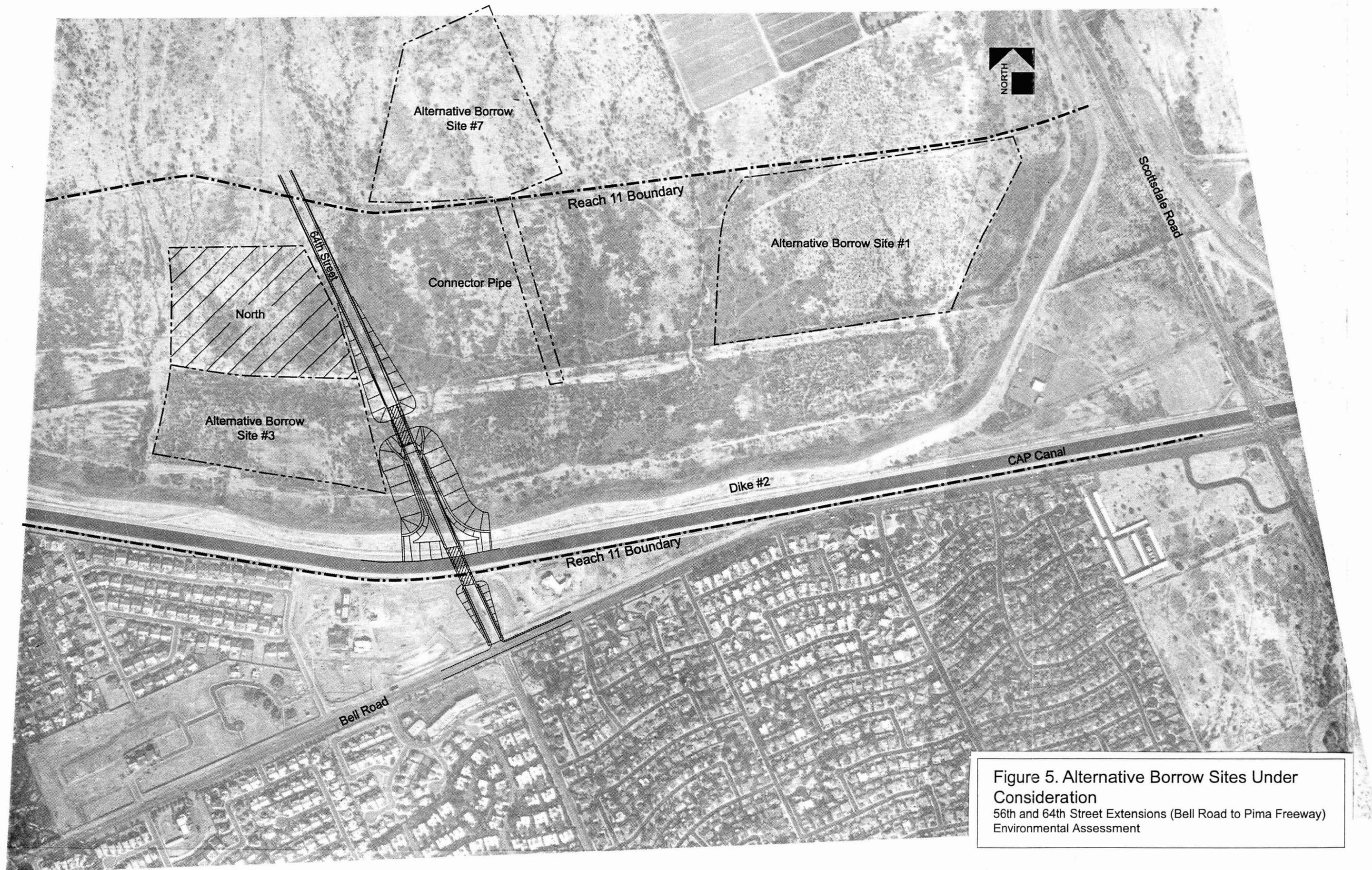


Figure 5. Alternative Borrow Sites Under Consideration  
56th and 64th Street Extensions (Bell Road to Pima Freeway)  
Environmental Assessment

### III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The following information describes the existing conditions of the project area and the potential effects of the proposed action and alternatives to be considered further. Proposed measures to avoid or minimize impacts are identified in Section IV. Mitigation Commitment.

#### A. Site Character and Land Use

##### 1. Affected Environment

*Project Area.* Located in the northern portion of Paradise Valley, the project area is on a relatively flat south-sloping alluvial fan that comes off the McDowell Mountains and the Cave Creek/Carefree highlands. Elevations range from 1,520 to 1,540 feet above sea level. Numerous small to mid-sized drainages dissect the area flowing from northeast to southwest. These washes end either at the historic Rio Verde Canal or at the base of the dike that protects the CAP Canal. Existing vegetation patterns have been artificially created by previous land uses and the occasional water impounded behind the dike. Natural surface trails criss-cross the project area, providing multiple-use pathways within the Reach.

South of the CAP Canal, land use is predominately residential, and north of the Reach, the area is relatively undeveloped. Between Reach 11 and the Pima Freeway, and from Tatum Boulevard to 64<sup>th</sup> Street, the area is planned for commercial, institutional, and industrial park uses according to the Desert Ridge Specific Plan. Single family residences are already established between Bell Road and the CAP Canal along 56<sup>th</sup> Street. Along 64<sup>th</sup> Street, between Bell Road and the CAP Canal, are public/quasi-public uses (church/mortuary) that have already granted right-of-way to the City for the extension of the roadway. The Arizona State Land Department owns a substantial portion of the land to the north of the Reach. Privately-owned land is found immediately to the south and north of the project area (Figure 6).

Historically land within the Reach has been used for agriculture, off-road vehicle use and as a borrow area. The project area shows evidence of a variety of additional uses including shooting, trespass grazing, illegal trash dumping, equestrian, and canal construction (both the Old Verde

and CAP Canals). As part of the Reach 11 Recreation Area, the basin is currently being used for passive recreational activities such as bird and wildlife watching, hiking, bicycling, equestrian and picnicking.

*Site Specific Conditions.* Alternative Site #5 (one of the proposed borrow areas) is located within one of the old agricultural areas within the Reach.

## 2. Environmental Consequences

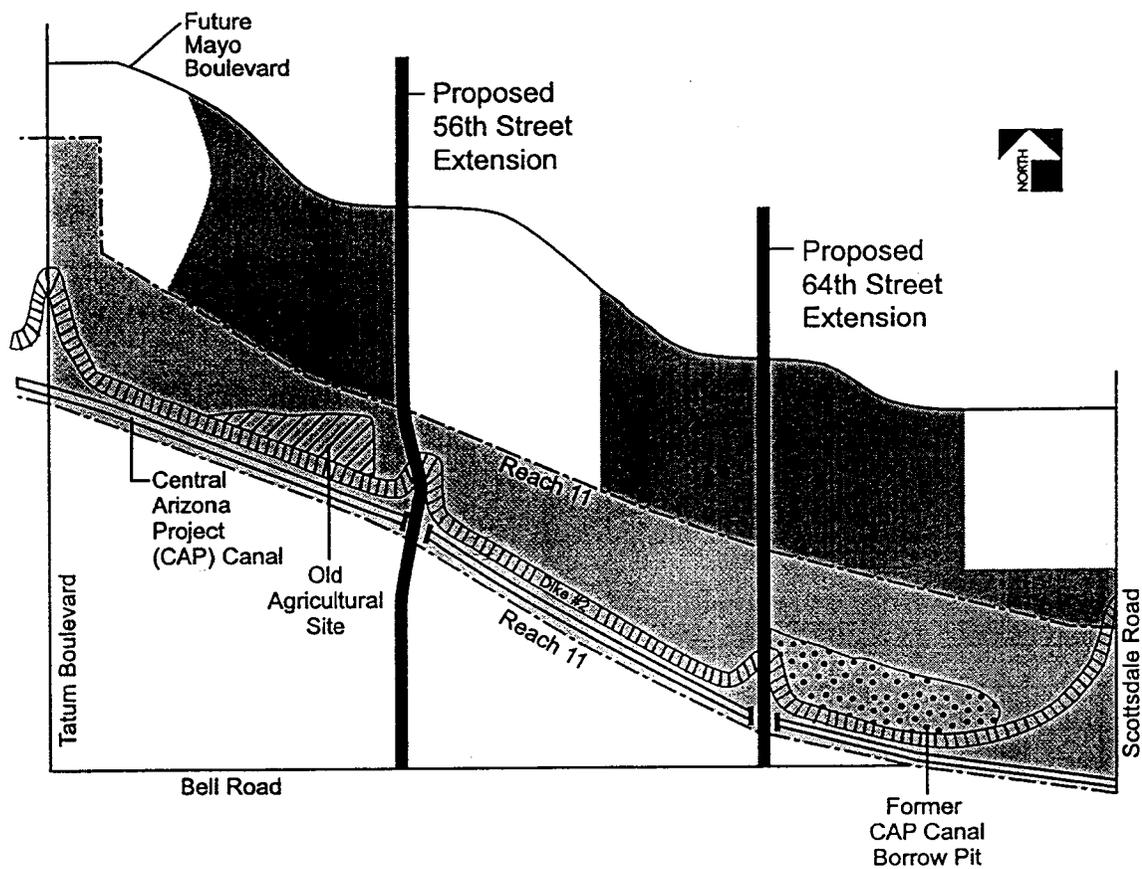
The description of the potential impacts to recreation is provided in Section III. H. Recreation and Social Resources. Construction of the roadway extensions would create temporary minor traffic delays in the existing residential areas on 56<sup>th</sup> Street south of the CAP Canal. Access to existing properties would be maintained throughout construction. The 56<sup>th</sup> Street roadway alignment would be shifted to the east away from existing residences to maintain safe residential accessibility and to buffer any potential noise impacts created by additional traffic volume. Development of those properties north of the Reach would likely accelerate because of the access provided by the construction of 56<sup>th</sup> and 64<sup>th</sup> Streets, and in particular, the connection to the Pima Freeway. There would be no long term adverse effect on existing residential and planned commercial/industrial/institutional uses adjacent to the Reach from the proposed action or alternative borrow sites.

*No Action Alternative.* Without the extension of the streets to the Pima Freeway, the rate at which the land adjacent to the northern boundary of Reach 11 develops would be somewhat slower because transportation needs would not be readily accommodated.

## B. Vegetation

### 1. Affected Environment

*Project Area.* The plant community within the project area is classified as Lower Colorado Subdivision of the Sonoran Desertscrub Community (Brown, 1982). Within this community is a mosaic of plants associated with desert washes, uplands and disturbed areas. By constructing



- Arizona State Land
- Bureau of Reclamation/City of Phoenix
- Private Property

**Figure 6. Ownership/Jurisdiction**  
 56th and 64th Street Extensions (Bell Road to Pima Freeway)  
 Environmental Assessment

the Paradise Valley Flood Detention Basin and dike, the natural drainage and vegetation patterns were changed. A relatively dense and diverse xeroriparian<sup>4</sup> habitat can be found along the desert washes due to the higher available soil moisture that has been artificially enhanced by the construction of the dike. Several species of shrubs, including wolfberry, gray thorn, desert broom, and big-leaf bursage are present.

The uplands are characterized by typical desert plant species such as triangle-leaf bursage, creosote, brittlebush, and sparse annual grasses and forbs. Plant species composition on previously disturbed areas is highly variable. The original borrow area used to build the dike is now vegetated with fairly homogeneous stands of desert broom and mesquite trees. Other disturbed areas, such as the agricultural areas, are sparsely vegetated with three-awn grasses, burroweed, globemallow, scattered mesquite and palo verde trees, and desert broom.

*Site Specific Conditions.* The 56<sup>th</sup> Street alignment crosses through a dense vegetated area that consists predominately of mesquite trees of varying sizes with some palo verde and ironwood trees. Areas of similar vegetation density and variety are located along the base of the dike, particularly west of the 56<sup>th</sup> Street extension, in areas where storm water tends to pool. The vegetation along the 64<sup>th</sup> Street alignment consists primarily of sparse desert upland vegetation of creosote and gray thorn with scattered pockets of mesquite and palo verde trees. Proposed borrow Site #3 North is sparsely vegetated with upland shrub species such as creosote and brittlebush, except in one area where mesquite trees and desert hackberry are associated with a small wash. Proposed borrow Site #5 was previously used for agriculture and is now sparsely vegetated with small mesquite and palo verde trees, burroweed, globemallow and annual grasses.

Alternative Site #1 consists of scattered creosote/triangle-leaf bursage vegetation with a few dispersed mesquite trees. The southern portion of Alternative Site #3 was part of the original borrow area for the dike, and the northern portion is sparsely vegetated with creosote and brittlebush. Alternative Site #7 is the least vegetated of all the borrow sites and consists primarily of scattered creosote, gray thorn and wolfberry. Herbaceous growth is lacking due to overgrazing on this site.

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<sup>4</sup>Xeroriparian refers to the types of upland plant species such as velvet mesquite, blue palo verde, ironwood, and desert hackberry associated with desert washes.

## 2. Environmental Consequences

*Proposed Action.* The proposed 56<sup>th</sup> Street alignment would disturb approximately ten acres. The 56<sup>th</sup> Street roadway embankment would cut off storm water flows to established mesquite trees on the west side of the embankment. However, a pipe would be placed through this embankment to continue the storm water supply to these mesquites. Two existing cottonwood trees located near the 56<sup>th</sup> Street alignment would be unaffected. The proposed 64<sup>th</sup> Street extension would disturb a total of approximately 13 acres. Approximately 35.5 acres of land would be affected by the excavation of the two proposed borrow site locations. The proposed action would, therefore, disturb approximately 58.5 acres of vegetation. All but the estimated 23 acres permanently displaced by the roadway embankments would be revegetated.

*56<sup>th</sup> and 64<sup>th</sup> Street Extensions and Alternative Site #1.* The impacts on existing vegetation from the use of Alternative Site #1 and construction of the two street extensions would be similar to the proposed action. Alternative Site #1 would disturb approximately 20 to 50 acres, depending on the depth of excavation in the basin. Since the two roadway extensions would be built at separate times, the borrow area would not be permanently revegetated until after the 64<sup>th</sup> Street crossing is constructed. For the one- and two-mile haul roads, approximately 2.5 to five acres of vegetation would be disturbed. This is assuming that the haul roads would consist of a loop system within the Reach, using the existing trail alignments. The total project, including the proposed street extensions (disturbing 23 acres), Alternative Site #1, and the associated haul roads, would therefore, affect approximately 45.5 to 78 acres of vegetation.

*56<sup>th</sup> and 64<sup>th</sup> Street Extensions and Alternative Site #3.* The potential vegetation impacts from Alternative Site #3 and the two street extensions would be similar to the proposed action. This alternative would disturb approximately 40 acres of scattered upland shrub species. For the 56<sup>th</sup> Street haul road, approximately 2.5 acres of vegetation would be disturbed. Alternative Site #3, the haul roads and the proposed street extensions (disturbing 23 acres) would disturb approximately 65.5 acres of vegetation.

*56<sup>th</sup> and 64<sup>th</sup> Street Extensions and Alternative Site #7.* Alternative Site #7 would disturb approximately 19 acres outside the Reach and three acres within the Reach, in addition to the 23 acres affected by the two roadway extensions. Construction of the 1,350-foot storm drain connecting the off-site basin alternative to the Reach, would require a clearing approximately

100 feet wide, affecting approximately three acres. For the 56<sup>th</sup> Street haul road, approximately 2.5 acres of vegetation would be disturbed. Alternative Site #7, the haul roads, pipeline, and proposed street extensions would initially remove approximately 47.5 acres of vegetation.

*No Action Alternative.* The "No Action" Alternative would have no adverse impacts to existing vegetation. Vegetation patterns and densities may, however, change over time as the area to the north of the Reach develops into an urban landscape, and storm water drainage entering the Reach is modified.

## **C. Wildlife and Habitat Resources**

### **1. Affected Environment**

*Project Area.* According to a Reclamation biologist, the upland and xeroriparian habitats support a fairly diverse animal community, with more than sixty documented species of birds (Jakle 1997). The most abundant bird species noted are the mourning dove, house finch, Gambel's quail, various humming birds, and Abert's towhee. Other common desert species also present include verdin, cactus wren, curved-billed thrasher, ash-throated flycatcher, Gila woodpecker, black-throated sparrow, and the black-tailed gnatcatcher. Additionally, many neotropical migrant bird species have been documented, including six species of warblers, hermit thrush, flycatchers and swallows. A large number of raptors have also been sighted including turkey vulture, great-horned owl, common raven and six species of hawk.

Coyotes, desert cottontails, and roundtail ground squirrels are commonly encountered in the area. Javelina, blacktail jackrabbit, mule deer, badgers, skunks, gray fox, cotton rats, raccoon, Gila monsters, and other reptiles have also been observed within the Reach.

*Site Specific Conditions.* The 56<sup>th</sup> Street extension would disturb an area considered to have a high existing and potential wildlife habitat value. The 64<sup>th</sup> Street alignment and the proposed borrow Site #3 North would disrupt areas having a low to moderate existing and potential wildlife habitat value. Proposed borrow Site #5 would affect an area having low existing and potential wildlife habitat value.

Alternative Sites #1 and #3 would disrupt areas with low to moderate existing and potential wildlife habitat value. Alternative Site #7 would affect an area of low existing and potential wildlife habitat value.

2. Environmental Consequences

Table 2 summarizes the relative wildlife habitat impacts from the proposed action and other borrow site alternatives under consideration.

**Table 2. Relative Wildlife Habitat Value Evaluation**

Borrow Site	Habitat Value	Acres Disturbed	Haul Road		56 <sup>th</sup> St. Extension Acres Disturbed	64 <sup>th</sup> St. Extension Acres Disturbed	Total Initial Acres Disturbed
			Habitat Value	Acres			
Proposed Borrow Sites Total		35.5		0	10	13	58.5
Proposed - Site #5 (for 56 <sup>th</sup> Street)	Low	11.5		0	10	NA	
Proposed - Site #3 North (for 64 <sup>th</sup> Street)	Low - Moderate	20		0	NA	13	
Alt. Site #1	Low - Moderate	20 to 50	Low to High	2.5 to 5	10	13	45.5 to 78
Alt. Site #3	Low - Moderate	40	Low to High	2.5	10	13	65.5
Alt. Site #7	Low	22	Low to High	2.5	10	13	47.5
<b>Habitat Value of St. Extensions</b>					High	Low to Moderate	

*Proposed Action.* For the proposed action, the 56<sup>th</sup> Street extension would affect approximately ten acres of relatively high value wildlife habitat. As indicated in Section III. B. Vegetation, storm water flows to an existing stand of mesquite trees would be maintained through a pipe under the embankment. The 64<sup>th</sup> Street extension would affect approximately 13 acres of sparse desert upland vegetation considered to have low to moderate habitat value. The roadway extensions would partially fragment and separate the existing wildlife habitat. However, the bridge has been designed to accommodate the movement of wildlife (and people) from one area to another.

Sites #5 and #3 North would create moderate and minimal habitat fragmentation, respectively. The proposed action would initially disturb a total of approximately 58.5 acres of vegetation. Of the 58.5 acres, ten acres have high habitat value. The remaining 44.5 acres are of low to moderate habitat value.

