

**SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT**

**JTF-6 FENCE AND ROAD CONSTRUCTION,  
DOUGLAS, COCHISE COUNTY,  
ARIZONA**

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## EXECUTIVE SUMMARY

This Environmental Assessment (EA) addresses the potential for significant adverse or beneficial environmental impacts in accordance with provisions of the National Environmental Policy Act (NEPA). This document was tiered from existing EAs completed for previous construction activities (U.S. Army 1991a, 1993) in the same vicinity, and a Programmatic Environmental Impact Statement completed for Joint Task Force Six (JTF-6) activities along the U.S.-Mexico border (U.S. Army 1994).

The Immigration and Naturalization Service (INS) and the U.S. Border Patrol, Tucson Sector are proposing to replace approximately six miles of fence, construct 0.5 miles of new road, and improve 0.8 miles of road along the U.S.-Mexico border at Douglas, Cochise County, Arizona. Approximately 1.3 miles would be of decorative fence, with the remaining 4.9 miles of steel landing mat. These agencies have requested support from JTF-6 for the use of military personnel and equipment to complete this action. JTF-6 has requested that the Fort Worth District, U.S. Army Corps of Engineers assess the potential for impacts related to construction of the fences. The proposed action would increase the U.S. Border Patrol's ability to complete their mission of reducing illegal drug traffic into the U.S. The proposed construction area encompasses approximately six miles of existing border fence near Douglas within a corridor that would be a maximum of 30 feet wide.

The proposed action would be accomplished by a U.S. Military Engineer Battalion as part of their annual training. Approximately 70 personnel would be required to complete the proposed action.

Alternatives considered include no action, increasing air patrols, increasing the number of U.S. Border Patrol agents in the area, and the proposed plan above. The no action alternative would not allow U.S. Border Patrol agents to increase effectiveness or fulfill their mission. Increasing air patrols would not aid the U.S. Border Patrol in controlling drug traffic. Increasing the number of U.S. Border Patrol agents in the area was found to have excessive cost constraints, as well as an increase in expected environmental impacts.

The proposed action would not significantly impact area land use, water resources, air quality, cultural resources, or socioeconomic resources. Impacts of the proposed action would not affect any listed or species proposed for listing as threatened or endangered in accordance with the Endangered Species Act. Additionally, with environmental design measures specified as part of the proposed action, there would be negligible impacts to area soil, water resources, and biological resources.

Significant potential soil erosion and related surface water runoff impacts would not be expected during construction efforts of the proposed action. Procedures and methods that would be implemented to mitigate erosion and sedimentation impacts have been developed in the Storm Water Pollution Prevention Plan (PPP) for the proposed action. A Notice of Intent as part of the PPP for the proposed action would be submitted to the Environmental Protection Agency and the Arizona Department of Environmental Quality prior to construction.

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## 1.0 INTRODUCTION

### 1.1 Background

The U.S. is experiencing high levels of drug use and increasing amounts of drug-related crime. Negative impacts of widespread drug use on society continue to affect the work force, educational system, general law and order, and traditional family values and structure. Rising rates of violent crime, serious damage to the Nation's health and economy, and strains on vital relationships with international allies led the U.S. Congress to develop the National Drug Control Strategy (NDCS). The NDCS included Department of Defense (DoD) involvement, and in 1989, the Secretary of Defense defined a significant role in the counterdrug effort for Joint Task Force Six (JTF-6). JTF-6 is a Joint Service DoD agency assigned to assist law enforcement agencies (LEA) who have drug interdiction responsibilities in the southwestern United States. Assistance includes operational and training efforts, design and construction, or logistical actions provided there is a nexus to drug interdiction and the assistance would provide all or part of the mission-essential training elements of the military unit involved in the assistance.

This Environmental Assessment (EA) addresses potential impacts associated with proposed fence and road construction, to be completed by JTF-6, along the U.S.-Mexico border, near Douglas, Cochise County, Arizona. This document was tiered from existing EAs completed for previous road maintenance and fence construction activities (U.S. Army 1991, 1993, 1996) in the general vicinity, and a Programmatic Environmental Impact Statement completed for JTF-6 activities along the U.S.-Mexico border (U.S. Army 1994). Immigration and Naturalization Service (INS; U.S. Border Patrol) is the lead agency with JTF-6 as a cooperating agency.

### 1.2 Project Location

The proposed action would be located in Cochise County, Arizona near the city of Douglas. The project would be restricted to approximately six miles of existing fence right-of-way at Douglas, Arizona (Figure 1-1). One mile of decorative fence would be constructed east of the

1-2

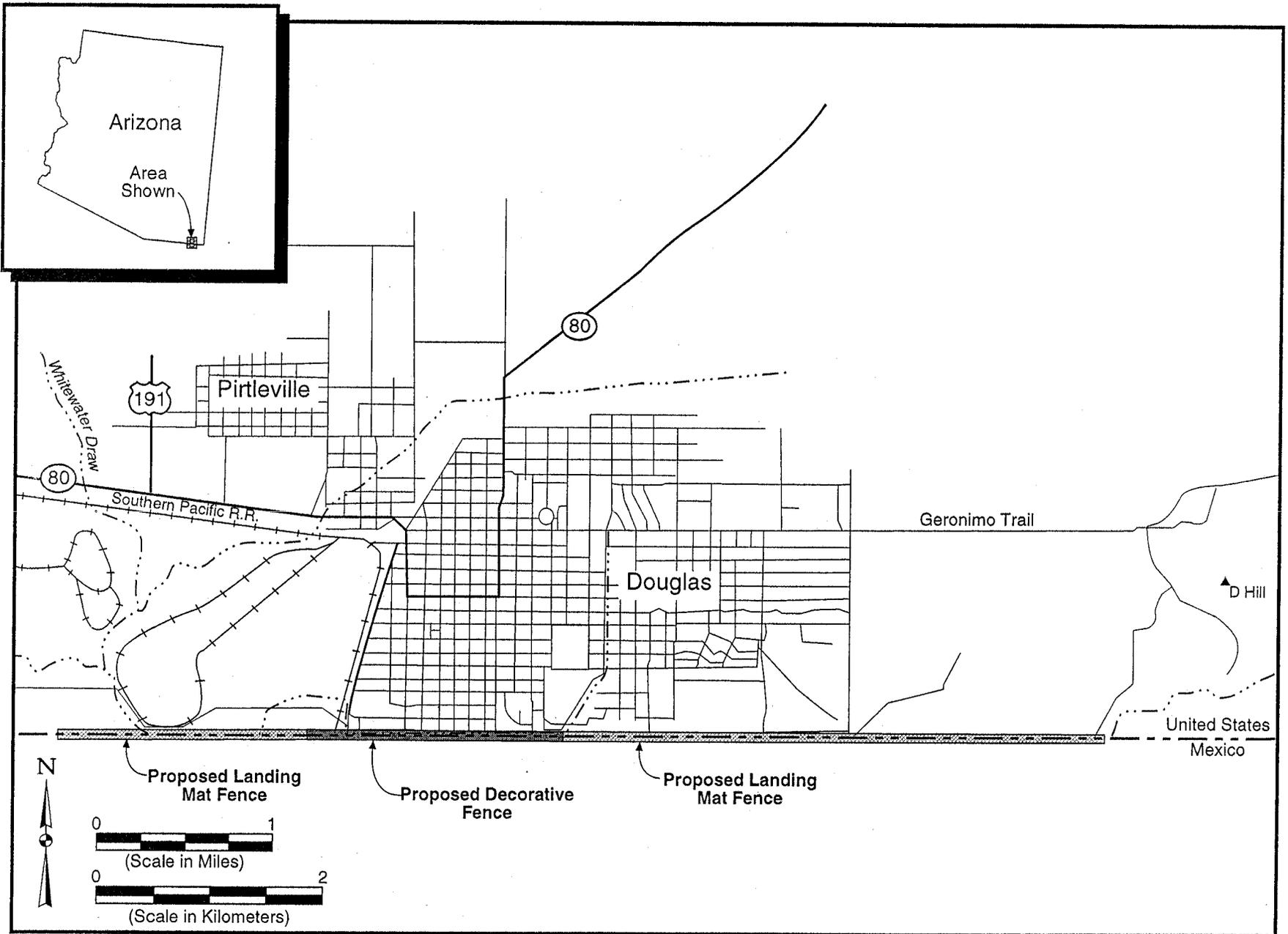


Figure 1-1. General location of proposed fence construction, Douglas, Arizona.

Port-of-Entry (POE) in Douglas, and 0.3 miles west of the POE. Approximately 3.6 miles of steel landing mat fence would be constructed beginning at the east end of the decorative fence and another approximately 1.3 miles beginning at the west end of the decorative fence.

Additionally, about 0.5 mile of new road would be constructed and 0.8 miles of existing road would be improved west of the POE.

### 1.3 Purpose and Need

The primary purpose of the proposed action is to replace the existing border fence (6-strand barbed wire) with 1.3 miles of decorative fence and 4.9 miles of 12-foot high steel landing mat fence. Replacement of the existing fence with the decorative fence and steel landing mat fence would reduce the flow of illegal drug traffic entering the U.S. The proposed fence replacement would increase effectiveness of U.S. Border Patrol agents in detecting initial movement north across the border, significantly reducing the amount of illegal smuggling/narcotic traffic reaching Douglas, Arizona and other areas north of Douglas. The proposed fence replacement would also increase safety of citizens in Douglas.

Currently, several gaps exist in the 6-strand barbed wire fence in place, and drug smugglers continue to take advantage of these gaps. Present conditions are such that vehicles can, and occasionally do, pass through the fence. Photographs of on-set conditions are included in Appendix A. Stabilizing these areas is needed to improve the U.S. Border Patrol's ability to detect and more rapidly interdict illegal drug traffickers. Overland smuggling poses a significant threat in this area. The proposed action would significantly reduce ongoing criminal activities and channelize drug traffickers.

Another objective of the proposed action, and required goal for DoD, would provide training opportunities for a U.S. Army unit in deployment and redeployment, logistics and design planning, and construction, thereby satisfying their mission essential training elements (METL). Support provided to the U.S. Border Patrol by JTF-6 during the proposed action would involve construction of landing mat fence. The U.S. Border Patrol has been the primary beneficiary of construction, training, and reconnaissance activities of JTF-6, although

any law enforcement agency involved in interdiction of illegal drugs may request assistance from JTF-6.

#### 1.4 Applicable Environmental Statutes and Regulations

This EA was prepared by Geo-Marine, Inc., for the U.S. Army Corps of Engineers (USCOE), Fort Worth District. Table 1-1 gives the pertinent environmental requirements that guided the development of this EA.

Table 1-1

Applicable Environmental Statutes and Regulations

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Environmental Regulation

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Federal Statutes

Archeological and Historic Preservation Act  
Clean Air Act, as amended  
Clean Water Act, as amended  
Endangered Species Act, as amended  
Migratory Bird Treaty Act  
National Historic Preservation Act, as amended  
National Environmental Policy Act, as amended  
Watershed Protection and Flood Prevention Act  
Native American Graves Protection and Repatriation Act

Executive Orders, Memorandums, etc.

Flood Plain Management (E.O. 11988)  
Protection of Wetlands (E.O. 11990)  
Environmental Effects Abroad of Major Federal Actions (E.O. 12114)  
Federal Actions to Address Environmental Justice in Minority Populations  
and Low-Income Populations (E.O. 12898)

Statutes Regulations, or Applicable Permits

Arizona Native Plant Law  
Arizona Air Quality Standards

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## 2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

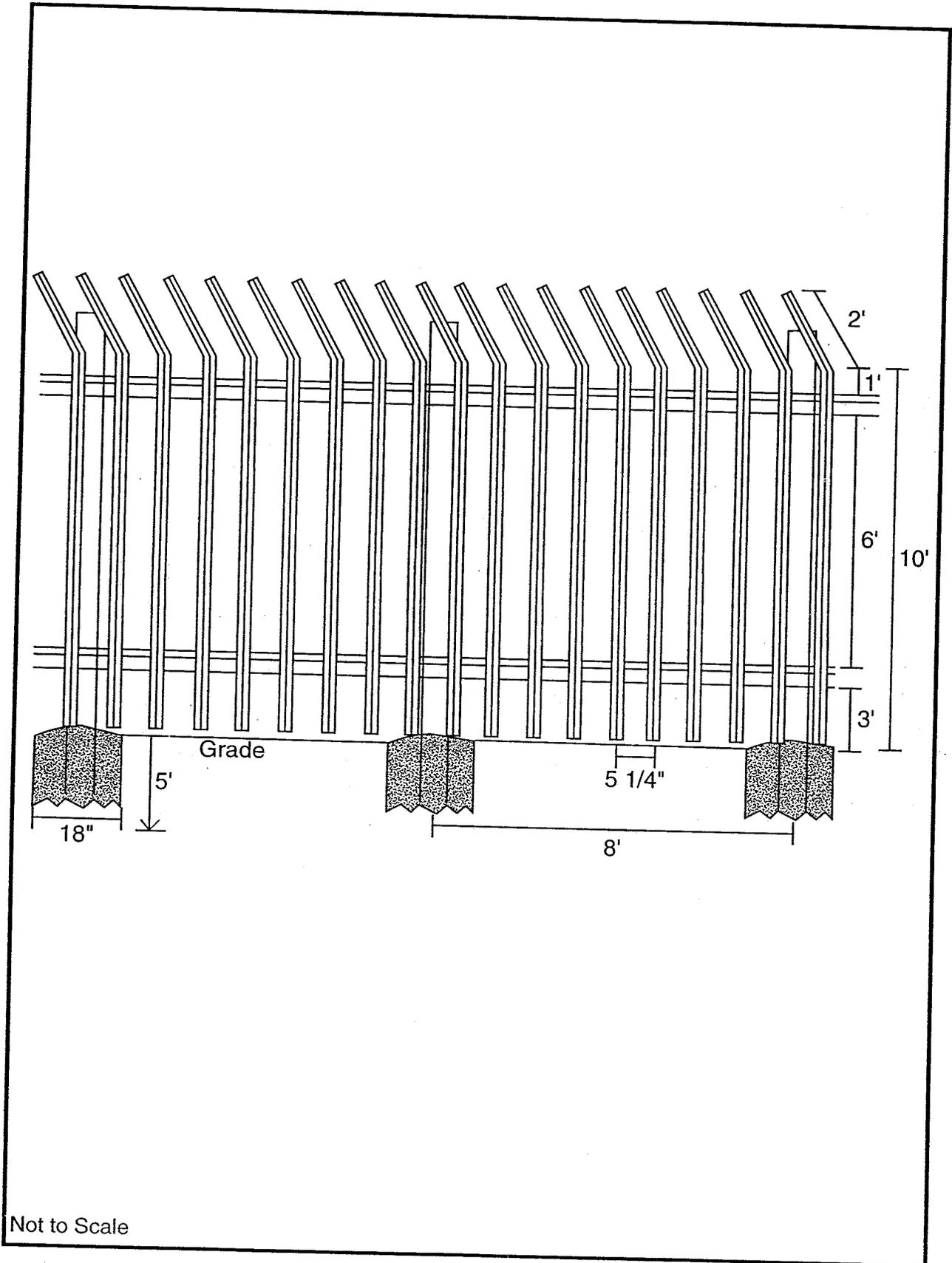
This section of the EA discusses alternatives that were considered during preparation of this document. Several alternatives were eliminated from further consideration due to technical and/or economic factors. This EA addresses proposed border fence and road construction which would increase effectiveness of the U.S. Border Patrol in the current battle against drug trafficking and smuggling activities. The proposed action would assist the U.S. Border Patrol in maintaining increased visibility within known high traffic areas in a cost effective manner.

### 2.1 Proposed Action (Preferred Alternative)

The proposed action would involve the construction of approximately 1.3 miles of decorative fence and 4.9 miles of landing mat fence near Douglas, Cochise County, Arizona. One mile of decorative fence would be constructed east, beginning at the POE in Douglas. Approximately 0.3 miles would be constructed west, also starting at the POE. The decorative fence would consist of two inches by two inches by 1/8 inch steel tubing attached to three inches by five inches by 1/4 inch rectangular steel tubing (Figure 2-1). The barrier would be 12 feet high with the top two feet angled 35 degrees to the north.

The steel landing mat fence would begin at each end of the decorative fence with approximately 1.3 miles of fence constructed on the western end and 3.6 miles constructed on the eastern end. Landing mat material used for construction would be surplus military supplies that would be acquired by the U.S. Border Patrol. The landing mat fence would be approximately 12 feet high. Posts would be about 15 feet long drill pipe (four or five inches outside diameter) placed five feet below ground in concrete and eight feet apart (Figure 2-2). The post holes would be 16-18 inches in diameter to provide the necessary support for this structure. Landing mat sections would be welded together and attached to the posts with angle iron. Both fences would be constructed about two feet north of the international boundary.

Construction of the landing mat fence east of the POE would require leveling of spoil material currently existing along the fence (Appendix A). This spoil material consists of soil and concrete waste. Graded soil along the fence would either be utilized during project



Not to Scale

Figure 2-1. Decorative Fence Design.

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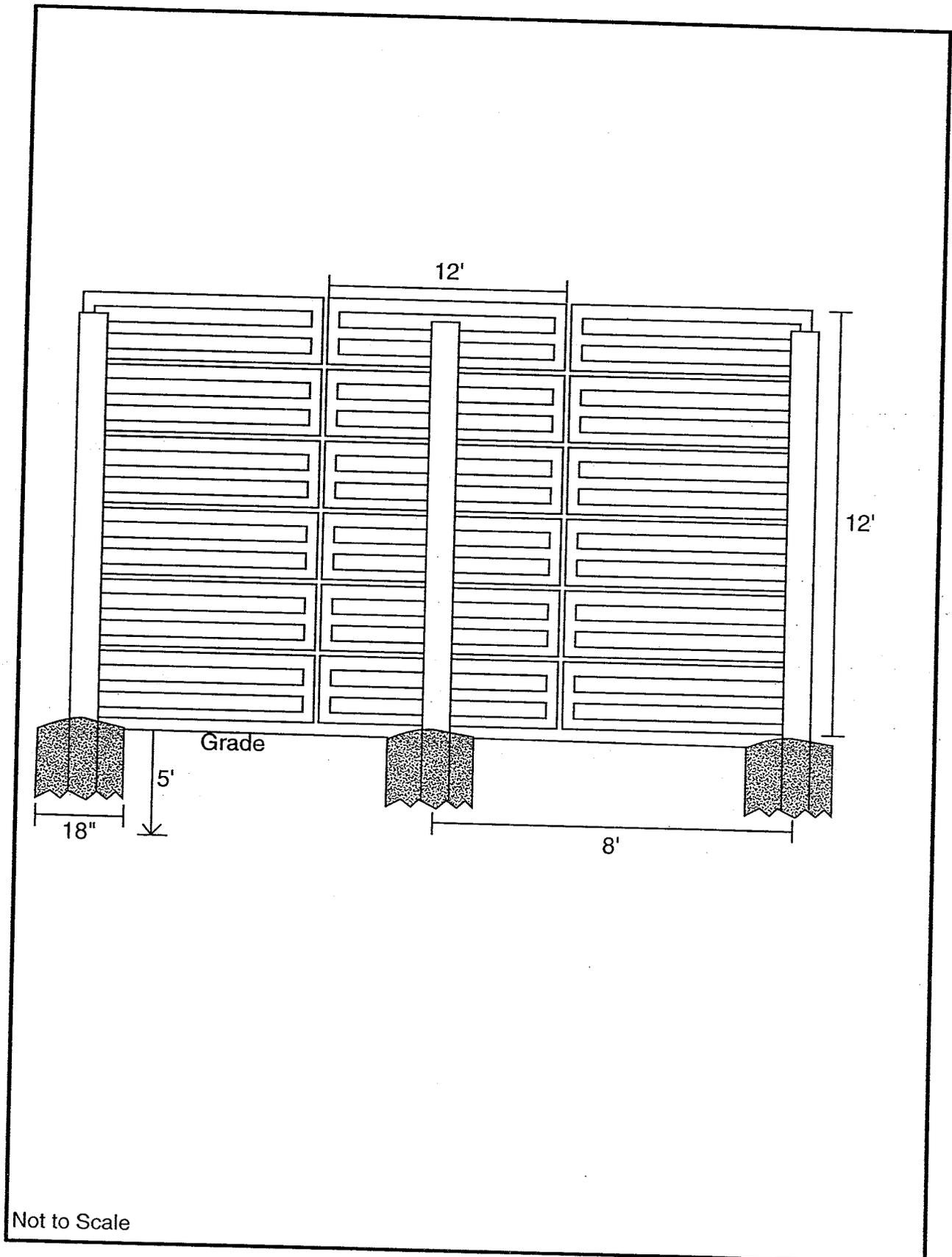


Figure 2-2. Steel Landing Mat Fence Design.