*56th and 64th Street Extensions and Alternative Borrow Sites #1, #3, and #7.* The potential habitat impacts from either Alternative Site #1 or Alternative Site #3 and the two street extensions would be similar to the proposed action. All three of these borrow areas would minimally fragment the wildlife habitat within the Reach. Use of Site #7 would have the least adverse impact on existing and potential wildlife habitat value in comparison to the other two alternative sites, or the two proposed borrow sites. The short-term impact on wildlife and future habitat potential would be moderately adverse, but the long-term impact from implementation of any of these three borrow alternatives is anticipated to be low.

*No Action Alternative.* The "No Action" Alternative would have no adverse impacts to existing wildlife and habitat value. However, vegetation patterns and densities may change which would alter the potential value of the habitat within the Reach.

*Potential for Wetland/Catchment Development.* At this time, Reclamation considers the potential inclusion of wetlands and/or water catchments as part of the proposed action premature. Reclamation believes a commitment at this time to establish wetlands at certain locations would preclude the full and open consideration of all recreational opportunities for the Reach 11 Recreation Area during the City's upcoming recreation master plan process. However, the potential for developing wetlands or water catchments in areas created by borrow excavation associated with the proposed project has been considered. The wetland/catchment potential was evaluated in terms of the site's potential to excavate the borrow area slightly deeper (to retain water while still meeting the storm water capacity requirements of the Reach); proximity to compatible land uses; ability to maintain the wetlands; and distance from the bird strike zone<sup>5</sup> of the Scottsdale Airport.

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<sup>5</sup>The Federal Aviation Administration has determined that potential bird hazards exist within approximately 10,000 feet of an airport runway.

The proposed borrow Alternative Sites #3 North and #5 both would have high potential for ponding of water for wildlife, or creation of wetlands. Alternative Sites #1 and #3 would have moderate to high potential for wetlands/catchments. Alternative #7 would have low potential for a wetland/catchment because of the depth (28 feet) to which the borrow area would need to be excavated, and its proximity to future commercial and industrial areas.

#### **D. Protected Species**

##### **1. Affected Environment**

*Project Area.* No federally listed threatened or endangered species are known to use the project area (refer to Biological Assessment in the Appendix C). The Sonoran desert tortoise (*Gopherus agassizii*), a Wildlife of Special Concern in Arizona, has been sighted in the project vicinity, but not within the Reach. If an individual tortoise or its burrow is encountered before or during any construction related to the proposed action, the AGFD's *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects* would be followed. A copy of these guidelines is provided in the Appendix D.

##### **2. Environmental Consequences**

Neither construction of the proposed action nor use of the alternative borrow sites would adversely impact federally protected species or their critical habitat since none occur within the project area.

#### **E. Cultural Resources**

##### **1. Affected Environment**

Cultural resource surveys have been completed within Reach 11 and at the off-Reach Alternative Site #7 borrow area. No prehistoric archaeological properties were identified within the project area. The historic Rio Verde Canal was identified in a 1978 survey of the Hayden-Rhodes

Aqueduct right-of-way. The Rio Verde Canal was started in 1895, and was excavated from the base of the McDowell Mountains, approximately nine miles to the west and continued on grade through Reach 11. It ended near where the Hayden-Rhodes Aqueduct crosses Cave Creek Road, approximately three miles west of the project area. Extant portions of the Rio Verde Canal are still present east of the 64<sup>th</sup> Street crossing. These consist of the excavated channel and the southern berm (approximately six to ten feet high). In 1996, the Rio Verde Canal was surveyed by Reclamation and evaluated for possible inclusion on the National Register of Historic Places. This was done in consultation with the State Historic Preservation Office (SHPO). Canal segments with integrity that lie within the Reach were determined to be eligible for listing on the National Register.

Reclamation also conducted surveys for Traditional Cultural Properties (TCPs). TCPs are defined as properties that are eligible for listing on the National Register of Historic Places 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. No TCPs were identified within the project area; therefore, there would be no effect on such properties.

## 2. Environmental Consequences

*Proposed Action.* Other than the Rio Verde Canal, no significant cultural resources are located within the project area. Construction of the proposed action would not affect the Rio Verde Canal, therefore, there would be no adverse effect on cultural resources. The SHPO has concurred with Reclamation's "no adverse effect". Construction activities may impact buried archaeological materials, however, there is no evidence that subsurface material is present.

*56<sup>th</sup> and 64<sup>th</sup> Street Extensions and Alternative Site #7.* The connector pipe associated with Alternative Site #7 would create a 100-foot wide cut through the Rio Verde Canal. If this alternative borrow source is used, impacts to the Rio Verde Canal would have to be mitigated in consultation with the SHPO.

## F. Drainage and Floodplain Considerations

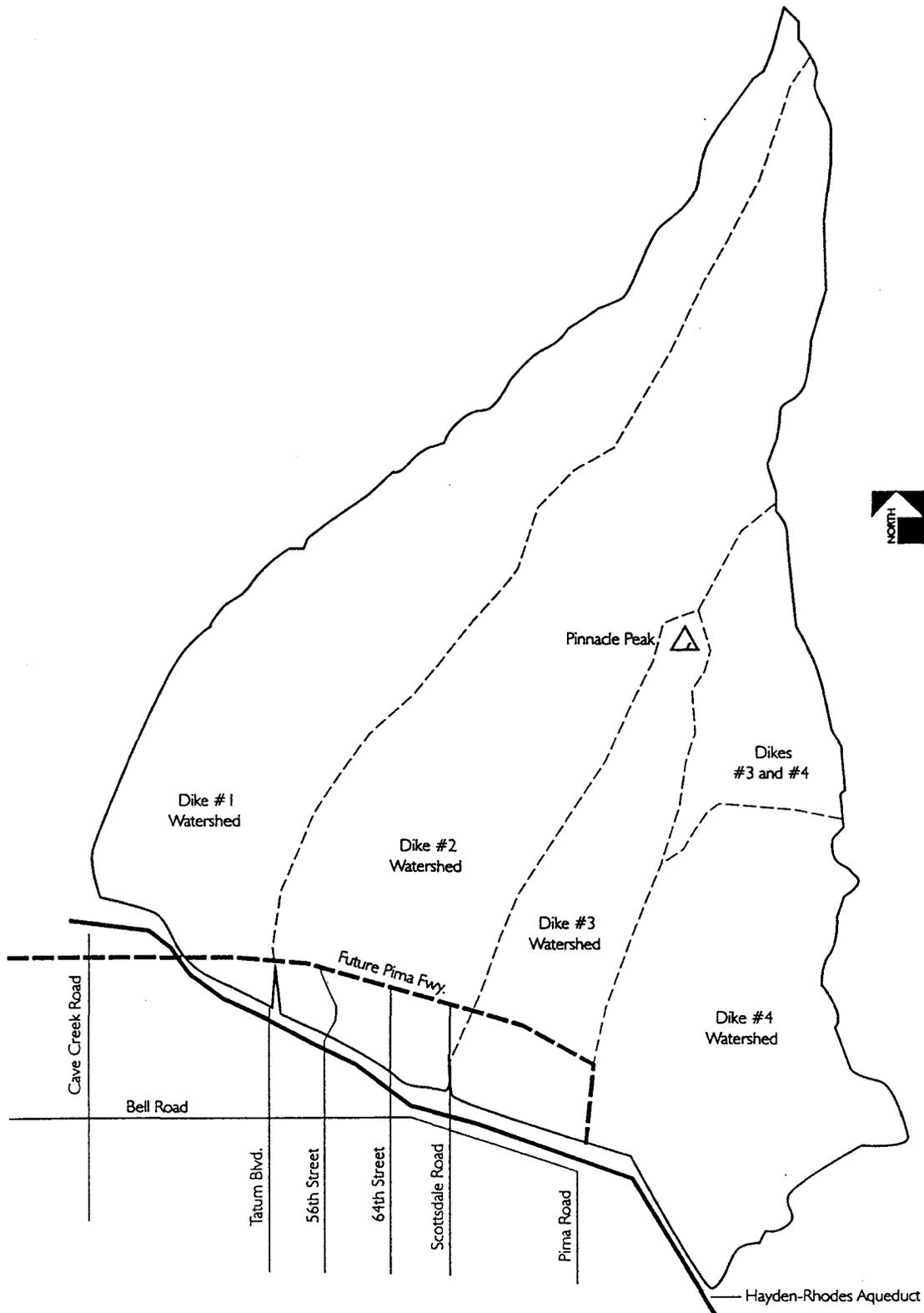
### 1. Affected Environment

*Project Area.* Overall, the project area slopes downward from northeast to southwest. Natural drainage patterns, for the most part, consist of numerous small braided washes that begin and terminate in a random manner. During heavy rain storms, the limited capacity of the small washes is exceeded and the flow spreads out with shallow sheet-like flooding, pooling around the base of the dike.

As previously mentioned, the Paradise Valley Flood Detention Basin and dike were constructed as part of the CAP Canal to provide flood water protection for the CAP Canal and the adjacent communities of Phoenix, Paradise Valley, and Scottsdale. The basin is relatively flat, linear in shape, and almost one-half-mile wide in several areas. The dike within the project area is referred to as Dike #2, which captures drainage from approximately 37 square miles (Figure 7.)

For the area north of Reach 11, the City's current drainage concept for development in Paradise Valley is generally to collect shallow sheet flows and convey them through or around developed areas in improved drainage channels or swales. An example of this concept is the existing 52nd Street channel between Reach 11 and Mayo Boulevard. These channels are generally designed to convey the calculated 100-year flood flow.

*Site Specific Conditions.* The proposed action lies within the Rawhide Wash 100-year floodplain as defined by the Federal Emergency Management Agency (FEMA). Earthen embankments would be required within the basin in order to build the roadway and reconfigure part of the dike to maintain flood protection. The embankment fill for 56<sup>th</sup> Street would require approximately 130,000 cubic yards of material. For 64<sup>th</sup> Street, approximately 310,000 cubic yards of material would be needed. In order to maintain equivalent flood water storage capacity in the basin, earthen material (in an amount equal to the fill) must be borrowed from within the basin or immediately adjacent to it. The borrowed material would be used to build the earthen embankment for the roadway.



**Figure 7. Dike #2 Watershed**  
 56th and 64th Street Extensions (Bell Road to Pima Freeway)  
 Environmental Assessment

The proposed action would be designed to provide flood conveyance both under and over the roadways. Storm water flows would pass under the roadway through a bridge opening approximately 100 feet wide. The proposed roadways would be designed with a low point in the alignment so that the elevation of the roadway would be below the top of Dike #2. This would allow extremely high flood waters (floods greater than the 500-year flood), to flow over the roadways, maintaining an equal water surface level throughout the basin and minimizing the chance of overtopping the dike. Alternative Site #7 would include a connector storm drain to the Reach 11 basin that would extend approximately 1,350 feet into the Reach. The 48-inch pipe would connect the off-site basin to the existing old borrow area used to construct the dike. The connector pipe would be buried in a deep trench, approximately 20-feet deep at its northern end.

## 2. Environmental Consequences

*Proposed Action.* The proposed action would not result in an increased flood hazard to the properties that lie adjacent to the upstream edge of the basin or downstream of the dike, or to the CAP Canal. The 56<sup>th</sup> Street embankment would affect three small washes. Two of the washes would be rerouted through a culvert under the embankment. The third wash would be filled by the 56<sup>th</sup> Street embankment. 64<sup>th</sup> Street would partially fill one wash at the north end of the basin. Storm water would flow along the base of the proposed embankments and pool, as it does now, at the base of the dike. Proposed borrow Site #3 North would eliminate four small washes. The points at which these washes would enter the borrow area basin would be protected by slope stabilization treatments such as riprap to minimize erosion. Over time, the borrow areas would have the potential to support enhanced vegetation growth since storm water would collect in the basin. No washes would be affected by proposed borrow Site #5.

*56<sup>th</sup> and 64<sup>th</sup> Street Extensions and Alternative Site #1.* The potential impacts on the drainage and floodplain considerations from the two street extensions and Site #1 would be similar to the proposed action. However, one existing wash would be eliminated in addition to the four washes affected by the roadway embankments. The point at which the wash would enter the basin would be protected by slope stabilization treatments such as riprap. The upstream watershed for this wash has already been cut off by Chauncy Ranch, a privately owned parcel to the north of Reach 11.

*56<sup>th</sup> and 64<sup>th</sup> Street Extensions and Alternative Site #3.* The potential impacts on the drainage and floodplain considerations from the two street extensions and Site #3 would be similar to the proposed action. Four small washes would be eliminated by the excavation of Alternative Site #3 for a borrow source. The points at which these washes would enter the basin would be protected by slope stabilization treatments such as riprap. Over time, the borrow area would have the potential to enhance the growth of vegetation since storm water would collect in the basin.

*56<sup>th</sup> and 64<sup>th</sup> Street Extensions and Alternative Site #7.* The potential impacts on the drainage and floodplain considerations from the two street extensions and Site #7 would be similar to the proposed action. Only one small wash would be eliminated by the construction of Site #7. The point at which the wash would enter the basin would be protected by slope stabilization treatments such as riprap. The borrow area over time would have the potential to enhance the growth of vegetation since storm water would collect in the basin.

*No Action Alternative.* There would be no impact on drainage and floodplain considerations from the No Action Alternative.

## **G. Visual Resources**

### **1. Affected Environment**

*Project Area.* The quality and character of the visual resources are determined by the different land uses within the project area. South of the CAP Canal, the landscape is dominated by single family residential developments, characterized by red tiled roofs and neutral colored stucco finishes. The CAP Canal creates a prominent linear form reinforced by the presence of the 30-foot high earthen Dike #2. Within the project area, the water in the Canal is only visible from the top of the dike or from the bridges at Tatum Boulevard and Scottsdale Road. North of the Canal is the undeveloped area associated with the Reach 11 Recreation Area. The visual character throughout the Reach ranges from dense canopied mesquite, palo verde and ironwood trees, to sparse, open areas of bare ground and creosote bush. The Reach is criss-crossed with dirt trails and finger drainages. Scattered along the base of the dike, between Tatum and Scottsdale roads, are a few mature cottonwood trees that distinctly contrast with the surrounding desert scrub vegetation in color and form.

## 2. Environmental Consequences

*Proposed Action.* The proposed action would create a change in the visual character of the project area ranging from subtle to substantial. Both roadways would rise to the height of the top of the dike, just north of the Canal. The roadway, new north/south embankment and basin equalization bridge structure would create a substantial change in the visual character within the Reach. Since the bridges would be viewed by recreationists using the trails below, the bridge structures would be colored to blend with the natural surroundings. Earthen embankments for 64<sup>th</sup> Street would be highly visible and for 56<sup>th</sup> Street less visible from within their respective areas of the Reach, particularly from some existing recreational trails. The fill slopes would create distinct north/south landforms that would contrast in terms of color, scale and forms of the relatively, flat terrain of the project area, but would repeat the form of the existing dike that creates the southern boundary of the Reach. The roadway extensions would create visual and physical partitions within the Reach. The larger trees adjacent to the 56<sup>th</sup> Street alignment would help screen the fill slopes, making the slopes less visible within the Reach. Planting native shrub material in a natural pattern on the roadway embankments would mitigate the contrast in color and form of the fill slope faces.

The visual quality of the proposed borrow areas (Alternative Sites #3 North and #5) would be lower than existing conditions, until the color contrast created by the removal of the vegetation is mitigated by revegetation of the disturbed areas. The shape of the basins would be designed to be natural in form, with varying side slopes to blend with the surroundings.

*56<sup>th</sup> and 64<sup>th</sup> Street Extensions and Alternative Site #1/Alternative Site #3/Alternative Site #7.* The impacts from any of the alternative borrow sites and the two street extensions on visual resources within the Reach would be similar to the proposed action.

*No Action Alternative.* There would be no adverse impact on the visual resources within the Reach.

## H. Social and Recreation Resources

### 1. Affected Environment

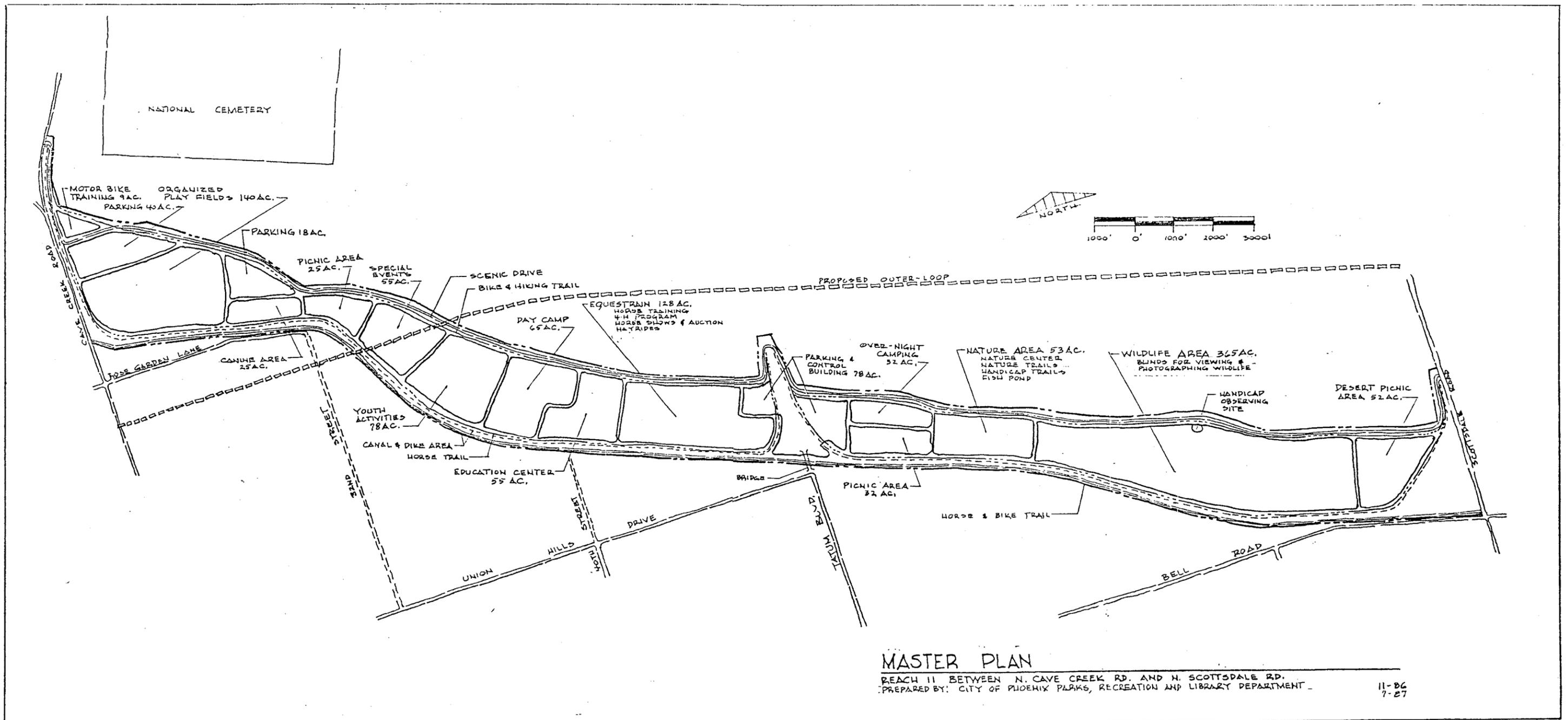
*Project Area.* In 1985, the City's PRLD, with assistance from citizen input, designated Reach 11 as a major, full-service, open space recreation green belt. Figure 8 illustrates the 1987 Conceptual Master Plan for the Reach approved by the City and Reclamation. Most of the project area was planned for passive recreational uses in a natural setting. These uses included a nature center, trails, fish pond and wildlife area. In 1992, a revised plan that included golf courses was approved by the Board. This plan was further revised in 1995 to add water catchment areas (Figure 9). Neither the 1992 nor 1995 version of the revised conceptual master plan has been approved by Reclamation. The City's PRLD is now planning to prepare an updated Reach 11 recreation master plan starting in the fall of 1997.