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completion, placed along the fence as an additional deterrent, or disposed of by a private contractor. Concrete waste along the existing fence would be crushed by a local contractor and either utilized during project completion (i.e., road surfacing), or recycled by the contractor at a permitted site.

Road construction would begin about 0.3 miles west of the POE and continue for approximately 0.5 miles. Road improvements would encompass approximately 0.8 miles of existing road west of the POE. Roads constructed or improved would be graded to about 30 feet wide (as described in the PEIS for JTF-6 actions [U.S. Army 1994]), and would be crowned to avoid standing water. Road construction would cross through an ephemeral wash. Up to four 36 inch culverts would be placed in the wash to adequately retain the current flow through the area. The International Boundary and Water Commission would be coordinated with regarding proper design prior to initiation of construction activities.

If the proposed action is implemented on the basis of this EA and a finding of no significant impact, landing mat fence and road construction is proposed to begin in August 1997, and would take approximately six weeks to complete. Military personnel to be utilized during fence construction are proposed to be a U.S. Military Engineer Battalion. The unit would stay at the National Guard Armory in Douglas. Approximately 70 military personnel would be expected to complete the proposed action. Personnel completing the proposed action would work between 7 a.m. and 7 p.m., six days a week during proposed action activities. If the proposed action is not completed in six weeks, another military unit would be tasked to follow-up and complete the proposed action within two years.

Construction of the decorative fence would also take about six weeks (six days/week) to complete. If this barrier is not completed in this designated time period, an additional 12 weeks of part-time (3-4 days/week) labor would be expected.

Equipment that could be used during landing mat fence and road construction activities includes: four integrated tool carriers, two backhoes with augers, one backhoe with breaker, five flat bed trucks, one grader, two water trucks, two 8-ton cranes, two forklifts, three wire feed welders, six torch sets, and two chop saws. Approximately one-half the amount of this

equipment would be utilized during construction of the decorative fence. Equipment and materials would be stored at an existing fenced prefabrication yard. Crushing of waste concrete along the existing fence would be completed using one end-loader, one dump truck, and a rock crusher. This equipment would be supplied by the contractor.

Existing roads would be utilized for transport of equipment and personnel, and activities that may impact areas outside of the proposed action area would not occur. Existing turnouts would also be used by equipment during construction to eliminate unnecessary impacts to resources outside of the proposed action area. All personnel would be informed about the limits of the construction area and actions permitted within and outside of that area through an environmental briefing of the unit completing the proposed action. Additionally, construction limits would be flagged to ensure personnel completing the proposed action stay within the construction area boundaries.

## 2.2 No Action

The No Action alternative is considered a viable alternative in all NEPA documents. This alternative would involve the continued use of the existing 6-strand barbed wire fence. Although no significant adverse impacts would occur if implemented, the No Action alternative would not satisfy the purpose and need of the U.S. Border Patrol. The No Action Alternative would continue the U.S. Border Patrol's ability to halt drug trafficking activity at suboptimum levels, and would continue to cause a deterioration in the law enforcement agencies' ability to fulfill their mission.

## 2.3 Alternative Considered but Eliminated from Detailed Analysis

### 2.3.1 Increase Air Patrols

Air patrols could be used to spot narcotics traffickers instead of constructing obstructive fences. Fixed wing aircraft patrols could be utilized more heavily in the area. However, smugglers cannot be tracked efficiently since aircraft are restricted to altitudes above 500 feet. Many smugglers travel under the cover of darkness when aircraft would have great difficulty in spotting movement on the ground. Helicopter ranges are too short and the cost is high.

Increasing air patrols may aid in drug interdiction activities, but not to the extent of the proposed action. Therefore, increasing air patrols is not a viable alternative to the proposed action and will not be evaluated further in this document.

### 2.3.2 Increase Number of U.S. Border Patrol Agents

Increasing the number of U.S. Border Patrol agents monitoring the border near Douglas would reduce the amount of illegal drugs smuggled across the border by creating a larger, more available force for monitoring and apprehending persons attempting to illegally enter the U.S. Additionally, more agents along the border would be more noticeable, and may decrease the apparent accessibility to the U.S. by illegal drug smugglers. However, the associated increase in traffic along the border due to more patrolling U.S. Border Patrol agents could significantly impact biological resources (i.e., increased emissions, vehicle traffic, etc.), and the increase in expenditures to maintain a force expansion, eliminate this alternative as viable.

### 3.0 AFFECTED ENVIRONMENT

This chapter describes the existing conditions of environmental resources with potential to be impacted by the proposed action. Resources such as groundwater quality, prime farmlands, noise, and hazardous materials, which are not expected to be impacted by the proposed action, are not analyzed in this EA, as allowed by NEPA.

#### 3.1 Land Use

Much of the proposed construction area is within the Douglas city limits; however, the majority of the area immediately adjacent to the existing fence is considered vacant. The condition of this area is deteriorated due to illegal smuggling and illegal foot traffic. Miscellaneous solid waste (i.e., paper, plastic, and similar urban trash) from the surrounding urban area, concrete/spoil piled along the existing fence, and industrial use of the area contribute to the deteriorated condition of the construction area. Approximately 300 meters of the border east of the POE are occupied by the city of Douglas wastewater treatment plant. The proposed construction area is accessed primarily by U.S. Border Patrol agents, city of Douglas personnel, and local ranch owners (U.S. Army 1991). General civic activity and wildlife habitat are additional, minor uses of the proposed construction area.

#### 3.2 Water Resources

This area receives surface runoff and groundwater from precipitation and snow melt in the local mountains. Surface water resources associated with the proposed action include Whitewater Draw and one ephemeral wash. U.S. Army (1993) reported Whitewater Draw having a slight flow of water approximately six inches deep during two separate visits. Water was present in Whitewater Draw during a recent site visit (see Section 3.4); however, water may be impounding where Whitewater Draw crosses the border due to flow problems in Mexico. Water quality in the area is generally good, with almost all water coming from wells (U.S. Army 1993). U.S. Army (1993) described specific instances of water quality violations within the proposed construction area.

### 3.3 Air Quality

Overall, air quality in the immediate vicinity is very good (Guyton 1997; U.S. Army 1991, 1993, 1996). The proposed construction area is located in a semi-arid region and is predominantly open space and grazing land. Air quality is primarily determined by meteorological conditions, and the composition and concentration of pollutants in the air. Prevailing meteorological conditions in the area are not conducive to the concentration of pollutant emissions. Daily winds tend to disperse general air emissions. Typical pollutant sources, such as heavy industry and fossil fuel power plants, are absent from the area. The primary pollutant agent is fugitive dust particles generated by wood burning, shrub and grass fires, unpaved roads, and wind erosion. This is reflected in the fact that the area is in a PM<sub>10</sub> non-attainment area.

Applicable state and national ambient air quality standards (NAAQS), the current attainment status of the area, and any current emissions at or near the site are discussed in the following paragraphs.

#### 3.3.1 Federal, State, Rural, and Wilderness Standards

The Clean Air Act (CAA), Title 40 CFR Parts 50 and 51, dictates that the NAAQS, established by the NEPA, must be maintained nationwide. The NAAQS have been established to protect public health and welfare, with an adequate margin of safety. The NAAQS include standards for six criteria pollutants: ozone (O<sub>3</sub>), nitrogen oxide (NO<sub>x</sub>), carbon monoxide (CO), respirable particulates (PM<sub>10</sub>, particulate matter less than 10 microns in diameter), sulfur oxide (SO<sub>x</sub>), and lead (Pb). Arizona ambient air quality standards (AAQS) are identical to NAAQS for criteria air pollutants, as shown in Table 3-1. The standards are presented in terms of concentrations averaged over various periods of time. These include short-term (one-hour, eight-hour, or 24-hour) for pollutants with acute health effects, and long-term (annual) standards for pollutants with chronic health effects.

The CAA delegates authority to state and local agencies to enforce the NAAQS and to establish air quality standards and regulations of their own. The adopted state standards must be at least as stringent as the Federal requirements. Although mobile sources, such as aircraft,

Table 3-1  
National and State Ambient Air Quality Standards

Air Pollutant	Averaging Time	Federal NAAQS/Arizona AAQS	
		Primary (>)	Secondary (>)
Carbon Monoxide (CO)	8-Hour	9 ppm	9 ppm
	1-Hour	35 ppm	35 ppm
Nitrogen Oxide (NO <sub>x</sub> )	AAM	0.053 ppm	0.053 ppm
Sulfur Oxide (SO <sub>x</sub> )	AAM	0.03 ppm	---
	24 hour	0.14 ppm	---
	3-hour	0.5 ppm	0.5 ppm
PM <sub>10</sub>	AAM	50 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>
	24-hour	150µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
Ozone	1-hour	0.12 ppm	0.12 ppm
Lead (Pb)	Calendar Quarter	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>

Notes: AAM = Annual Arithmetic Mean      ppm = parts per million  
 AGM = Annual Geometric Mean      µg/m<sup>3</sup> = micrograms per cubic meter

Source: 40 CFR Part 50; Arizona Department of Environmental Quality 1997.

are exempt from air pollution permitting requirements, the areas in which they operate must comply with the NAAQS and aircraft emissions have the potential to affect compliance.

The CAA, Section 168(a), states that it is a national goal to prevent any further impairment of visibility within Federally mandated Prevention of Significant Deterioration (PSD) Class I areas, such as national parks and wilderness areas, from man-made sources of air pollution.

Visibility impairment is defined as (1) reduction in regional visual range and (2) atmospheric discoloration or plume blight (as from aircraft contrails). Criteria for determining significant impacts on visibility within Class I areas usually pertain to stationary emission sources.

Mobile sources are exempt from permit review by regulatory agencies.

The CAA Amendments of 1990 constitute a renewed commitment by the U.S. government to establish a practicable framework to achieve attainment and maintenance of health-protective NAAQS. Title 1 sets provisions for the attainment and maintenance of the NAAQS. The EPA has recently reclassified various areas to their attainment status for CO, NO<sub>2</sub>, PM<sub>10</sub>, and O<sub>3</sub>.

Under the General Conformity Rule of the CAA, Section 176(c), activities must not cause or contribute to any new violation, increase the frequency or severity of any existing violation, or delay timely attainment of any standard, interim emission reductions, or milestones in conformity to a state's implementation plan's purpose of eliminating or reducing the severity and number of NAAQS violations in achieving expeditious attainment of NAAQS, or impair visibility within any Class I area.

### 3.3.2 Current Attainment Status

The Arizona Department of Environmental Quality (DEQ), Monitoring Section is responsible for monitoring air quality in the area and currently has one PM<sub>10</sub> station and two MET (meteorological) stations located in Douglas. The closest air quality monitoring station monitoring for the remaining priority pollutants is located in Tucson, Arizona. Cochise County is currently in attainment for all criteria air pollutants with the exception of PM<sub>10</sub> in Douglas (Guyton 1997). However, Douglas is located on the U.S.-Mexico border and the Arizona DEQ has determined that influences from Mexico are responsible for the non-

attainment status of the area (Gibbs 1997, Guyton 1997). Therefore, Douglas is classified in the Final State Implementation Plan (SIP; 1993) as a border area exception for PM<sub>10</sub>.

### 3.4 Biological Resources

A site visit was conducted 1-2 May by two biologists, a JTF-6 engineer, and a U.S. Border Patrol representative to briefly inventory and evaluate the effects of the proposed action on biological resources. Recent biological surveys were completed in the area (U.S. Army 1996), and this site visit was conducted to augment the original biological surveys and characterize the biological resources on the construction area.

#### 3.4.1 Vegetation

Vegetation in the proposed construction area is predominantly scattered low shrubs and grasses. Dominant and common shrubs include white-thorn acacia (*Acacia constricta*), snakeweed (*Gutierrezia* spp.), desert broom (*Baccharis sarothroides*), and tarbush (*Flourensia cernua*). Mesquite (*Prosopis velutina*) is found along Whitewater Draw and in the area of the proposed road construction. Ocotillo (*Fouquieria splendens*), prickly pear (*Opuntia* spp.), yucca (*Yucca elata*, *Y. baccata*), cholla (*Opuntia imbricata*), and creosote bush (*Larrea tridentata*) are also present within the proposed action corridor. Common grasses include sacaton (*Sporobolus wrightii*), grama grasses (*Bouteloua curtipendula*, *B. gracilis*), sprangletop (*Leptochloa* spp.), Lehman's lovegrass (*Eragrostis lehmanniana*), and Johnson grass (*Sorghum halepense*). Photographs depicting vegetation within the construction area are included in Appendix A.

The Arizona Department of Agriculture was contacted during development of a recent EA in the proposed construction area (U.S. Army 1996) to determine potential impacts to vegetation protected under the Arizona Native Plant Law (McGinnis 1996). Native plant species listed as potentially occurring in the proposed construction area include mesquite, yucca, prickly pear, and ocotillo. These species do occur along the existing fence within the proposed construction corridor.

### 3.4.2 Fish and Wildlife

Few wildlife species occur in the proposed action vicinity due to the lack of suitable habitat and proximity to Douglas. Reptiles and amphibians expected to occur near the proposed site include Couch's spadefoot toad (*Scaphiopus couchii*), western green toad (*Bufo debilis insidiosus*), desert box turtle (*Terrapene ornata luteola*), southwestern earless lizard (*Cophosaurus texana scitulus*), Mexican hognose snake (*Heterodon nasicus bennertyi*), western hooknose snake (*Gyalopion canum*), western diamondback rattlesnake (*Crotalus atrox*), and gopher snake (*Pituophis melanoleucus*). Mammals characteristic of the region include coyote (*Canis latrans*), javelina (*Tayassu tajacu*), mule deer (*Odocoileus hemionus*), Coue's whitetail deer (*Odocoileus virginianus couesi*), jackrabbit (*Lepus californicus*), cottontail (*Sylvilagus audubonii*), and wood rats (*Neotoma mexicana*, *N. albigula*). Bird species which may occur in the proposed construction area include northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), Gambel's quail (*Callipepla gambelii*), roadrunner (*Geococcyx californianus*), mourning dove (*Zenaida macroura*), white-crowned sparrow (*Zonotrichia leucophrys*), kestrel (*Falco sparverius*), turkey vulture (*Cathartes auro*), Cassin's kingbird (*Tyrannus vociferans*), western kingbird (*T. verticalis*), and blue grosbeak (*Passerina caerulea*). Actual occurrence of wildlife species in the proposed action area is low due to the proximity to the city of Douglas, and to illegal activity in the area. Species observed in the proposed action area during a recent site visit include western kingbirds, rock doves (*Columba livia*), and rock squirrels (*Citellus variegatus*).

### 3.4.3 Threatened and Endangered Species

A list of endangered, threatened, or proposed species which may occur in the proposed construction area was requested from the U.S. Fish and Wildlife Service (Appendix B). The U.S. Fish and Wildlife response included sixteen threatened or endangered species that may potentially occur in the proposed construction vicinity: Cochise pincushion cactus (*Coryphantha robbinsorum*), New Mexican ridge-nosed rattlesnake (*Crotalus willardi obscurus*), jaguarundi (*Felis yagouaroundi tolecta*), lesser long-nosed bat (*Leptonycteris curasdae yerbabuena*), Mexican gray wolf (*Canis lupus baileyi*), ocelot (*Felis pardaus*), beautiful shiner (*Cyprinella formosa*), Yaqui catfish (*Ictalurus pricei*), Yaqui chub (*Gila purpurea*), Yaqui topminnow (*Poeciuopsis occidentalis sonoriensis*), American peregrine falcon (*Falco peregrinus anatum*), California condor (*Gymnops californianus*), Mexican spotted owl (*Strix occidentalis lucida*), northern aplomado falcon (*Falco femoralis*

*septentrionalis*), southwestern willow flycatcher (*Empidonax traillii extimus*), and whooping crane (*Grus americana*). The U.S. Fish and Wildlife Service response included an additional four species proposed for listing that may also occur in the proposed construction area: Canelo Hills ladies' tresses (*Spiranthes delitescens*), Huachuca water umbel (*Lilaeopsis schaffneriana* var. *recurva*), jaguar (*Panthera onca*), and Sonora tiger salamander (*Ambystoma tigrinum stebbinsi*). A description of habitat requirements and reasons for decline for listed species and species proposed for listing is included in Table 3-2.

No threatened or endangered species or species proposed for listing were observed during a recent site visit, or during previous surveys of the areas (U.S. Army 1991, 1993, 1996).

### 3.5 Cultural Resources

A detailed review of previous investigations in the Douglas area is presented along with the area's cultural history in Appendix C.

#### 3.5.1 Previous Cultural Resources Investigations

In addition to the regional investigations discussed in Appendix C, two cultural resources surveys have been conducted within the proposed action area. In 1991, archaeologists from Geo-Marine, Inc. (GMI) conducted an intensive cultural resources survey of a 48.5 mi (77.6 km) (section of road prior to proposed road repair and construction along the U.S.-Mexico border, in the vicinity of Douglas, Cochise County, Arizona. This proposed action was requested by the U.S. Border Patrol to help in the prevention of illegal drug trafficking and smuggling and was conducted by the JTF-6. The entire current proposed construction area was included in the area surveyed (GMI 1994). At that time, 41 cultural resources sites were identified, six of which (AZ FF:10:23, AZ FF:10:24, AZ FF:10:25, AZ FF:10:26, AZ FF:11:82, and AZ FF:11:83) fall within the current proposed construction area. Much of the 1991 proposed construction area was reexamined by GMI in summer 1996 (GMI 1997); four new archeological sites were identified, and many of the sites identified by GMI (1994) were reexamined, including those six listed above.

Table 3-2

Habitat Requirements and Reason for Decline of Federally Listed Species and  
Species Proposed for Listing

Species (Status*)	Habitat Requirements	Reason for Decline	Potential for Suitable Habitat in Area of Proposed Action**
Cochise pincushion cactus (T)	semidesert grassland	limited distribution, overcollection	0,2
New Mexican ridge- nosed rattlesnake (T)	canyon bottoms in pine-oak and pine-fir communities	habitat loss, illegal collection	0,2
Beautiful shiner (T)	small to medium sized streams	habitat loss	0
Yaqui catfish (T)	moderate to large streams	habitat loss	0
Yaqui chub (E)	deep pools of small streams	habitat loss	0
Yaqui topminnow (E)	small to moderate sized streams	habitat loss	0,2
American peregrine falcon (E)	cliffs and steep terrain	habitat loss, pesticides	0,2
California condor (E)	high desert canyonlands	habitat loss, pesticides	0
Mexican spotted owl (T)	canyons and dense forests	habitat loss	0
Northern aplomado falcon (E)	grassland and savanna	habitat loss, pesticides	0
Southwestern willow flycatcher (E)	riparian cottonwood/willow and tamarisk communities	habitat loss	0,2
Whooping crane (E)	marshes, prairies, and river bottoms	habitat loss, human disturbance	0
Lesser long-nosed bat (E)	desert scrub	habitat loss, human disturbance	0,2
Mexican gray wolf (E)	chaparral woodland and forested areas	eradication programs	0,2
Ocelot (E)	humid tropical and sub- tropical forests	unknown	0,2
Jaguarundi (E)	semi-arid thorny forests, deciduous forests	habitat loss	0,2
Canelo hills ladies' tresses (PE)	highly organic, saturated soils of cienegas	habitat loss	0
Huachuca water umbel (PE)	cienegas, perennial low gradient streams	habitat loss	0
Jaguar (PE)	sonoran desert to conifer forests	eradication programs	0
Sonora tiger salamander (PE)	stock tanks and impounded cienegas	hybridization, predation	0

\*T = Federally Threatened

E = Federally Endangered

PE = Proposed Federally Endangered

\*\*0 = None in Area of Proposed Action (Area)

1 = Known/Current Presence in Area

2 = Presumed Occurrence in Vicinity

3 = Recorded Presence in Vicinity

Note: Vicinity includes the majority of Cochise County.

### 3.5.2 Known Cultural Resources Properties

Six cultural resources property are currently known to exist within the proposed construction area. All sites considered eligible or potentially eligible for inclusion in the NRHP would be avoided.

Sites AZ FF:10:23-26 are all historic refuse dumps. AZ FF:10:23 consists of six trash mounds, each apparently representing single dumping episodes; most of the artifacts are clearly post-WW II. Site AZ FF:10:24 consists of a high-density scatter, and is apparently connected with Camp Harry Jones, a military camp which closed in 1933. Site AZ FF:10:25 is a low-density scatter containing whiteware ceramics and solarized manganese glass almost exclusively; the latter indicates the cultural materials were deposited between 1880 and the 1930s. AZ FF:10:26 is similar to AZ FF:10:23; it consists of 12 discrete trash heaps, each apparently representing a single dumping episode. Most of the material at this site is modern bottle glass, and there is evidence the sites may be connected to one or more of the local breweries or bottling works. Given their limited natures, sites AZ FF:10:23, AZ FF:10:25, and AZ FF:10:26 are not considered to be eligible for inclusion in the National Register of Historic Places (NRHP). However, due to its possible connection to Camp Jones, AZ FF:10:24 has been recommended as potentially eligible for inclusion in the NRHP, pending additional research (GMI 1994).

Site AZ FF:11:82 consists of the remains of a prehistoric village comprised of three interrelated loci of cultural activity. Locus 1 is characterized by a medium density scatter of lithic and ceramic materials, including potsherds, cores, scrapers, unifaces, a biface, a projectile point, and a point fragment. Historic trash was also present. Locus 2 contained thousands of fire-cracked rock, as well as a low-density scatter including one scraper and a number of cores. Locus 3 contained thousands of burnt rocks, most clustered into features, as well as scrapers, a slab metate, cores, and fragmentary bifaces. Considering the size and complexity of the site, it was determined to be eligible for inclusion in the NRHP (GMI 1994).

Finally, site AZ FF:11:83 is the remains of commercial ranching operation dating from the first two decades of the twentieth century. It is comprised of a large (541 x 509 feet) scatter of historic artifacts in association with numerous intact features, including three trash piles, a concrete water tank, an open pit, the concrete foundations of two structures, a windmill, and a

limestone quarrying operation; the date "1917" is inscribed in the concrete of the water tank. According to GMI (1994), the site remains in good condition, and is considered eligible for inclusion in the NRHP.

All six sites were revisited by GMI in summer 1996 (GMI 1997), during monitoring efforts related to construction. It was determined that none of the sites had been significantly in the five years since their initial identifications.

### 3.6 Socioeconomic Resources

#### 3.6.1 Population

The region of influence (ROI) for border fence construction includes Cochise County in southeastern Arizona. Total population of the ROI in 1995 was 110,062 which represents an annual growth rate of 2.4 percent over the 1990 population of 97,624. The ROI population is distributed 80 percent white and five percent black, while the remaining 15 percent are of different ethnic backgrounds. Persons of Hispanic Origin, which can be of any race, make up 29 percent of the ROI population.

The proposed action site is located in the town of Douglas along the U.S.-Mexico border. The most recent population estimate for the town of Douglas was 13,743 persons in 1994, which represents an annual growth rate of 1.7 percent over the 1990 population of 12,822. The ethnic distribution of persons in Douglas is 71 percent white and one percent black, while the remaining 28 percent are of different ethnic backgrounds. Persons of Hispanic Origin make up 83 percent of the population of the town of Douglas, which is significantly higher than the remainder of the ROI.

#### 3.6.2 Employment and Income

Total employment for the ROI in 1994 was 42,849 which represents an annual growth rate of 1.2 percent over total employment in 1990. Employment in the ROI is concentrated in the government, service, and retail trade sectors which combined to represent 77.5 percent of total employment in 1994. The largest employment sector is the government which accounts for 38.7 percent of the total. Compared to national figures, the government sector in the ROI is significantly larger than the national share of 15.0 percent, while the percentage of persons in

the service industry in the ROI is less than the national average. The ROI unemployment rate in 1995 was 9.2 percent which was significantly higher than the state and national averages.

Total personal income for the ROI in 1994 was \$1.6 billion. The leading sectors for income are the same as those of employment. Government, services and retail trade produce 79.2 percent of the income in the region. The government sector is the largest income sector, accounting for 51.3 percent of income. The wholesale trade industry is the fastest growing income and employment sector with annual growth rates of 13.9 percent for income and 8.2 percent for employment from 1990 to 1994. The trade industry is expected to continue to grow rapidly in the ROI as the effects of the North American Free Trade Agreement are fully realized. Per capita personal income was \$14,764 in 1994 which was significantly lower than the national average of \$21,696.

## 4.0 ENVIRONMENTAL CONSEQUENCES

This chapter describes potential impacts to the proposed construction area from the proposed action and the no action alternative. The information used to analyze impacts included a site visit, literature review, and past environmental documents (U.S. Army 1991, 1993, 1996). Cumulative impacts of all proposed JTF-6 actions along the U.S.-Mexico border were initially analyzed in the PEIS (U.S. Army 1994). Each EA completed for individual actions along the border document potential action specific consequences and reevaluate cumulative impacts.

### 4.1 Proposed Action

#### 4.1.1 Land Use

The proposed fence and road construction would not alter land use. The proposed construction would not have impacts to grazing and pasture land along the border. Additionally, there would be a beneficial effect as a result of an expected decrease in property damage in the city of Douglas. Overall, no significant impacts to land use would be expected.

#### 4.1.2 Water Resources

The wash within the proposed construction area is ephemeral, with flow generally occurring for a few days following thunderstorm activity. The wash currently present in the proposed construction area would be cleared of all vegetation and culverts would be installed to facilitate drainage and reduce erosion. Temporary impacts would be expected during construction; however, erosion would be reduced following implementation of methods presented in the Stormwater Pollution Prevention Plan (PPP; Appendix D).

Whitewater Draw, the only perennial stream within the proposed construction area, would not be fenced and would be avoided; thus, impacts to this water resource would not be expected. The proposed activities would not be expected to significantly increase soil erosion, adversely impact surface-water quality, or alter drainage patterns of any of the washes or streams found throughout the proposed construction area.

The primary water quality concern would be the potential release into drainages of toxic materials such as diesel fuel, oil, and other hazardous materials used during the proposed

action. By following methods outlined in the PPP (Appendix D), significant impacts would not be expected.

#### 4.1.3 Air Quality

Air quality impacts from construction activities would occur from (1) emissions due to fuel combustion from heavy equipment, and (2) fugitive dust due to travel through the construction area. Emissions and fugitive dusts associated with fence construction were quantified using equipment specific emissions factors from Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (AP-42, Fourth Edition; U.S. EPA 1985). These estimations provided the determination that this proposed action was exempt from air conformity analysis under 40 CFR 51.853 and Section 176 of the Clean Air Act.

Based on the proposed operation of the construction equipment (eight hours/day, six days/week), total emissions from fuel combustion during construction were estimated for Carbon Monoxide (CO), Exhaust Hydrocarbons (HC), Nitrogen Oxides (NO<sub>x</sub>), Aldehydes (HCHO), Sulfur Oxides (SO<sub>x</sub>), and Particulates (PM<sub>10</sub>; Table 4-1). The proposed construction area is considered a nonattainment area for PM<sub>10</sub>. Border exemption for this pollutant eliminates the requirement of further pollutant-specific analysis; however, the estimate for this pollutant (2.373 tons) is well below the levels acceptable in a nonattainment area (70 tons/year; 40 CFR 51.853). Although quantitative analysis of fugitive dust levels was not performed, impacts would not be expected to be significant; use of a water truck during all ground disturbing activities would decrease fugitive dust. Water for this use would be obtained through municipal resources. Overall, levels of emissions and fugitive dusts from fuel combustion sources would be below *de minimis* emission levels and would be insignificant.

#### 4.1.4 Biological Resources

##### 4.1.4.1 Vegetation

Fence construction would occur along the existing fenceline, minimizing excess disturbance to vegetation. Vegetation that currently exists along the fenceline would be cleared resulting in the loss of approximately 3.5 acres of vegetation. Road construction (0.5 miles by 30 feet

Table 4-1

## Summary of Construction Emissions and Fugitive Dusts from Fuel Combustion Sources

Source (#)	CO	HC	Emissions (lbs./hour)*			
			NO <sub>x</sub>	HCHO	SO <sub>x</sub>	PM <sub>10</sub>
Tool Carrier (4)	2.7	0.608	6.674	0.124	0.572	0.556
Backhoe w/ Auger (2)	1.35	0.304	3.382	0.062	0.286	0.278
Backhoe w/ Breaker (1)	0.675	0.152	1.691	0.031	0.143	0.139
Flat Bed Truck (5)	8.97	0.96	20.83	0.56	2.27	1.28
Grader (1)	0.151	0.04	0.713	0.012	0.086	0.061
Water Truck (2)	3.588	0.384	8.332	0.224	0.908	0.512
Crane (2)	1.35	0.304	3.382	0.062	0.286	0.278
Forklift (2)	1.35	0.304	3.382	0.062	0.286	0.278
Pickup Truck (6)	4.05	0.912	10.146	0.186	0.858	0.834
4x4 Truck (2)	1.35	0.304	3.382	0.062	0.286	0.278
<b>Total (tons)**</b>	<b>13.482</b>	<b>2.256</b>	<b>32.738</b>	<b>0.731</b>	<b>3.158</b>	<b>2.373</b>

\*Derived using Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (U.S. EPA 1985).

\*\*Based on a six week period for landing mat fence and road construction, six week period for aesthetic fence construction, and includes optional additional four week and 12 week (part-time, 3 days/week) periods for total proposed action completion.

wide) and improvement (0.8 miles by 15 feet wide) would result in the clearing of an additional 3.5 acres of mostly disturbed vegetation, with some areas included for construction and/or improvement relatively void of vegetation. Impacts to native plant species protected by the Arizona Native Plant law may occur during proposed construction. Coordination with the Arizona Department of Agriculture has been conducted to facilitate relocation of protected specimens, where necessary, with implementation of the proposed action. Other vegetation adjacent to the proposed construction area would not be disturbed due to the limited area of construction and the currently degraded condition of the area.

#### 4.1.4.2 Fish and Wildlife

The proposed action would have no impact on fish because construction would not take place in flowing or standing water. Avoidance of washes and Whitewater Draw by personnel performing construction activities (as outlined in section 5), would eliminate impacts to fish species.

The proposed fence and road construction would result in an insignificant reduction in animals whose home range is in or just adjacent to the proposed construction area, but no change in the overall species composition of the area would be expected. Fence construction activities may temporarily displace individuals of common wildlife species; however, impacts would not be significant.

Terrestrial wildlife movements in the proposed construction area may be affected by fence construction. However, due to the urban nature of the proposed construction area (in and near the city of Douglas) and to the degraded and disturbed condition of the proposed action area, wildlife occurrences within the proposed action area are sporadic. Therefore, impacts to wildlife species are expected to be minimal.

#### 4.1.4.3 Threatened and Endangered Species

Under the Endangered Species Act, formal consultation with the U.S. Fish and Wildlife Service is required for any action that may affect listed species. Additionally, Federal agencies are required to insure that any action authorized, funded, or carried out by such agencies is not likely to jeopardize the continued existence of any threatened or endangered species. No protected species were observed during surveys conducted for EAs prepared for previous

actions in the area (U.S. Army 1991, 1993, 1996), or during the site visit for this EA, and suitable habitat for protected species does not exist within the proposed construction area; therefore, no impacts to threatened or endangered species would be expected. Based on these findings and following the intent of the Endangered Species Act, formal consultation was not initiated with the U.S. Fish and Wildlife Service for the proposed action.

Specific habitat requirements for the majority of the listed species or species proposed for listing that are of concern in the proposed construction area are not met in the immediate area surrounding the sites of proposed fence and road construction (see Table 3-1 and Appendix B). Additionally, habitat for the whooping crane and southwestern willow flycatcher, though present in the region, is associated with streams and would not be impacted by this action. Furthermore, although the lesser long-nosed bat inhabits desert scrub which is present in the proposed action vicinity, specific habitat requirements (i.e., caves, agaves, and columnar cacti) are not present within the proposed construction area. Potential indirect impacts associated with habitat loss during construction activities would not be expected due to the small area to be affected and the previous degradation and urbanization of the area.

#### 4.1.5 Cultural Resources

Six sites, AZ FF:10:23-26 and AZ FF:11:83-83, have been identified within the proposed construction area (GMI 1994, 1997). Three sites, AZ FF:23, AZ FF:10:25, and AZ FF:10:26, are considered ineligible and are of no further consequence. However, sites AZ FF:10:24, AZ FF:11:82, and AZ FF:11:83 are considered eligible or potentially eligible for inclusion in the NRHP, and should not be disturbed. Mitigation of any potential impact would be accomplished by avoidance of the sites. Cultural remains would be avoided during proposed construction activities. Avoidance of sites would ensure that the proposed action would have no effect on the cultural resources of the region. Additionally, international boundary monuments and markers within the proposed construction area would be avoided.

#### 4.1.6 Socioeconomic Resources

Border fence construction would provide direct economic benefits to the broader economy through economic multiplier effects. The impacts on socioeconomic resources in the region of influence (ROI) will be discussed in the following sections. Specific characteristics to be discussed are population, employment, income, and business sales.

Construction activities associated with border fence construction would have insignificant impacts on population, employment, income, and business sales. The construction would be performed by personnel which would be brought in and stay at the National Guard Armory with no outside requirements for sustenance. Additional hiring would not be expected. Thus, construction of the border fence would not induce permanent in- or out-migration to the ROI, and as a result, population would not be impacted. In addition, there would not be impacts on employment, income, and business sales due to the self sufficiency of the personnel being transported in. Any potential impacts from this construction would easily be absorbed into the broader economy.

#### 4.1.6.1 Environmental Justice

Executive Order 12898 of 11 February 1994 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," provides that each U.S. Federal agency shall identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low income populations in the United States. The proposed construction site is located in a rural area with a significant percentage of minorities (see section 3.6.1). The demographics of the proposed construction site though, are similar to the characteristics of the broader ROI.

The proposed action site has a small population base including the community of Douglas. The construction would occur on an existing fence site and would not restrict the flow of legal visitation, trade, and immigration. There would, therefore, be no expected disproportionately high and adverse impacts on minority and low-income populations. Under the definition of Executive Order 12898, there would be no adverse environmental justice impacts.

#### 4.2 No Action

The no action alternative would essentially result in continuing the status quo for the U.S. Border Patrol. The no action alternative would not result in any significant impacts to soils, air quality, water resources, cultural resources, or land use. The no action alternative would not include any changes in employment or construction and would therefore, have no affect on

socioeconomic parameters. The negative socioeconomic impacts of the illegal activities would continue. For information on the societal costs of illegal drug trafficking, use, and sales, and illegal immigration, see U.S. Army (1994). Benefits expected from the proposed fence construction would not occur as a result of the no action alternative.

#### 4.3 Cumulative Impacts

The assessment of cumulative impacts is addressed in NEPA by its reference to interrelations of all components of the natural environment. The Council of Environmental Quality defined cumulative impact as the incremental impact of multiple present and future actions with individually minor but collectively significant effects. Cumulative impact can be concisely defined as the total effect of multiple land uses and developments, including their interrelationships, on the environment (Bain *et al.* 1986).

In order to evaluate cumulative effects of the past and present JTF-6 actions, EAs from previous and current operations in the region, and the PEIS developed for all JTF-6 activities along the U.S.-Mexico border were reviewed. An analysis of each component of the affected environment was completed from the existing EAs in order to identify which would have cumulative impacts as a result of the past and proposed operations. This analysis revealed that land use, air quality, threatened and endangered species, cultural resources, and socioeconomic resources of past and proposed action areas would not be subjected to cumulative impacts due to the temporary nature of construction activities. Water and biological resources (i.e., vegetation and wildlife habitat) would be slightly to moderately affected cumulatively from past and proposed fence construction actions.

The primary cumulative effect of the past and proposed actions is the permanent loss of vegetation and associated wildlife habitat. Construction of new road segments would increase total loss of vegetation, including semi-desert grassland and desert scrub habitat, due to all past and proposed JTF-6 operations. This habitat loss is insignificant due to the relatively small amount of development and the vast amount of remaining habitat. New landing mat fence construction actions also result in insignificant losses of wildlife habitat since a barbed wire fence already exists along the U.S.-Mexico border.

If implemented, following a finding of no significant impact, the proposed action would result in the loss of approximately seven acres of degraded/disturbed vegetation. Overall, a total of about 2,500 acres of vegetation, mostly semidesert grassland and desert scrub communities have been removed by JTF-6 road, range, fence, and helipad repair and construction activities along the U.S.-Mexico border (California to Texas). This represents about 0.01 percent of the total land area within the area along the entire U.S. - Mexico border. Soil losses have been minimized through the implementation of erosion control measures including waterbars, gabions, reseeding, compaction, and slope control. Although the amount of soils saved is not quantifiable, JTF-6 operations have reduced extant erosion problems in numerous locations. Air emissions have been produced by vehicles, aircraft, and heavy equipment; however, these have not resulted in significant cumulative impacts due to the short duration of the activities, the dispersion capabilities of the region, and the remote locations of most of the operations. Construction and maintenance activities have had cumulative positive impacts on socioeconomic resources within the border area and the nation through reductions in illegal drug smuggling activities and, secondarily, through reductions in illegal immigration. Future impacts are anticipated to occur at a level consistent with past activities and not result in significant adverse effects (U.S. Army 1994).

## 5.0 ENVIRONMENTAL DESIGN MEASURES

This chapter describes environmental design measures that would be implemented as part of the proposed action to reduce or eliminate impacts from fence and road construction. Due to the limited nature of the proposed action, impacts are expected to be slight. Therefore, mitigation measures are only described for those resources with potential for impacts.

### 5.1 General

Refueling of machinery would be completed following accepted guidelines and all vehicles would have drip pans during storage to contain minor spills and drips. Although unlikely, a hazardous materials spill (i.e., fuel spill) could occur during proposed fence and road construction. Any major fuel spill (i.e., > five gallons) would be contained by immediately constructing an earthen dike and applying a petroleum absorbent (i.e., granular, pillow, sock, etc.) to absorb and contain the spill. In addition, any major spill would be reported immediately to JTF-6 environmental personnel who would notify appropriate Federal and state agencies. Disposal of contaminated material would be in accordance with Federal and state regulations. A hazardous materials site assessment would be conducted after a spill to identify potential problems.