Currently, there is a loop trail system consisting of a series of natural surface trails and one hard surface loop trail (Figure 10). The hard surface trail is referred to as the Reach 11 Barrier Free Nature Trail and is located 0.5 miles to the west of the 56<sup>th</sup> Street alignment. The PRLD has constructed two small catchment ponds, also west of the 56<sup>th</sup> Street alignment, that provide water for wildlife.

### 2. Environmental Consequences

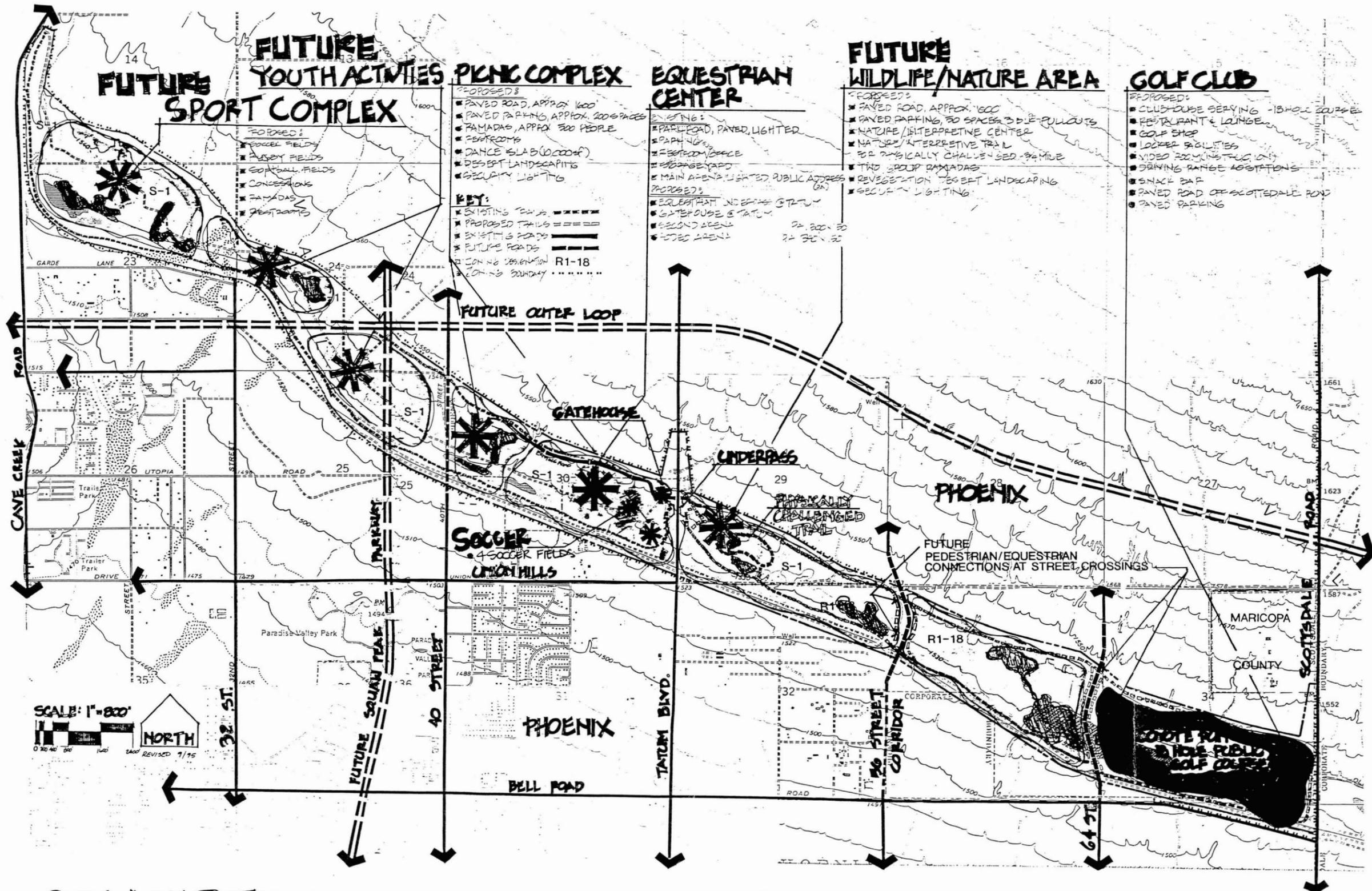
*Proposed Action.* The proposed action would not prohibit planned developed recreation activities within the project area. The City's plans for updating the Recreation Master Plan may make any indicated long-term impact inconsequential. Access to the Reach 11 Recreation Area from the residential areas south of the CAP Canal would be provided from 56<sup>th</sup> and 64<sup>th</sup> Streets where none currently exists. Multi-use recreational paths would link 56<sup>th</sup> and 64<sup>th</sup> Streets to the Reach 11 trail system. A diagram of the proposed trail connections is provided in Figure 11.

Both 56<sup>th</sup> and 64<sup>th</sup> street extensions would temporarily interrupt recreation use during the construction of the embankments, roadways, bridges and excavation of borrow areas within the Reach. The nature trail west of the Site #5 borrow area would not be affected during construction of the proposed action or by the excavation of any borrow site considered. Because the proposed



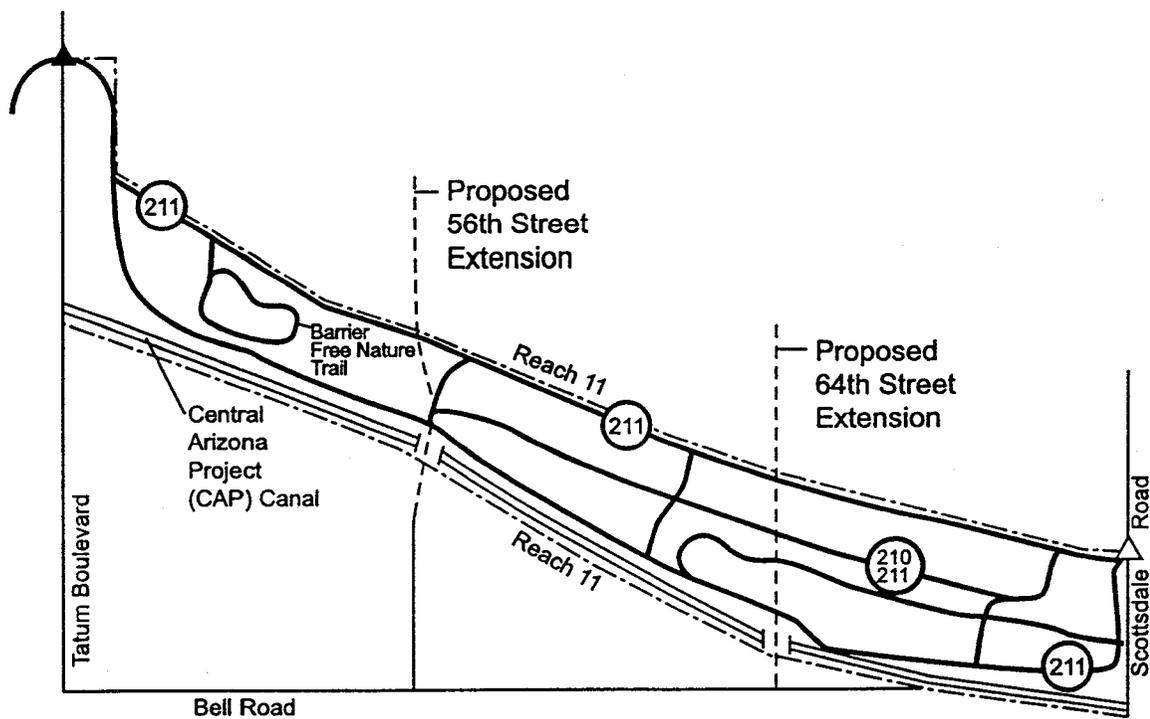
**Figure 8. 1987 Conceptual Master Plan**  
 56th and 64th Street Extensions (Bell Road to Pima Freeway)  
 Environmental Assessment  
 (Adopted by City of Phoenix and Bureau of Reclamation)

# REACH 11 RECREATION PLAN



**CONCEPTUAL**  
 CITY OF PHOENIX PARKS, RECREATION & LIBRARY DEPARTMENT

Figure 9. 1995 Conceptual Master Plan  
 56th and 64th Street Extensions (Bell Road to Pima Freeway)  
 Environmental Assessment  
 (Adopted by City of Phoenix)



- ▲ Trail Head With Parking
- △ Trail Head With Limited Parking

**Figure 10. Existing Trail System**  
 56th and 64th Street Extensions (Bell Road to Pima Freeway)  
 Environmental Assessment

borrow sites would be located immediately adjacent to the roadway alignments, there would be minimal haul distances for transporting the excavated borrow material, and less potential conflicts between construction vehicles and recreation use within the project area. The excavation of the proposed borrow areas would temporarily disrupt the use of portions of the loop trail system. Once construction of the crossings is completed, truncated segments of the trail system by the roadway embankments would be realigned and reconstructed to pass under the bridge to continue the existing loop system. Temporary impacts from construction would last for approximately six months for 56<sup>th</sup> Street and one year for 64<sup>th</sup> Street. The proposed action would permanently remove 23 acres or approximately 3.5 % of the land from recreation use within the project area, and would physically and visually divide the Reach between Tatum and Scottsdale Roads into three areas.

*56<sup>th</sup> and 64<sup>th</sup> Street Extensions and Alternative Site #1.* The street extensions and Alternative Site #1 would create the same permanent impacts on recreation use as the proposed action. The temporary impacts to recreation use would be greater than the proposed action. The two-mile long 56<sup>th</sup> Street and one-mile long 64<sup>th</sup> Street haul roads required during construction would temporarily disrupt and restrict more recreation use than the proposed borrow sites which would have minimal haul roads. This assumes that the haul roads would consist of a loop system within the Reach using the existing trail alignments.

*56<sup>th</sup> and 64<sup>th</sup> Street Extensions and Alternative Site #3.* Alternative Site #3 and the street extensions would create the similar short and longer term impacts on recreation use as the proposed action with one exception. The mile-long haul road required during construction of 56<sup>th</sup> Street would temporarily disrupt and restrict more recreation use than the proposed borrow site located immediately adjacent to the roadway extension.

*56<sup>th</sup> and 64<sup>th</sup> Street Extensions and Alternative Site #7.* Site #7 is outside the Reach boundaries and would increase the area available for recreation use. However, the City's land use plan identifies the area north of the Reach as commercial/institutional/industrial. The relatively small (20 acres) and deep (28 feet) parcel, surrounded on three sides by development, may not be compatible with recreation use. Alternative Site #7 would also include an approximately 1,350-foot connector storm drain to the Reach 11 basin. The mile-long haul road required for construction of 56<sup>th</sup> Street and the drainage connector pipe, would temporarily disrupt and restrict more

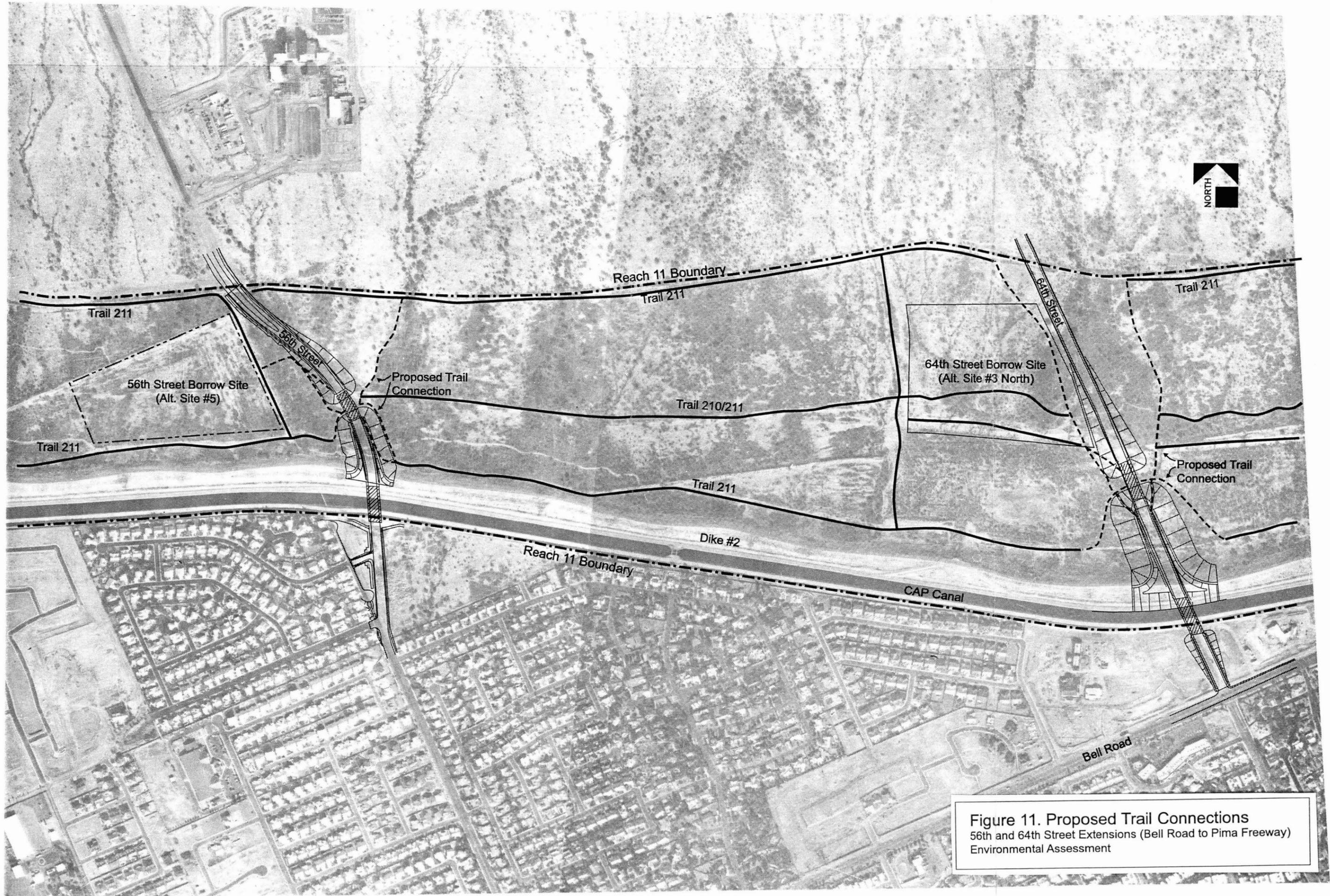


Figure 11. Proposed Trail Connections  
 56th and 64th Street Extensions (Bell Road to Pima Freeway)  
 Environmental Assessment

recreation use than the proposed action. However, there would be no long-term impacts since the connector pipe would be buried and the area revegetated after construction.

*No Action Alternative.* The No Action Alternative would have no impact on the recreation use within the Reach. It would, however, have an effect on the larger community. Without the 56<sup>th</sup> and 64<sup>th</sup> street extensions, traffic congestion would increase on the existing surface streets crossing the CAP Canal. The capacity requirements of the City's and region's transportation network would not be met. With the added congestion, commuters and local traffic would seek alternative routes, potentially increasing traffic in neighborhoods, increasing air pollution, and creating additional safety concerns. Additional congestion would create longer travel times during peak traffic hours.

#### **I. Title VI/Environmental Justice**

The basic provisions of Title VI of the Civil Rights Act of 1964 require Federal agencies to ensure that their actions do not exclude persons and populations from participation, deny persons and populations of the benefits of the proposed action/activities or subject persons and populations to discrimination because of race, color or national origin. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," reaffirms the principles of Title VI and related statutes. The Executive Order requires consideration of the effects of a proposed project on low income populations and minority populations. Minority in terms of race refers to a person who is African American, Hispanic, Asian American, American Indian, or Alaskan Native. Low income means a person whose median household income is below the poverty guideline estimated from the 1996 Census to be \$15,600 per year for a family of four. In addition to considering these populations, female head of households, disabled/mobility impaired and elderly (60 or more years of age) populations are also considered. These populations collectively are referred to as protected populations.

## 1. Affected Environment

Within the project area, the City of Phoenix's PRLD has developed a Barrier Free Trail. This trail is located approximately 0.5 miles west of the proposed 56<sup>th</sup> Street alignment.

## 2. Environmental Consequences

The Barrier Free Trail would not be affected by the proposed action, by any of the alternative borrow sites or by the No Action Alternative. No disproportionately high or adverse impacts to any protected populations would be created by the extension of 56<sup>th</sup> and 64<sup>th</sup> Streets and the excavation of any borrow areas.

## J. Air/Noise

### 1. Affected Environment

*Air.* The project area lies within the Maricopa County Nonattainment Area. A nonattainment area is an area that exceeds any National Ambient Air Quality Standard (NAAQS) for any pollutant based upon the data collected through air quality monitoring. The pollutants that exceed the prescribed air quality standards in the nonattainment area are particulate matter (PM<sub>10</sub>), carbon monoxide (CO), and ozone (O<sub>3</sub>) identified by the Arizona Department of Environmental Quality, Air Quality Division.

Levels of air pollutants for CO and O<sub>3</sub> within the project area may be considered below the Federal eight-hour standards by ADEQ, because of the vacant land and housing in the area. Significant sources of PM<sub>10</sub> within Maricopa County are from vehicle exhaust and road dust. The dust from natural surface trails contributes to the levels of PM<sub>10</sub> within the project area.

Carbon monoxide is the pollutant of main concern because in excessive concentrations, it is potentially hazardous to public health. Ozone, hydrocarbons, and nitrogen oxide air quality concerns are regional in nature (complex atmospheric chemistry), therefore, meaningful evaluation on a project-by-project (microscale) basis is not possible.

*Noise.* There is one noise category type found within the project area. Category B includes residential type land uses such as single family homes and churches.

## 2. Environmental Consequences

Some deterioration of air quality and noise problems can be expected during construction due to the operation of construction equipment for the proposed action or alternative borrow sites. However, this would be a localized condition that would cease when construction is completed.

## K. Indian Trust Assets

### 1. Affected Environment

Indian Trust Assets (ITAs) are legal interests in property and assets held in trust by the United States for federally recognized Indian tribes or individual Indians. Such trust status is derived from rights reserved by or granted to Indian tribes or individuals by treaties, statutes, and executive orders. ITAs may include land, minerals, water rights, and/or hunting and fishing rights. Reclamation has reviewed the proposed action for possible effects on ITAs. The following Native American communities will be provided an opportunity to comment on the environmental assessment: Ak-Chin Indian Community, Fort McDowell Mojave-Apache Indian Community, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, and the Yavapai-Prescott Indian Tribe.

### 2. Environmental Consequences

No ITAs have been identified within, or near, the project area. Consequently, there would be no affect on ITAs by the proposed action, alternative borrow sites under consideration, or the No Action Alternative.

## **L. Secondary and Cumulative Effects**

The National Environmental Policy Act (NEPA) directs Federal agencies to examine the consequences of proposed activities in light of an overall goal to protect and enhance the human environment. These consequences are grouped into the general categories of secondary and cumulative effects.

### **1. Secondary Effects**

Secondary effects are broadly defined by the Council on Environmental Quality as those impacts caused by an action and occur later in time, or are farther removed in distance but are still reasonably foreseeable after the action has been completed. The secondary effects of the proposed action would create changes to the recreation use and habitat functions within the Reach. With the proposed pedestrian connections between the existing neighborhoods and the Reach 11 Recreation Area, new access points would be created at 56<sup>th</sup> and 64<sup>th</sup> streets. This may increase pressure on the City to provide amenities such as restroom facilities and interpretive/area information at the new access points. These new access points may also create more dispersed recreation activities such as informal trails, as well as increased trash generation from more users at a single location. Habitat and vegetation degradation due to increased human activity in these areas may occur. Increased human activity would have a minor adverse affect on wildlife behavior and habitat utilization.

### **2. Cumulative Effects**

Cumulative effects are the combined impacts on the environment that result from the incremental effect of the proposed action when added to past, present or reasonably foreseeable future actions. For this assessment, past actions are those considered to have occurred since 1990, and foreseeable future actions are based on the best available information from the associated planning agencies. The most influential past, present and future action related to the proposed action is the growth and development of Paradise Valley. The results of this growth are increased population, more employment, more revenue for the jurisdictions, and more demand on the area's built and natural resources. Major current developments include the Mayo Hospital and Sitix of Phoenix. Significant residential developments include Tatum Ranch and Desert Ridge.

The Pima (SR101L) and Squaw Peak (SR 51) Freeways are scheduled for completion by 2005 and 2015 respectively. The intersection of the two freeways occurs within Reach 11 between Tatum Boulevard and Cave Creek Road as well as borrow material areas for each highway embankment. The cumulative effects are discussed below in terms of the human, natural, and cultural environment.

*Human Environment.* The proposed roadway extensions, as well as other transportation corridor improvements, would facilitate an increase in the number of residences, businesses, and infrastructure in the Paradise Valley area. Businesses would also expand to take advantage of the expected growth and the safer, higher capacity transportation system provided in part by the 56<sup>th</sup> and 64<sup>th</sup> street extensions. The proposed action and other transportation corridors would provide improved accessibility to major activity centers. 56<sup>th</sup> and 64<sup>th</sup> streets would both support the growth that has occurred, and provide for projected future growth. The pending update to the Reach 11 Recreation Area Master Plan would incorporate current demands for open space and recreation amenities to a growing urbanized population.

*Natural Environment.* Construction of the proposed action would contribute to the cumulative loss of existing vegetation and wildlife habitat. The historical, current and future development collectively adds to the permanent loss of vegetation and habitat. Reach 11 helps minimize the loss of habitat and vegetation by retaining the land for public use and protecting its resources and character. If the area is not properly managed and maintained, uncontrolled or unrestricted recreation activities, such as off-road vehicle use, would damage vegetation and contribute to soil erosion.

For water resources, the most notable cumulative impact would be the loss of permeable surface area and drainages to handle storm water runoff from continued growth and development in the Paradise Valley area. One possible solution may be the construction of channels to handle 100-year storm events such as the 52<sup>nd</sup> Street Channel. The engineered channels may divert low frequency storm flows to the natural washes that have not been truncated by development. Diverting the flows back to the wash would help preserve some of the natural drainages and associated vegetation. Under this scenario, the total number of drainages reaching Reach 11 may be reduced, but the size of the washes may increase. Consequently, the pattern and location of mesquite and xeroriparian habitats within the Reach may change over time in response to the

alteration of the natural and constructed drainage system within the watershed. Major channels and larger washes may provide the opportunity for the incorporation of trails and recreation use. Revisions to the Reach 11 Recreation Master Plan may also result in the loss of permeable surface area and changes in drainage pattern within the Reach.

*Cultural Environment.* Development impacts on the cultural environment also contribute to cumulative impacts. Estimates of the number of sites destroyed by cumulative activities on private land are not available. There would be no impacts on known cultural sites by the proposed action. It is assumed that the cumulative effects within the Paradise Valley area represent only a fraction of a percent of the regional or state cultural resource base.

#### IV. MITIGATION COMMITMENTS

1. Construction access on Reclamation lands will be pre-approved by Reclamation and shown on the construction drawings for the proposed action. Construction limits will be staked and approved by Reclamation and the City. A temporary chain link fence will be installed along the approved limits before starting work. No vehicle travel will occur on Reclamation lands outside the construction access limits. All equipment yards, batch plants or other construction-related activities will occur within the designated limits of disturbance or will require separate clearance if located on Reclamation lands.
2. Vegetation will be preserved and protected. The contractor will only remove trees when specifically authorized to do so and will avoid damaging vegetation that is to remain in place. The clearing limits will be irregular and staked by the construction contractor for approval by the City and Reclamation before the start of clearing. Long, straight clearing lines will be avoided where possible by varying the width of the area to be cleared, or by leaving selected clumps of vegetation near the edge of the clearing limit. Brush or roots will be chipped and spread, if needed, at approved sites in a natural, unobtrusive manner. In accordance with the Arizona Native Plant Law, a Notice of Intent to clear protected native plants will be submitted to the Arizona Department of Agriculture at least sixty (60) days prior to any activity, and areas to be salvage, if appropriate, will be delineated.
3. Following completion of the borrow site excavation and roadway construction, disturbed areas will be recontoured and revegetated with native plant species to maximize benefits to wildlife and prevent erosion. Revegetation plans will include all areas disturbed by the construction of the proposed action. Revegetation plans will be prepared and will include the plant species to be used, seeding rate, minimum survival rates over time, identification of who will be responsible for the revegetation, location of proposed seeding or cuttings, and the size of plants to be planted, if applicable. Native species adapted to the area will be used in all areas of disturbance on Reclamation lands. Plant material approved by Reclamation will be planted in a natural pattern on the roadway embankments to mitigate the contrast in color and form of the fill slope faces. All trees four inches or greater in caliper within the construction limits will be inventoried and evaluated for transplanting. Transplanted material will be relocated within the Reach. The revegetation and soil

protection efforts will be examined by Reclamation and the City one year and five years after construction. A minimum survival rate of 80% for woody transplanted plants will be achieved five years following the initial planting. Additional plantings will augment initial vegetation efforts if needed to achieve the 80% survival rate.

4. The existing storm water flow pattern will be maintained to the remaining vegetation along the west side of the 56<sup>th</sup> Street roadway embankment within the Reach.
5. During construction and borrow extraction activities, trenches, pits, or holes excavated in association with the proposed action will be designed, fenced or covered to avoid entrapment or death of wildlife. Hazardous materials such as waste oil from machinery will be stored and disposed of properly to avoid impacts to wildlife from accidental spills.
6. The Sonoran desert tortoise (*Gopherus agassizii*), a Wildlife of Special Concern in Arizona, has been sighted in the project vicinity but not within the Reach. If an individual tortoise or its burrow is encountered prior to or during any construction related to the proposed action, the AG&FD's *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects* will be followed. A copy of these guidelines is provided in the Appendix D. In addition, prior to construction, the area will be searched and cleared of Gila monsters by City or AG&FD biologist.
7. If previously unidentified cultural resources are discovered during project construction, construction activities will be stopped immediately, and Reclamation will be notified. Reclamation will in turn notify the appropriate agency(ies) to evaluate the significance of the resource, and propose mitigation measures if necessary. If Alternative Site #7 is included in the final project, Reclamation shall photo document the Rio Verde Canal at the point of impact to standards required by the National Park Service for Historic American Engineering Records (HAER). The HAER documentation of the Rio Verde Canal shall be initiated prior to the start of construction.
8. Bridge piers and abutments, bridge girders, the underside of the bridge deck, the exposed surfaces of the bridge barriers and metal handrails on the bridges will be colored to blend with the natural surroundings.

9. The shapes of the borrow material basins will be designed to be natural in form, with varying side slopes to blend with the surroundings.
10. Truncated segments of the existing trail system will be realigned and reconstructed to pass under the bridge within the Reach to continue the existing loop system.
11. A Memorandum of Understanding (MOU) will be prepared and signed between the City and Reclamation prior to the construction of the proposed action on Reclamation land. The MOU will outline the appropriate level of compensation to Reclamation by the City for the loss of recreation use caused by the construction of the roadway extensions.
12. The City will include in the construction specification contract documents that dust control and the abatement of air pollution resulting from construction be required in the construction contract specifications.
13. The City's construction specification contract documents will require that the contractor prepare and implement a Storm Water Pollution Prevention Plan, pursuant to Section 402 of the Clean Water Act.
14. Should changes in the plan or refinements in design result in environmental impacts that are significantly different from those described in this environmental assessment, an environmental evaluation will be made and documented in accordance with the NEPA.



## **V. RELATED LAWS, RULES, REGULATIONS AND EXECUTIVE ORDERS**

### **A. National Environmental Policy Act**

This environmental assessment has been prepared in compliance with the NEPA. The EA described environmental consequences anticipated to occur from Reclamation's issuance of a right-of-way to the City for the 56<sup>th</sup> and 64<sup>th</sup> street extensions through Reach 11.

### **B. Clean Water Act, as amended**

Section 404 of this Act identifies conditions under which a permit is required for construction projects that result in the placement of fill or dredged material into a water of the U.S. The City of Phoenix will need to obtain the appropriate 404 permit(s) for any construction that would result in the placement of fill or dredged material into waters of the U.S. Pursuant to Section 402 of this Act, a National Pollutant Discharge Elimination System (NPDES) general permit will be required for this project since greater than five acres of land will be disturbed. A Storm Water Pollution Prevention Plan will be prepared and will incorporate temporary control measures during construction, permanent control measures when the project is completed, and good housekeeping practices for the control and prevention of the release of storm water discharges. A Notice of Intent will be submitted to the U.S. Environmental Protection Agency at least 48 hours prior to the start of construction.

### **C. Clean Air Act, as amended**

This Act requires that any Federal entity engaged in an activity that may result in the discharge of air pollutants must comply with all applicable air pollution control laws and regulations (Federal, state or local). Reclamation has requested that the City include in the construction specification contract documents, a requirement that all environmental commitments made in the environmental assessment, related to, among other things, dust control and the abatement of air pollution resulting from construction, be included in the construction contract specifications.

**D. National Historic Preservation Act of 1966, as amended**

This Act requires Reclamation to identify and evaluate significant cultural resources that may be impacted by a project, and to consult with the Advisory Council on Historic Preservation (Council) and the SHPO concerning significant cultural resources. No prehistoric archaeological properties were identified within the project area. The SHPO has concurred with Reclamation's "no adverse effect" determination for impacts resulting from the proposed action. If previously unidentified cultural resources are discovered during construction, the contractor will stop work immediately at that location and take all reasonable steps to secure the preservation of those features and Reclamation will be notified. Reclamation will, in turn, notify the appropriate agency(ies) to evaluate the significance of the resource, and propose mitigation measures if necessary.

**E. Wild and Scenic Rivers Act of 1968**

There are no portions of rivers either designated or under study as a wild and scenic river in or near the project area.

**F. Wilderness Act of 1964, as amended**

There are no portions of land either designated or under study as a wilderness area in the project area.

**G. Fish and Wildlife Coordination Act**

The Fish and Wildlife Coordination Act (FWCA) requires Federal agencies to consult with the Fish and Wildlife Service (FWS), 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. The FWCA does not apply to this project because the project does not impound or divert, or modify surface streams as described in the Act.

**H. Endangered Species Act of 1973**

There are no federally listed threatened or endangered species within the project area or designated critical habitat (refer to Biological Assessment in the Appendix C).

**I. Executive Order 11988, Floodplain Management, May 24, 1977**

This executive order directs Federal agencies, in carrying out agency responsibilities, to reduce the risk of floodplain loss; minimize the impact of floods on human safety, health and welfare; and restore and preserve the natural and beneficial values served by floodplains. The proposed action will not adversely affect the Paradise Valley Flood Detention Basin or the ability of the Basin to provide flood water protection for the Hayden-Rhodes Aqueduct or the adjacent communities of Phoenix, Paradise Valley and Scottsdale.

**J. Executive Order 11990, Protection of Wetlands, May 24, 1977**

This executive order directs Federal agencies, in carrying out land management responsibilities, to take action to minimize the destruction, loss or degradation of wetlands, and to take action to preserve and enhance the natural and beneficial values of wetlands. There are no wetlands occurring in or adjacent to the project area.

**K. Executive Order 12898, Environmental Justice, February 11, 1994**

This executive order directs Federal agencies to make achieving environmental justice a part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects of programs, policies, and activities on minority populations and low-income populations. No disproportionately high or adverse impacts to these populations will be created by the extension of 56<sup>th</sup> and 64<sup>th</sup> street extensions.



## VI. COORDINATION

During the project study, various Federal, state and local agencies, general public and organizations were provided an opportunity to comment on the proposed action. A planning team consisting of various resource staff members from Reclamation, the City, and the AG&FD had six planning meetings to discuss the general scope of the project, related issues, feasible borrow site locations, evaluation criteria, and appropriate mitigation measures.

The following individuals prepared or provided technical input for this environmental assessment:

Diane Simpson-Colebank, Logan Simpson & Dye, Environmental Planner  
Mark Gavan, WLB Group, Engineer  
Brian Mihlbachler, Bureau of Reclamation, Biologist  
Marty Jakle, Bureau of Reclamation, Environmental Division  
Tom Lincoln, Bureau of Reclamation, Archaeologist

The following individuals provided technical input, technical support or reviewed the environmental assessment:

Sandy Eto, Bureau of Reclamation, Environmental Division  
Steve Johnson, Bureau of Reclamation  
Rick Mellegard, Bureau of Reclamation, Lands Management Division  
Bob Michaels, Bureau of Reclamation, Lands Management Division  
Bruce Ellis, Bureau of Reclamation, Environmental Division  
Jim Burke, City of Phoenix, Parks Recreation & Library Department  
LB Scacewater, City of Phoenix, Parks Recreation & Library Department  
Madeline Goddard, City of Phoenix, Water Services Department  
Paul Kinshella, City of Phoenix, Water Services Department  
Gary Benton, City of Phoenix, Street Transportation Department  
Ralph Goodall, City of Phoenix, Street Transportation Department  
Walt Kinsler, City of Phoenix, Parks Recreation & Library Department  
Mario Saldamando, City of Phoenix, Water Services Department

Barbara Heslin, AG&F Department, Habitat Branch

Frank Turek, Greeley & Hansen

May Kay Schroeder, City Phoenix, Parks Recreation & Library Department

Jolene Ostler, City of Phoenix, Planning Department

Sharon Brady, City of Phoenix, Parks Recreation & Library Department

Mark Wisehart, City of Phoenix, Parks Recreation & Library Department

Bob Battistello, Parsons Brinckerhoff

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**APPENDIX A. PROPOSED 56<sup>TH</sup> AND 64<sup>TH</sup> STREET EXTENSION  
ALIGNMENTS**



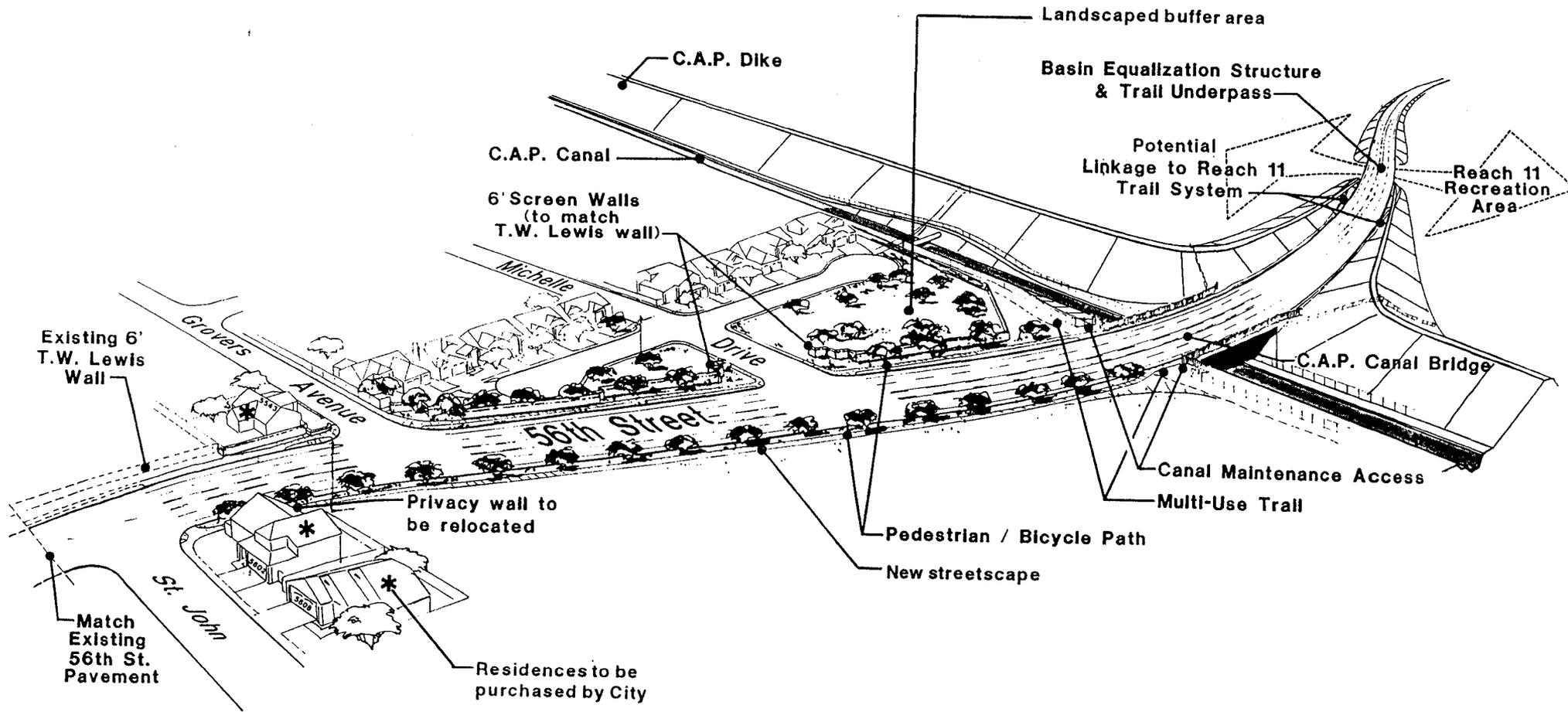
## **Proposed 56th and 64th Street Extension Alignments**

The major design features of the 56th and 64th street extensions include: a 4-lane roadway with bike lanes and sidewalks that would cut through the upper portion of the dike; a bridge over the CAP Canal; a bridge inside the Reach 11 Recreation Area; multi-use recreational paths connecting 56th and 64th streets to the Reach 11 trail system and two borrow areas within the Reach. 56<sup>th</sup> Street would be constructed near existing ground level south of the CAP Canal. The roadway at 64<sup>th</sup> Street would begin to rise immediately north of Bell Road. A basin equalization bridge structure would be required within the Reach to pass floodwaters under the each roadway. Earthen embankments would be required within the Reach 11 Recreation Area in order to build the roadways and reconfigure part of the dike to maintain flood protection.