### 5.2 Water Resources

All work would stop during heavy rains and would not resume until conditions are suitable for movement of equipment and material. As a result of these construction techniques, significant impacts on soils in the proposed construction area would not be expected. Additional environmental design measures to reduce impacts are included in the PPP (Appendix D).

### 5.3 Air Quality

To reduce exhaust emissions, construction vehicles would be maintained per normal standards. Additional preventive measures that would be implemented to minimize potential particulate pollution problems include use of water trucks, minimization of vehicular and machinery

activities, and minimization of dirt track-out by washing or cleaning trucks before leaving the proposed construction area.

#### 5.4 Biological Resources

Impacts to existing vegetation during construction activities would be minimized through avoidance. Whitewater Draw would be flagged prior to construction to ensure avoidance during construction activities to eliminate potential impacts to this sensitive area.

#### 5.5 Cultural Resources

Three, sites AZ FF:10:24, AZ FF:11:82, and AZ FF:11:83 are considered eligible or potentially eligible for inclusion in the NRHP, and should not be disturbed. Avoidance of sites would ensure that the proposed action would have no effect on the cultural resources of the region. Avoidance would be accomplished by flagging and/or staking prior to construction. A buffer zone would be created by the placement of flagging/staking at least 30 meters beyond site boundaries. The flagging or staking would be removed once construction activities have been completed.

## 6.0 PUBLIC INVOLVEMENT

### 6.1 Agency Coordination

This chapter discusses consultation and coordination that occurred during preparation of this document. This includes contacts made during development of the proposed action, elimination of alternatives, and writing of the EA. Formal and informal coordination has been conducted with the following agencies:

- U.S. Army Corps of Engineers (Ft. Worth District),
- Joint Task Force Six (JTF-6),
- Immigration and Naturalization Service (INS; U.S. Border Patrol),
- State Historic Preservation Office,
- U.S. Fish and Wildlife Service (USFWS),
- U.S. Section, International Boundary and Water Commission,
- Arizona Department of Environmental Quality, and
- Arizona Department of Agriculture.

### 6.2 Public Review

The draft version of this document was made available for public review. In accordance with NEPA and Army Regulation 200-2 (Environmental Effects of Army Actions), a 30-day review period of the draft EA was provided. Public comments and responses to comments are presented in Appendix E of the Final EA.

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## 8.0 LIST OF ACRONYMS/ABBREVIATIONS

BLM	Bureau of Land Management
CAA	Clean Air Act
CFR	Code of Federal Regulations
DEQ	Department of Environmental Quality
DoD	Department of Defense
EA	Environmental Assessment
E.O.	Executive Order
GMI	Geo-Marine, Inc.
INS	Immigration and Naturalization Service
JTF-6	Joint Task Force Six
km	Kilometer
LEA	Law Enforcement Agencies
m	Meter
MET	Meteorological
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NDCS	National Drug Control Strategy
NO	Nitrogen Oxide
NRHP	National Register of Historic Places
O <sub>3</sub>	Ozone
Pb	Lead
PEIS	Programmatic Environmental Impact Statement
PM <sub>10</sub>	Particulate Matter
POE	Port-of-Entry
PPP	Pollution Prevention Plan
ROI	Region of Influence
SIP	State Implementation Plan
SO <sub>x</sub>	Sulfur Oxide
USCOE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

## 9.0 LIST OF PREPARERS

The following people were primarily responsible for preparing this Environmental Assessment.

<u>NAME</u>	<u>AGENCY/ORGANIZATION</u>	<u>DISCIPLINE/ EXPERTISE</u>	<u>EXPERIENCE</u>	<u>ROLE IN PREPARING EA</u>
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Mr. Greg Flournoy	Geo-Marine, Inc.	Geology	2 years PPPs, 2 years EBS/EDDA, Geo-Marine	Pollution Prevention Plan
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<u>NAME</u>	<u>AGENCY/ORGANIZATION</u>	<u>DISCIPLINE/ EXPERTISE</u>	<u>EXPERIENCE</u>	<u>ROLE IN PREPARING EA</u>
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**APPENDIX A  
PHOTOGRAPHS OF PROPOSED  
CONSTRUCTION AREA**



Figure A-1. Section of existing fence within the proposed construction area showing deteriorated fence condition, impacts of illegal foot traffic, and miscellaneous trash.

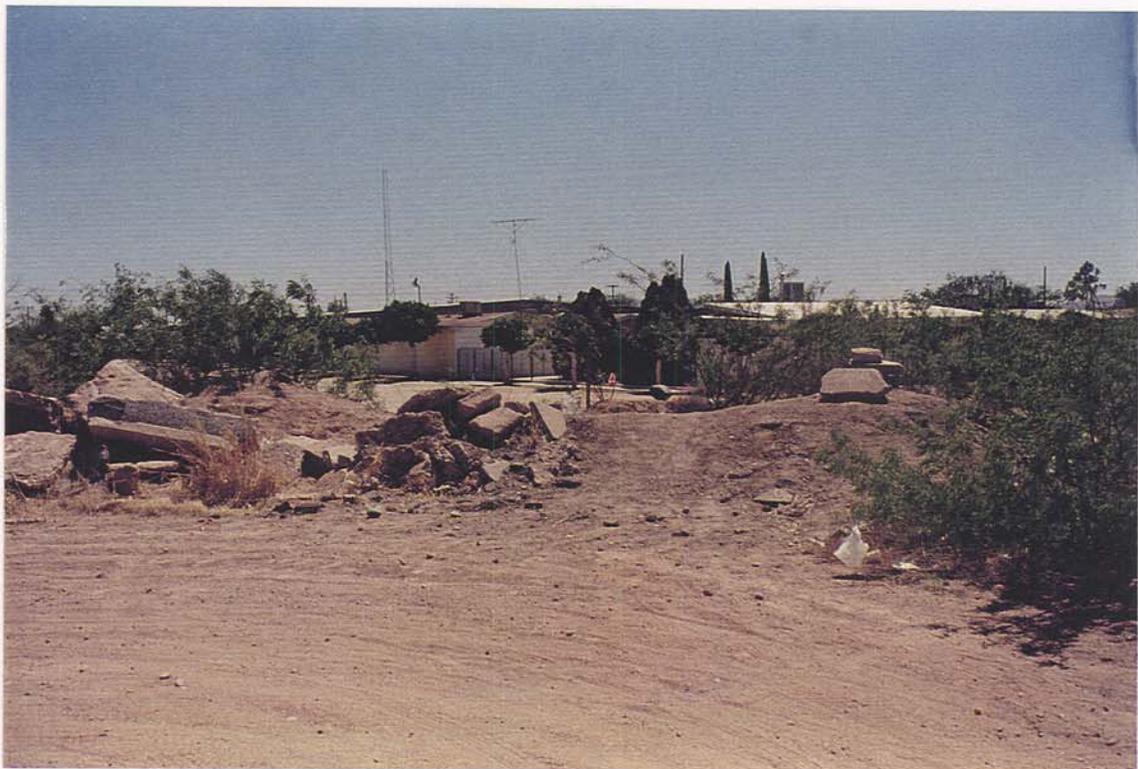


Figure A-2. Spoil material placed along the border to reduce illegal vehicle access across the border.



Figure A-3. Typical stretch of fence east of Douglas showing scattered shrubs of representative species, miscellaneous trash, and spoil material. This section of road will not be improved.

**APPENDIX B  
LIST OF SPECIES LISTED AND  
PROPOSED FOR LISTING UNDER THE  
ENDANGERED SPECIES ACT WITH  
THE POTENTIAL TO OCCUR IN  
COCHISE COUNTY**

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Cochise

3/21/96

LISTED TOTAL= 16

NAME: COCHISE PINCUSHION CACTUS

CORYPHANTHA ROBBINSORUM

STATUS: THREATENED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 51 FR 952, 1-9-1986

DESCRIPTION: A SMALL UNBRANCHED CACTUS WITH NO CENTRAL SPINES AND 11-17  
 WHITE RADIAL SPINES. THE BELL-SHAPED FLOWERS ARE BORNE ON  
 THE ENDS OF TUBERCULES (Protrusions). FLOWERS: BELL SHAPED.  
 PALE YELLOW-GREEN. FRUITS: ORANGE-RED TO RED

ELEVATION  
 RANGE: >4200 FT.

COUNTIES: COCHISE AND SONORA, MEXICO

HABITAT: SEMIDESERT GRASSLAND WITH SMALL SHRUBS, AGAVE, OTHER CACTI, AND GRAMA GRASS.

GROWS ON GRAY LIMESTONE HILLS.

NAME: NEW MEXICAN RIDGE-NOSED RATTLESNAKE CROTALUS WILLARDI OBSCURUS

STATUS: THREATENED

CRITICAL HABITAT: Yes RECOVERY PLAN: Yes CFR: 43 FR 34478, 04-04-1978

DESCRIPTION: SMALL 12-24 INCHES, SECRETIVE GRAYISH-BROWN WITH DISTINCT  
 RIDGE ON THE END OF THE SNOUT. THE DORSAL SURFACE HAS  
 OBSCURE, IRREGULARLY SPACED WHITE CROSSBARS EDGED WITH  
 BROWN (NOT A BOLD PATTERN).

ELEVATION  
 RANGE: 5500-9000 FT.

COUNTIES: COCHISE

HABITAT: PRESUMABLY CANYON BOTTOMS IN PINE-OAK &amp; PINE-FIR COMMUNITIES WITH ALDER, MAPLE, OAK, &amp; BOX ELDER

THE SUBSPECIES HAS NOT BEEN DOCUMENTED IN ARIZONA. HOWEVER, IT HAS BEEN OBSERVED NEAR THE  
 ARIZONA BORDER IN THE PELONCILLO MOUNTAINS AND LIKELY OCCURS IN THE ARIZONA PORTION OF THAT  
 RANGE AS WELL. ANOTHER SUBSPECIES, (CROTALUS WILLARDI WILLARDI), IS AN ARIZONA STATE CANDIDATE.

NAME: JAGUARUNDI

FELIS YAGOUAROUNDI TOLTECA

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 41 FR 24084, 05-14-76

DESCRIPTION: SMALL CAT WITH SHORT LEGS; SLENDER, ELONGATE BODY; AND LONG  
 TAIL. HEAD SMALL & FLATTENED WITH SHORT ROUNDED EARS.  
 REDDISH-YELLOW OR BLACKISH TO BROWN-GRAY IN COLOR AND  
 WITHOUT SPOTS.

ELEVATION  
 RANGE: 3500-6000 FT.

COUNTIES: SANTA CRUZ, PIMA, COCHISE

HABITAT: CAN BE FOUND IN A VARIETY OF HABITATS (SEE BELOW)

SEMI-ARID THORNY FORESTS, DECIDUOUS FORESTS, HUMID PRE-MONTANE FORESTS, UPLAND DRY SAVANNAS,  
 SWAMPY GRASSLANDS, RIPARIAN AREAS, AND DENSE BRUSH. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE  
 SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED. NO SPECIMENS HAVE BEEN COLLECTED IN  
 ARIZONA.

1

## LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Cochise

3/21/96

NAME: LESSER LONG-NOSED BAT

LEPTONYCTERIS CURASOAE YERBABUENAE

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 53 FR 38456. 09-30-88

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

ELEVATION  
 RANGE: <8000 FT.

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

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

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

NAME: MEXICAN GRAY WOLF

CANIS LUPUS BAILEYI

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 53 FR 4601, 03-11-87; 63 FR 1812, 03-09-78

DESCRIPTION: LARGE DOG-LIKE CARNIVORE WITH VARYING COLOR, BUT USUALLY A SHADE OF GRAY. DISTINCT WHITE LIP LINE AROUND MOUTH. WEIGH 60-90 POUNDS.

ELEVATION  
 RANGE: 4,000-12,000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ

HABITAT: CHAPPARAL, WOODLAND, AND FORESTED AREAS. MAY CROSS DESERT AREAS.

HISTORIC RANGE IS CONSIDERED TO BE LARGER THAN THE COUNTIES LISTED ABOVE. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED. INDIVIDUALS MAY STILL PERSIST IN MEXICO.

NAME: OCELOT

FELIS PAROALIS

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 47 FR 31670. 07-21-82

DESCRIPTION: MEDIUM-SIZED SPOTTED CAT WHOSE TAIL IS ABOUT 1/2 THE LENGTH OF HEAD AND BODY. YELLOWISH WITH BLACK STREAKS AND STRIPES RUNNING FROM FRONT TO BACK. TAIL IS SPOTTED AND FACE IS LESS HEAVILY STREAKED THAN THE BACK AND SIDES.

ELEVATION  
 RANGE: <8000 FT.

COUNTIES: SANTA CRUZ, PIMA, COCHISE

HABITAT: HUMID TROPICAL &amp; SUB-TROPICAL FORESTS, SAVANNAS, AND SEMI-ARID THORN SCRUB.

MAY PERSIST IN PARTLY-CLEARED FORESTS, SECOND-GROWTH WOODLAND, AND ABANDONED CULTIVATION REVERTED TO BRUSH. UNIVERSAL COMPONENT IS PRESENCE OF DENSE COVER. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED.

## LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Cochise

3/21/96

NAME: BEAUTIFUL SHINER

CYPRINELLA FORMOSA

STATUS: THREATENED

CRITICAL HABITAT: Yes RECOVERY PLAN: Yes CFR: 49 FR 34490, 8-31-1984

DESCRIPTION: SMALL (2.5 INCHES) SHINY MINNOW AND VERY SIMILAR TO RED SHINER.  
MALES COLORFUL DURING BREEDING (YELLOW-ORANGE OR ORANGE  
ON CAUDAL AND LOWER FINS AND BLuish BODY.ELEVATION  
RANGE: <4500 FT.

COUNTIES: COCHISE

HABITAT: SMALL TO MEDIUM SIZED STREAMS AND PONDS WITH SAND, GRAVEL, AND ROCK BOTTOMS.

VIRTUALLY EXTIRPATED IN THE UNITED STATES. WITH THE EXCEPTION OF A FEW ISOLATED POPULATIONS ON NATIONAL WILDLIFE REFUGES AND IN MEXICO. SAME CRITICAL HABITAT AS YAQUI CHUB AND CATFISH (SEE 49 FR 34490, 08-31-1984).

NAME: YAQUI CATFISH

ICTALURUS PRICEI

STATUS: THREATENED

CRITICAL HABITAT: Yes RECOVERY PLAN: Yes CFR: 49 FR 34490, 08-31-1984

DESCRIPTION: SIMILAR TO CHANNEL CATFISH (*Ictalurus punctatus*) EXCEPT ANAL FIN  
BASE IS SHORTER AND THE DISTAL MARGIN OF THE ANAL FIN IS  
BROADLY ROUNDED WITH 23-25 SOFT RAYS. BODY USUALLY  
PROFUSELY SPECKLED.ELEVATION  
RANGE: 4000-5000 FT.

COUNTIES: COCHISE

HABITAT: MODERATE TO LARGE STREAMS WITH SLOW CURRENT OVER SAND AND ROCK BOTTOMS

CRITICAL HABITAT ALL AQUATIC HABITATS IN THE MAIN PORTION OF SAN BERNADINO NATIONAL WILDLIFE REFUGE

NAME: YAQUI CHUB

GILA PURPUREA

STATUS: ENDANGERED

CRITICAL HABITAT: Yes RECOVERY PLAN: Yes CFR: 49 FR 34490, 08-31-1984

DESCRIPTION: MEDIUM SIZED MINNOW (<6 INCHES) DARK COLORED, LIGHTER BELOW.  
DARK TRIANGULAR CAUDAL SPOTELEVATION  
RANGE: 4000-6000 FT.

COUNTIES: COCHISE (AZ), MEXICO

HABITAT: DEEP POOLS OF SMALL STREAMS, POOLS, OR PONDS NEAR UNDERCUT BANKS.

CRITICAL HABITAT INCLUDES ALL AQUATIC HABITATS OF THE MAIN PORTION SAN BERNADINO NATIONAL WILDLIFE REFUGE.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Cochise

2/21/96

NAME: YAQUI TOPMINNOW

POECILOPSIS OCCIDENTALIS SONORIENSIS

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 52 FR 4001, 03-11-1987

DESCRIPTION: SMALL (2 INCHES) TOPMINNOW GUPPY-LIKE, LIVE BEARING, LACKING DARK SPOTS. BREEDING MALES JET BLACK WITH YELLOW FINS.

ELEVATION RANGE: <4500 FT.

COUNTIES: COCHISE

HABITAT: SMALL TO MODERATE SIZED STREAMS, SPRINGS, & CIENEGAS GENERALLY IN SHALLOWS

NAME: AMERICAN PEREGRINE FALCON

FALCO PEREGRINUS ANATUM

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 35 FR 16047, 10-13-70: 35 FR 8466, 08-02-70

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

ELEVATION RANGE: 3500-8000 FT.

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

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

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

NAME: CALIFORNIA CONDOR

GYMNOPS CALIFORNIANUS

STATUS: ENDANGERED

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

DESCRIPTION: VERY LARGE VULTURE (36 INCHES HEAD TO TAIL, WING=34, TAIL=18, TARSUS=4.25). HEAD AND UPPER PARTS OF NECK BARE. BILL YELLOW. CERE, HEAD, AND NECK YELLOWISH-RED, PLUMAGE GREY-BLACK.

ELEVATION RANGE: VARIES FT.

COUNTIES: MOHAVE, COCONINO, NAVAJO COCHISE

HABITAT: HIGH DESERT CANYONLANDS, AND PLATEAUS

RECOVERY/REINTRODUCTION PROGRAM CURRENTLY EVALUATING THE FEASIBILITY OF REINTRODUCTION INTO ARIZONA BY 1996. NO LONGER OCCURS IN ARIZONA.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Cochise

3/21/96

NAME: MEXICAN SPOTTED OWL

*STRIX OCCIDENTALIS LUCIDA*

STATUS: THREATENED

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

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

ELEVATION

RANGE: 4100-9000 FT.

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

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

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

NAME: NORTHERN APLOMADO FALCON

*FALCO FEMORALIS SEPTENTRIONALIS*

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 51 FR 8688, 01-25-88

DESCRIPTION: RUFOUS UNDERPARTS, GRAY BACK, LONG BANDED TAIL, AND A DISTINCT BLACK AND WHITE FACIAL PATTERN. SMALLER THAN PEREGRINE LARGER THAN KESTREL BREEDS BETWEEN MARCH- JUNE

ELEVATION

RANGE: 3600-9000 FT.

COUNTIES: COCHISE, SANTA CRUZ

HABITAT: GRASSLAND AND SAVANNAH

SPECIES FORMERLY NESTED IN SOUTHWESTERN US. NOW OCCURS AS AN ACCIDENTAL. GOOD HABITAT HAS LOW GROUND COVER AND MESQUITE OR YUCCA FOR NESTING PLATFORMS. CONTINUED USE OF PESTICIDES IN MEXICO ENDANGERS THIS SPECIES. NO RECENT CONFIRMED REPORTS FOR ARIZONA.

NAME: SOUTHWESTERN WILLOW FLYCATCHER

*EMPIDONAX TRAILLII EXTIMUS*

STATUS: ENDANGERED

CRITICAL HABITAT: Yes RECOVERY PLAN: No CFR: 60 FR 10884, 02-27-95

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

ELEVATION

RANGE: &lt;8500 FT.