To reduce impacts to the residential neighborhood, 56<sup>th</sup> Street would be shifted to the east from the existing alignment to provide a buffer between the new roadway alignment and the existing homes on the west side of 56<sup>th</sup> Street between the CAP Canal and Grovers Avenue. The buffer area would be landscaped using low water use plant material maintained by the City. In addition, a parkway type of streetscape would be constructed on both sides of 56<sup>th</sup> Street between St. John Road and the CAP. The remnant portion of 56<sup>th</sup> Street would be double cul-de-saced to provide access for the nine existing residences on the west. Direct access to 56<sup>th</sup> Street would be maintained at Michelle Drive and Grovers Avenue. Three residences would be acquired by the City. Screen walls would be placed from Grovers Avenue along 56<sup>th</sup> Street and extend to the CAP Canal. Figure A-1 illustrates the measures that would be incorporated in the 56<sup>th</sup> Street neighborhood.

### **56th Street Alignment Alternatives**

Four roadway alignment alternatives were considered for the extension of 56<sup>th</sup> Street. All four alternatives would disturb, to varying degrees, one of the densest areas of mesquite trees within Reach 11. One alternative considered the extension of 56<sup>th</sup> Street along the existing alignment. This alignment was completely unacceptable to the neighborhood, especially to those residents who fronted 56<sup>th</sup> Street, and was eliminated from further consideration. In order to provide a buffer between those houses fronting 56<sup>th</sup> Street, three alternatives were developed to the east of



**Figure A-1. 56th Street Neighborhood Measures**  
56th and 64th Street Extensions (Bell Road to Pima Freeway)  
Environmental Assessment

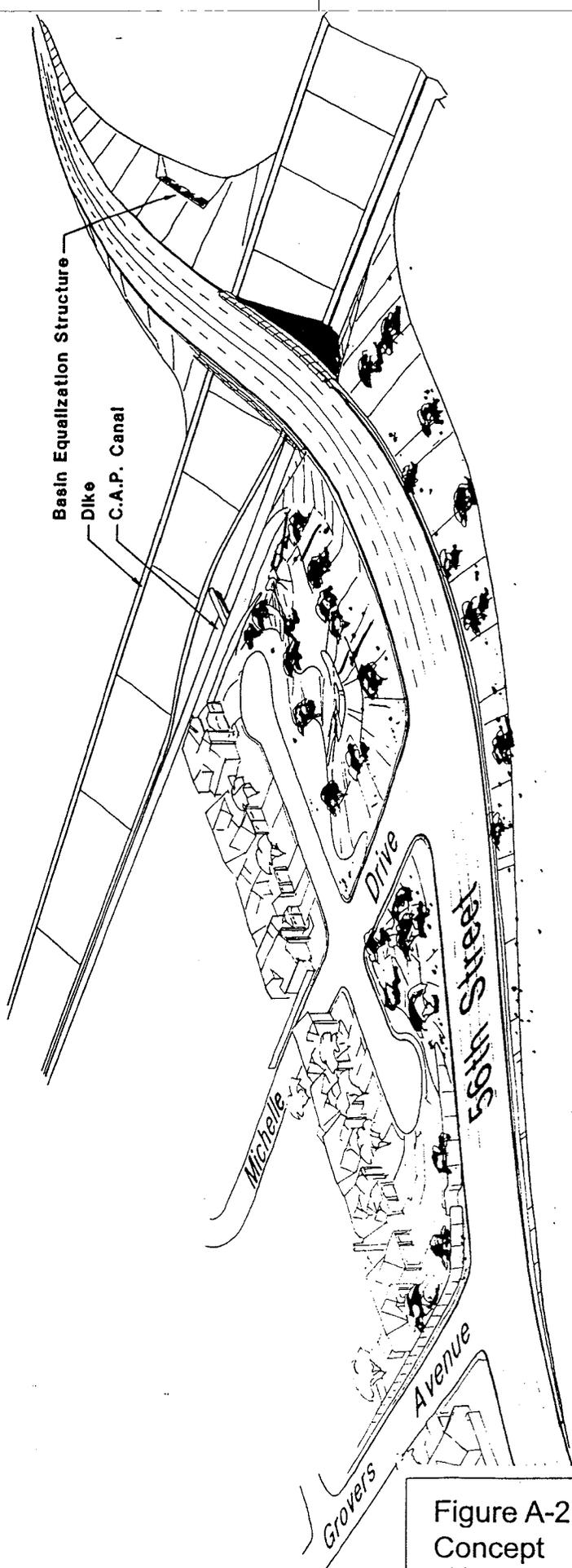
the existing alignment on a vacant parcel of land. No routes were considered to the west of the existing 56<sup>th</sup> Street alignment because of the presence of the residential subdivision. Two of the shifted alignments would not, however, meet American Association of State Highway and Transportation Officials (AASHTO) design criteria/guidelines for sight distance at Michelle Drive, and were eliminated from further consideration. The remaining alignment alternative was selected as part of the proposed project because it would provide the buffer from the residences, meet AASHTO design criteria/guidelines and would have a moderate amount of disturbance within the Reach as compared with the other three alignment alternatives.

### **56th Street "Over-the-Dike" Concept**

The "over-the-dike" concept would place the roadway crossing over the top of the existing dike. Beginning at Grovers Avenue, the roadway would have to rise above the ground surface in order to pass over the 30-foot high dike. At the south side of the Canal, 56<sup>th</sup> Street would be elevated approximately 20 feet above the ground. Figure A-2 illustrates the "over-the-dike" concept. The advantage of this concept would be that the existing dike would not have to be disturbed, and the structural complexities associated with relocating the dike would be avoided. Of the 105 responses submitted after the initial open house public meeting, all respondents indicated their preference of going through-the-dike rather than over-the-dike. Their overwhelming opinion was that the "over-the-dike" concept would create significant adverse visual and noise impacts to the neighborhood and reduce their property values. The "over-the-dike" concept was therefore eliminated from any further consideration.

### **Public Involvement**

Public meetings were held in November and December of 1995 to receive citizens input on the specific roadway alignments and proposed mitigation features for both 56<sup>th</sup> and 64<sup>th</sup> Streets. The City worked closely with the residents to address their concerns regarding negative impacts to their neighborhood, such as access, aesthetics, noise, and safety. Presentations to the City Council on the proposed roadway extension alignments were made in February and March of 1996.



**Figure A-2. 56th Street "Over-the-Dike"  
Concept**

56th and 64th Street Extensions (Bell Road to Pima Freeway)  
Environmental Assessment

**APPENDIX B. PRELIMINARY PLANS AND PROFILE SHEETS FOR 56<sup>TH</sup>  
AND 64<sup>TH</sup> STREET EXTENSIONS**

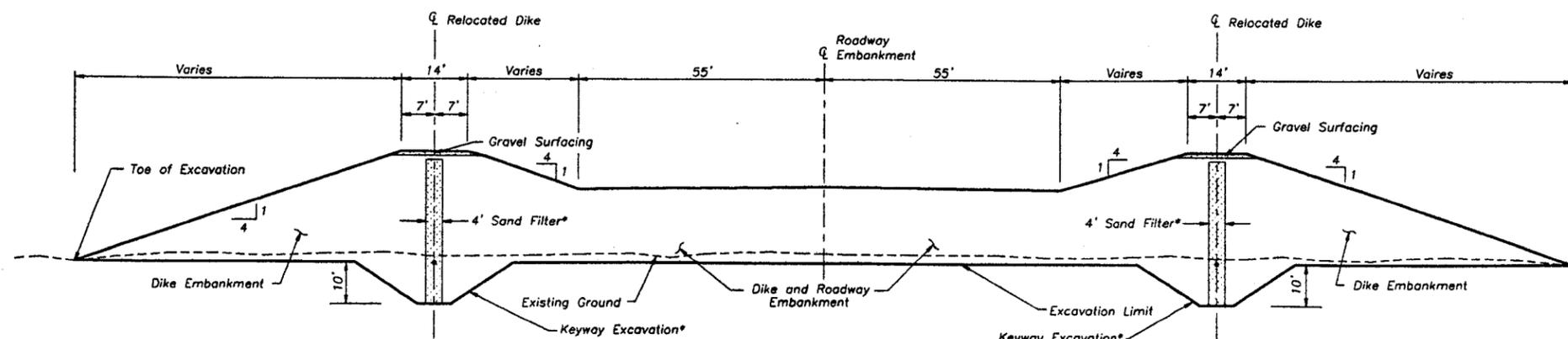
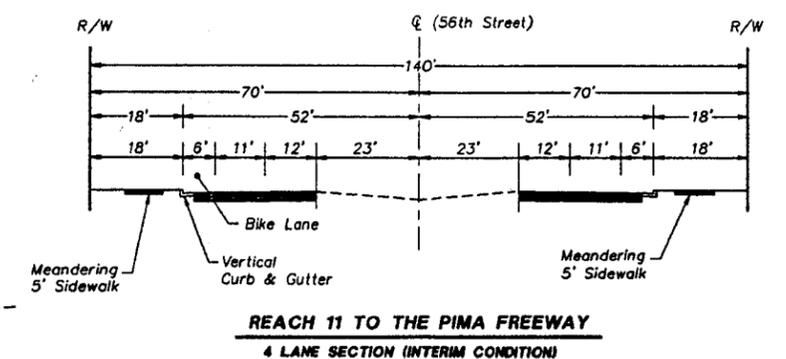
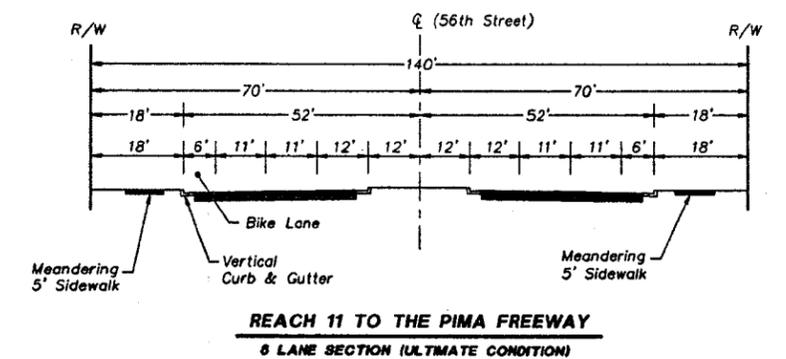
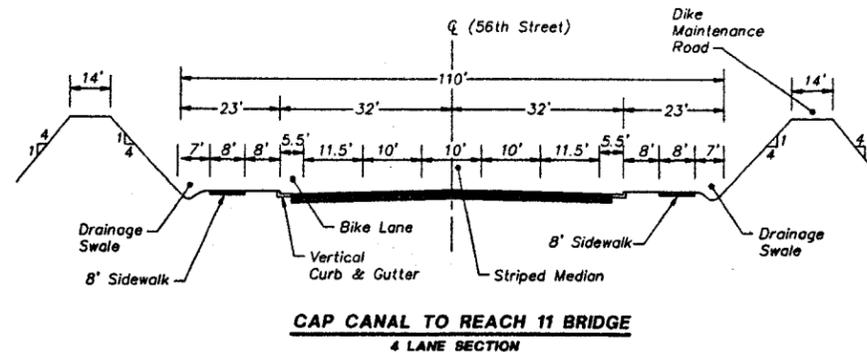
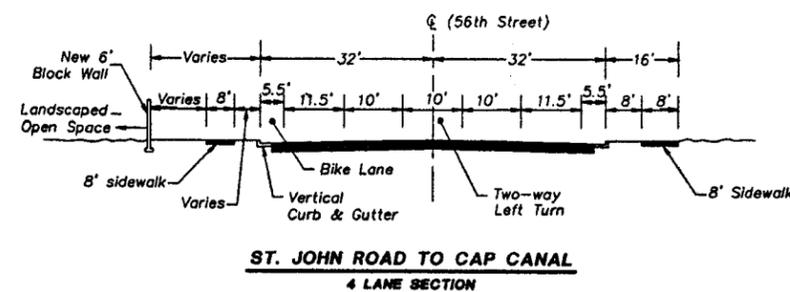
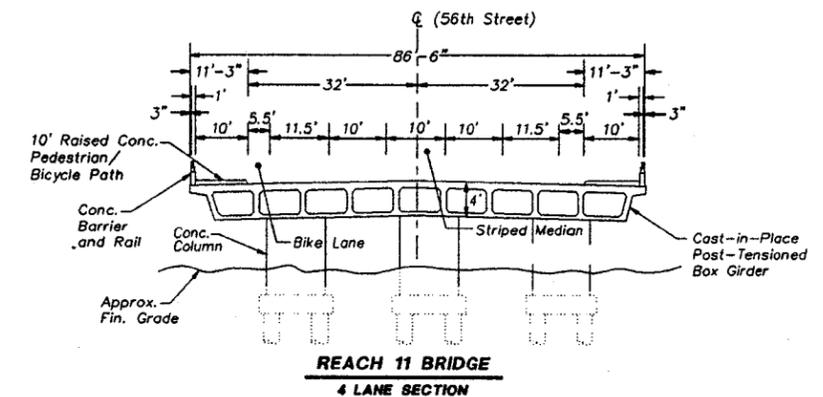
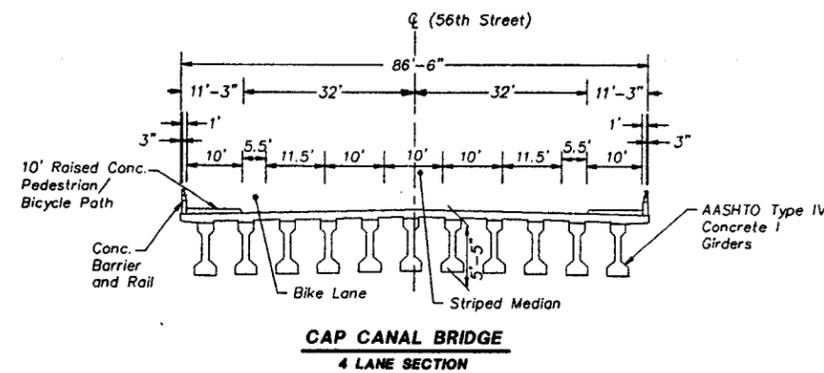
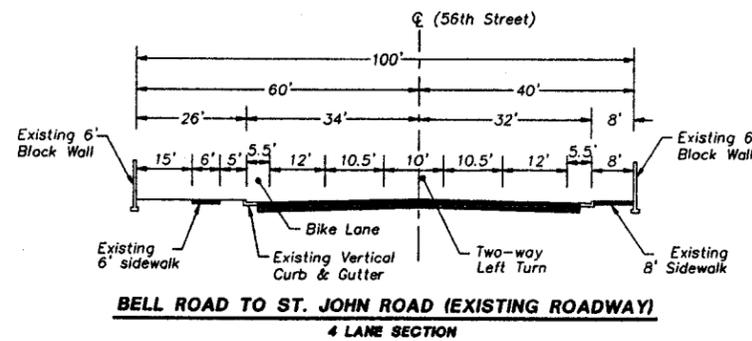
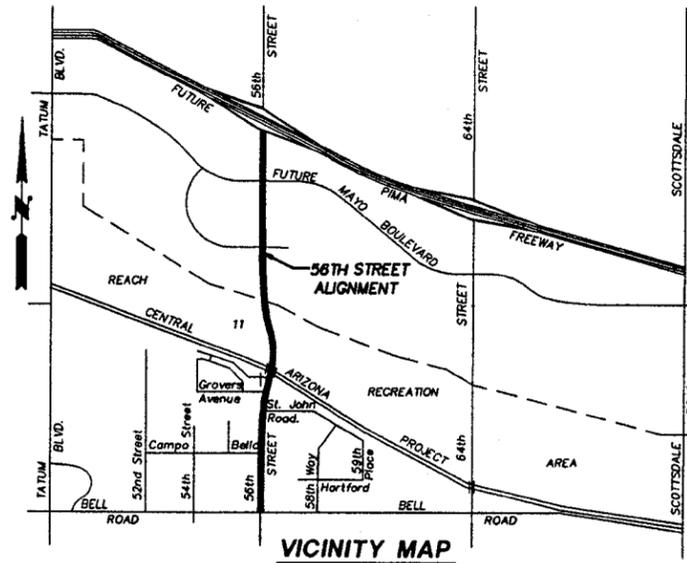




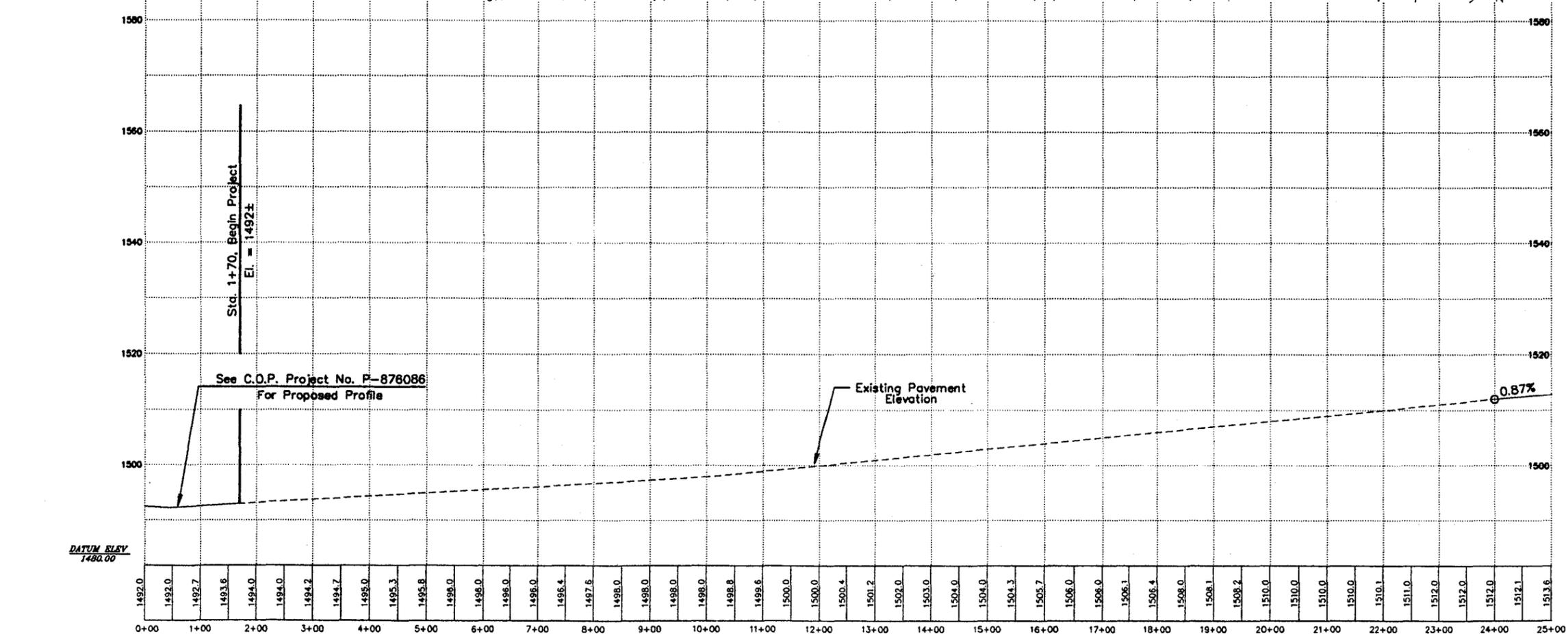
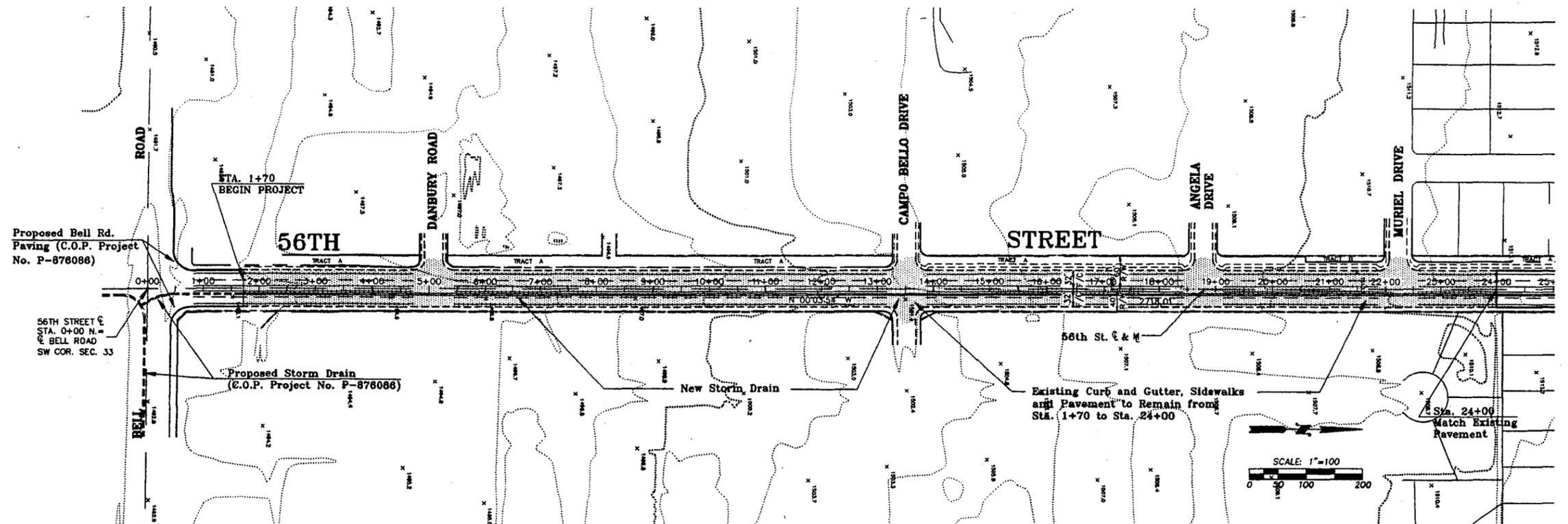
**City of Phoenix**  
STREET TRANSPORTATION DEPARTMENT

**56th STREET ALIGNMENT STUDY**  
**BELL ROAD TO PIMA FREEWAY**

**PRELIMINARY ROADWAY DESIGN**  
February 1996

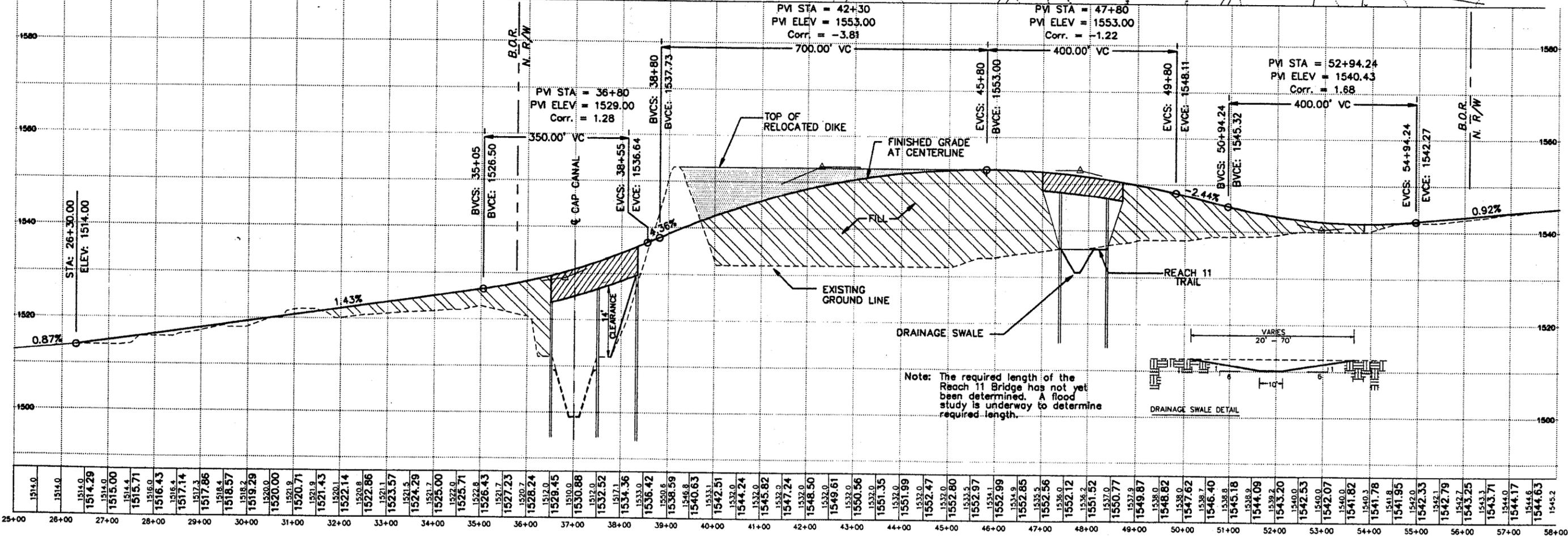
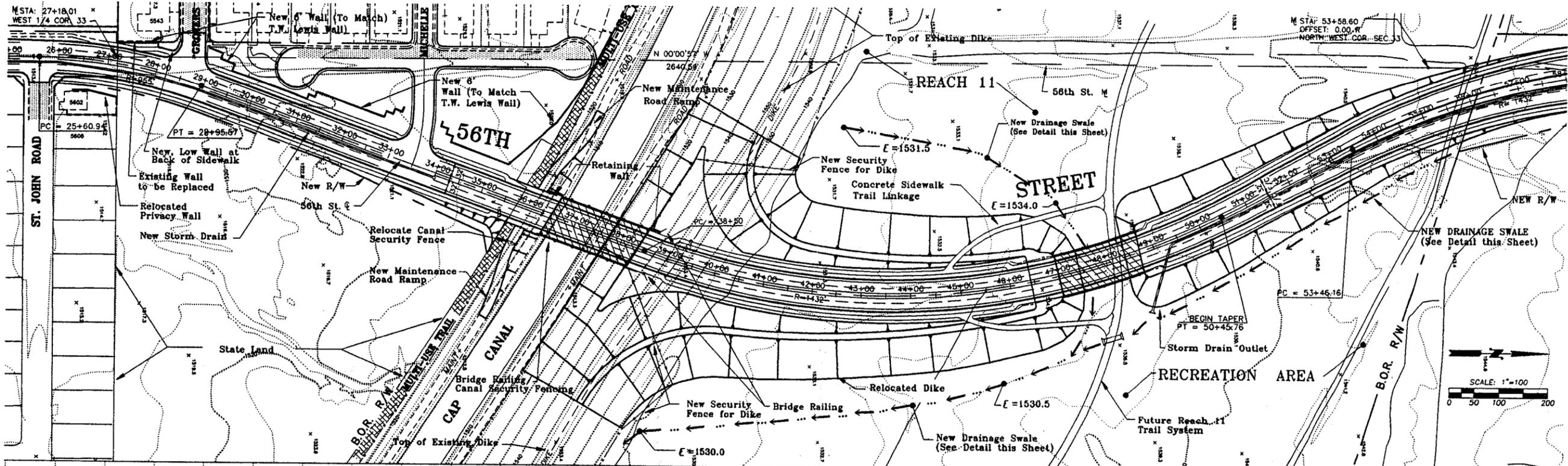


\* Keyway Excavation and Sand Filter may not be necessary depending on soil conditions and final geotechnical design of dike relocation.



PRELIMINARY ROADWAY DESIGN February 1996

56th STREET ALIGNMENT STUDY  
BELL ROAD TO PIMA FREEWAY



**PRELIMINARY ROADWAY DESIGN** February 1996

**56th STREET ALIGNMENT STUDY  
BELL ROAD TO PIMA FREEWAY**

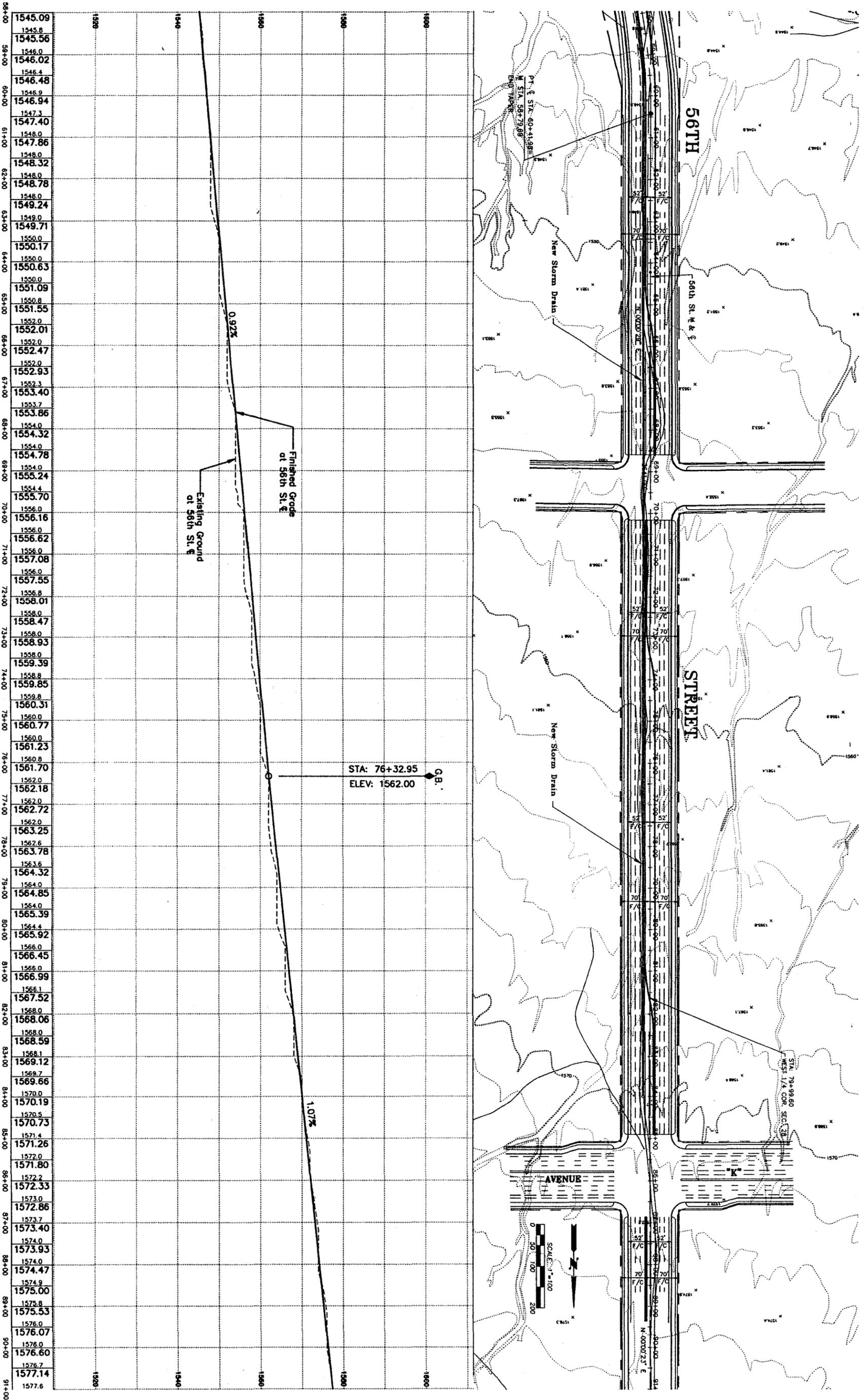




**City of Phoenix**  
STREET TRANSPORTATION DEPARTMENT

**56th STREET ALIGNMENT STUDY**  
BELL ROAD TO PIMA FREEWAY

PRELIMINARY ROADWAY DESIGN February 1996



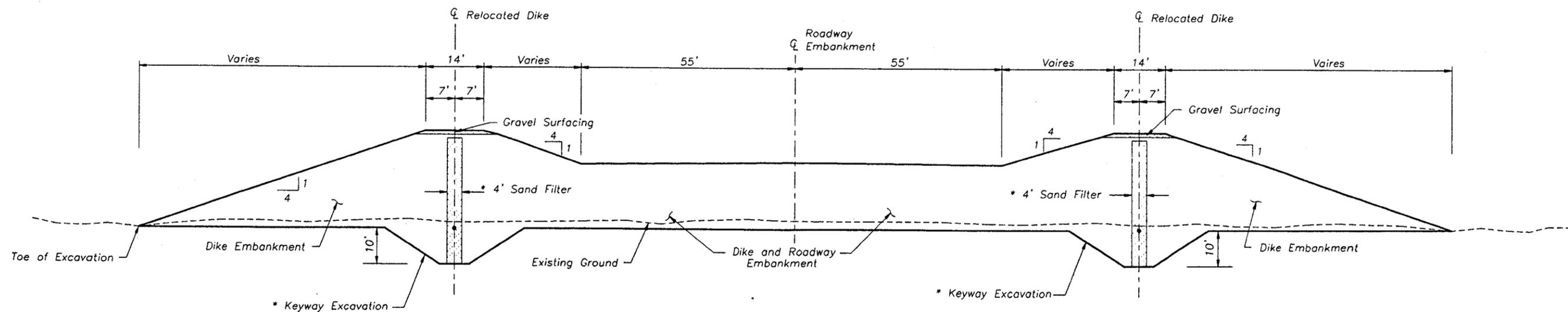
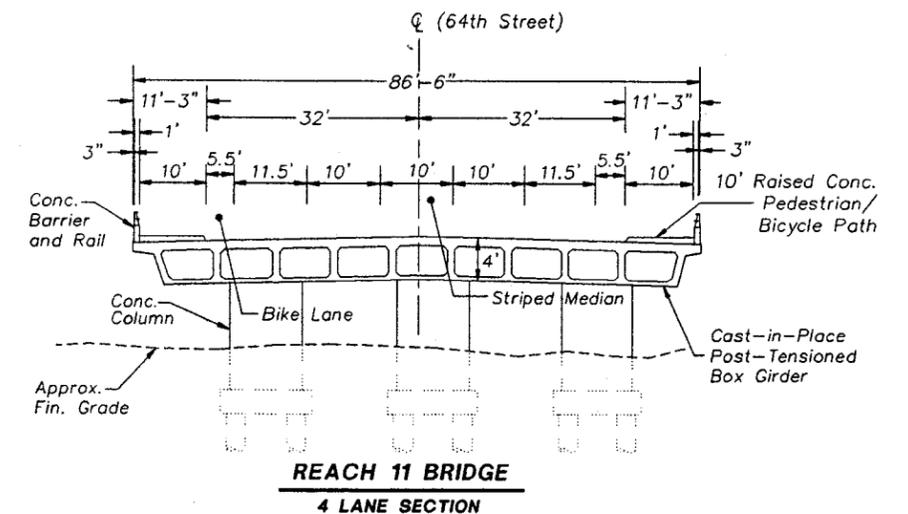
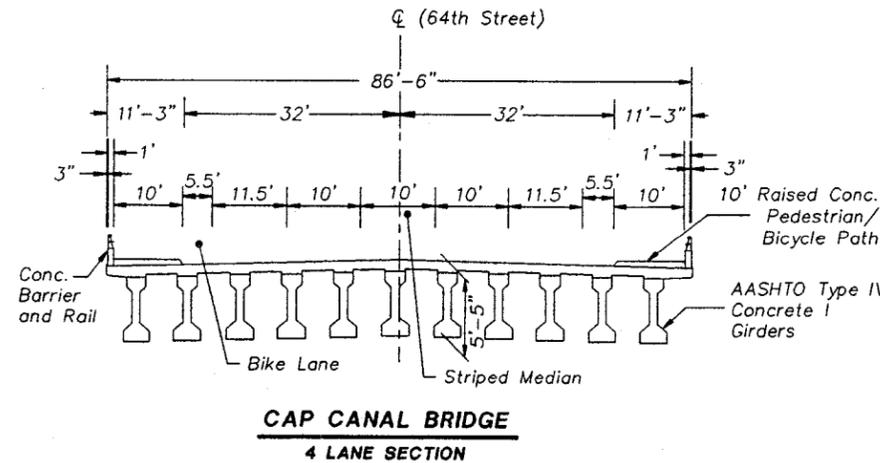
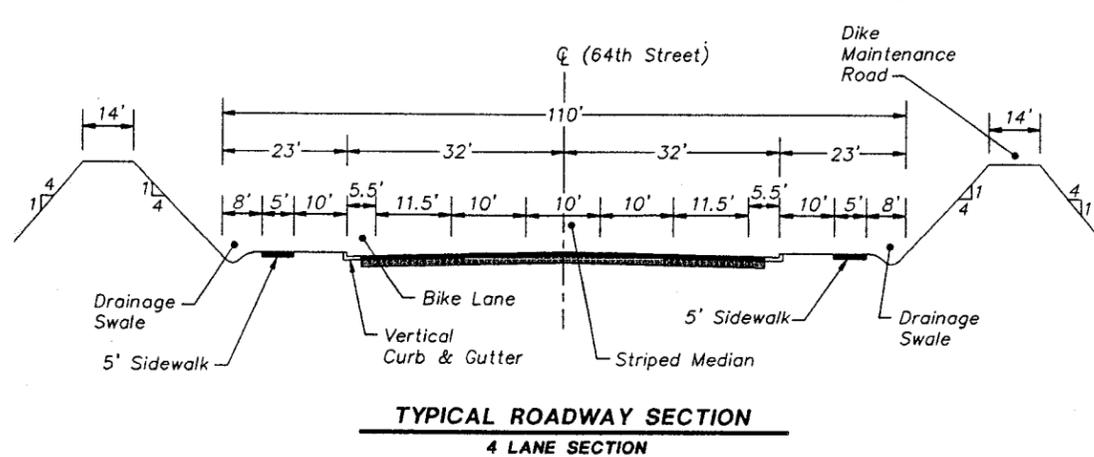
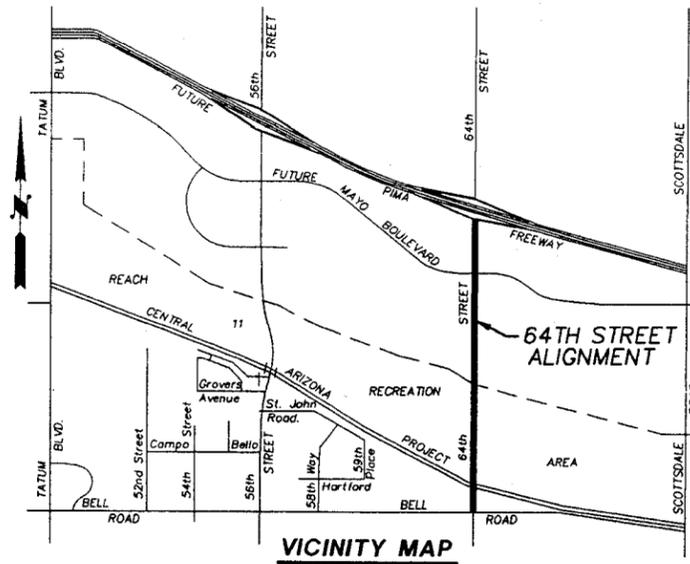