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

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

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

**LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:**

**Cochise**

**3/21/86**

**NAME: WHOOPING CRANE**

**GRUS AMERICANA**

**STATUS: ENDANGERED**

**CRITICAL HABITAT: Yes RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-1967; 43**

**DESCRIPTION: TALLEST AMERICAN BIRD (UP TO 6 FEET) SNOWY WHITE, LONG NECK AND LEGS, BLACK WING TIPS, RED CROWN, AND BLACK WEDGE SHAPED PATCH OF FEATHERS BEHIND ITS EYE.**

**FR 20938, 05-16-78**

**ELEVATION RANGE: 4500 FT.**

**COUNTIES: COCHISE**

**HABITAT: MARSHES, PRAIRIES, RIVER BOTTOMS**

**BIRDS IN THE ROCKY MOUNTAIN POPULATION ARE OCCASIONAL VISITORS IN ARIZONA DURING MIGRATION, USUALLY NEAR WILCOX PLAYA.**

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Cochise

3/21/96

**PROPOSED TOTAL= 4**

NAME: CANELO HILLS LADIES' TRESSES

*SPIRANTHES DELITESCENS*

STATUS: PROPOSED ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 60 FR 16836, 4-3-1995

DESCRIPTION: SLENDER ERECT MEMBER OF THE ORCHID FAMILY (ORCHIDACEAE).  
FLOWER: STALK 50 CM TALL, MAY CONTAIN 40 WHITE FLOWERS  
SPIRALLY ARRANGED ON THE FLOWERING STALK.

ELEVATION

RANGE: about 5000 FT.

COUNTIES: COCHISE, SANTA CRUZ

HABITAT: FINELY GRAINED, HIGHLY ORGANIC, SATURATED SOILS OF CIENEGAS

NAME: HUACHUCA WATER UMBEL

*LILAEOPSIS SCHAFFNERIANA* ssp *RECURVA*

STATUS: PROPOSED ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 60 FR 16836, 4-3-1995

DESCRIPTION: HERBACEOUS, SEMI-AQUATIC PERENNIAL IN THE PARSLEY FAMILY  
(UMBELLIFERAE) WITH SLENDER ERECT, HOLLOW, LEAVES THAT GROW  
FROM THE NODES OF CREEPING RHIZOMES. FLOWER: 3 TO 10  
FLOWERED UMBELS ARISE FROM ROOT NODES.

ELEVATION

RANGE: 3500-6500 FT.

COUNTIES: PIMA, SANTA CRUZ, COCHISE

HABITAT: CIENEGAS, PERENNIAL LOW GRADIENT STREAMS, WETLANDS

NAME: JAGUAR, UNITED STATES POPULATION

*PANTHERA ONCA*

STATUS: PROPOSED ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 50 FR 35674, 7-13-84

DESCRIPTION: MUSCULAR CAT WITH RELATIVELY SHORT, MASSIVE LIMBS AND A DEEP-  
CHESTED BODY. CINNAMON-BUFF IN COLOR WITH BLACK SPOTS.

ELEVATION

RANGE: &lt;8000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ

HABITAT: IN ARIZONA, RANGED WIDELY THROUGHOUT A VARIETY OF HABITATS FROM SONORAN DESERT TO  
CONIFER FORESTSMOST RECORDS ARE FROM THE MADREAN EVERGREEN-WOODLAND, SHRUB-INVADDED SEMI-DESERT GRASSLAND,  
AND ALONG RIVERS. HISTORIC RANGE IS CONSIDERED TO HAVE EXTENDED BEYOND THE COUNTIES LISTED  
ABOVE. REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED. THIS  
SPECIES IS LISTED AS ENDANGERED FROM THE U.S.-MEXICO BORDER SOUTH. LAST CONFIRMED INDIVIDUAL WAS  
KILLED IN ARIZONA IN 1991, SINCE THEN UNCONFIRMED SIGHTINGS AND TRACKS CONTINUE TO BE REPORTED.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Cochise

3/21/86

NAME: SONORA TIGER SALAMANDER

*AMBYSTOMA TIGRINUM STEBBINSI*

STATUS: PROPOSED ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 60 FR 16838, 04/03/95

DESCRIPTION: 2.8 TO 4.9" SNOUT-VENT LENGTH WITH LIGHT-COLORED BANDS ON A DARK BACKGROUND. AQUATIC LARVAE ARE UNIFORM DARK COLOR WITH PLUME-LIKE GILLS AND TAN FINS.

ELEVATION

RANGE: 4000-8300 FT.

COUNTIES: SANTA CRUZ, COCHISE

HABITAT: STOCK TANKS AND IMPOUNDED CIENEGAS IN SAN RAFAEL VALLEY, HUACHUCA MOUNTAINS

ALSO OCCURS IN THE FOOTHILLS OF THE EAST SLOPE OF THE PATAGONIA MOUNTAINS

**APPENDIX C**  
**CULTURAL HISTORY AND PREVIOUS**  
**RESEARCH IN THE DOUGLAS AREA**

## ARCHAEOLOGICAL BACKGROUND

The archaeological background and cultural history sections that follow represent an in-depth summary of archaeological research in southeastern Arizona. For the cultural resources survey performed for this project, the previous investigations and overall cultural history synthesis for the Sulphur Springs Valley is important and provides a basis for the archaeological remains identified during this investigation. For the monitoring activities performed for this project and the regions covered, the archaeological syntheses provided below for the San Pedro, Sulphur Springs, and San Bernardino valleys are also important. The following text is taken from Martynec and others (1994), authors of a previous GMI report summarizing work performed on the U.S.-Mexican Border.

### PREVIOUS INVESTIGATIONS IN THE SAN PEDRO VALLEY

The San Pedro River valley was explored by A.F. Bandelier between 1880 and 1885. He stated:

I could not find any trace of antiquities in the narrow gorges that cleave the sierra, but on its northern base, around Fort Wallen, and on the Babocomari, traces of ruins are visible. While mounds [are] almost obliterated, foundations of small houses, and large enclosures formed by stones set on edge, may be distinguished, no clear conception can be obtained of the general plan and purpose of the structures. The artificial objects differ from those found along the San Pedro only in respect of the pottery, among which I found the ancient white and black, and red and black varieties, so abundant in more northern ruins [Bandelier 1892:489-490].

In 1928, Sauer and Brand (1930) conducted a survey of pueblo sites in southeastern Arizona. During their explorations of the area they documented the Ramsay Canyon Ruin that contains Chihuahua Polychrome pottery. From this and other observations they concluded that sites along the International Border in the San Pedro Valley are on the periphery of the Chihuahuan culture.

Based on results from the excavations at Snaketown (Gladwin *et al.* 1937), particularly the finding of Mogollon polished redware sherds, Gila Pueblo carried out extensive surveys and some excavations in the area to amplify the knowledge of southeastern Arizona prehistory (Sayles 1945). In order to address the problem of the polished redwares, they proposed to examine those sites that contained only plainware and redware pottery and no sites with decorated wares. From these efforts, Sayles (1945:v) concluded that the San Simon valley was very closely related to early phases in the San Francisco and Mimbres valleys. However, differences led Sayles (1945:vi) to refer to the culture in southeastern Arizona as the San Simon branch.

From the late 1930s through the 1940s, the Amerind Foundation also initiated a number of surveys and excavations in and around the San Pedro Valley. The impetus of these efforts was to counter Gila Pueblo's contentions that the earliest ceramic-producing group in the area was primarily Mogollon, with limited Hohokam influence. The Amerind Foundation believed that the cultural entity early in the sequence was Hohokam with only slight Mogollon influence. To support its hypothesis, the Amerind Foundation undertook several excavations in the area, two of which were conducted in the San Pedro Valley. The results of excavations at the Gleeson

site in the Sulphur Springs Valley were published by Fulton and Tuthill in 1940. Tuthill excavated the village site of Tres Alamos between 1940 and 1945, publishing the results in 1947. Babocomari Village, located on a tributary of the San Pedro River, was excavated by DiPeso (1951).

Based on excavations at the Gleeson and Tres Alamos sites, Tuthill (1947) concluded that the earliest phases (Cascabel and Tres Alamos) occurred during times of considerable Mogollon influence, whereas the final two phases (Tanque Verde and Tucson) were influenced almost entirely by Tucson Basin Hohokam. In response to contradictions with previous research in the area, Tuthill stated that Dragoon and Tres Alamos Red-on-brown "apparently . . . flourished side by side in the same general area at the same time, and yet did not mix" (1947:84).

Also excavated by the Amerind Foundation was Babocomari Village, a site at the north end of the Huachuca Mountains (DiPeso 1951). Based on crossdating with Hohokam and Salado ceramics, DiPeso concluded that the inhabitants of the village moved into the area during the Tucson phase, ca. A.D. 1200-1450. He further concluded that they brought their full culture with them at that time. Abandonment may have occurred as late as Apache times (DiPeso 1951:221-222).

Two mammoth sites were excavated in the San Pedro River valley during the 1950s. The first was the Naco Mammoth site, excavated in 1952 by the Arizona State Museum and the University of Arizona. The site is located on Greenbush Draw, a tributary of the San Pedro River. While this excavation was in progress, Edward Lehner, a local rancher, found bones 2.5 m below the present ground surface in an arroyo channel of the San Pedro River near Hereford, Arizona. Researchers from the Arizona State Museum identified them as mammoth tooth plates and subsequently excavated the Lehner Ranch site, interpreting it as a mammoth kill locale (Haury *et al.* 1959). Thirteen projectile points, primarily Clovis fluted types, eight butchering tools, and charcoal from two fire pits were found in association with the remains of nine immature mammoths.

No further work in the San Pedro River valley was undertaken until the 1970s. An amateur archaeologist, Herbert Reay, discovered the S-O Ranch site (AZ EE:12:37) in 1970. He dug into a cairn composed of metates and uncovered a burial. Additional excavations by Jeffery Adams (1974), a graduate student at Northern Arizona University, failed to locate other features. However, based on the types of artifacts recovered by Reay and Adams, Edward Sayles of the Arizona State Museum dated the site to the early Chiricahua stage of the Cochise culture.

The Smith Ranch site (AZ EE:12:39) was recorded by Diane Langston in 1987 as part of the Palominas Gate project. The site, which is on the western floodplain of the San Pedro River, appears to have been a village occupied late in the ceramic sequence, ca. A.D. 1300-1450.

#### PREVIOUS INVESTIGATIONS IN THE SULPHUR SPRINGS VALLEY

The Cochise culture was defined in 1926 as a result of the excavations at the Double Adobe Ruin on Whitewater Draw in southeastern Arizona (Sayles and Antevs 1941:12). The excavations uncovered the remains of late Pleistocene fauna in geological strata above artifacts. This confirmed the presence of *Homo sapiens* in the New World during the Pleistocene and prompted the research institute of Gila Pueblo to initiate further investigations in an attempt to

locate similar types of sites. The resulting surveys in the Sulphur Springs and San Pedro valleys were conducted by Emil Haury, E. B. Sayles, and E. Antevs. The most promising sites were then excavated (Sayles and Antevs 1941). The culture was named after the county in which the sites were located, which, in turn, had been named for Cochise, the famous Apache chieftain (Sayles and Antevs 1941:9).

Additionally, the Gila Pueblo surveys gave rise to the belief that the basic culture in the Sulphur Springs Valley from A.D. 800-1200 was Mogollon with a strong Hohokam influence (Gladwin and Gladwin 1935). In contrast, Fulton and Tuthill (1940) of the Amerind Foundation concluded from the Gleeson site excavations that the basic culture in the area at that time was Hohokam, with little more than a veneer of Mogollon influence. Fulton and Tuthill defined the Dragoon phase of the Hohokam, a culture that arose from local stock and was later assimilated into the Hohokam culture.

It was not until 30 years later, between 1978 and 1985, that approximately 10 percent of the Christiansen Border Village (AZ FF:9:10) was excavated by the Cochise County Historical and Archaeological Society. An informal report was completed by John Kurdeka (1985), the society chairman. Kurdeka concluded that subsistence practices conducted at this village were focused primarily on wild resources. The site may have been occupied over a considerable period of time.

#### **PREVIOUS INVESTIGATIONS IN THE SAN BERNARDINO VALLEY**

Generalized surveys have recorded several sites in the San Bernardino Valley. Animas phase sites were examined in the late 1920s by Monroe Amsden as part of a reconnaissance survey of Sonora, Mexico. In his initial publication, Amsden (1928) discussed a site just across the border on the Sonoran side of the San Bernardino Valley. He later recorded four sites on both sides of the border for Gila Pueblo (Gladwin and Gladwin 1935). Because of ceramic differences, Amsden (1928:44-45) divided Sonoran sites into two groups: one a peripheral development of the Casas Grandes culture and the other of the Chihuahuan culture.

In 1928, Carl Sauer and Donald Brand (1930) studied pueblo sites in southeastern Arizona and recorded three sites in the San Bernardino Valley, two north and one south of the International Border. Based on examinations of these and other sites they also concluded that the International Border area was on the periphery of the Chihuahuan culture.

Modern systematic survey has been restricted predominantly to the U.S. side of the International Border, particularly the San Bernardino Land Grant area. Stacy (1974) conducted the first survey on the property and recorded 14 sites. An intensive survey on the 131-acre parcel of land surrounding the Slaughter Ranch House was conducted by Stone and Ayres (1982). In 1984-1985, the Arizona State Museum intensively surveyed 2,000 acres of the San Bernardino Land Grant, now a U.S. Fish and Wildlife Refuge, recording 33 sites ranging in age from Archaic through Historic periods (Neily and Beckwith 1985).

Survey outside the land grant has been limited. One survey was conducted by Sharon Urban, during which she recorded an Archaic period site, in 1978. The San Bernardino Valley Survey, which systematically examined 6.6 sq mi (4,224 acres), was undertaken by the Anthropological Resource Center at Cochise College, and although some Archaic and ceramic

sites were recorded, a majority of the sites exhibited evidence of occupation during the Encinas phase, A.D. 900-1175 (Douglas and Brown 1984; 1985:45).

Casually discovered sites have been recorded by professional archaeologists, staff members of the Anthropological Resource Center at Cochise College, ranchers, Forest Service personnel, and others. Some of these sites have published references. Sayles (1983:61) recorded several Archaic period sites in the San Bernardino Valley, and the San Bernardino Presidio was mapped and surface-collected by Gerald (1968). Paleo-Indian projectile points collected by nonprofessionals have been reported in the San Bernardino Valley. Myers (1976), who reported a projectile point from the Rising site, suggested it is morphologically similar to those of the Folsom culture. However, Agenbroad (1967:118) and Huckell (1982:19) argued that, based on the flaking style and the known distribution of Folsom sites, it is a resharpened Clovis point. The second Paleo-Indian point from the valley may also be a resharpened Clovis point (Huckell 1982:11).

A few sites have been excavated in the San Bernardino Valley, but the results of only one excavation have been published. One of the excavations about which nothing has been published took place at the Malpai Ranch site (AZ FF:11:17) where Archaic period remains were exposed in an arroyo cut. The site is thought to have San Pedro and Chiricahua phase materials, but based on the presence of extinct mammal remains, it could contain Sulphur Spring phase materials as well. Several burials reportedly have been removed from the Malpai Ranch site. Two pueblo sites have been excavated by the Anthropological Resource Center at Cochise College. The Bernardino site, excavated in the early 1970s, is a medium-sized adobe pueblo. A report of this excavation by the principal investigator, Richard Myers, has yet to be completed. The Boss Ranch site, a medium-sized pueblo close to the Bernardino site, is presently being excavated as part of the Cochise College excavation course. Jack and Vera Mills (1971), "amateur archeologists with professional standards" (Johnson and Thompson 1963:475), published the results of their excavations at the Slaughter Ranch site.

## CULTURAL HISTORY

### The Paleo-Indian Period

The date of the arrival of the first human populations in southern Arizona is still a matter of debate. There are those who contend that successive migrations occurred throughout the latter part of the Pleistocene. These migrations coincided with global temperature drops that resulted in large quantities of water being frozen. As the ice caps increased in size, sea levels dropped, forming land bridges in areas where the water had been most shallow. One of these land bridges connected Alaska with Siberia across the Bering Strait. Over the last 100,000 years, this land bridge has appeared and disappeared as temperatures fluctuated, and it is believed that this route was taken by migrating populations.

Sites resulting from these early inhabitants' presence in the New World, those occupied prior to 12,000 years ago, most frequently have been reported in the deserts of southern California. Early population sites have been reported for ancient Lake Mannix, China Lake, Calico, and the Yuha Desert in California (Davis 1978; Davis *et al.* 1981; Schuiling 1972), and the Sierra Pinacate region in nearby Sonora, Mexico (Hayden 1976). Arguments for the great antiquity of these sites have been based on the association of surface artifacts with geologic features, such as dry lake beds. Other arguments have considered the formation rate of desert varnish,

while still others have contended that crudely worked rocks of clear antiquity are artifacts rather than geofacts. Efforts to establish temporal control for desert varnish have focused on cation-ratio (Dorn 1989), and more recently, have attempted to radiocarbon date the organic inclusions trapped in pockets under rock varnish (Dorn 1992).

At present, no claims for human populations in southern Arizona predating about 12,000 years ago have met the scrutiny of the scientific community. Just as the evidence for inhabitants prior to 10,000 B.C. is tenuous, the evidence after that time period is secure. The earliest materials identified have been termed Paleo-Indian (Sellards 1952). Hallmarks of this tradition are large, fluted points used to hunt Pleistocene megafauna. Southern Arizona is home to a majority of the best known Paleo-Indian sites in the Southwest. Most of these sites are named after a site near Clovis, New Mexico. Clovis sites are recognized by the presence of a particular style of fluted projectile point, which is thought to have been used for hunting mammoth, mastodon, and camel. To a certain extent, this view is probably biased, because most Clovis sites that have been excavated are kill sites. Plant gathering and processing were, no doubt, an important aspect of Paleo-Indian economies.

Central to any review of the Paleo-Indian period are the sites in the San Pedro and Sulphur Springs valleys. Currently, there are four well-documented (i.e., Naco, Murray Springs, Lehner, and Escapule) and two possible stratified (i.e., Leikam and Navarette) Clovis sites, where extinct mammal bones were found in association with human artifacts (Haynes 1984:348-349). All six sites rest on an erosional surface dated to 10,900 B.P. by 23 charcoal samples. The occupational surface, in turn, is buried by a black mat composed of clayey-silt that dates to 10,800 B.P. In five other areas in the San Pedro Valley, the remains of extinct fauna are found beneath the black mat but without human remains. Haynes (1984:349) interpreted this situation as follows:

Before the black mat was deposited, the tributary streams at the Clovis sites were spring fed and probably perennial. During the brief interval of Clovis activity they may have nearly dried up, causing animals to concentrate at springs and seeps. Earlier, between 26,000-12,000 B.P., many tributary valleys were occupied by ponds or lakes, some spring fed, around which the Rancholabrean fauna was expected to attract early hunters, but despite careful excavation at three vertebrate fossil localities and periodic examination of others, these older deposits, in the process of eroding, have not yielded artifacts.

### The Archaic Period

The cultural remains of Archaic period people, post-Pleistocene foragers, are less rare than those of the Paleo-Indian groups. The cultural affiliation and age of Archaic materials in southern Arizona are not well-understood. Two Archaic traditions have been proposed for southern Arizona: Amargosa (also called San Dieguito II and III) and the Cochise culture. Haury (1950) argued that the Papagueria was the zone of contact between the Cochise culture (distributed primarily in southeastern/south central Arizona and New Mexico) and the Amargosa tradition (the remains of which have been recorded in southern California [Hester 1973; King 1976; Rogers 1939] and southwestern Arizona [Haury 1950; Hayden 1970; Rogers 1941; Rosenthal *et al.* 1978]). Other researchers have disagreed with Haury, contending that the Amargosan tradition is a pan-Southwestern occurrence extending from California to the trans-Pecos region in Texas (Hayden and Andretta, personal communication 1992).

## *The Cochise Culture*

The Cochise culture originally was defined by Sayles and Antevs (1941) following the excavations of preceramic sites along major stream channels in southeastern Arizona (Whitewater Draw, San Pedro River, and San Simon Creek). These and other investigations (Cattanach 1966; Sayles *et al.* 1958) demonstrated that Cochise groups utilized the floodplain environmental zone. Whalen (1971, 1975) conducted a systematic survey of a 100-square mile section of the upper San Pedro Valley, locating 84 Cochise sites situated on three landform types: terraces, upper pediments, and mountains. These data indicate that Cochise groups exploited a wide range of different environmental zones. Generally, three Cochise culture stages are recognized: Sulphur Springs, Chiricahua, and San Pedro (Sayles and Antevs 1941).

### Sulphur Springs Stage

The Sulphur Springs stage is considered a specialized Paleo-Indian adaptation and is known only from a few sites near Double Adobe in southeastern Arizona (Whalen 1971:74-87). Sayles and Antevs (1941) describe the phase as consisting of ground stone and a limited amount of flaked stone associated with extinct Pleistocene fauna. This phase dates from approximately 7,500-3,500 B.C. on the basis of nine radiocarbon dates (Whalen 1971:67, 69).

### The Chiricahua Stage

The next Cochise stage, Chiricahua, dated by Whalen (1975:205) from 3,500-1,500 B.C., marks the beginning of the Archaic period in southern Arizona. The Chiricahua tool assemblage contains ground stone in the form of small, shaped and unshaped handstones, shallow basin metates, mortars, "proto-pestles," and flaked stone in the form of unifacial handaxes, knives, scrapers, spokeshaves, and utilized flakes (Sayles *et al.* 1958:101-102). The flaked stone exhibits primarily percussion flaking with some pressure flaking, particularly noted among projectile point assemblages. Three types of projectile points are known: (1) triangular side-notched with indented base, (2) stemmed, and (3) leaf-shaped (Sayles *et al.* 1958). Several researchers contend that maize and squash were introduced during the Chiricahua stage (Dick 1952:105; Martin and Schoenwetter 1960:33-34).

### The San Pedro Stage

The San Pedro stage tentatively dates from 1,500 B.C. to A.D. 100 (Whalen 1975:205). Listed among the material culture inventory are deep-basin metates, shaped pestles, mortars, two-hand manos, and an increase in the types and numbers of pressure-flaked tools (Sayles *et al.* 1958:111-112). Pithouses and storage features, domesticates (beans, maize, and squash), and pottery appear at the end of the San Pedro stage (Dick 1965; Eddy 1958; Martin *et al.* 1949; Sayles 1945).

## The Formative Period

The Formative period refers to the presence of ceramic-making, horticulture people in southern Arizona. Ignoring cultures peripheral to the study area (such as the Hohokam, Trincheras, and Chihuahuan), a simplified cultural sequence for the Formative period in southeastern Arizona and southwestern New Mexico includes the Mogollon and the Pueblo.

### *The Mogollon Culture*

The Mogollon culture evolved from the Cochise culture. The earliest Mogollon villages appear to be little more than Late Archaic villages with pottery (Sayles 1945:14). The hallmarks of this stage are horticulture, red-on-brown pottery, and pithouses. Southeastern Arizona has been included in the San Simon Branch of the Mogollon (Sayles 1945:14), which has been divided into three periods and six phases. The Early period consists only of the Peñasco phase, which was derived from the San Pedro stage of the Cochise culture. In essence, the only difference between the San Pedro stage and the Peñasco phase is the addition of plainware and red-slipped pottery. Following this is an Intermediate period composed of the Dos Cabezas, Pinaleno, and Galiuro phases, which are defined by the introduction of decorated ceramics. The Late period, composed of the Cerros and Encinas phases, exhibits considerable influence from the Hohokam to the northwest and the Mimbres Mogollon to the east (Sayles 1945). Dates for these phases are not clear (Masse 1982), but the whole sequence probably ranges from about A.D. 200 to 1200. Crossdating with Hohokam artifact types suggests that the Intermediate period may have originated at about the same time that decorated wares show up in the Hohokam areas. Sacaton Red-on-buff is often found in Encinas phase contexts.

The transitional nature of the San Simon Branch challenges the tidy separation between the Hohokam and Mogollon sequences. This time period in southeastern Arizona has been given alternative names. "Dragoon culture" was preferred by early workers at the Amerind Foundation and by Masse (1982:89). Because the term "Mogollon" appears to be sufficiently broad in its present usage to cover this period in the San Pedro, Sulphur Springs, and San Bernardino valleys, and because it is associated with a particular reconstruction of the culture history of the region, it is applicable for this study.

### *The Pueblo Culture*

The appearance of rock and adobe pueblos in the southern part of the Southwest has sparked interest and research, but little information to explain the significance of this period. It is generally believed that the pattern originated in the Mimbres branch. While this period has been labeled Pueblo, in contrast to the earlier Mogollon, this is not meant to imply a discontinuity in cultural development. Rather, it is reasonable to assume that it also is of the Mogollon culture (Johnson and Thompson 1963). The term Mogollon is used here in the way Sayles (1945) defined the San Simon Branch, simply to avoid a phrase such as "the pithouse period Mogollon." Three traditions are important for the study of the pueblo villages in the project area.

### The Ringo Phase

One of the traditions in the Sulphur Springs Valley is the Ringo phase (Johnson and Thompson 1963). Unfortunately, it is known from only a single excavation. The Ringo site, from which a wide variety of ceramic trade wares was recovered, consists of two small adobe compounds with 27 rooms. The ceramic assemblage suggests contact with four areas: Chihuahua (over 25 percent of the decorated wares), the White Mountain area, the Tonto Basin (these ceramics could have been locally made), and the Tucson Basin (Johnson and Thompson 1963:478). The site is thought to date between A.D. 1250 and 1325 (Johnson and Thompson 1963:479). The Ringo phase has been interpreted as basically Mogollon, with outside cultural influences, probably from the Anasazi to the north and/or, possibly, from cultures inhabiting the Chihuahuan area to the south (Johnson and Thompson 1963:476).

### The Animas Phase

The Animas phase, best known from Hidalgo County, New Mexico, is relevant to this study because the type site, the Pendleton Ruin, is less than 15 km (9 mi) from the San Bernardino Valley (Kidder *et al.* 1949). This phase has generally been interpreted very differently from the Ringo phase even though the two overlap temporally. The dating of the Animas phase to ca. A.D. 1175 to 1350 and the presence of Ramos Polychrome and other Casas Grandes pottery types imply an association with Casas Grandes. Unlike the Ringo site, a number of Animas pueblo sites are much larger, falling in the 100- to 300-room category. The nature of the association between the Animas phase and Casas Grandes has been debated for the last 30 years. Kidder and others (1949) argued that the traits found at the Pendleton Ruin were quite distinct from those at Casas Grandes. More recent researchers have accepted the Animas phase as lying on the periphery of Casas Grandes but directly interacting with the core area (DeAtley and Findlow 1980; LeBlanc 1980). These authors viewed the Animas phase as non-Mogollon. In fact, LeBlanc (1980) specifically suggested a population movement from the south into the Mimbres valley that absorbed the remaining indigenous populations. Others remain unconvinced of a Casas Grandes expansion into southwestern New Mexico, pointing out that the five excavated Animas phase sites, the few available dates, and the published survey data collected by Findlow and DeAtley, are simply not enough data for such a conclusion (Stuart and Gauthier 1981).

The term Animas phase has not been generally applied in southeastern Arizona. Nevertheless, the great similarities in ceramic types and their frequencies, architectural features, burial patterns, and projectile point types between most of the pueblo sites in the project area and Animas phase sites in southwestern New Mexico suggest that they are part of the same cultural tradition (Amsden 1928; Kidder *et al.* 1949; McCluney 1962; Neily and Beckwith 1985; Sauer and Brand 1930). One prominent similarity is the presence of Cloverdale Corrugated, a pottery type common in the local and New Mexico Animas phase sites. Cloverdale Corrugated, a polished redware displaying triangular indentations, has a narrow geographical distribution (Kidder *et al.* 1949; Riggs, personal communication 1991).

The pueblo sites in the project area display other similarities to Animas phase sites in southwestern New Mexico. Pottery types that are generally associated with Animas sites are found locally, such as Playas Red, Chupadero Black-on-white, St. John's Polychrome, El Paso Polychrome, Casas Grandes polychromes, Tucson Polychrome, and Salado polychromes (LeBlanc and Whalen 1980:273; Neily and Beckwith 1985:50). Pueblo structures are of adobe

and are arranged in compounds that are often open on one side. Kivas are not present. The Boss Ranch site contains a subfloor, flexed burial that is similar to some Animas burials (LeBlanc and Whalen 1980:280). Further, a radiocarbon date of A.D. 1250-1430 (Klein *et al.* 1982) from the Boss Ranch site fits comfortably within the temporal range of Animas sites in New Mexico (DeAtley 1980).

It must be noted that there are differences between assemblages within the project area and Animas phase sites, even though considerable regional variation has been noted elsewhere (LeBlanc and Whalen 1980). In particular, the Slaughter Ranch site is anomalous. It exhibited equal amounts of Salado and Casas Grandes wares; secondary cremations were the most common mode of burial; and the rooms are fairly small (9.2 m<sup>2</sup>). The site has too much Salado pottery to fit neatly into the Animas phase. However, if the Salado period is later than the Animas phase, which is generally assumed to be the case, then the Slaughter Ranch site may be representative of a transitional period between the two phases.

The Boss Ranch site also exhibits differences from Animas phase sites. At the Boss Ranch site there are more Sonoran and southeastern Arizona ceramic types, such as Tanque Verde Red-on-brown and Santa Cruz Polychrome, than at Hidalgo County, New Mexico, sites. In this regard, the site displays similarities with the Ringo site, which is not surprising given its location. The relationship between the Ringo and Animas phases is not clearly understood.

#### The Salado Phase

The third pueblo phase in the area that must be considered is the Salado, which is identified by its associated ceramic types of Pinto, Gila, and Tonto Polychromes. In both the Sulphur Springs Valley and southwestern New Mexico, this culture is generally dated from A.D. 1300 to 1450 (LeBlanc 1980). The Salado habitation sites are situated at lower elevations and are massive, multistoried pueblos that are different in appearance and setting from sites in either the Ringo or Animas phases (Johnson and Thompson 1963; LeBlanc 1980). Traditionally, the view has been that the Salado were an intrusive people from the Tonto Basin in Arizona; however, this view is no longer widely accepted. Nonetheless, recent interpretations of the Salado culture have been formulated for the Hohokam area and may not be applicable to the study area.

#### The Protohistoric Period

The abandonment of the large, aggregated pueblos in the Southwest around A.D. 1450 marks the beginning of the Protohistoric period, which is very poorly understood. Based on crossdating with Hohokam and Salado ceramics, DiPeso concluded that the inhabitants of Babocomari Village in the San Pedro Valley moved into the area at a time roughly contemporaneous with the Tucson phase, ca. A.D. 1200-1450. It is possible that abandonment occurred quite late, perhaps during Apache times (DiPeso 1951:221-222). If this is the case, then Babocomari Village represents the only large protohistoric site excavated to date.

By the time the Spanish arrived, the major native populations were living in rancherias dispersed along major watercourses. The cultural groups in the project area are difficult to assess. The Opata, a Uto-Aztecan speaking group occupying much of northeastern Sonora, are known to have inhabited the southern part of the valleys, but the Spanish did not record any of their villages north of the International Border. The Jano and Jocome lived in nomadic bands

and ranged through the area where Sonora, Chihuahua, and the International Border converge, which includes the southern part of the San Bernardino Valley. In general, the Opata, Janos, and Jocomé suffered such rapid population decline and assimilation after Spanish contact that few data are available to indicate how these cultures could be identified in the project area.

### The Historic Period

The Historic period in the project area began with the Spanish explorations of Fray Marcos de Niza in 1539 and Francisco Vasquez de Coronado in 1540. Sporadic Spanish contact continued until 1687 when Eusebio Kino, a Jesuit priest, entered the region. Over the next 24 years, Padre Kino embarked on at least 50 major journeys traveling as far east as the Quiburi rancheria on the San Pedro River. During his travels, he established a chain of missions and branch missions (or visitas) and encountered many rancherias. An influx of Spanish missionaries, explorers, miners, ranchers, and settlers followed Kino until the outbreak of Apache raiding in 1703. At that time, Kino suggested to Spanish authorities that a mission with a defensive fortification be established on the San Pedro River and the Sobaipuri Pima Indians be employed as allies. Kino's request was denied.

After Kino's death in 1711, little support was given to the Spanish missionaries until the 1730s when German priests were assigned to the missions. However, by the 1770s, the constant Apache attacks had contributed to the near-abandonment of the entire San Pedro Valley. In an attempt to make the valley safe, the presidios of Terrenate and Fronteras were moved north to Quiburi and the San Bernardino Valley, respectively. However, the Indian attacks intensified and became so severe that Fronteras and Terrenate were moved back to Sonora, Mexico (Wagoner 1975).

In early 1830 during a period of lessened Apache raids, Lieutenant Perez, a member of one of the most prominent land-holding families in Sonora, petitioned the government for a land grant located between the existing settlements in Sonora and the Apaches (Wells 1985). Upon approval, he was permitted to purchase four sitios, with related "overplus" for a total of almost 100,000 acres, for 90 pesos plus fees. He named the site El Rancho de San Bernardino. But by the late 1830s, Apache raiding had begun again, forcing the abandonment of the rancho.

During and after the war with Mexico (1846-1848), a period of time in which California and the Southwest were opened to Anglo-Americans, thousands of travelers along the southern Gila route passed through the San Bernardino Valley, where they stopped at pools fed from perennial springs. The springs would have attracted wild beef (descendants from the early Spanish cattle herds that were running wild in the area), which would have been a significant meat source for the immigrants (Wells 1985).

The Gadsden Purchase was established in 1854, but it was not until 1856 that the land left Mexican domain and came under the rule of the United States. At that time much of the land held through Mexican and Spanish land grants promptly fell into contention.

"Gold," in the forms of both mineral and grasslands, was discovered in the Arizona Territory and California. This brought an influx of settlers and a need for military protection from the Indian raiders. Several forts were established in southern Arizona and troops were stationed in the San Bernardino Valley at Silver Creek, Guadalupe Canyon and, for a brief time in 1878, at Camp Supply, just north of the International Border (Wells 1985).

By 1884, El Rancho de San Bernardino, the old Mexican land grant, had been deserted for almost 50 years. At that time it consisted of approximately 65,000 acres of grasslands, watered by a number of streams and springs. It was purchased by John Slaughter, a former Cochise County sheriff, and his wife Viola. By then the once large, fortified hacienda was a crumbling ruin just south of the unfenced International Border (Wells 1985). Slaughter built two adobe houses on the site, one for his in-laws and the other for himself. He and Viola also maintained a Tombstone home so that their children could attend school.

The Apaches continued raiding in the San Pedro Valley until 1884, when Col. George Crook forced them onto the San Carlos Reservation. He reported that "for the first time in the history of that fierce people, every member of the Apache tribe is at peace" (Wells 1985). However, peace was short-lived. In 1885, a large number of Apaches fled the reservation and left a bloody trail crisscrossing southeast Arizona and southwest New Mexico. Finally, in 1886, Geronimo surrendered to General Crook at Cañon de los Embudos in the mountains 48 km (30 mi) south of the San Bernardino Ranch headquarters.

The San Pedro River Valley became a profitable cattle ranching area after the turn of the century. In 1899, it was little more than an uninhabited cattle holding ground; 10 years later, it was a bustling population center of more than 10,000 people. Douglas, a smelter city on the border, was founded at this time as well. Its beginning, planning, and development were due primarily to Dr. James Douglas (Hadley 1987). In 1881, the Phelps Dodge Company assigned Dr. Douglas to its Copper Queen mine and smelter in Bisbee, Arizona. There he expanded the Phelps Dodge operation and purchased the Pilares mine at Nacozari, 120 km (75 mi) south of the border in Sonora. It became evident that the increased production in the Bisbee mine and the addition of the Nacozari mine necessitated a larger smelter than the one at Bisbee. Since smelters require large amounts of water, the former cattle-holding ground at Whitewater Draw, 40 km (25 mi) southeast of Bisbee, looked promising. In 1890, the Phelps Dodge Company acquired some land under scrip while other land was procured from the International Improvement Company for the smelter in the valley. Whitewater Draw also provided an ideal connecting point for the Nacozari and Bisbee railroads, since ore trains from both mines would be traveling downgrade. The southeastward railroad extension from Bisbee had reached Douglas by 1900 and Nacozari via Naco by 1904 (Hadley 1987). Railroad construction workers initiated small settlements in the area where Douglas and Agua Prieta now stand.

Soon after Dr. Douglas selected the Whitewater Draw site for the new smelter, investors and speculators became eager to share in the enormous profits to be made from the town's construction. While the Phelps Dodge Company owned a substantial amount of property, the intention was not to make Douglas a "company town." Many homes and most of the businesses were to be privately owned. The International Land and Improvement Company, which Dr. Douglas and his friends incorporated, added directors who planned and laid out the Douglas town site, set the real estate prices, built large commercial projects, and provided the town with utilities (Hadley 1987).

In 1901, workers arrived from Bisbee and began construction of the smelters. In 1902 the Calumet & Arizona smelter began producing; by 1904, the Copper Queen Furnace Number One was completed. The boom had begun. After only three years, Douglas ranked fourth in population in the territory and was called the "Wonder City of the West" (Hadley 1987:12). Aside from mining, the commercial interests of Douglas centered on the railroad, the

surrounding rural area of ranches and farms, and border trade. By 1903, daily rail service to Douglas was offered by 19 freight trains and 12 passenger trains. The high economic point for Douglas occurred during World War I. Copper bars, indispensable to the war effort, poured out of both smelters. However, as soon as the war ended, the demand for copper dropped, and by 1929, the boom was over.

The U.S.-Mexican border became a focal point in 1910 during the Mexican Revolution, serving as a source for contraband, recruitment, and escape. For the first time in U.S. history, American soldiers were stationed along the border at Nogales, Naco, and Douglas. Approximately 100 men were assigned the task of patrolling the border between Douglas and the San Pedro River. Fifty men camped near the stockyards in Douglas, and another 50 camped at Naco (Christiansen 1974). In 1911, the number of men at Douglas increased by 50; 10 others established an outpost on the Slaughter Ranch. The cavalry and infantrymen at the Slaughter Ranch outpost came from the camp at Douglas, which in 1916 was named Camp Harry J. Jones, after a soldier who had been killed. During the Pancho Villa scare in 1915-1916, troop strength varied from ten-man detachments to 600 men and three machine guns (Christiansen 1974). However, both Camp Harry J. Jones and the camp at Slaughter Ranch were closed in 1933.

During the course of the border strife in March 1911, the U.S. Cavalry was deployed along the border to prevent American spectators from crossing into Mexico (Christiansen 1974). Instead, the spectators stood on the streets and roof tops in Douglas to watch the action. There was so much shooting in Agua Prieta that the U.S. Cavalry warned the Mexican Federales and the rebels to stop firing into the U.S. The armies were, of course, not able to comply, and many buildings were struck, and several U.S. citizens were killed.

In 1916, airplanes were used to patrol the border between El Paso and Douglas, and Douglas became the site of the first operational military air field. The border was quiet by 1921, and the air field was abandoned in 1926. Then, in 1929, the Escobar rebellion again created the need for air patrol along the border. The Mexican government enlisted the aid of U.S. planes and pilots. The U.S. provided two armed planes that flew dawn-to-dusk patrols. No incidents occurred until a careless insurgent pilot dropped two home-made bombs near Naco, Arizona, and a third on the town. The latter broke windows and injured several bystanders. Seven days later, a pilot flying for the Escobaristas attempted to drop a bomb on the Mexican federal trenches. However, his bomb fell on the American side without damage.