**City of Phoenix**  
STREET TRANSPORTATION DEPARTMENT

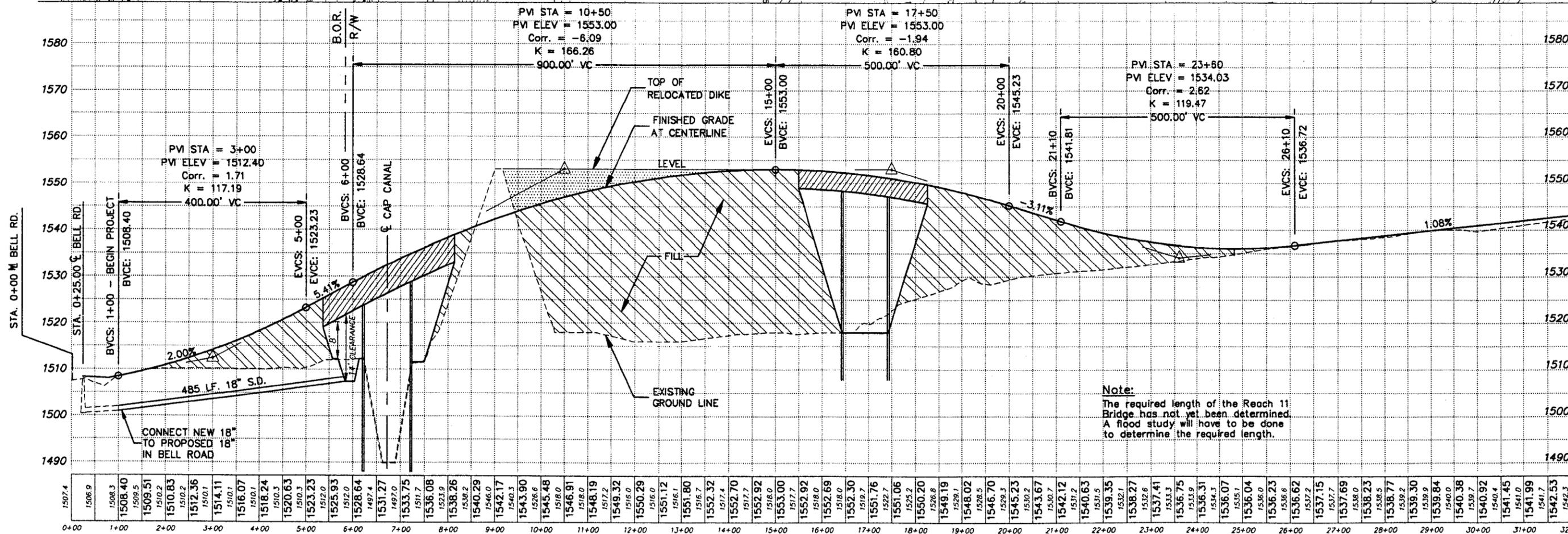
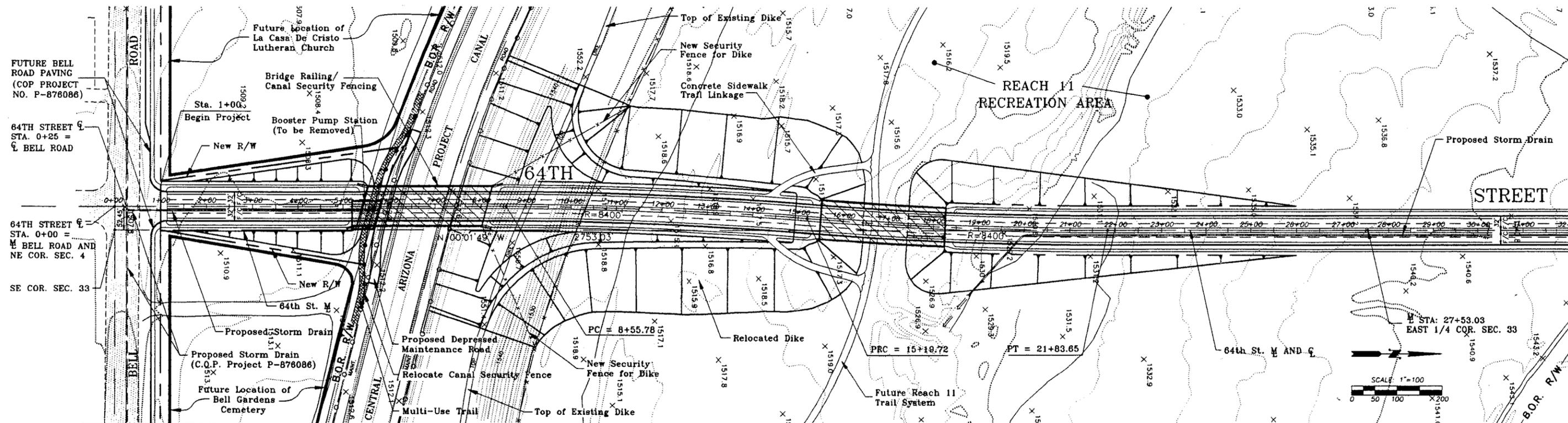
**64th STREET ALIGNMENT STUDY**  
**BELL ROAD TO PIMA FREEWAY**

**PRELIMINARY ROADWAY DESIGN**  
February 1996



**TYPICAL SECTION FOR RELOCATED DIKE AND ROADWAY EMBANKMENT**

\* Keyway Excavation and Sand Filter may not be necessary depending on Soil Conditions and Final Geotechnical Design of Dike Relocation



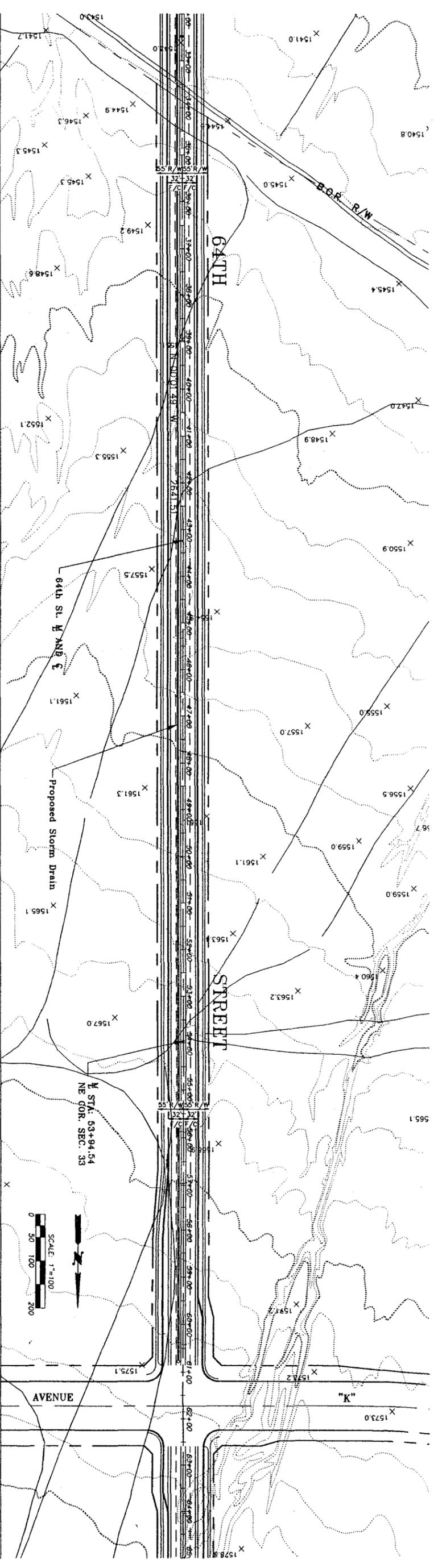
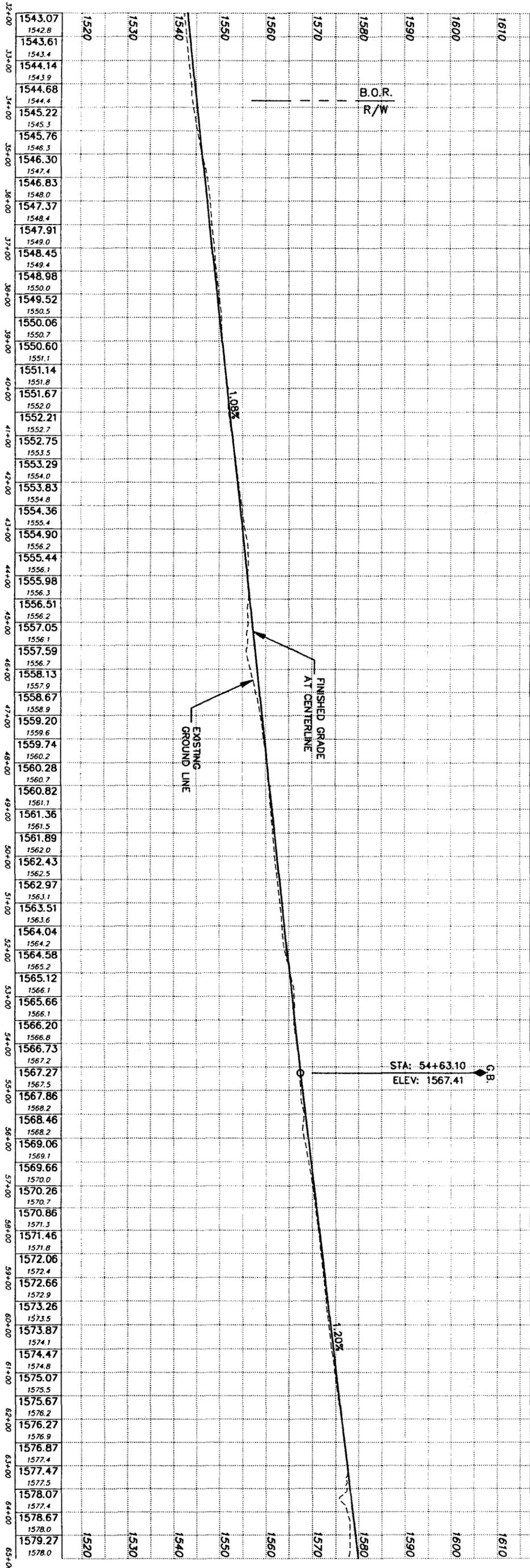


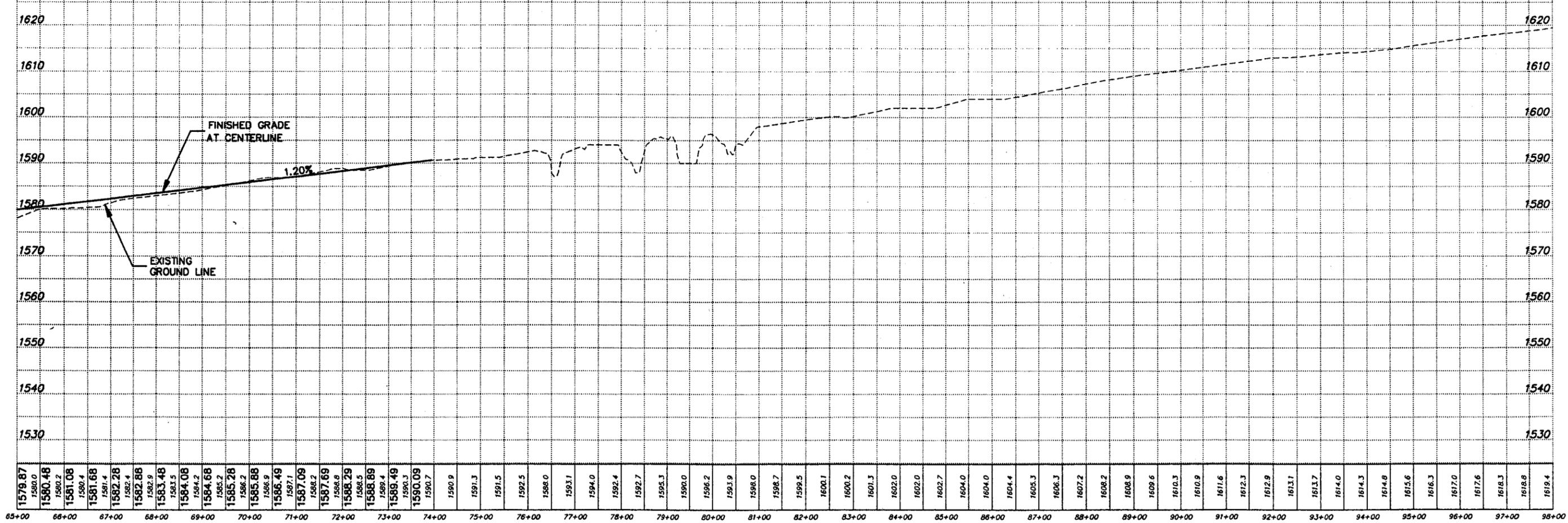
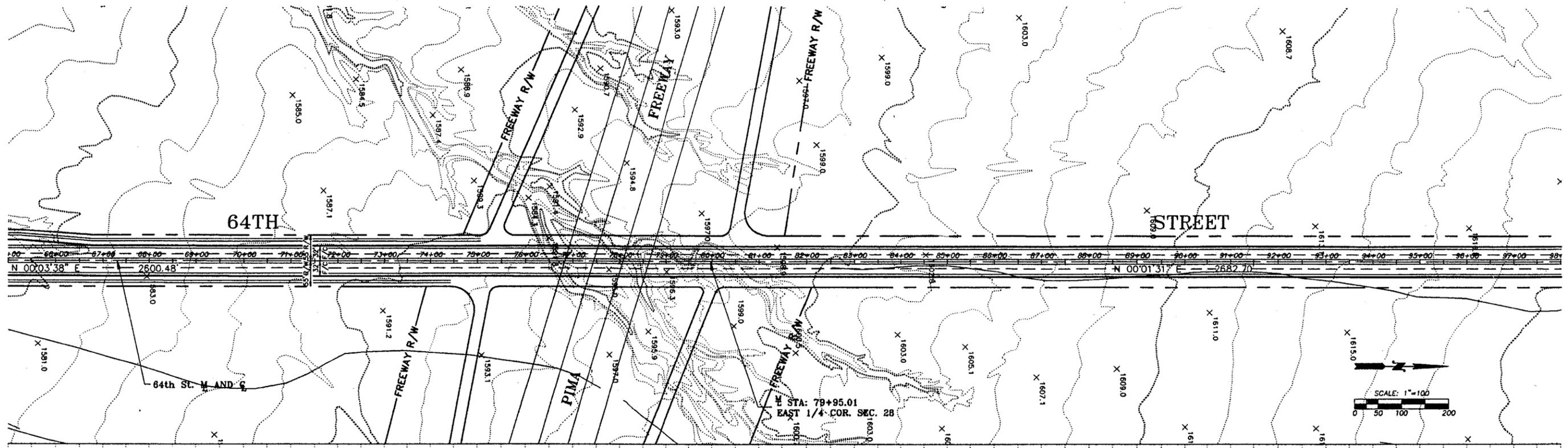
**City of Phoenix**  
STREET TRANSPORTATION DEPARTMENT

**64th STREET ALIGNMENT STUDY**  
BELL ROAD TO PIMA FREEWAY

**PRELIMINARY ROADWAY DESIGN**

February 1996





PRELIMINARY ROADWAY DESIGN February 1996

**APPENDIX C. BIOLOGICAL ASSESSMENT**



June 11, 1997

MEMORANDUM

FROM: Brian Mihlbachler, Biologist, PXAO-1500  
TO: PXAO-1500 Files  
SUBJECT: Biological Assessment for 56th and 64th Street Extensions (Bell Road - Pima Freeway)

INTRODUCTION

The City of Phoenix (City) is planning to extend 56th and 64th streets from Bell Road north over the Central Arizona Project (CAP) canal to the future Pima Freeway. Currently, the City has funding to design and construct the 56th street extension, however, funds for 64th street have not been programmed. Both roadway extensions are needed to accommodate the rapid growth and transportation requirements of the area north of the CAP canal.

Because these roadway extensions would cross Bureau of Reclamation (Reclamation) facilities and right-of-way, a transportation easement would need to be approved by Reclamation prior to construction. This biological assessment has been prepared in compliance with Section 7 of the Endangered Species Act of 1973 (as amended) to analyze the anticipated impacts on listed species resulting from Reclamation's approval of the roadway easement.

PROJECT LOCATION

The proposed project includes the extension of both 56th and 64th streets from Bell Road to the future Pima Freeway in Maricopa County, Arizona (Figure 1). A portion of each roadway extension would cross the CAP canal and Reclamation's adjacent flood detention basin (Reach 11, Dike 2). The roadways would also bisect a segment of the Reach 11 Recreation Area, which is within the detention basin.

PROJECT DESCRIPTION

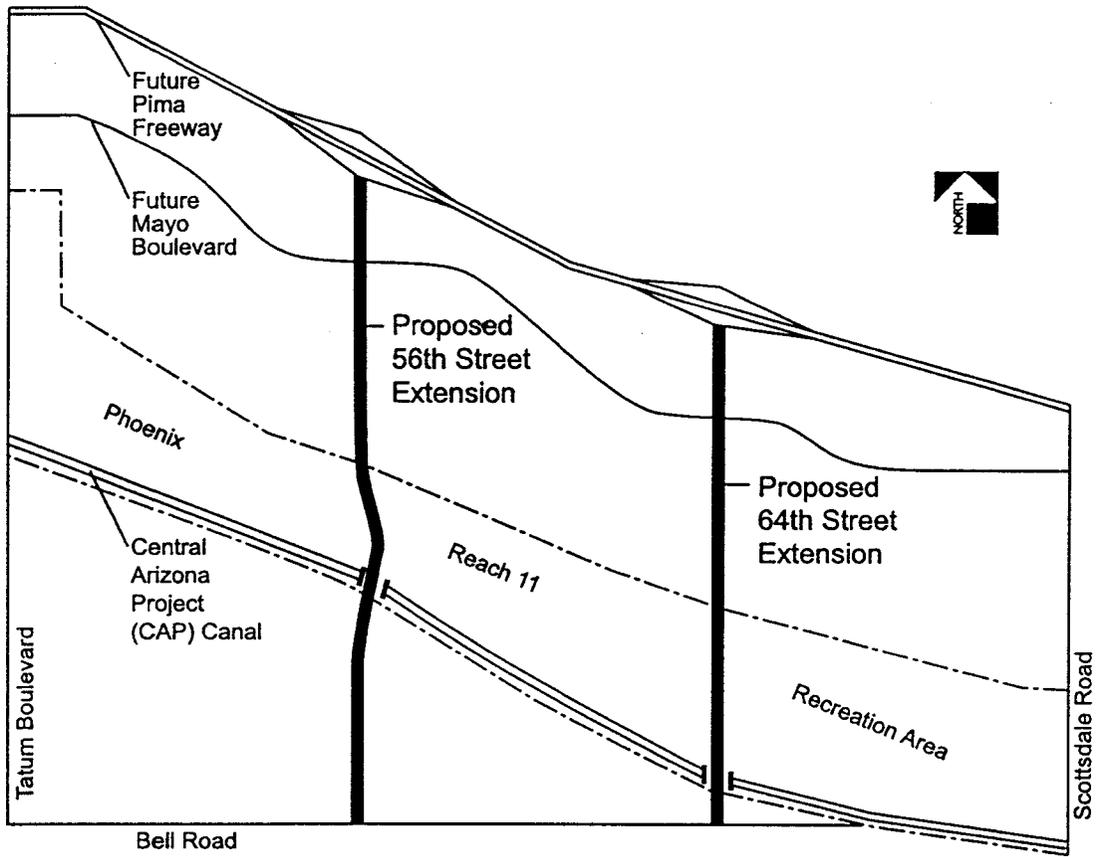
The major features of the 56th and 64th street extensions include: a 5-lane roadway, a bridge over the CAP canal, a bridge inside the Reach 11 Recreation Area, multi-use recreational trails connecting to the Reach 11 trail system, and two construction borrow areas within the detention basin. The 56th and 64th street alignments would temporarily or permanently disturb 10 acres and 13 acres of desert, respectively. The required borrow areas would provide 450,000 cubic yards of material, resulting in approximately 32 acres of land disturbance. The borrow areas would be recontoured and revegetated with native species following construction.