**APPENDIX D  
STORMWATER POLLUTION  
PREVENTION PLAN**

**STORM WATER POLLUTION PREVENTION PLAN**

**FOR**

**DOUGLAS, ARIZONA  
JTF-6 FENCE AND ROAD CONSTRUCTION,  
DOUGLAS, COCHISE COUNTY,  
ARIZONA**

**PREPARED BY  
GEO-MARINE, INC.  
550 EAST 15TH STREET  
PLANO, TEXAS 75074**

**MAY 1997**

**OWNER CERTIFICATION FOR  
DOUGLAS, ARIZONA  
JTF-6 FENCE AND ROAD CONSTRUCTION  
COCHISE COUNTY, ARIZONA**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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Date Certified

---

Chief Ron Sanders  
U.S. Border Patrol, Tucson Sector

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**ATTACHMENTS**

Attachment #1 - Notice of Intent (NOI) for Construction Activity

Attachment #2 - Inspection and Maintenance Report Form (Rainfall Event)

Attachment #3 - Inspection and Maintenance Report Form (Sediment Basin)

Attachment #4 - Inspection and Maintenance Report Form (Changes)

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## 1.0 INTRODUCTION

The Douglas, Arizona (AZ) JTF-6 Fence and Road Construction Project is located in southern Cochise County, AZ and extends approximately six miles along the U.S./Mexico International Border immediately adjacent to Douglas, AZ (Figure 1). The fence construction project occurs in the Douglas, AZ and the East of Douglas, AZ-Son. 7.5' USGS quadrangle maps.

Owner Address: U.S. Border Patrol  
Tucson Sector  
Tucson, Arizona 85721

### 1.1 Description

The project would consist of new construction of approximately six miles of fence in and immediately adjacent to Douglas, in southern Cochise County, AZ. This new construction consists of approximately 1.3 miles of decorative fence and 4.9 miles of landing mat fence. Starting at the International Point of Entry (POE) in Douglas, the decorative fence would extend one mile east of the POE and approximately 0.3 miles west of the POE. The landing mat fence would be constructed on each end of the decorative fence. This fence would extend 3.6 miles from the east end of the decorative fence and 1.6 miles from the west end.

The decorative fence would consist of two inches by two inches by 1/8 steel tubing attached to three inches by five inches by 1/4 inch rectangular steel tubing (Figure 2). The height of the barrier would be 12 feet with the top two feet angled 35 degrees to the north.

The landing mat fence would be comprised of surplus military supplies formerly used for the construction of aircraft landing fields. The fence would consist of one buried section of mat and six above ground sections placed horizontally. This fence would also be twelve feet in height with the landing mat sections welded together and attached to posts with angle iron (Figure 3).

Construction of the landing mat fence east of the POE would require leveling of spoil material currently existing along the fence. This spoil material consists of soil and concrete waste. Graded soil along the fence would either be utilized during project completion, placed along the fence as an additional deterrent, or disposed of by a private contractor. Concrete waste along the existing fence would be crushed by a local contractor and either utilized during project completion (i.e., road resurfacing), or disposed of by the contractor at a permitted site.

A small amount of road construction would begin about 0.3 miles west of the POE and would continue for approximately 0.5 miles. Road improvements would encompass approximately 0.8 miles of existing road west of the POE. Roads constructed or improved would be graded to about 30 feet wide and would be crowned to avoid standing water. Road construction would cross through an ephemeral wash where four 36-inch culverts would be placed to adequately retain the current flow through the area.

#### 1.1.1 Soils and Soil Properties

The vegetation types of the project area are predominantly semidesert grassland and Chihuahuan desert scrub, and the mean annual precipitation is between 10 and 18 inches. There are two soil types within the project area. Table 1 shows the soil association, hydrologic group, and erodibility as determined by the Natural Resources Conservation Service of the United States Department of Agriculture.

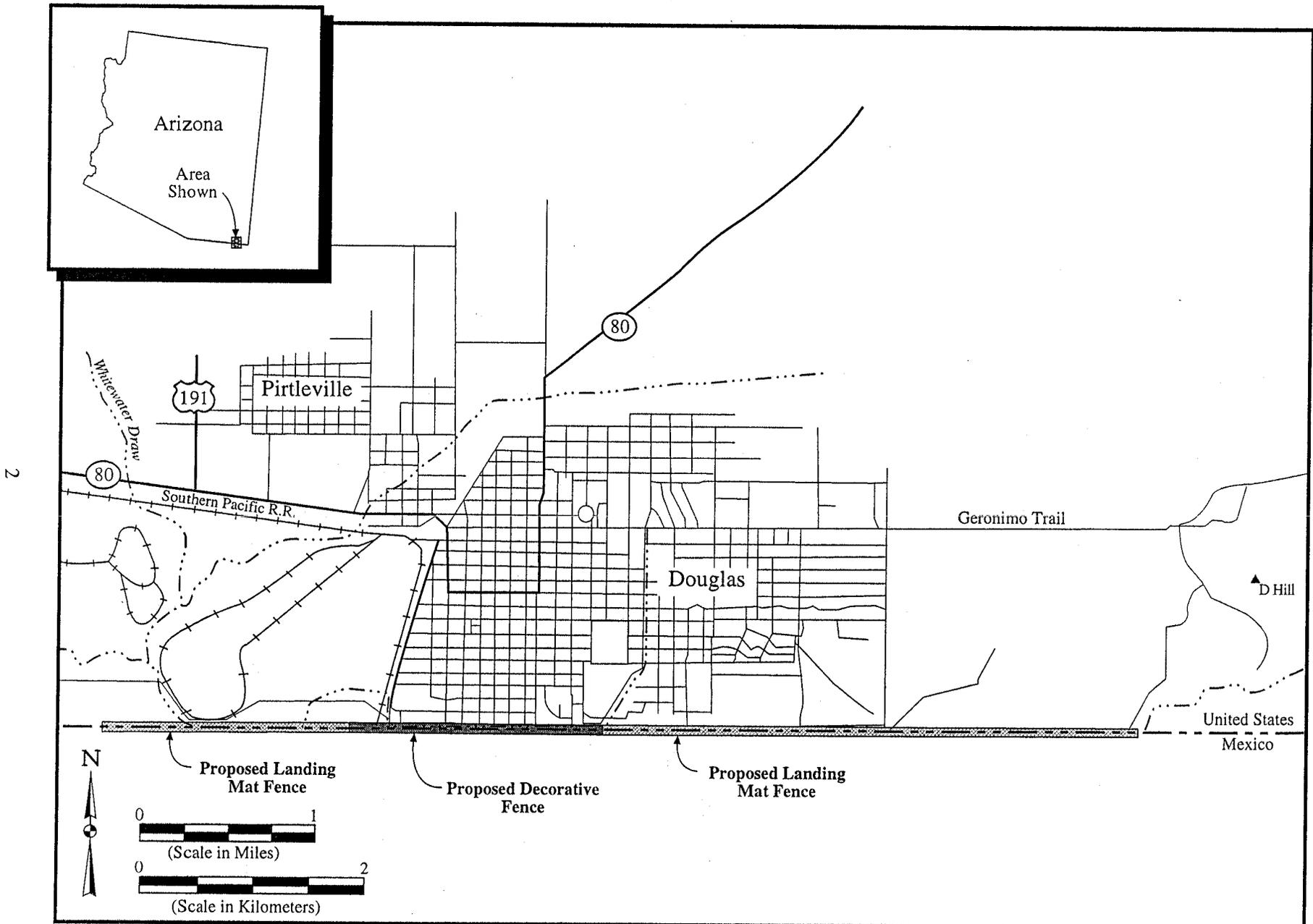


Figure 1. General location of proposed fence construction, Douglas, Arizona.

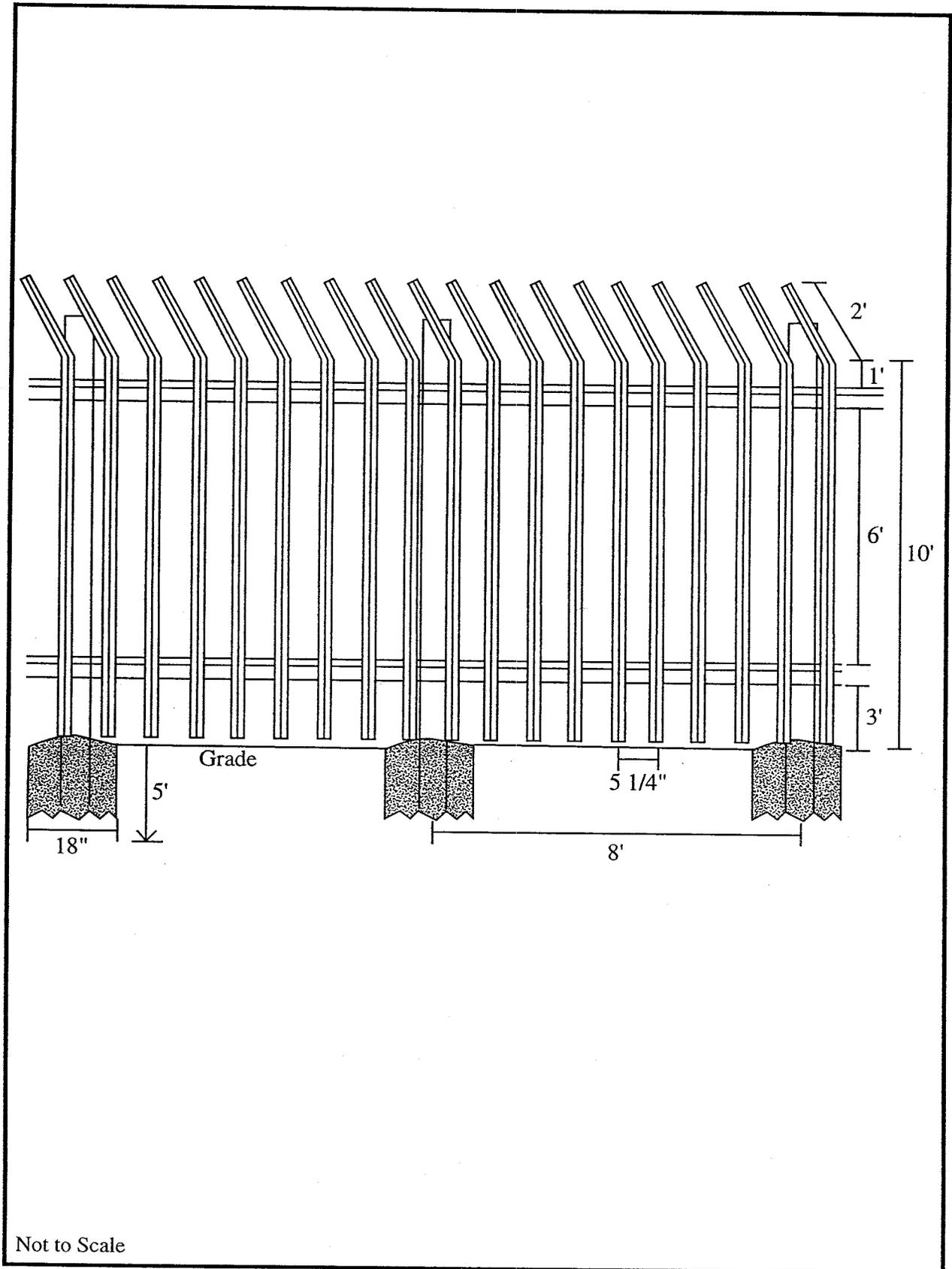


Figure 2. Decorative fence design.

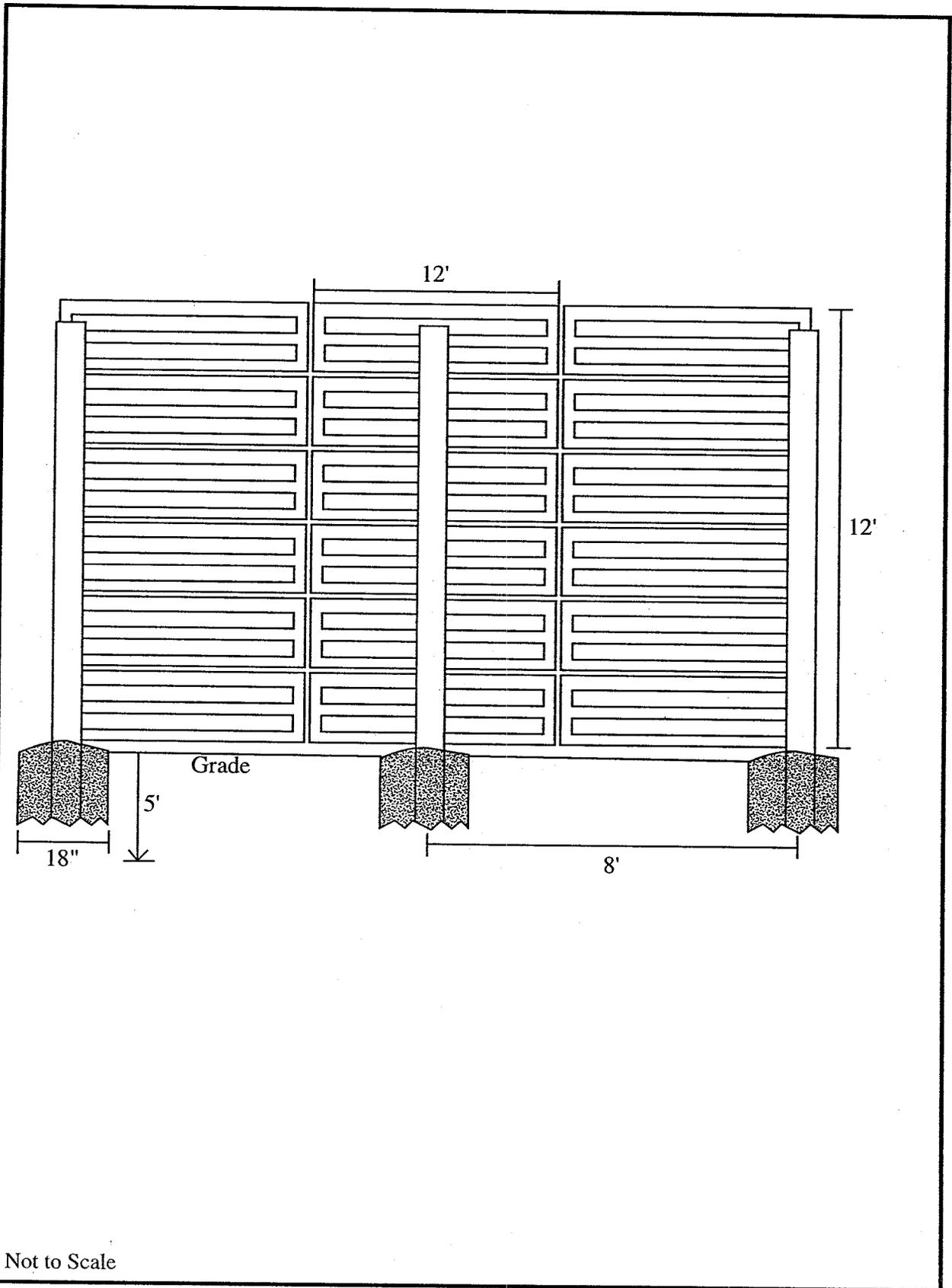


Figure 3. Steel landing mat fence design.

The soils of the project area fall into two hydrologic groups; Group C and Group D. Group C soils have a slow infiltration rate when thoroughly wetted, are chiefly soils that have a impeding downward movement of water, are moderately fine to fine textured, and have a slow infiltration rate. These soils have a slow water transmission rate.

Group D soils have a very slow infiltration rate when thoroughly wetted, are chiefly clays that have a high shrink-swell potential, and are soils that are shallow over nearly impervious material. The rate of water transmission for these soils is very slow.

The erodibility of the soils in the project area is rated as being slight to severe. This indicates that protective and corrective measures are needed before and during the time of soil use.

Table 1  
Soil Associations, Hydrologic Groups, and Erodibility  
Douglas, Arizona  
JTF-6 Fence and Road Construction Project

Soils	Hydrologic Group	Erodibility
White House-Tubac-Forrest Association; deep, well drained, nearly level to hilly, reddish brown, fine to moderately coarse textured surfaces, 0 to 30 percent slopes.	C	Slight to severe: slopes
Kimbrough-Cave Association; shallow, well drained, nearly level to moderately steep, Kimbrough soils are dark colored, Cave soils are light colored, medium textured, 0 to 25 percent slopes	D	Slight to severe

**1.1.2 Site Area**

The area potentially to be disturbed by constructing a new border fence would be seven acres. Construction activities would use existing roads therefore no areas would be impacted outside the project area boundaries.

**1.1.3 Name of Receiving Waters**

Drainage along the proposed fence and road construction area is to the west into Whitewater Draw with the exception of the very western portion of the construction area where drainage is to the east also into Whitewater Draw. Whitewater Draw is a stream just west of Douglas, AZ that is situated within Sulphur Springs Valley. Whitewater Draw flows south into Mexico.

In addition to Whitewater Draw, the fence and road construction project crosses at least one small, unnamed ephemeral stream and several small, unnamed canyons (see Figure 1 ).

## 2.0 SEQUENCE OF MAJOR ACTIVITIES

The following major activities will be implemented to reduce sediment and other pollutants in storm water discharges:

- Sensitive areas containing cultural resource sites, unique habitats, rare and endangered plants and animals, and wetlands have been identified prior to the start of construction. These field-surveyed areas will be staked and flagged as areas possibly not to be disturbed by repair and/or construction activities.
- Road construction or improvement and filling with commercially purchased soil will be accomplished using motorized equipment.
- Four 36-inch culverts will be installed where the border fence crosses an existing wash.
- Straw bale check dams and/or siltation fencing will be installed at points of water conveyance to reduce slope erosion on the fence construction areas and reduce sediment leaving the area. Figure 4 shows erosion and sediment controls.

## 2.1 Controls

### 2.1.1 Erosion Sediment Controls

Storm Water Management: Road maintenance will include grading within existing road beds and filling with commercially purchased soil. This material will be compacted to provide an almost impenetrable surface to reduce susceptibility to erosion. Bales of straw and/or a siltation fence will be staked in low areas to control surface water and sedimentation at points of conveyance and to reduce velocity of waters discharged (see Figure 4).

### 2.1.2 Waste Disposal Controls

Waste Materials: All construction waste materials (brush, paper, cloth, etc.) will be collected daily, stored in containers and disposed in an approved manner or at a state-approved landfill facility. The trash storage containers will meet all local and state solid waste management regulations. Containers will have secure, tight fitting lids and will be emptied as needed. All personnel participating in construction activities will be instructed on the procedure for waste disposal.

Hazardous Waste: All hazardous waste will be transported, handled, stored, and used in strict accordance with local, state, federal regulations and manufacturers' recommendations.

Sanitary Waste: All sanitary waste will be collected in portable units by a licensed contractor and will be disposed at a state approved facility in accordance with local and state regulations.

Off-Site Vehicle Tracking: Excess mud, dirt, or rock tracked on the public roadways will be removed daily. Excavated material will not be removed from the site.

## 2.2 Timing of Controls/Measures

As stated in the sequence of major activities. All clearing, grubbing, and control measures for storm water runoff will be done contemporaneously with construction activities.

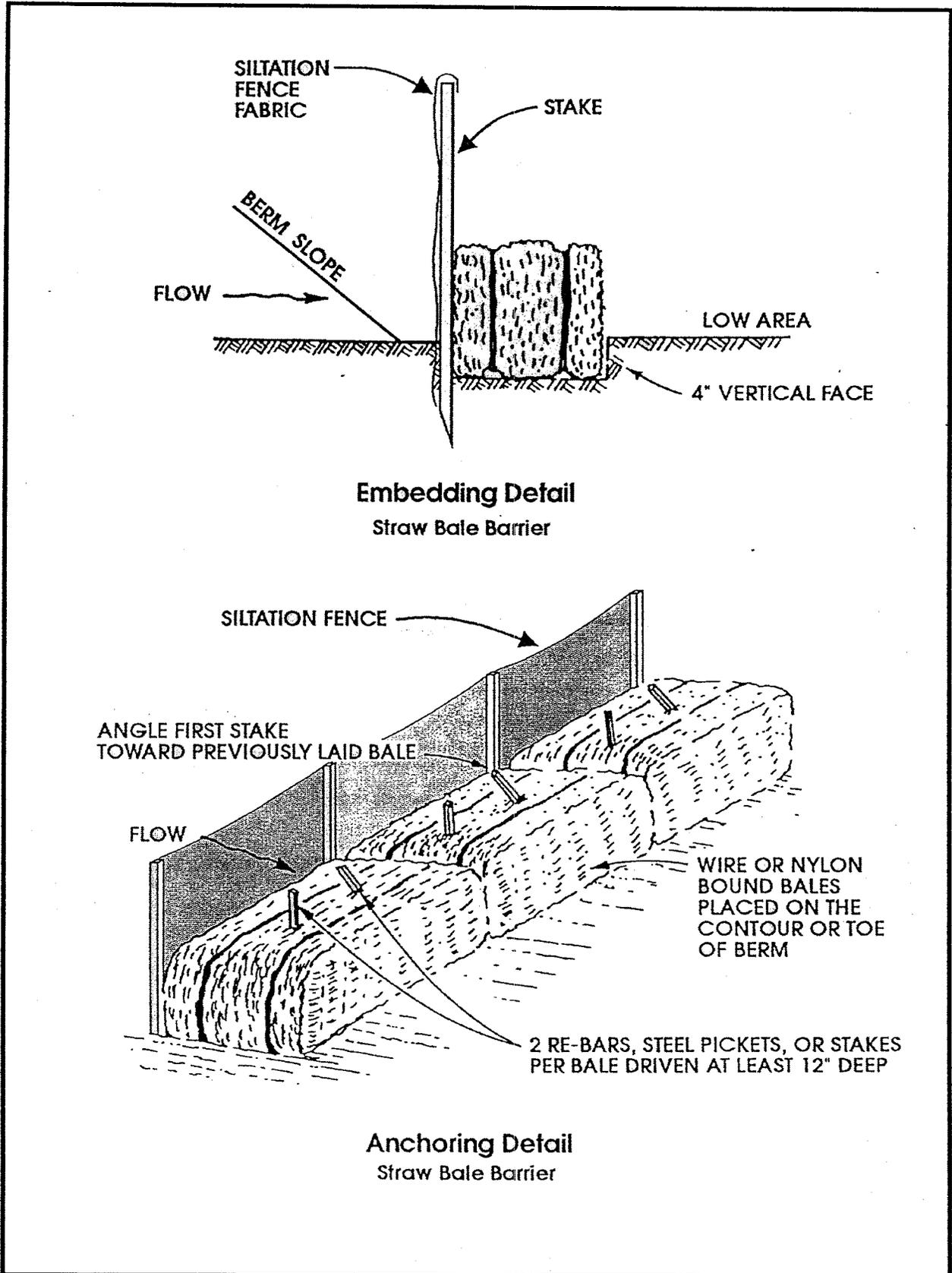


Figure 4. Erosion and sediment controls.

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### 3.0 MAINTENANCE AND INSPECTION PROCEDURES

A blank Notice of Intent (NOI) form is included as Attachment 1. This form is to be completed and submitted to the EPA; to the Storm Water Coordinator, Arizona Department of Environmental Quality; and to the local agency that approved the construction plans. The owner of the site is to submit the NOI prior to the commencement of construction. The completed form is to be inserted as Attachment 1 and is thereafter considered to be a part of this storm water pollution prevention plan. All pollution prevention measures will be inspected before anticipated storm events and after such storm events to identify areas contributing to runoff and to evaluate whether their storm water pollution prevention plan measures for reducing pollutant loadings are adequate and properly implemented (Attachment 2). The inspector will thoroughly understand the requirements of the Pollution Prevention Plan (PPP) and have a basic knowledge of engineering aspects on controlling storm water and reducing runoff pollution. Areas being regraded will be inspected for erosion and soil loss from the site. Discharge points will be inspected for signs of erosion or sediment associated with the discharge. Built up sediment will be removed when it has reached one-third the height of the siltation fence. Locations where vehicles enter and leave the site will be checked for signs of off-site sediment tracking. Best Management Practices (BMPs) and pollution control maintenance procedures will be inspected for adequacy. The PPP will be revised as necessary during the construction period (Attachments 2, 3, and 4).

#### 3.1 Inventory for Pollution Prevention Plan

The following materials have the potential to be onsite during construction of the fence:

- Diesel Fuel
- Gasoline
- Oil
- Lubricants
- Hydraulic Fluid
- Transmission Fluid
- Marking Paint

#### 3.2 Spill Prevention

##### 3.2.1 Best Management Practices

The following management practices will be implemented to reduce the risk of spills and accidental exposure of materials and substances to storm water runoff:

- Good Housekeeping: No fuel and/or maintenance materials will be stored on site after working hours. All fuel, fluids, oil and lubricants will be stored aboard designated and specially manufactured service vehicles and removed from the site after working hours.
- Hazardous Materials Storage: All hazardous products will be stored in or aboard designated and specially manufactured service vehicles. The service vehicles will be present only during the time equipment is in operation and will be removed from the site after working hours.

Products will be kept in original sealed containers, and surplus materials will be removed daily after working hours.

### 3.2.2 Product-Specific Practices

The following product-specific practices will be implemented:

- Petroleum Products: All vehicles will be stored, repaired, and refueled on site. All vehicles will be monitored for leaks during regularly scheduled preventive maintenance actions. Petroleum products will be stored in designated and specially manufactured service vehicles. All products will be kept in original sealed containers during periods of use. All empty containers will be disposed in an approved manner. Spill containment areas will be established at staging areas throughout the construction project, and all equipment will be refueled and repaired within the staging areas. All spills will be promptly cleaned up and reported to applicable regulatory agencies. Equipment will be kept within the spill containment sites to prevent spilled material from reaching and polluting drainage ways. All personnel will be briefed on spill prevention, control, and clean-up procedures. Petroleum products will not be stored on site after working hours.

**4.0 CERTIFICATION OF COMPLIANCE WITH LOCAL,  
STATE AND FEDERAL REGULATIONS**

The storm water pollution prevention plan was prepared in accordance with guidelines published in the Federal Register, Volume 57, Number 175, September 9, 1992. After construction, an Environmental Protection Agency (EPA) storm water permit for industrial operations will not be required.

## **ATTACHMENTS**

*Attachment #1 - Notice of Intent (NOI) for Construction Activity*

*Attachment #2 - Inspection and Maintenance Report Form (Rainfall Event)*

*Attachment #3 - Inspection and Maintenance Report Form (Sediment Basin)*

*Attachment #4 - Inspection and Maintenance Report Form (Changes)*

**ATTACHMENT #1**

**NOTICE OF INTENT (NOI) FOR CONSTRUCTION ACTIVITY**

NPDES  
FORM



United States Environmental Protection Agency  
Washington, DC 20460

Notice of Intent (NOI) for Storm Water Discharges Associated with Industrial  
Activity Under a NPDES General Permit

Submission of this Notice of Intent constitutes notice that the party identified in Section II of this form intends to be authorized by a NPDES permit issued for storm water discharges associated with industrial activity in the State identified in Section III of this form. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.

I. Permit Selection: You must indicate the NPDES Storm Water general permit under which you are applying for coverage. Check one of these.

Baseline Industrial

Baseline Construction

Multi-Sector (Group Permit)

II. Facility Operator Information

Name: U.S. B.O.R.D.E.R. P.A.T.R.O.L. C/O. RON SANDERS Phone: \_\_\_\_\_

Address: \_\_\_\_\_ Status of Owner/Operator:

City: TUCSON State: AZ ZIP Code: 85721

III. Facility/Site Location

Name: DOUGLAS BORDER FENCE Is the facility located on Indian Lands? (Y or N)

Address: SEE ATTACHED MAP

City: DOUGLAS State: AZ ZIP Code: 85607

Latitude: 31°2'0" Longitude: 107°13'3" Quarter: NW Section: 24 Township: 24S Range: 27E

IV. Site Activity Information

MS4 Operator Name: U.S. B.O.R.D.E.R. P.A.T.R.O.L. C/O. RON SANDERS

Receiving Water Body: \_\_\_\_\_

If you are filing as a co-permittee, enter storm water general permit number: \_\_\_\_\_

SIC or Designated Activity Code: Primary: C0 2nd: \_\_\_\_\_

Is the facility required to submit monitoring data? (1, 2, 3, or 4)  1

If You Have Another Existing NPDES Permit, Enter Permit Number: \_\_\_\_\_

Multi-Sector Permit Applicants Only:  
Based on the instructions provided in Addendum H of the Multi-Sector permit, are species identified in Addendum H in proximity to the storm water discharges to be covered under this permit, or the areas of BMP construction to control those storm water discharges? (Y or N)

Will construction (and disturbing activities) be conducted for storm water controls? (Y or N)

Is applicant subject to and in compliance with a written historic preservation agreement? (Y or N)

V. Additional Information Required for Construction Activities Only

Project Start Date: 08/01/97 Completion Date: 09/21/97 Estimated Area to be Disturbed (in Acres): 5 Is the Storm Water Pollution Prevention Plan in compliance with State and/or Local sediment and erosion plans? (Y or N)

VI. Certification:

The certification statement in Box 1 applies to all applicants.  
The certification statement in Box 2 applies only to facilities applying for the Multi-Sector storm water general permit.

BOX 1

ALL APPLICANTS:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

BOX 2

MULTI-SECTOR STORM WATER GENERAL PERMIT APPLICANTS ONLY:

I certify under penalty of law that I have read and understand the Part I.B. eligibility requirements for coverage under the Multi-Sector storm water general permit, including those requirements relating to the protection of species identified in Addendum H.

To the best of my knowledge, the discharges covered under this permit, and construction of BMPs to control storm water run-off, are not likely to and will not likely adversely affect any species identified in Addendum H of the Multi-Sector storm water general permit or are otherwise eligible for coverage due to previous authorization under the Endangered Species Act.

To the best of my knowledge, I further certify that such discharges, and construction of BMPs to control storm water run-off, do not have an effect on properties listed or eligible for listing on the National Register of Historic Places under the National Historic Preservation Act, or are otherwise eligible for coverage due to a previous agreement under the National Historic Preservation Act.

I understand that continued coverage under the Multi-Sector general permit is contingent upon maintaining eligibility as provided for in Part I.B.

Print Name: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_

**ATTACHMENT #2**

**INSPECTION AND MAINTENANCE REPORT FORM (RAINFALL EVENT)**

**STORM WATER POLLUTION PREVENTION PLAN**

**INSPECTION AND MAINTENANCE REPORT FORM**

**TO BE COMPLETED EVERY 7 DAYS AND WITHIN 24 HOURS OF  
A RAINFALL EVENT OF 0.5 INCHES OR MORE**

INSPECTOR: \_\_\_\_\_ DATE: \_\_\_\_\_

INSPECTOR'S QUALIFICATIONS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DAYS SINCE LAST RAINFALL: \_\_\_\_\_ AMOUNT OF LAST RAINFALL \_\_\_\_\_ INCHES

**STABILIZATION MEASURES**

AREA	DATE SINCE LAST DISTURBED	DATE OF NEXT DISTURBANCE	STABILIZED? (YES/NO)	STABILIZED WITH	CONDITION
BLDG. A					
BLDG. B					
BLDG. C					
PRKNG. 1					
PRKNG. 2					
GRASS 1					
GRASS 2					

STABILIZATION REQUIRED:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

TO BE PERFORMED BY: \_\_\_\_\_ ON OR BEFORE: \_\_\_\_\_

**ATTACHMENT #3**

**INSPECTION AND MAINTENANCE REPORT FORM (SEDIMENT BASIN)**

**STORM WATER POLLUTION PREVENTION PLAN  
INSPECTION AND MAINTENANCE REPORT FORM**

**SEDIMENT BASIN:**

DEPTH OF SEDIMENT IN BASIN	CONDITION OF BASIN SIDE SLOPES	ANY EVIDENCE OF OVERTOPPING OF THE EMBANKMENT?	CONDITION OF OUTFALL FROM SEDIMENT BASIN

MAINTENANCE REQUIRED FOR SEDIMENT BASIN:

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TO BE PERFORMED BY: \_\_\_\_\_ ON OR BEFORE: \_\_\_\_\_

**OTHER CONTROLS**

**STABILIZED CONSTRUCTION ENTRANCE:**

DOES MUCH SEDIMENT GET TRACKED ON TO ROAD?	IS THE GRAVEL CLEAN OR IS IT FILLED WITH SEDIMENT?	DOES ALL TRAFFIC USE THE STABILIZED ENTRANCE TO LEAVE THE SITE?	IS THE CULVERT BENEATH THE ENTRANCE WORKING?

MAINTENANCE REQUIRED FOR STABILIZED CONSTRUCTION ENTRANCE:

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TO BE PERFORMED BY: \_\_\_\_\_ ON OR BEFORE: \_\_\_\_\_

**ATTACHMENT #4**

**INSPECTION AND MAINTENANCE REPORT FORM (CHANGES)**

**STORM WATER POLLUTION PREVENTION PLAN  
INSPECTION AND MAINTENANCE REPORT FORM**

**CHANGES REQUIRED TO THE POLLUTION PREVENTION PLAN:**

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**REASONS FOR CHANGES:**

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I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**APPENDIX E  
PUBLIC COMMENTS AND RESPONSES ON THE  
DRAFT ENVIRONMENTAL ASSESSMENT**

JUN 2 5 1997

Mr. Eric Verwers  
CESWS-PL-RE  
United States Army Corps of Engineers  
Fort Worth District  
P.O. Box 17300  
Fort Worth, TX 76102-0300

Dear Mr. Verwers:

Thank you for the opportunity to review and comment on the May, 1997, Draft Supplemental Environmental Assessment for fence and border road construction at Douglas, Cochise County, Arizona. The EA was prepared for Joint Task Force Six, United States Immigration and Naturalization (INS) and United States Border Patrol (Border Patrol) by your office.

The INS and Border Patrol propose to replace about six miles of 6-strand barbed wire fence, construct 0.5 mile of new road, and improve 0.8 mile of existing road along the United States border with Mexico in the immediate vicinity of Douglas, Arizona. The six miles of fence will consist of 1.3 miles of decorative fencing and 4.9 miles of steel landing mat fencing. The purpose of this work will increase the Border Patrol's ability to complete their mission of reducing illegal drug traffic into the United States and increase the safety of citizens in Douglas. The proposed construction area encompasses some six miles of existing border fence in the Douglas area within a corridor that would be a maximum 30 feet wide.

#1 The Draft Supplemental EA informs that the project will be restricted to some six miles of existing fence right of way; however, there is no information provided regarding how far the fence will be from the international boundary. The description of the proposed action and alternatives states that construction of the fence requires leveling of existing spoil material along the fence alignment and that some of this material may be redistributed along the fence alignment as an additional deterrent.

#2 The United States Section, International Boundary and Water Commission, United States and Mexico (USIBWC), is concerned that some of the work may impact upon the international boundary monuments and markers in the area. We need to know the actual location of the alignment in relation to the international boundary, and ask that all due caution be taken not to impact these structures. The USIBWC appreciates the proposed coordination with us regarding the proper design of road drainage prior to construction to ensure that drainage will not be affected. Please contact Design Division Engineer James M. Robinson regarding this coordination. We request that specific site drawings, cross-sections, or profiles for the proposed project be provided to Mr. Robinson as soon as possible to ensure that no boundary monument and cross boundary drainage impacts will occur, and that there will be no delays in

#3

project implementation. For your information, due to the drainage problem encountered in various areas, we will have to submit the project drawings to the Mexican Section of the International Boundary and Water Commission for their review before final approval is made.

Additionally, in light of the transboundary stormwater runoff problems in Mexico associated with the construction of a metal fence along the international boundary in the area of Naco, Arizona/Naco, Sonora, which were brought to your attention by USIBWC correspondence in January, 1997, we recommend careful review of the methods and procedures outlined in the Stormwater Pollution Prevention Plan, and field implementation measures, to ensure that similar damages to area properties are prevented. We recommend adequate documentation of the site conditions prior to the commencement of construction activities. Finally, we continue to wait for a response to our inquiry regarding policies and procedures for compensating Mexico for the damages caused by the fence construction in Naco. We will forward your response concerning this compensation to Mexico upon receipt.

Thank you for the opportunity to review and comment on the Draft Supplemental EA for the proposed JTF-6 border fence and road construction in Douglas, Arizona. Please notify Mr. Stephen Tencza, Project Manager, USIBWC Nogales Field Office at 520/281-1832, thirty (30) days prior to the construction start date. If you have any questions regarding these comments, please call me at 915/534-6704. Also, please provide me with two copies of the Final Supplemental EA when it is available, and provide one copy to Mr. Tencza, USIBWC Field Office, P.O. Box 6759, Nogales, Arizona. We want to work with you to ensure that international impacts are not caused by the proposed action.

Sincerely,

Douglas Echlin  
Environmental Protection Specialist

bcc: Marin Farran Robinson Rubio Echlin Tencza/Nogales

DE:YEP:JMR:MR:CM: de:ljw

97164IBW0003

June 13, 1997

## **RESPONSES TO COMMENTS**

### **Comments from International Boundary and Water Commission**

**#1** A sentence was added to the description of the proposed action clarifying the new fence would be constructed approximately two feet north of the international boundary.

**#2** See comment #1.

**#3** Coordination with IBWC will be through Design Division Engineer James M. Robinson.

July 7, 1997

Eric Verwers  
CESWF-PL-RE  
Fort Worth District, Corps of Engineers  
P.O. Box 17300  
Fort Worth, Texas 76102-0300

RE: Cochise County; Draft Supplemental Environmental Assessment, JTF-6  
Fence and Road Construction; DOD-Corps

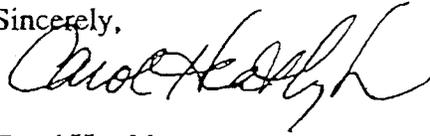
Dear Mr. Verwers,

Thank you for providing our office with a copy of the above-referenced draft. Based on my review of that document, I have the following questions or comments regarding cultural resources that might be impacted by the proposed undertaking.

1. What is the relationship between the sites recorded by GMI in 1996 and the project area covered by the supplemental DEA? Four sites were located by that survey; two were considered eligible for inclusion on the National Register of Historic Places and two were considered potentially eligible. These sites are not mentioned in the draft, although the survey report is referenced.
2. The draft indicates that all register-eligible properties within the proposed construction area will be avoided.

We appreciate your continued cooperation with this office in considering the impact of Federal undertakings on historic preservation. Please call me at (602) 542-7137 if you have questions or concerns.

Sincerely,

  
Carol Heathington  
Compliance Specialist  
State Historic Preservation Office



Fife Symington  
Governor

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BOARD MEMBERS

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Director's Office Fax:  
602-542-4188

## RESPONSES TO COMMENTS

### Comments from the State Historic Preservation Office

#1 The four sites located during the 1996 survey are not within the proposed action area of the recent project, therefore, these sites are not mentioned in this Supplemental Environmental Assessment. Those four sites were the only sites recorded for the first time during the 1996 survey; the 1996 survey encompassed a 52-mile area starting approximately three miles east of Douglas west to the San Pedro River. Other sites were located prior to the 1996 survey; six of these sites are present within the proposed action area for the current project. Three of the six sites are considered eligible or potentially eligible for inclusion in the NRHP. A description of these sites can be found in Section 3.5.2 of this document.

#2 Those sites considered eligible or potentially eligible would be specifically avoided. However, all sites located within the proposed construction area would also be avoided, if possible.