EXISTING RESOURCES

Vegetation

The local vegetation is typical of the Lower Colorado River Valley Subdivision of the Sonoran Desertscrub Formation (Brown, 1982); represented by a mosaic of ephemeral wash, desertscrub upland, and disturbed habitats.

Relatively lush xeroriparian habitat occurs along the ephemeral washes due to the higher available soil moisture. Tree species associated with the



**Figure 1. Project Location**  
 56th and 64th Street Extensions (Bell Road to Pima Freeway)  
 Environmental Assessment

washes include velvet mesquite (*Prosopis velutina*), blue palo verde (*Cercidium floridum*), ironwood (*Olnea tesota*), and desert hackberry (*Celtis pallida*). Several species of shrubs, such as wolfberry (*Lycium spp.*), gray thorn (*Ziziphus obtusifolia*), desert broom (*Baccharis sarathroides*), and big-leaf bursage (*Ambrosia ambrosioides*) are also present.

Upland habitats support typical desertscrub species such as triangle-leaf bursage (*Ambrosia deltoidea*), creosotebush (*Larrea tridentata*), brittlebush (*Encelia farinosa*), and sparse annual grasses and forbs. Species composition on previously disturbed upland areas, however, is highly variable. Along the upslope base of the detention basin dike, particularly west of the proposed 56th Street crossing, dense stands of velvet mesquite with few scattered Fremont cottonwood (*Populus fremontii*) have established in a zone where water periodically accumulates against the dike. The borrow area used to construct the detention dike is vegetated with fairly homogeneous stands of desert broom and velvet mesquite. Other disturbed areas (proposed borrow sites #3 and #5) are sparsely vegetated with threeawn grasses (*Aristida spp.*), burroweed (*Haplopappus tenuisectus*), globemallow (*Sphaeralcea spp.*), scattered velvet mesquite, palo verde, and desert broom.

### Wildlife

The upland and xeroriparian habitats support a fairly diverse animal community, with more than sixty species of birds documented (Marty Jakle, Bureau of Reclamation, unpub. data). The most abundant bird species noted were mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), Gambel's quail (*Callipepla gambelii*), various hummingbirds, and Abert's towhee (*Pipilo aberti*). Other common desert species such as verdin (*Auriparus flaviceps*), cactus wren (*Campylorhynchus brunneicapillus*), curved-billed thrasher (*Toxostoma curvirostre*), ash-throated flycatcher (*Myiarchus cinerascens*), Gila woodpecker (*Melanerpes uropygialis*), black-throated sparrow (*Amphispiza bilineata*), black-tailed gnatcatcher (*Polioptila melanura*), great horned owl (*Bubo virginianus*), common raven (*Corvus corax*), and turkey vulture (*Cathartes aura*) were also observed. Additionally, many neotropical migrant bird species have been sighted, including six species of warblers, hermit thrush (*Catharus guttatus*), flycatchers, and swallows.

Coyotes (*Canis latrans*), desert cottontails (*Sylvilagus auduboni*), and roundtail ground squirrels (*Citellus tereticaudus*) are commonly encountered in the area. A herd of up to nine javelina (*Tayassu tajacu*), and other species of mammals such as blacktail jackrabbit (*Lepus californicus*), gray fox (*Urocyon cinereoargenteus*), cotton rats (*Sigmodon spp.*), and raccoon (*Procyon lotor*) also utilize the area. The state protected Gila monster (*Heloderma suspectum*) and desert tortoise (*Gopherus agassizii*) also occur in or near the project area.

### Species of Concern

Fourteen threatened or endangered species are known or could occur in Maricopa County, Arizona (Table 1), however, their occurrence in the project area is highly unlikely due to their individual habitat requirements and/or the quality of the existing habitat. Exceptions could include, however, infrequent use of the area by foraging and/or migrating American peregrine falcon's, bald eagle's, and lesser long-nosed bats. No federally listed species have been previously documented utilizing the project area.

### CONCLUSION

The proposed project will not adversely affect any listed threatened or endangered species or designated critical habitat.

No federally listed species have been documented in the area and habitat suitable for such species is largely absent in the project area. Peregrine falcon's and bald eagle's could fly through the area, but are unlikely to frequent or breed in the area due to a lack of water and suitable nesting and perching sites. The lesser long-nosed bat is also unlikely to utilize the area since suitable roost sites (caves, tunnels) and preferred forage resources (saguaro, agave) are absent. Cumulative impacts to listed species, which could occur from on-going and future commercial and residential development north of the project area, are not anticipated to occur since listed species have also not been documented in this larger area.

#### CITATIONS

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

Table 1. Federally listed threatened and endangered species, Maricopa County, Arizona.

Plants

<i>Agave arizonica</i>	Arizona agave
<i>Purshia subintegra</i>	Arizona cliffrose
<i>Echinocereus triglochidiatus arizonicus</i>	Arizona hedgehog cactus

Mammals

<i>Leptonycteris curasoae yerbabuenae</i>	Lesser long-nosed bat
<i>Antilocapra americana sonoriensis</i>	Sonoran pronghorn

Fishes

<i>Cyprinodon macularius</i>	Desert pupfish
<i>Poeciliopsis occidentalis occidentalis</i>	Gila topminnow
<i>Xyrauchen texanus</i>	Razorback sucker

Birds

<i>Falco peregrinus anatum</i>	American peregrine falcon
<i>Haliaeetus leucocephalus</i>	Bald eagle
<i>Strix occidentalis lucida</i>	Mexican spotted owl
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher
<i>Glaucidium brasilianum cactorum</i>	Cactus ferruginous pygmy-owl
<i>Rallus longirostris yumanensis</i>	Yuma clapper rail



**APPENDIX D. GUIDELINES FOR HANDLING SONORAN DESERT  
TORTOISES ENCOUNTERED IN DEVELOPMENT  
PROJECTS**



GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES  
ENCOUNTERED ON DEVELOPMENT PROJECTS

Arizona Game and Fish Department  
Revised August 7, 1996

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state.

Desert tortoises of the Sonoran population are those occurring south and east of the Colorado River. Tortoises encountered on short-term projects (less than one week) and not in a burrow, should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position at all times and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 105 degrees fahrenheit unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise should be moved no further than necessary, not to exceed 1000 feet from its original location. If a release site, or alternate burrow, is unavailable within 1000 feet and ambient air temperature exceeds 105 degrees fahrenheit, the Department should be contacted to place the tortoise into a Department-regulated desert tortoise adoption program. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, will also be placed in desert tortoise adoption programs. *Managers of projects likely to affect desert tortoises should obtain a scientific collecting permit from the Department to facilitate temporary possession of tortoises.* Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

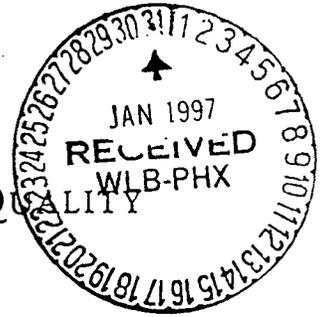
- These guidelines do not apply to the Mohave population of desert tortoises (north and west of the Colorado River). Mohave desert tortoises are specifically protected under the Endangered Species Act, as administered by the U.S. Fish and Wildlife Service.
- These guidelines are subject to revision at the discretion of the Department. We recommend that the Department be contacted during the planning stages of any project that may affect desert tortoises.
- Take, possession, or harassment of a desert tortoise is prohibited by state law. Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.

RAC:NLO:rc



**APPENDIX E. AGENCY SCOPING COMMENT LETTERS**





ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Fife Symington, Governor      Russell F. Rhoades, Director

January 16, 1996

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

**RE: National Environmental Policy Act (NEPA) Compliance for the City of Phoenix (City) Proposed Construction of 56th and 64th Street Extensions, Central Arizona Project (CAP) Reach 11, Maricopa County, Arizona (Due Date February 6, 1997)**

Dear Mr. Schroeder:

Thank you for the opportunity to comment on the National Environmental Policy Act (NEPA) Compliance for the City of Phoenix (City) Proposed Construction of 56th and 64th Street Extensions, Central Arizona Project (CAP) Reach 11, Maricopa County, Arizona (Due Date February 6, 1997).

The Arizona Department of Environmental Quality has no comment on the proposal.

Thank you,

Jack B. Bale  
Local Government Ombudsman



# Central Arizona Project

23636 North Seventh Street, Phoenix, Arizona 85024-3899 (602) 870-24

January 20, 1997

Mark Gavan, Project Manager  
The WLB Group  
333 East Osborn  
Suite 380  
Phoenix, Arizona 85012

RE: Proposed Construction of 56th and 64th Street Extensions

Dear Mr. Gavan:

Enclosed is the City of Phoenix's "Comment Sheet", upon which has been noted "No Comment" regarding "Relevant Environmental Issues". This comment represents the review of the Central Arizona Water Conservation District's (CAWCD) area of responsibility, i.e., the properties south of the retention dike. Comments to be made regarding the retention dike and properties north, are the responsibility of the United States Department of the Interior, Bureau of Reclamation.

If you have any questions, please contact me at (602) 870-2353.

Sincerely,

  
Tom Curry

cc: George Crider, CAWCD, Realty  
Dennis Schroeder, Area Manager, Bureau of Reclamation

enclosure



# GAME & FISH DEPARTMENT

2221 West Greenway Road, Phoenix, Arizona 85023-4399 (602) 942-3000

Governor  
Fife Symington

Commissioners:  
Chairman, Nonie Johnson, Snowflake  
Michael M. Golighly, Flagstaff  
Herb Guenther, Tucson  
Fred Belman, Tucson  
M. Jean Hassell, Scottsdale

Director  
Duane L. Shoupe

Deputy Director  
Thomas W. Spalding

Mesa Office, 7200 E. University, Mesa, Arizona 85207 (602) 981-9400

February 6, 1997

Mr. Mark Gavan, Project Manager  
The WLB Group  
333 East Osborn, Suite 380  
Phoenix, Arizona 85012

Re: Borrow Site Evaluations and Borrow Locations for the Proposed  
56th and 64th Street Extensions at Reach 11

Dear Mr. Gavan:

The Arizona Game and Fish Department (Department) has reviewed the proposal for borrow site locations and evaluation for the extension of 56th Street and 64th Street at Reach 11. The Department believes that the evaluation criteria used for the location of the borrow areas are valid and could minimize potential impacts of the 56th Street extension project to wildlife habitat both within and adjacent to Reach 11. In order to minimize impacts to wildlife and their habitats, we believe that emphasis should be placed on locating borrow sites in areas where habitat values will be lost due to future development or in sites with lower wildlife habitat values that have been previously disturbed.

#### Reach 11 Wildlife Values

Dominant vegetation types within Reach 11 include mesquite thickets and blue palo verde along washes, intermixed with desert broom and creosote. Other species occurring in lower densities include ironwood, hackberry, greythorn, and wolfberry. Wildlife known to occur in the area include javelina, Harris' hawk, Anna's hummingbird, red-tailed hawk, Gambel's quail, cactus wren, and coyote. The area is currently used for passive recreation including hiking, horseback riding, and wildlife viewing.

#### Proposed Borrow Site Locations

The value of the Reach 11 area for passive recreation is expected to increase as the surrounding area becomes more urbanized. We believe that the location of the borrow sites on State trust lands purchased by the City of Phoenix (City) could provide an opportunity to meet anticipated increasing demands to access Reach 11 by also serving as parking areas. This additional land could also be used as a location for developed recreation sites north of the Reach 11 boundary.

Mr. Mark Gavan  
February 6, 1997  
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The Department encourages the City to retain the current habitat values of Reach 11 by disturbing the least amount of habitat possible under this proposal. The identification of borrow sites for the proposal should consider habitat value and continuity of available habitat. Maintaining large contiguous areas of habitat is of greater value to wildlife than multiple fragmented islands of habitat. Short-sighted location of borrow sites within Reach 11 could reduce wildlife habitat values by both decreasing the total amount of habitat available to wildlife and by fragmentation of remaining habitat following project implementation.

As no recreation plan currently exists for the Reach 11 site, the Department is hesitant to concur with proposals for borrow sites based on assumptions of what the future recreation plan for Reach 11 will contain. We believe that decisions made on the location of the borrow sites should not preclude future options for the Reach 11 recreation plan.

If an on-site location must be used, the Department favors the use of Site 1, Site 2, or a combination of these sites. The Department believes that the selection of Site 3, Site 4, or Site 5 could result in higher levels of habitat fragmentation within Reach 11. The use of Site 1 or 2 would result in lower habitat fragmentation within Reach 11, although the impacts of haul routes from these sites to the street extension right-of-way may further impact wildlife habitat.

#### **Artificial Wetland/Borrow Extraction Proposal**

The City has mentioned that the use of Site 5 for the 56th Street borrow could result in an opportunity to create an artificial wetland within Reach 11. Constructed wetland sites have the potential to exhibit very high values for wildlife while providing opportunities for environmental education on the value of riparian habitats for wildlife. However, the Department maintains that our support for the use of Site 5 for borrow extraction is contingent on the City's ability to commit a sufficient amount of water to support an artificial wetland year round.

The Department has been involved in a technical advisory capacity in the review of designs for artificial wetland sites such as the City of Gilbert percolation ponds and the City of Tucson's Sweetwater wetlands project. Heritage funding has been awarded in the past for proposals associated with artificial wetland habitats. The Department encourages the City to apply for Heritage funding if an artificial wetland is constructed within Reach 11.

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#### **56th Street Extension**

The proposed alignment of the 56th Street extension will also result in the loss of wildlife habitat within Reach 11. This habitat has been identified by the Department and the Bureau of Reclamation as some of the highest value wildlife habitat within Reach 11. The Department believes that avoidance of existing habitat is preferable to the creation of replacement habitat elsewhere.

One proposal which could minimize impacts to existing habitat by the 56th Street extension would be to construct a bridge on piers which would span the entire length of the Reach. The amount of fill needed within the Reach would be minimized by this alternative, limiting the need to extract borrow within the Reach. Wildlife and recreationists could freely move beneath the bridge, and the elevated roadway could reduce traffic noise levels on the ground below.

#### **Mitigation for Loss of Habitat**

The Department recommends that the loss of wildlife habitat which would occur as a result of the 56th and 64th street extensions and associated borrow extraction locations be the minimum amount possible. Removal of native vegetation should be avoided by construction activities where feasible. The Department believes that the City should develop a mitigation plan for the loss of wildlife habitat which will result from both the 56th Street roadway alignment and associated borrow extraction, particularly if the proposed roadway alignment cannot be altered.

Potential mitigation for loss of wildlife habitat could include the following:

If avoidance of native plants is not possible, plant species protected under the Arizona Native Plant Law, ARS Title 3, chapter 7 shall be relocated to an appropriate revegetation site.

Following the conclusion of borrow extraction activities and roadway construction in the area, disturbed areas shall be recontoured and revegetated with locally native plant species to maximize benefits to wildlife. Revegetation proposals should include plant species to be used, minimum survival rates over time, identity of the parties responsible for the revegetation, time schedule of the mitigation project, the locality of collection for propagules (seed or cuttings), and the size of plants to be planted, if applicable.

Although the City has stated that trees within the road right-of-way which are 4 inches or greater in diameter will be transplanted,

Mr. Mark Gavan  
February 6, 1997  
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the Department contends that as many plants as possible should be transplanted from the right-of-way to another location within the Reach, including small diameter trees, shrubs, and cacti. We recommend that a minimum survival rate of 80% for woody plants be achieved five years following the initial planting. In addition, a portion of the woody vegetation which cannot be salvaged for replanting could be scattered within the Reach to provide woody debris for wildlife cover.

#### **Construction Recommendations**

During construction and borrow extraction activities, trenches, pits, or holes excavated in association with this project shall be designed, fenced, or covered to avoid entrapment or death of wildlife. Hazardous materials such as waste oil from machinery shall be stored and disposed of properly to avoid impacts to wildlife from accidental spills.

#### **Clean Water Act Requirements**

The Army Corps of Engineers have recently revised their regulations concerning 404 permits under the Clean Water Act. The Department believes that the proposed current alignment of 56th Street may require a 404 permit as under the new regulations, a Nationwide Permit is required for any dredge or fill activities within a 1/3 to 3 acre area in the waters of the United States. It is also unclear how the proposed 56th Street extension relates to the Drainage Master Plan that is currently being developed for the area by the City. The Department recommends that the Army Corps of Engineers be contacted by the City of Phoenix concerning the 56th Street extension proposal.

#### **Special Status Species**

The Department's Heritage Data Management System has been accessed and current records show that the special status species listed below has been documented as occurring in project vicinity.

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>STATUS</u>
Sonoran desert tortoise	<u>Gopherus agassizii</u>	WC,S

#### STATUS DEFINITIONS

WC - Wildlife of Special Concern in Arizona. Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described by the Department's listing of Wildlife of Special Concern in Arizona (WSCA, in prep.). Species included in WSCA are currently the same as those in Threatened Native Wildlife in Arizona (1988).

Mr. Mark Gavan  
February 6, 1997  
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**s - Sensitive.** Species classified as "sensitive" by the Regional Forester when occurring on lands managed by the U.S.D.A. Forest Service.

Due to the limited amount of suitable habitat located in the project area, the Department does not anticipate any significant impacts to the Sonoran desert tortoise as a result of project implementation. However, we do recommend that the Sonoran desert tortoise is considered in the planning and implementation of the 56th Street and 64th Street extension projects. In the instance that an individual tortoise or its burrow is encountered prior to or during any construction related to this roadway proposal, we recommend that the Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" be used. A copy of these guidelines has been enclosed for your use.

The Department appreciates the opportunity to provide preliminary comments on actions which would reduce impacts to fish, wildlife, and their habitats for the proposed 56th and 64th Street extensions and associated borrow extraction. We look forward to continued cooperation in the planning of this project.

Sincerely,

*Barbara Heslin*

Barbara Heslin  
Habitat Specialist

BSH:bh

cc: Kelly Neal, Regional Supervisor, Region VI  
David L. Walker, Project Evaluation Program Supervisor,  
Habitat Branch  
Cindy Lester, Regulatory Branch, US Army Corps of Engineers  
Pat Crouch, Supervisory Wildlife Manager, West Valley Sector  
Chris Estes, Sonoran North

Enclosure

AGFD# 01-09-97(05)